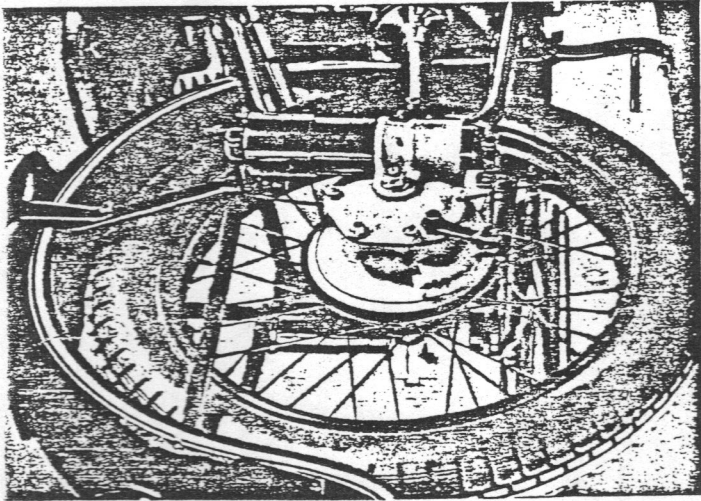




Manual

BMW
Motorcycle
R 25

out such possibilities, to acquaint you with important details concerning your motorcycle and to show you which parts require special care or regular lubrication. It is to your own advantage to observe these instructions carefully. The service life, driving safety and reliability of your BMW depend on the care you give it. We have endeavoured to treat all the essential factors in a concise and comprehensive manner. By way of introduction we have dealt with all details directly connected with riding. This is followed by a description of the engine and the frame, with full technical details. In conclusion all particulars of importance in regard to upkeep and lubrication are set forth.

Please consider this handbook as a useful guide, destined to bring motorcycle riders quickly and safely to their destinations.

Yours for safe and pleasant motorcycle riding!

Munich, June 1950

BAYERISCHE MOTOREN WERKE
Aktiengesellschaft

It gives us great pleasure to deliver to you, together with this handbook, your new BMW Type R 25 motorcycle. In designing the R 25 we have endeavoured to create a motorcycle combining high efficiency with the best possible riding properties.

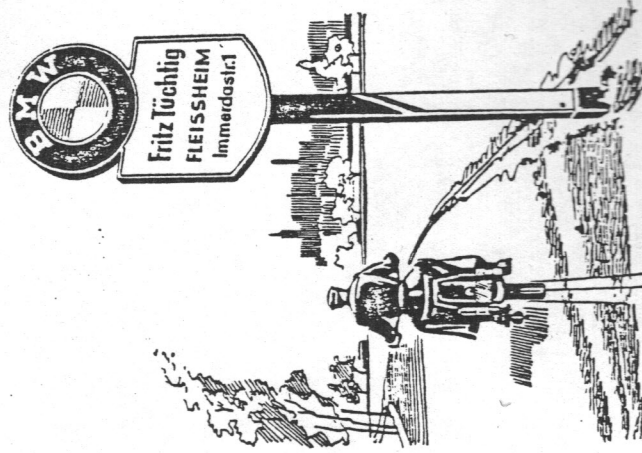
We hope that this BMW will fulfil your every expectation.

This booklet was written for you, and we urgently advise you to study it carefully in order to become thoroughly acquainted with your BMW Type R 25 so that it will be a constant source of pleasure. If you are an experienced motorcycle rider you will probably say that this handbook does not contain anything you did not know already. But even the man who looks back upon many years of experience in motorcycle riding may commit serious errors in the care and maintenance of a new machine which may cause serious damage. It is the purpose of this booklet to rule

3

BMW Service Stations.

are organized in the form of a widely distributed net of BMW agencies which are always at your service. The BMW agent is your supplier and your aid and it is his duty to furnish you with supplies and give you advice. All shops displaying the sign shown on this page will gladly service and repair your machine. In these shops you will find personnel specially trained in BMW Service Centres, proper tools and a large assortment of original BMW spare parts.



5

Motorcycle riding is a great sport, but never forget that your motorcycle requires regular servicing. The charts I-III accompanying the handbook, which should be filled in by your agent, show the checks to be made.

Be sure that Service Card No. I is stamped by your agent, filled in and sent to the BMW Kundendienst-Abteilung (Servicing Division), Munich, after you have accepted your motorcycle. This is for your own benefit, as the acknowledgement of any claims arising pursuant to our guarantee depends on your sending in this card. For the same reason, charts II and III must also be submitted.

- After 500 km (300 miles) change oil for the first time
- " 1,000 km (600 miles) check machine in accordance with chart II
- " 2,000 km (1,200 miles) check machine in accordance with chart III
- " 6,000 km (3,600 miles) check machine in accordance with chart IV

Schedule for changing oil see Lubricating Plan page 55.
Observation of these service checks is of vital importance

- in avoiding trouble during the running-in period
- in maintaining maximum power and economy of the engine
- in achieving reliable operation
- in keeping your motorcycle in good running order
- in safeguarding the validity of your guarantee

Servicing jobs No. II after 1,000 km (600 miles) and No. III after 2,000 km (1,200 miles) are performed without charge by any BMW agent.

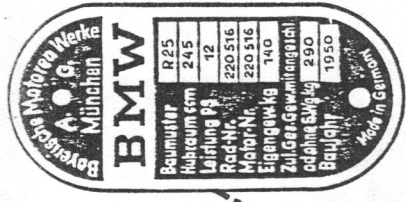
Running the Engine in Properly

is of vital importance for the useful life and the reliable operation of your motorcycle. Observe the following instructions carefully for the benefit of your engine:

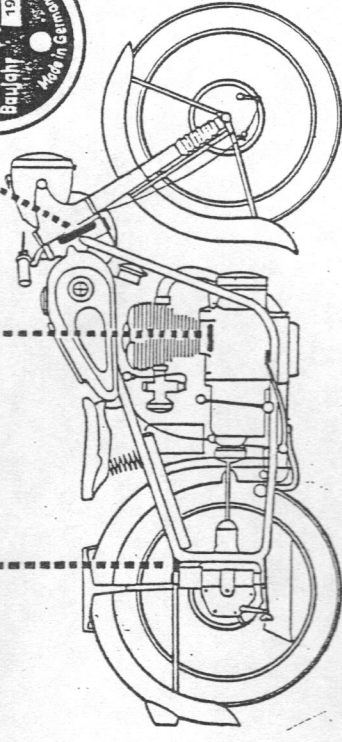
Solo type	0-1,000 km (0-600 miles)	1,000-2,000 km (600-1,200 miles)
1st gear	8 km per hour (5 miles)	15 km per hour (9 miles)
2nd gear	15 km per hour (9 miles)	25 km per hour (15 miles)
3rd gear	35 km per hour (22 miles)	40 km per hour (25 miles)
4th gear	50 km per hour (30 miles)	70 km per hour (44 miles)
with side car	0-1,000 km (0-600 miles)	1,000-2,000 km (600-1,200 miles)
1st gear	7 km per hour (4 miles)	13 km per hour (8 miles)
2nd gear	13 km per hour (8 miles)	20 km per hour (12 miles)
3rd gear	30 km per hour (18 miles)	35 km per hour (20 miles)
4th gear	40 km per hour (25 miles)	60 km per hour (35 miles)

220 516

220 516



Beimuster	R 25
Hubraum cm	245
Leistung PS	12
Rach-Nr.	220 516
Motor-Nr.	220 516
Eigengewicht	140
Zuladung mit Beifahrer	290
Baujahr	1950
Made in Germany	



The above instructions are not to be construed to mean that the maximum speeds must always be reached; on the contrary, the engine is best run in when speed and load are varied, i. e. drive a short distance (500 m = 545 yds.) at maximum speed and then let the motorcycle coast. Use 4th gear as little as possible and shift gears often in city traffic. Thus all moving parts of the engine are run in the best manner possible.

Overloading machine (see technical data page 52) or unauthorized tampering with speedometer invalidate all guarantee claims.

Never race your engine with the gears in neutral. Shift gears at the proper moment when riding uphill, to avoid overloading the engine. Shift to next lower gear before speed drops off too much, because driving over longer distances in the lower gears does not harm the engine nor the gearing.

Attention!

The carburetors are not sealed to enable better running-in conditions. For this reason it is of great importance to run the motorcycle in accordance with instructions on page 8. You must get the feel of it.

1) Ignition and Lightings

When the ignition key is inserted, the pilot lamp lights up and the engine can be started. (Pilot lamp must go out at cruising speed.) Turning key to left turns on parking light, turning to right turns on the two-filament head lamp.

2) Clutch:

By actuating clutch, engine is disengaged from the transmission.

3) Horn Button

4) Anti-dazzle Switch:

Has two positions with the country light or anti-dazzle filament of the Bilux lamp cut-in as desired.

5) Foot-operated Gear Shift Pedal:

Automatically returns to its starting position (see page 15).

6) Kickstarter:

Before starting make sure that the auxiliary gear shift lever is set at neutral.

7) Speedometer

8) Hand Brake:

Actuates front wheel brake. Manipulate carefully on slippery wet places.

1:

Operating Instructions

Before Starting:

Fill fuel tank petrol station fuel (octane rating of at least 70). Capacity of tank 3 gallons (including approx. 1½ quarts reserve which is sufficient for approx. 25 miles).

Check oil in engine Oil should reach to top mark on dip stick. Never fill in oil in excess of this mark. To measure oil level insert stick without screwing it in. See Lubricating Plan page 55.

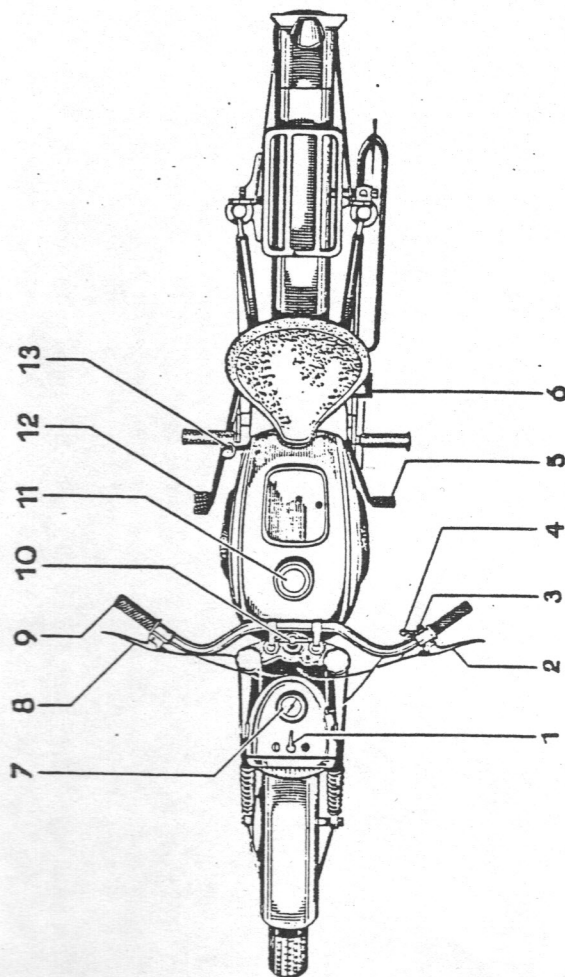
	front	rear	side car	type
Check tyre pressure driver alone	22 lbs.	23 lbs.	—	—
driver and passenger	22 lbs.	28 lbs.	—	—
with side car	25 lbs.	28 lbs.	25 lbs.	25 lbs.
Riding with side car and pillion seat is not possible as this would exceed the maximum permissible load.				

Starting:

Open fuel cock Turn cock to "A" (= on)

Adjust hand-controlled accelerator

When engine is cold: open accelerator slightly, tickle carburettor needle. Close starter slide on filter.



9) Hand-Controlled Accelerator:

Opens when turned toward driver and closes when turned away from driver.

10) Steering Damper Mechanism:

Tighten screw slightly on bad roads, at high speed and with attached side car; loosen screw at low speed solo riding.

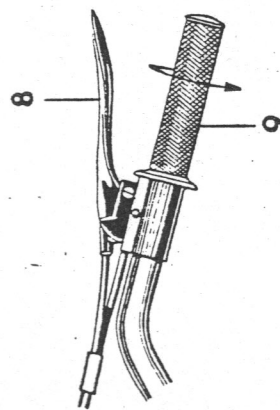
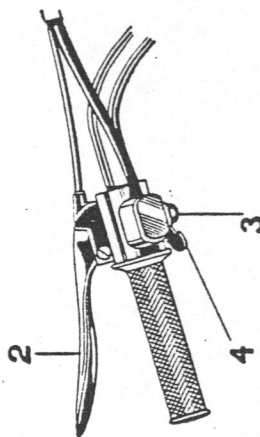
11) Fuel Tank Filler Cap

12) Brake Pedal:

Actuates rear wheel brake.

13) Auxiliary Gear Shift Lever:

Facilitates quick shifting to neutral.



When engine is warm; open accelerator slightly, do not tickle carburettor needle. Keep the starter slide on filter open.

Push auxiliary gear shift into neutral. Actuate kick-starter slowly twice with the ignition off.

Cut in ignition (red lamp lights up), give starter a short, powerful kick.

After starting, reopen starter slide fully.

This is of great importance as it prevents excessive wear of cylinders. Use medium speed, never race your engine.

Riding:

Disengaging the clutch Pull on clutch fixed to handle-bar.

Shifting to first gear Depress foot clutch.

Engaging the clutch Slowly release clutch on handle-bar and open throttle.

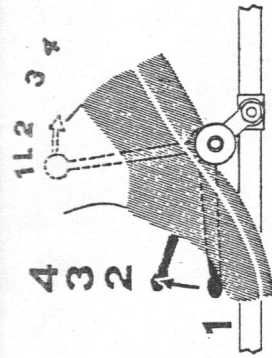
Shifting from first to second, to third and to fourth gear . .

Lift foot shifting pedal with toe at each gear, closing throttle

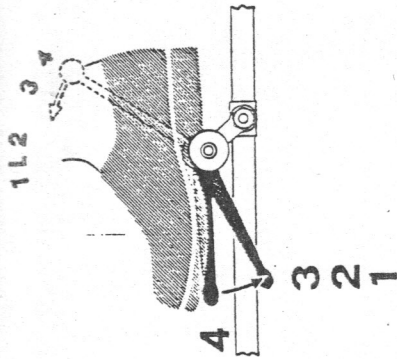
Shifting from fourth to third, to second and to first gear . .

Depress foot shifting pedal at each speed, leaving throttle somewhat open

Actuate clutch whenever shifting!



Shifting the gears from first to fourth



Shifting the gears from fourth to first

Never exceed the allowable maximum speeds, which are . . . For a run-in machine

	1st	2nd	3rd
Solo type	20	35	60 km/hr
	(12	20	39 miles/hr)
with side car	17	30	52 km/hr
	(10	18	32 miles/hr)

Maximum speeds are marked on speedometer.

Riding downhill Shift into next lower gear, if necessary shift once more.

A good rule:

In general ride up and downhill in the same gear.

Stopping:

Close throttle When speed has slowed down sufficiently, declutch and apply brake slowly.

Shift auxiliary gear shift lever to neutral. Shift to neutral with foot clutch or with auxiliary clutch.

Turning-off engine Turn off engine by removing ignition key.

Close fuel cock (turn to "Z").

Keep ignition turned off when engine is not running.

Description

Engine:

The reason why we chose the present engine for the R 25 was because this power source had proved its efficiency and reliability in the preceding model R 25 in a superior manner. In the course of developments a number of additional improvements have been made on this engine.

1) Engine Housing and Cylinders:

The engine housing and gear box are made of a highly wear-resistant light metal alloy. The gray iron cylinder has deep fins and a removable light metal head which, together with the fins, assure adequate cooling. The light metal piston has two piston rings and one oil seal ring. The floating hardened and ground piston pin is mounted in the connecting rod and piston eye and secured by lock rings.

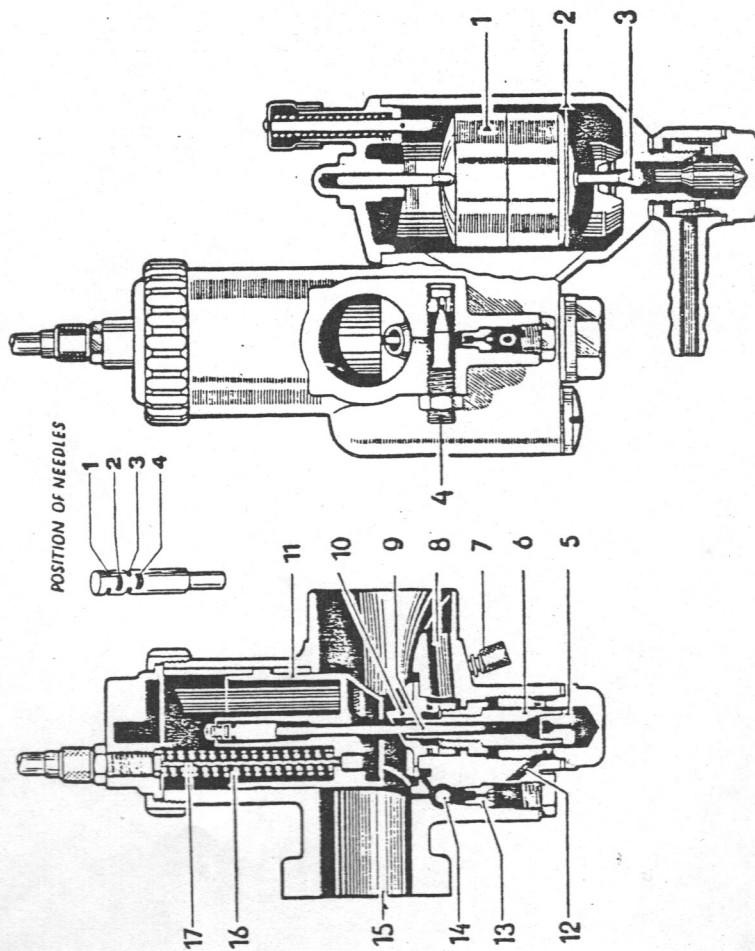
A gear pump assures adequate lubrication of all engine parts. Oil is drawn from the oil sump through a fine strainer and forced through a system of lubrication tubes to all main lubrication points, including the rocker arms. A splash ring on the crankshaft and the atomized oil developed complete the lubricating system.

The steel crankshaft with hardened journals runs in two strong ball bearings, the connecting rod runs on roller bearings. Camshaft is driven from crankshaft.

3) Valves:

The valves are of the overhead type and are actuated by guided valve lifters operated by rocker arms running on floating bushings.

The valve lifters are actuated by cams provided on crankshaft. The rocker arms in the cylinder heads are mounted on rods extending through the cylinder. This construction protects the rocker arm rod from expanding when the cylinder head becomes hot, which assures uniform valve action at all temperatures.



POSITION OF NEEDLES

Section of a
BMW engine R 25

Carburettor:

The flow of fuel to the carburettor is regulated by the float (1) and the float needle valve (3). To avoid irregular flow of fuel due to vibrations or shocks the float is equipped with a damper ring (2). A compensating chamber serves to maintain a proper fuel mixture compensating the effects of a lowered level in the float chamber produced by the action of the centrifugal forces when riding through curves. Through the float chamber arm fuel reaches the passage to the idling jet and the main jet (5) in which the needle controlled jet (6) is mounted.

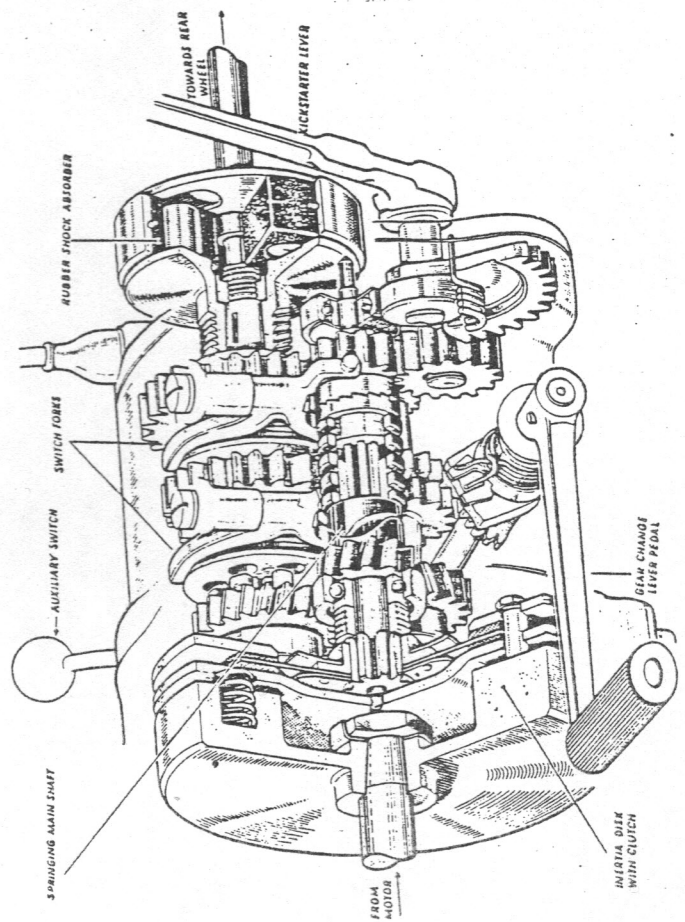
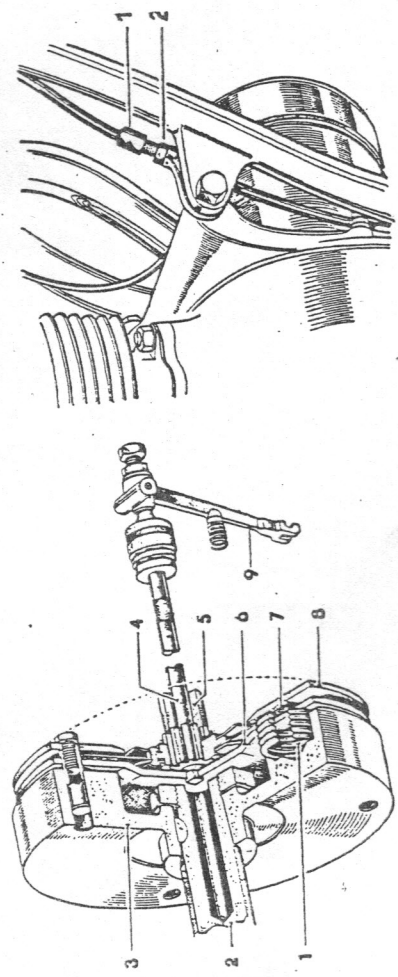
With the intake valve open the piston will, on its down-stroke in the cylinder, produce a suction in the intake connection (15). When the slide valve (11) is closed fuel is drawn from the idling jet (13) and the required air from the passage (14) so as to allow the engine to run at idling speed. The air required for idling is regulated with the adjusting screw (4). Coarse adjustment should first be done by turning the slide valve adjusting screw (7). The slide valve is opened through the cable (17) and closed by the suction of the valve spring (16). The needle (9) is fastened to the slide valve and extends with its taper part into the needle jet (6). As slide valve and jet needle move together the jet passage is changing with the position of the slide valve.

Part of the air cleaned by the filter flows, regardless of the slide valve opening, through the small air passage (8) into the mixing chamber cap (10) in which the fuel

and air is mixed to some degree. The main air stream coming with the carburetor part of the mixing chamber cap causes a vacuum sufficient to complete atomization of the fuel. Carburetors are adjusted in the factory for the commercial grades of petrol. Thus jet size and position of needle should not be changed.

Clutch:

The engine power is transmitted to the transmission by means of the single-disc dry clutch.



Section of the four-speed gear BMW R 25

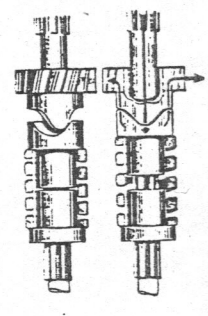
Three springs (1) arranged in holes in the flywheel (3), press the flywheel against the double-lined driving disc (7) and against the plate (8) connected to the flywheel. In this manner the driving disc (7) which is slidably arranged on the main gear shaft is turned and thus the movement of the crankshaft (2) transmitted to the main gear shaft (5). The clutch operating lever provided on left handle-bar actuates the clutch release lever (9) located on the gearing by means of a cable and conduit. Power transmission between engine and gearing is interrupted when the clutch lever is operated whereby the pressure plate (6) is lifted from the driven disc (7) by means of push rod (4).

The robust single-disc dry clutch needs no maintenance. As proper treatment considerably increases the service life, open the throttle only a little when starting and ease the clutch in slowly. Sudden letting-in of the clutch at high speed will not only cause great wear of the facings, but also highly stress the entire transmission and the tyres. A spring on gear housing cover presses the clutch release lever back and tightens the cable. Readjustment of clutch is necessary from time to time due to wear of the friction material in the clutch. To adjust move lower end of clutch release lever forwards by hand. After moving about 1/4" a certain resistance may be felt. If resistance is encountered earlier, then loosen nut (2) on right side of frame and turn adjusting screw to right until proper distance is attained.

Transmission:

The engine power is transmitted to the rear wheel through the transmission and the propeller shaft. Four different speeds enable full utilization of power in any kind of terrain. Shifting of the continuously engaged gears is done by a pedal so that both hands can remain on the handle-bar during shifting, a feature which is of great advantage in the control of the motorcycle and ensures greatest riding safety.

An auxiliary shifting lever on the right side of the transmission serves to directly shift to neutral from any gear, and, in addition, serves as a gear indicator because every actuation of the shift pedal changes the position of the auxiliary lever. The drive gear of 4th gear is operated by a spring cushioned driving shaft which ensures smooth riding.

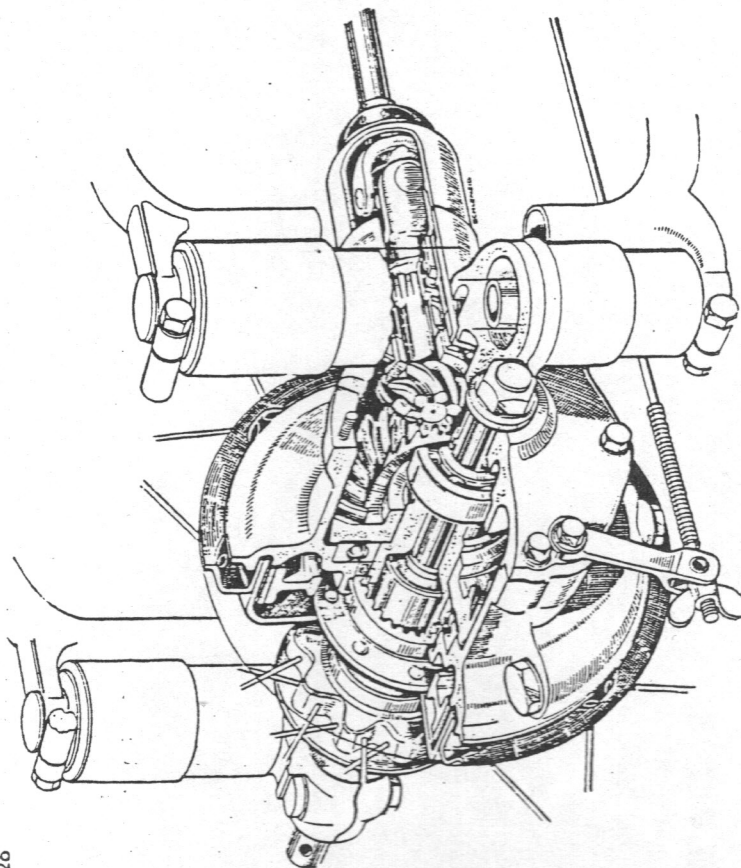


Schema of resilient driving shaft

Rear Wheel Drive:

The propeller shaft running from the transmission to rear wheel has an elastic rubber coupling on the front end to compensate for changes in length and cushions starting jolts. The propeller shaft is connected to wheel drive by a universal joint. Through silent, helical bevel gears and the thin bevelled disc and the hub, the power is transmitted to the rear wheel.

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Section of propeller shaft drive

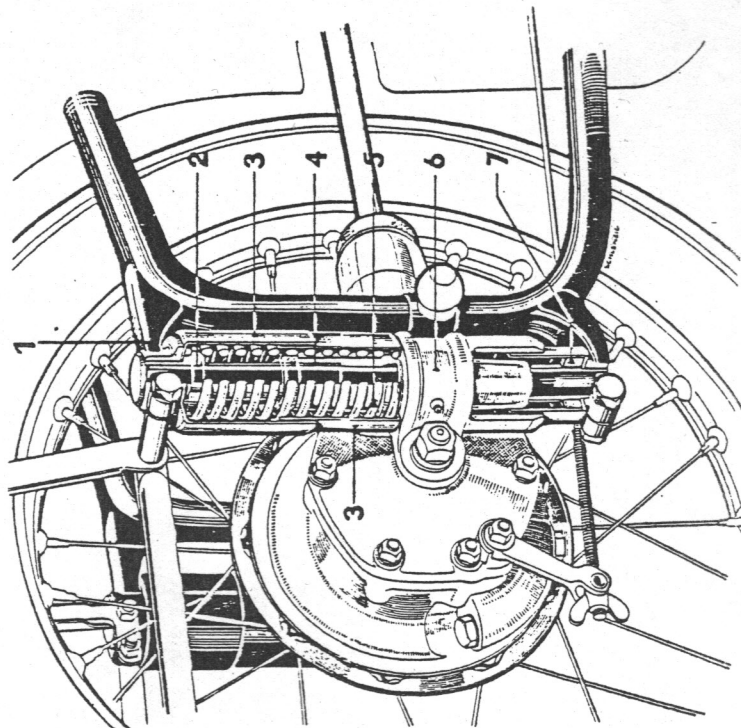
Rear wheel spring suspension:

Rear wheel spring suspension is similar to the front wheel fork; it is likewise designed on the telescope principle.

The entire suspension unit harmonizes well with the general construction of the machine.

The wheel carrier (6) provided with a long guiding sleeve (2) is slidably mounted on guiding tubes (4) clamped to the frame extensions (1). Springing is achieved by a helical spring (5) of progressive action fixed to the upper extension and to the slide. Hard jolts are cushioned by a rubber pad (7) mounted on the lower extension. The entire springing mechanism is housed in dirt- and splash-proof collapsible telescope-type tubes (3).

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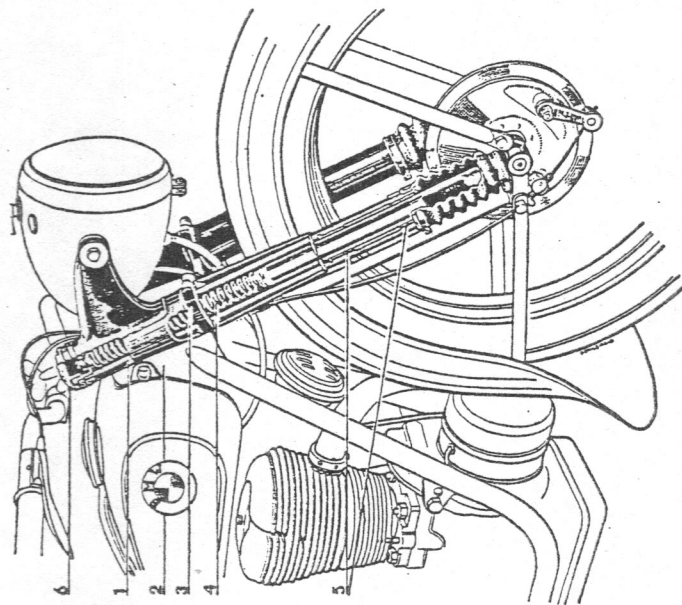
Construction of rear wheel spring suspension

Front Wheel Forks

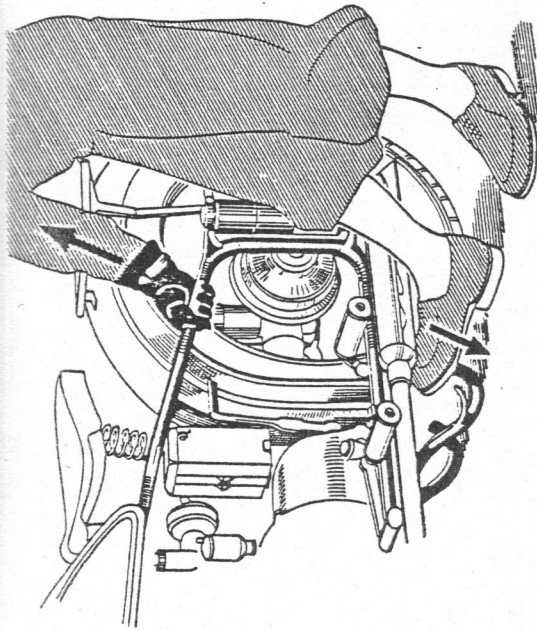
The telescope fork requires no special servicing. The two prongs (1) are screwed to the fork guide (3) mounted in head of frame (2). The lower ends of the fork, which run in 2 guide bushings (5), are connected by the hub spindle. When the front wheel strikes an obstacle, the prongs move upwards encountering the resilient action of the progressively wound helical springs (4).

The oil in each prong serves to lubricate the gliding parts. The moving prong parts are connected to the fixed prong parts by resilient, oil-resistant rubber sealing boots. Both prongs are sealed on top by threaded plugs (6) which can be unscrewed by hand to refill fork oil. Each prong has a capacity of 150—170 cu.cm.

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Section of front wheel telescope fork



Kickstand:

The Kickstand located below the frame is held in place by a spring when not in use. This spring can be released by a foot-operated lever located on side. To apply kickstand, push stand down as shown above and lift rear of frame.

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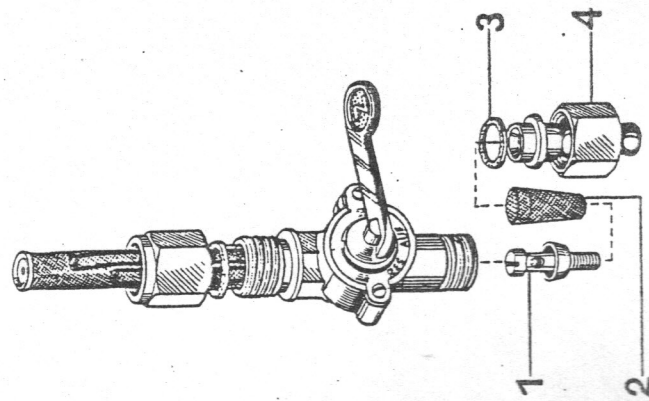
Servicing

Cleaning the Fuel Cock:

Infiltration of impurities into the carburettor can be prevented by cleaning the fuel two-way cock after about every 1,000 km (600 miles) of riding.

- 1) Close fuel two-way cock (position "Z").
- 2) Unscrew nut (4) (distance between flats 17 mm).
- 3) Remove screw (1). Take off strainer (2).
- 4) Watch out that gasket (3) is not lost.

Clean screw (1) and strainer (2) in petrol and replace in inverted order.



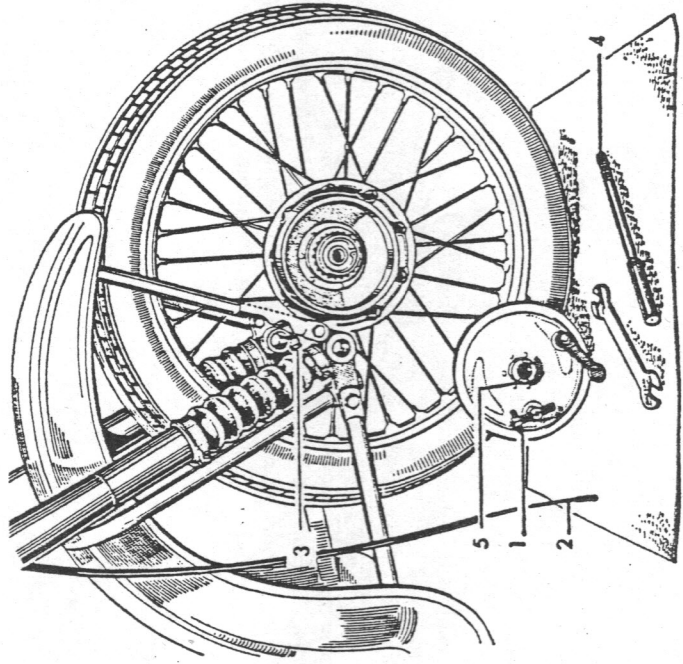
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Removing and installing the Front Wheel:

- 1) Set up motorcycle on the kickstand.
- 2) Turn brake adjusting screw (1) all the way in and set it in such a way that its slit aligns with the slit of the tube in which it rests.
- 3) Raise brake lever and take off cable (2).
- 4) Loosen terminal clamp (3) on left prong of fork and screw out the hub spindle (4) (left hand thread).
- 5) Remove front wheel with brake carrier, the fork will then contract.
- 6) When re-installing wheel take care that the nose (5) fits into the guide on right prong of fork.
- 7) Before tightening terminal screw (3) on left prong of fork compress springs of fork several times to make sure that no parts jam in the telescope guiding mechanism.

Do not lay hub spindle on dirty ground; clean all dirty parts carefully and grease them lightly before reassembling.



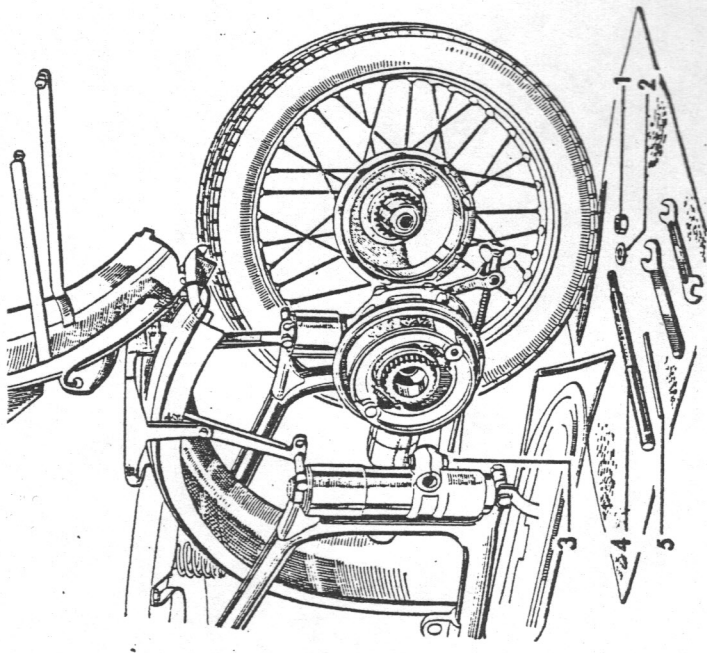
Removing front wheel

Removing and installing the Rear Wheel:

- 1) Set up motorcycle on kickstand.
- 2) Unscrew mud guard supports and raise end of rear mud guard.
- 3) Loosen hub spindle nut (1) (right hand thread) on driving side and remove it together with washer (2).
- 4) Loosen terminal clamp (3) and turn out hub spindle axle (4) by means of pin (5).
- 5) Remove wheel.
- 6) When replacing hub spindle (4) turn same so that it does not jam, insert washer (2), then tighten axle nut (1). Compress springs several times to make sure that no parts of rear spring suspension jam. Tighten fixing screw (3).

Do not lay hub spindle on dirty ground; clean all dirty parts carefully and grease them lightly before reassembling.

Front and rear wheel are interchangeable.



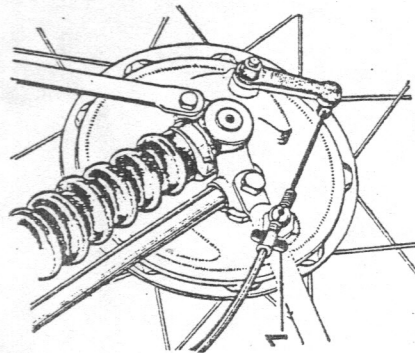
Removing rear wheel

Front and rear wheels are both equipped with internal shoe brakes. Front wheel brake is operated by means of a cable and conduit from the handle-bar; a foot clutch operates the rear wheel brake by means of a shaft.

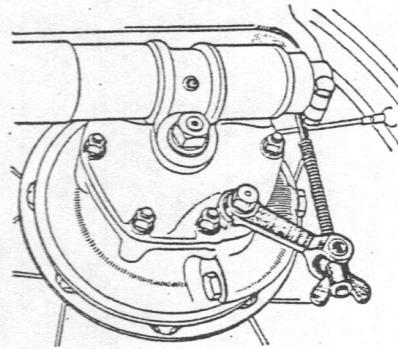
As the highest degree of safety for rider and machine depends on the condition of the brakes, it need not be emphasized, that the brakes must be subject to constant care and observation.

Equalize wear of brake linings by readjusting brakes from time to time. On the front wheel this is done by turning the wing screw (1) in middle of brake cover a few turns in anticlockwise direction. Adjustment of rear wheel brake is done by turning the wing screw on the pull rod in clockwise direction. In adjusting brakes great care should be taken to leave a certain play between the position of rest of the brake lever and the point where the brake applies, as the brakes will otherwise rub, become hot and are subjected to excessive wear. The wheel must turn freely. If the proper braking action cannot be achieved by adjusting the brake, then the linings are worn out and must be renewed. Bright braking surfaces insure of well-gripping brake linings. When driving downhill for long distances apply front and rear brake alternately so that one brake can always cool off. On steep hills the braking power of the engine in the lower gears should be employed.

Apply brakes gradually, i. e. increase the pressure on the brake slowly and only depress brake so far that wheel does not skid.



Adjusting front wheel brake



Adjusting rear wheel brake

Tyres:

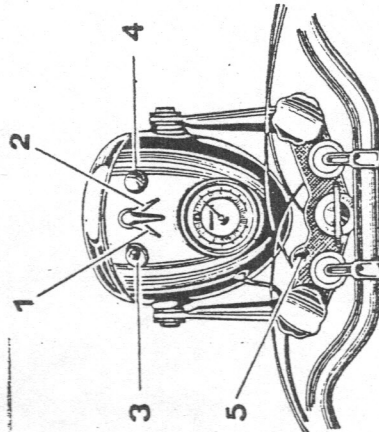
The wheels are equipped with drop centre safety rims which differ from ordinary rims insofar as these rims have crosswise grooves located opposite the valve. This arrangement prevents the tyres from slipping off the rim after a blow-out. Avoid using excessive force in removing and replacing wirebead tyres.

Deflate the tyre and push the casing from its seat all the way round. Unscrew rim nut and press valve into tyre. Push tyre bead near the valve into drop-centre and lift tyre off rim flange on opposite side by means of a tyre lever. Do not use a screw-driver! Force tyre bead over rim gradually, remove inner tube. It is now possible to remove the casing by pushing the other tyre bead over rim flange (by means of tyre lever).

Replacing the Tyre:

Lay wheel flat on the ground. Push the tyre beading into the drop centre near the valve and, beginning on the opposite side, slip tyre beading over rim flange all around by means of tyre lever. Do not use excessive force! Sprinkle talcum powder inside the casing and insert slightly inflated inner tube after first pushing valve through valve hole and tighten rim nut a few turns. Before inserting the other tyre bead push in the valve to the nut so that the first tyre sits well in the drop centre. Then push in the second bead over the rim flange starting opposite the valve. Inflate tyre and make sure that the circular marking on the tyre is equidistant from rim flange all around. Tighten rim nut and test tyre pressure (see page 13 for proper tyre pressure).

Always ride with proper tyre pressure and with an eye for saving your tyres.



Head Light:

The fuse (15 amperes) for the lighting system is located below the slotted plug (4) (only in Bosch headlights).

In the "Notek" head lights this fuse is inside the head light and easily accessible after removing the reflector unit. Head lights of this type are not equipped with the above mentioned slotted plug (4).

Pilot lamp (3) is accessible after removing head light reflector unit. Position 1 of ignition key gives parking light, position 2 gives country light. Hole (5) on steering unit head is intended for the handle-bar lock to make motorcycle highly theft-proof.

Head Light Adjustment:

During night riding it is annoying to be blinded by a vehicle coming from the opposite direction. You may often notice that this even occurs with lights that are set at passing beam. For this reason check adjustment of the head light on your motorcycle from time to time. This assures proper illumination of the road, increased security and eliminates hazards to other drivers.

Testing procedure:

Make a cross on a light-coloured wall at a height corresponding to the centre of your head light. The height of the head light is marked with an "H" and amounts to 840 mm (33 1/8 inches) for model R 25 (solo machine). The motorcycle stands on its wheels 5 metres from the wall and is loaded with the driver (see illustration page 43).

Adjusting the country beam:

After switching on the country beam, adjust head light so that the centre of the bright spot on the wall coincides with the marking.

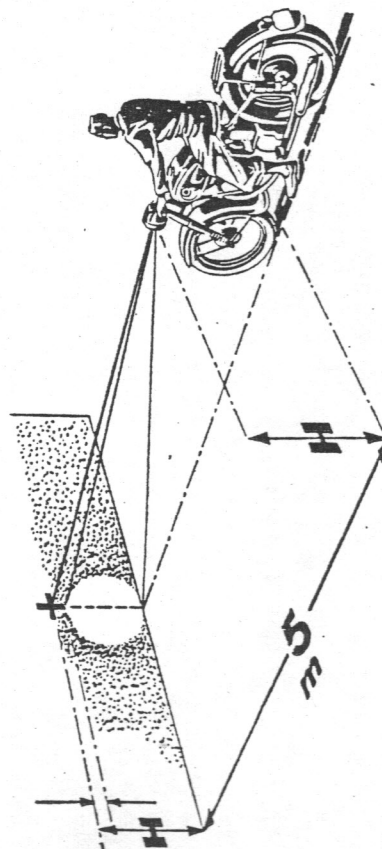
Checking the passing beam:

After switching to the passing beam check if the border line between light and dark areas, i. e. the upper border of the brighter illuminated wall is 5 cm (2 inches) or more below the mark. If this distance is less than 5 cm (2 inches), head light must be readjusted.

With side car:

When a side car is attached to the motorcycle, the head light must be readjusted. This is done in line with the above directions but with motorcycle loaded with the rider and one person in the side car.

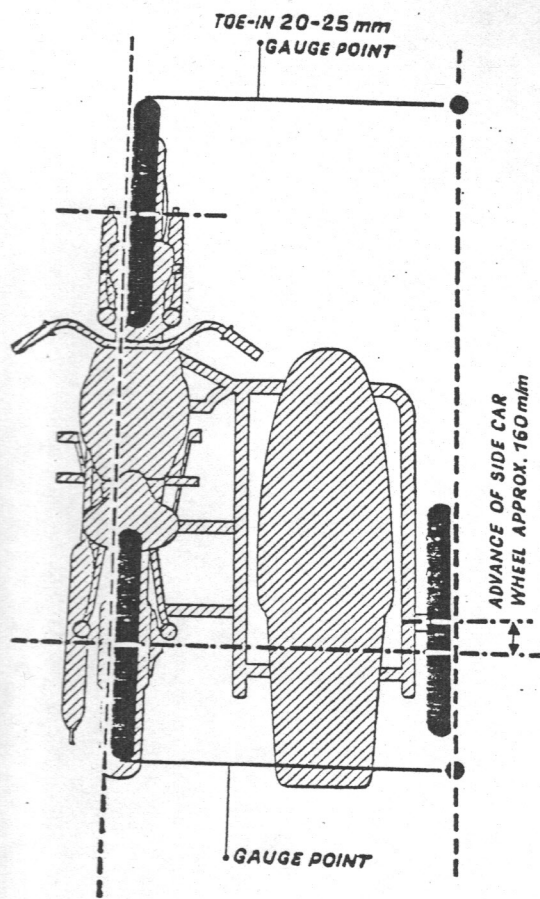
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Attaching the Side Car:

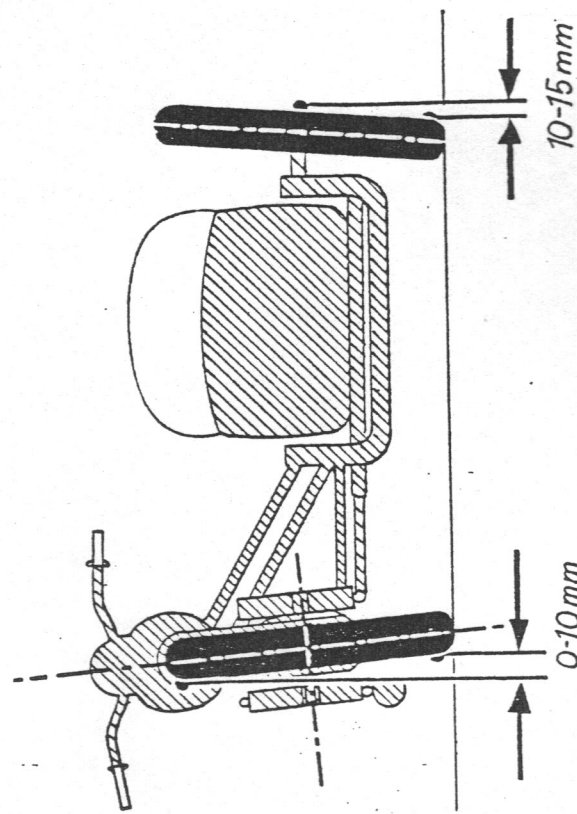
The frame is equipped with a connecting mechanism according to German Engineering Standard DIN 74033 so that the attachment of a light weight side car is not difficult. Take care that the connection is made with four braces and that the dimensions on the diagrams are observed. Toe-in, camber and advance of side car wheel are vital factors in regard to riding qualities, safety and the service life of your motorcycle and tyres. Side car camber is already adjusted. Connect front brace last so that it is not under tension.

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A socket for connecting side car illumination is located below the motorcycle seat.

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Make adjustment at the centre brace, connect front brake so that it is not under tension

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Cleaning:

The motor and transmission are best cleaned with petrol and the lacquered parts washed with a sponge and polished with a chamois skin. Before applying a water hose, be sure the engine has cooled off sufficiently. Avoid using high pressure as this may cause moisture to be forced into the engine, which may cause serious damage. (Do not play the hose directly on the carburettor or the dynamo. Shut the air filter before spraying.)

When the motorcycle is dry, oil the external brake parts and the hinge of rear mud guard to prevent these parts from rusting. Lacquer treating media preserve the lacquer and give it a shiny appearance.

At least after every 1,000 km (500 miles) the air filter on the carburettor must be removed and washed in petrol or kerosene. When filter is dry, moisten same with engine oil and shake off superfluous oil. A dirty filter causes high fuel consumption and piston wear.

After riding 10,000 km (6,200 miles) demount the fine strainer connected to oil pump by 2 screws and wash strainer in petrol. As this calls for a removal of oil sump, it is advisable to perform this job when changing oil.

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Servicing:

Observing the servicing rules painstakingly warrants troublefree operation of your R 25 and preserves its value. Lubricating the engine and the frame is of great importance and it is in your own interest to carry out these jobs in accordance with the lubrication plan. Special attention should be given to the instructions on running-in the engine on page 6.

Check the oil level of the engine regularly and refill oil if necessary. Use the hexagon-head dip stick attached to the left side of the engine.

The oil level of the transmission and the propeller shaft must likewise be frequently checked. In both the oil level should reach the lowest thread of the petrol tank filler opening. Never turn the rear wheel when checking the oil level. Change the oil in accordance with the lubrication plan. The universal joint of the propeller shaft has a dirt- and water-proof cover. After every 5,000 km (3,000 miles) fill it with grease until grease appears between the four pins of the universal joint. Lubricate the ball bearings of the wheel hubs every 10,000 km (6,200 miles), wash bearings in kerosene and fill hubs with fresh grease.

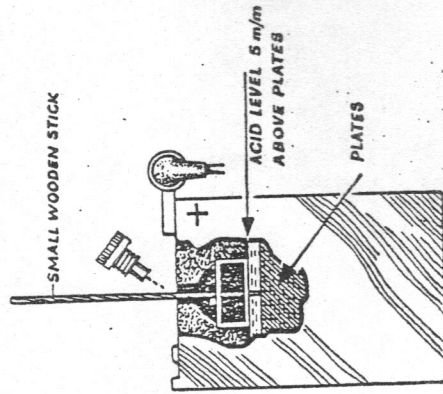
150—170 cu.cm of oil are required for each prong of the fork.

Cable and conduits for clutch, hand brake and ignition are equipped with lubricating nipples to be greased with a gun every 3,000 km (1,800 miles) according to the lubricating plan.

Servicing the Ignition System:

The operational safety of the engine depends to a high degree on the condition of the ignition system. Checking the battery, the sparking plugs, the contact breaker and the dynamo at regular intervals is of greatest importance.

Should any defects develop in the ignition system during the guarantee period please resort directly to the ignition system manufacturer. A list of all our suppliers accompanies each motorcycle and the respective address will be found there.



Battery:

Check acid level of battery every four to six weeks and, if too low, refill with distilled water. The acid level must reach the bottom of the built-in splash protection box. A clean sliver of wood or a glass rod is introduced into the cell through the lower opening of the splash protection box until it contacts the plates.

The inside of the battery cover should always be clean and dry. If the vehicle is not in use for over six weeks, the battery must be removed

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and given special care; it must be discharged at least every six weeks and charged from a power source.

Sparking Plug:

The conditions under which the sparking plug works are severe, and it is consequently subject to wear, though this is not readily noticeable. If you cannot check sparking plug for proper air gap (0.5—0.6 mm) yourself, have your BMW agent perform this job for you at certain intervals. Trained personnel can always accurately judge from the appearance of the sparking plug whether the carburettor adjustment is correct and the engine runs properly.

Interrupter:

Check interrupter points about every 5,000 km (3,000 miles). The gap should be 0.4—0.5 mm. Surface must be smooth and clean. Checking of interrupter should be done by trained personnel as stated under "Sparking Plug".

Dynamo:

In general, the dynamo does not require any maintenance, but it should be checked after every 10,000 km (6,200 miles).

Make it a principle to have such jobs performed by an expert only.

Before starting any job on the dynamo, remove cable on the — post of battery.

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Technical Details

Data and Dimensions:

Type of engine: four-stroke engine with overhead valves
 Rated continuous power: 12 h. p., 5,600 r. p. m.
 Number of cylinders: 1 (vertical)
 Bore: 68 mm
 Stroke: 68 mm
 Piston displacement: 245 cu.cm
 Compression ratio: 1:6.75
 Maximum speed: 95 km (60 miles) per hour
 Camshaft adjustment (measured with 2 mm valve clearance):
 intake open 6° after upper dead centre
 intake closed 34° after lower dead centre
 exhaust open 34° before lower dead centre
 exhaust closed 6° before upper dead centre
 Operating valve clearance with cold engine:
 intake 0.1—0.15 mm
 exhaust 0.15—0.20 mm
 Lubricating system: force feed lubrication, oil tank in lower part of housing
 Carburettor: Bing type 1/22/28
 main jet No. 100
 idling jet No. 45
 needle jet No. 264-0.8

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needle adjustment solo No. 1
 needle adjustment with side car No. 2
 mixing chamber cap No. 5
 Idling air screw opened 1 1/4 to 1 1/2 turns
 Ignition and lighting system: battery ignition — Noris 6 volts/45—60 watts
 Sparking plug: Bosch W 240 T 1 or W 240 T 1 A
 Maximum spark advance: 43°—45° before upper dead centre
 Maximum spark retard: 6°—8° before upper dead centre
 Clutch: single-disc dry clutch
 Transmission: 4-speed type with gear dog clutch, casing bolted to engine, shock absorption by resilient drive shaft
 Gear Levers: ratchet-type foot-operated gear lever and hand-operated auxiliary gear lever
 Gear Ratios: 1st gear 6.1:1
 2nd gear 3.0:1
 3rd gear 2.04:1
 4th gear 1.54:1
 Speed reduction between transmission and rear wheel: Solo: 1:4.5 number of teeth 27/6
 Side car: 1:5.2 number of teeth 26/5
 Power transmission: fully enclosed propeller shaft drive with elastic coupling and helical bevel gears.

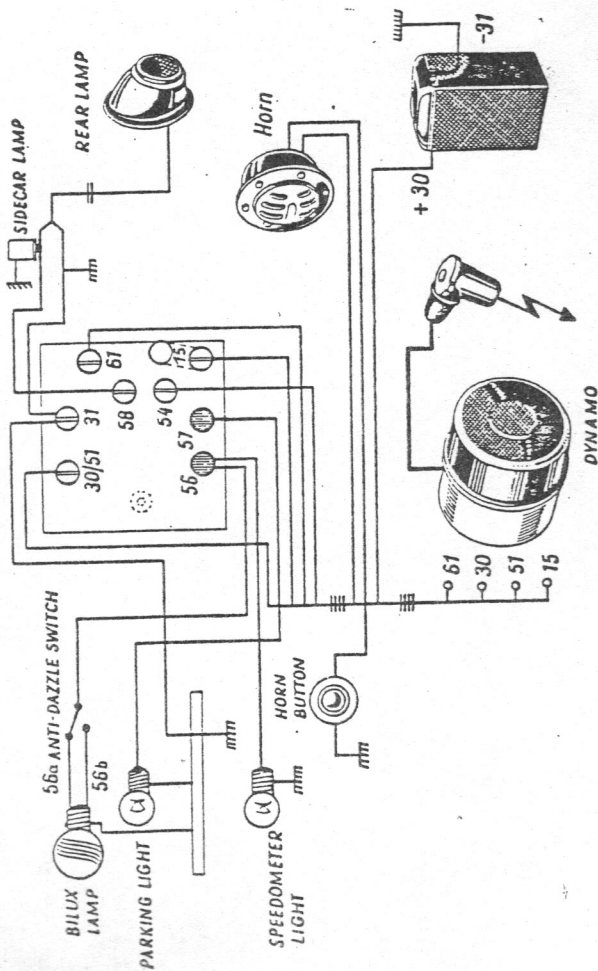
Tyres: 3.25 x 19

Size of rim (drop centre safely rim): 3 x 19
 Frame: rigidly interconnected double-tube steel frame
 Front wheel suspension: telescope fork
 Rear wheel suspension: dust- and splash-proof telescope suspension
 Brakes: internal shoe brakes, dia. of drum 160 mm
 Oil consumption per 100 km: 0.1 qt.
 Quantity of oil in engine: 1 1/4 qts.
 Quantity of oil in gear housing: 3/4 qt.
 Quantity of oil in propeller shaft unit: 125 cu.cm
 Quantity of oil in front fork: 150—170 cu.cm per prong
 Capacity of fuel tank: 3 gallons
 Reserve tank: 1 1/2 qts. (sufficient for 25 miles)
 Fuel consumption: approx. 3 1/2 qts, per 100 km (60 miles) depending on speed, see fuel consumption curve page 54
 Permissible maximum speed in the individual gears for run-in motorcycles:
 Solo type: 1st gear 20 km (12 miles) p. h.
 2nd gear 35 km (21 miles) p. h.
 3rd gear 60 km (37 miles) p. h.

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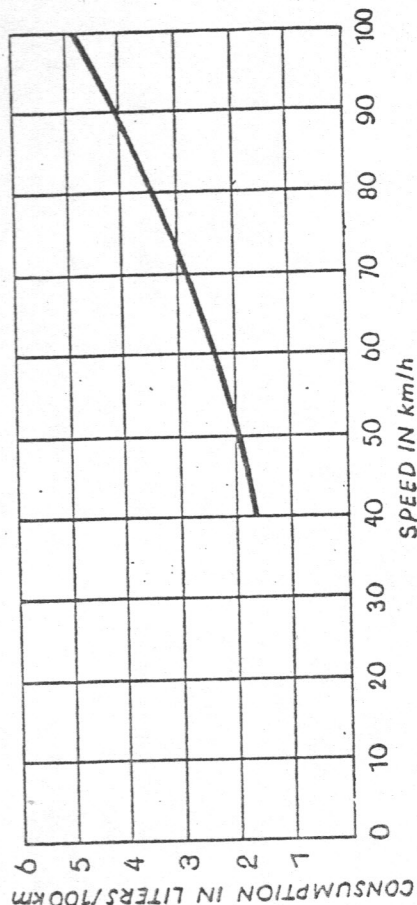
with side car 1st gear 17 km (10 miles) p. h.
 2nd gear 30 km (18 miles) p. h.
 3rd gear 52 km (32 miles) p. h.
 Overall width of motorcycle: 750 mm (approx. 30 inches)
 Overall length of motorcycle: 2,020 mm (approx. 81 inches)
 Height from saddle to ground: 710 mm (approx. 28 inches)
 Ground clearance: 108 mm (approx. 4 inches)
 Weight in operation condition: 140 kg (approx. 300 lbs.)
 Maximum permissible load: 150 kg (approx. 330 lbs.)
 Maximum total weight with or without side car: 290 kg (approx. 638 lbs.)
 Tyre pressure:
 front lbs. per sq. in. 21.3
 rear lbs. per sq. in. 22.7
 side car lbs. per sq. in. —
 rider alone 21.3
 rider and 1 person on pillion seat 21.3
 with loaded side car 24.1
 It is not possible to load side car and pillion seat simultaneously, as this would exceed maximum permissible load.

Wiring Diagram



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Fuel Consumption Curve



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Servicing Jobs (The numbers correspond to the point requiring lubrication)	Lubricate after travelling following distances in kilometres (miles approx.)												Remarks
	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	
1 Change oil in engine, quantity required approx. 1 1/4 qts.	x	x	x	x	x	x	x	x	x	x	x	x	Key to the symbols on left margin: ○ Engine Oil Summer: SAE 40-50 e. g. Mobiloil AF or SHELL X-100 SAE 40 Winter: SAE 20-30 e. g. Mobiloil Arctic or SHELL X-100 SAE 20 □ Grease e. g. Mobil grease No. 4 or SHELL Reli max RB △ Special Propeller Shaft Oil Summer: e. g. Mobilube G X 90 or SHELL Spirax 90 EP Winter: e. g. Mobilube G X 90 or SHELL Spirax 90 EP ⑥ Front wheel fork is filled with summer oil only oil year round, e. g. Mobiloil AF or SHELL X-100 SAE 40
2 Check oil level in transmission, change oil in transmission, quantity approx. 3/4 qts.	x	x	x	x	x	x	x	x	x	x	x	x	
3 Grease rear wheel suspension on right and left side	x	x	x	x	x	x	x	x	x	x	x	x	
4 Grease hubs of disassembled wheels	x	x	x	x	x	x	x	x	x	x	x	x	
5 Grease cable and conduit for clutch and hand brake	x	x	x	x	x	x	x	x	x	x	x	x	
6 After repairs, refill 150-170 cu. cm of engine oil in each prong of front wheel fork	x	x	x	x	x	x	x	x	x	x	x	x	
7 Check oil in propeller shaft housing, change oil in propeller shaft housing, quantity required 125 cu. cm	x	x	x	x	x	x	x	x	x	x	x	x	
8 Oil all joints of braking mechanism	x	x	x	x	x	x	x	x	x	x	x	x	
9 Grease universal joint of propeller shaft	x	x	x	x	x	x	x	x	x	x	x	x	
10 Oil clutch operating lever	x	x	x	x	x	x	x	x	x	x	x	x	
11 Grease hand controls	x	x	x	x	x	x	x	x	x	x	x	x	
12 Grease foot brake pedal	x	x	x	x	x	x	x	x	x	x	x	x	

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