

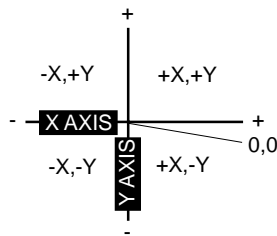
Chapter 1

What you need to know

In this book I will explain in simple terms just how I go about machining an AR15 lower receiver from a forging. When I first looked at the blue print for the Colt lower I was overwhelmed by the complexity of it all. Now, after successfully machining several, it is nothing more than the combination of many small, simple operations.

First of all cutting metal is the easy part of being a machinist. The difficult part is holding the work and locating the cutting tool relative to the work. These two things together are called the setup. We will use 10 setups to finish our lower.

I use a Bridgport style milling machine with a digital read-out (DRO). With the DRO it is very easy to work using Cartesian coordinates. If you don't have a DRO, you can still do it, but it will take you a little longer and you must guard against positioning errors. Each full turn of the handle is usually 0.200" and the usual method for moving to a position is to count turns. You won't make an error of a few thousands, it will be .200" or one full turn of the handle. Always touch off your drill and then check with your scale before putting in the hole. When setting your position always come to the mark by turning the handle clock wise to eliminate backlash errors.

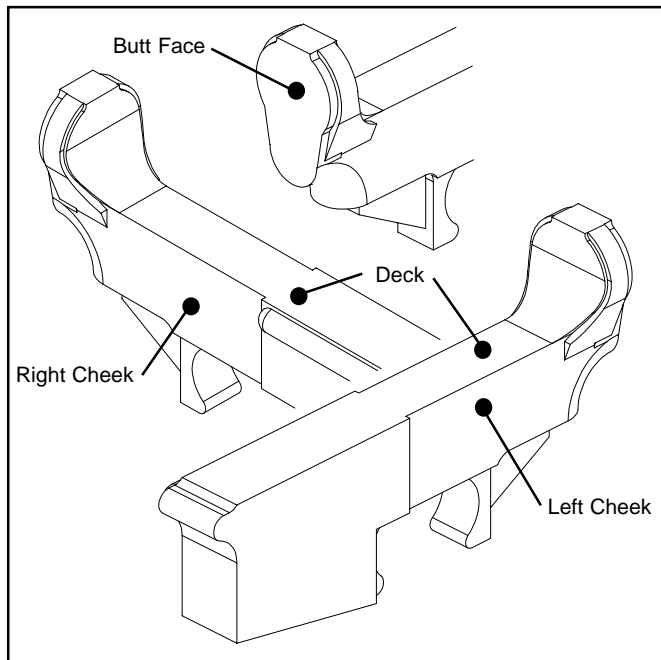


Throughout this book I will maintain certain conventions. When a position is noted it will always be the X axis first followed by the Y axis. The X axis runs left to right and is the long axis on your milling table. For example, if 0,0 is the pivot pin hole location, then the take-down pin hole will be at 6.375~0.00.

There are some special tools you will need to follow my method of doing this project. A 1-3/16 x 16 tap for the buffer tube is a must. Also a long 3/32 drill and a long 1/8 drill. Also a long 1/4" center drill for spotting the buffer retainer hole.

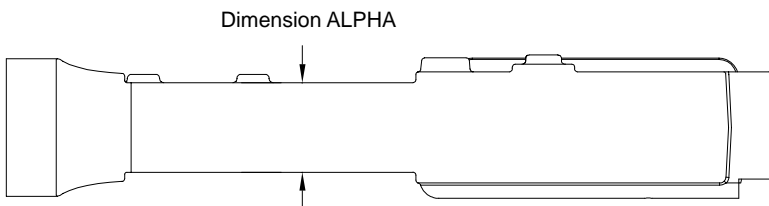
It is also recommended that you have all the parts for your lower on hand to check for fit and function as the project progresses.

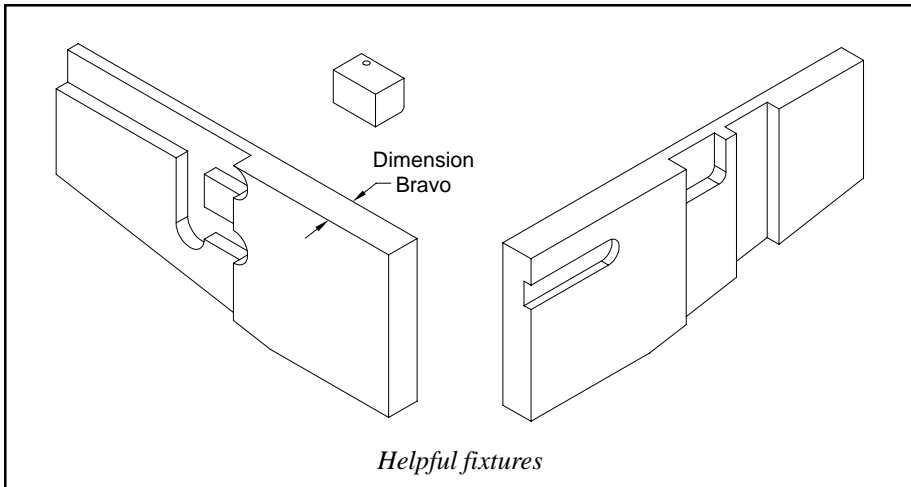
There are some key surfaces on the lower that will be called by



Named Faces

name because we will be referring to them often in the text. The deck is the main flat surface that mates with the upper. The butt face (don't laugh) is the face that the buttstock mates against. The left cheek is on the driver's side and is the face where the trigger & hammer pin holes will be. The right cheek is on the opposite side. All forgings are not the same. Measure across the cheeks and record this dimension. You may want to take several readings and use the average. I will refer to this as dimension Alpha.





Before you start cutting on your forging, there are a some fixtures you will need to make. One is a pair of clamping pads to support and hold the forging for several setups. The other is a little drill guide that takes the heart-burn out of putting in the bolt release pivot pin hole. Drawings for all of these items may be found in the back of the book, figures 1, 2 and 3. Take the time to make them now. You will regret it if you don't. After you finish the passenger side clamping pad, measure and record dimension Bravo.

Another thing to keep in mind is your serial number. If you are going to stamp the number in it is best done while the forging is solid rather than when it is all hollowed out for triggers and magazines. The BATF does not require a serial number, but they recommend you mark the receiver in such a way that it can be returned to you if lost or stolen. It is better to have a number on the receiver than to try to explain to the arresting officer that it is legal for you to have a weapon without a serial number! The alternative is to take your finished receiver to a trophy shop and have them engrave it to your specifications.

This book is offered for educational use only. It is the users responsibility to determine if finishing an AR-15 lower receiver is allowed by law in their state and municipality. The author and publisher assume no liability whatsoever.