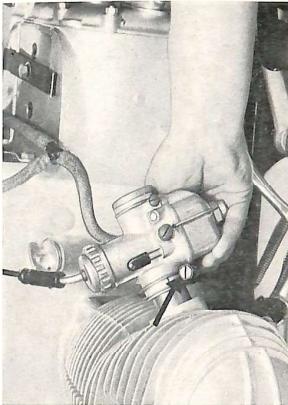
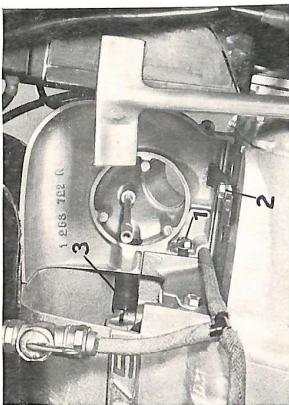


Transmission	Type	R 50/5	R 60/5	R 75/5
Gear ratios	Type of shift	Four speed transmission bolted to engine, shock absorber effective in all gears	Rimshift type foot shift	
1st speed	2nd speed	3rd speed	4th speed	
3.996 : 1	2.578 : 1	1.875 : 1	1.50 : 1	
Oil recommendation	Oil capacity Ltr.	0.8 (0.845 US quarts/0.705 Imp quarts)	Name brand Hypoid gear oil SAE 90	
Input shaft	End play mm	0.1 (0.004") (adjusted with shims)	Cusiter gear end play mm	
Output shaft	End play mm	0.1 (0.004") (adjusted with shims)	Output gear end play mm	
Clutch gear	Input shaft end play mm	0.1 (0.004") (adjusted with shims)	Output gear end play mm	
Oil pump	Oil pump	0.8 (0.845 US quarts/0.705 Imp quarts)	Output gear end play mm	
Oil pump	Oil pump	0.8 (0.845 US quarts/0.705 Imp quarts)	Input shaft end play mm	
Output gear	Output gear end play mm	0.1 (0.004") (adjusted with shims)	Clutch gear end play mm	
Output gear	Output gear end play mm	0.1 (0.004") (adjusted with shims)	Output gear end play mm	
Output flange	Ball bearing fit in transmission housing mm	Lighit prefit, for ollembly heat the housing to 180—210°F	Fit of gears on the bushings 2nd & 3rd speed play mm	
Output flange	Output flange	0.040±0.085 (0.0016"±0.00328")	0.025±0.075 (0.001"±0.003")	

Specifications



23 00 020 Transmission removal and installation

Put motorcycle on the center stand in addition prop the motorcycle up right behind the center stand.

Remove air filter 1372/000

To remove right air filter housing, loosen nut (1) with a straight box-end wrench. Loosen hex head bolt (2),

Remove right half of air filter housing. Pull breather hose off to the rear (3).

Loosen carburetor clamp and remove left carburetor.

Pull up cable dust cover. Withdraw speedometer cable after removing negative cable and cable retaining bolt.

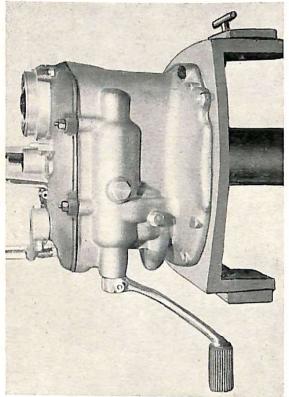
Remove drive shaft boot clamp and push boot back as far as possible.

Remove the four twelve pointed bolts and lock washers, depress foot brake to facilitate bolt removal.

All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw forms or in the new BMW standards sheet 600021.

Bolts transmission to engine	22.0÷24.0 (159.1÷173.5)	Output flange to output shaft	2÷2.3 (14.5÷16.6)	Transmission cover bolts	2.3÷2.5 (16.6÷18.1)	Shift fork bolts	1.7÷1.9 (12.3÷13.7)	Stop pins for interlock pawl	2.0÷2.3 (14.5÷16.6)	Nut for kickstarter crank	2.3÷2.6 (16.6÷18.6)
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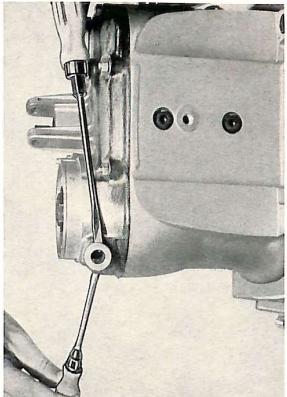
Type	Specifications	Fit of bushings on output shaft	4th speed poly mm	Bushing for 2nd and 3rd speed has press-fit in splines mm	(Bushings can be replaced only together with shaft)	Output flange mm	Radial runout mm	Face runout mm	End play of the foot shift lever mm	Outer shift play measured between hands at pawl and shift cam plate in 1st and 4th gear mm	Torque specification Nm [ft/lbs]
R 50/5	R 60/5	R 75/5	0.005÷0.035 (0.0002"÷0.0014")	0.005÷0.047 (0.0002"÷0.00188")	0.005÷0.047 (0.0002"÷0.00188")	0.005 (±0.002")	±0.05 (±0.002")	±0.05 (±0.002")	0.2 (0.008")	ca. 2 (0.08")	22.0÷24.0 (159.1÷173.5)



23 12 531 Output flange seal replacement

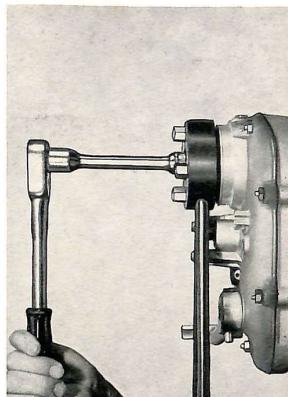
Remove swing arm bearing dust covers. Loosen both lock nuts and remove both swing arm bearing pivot bolts. Observe torque requirements on reassembly (see 'Specifications').

Transmission removed according to 23 00 020
Install mounting fixture, BMW tool No. 4005/1 (for engine and transmission) into repair stand BMW tool No. 4000, vertically. Mount transmission in repair stand with two bolts M8 × 50.



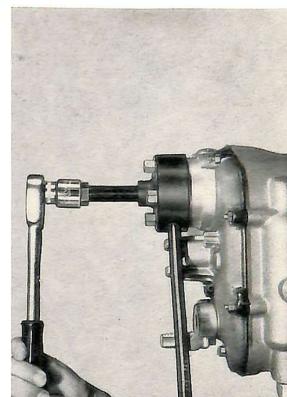
Remove foot brake pivot bolt.
Remove Battery 61 21 010
Remove clutch lever 21 51 000

Remove speedometer cable hold down bolt and withdraw speedometer cable bushing with the help of two screw drivers. Remove speedometer drive gear.



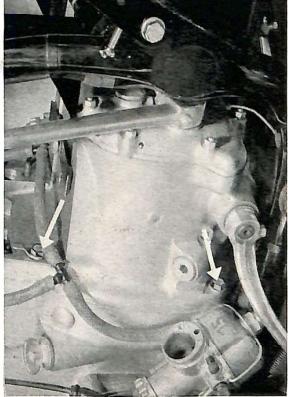
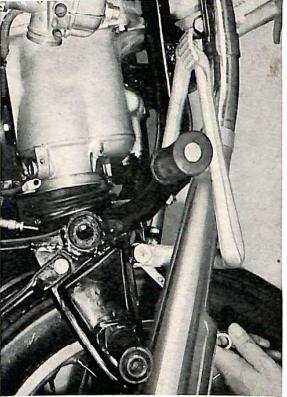
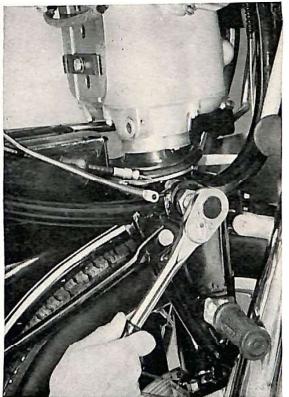
Unhook clutch cable on transmission. Remove the through mounting bolt bottom right, the longer bolt on top and the shorter bottom bolt.

Bolt output flange holding fixture BMW tool No. 234 to output flange with four bolts M8 (hexhead size 13). Remove output flange nut (hex. head size 24 mm).



Remove transmission partially to the left and disconnect the neutral indicator wire.
Remove the transmission.

Install output flange puller BMW tool No. 232 with four bolts M8 × 1 (hexhead size 13 mm) and pull off output flange. If necessary place a light hammer blow onto the puller spindle.



Remove clutch throw-out bearing and clutch push rod.
Remove the seven hex-nuts (hex-head size 10 mm) and
the washers from the transmission cover.

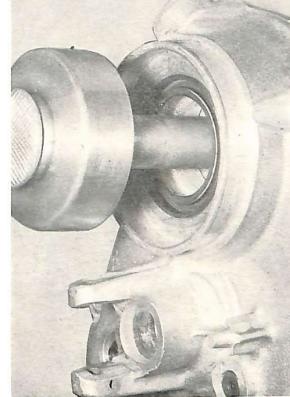
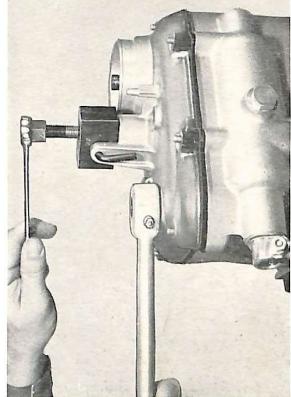
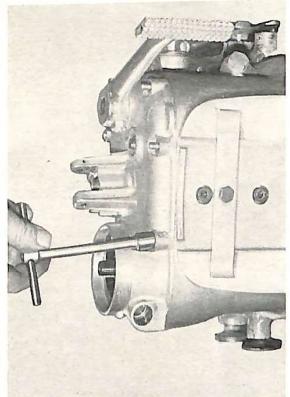
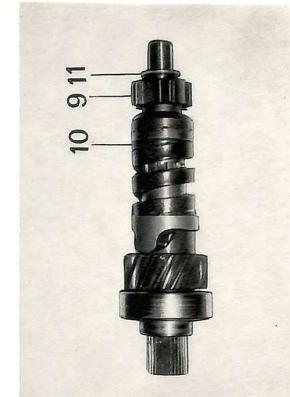
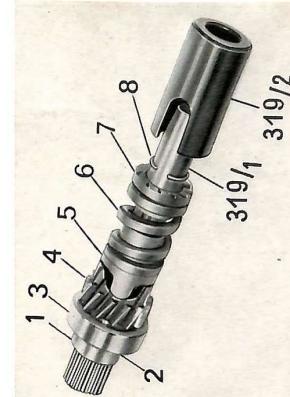
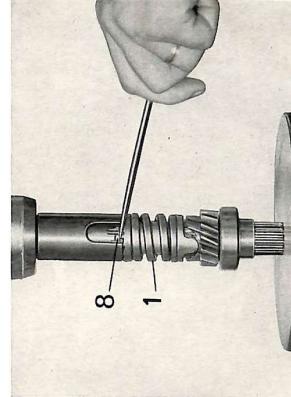
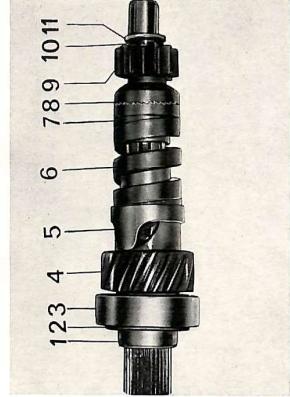
23 21 500 Output shaft and input shaft removal and installation

Transmission removed according to 23 0020
Output flange seal replaced according to 23 12531
Shift fork replaced according to 23 31 501

The preparatory steps explained heretofore should be
performed only if necessary.

Remove input shaft from the still warm housing with a
light mallet blow from the front.
Pull off thrust washer (11) and spring (10) together with
kick starter gear (9).

Heat transmission housing to 180—210° Fahrenheit. Install
cover puller BMW tool No. 233 into clutch lever mount-
ing bracket. Depress kick starter slightly and proceed to
pull cover off. If necessary assist with a light mallet blow
at the speedometer drive base.



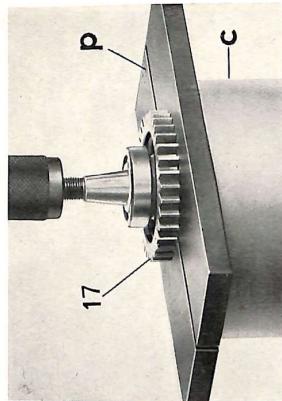
Compress shock absorber spring (1) using BMW tool
No. 319/1 and remove circlip (8).

Remove spacer shims from cover. Remove defective out-
put flange seal. Install new seal with drift BMW tool
No. 231. Seal lip faces to the rear.

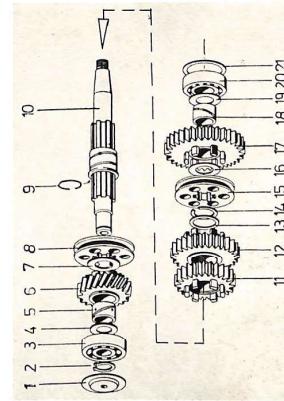
Remove kick starter ratchet (7) kick starter spring (6), drive
coupling (5) and drive gear (4) from input shaft.
If necessary press off ball bearing (3) seal sleeve (1) and
washer (2) for replacement.
When assembling the torsion damper, slide gear (4), drive
coupling (5), damper spring (6), and kick starter ratchet (7)
on the input shaft. Install circlip (8) using BMW tool
No. 319/1 and 319/2, compress damper spring until
circlip snaps into its groove.

Slip on kick starter gear (9) and ratchet spring (10), now
press on thrust washer (11). Always use a new thrust
washer. The thrust washer has to be tight enough on the
shaft so that it is not pushed off by the ratchet spring.

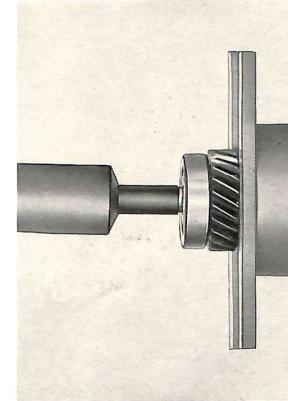
Place the divided plate **P** under the 1st speed gear (17), install the split plate upon a suitable press cylinder **C**, press off the speed gear together with thrust washer 19 and ball bearing 20.



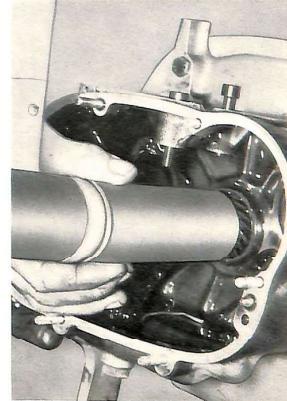
Remove floating bushing (18) of first gear, second washer (16) sliding coupling (15) for first and second gear. Remove circlip (14) and splined washer (13), now remove second gear (12) and third gear (11).



Remove circlip (2) from the forward end of the output shaft. Place two bars between fourth gear (6) and sliding coupling (8). Press off bearing (3) with appropriate mandrel. Remove floating bushing (5), washer (4), washer (7) and sliding coupling (8). If the bushing for 2nd and 3rd gear is worn the shaft together with the bushing has to be replaced. Reassemble in reverse order.



To install transmission shafts heat housing to 180—210° F. Place sleeve, BMW tool No. 206, on input shaft and insert input shaft into transmission housing. Under no circumstances should a hammer blow be directed against the end of the shaft. This would result in an improper fit.



Before installing output shaft, lay oil guide into bearing bore. Insert output shaft and cluster gear together with shift forks into the transmission housing. Be careful to prevent shift forks from binding. If the output shaft, sliding couplings, or shift forks were replaced, the shift forks have to be readjusted according to 2331501.

To measure the end play of the transmission shafts, install new gasket on transmission housing. Support output shaft with (fixture) BMW tool No. 304. Measure distance from ball bearing to mating surface of housing.

Measure the distance from housing cover mating surface to bottom of ball bearing seat in cover. Shim out the difference allowing for 0.1 mm (0.004") end play. The cluster gear is measured out exactly the same way, end play 0.1 mm (0.004"). During installation of the cover the shims can be held in the cover with a small amount of grease.

To facilitate measuring of the input shaft a 20 mm (0.8") bushing BMW tool No. 5061 is placed on the end of the shaft. Measure from the top of this bushing to the mating surface of the transmission housing. Subtract 20 mm (0.8") from the measurement. (This is the thickness of the bushing 5061).

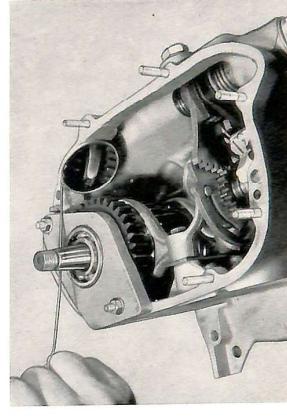
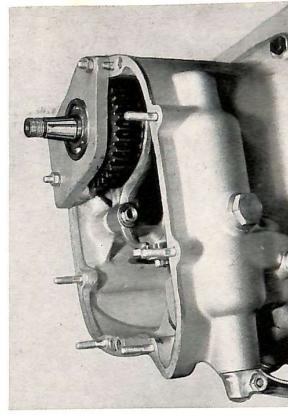
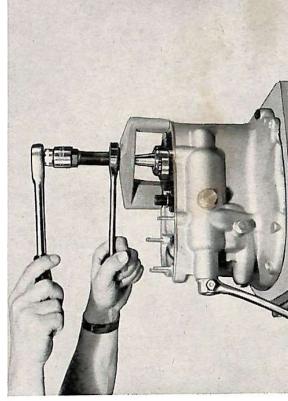
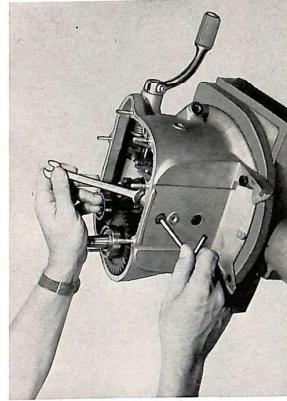
Measure from the mating surface of the transmission cover to the shoulder of the bushing installed in the bearing. The result has to be subtracted from the measurement obtained at the housing, allowing for 0.1 mm (0.004") end play. The remainder has to be made up by spacers.
 $b - (a - 20) - 0.1 \text{ mm (lb} - [a - 0.8"] - 0.004"\text{)} =$
 thickness of spacers required.

23.31.501 Shift fork replacement

Transmission removed according to 23.00/020

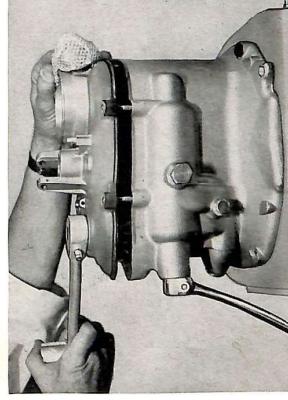
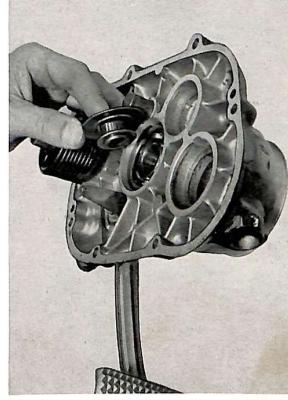
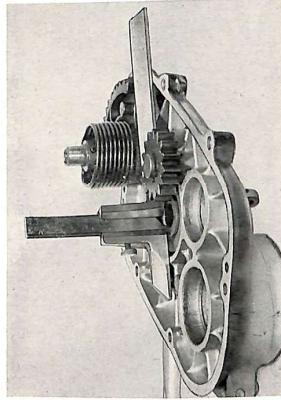
Output flange seal replaced according to 23.12.531

The preparatory steps explained hereofore should be performed only if necessary.



Remove bushing with shoulder from bearing. The determined cup shaped spacer (s) has to be placed on the bearing with the raised outer edge facing into the transmission. Reinstall bushing. The shoulder of the bushing must be included when measuring. We did so by installing it into the bearing before measuring.

To install cover, heat it to 180 to 210° F. Place it on the transmission and depress kick starter partially. Move the kick starter up and down slightly to engage kick starter gear.



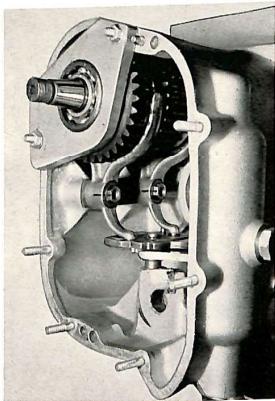
2) Withdraw output shaft from warm transmission housing using puller BMW tool No. 235. Make certain that shift forks do not hang up.

3) To adjust shift forks, heat transmission housing to 180-210° F. Install output shaft complete with sliding couplings and gears, and position it with fixture, BMW tool No. 504.

4) Install shift forks into sliding couplings and into shift fork complete and secure with allenhead bolts.
 (the shift fork retaining bolts can be installed easily if the shift is placed into fourth gear for the installation of the bolt into the 3rd&4th gear shift fork, and into 2nd for the installation of the bolt 1st&2nd gear shift fork)

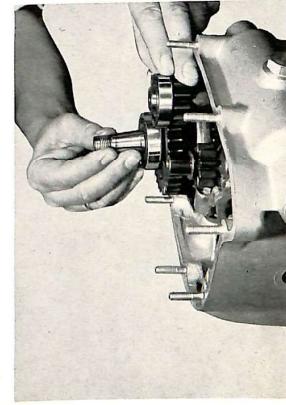
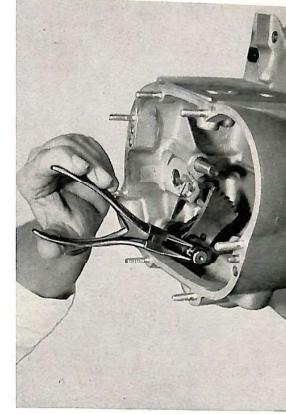
Shift into neutral, adjust the shift forks at the eccentric bushings, with an open end wrench (hex size) to bring the sliding couplings exactly into center between the gears. Verify this by checking with an inspection mirror.

Check with inspection mirror and make certain that the teeths are fully engaged into the sliding couplings, but that sliding couplings are not pressed against the gears.

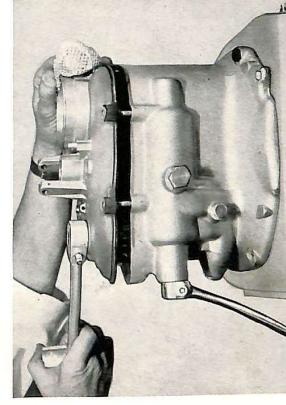


Mark the position of the eccentric bushing on each shift fork.

Remove output shaft from transmission housing. Heat housing to 180–210° F, and install output shaft with shift forks and cluster gear. Make certain that shift forks do not hang up.



Heat transmission cover to 180–210° F. Place the shims for the shafts into the cover and install cover and output flange. For required torque see Specifications.



23 31 851 Shift spring replacement

Transmission removed according to 23 00 020
Output flange replaced according to 23 12 531
Shift forks replaced according to 23 31 501
Output and input shafts replaced acc. to 23 21 500
The preparatory steps explained herefore should be performed only if necessary.

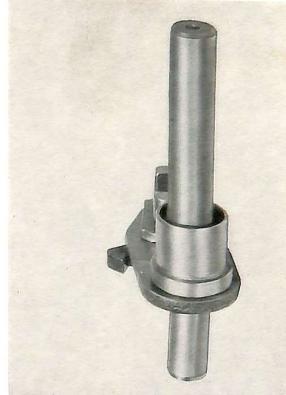
- 1) Remove circlip (1), remove shift cam plate. Remove circlip (2), remove washer and detent spring.

■ 2) Remove circlip and remove pawl and shift segment.

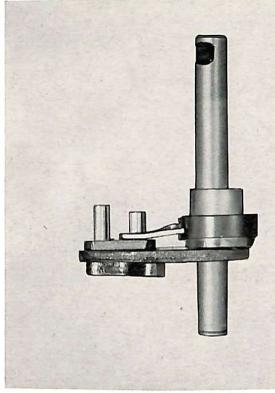
- 3) Remove nut (hex.size 10 mm), and drive out wedge bolt of shift lever.
Remove shift lever and spacer.

■ 4) Remove shift selector assembly with bushing, holders, circular leaf spring, washer and return spring.

- Reassemble in the following order.
1. Install bushing on shift selector assembly with the shoulder toward the inner lever.



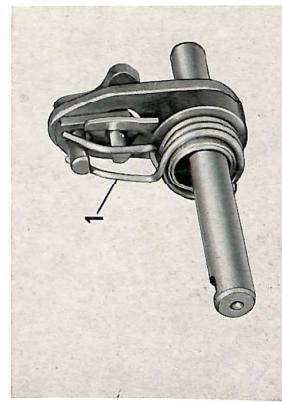
2) Insert the holders into the circular leaf spring and slide this assembly over the bushing. Place the holders on each side of the short pin. Be sure that the crank of the levers is to the right (toward the selector).



3) Insert washer.

4) Install the return spring with the curved end toward the inner lever. Insert the complete assembly into the housing; the return spring ends will fit over the pilot pin in the housing.

The over-shift ([a]) between pawl and detent notches is determined by the selector gear limiting bolts. The over-shift should be 1 mm (0.04") in 4th gear on the upshift and on 1st gear on the downshift. If necessary correct this by shimming limiting bolts.



Install the foot shift lever, select the proper shims for the correct end play. Check Specifications.

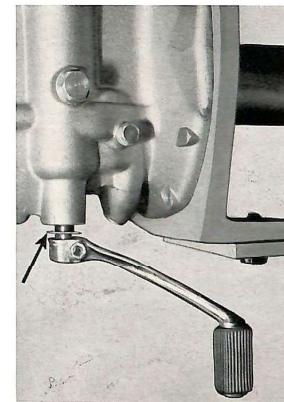
23 31 901 Neutral indicator replacement

Transmission removed according to 23 00 020
Output flange replaced according to 23 12 531

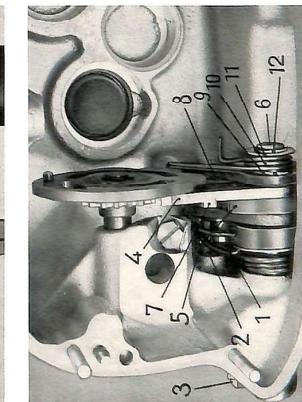
The preparatory steps explained herebefore should be performed only if necessary.

After removing hex.nut (hex.size 10 mm) the contact spring, star washer, and flat washer can be removed. If necessary remove the insulating washer. The contact shaft and insulating bushing are installed with gasket cement. Check and adjust the position of the contact spring using gauge, BMW tool No. 5097.

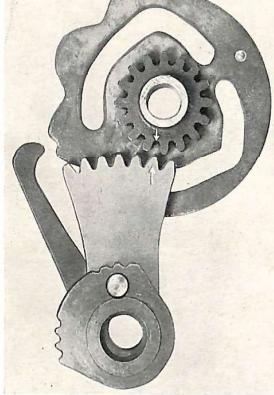
After installing the cover check for proper operation with a continuity light. With the negative wire from the battery connected to the housing and the positive terminal light, the light should be lit in neutral and go off when connected to the neutral contact through a continuity switch to 1st or 2nd.



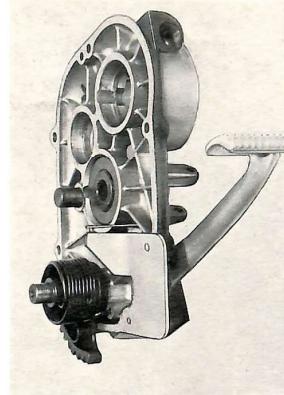
Slide segment (4) with selecting gear (5) on selector shaft (6). The selector lever engagement notches (7) have to have equal distance from the selecting teeth on both sides. If necessary correct deviation by bending the return spring. Install pawl (8) on segment (4) install circlip (9). Secure segment with circlip (12) after installing detent spring (10) and washer (11).



Insert shift cam plate, the second tooth of the segment (as viewed from the rear) has to mesh with the marked tooth of the shift cam plate.



The over-shift ([a]) between pawl and detent notches is determined by the selector gear limiting bolts. The over-shift should be 1 mm (0.04") in 4th gear on the upshift and on 1st gear on the downshift. If necessary correct this by shimming limiting bolts.



23 31 901 Neutral indicator replacement

Transmission removed according to 23 00 020
Output flange replaced according to 23 12 531

The preparatory steps explained herebefore should be performed only if necessary.

After removing hex.nut (hex.size 10 mm) the contact spring, star washer, and flat washer can be removed. If necessary remove the insulating washer. The contact shaft and insulating bushing are installed with gasket cement. Check and adjust the position of the contact spring using gauge, BMW tool No. 5097.

After installing the cover check for proper operation with a continuity light. With the negative wire from the battery connected to the housing and the positive terminal light, the light should be lit in neutral and go off when connected to the neutral contact through a continuity switch to 1st or 2nd.

8.69

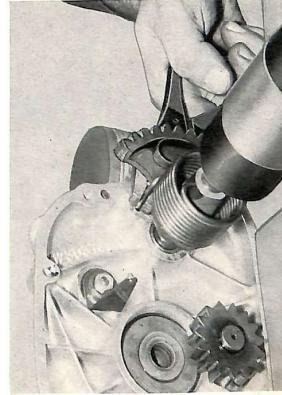
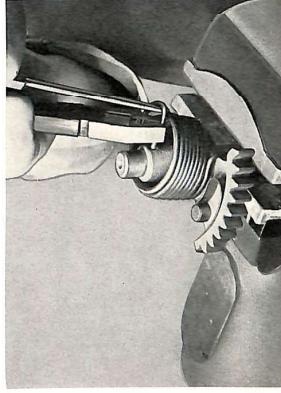
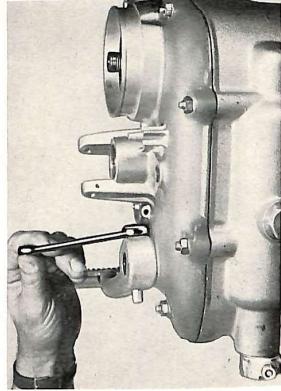
8.69

23 51 501 Kick starter removal and replacement

Transmission removed according to 23 00 020
Output flange replaced according to 23 12 531.

The preparatory steps explained herebefore should be performed only if necessary.

Remove hexnut from wedge bolt, remove kick starter lever after driving out wedge-bolt. Remove kick starter quadrant with return spring from cover. Remove circlip from kick starter idler gear shaft and remove kick starter idler gear.



Specifications
26 11 000 Drive shaft removal and installation
Page 3
Page 5

26 Drive shaft

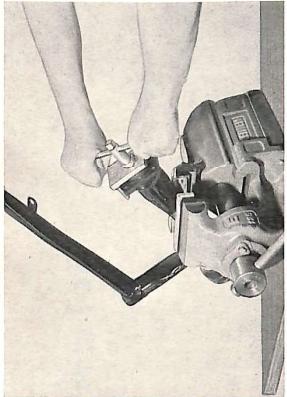
Caution: If the spring has to be replaced on the quadrant proceed as follows. Place the cranked end over the gear, wind the spring with the help of a screwdriver and insert the inward bent end into the hole provided in the quadrant. Assist with a pair of pliers.

When reinstalling the starter quadrant into the cover, insert the cranked end of the spring, into the hole provided in the cover, with a pair of pliers.

Coupling nut of internally splined bell-shaped gear 24÷26 (173.5÷188)
 All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw
 firms or in the new BMW standards sheet 600021.

Torque specifications Nm (ft/lbs)

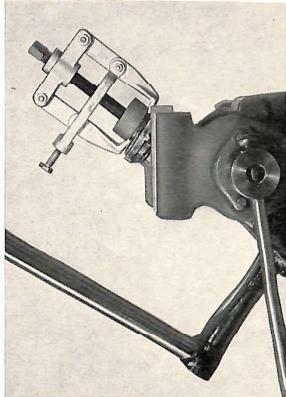
Type	Drive shaft	Specifications	Capacity Nt.
Arrangement	Fully enclosed drive shaft in right rear swing arm tube, provided with a needle bearing universal joint in the front and a semi-circular tooth coupling in the rear.	R 50/5 R 60/5 R 75/5	Oil recommendation Brand name Hypoid lubricant SAE 90
Oil recommendation			0.1 (0.105 US quarts / 0.088 Imp quarts)
			Coupling nut of internally splined bell-shaped gear



26 11 000 Drive shaft removal and installation

Rear swing arm removed according to 33 17 350

Clamp swing arm into vice, be sure to use jaw protectors.
Insert fixture, BMW tool No. 508, into drive shaft bell and
remove nut with corresponding socket wrench.



Pull drive shaft bell off. Use puller BMW tool No. 204/2.
Place a mandrel between puller spindle and drive shaft.
If necessary direct a hammer blow against spindle to help
remove coupling.
Withdraw drive shaft from swing arm.

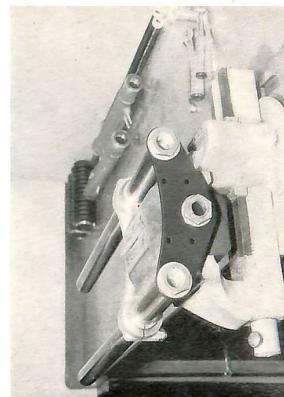
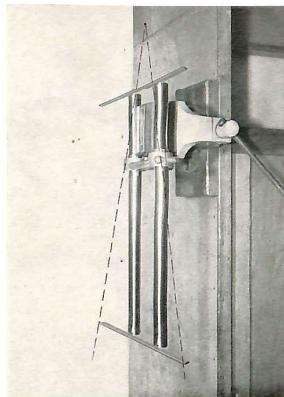
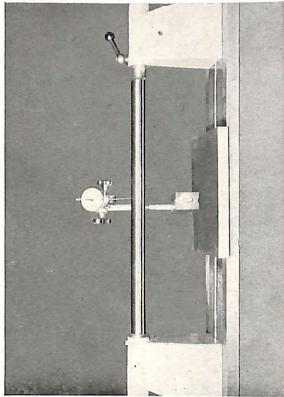


Assembly instructions: Clean and degrease the taper of
the drive shaft and coupling before reassembly. (do not
use gasoline for degreasing).
For torque requirement see Specifications.

31 Telescopic Front Fork

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31 42 050 Steering damper removal and installation	6
31 42 100 Telescopic fork removal and installation	6
31 42 103 Telescopic fork disassembly and reassembly	9

Type	Specifications		
Wheel bearing lubrication	R 50/5	R 60/5	R 75/5
Front wheel castor mm	ca. 85 (3.35") (not adjustable)	approx. 40° to each side	Turning angle of handle bar
Suspension travel (165 lbs load) mm	214 (8.42") 139 (5.7") 75 (2.95")	rebound travel mm	Turning angle of front fork
Fork tube installation (measures from the top of the fork tube to the top of the lower fork yoke) mm	160 (6.3")	measured from the top of the fork tube to the top of the lower fork yoke) mm	Fork tube installation
Fork tubes	hard chrome plated	aluminum alloy casting	Fork legs
Lower fork yoke	drop forged aluminum alloy	drop forged aluminum alloy	Oil capacity per fork leg ltr.
Oil tank	0.28 (0.296 US quarts / 0.093 Imp quarts)	Shock absorber oil, Shell 400T, Shell Aero hydraulic 4	Oil tank
Fork tube outer diameter mm (hard chrome plated)	36+0.025 —0.075 —0.003"	(1.417" + 0.002") —0.002" —0.001"	Fork tube inner diameter mm
Maximum allowable fork tube runout mm	0.1 (0.004")	0.050 bis 0.1 (0.002" - 0.004")	Clearance of fork legs on fork tube mm



31 42 009 Checking fork for damage

Front fork disassembled according to 31 42 103

If the fork was damaged, examine the upper and lower fork yokes as well as the fork tubes and fork leg thoroughly for hairline cracks.

Remove the fork tubes and check their runout between centers or on a truing stand, (max. allowable runout 0.1 mm [0.004"]).

Caution: Bent fork tubes can not be straightened (danger of fracture).

To check condition of lower fork yoke, install two new fork tubes (distance for checking, from fork tube to fork yoke 160 mm [6.3"]).

Place two straight edges, BMW tool No. 548, across the ends of the fork tubes. Align visually to determine any possible distortion.

Check that both tubes are parallel, with sliding calipers.

Check that steering head tube is aligned with fork tubes by mounting upper fork yoke. Both upper spring retainers and the centering nut have to screw on easily without binding.

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All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw firms or in the new BMW standards sheet 600021.

Centrening nut	12.0÷13 (86.8÷94)	Bottom cover on fork leg	12.0 (86.8)	Centrening nut	12.0÷13 (86.8÷94)	Bottom cover on fork leg	12.0 (86.8)	Upper spring retainer	1.0÷1.2 (7.2÷8.7)	Clamp bolt on clamp ring	1.0÷1.2 (7.2÷8.7)	Clamp bolts on bottom fork yoke	3.3÷3.5 (23.9÷25.3)	Shock absorber bolt bottom and shock absorber position to shock absorber	2.5÷2.7 (18÷19.5)	Check that both tubes are parallel, with sliding calipers.
Length of fork spring mm																
in fork tube mm																
Clearance of shock absorber piston																
Length of fork spring mm																
Fork tube inner diameter at shock end mm																
27.7±0.1 (1.09"±0.004")																
Shock absorber piston outer diameter mm																
R 50/5																
Type																
Front fork																

Specifications

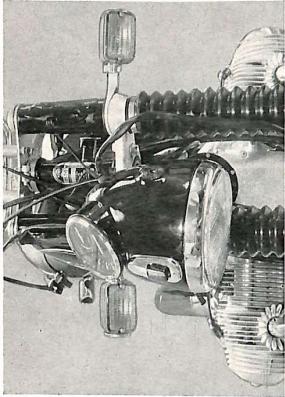
Type	R 50/5	R 60/5	R 75/5	Front fork
Length of fork spring mm				
in fork tube mm				
Clearance of shock absorber piston				
Length of fork spring mm				
Fork tube inner diameter at shock end mm				
27.7±0.1 (1.09"±0.004")				
Shock absorber piston outer diameter mm				
R 50/5				
Type				
Front fork				

4

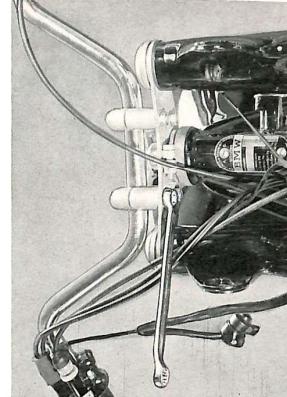
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31 42 050 Steering damper removal and installation

Remove circlip and unscrew damper knob. Remove damper knob, spring washer and pressure plate. Remove the rubber guide ring inside the center tube.

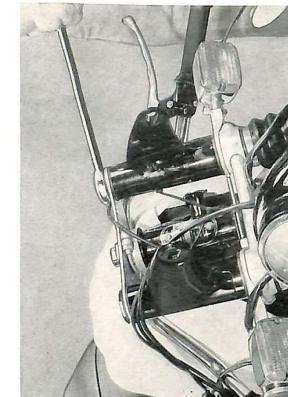


Remove allenhead bolt and lock washer from frame and remove damper plate.

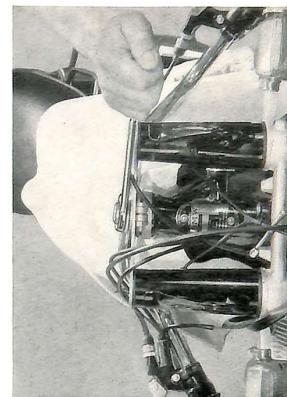


31 42 100 Telescopic fork removal and installation

Remove front fender according to 46 61 000
Remove steering damper according to 31 42 050
Disconnect negative battery cable.
Remove upper and lower retaining screws from switch bracket.



Remove cable straps from the handlebars, withdraw switch from switch bracket and remove switch bracket attachment screw (1).
Remove switch on the right side in the same manner.



Disconnect negative cable at battery. Remove both headlight attachment bolts with rubber washers and rubber grommets. Suspend headlight carefully from the wiring harness.

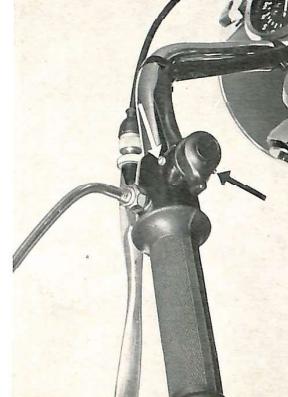
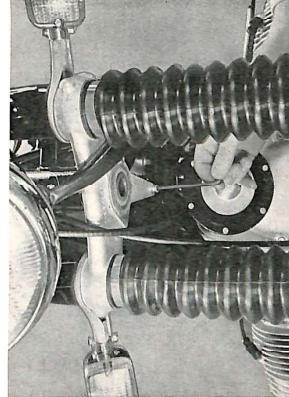
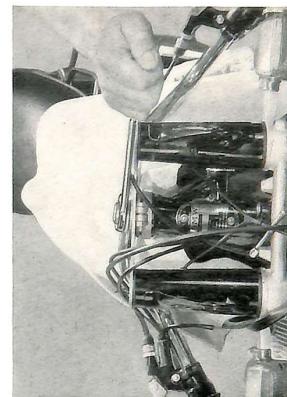
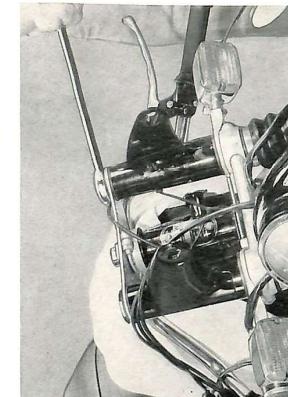
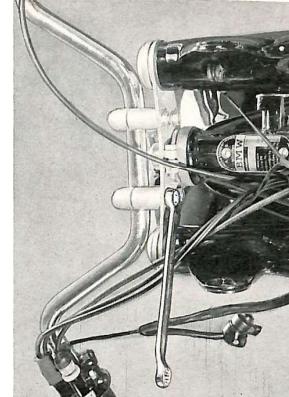
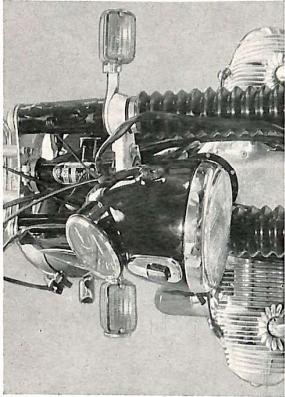
Assembly instructions: Adjust headlight according to 63 10 04

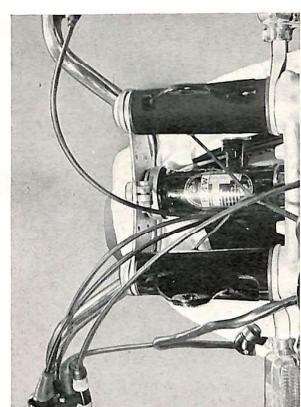
Remove the handlebar brackets and lay handlebar on protected fuel tank.

Remove upper aluminum fork covers with a pin wrench.
Remove both upper spring retainers [for torque see Specifications].

Special hint: During removal or installation place a spacer between the fork stops to protect fuel tank.

Remove centering nut and remove upper fork yoke. [For torque see Specifications].





Assembly instructions: During reassembly route the cables correctly.

Remove turn signals with brackets.

Remove split ring nut. Remove dust cover.

Withdraw fork downward. If necessary tap the top of the steering head tube lightly with a mallet.

Protect tapered roller bearings. The outer races of the upper and lower bearings remain in the frame.

■ Remove turn signal lenses on both sides and disconnect the wires.

Assembly instructions: Before installations grease bearing races and tapered roller bearings.

Insert upper bearing (1). Insert fork carefully together with bottom bearing (2).

Caution: Watch the brand of the bearings, do not intermix races.

Install dust cover and install split ring nut. Tighten ring nut sufficiently to remove all play. Tap top of tube and bottom of the fork yoke to take up any slack. Install the clamp ring.

During tightening of the clamp ring the threads will engage somewhat further. This could cause the fork to get tight. If necessary loosen the ring nut $\frac{1}{8}$ turn reinstall clamp ring.

The steering head bearings are correctly adjusted if the fork fails to either ride (with the clamp ring fully tight) of its own weight and no play can be felt in the bearings.

■ Remove headlight brackets with the rubber rings and withdraw the turn signal wires. (the lower fork yoke has vent passages and holes for the turn signal wires).

31 42 103 Telescopic fork disassembly and reassembly

Fork removed according to 31 42 100

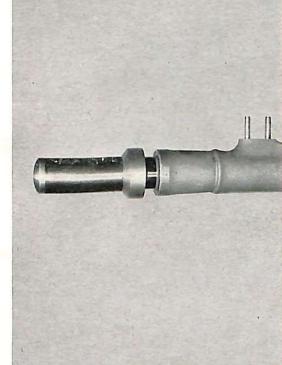
Drain oil from fork.

Clamp fork into vise, use wood fixture BMW tool No. 545.

■ Remove allenhead clamp bolt and nut from the clamp ring and remove clamp ring (for torque see 'Specifications').

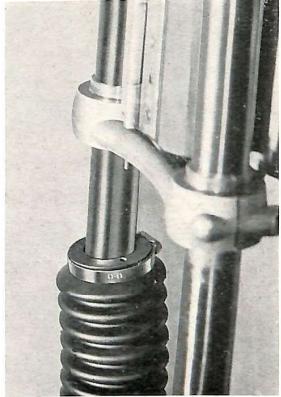
Loosen boot clamps. Remove bottom dust cover. Remove shock absorber retaining nut, hold shock absorber bottom bolt with allen wrench. (for torque see 'Specifications').



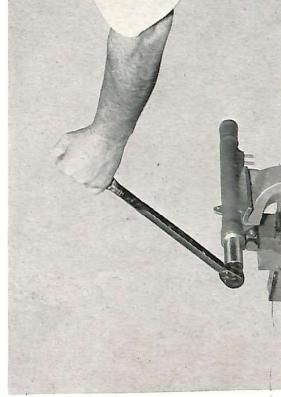


Withdraw fork legs.

Installation instruction: When installing new fork seals into the fork legs, coat the outer edge of the seal with gasket cement. Press seal into fork leg using mandrel BMW tool No. 547. (the narrow seal lip and the metal edge face up) If KACO brand seals are used they should be installed without gasket cement and with the open end facing down.

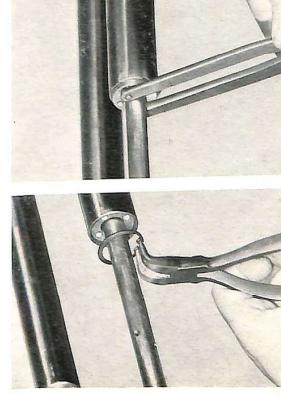


Assembly instructions: When installing rubber fork boots slide vent hole over the vent tubes of the lower fork yoke.



Remove bottom covers.

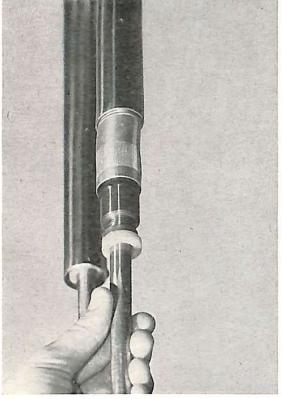
Assembly instructions: Torque bottom fork covers during reassembly (for torque see 'Specifications').



Remove gaskets from bottom shock bolts.

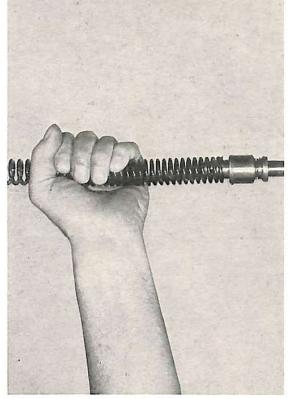
Assembly instructions: On reassembly always use new gaskets.

Remove circlip from bottom of fork tubes and remove oil orifice with a pin wrench.

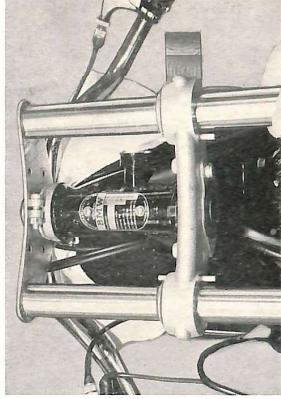


Withdraw shock absorber, with the plastic bottoming ring and spring, downward.

Assembly instruction: To insert shock absorber into fork tube use ring compressor BMW tool No. 546 to compress scraper rings.

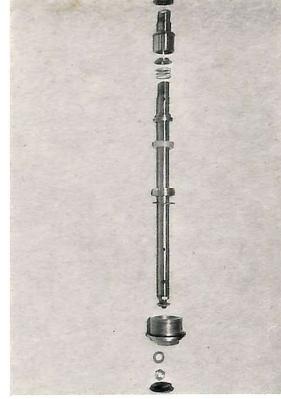


Remove springs from shock absorbers. Remove or install springs on shock absorbers by turning them to the right.



Loosen clamp nuts on lower fork yoke (for torque see 'Specifications'). Insert spreading wedge BMW tool No. 549 and withdraw fork tubes.

Assembly instruction: If the lower fork yoke is replaced, install first the lower and upper fork yoke into the frame. Adjust the steering head bearings after this is completed, the fork tubes should be pushed through the lower fork yoke and pushed up until they are flush against the upper fork yoke. Tighten clamp bolts allow the upper spring retainer to be tightened. (for torque see 'Specifications') If only one fork tube is replaced the required height can be determined from the remaining fork tube.



Telescopic fork inspection 31 42 009

Clamp the hex of the bottom shock absorber retainer into the vise.

Unscrew the spring support with the piston rings. Remove the damper valve and spring. - o remove opposite ball valve clamp shockabsorber tube into vise using jaw profactors. Unscrew retainer and remove spring and ball.

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32 Steering and Handlebars

Assembly instructions: Reassemble shock absorber in reverse order. Clamp the hex. of the bottom retainer in vice and tighten both ends simultaneously by tightening at the hex. of the spring retainer. (for torque see 'Specifications').

Upon completion fill each fork leg with 280 cc of hydraulic oil (for type see 'Specifications'). Pump the fork 4 to 5 times to bleed it.

280cc
5x



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32 00 454		5
32 71 000		6
32 73 030		7
Handlebar removal and installation		
Throttle cable removal and installation		

All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw forms or in the new BMW standards sheet 600021.

Centering nut for telescopic fork
allen head clamp bolt on clamp ring 1,0-1,2 (7,23-8,7)
12,0 (86,8)

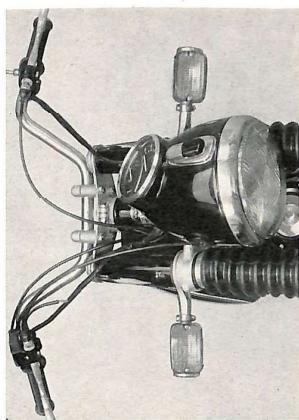
Torque requirements Nm (ft/lbs)

Type	Steering	Specifications	Steering angle of handlebars
R 50/5	R 60/5	R 75/5	approx. 40° to each side



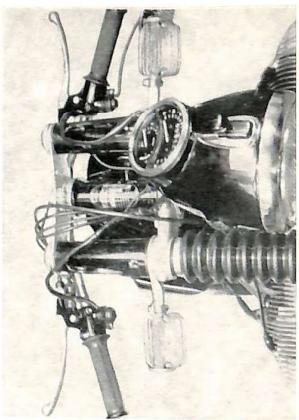
32 00 454 Steering head bearing adjustment

Remove circlip and unscrew damper knob. Remove damper spring washer and pressure plate. Remove the rubber guide ring inside the center tube.



Disconnect negative battery cable.
Remove both headlight attachment bolts with rubber washers and rubber grommets. Suspend headlight carefully from the wiring harness.

Assembly instructions: Adjust headlight according to G310 004.



Remove handlebar brackets, protect fuel tank and lay handlebar carefully on tank.



Remove allenhead clamp bolt from clamp ring (2). Loosen centering nut (1). Insert drift through the slot in the clamp ring into the split ring nut, tighten sufficiently to remove all play of the bearings. Tap lower fork yoke and center tube with a mallet to insure seating of the bearings. Tighten clamp ring (2). The steering head bearings are correctly adjusted if the fork falls to either side (with the clamp ring fully tight) of its own weight and no play can be felt in the bearings.

Assembly instruction: For required torque see 'specifications'.



32 71 000 Handlebar removal and installation

Disconnect negative battery cable.

Remove circlip and unscrew damper knob.

Remove damper knob, spring washer and pressure plate.

Remove the rubber guide ring inside the center tube.



Remove handlebar brackets, protect fuel tank and lay handlebar carefully on tank.



Remove left grip. Loosen allen head bolt (arrow) and remove clutch lever bracket. Watch out for wedge.



Loosen allen head bolt on throttle assembly and withdraw assembly from handlebar. Watch for wedge.

32 73 030 Throttle cable removal and installation

Pull back protection cover. Remove throttle assembly top cover. Unhook throttle cable.

Assembly instruction: Before assembling grease throttle cam and grip. Line up end of slot 'b' with end of opening 'c'. Insert bottom throttle cable into cam chain and insert cam into throttle assembly so that markings 'c' and 'd' line up. Insert upper throttle cable and pull outer cable back far enough to be able to install cover. Tighten cover and push up rubber cover. Full operation is assured only if the throttle assembly is assembled in this manner.

Remove fuel tank according to 16 11 030
Remove carburetor ring nut and withdraw throttle slide.
Unhook throttle cable.

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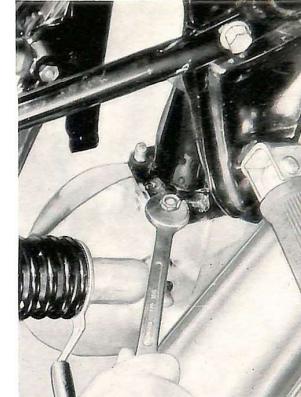
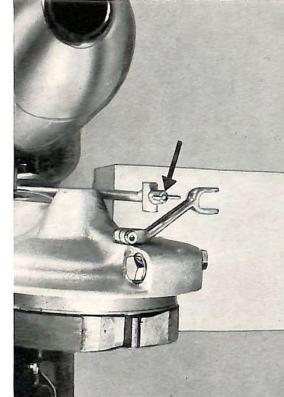
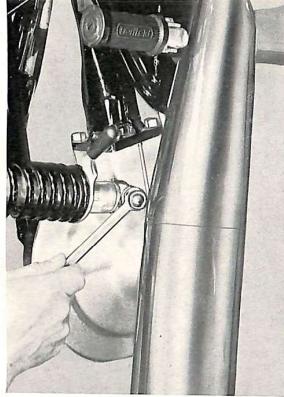
33 Rear drive

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33 10 113 Rear drive unit disassembly and reassembly	6
33 12 051 Ring and pinion gear replacement	10
33 12 054 Ring gear backlash and endplay adjustment	11
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33 17 363 Swing arm disassembly	14
33 52 000 Shock absorber removal and installation	14
33 52 053 Shock absorber disassembly and reassembly	14

Type	R 50/5	R 60/5	R 75/5	Rear drive
Type	Klingelnberg Pallolid bevel gears			
Number of teeth	9:32	11:37	11:32	
Ratio	1:3.56	1:3.36	1:2.91	
Oil recommendation	Brake-in (filled at factory)	Brand name break in oil SAE 90 Hypoid	For first oil change and thereafter	Capacity Ltr.
Brake-in	0.15÷0.20 (0.006"÷0.008")	No end play (without gasket)	End play	Backlash mm
Stroke mm	125 (4.92")	316±2 (12.45"±0.08")	Maximum length mm	Suspension travel mm
U min. RPM	216±2 (8.5"±0.08")	316±2 (12.45"±0.08")	Minimum length mm	Shock absorber test
Extension kp	30±5 (66 lb±11)	58±5 (127.6 lb±11)	100	25 (0.985")
Compression kp	5±3 (11 lb±6.6)	9±3 (19.8 lb±6.6)	50 (1.97")	25 (0.985")
Stroke mm	382	382	50	25 (0.985")
Umax. RPM	80±10 (176 lb±22)	80±10 (176 lb±22)	100	30±5 (66 lb±11)
Extension kp	28±5 (61.6 lb±11)	5±3 (11 lb±6.6)	25 (0.985")	5±3 (11 lb±6.6)
Compression kp	28±5 (61.6 lb±11)	9±3 (19.8 lb±6.6)	25 (0.985")	28±5 (61.6 lb±11)

33 1010 Rear drive unit removal and installation

Remove rear wheel according to 36 30 320. Support swing arm under pivot bolts in the front. Remove nut from spring unit.



Drain oil from right swing arm tube. To facilitate draining remove filler plug also.

Assembly instruction: After reinstallation fill swing arm tube with 0.1 ltr. oil (for type of oil see "Specifications").

Remove wing nut from brake rod. Withdraw transverse pin from brake lever reinstall it on the brake rod and reinstall wing nut.

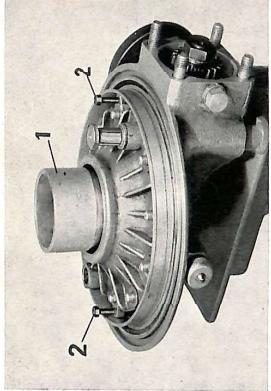
Loosen upper shock unit mounting bolt, remove the four nuts that hold rear drive to swing arm.

All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw firms or in the new BMW standards sheet 600021.

Pinion nut	10-11 (72.3-79.5)	Rear drive drain plug	2.3-2.6 (16.6-18.8)	Swing arm support pins	1-1.2 (72-87)
Threaded ring (Seal retainer)	10-12 (72.3-78.8)	Swing arm filter plug	2.4-2.6 (17.3-18.8)	Rear drive filler plug	2.8-3.1 (20.2-23.1)
Swing arm cover	1.4 (10.1)	Swing arm drain plug	1.8-2.1 (13.0-14.2)	Drive shaft coupling nut	24-26 (17.3-18.8)
Nuts on rear drive	1.4-1.7 (10.1-12.2)	Brake lever	1.4-1.7 (10.1-12.2)	Front drive coupling nut	28-3.1 (20.2-23.1)
Lock nut on swing arm support pins	10-11 (72.3-79.5)	Brake lever	1.4-1.7 (10.1-12.2)	Swing arm	1-1.2 (72-87)

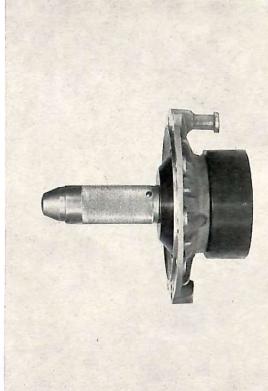
Torque Specifications mkg (ft/lbs)

Type	R 50/5	R 60/5	R 75/5	Specifications
Rear drive				
Suspension spring				
Installed length mm	199.1 (7.84")	251 (9.88")	251 (9.88")	Length extended mm
Outer diameter mm	49.6 (1.954")	41.8+0.3 (1.646"+0.0012")	41.8+0.3 (1.646"+0.0012")	Inner diameter mm
Wire diameter mm	7.5±0.04 (0.295"±0.00016")			
Spring tension at 120.2 mm (4.74") Spring				Spring length mm
Front wheel load kg mm	105			
Oil recommendation	Broad name oil SAE 90 Hypoid			
Cogicity Lit.				



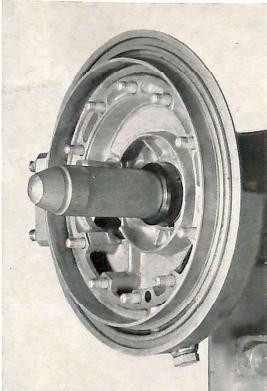
To protect seal install seal sleeve BMW tool No. 505 (1) over splines. Cover can be pulled off with two bolts (2), that are screwed into the two threaded holes of the cover. This will remove the cover, ball bearing, ring gear, and needle bearing inner race. Caution: Remove the brass spacer, keep for re-use.

Assembly instruction: To reinstall cover heat it to 180° F.



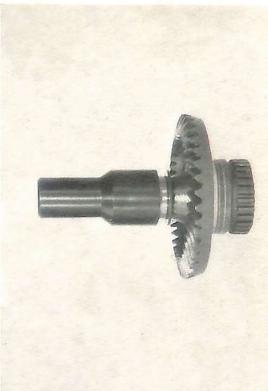
Remove large seal from cover.

Assembly instruction: Install new seal using drift BMW tool No. 251 and handle BMW tool No. 5120.



Heat housing to 180° F and remove needle bearing.

Assembly instruction: Install needle bearing with drift BMW tool No. 257 and handle BMW tool No. 5120.



Pull needle bearing race from ring gear.

Assembly instruction: Install race using drift BMW tool No. 254.

Withdraw rear drive from swing arm.
Assembly instruction: To facilitate installation, put transmission in gear and turn drive shaft by depressing kick starter until teeth of coupling mesh.

33 10 113 Rear drive unit disassembly and reassembly

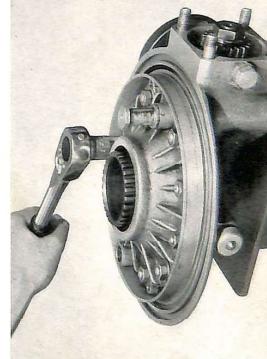
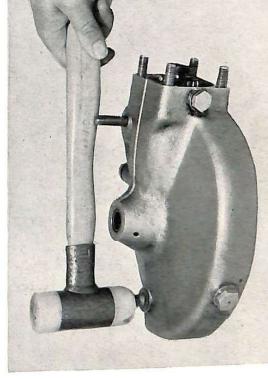
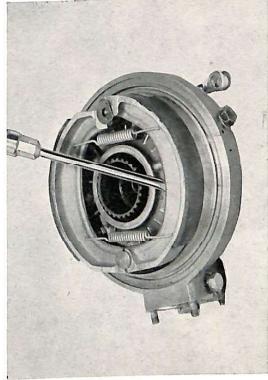
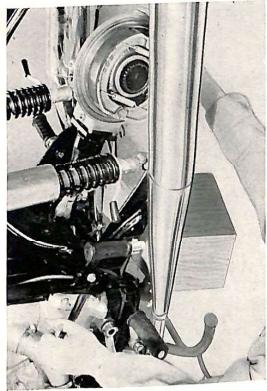
Remove rear drive unit according to 33 10 010
Drain oil.

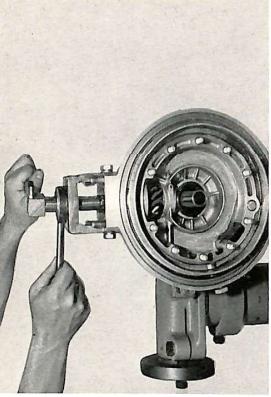
Assembly instruction: After reinstallation fill rear drive with 0.25 ltr. oil (for type see 'Specifications').

Remove the brake shoes by lifting the shoe on the flattened side of the washer off its position first.

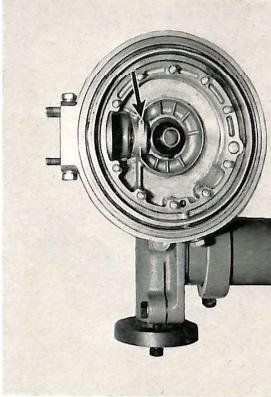
Remove nut from brake cam. Remove brake lever by tapping brake cam with a mallet inward.

Using tool BMW No. 261, clamp rear drive unit into Workstand BMW No. 6000.
Remove the 10 nuts and washers from the housing cover.

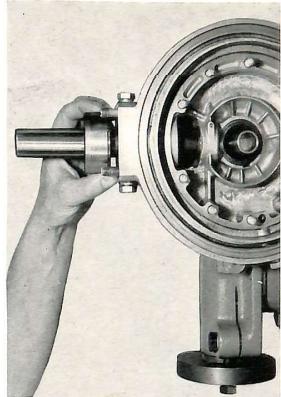




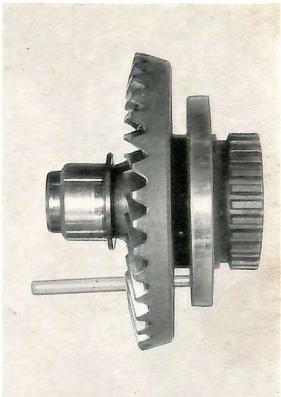
Withdraw pinion together with double-row ball bearing.
Use Puller, BMW tool No. 259 with fixture, BMW tool
No. 259/1.



To replace pinion needle bearing, remove recessed pin
heat housing to 180° F. and remove bearing.

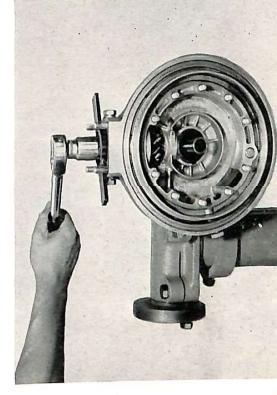
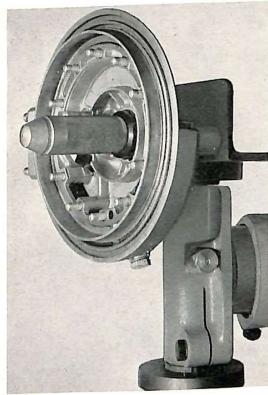


Assembly instruction: Install pinion needle bearing with
drift, BMW tool No. 252.



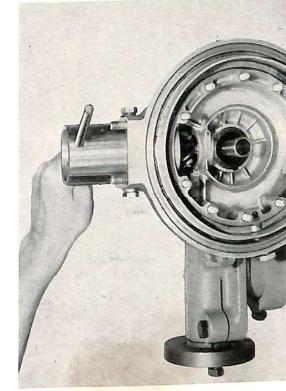
Assembly instruction: Heat ball bearing to approximately
180° F for installation.

Remove seal from housing.
Assembly instruction: Install seal with drift, BMW tool No.
258, and handle BMW tool No. 5120.



Remove lock tab, install holder BMW tool No. 256 and
remove pinion nut. Withdraw drive pinion.
Caution: Always replace lock tab of pinion nut. (For torque
see 'Specifications').

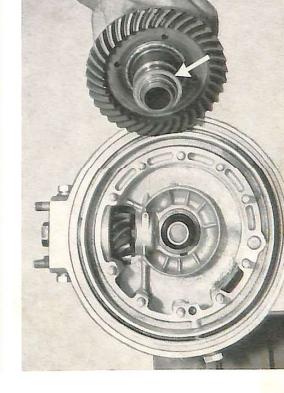
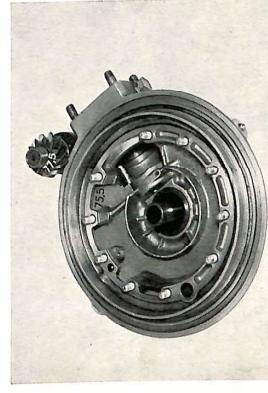
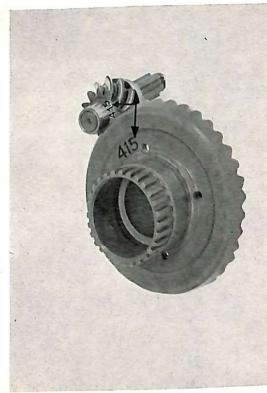
Remove threaded ring including seal with pin wrench,
BMW tool No. 253. Remove inner spacer washer.
Assembly instruction: Install inside spacer, washer and lock
tab with gasket cement.



Remove seal from threaded ring.
Assembly instruction: Install new seal using drift BMW
tool No. 255 and handle BMW tool No. 5120.

33 12 051 Ring and pinion gear replacement

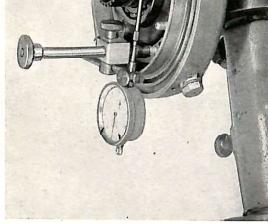
Rear drive unit disassembly according to 33 10 113
Ring and pinion gears are matched and replaceable only
as a set. Watch for marking (arrow).



33 12 054 Ring gear backlash and end play adjustment

Ring and pinion gear replacement according to 33 12 051

Check backlash and mesh by installing a dial indicator on the outer edge of the ring gear. Use holder, BMW tool No. 5104 and fixture, BMW tool No. 260 (for data see 'Specifications').



Tooth contact pattern check. Check drive side contact of the pinion using 'Prussian Blue'. Correct pattern is in the center of the tooth somewhat closer to the heel (forward end) of the tooth.

The base size of the gear set, measured from the pinion ball bearing to the center of the ring gear is $75,5 \pm 0,05$ mm ($2,97 \pm 0,002$).
The measurement inscribed on the ring gear and in the housing have to be subtracted from each other.

Tooth contact pattern check. Check drive side contact of the pinion using 'Prussian Blue'. Correct pattern is in the center of the tooth somewhat closer to the heel (forward end) of the tooth.

The difference between the two figures has to be inserted as shims between the rear drive housing and the pinion ball bearing (arrow).

If the contact is too far forward on the tooth (too much or the heel) correct this with a thicker spacer between the pinion bearing and the housing. Subsequently correct the backlash by using a thinner thrust washer between ring gear needle bearing.

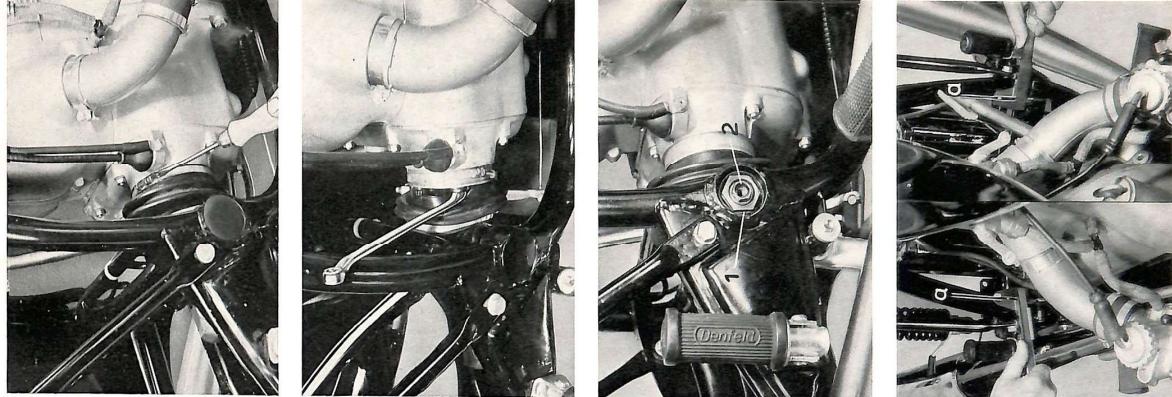
To adjust the backlash, place an appropriate size brass thrust washer between the needle bearing inner race and the needle bearing of the ring gear.
Adjust ring gear and pinion backlash and ring gear end play according to 33 12 054.

If the tooth contact is too far to the rear (too much on the toe) of the pinion tooth, correct this by using a smaller shim between the pinion bearing and the housing. This will then require a thicker thrust washer between the ring gear needle bearing.
After completion of tooth pattern adjustment check pattern again, also check backlash. Remove and install pinion only when housing is helited.

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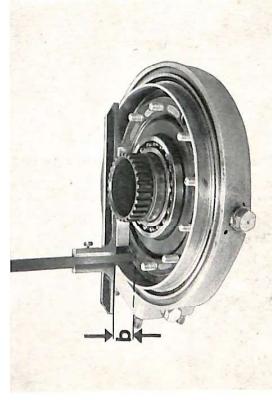
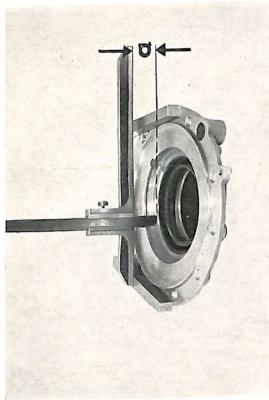


33 17 350 Swing arm removal and installation

Adjust endplay to '0' without gasket. Use a depth gauge and a pair of prisms, BMW tool No. 50-36, and measure the distance from the ball bearing seat in the cover to the gasket mating surface of the cover (a).

- Rear wheel removal according to 36 30 320
- Rear drive unit removal according to 33 10 010
- Battery removal according to 61 21 010
- Rear fender removed according to 46 62 000
- Remove the battery bracket holding bolts and remove the left and right battery bracket.
- Shock absorber removal according to 33 52 000
- Remove drive shaft boot clamp at the transmission and fold boot back as far as possible.

With the ring gear installed in the rear drive housing, measure the distance from the ball bearing to the gasket mating surface of the housing (b). (This is done without the gasket). By subtracting the distance of measurement 'a' from the distance of measurement 'b' the correct size of the required shims is obtained. The endplay is adjusted '0' without the gasket. The gasket provides the small amount of endplay required.



Remove the four drive shaft mounting bolts with a box-end wrench. Lock drive shaft with holder, BMW tool No. 50B.

To remove the swing arm pivot pins, remove the dust covers, loosen the lock nuts (1) and remove the pivot pins (2).

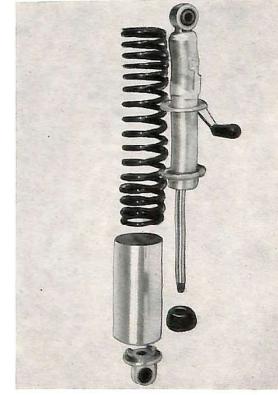
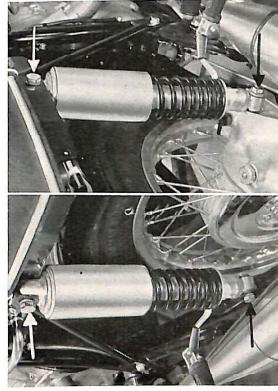
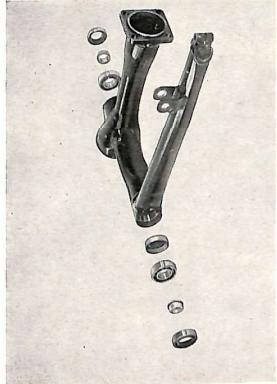
Assembly instruction: Install pivot pins and center swing arm to have an even distance on both sides (a). Check and ascertain that the drive shaft is centered in the swing arm tube. This is to make sure that it does not touch during full swing arm movement. If necessary, the distance 'a' can be slightly different between both sides.

33 17 363 Swing arm disassembly

Swing arm removal according to 33 17 350

Remove seals, thrust spacers, and bearing inner races.

Assembly instruction: Grease bearings before reassembly.



34 Brakes

Specifications	Page
34 11 100 Front brake removal and installation	5

33 52 000 Shock unit removal and installation

Remove hex. nuts and washers and withdraw upper mounting bolts. Before removing the left lower mount hold slightly elevates the swing arm.

Caution: The Boge Niromat (option) can not be repaired or tampered with due to its high internal pressure.

Danger: Repairs can only be performed by the manufacturer. When storing this unit make certain that it is stored in an upright position otherwise there is the possibility of a failure.

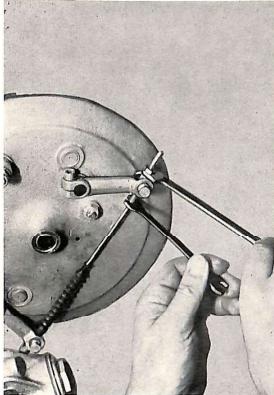
33 52 053 Shock unit disassembly and reassembly

Turn the lever to the lowest tension (Rider position). Install shock compressor BMW tool No. 550 and clamp upper shock unit eye in a vise. Compress the shock unit and withdraw the upper eye from the aluminum cover. Insert an openend wrench on the two flat portions of the shock absorber rod and unscrew the upper eye.

Assembly instructions: Reassemble the shock units in the correct sequence, replace the bushings in the upper or lower eye only if necessary. Before reassembly check the spring length and spring tension [see 'Specifications']. The shock absorber has to have more restriction on extension than on compression, extension and compression movement has to be smooth. If extension and compression is even and the movement is jerky, the shock absorber should be replaced or it is leaking. Caution: never exert more than one (1) lb. of pressure on a retracted shock absorber.

Brakes	Specifications		
Type	R 50/5	R 60/5	R 75/5
Front wheel brake	Double leading shoe	Single leading shoe	
Rear wheel brake			
Brake drum diameter mm	200 (7.87")	ca. 107 (16.6 Sq. inches)	
Brake lining width mm	30 (1.18")	ca. 107 (1.18")	
Lining area cm ²			ca. 107 (16.6 Sq. inches)
Minimum lining thickness mm	1.5 (0.06")		
Max. allowable run-out of the braking surface to wheel hub mm	0.02 (0.0008")		

Specifications



34 11 100 Front brake removal and installation

Remove front wheel according to 36 30 300

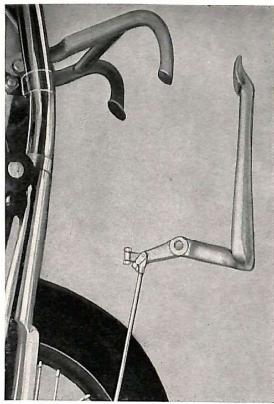
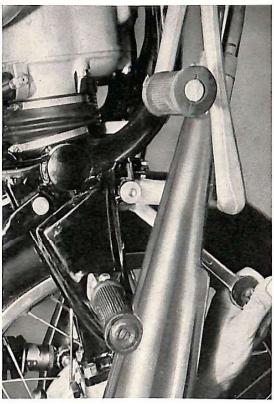
To remove brake cable from front brake plate, release the adjustment screw sufficiently so that the brake cable retainers can be removed from the two brake evers.

Adjustment of front brake: Adjust hand lever to have a play of 8–15 mm (0.315–0.591") by turning the knurled screw after loosening the lock nut. Loosen lock nut of the adjustment cam, turn the cam to the left until it is tight, then turn it back to a point where the lower front brake lever has a free movement of 4 mm (0.157"), measured at the cable anchor, before the shoe is fully applied. Tighten lock nut of adjustment cam. Now adjust the cable, by turning the set screw on cable lower end, to get a free movement of the upper brake lever of 4 mm (0.157") before the upper shoe is fully applied.

Adjustment of foot brake: Turn the wing nut at the end of the brake rod to the right until rear wheel barely starts braking. Then back the wing nut off 3–4 turns.

35 Foot brake lever

35 21 000 Foot brake lever removal and installation Page 3



3521000 Foot brake lever removal and installation

Remove the hex. nut and lock washer from the pivot bolt.

■ Rotate connecting pin to unhook the spring clip and withdraw it.

36 Wheels and tires

	Page
Specifications	3
36 30 300 Front wheel removal and installation	5
36 30 320 Rear wheel removal and installation	6
36 31 311 Wheel rim replacement (front or rear)	7
36 31 351 Wheel bearing replacement	8

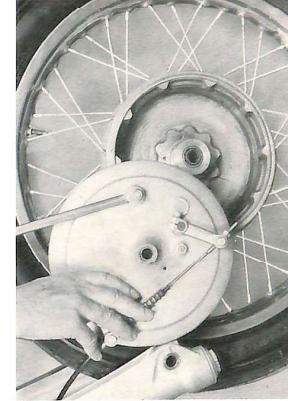
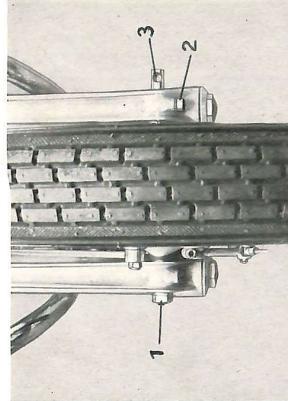
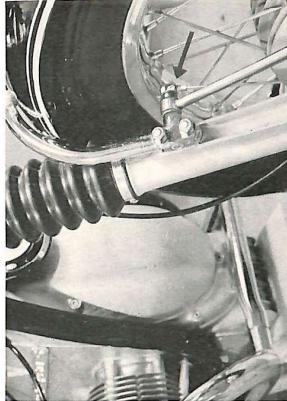
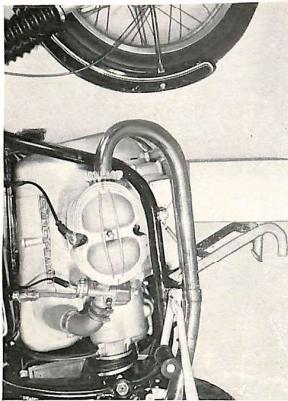
Wheels and tires

Specifications

Type	R 50/5	R 60/5	R 75/5
Rim type	aluminum alloy drop-center rims		
Rim size front	1,85 B x 19		
Rim size rear	1,85 B x 18		
Number of spokes per wheel	40		
Radii of runout max. mm	0,5 mm (0,02") measured on the outer rim edge		
Lateral runout max. mm	0,2 mm (0,008") measured on the outer rim edge		
Tire size front	3,25 S 19		
Tire size rear	4,00 S 18		
rim diameter inner in grams g	170		
Tire pressure	$8 \div 9 \text{ (} 0,28 \div 0,315 \text{ oz) }$		
front wheel Gru front wheel with passenger duty	1,9 (27 psi)		
rear wheel Gru rear wheel with passenger duty	2,0 (27 psi)		
With tire warm Gru	2,25 (30 psi)		
When driving at maximum speeds for longer periods increase the tire inflation by at least	0,3 more (4 psi additional)		
Wheel bearing grease	0,2 higher (3 psi)		
Brand name grease with a drip point of 360° F			

3630300 Front wheel removal and installation

Put motorcycle on the center stand elevate the front wheel until it is free of the ground by placing a suitable block under the oil pan.



Remove the cotter pin and remove the nut from the allen-head bolt which holds the brake support arm. Withdraw the bolt.

Remove axle nut (1) with washer, loosen allenhead clamp bolt (2), and withdraw the axle (3).

Assembly Instructions: Before reassembly, grease the front axle lightly, insert the axle and tighten the axle nut. If necessary, prevent the axle from turning by inserting a pin through the axle. Depress fork several times and then tighten the clamp bolt (2). This prevents the fork from binding.

Roll front wheel out.

All other screws and nuts should be tightened following the usual normal valves quoted in the tables of the screw firms or in the new BMW standards sheet 600021.

Axle nuts front and rear $4.5 \div 4.8$ ($32.5 \div 34$) Torque specifications mkp (ft/lbs.)

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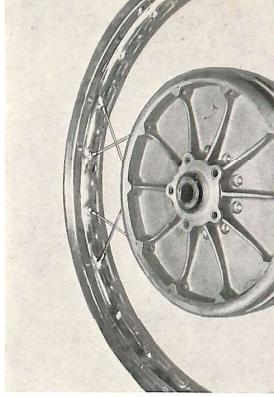
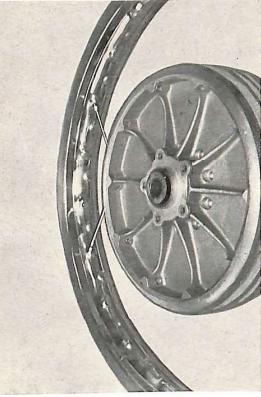
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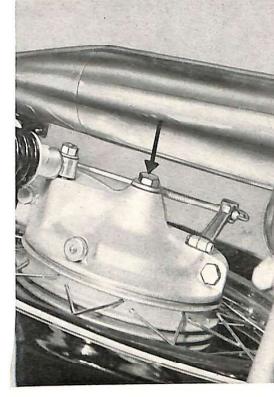
Type	Specifications	Wheels and tires
Permissible wheel load front	at 27 psi kg 160 (353 lbs.) 245 (540 lbs.)	28 psi kg 245 (540 lbs.)
Permissible wheel load rear	at 27 psi kg 178 (393 lbs.) 270 (595 lbs.)	30 psi kg 178 (393 lbs.) 270 (595 lbs.)

36 30 320 Rear wheel removal and installation

Place motorcycle on the center stand and prop up the rear wheel with a suitable block.



Remove clamp bolt on the left swing arm tube, and withdraw the axle.



36 31 311 Rim replacement (front or rear)

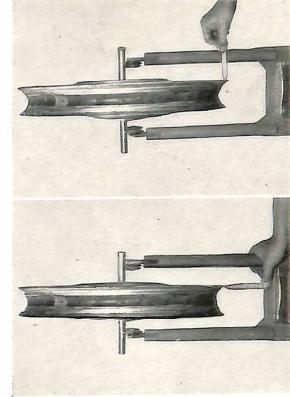
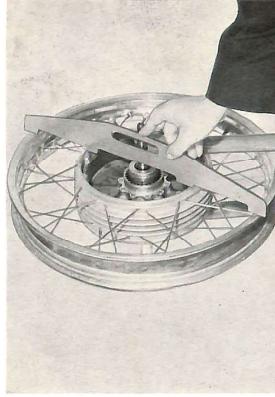
Front wheel removed according to 36 30 300

Rear wheel removed according to 36 30 320

The motorcycles R 50/5, R 60/5 and R 75/5 are equipped with aluminum alloy rims. The rim sizes are, in the front 1.85 B × 19 and in the rear 1.65 B × 18. To install the rims, the spoke gauges BMW tool No. 251 for rear wheel and BMW tool No. 252 for front wheel are necessary. A displacement brake drums have an undenized inner diameter. After the wheel is spokes, the drum has to be turned on a lathe to the size of 200, plus 0.05 mm (78.75 plus 0.07). For this, support the hub in the center and turn the drum to a fine finish. This removes the distortion caused by the casting process. Work on all the rims of the brake drum on the hub to 0.02 mm (0.00781"). Place wheel hub on a bench with the drum side down. Insert a pair of spokes with rotaries into the hub. Note, the holes in the hub one not on the same level.

Install the rim. Place the marking on the inside of the rim on the open side of the brake drum, so that the arrow points in the direction of rotation. The nipple stoppers on the rim must point in the same direction as the spokes. The higher situated spoke must meet the higher hole in the rim. The lower spoke will then meet the lower hole in the rim. The remaining spokes are inserted in the same fashion.

Remove clamp bolt on the left swing arm tube, and withdraw the axle.

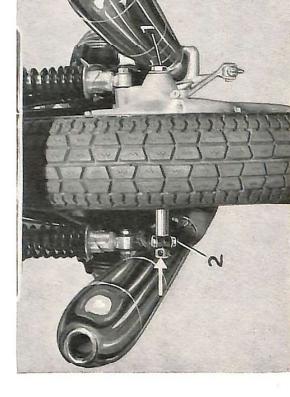
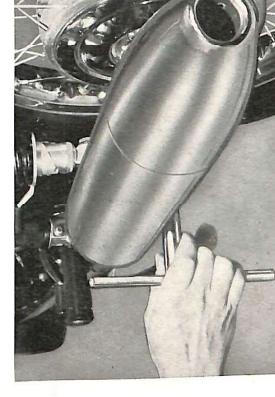


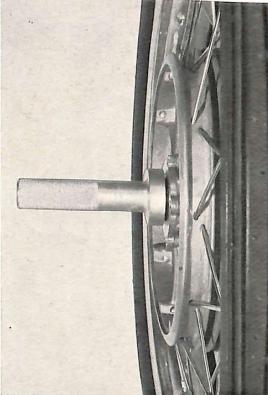
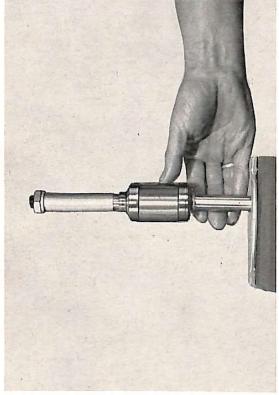
All spoke nipples are tightened evenly. Place the rim with axle into bolting fixture, BMW tool No. 5106. Previously, slide onto thinner side of axle, the spacer sleeve, BMW tool No. 251 for rear wheel, and BMW tool No. 252 for front wheel.

Assembly instruction: Grease spoke nipple thread lightly before installation.

Assembly instructions: Clean the axle and spines; grease lightly with a high drip point grease. Rotate axle during insertion. After tightening the axle nut (1), take the motorcycle from the center stand and depress the rear end several times to prevent binding, then tighten clamp bolt (2)-the hole in the end of the axle (arrow) should be horizontal.

Withdraw wheel from rear drive. To facilitate removal of the wheel lean the motorcycle slightly to the right.



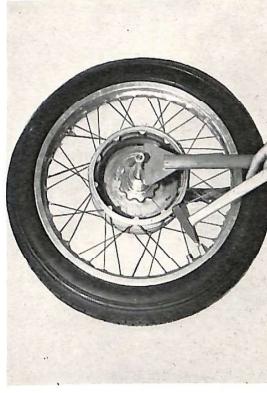


Balancing wheels statically:

Install wheels with axle into balancing fixture, BMW tool No. 5106. Previously, slide on thinner side of axle, the spacer sleeve, BMW tool No. 553 on front wheel or BMW tool No. 554 on rear wheel (arrow).

Assembly instructions:
Before reinstallation into the wheel hub, check bearings for play. For this, install wheel axle with jaw protectors in a vise and mount the complete bearing set, consisting of thrust sleeve, left, left-hand taper roller bearing, spacer ring, inner spacer bushing, outer spacer bushing, right taper roller bearing and thrust sleeve, at the right. Using the spacer sleeve, BMW tool No. 553 on front wheel axle, and BMW tool No. 554 on rear wheel axle, clamp the bearings together by means of the axle washer and axle nut. The bearings are properly adjusted if no play can be felt, and if the outer spacer tube can be pushed over under light thumb pressure. If necessary, replace the spacer ring to correct the clearance.

Wait until wheel is at standstill, then tap corrective weights with a hammer onto spokes situated above. A correctly balanced wheel must stand still in any position. Maximum allowable unbalance see specifications.



36 31 351 Replacement of wheel bearings (front or rear)

Front wheel removed according to 36 30 300
Rear wheel removed according to 36 30 320

Remove hex head bolts with lock washer. Remove hub cap.

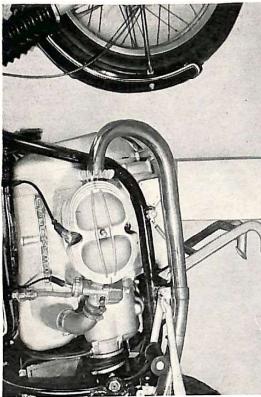


Remove bearing cover plate with seal and thrust sleeve. Withdraw inner race cage, spacer ring, and inner spacer sleeve. (On the front wheel first remove the reducing sleeve). Insert drift, BMW tool No. 5074, into spacer sleeve on the side of the brake drum and tap out left bearing, outer race, outer spacer sleeve, bearing on the side of the brake, and right spacer sleeve.

46 Frame

	Page
Specifications	3
46 52 000 Center stand removal and installation	5
46 53 000 Sidestand removal and installation	6
46 61 000 Front fender removal and installation	7
46 62 000 Rear fender removal and installation	8

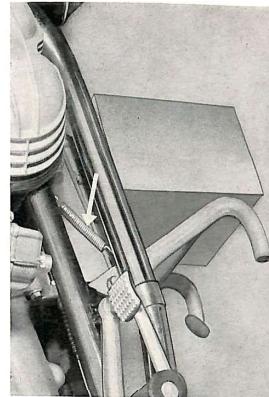
Frame	Type	R 50/5	R 60/5	R 75/5	Specifications
Weights and dimensions	Location of serial number	on the right side of the steering head	on the steering head	on the right side of the steering head	Locality of identification plate
Weights and dimensions	Over all height without mirror mm	740 (29.1")	740 (29.1")	740 (29.1")	Seat height (without load) mm
Weights and dimensions	Over all width engine mm	1100 (44")	1100 (44")	1100 (44")	Wheel base mm
Weights and dimensions	Over all length mm	2100 (82.7")	2100 (82.7")	2100 (82.7")	Curb weight including lubricants, fuel and tools kg
Weights and dimensions	Ground clearance with load	1385 (54.5")	1385 (54.5")	1385 (54.5")	Curb weight including lubricants, fuel and tools kg
Weights and dimensions	Wheelbase mm				of a rider weighing 165 lbs. mm
Weights and dimensions	Overall length mm				of a rider weighing 165 lbs. mm
Weights and dimensions	Seat height mm				Ground clearance with load
Weights and dimensions	Overall width engine mm				Curb weight including lubricants, fuel and tools kg
Weights and dimensions	Overall height without mirror mm				but without fuel and tools kg
Weights and dimensions	Overall height (without load)				Permissible total weight including luggage kg
Weights and dimensions	Overall weight including lubricants, fuel and tools kg	190 (419 lbs.)	185 (408 lbs.)	205 (452 lbs.)	Permissible wheel load front at 27 psi tire pressure (lbs) kg
Weights and dimensions	Overall weight including lubricants, fuel and tools kg	190 (419 lbs.)	190 (419 lbs.)	190 (419 lbs.)	Permissible wheel load rear at 27 psi tire pressure (lbs) kg
Weights and dimensions	Overall weight including lubricants, fuel and tools kg	210 (463 lbs.)	210 (463 lbs.)	210 (463 lbs.)	Maximum load including operator 2 people



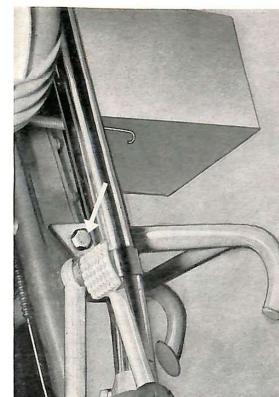
46 52 000 Center stand removal and installation

Place a suitable block under the oil pan and raise the motorcycle until the center stand does not touch the ground.

Unhook the left and right center stand return springs.



Remove hex head bolt (left and right) (arrow) and withdraw center stand to the rear. Watch for the spacers.



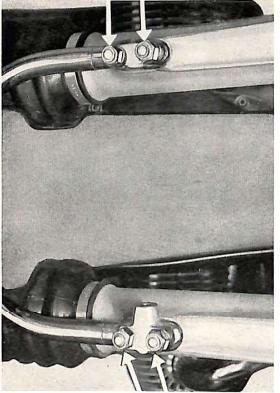
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All other screws and nuts should be tightened following the usual normal values quoted in the tables of the screw firms or in the new BMW standards sheet 600021.

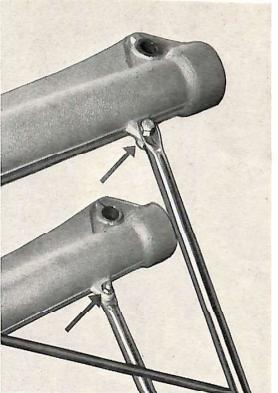
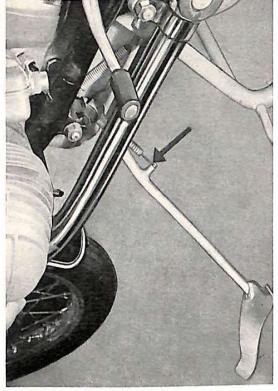
Rear frame section mounting bolts 3.5 (25.3)	Center stand bolts 2.5 (18.0)	Nuts for upper front fender brace 2.3 (16.6)	Nuts for lower front fender brace 0.25 (1.8)
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Torque specifications Nm (ft/lbs)

Type	Frame	Specifications
		R 50/5
		R 75/5

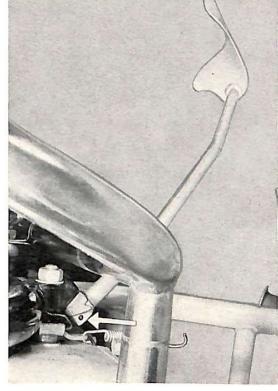
**46 53 000 Side stand removal and installation**

Unhook side stand return spring.



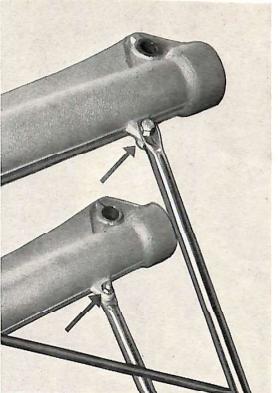
- Remove the four self locking nuts of the upper fender brace.

- Drive out retainer pin (arrow) with an appropriate drift and withdraw sidesstand.

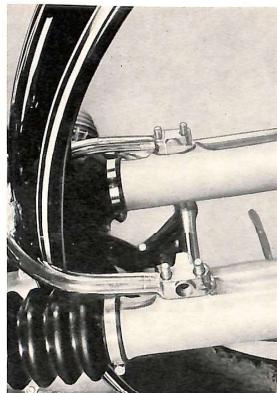
**46 61 000 Front fender removal and installation**

Front wheel removal according to 36 30 300

Remove the four self locking nuts of the upper fender brace.



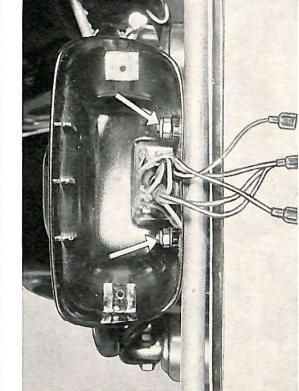
- Remove the two nuts bolts and lock washers of the lower center brace.

**Assembly Instructions**

During reassembly, insert upper fender brace on the four studs of the fork legs, and attach lower fender brace loosely on the fork legs. Tighten the fender brace after the wheel and front brake plate is completely installed and tightened (for torque see Specifications).

46 62 000 Rear fender removal and installation

Disconnect the negative battery cable.
Flip open the dual seat, remove the four hex head bolts
with washers, rubber spacers, and self locking nuts
(arrow).

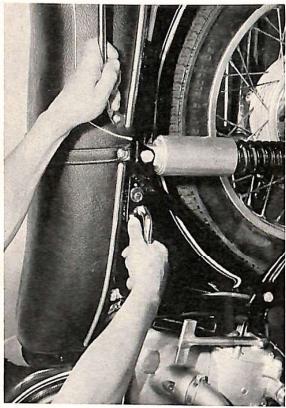


Remove the lower mounting bolts with self locking nuts
from the frame.

Remove the 2 philipps head screws from the tail light and
remove the tail light lens and reflector.

Remove the 2 bolts nuts and washers (arrow) and remove
tail light housing and turn signal carrier from the fender.

52 Dual seat



52 53 000 Dual seat removal and installation

Flip open dual seat.



■ Remove the 3 allenhead bolts (arrow) and withdraw dual seat to the rear.

61 Frame electrical system

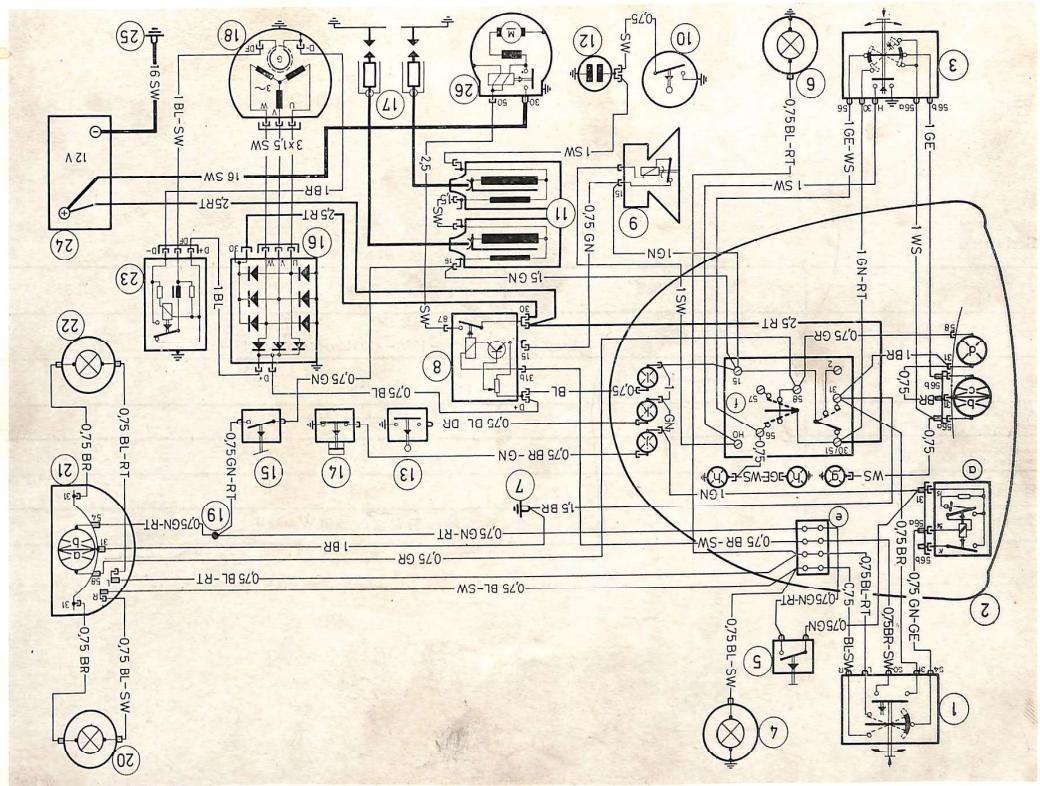
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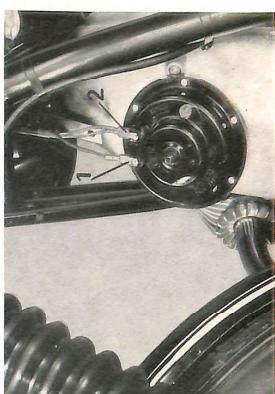
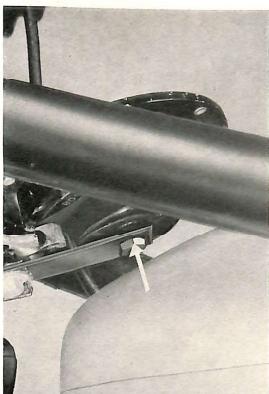
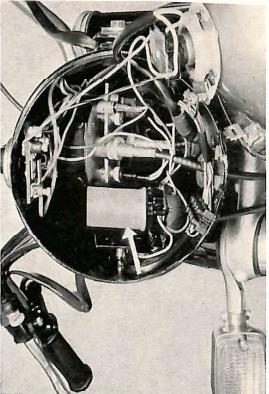
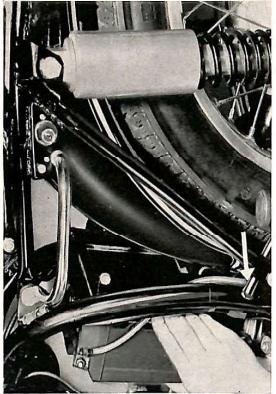
Frame electrical system

Specifications

Type	R 50/5	R 60/5	R 75/5
Home Type	Bosch 0320 123 013 - 12V - 400 Hz oder Hella B 31 - 12V - H 3		
Batttere Volt	12		
Capacity Ah	15 ampere hours		
Ground	negative		
Lowest voltage required for starting	3		
Turn signal flasher	Hella 91 M 2 E 2x21 W - 12V		

Wiring diagram





61 21 010 Battery removal and installation

Air filter removal according to 13 72 000

Unhook battery straps. Remove battery cover, disconnect battery cables and withdraw battery to the left.

Assembly Instructions
Insert battery vent tube into the hole provided in the frame (arrow).

61 31 350 Turn signal flasher removal and installation

Disconnect negative battery cable.
Separate head light rim from headlight housing with a screw driver, withdraw flasher from the socket (arrow).

61 33 000 Horn removal and installation

Disconnect negative battery cable.
Remove hex. nut (arrow) from the horn.

Withdraw horn wires
1 = black wires
2 = two green wires

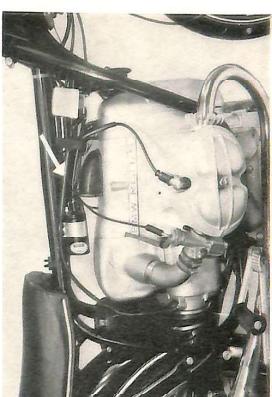
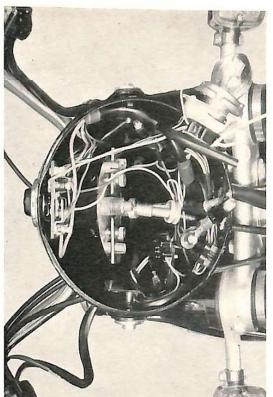
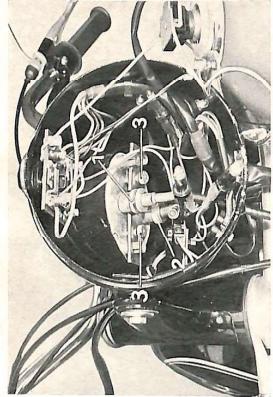
62 Instruments

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Instruments

Specifications

Type	R 50/5	R 60/5	R 75/5	
Speedometer ratio km	0,811	0,766	0,665	
Speedometer ratio Miles	1,297	1,226	1,0625	
Speed indicator km	20÷200			
Speed indicator Miles	10÷120			



62 11 000 Instrument cluster removal and installation

Disconnect negative cable from the battery.
Separate headlight rim from the headlight housing with a screw driver. Withdraw flasher unit and indicator lamps.
Remove the speedometer cable (1) tachometer cable (2) and the 2 serrated nuts (3).

Withdraw instrument cluster from the top.

62 11 020 Speedometer cable removal and installation

Disconnect negative battery cable.
Separate headlight rim from head light housing with a screw driver.
Withdraw the flasher unit and indicator lamps.
Remove speedometer cable from the instruments' cluster.

Remove the speedometer cable rubber gromme.

Remove the fuel tank according to 16 11 030

Pull back the cable boot at the transmission, remove the cable clamp bolt and remove the negative battery cable and washer. Withdraw the speedometer cable.

Assembly Instructions

Route the speedometer cable on the frame exactly as shown in the picture (arrow).

63 Lighting

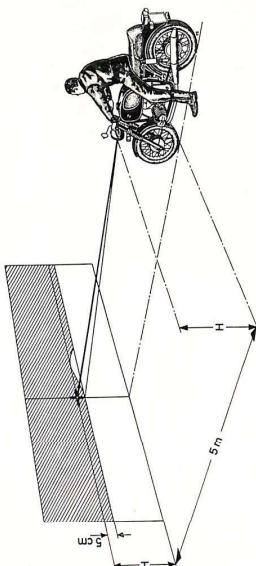
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Type	Specifications	R 50/5	R 60/5	R 75/5
Headlight	Bosch 0 303 550 002	12 V 45/40 W	Double filament bulb	High and low beam
Parking light	12 V 4 W	Parking lamp	Transmission neutral indicator lamp	Charging indicator lamp (red)
Braking light	12 V 4 W	Parking lamp	Indicator lamp	Oil pressure indicator lamp (blue)
Turn signal lamps (front and rear, two each)	12 V 21 W	Bulb (RL)	Instrument illumination	High beam indicator lamp (blue)
Stop light	12 V 21 W	Double filament bulb	Indicator lamp	Turn signal lamps (front and rear, two each)

6310004 Headlight adjustment

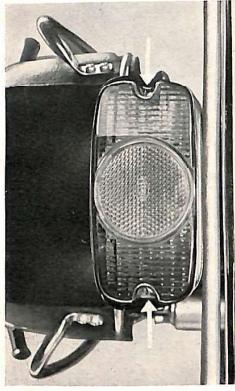
If any work is performed on the headlight it is necessary to subsequently adjust the headlight aim. Proceed as follows:

Check tire pressure and correct if necessary.
Place motorcycle on its wheels with the rider aboard on a level surface 16½ feet from a light colored wall. The rear springs should be set for solo operation. Measure the distance from the floor to headlight center. Mark this distance on the wall with a cross and draw another cross 2" below the first one. Turn on low beam and align the headlight so that the dark boundary runs from the left from the center of the lower cross rising to the right; to the horizontal line of the upper cross and then falls off.



63 21 180 Tail/Stop light removal and installation

Disconnect negative battery cable, remove the 2 screws holding the tail light lens and remove the lens.

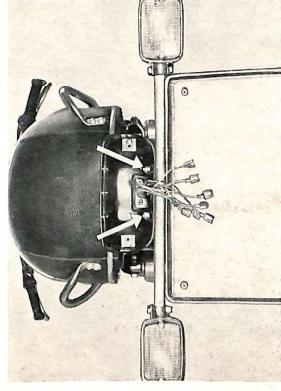


Withdraw the tail light wires from the reflector. Note the color of the wires.

Remove the 2 taillight mount bolts and nuts and remove the housing.

Assembly Instructions

Make certain that license plate illumination faces downward when installing the taillight lens.



63 23 000 Turnsignal unit removal and installation (one unit front or rear)

Disconnect negative battery cable.
Remove the 2 Phillips head screws and remove the turn signal lens.

Disconnect the wire from the turn signal reflector (arrow).

Loosen the clamp bolt and withdraw the turn signal housing.

Assembly Instructions

When installing the turn signal lens, make certain that the designation "TOP" is on the top.



63 99 101 Headlight bulb replacement

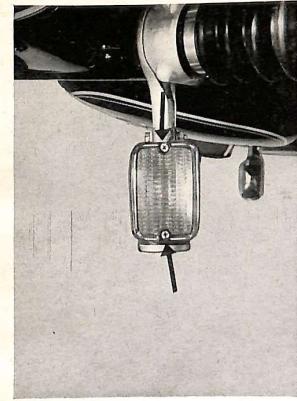
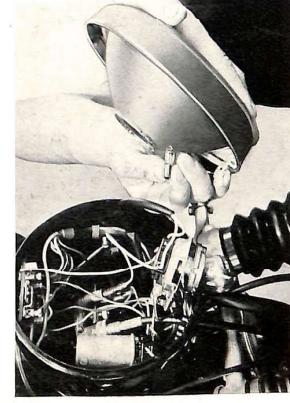
Disconnect the negative battery cable. Separate headlight rim from the headlight housing with a screw driver.

Remove the bayonet type bulb holder from the reflector by turning it.

Remove the double-filament bulb.

Assembly Instructions

When inserting the headlight bulb, make sure that locating tab of the bulb fits into the recess of the reflector.



63 99 271 Turn signal bulb replacement (front or rear)

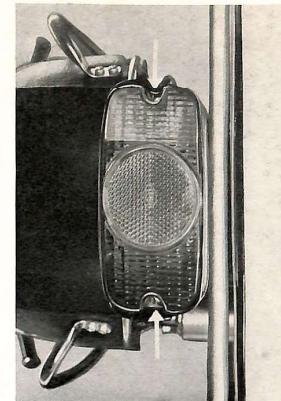
Disconnect negative battery cable.
Remove both Philips head screws and remove turn signal lens.



Remove bulb from reflector by pushing it in slightly and turning it to the left. It can then be withdrawn.

Assembly Instructions

When installing the turn signal lens, make certain that the designation "TOP" is placed at the top.



63 99 341 Tail light bulb replacement

Disconnect negative battery cable.
Loosen the 2 Philips head screws and remove the tail light lens.



Remove the bulb from the reflector by pressing it in lightly and turning it to the left. It can then be withdrawn.

Assembly Instructions

When installing the tail light lens, make certain that the license plate illumination faces downward.

