Daytona Gun Airsoft Installation Manual: LCT HK33

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Basic Information

Introduction

When properly installed, your Daytona Airsoft Systems (DGA) recoil kit provides you the ability to experience heavy recoil with no cooldown, and without expensive, heavy gas magazines to keep serviced, or batteries to keep charged.

Please note that the DGA LCT HK33 kit has been designed to fit and function within LCT HK33 and HK53 bodies only. While it may be possible to modify the kit and/or the donor of a similar spec rifle from another brand, this is neither recommended nor supported by DGA and will likely require additional fitting and tuning beyond what this manual specifies.

For the User

This guide assumes some technical knowledge and ability on the part of the installer. If you are not familiar with how various airsoft systems operate, and if you have never disassembled/built an airsoft gun before, you should consider having your local gun tech do the install for you.

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What You Need

In order to install the DGA kit into your donor body, you will need the following tools:

Necessary:

- 3mm hex wrench
- 2.5mm hex wrench
- 2mm hex wrench
- Phillips screwdriver
- Hammer
- Vernier calipers or other accurate measuring tool
- Semi-permanent thread lock, such as Loctite 243
- Power drill
- Vise or clamp

Helpful:

- Rubber mallet
- Drill press
- Deburring tools
- Torch
- Center Punch

Disassembling Your Donor Body

This section goes over taking your donor body apart to prepare it for the DGA kit install. If you already know how to disassemble your donor, skip ahead to see what parts you need to keep for your build.

Basic Disassembly

1. Remove the three pins holding the hand guard, lower receiver, and stock in place – it may be helpful to use a punch if they are tight.
2. Pull the stock backwards off the rest of the gun.
3. Pull the lower receiver backwards off of the upper receiver.

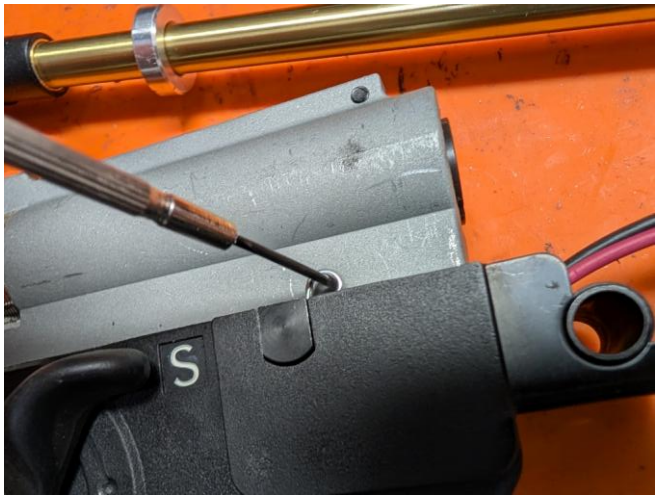
Lower Receiver Disassembly

1. Remove the two screws on the bottom of the pistol grip with the Phillips head driver.
2. Pull the motor base plate off of the pistol grip.

3. Disconnect the two motor wires and pull the motor up out of the pistol grip.
4. Remove the two screws inside the pistol grip with the Phillips head driver.

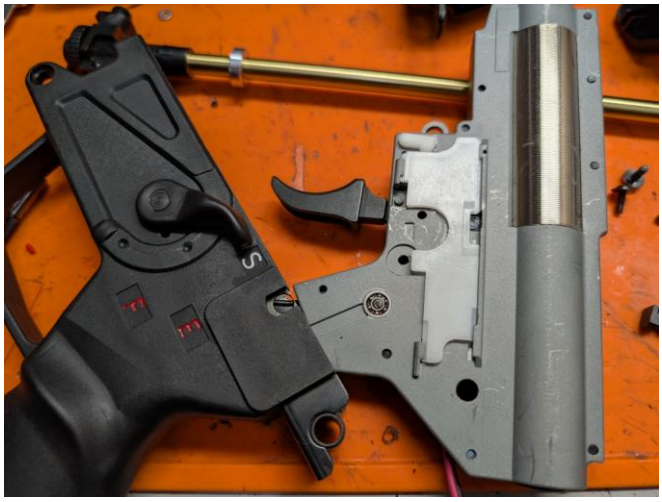
5. Push the selector up into “S.”
6. Punch out the pin revealed when the selector has been pushed up with a narrow pin punch.

7. Remove the cotter pin holding the secondary body pin in place using a small driver or punch.



8. Flip the receiver over and punch out the pin from the other side using a pin punch.

9. Pull the gearbox up out of the lower receiver



Upper Receiver Disassembly

1. Pull the inner barrel group backwards out of the upper receiver.
2. Pull the handguard off the upper receiver.
3. Remove the screws holding the outer barrel base using the Phillips head driver.

4. Punch out the outer barrel base pin using a pin punch.

5. Punch out the bushing pin retaining the cocking tube against the outer barrel.
    - Depending on your donor, this may or may not be glued to the outer barrel. It is okay to bend this piece during this step, since you can just bend it back to shape after.

6. Pull the outer barrel assembly forwards out of the receiver – you can use a rubber mallet to tap against the front sight to help with this.
7. Unscrew the outer barrel base from the outer barrel .
    - Depending on your donor, LCT may have glued these two components together. If this is the case, place the outer barrel in a vise and use a torch on the threads to destroy the adhesive. You may also need the leverage provided by locking pliers to help unscrew the two from each other.

8. Unscrew the two bolts inside the magazine well holding the magazine well spacer in place and remove it from the receiver.

9. Punch out the pin at the rear of the receiver holding the mock bolt assembly in place.

10. Remove the recoil assembly and mock bolt

What to Keep and What to Set Aside

Retain the following components for use in the DGA conversion:

- Upper and lower receivers
- Handguard
- Outer barrel
- Pistol grip base plate
- Handguard, receiver, and stock pins
- Cocking tube bushing pin
- Inner barrel (if you are not using an aftermarket barrel)

If the item is not listed above, it can be set aside or discarded.

Installing the Daytona Kit

Inside the Box

Compare the parts in your DGA kit with the list and pictures below. If any items are missing from your kit, please contact DGA support.

- Trigger chassis with selector assembly
- Complete bolt assembly – carrier, bolt tank, and air shaft
- Recoil assembly bracket
- Recoil guide rod
- Recoil spring
- Cocking tube spacer
- Barrel support with hop up chamber sleeve
- Hop up chamber
- DGA standard hop up bucking
- 12.9mm barrel ring and C-clip
- Air valve
- Air line with fitting
- DGA QD fitting (not pictured)
- Trigger
- Trigger sear and mounting block
- Trigger pin
- 3 short socket head machine screws
- 1 medium socket head machine screw
- 2 long socket head machine screw
- 1 pan head short machine screw

Modifying and Assembling the Upper Receiver

Assembling the Inner Barrel Group

Remember that you will need an AEG-spec inner barrel. This is not supplied with the kit. You **can** use the original barrel from your donor gun's body, but DGA recommends upgrading to a high-quality aftermarket stainless steel inner barrel. Remember, the DGA hop up rubber, barrel ring, and c-clip are designed for use with AEG inner barrels only.

Inner Barrel Assembly:

1. Slide the Daytona hop up bucking onto the correct end of the inner barrel.
2. Push the barrel ring down so that the opening on the bucking end slides over the lip of the hop up bucking.
    - Sometimes you may find it difficult to slide the barrel ring down the barrel, over the bucking, or both. Careful removal of some of the inner material of the barrel ring with a file and/or drill can be done to correct the spacing.
3. Push the c-clip down into the slot of the barrel ring. Hammer it gently into place with a mallet if necessary.

Hop Up Chamber Assembly

1. Remove all set screws from the hop up chamber using the 2mm and 2.5mm hex wrenches.
2. Place a drop or two of thread lock onto the threads for the hop up adjustment screw.
3. Screw the hop up adjustment screw back into place using the 2.5mm hex wrench. Look into the inside of the chamber and keep turning the screw until you see it protrude into the chamber.
4. Absorb the excess thread lock on the bottom of the adjustment screw with a cotton swab.
5. Back the adjustment screw up so that it no longer protrudes into the chamber.
6. Clean any excess thread lock on top of the screw as well as in and on the chamber with cotton swabs or paper towels.
7. Push the inner barrel group into the chamber, leading with the bucking. Make certain that the window of the inner barrel faces upwards.
    - Do not shove or force the inner barrel group into the chamber. Too much force can deform the bucking, leading to jams, feeding issues, and poor accuracy.
8. Apply some hop up using the 2.5mm hex wrench while looking down the barrel. Apply enough so that you can clearly see the protrusion of the mound into the chamber.
9. Rotate the barrel clockwise or counterclockwise until the mound is dead center within the chamber.
10. Apply thread lock to the two set screw holes on either side of the chamber.
11. Insert and tighten the set screws using the 2mm hex wrench to lock the inner barrel group in place within the hop up chamber.

Barrel Group Assembly and Installation

1. Slide the aluminum sleeve over the front of the assembled hop up chamber and inner barrel.

2. Slide the other end of the sleeve over the rear of the outer barrel adapter.
3. Ensure that all three components are properly aligned – the holes on the adapter correspond with the holes in the upper receiver for bolts.
4. Install and tighten the set screws using the 2mm wrench.

5. Slide the outer barrel over the inner barrel and thread it into place.

6. Slide the barrel group back into the upper receiver.

7. Install and tighten the three (3) included short socket head machine screws.

8. Reinstall the barrel retention pin.
9. Install the feed tube into the bottom of the hop up chamber.
10. Reinstall the handguard and pin.

Creating the Hop Up Adjustment Hole

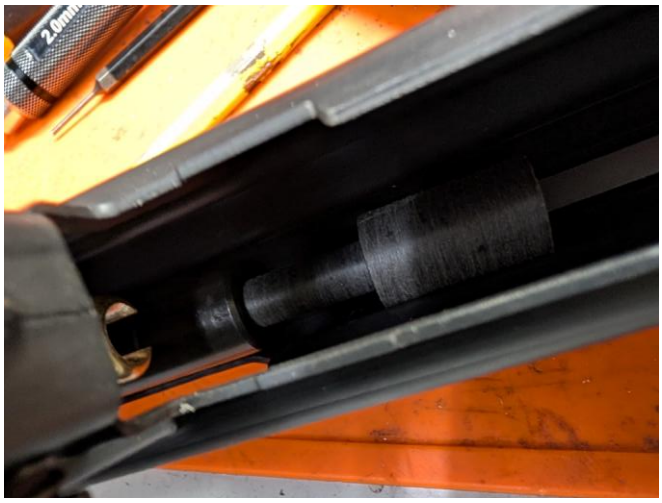
1. Measure and mark the spot for the hole. This should be 35.5mm from the front of the bulge on the top of the upper receiver, but you should confirm this yourself for your specific donor body.

2. Place the upper receiver in a vise or clamp.
3. Use a center punch if available to create a divot or dimple on the market spot. While optional, this step is highly recommended in order to prevent your drill bit from wandering or jumping and causing damage to your upper receiver.
4. Drill a hole in the marked spot either directly with a 3mm drill bit, or stepping up several bits to a diameter of at least 3mm.
5. Check that you can adjust the hop up through the hole with a 2.5mm hex wrench.
6. Use a file or wider drill bit to enlarge the hole if the alignment with the hop up chamber is poor.

Completing the Upper Receiver

Cocking Tube Spacer Installation

1. Pull the cocking handle back and lock it into the safety notch.
2. Push the narrow end of cocking tube spacer into the back of the cocking tube.



3. Unlatch the cocking handle and push the assembly into its forward position.

Bolt Carrier Installation

1. Apply some silicone lubricant to the sides of the DGA LCT HK33 bolt carrier assembly where it will contact the upper receiver.
2. Slide the bolt carrier into the rear of the upper receiver.

3. Ensure that the front of the airshaft enters the rear of the hop up chamber.

Modifying and Assembling the Lower Receiver

Assembling and Modifying the Air Valve

The air valve comes out of the box with a valve stem return spring installed. This can be left installed for a stiffer trigger pull. DGA recommends removing the return spring to soften the trigger pull.

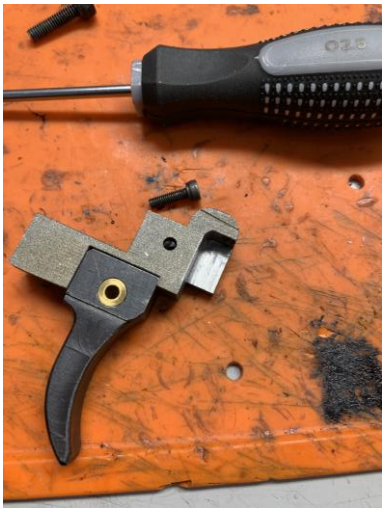
1. Remove the air line and fitting from the air valve. This needs to be removed in order to test fit the valve in the receiver.
2. Unscrew the cover on the back of the air valve using the flat head screwdriver.
3. Dump the small internal spring out of the valve.
4. Screw the cover back into place. Tighten it down. Do not apply thread lock, as the o-ring provides an adequate seal as well as locking force.

5. Install and tighten the air line in the air valve. Apply a small amount of thread lock. Do not overtighten.

The airline fitting should be FINGER TIGHT only. Overtightening may break the fitting. DGA Is not responsible for fittings broken through overtightening!

Assembling the Trigger Chassis

1. Remove the selector assembly from the chassis if it was preinstalled in your kit.
2. Screw the trigger and trigger adaptor together using the 2.5mm hex wrench and the thin hex bolt.
    - Remember to use thread lock
3. Insert the completed trigger up into the bottom of the trigger chassis and insert the trigger pin to hold it in place.



Creating the Selector and Air Line Holes

Selector Hole

1. Locate the selector assembly.
2. Use the outer face (the one with the socket head screw) as a reference for drill bit size. Find a bit with a slightly wider diameter.
3. Place the lower receiver in a vise or otherwise clamp it to a surface with the right side easily accessible.

4. Drill out the mock selector cover on the receiver.

Air Line Hole

1. Reposition the lower receiver in the vise or clamp so that you can easily access the inside surface.
2. Drill out the center hole in the pistol grip (the one the motor passes through) so that the air line will not be obstructed.

3. Remove the motor height adjustment screw from the pistol grip base plate.

4. Drill out the central hole in the base plate to allow the air line to pass through unobstructed.

5. Remove the lower receiver from the clamp or vise.

Installing the Trigger Chassis and Air Valve Assembly

1. Slide the trigger chassis down into the lower receiver. Ensure that the holes in the chassis and the lower receiver line up just under the “E” on the righthand fire selector legend.
2. Thread and tighten the roundhead machine screw into the hole with a 2mm hex wrench.

3. Slide the air valve assembly down into the rear of the trigger chassis, ensuring that the valve button faces the muzzle end of the lower receiver.

4. Place the L-shaped recoil assembly bracket down over the air valve.
5. Install and tighten the two long hex bolts into the holes at the top of the bracket using the 3mm hex wrench.

Installing the Selector Assembly

1. Pull the semi and auto sears up out of the way. You can use a driver or other object to keep the auto sear from dropping back down into the trigger chassis.
2. Place DGA selector down into the chassis, sliding the round, open face of the cammed surface over top of the original selector.

3. Place the included shim onto the exposed end of the DGA selector.

4. Drop the outermost black piece onto this shim. This is best done through the drilled hole in the side of the lower receiver.
5. Install and tighten the socket head machine bolt with the 2.5mm hex wrench.

6. Push the semi auto sear to drop back down into place, ensuring that you hook it onto the valve knocker.
7. Allow the auto sear to drop down beside the semi sear.

Completing the Lower Receiver

Installing the Recoil Spring Guide Rod

1. Place the recoil spring guide rod into the hole at the top front of the recoil guide rod bracket. Ensure that the flat surface at the rear of the guide rod is the end installed, with that flat surface facing upwards.
2. Install and tighten the round head machine screw with the 2mm hex wrench.

3. Slide the DGA recoil spring onto the recoil spring guide rod.

Installing the Pistol Grip Base Plate

1. Slide the pistol grip base plate onto the bottom of the pistol grip, ensuring that the air line goes through the hole in the middle where the motor height adjustment screw used to be.
2. Install and tighten the two Phillips head machine screws into the bottom of the pistol grip base plate.

3. Push the DGA QD hose fitting onto the exposed end of the air line.

Final Assembly

1. Pull the cocking handle back and lock it into the safety notch.

2. Slide the lower receiver onto the upper receiver, ensuring that the recoil guide rod enters the rear of the bolt carrier.
3. Push the lower forward while squeezing near the bottom rear of the upper receiver so that the upper properly engages with the lower.
4. Release the cocking handle and the spring tension when the pin holes have lined up on the upper and lower receivers.
5. Push the pin into place.

6. Slide the stock onto the rear of the rifle.
7. Install the pin to retain the stock to the rifle.

Congratulations, you have completed all major installation steps for the DGA LCT HK33 kit.

If you haven't already, you should lubricate the moving parts of the engine. DGA recommends *GetSome* brand lubricant, available from our website.

If you encountered any issues during your install, or your gun is not working correctly, please reach out to DGA Support.

Please check the website for more guides on troubleshooting and maintenance.

We also invite you to join the Daytona Airsoft Systems Group on Facebook to speak directly with other DGA enthusiasts as well as DGA employees.