

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

Factory Pipe
Bill of Materials
Kawasaki Ultra 150 Triple Pipe

<u>Item</u>	<u>Qty</u>	<u>Part Number</u>	<u>Part Description</u>
1	1	COMASM0947	Ultra 150 PTO Chamber assembly
2	1	COMASM0936	STX-R CTR Chamber assembly
3	1	COMASM0946	Ultra 150 MAG Chamber assembly
4	1	COMASM0948	Ultra 150 Collector assembly
5	1	COMASM0949	Ultra 150 Center stinger assembly
6	2	COMASM0941	STX-R MAG/CTR Flange assembly
7	1	COMASM0942	STX-R PTO Flange assembly
8	1	COMASM0943	STX-R Flange water bypass assembly
9	1	COMASM0944	STX-R Inline water assembly
-	1	COMASM0951	Ultra 150 Hardware kit (includes items 10-58)
10-12	3	COMHOS0053	3/8" x 15" Waterline
13	1	COMHOSA180	1/4" x 24" Waterline
14	3	COMFTG0023	1/8" BSP x 3/8" Hose ftg strt
15	1	COMBRK0225	STX-R/Ultra 150 Throttle cable bracket
16	1	COMBRK0221	STX-R/Ultra 150 MAG Pipe crank case mount bk
17	1	COMBRK0224	STX-R/Ultra 150 MAG Pipe to housing brk
18	1	COMBRK0222	STX-R/Ultra 150 MAG Rear mount bracket
19	1	COMBRK0223	STX-R/Ultra 150 CTR Front head bracket
20	2	COMBRK0220	STX-R/Ultra 150 CTR Head bracket
21	8	COMCLP0007	#4 S.S. hose clamp (1/4")
22	12	COMCLP0010	#6 S.S. hose clamp (3/8")
23	6	COMFAS0001	2 Hole spring hook S.S. (8mm)
24	6	COMASM0790	Spring w/clear hose cover
25	6	COMFAS0023	8mm x 1.25 x 35mm Socket head S.S.
26	3	COMFAS0026	8mm x 1.25 x 40mm Socket head bolt
27	3	COMFAS0036	8mm Flat washer S.S.
28	5	COMFAS0205	Fiber washer w/1-1/2" OD
29	3	COMMNT0052	#J-11729-190 Lord mount
30	5	COMMNT0030	#J-11729-177 Lord mount
31	2	COMFAS0045	10mm x 1.25 x 20mm Flange head cap
32	5	COMFAS0090	3/8"-16 SS Nut
33	8	COMFAS0100	3/8"-16 x 3/4" Hex head bolt S.S.
34	17	COMFAS0070	3/8" Ext. tooth washer S.S.
35	2	COMFTG0095	3/8" NPT Pipe plug
36	1	COMADH0002	7" Stick repair putty
37	2	COMFTG0122	3/8" Vinyl cap
38	1	COMFTG0121	1/2" Vinyl cap
39	3	COMFTG0110	Side squirter (3/8" hose)
40	1	COMFTG0105	Side Squirter (1/4" hose)
41	1	COMCLP0015	#12 SS Hose clamp (1/2")
42	1	COMFTG0034	3/8" NPT x 3/4" Strt hose ftg
43	1	COMCRB0001	#170 Keihin main jet

45	3	COMCRB0003	Keihin pop off spring
46	1	COMFAS0048	10mm x 1.5 x 30mm Hex head cap scrw
47	17	COMFAS0086	3/8" Flat washer w/1" O.D. S.S.
48	2	COMFAS0281	3/8"-16 x 1-3/4" SS Hex head cap
49	2	COMMNT0150	1-1/2" x 1-3/4" Long spacer mount
50	4	COMCLP0021	#250 High torque SS hose clamp (2")
51	5	COMFAS0212	5-1/2" Plastic zip tie
52	4	COMFAS0210	4" Plastic zip tie
53	1	COMFAS0211	15" Zip tie
54	1	COMTUB0012	Ultra 150 crossover tube
55	1	COMHOS0091	3" Silicone coupler (2-1/2")
56	1	COMASM0950	Ultra 150 PTO stinger assembly
57	2	COMCLP0035	#52 S.S. Hose clamps (3")
58	1	COMFTG0123	1/4" Vinyl cap
59	1	COMCAB0001	STX-R/Ultra 150 Throttle cable modified

Required Parts Not Included in Kit: Modified Kawasaki CDI module (Factory Pipe Part # FIN1200ST02) (DO NOT use the stock CDI module as engine damage will occur), Tau-Ceti Flame Arresters (use with stock CV carbs).

When using triple pipes the stock impeller will cavitate off the bottom during acceleration. Factory Pipe recommends using Solas KH-DF-16/20.

Special Tools Required for Installation: 1/2", 3/8", 37/64" and 23/64" drill bits, 3/8" x 18 N.P.T. pipe thread tap, thread sealant.

- Check contents against Bill of Materials. Immediately report any shortages where you purchased your Factory Pipe.
- Read all instructions carefully before starting installation.
- You must run fuel with minimum octane rating of 92 (premium pump fuel). Running a lower octane fuel can cause detonation and serious engine damage.
- Always warm up the engine prior to full throttle/high speed operation.
- **DO NOT** run engine with less than a ¼ tank of fuel. The fuel pick up will suck air in hard right and left hand turns, and will create a lean condition resulting in detonation and engine damage.



CENTER STINGER TUBE ASSY



PTO STINGER TUBE ASSY



COLLECTOR ASSY



MAG PIPE HOUSING BRACKET



CTR PIPE HEAD BRACKET



MAG PIPE REAR BRACKET



MAG PIPE CRANKCASE BRACKET



THROTTLE CABLE BRACKET



CTR PIPE FRONT HEAD BRACKET

Factory Pipe
Instructions
Kawasaki Ultra 150 Triple Pipe

1. Disconnect the battery. Disconnect the exhaust heat sensor at the connector that is located in front of the pipe near the gas tank. Be sure to leave sensor in the pipe and disconnect at the connector.
2. Remove the stock flame arrestor, both sides front and back. Do not remove the adapters.
3. Remove the throttle/choke/oil injection cable bracket connected to the stock exhaust system. Then disconnect the cables from the bracket and at the carbs, choke and oil injection pump.
4. Remove the choke cable from boat or zip tie it out of the way. It will not be used in this installation.
5. Remove the carbs and disconnect the throttle position sensor (TPS) at the connector. The (TPS) is located at the rear of the carbs. Now disconnect all fuel lines at the fuel pump (fuel in, return, pulse). Disconnect the oil injection lines at the carb and from the oil pump. These will not be used since the oil tank will be removed.
6. Remove the intake manifold and pulse line. Leave the reeds in place and cover with a towel or rag to prevent debris falling into the reed cages.
7. Remove the stock exhaust system and exhaust manifold. Do not remove the waterbox.
8. Remove all the exhaust manifold studs that are connected to the cylinders. Retain the exhaust manifold gaskets, as you will use with the triple pipe install.
9. Remove all three cylinder head water bypass lines and the three 90 deg. brass fittings from the heads. Remove cylinder head brackets that are between heads.
10. Remove the water intake manifold (water into cylinders) that is located on the back of the cylinders. Retain manifold, as you will modify later.
11. Remove drive line coupler cover.
12. Remove the fuel line holders that are glued to the hull on the intake side of the boat.
13. Remove stock CDI box.
14. Remove the zip ties that hold the TPS and the heat sensor. Leave the wire harness loose at this time.
15. Remove the waterbox crossover tube.

16. Remove the water bypass lines from the fittings in the hull that are located behind the crossover tube. Two of these lines were connected to the cylinder heads and one was connected to the stock exhaust system. Also remove the 1/4" clear hose.
17. Remove the fuel filter from holder and leave in boat. Remove the fuel filter holder.
18. Remove the oil tank. NOTE: The Ultra triple pipe set up is designed to run without oil injection, due to pipe fit issues. Premix fuel 40:1. Remove the clear hoses to each of the check valves on the top of the crankshaft counter balances. These are one way check valves and do not need to be capped off. Remove all of the clear hoses from the oil pump. The oil pump can act as a block off plate or you can remove the oil pump and install an aftermarket block off plate.

You are now ready to begin installation of the Factory Pipe Triple Pipe Exhaust System.

19. On the right side of the boat, route the fuel filter to the front and locate a spot around the front of the fuel tank (fuel filler hose, etc.) to secure it using a 15" zip tie (item #53). Make sure the filter is secured in a vertical fashion. Route the rest of the fuel line back down the left side of the boat and let it hang outside the engine compartment at this time.
20. Install the two 3/8" rubber caps (item #37), one 1/2" rubber cap (item #38), and the one 1/4" rubber cap (item #58) on the bypass outlets on the top of the pump box. Secure all three using 4" zip ties (item #52).
21. Install the modified Kawasaki CDI Module in ignition box.
22. Locate the water inline assembly (item #9) and place the 3/4" waterline through the square liner opening (over top the drive line) under the right side motor strap and up towards where the water intake manifold is located. Measure 11" in from where the current 1/2" waterline comes in thru the hull and cut. Connect the 1/2" side of the water inline assembly to the 11" piece you just cut and secure with a 1/2" hose clamp (item #41). See figure 1.
23. Locate the water intake manifold which you previously removed from the engine. Remove the 90 deg water in brass fitting. Using a 37/64" drill bit, drill out the water in hole and then tap using a 3/8" x 18 N.P.T. tap. After tapping, make sure all chips are removed. Install the 3/8 N.P.T. x 3/4 barbed straight fitting (item #42) using pipe sealant on the threads.
24. Reinstall the water intake manifold back on the engine making sure all three gaskets are in place. Attach the 3/4" water inline assembly (may need to cut to fit) to the straight barbed fitting using the stock hose clamp previously used on the 90 deg fitting.
25. Remove stock throttle/oil injection cable and install the new modified throttle/oil injection cable (item #59).
26. Install one of the #177 Lord mounts (item #30) and one of the fiber washers (item #28) onto each of the two CTR pipe head brackets (item #20).

27. Install one of the #177 Lord mounts (item #30) and one of the fiber washers (item #28) onto the CTR pipe front head bracket (item #19) and secure the mount to the bracket using a 3/8" flat washer (item #47), 3/8" ext tooth washer (item # 34) and 3/8" x 16 S.S. nut (item # 32).
28. Install all three brackets onto the cylinder heads. Torque the cylinder head bolts to 22 ft. lbs. See figure 3.
29. Locate the MAG pipe crankcase bracket (item #16) and two 10mm x 1.25 x 20mm flanged head bolts (item #31). Install the bracket to the crankcase (there are two open threaded holes) just below the intakes with the slot portion of the bracket facing the rear of the boat.
30. Locate the three 3/8" x 1/8-27 B.S.P. straight fittings (item #14). Using pipe thread sealant on the threads, install one into each cylinder head where you previously removed the 90 deg fittings. See figure 3.
31. Install the MAG and center exhaust flanges (item #6), and the PTO exhaust flange (item #7) to the cylinders reusing the stock metal gaskets. (Note: the MAG and center flanges have the straight brass fitting and the PTO has the 90 deg brass fitting, figure 3). Attach the each flange using two 8mm x 1.25 x 35mm bolts (item #25), and two spring hooks, 8mm (item #23), on the top of the flange and one 8mm x 1.25 x 40mm bolt (item #26) for the bottom of the flange.
32. Install the exhaust flange water bypass assembly (item #8, Figure 2) to each of the exhaust flange fittings using #4 hose clamps (item #21). The 24" section of the assembly goes toward the rear of the boat (will attach later to the overboard bypass fitting).
33. Remove the two forward outside bolts on the grab handle located next to the rear air vents. Drill these holes out using a 3/8" drill bit. See figure 6.
34. Remove the air vent box and two air vent hoses located under the rear grab handle. (**Note:** With the air vents removed, it is important to remember that if the watercraft gets tipped upside down, without these vents installed, it will fill with water quickly and cause damage).
35. Locate an area on the rear of the top deck to install four, water overboard bypass fittings (side squirter). These areas should not be obstructed so that the waterlines going to them have a clean route. Once you have marked where your fittings will go, drill the holes with a 1/2" drill bit. Install one 1/4" side squirter (item #40) and three 3/8" side squirter (item #39). When securing the side squirter, angle the water flow direction to the rear.
36. Locate the two previously retained pieces of stock 3/8" black waterline. Out of the two pieces, cut three pieces, which will fit from the each of the pipe water out fittings to the 3/8" side squirter. Attach this lines to each of the three 3/8" side squirter using a #6 hose clamp (item #22).

37. Install stock waterbox and secure with rubber strap. (**Note:** The smaller opening goes to the rear).
38. Locate the exhaust crossover splice (item #54) and the production exhaust crossover hose. Cut the production crossover hose in two places to create two elbows. Attach one elbow to the exhaust outlet tube and one elbow to the waterbox outlet. Use the 8"x 2 3/4" splice to connect the two elbows. The object of this procedure is to lower the exhaust crossover assembly as low as possible to allow space for the PTO pipe. Secure the crossover splice using #52 hose clamps, 3" (item #57). See figure 2.
39. Install the three 3/8" x 15" waterlines (item #10, 11, 12) onto the straight 3/8 fittings on the top of each cylinder head. Secure all with a #6 hose clamp (item #22). See Figure 3.
40. Install one spring (item #24) on each exhaust flange spring hook (total of six, two per flange) and leave them hang at this time.
41. Install the PTO pipe (item #1, figure 4) into the rear of the engine compartment. Do not attach it to the exhaust flange at this time.
42. Install two #190 Lord mounts (item# 29) into two of the 1-1/2 x 1-3/4 long spacer mounts (item #49). Attach the Lord mount side of these assemblies to the two rear mount brackets on the PTO pipe using a 3/8"-16 x 3/4" hex head bolt, 3/8" ext. tooth washer and 3/8" flat washer (item #33,34,47). See figure 4. Do not mount the PTO pipe to the top deck at this time. Push the pipe as far back as possible and let sit.
43. Install the CTR pipe (item # 2, figure 5). Do not attach it to the exhaust flange or mounts. Just lay it in position.
44. Locate the MAG pipe (item #3, Figure 8). Install the MAG pipe into the boat but do not attach it to the exhaust flange at this time.
45. Install a #177 Lord mount (item #30) into the MAG pipe bracket using a 3/8"-16 S.S. nut, 3/8" ext tooth washer, and 3/8" flat washer (item #32,34,47). The rubber mount will face the rear with the stud end going forward and fastening to the pipe bracket.
46. Remove the two bolts from the MAG housing just above where the counter balance is located. Install the MAG pipe bracket /oil cable bracket (item #17) using the same bolts.
47. Install a #177 Lord mount (item #30) to the middle MAG pipe bracket using a 3/8"-16 x 3/4 hex head bolt, 3/8" ext. tooth washer, and 3/8" flat washer (item #33,34,47). The rubber mount will sit on top of the bracket and be bolted from underneath. The stud of the rubber mount faces upward and will fit into the slot on the crankcase mount bracket.
48. Slide the MAG pipe onto the MAG exhaust flange.
49. Install a 3/8"-16 x 3/4 bolt, 3/8" flat washer and 3/8" ext. tooth washer (item #33,47,34), into the front MAG bracket /oil injection bracket and secure.

50. Install a 3/8"-16 S.S. nut, 3/8" ext. tooth washer, and 3/8" flat washer (item #32,34,47) onto the mount stud which goes into the slot of the crankcase bracket.
51. Remove the left rear motor mount bolt.
52. Locate the MAG pipe rear bracket (item #18). Attach the stud end of a #190 Lord mount (item #29) to the rear bracket using a 3/8"-16 S.S. nut, 3/8" ext. tooth washer, and 3/8" flat washer (item #32,34,47). Install the bracket on top of the motor mount plate and loosely secure with the 10mm x 1.5 x 30mm bolt (item #46). Adjust the mount so it aligns with the rear mount bracket on the MAG pipe and secure the bracket to the Lord mount using a 3/8-16 x 3/4 bolt, 3/8" ext. tooth washer, and 3/8" flat washer (item #33,34,47). Now tighten the motor mount bolt.
53. Reinstall the coupler cover.
54. Attach the two springs on the MAG exhaust flange to the pipe.

Note: If you are going to be installing aftermarket carburetors do so at this time as per the manufacturers instructions.

55. On the stock carburetors install the 1/4"x 24" waterline (item #13) to the brass fitting on the rear intake using a #4 hose clamp (item #21).
56. Remove the two bolts from the rear counter shaft housing area. Using the same bolts install the new throttle cable bracket (item #15).
57. On the stock intake manifold, remove the balance tube hose and fittings and install the two 3/8" N.P.T. x 1/2" plugs (item #35). Using stick putty (item #36), fill in the holes, which go between each intake manifold.
58. Install the intake manifold back on the engine.

Carburetor Adjustments

These carburetor recommendations are for 730 feet above sea level. 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 changes MUST be done prior to running the engine with this exhaust system. High performance engines require precise jetting and damage can occur if the carburetor(s) are not properly tuned.

Note: The carburetors will be reversed when installed with the Factory Pipes vs. the stock pipe.

Rear carburetor (Has the throttle linkage)

Main Jet: 170

Pilot Jet: Stock

Replace with supplied valve seat spring

Center carburetor
Main Jet: Stock
Pilot Jet: Stock
Replace with supplied valve seat spring

Front carburetor (next to fuel pump)
Main Jet: Stock
Pilot Jet: Stock
Replace with supplied valve seat spring

59. Remove the throttle position sensor (TPS). You will not need this as the TPS circuit in the new CDI module is disabled.
60. Lightly seat all three low speed screws (turn clockwise) and the turn out (counter-clockwise) 3/8 to 1/2 turn.
61. Place the carburetors in the boat and attach the pulse line, return line, and main fuel in line using #4 hose clamps (item #21). **Note:** Make sure the main fuel in line and the return line (fuel out) are connected to the correct fitting, it is marked on the carburetors.
62. Install the carburetors on the engine making sure the gaskets are in place. Install your aftermarket flame arrestors at this time. We recommend the Tau-Ceti flame arrestor kit for the Ultra 150.
63. Attach the throttle cable to the throttle cable bracket. Adjust and tighten. This completes the reinstallation of the carburetors.
64. Slip the CTR pipe onto the center exhaust flange.
65. Install and secure the three pipe mount brackets to the three head brackets using the 3/8"-16 x 3/4" hex head bolts, 3/8" ext. tooth washers, and 3/8" flat washers (item #33,34,47).
66. Install the two springs on the center exhaust flange to the pipe.
67. Attach all three waterlines from each cylinder head to the 90 deg brass fitting on each pipe using #6 hose clamps (item #22, Figure 6).
68. Install all three spark plug boots to the spark plugs.
69. On the port (left) side of the boat, attach the 1/4" waterline from the exhaust flange to the 1/4" side squirter using a #4 hose clamp (item #21). Route the black 3/8" waterline coming from the 3/8" side squirter to the 90 deg brass fitting on the rear of the MAG pipe. You may need to cut this to length depending on your routing.
70. On the starboard (right) side of the boat attach the longer 3/8" black waterline from the side squirter to the brass mender coming from the CTR pipe using a # 4 hose clamp (item #21). You may need to cut this to length depending on your routing.

Note: Do not use grease or oil on silicone couplers. Use only glass cleaner or water with dish soap if required.

71. Locate your center stinger assembly (item #5). Install a 2" high torque hose clamp (item #50) on the coupler going to the CTR pipe outlet. Slide the assembly in the boat under the cylinders and slide the coupler onto the pipe outlet. Leave the hose clamp loose at this time.
72. Using one of the two retained stock 3" exhaust clamps, install the 3" x 2-1/2" long silicone coupler (item #55) onto the waterbox inlet and tighten the clamp. Slide the remaining retained hose clamp on the 3" hose but leave loose at this time.
73. Locate the collector assembly (item #4) and loosen the clamp on the 2" silicone coupler. Push the coupler down on the tube until the hose is flush with the end. Install the collector into boat through the rear storage compartment opening. Remember, the PTO pipe should not be mounted yet. Getting the collector in can be very tricky.
74. Mount the PTO pipe to the top deck. Use two 3/8"x 16 x 1-3/4" hex head screws, 3/8" ext. tooth washers, and 3/8" flat washers (item #48,34, 47) for securing the rear mounts. Use a 3/8"- 16 x 3/4" hex head bolt, 3/8" ext. tooth washer, and 3/8" flat washer (item # 33,34,47) for securing the front mount. Attach the springs on the PTO exhaust flange to the pipe.
75. Attach the 3/8" black waterline coming from the side squirter to the 90 deg brass fitting at the end of the PTO pipe. Secure it with a #6 hose clamp (item #22).
76. Slide a 2" high torque hose clamp (item #50) over each of the three tubes on the collector and leave loose at this time. Place the collector outlet into the 3" coupler on the waterbox. Attach all three couplers from the collector to the pipes and stinger tube. **Note:** You may need to move the collector, waterbox, and stinger tube around for proper alignment.
77. Locate the PTO stinger tube assembly (item #56) and attach it to the collector and PTO pipe using two 2" high torque hose clamps (item #50).
78. Once the collector is properly aligned secure all the hose clamps including the center stinger tube coupler under the cylinders, all couplers on the collector, and the 3" coupler on the waterbox.
79. Secure any loose wires using zip ties (item #51).
80. Insert the air temp sensor bypass connector supplied with your Modified Kawasaki CDI module (green). Operating without this connector will cause the timing to retard and cause poor engine performance.
81. Double check that all hardware, couplers, clamps, and waterlines are secure. Reconnect the battery cables. We suggest you run the boat in the water with the seat off to look for any leaks and make sure there is good flow coming from all fourside squirters.



Fig. 1

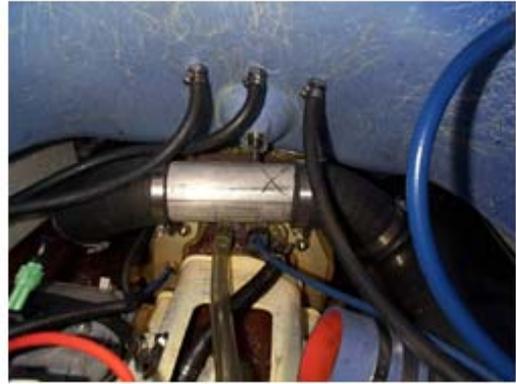


Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8



Completed Installation