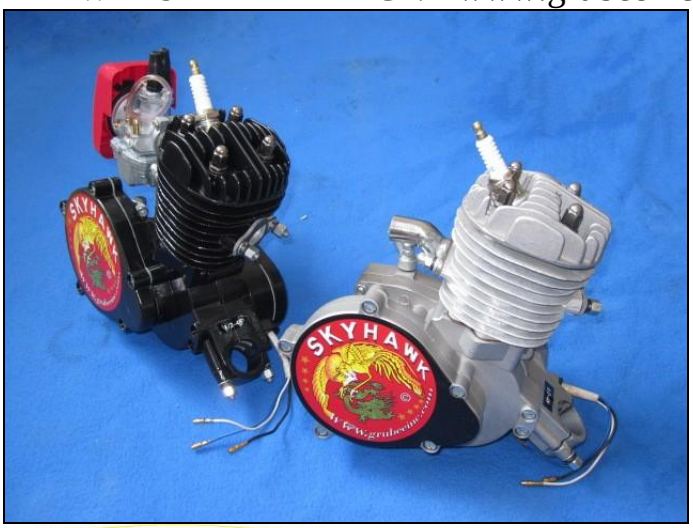
PLEASE READ THESE INSTRUCTIONS BEFORE INSTALLATION

WEB SITE REFERENCE: www.grubeeinc.com **Instructions Copy Righted:** Rev. 2011



CHINA GAS **Yuan Dong SkyHawk Engine Parts Kit:**

GT5 > 66cc / 47mm x 38mm bore and stroke: Sq. Head; > Chinese erroneously call this engine 80cc:
Gt2B > 48cc 40mm x 38mm bore and stroke: Rd. Head. > Old timers call this engine a *WingDing*.

Kit Box Contents for distribution in Canada only:

48cc or 66cc 2 cycle gas engine with dual needle bearing: Black Catalytic exhaust muffler; 2.5L Fuel Tank plated inside; Drive chain; Chain guard; 44T Wheel Sprocket with 9 hole mounting hardware for 36 spoke wheel; Ball Bearing Chain idler: Push button clutch lever, Carburetor. CD Ignition module, Throttle w/ integral kill switch: Tool kit with extra spark plug & gaskets; Extra mt. block, Extra head gasket:

Note: This is a Do it Yourself Kit: The End User or the Installer becomes the vehicle manufacture and assumes all laws of the land including any product liability. Do not use or buy this product if you expect otherwise.

Mechanical aptitude and working ability is required to perform this installation. Many "do it yourself" backyard mechanics will find this project rewarding. A love of small engines is the only required catalyst for this project. However, installation is sometimes best done by a professional auto or motorcycle mechanic. WARNING: Do not use a donor bike with front and rear fenders as side holding struts can come loose and lodge in wheel spokes causing danger to rider. Frame size should have a 70 degree included V angle w9ith down-tube of 28 to 32mm dia. and seat tube of 28 to 30mm dia. For sufficient engine clearance select a bike with a seat tube length of at least 12 ½ inches measured between bottom of top tube and top of pedal sprocket tube. Using a bike coaster brake only is not recommended as chain can break leaving no brake at all. Use a bike with front and rear brakes to ensure best stopping ability; A rewarding joy and challenge is found in designing a custom installation of your own. Remember, a quality installation and daily maintenance is paramount to safe usage and long term satisfaction. You may find many uses for this engine such as power for a stationary machine or for other off road riding machines. Have fun and good luck on your motorized project. Happy trails to you from Don & Angel at GruBee/China GAS:

STEP #1 Mounting the Engine:

1. The engine mounting "ears" are soft it is best to make sure all 4 engine studs are securely bottomed out in the engine before mounting. Use a double nut "Jam Nut" procedure to tighten.

2. Consider using Masking or Duct Tape on the front down-tube & seat tube of your bicycle to protect the paint finish while test fitting the engine to your donor bike. If the distance between the two frame tubes exceeds the engine mounting span then additional spacers or welded brackets may be required. Mount the engine to the seat tube first and then fit to the front tube. If frame tube fit is smaller than engine clamp dia. use strip shims to fit. See figure 1. below for example of installation on a wide frame bike..

Figure 1.

<u>Bike with wide frame or big down tube:</u> Use ¼" thick 1-1/8" x 2-1/2" steel plate with one hole in the center for a bolt to go through a drilled hole in tube frame and two holes for cap screws to go into engine block. Additional spacers maybe required depending on the donor bike.

<u>Figure # 1</u>

3. If the rear frame tube from the seat down to the pedal sprocket is too small to fit the rear engine mount, a rubber shim can be made from an old bicycle rubber inner tube. This also helps reduce engine vibration. Engine needs to have the carburetor set in a level position. **Too much engine tilt can cause chain to hit the drive cover and engine to not run correctly. It is best to have the drive chain to rear wheel sprocket be as horizontal as possible with no more than 15 degrees max engine tilt.** After the desired engine location is determined mount the engine to frame. Appling LocTite thread lock is recommended to avoid loosening due to vibration. **<u>Note:</u> All threads are metric**.

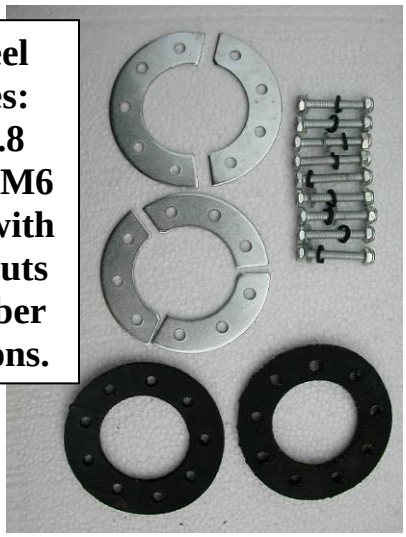
<u>Chain Wheel Sprocket Installation:</u>

The Drive Chain Sprocket has a 36.9 mm dia. center hole and mounts on axel hub on the left side of the rear wheel against the spokes dish side in. The sprocket must fit over the hub in a perpendicular plane with the axle. This insures that your rear chain sprocket spins true with the rear bike wheel. ***NOTE:** On some older bike axle hubs like on coaster brake models it may be required to slightly enlarge the sprocket center hole to obtain a flush, and concentric fit next to the spokes. This is best done on a engine lathe by a professional machinist.. . It is also recommended that the rear wheel be re-spoked to 12 ga. spoke wires to insure long life. Most any Bike shop can do this operation for you. Applying thread adhesive and equal tightening of the sprocket bolts. This keeps the chain sprocket true with axle and free from wobble while spinning. With bike upside down spin wheel and check sprocket for wobble. The chain can jump off the sprocket if the sprocket installation is done incorrectly

1. For kit sprocket installation, locate sprocket on axel hub with curved side next to spokes, shinny side in. If not pre sliced, cut the rubber isolator ring between holes in order to fit INSIDE the spokes and around the axle. Install the split steel retainer plates next to the rubber isolator and insert 9 bolts.
2. Secure with 9 bolts compressing the chain sprocket to the spokes. Note: Rubber isolators may be needed on both sides of sprocket for chain alignment.
3. The **Chain Sprocket on the Wheel** must align within 1/2 cm to the **Chain Sprocket on the Engine**.
4. The wheel chain sprocket is mounted with teeth-out and dish-in next to spokes. **SEE FIG. #2**

Place Sprocket's bright chrome side inward next to spokes with dished side outward:

5 Steel plates: 9 - 4.8 grade M6 bolts with lock nuts 2 rubber cushions.



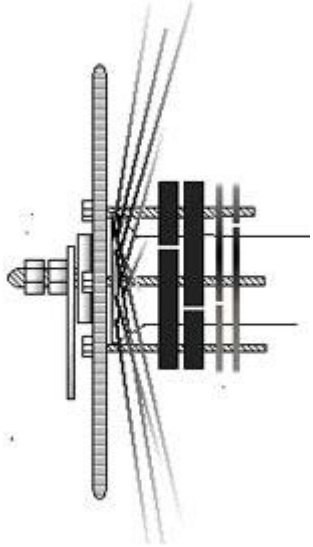
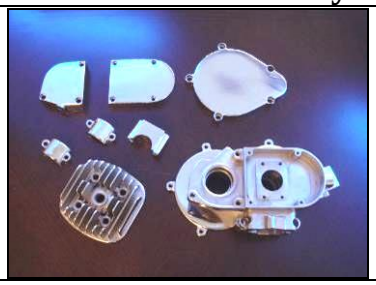


Figure #2 - 9 slot - Chain Wheel Sprocket mounted concave dish side inward:

You will need to decide how to best place the rubber cushions; either on each side or on one side of wheel spokes. Below are some Kit Options available from your dealer:

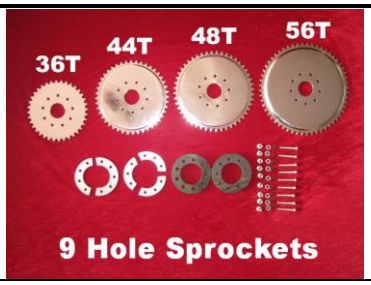
Model #2 HD axle kit:

2.5L Chrome Tank

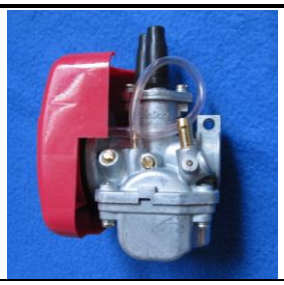


Chrome engine parts available:

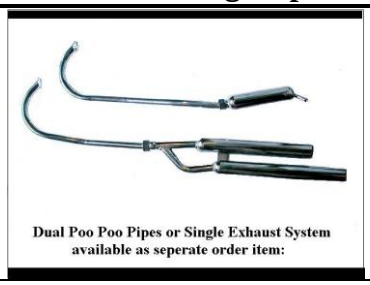
415HD Chain



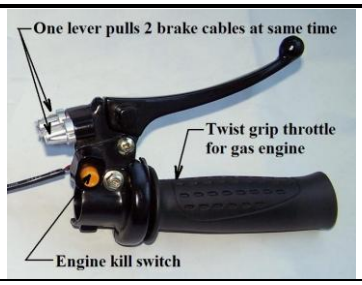
Wheel sprockets:



CNS Carb w/ext. choke



POO POO PIPES



Dual brake cable throttle

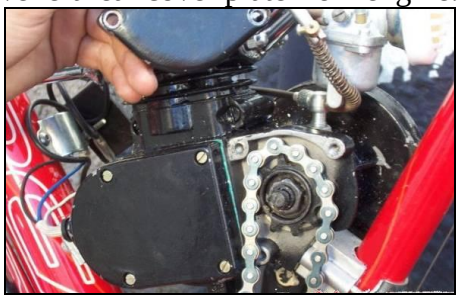
HD axle kits:

HD axle pre-installed in Wheel for drop in fit.

Bike frame with built in gas tank

The drive chain can be easily shortened to the correct length. Special tools are required to remove and replace the master link when shortening the chain by removing links. Ideally, both your **pedal drive chain** and your **engine drive chain** should have the same tension.

A. Remove left rear cover plate from engine. This is the plate next to and under the clutch swing arm.



B. MASTER LINK

B Your engine may come with a standard bike chain or with a Heavy Duty 415 chain depending on how it was ordered by your dealer. Engine drive sprockets are different depending on chain size. The 415 chain uses a wide drive sprocket and the std. bike chain uses a narrow one. A 415 chain will work with a narrow sprocket but a std. bike chain will not go over a wide drive sprocket. Note: Install chain with master link clip on outboard side of the primary drive sprocket teeth. (Note: wide tires larger than 2.125 may rub on a wide 415HD chain:)

C. Use supplied spark-plug wrench to turn engine crankshaft sprocket to feed chain around it. Do not pry sprocket with a screwdriver or similar object.

D. Fit chain, measure and remove excess links to assure proper length. Be sure master link connection rides on the inboard side of the primary drive sprocket or interference of link and sprocket can occur. Proper chain length is when top chain has ¼ inch to ½" deflection with the bottom side of the chain loop tight.

E. Chain tension adjustments can be made by pulling rear wheel back if frame has straight slot wheel drop out. If both chains can be adjusted equally then installing chain idler on the wheel strut may not be necessary. At installer's discretion the chain idler can be installed on either the pedal chain or engine drive chain.

F. Install supplied chain safety guard by attaching to engine and wheel axle struts.

Ignition Coil and Engine Kill Switch installation

A) Mount CD ignition coil on bike frame, close enough to attach coil wire to spark plug. Mount as far away from exhaust pipe as possible to avoid heat damage to semiconductors in CDI module.

B) Attach CD ignition coil wires to same identical color coded wires coming from engine.

C) Install Engine Kill Switch Wire on throttle to white wire coming from engine. Install the other wire with eyelet to a good frame ground not on paint. This will ground ignition and stop the engine when the kill button switch is activated.

D) Route all wires away from engine exhaust heat. Secure wires with a plastic tie straps.

***!WARNING!** Operation of engine without stop or kill switch installed could result in personal injury if an emergency stop is required! The only alternate non recommended way of killing the engine is by releasing the clutch lever with bike brakes on and engine at slowest idle.

Catalytic muffler;

Throttle with kill swt.

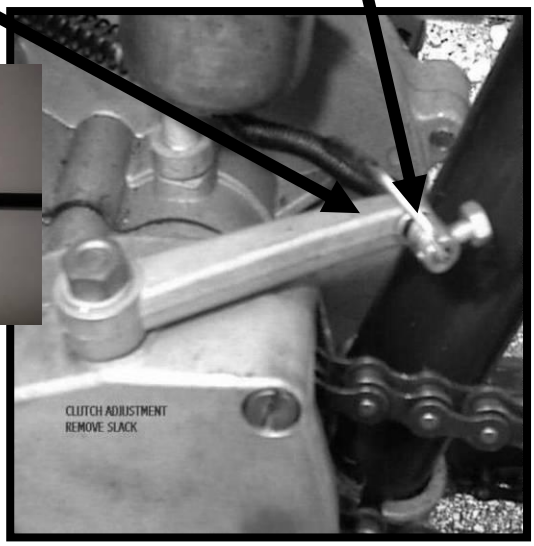
CDI ign.

Push button Clutch lever: Optional Dual lever Clutch & Brake Clutch cable end locks in lever handle.

Clutch cable installation and adjustment:

A) Install clutch lever to left side of handlebar and attach cable end barrel into lever slot hole.
B) Squirt oil down the cable sleeve: Route clutch cable through the ball-mount on motor with the big spring around the cable jacket and ahead of the ball mount. The big spring serves as a cable heat shield.
C) Insert cable wire through small spring and route through clutch arm and attach brass cable-end and screw. Adjust cable tension to allow very slight play in arm. Handlebar clutch lever must be in the released or outward position to complete this operation.
D) Activate lever a few times, and check clutch arm for slight free play: **About 1/16" engine clutch arm free play is required with the handle bar lever in the released in what is called clutch engaged position or the engine will fail to start if cable is too loose or if too tight. Re-adjust as required.**
E) Basics of clutch operation: The handlebar lever pulls the cable that moves the engine clutch arm. In turn the clutch arm pushes a rod through the motor that pushes the clutch plate out. (similar to a car clutch.) Releasing the handle bar lever engages the clutch and provides engine torque to the drive chain or to start the engine. The clutch friction allows engine to start, and also transmits engine torque to the drive chain. When the bike is in the pedal mode the handle bar clutch lever is locked inward in the catch notch. The bike then operates in default as it would without any engine. Periodic clutch adjustment is necessary to maintain efficient operation ***NOTE:** Cut off excess cable from clutch arm, before operation, to avoid possible interference with pedals, chain, your legs, etc. **See Figure #4.**

Clutch arm: Clutch cable. Note brass screw lock at the end;



Note that lever is parallel with side of engine when clutch is engaged.

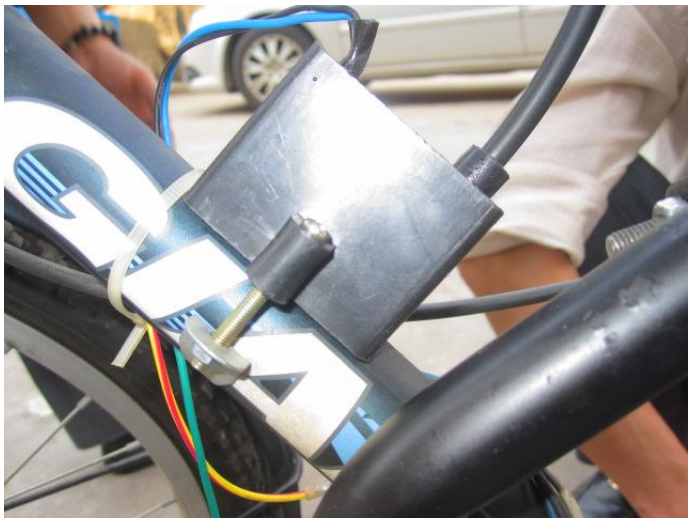
Figure #4 Additional cable adjustment can be made at a mid cable joint if your kit is so equipped.

NOTE: If Clutch cable is not adjusted correctly the engine will not start. Check for slight clutch cable arm free play with handle bar lever released which would be in the clutch engaged position.

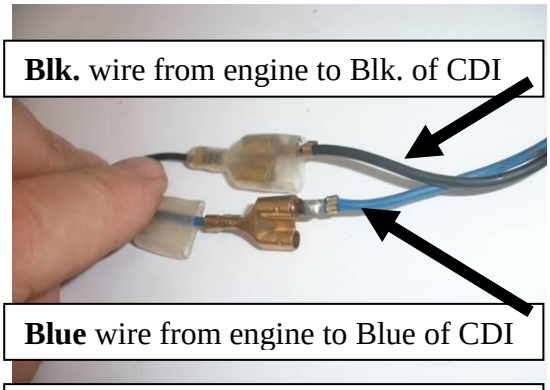
Carburetor and Throttle Installation

OPTIONAL NEW STYLE THROTTLE
with kill switch:
Kill switch; one wire goes to white wire from engine and the other to frame grd.

Drill small hole in handle bar for pin lock.



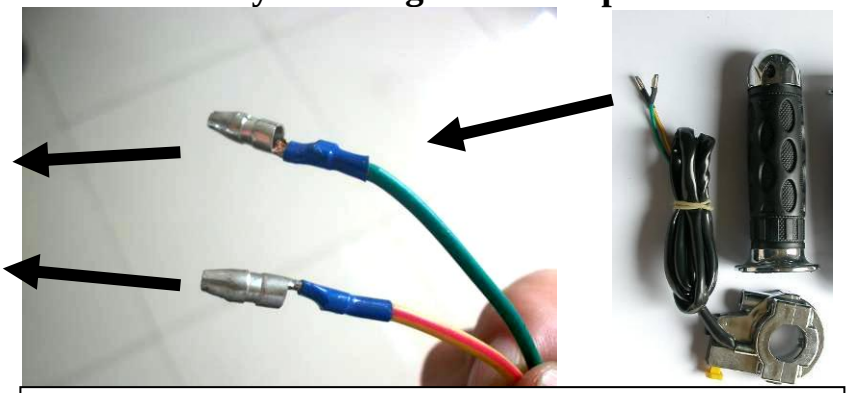
Install CDI module on down tube as far away from engine heat as possible.



Blk. wire from engine to Blk. of CDI

Blue wire from engine to Blue of CDI

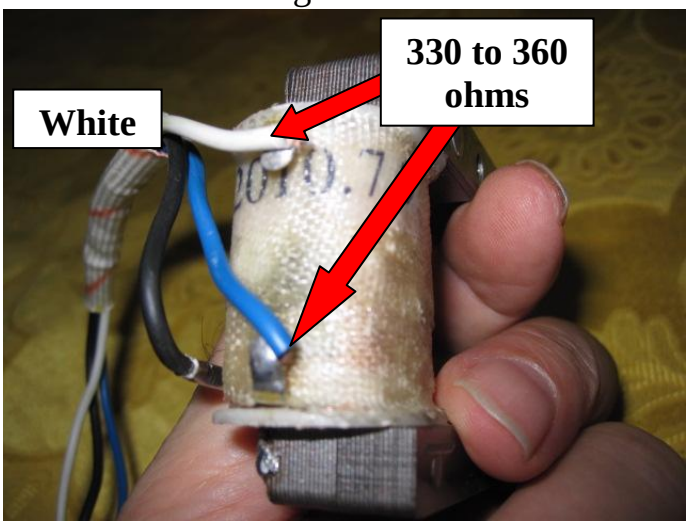
For CDI Color code is very important: Like to Like.

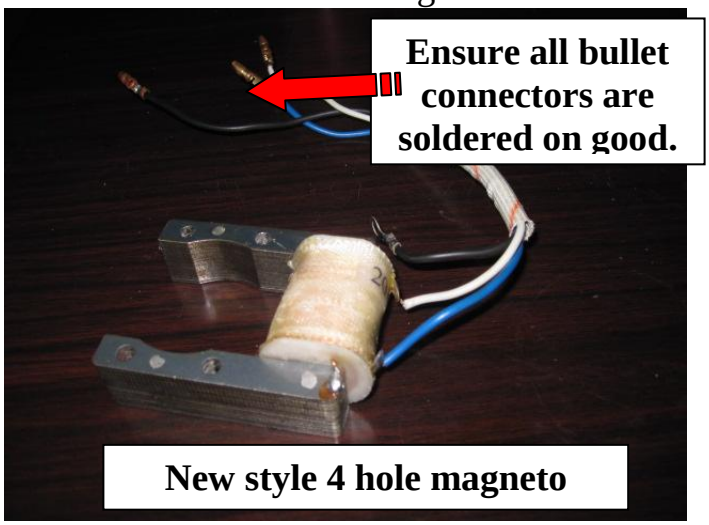


Two kill switch wires can go to either of the remaining 2 empty holes of the CDI terminals: Color code not important.

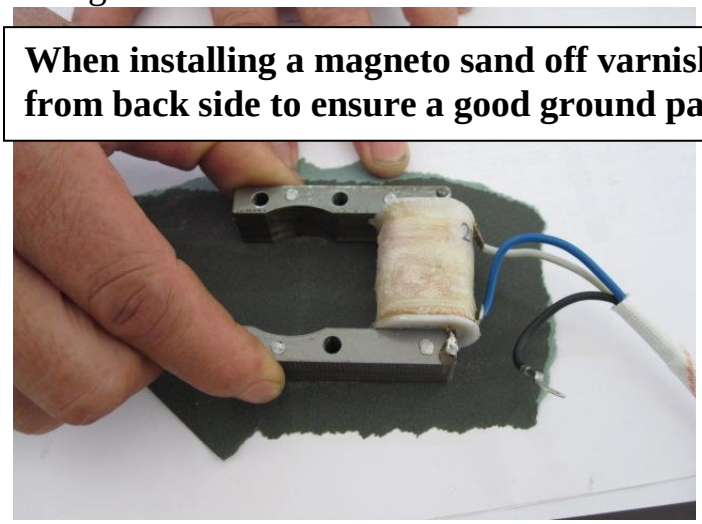
First install Blue & Black wires from engine magneto to same color CDI wires. **Warning: Do not hook up backwards or damage will occur to the CDI.** Next install the throttle handle kill switch wires into the 2 remaining open holes of the 2 CDI wire terminals. Push the clear rubber protectors over the 2 connections and tape with black electrical tape. The remaining white wire from the engine is not needed unless you want to run a small wattage 6V headlight but it's not recommended as it will rob engine ignition power requirements so is

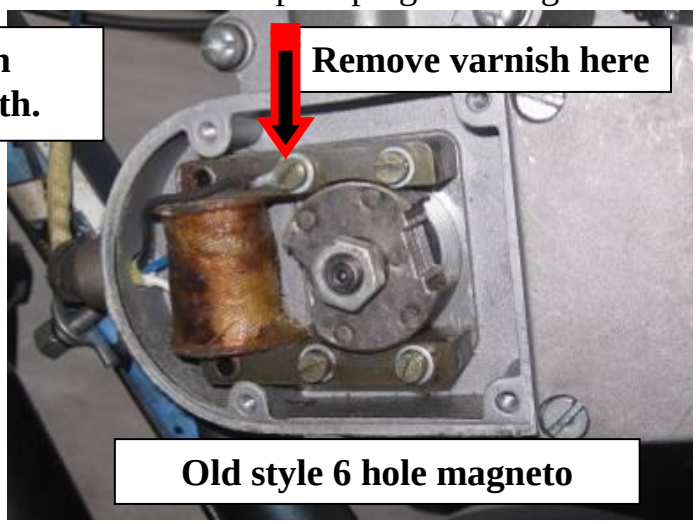
really best to tape this wire up securely or just snip it off at the engine exit plug. To keep water out of the magneto box use a heat shrink tube over the wire sheathing.



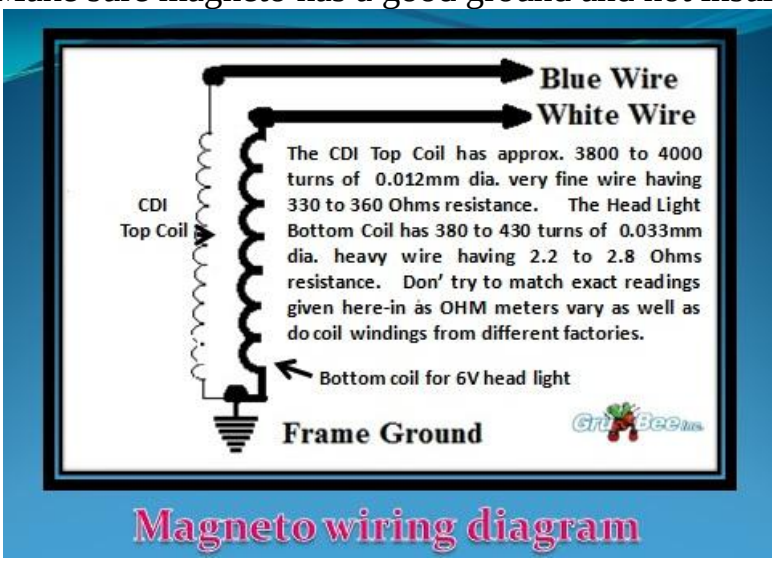


The "Magneto" is the heart of the ignition system and is activated by rotation of a permanent magnet rotor. When a N/S magnetic flux field rotates past the magneto coil an induced voltage is sent to the CDI via blue / black wires so as to fire the spark plug at the right time.

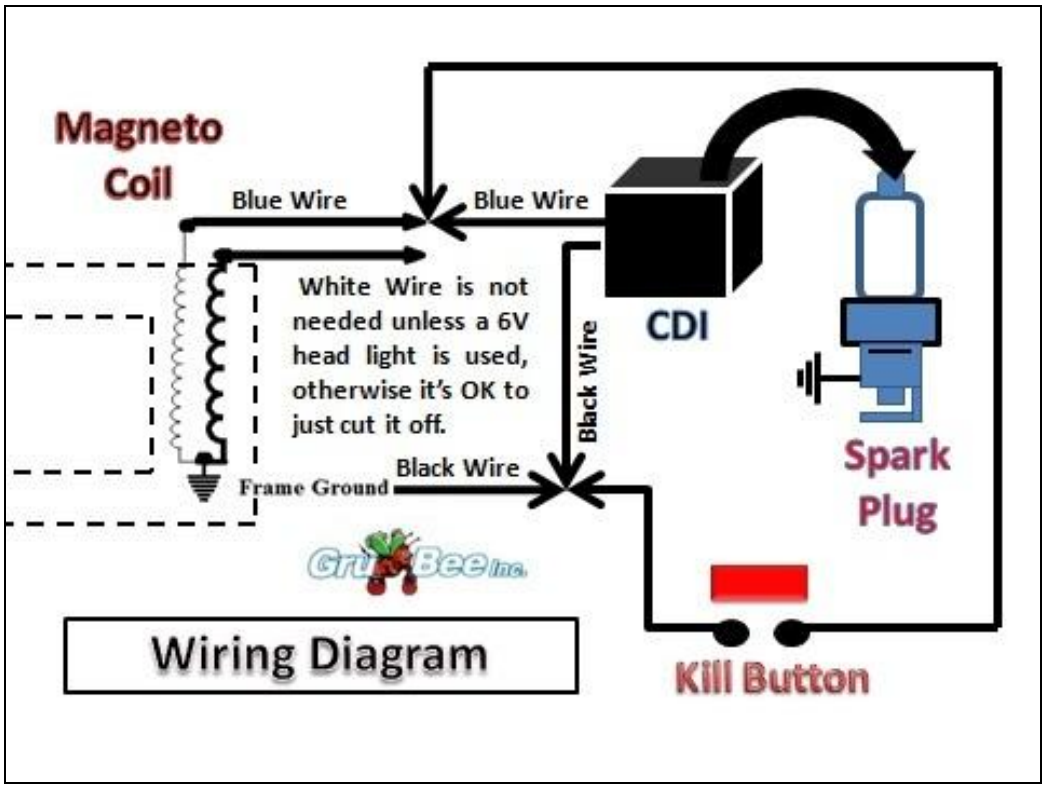


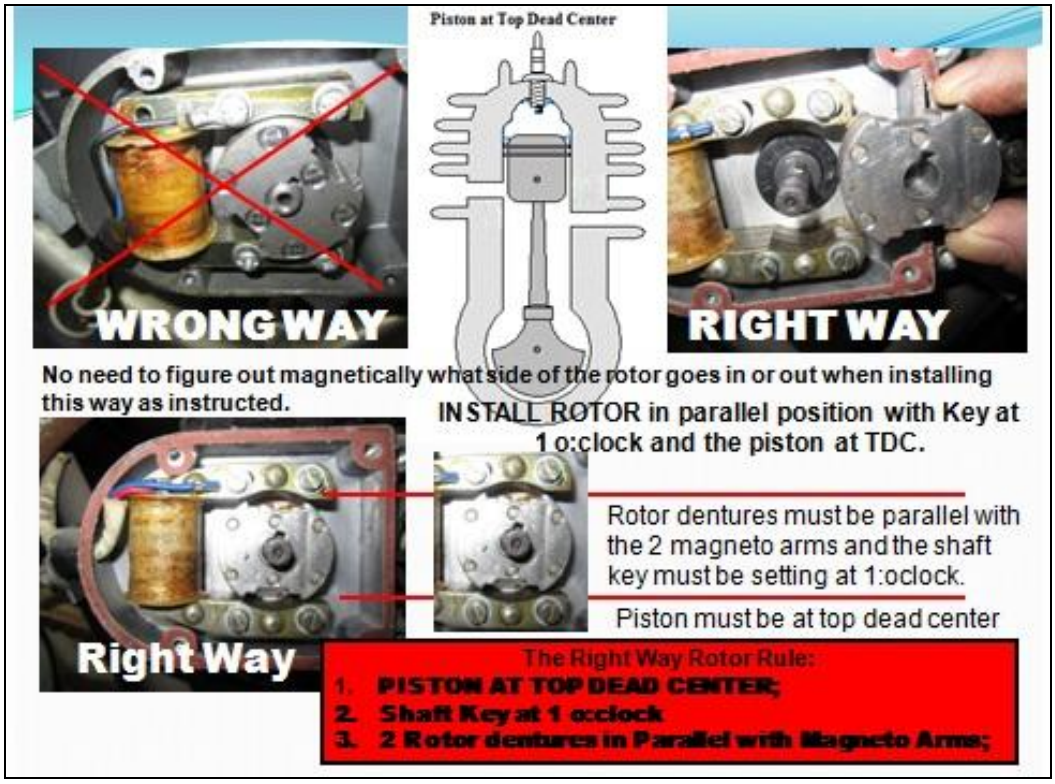


Engine firing timing is not adjustable; Position of p/m rotor is fixed to ensure correct timing. If engine does not fire at start up check all bullet connections. Check if kill switch has an unwanted ground. Make sure magneto has a good ground and not insulated by varnish.



This engine is made in compliance to all applicable standards for model year 2018 under the Canadian Off–Road Small Spark Ignition Engine emission regulation for engine family JJCYS.0661YD if 66cc and JJCYS.0481YD if 48cc.





Note: Push / Pull me terminal connections are fast but nothing beats a crimped and soldered connection protected by heat shrink tubing for endurance.

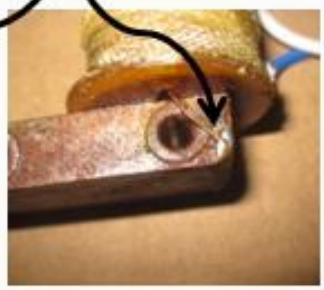
The best way is to cut the wire terminals off and strip back to raw copper. Solder with rosin core 60/40 and use black tape or heat shrink tubes to secure the connection and seal out moisture.

The Permanent Magnet Rotor is often over looked as a root cause of No Start or poor engine performance. It's nice to think a permanent magnet rotor would never need replacing but such is not the truth. There is no such thing as a permanent magnet. Over time all magnets will loose power or flux density. If rotors are stored for long periods of time or stuck to steel they will loose power.

Why do you need a new magneto? You don't unless your engine is not running due to having no spark or a weak spark at the plug.

If your engine has this kind of symptom make the following diagnostic checks to isolate the root cause before replacing the magneto.

1. Check magneto coil continuity with a high quality ohm meter.
2. Check to see if the kill switch circuit has an unwanted ground.
3. Check the continuity of each lead wire, Blue, Black and White.
4. Check wire terminal ends. Pull to see if tight and well crimped.
5. Check the coil ground solder joint connection.



Installing a new magneto: Step one:

Before installing your new magneto the protective varnish coating needs to be removed from the back side by rubbing on a sheet of 180 grit sand paper or emery cloth.

Carburetor (PZ14J)

Use this procedure for attaching throttle cable to carburetor slide valve:

The small stop on the cable wire end slides through the long groove on the slide valve. Early slide valves were made of brass and later ones are made of black plastic. Beware that there are 2 sizes of black plastic slide valves. The one best to use with the 66cc is 14.95mm in dia. but has to have an appropriate carb. housing to accommodate the larger valve.

Fuel Tank installation

A) Attach fuel petcock to tank. Use Teflon tape to seal threads. Careful not to strip threads.
B) Mount tank on bike top crossover frame with two supplied brackets and nuts.
C) Attach fuel line from tank to carburetor. Best to use USA made fuel line like GoodYear SAE 30-7 4.8mm obtained from local automotive stores like AutoZone. Factory supplied clear plastic line gets hard over a period of time. ***NOTE:** Filters are contained in the petcock and in the carburetor inlet. If engine runs poorly clean the valve filter as residue from the tank may have clogged it.. It is highly recommend that a tank liner coating be applied inside the tank before installation. This product is called Kreme and is available from motorcycle dealers;

D) **Good idea to use a rubber strip to cushion the tank on top tube.**

IMPORTANT: PLEASE READ THIS: Gas and Oil Mixture for Fuel ratio

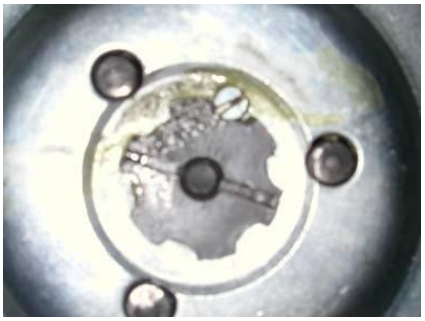
The engine is a 2 cycle design, therefore, a gasoline/oil mixture is necessary. During the break-in period (1st 2 tanks of fuel), the ratio is 16 parts gasoline to 1 part oil. After the break-in period, the ratio can increased to 40 parts gasoline to 1 part oil. ***NOTE: Synthetic 2 Stroke Oil** can also be used to insure proper engine lubrication. Consult your WD dealer for his recommendations for your country and area.

!WARNING! Remember safety first: Wipe up any spilled fuel. NEVER fuel a hot engine or smoke while fueling. This could result in sudden fire, personal injury. Always move your motorized bike at least 10 feet from any fueling area before attempting to start it. Never leave the tank fuel cap off after fueling as rain water will contaminate the fuel and cause engine failure.

MAINTENANCE SECTION

1. How to Adjust Clutch if signs of slipping or squealing are encountered :

A) Disengage clutch by pulling handle bar clutch lever inward and lock into catch lock.
B) Remove right side engine clutch cover and remove small locking screw on center *Clutch Adjust Nut.
C) Pull clutch arm on left rear engine inward. Back off *Clutch Adjust Nut ¼ turn counterclockwise.
D) Release clutch lever and check for slight clutch arm 1/16" free-play on opposite side of engine. Readjust *Clutch Adjust Nut as required to get required 1/6" clutch arm free play.
E) Tighten *Clutch Adjust Nut on clutch plate clockwise until just snug.
F) Then re-install small locking screw in outer edge of *Clutch Adjust Nut .
G) Good idea to place a small gob of grease at gear mesh area. Use grease sparingly! Then replace cover.
H) Squirt light grade oil down clutch cable sheathing to reduce friction and make for easy lever pull.



*Clutch Adjust Nut

2. Carburetor

Per instructions from the Dept. of EPA the idle and air fuel mixture screws have been epoxy sealed at the factory to avoid end-user tampering. 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 such as Simple Green™ or Purple Stuff™. Be sure element is completely dry before re-assembly. IMPORTANT: If engine runs poorly clean tank shut off value filter.

MAINTENANCE SECTION Continued:

#3. 3 pt. Spark Plug

Remove spark plug and inspect for excess carbon build up. Clean, re-gap to .0.036" of an inch if necessary. Check plug after every 20 hours of operation. New spark plugs are available from your selling dealer. Be careful using aftermarket spark plugs as heat range and threads differ greatly. An extra plug is included: **When replacing the spark plug in an Angle Fire head it's best to use a 3 point electrode spark plug P/N Z4JC to ensure total combustion.** (Ask your selling dealer for it by part number.)



#4. Exhaust system

After 50 hours of operation check exhaust pipe for excessive oil and carbon build-up. If muffler is clogged your dealer has replecements. Make sure attaching nuts are tight and no exhaust leaks are occurring. Be sure to use supplied support strap to secure exhaust muffler to a solid anchor point on bike frame or engine.

A) To remove inside catalytic exhaust insert loosen the retaining screw on end cap and remove.
B) Pull cap and baffle out of pipe. Note: Some catalytic inserts are welded in and cannot be removed. If you need a replacement muffler contact your dealer. 2010 models have an air shield welded on the outside of muffler again per EPA rulings. This insures hot run so catalysis can clean the exhaust.
C) Clean with degreaser, rinse and dry. Re-assemble: File muffler attach flange to have smooth flat surface.
D) Always use a new exhasut gasket and good idea to use double nuts on muffler attach studs;

***NOTE:** Excessive periods of low speed operation, idling or leaving fuel petcock in the "on" position during shut down periods may cause the muffler to become clogged with unburned fuel.

#5. Drive Chain: 410 is standard and HD 415 is an option.

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 ½ inch.

#6. Head Bolts Tighten all fasteners after each five hours of operation. Most important to check Cylinder head bolts : Tighten in a X pattern to 10 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 long ride, vibration can cause them to loosen and blow a head gasket. Caution: Do not over torque or head bolts may break off. (Twisted or broken head bolts due to over tightening is not covered by warranty.)

#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.

#8. Left side drive: Routinely pack grease in the shaft hole behind 10T sprocket and also in cover bushing hole. This will also help deduce noise.


2010 EPA Certified sticker; Items, tools and extra service parts in tool kit; Typical Engine ID plates:

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 operate your motorized bicycle in an unsafe manner. Check local and state laws before riding on streets & wear a helmet.

ENGINE STARTING & OPERATION PROCEDURE

IMPORTANT: PLEASE READ THIS: Gas and Oil Mixture for Fuel ratio

The engine is a 2 cycle design, therefore, a gasoline/oil mixture is necessary. During the break-in period (1st gallon of fuel), the ratio is 16 parts gasoline to 1 part 2 cycle oil. After the break-in period, the ratio is increased to 40 parts gasoline to 1 part oil. The engine crankshaft bearings are lubricated from the oil in the gas mix. A rich break in mixture ensures bearings will not cease. **!WARNING! Remember safety first: Wipe up any spilled fuel. NEVER fuel a hot engine or light a cigarette while fueling. This could result in sudden fire, personal injury. Always move your motorized bike at least 10 feet from any fueling area before attempting to start it. Never leave the tank fuel cap off after fueling as rain water will contaminate the fuel and cause engine failure.**

Step #1. After filling tank with the correct oil/gas mix open the tank fuel valve. Fuel line is in the open position when the small lever is pointed down. **Move choke lever to the on position**. This is the small lever at the end of the choke cable **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.

Engine Starting procedure for Lever Clutch Models:

1. Pull the handlebar clutch lever inward, to disengage the engine from the rear wheel.
2. Pedal; (down hill if possible for first start)
3. A mid frame or rear wheel bike stand is helpful to start the engine in place.
4. Let out the clutch lever all the way out and continuing to pedal. The result is a direct engine hook up via the friction clutch with the rear wheel via chain and sprocket. The engine will now start spinning, Pedal until motor starts. Accelerate slowly at first..
5. Twist throttle to increase speed, reverse twist throttle to decrease speed. To stop, disengage clutch and apply brakes. To accelerate, pedal and release clutch while opening throttle.
6. Adjust choke to the smoothest engine running position.
7. **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.
8. 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 the engine in, Do not exceed 15 mph or 30 min. continual running for the first 50 miles during engine brake in. **Engine will develop more power after break in.**

9. 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 Note:** Never leave the tank gas valve in "open" position" when engine is not running or the bike is in storage.

10. After or before each ride check all mounting fasteners, including hd. Bolts, axle and brakes.

11. Warning Note: Engine lock up or piston seizure due to improper gas / oil mixture will not be covered by factory warranty. This the responsibility of the owner / operator to make sure the gas and oil is mixed correctly.

YuanDong SkyHawk mfg. > ENGINE WARRANTY POLICY:

Proper use and maintenance is required for the continued enjoyment of your Bike Engine. This product has been manufactured to strict quality control standards. **For product warranty policy contact your selling dealer.** Warranty approval is subject to factory inspection and only the defective part or parts will be replaced, not the complete kit or engine. Only the defective part or parts should be returned to the selling dealer for warranty replacement consideration. Your dealer may require you to obtain his authorization first before returning defective parts. Include description and picture of failure with as many details as possible. Note: Seized pistons due to improper gas / oil mix or shipping damage due to carrier neglect is not warranty.

When replacing the spark plug in an Angle Fire head it's best to use a 3 point electrode spark plug P/N Z4JC to ensure total combustion.

OPTIONAL COMPONENTS

Chrome parts for engine dress up are available from your selling dealer;

Long & Short expansion chamber racing exhaust

Improved catalytic muffler for 2010 EPA requirements with twice the size of palladium insert plus an outside air shield;

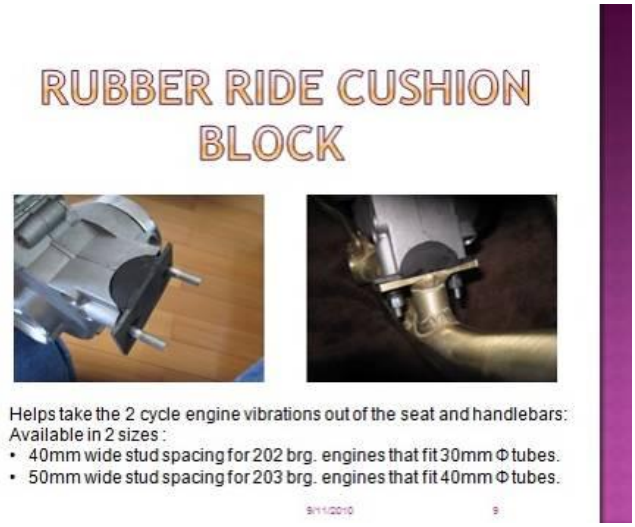
Two psc. STREET POO POO PIPE available in dealer service parts.

Wanna Pedal? Just pull 2 pins and you can pedal freely. Wanna Motor? Then just stick'em back in.

GGG-2 uses the standard friction clutch as well as having a centrifugal clutch.

GGG-2 engine has a centrifugal clutch on the right side and can be rope pulled or pedal started:

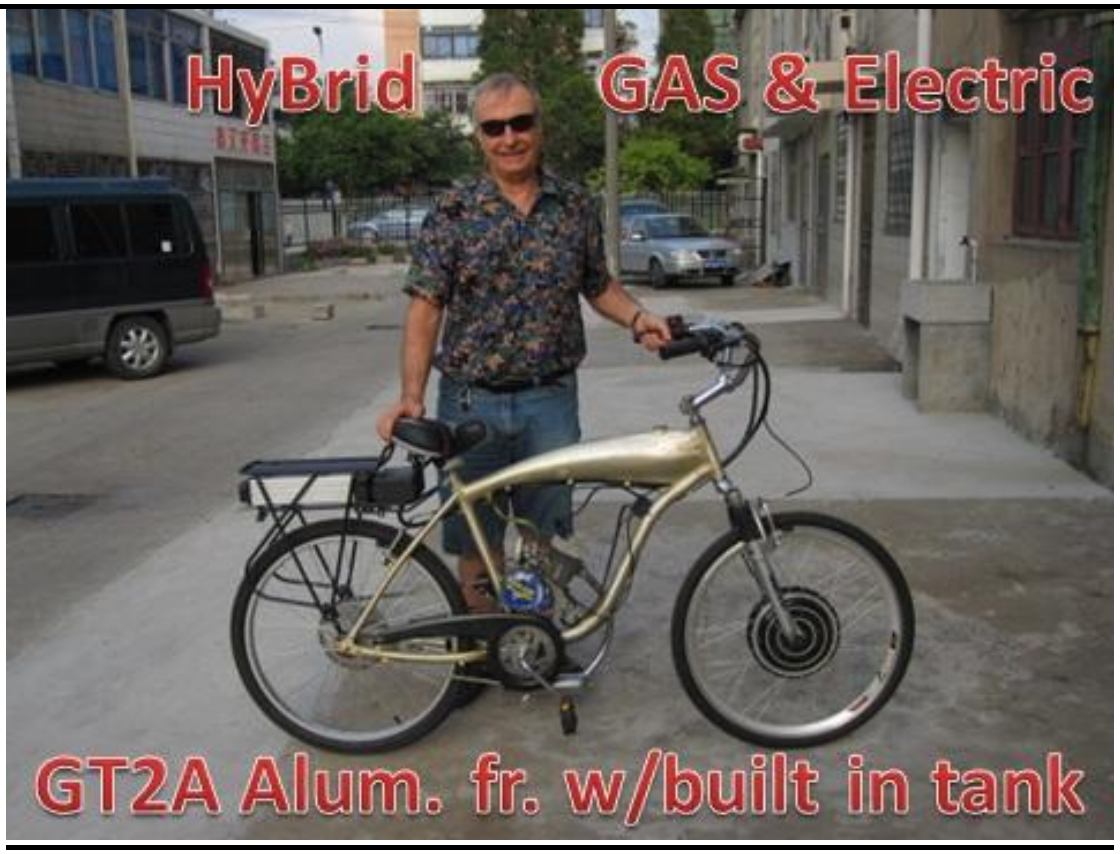
Should you be lucky enough to find a dealer who has one of our GT2 special bikes made for motorizing you can't go wrong. These bikes have thicker frames along with GruBee HD axles with hub mounted sprockets utilizing a 3 brake system and built in gas tank.

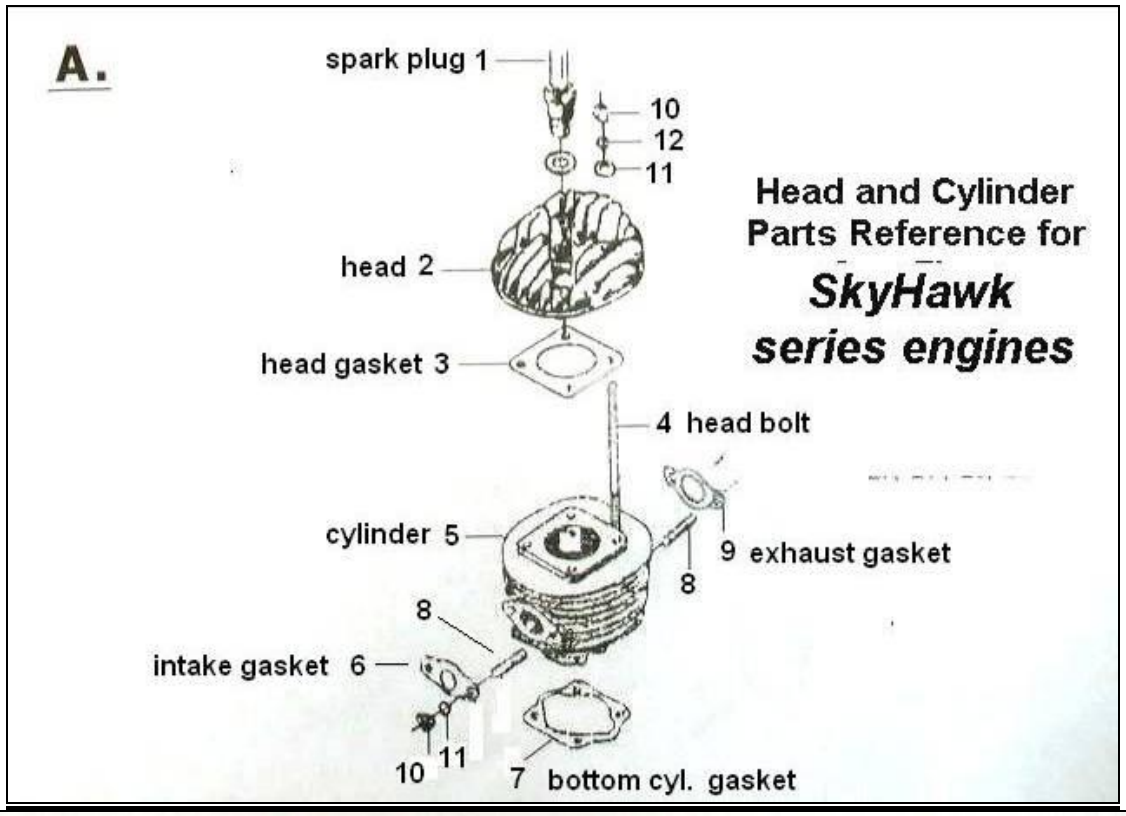


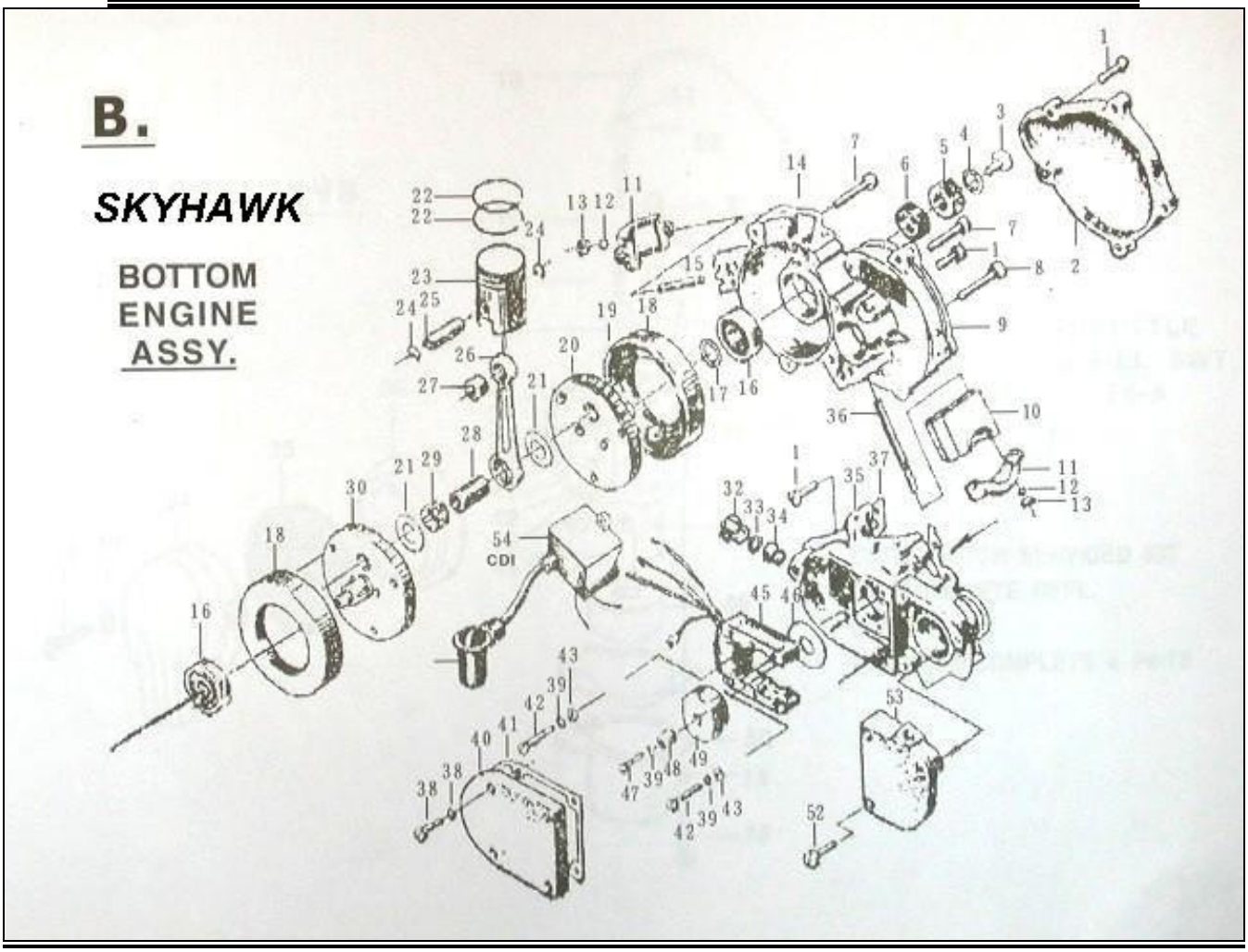
GT2A frames w/ rubber mt. are now available for WD distribution:


GT2-A Frame
Rubber block
Pedestal mount

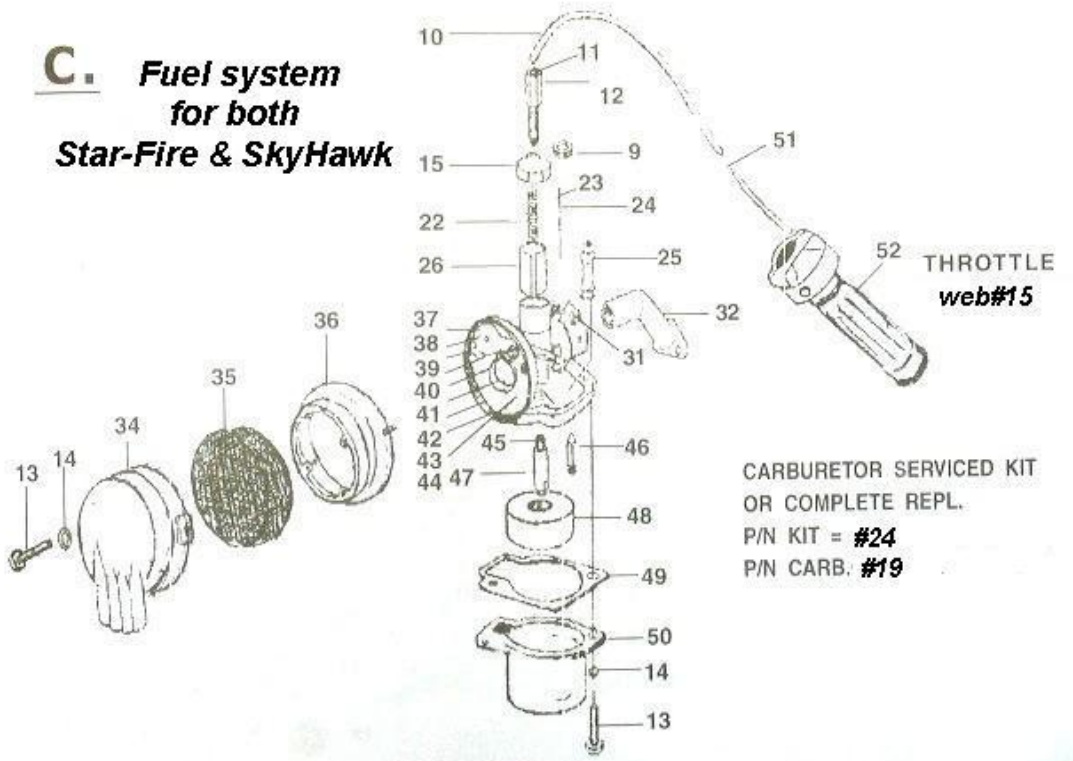

GT2A Bike


HyBrid
GAS & Electric
GT2A Alum. fr. w/built in tank


A.
spark plug 1
10
12
11
head 2
head gasket 3
4 head bolt
cylinder 5
9 exhaust gasket
8
8
intake gasket 6
10
11
7 bottom cyl. gasket
Head and Cylinder
Parts Reference for
SkyHawk
series engines

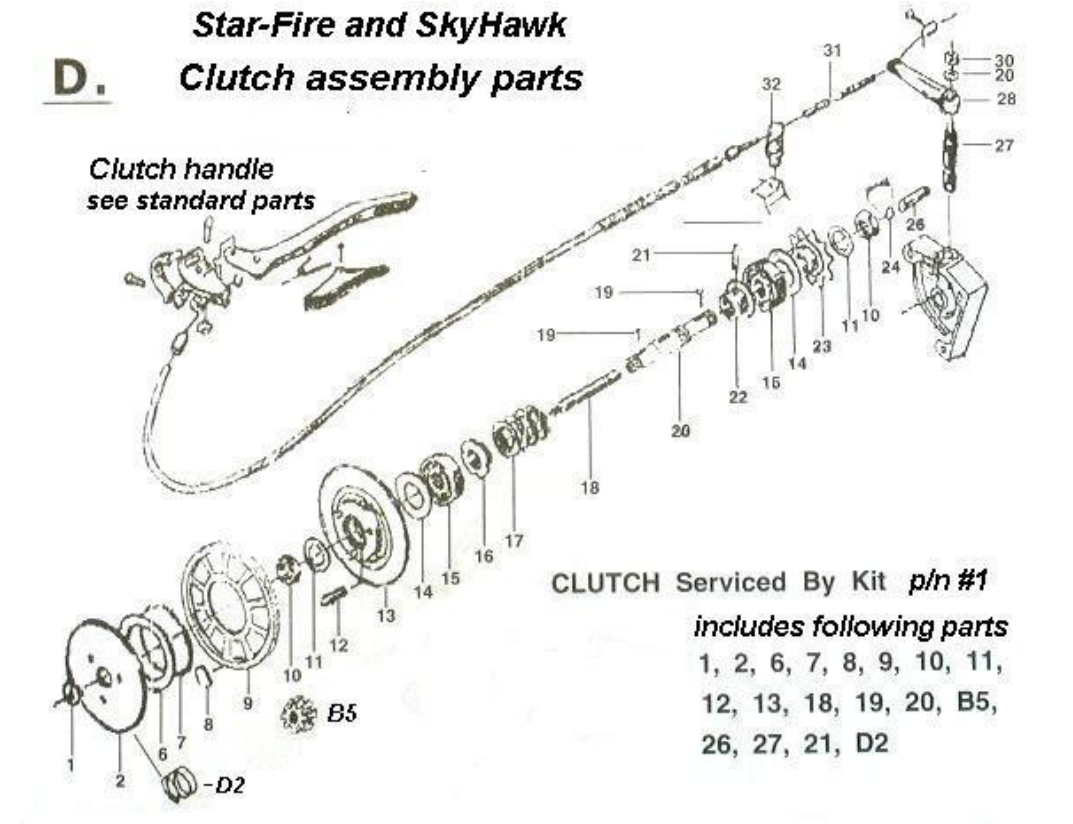

B.
SKYHAWK
BOTTOM
ENGINE
ASSY.
CDI

C. *Fuel system for both Star-Fire & SkyHawk*



CARBURETOR SERVICED KIT
OR COMPLETE REPL.
P/N KIT = ***#24***
P/N CARB. ***#19***

D. *Star-Fire and SkyHawk Clutch assembly parts*



CLUTCH Serviced By Kit *p/n #1*

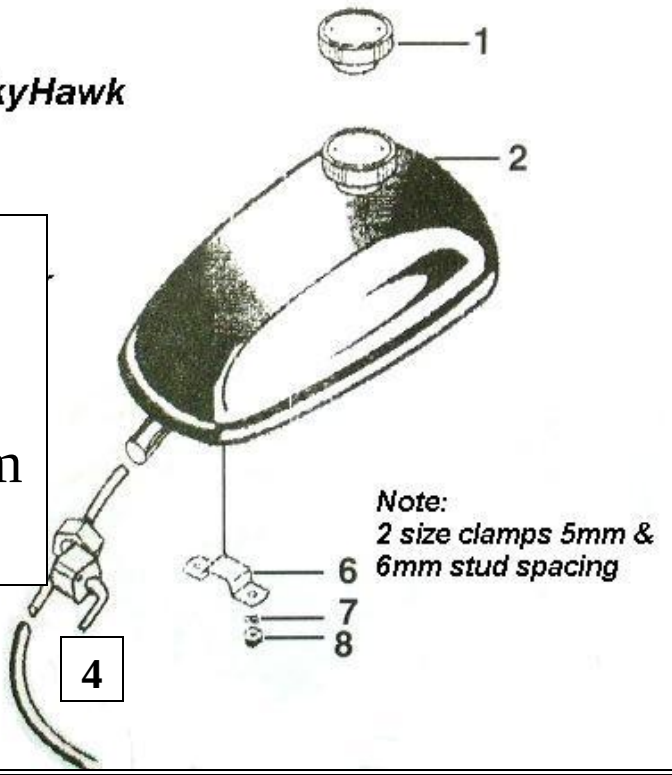
includes following parts

1, 2, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19, 20, B5, 26, 27, 21, D2

E.

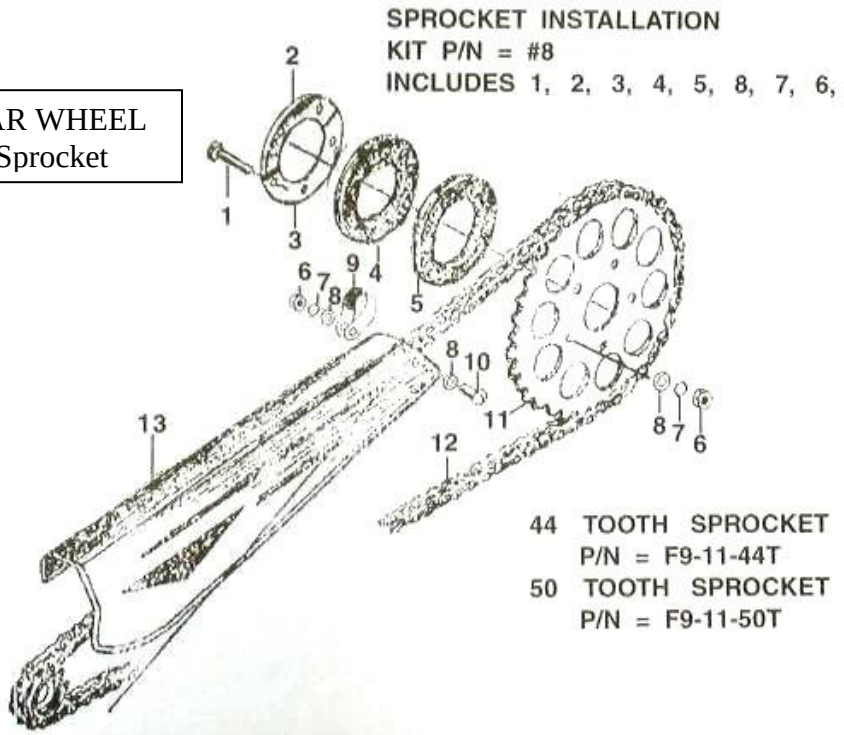
Star-Fire and SkyHawk

2.0 or 2.5 liter gas tank plated inside to help reduce rust from occurring;



F.

44T REAR WHEEL
Drive Sprocket



2 cycle engine trouble shooting guide

CHINA GAS

Symptom	Possible root causes and corrections
No Engine Start	#1. Carburetor choke: Choke Lever down if engine is cold, if hot; choke lever up.
	#2. Possible flooded engine: Try starting with throttle wide open. If no start go to step #3.
	#3. Check spark plug; Replace if black and worn electrode is found. Check spark fire by laying spark plug with wire connected on engine head fins while fast pedaling with rear wheel held up to spin engine over at a fast rate. If spark is now good pedal spin engine over repeatatively to clear a possible wet flooded cylinder. Re-install plug: If no start go to step #4.
	#4. If External CDI check blue and black wire connections. If good and tight then go to step # 5.
No Spark	#4. If Integral CDI /Mag moduel remove kill wire and see if spark plug now has spark. Check for broken plug wire. Continued No spark; then replace the CDI/Mag moduel with new.
	#5. Disconnect kill switch wires and try starting. If spark plug now has spark then look for an unwanted ground in the kill switch circuit. If spark plug still has no spark then go to step # 6.
	#6. Check magneto coil with an ohm meter. Look for approx. 300 to 350 ohms across blue and black wires. Check for loose screws and or high corrosion. If open or shorted coils are found replace magneto coil. If magneto coil is known good and still no spark then go to step # 7.
	#7. Replace external CDI module. If still no spark replace spark plug and magneto.
Good Spark but Engine will Not Start	#8. Check for fuel restriction. Clean air filter: Remove line at carb. and check for fuel flow. Clean filter on tank valve. Make sure gas is not over rich with too much 2 cycle oil. 16 to 1 ratio with a brand new engine and 25 to 1 with a used engine. If Old gas replace with fresh gas/oil mix . If no start > go to step #9
	#9. Possible Flooded engine: Go to step #2. If No flooded engine is found; try giving a quick squirt of starting fluid at the air cleaner opening. If engine still does not start go to step # 10
	#10. Check throttle cable. Make sure it is moving slide valve up and down in carb. Still no start then go to step. #11.
	#11. Check for air leaks at carburetor intake manifold tube. Check for loose manifold nuts, Check for loose carburetor and or damaged intake gasket. If not already done clean clogged or dirty air cleaner. Make sure engine does not have fuel in bottom of crankcase due to unwanted entry of drip down gas from carb with a stuck float. Remove engine and turn upside down to drain any wanted gas from crankcase and reinstall. If no start condition prevails go to Step #12.
	#12. To check for air leak while engine is running lightly spray WD-40 on crankcase middle gasket area, on intake tube, oil seals, cylinder gasket, etc., and if engine speeds up an air leak has been found. Correct as necessary: Check left and right oil seals on ends of crankshaft to see if correctly seated in front of bearings. If engine will not start push the piston down to lowest position and plug exhaust and intake ports so you can use a hand held compression pump in the spark plug hole to see if any air escapes from crankcase. Be careful to not blow out the oil seals with too much pressure. If the crankcase gasket is leaking and needs replacing it's best to have a qualified mechanic replace the gasket. If no air leaks are found and you have a no start engine condition then go to step #13.
	#13. Run a cylinder compression check by removing the spark plug and installing a small engine compression gage. Plug the exhaust and intake ports with a custom made flat plate. Use a hand held electric drill or an air wrench to turn the crankshaft at the magneto nut. Note: If the engine turns over easily with the spark plug installed or a compression gage seated in the plug hole this means you have a blown head gasket, broken rings, or a possible hole in the top of the piston. You will now need to remove the 4 head bolts and head to make further checks. Note: If compression is good and no problem is found then proceed to step #14.
	#14. Replace or rebuild the carburetor and correctly set idle speed adjustment. If still you have a no start engine condition then probably it's best to consult with a qualified engine mechanic as somewhere in the trouble shooting process something has been over looked.
Engine backfires and is hard starting.	Check magneto Rotor for being on backwards. With piston at Top Dead Center the crankshaft key must be at 1 o:clock position. The 2 Rotor dentures need to be in almost parrellel position with the 2 Magneto arms.. If not this way then remove the Rotor and turn it over. To learn more see the Great Magneto and Crank Mystery at www.grubeeinc.com
Engine does not reach max RPM	Check for clogged muffler. Clogged exhaust port. Fuel restrictions, Low compression, Poor ignition spark, Too much oil in gas or improper air/fuel mixture in carb. Clean carb. jets and air filter; Check for a possible crankcase leak or leaking oil seal.
Engine has high rpm but no pulling power.	Check clutch gear wheel for worn or greasy clutch pads. Replace worn clutch pads and adjust as required as described in owner's manual.
Engine idle is too fast or too slow	Adjust idle screw air fuel mixture settings. Refer to your owners manual. Adjust cable stroke slide valve adjustment at top of carb if possible, some early made YD CNS carbs do not have this feature.
Engine has high pitched squeal	Check for bent clutch rod. Check clutch adjustment. Check for bad D-2 clutch plate spring.
Clutch will not release	With clutch engaged check for 1/16" slight free play on the left side engine clutch arm to insure correct adjustment. Remove clutch cover on right side of engine and check for possible stuck clutch plate or bent clutch rod.
Engine will not spin over when clutch lever is released while pedaling.	Clutch cable may be adjusted too tightly. Check for 1/16" free play in clutch arm on left side of engine. When clutch is engaged the clutch arm on the left side of engine should be setting in an approximate parallel line up with the side of the engine. Remove clutch cover and check to see if the clutch plate is stuck open in the disengaged position.

GGG-2 48cc & 66cc Dual Start Models

Centrifugal clutch operation> Rope Pull & Pedal start:

GGG = Give Gas Go

NOTE: Dual start GGG-2 model does not use any oil in the clutch housing as did older models made in the past. GGG-2 runs with a standard friction clutch and also has a dry centrifugal clutch. A standard friction clutch engine can be converted to GGG-2 with the conversion kit shown below. Engine can be started by rope pull or by pedal method. Note: **Do not add any Oil in crankcase.**

Complete GGG-2 Bottom engine half is available as a service part. .

A one piece or a 3 pcs. wide pedal crank is needed in order for pedals to clear the wider GGG-2 engine. Note: This item is not always included in engine kits.

New improved Rope Pull now available with steel cable instead of nylon rope; All metal, no plastic recoil, Ask your supplying dealer;

Conv. kit to make a friction clutch engine into GGG-2 mode
Engine can then be both pedal and rope pull started.
No oil bath required, No not add oil.

Centrifugal clutch has over-running mechanism to allow engine pedal starting and can also be rope pull started. Long screw shown above is a tool used to remove clutch from shaft.

How to Start: **After completing Step #1. for a standard engine pull the recoil rope or engine can be pedal started just like a friction clutch model. Use a wax coating on the pull rope to avoid breaking and ensure long life.** Accelerate slowly at first until engine warms up and choke lever is pushed all the way down to off position.

Note: End user or installer is the vehicle manufacture. End user assumes all product liability and assumes all compliance to the laws of the land; Quality installation is paramount for safe operation.