



Fruity Chutes Hawk CO2 Release Valve

Safety and Usage Instructions

Safety precautions:

This system is designed to deploy the parachute in a fraction of a second. The CO2 cartridge and the spring in the Valve Body both contain large amounts of potential energy. **Bodily harm can result from misuse of this product.**

NEVER put any part of your body over the parachute canister cap while there is a CO2 cartridge installed in the system.

NEVER put any part of your body in line with the open end of the Valve Body when the piston is in the armed position without a Cartridge Adapter threaded fully into place.

NEVER test any part of the system unless it is bolted firmly to an immovable object.

ALWAYS ensure that no part of anyone's body is in line with the pressure outlet on the Valve Body when testing the system without a parachute canister attached.

ALWAYS keep the safety pin in place until you are ready to fly your aircraft. Replace the safety pin as soon as you land.

NEVER fire the valve without a CO2 cartridge in place. Doing so can damage the Cartridge Adapter.

Contents:

1 - Preassembled and tested Valve Body Unit

1 - 1/2" Cartridge Adapter with o-ring

1- 3/8" Cartridge Adapter with o-ring

1- Arming Bolt

1 – 3/8" Allen Wrench

1 – Safety Pin and Lanyard

Optional CO2 cartridges.

CO2 Cartridges:

The Hawk Release uses industry standard 3/8" or 1/2" threaded CO2 cartridges. These are widely available from various sources. A commonly available 23 or 24 gram 1/2" threaded cartridge used to inflate life vests and other safety gear will work well for most parachute ejections. For smaller chutes (under 120") a 16 gram 3/8" threaded cartridge will work well. For the largest chutes use a 33 gram 1/2" threaded cartridge.

In the US CO2 cartridges can be ordered from Fruity Chutes. You can also purchase from Leland Limited Incorporated (http://www.lelandgas.com/small_high_pressure2.1.htm). Order these part numbers:

CO2 Bottle - 23gr 1/2 Thread - 84203Z

CO2 Bottle - 24gr 1/2 Thread - 84204Z (used in life vests)

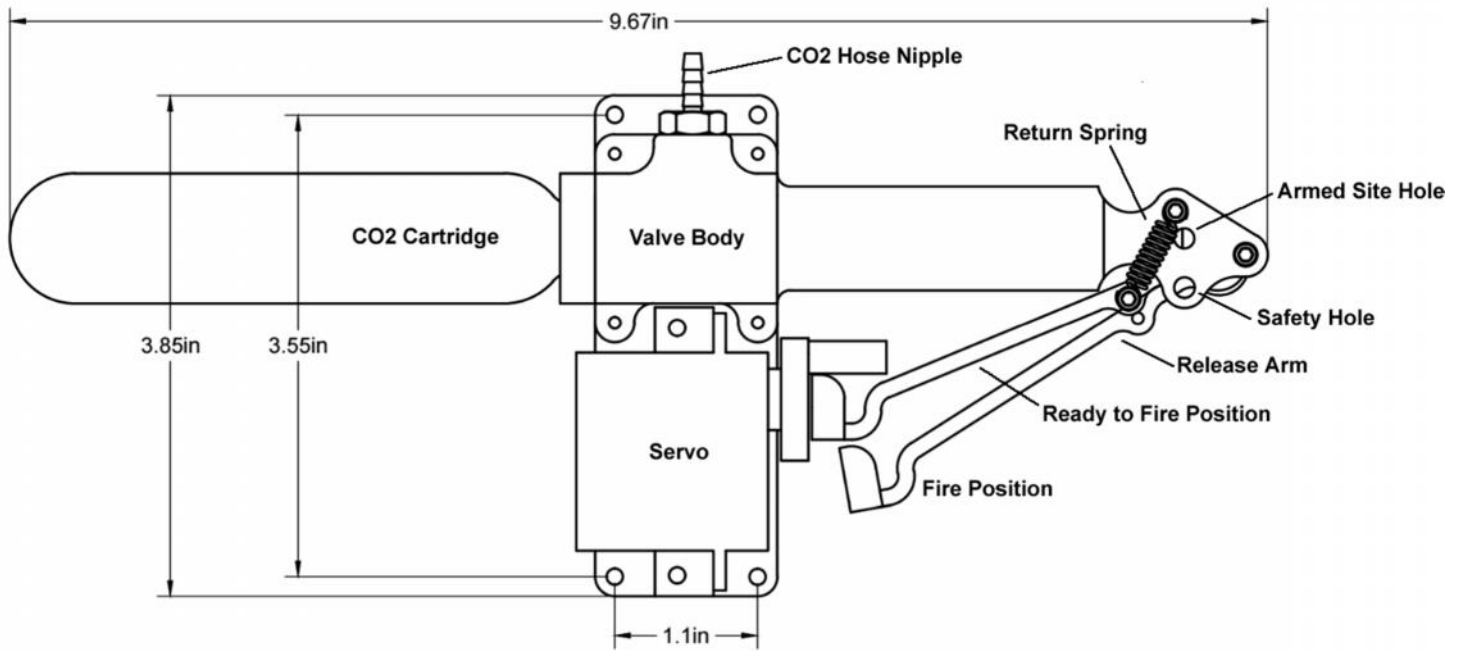
CO2 Bottle - 33gr 1/2 Thread - 85202Z

CO2 Bottle - 16gr 3/8 Thread – 81121

Most any generic 3/8" CO2 cartridge will work. Do a static test beforehand of the parachute system to verify the CO2 cartridge size.

Mounting instructions:

1. Mount the CO2 valve to your UAV using (4x) 4-40 or 3mm screws through the provided holes in the base plate.
2. Connect the servo to the receiver or auto-pilot. The receiver or auto-pilot providing the servo signal should use a safety protocol that does not allow any servo activity until all flight channels are in the proper initial position and with the release servo on the ready position.
3. The servo should be set up so that at rest there is a 1/32" (1 mm) gap between the servo arm and the release arm. For some systems you may need to reverse the servo channel in order to have the proper direction. Before installing a CO2 cartridge or arming the release Test for proper movement and the non-trigger position has the required space. When testing the servo throw be sure to remove the safety pin so the servo arm can move properly.
4. The servo throw should be set at +/- 100 so that the servo arm travels past the point of piston release on the valve. While facing the top of the servo and with the base plate at the bottom the arm should be at roughly 60 degrees to the top right when the system is ready to fire (not released). The servo should travel approximately 120 degrees counter clockwise to the firing (released) position.



Hawk Release Mechanical

Ready to fire:



Fired:



Arming instructions

1. Before starting make sure to set the servo to the ready position.
2. Make sure the 1/2" Cartridge Adapter into the valve body. You cannot arm the unit using the 3/8" Cartridge Adapter.
3. Remove the safety pin.
4. Thread the Arming Bolt into the 1/2" Cartridge Adapter by hand until you feel resistance from the piston.
5. Use the 3/8" Allen Wrench to turn the Arming Bolt clockwise until you hear a click from the latch arm.
6. Turn the Arming Bolt counter clockwise a few turns. You should feel that the bolt starts to turn freely and the pressure from the spring is no longer on the bolt.
7. Visually verify that the Release Piston is in the armed position. You should see the piston trigger catch in the sight hole.

Armed position: Site hole has piston catch visible.



Fired position (disarmed): The site hold is clear.



IMPORTANT: Once the piston is in the armed position the system should be treated like a loaded firearm.

8. Insert the Safety Pin into the valve.

9. Completely remove the Arming Bolt.

10. If you need the 3/8" adapter switch out the 1/2" adapter for the 3/8" adapter.

11. Verify that the O-Ring is seated properly into the cartridge adapter groove. Thread a new CO2 cartridge into the cartridge Adapter. Screw the cartridge in until it is firm and seats against the adapter with the O-ring compressed.

Before Flight Check List:

1. Make sure you have an unpierced CO2 cartridge in place. Make sure it is firmly seated in the cartridge adapter and with the o-ring in place.
2. Make sure the piston is in the Ready to Fire position by sighting through the check hole.
3. Power up the UAV, Verify the servo arm is in the correct ready position.
4. Remove the safety pin. If it seems very hard to remove recheck the servo position, the pin will not remove is the servo is actively trying to move to the release position.

After Flight, non-parachute deployment:

1. Power down the UAV.
2. Insert the safety pin.

After Flight, parachute deployment:

1. Power down the UAV.
2. Unscrew and discard the used CO2 cartridge.

3. Secure the parachute for transport back to the facility to be repacked.

Maintenance:

The Hawk CO2 valve is maintenance free.

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