



HARDWARE



BRACKETS

PACKER #: _____

INSTRUCTION #	IN00457-476 INS
-----EXHAUST SYSTEM-----	
SHARP CURVE RADICAL RADIUS (2-1-2)	

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.

Stock exhaust system removal.

Please follow all necessary steps to safely perform your work, motorcycles are heavy, and injuries can occur. Safety is first. We encourage you to read owner's manual.

Place motorcycle on secure jacks, on its own stand or ramp making sure is safe to proceed with removal and installation.

- 1) Familiarize yourself with all components to be removed and tools needed to perform all work.
- 2) Locate muffler clamps securing muffler to header assembly. (See fig 1.1)
 - a. Loose both clamps using a 15mm socket or wrench as shown, if necessary, use penetrating oil to ease removal.
 - b. Apply penetrating oil to pipe and muffler connection.
- 3) Locate screws securing mufflers to mounting bracket. (These are two hex screws) (see fig 1.2)
 - a. Loose and remove both screws using a 10mm wrench as shown, we recommend using a wobble socket extension.
 - b. Once screws are out of the way pull rear muffler backwards (top), with a wiggling movement pull until it comes out. Some penetrating oil will ease removal.
 - c. Repeat step with front muffler (bottom).
 - d. Place mufflers aside.
- 4) Locate side panel and remove it.
 - a. Oxygen sensor harness for rear pipe is located behind side plate cover. Using a 5mm socket head wrench remove the 3 screws holding cover in place.
 - b. Place cover aside over a soft rag to prevent scratches.
 - c. There is a screw securing a plastic bracket which holds sensor harness to frame, using a 6mm socket head wrench remove screw. (See fig 1.3)
 - d. Locate oxygen sensor harness and disengage. For steps to disengage harness refer to owner's manual.
- 5) Disengage front Oxygen sensor harness from front pipe.
 - a. This sensor is in front of front cylinder head, pay attention to cable route so that it will be reinstalled in the same way with your new system.
 - b. Some motorcycles have a plastic tie down holding harness in place if this is the case, you'll need to cut the plastic tie down with some cutters.
- 6) Remove right side peg assembly. (See fig 1.4)
 - a. Locate the two screws holding right side peg/brake assembly, using an 8mm hex key wrench remove the two screws.
 - b. Be very careful with brake line hose do not bend or twist to prevent damages to it. We recommend you hold assembly with a bungee cord from frame, be mindful with fender to prevent scratches.
- 7) Remove header assembly.
 - a. It is possible to remove system without separating the two sections (front and rear headers) but it is challenging we recommend the following steps.
 - b. Remove head port flange nuts. Use a small wrench with joint and a 13mm socket. If needed add lubricant. There are two nuts per pipe (4 total)

- c. Locate clamp securing front section of header with rear section. Use a 15mm socket wrench and loosen clamp.
 - d. Use some lubricant to easy removal when disengaging sections.
 - e. Once head port flange nuts have been removed, pull rear section of pipe backwards to disengage from front section. Some assistance may be required.
 - f. Once disengaged remove header sections and set aside.
 - g. Remove Oxygen sensor from stock headers. Use a 14 mm wrench. If lube is needed to ease removal be mindful not to contaminate sensor tip with dirty hands or oil as this will cause the sensor to malfunction with your new system.
- 8) Remove stock mounting bracket. (See fig 1.5)
- a. Locate screws holding mounting bracket assembly, using an 15mm socket wrench remove the 3 screws.
 - b. Place parts aside.

Exhaust system installation.

These instructions are intended for many different systems, however, the steps necessary to accomplish installation are relatively the same.

- 1) Remove exhaust system from protective packaging it has been pre-assembled for you to see how its assembled, disassemble system and lay it down, 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.
- 2) Note: We recommend using painters' tape to cover parts and accessories on motorcycle areas where damage can occur during installation.
- 3) Before installation refer to hardware pictures to verify you have the correct components.
 - a. System hardware. (See fig 2.1)
 - b. System mounting bracket with screws and spacer shown. (See fig 2.2)
- 4) Attach mounting bracket.
 - a. For this bracket you will need a spacer a shown, the spacer will be placed in the back of the bracket and at the closest hole from the rear tire. (See fig 2.2)
 - b. Re*use stock head caps screws.
 - c. Before installing insert top screw as shown in picture (5/16"-18) serrated flange screw, otherwise there will no space to insert it once mounting bracket in installed. (See fig 2.3)
 - d. Align bracket to frame threaded holes and tighten using an 8mm hex key wrench.
- 5) Install Oxygen sensors. Apply a small amount of anti-seize compound to the threads of the O2 sensors and install them into new head pipes. *NOTE: Be careful not to get anti-seize on sensor tip, it may affect sensor functionality*
 - a. Apply anti-seize compound. (See fig 2.4)
 - b. From stock install O2 sensors.
 - c. If installing stock sensors, you will need an adapter (provided) this adapter will reduce the 18mm threads to 12mm. to install the adapter use a 3/4" wrench. (See fig 2.5)
 - d. Now install sensors using a 14mm wrench. (See fig 2.6)
 - e. If installing and aftermarket fuel module with 18mm sensor no need to install adapters.
 - f. If installing without sensors, plugs will be needed (not provided).
- 6) Install head pipes.
 - a. Install header, align pipes into ports starting with front port first then insert rear head pipe into rear engine port. (See fig 2.7, 2.8 & 2.9) some assistance may be required.
 - b. Align flanges with threaded studs.
 - c. Secure system with stock head port flange nuts, bring nuts all the way but do not tighten yet.
- 7) Install system muffler.
 - a. Insert barrel band clamps as shown, rear muffler barrel clamp head screw must face up and front muffler screw on barrel clamp must face down. (See fig 2.10)
 - b. Install muffler by inserting muffler onto header pipes simultaneously, head pipes will go into muffler about 1-3/8" (35mm) (See fig 2.11)
 - c. Insert back plate bracket into welded bracket on front muffler. Make sure the flat side mounts against mounting bracket. These are the brackets with nuts attached to them. (See fig 2.12)
 - d. With the provided 5/16-18 x 5/8" serrated hex screws secure muffler to mounting bracket. Bring screws all the way in but do not tighten yet.
 - e. For rear muffler insert nut and attach as shown. (See fig 2.13)
- 8) Align system prior to tightening.

- a. Align header assembly make sure head pipes are inserted all the way into engine port.
 - b. Align welded brackets welded on mufflers to mounting bracket. (See fig 2.12 & 2.13)
 - c. Tighten head port flange nuts using a small wrench and a joint with a 13mm socket. Tighten to owner's manual specifications. (4 nuts total)
 - d. Secure muffler to mounting bracket. Now tighten screws using a ½' wrench.
- 9) Install heat shields. For these steps it is imperative to use caution, space is very tight, and scratches may occur. We recommend using 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 fig. (see fig 2.14)
- a. Install front heat shield. Engage front head pipe by sliding front shield from the back than placing heat shield on top of front pipe. (See fig 2.15)
 - b. #24 clamps are for header pipe section. #28 header clamps for muffler section.
 - c. Insert hose clamps to secure heat shield in place. (See fig 2.16) Note: insert the worm clamps in the direction of the arrow this way it will be easier to access when tightening.
 - d. Repeat step with front heat shield. (See fig 2.17)
 - e. Now tighten barrel band clamps using a 10mm socket or wrench (in some cases a different wrench will be required) (See fig 2.18)
 - f. Align heat shields, (See fig 2.17) tighten screws with a 5/16" nut driver or flat screwdriver.
- 10) Install system end cap. in some cases end cap has been already installed at the factory. If this is the case, just make sure all screws are tightened using a 5/32" hex key wrench. If end cap is not installed proceed to the net steps.
- a. If end cap was not installed remove from box and insert end cap into heatshield, align threaded hole on end cap with hole on heat shields now secure it with provided ¼"-20 x ½" button head screws and split washers. Some end caps can be rotated to your liking.
 - b. Repeat step with the other end cap.
- 11) Connect Oxygen sensor harness.
- a. Locate front harness and connect it. If necessary, secure sensor wire with tie down.
 - b. Route rear sensor wire just like prior to inhalation. (See fig 2.20 & 2.21)
 - c. Connect rear sensor harness back in place and install plastic bracket using a 6mm hex key wrench.
 - d. Install side plate cover and secure, use a 5mm hex key wrench. (See fig 2.22)
- 12) Install peg assembly.
- a. install peg assembly using stock screws. (See fig 2.19)
 - b. Using an 8mm hex key wrench tighten both screws.
- 13) Check all hardware once more and make sure it's all tightened properly.
- 14) 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.

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



Fig 1.1



Fig 1.2

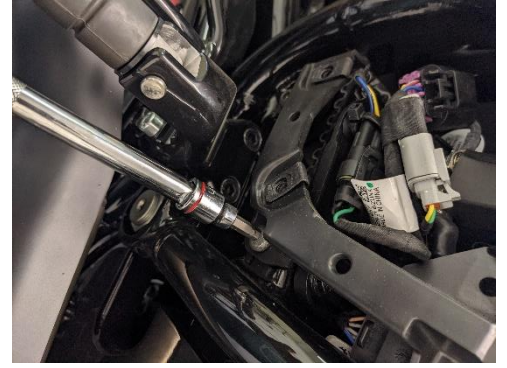


Fig 1.3



Fig 1.4



Fig 1.5



Fig 2.1 Hardware



Fig 2.2 Bracket

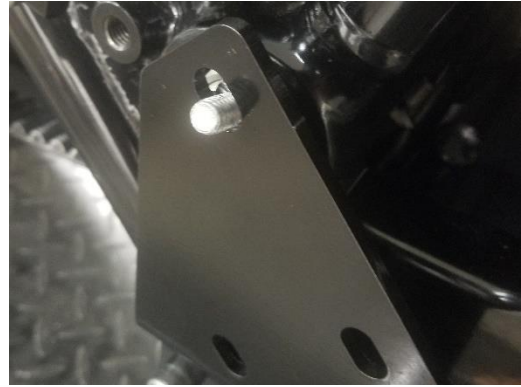


Fig 2.3



Fig 2.4



Fig 2.5



Fig 2.6



Fig 2.7



Fig 2.8



Fig 2.9



Fig 2.10



Fig 2.11



Fig 2.12



Fig 2.13



Fig 2.14



Fig 2.15



Fig 2.16



Fig 2.17



Fig 2.18

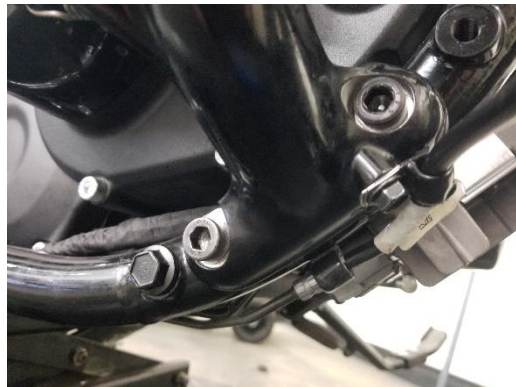


Fig 2.19

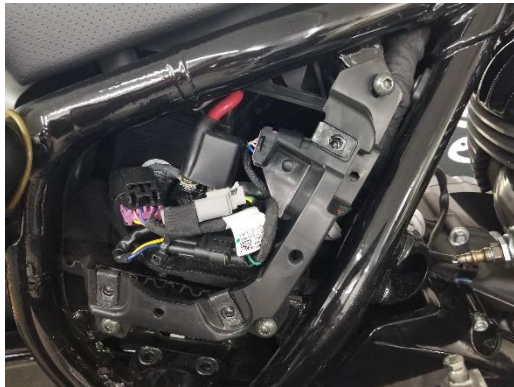


Fig 2.20



Fig 2.21



Fig 2.22



Fig 2.23



Fig 2.24