

**OWNERS
MANUAL
WITH INSTALLATION
INSTRUCTIONS**

**banks[®]
STINGER[®]
SYSTEM**

**FORD 460 EFI ENGINE
CLASS-C MOTORHOME CHASSIS**

THIS MANUAL IS FOR USE WITH SYSTEM PART NUMBERS 48819, 49223 and 49227

banks

GALE BANKS ENGINEERING

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GENERAL INSTALLATION PRACTICES

1. For ease of installation and trouble-free operation of your Banks Stinger™, please read this entire 8-page owner's manual before starting any work. (If any pages are missing from this package, please call GALE BANKS ENGINEERING immediately for a replacement.) Become thoroughly familiar with all components and phases of the installation before starting any work.

2. Inspect all components supplied for any foreign material that may have entered during shipping and handling.

3. CAUTION: Whatever methods are used to elevate the vehicle must be of sufficient capacity for the vehicle weight involved. **NEVER work under any vehicle supported only by a jack of any kind. DO NOT USE concrete blocks or other masonry items that may collapse under the vehicle weight.**

4. Pay particular attention to the routing of any wires. Keep them away from exhaust heat, moving parts and sharp edges that may cause

cuts or other damage. Route or tie wires away from critical areas as required. Keep all wires a minimum of 6" from hot exhaust parts, 8" or more is recommended whenever possible.

5. Right-hand and left-hand designations refer to the driver's right or left, as seated in the vehicle, (*i.e.: Right-hand refers to the passenger side of the vehicle, unless noted otherwise.*)

6. The Banks Stinger, is designed to fit Class "C" 460 Ford chassis platform engine/chassis combinations. Because of different equipment layouts used by various coach builders, some accessories and components may have to be relocated to accommodate the air intake components of the Banks Stinger, or the Stinger components may need to be modified.

Notification

The Banks Ram-Air Filter comes pre-oiled and no oiling is necessary for initial installation. Service the filter as specified in the Cleaning and Oiling the Banks Ram-Air Filter Section of this manual.

INSTALLATION INSTRUCTIONS

1. If a hoist is available, raise vehicle for access to exhaust system. Otherwise, raise rear of vehicle and support with heavy-duty jack stands. Block front wheels to prevent rolling. Never work under a vehicle supported only by a service jack. See safety precautions in General Installation Practices section.

2. Remove muffler and tailpipe from rear of catalytic converter. Some joints may require heat from a torch to loosen them for disassembly. Save clamps and hangers for reinstallation.

3. Remove factory tailpipe hanger assembly (bracket and two rubber hangers) from shock crossmember and tailpipe. A spray lubricant, such as WD-40, LPS, CRC, silicone spray, etc. may be used to ease the removal of the tailpipe from the rubber hangers.

4. Bolt the tailpipe hanger extension to the original bolt holes on the rear shock crossmember. See Figure 1. Use two $\frac{5}{16}$ "-18 x $\frac{3}{4}$ " hex bolts and two $\frac{5}{16}$ "-18 crimp lock nuts.

5. Bolt the original tailpipe hanger assembly to the hanger extension using the original hardware.

6. Install a 2 $\frac{1}{2}$ " x 3" stainless-steel adapter onto the catalytic converter outlet. Note the orientation

of the notch on the adapter and corresponding button on the converter. Drive the adapter onto the converter until the button bottoms in the notch. When the adapter is in place, install a 2 $\frac{1}{2}$ " exhaust U-clamp to secure the adapter. See Figure 1.

NOTE: If the button is missing, measure and mark the converter 1 $\frac{1}{16}$ " in from the end, and drive the adapter onto the converter until it reaches this mark.

7. On standard wheelbase (158") models, install the muffler on the catalytic converter adapter. Install a 3" U-clamp with hanger rod into the original rubber hanger to support the front of the muffler. See **Figure 1**. Do not tighten clamp at this time.

NOTE: Extended wheelbase models require an additional extension pipe between the catalytic converter adapter and the muffler. 176" wheelbase models require a 21" extension. An additional 3" U-clamp is required at the muffler inlet with the extensions.

8. Install Banks Monster™ tailpipe into the muffler outlet and hanger assembly. Install a 3 $\frac{1}{2}$ " U-clamp at the muffler outlet. Do not tighten at this time.

FIGURE 1

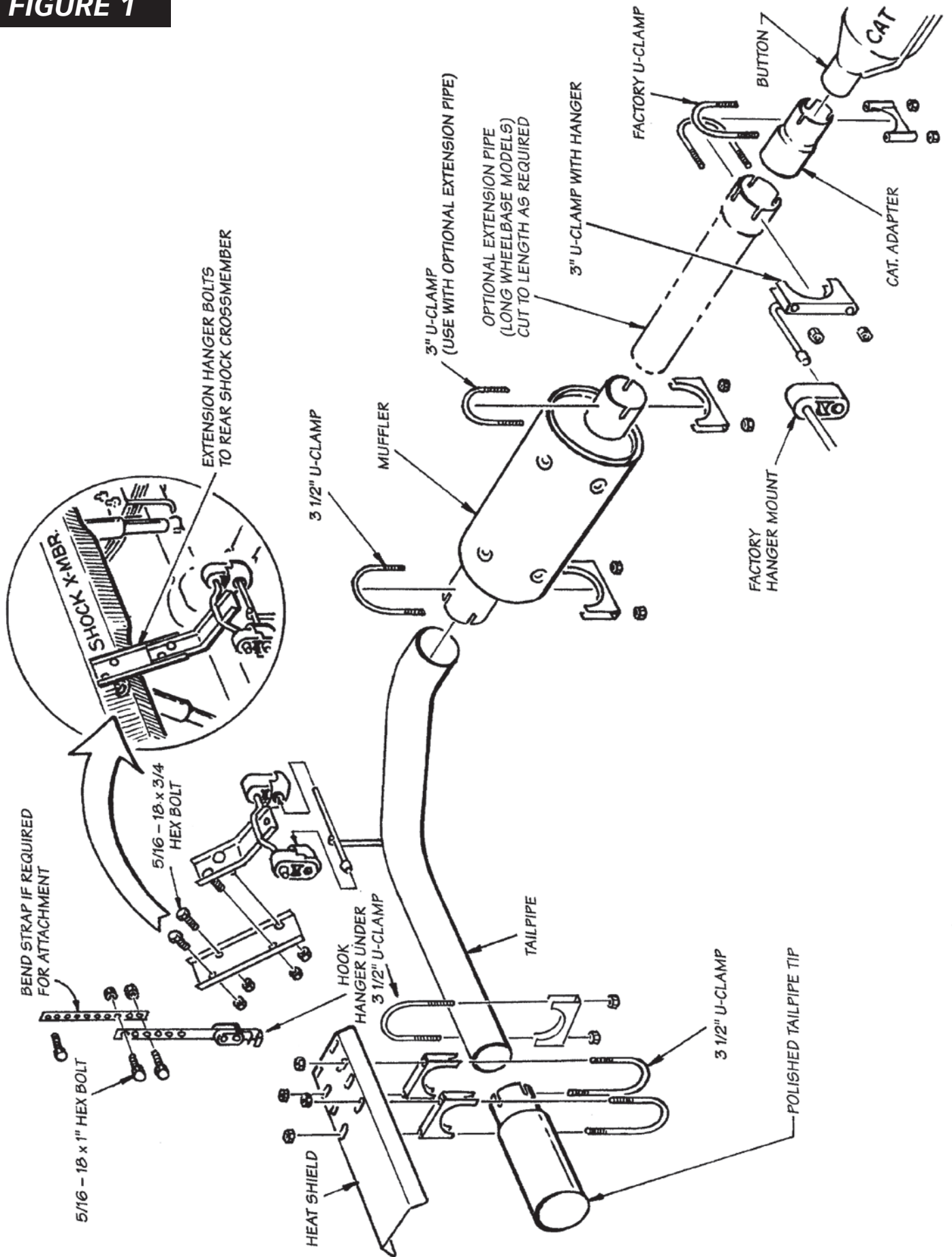
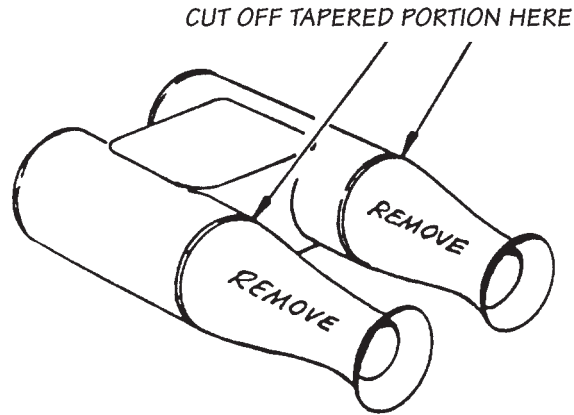


FIGURE 2

AIR SILENCER MODIFICATION (1988-91 MODELS ONLY)



9. Rotate the muffler as required to best align the muffler/tailpipe assembly. If extension pipes are used between the muffler and the catalytic converter, make sure that the overall length of the tailpipe/muffler/extension pipe combination allows the rubber tailpipe hangers to hang approximately straight down. If the hangers angle back, it may place the tailpipe outlet too close to the tire for adequate clearance, especially if the optional chrome tip or heat shield is to be installed. Because of variations in vehicle wheelbases, it may be necessary to shorten the extension pipe to provide adequate clearance between the tailpipe outlet and the tire. When correct, tighten all U-clamps.

10. An additional hanger is required to support the outboard end of the tailpipe. This hanger hooks under a heavy wire strap that spans a 3½" U-clamp. See **Figure 1**. If the optional chrome tailpipe heat shield is to be installed (see subsequent steps), it should be mocked up as the hanger will tie into one of their mounting clamps.

Warning! If the tailpipe end passes under or near a built-in storage compartment, hoses, wiring, plumbing, or other items that may be affected by high temperature, we strongly recommend that an optional exhaust heat shield, available from Banks, be utilized if any of these items are less than 4" from the underside of the body as it exits the vehicle, a heat shield is also recommended to protect the body.

11. Determine a method for attaching the rearmost tailpipe hanger to the coach body or chassis structure. Because there are many different coach configurations, the installer will have to select a method of attachment. Make sure that the supporting area is substantial enough to handle the weight and vibration of the tailpipe assembly. An extension for the hanger is provided along with three 5/16"-18 x 1" hex bolts and 5/16"-18 locknuts.

12. Install the tailpipe tip and optional heat shield assembly. See **Figure 1**. Note that one of the 3½" U-clamps is used to secure the rearmost hanger for the tailpipe.

13. 1988-91 MODELS ONLY: Remove plastic air intake silencer from air inlet hoses between air filter assembly and engine. Using a hacksaw, cut the tapered sections off the silencer as shown in **Figure 2**. Reinstall the silencer in the air intake hoses using the original clamps. This increases air flow through the intake system.

14. Remove the air cleaner housing cover. Replace the factory paper element with the low-restriction Banks Ram-Air™ Filter element provided.

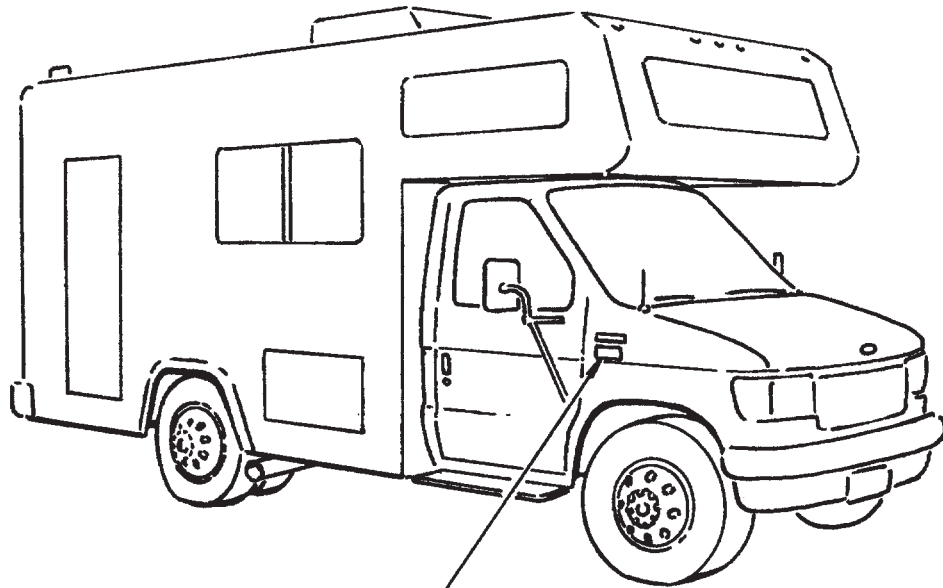
15. ON 1992 AND LATER VEHICLES: Replace the factory plastic air inlet duct with the Banks Ram-Air Super-Scoop™, provided. Transfer the plastic fitting and clip from the old duct to the new Super-Scoop.

16. Start engine and listen for any exhaust leaks. Tighten bolts or clamps to correct leaks as required. Allow engine to warm up and test drive vehicle.

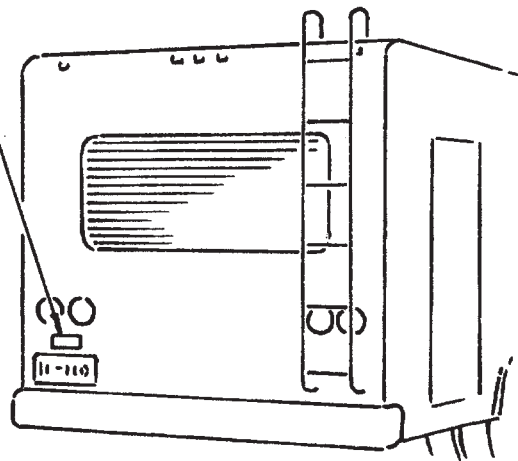
NOTE: Exhaust tubing will smoke for the first 15-20 minutes of operation. This is normal, as grease used in the bending process will burn off the inside of the pipes.

17. Three Banks PowerPack plaques have been included in your kit. These may be affixed to your vehicle by peeling off the backing and pressing firmly in the desired location. A piece of masking tape applied to the vehicle with reference measurements to other emblems or body trim may be used to level and locate your plaques. **Figure 3** shows suggested locations for plaques.

FIGURE 3



TYPICAL LOCATIONS FOR
BANKS POWERPACK PLAQUES



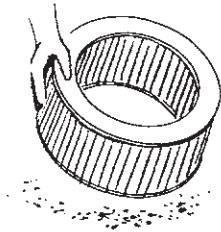
CLEANING AND OILING THE BANKS RAM-AIR FILTER

NOTIFICATION

THE BANKS RAM-AIR FILTER COMES PRE-OILED AND NO OILING IS NECESSARY FOR INITIAL INSTALLATION. USE BANKS RAM-AIR FILTER CLEANING SYSTEM (PART # 90094), AVAILABLE FROM GALE BANKS ENGINEERING TO SERVICE THE AIR FILTER. FOLLOW THE INSTRUCTIONS INCLUDED WITH THE CLEANING SYSTEM TO CLEAN AND RE-OIL YOUR BANKS RAM AIR FILTER.

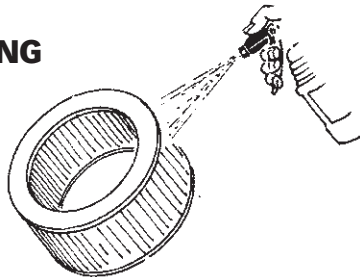
1. PRE-CLEANING

Tap the element to dislodge any large embedded dirt, then gently brush with a soft bristle brush. *NOTE: If complete cleaning is not practical at this time, re-oil the element and reinstall in your vehicle.*



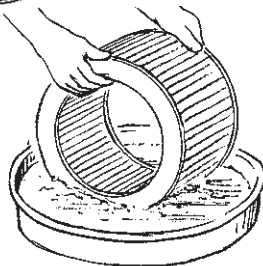
2. SPRAY-ON CLEANING

Spray Banks air-filter cleaner liberally onto the entire element and let soak for 10 minutes.



PAN CLEANING

Large air-filter elements can be rolled or soaked in a shallow pan of Banks air-filter cleaner. Remove immediately and let soak for approximately 10 minutes.

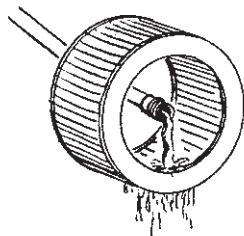


3. CLEANING HINTS

Use only Banks air-filter cleaner. No gasoline cleaning, No steam cleaning, No caustic cleaning solutions, No strong detergents, No high-pressure car wash, No parts cleaning solvents. Any of these Nos can cause harm to the cotton filter media plus SHRINK and HARDEN the rubber end caps.

4. RINSE OFF

Rinse off the element with low-pressure water. Tap water is okay. Always flush from the clean side to dirty side. This removes the dirt and does not drive it into the filter.



5. DRYING HINTS

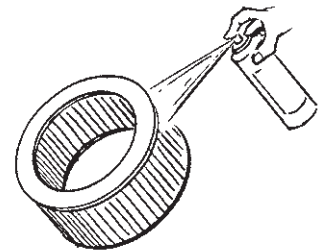
Always dry naturally. After rinsing, shake off all excess water and let the element dry naturally. **DO NOT USE COMPRESSED AIR – DO NOT USE OPEN FLAME – DO NOT USE HEAT DRYERS!**

EXCESS HEAT WILL SHRINK THE COTTON FILTER MEDIA. COMPRESSED AIR WILL BLOW HOLES IN THE

ELEMENT.

6. AEROSOL OILING

After cleaning air filter always re-oil before using. Spray Banks Ram-Air filter oil down into each pleat with one pass per pleat. Wait 10 minutes and re-oil any white spots still showing.



7. OILING HINTS

Never use a Banks Ram-Air filter without oil (the filter will not stop the dirt without the oil). Use only Banks Ram-Air filter oil. Banks air-filter oil is a compound of mineral and animal oil blended with special polymers to form a very efficient tack barrier. Red dye is added to show just where you have applied the oil. Eventually the red color will fade but the oil will remain and filter the air. **NEVER USE Automatic Transmission Fluid. NEVER USE Motor Oil. NEVER USE Diesel Fuel. NEVER USE WD-40, LPS, or other light-weight oils.**

8. RE-INSTALL

Reinstall your Banks Ram-Air filter element with proper care. Make sure the element seats properly in the filter case. Install the cover making sure it's in the right position. Tighten all the nuts, bolts, screws or clips to factory specifications.

9. DO NOT DISCARD

Affix the "Do Not Discard" sticker to the filter case (included with every Banks replacement element). Make sure you put the sticker in a highly visible place to alert your mechanic not to discard.

10. PERFORMANCE HINTS

Service every 50-100,000 miles on street-driven applications. Service more often in offroad or heavy-dust conditions. If an air-filter restriction gauge is installed, then change the element when the air-filter restriction reaches 18"/H.O.

CAUTION! Extremely fine dust from agriculture or offroad use will pull the oil from the element. Frequent re-oiling of the element's clean side might be required. Completely service when practicable. For extra protection use an air-filter sealing grease on rubber ends of the element. Service only with Banks air-filter cleaner and Banks air-filter oil.

PARTS LIST

Ford 460 EFI Class-C Motorhomes

| QTY. | DESCRIPTION | 4-BOLT FLANGE CAT. INLET | | 3" ROUND CAT. INLET |
|------|---|-----------------------------|------------------|------------------------|
| | | 1987-91 49223 | 1992-93 49227 | 1993-96 48819 |
| | | PART# | PART# | PART# |
| 1 | ADAPTER, Cat. Conv. to Muffler | 52601 | 52601 | 52604 |
| 2 | BOLT, 5/16" 18 x 3/4", Hex | 91224 | 91224 | 91224 |
| 3 | BOLT, 5/16" 18 x 1", Hex | 91229 | 91229 | 91229 |
| 1 | BRACKET, Extension | 52662 | 52662 | 52662 |
| 1 | CARD, Product Registration | 96392 | 96392 | 96392 |
| 1 | CLAMP, Exhaust, 2 1/2" | 52461 | 52461 | 52461 |
| 1 | CLAMP, Exhaust, 3" | 52465 | 52465 | • |
| 3 | CLAMP, Exhaust, 3" | • | • | 52465 |
| 4 | CLAMP, Exhaust, 3 1/2" | 52467 | 52467 | 52467 |
| 1 | CLAMP, Hanger, 3", w/Rod | 52689 | 52689 | 52689 |
| 1 | DECAL, Carb. "Rep. Part" | 96024 | 96024 | 96024 |
| 1 | DUCT, Air Inlet, Banks Ram-Air | • | 42630 | 42630 |
| 1 | FILTER ELEMENT, Banks Ram-Air™ | 41508 | 41508 | 41508 |
| 1 | HANGER, Exhaust, Universal Style | 52193 | 52193 | 52193 |
| 1 | HANGER, Extension | 52663 | 52663 | 52663 |
| 1 | MUFFLER, Dynaflo™, w/Heatshield, Stainless | 52405 | 52405 | 52405 |
| 5 | NUT, 5/16" 18, Crimplock | 91212 | 91212 | 91212 |
| 1 | OWNERS MANUAL | 96349 | 96349 | 96349 |
| 1 | PIPE, Chrome Tailpipe Extension, 4", Chrome | 52281 | 52281 | 52281 |
| 1 | PIPE, Monster™ Tailpipe, Stainless, 3 1/2" | 52688 | 52688 | 52688 |
| 3 | PLAQUE, "Banks PowerPack" | 96008 | 96008 | 96008 |
| 1 | SERVICE KIT, Banks Ram-Air Filter | 90094 | 90094 | 90094 |
| 1 | WARRANTY STATEMENT | 96362 | 96362 | 96362 |

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