Because Quality Counts.....

SACHS OWNERS MANUAL

For Westlake (P-1) Moped with 504/1 Engine
Balboa (M-4) Moped with 505/1 Engine

NOTE: Refer to illustrations on pages 2 and 3 to determine which model of Sachs Moped you own.

Introduction — IMPORTANT INFORMATION — Please Read

Please read and understand the starting and operation of the SACHS "Balboa" (M-4) or "Westlake" (P-1) models, before attempting to ride the machine.

Always ride with your "LIGHTS ON", day or night, to provide better visibility for approaching traffic.

Always assume the other vehicle does not see you. RIDE DEFENSIVELY.

Operating laws for mopeds/motorized bicycles may vary from city to city. Check the laws in your community and avoid unsafe operation.

The BALBOA and WESTLAKE models are not designed to carry a second passenger. Even if a long "comfort" seat is fitted, these models are engineered for "solo operation" only.

Always keep your moped in top mechanical condition. When in doubt, check with your authorized SACHS dealer.

We hope that you, too, will be enhanced by happy, accident-free driving always.

NURNBERGER HERCULES-WERKE GMBH **SACHS MOTORS CORPORATION OF USA**

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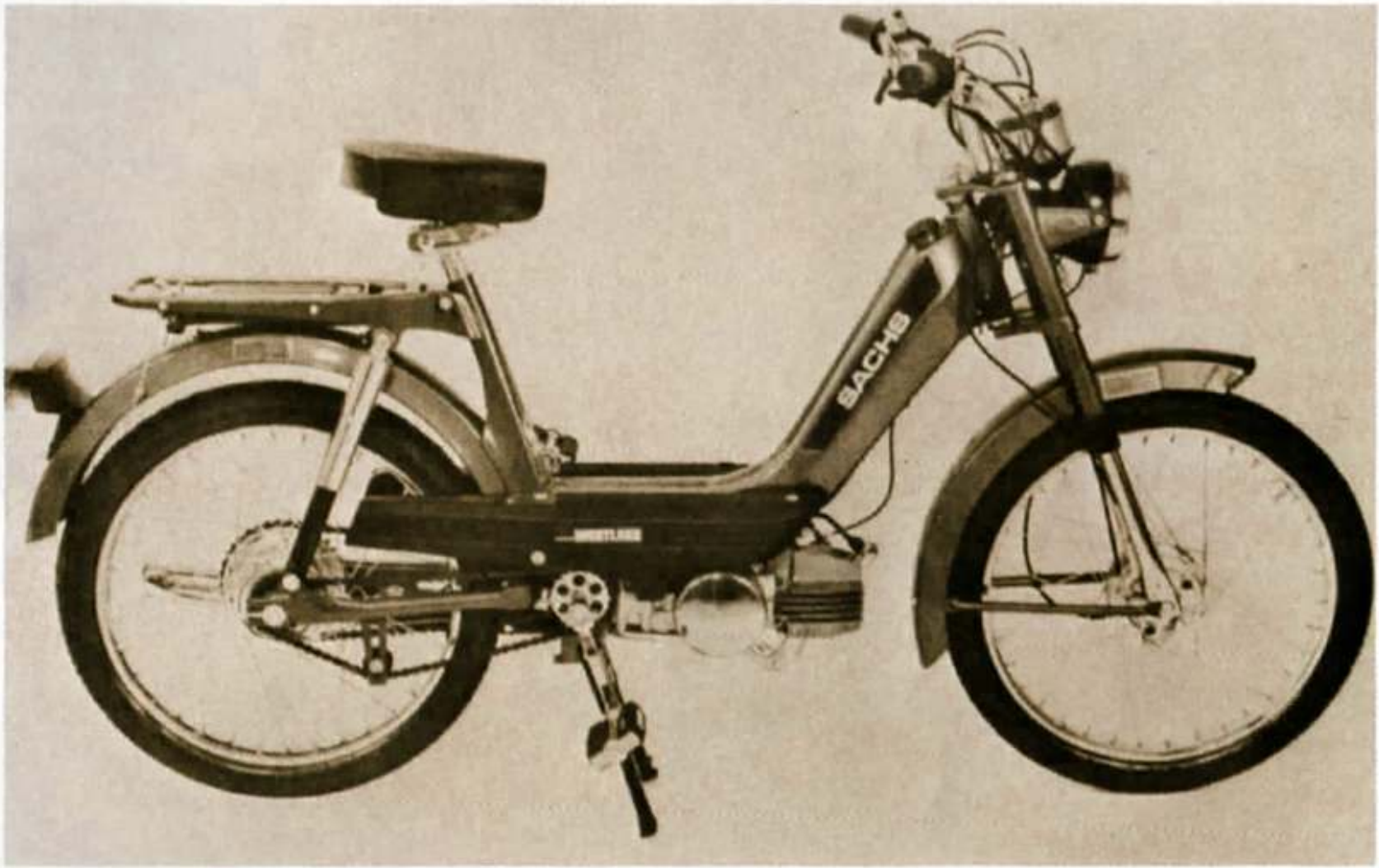
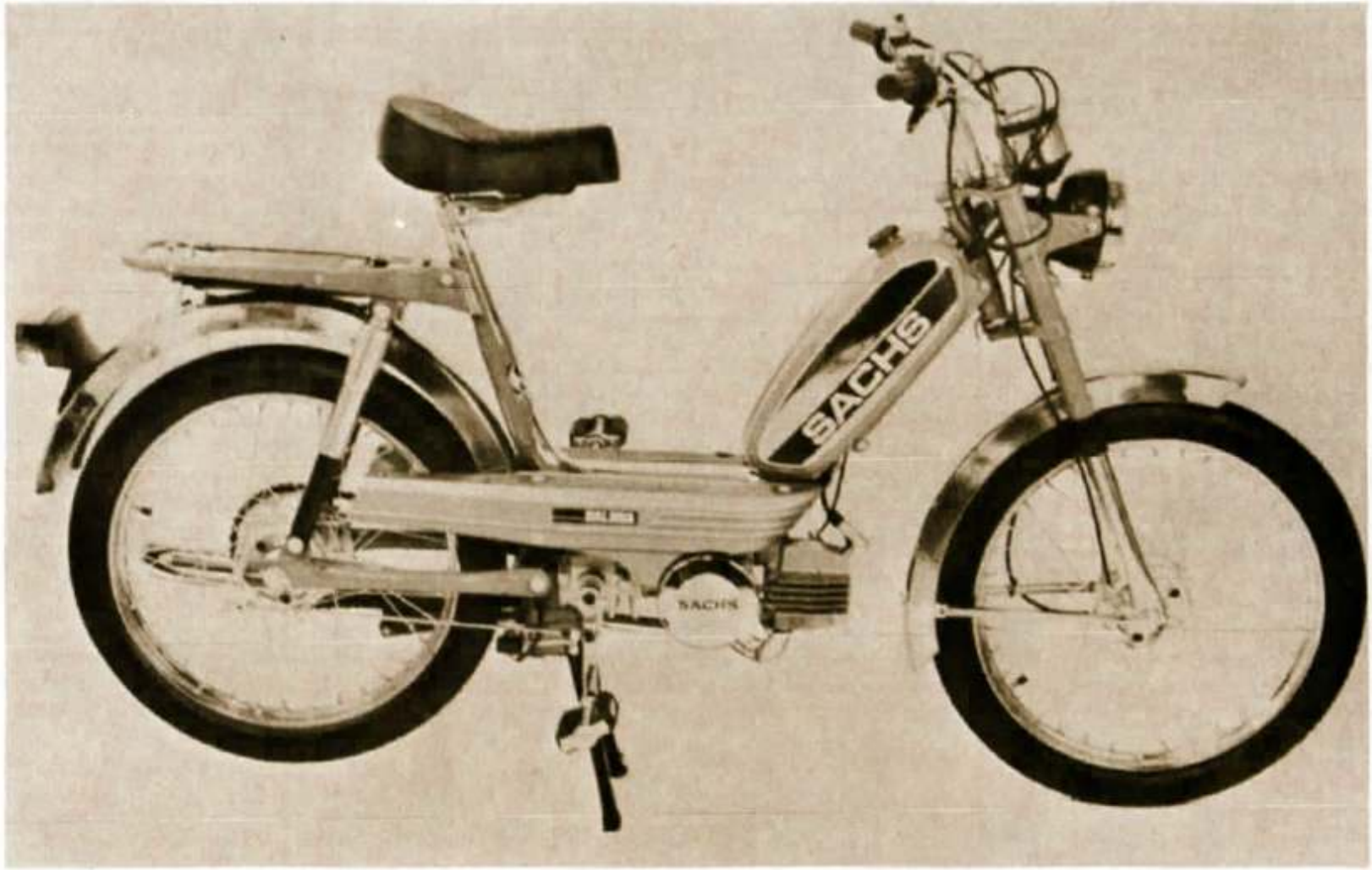


WESTLAKE (P-1)

Fig. 1



BALBOA (M-4)

Fig. 2

Motor: SACHS	(20 MPH)* 504 / 1 B	(30 MPH)* 504 / 1 A
Output:	0.7 kW (1.0 HP) at 4000 rpm.	1.3 kW (1.8 BHP) at 4500 rpm.
Swept volume:	2.86 cu. in./47 cm^3	
Bore:	1.50 in./38 mm dia.	
Stroke:	1.65 in./42 mm	
Compression ratio:	8 : 1	
Transmission:	Helical spur gear	
Transmission lubrication:	12.2 cu. in./200 cc of SACHS Special Transmission Oil or other oils, see "Checking Oil Level", page 17	
Clutch:	Two disc centrifugal clutch with manually operated starter clutch	
Motor chain drive pinion:	11 teeth	
Ignition:	BOSCH Magneto Ignition Generator	
Ignition timing:	.1 to .12 in./2.5 to 3.0 mm BTDC	
Point gap:	.14 ± .002 in./0.35 ± 0.05 mm	
Spark plugs:	BOSCH W 175 T 1 (electrode gap: .02 in./0.5 mm)	
Carburetor:	BING 85/10/101	BING 85/12/101
Carburetor specifications:	HD ND DN NP VALVE 50 2.17 2 11 No.2	HD ND DN NP VALVE 52 2.17 2 11 No.2
*Please note: also available with engine output:	17 MPH 0.7 kW (1.0 HP)	25 MPH ....(1.5 HP)

Technical Data

	(20 MPH)*	(30 MPH)*
Chassis: Frame:	Sheet-steel profile frame	
Front wheel suspension: Rear wheel suspension:	Telescopic fork Swinging arm with springs	
Brakes, front: rear:	Full hub brake V 906 - 3.5 in./90 mm dia. Full hub brake H 906 - 3.5 in./90 mm dia.	
Tires:	2-17 (21 x 2.00)	
Tire Pressures:	Front: 20-21 psi/1.4-1.5 bar; Rear: 25.5-31 psi/1.8-2.2 bar	
Drive chain (1/2 x 3/16"):	106 links	100 links
Kick-starter chain (1/2 x 1/8"):	78 links	
Rear wheel hub chain sprocket:	50 teeth	38 teeth
Fuel tank:	0.9 gallon/4 liter capacity, of which 1 pt./1/2 liter reserve	
Bulbs:	Headlight: 6 V — 20 W Stop light: 6 V — 10 W	Tail light: 6 V — 5 W Speedometer: 6 V — 1.2 W
*Please note: also availabe with engine output:	17 MPH 0.7 kW (1.0 HP)	25 MPH ....(1.5 HP)

Technical Data

Motor: SACHS	(20 MPH)*	(30 MPH)*
	505 / 1 B	505 / 1 A
Output:	0.7 kW (1.0 HP) at 4000 rpm.	1.3 kW (1.8 BHP) at 4500 rpm.
Swept volume:	2.86 cu. in./47 cm^3	
Bore:	1.50 in./38 mm dia.	
Stroke:	1.65 in./42 mm	
Compression ratio:	8 : 1	
Transmission:	Helical spur gear	
Transmission lubrication:	15 cu. in./250 cc of SACHS Special Transmission Oil or other oils, see "Checking Oil Level", page 17	
Clutch:	Two disc centrifugal clutch with manually operated starter clutch	
Motor chain drive pinion:	11 teeth	
Ignition:	BOSCH Magneto Ignition Generator	
Ignition timing:	.1 to .12 in./2.5 to 3.0 mm BTDC	
Point gap:	.14 ± .002 in./0.35 ± 0.05 mm	
Spark plugs:	BOSCH W 175 T 1 (electrode gap: .02 in./0.5 mm)	
Carburetor:	BING 85/10/101	BING 85/12/101
Carburetor specifications: Please note: also available with engine output:	HD ND DN NP VALVE HD ND DN NP VALVE 7 MPH 0.7 kW (1.0 HP)	50 2.17 2 11 No.2 52 2.17 2 11 No.2 25 MPH ....(1.5 HP)

Technical Data

	(20 MPH)*	(30 MPH)*
Chassis: Frame:	Tubular frame	
Front wheel suspension:	Telescopic fork	
Rear wheel suspension:	Swinging arm with springs	
Brakes, front: rear:	V 905 - 3.5 in./90 mm dia. H 905 - 3.5 in./90 mm dia.	
Tires:	2¼ - 17	
Tire pressures:	Front: 28 psi (2.0 bar)	Rear: 32 to 35 psi (2.25-2.5 bar)
Drive chain (1/2 x 3/16"):	106 links	102 links
Rear wheel hub chain sprocket:	50 teeth	40 teeth
Fuel tank:	0.77 gallon (3.5 Liter)	
Bulbs:	Headlight: 6 V — 20 W Stop light: 6 V - 10 W	Tail light: 6 V — 5 W Speedometer: 6 V - 1.2 W
*Please note: also available with engine output:	7 MPH 0.7 kW (1.0 HP)	25 MPH ....(1.5 HP)

Controls Westlake (P-1)

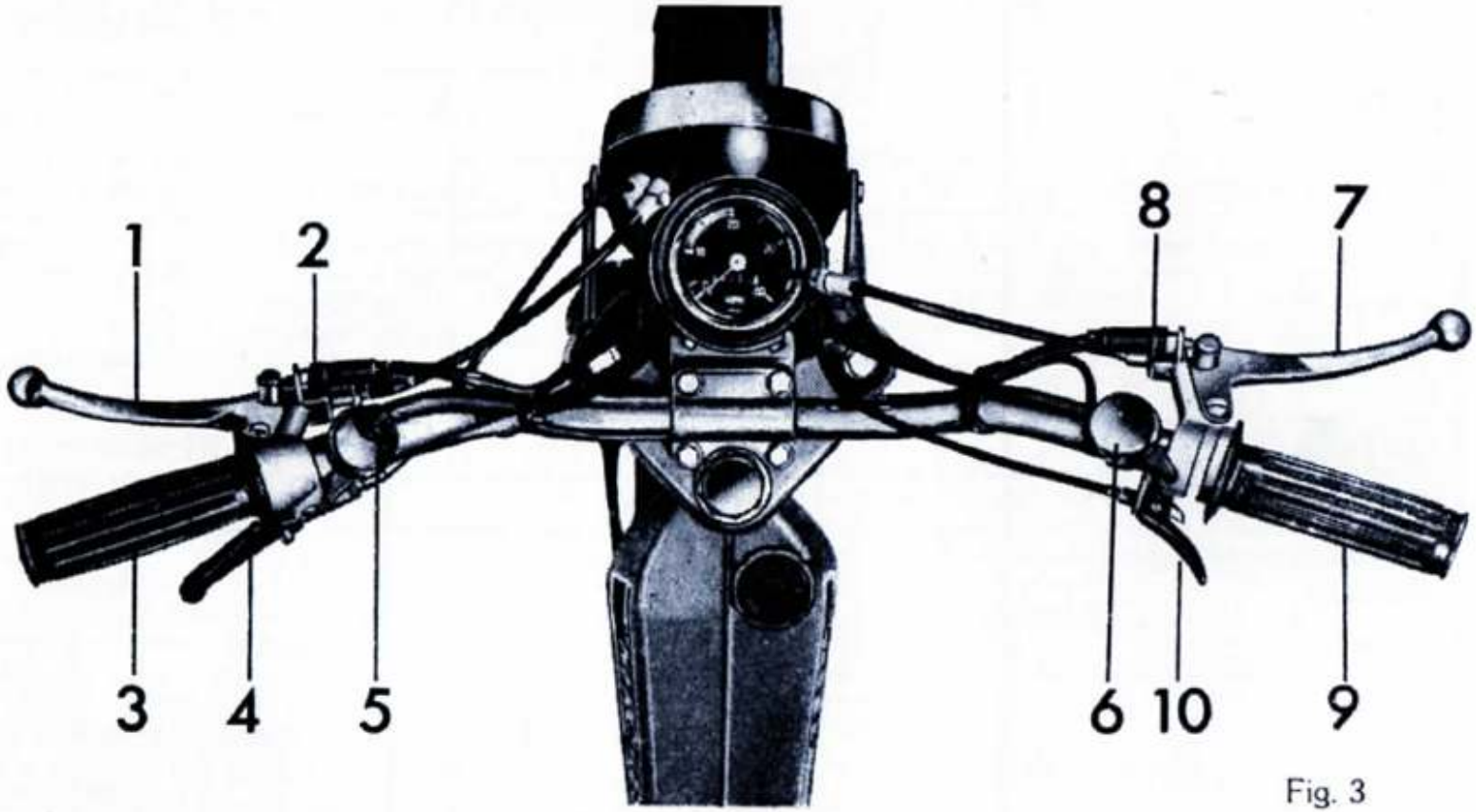
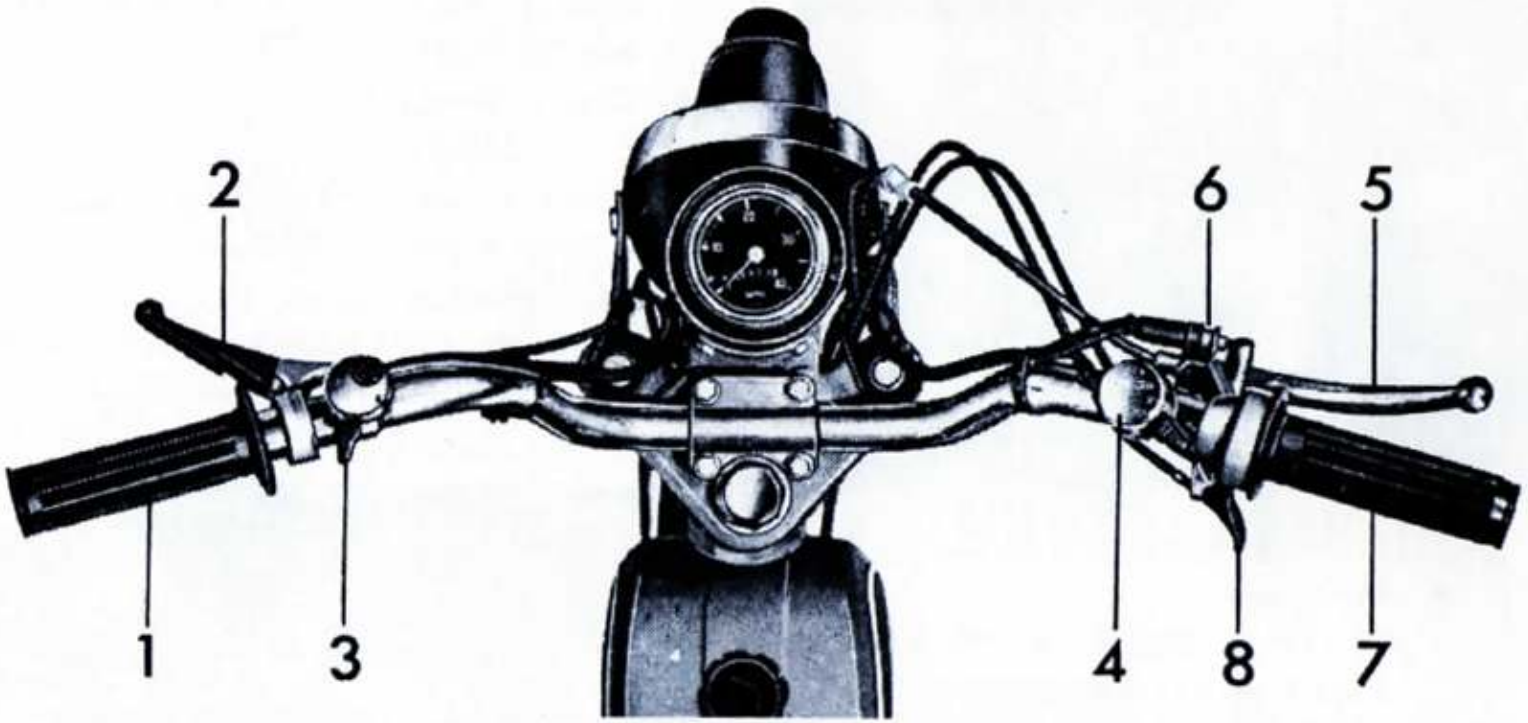


Fig. 3

1 = Rear wheel brake lever
2 = Stop light switch for rear wheel
3 = Fixed grip
4 = Starter engagement lever
5 = Light switch with horn button
6 = Ignition switch
7 = Front wheel brake lever
8 = Stop light switch for front wheel brake
9 = Throttle twist grip
10 = Choke

Controls Balboa (M-4)



1 = Fixed grip
2 = Starter engagement lever
3 = Light switch with horn button
4 = Ignition switch
5 = Front wheel brake lever
6 = Stop light switch for front wheel brake
7 = Throttle twist grip
8 = Choke

IMPORTANT: The rear wheel brake is operated like a bicycle coaster brake. When stopping, rotate pedals rearward, and apply downward force on pedal as required to stop without skidding tire.

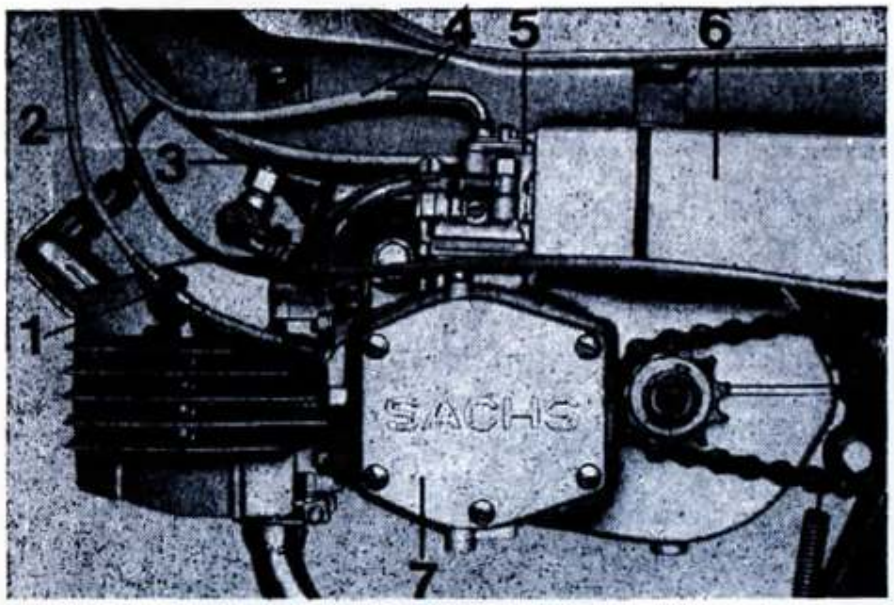


Fig. 5

1 Decompressor (starting aid)
2 Starter and decompressor lever cable (starter clutch)
3 Choke lever cable (cold starting)
4 Throttle twist control cable and control screw (control screw to adjust cable play)
5 Carburetor
6 Air cleaner
7 End cover and oil control screw (clutch and transmission oil levels)
8 Spark plug connector
9 Cover (ignition)
10 Ignition coil

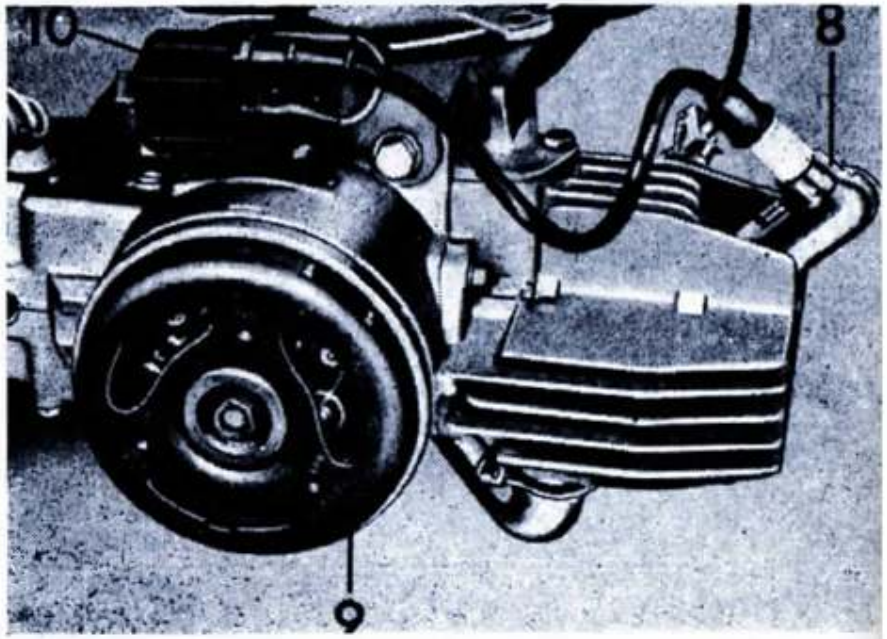


Fig. 6

Tank cap

The tank cap is a plug-in type and provides an excellent seal due to its material properties when fully depressed. When filling up, it need only be pulled out and pushed back in when the tank is full.

Important! To assure a perfect working vent, make sure that the raised dot on the cap's surface faces forward. Also, make sure the cap is fully depressed.

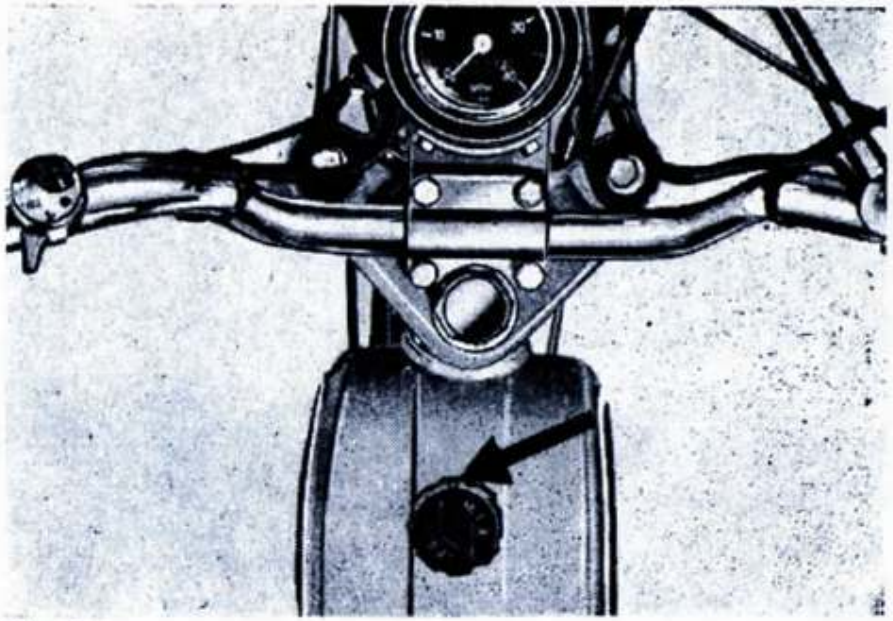


Fig. 7

Refueling

Use a mixture of 50 parts gasoline to 1 part oil. Do not add fuel while engine is in operation.
Fuel: Any quality regular grade fuel.
Lubrication oil: SACHS Special Motor Oil in tins (F & S Order No. 0263 005 100) or equivalent.
SAE 30 or 40 quality oils from well known companies may be used in emergencies.

Example: Mix 12.2 cu. in./200 cc of quality oil and 10 qts./10 liters of fuel in a container (mixing can) well, or use one can of self-mixing SACHS Motor Oil (15 cu. in./250 cc premixed).

Fuel cock

The illustration on this page shows the fuel cock and its three different positions.

At "ON"—cock turned down - the tank will drain except for the reserve quantity.

At "OFF"—cock turned in - the flow of fuel is stopped.

At "RESERVE"—cock turned up - the tank will drain completely.

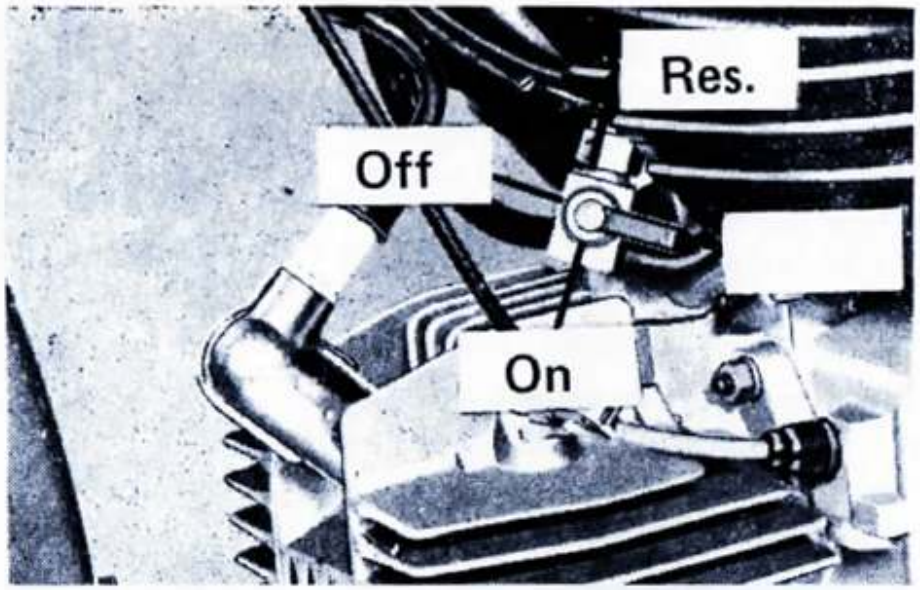


Fig. 8

Very important!

It is necessary to close the fuel cock immediately after operation. Failure to close the fuel cock after operation can result in damage to the engine. Such damage will not be covered under the SACHS limited warranty.

Operation

Before the motor can be operated, it is necessary to add the specified transmission oil (see "Lubrication and Maintenance Schedule") and to remove the rubber string from the vent slot in the end cover.

Starting

1. Move handlebar ignition switch lever to "ON" position.
2. Turn gasoline shut-off lever straight down, to ON position.
3. Depress carburetor "tickler" 3 to 5 seconds (for cold starts).
4. Mount Moped and pump pedals as a bicycle to approximately 5 mph.
5. With left hand, pull starter control lever to handlebar.
6. With right hand, rotate twist grip counter-clockwise to open throttle and pull choke lever with right thumb.
7. Release starter control lever and engine should start.
8. Continue to use choke control until engine warms up.
9. If engine does not start, pull start lever and continue to pedal. Use choke and throttle as required. Stop pedaling.

Do not depress the choke after engine is warm.
If the engine becomes flooded, shut fuel cock and start motor several times without applying the choke.
If necessary remove, dry and reinstall the spark plug — then repeat starting procedure.
Avoid high revolutions, because this will cause engagement of the clutch.

Moving Off

Accelerate slowly after the motor has begun to run. The centrifugal clutch engages as the revolution increases and the bike moves off. It is recommended to use the pedals for help when moving off on upgrades.

Shutting Off

Shut off motor with cutoff switch on handlebar.
Shut fuel cock.
Do not shut off motor by applying the starter control.

Anti-theft Lock

A locking device is built into the steering head. Insert the key into the lock and turn the handlebars toward the right about 20 degrees. Now turn the key to the left and press in the lock until the lock catch engages in the slot in the front wheel fork. Finally turn the key toward the right and remove. Unlock in reverse sequence.

IMPORTANT: Remove key before operating Moped.

Tools and Air Pump

The tools are well protected and accessible for ready use in a tray-shaped container beneath the luggage carrier. To remove, press forward on the rear wall of the elastic container until the holding lug can be pulled down out of the luggage carrier slot. Installation in reverse sequence.

The air pump is beneath the luggage carrier on the right hand side.

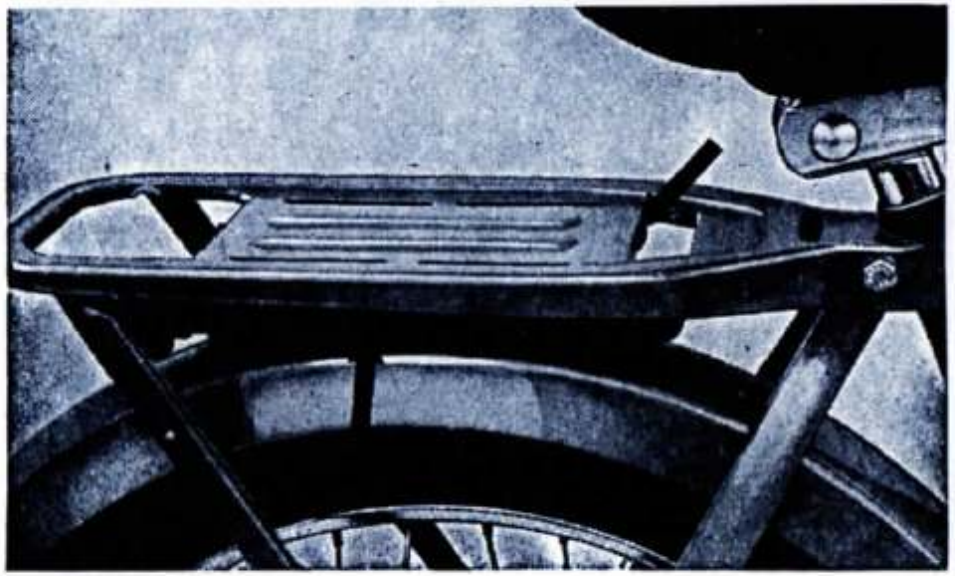


Fig. 9

Maintenance Schedule

Every	Item	Operation	Page
	All bolts and nuts	Tighten	—
300 mi./ 500 km	Rear wheel chains	Lubricate	28
600 mi./ 1000 km	Air cleaner	Clean	18
	Transmission	Check oil level	17
	Spark plug	Check electrode gap, adjust if necessary	21
1800 mi./ 3000 km	Crank shaft	Lubricate	33
	Ignition	Check ignition timing	22
	Exhaust	Clean, decarbonize	25
	Cylinders, cylinder head	Decarbonize	25
	Cables	Lubricate	—
	Handle bar controls	Apply several drops of oil to joints and bearings	—
	Center bearings Lock and lock guide	Lubricate with thin oil	—
	Rear wheel chains	Remove, clean, lubricate	28

Maintenance Schedule

Every	Item	Operation	Page
3000 mi.	Lubricating felt element on contact breaker cam	Lubricate	—
As req.	Carburetor	Clean	19
	Decompressor and starter/clutch	Adjust	24
	Telescopic fork	If springs are stiff, dismantle, clean and apply 2 oz./60 gr. of grease to each fork side	25
	Steering bearing	Check, lubricate and adjust if necessary	—
	Brakes and hub bearings	Dismantle and clean, replace liners if necessary, check bearings	—
	Fuel cock	Clean	33

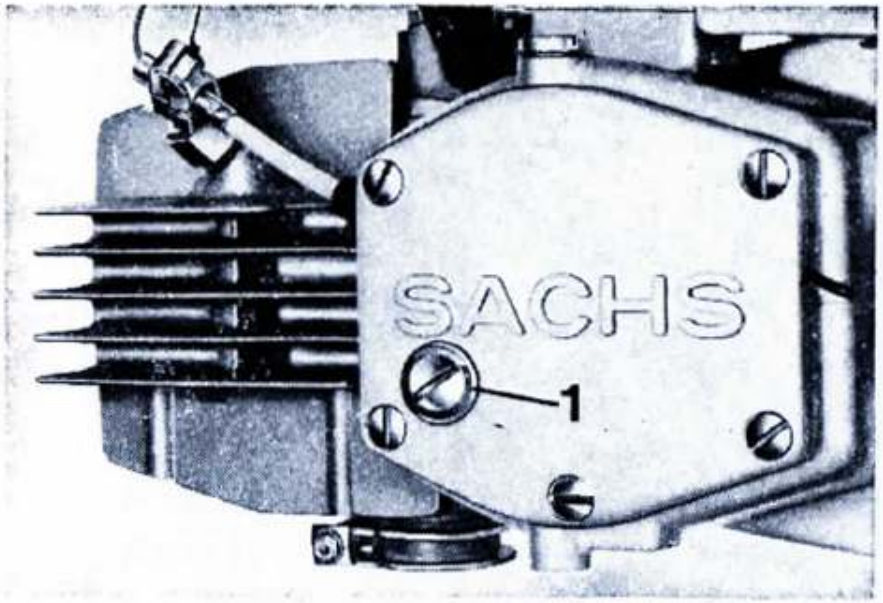


Fig. 10

Checking Oil Level

Place Moped with the motor warm on a flat level surface and remove oil control plug (1). If the transmission oil level is lower than the control bore, add SACHS Special Transmission Oil until it flows out of the control bore.

As described under "Checking Oil Level", add SACHS Special Transmission Oil (F & S Order No. 0263 014 002) or

SHELL Donax T6	CASTROL TQ
BP ATF	OPTIMOL H 1738
ESSO ATF 55	MOBIL Fluid 200 Y
DEA Fluid 684 (ATF)	DEUTZ HY-F Oil

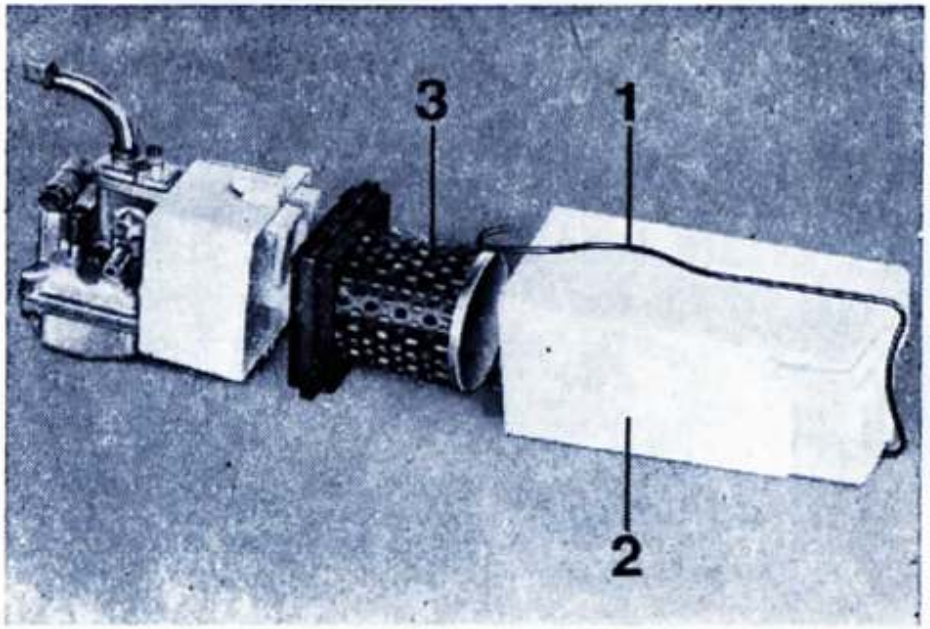
An oil change is not required.

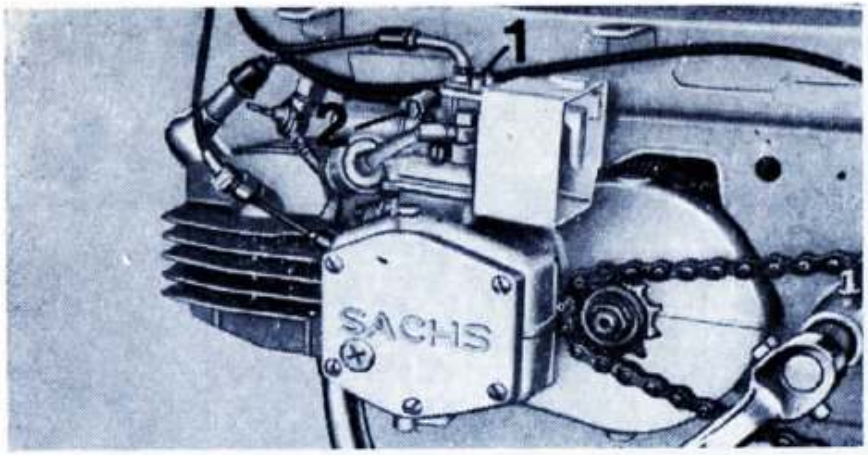
Air Cleaner

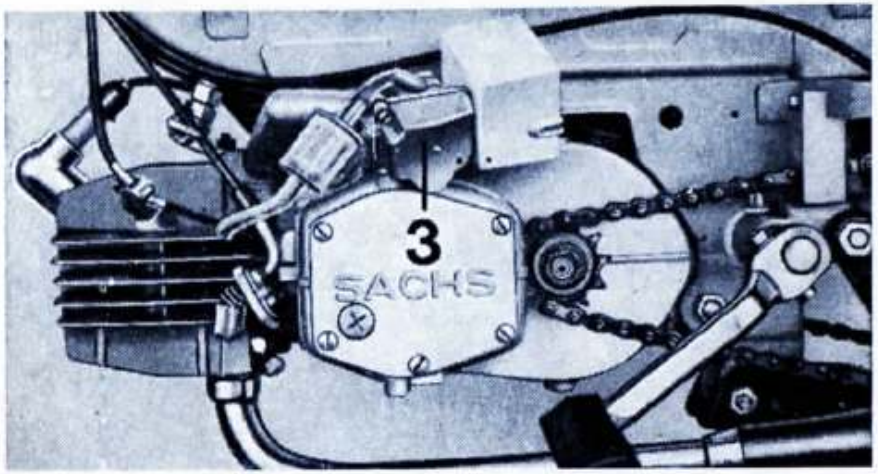
Remove left side cover.
Pry off holder (1) and remove cover (2).

Replace Micronic filter (3) if heavily contaminated. Blow dust off of slightly contaminated filter carefully.

Clean air cleaner halves in gasoline.







Cleaning carburetor

(It is recommended to have this work carried out by your authorized SACHS dealer.)

Shut fuel cock. Remove left side cover and air cleaner.

Loosen cover (1) screws, lift cover and pull out throttle valve.

Loosen clamping screws (2) and pull carburetor off of intake adaptor.
Remove float housing (3).
Unscrew main jet and needle jet. Clean jet bores with compressed air. Never use a piece of wire or anything similar!

Clean float housing, filter screen and carburetor housing in gasoline.

When assembling, make sure that the jets fit properly and the seals are correct! When installing the throttle valve, its guide groove must face toward the frame.

Adjusting carburetor

The carburetor is adjusted when the motor is at operating temperature.

To make sure that the starter valve does not function at normal operating conditions, the starter valve cable must have a play of .04 to .08 in./1 to 2 mm.

Loosen throttle valve control screw (2) and adjust the cable until the throttle valve is completely shut.

Tighten throttle valve control screw until the motor, at operating temperature, runs smoothly with the throttle twist control closed.

Adjust control screw (1) until the cable between the carburetor and throttle twist control has a play of .04 to .08 in./1 to 2 mm.

Note:
Make above adjustment carefully, because the centrifugal clutch will engage if the idle speed is too high.

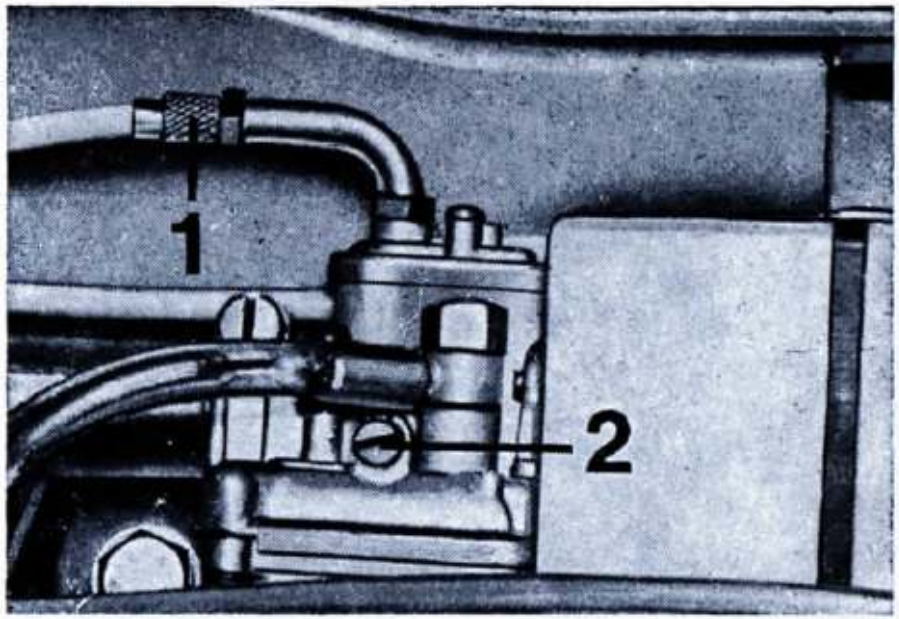


Fig. 14

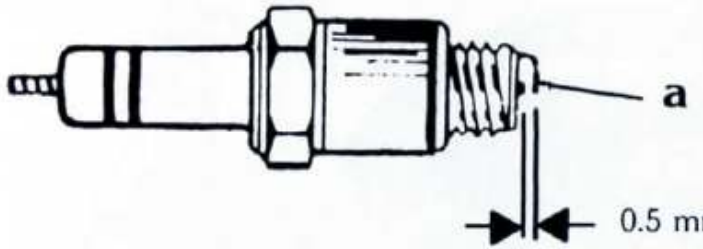


Fig. 15

Spark Plug

Electrode Gap

The electrode gap expands during operation from heat. This is why the electrode gap has to be adjusted to specifications from time to time. This in turn is done by bending ground electrode (a). The specified gap is .02 in./0.5 mm.

Cleaning:

The spark plug should be cleaned every 600 miles/1000 km. A provisional cleaning can be accomplished by removing any deposits at the insulator tip and between the electrodes. A sand blaster, however, is required for thorough cleaning.

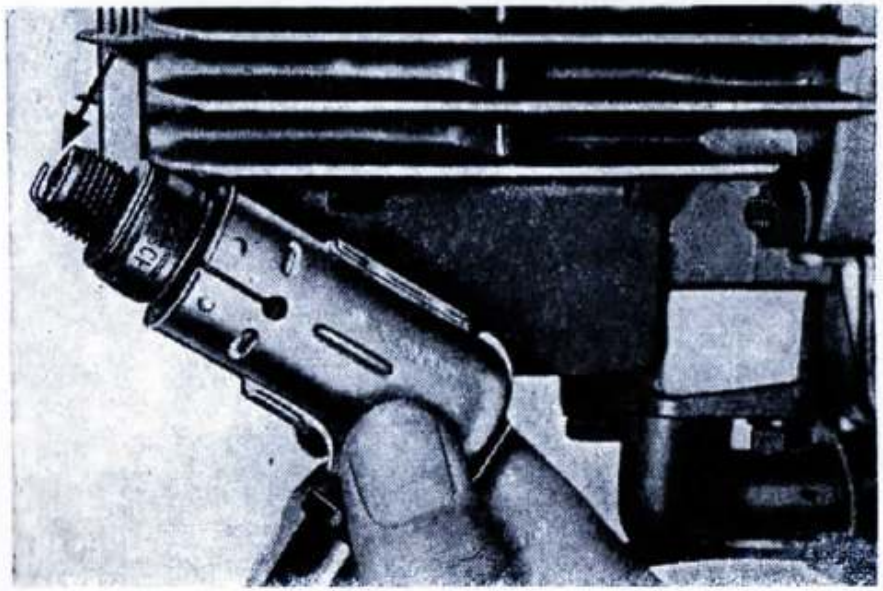


Fig. 16

Checking the sparkplug

Unscrew spark plug, install plug connector, place plug threads against ground (cylinder head) and operate starter. If plug is in good condition, there should be strong sparking between the electrodes. To avoid electrical shock, handle spark plug by the insulated part of the plug connector.

Adjusting Ignition Timing

Ignition timing: .1 to .12 in./2.4 to 3.0 mm BTDC.

Marks are die stamped on the magnetic flywheel and housing. "O" aligns with the line on the housing when the piston is at top dead center (TDC).

Adjust contact breaker point gap to .14 +.002 in./0.35+0.05 mm when cam is at highest position. "M" aligns with the line on the housing at the point of firing. The points should start to open when the magnetic flywheel is turned in the direction of rotation slightly. The ignition timing point can be corrected by turning the armature plate.

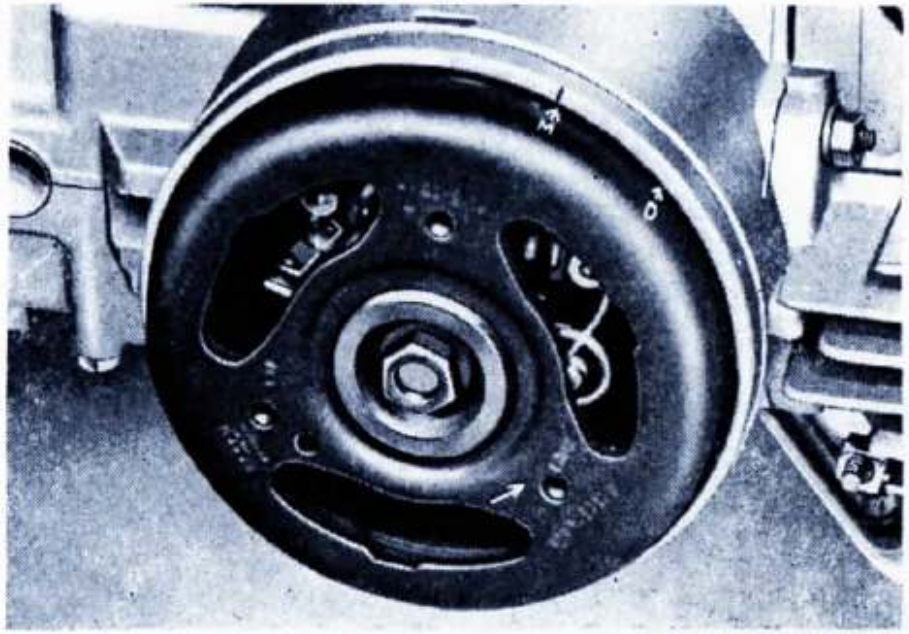


Fig. 17

Disconnecting and Connecting Starter Engagement Cable at Motor

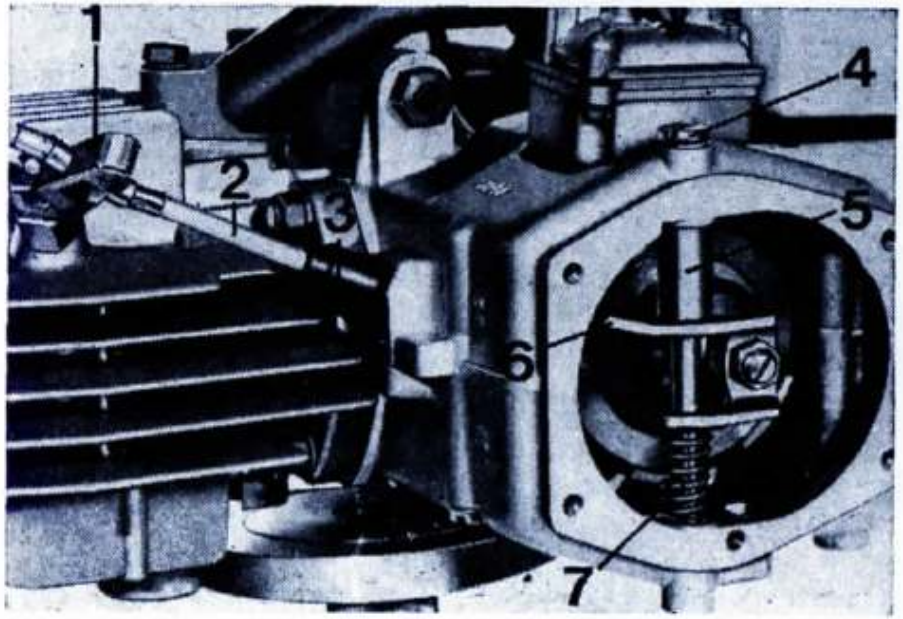


Fig. 16

Disconnecting

Loosen cable at starter control.
Unscrew end cover.
Disengage spring (7), unscrew capscrew (4) with seal, remove sleeve (5), clutch lever (6) with cable and spring.

Connecting

Attach new cable at clutch lever, guide it through the hole in the housing and install all of the parts in reverse sequence.

Install cable sleeve (2) with rubber cap (3), guide cable through decompressor (1) and install cable sleeve. Guide cable through starter control.

Adjusting Starter and Decompression Lever

Tighten control screw (1) until it can be felt against stop on operating pin (3), then back it off $\frac{1}{4}$ turn to provide slight play between the operating pin and control screw.

Counterlock control screw with nut (2). Determine depth of control screw on starter engagement lever (on handle bars). Pull out cable to stop and clamp.

Adjust the control screw so that the starter control lever has a play of .04 to .08 in./1 to 2 mm.

Counterlock the control screw with the knurled nut.

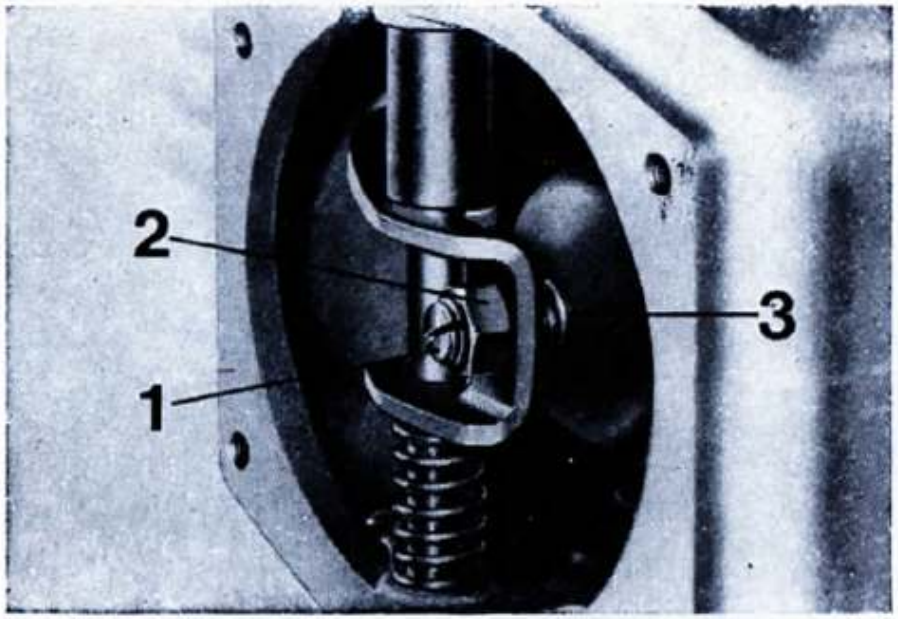


Fig. 19

If the starter engagement lever does not have a control screw, pull out the cable to stop and slide it back in until the cable sleeve has a play of .04 to .08 in./1 to 2 mm between the decompressor and starter engagement lever. Clamp cable.

Decarbonizing Cylinder, Piston, Cylinder Head and Exhaust

Your authorized SACHS dealer should always decarbonize the cylinder, piston and cylinder head. Any damage to the piston and cylinder bearing surface may result in serious damage to the engine.

Decarbonizing Exhaust

Remove exhaust.

Pull exhaust pipe out of muffler. Unscrew hex nut (1) at end piece, pull off end piece (2) and remove filter cartridge (3).

Fig. 20

Telescopic Front Fork

The front wheel telescopic fork is practically maintenance free since it requires no lubrication. Check tightness of all fork and handlebar mounting screws and nuts every 1200 miles/2000 km for saftey's sake.
Should the springs become stiff after long operation, have your authorized SACHS dealer dismantle, clean and lubricate the fork.

Rear Wheel Drive

The rear wheel drive is accomplished by pedalling and by motor force operating the rear wheel via two separate roller chains in the Westlake (P-1). The Balboa (M-4) has a single chain. These chains are held together by a chain lock. Make sure that the lock spring of the chain lock has its closed end facing toward the direction of travel.

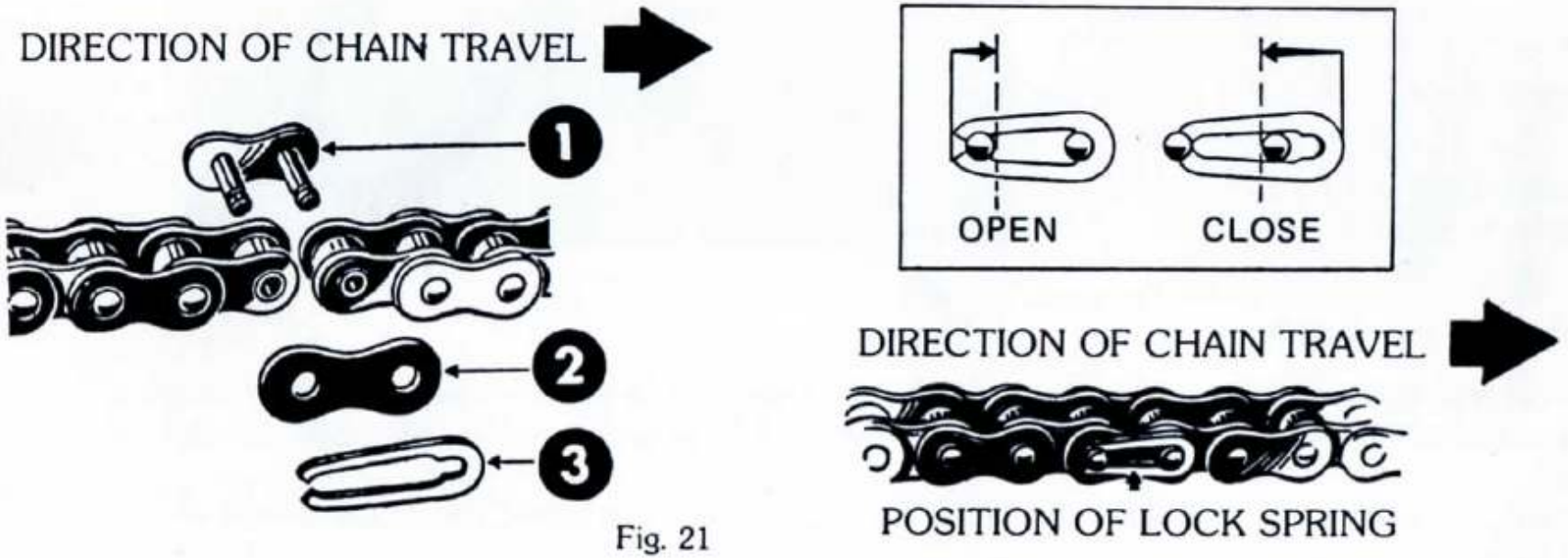


Fig. 21

Chain Tension

The drive chain will stretch before the crank chain due to heavier loads. This is why adjustment will be necessary more often, especially during initial operations. Before the drive chain tension can be adjusted, it will be necessary to loosen the axle nuts, the chain tension nut for the crank chain and the brake counterholder nut.

Use both clamping discs to pull back the rear wheel until the drive chain can still be pressed up 1.2 in./3 cm — model Westlake (P-1), 0.6 in/1.5 cm — model Balboa (M-4) — at the point of interception between the rear wheel guard and chain.

The Moped must rest on the kick stand and its left side cover has to be removed.

Make sure that both clamping discs are adjusted the same rate. The rear wheel must always be parallel to the frame and front wheel.

Tighten axle nuts after making adjustment.

Tighten the brake counterholder nut as soon as the rear wheel's position and drive chains's tension are correct. Now tighten the crank chain (only model Westlake (P-1). Press down the chain tensioner until the top half of the chain will deflect .4 to .8 in./1 to 2 cm without too much pressure. Tighten the nut in this position.

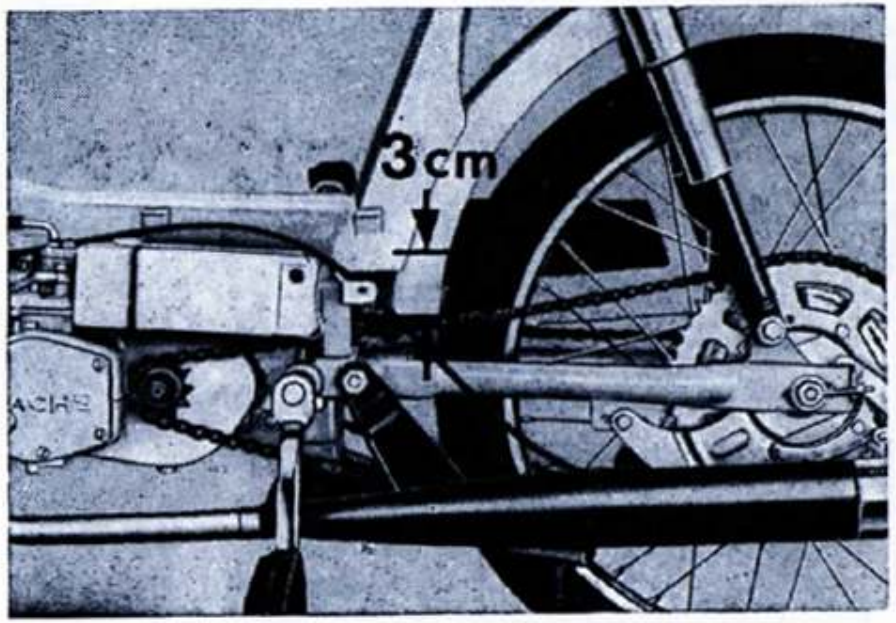


Fig. 22

Servicing Chains

Chains should be

a) lubricated thoroughly with a thick oil on the engaging side of the gears every 300 miles/500 km and

b) removed and cleaned thoroughly in boiling water every 1800 miles/3000 km.

c) relubricated after cleaning.

Cleaning Chains

a) Rinse chains in gasoline or petroleum to remove dirt and hardened lubricants, by applying a steel brush and a normal brush to the links while turning continuously until all of the links are clean and easy to move.

b) Place air dried chains in a warm chain grease. Turn the chains several times after they have taken on the temperature of the grease bath. Move all of the links on the complete chain continuously and take the chain out of the bath as soon as the bath is just barely in a drip state. Hang up chains to drip dry.

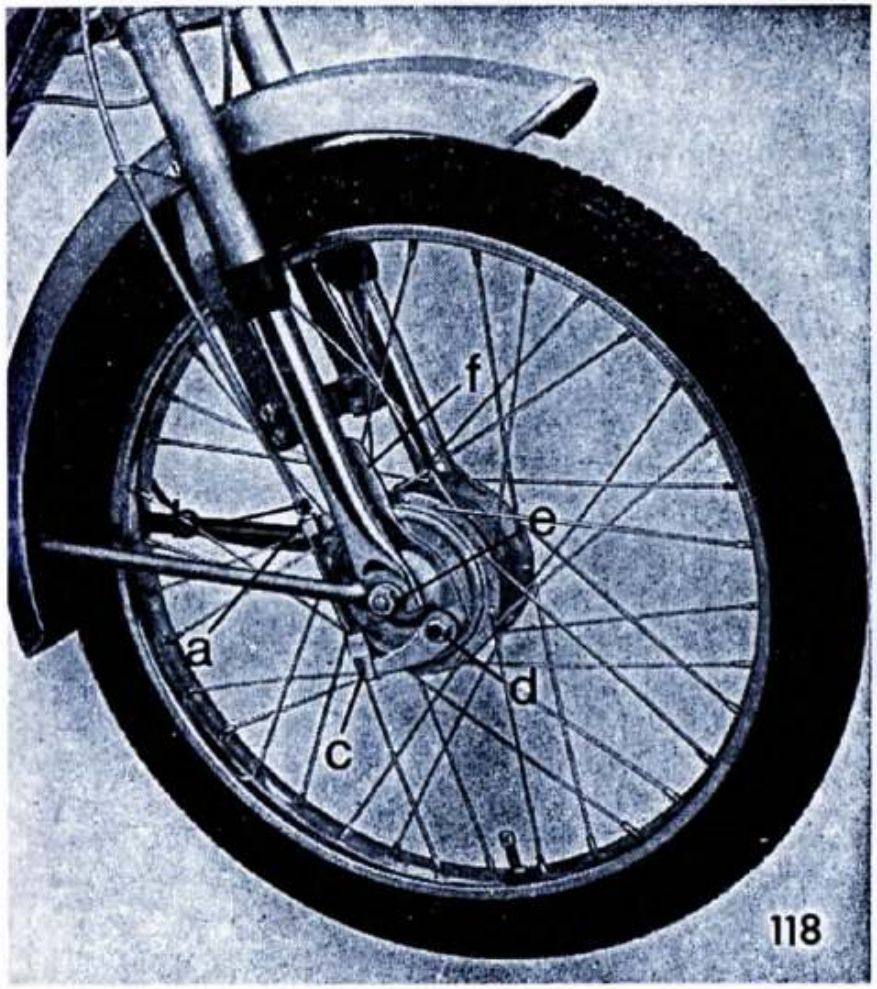


Fig. 23

Removing and Installing Front Wheel (Both Models)

1. Place Moped on kick stand.
2. Unscrew speedometer cable nut on side of hub and remove the cable.
3. Screw up brake cable (a) counternut on right side of wheel all the way, press down cable adjusting screw (b) as far as possible and disconnect holder (c). If necessary turn the brake control lever clockwise with a wrench at hex nut (d).
4. Unscrew both axle nuts (e) and remove strut of the fender from axle. Take off wheel downwards. When reinstalling, make sure that the fork holders on the right side engage in the slot of front wheel hub lever (f). Tighten axle nuts again. After connecting the brake cable, the brakes will have to be adjusted again, i.e., the brake control lever travel at the handle bars must be about .4 in./10 mm so that the brake catches. (see Fig. 26)

Removing and Installing Rear Wheel — Westlake (P-1)

1. Place Moped on kick stand.
2. Disconnect cable at brake control lever (a) and loosen control screw (b) at counterholder.
3. Loosen nut (c) at brake counterholder remove screw with square washer. Be careful not to lose washers!
4. Unscrew both axle nuts (d) and remove chain tensioning discs (c).
5. Lift both chains off of sprockets.
6. Remove rear wheel, by leaning bike to one side somewhat.

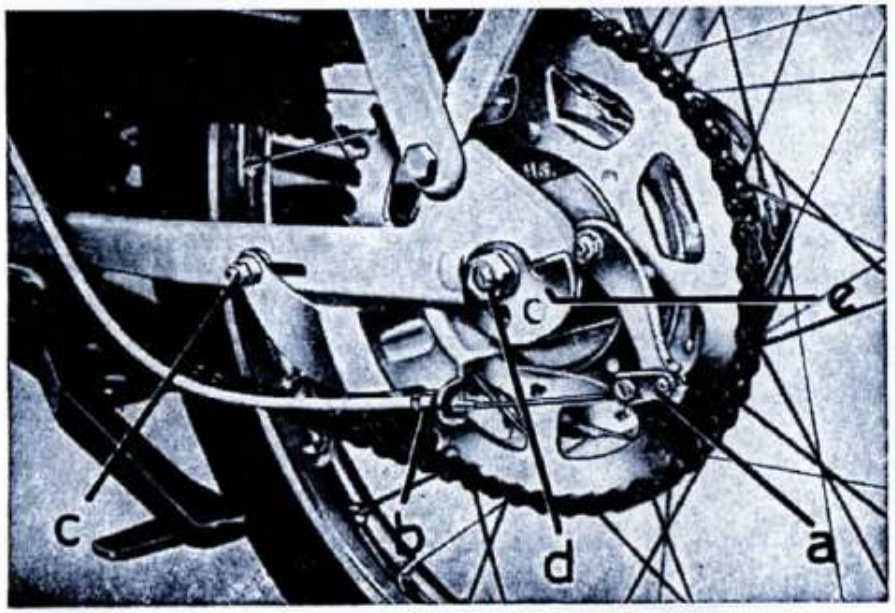


Fig. 24

Installation in reverse sequence. Check chain tension after installation and adjust if necessary. Also refer to page 27.
Adjust rear wheel brake!

Removing and Installing Rear Wheel — Balboa (M-4)

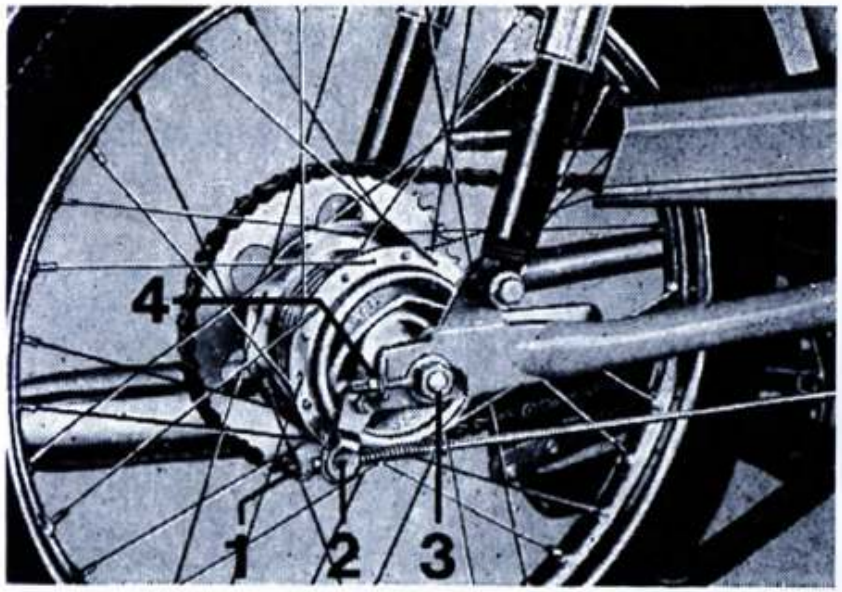


Fig. 25

1. Place Moped on kick stand.
2. Unscrew knurled (1) nut from brake rod and remove square washer (2).
3. Unscrew both axle nuts (3) and remove chain tensioners.
4. Lift chain off.
5. Remove rear wheel by leaning bike to one side.

Adjusting Brakes

It is necessary to adjust the brakes as soon as it is noticed that the brake control lever travel is increased. Normal travel is .4 in./10 mm, measured at the brake control lever near the connecting nipple. When set at this distance the brake shoes should be felt as they grip. Adjustments are made at control screws (a in Fig. 23) for the front wheel brake, and (b in Fig. 24) for the rear wheel brake — Model Westlake (P-1).

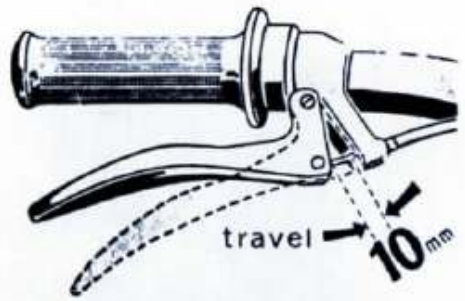


Fig. 26

Speedometer Drive

The speedometer drive on the left front wheel hub has a lubrication nipple. Lubricate here every 600 to 900 miles/100 to 1500 km.

Fig. 27

Cleaning Fuel Cock

It is recommended to remove and clean thoroughly the fuel cock once each year.

Clean with petrol by moving the cock through all of its positions. Cleanliness is especially important for both filter screens. Flush with clean petrol and clean with compressed air.

Don't forget to insert the fuel tank connection seals correctly when reinstalling.

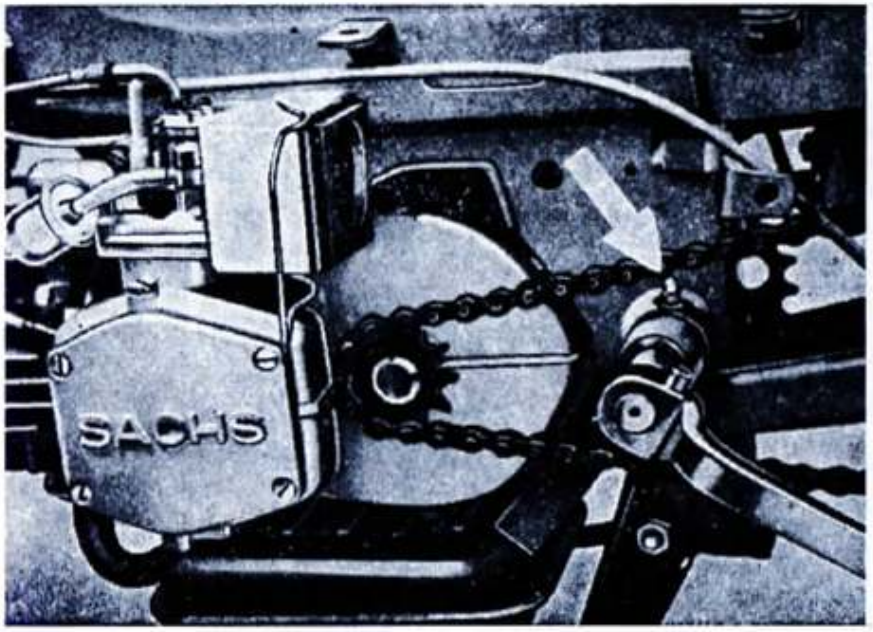


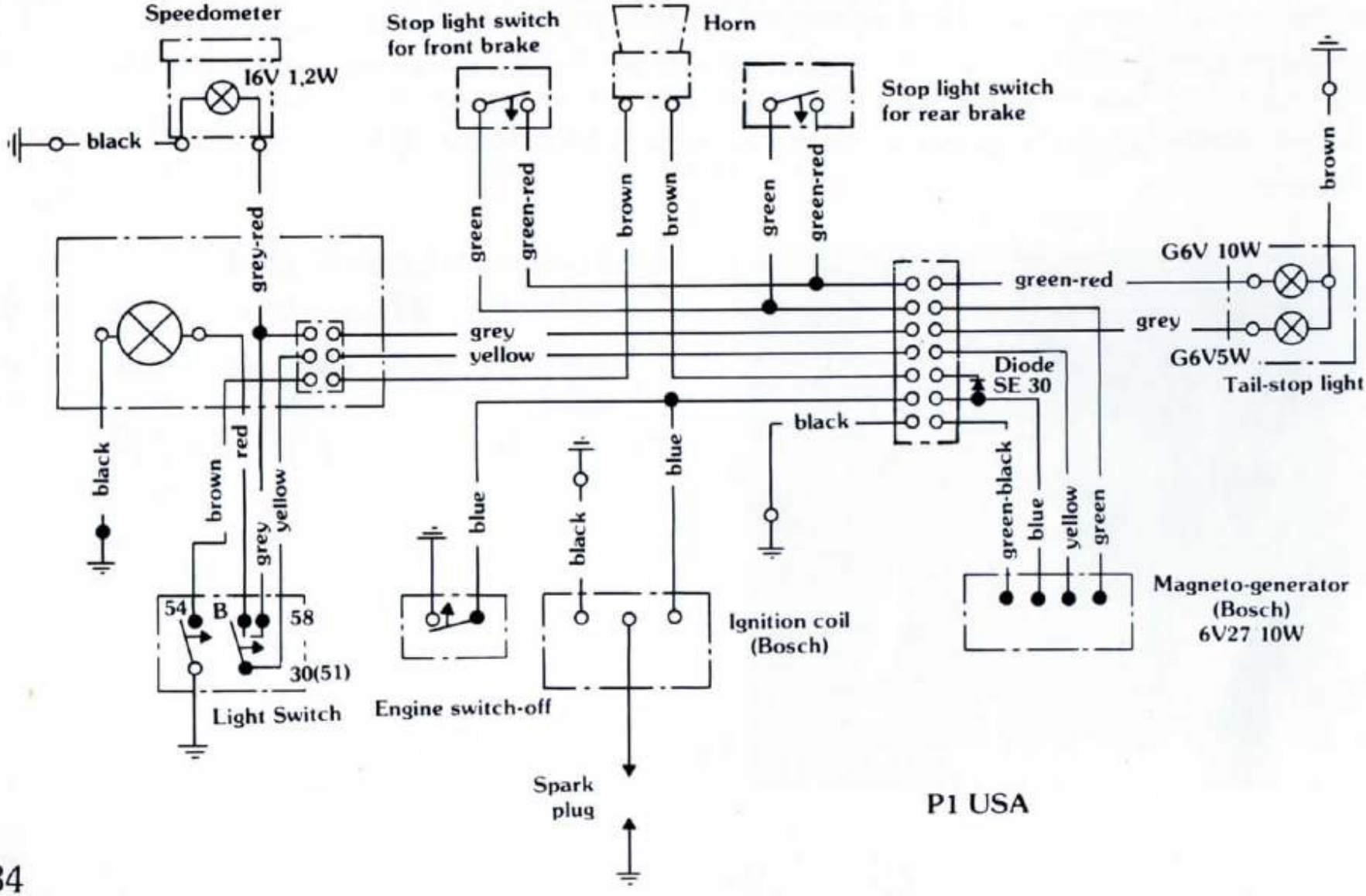
Fig. 28

Lubricating Crank Shaft Westlake (P-1)

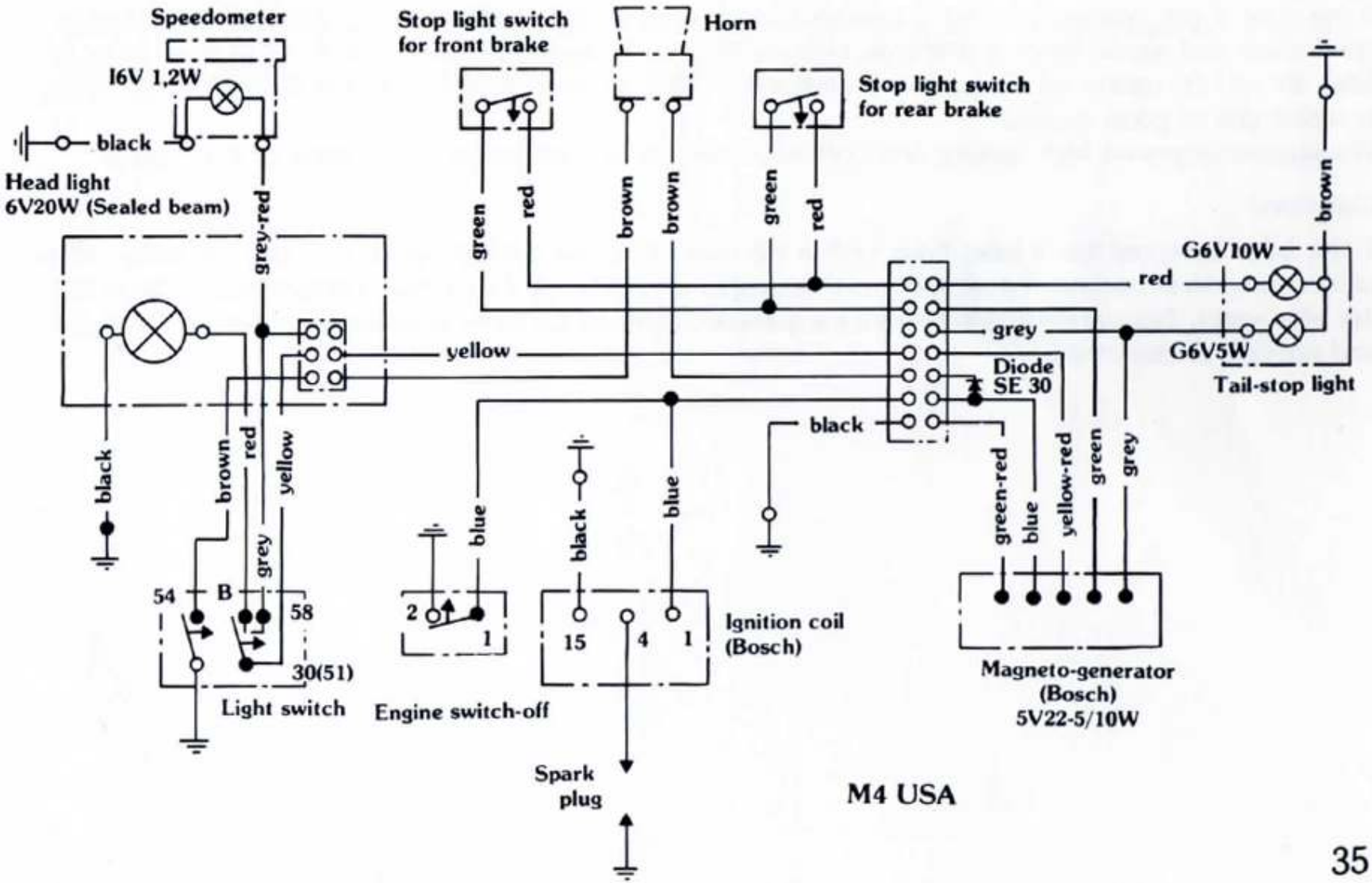
Lubricate the crank shaft every 1800 miles/3000 km.

The lubrication nipple is accessible by removing the left arm.

Wiring Diagram — Westlake (P-1)



Wiring Diagram — Balboa (M-4)



Preserving Motor

If the bike is not operated for long periods of time, the motor could rust. To protect the bearings, crankshaft and piston bearing surfaces, remove the spark plug and inject .5 to .6 cu. in./8 to 10 cc of SAE 30 anti-corrosion oil through the carburetor inlet — operating the starter several times. Use branded oils of good quality.
We also recommend high quality anti-corrosion oils for protection on the outside of the motor.

Caution!

If the bike is stored for a long time with a full fuel tank, the oil/fuel mixture could separate. We recommend to either mix the oil and fuel thoroughly or to change the oil/fuel mixture before operating the bike again. No warranty is accepted for gummed fuel and carburetor systems or rust on the inside and outside of the motor.

Any type of claim based on the pictures and text of this owner's manual shall not be recognized. Only the equipment and model data listed in the sales contract with the dealer shall be binding. Subject to changes in design without prior notice.

50:1 = 5/8 cup of oil to a 2 gal gas can
or 5 oz

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