



Service-Information



BMW MOTORRAD GMBH Service R-VK-10 wb/ur	Motorcycles R60/6-R100RS Technic Gearbox	Munich, Aug. 77 23 001 77(1023R)
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For U.S. and Canada only

**Subject: Repair Hints on 5-Speed Gearboxes
and Technical Data on the Racing Gearbox**

Dear Dealer,

Constant research and development produced improvements in the production of the 5-speed gearbox. The following is a summary of these improvements and suggestions that could be incorporated in future repairs.

In addition, you will find information covering the racing gearbox ratios.

Latest production of gearboxes have the following changes:

- a) Strengthen sliding gears, identified by the 1 mm narrower shifterfork groove
 - new 5.7 mm wide
 - old 6.5 mm wide
- b) Square, undercut dogs and windows on 3, 4 and 5 gear (to prevent possible jumping out of gear).
- c) Selector Bracket: Detent aim spring 23 31 1 234 791 with 5 windings, to strengthen gear selection and positive resting in each gear. Reversed pattern on rear camplate, to achieve easier selection of neutral, the seal rings on the camplate spindles were left out. Result = quicker selection of neutral and easier gear selection.
- d) Gearbox Casting: Bigger stronger boss to allow more support for the selector fork shaft, 3 and 4 gear, allowing this shaft to be lengthened by 5 mm
 - new 105 mm long
 - old 100 mm long

This improved casting is recognized by a different casting seam.

If any gearboxes are to be repaired for the above reasons, use these new improvements which are interchangeable and the following hints and tips:

If shifting or gear selection is hard, the cause is primarily the detent spring; ensure this spring does not coil bind when moving over the cam lobes. Shifter fork guides must slide easily in camplate tracks. Deburr when necessary.

Check that all parts mounted on to the selector bracket move freely without any tension or binding. In an assembly the selector pawl should not rub against the large camplate (1, 2 and 5 gear).

Straighten if necessary.

The use of extra force to shift the gearbox could also be caused by worn or rough selector fork shafts, check and polish with fine emery cloth. Another major cause of shifting is also the incorrect end play of the shafts. Each shaft must spin free and end clearance must not exceed 0.1 mm.

A special tool (plate) will be available soon to make this task easier and more accurate.

Racing Gearboxes

A special ratio gear set has been developed for active sportsriders or competitors.

The different closer ratio is between 2, 3 and 4 gear only, thereby reducing the loss of rpm's when selecting the next higher gear. The first gear is also higher, therefore it is not advisable to use this racing-ratio for normal use, because the clutch is used harder if the first gear is higher. So keep in mind this is strictly a racing gearbox, designed for the enthusiast.

Internal Ratios

	Racing	Standard
1st Gear	3.38	4.40
2nd Gear	2.43	2.86
3rd Gear	1.93	2.07
4th Gear	1.67	1.67
5th Gear	1.50	1.50

Complete racing gear sets are available under
Part No. 23 21 1 233 427.

Yours truly,

BMW MOTORRAD GMBH
Munich

