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” hex key 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 gram 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 parachutes (under 120”), a 16 gram 3/8” threaded cartridge will work well. For the largest parachutes, use a 33 gram 1/2” threaded cartridge.

In the US, CO2 cartridges can be ordered from Fruity Chutes:
https://shop.fruitychutes.com/collections/co2-ejection-systems

You can also purchase from Leland Limited Incorporated:
http://www.lelandgas.com/small_high_pressure2.1.htm

Order these part numbers:
CO2 Bottle - 23g 1/2" Thread - 84203Z
CO2 Bottle - 24g 1/2" Thread - 84204Z (used in life vests)
CO2 Bottle - 33g 1/2" Thread - 85202Z
CO2 Bottle - 16g 3/8" Thread – 81121

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

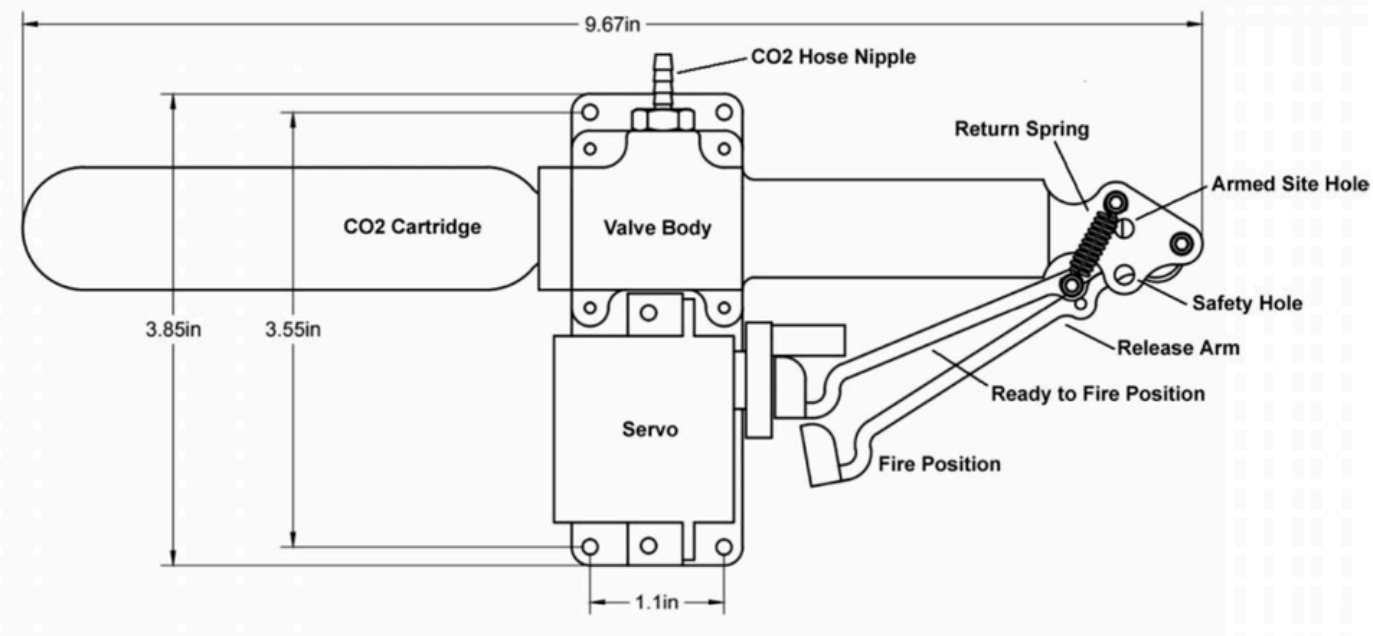
2. Connect the servo to the receiver or autopilot. The receiver or autopilot providing the servo signal should use a safety protocol that does not allow any servo activity until all flight channels are in the proper initial position and with the release servo on the ready position.

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 ensure 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.

Mounting Instructions (cont.)

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 Drawing



Ready to Fire:

Fired:

Arming Instructions

1. Before starting, set the servo to the ready position.

2. Ensure the 1/2" cartridge adapter is installed 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" hex key wrench to turn the arming bolt clockwise until you hear a click from the latch arm.

6. Turn the arming bolt counter clockwise by three full rotations. 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.

For additional help, see our Hawk arming tutorial on YouTube:
https://www.youtube.com/watch?v=h94JEl2B9v4

Armed position:

Piston catch is visible in the sight hole.

Fired (disarmed) position:

The sight hole is clear.

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

Arming Instructions (cont.)

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 tight against the adapter with the o-ring compressed.

Before Flight Checklist

1. Ensure you have an unpierced CO2 cartridge in place. Check that it is firmly seated in the cartridge adapter and with the o-ring in place.

2. Ensure the piston is in the ready-to-fire position by peering through the sight hole.

3. Power up the UAV and verify the servo arm is in the correct ready position.

4. Remove the safety pin. If it seems difficult to remove, recheck the servo position. The pin will not move if the servo is actively trying to move to the release position.

After flight, no 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.

Questions:
Email us at: info@fruitychutes.com
Or call us at: 1-855-462-4883

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