



**EXHAUST SYSTEM # HD00381
SHARP CURVE RADIUS HIGH (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.

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. FOR MOST MODELS PASSENGER FOOT PEG RELOCATOR ARE AVAILABLE FOR THIS SYTEM

PACKAGING HD00381-HW (*) =ASSEMBLED

| PART NUMBER | DESCRIPTION | QTY | PART NUMBER | DESCRIPTION | QTY |
|--------------|------------------------------------|-----|-------------|------------------------------------------------------|-----|
| SP240-F1 | FRONT HEAD PIPE | 1 | HWB0007 | 5/16"-18 X 5/8 SERRATED FLANGE HEX SCREW ZINC PLATED | 3 |
| SP241-F1 | REAR HEAD PIPE | 1 | HWB0006 | 5/16"-18 X 7/8" HEX SCREW ZINC PLATED | 1 |
| SP240-F3 | FRONT HEAT SHIELD | 1 | HWB0001 | ¼"-20 X 3/8" BUTTON HEAD SCREW ZINC PLATED | 2 |
| SP241-F3 | REAR HEAT SHIELD | 1 | HWN0003 | 5/16"-18 K-LOCK NUT ZINC PLATED | 2 |
| MGS175-F5 | TWIN RADIUS MUFFLER WITH CROSSOVER | 1 | HWW0008 | 3/8" SPLIT WASHER ZINC PLATED | 1 |
| MBK-SP152-F4 | MOUNTING BRACKET (04-UP) | 1 | HWW0006 | 5/16" SPLIT WASHER ZINC PLATED | 1 |
| MBK-M115-F7 | BACK PLATE BRACKET | 1 | HWW0003 | ¼" THIN SPLIT WASHER ZINC PLATED | 2 |
| HWC0011 | BARREL CLAMP # 60 STAINLESS STEEL | 2 | HWW0018 | M8 FLAT WASHER 4MM THICK (8.5M ID X 20.75MM OD) ZINC | 1 |
| HWC0002 | HOSE CLAMP # 24 STAINLESS STEEL | 4 | HWM0002 | PLASTIC TIE DOWN 7" LONG BLACK | 1 |
| HWC0003 | HOSE CLAMP # 28 STAINLESS STEEL | 3 | HD00381-HW | HARDWARE BOX | 1 |
| A110-O2-F14 | 12MM X 1.25 OXYGEN SENSOR PLUG | 2 | HD00381-INS | INSTRUCTION MANUAL | 1 |
| A125-O2-F14 | 18X1.50MM TO 12X1.25MM O2 ADAPTOR | 2 | | | |
| A225ECA-F10 | SYSTEM END CAP | 2 | | | |

Please read and follow the installation instructions and do not hesitate to call us for any technical questions at (310) 324-0415 www.freedomperform.com



REMOVAL INSTRUCCIONS STOCK (04-06) (07-13) (14-UP)

1. Models without oxygen sensors skip step 2.
2. **(07-13)** unplug front oxygen sensor from harness. Carefully cut the cable tie holding the wiring now remove 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. **(14-UP)** these models have a smaller sensor 12mm x 1.25 locate the front sensor disengage from harness, pull the clamps holding the cables and route the sensor cable out. The rear sensor harness is located on the left side of the motorcycle, pull out and fold down the side cover (below the seat) disengage sensor from harness and cable clips. **(See fig 1.1, 1.2 and 1.3)**
3. **(04-13)** remove cylinder exhaust port flange nuts from each head pipe using a ½" socket positioned at the cylinder head and save for re-installation.
4. If equipped, remove rear carriage bolt, acorn nut and clamp holding the rear head pipe to the belt cover bracket using a 9/16" deep socket or wrench. **(See fig. 1.4)**
5. Remove bolts holding mufflers to the transmission mounting bracket. Most cases a ½" socket or wrench is used. Loosen clamps in front of each muffler using a 9/16" socket or wrench. **(04-13)** remove mufflers carefully as these models have a crossover system which connects the front of the muffler to the stock crossover mounting bar. **(14-UP)** don't have the crossover bar remove mufflers and set them aside. **(See fig. 1.5)**
6. **(04-13)**, remove front and rear headers and **(14-UP)** remove entire system together as the headers is connected as one assembly. Note: some assistance may be required.
7. If equipped remove oxygen sensors from head pipes **(07-13)** use a 7/8" or 22mm wrench, models **(14-UP)** use a 14mm open wrench and save for re-use on your new Freedom Performance exhaust system.

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.

8. Remove drive belt cover to gain access to remove stock mounting bar. You will need two hex keys a 3/16" and a 5/16", remove the three screws 2 of them 1/4" with the 3/16" hex key and the last screw 3/8" with the 5/16" hex key wrench. **(See fig. 1.6 and 1.7)**
9. **(04-13)** using a T30 Torx driver, loosen and remove the brake rod from the rear eyelet section. Models **(14-UP)** remove retaining clip located on the brake rod pin (be careful not to lose the ring as this part is too small) now pull the pin out. Use two open wrenches to remove the rod from the brake system assembly a 9/16" and a 1/2". It may be necessary to remove peg assembly especially on mid control systems, if you decide to remove them use a 5/16" hex key wrench and remove the 2 screws holding assembly together this will make the installation way easier. **(See fig. 1.8 and 1.9)**
10. **(14-UP)** remove the stock mounting bar and set aside using a 1/2" wrench. **(04-UP)** using a 5/16" hex key wrench remove stock mounting bracket by removing the three 3/8" screws
11. Remove both retaining rings and flanges from stock exhaust system using snap ring pliers. Inspect retaining rings prior to installation and if they are damaged, replace them. Inspect gaskets if damaged or worn replace them. Exhaust port gaskets.

FREEDOM PERFORMANCE INSTALLATION INSTRUCTION

1. Remove exhaust system from protective packaging, it has been pre-assembled for easy installation. Place it 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. Check that all the appropriate hardware is available on your hardware kit. **(See figure 2.1)**
3. If equipped Install O2 sensors (from stock) on head pipes using anti-seize compound apply it to the thread only. Be careful not to use too much or to make contact with the tip of the sensor as it may affect its functionality. Models **(04-06)** install an adaptor 18mm-12mm then use the 12mm plug. **(07-13)** install sensor in bong as it is with no adaptors. **(14-UP)** models install the adaptor to reduce from 18mm to 12mm bung now install the sensors in place. **(See figure 2.2, 2.3 & 2.4)**
4. Install exhaust port flanges and retaining rings (from stock system) onto head pipes. (FREEDOM PERFORMANCE) recommends replacement of exhaust port gaskets if damaged or worn out. **(See figure 2.5)**
5. Reinstall drive belt cover using the socket head cap screws from stock. Note: **a washers (M8)** is provided to space drive belt cover on the right lower 1/4" socket cap head screw, this is because when the stock bracket is removed there will be a gap so all three bolts will not be flush with each other, the washer will provide the necessary space to fill the gap install it between the cover and the transmission. **(See figure 2.6 & 2.7)**
6. **(04-UP)** install mounting bracket **MBK-SP152-F4** using a stock 3/8" screw a 5/8"-18 x 7/8" hex screw, 5/16" split washer from the kit to belt cover. NOTE: the stock screw comes with its flat washer but it's too big, replace it with the supplied 3/8" split washer. Install the 5/16" hex screw in the second bracket hole and from the inside of the cover install the 5/16"-18" k-lock nut, the smaller diameter hole has a slot in case you need to adjust the rotation of the bracket to align it with the muffler assembly. **(See figure 2.8 & 2.9)**
7. Inspect both gaskets on engine ports and replace if damaged or worn out.
8. Install headers into exhaust ports. Note: some assistance may be required and in some cases due to accessories it may be easier to install O2 sensors after the header system is installed.
9. Install front header first **(SP240-F1)** secure it with the stock flange nuts all the way but, **DO NOT TIGHTEN AT THIS TIME YET.** **(See figure 2.10)**
10. Repeat previous step with rear head pipe. **(See figure 2.11)**
11. Install # 60 barrel clamps over the slotted section of muffler assembly **(MGS175-F5)** making sure that screw's head are pointing in the right direction. **(See figure 2.12)**
12. Using a marker, mark a line on both pipes about 1.375" (1-3/8") from the edge of the pipe as shown; this is so you know how deep the pipe would go inside muffler inlet. **(See figure 2.13)**
13. Install muffler by inserting the muffler onto both pipes at the same time, align with mounting bracket and insert back plate bracket **(MBK-M115-F7)** into the bracket welded on the muffler and use three 5/16"-18 x 5/8" flange serrated bolts to secure muffler body to mounting bracket. The lower bracket you will use a 5/6"-18 k-lock nut provided in the kit NOTE: Make sure the rear of the bracket welded to the muffler seats flush with the front of the mounting bracket. **(See figure 2.14, 2.15)**
14. Align muffler to bracket and tighten (x3) screws using 1/2" wrench, tighten head port engine flanges using a 1/2" socket.
15. 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 piece and tape it to 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. Slide the rear shield. **NOTE:** The arrows marked on the picture indicate the direction where the head of the screw must be in order to tight them once the system is installed **(See figure 2.16)**
16. Install front heat shield **(SP240-F3)** over the front pipe and muffler assembly carefully align shield. Now insert the worm clamps in a way that they can be accessed to be tightened. Use clamps as follow: **(#24)** over the header and **(#28)** over the muffler section. **(See figure 2.17 & 2.18)**
17. Repeat previous step with rear heat shield **(SP241-F3)** it's recommended that a non scratching rag is placed on top of the front shield to prevent scratches when installing and aligning rear heat shield. **(See figure 2.19)**
18. Align heat shields and tighten worm clamps using a 5/16 nut driver. Tighten to the mounting bracket bolts first using a 1/2" wrench tighten barrel band clamps and with a hex key wrench tighten bolt clamps. Now tighten exhaust port flanges with a 1/2" socket wrench.
19. Route oxygen sensors cables and engage harness, **(04-13)** install a plastic tie down to hold sensor cables to frame and cut-off excess tail on the front sensor and the rear leave it as it was prior to removal. **(14-UP)** both sensors cables should be routed the same way as they were originally, close left side cover.

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.

20. **(04-13)** reinstall brake rod; it is recommended that some type of thread locking compound be used to hold it in place. **(See figure 2.20)**
21. **(14-UP)** install brake pedal assembly the same way it was before removal, insert pin in brake rod secure it with retaining ring and tighten brake rod assembly using a 9/16" and 1/2" open wrenches. Tighten screws holding peg assembly to frame using a 5/16" hex key wrench. **(See figure 2.21)**
22. Install end caps using two 1/4"-20 x 3/8" button head screws and split washers, we recommend for you to use locking glue to secure the screws from falling out. End caps have different holes locations for you to choose the rotation you want. **(See figure 2.22)**
23. **Re-check all screws, bolts, nuts and clamps and make sure they are properly tightened.**
24. Check for adequate clearance between all exhaust system components and motorcycle accessories prone to heat damage.
25. 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.



Fig. 1.1



Fig. 1.2



Fig. 1.3



Fig. 1.4



Fig. 1.5



Fig. 1.6



Fig. 1.7



Fig. 1.8



Fig. 1.9

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.



Figure 2.1 Hardware.



Figure 2.2 install adapter & plugs.



Figure 2.3 Install 18mm sensors.



Figure 2.4 Install 12mm sensors.



Figure 2.5 install retaining rings and flanges.



Figure 2.6 Install an (8mm) thick washer as spacer.



Figure 2.7 Washer installed as spacer.



Figure 2.8 install bracket use new 3/8" split washer discard stock.



Figure 2.9 Bracket installed.



Figure 2.10 Install front pipe.



Figure 2.11 Install rear pipe.



Figure 2.12 Insert (2) barrel clamps note direction of head screw.



Figure 2.13 Mark a line @ 1-3/8" from edge of pipes.



Figure 2.14 Install muffler assembly



Figure 2.15 Mounting bracket and welded brackets are flush at edge.

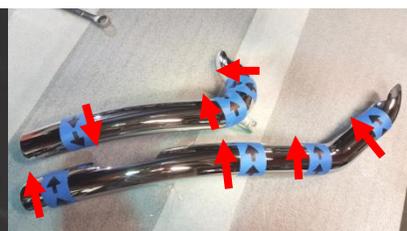


Figure 2.16 Use painter tape, mark center of clip and arrow as shown.



Figure 2.17 Install front shield.



Figure 2.18 Arrow indicates direction of clamp insertion.



Figure 2.19 Install rear shield.

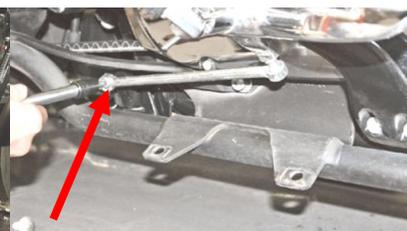


Figure 2.20 Re-install brake rod as it was prior to installation.



Figure 2.21 Install brake rod and controls.



Figure 2.22 Install end caps.

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.