

**EXHAUST SYSTEM 2-INTO-1
UNION RIGHTH SIDE ONLY**

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 (951) 898-4733



PACKAGING IN00258-HW (*) =ASSEMBLED

PART NUMBER	DESCRIPTION	QTY	PART NUMBER	DESCRIPTION	QTY
I150-F1	FRONT HEADER ASSEMBLY	1	HWB0069	M8X1.25X20 FLANGE SCREW ZINC PLATED	4
I150-F2	FRONT HEAT SHIELD	1	HWB0051	¼"-20 X ½" BUTTON HEAD CAP SCREW ZINC PLATED*	4
I151-F2	REAR HEAT SHIELD	1	HWB0008	3/8"-16 X ¾" CARRIAGE BOLT ZINC PLATED	1
MIN230-F5	RIGHT SIDE MUFFLER	1	HWB0071	M8X1.25X40 SOCKET HEAD SCREW BLACK OXYDE	1
A155CN-F2	MUFFLE CONE	1	HWN0004	3/8"16 TRI-LOCK NUT ZINC PLATED	1
MI105-ST-F2	RIGHT SIDE MUFFLER SHIELD	1	HWN0028	M8X1.25 FLANGE TRI-LOCK NUT ZINC PLATE	2
MBK-I148-F4	MOUNTING BRACKET	1	HWW0003	½" SPLIT WASHER ZINC PLATED*	4
MBK-I156-F4	LEFT SIDE SADDLEBAG BRACKET	1	HWW0022	M8 FLAT WASHER BLACK OXYDE	1
A156-LCB-F8	LOUVER BAFFLE	1	HWC0002	HOSE CLAMP # 24 STAINLESS STEEL	8
IN00258-HW	HARDWARE BOX	1	HWC0005	HOSE CLAMP # 56 STAINLESS STEEL*	1
IN00258-INS	INSTRUCTION MANUAL	1	HWC0009	T BOLT CLAMP # 69	1
A125-O2-F14	18MM TO 12MM SENSOR ADAPTER	2			

REMOVING STOCK EXHAUST SYSTEM

- Place the 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.
- Freedom Performance recommends using lubricant oil in all joints to ease the removal.
- Remove both, left and right plastic side panels to access cable harnesses.
- Disengage cable harness. (refer to owner's manual) (See figure 1.2 and 1.3)
- Remove saddle bags, open lid and remove the two screws holding each bag to frame using an M6 hex key wrench, now place them aside. (be careful not to scratch your bags place them on a rug or stand. (See figure 1.4 and 1.5)
- Loosen both clamp holding mufflers in place using a 14mm socket or wrench. These clamps are located in front of the muffler nose. (See figure 1.6)
- 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 1.7)
- If equipped with antenna remove bracket with an 8mm wrench or socket (pay attention to the assembly as you will need to re-install it the same way, we recommend taking pictures on every step you make) (See figure 1.8)
- Remove the two rubber caps on top of each muffler bracket.
- Remove two hose clamps holding heat shields to muffler, one on each side using a 6.5mm screw driver or flat screw driver. These clamps are located right in front of each muffler. (See figure 1.9)
- Remove both mufflers by pulling backwards. You may need some penetrating oil to ease removal. WD40 works fine. (See figure 1.10 & 1.11)
- 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 1.12 & 1.13)

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.

13. Remove left side shield using a flat screw driver, a 6.5mm nut driver or flat screw driver. (See figure 1.14)
14. Remove main heat shield (right side) using a 6.5mm nut driver or flat screw driver. (See figure 1.15)
15. Loosen join clamp using a 5mm hex key wrench, open, disengage bolt and pull clamp towards the front tire. Now pull collar and gasket as well. (See figure 1.16)
16. Remove silencer assembly. Remove two screws holding silencer to motorcycle frame using a 14mm socket or wrench start with the left side first. Now pull silencer assembly backwards just enough to disengage from header assembly and set down. Remove silencer and set side, some assistance may be required. (See figure 1.17, 1.18 & 1.19)
17. Remove front and rear heat shield using a 6.5mm nut driver or flat screw driver. (See figure 1.20)
18. Disengage O2 sensor harness from rear header. Refer to owners' manual for proper procedures disconnecting sensor harness.
19. Remove sensor from front pipe using a 14mm wrench, be careful not to twist the cables too much and cause damage.
20. 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).
21. Remove header assembly carefully, it is recommended you place rags or a piece of cardboard next to the fins on the heat exchanger to prevent damages to it. Painter tape works well too. (See figure 1.21)
22. Remove Oxygen sensors from rear pipe using a 14mm wrench. Save sensors for re-use with your new system.
23. Remove screws holding mounting bracket from motorcycle frame using two wrenches 10mm and 13mm.
24. Remove this bracket by pulling inwards towards the motorcycle to disengage from panel.

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 parts during 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. **NOTE:** Installing this exhaust requires drilling a hole in stock bracket, this bracket is the one holding right side panel however, it does have only one hole and the mounting bracket requires two. This stock bracket is needed to support right side plastic panel and will be installed beneath mounting bracket. Steps are as follow:
3. Remove mounting bracket **MBK-1148-F4** from bag. Place new bracket over stock bracket. Align stock bracket with new bracket in such a way the both holes are concentric to each other, make sure top of both brackets are parallel to each other. Clamp both bracket to prevent them from moving. Mark the center of the hole on the stock bracket with a marker or scribe. You can either use the new bracket as a guide to drill or you can unclamp it, is your choice. The hole diameter calls for a M8 screw any drill size close to it will work we recommend 9mm or 11/32" drill bit but you can do it bigger. (See figure 2.1 & 2.2)
4. Saddle bags are sitting on top of mufflers, this system requires left side bracket to support saddle bag since stock muffler will be removed.
5. Install left side saddle bag bracket support. If equipped, remove plastic cover on left side where crash bars are installed using a 6mm hex key wrench. **NOTE: if crash bars are intended to be installed together with this system you will need to modify them in this case you may install crash bars over bracket and use spacers and longer screws to compensate for the offset.** Install left side bracket, secure bracket where the muffler was installed just like the right side, align front hole with welded spacer to frame and secure it using provided M8x1.25x40 head cap screw and flat washer. Tighten screw using a 6mm hex key wrench. Now tighten rear end of both brackets using a 13mm socket or wrench. (See figure 2.17, 2.18, 2.19 & 2.20)
6. Insert stock drilled bracket to plastic side panel. Just the way it was prior to installation. (See figure 2.3)
7. Install system bracket **MBK-1148-4** on top of side panel bracket as shown using stock screws, now tighten screws using a 13mm socket or wrench.
8. If using stock Oxygen sensors, (M12X1.25) use adapters provided on hardware kit. If using aftermarket M18X1.5 do not use adapters.
9. Install rear Oxygen sensor. Apply a small amount of anti-seize compound to the threads of the O2 sensors and install it into the new header Assembly using a 14mm wrench. **NOTE:** Be careful not to get anti-seize on sensor tip, it may affect sensor functionality. (See figure 2.4 & 2.5)
10. Install header pipe assembly **I150-F1** Insert front end of pipes into the engine ports and secure it with stock flange nuts, bring nuts all the way finger tight only. Some assistance may be required. (See figure 2.6)
11. Install front Oxygen sensor using a 14mm wrench. Apply a small amount of anti-seize compound to the threads of the O2 sensors and install it 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. Make sure not to damage cables when twisting. (See figure 2.7)
12. Connect rear Oxygen sensor harness.
13. Secure header assembly to mounting bracket using one 3/8"-16 x 3/4" carriage bolt and lock nut. Align bracket welded on header pipe to mounting bracket, both brackets must be flush to each other's front end. Tighten screws using a 9/16" socket or wrench. (See figure 2.8)
14. Align system and tighten head port flange nuts using a 13mm socket.
15. 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)
16. Install front heat shield first, the front clamp must be inserted into welded clip before placing shield on top of pipe as there is not enough space to do it after placing shield over pipe, now place shield on top on header and secure it with hose clamps. Insert clamps in the direction on the arrow see pictures for details. Use a 5/16" nut driver or flat screw driver. Align and tighten. (See figure 2.10, 2.11 & 2.16)
17. Repeat step with rear heat shield. Place heat shield over rear pipe, insert all clamps (follow arrow direction of insertion) then tighten all hose clamps after heat shields are aligned. Both heat shield's rear end must be flush to each other's prior to tightening. (See figure 2.12)
18. Insert large barrel clamp over the slotted end of muffler inlet with the screw facing backwards and the head pointing down. Leave clamp flush to edge of inlet. (See figure 2.13)
19. Install right side muffler, **NOTE:** this muffler has been pre-assembled, it has heat shield, cone and end cap already in place. Double check that all components are tightened and adjust if necessary. Use 5/32" hex key wrench for cones and end caps and 5/16" nut driver for shield

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clamp. Insert muffler inlet over collector and align bracket welded on muffler to fender bracket where the stock muffler was prior to installation. Use provided screws to secure muffler to motorcycle. Tighten muffler screws using a 13mm socket or wrench. If equipped with antenna install it now. Make any adjustments if necessary, leaving a gap of about 1/16" on all shields where they meet each other. (See figure 2.14 & 2.15)

20. Tighten barrel clamp using a 10mm socket or wrench.
21. Install floorboard back in place if more clearance is needed on floorboard use some washer to space it out use an 8mm hex key wrench. (See figure 2.21)
22. Check all connections make sure everything is tightened before turning engine on.
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.
24. Install saddle bags in place, connect cable harnesses and install side panels. Don't forget to tighten saddlebag screws.

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 disconnect cable harness



Figure 1.3 disconnect cable harness



Figure 1.4 remove bags



Figure 1.5 remove bags



Figure 1.6 loosen muffler clamps

Note: Use good and safe practices when removing and installing your new exhaust system to prevent injuries that include but are 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 the motorcycle before any work is done.



Figure 1.7 remove screws on mufflers



Figure 1.8 remove antenna



Figure 1.9 remove hose clamps



Figure 1.10 remove mufflers



Figure 1.11 remove mufflers



Figure 1.12 remove floorboard carefully



Figure 1.13 hold it from crash bars



Figure 1.14 remove left heat shield



Figure 1.15 remove main shield



Figure 1.16 remove clamp



Figure 1.17 remove screw



Figure 1.18 remove screw

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Figure 1.19 remove silencer

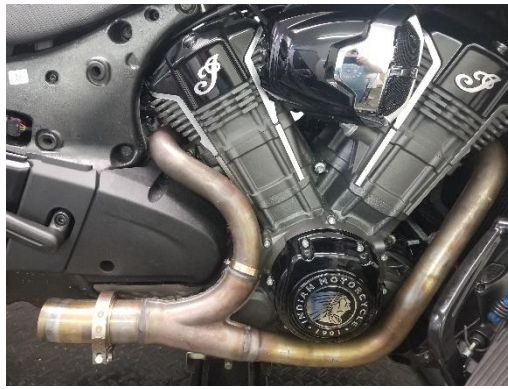


Figure 1.19 remove shields



Figure 1.19 remove entire system



Figure 2.1 place new bracket on top of stock bracket and mark the center



Figure 2.2 shown with hole drilled



Figure 2.3 install bracket over stock bracket



Figure 2.4 install adapters if using stock sensors



Figure 2.5 install rear sensor



Figure 2.6 install header assembly



Figure 2.7 install front oxygen sensor



Figure 2.8 secure headers from mounting bracket



Figure 2.9 mark center of clips and arrow direction as shown

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Figure 2.10 insert front clamp only



Figure 2.11 place front shield over pipe



Figure 2.12 place rear shield over pipe



Figure 2.13 insert clamp over muffler inlet



Figure 2.14 install right side muffler

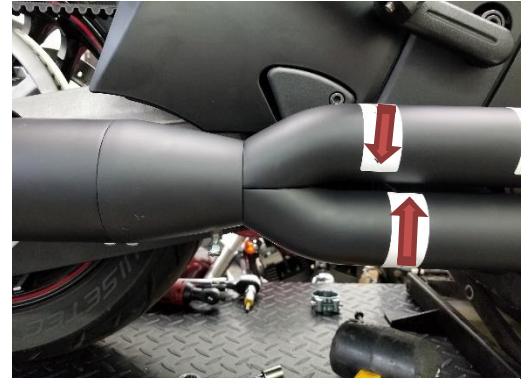


Figure 2.15 leave a gap of about 1/16" between heat shields.



Figure 2.16 Arrows indicate direction of insertion



Figure 2.17 remove left side plastic cover



Figure 2.18 cover removed



Figure 2.19 install bracket



Figure 2.20 install bracket



Figure 2.21 install floorboard

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