

Overview

The PolarStar Universal Gas Stock replaces the existing buffer tube and receiver end plate with a compact gas stock. As the name implies the UGS is universal and is compatible with virtually all M4 receivers, although some modification to the receiver and/or gearbox may be required. The UGS may be configured for HPA or CO2 (using the CO2 adapter) and can be setup for standard 2 inch diameter HPA tanks as well as "milspec" 1.145 inch diameter gas sources.



UNIVERSAL
GAS STOCK

Installation

The installation process varies depending on the type of rifle and receiver used. If the replica is an AEG, the gearbox will require modification.

Pressure Adjustment

The pressure adjustment screw is located on the side of the regulator. Using a 3/32 allen wrench, turn the screw clockwise to increase pressure and counter-clockwise to decrease pressure. When decreasing pressure, you will need to fire your rifle before pressure in the lines will drop to the new set point.

Type 1 Config

The Type 1 configuration is designed for receivers with real buffer tube threads. In this setup the UGS simply threads into the rear of the receiver and is secured with a standard castle nut. Before this can be done there are several installation steps to prepare the replica:

1. Modify Gearbox
2. Trim Airline
3. Install Gearbox & UGS

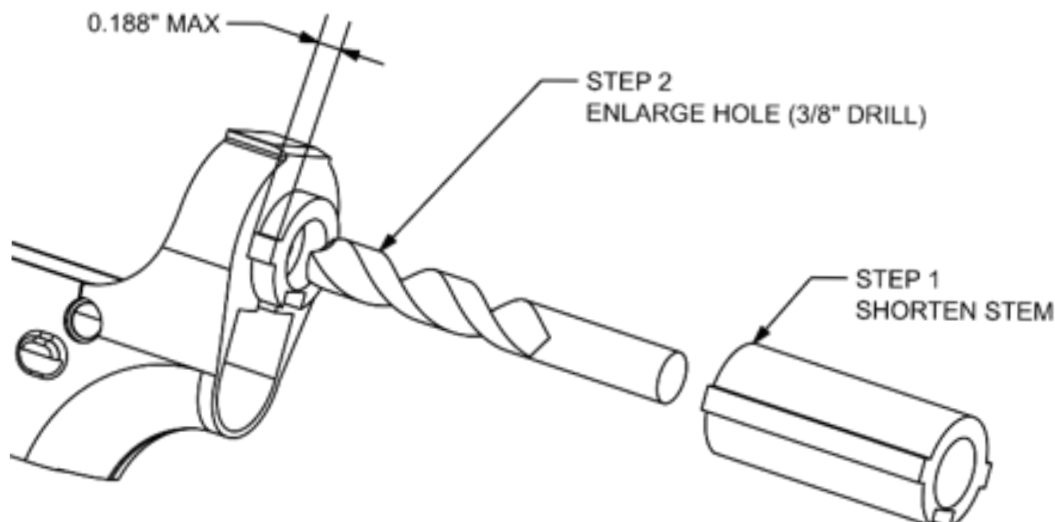
Type 2 Config

The Type 2 configuration is designed for TM style AEG receivers which use a stock mounting screw. In this setup both the gearbox and receiver are modified and the UGS mounts with the included nut and washers.

1. Modify Gearbox
2. Modify Receiver
3. Trim Airline & Install Output Barb
4. Install Gearbox & UGS

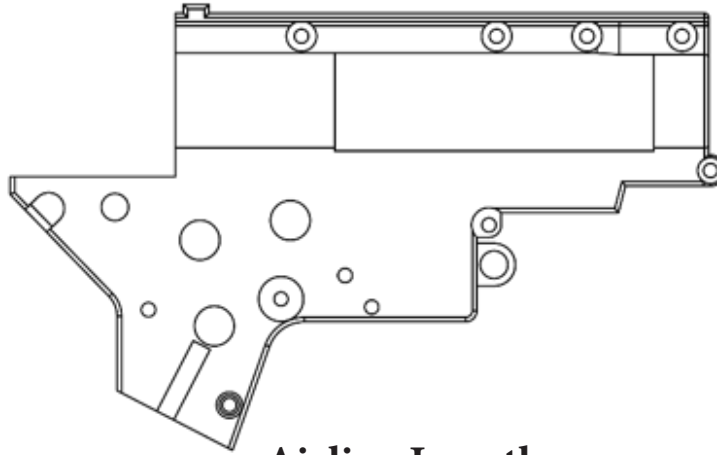
TM Receiver Modification

Installation into a TM style receiver requires a few modifications to the lower. The "stem" on the rear of the receiver is shortened to no longer than 3/16" (0.188") and the screw hole is enlarged to 3/8" (0.375") as illustrated below.



Gearbox Modification

Installation into an AEG receiver requires modification of the gearbox to allow the UGS to extend into the rear of the receiver. This involves cutting the back corner of the gearbox as illustrated below.



Airline Length

If the airline was previously routed through the grip it will need to be trimmed for the shorter distance to the UGS. This should be done carefully in order to make sure the line is not accidentally cut too short to reach. This length will vary depending on the UGS type and the HPA system installed. A conservative starting point would be about 3.5" of airline on the HPA system.

It is helpful to mount the UGS to the receiver first to gauge how far it extends into the receiver, then remove it and install the modified gearbox into the lower with the airline routed out the back of the receiver. You can then mark where the airline should be cut.

Type 1 – The airline should reach at least ½" past the face of the UGS output cap since it must extend into the output cap to seal.

Type 2 – The airline should reach slightly past the tip of the output cap. After trimming the airline press the included barb fitting into the end of the airline. This is then inserted into the output cap as the UGS is installed on the receiver.

Pressure Adjustment

The pressure adjustment screw is located on the side of the regulator. Using a 3/32 allen wrench, turn the screw clockwise to increase pressure and counter-clockwise to decrease pressure. When decreasing pressure, you will need to fire your rifle before pressure in the lines will drop to the new set point.

Tournament Lock

Secure a zip-tie in the groove around the circumference of the regulator body. The zip-tie blocks access to the head of the adjustment screw.

Maintenance

The UGS Regulator will require periodic cleaning and greasing to maintain top performance. The most basic maintenance is the cleaning of the piston and piston bore. This should be performed every 100,000 to 150,000 cycles or sooner if the recharge rate has slowed or the output pressure has become less consistent.

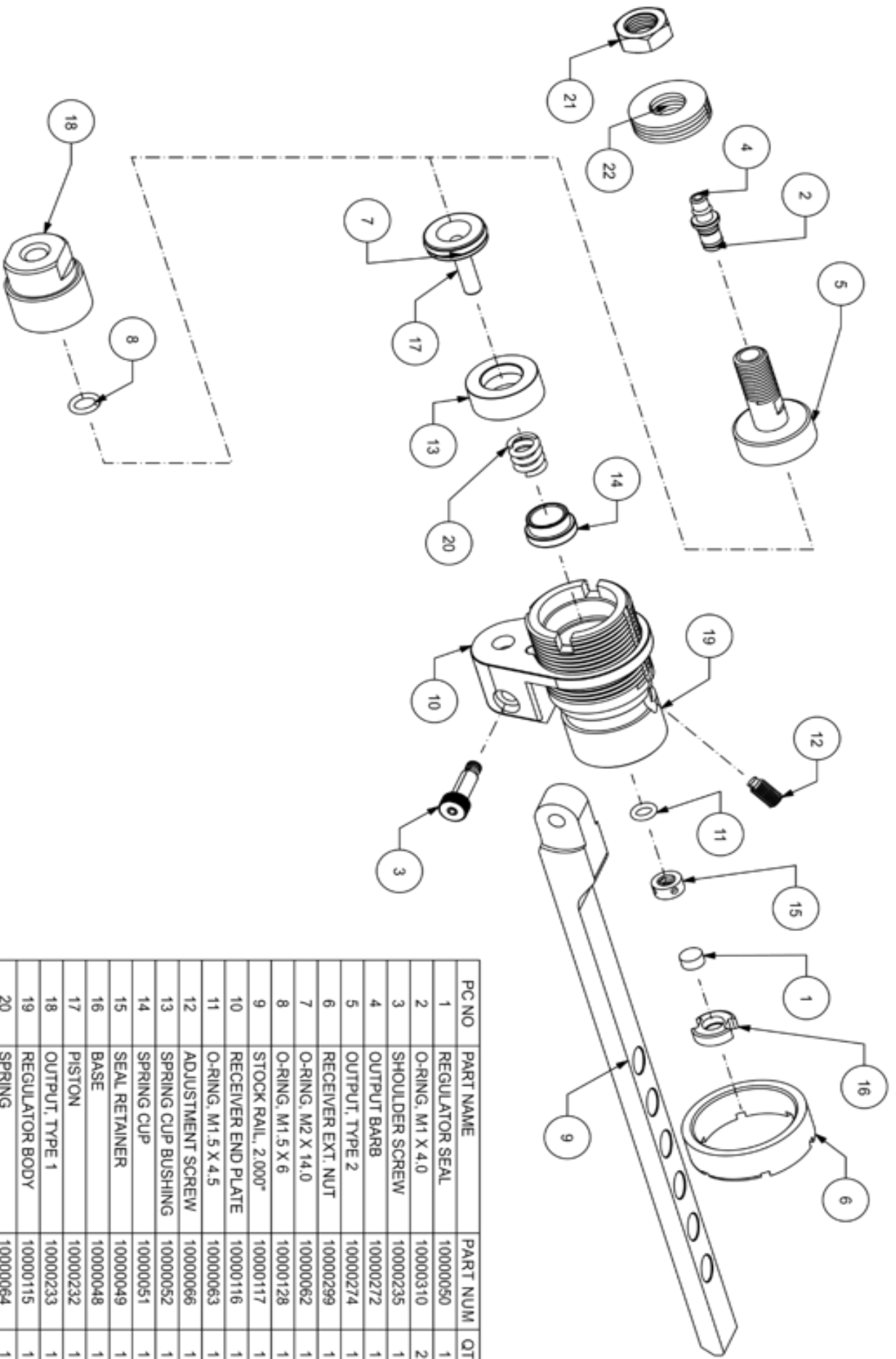
1. Remove from tank and release pressure from the regulator.
2. Remove the output cap.
3. Remove the piston. Be careful not to scratch or damage the stem of the piston, especially the thin edge, as this can lead to leaks or creeping due to poor sealing.
4. Clean any dirt and old grease from all components.
5. Apply new grease to all o-rings and the outside of the piston stem.
6. Insert the piston into the output cap and reinstall both as an assembly into the body.

HPA Safety

High Pressure Air has been used for decades as a source to power Airguns, Paintball Guns and Airsoft Replicas. It is safe and effective to use although there are some precautions that should always be followed while using HPA. A quick inspection of your Compressed Air Tank should be done before using the tank. Take a look at the top of the valve, the threads and the gauge for any cracks, signs of stress or damaged o-rings. The fill nipple should be clean of debris. A fiber wrapped tank should be free of cracks and serious dings or chips. A few minor scratches can be expected but any chip that reaches the fiber threads underneath the clear resin exterior means that tank is no longer safe to use.

We recommend the use of a paintball tank bottle cover for your HPA tank. Most tank covers are made of neoprene or other material, usually with additional padded sections for extra impact protection. Know the pressure rating of your tank! It should go without saying but some people still mess this up. At fields with self-fill stations you need to be sure you only fill to the proper pressure. At fields where the staff does the filling you should always mention whether your tank is a 3000 psi or 4500 psi when you hand it to them as a reminder, since they might be filling many tanks quickly between games and sometimes get sidetracked.

Sometimes after getting a fill and disconnecting you might hear a slight hissing from the fill nipple. There is an o-ring on a small check valve inside the fill nipple which may need to be replaced (it's a good idea to carry a spare in your kit bag). Never put any oil or grease in the fill nipple to stop a leak! Oil or grease in the fill nipple will be blasted into a mist form when high pressure air starts rushing through. Tanks heat up when filled to pressure, and if it gets hot enough this oil mist gets can ignite, similar to how a diesel engine combusts. So remember, NEVER PUT ANYTHING IN THE FILL NIPPLE!



PC NO	PART NAME	PART NUM	QTY
1	REGULATOR SEAL	100000050	1
2	O-RING, M1 X 4.0	100000310	2
3	SHOULDER SCREW	100000235	1
4	OUTPUT BARB	100000272	1
5	OUTPUT, TYPE 2	100000274	1
6	RECEIVER EXT. NUT	100000299	1
7	O-RING, M2 X 14.0	100000062	1
8	O-RING, M1.5 X 6	100000128	1
9	STOCK RAIL, 2.000"	100000117	1
10	RECEIVER END PLATE	100000116	1
11	O-RING, M1.5 X 4.5	100000063	1
12	ADJUSTMENT SCREW	100000066	1
13	SPRING CUP BUSHING	100000052	1
14	SPRING CUP	100000051	1
15	SEAL RETAINER	100000049	1
16	BASE	100000048	1
17	PISTON	100000232	1
18	OUTPUT, TYPE 1	100000233	1
19	REGULATOR BODY	100000115	1
20	SPRING	100000064	1
21	NUT, 3/8-24	100000308	1
22	WASHER, 3/8" ID	100000307	4