

Hoses, Instrument Panels, Custom Products and Accessories

FOR EXPERIMENTAL AIRCRAFT



Thank you for purchasing your RV-14 Firewall Forward Hose Package.

In an effort to standardize components, we are offering these packages as “Stock” configurations. They are built to be installed as per the Vans plans, except that we have made some changes to the hose kits as noted below. Some of the changes are specific to certain configurations, while others are generalized among all hose kits.

The ordering web page also gives a listing of the items to delete from your Firewall Forward packages when ordering from Vans.

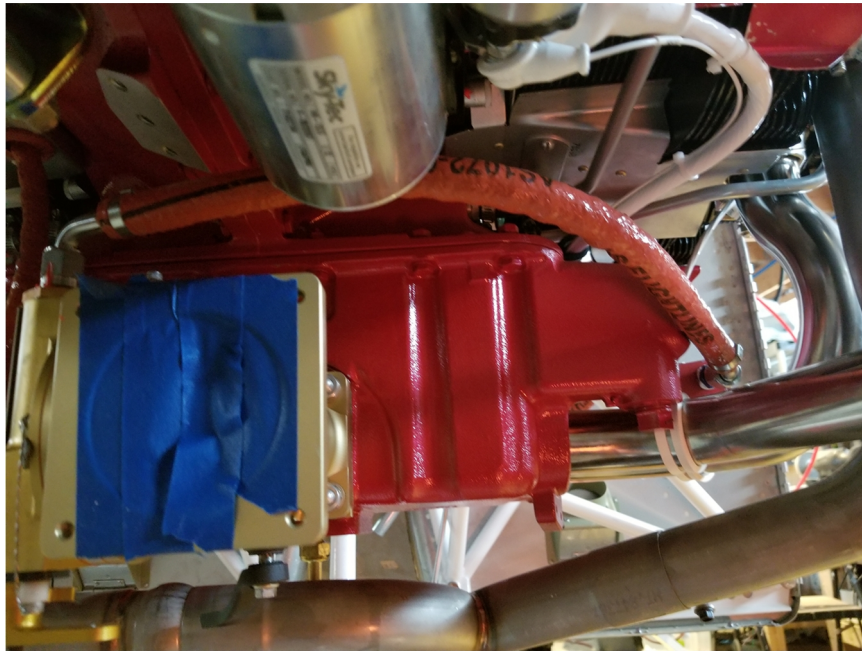
Here are some general notes regarding our firewall forward hose packages.

- Industry Exclusive 10 year hose warranty
- Both Oil Cooler hoses are protected with a MilSpec Firesleeve and stainless steel bands.
- Oil Pressure Hose is conductive Teflon and utilizes Stainless steel fittings and has protective MilSpec firesleeve with stainless bands
- Fuel Pressure Hose is conductive Teflon and utilizes Stainless steel fittings and has protective MilSpec firesleeve with stainless bands
- Manifold pressure line is only hose without firesleeve (Like the factory kit) For a \$30 upcharge, you can upgrade this hose to firesleeved also. This line is modified to have a better fit than the stock hose which is too long. This hose has a 45 degree fitting on it for non Pmag installations as it routes nicer off the straight fitting in the engine.

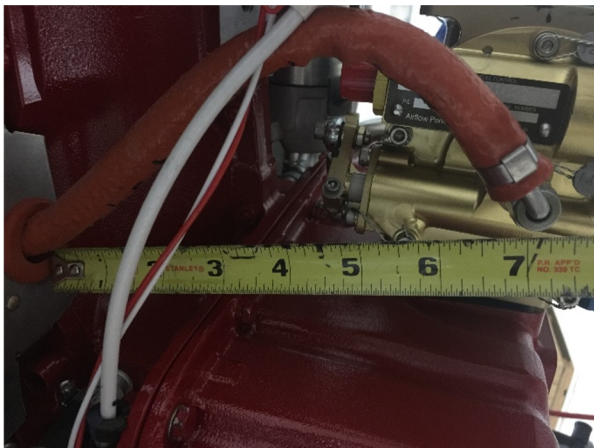
WE NOW OFFER A PREMIUM INTEGRAL FIRESLEEVE HOSE OPTION for all -8 and smaller size hoses. See www.aircraftspecialty.com for details.

- Hose Kits include all hoses that Van's does in the firewall forward and avionics kits. This hose kit is designed around the Van's engine configuration. However, we have hose data on a variety of configurations that are listed below. If you have something additional that you would like to see, please contact us and we will work with you to make it happen.
1. RV14 Tailwheel and RV-14A Nosewheel stock configuration.
 2. FM150 Fuel Servo or Standard Stock Fuel Servo
 3. Standard Mags, Single PMAG, or Dual PMAG
 4. Optional Pad Mounted Backup Alternator (necessitates a slight hose length change)
 5. B and C Upright Oil Filter addition (Necessitates Change to Hose Lengths)
- If you are utilizing the FM-150 servo, this is what your fuel line from the Transducer to the Servo will look like.

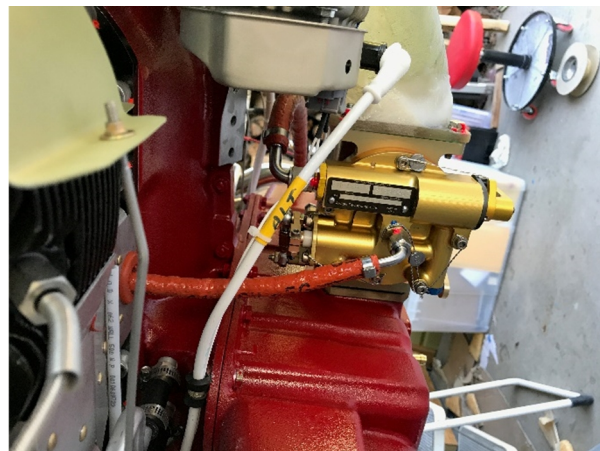




- The Fuel Servo to Spider line is NOT included with this package. That should come installed on the engine from your Engine Manufacturer. If you are utilizing a different Fuel Servo than stock and need any modifications made to that line, or a new one fabricated, we can build a custom assembly. (The Thunderbolt engine with the FM150 has been coming with a Servo to spider hose that is too long. We have the dimensions for the correct length hose (below right) if you have that configuration and the hose you received looks like the hose below to the left)



Hose slightly too long



Correct Length Hose

- This kit is designed with the Stock Van's exhaust, but the Vetterman exhaust is close enough that there should be no length issues with this kit.

- As we get more pictures from people with different configurations, we will keep updating our documentation to make it even more comprehensive. (We do our best..but sometimes it takes awhile to update all our images and manuals with new pictures from customers.)

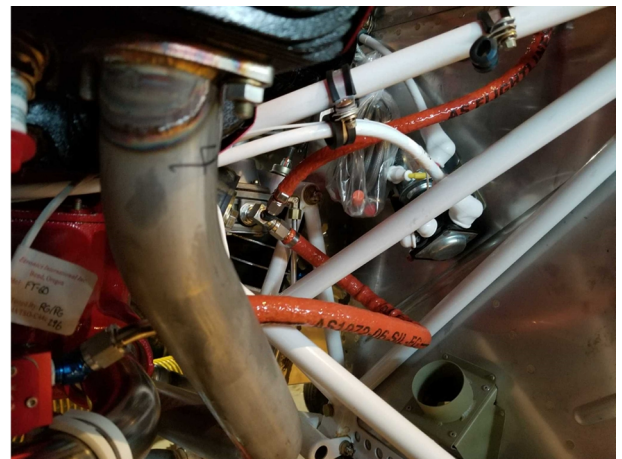
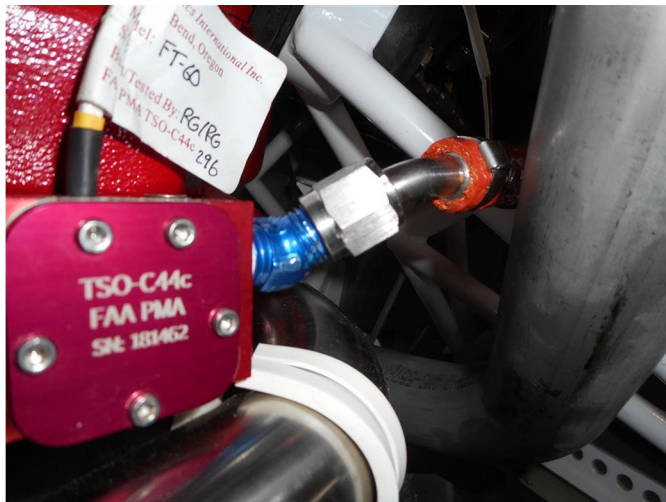
RV-14 TAILWHEEL – Stock Configuration

This kit can be installed as per the Van's plans. The hose lengths may be slightly different to have a slightly nicer fit, BUT they are the same configuration with one exception. The manifold pressure hose utilizes a 45 degree fitting on the hose end attaching to the engine to keep the hose from having to make as tight of a bend and to allow a slightly neater routing configuration.

RV-14A Nosewheel – Stock Configuration

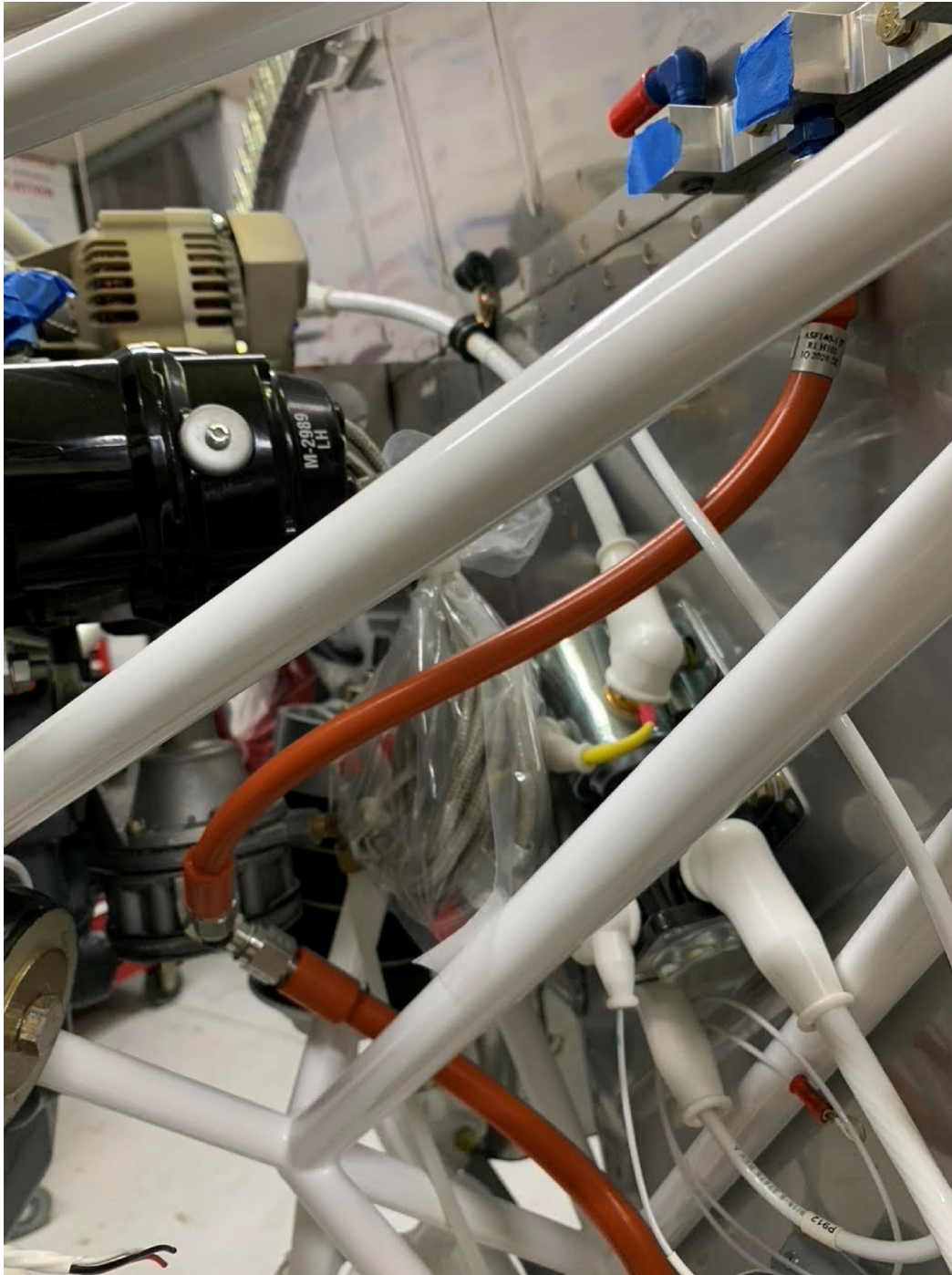
This kit can also be installed as per the Van's plans with the following changes.

1. FF00019 hose - The An Fitting in the picture below needs to be clocked a bit more into the vertical position for more clearance. However, our hose end is a 45 instead of the Straight fitting used in Van's Kit. This gave a slightly nicer routing as per our beta testers. We incorporated this into the final kit.

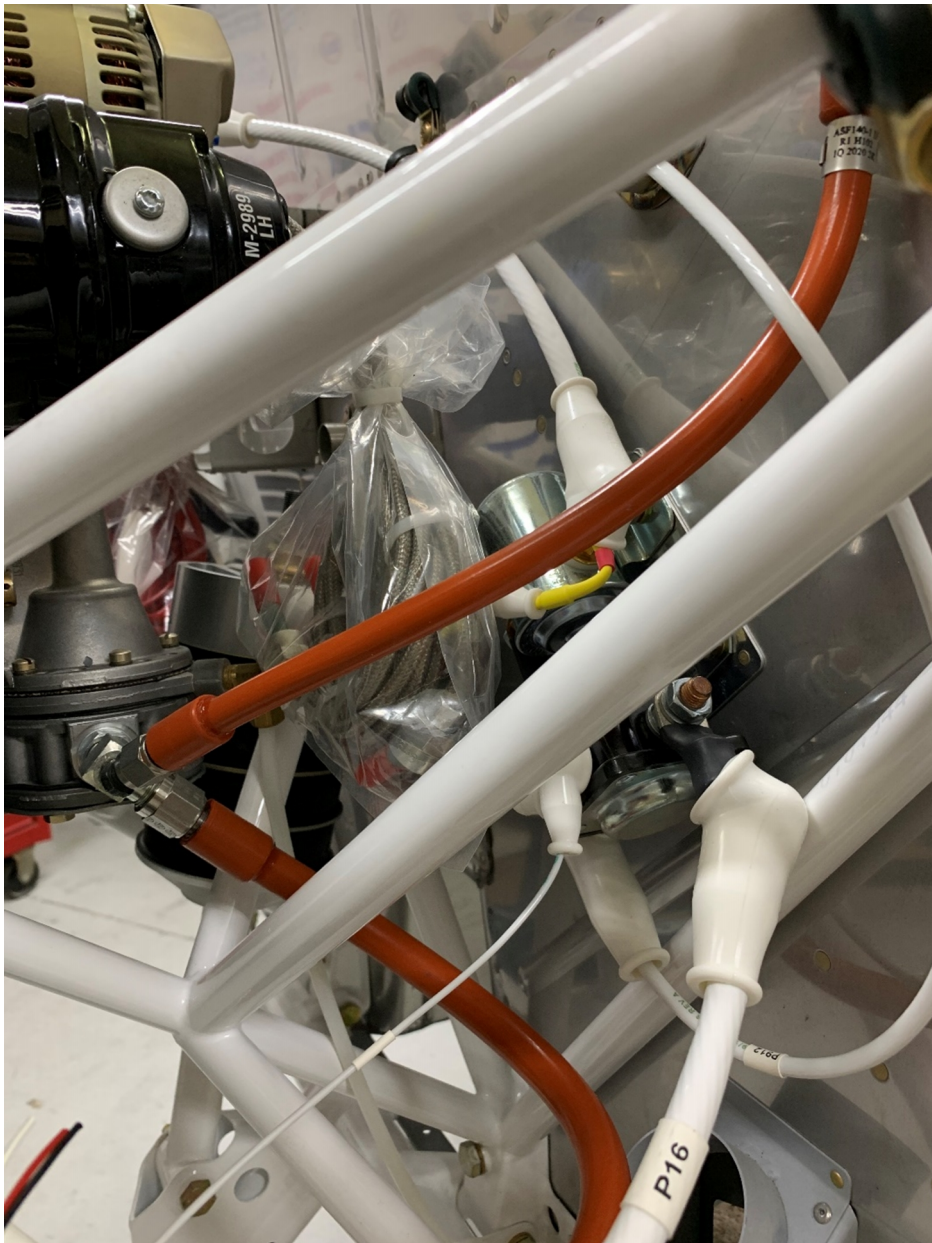


2. The manifold pressure hose utilizes a 45 degree fitting on the hose end attaching to the engine to keep the hose from having to make as tight of a bend and to allow a slightly neater routing configuration.

3. H102 Hose- VERY IMPORTANT. Prior to 7-16-20 the clocking on the H102 hoses is critical on the RV14A NW aircraft. If you clock the fitting at the pump vertical you will end up with some stress on the hose.



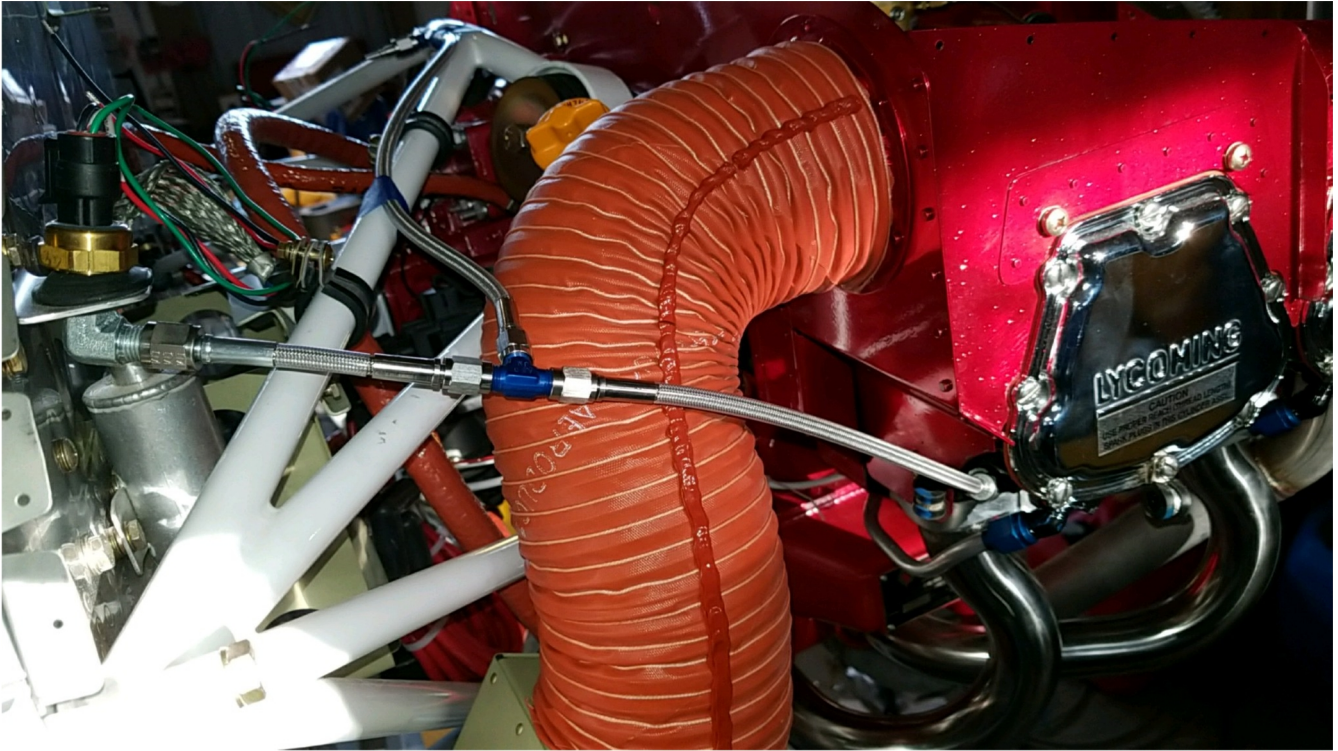
We recommend clocking more like the picture below to give yourself some additional slack. Alternatively, you may utilize an AN823-4D fitting in the transducer block, which will give you a bit of additional slack in the hose. If anyone has purchased one of these kits, and would like an AN823-4D fitting to create additional slack, please reach out to us with your name, address and stage of build and we will send you one at no charge.



FIREWALL FORWARD KITS PURCHASED AFTER 7-16-20 will have a bit of additional length in the hose, which will be less clocking critical.

PMAG INSTALLATION

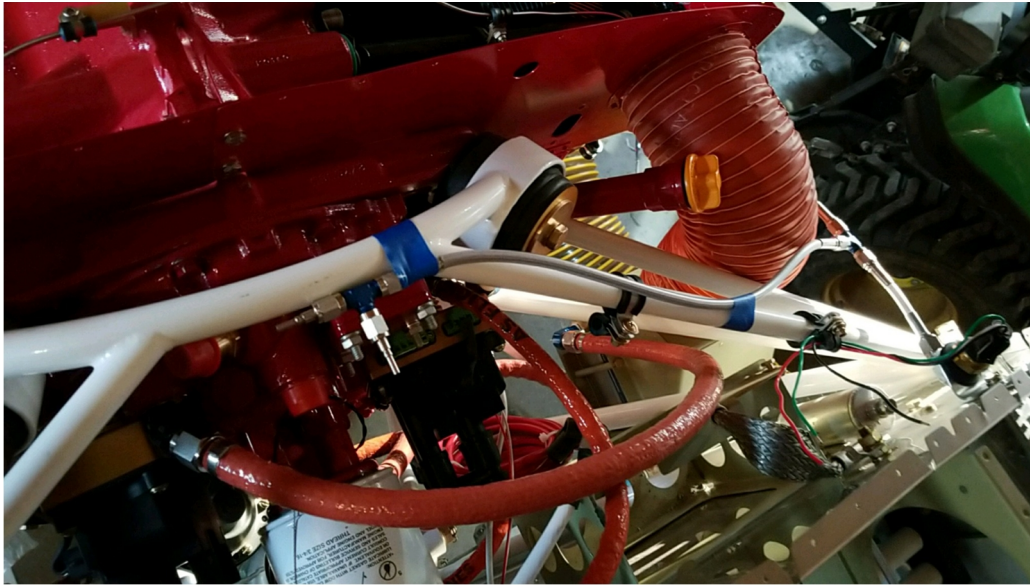
1. We can accommodate either a single or Dual PMAG Installation. The PMAG installations shown below and available for automatic ordering as of 1-6-18 are all for the Garmin Avionics package as Dynon utilizes a slightly different setup
2. Our PMAG hose setup utilizes -3 diameter hose with a clear anti abrasion coating on it. We supply a steel AN 45 degree elbow (with built in restrictor) for the engine port on your aircraft. This elbow is a -4 diameter elbow. We utilize -4 fittings on -3 diameter hose at the engine elbow as well as at the transducer. We supply two AN tees for the inline portion of the system and then two fittings to attach the rubber hoses to to make the final PMAG rubber hose connections.
3. This setup is based on stock locations for the Manifold pressure transducer. As always, we are happy to make modifications to this kit for any other locations or items that you would like to change. If you provide us with different dimensions, we are happy to accommodate. Please contact us prior to ordering if you would like to make any changes to the package.



We supply a steel 45 degree elbow with a .040" restrictor orifice built in for the fitting coming off of the engine cylinder. The lines are all -3 diameter which allows us several fittings with an additional small orifice size (.079") in them to provide manifold pressure system dampening for less PMAG pressure fluctuations.

The picture shown below is of where the system tees off into the PMAGs. This is the point at which the system differs from a single to a dual PMAG setup. The picture below shows a dual setup. Please note that the system in these pictures has not been completed yet and hoses must be final secured.

If you are planning on a single PMAG setup, we supply the exact same configuration, except that in lieu of a second fitting for the rubber hose to slide over, we supply an AN cap to seal off the unused port on the Tee.



Pictured below is the DUAL PMAG configuration shown with the ADEL clamps and mounting hardware that we provide in the package for securing the lines. The mounting hardware closer to the outside of the cowling is a #4 and and #12 adel clamp as well as a bolt, washer and nut.

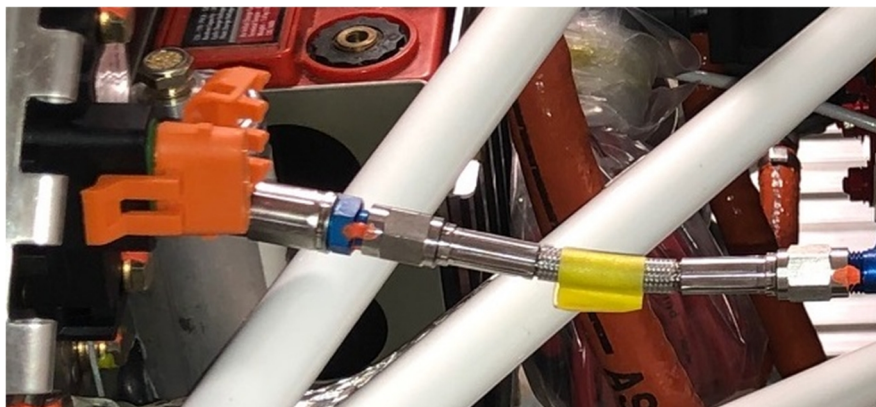
The mounting hardware on the inboard tee is a #14 around the engine mount, and a #7 around the fitting “B-nut”.



The picture here shows the rubber hoses attaching from the inboard Tee to the PMAGs. In this setup, the left pmag hose was cut to 15.25" and the Right PMAG is cut to 10.75" long.



If you are utilizing a DYNON MAP then you will receive a Dynon adapter as shown below.



NEW PMAG CONFIGURATION- As of 6-2021 for GARMIN Sensors

At the request of several builders and some beta testing, we have developed a new routing for the PMAG configurations for those builders utilizing the Garmin avionics package with single or dual PMAGS. This change does not impact the functionality of the system, but it does allow for a slightly more advantageous routing and also takes advantage of the Vans Transducer block that is already located on the pilot side of the aircraft on the firewall.

VERY IMPORTANT: VAN'S tells you in the directions that you can REMOVE the third port on the Transducer manifold mounting block. DO NOT DO THIS as we will be utilizing it for this configuration.

The pictures on the next several pages show the routing and securing of the new PMAG setup.

The only additional item that you will need is a 1/8 NPT plug to seal off the unused portion of the third port.



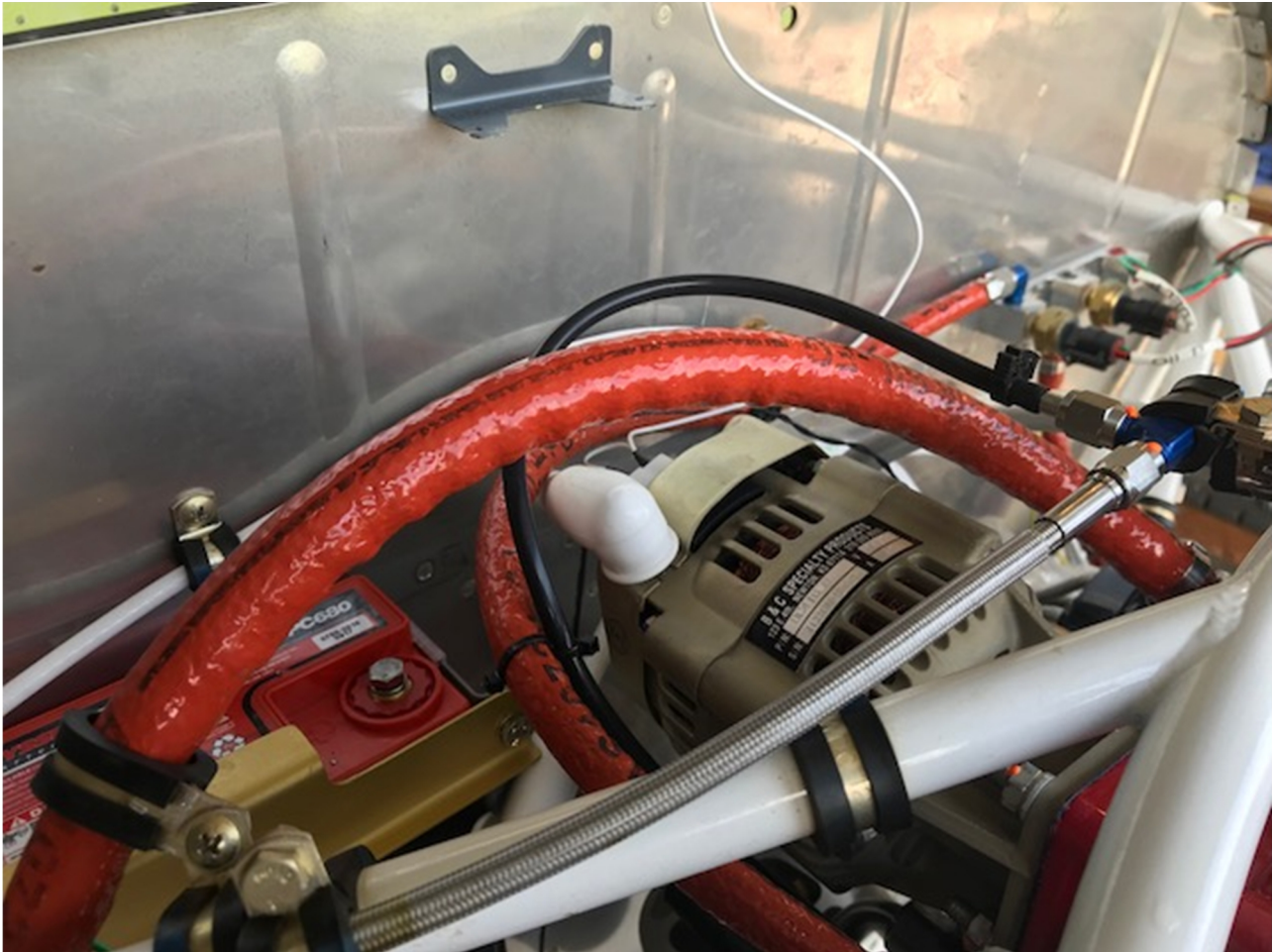




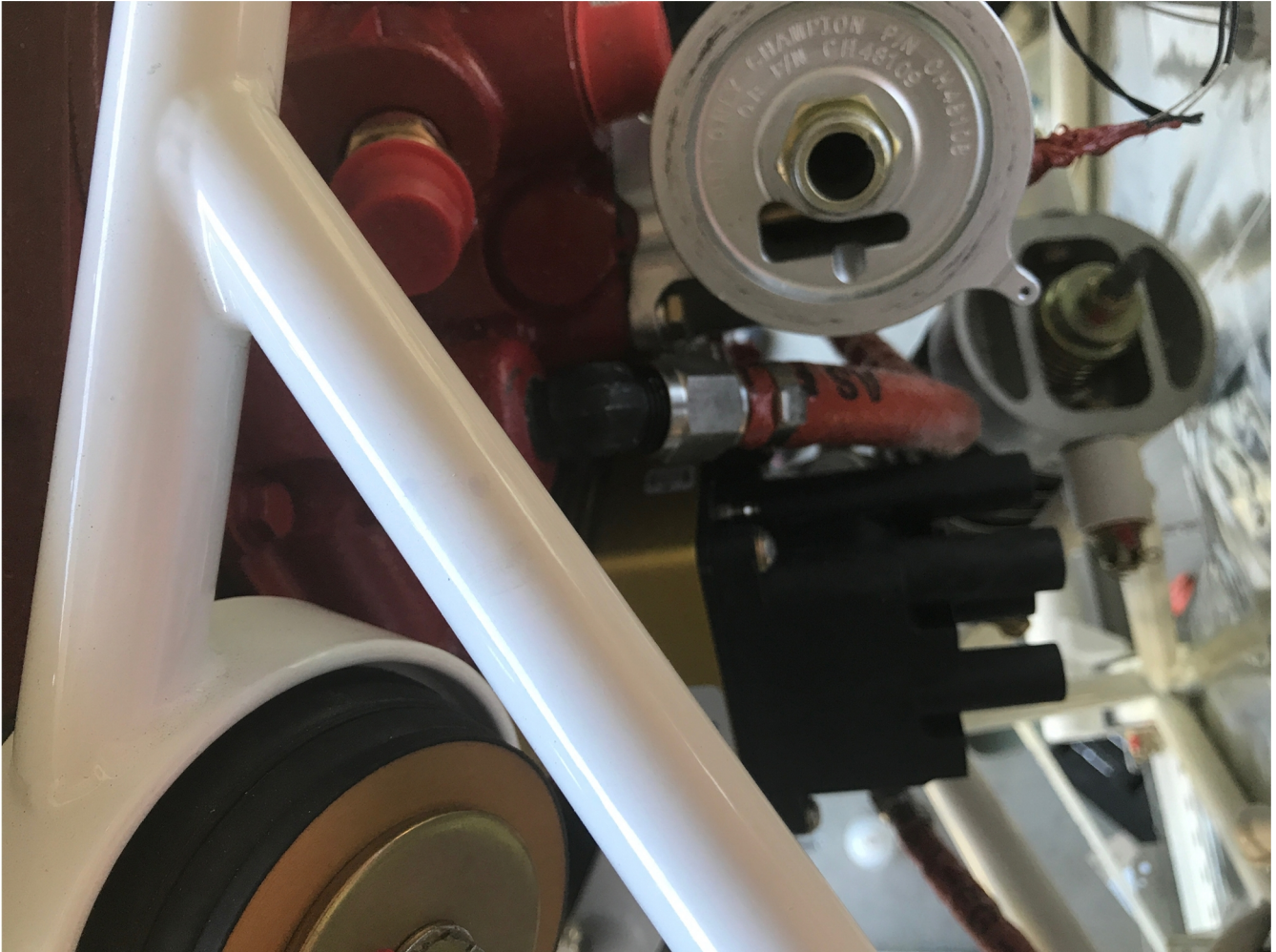


ADDITIONAL OPTIONAL CONFIGURATIONS

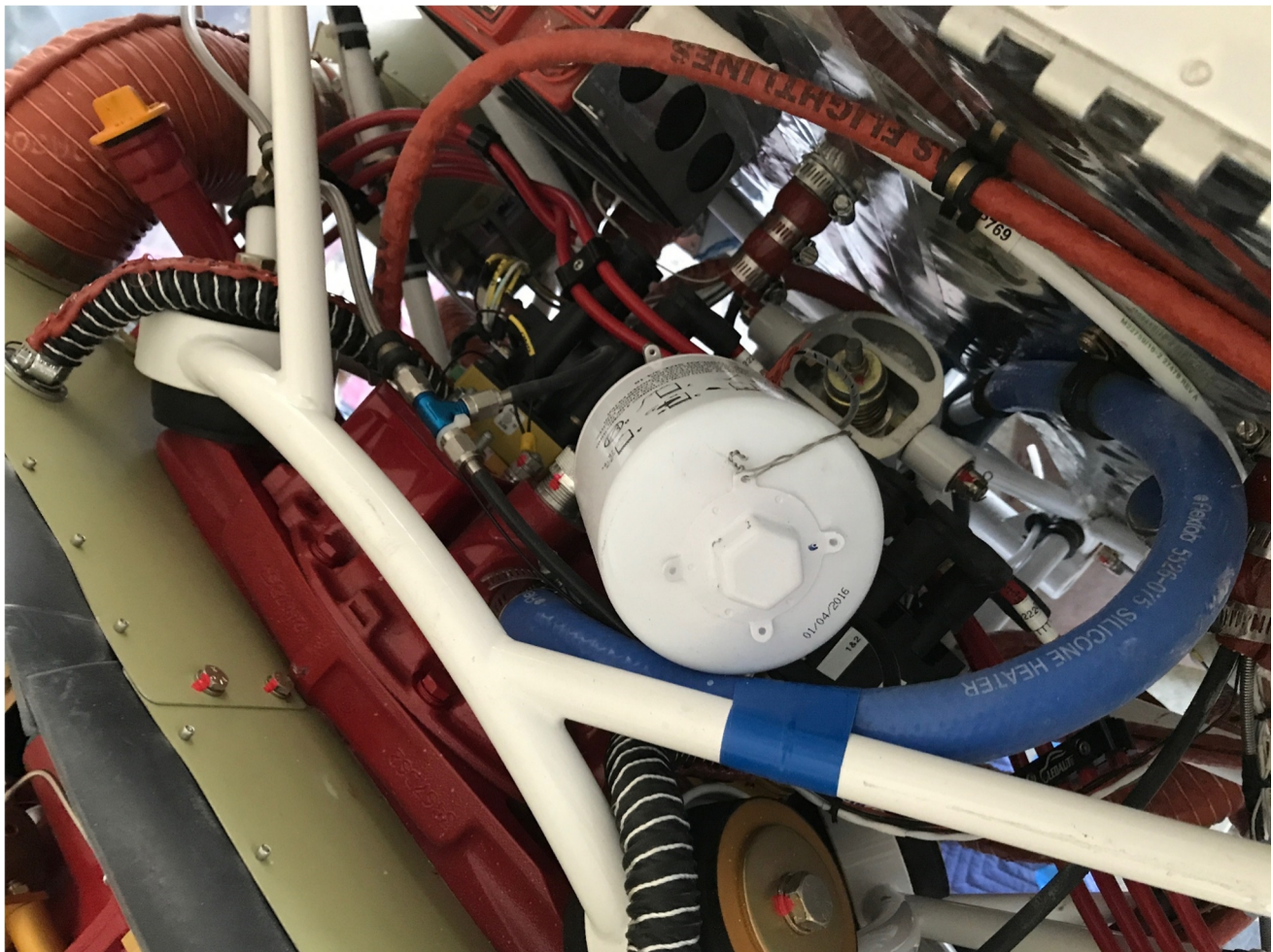
B and C pad mounted backup alternator. This is the VA-190 hose and it requires a different length when utilizing this backup alternator. As of 7-14-18 we only have data for a backup alternator on the RV-14A model.



RV-14/14A. B and C Upright Oil filter – If you are utilizing this filter adapter on an RV-14A, the hose length requires a routing change and a length modification.

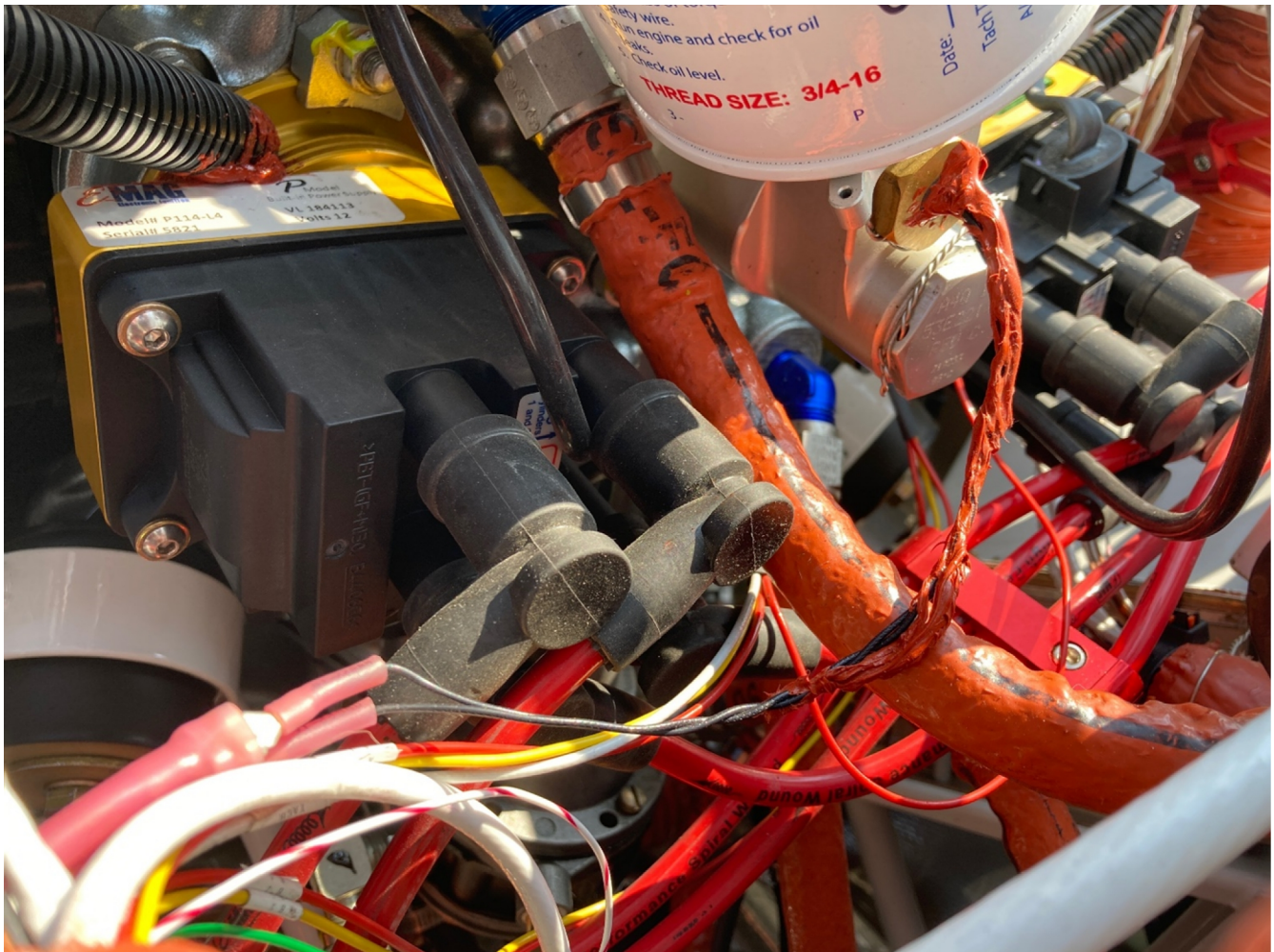


If you will be utilizing the upright oil filter adapter for the RV14A, there is an additional change that needs to be made. The upright oil filter adapter interferes with the standard rigid breather tube. This will necessitate the fabrication of a new one, or the utilization of a silicone type hose as shown in the pictures below. This is an easy modification, but one that builders should be aware of.



If you have an RV14 TW, you can utilize the same hose that you utilize without the upright oil filter configuration. You will need a 45 degree adapter fitting to come out of the ENGINE. This will allow you to clock the fitting to ensure that the hose does not make contact with the upright oil filter adapter.

Then you can route the hose normally over to the oil cooler.



NOTE: If purchasing after 9-24-20 see next page for TW config with Backup ALT

RV14TW Upright oil filter adapter NEW config.

If you are ordering this AFTER 9-24-20 you will want to purchase an additional AN816 STR Fitting as you will be utilizing a str -8 fitting in your ENGINE and Cooler for the FF00016 Hose.

The hose end at the engine will be a 45 degree fitting, and the Hose end at the cooler will be a Str.



The picture to the left and on the next page shows how the 45 degree fitting allows the line to loop around the oil port in the engine and then over to the cooler. (Please note that the hose in the image on the next page is not firesleeved.

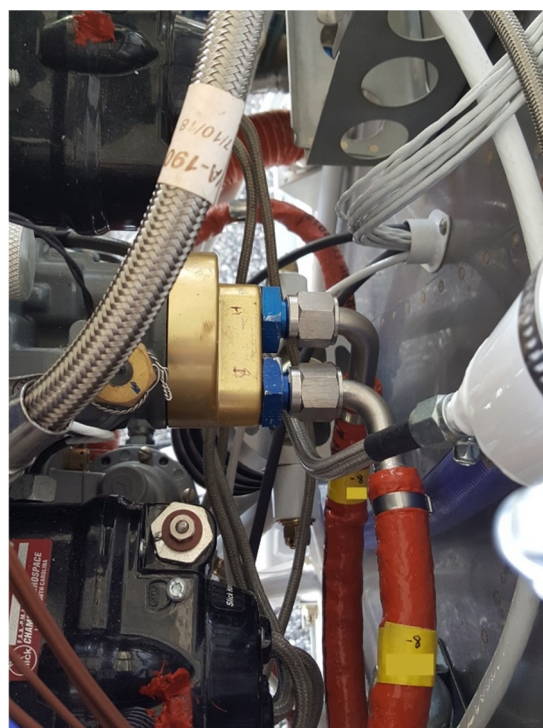
This was an install verification hose. Our FWF kits have std or integral FS hoses.

VERY IMPORTANT:

You will also need a spacer as shown in the picture to move the upright filter away from the hose end.



If you would like to utilize the Airwolf Remote oil filter setup for the RV14A, we also have a hose installation package for that setup. The Airwolf remote filter that our hose kit mates with is the K007-F kit. The Airwolf kit includes all AN fittings, and our installation kit adds the two required hoses. The installation pictures below show the configuration of the setup as well as the Airwolf remote mounting location. We recommend that you install the hoses by hand tightening to locate the perfect position of the remote filter on the firewall. Then you can mark and install that and then final install the hoses.



HALF RAVEN INVERTED OIL SYSTEM FOR RV14 TAILWHEEL

AS Flightlines is excited to introduce another option for RV14 builders. For those of you considering the Half Raven Inverted oil system, we have a drop in hose component package that will provide you with the AN Elbows, Mounting Hardware and hoses required to finish out the package. All hoses are Conductive Teflon Combi Hose which is extremely high quality hose and very flexible. The half raven kit is an add on kit as all the firewall forward hoses in our standard kits are used. This just adds on the items required to add the half raven to your setup.



If you are utilizing an FM150 Servo, make sure to order the Half Raven FM150 Spider hose. This hose is available in standard firesleeve (Pictured here) or our new integral firesleeve hose.

Pictured below are images of the Half Raven Tank with Fittings as well as routings required for the hoses.





Above (Hose Routing) Below Left (Hose Routing) Below Right (Drain hose)

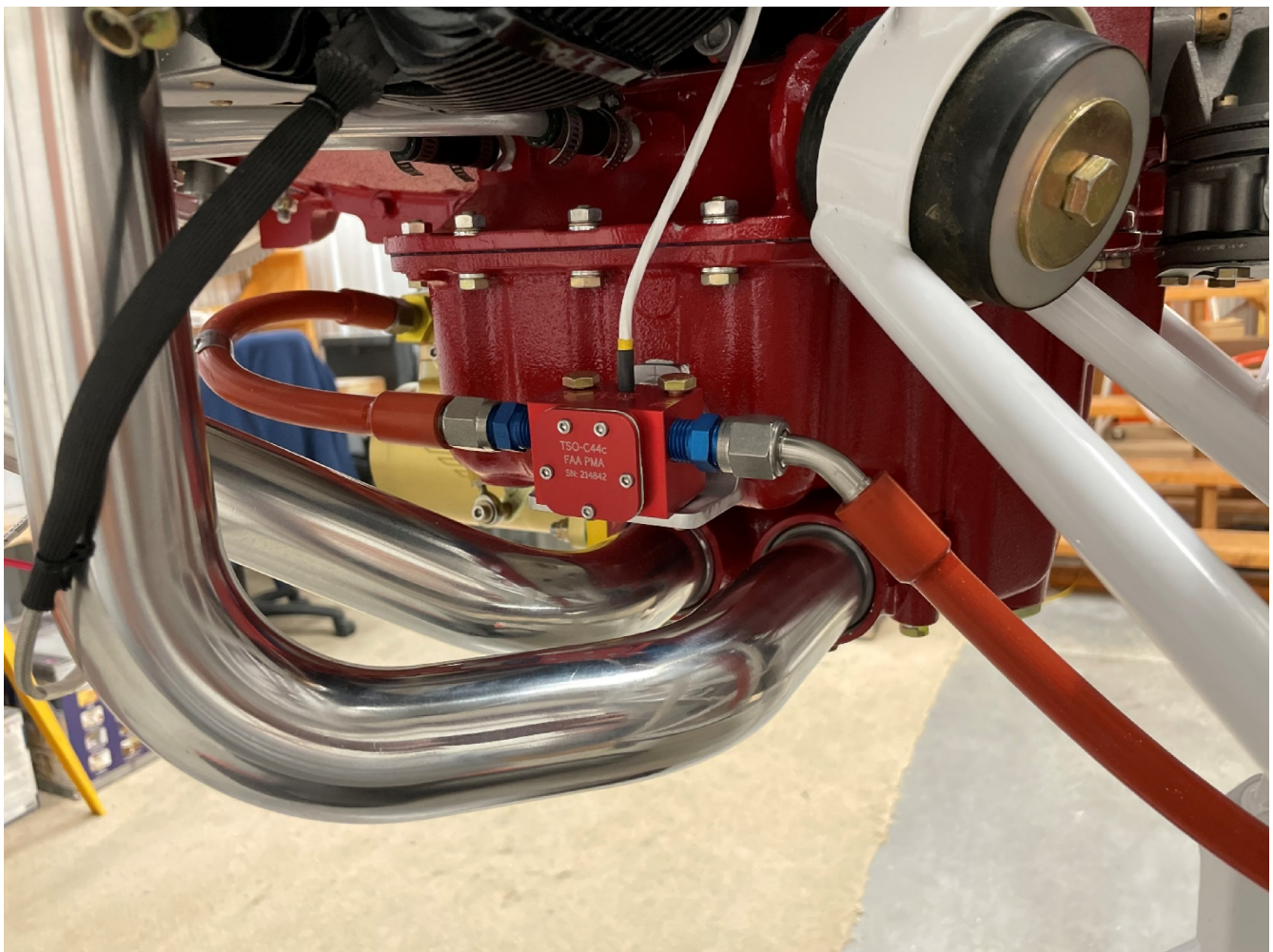


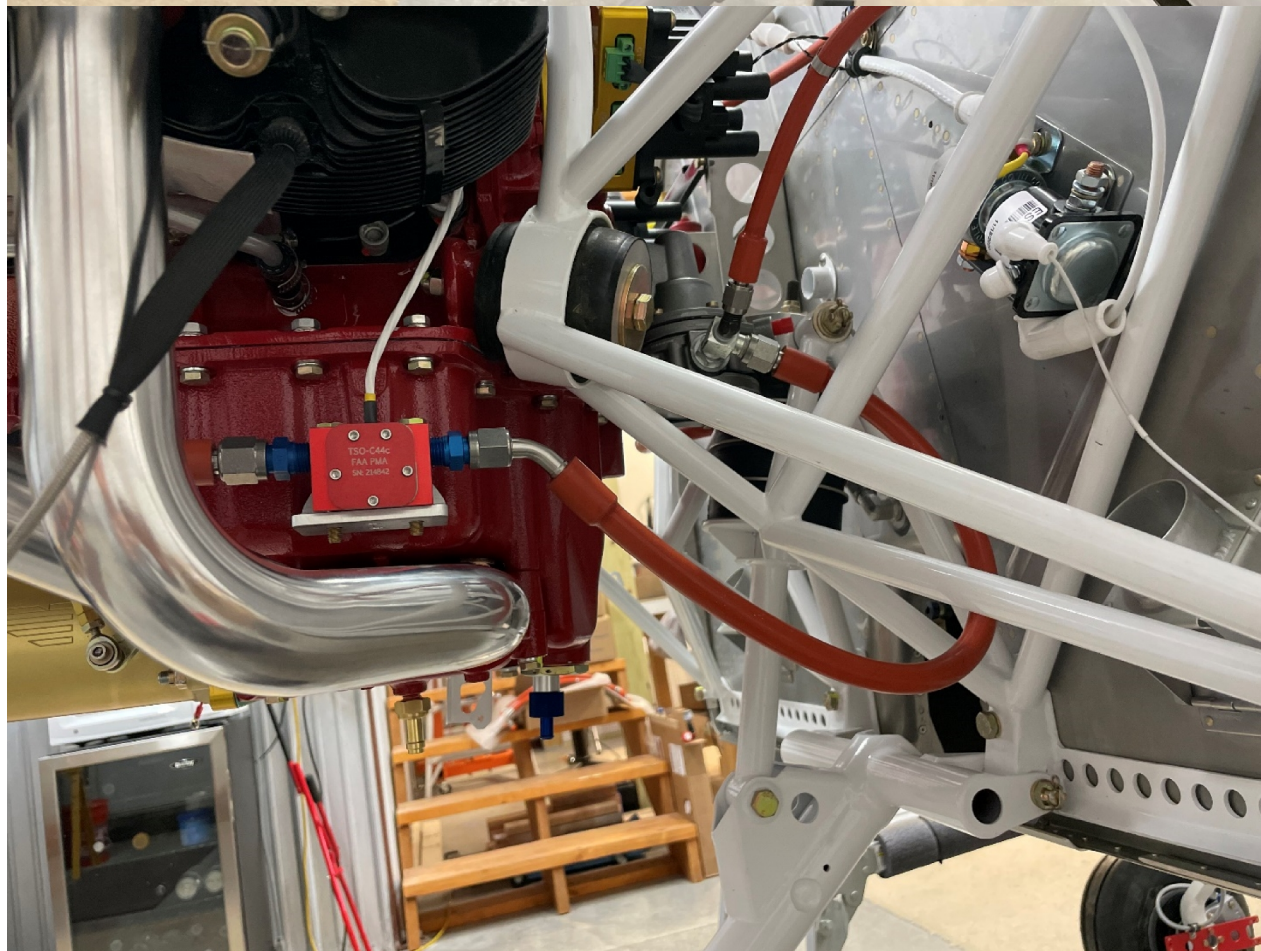
EXP-119 ENGINE INFORMATION AND DIFFERENCES

As early adopters begin to install firewall forward hoses on the EXP119 engines, we are happy to report that hoses are fitting very nicely and that the planned routings all appear to be working. The information below is specific to the EXP119 engine and intended as a supplement to the VANS plans as well as the remainder of this document.

Mounting of the Red cube to the induction tubes is a bit problematic in the EXP installation as the red cube ends up angling in a way that is not parallel to the oil sump. While this works, it does not provide optimal hose orientation.

As a result, a simple modification allows the red cube to mount parallel to the oil sump which once again allows for nice hose routing. Pictured below is an example of how a mount could be fabricated and how the hoses are designed to lay. If you are concerned about vibration, a rubber vibration isolation mount could be fabricated. Also, in this configuration straight fittings are utilized in both the front and rear port of the red cube. If these fittings are not included with your VANS kit, the part numbers are AN816-6D and are not included with the FWF hose kit at this time.





EXP 119 engine interference with Forward Pilot Cylinder Drain Tube:

It has come to our attention from early EXP 119 installations that there is interference with the VANS provided snorkel and the forward cylinder drain tube.

We have built and tested a CNC bent oil drain tube that will provide the necessary clearance on the VANS provided snorkel. Picture are shown below.



In addition...for those builders utilizing our integral firesleeve hoses, we have finalized the length of the Servo to Spider hose. The engine comes from Lycoming with a standard firesleeve Servo To Spider hose. We offer this hose with slightly refined measurements for nicer fit and in an integral firesleeve version for those builders who want all the hoses in the engine compartment to be integral FS.

We would love to see pictures of your installations. Please keep emailing them and we will keep updating this manual as we receive more builder input.