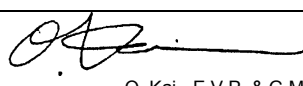




SERVICE BULLETIN

PUBLICATION GROUP, AFTER SALES SERVICE DEP.
MITSUBISHI MOTOR SALES EUROPE BV

SERVICE BULLETIN		No.: ESB-99E33-501		
		Date: 1999-11-15	<Model> (EC,EXP) CARISMA SPACE STAR	<M/Y> 96-10
Subject:		CORRECTION TO FRONT SUSPENSION CAMBER AND CASTER VALUES		
Group:		FRONT SUSPENSION		
CORRECTION		 O. Kai - E.V.P. & G.M. After Sales Service Dept.		

1. Description:

A descriptive omission found in the front suspension camber and caster values has been rectified.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'96 CARISMA Technical Information Manual	PYGE95E1	(English)	3-4
'96 CARISMA Workshop Manual chassis	PWDE9502	(English)	33A-3,6
	PWDS9503	(Spanish)	
	PWDF9504	(French)	
	PWDG9505	(German)	
	PWDD9506	(Dutch)	
	PWDW9507	(Swedish)	
	PWDI96E1	(Italian)	
'99 SPACE STAR Technical Information Manual	1MXE99E1	(English)	3-4
'99 SPACE STAR Workshop Manual chassis	CMXE99E1	(English)	33A-3,6
	CMXS99E1	(Spanish)	
	CMXF99E1	(French)	
	CMXG99E1	(German)	
	CMXD99E1	(Dutch)	
	CMXW99E1	(Swedish)	
	CMXI99E1	(Italian)	

3. Details

'96 CARISMA Technical Information Manual, page 2
'96 CARISMA Workshop Manual chassis, page 3, 4
'99 SPACE STAR Technical Information Manual, page 5
'99 SPACE STAR Workshop Manual chassis, page 6, 7

SPECIFICATIONS
SUSPENSION SYSTEM

Item	Specifications
Suspension method	McPherson strut with coil springs and compression rods

WHEEL ALIGNMENT

Item	Specifications
Camber	0° 0 0' ± 3 0' [*] <Added>
Caster	2° 1 2' ± 30' [*] <Added>
Kingpin inclination	1 2° 4 1'
Toe-In	At the centre of tyre tread mm
	1 ± 2
	Toe-angle (per wheel)
	0° 0 6' ± 1 2'
Toe-out angle on turns (inner wheel when outer wheel at 20°)	2 1. 8°

NOTE

*: difference between right and left wheels: less than 30'

<Added>

SERVICE SPECIFICATIONS

Items		Standard value
Toe-in	At the centre of tyre tread mm	1 ± 2
	Toe-angle (per wheel)	0° 03' ± 06'
Toe-out angle on turns (inner wheel when outer wheel at 20°)		21.8°
Steering angle	Inner wheel	39°00' ± 1°30'
	Outer wheel	32°00'
Camber		0° 00' ± 30' * <Added>
Caster		2° 12' ± 30' * <Added>
Kingpin inclination		12° 41'
Lower arm ball joint starting torque Nm		1.0 – 6.5
Lower arm ball joint turning torque Nm		1.0 – 3.9
Stabilizer link ball joint turning torque Nm		1.7 – 3.1

NOTE

*: difference between right and left wheels: less than 30'

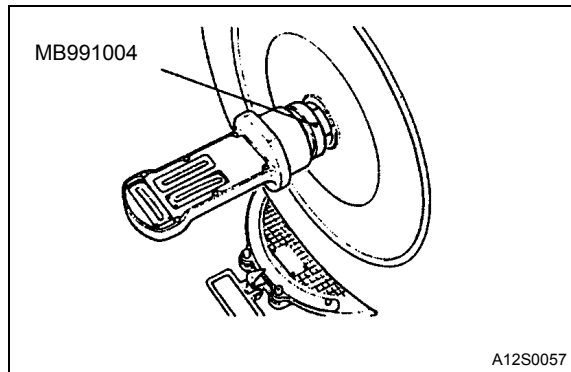
<Added>

STEERING ANGLE

Standard value:

Inner wheel $39^{\circ}00' \pm 1^{\circ}30'$ Outer wheel $32^{\circ}00'$

<Added>

(difference between right and left wheels: less than $30'$.)**CAMBER, CASTER AND KINGPIN INCLINATION**

Standard value:

Camber $0^{\circ}00' \pm 30'$ Caster $2^{\circ}12'$ Kingpin inclination $12^{\circ}41'$

<Added>

 $\pm 30'$ (difference between right and left wheels: less than $30'$.)**NOTE**

1. Camber and caster are preset at the factory and cannot be adjusted.
2. If camber is not within the standard value, check and replace bent or damaged parts.
3. For vehicles with aluminium type wheels, attach the camber/caster/kingpin gauge to drive shaft by using the special tool. Tighten the special tool to the same torque 200-260 Nm as the drive shaft nut.

Caution

Never subject the wheel bearings to the vehicle load when the drive shaft nuts are loosened.

SPECIFICATIONS**SUSPENSION SYSTEM**

Item	Specifications
Suspension method	McPherson strut with coil springs and compression rods

WHEEL ALIGNMENT

Item	Specifications
Camber	$-0^{\circ}40' \pm 30'$ * <Added>
Caster	$2^{\circ}54' \pm 30'$ * <Added>
Kingpin inclination	$13^{\circ}36'$
Toe-In	At the centre of tyre tread mm
	0 ± 2
	Toe-angle (per wheel)
	$0^{\circ}00' \pm 06'$
Toe-out angle on turns (inner wheel when outer wheel at 20°)	$21^{\circ}39'$

NOTE*: difference between right and left wheels: less than $30'$

<Added>

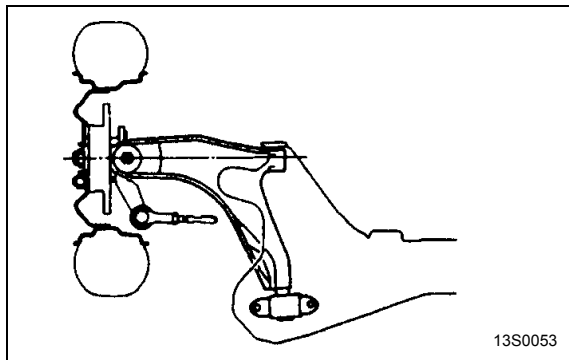
LOWER ARM

A compression type lower arm is fitted, giving the following advantages.

- Prevents fore/aft compliance steering by optimizing the lower arm pivot axis.
- Box-type cross-sectional construction for superior strength and light weight.
- Lower arm rear bushing with non-symmetrical spring characteristics in the vehicle lateral direction for steering stability and riding comfort.
- Front supporting point (lower arm front bushing section) positioned near the front wheel axis line to provide higher lateral rigidity and reduce lateral force steering.
- Lower arm ball joint using polyacetal resin bearing which changes the rotating torque according to applied vibration frequency.

LOWER ARM FRONT BUSHING

Lower arm front bushing has “hard” characteristics in the vehicle left/right direction and “soft” characteristics in both fore/aft and twisting directions, which means that it functions to provide both steering stability and riding comfort.



Also the lower arm front bushing is installed at a point almost on the same line as the front wheel axis line to provide increased lateral rigidity and reduced lateral force steering.

SERVICE SPECIFICATIONS

Items		Standard value
Toe-in	At the centre of tyre tread mm	0 ± 2
	Toe-angle (per wheel)	0° 00' ± 06'
Toe-out angle on turns (inner wheel when outer wheel at 20°)		21°39'
Steering angle	Inner wheel	41°30'
	Outer wheel	34°00'
Camber		0° 40' ± 30' * <Added>
Caster		2° 54' ± 30' * <Added>
Kingpin inclination		13° 36'
Lower arm ball joint starting torque Nm		1.0 – 6.4
Lower arm ball joint turning torque Nm		1.0 – 2.5
Protruding length of stabilizer bar mounting bolt mm		22

NOTE

*: difference between right and left wheels: less than 30'

<Added>

STEERING ANGLE

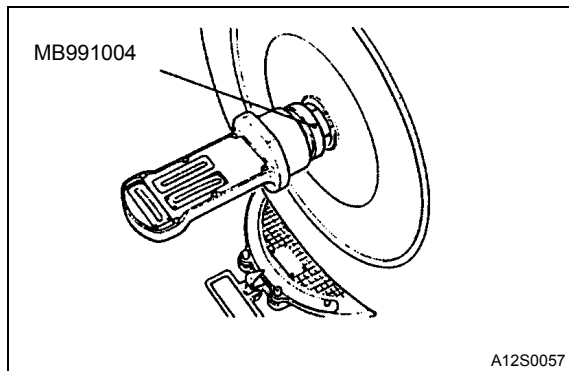
Standard value:

Inner wheel 41°30'

Outer wheel 34°00'

<Added>

(difference between right and left wheels: less than 30'.)

**CAMBER, CASTER AND KINGPIN INCLINATION**

Standard value:

Camber 0°40' ± 30'

Caster 2°54'

Kingpin inclination 13°36'

<Added>

± 30' (difference between right and left wheels: less than 30'.)

NOTE

4. Camber and caster are preset at the factory and cannot be adjusted.
5. If camber is not within the standard value, check and replace bent or damaged parts.
6. For vehicles with aluminium type wheels, attach the camber/caster/kingpin gauge to drive shaft by using the special tool. Tighten the special tool to the same torque 216-255 Nm as the drive shaft nut.

Caution

Never subject the wheel bearings to the vehicle load when the drive shaft nuts are loosened.

BALL JOINT DUST COVER CHECK

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1. Check the dust cover for cracks or damage by pushing it with finger.
2. If the dust cover is cracks or damaged, replace the lower arm assembly.

NOTE

Cracks or damage of dust cover may cause damage of the ball joint.