

# FX Dream-Tac (bottle version)

## Regulator & HST Adjustment for Velocity Tuning

This document relates to the FX DL-Tac Bottle and the FX AMP (Adjustable Match Precision) Regulator and is largely based on a compilation of information found on the Internet (see references at the end of this doc.).

### A. Adjusting the FX AMP Regulator Working Pressure on the DL-Tac Bottle

Tools:

1. 2.5mm Allen wrench.

The AMP regulator allows to both raise and lower its working pressure without removing the air cylinder (the old Impact regulator required to bleed the gun before lowering the pressure).

However, when you lower the pressure, you can/will still damage the regulator if you do not relieve the pressure by dry firing the gun every quarter turn of the regulator adjustment screw. Note that, if you frequently need to lower the pressure, it is recommended to bleed the gun first to avoid wear and tear of the sealing elements of the regulator.

To **lower the reg pressure**: turn the adjustment screw **clockwise**, a quarter turn at a time, and dry fire each time, until the correct pressure is achieved.

To **raise the reg pressure**: turn the adjustment screw **counterclockwise slowly**.

Make very small adjustments, as one full turn can drastically change the reg pressure.

See my AGN post on the AMP regulator internals here: [FX AMP Regulator \(Bottle\)](#)

## B. Bleeding the Gun for Maintenance

### Tools:

1. 2.5mm Allen wrench.
2. 22mm open end wrench (optional).

- Remove the air bottle (slowly).
- Bleed the plenum by slowly turning the reg adjustment screw **counterclockwise** until you hear the air escaping from the gun. A quarter turn should be enough. The reg gauge should show zero bar. Ernest Rowe (FX USA) and Newman Buck (910 Airgun Tuning & Repairs) recommend this method.

**CAUTION:** Some youtubers “suggest” to dry fire the gun to bleed the plenum. That might be a bad idea, especially if you haven’t significantly lowered the hammer spring tension. Here is what the FX DL manual states:

- ✗ NEVER fire the rifle when it is empty of air or when air cylinder is removed!
- ✗ NEVER fire the rifle below the set regulator pressure.
- ✗ NEVER fire the airgun without air. Doing so may damage the valve assembly and will void your warranty!

- If you don’t need to work on the regulator then you can re-adjust the screw before going further with your maintenance work. Note that this is a ballpark re-adjustment. Fine adjustment must be done when the maintenance work is completed.
  - If you want the reg pressure to go back to what it was before degassing the plenum, then just turn the adjustment screw **clockwise** gently/slowly a little more than a quarter turn.
  - If you want the reg pressure to go below what it was before degassing the plenum, then turn the adjustment screw **clockwise** gently/slowly one or two full turns (or until it stops – beware! Too much torque would damage the sealing surface of the piston).
- At this stage, the gun can be disassembled for maintenance.
- Once your maintenance is completed, put the bottle back on.
- Shoot a couple of rounds over the chronograph and slowly raise the pressure by turning the screw counterclockwise until you obtain the expected velocity (check also the HST tuning section later in this doc.).

**CAUTION:** A good practice is not to adjust the reg pressure above 160 bars to avoid too much wear and tear. Here is what the FX DL manual states:

- ✗ NEVER adjust the regulator above 160 bars as damage to the system may occur and will void your warranty!

### Notes:

There might be situations where you want to bleed the gun plenum without touching your current reg tuning. The alternative is to very gently/slowly unscrew the reg pressure gauge with a 22mm open wrench until you hear the air escaping from the gun. **The bottle must be removed first!!!**

## C. Installing the FX Dreamline **Plenum Extension** on the DL-Tac Bottle

Bleed the gun as described in section “B” of this document.

Refer to Newman Buck’s video: [FX Dreamline Plenum Installation | Tube and Bottle](#)

## D. Adjusting the Hammer Spring Tension (Velocity Tuning)

Tools:

1. A 1.5mm Allen wrench.
2. Caliper.

Before modifying the factory setup, measure the distance from the edge of the sliding adjuster to the edge of the beveled portion of the housing slot. Write this down and keep this info in your “Gun Tuning Log”.



Adjustment Process:

- a. Adjust the HST for the heavier projectile that you want to shoot from a given barrel/liner.
- b. Start with the lowest recommended reg pressure for this caliber and projectile.

Reg pressure recommended by Newman Buck for some typical projectiles:

Cal	Ammo	Reg Pressure	Reg Pressure w/ Plenum Extension (*)
0.177	JSB Exact Heavy 10.34 gr	105-115 Bar	95-105 Bar
0.22	JSB Exact Jumbo Heavy 18.13 gr	115-125 Bar	105-115 Bar
0.25	JSB Exact King 25.39 gr	130-140 Bar	120-130 Bar
0.30	JSB Exact .30 44.75 gr	140-150 Bar	130-140 Bar

(\*) Reg pressure to obtain higher shot count at similar velocity as without FX Dreamline Plenum Extension.

- c. Turn the HST wheel to MAX (12 o'clock position) and shoot a couple of rounds over the chronograph to measure the velocity.

- d. Determine the peak velocity (plateau) for the current setup (reg pressure + barrel length + port size + plenum size + ammo)
  - d1. Turn the HST screw (1.5mm Allen wrench) clockwise by ~0.5 turn increment at a time and measure velocity each time until the velocity increase is less than 10 fps.
  - d2. Then turn the HST screw clockwise by ~0.25 turn increment at a time and measure velocity each time until the velocity stops increasing.
- e. If your plateau velocity at the current reg pressure is between 2.5% and 5.0% higher than the desired baseline velocity for your projectile then turn the HST screw counterclockwise until you reach this baseline velocity. This way you'll be tuning on the so-called **knee** of the velocity curve, where you should get better air efficiency and good fps consistency ( $ES\% < 2$  where ES% is the ES divided into the Max Velocity of a significant enough shot string - i.e. I'd say at least 20 shots).
- f. If your plateau velocity minus ~2.5% is lower than the desired baseline velocity for your projectile then you need to increase the reg pressure by 5 bar and start over from step "d".
- g. Once you have reached the desired velocity, test the accuracy. If need be, adjust the velocity by as small fps increments as possible (more or less HST) until you obtain the tightest groups (barrel harmonics tuning).

Some velocities recommended by N. Buck:

Cal	Projectile	Pellet Liner	Velocity Range (fps)
0.177	JSB Exact Heavy 10.34 gr	500 mm	900-910
0.22	JSB Exact Jumbo Heavy 18.13 gr	500 mm	880-920
0.25	JSB Exact King 25.39 gr	600 mm	890-920
0.30	JSB Exact .30 44.75 gr	600 mm	860-880

Note that, for shooting standard pellets (diabolo shape) at long range ( $\geq 75$  yards), it might be better to tune for lower velocity to avoid spiraling (for example, FX recommends ~885 fps for JSB Exact King 25.39 gr). Refer to M Dubber's Airgun Ballistics 101 videos for details on trajectory and spiraling : [M Dubber's Airgun Ballistics 101](#)

#### References:

- FX Dreamline User's Manual
- FX Masterclass for the FX Impact
  - o FX Impact Disassembly
  - o FX Impact FPS Tuning
- Hard Air Magazine
  - o Bob Sterne's "PCP Efficiency – What Is It? – What Changes It?"
  - o Bob Sterne's "Tuning Regulated PCP Airguns"
- 910 Airgun Tuning & Repairs
  - o FX Dreamline Plenum Installation
  - o FX Dreamline (Classic) Full Disassembly Guide
- Bob O'Connor's "Harmonic Tuning for Accuracy..." video (AirGunner Bob\_O)
- M Dubber's Airgun Ballistics 101
- Airgun Depot FX Impact Guide
- Airgun Nation forum