



**EXHAUST SYSTEM # IN00047
SHARK TAIL DUALS (2-2)**

Feel the Power of Freedom

Congratulations, you have acquired the finest aftermarket performance exhaust system available for your motorcycle. Your FREEDOM PERFORMANCE exhaust system was designed to perform fit and give the optimum sound and style at a very affordable price.

Please follow the installation instructions and please do not hesitate to call us for any technical questions at (310) 324-0415



PACKAGING IN00047-HW (*) =ASSEMBLED

PART NUMBER	DESCRIPTION	QTY	PART NUMBER	DESCRIPTION	QTY
I115-F1	FRONT HEAD PIPE	1	A125SP	19MM X 10MM ID X 14MM LONG ALUMINUM SPACER	2
I116-F1	REAR HEAD PIPE	1	HWB0060	M10 X 1.50 X 45 HEAD CAP SCREW ZINC PLATED	2
I117-F1	CROSSOVER PIPE	1	HWB0007	5/16"-18 X 5/8" SERRATED FLANGE SCREW ZINC PLATED	1
I115-F2	FRON HEAT SHIELD	1	HWB0008	3/8"-16 X 3/4" CARRIAGE BOLT ZINC PLATED	1
I116-F2	REAR HEAT SHIELD	1	HWB0051	1/4"-20 X 1/2" BUTTON HEAD CAP SCREW ZINC PLATED*	4
I117-F2	LEFT HEAT SHIELD	1	HWB0001	1/4"-20 X 3/8" BUTTON HEAD CAP SCREW ZINC PLATED*	2
MIN215-F5	RIGHT INNER MUFFLER	1	HWN0024	5/16"-18 FLANGE LOCK NUT ZINC PLATED	1
MIN216-F5	LEFT INNER MUFFLER	1	HWN0004	3/8"-16 FLANGE TRI-LOCK NUT ZINC PLATED	1
IN100-ST-F2	RIGHT SIDE MUFFLER SHIELD	1	HWC0002	HOSE CLAMP # 24 STAINLESS STEEL	9
IN101-ST-F2	LEFT SIDE MUFFLER SHIELD	1	HWC0003	HOSE CLAMP # 28 STAINLESS STEEL	6
A121ECS-F9	SHARK TAIL END CAP 2.500"	2	HWW0003	1/4" SPLIT WASHER ZINC PLATED*	4
A103-LCB-F8	LOUVER CORE BAFFLE	2	IN00047-HW	HARDWARE BOX	1
MBK-I133-F4	MOUNTING BRACKET	1	IN00047-INS	INSTRUCTION MANUAL	1
HWC0006	T-BOLT CLAMP # 60	1			

REMOVING THE STOCK EXHAUST SYSTEM

1. Place motorcycle on a stand or a ramp, make sure it is secured to prevent injuries to yourself and damages to your motorcycle, always refer to owner's manual for proper torque specifications. If engine is hot, let it cool down, exhaust components get very HOT and may cause serious burns if touched.
2. Remove saddle bags if electrical wires are connected remove side panels to disengage harness, set bags aside.
3. Freedom Performance recommends using lubricant oil in all joints to ease the removal.
4. Loosen and remove hose clamp holding stock shield against muffler using a flat screw driver or a 6.5mm nut driver. There is one clamp in front of every muffler **(See figure 1.1)**
5. Loosen the main clamp holding the mufflers in place using a 15mm socket or wrench. These clamps are located in front of the muffler nose. **(See figure 1.2)**
6. Remove the two flange screws on each muffler holding it to the fender bracket, use a 13mm deep socket and save screws to be re-used with your new system. Some assistance may be required. **(See figure 1.3)**
7. Remove the two rubber caps on top of each muffler bracket.
8. Remove both mufflers by pulling backwards.
9. Once the mufflers have been removed and put aside, remove clamps by sliding them out, you will re-use them in your new system.
10. Remove the two screws holding the floorboard assembly. Using an 8mm hex key wrench and a ratchet, let the whole assembly hang but be careful not to bend or damage brake lines. You could use a soft rope to suspend the assembly in the air hanging it from the crash bars. **(See figure 1.4 & 1.5)**

Note: use good and safe practices when removing and installing your new exhaust system to prevent injuries that includes but is not limited to such safety glasses and gloves. When installing make sure gloves are not abrasive or damage may occur like scratching parts. Always secure motorcycle before any work is done.

11. Remove left side shield using a flat screw driver, a ¼" or 6mm nut driver.
12. Remove crossover pipe. From the left side of the motorcycle using a 13mm socket remove the screw holding the pipe to the frame. **(See figure 1.6)**
13. From the right side, loosen clamp holding crossover pipe using a 15mm socket or wrench **(See figure 1.7)**
14. Remove right side heat shield using a flat screw driver, 6mm or ¼" nut driver. **(See figure 1.8)**
15. Disengage O2 sensor harness from both front and rear headers. Cut plastic tie holding front sensor harness. Refer to owners' manual for proper procedures disconnecting sensor harness. **(See figure 1.9, 1.10 & 1.11)**
16. Remove engine fin header covers, using a 6mm hex key wrench remove the screws holding both covers and set it aside. You will need a long hex key type. **(See figure 1.12 & 1.13)**
17. Loosen clamp holding catalytic header section to front head pipe using a 15mm socket or wrench. **(See figure 1.14)**
18. Remove head port flange nuts holding headers to engine port. Using a 13 mm socket loosen and remove nuts, set them aside as they will be re-used with the new system (X4). **(See figure 1.15 & 1.16)**
19. Remove screw holding exhaust system to frame bracket located at the back of the catalytic converter, using a 13mm socket or wrench. Some assistance may be required. **(See figure 1.17)**
20. Assistance is required in this step. From the right side, pull the entire system outwards just enough to disengage crossover pipe, while someone else pulls down crossover pipe. Remove and set aside crossover pipe **(See figure 1.18)**
21. Disengage catalytic converter section from front header section and remove it. **(See figure 1.19)**
22. Remove front section of header. **(See figure 1.20)**
23. Remove Oxygen sensors from header pipes using a 14mm wrench. Save sensors for re-use with your new system.
24. Remove mounting bracket from motorcycle frame using a 13mm socket or wrench. **(See figure 1.17)**

FREEDOM PERFORMANCE EXHAUST SYSTEM INSTALLATION

1. *Remove exhaust system from protective packaging, it has been pre-assembled for easy installation. Place parts in a non-abrasive surface such as a blanket or carpet. By doing this you can avoid scratching the parts in the installation process. We recommend using painters tape to cover parts and accessories on areas where damage can occur during installation. Always refer to owner's manual for proper torque specifications.*
2. From the hardware box, install mounting bracket marked as **MBK-I133-F4** using stock screws and a 13 mm socket or wrench. **(See figure 2.1)**
3. Install Oxygen sensors. Apply a small amount of anti-seize compound to the threads of the O2 sensors and install them into the new head pipes using a 14mm wrench. NOTE: Be careful not to get anti-seize on sensor tip, it may affect sensor functionality. **(See figure 2.2)**
4. Install front head pipe first. **I115-F1** Insert the front end of the pipe into the engine port and secure it with the stock nuts, bring nuts all the way but do not tighten at this time yet. Make sure not to damage brake lines during installation. **(See figure 2.3)**
5. Slide a barrel clamp over the slotted section of the crossover pipe as shown, bolt must be facing downwards to ease tightening after installation. **(See figure 2.4)**
6. Place crossover pipe **I117-F1** under the motorcycle and from the left side of motorcycle slide slotted section onto front pipe. Align both brackets welded on the crossover pipe to their respective positions. On the left side the same mounting will be used as it was with the stock headers align bracket to frame hole and install 8mm stock screw. From the right side align to mounting bracket and secure it with a 5/16"-18 x 5/8" serrated flange screw and lock nut from bracket. Do not tighten yet. **(See figure 2.5 & 2.6)**
7. Install rear head pipe. **I116-F1** Insert rear pipe into engine exhaust port and secure it with stock flange nuts. Hold pipe from mounting bracket using a 3/8"-16 x 3/4" carriage bolt and lock nut. Secure from channel bracket welded on at the back of the pipe. Bring nut all the way but do not tighten yet. **(See figure 2.7)**
8. Slide a stock clamp in front of each muffler with the screw facing down as it was with the stock mufflers.
9. Slide right side muffler marked as **MIN215-F5** over the right side pipe, you will know how far in it goes in over the header, by aligning the bracket welded on the muffler, which needs to be concentric with the holes on the fender bracket and the permanent nuts welded in the muffler bracket. Secure muffler using the stock screws M8X1.25 and tighten using a 13mm deep socket. **(See figure 2.8)**
10. Repeat step 9 with the left side muffler marked as **MIN216-F5**.
11. Tighten head port flange nuts using a 13mm socket.
12. Tighten crossover pipe screws, left side using a 13mm socket and right side using two ½" wrenches or sockets.
13. Tighten carriage bolt using a 9/16" socket or wrench.
14. Tighten barrel clamp using a 5mm hex key wrench.
15. Tighten muffler clamps using a 15mm socket or wrench, make sure edge of clamp and muffler nose are flush to each other.
16. Tighten stock screws holding muffler to fender bracket using a 13mm deep socket.
17. For these steps it is imperative to use caution, space is very tight and scratches may occur. We recommend to use painters tape, cut a small piece and tape it to over the heat shield where the clips are located (these are the clips inside the heat shield) now, mark the center of the clip with a pen or marker, draw an arrow as shown in the pictures. The direction of the arrow indicates the direction of which the hose clamp will be inserted. **(See figure 2.9)**

Note: use good and safe practices when removing and installing your new exhaust system to prevent injuries that includes but is not limited to such safety glasses and gloves. When installing make sure gloves are not abrasive or damage may occur like scratching parts. Always secure motorcycle before any work is done.

18. Place heat shields over their respective pipes and secure them with the hose clamps ***One the time***, use hose clamps # 24. (See figure 2.10 & 2.11)
19. Install right side muffler shield marked as IN100-ST-F2 use the painters tape technique as well, only this time all hose clamps will be pointing downwards. Insert hose clamps # 28 (See figure 2.12)
20. Adjust heat shields. Head pipe heat shields must seat against collar welded inside the front of the muffler shield, adjust as necessary tighten hose clamp after shark tail has been aligned with a flat screw driver or a 5/16" nut driver.
21. Repeat step 19 with the left side muffler shield.
22. Install fin covers back in place using a 6mm long hex key wrench.
23. Install floorboard back in place using spacers and screws provided in the hardware kit. (See figure 2.13)
24. Install saddle bags back in place; make sure bags rest right over the brackets welded on the muffler. Connect wire harness and place side cover back in place.
25. Check all connections make sure everything is tightened before turning engine on.
26. Clean exhaust system with some chrome cleaner and remove painters tape (if used during installation) before turning on engine. Failure to follow this procedure may result in damages to the chrome finish as oils burn out leaving permanent marks.

Note: Be sure to tighten all hardware before starting your engine. Retighten after the first 100 miles.

Re-mapping is strongly recommended by FREEDOM PERFORMANCE

Every attempt has been made to provide improved cornering Clearance. However, due to design and space boundaries on some motorcycle models, ground and cornering clearance may not be improved and in some cases may even be reduced.

WARNING!

FREEDOM PERFORMANCE DOES NOT WARRANTY ANY CHROME OR CERAMIC BLACK PRODUCTS AGAINST DISCOLORATION.



Figure 1.1

Figure 1.2

Figure 1.3

Figure 1.4



Figure 1.5

Figure 1.6

Figure 1.7

Figure 1.8



No Figure 1.9

Figure 1.10

Figure 1.11

Figure 1.12

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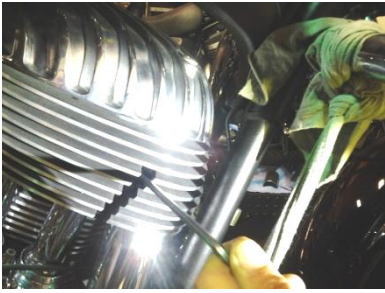


Figure 1.13

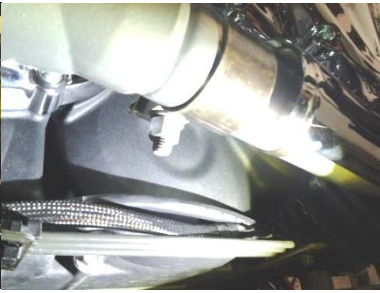


Figure 1.14

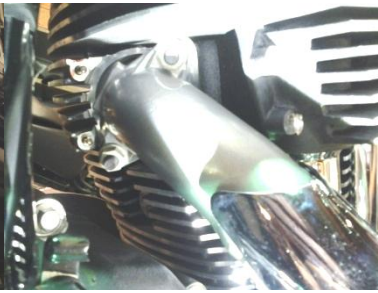


Figure 1.15



Figure 1.16



Figure 1.17



Figure 1.18



Figure 1.19



Figure 1.20



Figure 2.1



Figure 2.2



Figure 2.3



Figure 2.4



Figure 2.5



Figure 2.6



Figure 2.7



Figure 2.8

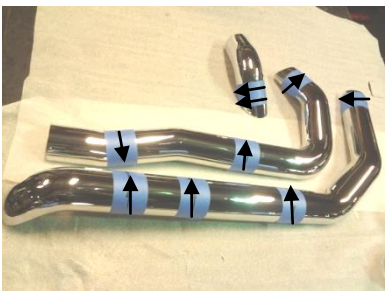


Figure 2.9



Figure 2.10

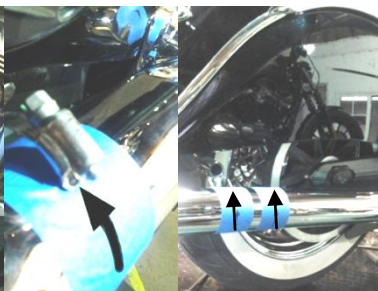


Figure 2.11

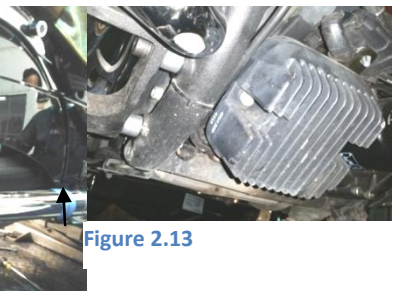


Figure 2.12



Figure 2.13

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