

***** F OR COMPETITION USE ONLY Per US EPA Regulations *****

Factory Pipe
Bill of Materials
701 FX-1

<u>Item#</u>	<u>Qty.</u>	<u>Part Number</u>	<u>Part Description</u>
1	1	COMCST0040	B style headpipe -701 Yamaha all/XIR
2	1	COMCH70104	701 FX-1 Chamber only
3	1	COMCST0210	701 WaveBlaster/SJ/FX-1 manifold
-	1	COMASM0070	701 SuperJet/FX-1 hardware kit (Items 4-18)
4	1	COMHOS0100	4" Silicone coupler (2-1/16")
5	2	COMCLP0050	100-120mm SS hose clamp (4")
6	1	COMFTG0060	3/8" Plastic "T"
7	1	COMFTG0110	Side squirter (3/8" hose)
8	1	COMHOS0003	3/8" X 3" Waterline
9	1	COMHOS0030	3/8" X 10" Waterline
10	1	COMHOS0045	3/8" X 13" Waterline
11	1	COMHOS0062	3/8" X 25" Waterline
12	8	COMCLP0010	#06 SS hose clamp (3/8")
13	1	COMFTG0120	1/8" Vinyl cap
14	3	COMFAS0050	10mm x 1.25 x 40mm Long flanged bolt
15	1	COMGAS0010	3 Bolt headpipe gasket
16	1	COMGAS0050	701 Yamaha manifold gasket
17	3	COMFAS0040	10mm Lock washer (.691"OD) S.S.
18	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
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Remove the stock exhaust system. Remove the battery, battery box and the empty fuel tank.
NOTE! You may be tempted to install the pipe without removing the fuel tank and battery, it's not worth it!

Cut the stock hose that goes to the waterbox as per drawing "FX-1Hose". Reinstall the hose. Replace the stock Yamaha side squirter with the aluminum side squirter (item #7)

Thoroughly clean all gasket material from cylinder. Install the exhaust manifold gasket (item #16) with two of the stock 8mm bolts in the top two inside tapped holes. Use Loctite 242 and thread these bolts in about 2" from the gasket surface. Attach the cooling line from the pump to the barbed fitting on the Factory Pipe exhaust manifold (item #3) and secure with a #6 hose clamp (item #12). Install the manifold onto the cylinder and secure with the remaining stock 8mm bolts and Loctite 242. Torque to 13 ft.-lb.

NOTE: **Never use oil on hoses or couplers during assembly. Make sure they are free of oil and dirt.**

Clean the Factory Pipe headpipe (item #1) and the 4" silicone coupler (item #4). Install the 4" silicone hose on the headpipe and secure with one of the 100-120mm hose clamps (item #5). The clamps should be installed at the one o'clock position with the middle injection screw being twelve o'clock. This will make them accessible after installation into the hull. The clamps should be about 1/8" from the end of the silicone hose. Now would be the best time to check the water injection screw settings. For the 701 Super Jet we recommend closing the top and middle screws and opening the bottom screw 1 turn.

Warning! **Never close all 3 screws simultaneously!!** **This will cause the pipe to overheat and will cause damage.**

Install the 3/8" x 25" waterline (item #11) to the barbed fitting on the bottom of the headpipe. Secure with a #6 hose clamp. Install the 3/8" plastic "T" (item #6) to the remaining end of the 25" hose as per drawing "TIPS AND TRICKS".

Install the Factory Pipe headpipe using the 3 bolt headpipe gasket (item #15), and the 10 x 1.25 x 40mm bolts and washers (item #14,17). Use Loctite 242 and torque to 30 ft.-lb.

Slip the remaining 100-120mm clamp over the 4" coupler on the headpipe. Slide the chamber (item # 2) into the 4" silicone coupler until the chamber contacts the headpipe. Use only water or Windex if required.

IT IS VERY IMPORTANT THAT THE HEADPIPE AND CHAMBER SEAT FLUSH AND TIGHT INSIDE THE COUPLER. OTHERWISE, LOSS OF PERFORMANCE AND COUPLER FAILURE MAY RESULT.

Insert the stinger end of the chamber into the hose going to the waterbox. Rotate the chamber body until it clears the side of the hull and the motor mount. The pipe should clear the motor mount by a 1/4" or better, if the pipe is too close to the motor mount it will eventually wear a hole in the pipe. You can usually get more clearance by raising the stinger end of the pipe where it enters the hose that goes to the waterbox. If the chamber is still too close, you can put a dent in the pipe without adversely affecting performance or your warranty. After alignment, tighten the 100-120mm clamp and the stock clamp on the stinger hose. Check clearance around the chamber.

Install the 3/8" x 13" waterline (item #10) from the cylinder head to the top barbed fitting on the headpipe. Secure both with a #6 clamp. Install the 3/8" x 10" (item #9) waterline from the stinger inlet to the middle leg of the "T" as per drawing "TIPS AND TRICKS". Install the 3/8" x 3" waterline (item #8) from the "T" to the side squirter. Install the 1/8" cap on to the vent on the cylinder head and secure with the supplied zip tie (item #13,18).

Carb Adjustments:

These adjustments are for sea level on a stock engine 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.

Main jet : 145

Pilot Jet : 120

High speed screw : 1 2 turns out from closed

Low speed screw : 2 2 turns out from closed

Needle & Seat : Stock

Spring : 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 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.**

Factory Pipe Tuning Your Exhaust System

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 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 should lightly sizzle for the first few inches on the chamber body.**

If the water **does not** sizzle, close the bottom adjustment screw 1/8 turn and retest. If the water **sizzles rapidly**, 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.**