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Kawasaki KLX110 / Suzuki DR-Z110 Manual Clutch Conversion



Parts List

QTY.	DESCRIPTION	PART NUMBER
1	MAGURA HYDRAULIC CLUTCH ASSEMBLY	N/A
1	CLUTCH SLAVE CYLINDER	N/A
1	THRUST WASHER	N/A
1	STAINLESS STEEL CLUTCH LINE	N/A
1	HI-TEMP HYDRAULIC FLUID (BOTTLE)	N/A

IMPORTANT - PLEASE READ CAREFULLY

We recommend that this performance engine kit be installed by a qualified motorcycle technician. If you have any doubts as to your ability to install this performance engine kit, please consult with your local motorcycle dealer. Read all instructions first before starting installation. Make sure the motorcycle and exhaust system are completely cool before starting the installation. Also, make sure the bike is secure on the sidestand or ideally a rear service stand during installation. Be sure to save all stock components for possible use later.

Warranty

Two Brothers Racing products are intended for closed course competition purposes only, and therefore are sold "as is" without warranty. Two Brothers Racing specifically disclaims any warranties of merchantability or fitness for a particular purpose and disclaims all responsibility for consequential and incidental damages or any other losses arising from the use of these products or parts.

Installation Instructions

1. Make sure the bike is completely cool before starting the installation. Make sure the bike is secure on the sidestand or ideally a rear service stand.
2. **Drain the engine oil.** With the bike on the sidestand, use a 17mm socket to remove the oil drain plug. Tilt the bike side to side until all oil has finished draining.
3. **Remove the kickstart lever. Remove the Phillips case screws.** Use a 10mm socket to remove the kickstart lever. Use either #2 Phillips screwdriver or a hand impact driver to remove the nine Phillips screws that retain the clutch cover. If you are installing heavier clutch springs as well (part # 022-3-05) remove the shift lever with a 10mm socket now. *Do not remove the clutch cover at this time.*
4. **Loosen the footpeg bracket mounting bolts.** Using a 12mm socket, just loosen the four mounting bolts that attach the footpeg mount to the engine case. Four turns out on each will provide the clearance to remove the clutch cover, yet still allow the bike to remain on the sidestand.
5. **Remove the clutch cover.** Using a rubber mallet or soft-faced hammer, gently tap the clutch cover from the top and then the bottom. There are two dowel pins located at 9 o'clock and 3 o'clock so you must alternate tapping from top and then bottom in order to slide the cover off the pins. Take care not to damage the cover gasket while doing this. Some more oil may remain at this point so keep the drain pan under the engine.
6. **Remove existing linkage.** Carefully remove all parts of the OEM clutch linkage. This includes the splined fork on the shift shaft, the throwout lever it connects to and the triangular throwout bearing. Next, remove the clutch adjuster bolt from the cover. Using the 14mm socket, remove the locknut on the outside of the cover. Then push or carefully tap the bolt with a rubber mallet until it is clear of the cover. You should now have six separate parts (including the locknut) removed from the engine. Once the installation is completed, store the unused parts in a plastic bag.
7. **Prepare the clutch cover.** Once the loose parts are removed, you need to inspect the cover. Looking from the outside, check the adjuster through hole for any sharp edges or burrs. If there is a sharp edge inside the hole it must be removed. Using the supplied piece of 120 grit sandpaper, form a cone around your index finger and place it inside the hole. The sandpaper cone should contact the sharp edge or burr. Carefully rotate the sandpaper back and forth several times, checking frequently to see if you are smoothing the edge down. You can't really sand to much, or make the hole too big. After you are sure the hole is free from any sharp imperfections, clean it with a high flash point solvent or "contact cleaner" to remove any residue.
8. **Install the mounting bolt.** Locate the mounting bolt and inspect the sealing o-rings. If there is any visible damage at this time, refer to the section on maintenance. If the o-rings appear serviceable then apply a generous amount of grease to them as well as the through hole that was just smoothed and cleaned. This should prevent any damage to the o-rings as you install the bolt. With a twisting motion, gently push the mounting bolt into the cover. If you feel resistance, STOP! The o-ring will easily slide into the hole if there is no obstruction. Wipe away the grease and check the hole again. You may need to use the sandpaper and repeat the procedure once more until the mounting bolt slides freely. With only minimal hand pressure while twisting, the bolt should slide right in.
9. **Install the hydraulic cylinder.** Open the supplied bottle of mineral oil and place the cap upside down on your work surface. Turn the hydraulic cylinder upside down, placing the projecting piston inside the cap. With the hole facing up, fill the cylinder with oil to the top of the threads. Holding the cover with the gasket surface down, bring the cylinder to the mounting bolt, and thread the cylinder on the bolt until snug. Now you can put the cover on its side and torque the mounting bolt with a 19mm open end wrench. Tighten with moderate force until you can no longer turn the bolt. Be careful not to slip or strip the threads by using too much force. *Do not touch the hydraulic cylinder at this time.*
10. **Attach the house and master cylinder.** Place the cover with the gasket side down on your work surface. Locate the 6mm allen screw and copper washer. Place one copper washer on the mounting bolt, inside the recessed area. Slip the other washer over the 6mm allen screw. Put the 6mm allen screw into the banjo fitting and thread into the mounting bolt so the hose is just behind the oil fill cap. Make sure there is at least an 1/8" gap between the hose and the cover. With a 6mm allen wrench tighten the screw until it is tight. The screw doesn't need much force to seal; just torque until it no longer turns. The master cylinder unit can now be attached to the handlebars. Be careful not to squeeze the lever at this point. Tighten the 8mm screw so that master cylinder is level to the ground with the bars straight-ahead.
11. **Routing the clutch line.** Remove the right side tank shroud. While holding the cover in one hand, route the house between the frame and engine, starting just below the middle motor mount. Continue running it under the gas tank, up to the carburetor. Remove the 8mm bolt and metal clamp retaining the throttle cable. Open the clamp and slide it over the hose and then the throttle cable. Reinstall the 8mm bolt and check that the hose and cable can move freely inside the clamp without binding. Continue routing the hose behind the numberplate and then thread it on the master cylinder. You only need to tighten the hose connection just enough to ensure it will not leak.
12. **Bleeding the system.** You may want to have another person assist you with this operation. Remove the master cylinder reservoir cover and fill the reservoir with oil to within 1/8" from the top edge. Do not fill to the top at this time. Have one person standing by with the bottle of oil ready to refill the reservoir as necessary. The other person should hold the clutch cover with the gasket surface facing down. This will position the slave cylinder so that air will not be trapped inside. While holding the cover in one hand, push against the piston until no more bubbles are pushed out. This can take from 10 to 20 minutes to accomplish. When squeezing the lever, you should now feel some resistance. If there is little or no resistance, you need to continue pushing the piston as there is still air in the system. Once the air is gone you can install the reservoir cover. **Install the thrust washer on the shift shaft and then install the clutch cover.** Install the cover with the bolts only hand tight at this time and remove the oil fill cap. While looking through the oil fill hole, squeeze the clutch lever in and out and you should observe the piston and clutch assembly moving back and forth. This will indicate the system is bled and ready to proceed.

13. **Reinstall all parts and test.** Tighten all the clutch cover screws to 46 in-lbs. Attach the kickstart lever and tighten. Install the shift lever and tighten. Tighten the footpeg mounting bolts. Fill the engine with 1 liter of motor oil and replace the fill cap. Check the operation of the shift lever, brake lever and kickstart lever to insure they are properly installed. Adjust as necessary. **If the shift lever will not move easily, tap the end of the shaft with a hammer to seat the thrust washer.** With the engine off, check the operation of the manual clutch by shifting the bike into gear and pushing it forward. With the clutch lever out, the bike should not roll. Squeezing the lever in should allow it to roll and releasing it will cause it to stop. This indicates the bike is ready to start. Start the engine and check for oil leaks. If there are any, shut off the engine and fix as needed. You should be able to operate the bike as before, only now you have the ability to manually disengage the clutch, offering the rider greater control. After a few minutes of running, shut off the engine and allow it to cool down. Once it has cooled, check and retighten all fasteners as necessary. You are now done with the installation.

14. **Maintenance.** Before each ride visually inspect the clutch assembly for proper operation. Check the lever movement for any looseness in the pivot bolt and tighten as needed. Check the hose for signs of damage or excessive wear. Replace the hose if necessary. Check for leaks at the hose connections and at both the master cylinder and slave cylinder. If the lever movement feels soft or the clutch does not disengage, check the fluid level in the master cylinder. Clean the area around the reservoir lid before removing it. If the fluid has fallen below the half full level, add fluid up to within 1/8" of the top and pump the lever. If it is still soft or the clutch does not disengage you will need to bleed the system. Remove the clutch cover and follow the procedure as described above until no air is seen bubbling through the fluid. Fill the reservoir to within 1/8" from the top and replace the lid.

Every 6 months check the fluid level even if it is operating properly. Normal clutch wear will cause the fluid level to drop and finding this early will prevent having to bleed the system later. Remove the lever pivot bolt and apply some waterproof grease to the pivot. This will prevent excessive wear and make the lever action smooth again.

Following these guidelines will ensure many years of trouble-free service from your clutch kit.