

OWNERS MANUAL

WITH INSTALLATION
INSTRUCTIONS

banks

STINGER

TM

S Y S T E M

CHEVROLET/GM P-30 CHASSIS
CLASS-A MOTORHOME
FUEL INJECTED (EFI) 454 CID GASOLINE ENGINE

THIS MANUAL IS FOR USE WITH SYSTEM PART NUMBER 49041

GALE BANKS ENGINEERING
546 DUGGAN AVENUE • AZUSA, CA 91702
(626) 969-9600 • FAX (626) 334-1743
Product Information & Sales: (800) 438-7693
www.bankspower.com

BANKS STINGER™ CHEVROLET P-30 CHASSIS EFI 454

Dear Customer:

Your new Banks Stinger is a unique combination of components designed to make the most of your engine's power potential. By removing exhaust restrictions and utilizing a muffler designed to create a scavenging effect, your engine can produce more power at a higher level of efficiency. When combined with the Banks Ram-Air™ system to minimize intake restrictions and provide cooler intake air, even greater power is available. If your driving habits remain the same, your fuel mileage should go up, and you can run on the same octane fuel you are accustomed to using.

If you have any questions concerning the installation of the Banks Stinger system, please call Gale Banks Engineering at (626) 969-9600 between 8:00 am and 5:00 pm (PST) and ask for the service department.

Thank you.

GENERAL INSTALLATION PRACTICES

Notification

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

1. For ease of installation and trouble-free operation of your Banks Stinger™ System, PLEASE READ THIS 12-PAGE INSTRUCTION PACKAGE 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 and determine what additional tools or materials you may need to complete the installation.

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

3. Most motorhomes will be easier to work on if they are raised by a hoist or ramps. This can be accomplished by driving the vehicle upon several sections of 2 x 12 lumber nailed together to form a wedge. **Figure 1** shows how these ramps may be constructed if you are doing your own installation.

4. CAUTION: Motorhomes are very heavy. 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.

5. 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.

6. A general assembly diagram is provided in addition to the specific step or section diagrams in the text (**Figure 2**). The general assembly diagram shows relationships of individual components for reference; however, numbered step-by-step procedures should be followed for proper assembly sequence.

7. 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).

8. The Banks Motorhome Stinger is designed to fit Class "A" 454 Chevrolet engine/chassis combinations. Because of different equipment layouts used by the various coach builders, some accessories and components may have to be relocated or modified to accommodate the Banks Stinger.

Figure 1

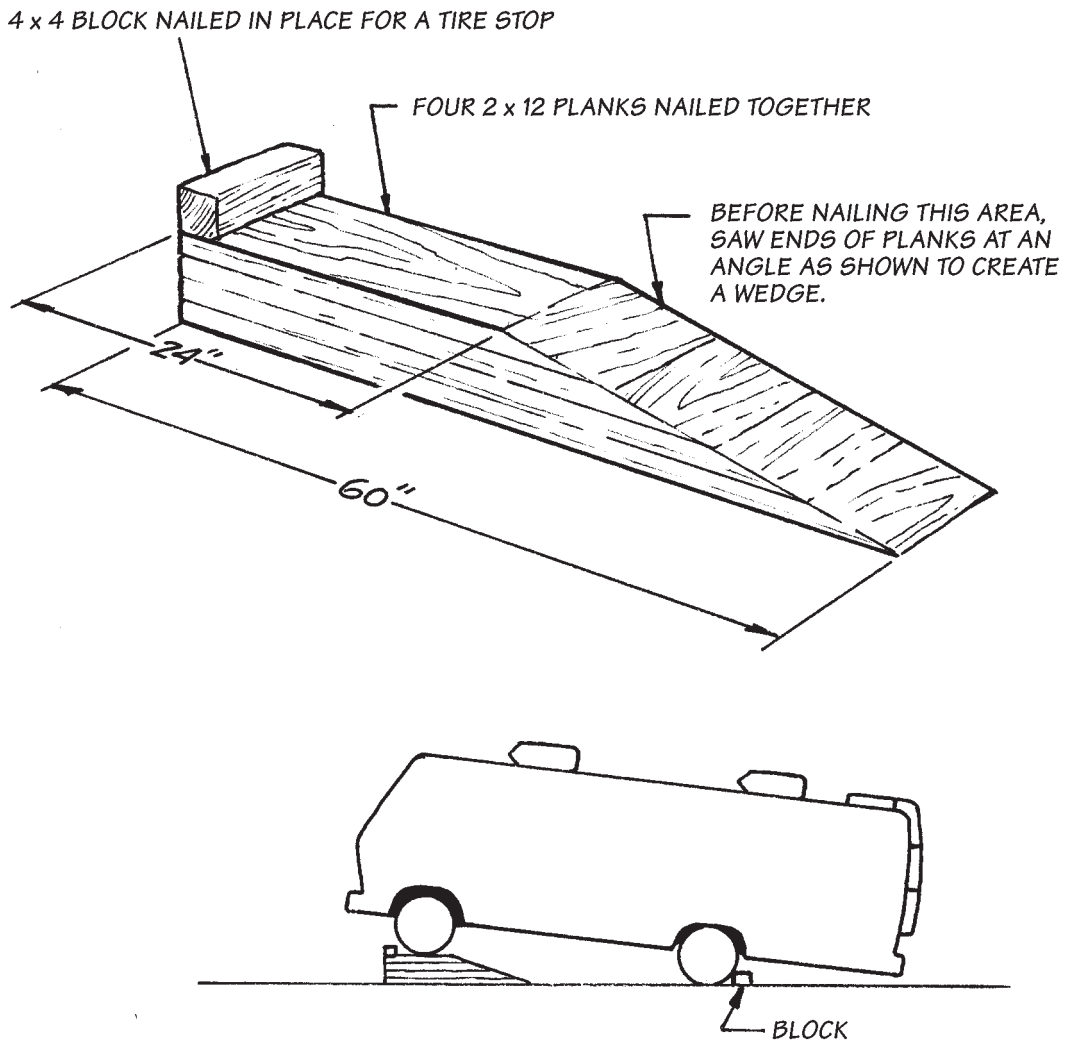
WARNING!

READ CAUTIONS IN GENERAL INSTRUCTION SECTION CONCERNING WORKING UNDER MOTORHOMES ON JACKS OR SUPPORTS.

MOST MOTORHOME STINGER INSTALLATIONS WILL REQUIRE RAISING THE FRONT OF THE COACH TO INSTALL THE BANKS STINGER EXHAUST MANIFOLDS. A PAIR OF SUPPORT RAMPS MAY BE CONSTRUCTED AS SHOWN.

CAUTION!

MAKE SURE THE COACH IS ON FIRM LEVEL GROUND WHEN USING THESE RAMPS. SLOWLY DRIVE UP THE RAMPS WHILE YOU HAVE SOMEONE GUIDE YOU TO KEEP THE VEHICLE CENTERED AS YOU GO AND TO LET YOU KNOW WHEN YOUR TIRES ARE IN POSITION ON TOP OF THE RAMPS. DO NOT GO UNDER THE COACH UNTIL YOU ARE SURE IT IS STABLE ON THE RAMPS, THE TRANSMISSION IS IN "PARK" AND THE HAND BRAKE IS SET. WE ALSO SUGGEST YOU PLACE A BLOCK BEHIND THE REAR TIRES AS AN ADDITIONAL SAFETY MEASURE.



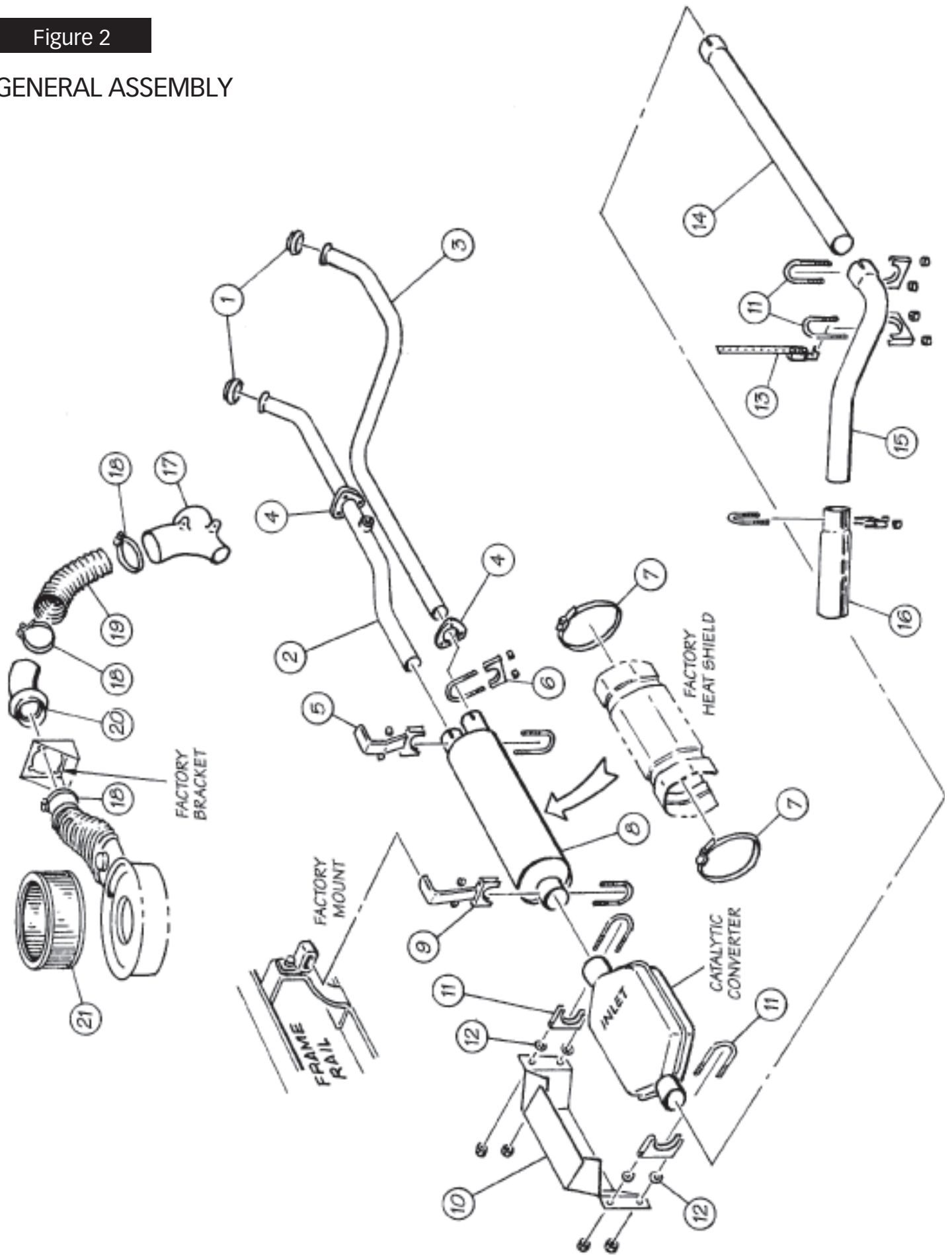
BILL OF MATERIALS

Stinger System, 49041

Item #	Part #	Description	QTY
1	93158	GASKET, Exhaust Outlet	2
2	52260	PIPE, Head Pipe Assembly, Left	1
3	52262	PIPE, Head Pipe Assembly, Right	1
4	52327-03	FLANGE, Head Pipe	1
5	52292	CLAMP, Hanger, Front	1
6	52461	CLAMP, Exhaust, 2½"	1
7	92870	CLAMP, Muffler Heat Shield	2
8	52404	MUFFLER, Dynaflow, Stainless Steel, 2½ x 3"	1
9	52291	CLAMP, Hanger, Rear Muffler	1
10	26094	HEAT SHIELD, Cat. Conv.	1
11	52465	CLAMP, Exhaust, 3"	5
12	91403	WASHER, ⅜" USS	6
13	52193	HANGER, Exhaust, Universal style	3
14	52277	PIPE, Tailpipe, Aluminized, 3 x 45"	1
15	52273	PIPE, Tailpipe, Aluminized	1
16	52285	PIPE, Chrome Tailpipe Tip	1
17	42601	DUCT, Air-Inlet, Super-Scoop	1
18	92864	CLAMP, Hose, #64	3
19	94091	HOSE, Air Duct, 4" Bulk	3
20	41152	ADAPTER, Bulkhead, Air Inlet	1
21	41014	FILTER ELEMENT, Air	1
	90094	SERVICE KIT, Air Filter	1
	42611	STRAP, Mounting	4
	62003	TIE, Cable, 15" Black	8
	90045	LUBRICANT, Anti-Sieze, 1 oz.	1
	91838	SCREW, Sheet Metal	4
	91840	SCREW, Sheet Metal	4
	91427	BOLT, ⅜" 16 x 1 Hex	2
	91119	BOLT, ¼" 20 x 1¼" Hex	4
	91110	NUT, ¼" 20 Nylock	4
	91416	NUT, ⅜" 16 Crimp Lock	2
	91103	WASHER, ¼" USS	4
	96017	DECAL, Carb. E.O. -D-161-34	1
	96016	DECAL, Carb. E.O. -D-161-38	1
	96339	OWNERS MANUAL	1
	96362	WARRANTY STATEMENT	1
	96392	CARD, Product Registration	1

Figure 2

GENERAL ASSEMBLY



STINGER INSTALLATION PROCEDURE

1. Raise front of vehicle on hoist or ramps.

NOTE: Figure 1 shows how ramps may be constructed for this purpose.

CAUTION: Observe safety precautions regarding use of ramps and other lifting methods. See general instruction practices and cautions contained in Figure 1. If the vehicle is supported by a hoist, the front wheels may be removed for further accessibility if desired.

2. As a precaution, disconnect both battery cables.

3. Disconnect and remove the entire exhaust system, up to the exhaust manifolds. Take care not to damage the oxygen sensor when removing it from the exhaust piping. Save all hardware and hangers, some items will be reused in the Stinger installation.

4. Remove the original "doughnut" gaskets from the exhaust manifold outlets and replace with the new gaskets provided (Figure 2, #1). Lightly tap the gasket into place until it seats. *NOTE: Inspect condition of exhaust manifolds. High heat conditions frequently result in exhaust manifold deterioration. Badly cracked or distorted manifolds may require replacement to prevent dangerous exhaust leaks.*

5. Install the right and left exhaust head pipes (Figure 2, #2 & 3) to the exhaust manifolds using the original nuts.

6. Use a snips to cut through the two bands holding the heat shield to the original factory muffler. Remove the shield and spread it open enough so it can be slid onto the new muffler. Attach shield with two No. 136 hose clamps (Figure 2, #7). See Figure 3 for shield orientation.

NOTE: Gap in shield should point down when installed in vehicle.

7. Install the Stinger muffler (Figure 2, #8) on the exhaust head pipes. See Figure 1 for details on muffler hangers and brackets (Figure 2, #5 & 9). Leave the muffler U-clamps just loose enough to allow adjustment of the muffler's position as required, then snug clamps. See Figure 3 for orientation of muffler inlet connections.

8. Reinstall the oxygen sensor in the bung on the left head pipe. Use a small amount of

anti-seize compound on the threads.

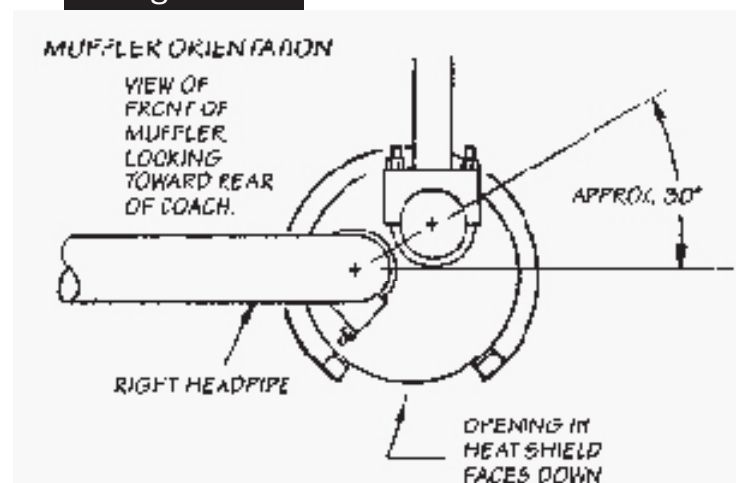
9. Working from the muffler back, install the catalytic converter and heat shield (Figure 2, #10), then install the tail pipe sections most appropriate for your vehicle (long wheelbase models will require optional extension pipes). Because of various chassis lengths and configurations, your tail pipe hangers (Figure 2, #13) may or may not line up properly for the tail pipe routing. We have provided two universal tail pipe hangers that may be attached to cross-members, frame rails, etc. with the remaining $\frac{3}{8}$ -16 x 1" hex bolts, nuts and washers. See Figure 2 for tailpipe assembly. Maintain 1½" of clearance to frame and body to prevent rattles and hot spots. Check that the converter heat shield will not rattle against frame or body.

10. Install the chrome tailpipe extension tip (Figure 2, #16). Extension tip may be slid in or out over tailpipe until desired length is obtained for body width. Then clamp extension to tailpipe using 3" U-clamp. *NOTE: If tailpipe passes under any side compartments or within proximity of floor (4-6"), we highly recommend the installation of a tailpipe heatshield (optional, available from Banks) to prevent burning of carpet and other combustibles.*

11. Lower the vehicle and reconnect the battery cables. Start engine and listen for any exhaust leaks. Tighten bolts or clamps to correct leaks as required.

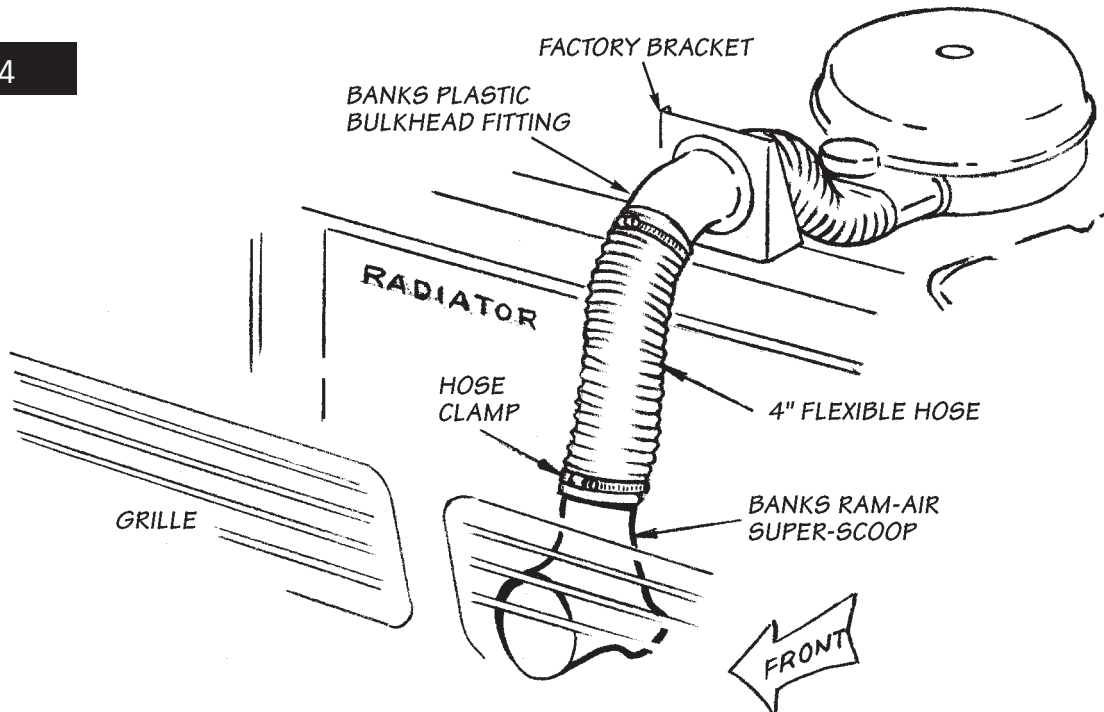
NOTE: The vehicle exhaust may smoke upon initial start-up. This is normal, as grease used in the tube-bending process burns off the pipes.

Figure 3



RAM-AIR INSTALLATION PROCEDURE

Figure 4



The Banks Ram-Air cold air induction components are designed to extend the factory air intake path so the cooler outside air can be picked up from directly behind the vehicle's grille. These components include a molded Ram-Air Super-Scoop (Figure 2, #A), 4" diameter flexible tubing (Figure 2, #C), a molded bulkhead fitting (Figure 2, #D), and installation hardware. Figure 4 shows a typical hook-up of the air intake components as they tie to the factory system. The Super-Scoop also serves as a water separator to drain out any rain water that may enter through the grille.

The Banks Stinger cold air induction package is intended to fit a number of motorhome body configurations. Because each coach builder has a different layout of behind-the-grille components, there can be no one set installation procedure for the Banks Ram-Air system. The following instructions are intended as a guideline for installing the system. Also, some coach builders may have installed difficult to relocate components (such as air conditioning freon piping) in the areas where the Banks Ram-Air system is normally mounted. In these cases, the installer will have to find an alternative location for the components, or omit those pieces that are impossible to mount.

1. Remove the air filter cover and filter element. Clean any oil or debris from the inside of the air filter base. On some models, the air filter base will have a sheet metal dust shield welded to the inside diameter of the base. Cut and remove the shield to allow for maximum air

Figure 5

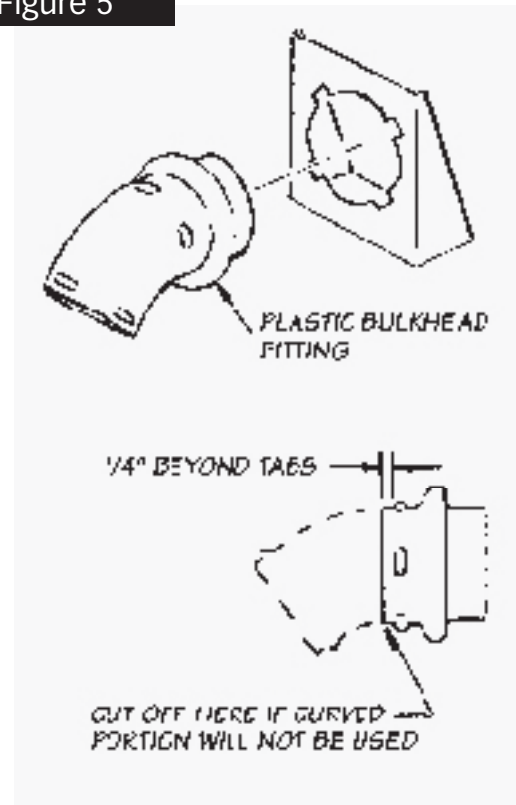
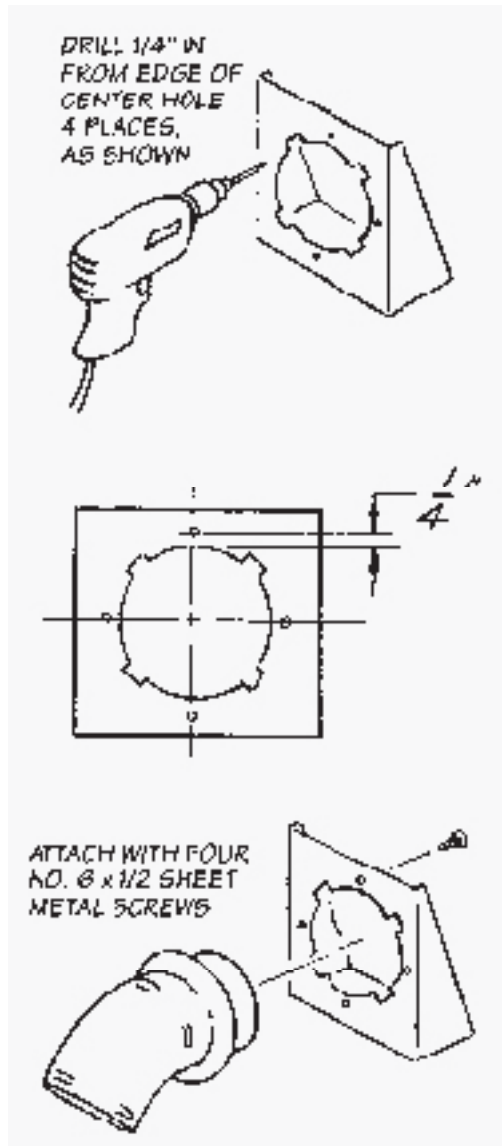


Figure 6



flow. Install the air filter element (**Figure 2, #E**) and re-install air filter cover.

2. Disconnect the plastic factory air inlet duct at the air inlet hood. Remove the air inlet hood from the mounting bracket by twisting it until the four tabs line up with the slots in the bracket.

NOTE: Some vehicles may not have the air inlet hood, only the mounting bracket.

3. Insert the Banks plastic bulkhead fitting (**Figure 2, #D**) through the bracket from the front side. The bulkhead fitting may be used as is, or the curved portion may be cut off as required if this lines up better with the grille. **Figure 5** shows where to cut the bulkhead if the curved portion is to be removed.

4. Drill four 3/16" diameter holes through the air inlet hood bracket around the perimeter

of the center hole. **See Figure 6.** If the bracket cannot be drilled while in place, it may be unbolted for rilling.

5. Slip the bulkhead fitting into the end of the factory air intake duct, and rotate the bulkhead fitting into the desired mounting position. Have someone hold the bulkhead fitting against the mounting bracket from the front side while you mark the centers of the four drilled hole locations. Drill four 1/16" diameter holes into the bulkhead fitting at these points.

6. Now bolt the bulkhead fitting to the bracket using four No. 6 x 1/2" sheet metal screws. Hook up the factory flex hose from the air filter base to the bulkhead fitting. Secure with a No. 64 hose clamp (**Figure 2, #B**).

7. Determine a location for the Ram-Air Super* Scoop (**Figure 2, #A**). It should be placed as low as possible directly behind the grille, with the air inlet opening pointing straight ahead. If the grille is at an angle, the Scoop should be trimmed at an angle to place the air inlet opening against the back side of the grille with the centerline of the inlet opening horizontal. **See Figure 7.** Use heavy snips or a hack saw to trim the air inlet opening of the Scoop. The height between the Super-Scoop and the air inlet hood should be as great as possible to prevent any rain water not eliminated by the Scoop's water drain hole from climbing up into the air filter. The curved outlet section of the Scoop may be trimmed back if less bend is required to make a more streamlined house fitting. **See Figure 7.**

8. Once a location has been determined for the Ram-Air Super-Scoop, mount it using one of the methods outlined in **Figure 8.** If the grille consists of horizontal bars of a perforated metal screen heavy enough to support the inductor, it may be secured using four 14" clear nylon cable ties, provided, slipped through the ears on the inductor and through the grille. **See Figure 8.**

An alternate method is to mount the inductor using the four perforated metal straps provided. These can be bent as required and attached to the inductor ears with the 1/4"-20 x 1 1/4" hex bolts, 1/4"-20 nylock nuts and 3/4" O.D. x 5/16" I.D. flat washers, provided. The opposite end of the straps may be attached to any convenient mounting points such as the gravel pan, grille brackets, etc. as required, with four No. 10 x 3/4" sheet metal screws, provided. A combination of cable ties and straps may also be used.

9. Connect the bulkhead fitting to the Super-Scoop using the 4" flex hose (**Figure 2, #C**) provided. The flex hose may be shortened as necessary. Secure the hose with two No. 64 hose clamps (**Figure 2, #B**).

Figure 7

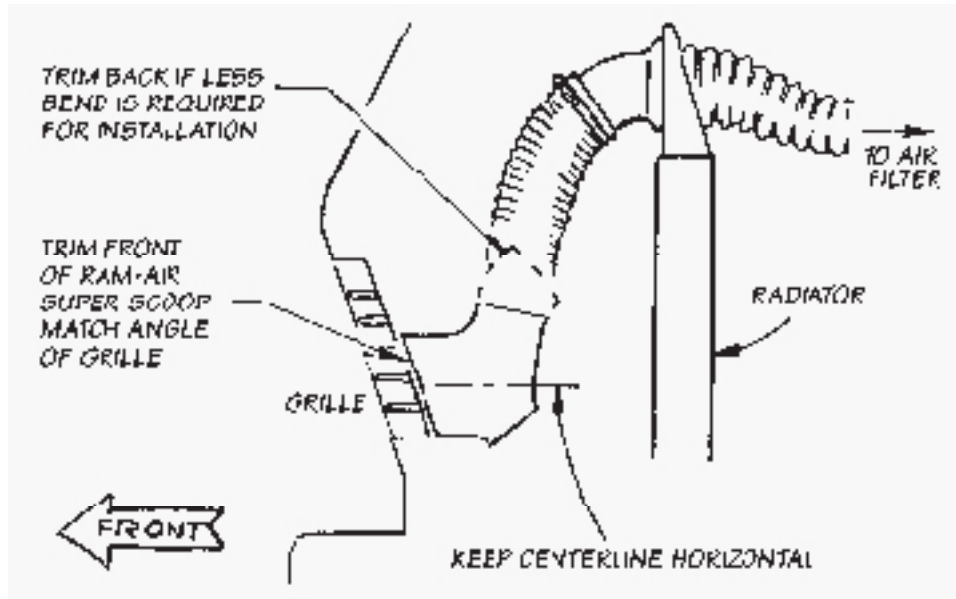
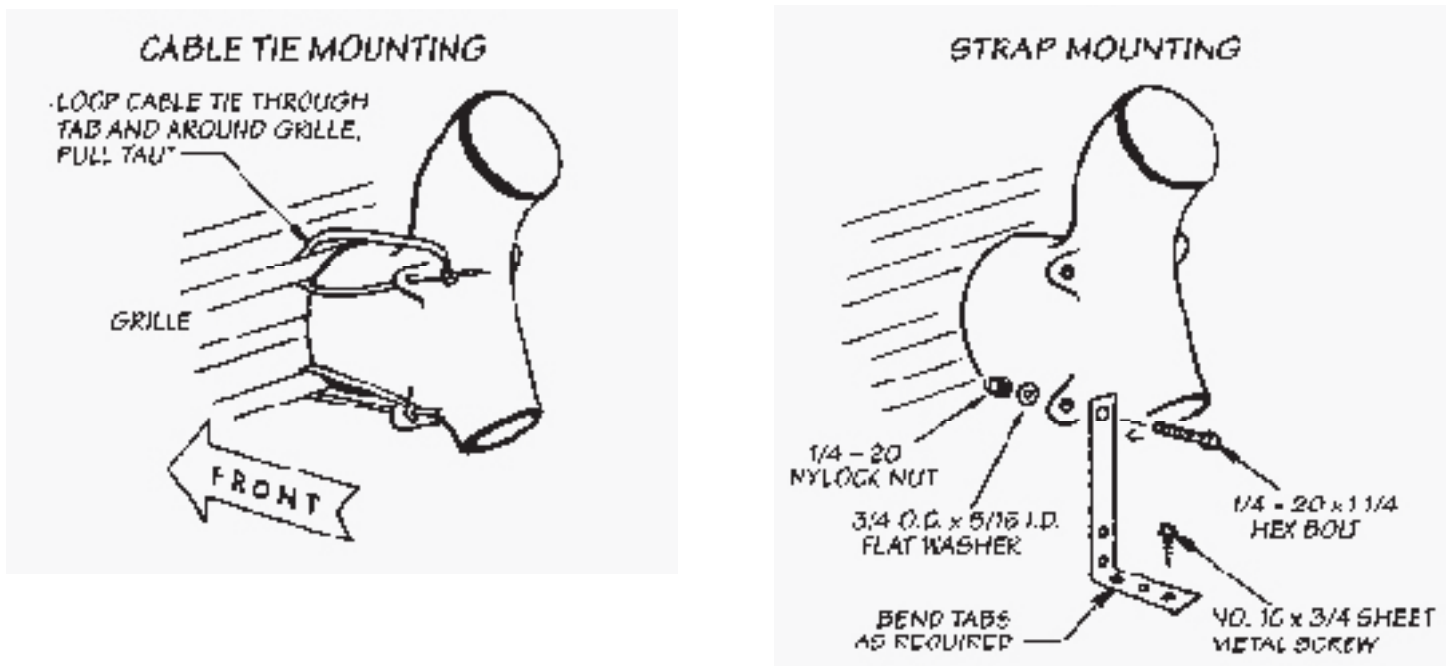


Figure 8

RAM-AIR SUPER-SCOOP MOUNTING METHODS



CLEANING AND OILING THE BANKS RAM-AIR FILTER

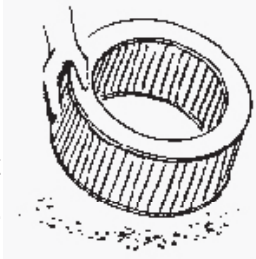
Notification

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 Ram-Air Filter. Follow the instructions included with the cleaning system to clean and re-oil your Banks Ram-Air Filter.

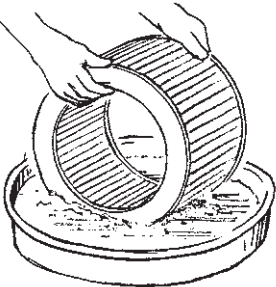
1. PRE-CLEANING

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, reoil 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

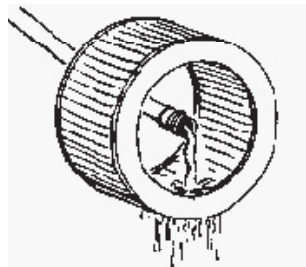
Large air-filter elements can be rolled or soaked in a shallow pan of Banks air-filter cleaner. Remove immediately and let soak for approximately 10 minutes.

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.



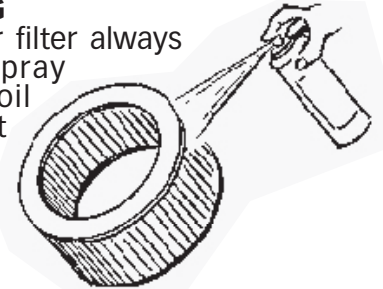
5. DRYING HINTS

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 reoil 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 WD40, LPS, or other light-weight oils.

8. REINSTALL

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"/H₂O.

CAUTION! Extremely fine dust from agriculture or offroad use will pull the oil from the element. Frequent reoiling 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.