



**1998 GMC Safari Van 4.3L 6-cyl Engine Code W
AMSOIL BMK-13 Dual Remote Oil Filtration Kit**

Preferred Customer Mike McRoberts

Installation submitted by T-1 Certified AMSOIL Dealer Gary Mintz

Getting Started:

1. Check all parts against the parts list and inspect for damage. For the install described herein, you'll need the following:

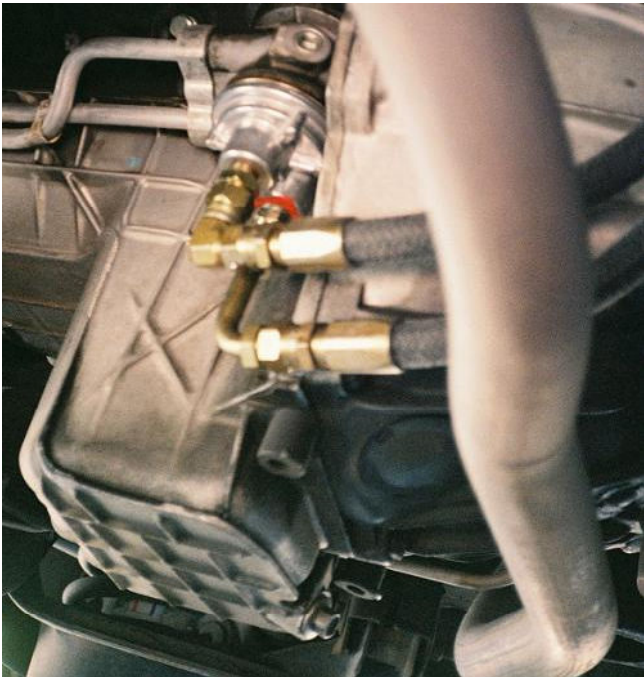
- BMK-13, Dual Remote Oil Filtration Kit
- SDF-15, Super Duty Full-Flow Oil Filter (now EaO-15)
- BE-90, Spin-On Bypass Oil Filter Replacement Element (now EaBP-90)
- BK-11, 90 Degree Fitting Adapters (1 long, 1 short) (order separately)
- BK-12, 45 Degree Fitting Adapters (2 per package) (order separately)(ordered but not used)
- BP-188 13/32" ID Hose 8ft extra (ordered separately)
- BK-13, Oil Sampling Petcock Valve (optional & order separately)
- Two Quarts of Motor Oil
- 4.5 to 5 inch 1/4" grade 8 bolts, 4 ea (purchase at local hardware store)



2. Make sure you have the tools needed for the job (see Tools Required, below).

Tools Required:

Adjustable Wrench	Torque Wrench	Drill
7/16" Wrench (2)	Side Cutter	1/4" Drill Bit
13/16" Wrench	Utility Knife	5/16" Drill Bit
7/8" Wrench (2)	Adjustable Filter Wrench	Center Punch
15/16" Wrench	Oil Drain Pan	Hammer
5/16" Allen Wrench	Vice	Teflon Tape



Mounting Bracket Installation:

1. Per Assemble the Mounting Bracket and the Filter Mount Assembly to help locate and mark the correct position so you can get the bolts, nuts and washers on later. Mark the lower set of holes so you overlay the mounting template.
2. Overlay the mounting template and mark the mounting holes using a center punch and hammer. As long as you get it close it will be fine.
3. Remove the mounting template when all four of the holes have been marked.
4. With a 1/4" drill bit, drill out the four mounting holes; now do to the length of the bolts used in this install. We had to put as little drill bit as possible into the drill chuck and then make the holes on the opposite side and attach the two-piece mounting bracket.
5. If your holes were perfectly marked in step 3, the bracket will go right in. Otherwise, you will now need the 5/16" bit to enlarge the holes and allow some play for the mounting bolts. Use the four 4.5 - 5" long 1/4" bolts (you purchased), nuts, small washers and fender washers. Place the small washers on the bolts and push them into place; the larger fender washers and nuts are attached to the other side of cross-member. Tighten with the two 7/16" wrenches to approximately 8 ft-lbs.
6. When in place, spray the fender washers and nuts with AMSOIL Heavy Duty Metal Protector spray or another suitable Protectant such as undercoating spray to prevent corrosion.

Filter Mount Assembly:

1. Apply thread sealant onto the two O-ring adapter fittings (BP-189) per the included instructions. If using Teflon tape, it should be wrapped no more than 1.5 - 2 turns in a clockwise direction when viewed from the thread end.
2. Install the two fittings into the end of the mounting block adjacent to the arrows. Using a 7/8" wrench, tighten to 40-43 ft-lbs. **DO NOT use thread sealant on either end of the adapter fittings.**
3. Apply thread sealant as noted in diagram E of the included instructions to the Allen head O-ring plug (BP-191). Using a 5/16" Allen head wrench, install plug in remaining mount port and tighten to 40-43 foot pounds. **Note:** If optional oil sampling valve is to be used, refer to diagram D of the included instructions and install in place of the Allen head O-ring plug. Apply thread sealant to the external threads on all components in the BK-13 kit.
4. Attach the filter mount to the mounting brackets using 4-1 1/2" long 1/4" bolts, nuts and washers provided. **Warning:** The bolts **must** be installed so that the nuts are on the side opposite the filter nipples. Failure to do this will result in the bolts hitting the oil filters. Using two 7/16" wrenches or socket, tighten to 8 ft-lbs. **Note:** Using masking tape mark the arrows on the bottom side of the filter mount block so you will remember which is which.

Oil Supply:

1. Using a 13/16" wrench, install two adapter fittings (BP-190) into the Spin-On filter adapter (BP-159) using thread sealant as noted in diagram E of the provided instructions. Tighten to 28 foot pounds or 2-3 turns beyond finger tight.
2. Using an oil drain pan to control any loss of oil, remove the existing engine full flow oil filter. Clean the gasket seating area on the engine with a clean lint free cloth.
3. With the engine filter nipple now exposed, use the white color-coded adapter bushing (BP-163).
4. Apply thread sealant to the outside thread of the selected bushing as noted in diagram E of the provided instructions.
5. With the knurled end of the bushing pointing out, thread into the spin-on filter adapter (BP-159).
6. Using the small O-ring and to ensure proper sealing and aid in installation, place a small amount of grease on both sides of the O-ring. Install the spin-on filter adapter, in place of the old oil filter. Tighten the adapter one full turn after adapter first contacts sealing surface, back off 1/8".

Oil feed and return lines:

1. Install one hose fitting (BP-187) on each of the 8 ft lengths on hose you have follow the instructions noted in diagram G of the provided instructions. Tools required are one 7/8" wrench and one 15/16" wrench or vise. **Note: Do not use any form of thread sealant anywhere on the BP-187 hose fittings.**
2. Optional 90° fittings may be installed at this time between the hose fittings and spin-on adapter. Use the Large 90° on the **Red** colored port (labeled **Out**) and the small 90° at port labeled **In** (without red paint).
3. Using two 7/8" wrenches, tighten hose fitting swivel nuts and swivel nuts on angle fittings to 525-575 inch pounds or from finger tight, rotate an additional 60° or 1/6 of a turn. **Note: Do not use any form of thread sealant anywhere on the hose or angle fittings.**
4. (Oil supply hose) on the **Red** colored port (labeled **Out**) that has the large 90° on the spin-on adapter to the port with the arrow pointing **In**, on the filter mount. Additional length will be required to accommodate engine movement during operation. Also consider how the hose will be routed. Make sure the hose does not contact any hot or moving surfaces or sharp edges. Ensure a minimum bend radius of 1 1/2" is maintained at all corners. Bends in hose should not begin at hose fittings. See diagrams C and H for additional details in the provided instructions.
5. Using a utility knife squarely cut the hose to the proper length.
6. Install the other hose fitting (BP-187) on the end of the hose. Follow the instructions noted in diagram G of the provided instructions. Tools required are one 7/8" wrench and one 15/16" wrench or vise. **Note: Do not use any form of thread sealant anywhere on the BP-187 hose fittings.**
7. (Oil return hose) Repeat steps 4 through 6. Connect hose at port labeled **In** (without red paint) on the spin-on adapter to the port with the arrow pointing **Out**, on the filter mount.
8. Use plastic ties (BP-46) to secure hose in position and away from damage. Trim ties using a side cutter. **Note: Over tightening the plastic ties may cause the hose to collapse and restrict oil flow.**
9. Fill the selected Full-Flow and By-Pass Filters with the same motor oil being used in the vehicle. Lubricate the filter gaskets with oil and spin filters onto mount. Tighten one full turn after filter gasket first contacts mount, back off 1/8". **Note: If you start this process in the beginning the oil soaks into the filters and if you check from time to time you can top them off and they will completely full once you spin them in place.**

Start Up Procedure:

1. Check the routing of both hoses and ensure the flow path is correct per the instructions above. Correct any mistake discovered.
2. Check that all fitting connections and hoses are securely attached and properly tightened.
3. Check that the Petcock sampling valve, if used, is closed.
4. The additional oil necessary after adding this kit is approximately 2 full quarts, including the oil to fill this kit and the oil to replace that lost when removing the existing oil filter. You may or may not want to add oil before starting the engine, depending on how much you poured into the two filters. Be careful not to overfill the engine with oil -- allowing it to run approximately 1/2 to 1 quart low just long enough to fill all the lines throughout the system will not hurt anything. Fill to the full mark on the dipstick.
5. Start the engine and watch the oil pressure. Note that pressure may initially take a moment or two to rise.
6. Check for leaks at fittings, hoses and mounting block assembly. If leaks are observed, STOP THE ENGINE, repair leaks and continue. DO NOT attempt to repair any leaks while the engine is running.
7. After the engine warms up, shut off and re-check the engine oil level. Fill as necessary.
8. Record the vehicle mileage and date of installation.

Periodic Maintenance:

Periodic visual inspection of the fittings and hoses is recommended. Check for leaks, hose deterioration and cuts. Repair and/or replace as necessary.

Disclaimer: These installation examples have been submitted by sources independent of AMSOIL INC. and may not comply with AMSOIL INC. installation instructions or application recommendations.