A Ladies Guide to Maintaining Your Own Scooter

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aka

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Introduction

Why did I write this eBook? I've seen far too many ladies get ripped off by dishonest, untrustworthy maintenance shops and scooters for the most part are very simple to inspect and maintain. That is not to say that they are all dishonest or intentionally prey on unsuspecting women but it does happen!

I suggest you read this eBook cover to cover so to speak before getting started so you can get an idea of what you will need and what you might consider doing to do first.

For those of you that do not have much experience with the use of basic hand tools I'll try to describe them as completely as I can and show photos of each one. This is not intended to be an insult just a basic hand tool discovery and use instruction. We all had to start somewhere!

We need to keep a small collection of tools on our scooters at all times in case of emergencies. Not many - I keep most of mine in a small plastic pencil box under the seat. It won't take much space. Almost everything I need to perform a basic inspection and maintain my scooter is in that pencil box.

The illustrations and photo are of a Chinese Lance Venice clone I bought from Family Motor Sports but the basic idea is the same for all scooters.

I can also recommend a very informative and friendly ladies scooter forum developed by two very nice ladies from Connecticut. His forum is filled with great information and a wonderful group of lady scooter enthusiasts all ready to help out and share what they know. They simply refer to themselves as Scooter Divas.

http://www.scooterdiva.com/

Another great site for both guys and gals is:

http://www.scootdawg.com

Have fun and keep on scooting!

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What's in Your Tool kit?

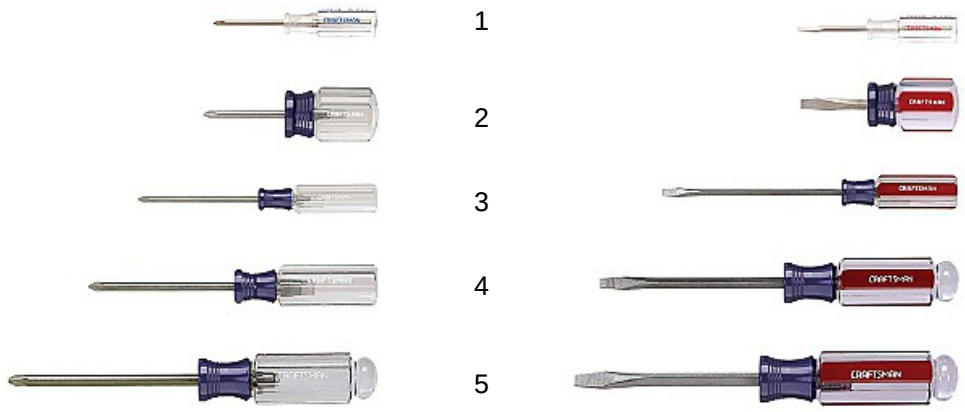
Basic Hand Tools and Their Uses

Here I am going to list a selection of basic hand tools in a group, show a picture of them and try to explain how to use them.

The Screw Driver Group

Phillips and Flathead Screw drivers

Screwdrivers belong to a group of tools used to attach fasteners. The fasteners we will be attaching are screws. Most of the screws you will find on your scooter are Phillips head screws. For illustration purposes here is a photo of a set of screw drivers from Sears. They come in different sizes for different sized fasteners. The ones we'll need most are the number 2 stubbys and the number the 5 large screwdriver.



Phillips head Screwdrivers *Flat Bladed Screwdrivers*

Wal-Mart has a pair of rubber handled screwdrivers from Stanley® that are a perfect size one flathead and one Phillips head – perfect for our scooters!

The stubby screwdrivers have to be purchased separately from Sears, a good hardware store or as a part of a set. They aren't used often but when you need them they are invaluable!

Screws are like jars turn left to loosen, turn right to tighten. As the ole saying goes righty tighty, lefty loosey! This works for everything but gas fittings!

Phillips head screwdrivers are use for screws with slots shaped like this: 

Flat head screwdrivers are used for screws with slots shaped like this: 

All you have to do is place the handle in your hand, put the blade in the slot and turn left to loosen and right to tighten the screw.

Offset Screwdriver

Another screwdriver that is not often needed but well worth the investment is called an offset screwdriver. As the name implies the blades are offset. This is for getting into those hard to reach places that we sometimes need to get into.

It has a Phillips head on one end and a flathead blade on the other. They are a bit of a pain to use but you'll get used to it!

Ratcheting Screwdriver & Socket Kit

Ratcheting screwdrivers are handy to remove screw when only one hand can be used or for speed. You put the bit in you want and fillip a switch to lock it for tightening or loosening. You never have to change your hand position just turn back and forth.

Bits are the small tips that slide into the top of the screwdriver. They are small so it's like carrying dozens of tool in a tight space. They come with an adapter to use ¼ inch drive sockets too (more on that later).

They come with multiple bits and sometimes even include a few small 1/4 inch drive sockets. My kit from Surplus Unlimited came with, a good collections or screwdriver bit, American and metric sockets! Almosy every size I needed was in that little kit.

Many places like Wal-Mart, Sears, and even dollar stores carry these nice little kits. They're cheap but will do the job for under $20. Great to carry in your scooter tool kit!

Here's one I found on eBay for $6 - 57pc Ratcheting Screwdriver Bit & Socket Set.

The Wrench Group

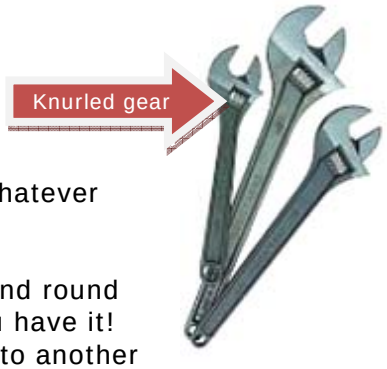
Combination Wrenches

Combination wrenches are fixed sized wrenches with one end open and one end closed. They are often called open end wrenches or boxed end wrenches when both ends are open.

They look the picture to the right. You'll need metric wrenches sizes 8mm, 10mm, 12mm, 15mm and 17mm at a minimum. Just get a set and they'll all be there. Again a cheap set from the dollar store will

work for your scooter tool kit.

Adjustable wrench



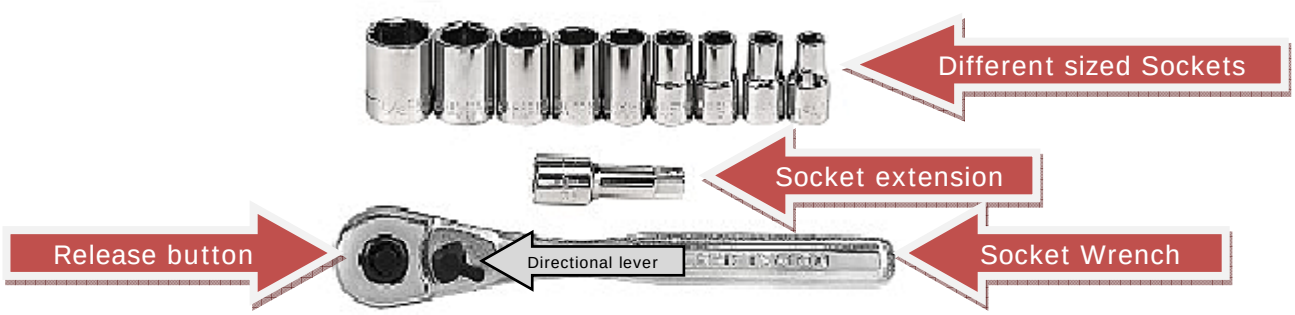
An adjustable wrench is used when nothing else you have will work. They are also good for adding some power to turning other wrenches or even screwdrivers at times. They look the photo on the right. There is a little knurled gear you turn with your thumb to open or close the jaws to adjust the size to fit whatever sized nut or bolt you have. Don't get in

the habit of using these for everything they can easily slip off and round off the corners on nuts and bolts. Use a pre-sized wrench if you have it! The end with the hole in it is great for using to help add power to another wrench or small pry bar. Slip the end of the wrench over the end of the screwdriver or wrench, line them up parallel to each other and pull!

Socket wrench

A socket wrench is also used to loosen and tighten nuts and bolts. This tool has multiple sized attachments or sockets to fit different nuts and bolts. The advantage of this type of tool is it doesn't slip off the nut or bolt head as easy and it has a built in ratchet so you just move the handle back and forth without having to take the wrench off and put it back on. It looks like the picture shown below.

There's a little lever on the tool to change direction of the tool and a button to pop off the sockets.



Spark Plug Socket

Most spark plugs for small vehicles use ether either a 5/8 inch or 18mm spark plug socket. A spark plugs socket is deeper than normal sockets and has a long hole through the middle for the spark plug to sit in. A long regular socket will not work. My scooter uses a Standard A7RTC or a NGK CR7HSA Iridium spark plug and takes a 5/8" plug socket.

Fly Racing Service T-Handle Tool

Full-size 3/8-drive service "T" comes with 8mm, 10mm, 12mm, 13mm, 14mm, 17mm, and #2 Phillips sockets

Have a hard time tuning some bolts? This is a must for replacing you CVT belt! You don't need an impact wrench you need extra torque. This will give it to you through leverage! The sockets can go on any end to give you the umph you need!

http://www.motorcycle-superstore.com/

Slip Joint Pliers

These are great for grabbing things. When I changed my spark plug I couldn't get anything in there to wiggle the socket off. This worked! It adjusts by opening the pliers and slipping the two pieces between a bolt and slot, then just putting pressure on the pliers to grab.

Needle Nose Pliers

Great for grabbing and holding small pieces and for wiring.

Has a small section close to the pivot point for cutting or striping wires.

Working on Your Scooter

The first thing I hear is I can't work on my scooter I don't have any room. Well I don't either but I have a flat sidewalk on the side of my house where I keep the scooters. It's tight but that's where I work on the scooters. I have to move them around quite a bit but, it works! Believe me no shop is going to care for your scooter the way you will! So take a bit of time and get to know your scooter!

A good place to start is by doing a complete inspection of your scooter. The Motorcycle Safety Foundation (MSF) has a really good pre-ride inspection checklist which works good to get familiar with your scooter and give you a better idea of where to start.

The MSF uses an acronym to help you remember what to look at before you ride your scooter. They use T-CLOCS. T-CLOCS stands for:

T-TIRES AND WHEELS

C-CONTROLS

L-LIGHTS

O-OIL

C-CHASSIS

S-STANDS

These are also places you will be performing maintenance on your scooter - what a coincidence! Actually it's not a coincidence. If we didn't need to pay attention to these areas we would be performing maintenance on them would we?

The first and probably the most important thing you can do for your scooter is change the oil! Most scooters are 50cc or 150cc engines. Those little engines work hard to get you where you want to go. These little engines run hot and the heat will break down the oils quickly.

You owner's manual suggests a maximum frequency for replacing the oil in your scooter. MAXIMUM frequency. That means at the very least do it when they suggest. More often is better!

When should Engine Oil be changed? According to the American Petroleum Institute (API) Publication #1507, page 13, *engine oil should be changed before additive depletion and oil contamination can begin to affect engine performance and life.* When is that? Who really knows without performing an oil analysis? Each brand of oil

performs differently in different engines based on your type of driving. If you do lots of stop and go driving, lots standing still idling in traffic jams, if you drive on dusty roads or off road conditions, the way most drivers' do, according to API no driver should go the maximum limits allowed by the engine maker.

When you first get a vehicle in this case your scooter, there are all kinds of things from manufacturing left behind in your engine like microscopic metal shavings that could destroy your engine. You want to clean out all that garbage before it hurts your engine!

I recommend you run your engine around the block a few times, no more than a few miles and then change the oil! This is especially important if you own a Chinese scooter. Their idea of motor oil looks something like cloudy olive oil! Get rid of it straight away and get good 10W40 weight oil for cars like Valvoline, Havoline, Penzoil or Mobil1.

Your first few oil changes do not use synthetic oils! Why no synthetics? Because they slow down the break-in period and we really want the ring seals to seat before switching to synthetic oil.

Changing Your Engine Oil

Warm up the engine for a few minutes. Warm oil flows better than cold oil. Think of it like bacon grease when it's hot you can pour it right out of the pan when it's cold it needs some help.

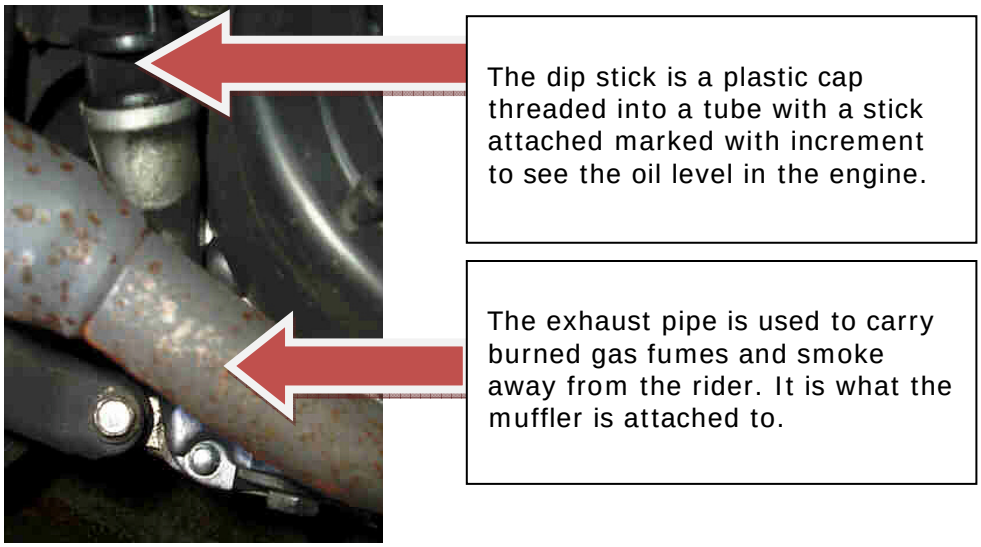
Then you'll need a few things:

A quart of 10W40 oil

A shallow pan or tray to collect the old oil (about 1 quart capacity)

An open end wrench or socket (mine uses a 17mm)

Paper towels to clean up the mess. Depending on your scooter you may need an oil filter (check your manual).



The drain plug is a large bolt screwed into the bottom of the oil pan and used to drain the oil from the engine. This one is 17mm

Place the shallow pan under the drain plug and loosen the drain plug using the 17mm wrench. Slip the wrench over the bolt head and pull from right to left to remove and drain the old oil. A spring and screen filter may also come out with the oil.

The old oil will be dark and dirty looking. This is normal. I use paper towels in the pan to help prevent slashing and make clean up easier. I'll use the same pan later to drain the gear oil.

Once the oil starts to drain remove the dip stick.

When the oil slows to a trickle, hit the start button with the kill switch in the off position for a second to force some of the remaining oil out the drain port. Do this a few times.

All the parts from the oil change.

Left to right

Dip Stick

Drain Plug

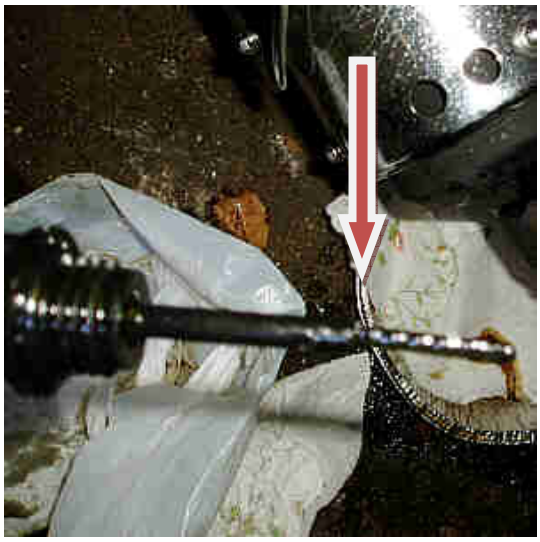
Oil Filter screen

Oil filter spring

17mm Wrench

Replace the spring and screen filter and screw in the drain plug. The recommend torque is 20ft/lbs which is not much.

Place a funnel into the dip stick port and slowly pour in slightly less oil than the capacity stated in your owner's manual.



Wipe off the dip stick and Insert it into the hole but do not screw it in. Pull the dip stick out and check the oil level. It should be just at the top of the last tic mark.

If you over fill the oil just stick your finger in the dip stick hole and the oil will over flow into the drain pan.

Recheck the level then screw in the dipstick when you're done. That's it!

Be sure to check for leaks after running the scooter for a few minutes. You may need to tighten it up some.

Changing the Gear Oil

Warm up the engine for a few minutes to allow it to flow easier.

Then you'll need a 10mm wrench

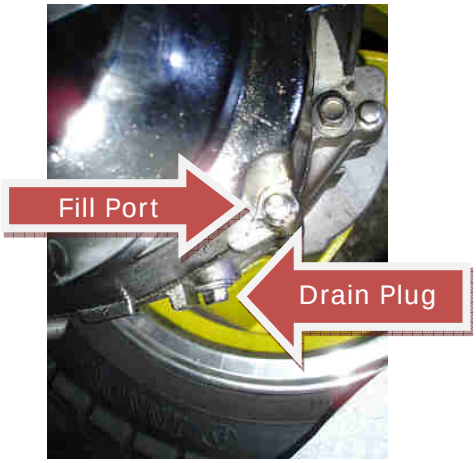
90W gear Oil

A flexible straw, oil can or meat injector

Drain pan

Paper towels

This is a simple as it gets. 90W Oil, 10mm wrench, paper towels and a straw or oil gun if you have one. I have also used cheap $3 meat injectors from Wal-Mart for this and they work well too.



You will find this on the rear wheel on the lower right hand side.

Place your drain pan under the drain plug port, remove the bolt on the gear oil port and drain port bolt using a 10mm wrench.

When the oil stops draining, rotate the kick starter a few times to drain the rest of the oil out and replace the drain port plug. The recommend torque is 20ft/lbs.

Take a flexible straw and stick one end into the gear oil port. In the opposite end stick the tip of the gear oil bottle and gently squeeze. Pull the bottle tip out every now and then to allow air to help the oil flow through the straw. You'll see it drain down.

Remove the straw. The oil is full when it spills back out of the hole. Allow the excess oil to spill into the drain pan and wipe up when it stops. Screw in the rain plug, wipe off any spilled oil and your done!

Be sure to check for leaks after running the scooter for a few minutes. You may need to tighten it up some.

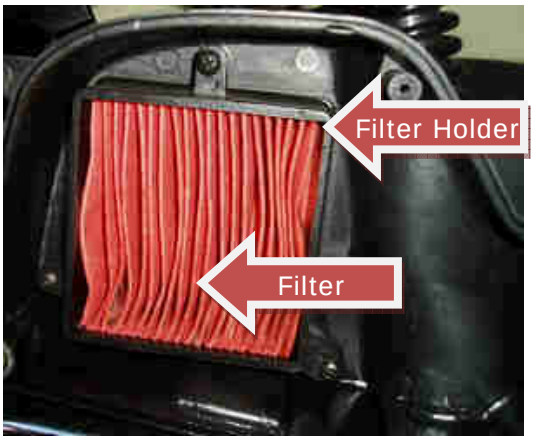
Cleaning the Air Filter

The air filter also needs to be cleans at specific intervals. Most manufacturers recommend every 1,200 miles or so and replacement at about 3,000 miles. Again these are maximum frequencies under ideal conditions so I do mine when I do the oil changes. A lot of dusty driving will clog them up quick so more is better!

Tools needed:

Phillips head screwdriver

I have a Chinese Vespa clone so I need to first remove the side cover to expose the air filter cover. Then remover the filter and holder itself.



The air filter was spotless so I didn't clean it or take pictures but the procedure would be to carefully remove the paper filter from the holder.

If you have a foam type filter you can clean the filter, in solvent and reuse it Paper filter or canned filters you need to buy a new one and replace it as needed.

If you replace the filter soak it in some of the remaining 10W40 motor oil left over from your oil change then squeeze out the excess oil. Mine is accordion shaped so I wrap it in lots of paper towels and step on it to get rid of excess oil. Then put it back into the filter holder. The oil helps the filter to collect dirt and dust particles and keps them out of your engine. This is an important step.

Wipe down the inside of the air filter box and reinstall the filter holder and cover. That's it!

Checking your Brake Fluid

This can be a bit tricky on some scooters. On mine I have to remove the front and rear covers to see the brake fluid sight glass. If you look carefully you'll see a line for the low level of the brake fluid.

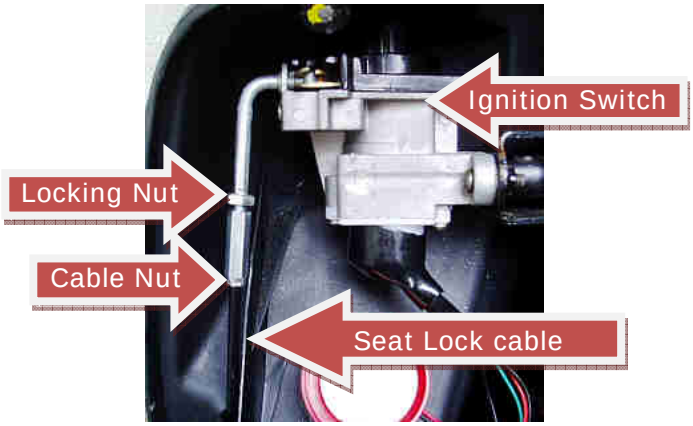
If the brake fluid is low, wrap the area around the sight glass with paper towels so there will be no drips that get on your paint.

Next - there are 2 Philips head screws on the top of the little box. Remove the screws and carefully lift off the cover and set it away from the scooter. Carefully add a few drops of DOT 3 brake fluid at a time until it reaches the top of the sight glass. Replace cover and tighten both screws. Wipe the entire area around the cover with clean paper towels. That's it.

NOTE: Many places no long carry DOT 3 brake fluid, it has been replaced with DOT 4 brake fluid this is acceptable to use.

Adjusting the Seat Lock Cable

Do you have a hard time with your ignition switch seat release? It should just popup and release when you turn the key. If it doesn't here's how to adjust it. First you have to remove the front cover on your scooter. It's in the front attached to your ignition switch.



There are two nuts and a cable attached to the ignition switch

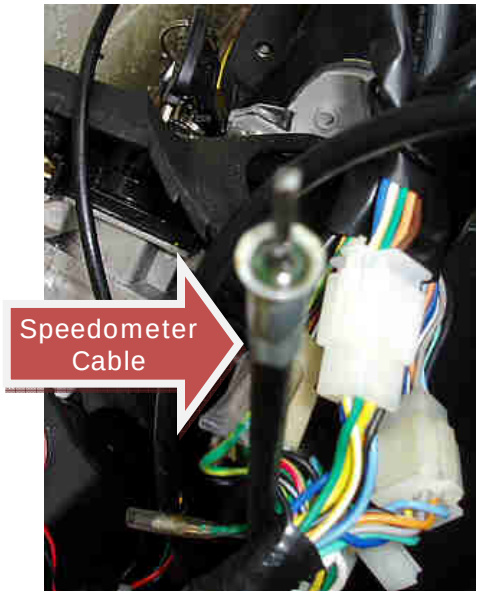
The top nut is a normal looking nut used for locking the cable in position.

The bottom one is long and has a cable attached that runs along the bottom of the scooter to the seat lock release mechanism.

By loosening the top nut you can adjust the bottom nut to fine tune cable release. It should pop up smoothly. If the cable is too tight it will barely release making a pfft sound. To loosen the cable turn from right to left. Make a few turns and try it. When the seat pops up sharply tighten up the locking nuts and go to the next step. That's It!

Lubricating Your Speedometer Cable

Yep this needs to be lubed too! As do your brake cables we'll cover them next. I use a can of silicone lube with a tiny little tube at the end. Graphite works well also but is really hard to control.



Unscrew the speedometer cable from the bottom of the speedometer.

Squirt a little oil into the cable and let it sit a minute. Unscrew the bottom of the speedometer cable attached to the wheel.

Pull the cable in and out a bit to help the oil flow down the cable. There is a tiny little washer in the top of the cable don't loose it! It acts as a spacer between the cable and the rubber coating.

Screw the cable back into the speedometer and the wheel and wipe up any spills.

Lubricating Your Front Brake Cable

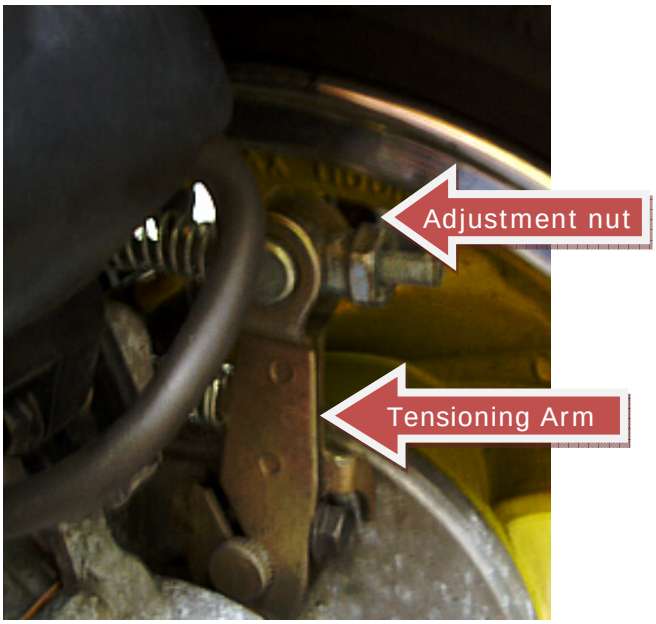
The rear brake cable has a metal tube it sits in at the hand brake lever. Unscrew the tube and you'll see the cable.

It has a little flat round nub that fits into the plastic holder and the cable is wrapped around it.

Just like the speedometer cable add oil and move the cable a bit to help the oil move down the cable.

Screw it back together and check brake the lever for adjustment. Tighten or loosen as needed. Wipe up all spills you don't want oil on your brakes pads or rotors.

Lubricating Your Rear Brake Cable

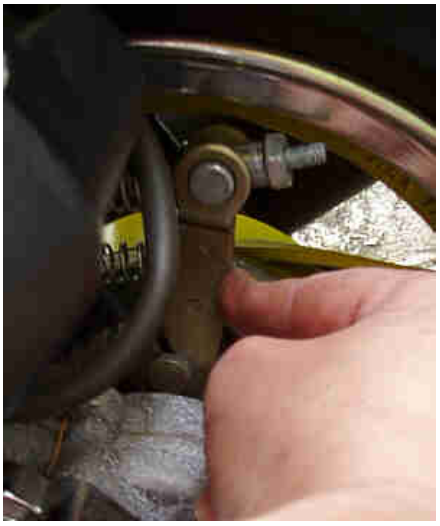


This one is a bit trickier is wrapped around the lever and a bit harder to get on and off.

First Loosen the brake cable from the back wheel by pressing in the tensioning bar then turning the adjustment nut counterclockwise. Back it all the way down to the end of the threaded rod. You can count the turns to get an idea of how far it need to go to be back in adjustment.

It goes all the way to the back of the scooter so be patient!

Adjusting The Rear Brake



Push in on the tensioning bar with your finger or spin your tire so you can use the wheel spokes and a screw driver to pry against the tensioning bar while you turn the adjustment nut.

Turn clockwise to tighten or counter clockwise to loosen brake. Turn the adjustment nut a few turns at a time to adjust the brake.

You'll notice the end of the adjusting nut is concave and sits nicely on the tensioning bar pin. Sometimes the nut gets dirty and you may need a wrench to get it started but more often than not you won't need tools for this one.

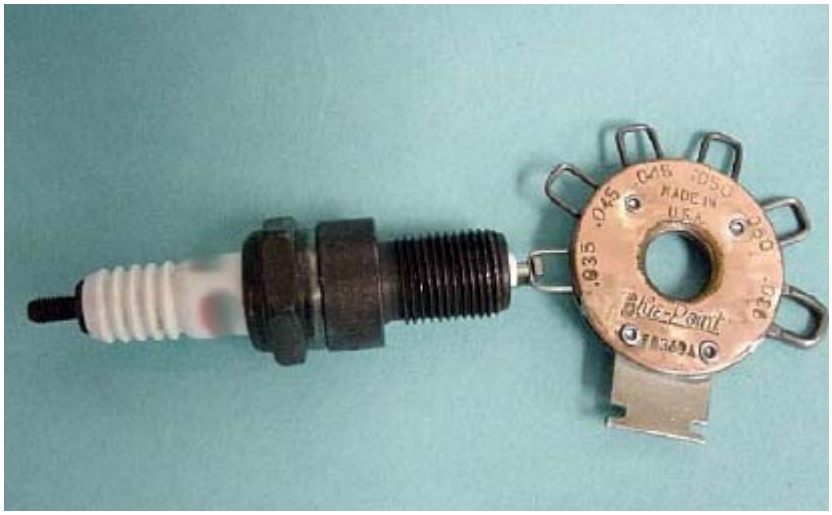
When you push against the tensioning bar the adjustment nut is no longer under pressure and sits out farther so you can turn it without tools.

Check adjustment by squeezing the handbrakes. The distance between the un-squeezed brake handle and the point it grabs should be between 2mm and 5mm for most scooters. Check your owner's manual. Continue to make adjustments until you have reached the proper distance. That's it!

Checking the Spark Plug

The spark plug doesn't need to be replaced very often but should be cleaned and checked with every maintenance inspection. The access to the spark plug seems to be different on every scooter. The type spark plug and gap setting for your scooter should be in your owner's manual. Most Gy6 150CC engines use a standard A7RTC or NGK CR7HSA Iridium plug for better performance. The air gap should be set at .028 to .032" or .7 to .8mm.

There are different types gauges for checking spark plug gap. Here is one. This is how you check you air gap.



The way your spark plug look when you remove it can tell you a lot about your scooter. There are some pictures of good and bad plugs from the spark plug manufacturer NGK on the following page.

This is a normal looking spark plug. The color is brownish to gray.

This plug has too much dry carbon– replace it!

This plug has wet carbon – replace it!

This plug is over-heating – replace it!

These deposits are cause by oil leakage or fuel quality –

Replace it!

This plug has lead deposits – replace it!

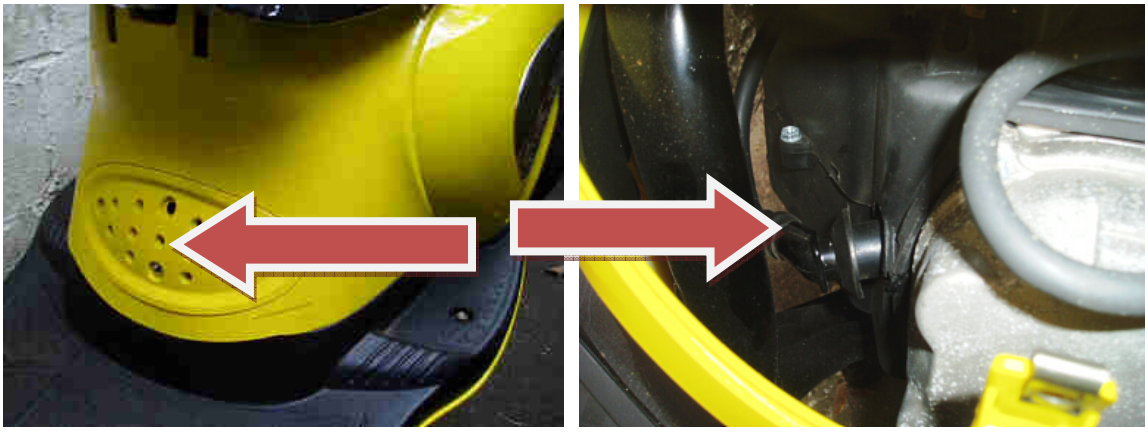
This plug is broken – replace it!

A worn spark plug not only wastes fuel but also strains the whole ignition system because the expanded gap (due to erosion) requires higher voltages.

Normal rates of gap growth for four stroke engines are 0.01~0.02 mm/1,000 km (0.00063~0.000126 inches/1,000 miles). What this means to us is that under normal wear conditions the gap on a spark plug will increase with age and use throwing off the air gap adjustment. So check it often.

Okay let's get to it! The access port for my spark plug is in the front below the seat. It's is held in with one Phillips head screw but there are lots of little plastic guides it sits in so be careful taking it off.

Once the cover plate is removed you can see the really inconvenient place they put the spark plug. It looks like there's plenty of room but you can't even turn a wrench in there more than 1/8 inch at a time.



As you can see the scooter frame is real close to the spark plug so there's little room to work in here.

In the photo at the top is another type of spark plug gapping tool. It's a pretty accurate feeler gauge I've had for many, many years

On the left is the spark plug socket. They are longer and have a hole in the center for the plug to fit into.

The center is a new NGK CR7HSA Iridium plug spark plug. On the right is the factory installed standard A7RTC showing normal wear.

Remove the spark plug wire and carefully try to wiggle a 5/8" spark plug socket over the plug. Make sure it's seated properly around the nut head. Carefully turn the wrench counter clockwise to remove the plug. Once it's broken free use your fingers.

Check the gap on your new plug as shown above and slip the plug unto the hole in the engine. This is by far the biggest

While You've Got Everything A Part

This is a good time to check all the nuts bolts and screws for tightness. They do get loose from all the vibration of scooting around.

I hope this has given you the confidence to do your own basic scooter maintenance. Basic maintenance doesn't take many tools and it's pretty easy once you've done it the first time. You'll wonder why you're paying the mechanic hundreds of dollars to do something you can easily do yourself.

Have fun and keep on scooting!