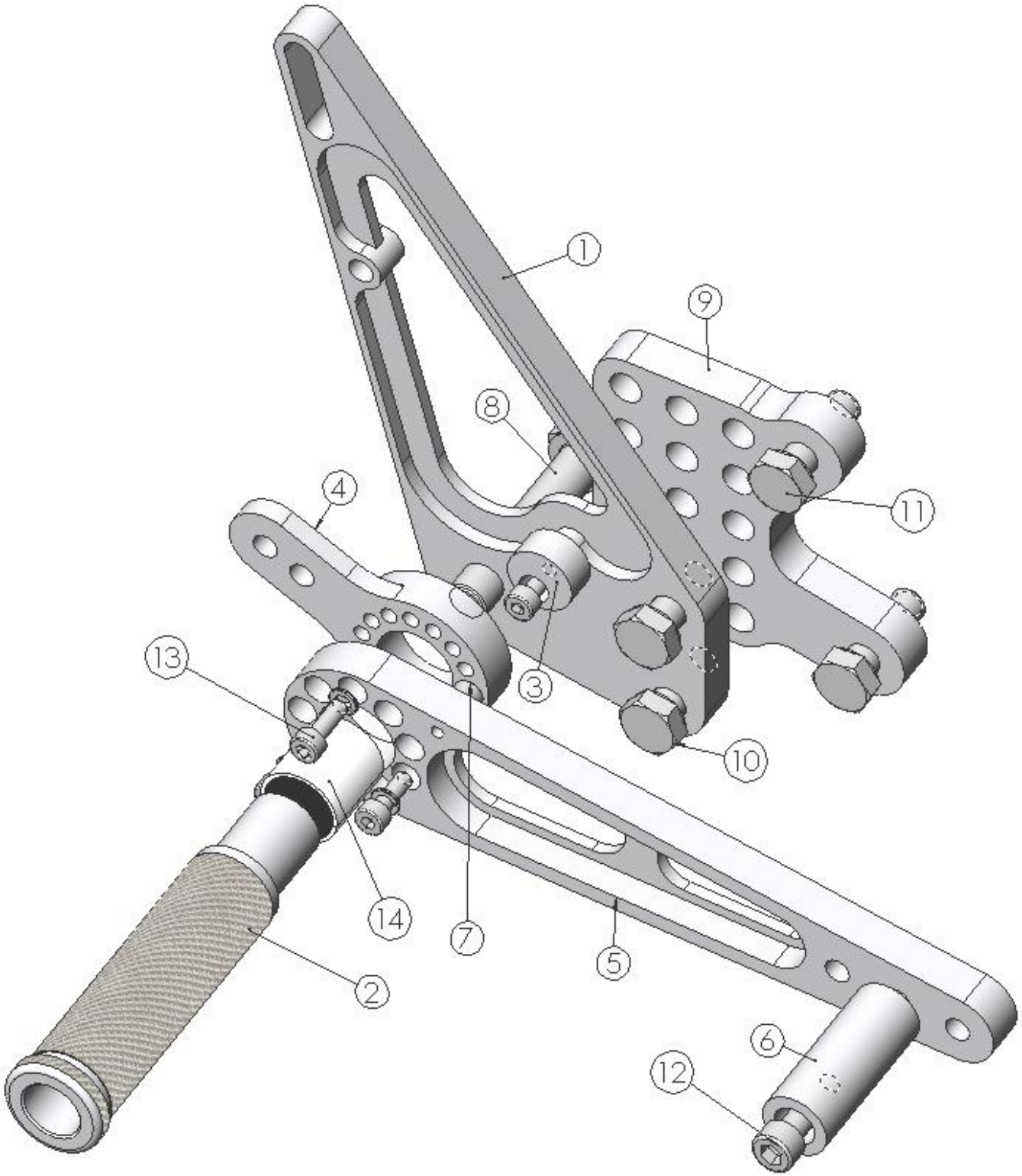
MotoBits

VAR-Sets

Very Adjustable Rear-sets



Features:

- Adjustable 28mm up and or back by 14mm increments.
- Different foot sizes accommodated by moveable toepiece.
- Fine lever/collar angle adjustment by vernier holes.
- Adjustable and very rigid shift linkage rod.
- Permanently lubricated bearing sleeve.
- Two-different lever arm lengths on lever.
- Adjustable pedal height via cam on brake lever.
- Solid footpegs help prevent bike damage in a crash.
- All parts machined from 6061-T6511 wrought aluminum alloy
- All fasteners high-grade or stainless.
- Will bend a bit, instead of just breaking like stock cast parts.
- All parts swap from side-to-side so you don't need a complete pair for spare.
- Modular design for easier replacement of damaged parts.

Parts List:

1. Heel guard/brake mount plate
2. Footpeg
3. Brake stop cam (only required on certain models)
4. Lever collar
5. Lever
6. Toepiece
7. Brake stop capscrew (only required on certain models)
8. Footpeg bolt
9. Attachment plate (**appearance of this part WILL vary depending upon model**)
10. 8x1.25 20mm hex-head capscrew
11. 8x1.25 25mm hex-head capscrew
12. 6x1 20mm socket-head capscrew
13. 4x.7 15mm socket-head capscrew and lockwasher
14. Teflon/steel insert bearing
15. Adjustable shift linkage rod (not shown)
16. Brake master cylinder support (only required on certain models)
17. 6x1 20mm hex-head capscrew (only required on certain models)

A small aluminum strap is also included to allow easier mounting of the master cylinder reserviour.

****Only the brake side uses numbers 3, 7, & 16****

Disclaimer:

These rearsets are not sold by MotoBits with the intention of breaking any laws or regulations. Check with local laws and racing regulations before installing.

These rearsets are designed and sold with the intent of closed-course racing use. MotoBits assumes no liability for their use or misuse. Use at your own risk.

The purchase of any MotoBits product releases MotoBits of all liabilities pertaining to the use of MotoBits products and parts.

General info:

-Professional installation recommended!-

These rearsets are designed for the racer in mind. Be aware that the footpegs are non-folding, and can adversely affect handling if they ground during cornering.

The hole and slot on the heel guard are for mounting the master cylinder.

Be very careful with routing of all hoses and wiring, especially the rear brake hose. It is best to replace with a built-to-length hose to get optimal routing.

Use threadlocker on **ALL** bolts/screws. Recommended product is Permatex #242.

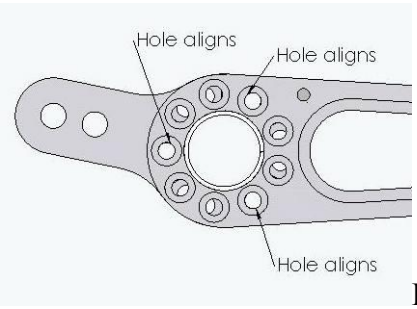
Do not overtighten footpeg bolt. This can cause expansion in the footpeg, binding the lever assembly.

When using adjustable linkage rod, always make sure that you have at least 10mm of thread engaged at all joints. Anything less may cause failure. There should be plenty of adjustment even with this requirement.

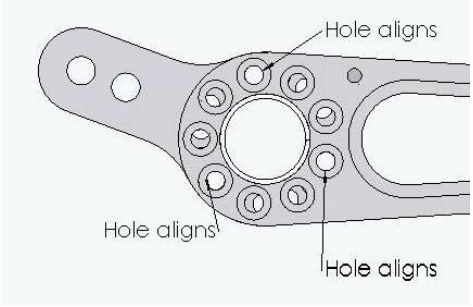
Street riders: There is no good way to hook up the stock rear brake light. If you require one, I would recommend replacing the banjo bolt on the master cylinder with a brake pressure switch. These are available thru Moto International (www.motointernational.com) and cost less than (US)$20.

Lever assembly

You will notice that the lever and the lever collar have a different number of holes. This is to provide a vernier adjustment. Put both on a footpeg and hold the lever stationary. As you rotate the lever collar clockwise, you can see that the hole alignment moves counter-clockwise at a very fine adjustment angle.



Rotate collar clockwise…



Three equally-distant holes will always align. Use the provided socket-head capscrews and lock washers in the three aligned holes.

Collar can be flipped over to better align brake actuator rod, or provide clearance for shift lever and rod. You can also bolt the shift rod to either side of the collar, giving quite a few possibilities.

When setting up the shifter side, be aware that there are a lot of possibilities for changing the geometry of your shifting. Start out with the arm on the lever parallel to the engine's shift arm, and the rod at 90degrees to both. Then you can play games with the angles later to change force/distance on upshift and downshift.

Remember you can also change the angle of the shift shaft arm on its shaft to change angles.

A note on geometry

The foot works better pushing down than pulling up. So setting up the shifter linkage is most important for the pulling up (Normal or GP shift, doesn't matter) on the lever. Try to get the rod and lever arms at

90degrees to eachother when the shifter is loaded (the tight spot just before popping into gear) in the up position.

This geometry can also be adjusted to get different throws and forces in the up or down shift. You can do this without changing the lever position by adjusting the angle of the lever and collar once you find a comfortable lever position.

Polishing and appearance
RaceSets are not anodised, so no chemical etching is needed. The footpeg IS anodised, so don't try polishing it.

Start with a 400 grit paper, then 600 and 1000 grit. Wet sand (WD-40 works well as a lube) to avoid clogging the paper. Move the part in a circular motion with the paper on a flat surface. Trying to polish inside the cutaway pockets would take a lot of work, probably best to avoid this and leave them "as cut". A final hit with a buffing wheel and jewelers rouge will provide an excellent "liquid metal" finish.

Stainless steel socket head capscrews or button-head screws may look better, but would require partial disassembly for adjustment. Hex-head bolts are provided for ease of access and quick change in racing applications. Sizes of hex-head bolts are provided in parts list above if you wish to replace. Use a high-grade fastener for any replacement.

Machine Specific instructions

Aprilia RSV Mille:
The master cylinder must be moved from underneath the clutch to the more normal position on the heel guard. Use the brake stop cam and stop screw on the lever, since Brembo does not use a captive pushrod.

The rear brake master cylinder pushrod must be cut down to approximately 45mm. A 6x1 stainless stud is included as a substitute if you do not wish to cut the rod. Use the stock clevis.

An easy way to route the existing brake line is to cut a notch in the plastic channel that it normally rides in on the swingarm, about ½ way. Exit the line thru the notch and loop to the master cylinder. A wire-tie to the upper stay on the perf-plate will keep the line from ever contacting the swingarm. A cleaner solution would be to replace the rear hose.

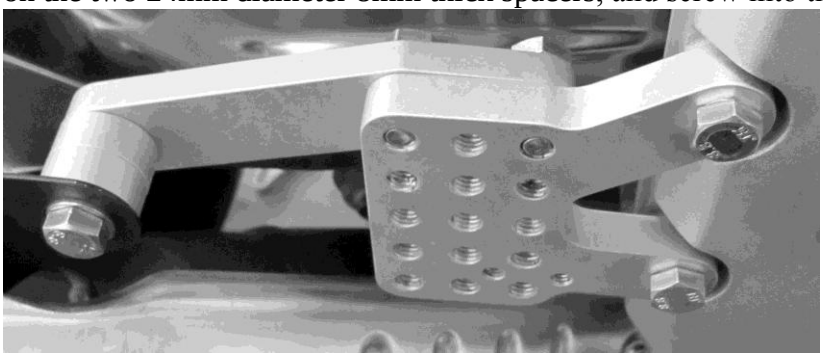
Aprilia Mille 2004+
The Mille uses their footpeg mount for a fairing stay as well. There are two tapped holes on the bottom of the attachment plate. One would work, but there are variations in bodywork so two should give some flexibility.

The master cylinder must be moved from underneath the clutch to the more normal position on the heel guard. A pushrod stud is included, use the stock clevis. Use the brake stop cam and stop screw on the lever, since Brembo does not use a captive pushrod.

Aprilia Falco:
Use the included rod-end bearing along with the stock rear brake master cylinder pushrod.

Aprilia RSV4:
Rear brake line needs careful rerouting. Would be safest to replace with a line made for the purpose.

Use included spacers and holder to secure exhaust to the perforated mounting plate. Use two 8x20 screws from the backside into the mounting plate. It can go on the top or bottom row, and the tapped hole at the back will be close to the center either way. Put the washer on the 8x35 screw, put thru exhaust hanger, put on the two 24mm diameter 8mm thick spacers, and screw into the holder's tapped hole.



Going to GP shift on models with quickshifter, you will need to rotate the collar on the lever rather than flipping over the shift-shaft arm. This avoids confusing the switch between push/pull.

Aprilia RS250:
The shorter of the two heel plates goes on the shift side. This kit is provided with the short one so that it will clear the swingarm.

Honda CBR600-F3:
A longer hose on the master cylinder reservoir allows you to keep the stock position.

A brake master cylinder support is used on this model. See picture for mount position.

Honda CBR600-F4:
The pivot on the brake master cylinder plunger is a non-standard size. The hole in the arm on the brake lever may be drilled larger, or use the provided 6*20mm capscrew and locknut as a pivot.

07 Honda CBR600RR
MUST REMOVE HEATSHIELD
Be cautious, this is a TIGHT bike. Make sure everything moves cleanly without interference or rubbing.

Left side: loosen clamp and pull down upper hose to give more space for shift arm in normal shift
Includes shift shaft arm, 14mm spacer 35mm HHCS and low profile locknut
Shift pedal uses BHCS on outside of bearing, which is against inward facing arm, backed with nylock

Right side: use stock plunger, add washer between it and lever arm which is facing in. includes 25mm HHCS, nylock, and washer for this.
MC mounts with 2 – 20mm HHCS with washers from behind.

Honda RC-51:
For GP shift, the stock shift shaft arm will not work. Replace it with the enclosed arm and spacers to clear the frame.

Honda Hawk 650
2 – 6x30 capscrews, washers and nylocks for MC mount
6x20 and nylock for MC pivot if needed
Must re-route rear brake hose. Probably time for replacement anyway, a custom fit is a good idea.
Make sure of clearances and no interference when setting up geometry for shifting. For GP shift especially, it is a good idea to start with the lever arm up and the shift-shaft arm down.

Yamaha R6
A brake master cylinder support is used on this model. See picture for mount position. A spacer and shift-shaft arm are included, to help clear the frame.

2005 GSXR 750
Both ends of the shift rod come with spherical bearings. For setting up GP shift (or ease of setting up regular shift) the stock spherical bearing on the shift arm should be removed. The bearing is "staked) on, and can be removed by carefully drilling on the back side like you are drilling out a rivet.

In some positions, 10-15mm must be removed from brake plunger rod to not interfere with lever. Or some of the lever can be removed leaving only the closer hole.

2005 ZX6RR
Rear MC needs to be mounted with 35mm capscrews. Included are screws, locknuts and washers.

The pivot on the brake master cylinder plunger is a non-standard size. The hole in the arm on the brake lever may be drilled larger, or use the provided 6*20mm capscrew and locknut as a pivot.

GP shift is doable, need to pull the shift arm out as far as possible on the shaft before tightening clamp screw.

2003 ZX6R
The mount holes in the master cylinder are quite oversized for some reason. Use the provided 6x35mm bolts with ¼" washer outside, 6mm washer inside with locknuts.

The pivot on the brake master cylinder plunger is a non-standard size. The hole in the arm on the brake lever may be drilled larger, or use the provided 6*20mm capscrew and locknut as a pivot.

2005 ZX10RR
GP shift must trim the fairing a bit for clearance
Rotate the shift arm one spline CCW. Their shifter is much lower
Include 2 sets of 35x6 w/locknuts and washers for MC mount
Include 6x20 w/locknut for MC pivot.

2006 Yam R6
Fasten link rod to lever with 6x20 low-profile button-head inserted from behind and set with locknut on outside.
For GP shift just flip over the shift lever arm to reverse the rotation.
Must remove captive nut from exhaust hangar. Loosen clamp at that holds exhaust and rotate for access. It is spot welded, just grind thru the weld and pull off the clip.
Use included spacer and holder to secure exhaust to the perforated mounting plate. Use two 8x20 screws from the backside into the mounting plate. It can go on the top or bottom row, and the tapped hole at the back will be close to the center either way. Put the washer on the 8x25 screw, put thru exhaust hanger, put on the 24mm diameter 8mm thick spacer, and screw into the holder's tapped hole.
Brake hose is flipped over and now aims forward on MC. This loop provides good stress relief, and the hose can go into the stock holder clips.
MC mounts using the 6x25mm capscrews inserted from behind the heelguard into the tapped holes of the MC. The lower one has a washer, the upper goes thru the included mounting strap to hold the reserviour.

FZR
Use the enclosed 20mm diameter x 10mm thick spacers between the attachment plates and the frame. The 35mm capscrews are used to mount to the frame.
Rotate MC banjo to point up and clear.
Use the enclosed master cylinder mount (L-shaped, as shown for R6) and screws to mount the MC to the heel plate.
Use the included 6*20 screw and locknut for MC plunger pivot.
The MC plunger needs to be shortened by 24mm or so to clear most pipes. The lever arm can be shortened as well for clearance.

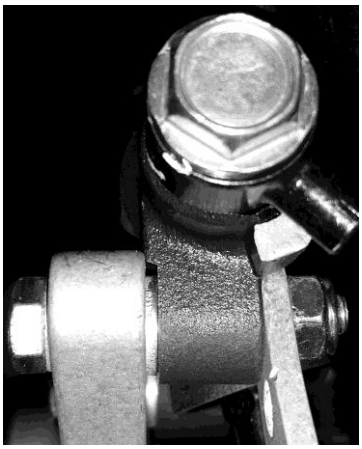
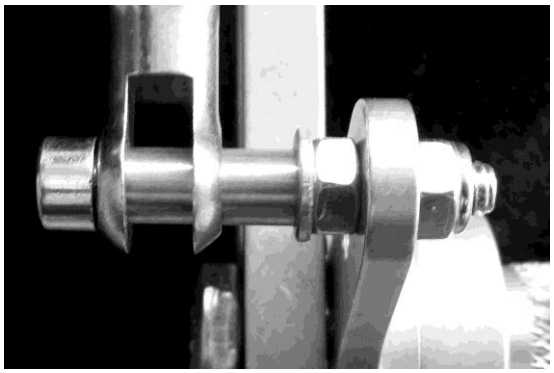
06-10 GSXR 600/750
Use the included 6x25 capscrews with washers for master cylinder mount. Depending upon your pipe you may need to shorten the tab on the brake lever to only one hole, or shorten the plunger slightly to get the tab to rotate up away from the pipe.

Remove the stock footpeg parts, including the part that bolts to the frame and provides adjustment. Use the stock screws into the mountplates provided.

The provide spacer is fitted between the mount plate and the heel plate with the provided screws.

Kawasaki EX250
The two sides are different, and are labeled left and right in the packaging.
Kawasaki used an interesting brake master cylinder. Everyone else uses a 6mm pivot on the plunger, but this model uses an 8mm. You can either drill the brake lever arm hole and use the stock 8mm pivot, or use the enclosed 6mm shoulder bolt.
There is a tab on the frame that comes close to the rearset in some positions, it was the old MC mount and is not needed if you want to remove it.
Both rod-ends of the shift linkage are included. Use the stock shift-shaft arm. I would recommend removing the stock bearing that is staked to the shift-shaft arm. The included ones are much stronger, smoother, and give more adjustability.

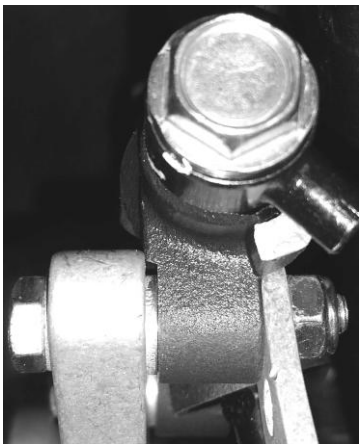
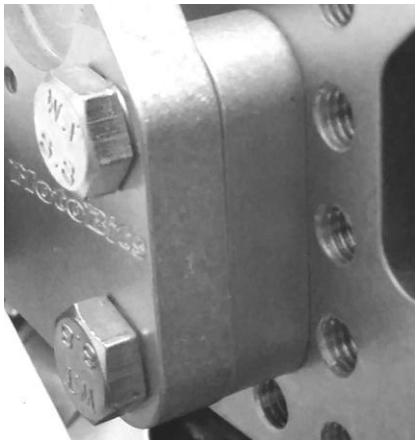
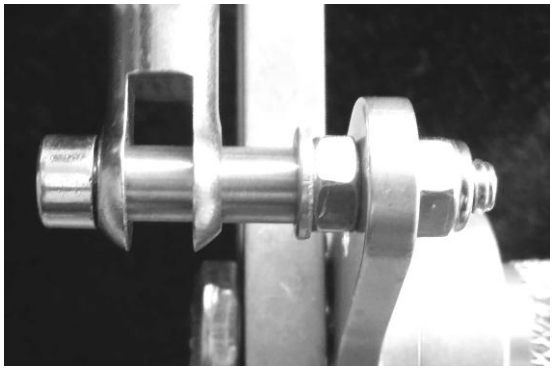
Kawasaki ZX10 2011-15
Shift side:
Use included shift-shaft arm. Rod is 170mm
Include longer screw to connect rod-end to shift shaft arm. May need as many as four washers for spacing rod end out from the arm, so the shift rod clears frame.
Shift lever has collar on outside, rod-end inside that
Flip shift-shaft arm for GP shift. May need to remove/trim the countershaft sprocket guard.

Brake side:


Brake MC is funky. Need 35mm screws, with a washer between MC and heelplate. Goes washer-plate-washer-MC-locknut
Since MC is inboard of heelplate, need a "reacher" to the brake clevis. Lever collar arm goes inward. Use the 40mm screw. Put the tube with id=6mm, OD=8mm, len=20mm over the screw through the stock clevis. Then add a washer and nut. Put this through the collar arm, and then a locknut.

Kawasaki ZX10 2016+
Kawasaki made some interesting design decisions. The brake side gets a custom master cylinder, and the shift side gets a very large sensor for the quickshifter.

With many adjustments available, there are many ways of doing things. Here is one…

Brake side:

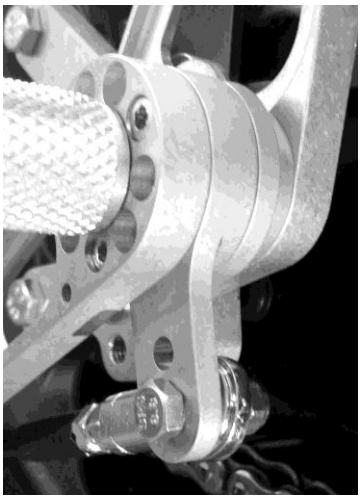
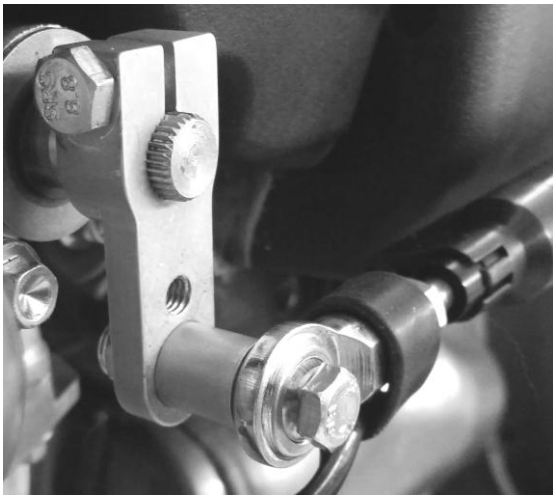
For the Master Cylinder mounting use the 35mm screws with a washer between MC and heelplate. Order is washer-heelplate-washer-MC-locknut. You can also put the strap for the reservoir mounting between the MC and the locknut.

There is an 11mm spacer that goes between the mountplate and the heelplate. This keeps the pegs symmetric since a spacer is needed for sensor clearance on the shift side. The screws (number 10 on diagramme) on this side are 35mm instead of 20mm.

Since MC is inboard of heelplate, need a "reacher" to the brake clevis. Lever collar arm goes inward. Use the 40mm screw. Put the tube with id=6mm, OD=8mm, len=20mm over the screw through the stock clevis. Then add a washer and nut. Put this through the collar arm, and then a locknut.

The stock brake line can be used if rerouted. A custom line is recommended.

Shift side:

The shift side peg is mounted with a slightly longer screw (number 8 on diagramme) to accommodate the two spacers between the heelplate and the peg. The smaller spacer goes against the heelplate, with the larger against the peg and lever. The photos show positions for standard shift.

Remove the shift-shaft arm and the rod-ends from both ends of the stock shift rod and sensor assembly. Replace the forward rod-end with the included female rod-end. If you are going to use forward mount points, use the male rod-end on the rear of the stock linkage. A female rode-end and stud combination is included for more length if needed.

Replace the shift-shaft arm with the one included, with the 35mm screw inserted through the rod-end, spacer, lever, and lock nut on the backside of the arm.

GP shift:

Rotate the collar on the shift lever to point upward instead of downward. This reverses the lever movement but does not change the forces seen by the quickshifter sensor and transmission. No reflashing of the ECU is needed.

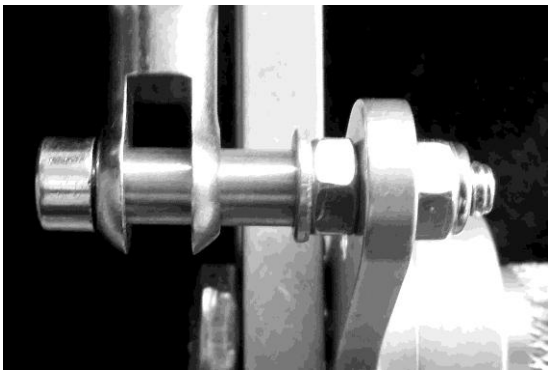
Yamaha R3 2015+

This bike has a different mount plate for each side. The package is labeled L for shift side and R for brake side. If you lose the packaging, here is a photo with shift side on left and brake side on right.

Shift side:

Rotate shift-shaft arm upward for GP shift. It will clear the front sprocket guard.

Brake side:



Brake MC is mounted inboard of the heelplate. Use the 35mm screws, with a washers. Goes washer-plate-MC-locknut
Since MC is inboard of heelplate, need a "reacher" to the brake clevis. Lever collar arm goes inward. Use the 40mm screw. Put the tube with id=6mm, OD=8mm, len=20mm over the screw through the stock clevis. Then add a washer and nut. Put this through the collar arm, and then a locknut.
Reservoir can use stock mounting. Included is a perforated strap if you want to mount elsewhere.

Please send suggestions questions and comments to **Support@MotoBits.com**