GENERAL

ar 15 complete assembly guide

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Ar 15 Complete Assembly Guide

Building an AR 15 from a bolt carrier package or a set of parts can be a rewarding project for the seasoned shooter or the curious hobbyist. Whether you are putting together a kit for the first time or restoring an older platform, this step by step guide will walk you through the entire process. We'll cover safety, required tools, key components, disassembly, reassembly, troubleshooting, and maintenance tips. By the end of this article you'll have a clear, organized roadmap to assemble an AR 15 that operates reliably and safely.

Safety First: The Foundation of a Successful Build

Before you even touch a single part, remember that an AR 15 is a functional firearm. Follow these safety protocols to protect yourself, your coworkers, and your equipment.

- Work in a well ventilated, well lit area. Adequate lighting helps you spot small parts and prevents accidental mishaps.
- Always treat the rifle as if it were loaded. Never point it at anything you do not intend to shoot.
- Remove the bolt and chamber. Keep the rifle unloaded at all times during assembly.
- Wear safety glasses. Protect your eyes from debris and accidental bolt ejection.
- Keep your workspace organized. A clean area reduces the risk of losing small parts.

Tools Required for an Ar 15 Complete Assembly Guide

While the AR 15 is designed to be built with minimal tools, having the right equipment on hand will make the process smoother and reduce the risk of damage.

1. Socket set (10 mm, 12 mm, and 13 mm). A 10 mm socket is essential for most internal parts.
2. Hex keys (Allen wrenches). 1 3/16 3 and 1 1/16 3 sizes are common.
3. Torque wrench. Proper torque is critical for safety and reliability.
4. Hammer. A light, flat headed hammer helps in securing pins and retaining parts.
5. Parts tray or magnetic mat. Keeps small screws and pins from rolling away.
6. Cleaning supplies. Rags, solvent, and a cleaning rod for barrel and chamber.
7. Lubricant. Use a high quality gun oil or grease specifically designed for firearms.
8. Replacement gaskets and springs. Always have fresh gaskets and springs on hand.

Understanding the Core Components

Before diving into the assembly steps, familiarize yourself with the main parts of an AR 15. Knowing what each component does will help you spot issues and ensure you're following the correct order.

- Upper Receiver – houses the bolt carrier group, barrel, and handguard.
- Lower Receiver – contains the trigger group, stock, and pistol grip.
- Barrel – the chambered portion that directs the bullet.
- Bolt Carrier Group (BCG) – includes the bolt, carrier, and various springs.
- Magazine – feeds ammunition into the chamber.

- Trigger Group – controls the firing mechanism.
- Stock and Handguard – provide ergonomics and support.
- Accessory Rails – allow mounting of optics, lights, and other attachments.

Step 1: Disassemble the Upper Receiver

Disassembling the upper receiver is the first step in any AR 15 assembly project. It gives you a clear view of the internal components and ensures you can clean and inspect each part.

1. Remove the bolt carrier group. Pull the bolt back and release the carrier from the upper receiver using the bolt release button.
2. Detach the barrel. Unscrew the barrel nut with a 12 mm socket and remove the barrel.
3. Remove the handguard. Unscrew the handguard screws (usually 1 1/16 3) and take off the handguard.
4. Take out the forward assist. Unscrew the forward assist with a 10 mm socket.
5. Remove the upper rail. Unscrew the rail with a 10 mm socket and set it aside.
6. Detach the upper trigger group. Remove the trigger group screws (1 3/16 3) and lift the trigger group out.

Step 2: Clean All Parts

Cleanliness is essential for performance and longevity. Use a solvent to wipe down the barrel, bolt carrier, and upper receiver, then dry thoroughly.

- Barrel cleaning. Run a cleaning rod through the barrel, applying solvent and a cleaning patch.
- BCG cleaning. Remove any residue from the bolt and carrier using a brush and solvent.
- Upper receiver cleaning. Wipe the interior surfaces to remove dust and debris.

Step 3: Assemble the Upper Receiver

Now that everything is clean, begin reassembling the upper receiver. Follow this sequence to ensure proper alignment and function.

1. Reinstall the barrel. Slide the barrel into the upper receiver, aligning the chamber, and secure with the barrel nut. Tighten to 35 45 ft lb using a torque wrench.
2. Reattach the handguard. Align the handguard and screw it into place with 1 1/16 3 screws. Tighten to 20 25 ft lb.
3. Install the forward assist. Screw the forward assist into its mount and tighten to 15 20 ft lb.
4. Mount the upper rail. Slide the rail onto the upper receiver and secure with a 10 mm socket. Tighten to 10 15 ft lb.
5. Reinstall the trigger group. Place the trigger group into its cradle, align the pins, and secure with 1 3/16 3 screws. Tighten to 25 30 ft lb.
6. Insert the bolt carrier group. Slide the BCG into the upper receiver and lock it in place.

Step 4: Assemble the Lower Receiver

With the upper ready, the next step is to attach it to the lower receiver. This is where the trigger group and stock come into play.

1. Attach the upper to the lower. Slide the upper receiver into the lower and secure with the takedown pins. Tighten the pins to 35 45 ft lb.
2. Install the trigger group. Align the trigger group with the lower receiver and secure with 1 3/16 3 screws. Tighten to 25 30 ft lb.
3. Attach the stock. Slide the stock into the lower receiver and secure it with the appropriate screws. Tighten to

20 25 ft lb.

4. Install the pistol grip. Attach the pistol grip using the supplied screws (usually 1 3/16 3). Tighten to 15 20 ft lb.
5. Insert the magazine. Slide the magazine into the lower receiver's magazine well.
6. Attach the charging handle. Secure the charging handle to the bolt carrier group with the 1 3/16 3 screw. Tighten to 15 20 ft lb.
7. Attach the safety selector. Insert the safety selector into the lower receiver and secure with a 1 3/16 3 screw. Tighten to 15 20 ft lb.
8. Install the rear sight. Align the rear sight with the rear rail and secure with the appropriate screws (usually 1 1/16 3). Tighten to 15 20 ft lb.

Step 5: Final Checks and Tolerances

Before you load a round, perform a thorough inspection to ensure everything is properly assembled and torqued.

- Check all screws. Verify that all screws are tightened to the correct torque specifications.
- Inspect the bolt. Ensure the bolt rotates smoothly and that the extractor is seated properly.
- Check the trigger pull. A clean, crisp trigger pull indicates proper trigger group installation.
- Verify the safety. Test the safety selector to confirm it locks the bolt and prevents firing when engaged.
- Test the charging handle. Pull the charging handle to ensure it moves the bolt carrier group freely.

Troubleshooting Common Issues

Even with careful assembly, some issues can arise. Below are common problems and how to address them.

Misaligned Barrel

If the barrel feels loose or the muzzle is not aligned with the handguard, double check the barrel nut torque and the barrel seating. A barrel that isn't seated properly can cause a misfire.

Trigger Pull Too Heavy

Heavy trigger pulls often result from an improperly installed trigger group or insufficient lubrication. Ensure the trigger group is correctly seated and lubricate the internal components lightly.

Bolt Carrier Group Jams

Check the extractor and bolt face for damage or debris. Clean the BCG and replace any worn parts. Also, ensure the recoil spring is seated correctly.

Magazine Issues

If the rifle doesn't cycle properly with a loaded magazine, inspect the magazine for damage and verify the magazine catch is engaged.

Maintenance Tips for Longevity

Regular maintenance will keep your AR 15 operating smoothly and extend its life.

1. Clean after every use. Remove debris and residue from the barrel, bolt, and chamber.
2. Lubricate critical parts. Apply a thin coat of gun oil to the bolt carrier group and trigger group.
3. Inspect for wear. Check the barrel, bolt, and extractor for signs of wear or damage.
4. Replace gaskets and springs. Periodically replace gaskets and springs to maintain proper pressure and function.
5. Store in a dry environment. Keep the rifle in a climate-controlled location to prevent rust and corrosion.

Legal Considerations

When assembling an AR 15, it's important to understand the legal requirements in your jurisdiction. In many areas, building a rifle from a kit is legal, but there may be restrictions on certain components (e.g., barrel length, muzzle device type). Always consult local laws and regulations before proceeding.

Conclusion

Arming yourself with the right knowledge, tools, and a systematic approach transforms the task of building an AR 15 from daunting to manageable. By following this comprehensive, step by step guide—covering safety, disassembly, cleaning, reassembly, troubleshooting, and maintenance—you'll end up with a reliable, well functioning rifle that reflects your craftsmanship. Remember to always respect the power of the firearm, keep your work area clean, and adhere to local regulations. Happy building!

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