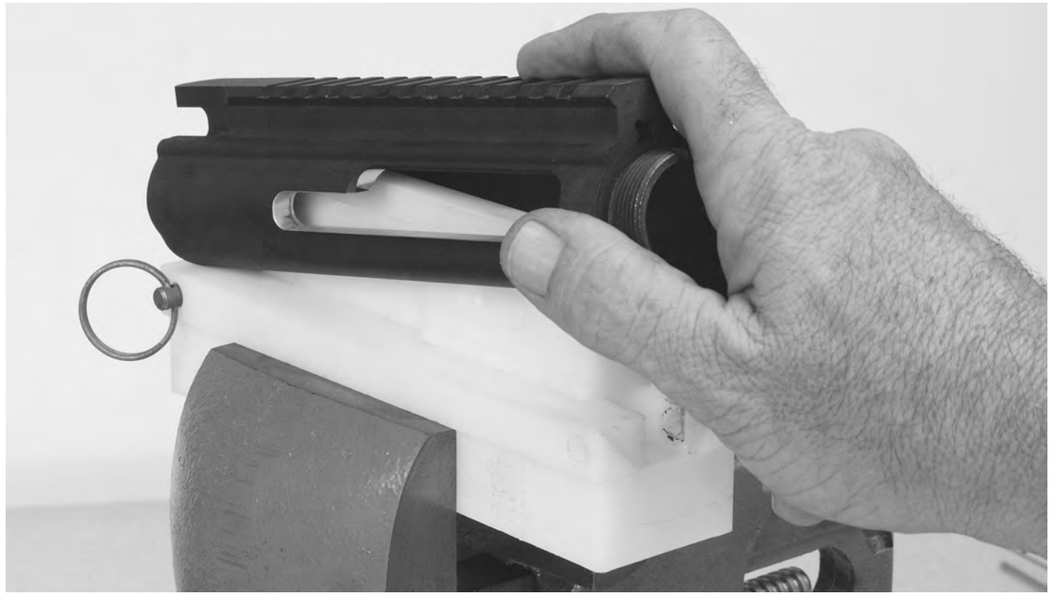
A few tips...

As said, I really do not suggest clamping the barrel to install the barrel. Use a receiver-style clamp set into a sturdy vise. The reason is that tightening the barrel nut against a secured barrel can and will increase the pressure on the alignment pin and also, of course, its corresponding slot in the receiver. The result can be a looser fit.



If you're only going to do one, get the clamp you'll need for the receiver type you will install it on. Conversely, if you're only going to get one clamp, get the "white" one. It fits into the upper receiver — any upper receiver — and provides universal utility. As mentioned in the tools segment, it doesn't look as sturdy as the clamshell-style clamps, but rest assured it is, and I'm not entirely sure it's not better in that regard. The fit into the inside of the upper receiver is flush and there is no possibility of clamp-induced damage. All the clam-shell clamps I've seen only work on a standard-form upper receiver, which means it won't work on any of the slab-sided or differently contoured and dimensioned uppers out there.

Wrenches, same sort of thing. If you're going to do nothing but mil-spec barrel installations, which here means that you'll want to install a barrel that already has the front sight housing attached, then you'll have to have a barrel nut wrench that's open so it will fit over the barrel. A "pin" style-wrench is the one to get if you only get one. I prefer "closed" barrel wrenches (as shown on right) because I find they are more secure since they fit into all the scallops on the barrel nut, but those can only be used on a stripped barrel. Not all free-float tube hardware allows their use either.

Secure and support the barrel wrench flush into its engagement area with the barrel nut. That means keep the free hand pushing the wrench to keep it from slipping.

PARTS & TOOLS

Most of us will be taking many of these parts off rather than putting them on. We'll get to that...

PREPARATION

Vise, very securely mounted
Upper receiver clamp
Tap hammer
Big hammer (for taper pins)
Roll pin punch and roll pin starter punch (#1 for gas tube roll pin)
Concave-tip punch (for taper pins)
Torque wrench, 1/2-inch drive
Breaker bar, 1/2-inch drive
Barrel nut wrench attachment for the above
Snap-ring pliers (for Delta assembly)
Gas tube alignment tool
Options (good ideas)
- Permatex "red" adhesive
- Contact cleaner
- Anti-seize compound (I like Loctite C5A)
- Small screwdriver (helps move Delta pieces into alignment)
- Gas tube wrench
- Front sight adjustment tool
- 2x4 wood block (for taper pins)

PRECAUTIONS

Don't scrimp on alignment, and don't get frustrated!
Have to say it: Make sure the ejection port cover is installed!

PARTS

Upper receiver (with ejection port cover installed)

Barrel with barrel extension and indexing pin

Barrel nut

Front sight base and front sight base taper pins
Front sight (post)
Front sight detent
Front sight detent spring

Front sling swivel
Front sling swivel rivet

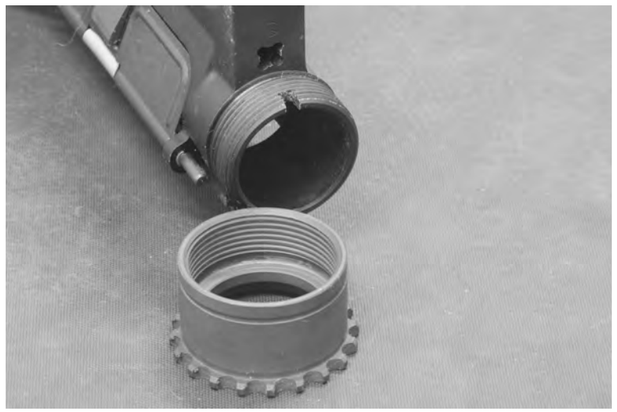
Flash suppressor (if applicable)
Flash suppressor crush washer or peel washer (A2)
Flash suppressor lock washer (A1)

Handguard cap (triangular for 20-inch barrels; round for 16-inch barrels)

Handguard slip ring (Delta ring)
Handguard weld spring
Handguard snap ring

Gas tube
Gas tube roll pin

Handguards (pair)



Again, since the focus of this book is about building your own custom AR15, I want to start off by showing how to install an assembled, standard-form barrel. Putting the pieces onto a standard-configuration barrel isn't hard, neither is taking them off. We'll get to both of those jobs next.

Front sight assembly is shown on page171.