

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

**Factory Pipe**  
**Bill of Materials**  
**Universal ECWI® Kit**

| <b><u>Item#</u></b> | <b><u>Qty.</u></b> | <b><u>Part#</u></b> | <b><u>Part Description</u></b>                            |
|---------------------|--------------------|---------------------|---|
| 1                   | 1                  | COMASM0152          | Universal ECWI® Filter-Solenoid Assy (Includes Items 2-9) |
| 2                   | 1                  | COMHOS0175          | 1/4" x 36" Silicone Waterline                             |
| 3                   | 1                  | COMCLP0010          | #06 SS Hose Clamp (3/8")                                  |
| 4                   | 1                  | COMFTG0010          | 1/8" NPT x 1/4" Hose Fitting                              |
| 5                   | 1                  | COMFTG00045         | 1/8" NPT Pipe Nipple with 5mm                             |
| 6                   | 1                  | COMFTG0090          | 1/8" NPT Pipe Plug  |
| 7                   | 1                  | COMFTG0006          | 1/8" NPT 12VDC N/C Solenoid Valve                         |
| 8                   | 1                  | COMCRB0130          | 120 Mikuni Main Jet                                       |
| 9                   | 1                  | COMASM0145          | Universal filter block assy.                              |
| 10                  | 1                  | COMFTG0015          | 1/8" NPT x 1/4" Fitting w/Sprayer                         |
| 11                  | 1                  | COMIGN0008          | Programmable Universal Water Control                      |
| 12                  | 2                  | COMCLP0012          | SS Hose Clamp (1/2")                                      |
| 13                  | 2                  | COMCLP0007          | #04 SS Hose Clamp (1/4")                                  |

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

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

**Factory Pipe**  
**Instructions**  
**Universal ECWI® Kit**

The Factory Pipe Electronically Controlled Water Injection (ECWI®) Kit can be installed on most all Factory Pipes that use either the standard (Kawasaki) or AB@ style (Yamaha) headpipe. It is also suitable for most other aftermarket and stock exhaust pipes. The installation of this kit requires some minor machine work (drill and tap) to the pipe as well as some disassembly of the exhaust system.

Disconnect the battery cables from the battery. Remove whatever is required, depending on your exhaust system, to access and remove the headpipe.

**Do not attempt to drill & tap the headpipe while it is installed on the engine. Doing so may cause metal chips from this operation to go inside your cylinders causing severe damage.**

**Illustration #1** shows the location of the tapped hole for the 1/8" NPT x 1/4" Fitting w/Sprayer (Item#10) on a standard Factory Pipe 3-bolt headpipe. This area of the headpipe is solid and does not have any water jackets. This is the only area we recommend drilling & tapping for the sprayer on a Factory Pipe system. Most other stock or aftermarket pipes will also have a solid area at the mounting point to the manifold. The closer to the source (exhaust ports) the water can be injected, the more effect it will have. However, mounting the sprayer too close to the ports may allow water into the engine in some situations and should be avoided. The sprayer must also be located prior (closer to the exhaust ports) than any fixed water injection hole in the pipe. Locate this point on your headpipe and mark it with a center punch.

**Before drilling the hole, align the headpipe on the manifold and check that the marked location will provide clearance for the fitting and the attached hose.**

Drill an 11/32" hole (you may use a smaller Apilot@ drill first) completely through the cast flange and into the exhaust passage. Tap this hole from the outside using a 1/8" NPT tap. Check the depth of the threads as you are tapping by removing the tap and hand installing the 1/8" NPT x 1/4" Fitting w/Sprayer (Item#10). It should thread in almost the entire depth of the threads (2-3 threads still showing). Be careful not to tap the hole too deep or the fitting will not seat correctly. Remove any burrs and clean all metal chips from the headpipe.

Install the 1/8" NPT x 1/4" Fitting w/Sprayer (Item#10) into the headpipe using Teflon tape or some pipe thread sealant. You will notice that the sprayer slot is cut on an angle. This is the direction the water sprays into the exhaust passage. **The sprayer slot must point up into the headpipe with the flow of exhaust. Do not point the sprayer down in the direction of the manifold.** Tighten the sprayer into the headpipe until the slot is pointing in the correct direction and the sprayer is secure.

You will need to choose a high pressure waterline to supply the filter-solenoid assembly. We recommend using the main cooling line directly from the pump. Find a suitable location and cut the waterline (remember that the 1/4" silicone hose must reach the sprayer fitting and the solenoid wires must reach the connector from the water controller). Slide a #6 hose clamp (Item#12) on each side of the cut waterline and install the filter-solenoid assembly into the waterline with the threaded cap end as the Ainlet@ side. Secure the 1/2" hose clamps. **Note- The filter-solenoid assembly ends are 2" diameter but will accept 3/8" waterline.**

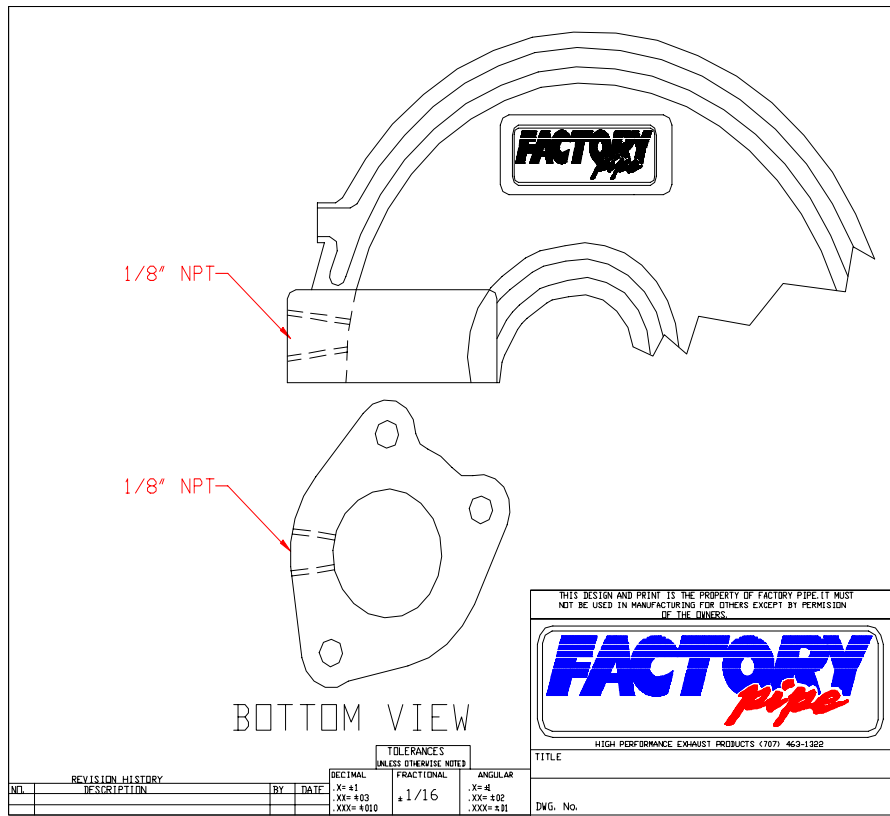
Reinstall the headpipe and torque the bolts to the recommended spec (32 ft. lbs. for 10mm bolts). Slide a #4 hose clamp (Item#12) over the end of the 1/4" x 36" silicone hose from the filter-solenoid assembly and attach the hose to the sprayer fitting in headpipe. Secure the #4 clamp. Reinstall all other components of your exhaust system that required removal for access to the headpipe. Double check that all hoses, clamps and brackets have been resecured.

### **INSTALLING THE PROGRAMMABLE WATER CONTROLLER**

Find a suitable location to install the Programmable Water Controller (Item#11) on your particular watercraft. Make sure the location you choose allows the wires to reach the battery and the injection solenoid mounted in the filter-solenoid assembly. The battery compartment, or under the battery strap, is an ideal spot many watercraft. Try to locate the controller as far away from the electrical box as possible to avoid RF interference. Wire the controller as per the included instructions. Double check your wiring and all connectors. Secure all wires so that they are clear of any potential damage from heat or moving parts in the engine compartment.

#### **IMPORTANT NOTES:**

- 1. Always run resistor type spark plugs to reduce the RF (radio frequency) interference to the Programmable Water Controller. Interference may cause the switch to turn the solenoid on/off at the incorrect rpm setting.**
- 2. Never run the pipe completely dry. There must be one or more permanent water injection holes in the pipe to provide cooling when the ECWI® is off. Running the pipe dry will cause damage to the pipe and engine.**
- 3. Be sure the spray nozzle is pointed in the direction of the exhaust flow. Do not point the spray downward into the manifold.**



### Illustration #1

#### Location of 1/8" NPT tapped hole for solenoid installation

**Note:** Before drilling hole mark the location with a center punch or black marker. Align headpipe on manifold and hold sprayer against mark. Check that the marked location provides adequate clearance for the sprayer and installation of the waterline. Several Factory Pipe systems use a cylinder bracket and this location may interfere.