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HOW TO BUILD AN AR-15

The Upper Receiver & Common Subassemblies Introduction

The upper receiver's main purpose is to support the barrel assembly and to house and guide the bolt carrier group. The ejection port cover, forward assist, rear sight assembly and charging handle are also located on the upper receiver.

There are some commonalities of the AR-15 upper receivers. The ejection port cover keeps dirt and other debris out of the bolt and upper receiver. The cover is held closed with a ball detent and spring. It opens up under spring tension when the bolt moves forward or rearward.

There are 4 components to the ejection port cover: the ejection port cover, the ejection port cover spring, the ejection port cover pin, and the ejection hinge pin snap ring.

The forward assist is used to manually close the bolt completely into battery in the event of a malfunction where the bolt carrier group doesn't seat fully and lock into battery. When the button on the forward assist is pushed forward, the forward assist pawl engages cuts in the right hand side of the bolt carrier pushing it forward into battery. *Shown in right side picture cutaway.* If you experience a failure to lock into battery while casually shooting, it is better to extract the round and assess and correct the cause of the problem rather than using the forward assist. Out of spec ammunition, a separated case or excessive fouling all can cause the rifle to fail to lock into battery. Out of spec ammunition or an obstruction in the chamber can be very dangerous or deadly if the rifle is fired.

The forward assist is comprised of seven parts, they are; the forward assist button, the pawl pin, the forward assist pawl detent and detent spring, the forward assist pawl, the forward assist spring, and the forward assist retainer pin. For the ease of assembly most shooters will purchase the forward assist button, pawl, pawl pin and pawl detent and spring already assembled.

Because the ejection port cover and forward assist don't provide additional accuracy or give an advantage in competition most shooters are comfortable with standard "mil spec" parts. The ejection port cover and forward assist components will fit all mil spec A2 and A3 upper receivers.

The charging handle is used to pull the bolt carrier group back to open the bolt for loading, unloading and clearing the firearm if it jams. Unlike other military and sporting arms the charging handle differs from an operating handle in that it stays stationary when firing. It locks into a cut on the upper left side of the receiver when not being used.

There are 4 parts that make up the standard charging handle, they are; the charging handle, the charging handle latch, the charging handle spring and pin. Parts for the charging handle are sold separately, as a kit, and already preassembled so all you have to do is drop it in.

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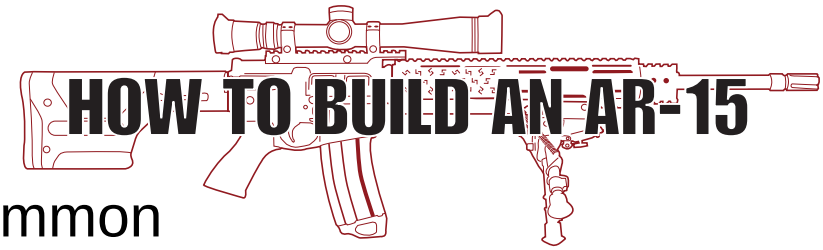
Because the charging handle is the first thing you grab when clearing a jam, this assembly receives a lot of attention and has a wide variety of options available. Steel charging handles provide added durability and resistance to bending when lateral forces are applied while clearing a jam. Extended latches provide extra contact surface and clearance for optics to give the shooter an easy to find contact point when charging or clearing the rifle. These charging handles and latches are sold as complete assemblies and as add-on accessories that are easy to install.

When ordering your receivers you need to be aware of the pivot pin sizes used for the lower and the upper receivers. The most common commercially available size is .250 inches. If you're building or adapting a newer rifle this shouldn't be an issue.

The second size is .312 inches and is found on the front pivot pin of some of the earlier Colt Sporter lower receivers. There are bushings and pin assemblies that you can purchase to allow the use of .250" pins with.312" holes, and you still can change the components like barrels, buttstocks and hand guards without this adapter.

Most of these .312" pivots are held together with a screw and nut. If they are not, a quick way to determine your pivot pin size is to use a set of calipers to measure the hole or your existing pin. If you don't have calipers then use a 1/4" and a 5/16" punch or drill to determine the size. If your 1/4" bit or punch fits but the 5/16" doesn't, you have a .250" pin. If the 5/16" bit or punch fits then you have a .312" pivot pin. The variations of parts for the A1, A2, A3 and M4 style of uppers will be covered in subtopic segments individually.

On some exceptions like a slick side and earlier A1's there isn't a forward assist or ejection port cover and there may not be a brass deflector. As a sub assembly, the lower receiver components are packaged as a kit or you can buy them individually.



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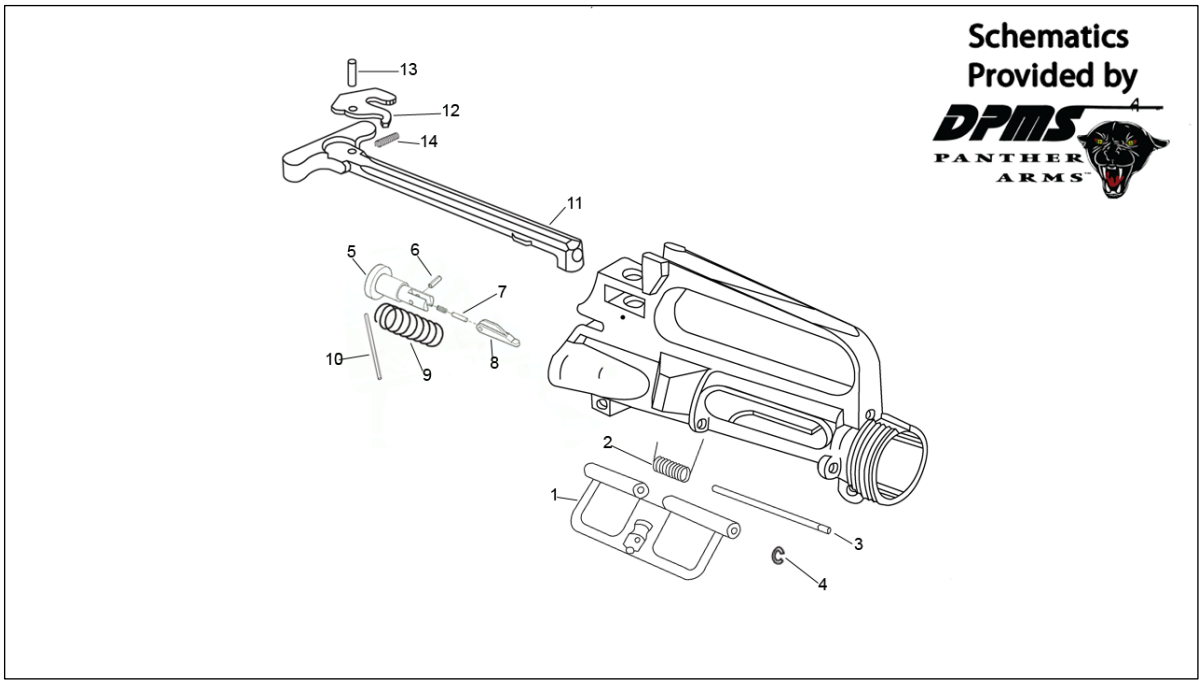
UPPER RECEIVER AND COMMON SUBASSEMBLIES



1. ejection port cover
2. ejection port cover spring
3. ejection port cover pin
4. ejection hinge pin snap ring
5. forward assist button
6. pawl pin
7. forward assist pawl detent and detent spring
8. forward assist pawl
9. forward assist spring
10. forward assist retainer pin.
11. charging handle
12. charging handle latch
13. charging handle latch pin
14. charging handle latch spring