

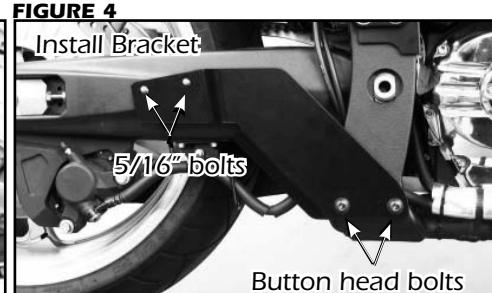
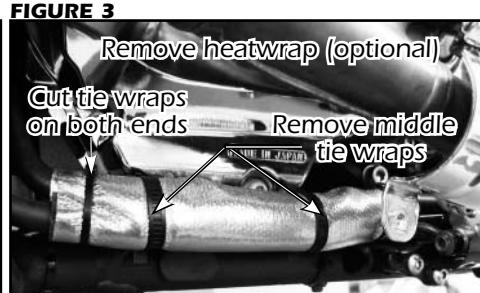
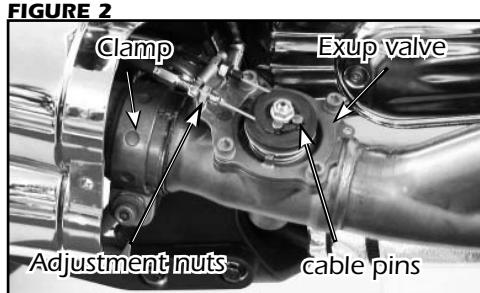
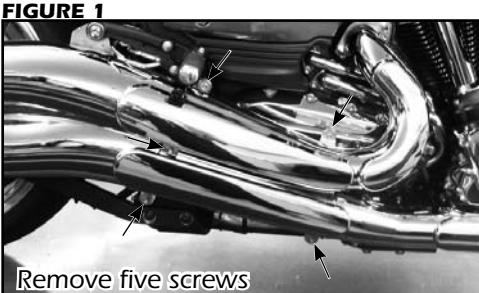
# MORE POWER : LESS NOISE

## YAMAHA® RAIDER BIG RADIUS 2-1 INSTALLATION INSTRUCTIONS PART# 28501



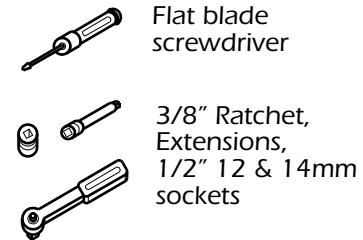
### STOCK EXHAUST SYSTEM REMOVAL

1. Cover the frame tube in front of the exhaust with duct tape or any suitable material to protect frame during exhaust removal.
2. Loosen but do not remove the two bolts on the rear brake pedal assembly and carefully lower it out of the way.
3. Using a 14mm wrench, carefully remove the O2 sensor from the exhaust and let it hang.
4. Remove center heat shield by removing five screws on heat shield (Figure 1).
5. Remove cables from exup valve by loosening the cable tension adjustment nuts, then remove the cables pins from the pulley (Figure 2).
6. Loosen the clamp that holds the muffler bodies to the collector (Figure 2).
7. Remove the three screws holding the muffler bodies to the motorcycle chassis and carefully remove the muffler bodies from the motorcycle (may require assistance).



### TOOLS REQUIRED

- 4, 5, 6 & 8mm Allen Wrenches
- 5/16" Nutdriver
- 1/2", 8, 10, 12, & 14mm Combination wrenches

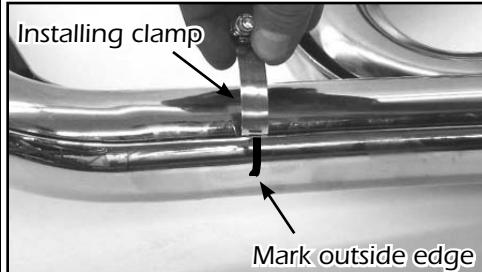
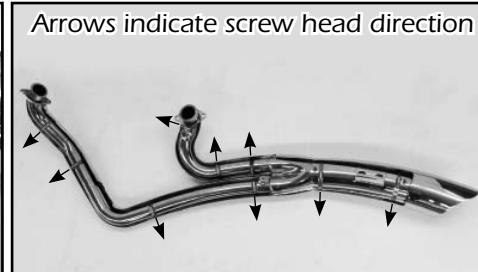
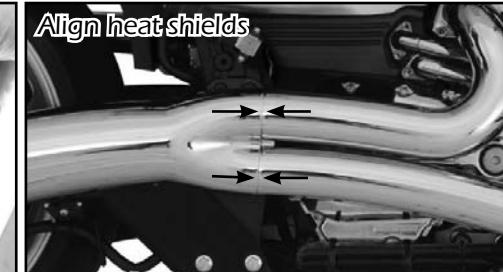


Congratulations, you have purchased the finest exhaust system for your motorcycle on the market. Your Vance & Hines exhaust system is designed and crafted for maximum performance, a perfect fit, a great sound and unbeatable style. Please follow the installation instructions below and if you have any questions, please call our technical support line at (562) 926-5291.

Attention installer (if other than owner), please forward this instruction sheet to the owner of this product. These instructions contain valuable information to the end user.

8. Remove the four nuts holding the exhaust headers to the cylinder heads. NOTE: It may be necessary to loosen the heat shield clamps to access the nuts on the front cylinder. Carefully remove header from the motorcycle (may require assistance).
9. Remove cables from the motorcycle by pulling one of the cables firmly to rotate linkage and have a clear view of cable pin. Push cable back to loosen cable and remove pin. Follow same procedure with the other cable.
10. Check the stock exhaust gaskets to be sure they are in good shape. If you have any doubts as to their condition, replace them.
11. Optional removal of heatwrap on the right side lower frame (Figure 3) (not required): Carefully remove middle tie wraps that holds heatwrap by pushing down lock pin, save them for reuse. Carefully cut tie wraps on both ends.
12. Remove heatwrap. Reinstall middle tie wraps to hold lines on frame. Use new tie wraps (supplied) to replace cut tie wraps on both ends.

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**FIGURE 5****FIGURE 6****FIGURE 7****FIGURE 8**

## VANCE & HINES EXHAUST SYSTEM INSTALLATION

1. Install mounting bracket 491-P to frame by first placing two 5/16" x 5/8" bolts (supplied) in the top two holes. Use two 10mm x 25mm Button head bolts (supplied) to attach the bracket to the frame (Figure 4).
2. Remove head pipe assembly and head pipe heat shields from protective packaging. Place each heat shield on a non-abrasive surface such as a blanket or carpet. Using a felt tip pen, mark outside edge of each heat shield to show location of mounting clips that hose clamps will loop through (Figure 5).
3. Lay head pipes into their respective heat shields.
4. Install #20 hose clamps by feeding tail end of clamps into heat shield clips (Figure 5). Take note of clamp screw head direction (Figure 6). Screw head must be accessible when system is installed on motorcycle for adjustment purposes.
5. Using #56 hose clamps (supplied), and following the same procedures as steps 2,3 & 4 install the muffler body heat shield onto muffler body.
6. Using stock flange nuts, carefully install head pipe assembly into exhaust ports, starting with the rear cylinder. Assistance may be required. NOTE: Do not tighten at this time.
7. Apply a small amount of anti-seize compound to the threads of the O2 sensor and install it into the new head pipe. Pre-wind the wire so that it unwinds while the O2 sensor threads into the pipe. NOTE: Be careful not to get anti-seize on sensor tip, it may affect sensor function.
8. Slide the nut plate (supplied) into the bracket that is welded to the back side of the muffler (Figure 7). Loosely install two 5/16" x 5/8" flange

- head bolts (supplied).
9. Tighten the exhaust port flange nuts and 5/16" flange head bolts.
10. Tighten all hose clamps securing heat shields. NOTE: Align head pipe heat shields evenly with muffler heat shield (Figure 8).
11. Feed wire for the rear O2 sensor through the frame and under the seat. Plug the sensor into the stock wiring connector.
12. Tighten the rear brake pedal assembly mounting bolts.
13. Check for adequate clearance between all exhaust system components and motorcycle accessories prone to heat damage.
14. Be sure to tighten all hardware before starting your motorcycle.
15. After installation and before starting motorcycle, completely clean pipes and mufflers with cleaning solvent and a clean soft cloth that will not leave a residue. NOTE: Any residue, oil, or fingerprints will stain the chrome when the metal heats up.

## EXHAUST CARE - HELPFUL HINTS TO AVOID DISCOLORATION OF EXHAUST SYSTEM

1. When installing a new set of chrome pipes, make sure your hands are clean and free of oil. After installation, thoroughly clean pipes with a soft cloth and cleaning solvent that will leave no residue (chrome wax / polish, glass cleaner, alcohol, ammonia, etc...) before starting the motorcycle.
2. Avoid long periods of idling as this can cause discoloration.
3. Intake leaks can cause the engine to run lean and overheat, this could lead to discoloration.
4. Make sure there are no exhaust leaks at the junction of the exhaust pipes and cylinder head. We recommend replacing gaskets if they are worn.

## VANCE & HINES OPTIONAL ACCESSORIES

### FUELPAK



#### FUEL MANAGEMENT:

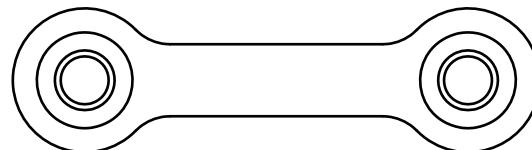
Take the guess work out of fuel injection with Fuelpak Fuel Management. Contact your local dealer or call (562) 921-0071 to order. Visit [fuelpakfi.com](http://fuelpakfi.com) for more information.  
Fuelpak is intended for racing or off-highway use only, and is not legal for sale or use in California on pollution-controlled vehicles.

PLEASE NOTE: Every effort is made for Vance & Hines Exhaust Systems to provide improved cornering clearance. However, due to design and space limitations on some motorcycle models, ground and cornering clearance may not be improved and in some cases may be reduced. Be sure to follow proper installation instructions.

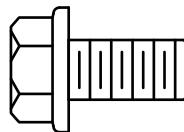
## PACKING LIST



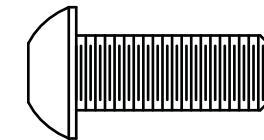
Nylon cable ties x 2



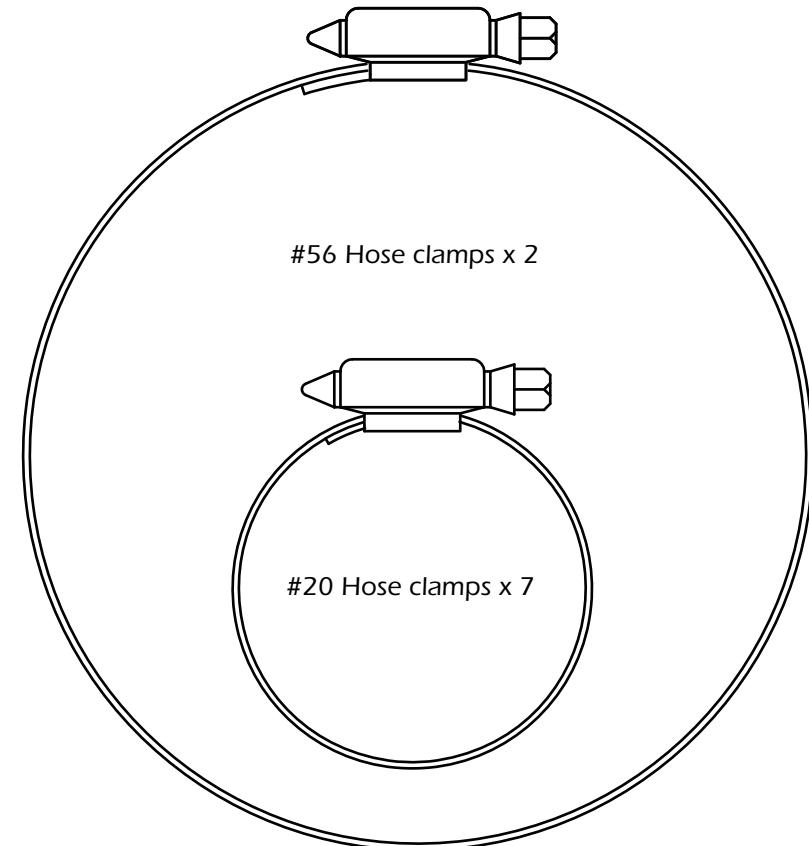
Nut plate x 1



5/16" x 5/8" Flange head bolts x 2



10mm x 25mm Button head bolts x 2



#56 Hose clamps x 2

#20 Hose clamps x 7

### PARTS NOT SHOWN:

491-P	Bracket	x1
Y310FC	Header	x1
Y310HC	Front heat shield	x1
Y311HC	Rear heat shield	x1
D482HC	Muffler heat shield	

## WARRANTY

Vance & Hines exhaust systems are warranted against defects in material and workmanship for a period of 90 days from the date of purchase from an authorized dealer. This warranty does not cover discoloration of chrome finishes. This warranty is limited to the repair or replacement of a product proven to be defective from normal use. Vance & Hines exhaust systems are designed to fit and operate on OEM motor and chassis. This warranty does not cover any product subject to abuse, misuse, improper installation or modification.

## FUEL MANAGEMENT

**GET THE MOST OUT OF YOUR RIDING EXPERIENCE...**

AN AFTERMARKET EXHAUST SYSTEM IS ONLY YOUR FIRST STEP, NOW YOU NEED FUEL MANAGEMENT.

**NOW YOU NEED FUELPAK.**

Your fuel injected Harley-Davidson® is equipped with an ECU (electronic control unit) that's programmed to deliver fuel to the motor based on an air/fuel ratio for a stock air filter and stock exhaust system. When you install a performance exhaust system, your airflow changes, so you need a fuel management system that adjusts your air/fuel ratio to match the changes. That fuel management system is Fuelpak. Fuelpak adds and takes away fuel, allowing for a more precise range of refinement in your air/fuel ratio. Get the perfect fuel management combination with your Vance & Hines exhaust system, get Fuelpak. For more information visit the tuning center at [fuelpakfi.com](http://fuelpakfi.com)

NOTICE: Fuelpak is intended for racing or off-highway use only, and is not legal for sale or use in California on pollution-controlled vehicles.



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