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

Factory Pipe
Bill of Materials
701 WaveBlaster Mod

Item#	Qty.	Part Number	Part Description
1	1	COMCST0040	B style headpipe-701 Yamaha all/XIR
2	1	COMCH70105	701 WaveRaider/Blaster Mod chamber
3	1	COMCST0210	701 WaveBlaster/SJ/FX-1 manifold
-	1	COMASM0085	701 Blaster Mod hardware kit (Items 4-13&15-29)
4	1	COMFTG0120	1/8" Vinyl cap
5	1	COMFAS0210	4" Plastic zip tie
6	1	COMHOS0004	3/8" x 4" Waterline
7	1	COMHOS0045	3/8" x 13" Waterline
8	2	COMHOS0061	3/8" x 21" Waterline
9	1	COMBRK0090	Front engine bracket Raider/Blaster Mod
10	1	COMBRK0080	L Bracket Raider/Blaster Mod
11	2	COMCLP0050	100-120 SS hose clamp (4")
12	1	COMHOS0100	4" Silicone coupler (2-1/6")
13	1	COMCLP0020	#32 Stainless hose clamp (2")
14	1	COMHOS0130	Elbow hose for Mod Blaster
15	8	COMCLP0010	#6 High torque SS hose clamp (3/8")
16	1	COMFTG0060	3/8" Plastic T
17	1	COMFTG0110	Side squirter (3/8" hose)
19	1	COMGAS0010	3 Bolt headpipe gasket
20	1	COMGAS0050	701 Yamaha manifold gasket
21	3	COMFAS0090	3/8"-16 SS nut
22	4	COMFAS0070	3/8" Ext. tooth washer SS
23	1	COMFAS0100	3/8-16 x 3/4" Hex head bolt SS
24	2	COMFAS0200	Fiber insulating washer
25	1	COMMNT0040	#J-11729-123 Lord mount
26	1	COMFAS0045	10mm x 1.25 x 25mm Flanged head cap
27	3	COMFAS0050	10mm x 1.25 x 40mm flanged head cap
28	4	COMFAS0040	10mm Lock washer (.691"OD) SS
29	1	COMMNT0030	#J-11729-177 Lord mount

< **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
701 WaveBlaster Mod

Note: This exhaust system will perform best on watercraft with a modified and ported engine.

Remove the complete exhaust system excluding waterbox. If you are going to replace the waterbox, do so now. Factory Pipe offers a waterbox to compliment this system. Remove the top hose from the waterbox and retain the clamp. Clean all gasket material from cylinder.

Attach the stock 3/8" cooling line from the pump to barbed fitting on the Factory Pipe exhaust manifold (item #3) and secure with a #6 hose clamp (item #15). Install the supplied manifold/cylinder gasket (item #20) using two stock bolts in the top center holes of the cylinder. Thread these bolts in halfway and then install the Factory Pipe exhaust manifold using remaining stock bolts and Loctite 242, torque to 13 ft.-lbs.

Note: Never use oil on hoses or couplers during assembly. Use only water, Windex or dish soap if lubrication is required.

Attach the 3/8" x 21" waterline (item #8) to the bottom (near 4" opening) barbed fitting on the Factory Pipe headpipe (item #1) using a supplied #6 hose clamp. Install the 4" silicone coupler (item #12) to the headpipe and secure with a 100-120mm hose clamp (item #11). Position the clamp so that it will be accessible after installation in the hull. Now would be the time to check the water injection screws in the headpipe. We recommend starting with the top and middle screw closed and the bottom screw open 1 turn. You may adjust this later on to suit your riding style. Install the Factory Pipe headpipe to the manifold using the 650 headpipe gasket (item #19). Secure with the 10 x 1.25 x 40mm flanged bolts (item #27) and 10mm lock washers (item #28) using Loctite 242 and torque to 32 ft.-lbs.

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

Install the mag cover bracket (item #9) to the right side of the flywheel cover with slot facing up using the stock bolts and Loctite 242, torque to 5 ft.-lbs. Install the cylinder bracket "L" (item #10) to the front 10mm hole above exhaust manifold on cylinder. With the 3/8" slot facing up, secure bracket with the 10 x 25mm bolt (item #26) and 10mm lock washer (item #28) using Loctite 242, torque to 29 ft.-lbs. Loosely install the Lord mount 177 (item #29) into the front mag bracket slot using the 3/8"-16 hardware (item #21,22). Install the Lord mount 123 (item #25) on the cylinder AL@ bracket with the 3/8-16 hardware (item #21,22). Install a fiber insulating washer (item #24) on the Lord mount 123 stud but do not put hardware on at this time.

Install the elbow hose (item #14) on the waterbox using the stock clamp and leave loose. Slip the #32 hose clamp (item #13) over the elbow hose and the other 100-120mm hose clamp (item #11) over the 4" headpipe coupler. Using some water or Windex, install the chamber into the 4" coupler on the headpipe. Rotate and adjust chamber until the brackets align with the Lord

mounts and the elbow hose aligns with the waterbox.

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

Tighten remaining 100-120 hose clamp. Secure cylinder Lord mount with 3/8-16 hardware (item #21,22) and front mag Lord mount with 3/8-16 x 1" bolt and star washer (item #22,23). Do not over tighten Lord mounts or use Loctite.

Install one end (not middle leg) of the 3/8" plastic "T" (item #16) to the remaining end of the 3/8" x 21" waterline from the headpipe and secure with a #6 hose clamp. Attach the 3/8" x 4" waterline (item #6) to the middle leg of the "T" and secure with a #6 hose clamp. Install the supplied side squirter (item #17) in desired position if you do not already have one. Attach the remaining 3/8" x 21" waterline to the side squirter and remaining end of plastic "T" and secure with #6 hose clamps. Install the other end of the 3/8" x 4" waterline from "T" to the inlet on chamber body and secure with a #6 hose clamp. Attach the 3/8" x 13" waterline (item #7) to the top fitting on the Factory Pipe headpipe and the remaining end to the front fitting on the cylinder head and secure both with a #6 hose clamp. Rotate the long vent hose 90 degrees to clear the chamber when closing the hood.

Carb Adjustments:

These adjustments are for a <u>stock engine</u>. 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.

701 WaveBlaster Mod (single carb)
Main Jet: 145
Pilot Jet: 120
High Speed Screw: 1 turn out
Low Speed Screw: 1-1/4 turn out
Needle & Seat: Stock
Spring: 95 gram

1996 701 WaveBlaster Mod (dual carb)
Main Jet: 140
Pilot Jet: 70
High Speed Screw: 1-1/8 turn out
Low Speed Screw: 7/8
Needle & Seat: Stock 1.5
Spring: 115 gram

Comments: Mod applications will require different jetting

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. 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 <u>should</u> lightly sizzle for the first few inches on the chamber body.**

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