STORM

Electropneumatic HPA engine

HP.R SYSTEM

USER MANUAL

SUMMARY

BOX CONTENT

4 x Shims to nozzle

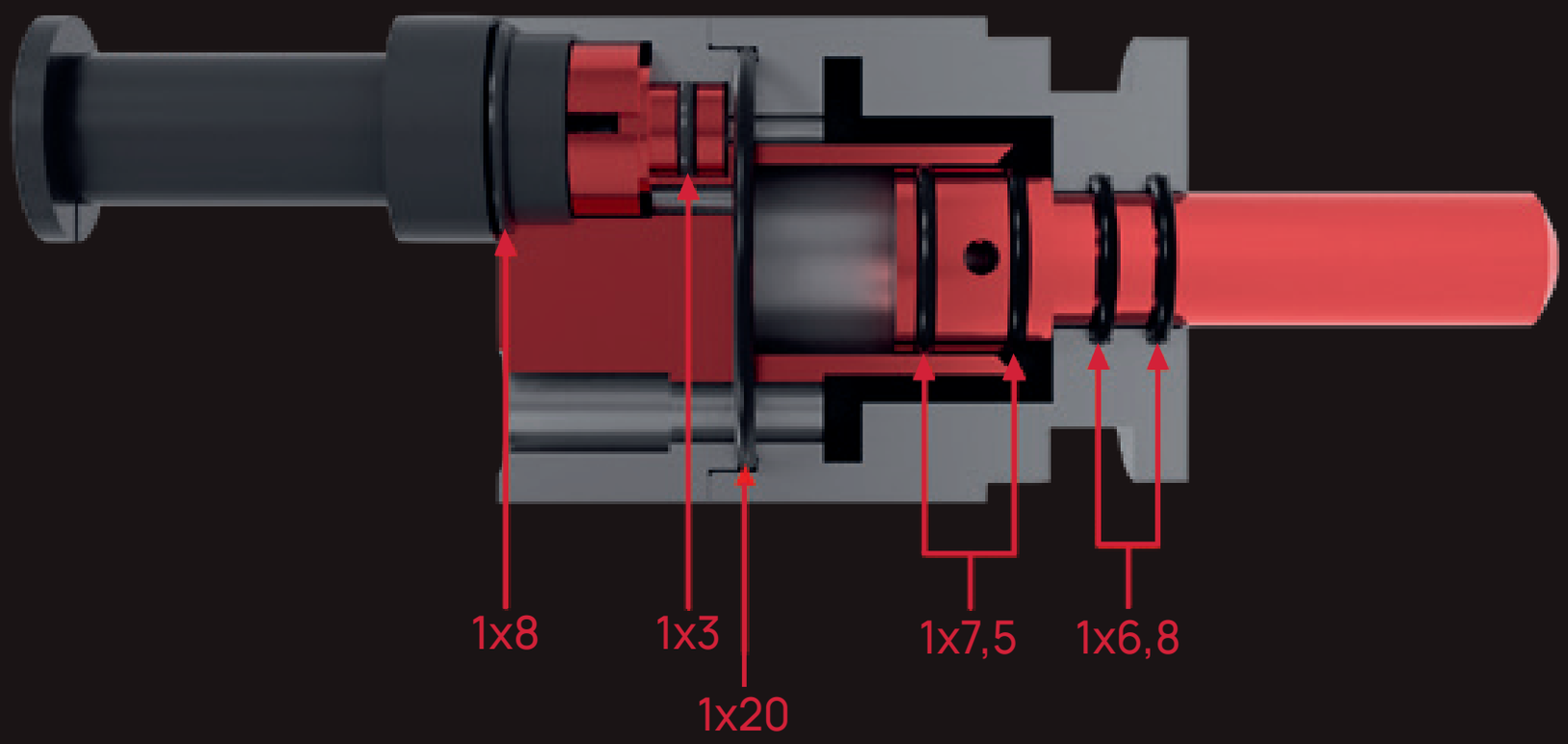
1 x plate to Trigger board / **1 x** FCU / **1 x** UK Airline

1 x wire harness (connecting the FCU and the trigger board)

1 x shim to trigger board

SEAL AND O-RINGS

(note: thickness x inner diameter)



CHARACTERISTICS

PRODUCT DESCRIPTION

HP-R System is an electro-pneumatic system who uses compressed air to propel the BB which should be set between 70 to 140 psi.

To deliver the right amount of compressed air to the BB and chamber a new BB between each shot, HP-R system uses a solenoid valve powered by a Lithium-Polymer (Li-Po) battery of nominal voltage of 11,1V Only.

BATTERY UNDER-VOLTAGE SAFETY

STORM FCU can read the voltage of the battery. If the battery's voltage goes under 6,5V, the engine will put itself in Safe mode and will stop firing to protect the battery.

INSTALLATION

1/5

You need :

1/ A 11,1V Li-Po battery.

DO NOT USE OTHER BATTERY like 14.8V or higher) YOU WILL DAMAGE THE ELECTRONICS!

2/ An AEG gearbox shell and its screws,
3/ An AEG trigger and its spring,
4/ A safety lever and its spring,

2/5

1/ Preparation of the gearbox shell: clean both halves of the gearbox shell which will be used with the engine.

2/ Install the selector plate in its dedicated location on the outside of the left half of the gearbox shell.

3/ Install the safety lever and its spring on its dedicated location inside the left half of the gearbox shell.

INSTALLATION

3/5

It is important to Adjust the length of nozzle to have the better performance.

1/ Put the HP-R motor in the Gearbox without connect the wires and without put screws and put the nozzle in the position of fire. (Front position)

2/ Insert your Hop up block on the nozzle, push it on the gearbox then remove it

INSTALLATION

3/ Control if your nozzle moved a little in back side.
The goal is that the nozzle back between **0,3 mm to 0,7 mm.**

4/ If it's more: add the shims to adjust the length of the nozzle.

When you put 1 Shim = 0,35mm, you must unscrew the grey cylinder on the white mark so Unscrew 1 half of turn.

If you need to put some more shims you have to do the same think for each shim. Add 1 Shim = Unscrew 1 half of turn.

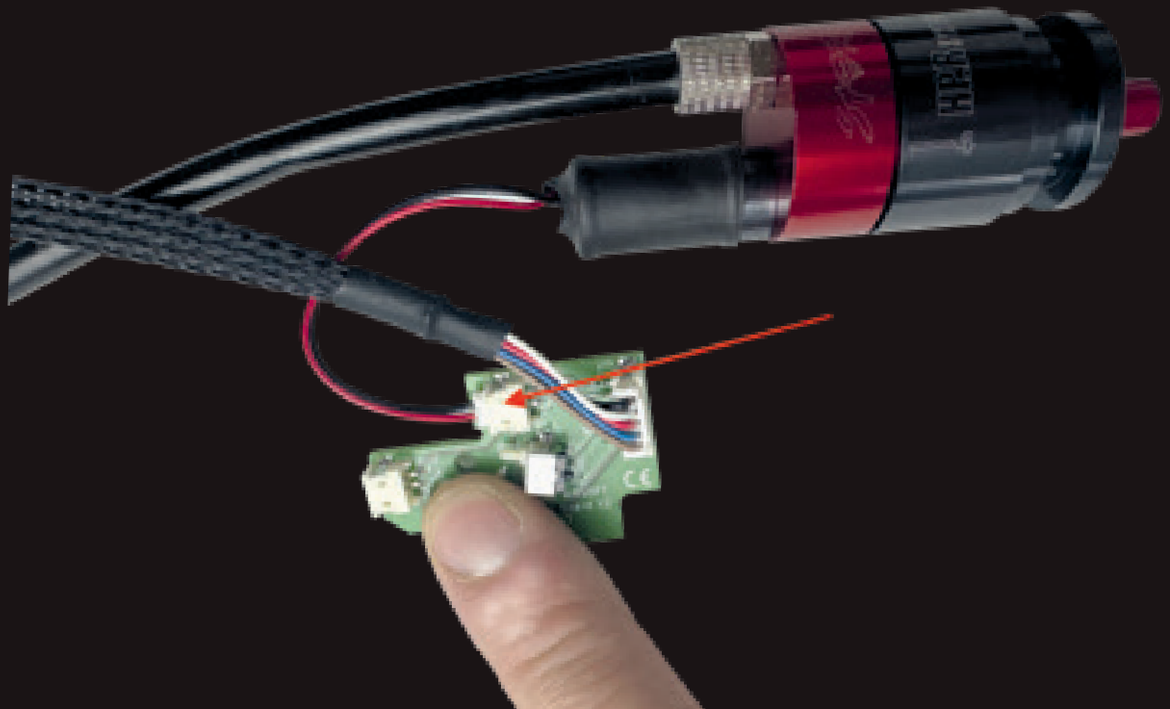
INSTALLATION

4/5

1/ Connect your trigger board and your wire harness together.

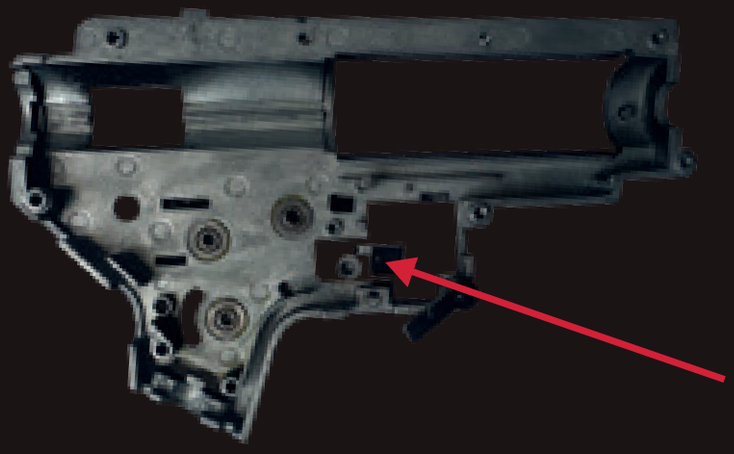
Note: on the V2 trigger board you need to gently insert the connector with a bit of angle.

2/ Connect the solenoid wires on the “POP” connector.



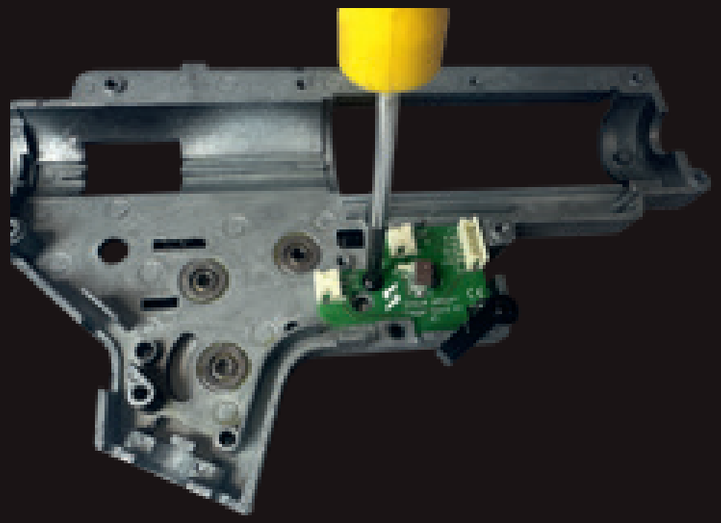
INSTALLATION

3/ Place the plate to trigger board and the trigger board inside the gearbox shell and tighten it with a M2 or M2.5 screw.



4/ Place the trigger and its spring.

5/ Route the air line down your gearbox shell. You can close your gearbox. You can screw.



INSTALLATION

5/5

1/ Make sure the safety lever is properly actuated by the selector plate.

2/ Check that the selector plate can be pushed backward and that it isn't blocked by the switch located at the back of the trigger board. Look if the switch is pushed correctly by the selector plate.

HOW TO USE

/!\ WARNING - SAFETY FIRST /!

WHILE HANDLING AN AEG OR HPA REPLICA WITH A CONNECTED BATTERY, ANYONE WITHIN THE RANGE OF THE REPLICA MUST WEAR PERSONAL PROTECTIVE EQUIPMENT.

/!\ WARNING - ELECTRO-PNEUMATIC SYSTEM /!

DO NOT DISASSEMBLE OR MODIFY ANYTHING ON THE ENGINE WHEN CONNECTED TO BATTERY AND/OR CONNECTED TO PRESSURIZED AIR LINE.

HOW TO USE

1. Place the selector switch on SAFE mode.
2. Connect a charged 11,1V Li-Po battery.
3. If the programming display is connected to the engine, it will display « SHOOTING » for a second. The FCU is now in Firing mode and is ready to shoot.
4. Connect an air hose to the engine and set the pressure between 60 and 145 PSI.
5. Put a mag inside the replica.
6. Put the selector switch on SEMI or FULL.
7. Pull the trigger to shoot.

PROGRAMMING

STARTING PROGRAMMING MODE

1/ For safety reasons, remove the mag from your replica.
2/ Disconnect the air hose and let air flow to make sure the replica is in a safe state.
3/ Press and maintain any of the two buttons on the FCU until the PROGRAMMING menu appears.

ENGINE PARAMETERS

In PROGRAMMING mode, you change the values of the following engine's parameters:

- Profile: You can save two profiles in the FCU, each of the profiles contains all the following parameters.
- Rate of Fire (RoF) in rounds Per Second (RPS),
- The firing mode on the first position of the replica's selector switch: SEMI, BURST of 2, 3, 4 or 5 rounds or BINARY,
- The firing mode on the second position of the replica's selector switch: FULL, SEMI, BURST of 2, 3, 4 or 5 rounds or BINARY,
- DWELL Nozzle in milliseconds,
- A-ST TIMEOUT (no need to modify this parameter)
- A-ST PULSE (no need to modify this parameter)

PROGRAMMING

MENU INPUTS

To navigate through the menu, follow these instructions:

1/ To scroll through the menu, use either of the two buttons.

2/ To change the value of a parameter, hold one of the two buttons of the FCU.

3/ The FCU will then display an arrow next to the value you are going to modify. Use the left button to decrease value, the right button to increase value. The parameters' value will decrease or increase until its minimum/maximum allowed value is reached.

SAVE ENGINE PARAMETERS

After finding the perfect settings for your replica, **you must save your settings!** Otherwise your settings will be lost when you power down your FCU!

1/ To save parameter's values in memory, scroll the menu to the "SAVE & EXIT" line.

2/ Maintain one of the two buttons.

3/ A message "SAVED" will be displayed when the saving process is finished.

4/ The FCU will boot again automatically to SHOOTING mode after saving parameters. Engine is now ready to fire with its new values saved in memory.

RESTORE DEFAULT VALUES

Sometimes you can mess up with your settings. In case you are lost in your settings, you can always restore your FCU to the factory settings.

1/ Scroll the menu to the “RESET DEFAULT” line.

2/ Maintain one of the two buttons.

3/ A message “RESET” will be displayed when the saving process is finished.

4/ The FCU will boot again automatically to SHOOTING mode after saving parameters. Engine is now ready to fire again with its factory settings saved in memory.

PROGRAMMING

IMPORTANT!
Charge your battery! You must set up your engine with always the same voltage.

TUNE YOUR NOZZLE DWELL

1/ Tune your dwell nozzle according to previous steps.

2/ Use the mag with the highest BB count you will use (high cap mags with windings wheels doesn't count!)

3/ Starting from nozzle dwell = 20 ms, lower the nozzle dwell until you get energy inconsistency and/or feeding issues.

4/ At this point, increase the nozzle dwell by at least 1 ms.

5/ Check that all your mags feed correctly and you don't have any energy inconsistency.

MAINTENANCE

Around the 3000 maximum you have to put silicon oil to keep the o-ring seals in a good state.

To put the silicon oil, you have to insert the silicon into the air line. Then, reconnect the air line and dry fire about twenty shots.