

The following guide is a collection of information and key resources to help you get started with the PUAVL-8 system.

Resources and Quick Facts about the PUAVL-8 System

Please note: The PUAVL-8 system is, for the most part, very similar to the smaller PUAVL-4, 5, and 6 systems.

1. Below are links to articles and tutorials on our website that provide an overview of the Peregrine UAV system:



[Helpful Resources for the Peregrine UAV](#) - This page includes helpful links to various Peregrine UAV guides. This includes the general packing instructions.



[Ballistic Parachute System for Rapid Drone Parachute Deployment](#) - An overview of the different aspects of ballistic parachute recovery is provided on this page.



[Hawk CO2 Release Valve Users Guide](#) - A guide to safely use the HAWK CO2 Release Valve, a key feature of the PUAV system.



[PUAVL-6 Packing Tutorial - Nylon Shock Cord](#) - Instructions detailing how to pack the PUAVL system. Note that although this tutorial shows the PUAVL-6, the same packing process is used for the PUAVL-8.

2. The PUAVL-8 system uses three Hawk CO2 releases in order to release the gas as fast as possible. The system can work reliably with two Hawk systems however one Hawk system is not enough. We recommend using three Hawk releases in order to give the highest performance and to also add redundancy in case there is a problem with one release. In testing with 3 x 33 gram cartridges the parachute can be ejected up to 20 feet (6 meters) up.

Resources and Quick Facts (cont.)



3. Like the smaller Peregrine UAV systems, the cap is attached and held in place by multiple 4-40 Nylon pins. The PUAVAL-8 system uses 24 x 4-40 nylon shear pins to hold the cap in place. This allows the CO2 canister to build up pressure in the bottom of the canister. After enough force builds up, all the pins break at the same time and the parachute ejects at high speed. Do not use fewer pins as the ejection performance will be subpar.
4. The PUAVAL-8 system comes with a variety of ¼" hose and attachments to allow greater freedom with how and where the Hawk releases are positioned. The canister base has 4 CO2 gas ports. One of the ports has a brass plug. The other three ports will each have a Hawk CO2 release attached to it.
5. Since the three Hawk servos all actuate at the same time, it's important to be sure you have a good and reliable 5V supply that can provide up to 4 amps of current.

Assembly and Setup Guide

The PUAVAL-8 system is shipped with the parachutes and main shock cord pre-packed and ready to use. The parachute and other cordage are packed into a parachute liner to protect the parachute against abrasion.

We recommend you remove the cap on one unit to see how the parachute is packed. Take note of how the main shock cord is coiled up to take minimal space. If it's not coiled follow the Packing Tutorial to see how to repack the system.

Components

Each system includes 4 sets of:

- 6-32 stainless steel screws
- Lock wash
- Simple stainless steel washer

The canister bottom has four holes pre-tapped for 6-32 screws. The simple stainless steel washer should be first in the catch ring. Then the lock washer and the screw are threaded through the washer, through the base and screwed into the canister aluminum bottom.

Please note: The PUAVAL-8 system is shipped without the canister bottom catch ring installed.

The bottom mount is similarly mounted to your airframe using a similar sized screw around 6-32 or metric equivalent (not supplied). You should also use a washer and lock washer.

Components (cont.)



Then decide how you want to orient the three HAWK releases with the fittings and the ¼" fuel hose that is supplied. Both straight and right angle fittings are supplied. Be sure to use the hose clamps to make sure the hose will not come off once pressurized.

If you need more fittings, you can purchase ¼" barbed hose fitting with ⅛" NPT male threads to screw into the base of the CO2 port. The Hawk fitting uses the same ⅛" NPT male threads. Here are suitable fittings:



Right angle fitting



Straight fitting

IMPORTANT - If you do not use the hose clamp, it is very possible to have a hose come loose.

IMPORTANT - Each Hawk should be connected to its own CO2 port. Do not plumb multiple Hawks together into the same hose. The pressure of the first Hawk to actuate will cause the other two Hawks to back-pressure and cause the piercing piston to not work properly, or not at all. Plumbing directly into the canister using a dedicated port minimizes the back pressure of one Hawk release into a second Hawk.

To attach the canister to the base plate, align the bottom opening of the canister over the base center and set it into the canister base. Then rotate clockwise until the canister nestles into the base mount. Then rotate the canister clockwise until it stops (about 30 degrees of rotation).

We recommend also providing support to the canister near the top in case you have a rough landing. If you have a hard landing, the base plate of the catch ring could break. If breakage occurs, we can supply replacement parts.

Ground Testing



We strongly recommend doing a ground test to make sure everything is working properly. The canister cap and the internal canister piston could break if you're testing on a hard surface like pavement or cement. Testing on grass is best as the cap or piston should not break. The piston, in particular, is vulnerable to breakage on a hard surface. Upon ejection, the piston is not attached to the parachute or cordage and flies free. This design is purposeful since tethering the piston to the parachute liner could wrap around the parachute and cause a tangle.

Please note: We consider the cap and the canister piston to be consumable items. They only need to work once. However with some care, you can get many flights out of the cap and the canister piston. Again, we can supply spare parts if needed.

Questions:

Email us at: info@fruitychutes.com

Or call us at: 1-855-462-4883

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