If the intermediate levers and roller cam followers (drag levers) were mixed up during disassembly, **you do not need to buy all new parts.** You can sort and re-match the existing parts by reading their factory tolerance class codes, or install a new set following the exact same tolerance-matching rules.

Understanding the Valvetronic Class Codes

In the BMW N52 (Valvetronic II), the minimum intake valve lift at idle is only **0.18 mm**. To ensure smooth idle and equal airflow (cylinder charge) across all 6 cylinders at such tiny valve openings, BMW sorts Valvetronic levers into micro-tolerance classes.

1. **Intermediate Levers:** Stamped with a single digit code (typically **1, 2, 3, 4, 5, or 6**).
2. **Roller Cam Followers (Drag Levers):** Stamped with a class designation number or letter code on the side/body.

How to Fix the Mixed-Up Parts

Option A: Re-sort the Existing Parts (Free & Recommended)

1. **Match in Pairs:** For each cylinder, the two intake valves work as a pair. The **two intermediate levers for a single cylinder must share the exact same class number**.
2. **Sort by Number:** Group your intermediate levers by their stamped numbers (e.g., all "3"s together, all "2"s together).
3. **Install Matched Pairs:** As long as Cylinder 1 gets two class "3" levers, Cylinder 2 gets two class "2" levers, etc., the engine will run smoothly. It does **not** matter if Cylinder 1 originally had "2" and now gets "3"—what matters is that **both levers on the same cylinder match each other**.
4. **Follow the same rule for the Roller Followers:** Keep matching pairs of identical class codes on each cylinder.

Option B: Buying New Levers

If you choose to buy brand new intermediate levers from BMW:

- Ordering all 12 intermediate levers with the **same class code** (e.g., twelve class "3" levers) is completely valid.
- Make sure every cylinder receives identical class pairs across its intake valves.

Assembly & Initialization Checklist

When reassembling the Valvetronic assembly (whether using sorted original parts or new ones):

1. **Lubricate Everything:** Dip all intermediate levers, roller followers, and eccentric shaft lobes in fresh engine oil or engine assembly lube before installation.
2. **Verify Spring Seating:** Ensure the intermediate lever return springs are properly seated into their grooves on the intermediate levers and cylinder head frame.
3. **Reset HVA Elements:** Ensure the Hydraulic Valve Clearance Adjustment (HVA / lifter) elements are bleed/seated correctly under the roller followers.
4. **Valvetronic Re-Learning (Crucial Step):** Once the engine is fully assembled, **do not attempt to start it immediately**.
   - Turn the ignition on (Engine OFF).
   - Connect a BMW diagnostic scanner (INPA, ISTA, or a high-end scan tool).
   - Perform the **Valvetronic Limit Position Learning Procedure** (Teach-in minimum and maximum stops).

- The Digital Motor Electronics (DME) will run the Valvetronic servomotor end-to-end to learn the physical stops and adapt to the new lever tolerances.