

VINCE & HYDE Racing



Installation Instructions

for:

**V &H Racing Curved Guide &
AHM Cam Chain Tensioner**

**All DOHC Honda
CB750s, CB900s and
CB1100s**

Models C, F and R

Introduction.

Thank you for your purchase of the Vince & Hyde Racing Curved Guide and AHM Cam Chain Tensioner parts for the DOHC Honda CB750, CB900 and CB1100 Models C, F and R.

These are high quality custom parts carefully developed during many years of testing and competition use and are proudly made in New Zealand. These parts correct the design flaws in the OEM parts provided by Honda Motor Co.

It is your responsibility to ensure they are installed correctly as per the procedures below and the cam chain tension is checked and adjusted as per these procedures on a regular basis.

When installed correctly, you can be confident of having many years of trouble free running of your cam chains and tensioning mechanisms.

OK, So What's in my Kit?

1x Vince & Hyde Racing Curved Guide that goes in the FRONT of the 'A' cam chain.



1x Vince & Hyde Racing AHM Cam Chain Tensioner that goes to the rear of the 'A' cam chain



1x long Vince & Hyde Racing AHM Cam Chain Tensioner Bolt and flanged jam (or lock) nut, 8 mm x 1.25 mm pitch.

It goes into the TOP hole at the rear of the cylinder barrels between cylinders 2 and 3.

1x Short 8mm x 1.25 mm bolt to be used as a blanking plug. It goes into the lower hole at the rear of the cylinder barrels between cylinders 2 and 3.



Before Beginning Assembly.

On the centre rear of the cylinder barrels between cylinders 2 and 3 are two holes.

The TOP hole must have a thread tapped all the way in using an 8 mm x 1.25 mm pitch tap as shown in the picture. The thread must be continuous all the way through to the interior.

The BOTTOM hole must also have a thread tapped in to a depth of approximately 20 mm. This will allow the head of the bolt to snug up to the surface of the cylinder barrels forming an oil tight seal.



NOTE: For the TOP hole, use a small shank 8 mm x 1.25 mm tap. This will allow the tap to pass all the way through the TOP hole into the cavity in the centre of the cylinder barrels.

If a small shank tap is not available, then use a large shank tap but grind the shank down (see next image) so it will fit into the hole and the shank does not 'bottom out' on outside of the barrels as you tap the thread.

IMPORTANT! Be sure to remove all swarf from the threads and clean thoroughly. Test it by screwing the bolts in and out by hand a few times to ensure a smooth unrestricted thread.

When finished, remove the bolts and put them back in the baggie and put it aside.

In this image, the left hand one is a large shank tap and the right hand one has had the shank ground away to enable it to be threaded all the way in to the hole.



NOTE: While it is possible to tap the threads into the holes when the cylinder barrels are installed on the engine, this is not recommended. It is simply not good practice as the risk of swarf and aluminium metal particles being dropped into the crankcase is greatly increased. A generous smear of grease on the thread tap will help capture any metal that is removed during the thread tapping procedure.

Installation of the Vince & Hyde Racing Curved Guide.

The Vince & Hyde Racing Curved Guide can only be installed once the cylinder barrels and pistons are installed on the engine. The Vince & Hyde Racing Curved Guide is fitted in exactly the same manner and position as the OEM part it replaces.

While holding the Vince & Hyde Racing Curved Guide in your right hand, standing in front of the engine, with your left hand lift the A cam chain up as far as it will go to keep it clear.

Now with your right hand slide the Vince & Hyde Racing Curved Guide with the tongue end pointing down all the way down into the cam chain tunnel. Position the tongue at the bottom and slide it into the cast receiving lug in the crankcase.



The metal locating pin on the top rear of the Vince & Hyde Racing Curved Guide will now be resting in front of and just above the recess in the cylinder barrel as shown in the image.

With the tongue engaged in the correct place in the lower crankcase, move the Vince & Hyde Racing Curved Guide into position so the top pin is above the recess.

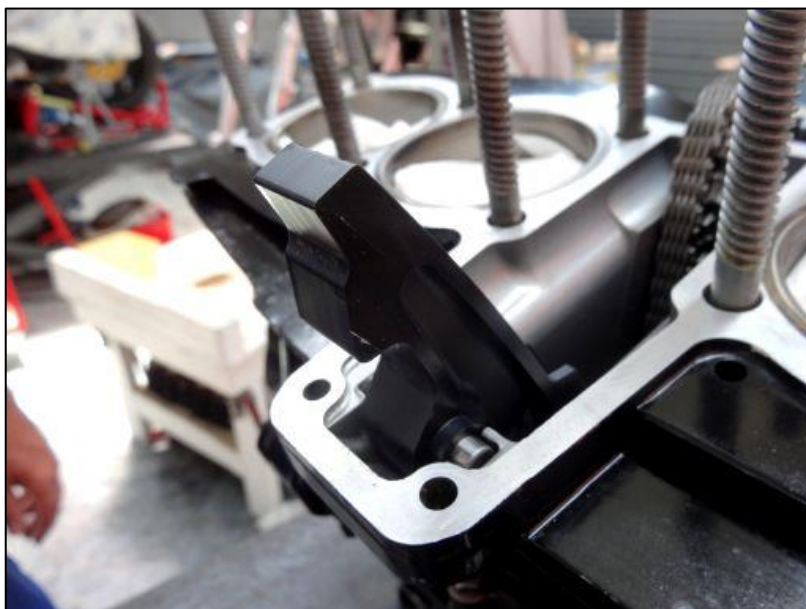
Tap the Vince & Hyde Racing Curved Guide gently into position.



If you do this right, it will snug down with a nice solid 'click' into it's final position as shown in the picture.

Installation of the Vince & Hyde Racing Curved Guide is now complete.

You can now proceed with installation of the cylinder head and exhaust camshaft as outlined in the the Factory Workshop Manual procedures.



Installation of the Exhaust Camshaft.

This step can only be completed once the cylinder head has been installed onto the engine.

Installation of the cam chains, the cam sprocket and the camshafts are all exactly as per the Honda OEM Factory Workshop manual which broadly states the following procedure.

IMPORTANT NOTE: BEFORE starting this process, carefully rotate the crankshaft counter clockwise until the "1,4T" and index marks align.

Install the B (short) cam chain over the smaller sprocket on Exhaust camshaft sprocket and drape it over the front of the cylinder head. The smaller sprocket and B cam chain has to be on the RIGHT hand side of the engine, closest to cylinder no. 3.

Rotate the sprocket until the two punch marks on the LEFT hand side of the sprocket align with the top edge of the cylinder head.

Lift up the A cam chain up and install it loosely onto the empty teeth on the LEFT side of the sprocket. This will ensure the A cam chain does not drop into the bottom of the motor during cam shaft installation.

Check the punch marks still line up. If not, 'walk' the A chain around the sprocket until it does.

IMPORTANT NOTE: Do NOT rotate the crankshaft during this process.

With the worm drive for the tachometer on the exhaust camshaft on the LEFT hand side of the engine (on cylinders 1 & 2 side), working from left to right, carefully move the exhaust camshaft through the centre hole of the cam sprocket (now with the two chains on) until it is in the correct position for installation of the first of the two camshaft sprocket retaining bolts.

IMPORTANT! Rotate the exhaust camshaft until the cam lobes for No. 1 cylinder are FACING THE SPARK PLUG.

Install the A and E camshaft holders loosely with directional arrows pointing forward.

Slide the cam chain sprocket onto the shoulder of the camshaft and loosely install only ONE of the two 7 mm hardened cam shaft sprocket retaining bolts.

Loosely install the D camshaft holder so as to prevent the camshaft moving sideways.

Once the sprocket is fully home on the shoulder of the camshaft and one bolt is installed finger tight, rotate the crankshaft 360 degrees so the "1,4T" indicator lines up with the index mark (note the cam shaft will only rotate 180 degrees) and install the SECOND of the two 7 mm hardened cam shaft sprocket retaining bolts.

Tighten this second bolt to 18-20 N-m or 13-15 ft-lbs of torque.

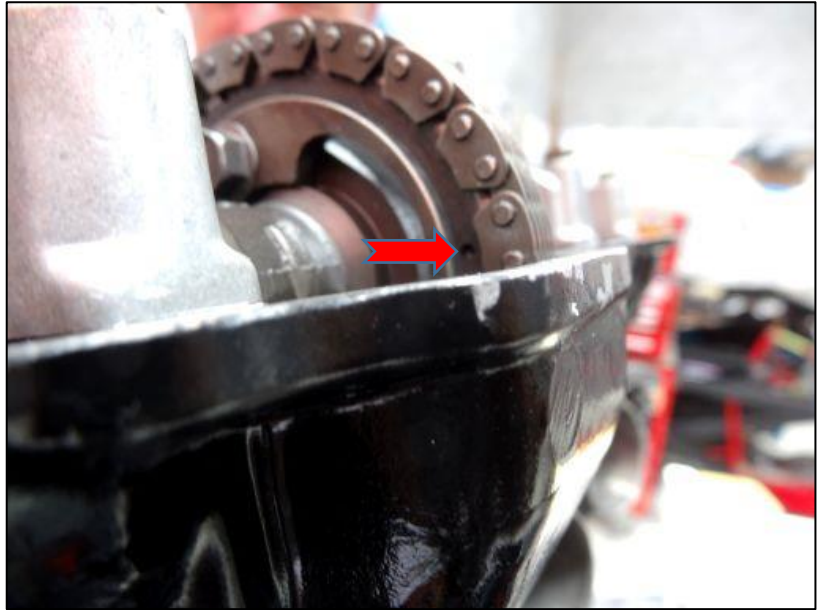
Now rotate the crankshaft another 360 degrees so the "1,4T" mark on the crankshaft is aligned once more.

Tighten the first cam shaft sprocket retaining bolt you installed to the above torque setting.



Once done, check that:

- a) the "1,4T" mark on the crankshaft is still aligned with the index mark ;and
- b) the two punch marks (180 degrees apart) on the camshaft sprocket are both correctly aligned with the top surface of the cylinder head; and
- c) the lobes on the camshaft for cylinder no. 1 are pointing towards the spark plug.



In the image above, you can see one of the two punch marks on the cam sprocket (just inside the chain link on the tip of the red arrow) is correctly aligned with the top of the cylinder head surface. If they are not aligned, redo the above steps until all three checks above are correct.

When you are happy all is in order as per the above steps, install the remaining exhaust camshaft holders and torque them down to no more than 10-12 N-m or 7-9 ft lbs.

You are now ready to install the Vince & Hyde Racing AHM Cam Chain Tensioner.

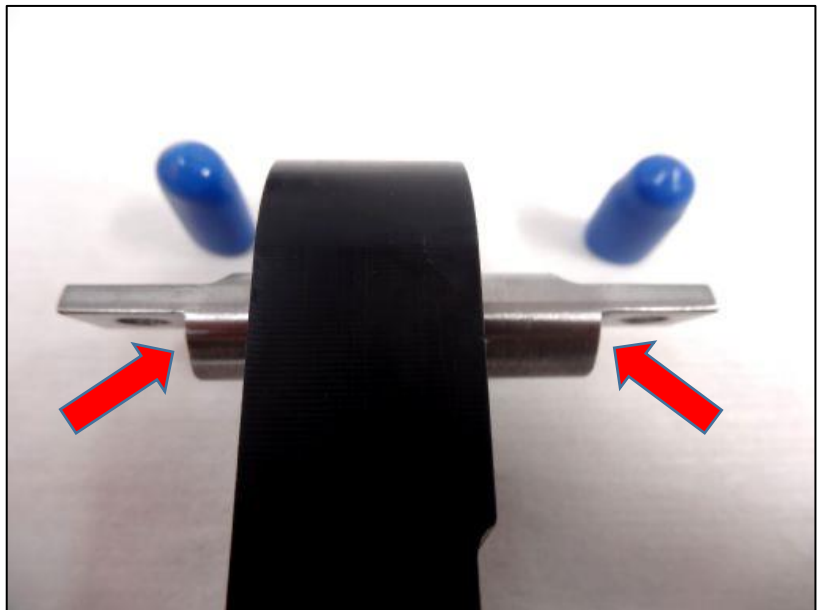
Installation of the Vince & Hyde Racing AHM Cam Chain Tensioner.

This step can only be completed once the cylinder head, exhaust camshaft and both the 'A' and 'B' chains have been installed onto the engine, but BEFORE installation of the inlet camshaft.

Take the Vince & Hyde Racing AHM Cam Chain Tensioner and remove the two blue plastic protective covers from the mounting lugs.

Orientate the cross bar pin so the deeper reliefs with the widest flat surface on each end of the cross bar pin (see arrows) are orientated towards the cylinder head surface as per the picture.

Check the metal cupped insert is still located in back of the Vince & Hyde Racing AHM Cam Chain Tensioner. The machined tip of the long adjust bolt supplied will push gently against this as the cam chain tension is adjusted.



Slide the Vince & Hyde Racing AHM Cam Chain Tensioner down into the cavity behind the 'A' cam chain, with the curved face facing towards the chain, as per the picture.



As you slide it down, lift up the B cam chain so it straddles the RIGHT hand end of the cross bar pin as shown.



Now lower the Vince & Hyde Racing AHM Cam Chain Tensioner down into the fully home position.



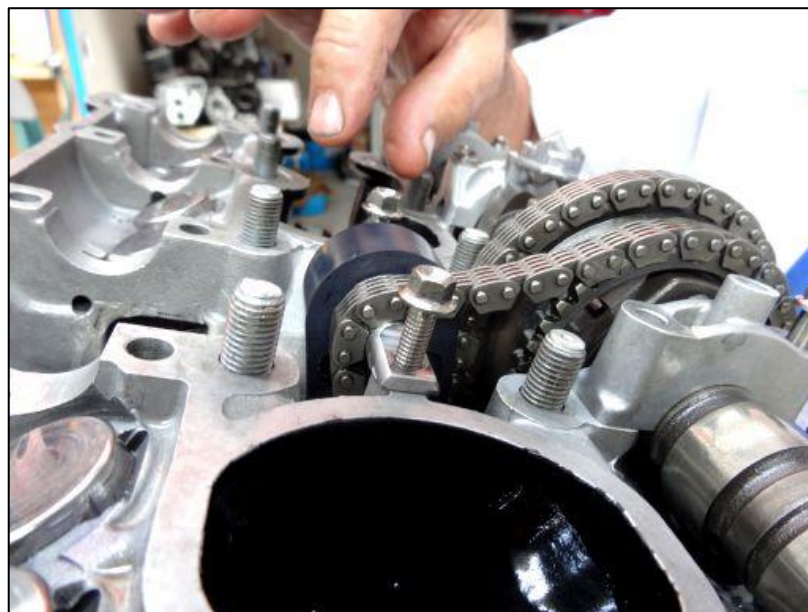
IMPORTANT: Be sure you have orientated the top cross bar so the widest of the two flats on the pin are facing **DOWN** and sitting on the top of the cylinder head surface as shown.

This is important so the Vince & Hyde Racing AHM Cam Chain Tensioner is positioned at the correct height.



Install the two OEM top retaining bolts on the Vince & Hyde Racing AHM Cam Chain Tensioner and torque them up to 12-16 Nm, 9-12 ft-lbs.

Note that one of these two bolts will be removed and reinstalled again when the 'B' cam chain top slipper blade is installed.



If desired, you can now proceed with installation of the **INLET** camshaft as per the OEM Factory Workshop Manual. Alternatively, you can do it after adjustment of the 'A' chain. When installing the inlet camshaft, take care that:

- a) the crankshaft is **NOT** rotated away from the "1.4T" position until both camshafts are correctly installed; and
- b) the cam lobes on Inlet cam are pointing in towards the spark plug; and (most importantly)
- c) the punch marks on both the inlet and exhaust cam sprockets line up with the top surface of the cylinder head.

When finished, install all remaining exhaust cam caps (being sure to check the arrows are pointing forward) and the two camshaft tensioner holding bolts. Adjust them to the correct torque setting.

Cam Holder Cap Torque Setting: 10 – 12 Nm, 7 - 9 ft-lbs

Cam Sprocket Retaining Bolt Torque Setting: 18 – 20 Nm, 13 – 15 ft-lbs.

Install the short blanking plug bolt into the bottom hole in the centre rear of the cylinder barrels.

It would be a good idea to put some thread sealer onto the threads and, even better, a copper sealing washer on the short bolt so as to prevent an oil leak.

The top hole will receive the long adjuster bolt in the next step.



Now take the long bolt and thread the lock nut with the flat underside surface of the locknut pointing AWAY from the head of the bolt.

Wind it all the way up the thread until it just rests on the underside of the head of the bolt as per the picture.

Generously lubricate the full threaded length of the bolt with grease or similar and wind it in. Remove any excess from the outside of the barrels with a shop rag.



NOTE: The length of the bolt exposed outside the cylinder barrels once the Vince & Hyde Racing AHM Cam Chain Tensioner is correctly installed, adjusted and locked in position is dependent on a number of factors including the amount of cam chain stretch, height of the cylinder barrels and amount the cylinder head has been decked.

In some cases, once installed the exposed bolt head and thread may be so long that it fouls on the bottom carburettor mounting bracket as they are installed.

In this case, the bolt will need to be shortened slightly. If so, be sure to try and emulate the machining relief on the tip of the bolt that pushes against the concave metal insert on the back of Vince & Hyde Racing AHM Cam Chain Tensioner.

If this relief is not done on the shortened bolt, the threads and the end of the bolt that push against the tensioner may become slightly deformed while in use and prevent easy removal in the future without damaging the newly cut threads in the cylinder barrels.

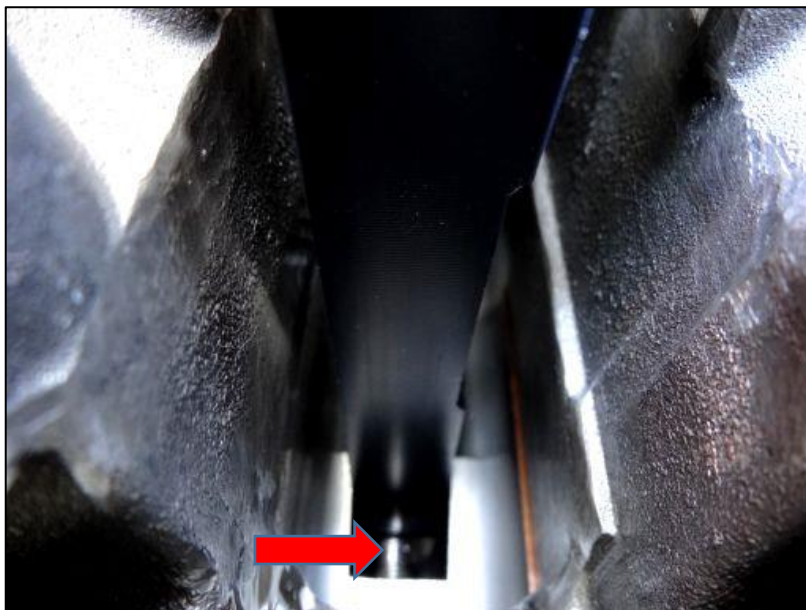
Adjusting the Tension of the 'A' Cam Chain.

To easily perform the next important steps, a helping hand can be useful.

To correctly adjust the cam chain, first have your helper hold some gentle forward rotational pressure on the crankshaft – not enough to actually move the crankshaft, but just enough to put all the free play or slack in the cam chain to the rear of the cam chain path and so there is no slack in the front of the 'A' chain.

Now set the cam chain tension by **gently** screwing the bolt all the way in through the top hole until all chain slack on the rear of the cam chain is only just removed and there is no free play on the front or rear of the chain.

In the image, you can see the tip of the bolt just touching the concave metal insert on the back of the tensioner (see arrow).



VERY IMPORTANT: At this point turn the bolt **ANTI-CLOCKWISE ONE FULL TURN** and lock the bolt in position with the flanged jam nut. The idea being for the bolt to be 'held' in position just touching the tensioner, but without putting too much forward pressure on it.

NOTE: This free play is *extremely* important for the initial and all ongoing adjustments. **ALWAYS** have one full turn of free play on the chain.

Failure to do this correctly can result in premature wear and shortened chain life.

Correctly adjusted and maintained, the life of the chain and Vince and Hyde Racing components will be greater than the OEM parts they replace.

Now do up the flanged jam nut to secure the bolt in that position as per the image.

Once the tensioner bolt is secure, it is a very good idea to mark one of the flats of the bolt head with a Sharpie permanent marking pen.

This will enable you to easily see how many turns it needs to be moved when you perform later adjustments.

Now go back to the top of the tensioner and re-check the two bolts that secure the cross bar on the top of the cam chain tensioner.

Do a final check that all the arrows on all the cam holders are pointing forwards and all cam holder bolts are snugged down to the correct torque.



If not already done prior to adjustment of the 'A' cam chain tension, you can now proceed with installation of the INLET camshaft and 'B' chain adjustment as per the factory manual, being sure that:

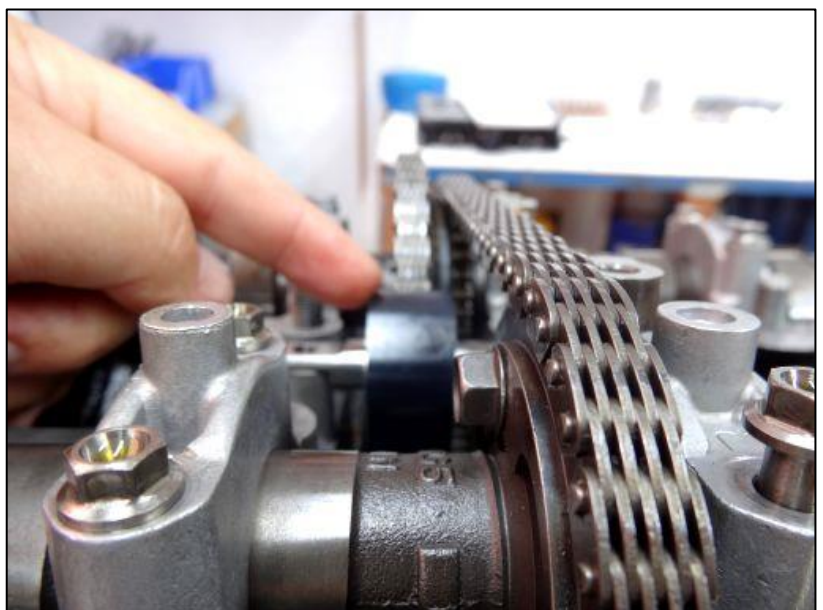
- a) before installing the camshaft, the "1,4T" mark on the crankshaft is aligned with the index mark; and
- b) the two punch marks on the cam sprocket are aligned with the top surface of the cylinder head once the camshaft is installed; and
- c) the lobes on the inlet camshaft are point towards the spark plug.

Modification and Installation of the 'B' Cam Chain Slipper Guide.

Due to the thickness of top the Vince & Hyde Racing AHM Cam Chain Tensioner, a minor adjustment is needed before installing the 'B' cam chain slipper guide.

The problem we need to solve is that the stock straight "leg" of the B chain slipper guide will foul on the top left edge of the Vince & Hyde Racing AHM Cam Chain Tensioner at the position being shown in this image.

This needs to be modified so the leg of the B cam chain slipper guide will adequately clear the top left hand edge of the Vince & Hyde Racing AHM Cam Chain Tensioner.

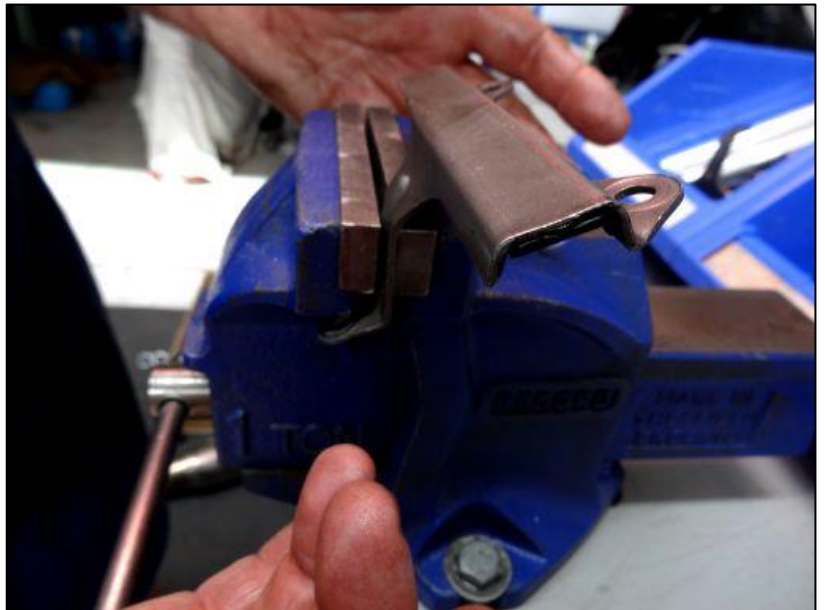


Here is a stock slipper blade with a “straight” leg before modification.



And here is one during modification process where a kink is being put in the straight leg of the slipper guide.

Be sure not to damage the rubber pad on the underside of the slipper guide when making this modification.



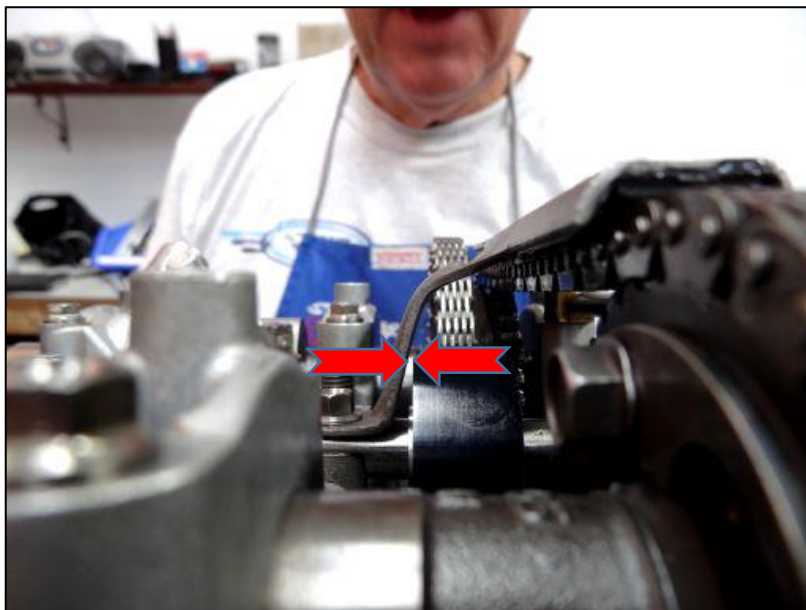
Now fully modified and ready for installation



The correctly modified slipper guide is now fully installed. Note the small but adequate clearance (see arrows) between the inner surface of the cam chain slipper blade 'leg' and the top LH edge of the Vince & Hyde Racing AHM Cam Chain Tensioner.

The goal is to have no less than 1 mm of clearance here.

By putting a small kink in the leg, the required clearance can be readily achieved.



Congratulations! Installation of your Vince & Hyde Racing Curved Guide and AHM Cam Chain Tensioner is now complete.

Warranty and Disclaimer.

The Vince and Hyde Racing Curved Guide and AHM Cam Chain Tensioner parts for the DOHC Honda CB750 through to CB1100 Models C, F and R are high quality custom parts proudly designed and made in New Zealand.

They have been carefully developed during many years of testing and competition use.

Your Vince and Hyde Racing parts come with an unconditional 12 month replacement warranty from the time of your purchase.

It is your responsibility to ensure they are installed correctly and the cam chain tension is checked and adjusted as outlined in these procedures on a regular basis.

By purchasing and installing these parts, you hereby agree to release Vince & Hyde Racing from any claims whatsoever against them for any damages, loss of income or personal injury to any person or persons however caused.