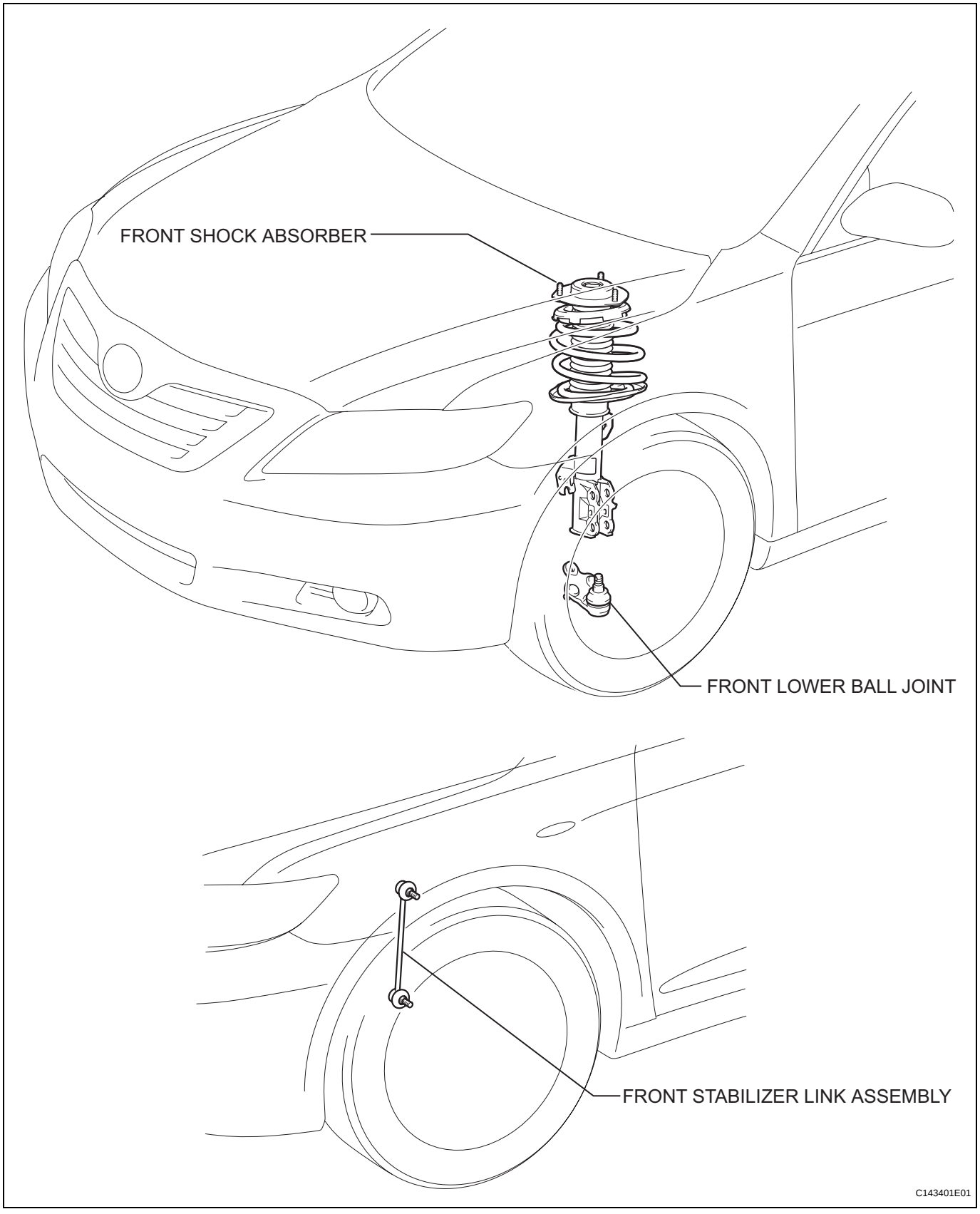
SUSPENSION SYSTEM

PARTS LOCATION



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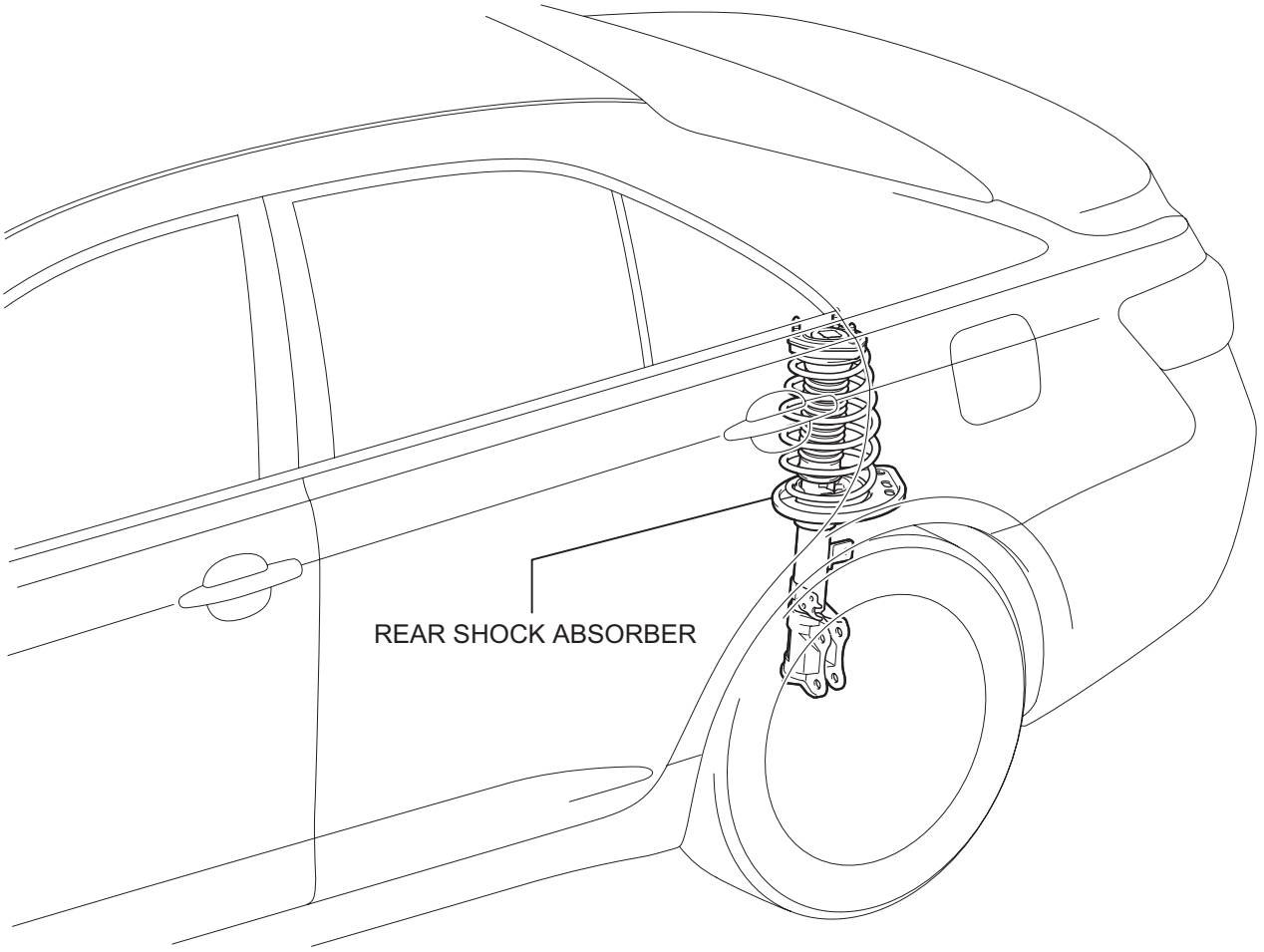

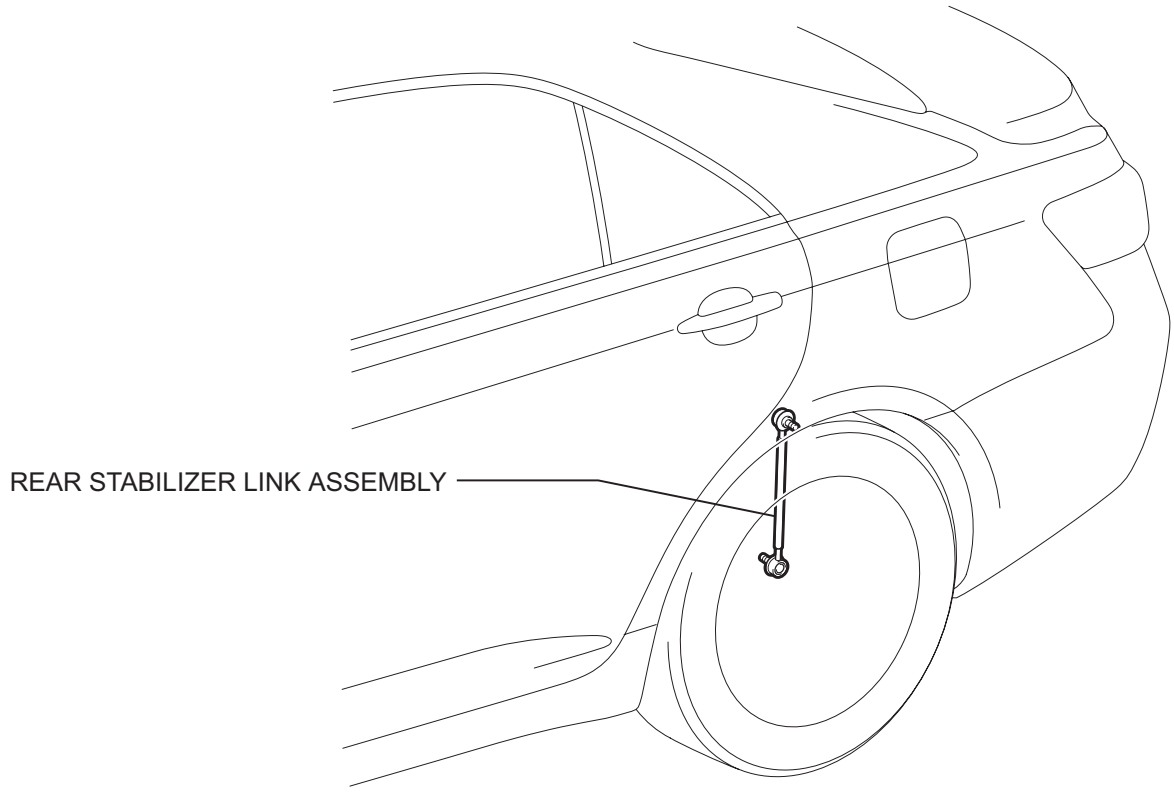

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PROBLEM SYMPTOMS TABLE

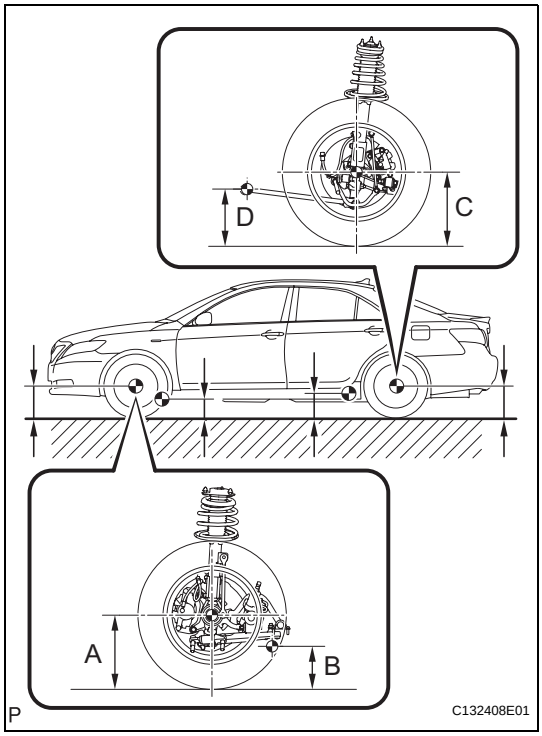
SUSPENSION SYSTEM

Symptom	Suspected area	See page
Bottoming	1. Vehicle (Overloaded)	-
	2. Spring (Weak)	SP-18
	3. Shock absorber (Worn)	SP-18
Sways/pitches	1. Tire (Worn or improperly inflated)	TW-3
	2. Stabilizer bar (Bent or broken)	SP-32
	3. Shock absorber (Worn)	SP-18
Front wheel shimmy	1. Tire (Worn or improperly inflated)	TW-3
	2. Wheel (Out of balance)	TW-3
	3. Shock absorber (Worn)	SP-18
	4. Wheel alignment (Incorrect)	SP-4
	5. Lower ball joint (Worn)	SP-27
	6. Hub bearing (Worn)	AH-5
	7. Steering gear (Out of adjustment or broken)	PS-49
Rear wheel shimmy	1. Tire (Worn or improperly inflated)	TW-3
	2. Wheel (Out of balance)	TW-3
	3. Shock absorber (Worn)	SP-41
	4. Wheel alignment (Incorrect)	SP-13
	5. Hub bearing (Worn)	AH-14
Abnormal tire wear	1. Tire (Worn or improperly inflated)	TW-3
	2. Wheel alignment (Incorrect)	TW-3
	3. Shock absorber (Worn)	SP-18
	4. Suspension parts (Worn)	-

FRONT WHEEL ALIGNMENT

ADJUSTMENT

1. INSPECT TIRES (See page TW-3)



2. MEASURE VEHICLE HEIGHT

(a) Bounce the vehicle up and down at the corners to stabilize the suspension. Inspect the vehicle height.

Vehicle height
for USA and Canada:

Model	Front A - B	Rear C - D
ACV40L-CEAGKA	125 mm (4.92 in.)	54 mm (2.13 in.)
GSV40L-CETGKA	126 mm (4.96 in.)	55 mm (2.17 in.)
ACV40L-AEAGKA	125 mm (4.92 in.)	53 mm (2.09 in.)
GSV40L-AETGKA	126 mm (4.96 in.)	54 mm (2.13 in.)
ACV40L-CEANKA	125 mm (4.92 in.)	54 mm (2.13 in.)
ACV40L-CEMNKA	125 mm (4.92 in.)	53 mm (2.09 in.)
GSV40L-CETNKA	126 mm (4.96 in.)	55 mm (2.17 in.)
ACV40L-AEANKA	125 mm (4.92 in.)	53 mm (2.09 in.)
ACV40L-AEMNKA	125 mm (4.92 in.)	52 mm (2.05 in.)
GSV40L-AETNKA	126 mm (4.96 in.)	54 mm (2.13 in.)
ACV40L-CEASKA	128 mm (5.04 in.)	57 mm (2.24 in.)
ACV40L-CEMSKA	127 mm (5.00 in.)	55 mm (2.17 in.)
GSV40L-CETSKA	129 mm (5.08 in.)	58 mm (2.28 in.)

for Mexico:

Model	Front A - B	Rear C - D
ACV40L-CEAGKA	115 mm (4.53 in.)	40 mm (1.57 in.)
GSV40L-CETGKA	116 mm (4.57 in.)	41 mm (1.61 in.)
ACV40L-CEANKA	115 mm (4.53 in.)	40 mm (1.57 in.)

Measuring points:

A:
Ground clearance of front wheel center

B:
Ground clearance of lower suspension arm No. 2 bushing set bolt center

C:
Ground clearance of rear wheel center

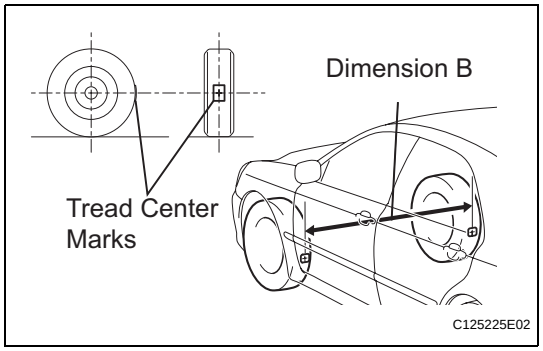
D:
Ground clearance of strut rod set bolt center

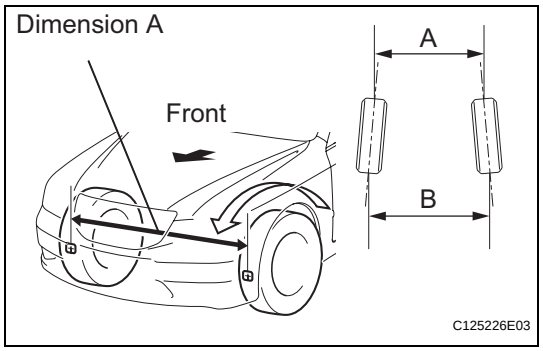
NOTICE:

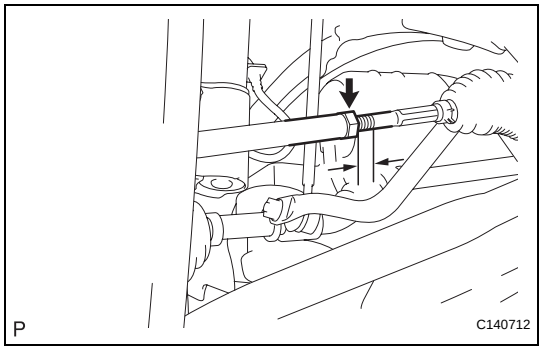
- **Before inspecting the wheel alignment, adjust the vehicle height to the specified value.**
- **Be sure to perform measurement on a level surface.**
- **If it is necessary to go under the vehicle for measurement, confirm that the parking brake is applied and the vehicle is secured with chocks.**

3. INSPECT TOE-IN

(a) Bounce the vehicle up and down at the corners to stabilize the suspension.







(b) Release the parking brake and move the shift lever to the neutral position.

(c) Push the vehicle straight ahead approximately 5 m (16.4 ft). (*1)

(d) Put tread center marks on the rearmost points of the front wheels and measure the distance between the marks (dimension B).

(e) Slowly push the vehicle straight ahead to cause the front wheels to rotate 180° using the front tire valve as a reference point.
HINT:
Do not allow the wheels to rotate more than 180°. If the wheels rotate more than 180°, perform the procedure from *1 again.

(f) Measure the distance between the tread center marks on the front side of the wheels.
Toe-in

Toe-in (total)	**-**
A - B:	**0 +- 2 mm (0 +- 0.08 in.)**

HINT:
If toe-in is not within the specified range, adjust it at the rack ends.

4. ADJUST TOE-IN

(a) Measure the thread lengths of the right and left rack ends.
Standard:
Difference in thread length between the right and left rack ends is 1.5 mm (0.06 in.) or less.

(b) Remove the rack boot set clips.

(c) Loosen the tie rod end lock nuts.

(d) Adjust the rack ends if the difference in thread length between the right and left rack ends is not within the specified range.
(1) Extend the shorter rack end if the measured toe-in deviates toward the outside.
(2) Shorten the longer rack end if the measured toe-in deviates toward the inside.

(e) Turn the right and left rack ends by equal amounts to adjust the toe-in.
HINT:
Try to adjust the toe-in to the center of the specified range.

(f) Make sure that the lengths of the right and left rack ends are the same.

(g) Tighten the tie rod end lock nuts.
Torque: 74 N*m (755 kgf*cm, 55 ft.*lbf)

SP

NOTICE:
Temporarily tighten the lock nut while holding the hexagonal part of the steering rack end so that the lock nut and the steering rack end do not turn together. Hold the flats on the tie rod end and tighten the lock nut.

(h) Place the boots on the seats and install the clips.
HINT:
Make sure that the boots are not twisted.

5. INSPECT WHEEL ANGLE

(a) Put tread center marks on the rearmost points of the turning radius gauge.

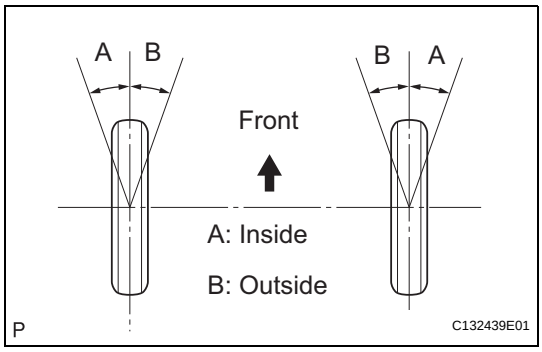
(b) Turn the steering wheel fully to the left and right and measure the turning angle.
Wheel turning angle
for USA and Canada:

Model	Inside wheel	Outside wheel reference
ACV40L-CEAGKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
GSV40L-CETGKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-AEAGKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
GSV40L-AETGKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-CEANKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-CEMNKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
GSV40L-CETNKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-AEANKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-AEMNKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
GSV40L-AETNKA	38°22' +-2° (38.37° +-2°)	33°33' (33.55°)
ACV40L-CEASKA	38°42' +-2° (38.70° +-2°)	33°46' (33.77°)
ACV40L-CEMSKA	38°42' +-2° (38.70° +-2°)	33°46' (33.77°)
GSV40L-CETSKA	38°18' +-2° (38.30° +-2°)	33°32' (33.53°)

for Mexico:

Model	Inside wheel	Outside wheel reference
ACV40L-CEAGKA	38°18' +-2° (38.30° +-2°)	33°41' (33.68°)
GSV40L-CETGKA	38°18' +-2° (38.30° +-2°)	33°41' (33.68°)
ACV40L-CEANKA	38°18' +-2° (38.30° +-2°)	33°41' (33.68°)

If the right and left inside wheel angles differ from the specified value, check the right and left rack end lengths.

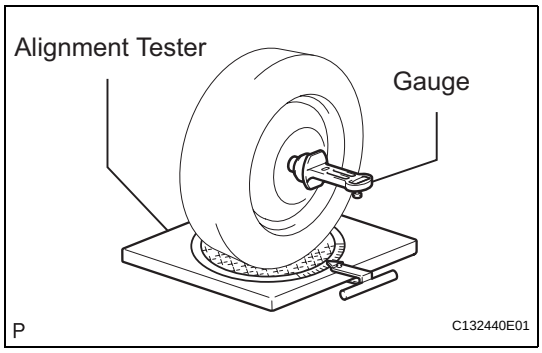


6. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

(a) Put the front wheel on the center of the alignment tester.

(b) Remove the center ornament.

(c) Set the camber-caster-king pin gauge and attachment at the center of the axle hub or drive shaft.



(d) Inspect the camber, caster, and steering axis inclination.

Camber

for USA and Canada:

Model	Camber	Right-left difference
ACV40L-CEAGKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-AEAGKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
GSV40L-AETGKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-CEMNKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
GSV40L-CETNKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-AEANKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-AEMNKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
GSV40L-AETNKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-CEASKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
ACV40L-CEMSKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less
GSV40L-CETSKA	-0°40' +-45' (-0.67° +-0.75°)	45' (0.75°) or less

for Mexico:

Model	Camber	Right-left difference
ACV40L-CEAGKA	-0°35' +-45' (-0.58° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	-0°35' +-45' (-0.58° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	-0°35' +-45' (-0.58° +-0.75°)	45' (0.75°) or less

Caster

for USA and Canada:

Model	Caster	Right-left difference
ACV40L-CEAGKA	3°00' +-45' (3.00° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
ACV40L-AEAGKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
GSV40L-AETGKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	3°00' +-45' (3.00° +-0.75°)	45' (0.75°) or less
ACV40L-CEMNKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
GSV40L-CETNKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
ACV40L-AEANKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
ACV40L-AEMNKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
GSV40L-AETNKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
ACV40L-CEASKA	3°00' +-45' (3.00° +-0.75°)	45' (0.75°) or less
ACV40L-CEMSKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less
GSV40L-CETSKA	2°55' +-45' (2.92° +-0.75°)	45' (0.75°) or less

for Mexico:

Model	Caster	Right-left difference
ACV40L-CEAGKA	2°45' +-45' (2.75° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	2°40' +-45' (2.67° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	2°45' +-45' (2.75° +-0.75°)	45' (0.75°) or less

Steering axis inclination

for USA and Canada:

Model	Steering axis inclination	Right-left difference
ACV40L-CEAGKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less

Model	Steering axis inclination	Right-left difference
ACV40L-AEAGKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
GSV40L-AETGKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-CEMNKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
GSV40L-CETNKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-AEANKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-AEMNKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
GSV40L-AETNKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-CEASKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
ACV40L-CEMSKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less
GSV40L-CETSKA	12°15' +-45' (12.25° +-0.75°)	45' (0.75°) or less

for Mexico:

Model	Steering axis inclination	Right-left difference
ACV40L-CEAGKA	12°00' +-45' (12.00° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	12°00' +-45' (12.00° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	12°00' +-45' (12.00° +-0.75°)	45' (0.75°) or less

NOTICE:
- **Perform the inspection while the vehicle is unloaded.**
- **The maximum tolerance of the right and left difference for the camber and caster is 45' (0.75°) or less.**

(e) Remove the camber-caster-king pin gauge and attachment.
(f) Install the center ornament.
(g) If the caster and steering axis inclination are not within the specified range after the camber has been correctly adjusted, recheck the suspension parts for damage and/or wear.

7. ADJUST CAMBER

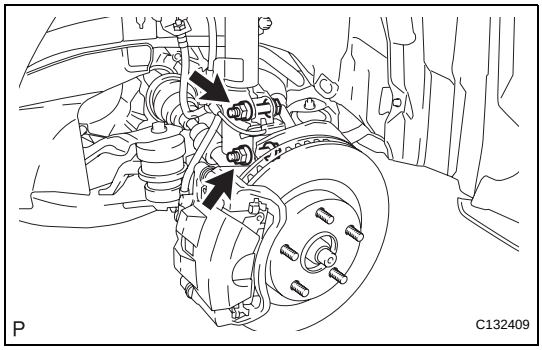
NOTICE:
Inspect toe-in after the camber has been adjusted.

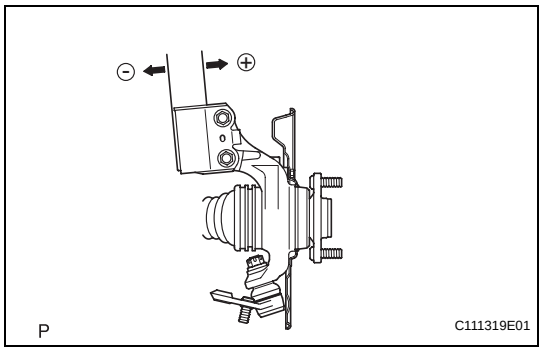
(a) Remove the front wheel.

(b) Remove the 2 nuts on the lower side of the front shock absorber.

NOTICE:
Keep the bolts inserted.

(c) Clean the installation surfaces of the front shock absorber and the steering knuckle.
(d) Temporarily install the 2 nuts (Step A).

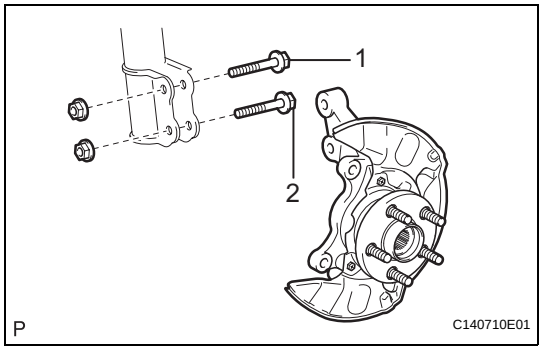




(e) Fully push or pull the front axle hub in the direction of the required adjustment (Step B).

(f) Tighten the nuts.
Torque: 210 N*m (2,141 kgf*cm, 155 ft.*lbf)
NOTICE:
Keep the bolts from rotating when tightening the nuts.

(g) Install the front wheel.
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)



(h) Check the camber.
If the measured value is not within the specification, calculate the required adjustment amount using the formula below.
Camber adjustment amount = center of the specified range center - measured value
Check the combination of installed bolts. Select appropriate bolts from the table below to adjust the camber to the specified values.
HINT:
Try to adjust the camber to the center of the specified values.

Move the axle toward (+) in step (B)	Move the axle toward (-) in step (B)
Refer to table (1) (Move the axle toward the positive side)	Refer to table (2) (Move the axle toward the negative side)

SP

Table (1) (Move the axle toward the positive side)

Installed Bolt / Adjusting Value								
	1	 90105-17012	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015
	2	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015
-1°30' to -1°15' (-1.50° to -1.25°)								G
-1°15' to -1°00' (-1.25° to -1°)							G	A
-1°00' to -0°45' (-1° to -0.75°)						G	A	B
-0°45' to -0°30' (-0.75° to -0.5°)					G	A	B	C
-0°30' to -0°15' (-0.5° to -0.25°)				G	A	B	C	D
-0°15' to 0° (-0.25° to 0°)			G	A	B	C	D	E
0° to 0°15' (0° to 0.25°)		A	B	C	D	E	F	
0°15' to 0°30' (0.25° to 0.5°)		B	C	D	E	F		
0°30' to 0°45' (0.50° to 0.75°)		C	D	E	F			
0°45' to 1°00' (0.75° to 1°)		D	E	F				
1°00' to 1°15' (1° to 1.25°)		E	F					
1°15' to 1°30' (1.25° to 1.5°)		F						

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17012
2	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015	 90105-17012

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SP

Table (2) (Move the axle toward the negative side)

Installed Bolt / Adjusting Value								
	1	 90105-17012	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015
	2	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015
-1°30' to -1°15' (-1.50° to -1.25°)		F						
-1°15' to -1°00' (-1.25° to -1°)		E	F					
-1°00' to -0°45' (-1° to -0.75°)		D	E	F				
-0°45' to -0°30' (-0.75° to -0.5°)		C	D	E	F			
-0°30' to -0°15' (-0.5° to -0.25°)		B	C	D	E	F		
-0°15' to 0° (-0.25° to 0°)		A	B	C	D	E	F	
0° to 0°15' (0° to 0.25°)			G	A	B	C	D	E
0°15' to 0°30' (0.25° to 0.5°)				G	A	B	C	D
0°30' to 0°45' (0.50° to 0.75°)					G	A	B	C
0°45' to 1°00' (0.75° to 1°)						G	A	B
1°00' to 1°15' (1° to 1.25°)							G	A
1°15' to 1°30' (1.25° to 1.5°)								G

Selected Bolt Combination

	A	B	C	D	E	F	G
1	 90105-17012	 90105-17012	 90105-17012	 90105-17013	 90105-17014	 90105-17015	 90105-17012
2	 90105-17013	 90105-17014	 90105-17015	 90105-17015	 90105-17015	 90105-17015	 90105-17012

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SP

The body and suspension may be damaged if the camber is not correctly adjusted according to the above table.

NOTICE:

Replace the nut with a new one when replacing the bolt.

(i) Repeat the steps mentioned above. In step (A), replace 1 or 2 selected bolts.

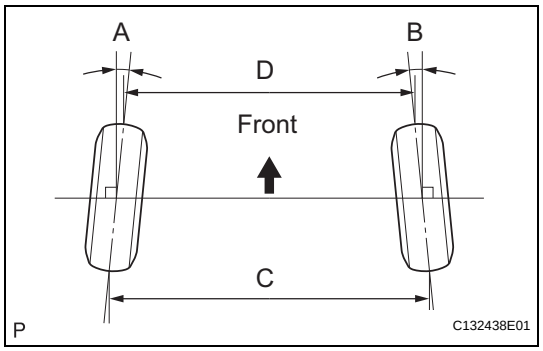
HINT:

Replace one bolt at a time when replacing 2 bolts.

REAR WHEEL ALIGNMENT

ADJUSTMENT

1. **INSPECT TIRES (See page TW-3)**
2. **MEASURE VEHICLE HEIGHT (See page SP-4)**
3. **INSPECT TOE-IN**



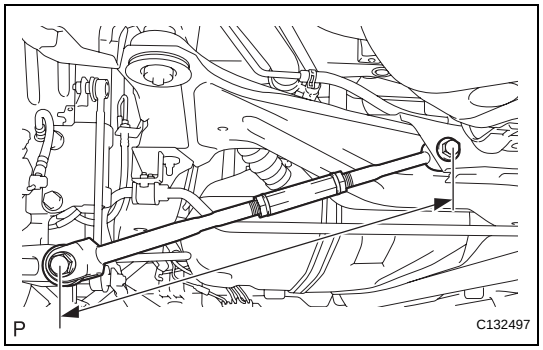
(a) Bounce the vehicle up and down at the corners to stabilize the suspension. Inspect the toe-in.

Toe-in

Toe-in (total)	-
A + B: C - D:	0° +- 24' (0° +- 0.4°) 4 +- 2 mm (0.16 +- 0.08 in.)

If the toe-in is not within the specified range, inspect the suspension parts and replace them if necessary.

4. **ADJUST TOE-IN**

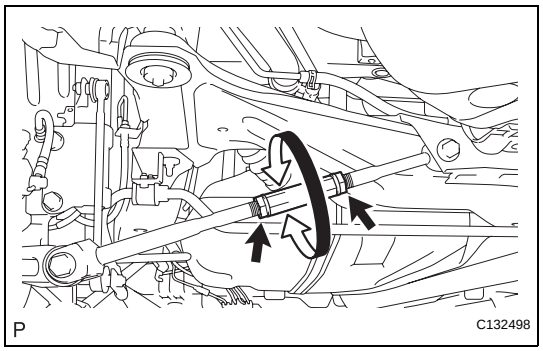


(a) Measure the lengths of the right and left rear No. 2 suspension arms.

Difference in the length between the right and left rear No. 2 suspension arms:

1.5 mm (0.06 in.) or less

If the left-right difference is larger than 1.5 mm (0.06 in.), adjust it by following the procedures below.



(b) Loosen the lock nuts.

(c) Turn the right and left adjusting tubes by an equal amount to adjust toe-in.

HINT:

- Try to adjust toe-in to the center of the specified range.
- One turn of each adjusting tube will adjust toe-in by approximately 10.8 mm (0.425 in.).

(d) Tighten the lock nuts.

Torque: 56 N*m (571 kgf*cm, 41 ft.*lbf)

5. **INSPECT CAMBER**

Camber

for USA and Canada:

Model	Camber	Right-left difference
ACV40L-CEAGKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
ACV40L-AEAGKA	-1°15' +-45' (-1.25° +-0.75°)	45' (0.75°) or less
GSV40L-AETGKA	-1°15' +-45' (-1.25° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
ACV40L-CEMNKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
GSV40L-CETNKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
ACV40L-AEANKA	-1°15' +-45' (-1.25° +-0.75°)	45' (0.75°) or less
ACV40L-AEMNKA	-1°15' +-45' (-1.25° +-0.75°)	45' (0.75°) or less
GSV40L-AETNKA	-1°15' +-45' (-1.25° +-0.75°)	45' (0.75°) or less

SP

Model	Camber	Right-left difference
ACV40L-CEASKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
ACV40L-CEMSKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less
GSV40L-CETSKA	-1°18' +-45' (-1.30° +-0.75°)	45' (0.75°) or less

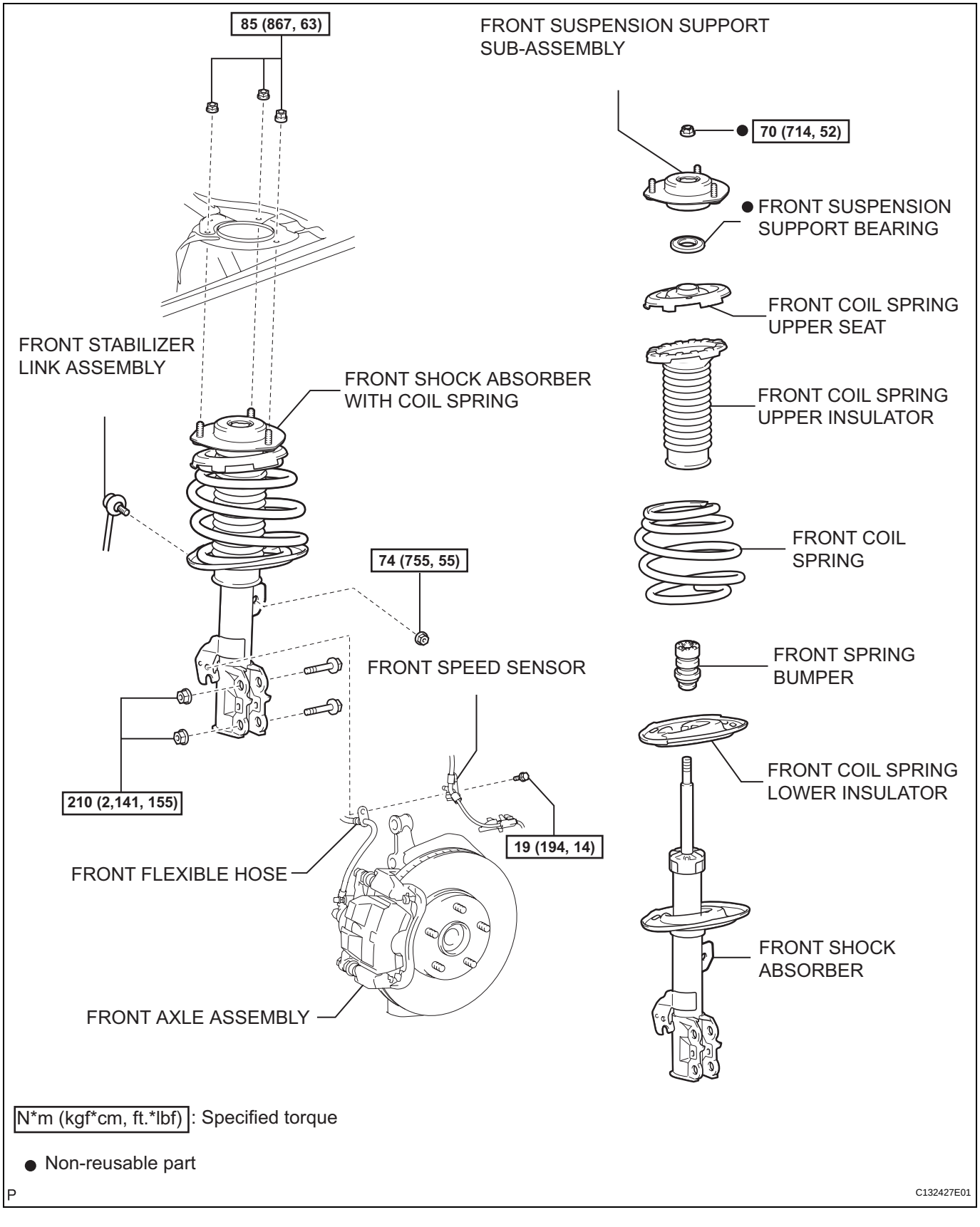
for Mexico:

Model	Camber	Right-left difference
ACV40L-CEAGKA	-1°06' +-45' (-1.10° +-0.75°)	45' (0.75°) or less
GSV40L-CETGKA	-1°06' +-45' (-1.10° +-0.75°)	45' (0.75°) or less
ACV40L-CEANKA	-1°06' +-45' (-1.10° +-0.75°)	45' (0.75°) or less

HINT:
Camber is not adjustable. If the measurement is not within the specification range, inspect the suspension parts for damage and/or wear, and replace them if necessary.

FRONT SHOCK ABSORBER

COMPONENTS



SP

REMOVAL

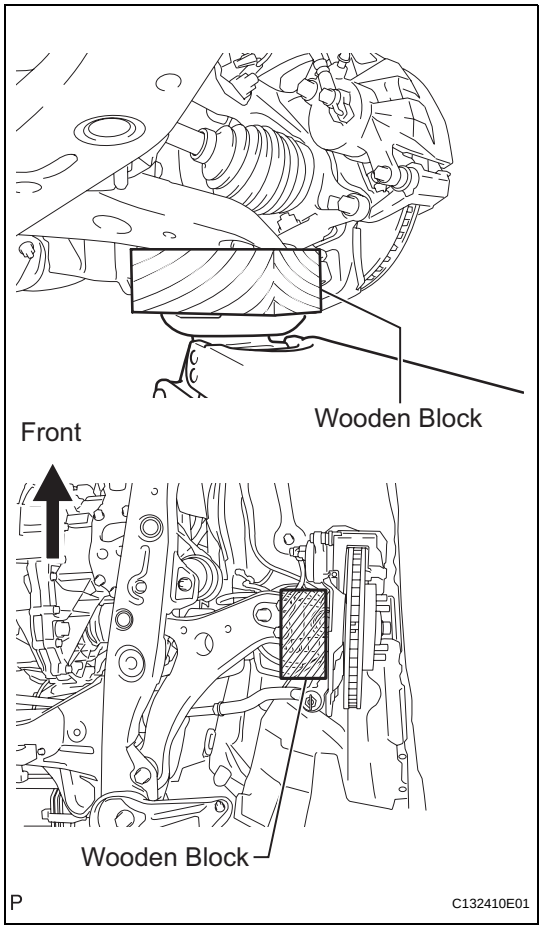
HINT:

- Use the same procedures for the RH side and the LH side.
- The procedures listed below are for the LH side.

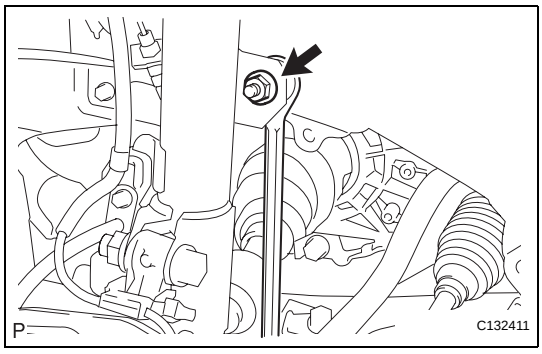
1. REMOVE FRONT WHEEL

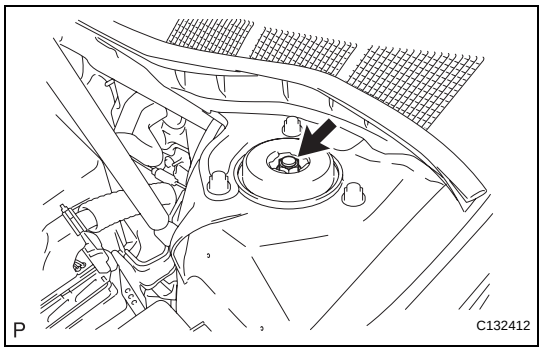
2. SEPARATE FRONT STABILIZER LINK ASSEMBLY

(a) Support the front No. 1 suspension lower arm with a jack using a wooden block to avoid damage.



(b) Remove the nut and separate the front stabilizer link assembly from the front shock absorber.
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.



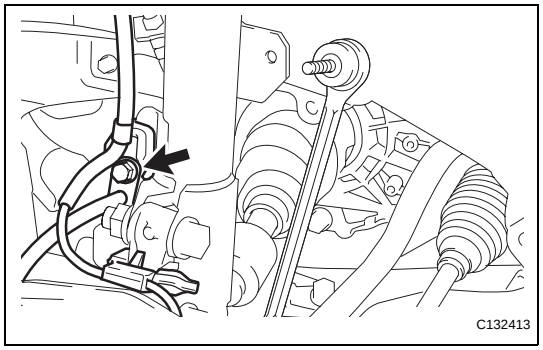


3. REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING

(a) Loosen the lock nut of the front shock absorber with coil spring.

NOTICE:

- **Do not remove the lock nut.**
- **Only loosen the nut when disassembling the front shock absorber with coil spring.**

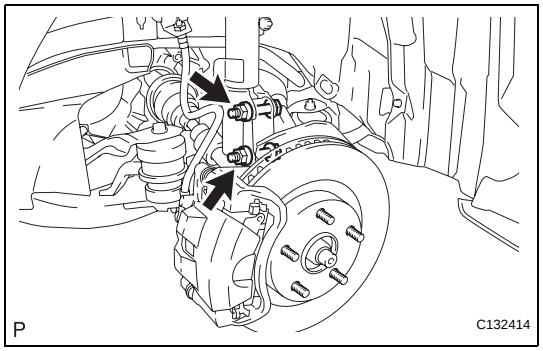


(b) Remove the bolt and disconnect the front flexible hose and front speed sensor wire harness from the front shock absorber with coil spring.

NOTICE:

Be sure to remove the front speed sensor from the front shock absorber with coil spring.

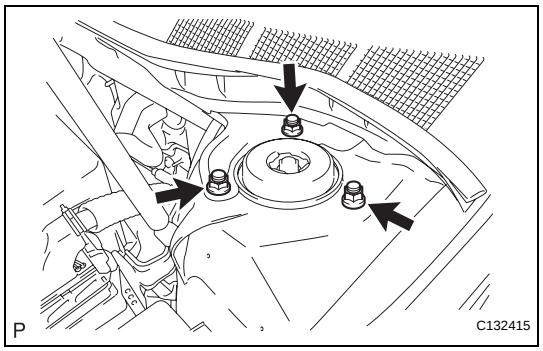
SP



(c) Remove the 2 nuts on the lower side of the front shock absorber with coil spring.

NOTICE:

- **When removing the nuts, keep the bolts from rotating.**
- **Keep the bolts inserted to secure the front axle assembly.**



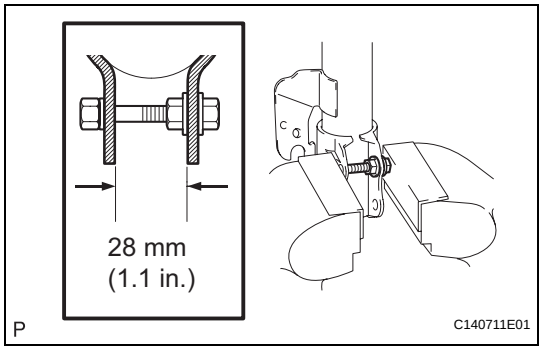
(d) Remove the 3 nuts on the upper side of the front shock absorber with coil spring.

(e) Lower the front axle assembly, and remove the 2 bolts on the lower side of the front shock absorber.

(f) Remove the front shock absorber with coil spring.

NOTICE:

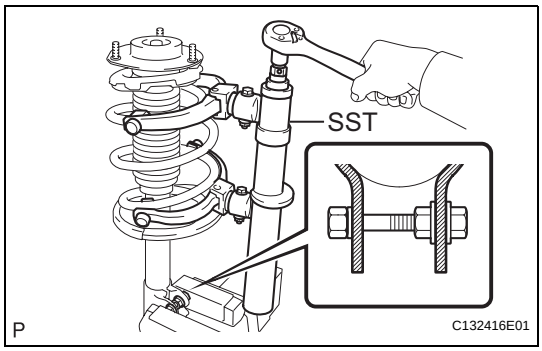
Make sure that the front speed sensor is disconnected from the front shock absorber with coil spring.



DISASSEMBLY

1. FIX FRONT SHOCK ABSORBER WITH COIL SPRING

(a) As shown in the illustration, secure the front shock absorber with coil spring in a vise using aluminum plates by clamping onto a double nutted bolt affixed to the bracket at the bottom of the absorber.



2. REMOVE FRONT SHOCK ABSORBER

(a) Using SST, compress the front coil spring.

SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

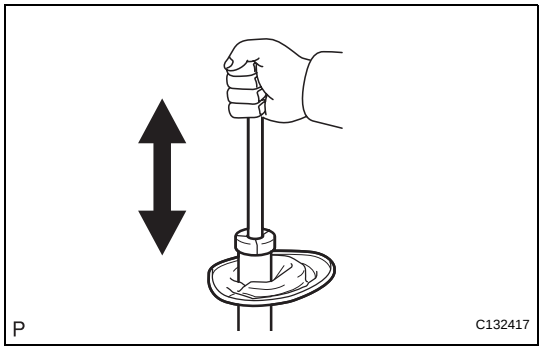
Do not use an impact wrench.

HINT:

If the front coil spring is compressed at an angle, using 2 SST will make the work easier.

(b) Remove the front suspension support sub-assembly, front suspension support bearing, front coil spring upper seat, front coil spring upper insulator, front coil spring, front spring bumper, and front coil spring lower insulator from the front shock absorber.

SP



INSPECTION

1. INSPECT FRONT SHOCK ABSORBER

(a) Compress and extend the shock absorber rod 4 or more times.

Standard:

There is no abnormal resistance or sound and operation resistance is normal.

HINT:

If there is any abnormality, replace the front shock absorber with a new one.

REASSEMBLY

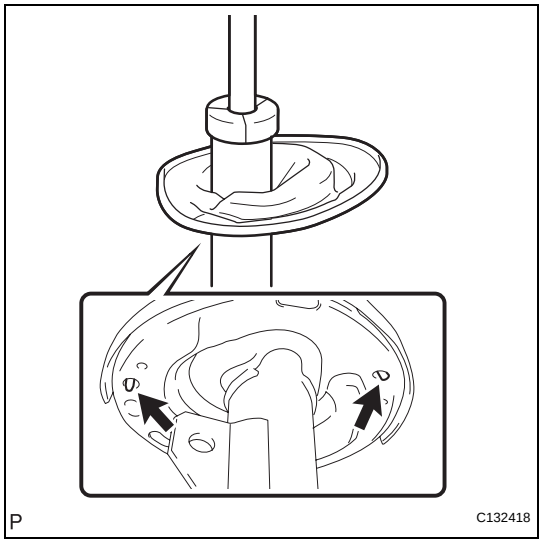
1. INSTALL FRONT SHOCK ABSORBER

(a) Install the front spring bumper to the piston rod.

(b) Install the front coil spring lower insulator onto the front shock absorber.

NOTICE:

Align the 2 protrusions of the front coil spring lower insulator and the 2 holes in the front shock absorber.



(c) Using SST, compress the front coil spring.

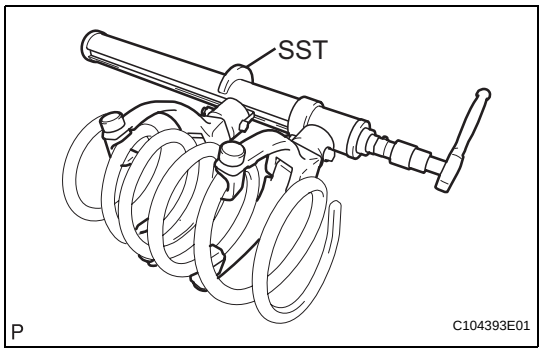
SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench.

HINT:

If the front coil spring is compressed at an angle, using 2 SST will make the work easier.



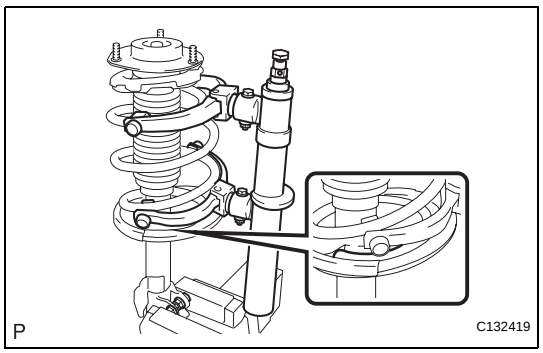
(d) Install the front coil spring to the front shock absorber.

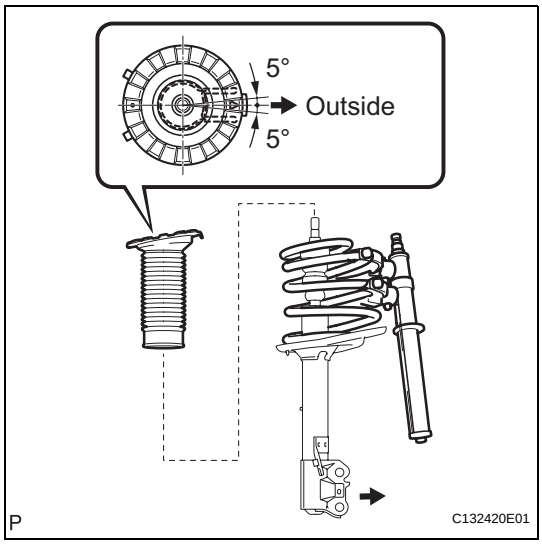
NOTICE:

The smaller diameter end of the front coil spring must face upward.

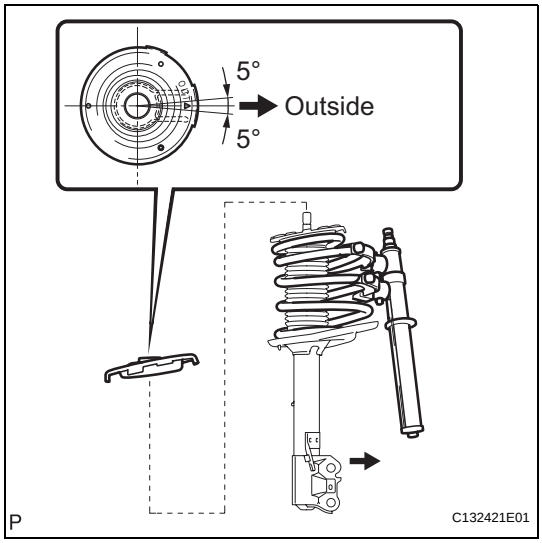
HINT:

Fit the lower end of the front coil spring into the gap of the insulator.

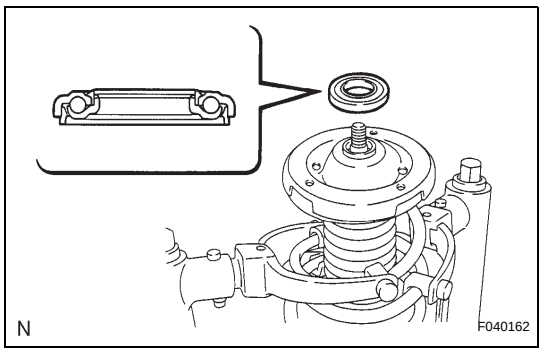




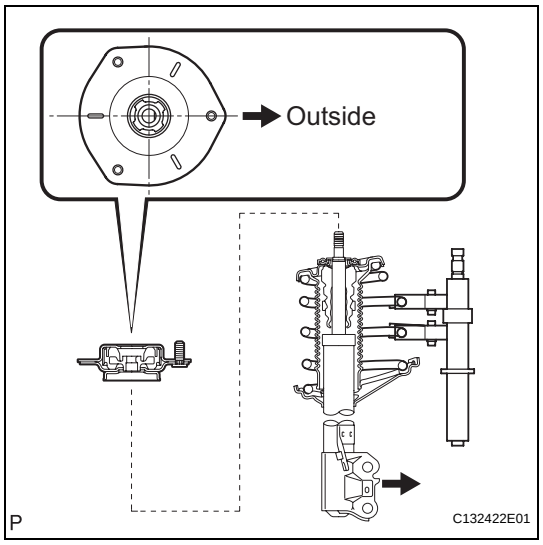
(e) Install the front coil spring upper insulator as shown in the illustration.
HINT:
Any misalignment between the front shock absorber lower bracket and the matchmark must be +-5°.



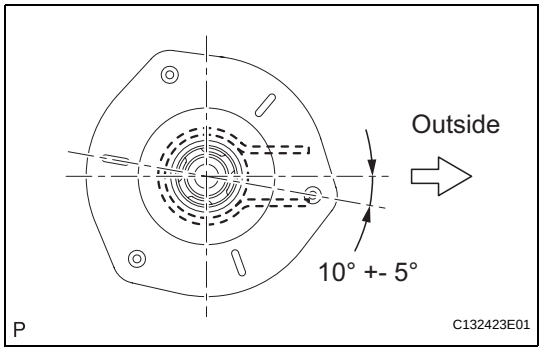
(f) Install the front coil spring upper seat with the mark facing to the outside of the vehicle.
HINT:
Any misalignment between the front shock absorber lower bracket and the matchmark must be +-5°.



(g) Install a new front suspension support bearing as shown in the illustration.
HINT:
If there is foreign matter inside the front suspension support bearing, replace it with a new one.



(h) Install the front suspension support sub-assembly. Temporarily tighten a new lock nut.
NOTICE:
Check that the flats on the piston rod and the flats on the front suspension support sub-assembly are aligned.



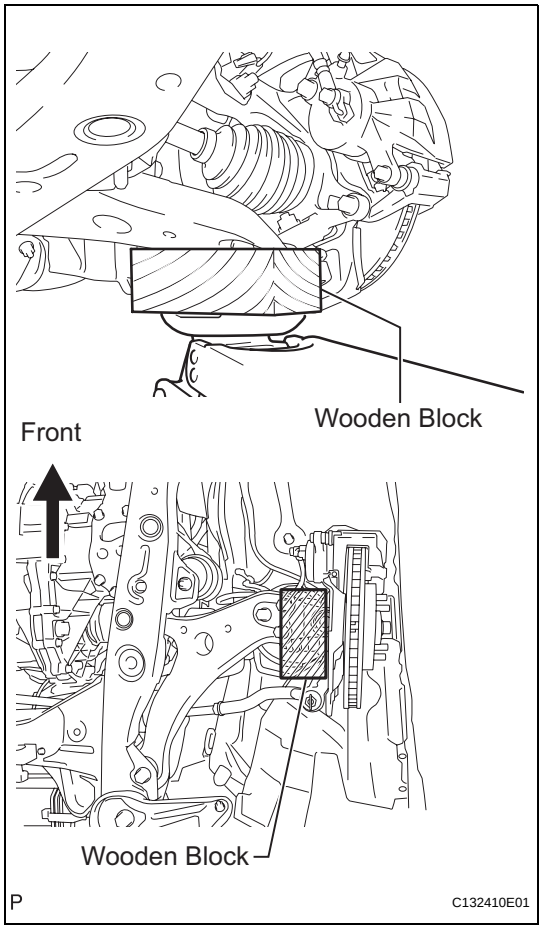
(i) Remove the SST slowly in order to release the coil spring.
NOTICE:
Do not use an impact wrench.
HINT:
Any misalignment between the front shock absorber lower bracket and the arrows must be +-5°.

INSTALLATION

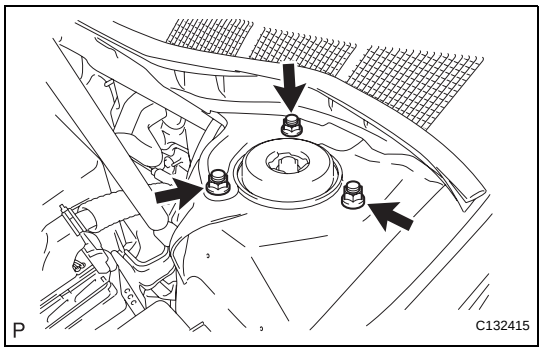
1. INSTALL FRONT SHOCK ABSORBER WITH COIL SPRING

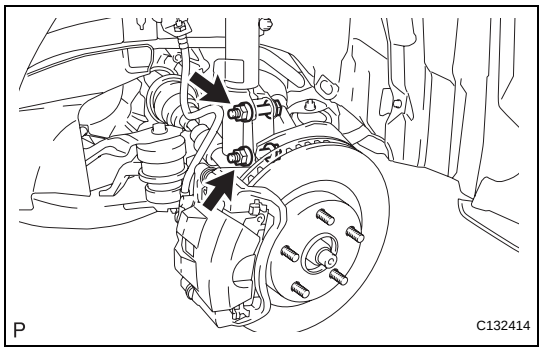
(a) Install the front shock absorber with coil spring to the front axle assembly and insert the 2 bolts from the front side of the vehicle.

(b) Slowly jack up the vehicle using a wooden block and install the front shock absorber with coil spring (upper side) to the vehicle.

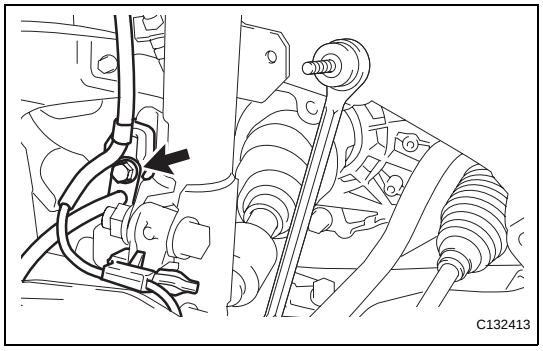


(c) Install the 3 nuts to the upper side of the front shock absorber with coil spring.
Torque: 85 N*m (867 kgf*cm, 63 ft.*lbf)

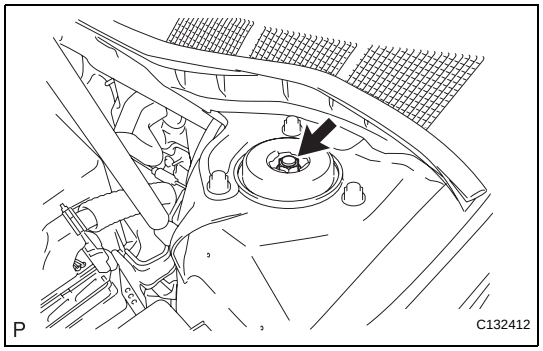




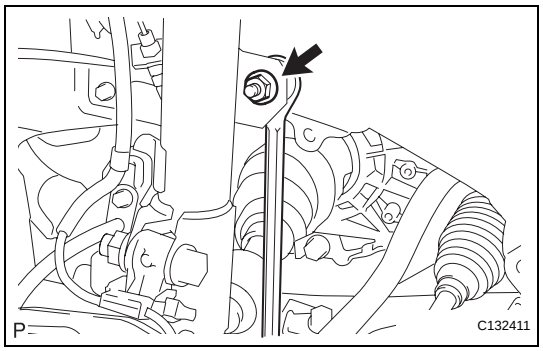
(d) Install the 2 nuts to the lower side of the front shock absorber with coil spring.
Torque: 210 N*m (2,140 kgf*cm, 155 ft.*lbf)
NOTICE:
When installing the nuts, keep the bolts from rotating.



(e) Install the front flexible hose and front speed sensor wire harness with the bolt.
Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)
NOTICE:
Do not twist the front speed sensor wire harness when installing it.



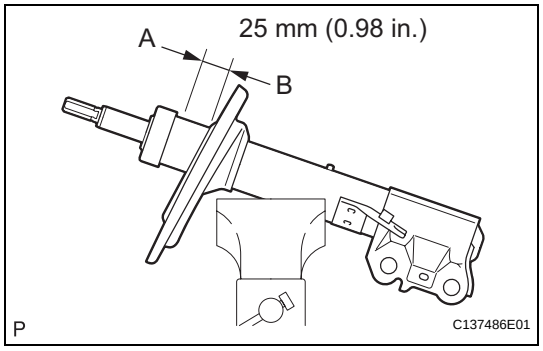
(f) Fully tighten the lock nut.
Torque: 70 N*m (714 kgf*cm, 52 ft.*lbf)



2. INSTALL FRONT STABILIZER LINK ASSEMBLY
(a) Install the front stabilizer link assembly with the nut.
Torque: 74 N*m (755 kgf*cm, 55 ft.*lbf)
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

3. INSTALL FRONT WHEEL
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

4. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT
(See page SP-4)



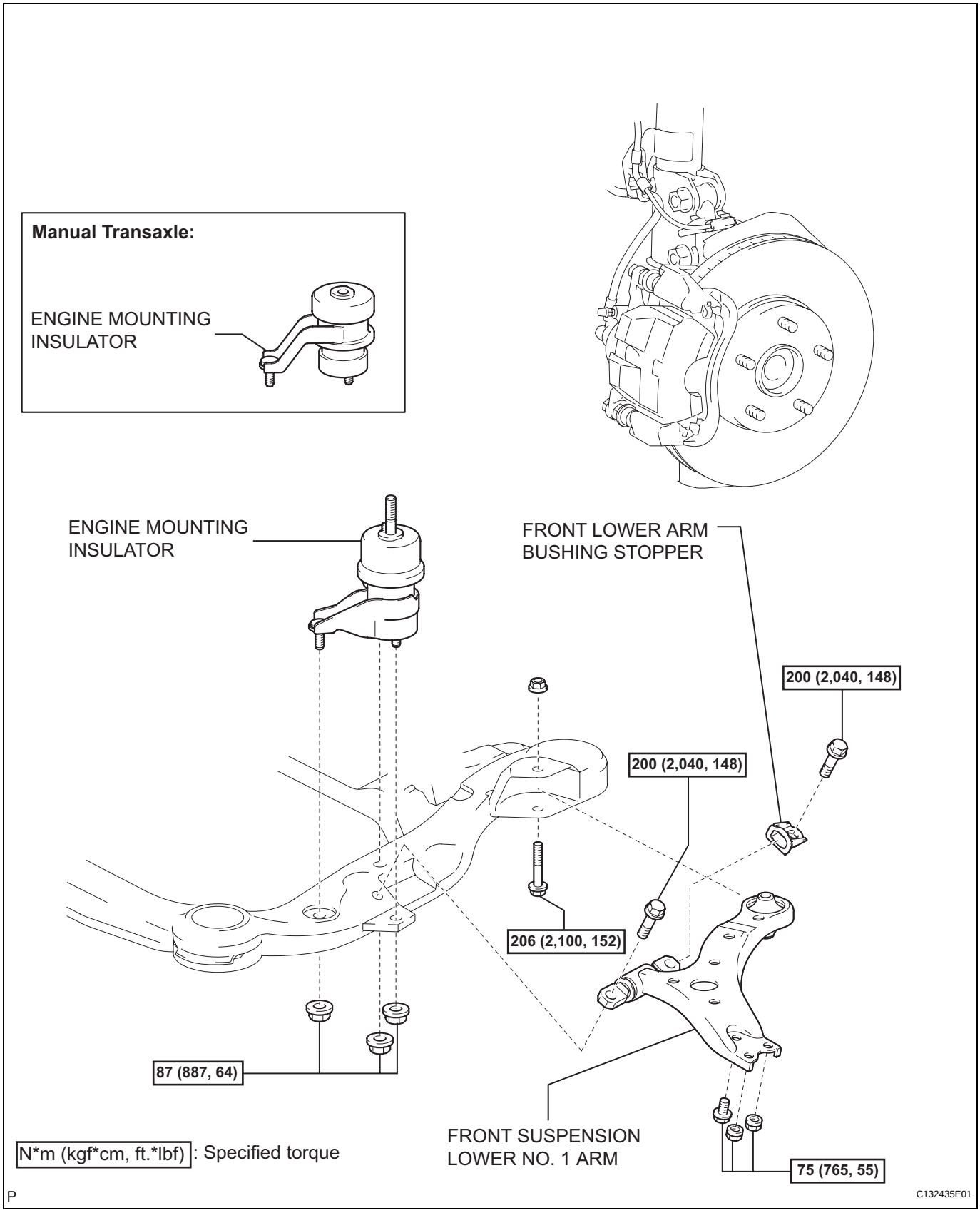
DISPOSAL

1. DISPOSE OF FRONT SHOCK ABSORBER
(a) Fully extend the shock absorber rod.
(b) Using a drill, make a hole in the cylinder between A and B as shown in the illustration to discharge the gas inside.
CAUTION:
- **Be careful when drilling because shards of metal may fly about. Always use the proper safety equipment.**

- **The gas is colorless, odorless and non-poisonous.**

FRONT SUSPENSION LOWER NO. 1 ARM

COMPONENTS



REMOVAL

HINT:

- Use the same procedures for the RH side and the LH side.
- The procedures listed below are for the LH side.

1. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE

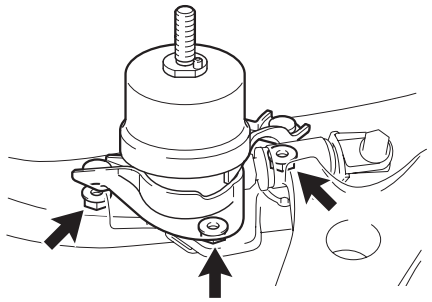
HINT:

Refer to the instructions for installation of the engine assembly (See page EM-94 for 2AZ-FE, EM-23 for 2GR-FE).

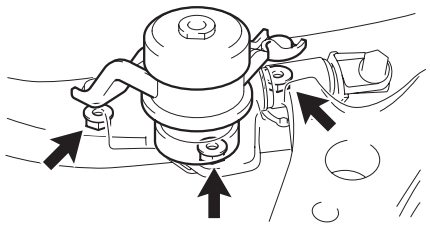
2. REMOVE ENGINE MOUNTING INSULATOR

(a) Remove the 3 nuts and the engine mounting insulator.

Automatic Transaxle:



Manual Transaxle:



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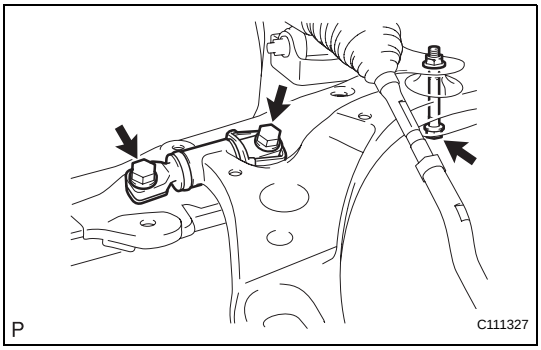


P C111327

3. REMOVE FRONT SUSPENSION LOWER NO. 1 ARM

(a) Remove the 3 bolts and the nut on the front suspension lower No. 1 arm and remove it from the front frame assembly.

(b) Remove the front lower arm bushing stopper.

INSTALLATION

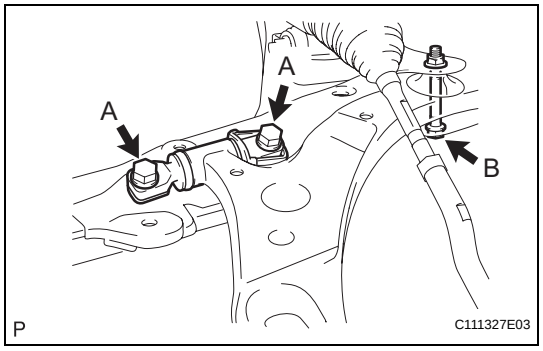
1. INSTALL FRONT SUSPENSION LOWER NO. 1 ARM

(a) Install the front lower arm bushing stopper.

(b) Install the front suspension lower No. 1 arm to the front frame assembly with the 3 bolts and the nut, but do not tighten them yet.

(c) Tighten the 3 bolts in numerical order shown in the illustration.

Torque: 200 N*m (2,040 kgf*cm, 148 ft.*lbf) (bolt A)
206 N*m (2,100 kgf*cm, 152 ft.*lbf) (bolt B)



2. INSTALL ENGINE MOUNTING INSULATOR

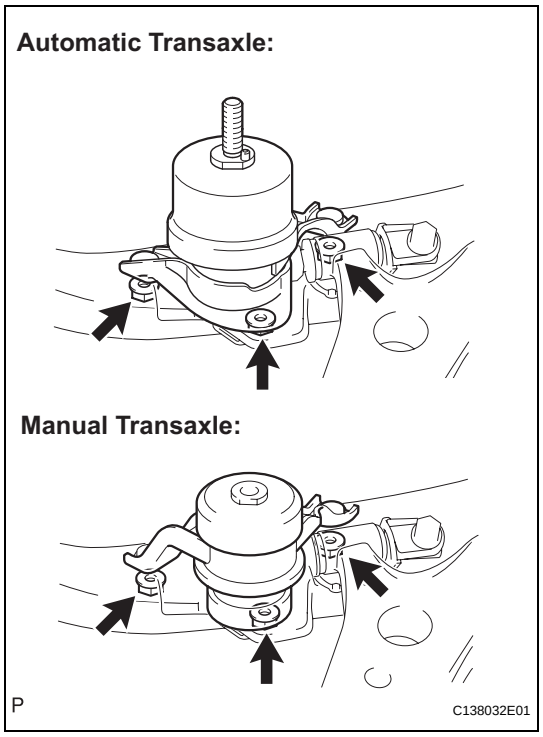
(a) Install the engine mounting insulator with the 3 nuts.

Torque: 87 N*m (887 kgf*cm, 64 ft.*lbf)

3. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE

HINT:

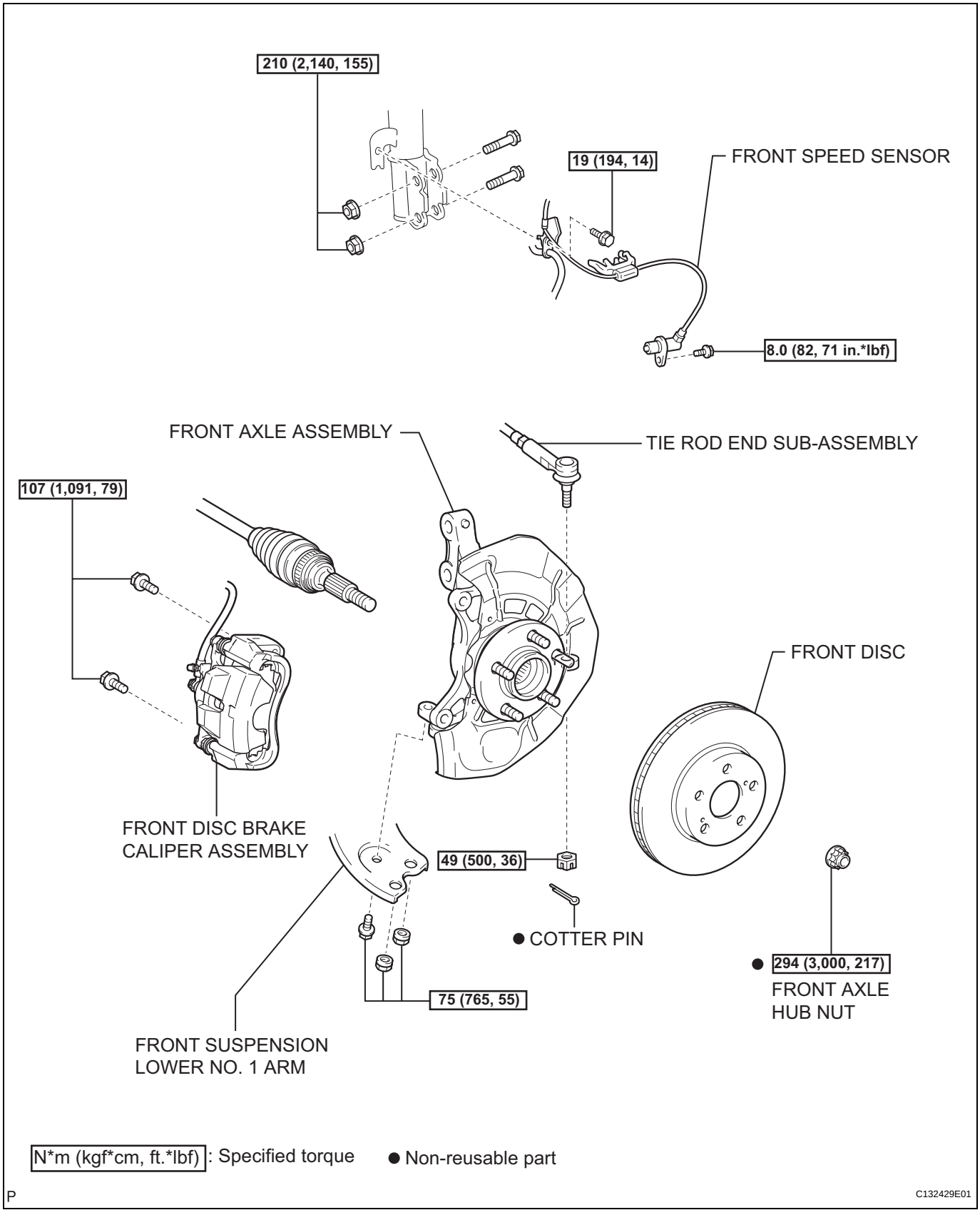
Refer to the instructions for removal of the engine assembly (See page EM-107 for 2AZ-FE, EM-37 for 2GR-FE).

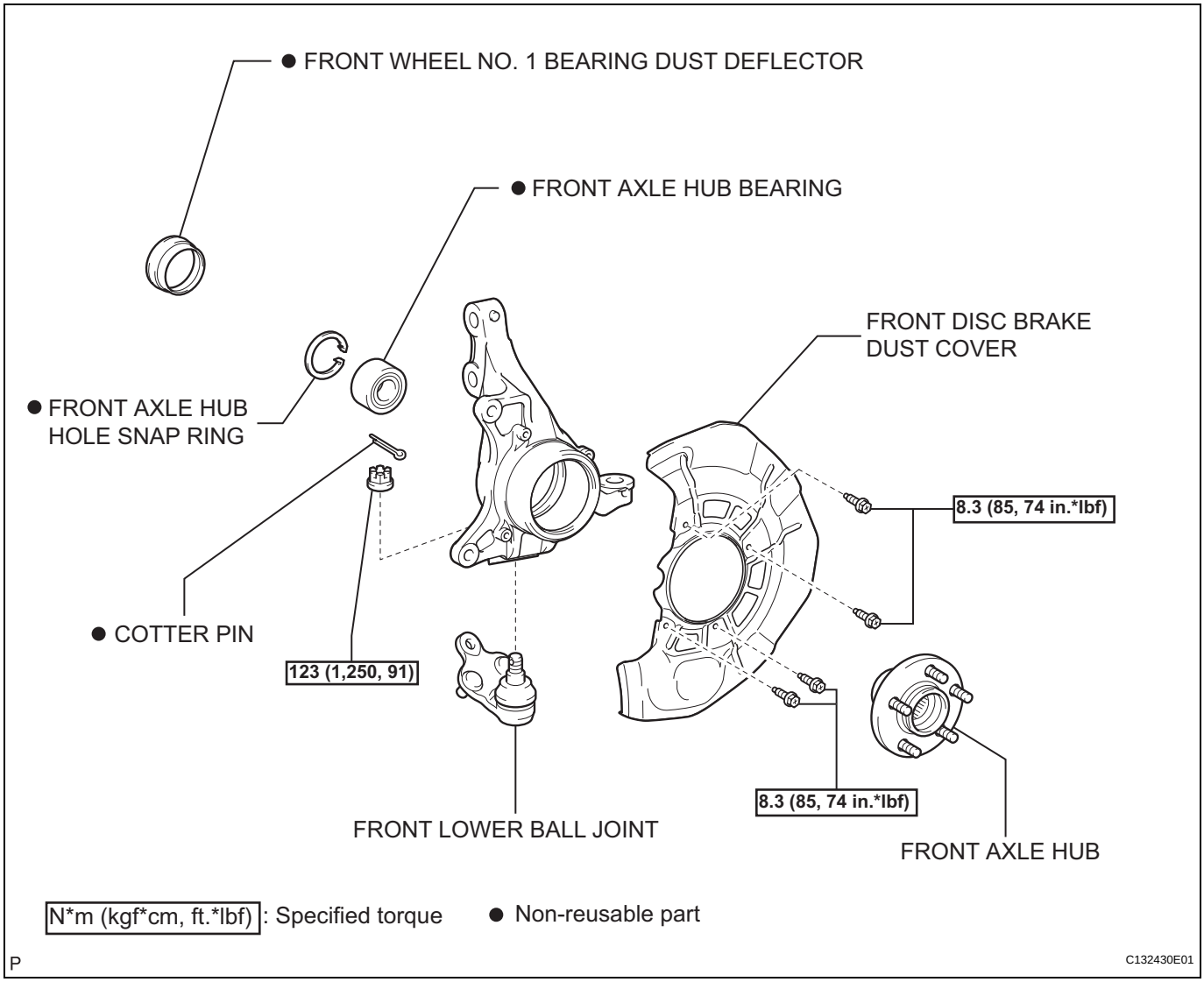


SP

FRONT LOWER BALL JOINT

COMPONENTS




● FRONT WHEEL NO. 1 BEARING DUST DEFLECTOR
● FRONT AXLE HUB BEARING
FRONT DISC BRAKE DUST COVER
● FRONT AXLE HUB HOLE SNAP RING
8.3 (85, 74 in.*lbf)
● COTTER PIN
123 (1,250, 91)
8.3 (85, 74 in.*lbf)
FRONT LOWER BALL JOINT
FRONT AXLE HUB
N*m (kgf*cm, ft.*lbf): Specified torque
● Non-reusable part
P
C132430E01

SP

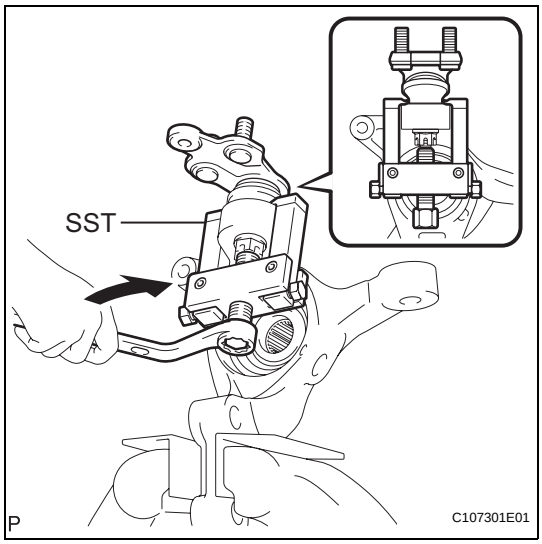
SP

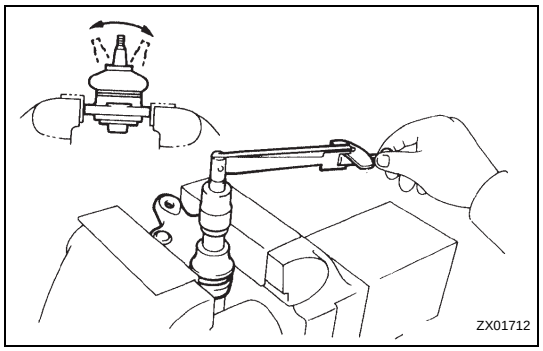
REMOVAL

HINT:

- Use the same procedures for the RH side and the LH side.
- The procedures listed below are for the LH side.

1. **REMOVE FRONT WHEEL**
2. **REMOVE FRONT AXLE HUB NUT (See page DS-7)**
3. **SEPARATE FRONT SPEED SENSOR (See page DS-7)**
4. **SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY (See page AH-6)**
5. **REMOVE FRONT DISC (See page BR-49)**
6. **SEPARATE TIE ROD END SUB-ASSEMBLY (See page DS-8)**
7. **SEPARATE FRONT SUSPENSION LOWER NO. 1 ARM (See page DS-8)**
8. **REMOVE FRONT AXLE ASSEMBLY (See page DS-8)**
9. **REMOVE FRONT WHEEL NO. 1 BEARING DUST DEFLECTOR (See page AH-7)**
10. **REMOVE FRONT AXLE HUB HOLE SNAP RING (See page AH-7)**
11. **REMOVE FRONT AXLE HUB (See page AH-7)**
12. **REMOVE FRONT DISC BRAKE DUST COVER (See page AH-8)**
13. **REMOVE FRONT AXLE HUB BEARING (See page AH-8)**
14. **REMOVE FRONT LOWER BALL JOINT**
    (a) Secure the steering knuckle in a vise using aluminum plates.
    (b) Remove the cotter pin and nut.
    (c) Using SST, remove the front lower ball joint.
    SST 09628-62011
    NOTICE:
    - **Do not damage the dust cover of the ball joint.**
    - **Do not damage the steering knuckle.**





INSPECTION

1. INSPECT FRONT LOWER BALL JOINT

(a) Inspect the turning of the ball joint.

(1) Secure the front lower ball joint assembly in a vise using aluminum plates.

(2) Install the nut to the front lower ball joint assembly stud.

(3) Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Torque: 1.0 to 3.4 N*m (10 to 35 kgf*cm, 9 to 30 in.*lbf)

HINT:

If the turning torque is not within the specified range, replace the front lower ball joint assembly with a new one.

(b) Inspect the dust cover.

(1) Check that the dust cover is not cracked and that there is no grease on it.

SP

INSTALLATION

1. **INSTALL FRONT LOWER BALL JOINT**
   (a) Install the front lower ball joint to the steering knuckle with the nut.
   Torque: 123 N*m (1,250 kgf*cm, 91 ft.*lbf)
   NOTICE:
   Prevent oil from adhering to the screw and tapered parts.
   (b) Install a new cotter pin.
   NOTICE:
   If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.
2. **INSTALL FRONT AXLE HUB BEARING (See page AH-9)**
3. **INSTALL FRONT DISC BRAKE DUST COVER (See page AH-9)**
4. **INSTALL FRONT AXLE HUB (See page AH-9)**
5. **INSTALL FRONT AXLE HUB HOLE SNAP RING (See page AH-9)**
6. **INSTALL FRONT WHEEL NO. 1 BEARING DUST DEFLECTOR (See page AH-10)**
7. **INSTALL FRONT AXLE ASSEMBLY (See page DS-21)**
8. **INSTALL FRONT SUSPENSION LOWER NO. 1 ARM (See page DS-21)**
9. **CONNECT TIE ROD END SUB-ASSEMBLY (See page DS-21)**
10. **INSTALL FRONT DISC (See page BR-51)**
11. **INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY (See page AH-10)**
12. **INSTALL FRONT SPEED SENSOR (See page DS-21)**
13. **INSTALL FRONT AXLE HUB NUT (See page AH-11)**
14. **SEPARATE FRONT DISC BRAKE CALIPER ASSEMBLY (See page AH-11)**
15. **REMOVE FRONT DISC (See page BR-49)**
16. **INSPECT FRONT AXLE HUB BEARING LOOSENESS (See page AH-5)**
17. **INSPECT FRONT AXLE HUB RUNOUT (See page AH-6)**
18. **INSTALL FRONT DISC (See page BR-51)**
19. **INSTALL FRONT DISC BRAKE CALIPER ASSEMBLY (See page AH-10)**
20. **INSTALL FRONT AXLE HUB NUT (See page AH-11)**
21. **CHECK ABS SPEED SENSOR SIGNAL**
    HINT:
    - ABS: See page BC-11

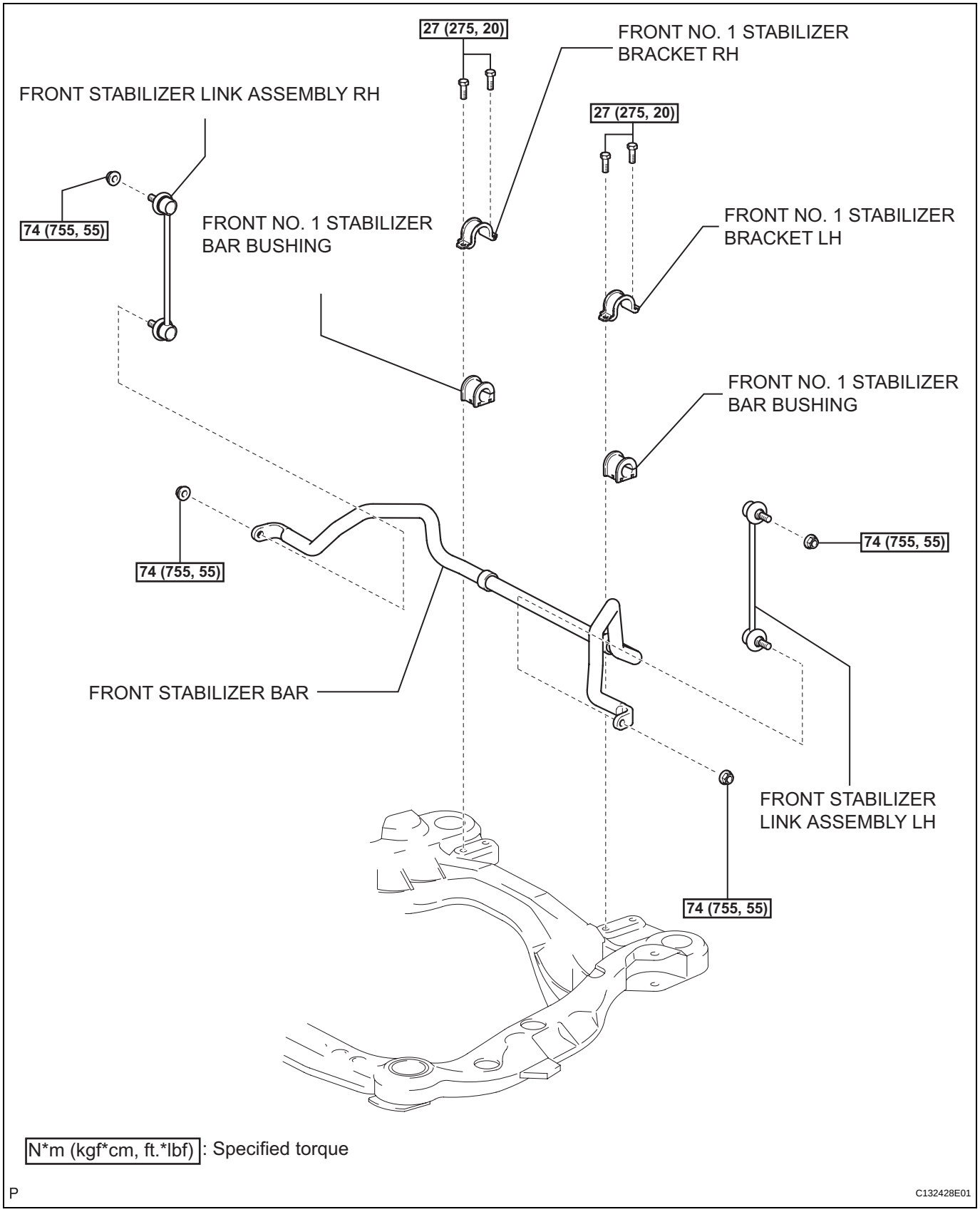
- VSC (for BOSCH): See page BC-290
- VSC (for ADVICS): See page BC-123

22. **INSTALL FRONT WHEEL**
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

23. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**
(See page SP-4)

FRONT STABILIZER BAR

COMPONENTS



SP

N*m (kgf*cm, ft.*lbf): Specified torque

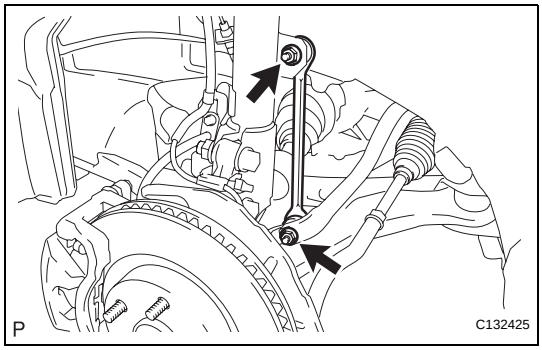
P

C132428E01

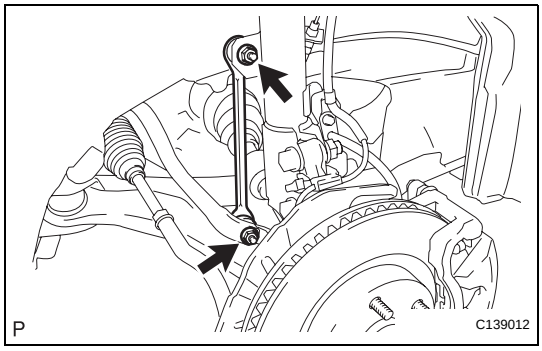
SP

REMOVAL

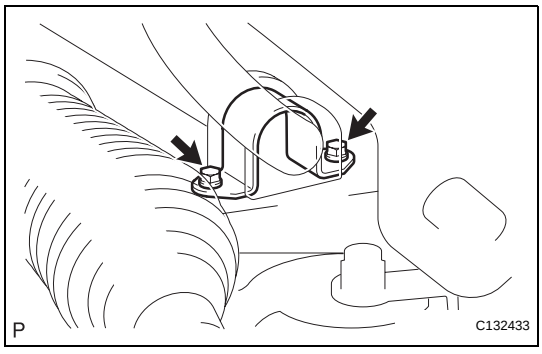
1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **PLACE FRONT WHEELS FACING STRAIGHT AHEAD**
3. **REMOVE FRONT WHEELS**
4. **SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-42)**
5. **SEPARATE TIE ROD END SUB-ASSEMBLY (See page PS-40)**
6. **REMOVE FRONT STABILIZER LINK ASSEMBLY LH**
   (a) Remove the 2 nuts and the front stabilizer link assembly LH.
   HINT:
   If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.

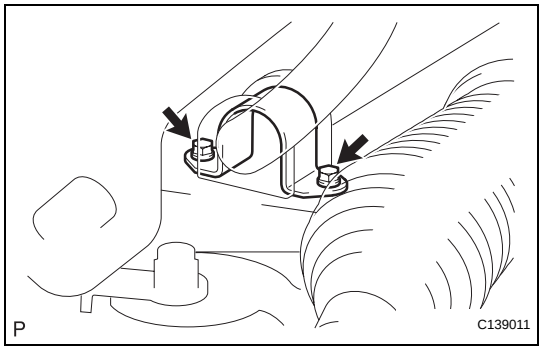


7. **REMOVE FRONT STABILIZER LINK ASSEMBLY RH**
   (a) Remove the 2 nuts and the front stabilizer link assembly RH.
   HINT:
   If the ball joint turns together with the nut, use a hexagon wrench (6 mm) to hold the stud.



8. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE**
   HINT:
   Refer to the instructions for removal of the engine assembly (See page EM-100 for 2AZ-FE, EM-29 for 2GR-FE).
9. **REMOVE FRONT NO. 1 STABILIZER BRACKET LH**
   (a) Remove the 2 bolts and the front No. 1 stabilizer bracket LH from the front frame assembly.





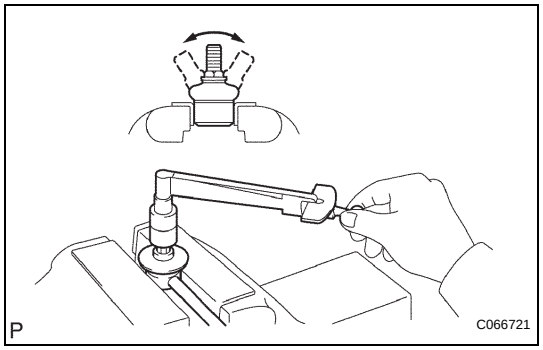
10. REMOVE FRONT NO. 1 STABILIZER BRACKET RH

(a) Remove the 2 bolts and the front No. 1 stabilizer bracket RH from the front frame assembly.

11. REMOVE FRONT NO. 1 STABILIZER BAR BUSHING

(a) Remove the 2 front No. 1 stabilizer bar bushings from the front stabilizer bar.

12. REMOVE FRONT STABILIZER BAR



INSPECTION

1. INSPECT FRONT STABILIZER LINK ASSEMBLY

(a) Inspect the turning of the ball joint.

(1) Secure the front stabilizer link assembly in a vise using aluminum plates.

(2) Install the nut to the front stabilizer link assembly stud.

(3) Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

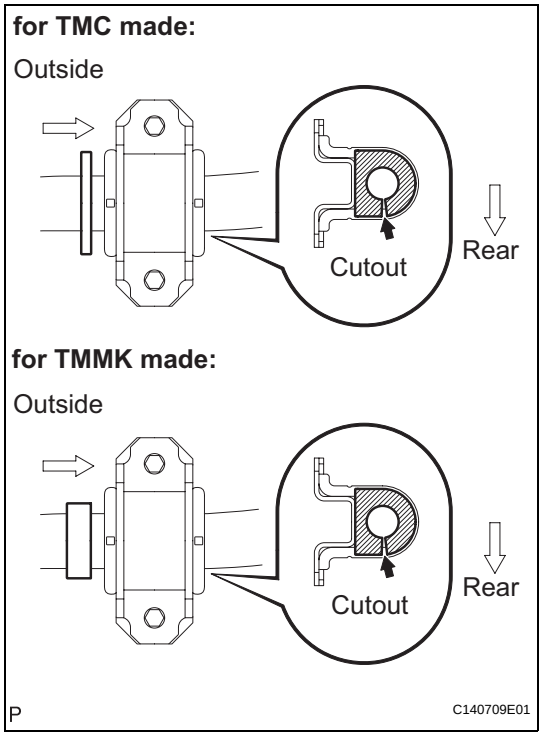
Torque: 0.05 to 2.0 N*m (0.5 to 20 kgf*cm, 0.4 to 18 in.*lbf)

HINT:

If the turning torque is not within the specified range, replace the front stabilizer link assembly with a new one.

(b) Inspect the dust cover.

(1) Check that the dust cover is not cracked and that there is no grease on it.



INSTALLATION

1. INSTALL FRONT NO. 1 STABILIZER BAR BUSHING

(a) Install the 2 front stabilizer bar bushings No. 1 to the outside of the bushing stopper on the front stabilizer bar.

NOTICE:

Make sure that the cutout of the front stabilizer bar bushing No. 1 faces the rear side as shown in the illustration.

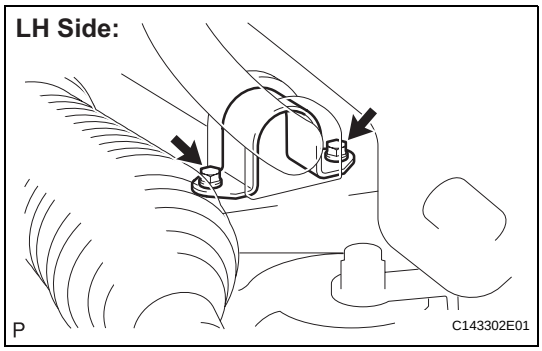
2. INSTALL FRONT NO. 1 STABILIZER BRACKET LH

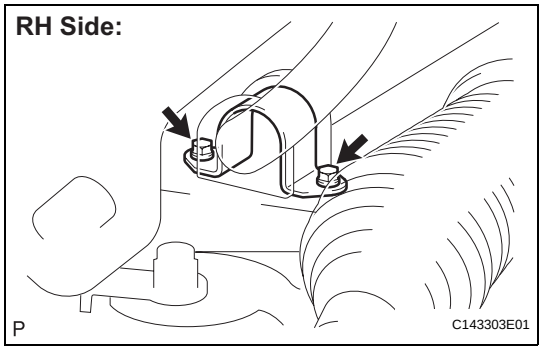
(a) Install the front No. 1 stabilizer bracket LH.

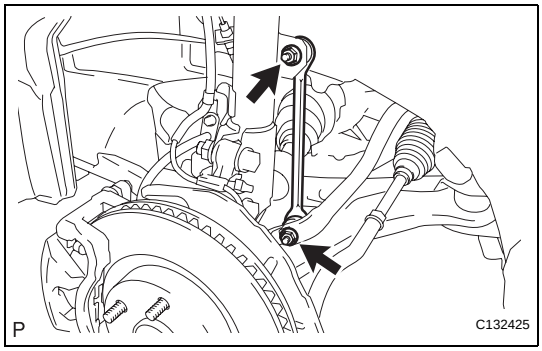
3. INSTALL FRONT NO. 1 STABILIZER BRACKET RH

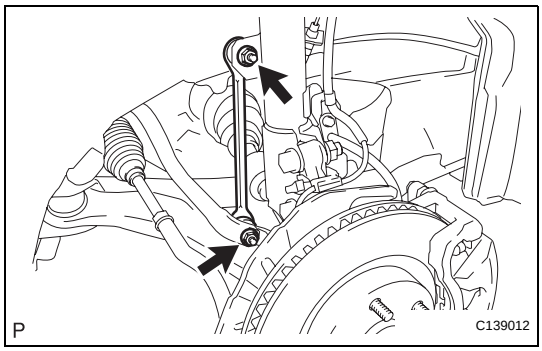
(a) Install the front No. 1 stabilizer bracket RH.

SP









4. **INSTALL FRONT STABILIZER BAR**
   (a) Install the front stabilizer bar with the 2 bolts. (LH Side)
   Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

   (b) Install the front stabilizer bar with the 2 bolts. (RH Side)
   Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

5. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE**
   HINT:
   Refer to the instructions for installation of the engine assembly (See page EM-107 for 2AZ-FE, EM-37 for 2GR-FE)

6. **INSTALL FRONT STABILIZER LINK ASSEMBLY LH**
   (a) Install the front stabilizer link assembly LH with the 2 nuts.
   Torque: 74 N*m (755 kgf*cm, 55 ft.*lbf)
   HINT:
   If the ball joint turns together with the nut, use a hexagon (6 mm) wrench to hold the stud.

7. **INSTALL FRONT STABILIZER LINK ASSEMBLY RH**
   (a) Install the front stabilizer link assembly RH with the 2 nuts.
   Torque: 74 N*m (755 kgf*cm, 55 ft.*lbf)
   HINT:
   If the ball joint turns together with the nut, use a hexagon (6 mm) wrench to hold the stud.

8. **CONNECT TIE ROD END SUB-ASSEMBLY (See page PS-64)**

9. **CONNECT STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-47)**

10. **PLACE FRONT WHEELS FACING STRAIGHT**

11. **INSTALL FRONT WHEELS**
    Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

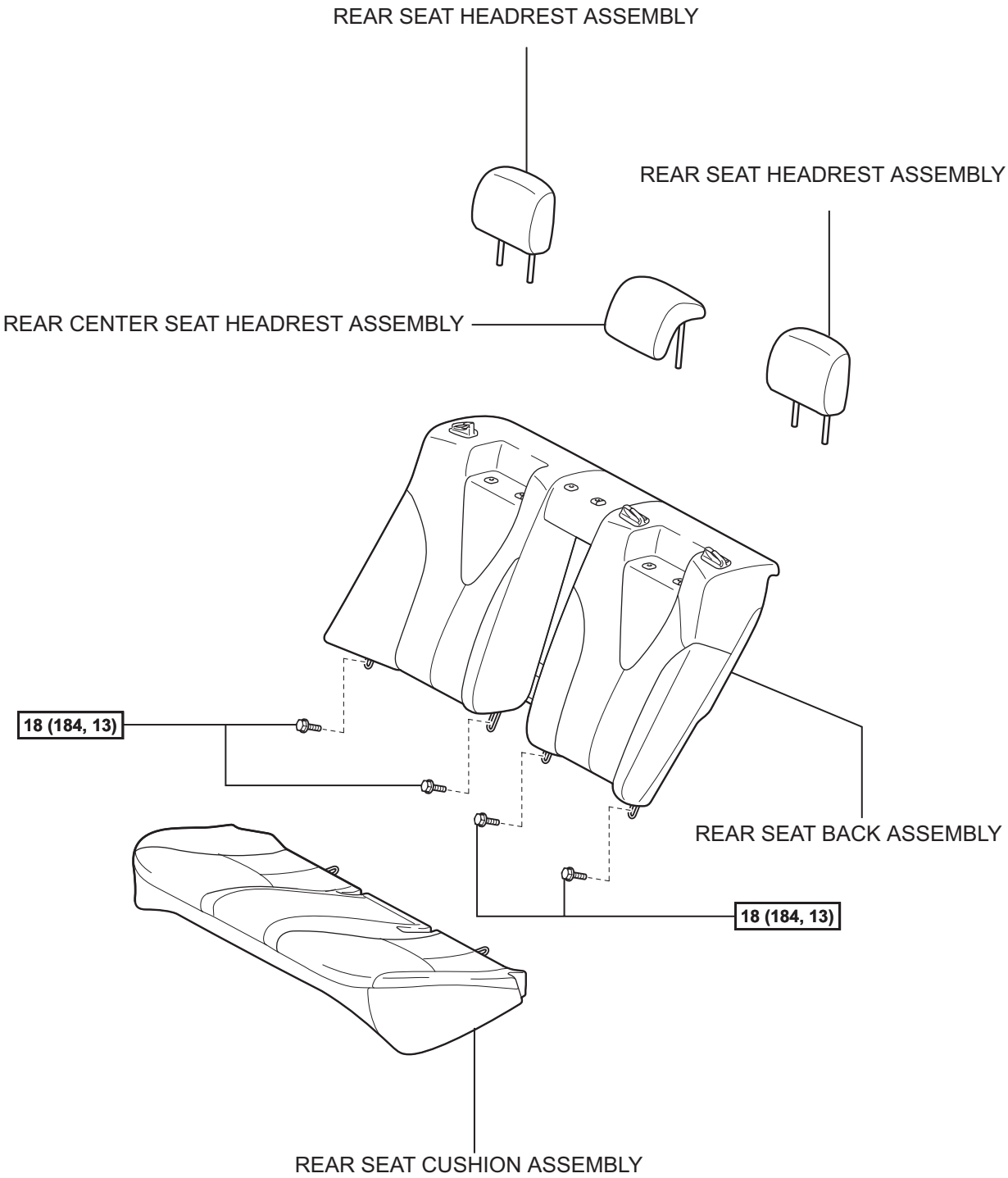
12. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

13. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT** (See page SP-4)

REAR SHOCK ABSORBER

COMPONENTS

for Fixed Type:



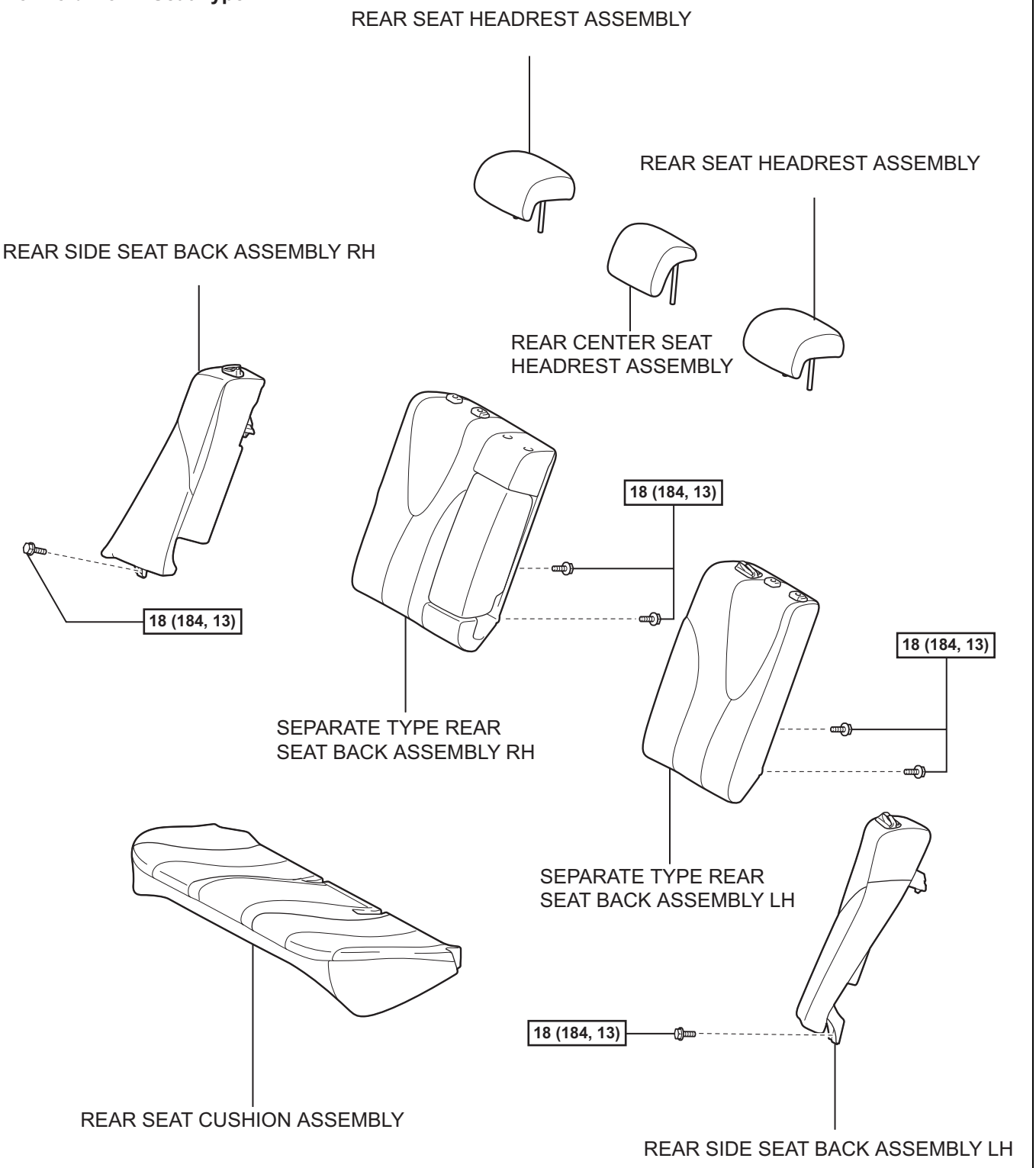
N*m (kgf*cm, ft.*lbf) : Specified torque

P

C138582E01

SP

for Fold Down Seat Type:

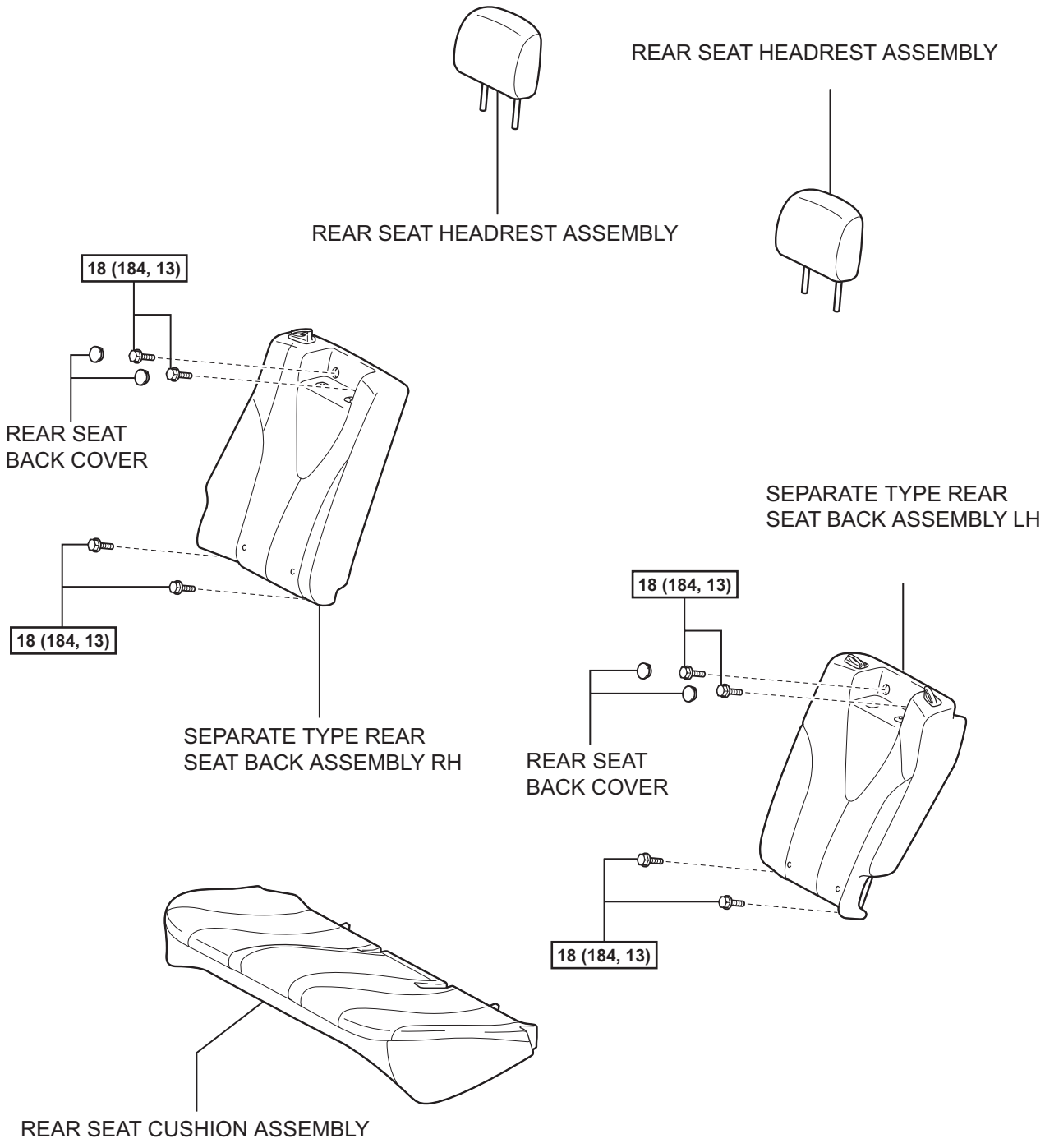


N*m (kgf*cm, ft.*lbf): Specified torque

P

C138583E01

for Reclining Seat Type:

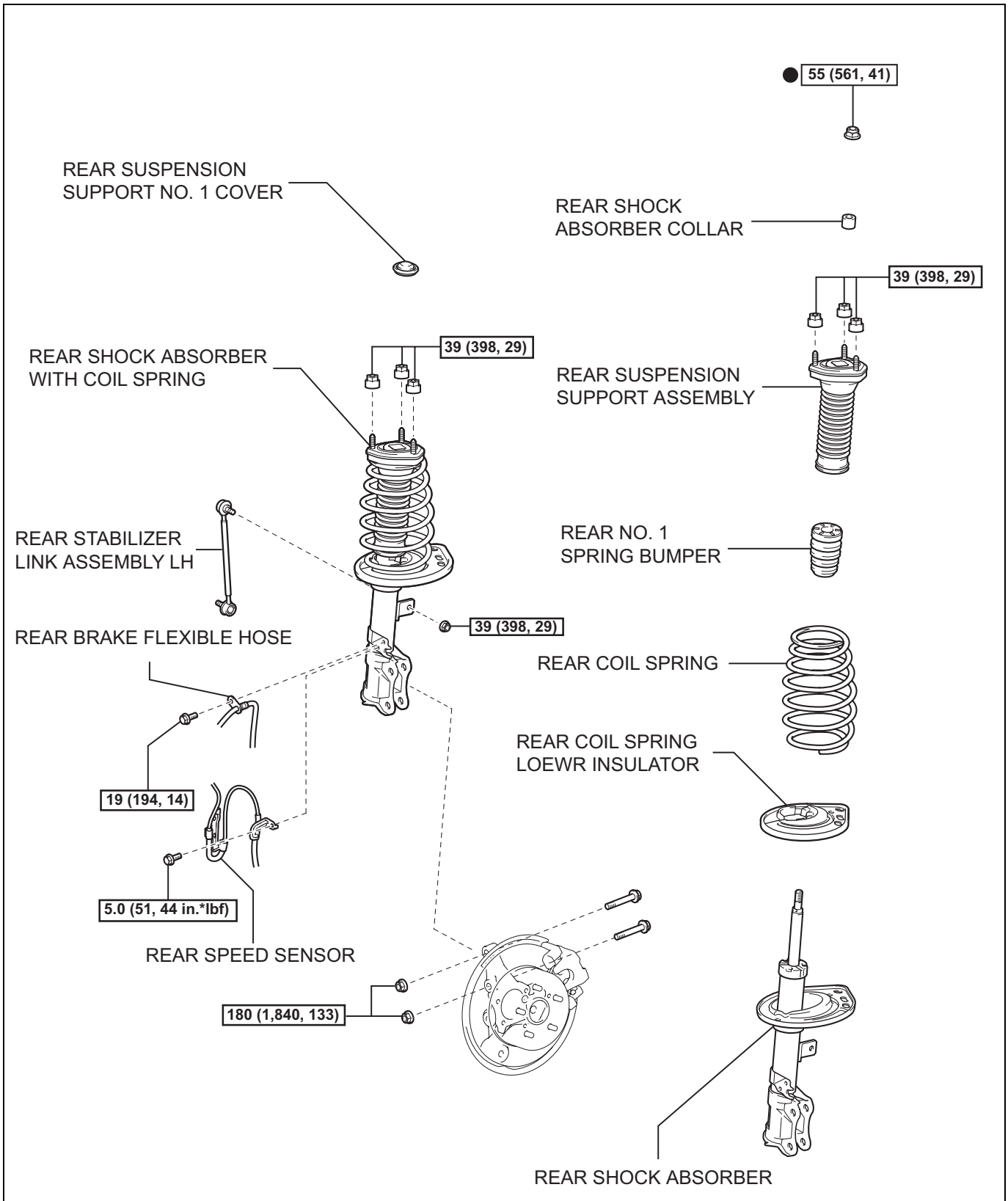


18 (184, 13): Specified torque

P

C138584E01

SP



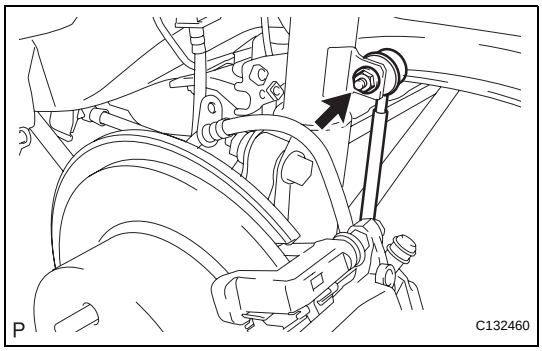
N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

P

C132485E02

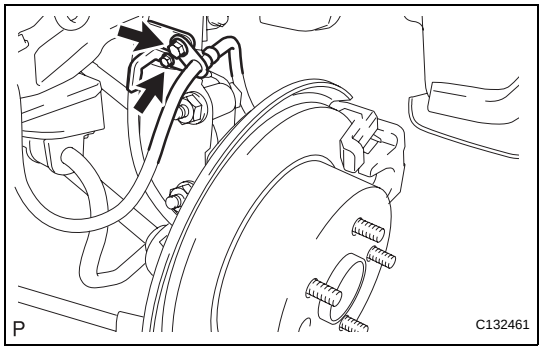
REMOVAL

1. REMOVE REAR SEAT CUSHION ASSEMBLY (for Fixed Type) (See page SE-77)
2. REMOVE REAR SEAT HEADREST ASSEMBLY (for Fixed Type)
3. REMOVE REAR CENTER SEAT HEADREST ASSEMBLY (for Fixed Type)
4. REMOVE REAR SEAT BACK ASSEMBLY (for Fixed Type) (See page SE-77)
5. REMOVE REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-47)
6. REMOVE REAR SEAT HEADREST ASSEMBLY (for Fold Down Seat Type)
7. REMOVE REAR CENTER SEAT HEADREST ASSEMBLY (for Fold Down Seat Type)
8. REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-47)
9. REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-47)
10. REMOVE REAR SIDE SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-48)
11. REMOVE REAR SIDE SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-48)
12. REMOVE REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-62)
13. REMOVE REAR SEAT HEADREST ASSEMBLY (for Reclining Seat Type)
14. REMOVE REAR SEAT BACK COVER (for Reclining Seat Type) (See page SE-63)
15. REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-63)
16. REMOVE SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Reclining Seat Type) (See page SE-64)
17. REMOVE REAR WHEEL



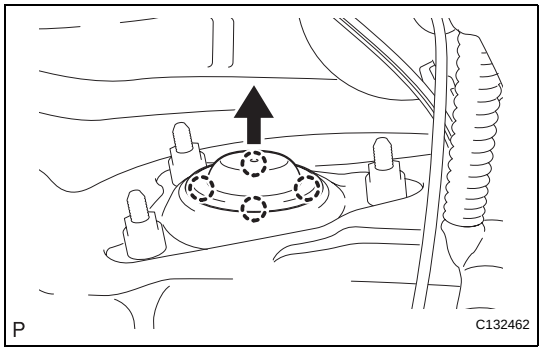
18. SEPARATE REAR STABILIZER LINK ASSEMBLY LH

(a) Remove the nut and separate the rear stabilizer link assembly from the front shock absorber LH.
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



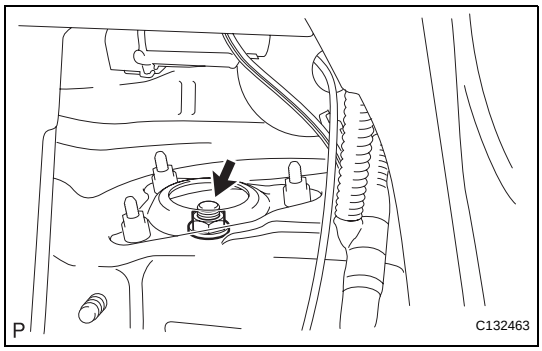
19. SEPARATE REAR SPEED SENSOR

(a) Remove the 2 bolts, and disconnect the rear brake flexible hose and rear speed sensor from the rear shock absorber with coil spring and rear axle carrier.
NOTICE:
Be sure to remove the rear speed sensor from the rear shock absorber with coil spring.



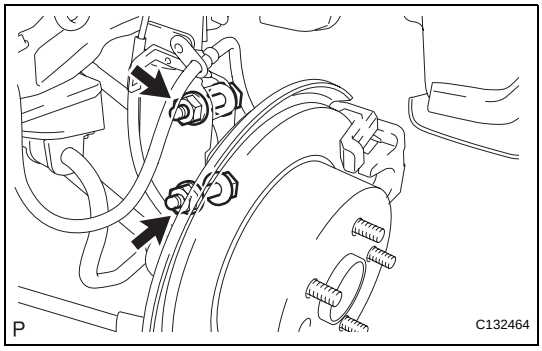
20. REMOVE REAR SUSPENSION SUPPORT NO. 1 COVER

(a) Remove the 4 claws and the rear suspension support No. 1 cover.

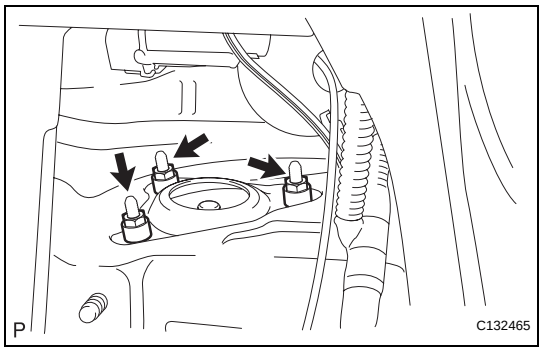


21. REMOVE REAR SHOCK ABSORBER WITH COIL SPRING

(a) Loosen the lock nut of the rear shock absorber with coil spring.
NOTICE:
- **Do not remove the lock nut.**
- **Only loosen the nut when disassembling the rear shock absorber with coil spring.**



(b) Remove the 2 nuts and 2 bolts on the lower side of the rear shock absorber with coil spring.
NOTICE:
- **When removing the nuts, keep the bolts from rotating.**
- **Keep one bolt inserted to secure the hub and disc rotor.**



(c) Remove the 3 nuts on the upper side of the rear shock absorber with coil spring.

(d) Lower the rear axle carrier, and remove the 2 bolts on the lower side of the rear shock absorber with coil spring.

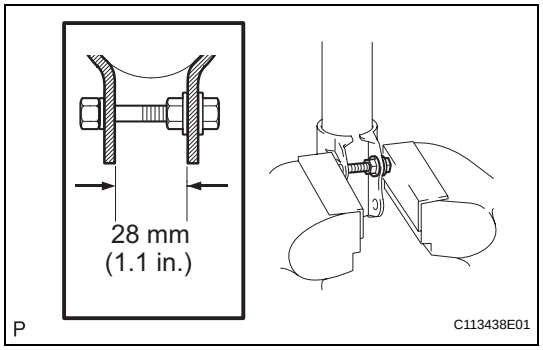
NOTICE:

Make sure that the rear speed sensor is disconnected from the rear shock absorber with coil spring.

DISASSEMBLY

1. FIX REAR SHOCK ABSORBER WITH COIL SPRING

(a) As shown in the illustration, secure the rear shock absorber with coil spring in a vise using aluminum plates by closing the vise onto the double nutted bolt affixed to the bracket at the bottom of the absorber.



2. REMOVE REAR SHOCK ABSORBER

(a) Using SST, compress the rear coil spring.

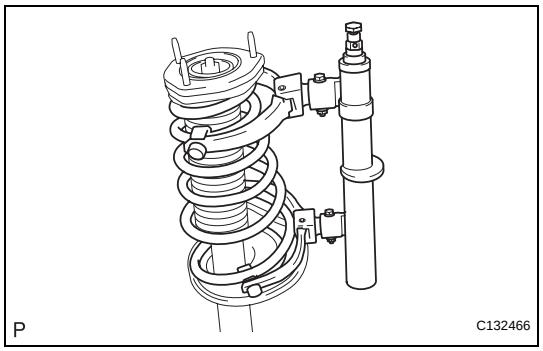
SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench.

HINT:

If the front coil spring is compressed at an angle, using 2 SST will make the work easier.



(b) Remove the nut, rear shock absorber collar and rear suspension support assembly.

(c) Remove the rear coil spring, rear No. 1 spring bumper, and rear coil spring lower insulator.

INSPECTION

1. INSPECT REAR SHOCK ABSORBER

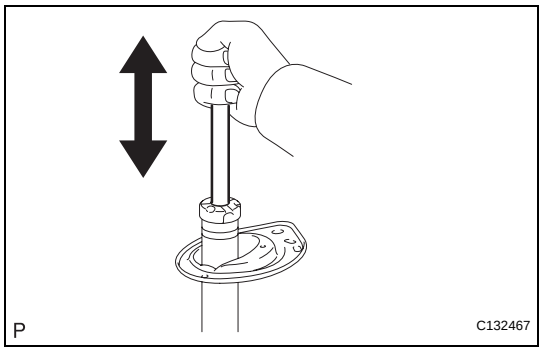
(a) Compress and extend the shock absorber rod 4 or more times.

Standard:

There is no abnormal resistance or sound and operation resistance is normal.

HINT:

If there is any abnormality, replace the rear shock absorber with a new one.

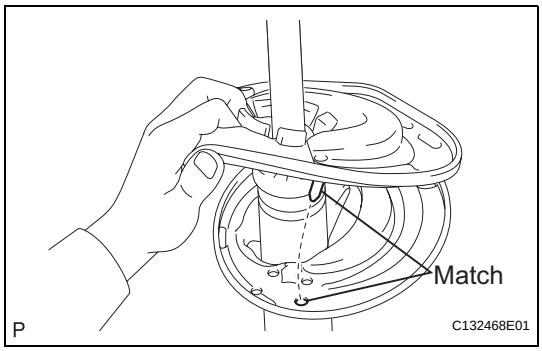


REASSEMBLY

1. INSTALL REAR SHOCK ABSORBER

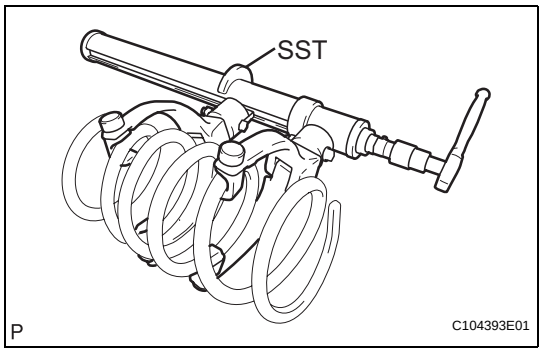
(a) Install the rear No. 1 spring bumper to the piston rod.

(b) Install the rear coil spring lower insulator onto the rear shock absorber.

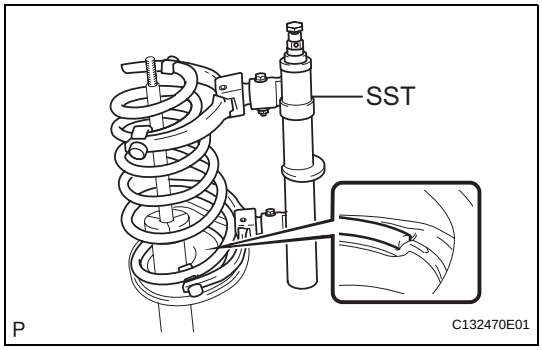


SP

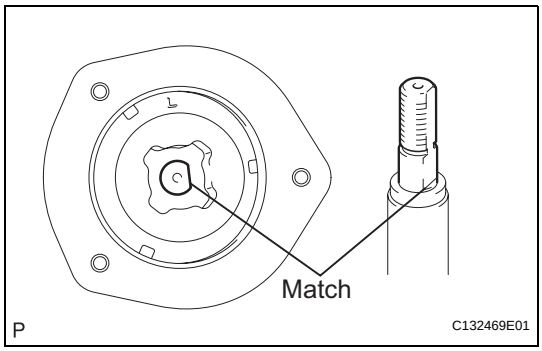
(c) Using SST, compress the rear coil spring.
SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)
NOTICE:
Do not use an impact wrench.

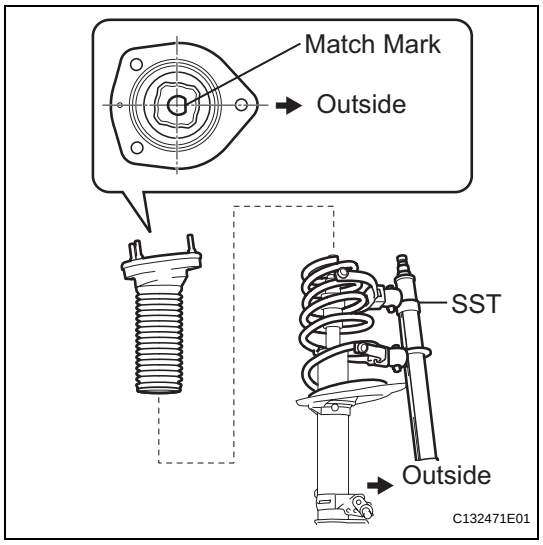


(d) Install the rear coil spring to the rear shock absorber.
NOTICE:
The smaller diameter end must face upward.
HINT:
- Fit the lower end of the rear coil spring into the gap of the lower seat.
- If the front coil spring is compressed at an angle, using 2 SST will make the work easier.

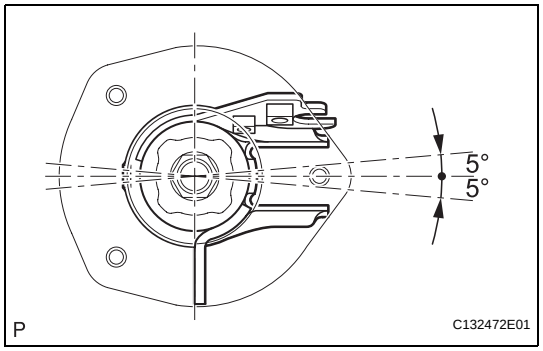


(e) Install the rear suspension support assembly.
NOTICE:
Align the notches of the piston rod and the rear suspension support assembly as shown in the illustration before installing the rear suspension support assembly.





(f) Align the notches of the shock absorber with the notch of the rear suspension support assembly so that the notches face the outside of the vehicle.
(g) Install the rear shock absorber collar.
(h) Loosely tighten a new lock nut to the rear suspension piston rod.



(i) Release the spring while adjusting the rear suspension support assembly to the position shown in the illustration, and remove the SST from the rear coil spring.
NOTICE:
Do not use an impact wrench.
HINT:
When lining up the rear suspension support assembly's stud bolts at the middle point between the two sides of the bracket, the maximum permissible degree of error is plus or minus 5°.

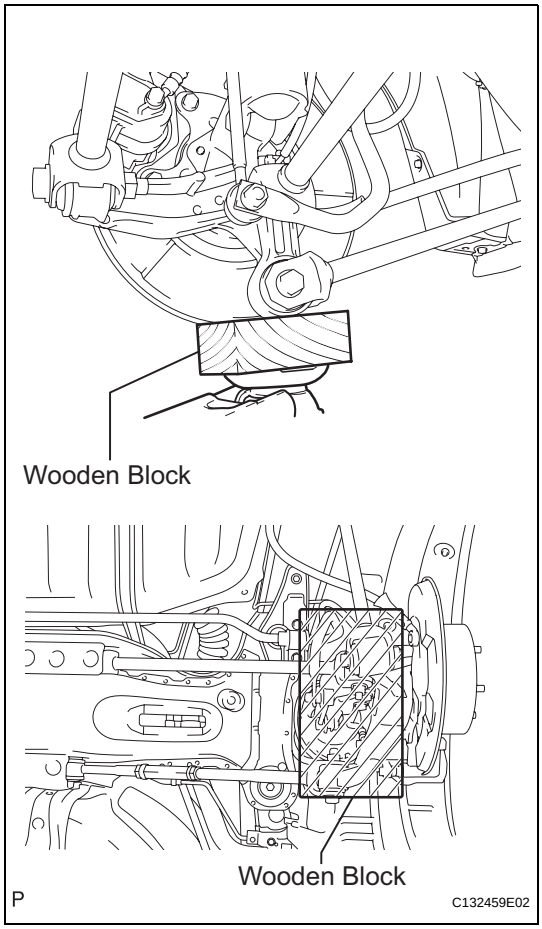
SP

INSTALLATION

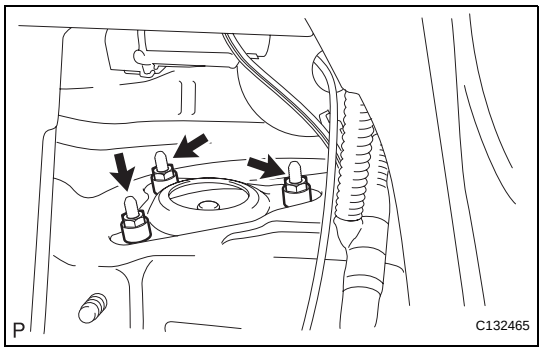
1. INSTALL REAR SHOCK ABSORBER WITH COIL SPRING

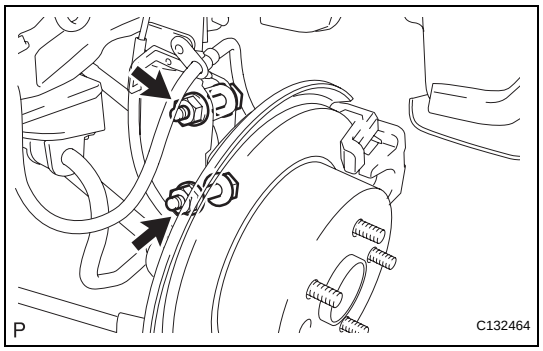
(a) Install the rear shock absorber with coil spring to the rear axle carrier assembly and insert the 2 bolts from the rear of the vehicle.

(b) Slowly jack up the vehicle using a wooden block and install the rear shock absorber with coil spring (upper side) to the vehicle.

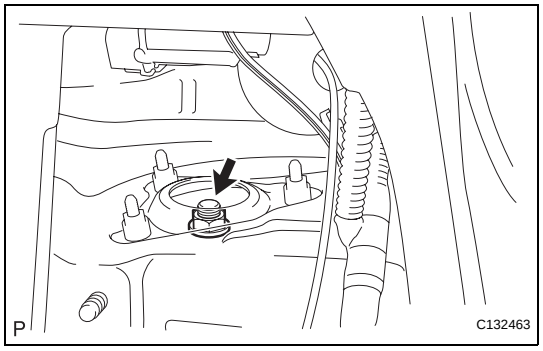


(c) Install the 3 nuts to the upper side of the rear shock absorber with coil spring.
Torque: 39 N*m (398 kgf*cm, 29 ft.*lbf)



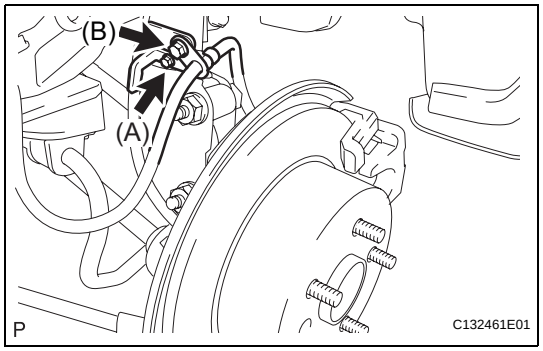


(d) Install the 2 nuts and 2 bolts to the lower side of the rear shock absorber with coil spring.
Torque: 180 N*m (1,840 kgf*cm, 133 ft.*lbf)
NOTICE:
When installing the nuts, keep the bolts from rotating.



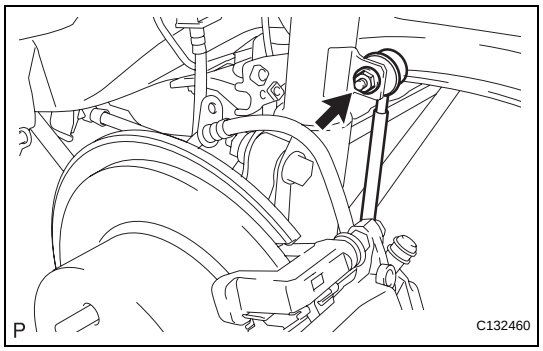
(e) Fully tighten the lock nut.
Torque: 55 N*m (561 kgf*cm, 41 ft.*lbf)

SP



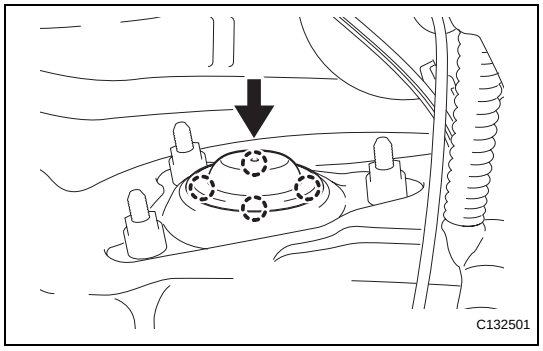
2. CONNECT REAR SPEED SENSOR

(a) Install the rear brake flexible hose and rear speed sensor wire harness with the 2 bolts.
Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf) (bolt A)
19 N*m (194 kgf*cm, 14 ft.*lbf) (bolt B)



3. INSTALL REAR STABILIZER LINK ASSEMBLY LH

(a) Install the rear stabilizer link assembly LH to the rear shock absorber with the nut.
Torque: 39 N*m (398 kgf*cm, 29 ft.*lbf)
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



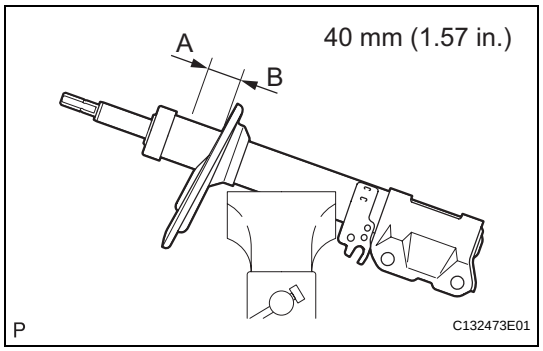
4. INSTALL REAR SUSPENSION SUPPORT NO. 1 COVER

(a) Engage the 4 claws and install the rear suspension support No. 1 cover.

5. INSTALL REAR WHEEL
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

6. INSTALL REAR SEAT BACK ASSEMBLY (for Fixed Type) (See page SE-84)

7. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fixed Type) (See page SE-84)**
8. **INSTALL REAR CENTER SEAT HEADREST ASSEMBLY (for Fixed Type)**
9. **INSTALL REAR SEAT HEADREST ASSEMBLY (for Fixed Type)**
10. **INSTALL REAR SIDE SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-57)**
11. **INSTALL REAR SIDE SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-57)**
12. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Fold Down Seat Type) (See page SE-57)**
13. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-57)**
14. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-58)**
15. **INSTALL REAR CENTER SEAT HEADREST ASSEMBLY (for Fold Down Seat Type)**
16. **INSTALL REAR SEAT HEADREST ASSEMBLY (for Fold Down Seat Type)**
17. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY RH (for Reclining Seat Type) (See page SE-71)**
18. **INSTALL SEPARATE TYPE REAR SEAT BACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-71)**
19. **INSTALL REAR SEAT BACK COVER (for Reclining Seat Type)**
20. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-73)**
21. **INSTALL REAR SEAT HEADREST ASSEMBLY (for Reclining Seat Type)**
22. **CHECK ABS SPEED SENSOR SIGNAL**
    ABS: See page BC-19
    VSC (for BOSCH): BC-290
    VSC (for ADVICS): BC-123
23. **INSPECT AND ADJUST REAR WHEEL ALIGNMENT**
    (See page SP-13)



DISPOSAL

1. DISPOSE OF REAR SHOCK ABSORBER

(a) Fully extend the shock absorber piston rod.

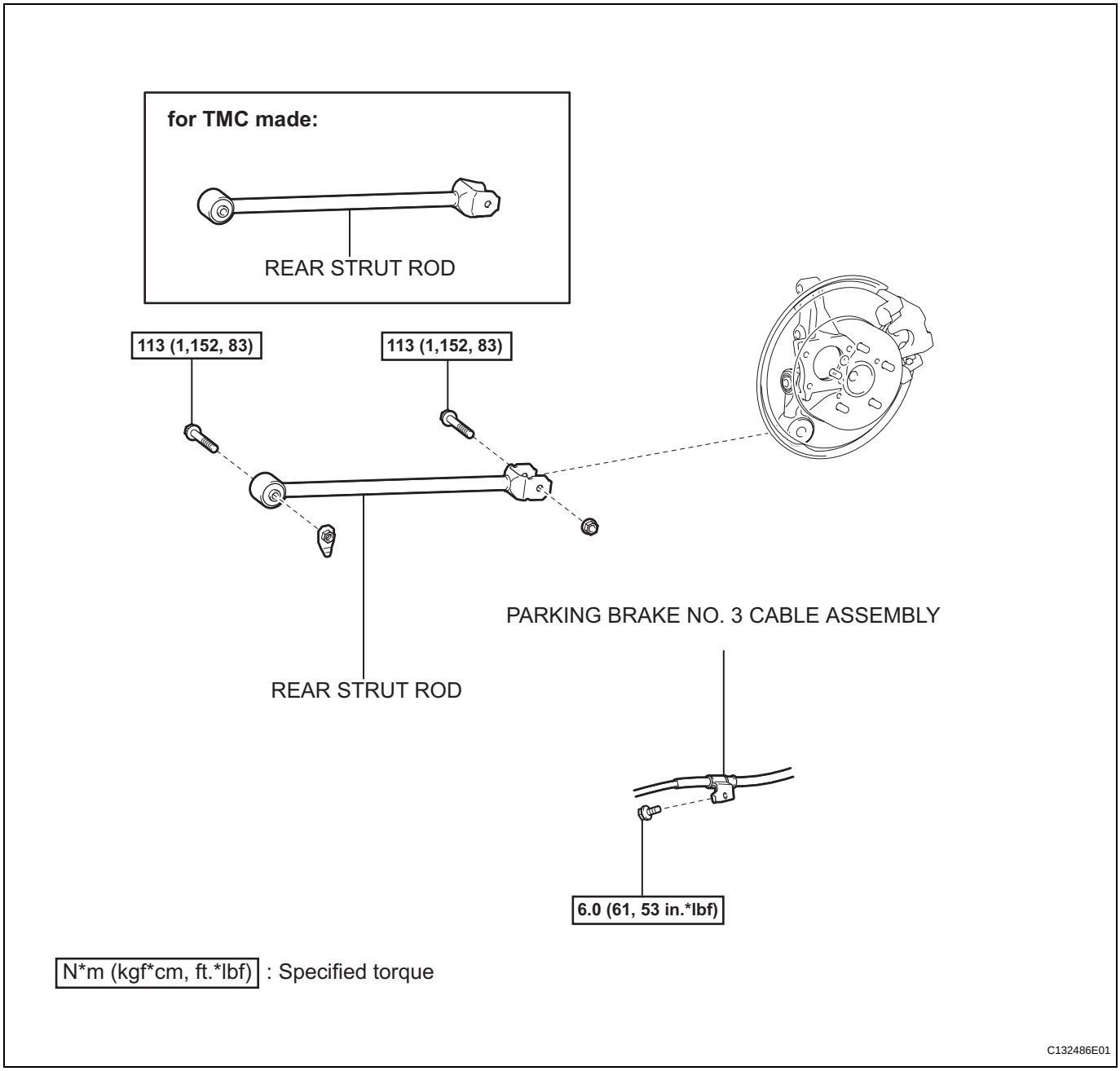
(b) Using a drill, make a hole in the cylinder between A and B as shown in the illustration to discharge the gas inside.

CAUTION:

- **Be careful when drilling because shards of metal may fly about. Always use the proper safety equipment.**
- **The gas is colorless, odorless and non-poisonous.**

REAR STRUT ROD

COMPONENTS



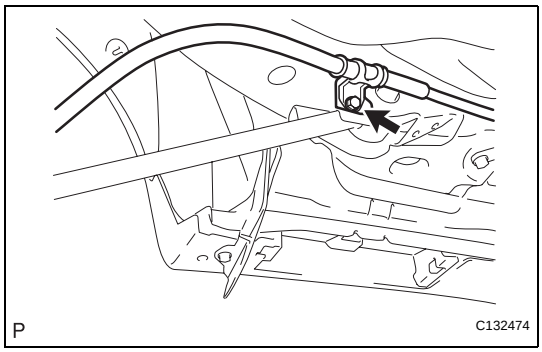
SP

REMOVAL

1. REMOVE REAR WHEEL

2. SEPARATE PARKING BRAKE NO. 3 CABLE ASSEMBLY

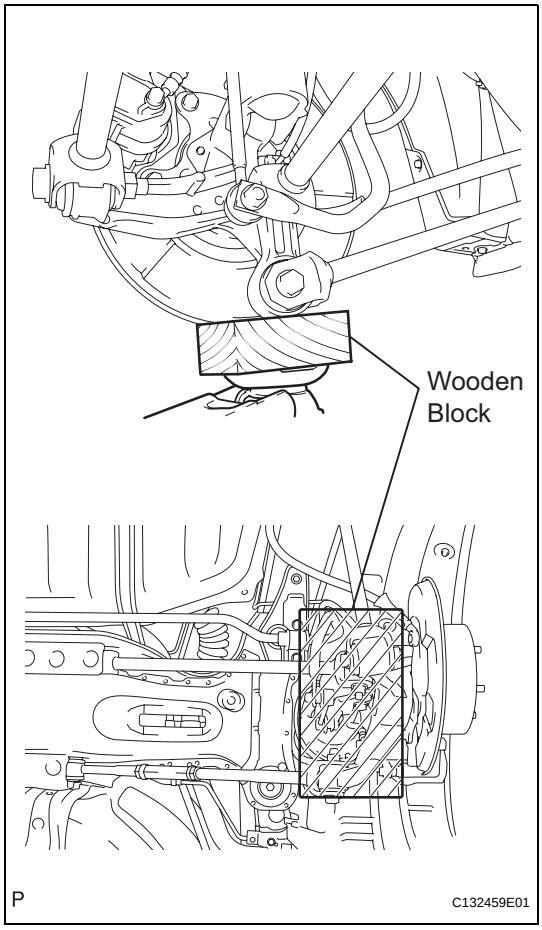
(a) Remove the bolt, and separate the parking brake No. 3 cable assembly.



SP

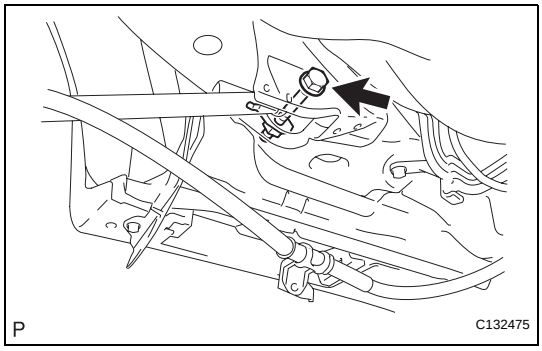
3. REMOVE REAR STRUT ROD

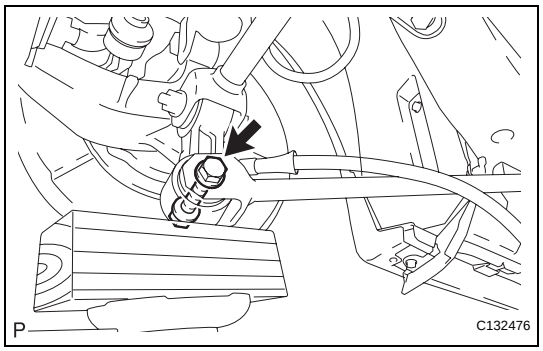
(a) Support the rear axle carrier with a jack.



(b) Remove the bolt and nut, and disconnect the strut rod (front side).

NOTICE:
When removing the bolt, keep the nut from rotating.

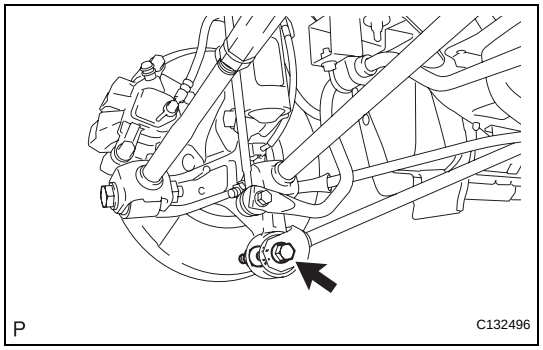




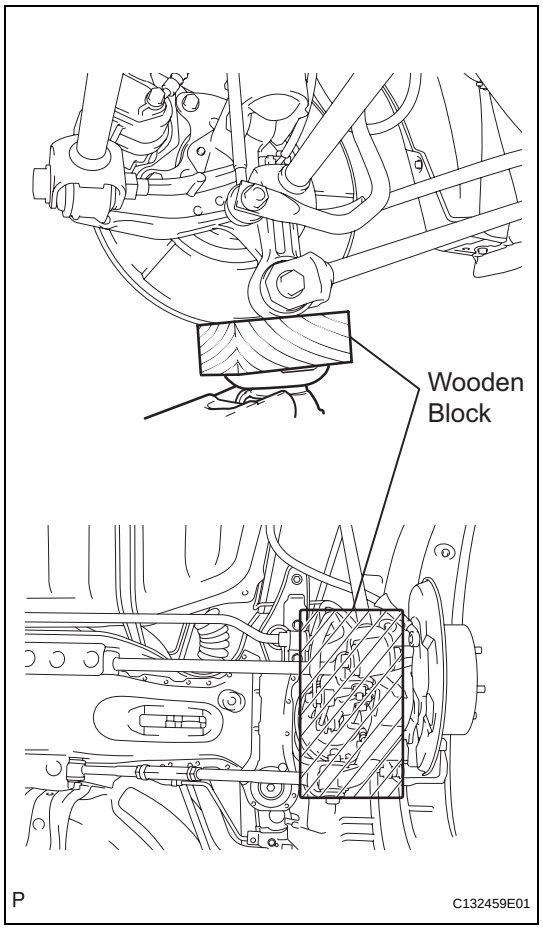
(c) Remove the bolt, nut and strut rod from the rear axle carrier.
NOTICE:
When removing the bolt, keep the nut from rotating.

INSTALLATION

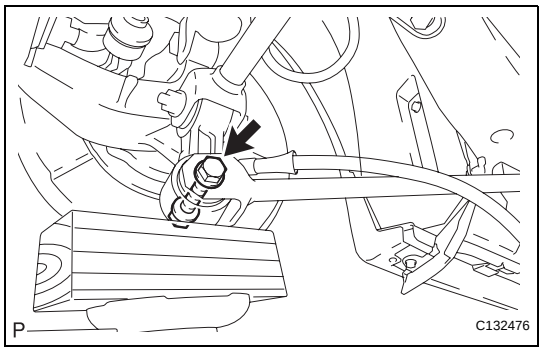
1. TEMPORARILY TIGHTEN REAR STRUT ROD



(a) Install the rear strut rod (rear side), bolt and nut, and temporarily tighten the bolt.
NOTICE:
When temporarily tightening the bolt, keep the nut from rotating.



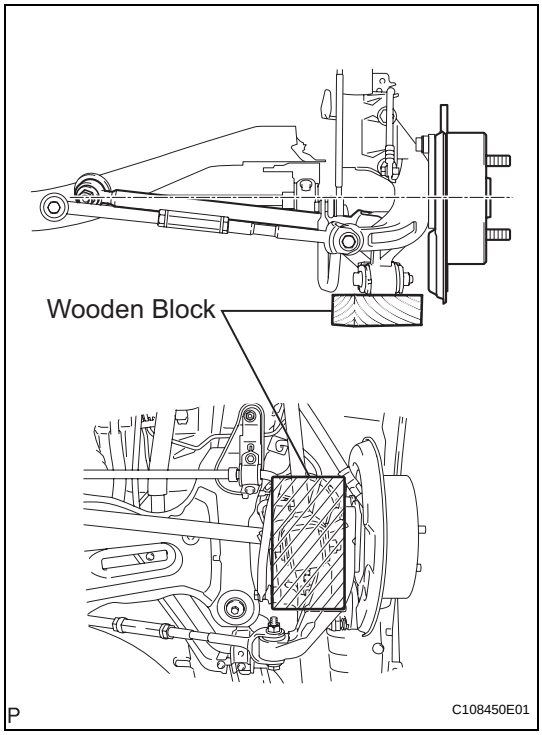
(b) Support the rear axle carrier.



(c) Connect the rear strut rod (inner side) with the bolt and nut.
NOTICE:
When temporarily tightening the bolt, keep the nut from rotating.

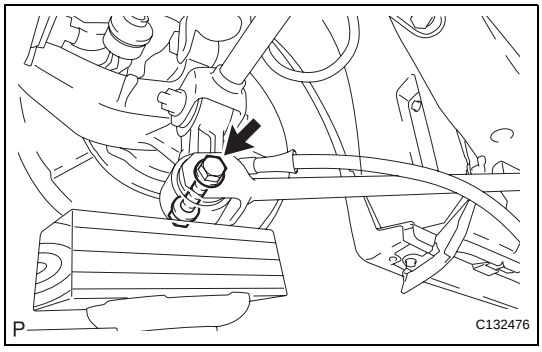
2. STABILIZE SUSPENSION

(a) Jack up the rear axle carrier, placing a wooden block to avoid damage. Apply load to the suspension so that the installed bolt of the rear suspension No. 1 arm (inner side of vehicle) is horizontally aligned with the center of the rear axle hub.

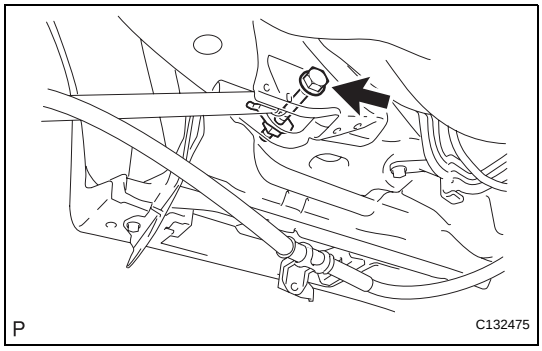


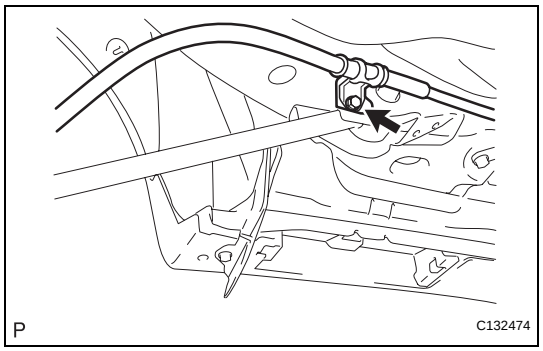
3. FULLY TIGHTEN REAR STRUT ROD

(a) Fully tighten the bolt.
Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)



(b) Fully tighten the bolt.
Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)





4. CONNECT PARKING BRAKE NO. 3 CABLE ASSEMBLY

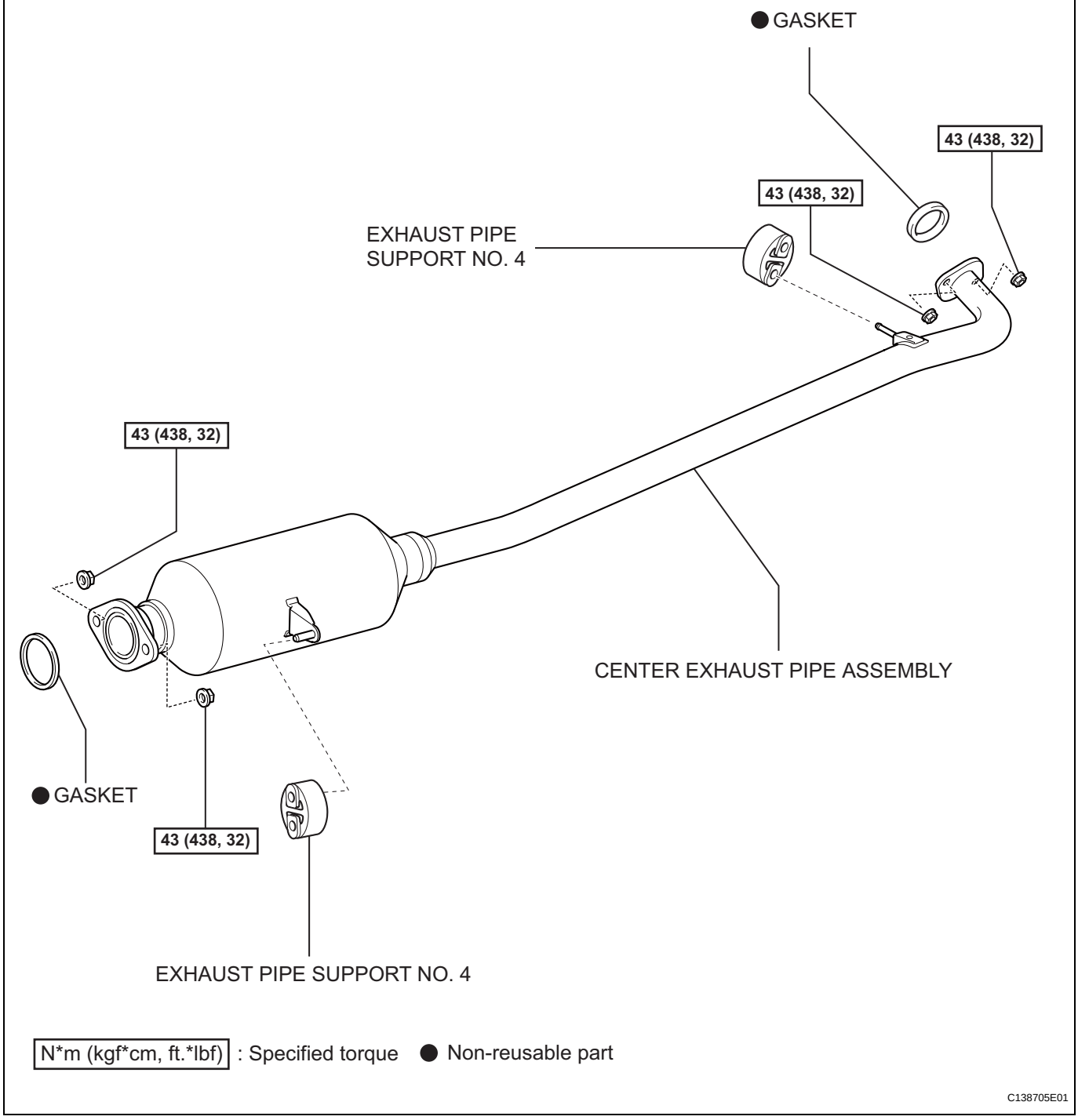
(a) Install the parking brake No. 3 cable assembly with the bolt.
Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)

5. INSTALL REAR WHEEL
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

REAR NO. 1 SUSPENSION ARM

COMPONENTS

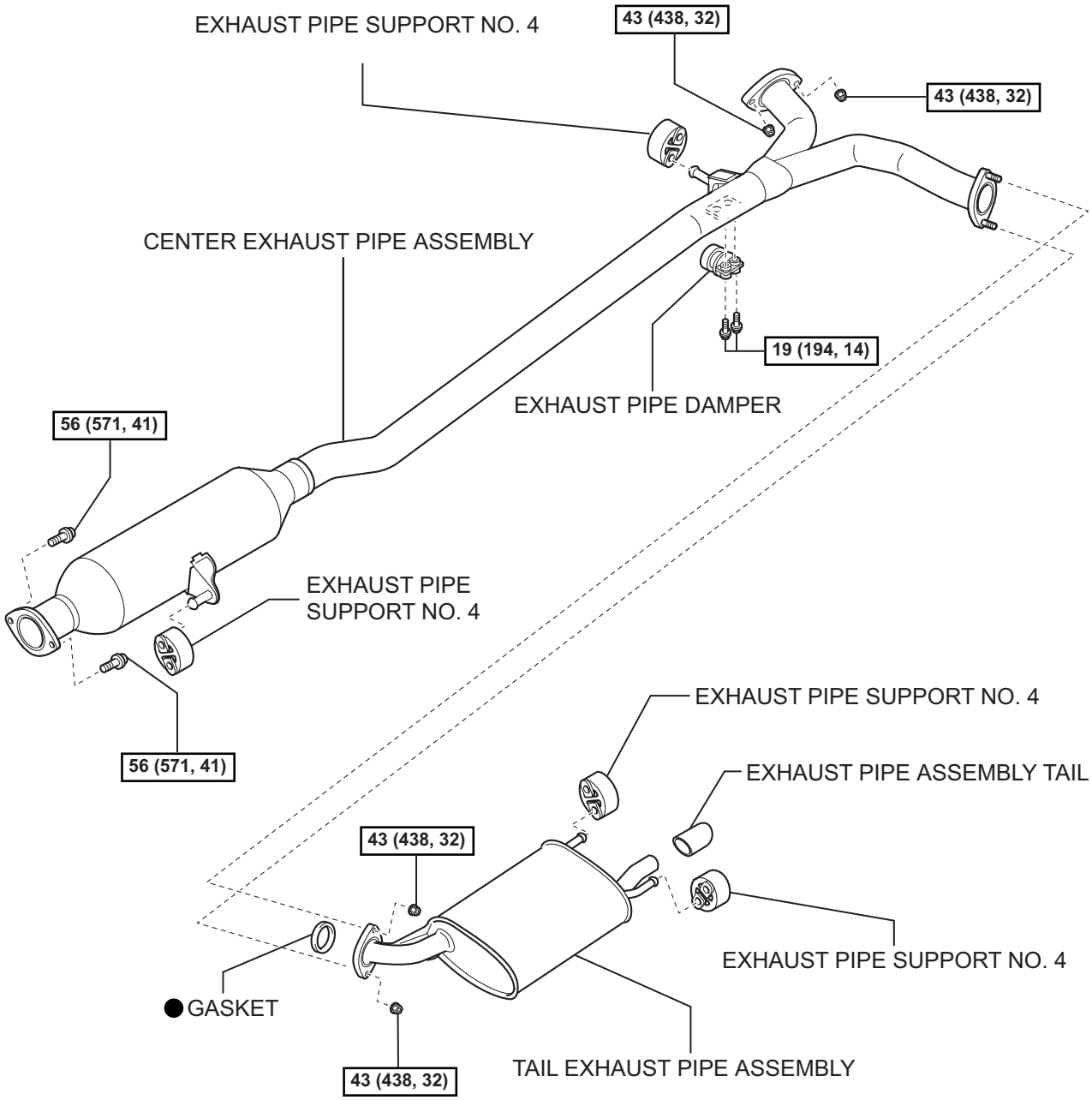
for 2AZ-FE:



N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

C138705E01

for 2GR-FE:

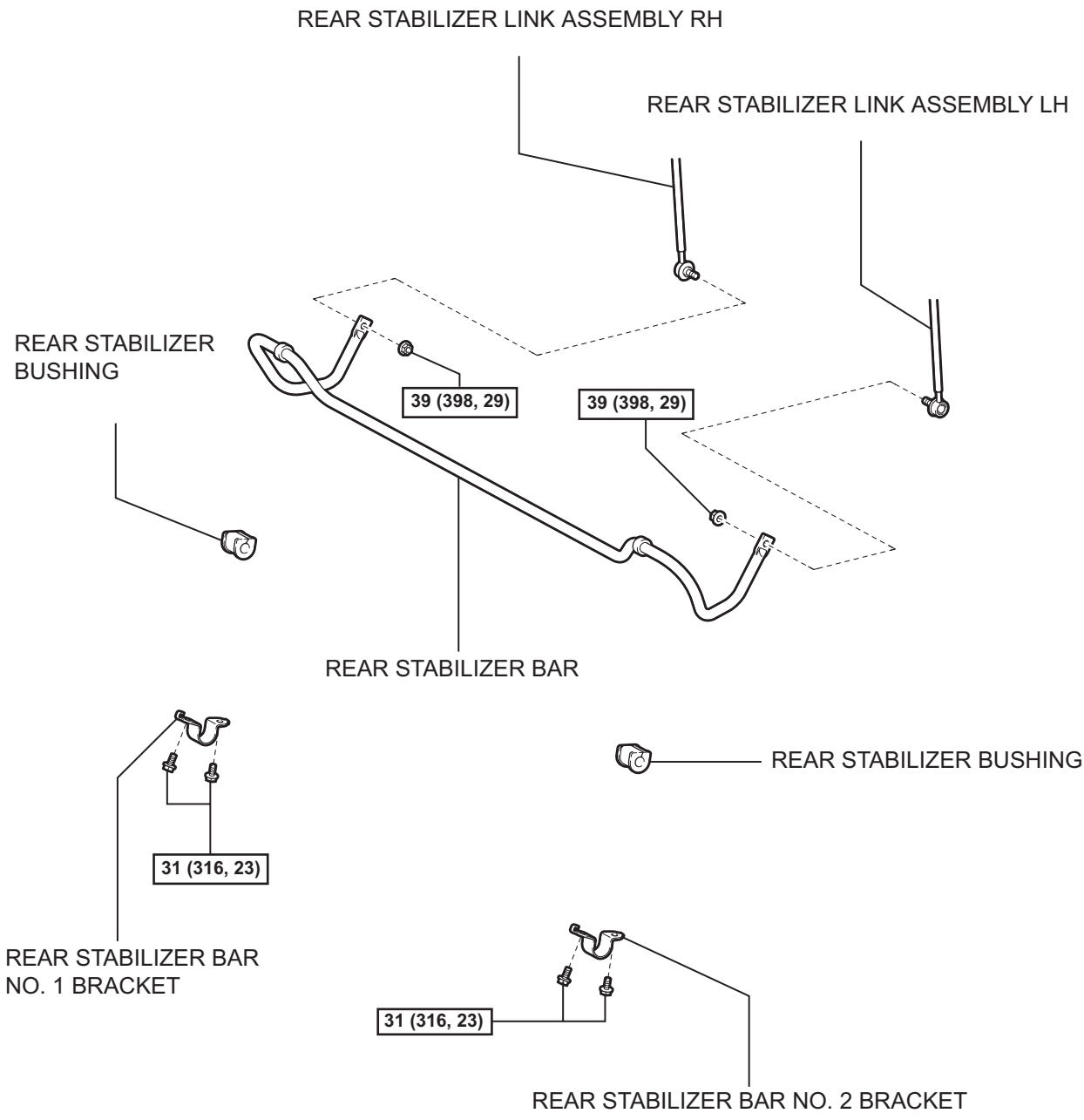


N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

C138704E02

SP

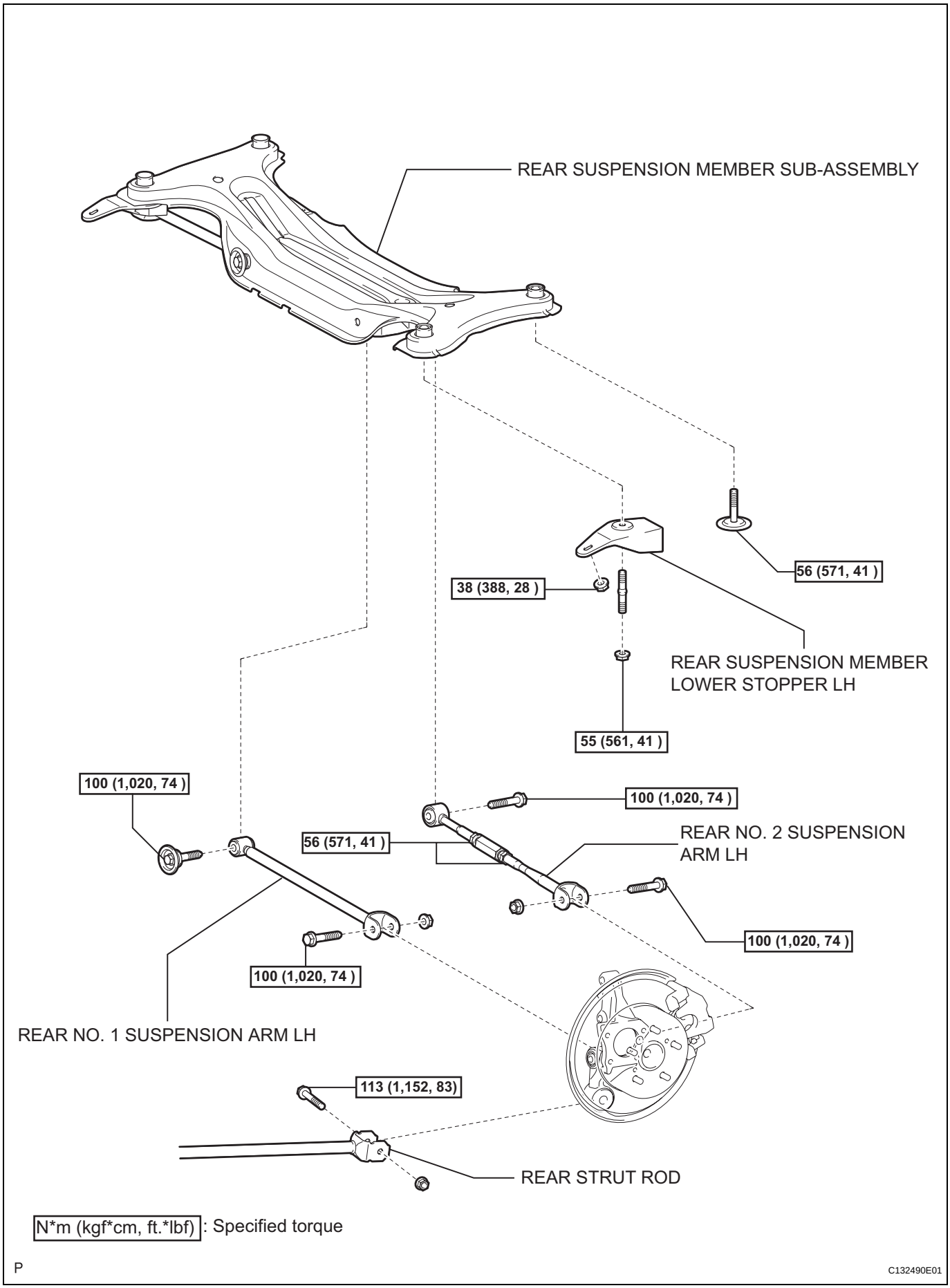
SP



N*m (kgf*cm, ft.*lbf) : Specified torque

P

C132488E01

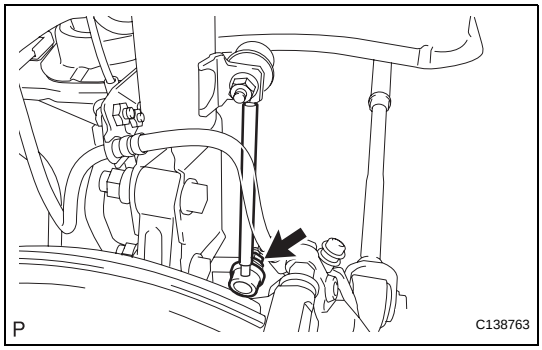

REAR SUSPENSION MEMBER SUB-ASSEMBLY
56 (571, 41)
38 (388, 28)
REAR SUSPENSION MEMBER LOWER STOPPER LH
55 (561, 41)
100 (1,020, 74)
100 (1,020, 74)
56 (571, 41)
REAR NO. 2 SUSPENSION ARM LH
100 (1,020, 74)
100 (1,020, 74)
REAR NO. 1 SUSPENSION ARM LH
113 (1,152, 83)
REAR STRUT ROD
N*m (kgf*cm, ft.*lbf): Specified torque
P
C132490E01

SP

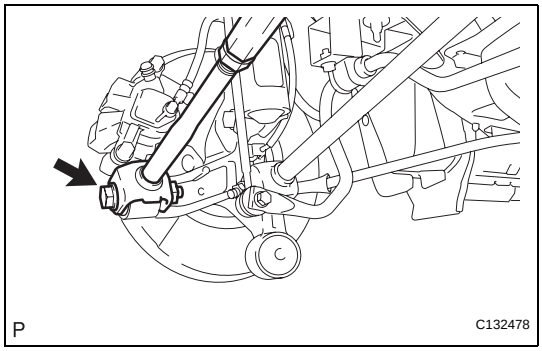
REMOVAL

NOTICE:
Check if an old gasket still remains on the pipe. If so, remove it. Also, check if any bolts or nuts are rusted. If so, replace them.

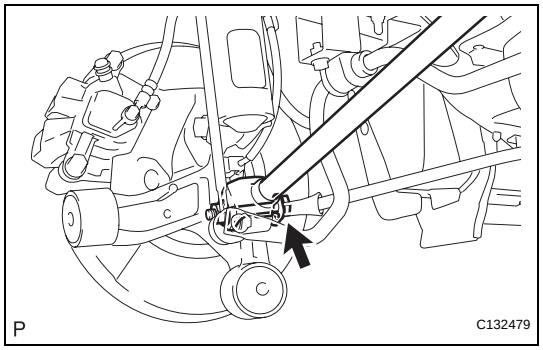
1. **REMOVE REAR WHEEL**
2. **REMOVE CENTER EXHAUST PIPE ASSEMBLY (for 2AZ-FE) (See page EX-2)**
3. **REMOVE TAIL EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-2)**
4. **REMOVE CENTER EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-2)**
5. **SEPARATE REAR STABILIZER LINK ASSEMBLY LH**
   (a) Remove the nut and separate the rear stabilizer link assembly LH (lower side) from the rear stabilizer bar.
   HINT:
   If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



6. **SEPARATE REAR STABILIZER LINK ASSEMBLY RH**
   HINT:
   Separate the RH side using the same procedures as for the LH side.
7. **REMOVE REAR STABILIZER BAR NO. 2 BRACKET (See page SP-68)**
8. **REMOVE REAR STABILIZER BAR NO. 1 BRACKET (See page SP-68)**
9. **REMOVE REAR STABILIZER BAR**
10. **REMOVE REAR STABILIZER BUSHING (See page SP-68)**
11. **SEPARATE REAR STRUT ROD (See page SP-48)**
12. **SEPARATE REAR NO. 2 SUSPENSION ARM LH**
    (a) Remove the bolt, nut and separate the rear suspension No. 2 arm (outer side) from the rear axle carrier.
    NOTICE:
    When removing the bolt, keep the nut from rotating.



13. **SEPARATE REAR NO. 2 SUSPENSION ARM RH**
    HINT:
    Separate the RH side using the same procedures as for the LH side.



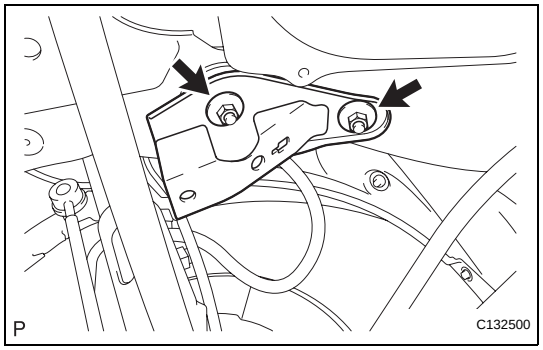
14. SEPARATE REAR NO. 1 SUSPENSION ARM LH

(a) Remove the bolt, nut and the rear No. 1 suspension arm (outer side) from the rear axle carrier.

NOTICE:
When removing the bolt, keep the nut from rotating.

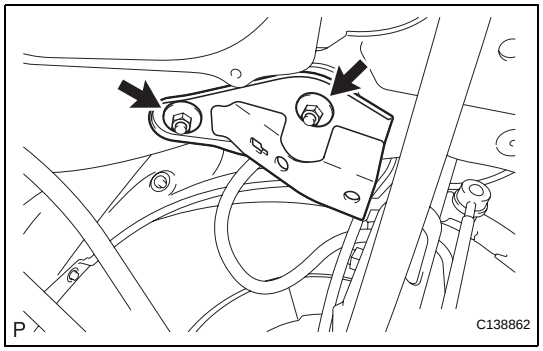
15. SEPARATE REAR NO. 1 SUSPENSION ARM RH

HINT:
Separate the RH side using the same procedures as for the LH side.



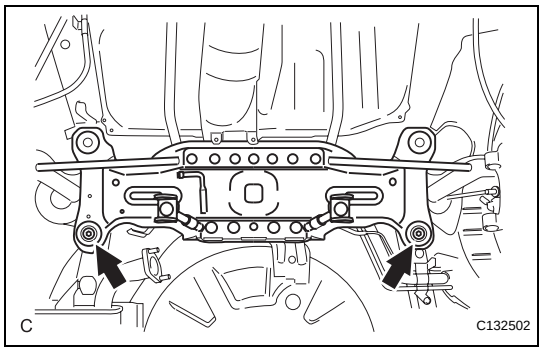
16. REMOVE REAR SUSPENSION MEMBER LOWER STOPPER LH

(a) Remove the 2 nuts and the rear suspension member lower stopper LH.



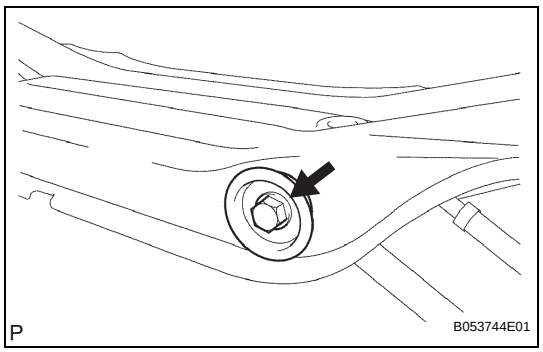
17. REMOVE REAR SUSPENSION MEMBER LOWER STOPPER RH

(a) Remove the 2 nuts and the rear suspension member lower stopper RH.



18. REMOVE REAR SUSPENSION MEMBER SUB-ASSEMBLY

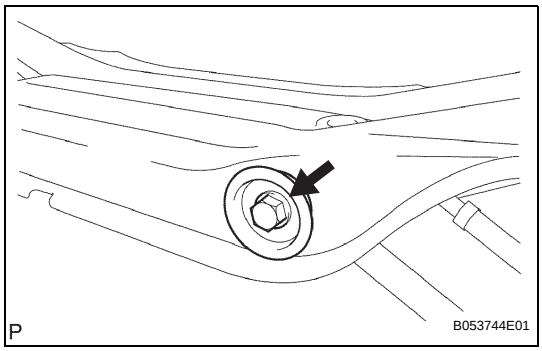
(a) Support the rear suspension member with a jack.
(b) Remove the 2 bolts, and the rear suspension member sub-assembly.



19. REMOVE REAR NO. 1 SUSPENSION ARM LH

(a) Remove the bolt and rear No. 1 suspension arm assembly LH.

SP

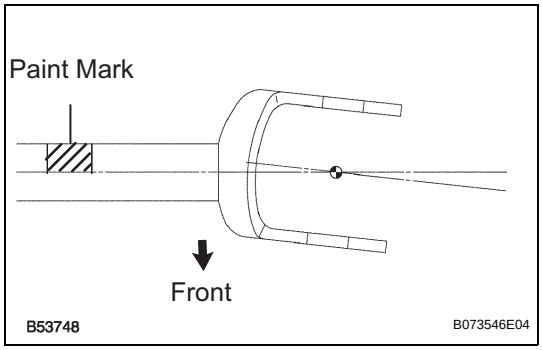


INSTALLATION

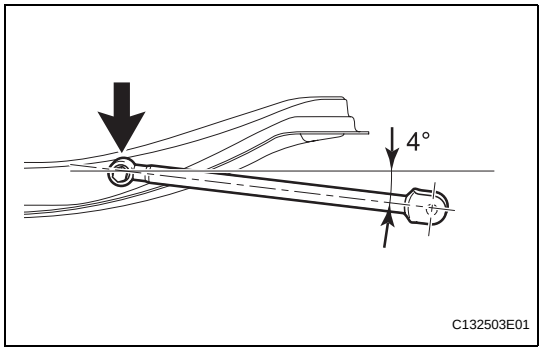
1. INSTALL REAR NO. 1 SUSPENSION ARM LH

(a) Install the rear No. 1 suspension arm (inner side) with the bolt, and temporarily tighten the bolt.

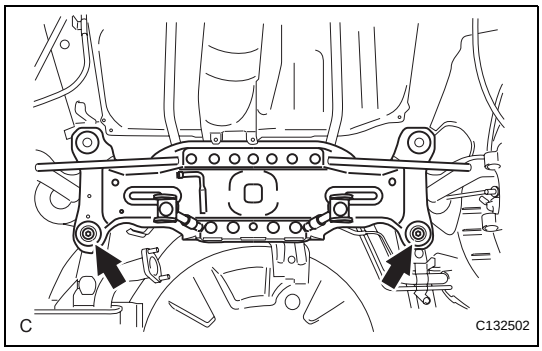
(1) Install the rear No. 1 suspension arm so that the bracket leans toward the front side of the vehicle as shown in the illustration.



(2) Ensure that the paint mark faces the rear side of the vehicle.



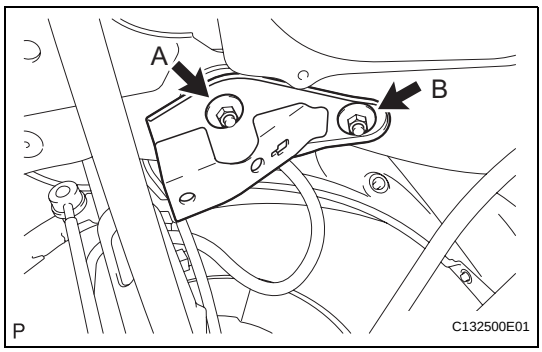
(b) Set the rear No.1 suspension arm in the position shown in the illustration, and fully tighten the bolt.
Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)



2. INSTALL REAR SUSPENSION MEMBER SUB-ASSEMBLY

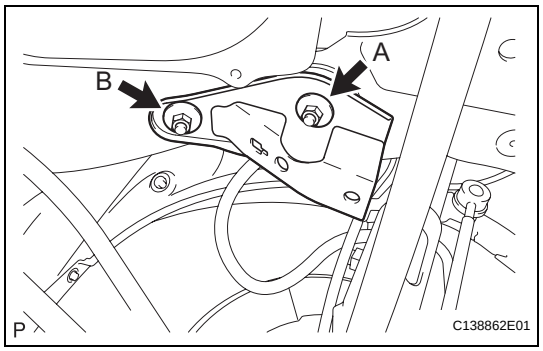
(a) Raise the rear suspension member with a jack.

(b) Install the rear suspension member with the 2 bolts.
Torque: 56 N*m (571 kgf*cm, 41 ft.*lbf)



3. INSTALL REAR SUSPENSION MEMBER LOWER STOPPER LH

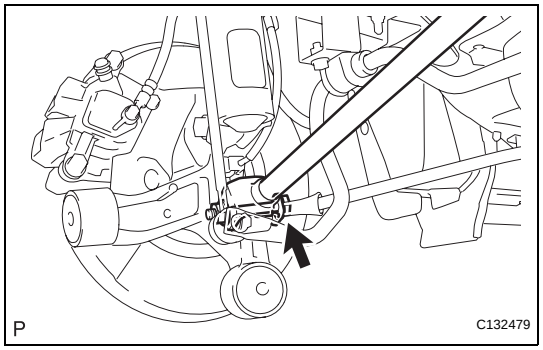
(a) Install the rear suspension member lower stopper LH with the 2 nuts.
Torque: Nut A
55 N*m (561 kgf*cm, 41 ft.*lbf)
Nut B
38 N*m (388 kgf*cm, 28 ft.*lbf)



4. INSTALL REAR SUSPENSION MEMBER LOWER STOPPER RH

(a) Install the rear suspension member lower stopper RH with the 2 nuts.

Torque: Nut A
55 N*m (561 kgf*cm, 41 ft.*lbf)
Nut B
38 N*m (388 kgf*cm, 28 ft.*lbf)



5. TEMPORARILY TIGHTEN REAR NO. 1 SUSPENSION ARM LH

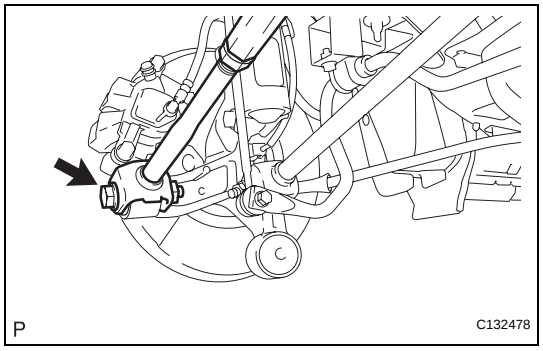
(a) Connect the rear No.1 suspension arm (outer side) to the rear axle carrier with the bolt and nut and temporarily tighten the bolt and nut.

NOTICE:
When temporarily tightening the bolt, keep the nut from rotating.

HINT:
Insert the bolt from the front of the vehicle and temporarily install the bolt.

6. TEMPORARILY TIGHTEN REAR NO. 1 SUSPENSION ARM RH

HINT:
Temporarily tighten the RH side using the same procedures as for the LH side.



7. TEMPORARILY TIGHTEN REAR NO. 2 SUSPENSION ARM LH

(a) Connect the rear No. 2 suspension arm (outer side) to the rear axle carrier with the bolt and nut and temporarily tighten the bolt.

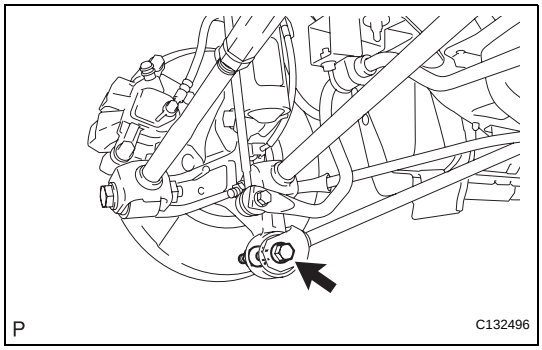
NOTICE:
When temporarily tightening the bolt, keep the nut from rotating.

HINT:
Insert the bolt from the rear of the vehicle and temporarily install the bolt.

8. TEMPORARILY TIGHTEN REAR NO. 2 SUSPENSION ARM RH

HINT:
Temporarily tighten the RH side using the same procedures as for the LH side.

SP



9. TEMPORARILY TIGHTEN REAR STRUT ROD

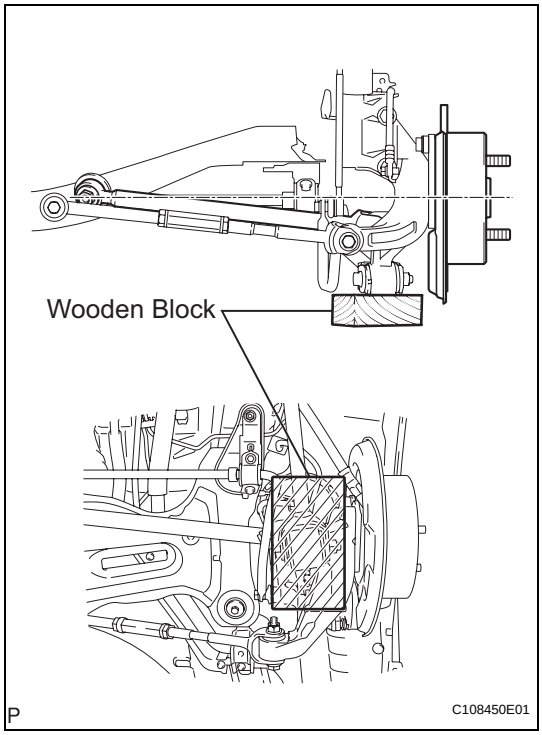
(a) Connect the strut rod assembly rear to the axle carrier with the bolt and nut and temporarily tighten the bolt.

NOTICE:

When temporarily tightening the bolt, keep the nut from rotating.

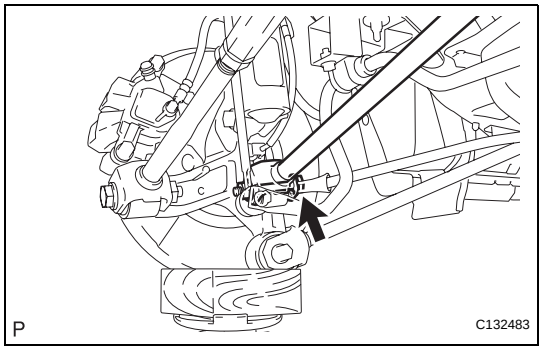
HINT:

Insert the bolt from the inside of the vehicle and temporarily install the bolt.



10. STABILIZE SUSPENSION

(a) Jack up the rear axle carrier, placing a wooden block to avoid damage. Apply load to the suspension so that the installed bolt of the rear No. 1 suspension arm (inner side) is horizontally aligned with the center of the rear axle hub.



11. FULLY TIGHTEN REAR NO. 1 SUSPENSION ARM LH

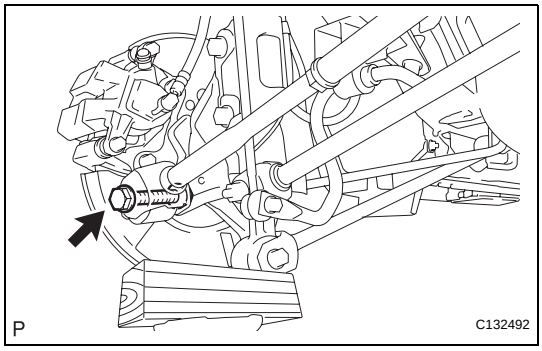
(a) Fully tighten the bolt.

Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

12. FULLY TIGHTEN REAR NO. 1 SUSPENSION ARM RH

HINT:

Fully tighten the RH side using the same procedures as for the LH side.



13. FULLY TIGHTEN REAR NO. 2 SUSPENSION ARM LH

(a) Fully tighten the bolt.

Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

14. FULLY TIGHTEN REAR NO. 2 SUSPENSION ARM RH

HINT:

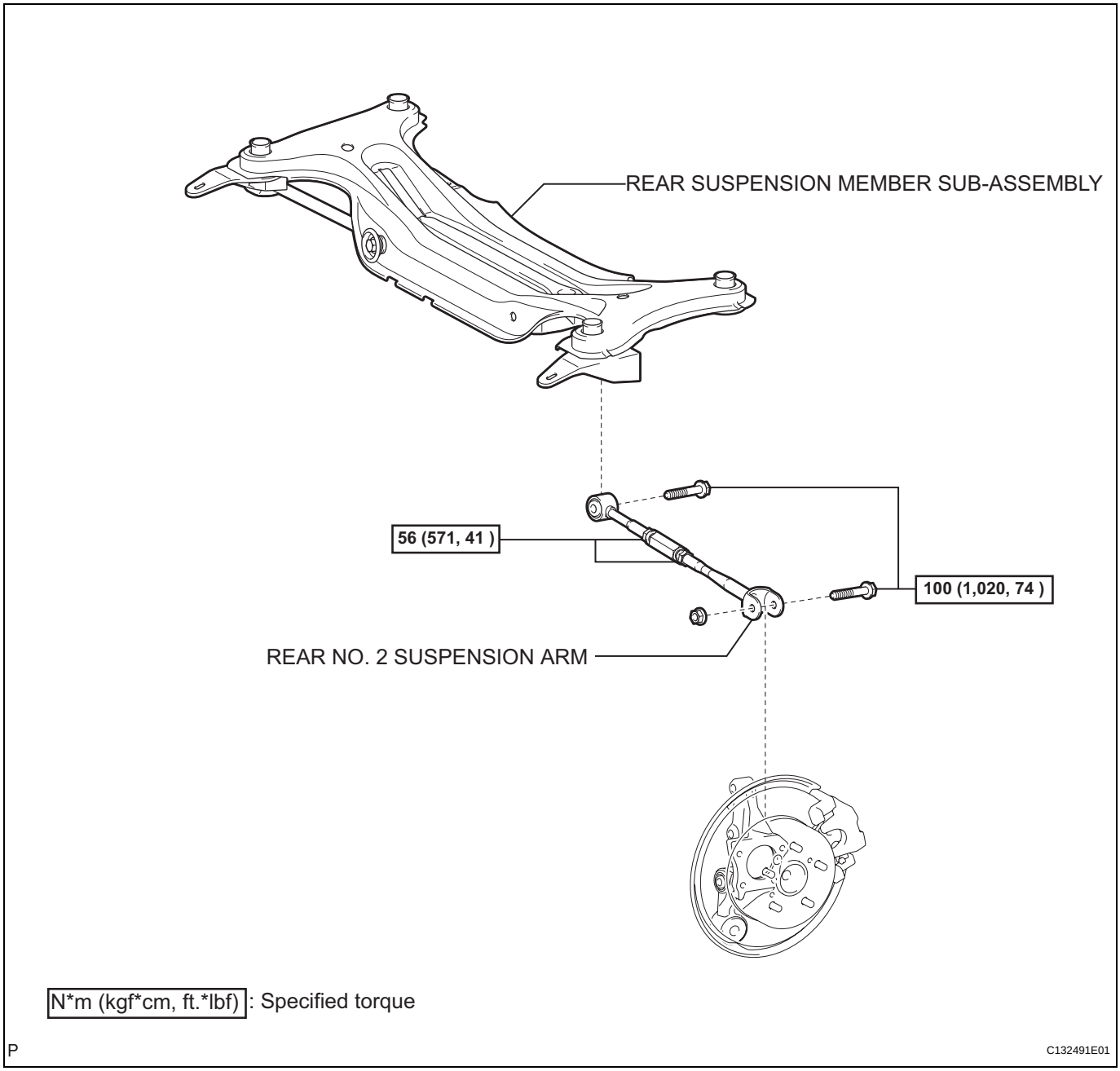
Fully tighten the RH side using the same procedures as for the LH side.

15. FULLY TIGHTEN REAR STRUT ROD (See page SP-50)

16. **INSTALL REAR STABILIZER BUSHING (See page SP-69)**
17. **INSTALL REAR STABILIZER BAR NO. 2 BRACKET (See page SP-69)**
18. **INSTALL REAR STABILIZER BAR NO. 1 BRACKET (See page SP-69)**
19. **INSTALL REAR STABILIZER BAR**
20. **INSTALL REAR STABILIZER LINK ASSEMBLY LH (See page SP-70)**
21. **INSTALL REAR STABILIZER LINK ASSEMBLY RH (See page SP-70)**
22. **INSTALL CENTER EXHAUST PIPE ASSEMBLY (for 2AZ-FE) (See page EX-4)**
23. **INSTALL CENTER EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-4)**
24. **INSTALL TAIL EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-5)**
25. **INSTALL REAR WHEEL**
    Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)
26. **CHECK FOR EXHAUST GAS LEAKAGE (See page EX-5)**
27. **INSPECT AND ADJUST REAR WHEEL ALIGNMENT** (See page SP-13)

REAR NO. 2 SUSPENSION ARM

COMPONENTS

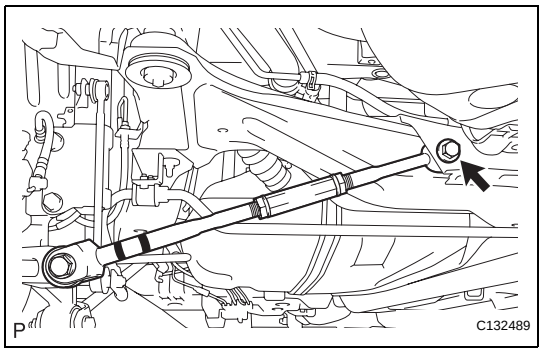


REMOVAL

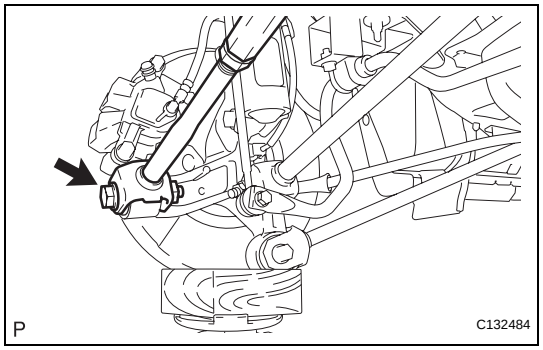
1. REMOVE REAR WHEEL

2. REMOVE REAR NO. 2 SUSPENSION ARM

(a) Remove the bolt, and disconnect the rear No. 2 suspension arm (inner side).



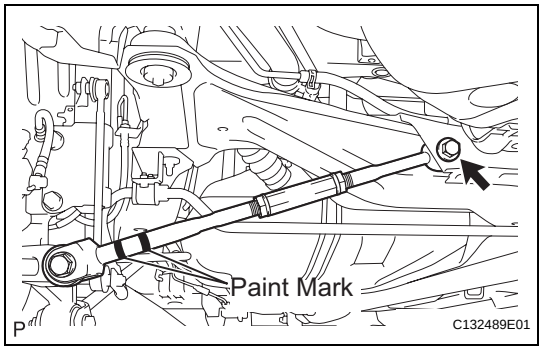
(b) Remove the bolt, nut and the rear No. 2 suspension arm (outer side) from the rear axle carrier.
NOTICE:
When removing the bolt, keep the nut from rotating.



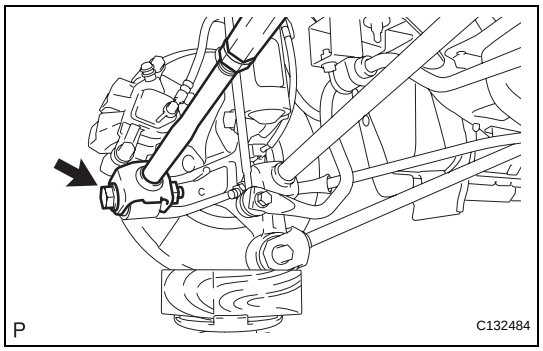
INSTALLATION

1. TEMPORARILY TIGHTEN REAR NO. 2 SUSPENSION ARM

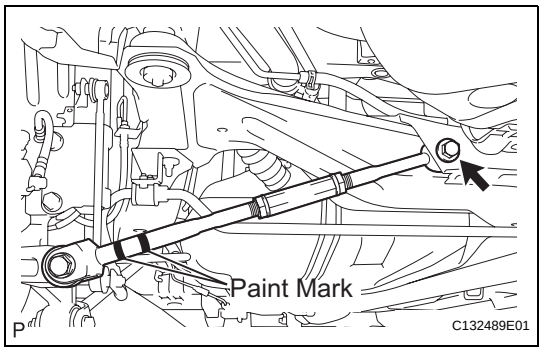
(a) Install the rear No. 2 suspension arm (inner side) with the bolt, and temporarily tighten the bolt.
HINT:
Ensure that the paint mark faces to the rear of the vehicle.



(b) Connect the rear No. 2 suspension arm (outer side) to the rear axle carrier with the bolt and nut, and temporarily tighten the bolt.
NOTICE:
When temporarily tightening the bolt, keep the nut from rotating.

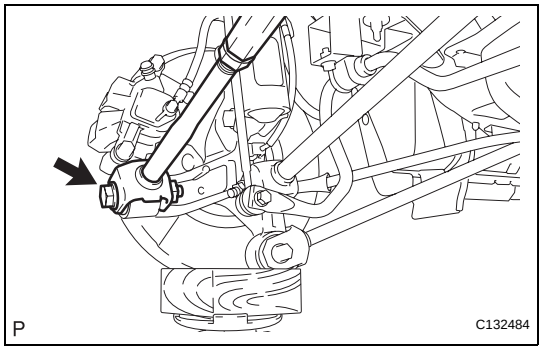


2. STABILIZE SUSPENSION (See page SP-50)



3. FULLY TIGHTEN REAR NO. 2 SUSPENSION ARM

(a) Fully tighten the bolt.
Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)



(b) Fully tighten the bolt.
Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

4. INSTALL REAR WHEEL
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

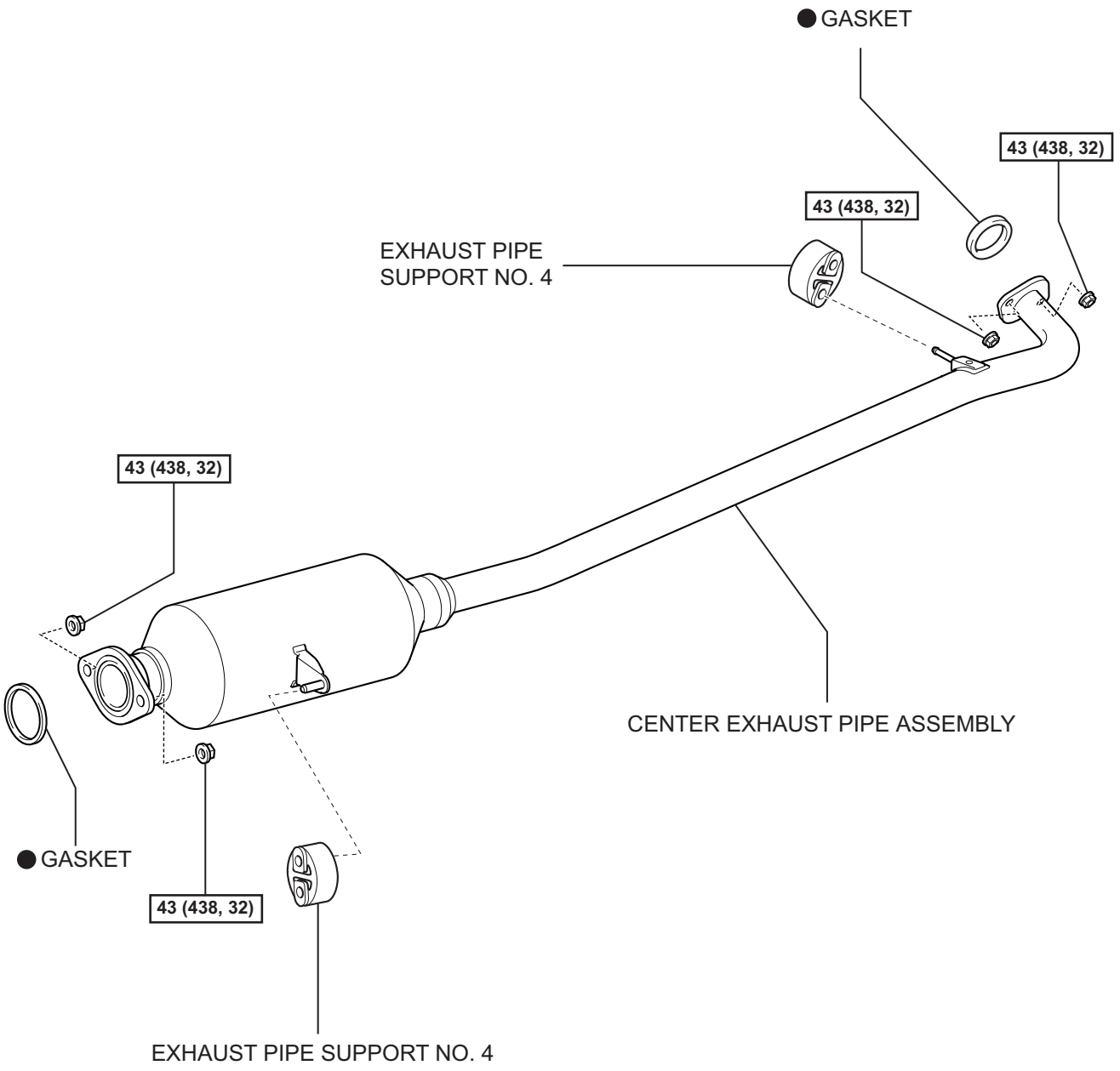
5. INSPECT AND ADJUST REAR WHEEL ALIGNMENT
(See page SP-13)

SP

REAR STABILIZER BAR

COMPONENTS

for 2AZ-FE:

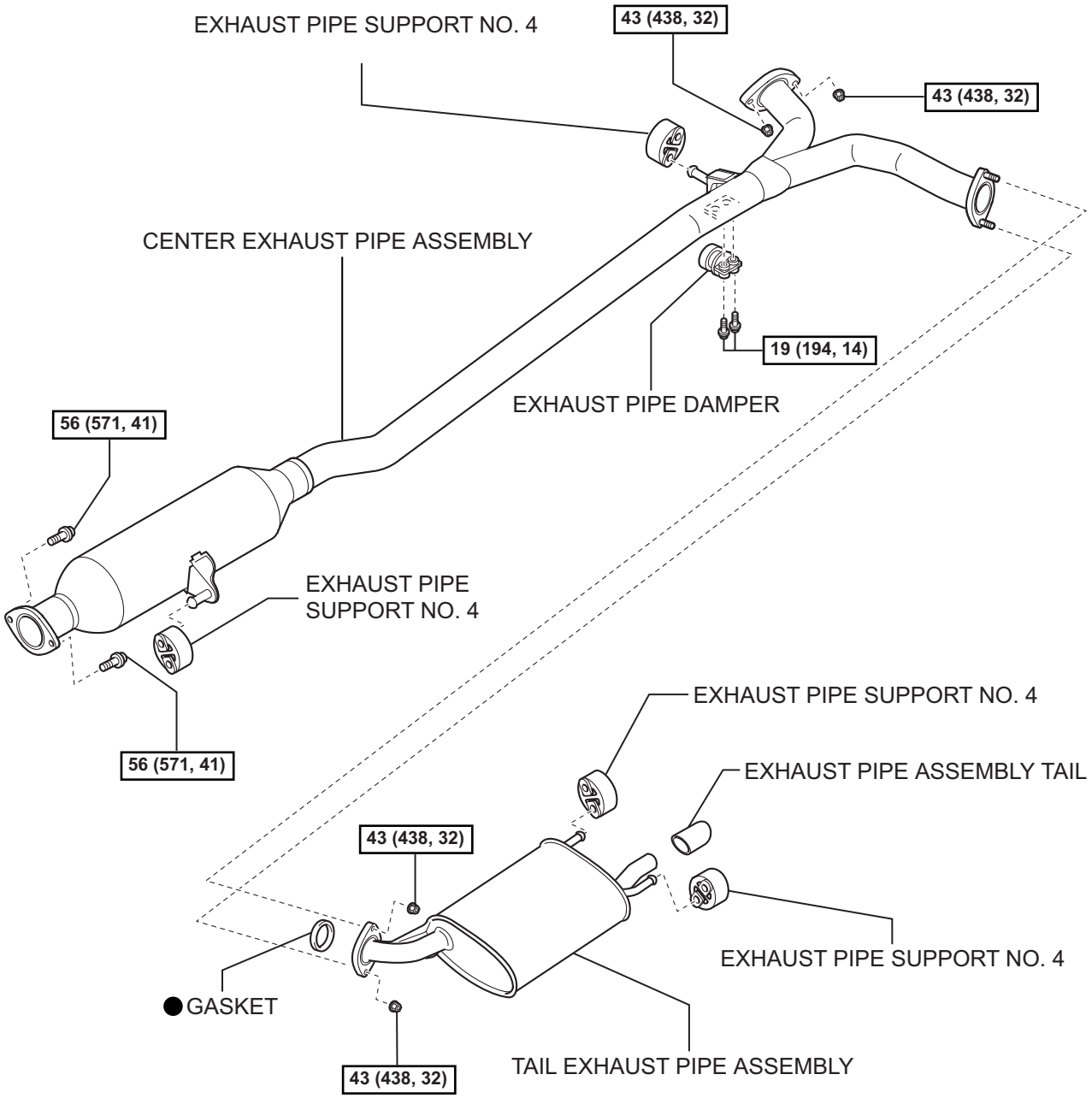


N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

C138705E01

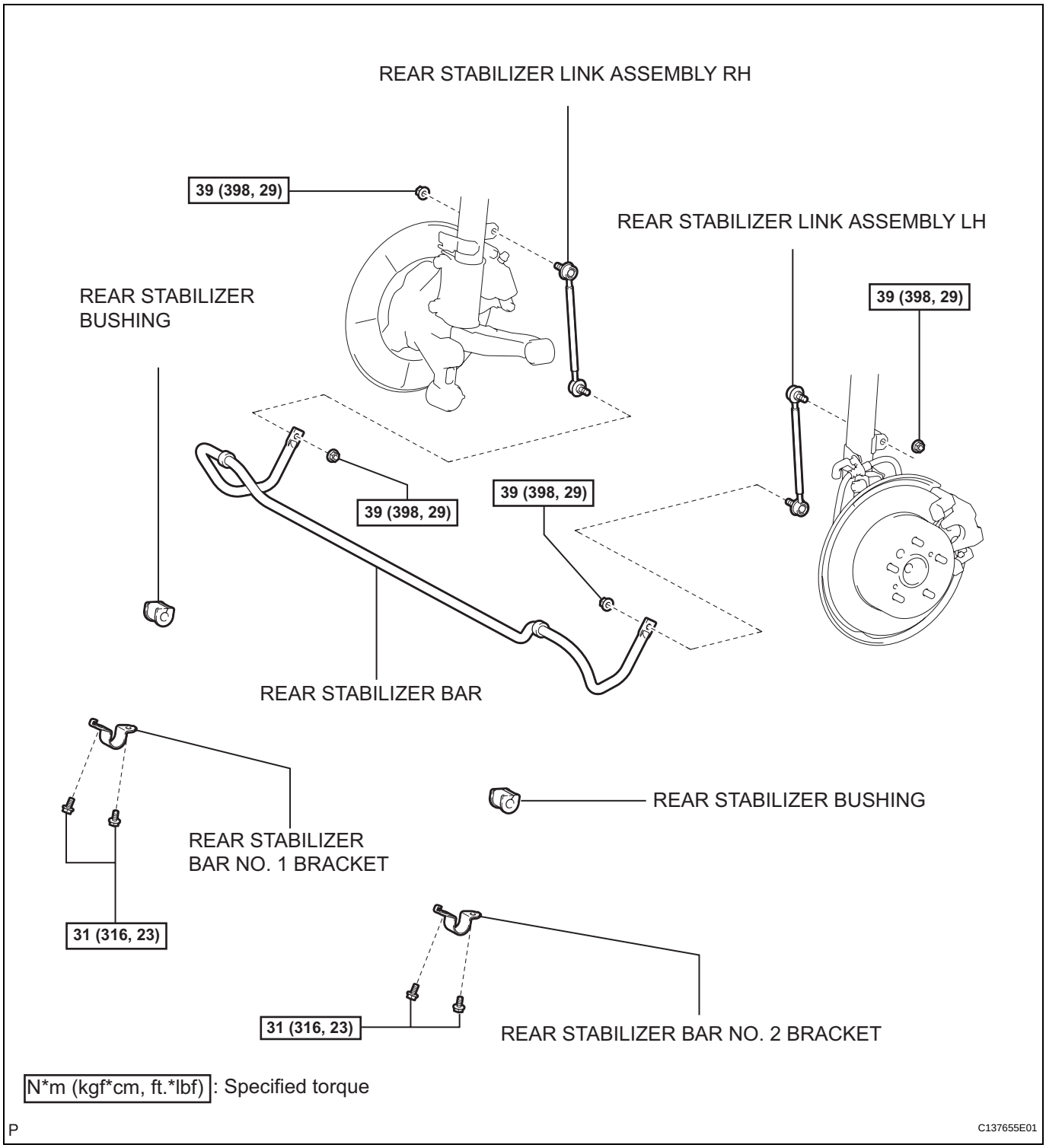
SP

for 2GR-FE:



N*m (kgf*cm, ft.*lbf) : Specified torque ● Non-reusable part

C138704E02

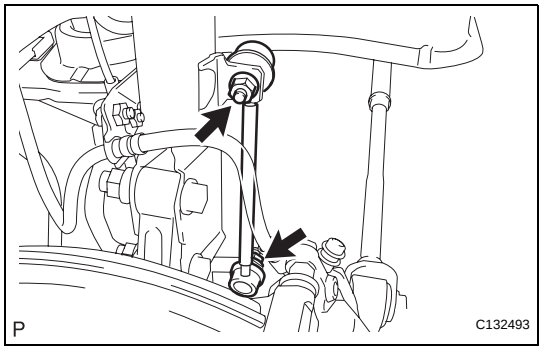

REAR STABILIZER LINK ASSEMBLY RH
39 (398, 29)
REAR STABILIZER LINK ASSEMBLY LH
REAR STABILIZER BUSHING
39 (398, 29)
39 (398, 29)
39 (398, 29)
REAR STABILIZER BAR
REAR STABILIZER BUSHING
REAR STABILIZER BAR NO. 1 BRACKET
31 (316, 23)
31 (316, 23)
REAR STABILIZER BAR NO. 2 BRACKET
N*m (kgf*cm, ft.*lbf): Specified torque
P
C137655E01

SP

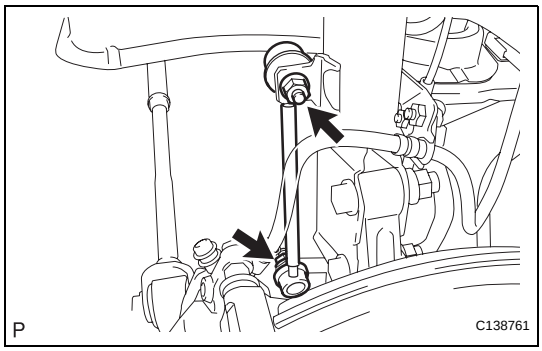
REMOVAL

NOTICE:
Check if an old gasket still remains on the pipe. If so, remove it. Also, check if any bolts or nuts are rusted. If so, replace them.

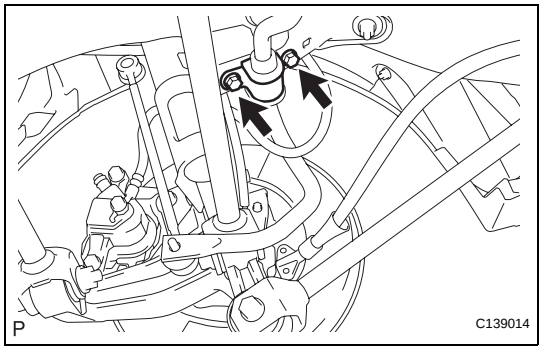
1. **REMOVE REAR WHEELS**
2. **REMOVE CENTER EXHAUST PIPE ASSEMBLY (for 2AZ-FE) (See page EX-2)**
3. **REMOVE TAIL EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-2)**
4. **REMOVE CENTER EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-2)**



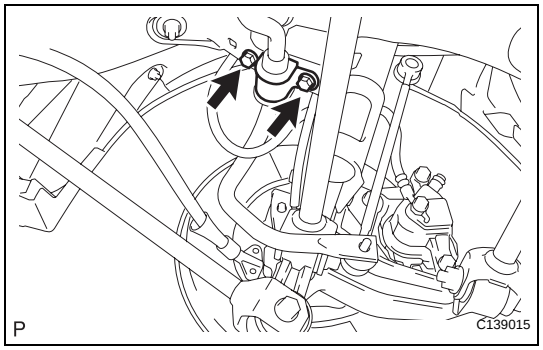
5. **REMOVE REAR STABILIZER LINK ASSEMBLY LH**
   (a) Remove the 2 nuts and rear stabilizer link assembly LH.
   HINT:
   If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



6. **REMOVE REAR STABILIZER LINK ASSEMBLY RH**
   (a) Remove the 2 nuts and rear stabilizer link assembly RH.
   HINT:
   If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



7. **REMOVE REAR STABILIZER BAR NO. 2 BRACKET**
   (a) Remove the 2 bolts and rear stabilizer bar No. 2 bracket.



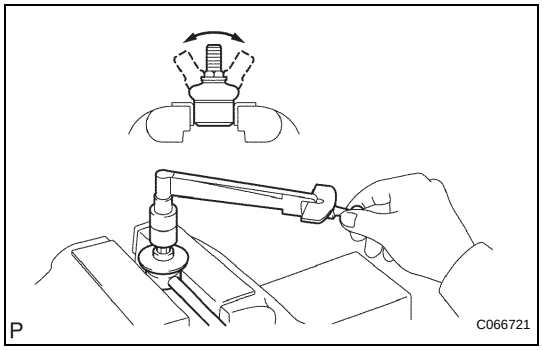
8. REMOVE REAR STABILIZER BAR NO. 1 BRACKET

(a) Remove the 2 bolts and rear stabilizer bar No. 1 bracket.

9. REMOVE REAR STABILIZER BUSHING

(a) Remove the 2 rear stabilizer bushings from the rear stabilizer bar.

10. REMOVE REAR STABILIZER BAR



INSPECTION

1. INSPECT REAR STABILIZER LINK ASSEMBLY

(a) Inspect the turning of the ball joint.

(1) Secure the rear stabilizer link assembly in a vise using aluminum plates.

(2) Install the nut to the rear stabilizer link assembly stud.

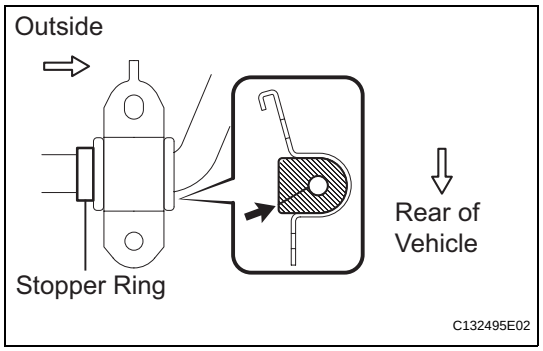
(3) Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per turn and take the torque reading on the 5th turn.

Torque: Turning torque
0.05 to 1.0 N*m (0.5 to 10 kgf*cm, 0.4 to 8.9 in.*lbf)

HINT:
If the turning torque is not within the specified range, replace the rear stabilizer link assembly with a new one.

(b) Inspect the dust cover.

(1) Check that the dust cover is not cracked and that there is no grease on it.



INSTALLATION

1. INSTALL REAR STABILIZER BUSHING

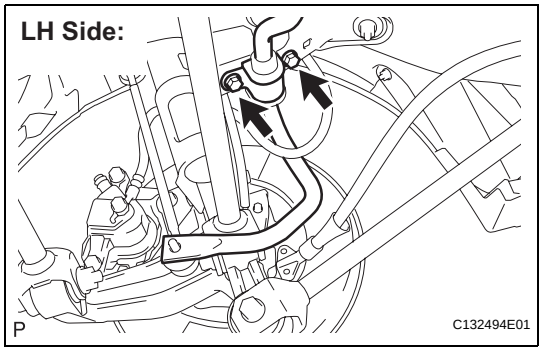
(a) Install the 2 rear stabilizer bushings to the outside of the stopper ring on the stabilizer bar.

2. INSTALL REAR STABILIZER BAR NO. 2 BRACKET

(a) Install the rear stabilizer bar No. 2 bracket.

3. INSTALL REAR STABILIZER BAR NO. 1 BRACKET

(a) Install the rear stabilizer bar No. 1 bracket.

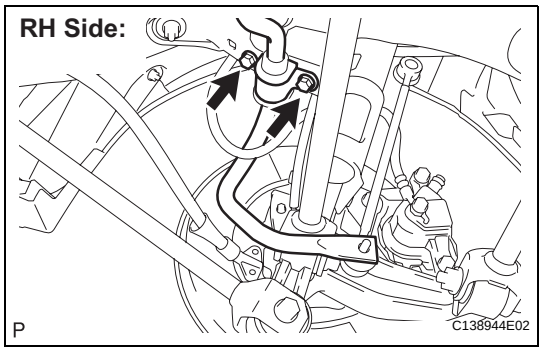


4. INSTALL REAR STABILIZER BAR

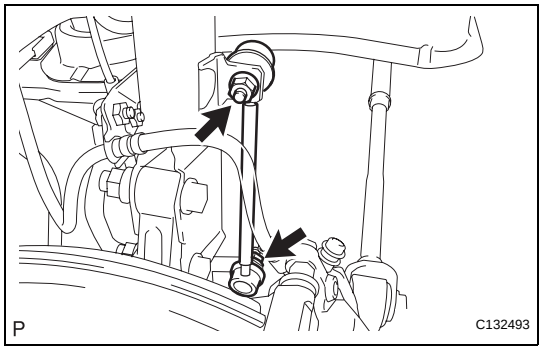
(a) Install the rear stabilizer bar with the 2 bolts. (LH Side)

Torque: 31 N*m (316 kgf*cm, 23 ft.*lbf)

SP

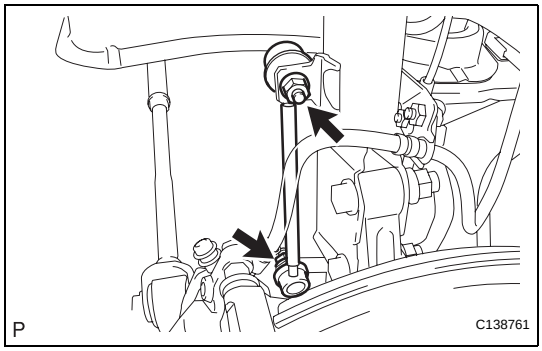


(b) Install the rear stabilizer bar with the 2 bolts. (RH Side)
Torque: 31 N*m (316 kgf*cm, 23 ft.*lbf)



5. INSTALL REAR STABILIZER LINK ASSEMBLY LH

(a) Install the rear stabilizer link assembly LH with the 2 nuts.
Torque: 39 N*m (398 kgf*cm, 29 ft.*lbf)
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.



6. INSTALL REAR STABILIZER LINK ASSEMBLY RH

(a) Install the rear stabilizer link assembly RH with the 2 nuts.
Torque: 39 N*m (398 kgf*cm, 29 ft.*lbf)
HINT:
If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

7. INSTALL CENTER EXHAUST PIPE ASSEMBLY (for 2AZ-FE) (See page EX-4)

8. INSTALL CENTER EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-4)

9. INSTALL TAIL EXHAUST PIPE ASSEMBLY (for 2GR-FE) (See page EX-5)

10. INSTALL REAR WHEELS
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

11. INSPECT EXHAUST GAS LEAKAGE (See page EX-5)

SP