



# Tuning The Clake & Cam Selection

## A Guide For Clake One, Two & Prolever Models

The CLAKE comes supplied with cams to suit the bike that it was ordered for, however you may wish tune it to suit your particular riding style or preferences. The CLAKE's three functions Brake, Clutch and Clutch Assist are controlled by changeable profiled cams.



Once you are used to the procedure these cams can be changed in a matter of a few minutes with only one Allen Key. Cams may be purchased for \$20 AUD (+ GST within Australia) each.

It is vital that you ensure that the unit is correctly bled before attempting to change the cams. The cam on the right is a brake cam marked 4C1, all brake cams are marked in this fashion i.e. a number followed by a letter followed by a number. They can also be distinguished from the other cams by having a 13mm hole as opposed to a 12mm hole as used for both the Clutch (centre) and Clutch assist (left) cams. Clutch cams (centre) are marked with a number followed by a letter, in the example shown 4a. Clutch assist cams are marked with a one or two letters followed by a space a number then a space and then another number. All of the cam are attached by means of a single 4mm dia countersunk screw that requires a 2.5 mm Allen Key.

Please note: Loctite (low strength thread lock) **MUST** be applied to each screw when installing to ensure that these screws do not work loose. When installing cams it is imperative that you ensure that the can is properly seated before tightening the retaining screw.

## Removing The Lever

- 1. For Clake Two, remove the shear pin first using an allen key, this is not necessary for the Clake Prolever.*
- 2. Fold the lever outwards (For the Prolever you should feel 2 distinct clicks) this will also push off the plastic top cover that holds the central pivot pin. You can leave the cover attached to the end cover/slave housing.*
- 3. Push the central pivot pin out from underneath.*
- 4. Remove the lever set, Pull black brake arm and brown shim out of lever taking careful note of their position and the orientation of the shim (.5mm step fits into brake arm)*

The top cam mounted on the black brake arm is the Brake cam. The next down is the Clutch cam, and the bottom is the Clutch Assist cam.



## Cam Identification Markings

### Brake Cams

The first number refers to the point at which the brake actuation occurs within the levers travel. This represents the point at which the brake piston is started to be moved during the CLAKE's operating levers travel towards the handlebars. This is graduated from 1 to 4 with 4 being the earliest start and 1 being the latest. Each no represents a 2 degree shift in brake actuation commencement. There is also an optional brake arm that advances the brake actuation by 3 degrees that is distinguished by #3 engraved on it. The centre letter denotes the initial take up. The 3 degree advance arm is not usually supplied or necessary except for possible use with auto clutch applications, supermotard racing or to obtain very fine adjustment.

Cam First Number	1xx	2xx	1xx	3xx	2xx	4xx	3xx	4xx
Brake Arm	Std	Std	3	Std	3	Std	3	3
Relative Brake Actuation Advance	0	2 Deg	3 Deg	4 Deg	5 Deg	6 Deg	7 Deg	9 Deg

There are 4 starts available A,B,C,D. A representing the slowest start and D being the quickest or most aggressive. The last number represents the overall lift of the cam from 1 to 8, with 1 representing the lowest lift and 8 the highest. For example the brake cam shown in the top picture is a 4C1 4 = Early start for brake actuation. C= 3rd Most aggressive start. 1=Lowest overall lift. In practice this set up would mean the brake would start early in the levers travel. It would come on sharply. It would have lots of leverage but the lever may come a long way into the bars. If you found that the brake action felt good but the brake was coming on too early then a 3C1 could be tried. If you found that the brake was being actuated in the right position but application was too sharp then a 4B1 or a 4A1 could be used. If you wanted the Lever to be firmer then a 4C2 should be used.

## Clutch Cams

The Clutch cams are numbered from 1 to 8 with 1 offering the lowest lift and 8 the highest i.e. the greatest lift. The Clutch cam locates the lever in it's at rest position, there are two lever positions available A is STD and B is for people with small hands. This letter is also used to indicate a half way lift.

Standard Hand Size	1a	1A	2a	2A	3a	3A	4a	4A	5a	5A	6a	6A	7a	7A	8a	8A
Small Hand Size	1b	1B	2b	2B	3b	3B	4b	4B	5b	5B	6b	6B	7b	7B	8b	8B
	Lowest Lift ----- Highest Lift															

## Clutch Assist Cams

The CLAKE employs a system known as CLUTCH assist to reduce the force required to operate the CLAKE. It does this by releasing stored energy from a spring in order to balance out a large proportion of the force required to actuate the clutch.

CLUTCH assist cams have a number followed by another number followed by a letter. The first letter refers to the relative point at which the assistance starts with 0 being the earliest and 4 the latest. The second number refers to the amount of assistance ranging from 1 offering the least assistance to 6 giving the most assistance. The letter should be matched to the clutch cam letter ie if you are using a "B" or "b" clutch cam then you should use a clutch assist cam that ends with a "B".

### Example 13A

1 = relatively early start to assistance (the use of "0" start is extremely rare)

3 = medium amount of assistance (2,3,4 is the most common level of assistance)

A = For use with "A" or "a" marked clutch cams, ie for medium to large hand size. There are also a limited range of cams available with an X prefix before the A or B as shown in the picture above. These cams with the X marking feature different profiling suited to clutch systems that have a high friction component to their actuation, they may also be employed to "sharpen" clutch actuation.

## Clutch Assist Preload

The CLAKE clutch assist spring preload can be altered by means of the removal or addition of shims located between the clutch assist spring and the clutch assist activating pin. Most CLAKE's are supplied with two preload shims. These shims are .7mm thick. Bikes with very light clutches such as Trials bikes often are supplied with no preload shims. Bikes with very heavy clutches may require up to 4 shims in order to achieve the best result.

**\*NOTE it is rare to have to alter the clutch assist preload.**

To remove or add clutch assist shims:

1. For Clake Two, remove the shear pin first using an allen key, this is not necessary for the Clake Prolever.
2. Fold the lever outwards (For the Prolever you should feel 2 distinct clicks) this will also push off the plastic top cover that holds the central pivot pin. You can leave the cover attached to the end cover/slave housing.
3. Push the central pivot pin out from underneath.
4. Remove the lever set.
5. Remove pedal slave housing 1x6mm bolt and 3x 4mm bolts (no need to disconnect the brake line)
6. This will expose the 3 rocker arms, remove the lower (underneath body) "e" clip from the rocker pivot pin.
7. Carefully push the rocker pivot pin upwards just enough to remove the assist rocker arm (bottom rocker arm).
8. Pull out the assist pin and remove the 2 preload shims located between the pin and spring itself.
9. Reassemble

*ADD OR REMOVE SHIMS AS DESIRED UP TO A MAXIMUM OF 4 OF .7MM SHIMS .  
ASSEMBLE IN REVERSE OF DISASSEMBLY TAKING CARE TO ENSURE CORRECT  
TEFLON SHIM PLACEMENT. LUBRICATE ROCKER ARM BEARING AND ASSIST PIN  
SOCKET.*