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

Factory Pipe
Bill of Materials
1996-Up 701 SuperJet Limited

Item#	Qty.	Part Number	Part Description
1	1	COMCST0040	B Headpipe - 701 Yamaha all/XIR
2	1	COMCH70102	701 SuperJet LTD chamber only
3	1	COMCST0210	701 WaveBlaster/ SJ/ FX-1 manifold
-	1	COMASM0350	96 701 SuperJet hardware kit (items **4-7 and 9-17)**
4	1	COMHOS0100	4" Silicone coupler (2 1/16")
5	2	COMCLP0050	100-120mm hose clamp (4")
6	1	COMFTG0060	3/8" Plastic "T"
7	1	COMFTG0110	Side squirter (3/8"hose)
8	1	COMHOS0135	Elbow hose cut for 96 701 SJ LTD
9	1	COMHOS0030	3/8" X 10" Waterline
10	1	COMHOS0045	3/8" X 13" Waterline
11	8	COMCLP0010	#06 SS hose clamp (3/8")
12	1	COMFTG0120	1/8" Vinyl cap
13	3	COMFAS0050	10mm x 1.25 x 40mm Long flanged bolt
14	1	COMGAS0010	3 Bolt headpipe gasket
15	1	COMGAS0050	701 Yamaha manifold gasket
16	3	COMFAS0040	10mm Lock washer (.691 OD)
17	1	COMFAS0210	4" Plastic zip tie

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 ADJUSTMENT PRIOR TO INSTALLATION AND RE-LUBRICATE THEM ON A REGULAR BASIS TO PREVENT BINDING IN HEADPIPE.

Factory Pipe
Instructions
1996-Up 701 SuperJet

Remove the stock exhaust system. If you are going to replace your stock waterbox do so now, if not, do not remove it. Factory Pipe offers a performance waterbox to compliment this system. Remove the battery, battery box and the empty fuel tank. Note - you may be tempted to install the pipe without removing the gas tank and battery, it's not worth it!

Thoroughly clean the old gasket material from the cylinder, you may want to place a shop towel under the cylinder to catch any fallen gasket material. Apply Loctite 242 on two of the stock 8mm exhaust bolts. Install the two bolts (top center), with the manifold gasket (item #15) onto the cylinder. Run the bolts in until no threads are showing.

Attach the cooling line from the jet pump to the barbed fitting on the bottom of the Factory Pipe exhaust manifold (item #3) and secure it with a #6 hose clamp before installing the manifold. Install the manifold onto the cylinder and secure it with the remaining stock bolts using Loctite #242. Torque to 13ft-lb.

Clean the Factory Pipe chamber (item #2) and 4" silicone coupler (item #4). Install the 4" coupler on the chamber (apply Windex or soapy water) and use one of the 100-120mm hose clamps (item #5) to secure it. Position the clamp so that it will be accessible later. The edge of the coupler should be even with the edge of the chamber lip.

Install the Factory Pipe elbow (item #8) on the waterbox loosely with the stock hose clamp.

Insert the Factory Pipe stinger into the open end of the elbow. Loosely secure it with the stock hose clamps. Rotate the body until it clears the side of the hull and motor mount. Install the 3/8" plastic AT@ (item #6) in line with the stock waterline. Install the 3/8" X 10" waterline (item #9) from the middle leg of the AT@ to the stinger inlet, secure all water lines with a #6 hose clamp.

Replace the stock Yamaha side squirter with the aluminum side squirter supplied (item #7). If you are racing in the limited class leave the stock one in place.

Slide the remaining 100-120 mm hose clamp (item #5) around the 4" coupler and apply Windex or soapy water to the coupler.

Now would be the best time to check the water injection set screws. For the 701 SuperJet we suggest closing the top and middle screws and opening the bottom screw 3/4 turn. You may adjust this later on to suit your riding style.

Remove the stock water line AT@ near the cylinder head and discard the two short hoses. Attach the remaining water line to the Factory Pipe headpipe (item #1) and secure with a #6 hose clamp. Face the barbed fitting toward the back of the boat.

Insert the Factory Pipe headpipe into the coupler. Use Windex or soapy water to help installation. Install the headpipe gasket, three 10 x 1.25 x 40mm bolts and 10mm lock washers (items #14,13,16). Loctite and torque to 30 ft.-lb.

Note: It is very important that the headpipe and chamber seat flush and tight inside the coupler. Otherwise, loss of performance and coupler failure may occur.

At this point rotate the chamber around until the best fit can be achieved (the pipe should clear the motor mount by a 1/4" or better). You can usually get more clearance by raising the stinger end of the pipe where it enters the elbow at the waterbox. Tighten both 100-120mm coupler hose clamps (item #5) and both elbow hose clamps.

Install the 3/8 X 13" waterline (item #10) from the cylinder head fitting to the top barbed fitting on the headpipe and secure both with #6 hose clamps.

Install the 1/8 cap (item #12) on to the vent on the cylinder head, fasten with the supplied zip tie (item #17). Now is the time to go back and check all the hose clamps and bolts. Reinstall the battery and fuel tank.

Note - You must rotate the stock breather hose in the hood 180 degrees to provide proper clearance for the Factory Pipe.

Carb Adjustments:

These adjustments are for 730 feet above sea level on a <u>stock</u> <u>engine</u> with aftermarket flame arrestors. Your specific adjustments may vary depending on engine modifications, fuel, altitude and other variables. Please consult a qualified technician if you are not familiar with tuning your carburetor. These changes must be made prior to running the engine.

Main Jet: 135 (130 stock)
Pilot Jet: 70 (stock)
High speed screw: 1 2 turns out from closed
Low speed screw: 1 1/4 turns out form closed
Needle & Seat: stock (55 psi)
Spring: Stock (95 gram)

Factory Pipe
Performance Exhaust 101

The purpose of an expansion chamber is to return to the exhaust port a negative sound wave then a positive sound wave at precisely the right time. If the pressure wave returns too late, you lose some of the fresh fuel charge in the combustion chamber and performance. If the wave returns too soon, it pushes hot exhaust gas back into the combustion chamber contaminating the fresh charge and creating hot spots on the piston. The challenge to the pipe designer is to arrive at the proper exhaust tuning that will return the sonic waves at the correct time. This challenge 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 cut 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.**

Factory Pipe
Tuning Your Exhaust System

Most Factory Pipe systems have our exclusive tunable 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 on-water test of your new Factory Pipe we recommend closing the top and middle adjustment screws and opening the bottom screw 3/4 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 while varying the throttle position. 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</u> <u>not</u>** sizzle, close the bottom adjustment screw 1/8 turn and retest. If the water **<u>sizzles</u> <u>rapidly,</u>** open the bottom 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, open the top screw 1/4 turn. This will cool the exhaust in the headpipe 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.

If you want a change that is somewhere in the middle of the two settings, close the top screw and open the middle screw 1/4 turn or add another 1/8 turn to the bottom screw.

Some engines may react differently from the above. For example, while testing the 650 Super Jet we found that we gained top end performance by running the top screw open and the others closed. You may use any combination of the three screws to achieve the desired performance. However, **AT LEAST ONE SCREW MUST REMAIN OPEN AT ALL TIMES TO PREVENT DAMAGE TO THE PIPE.**