



**EXHAUST SYSTEM # HD00324
SHARK TAIL TRUE 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 LIST: HD00324 (*) = PRE- ASSEMBLED

S220-F1 FRONT HEADER*	1	WORM CLAMP # 20*	2	A125ECA-F10 SHARKTAIL END CAP	2
S222-F1 LEFT HEADER*	1	WORM CLAMP # 24*	5	T-BOLT BAND CLAMP # 60	1
S157-F1 CROSSOVER PIPE*	1	WORM CLAMP # 28*	4	1/4" SPLIT WASHER BLACK	4
S220-F3 FRONT HEAT SHIELD*	1	MBK-S110-F4 LEFT BRACKET	1	1/4-20" X 1/2" BUTTON HEAD BOLT BLACK	4
S222-F3 LEFT HEAT SHIELD*	1	MBK-S111-F4 RIGTH BRACKET	1	3/8-16" X 3/4" LONG CARRIAGE BOLT ZINK PLATED	4
S157-F3 CROSSOVER SHIELD*	1	A101-LCB-F8 LOUVER BAFFLE	2	3/8-16" X 3/4" LONG SERRATED FLANGE BOLT ZINK	4
HD00324-INS	1	PLASTIC ZIP TIE	1	3/8-16" LOCK NUT ZINK PLATED	4



REMOVING THE STOCK EXHAUST SYSTEM

1. When removing or installing accessories there is always a chance to scratch motorcycle components, use painters tape on areas prone to scratches during the installation such frame, chrome or painted parts. We recommend to use penetrating lubricant to ease the removal of your old system in places such as nuts bolts and muffler slip joints or anything that needs to be removed.
2. Models equipped with floorboards loosen the floorboards to gain clearance for exhaust removal and installation.
3. Loosen all heat shield clamps on both the front and rear head pipes.
4. Locate and unplug oxygen sensor wiring from harness and make sure to remember the route of the wires to reinstall it back in the same location with the new system. The rear sensor is located under the oil tank on the right side of the motorcycle, find it and unplug it. The front sensor is situated above the rectifier. To gain access open the plastic cover and unplug the sensor from the harness. Next cut the tie that holds the oxygen sensor wire from the frame.
5. Remove two cylinder exhaust port flange nuts from each head pipe, located at the cylinder head.
6. Remove the nuts holding the mounting bracket to the frame. On models (FLSTN, FLSTF, and FXSTD) remove right hand passenger foot peg and the hanger because this is attached to the stock exhaust system bracket. Now re-place it back using a 3/8" x 2.500" Allen bolt (supplied)
7. On some models there is a carriage bolt and clamp under the transmission, remove bracket from under the transmission.
8. Remove the complete exhaust system and set aside. Assistance may be required.
9. Using a 7/8" or a 22mm wrench, remove oxygen sensors from stock system and save to re-use them in your new exhaust system.
10. Remove the studs from the right side of the frame and remove plastic plugs from the left side on the motorcycle to attach new mounting bracket.
11. Remove flanges and circlips using snap ring pliers. Note: if circlips are bent or damaged replace them.

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.

FREEDOM PERFORMANCE EXHAUST SYSTEM INSTALLATION

1. Remove exhaust system from protective packaging it has been pre-assembled for easy installation. Place them in a non-abrasive surface such as a blanket or carpet. By doing this you can avoid scratching the parts in the in installation process. We recommend using painters tape to cover parts and accessories on areas where damage can occur during installation.
2. Attach mounting brackets on motorcycle MBK-S110 (left) and MBK-S111 (right) using 3/8-16 x 3/4 flange bolts. (Supplied) (If equipped, plastic plugs must be removed). On FLSTN models the passenger foot peg should be removed. **see figure 1.1 & 1.2**
3. Install exhausts port flanges and circlips (from stock system) onto front pipe. (FREEDOM PERFORMANCE recommends replacement of exhaust port gaskets, Harley part number: 17048-98. If circlips are bent or damaged replace them. **see figure 1.3**
4. Install front oxygen sensor onto front head pipe. **see figure 1.3** apply a small amount of anti-seize compound to the threads of the O2 sensors **NOTE:** Be careful not to get anti-seize on sensor tip, it may affect sensor functionality.
5. Install front header assembly first into exhaust ports using stock flange nuts, install nuts all the way. Using 2 carriage bolts 3/8"-16 x 3/4" and lock nuts attach rear bracket welded on header assembly to mounting bracket **NOTE: DO NOT TIGHTEN AT THIS TIME YET.** (Some assistance may be required) **see figure 1.4**
6. Remove heat shield from crossover pipe and remember how it was installed so it can be reassemble it after crossover pipe has been installed. Install circlip and flange on it (**do not install oxygen sensor just yet**)
7. Steps **9,10,11,12,13** and **19** can be skip if you are mechanically inclined, if this is the case install crossover pipe and guide end thru the frame bracket and rear engine head assembly until the tail of the crossover pipe touches the shifter lever rod. **NOTE:** It may be necessary to loosen the bolt holding frame bracket to the engine to allow head pipe to go thru if this is the case loosen bolt and once the crossover pipe has been installed tighten bolt. Go to the left side of the motorcycle grab the end of the pipe and move the shifter back and forth while pulling the pipe to pass right on top of the shifter, now go to the right side of the motorcycle and attach flange to head port using stock flange nuts. **NOTE: DO NOT TIGHTEN AT THIS TIME YET. see figure 1.5**
8. Install oxygen sensor and route the wiring through frame beneath the oil tank and plug it back in to harness. when tightening be careful not to scratch motorcycle components. apply a small amount of anti-seize compound to the threads of the O2 sensors and install it into the new crossover pipe **NOTE:** Be careful not to get anti-seize on sensor tip, it may affect sensor functionality. **see figure 1.5**
9. **If you followed steps 7 and 8 skip steps 10,11,12,13 and 19. otherwise follow the next step.**
10. Remove the ignition coil to gain access to install rear oxygen sensor.
11. Disengage front mount of shift lever rod to gain clearance of rear u-pipe installation.
12. Install crossover pipe onto rear engine port. Do not tighten yet. **NOTE:** It may be necessary to loosen the bolt holding frame bracket to the engine to allow head pipe to go thru if this is the case loosen bolt and once the crossover pipe has been installed tighten bolt. (Make sure, that the head pipe has enough clearance and that there is an even gap of the same size on the sides of the head pipe.)
13. Install oxygen sensor and route the wiring through frame beneath the oil tank and plug it back in to harness. apply a small amount of anti-seize compound to the threads of the O2 sensors and install it into the new crossover pipe **NOTE:** Be careful not to get anti-seize on sensor tip, it may affect sensor functionality.



Fig 1.1 install right side bracket MBK-S111



Fig 1.2 install left side bracket MBK-S110



Fig 1.3 install flange, ring and sensor



Fig 1.4 attach pipe assembly to bracket with 3/8 x 3/4 carriage bolts



Fig 1.5 install crossover pipe first, then install O2 sensor.

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.

14. Take and slide one t-bolt band clamp over the notched end of the left side header assembly and slide pipe over crossover pipe. **see figure 1.8**
15. Using 2 carriage bolts 3/8"-16 x 3/4" and lock nuts attach rear bracket welded on header assembly to mounting bracket **NOTE: DO NOT TIGHTEN AT THIS TIME YET.** (Some assistance may be required)
16. Align both right and left side pipes to be the same height and adjust as necessary once they are aligned tighten carriage bolts (4) using a 9/16" socket or wrench. Now tighten band clamp holding left side header system to crossover pipe. **see figure 1.9**
17. Tighten exhaust port flange nuts (4). see owner's manual for proper torque specifications.
18. Re-install crossover heat shield as it was and tighten all heat shield hose clamps using a 5/16" nut driver.
19. reinstall ignition coil cover and shifting rod make sure is tight.
20. Plug in front oxygen sensor connector into harness, install plastic cover back in its place and install plastic tie. cut off excess tail. **see figure 1.6 & 1.7**
21. On model equipped with floorboard, tighten them back in place.
22. **NOTE: make sure to put some type of locking glue on screws to hold end caps or Shark tail TM tips to prevent part from falling off. Loctite® (red) is recommended.**
23. Check for adequate clearance between all exhaust system components and motorcycle accessories prone to heat damage. Pay special attention to oil lines close to rear head pipe and make sure there is enough clearance.
24. It is vital when installing a new chrome exhaust system; please make sure that your hands are clean with no oil. Right after installation is done, in detail, clean your new exhaust system with a soft cloth (to prevent scratches) and you could use the following (chrome wax, glass cleaner, alcohol, or ammonia before starting the engine.



Fig 1.6 connect O2 sensor harness underneath the oil tank make sure cable is away from headers to avoid heat damage



Fig 1.7 connect front O2 sensor harness and place plastic cover back in place.



Fig 1.8 install clamp as shown on left side pipe bolt must face towards the engine to be able to be tighten



Fig 1.9 tighten T-bolt clamp and if you wish cut the end of the bolt threads flush with the nut

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

At freedom performance Inc. attempts have been made to provide enhanced concerning Clearances. However, due to some designs and space boundaries, ground and cornering clearance may not be improved and in some cases may even be reduced.

WARNING!
FREEDOM PERFORMANCE DOES NOT WARRANTY ANY CHROME PRODUCTS AGAINST DISCOLORATION.

Some accessories are available for your new FREEDOM PERFORMANCE exhaust system, visit www.freedomperformance.com for more information or call 310-324-0415

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