



SOLEX OWNER'S HANDBOOK



SOLEX MODEL 4600

Your Solex

In 1910, at the time of the development of the automobile, a new type of carburetor was introduced by a company in France – Solex.

Since that time, the name Solex has become synonymous with the manufacture of the world's leading carburetors and precision metering devices.

In 1946, the high degree of precision engineering achieved by Solex in the technique of carburation was extended to the field of the lightweight motorized bicycle and VeloSolex was launched.

During more than two decades, many millions of Solex motorized bicycles have travelled the roads of Europe and many countries throughout the world, and now, VeloSolex America welcome you to 'Faire du Velo' on your motorized Solex.

This handbook illustrates and describes the operations and maintenance rules for your Solex which will consistently ensure safe, economical and trouble-free performance if followed correctly.

Your VeloSolex dealer with well trained staffs and facilities to match, provides you with the best possible service. Have them inspect your Solex at regular intervals and follow the advice given.

We wish you many safe miles of Solex riding pleasure.

VeloSolex America, Ltd.
86 Orchard Street,
Hackensack,
New Jersey 07601

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SOLEX MODEL 4600

Technical Data

Dimensions

Overall Length	: 66 inches
Overall Width	: 24 inches
Overall Height	: 41 $\frac{3}{4}$ inches
Weight	: 68 pounds

Frame

Type	: Pressed Steel
Brakes: Front	: Caliper
Rear	: Internal Expansion
Tires: Size	: 1.75 x 19
Pressure	
Front and Rear	: 28 p.s.i.
Fuel Capacity	: 1/3 U.S. gals
Fuel Mixture	: Ratio 25 :1 Regular Grade Gasoline to 4% normal Two Stroke Oil

Engine

Type	: Single Cylinder, Two Stroke
Power	: 0.8 h.p.
Capacity	: 49 cc

Electrical System

Ignition and lighting	: Flywheel
Spark Plug	: Champion L86 Autolite AE32 Bosch W175
Headlamp	: Sealed Beam 6 volt
Tail/Stop light	: Trade No. 1154 6 volt

Performance

: 20 m.p.h.

Identification

Engine Number	: 7 digit number engraved on the rear of the engine housing. 9.6
Serial Number	: Located on the Frame Steering. 9.1

Finish

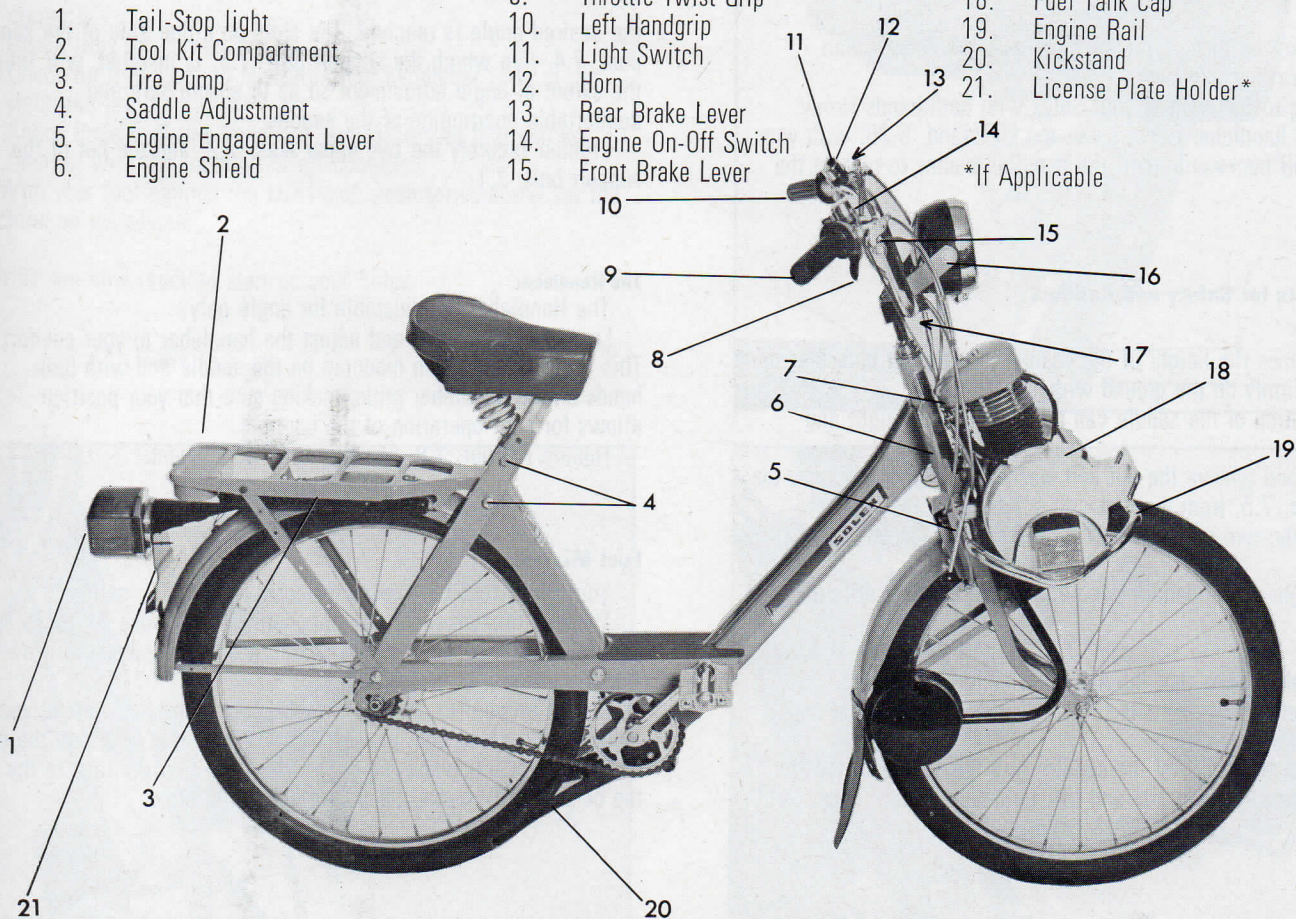
Optional : Orange * Yellow * Blue * Black

Features and Controls

1. Tail-Stop light
2. Tool Kit Compartment
3. Tire Pump
4. Saddle Adjustment
5. Engine Engagement Lever
6. Engine Shield

7. Choke Control Lever
8. Decompressor Lever
9. Throttle Twist Grip
10. Left Handgrip
11. Light Switch
12. Horn
13. Rear Brake Lever
14. Engine On-Off Switch
15. Front Brake Lever

16. Headlamp Beam Adjustment
17. Handlebar Angle Adjustment
18. Fuel Tank Cap
19. Engine Rail
20. Kickstand
21. License Plate Holder*



Pre-Start Hints

Your attention to these pre-start hints will ensure safe and trouble-free riding pleasure.

Standing to the right of your Solex with both hands firmly holding the handlebar grips, lower the kickstand, 5.20, with your foot and pull backwards until the machine comes to rest on the stand.

Adjustments for Safety and Comfort

The Saddle

At all times the height of the saddle must permit both feet to be placed firmly on the ground without effort.

The position of the saddle can be adjusted for height and angle.

Loosen and remove the nut and washer, 7.1, and withdraw the support bolt, 7.5, from the opposite side of the machine.

Loosen the two upper nuts, 7.2, and remove the bolts and washers.

The height of the saddle can be adjusted to three different positions.

Raise or lower the seat post, 7.3, to the next higher or lower position making sure that the mounting holes are aligned.

Insert the two upper bolts, 7.2, and fit the washer and nut. Do not tighten.

To adjust the angle of the saddle, grip the saddle at the front and rear. Press down firmly and lift, either the front or rear, until

the desired angle is reached. The slots on either side of the seat post, 7.4, thru which the support bolt, 7.5, is inserted, will limit the extent of angle adjustment so as to ensure safe and comfortable positioning of the saddle.

Tighten securely the two upper nuts, 7.2, and the nut of the support bolt, 7.1.

The Handlebar

The Handlebar is adjustable for angle only.

Loosen the nut, 7.8, and adjust the handlebar to your comfort. This is best done when mounted on the saddle and with both hands on the handlebar grips, making sure that your position allows for easy operation of the controls.

Tighten the nut, 7.8, securely after adjustment.

Fuel Mixture

Your Solex fuel tank has a capacity of 1/3 U.S. gallons.

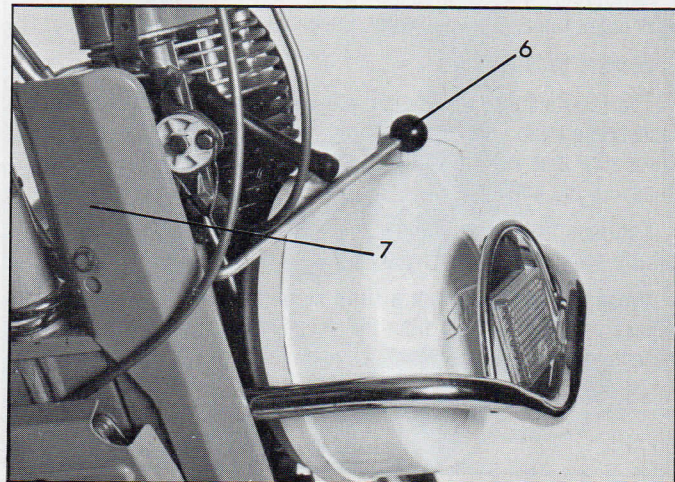
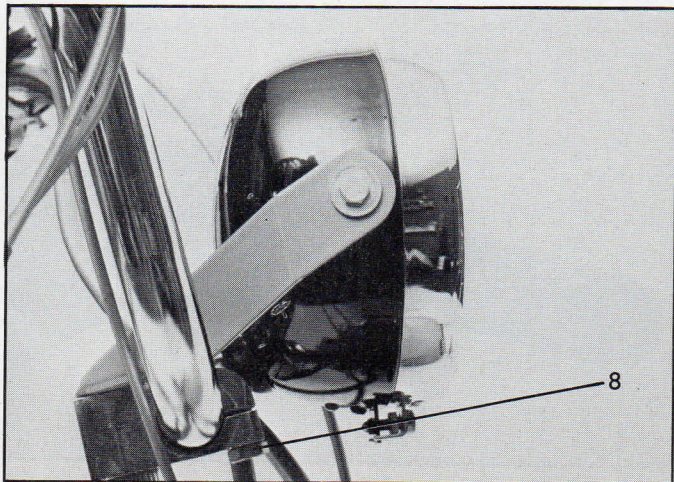
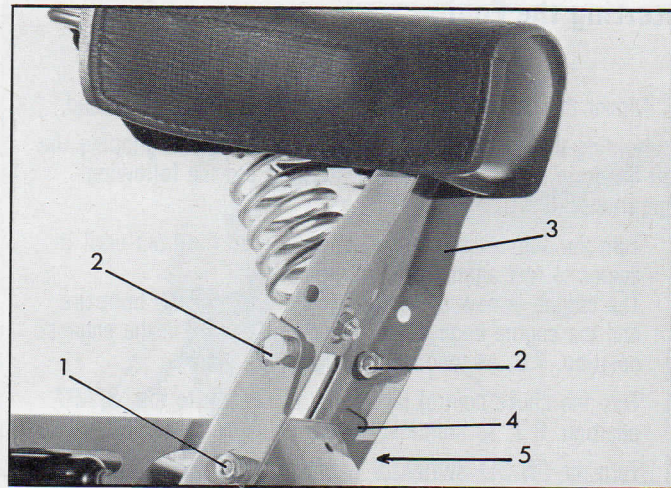
The fuel mixture ratio is 1 part normal two stroke oil to 25 parts of regular grade gasoline or 4% normal two stroke oil to 1 gallon of gasoline.

Do not attempt to mix the fuel directly in the fuel tank of your Solex. Use a clean can, pouring first the gasoline and then the oil in the correct ratio, shaking well. Never fill the fuel tank to the top or difficulty in starting the engine could arise.

Complete the following check list:

- * Check that there is ample fuel in the tank for your trip.
 - * Check both brake controls to make sure that they function correctly.
 - * Check tires for correct pressure.
 - * Check for free steering by cutting the handlebar fully to the right and left.
 - * Check Page 5 of this handbook and make sure that you are familiar with the location of all controls.
- With your foot against the kickstand, push forward and set the machine on its wheels.

You are now ready to start up your Solex.



Starting the Engine

Mount the saddle and place both feet firmly on the ground.

Holding the handlebar steady with your left hand gripping the left handgrip, use your right hand to complete the following operations.

- * Turn the engine engagement lever fully to the front until it comes to rest against the fuel tank, 7.6.
The engine is now engaged with the tread of the front tire and the engine engagement lever will remain in the engaged position, 7.6, as long as the engine is running.
- * Turn the choke control lever fully to the left to the 'START' position, 9.2, as indicated on the air-filter cover, 9.3.
- * Turn the ON-OFF switch, 9.7, to the 'RUN' position.

With both hands firmly holding the handlebar grips, use your right index finger to squeeze the decompressor lever, 9.8.

Start to pedal.

The resistance of the engine, engaged with the front tire, will necessitate more vigorous pedalling for a moment than usual. Make sure that you are firmly gripping the handlebar and steadying the machine.

Continue to squeeze the decompressor lever, 9.8, and roll the throttle twist grip towards you, 9.4.

When you are moving at a little more than walking speed, release your index finger from the decompressor lever, 9.8, and the engine will start.

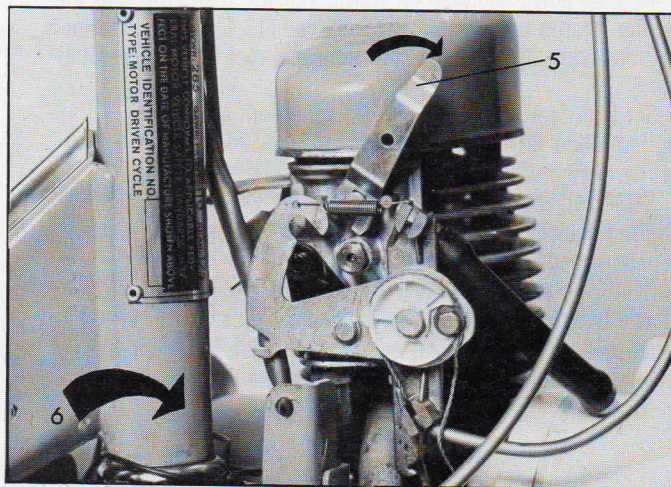
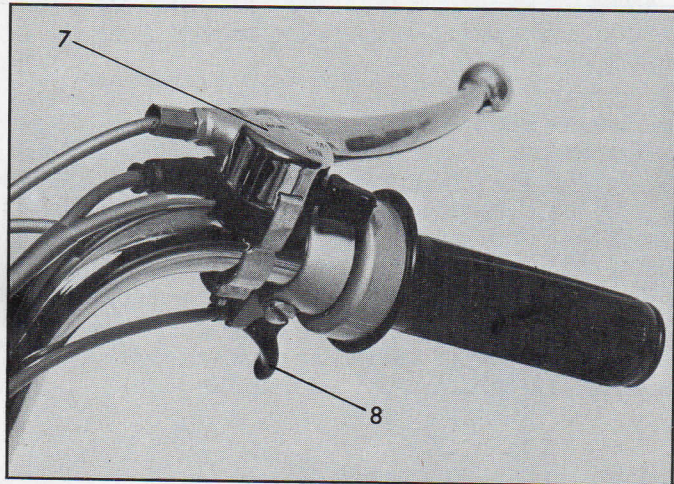
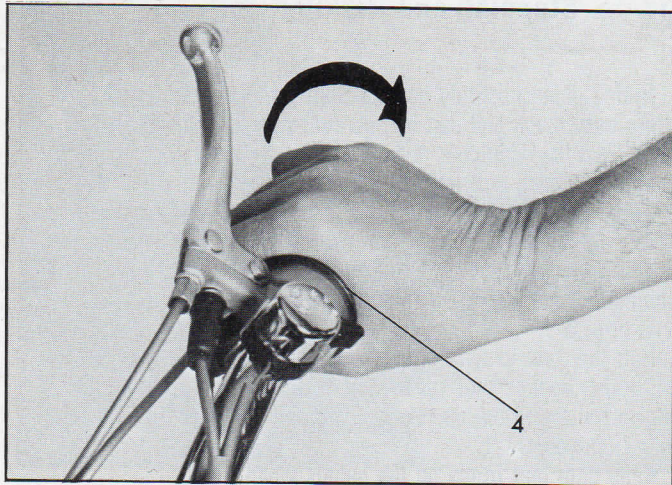
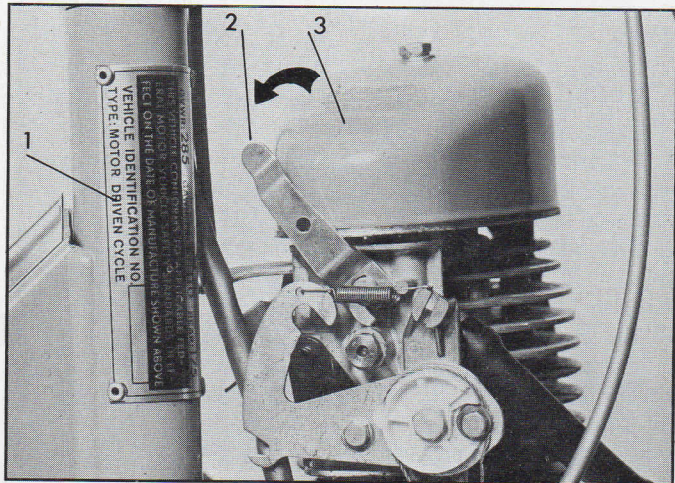
Continue to pedal gently while increasing the engine speed by rolling the throttle twist grip further towards you, 9.4, and the clutch takes up the drive smoothly.

The length of time that it will be necessary to keep the choke control lever in the full 'START' position, 9.2, will depend on the prevailing weather conditions. The colder the weather the more choke that will be required.

It should never be necessary to use the choke control to re-start when the engine is warm.

In average weather conditions, gradually turn the choke control lever to the right, 9.5, after having travelled about 100 yards and fully to the right as soon as the engine is running smoothly.





Riding, Stopping and Parking

Riding along leisurely on your Solex, all controls will be within easy reach and can be operated without removing your hands from the handlebar grips.

Your left hand will operate the rear brake lever, 5.13, which will also illuminate the stop light, 5.1, and your left thumb will operate the horn, 5.12, and light switch, 5.11, when necessary.

Your right hand will operate the front brake lever, 5.15, also illuminating the stop light, 5.1, and will control the throttle twist grip, 5.9.

Roll the throttle twist grip towards you, 9.4, and your Solex will gather speed. Your speed will be increased by rolling the throttle twist grip further towards you and decreased by rolling away from you, 11.1.

Keep both feet firmly on the pedals when riding.

To slow down and stop for traffic signals, road crossings etc., roll the throttle twist grip away from you, 11.1, and gently apply the front brake lever. Apply both front and rear brake levers and stop.

Set both feet on the ground and keep both brake levers applied while waiting to move off.

The engine will idle.

Never roll the throttle twist grip towards you when the engine is idling and the brake levers are applied. This could cause serious damage to the clutch.

Removing your hands from the brake levers and rolling the throttle twist grip towards you, 9.4, your Solex will move smoothly away again. Pedal gently for a moment to increase acceleration and when starting off on up gradients.

Peddalling gently when climbing grades will assist to relieve the engine of unnecessary strain.

On steep hills the clutch of your Solex will slip, permitting the engine to run at a speed which will give the maximum assistance to climbing.

When riding downhill, rolling the throttle twist grip away from you, 11.1, will provide a slight braking action, which can be assisted by gently applying both brake levers to slow down still further and stop whenever necessary.

To park your Solex, slow down and stop as described. Turn the engine ON-OFF switch, 9.7, to the OFF position and the engine will stop.

Turn the engine engagement lever fully to the rear, 11.3, and set the machine on its kickstand.

Always use the kickstand to park your Solex. Never lean against objects or park at the sidewalk on the pedal, as you might do with a bicycle.

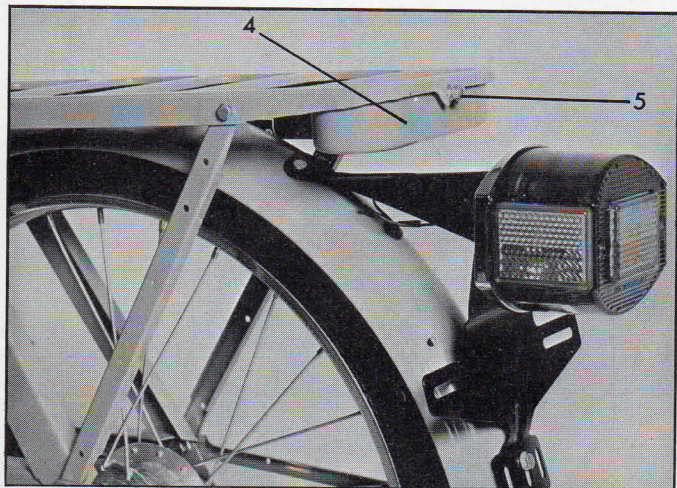
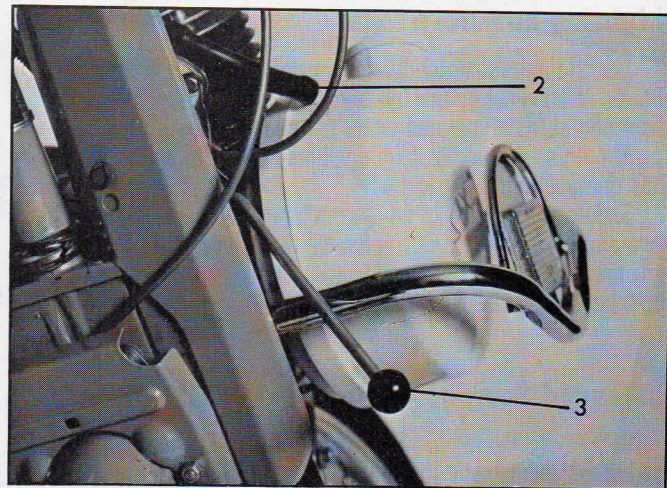
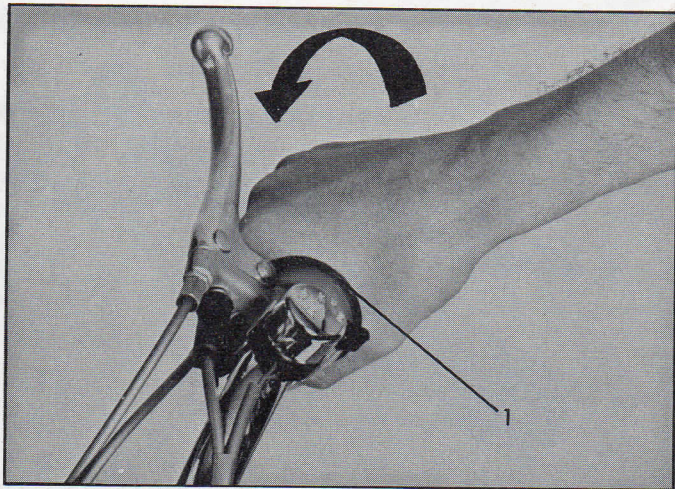
Your Solex as a Bicycle

When the engine engagement lever is turned fully to the rear position, 11.3, your Solex can be ridden as a bicycle.

Do not forget that the weight of the engine is then on the steering assembly. Grip the handgrips firmly and control your balance.

Never attempt to turn the engine engagement lever to the front, engaging the engine with the front tire, when cycling at speed.

Slow down to no more than walking speed before engaging the engine, or better still, stop.



Tools

Your Solex is built to metric sizes and the recommended adjustments and maintenance operations described in this handbook can be performed with the tools supplied.

Use of non-metric sized tools could result in damage to your Solex. Consult your VeloSolex dealer if in doubt.

The tools, together with the tire pump connector, are stored in the tool box, 11.4, which is opened by depressing the knob, 11.5, and lowering the box.

Lighting and Horn

Electric current to the headlamp, tail light and horn of your Solex, is provided by the flywheel magneto and the lights and horn can only be operated when the engine is running.

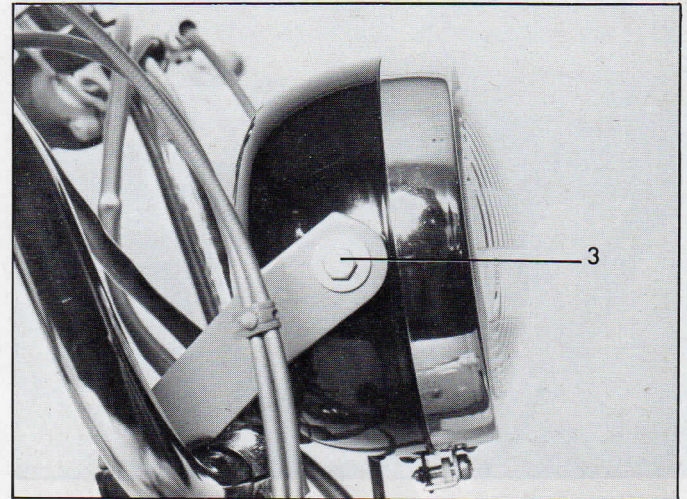
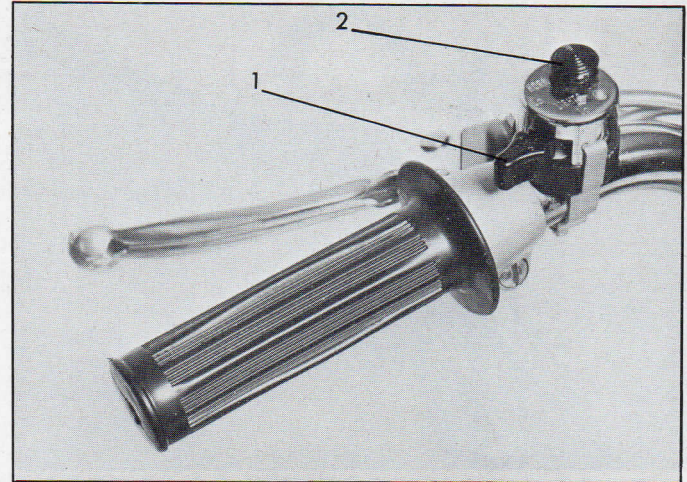
The light switch, 12.1, is combined with the horn, 12.2, and has two positions, ON and OFF.

Should you require to adjust the headlamp beam, loosen the two nuts on each side of the headlamp mounting, 12.3, but do not remove. Swivel the headlamp up or down to obtain the desired beam and tighten the two nuts, 12.3.

Extended Storage

Should you decide to place your Solex in storage for a long period we recommend the following procedure:

- * Start the engine and set the machine on its kickstand.
- * Disconnect the fuel re-circulation hose, 11.2, from the fuel tank and insert the end in a can.
- * Run the engine until the fuel tank and carburetor is empty of fuel. A small amount of fuel will remain in the bottom of the fuel tank which can be emptied by turning the machine on its right side.
- * Remove the spark plug and drop a little SAE 30 oil into the cylinder head. Rotate the engine and replace the spark plug without tightening.
- * Lubricate your Solex as described on Page 14.
- ** Periodically rotate the engine during storage.
- ** Keep your Solex clean. Wash enamel and chrome with a soft detergent, rinse and dry well.



Maintenance Operations

Mileage Maintenance Schedule

To maintain your Solex in the peak of condition and be assured of trouble free enjoyment, we recommend that inspection and maintenance be performed regularly at the scheduled mileages. Your VeloSolex dealer will assist you at all times.

Page and Index Reference	Mileage	600	1200	1800	2400	3000	3600	4200	4800	5400	6000
	Operation										
Page 14.1	Lubricate with SAE 30 oil	*	*	*	*	*	*	*	*	*	*
14.2	" " " " "	*	*	*	*	*	*	*	*	*	*
14.4	" " " " "	*	*	*	*	*	*	*	*	*	*
14.5	" " " " "	*	*	*	*	*	*	*	*	*	*
14.7 thru 9	" " " " "	*	*	*	*	*	*	*	*	*	*
14.11	" " " " "	*	*	*	*	*	*	*	*	*	*
Page 14.6	Dealer Operation. Front										
14.10	and Rear Hub bearings					*					*
14.3	Dealer Operation.										
	Steering Head Bearings.					*					*
Page 15.	Lubricate Chain with SAE 50 oil	*	*	*	*	*	*	*	*	*	*
Page 19.	Dealer Operation. Replace Air Filter.					*					*
Page 21.	Dealer Operation. Decarbonizing.					*					*
Page 12.	Clean Your Solex	*	*	*	*	*	*	*	*	*	*

Maintenance Operations

Lubrication

Regular lubrication maintenance will prevent wear of the friction components and greatly extend the service life of your Solex. The mileage maintenance schedule recommends complete lubrication every 600 miles assuming average conditions. Should the conditions in your area be unusually dusty or dry, more frequent lubrication is advisable.

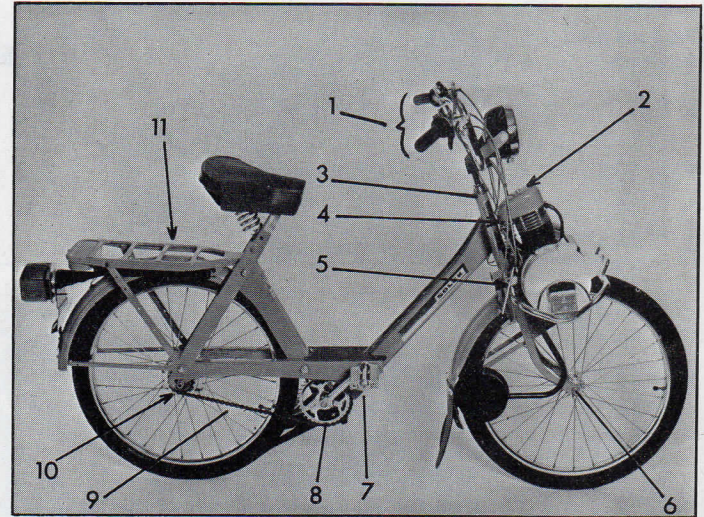
Lubricate with high grade SAE 30 oil the following friction components, applying a few drops of oil only and wiping off any excess.

Index:

- 14.1. Brake Lever Pivot Bolts
- 14.1. Brake Cable Nipples
- 14.2. Decompressor Lever Pivot and Cable
- 14.4. Choke Control Lever
- 14.1. Throttle Cable
- 14.7. Pedals
- 14.11. Rear Brake Cable and Arm
- 14.5. Front Brake Cable Linkage
- 14.8. Kickstand Pivot Bolts
- 14.9. Clean Chain and Lubricate with SAE 50 oil
- 17.10. Grease with white grease the engine engagement pivot arm.

At every 3600 miles the following require cleaning and greasing with multi-purpose grease, by your VeloSolex Dealer:

- 14.6. Front Hub Bearings
- 14.10. Rear Hub Bearings
- 14.3. Steering Head Bearings



Maintenance Operations

The Bicycle Chain

The Bicycle Chain should be cleaned to remove old grease and dirt which can cause excessive wear.

Every two months or 600 miles, wipe the chain thoroughly with a cloth and using a small brush, lubricate with SAE 50 oil. Apply oil to the inside of the chain and the outside, while rotating the wheel to ensure that the entire length of the chain is well lubricated.

Periodically, complete removal of the chain is recommended. Wash the chain in a solvent using a stiff brush to remove all grease and dirt. Rinse, hang to dry, and oil before refitting.

Chain Adjustment

Correct tensioning of the chain is essential to the transmission of power from the pedal crank to the rear wheel.

The chain should never be tightened excessively.

Loosen the axle nuts, 18.5, on both left and right of the rear wheel hub assembly but do not remove.

The correct chain tension is measured by pressing the top and bottom of the chain, midway between the rear hub and the pedal, with the thumb and index finger. The slackness should be about $\frac{1}{2}$ inch.

Pull the rear wheel to the rear, tensioning the chain as described.

Tighten the axle nuts, 18.5, securely, making sure that the wheel is correctly aligned in the frame.

The Tires

For easier riding and longer tire life make certain that the tires of your Solex are kept fully inflated to the correct pressure of 28 p.s.i.

Regularly inspect the tires for damage to the tire rims and for wear of the treads. Never hesitate to fit new.

Do not attempt to repair a blow-out. Replace the inner tube.

The performance of your Solex depends very much on adequate contact between the drive roller of the engine and the front tire. Especially the front tire therefore requires frequent inspection.



Maintenance Operations

Brake Adjustment

The brakes are essential to your personal safety and should always be maintained to the correct adjustment at all times.

There are two brake adjustments to both the front and rear brakes of your Solex.

Minor adjustment, to compensate for wear of the brake shoes and rear hub brake linings, is carried out at the handlebar brake levers.

Set the machine on its kickstand.

Check that the engine engagement lever is pulled to the rear, 11.3.

Unscrew the locking nut, 17.2, and the knurled adjusting nut, 17.1, slightly.

Front Brake

Raise and spin the front wheel by hand, adjusting the amount of free play on the right brake lever until the brake shoes take hold, by turning the adjusting nut, 17.1.

The amount of free play at the end of the brake lever should be about $\frac{1}{2}$ inch.

Tighten the locking nut, 17.2, on the right brake lever.

Rear Brake

Raise and spin the rear wheel by revolving the pedals and adjust as described for the front wheel.

Tighten the locking nut, 17.2, on the left brake lever.

Should further adjustment be necessary proceed as follows.

Front Brake

Apply the front brake lever with your right hand and with your left hand, grip the brake shoes, 17.8, against the rim of the wheel by squeezing them together. Release the brake lever.

Press in the adjustment lever, 17.9, to disengage the locking mechanism and turn the lever to the left to take up slackness in the cable.

Release the adjustment lever, ensuring that it returns to the locked position and, release your hand from the brake shoes.

The gap between the brake shoes and the rim of the wheel should be minimal without touching the rim when the wheel is spun.

Rear Brake

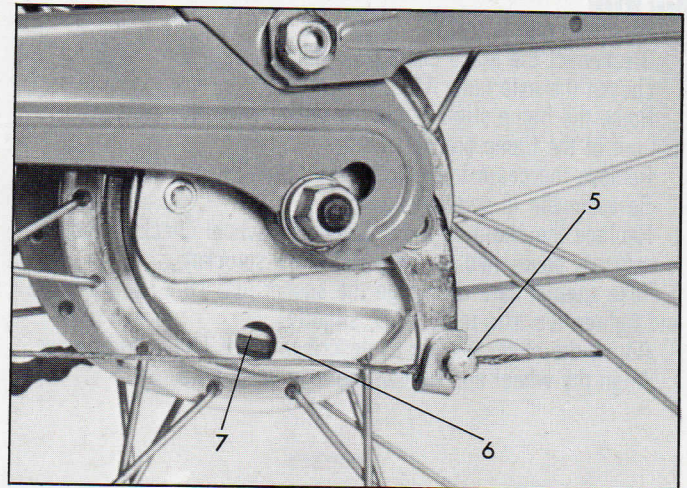
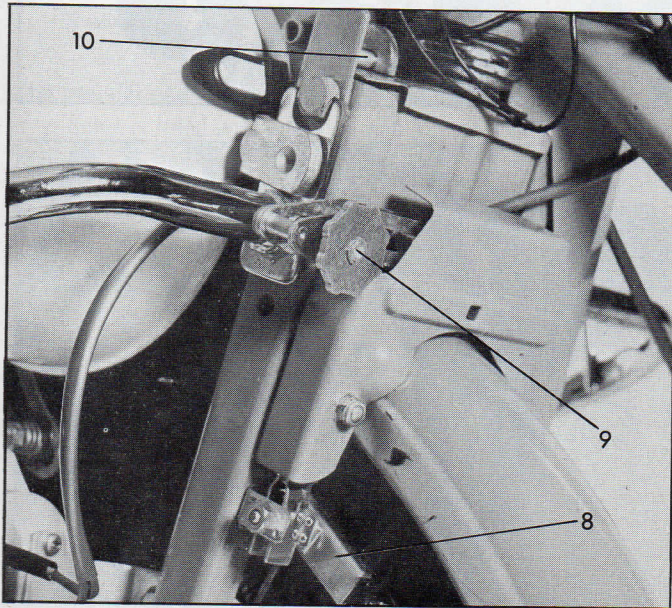
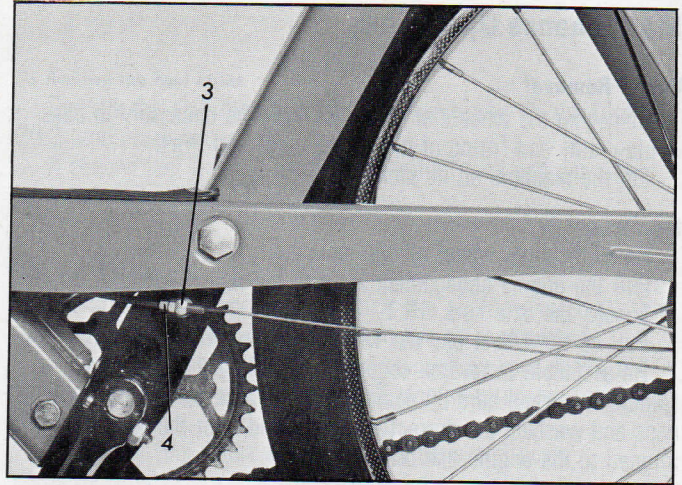
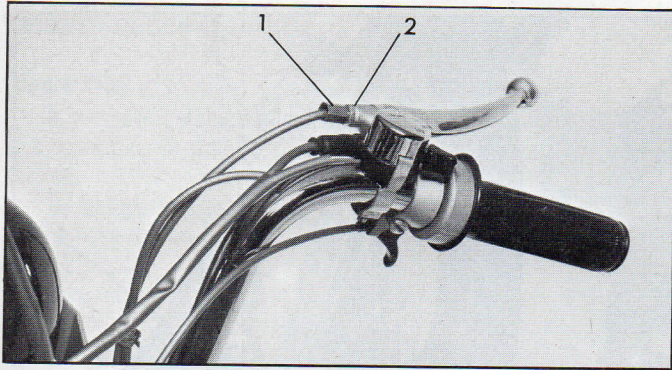
Loosen the locking nut, 17.3, and adjust the rear brake by turning the adjusting screw, 17.4.

Tighten the locking nut, 17.3.

On the rear wheel hub assembly an inspection hole, 17.6, has been provided to enable you to examine the wear on the brake lining, 17.7.

Whenever the brake lining or the front brake shoes show signs of wear, consult your VeloSolex dealer. Replace the dust cap after inspection.

The rim of the front wheel should be kept clean at all times by wiping with a dry cloth. Never oil or wax the rim.



Maintenance Operations

Wheel Removal

Removing the wheels of your Solex will be necessary in case of blow-outs and fitting of new inner tubes and tires.

Set the machine on its kickstand.

Front Wheel

Raise the front wheel off the ground.

Pull the engine engagement lever to the rear, 11.3.

Loosen the axle nuts, 18.1.

Pull on the wheel and the wheel will drop from the forks, 18.3.

Re-assemble in reverse sequence, checking that the axle spindle is pushed hard up against the fork recess, 18.2, the dust caps and washers are correctly located and, that the wheel is aligned to the engine and brake shoes.

Rear Wheel

Raise the rear wheel off the ground.

Disconnect the brake cable from the hub assembly, 17.5.

Loosen the axle nuts, 18.5.

Raise the frame slightly and the wheel will slide forward and out of the frame bracket, 18.4.

Remove the chain from the hub sprocket wheel, 18.6.

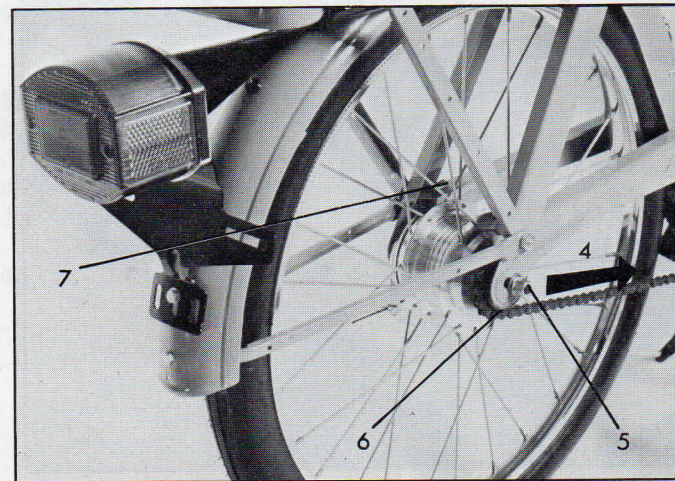
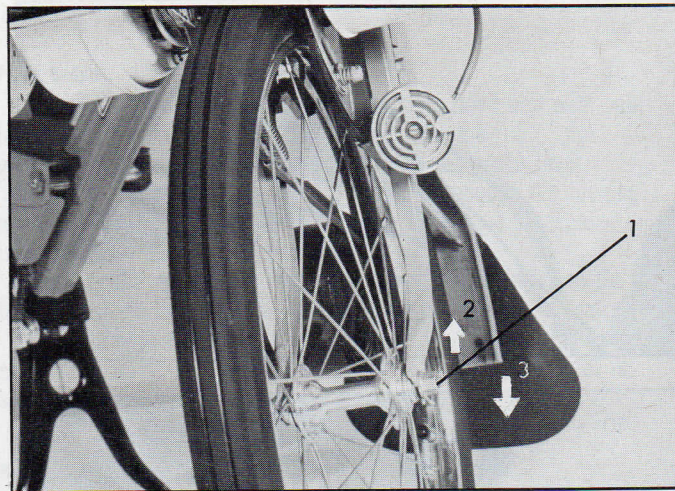
Re-assemble in reverse sequence.

Replace the chain on the hub sprocket wheel checking that it is correctly positioned on the pedal crank sprocket.

Take special care to engage the anchor lug, 18.7, in the frame and tighten the axle nuts, 18.5, slightly.

Adjust the chain tension as described under Chain Adjustment.

Align the wheel and tighten the axle nuts, 18.5.



Maintenance Operations

Spark Plug

If you have carefully followed the instructions on fuel mixture the spark plug of your Solex should not become excessively fouled.

To replace the spark plug.

Remove the air filter cover, 9.3, and detach the high tension cap, 20.2.

Remove the spark plug from the cylinder head with the spark plug wrench provided in your tool kit. Always fit a new spark plug of the recommended correct heat range.

See Technical Data.

The spark plug gap should be 0.015 inch.

The Fuel Jet and Filters

Your Solex is fitted with a fuel jet and a filter which can be removed and cleaned in case of poor engine performance.

First determine the cause of any difficulty before attempting to correct and always consult your VeloSolex dealer if in doubt.

To remove the fuel jet

To remove the fuel jet.

Set the machine on its kickstand.

Turn the handlebar fully to the left and remove the engine shield, 7.7, for easy access.

Loosen the fuel jet, 20.1, with the wrench provided in the tool kit and clean by blowing out with the tire pump.

Re-assemble, but do not tighten excessively.

To Remove the Fuel Filter

Remove the air filter cover, 9.3, pull vertically on the filter, 20.3, and clean or replace.

A second fuel filter is located in the fuel tank and can only be removed by your VeloSolex dealer.

The Air Filter

Operating under average conditions, the air filter fitted to your Solex will require very little attention. We do recommend, however, that you have the air filter renewed by your dealer at approximately 3600 miles or every 12 months to ensure longer life of the engine.

Never ride your Solex without the air filter and cover correctly fitted.



Maintenance Operations

Throttle Adjustment

Adjustment of the throttle control should only be necessary when replacing the throttle cable or if the setting of the throttle mechanism has been disturbed.

Correct setting of the throttle mechanism should be carried out as follows.

Remove the shield, 7.7. If the throttle cable has not been detached from the throttle mechanism, 20.4, loosen the cable pulley nut, 20.5.

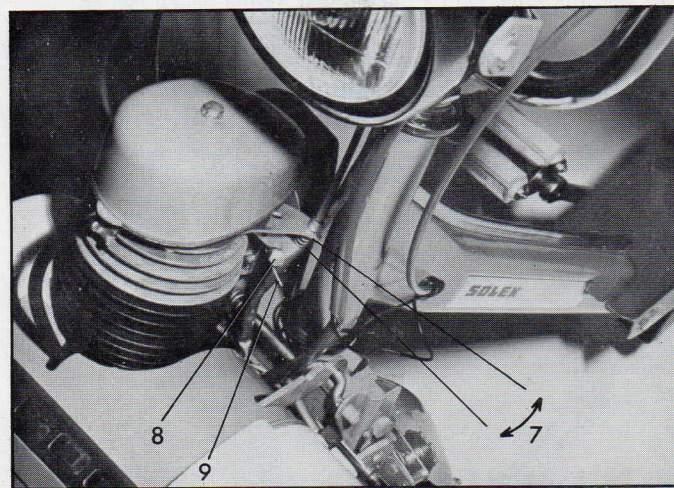
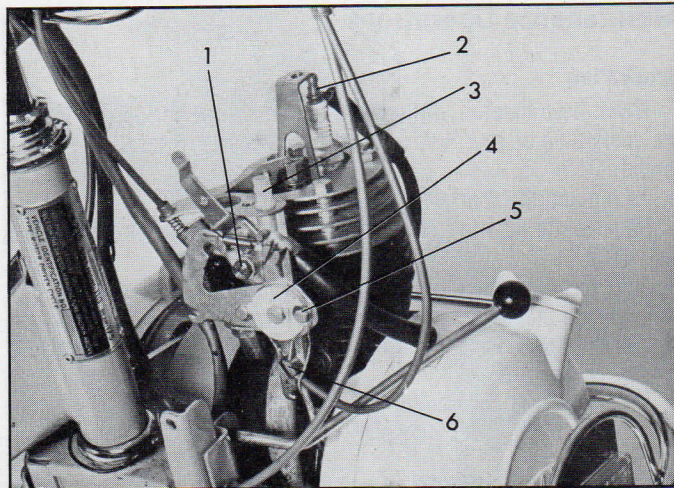
Roll the throttle twist grip fully away from you, 11.1.

Check that the throttle cable cover is secured in the cable end, 20.6. Wind the end of the cable around the pulley from left to right and pass under the washer of the cable pulley nut, 20.5, tensioning the cable.

Tighten the nut, 20.5.

Start the engine.

If the engine runs too fast when the throttle twist grip is rolled fully away from you, 11.1, loosen the pulley nut, 20.5, and adjust the position of the cable on the pulley, until smooth idling speed is obtained.



Maintenance Operations

Decompressor Adjustment

Starting the engine is greatly assisted by the decompressor control.

Squeezing the decompressor lever, 9.8, at the same time that you apply movement to the machine when starting, reduces the pressure in the cylinder head and therefore, the effort that you must give to moving the pedals.

When squeezing the decompressor lever the decompressor cable end, 20.9, should travel about 1/8 inch and never less than 1/32 inch, 20.7.

If adjustment is necessary, loosen the nut, 20.8, at the decompressor cable end and adjust the cable tension until the required movement is obtained.

Tighten the nut, 20.8.

Consult your VeloSolex dealer if further adjustment is necessary.

Decarbonizing

Strict compliance with the fuel mixture instructions will ensure that only minor carbon deposits will build up in the exhaust muffler and cylinder.

Typical indications that your Solex could require decarbonizing service by your VeloSolex dealer should be watched for:

- * Loss of engine power
- * Repeated hard starting
- * Backfiring
- * Excessively fouled spark plug
- * Overheating of the engine

Your Solex Warranty

For your satisfaction please read the Solex Owner Warranty carefully and become familiar with the terms outlined therein.

Should you require clarification on any aspect of the warranty please consult your VeloSolex dealer.



Maintenance Operations

Trouble Shooting

If you have followed the advice given in this handbook and maintained your Solex in good condition, failures will seldom occur. However, the following will assist you to readily locate a failure at those unforeseen times.

Failure	Probable Cause	Remedies	Refer to
Engine will not start	Ignition	Check engine on-off switch. Check spark plug and replace if fouled. Check spark plug gap. Check for damage to spark plug high tension lead.	9.7 Page 19 Page 19 Page 19
	Fuel Flow	Fuel Tank too full. Check that choke control lever has not been turned to left 'START' when the engine is warm. Choke control lever has not been turned to start position. (Engine cold) Remove fuel filter and clean. Clean fuel jet.	Page 6 Page 8 9.2 20.3 20.1
Engine only starts with excessive choke.	Dirty jet, air filter, or carburetor.	Clean the fuel jet. Consult your dealer.	20.1
Poor engine power	Ignition.	Check spark plug.	Page 19
	Insufficient fuel flowing to carburetor.	Clean fuel filter and/or fuel jet.	20.3

Your VeloSolex Dealer

For quick reference, ask your VeloSolex dealer to stamp their name, address and telephone number in this space.



BrianSolex

VeloSolex Solex Repair

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