



SUBJECT

Steering Wheel Vibration at Speeds of 42-55mph

MODEL

F30

SITUATION

The customer complains of vibration at speeds between 42-55 mph.

CAUSE

Wheel/tire combination

Drive flange/wheel bearing

Alloy wheel to wheel hub clearance out of tolerance

Tension strut hydro-mount leaking

CORRECTION

Before starting the procedure, the complete wheel/tire must be checked for correct tire pressure and damage.

The hydro-mount of the tension strut must be inspected for leaks.

The vehicle should be road-tested to verify the customer complaint and severity of the vibration.



Check the wheel centering of the light-alloy rim on the wheel hub. To do so, clean the contact surfaces of the wheel hubs and the light-alloy rims, and only slightly tighten the wheels.

Using a feeler gauge at the bottom position, determine the maximum play. Play of 0.1 mm is still within the permissible tolerance. Play of 0.15 mm or greater is outside the permissible tolerance.

Document the clearance check at each wheel.

If there are tolerance variations, the affected components (wheel bearing/drive flange) must be measured individually.

Nominal values for wheel bearing/drive flange: 72.47 mm-72.50



mm (caliper gauge measuring equipment)

If the tolerance is too great, the wheel bearing/drive flange must be replaced.

If the tolerance is too great and the wheel bearing/drive flange is within tolerance, the corresponding rim(s) must be replaced.

If all affected components are within specification, check the wheel balance.

Note: Warm the tires before balancing, and then test the wheels directly on the balancing machine.

Before any adjustments, **document:** tire pressures, total amount of weights on each wheel, and results of the road test.

Using the tire balancing machine, Hunter GSP 97 BMW:

Measure all complete wheels with regard to RFF (radial force fluctuation).

If necessary, match target values (mark the low point of the rim by measuring the rim without the tire).

Check the rim on the balancing machine; max. radial run-out. Refer to the notes in RA 3610715.

Align the match point of the tire with the low point of the rim and balance, including load force.

Measurements and Limits					
Measurement	Radial Force		Run Round		
	Tire	Assembly	Inner	Outer	Limit
Radial 1st Harmonic	---	18 lbs	---	---	0.025"
Radial 2nd Harmonic	---	4 lbs	26 lbs	---	0.026"
Radial 3rd Harmonic	---	2 lbs	24 lbs	---	0.027"
Radial T.I.R.	---	12 lbs	---	---	0.068"
Lateral 1st Harmonic	---	---	---	---	0.030"
Lateral 2nd Harmonic	---	---	---	---	0.030"
Lateral 3rd Harmonic	---	---	---	---	0.044"
Lateral T.I.R.	---	---	---	---	0.085"

P Tires

For a graphical analysis of the measurements press "Show Runout Plots".

Exit Explain Measurements Show Runout Plots

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From the balance and load force screen, press the up/down arrow button once: K4 Show Runout and force matching/K4 Show details.

Target values:

Radial 1st Harmonic less than 17lbs

Radial T.I.R. less than 26lbs

If the target values cannot be achieved, submit a PuMA case with the subject "F30 Vibration Between 42-55 mph."

Provide all the measured data:

Clearance check at each wheel

Tire size

Tire manufacturer

DOT

Rim styling

Rim manufacturer (on the back)

Max. radial run-out

Values of the road force Hunter measurement

If all affected components are within specification, continue.

After wheel balancing and installing the wheels with the lowest road force measurement to the front of the vehicle, perform a vehicle road test. Document the results of the road test.

If no vibration is found, the vehicle can be released.

For vehicles with the N20 engine without SA 2VL (Sport Steering) where all wheels are OK and the procedure does not improve the situation, submit a PuMA case with the subject “F30 Vibration Between 42-55 mph.”

WARRANTY INFORMATION

If performing the diagnostics outlined in this Service Information bulletin and/or the PuMA case recommendations results with **eligible and covered work**, claim this work with the applicable defect code(s) and labor operations listed in KSD2.

Wheel balancing as a stand-alone repair is covered under the New Vehicle/SAV Limited Warranty, up to the first 2,000 miles.

Wheel balancing that is a “consequential” repair procedure to perform a covered repair is covered.

Note: Please follow any TeileClearing (TC) or Diagcode (DC) requirements that may apply to this additional work.

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