



## 1994 Dodge Caravan 3.0L 6-cyl Engine Code 3 AMSOIL BMK-11 Remote By-Pass Filter System

Installation submitted by T-1 Certified AMSOIL Dealer Gary Mintz

### Components:

- BMK11 AMSOIL By-Pass Filter Kit
- EABP90 AMSOIL By-Pass Oil Filter
- EAO15 AMSOIL Full-Flow Oil Filter
- BP89 Oil Return Swivel Fitting (**Order separately**)
- BP251 1/4" ID Hose (**Additional 8 ft required**)
- **Additional purchase from Local Resources**
- Brass Pipe fitting Nipple 1/4 x 1/4 x 1 3/8"
- STANT Part # 10088 {2 59/64" Oil Filler Cap (1 13/32" x 17/32" Cam Twist)}
- 3 5/16" x 18 x 1 1/2" Hex Head Grade 8 Bolts
- 2 x 3 x 1/4" steel or Aluminum plate needed as spacer under the BK203 filter mount assembly

### Getting Started:

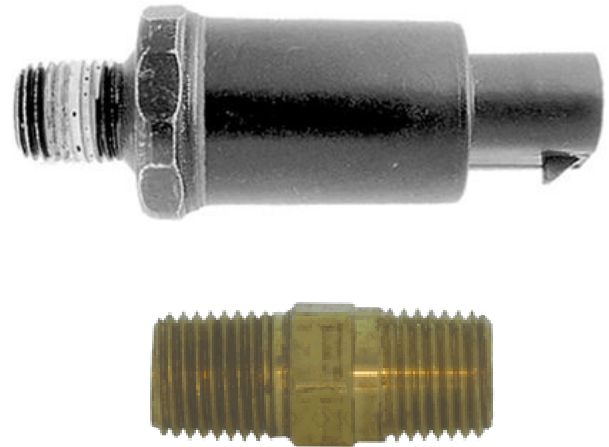
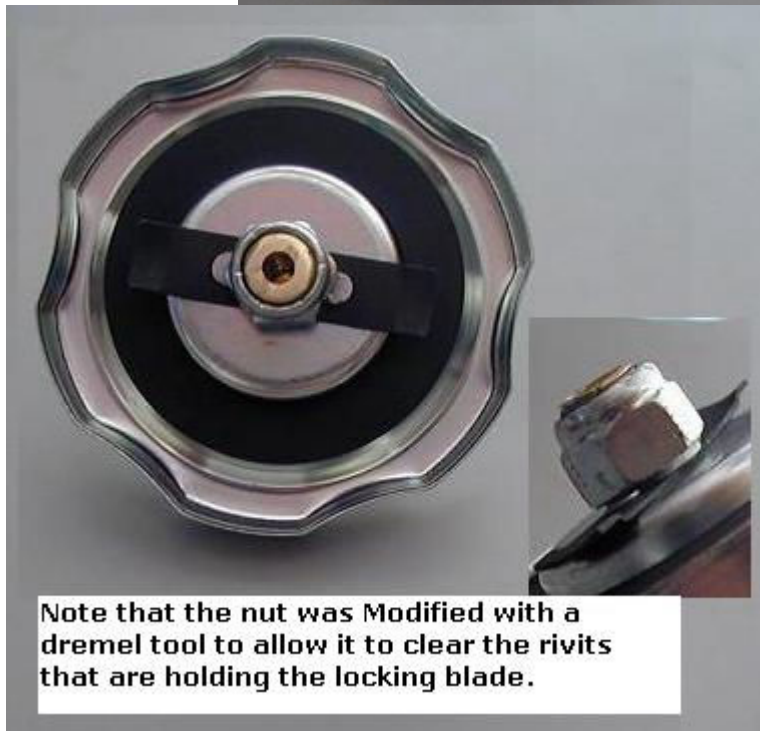
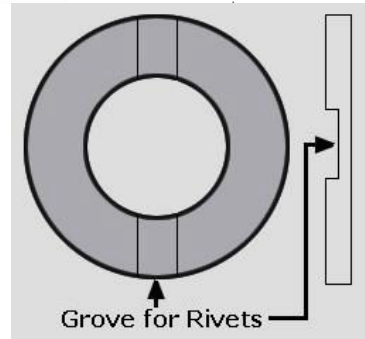
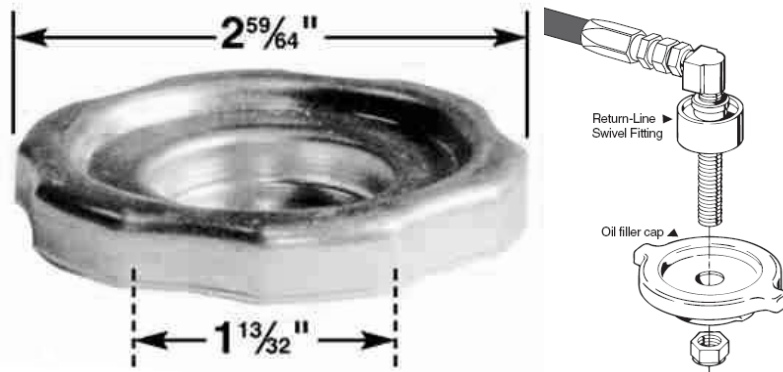
Check all parts against the parts list and inspect for damage. For the install described herein, you will need the following at a minimum:

Recommended tool list		
Adjustable wrench	Torque Wrench	Drill & Drill Bits 1/4" – 23/64" max
7/16 wrench	Side Cutters	1 Flat & 1 Round file
1/2 wrench	Utility knife	Center punch
9/16 wrench	Adjustable filter wrench	Hammer
5/8 wrench	Drain oil pan	Vice
11/16 wrench	Dremel Tool w/grinding wheel	Hacksaw

### By-Pass oil filter return-line fitting:

A swivel fitting can be installed directly on your oil filler cap for the oil return-line from the AMSOIL By-Pass Filter. The Return-Line Fitting is made of a sturdy brass-alloy and is constructed so that the top of the fixture can swivel. This makes it easy to take off your oil filler cap.

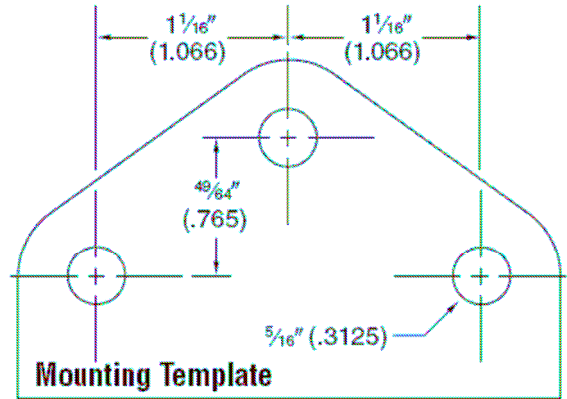
The Stant Oil Filler cap #10088 was modified to accept the BP89 Oil Return Swivel. Drill from the side that has the locking blade on the cap and use a drill **No Larger** than 21/64" for this. The placement of the hole you are about to drill **MUST** be die center so measure twice and drill once. For the final fit use a Dremel tool or a round file to obtain the correct size, which is just a bit less than 3/8". The locking blade rivets will need to have the inner part of the rivet next to the hole flattened to allow the locking nut to rotate (looks like a flat tire or a D when done). The Locking nut will also need modified to allow it to clear the rivets (see picture below) Because of the rivets on the top, I had to come up with a way to allow things to seal correctly on the topside. So what I did was take a Lee Meyers Co. Shower Head Restrictor Disk #B-2031 (because I had it laying around) & cut the upper section off and made it into a washer. I then enlarged the center hole to fit then carved a notch in it with my Dremel tool that allowed it to sit on top of the rivets in the top of the oil cap, and sealed it with a Silicon Copper Gasket Sealer on the notched side (see grove for rivets drawing). Then placed the BP41 seal gasket on the BP89 Swivel and put in all together. The BP89 Swivel will need to be shortened when you cut it off make sure to clean up the cut area and remove all burrs. This whole modification of the cap requires lots of patience and about 1 hour of time due to the care that must be taken to not mess it up or you will be buying another cap and starting over.



Do to the size of the oil pressure-sending unit, the use of the BP34 Straight T  $\frac{1}{4}$  x  $\frac{1}{4}$  was required and in order to keep it closer to the block and further from the exhaust manifold then parts in the kit allows. The purchase a Brass Pipe fitting Nipple  $\frac{1}{4}$ " x  $\frac{1}{4}$ " x  $1\frac{3}{8}$ " was required. The Starter **must** be removed to allow working room.



Both the 8 ft lengths of BP251 1/4" ID Hose were then routed to the mount location and secured in place using zip tie's. Enough length was allowed for engine movement before being cut to length.



1/4" steel plate was drilled and cut to about the same size as the mounting template and mounted under the BK203 filter mount assembly as can be seen in these pictures. It is required to allow filter clearance because of frame shape and brake-lines in this location.

The van calls for an Ea042 (3.790) which is just about ½" taller then the pictured Ea057 (3.404) filter. I choose to use an Ea015 (5.178) to allow for greater oil capacity. Oil Capacity with Eao42 filter is 4.6 qts; now with Ea015 & EaBP90 Oil capacity is now almost 6 qts.



#### **Start Up Procedure:**

1. Check that all fitting connections and hoses are securely attached and properly tightened.
2. Check that the oil sampling Petcock valve is closed. [If used]
3. The additional oil necessary after adding this kit is approximately 1 - 2 quarts, including the oil to fill this kit and the oil to replace that lost when removing the existing oil filter. Since these filters are straight up & down you want to pre-fill with oil before starting the engine as noted above. Allowing the engine 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.
4. Start the engine and watch the oil pressure [If you have a gauge]. Note that pressure may initially take a moment or two to rise.
5. Check for leaks at fittings, hoses and mounting block assembly. If leaks are observed, STOP THE ENGINE, repair leaks and continue.  
**Note: DO NOT attempt to repair any leaks while the engine is running.**
6. After the engine warms up, shut off and re-check the engine oil level. Fill as necessary.
7. 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. This was actually an easy install for this application because everything is relatively close together and all of the hoses are in view. When you open the hood to check the oil or otherwise, just look at things over...

**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.