

Modifications performed:

All Powerflex Black Series ShA 95 with

Strong Flex ShA 90 Diff Bushings

Megan Racing Rear Lower Camber arms with hard rubber inner and PF Black Outer

PF Black Upper Inner and OEM Ball Joints upper outer

Syncro Designs RTAB Bearings

M3 front control arms with inner ball joints

PowerFlex Black Thrust Arm Bushings – Non-Adjustable

BAP Plug and Play Drive Line

DiffsOnline rebuild – OEM specs

Work to do:

Balance Wheels

4 Wheel Alignment – Possibly Corner Balancing

Check Front Sway End Link Length 58 Nm

Check Front Sway End Link Positions

Check that Front Sway is centered and not loaded to one side

Alignment of rear subframe to chassis for perfect thrust

Ft 100 Nm

Rear 165 Nm

Very RTAB bushing mount position 77 Nm

Check that Rear Sway is centered and not loaded to one side

Check Geometry of rear arms

Verify Rear Lower arm ends inline

Verify Tie Rod Ends Position in line

I will be changing to:

235/30 20" on 8.5" ET29

285.25 20" on 10" ET40

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	-
VIN	E634219	Vehicle	Z/E89/Roadster/Z4 sDrive35is/N54,-/MANUAL/US/LL/2013/08	data	-
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	Total Toe-in	.04* to .10*		0° 14' ± 12'
Adjustment* total toe	per side	.02* to .05*		0° 14' ± 4'
Toe difference** single wheel between left/ right				max. 12'
Camber (difference between left/right max. 30')	Camber	-1.3* to -1.5*		- 33' ± 30'
Adjustment* camber	allow M3 added 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	Castor	~6.5 to 7.0*		(difference between left/right max. 30')
			allow M3 add	
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	Total Rear Toe-in	.16* to .24*		0° 18' ± 12'
Adjustment* total toe	per side	.08* to .12*		0° 18' ± 4'
Camber (difference between left/right max. 30')	Camber	-1.6* to -1.8*		-2° 20' ± 25'
Adjustment* camber				-2° 20' ± 5'
Geometrical driving axis		Critical Thrust	0.00*	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				

**DEPENDING ON THE TOE YOU FOUND
PLEASE TRY FOR THESE SPECS**

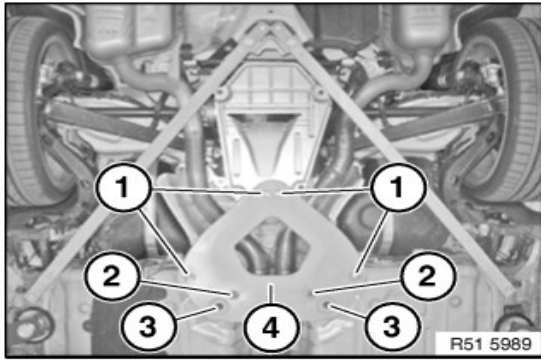
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Int.lev.works	-	Int.lev.(cur.)	-	Int.lev.(tar.)	-
Mileage	-				

32 00 Wheel Alignment E89 VDC Fahrwerk

Observe test conditions!			
Front axle:			
Total toe-in	Total Toe-in	.10*	0° 14' ± 12'
Adjustment* total toe	per side	.05*	0° 14' ± 4'
Toe difference** single wheel between left/ right			max. 12'
Camber (difference between left/right max. 30')	Camber	-1.3* to -1.5*	- 33' ± 30'
Adjustment* camber	allow M3 added 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	Castor	~7.3*	(difference between left/right max. 30')
			allow M3 add
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	Total Rear Toe-in	.15*	0° 18' ± 12'
Adjustment* total toe			0° 18' ± 4'
Camber (difference between left/right max. 30')	Camber	-1.5* to -1.7*	-2° 20' ± 25'
Adjustment* camber			-2° 20' ± 5'
Geometrical driving axis	Critical Thrust	0.00*	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			

**DEPENDING ON THE TOE YOU FOUND
THESE WOULD BE MORE STABLE**



Release screws (1).

Tightening torque [51 71 24AZ](#).

Unscrew nuts (2).

Tightening torque [51 71 25AZ](#).

Unscrew nuts (3).

Tightening torque [51 71 26AZ](#).

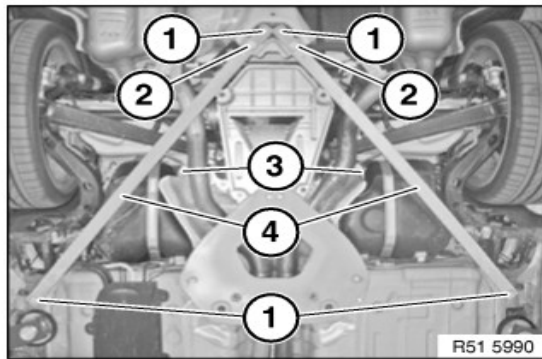
Remove thrust panel (reinforcement plate) (4).

Installation:

Replace screw (1).

- Tighten down screws (1) to specified torque and then to angle of rotation.

24AZ	Stiffening plate to body	E89	M10	Replace screws	
				Jointing torque	56 Nm
				Angle of rotation	105 ± 15 °
25AZ	Stiffening plate to exhaust system	E89		Nut	20 Nm
26AZ	Stiffening plate to body	E89		Nut	24 Nm



Tension strut, left and right:

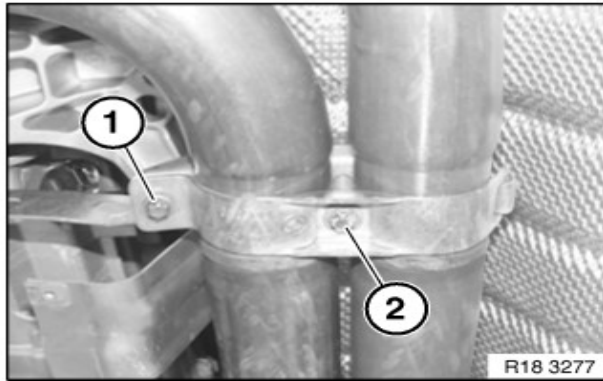
Release bolts (1, 2) and nuts (3) and remove tension strut (4).

Installation note:

Replace bolts (1 and 2).

- Screw (1)
Tightening torque [51 71 29AZ](#).
- Screw (2)
Tightening torque [51 71 30AZ](#).
- Nut (3)
Tightening torque [51 71 31AZ](#).

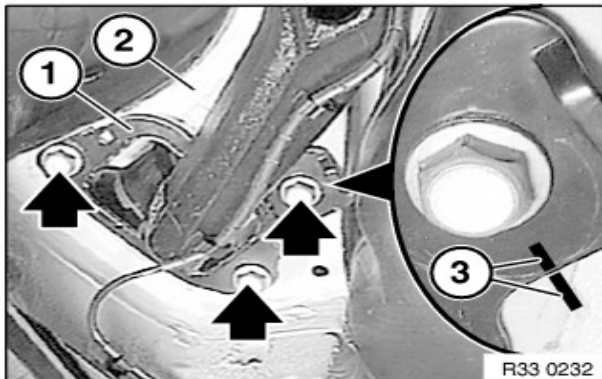
29AZ	Tension strut, left and right, to body (rear axle)	E89	M10	Jointing torque	56 Nm
				Angle of rotation	105 ± 15 °
30AZ	Tension strut, rear left and rear right, to triretaining bracket (rear axle)	E89	M8	Jointing torque	28 Nm
31AZ	Shutoff, tension strut, rear left and rear right, to body (rear axle)	E89	M8	Jointing torque	24 Nm



Unscrew screws (1) and (2).
Tightening torque [18 31 2AZ](#).
Remove retaining clip.

18 31 Exhaust pipe with catalytic converter / complete system

	Type	Thread	Tightening specifications	Dimension
1AZ Exhaust system to front pipe with catalytic converter	N54 / N54T	M8		21 Nm
2AZ Exhaust system to bracket, transmission	N54 / N54T	M8		19 Nm
3AZ Catalytic converter to turbocharger	N54 / N54T	M8	Replace profile clamp and bolt.	13 Nm
4AZ Exhaust system to bracket on rear axle carrier	N54 / N54T	M8		19 Nm
5AZ Rear silencer to body	N54 / N54T	M8		19 Nm



Mark position of mounting (1) relative to body (2) with a paint mark (3) in order to simplify subsequent toe-in adjustment.

Release screws.

Tightening torque [33 32 2AZ](#).

Lower workshop jack and pull trailing arm downwards.

Installation note:

Check threads for damage; if necessary, repair with [Helicoil thread inserts](#).

2AZ Trailing arm bearing support to body

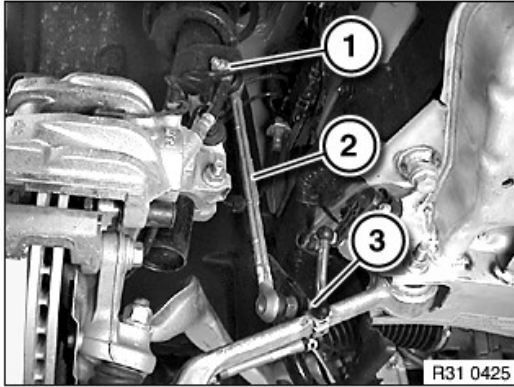
E89

M14

77 Nm

31 35 005

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).

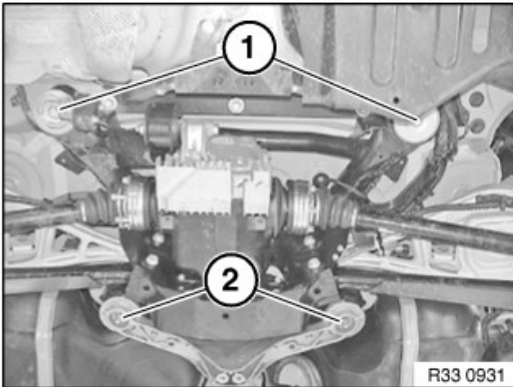
Tightening torque [31 35 2AZ](#).

Installation:

Replace self-locking nuts.

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



Release screws (1).

Remove nuts (2) and screws.

Tightening torque [33 33 1AZ](#).

Slowly lower rear axle support.

Installation note:

Check threads for damage; if necessary, repair with [Helicoil thread inserts](#).

Check seating of coil springs with spring pads, correct if necessary.

33 33 Rear Axle Suspension

	Type	Thread	Tightening specification	Measure
1AZ Rear axle carrier with rubber mounts to body	E89	M12	Follow repair instruction .	77 Nm
2AZ Threaded bolt to cross-member, rear axle, front	E89	M12		90 Nm