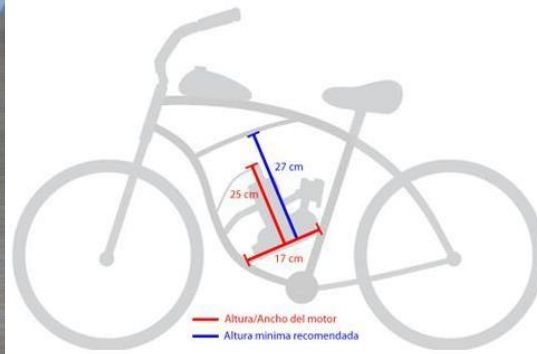




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Bicycle Engine Installation Guide



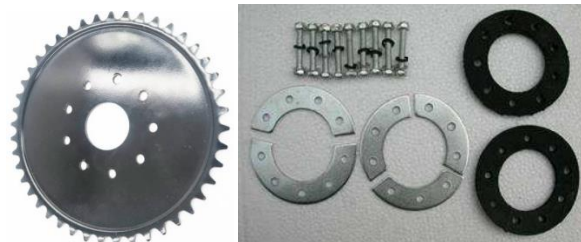
Note: Mechanical aptitude and ability is required to perform this installation. Many “do it yourself” backyard mechanics will find this project rewarding. However, installation is sometimes best done by a professional mechanic. A rewarding joy and challenge can be found in designing a custom installation of your own. As with all motorized bikes it is essential that the front and rear wheels have good brakes to ensure safe operation. Front wheels with disc brakes are a good option and may be obtained at most bicycle shops. Remember, a quality installation and engine break in with the right oil mix is paramount to safe usage and long term satisfaction. Have fun and good luck on your motorized project!

General Information: Obey all traffic regulations. Always wear a helmet while riding. Remember that you are riding a motorized bicycle and other traffic may not be able to see you. Never operate your motorized bicycle on a pedestrian through way or sidewalk while the engine is operating. Never unsafely operate your motorized bicycle

Before Installation

The two most critical steps in installing the kit are: 1) Positioning the engine in the frame 2) Installing and aligning the sprocket on the rear wheel. Proper alignment of the engine and sprocket will have beneficial effects on the balance, vibration dampening and ultimate power of your ride. All the other parts of the kit will fit wherever your particular setup allows.

INSTALLING REAR SPROCKET



- 1) Remove the rear wheel from the bicycle. Slit one of the rubber washer as shown. This is to allow the rubber washer to go around the rear wheel shaft.



- 2) Place the cut one inside of the spokes



- 3) Place the other packer on the outside of the spokes



- 4) Thread the nine bolts through the sprocket and use the half moon backing plates on the inside. Mount the sprocket to the rear wheel as shown. Do not over-tighten and make sure that the sprocket is exactly perpendicular to the axis of the wheel. Reinstall the rear wheel to bicycle



Affixing the Engine

Position your engine as low in the center triangle of your bike frame as it will go.



The engine is designed to fit between the down tube and the seat tube of a standard frame bicycle. Other types of bicycle may require slight modifications

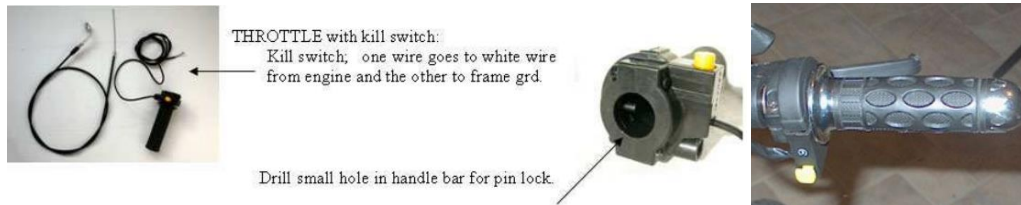
Position the engine so that when the exhaust silencer is installed, it points towards the ground nearly parallel to the down tube. The exhaust silencer needs to be removed to tighten the mounting nuts. So when positioning the engine, there is no need to tighten the exhaust silencer to the engine.

NOTE: If the bicycle frame tubing is too large then you will have to use the bicycle frame Adapter U-bolt or T-bolt to help you.



MOUNTING THROTTLE HANDLE AND CLUTCH LEVER

The new style throttle is fitted to the r/h side of the handle bars - before you slip the throttle onto bars you will need to drill a 5mm hole in the handle bar 125mm from the end to locate the plastic throttle location tit. Put a drop of machine oil into the cable sheath whilst you have it apart. Care should be taken with the cable location groove – if you are too rough with it, you will break it. Be gentle when installing the throttle. The throttle has a kill switch incorporated into it. Earth the kill switch anywhere on bike frame using the wire with the lug on its end. Attach the remaining kill switch wire to the white wire from the engine. Pressing kill switch will cut power to the spark plug and stop engine running. If your bike has twist action gear shifter it may cause problems when fitting your throttle



MOUNTING THE TANK

Screw in the fuel valve filter combo into the tank and then mount the tank. Tip... Wrap top frame tube with bar wrap where tank clamps are. Also, if you have cable runs on the top bar that are open cables, you may need to run them through cable sheath the length of the tank in order for them to work once tank is clamped over them. Apply plumber's tape to thread if leaking.



Mount the carburetor.

Check the other screws including the brass fuel inlet screw for tightness. Typically they need some slight turning. Once the carb is on and tight...You are ready to connect the tank line to carb.

Assemble the needle, spring, keepers, slide and cable in the carburetor – insert the slide in the carburetor housing, rotating it until it meets its groove and fully drops in place. Hookup the throttle twist grip – the carburetor slide should raise almost an inch while the grip twists about a half a turn. You can take the slack in your throttle cable off by taping the grip end gap and applying heat shrink tubing

to firm up the hookup. Install the carburetor on the intake manifold. Measure, cut and install the fuel line.



Mount your CDI coil.

Tip...Use 2 high quality cable zip ties. Go up and over and around the coil and zip tie it to the frame. Loop one zip tie up and over and also through the holes that would normally have the screws going through them. This is a better method than using the screws that come with the kit. You will have a more solid mount and not break the coil. It is not hard to break the coil ears off using the screws. Wire Connections: Blue to Blue and Black To Black.

It is very important to ensure the cover plate on the magneto remains tightly sealed (use 'Holdtite' or 'Loctite' on screws). If water is allowed to get into the magneto chamber, it will cause the magneto to fuse out. Also seal the wire outlet with silicon or similar sealant to ensure water is not carried into the magneto via the wires. The white wire coming from the engine is the electrical output of the motor's generator: 7.5 volts at 0.5 amp. DO NOT hookup the white wire to anything other than whatever electrical gadget(s) you may have. Remember that exceeding 3.75 watts ($7.5V \times 0.5A$) will kill the engine – so be sparing with your electrical demands.



Special Note: If your spark plug has its crown screwed on. Unscrew it and remove it so that you can put your spark plug cap on. Failure to remove this crown can damage or ruin the spark plug cap.



Mount the clutch lever

Mount the clutch lever up near the left handlebar grip. Feed the cable down to the cable keeper below the carburetor and then thru the clutch actuator. Pull the cable tight, wrench the clutch actuator inward and affix the little brass cable keeper. Test and adjust the clutch activation as necessary.



Hookup the Drive Chain

Take your chain and feed one end of it up into the top side of the little drive sprocket housing in the back of the engine. Use a screwdriver to turn the sprocket and feed the chain up, over and back out the bottom of the housing. Mount the chain idler fixture about where you see it in the photo. Start with the idler set as low as possible – then place the chain over the idler and rear sprocket - bring the ends together to see just how many links need to be removed to make the chain reasonably tight (max ¼ inch deflection). Put a bread tie thru the link where you'll break the chain (so you won't lose your place). A chainbreaker tool is ideal – but a hammer and a sturdy finishing nail can punch out the little pin to “break” the chain. When installing the repair link, position the gap in the slip-on keeper to the rear. Now adjust your idler upward just enough to establish the proper deflection. You should have space left to adjust for chain stretching later.



Cut chain to length and using master link put chain back together. Do not cut chain too short! Install idler pulley. Do not over tighten chain. Install chain guard. Use some tin snips to cut cover at the rear if needed. Use a good zip tie at the rear and the extra long bolt for the counter shaft cover will hold the front



INSTALL EXHAUST PIPE

If you need to bend the pipe so it will not hit the frame or bolts, clamp the pipe into wood blocks and bend. Don't bend it too much because you don't want to break it. Don't bend the exhaust whilst mounted to engine. If you do, you will not bend the exhaust, you will break the motor! Exhaust pipe is very strong - much stronger than the 2 mounting studs on the motor.



WARNING

Do not operate engine without kill switch installed. It could result in personal injury if an emergency stop is required. The only other way of stopping the engine is by releasing the clutch lever with bike brakes on and engine at slowest idle - this is not recommended

MAINTENANCE ROUTINE

- 1. Clutch:** a) Remove right side cover from engine. b) Place a small dab of grease at gear mesh area. c) Replace cover.
- 2. Carburetor** Depending on riding conditions, clean air filter every 5 to 20 hours of operation by removing the filter cover to access the screen and element. Wash element with a degreasing agent. Be sure element is completely dry before re-assembly.
- 3. Spark Plug** Remove spark plug and inspect for excess carbon build up. Clean, re-gap to .6mm - .7mm if necessary. Check plug after every 20 hours of operation. A suitable replacement plug an NGK B6HS; NGK B5HS or BOSCH WR 7AC or Champion equivalent is okay to use. The NGK R7-HS is also recommended for better performance and smoother idling. —9—
- 4. Exhaust system** After 20 hours of operation check exhaust pipe for excessive oil and carbon build-up. Be sure to use supplied support strap to secure exhaust muffler to a solid anchor point on bike frame or engine. a) Remove exhaust pipe cap by loosening the retaining screw. b) Spray degreaser into baffle rinse and dry. c) Re-assemble
NOTE: Excessive periods of low speed operation, idling or leaving fuel petcock in the “on” position during shut down periods may cause the pipe to become clogged with unburned fuel.
- 5.Chain** Every time bike is ridden check the tension of the drive chain by: a) Rolling to bicycle forward to remove slack from the bottom of the chain. b) Find the center and push downward on the top of chain while measuring the deflection. c) Tighten chain if deflection is more than 15mm. d) Low speed "chain rattle" can be eliminated with the application of graphite grease to chain.
- 6. Head Bolts** Tighten all fasteners after each five hours of operation. It's most important to check cylinder head bolts: tighten in a X pattern to 12 ft/lb. using a torque wrench. A two piece cylinder and head design engine requires head bolts be kept tight. Important: Check head bolts before each and every ride, vibration can cause them to loosen and blow a head gasket. Caution: Do not over torque or head bolts may break off. Use of a little 'Holdtite' or 'Locktite' is recommended to keep head nuts secured against vibration.
- 7. Right side gears** Remove cover plate and apply a small amount of heavy grease on gear train. Do not over grease

as leaks will occur and also may adversely affect clutch operation. Regular greasing if required will help reduce gear wear and keep gear train quiet.

Motorized bicycle starting and operating instructions

1. Mix 8.0 oz. of 2-stroke oil (16 : 1 ration) to 1 gallon of fuel in separate container. Shake well to mix and fill the gas tank (1/2 gallon capacity). Do not overfill. Remember to put the fuel cap back on. This is the recommended break in mixture for the first 2 tanks full.
2. Open the fuel valve. Small lever pointed down with fuel line is in the open position.
3. Depress the small, round cap plunger (tickle button) to prime the carburetor. It is located on the left side of the carburetor next to the idle adjust screw. One or two times should be enough.
4. Lift the choke lever to the "up" position. It is the small lever on the right side of the carburetor.
5. Pull the handlebar clutch lever inward, to disengage the engine from the rear wheel.
6. Start to pedal – downhill if possible for the first start.
7. Let out the clutch lever all the way and continue to pedal. The result is a direct engine hook up with the rear wheel via the chain and sprocket, and the engine will now turn over (start spinning). Pedal until the motor starts. Accelerate slowly at first.
8. Twist the throttle to increase speed, reverse twist the throttle to decrease speed. To stop, disengage the clutch and apply the brakes. To accelerate, pedal and release clutch while opening the throttle.
9. Adjust the choke to the smoothest engine running position.
10. After warming up the engine, push the choke lever all the way down. If the engine races too fast or too slow, pull the clutch lever and lock in the notched catch. Stop and adjust the engine rpm.
11. If the rpm needs adjusting, turn the idle adjust screw (left side of carburetor) in or out slowly, to obtain the proper idle speed of about 1400 rpm +/- 100 rpm. To correctly break in the engine, do not exceed 20 mph or 30 minutes of continuous running time for the first 50 miles.
12. To stop the engine, push the Kill Switch and turn off the gas valve at the tank. Turning off the gas will prevent fuel from being siphoned from the tank. **Warning note:** Never leave the fuel-tank gas valve in the open position when the engine is not running or when the bike is in storage.
13. After and before each ride, check all of the mounting fasteners, including the axle And brakes.
14. After using the first gallon of gasoline, the next fuel mix will remain at 40:1 gas to oil ratio. Use a high-grade, synthetic 2-cycle motorcycle oil. **Warning note:** Engine lockup or piston seizure due to improper gas/oil mixture will not be covered by your engine's factory warranty. It is the responsibility of the owner/operator to make sure the gas and oil are mixed correctly.