FCR-MX Install Instructions 96-Present DR650SE

Required tools and supplies to install the pre-jetted carb: 8, 10, 12, and 14mm combination wrenches. A #2 point JIS (Phillips will work) (cross point) head screwdriver. 3 & 4 mm Allen (hex key) wrenches. Tee handles are really cool! Even a cheap set from HarborFreight.com is better than none at all. Diagonal side cutters or a utility knife. Slip joint pliers. For jetting changes while the carb is mounted on the bike, you'll need to add a 17mm box end wrench and a 6mm 1/4" drive 6-point short socket and ratchet wrench to the list of tools. Obviously, if you have a full metric ratchet set, it will make things faster. Some type of cable lubricant or WD-40 to lube those dry throttle cables while you have it all apart. Silicone sealant and blue removable Loctite finishes off the list.

Shred it! Remove the side panels, seat, and tank. Retain the fuel and vacuum (if used) lines to use on the FCR. Remove the three bolts that hold the airbox to the frame (two up top and one on the right side). Remove the little bendy hose clamp for the BST's vent filter line. Remove the vent filter and hose, along with the float bowl vent line, from the side of the BST. Remove the throttle cables from the throttle cam and the choke enrichening device from the BST. Back off the manifold clamp and air boot clamp screws to the end of the clamp nut. Pull back on the BST to dislodge it from the manifold, swinging it to the left nose first to remove the carb. Remove the air boot clamp and set it aside. Leave the manifold clamp on the manifold. Now drop kick the BST into the closest trash can or list it on eBay for a good surf casting weight. LOL! Plug the manifold and air boot openings with clean shop towels.
You should have already modified the air box and removed the screen in the air boot... (note: When installing the new Twin Air foam filter or if you have one and have not checked the following, do so now! The Twin Air foam filter flange that the plastic filter cage traps against the inside of the air box can be a bit long on the left (large) side of the filter. It can hang in the airflow and cause turbulence, which will lead to flow restriction and loss of top end. With the air box removed, install the filter onto the plastic cage and mount it in the air box as normal. Now look into the air-boot side of the air box and see if the flange of the filter is hanging into the flow path area. If it is, mark the offending foam with a marker pen so you know what to trim out when you remove the filter. Do not over-trim! Remove only what is needed to provide a clean flow path for the incoming air. Reinstall the airbox back into the frame, but don't bolt it in. Then install the air boot back onto the filter box without the screen. If I supplied/converted your carb after 03/27/08, then the Merge Racing APS Spring will have been installed for the accelerator pump.

Install it! This is the ideal time to lubricate those throttle cables and throttle twist barrel! Throttle cable setup and lubrication are the major reasons for idle problems when setting up the FCR-MX. Also, check cable routing to make sure the cables are not looking like a barber pole in their journey from the throttle to the carb. The cables need to be routed below the left front rubber mount on the frame, for the gas tank, to avoid bending too sharply as they come from the FCR. Remove whatever cable ties are required to allow routing the cables this way and reinstall them once you've got the FCR mounted and hooked up. You don't want/need to cinch the crap out of the cables. Loosely tie wrap the cable so they can move when tuning the bars.

Please pay close attention to the following push cable setup instructions!
OK, grab the FCR and remove the throttle cam access cover with your 4mm Allen wrench. Take your properly routed push cable and spin the two locking nuts all the way up to the end of the threads near the cable sweep's curve. Install the inner cable through the slit in the 6mm-1.0 threaded hole on the top of the throttle cam casting. **Do not** hook the cable end into the throttle cam on the carb yet! Remember, you are doing this without the carb

mounted on the bike yet! Thread the carb onto the push cable by spinning the carb around the cable sweep. Be careful doing this, as you could cross-thread or pull threads out of the casting, swinging the carb around. When the cable sweep comes to the end of the threaded slotted hole install the inner push cable end on the cam. Do not install the pull cable yet! Here is your first adjustment. Push your throttle grip back against the hard stop in the throttle assembly. Check the play in the inner cable at the carb cam while holding the throttle grip against the return stop. Spin the carb back out on the cable sweep until there is just a bit of play in this inner cable with the cable sweep pointing to the left. You've gone too far if the cam on the carb is what is trying to stop the throttle grip from making it to the hard stop in the throttle assembly. The limitation here is that we need the cable sweep to be pointing to the left. If you return the throttle grip to the hard stop, there should be a bit of up and down play in the cable at the carb cam. If the inner cable pulls tight, go one more turn back in with the cable sweep. Spin the locking nuts down to lock the cable pointing to the left. You will re-adjust this angle a bit once the carb is mounted.

Now install the pull cable. Spin the lower adjuster nut to the end of the cable sweep, making sure the nut has full thread contact with the cable sweep threads. Slide the barrel end into the cam and route the inner cable around the cam. Open the upper lock nut far enough to allow the sweep adjuster to slide into the lower pull cable carb casting groove. Make sure it's fully seated at the back of the groove. Spin the upper nut down and tighten it with the sweep pointing in the same direction as the push cable (to the left). Now loosen the pull cable adjuster near the throttle and spin it open to take up the excess play, leaving a bit of slop. You'll make final adjustments to this once the bike is fully assembled. Check to see if the throttle works properly. If all looks good, install the cam cover back on the FCR.
Now to install the carb... but first you need to remember to remove the clean shop towels from your manifold and air boot! ;-) Put the air boot clamp onto the air adapter on the FCR, making sure the screw is pointing in the direction that you can access it. Install the FCR by first backing the carb into the air boot area and swinging the front of the carb into the manifold area. Yeah, it's a bit tight.... that's why I had you unbolt the air box. Don't even think about the air boot just yet, or worry about getting it onto the adapter. Both of the engine vent lines should be on the outside of the throttle cam cover, not pinched between the frame and the carb, where they could cause back pressure from restriction or pinch the carb venting lines in any way! The carb fits tight in the manifold, so you need to back out the clamp screw all the way or even remove it from the clamp until the carb is seated in the manifold. You'll have to wrestle it around a bit to fully seat it. On the left side of the carb, slightly behind the manifold spigot, there is a small square casting... On the early model YFZ450 carb, with only one rib on the manifold spigot, the casting should be bottomed against the rubber manifold to make sure that the carb is fully seated in the rubber manifold. On the later model YFZ450 carb, which has two ribs on the manifold spigot, the casting will have approximately a 1/8" gap between it and the manifold rubber when the carb is seated properly. Get the carb straight up and down! Spend a few minutes making sure the carb is fully seated in the manifold and vertical. Make sure the manifold clamp does not slide forward as you tighten it. Force it back towards the carb in its groove before tightening. Cinch it down well so the carb tries to twist the rubber when you attempt to rotate it in the manifold. Manifold leaks will cause idle issues and decel popping to increase. If your stock intake manifold clamp is worn, bent, or the screw is tweaked and worn, you should replace it. **Note: Warming up the intake manifold and air boot with a heat gun or hair blow dryer makes the process easier during the installation.**

Continue with the air boot. It might be crumpled a bit and not on the adapter. Use your fingers or a small screwdriver to get it onto the adapter. Now grab that loose air box and make sure the air boot is fully seated and square on the adapter. There is a lip on the inside of the air boot that will bump against the back of the adapter ring on the carb. Make sure the step is against the adapter but not pushed up over the OD of the adapter. A good

portion of the adapter will show in front of the air boot when it is mounted correctly. Install the air box bolts with a drop of thread locker. Tighten the bolts snugly, but don't go crazy here. Brass nuts in plastic are easy to goof up, Hercules! Reconfirm that the air boot is up on the adapter and square. Slide the loose clamp up off the adapter into the air boot groove and tighten it down.

Refocus on the cable routing and ties. Tidy things up under the tank and re-aim the cable sweeps as required to minimize bends and contortions in the cables. Tighten the locking nuts. Put a dab of silicone sealant in the inner cable slit for the push cable on the carb casting to prevent water and dirt from entering the enclosed cam. Check that the routing of the vent lines is correct and that they are in their guide hoops on the carb. Install the supplied carb bowl drain line by routing the line back behind the engine and between the rear linkage mount on the frame. It's a bit of a tight fit, but it holds the line, so it will stay in position when you need to drain the float bowl. Leave a little extra length between the carb and where it fits snugly between the engine and the frame, so you have enough play to allow the carb to swing for jetting changes without having to remove the hose from the fitting. It's very tight as you'll find out. Cut any excess length off at the bottom so it just clears your skid plate. Make sure to cut the hose at a 45-degree angle with the open side facing backward to minimize mung and glop from plugging the line. Remember, this is not only a float bowl drain line! This line is shared by the float bowl overflow and acts as a vent line in normal conditions. You do not want this line to plug up.

Install the vacuum petcock line (if used) onto the fitting on the FCR. On the YFZ carbs, it will be on the top of the carb in front of the cap. On the new OEM FCR, it will be on the left side of the carb, just above and to the right of the idle speed adjuster. Route the hose down through the YFZ electrical cable guide on the TPS block (if your carb has one) and let it hang there. Double-check that the throttle is operating properly and that nothing is catching or binding when you turn the handlebars from one steering stop to the next. Install the gas tank, making sure the throttle cables are routed below the left front rubber tank mount puck. Install the vacuum line on the petcock. Install the fuel line with a clamp on the carb. **I highly recommend installing an in-line fuel filter!** Turn the fuel petcock to prime, or "on" for manual petcocks, and allow the fuel to fill the float bowl while you finish bolting down the tank. Install the seat and side covers. Use blue Loctite... It's still a thumper! Make sure to turn your vacuum petcock back to the on position!

Now is the time to finish the pull cable adjustment. Turn your bars fully to the left and adjust the take-up near the throttle until it hits the point where it is trying to open the throttle. Back it off a little, then turn the bars to the right. Find whichever position is the tightest and adjust your cable play so that the throttle isn't opened when you turn the bars to full lock. The only change that may occur is when you finally set your hot engine idle speed. Recheck your cable play afterward.

If you haven't ground your head pipe weld, now is the time! This carb is normally jetted for sea level with the air box mod, TwinAir foam filter, screen removed, and the header weld ground using the FMF-Q2 or the GSXR 1000/Hindle pipe. If you are using a more restrictive exhaust like the Staintune with the baffle in or the stock Buick muffler, you will need to adjust your jetting accordingly unless I have done them for you! You will also need to make jetting changes for high altitude or any other variables that may affect jetting, beyond the original setup. **The bottom line is you are responsible for ensuring your engine isn't in meltdown mode or overly rich for any reason beyond the conditions mentioned above!**

Speaking of hot engines... start that baby up! I will have set the pilot to 2 turns out (EMQ w/42 pilot) or 2.5 turns out (EMP w/40 pilot) and made my best guess on the idle stop

based on how my carb is set, but that will need the final adjustments for your bike. Follow that up with the final pull cable adjustment mentioned above. The FCR is a work in progress for me, so you can always check mxrob.com and follow the links for the FCR to see the latest jetting info that I have developed. :-)

Click here for a tour of the 04-09 YFZ450 FCR-MX set up for the DR650! (Note to printed install instruction readers: To see all the informational links on this document, go online to: http://www.mxrob.com/mxrob_007.htm Click on my install page link. Go to the last page (24) and click on the "Detailed Install Instructions Are Here!" link towards the bottom of the page.

Starting procedure:
Initially, after installation, the AP chamber will be empty, and it may take a few twists of the throttle to get all the air out of it. The YFZ450 carb has a two-position choke assembly. Start the bike by giving it a few twists of the throttle to squirt a bit of fuel down the intake manifold. Pull the choke to the fully open position and start the bike. Run the machine on full choke until you start to hear the rpm drop, then switch it to the half choke position. You can let the bike idle or take off right away on 1/2 choke. Once you ride a few blocks and the engine is fairly warm, you can push the choke in completely.

Enjoy!
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