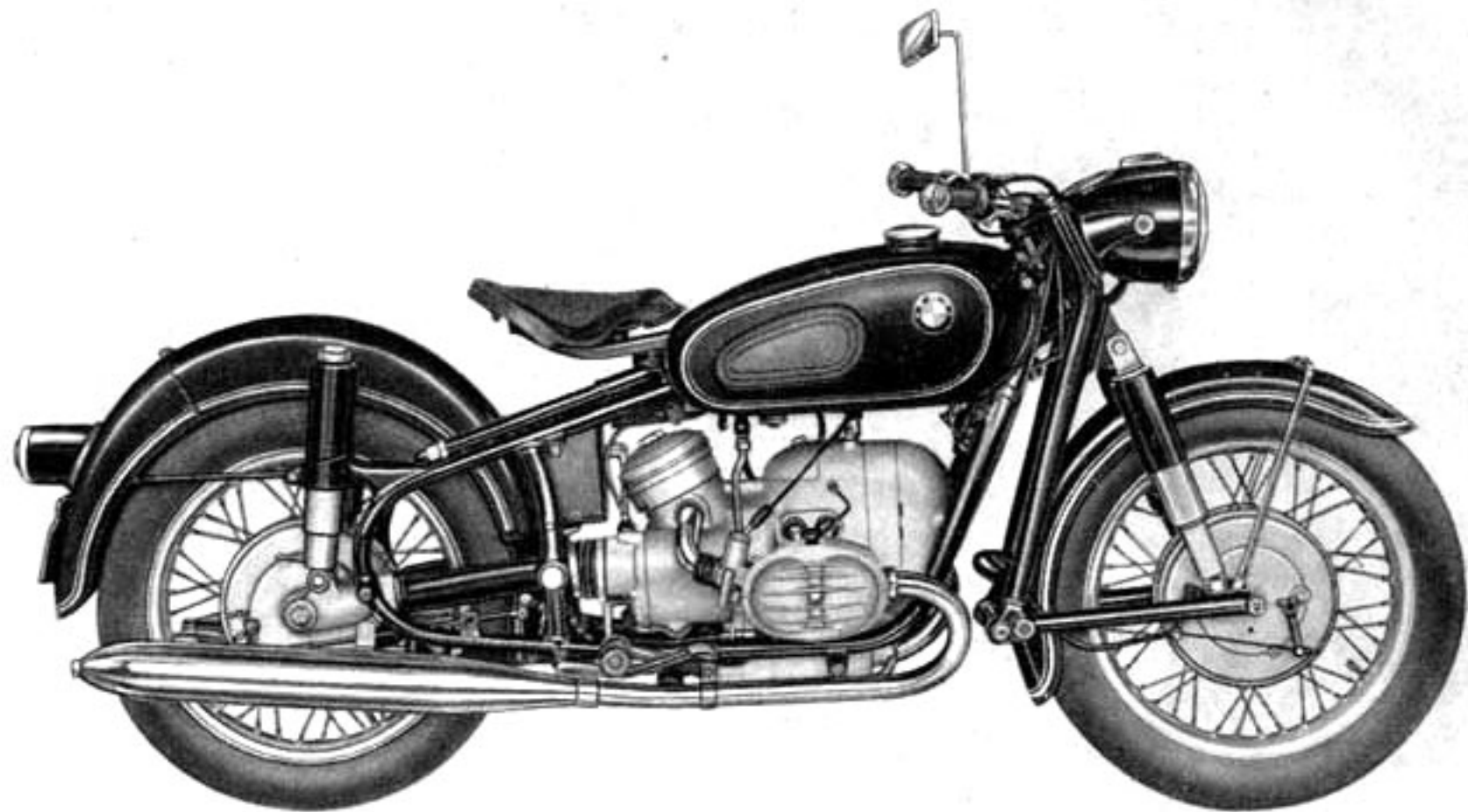


Instruction Manual

Motorcycles
R 50
R 60 R 69 S





BMW R 50

Special Accessories for Motorcycles

BMW R 50 — R 60 — R 69 S

1. **Dual Seat**
(standard model)
- *2. **Dual Seat**
(wider model "USA")
3. **Pillion Seat**
(on mudguard)
4. **Swinging Rear Saddle**
(on baggage carrier)
5. **Swinging Rear Saddle**
(on mudguard)
6. **Steel rims, chromiumplated**
*Aluminium rims, polished
7. **Adjustable Footrests**
(for passenger or for driving in crouched position)
8. **Baggage Carrier**
(on mudguard)
9. **Suitcase Rack**
(rear)
10. **Mount with Saddlebags**
- *11. **Oversize Fuel Tank**
(6½ U.S. gals.; 5¼ Imp. gals.; 24 liters)
12. **Fuel Tank Cap**
(lockable)
- *13. **Cross-country Handlebars**
(with control cables)
14. **Rear Mudguard Handle**
- *15. **Cylinder Guard (Crash Bar)**
- *16. **Side Stand (Prop Stand)**
- *17. **Oversize Battery**
6 V / 16 Ah
18. **Work Lamp**
- *19. **Lacquered in White***
gray-green or green



Left: A 1967 BMW R60/2 with color-matched period Craven Golden Arrow panniers, Hella bar-end mounted turn signals, Albert rear-view mirrors, and Denfeld solo saddles.

BMW motorcycles were available on special order in any color BMW cars were painted. This motorcycle was painted Granada red.



BMW R 69 S



1967 Granada red R60/2

1968 Dominican blue R50/2

1968 BMW R60/2

A word to owners

A new concept in motorcycling pleasure is now yours as the owner of a new BMW twocylinder motorcycle. All over the world, BMW products enjoy a unique reputation for their outstanding performance, reliability and long service life. The deep-rooted satisfaction of owning a fine motorcycle will find its greatest fulfillment in the ownership of a BMW motorcycle. And each day and mile of riding will increase your appreciation of the excellence of BMW performance.

You will recognize in your BMW two-cylinder motorcycle the culmination of the latest technical developments and our almost forty years' experience in the manufacture of quality motorcycles. The distinguishing feature of the BMW two-cylinder motorcycles is the continuous and unceasing further improvement of the excellent, time-tested basic design: the horizontally-opposed engine whose refined construction and careful dynamic balance result in especially quiet operation, the flexible universal-shaft drive which is fully encased and suspended in oil, and the rugged frame which has been perfected through the years to give the ultimate of roadability. Time and again, in countless grueling competitions and by winning numerous world records, the BMW motorcycles have proven themselves internationally as the consummate in motorcycles.

The models: R 50 500 cc, Touring-sport;

R 60 600 cc, Touring-sport;

R 69 S 600 cc, Sport;

are essentially identical and hence are all included in this operating manual. Where there do exist differences in construction, operation, or maintenance, they will be clearly indicated. Even though you may already be a driver of long experience, and your new motorcycle is of the highest quality, it is nonetheless in your own interest that you study this manual carefully before embarking on your first ride. You will find many noteworthy details about your motorcycle and valuable hints which will save you from operating and maintenance errors.

The little effort of reading and following the instructions will ensure you of full satisfaction with your motorcycle and guarantee its dependability and long service life.

The widespread BMW Customer Service organization, with its first-class factory-trained mechanics and full complement of the necessary special tools, is always at your disposal. Every BMW dealer maintains a well assorted stock of spare parts, which is an assurance that any necessary repairs will be made with genuine BMW replacement parts.

For the BMW motorcycles the factory has developed a number of special accessories such as dual seat, passenger seats, side stand, wheel guard, etc. Your BMW dealer will gladly furnish you with details.

The list of dealers supplied to you with the motorcycle should accompany you on all trips, so that at any time you may quickly obtain assistance.

We know that you will enjoy your new motorcycle, and don't forget — drive safely!

BAYERISCHE MOTOREN WERKE
Aktiengesellschaft

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Technical data

	Motorcycle Model	R 50	R 60	R 69 S	
Engine:	Type of engine	four-cycle, with V-type overhead valves			
	Maximum horsepower rating	26	30	42	
	at engine r.p.m.	5,800	5,800	7,000	
	No. of cylinders	2	2	2	
	Cylinder arrangement	horizontally opposed			
	Bore (mm.)	68	72	72	
	Stroke (mm.)	68	73	73	
	Piston displacement (c.c.)	493	593	593	
	Compression ratio	7.5 : 1	7.5 : 1	9.5 : 1	
	Valve timing, with valve clearance of .08" (2 mm.), (tolerance $\pm$ 2.5 deg.):				
	Intake opens	6 deg. after T.D.C.	6 deg. after T.D.C.	4 deg. after T.D.C.	
	Intake closes	34 deg. after B.D.C.	34 deg. after B.D.C.	44 deg. after B.D.C.	
	Exhaust opens	34 deg. before B.D.C.	34 deg. before B.D.C.	44 deg. before B.D.C.	
	Exhaust closes	6 deg before T.D.C.	6 deg. before T.D.C.	4 deg. before T.D.C.	
Valve clearance (measured with engine cold):					
Intake	.006" (.15 mm.)	.006" (.15 mm.)	.006" (.15 mm.)		
Exhaust	.008" (.20 mm.)	.008" (.20 mm.)	.008" (.20 mm.)		
Lubrication system		combined force-feed/centrifugal lubrication. With geared pump; oil sump.			
Carburetors:	Type	two inclined BING carburetors with sliding throttle and needle valve			
	BING model	left	1/24/131	1/24/133	1/26/75
		right	1/24/132	1/24/134	1/26/76
	Carburetor passage		.94" (24 mm.)	.94" (24 mm.)	1.02" (26 mm.)

		R 50	R 60	R 69 S
Carburetor (cont'd)	Main jet	105	110	135
	Needle jet 45–251/	1308	1308	2108
	Jet needle	46–255	46–255	46–934, No. 4
	Needle position	3	3	2
	Idling jet	35	35	35
	Idling mixture adjusting screw	proper position: open 1 to 2½ turns		
	Sliding throttle	22–542	22–542	22–531
	Weight of float	¼ oz. (7 gms.)	¼ oz. (7 gms.)	¼ oz. (7 gms.)
	Intake air filter	common micronic dry filter; with choke for R 50 and R 60, without choke for R 69 S		
Electrical equipment:	Ignition	Bosch MZ ad/R magneto		
	Drive	direct from camshaft, at half engine speed		
	Contact breaker gap	.014–.016" (.35–.40 mm.)		
	Ignition timing	automatic centrifugal advance and retard unit on camshaft		
	Firing point	9 deg. before T.D.C. (with governor weights in stationary position)		
	Timing range	30 deg. of crankshaft		
	Max. advance	39 ± 2 deg. before T.D.C.		
	Spark plugs	Bosch W 240 T 1, or Beru 240/14		
	R 50 and R 60	for running-in period: BOSCH W 240 T 1, or BERU 240/14;		
	R 69 S	afterwards: Bosch W 260 T 1, or Beru 260/14		
	Electrode gap	.028" (.7 mm.)		
	Generator (dynamo):	Bosch LJ/CGE 60/6/1700 R 5, with integral voltage regulator		
	Drive	direct from crankshaft		
	Horn	Klaxon ETF/4 D		
	Battery	6 V–8 A/h		
	Lighting System:			
	Headlights	Bosch LE/MTA 160 x 2 (48/3)		

		R 50	R 60	R 69 S
Electrical equipment (cont'd)	Bulb data			
	Country and traffic beam		Bilux lamp (twin-filament), 6 V, 35/35 watts	
	Parking light		pilot lamp, 6 V, 2 watts	
	Neutral indicator		pilot lamp, 6 V, 2 watts	
	Charging indicator		pilot lamp, 6 V, 2 watts	
	Speedometer illumination		pilot lamp, 6 V, .6 or 1.2 watts	
	Taillight and stoplight		twin-filament lamp, 6 V, 5/18 watts	
	License plate illumination		round-bulb lamp, 6 V, 5 watts	
	Blinker unit		Hella BI 81	
	Blinker bulb		tubular lamp, 6 V, 18 watts	
	Jack (socket), one-pole		under saddle; for sidecar lighting or flashlight	
Drive:	Clutch		single-plate dry clutch with plate spring	
	Transmission		four-speed, with sliding dog clutches, integral with engine, torque-dampened in all gears	
	Gear shift		positive-stop, sequential, foot-operated	
	Gear ratios		R 50, R 60, R 69 S	R 50 and R 60 with sidecar
		1st	4.171 : 1	5.33 : 1
		2nd	2.725 : 1	3.02 : 1
		3rd	1.938 : 1	2.04 : 1
		4th	1.54 : 1	1.54 : 1
	Power transmission from gearbox to rear wheel		fully enclosed universal shaft in right-hand rear swinging arm; axle drive by spiral bevel gears	
	Bevel gear ratios	R 50	R 60	R 69 S
	Solo	3.13 : 1	3.13 : 1	3.13 : 1
	No. of teeth:	8/25	8/25	8/25
	Sidecar	4.33 : 1	3.86 : 1	4.33 : 1
	No. of teeth:	6/26	7/27	6/26

		R 50	R 60	R 69 S
Frame, Suspension, Wheels:	Frame	welded duplex-tube steel frame		
	Suspension	pivoted swinging arms with hydraulically dampened suspension units and dual-action hydraulic shock absorbers		
	Brakes	light-alloy full-hub brakes with integral gray-cast iron rings brake drum diam. 7.8" (200 mm.); width 1.4" (35 mm.) effective brake lining area 28.2 sq. in. (182 cm. ²) front: duplex brake (2 leading shoes) rear: simplex brake		
	Rims			
	Solo	steel drop-center rims, 2.15 B x 18 (40 spokes)		
	Sidecar	all wheels: steel drop-center rims; front 2.15 B x 18, rear 2.75 C x 18		
	Tires			
	Solo	3.50 x 18	3.50 x 18	3.50 x 18 S
	Rear, with sidecar	4.00 x 18	4.00 x 18	(4.00 x 18)
	Max. unbalance	.32 oz. (9 gms.), as measured at inner rim diameter		
Tire Pressures:		Front Wheel	Rear Wheel	Sidecar Wheel
Driver alone		24 psi = 1.7 kg./cm. ²	28 psi = 2.0 kg./cm. ²	—
Driver and passenger		24 psi (1.7 kg./cm. ²)	33 psi (2.3 kg./cm. ²)	—
Driver with occupied sidecar		24 psi (1.7 kg./cm. ²)	27 psi (1.9 kg./cm. ²) ¹⁾	27 psi (1.9 kg./cm. ²)
Driver and passenger plus occupied sidecar		24 psi (1.7 kg./cm. ²)	38 psi (2.7 kg./cm. ²) ¹⁾	27 psi (1.9 kg./cm. ²)
Dimensions (without load):	Overall width ²⁾	26" (660 mm.)	R 69 S: 28.4" (722 mm.) engine width	
	Width of solo handlebar ²⁾	26" (660 mm.)		
	Width of sidecar handlebar ²⁾	29.3" (745 mm.)		
	Overall width of motorcycle with attached sidecar ²⁾	64" (1,625 mm.)		
	Overall height	38.6" (980 mm.)		
	Saddle height	28.5" (725 mm.)		
	Overall length	83.6" (2,125 mm.)		

	R 50	R 60	R 69 S
Overall length of motorcycle with attached sidecar	94.4" (2,400 mm.)		
Wheelbase, solo	55.7" (1,415 mm.)		
Wheelbase, with sidecar attached	57" (1,450 mm.)		
Track width, motorcycle with attached sidecar	43.3" (1,100 mm.)		
Ground clearance	5.3" (135 mm.)		
Weights:			
Curb weight ³⁾	436 lbs.	436 lbs.	445 lbs.
with sidecar	705 lbs.	705 lbs.	(714 lbs.)
Permissible total weight ⁴⁾	794 lbs.	794 lbs.	794 lbs.
with sidecar	1,323 lbs.	1,323 lbs.	(1,323 lbs.)
Permissible axle loads front	331 lbs.	331 lbs.	331 lbs.
rear, solo ⁵⁾	496 lbs. (705)	496 lbs. (705)	496 lbs.
rear, with sidecar	705 lbs.	705 lbs.	(705 lbs.)
sidecar wheel	353 lbs.	353 lbs.	(353 lbs.)
Maximum occupancy (including driver): solo, 2 persons; with sidecar, 3 persons.			
Speeds:	The speeds given below are maximum speeds of already run-in motorcycles. The speed is largely dependent on the air resistance caused by the rider's size, position, clothing, etc. (For maximum permissible speeds in the individual gears during the running-in period, see pages 77, 78 and 79.)		
Solo, normal sitting position	81 m.p.h. (130 km./h.)	84 m.p.h. (135 km./h.)	100 m.p.h. (160 km./h.)
Solo, crouched position	87 m.p.h. (140 km./h.)	90 m.p.h. (145 km./h.)	109 m.p.h. (175 km./h.)
Sidecar attached	62 m.p.h. (100 km./h.)	69 m.p.h. (110 km./h.)	—

¹⁾ with 4.00 x 18 tire for motorcycles with sidecar

²⁾ without blinkers

³⁾ Curb weight = weight of the motorcycle with fuel, lubricants and tool kit

⁴⁾ Permissible total weight = curb weight + passengers + baggage

⁵⁾ Figure in brackets for operation with sidecar and 4.00 x 18 tire

Acceleration	R 50	R 60 ⁴⁾	R 69 S
zero to 50 km./h. (= 31 m.p.h.)	3.2 sec.	4.5 sec.	2.6 sec.
zero to 60 km./h. (= 37 m.p.h.)	4.1 sec.	6.0 sec.	3.3 sec.
zero to 80 km./h. (= 50 m.p.h.)	6.8 sec.	10.3 sec.	5.3 sec.
zero to 100 km./h. (= 62 m.p.h.)	10.3 sec.	16.5 sec.	7.5 sec.
zero to 120 km./h. (= 75 m.p.h.)	14.3 sec.	—	11.1 sec.
zero to 140 km./h. (= 87 m.p.h.)	—	—	16.0 sec.
1,000 m (.62 miles) with standing start	36.6 sec.	39.9 sec.	30.1 sec.

Fuels and lubricants:

	R 50 and R 60	R 69 S
Fuel	regular	super
Fuel tank capacity including a reserve of	4.5 U.S. gals. (3.75 Imp. gals.; 17 liters) approx. 1/2 gal. (2 liters), for about 20 miles (30 km.)	
Lubricants	only use high-grade greases and oils recommended by your BMW dealer	
Engine	Brand name HD oil for gasoline engines, quantity required: .52 U.S. gal. (.44 Imp. gal., 2 liters)	
Outside temperature	Oil grade recommended	
below 32° F	Multigrade Oil SAE 10 W-30	
from 32° to 86° F	Single-Grade Oil SAE 30	
above 86° F and for sustained sporty driving	Single-Grade Oil SAE 40	
Transmission	SAE 10 W 30 HD oil for gasoline engines, summer and winter; quantity: .21 U.S. gal. (.18 Imp. gal., .8 liter)	
Drive shaft housing	SAE 40 engine oil, summer and winter, 9 cu. in. (150 cc.)	
Bevel drive	SAE 40 engine oil, summer and winter, 9 cu. in. (150 cc.)	
Contact breaker lubricating felt and centrifugal advance unit	Bosch grease Ft 1 v 4	
Wheel hubs and other grease points	Brand-name universal grease (drip temperature 356° F = 180° C).	

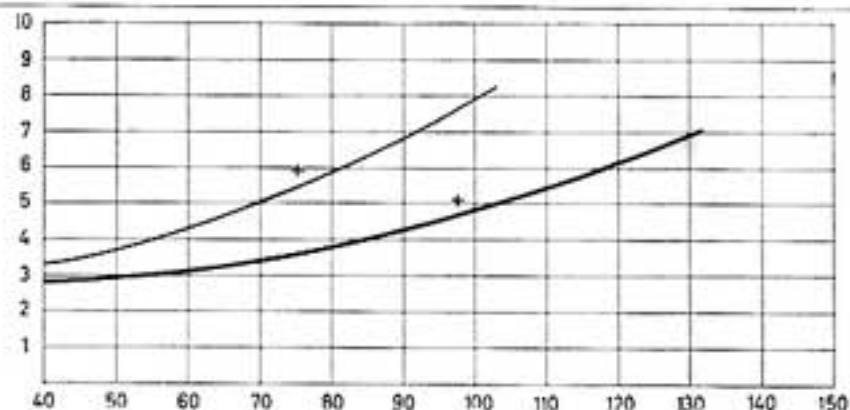
⁴⁾ with sidcar and 132 lbs. (60 kgs.) of ballast

Consumption R 50

Fuel consumption depends on the mode of driving and the driving speeds

		Solo	sidecar
computed according to German Standards, DIN 70030	miles per U.S. gal.	46	40
	miles per Imp. gal.	55	48
	at a speed of (m.p.h.)	61	47

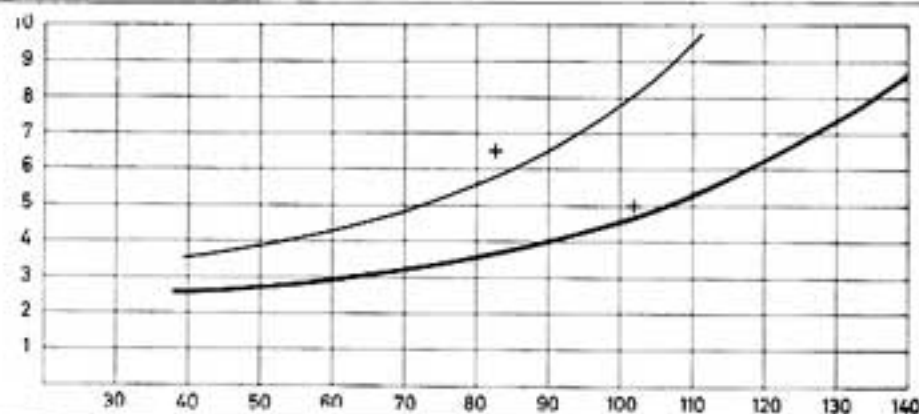
Oil consumption: approx. 1 to 1½ quarts per 1,000 miles

**Consumption R 60**

Fuel consumption depends on the mode of driving and the driving speeds

		solo	sidecar
computed according to German Standards, DIN 70030	miles per U.S. gal.	47	36
	miles per Imp. gal.	56	43
	at a speed of (m.p.h.)	63	51

Oil consumption: approx. 1 to 1½ quarts per 1,000 miles

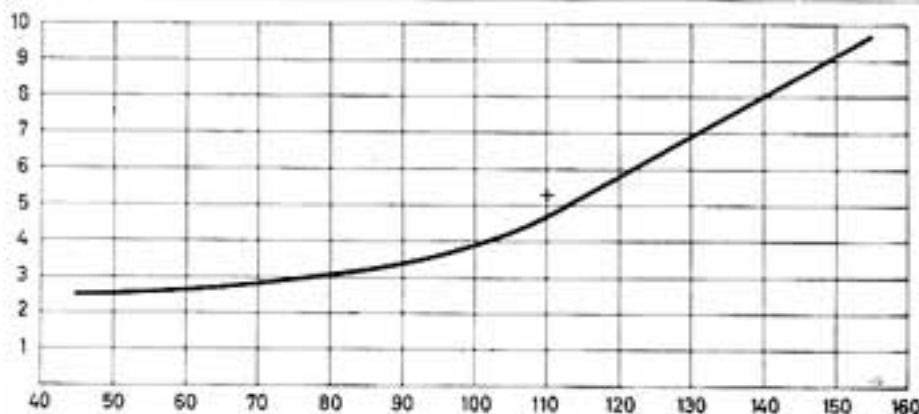
**Consumption R 69 S**

Fuel consumption depends on the mode of driving and the driving speeds

computed according to German Standards, DIN 70030	miles per U.S. gal.	44
	miles per Imp. gal.	53
	at a speed of (m.p.h.)	69

Oil consumption: approx. 1 to 1½ quarts per 1,000 miles

The cross indicates consumption according to German Standards DIN 70030



Licensing Data

Frame and Engine
Serial Numbers,
Manufacturer's
Name Plate

630 001

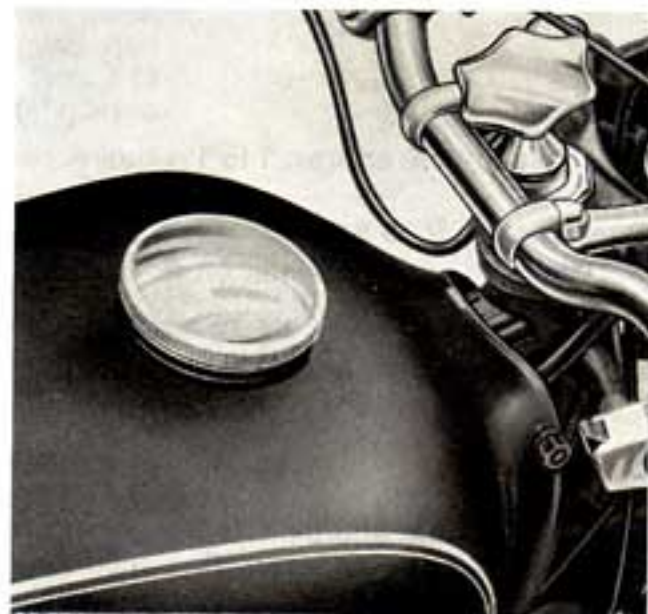


Servicing data

Fuel:

Regular gasoline for R 50 and R 60;
super for R 69 S.

Fuel tank capacity: 4.5 U. S. gals. (3.75 Imp.
gals.; 17 liters), including a reserve of
approx. 1/2 gal. (2 liters).



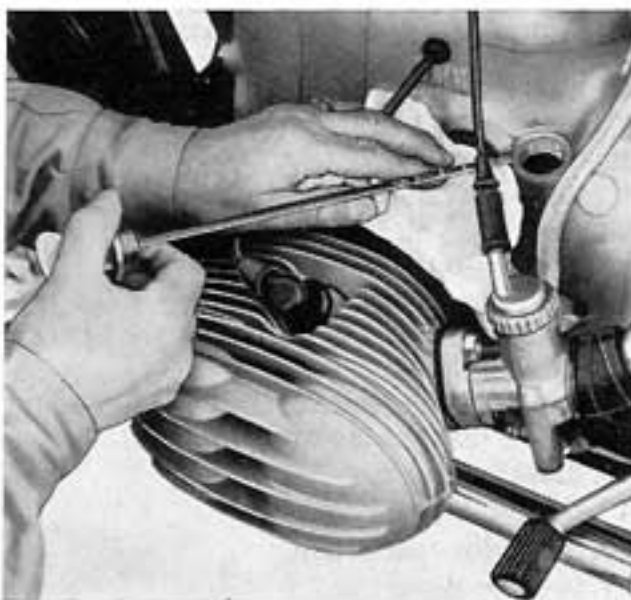
Lubricants:

Engine: Use quality HD oil for gasoline engines. Type of oil: see page 34.

Quantity: .52 U.S. gals. (.44 Imp. gals.; 2 liters).

To check the oil level (in the beginning approx. every 300 miles = 500 km.), screw out the dipstick (attached to filler plug), wipe dipstick clean and stick it into the housing (do NOT screw it in). The oil level should never drop below the lower mark (MIN) nor rise above the upper mark (MAX).

Change oil while the engine is still warm, after the first 300 (500 km.), 1,000 (1,500 km.) and 2,000 (3,000 km.) miles and thereafter every 2,000 miles (3,000 km.). Oil drain plug SW 19 is located at the bottom of the oil sump.

**Transmission:**

Use quality HD oil for gasoline engines.

Type of oil: SAE 10 W 30, summer and winter.

Quantity: approx. .2 gals. (.8 liters).

Check the oil level regularly in conformity with the Lubrication and Maintenance Schedule; fill up to the lowermost thread of the filler opening.

Change oil for the first time at 1,000 miles (1,500 km.), then every 16,000 miles (24,000 km.).

Oil drain plug SW 19 is located at the bottom of the gearbox.

Drive shaft in swinging arm and rear-axle drive.

Brand name engine oil SAE 40 — summer and winter

Quantity:

right swinging arm: 9 cu.in. (150 c.c.);

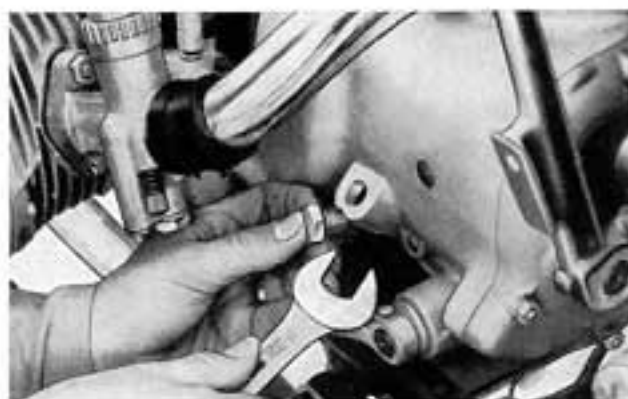
rear-axle drive: 9 cu.in. (150 c.c.).

Check the oil level regularly in conformity with the Lubrication and Maintenance Schedule; fill up to lowermost thread of filler opening, if necessary.

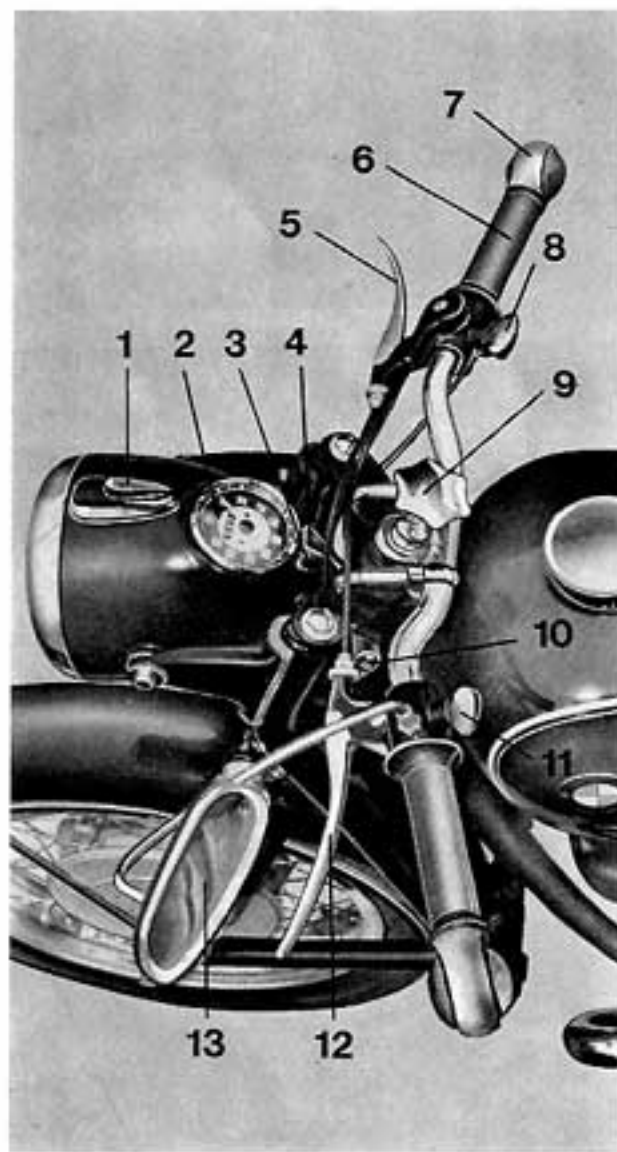
Change oil for the first time at 1,000 miles (1,500 km.), then every 16,000 miles (24,000 km.).

Oil drain plugs: SW 14 at the swinging arm flange; SW 19 at the bottom of the axle drive casing.

Tire pressures: see page 10



Operation and controls



1. Ignition and light switch

To insert the key, slide protective cover forward.

Ignition key inserted in central position: ignition on, red charging indicator light burns if battery is charged and engine does not run.

Ignition key turned to the right: ignition and driving lights on.

Ignition key turned to the left: ignition and parking lights on. Light remains on if key is pulled out in this position.

2. **Speedometer** with odometer (mileage indicator) and marks I, II, III to indicate top speed in 1st, 2nd and 3rd gear (after running-in).

3. **Charging indicator:** goes out when generator (dynamo) is supplying current.

4. **Neutral indicator:** when ignition is on, green light burns if gearbox is in neutral.

5. **Handbrake lever** for front brake.

6. **Throttle twist-grip.**

7. **Blinker** (turning indicator), supplied as standard equipment only in Germany.

8. **Blinker and horn switch:** upper position = left; center = off; lower position = right. To blow the horn, push-in on the switch.

9. **The steering damper** should be tightened somewhat more when driving on bad roads, at high speed rates or with sidecar, than for solo operation. On the R69S models equipped with the hydraulic steering damper, the star-shaped knob is marked by a red dot. Dot pointing to the rear means damper disengaged, dot pointing toward front means engaged position (see also pages 18, 28, 37).

10. **Steering lock.** turn handlebar all the way to the right, turn up cover plate, insert key, turn key to the left and press in together with the lock, turn key to the right, and pull out key.

11. **Dimmer and headlight flasher switch:** upward = high beam, downward = low beam. To operate the headlight flasher push-in on the switch.

12. **Clutch lever.**

13. **Rear-view mirror.**

14. **Fuel shut-off:** downward = off; backward = on; forward = reserve.

15. **Tool box lock.**

16. **Electrical jack** (socket) for work light or sidecar lighting.

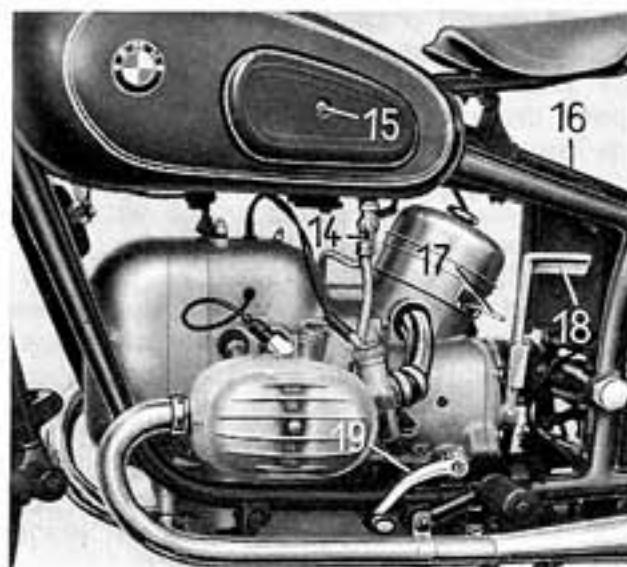
17. **Micronic air intake filter** with sliding choke (except the model R 69 S).

18. **Kickstarter.**

19. **Gearshift foot lever.**

20. **Pedal for rear brake.**

21. **Priming button.**



Starting engine

Giving throttle, when engine is cold

Open the twist-grip slightly and simultaneously depress priming buttons on both carburetors 3 to 4 seconds. Close sliding choke (only on R 50 and R 60), if temperature is below 32° F (0° C).

When engine is warm,

open twist-grip slightly, do not depress priming buttons on carburetors, do not close sliding choke on R 50 and R 60.

Turn over the engine,

with the ignition off and gearbox in neutral (red and green lamps are out (by actuating kickstarter twice.

To start engine,

switch on ignition (red and green lamps light-up) and give kickstarter a short, vigorous kick. As soon as the engine fires, open sliding choke.

Moving off

To change from neutral to first gear,

disengage clutch, depress gearshift foot lever (green light goes out), release clutch lever gently, and slightly open twist-grip throttle. Never move off with too much throttle, but accelerate gradually.

Changing gears

To change up from 1st via neutral to 2nd, 3rd and 4th gear,

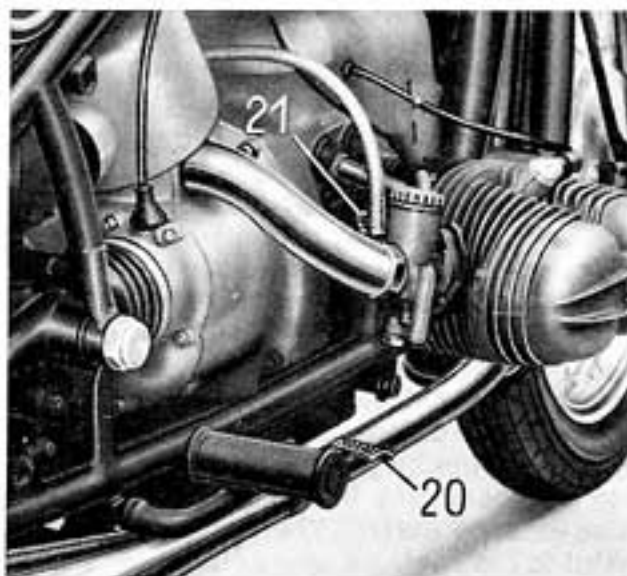
disengage clutch before shifting, simultaneously closing the throttle, then lift gearshift foot lever (once for each gear), engage clutch and reopen throttle as required. The foot lever automatically returns to its initial position after each operation.

Changing down from 4th to 3rd and 2nd gear, and down to the first via neutral,

disengage clutch before shifting, leaving throttle open a little, then press gearshift lever down (once for each gear), engage clutch and open throttle as required.

To change into neutral from 3rd or 4th gear,

step on the gearshift lever several times (down to 1st gear) and then lift foot lever slightly up into neutral.



Running-in

Running-in (breaking-in) is of vital importance for your new motorcycle. Even though its parts were machined and finished with the greatest possible precision, they must be further worked in during the first few hundred miles of operation. To ensure a long service life and reliable operation of your motorcycle, it is therefore in your own interest not to exceed, nor to

maintain over long stretches, the specified maximum running-in speeds during the 600-miles (1,000-km) running-in period. Engine, transmission and rear-axle drive are best run in under varying speeds and loads with much gear changing, for example on winding roads or in hilly country. On level highways, drive at the permissible running-in speed for about 500 yards (500 m.) and then let the motorcycle coast.

Do not race the engine in neutral. When

driving uphill, change down early enough to avoid overloading the engine. Shift to the next lower gear before the engine speed drops off too much, since driving in the lower gears, even over long distances, does the engine no harm, provided that the specified speed limits are observed.

When your odometer (mileage indicator) has reached 600 miles (1,000 km.), we recommend to gradually increase, during the next 600 miles, the full throttle stretches, which should be very short at the beginning of the running-in period. On R 69 S motorcycles, the spark plugs used for running-in (heat factor 240) should be replaced by plugs with a heat factor of 260 (see Technical Data, page 8.) at a mileage of 1,200 (2,000 km.).

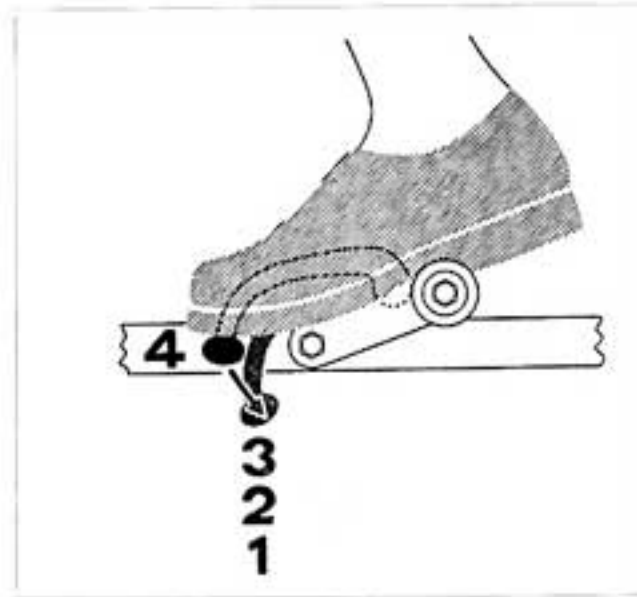
When driving on bad roads, at high speeds, or with sidecar, turn the knob of the friction-type steering damper on all sidecar equipped motorcycles and on R 50 and R 60 solo motorcycles slightly lighter than at lower speeds on good roads.

The solo sports model R 69 S is equipped with a hydraulic steering damper. Under normal conditions, leave its knob turned to the right (damper engaged, red dot on the knob pointing to the front). Only on slippery or ice-covered roads is it advisable to disengage the damper to have a finer "feel" in steering.

Note: the hydraulic steering damper is engaged only if the knob is turned clockwise into its detent. Do not leave the knob in an intermediary position. To disengage the damper, turn the knob counterclockwise into its detent. The red dot will then point to the rear.



Changing up from 1st to 4th gear, one gear at a time.



Changing down from 4th to 1st gear, one gear at a time.

Even after the running-in period is over, avoid letting the engine speed drop off too much, especially when taking hills, but change down early enough.

When riding downhill, change down to 3rd or lower, as required, and be careful not to exceed the specified speed limits in the individual gears. On long descents, apply front and rear brakes alternately, so that the other brake can cool off. Apply the brakes smoothly, i. e. increase pressure on the brake levers gradually, to prevent the brakes from locking.

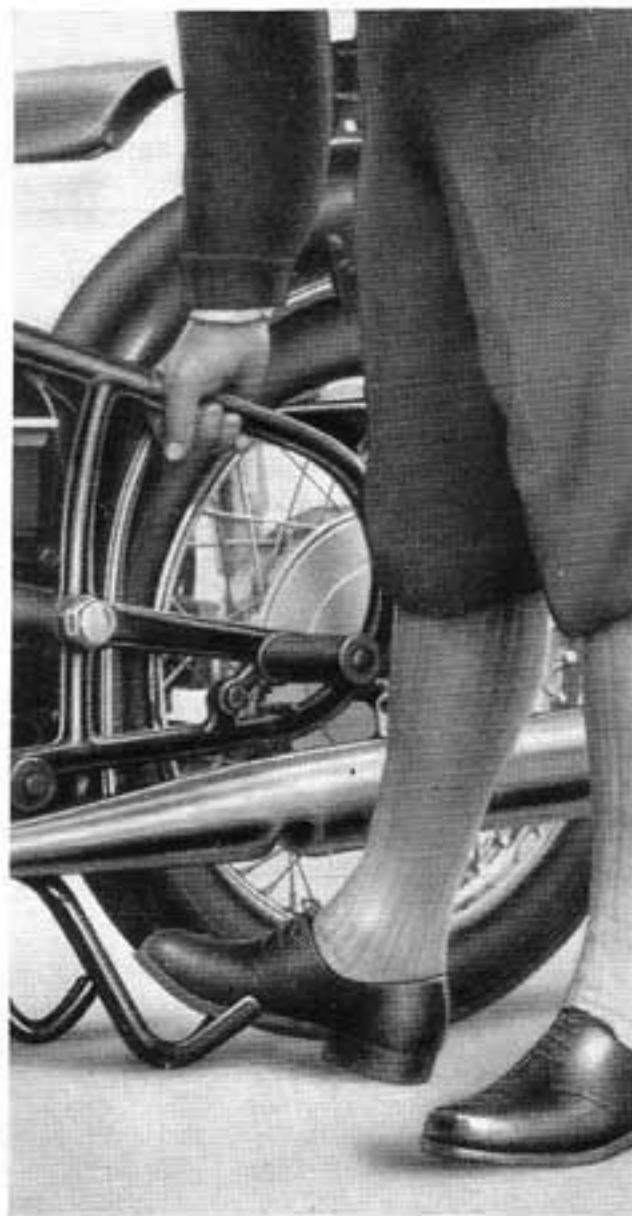
Front braking is more efficient, since, due to the motorcycle's inherent momentum, the weight is shifted forward to the front wheel.

When stopped, change down into neutral right away. Use clutch only for short instants to avoid unnecessary wear of the clutch operating rod.

To stop the engine, switch off the ignition. When parking the motorcycle, close the fuel shut-off.

Maximum permissible running-in speeds in the individual gears:

Indicated km. (mileage)	Axle Drive Ratio for	Speed in km./h. (m.p.h.)			
		1st	2nd	3rd	4th
(a) Model R 50					
0 to 1,000 km. (600 ms.)	Solo operation	km.: 35	55	80	100
		ms.: (22)	(34)	(50)	(62)
	Sidecar operation	km.: 20	35	55	75
		ms.: (12.5)	(22)	(34)	(47)
over 1,000 km. (600 ms.)	Solo operation	km.: 50	75	110	—
		ms.: (31)	(47)	(69)	—
	Sidecar operation	km.: 30	55	80	—
		ms.: (19)	(34)	(50)	—
(b) Model R 60					
0 to 1,000 km. (600 ms.)	Solo operation	km.: 35	55	80	100
		ms.: (22)	(34)	(50)	(62)
	Sidecar operation	km.: 20	35	55	75
		ms.: (12.5)	(22)	(34)	(46.6)
over 1,000 km. (600 ms.)	Solo operation	km.: 50	75	110	—
		ms.: (31)	(46.6)	(68.3)	—
	Sidecar operation	km.: 35	60	90	—
		ms.: (22)	(37.3)	(56)	—
(c) Model R 69 S					
0 to 1,000 km. (600 ms.)	Solo operation	km.: 40	60	85	110
		ms.: (25)	(37)	(53)	(69)
	Sidecar operation	km.: 30	45	65	85
		ms.: (19)	(28)	(40)	(53)
over 1,000 km. (600 ms.)	Solo operation	km.: 60	95	135	—
		ms.: (37)	(60)	(85)	—
	Sidecar operation	km.: 40	70	100	—
		ms.: (25)	(44)	(62)	—



Using kickstand

To set the motorcycle up on its stand, press the kickstand downwards by stepping on its leftside leg and pull motorcycle up and to the rear. The inertia of the machine will help to carry it up onto the stand.

Description

General

The BMW two-cylinder motorcycles R 50, R 60, and R 69 S are essentially the same in construction. The sports model differs externally from the touring-sport models in that it has a hydraulic steering damper (with a red dot on the knob), a larger air intake filter, finned light-metal nuts on the exhaust tubes, and cylinder heads with fewer but sturdier fins. Besides, the sports model possesses a vibration damper.

Of the touring-sport machines, the R 50 can be recognized externally by the circular cooling fins on the cylinder, whereas those on the R 60 are somewhat extended at the front and rear. In any case, a model may be readily identified by consulting the nameplate at the steering head on the frame.

The engine of the R 50 touring-sport machine has a bore of 2.68" (68 mm.) and a stroke of 2.68" (68 mm.) and is rated at 26 horsepower at 5,800 r.p.m. It is these carefully balanced and proportioned engine characteristics which account for the excellent road performance (both for solo and sidecar operation), the absolute reliability, and the long service life. There are only minor differences between this model and its predecessor which had firmly established its reputation over many years.

In the 600 c.c. displacement class, the R 60 appears as the successor to the earlier, time-tested model. The engine rating has been increased to 30 horsepower at 5,800 r.p.m.; otherwise there are only relatively

minor changes on the new model. Therefore, in accordance with long-established BMW tradition, the customer is once again offered a motorcycle which incorporates the most recent technical improvements but which has also been continuously perfected and improved in the course of many years, and which is especially suited for sidecar operation because of its reserve power. The solo R 69 S — a thoroughbred sports motorcycle — is rated at 42 horsepower at 7,000 r.p.m. and is the most powerful machine produced by BMW. This internationally renowned motorcycle is a continuation of the already successful R 69 series and differs from the earlier versions only in the vibration damper and in those minor changes which were necessary to increase the horsepower. It may, on special request, by the factory be transformed for sidecar operation.

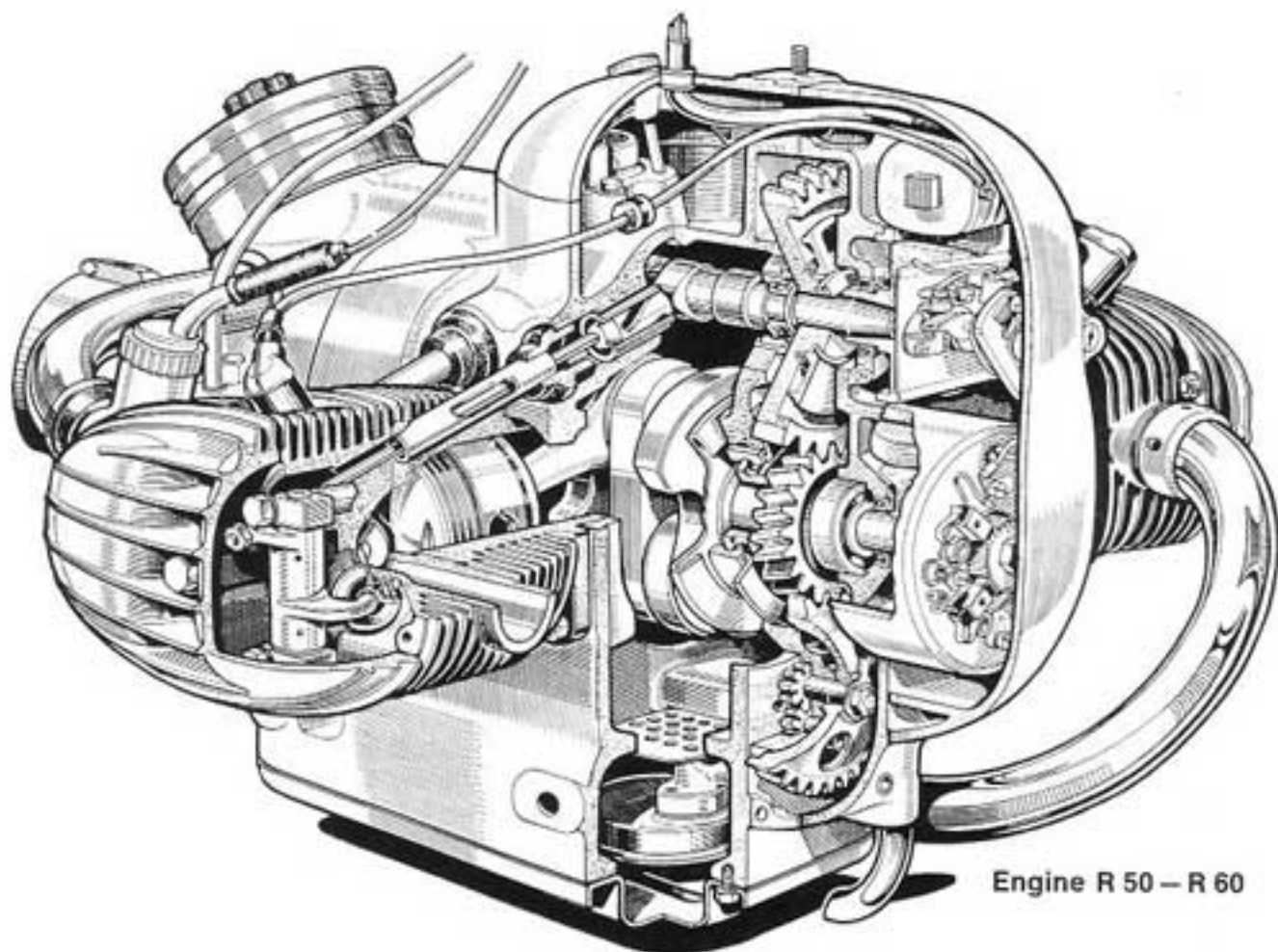
A. Engine

1. Engine Housing

The engine housing consists of a one-piece, internally stiffened crankshaft bearing cover, the gearing cover, a cowling for the magneto and generator (dynamo), and a protective cover for the cooling duct connecting the air filter chamber with the generator housing. All parts of the housing are cast from a very sturdy lightmetal alloy and are heat-treated.

2. Crankshaft, Connecting Rods and Vibration Damper

The sectional, forged steel crankshaft is fitted with two pressed-in crank pins dis-



Engine R 50 — R 60

placed 180° from each other; the crankshaft has been carefully dynamically balanced, which guarantees vibration-free engine operation. The crankshaft journals run in two oversize ball bearings (on the R 50 S and R 69 S models, in a spherical roller

bearing at the rear). The dropforged connecting rods, which are oval in cross-section, are mounted on the crank pins by means of large roller bearings. The eye for the piston pin in each of the connecting rods is provided with a bushing.

The vibration damper for the model R 69 S operates on the spring-mass principle. It consists of a steel disc which is snugly installed upon a plastic ring, yet free to rotate in order to absorb the vibrations occurring at very high r.p.m. rates and high power output. Its installation into the R 50—R 60 models is not advisable.

3. Pistons

The pistons are made of a special light-metal alloy and have 3 piston rings each: the upper ring is hard-plated, the second is a chamfer ring, and the third an oil-scraper ring. The piston rings are designed for minimum wear, positive lubrication, and tight sealing. The amply dimensioned piston pins float in their bearings and are secured against axial displacement by spring retaining washers.

4. Cylinders and Cylinder Heads

The gray-cast iron cylinders are provided with deep cooling fins. Two valve push rod guides are press-fitted into the upper side of each cylinder, and seated in rubber against the engine housing. An oil passage is press-fitted into the lower side of each cylinder.

The light-alloy cylinder heads are also amply finned and provided with shrunk-in valve seats — special grey-cast iron for the intake, and heat-resistant steel for the exhaust. The valve guides are press-fitted. Each of the cylinder heads is mounted on the cylinder by means of 4 bolts, which clamp the cylinder head fast against the cylinder via long steel extensions press-fitted into the head. At the same time, the bolts serve to fix the rocker arm brackets.

5. Camshaft and Valves

The camshaft is mounted in ball bearings above the crankshaft in the engine housing; it is driven at half the crankshaft speed by a pair of silent-running, helical gears. Each of the V-type valves in the cylinder heads is driven by a cam located on the secondary shaft which actuates the valve via a tappet, short push rod, and rocker arm. The rocker arms are pivoted in floating bushings on the mounting bolts.

Adjust valve clearances in the usual fashion using the adjusting screw and the locking nut on the rocker arms. Because of the manner in which the cylinder heads are mounted, thermal expansion of the light-metal cylinder heads exerts only a slight influence on the valve clearances. The entire camshaft and valve system has been carefully and thoroughly designed for especially silent operation and long service life.

6. Lubrication System

The engine has a forced-feed splash lubrication system with an oil pan in the crankshaft housing.

The oil pump is a geared pump which is driven by a pair of spur gears from the crankshaft. The pump draws the oil through a fine-mesh filter out of the sump and forces it through channels in the crankshaft housing to the two splash rings on the crankshaft.

Even the finest metallic particles are centrifugally separated and deposited on the inner circumference of the splash ring, while the cleaned oil enters the connecting rod bearings through the hollow crank pins

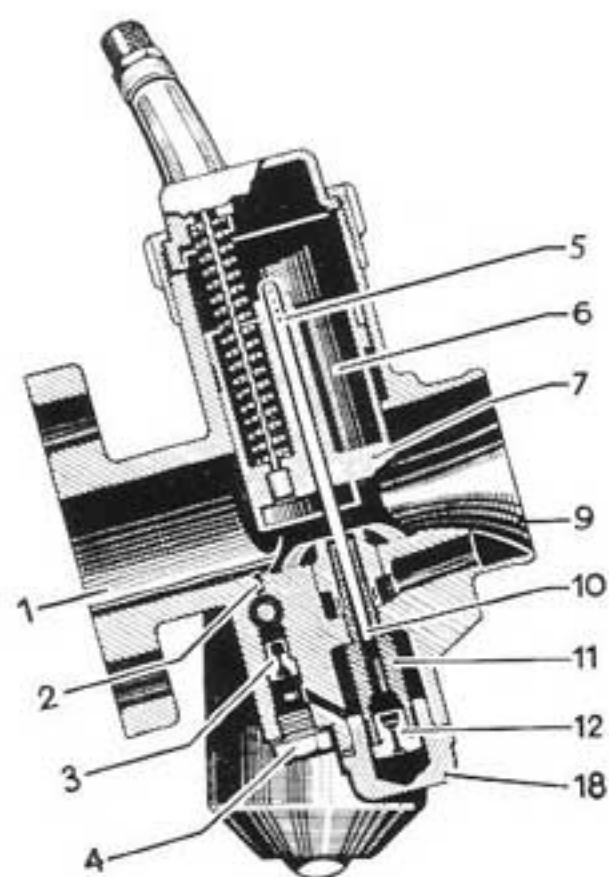
and is then sprayed into the cylinder, pistons, piston pins, and the camshaft. The splash oil penetrates farther through a passage behind the tappets into the push rod guides and flows from here to lubricate the rocker arm bearings in the valve chambers; the oil then drains back through borings in the cylinder heads and through an oil passage press-fitted into each cylinder back into the sump in the crankcase.

Oil from the lubrication pump is forced from the oil distribution passage to a spray jet for the spur gears driving the camshaft and to an annular channel around the lower part of each cylinder. Two small orifices in each channel provide additional lubrication to the cylinder walls (for cold starting and maximum performance).

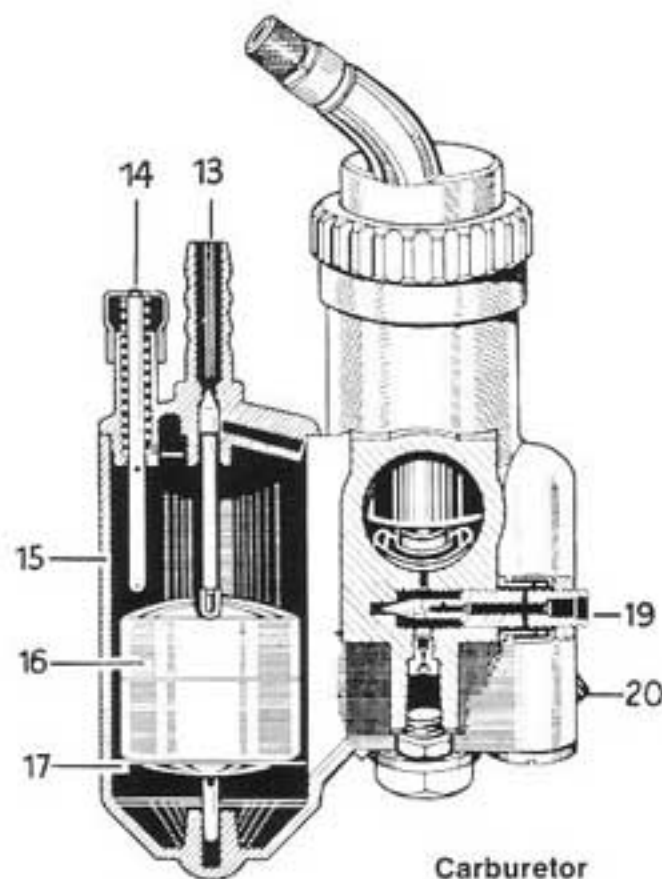
7. Carburetors

The Bing "Spezial" carburetors are sleeve valve carburetors with integrally cast float housings and a passage diameter of .94" (24 mm.) on the R 50 and R 60, and 1.02" (26 mm.) on the R 69 S. The carburetors are flange-mounted with an inclination of 15 degrees to the left and to the right. Each carburetor consists essentially of a main jet system and a needle jet coupled to the throttle. In order to prevent any interruption of the fuel flow to the jets by the action of centrifugal force during turning, a fuel balance chamber is fitted opposite to the float chamber.

Design and functioning of carburetors. Fuel enters float chamber (15) through hose fitting (13) and is maintained at a constant level in the chamber by the float system. In



order to prevent unevenness caused by vibration, float (16) is equipped with a damper ring (17). For starting, the fuel level can be temporarily raised by depressing priming button (tickler) (14), thus providing the engine with a richer mixture. The fuel flows through passages from the float chamber to main jet (12) and idling jet (3). The main jet is installed in needle jet (11), in which



a tapered needle valve (10), by moving up and down, changes the effective cross-section of the fuel passage. A fraction of the intake air, which is diverted through a bore from air intake port (9), flows along the outside of the needle jet and initiates preliminary vaporization of the fuel leaving the annular channel in the needle jet. Complete vaporization is accomplished by the

impinging main air stream, before the air-fuel mixture arrives in the combustion chambers.

A tapered jet needle (10), which is controlled by the throttle (6, 7) ensures that a constant mixture ratio is obtained both at low and at high engine speeds.

The fuel which is sucked through idling jet (3), held in place by retaining screw (4), is mixed with air drawn through the idling jet air passage from the air intake port and then passes through a small bore behind the throttle valve directly into the inlet manifold.

The rough adjustment of the idling speed is made by means of throttle valve limit screw (20).

The fine adjustment of the idling speed is made by means of idling mixture adjusting screw (19). Screwing it in makes the mixture richer; screwing it out makes it leaner. In order to prevent fuel from overflowing into the cylinders through the intake manifold in the event of leakage at the float needle, idling mixture adjusting screw (19) is provided with bores and fitted with a sleeve and cap, so that overflowing fuel can escape outside.

The carburetors have been set at the factory for the usual commercial grades of fuel. Re-adjustment of the jets and the needle (5) would be necessary only under unusual circumstances and should be left to an expert.

Caution: A prolonged idling — whether the engine is cold or hot — will be detrimental to any engine and should therefore be avoided as far as possible.

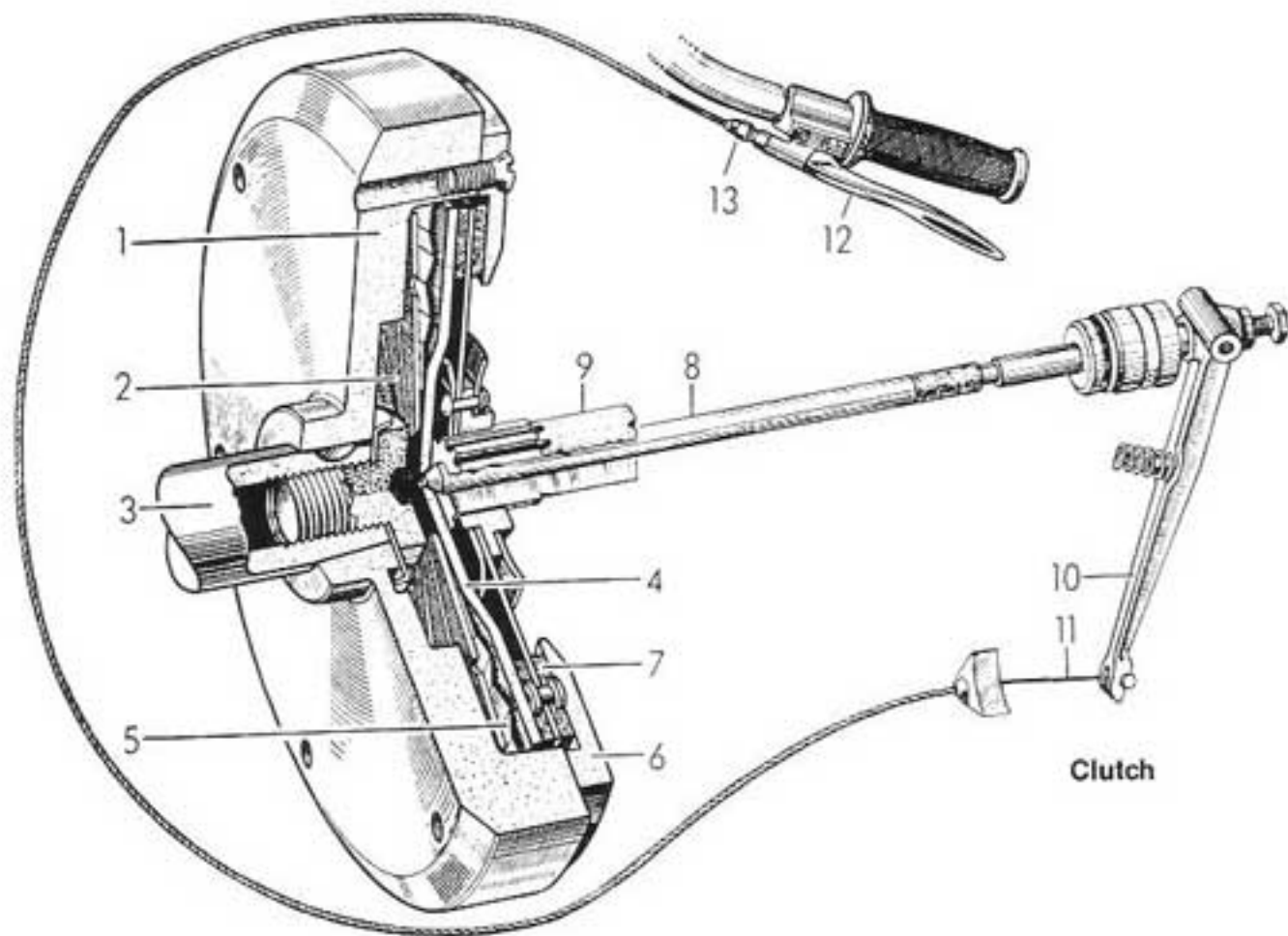
8. Clutch

The engine power is transmitted through the single-plate dry clutch to the gearbox. A disk spring (2) presses pressure plate (4), which is coupled to flywheel (1) by a diaphragm (5) and which is free to slide axially, against clutch plate (7) and pressure ring (6).

The pressure ring is rigidly connected to the flywheel; the clutch plate, which is fitted on both sides with clutch linings, is spline-coupled to the spring-loaded gearbox drive shaft (9) and therefore rotates along with it, while being free to slide axially. The crankshaft (3) is thus coupled to gearbox drive shaft (9).

The clutch operating lever on the left handlebar grip is connected by a control cable to throw-out lever (10) located on the gearbox. The transmittal of power from the engine to the gearbox is interrupted by squeezing clutch operating lever (12), which, via the clutch push rod, forces the pressure plate away from the clutch plate.

The single-plate dry clutch requires no maintenance. Proper manipulation results in a greatly extended service life. When moving off, open the throttle only slightly and let the clutch engage slowly. Jerky clutch operation at high engine speeds causes rapid wear of the clutch linings and subjects all parts of the transmission and drive, as well as the tires, to great strain. A spring on the gearbox housing cover maintains tension on clutch control cable (11) and holds the engaging lever in position. Because of gradual wearing of the clutch linings, adjustment of the clutch will be ne-



cessary from time to time. For this purpose, push the lower end of the engaging lever on the gearbox forward with your hand; a perceptible increase in resistance should be felt only after .20" (5 mm.) of play has

been taken up. If there is less play or none at all at the engaging lever, release knurled coupler (13) at the clutch operating lever and adjust the setting screw on the handlebar until the specified play is obtained.

B. Transmission

The gear-box forms an integral part of the engine housing. Its four different gear ratios permit the utilization of the full capabilities of the engine whatever the terrain or driving conditions. These gear ratios, or speeds, are derived from pairs of spur gears which remain continuously meshed during shifting, which guarantees easy and positive gear-changing.

The gear ratios in the gear-box are different for solo and sidecar operation, corresponding to the different load conditions. Therefore, if the motorcycle is subsequently modified for sidecar operation, or vice versa, it is necessary that the gears or the gear-box be changed.

(See "Subsequent Mounting of Sidecar", page 186).

In order to minimize the transmittal of the power pulsations from the engine to the driving system, the driving gear is so constructed that it may rotate with respect to the driveshaft against a spring. This torque-damper system reduces the load on the individual components in all four speeds and substantially increases their service life.

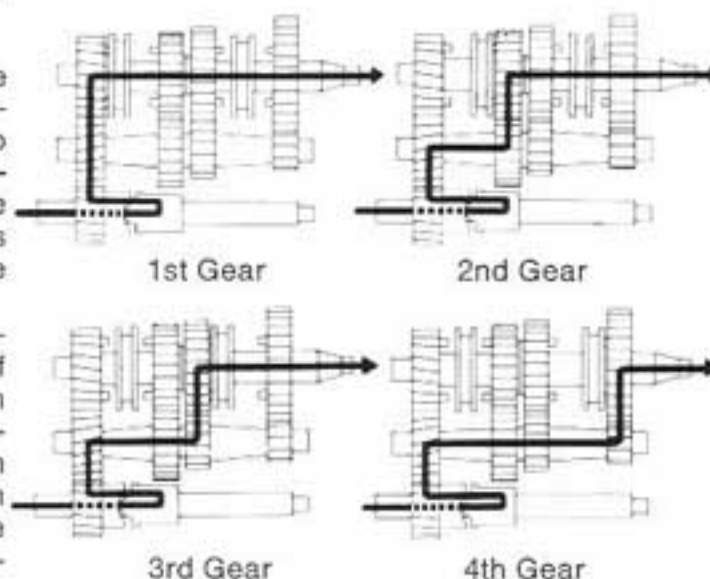
The transmission is foot-controlled by a so-called ratchet gear shift. Each movement of the shifting lever drives a rotatable cam plate. In this cam plate there are two grooved tracks, in each of which the follower pin of a shifting-fork rides. Rotation of the cam plate imparts a motion, governed by the shape of the grooved tracks, to the shifting-forks and thus to the associated sliding dogs. These sliding dogs engage and dis-

engage those pairs of gears which are appropriate to the gear ratio in question. In order to ensure positive and foolproof shifting from one gear, both up or down, to another when the shift lever is operated by the foot, the transmission is fitted with a ratchet and interlocking mechanism.

A foot-actuated gear shift contributes to greater driving safety, since both hands remain on the handlebars during changing gears.

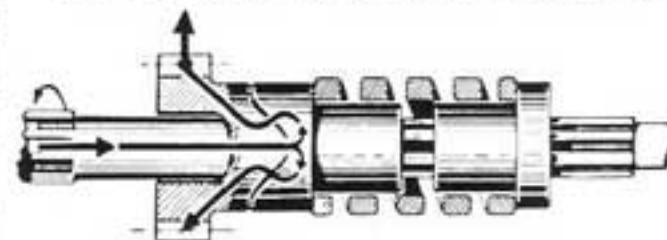
Lifting the foot shift lever transfers to the next higher gears, whereas depressing it transfers to the next lower gear or into neutral.

A green lamp in the headlight, actuated by an electrical contact built into the trans-



Power flow in different gears

Power flow through torquedampened drive



Drive gear in normal position



Drive gear in damping position

mission, indicates that the transmission is in neutral.

The gear box has its own oil filler plug through which the oil level may be checked or oil added.

C. Rear-axle drive

All BMW motorcycles feature the excellent, time-tested shaft-type rear-axle drive. The drive shaft is totally enclosed within the right rear swinging arm and runs in its own oil bath. At the front the drive shaft is attached to the driving flange of the transmission by means of a universal joint set in needle bearings. The rear end of the drive shaft terminates in an internally splined cup, which meshes with a coupler gear keyed to the drive pinion. The coupler gear is so designed that it is free to slide within

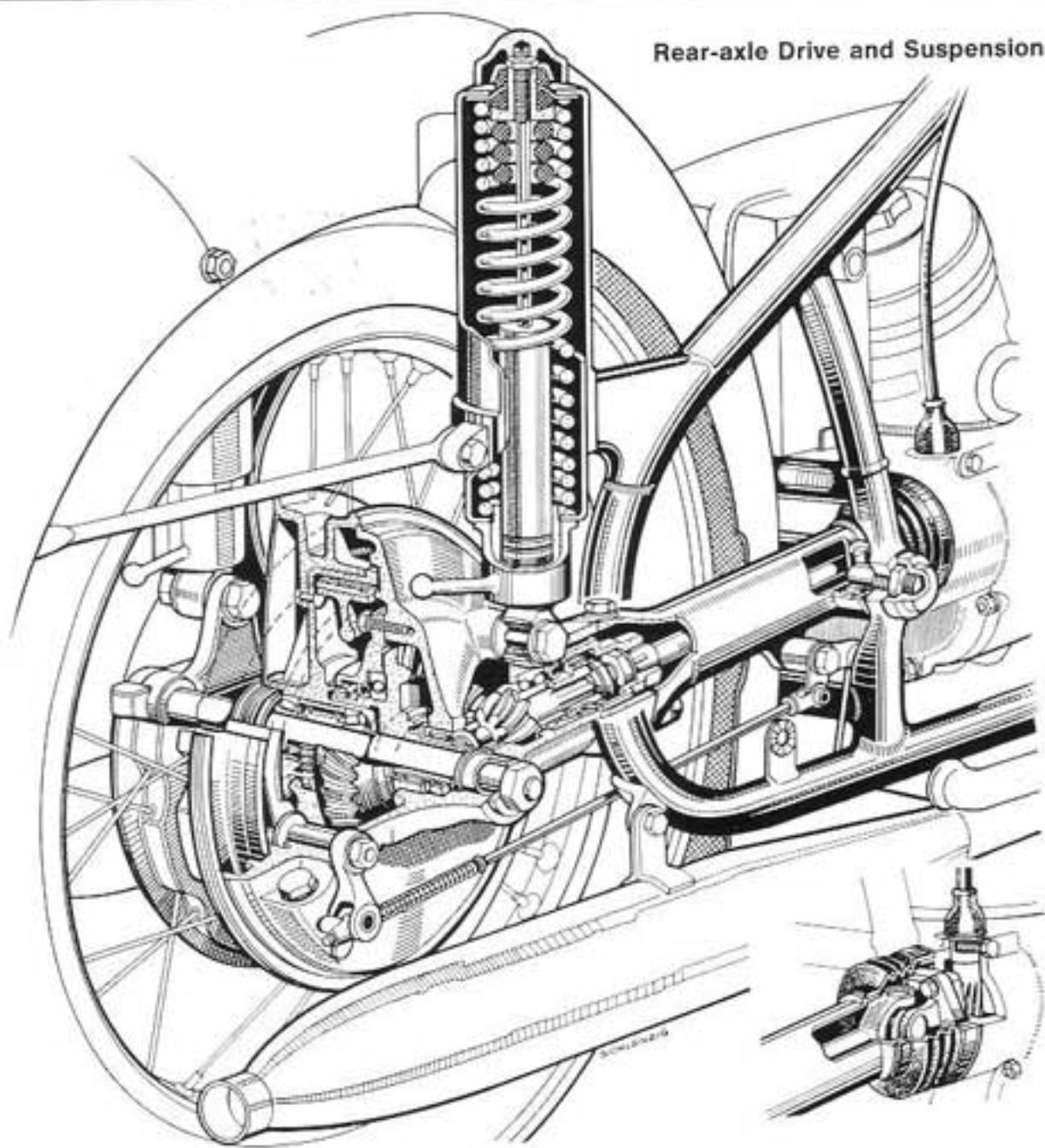
Rear-axle Drive and Suspension

the splined cup. The rear-axle drive pinion is rigidly mounted at the front in a double-row angular contact ball bearing and at the rear in a needle bearing. The crown gear is mounted on the outside in a needle bearing and on the inside in a ball bearing. The crown gear and the drive pinion are both spiral bevel gears which, by virtue of careful lapping and precision assembly, run noiselessly in an oil bath.

Splining on the crown gear shaft transfers the motive power to the rear wheel, which can then be easily removed upon withdrawing the axle spindle.

The rear-axle drive housing and the housing cover are formed from a very sturdy light alloy and are oil and dust tight. The ventilation is achieved through a labyrinth which is located in a dome integrally cast with the case. The wheel spindle ends and the drive shaft are fitted with oil seals. Behind the oil seal at the crown gear bearing there is a small passage in the bottom of the drive housing, beside the oil drain plug; this protects the brake, which is integral with the drive housing, from contamination in case of an oil leak. The oil level in the rear-axle drive and in the right rear swinging arm (drive shaft housing) should be checked regularly in conformity with the lubrication schedule, and oil added or changed, as required.

The gear ratios of the motorcycles for solo or sidecar operation are different corresponding to the different loads. If a motorcycle is subsequently modified for sidecar operation, or vice versa, the set of bevel gears must therefore be changed (see "Subsequent Mounting of Sidecar", page 189).



1967 R60/2



1967 R69S



D. Suspension and Wheels

1. Frame

The structurally-closed duplex tubular steel frame is characterized by particularly great torsional rigidity and supports major parts of the motorcycle. Mounting points are provided on the frame for attaching the BMW "Spezial" sidecar.

2. Engine Mounts

The engine housing is fixed, at the bottom, with two long bolts which pass through both lower runners of the frame and is cushioned in rubber against the upper tube of the frame.

3. Fuel Tank

The fuel tank, which has a capacity of 4.5 U.S. gals. (3.75 Imp. gals.; 17 liters) is connected by two outlets to the fuel shut-off; one of these is situated high enough that a reserve of approximately $\frac{1}{2}$ gallon (2 liters) remains in the tank. If the fuel shut-off is switched over to position "R" (lever forward), this fuel reserve will suffice for an additional distance of approximately 18 miles (30 km.).

It is however advisable to always refuel in time and to switch over to position "R" in an emergency only — but in good time. Thus you will avoid a momentaneous scarcity of fuel, likely to damage the pistons during a full throttle run.

4. Kickstand

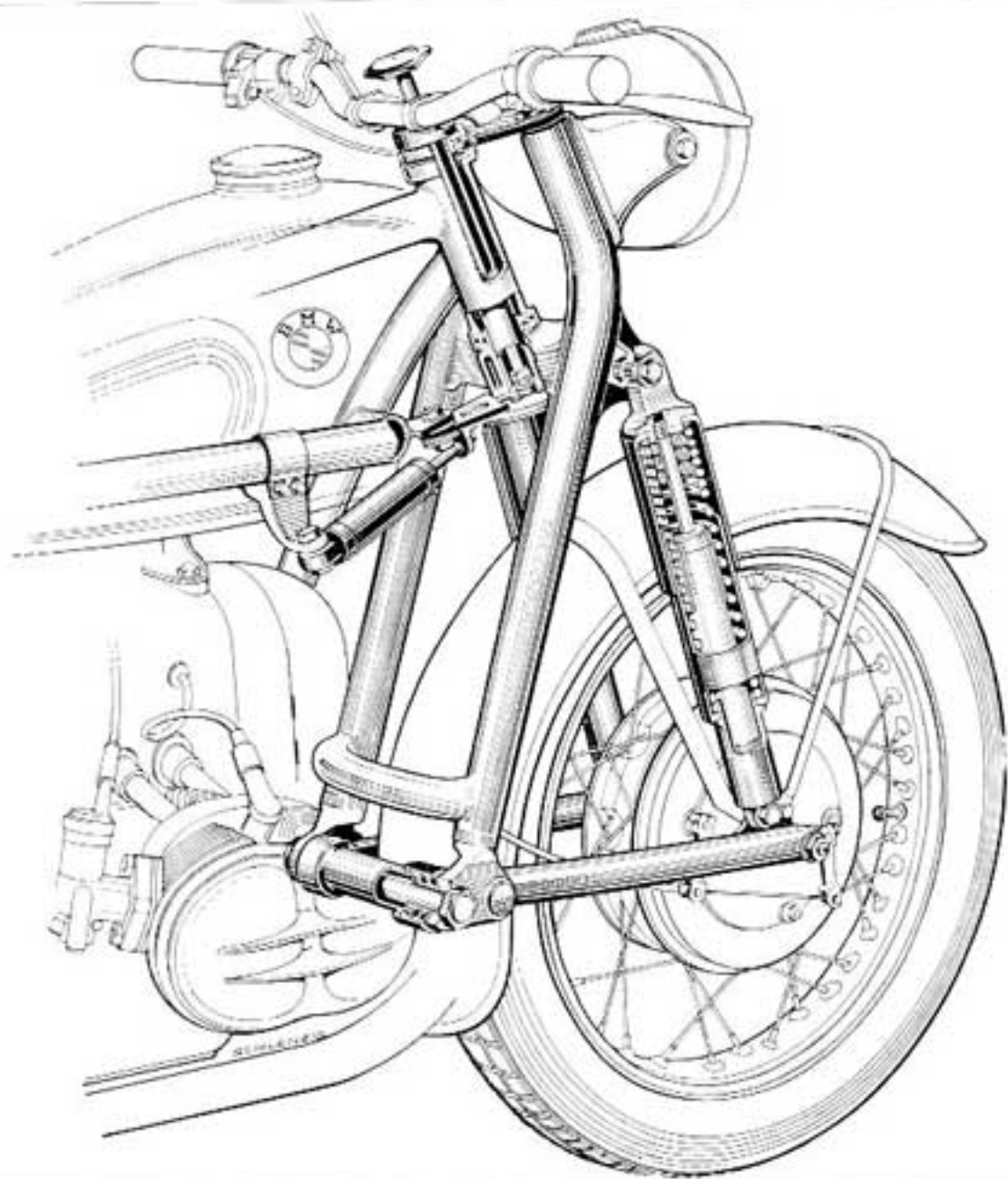
For parking the motorcycle, a kickstand is pivoted underneath the frame and is held swung up out of the way by two springs while driving. In order to set the motorcycle on its stand, release the kickstand from the retaining spring by stepping on its leftside leg.

5. Front Suspension

The front wheel is suspended in the two swinging arms of a sturdy fork which is pivoted freely but without play in the steering head. The swinging arms are pivoted to similarly close tolerances in adjustable taper roller bearings at the lower end of the fork. The shock absorbers are connected with rubber-mounted fittings, below to the swinging arms and above to the fork. In each shock absorber, a non-linear suspension spring is seated at the bottom of the inner telescope tube. A bi-directional damper is screwed into the lower part of each shock absorber, and its piston rod is fastened to the upper part. The suspension spring is prevented from bottoming out by rubber bushing at the top and is limited at the bottom by the hydraulic action.

For sidecar operation, the front wheel swinging arm pivot bearing is transferred from the rear position to the front position in the fork, which results in a smaller trail angle and hence in easier steering.

Moreover, for sidecar operation, stiffer suspension springs should be used, and the upper mountings for the shock absorbers should be changed to the lower locations on the fork.



6. Steering Damper

Vibration-free steering under rough road conditions is provided by a mechanical steering damper on all sidecar equipped machines and on the R 50 and R 60 "Solo" models. The friction plates in this damper may be pressed together, as required, by turning the knob to the right, which counteracts any tendency on the part of the fork to shudder.

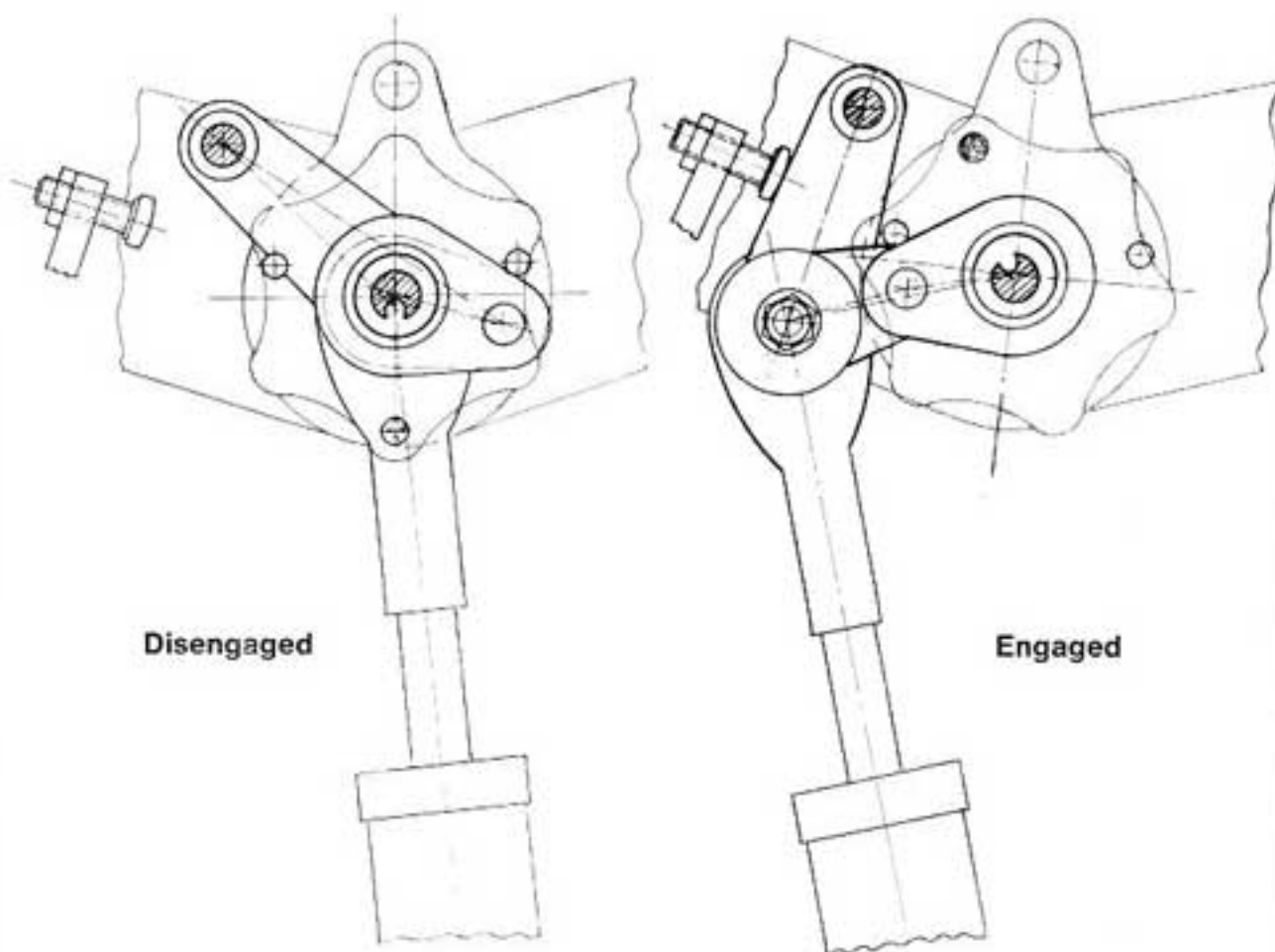
The "Solo"-type sports model R 69 S is equipped with a hydraulic steering damper. The rear of the damper cylinder is pivoted on the frame, and its piston rod, when the damper is engaged, is coupled by an offset linkage to the fork and is moved back and forth as the handlebar is turned. The damper fluid in the cylinder impedes the motion of the damper piston and hence also of the fork; the damping action is greater, the higher the vibration frequency. On the rear end of the cylinder is a mark which must point downwards.

The hydraulic damper is disengaged by rotating the knob fully counter-clockwise, which folds up the offset linkage on the fork. In this manner the pivot point between the piston rod and the offset link on the fork is made to coincide approximately with the pivot axis of the fork; the piston rod will thus remain essentially stationary when the handlebar moves. Intermediate positions of the knob should be avoided, since the damper is then ineffective.

7. Rear Suspension

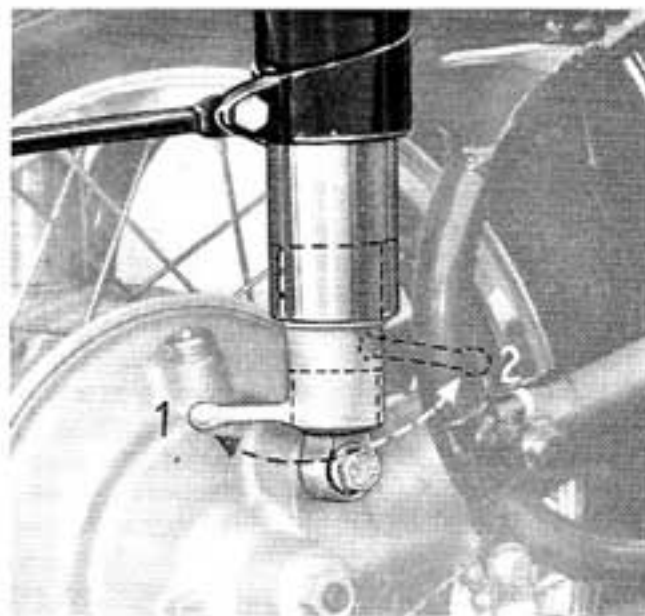
The rear wheel is fixed in a swinging fork which pivots in adjustable, close-tolerance taper roller bearings on the frame. Bumps

Hydraulic Steering Damper



in the road are dampened by two shock absorbers.

The shock absorber connecting eyes are rubber-mounted on the swinging arm (left side), and on the drive housing (right side). In each of the shock absorber assemblies, a non — linear suspension spring is seated at the bottom of the inner telescope tube and is seated at the top against the outer telescope tube fixed to the frame. A bi-directional hydraulic damper is screwed to the lower end of the inner telescope tube in each shock absorber, and its piston rod is seated in rubber against the upper end of the outer telescope tube. See page 119. The suspension spring is prevented by rubber bushings from bottoming out at the top and is limited below by the hydraulic action.



At the lower end of each shock absorber assembly there is a spiraled sleeve adjustment which permits the springing to be accommodated to solo driving (position 1) or to driving with a passenger (position 2). For sidecar operation, stiffer suspension springs must be installed.

8. Saddle

The driver's seat is a soft, comfortably contoured swinging saddle which, in conjunction with the good saddle cover and the two-wheel suspension, ensures that you can drive even long distances without fatigue or discomfort. To adjust the seat for the driver's weight, three pairs of holes are provided both at the rear mounting (b) of the rubber suspension to the frame and at point (a) where the saddle is attached to the rubber suspension. Fixing the bolts in the forward location gives softer springing, for lighter drivers, and in the rear location stiffer springing, for heavier drivers.

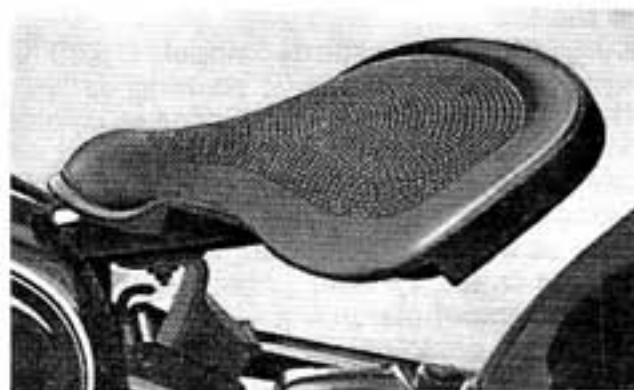
Optionally, a seat cushion pillion seat can be installed for driving in a crouched position or to accommodate a passenger, or the motorcycle can be fitted with a dual (tandem) seat.

Provision has been made for mounting two adjustable footrests for use by the passenger or for driving in a prone position.

9. Wheels

The interchangeable wheels are equipped with steel dropcenter safety rims. The rim profile of ingenious design prevents the tires from slipping off the rim during a blow-out, and on the other hand facilitates the fitting.

Frictionless rotation of each of the wheels is guaranteed by two accurately set, adjustable, angular contact roller bearings. A highly positive sealing — rotating shaft seal on outer side and a specially treated, encapsulated, felt ring at the brake drum assures long service life with minimum maintenance requirements.



The rims are rigidly connected to the full-hub brake drums by straight spokes. The wheels may develop unbalance as a result of non-uniform wear on the tires, tire repairs, or inexpert tensioning of the spokes; at high speeds this can give rise to poor road holding and instability in the steering. It is accordingly recommended that the wheels be rebalanced in a service center.

10. Brakes

The front and rear wheels are equipped with lightmetal full-hub brake drums with integral cast grayiron rings. This results in reduced weight, maximum braking action, and good heat dissipation.

The duplex internal expanding-shoe brake on the front wheel is fitted with two leading brakeshoes, each of which is actuated by an individual brake arm. The two brake arms are controlled in common by a cable from the brake lever on the right handlebar grip and are drawn towards each other with balanced pressure. The braking power of this duplex brake is so great, that it would be advisable for you to proceed cautiously to convince yourself of this.

The rear wheel has a simplex brake with one leading and one trailing brakeshoe, which is coupled by rods to the pedal on the right side of the frame. Depressing the brake pedal actuates a switch which turns on the stoplight in the tail light assembly.

Since driving safety is so intimately connected with the condition of the brakes, it is self-evident that they be continually checked.

E. Electrical Equipment

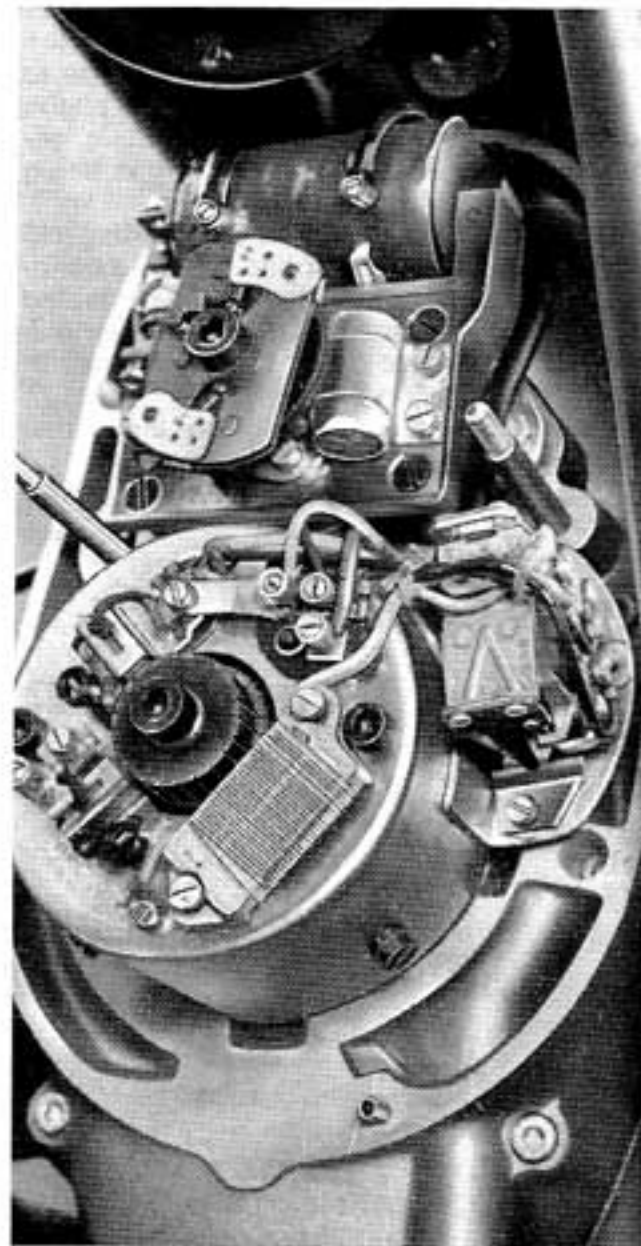
The electrical equipment consists of the generator together with the voltage regulator; the magneto, which is mounted on the engine under a cowling; the battery; the lighting equipment; the horn, and the neutral indicator.

The magneto assembly of the two-cylinder motorcycle is completely independent of the rest of the electrical system. It guarantees a powerful spark even at high engine speeds and has proved especially reliable. The constituent parts of the magneto are: a permanent magnet which is integral with the camshaft and serves as rotor; the fixed stator which comprises the laminated steel core with the ignition coil; the contact breaker, and the centrifugal compensator (automatic timing advance).

The generator (dynamo), which supplies power only to the electrical accessories, is driven directly from the engine crankshaft; its rated output of 60 watts is produced at an engine speed of 1,700 r.p.m. and the peak output of 90 watts at 2,100 r.p.m. The built-in voltage regulator (5 V) switches the battery from being charged by the generator to supplying current itself, and vice versa, as governed by the engine speed and condition of the battery.

The generator housing is coupled to the air intake filter by a cooling duct.

The battery (capacity 8 ampere-hours) rests on a rubber base and is fastened to the frame with a rubber strap in order to reduce vibrations. When the engine is turned



off or idling, the battery provides the electric power (red charging light is on). If the generator is supplying sufficient voltage to the system, the charging indicator light, located in the headlight, goes out; in general, this signifies that the battery is being charged by generator.

The ignition is switched on by inserting the ignition key in the ignition lock on the headlight. When not in use, the lock is protected by a sliding cover. The driving or parking lights are switched on by turning the key to the right or left, respectively.

An electrical jack (socket) on the frame

under the saddle provides a connection for a work light or for the sidecar lighting; see also the electrical wiring diagram, page 217.

The swivel switch for selection of either high or low headlight beam is located at the left handlebar grip. Pushing-in on the switch operates the **headlight flasher**.

The swivel switch for the directional lights is located at the right handlebar grip. Pushing-in on the switch operates the **horn**. The motorcycles not equipped with directional lights have a button for the horn operation.

Servicing the motorcycle

Cleaning Exterior

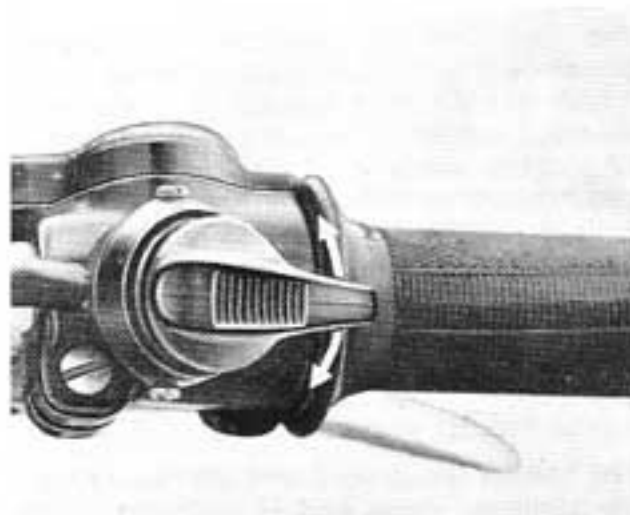
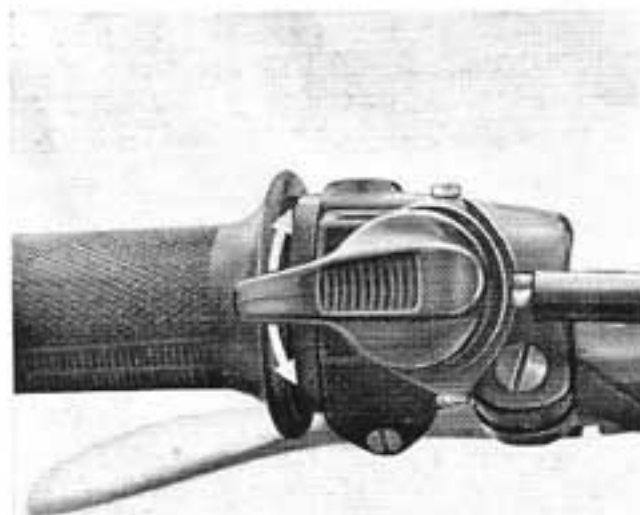
The engine and transmission assembly and the rear-axle drive are best cleaned with gasoline, while the lacquered parts should be washed with a sponge and then dried with a chamois. Before applying a water hose take care that the engine has cooled off sufficiently. Avoid using too much water pressure and do not play the stream of water directly on the carburetor or the air intake filter. When the motorcycle is dry, the brake linkages and the hinges of the mudguard should be oiled in order to prevent them from rusting.

Since water may penetrate into the brake housings during washing, it is necessary to test the brakes carefully a few times, when the motorcycle is subsequently trial-driven, in order to be certain of good braking action in case of emergency.

Treating the lacquered and chrome-plated parts with the usual commercial polishes protects them and preserves their lustre.

Technical Maintenance

In order that your motorcycle may provide maximum service and dependability certain periodic lubrications and inspections are required which should best left to your BMW dealer's workshop. However, in the event that you have to perform this servicing yourself, the following instructions will be useful:



Lubrication of the engine, transmission, drive shaft and rear-wheel drive see page 15. Before performing these **oil level checks** wait for a few minutes after turning off the engine. Whenever possible, **change the oil** on the various units while they are still hot and after the last traces of old oil have dropped off.

Lubricate the **swinging arm bearings** in accordance with the lubrication and maintenance schedule. For this, **use a manual greasegun only** (with tapered mouth-piece). To lubricate the rear swinging arm bearings, unscrew the SW 36 aluminium acorn nuts on both sides and in each case apply some strokes of grease through the orifice provided in the pivot.

The front swinging arm bearings are supplied with grease through the funnel-type grease fitting located on the transverse tube of the swinging arm. Carefully apply grease until this comes out on the sealing lip of the radial seal on each side of the bearing. Don't wipe off this grease, but spread it around the gap between fork-prong and swinging arm, as this constitutes an additional protection of the bearing against splash-water.

Lubrication of the wheel hubs and the control cables should be left to a BMW garage because of the difficulty involved in the disassembly and subsequent adjustment of these units.

The brake linkages, the footbrake and clutch pedals, the rear mudguard hinge, and the kickstand bearing should be cleaned and then lubricated with a few drops of engine oil every 2,000 miles (3,000 km.). The

pivots of the suspension and the saddle are rubber-mounted and must not be lubricated.

Inspections and Maintenance

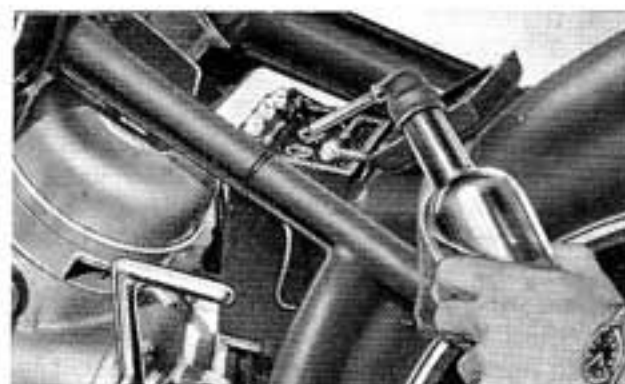
(see also Maintenance Schedule, page 47)

Likewise, the following operations should not be performed by yourself unless there is no chance to reach a BMW dealer's workshop.

The tool kit supplied in the tool box should facilitate this purpose.

Battery: Check the electrolyte level every 4 to 6 weeks. For this purpose, release the rubber strap securing the battery and hold the battery in a horizontal position. If necessary, add distilled water until the level reaches the perforated plate in the filler opening.

The air filter must be removed at least every 4,000 miles (6,000 km.) — more frequently under especially dusty conditions — and the filter element must carefully be tapped and blown out. Do NOT use compressed air. Replace the filter element every 8,000 miles (12,000 km.). Fouled filters give rise to increased fuel consumption and reduced performance.



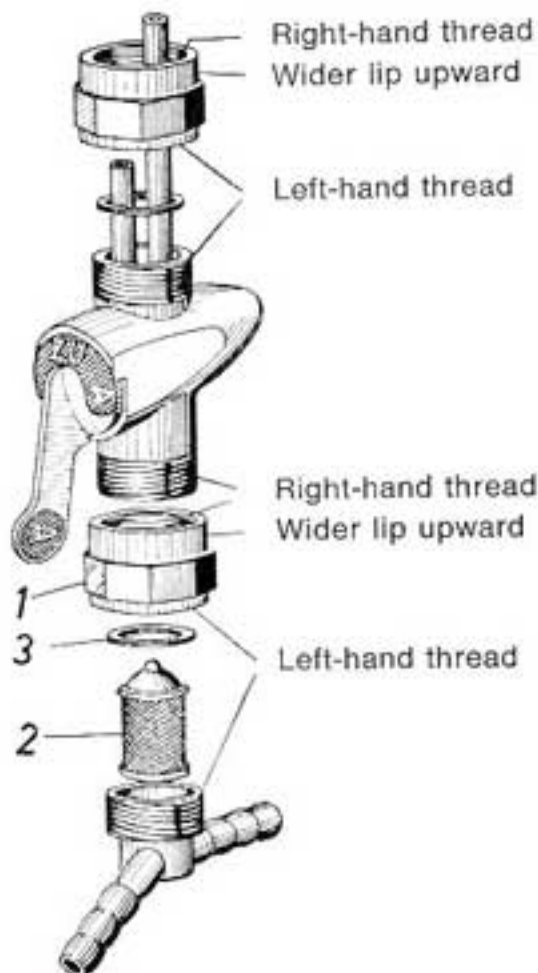
Cleaning the Fuel Shut-off

Clean the fuel shut-off every 4,000 miles (6,000 km.) or in the event of disturbances in the fuel flow.

1. Close the fuel shut-off (lever downwards).
2. Unscrew pipe union SW 24 (1).
3. Remove filter screen (2) and clean it in gasoline.
4. Renew the packing ring (3) if damaged.

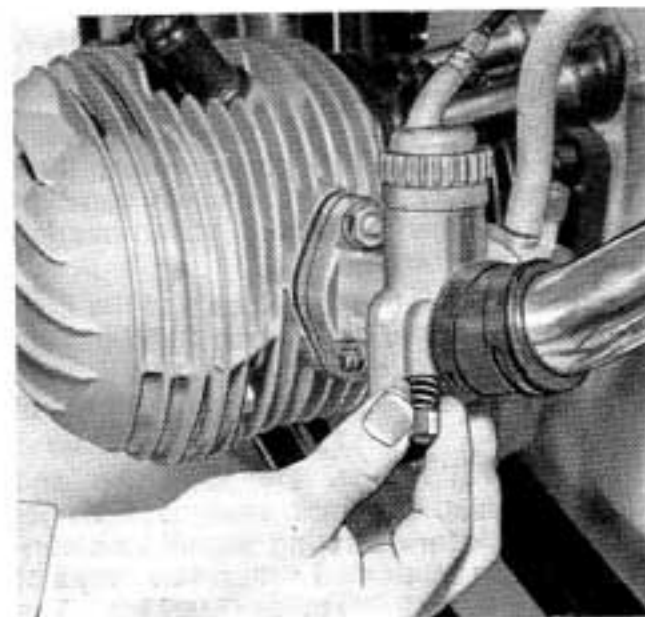
The upper pipe union on the fuel shut-off has a right-hand thread on the tank side and a left-hand thread on the shut-off side. In order to remove the shut-off, first drain the fuel tank. Then rotate the union clockwise while holding the shut-off firmly. To refit, insert the packing ring, then engage the union — the wider lip upward — so that both threads take, and tighten by rotating in a clockwise direction.

Attention: The fuel shut-off should always be filled with gasoline to prevent it from becoming leaky (a stay in dry condition for some hours is unimportant).

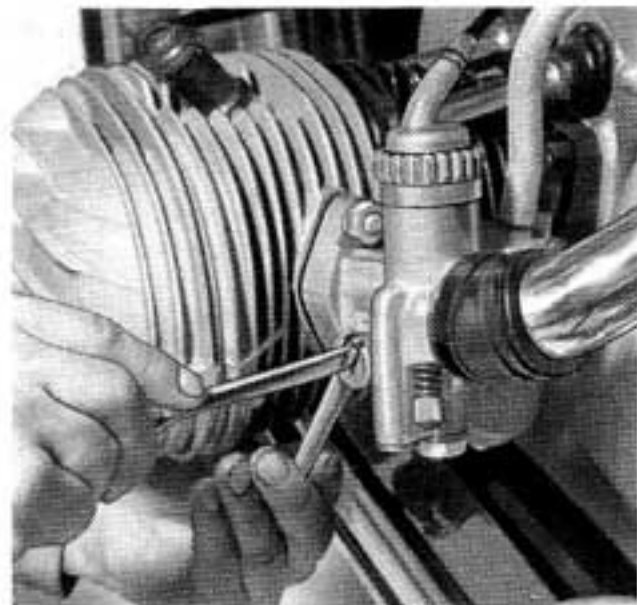


Carburetors: Remove, dismantle and clean them thoroughly every 4,000 miles (6,000 km.); air-blast all passages and jets. In dismantling the unit, it is advisable not to alter the setting of the throttle valve stop screw (upper figure).

Fully turn-in the idle air adjustment screw without undue force and reverse it two turns for the preliminary adjustment. Install the throttle slide in dry condition and firmly tighten the screw cap by hand (without using pliers). Subsequently, with twist grip fully closed, adjust the cable play to approx. 1 mm. by means of the knurled screw provided on each carburetor. Check the play by moderately pulling for and aft the control cable on the entry of the twist grip or on that of the carburetor.

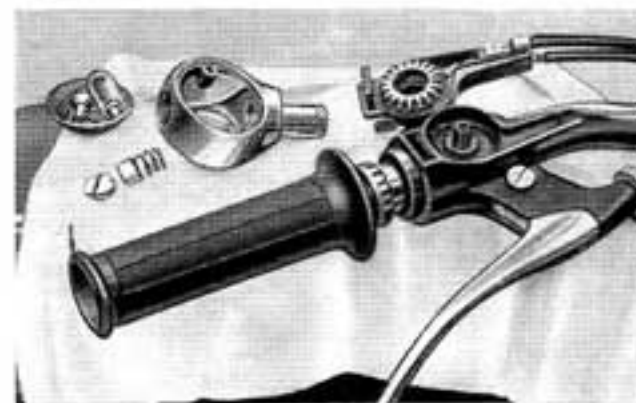
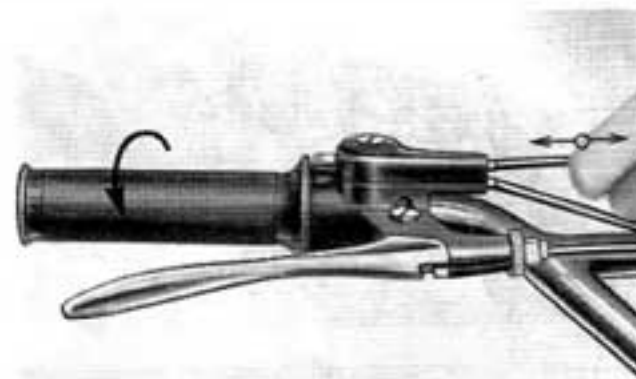


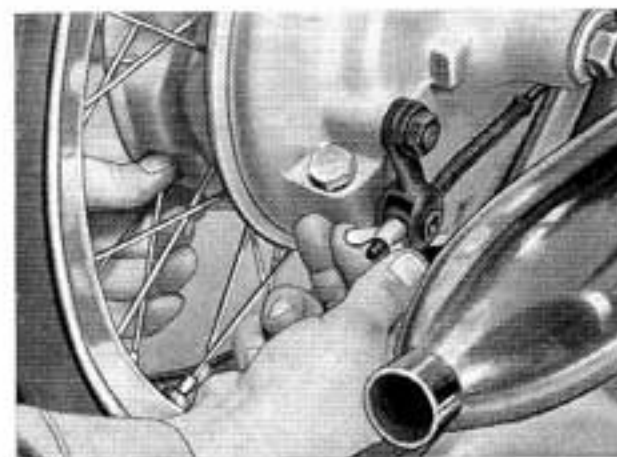
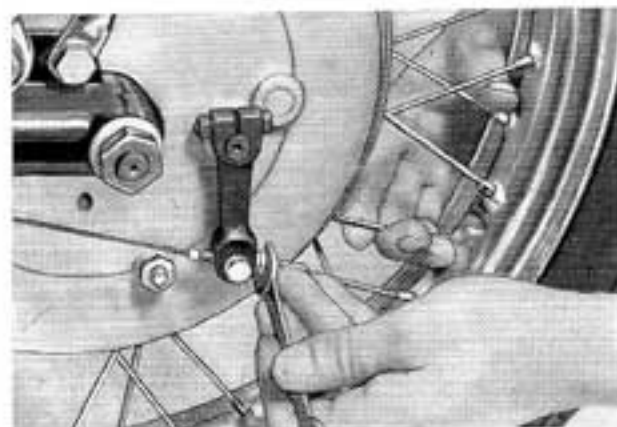
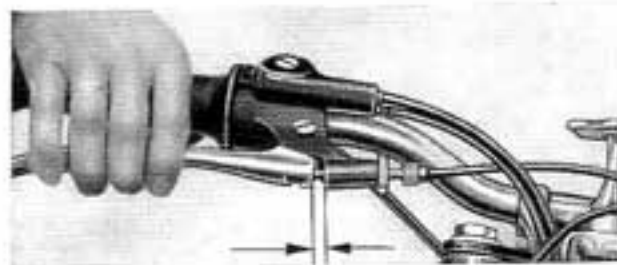
The adjustment of the idling speed is accomplished with running engine at normal operating temperature. The twist grip must be fully closed. First ascertain by removing alternately the ignition cables whether both cylinders function uniformly. If this is not the case turn-in the throttle valve stop screw of the slower cylinder as required. To obtain the final adjustment of the idling speed, test by turning the idle air adjustment screw in both directions whether the engine reacts by a slightly increased idling speed. If this is the case the most favorable mixture ratio has been obtained and the screw may be secured with the counter-



nut. The same procedure is achieved on the opposite carburetor. An eventually increased idling speed is reduced by reversing the throttle valve stop screw as required. In order to obtain an **even change-over to the part or full load range**, open the twist grip just a bit so that the idling speed increases slightly. Check by alternately removing the ignition cables whether both cylinders function uniformly. If necessary readjust by means of the knurled screw the control cable of the slower carburetor.

Check the **throttle twist-grip** for ease of operation. If necessary, unscrew the cover-plate, remove the blinker assembly from the end of the grip (see page 44) and withdraw the grip. Grease the inside of the grip barrel, the gearing, and the control cable chain. When refitting, ensure the unhindered full movement of the throttle cable and the correct position of the retaining slot.





Brakes: for your own safety, check the brakes before each trip for effectiveness and adequate lever movement.

There should be .55" to .63" (14–16 mm.) of play in the **front brake** cable when measured at the handbrake lever; adjustment can be made on the handbrake lever of the handlebar by loosening the knurled retainer and rotating the adjustment screw, or by turning the hexagon SW 10 nut on the front wheel brake arm.

The uniform lever motion of both brake arms on the backing plate may be adjusted for carefully revolving the laterally flattened eccentric screw as required.

To adjust the **foot brake** for the rear wheel, screw the wing nut clockwise until the brake just begins to take hold and then thread out the wing nut four or five turns.

If sufficient braking action cannot be achieved by adjusting the brakes, the brake linings are worn out and must be replaced. The play in the **clutch** control cable should amount to .24"–.32", as measured at the point of attachment to the hand lever. This can be adjusted by loosening the knurled retainer and resetting the adjustment screw, as described above (front brake). From the appearance of the **spark plugs** the expert is able to judge if the engine is running properly. An oily spark plug, for example, indicates worn piston rings; white deposits indicate that the mixture is too lean or that the ignition is advanced too

far, and so on. It is therefore advisable to consult your local dealer if any of these symptoms are present. Clean the spark plugs and check the electrode gap with the feeler gauge (.28" = 0.7 mm.); reset, if necessary. Replace the spark plugs at least every 12,000 miles (18,000 km.). Use only the recommended spark plugs with the prescribed heat factor. See Technical Data, page 8.



Check the gap setting on the **magneto contact breaker** (.014" to .016" or 0.35–0.40 mm.) every 4,000 miles (6,000 km.) with the feeler gauge, and ensure that the contact surfaces are clean and not pitted.

If necessary, carefully smooth the contacts with a specially fine file or have them replaced.

To set the contact gap, release lock screw (a) and turn eccentric screw (b), as required. If it is necessary to change this setting, it is recommended that the adjustment be performed by a BMW service center, since, if the contact gap has been

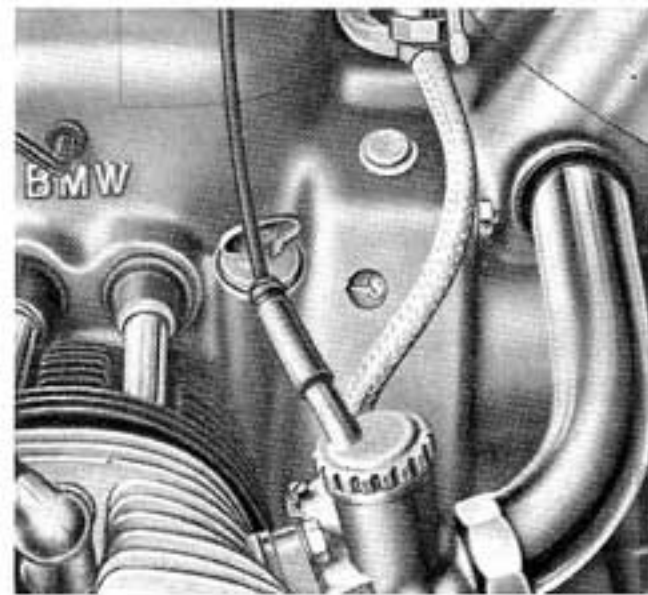
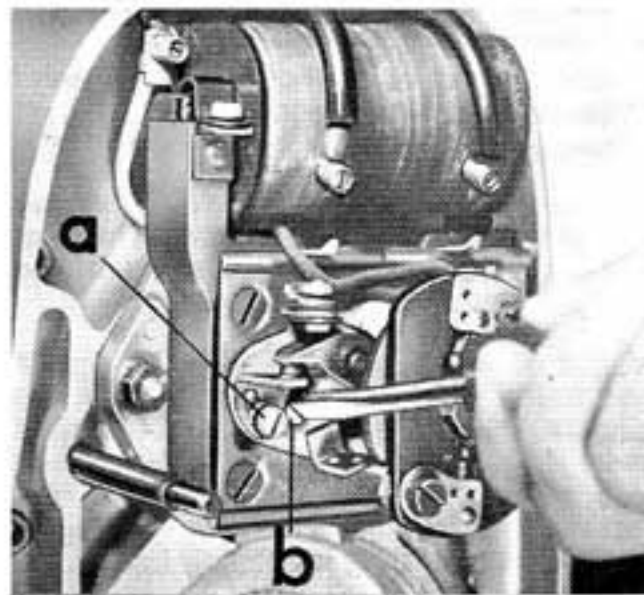
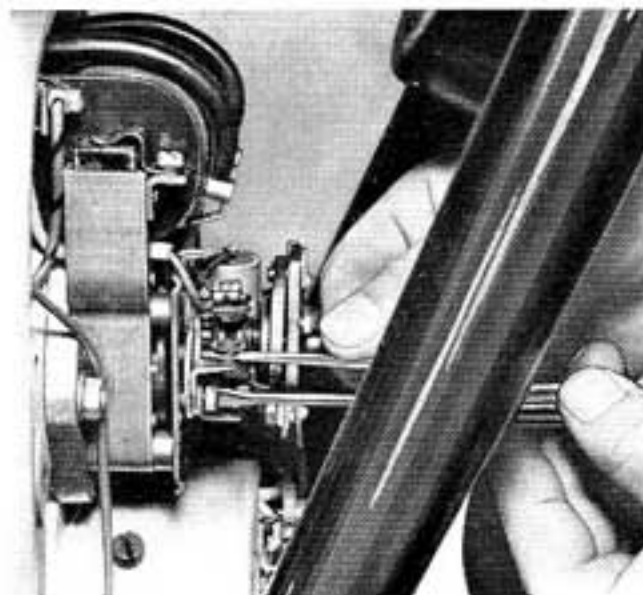
altered, it is necessary to check the ignition timing. This is done with the aid of a timing lamp while the engine is running.

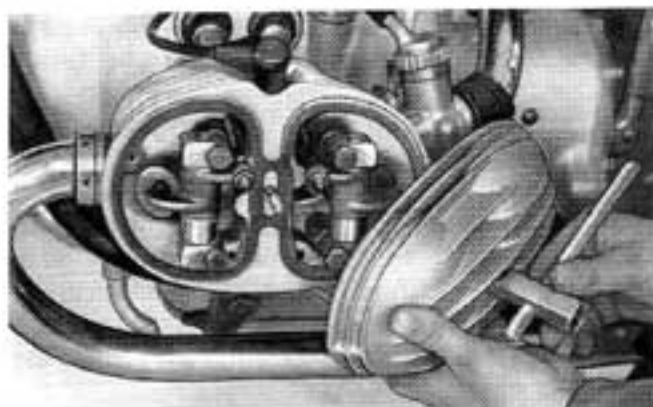
In the absence of the necessary special equipment, proceed as follows: remove the cover plug from the inspection hole on the left of the engine housing, and locate timing mark "S" (retarded spark) on the fly-wheel. When the "S" is directly in line with the reference line on the engine housing the contact breaker should be just on the verge of opening. (To turn the engine over, by hand, the rear wheel should be jacked up off the ground, the transmission set in fourth gear, and the spark plugs removed.)

Check the **vibration damper** of the R 69 S model every 4,000 miles for proper function.

For this, remove the generator protection cover and revolve the damper mass by hand upon the hub. If the damper mass lets itself rotate difficultly, the vibration damper is in order — if the damper mass, however, lets itself rotate easily or even shows a radial play, it is necessary to remove the vibration damper and to exchange the annular spring element.

We recommend that an eventual overhauling be performed by a BMW service workshop.





Adjusting Valve Clearances

Every 4,000 miles, prior to valve adjustment, check the cylinder flange retaining nuts for tightness as well as the cylinder head bolts for the specified torque of 25.3 ft. lbs., and retighten if necessary. These operations may eventually be entrusted to a BMW dealer's workshop.

The adjustment of the valves is only described for the event where there is no chance to reach a BMW workshop.



1. Unscrew the SW 14 acorn nut in the center of the cylinder head and the two SW 10 nuts on the sides, together with their corrugated washers, and carefully pull off the cylinder head and the head gasket.

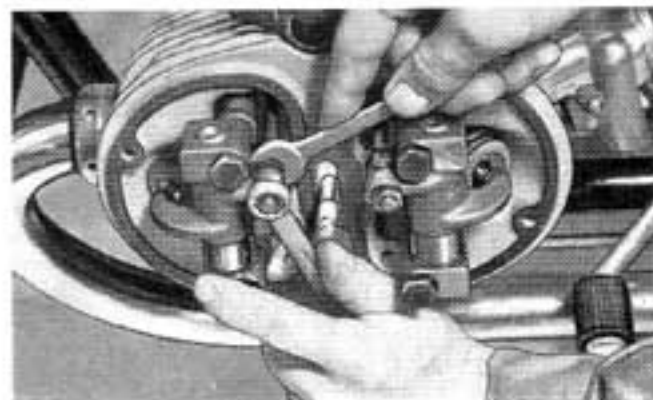
2. Remove the spark plugs and turn over the engine until top dead center in the cylinder to be adjusted is reached. Both valves are then closed.

Check the valve clearance with the feeler gauge from the tool kit.

Intake .006", Exhaust .008".

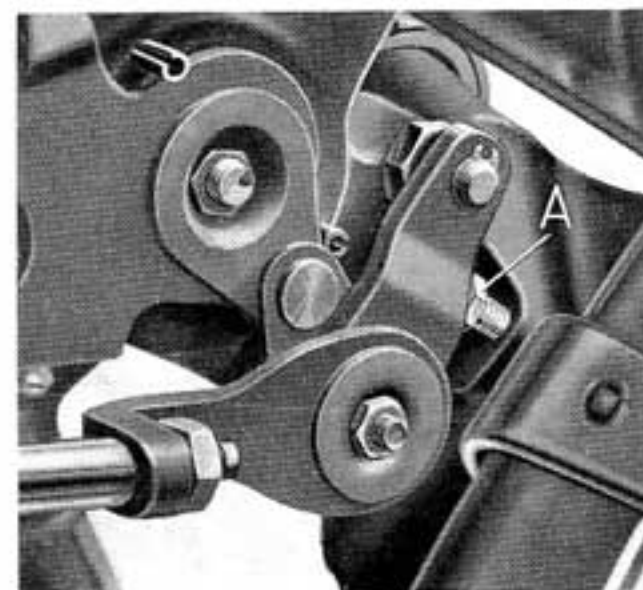
3. If necessary, release the SW 12 lock nut and appropriately set the SW 11 adjustment screw. Tighten the lock nut and check the clearance once again.

All the other **nuts and bolts** on the engine and frame which are accessible from the outside should be checked for tightness every 4,000 miles (6,000 km.). The SW 22 axle spindle nuts on the front and rear wheels should be tightened with the socket wrench **without** using the tommy bar.



Adjustment of the limit screw for the hydraulic steering damper. The steering damper lever arms require no maintenance. Limit screw (A), which governs the point at which the damper engages, must be so adjusted that the lever arm makes contact just **after** the detent is clearly felt.

If the limit screw must be adjusted, the locking nut must be loosened beforehand.



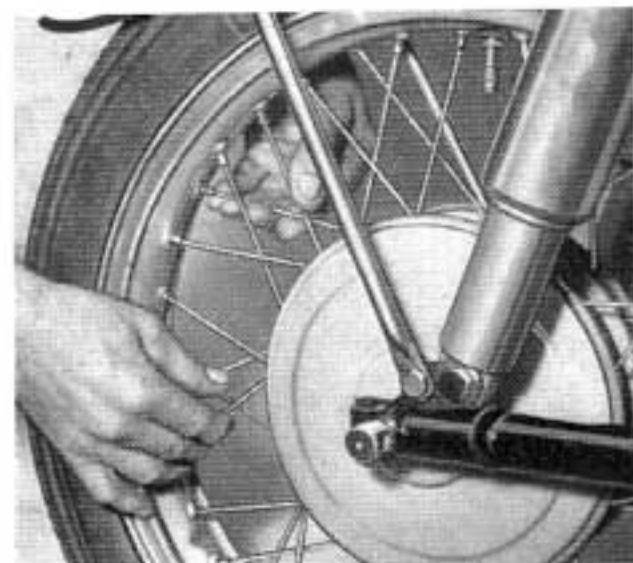
Check the **steering** for play every 4,000 miles (6,000 km.). Set the motorcycle on the kickstand and turn the steering damper until it is completely out of action. When the front mudguard is pushed or pulled no perceptible play should be detected between the fork and the frame at the fork bridge. Eliminate play, if necessary. For this purpose, on models R 50 and R 60, remove the cotter pin at the bottom of the friction steering damper and completely unscrew the damper.

On the R 69 S sports model the knob for the steering damper can be removed by unscrewing the SW 12 nut and its spring washer on the lower end of the knob pin. In order to eliminate play, loosen the upper

SW 36 lock nut on the steering column, tighten the SW 41 adjusting nut underneath the upper fork guide as much as needed, and retighten the lock nut (in order to be able to grip properly with the fork wrench, it is necessary to remove the handlebar mount on the fork). The fork must rotate freely without play.

Wheels: check the tension in the spokes of both wheels on every major maintenance inspection. When tightening the wheel spokes, be careful that the rim remains correctly centered. If the motorcycle possesses wheels equipped with aluminium rims (on special request, at extra cost), the above operations should be carried out after the first 1,000 miles and then at every 2nd major maintenance inspection (every 8,000 miles).

Check the wheel bearings for play every 4,000 miles (6,000 km.). Since adjustment of the taper roller bearings is made by inserting appropriate shims, this job is best performed by a BMW service center. We recommend that this opportunity, especially



in the case of the R 69 S models, be utilized to check the wheels for possible unbalance and to rectify this by installing balance weights on the spokes. Well-balanced wheels contribute to easier steering and greater safety at high speeds.

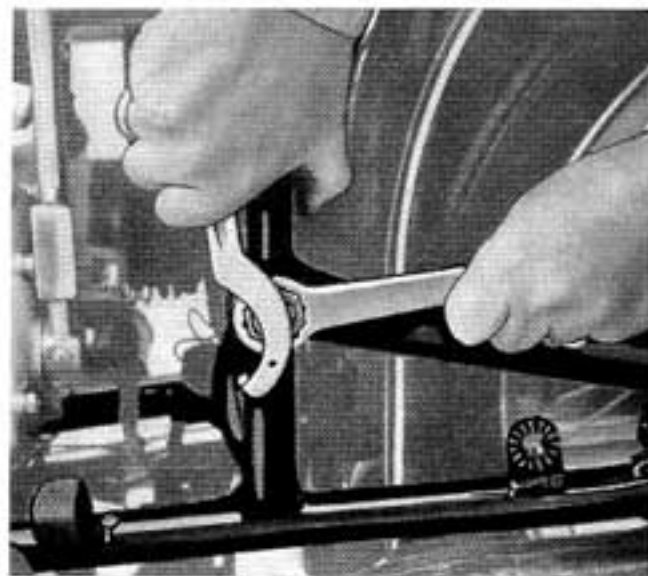
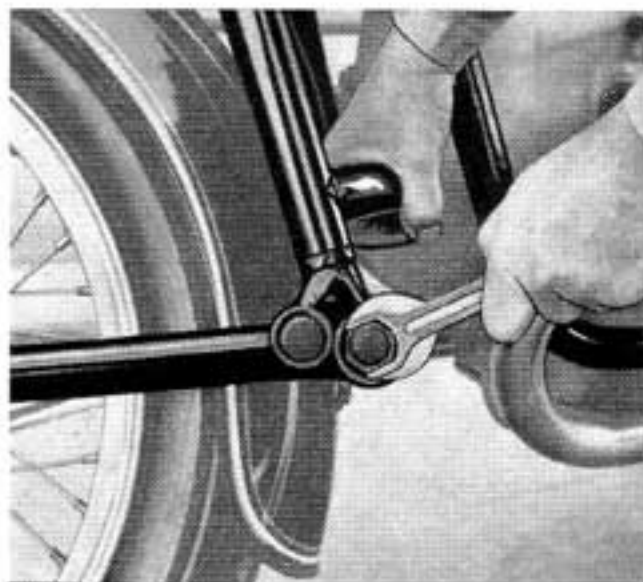
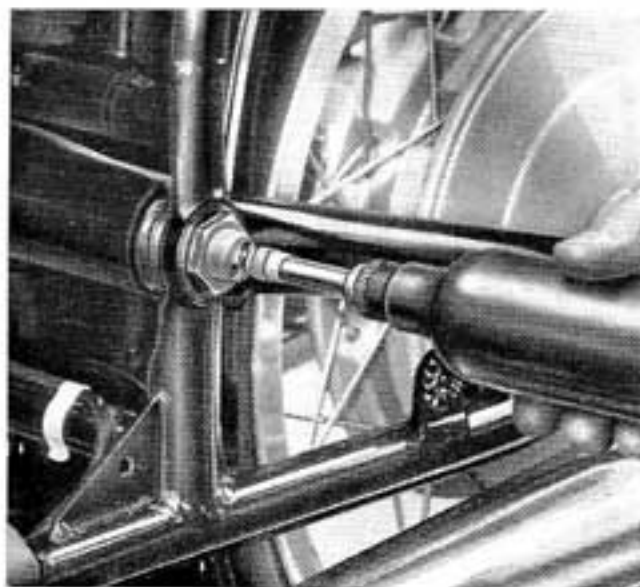
Check **the front and rear swinging arm bearings** for play every 4,000 miles (6,000 km) and adjust, if necessary. It is advisable that the following operations be performed by a BMW service center.

To adjust the front swinging arm bearings, loosen the SW 24 acorn nut on the left side, tighten the hexagonal SW 24 pivot bolt on the right side, and then tighten the acorn nut on the left. The adjustment is correct if, with the front wheel removed and the shock absorber disconnected, the pivoted fork sinks slowly under its own weight.

To adjust the rear swinging arm bearings, unscrew the SW 36 acorn nuts on both sides, loosen the SW 27 lock nuts, and tighten the threaded bolt using the pin wrench from the toolkit; back off slightly afterwards

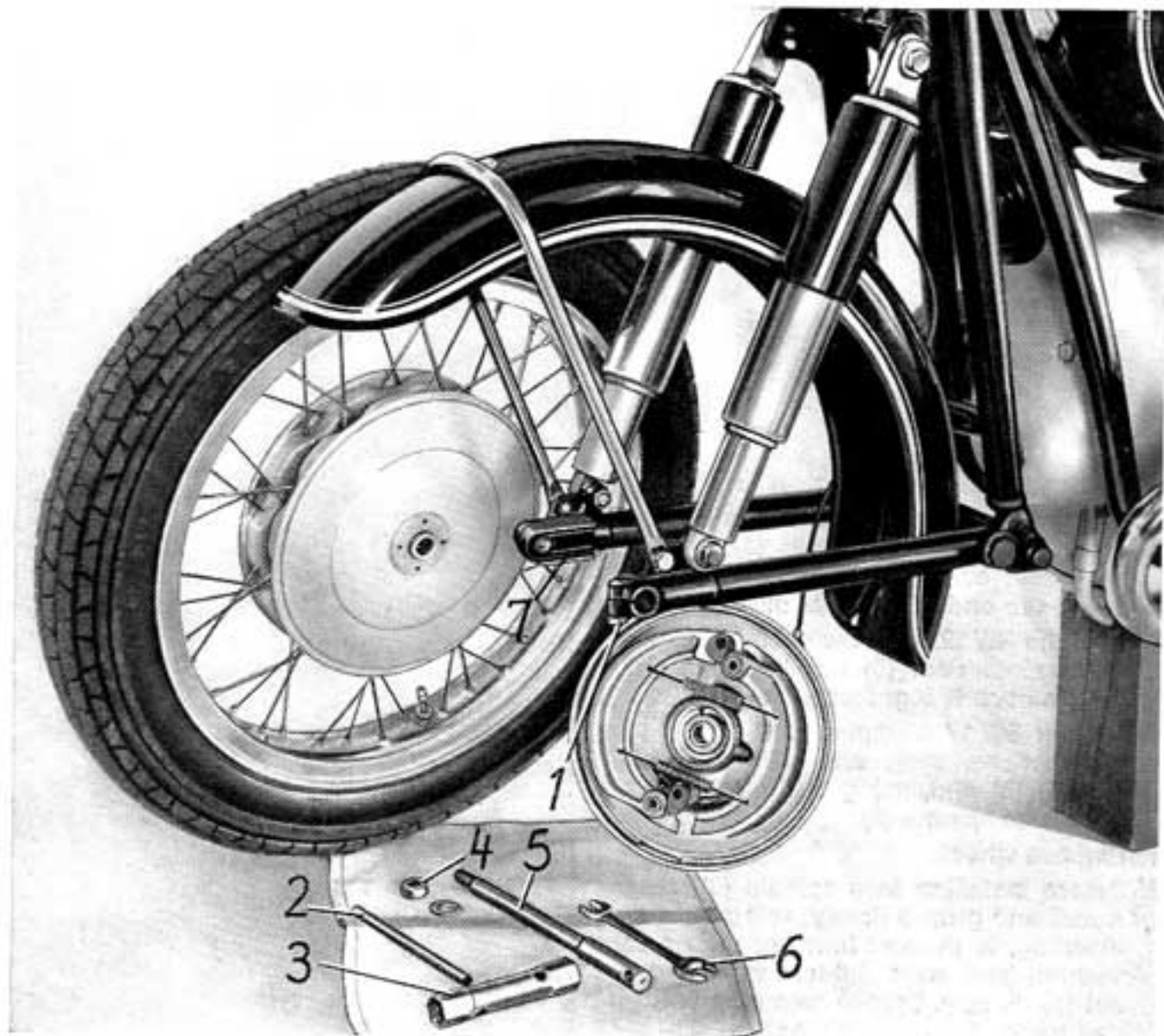
to relieve the load on the bearing so that the pivot is free to move easily but without lateral play. Retighten the lock and acorn nuts. The gap between the pivot and the frame at the bearing should be the same on both sides.

Every 2,000 miles lubricate front and rear swinging arm bearings (also see page 33, column 1).



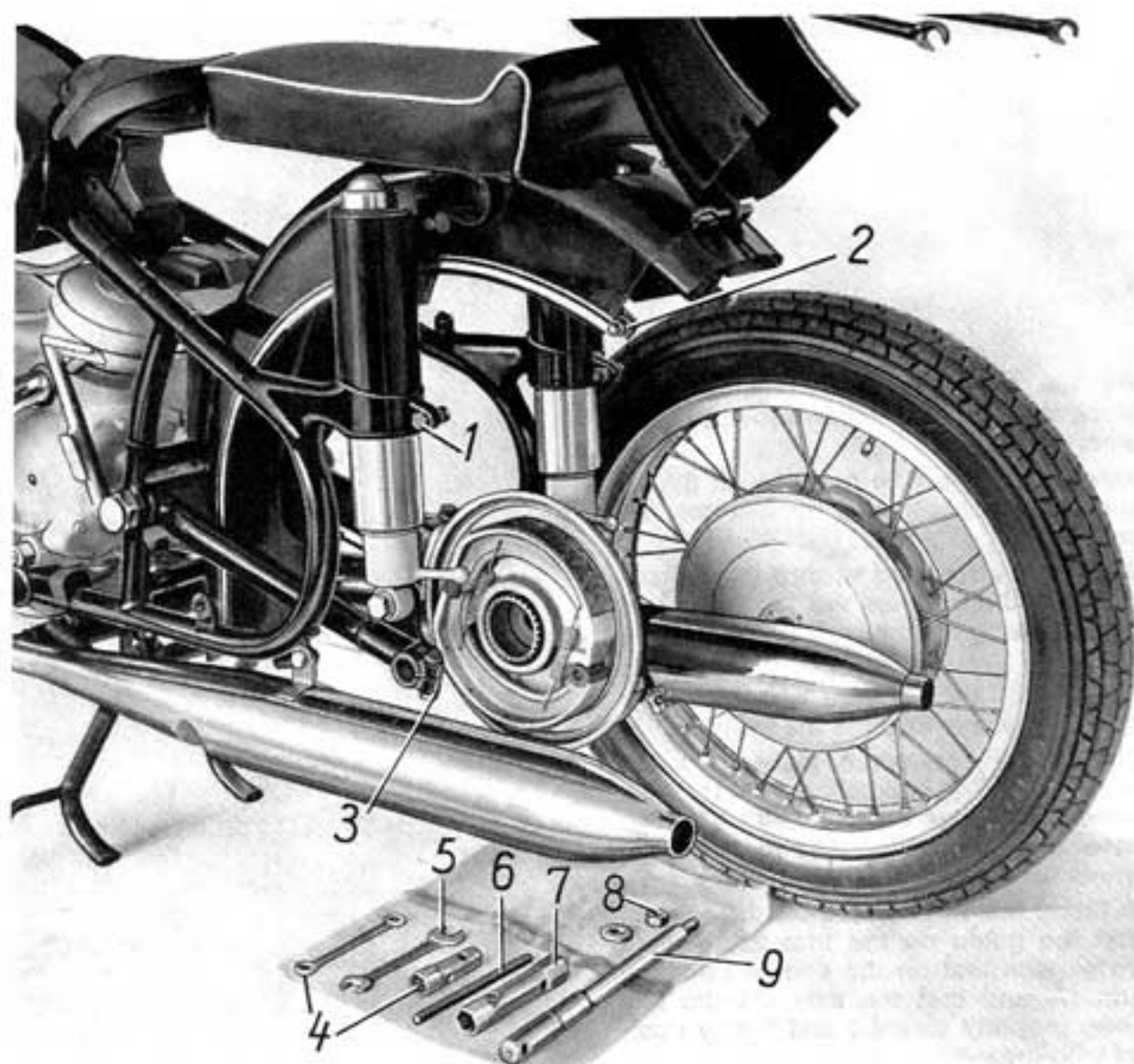
Removing and Refitting Front Wheel

1. Set the motorcycle on its stand and block it up at the frame under the engine.
2. Release axle spindle nut (4) with SW 22 socket wrench (3) and remove the nut and washer.
3. With SW 14 openend wrench (6), release clamping bolt (1) on the lower side of the left swinging arm.
4. Withdraw axle spindle (5) with drift pin (2) and pull off the front wheel with the brake assembly towards the front.
5. Detach the brakeshoe plate from the brake drum. The brakeshoe plate remains hanging on the control cables, which have not been altered, and the front wheel comes free.
6. In fitting the wheel, care must be taken that the guide on the brakeshoe plate mates with that on the end of swinging arm (7) and that the axle spindle has been properly cleaned and lightly coated with grease.



Removing and Refitting Rear Wheel

1. Block the motorcycle up on its stand.
2. Remove mudguard brace bolts (1) and mudguard connecting bolts (2) with SW 14 socket or open-end wrench (4) and swing the end of the rear mudguard up.
3. With the SW 22 socket wrench (7), loosen axle spindle nut (8) on the drive side and remove it together with its washer.
4. Loosen SW 17 clamping bolt (3) on the left-hand swinging arm with open-end wrench (5) and, using driftpin (6), withdraw axle spindle (9).
5. Remove wheel.
6. Before installing axle spindle (9), clean it well and grease lightly; rotate it, while inserting, to prevent binding; put on the washer, and then tighten axle spindle nut (8). Finally, tighten clamping bolt (3) and mudguard mounting bolts (1, 2).



Changing Tires

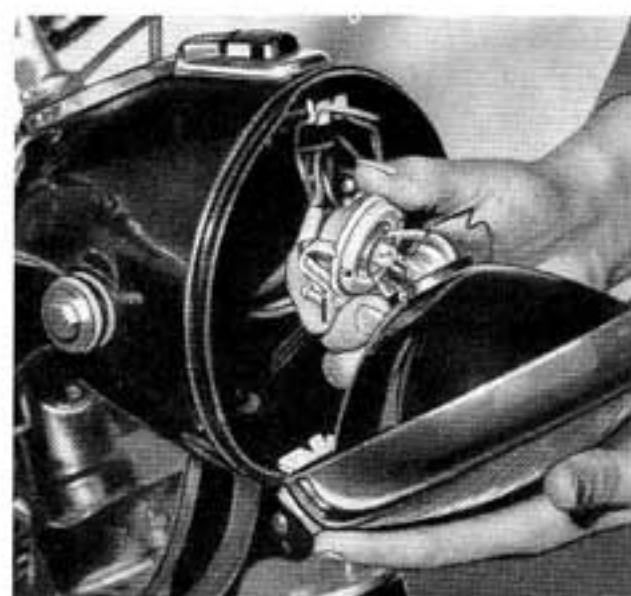
To remove the tire, first deflate it; then, on one side, free the tire casing completely from the rim. Unscrew the nut fastening the valve to the rim and push the valve through the rim. At the valve, press the upper bead into the well and, beginning at the point diametrically opposite to the valve, use two tire irons and work the bead of the tire casing over the rim. Remove the inner tube and proceed similarly with the second bead.

To refit the tire, drop the bead into the well at the valve and, beginning at the opposite point, use the tire irons and lever the bead over the flange of the rim, avoiding undue force. Dust inside of casing with talcum powder, slip the slightly inflated tube into the casing, insert the valve into the hole in the rim and thread the valve rim nut on a few turns. Press the other bead into the well at the valve and proceed as before to work it over the rim flange.

Inflate the tire, check that both beads are evenly seated, and tighten the valve nut. When fitting the tire, take care to replace it in the same position on the rim as before with the red spot (if any) on the tire at the valve hole.

Replace the **headlight bulbs** in the following manner:

1. Release the screw under the headlight retaining ring and remove the ring and reflector assembly.
2. Flip off the hinged spring clip holding the bulb socket and take out the socket and bulbs.
3. Press in on the double-filament bulb and the parking light bulb, rotate each to the left, and withdraw from the socket.



The bulbs for the speedometer illumination and for the charge and neutral indicators

are bayonet-mounted and are similarly to be removed by pressing in and rotating to the left.

However, to replace these bulbs the speedometer cable and the mounting nut must be unscrewed and the speedometer pulled out. Attach the retaining bracket with the raised side towards the speedometer bulb.

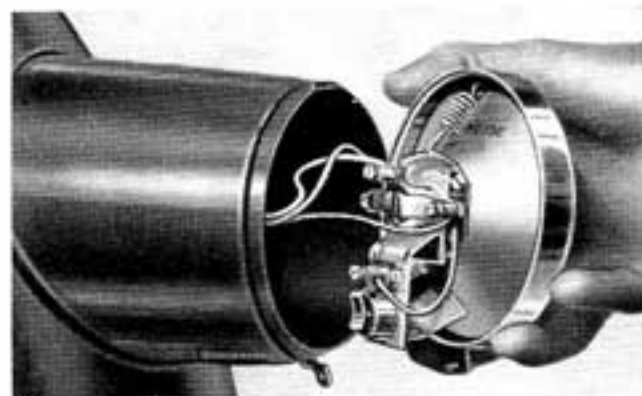


Blinker Unit. The bimetallic element is installed in the headlight. The bulb in a blinker can be removed by unfastening one of the convex plastic cover plates (2 screws) and pressing back on the spring bracket; if necessary unscrew the cover plug from the housing. To remove the blinker bulb assembly — for example, in order to disassemble and lubricate the throttle twistgrip — the following steps are necessary:

1. Remove the plastic cover plate, cover plug, and the bulb.
2. Take the insulated contact bracket for the bulb, together with the spring and electrical wiring, out of the end of the handlebar and disconnect the wiring by releasing the screw terminal.
3. Using a screwdriver, loosen (note: do NOT screw out) the screw in the tapered clamp holding the blinker housing and then tap lightly on the handle of the screwdriver.

The **tail light assembly** contains a double-filament bulb for the stop and tail lights, as well as the license plate illumination bulb. All these bulbs may be replaced easily upon removal of the retaining ring (1 screw).

The **stop light switch** is actuated by the brake pedal. It should be so adjusted that the stop light is switched on when approximately half of the free play in the brake pedal is taken up.



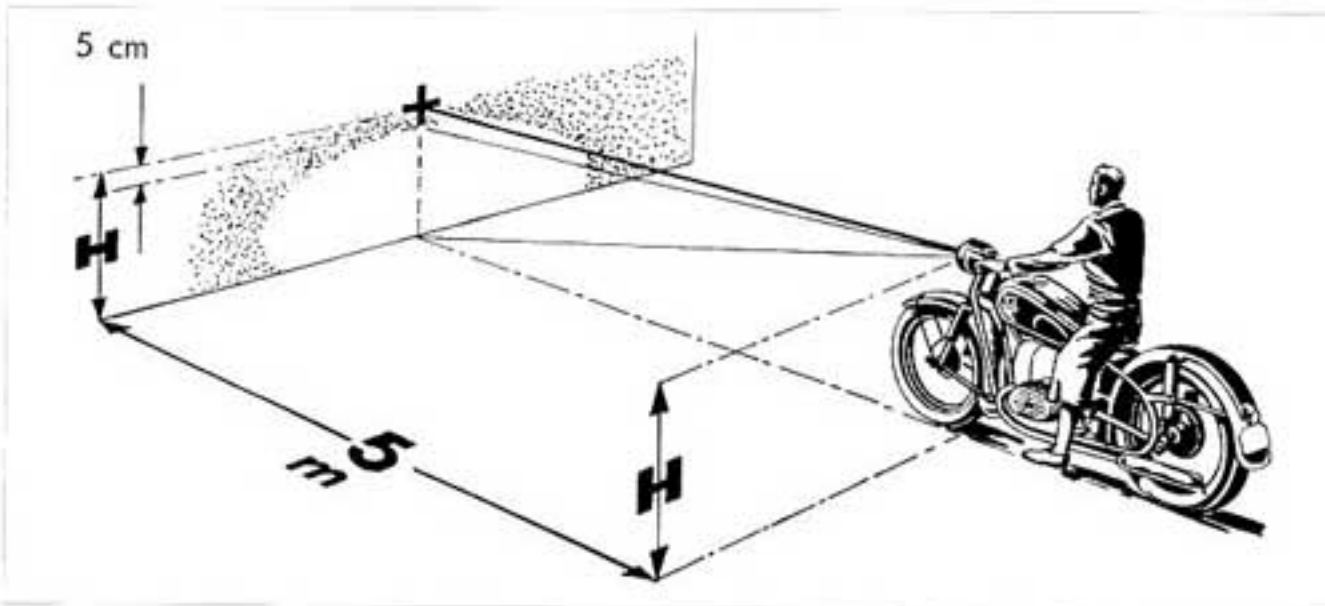
Headlight Adjustment

If the headlight has insufficient range or if it is feared that the oncoming traffic is being blinded, the headlight should be adjusted.

For this purpose, a cross should be drawn on a light-colored wall at the same height as the center of the headlight. The motorcycle should stand on its wheels about 5½ yards (5 meters) from the wall and be loaded by a rider. Switch on the high beam and set the headlight so that the reference cross is in the middle of the beam on the wall. Switch to low beam; the upper edge of the illuminated area should be about two

inches (5 cm.) below the reference cross; adjust as required.

If the motorcycle is to be operated with a sidecar, this adjustment should be carried out with the sidecar occupied.



Storing for Long Periods

If the motorcycle is to be put into storage for the winter or to be put out of service for a long period for any other reason, the following measures should be taken:

1. Close the fuel shut-off and drain fuel from the float chamber.
2. Change the oil in the crankcase, if possible.
3. Thoroughly clean and dry up the motorcycle.
Oil the brake linkages, kickstand bearings, and the hinges for the mudguard and the tool box cover.
4. Treat all polished and chrome-plated steel parts with acid-free grease and, if possible, spray the motorcycle with protective oil.
Wipe lacquered parts with a soft rag.
5. Block up the motorcycle on its stand in a dry room (a slightly acid atmosphere, as in a stable, causes corrosion) so that there is no weight on the inflated tires.
6. Using a sprayer thrust clear through the spark plug hole, treat the cylinder, with the piston near bottom dead center, with protective oil, once with the intake valve open and once with the exhaust valve open.
Then turn the engine over several times with the kickstarter. Finally set the pistons at top dead center and screw in the spark plugs.
7. Remove the battery, discharge it slowly every 8 weeks and then recharge.

Subsequent conversion of a solo motorcycle for sidecar operation

The subsequent modification of a solo motorcycle to accommodate a sidecar involves a number of technical changes which in every case should be reserved for a special BMW garage.

If the motorcycle is still within the warranty period, claims made under the guarantee conditions will be honored only if all the alternations described below and the attachment of the sidecar are carried out in accordance with the manufacturer's prescriptions.

1. Transmission with gear-ratios for sidecar operation (only for R 50 and R 60).
2. Bevel gear set for sidecar operation in the rear-axle drive.
3. Modified speedometer for sidecar operation.
4. On the sports model, exchange the hydraulic steering damper against the friction-type steering damper.
5. Exchange the wheels with light-metal rims (on special request, at extra cost) for solo operation against wheels with steel rims and mount a 4.0 x 18 tire on the rear wheel for sidecar operation in place of the 3.5 x 18.
6. Equip the front and rear suspension with springs for sidecar operation.

7. Set the front wheel upper suspension mounting into the lower position on the fork.
8. Set the swinging arm bearing of the front fork into the forward location on the fork (trail 2.4" = 60 mm.).
9. Mount the wider handlebar (30" = 745 mm.).
10. Connect the sidecar in accordance with the manufacturer's prescriptions. A front engine mounting bolt with ball head for sidecar connection may be supplied by BMW.

Warranty conditions

1. BMW guarantees, in accordance with contemporary technical standards, all factorynew BMW vehicles and all BMW replacement parts against defects in materials and/or workmanship. The guarantee period extends for the first 6,200 miles (10,000 km.), or a maximum period of six months, beginning from the date of delivery of the new vehicle and/or part(s) to the original purchaser.

As regards the BMW replacement parts which are purchased and installed by a BMW contract dealer or service station, the guarantee period will, in compliance with the stipulations covering the execution of operations on vehicles and their component parts in BMW automotive service stations, extend for the first 1,800 miles (3,000 km.) or a maximum period of two months after acceptance of the vehicle.

A claim under such warranty shall be considered only if it is entered with a BMW dealer immediately upon discovery of the defect. Purchaser's claim under such guarantee shall be valid if a defect has been established; but purchaser shall not have the right to claim cancellation of the purchase contract or a reduction in the purchase price.

Lubrication and Maintenance schedule

2. BMW reserves the right to implement the guarantee either by repair or by replacement of the defective part or parts. Any repair work under such warranty shall be carried out at a place to be determined by BMW with due consideration of the interest of the purchaser.
3. If BMW recognizes the claim under such warranty, BMW shall assume the cost of the least expensive mode of shipment and the appropriate costs of the repair, provided that the work is performed by BMW or by a BMW contract dealer. Any part or parts shall be replaced which are defective either in material or workmanship, as well as any part or parts which have been derivatively damaged as a direct consequence of such defect. Parts which have been replaced shall revert to BMW.
4. For parts which are not manufactured by BMW itself, such as tires, electrical equipment, etc., BMW will, in the event of defects, assign its claims against the manufacturer of such parts to the owner of the vehicle and/or parts under this warranty, thereby absolving itself of any further responsibility.
5. No compensation for any direct or indirect damage shall be made. This warranty shall not include routine wear or any damage caused by negligence or inappropriate handling.

6. The warranty shall be invalidated if the vehicle to which it applies has been altered by unauthorized persons or by the installation of parts of other than BMW manufacture, and if the damage is a direct or indirect consequence of such alterations. The warranty shall further be invalidated if the owner of the vehicle has not complied with the instructions given in the BMW operating manual, or if the inspections specified in the BMW maintenance schedule have not been properly executed.

In the interests of technical development, BMW reserves the right to change specifications, design and equipment without notice. Dimensional, weight and performance data shall be understood as including customary tolerances.

R 50, R 60, and R 69 S Motorcycles

Free Maintenance Inspection I (at 300 miles)

1. Change engine oil. Clean magnetic oil drain plug on the sports model.
2. With engine cold, check cylinder head retaining bolts for the specified torque (25.3 ft.lbs.) and retighten, if necessary.
3. Subsequently check valve clearance and adjust if necessary. (Intake 0.006", Exhaust 0.008".)

Free Service Inspection II (at 1,000 miles)

Same operations as prescribed for the minor maintenance. The items mentioned under point 10 regarding the lubrication of the centrifugal advance unit and the breaker cam lubricating felt are not necessary. However, the following additional jobs are to be achieved.

1. When changing the engine oil, remove oil pan. Clean oil pan, oil screen and the magnetic oil drain plug on the sports model.
2. Change transmission oil.
3. Change oil in rear-wheel drive and in the right rear swinging arm.
4. On motorcycles equipped with light-metal rims (optional equipment) check the wheel spokes for uniform tension and, if necessary, retighten spokes and center the rims.
5. On the sports model balance the wheels.

Periodic Lubrication (at the following mileages: 2,000, 4,000, 6,000, 8,000, 10,000 and so on.)

1. Change engine oil. Clean magnetic oil drain plug on the sports model.
2. Lubricate front and rear swinging arm bearings (Use only a hand operated grease gun).
3. Oil control levers, brake and clutch linkage, as well as the hinge on the rear wheel fender (mudguard).
4. Check the electrolyte level in the battery and top up with distilled water if required, eventually at a lower mileage.

Minor Maintenance Inspection (at the following mileages 4,000, 8,000, 12,000, 16,000, 20,000, 24,000, 28,000 and so on).

1. Periodic lubrication.
2. Check oil level in transmission and top up if necessary.
3. Check the oil level in rear-wheel drive and top up if necessary.
4. Check the oil level in the right rear swinging arm, drain the oil for this purpose.
5. Check air intake filter cartridge — Carefully tap off any dust which may have accumulated in the filter element (on no account wash it out), renew the cartridge when clogged.
6. Check steering, wheel bearings, front and rear swinging arm bearings for play.

7. Check bolts and nuts for tightness, particularly the axle spindle nuts and the pertaining clamp screws, suspension unit retaining bolts, front and rear, attachment of transmission to engine, cylinder flange nuts etc. Caution! Tighten axle spindle nuts without applying tommy bar.
8. Check and adjust the play in the control cables as required; if necessary remove and grease throttle twist grip.
9. Check spark plugs and gap settings (0.028").
10. Check the vibration damper for proper function.
11. Check contact breaker gap (0.014"—0.016"), lubricate bearing bushing of centrifugal advance unit and breaker lubricating felt with Bosch grease Ft 1v4, and check that the felt rests properly on the cam.
12. Check ignition timing.
13. Clean carburetor and the screen filter in the fuel shut-off.
14. With engine cold, check cylinder head retaining bolts for the specified torque (25.3 ft. lbs.), and retighten if necessary.
15. Subsequently check valve clearance and adjust if required (Intake 0.006", Exhaust 0.008").
16. Carry out the final check, together with test for driving safety (tires, tire pressure, brakes, steering, lighting system) and adjust carburetor idling if necessary.

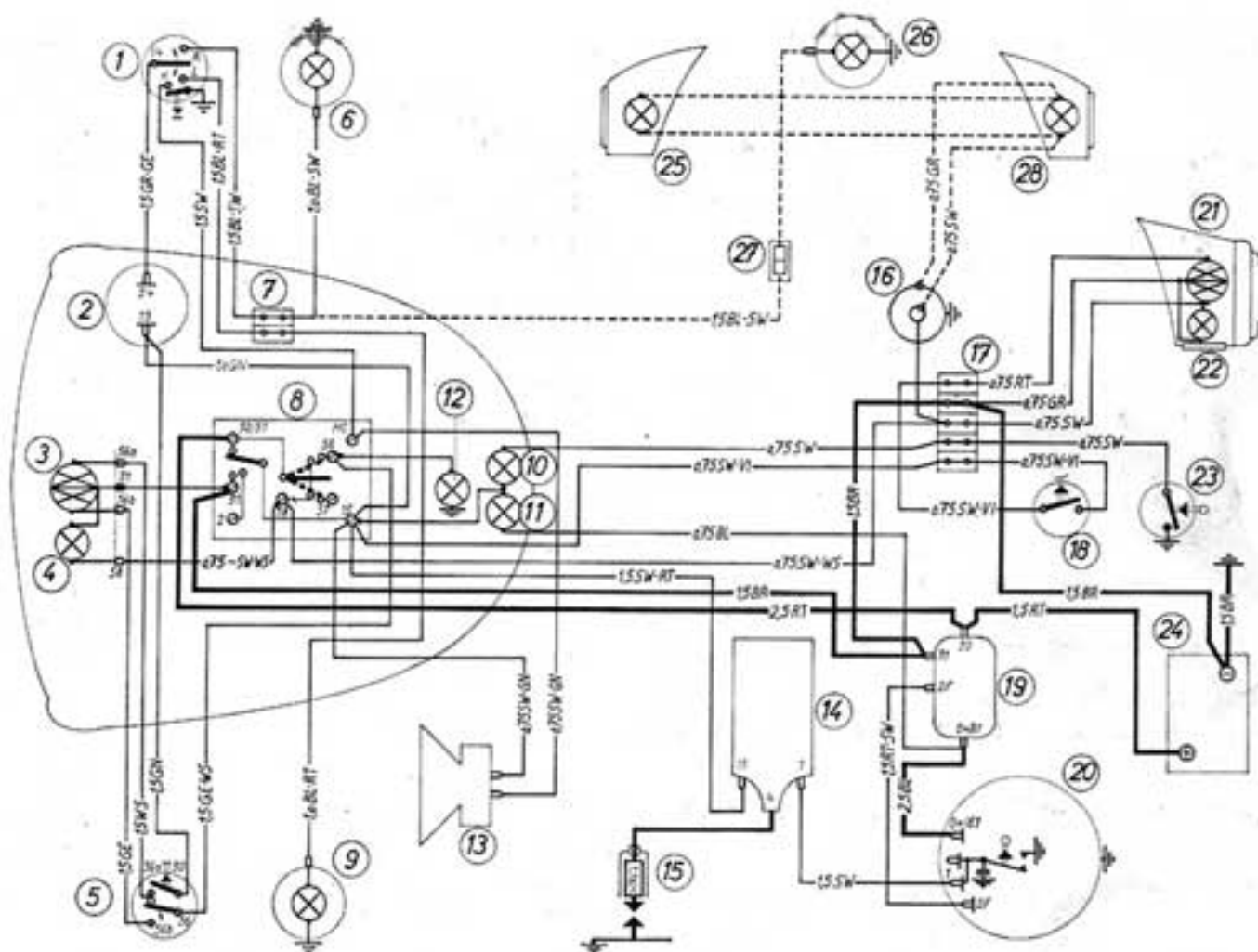
Major Maintenance Inspection (at the following mileage: 16,000, 32,000, 48,000, 64,000 etc.).

1. Minor maintenance, but additionally, carry out the following:
2. Remove oil pan, when changing engine oil, clean oil pan and screen.
3. Change transmission oil.
4. Change oil in rear wheel drive and in the right rear swinging arm.
5. Remove clean and repack the wheel bearings.
6. Check the wheel spokes for uniform tension; tighten spokes if necessary and center the rims. On motorcycles equipped with light metal rims (Optional equipment) this point 6 is to be accomplished every 8,000 miles.
7. On the sports model balance the wheels.
8. Clean the brakes; check the brake drums, shoes, linings, cams and actuating parts.
9. Renew micronic air filter cartridge.
10. Clean generator of carbon dust, clean commutator and check it for smooth running surface; inspect brushes for wear and for smooth fit in the guides. If the motorcycle is operated under especially dusty conditions, this point 10 is to be accomplished every 8,000 miles.

Necessary lubricants, materials, gaskets etc. will be charged for separately.

Key to Electrical Diagram: 6 V BMW R 50 / R 60 / R 69 S

- 1 Blinker and horn switch
- 2 Flasher unit
- 3 Double-filament bulb
- 4 Parking light
- 5 Dimmer and headlight flasher switch
- 6 Right blinker
- 7 Cable connector (2-pole)
- 8 Ignition and light switch
- 9 Left blinker
- 10 Neutral indicator
- 11 Charging indicator
- 12 Speedometer lights
- 13 Horn
- 14 Ignition coil
- 15 Spark plug adaptor
- 16 Electrical jack (socket)
- 17 Cable connector (5-pole)
- 18 Stoplight switch
- 19 Voltage regulator
- 20 Generator and contact breaker
- 21 Stop and tail light
- 22 License plate lights
- 23 Neutral indicator contact
- 24 Battery 6 Volt



Sidecar

- 25 Front side light
- 26 Blinker
- 27 Cable connector (1-pole)
- 28 Rear side light

Wiring color code: BL = blue, BR = brown, GE = yellow, GN = green, GR = grey, RT = red, SW = black, VI = violet, WS = white.

For instance: _____ 0.75 BR _____ = 0.75 sq.mm. brown.

Photo above enlarged



Bayerische Motoren Werke AG München