



Air System

Kythera is designed to operate with input an pressure between 60 and 180 PSI using either HPA (High Pressure Air) or CO2. A suitable air system will be required. This includes a compressed air tank, regulator(s), remote line and fittings. Kythera is also compatible with the PolarStar CGS and UGS gas stocks.

Preparation

The best results are usually obtained when the replica body and gearbox are the same brand and model.

NOTE: The Kythera will be shipped with the Sear Set Screw (#10) installed and adjusted to its farthest extent. This is done to hold the trigger link against the cylinder to prevent damage to the trigger spring during shipping. The screw **MUST BE REMOVED** prior to assembly in order for the system to function.

Before installing the Kythera, the unused components must be removed from the gearbox and the remaining grease should be cleaned out. In most cases, the only remaining parts will be the trigger, safety mechanism, selector plate and spring guide (if applicable).

Installation

If the spring guide is not used to secure the buffer tube or stock, it can be omitted. If it is required, it will most likely need to be shortened slightly so that it does not contact the back of the Kythera cylinder assembly. This can be done a number of ways and the length is not important as long as it is short enough to fit. The spring guide can be manipulated more easily during reassembly if the bolt from the stock/buffer tube is threaded into the rear.

Once the gearbox has been prepared, place the Kythera in the cylinder window of the gearbox and route the airline and reset cable to the grip. If you are using a CGS or UGS gas stock, refer to the gas stock installation instructions for routing the air line.

Reinstall the trigger and trigger spring. Route the airline out of the gearbox and carefully replace the other half of the gearbox shell making sure that the cable is not pinched between the halves. Once the gearbox is reassembled it can be installed into the replica body.

Alignment

Once the gearbox has been installed in the replica body, verify that the nozzle is aligned with the hopup and inner/outer barrels. This can be done by looking down the barrel with a flashlight. If the nozzle is not centered within the barrel some shimming of the gearbox may be required.

MAKE SURE THE RIFLE IS UNLOADED AND DISCONNECTED FROM ANY AIR SOURCE WHEN CHECKING ALIGNMENT

Velocity Adjustment

Velocity adjustments are made with input pressure. Simply increase or decrease pressure until you reach the desired velocity. Kythera is a fixed volume system so there is no need to set dwell/volume.

At a certain point (approximately 130psi) flow forces will begin to overcome the standard spool spring and cause the valve to close prematurely. At this point, it is recommended that you install the included heavy spool spring (P/N 10000088). This spring can be installed at pressures as low as 90-100psi as long as the system is cycling completely.

If you are using Kythera with a gas stock or another air system without a gauge, you can determine the point at which the heavy spring is required by increasing pressure and measuring velocity. When velocity stops increasing with pressure, you have reached the threshold of the light spring and will need to install the heavy spring.

To change the spring:

1. Unscrew the front cylinder and remove the nozzle and sleeve.
2. Remove the slotted spring pin (Fig.1, #15) and remove the reset cable assembly (Fig. 1, #14)
3. Push up on the trigger link to release the main sear and push in on the back of the disconnecter to release the spool completely.
4. Remove the spool, replace the spring and reverse steps 1-3.

Nozzle Speed Adjustment

The return speed of the nozzle is controlled by the metering screw (Fig. 1, #3). This is a precision orifice that regulates flow into the dump chamber, which determines the speed of the nozzle.

The standard size is 0.029" in diameter. During testing we have found that this size works across the entire pressure range, however, alternate sizes are available to both increase and decrease nozzle speed.

Trigger Adjustment

The Kythera sear assembly is adjustable for length, weight and overtravel. These adjustments are made using either set screws or shims. All adjustment screws are #4-40 thread with a .050" hex drive. All adjustment screws should be secured with medium strength (blue) thread locker to prevent them from vibrating loose.

Adjusting Length/Creep

The length of the trigger pull is adjusted using two set screws (Fig. 2, #10). The upper screw controls the sear/spool engagement. Threading this in further "pre-pulls" the sear and reduces the overlap, which in turn reduces the length of pull (creep). To shorten the pull to minimum we recommend cocking the system and turning this screw in until the sear releases the spool, then backing it off at least 1/8 – 1/4 turn.

Decreasing sear engagement also rocks the disconnecter upwards and increases it's engagement to the point that it will no longer release the spool back onto the sear. The disconnecter engagement must be adjusted to offset this using the lower set screw (Fig. 2, #10). This is done by pushing up on the trigger link and cocking the system completely so that the spool is hooked on the disconnecter, then release the trigger link and turn the adjustment screw in until the disconnecter releases the spool back onto the sear.

Adjusting Overtravel

Overtravel is adjusted using the rear set screw (Fig. 2, #5) in the trigger link. This adjusts how far the trigger can be pulled. This is personal preference and can be set anywhere as long as you can still pull the trigger far enough to release the spool. The farther in it is, the less the trigger will travel past the sear release.

Adjusting Trigger Weight

The trigger weight is adjusted using the front set screw (Fig. 2, #5) in the trigger link. Screwing this in pushes up on the washer stack under the trigger spring and increases the weight.

If you have adjusted the sear and disconnecter engagement (especially on the far end of the range) you will have more spring compression when the disconnecter releases. As a result, you can remove some of the washers under the trigger spring to reduce pull weight further. You will need at least 1 washer if you want it to be adjustable, but you could technically remove all of them as long as the spring has enough force to reset the sear.

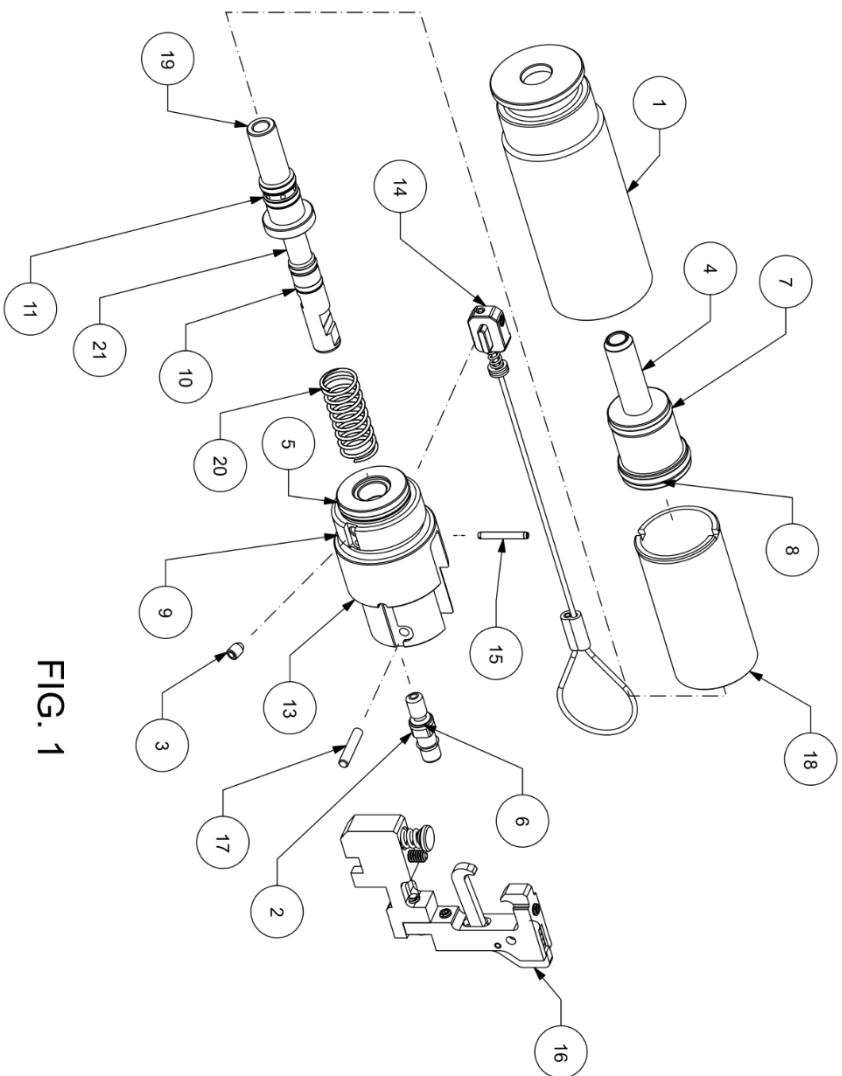
V3 Kythera do not have a trigger weight screw due to a lack of vertical space in the gearbox. With these systems the weight is adjusted by adding the included washers under the trigger spring to increase the weight.

Disassembly and Maintenance

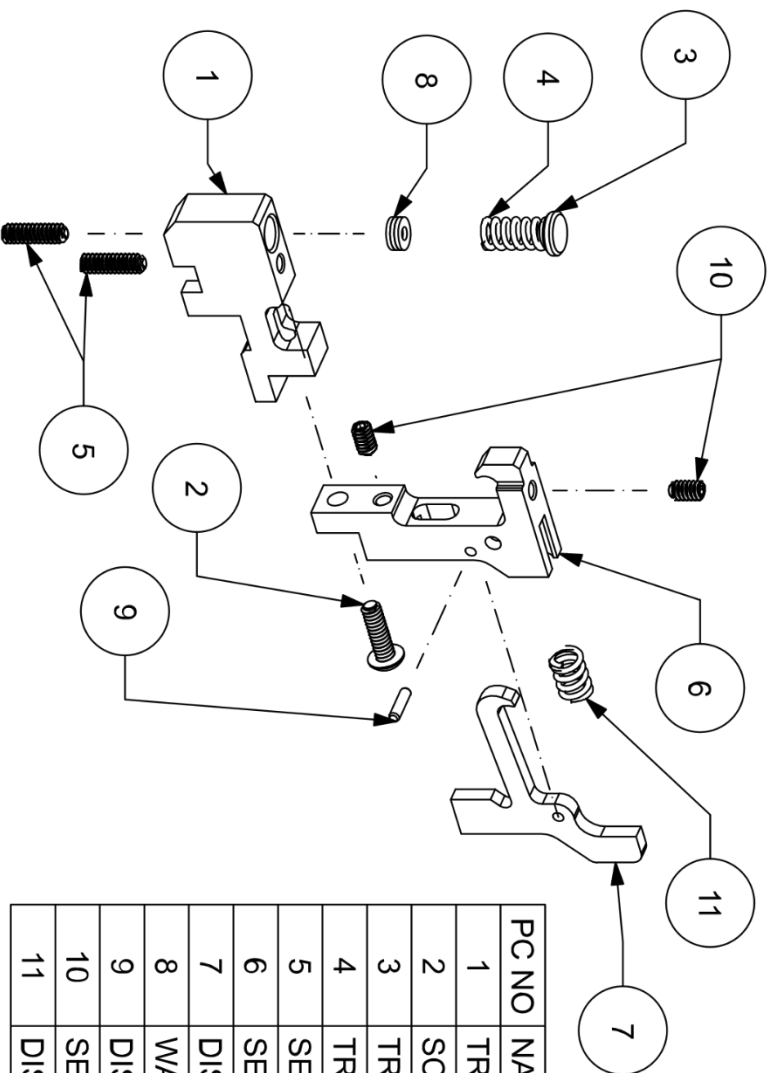
Kythera units can be disassembled for maintenance by following the "spring change" procedure to gain access to all internal components.

After cleaning, a light coat of grease should be applied to the following areas:

- Rear of spool tail from the forward o-ring to the back of the tail.
- Front of spool (both o-rings and the front diameter where the nozzle rides)
- External o-rings on the nozzle and/or the internal sealing surfaces of the sleeve and front cylinder.

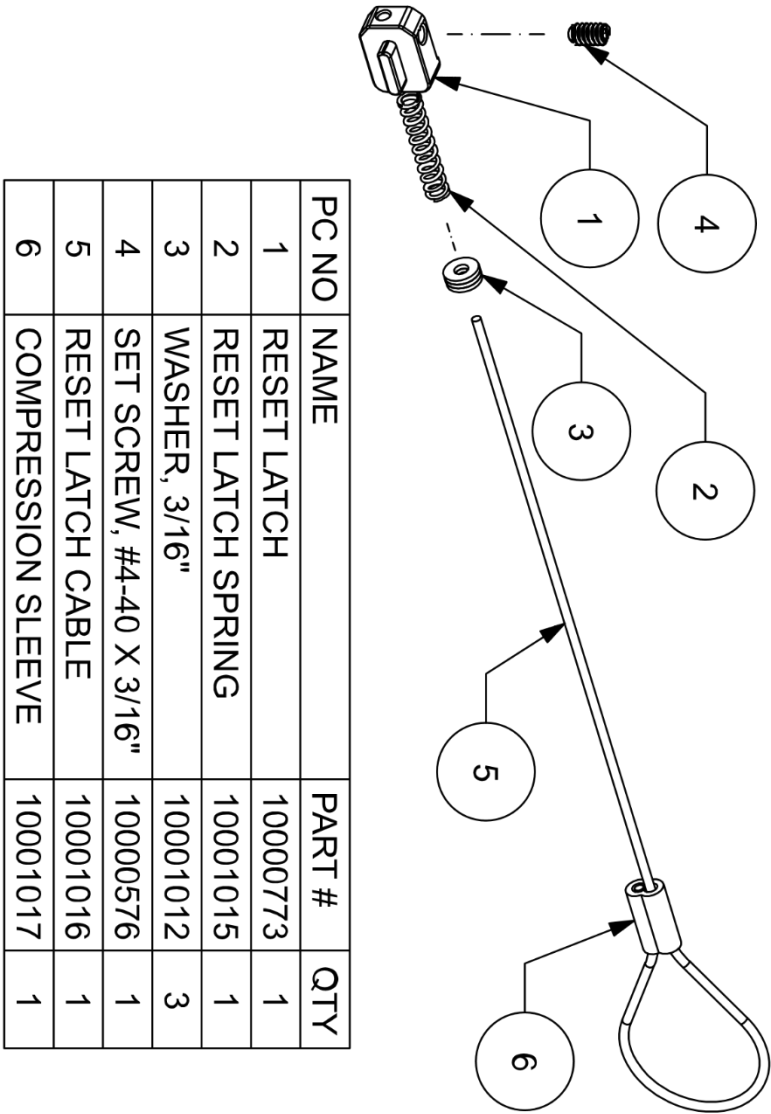


PC NO	NAME	PART #	QTY
1	FRONT CYLINDER	10000763	1
2	INPUT FITTING	10000834	1
3	METERING SCREW, .029"	10001020	1
4	NOZZLE, #1 (M4)	10000766	1
5	O-RING M1 X16.0	10000738	1
6	O-RING M1 X3.0	10001010	1
7	O-RING M1.5X13.0	10000139	1
8	O-RING M1.5X15.0	10000140	1
9	O-RING M1.5X20.0	10001058	1
10	O-RING M1.5X4.0	10001011	2
11	O-RING M1.5X6.0	10000128	2
12	O-RING M1.5X7.0	10000130	1
13	REAR CYLINDER	10000764	1
14	RESET CABLE ASSEMBLY	SEE FIG. 3	1
15	RESET LATCH	10001057	1
16	SEAR ASSEMBLY	SEE FIG. 2	1
17	SEAR PIN	10001018	1
18	SLEEVE	10000765	1
19	SPOOL FRONT	10000767	1
20	SPOOL SPRING (STD)	10000389	1
21	SPOOL TAIL	10000992	1



PC NO	NAME	PART #	QTY
1	TRIGGER LINK, V2	10000771	1
2	SCREW, #4-40 X 3/8" BHSC	10001009	1
3	TRIGGER SPRING PAD	10000772	1
4	TRIGGER SPRING	10001013	1
5	SET SCREW, #4-40 X 3/8"	10001026	2
6	SEAR	10000768	1
7	DISCONNECTOR	10000770	1
8	WASHER, 3/16"	10001012	3
9	DISCONNECTOR PIN	10001019	1
10	SET SCREW, #4-40 X 3/16"	10000576	2
11	DISCONNECTOR SPRING	10001014	1

FIG. 2



PC NO	NAME	PART #	QTY
1	RESET LATCH	10000773	1
2	RESET LATCH SPRING	10001015	1
3	WASHER, 3/16"	10001012	3
4	SET SCREW, #4-40 X 3/16"	10000576	1
5	RESET LATCH CABLE	10001016	1
6	COMPRESSION SLEEVE	10001017	1

FIG. 3



PolarStar Airsoft
 5 Garfield Way
 Newark, DE 19713

cs@polarstarairsoft.com
 P: 302-449-4866
 F: 302-368-5502

<http://polarstarairsoft.com>
<http://facebook.com/PolarStarAirsoft>
<https://instagram.com/PolarStarAirsoft>