REP-REP-RAE8932-3200610 REP-REP-RAE8932-3200610 - Adjusting toe-in and camber on front axle - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

32 00 610 **Adjusting toe-in and camber on front axle**

Special tools required:

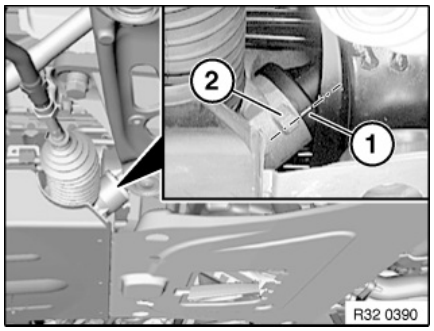
- 32 3 140
- 32 3 145
- 32 3 146
- 32 3 147

Important!

Changes in axle geometry caused by accidents must under no circumstances be rectified by camber adjustment!

Note:
Camber and toe-in influence each other. Adjust the toe-in first in order to simplify the adjustment procedure.

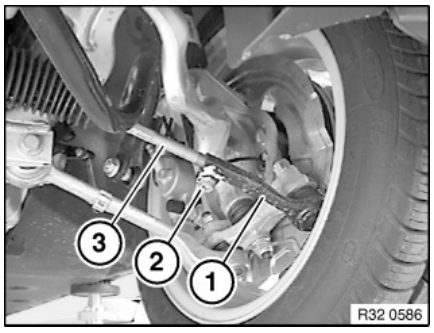
The centring pin may only be driven or twisted out if the camber is outside the specified tolerance after toe adjustment.



Adjust toe-in:

Move steering into straight-ahead position by means of markings on cap (1) and steering gear (2).

Align steering wheel centrally and secure with steering wheel arrester.



Clean thread on tie rod.

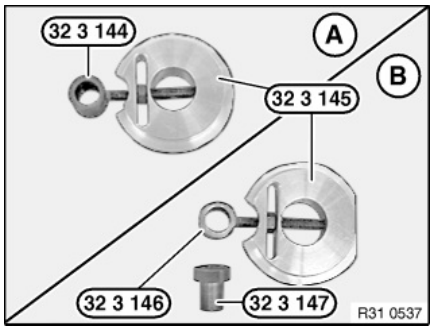
Loosen screw (2).

Turn tie rod (3) and if necessary grip tie rod end (1) to adjust toe-in to setpoint value.

Tighten down clamping nut (2).

Tightening torque 32 21 3AZ.

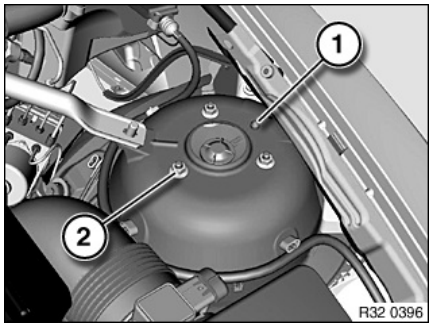
If necessary, correct installation position of gaiter.



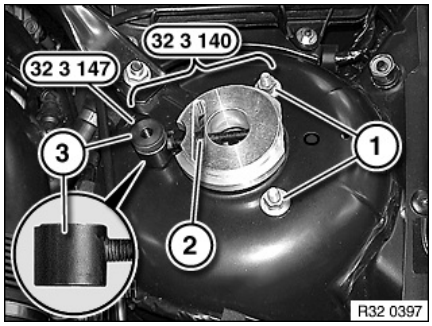
Adjusting camber:

Disassemble adjustment tool 32 3 140, recondition and fit with spindle 32 3 146.

A. Previous version (consisting of 32 3 144 and 32 3 145)
B. New version (consisting of 32 3 145, 32 3 146 and 32 3 147)



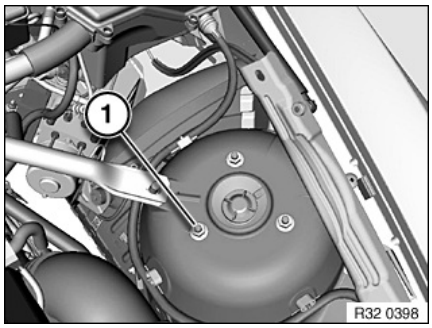
Remove protective cap.
Twist/drive out centring pin (1).
Clean wheel arch from below in area of support bearing with compressed air.
Slacken nut (2).



Insert special tool 32 3 140 into opening in wheel arch.

Note:
The spindle 32 3 146 must be aligned in such a way that the short end of the guide sleeve (3) points upwards.

Screw knurled nut 32 3 147 onto stud.
Replace nuts (1) and screw on but do not tighten down fully.
Turn nut (2) of special tool 32 3 140 to adjust camber to setpoint value.
Tighten down nuts (1).
Tightening torque 31 31 1AZ.
Remove special tool 32 3 140.



Replace nut (1) and tighten down.
Tightening torque 31 31 1AZ.

After installation:

- Check directional stability of vehicle, check steering wheel position; if necessary repeat toe-in adjustment

AZD-AZD-AZDMUC3221-E89 AZD-AZD-AZDMUC3221-E89 - Drop Arm - V.2, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

32 21 Drop Arm

	Type	Thread	Tightening specifications	Dimension
1AZ Track rod/axial joint to rack	E89			100 +10 Nm
2AZ Track rod to swivel bearing	E89	M14	Replace nut.	165 Nm
3AZ Clamping bolt, track rod	E89	M10	Replace screw.	40 Nm

AZD-AZD-AZDMUC3131-E89 AZD-AZD-AZDMUC3131-E89 - Spring Struts - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

31 31 Spring Struts

	Type	Thread	Tightening specification	Measure
1AZ Nut and locknut/self-locking nut	E89	M8	Replace nuts	34 Nm
2AZ Spring strut shock absorber to support bearing	E89	M12	Replace nut	64 Nm
3AZ Swivel bearing to spring strut shock absorber	E89	M12	Replace nut	81 Nm

REP-REP-RAE8932-3200620 REP-REP-RAE8932-3200620 - Adjusting rear axle - V.1, VIN: E634219

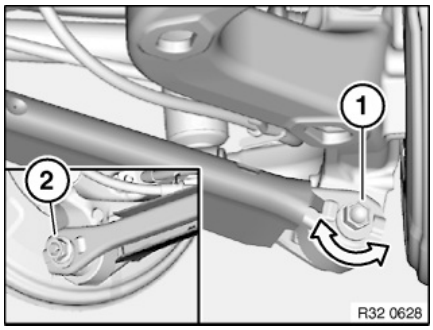
ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

32 00 620 **Adjusting rear axle**

Special tools required:

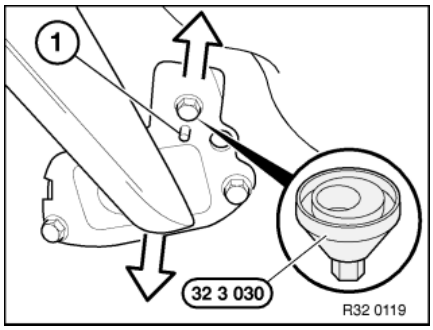
- 32 3 030

Note:
A camber change always means a toe change as well. The camber must therefore be adjusted first.



Adjusting camber:

Replace nut (2) and tighten to 5 Nm.
Turn eccentric bolt (1) to adjust camber to setpoint value.
Tighten nut (2).
Tightening torque 33 32 3AZ.



Adjusting toe:

Slacken bolts of bearing block by approx. 1 to 1.5 turns.
Attach special tool 32 3 030 to bolt head and pin (1).
Turn special tool 32 3 030 to adjust toe to specified value.
Tighten down screws.
Tightening torque 33 32 2AZ.

AZD-AZD-AZDMUC3332-E89 AZD-AZD-AZDMUC3332-E89 - Axle guide and axle strut - V.2, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

33 32 Axle guide and axle strut

	Type	Thread	Tightening specifications	Dimension
1AZ Trailing arm bearing support to trailing arm	E89	M12	Renew nut.	100 Nm
2AZ Trailing arm bearing support to body	E89	M14		77 Nm
3AZ Lower wishbone to trailing arm	E89	M12	Renew screw and nut.	100 Nm
4AZ Lower wishbone to rear axle carrier	E89	M12	Renew screw and nut. Jointing torque Angle of rotation	 70 Nm 90 °
5AZ Upper wishbone to trailing arm	E89	M12	Renew screw and nut. Jointing torque Angle of rotation	 100 Nm 90 °
6AZ Upper wishbone to rear axle carrier	E89	M12	Renew screw and nut. Jointing torque Angle of rotation	 70 Nm 90 °
7AZ Compression strut on body	E89	M12		77 Nm
8AZ Vibration absorber holder on trailing arm	E89	M12	Renew screw and nut. Jointing torque Angle of rotation	 50 Nm 90 °
9AZ Vibration absorber to vibration absorber holder	E89	M10	Renew screw and nut. Jointing torque Angle of rotation	 30 Nm 90 °

TED-TED-TDMUC3200-E89_MESSENB1S1 TED-TED-TDMUC3200-E89_MESSENB1S1 - Chassis/wheel alignment - normal position E89 - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

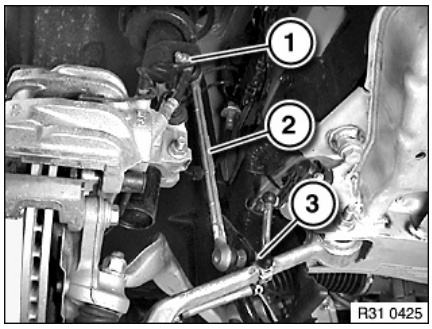
32 00 Chassis/wheel alignment - normal position E89

Car loaded down to normal position	Vehicle with complete equipment for normal operation with: 2 x 68 kg on front seats (seats in central position); 1 x 14 kg in luggage compartment (centre) and full fuel tank.

REP-REP-RAE8931-3135005 REP-REP-RAE8931-3135005 - Removing and installing/replacing push rod (stabilizer link) for left/right stabilizer - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

31 35 005 **Removing and installing/replacing push rod (stabilizer link) for left/right stabilizer**



Release nut (1) and remove bracket for brake hose on spring strut.

Tightening torque 31 35 3AZ.

Release nut (3) and remove stabilizer link (2).

Tightening torque 31 35 2AZ.

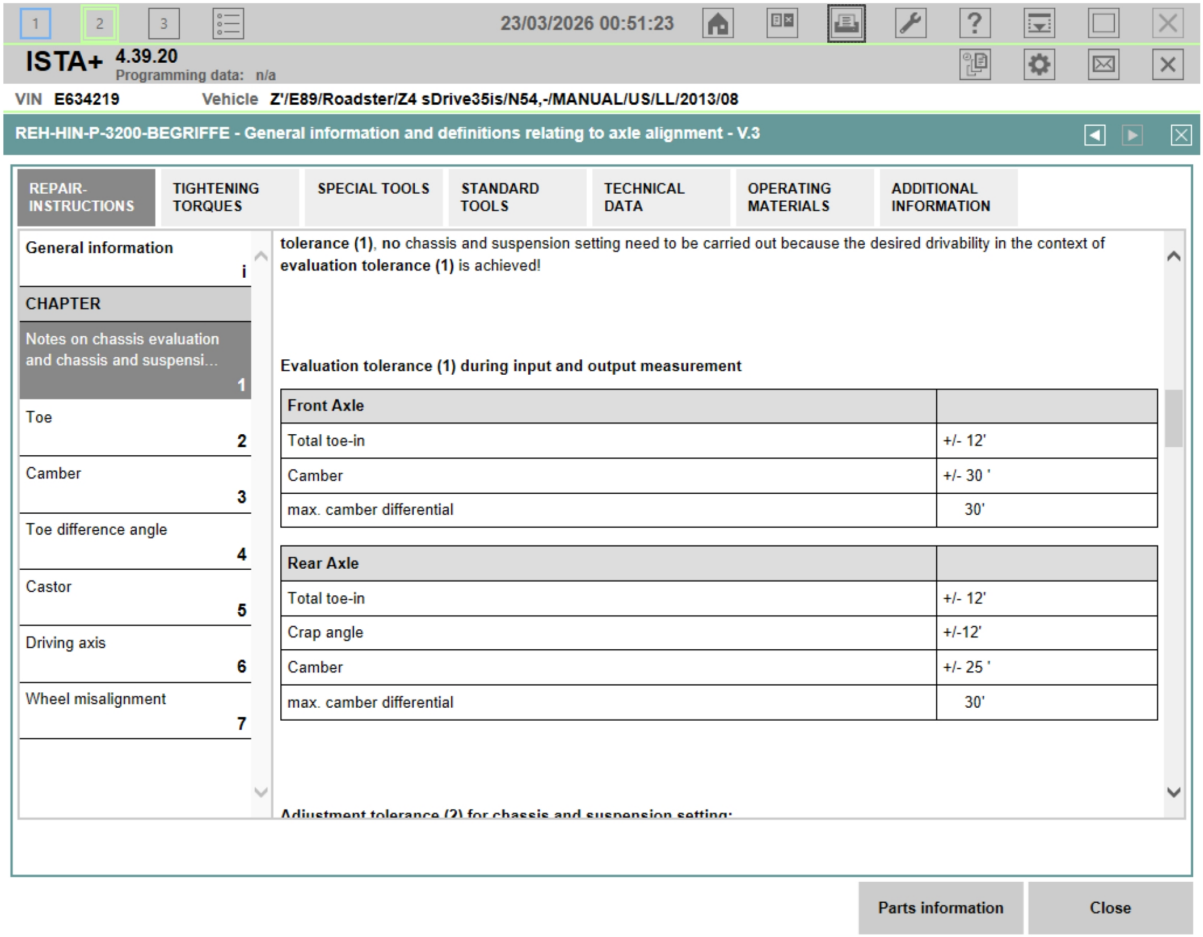
Installation:
Replace self-locking nuts.

AZD-AZD-AZDMUC3135-E89 AZD-AZD-AZDMUC3135-E89 - Stabilizer Bar - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

31 35 Stabilizer Bar

	Type	Thread	Tightening specification	Measure
1AZ Retaining bar, stabilizer, to front axle carrier	E89	M8	Replace nut	22 Nm
2AZ Stabilizer link to stabilizer	E89	M10	Replace nut	58 Nm
3AZ Stabilizer link to spring strut	E89	M10	Replace nut	58 Nm



Comment

specs

TED-TED-TDMUC3300-E89HOEHEB1S1 TED-TED-TDMUC3300-E89HOEHEB1S1 - Rear axle - ride height E89 - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

33 00 Rear axle - ride height E89

Ride level height in normal position Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in - normal position max. 10 mm - Design position max. 2 mm		
Difference ride height between left/right in - normal position 10 mm - design position 2 mm		
Standard suspension		
17” rim	mm ± 10	593
18” rim	mm ± 10	606
19” rim	mm ± 10	618
Adaptive M suspension		
17” rim	mm ± 10	582
18” rim	mm ± 10	595
19” rim	mm ± 10	607

TED-TED-TDMUC3100-E89_HOEHEB1S1 TED-TED-TDMUC3100-E89_HOEHEB1S1 - Front axle - ride height E89 - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

31 00 Front axle - ride height E89

Ride level height in normal position Attach tape measure to bottom middle of rim flange and measure to lower edge of wheel arch		
Tolerance ride height in - normal position max. 10 mm - Design position max. 2 mm		
Difference ride height between left/right in - normal position 10 mm - design position 2 mm		
Series	mm	
17” rim	mm	606
18” rim	mm	619
19” rim	mm	631
Adaptive M suspension		
17” rim	mm	596
18” rim	mm	608
19” rim	mm	621

TED-TED-TDMUC3200-E89B1S2 TED-TED-TDMUC3200-E89B1S2 - Wheel Alignment - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

32 00 Wheel Alignment E89 VDC Fahrwerk

Observe test conditions!		
Front axle:		
Total toe-in		0° 14' ± 12'
Adjustment* total toe		0° 14' ± 4'
Toe difference** single wheel between left/ right		max. 12'
Camber (difference between left/right max. 30')		- 33' ± 30'
Adjustment* camber		- 33' ± 25'
Toe angle difference with 20° lock on inside wheel		(difference between left/right max. 30')
- with 20° lock on inside wheel		-2° 08' ± 30'
Castor		(difference between left/right max. 30')
Front wheel offset		0° ± 15'
Maximum wheel lock		
- Inner cornering wheel	approx. °	37° 25'
- Outer cornering wheel	approx. °	31° 55'
Rear axle:		
Total toe-in		0° 18' ± 12'
Adjustment* total toe		0° 18' ± 4'
Camber (difference between left/right max. 30')		-2° 20' ± 25'
Adjustment* camber		-2° 20' ± 5'
Geometrical driving axis		0° ± 12'
*Note: To minimize adjusting errors (measuring inaccuracies), use a narrower tolerance for adjusting toe/camber. **Note: Toe difference front axle = criterion for steering wheel inclination		

TED-TED-TDMUC3200-E89_MESSENB1S1 TED-TED-TDMUC3200-E89_MESSENB1S1 - Chassis/wheel alignment - normal position E89 - V.1, VIN: E634219

ISTA system version	**4.39.20.24455**	Data version	**R4.39.20**	Programming data	**-**
VIN	**E634219**	Vehicle	**Z'/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08**		
Int.lev.works	**-**	Int.lev.(cur.)	**-**	Int.lev.(tar.)	**-**
Mileage	**-**				

32 00 Chassis/wheel alignment - normal position E89

Car loaded down to normal position	Vehicle with complete equipment for normal operation with: 2 x 68 kg on front seats (seats in central position); 1 x 14 kg in luggage compartment (centre) and full fuel tank.