OWNER'S MANUAL

REINKEL

Tourist

175 cc.
103 A-1

Keep in a safe place

GUARANTEE

Subject to the stipulations set out overleaf, we undertake to guarantee

HEINKEL 175 cc. "TOURIST" MOTOR-SCOOTER

Chassis No. _____ Engine No. _____

supplied to _____

ERNST HEINKEL AKTIENGESELLSCHAET
Stuttgart-Zuffenhausen

_____

(Place) (Date)

_____

Stamp and Signature of Dealer

To be carefully completed by the dealer (in block letters or typewritten) and send to the HEINKEL WORKS. The guarantee becomes effective only after this counterfoil is received.

The **»HEINKEL-TOURIST«**
was licensed on the

Chassis No.

Engine No .

Steering lock key No.

(Date)

for Mr./Mrs./Miss

(Name)

(Address)

(Date of birth)

(Profession)

(Purpose for which the vehicle is intended)

Now the vehicle is ready for the pre-supply inspection.

Inspection prior to supply

The vehicle described overleaf was inspected before being handed over to the customer, and the tests listed down the right-hand side of this page were carried out.

The vehicle was found to be in order and was accepted by the customer.

Date: _____

Purchaser: _____

(Signature)

Dealer: _____

(Stamp and signature)

1. Check electrical installation:
   a) parking light
   b) bright and dipped light incl. speedometer lighting
   c) setting of headlamp
   d) stopping and braking light
   e) horn
   f) starter and magneto, incl. battery charging light
   g) battery (charge situation and filling)
2. Check micronic filter
3. Check level of oil in the engine and in the swing arm
4. Check tyre pressure
5. Check brakes
6. Check clutch play
7. Check steering
8. Check gear-shift setting
9. Check wheel fixing nuts
10. Give vehicle test ride, watching engine performance, steering play, suspension and perfect braking
11. Check idling adjustment

CONDITIONS OF GUARANTEE

1. HEINKEL guarantee the first owner-user of a new HEINKEL Scooter for a period of six months from the date of first registration of the vehicle with the competent authorities, faultless material and good workmanship corresponding to the present level of technical progress, this guarantee, however, being limited to 6250 miles.
   The guarantee extends, at HEINKEL's option, to repair of the Scooter or replacement of the part(s) submitted.
   The place where the repair work is to be carried out will be determined by the Supplier, consideration being given thereby to the interests of the owner-user. The parts to be replaced are to be forwarded to the Supplier, carriage prepaid. In all cases, only those parts will be replaced which show evidence of faulty workmanship or defective materials. Replaced parts become the property of the Supplier.
2. The owner-user will be responsible for the appropriate costs of fitting the repaired or replaced part(s) to the vehicle. Such fitting costs will only be reimbursed by the Supplier if such parts are fitted by the Supplier or by his authorized repair-shop under written authority.
3. The Supplier will in the same way assume liability for parts not manufactured by himself except for any accessory or proprietary fitting whatever, tires, tubes, batteries, speedometers, clocks, etc. For these parts, the Supplier hereby transfers to the owner-user of the Motor Scooter the guarantee rights he holds with the manufacturer.
4. The owner-user shall not be entitled to claim to have the Scooter exchanged for another or to obtain a price reduction unless the Supplier be unable to remedy the cause for complaint.
5. It's not guaranteed that direct or indirect damage will be made good.
6. This guarantee shall expire automatically a) if the Motor Scooter has been altered and/or if any parts not manufactured and/or sold by the Supplier have been affixed to it and if subsequent damage has been caused by such alteration; b) if the owner-user does not comply with the Supplier's recommendations and instructions regarding operation and maintenance of the Scooter as given in the "Rules of Operation and Maintenance" Instruction Booklet and especially if the Service checks have not been carried out; c) if the Scooter proves to have been submitted to a total load exceeding the maximum permissible weight as given in the above booklet.
7. This guarantee shall not apply to normal wear and tear, and damage caused by negligent handling or by any form whatsoever of improper use.
8. This guarantee shall not apply to second-hand Scooters or any Scooters used for hiring out, or for any purpose other than the genuine private or commercial use of the owner-user, or parts thereof.
9. Guarantee claims can only be entertained if the claimant (i. e. the owner-user) immediately upon discovery of the alleged defect informs a HEINKEL Service Station in writing about same, stating particulars of the chassis number and engine number of the Scooter in question os shown on the manufacturers identification plate, giving also full particulars of the claim and of the reasons therefore, stating in such particulars the date of the purchase and the name and address of the person or firm from whom the Scooter was purchased.

The HEINKEL Motor Scooter was named the "TOURIST" because, in its design, great care was taken combine utmost riding comfort and maneuverability with excellent driving characteristics.

By using high quality materials and best craftsmanship we have done all in our power to give you a vehicle which we are sure will be a joy to you. But to achieve this for any length of time, we need your co–operation.

We ask you, therefore, in your own interest, to study carefully the Instruction Manual and to follow it accordingly. In it, you will find many useful hints and if you follow them you will be saved a great deal of trouble.

Please give your special attention to the Running–in Instructions, the regulations concerning oil–changing, battery maintenance, and the lubrication diagram.

You should also see that the Service Inspections are always carried out regularly. Should you at any time require additional technical information, please contact your Service Agent, who will be glad to assist you.

It is our aim to make sure that your HEINKEL Scooter gives you entire satisfaction.

ERNST HEINKEL AKTIENGESELLSCHAFT

March 1960

THE HEINKEL SERVICE ORGANIZATION

with numerous branches in every country will always gladly assist you with advice and the Dealer who sold you this Scooter will readily give you the personal service which goes with it.

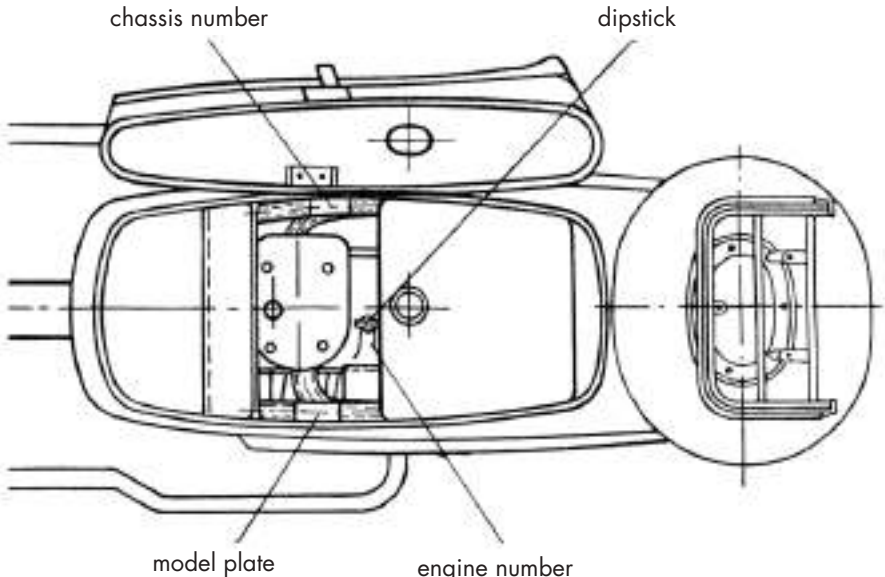
Wherever you see the HEINKEL Service Sign, your Tourist Scooter will get careful attention. At these Service Stations, trained and skilled mechanics with special tools take care of your TOURIST and ample spares are always available.

SERVICE

Please do not forget that your TOURIST needs regular Service inspections. A comprehensive Service Schedule extending to 55,000 miles has been designed for your guidance.

The first two Service checks are free of charge; only materials have to be paid for. Subsequent checks up to 6,000 miles will be carried out at a specially reduced rate. The life and trouble–free service given by your HEINKEL TOURIST depends to a large extent upon the Running–in and Service Instructions being closely followed. Comply carefully with these Instructions and your TOURIST will never let you down.

When the seat is opened, the engine and chassis numbers are located as shown



Note! The steering lock key can only be replaced if you quote the key number
Therefore enter your key number in this booklet.

Number of steering lock key →
(i.e. number indicated on key head)

Engine number →

Chassis number →

TECHNICAL DATA

Engine

Mode of operation	4–stroke o.h.v.
Model	407 A–1
Output	9.2 h.p. at 5500 r.p.m.
Number of cylinders	1
Arrangement of cylinders	vertical
Bore	60 mm
Stroke	61.5 mm
Swept capacity	174 cc
Compression ratio	1 : 7.4
Valve arrangement	overhead valves
Valve clearance when engine cold	inlet 0.15 mm exhaust 0.20 mm
Lubrication system	oil–bath centrifugal lubrication
Cooling system	blower cooling

Ignition

Type of ignition	Battery–magneto with automatic timing
Dynamo	"BOSCH" (AZ/DAQ 90/12 1700 + 0.2 R)
Retarded ignition	0.3–0.5 mm before t.d.c. (using timing tool 404/W 10) or 8–10^0 before t.d.c.

Thermal coefficient of spark plug	225	
Spark gap	.020 –.024 ins.	
Contact breaker gap	.014 –.018 ins.	
Spark plug thread	M 14 x 1.25	
Carburettor		
Needle carburettor with accelerator pump	PALLAS–Type 20/14 P	BING–Type 1/20/46
Carburettor passage	20 mm	20 mm
Main jet	80	85
Idling jet	25	35
Needle jet	2701	2,66
Position of needle	3	3
Jet needle with cone	–	15 X 1,95 Ø
Float chamber insert	–	No.3
Air screw	two turns open (set to best idling)	one turn open. (set to best Idling)
Air filter	micron paper filter	micronic paper filter
Clutch	oil–bath immersed,	multiple–disc clutch
Clutch operation	by hand on left handlebar	
Gearbox	4–speed type	
Gear operation	by twist–grip control on left handlebar	

Gear reduction		1st gear 3.51:1 2nd gear 2.07:1 3rd gear 1.38:1 4th gear 1:1	
Reduction: Engine–Gearbox		1.882 : 1	
		Solo	**Sidecar**
Reduction: Gearbox–Rear wheel		2.727: 1	3.10 : 1
Total reduction:	1st gear	18.05 : 1	20.50 : 1
	2nd gear	10.60 : 1	12.02 : 1
	3rd gear	7.10 : 1	8.06 : 1
	4th gear	5.13 : 1	5.83 : 1
Power transmission:	Engine–Gearbox	endless 3/8″ pitch chain (56 links)	
Power transmission:	Gearbox–Rear	wheel 1/2″ x 5/6″ single roller chain (70 links, endless) solo and sidecar	
Hill–climbing capacity in 1st gear		approx. 32 %	

Chassis

Frame	torsion–free tubular steel
Engine suspension	resilient three–point suspension

Front–wheel suspension	telescopic fork with central springing and hydraulic shock–absorber
Rear wheel suspension	fully–enclosed swing arm (chain running in oil–bath), spring leg with hydraulic telescoping shock–absorber
Handlebars	shell handlebar unit with incorporated speedometer and twist–grip controls
Brakes	internally expanding shoe brakes drum diameter 140 mm (5 1/2″) width 25 mm (1″)
Brake controls	front wheel: by hand lever rear wheel: by foot–operated pedal
Stand	centre stand
Wheels	interchangeable
Rims	2.50 x 10″ drop base rims
Tyres	4.00 x 10″

Dimensions

Overall length	2085 mm (without luggage carrier)
Overall handlebar width	710 mm
Overall height	1000 mm

Saddle height	735 mm	
Ground clearance	145 mm (approx)	
Wheel base	1375 mm	
Weights		Admissible total weight[2]
Unladen weight, ready for traveling[1]	330 lbs.	
Admissible load, solo	440 lbs.	770 lbs.
with sidecar	660 lbs.	990 lbs.
Admissible weight of loaded sidecar	321 lbs.	

For loading plan, see P. 57

Fuel and Lubricants

Fuel	Proprietary fuel, at least 82 octane (ROZ)
Lubricant	see lubrication schedule on P. 62
Fuel tank	11.3 liters, of which 1.8 liters is reserve (sufficient for approx. 31 miles)
Oil capacity of engine.	1.5 liters (approx)
Oil capacity in swing arm	150–200 cc

[1] Unladen weight = weight of vehicle alone, ready to be driven, with lubricant and fuel, tools, spare wheel and luggage carrier.

[2] Admissible total weight – unladen weight plus riders and luggage. With sidecar connected, includes the extra weight produced by the weight of the sidecar alone.

Fuel consumption	for consumption curve, see P. 58
Fuel consumption to DIN 70030	3 litres per 100 km at 43 m.p.h. standards
Maximum speed	
(with two riders up)	57 m.p.h.
Equipment	see wiring diagram
12 volt electric light	special wide–beam built–in headlamp, 130 mm diameter, with BILUX bulb, 35/35 watts and parking light 2 watts
Tail and number–plate lamp	5 watts
Braking light	15 watts
Charging light in speedometer	2 watts
Lighting, ignition and starting switch	combined unit incorporated in front shield
Fuse box	4 fuses 8 amps.
Electric horn	12 volts
Wide–scale speedometer in handlebar unit with light	2 watts
Handlebar lock and briefcase holder	on front shield
Battery	2 flat batteries, 6 volt, 12 amp.hrs.

In the interests of technical development, we reserve the right to make modifications.

CONTROLS

1. Ignition switch (incorporated in front shield)

a) ignition key engaged in middle position push in until resistance is felt;	ignition switched on (red lamp in speedometer lights up)
b) push key beyond the resistance	you operate the electric starter **(only when gear set to neutral)**
c) push key in until resistance is felt; turn to the **right**	ignition, parking light, tail light and speedometer light are switched on
d) push key in until resistance is felt; turn to the **left**	ignition, headlight, tail light and speedometer light are switched on (for dipping, see dipper switch)
e) withdraw key in middle position	ignition switched off (red lamp goes out, engine switched off
f) withdraw key in right–hand position	ignition switched off, parking, tail, and speedometer lights still on
g) withdraw key in left–hand position	ignition switched off, headlight, tail light and speedometer light still on

2. Regulation of advanced and retarded ignition

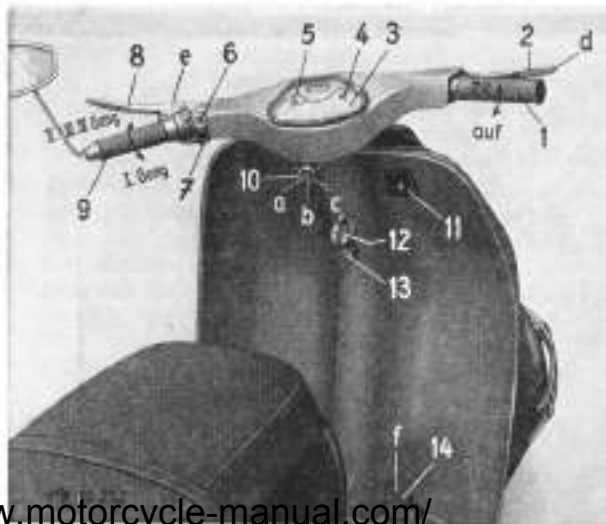
regulated automatically through flywheel magneto regulator.

3. Braking light

This is operated automatically by the braking light switch fixed on frame covered by front shield, when ignition key has been pushed in and brake pedal depressed.

❶ *Controls*

1. *Twist–grip throttle control zu = closed auf = open*
2. *Front brake lever*
3. *Wide–scale speedometer*
4. *Charging light*
5. *Tell–tale light, e.g.for headlight or oil–temperature*
6. *Push–button for horn*
7. *Dipper switch (red push–button for Main Beam signalling device)*
8. *Clutch lever*
9. *Twist–grip gear change control*
10. *Ignition lock*
11. *Fuse–box*
12. *Brief–case holder*
13. *Handlebar lock*
14. *Footbrake*
    - a. *Parking light switched on*
    - b. *Light switched off*
    - c. *Headlight switched on*
    - d. *Front wheel hand–brake lever, should have a play of about 1/4 of the total lever movement*
    - e. *Clutch ploy at lever 1/16" – 1/8"*
    - f. *Rear wheel broke should have a play of approximately 1/5 of the total lever movement*



4. Charging light

Red light (incorporated in the speedometer) indicates that the battery is supplying current. At fairly high engine speed, the red light goes out, thus indicating that flywheel magneto is charging battery. If red light does not go out, this proves that either the flywheel magneto or the regulator is damaged. Have them checked at a HEINKEL Service Station or Bosch Service.

5. Dipper switch on left handlebar

Turn downwards for main beam Turn upwards for dipped beam

5. a) Dipper switch with Main Beam signaling device on left handlebar

Turn downwards for dipped beam

Turn upwards for main beam

Red push–button for Main Beam signaling device

6. Horn push button in dipper switch

7. Gear change on left handlebar

8. Clutch lever on left handlebar

By compressing it you cut out transmission of power from engine to gearbox.

9. Twist–grip throttle control on right handlebar Twist towards driver to open throttle.

10. Hand–brake lever on right–hand handlebar Depress it to operate front wheel brake

11. Foot–brake Foot–brake lever (front, right–hand side of foot board.

Depress it to operate rear wheel brake.

RUNNING–IN INSTRUCTIONS UP TO 1200 MILES

The running–in period is of vital importance to the future life and the reliability of your Scooter. During this time, when all moving parts have to bed down, the throttle should not be opened fully, except for very brief periods. Start the Scooter with slightly opened throttle and take care not to exceed the running–in speeds given below:

For the first 600 miles

1st gear	up to 12 m.p.h.
2nd gear	from 12 to 20 m.p.h.
3rd gear	from 20 to 30 m.p.h.
4th gear	from 30 to 45 m.p.h.

These are maximum running–in speeds which should not be maintained over long periods, but engine, gearbox and rear wheel drive are best run–in at varying speeds within these limits, therefore, open and close the throttle gradually. The engine speed, when the throttle twist grip is closed, must not be too high. When climbing, change down to a lower gear in good time in order to avoid a sudden drop of engine speed. The engine should always turn freely, and never labour. Do not race the engine when the Scooter is stationary. After the first 600 miles, you can gradually increase your speeds, but we recommend not to drive at fast speeds, over long distances, until you have done 1200 miles, when your Scooter is fully run–in. Avoid carrying a pillion passenger during the running–in period.

STARTING PREPARATIONS

Fill–up with branded petrol of at least 82 octane rating (ROZ). Fuel tank capacity 11.3 litres 1.8 litres of which is a reserve.

Check engine oil Only use a branded oil (see Lubricating Schedule on P. 62), such as
Mobiloil Special for the whole year or Mobiloil AF (SAE 40) in summer, Mobiloil A (SAE 30) in winter.
Oil should come up to top mark on dipstick. Check oil level frequently, and never let level fall below bottom mark on dipstick. Push dipstick home fully to measure oil level. A complete oil filling is approximately 1.5 litres.

Check oil in swing arm Only use a branded oil (se Lubrication Schedule on P. 62), such as Mobiloil Special or Mobiloil AF (SAE 40) in summer and winter. Unscrew oil–filler screw on the swing arm cover. When the machine is jacked up on a level surface, the oil should slightly flow out. A complete filling is 150 to 200 cc.

Test tyre pressure: Front wheel Rear wheel Sidecar
Solo 18 psi 26 psi
with pillion passenger 18 psi 29 psi
Solo with occupied sidecar 22 psi 29 psi 22 psi
with pillion passenger
and occupied sidecar 22 psi 36 psi 29 psi

STARTING THE ENGINE

Open fuel tap opened, Once the small door on the right–hand side of the body is the fuel tap is accessible.
The tap has three positions:

wing in vertical position:	open, tank will discharge down to reserve of approx. 1 litre
wing pointing to left:	reserve
wing pointing to right:	closed

Make sure that the gear control is set at neutral

When the engine is cold Open and close the twist–grip throttle a few times briefly. Then press in the ignition key (red light comes on) to operate starter and at the same time open the throttle slightly.

When the engine is warm Open throttle slightly and press in key to start.

❷
Starting
1. Ignition key
drücken = press
2. Twist–grip throttle control
3. Twist grip gear shift control
see 1, 2 in text

DRIVING AND OPERATION OF CONTROLS

Removing scooter from stand

Take hold of handlebars and push machine forward. At the same time place your left foot in front of stand to avoid movement, and roll machine off stand.

When the engine has been started (neutral gear), pull the clutch lever and turn the gear control twist–grip to position 1. Gradually open the throttle and let in the clutch very gently by slowly releasing the lever. Driving speed is controlled by the twist–grip throttle control. The 4–speed gearbox operates smoothly and easily. Engage gears gently. Do not force gears into position.

Changing up into a higher gear

After the machine has reached approximately 12 m.p.h., close the throttle, disengage the clutch, change up into second gear, open up the throttle again and let in the clutch as before. At a speed of approximately 24 m.p.h., repeat the same procedure to change into third gear, and at a speed of 28/35 m.p.h., change into fourth gear.

Changing down into a lower gear

Before the engine starts to labour on steep grades, change down to a lower gear. Disengage the clutch, open the throttle control (smoothly, according to speed), turn the gear control twist–grip to the lower gear, and let in the clutch gently. Gear–changing will become second nature when you have had a little practice.

Applying the brakes

Take care when braking. Please remember that pulling–up suddenly and jamming on the brakes may cause skidding. The brakes should always be applied smoothly and progressively. Locking of the wheels should be avoided. Use both brakes together if possible. Your TOURIST four–stroke engine, in contrast to a two–stroke engine, will take over a large part of the braking on long descents. Always use the same gear for going downhill as you would use for going uphill, and on the long descents use front and rear brakes alternately so as to avoid overheating.

To stop

Slow the scooter down by closing the throttle, disengage the clutch and move gear control to neutral. Never stop with gear engaged. Remove ignition key and turn off fuel top when stopping for some time.

Putting on stand

The machine is held on the left side by the handlebars and the stand pressed to the ground with the foot. Whilst holding the scooter by the handlebars, pull it smartly backwards until the catch of the stand is reached. This is done without difficulty and without having to lift the scooter.

Note: Both legs of the stand have to touch the ground at the same time, so os to avoid damage to the stand.

FOR THE SAKE OF RELIABILITY,

Check your vehicle before starting on a trip, as follows:

1. Make sure that the most important nuts, bolts, and screws on handlebars, front fork, wheels, engine, frame and control levers are well tightened.
2. Check that the brakes are working perfectly.
3. Ascertain that the handlebars are turning smoothly and without play.
4. Check that the control cable levers are working smoothly.
5. Make sure that the tyres are in order (tyre pressure and tread).
6. Check that lighting and stop light system is working and that the headlight is correctly set (see 11 Adjusting the Headlamp" on P. 59).

SCOOTER MAINTENANCE AND CARE

Cleaning

The reliability of operation and the service life of the machine depend to a great extent on maintenance and cleaning. Very often, trouble and annoyance can be traced back to lack of proper care.

The highly–polished coachwork is best washed with a sponge under running water and afterwards dried with a chamois leather, as is done with any car. Swing arm and engine should be cleaned with paraffin. **Take care not to let paraffin get near the batteries. Before cleaning, remove the micronic filter.** The filter–housing on the carburettor should be blocked with a piece of rag, to prevent water getting into the carburettor. Never use a high–pressure jet nor playa jet directly on the ignition unit, as this unit might be damaged. At all costs avoid letting the spray get near the hubs, fanwheel or lever joints.

Should you wish to remove the rear body cowling, proceed as follows:

Open side inspection door and remove air filter.

Remove spare wheel by taking off rubber cap and unscrewing spare wheel holder bolt. Open the seat.

Disconnect the stop light and, using box–spanner SW 10, unscrew the two frame retaining clip bolts.

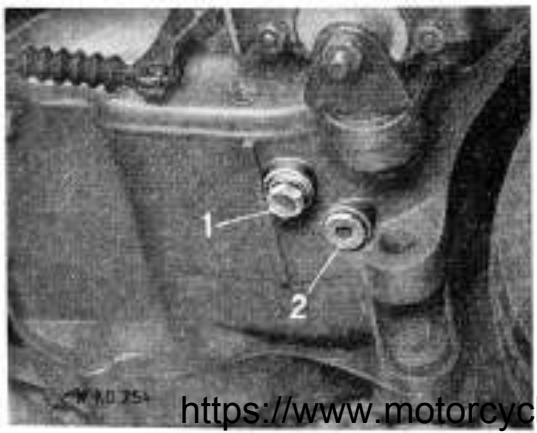
When replacing the rear body cowling, take care to connect the stop light cable to the correct connectors.

Note! When fastening the frame–retaining bolts, make quite sure that the cables for the braking and tail lights are not trapped under the frame **(danger of short–circuiting).**

After washing, the brake joints, centre stand and all moving parts should be greased. Use a grease gun to grease the nipples (see Lubricating Schedule). Use a proprietary polish for the enamelled and chromium–plated parts.

Engine Maintenance

Lubrication is of particular importance with a four–stroke engine and the instructions for oil–changing must therefore be strictly adhered to. Use only proprietary oils such as Mobiloil Special for the whole year round or Mobiloil AF in the summer (SAE 40), and Mobiloil A in the winter (SAE 30). During the running–in period, change the oil as follows:



1st oil–change	at 310 miles
2nd oil–change	at 625 miles
3rd oil–change	at 1250 miles
subsequently	every 700 miles

Oil changing is only carried out when the engine is warm, so that the oil runs out freely. Put the machine on the stand,

❸

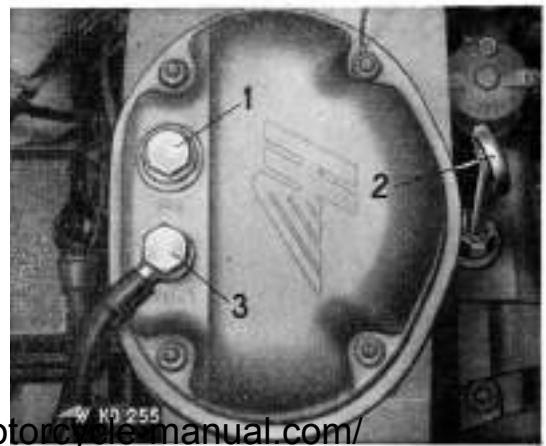
Draining engine Oil

1. Oil drain screw

2. This bolt must not be touched

open the oil filter plug (1) at the top of the cylinder cover and extract the drain plug at the bottom of the engine housing (Figs.3 and 4). When the old oil has drained away, replace the drain plug and fill with just over 1 3/4 pints of proprietary oil such as Mobiloil Special. Turn over the engine for a short time in neutral and then drain the engine oil again. Now replace the drain plug firmly. Fill up with 21/2–23/4 pints of high–grade oil (Lubricating Schedule P. 62) through the oil filler plug and close same.

Important: The present–day high–duty oils are lubricants which are produced by the addition of selected chemicals, which in addition protect the engine against corrosion and the formation of residue when a proprietary fuel is used. The arbitrary use of any additives will scarcely improve the properties of these oils and such a practice is not recommended in view of the common engine gearbox clutch lubrication chamber.



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Filling–up with engine oil

1. Oil filler plug

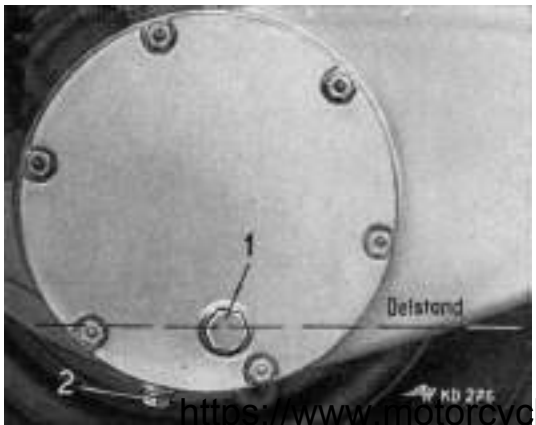
2. Oil dipstick

Checking the engine oil level

Pull out and wipe dipstick (Fig. 4), then re–insert it as far as the screw cap. Check the oil level every time you fill up with petrol; it must never fall below the bottom mark on the dipstick. The maximum level is to the top mark on the dipstick.

Checking level of oil in swing arm

When the machine is **level** on the stand, remove the filter screw on the rear swing arm cover. Oil should run out lightly. If the oil does not run out, take the scooter off the stand, lean it over to the left as far as the footboard and replenish with oil. In summer and winter, use a proprietary oil such as Mobiloil Special or Mobiloil AF (Lubricating Schedule on P. 62). One oil filling is about 150–200 cc.



❺

Rear swing arm

1. Control and filler screw

2. Oil drain screw

Carburettor
The standard carburettor adjustment should not be altered. Should cleaning become necessary, the greatest care should be taken when dismantling. The accelerator pump which is located under the jet carrier must **not** be dismantled. Wash all parts in petrol, blow through the jets and reassemble. Re–adjust the needle position and the air control screw exactly as it was. Should the carburettor adjustment become changed, do not experiment but call on your HEINKEL Service Agent.

Carburettor setting
For carburettor adjustment see P. 9.
The figures show a longitudinal and transversal section as well as a cross–section through the idling arrangement of the carburettor. The carburettor is mounted on the engine feed pipe by means of a clip and a clip bolt.

The idling jet regulates the approximate quantity of fuel called for by idling running, whereas the idling air regulating screw regulates the exact quantity.
The slide is opened fast, air speed increases as compared with fuel speed, so that the mixture grows leaner and the engine output decreases. This is obviated in the case of this carburettor, which is equipped with an accelerator pump, by the latter injecting a small quality of fuel into the mixture chamber when the slide goes up. The accelerator pump therefore corrects mixture strength during rapid opening of the throttle and is the means whereby easy starting is obtained.

Description and Component List of the BING–Carburettor Type 1/20/46

A Carburettor housing

A_2 Sprayer air borehole

B Cover plate

B_1 Cover screw

B_2 Adjusting screw

B_3 Nut

C Slide

C_2 Return spring

C_3 Adjuster screw

E Mixing chamber insert

F_2 Pump needle jet

F_3 Pump piston

F_4 Valve disc

F_5 Spring

G Pump jet needle

G_1 Cramp bow

H Main jet

H2 Jet cover

I Idling jet

I_1 Idling jet return screw

I_2 Gasket

K Idling air jet

K_1 Air regulating screw

K_3 Spring

N Carburettor clip

N_1 Clip screw

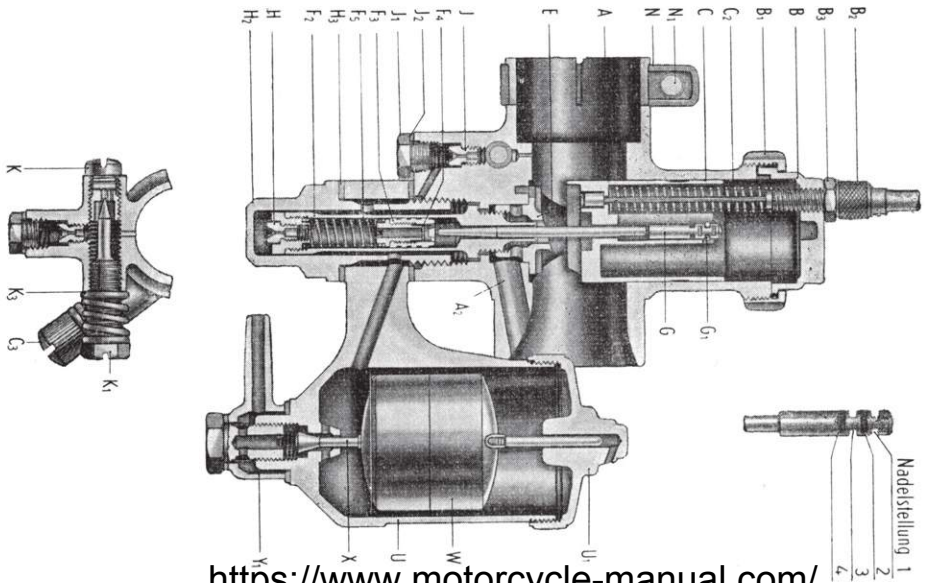
U Float chamber

U_1 Float chamber cover

W Float

X Float needle

Y_1 Petrol pipe connector



Description and Component List of the PALLAS–Carburettor Type 20/14 P

1 Float chamber
2 Slide
3 Return spring
4 Mixing chamber cover
5 Adjuster screw
6 Lock nut
8 Pump jet needle
9 Needle clip
10 Pump–needle jet
11 Pump piston
12 Valve disc
13 Pump valve screw
14 Pump spring
15 Pump stop screw
16 Main jet
17 Idling jet
18 Idling jet return screw
19 Lock nut
20 Air regulating screw
21 Adjuster screw
22 Stop spring
23 Pump jet cover
24 Gasket
25 Float chamber cover
27 Float
28 Float needle
29 Float needle seating
30 Gasket
31 Float needle seating lock nut
32 Gasket
33 Petrol pipe connector
34 Petrol filter
35 Gasket
36 Pipe connector locating nut
37 Carburettor clip
38 Clip screw
44 Bowden control cable

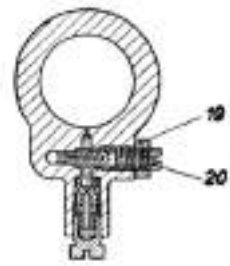


Figure 2

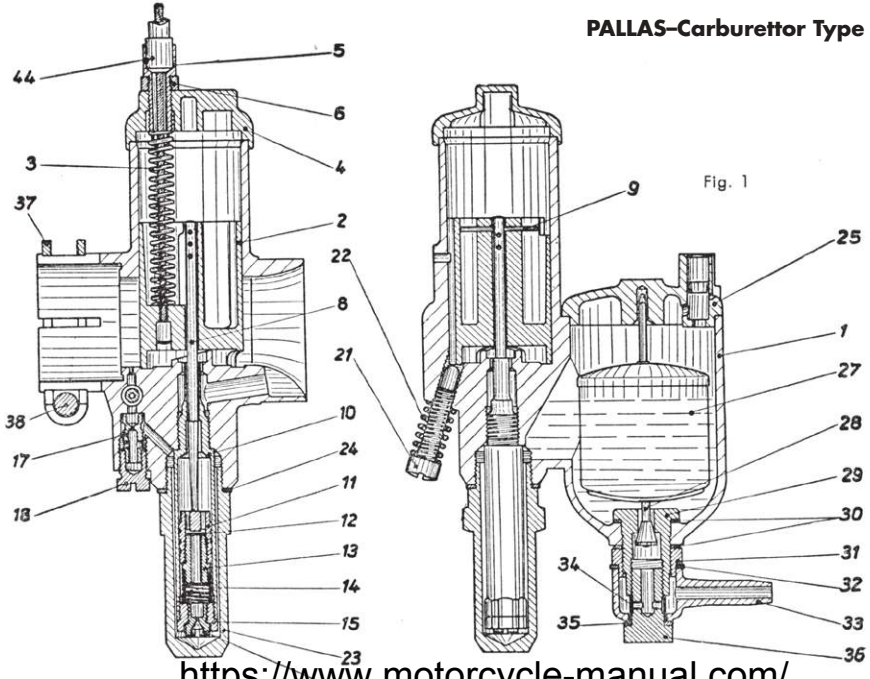


Fig. 1

If, with a cold engine, the throttle is operated several times,the pump injects into the mixing chamber amply sufficient petrol for starting.

The cylinder of the accelerator pump is the lower enlarged extremity of the pump needle jet, into which the pump piston with valve disc and the pump valve screw are inserted.

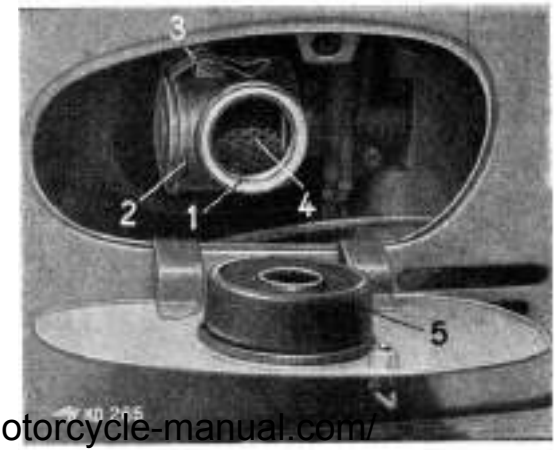
The pump spring presses the piston against the bottom end of the jet needle. The piston then moves with this needle and when it goes up, fuel is conveyed to the mixing chamber.

The air necessary for combustion enters the carburettor through the air–filter and is passed under the slide, the fuel emerging from the pump needle jet is added and the mixture is passed on to the engine. The performance of the engine is determined by the slide opening.

As indicated in Fig.1, the fuel passes to the float chamber of the carburettor through the petrol pipe connector (33), the petrol filter and the pipe connector locating nut (36). The float (27) and the float needle (28) provide a constant fuel level in the carburettor. From the float chamber, the petrol then flows into the pump jet cover (23) and to the idling jet (17).

The inflow of fuel during fast running is determined by the main jet (16); with the engine running not so fast (about 3500 r.p.m.), the inflow of fuel is determined by the pump–needle jet (10) and jet needle (8).

The idling jet (17) fixed on the carburettor housing by the idling jet return screw (18) provides for correct quantity of fuel necessary for idling.



6

Micronic air filter

1. Filter housing

2. Cover plate

3. Retaining springs

4. Micronic filter

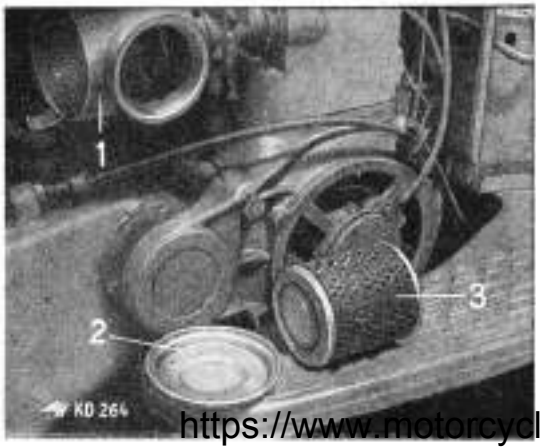
5. Rubber seal

Micronic air filter

The micronic air filter needs no servicing. It keeps any dust out of the engine. The life of the paper filter insert therefore depends on the amount of dirt handled. In town and on tarred roads, it should last some 5000 miles. On very dusty, country roads, a drop in the engine power might well be observed, though, after a substantially shorter distance.

Renew filter inserts every 5000 miles (see Fig.7), or correspondingly sooner if the filter gets dirty.

Caution: Do not let filter inserts come in contact with liquid.



7

Micronic air Filter

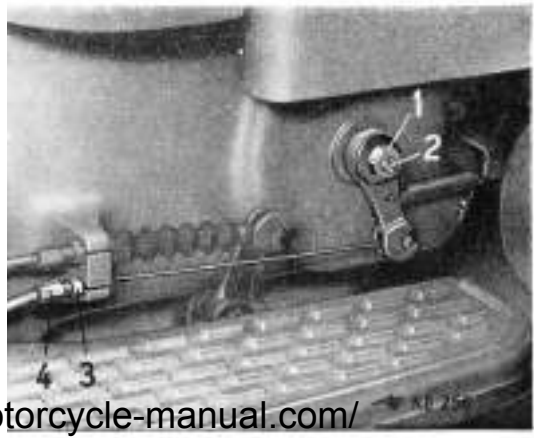
1. Filter housing

2. Cover plate

3. Micronic filter

Clutch

Power is transmitted to the gearbox by means of a multi–plate clutch. Special care must be taken that the clutch lever on the handlebar has 1/16"–1/8" play. If there is too much play, the clutch does not disengage freely; too little play causes the clutch to slip and results in rapid wear. The adjuster screw for the clutch control cable is placed on the left hand engine housing cover. Lifting the rear body cowling facilitates clutch adjustment. Turn in the adjuster screw to increase clutch play (Fig.8). If the adjustment of the Bowden control cable screw has reached its limit, the original adjustment can be regained by using the adjuster screw on the clutch worm. Before adjusting, release the return spring. Make sure to tighten locknut and fasten return spring after adjustment.



8

Adjusting the Clutch

1. Lock nut

2. Adjuster screw

3. Lock nut

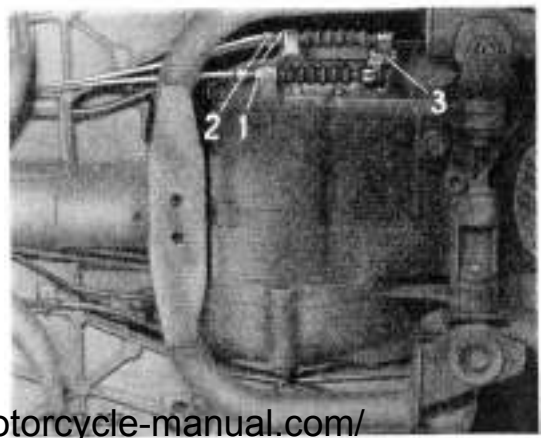
4. Clutch cable adjuster screw

Gear change control

The gear is changed by twist–grip control on the handlebars. Gear change from handlebar to gear shift lever is by two Bowden cables. Locking of the gears in the twist–grip can be suited to the touch of the driver by adjustment of the screw (between the figures). For readjustment of the gear–shift, adjuster screws are provided on the clutch cover (see Fig.9). For easy gear–changing, the two control cables should not be too taut. The protective sleeves of the Bowden control cables should turn freely at the adjuster screws, but without any play. Then set twist–grip gear control to 1st or 4th gear (for this, it is a good idea to put the scooter up on its stand, so that the rear wheel is free) and, by pushing the adjuster screws on the clutch cover in and out, so adjust the gear control cables that when the rear wheel is turned, the gear set at the twist–grip control is engaged. By changing gear at the twist–grip control, check whether 1st and 4th gears engage properly when required; correct if necessary once again at the adjuster screws and then tighten the lock nuts on the adjuster screws.

The Brakes

The front brake is adjusted by the Bowden cable adjuster screw on, the hub brake disc at the right–hand side. If the adjustment of the screw has reached its limits, the adjuster screw is screwed in completely, and the brake actuating lever is advanced by removing nut 3, prising actuating lever from the cam spindle and replacing one notch clockwise. Replace nut 3 and make final adjustment by screw 2. The rear brake adjuster screw is located on the swing arm (see Fig. 11); further adjustment of the actuating lever can be carried out as on the front brake. After these adjustments, always tighten the lock nuts and oil the brake lever pivot lightly every 650 miles.



9

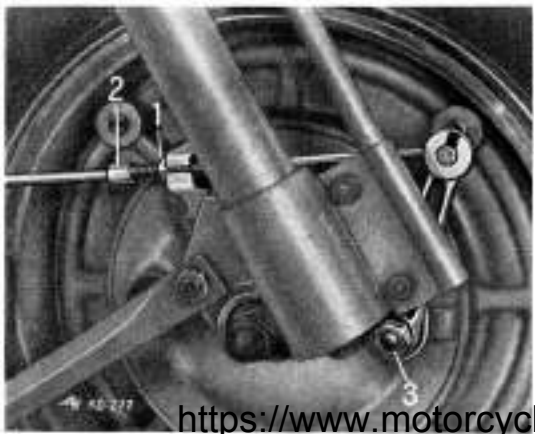
Adjusting the gears

1. Lock nut

2. Adjuster screw for cable

3. Cam lever

After dismantling the brakes, the following must be strictly observed: **Neither the brake shoes nor the brake shoe mounting bolts must be interchanged or else braking efficiency will be impaired.** Should the brakes be dismantled, it is vital that several test brakings should be carried out after reassembly. Only adjust the brakes as far as is necessary for the wheels to turn slightly, without grinding; however, have no more clearance than is necessary. Brake shoes on which the linings are worn out, should be exchanged at your HEINKEL Agent's.



⑩

Adjusting the front wheel brake

1. Lock nut

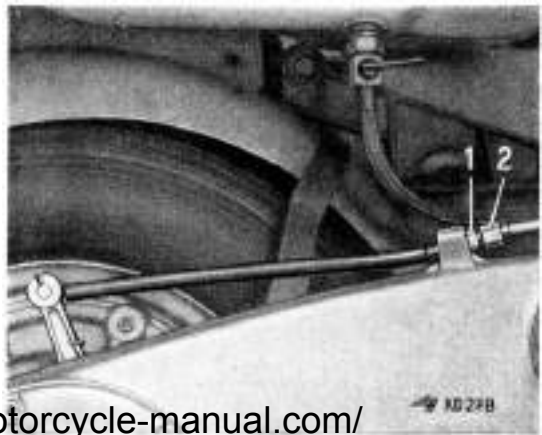
2. Adjuster screw for brake cable

3. Nut for brake lever adjustment

Electrical Equipment

Dynamo

It is advisable to pay special attention to the ignition and lighting system, as the reliability of the engine depends on it. Dismantling and reassembling should be done only at a HEINKEL or BOSCH Service workshop, so as to avoid damage to crankshaft or dynamo. From time to time, have the equipment checked by a specialist.

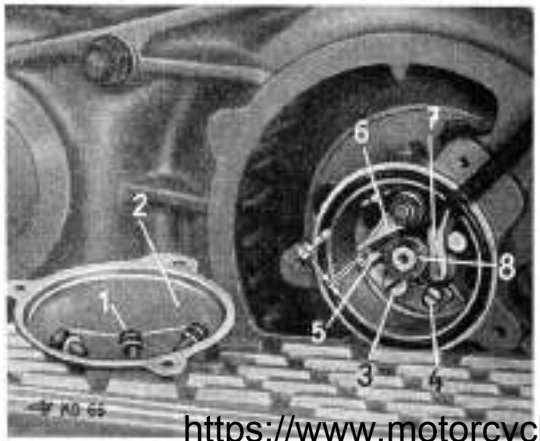


⓫

Rear wheel brake (drum brake)

This includes:
a) Checking the contact breaker points (every 1500 to 2000 miles); the gap should be .014–.018 ins.
b) Greasing of the lubrication felt at the contact breaker (use grease, not oil).
c) Removal of carbon deposits and checking of brushes.

Coil and Regulator require no further maintenance, but it is advisable to check the cable connections from time to time (to gain access to these, raise the cowling).



⑫

Contact breaker

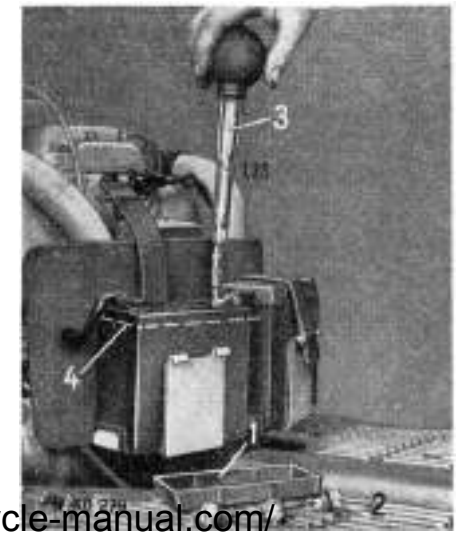
1. Cover bolts
2. Cover
3. Contact plate screw
4. Contact adjuster screw
5. Contact plate
6. Contact breaker arm
7. Greasing felt
8. Cam

Plug

Check the electrode gap every 1200–2000 miles. It should be .020–.024 ins. The sparking plug is accessible from the lug gage boot. Push the little metal flop aside and remove the plug, using the box spanner. When screwing in the spark plug, do so by hand, using the spanner only for final tightening, so as not to damage the thread. Care must be taken to place the washer correctly on the plug; do not secure the plug too tightly.

Batteries

Every two weeks (in summer every week), the acid level should be checked and, if necessary, topped



⓭

Testing the battery

1. Battery cover

2. Inspection screws

3. Acid tester

4. Level of acid (1/8 in. above top edge of plates)

up with distilled water. The acid level should be kept a little above the top edge of the plates. Only accumulator acid (1.28) should be used. For charging instructions, see battery cover. Do not let petrol or parrafin touch the battery. Should the scooter be laid up for some time (4 weeks or more), the batteries should be taken out and taken care of separately. Every four weeks, the batteries should be discharged and then recharged.

Headlamp
The built–in headlamp is equipped with a BILUX bulb, 12 volts, 35/35 watts, for the main beam and 12 volts, 1.5 watts bulb for the parking light. For setting the headlamp, there are three slits on the bezel. See "Adjusting the Headlamp" on P. 59.

Tail and braking lights
When changing the bulbs of the tail and braking lights, the tail light cover must first be removed.

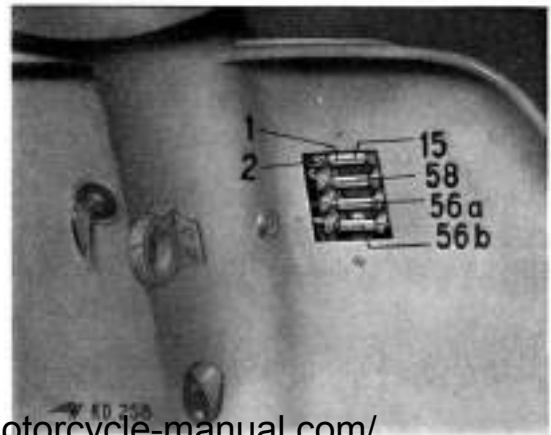
Important: Before doing any jobs involving the electrical system always disconnect the earthing lead from the battery (danger of short–circuiting).

Fuse Box

The fuse box is located at the top right–hand side of the front shield. Access to the fuses is gained by unscrewing the fuse box cover (Fig. 14).

Wheel changing Front wheel

Disconnect Bowden control cable at brake lever and lean the machine over on its right side until the footplate rests on the ground and loosen 4 cap nuts with the box spanner. Then loosen the axle nuts until the washers come off the threads; then remove wheel. If the wheel does not come out easily, unscrew the 4 nuts of the front mudguard supports. When reassembling, make sure



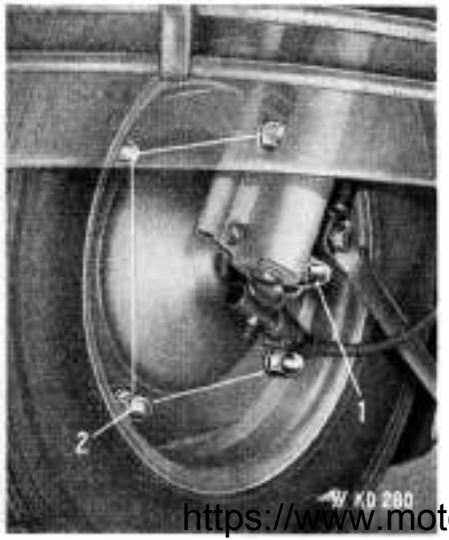
⓮

Fuse box

1. 8 amp. fuse

2. Cable retaining screw

that the speedometer cable and gearbox are correctly located. The speedometer mechanism has 2 pins which ensure correct fitting of the drive to the counter ring. **The notch in the brake anchor plate must be located correctly in the right–hand front fork,** or, at the first sharp braking, the wheel will jam and the driver will fall.



Rear wheel

Lean the machine on its right side and rest it on the footplate, unscrew the 4 cap nuts with the box spanner and lift the wheel off hub (see Fig.16).

⑮

Changing the front wheel

1. Cap nut of the front wheel axle

2. Cap nut of front wheel (for changing wheel)

Checking the tyre Pressure

The life of your tyres depends to a great extent on correct pressure and careful treatment. Inflate tyres as specified on Page 19.

Changing the Tyres

Since, in our experience, more strain is put on the rear tyre than on the front tyre, it is advisable, in the interests of even tyre wear, to change over the front and rear wheels every 1850–2500 miles. Use the spare wheel as well in this arrangement.

16

Changing the rear wheel

1. Cap nuts of rear wheel (for changing wheel)

Removing the tyres

Make it a principle never to use force when removing or fitting tyres!

Unscrew the valve caps and screw out valve insert with reversed cap, let the air out and unscrew rim nuts from the valve. Lay the wheel flat on the ground and, by treading on it, loosen the tyre bead all round. Push the valve back into the dropbase rim and, on the side opposite the valve, push in the tyre bead. This gives sufficient play on the valve side for the two tyre–levers to be inserted at a fair distance one from the other. By pressing down both levers at the same time, apart of the bead is lifted out. Holding one tyre lever still, move the other farther and farther round, gradually lifting the whole of the tyre bead over the edge of

17

Removing a tyre

1. Tyre lever

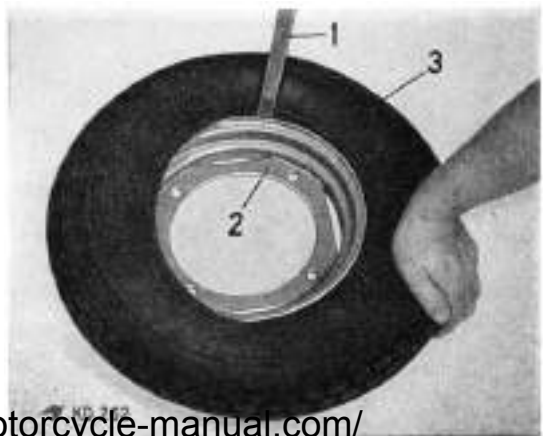
2. Drop–hose rim

3. Tyre

the rim. Then take out the inner tube, stand the wheel up and, using the tyre levers, force the second tyre bead (see Fig. 17) over the edge of the rim and pull the tyre sideways and off the rim.

Fitting the tyres

Place the slightly pumped–up inner tube in the cover so that there are no creases and with the inner tube valve, inserted at the side, facing upwards. Rub the repair spots with tale to prevent sticking to the cover. Lay the wheel flat on the floor, the valve' pointing upwards. Push the lower tyre bead into the drop–base on the valve side, the valve into the hole in the rim and tighten the rim nuts a few turns. Force the lower bead over the rim edge all round (the upper bead is still outside



⑱

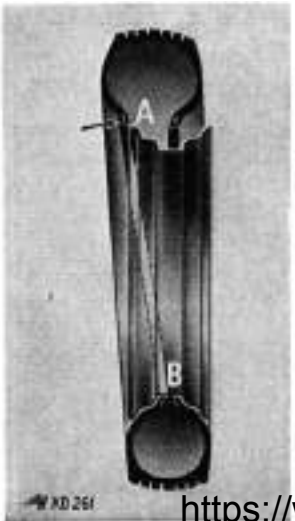
Fitting a tyre

1. Tyre lever

2. Drop–base rim

3. Tyre

the rim), lifting the last portion of the lower bead over the rim with the tyre lever. In contrast to the lower bead, the upper bead is pushed into the drop–base rim first on the side opposite the valve. By kneeling on it, the cover can be compressed and alternately to the right and left a further section of the bead lifted over the



⑲
Cross–section through tyre and rim

⑳
Tyre fitted
I. Guide line
2. Edge of rim

edge of the rim with the tyre lever (see Fig. 18), until, in the vicinity of the valve, the last piece jumps into place; tighten the rim nuts. Always see (Fig.19) that (B) both beads lie in the drop–base rim whilst at (A) the opposite side of the tyre is being fitted. Pump the tyre up a little and check that both beads are securely inside the rim, as prescribed, by lifting up the wheel and letting it bounce on the ground. After further pumping (see P. 19 and checking the tyre pressure), the guide line on the tyre bead (see Fig. 20) should be at the same distance from the edge of the rim all round. If this is not the case, let out the air and align the tyre properly.

Front wheel fork

After 5000–6000 miles, dismantle the front fork, check the top and bottom bearings and replace them, coated with ball–bearing grease.

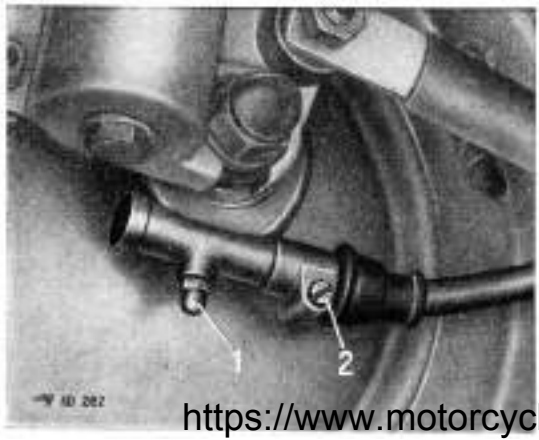
21

Front fork

1. Oil drain screw

2. Oil filler screw

Every 5000 miles, the oil in the arms of the front fork must be drained and approx 30 cc. of new oil, such as Mobiloil A (SAE 30), poured into each arm (see Fig. 21). To remove the fork, take off the front mudguard. These jobs should only be done at a HEINKEL Service Workshop, which also ensures correct assembly.



Bowden cables
You are advised to take care that all Bowden cables are lubricated regularly.

Speedometer drive
The greasing nipple on the speedo drive

22
Speedo drive
1. Greasing nipple
2. Clip screw for speedometer cable

must be greased every 1500 miles with ball–bearing grease, such as Mobilgrease NO.5 (see Fig. 22).

Exhaust

Once the retaining ring nut has been loosened, the air duct can be turned approximately 90° so that the exhaust can be removed (see Fig. 23).

23

Exhaust

1. Fixing screw

2. Retaining screw for exhaust silencer

WINTER OPERATION

If the scooter is used in winter too, take care to drive slowly and to use brakes carefully on slippery roads. If all–year–round oil, such as Mobiloil Special, is not used, fill up with winter oil (SAE 30) – at any rate when the temperature drops below 40° F. To economise on weight, the scooter batteries are correspondingly small. In winter, therefore, they need special attention. The power required for starting in winter is many times that needed in summer.

Before starting on cold mornings, we recommend rocking the scooter a few times in 3rd gear so as to free the engine and opening and closing the throttle quickly two or three times. Then use the starter with the throttle closed, opening the throttle only a little when the starter is turning the engine. We recommend, when the temperatures are very low, that the Bowden cables be lubricated with a thin oil, such as MobilFluid 200, to prevent them from freezing solid.

SUMMER OPERATION

During operation in hot summer or in tropical countries, the carburettor inspection door on the right–hand rear cowling and the seat should be opened after every stop for the sake of efficient ventilation and cooling. Acid level in the batteries should be checked every week and, if necessary, fresh distilled water should be added.

STORING OF SCOOTER

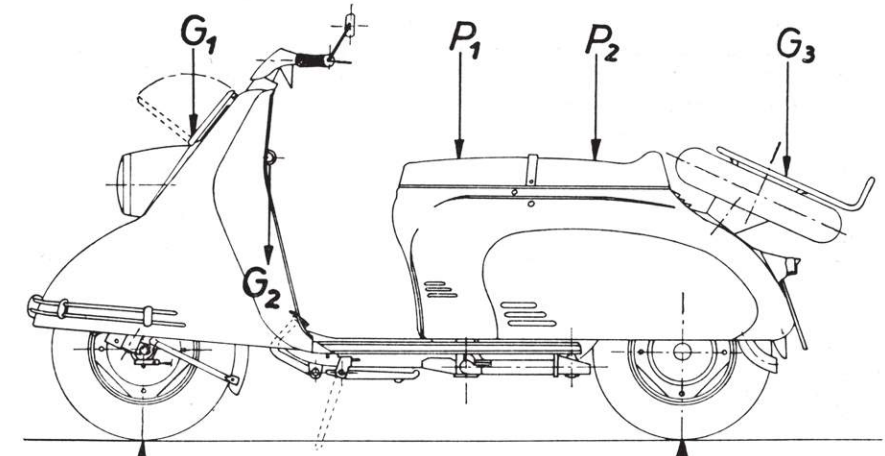
If the vehicle is not going to be used for a fairly prolonged period (wintering, or for any other reason), you should:

1. Clean the whole scooter thoroughly.
2. Change the oil with anti–corrosion oil, such as Mobil–Kote 503, just before storing the machine (approx. 6–30 miles' travelling), or when the engine is warm.
3. Shut petrol tap and empty the float chamber of the carburettor by undoing the fuel pipe.
4. Bring piston to bottom dead centre; spray in through the sparking plug hole approx. 20–30 cc. of anti–corrosion oil, such as Mobil–Kote 503. Operate starter briefly, so that the engine turns over a few times, then place piston at top dead centre with the valves closed and replace plug.
5. Remove batteries and store them in a dry and frost–free place. It is a good idea to have them charged every 4 weeks. Before every third recharge with current necessary for operation discharge to a cell rating of 1.8 volts. Draining the batteries of acid does not protect them from decomposition!
6. Smear chromed parts with acid–free grease.
7. Store scooter in a dry room on its stand, so that the tyres, which must be kept inflated, do not bear any heavy load.

TAKING THE VEHICLE OUT OF STORAGE

Run the engine warm; drain off anti–corrosion oil and fill up with 1.5 litres of proprietary oil, such as Mobiloil Special. Carry out the next oil–changes as prescribed in the Lubricating Schedule.

LOADING SCHEDULE

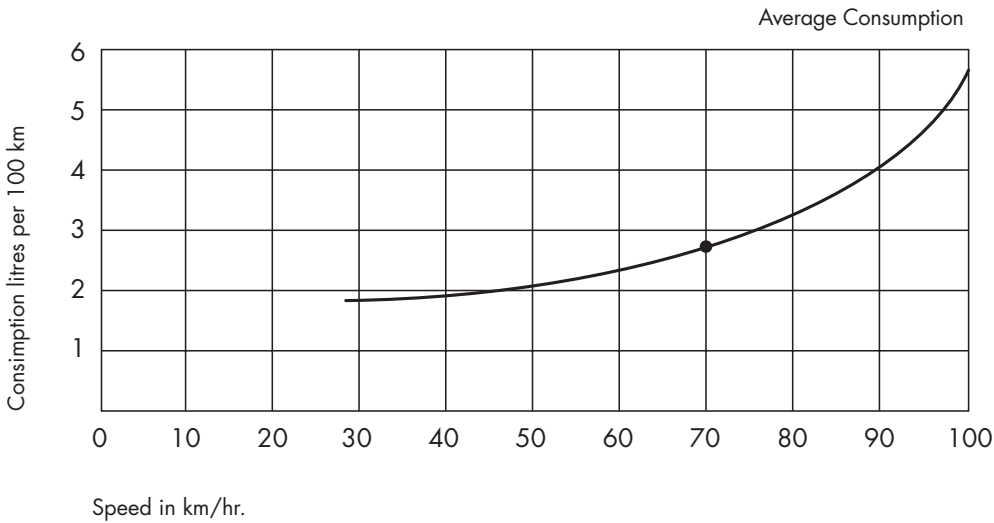


Maximum Axle Loading: 275 lbs.

Maximum Axle Loading: 528 lbs.

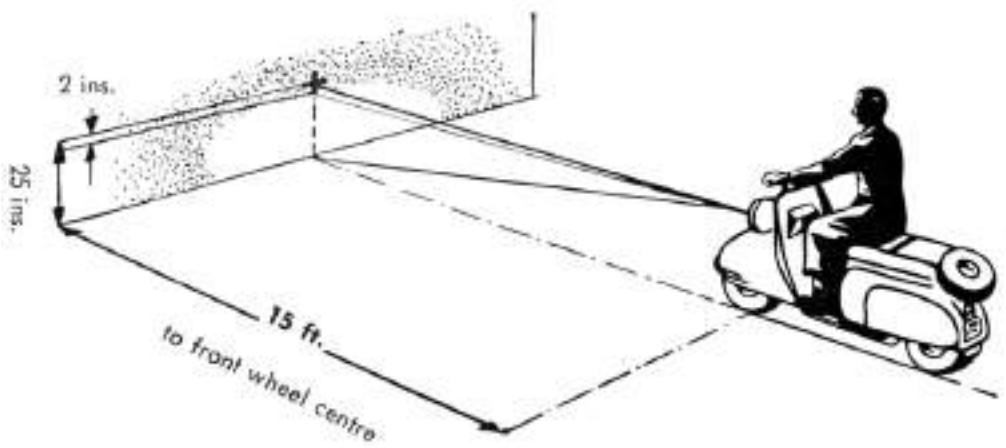
Dead weight of scooter, ready for drive	343 lbs.
with one driver and one pillion rider up	330 lbs.
+ luggage	97 lbs.
Total admissible weight	770 lbs.

FUEL CONSUMPTION DIAGRAM



ADJUSTING THE HEADLAMP

At regular intervals, the setting of your scooter's headlamp should be checked and, if need be, adjusted. This will give you proper lighting of the roadway, increases your riding safety and avoids endangering yourself and other road–users.



Preparations tor the test
Mark a cross on a light wall, at the height of the beam centre. When the driver is mounted, this height is 25 ins. Set the vehicle on its wheels a little more than 16 feet from the wall (measured from the wall to the centre of the front wheel).

Adjusting the beam
Switch on the main beam and set the headlamp so that the cross on the wall is in the centre of the area lighted.

Testing the dipper light
Switch over to dipped light; the top limit of the cone of light should be at least 2 ins. below the cross.
For adjustment of the headlamp, undo the 3 screws on the retaining ring and retighten afterwards.

Sidecar operation
When using the scooter with a sidecar, the headlamp must be readjusted in any case. This is to be done according to the foregoing instructions but with the driver up and the sidecar passenger seated, so os to distribute the load evenly.

SERVICE CHART FOR 175 cc. HEINKEL TOURIST SCOOTER

SERVICE TO BE PERFORMED	1st	2nd	3rd	4th	5th	6th	7th	and every miles
1. Trial run to worm up engine	x	x	x	x	x	x	x	1200
2. Change engine oil	x	x	x		every 700 miles			500
3. Change oil in swing arm	check	x	check	x	check	x	check	2500
4. Clean carburetor, fuel lines petrol tap	x	x	x	x	x	x	x	1000
5. Change micronic filter insert						x		5000
6. Test plug	x	x	x	x	x	x	x	1200
7. Check contact breaker points and ignition setting	x	x	x	x	x	x	x	1200
8. Grease lubricating feit						x		2800
9. Check batteries*	x	x	x	x	x	x	x	1200
10. Test lights and electric horn	x	x	x	x	x	x	x	1200
11. Check valve tappet clearance		x		x		x		2800
12. **Remove cooling ducts and clean cylinder fins**				x		x		2800
13. Check clutch play	x	x	x	x	x	x	x	1200
14. Check shift–position	x	x	x	x	x	x	x	1200
15. Check and tighten all fixing bolts	x	x	x	x	x	x	x	1200
16. Test brakes	x	x	x	x	x	x	x	1200
17. Check tyre pressure	x	x	x	x	x	x	x	1200
18. Test steering	x	x	x	x	x	x	x	1200
19. Change oil in front fork arms						x		6500
20. Grease steering ball races						x		5000
21. Remove front wheel hub and grease						x		4000
22. Grease brake lever, central stand and all moving parts	x	x	x	x	x		x	1200
23. Grease speedo drive	x	x	x	x	x	x	x	1200
24. Test run	x	x	x	x	x	x	x	1200

See special Battery Maintenance Schedule.

Lubricating point	Service	Service at miles							and subsequently every miles	Type of lubricant to be used		
		310	625	1250	2500	3750	5000	6250			summer	winter
Engine and gearbox	Complete change when engine warm	X	X	X	X	X	X	X	1250	Mobil-Oil	Special A	A
Swing arm	Complete change		X		X		X		2500	Mobil-Oil	A	A
Front fork	Drain and refill							X	6250	Mobil-Oil	A	A
Front fork	Dismantle and grease bearings						X		5000	Mobil grease No. 5		
Front hub	Dismantle and grease bearings			X			X		2500			

BREAKDOWNS

1. Engine will not start though operated according to the instructions on Page 19/20

1. Fuel tank empty	refill tank
2. Fuel tap closed or not set for reserve	open fuel tap or set for reserve
3. Fuel system blocked	clear system by blowing through it with compressed air
4. Jets blocked	clear jets by blowing (do not dismantle accelerator pump)
5. Warm engine overflooded due to over–application of throttle	close fuel tap, open throttle fully, depress starter button. Within a short time the mixture will be ignitable and engine will start. Open fuel top again
6. Ignition not turned on	set ignition, red control lamp must light up
7. Ignition switched on, red control lamp does not come on:	
a) battery flat	charge battery
b) control lamp burned out	replace control lamp
c) break in 15/54–61 D + wiring *(between regulator and ignition starter)*	eliminate break

II. Starter turns engine, but engine does not start

1. Spark plug fouled, defective or gap too wide	clean or replace plug, correct gap to .020–.024 ins.
2. Contact breaker points dirty or worn, contact breaker rocker arm sticking	clean contact breaker points, reset or replace, clean contact breaker rocker arm pivot
3. Ignition coil defective	replace ignition coil
4. Condenser defective (blue, arclike contact spark)	replace condenser

III. Starter does not turn or scarcely turns engine

1. Battery low or flat	re–charge battery
2. Battery leads corroded	tighten, clean and grease battery leads
3. Short–circuit in wiring system	have wiring checked at a Service Station
4. Magneto coil in regulator disconnected	check magneto coil and wiring

IV. Engine cuts out and stops suddenly

1. No fuel or insufficient reaching engine	fuel proceed as under I, 1–4
2. Sparking plug defective	replace sparking plug
3. Ignition cables loose	fasten and tighten cable connections
4. Contact breaker rocker arm sticking	clean contact breaker rocker arm fulcrum pin

V. Engine runs irregularly

1. Plug loose	tighten with box spanner (washer)
2. H.T.cable defective	insulate or renew H.T.cable
3. Plug defective	renew plug
4. Contact breaker points dirty or worn	clean, reset or renew
5. Condenser defective	renew

VI. Engine pulling badly and getting hot

1. Wrong sparking plug	fit correct plug
2. Wrong ignition timing	check and adjust

3. Engine needs oil	check oil level in engine and fill up if necessary
4. Carburettor mixture too lean	tighten carburettor clamp bolt and test for original setting
5. Brakes bind and get hot	re-adjust brakes

VII. Lights not working

1. Loose or defective bulbs	tighten or renew bulbs
2. Loose cable connections and leads	tighten
3. Bad earthing connection	tighten earthing cable

CONTENTS

Wiring Diagram for 175 c.c. »HEINKEL-TOURIST« Scooter Type 103 A-1