



Instruction Manual Nr. 429 008 00 04/1

125 GS with SACHS 1252/7A

175 GS with SACHS 1752/7A

250 GS with SACHS 2501/7A

<https://www.motorcycle-manual.com/>

NÜRNBERGER HERCULES-WERKE GMBH

Table of contents

Technical data	4	Intake muffler, Air filter	29
Operating controls	12	Decarbonising exhaust system & engine	30
Starting up, Filling tank	14	Chain tension	32
Starting, Gear shifting	16	Brake adjustment	33
Shutting off, Running-in period, Fuel cocks	17	Rear wheel swing arm	34
Lubrication and maintenance chart . .	18	Spring legs	35
Oil checks, Oil changes	20	Front wheel, Remove & Refit	36
Spark plug	21	Rear wheel, Remove & Refit	37
Timing setting	22	Telescopic fork	38
Clutch adjustment	25	Steering bearing	39
Carburetor cleaning & adjustment . . .	26	Protecting engine against rust, etc. . .	40



Fig. 1

125 GS



Fig. 2

175 GS
250 GS

Technical Data

Engine:	125 GS	175 GS
Model:	SACHS 1252/7 A	SACHS 1752/7 A
Type:	One-cylinder two-stroke gasoline engine	
Cooling:	Air-cooled from direction of travel	
Bore:	54 mm dia. (2.15")	60 mm dia. (2.35")
Stroke:	54 mm (2.15")	61 mm (2.4")
Cubic capacity:	123 cc (7.44 cu. in.)	171 cc (10.5 cu. in.)
Compression ratio:	12 : 1	11.5 : 1
Rated output:	16,2 kw (22 hp) at 9200 1/min	19,1 kw (26 hp) at 8500 1/min
Engine lubrication:	2-stroke mixture of oil and Super-Grade Gasoline 1 : 25	
Gearbox:	Transmission gearing: 7 speeds in engine block	
Gear ratios:	1st gear 3.17 : 1 2nd gear 2.18 : 1 3rd gear 1.64 : 1 4th gear 1.29 : 1 5th gear 1.11 : 1 6th gear .966 : 1 7th gear .834 : 1	

Technical Data

	125 GS	175 GS
Transmission lubrication:	600-700 cc (36.6-42.7 cu. in.) SACHS Transmission Oil or SAE 80	
Clutch:	Multiple-disc clutch	
Sprocket pinion:	14 teeth	
Ignition system:	Electronic, contactless ignition current generator (Motoplatt type).	
Ignition timing:	0.7-1.2 mm (0.027-0.047 in.)	1.7-2.2 mm (0.067-0.087 in.)
Spark plug:	BOSCH W 310 S 2 S with SAE coupling nut	
Carburetor:	BING dual slide valve carburetor	
Type:	64/32/1001	2/34/1001 *
Carburetor adjustment:		
Main jet:	140	160
Needle jet:	2.73	2.74
Jet needle no.:	4	I
Needle position:	II	III
Idling jet:	45	45
Air jet screw:	1 turn open	1 turn open

Technical Data

Chassis:	125 GS	175 GS
Frame:	Tubular cradle frame of aircraft metal	
Rear wheel suspension:	Swiag arm of aircraft metal mounted in tapered roller bearings, 3-positional hydraulic spring legs, spring travel 105 mm (4.135 ins.)	
Front wheel suspension:	CERIANI hydraulically damped telescopic fork: Spring travel 200 mm (7.885 ins.) Spring travel 225 mm (8.82 ins.)	
Brake hubs – front:	SACHS VG 1410 – 140 mm (5 1/2" dia.) with half-shaft	
rear:	SACHS HG 1410 – 140 mm (5 1/2" dia.) with half-shaft	
Rim – front:	Akront LM-rim 21"	
rear:	Akront LM-rim 18"	
Tires – front:	3.00–21	
rear:	4.00–18 (110/90–18)	
Tire pressures – front:	1.1–1.3 bar (atmg) (16–19 psig)	
rear:	1.3–1.5 bar (atmg) (19–22 psig)	
Drive chain:	1 x 12.7 x 7.75 (1/2 x 5/16th") 122 links	1 x 15.875 x 9.65 (5/8 x 3/8") 104 links
Rear wheel sprocket:	58 teeth	55 teeth
	Available as optional extras:	
	54 teeth	51 teeth
	56 teeth	53 teeth
	60 teeth	57 teeth
	62 teeth	

Technical Data

	125 GS	175 GS
Fuel tank:	Rubber-mounted, capacity approx. 11 litres (2.9 US Galls., 2.4 imp. Galls)	
Bulbs: Headlight:	B 8 V – 35/35 W	
Tail light:	SL 8 V – 20/5 W	
Dimensions and Weights:		
Wheelbase:	1400 mm (55.1")	
Handlebar width:	830 mm (32.7")	
Saddle height:	approx. 900 mm (35.4")	
Ground clearance:	approx. 260 mm (10.2")	
Curb weight:	Approx. 95 kg (209 lb.)	Approx. 100 kg (220 lb.)
Permissible overall weight:	300 kg (660 lb.)	

Technical Data

Engine:	250 GS																					
Model:	SACHS 2501/7 A																					
Type:	One-cylinder two-stroke gasoline engine																					
Cooling:	Air-cooled from direction to travel																					
Bore:	71,5 mm dia. (2,84")																					
Stroke:	61 mm (2,4")																					
Cubic capacity:	245 cc (15,04 cu.in.)																					
Compression ratio:	11,5 : 1																					
Rated output:	23,55 kW (32 hp.) at 8000 1/min																					
Engine lubrication:	2-stroke mixture of oil and Super-Grade Gasoline 1 : 25																					
Gearbox:	Transmission gearing: 7 speeds in engine block																					
Gear ratios:	<table border="0"> <tr> <td>1st gear</td> <td>3,17</td> <td>: 1</td> </tr> <tr> <td>2nd gear</td> <td>2,18</td> <td>: 1</td> </tr> <tr> <td>3rd gear</td> <td>1,64</td> <td>: 1</td> </tr> <tr> <td>4th gear</td> <td>1,29</td> <td>: 1</td> </tr> <tr> <td>5th gear</td> <td>1,11</td> <td>: 1</td> </tr> <tr> <td>6th gear</td> <td>,968</td> <td>: 1</td> </tr> <tr> <td>7th gear</td> <td>,834</td> <td>: 1</td> </tr> </table>	1st gear	3,17	: 1	2nd gear	2,18	: 1	3rd gear	1,64	: 1	4th gear	1,29	: 1	5th gear	1,11	: 1	6th gear	,968	: 1	7th gear	,834	: 1
1st gear	3,17	: 1																				
2nd gear	2,18	: 1																				
3rd gear	1,64	: 1																				
4th gear	1,29	: 1																				
5th gear	1,11	: 1																				
6th gear	,968	: 1																				
7th gear	,834	: 1																				

Technical Data

	250 GS
Transmission lubrication:	600-700 cc (36,6-42,7 cu.in.) SACHS Transmission Oil or SAE 80
Clutch:	Multiple-disc clutch
Sprocket pinion:	14 teeth
Ignition system:	Electronic, contactless ignition current generator (Motoplatt type)
Ignition timing:	1,7 . . . 2,2 mm (0,067 . . . 0,087 in.) before TDC
Spark plug:	BOSCH W 310 S 2 S with SAE coupling nut
Carburetor:	BING dual slide valve carburetor
Type:	54/36/1101
Carburetor adjustment:	
Main jet:	155
Needle jet:	3,14
Jet needle no.:	4
Needle position:	II
Idling jet:	55
Air jet screw:	1 turn open

Technical Data

Chassis:	250 GS
Frame:	Tubular cradle frame of aircraft metal
Rear wheel suspension:	Swing arm of aircraft metal mounted in tapered roller bearings, 3-positional hydraulic spring legs, spring travel 105 mm (4.135 ins.)
Front wheel suspension:	CERIANI hydraulically damped telescopic fork: Spring travel 225 mm (8.82 ins.)
Brake hubs — front:	SACHS VG 1600 — 160 mm (6.28" dia) with half shaft
rear:	SACHS HG 1600 — 160 mm (6.28" dia) with half shaft
Rim — front:	Akront LM-rim 21"
rear:	Akront LM-rim 18"
Tires — front:	3.00-21
rear:	4.50-18
Tire pressures — front:	1.1-1.3 bar (atmg) (16-19 psig)
rear:	1.3-1.5 bar (atmg) (19-22 psig)
Drive chain:	1 x 16,875 x 9,65 (5/8 x 3/8") — 102 links
Rear wheel sprocket:	51 teeth Available as optional extras: 53 teeth 55 teeth 57 teeth 59 teeth

Technical Data

	250 GS
Fuel tank:	Rubber-mounted, capacity approx. 11 litres (2.9 US Galls., 2.4 Imp. Galle)
Bulbs: Headlight:	B 6 V — 35/35 W
Tail light:	SL 6 V — 20/5 W
Dimensions and Weights:	
Wheelbase:	1400 mm (55.1")
Handlebar width:	830 mm (32.7")
Saddle height:	approx. 900 mm (35.4")
Ground clearance:	approx. 260 mm (10.2")
Curb weight:	approx. 120 kg (264 lb.)
Permissible overall weight:	300 kg (660 lb.)

Operating controls

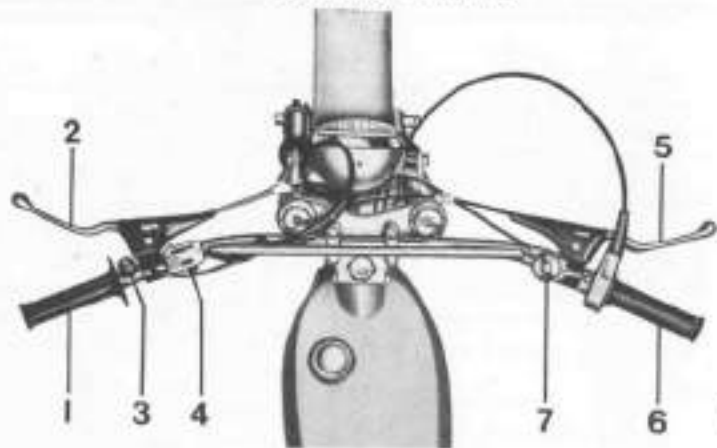


Fig. 3

- 1 = Fixed handle
- 2 = Clutch lever
- 3 = Engine cutout button
- 4 = Light switch

- 5 = Front brake lever
- 6 = Throttle grip
- 7 = Choke control lever

Operating controls

- 1 Carburetor
- 2 Needle valve tickler (for cold start)
- 3 Kick starter
- 4 Screw plug for clutch adjustment and transmission oil filling
- 5 Gear shift lever
- 6 Bowden cable for choke valve
- 7 Bowden cable for twist throttle operation
- 8 Spark plug cap
- 9 Carburetor bleed tube
- 10 Clutch lever

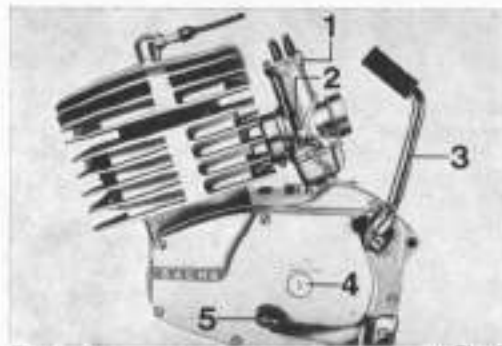
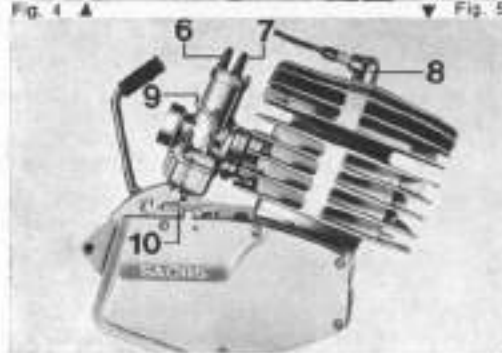


Fig. 4

Fig. 5



Starting up & running in

Before starting up check the transmission oil level (screw plug „1“) and, where present, extract the rubber ring from the vent port (cylinder bolt „2“).

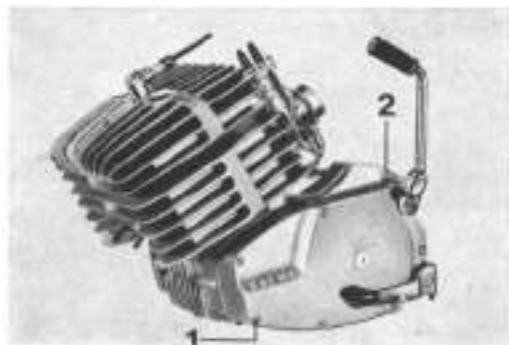


Fig. 6

Fuel filling

Use only 2-stroke mixture oil SUPER fuel 1 : 25 during running-in period (10 operating hours or 500 km) then according to your choice.

For GS 125/175/250 use fuel 1 : 25 with SACHS special mixture oil (ordering No. 0263 005 100) or branded 2-stroke lubricating oil of leading companies.

For GS 125/175 use fuel 1 : 50 with SACHS special mixture oil for competition engines (ordering No. 0263 013 000) respectively OMC 2-cycle motor oil CASTROL or branded SUPER-OUTBOARD oil of leading companies.

For GS 250 use fuel 1 : 33 with MOBIL OIL SHC available from ARAL and MOBIL OIL service/petrol stations.

Attention

The use of MOBIL OIL SHC for all mixture ratios increases considerably the engine's resistance to the effects of heat.

When this oil is used, however, the following changed inspection periods are to be observed.

1. Plug cleaning after 5 to 7 operating hours (about 200 to 300 km)
2. Cylinder head and bottom cleaning after 8 to 12 operating (about 400–600 km)

Note: Admixture of AUTOL-Desolite-Universal will reduce sediments.

Example: Use 200 cm³ branded 2-stroke oil with 5 litres SUPER fuel 1 : 25 or with 6 litres SUPER fuel 1 : 33 (only GS 250) or with 10 litres SUPER fuel 1 : 50.

Use 250 cm³ SACHS oil mixture (premixed) for competition engines with 5 litres SUPER fuel 1 : 25 or with 10 litres SUPER fuel 1 : 50 (only GS 125/175) in a mix can well mixed.

Starting

Turn on the fuel tap.

With cold starting or cold engine close the choke and press the tickler for 3 to 5 seconds. Step vigorously on the kick-starter, at the same time turning the throttle twist-grip to about $\frac{1}{4}$ open. As soon as the engine has started up, is running satisfactorily and taking gas, open the choke.

Do not press the tickler. After the engine is warmed up.

If, with the engine already warm, the choke has been kept closed for too long and the engine will not then start up, turn off the fuel tap and try to start up with the choke open a few times. If this does not succeed, unscrew the spark-plug, wipe it dry, screw in again and repeat the starting-up procedure.



FIG. 7
16

Gear-shift

The position of the individual gears is to be seen in the illustration.

Neutral (shift position „0“) is between 1st and 2nd gear. Always change into neutral when stopping.

Shutting off the engine

Shut off the engine by pressing the engine cutout button.

Running-in period

During the first 10 operating hours (about 500 km or 300 miles) the engine should not be revved up to maximum limits.

Fuel cocks

The fuel tank is fitted with two fuel cocks, one at the rear left and the other at the front right.

Very important!

It is necessary to close the fuel taps immediately after riding. Otherwise it could happen that a petrol shock is causing a damage of the crankshaft. A guarantee replacement could not be granted in these cases.

Lubrication and servicing schedule

Servicing item	Servicing job	Page	Frequency				
			Before use	Every 1000 km (625 miles)	Every 5000 km (3125 miles)	Every 6000 km (3730 miles)	As necessary
All nuts, screws and bolts	Tighten up	—	x	x			
Drive chain	Check chain tension, lubricate chain	28		*			*
Drive chain	Remove, clean, regrease	28			*		*
Intake muffler	Clean, renewing air filter if necessary	25		x			
Induction pipe and concertina siphon	Clean	25		x			
Exhaust equipment	Decarbonize	26			*		x
Brakes	Adjust	29					x
Brakes	Check brake linings	—					x
Gearbox	Check oil level (Every 150 km/465 miles)	16	x	●			
Gearbox	Change oil	16					
Rear wheel swing arm	Check lateral play	30					*

* According to use

<https://www.motorcycle-manual.com/>

Lubrication and servicing schedule

Servicing item	Servicing job	Page	Frequency				
			Before use	Every 1000 km (625 miles)	Every 5000 km (3125 miles)	Every 6000 km (3730 miles)	As necessary
Clutch	Check clutch play, adjusting if necessary	21		x			
Fuel tap	Clean	—					x
Hubs	Regrease bearings (after 5 000–10 000 km = 3 100–6 200 miles)	—					x
Cable controls and levers	Oil	—			x		
Speedometer control	Lubricate	—			x		
Telescopic fork	Oil change after 1000 km (620 miles) and then every 10000 km (6 200 miles)	34					x
Carburetor	Clean and adjust	22					x
Spark-plug	Check spark gap, cleaning if necessary	17		x			
Ignition system	Check and adjust if necessary	18					x
Cylinder, cylinder head	Decarbonize	27					x

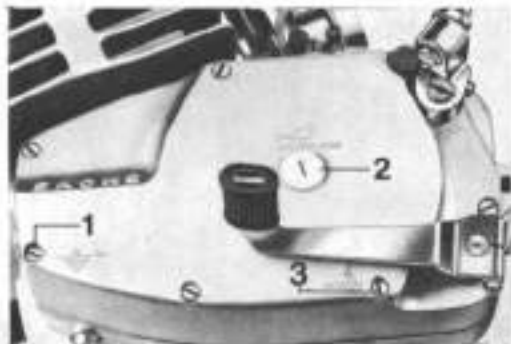


Fig. 8

Oil check (Every 750 km = 465 miles)

Remove oil-level screw (1). If the oil level in the gearbox is lower than the bottom rim of the inspection bore, remove oil filler screw (2) and refill with SACHS gear oil or SAE 80 until the oil emerges from the inspection bore.

Oil change

The engine should always be warm for the carrying out of an oil change. Unscrew the sump plug (3). Tilt the motorcycle in such a way that the whole of the oil in the engine can run out. Replace the screw plugs and fill up with 600...700 ccm (42.7 cu.in.) of SACHS gear oil F & S (order No. 0263 015 006) or SAE 80 as described under Oil Check.

Spark plug

Electrode Gap

During normal operation the space between the electrodes will gradually increase as a result of normal heat erosion. It is thus necessary to check and reset this gap at regular intervals by simply tapping on the base electrode (a) until the gap closes to the required gap of .6 mm (.024").

Plug cleaning

The plug must be cleaned at regular 1000 km (ca. 600 mile) intervals. While it is possible to achieve makeshift cleaning by brushing or scraping the ceramic tip and electrodes surfaces, thorough and satisfactory cleaning can be obtained only with the aid of a sandblast blower.

Functional test

Unscrew the plug from the cylinder-head, refit the plug lead cap, place the threaded end of the plug against a suitable earth (cylinder head) and operate the starter. If the plug is functioning efficiently a powerful spark should jump across the electrode tips. Always make sure you hold the insulated part of the plug cap in order to avoid electric shocks — but these are, however, quite harmless.



Fig. 9



Fig. 10

Spark timing (MOTOPLAT non-contact magneto-ignition generator)

The MOTOPLAT system operates on a fully electronic system and has no parts subject to wear such as contactbreaker points lubricating felt.

In particular, this system offers far greater protections against moisture and dust and is entirely maintenance-free.

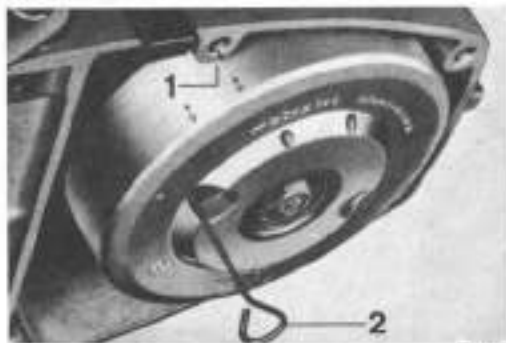


Fig. 11

Ignition timing:

125 GS = 0.7 . . . 1.2 mm
(0.68 . . . 0.88 in.) before TDC

175 GS /
250 GS = 1.7 . . . 2.2 mm
(0.28 . . . 0.48 in.) before TDC

Marks are stamped on the magneto flywheel and the casing. „O“ coincides with the locating mark on the casing when the piston is at top dead center.

„M“ coincides with the locating mark on the casing with the magneto spark advance.

Spark-timing check

1. Turn the magneto flywheel until the „M“ mark on the flywheel coincides with the locating mark (1) (Fig. 11) on the casing.
2. In this position the bore in the magneto flywheel must coincide with the bore in the armature plate and an adjusting pin or bicycle-wheel spoke or any other round material with a diameter of 2 mm (0.8 in.) must be capable of being inserted into both bores or drill-holes without any further turning of the magneto flywheel. If this cannot be achieved it will be necessary for the timing system to be adjusted and this should be entrusted only to a specialist.

Adjustment

1. Insert the special adjustable wrench key (F & S Order No. 0 276 181 000) in the two holes in the magneto flywheel, unscrew the collar nut (SW 14 left-hand thread) and take out the spring washer.
2. Draw off magneto flywheel (Extractor F & S Order No. 0 276 150 005).
3. Slacken off the three screws fastening the armature plate to the baseplate sufficiently to allow the armature plate to be turned.
4. Fit the magneto flywheel onto the shaft.
5. Insert the adjusting pin in the bore on the magneto flywheel and turn the flywheel sufficiently for the adjusting pin to be inserted into the bore in the armature plate.
6. Turn the magneto flywheel and armature plate until the „M“ mark on the magneto flywheel coincides with the alignment mark on the housing.
7. Take off the magneto flywheel and screw down the armature plate firmly (without turning it further). Tightening torque 4–8 Nm (.4–.8 kpm).
8. Fit the magneto flywheel back onto its shaft (paying attention to Woodruff key), insert spring washer and tighten down with left-hand threaded collar nut. (Use special adjustable wrench key F & S Order No. 0 276 181 000). Tightening torque 55–60 Nm (5.5–6 kpm). Use adjusting pin to check ignition setting.

Warning Note!

The engine should never be stopped by pulling off the spark plug cap, as this can cause serious damage to the ignition system. Coat the contact face of the housing cover with No. 40 engine oil and tighten down the cover.

Fault tracing & remedies

Hereunder we list a number of malfunctions which can also cause failure of the electronically controlled magneto ignition generator system.

Check electrical connexions and terminals.

Inspect for frayed, crimped, oxidised or wrongly connected leads.

Under no circumstances should the two (blue and black) electronic wires from the armature plate be cut through to simplify dismantling or assembly of the system, followed by connexion by ceramics insulators.

This gives rise to the danger of dirt and moisture on the exposed terminals causing short circuits and consequent failure of the electronic system.

The ignition coil fastening stirrup must have a perfect connexion to the chassis. The contact faces must be bright (no trace of rust or paint).

With the spark plug inserted in the ignition cap and held up against the bike frame a strong spark should spring across the plug gap when the kick starter is operated.

The electrode gap on the plug should be .6 mm (.0236").

The electronic magneto ignition generator must not be tested with the aid of conventional test gauges. This type of testing will result in breakdown of the system.

The electronic magneto ignition generator can be tested only with an Ohmmeter having a measurement range of 0 - 10.000 Ohms.

Clutch adjustment

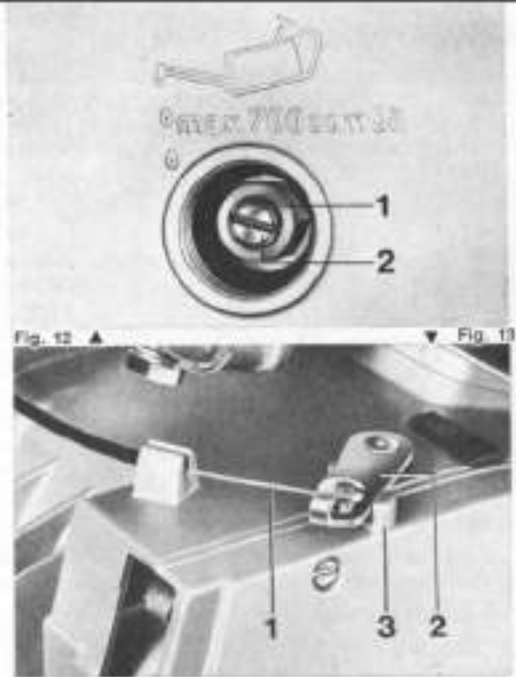
Unscrew the screw plug (4, Fig. 4).
Slacken nut (1, Fig. 12), unscrew threaded pin (2, Fig. 12) and screw back in until resistance becomes perceptible.

Unscrew the threaded pin (2, Fig. 12) to a point where the clutch lever (2, Fig. 13) can be pressed about 2 mm from the limit stop (3, Fig. 13).

Lock the threaded pin in place (2, Fig. 12) with locknut (1, Fig. 12), taking great care to avoid twisting the pin further. Tightening torque 10-13 Nm (1-1.3 kpm).

Screw in the screw plug.

Adjust the cable control (1, Fig. 13) by means of the adjusting screw on the handlebar clutch control lever so that the lever has a play of 1 to 2 mm.



Carburetor cleaning

Wash out carburetor housing and component parts with gasoline. Use compressed air to blow out jet ports.

Carburetor adjustment

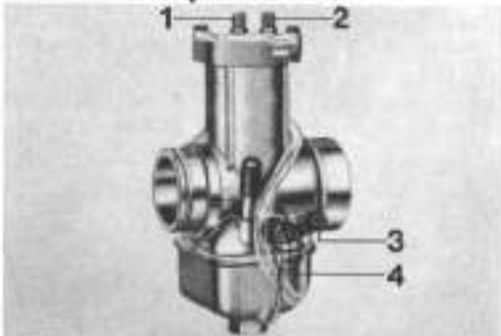


Fig. 14

The engine must be allowed to warm up before attempting any carburetor adjustment.

In normal operation the choke must be fully open (fully closed for cold starting).

Suitably adjust regulating screw (2).

Remove throttle-valve stop screw (3) and adjust the cable pull so that the throttle valve is fully closed.

Screw the throttle-valve stop back in until the idling speed of the warmed-up engine increases with the throttle twist-grip closed.

Turn air-regulating screw (4) inwards until it just lightly comes to rest and then outwards again (about 1 rotation) until the engine achieves optimum revs.

Turn the throttle-valve stop screw outwards until the required idling speed is obtained.

Adjust regulating screw (1) in such a way that the cable pull between carburetor and throttle twist-grip has a play of about 1 mm.

Precision setting

The basic setting described in the foregoing must be complemented by precision setting of the carburetor, depending on weather conditions or altitude, and this must be undertaken only in specific stages. Three carburetor jet systems must be dealt with separately, as follows:

- 1. Idling jet:** This acts for up to about 25% or 1/4 of the throttle twist movement. The precision setting is made from the air regulating screw (4, Fig. 15) as described for the basic setting.
- 2. Needle jet:** This acts in the partial loading range of about 15% to 80% of the throttle twist movement. Here the fine adjustment or precision setting is by raising or lowering the jet needle, whereby the setting is influenced in its lower range by the idling system and in the upper range by the main jet.
If the engine runs too rich on acceleration (smoking and spluttering) the jet needle must be lowered by one setting.
If the engine „pink“ on acceleration (a high-pitched metallic rattle in rhythm with the engine revs), after checking for the correct spark plug and timing setting, raise the jet needle one setting.
- 3. Main jet:** This acts within the range of 60% to 100% of throttle twist opening. If the engine „pink“ under full acceleration or the plug is too bright for the heat value this indicates a need for fitting a larger main jet. If the engine runs too light or the plug is sooted up fit a smaller main jet.

In all instances it is essential to ensure that both the air intake system (air filter) and exhaust system are in perfect state and not clogged by dust or soot.

It is also necessary to note the transitional pickup as the engine delivers output in synchronisation with acceleration. The idler or needle system is set too rich if the engine runs irregularly or generates considerable smoke.

Where temperatures drop below 10° C (50° F) or at altitudes below sea level it is advisable to fit a main jet 1 to 2 sizes larger and an idler jet 1 size larger.

At temperatures above 30° C (86° F) or at very high altitudes correspondingly smaller jets must be fitted as specified.

Attention! Do not adjust the carburetor too lean.

Carburetor fastening

The carburetor must be secured against accidental twisting or slipping out of place in the intake manifold.

The clamp fastening is tightened to a pressure of approximately 3 Nm (.3 kpm).

Intake muffler and air filter

The intake muffler and air filter are located in the frame under the seat.

For access slacken off 2 screws (1) and remove the right hand panel.

Take out filter cartridge (2).

Wash out filter housing (3) and bellows (4) with gasoline.

If the bellows shows the slightest trace of damage it must be replaced.

Wash the air filter in fuel and then oil it (engine oil). **Do not mount the air filter when dry!**

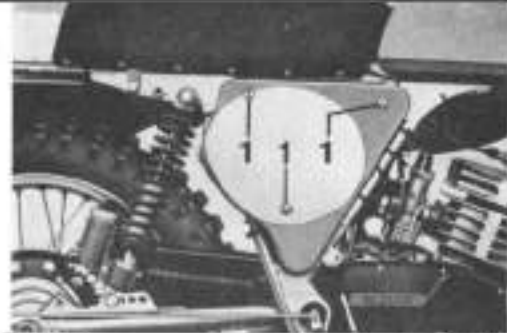


Fig. 18 ▲

▼ Fig. 19



Exhaust system, cylinderhead, decarbonising cylinder & piston

A feature common to all combustion engines is the tendency for a proportion of the lubricating oil to be burned off and to form a carbon or "coke" deposit. Where engine capacities exceed 100 cc the gas throughput will usually be sufficiently great for total combustion through the exhaust muffler, so that the muffler remains clear and no carbon or "cooking" problems arise. Use of unsuitable oils, incorrect carburetor settings or inadequate operating temperatures can cause oil carbon or "coking" to form, particularly in the case of two-stroke engines, on the piston crown, in the exhaust duct of the cylinder and the exhaust muffler. It is essential for this carbon deposit to be removed if engine performance starts to fall off or, despite correct carburetor setting, the engine tends to run in four-stroke mode.

Important hint for the assembly of the cylinder head

Put on cylinder head joint (small edge of the bordering in the upper sense).
Tighten crosswise cylinder head with 4 nuts M8 and washers. Starting torque 18...20 Nm (1,8...2 Kpm).

Attention!

After the mounting of a new cylinder head joint, retighten the nuts after 1 hour or 50 km. Starting torque as above.
The engine has to be cooled down.

Exhaust system

Take off exhaust system. Slacken off clamp screw (2) and draw off the exhaust muffler box (1). Remove nut (3). Pull out insert (5). Clean all parts thoroughly of all traces of carbon, if necessary replacing the padding inside the muffler box.

Cylinder head

Unscrew the cylinder head and carefully scrape away the carbon deposit in the combustion chamber, using a screwdriver or similar but taking great care to avoid scoring the metal surfaces inside the chamber.

Cylinder ports

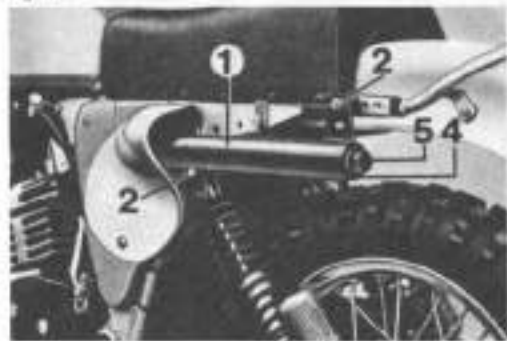
Bring the piston into bdc position. Use a screwdriver to scrape off carbon deposits in the exhaust and transfer ports. Bring the piston carefully into tdc position and remove loose oil carbon.

Piston

Carefully remove only the heavier carbon deposits (flakes) from the piston crown. Do not attempt to scrape the crown until it is bright.



Fig. 17



Chain tension

The chain tension should be checked at least every 1000 km (620 miles). Without any undue exertion it should be possible to stretch the chain 1 cm (approx. 3/8") either up or down. For this test the motorcycle suspension spring must be relaxed (unladen).

Retightening is carried out as follows:

Slacken axle clamping nut (1) on the right-hand side and knock-out spindle on the left-hand side. Tighten up both chain adjusters (2) uniformly (e. g. each with half a turn of the nut).

Carefully tighten up knock-out spindle and axle clamping nut again. Check efficiency of the rearwheel brake, readjusting it if necessary.

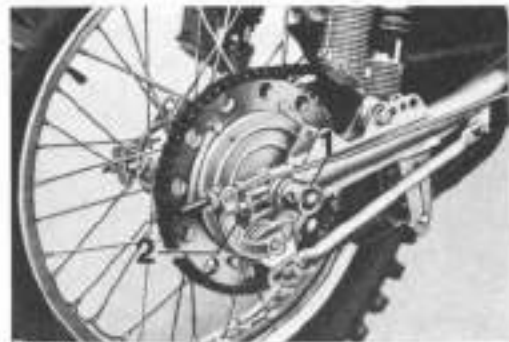


Fig. 18
32

Chain maintenance

After every 1000 km (620 miles) brush the chain with suitable heavy engine oil.

After every 3000 km (1850 miles) remove the chain and thoroughly clean and regrease it.

If the machine is used for strenuous sports purposes then these intervals should be shortened accordingly.

Brake adjustment

Front wheel:

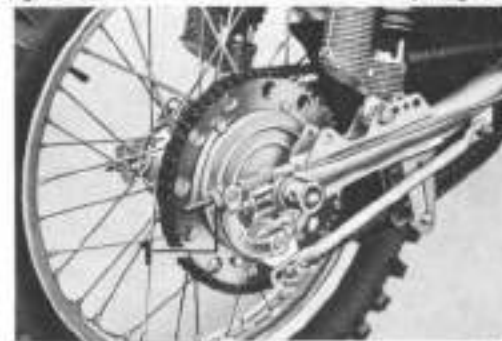
Slacken counter nut (1) and unscrew regulating screw (2) until the prescribed play is obtained for the hand-brake lever.

Further adjustment is possible by possibility consists in turning the knurled-head screw of the hand-brake lever in the handlebars.

It is first necessary to remove the splash guard.



Fig. 19 ▲ ▼ Fig. 20



Rear wheel

Screw knurled nut (1) onto the connecting rod until the rear wheel just begins to brake. Then slacken knurled nut (1) by 2-3 turns.

Rear wheel swing arm

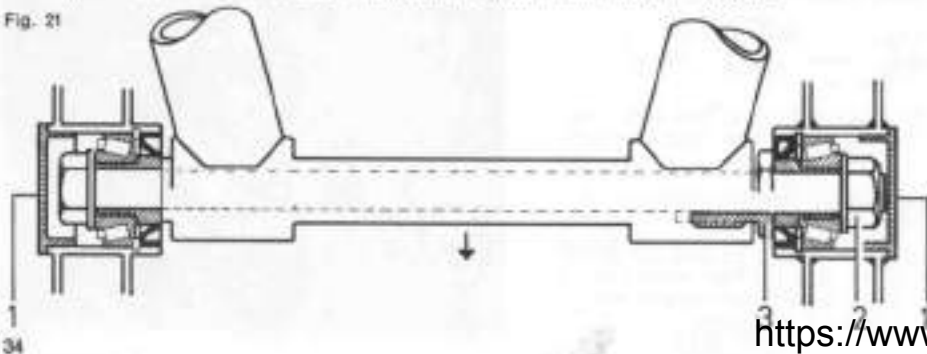
There should be no lateral play in the rear wheel swing arm mounted in its tapered roller bearings. In cross-country use the bearing play must be checked after every competition event (or after approx. 250 km or 150 miles). In normal road use the first check should be made after 500 km or 300 miles and thereafter at 2500 km or 1500 mile intervals. Correct play where necessary.

Adjustment: Support the machine so that no load is exerted on the rear wheel.

Release the bottom fastening of the two spring legs and swing them backward and upward. Take off the caps (1) on both sides. Slacken off the locknut (2) which is on the left side in direction of travel. Turn the setscrew (3) toward the swing arm (clockwise) to take up bearing play. Tighten down locknut (2) to a torque rating of 100 Nm (10 mkg). Check to ensure that lateral play has been eliminated and repeat the foregoing procedure if necessary.

Lubrication: The two tapered roller bearings are encased within a dustproof and waterproof housing which eliminates the need for interim packing of the grease lubricant.

Fig. 21



Spring legs

The hydraulically damped gas pressure (nitrogen) spring legs require no maintenance. The gas pressure (2 bar) is extremely difficult to check using conventional instruments and should therefore not be attempted.

The bias in the progressively acting carrier springs can be adjusted in 5 stages in accordance with the cycle load (see Fig. 22).

Rotary direction 1 = increased load

Rotary direction 2 = reduced load.

Spring leg arrangement

The spring travel on the rear wheel can be regulated by varying the spring leg arrangement (see Fig. 23).

Position 1 = 150 mm spring travel

Position 2 = 145 mm spring travel

Position 3 = 160 mm spring travel

Position 4 = 172 mm spring travel

Position 5 = 185 mm spring travel

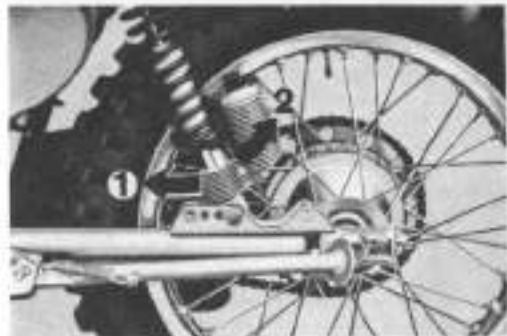
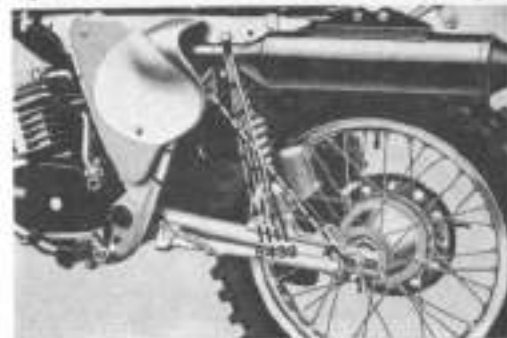


Fig. 22 ▲

▼ Fig. 23





Front-wheel removal and replacement

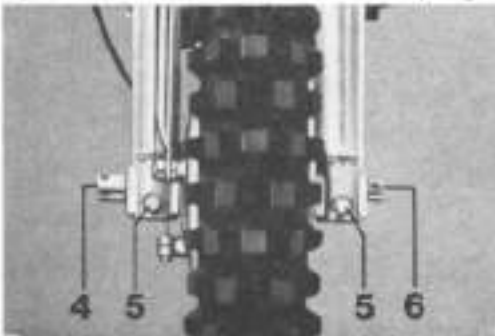
1. Remove brake counter punch (1).
2. Screw adjusting screw (2) right down after removing the counter-nut, take out tension cable of the brake lever (3) and remove adjusting screw from brake disk.
3. Unscrew axle nut (4).
4. Remove clamping screws (5) on both fork struts. Pull wheel down and out.

Replacement is carried out in the reverse order.

Before tightening up the clamping screws (4), move the telescopic fork vigorously up and down a few times so as to prevent any stress or distortion of the fork struts.

After replacing the wheel, adjust the front-wheel brake!

Fig. 24 ▲ ▼ Fig. 25



Rear-wheel removal and replacement

1. Place the machine on its middle stand or otherwise jack it up so that the rear wheel is off the ground.
2. Unscrew and remove knock-out spindle (1) and remove spacer (2).
3. Withdraw rear wheel to the left from the clutch (3) and pull out backwards.

Replacement is carried out in the reverse order.



Fig. 26



Fig. 27 ▲ ▼ Fig. 28



Teleopic fork

The teleopic fork incorporates hydraulic shock absorption. Fluid capacity is

200 cm³ (12 cu.in.) per strut 125 GS

250 cm³ (15 cu.in.) per strut 175/250 GS

Type of oil to be used:

SHELL DONAX A 1

or equivalent-grade branded transmission oils of other firms.

The first oil change should be carried out after 1000 km (620 miles) and subsequent oil changes after each 10 000 km (6200 miles).

Fig. 28 shows the oil-drain plug and Fig. 27 the filter plug.

Steering bearing

It is necessary to check the steering bearings for play at frequent intervals. With the machine jacked up, jerk the fork struts to and fro. There should be no noticeable play in the steering bearing — if there is, readjust the bearing accordingly.

Adjustment:

Remove clamping screw (1) on the upper steering yoke and carefully adjust upper steering cone (2) until play is eliminated.

Lock adjustment by tightening up the cap nut (3) and also retighten clamping screw (1).

The steering bearing is properly adjusted if, under its own weight, the fork drops into the right and left end position without any play.

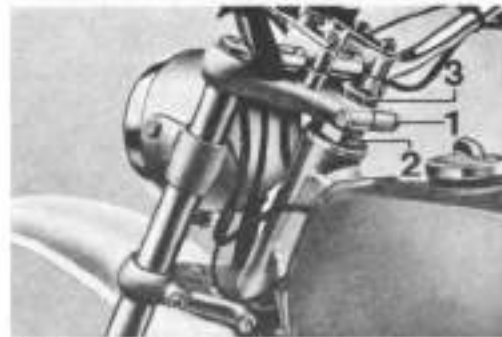


Fig. 29

Engine protection

If the engine is out of use for lengthy periods there is a danger of rust forming.

To protect the bearings, crankshaft and piston running faces unscrew the spark plug and pour a suitable anti-corrosion oil (SAE 30) from one of the leading manufacturers through the spark plug bore (3 to 5 cc) and through the carburetor inlet (8 to 10 cc), operating the starter at the same time. We also recommend use of anti-corrosion oil from leading manufacturers to protect the exterior of the engine.

Warning note

If the motorcycle is left in storage with a full tank for lengthy periods there is also a risk of the gasoline/oil mixture separating out. In such instances we recommend most urgently that, before starting up, the fuel mixture be re-mixed or changed altogether. No warranty can be given for encrustation within the fuel and carburation systems or for internal or external rusting.

<https://www.motorcycle-manual.com/>