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Book Descriptions:

bvm uat manual

Multirotors Drones Drones Talk Multirotor Beginner Specific Models of MultiRotors and Drones Micro Multirotors Mini Multirotors Aerial Pictures and Video Showcase Scratchbuilt Multirotors Multirotor Electronics Multirotor Power Systems MultiRotor Apps and Related Software Multirotor Events FPV FirstPerson View RC Aircraft Flying and RC Vehicle Operation. Forum questions or problems Test Posting Forum I tested my JetsMunt VT80 for the first time and wow.I primed the fuel line and the turbine started without any problems. The turbine was running for a short while until I noticed a lot of air bubbles, so I shut the turbine and let cool down. I noticed the UAT tank was only half full or empty and was not filled up by the main tank. I dont understand this as I fill the main tank through the UAT tank. My setup is as follows Main tank has a vent tube exiting through the bottom of fuselage and a tube to the UAT tank. UAT tank has a tube to the pump and a filler plus the tube from main tank When I fill the tank I see that the UAT is filled up to the top and then that main tank gets filled. I have no air in the system. As I mentioned I started the turbine and the turbine was running until the UAT tank was down to half full and then bubbles appeared probably that is where the clunk sits Maybe I am missing here something stupid but why is the fuel not drawing from the main tank to the UAT. The main tank is filled through that tube. I hope you understand my problem. Sorry if I cant explain it better. Any advice and help would be appreciated as usual. Ulrich Threads will allow air to get in. 2 Change the tygon tubing for PU. DO Not use tygon pluged in Festos 3 Change the Festo filter. They tend to brake and let air in. Keep using the filter and manual valve in the pressure side. 4 Make sure there are no restrictions and filter in the clunk Regards NunoYour CAT its not a UAT is drawing air in somewhere.https://www.generacleads.com/userfiles/dell-poweredge-500sc-manual.xml

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The first thing to check is the cable ties round the black tube between the main tank and the CAT. These are a bad idea as there can be a small gap where the ends of the tie meet which can allow air to be drawn in between the OD of the solid tube and the ID of the flex tube. Replace these and I would do the outlet side of the CAT too with stainless tie wire wrapped twice round the tube before twisting off. Next thing to check is your clunk and clunk line inside the main tank. Is it a felt clunk There is no problem with these provided they are clean and you use well filtered kero fit a couple of filters in your fill line from your kero bottle outside the model but if they get dirty they clog and the pressure drop across them will accentuate any air leakage into the clunk tube and the tubing from the main tank to the CAT. Lastly I would check with Marc at GBR Jets that it is OK to mount the CAT vertically. It may be that your air margin is reduced by doing this as the pleated element in the CAT may uncover sooner. Marc will let you know. Also I wouldnt personally have a shutoff valve on the suction side of my pump. This is another source of air into your fuel system but it isnt causing the air in the CAT. I would refit it on the pressure side of the pump but you must remember to open it before starting!!! Hope this helps. MalcolmI really appreciate it. With regards to the shut off valve. I consulted several forums and people were discussing where to put the shut off valve on the suction side or the pressure side of the pump. Opinions are quite divided between the two. I decided to put it on the suction side as on the pressure side I am not sure how much pressure the pump would generate in the case of shutting that valve. I only know I dont want to run the turbine without a shut off valve. With regards to the CAT tank. I thought it is an UAT tank.http://steinemann-ag.ru/dell-poweredge-440-manual.xml

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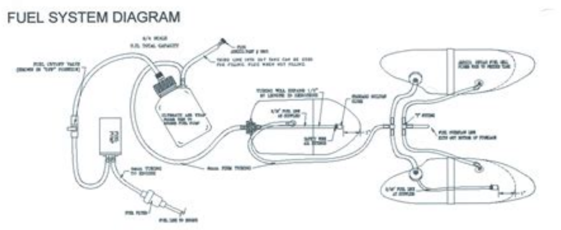
Anyway, the manual actually states that you should if possibly mount the CAT vertically as it makes sure that no air is in the tank. The screw in the fill line I will definitely replace. The clunk in the main tank is kind of ceramic material but was recommended for turbine use. I will also replace that black tube from the main tank. I am sure I will get the problem sorted. Must be a simple plumbing problem. Thanks again for your help. Ulrich PS Malcolm, would it be OK if I come over to your place and you could have a look. Just would make me feel better to have it checked out before the maiden. Flies excellent and no problems with bubbling. Had 3 flights this weekend without troubles. E.N.T.Air come thru the threat. Use a robart pin hinge if you dont find anything better.Is it really necessary to fit an UAT. I guess opinions are divided and everyone has its preferences. UlrichI think I got the problem sorted. It was indeed the screw in the filler line and I replaced it with a short rod. I filled up the tank and started the pump running the fuel into a canister. After several minutes still no air in the line, CAT full up to the top. Great result. Thanks again for your help. Ulrich Im going on holiday next week, back on 25th shoot me a pm or an email and well arrange it after then. Cheers, MalcolmI tested my JetsMunt VT80 for the first time and wow.I primed the fuel line and the turbine started without any problems. The turbine was running for a short while until I noticed a lot of air bubbles, so I shut the turbine and let cool down. Any advice and help would be appreciated as usual. Ulrich I friend of mine had your type bubble trap in an airplane that constantly would flame out due to air. Switched to a BVM UAT.Did not know its a trade name of BVM. Thanks again for your help. UlrichIs it really necessary to fit an UAT. I guess opinions are divided and everyone has its preferences.

UlrichI agree that a UAT or a CAT is not always necessary, and a lot of people successfully operate a turbine with out one. However, look at it this way. If you did not have a CAT fitted, you may never have picked up the air leak that you already had. So your CAT has already done a sterling job for you. I am in favour of air traps. I make it a habit to check my UAT after every flight. If the air bubble is excessively large, this is a sign that a air leak may have developed up stream. They also make a great final filter. Roger Smaller turbine models put a huge demand on the supply tank, the pickup and fuel moves around a lot more and its this supply if the filler is not sealed that can introduce the air. Dave Manufacture and design of the CAT is tested at the highest possible levels, which I hope gives extra endorsement to those looking to spend their hard earned cash on accessories to keep their expensive jets in the air. marcsIsnt it great how folks from all parts of the globe can share knowledge and help each other get the most out of this hobby! BillVery informative. UlrichYou test each and every CAT to 3040 psi for leaks but.they operate under suction. The difference between suction and pressure could result in different results. I only mention this because I work for a plastic closure company and find big differences between testing for pressurized product and product that may draw a vacuum in regards to leak testing.They are usually funny to look at and interesting to pick out all of the unsafe hazards. This photo kind of reminds me of them. You can see multiple nonos for fueling a jet. Tie wraps on connections no safety wire Threaded bolt as a stopper. Festo on the suction side You can even add items like ensuring all connections are in good condition. I have seen where someone has used a knife to cut off an old fuel line leaving a score line in the barbed connector. The score line works like a channel for a leak to occur.



http://freeedu.co.za/node/81108

Marcs comments above are right on the money!! Good points for doing a proper fuel system install.Actual operating pressure range is 0.95 to 14 bar see here page 9 Absolute vacuum is around 1.07 bar! Malcolm I cant see any air bubbles at all and the only thing I changed was the screw in the filler line. Nevertheless I am taking on board all the advice and will replace the tie wraps although I can pull very hard without the tubes to come off. and I mean I can pull very hard With regards to the shut off valve. As I mentioned before I was consulting several forums and people are having lively discussions of where to put the valve. I dont like the valve to be on the pressure side of the pump. If I shut that valve will the pump not create a high pressure on the tubes. Finally, what is wrong with a Festo valve. Why should a JetCat valve be better. Thanks again for all the help and advice. I am really enjoying my new venture into turbines a lot. UlrichUse of this site indicates your consent to the Terms of Use. Use of this site indicates your consent to the Terms of Use. BVM Ultimate Air Trap BVM 6044 The system is filled through the 3rd line in the U.A.T. Use single quotes for phrases. Please, log in or register For more information on what data is contained in the cookies, please see our Privacy Policy page. To accept cookies from this site, please click the Allow button below. However with the coming of bigger and more powerful engines, this little device that was designed about 15 years ago is reaching its limits. These units are much more suited for high flow engines and some of them will protect your fuel system very efficiently from the dangers of cavitation as I will explain below. The idea behind this device was to be able trap a small air bubble that would otherwise make its way to the engine and create a flameout condition.

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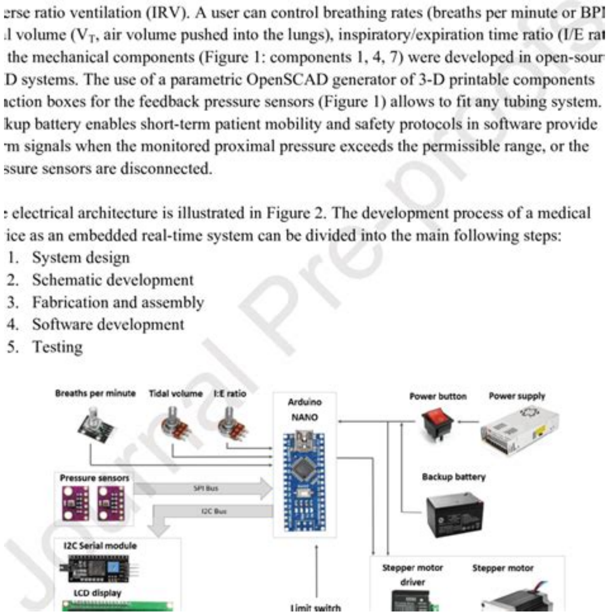
erse ratio ventilation (IRV). A user can control breathing rates (breaths per minute or BPI
l volume (V_T, air volume pushed into the lungs), inspiratory/expiration time ratio (I/E rat
the mechanical components (Figure 1: components 1, 4, 7) were developed in open-sour
D systems. The use of a parametric OpenSCAD generator of 3-D printable components
action boxes for the feedback pressure sensors (Figure 1) allows to fit any tubing system.
kup battery enables short-term patient mobility and safety protocols in software provide
m signals when the monitored proximal pressure exceeds the permissible range, or the
ssure sensors are disconnected.

electrical architecture is illustrated in Figure 2. The development process of a medical
ice as an embedded real-time system can be divided into the main following steps:

1. System design
2. Schematic development
3. Fabrication and assembly
4. Software development
5. Testing

Although it is heavy and mounted on a flexible line to stay in the fuel as much as possible, there will be situations when it will get out of the fuel and suck air.Just imagine that the biggest engines available on the market nowadays can burn 1 liter of kerosene per minute, whereas the first JPX turbines were burning a quarter of this amount. However, for hard core aerobatics flyers and people who like to fly at full thrust for a large portion of the flight and keep high thrust level in the dive, the amount of air that is sucked by the clunk can be up to 15 seconds of full thrust fuel flow! This video is taken on board an aerobatic plane. During this 30 second sequence, one can see that the fuel clunk is out of the liquid for exactly 50% of the time, pickup up air instead of fuel during this period! The bladder, if setup and filled properly, is designed to run without a vent and collapses as the engine drains fuel. Additionally, atmospheric pressure pushes on the bladder and contributes to reduce the effect of suction drag we will see this later . As a result, an air trap is not necessary, reducing the weight of the fueling system significantly. This may lead to a phenomenon that is not very well known to the modelers fuel cavitation. It can absorb over 10 % of its volume of air. This air is dissolved into the fuel until the condition for releasing is met namely depression. This depression does not have to be very high to create a fuel cavitation condition. You can see it by using a plastic syringe filled with fuel and pulling the piston while closing the tip. The kerosene will foam quite quickly. The air dissolved releases. As soon as you open the container, its pressure drops and thousand of micro bubbles of CO2 start coming to the surface. The reason behind this is that the micro swirl in turbulence creates local point of lower vacuum where the vapor pressure of air dissolved in kerosene equals the local level of vacuum.

http://www.decor-ada.com/images/branson-2510-manual-pdf.pdf

Thousands of micro swirls create thousands of micro bubbles. Then the high energy stream keeps on swirling passed the creation point and prevents the bubbles from redissolving. In fact, every time the aircraft is climbing, the fuel is literally “boiling” in the tank above 30,000 feet for a certain amount of time until all the dissolved air is released. This is why commercial aircraft have got their low pressure fuel pumps mounted in the tanks. These pumps are designed to take a mix of air and fuel and repressurize it considerably in the downstream lines so that all the air bubbles are forced to dissolved again before the fuel reaches the engines and their high pressure pumps. Condition for the bubbles to redissolve would be to agglomerate into a bigger bubble with a lower tension surface into a locally calm area of the stream. In any case, redissolving would take between one to two minutes. Way too slow to avoid bubble propagation into the engine. This combined with what I call a high suction drag too much vacuum upstream the pump creating fluid drag could lead the pump to vacuuming the air trap. You’d see the walls of the air trap slowly bending until they touch the filter bag. At this point, the bag would get its usable surface decreasing rapidly and start to cavitate itself air bubbles would form downstream the bag as if it was letting the bubbles through. In fact, what happens in this case is that the clogging of the bag creates a restriction that leads to increasing the suction downstream it. When this suction reaches the cavitation point, it looks like the bag is bleeding air bubbles. I remember using this unit as fast as 1995 back with my ducted fans. At this time the concept was revolutionary. It is made of a semi clear semi soft plastic tank and an automotive synthetic fuel filter bag commonly called “Kuss”. The fittings are fastened through the plastic, and the cap is sealed with a few turns of Teflon plumber tape.

The optimum orientation is 45 degrees nose up. This assembly also houses a micronic filter so that this unit can be used as a filtering device as well. It includes from left to right a ” push on fitting, an aluminium housing, a micronic filter, a filter retainer and the Kuss bag. Secondly, although it is a very good idea to use a large push on fitting, it appears that this SMC unit is quite restrictive. The inner diameter is only 2 mm, whereas the aluminium housing minimum inner diameter is 2,8 mm. The solution to improve the flow of this unit is to The top fitting has been redrilled to 2,8 mm and compares to the filter retainer on the right. The bottom fitting is stock and has an inner bore of 2 mm. This is to allow an optimum purging of the air during refill. It is a screwon cap that has quite a large and loose drive. To avoid introducing air via the screw, it is wrapped with a few turns of Teflon tape. It is important to check this area every year for tightness and replace the tape if in doubt. This also applies to the UAT. So the ancestor actually holds quite well compared to some younger contendants! So don’t be surprised to discover that the body is in fact a baby bottle! Additionally, the tolerance is such that the sealing of the bottle neck is achieved with 100% success by an o’ring system with no risk of subsequent air leak. This assembly is very effective and has the advantage to increasing the capitation surface, thus reducing the suction drag and the possibility of cavitation. Note the size of the fittings and the large sealing o'ring. It acts as a cap and the sealing is made by a large o'ring forced along the side of the bottle. It is very effective. The top plastic cap is only used to keep this aluminium assembly in the bottle. It does not provide any sealing. The restrictive point on this designed is the brass pickup. However, one can purchase the plywood mount kit. His brings the price up substantially and is quite heavy.

http://intechsol.kz/wp-content/plugins/formcraft/file-upload/server/content/files/1626ea5d0b25a6---bosch-ltc-8900-manual.pdf

The optimum orientation of this unit is nose up. I helped him in sizing the CAT system back then. We decided to improve the original design by offering two additional benefits serviceability and strength. They come in 4 different sizes The units are made of Kevlar fiber and glued with Hysol 9462. They are coming with a CNC cut large aluminum threaded cap and sealing oring. All the internal components are user serviceable and available as spares. The dimension is computed to provide a buffer of 30s of fuel usage at full thrust. This is why we are providing different unit sizes. The size, shape and position of the filter assemblies is matching the different sizes of the tanks. These points are extremely important to allow an optimum volume of buffer liquid around the filter that will give a good flow capability in case of cavitation. A practical device made of aluminum brass and paper. This aims at giving you an indication of how strong the suction drag is upstream the unit. If the fuel level reaches the bottom of the pocket when you are doing a full power test for one minute, then there is a danger of cavitation at this point. The restriction upstream is too strong and you need to check your fuel system again. For vertical mounting, the unit can be held in place by the gap left below the screw cap. However, vertical type units can be ordered as well. From left to right the Hansen air trap, the PST air trap, the GBR jet medium size air trap. The fuel was directly taken from my Jersey Modeller jerrican and returned there. I placed a Festo ball valve on the feed line to simulate an increase of the suction drag. I also placed a vacuum gage on the other feed line of the air trap device to be able to measure the feed line vacuum charge generated. I finally plugged a restrictor of my design on the return line downstream the pump. This restrictor is designed to simulate the injectors charge of a 160N thrust engine. The air trap is looped back into the open jerrycan.

The fuel pump is controlled by the Jetcat GSU in device test mode. I do a full power test with the air trap gradually emptied from full and moved it in all the positions. I look at the pump line to see if any cavitation bubble shows up. So knowing the minimum level will give you an idea of the time frame available with a proper protection level. This is also why a big air trap will give you a better protection. This is a fast pump increase, contrary to the previous test. I note the depression value and level drop at this point to characterize the absolute cavitation point of the air trap. This gives a precise indication of the restriction created by the partly closed ball valve on the feed line. The depression generated in the air trap was 5 inches of mercury in Hg This is a good result. This picture shows the air trap after the pump had stopped, with no more vacuum applied. At this point the walls of the air trap had started to deplete under the action of the suction. If you see the walls depleting on this unit, this is an indication that something is wrong upstream the air trap and that you need to work out your fuel system again. The depression generated in the air trap was 3 inHg. So this unit generates less suction drag than the Hanson air trap. Note the fully open ball valve for the full power test. This corresponds to an inverted flight in most cases. This could be a problem since it means that as soon as you deplete the air trap due to high fuel flows and suction drag, you cannot do any aerobatic maneuvers anymore. In other words, this system does not tolerate a high suction drag restriction in the system on an aerobatic aircraft and 200N class engine or more. If not, you need to rework your fuel system upstream the air trap. The depression generated in the air trap was 2 inHg. So this unit generates less suction drag than the previous ones. The air retention capability is only compromised if the fuel quantity reaches the bottom of the filter.

There is no detrimental position for this unit since the volume taken by the filter is perfectly optimized. This is an amazing result and means that this unit can accept twice the flow and restriction compared to the other units before cavitating. I was honestly not expecting such an amazing result. I believe that it is due to the pleated paper filter characteristics. The depression generated in the air trap was 2 inHg. It is an excellent result that gives an very good protection. This CAT being designed for 120 to 300N, you will probably never end up.I had to close the valve further to 80% to get it cavitate. This is an equally amazing result and means that this unit can accept probably three times the flow and restriction compared to the other units before cavitating. The depression generated in the air trap was 1 inHg. The length of the filter relative to the length of the CAT is the same. So it did not send any air into the system at , full. However it did cavitate a.It is an excellent result that gives an very good protection. Since the CAT has a volume of 400 ml, you'd have to use 300 ml of the CAT fuel before reaching the cavitation point on low level. I had to close the valve further from the large CAT to get it cavitate. This is a great result and means that this unit can accept well over three times the flow and restriction compared to the other units before cavitating. Visual inspection of the filter for slime detection not possible see my maintenance advice below . Walls are brittle can crack with shocks and improper installation . Oring system not perfect the oring will crack after a while leading to a possible inverted pickup leading to fuel transfer . So, how do they achieve this T he fuel system follows the chain rule. It is only as good as the weakest link.

So the same attention to details must be used for the whole fuel system and some important guidance must be followed, from the vent line to the suction side of the pump The voltage value applied to the motor will translate to a certain flow non linear relationship . Well, in theory. If this happens, there is a great probability that the cavitation will propagate beyond the gear, to the engine. Also the pump will see and RPM increase as well as a drop in the downstream flow. However, bear in mind that pump cavitation usually occur at higher vacuum value than air trap cavitation. This can be due to several factors Change when oxidation is visible. Do not use Festo lines inside the tanks clunk plumbing but Viton lines that are very flexible and virtually unaffected by hydrocarbons. Evaporated fuel will leave a greasy deposit in the vent line that will eventually get dust to stick to the line and possibly clog it. Rinse the line with non mixed diesel or kerosene if this occurs, then flush with alcohol to facilitate a dry tube. If you see a gel substance accumulating, clean and mix some kerosene with fuel bugs killer. Leave for a couple of days and flush the system. I have used Marine 16 fuel treatment for 10 years now with great success. I also always fill my air trap with this mix at the end of the season. It is only as good as the weakest link. So keep the same attention to details when setting up the whole system and use appropriate hardware that are designed to work with each other. Dont forget the slime problem neither. Please take a few minutes to check out all the new features of our site. You can now find products you are looking for using the search feature. We will be adding new products daily, so check back if you cannot find the item you are looking for. Note For large orders such as Airframes and Engines we recommend customers to check for availability before completing their order online.

Not all items are always in stock and may take a few weeks to ship. This is a very high quality product for those turbine pilots who want to eliminate the possibility of an air bubble causing a flame out. The Digitech U.A.T. is placed in series between the last fuel tank and the fuel pump. The system is filled through the Fill line in the U.A.T. The Round shaped tank can be mounted vertically or horizontally and produce the same results making it convenient to fit into just about any model and it will work with any model size turbine engine. You must have JavaScript enabled in your browser to utilize the functionality of this website. This is a very high quality product for those turbine pilots who want to eliminate the possibility of an air bubble causing a flame out. The U.A.T.

is placed in series between the last fuel tank and the fuel pump. The system is filled through the 3rd line in the U.A.T. The rectangular shaped tank can be mounted vertically or horizontally and produce the same results making it convenient to fit into just about any model and it will work with any model size turbine engine. Inventory them against the parts list This will help resist For this action, The small doors that bracket the nose wheel There are two The simple approach is to connect. Its light weight is one of those special features. Templates for setting control travels and C.G. placement along with a suggested first flight profile are provided to ensure your success. Kirby Smith, Greg Arnette, and Dustin Buescher double checked all of the systems at the field. Dustin Buescher did the honors for the first flights and fine adjusted some trim and gyro settings. The canopy is servo or hand operated. The cockpit deck lifts out in one piece giving access to all electronic control and readout devices. A special Central Control Unit instruction manual is provided. If it does, use a dremel carbide cutter to make a notch as shown.

After the notch is made, you can see that the cable operated locking pins can move a bit further forward. This improves the locking pin engagement. Cockpit Tub Before Modification After Modification Trim off the small tabs at forward end of plastic cockpit tub. This will ensure that the tub does not slide aft and disengage the retention hooks. See other addendums relative to the canopy operation. This precaution will keep the bolts from backing out of the aluminum fittings as the canopy is operated open and close. Im on the point to mount BVB UAT tank and then put the tubing from main tank to UAT and from there to fuel pump. 2 stupid questions 1 Which is the best procedure to fill the system, I meat UAT and main tank. If Im not wrong, it should be done using the filling input on the BVM UAT, butI wonder if Ill have to close the tube from UAT to fuel pump during filling or not. Wren suggests not to put any closing valve or other in the fuel line suction line, but only in the pressure line, that is after the fuel pump. Any suggestion 2 Which is the best draining procedure, after a flying session. Thank you all Denis I have a clamp on the suction side of the pump and Ive filled both with it open and closed. For defueling, I do it one of two ways. Plug my pump into the fueling line and run it backwards Unplug the suction line and plug the pump in there and run it backwards. The 1st is a quick way to get most of the fuel out for transportation back home when Im done for the day. The 2nd is good for almost completely removing all the fuel prior to popping the tops on the bottles and allowing gravity to complete the job. The only down side is you end up replacing the clamps on the suction side of the pump a bit more often. I have a clamp on the suction side of the pump and Ive filled both with it open and closed. The only down side is you end up replacing the clamps on the suction side of the pump a bit more often.

I have a Festo shutoff valve on the main feed line suction line just before the fuel pump and I didnt noticed and fuel delivery issue, or any fuel gotten pushed into the engine while fueling at all. In fact, I dont think I have seen any even a remotely hot starts with my Wren 44 yet. To be completely blunt, Im more afraid of my Jetcat PHT2 when it starts a heck of a lot more than with my Wren. After a couple of failed starts during the starting process with my Jetcat, the fireball still making me skittish everytime I crank that thing on to life. Lmao. So, I think having a shutoff valve is not too big of a deal my friend. Im no expert in these, so they will chime in quickly for you. Ive never had problems with flame outs OR in flight. I fill the UAT first, that way the air can go into the main tank and is released via the main breather for the main tank as you fill. I use the same setup on my 54 as the 44. Hope that helps. Ive never had problems with flame outs OR in flight. Hope that helps. So, I understand no problems in putting a Festo closing valve in suction iine, that is between UAT and pump inlet I have a Festo shutoff valve on the main feed line suction line just before the fuel pump and I didnt noticed and fuel delivery issue, or any fuel gotten pushed into the engine while fueling at all. Im no expert in these, so they will chime in quickly for you. Fittings on the pressure side will only leak fuel out. I dont put any kind of shut off on the fuel line except a clamp so as to meet the AMA requirements, but always leave it open. If fuel presses past the fuel Valve, its stuck open and needed replacing anyway. Fittings on the pressure side will only leak fuel out. If fuel presses past the fuel Valve, its stuck open and needed replacing anyway. By the time fuel reaches the pump assuming the line is empty that suction line is then filled, and since you cant compress a fluid, the fuel has nowhere else to go but into the main tanks.