

Fitting Instructions for A50 and A80 i A100 Bicycle Engine Kits

Package List



Bicycle Engine Kit	
1	2 Stroke Engine
2	Fuel Tank
3	Fuel Tank Cap
4	44 Tooth Chain
5	Exhaust Pipe
6	Clutch Cable And Throttle Cable
7	Kill Switch
8	Clutch Lever
9	CDI
10	Carburetor
11	Chain Guard
12	Chain
13	U Brackets And Bolts
14	Chain Tensioner
15	Exhaust Muffler Fixer
16	Throttle Handle
17	Rubber Sheet
18	Fixed Iron
19	Spark Plug Tool
20	Fuel filter
21	Fuel Valve
22	Spring
23	Spark Plug
24	Fuel line
25	Withdrawal Tool
26	Install Screw

Please take the time to read these instructions before starting on your project.

Some mechanical ability is very desirable to properly install your engine. Some buyers can complete the job in 2 hours whilst others may take 2 days. It is not important how long it takes - you will gain great pleasure and satisfaction from doing the job right. Have fun.

The easiest installation is performed on the standard v frame 26" bike with 25mm round tube frame. It can be mounted to some other bikes but it best to stick with the standard bike. Some motors come with a frame adapter plate for fitting to non-standard oval or larger tube configurations. If time and care is taken with the initial installation and ongoing maintenance, you should have many thousands of kilometers of trouble free operation.



Fitted engine

INSTALLING REAR SPROCKET

STEP 1

There are two rear sprocket rubber packers. Cut one of them and only one. Cut only between the drilled holes.



STEP 2

Place the cut one inside of the spokes.



STEP 3

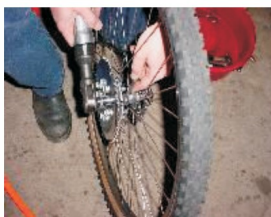
Place the other packer on the outside of the spokes.



STEP 4

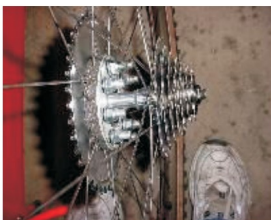
Thread the nine bolts through the sprocket and use the half moon backing plates on the inside. Tighten all nine bolts moving across in a star fashion and a little at a time to allow for an even pull down. Once the sprocket is tight spin the wheel and check that the sprocket runs true.

Deviation can be no more than 1.5mm both ways. Any side-to-side excess deviation can be corrected by spinning the wheel and then tightening the sprocket where needed in order to get correct alignment. Make sure bolts are tight. Notice that concavity or indentation of teeth of the rear sprocket is inward towards spokes. This helps keep the chain closer to the inside of the wheel and spokes and allows for better clearance of the rear stays of the bicycle frame.



STEP 4 COMPLETED

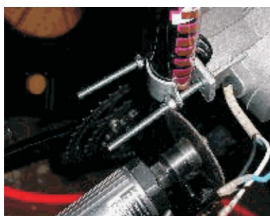
Here is how it looks when completed. Nice, tight, and true.



MOUNTING ENGINE TO FRAME

STEP 5

Mount the engine into the frame. This is the front motor mount. Some bikes have a large diameter lower bar and some need clearance for the air box intake so you need to use the parts provided in the kit. Use spacer provided with the kit (spacer bar is not included in the SkyStar kit). This spacer normally would require the drilling of a hole in the frame to bolt the centre of the spacer through (shown below). I prefer the method shown, which is to pull the studs and replace them with longer ones (threaded rod) that you can get at the local hardware store. Then, you can use the steel motor mount clamp that came with the kit and not have to drill a hole in your frame. Then cut the excess off. My bike had an ovoid shaped lower bar about 50mm across. I used this method.



Here is how the front motor mount looks if you have to use the 3 hole adapter. Yes....you drill...and..As you can see..It works perfectly.....and..you may have to get a longer bolt and bend the exhaust pipe some too....To bend the pipe, simply get a vise and use some wood to block the pipe and then bend it.



STEP 5

Here is step 5 complete with studs nipped and looking good!! Notice how well the intake inlets clear. Always mount air intake with inlets down!! Always!! If you need to, you can put the air box on a grinder

and cut down on the inlet tubes a little to make sure they clear the frame. If you use the spacer on the front motor mount, usually this is enough to clear. Also, you may need to file down any water bottle screw mounts if they protrude and are in the way of a motor mount.



FITTING CONTROLS

STEP 6

Lightly grease right side handle bar end. Slide throttle on all the way and then back it off a hair and then tighten it down evenly. Do not over torque the screws. If you get real ambitious, unload cable from carb slide and from throttle end and clean up the fiber plastic and lube the cable sheath and re assemble.



STEP 7

Mount the clutch lever.



STEP 7 COMPLETE

Here is what the clutch cable connection should look like at the motor.



STEP 8

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 plumbers tape to thread if leaking.



STEP 9

Mount your 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. Also..Tie Kill Switch to the Blue wire / earth. The white wire is generator and has a max output of .5A 7.5V. Anything that draws more current connected to the white wire will kill the motor.



Testing resistance on Magneto coil should read:
blue to black = 323ohms; black to white = 2.3ohms

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.



Here is what the Idler Pulley looks like Installed. Notice the Wheel is at the most down position so as the chain gets slack, you simply move the wheel up to take out the slack.



STEP 10

Remove the 3 screws from Counter shaft side cover and also remove spark plug. Remove clip from master link of chain and then thread chain up and over counter shaft sprocket by rotating the sprocket using tool. Having the spark plug removed allows engine to be turned easily to thread chain. Tip...Since you have this cover off, Hold clutch arm and rotate cover and pull clutch arm out of cover and then grease it and rotate it back in.

**STEP 11**

Put some molly grease on the shaft and in the hole.

**STEP 12**

Cut chain to length and using master link put chain back together. Do not cut chain too short !! Install Idler pulley. Make sure you grease the plastic wheel metal shaft. 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.



STEP 13

Install exhaust pipe. If you need to bend the pipe some so it will not hit the frame or bolts, clamp the pipe into wood blocks and bend. Do not bend exhaust 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.



STEP 14

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. Tip...Get an inline fuel filter. Even though the fuel petcock has a screen filter, it is porous and allows sediment through.. A high quality inline fuel filter with paper element is a super way to go and to keep fine particulate out of the carb and the engine running fantastic and like new. Well....Install is done..Mix your oil with the petrol before adding to tank...Fuel up the bike..And...go baby go !!!!! Enjoy!!! Ahh...do not get too excited...This is a new motor and you need to take it easy for the first 500 kilometers or so ...Oh well..the price of owning a new engine...You have to run it in....But..That is fun too...Enjoy!!!!



NOTE: During run in, keep drive chain snug. During run in Keep the mix ratio at 16:1 for 500 kilometers and keep your speed down and do not run your motor for longer than 30 minute periods.

After run in you can allow the chain a little slack. Also...Keep mix ratio at 20:1 and use a high quality synthetic Motorbike / Lawnmower Two Stroke oil.

CARBURETOR INSTALLATION

STEP 1

Remove carb cap and lay out all the parts



STEP 2

Place needle into center of carb slide and then put flat washer with groove on top of needle making sure you have the groove lined up with the groove in the carb slide

**STEP 3**

Install cable to plastic grip first, then thread this end through the carb cap and through the spring

**STEP 4**

Compress spring and load cable into the end of the slide. Once you have it started, put the entire length of the cable into the slide, once you have done that, release the spring to the inside of the carb slide allowing the spring to push onto the flat washer and thus holding the needle down.



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 dusty 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 is NGK BP-6L if you can find it. Otherwise, go for the NGK B-6L. The NGK R7-HS is also recommended for better performance and smoother idling.

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) Pull cap and baffle out of pipe.
- c) Clean with degreaser, rinse and dry.

d) 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.

7. Right side gears

Remove cover plate and keep 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.

General Information

Obey all traffic regulations. Always wear an approved helmet whilst 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 thoroughfare or pathway whilst the engine is operating. Never operate your motorized bicycle in an unsafe manner. **Check local and state laws before riding on streets.**

WARNING! ALWAYS wear a helmet whilst riding.

Motorized bicycle starting and operating instructions

1. **IMPORTANT: PLEASE READ THIS PETROL AND OIL MIXTURE RATIO**

The engine is a 2 stroke design, therefore a petrol/oil mixture is necessary. During the first 500km break-in period, the ratio for engine is 16 parts petrol to 1 part high-grade 2 stroke motorcycle oil (65ml Penrite 2 stroke motor oil to 1 litre of 91 octane unleaded petrol). After the break-in period, the ratio is increased to 20 parts petrol to 1 part oil (50ml Penrite 2 stroke motor oil to 1 litre of 91 octane unleaded petrol).

Be sure to mix fuel and oil before adding to tank - don't add separately.

Do not exceed 20km/h during break-in period. Speed may be increased to 35km/h after the first 500km.

Use only high grade 2 stroke motorcycle oil to ensure proper engine lubrication.

WARNING Remember safety first: Wipe up any spilt fuel. NEVER refuel a hot engine or smoke whilst refueling. This could result in fire and personal injury. Always move your motorised bike at least 3 metres from any refueling area before attempting to start it. Never leave the tank fuel cap off after refueling as rain water could contaminate the fuel and cause engine failure.

1. Open the fuel valve. Small lever pointed down with fuel line is in the open position.
2. Depress the small round cap plunger (tickle button), to prime carburetor. One or two times is enough.
3. Lift choke lever to the upward position. This is the small lever on the right side of the carburetor. All the way up the choke is on. All the way down the choke is off. Move progressively downward to off position during engine warm up period.
4. Pull the handlebar clutch lever inward, to disengage the engine from the rear wheel.

5. Pedal (down hill if possible for first start).
6. Let out the clutch lever all the way out and continuing to pedal. The result is a direct engine hook up with the rear wheel via chain and sprocket and the engine will now start spinning, Pedal until motor starts. Accelerate slowly at first.
7. Twist throttle to increase speed, reverse twist throttle to decrease speed. To stop, disengage clutch and apply brakes. To accelerate, pedal and release clutch whilst opening throttle.
8. Adjust choke to the smoothest engine running position.
9. **After warm up push choke lever all the way down.** If engine races too fast, or too slow, pull clutch lever and lock in the notched catch, stop and adjust engine rpm.
10. If the rpm needs adjusting, turn the idle adjust screw (top of carburetor) in or out slowly to obtain the proper idle speed of about 1400 rpm +/- 100 rpm To correctly break the engine in, do not exceed 25 kph or 30 min. continual running for the first 80 klms during engine break in. **Engine will develop more power after break in.**
11. To stop the engine, push Kill switch and turn off gas valve at tank. Turning off the gas will prevent fuel from being siphoned from tank. **Warning:** Never leave the tank gas valve in "open" position" when engine is not running or the bike is in storage.
12. After or before each ride check all mounting fasteners, including head bolts, axle and brakes.
13. **Warning:** Engine lock up or piston seizure due to improper petrol/oil mixture will occur. This the responsibility of the owner/operator to make sure the petrol and oil is mixed correctly.