



HARDWARE



BRACKETS

PACKER #: _____



HARLEY TOURING 4" RACING UNION 2-INTO-1 2017-PRESENT

Congratulations, you have acquired the finest aftermarket performance exhaust system available for your motorcycle. Your Freedom Performance system was designed with the rider in mind. Performance, Style, quality, and undistinguishable sound are the core values of our company.

WARNING: FREEDOM PERFORMANCE WORKS WITH FACTORY STOCK MOTORCYCLES, ANY ALTERATION OR OTHER AFTERMARKET ACCESSORIES OR REPLACEMENT PARTS MAY INTERFERE WITH THIS EXHAUST SYSTEM AND IN ORDER TO PROPERLY FIT IN SOME CASES SUCH COMPONENTS MUST BE REMOVED.

Please follow installation instructions and do not hesitate to call us for any technical questions at (951) 898-4733 if any components are missing do **NOT** proceed with installation until you contact us.

PART NUMBER	DESCRIPTION	QTY	PART NUMBER	DESCRIPTION	QTY
FL305-F1	HEADER ASSEMBLY	1	HWB0014	3/8"-16 X 3-1/4" SOCKET HEAD CAP SCREW ZINC	1
FL305-F2	FRONT HEAT SHIELD	1	HWB0012	3/8"-16 X 2" SOCKET HEAD CAP SCREW ZINC PLATED	1
FL306-F2	REAR HEAT SHIELD	1	HWB0051	1/4"-20 X 1/2" BUTTON HEAD SCREW ZINC PLATED*	3
A105-F2	COLLECTOR SHIELD	1	HWB0009	3/8-16 X 1.000" CARRIAGE BOLT ZINC PLATED	1
MFL210-F5	RACING MUFFLER	1	HWN0004	3/8"-16 FLANGE TRI-LOCK NUT ZINC PLATED	1
MBK-FL110-F4	MOUNTING BRACKET	1	HWW0007	3/8" FLAT WASHER SMALL DIAMETER	2
HWC0009	T-BOLT CLAMP #69	1	HWW0003	1/4" SPLIT WASHER THIN ZINC PLATED*	3
HWC0004	HOSE CLAMP # 40 STAINLESS STEEL	1	A101SP	0.625" X 0.123" X 0.750 ALUMINUM SPACER	2
HWC0002	HOSE CLAMP # 24 STAINLESS STEEL	9	HWM0002	PLASTIC TIE 7" LONG	2
A156-LCB-F8	SYSTEM BAFFLE*	1	A120PC-F7	P-CLAMP 2.000" ZINC PLATED	1
A330ECA-F9	SYSTEM END CAPS*	2	HD00650-HW	HARDWARE BOX	1
A125-O2-F14	OXYGEN SENSOR ADAPTER 18MM TO 12MM	2	HD00650-INS	INSTRUCTIONS MANUAL	1

REMOVING STOCK EXHAUST SYSTEM

- Place motorcycle on side stand or motorcycle ramp to prevent from falling when performing any work.
- Remove both left and right saddlebags; refer to owner manual for proper procedures.
- Loosen pinch clamp bolts located in front end of each muffler. It may necessary to stretch clamps just sufficient to remove them. For left side use a 9/16" socket or wrench and a 15mm for the right side. (See fig. 1.1 & 1.2)
- Remove screws holding both left and right mufflers from saddlebag support brackets using a 1/2" socket or wrench, two on each muffler. (See fig. 1.3)
- Remove stock mufflers. Note: It may be necessary to use a penetrating lubricant on slip joints between mufflers and head pipe to help the removal,
- Remove right side floorboard using a 5/16" hex key wrench, remove and set aside. (See fig. 1.4)
- Remove clamp which holds the crossover pipe under the oil pan using a 1/2" wrench. (See fig. 1.5)
- Loosen clamp securing crossover pipe to header assembly using a 9/16" socket or wrench. (See fig. 1.6)
- Remove crossover pipe by pulling outwards from the left side of the motorcycle. (See fig. 1.7)
- Remove right side plastic cover to access Oxygen sensor harness, place it aside. (See fig. 1.8)
- Disengage Oxygen sensor harness. (refer to owner's manual for proper procedures) route sensor cables out, pay attention to the location of cables as they will be routed back in place the same way. (See fig. 1.9)
- Remove flange nut securing exhaust system from the mid-section to engine case, use a 1/2" socket or wrench. (See fig. 1.10)
- Remove right side passenger peg, use a 5/16" and a 1/4" hex key wrenches.
- Loosen all hose clamps holding heat shields in place using a 5/16" nut driver or flat screw driver. This is to allow more space to remove head port nuts.
- Remove flange nuts that secure each head pipe to cylinder head using a 1/2" deep socket, now remove entire exhaust system some assistance may be required.
- Remove flanges and retaining rings from the stock exhaust system using snap ring pliers. If retaining rings are bent or damaged, replace them.
- Remove Oxygen sensors from stock headers a 14mm wrench.
- Remove oil pan bracket (the one holding crossovers clamp) using a 3/16" hex key wrench. (See fig. 1.11)



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.

INSTALLATION GUIDELINES

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 parts during the installation process. We recommend using painters tape to cover parts and accessories on areas where damage can occur during installation. Open hardware box and review its contents. **(See figure 2.1)**
2. Remove clutch cover using a 3/16" hex key wrench. **(See figure 2.2)**
3. Install mounting bracket **MBK-FL110-F4** you will be using the same stock screws as shown in picture **(See figure 2.3)** Install clutch cover the same way it was prior to installation use a 3/16" hex key wrench. Now tighten mounting bracket screws using a 1/4" hex key wrench.
4. Install P-Clamp as shown, slide clamp over the front pipe, make sure flat side of clamp faces down and points towards the engine. **(See figure 2.4)**
5. Install O2 sensors (from stock) **NOTE: (Your model is equipped with 12mm sensors and this system is equipped for both 18mm and 12mm)** Install O2 sensor adapter to reduce 18mm to 12 mm, use anti-seize compound, apply it to the thread of the adapter as well as the sensor. Be careful not to use too much or to make contact with the tip as it may affect its functionality. Make sure sensors are installed properly, with harness is for the front and black for the rear make sure they match their pipes respectively. Use a 14mm wrench for stock 12mm sensors **(See figure 2.5)** *Some aftermarket fuel managements systems use 18mm bungs this system has the capability to take both 18mm and 12mm*
6. Install exhaust port flanges and retaining rings (from stock system) onto head pipes. (FREEDOM PERFORMANCE recommends replacement of exhaust port gaskets and retaining clips if damaged or worn out. **(See figure 2.6)**
7. Install header assembly marked as **FL305-F1** into exhaust port by first and carefully aligning the flange holes with the studs on the engine port, secure it with stock flange nuts finger tight bring nuts all the way but, some assistance may be required. **DO NOT TIGHTEN AT THIS TIME YET.**
8. Install t-Bolt clamp over muffler inlet. Make sure screw is oriented in the right direction for easy tightening access. **(See figure 2.7)**
9. Install muffler, slide muffler inlet over header and secure it to the saddle bag bracket using stock 5/16-18 screws and a 1/2" socket or wrench, tighten both screws. **(See figure 2.8, 2.9 and 2.10)**
10. Align P-Clamp and secure it to mounting bracket as shown with a 3/8"-16 carriage bolt and tri*lock flange nut. You may need some pump pliers to close clamp when inserting carriage bolt thru the slot. **(See figure 2.11)** *NOTE: mounting bracket sits between P-Clamp like a sandwich. If motorcycle has been lowered or lifted you may place it on top or bottom to make sure it aligns with the muffler once mounted on the saddle bag bracket.*
11. Align muffler with headers system, make sure T-Bolt clamp is flush to the edge of the muffler inlet. Tighten P-Clamp using a 9/16" socket or wrench, tighten T-bolt using a 7/16" deep socket or wrench. Make sure this clamp will not be on the way of the collector heat shield if so, rotate it.
12. Tighten head port flange nuts using a 1/2" deep socket (refer to owner's manual for torque specification)
13. Route oxygen sensor cables as they were prior to installation and connect to harness. Use the provided zip-ties to secure cables. Cut off excess tail.
14. Mark heat shields. Using painter tape cut a piece and stick it over the both shields in the same direction where the shield clip is welded inside. This is so when the shield is installed over the pipe you will know where to insert hose clamps and the direction of insertion for an easier installation, now mark the center of the clip with a marker and the arrow as shown in the picture. **(See figure 2.12)**
15. Install heat shields. Start with front shield first **FL305-F2**, place front shield over front pipe, now insert hose clamps by carefully looping the tail of clamp and engaging the welded clip inside shield. **Clamp # 24 is for the header section and # 40 for the collector section.** Use a 5/16" nut driver but do not tighten at this time yet. **(Note: arrow indicates the direction of insertion of clamp)** **(See figure 2.13)** *NOTE: both shields front and rear will seat over a half ring welded to both pipes, this shields must be flush to one another and sit at the middle of the ring. (See figure 2.14)*
16. Repeat step with rear shield **FL306-F2** align both shield and tighten using a 5/16" nut driver.
17. Install collector heat shield carefully sliding from back to front (left to right) making sure not to scratch muffler surface. Once in place secure it with 3 hose clamps #24 for the front section and # 40 for the back. **(See figure 2.15 and 2.16)**
18. Re-install right side floorboard use small 3/8" flat washers and 3/8"-16 screws the longer screw goes in front (3-1/4") and the shorter (2") in the back use 5/16" hex key wrench. **(See figure 2.17)**
19. Install end caps. Use a 1/4"-20 x 1/2" bottom head screw and split washers with a 5/32" hex key wrench. End caps have multiple threaded holes for you to choose the desired rotation of the end caps. It is recommended to use some type of locking glue over the screw threads.
20. **Double check all hardware and make sure is all tightened.**
21. Re-install plastic cover and saddle bags. Remove left side saddle bag bracket there is no need to have it there as there is no left side muffler. **(See figure 2.18)**
22. Check for adequate clearance between all exhaust system components and motorcycle accessories prone to heat damage.
23. 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.



Figure 2.1 loosen clamps right

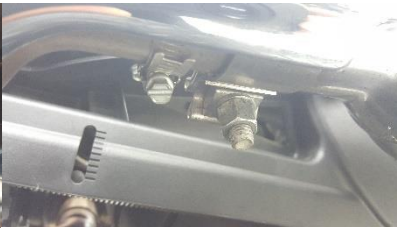


Figure 2.2 loosen clamps left



Figure 2.3 remove saddle bracket screws



Figure 2.4 remove floorboard



Figure 2.5 remove crossover clamp



Figure 2.6 loosen crossover pipe clamp

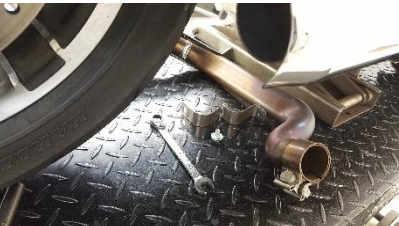


Figure 2.7 remove crossover pipe



Figure 2.8 remove plastic side cover

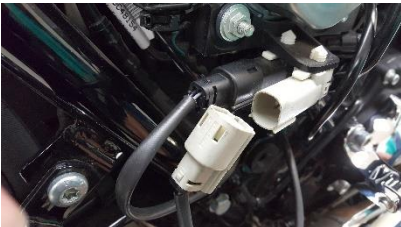


Figure 2.9 disengage Oxygen sensor harness



Figure 2.10 remove flange nut



Figure 2.11 remove oil pan bracket

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Figure 2.1 Hardware.



Figure 2.2 Remove clutch cover.



Figure 2.3 Install mounting bracket.



Figure 2.4 Install P-Clamp as shown.



Figure 2.5 Install Oxygen sensors.



Figure 2.6 Install flanges and retaining rings.



Figure 2.7 Install T-Bolt clamp as shown.



Figure 2.8 Install muffler.

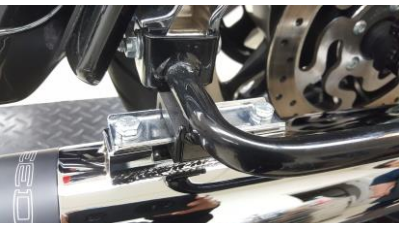


Figure 2.9 tighten both screws with a 1/2" wrench.

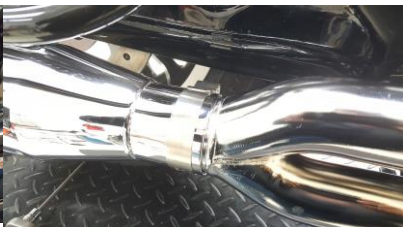


Figure 2.10 T-Bolt clamp faces in and points down.

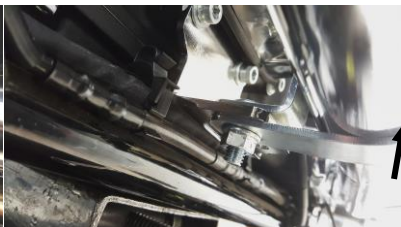


Figure 2.11 Align P-Clamp to mounting bracket.



Figure 2.12 Mark center of welded clips with an arrow.



Figure 2.13 Install hose clamps as shown.



Figure 2.14 Install heat shields.



Figure 2.15 Install collector heat shield.



Figure 2.16 Both shields and collector shield installed.



Figure 2.17 Install passenger peg.



Figure 2.18 Remove left side saddle bracket.

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.