



Writeup on 33XC/37XC/41XC as of July 2020

Background

After shooting a .338 Lapua Improved and then necking it up to .375 followed by 3 different .375 Cheytacs, I came to several conclusions about what I think would be the better cartridge approach to shooting ELR.

The .338 Lapua Improved is too much work and there is an ill-conceived design surrounding the .338 Lapua Improved (current reamer headspacing as well as available resize die parameters work to create a short case life). While doing all that work for approximately 10 grains more powder capacity.

Necking the .338 Lapua improved up to .375 is a good direction to follow. From shooting and borescoping, the .375/.338 Lapua improved the barrel life (108 grains of H1000 was very good). I shot over 1500 rounds and the throat looked excellent at that point.

Next I chambered up 3 different .375 Cheytacs with the conclusion that the case is Overbore (too much case capacity) along with too shallow a shoulder angle. The .375 Cheytac uses over 30 grains more powder to get another 100 feet per second.

CheyTac issues are as follows:

1. Need to buy a new, larger reloading press.
2. Need to buy custom dies, which are overpriced, and they still may not work as you would like them to.
3. Need to buy a larger action diameter, so figure a new gun is in order.

Several thousand dollars later, after all of this has been accomplished, you now have a .375 Cheytac.

From shooting and borescoping the .375 Cheytacs, the barrel life was short (2 of the barrels made it to 500 rounds each with lathe turned solid bullets).

I prefer the best of both worlds, along with the ability to use the TUBBGUN™ platform, which allows "at the range/on the bench" caliber changes, so the 33XC (necked up to 37XC or 41XC if desired) came to life.

The 33XC (.338), 37XC (.375), and 41XC (.416) are based off of a .580" bolt head

The 33XC is the parent case for the 37XC and 41XC.

The 33XC/37XC/41XC uses standard reloading dies along with 7/8" x 14 tpi (threads per inch) reloading press.

There is no fireforming and all the case "improving" is done in a production case (over 20 grains more powder capacity, 35-degree shoulder, and longer neck when compared to a 338 Lapua).

This leaves the various .338 Lapua wildcats and the Remington Ultra mag improved into the also ran category. They simply can't compete with the velocity of the 33XC.

The 33XC (eXtra Capacity) has (139 gr of H2O capacity) while approaching 130 grains of useable powder capacity yet leaving the .393" neck unfilled (for bullet seating as it should be) - depending on the powder density and drop tube length.

The 33XC (.338), 37XC (.375), and 41XC (.416) are based off of a .580" bolt head. A fired case will extract with ease when using a properly polished chamber with a maximum powder charge after being full length resized in the Superior Shooting Systems A7 tool steel resize die.

Brass

Peterson Cartridge Company is making the brass for Superior Shooting Systems.

The 33XC (.338), 37XC (.375), and 41XC (.416) are based off of a .580" bolt head

The 33XC is the parent case for the 37XC and 41XC. Meaning the brass used for the 33XC is the same brass that is used for the 37XC and 41XC. The brass for the 37XC and 41XC is simply necked up to .375 for the 37XC and necked up to .416 for the 41XC. The brass will still say 33XC on the headstamp.

Brass is \$2.30 a piece and is sold in boxes of 50 for \$115. Both 33XC brass and 37XC brass (which is 33XC brass necked up to .375) can be purchased directly from Superior Shooting Systems. 33XC brass sold by Superior Shooting Systems that is necked up to 37XC will cost 15 cents additional cost per piece.

33XC brass necked to 41XC can be ordered by calling Superior Shooting Systems

Link for brass:

<http://www.davidtubb.com/index.php?route=product/search&search=brass> or call (806)-323-9488 to order brass.

Reloading Dies

The 33XC/37XC/41XC die set is designed to be useable with either bullet diameter (both the seater die and the resize die). Price for the set (resize die and seater die) is \$355.00 –If purchased individually, the seater die is \$180 and the resize die is \$190.

<http://www.davidtubb.com/index.php?route=product/search&search=die>

The 33XC has a 35-degree shoulder angle. It also has .350" more body length (less body taper) as well as an additional .065" longer neck when compared to a .338 Lapua case. **Total case overall length is 3.087" (.415" longer than a .338 Lapua and slightly longer than a Cheytac case).**

The 33XC utilizes my design (like the 6XC resize die) by the use of A7 tool steel in a resize die (7/8 x 14). The 33XC/37XC/41XC resize die comes with your choice of 2 different diameter (.365 and .367 integral neck shoulder bushings) and also a (.400) 37XC integral neck shoulder bushing which doubles for your headspace gauge. Keep in mind you will NOT need to buy a new reloading press as this is designed to work in your standard (7/8x14) press. Additionally, the Superior Shooting System's 33XC/37XC/41XC competition bullet seater is designed to seat (with minor height adjustments) all 3 bullet diameters. I am currently reloading both 33XC and 37XC and 41XC calibers on my Dillon 550 with ease.

Seating Die info

As of 3/3/2020 all seating dies sold from now on will accommodate 33XC, 37XC, and 41XC.

There is a 2nd stem included with the new batch of 33XC/37XC/41XC seating dies. This second seating stem is for 7mm/30 cal ID bullets that are lead core as well as certain turned solid bullets. The latest seating die for the 33XC/37XC/41XC is designed to consistently give excellent runout when seating 33/37/41XC bullets.

If you have purchased a prior seating die that only came with one seating stem, keep in mind that the seating die was designed for the 33XC and 37XC and will not accommodate the larger 41XC. You would need to purchase a new seating die if you want to load for 41XC because the new seating dies are built to accommodate the larger 41XC (.416) caliber.

<http://www.davidtubb.com/index.php?route=product/search&search=die>

Info on lead core/jacketed bullets vs turned solid bullets

If you plan to shoot a lead core/jacketed bullet from either a 33XC, 37XC, or 41XC, then you want a 1:8 twist for the 33/37XC and a 1:10 twist for the 41XC twist barrel otherwise you could lose a bullet from the faster spin rate of quicker twist barrels.

Reamer info for 33XC, 37XC, and 41XC

Dave Manson makes the reamers for the 33XC, 37XC, and 41XC

His phone number is 810-953-0732.

david@mansonreamers.com

Superior Shooting Systems is also selling Manson floating pilot reamers for 33XC and 37XC. All have a 1 ½ degree lead angle for the throat.

33XC has .225" straight section

37XC has .225" straight section

These dimensions typically fit most all the bullets we have encountered.

<http://www.davidtubb.com/index.php?route=product/search&search=reamer>

41XC reamer can be purchased directly from Dave Manson. I recommend a .250 freebore for the 41XC.

We also keep the 6XC Manson floating pilot reamers in stock. 6XC reamer has .160" straight section and a 1 ½ degree lead angle.

<http://www.davidtubb.com/index.php?route=product/search&search=reamer>

Go Gauge and No-Go Gauge info

33XC/37XC/41XC all use the same go gauge.

Superior Shooting Systems sells the Go Gauge for the 33/37/41XC

<http://www.davidtubb.com/index.php?route=product/search&search=gauge>

I don't use No Go gauges - In my opinion this lends itself to allowing excessive headspacing for precision ammo.

Your new piece of brass is always shorter than your go gauge.

Cut your chamber so you can barely feel resistance when closing (take your firing pin assembly out) the bolt on the go gauge and the rifle will then close on a new piece of brass with no resistance.

This typically results in a new piece of brass stretching .003-.004" when fired.

Your brass life is greatly enhanced using these parameters.

If you are interested in a No-go gauge call Manson Reamers

Reamer Discussion:

Reamer Prints for the 33XC, 37XC and 41XC are at the bottom of this writeup

All the reamers use a 1 ½ degree lead.

If you want to shoot both lead core/jacketed and turned solids bullets, then go with the .225 straight section and 1:8 twist barrel. You will have to seat the turned solid bullets further out in the case neck since the freebore is longer to accommodate the lead core bullets.

Please note: You will currently need to buy your own separate expander mandrel setup. (Sinclair sells one).

***Please note that in the past for the 33XC and the 37XC I have recommended a .100 freebore for turned solid bullets and .250 freebore for leadcore/jacketed bullets. These dimensions will still work for the 33XC and 37XC, however, as of June 2020, I no longer see the benefit to using a .100 freebore for turned solids for a 33XC/37XC and using a .250 freebore for lead core/jacketed bullets for the 33XC/37XC.

***As of June 2020, I am now recommending that anyone wanting to build a 33XC or 37XC, whether it be for turned solid bullets or jacketed/lead core bullets, use a reamer with a .225 freebore as it will cover both types of bullets. In my opinion, using a .225 freebore for the 33XC and 37XC aligns either type of bullet (turned solid or jacketed/leadcore) better into your barrel and provides even better accuracy.

Total Case Over All Length is 3.087" (.415" longer than a .338 Lapua and slightly longer than a Cheytac case).

I am single loading for accuracy.

Loaded Cartridge Over All Length approaches 4.4 to 4.9" OAL depending on caliber and bullet selection.

5" magazine box / double stack single feed would be my choice.

Load Information for 33XC, 37XC, and 41XC

Results of testing from 4 different Schneider barrels – use caution when reloading by starting with a 4-grain reduced charge.

Peterson pressure testing indicates that the base head will withstand up to 87,000 psi before the primer pocket becomes loose. *If your primer pockets become loose, you need to let your load DOWN. We suggest operating in the low to mid 70,000 psi range.*

33XC load information

If you plan to shoot .338 jacketed /lead core bullets, stay with a 1:8 twist barrel, otherwise you may lose an occasional bullet from the excessive spin rate of quicker twist barrels.

If shooting turned solid bullets only for the 33XC, then use a 1:7 twist.

If you already have a .338 Lapua and desire to rechamber, Superior Shooting Systems sells 33XC Manson reamers (type in reamer in search bar on davidtubb.com). You can also order your own reamer from Dave Manson (810-953-0732).

The 33XC favors 50 BMG or Vitavouri 20N29 burn rate powders with 300 grain bullets with lighter bullets performing optimally using slightly faster burn rate powders.

300 grain jacketed/lead core bullets leave at over 3150 fps and 250 grain jacketed/lead core bullets yield over 3450 fps. Monolithic 250 grain bullets achieve the same velocities with approximately 3 grains less powder. Test barrel used for this was a 28-inch Schneider 5 P with a 9 twist in a medium weight (4.5lb) profile.

33XC with 28-inch Schneider 5 P rifling barrel (medium contour)– 1:9 twist

124 grains of H50 BMG going 3160 fps with 300 grain Berger bullets: (start around 116gr of H50BMG with the 300grain Berger bullets and work your way up in 2 grain increments (not 0.2 increments).

128 gr H50 BMG going 3380 fps with a 250 gr turned solid Badlands bullet

128 gr H50 BMG going 3320 fps with a 250 gr Sierra bullet

121 gr Reloader 33 going 3120 fps with a Berger 300 grain bullet

125 gr Reloader 33 going 3425 fps with a 250 gr Badlands turned solid

128 gr Reloader 33 going 3460 fps with a 250 gr Sierra bullet

33XC also worked well for me with 119.5 grains of reloader 50 with 285 gr Warner flatline bullet with TUBB® NOSERING™ going 3200fps using 1:9 twist Schneider

barrel. Nate (son in law) was shooting a 1:7.5 twist with his 33XC. Both guns shot awesome.

33XC had Fifty Caliber Shooting Association (FCSA) ELR world record set in December 2018 <https://youtu.be/xTYETDqxC8>

37XC load information

If you plan to shoot .375 jacketed /lead core bullets, stay with a 1:8 twist barrel, otherwise you may lose an occasional bullet from the excessive spin rate of quicker twist barrels.

If you plan on shooting turned solid bullets only, then you can shoot a 1:7 twist.

In 37XC – H50 BMG and IMR 8133 burn rate powders work well. Warner Flatline 361gr easily fly at 3075fps with just over 120 grains of either powder. Test barrel --33-inch Schneider 5P barrel with a 1:7 twist.

37XC 33-inch Schneider 5P Barrel. 1:7 twist

121 gr H1000, 3075 fps, Warner 361 gr Flatline

122 gr RETUMBO, 3090 fps, Warner 361 gr Flatline

122 gr IMR 8133, around 3075f fps, Warner 361 gr Flatline

120.6 gr H1000, around 3075 fps, 361 grain Warner flatline bullet with TUBB® NOSERING™

37XC 33-inch Schneider 5P barrel, 1:8 twist

119.5 gr IMR 8133, Warner 400 gr Flatlines with TUBB® NOSERING™, 2935fps

124-125.5 grains H50BMG, 400 grain Warner flatline bullet, around 2900 fps, (Start at 116 grains of H50BMG and work your way up 2 grains (not .2 grains) at a time with H50BMG.

41XC load data

Schneider barrel, 33inches, 1:8 twist with 5P rifling.

For 41XC, I've been using around 128gr H1000 with 475, 500, or 525gr Cutting Edge bullets.

I'm getting 2850 fps with 500 grain Cutting Edge bullets and 128gr of H1000.

I don't think there is any advantage to shooting 525 grain versus 500 grain Cutting Edge bullets because the BC isn't much better between the two, unless the 525gr bullet just shoots better in your gun.

Also, Reloader 26 will work with 475 gr Cutting Edge bullet. I used around 120gr of Reloader 26 with 475grain cutting edge bullet. I don't think the reloader 26 is good to use with the heavier bullets because it swells the case head (too much pressure too quick). If case head gets bigger than .587 that's too much pressure in my opinion. Case head diameter is directly related to how well the primer fits.

Another load for 41XC using Warner flatlines:

Schneider barrel 33inches, 1:8 twist with 5P rifling.

128 grains of H1000 with TUBBDUST™ mixed into powder to negate copper fouling, 505 grain Warner Flatline bullet with TUBB® NOSERING™, using Federal 215 primers, I shot a 10 shot group with SD of 3.1, average velocity 2850fps

Primers and additional loading information

I use Federal 215 Primers for 33XC/37XC/41XC

All of these data loads were gauged by the bolt opening WITHOUT any stickiness associated with pressure / the same group of cases were used and reused for entire barrel testing.

Keep in mind I did load up to velocities with which I did experience pressure signs. My standard for the above listed loads was to back off the charge by 2 grains and then do a retest for confirmation.

I loaded a single 33XC case over 20 times when breaking in one of the Schneider .338 barrels.

Link to TUBB® original 6XC and 33XC/37XC/41XC Facebook group page in which I answer questions: <https://www.facebook.com/groups/2201832056730901/?ref=share>

Link to Adaptive Target Rifle (TUBBGUN™) Facebook group page:

<https://www.facebook.com/groups/1774506762636152/?ref=share>

Picture below is (left to right):

338 lapua (empty)--33XC Warner 256gr Flatline – 33XC head – 37XC Warner 361gr Flatline – 375 Cheytac (empty) Note - the XC case length VS. the 375 Cheytac



Seater die on left (black), resize die on right, this die will accommodate 33XC/37XC/and 41XC calibers and comes with two seating stems.



For reloading on the Dillon 550, the seater needs to be shorter by about .375" (either 33XC, 37XC, or 41XC). If you are going to load on a Dillon 550 then let Katie at Superior Shooting Systems know and we will send you a modified 33XC/37XC/41XC seater die at no charge. 806-323-9488

You will still need to insert the bullet at the seating stage of the 550 and then manually remove the loaded round. Pictures are of loading a 33XC with Berger 300 grain bullet that engages the rifling in the photo below.



Discussion of Reamer Prints

Below is a list of reamer prints for the 33XC/37XC and 41XC. Please note that in the past for the 33XC and the 37XC I have recommended a .100 freebore for turned solid bullets and .250 freebore for leadcore/jacketed bullets. These dimensions will still work for the 33XC and 37XC, however,

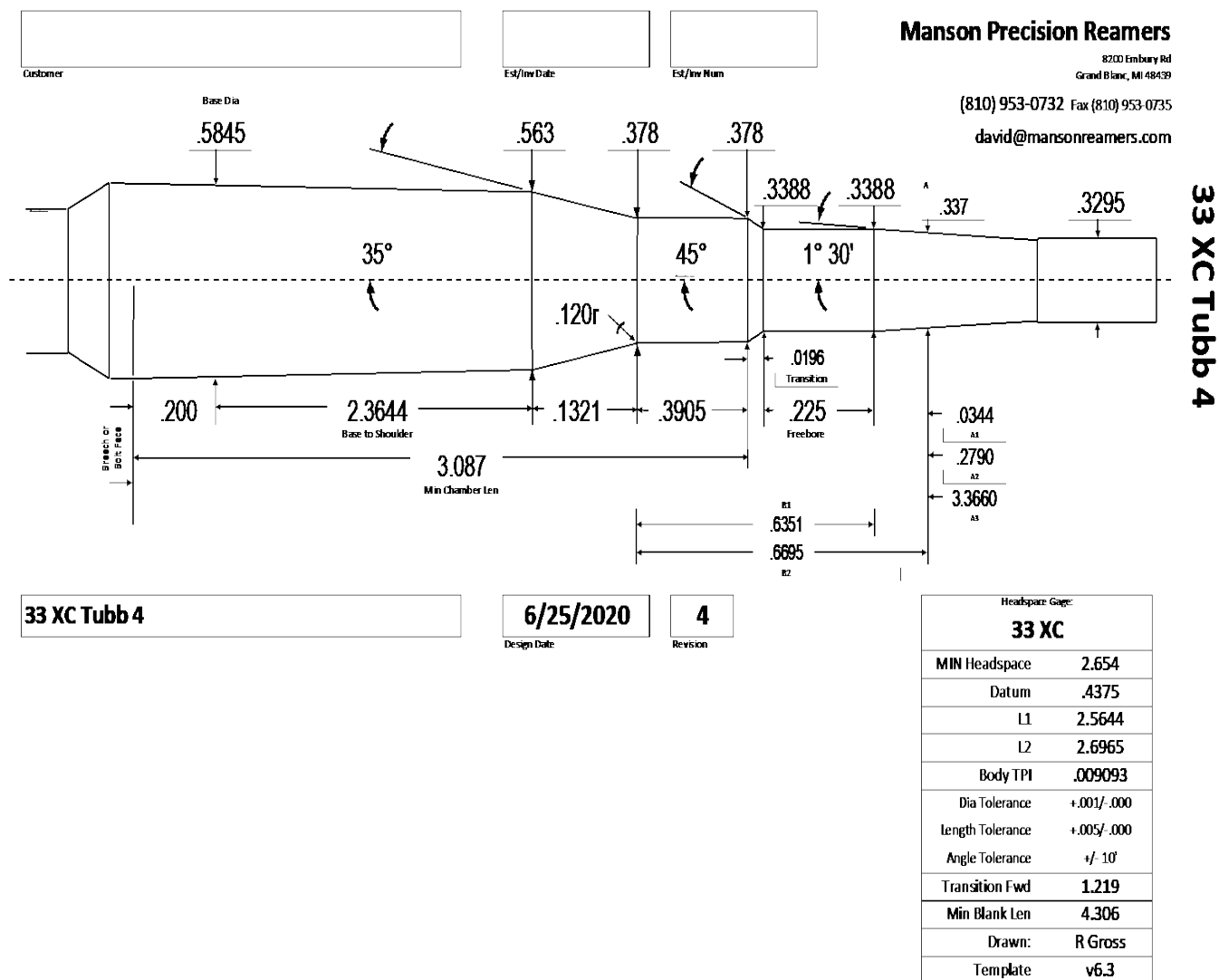
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Attached below is the most current reamer print for 33XC and 37XC, with .225 freebore for either turned solid bullets or leadcore/jacketed bullets and the current 41XC reamer print with a .250 freebore.

I have included reamer prints used in the past on the last pages. All the reamers use a 1 ½ degree lead.

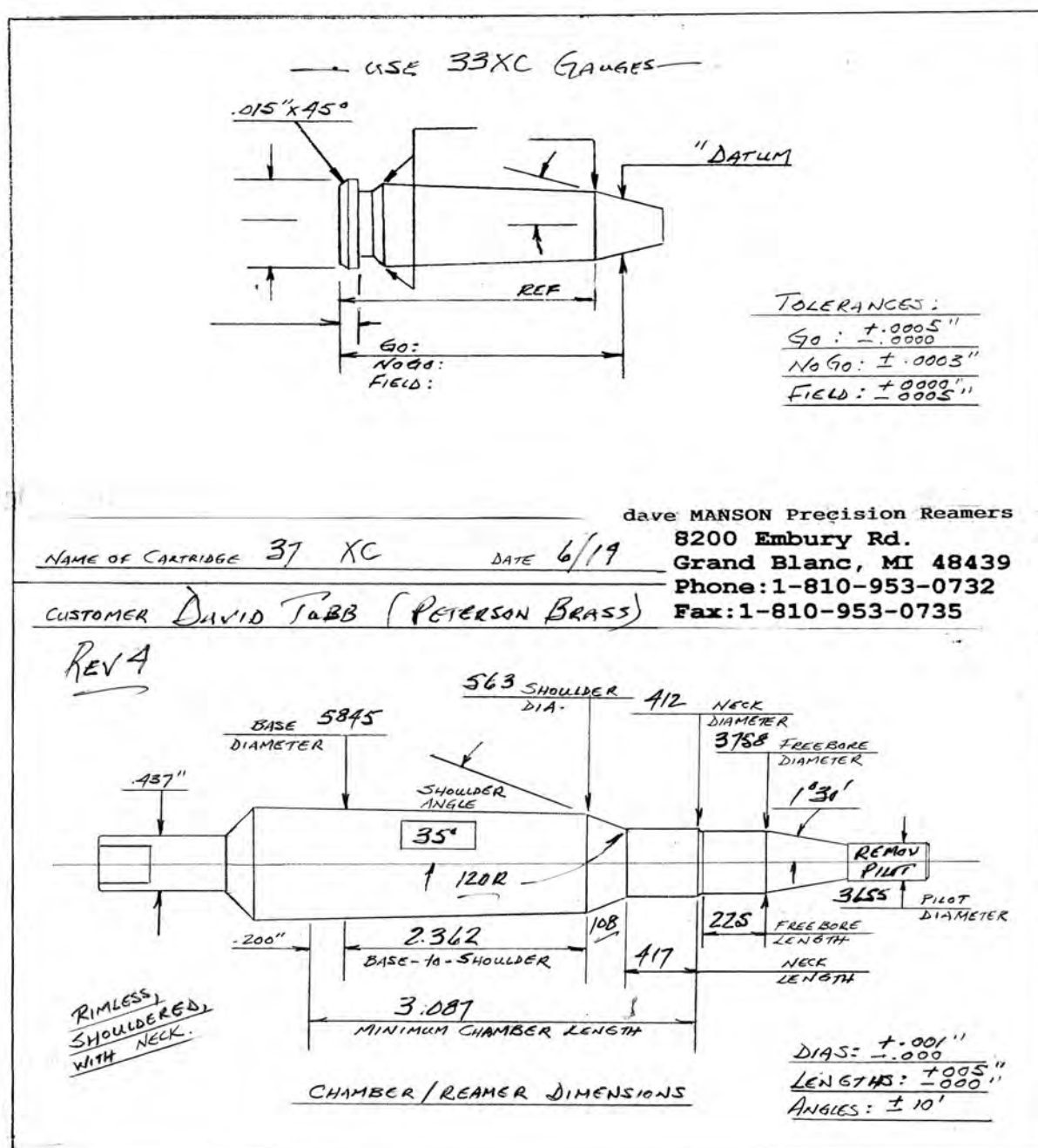
Newest reamer print recommended for 33XC shown below, dated June 2020.

33XC reamer print with .225 freebore shown below. This will accommodate both jacketed/leadcore bullets and turned solids bullets. The .225 freebore, in my opinion, aligns either type of bullet better into your barrel and provides even better accuracy.



Newest reamer print recommended for 37XC shown below.

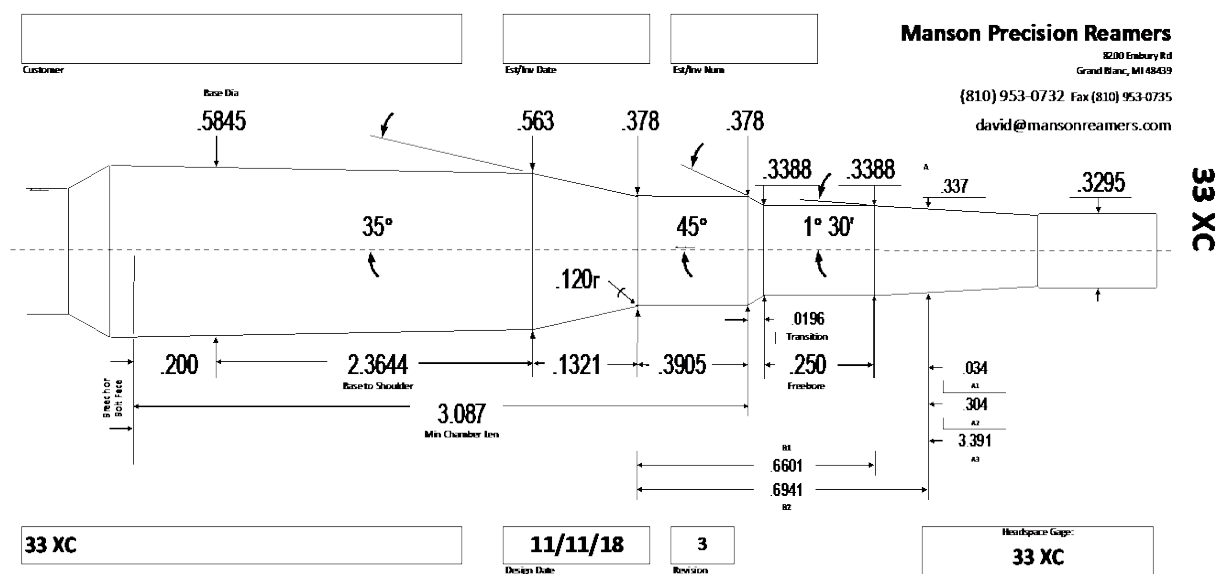
37XC reamer print with .225 freebore attached below. This will accommodate both jacketed/leadcore bullets and turned solid bullets. The .225 freebore, in my opinion, aligns either type of bullet better into your barrel and provides even better accuracy.



***The following pages have older reamer prints that were used in the past.

Old reamer print for 33XC.

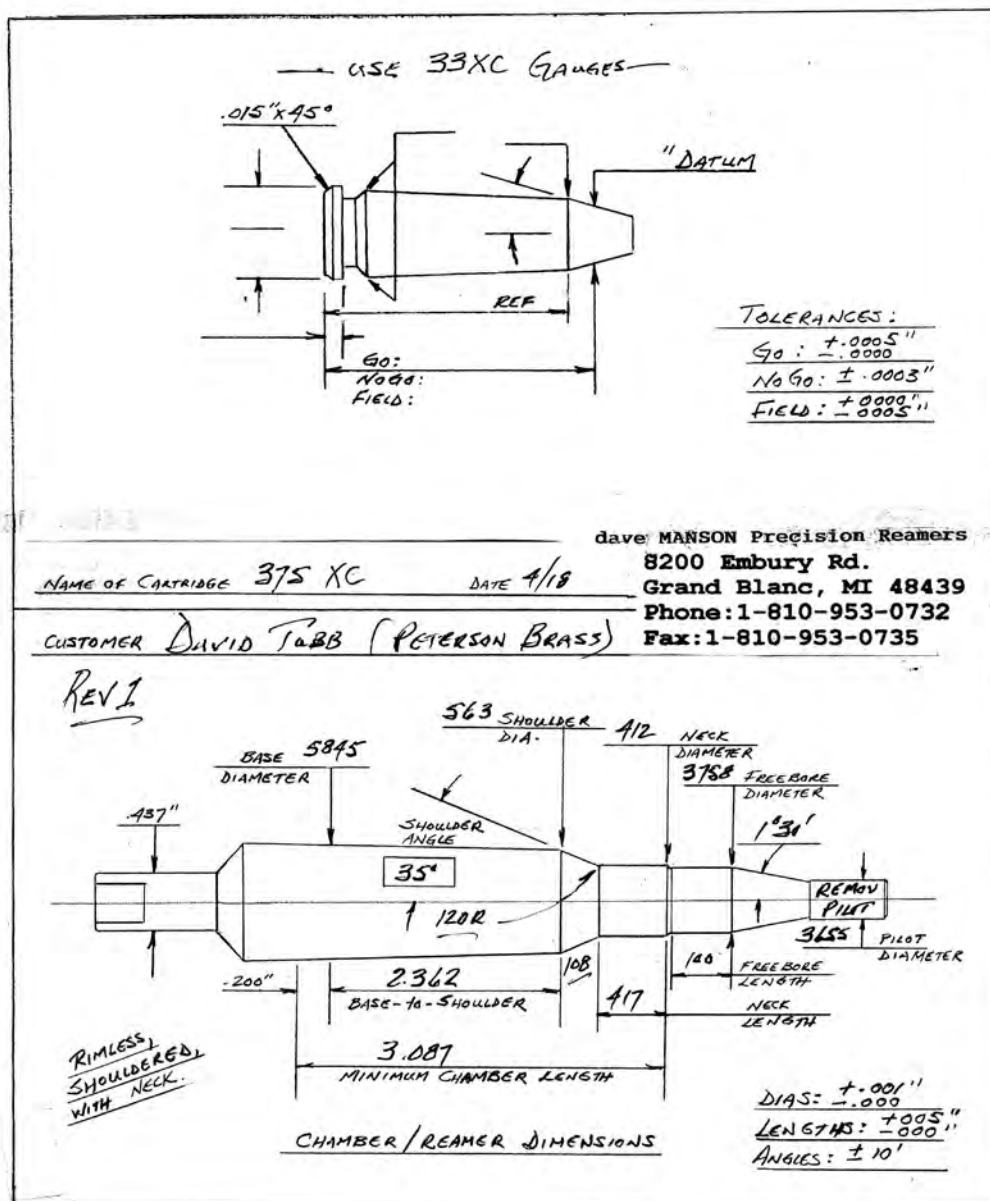
This is attached just for reference. This is prior reamer print for 33XC indicating .100 freebore for turned solid bullets and .250 freebore for jacketed/leadcore bullets. These freebore dimensions will still work, but as of June 2020 I am recommending customers use a .225 freebore for both turned solid and jacketed/leadcore bullets for 33XC.



David Tubb Recommendations: 1-freebore: .250 for jacketed lead core, .100 for brass or copper solids.
 2- Peterson Brass.

Old reamer print for 37XC.

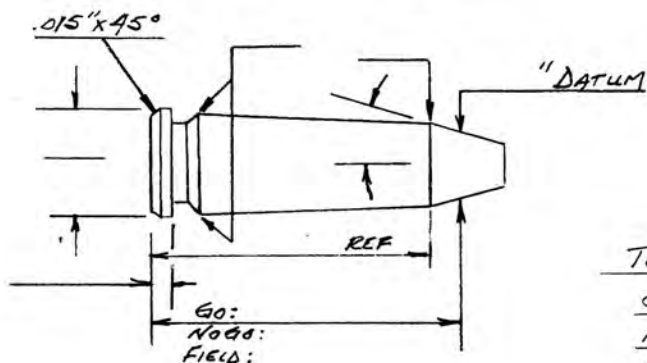
This is attached just for reference. This is prior reamer print for 37XC indicating .100 freebore for turned solid bullets. These freebore dimensions will still work, but as of June 2020 I am recommending customers use a .225 freebore for both turned solid and jacketed/leadcore bullets for 37XC.



Old reamer print for 37XC.

This is attached just for reference. This is prior reamer print for 37XC indicating .250 freebore for leadcore/jacketed bullets. These freebore dimensions will still work, but as of June 2020 I am recommending customers use a .225 freebore for both turned solid and jacketed/leadcore bullets for 37XC.

— USE 33XC GAUGES —



TOLERANCES:

Go: $+0.0005$ "

No Go: -0.0000 "

No Go: ± 0.0003 "

Field: $+0.0000$ "

Field: -0.0005 "

dave MANSON Precision Reamers

8200 Embury Rd.

Grand Blanc, MI 48439

Phone: 1-810-953-0732

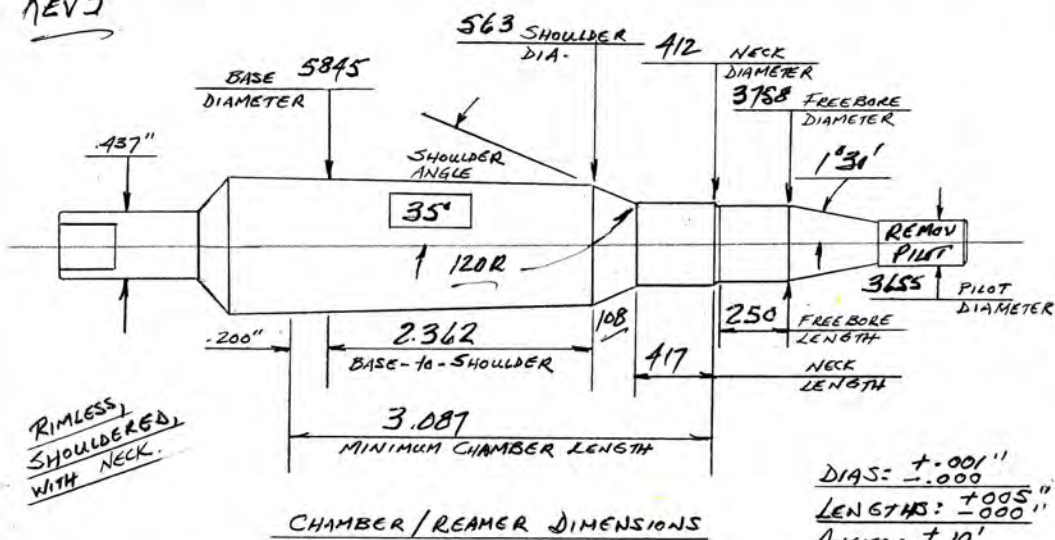
Fax: 1-810-953-0735

NAME OF CARTRIDGE 37 XC

DATE 4/18

CUSTOMER DAVID TABB (PETERSON BRASS)

REV3



37 XC - TABB