Manual

BMW

Motorcycle

R 25/3

M 183 a/9. 55. 1500

BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT · MÜNCHEN 13

Introduction

We are very pleased that you have decided to purchase a BMW R 25/3 motorcycle and we want to thank you for this proof of confidence.

Your R 25/3 is a fine-looking machine of advanced design, the result of a development carried over three decades and having reached an international reputation for its incorporating the highest possible achievements in performance, reliability, comfort and useful service life.

The R 25/3 has been developed from the well-proven R 25/2 design. Its engine unit, being now rubber-mounted in the frame, provides increased output and in spite of this the exhaust noise could be reduced in a still more efficient way, such as it is required for modern traffic conditions. This improvement will be highly appreciated by all road users, particularly when accompanied by gentle driving manners which mark the true motorcyclist. Riding qualities are improved through smoother wheel suspensions including double-acting oil dampers in the front forks. The 18" wheels have light-alloy rims, light-alloy full-width brake drums and enlarged braking areas. The tail lamp body incorporates a stop light connected to the foot brake which is mostly used in town traffic.

In order to obtain sleeker tank contours, the tool box has been transferred to the left-hand side where it forms a recess behind the rubber knee pad, which arrangement permits a luggage carrier to be mounted upon the petrol tank.

Though you may be a very experienced rider and we are supplying you a first-class motorcyle, it will be in your own interest to read your handbook carefully before riding the new machine. You will soon realize that it contains numerous worth while details to enrichen your motorcycle knowledge, and many valuable pointers to prevent you from troubles which might occur as a result of maintenance faults or omissions.

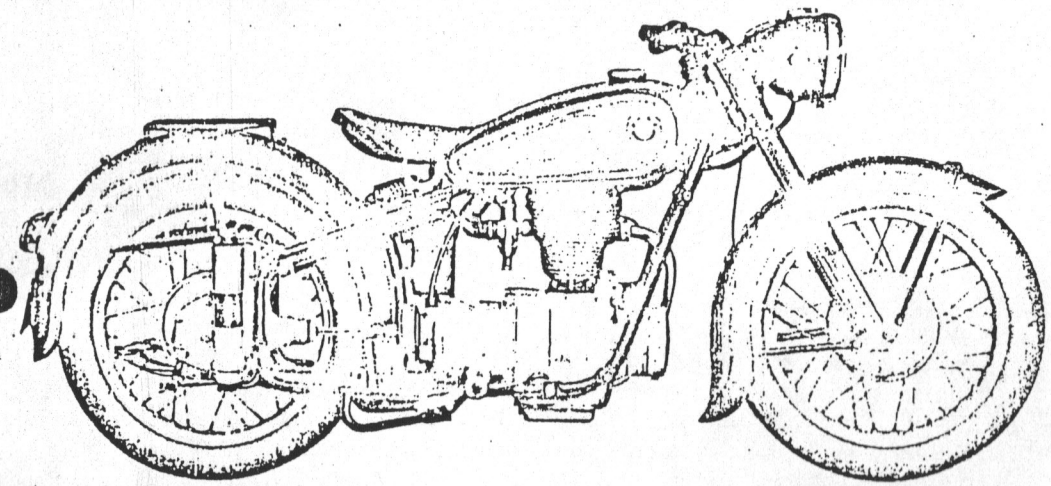
You may rest assured that the minor effort of reading this book and observing the rules laid down therein will be repaid with reliability and long service life and you will thus enjoy an undisturbed pride of ownership.

This manual is written in easily understandable language and its contents have been limited to the most useful chapters as required for a rider's handbook. Should you desire any information or advice which cannot be gained from the following pages, please do not hesitate to contact your BMW distributor.

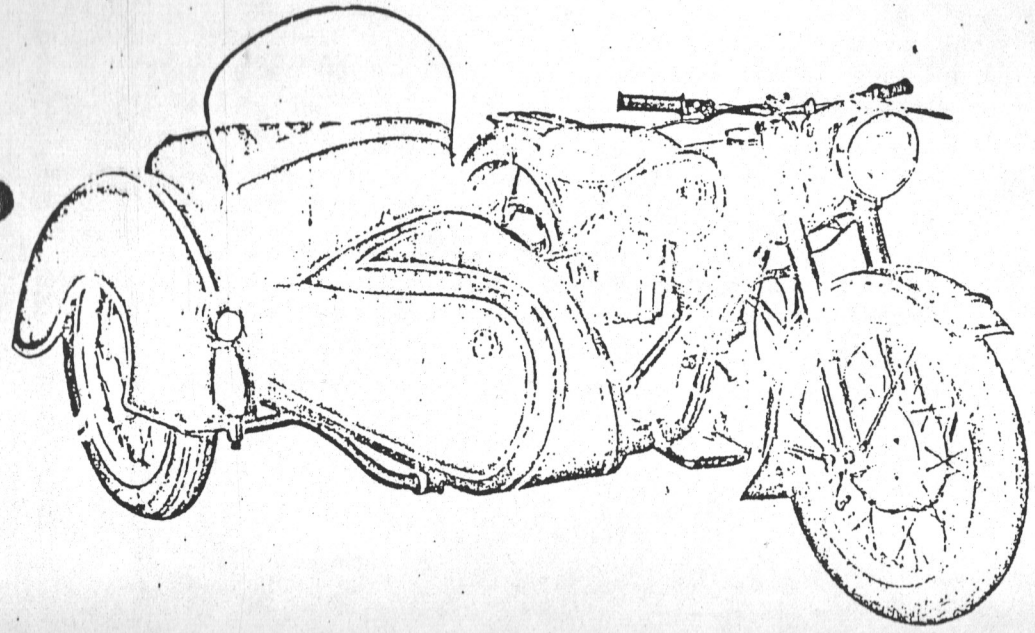
Now, we wish you the best of luck and very happy riding with your BMW motorcycle.

Munich, September 1955

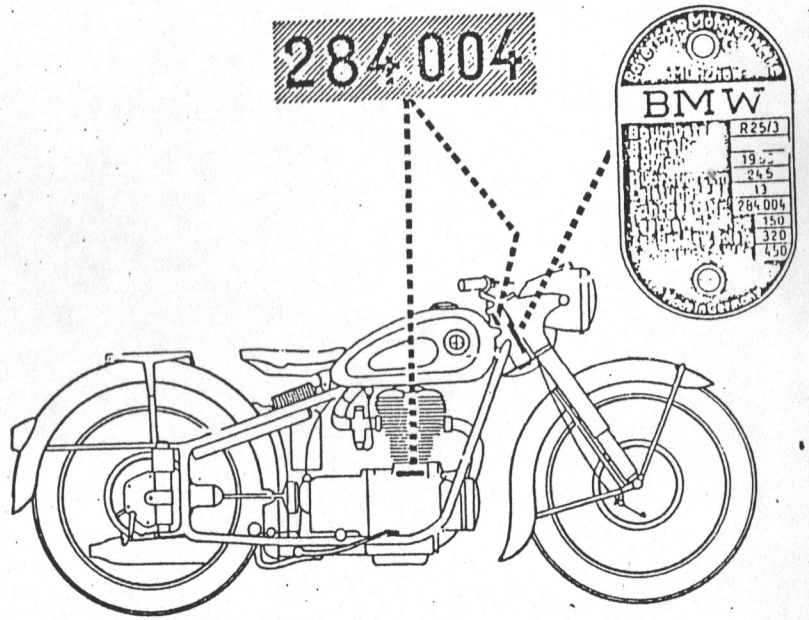
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Aktiengesellschaft



View from right hand side



Where are the frame and engine numbers?



Technical Data

Engine:

type of engine	four stroke, with overhead valves
rated continous power	13 HP, 5,800 r. p. m.
number of cylinders	1
cylinder arrangement	vertical
bore	68 mm
stroke	68 mm
piston displacement	245 c. c.
compression ratio	7 : 1

valve timing measured at 2 mm = .08" valve clearance:

intake valve opens after top dead centre	6°
intake valve closes after bottom dead centre	34°
exhaust valve opens before bottom dead centre	34°
exhaust valve closes before top dead centre	6°

operating valve clearance on a cold engine:	
intake	0.10 – 0.15 mm = .004" – .006"
exhaust	0.15 – 0.20 mm = .006" – .008"
engine lubricating system:	Force feed lubrication, oil stored in lower part of engine housing

Carburettor:

type	throttle slide carburettor with needle jet and air filter mounted in petrol tank		
model	Bing 1/24/41	or	SAWE K 24 F
passage	24 mm = .95"		24 mm = .95"
main jet	145		150
idling jet	35		35
needle jet	1208		702
jet needle	1473		054
needle adjustment	2		1
air correction jet pilot			1.5
air screw opened	1 – 2 turns		1.5 – 2 turns
weight of float	11 g = .375 oz.		8 g = .28 oz.

Ignition and lighting system:

dynamo (generator)	Noris ZLZ 60/6/1600 L
type of ignition	battery-ignition with automatic timing on dynamo
contact breaker gap	0.4 mm = .016"
maximum spark retard	7° before T.D.C. (adjusting value with the governor weights in stationary position)
maximum spark advance	42 + 2° before T. D. C.
sparking plug	Bosch W 240 T 1 Electrode gap. 0.6 mm = .024"
battery	6 V, 7 Ah capacity
lighting system	"Bilux" lamp 6 V, 35/35 W with electric dip switch parking light 6 V, 1.5 W ignition warning light 6 V, 1.5 W; neutral light 6 V, 1.5 W speedometer light 6 V, 0.6 or 1.2 W tubular lamps: tail light 6 V, 5 W; stop light 6 V, 10 W
electric horn	Noris H E 6

Drive:

clutch	single-disc dry clutch
gear box	four-speed type with sliding dog clutches, housing bolted to engine. Shock absorption by resilient drive shaft.
shifting mechanism	ratchet-type foot-operated gear-change mechanism
speed reduction	
1st gear	6.1 : 1
2nd gear	3.0 : 1
3rd gear	2.04 : 1
4th gear	1.54 : 1
Power transmission from gears to rear wheel	propeller shaft drive with elastic coupling and fully enclosed spiral bevel gears
speed reduction between gear box and rear wheel:	
solo driving	4.16 : 1 = number of teeth 25/6
side car driving	4.8 : 1 = number of teeth 24/5

Chassis:

frame	double tube steel frame
front suspension	dust and splash-proof BMW telescope fork with double-acting oil damping
rear suspension	dust and splash-proof BMW telescope suspension
Brakes:	front- and rear-wheel internal shoe brake
brake drum diameter	160 mm = 6.3"
width of brake lining	35 mm = 1.38"
braking area	176 cm² = 27.3 sq. in.
Rims	light-alloy drop-centre rims 3 x 18
Tires	3.25 x 18

Dimensions:

overall width solo	760 mm = 30"
with BMW side car	1560 mm = 61.4"
overall length solo	2065 mm = 81.5"
with BMW side car	2220 mm = 87.5"
overall height	960 mm = 37.8"
wheel base	1365 mm = 53.6"
track BMW tear	1043 mm = 41"
height from saddle to ground	730 mm = 28.7"
ground clearance	105 mm = 4.1"

Weights:	**solo**	**with side car**
net weight ready for operation[1])	150 kg = 330 lbs.	220 kg = 484 lbs.
permissible load	170 kg = 374 lbs.	230 kg = 506 lbs.
permissible total weight[2])	320 kg = 704 lbs.	450 kg = 990 lbs.
maximum occupation including driver	2 persons	3 persons

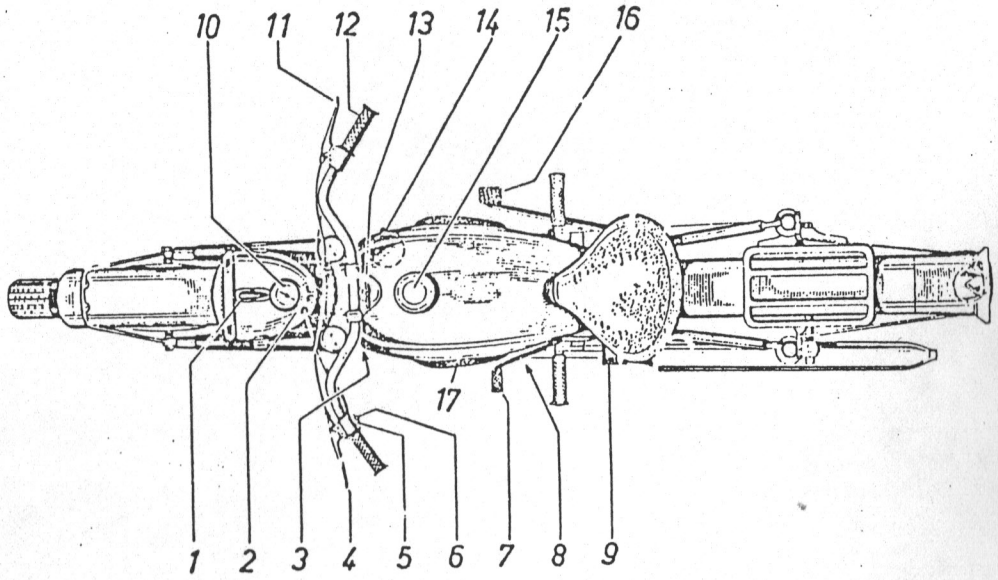
Permissible maximum speeds of run-in motorcycles in m. p. h. depends on the octane rating of the fuel consumed and the resistance of the air encountered due to size, position and clothing of the rider. (See "Running-in the Motorcycle", page 28, for maximum speeds.)

	1st gear	2nd gear	3rd gear	4th gear
solo sitting	15	31	46	67
solo crouched	—	—	—	74
with side car	12	25	38	55

Fuel and lubricants:

fuel	normal filling station petrol or super fuel
lubricants	see Lubrication Chart
capacity of petrol tank	12 litres = 3.15 U. S. gall. = 2.65 Imp. gall.
reserve fuel	1.5 litres = 3.0 U. S. pints = 2.6 Imp. pints (sufficient for approx. 25 miles)
engine oil capacity	1.25 litres = 2.6 U. S. pints = 2.2 Imp. pints
gear box oil capacity	0.65 litres = 1.3 U. S. pints = 1.1 Imp. pints
rear wheel drive oil capacity	125 c. c. = 0.25 U. S. pints = 0.22 Imp. pints
front fork oil capacity	130 c. c. per fork leg = 0.27 U. S. pints = 0.23 Imp. pints
Fuel consumption	depending on speed (see fuel consumption page 83)
standard consumption at 2/3 maximum speed + 10 %)	
solo riding	81 miles per U. S. gall. = 97 miles per Imp. gall. } at 45 miles p. h.
side car riding	62 miles per U. S. gall. = 74 miles per Imp. gall. } at 36 miles p. h.
Oil consumption	approx. 0.7 litres per 600 miles

[1]) net weight = wt. of motorcycle ready for operation, including lubrication, fuel, tools.
[2]) permissible total weight = net weight + persons + baggage load.

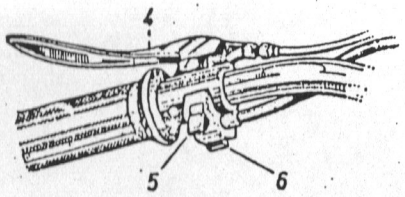


Operation and Control

1. **Ignition and lighting switch** on the head lamp:
   a) **Ignition key in centre position** closes the ignition circuit. If battery is charged, the red pilot lamp lights up.
   Engine can be started when green light showing neutral position is burning.
   The electric horn and the stop lamp are ready to operate.
   b) **Ignition key turned to the right** switches on the Bilux lamp with dipper switch, the tail light with license plate illumination and the speedometer light.
   c) **Ignition key turned to the left** switches on the city light (parking light, and tail light with license plate illumination).
   d) **Ignition key turned to the left** and withdrawn switches on parking lights (parking light and tail light). Simultaneously ignition, ignition warning light, neutral indicator, speedometer light and horn are cut out.
   e) **Ignition key turned to the centre position** and withdrawn short circuits the ignition and switches off the battery.
   Advance and retard spark are controlled automatically by a regulator on the armature of the magneto.
2. **Warning lights on headlamp:**
   Ignition warning light at the left glows red when battery is supplying current. At higher speed red pilot lamp goes out. This shows that battery is being charged.
   Neutral indicator: Pilot lamp at the right glows green when gears are in neutral
3. **Steering lock** on left-hand side of frame head. Press lock into the lock tube; with the handlebar turned to its extreme right position, rotate key clockwise and withdraw.

4. **Clutch lever** on left handlebar grip:
By actuating clutch, engine is disengaged from the transmission.

5. **Dip switch** on left handlebar grip: In top position normal driving light is switched on; on bottom position the dipped beam filament of Bilux lamp is switched on.



left handlebar grip

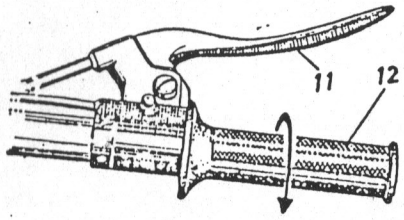
6. **Horn button** on dip switch:
Actuating this button cuts in electric circuit for horn.

7. **Gear shift pedal** on left-hand side of gearbox:
Depressing pedal shifts to next slower gear, raising pedal shifts to next faster gear or to neutral. Pedal automatically returns to its starting position after each operation. Neutral position is between 1st and 2nd gear.

8. **Petrol tap** located under left-hand side of tank:
Lever positions: Low = "Z" (closed), rear = "A" (open),
front = "R" (reserve).

9. **Kickstarter** on left-hand side of gearbox:
Only operate kickstarter with gears in neutral. For cranking engine switch off ignition; cut in ignition to start engine.

10. **Speedometer:**
Needle in dial records the motorcycle speed im miles per hour and integrator shows total mileage. Coloured markings I, II, III on dial show maximum permissible speed for first, second und third gear of a run-in motorcycle.



right handlebar grip

11. **Handbrake lever** on right handlebar grip actuates front wheel brake.

12. **Throttle control twist grip** on right handlebar: turning clockwise closes, turning anticlockwise opens throttle in carburettor.

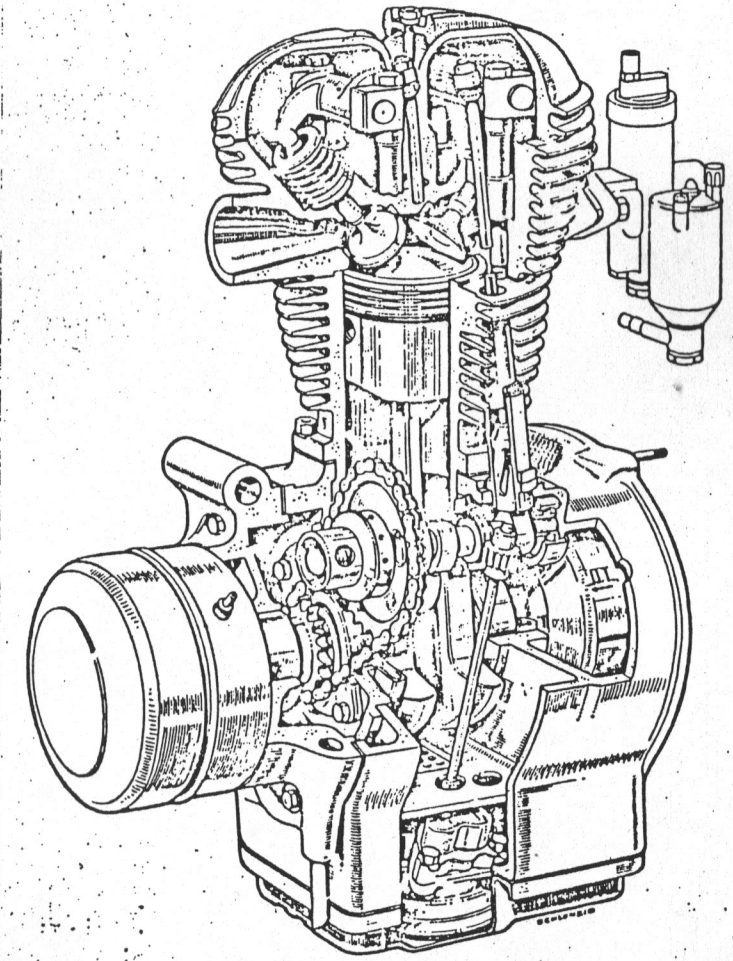
13. **Steering damper mechanism** on top of fork:
On bad roads, for high speed, and side car driving, tighten damper screw slightly and loosen for slow solo riding.

14. **Air lever** on filter under petrol tank:
During normal running, the air lever should always be kept fully open (rear position). Only when starting from cold and at temperatures below 30° F. the lever is closed (front position).

15 **Petrol filler:**
Capacity of fuel tank 12 litres = approx. 3.15 U. S. gallons = 2.65 Imp. gallons (of which 3.0 U. S. pints = 2.6 Imp. pints constitute reserve fuel sufficient for about 25 miles).

16. **Brake pedal** on right side of frame:
Actuates rear brake when depressed.

17. **Tool box** in petrol tank, lockable, in recess behind the left-hand knee pad.


Crosscut of Engine

Description

A. Engine

The engine of motorcycle type R 25/3 with a piston displacement of 250 c. c. has been developed from the R 25/2 design, which gave such excellent and reliable service.

The engine features higher compression and improved mixture feed ensured by a redesigned air intake duct with larger diameter and extension through the petrol tank The oil-moistened carburettor-air filter is now fitted at front, under the petrol tank. These innovations provide increased power output and a still more efficient suppression of the exhaust noise has been obtained.

1. Engine housing

The engine housing consists of a one-piece, reinforced crank case with integrally cast oil sump, a front crank case bearing cover, timing gear box cover. All housing parts are cast of a highly resistant light metal alloy.

2. Crankshaft and Connecting Rod

The sectional steel crankshaft with carefully balanced counter-weights ensures vibrationless operation. It runs on hardened journals in two strong ball bearings. The hardened connecting rod runs on a roller bearing. It is generously lubricated by an oil splash ring on crankshaft. The piston, piston pin, cams, push rods are also splash-lubricated.

3. Piston

The piston is made of special light metal alloy. Three compression rings and one oil ring ensure an efficient seal and proper lubrication. The floating gudgeon pin is secured on both sides by lock washers.

4. Cylinder

The grey iron cylinder with high fins is maximum ground and honed. Two protective tubes with rubber grommets connected to valve tappet guides care for oil-tight pushrod operation. An incorporated oil tube returns oil from the rocker compartments. The liberally finned light-alloy cylinder head is coloured in dull black to further dissipation of heat. Intake and exhaust valves have bronze guides and steel inserts are shrunk in for the valve faces. Four bolts, serving also as pedestals for the rocker arm shafts, connect the head to cylinder barrel and prevent the thermal expansion of cylinder head from influencing rocker clearances. The light-alloy rocker covers, also in dull black for quicker heat radiation, are very generously dimensioned and secured by a clamp and a stud. The rocker covers and a soft aluminium gasket give the rocker cells an oil-tight seal and, to a certain degree, act as silencers.

5. Valves

Valves are of the Vee-overhead type and are pressed to their seats by two valve springs each. The exhaust valve has a hardened contact area round its seating face. The valve spring collars are joined to valve stem by means of split collets.

6. Valve control

Valve control is by means of a camshaft arranged in upper part of housing timed to revolve at half of crankshaft speed, and chain driven.

There is one cam on the camshaft for each valve which actuates the valve over a valve lifter, oil-tight push rod and a rocker arm. In the rocker arm above the push rod is an adjusting screw for adjusting valve clearance.

Rocker arms are working upon bushings on shafts, which in turn are supported in brackets, held in position upon distance pieces by the cylinder head holding-down bolts. A mecanical rotary breather valve on the hub of the camshaft spur gear serves to adequately ventilate the crankshaft housing.

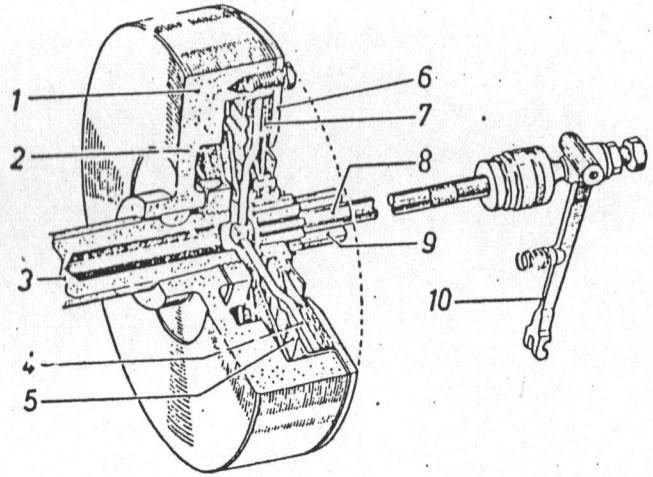
7. Lubrication Pump and Oil Circulation

The engine has an oil pressure circulation lubricating system and draws oil from the oil sump in the crank case, according to Lubrication Chart.
The lubrication pump is designed as a gear pump and is driven by the camshaft over a worm drive. It sucks oil from the sump over a fine mesh strainer and presses it through passage ways in the crankshaft housing to the oil thrower ring on the crankshaft, to an oil injection nozzle for the timing chain drive and through an updraft lead in the cylinder and cylinder head to the rocker arms. The oil splashed by the crankshaft and connecting rods splashes directly on the piston, cylinder, and camshaft. Excessive oil from the rocker arm chamber flows back through the push rod protecting tubes, lubricating thus the valve tappets. All the oil flows back to the crankcase and passes through a coarse strainer into the oil sump. After every 6,000 miles dismount oil sump, remove the fine oil strainer in bottom of crank case and wash strainer thoroughly in gasoline.

8. Clutch

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

A disc spring (2) causes the pressure plate (4) through metal diaphragm (5) connected to the flywheel (1), to move on spline-ways towards the double-lined clutch plate (7), so that this is blocked between pressure plate and pressure ring (6) which is solidly connected to the flywheel. In this manner the clutch plate (7) which is splined on the spring-cushioned main gear shaft (9), takes off the crankshaft (3) movement and delivers it to the transmission.



The clutch lever provided on the left handle-bar actuates the clutch release lever (10) located on the rear of gearbox casing by means of a Bowden cable. Power transmission between engine and gearing is interrupted when the clutch lever is operated whereby the pressure plate (4) is drawn away from the clutch plate (7) by means of the clutch operating rod (8).

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 ¼" a certain resistance may be felt.

If resistance is encountered earlier, then actuate the Bowden cable adjuster on handlebar clutch lever until proper distance is obtained.

9. Carburettor

The fitted throttle slide carburettor may be a BING or a SAWE model. Both types work on nearly the same principle, which is described on the following pages, for each type separately.

BING 1/24/41 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 (12) to the idling jet and the main jet (5), which is fitted into the needle jet (6). With the intake valve open the piston will, on its down-stroke in the cylinder, produce a depression in the intake connection (15). When the throttle slide (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 pilot air screw (4). Coarse adjustment should first be done by turning the throttle stop screw (7). The throttle slide is opened through the cable (17) and closed by the pressure of the throttle spring (16). The needle (9) is fastened to the throttle slide and extends with its taper part into the needle jet (6). As throttle slide and jet needle move together, the taping needle either allows more or less petrol to pass through the needle jet as the throttle is opened or closed throughout the range.

Part of the air cleaned by the filter flows, regardless of the throttle slide opening, through the small air bleed (8) into the primary air chamber (10) in which the fuel and air are mixed to some degree. The main air stream colliding with the extending part of the primary air chamber causes a depression sufficient to complete atomization of the fuel. The carburettor is adjusted in the factory for the commercial grades of petrol. Thus jet size and position of needle should not be changed.

In order to prevent fuel from flowing through the suction union into the cylinder, also with a worn float needle or impurities existing in the tank, the pilot air screw (4) has a hollow centre and is fitted with a bushing and a cap, so that overflowing fuel can escape outside.

SAWE K 24 F carburettor

The SAWE K 24 F is a throttle slide carburettor with an integrally cast float chamber, the volume of mixture being metered through a system of jets controlled by the throttle slide needle.

Description and operation:

The fuel reaches the carburettor through a hose connection (18) and is held at a constant level by means of the float (17) in float chamber. By operating the tickler (16) the fuel level can be raised momentarily in order to obtain a richer mixture for starting the engine.

From the float chamber the fuel passes into an annular chamber (10) surrounding the jet system. The petrol contained therein prevents supply to the jet from becoming interrupted due to the centrifugal forces when cornering with a side car.

From the annular chamber the fuel flows to the idling jet (3) and — through the main jet (11) — to the needle jet (9).

Coarse adjustment for slow running should first be done by rotating the throttle stop screw (15) 1½–2 turns inwards, so that the throttle slide (1) is raised from its lowermost position.

While engine idles, the depression in cylinder effects that air is drawn in through

jet (3) with resulting preliminary atomization, and further atomization due to the air stream entering via the throttle slide opening. Fine adjustment of the slow-running mixture is made by means of the pilot air screw (14). Turning the pilot air adjuster inwards enriches the mixture, though lowering engine speed, and unscrewing weakens the mixture, whilst speed is increased.

After opening of the throttle, owing to the passing air current, an induction depression is built up at the sloping atomizer (6). This sucks fuel from the needle jet (9) until fuel level in the air passages (7) machined in the needle jet has lowered so far that air can also enter through a drillway via the air correction jet (8) from the air suction side. Air and fuel metered through the main jet (11) produce a preliminary mixture, which is drawn off through the annular space formed by the needle jet and jet needle (5) and undergoes an initial atomization at the needle jet outlet. Finally, the turbulence created by the main air current passing the sloping atomizer will effect a complete atomization before the petrol-air mixture enters the combustion chamber of the engine.

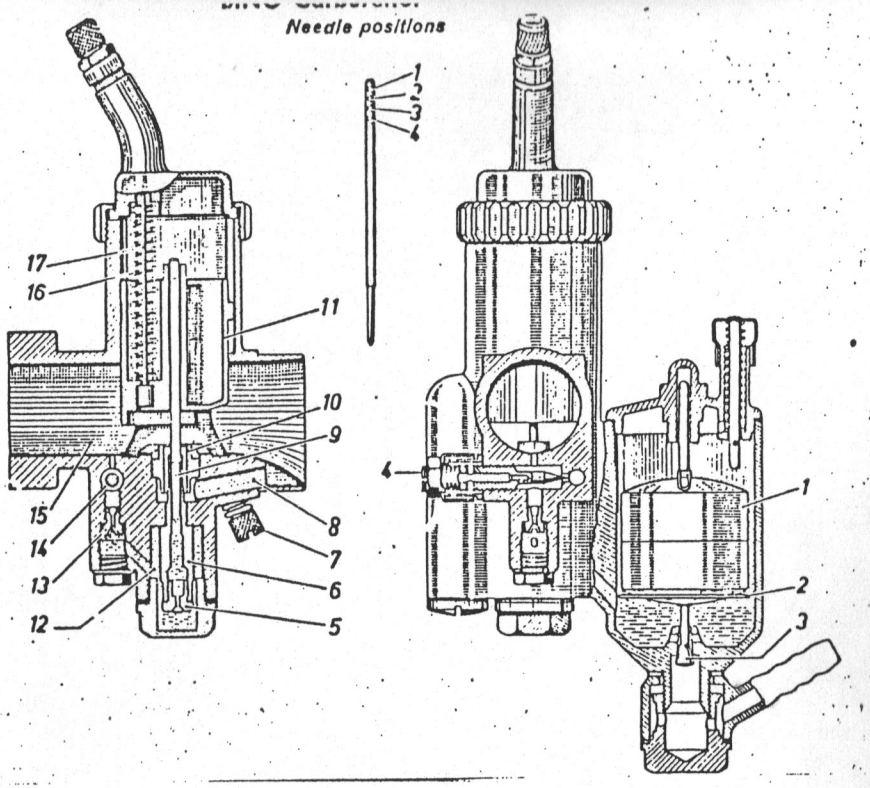
By further opening the throttle slide the annular space between needle jet and the taping, throttle-controlled jet needle (5) increases accordingly, so that a proper mixture ratio is ensured throughout the whole speed range.

In order to prevent fuel from flowing through the suction union into the cylinder, also with a worn float needle or impurities existing in the tank, the pilot air screw (14) has a hollow centre and is fitted with a bushing and a cap, so that overflowing fuel can escape outside.

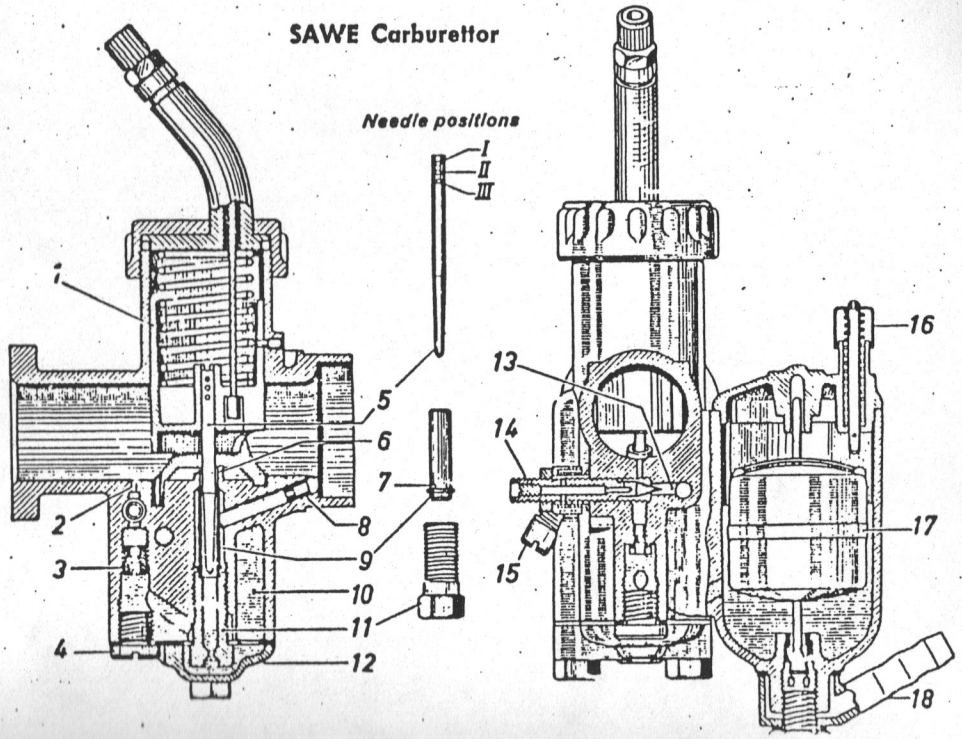
For cleaning the jets unscrew the plug (4). The idling jet (3) is now accessible from underneath and after removal of bottom plate (12) the main jet (11) can be unscrewed and the needle jet (9) removed. On refitting make certain that the small turned collar points downwards.

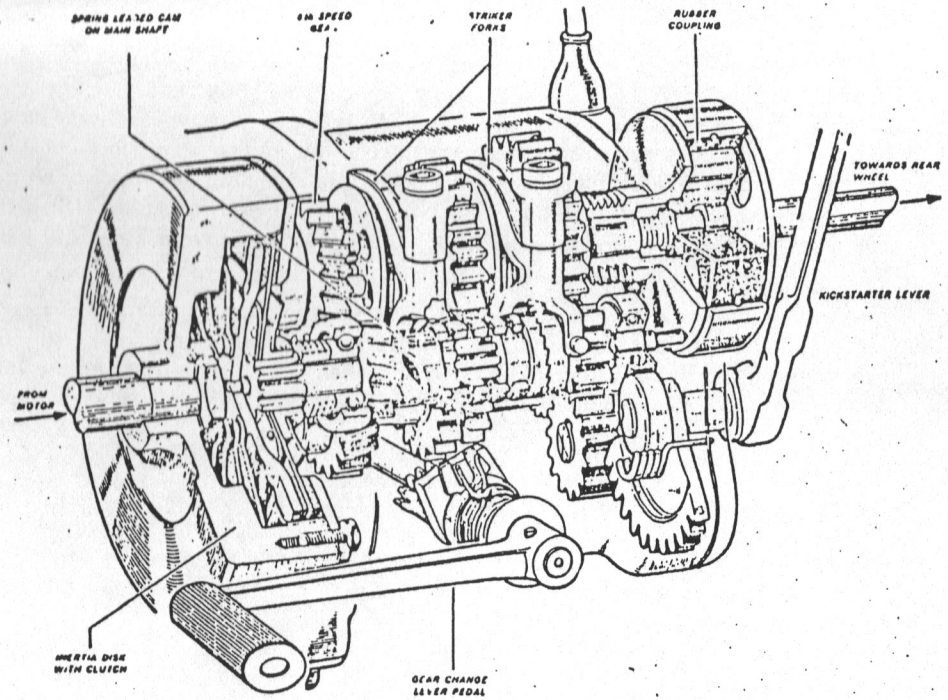
The jet needle (5) possesses three bores I, II and III for its fixation in the throttle slide. For the R 25/3 motorcycle type the needle should be fixed at the uppermost bore I (needle position I). Altering the height of the needle from I to II or III would result in a higher fuel consumption.

The carburettor is adjusted in the factory for the commercial types of fuel. Alterations with respect to size of jets and needle positions should not be made except for very special purposes, and then only on expert advice.



SAWE Carburettor





Sectional view of the four speed gear

B. Gear Box

Transmission and engine housing comprise one unit. Four different speeds enable full utilization of power in any kind of terrain. The four gears are obtained with constant mesh pinions giving easy gear-changing.

The transmission has a gear change mechanism of the ratchet type, designed for foot operation. When the shift pedal is operated, a cam plate is turned by a toothed segment. This cam plate has two milled, curved grooves in which engage the operating pins of the two selector forks. In accordance with the position of the curved grooves the selector forks are shifted by turning the cam plate and impart their movement to the corresponding coupling discs which engage or disengage the pairs of pinions being shifted. The stop gear change mechanism incorporating a ratchet plate enables proper selection up and down for it only moves one stage at a time. Since shifting is done by pedal only, both hands remain on the handlebar during shifting which greatly increases riding safety.

Raising gear change pedal shifts to next higher speed or to neutral; depressing pedal shifts to next lower speed or neutral.

In order to ensure a smooth power flow through the various gears the drive pinion on the primary shaft features a torsional vibration damper. This arrangement reduces the load on the individual gear train components and increases the service life of

C. Rear Wheel Drive

The BMW R 25/3 motorcycle has the same type of rear wheel propeller shaft drive with which all BMW motorcycles are equipped.

The propeller shaft running from the gear box to the rear wheel has an elastic rubber joint at the front end as connection between the coupling flanges of the transmission and the propeller shaft. This greatly reduces power transmission vibrations and compensates for changes in length of the propeller shaft during operation.

At the rear end of the propeller shaft is a universal joint with an easily removable dust-proof bell-shaped cover.

This arrangement ensures absolutely reliable even power transmission from the engine to the springing rear wheel drive.

The driving end of the universal joint engages the keyed shaft end of the rear wheel driving pinion which is sturdily mounted in rear wheel housing and runs on a ball and a roller bearing.

Driving pinion and crown wheel (ring gear) are spiral bevel gears and run quite silently in an oil bath.

Ring gear is bilaterally equipped with roller bearings in the bevel drive housing.

A coupling dog toothing on ring gear hub serves to transmit power to the easily removable rear wheel.

Bevel drive housing and cover are of a highly wear-resistant light-alloy material and are oil and dust-proof. Protruding pinion shaft and spindle ends are equipped with oil seal rings. Should any oil ooze out, it runs into the open, so that the brake connected to the housing remains exempt from oil.

Oil level of bevel drive casing, which reaches the lower thread of level plug hole, must be checked and replenished as per lubrication chart.

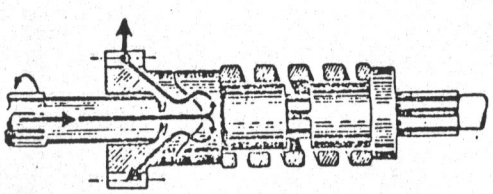
After removing the bell-shaped cover, grease the universal joint of the drive shaft according to lubrication chart, until grease oozes out between the four prongs of the universal joint.

To allow for the variation of load, rear wheel drive gear ratios are different for solo driving and for side car driving.

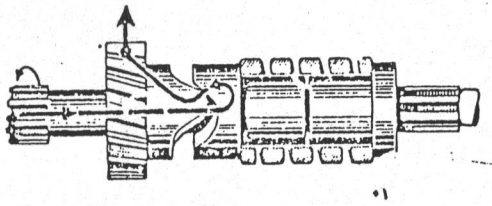
Bevel gear set must be replaced if solo machine is rebuilt for side car drive or vice versa. (See technical data, page 15, and connecting side car, page 68.)

Because of the great care required for proper gear meshing, the installation of a new set of helical bevel gears must be made by a BMW agent.

Power flow through spring-cushioned drive



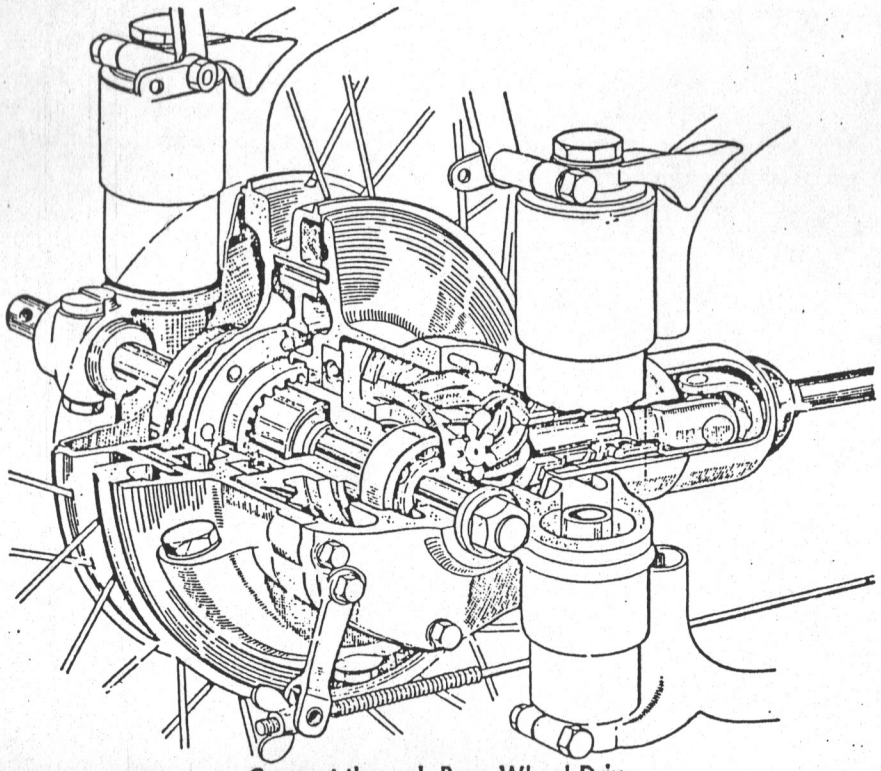
Top speed gear in normal position



Top speed gear deflected in shock-absorbing position

An electric contact fitted in gear box switches on a green light on head lamp to indicate neutral position of gears.

The gearbox casing has its own lubricating oil cap at which gear lubricant can be seen and replenished as per lubrication chart.



Crosscut through Rear Wheel Drive

D. Chassis

1. Frame

The robust duplex cradle steel tube frame of torsion-proof, unbreakable construction has spring suspension front and rear. The engine is anchored in the frame by means of two full-length bolts at bottom, damping being provided by interposed rubber snubbers. Four connection points on the frame according to German Engineering Standard DIN 74 031 are arranged for attaching side car.

2. Mud Guards

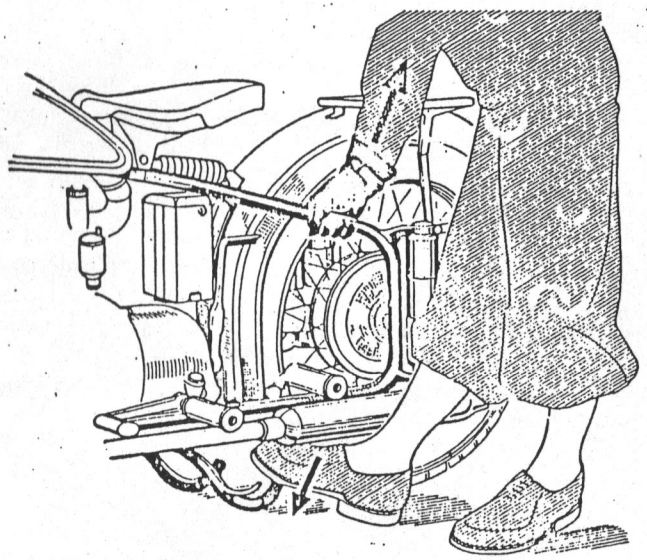
The mud guards are formed in a way to give efficient protection from dirt and water. The bottom end of the rear mud guard is hinged, so that it can be raised, which greatly facilitates removal of the rear wheel. The cable leading to the tail lamp located on rear mudguard end is fully enclosed within a groove running along the inside of the mudguard.

3. Petrol tank

The fuel tank with a capacity of 12 litres = 3.15 U.S. gall. = 2.65 Imp. gall. rests on rubber mountings linked to the frame. The tank incorporates a water-tight, lockable tool box concealed in a recess behind the left hand knee pad. The rubber knee pads fitted to both sides of the tank help much to increase riding safety.

The tank has two pipes leading to the petrol tap, one of which is located higher, so that a reserve of approx. 1.5 litres = 3.0 U.S. pints = 2.6 Imp. pints of fuel remains in the tank. By switching petrol tap to "R" (Reserve) the motorcycle can travel an additional distance of approx. 25 miles.

Jacking up motorcycle with central stand



4. Central stand

A central stand attached to the middle of frame bottom and held in place during riding by two return springs, serves to park the motorcycle. To operate, release the stand from the raised position by pressing with the foot against the pin on the nearside leg. Then apply foot on rear end of leg and swing the machine gently to the rear, whereupon it will roll easily up on to the stand with the rear wheel clear off the ground.

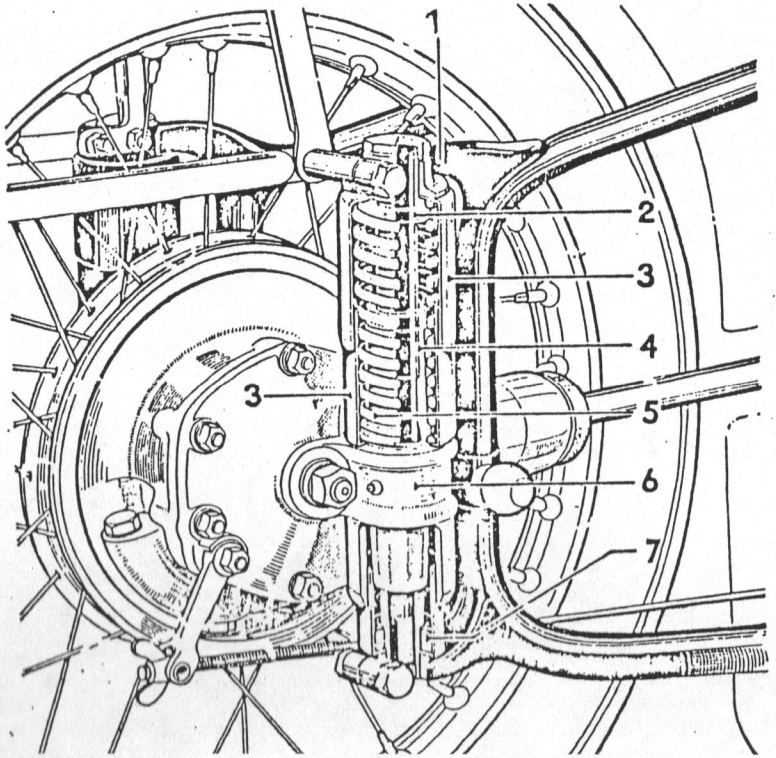
5. Rear wheel spring suspension

Rear suspension of the coil-spring plunger type is designed on the BMW telescope principle and adapts itself harmoniously to the general construction of the machine.

The rear wheel spindle brackets (6), the right-hand one of which forms a single unit with the bevel drive cover, slide with long sleeves and special sliding bushes (4) on the guiding columns (2) clamped to the frame extensions (1). Near-side spindle bracket and bevel drive cover with the right bracket are tightened together through the intermediary of the rear wheel spindle. The coil springs (5), with their top retainers clamped in the upper frame lugs by means of a cap and bolt attachment, achieve resilient connection from spindle brackets to frame. Hard jolts are cushioned by rubber buffers (7) mounted upon frame lugs on bottom of the suspension assemblies.

The entire springing mechanism is housed in dirt and splash-proof collapsible telescope-type tubes (3).

Lubricate suspension assemblies with grease through nipples on spindle brackets, left and right, according to the lubrication chart.



6. Front forks

The front wheel is sprung and supported by the well-proved BMW telescope-type fork with mounted double-acting oil damper.

The stationary fork main tubes (7) are clamped in the bottom yoke (8) by means of pinch bolts and with threaded unions (5) secured in the fork top yoke (4). The main tubes have two cast-in soft-metal bearing areas for the spring-loaded sliding tubes (10). These have solidly connected hollow bolts at bottom bearing the fork ends (20) with supports for the wheel spindle and mudguard stays.

Each prong of fork has a double-acting oil damper consisting of a damper tube (9) including oil feed valve (18) and a damper rod (13) with an oil passage valve (15). The damper tubes are with their lower ends attached to the sliding tubes by means of the threaded bolt and the nut (19), whereas the damper rods are secured on top through the intermediary of the thrust units (6), rubber cones (3) and filler caps (2).

Elastic connection between the stationary prong parts and the moving components is achieved by the coil springs (11) of the variable pitch type, screwed to the retainer units (5), on top, and to the threaded portions of the damper rods, on bottom. The fork main tubes have oil seals (16) fitted on their lower ends to prevent leakage.

The sliding tubes are protected from ingress of dirt, each one by two collapsible telescope-type cover tubes (14) and (17).

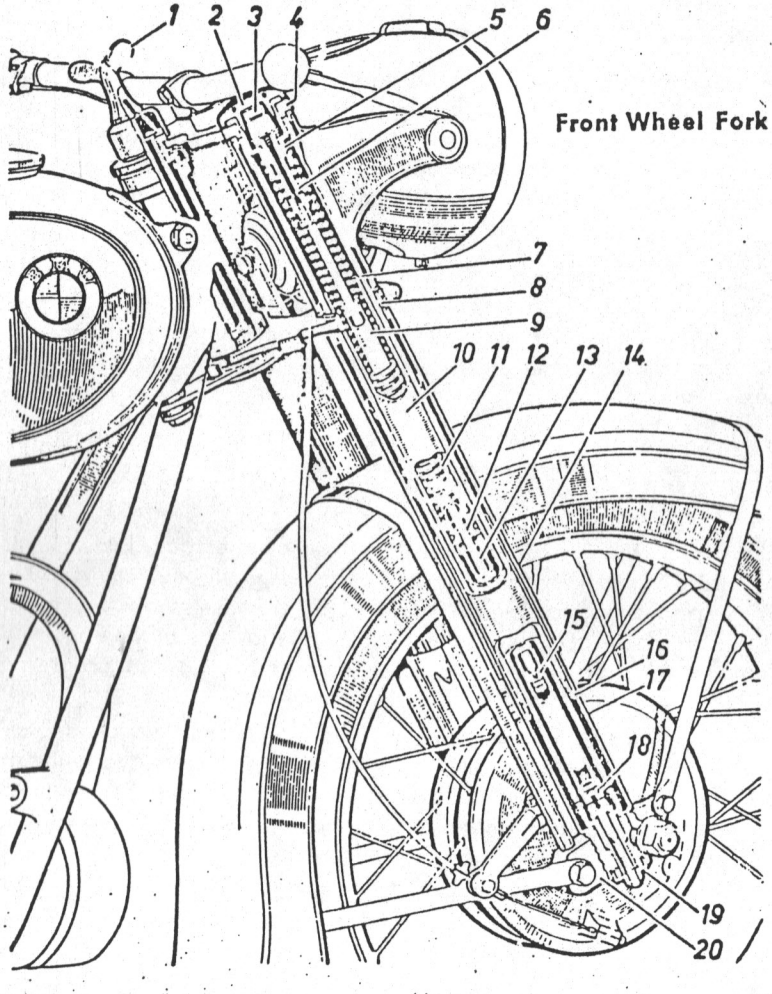
If the wheel receives a jolt when travelling on the road, the coil springs are compressed while oil in damper tubes is pressed through the discharge valve and the groove machined in damper rod (13), providing outlet along the damper rod guiding sleeve (12). Towards the end of the jolt, the oil flow is restricted due to the tapering of the groove which ensures the desired progressive shock absorption.

When the springs again exert pressure, the wheel returns into its original position, the discharge valve closes and the feed valve opens, so that oil returns into the damper tubes and controls the downward movement. In order to obviate hard abutment on very harsh jolts, the damper rod tops are provided with thrust units (6) which support on metal-rubber buffers (3).

Each prong of fork must contain 130 c.c. (approx. 8 cu. in.) of engine oil, SAE 20 for summer- and SAE 10 for wintertime. To drain oil for an oil change remove bottom nuts (19) for damper tubes and press in the hollow bolts. The new oil is filled in through the fork tops after filler caps (2) and rubber cones (3) have been removed.

The entire shock absorbing mechanism including coil spring can be easily removed through the top opening by unscrewing spring retainer (5) and slackening nut (19).

On the top end of the steering head is the wing (1) of the steering damper arrangement. Tighten this damper slightly on poor roads, during high speed and for side car operation; loosen some for slow solo riding.

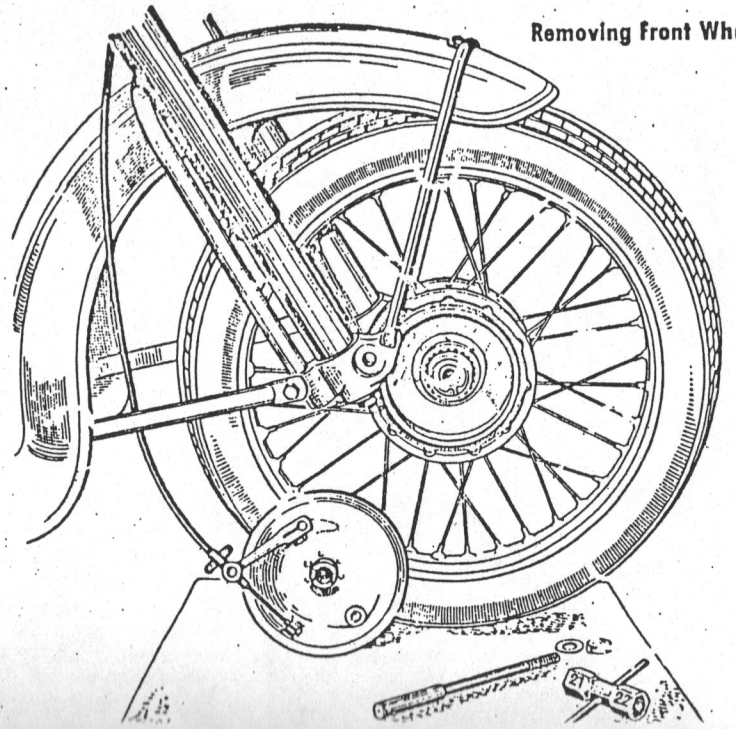


Front Wheel Fork

Removing and refitting front wheel

1. Place machine on centre stand.
2. Slacken pinch bolt at near side fork end, remove spindle nut and spare it together with washer, withdraw spindle.
3. Remove front wheel together with brake plate (the motorcycle will swing back on rear wheel).
4. When fitting wheel make certain that the noses on brake plate hub fit in guides on off side fork end.
5. Before tightening pinch bolt in near side fork end, move front fork several times up and down to make sure that no parts jam within the telescope guiding mechanism.
6. Check brake, re-adjust if necessary.

Do not lay spindle and retaining parts on dirty ground; clean all dirty parts carefully and grease them slightly before refitting.



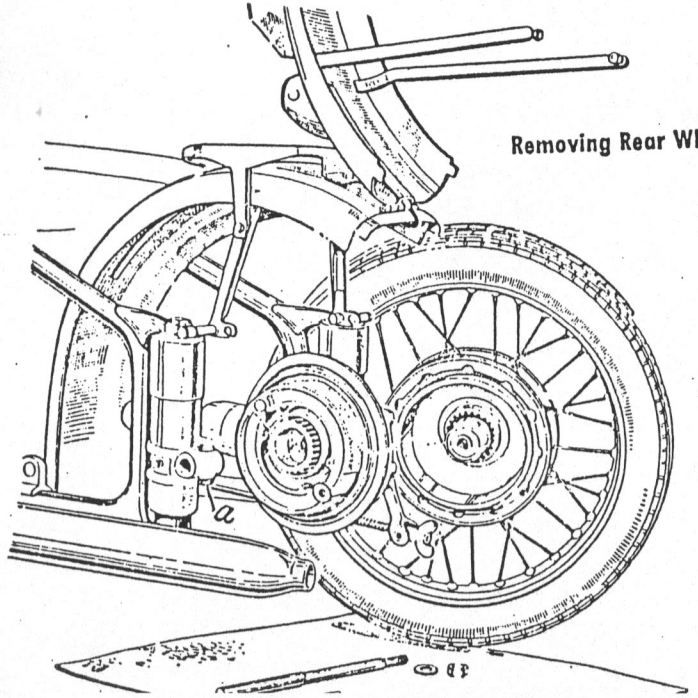
Removing Front Wheel

Removing and refitting rear wheel

1. Place machine on centre stand.
2. Unscrew mudguard stays and raise tail end of rear mudguard.
3. Slacken spindle nut (right-hand thread) on driving side and remove it together with washer.
4. Remove pinch bolt (a) from near side spindle bracket (do not lose clamp bushing on bottom end of pinch bolt) and withdraw spindle by means of a tommy bar (tool kit) placed through the hole in the head of the spindle.
5. Remove the wheel.
6. When replacing the spindle, rotate same so that it does not jam, insert washer and tighten spindle nut. Compress rear suspension several times to make certain no parts of springing mechanism jam. Finally insert pinch bolt and clamp bushing in near side spindle bracket and tighten.

Do not lay spindle and securing components on dirty ground; clean all dirty parts carefully and grease them slightly before refitting.

Front and rear wheel are interchangeable.



Removing Rear Wheel

Wheels

The wheels are equipped with light-alloy, drop-centre safety rims which arrangement prevents the tires from slipping off the rim during a blow-out.
Avoid using undue force with levers in removing and replacing wire bead tires, as these are inextensible.

Removing the tire

Remove valve cap and core, and allow tube to deflate. Push each bead off the shoulder of the rim all the way round. Unscrew rim nut and push the valve stem inside the cover. Ease edge of cover near the valve into the wellbase of the rim and lift tire off rim flange on the diametrically opposite point by means of a tire lever. Do not use a screwdriver! Lift tire bead over rim gradually, remove inner tube. It is now possible to remove the cover by pushing the other tire bead over rim flange (using a small tire lever).

Replacing the tire

Lay wheel flat on the ground. Push the tire beading into the drop-centre near the valve and, beginning on the opposite point, slip tire beading over rim flange all round by means of tire lever. Do not use excessive force! Sprinkle talcum powder or French chalk inside cover and insert slightly inflated tube after first threading valve through valve hole and tighten rim nut a few turns. Before inserting the other tire bead, push in the valve to the nut, so that the first tire bead sits well in the drop-centre. Then push in the second bead over the rim flange starting opposite the valve. Inflate tire and make sure that the circular marking on the tire is equidistant from rim flange all around. Tighten rim nut and test tire pressure (see page 23 for proper tire pressure). Always ride with proper tire pressure and with an eye for saving your tires.

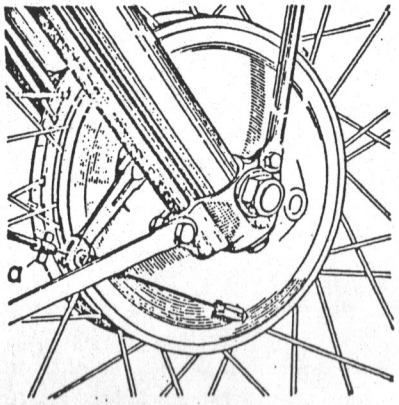
Brakes

Front and rear wheels are both equipped with internal shoe brakes. Front wheel brake is operated by means of a cable from the handlebar, and a foot pedal controls the rear wheel brake through an operating rod. When being depressed, the brake pedal switches on a stop light in the tail lamp body.

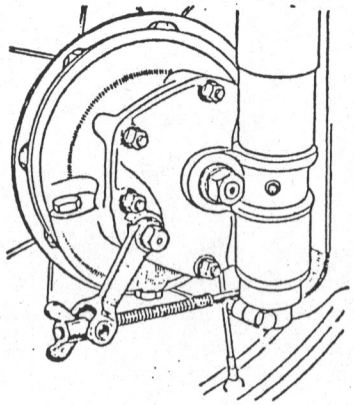
As the highest degree of safety for rider and machine depends on the condition of the brakes, it need not be emphasized, that the brakes must be subject to constant care and observation. Equalize wear of brake linings by readjusting brakes from time to time. On the front wheel this is done by turning the wing screw (a) at brake lever 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 be subjected to excessive wear. The wheel must turn freely. If the proper braking action cannot be achieved by adjusting the brake, then the linings will be 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.

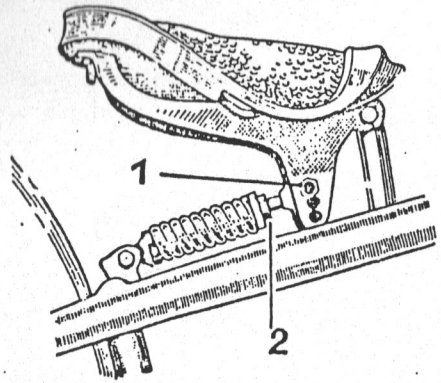
As regards operation of brakes hold in mind that front braking is more efficient as due to the inherent inertia momentum of the running motorcycle, wheel adhesion is greater at front.



Adjusting front wheel brake with wing screw a



Adjusting rear wheel brake with wing screw



Cushioned seat

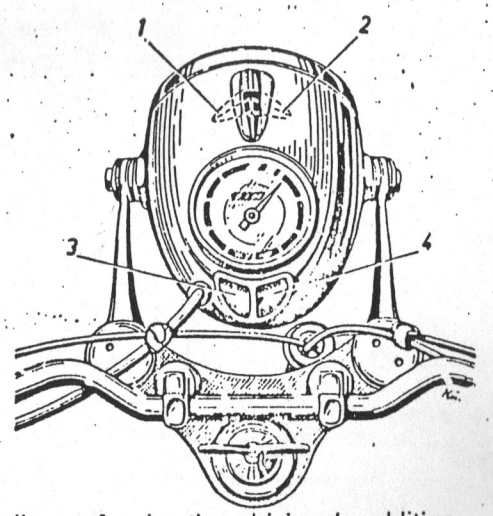
Cushioned Seat

The seat is a well-shaped, soft, swinging saddle which, in conjunction with the allwheel sprung frame and good cushioning, warrants tireless riding over long distances. To adjust seat to driver's weight, the tension of the spring can be regulated by spring clamping pin (1) in the slot of the saddle supporting lever.

There are four catches provided in the saddle lever for weights from 130 to 220 lbs. Upper catches give softer spring action, lower catches give harder spring action.

Height of saddle can also be adjusted by screw (2).

Headlamp



The Bosch headlamp is mounted in rubber bearings on the headlamp brackets by means of two screws. After removing the headlamp reflector unit, the following parts are accessible:

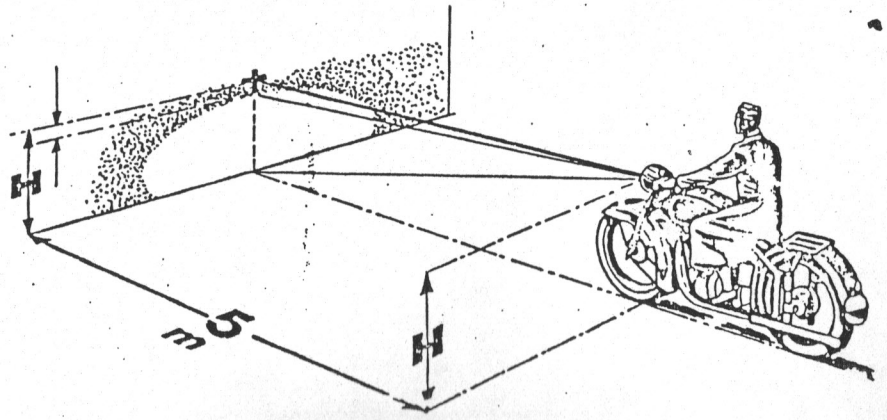
The switch for the entire electric system of the motorcycle, the Bilux lamp for dipped beam and normal driving light, the ignition warning lamp (3) and after removing speedometer, the speedometer light and the green lamp for neutral indicator (4).

To avoid damage, have headlamp bulbs replaced by an expert. Ignition key in centre position switches on the electric appliances for day-time driving. In addition hereto normal driving light and speedometer light are switched on with the key turned to the right (2). At (1) the city light is switched on too. When ignition key is removed at position (1), parking light is switched on; removed in centre position, the ignition and battery switched off. See also "Operation and Control", page 19.

A standard type socket is provided on the frame below the saddle for connecting the side car lights or an inspection lamp.

Headlamp 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" on the drawing and amounts to 840 mm = 33 in. (solo machines). The motorcycles stands on the wheels 5.45 yds. from the wall and is loaded with the rider. (See picture.)

Adjusting the normal driving light beam:

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

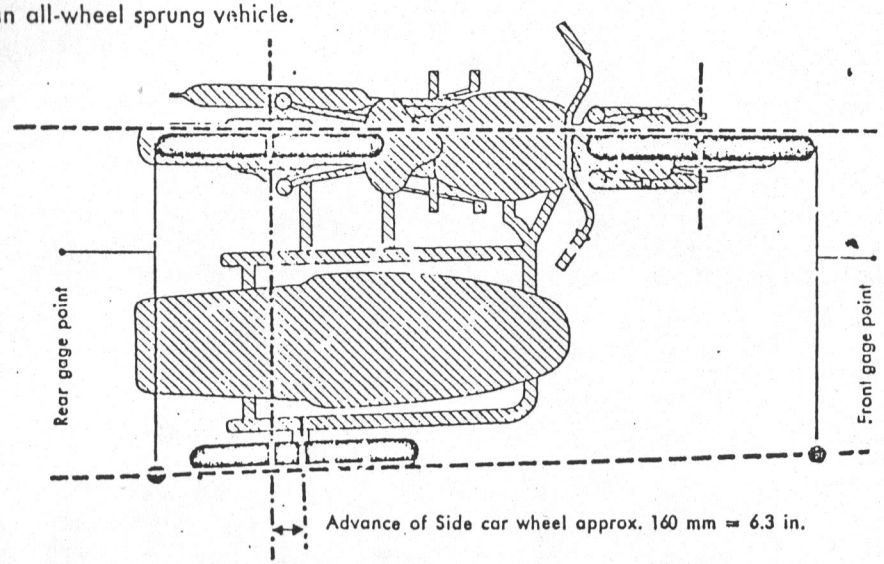
Checking the dipped beam:

After switching to the dipped beam, check if the border line between light and dark areas, i. e. the upper border of the brighter illuminated wall is 2 in. or more below the mark. If this distance is less than 2 in., 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.

The Bayerische Motoren Werke A. G. have developed the side car "Standard" for the R 25/3 model. This BMW model side car is highly recommended as it gives you an all-wheel sprung vehicle.



Adjusting Toe-in for BMW "Standard" Side Car

Dimension at rear gaging point minus dimension at front gaging point must equal 20 to 25 mm (.8 to 1 inch).

Attaching the side car

The motorcycle frame is already equipped with two welded-on ball joints for the bottom connections and drilling holes in the frame plate below the saddle spring serve to receive the fixing bolts for the rear top connection. The linking parts for this and the ball connection at front can be ordered with the side car.

For subsequent remodeling from solo to side car operation or vice versa, the following alterations must be made:

1. Change spiral bevel gear set in rear wheel drive from 25 : 6 teeth (solo) to 24 : 5 teeth (side car);
2. Change speedometer adjustment for the different gear ratio from 1.60 (solo) to 1.84 (side car). (Speedometer mile-calibrated).
3. Remove the earlier teeth numbers on bevel drive housing and stamp-in the new teeth figures.

No warranty shall apply to defects arising on BMW R 25/3 motorcycles being used with side cars unless above alterations have been carried out.

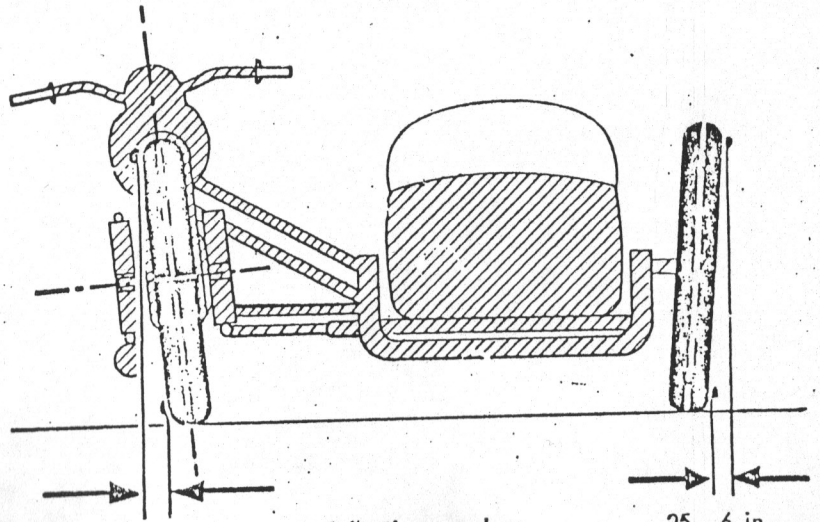
Set motorcycle camber as per illustration on page 69.

Side car camber is already arranged and set.

Toe-in and advance of side car wheel, which are of great importance for the good riding quality, safety and useful life of motorcycle and tires, must be complied with as per directions for side car attachment.

Camber adjustment is made with the middle brace, so that front brace is not under tension.

To strengthen rigidity of frame on the attachment point linked with the upper front brace, there must be provided a strong connection between the right and left frame tube by means of a dual clamp. A socket for connecting side car illumination or an inspection lamp is located below the motorcycle seat.



Adjusting camber when connecting a side car

Operating Instructions

Before Starting:

Fill fuel tank	filling station oi super fuel. Tank capacity 12 litres = 3.15 U. S. gallons = 2.65 Imp. gallons with reserve fuel supply of 3.0 U. S. pints sufficient for 25 miles.
Check oil in engine	as summer lubricating oil use SAE 40 as winter lubricating oil use SAE 20 (only use service-tested lubricants recommended by BMW agents). Oil should reach to top mark on dip stick. To measure, only insert stick, do not screw it on. Never fill in too much oil.
Check oil in gear box	fill in oil up to lower threads of level plug hole, same as in engine.
Check oil in rear wheel drive	use gear oil type SAE 90 (only use recommended lubricants), fill up to lower threads of level plug hole.

Check tire pressures:	front wheel	rear wheel	side car wheel
rider alone	21 psi	23 psi	—
rider and pillion passenger	21 psi	28 psi	—
rider with occupied side car	24 psi	28 psi	24 psi
rider with pillion passenger and occupied side car	24 psi	38 psi	24 psi

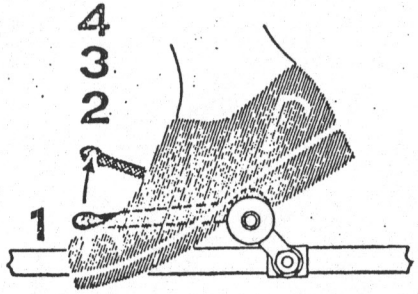
Starting engine:

open petrol tap	turn tap to "A" (open).
give gas: for cold engine	open twist grip slightly, tickle carburettor. Close air lever on filter if outside temperature is below 30° F.
for warm engine	open throttle slightly. Do not tickle carburettor. Do not close air lever on filter.
turn over the engine	with ignition cut out and gears shifted to neutral (red and green lamps are out) by actuating kickstarter twice.
start engine	cut in ignition (red and green lamps light up). Give kickstarter a short, powerful kick. When engine starts, reopen air strangler again fully.
allow engine to warm up	at medium speed, never race your engine (if engine is cold, warm up for at least two minutes). This is of great importance as it prevents cylinder from undue wear and tear.

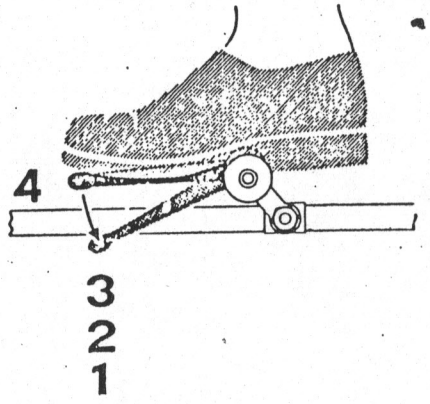
Riding:

Disengage clutch	pull back lever on left handlebar towards grip.
Shift to first gear	press gear change pedal downwards (green light goes out).
Engage clutch	when the gear is engaged, open throttle slightly and
Shifting from first over neutral to 2nd, 3rd and top gear	always disengage clutch before shifting and ease throttle back. Draw gear change pedal upwards, then engage clutch and reopen throttle as required.
Shifting from top to 3rd and second gear and over neutral to first	always disengage clutch before shifting, leaving throttle a bit open, press gear change pedal downwards, then engage clutch and open throttle as required.
Speed	never exceed maximum speeds listed on page 28.
Riding downhill	shift to next lower gear and, 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. Set gear control in neutral position with shifting pedal.
Turning off engine	cut out ignition. Never have ignition turned on for any length of time if engine is standing still. Shut petrol tap (turn to "Z" = closed). This is important.

Avoid unnecessary noise while riding. Thus you will enhance your personal prestige and that of the motorcycling sports world. We have really done a lot in providing a very intense silencing of the exhaust noise. Now, please do the rest and abstain from applying sudden throttle outbursts and driving at maximum speed whenever this would disturb the road using public. These circumstances apart, however, you may and are expected to make full use of the whole speed range, for the benefit of engine and transmission working components.



Shifting the gears by "lifting"
from first to fourth
by one gear at a time



Shifting the gears by "depressing"
from fourth to first
by one gear at a time

Go into neutral from 3rd and 4th gear by depressing pedal several times to 1st gear and a short lift into neutral.

is of vital importance for the useful life and the reliable operation of your motorcycle because even those parts which have been subjected to most accurate machining and lapping must still attain the ultimate smoothness which only running-in can give. For the benefit of your engine, take great care that the below listed maximum permissible speeds are never exceeded during the running-in period up to 600 miles and from 600 to 1,200 miles. This is not to be construed to mean that the engine must run at the maximum speed at all times, on the contrary, the engine, gearing and rear wheel drive are best run in under varying speed and load with much gear shifting as is required on hilly roads with many curves. On level roads drive at maximum speed for no more than 500 yards and then let the motorcycle coast. In this manner all sliding and revolving parts will be properly run-in.

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 or the gearing.

Do not drive full speed over long stretches as soon as your motorcycle reaches the 1,200 mile limit. We recommend a gradual increase of speed until 1,800 miles have been travelled.

Maximum speeds in the individual gears
must not be exceeded.

Motorcycle type R 25/3

miles registered on speedometer	rear wheel transmission for	miles per hour in			
		1st gear	2nd gear	3rd gear	4th gear
0 to 600	solo riding	9	18	28	37
	side car riding	6	15	25	31
600 to 1,200	solo riding	12	25	37	50
	side car riding	9	22	34	43
over 1,200	solo riding sitting	15	31	46	67
	solo riding crouched low	—	—	—	74
	side car riding	12	25	37	54

Attention!

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

Unauthorized tampering with the speedometer seal invalidates all guarantee claims.

Checking for operating safety every 900 miles

1. Check play in steering head. For this end place motorcycle on centre stand, lift front wheel by charging rear wheel and loosen steering damper mechanism on top of fork. At push and pull on front mudguard no play should exist on the fork head between frame and upper ball bearing cap. The handlebar if turned away from its centre position must automatically fall onto its final positions left and right. If necessary, apply to a BMW distributor for steering head adjustment.
2. Check wheel spindles as well as all external screws and nuts for tight fit. If a side car has been mounted, check attachments on motorcycle also for tight fit, especially the link on frame below the saddle.
3. Check wheels and seat support, remedy play, if any, with an agent.
4. Check brakes and cables for proper working condition; adjust play or replace brake shoes, if wear is too great.
5. Check twist grip fixation on handlebar and maniability of the control barrel.
6. Check functioning of lighting equipment and headlamp adjustment.
7. Have your BMW agent check resp. readjust valve clearances on cold engine
   (intake 0.10–0.15 mm = .004–.006 in,
   exhaust 0.15–0.20 mm = .006–.008 in).

Clean carburettor and petrol tap only to remedy troubles in fuel line; run the engine in neutral and check play of carburettor cable (0.5 mm = .02 in), have your agent readjust play, if necessary.

A clean, well-serviced motorcycle is a pleasure to the eye. The time and effort consumed for cleaning and servicing pays high dividends in form of trouble-free operation and long service life.

Cleaning

The engine and transmission unit and the rear wheel drive 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 that engine is sufficiently cooled off. Shut air filter before spraying. Avoid using high pressure as this may force moisture into the engine and cause serious damage. Do not play the hose directly on the carburettor or dynamo. When motorcycle is dry, oil the external brake parts and the hinge of rear mudguard to prevent these parts from rusting. As water may infiltrate into the brake housing during washing, try out brakes carefully in a trial run after cleaning.

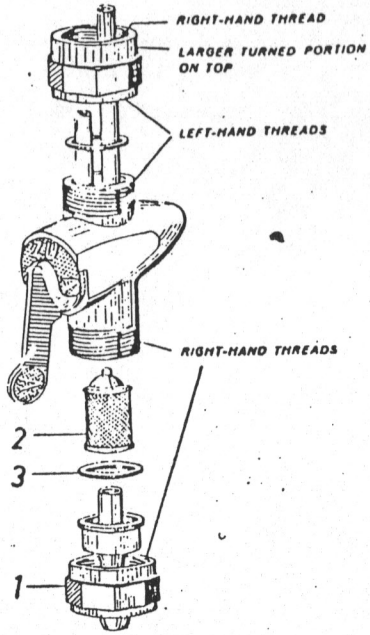
Treating the lacquered and chromium plated parts with commercial polishes preserves these parts and gives them a glossy appearance.

Cleaning the petrol tap:

In case of troubles in fuel line also the petrol tap must be cleaned.

1. Close the petrol tap (lever downwards).
2. Unscrew union nut (1) (24 mm).
3. Remove sieve (2) and wash it in petrol.
4. Take care that gasket (3) is not lost.

The petrol tap top nut is right-hand threaded on tank side and has a left-handed thread for tap connection. To remove tap, rotate nut anti-clockwise. For refitting, insert gasket, engage nut with the larger turned portion on top simultaneously in the two threads and tighten by rotating nut in clockwise direction.



The **air filter** for air supply to carburettor must be removed at intervals as required by the different air conditions (dust), at least every 900 miles, and cleaned with petrol or kerosene (paraffin). When the cleaned filter is dry, moisten same with engine oil and sling off excess oil. Dirty filters cause high fuel consumption and excessive piston wear.

Oil pump fine strainer, which is accessible after removing oil sump under engine housing, must be flushed in petrol after every 6000 miles. It is a good plan to do this when changing oil.

Lubrication of engine and frame is of great importance. It is to your own advantage to observe the lubricating plan carefully and to perform oil level checks, replenishments, oil renewals and to grease all bearings as prescribed.

Only use service-proven, recommended lubricants. Your BMW agent will gladly give expert advice on this point.

Oil level in engine must be checked at regular intervals and replenished if necessary. For checking use the dip stick on screw cap at left side of engine. Only insert dip stick up to the top mark, do not screw it in.

The gear box with engine oil filling and the rear wheel drive with gear oil SAE 90 must likewise be checked at regular intervals.

In both cases oil level must reach the lower threads of level plug hole. Oil level checks should be made about ten minutes after turning off engine, while engine is still warm. This interval is necessary to allow oil in cylinder assembly to flow down into the sump, so that the real level is measured. Do not turn the rear wheel during an oil check.

The oil in the front wheel fork is to be changed every 6000 miles.

The universal joint on the propeller shaft, which is made dirt-and water-proof by a bell-shaped, left hand thread cover (marked L), must be greased until the grease oozes out between the four universal joint prongs. Before mounting the bell-shaped cover, check whether the threaded ring is tightly fitted.

No grease nipples are arranged on the hubs, in order to prevent excessive greasing of hubs with subsequent infiltration into brakes. The hub greasing required every 6000 miles is best done by a BMW agent.

Grease the hubs with the wheels and bearings removed. In both ball and needle bearings fill space between inner and outer race entirely, using about .3 oz. of grease with a melting point of approx. 350° F. Smear excess grease on distance piece situated between the bearings. Take care that no grease gets into brake lining as this would prejudice brake operation.

Rear wheel suspension is greased through the grease nipples on spindle brackets, right and left. Brake pedal and twist grip to be lubricated through the proper nipples.

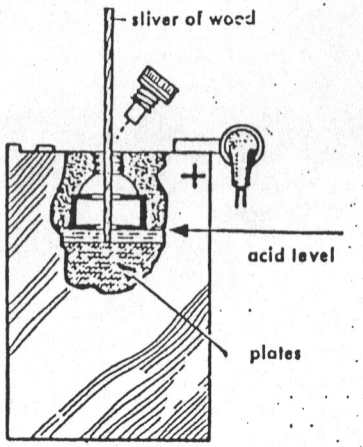
From time to time put a few drops of oil on brake lever joints and clutch levers, unless these parts are equipped with grease nipples.

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, spark plugs, contact breaker and dynamo at regular intervals is of primary importance.

Should any defects develop in the ignition system during the guarantee period, please resort directly to a Noris agency for the dynamo and horn and to a Bosch agency for the headlamp. 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. To introduce distilled water, a clean sliver of wood or glass rod can be used to guide the water without making a mess. The correct level is up to the splash protection platform.

The inside of the battery cover should always be clean and dry. If the vehicle is not in use for over 6 weeks, the battery must be removed 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 (0.02" – 0.024") yourself, have your BMW agent perform this job for you at certain intervals. Trained personnel can always accurately judge from the appearance of the spark plug whether the carburettor adjustment is correct and the engine runs properly.

Contact Breaker

Check contact breaker points about every 3000 miles. The gap should be 0.014" – 0.018". Surface must be smoth and clean. Checking of contact breaker 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 6000 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.

Instructions for taking the motorcycle out of service

If the motorcycle has to be taken out of service for storing during winter time, or for other reasons, the following instructions should be observed:

1. Close petrol tap and drain float chamber by removing the fuel hose from the carburettor.
2. Whenever possible, change lubricant in crankcase.
3. Clean and dry motorcycle carefully.
   Oil external brake parts, centre stand links and hinges of mudguard and tool box cover.
4. Treat all polished and chromium plated steel parts with acid-free grease, and whenever possible, give motorcycle an oil spray for protection purposes. Polish lacquered parts with a soft rag.
5. Store motorcycle in a dry room (stable air and acidiferous air might cause corrosions) and place it on stands with inflated tires, in a way that the wheels will remain uncharged.
6. Treat cylinder barrel, near the lower dead centre, with protective oil (SHELL Ensis Oil 452) by means of a sprayer, deeply entered through sparking plug hole, once with intake opened and once with exhaust valve opened. Then rotate engine several turns by operating kickstarter. Move piston on to the top dead centre and replace sparking plug.
7. Remove battery and recharge it every six weeks after previous discharge. The draining of electrolyte will not protect the battery lead plates from corrosion.

Lubrication Chart for BMW R 25/3

Servicing items (The numberals correspond to the lubrication points in the illustrations).	Miles 300	600	1200	2000	3000	4000	5000	6000	7000	thereafter every miles
(1) Change oil in engine — quantity required 1.25 litres = 2.6 U.S. pints = 2.2 Imp. pints. Oil level should reach to top mark on dip stick (1 measuring mark = ½ Imp. pint)	x	x	x	x	x	x	x	x	x	1000
(2) Check oil level in gear box and top up to lower threads of level plug hole	x		x	x	x	x	x		x	1000
[3] Change oil in gear box, filling quantity about 0.65 litres = 1.3 U.S. pints = 1.1 Imp. pints		x						x		6000
Grease rear suspensions, right and left		x		x		x		x		1000
[4] Clean hubs of disassembled wheels and fill with new grease								x		6000
[5] Check oil level in bevel drive case and top up to the lower threads of level plug hole	x		x	x	x	x	x		x	1000
Change oil in bevel drive case		x						x		6000
(6) After repairing refill 130 c. c. = .27 U.S. pints = .23 Imp. pints of engine oil in each prong of front forks								x		6000
(7) Oil all joints of braking mechanism	x	x	x	x	x	x	x	x	x	1000
[8] Grease universal joint of propeller shaft		x	x	x	x	x	x	x	x	1000
(9) Oil clutch operating lever on gear box		x	x	x	x	x	x	x	x	1000
[10] Grease twist grip on handlebar		x	x	x	x	x	x	x	x	1000

Legend of the symbols on the left margin:

◯ Engine oil*)

Engine, gear box:
summer SAE 40
winter SAE 20

Front forks:
summer SAE 20
winter SAE 10

△ Rear wheel drive lubricating oil*)
SAE 90

□ Lubricating grease*)

Wheel hub grease with a melting point of about 350° F; if not available use normal lubricating grease.

*) Only use service-proven lubricants;

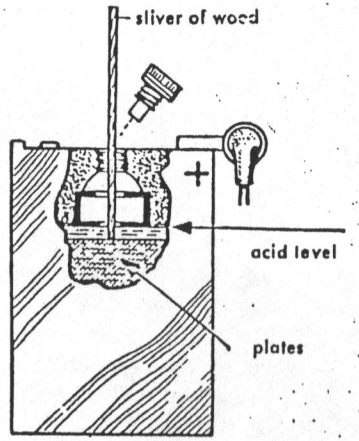
Our BMW agents will gladly recommend job-

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(2) Check oil level in gear box and top up to lower threads of level plug hole	x		x	x	x	x	x		x	1000	○ Engine oil*)
[3] Change oil in gear box, filling quantity about 0.65 litres = 1.3 U.S. pints = 1.1 Imp. pints		x						x		6000	Engine, gear box: summer SAE 40, winter SAE 30
Grease rear suspensions, right and left		x		x		x		x		1000	Front forks: summer SAE 20, winter SAE 10
[4] Clean hubs of disassembled wheels and fill with new grease								x		6000	△ Rear wheel drive lubricating oil*) SAE 90
(5) Check oil level in bevel drive case and top up to the lower threads of level plug hole	x		x	x	x	x	x		x	1000	
Change oil in bevel drive case		x						x		6000	□ Lubricating grease*)
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(7) Oil all joints of braking mechanism	x	x	x	x	x	x	x	x	x	1000	
[8] Grease universal joint of propeller shaft		x	x	x	x	x	x	x	x	1000	*) Only use service-proven lubricants;
(9) Oil clutch operating lever on gear box		x	x	x	x	x	x	x	x	1000	
[10] Grease twist grip on handlebar		x	x	x	x	x	x	x	x	1000	Our BMW agents will gladly recommend job-tested lubricants
[11] Grease brake pedal		x	x	x	x	x	x	x	x	1000	