

BMW TIS - 31 31 Spring Struts

31 31 Spring Struts	Type	Thread	Tightening specification	Measure
1AZ Spring strut support bearing / adapter for rough road package to wheel arch / adapter for rough road package	E60, E61, E63, E64, E65, E66, E67, E83, E85, E86	Flanged hexagon nut	Replace nuts	34 Nm
	E28, E30, E31, E32, E34, E36 / S50 / S52, E38, E39	Hexagon flange nut dia. 18 mm	Replace nuts	24 Nm
	E36 / S50 / S52	Flanged hexagon nut dia. 21 mm	Replace nuts and secure with Loctite 242	27 Nm
	E32, E34, E36, E46, E53	Flanged hexagon nut dia. 21 mm	Replace nuts	34 Nm
	E52	Hexagon flange nut dia. 18 mm	Replace nuts	28 Nm
2AZ Shock absorber piston rod on thrust bearing	E12, E21, E23, E24 / until 5.82			80 Nm
	E24 / from 5.82, E30, E31, E32, E34	M12 (with external hexagon piston rod)		64 Nm
	E24 / from 5.82, E30, E31, E32, E34	M12 (with internal hexagon piston rod)		44 Nm
	E36, E38, E39, E46, E52, E53, E60, E61, E63, E64, E65, E66, E67, E83, E85, E86		Replace nut	64 Nm
3AZ Spring strut shock absorber to pivot mount	E34 / Four Wheel Drive			80 Nm
	E53		Replace screw & nut	250 Nm
	E52, E60 / except AWD, E61 / except AWD, E63, E64, E65, E66		Replace screw & nut	81 Nm
	E60 / Four Wheel Drive, E61 / Four Wheel Drive, E67, E83		Replace screw & nut	100 Nm

BMW TIS - 31 21 Wheel Bearings and Steering Knuckle

31 21 Wheel Bearings and Steering Knuckle	Type	Thread	Tightening specification	Measure
1AZ Collar nut (bearing unit)	E24 / from 5.82, E28, E30, E31, E32, E34, E36, E38, E46, E85, E86			290 Nm
	E67			420 Nm
2AZ Drive flange to axle shaft	E30 / Four Wheel Drive, E34 / Four Wheel Drive		Replace collar nut	250 Nm
	E46 / Four Wheel Drive, E53, E60 / Four Wheel Drive, E61 / Four Wheel Drive, E67, E83		Replace collar nut	420 Nm
3AZ Castle nut - adjustment specification	E12, E21, E23, E24 / from 5.82		Observe repair instruction.	
4AZ Steering knuckle to spring strut	E36	M12x20	Replace screws	107 Nm
	E36	Fitting screw M12x42		107 Nm
	E39	Screw with flange M12x1.5x95		81 Nm
	E38, E46, E85, E86	M12	Replace screw	81 Nm
5AZ Bearing unit on swivel bearing	E39, E52, E60 / REAR END, E61 / REAR END, E63, E64, E65, E66		Replace screws	110 Nm

BMW TIS - 36 10 Wheels

36 10 Wheels	Type	Thread	Tightening specification	Measure
1AZ Wheel bolt	E30 / E31 / E32 / E34 / E36 / E38 / E39 / E46 / E52 / E60 / E61 / E63 / E64 / E85 / E86	M12		120 ± 10 Nm
	E53 / E65 / E66 / E67 / E83	M14		140 ± 10 Nm

BMW TIS - 32 21 Steering Arms

32 21 Steering Arms	Type	Thread	Tightening specification	Measure
1AZ Tie rod to ball joint (castle nut)	E21			60 Nm
2AZ Tie rod/axial joint to rack	E21, E30		Replace retaining plate	75 Nm
	E34, E36		Replace retaining plate	71 Nm
	E39, E52			71 Nm
	E46, E85 / except S54, E86 / except S54			100 +10 Nm
	E53, E60, E61, E63, E64, E65, E66, E67, E83, E85 / S54, E86 / S54			110 Nm
3AZ Tie rod end to steering knuckle / swivel bearing	E34 / Four Wheel Drive		Replace nut	50 Nm
	E36		Replace nut	36 Nm
	E38, E39, E52		Replace nut	65 Nm
	E46, E85, E86		Use of impact screwdriver not permitted! Replace nut	65 Nm
	E53, E60 / Four Wheel Drive, E61 / Four Wheel Drive, E67, E83		Replace nut	80 Nm
	E60 / REAR END, E61 / REAR END, E63, E64, E65, E66		Replace nut	165 Nm
4AZ Tie rod clamping screw	E38, E39			27 Nm
	E12, E23, E24, E28, E30, E31, E32, E34			14 Nm
5AZ Tie rod end to tie rod (clamping nut)	E34 / Four Wheel Drive, E36, E46, E85, E86			45 Nm
	E39, E52, E53, E60, E61, E63, E64, E65, E66, E67, E83			51 Nm
6AZ Steering drop arm to steering gear	E32, E34 / Four Wheel Drive			59 Nm
	E23	M26	Tightening value may be exceeded up to correct position to locking plate	at least 180 Nm
	E12, E23, E24, E28	M22	Tightening value may be exceeded up to correct position to locking plate	at least 140 Nm
	E31			70 Nm

BMW TIS - 33 52 Shock Absorbers (REAR)

33 52 Shock Absorbers	Type	Thread	Tightening specification	Measure
1AZ Shock absorber to trailing arm/ wheel carrier/ swinging arm/ support arm/ control arm (tighten in normal position)	E12, E23, E24, E28, E32, E34, E38, E39, E52			127 Nm
	E21			54 Nm
	E30, E36/7, E36/5			77 Nm
	E36, E46, E83, E85, E86			100 Nm
	E31			115 Nm
	E60, E61, E63, E64, E65, E66		Replace screw	165 Nm
	E67		Replace screw	250 Nm
2AZ Shock absorber piston rod on thrust bearing	E21, E30			15 Nm
	E23, E24, E28, E34			25 Nm
	E36, E46, E83			14 Nm
	E38, E39	M14		27 Nm
	E38, E39, E52	M10		23 Nm
	E60, E63, E64, E65, E66, E67			27 Nm
	E61			28 Nm
	E85, E86	M10 x 1		13 Nm
3AZ Support on body/rear axle carrier	E36, E38	M8		24 Nm
	E39	Nut and bolt yellow chrome-plated		24 Nm
	E39	Nut and bolt silver-grey		28 Nm
	E46, E52, E60, E61, E63, E64, E65, E66, E67			28 Nm
	E53			56 Nm
	E83, E85 / S54, E86 / S54	M8		24 Nm
	E85 / except S54, E86 / except S54	M8		27 Nm

BMW TIS - 34 11 Front Brake

34 11 Front Brake	Type	Thread	Tightening specification	Measure
1AZ Brake disk to wheel hub (contact faces between brake disk and wheel hub cleaned and grease-free)	E39 / E38 / E46 / E52 / E53 / E85 / E86 / E83 / E65 / E66 / E67 / E60 / E61 / E63 / E64			16 Nm
2AZ Brake caliper to steering knuckle (screws lightly oiled, contact surfaces between brake caliper and steering knuckle cleaned and grease-free)	E34 / E36 / E32 / E31 / E38 / E39 / E46 / E52 / E53 / E65, E30 / 325iX, E66 / E67 / E83 / E85 / E86 / E60 / E61 / E63 / E64			110 Nm
2AZ with aluminum brake caliper	E31			115 Nm
	E12 / E21 / E23 / E24 to 5.82			95 Nm
	E28 / E30 / E24 / from 5.82			123 Nm
3AZ Guide bolt	E39 / E38 / E46 / E52 / E53 / E85 / E86 / E83 / E65 / E66 / E67 / E60 / E61 / E63 / E64	wrench size 7 mm		30 - 5 Nm
4AZ Bolts to guide pin (always replace)	E30			35 Nm
5AZ Protective plate to steering knuckle	E85 / E86 / E83	M6		9 Nm
	E67 / E60 / E61 / E63 / E64 / E65 / E66	M6		12 Nm