



## //////////⚠️IMPORTANT

Read and follow the Quick Start Manual included with your Vibe™ or SP-1™ marker.

### CO<sub>2</sub> vs COMPRESSED AIR

You have two choices when it comes to powering your Smart Parts Vibe™ or SP-1™ marker. You can use Carbon Dioxide (CO<sub>2</sub>) or High Pressure Air (HPA or Compressed Air) which is also commonly called nitrogen because air is made of mostly nitrogen gas. CO<sub>2</sub> is a practical choice for many players because it is inexpensive. HPA systems cost more, but do not have the side-effects associated with CO<sub>2</sub>. Whichever you choose, your Smart Parts marker can utilize it effectively – provided it is correctly configured.

### CO<sub>2</sub> – CHILLING AND LIQUID

When we shoot very fast, we can end up chilling the CO<sub>2</sub> in our tank faster than it can absorb heat from the air around it. This often results in the tank pressure dropping until it has time to warm back up. For the Vibe and SP-1 this is not a problem – they are able to operate at such low pressures that you are unlikely to chill a tank past usability. Some players use neoprene or cloth tank covers to keep their CO<sub>2</sub> tanks warm. Do not do this, it actually has the opposite effect. The cover acts as an insulator and prevents the tank from absorbing heat, forcing it to stay colder longer.

In your CO<sub>2</sub> tank, a portion of the CO<sub>2</sub> will be in liquid form, and a portion will be gaseous. If liquid CO<sub>2</sub> gets into your marker, the relief valve in the Max-Flo R vertical regulator will protect it from pressure spikes as the liquid evaporates into gas. Although liquid CO<sub>2</sub> will not damage the marker, it may cause it to stop operating momentarily. If this happens during a game, wait a few seconds, then hold your marker level and fire one or two shots in a safe direction to clear the liquid CO<sub>2</sub>.

You may have noticed that a mounting wedge located between the bottom-line adapter and grip frame of your marker places the CO<sub>2</sub> tank at a 10 degree angle. This angle allows gravity to keep the liquid CO<sub>2</sub> away from the tank valve and the marker, just like soda in a half-filled bottle would not pour out the top, when held at the same angle. If you find that you are running, jumping and tilting your marker enough that you frequently need to clear liquid CO<sub>2</sub>, you may wish to use an anti-siphon, remote CO<sub>2</sub> tank, or upgrade to a compressed air system.

### ANTI-SIPHON

For safety reasons, anti-siphons must be professionally installed. Twenty-ounce Smart Valve™ CO<sub>2</sub> tanks are available from your Authorized Smart Parts dealer with an anti-siphon tube factory installed. The anti-siphon is a small, hooked tube inside the tank that works like a diver's snorkel. When the tank is horizontal and properly aligned, the tube draws gas from the top side of the tank. If you use an anti-siphon tank with your Vibe or SP-1, best performance can be obtained by removing the wedge and mounting the bottom-line adapter directly to the grip frame, so that the CO<sub>2</sub> tank sits in a horizontal position while firing. Use of a replacement hose may be required for a proper fit. Also make sure that the tank is screwed in to a position where the anti-siphon tube is on top (usually marked by a line or "X" scribed into the valve.)

### REMOTE

Another CO<sub>2</sub> liquid control option is to use a coiled remote hose. This hose and adapter, available from most paintball dealers, allows the CO<sub>2</sub> tank to be carried separately from the marker, making it lighter and more maneuverable. By carrying the CO<sub>2</sub> tank in a vertical pouch on a paintball pack or tactical vest, it will be aligned with its valve at the top – away from the liquid CO<sub>2</sub>. This configuration should be used with standard CO<sub>2</sub> tanks only, not anti-siphon. Vertical alignment will place the end of an anti-siphon tube directly in the liquid CO<sub>2</sub>, making problems worse.

### HPA

Compressed air systems cost more, but completely eliminate both the chilling and liquid issues associated with CO<sub>2</sub>. As an added benefit, a pressure gauge indicates how full their tank is, and can be used to estimate shots remaining before a refill is needed.

### DWELL MODES

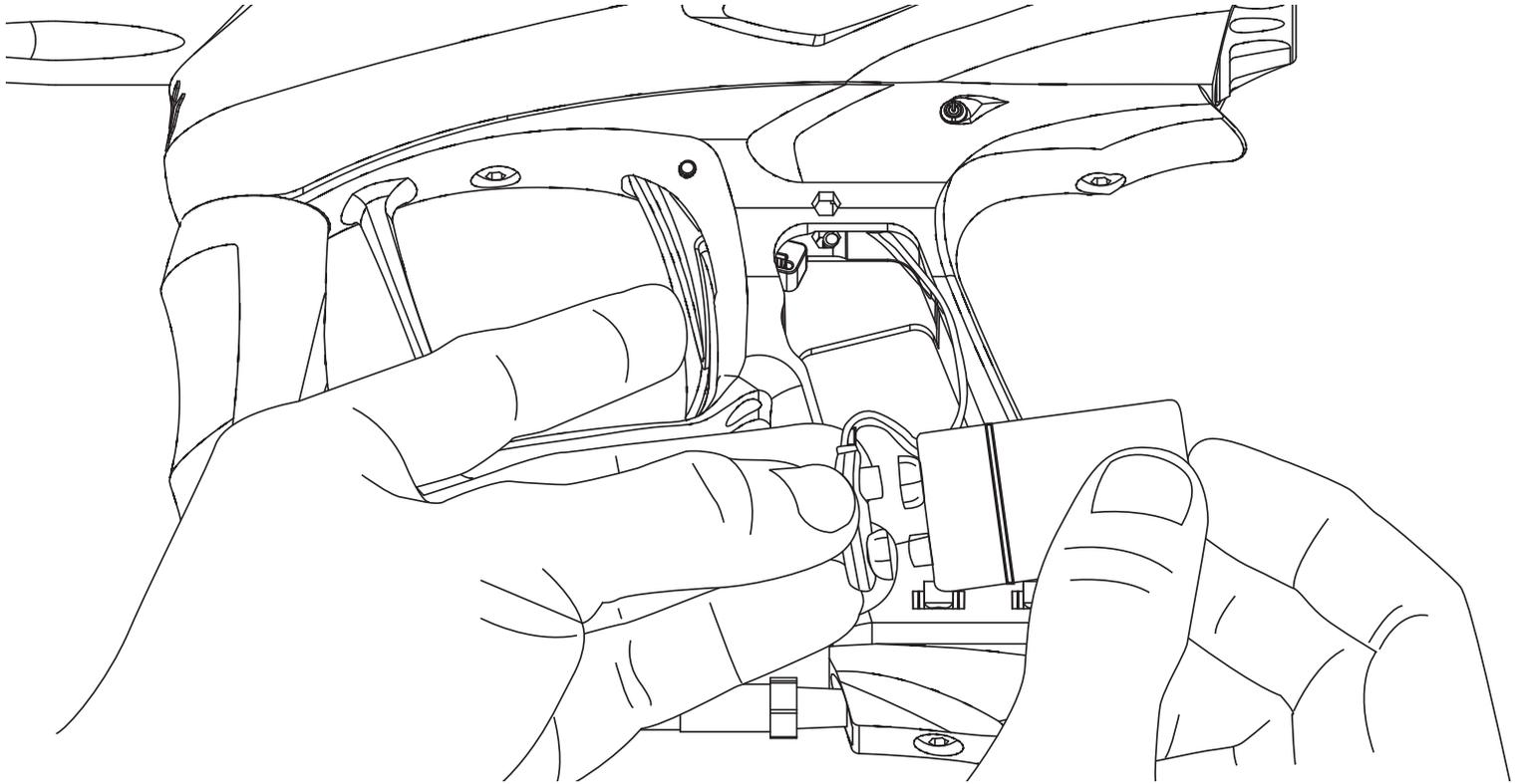
Your marker's dwell mode determines how long of a power pulse its digital electronics should send to the solenoid valve to fire a shot. Because CO<sub>2</sub> expands differently than HPA, the optimal pulse length is different for each gas. Your Vibe™ or SP-1™ is configured from the factory to use CO<sub>2</sub>. If you intend to use HPA, you must change your dwell mode in order to achieve best gas efficiency and battery life. This is easily done by unloading and degassing the marker (see the marker's Quick Start Manual.) Next, use an allen wrench to open the left side grip panel. Remove and unplug the 9-volt alkaline battery. Plug the battery back in while holding the marker's power button down. The marker will indicate that it has changed to HPA mode by double-blinking the power button LED and turning off. Reinstall the battery and grip panel, turn the marker on, and you are ready to go. If you switch back to CO<sub>2</sub> as a power source, repeat the procedure, and the CO<sub>2</sub> dwell mode will be signified by a single blink pattern on the LED.

## //////////⚠️WARNING

Whether you use CO<sub>2</sub> or compressed air, read and follow the tank, valve and or regulator manufacturer's instructions. CO<sub>2</sub> valves should only be installed or removed from their tanks by trained professionals, as improper installation may result in severe injury or death. CO<sub>2</sub> tanks must be observed when removed from a marker to ensure that the valve is unscrewing from the marker, instead of the tank unscrewing from the valve. Oil or other hydrocarbons should never be used in or on paintball compressed air systems, use only manufacturer recommended lubricants.

## //////////⚠️NOTICE

Due to shipping restrictions, CO<sub>2</sub> and HPA tanks are sold empty. They must be filled before they can be used. Most paintball shops and fields are equipped to fill HPA tanks. Paintball shops, fields, many hardware stores and sporting goods stores will have the equipment and trained personnel to fill paintball CO<sub>2</sub> tanks.



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### CHANGING FIRING MODES

Changing between firing modes is simple. Use a 5/64-inch allen wrench to open the left side grip panel. Remove and unplug the battery, taking care to pull the battery clip away from the battery, rather than pulling on the battery wires. Hold down the trigger while re-attaching the battery, and the marker's microprocessor will switch to a new mode, indicating the change by blinking the power LED. The number of times the LED blinks will indicate the newly selected mode. Replace the battery in the grip frame, carefully tucking in the wires, and re-secure the left side grip with a 5/64-inch allen wrench.

### AVAILABLE FIRING MODES

- **Select Fire (Single Flash)** - In this mode, the player can choose between semi-automatic (one shot per trigger pull,) 3-round burst (3 shots in a row fired while the trigger is pulled and held) or full-automatic (fires repeatedly when the trigger is pulled and held.) Tapping the power button while the marker is live cycles through the firing modes, each indicated by the rate at which the power LED blinks.
- **2009 PSP (Double Flash)** - The marker will fire one shot per trigger pull until the trigger is pulled 3 or more times rapidly in quick succession, at which point it will fire additional shots per trigger pull up to a maximum of 10 shots per second. If the trigger is inactive brief time, the marker will revert to the beginning of the sequence, firing one shot per trigger pull, in accordance with PSP 2009 season tournament rules.
- **Locked Semi-Automatic (Triple Flash)** - The marker will fire one shot per trigger pull, and can-not be changed without using tools to open the grip. This mode complies with tournaments, fields and scenario games that limit players to semi-automatic mode only.
- **Billy-Ball (Quadruple Flash)** - This is a limited rate semi-automatic mode, firing one shot per trigger pull, but only allowing players to fire once every two seconds. Billy-Ball games focus on movement and strategy over heavy rate of fire, reducing paint costs.

### RENTAL FIRING MODES

Rental Vibe™ and SP-1™ markers may be custom configured, depending on the requirements of the field which purchased them. Standard firing modes for rental markers are: 1 - Billy-Ball (Single Flash), 2 - Rebound Ramping (Double Flash), and 3 - Locked Semi-Automatic (Triple Flash.)

**NOTE:** Early production Vibe™ and SP-1™ markers do not have selectable firing modes. Markers produced through February 2009 feature two modes - Semi-Automatic (Single Flash) and Select Fire (Double Flash.) Vibe™ and SP-1™ markers may be updated to the latest firing modes by obtaining an RMA number from SmartParts.com and sending the marker (body only - no tank, hopper or barrel) to Smart Parts' Pennsylvania Service Center. Customer is responsible for return shipping charges.