

Signature Series **Aircraft Specialty**



RV-12 CANOPY LOCK INSTALLATION INSTRUCTIONS

Thank you for purchasing your canopy lock from Aircraft Specialty. We are extremely excited about this product as a drop in installation for the RV-12. It is designed to provide a method to lock your canopy and prevent easy access by anyone walking by. This product is designed to be installed on either a new aircraft, or to be utilized as a retrofit. Please keep in mind that if you are building your aircraft as an E-LSA, this product must be installed after initial certification. With that said, we highly recommend that you utilize these instructions to make sure that the handle fits perfectly, even if building as ELSA. You can then utilize the Vans handle as a temporary handle until after certification.

Let's get to work!

Components included with this kit:

- CNC Machined, powder coated and labeled Door Handle
- Machined and powder coated pin receptacles in varying heights to account for installation variances
- Installation hardware for receptacles

- Regular AN screw and countersunk security screw (included but optional to use for higher security installation)
- Lock mechanism and keys
- Lockout device to prevent inadvertent locking of the aircraft.

Required items for this kit:

- RV-12
- Drill bit for canopy (6-32 screw size for drilling through the canopy plastic as you did during initial install)
- Screwdrivers
- 8-32 and 10-32 Tap (not absolutely necessary)
- Allen Set
- Socket wrench set
- Blue or Purple Loctite

The basic concept of this package was to design a drop in replacement handle for the RV-12 that was able to be immobilized and thus prevent opening of the canopy when latched. The reason for going about it in this fashion was two fold. First off, we wanted to create an installation that was very easy to retrofit to an existing aircraft, or install on a new one. We wanted to be able to do this without having to cut holes into any areas that had been painted and risk damaging a nice paint job. Also, it had to be something that was easy to install with a minimum amount of work. Secondly, we recognized that the handle that Vans provides looks a bit bulky with square edges. Although it is optional to round the edges, it is very difficult to do so in a uniform fashion without special tooling. So, we build a CNC machined handle that replaces it and looks as good as it functions.

Step 1: The first step of the installation process is absolutely critical to success. This step details installation on a new aircraft with an undrilled wd-1218 handle. However, it is good to review it even if you are installing in an existing installation to better understand how the components will fit together. Our handles come with all holes pre-drilled AND tapped to final size. In order to ensure proper spacing on the WD-1218 and our handle, it is important to follow the steps outlined on page 34-07 of the Van's Instruction manual. A copy of that page is included at the end of this document. The critical dimension to ensure is the space between the bottom of the handle and the WD-1218. **(see notes below)** The reason for this is that it sets the vertical dimension of the handle off of which the pin receptacles are based. Pin receptacles are included that allow for dimensional variances.

There are two 8-32 screws included in this package. One of them is a standard philips head screw, and the other is a countersunk screw with a hex head on it. For now, we will be utilizing the screw with the standard philips head. Drill the new wd-1218 assembly and install the handle, or install the handle onto your existing 1218 assembly. When this handle is powder coated, there may be slight contamination of the 8-32 hole. If there is, you can either carefully screw the screw in to fully remove the powdercoat. Or, you can utilize an 8-32 tap to clean up the threads if necessary.

IMPORTANT (FOR ALL INSTALLERS): For those who are installing this product in an already drilled wd-1218, you may have slightly different clearances on your canopy than previously due to the fact that our holes are cnc drilled versus hand measured/drilled ones on the initial handle. We include multiple receptacles to ensure that this handle will fit on any canopy. If you are installing this product in a new WD-1218, you will want to mock everything up in place prior to drilling and then mark/drill for appropriate clearance. If doing this, make sure you utilize a receptacle toward the middle of the height range to allow for adjustments after everything is installed. As with stock handle installations, you may need slight adjustments to ensure that everything moves smoothly.

IMPORTANT (NEW WD-1218)

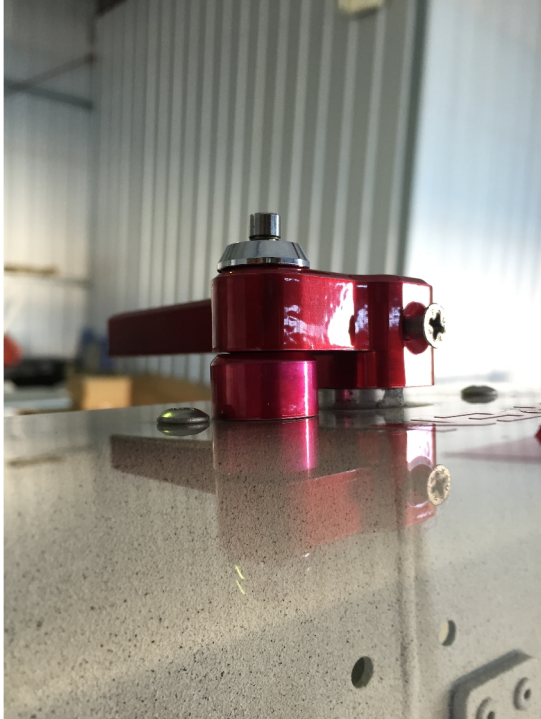
DO NOT TAKE OUR HANDLE AND PUSH IT IN UNTIL THE WD HANDLE BOTTOMS OUT IN AT AND USE THAT AS A TEMPLATE. YOUR 3 13/16 DIMENSION WILL NOT BE ACCURATE IF YOU DO THAT. THE REASON IS THAT WE HAVE ALLOWED AN EXTRA GAP IN THERE TO ACCOUNT FOR SMALL VARIANCES IN CUSTOMER AIRCRAFT.

IMPORTANT (FOR ALL INSTALLERS)

If you have an existing installation, it may be necessary to utilize the handle as a guide and drill through it to square the holes up in your existing WD-1218. Slight elongation of these holes should not materially impact your installation. However, this may be necessary if the initial holes were not drilled perfectly square. If you are installing this handle on a new wd-1218 you will also be doing this to square everything up. BE CAREFUL IF YOU ARE RUNNING A

DRILL BIT THROUGH OUR HANDLE. THE BOTTOM HOLE COMES PRE TAPPED AND YOU WANT TO ENSURE TO NOT DAMAGE THE THREADS. If you do damage the threads, an 8-32 tap should clean them up.





3. ENSURE THAT THE HANDLE IS IN THE POSITION YOU WANT IT TO BE IN WHEN YOU LOCK THE CANOPY (Fully Closed and Locked)
4. Once the handle is temporarily installed, it is time to check and see which pin receptacle is of the correct height. Test fit the different pin receptacles, and choose to utilize one that is slightly too short to prevent binding with the handle. There should be a gap, but a minimal one between the bottom of the handle, and the top of the pin receptacle. Please note that a gap is important as the handle may move slightly downward during the opening process and you want to make sure that the receptacle allows this.

If you have any questions, please feel free to contact

us and we will be happy to help.

5. Place some double sided sticky tape (if available) on the bottom of the chosen pin receptacle and carefully **CENTER** it underneath the matching rounded profile of the handle. Push the pin lock in to ensure that there is no binding or interference in this final location of the pin receptacle. There is intentionally play in this setup to allow for slight variations when drilling. However, this is a step to be undertaken carefully to ensure a smooth installation.
6. Remove the lock from the handle. This can easily be done by inserting the key and turning counterclockwise to remove the assembly. To re install the lock later on, you will do the same. Utilize the key as a screwdriver. It may take a little bit of force to screw the lock in, but please be careful not to cross thread it.
7. Next, you will utilize a drill bit to drill through the pin receptacle as a guide through your plexiglass and into the metal canopy frame. (THIS HOLE IS FOR A 6-32 SCREW) **ENSURE BEFORE DRILLING THAT THE HOLE LOCATION IS CORRECT. ALSO....VERY VERY IMPORTANT. UTILIZE A SPECIAL DRILL BIT FOR CANOPY DRILLING THAT WAS USED EARLIER IN THE BUILD PROCESS AND REVIEW THE NOTES IN VAN'S MANUAL FOR DRILLING THROUGH PLASTIC TO AVOID CRACKING.** This step is not particularly difficult, and many many holes were already drilled into the canopy this way. However, we mention it to ensure that you remember to use the special plastic drill bit to avoid any micro cracks from forming.

8. Once the hole is drilled and you have the correct height receptacle for your installation, you will want to install the lockout mechanism. Utilize a 10-32 tap (or bolt) to clean out the powdercoat from the threads on the receptacle that is the correct height for the final installation. Once this is complete, please install the lockout mechanism by threading it into the receptacle. Install it so



that the tip of the lockout mechanism is flush with the inside of the receptacle with the pin “pulled” to the open position. If you install it too far, you won't be able to install the screw in step 9. We recommend utilizing loctite to ensure security of this installation. When you release the pin, it will stick out and “block” the hole. This ensures that a double action is required to lock your door.

9. Utilize the included hardware and install the screw through the pin receptacle and canopy frame and secure on the far side with a washer and nut. If desired, the screw length can be trimmed to a shorter length to minimize the amount sticking through on the other end. Please note that the receptacles have a threaded hole on the side. This hole and lockout mechanism must face the front of the aircraft
10. Screw the push lock in place and ensure that the screw holding the canopy handle in place is secure. Test the assembly and make sure everything operates smoothly. Make any necessary adjustments. We have been told that with the standard handle adjustments to spacer washers on the outside of the canopy were sometimes needed. Similar adjustments in the thicknesses of these may also be necessary with our handle. Our handle may sit in a slightly different position than the stock handle due to the fact that the stock handle hole dimensions were measured and drilled by hand. If these are off by .020, then our handle will sit .020 high or low. This is why we include a variety of receptacles of differing heights.
11. Unscrew the push lock and put a very small amount of loctite (blue or purple), if desired, and screw the push lock back into place. **(FOR EARLY CUSTOMERS WHO PURCHASED THE 4 KEY OPTION AND ARE AWAITING THE LAST TWO KEYS, WE RECOMMEND NOT UTILIZING LOCTITE UNTIL ALL 4 KEYS ARE RECEIVED AND TESTED.)**
12. Test your canopy handle for correct operation and ensure that it is not too tight or too loose. Complete guidance on the installation of the handle should be performed in accordance with Van's instructions.



13. When you are satisfied with the installation, you can install the countersunk security screw. We recommend holding off on this step until you have fully tested your handle and the canopy opens and closes to your satisfaction. The security screw has a hex head on it. You tighten the screw in place until the hex snaps off, leaving you with a flat head. The head will sit slightly proud to the surface. This will allow you to file the head slightly if you need to knock off any burrs without damaging the handle. If this head ever needs to be removed, center

drilling and utilizing a screw extractor will be the most efficient method. We highly recommend loctite blue or purple on this screw also. **HOWEVER, DO NOT OVER DO IT. A VERY MINIMAL AMOUNT IS NEEDED. SHOULD YOU DESIRE TO REMOVE THE HANDLE DOWN THE ROAD.....LESS LOCTITE IS BETTER.**

FAQ on the Aircraft Specialty Door Lock Assembly

Q. Why did you design this assembly, and what makes it different from other door locks out there?

A. This locking canopy handle assembly is the result of nearly two years of development, product testing, and customer feedback. The goal was to create a very high quality and good looking handle first and then find a way to incorporate a simple and effective locking mechanism into it. In order to make this a truly finished product, we decided that powder coating and silkscreen labeling would make it a very good looking addition to the RV-12.

Q. Is Installation Difficult? I notice that a lot of different receptacles are included and am wondering why so many are needed for installation variances?

A. Feedback from initial testers was that the installation was very straightforward and took about 1-2 hours. Initially, we considered only providing one pin receptacle and asking the customers to purchase a new WD-1218 assembly to ensure that the mounting dimensions were perfect. However, after giving it much thought, we decided it would be better to include a variety of receptacles and allow the customer to utilize their existing aircraft WD-1218 handle rather than having to purchase a new one. In extreme cases, where the initial hole was drilled very far off, or not square, it may be necessary to replace that part. However, if the initial drilling was done per the plans, our kit allows for plenty of variance.

Q. Can I get locked in my aircraft inadvertently? (See Follow up Question about lockout device)

A. This would be highly unlikely and is a consideration that we had early on when designing this handle. In order for the handle to be locked, it requires you to physically push it down into the locked position. In addition, due to the lockout mechanism, both locking devices would have to be activated simultaneously. It is possible that someone could lock it externally if you were inside. However, in that situation, we would highly recommend a new set of friends! :)

Q. Explain this “lockout mechanism:

A. We were thinking about the whole situation, and though getting locked in the aircraft is not a concern to us, my main concern is getting locked OUT of the aircraft. We have all been there, where we have accidentally locked our keys into a vehicle. This is more problematic on an airplane than a car. So, we have a “lockout” mechanism that is permanently installed into the receptacle. It requires a two separate actions to physically lock the aircraft.



Step 1: You will need to have a non-claustrophobic friend/spouse/child help you with this step. After having your helper climb into the cockpit, rotate the WD-1219 Canopy Frame back down to the closed position. Hand one of the wood spacers to your helper.

Place the C-1201 Canopy back into place on the canopy frame and re-cleco.

Step 2: Re-cleco both C-1202 Canopy Skirts to the canopy frame. Be sure that the canopy is clecoed along the full width of the front and rear bows. Use duct tape if/as required to pull the canopy sides down between the front and rear bows.

Match-drill using a #30 Plexiglass bit through the upper row of holes in the canopy skirt through the C-1201 Canopy and C-1203A and C-1203B Attach Angles. (The Plexiglass bit will easily cut through the thin aluminum attach angles.) Have your helper hold the wood spacer against the canopy attach angles to resist the drill pressure. Cleco each hole after drilling.

Repeat for the opposite side of the canopy.

Step 3: Remove the C-1201 Canopy from the fuselage and set it on your work table. Your helper can now be set free!

Final-Drill all holes in the canopy using a #27 Plexiglass bit. Deburr the drilled holes in the canopy.

Machine countersink the holes along the front edge of the canopy to fit the head of an AACQ4-4 blind rivet. Countersinks that are up to .015 too shallow are acceptable and are preferable to countersinks that are even slightly too deep.

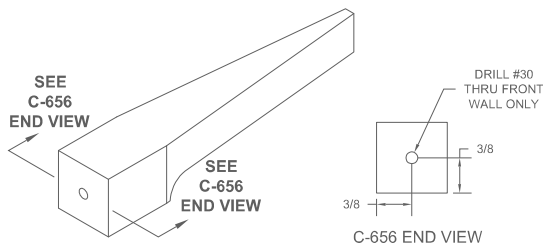


FIGURE 1:
PILOT-DRILL CANOPY HANDLE

Step 4: Drill a pilot hole in the end of the C-656 Canopy Handle as shown in Figure 1.

Take the WD-1218 Canopy Latch and C-656 Canopy Handle and assemble them as shown in Figure 2. The tube end of the canopy latch may be shortened if/as required to achieve the dimension called-out in Figure 2.

Using the pilot hole in the canopy handle as a drill guide, match-drill #30 through both sides of the canopy latch tube and into the canopy handle to the depth called-out in Figure 2.

Disassemble the canopy latch and canopy handle. Final-Drill #19 through the front part of the canopy handle. Final-Drill #19 through the canopy latch. Deburr holes. Cut threads in the rear "tail" portion of the canopy handle using an 8-32 tap. Machine countersink the canopy handle to fit the head of a #8 flush screw.

The canopy handle edges and ends may be rounded if/as desired. See Figure 3 for an example of what the final shape might be.

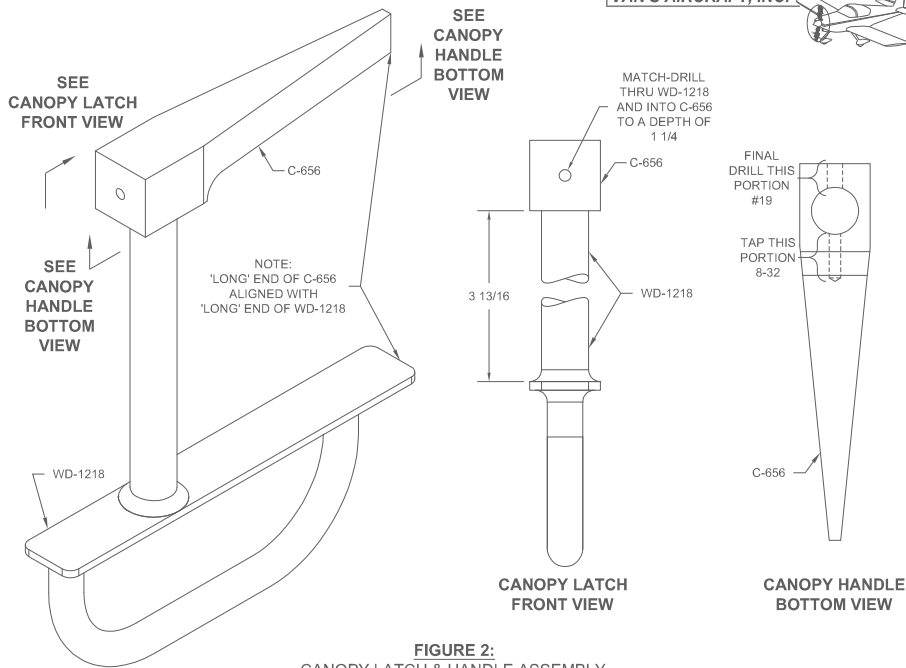


FIGURE 2:
CANOPY LATCH & HANDLE ASSEMBLY

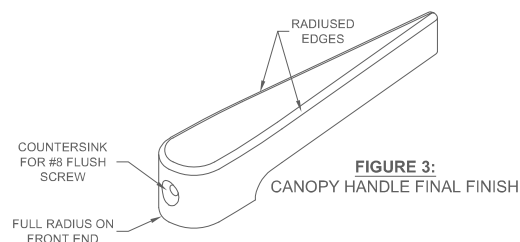


FIGURE 3:
CANOPY HANDLE FINAL FINISH