

# Forged Wheel Fitment Verification Checklist

A 10-point reference for confirming a wheel fits and mounts safely before you order or install — from chassis identification through post-installation torque checks.

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## 1. Vehicle, Year & Chassis Verification

Confirm the exact chassis code or generation, not just the model name and year — the same nameplate can span platforms with different bolt patterns and center bores. Match your specific regional market version (US/EU/UK/ZA/CN) as well, since factory wheel specs can differ by market.

## 2. Axle Load & Wheel Load Rating

Check the wheel's stamped load rating against your vehicle's per-wheel share of its GAWR (door-jamb placard), with margin for cargo and dynamic loads. Re-check load rating specifically for the new wheel size — it does not automatically carry over between sizes.

## 3. Bolt Pattern (PCD) & Fastener Seat

Lug count and bolt circle diameter (e.g. 5x114.3) must match exactly. Confirm the fastener seat type as well — conical (60°), ball/radius, or flat with washer — and use lug hardware matched to the wheel's seat design, not just reused factory lugs.

## 4. Center Bore & Hub-Centric Fit

A hub-centric wheel has its bore machined to match the vehicle hub, so the hub centers the wheel and the lugs only clamp it. If the bore is larger than the hub, use correctly sized hub-centric rings; never force a bore that is smaller than the hub.

## 5. Offset & Backspacing Conversion

Offset is the distance (mm) from the wheel's true centerline to its mounting face; backspacing measures the same relationship in inches from the mounting face to the back of the barrel. See the conversion formula below.

## 6. Caliper Envelope & Spoke Clearance

Verify the wheel barrel clears the brake caliper through its full range of motion, especially with lower-offset or narrower-spoke designs. If the vehicle runs an aftermarket big brake kit, re-check clearance against the upgraded caliper, not the factory one.

## 7. Barrel Clearance (Concave & Reverse-Lip Wheels)

Deep concave and reverse-lip designs push more barrel depth inward, raising the risk of contact with the strut body, sway bar end link, or tie rod — check at full steering lock and full suspension compression, not just at ride height.

## 8. Tire Width, Diameter & Suspension/Fender Clearance

Keep tire section width within the wheel's rated range. Keep overall tire diameter within roughly 3% of factory unless you are deliberately changing it, and account for the resulting speedometer/ABS calibration shift. Always do a physical clearance check at full lock and full compression.

## 9. Torque Specs & Post-Installation Inspection

Torque to your vehicle's specified value (commonly 80–140 Nm / 60–103 ft-lb, but confirm your exact figure) in a star pattern. Re-check torque after the first 50–100 miles (80–160 km), then periodically as routine maintenance.

$$\text{Backspacing (in)} \approx \text{Wheel Width (in)} \div 2 + \text{Offset (mm)} \div 25.4 + 0.5$$

### Printable 10-Point Checklist

- [ ] Confirmed exact chassis code / generation and market variant, not just model year.
- [ ] Checked wheel load rating against per-axle GAWR from the door-jamb placard.
- [ ] Verified bolt pattern (lug count + PCD) and matched fastener seat type.
- [ ] Matched center bore to hub diameter, or sized hub-centric rings correctly.
- [ ] Calculated offset/backspacing and confirmed it against flush and max specs.
- [ ] Checked caliper clearance against the actual brake package installed.
- [ ] Checked barrel clearance against strut, sway bar, and tie rod at full lock/compression.
- [ ] Confirmed tire section width is within the wheel's rated range.
- [ ] Kept overall tire diameter within ~3% of factory, or accounted for calibration shift.
- [ ] Torqued in a star pattern to spec, and scheduled a re-torque after 50-100 miles.

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General references: SAE International wheel/rim standards (SAE J328 series), Tire and Rim Association (TRA) Year Book, and individual vehicle manufacturers' published service specifications. Always confirm exact torque values, load ratings and OE specs against your own vehicle's documentation.