



LSW-CG-01 - VERSION 1.0

Forged Wheel Installation and Torque Guide

A traceable process for fitment confirmation, mounting-surface preparation, staged tightening and the first recheck.

Scope	General guidance for LSW forged aluminium wheels
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Important	Not vehicle-specific engineering or modification approval

HOW TO USE THIS GUIDE

Confirm first. Install second.

No universal torque value

Final torque must match the exact vehicle, wheel, stud or bolt, nut, seat and thread condition. Use the vehicle maker's service information together with written LSW order documents and the fastener supplier's instructions. Stop if information conflicts or cannot be confirmed.

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Who should use it

Tyre and wheel installers, authorised dealers, service technicians and owners who understand safe lifting and calibrated torque tools. Tyre removal, vehicle lifting and work near brakes require competent personnel and suitable equipment.

Document priority

Vehicle service information, approved fitment records, order drawings, wheel and fastener instructions, and applicable local rules take priority over this general guide.

01 / BOUNDARIES AND PREPARATION

Safe work starts with correct information

A road wheel is part of the load-bearing and steering system. Incorrect fitment, hardware, mounting surfaces or clamp force can cause loosening, runout, vibration, damage or wheel separation.

Required information

- Vehicle VIN, model year, exact version, axle-load and brake configuration; record front and rear separately where needed.
- LSW wheel model, size, PCD, offset, centre bore, rated load, serial or batch marking and order documents.
- Fastener thread, seat type, effective length, washer arrangement, surface condition and supplier instructions.
- Vehicle maker torque specification, lifting points, TPMS and tyre requirements for the exact vehicle.

Tools and work area

Item	Minimum requirement
Lifting	Level solid surface; approved lift or jack and stands; use maker lifting points and prevent vehicle movement.
Torque tool	Correct range, good condition, in-date calibration or verification, and a non-marring matching socket.
Cleaning	Lint-free cloth, soft brush and products compatible with the mounting surface.
Lighting and records	Adequate light, an installation record and photographs of identity marks and completed work.

Safety warning

Never work under a vehicle supported only by a jack. An impact tool setting is not proof of final torque. Do not install a cracked, bent or otherwise damaged wheel or fastener.

02 / PRE-INSTALL CHECKS

Verify the complete combination

A matching nominal diameter alone does not prove fitment. Confirm the wheel, vehicle, tyre, brake system and hardware as one assembly.

Check	Confirm	If not acceptable
Wheel identity	Model, size, PCD, offset, centre bore, load and axle position match the approved plan.	Quarantine and recheck order or engineering records.
Brake and suspension	Full-circumference clearance to caliper, weights, links, dampers and shields through steering and suspension movement.	Do not grind parts to create clearance.
Fasteners	Thread, seat, diameter, effective engagement and washers match both wheel and vehicle.	Replace with confirmed correct parts.
Tyre and valve	Tyre size, load and speed rating, direction, age and valve or TPMS compatibility.	Follow tyre, vehicle and TPMS requirements.

Visual inspection

- Reject cracks, bends, elongated seats, damaged mounting faces, abnormal corrosion or unapproved repair.
- Check tyre beads, sidewalls and tread for damage; perform inflation and balancing with approved equipment.
- Reject stretched, cross-threaded, corroded or mismatched studs, bolts and nuts.

Lubrication changes clamp force

Do not oil threads or seats unless the vehicle maker and fastener supplier explicitly require it for the exact combination.
Torque must match the specified dry or lubricated condition.

03 / LOCATION AND TRIAL FIT

Full contact creates stable clamping

The wheel mounting face, hub flange or brake hat, and centring surfaces must be clean, flat and dry. Remove loose corrosion, dirt, burrs and coating build-up without removing base material or changing geometry.

Mounting-surface sequence

01 Lift safely

Secure the vehicle using the maker's procedure, remove the original wheel and inspect studs, hub flange, brake disc or drum and locating spigot.

02 Clean and inspect

Use non-destructive tools. Confirm that both faces have no high spots, debris, sealant or excessive coating.

03 Seat the wheel

Support the wheel and align the centre bore or locating ring. Never use fasteners to pull a visibly unseated wheel onto the flange.

04 Start by hand

Hand-thread every nut or bolt smoothly. Remove and inspect any part with abnormal resistance.

05 Trial rotation and clearance

Rotate slowly where safe and check steering positions plus clearances to valve, TPMS, weights and brakes.

Rings, spacers and modified parts

- Use only the approved, correctly sized and undamaged centring ring.
- Spacers or adapters that alter effective engagement require approval for the exact vehicle and wheel.
- Do not add washers, machine mounting faces, enlarge holes, heat, weld or straighten parts to force fitment.

04 / FASTENING AND TORQUE

Correct value + condition + sequence

Use the exact torque source

This guide intentionally provides no generic torque chart. Record the source, version, axle difference, unit and dry or lubricated condition before work begins.

Controlled fastening

01 Confirm value and unit

Write down the approved value and whether it is in N m or another unit. Do not rely on memory or convert without checking.

02 Pre-tighten off the ground

Hold the wheel against the flange and use staged star or diagonal passes so it seats evenly.

03 Lower under control

Provide only enough tyre contact to prevent rotation until final tightening is complete, following the vehicle maker's method.

04 Apply final torque

Use a calibrated wrench and correct socket. Pull smoothly to the target once; do not hammer or keep adding force.

05 Complete a verification pass

Repeat the same sequence once to confirm no fastener was missed. Never exceed the approved value for extra security.

Cross-pattern principles

Fasteners	Principle	Note
4	Opposite pairs in a cross	Do not tighten around the circle.
5	Continuous star pattern	Skip across the centre.
6 or 8	Opposite pairs, then remaining positions	Use the same order in every stage.
Other	Follow the formal wheel and vehicle procedure	Stop if uncertain.

Impact tools

They may assist removal or low-level run-down under a controlled procedure, but final tightening requires a suitable torque wrench.

05 / FINAL REVIEW AND RECHECK

Installation is not the end of inspection

Before first road use

- All fasteners reached the confirmed torque in the correct cross pattern; remove and store any wheel-lock key.
- No visible gap exists at the flange; centre cap, valve, TPMS, weights, brake and suspension have clearance.
- Tyre pressure, rotation direction and inside or outside markings match the vehicle and tyre requirements.
- Rotate slowly and check brakes, steering and parking systems as required; remove all tools.

First recheck

After new installation, wheel removal or fastener replacement, recheck torque after the short distance or time specified by the vehicle maker, LSW order documents and fastener supplier. Use the stricter written requirement if they differ.

Do not loosen every fastener first. Check one at a time in the same sequence. If there is unusual movement, repeated loosening, seat settlement, stud damage or inability to retain torque, stop driving and find the cause.

Routine inspection

- Inspect pressure, tyres, wheel condition, missing fasteners and seat damage before travel and during washing.
- Inspect immediately after pothole impact, kerb contact, low-pressure driving, brake overheating or severe vibration.
- Repeat the full installation process after seasonal changes, tyre rotation, brake work or any removal.

If vibration appears

Reduce speed and stop safely. Check fastening, fitment, tyre condition, balance, runout and the vehicle chassis. Do not expect the symptom to wear in.

06 / ABNORMAL CONDITIONS

Stop first, then assess

Finding	Required response
Crack, bend, out-of-round rim, elongated seat or deformed mounting face	Stop use. Do not weld, heat or straighten. Contact LSW, the dealer or a qualified wheel specialist.
Repeatedly loose hardware, damaged threads or abnormal seat wear	Stop driving and inspect mounting faces, fitment, hardware specification and installation procedure.
Persistent air loss or bead-area damage	Remove and inspect tyre, valve or TPMS and rim. Do not keep topping up pressure.
Burning, discolouration, brake-drag heat, fire or chemical attack	Stop use and have wheel, tyre, valve and brakes professionally assessed.
Severe vibration, wobble, noise or sudden handling change	Stop safely and arrange recovery or another low-risk response. Do not test at speed.

Four steps after stopping use

01 Isolate

Secure the vehicle and label the suspect wheel so it cannot be refitted.

02 Record

Keep position, pressure, fastening state, incident history and clear photographs before cleaning evidence.

03 Transport

Protect bead, valve or TPMS, mounting face and finish from new damage.

04 Decide

Return to use only after a clear assessment from LSW, the dealer or a qualified specialist.

No structural DIY repair

Do not weld, heat, hammer, straighten, drill, enlarge holes, grind cracks or perform a high-speed road test to judge safety.

INSTALLATION RECORD

Installation and first-recheck record

The installer should retain one copy and give one to the customer. Every torque field needs a value, unit, thread condition and source.

Field	Entry
Vehicle	VIN: _____ Year/model/version: _____
Wheel	Model/size/serial: _____
Fastener	Thread/seat/model: _____
Torque	Target: _____ Unit: _____ Condition dry/lubricated: _____
Source	Vehicle/LSW/supplier document and version: _____
Tool	Torque-wrench ID: _____ Calibration due: _____
Installation	Date/mileage: _____ Installer: _____ Checker: _____
First recheck	Required time/mileage: _____ Actual: _____ Result/signature: _____

Customer handover

- Provide the confirmed torque source, first-recheck requirement and a copy of this record.
- Explain that original or spare-wheel fasteners may differ from aftermarket wheel hardware.
- Remind service personnel not to use an impact wrench for final installation or lubricate without confirmation.

Reference principle

This guide reflects generally accepted alloy-wheel service principles. The formal documents for the exact vehicle and components remain controlling.