



**EXHAUST SYSTEM # HD00438  
SHARP CURVE RADICAL RADIUS (2-2)  
WITH CROSSOVER CHAMBER**

**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

**WARNING: DUE TO THIS DESIGN SOME ACCESSORIES MAY INTERFERE WITH THIS EXHAUST SYSTEM SUCH AS SADDLE BAGS OR PASSENGER FOOT PEGS IN ORDER TO FIT PROPERLY IN SOME MODELS THEY HAVE TO BE RELOCATED.**

**PACKAGING HD00438-HW (\*) =ASSEMBLED**

PART NUMBER	DESCRIPTION	QTY	PART	DESCRIPTION	QTY
D295-F1	FRONT HEAD PIPE*	1	A125-O2-F14	M18 TO M12 OXYGEN SENSOR ADAPTER ZINC	2
D295-F2	FRONT HEAT SHIELD*	1	A225ECA-F10	SYSTEM END CAPS	2
D296-F1	REAR HEAD PIPE*	1	HWB0007	5/16"-18 X 5/8" SERRATED FLANGE SCREW ZINC	4
D296-F2	REAR HEAT SHIELD*	1	HWB0005	5/16"-18 X 1-1/2" HEAD CAP SCREW ZINC PLATED	3
MGS170-F5	MUFFLER ASSEMBLY*	1	HWB0001	1/4"-20 X 3/8" BUTTON HEAD CAP SCREW ZINC PLATED	2
MBK-D155-F4	TRANSMISSION MOUNTING BRACKET	1	HWW0005	5/16" FLAT WASHER ZINC PLATED	3
MBK-M115-F14	BACK PLATE BRACKET	2	HWW0003	1/4" SPLIT WASHER ZINC PLATED	2
HWC0002	HOSE CLAMP # 24 STAINLESS STEEL	4	HWM0002	ZIP TIE PLASTIC CABLE 7"	1
HWC0003	HOSE CLAMP # 28 STAINLESS STEEL	3	HD00438-HW	HARDWARE BOX	1
HWC0011	BARREL CLAMP # 60 STAINLESS STEEL	2	HD00438-INS	INSTRUCTION MANUAL	1

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

- Loosen all heat shield worm clamps on both the front and rear head pipes.
- There are two bolts holding the rectifier in the front of the frame, remove them to gain access to the front oxygen sensor connection. Open the plastic cover and unplug the oxygen sensor from harness. Carefully cut the cable tie holding the wiring. Note: most of the cases, (05-12) have 18mm Oxygen sensors (13-up) have 12 mm sensors consult your owner's manual for more information.
- The seat must be removed to gain access to the rear oxygen sensor connector, unplug the oxygen sensor from harness and guide the wiring out carefully. Make sure to remember the route of the cable for re-installation.
- Remove cylinder exhaust port flange nuts from each head pipe, positioned at the cylinder head and save for re-installation.
- If equipped, remove front carriage bolt and clamp holding the front head pipe
- Remove bolt that holds mufflers to the transmission mounting bracket.
- Remove complete exhaust system. Note: some assistance may be required.
- Now remove the stock mounting bar (bracket) and set aside.
- If equipped remove the front bracket that was holding the clamp on the front head pipe.
- Remove the two lower and left bolts from the transmission cover to allow the installation of the new mounting bracket.
- Remove both circlips and flanges from stock exhaust system using snapping pliers. Inspect circlips prior to installation and they are damaged, replace them. Inspect gaskets if damaged or worn replace them.
- Models (07-12) use a 7/8" or 22mm wrench, carefully remove the O<sup>2</sup> sensors from the stock head pipes and save for re-use with the new Freedom Performance exhaust system, on models (13-up) use a 14mm wrench. It may be necessary to use penetrating oil to ease the removal.



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.

REMOVAL OF STOCK EXHAUST SYSTEM

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. Install exhaust port flanges and retaining rings (from stock system) onto head pipes. *(See figure 2.1)* (FREEDOM PERFORMANCE recommends replacement of exhaust port gaskets if damaged or worn out, Harley part number: 17048-98 or 65324-83A
3. Models without O2 sensors a plug must be installed in the header bung. (sold separately) The headers have an 18mm x 1.50 threads. *(See figure 2.2)* Models equipped with oxygen sensors Install oxygen sensor (from stock). If you have 18mm sensor just install the sensor as is with no other hardware. *(See figure 2.3)* if you have 12mm sensors install the adapter first then the sensor. *(See figure 2.4)* apply a small amount of anti-seize compound to the threads of the O2 sensors and install them into the new head pipes. NOTE: Be careful not to get anti-seize on sensor tip, it may affect sensor functionality.
4. Attach mounting bracket **MBK-D155-F4** *(See figure 2.5)* using a ¼" hex key wrench install mounting bracket to motorcycle frame use supplied head cap screws (x3)
5. Slide 1 Barrel clamp (#60) in front of the slotted end of each muffler **NOTE: the screw head on the both mufflers must face up and towards transmission, this is to make it easy when tightening the clamp after shields are in place.** *(See figure 2.6)*
6. Install front head pipe first, **D295-F1** bring stock flange nuts all the way but do not tighten at this time yet, use a ½" socket or drive screw.
7. Repeat step with rear head pipe **D296-F1.** *(See figure 2.7 and 2.8)*
8. Install twin muffler, **MGS170-F5**, align muffler inlets with both front and rear headers and slide muffler over pipes. Align brackets welded on the mufflers to engage system to mounting bracket using four 5/16-18 flange serrated bolts. **DO NOT TIGHTEN AT THIS TIME YET.** *(See figure 2.9)* **NOTE: make sure back end of both brackets are flush with mounting bracket to ensure that head pipes have gone inside muffler inlet just enough to prevent exhaust leaks. head pipes go inside muffler inlet about 1-3/8"**
9. Align both pipes, tighten to mounting bracket using a ½" open wrench (4 screws) now tighten exhaust port flange nuts using a ½" socket. **Do not tighten barrel clamps yet.** *(See figure 2.10)*
10. Install heat shields. 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 over the heat shield where the clips are located **(these are the clips welded inside the heat shield)** now mark the center of the clip with a pen or marker also mark an arrow pointing the direction of hose clamp insertion as seen of the picture. *(See figure 2.11)*
11. Slide the front shield (**D295-F2**) over the front muffler and pipe. *(See figure 2.12)* and carefully align it. Now insert the worm clamps in the direction of the arrow. *(See figure 2.13)* Use clamps as follow: (#24) over the header (#28) over the muffler.
12. Repeat step with the rear heat shield (**D296-F2**) Note: we recommend for you to cover front heat shield on top right below where the rear pipe system is to be installed with a non-abrasive rag or painters tape to prevent scratches during installation of rear shield. *(See figure 2.14)*
13. Align heat shields and tighten clamps using a 5/16 nut driver.
14. Tighten both barrel band clamps using a 5mm hex key wrench,
15. Install end caps, use ¼"-20 button head screws and split washers to tighten end caps with a 5/32" hex key wrench. Note that end caps have multiple threaded holes you can position end caps in any direction you want.
16. On models equipped with oxygen sensors re-route and engage harness, (06-13) install a plastic zip-tight to hold front sensor cable to frame as it was originally and cut-off excess tail. Make sure cables do not make contact to any part of the exhaust to prevent heat damages.
17. Check for adequate clearance between all exhaust system components and motorcycle accessories prone to heat damage.
18. 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 BLACK FINISH PRODUCTS AGAINST DISCOLORATION.**

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.



Fig. 2.1 Install both flanges and retaining rings

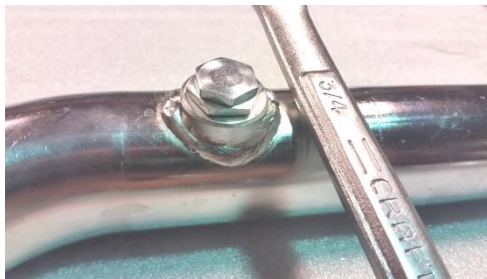


Fig. 2.2 Install plugs sold separately



Fig. 2.3 Install M18 sensors use a 7/8" or M22 wrench



Fig. 2.4 Install 12mm sensor fist install adapter from M18 to M12



Fig. 2.5 Install mounting bracket as shown



Fig. 2.6 Insert barrel band clamps over the muffer inlets as shown arrow indicates screw direction



Fig. 2.7 Install front header pipe using stock flange nuts and 1/2" socket



Fig.2.8 Install rear header using stock flange nuts and 1/2" socket



Fig.2.9 Install muffler as shown brackets must be flush use a 1/2" wrench

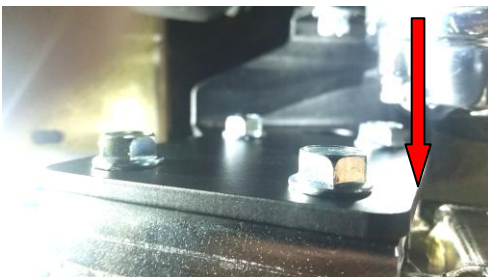


Fig.2.10 Muffler brackets are flush with mounting bracket



Fig. 2.11 Arrows indicate direction of hose clamp insertion



Fig. 2.12 Install front shield as shown



Fig. 2.13 Hose clamp insertion sample



Fig. 2.14 Install rear heat shield



Fig. 2.15 Hardware and bracket

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