



**MORE STC
OIL FILTER RINSING
TOOL KIT
INSTRUCTION MANUAL**
PART NUMBER AVL-OFRA-MORE

To be used only in conjunction with the MORE oil analysis and oil filter rinsing kit
Part no. GA-001-OFRK-MORE
Available from MORE COMPANY, INC. 775-782-3346

The apparatus is to be used for a limited purpose; the rinsing of MORE STC oil filters, the filtration of the debris removed, and sending the debris to the laboratory for analysis. The components contained in the apparatus are intended to be reused for each oil analysis procedure.

This apparatus will not allow you to clean and inspect oil filter to the specifications described in the PRATT WHITNEY CANADA PT6A maintenance manual.

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Oil Filter Rinsing Tool Kit

AVL-OFRA-MORE

Filter rinsing solvent

Rinsing solvent is not supplied with this apparatus. You should consider using one of the following rinsing solvents: 140 solvent, mineral spirits, charcoal lighter, kerosene, varsol etc. The solvent must be clean, virgin, and free from contaminants. You should not use a solvent with a flash point less than 140 degrees Fahrenheit. Do not use light solvents such as xylene or toluene as they may react with the plastic parts in this apparatus. Do not use leaded gasoline or fuels. Do not use chlorinated solvents such as perchloroethane or trichloroethane. The use of Avgas or jet fuel is not recommended.

IMPORTANT NOTE: It is your responsibility to consult all material safety data sheets for proper handling, safety, and disposal instructions for any solvents you may use in these procedures. It is strongly recommended that you work with proper ventilation, wear safety glasses, protective gloves, and protective clothing.

NOTE: Please note that Aviation Laboratories's AVL-OFRA-MORE and GA-001-OFRK-MORE kits work in conjunction to properly cleanse/rinse your filter element and capture adequate sample for submitting to our lab. The difference between these two kits is that the OFRA is the multiple use apparatus (tool kit) used to clean the filter element while the OFRK is a single use kit for sending the captured debris and oil sample to the lab. After your initial purchase, the AVL-OFRA-MORE Kit will require proper cleaning and storage for reuse, however the GA-001-OFRK-MORE kit, will have to be repurchased for each use. Contents of the GA-OFRK-MORE Kit can be found on the following page.

1. Filtration flask
2. One hole stopper, size #8
3. Oil filter rinsing bottles (4)
4. Instruction manual
5. Hand operated vacuum pump and hose
6. Solvent squeeze bottle
7. Forceps
8. Clear filtration stems (3), for insertion into size 8 one hole rubber stopper.
9. Solid rubber oil filter stoppers, size #4 (12)



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Oil Filter Rinsing Kit

GA-001-OFRK-MORE

1. Aviation Laboratories Customer Information Form, (CIF). The CIF is unique to each test kit and is proof the analysis service is recorded. The original CIF must be returned with your sample, copies of the blank CIF is prohibited.
2. Oil sample hose
3. Oil sample bottle
4. Sample identification label
5. Shipping label
6. 8 micron filter paper and rigid backup pad enclosed in clear plastic petri dish holders with labels (two supplied), one is pre-loaded into the filter funnel assembly, the other is in a clear plastic petri dish for storage and shipping. A small plastic bag is enclosed for shipping.
7. Filter funnel assembly. A clear filter funnel top and blue base for holding filter paper and backup pad. This filter funnel assembly must be returned to lab with each sample.



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MORE STC Oil Filter Rinsing Tool Kit Instructions

Introduction

The purpose of this procedure is to rinse as much of the debris (i.e. metal particles, carbon, sand, (etc.) from the oil filter as practical. The oil filter is rinsed in a plastic bottle by vigorous agitation with suitable solvent. Then the debris removed from the oil filter is collected, so it can be filtered from the rinsing solvent (i.e. concentrated) on to one or more pieces of filter paper, as needed. Finally, filtered/concentrated debris must be shipped to Aviation Laboratories for analysis.

From a mechanic's point of view the oil filter is dirty. However, from Aviation Laboratories' point of view absolute cleanliness is extremely important while performing these procedures. The mechanic performing these procedures must be very careful to avoid contamination the oil filter debris with any foreign substance except for the solvent used to rinse the oil filter. Aviation Laboratories will be analyzing and looking at very small pieces of debris removed from the oil filter. Even very small pieces of foreign contaminants will impair the accuracy of the analysis performed. In simple terms the mechanic should perform these procedures as if he/she were assembling an engine part which required a high level of cleanliness during assembly. Avoid dirty hands, dirty bench areas, or dust filled rooms.

Do not reuse the parts that come in each oil analysis and oil filter rinsing kit, part number GA-001-OFRK-MORE, on more than one oil filter. Each time you rinse an oil filter you must use a new oil analysis and oil filter kit. New parts are in each oil analysis and oil filter kit to ensure absolute cleanliness, i.e. a new filter funnel assembly is included in each oil analysis and oil filter kit. After use, you must return the filter funnel assembly to Aviation Laboratories with your sample.

DEFINITION OF WORDS USED IN THESE PROCEDURES

Clean or cleaning - the act of cleaning the oil filter as specified in the engine or equipment maintenance manual; so it will be in a condition suitable for installation back into the equipment from which it came.

Clean or cleaning - the act of removing debris from the oil filter so the debris can be analyzed. The rinse procedure will not harm the oil filter in any way, but this rinse procedure is not an FAA approved method of cleaning or inspecting the oil filter.

IMPORTANT NOTE: The last pages of this manual are instructional photo pages. Please refer to it when performing these procedures.

MORE STC Oil Filter Rinsing Tool Kit Instructions

PART ONE Oil Filter Rinsing

IMPORTANT NOTE: These procedures do not allow you to clean or inspect your oil filter in accordance with your maintenance manuals. These procedures are for the laboratory analysis of your oil filter debris contents only. You must perform additional cleaning and inspection of your oil filter in accordance with your equipment's maintenance manual.

Before you begin the following procedures, you should be sure that all parts of the oil filter rinsing apparatus, and your work area, are extremely clean.

You may first collect a oil sample for spectrometric oil analysis.

The oil filter rinsing tool kit (AVL-OFRA-MORE)-photo 1, does not contain the necessary filter funnel assembly, filter paper, customer paperwork, labels, or oil sampling bottle to perform the oil and oil filter sampling. These components are available as part of the GA-001-OFRK-MORE oil analysis and oil filter rinsing kit. GA-001-OFRK-MORE is designed for use on MORE STC turbine engine oil and oil filters. This kit GA-001-OFRK-MORE can only be obtained directly from MORE Company, Inc. at 775-782-3346.

OIL FILTER RINSING PROCEDURES

1. Open a GA-001-OFRK-MORE oil analysis and oil filter kit. Fill out the customer information form for the engine oil filter and oil sample to be taken. You will rinse one oil filter at a time. You should mark your oil filter with an engine serial number and position.
2. The oil filter rinsing bottle is found in the MORE STC oil filter rinsing apparatus, part number AVL-OFRA-MORE, and is a threaded heavy duty polypropylene bottle with a threaded lid. Be sure the rinsing bottle is extremely clean with no visual debris anywhere. (see photo 3)
3. Remove an oil filter from your engine and drain off the bulk of the oil. Insert a #4 solid rubber stopper tightly into the holes at each end of the oil filter. Make sure that these stoppers fit tightly because they protect the interior of the filter from contamination during rinsing **be careful not to accidentally push the stopper all the way into the interior of the filter.** (see photo 3)
4. Insert the oil filter with stoppers into a rinsing bottle. (see photo 3)

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5. Fill the oil filter rinsing bottle half way with the rinsing solvent you will use. Consult the MSDS of the rinsing solvent you use for proper handling procedure. (see photo 3).
6. Secure the lid of the rinsing bottle tightly.
7. Cover the lid of the rinsing bottle with a shop towel. Place one hand over the lid and one hand around the bottom of the bottle. Shake the rinsing bottle back and forth and up and down. Continue to agitate the rinsing bottle vigorously for at least 5 minutes to remove as much debris as possible.
8. Remove the lid from the rinsing bottle slowly as pressure may have built up from shaking the solvent.
9. Remove the oil filter from the rinsing bottle. Remove the lower rubber stopper and hold the oil filter over the open rinsing bottle for several minutes until all excess rinsing solvent has drained out. Return the rubber stopper back into the oil filter and set the oil filter on a clean shop towel.
10. At some point in time you must clean and inspect your oil filter in accordance with your engine maintenance manual. This type of cleaning and inspection is not included in these procedures, you must refer to your engine maintenance manual for instructions.

IMPORTANT NOTE: If your oil filter is extremely dirty, or you want to perform additional oil filter rinsing, you may repeat this rinsing procedure.

First complete steps 8 through 20 to filter all the debris from the solvent you have used. Then repeat the oil filter rinse procedure beginning with step 4.

11. Fill the solvent squeeze bottle with rinsing solvent. Be sure that the solvent is clean, virgin, and free from contaminants. (see photo 6)
12. Place a clear plastic filtration stem into the #8 one hole stopper. You may leave this stem in this stopper for continued use. Assemble the filtration flask apparatus by placing the large #8 one hole rubber stopper into the large filtration flask with the side arm. (see photo 2)

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13. Remove the filter funnel assembly from the oil analysis and oil filter kit, part number GA-001-OFRK-MORE. This filter funnel assembly is composed of a clear funnel top, which snaps onto a solid colored blue base. The blue base fits onto the clear filtration stem, which you placed into the #8 one hole stopper in step 12. (see photo 2) This filter funnel assembly should be returned to the lab with your sample after use. This filter funnel assembly is not considered reusable and must be returned with your samples.
14. The filter funnel assembly is preloaded with a piece of filter paper and one filter backup pad. The thinner filter paper must always be on top of the thicker backup pad. (see photo 7) There is an empty clear plastic petri dish enclosed in each oil analysis and oil filter kit to store this pre-loaded filter paper and backup pad after you use them. (see photo 8) A second additional piece of filter paper and filter backup pad are enclosed in the oil analysis and oil filter kit in another clear plastic petri dish. The filter backup pad supports the filter paper and helps seal the clear upper funnel to its blue base. A small label is enclosed with each petri dish. These labels are used to label, seal, and tape the petri dishes closed.
15. Set the blue base of the filter funnel assembly onto the clear filtration stem you placed into the #8 one hole stopper on top of the filtration flask. (see photo 2)
16. Attach the clear hose onto the hand operated vacuum pump and onto the side arm of the filtration flask. Read the vacuum pump instruction sheet. (see photo 5)
17. Carefully pour a portion of the used rinsing solvent from the oil filter rinsing bottle into the clear funnel top of the filter funnel assembly. Be careful not to tip the filtration flask over. Once the clear funnel top is nearly full (see photo 4), put the rinsing bottle down. Hold the lower filtration flask with one hand and operate the hand vacuum pump with the other hand (see photo 5). Once the clear funnel top has emptied into the lower filtration flask, fill it again with the solvent from your rinsing bottle. Repeat this procedure until the rinsing bottle is emptied. When the large filtration flask becomes half full you must remove the #8 one hole stopper and empty it into your waste solvent storage container. If filter paper becomes clogged go to step 20.

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18. Hold the rinsing bottle inverted over the clear funnel top and use the solvent squeeze bottle filled with rinsing solvent to flush out all remaining debris from the rinsing bottle. Be sure the oil filter rinsing bottle is completely flushed out with no visual debris. Debris will get hung up around the upper ridge of the rinsing bottle, flush it well. This ridge allows the rinsing bottle to seal properly. (see photo 6)

19. Continue to pull a vacuum while flushing the inside surfaces of the clear funnel top with the solvent squeeze bottle. Continue to pull a vacuum until all of the solvent has gone through the filter paper. When the large filtration flask becomes half full you must remove the #8 one hole stopper and empty it into your solvent waste container.

20. If the filter paper becomes clogged, be patient and continue to pull a vacuum, the solvent should eventually filter through the filter paper. If the filter paper remains clogged, and you are sure the solvent will not filter through the filter paper, then go to step 28.

21. Gently snap apart the filter funnel assembly by snapping off the clear funnel top from the solid colored blue base. (see photo 7)

22. Using the forceps (flat tipped tweezers), carefully remove the filter paper and filter backup pad from the blue base. You need to pick up the rigid backup pad and the filter paper will come with it. The backup pad helps support the thin filter paper when being removed from the blue base. Place the filter paper and backup pad into the empty clear plastic petri dish. (see photo 8)

23. Stop and fill out the small label for the petri dish, with the engine serial number and other information. Wrap the label around the petri dish to tape it closed. Put the petri dish back into the plastic bag and back into the oil analysis and oil filter kit box.

24. Put the used filter funnel assembly back into the oil analysis and oil filter kit box and send it in with your samples. The stem that attaches below the blue base of this assembly should remain in the #8 one hole stopper on top of the filtration flask for continued use.

25. Complete all paperwork and use the shipping label provided to ship to Aviation Laboratories. Only original paperwork will be accepted, do not make copies of blank paperwork.

26. Be sure that everything in the kit box is secured and well packed. Tape the kit box closed with heavy tape.

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27. Empty your solvent squeeze bottle back into your solvent storage container. Clean and wash all apparatus components before storage or continued use to avoid contamination of the next oil and filter analysis samples. Dispose of all used solvents in accordance with local, state and federal regulations.
28. If the filter paper clogs up, be patient, it may eventually finish filtering. If it just will not filter; and you are certain you can't proceed, you will need to use a second piece of filter paper and filter backup pad. A second piece of filter paper and backup pad are included in each oil analysis and oil filter kit. Carefully remove the blue base and filter funnel assembly from the stem on top of the filtration flask. Pour the unfiltered solvent back out of the filter funnel assembly and into the rinsing bottle. After the filter funnel assembly has been emptied of solvent you can carefully snap it open. Snap off the clear top funnel from the blue base. Now go to steps 22 and 23 to carefully remove the filter paper and backup pad and put them into the empty clear plastic petri dish. A second clear plastic petri dish with a piece of filter paper and a filter backup pad is included in each oil analysis and oil filter kit. Open this clear plastic petri dish and, using your flat tipped forceps, carefully pick up the filter backup pad and the filter paper and place them onto the blue base of the filter funnel assembly. Be sure the thinner filter paper is on top of the thicker backup pad. Snap the clear funnel top back onto the blue base. Now repeat steps 17-24.
29. If you clog up a second piece of filter paper, again be patient and continue to pull a vacuum. After some time the solvent should eventually filter. If you have been very patient and it is still clogged and if you have additional filter paper and backup pad repeat step 28. If you have no other filter paper then do the following. Carefully remove the filter funnel assembly by removing the blue base from the stem below it. Carefully pour off all unfiltered solvent back into the rinsing bottle and repeat steps 22 and 23. Let the rinsing bottle and unfiltered solvent sit undisturbed for 30 minutes. Carefully pour and decant the solvent out of the rinsing bottle into another bottle. Most if not all of the debris should remain behind in the rinsing bottle if you carefully pour the solvent off the top very gently and slowly at a gradual angle. The debris left behind in the rinsing bottle, with no solvent, can be sent to Aviation Laboratories along with the rest of your samples. Close the lid tightly and label this rinsing bottle with your engine serial number. Read step 30.
30. If you have clogged up two or more filters and or your oil filter is extremely contaminated place your oil filter into a rinsing bottle and ship it with the rest of your samples for further rinsing, filtration, and analysis. Be sure to label this rinsing bottle with your engine serial number. Your oil filter will be returned to you in the rinsing bottle it is sent in.

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31. The customer information form is a controlled accounting form. When sent in with your sample it provided proof that the oil analysis and oil filter kit has been prepaid. You should never make copies of this form. Copies will not be accepted, you must send in the original form with your samples.
32. Additional filters and backup pads can be purchased from MORE Company Inc. An extra set is provided in each oil analysis and oil filter kit. It is important to keep extra filters on hand. They would be used if: a filter and backup pad was contaminated (i.e. Dropped on the floor) and your oil filter is extremely dirty and more filters are needed.

Dispose of all used solvents in accordance with local, state, and federal regulations.

Be sure to remove the stoppers from all oil filters after you complete these procedures.

If you have questions about how to use this apparatus or if you have comments or suggestions on how to improve this apparatus or if you need additional apparatus supplies, contact:

MORE Company 1-775-782-3346 FAX 1-775-782-3349
email: info@morecompany.net You may also visit our website at: www.morecompany.net



Photo 1
The MORE STC Oil Filter Rinsing Tool Kit.



Photo 2
Set the blue base of the filter funnel onto the clear filtration stem you placed into the #8 one-hole stopper on top of the filtration flask.



Photo 3

Place filter into the rinsing bottle and put lid tightly back onto bottle so it can be shaken vigorously to remove debris from filter.



Photo 4

Pour the debris laden solvent into the clear funnel top of the filter funnel assembly, being careful not to overfill the funnel.



Photo 5

Hold the lower filtration flask with one hand while operating the hand vacuum pump with the other hand.



Photo 6

Hold the rinsing bottle inverted over the clear funnel top and use the solvent squeeze bottle filled with rinsing solvent to flush out all remaining debris from the rinsing bottle.

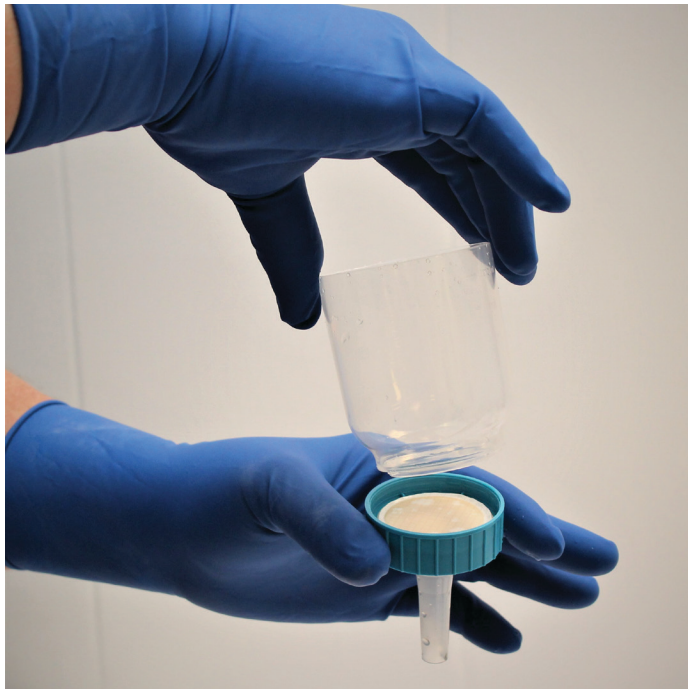


Photo 7

Gently snap apart the filter funnel assembly by snapping off the clear funnel top from the solid colored blue base, exposing the filter paper with captured debris.



Photo 8

Using forceps, remove the filter paper from the filter funnel assembly and carefully place into one of the petri dishes provided.

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