Aircooled Gearbox Code Reference Table

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Every VW Gearbox Code, Gear Ratio and Ring & Pinion: Air-Cooled Reference Guide

Identify your VW Beetle, Karmann Ghia, Type 3, Split Screen and Bay Window gearbox, compare factory ratios, and understand the effect of final-drive and fourth-gear changes. This reference principally covers the air-cooled transmission families used through 1979, with a short T25/T3 comparison appendix.

1. Identify and date your Volkswagen gearbox

Locate the stamped gearbox identification code on the casing; do not confuse it with raised casting or part numbers such as 002 or 091. A gearbox marked with an 002 casting is not necessarily one particular ratio.

A date suffix does not, by itself, establish the complete decade or originality of the gearbox. The source reference also provides later T25 examples such as ABH 17107 (17 October 1987).

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2. Type 1 — Beetle, Karmann Ghia and Type 181

Factory reference ratios below follow the John Walklett gearbox-code chart. The first–fourth values are gearbox ratios; the final drive is the crown-wheel/pinion ratio. LSD means limited-slip differential.

Type 1 semi-automatic gearbox codes

Semi-automatic transmissions have three forward ratios. Their third gear must not be presented as a conventional four-speed fourth gear.

3. Type 3 — Fastback, Squareback and Notchback

The following identification entries are retained from the existing Limebug reference. They are not included in the currently displayed Walklett code chart; their detailed gear-by-gear ratios and the DD LSD designation therefore remain subject to factory-manual verification.

4. Type 2 Split Screen — reduction boxes and conversion considerations

Split Screen reduction-box transmission specifications cannot be reduced to the transaxle

ring-and-pinion ratio alone. Each reduction hub adds its own reduction ratio. For road speed calculations, multiply gearbox fourth gear × ring-and-pinion × reduction-box ratio; use the correct reduction-hub ratio for the vehicle and year. Suspension, axle, hub and nosecone conversion details determine compatibility when fitting a Type 1-style gearbox.

Do not assume a Split Screen with a 4.125 ring and pinion has the same cruising RPM as a Beetle with the same ring and pinion. Rebuilt and converted vehicles may also have non-standard ratios.

5. Type 2 Bay Window — 002 and 091 gearbox code reference

The following values are from the John Walklett reference. “Mountain ratio” designates the shorter factory final-drive option. Where the codes share ratios they remain separately identifiable by their stamped codes and specification.

Type 2 M-codes and input-shaft differences

Input-shaft length, clutch actuation, bellhousing, starter engagement and gear-selector/nosecone configuration can vary by model and year. The code and ratio alone do not establish interchangeability. Confirm these features directly before fitting an 002 or 091 replacement.

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Three-rib, five-rib and six-rib gearboxes

The familiar three-rib / five-rib / six-rib shorthand refers to external reinforcing ribs on Bay Window gearbox casings: commonly early 1600, intermediate 1700/1800 and late 2000 applications respectively. It is a useful visual guide, not a substitute for the stamped identification code. Bay Window linkage exits at the rear nosecone; later T25/T3 linkage arrangements differ. Rib-count shortcuts must not be applied to the T25/T3.

6. Ring and pinion — what final-drive ratios mean

Typical Type 1 ratios include 4.375, 4.125 and 3.875 (often rounded to 3.88). The existing Limebug article also references a 3.44 aftermarket option; this is not a factory ratio in the reference table. Type 2 ratios in the code chart additionally include 4.571, 4.857, 5.375, 5.428 and 5.857. The 5.428 and 5.857 options are important additions when checking late and mountain-specification Bay Window gearboxes.

A numerically higher overall ratio generally increases engine RPM at any given road speed and improves mechanical torque multiplication; a numerically lower ratio reduces cruising RPM, but suitability depends on engine torque, tyre size, vehicle weight, cooling and terrain.

Overall top-gear reduction = fourth gear × final-drive ratio, before any reduction hubs. Values above use displayed rounded ratios; use actual tooth counts for precision.

7. Fourth gears — factory combinations and aftermarket options

The revised factory reference establishes Type 1 0.89 and later AS/AT 0.93 fourth gears, plus Type 2 0.82, 0.88 and 0.89 fourth gears. The original Limebug guide also lists 0.91, 0.889, 0.821 and 0.770 as commonly discussed fourth-gear ratios. Not all are established as original equipment for every gearbox code. In particular, 0.770 should be treated as an upgrade/custom gearing option rather than a universal stock ratio.

Do not choose an isolated fourth-gear ratio without checking the third-to-fourth RPM drop and whether the engine can pull the gear at cruising load. Shaft style, parts availability and gear-pair compatibility require individual inspection.

8. Limited-slip differential (LSD), open differential and gearbox condition

Factory LSD variants are identified in the code notes and, for applicable Bay Window transmissions, M220. A gearbox originally supplied with LSD may have been rebuilt with another differential. Verify the fitted unit before ordering parts or describing a gearbox as LSD-equipped. Similarly, mileage, noise, backlash, bearing condition and previous rebuild modifications cannot be inferred from its code.

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9. Choosing a Freeway Flyer or gearbox upgrade

A cruising-speed upgrade can involve a changed fourth gear, changed ring-and-pinion or both. Taller gearing lowers engine RPM at a given speed, but may make a heavy Bus slower on gradients and increase cylinder-head load if the engine cannot sustain it. For a reliable recommendation, compare gearbox code, tyre rolling circumference, engine specification, vehicle weight and typical use.

To estimate engine RPM: RPM ? road speed (km/h) × overall reduction × 1,000 ÷ [tyre circumference (m) × 60]. Multiply by reduction-hub ratio where fitted. Use rolling circumference, not just nominal wheel diameter.

10. Relevant Limebug products and rebuild options

These are verified existing Limebug catalogue SKUs. Product links use the site’s stable SKU resolver, so they redirect to the current WooCommerce product permalink even if its slug changes. Select parts by actual gearbox specification and fitment, not by code alone.

Complete Type 1 / Type 3 / Split Screen rebuilds

• Beetle / Ghia / Type 3 reconditioned gearbox (SKU 020010028)

• Type 1 Freeway Flyer gearbox rebuild (SKU 020010005)

• Type 1 Super gearbox upgrade (SKU 020010006)

• Type 1 Ultra Flyer gearbox upgrade (SKU 020010007)

Type 2 Bay Window gearboxes

• Bay Window reconditioned gearbox (SKU 020010031)

• Bay Window Ultra Flyer gearbox upgrade (SKU 020010010)

Associated gearbox service and mounting parts

• Type 1 gearbox gasket set (SKU 020010001)

• Beetle / Ghia gearbox mounting kit (SKU 020040006)

• 1962–67 Split Screen nosecone (SKU 020060008)

• 1976–79 Bay Window drive flange seal (SKU 020060003)

• Gear selector rod rebuild kit (SKU 020060010)

• Gearbox nosecone selector-shaft seal (SKU 020060026)

Browse the complete Type 1 gearboxes, complete Type 2 gearboxes or all clutch and gearbox parts. Category links are intentionally not SKU-resolved.

11. T25 / T3 gearbox-code comparison (later vehicles)

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The primary article focuses on earlier air-cooled Volkswagen gearboxes. For identification continuity, the Walklett table also records later T25/T3 units, including five-speed gearboxes and Syncro variants. These are not automatically interchangeable with a Bay Window 002 or 091.

Syncro codes 6P, 6PA, 6Z and 6ZA use an additional G (crawler) gear; the chart lists 6.03 for G, 3.78/2.06/1.225/0.85 for four main forward ratios and 5.43 final drive. 6PA and 6ZA specify differential lock. Syncro drivetrains require their own compatibility checks.

Technical references, scope and corrections

Primary gearbox code/gear-ratio cross-reference: John Walklett Transmissions — VW gearbox codes. Original Limebug guide retained as a secondary editorial source for Type 3 codes, Split Screen guidance, M-code meanings and product context. Specifications apply to original configurations described in those sources; production-market differences and rebuilt gearboxes can vary.

Editorial verification notice: The old article’s VIN-range-to-ratio table is deliberately not republished as a factory fact because its VIN sequences and several fourth-gear/final-drive pairings conflict with the code tables. The old CT 4.517 value is corrected to 4.571 on the designated primary reference. DD’s intended differential note and Type 3 internal gear ratios remain unverified. Split Screen reduction-hub ratios need a separately verified factory reference before numerical publication.