

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

**APPLICABLE VEHICLES**

2005-2012	4Runner	2005-2012	Prius
2005-2012	Avalon	2012	Prius C
2005-2012	Camry	2012	Prius V
2007-2012	Camry HV	2010	Prius PHV
2005	Celica	2005-2012	RAV4
2005-2012	Corolla	2005-2012	Sequoia
2005	Echo	2005-2012	Sienna
2007-2012	FJ Cruiser	2005-2008, 2010	Solara
2005-2012	Highlander	2005-2012	Tacoma
2006-2012	Highlander HV	2005-2012	Tundra
2005-2012	Land Cruiser	2009-2012	Venza
2005-2012	Matrix	2005-2012	Yaris
2005	MR2 Spyder		

**RECOMMENDATIONS**
**Tire Rotation Best Practices**

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

- Refer to [T-SB-0345-08 Rev2: '04-'11 Applicable Models: Tire Inflation Pressure Compensation and Adjustment](#) for proper tire inflation and tire pressure compensation procedures.
- 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 to rotate tires as specified in the vehicle repair or owner's manual.
- The vehicle's spare tire may be included in the rotation only if it is a full-size spare.
- It is recommended that wheel lug nuts be re-installed using a "star" pattern.
- Failure to comply with proper lug nut torque procedures may contribute to complaints regarding steering vibration or difficulty in removing lug nuts.
- Prior to tire rotation, use the quick reference chart below to verify the size of the lug nut, the lug nut torque specifications, and the tire pressure. The quick reference chart is applicable to current generation vehicles only.

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Toyota Tire Rotation Quick Reference Chart							
Model	Model Years	Special	Lug Nut Size (mm)	Lug Nut Torque (ft/lb)	Lug Nut Torque (N/m)	Tire Size	Tire Pressure (KPA / psi)
4Runner	2010 – 2011		21	82	112	P265/70R17 113S	220 / 32
						P245/60R20 107H	
						P265/70R17 113S	230 / 33
						245/70R17 110S (Mex)	200 / 29
Avalon	2005 – 2011		21	76	103	P215/60R16 94V	200 / 29
						P215/55R17 93V	220 / 32
Camry	2007 – 2011		21	76	103	P215/60R16 94V	210 / 30
						P215/55R17 93V	220 / 32
Corolla	2009 – 2011		21	76	103	P195/55 R16 87V	220 / 32
						P185/65 R15 86S	
						P195/65 R15 89S	210 / 30
						P195/65 R15 89H	
FJ Cruiser	2007 – 2011		21	82	112	All	220 / 32
Highlander	2008 – 2011	NAP	21	76	103	All	210 / 30
Land Cruiser	2008 – 2011		22	97	131	All	230 / 33
Matrix	2009 – 2011	2WD	21	76	103	All	220 / 32
		4WD	21	76	103	All	Front: 240 / 35 Rear: 220 / 32
Prius	2010 – 2011		21	76	103	P195/65R15 89S	Front: 240 / 35 Rear: 230 / 33
						P215/45R17 87V	Front: 230 / 33 Rear: 220 / 32
						195/65R15 91H	All: 220 / 32
RAV4	2009 – 2011	NAP	21	76	103	All	220 / 32
	2006 – 2011	JPP	21	76	103	All	220 / 32
Sequoia	2008 - 2011	Alloy wheel	22	97	131	P275/65R18	230 / 33
						P275/55R20	Front: 210 / 30 Rear: 230 / 33
		Steel wheel	22	154	209	P275/65R18	230 / 33
						P275/55R20	Front: 210 / 30 Rear: 230 / 33
Sienna	2011		21	76	103	P235/60R17 100T	
						P235/55R18 99V	240 / 35
						P235/55RF18 99T	
						P235/50R19 99V	250 / 36
Tacoma	2005 – 2011		21	83	113	P215/70R15	Front: 210 / 30 Rear: 230 / 33
						P245/75R16	Front: 210 / 30 Rear: 210 / 30
						P265/70R16	Front: 200 / 29 Rear: 220 / 32
						P265/65R17	All: 200 / 29
						P255/45R18	All: 240 / 35
Tundra	2008 – 2011	Alloy wheel	22	97	131	All	Front: 210 / 30 Rear: 230 / 33
		Steel wheel	22	154	209	All	Front: 210 / 30 Rear: 230 / 33
Venza	2009 – 2011		21	76	103	All	220 / 32
Yaris	2006 – 2011		21	76	103	All	220 / 32

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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.

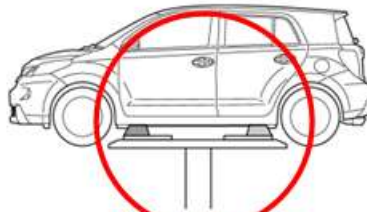


When performing nitrogen replacement procedure with the tire/wheel on the vehicle, ensure the vehicle is lifted on a rack or jack stands. This prevents the weight of the vehicle from compressing the tire sidewall when tire pressure is reduced.

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**