

Subject Best Practice for Tire Rotation / Nitrogen Filling		Market USA
Service Category Suspension	Section Tire/Wheel	
Applicability All Models		

APPLICABLE VEHICLES

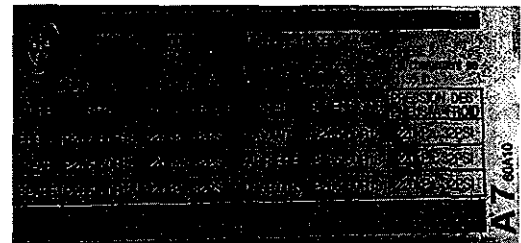
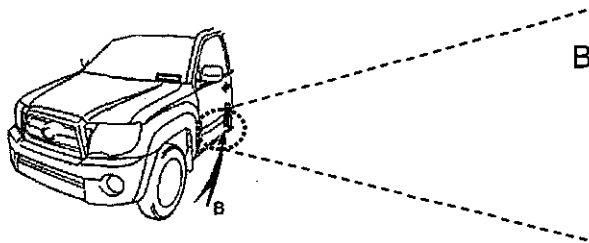
2005-2014	Highlander	2005-2014	Prius
2005-2014	Tundra	2005-2014	Sienna
2005-2014	Land Cruiser	2005-2014	4Runner
2005-2014	Sequoia	2005-2014	Avalon
2009-2014	Venza	2005-2014	Yaris
2005-2014	Tacoma	2005-2014	Corolla
2007-2014	FJ Cruiser	2005-2014	Camry
2005-2014	Matrix	2013-2014	Avalon HV
2012-2014	Prius V	2005	Echo
2005-2014	RAV4	2005	MR2 Spyder
2010, 2012-2014	Prius PHV	2007-2014	Avanza
2005	Celica	2005-2008, 2010	Solara
2012-2014	Prius C	2013-2014	Highlander HV
2013-2014	Camry HV		

RECOMMENDATIONS

Tire Rotation Best Practices

Please refer to the following recommendations for the best practices for vehicle tire rotations.

- Prior to tire rotation use the quick reference chart below to verify the size of the lug nut and the lug nut torque specifications. The quick reference chart is applicable to current generation vehicles only (Table 1).
- It is recommended to rotate tires as specified in the vehicle repair or owner's manual.
- For proper tire inflation, please refer to the corresponding "Tire Inflation Pressure Compensation and Adjustment" bulletin, for the listed Toyota Models.
- Reference the Tire Pressure label on the vehicle for the proper tire inflation pressure.



- After completing a tire rotation, always initialize the tire pressure warning system. Refer to the specific vehicle repair manual for the appropriate procedure.
- It is recommended that the wheel lug nuts be re-installed by hand starting

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- Tightening of lug nuts should be performed using a “star” pattern.
- Final tightening of lug nuts should be performed with a manual torque wrench or torque stick.

Note 1: The vehicle’s spare tire may be included in the rotation only if it is a matching full size spare.

Note 2: Failure to comply with proper lug nut torque procedures may contribute to complaints regarding steering vibration or difficulty in removing lug nuts.

Note 3: Please ensure that the final lug nut torque be reached with torque wrench and not with impact tool.

Toyota Tire Rotation Quick Reference Chart

Model	Model Years	Special	Lug Nut Size (mm)	Lug Nut Torque (ft.*lb.)	Lug Nut Torque (N*m)
4Runner	2010 – 2013		21	82	112
Avalon	2005 – 2013		21	76	103
Camry	2007 – 2013		21	76	103
Corolla	2009 – 2013		21	76	103
FJ Cruiser	2007 – 2013		21	82	112
Highlander	2008 – 2013	NAP	21	76	103
Land Cruiser	2008 – 2013		22	97	131
Matrix	2009 – 2013	2WD	21	76	103
		4WD	21	76	103
Prius	2010 – 2013		21	76	103
RAV4	2009 – 2013	NAP	21	76	103
	2006 – 2013	JPP	21	76	103
Sequoia	2008 - 2013	Alloy wheel	22	97	131
		Steel wheel	22	154	209
Sienna	2005 - 2013		21	76	103
Tacoma	2005 – 2013		21	83	113
Tundra	2008 – 2013	Alloy wheel	22	97	131
		Steel wheel	22	154	209
Venza	2009 – 2013		21	76	103
Yaris	2006 – 2013		21	76	103

Table 1.

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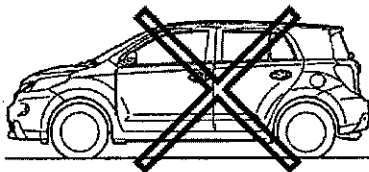
Nitrogen Filling Procedures

Some customers may complain about vehicle vibration due to incorrect tire balance following a nitrogen refill. It has been found that nitrogen replacement may cause tire out of balance conditions if the tire is deflated and refilled with weight on the tire. When the original air in a tire is evacuated during the replacement procedure, the internal pressure against the tire carcass is reduced. If the vehicle is *on the ground* during this procedure, the low tire inflation pressures may cause the tire sidewall to compress.

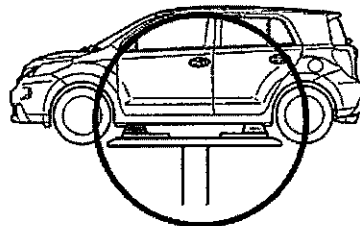


When performing nitrogen replacement procedure with the tire/wheel on the vehicle, ensure the vehicle is lifted on a rack or jack stands. This prevents the weight of the vehicle from compressing the tire sidewall when tire pressure is reduced.

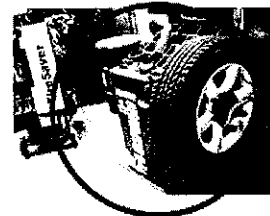
Alternatively, the nitrogen replacement procedure may also be performed with the wheel/tire removed from the vehicle and suspended off the ground; for example, on a wheel/tire balancer machine.



On the ground



Lifted up



On a machine

LINK REFERENCES

This Tech Tip does not contain any link references