

Fitting a fore-end correctly

By: Peter Laidler

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FITTING A NEW FORE-END

First of all, you'll have to forgive me but this article won't even start to reflect the time it takes to truly train someone to fit up a fore-end. But starting at the word go, I should say that there's nothing to be afraid of with wood. It's VERY forgiving and if you make a cock-up, then you can always cut out or back, glue, patch, peg and start again.

Here's rule number 1 with the fore-end. The most important part of the fore-end is the front trigger guard screw. I'll be referring to it as that and not the king screw. Somebody told me that it was that Australians who gave it that name but it must have been after 1970 because while I was there, it was always the screw, front trigger guard. Incidentally, and I'm waffling on a bit here, but does anyone know just WHY the Commonwealth armies designate their parts in arse-about-face order, such as PIN, retaining, pin, axis backsight' or SCREW, guard, trigger, front?

First, we ask what it is? Answer, A pin

Second, what sort of pin? A retaining pin

Third, what does it retain? An axis pin

Fourthly, an axis pin for what? An axis pin for a backsight

The same applies to our SCREW, Guard, trigger front. Simple isn't it?

I'd like you to have on your bench, the bare body and barrel of the rifle, upside down, and most importantly, without the foresight protectors. Now, if you're handy, you'll have a block of wood across the bench on which straddles the charger guide bridge. Because if you don't, you're going to bend the backsight adjusting knob and the battle sight means you won't hold the rifle still. Or better still, just take the sight off.

Take the new fore-end and holding it with the muzzle end against the foresight block band rotate the fore-end back and down onto the body against the front edge of the butt socket and hopefully, this is where it will stop and sit proud because the 'draws' will be proud and interfere with the fit. The DRAWS are the two shoulders at the REAR of the blocks in which the magazine catch and sear are pinned. FIND and identify those two important features and notice that they are angled backwards and the faces are almost, but not quite, parallel with the inside face of the butt socket. Almost parallel I said, but really, the

angle decreases. These 'draws' are also known among Armourers as the 'SEAR LUGS'.

Mark these draws with a dab of engineers blue and as you rotate the fore-end down, CAREFULLY, and with a sharp wood chisel, slice a gnats knacker off the surface (that's an Armourers technical phrase for a few thousandths of an inch or the slightest sliver) at a time until the fore-end is starting to be pulled to the rear by the action of the draws pulling it and it being tightened against the butt socket. This is probably the most crucial part of the whole operation. When you tap it down under hand slapping pressure, you'll feel the fore-end starting to tighten up and you might be tempted to loosen it by lifting it away at the muzzle.

DO NOT DO THIS. Repeat after me again - DO NOT LIFT THE FORE-END AWAY AT THE MUZZLE. Not now, not tomorrow, not EVER. It is only EVER tapped free downwards, at the rear, by finger pressure or tapping it downwards and free with a wooden drift against the top left and right edges of the fore-end. Thus, releasing it from the grip of the draws and the butt socket. This should tell you something. If your fore-end can be rotated free by lifting it away at the muzzle, then it's well and truly shagged. That's another REME technical term this time, meaning '....somewhat worn out!'

Now for the muzzle. This is where fact differs from fancy. Of all the new fangled methods of fitting fore-ends, with mastic this or rubber mounted that spring loaded wotsits or what-fer-ma-flik thingies that some have tried, some who really ought to know better incidentally, none of these methods has EVER been proved to out shoot a properly set up No4. And, to prove the point, not one other method ever got past the first trial when it came to out shooting the No4T. Yes, the muzzle, When you've got the back end fitted perfectly, this is what the good EMER says about the muzzle

'The barrel must be absolutely clear for its whole length except for that described for the reinforce (we'll come to that bit in a few moments). At the muzzle, it should bear for the full length (that's about 2" or so) along the raised muzzle seating of the fore-end, for approx .3" of its radial width. Apart from this bearing, the barrel will be clear of the fore-end all around for a minimum of .020" and free of all other influence. The weight required to lift the barrel from this muzzle seating should be between 3 and 7 lbs. If the weight is below this, the barrel bearing at the reinforce should be lowered. Notice that! The front trigger guard screw is the pivot when fitting fore-ends. If the weight is above this, then the body and reinforce seating will be raised.

Well, we've done the rear end, we've done the muzzle and we've talked about lowering or raising the body and reinforce bearings, but where are they?

By now, you should have the fore-end sitting down on the body and a nice tight snug fit. There must not be ANY PLAY of the fore-end between the butt socket and the draws. That's got that bit out of the way. You have also got the fore-end sitting down and bearing evenly at the muzzle. Now it's time to smear a smidgin (an engineering phrase now, indicating just a tiny bit) of engineers blue onto the underside of the front of the body, where it houses the front trigger guard screw spigot and extend the blue backwards along the thin walls of the magazine housing for a distance of not less than 1.9" from the front of the body. This blued surface MUST '....bear evenly throughout its surface and at the same time, the fore-end must be clear of either side of the barrel socket of the body'. That is to say, the fore-end must only touch the front face of the butt socket, the draws and the front of the body extending for 1.9" rearwards, equally on both sides.

But before you get this bearing surface in the body you'll find that the reinforce of the barrel is starting to bear. Remember how we very carefully chiseled of a gnats knacker or a sliver at a time from the draws? This is what you have to do with the wood at the underside of the barrel reinforce. Just a sliver away at a time being patient all the time until, and I'll quote 'There must be a good bearing at the reinforce, extending for its full length and not less than a third of its radial width (we say that, that equates to just a smidgin over 1/2" radially ...). It is important that this bearing is in the centre of the reinforce seating of the fore-end. The sides must be entirely clear of the barrel.

Some fore-ends have been found to be too low at the reinforce bearing and there's no way of checking these before you start! Many came to light during the L42 programme and, I'm going off the subject, but just remember the 'plate, reinforce' saga! If yours is low, then the only answer is to chisel it out and insert a hardwood insert..... or start again or just commit suicide..... The same applies to warped fore-ends I'm afraid and while I've come across a few, they were inevitably scrap

From all of this, your fore-end is perfectly fitted. The handguards must have no bearing on the barrel whatsoever. That is to say, a good .020" clearance all round.

Now it's time to fit the trigger guard and Screw, rear, tie, fore-end if you have a Mk1/2 or 1/3. There's a good chance that the rear of the trigger guard will foul due to the height of the new wood. If that's the case, then simply scrape away the wood inside its seating to allow it to seat correctly all the way to the front. The trigger guard should not

spring at the rear or front....., NO it shouldn't! If it was meant to, it'd be made of spring steel! Now for a little tip. The COLLAR. You MUST have a collar and spring washer. This is what WE used to do. Put the front trigger guard screw into the trigger guard and body WITHOUT the washer or collar. Reverse it (that's anti-clockwise) until you hear it click over the start thread and tighten it BUT COUNT THE TURNS UNTIL IT TIGHTENS AND LOCKS. Say, that it's 7 ¼ turns to lock. Now do this with the collar fitted if it's now, say 8 ½ turns, shorten the collar, a smidgin at a time, until the screw tightens up at exactly 7 ¼ turns. That way, you KNOW that the screw is tight, the fore-end is tight between the trigger guard and the screw and you are not crushing the living daylight's out of the fore-end. And if it feels a little loose in a year's time, then you can safely turn a few thou off the collar.

Now there's a slight relaxation to this rule. If, after a day's shooting, a gap between the rear of the fore-end and face of the butt socket opens up, up to .010", then this is acceptable providing that there's no noticeable play fore and aft (there won't be if you've adjusted the collar correctly ...) and the correct bearings at the reinforce, draws, magazine well sides and muzzle are intact.

But here's a last test. Once the fore-end is fitted and clamped up. Get the rifle in the right hand, butt on the floor and with the thumb, press the muzzle up. Is it free? Does it return naturally and centrally? Now do the same left and right. Does it return to the centre naturally? It should. Is it really free of all influence of the handguards? It MUST be. Here's a little test we used to use. We'd get a piece of thin cloth such as a ribbon, about ½" wide and 6" long and tie a weight, something like a small spanner to it. Then slide an inch or so of the other end between the fore-end and the barrel at the muzzle. After a couple of shots the cloth will fall out proving that the barrel does indeed whip as it vibrates, lifts and allows the weight to fall free

There, that's very basically, it. Incidentally, this is also the correct method of fitting up the No5 fore-end too except that the barrel is fully floating at the muzzle. I have often wondered to myself whether it'd tighten the No5 accuracy group up if it did have a 3 to 7lb muzzle bearing. Why doesn't someone try and let us know the results.

Questions about fitting foreends

By: Peter Laidler

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First, we need to know what rifle you're talking about. Is it a No4 Mk1 variant with a tie plate or is it a No1 with a plate that locks the stock bolt. You mention both variants in the same sentence
I'm talking about the No1 here.....

All UK Military No1 rifle stock bolts still in service after about 1948/49 (should have) had the squared-off portion ground off to No4 rifle length and a double coil THACKRAY washer fitted, as per the No4 rifle. This is presumably what has been done to your rifle in the past that shows that it was an ex UK Military DP.

You could leave the locking plate in place. Or you COULD remove the locking plate, roughen and enlarge the recess and glue in a suitably shaped piece of wood such as hard wearing oak with the grain going across-ways, left to right instead of the usual front to rear.

If you leave this bit of wood a bit proud, you will be able to accurately file it down in order to eliminate end float in the newly fitted fore-end. It's not the BEST way. The best way would be to fit new drawers into the fore-end. There's question 1 answered

The stock bolt must be at least ONE COMPLETE SCREW THREAD below the inner face of the butt socket. If not, then DO NOT bodge by fitting another thackray washer, but either fit another flat washer below the bolt head or grind off a suitable amount of the thread. The bolts are very hard, so grinding will be the order of the day. There, that's Q2 answered.

We still had thousands of No1 rifled in Cadet service in the 60's and 70's but after that they were whittled right down. All(?) were modified by fitting No4 stock bolts or grinding the square portion off and plugging the plate hole in the rear of the fore-end.

I have spoken to Sgt Roger xxxxxxxx previously about this. He was the senior examiner at one of our big Base Workshops and if the fore-end was split at the rear, usually top to bottom across the weak middle part, due to pressure on the stock bolt, then PROVIDING NO WOOD WAS MISSING, he would authorise the split to be opened up, filled with aircraft spec wood glue and then the brass tie rod be drifted out (very simple. Get it started with a drift and pull with pliers OR heat with blow lamp and let it scorch its way out while you pull) The hole is drilled and a No4 Mk2 SCREW and NUT, tie, fore-end be inserted. There was no authority for this part of the operation but it saved scrapping a rifle for the want of a fore-end There, that another problem

solved and another useless bit of the secrets of the Armourers passed on

Re: Fitting handguards

By: Peter Laidler

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We just made sure that the handguards 'fitted' The minimum wood that can be removed the better of course. Quite often the rear 'RING, retaining, rear hand guard' was tight so it meant taking wood from the bottom of the handguard and NOT from around the bit where the ring fitted. Taking just a bit too much wood from the retaining ring area would cause it to collapse.

The most important bit about fitting handguards was to make sure that they didn't touch the barrel at all.

Front handguard. Although it wasn't sanctioned at all, or if it was, I never saw it mentioned, we would punch the front and rear in the middle of the BAND, upper (the top band) inwards so that the punched-in bits would sit INTO the recess of the 'CAP, guard, hand front'.

This way, the band was held fore and aft by the two 'PINS, cap' and being held there firmly, the two punched-in marks prevented the top handguard moving forward under recoil. If it did move forward under recoil and remained unnoticed (bad news on a 'T') it would touch the rear of the foresight block band and play havoc with the harmonics of the barrel resulting in piss-poor accuracy and hard to detect. We always did it with the No4T's

Incidentally, remember when looking at the two PINS, cap, that each has a flat at each end and these flats should face inwards, towards each other and the BAND, upper sits between these flats. It is these flats that hold/seat the band correctly and in turn, the band prevents the pins from coming out, although they'll probably be a bit tight anyway.

The recess in the top of the CAP, guard, hand front, into which the punched-in bits sit is a reminder of the rifles old Mk6 and trials ancestry where this recess housed the actual hinge of the original band.

Oh, yes, I nearly forgot. You can use the PIN, cap, forend as trigger, sear and mag catch (Mk1* and 1/3) axis pins too. You could use the PIN axis backsight too if you needed to. We would often shorten these pins to use as trigger/ sear/mag catch pins.

There, yet MORE useless No4 info from the Armourers shop