

Technical Service Bulletin

Mazda North American Operations
Irvine, CA 92618-2922



| | |
|--|--------------------------------|
| Subject: CREAKING NOISE FROM FRONT LOWER ARM BUSHING / CLUNKING NOISE FROM FRONT SHOCK ABSORBER COIL SPRING WHEN DRIVING OVER BUMPS | Bulletin No.: 02-001/20 |
| | Last Issued: 01/09/2020 |

BULLETIN NOTES

This bulletin supersedes the previously issued bulletin(s) listed below. The changes are noted in Red text.

| Previous TSBs: | Date(s) Issued: |
|----------------|--------------------------------------|
| 02-007/18 | 04/20/2018 |
| 02-007/17 | 06/09/2017, 10/06/2017and 12/01/2017 |

APPLICABLE MODEL(S)/VINS

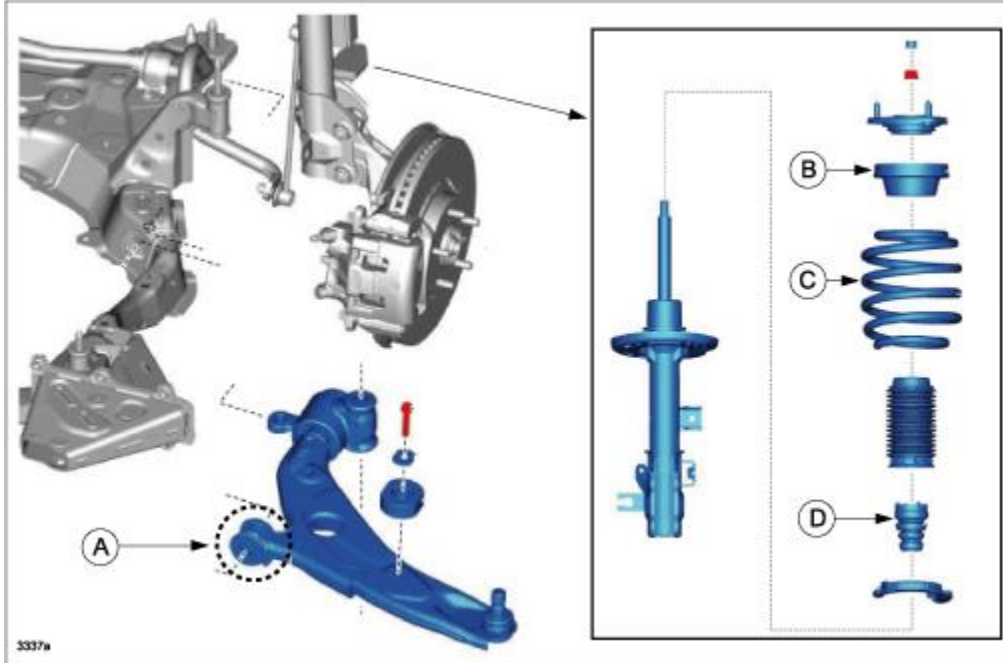
2016-2020 CX-9

DESCRIPTION

Some vehicles may exhibit one or more of the following noises from the front suspension:

1. A creaking noise from under the front of the vehicle (front lower arm bushing) when driving over bumps at approximate 12 - 25 mph (20 - 40 Km/h). The noise occurs when the road surface is wet or after the vehicle has been washed. The noise becomes more noticeable as the bumps get higher. The creaking noise is caused by the front lower arm bushing (A) making a stick-slip noise during wet road conditions.
2. A clunking noise from the front coil spring when driving over bumps. The clunking noise is due to stick-slip between the front strut bearing (B) and the coil spring (C).
3. A popping noise from the bump stopper (D) when driving through gutters.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.



To eliminate the noise, the following mass-production changes have been made:

1. The coating treatment of the lower arm bushing has been changed to reduce friction and prevent stick-slip.
2. Protectors have been installed onto the coil springs to prevent stick-slip.
3. **The bump stopper has been modified and grease application has been added to prevent the stick-slip.**

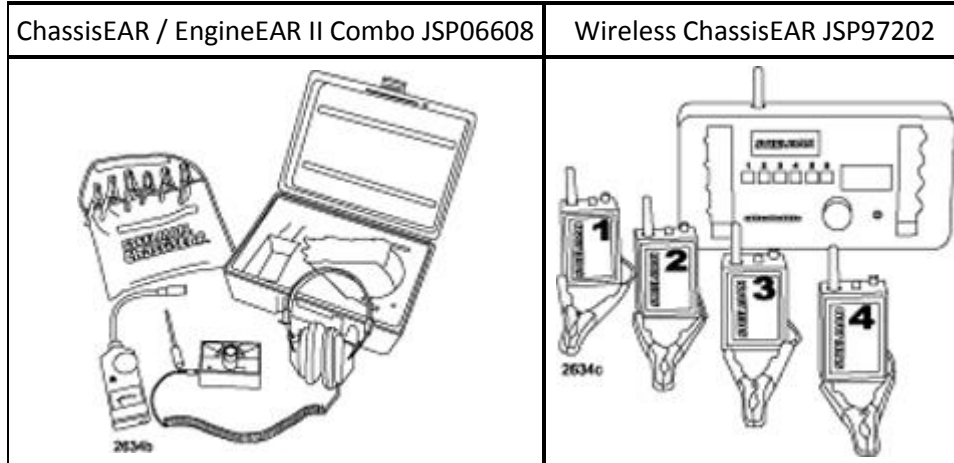
| Modification | Starting VIN | Mass-Production Date |
|---|--------------------------|----------------------|
| Installation of Protectors onto Coil Spring | JM3TC*****137841 | Feb. 6, 2017 |
| Change of Lower Arm Bushing | JM3TC*****143075 | Jun. 13, 2017 |
| Bump Stopper | JM3TC***** 404885 | Oct. 23, 2019 |

Customers having this concern should have their vehicle repaired using the following repair procedure.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

REPAIR OUTLINE

Use Special Service Tools (SST) ChassisEAR / EngineEAR II Combo JSP06608 **or** Wireless ChassisEAR JSP97202 to confirm noise is coming from the front suspension when driving over bumps:



NOTE: SST JSP06608 and JSP97202 are available for purchase on Mazda E-Store.

NOTE:

- For removal/installation and disassembly/assembly of the front shock absorber, refer to the instructions on MGSS online (FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY).
- Before removing the mounting rubber, put the position mark so the mounting rubber can be installed back in the original position.

CAUTION: It is not necessary to adjust the front wheel alignment because the front shock absorber and the mounting rubber are not replaced. However, make sure to install the mounting rubber to the original position.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

REPAIR PROCEDURE

NOTE: If a cracked dust boot is found during front shock absorber inspection, refer to TSB [02-013/18](#) (FRONT SHOCK ABSORBER DUST BOOT CRACK) for the appropriate repair information.

1. Verify the customer concern.
2. Determine the vehicle type (A, B or C) by using the table below.

| Vehicle Type | VIN Range | Lower Arm Bushing Repair (Both Sides) | Protector For Coil Spring (Both Sides) | Bump Stopper (Affected side(s)) |
|--------------|---------------------------------|---------------------------------------|--|------------------------------------|
| A | 100001 - 137840 | Replace with modified parts | Install protector | Replace with modified service part |
| B | 137841 - 143074 | Replace with modified parts | NOT necessary to install | Replace with modified service part |
| C | 143075 - 404885 | DO NOT replace parts | NOT necessary to install | Replace with modified service part |

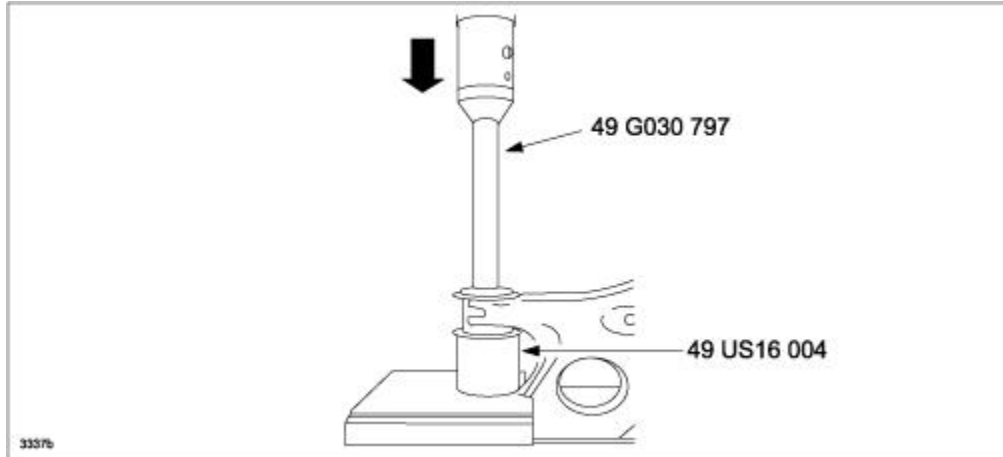
Repair 1 (For Vehicle Type A and B): Replace lower arm bushing with modified part (both sides)

1. Remove the front lower arm assembly (both sides) according to the instructions on MGSS online (FRONT LOWER ARM REMOVAL/INSTALLATION).
2. Remove the front lower arm bushing using the SSTs.

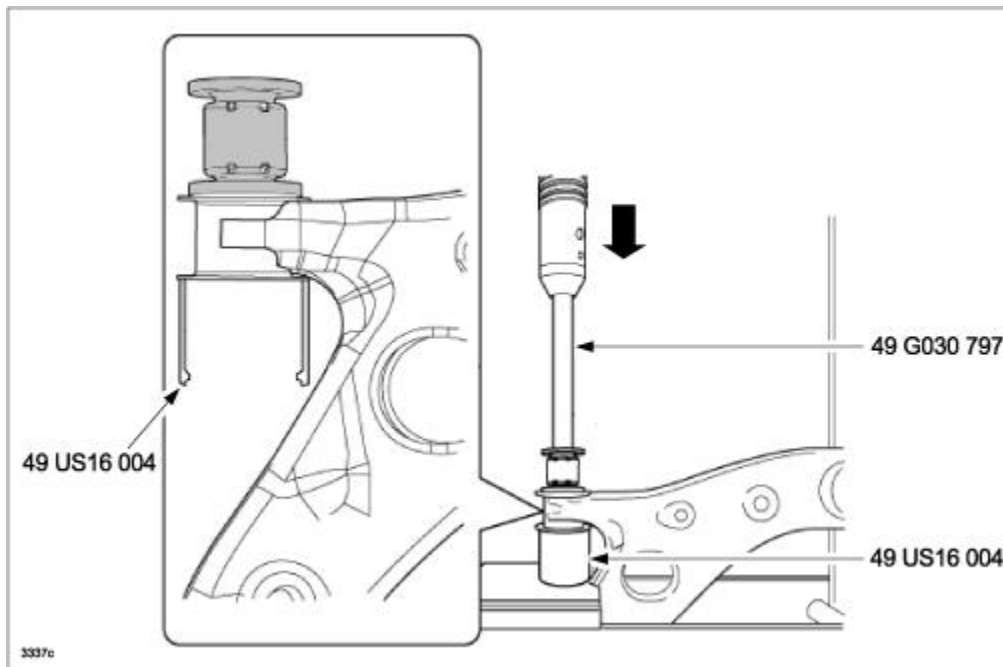
CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

Set SSTs (49 G030 797 and 49 US16 004) and the front lower arm on a shop press (as shown below) and remove the front lower arm bushing.

SST Dimensions: Outer Diameter: 56mm, Inner Diameter: 50mm, Height: 40mm



3. Install the new modified front lower arm bushing using SSTs.



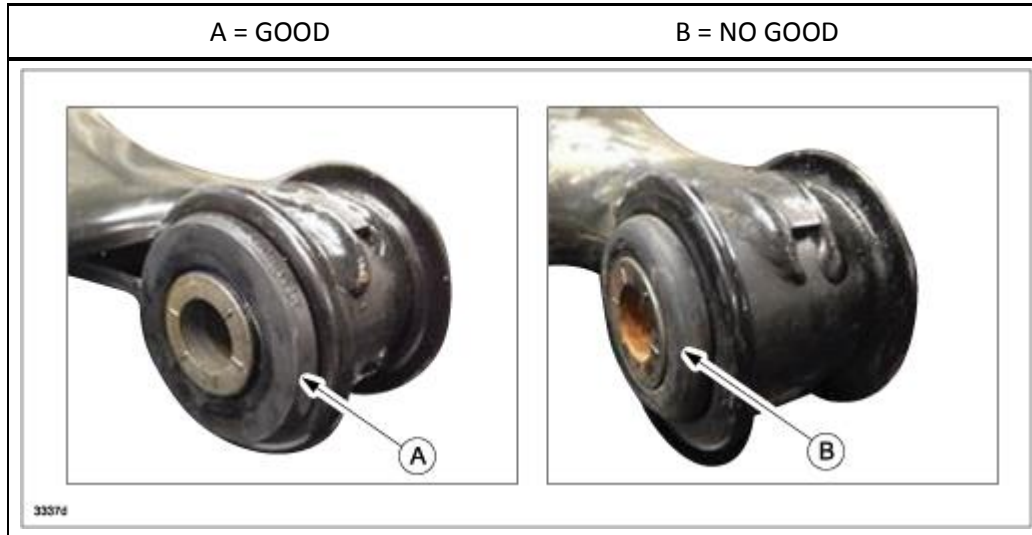
NOTE :

Page 5 of 13

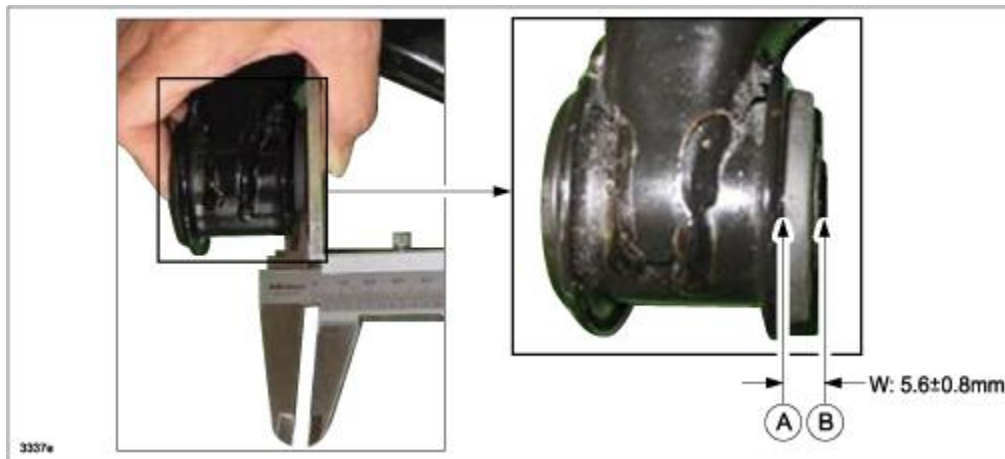
CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

- Apply soap suds to the new bushing to facilitate installation.
- Before installing the new bushing, wipe the inside of the outer tube and make sure it is clean.
- If soap suds get in the inner pipe of the new bushing, wipe it off using a cloth.

CAUTION: Make sure that the new bushing has been properly inserted by checking that the tab of the bushing is completely expanded (as shown below left).



4. Verify that the new bushing is installed in the correct position by measuring the protruded part (A - B) as shown below.



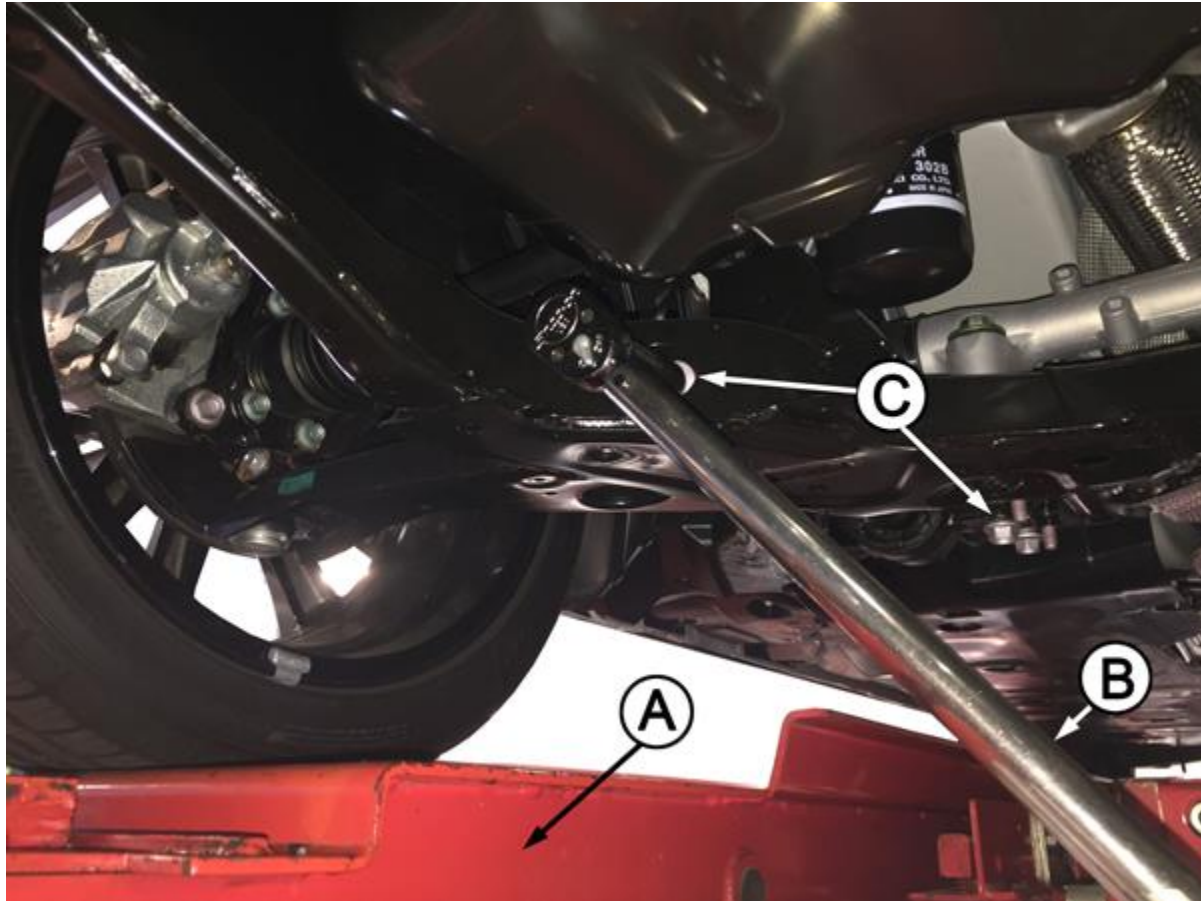
Width of protrusion: 5.6 +/- 0.8mm (0.22 +/- 0.03 in)

5. Install the front lower arm assembly (both sides) to the vehicle according to the instructions on MGSS online (FRONT LOWER ARM REMOVAL/INSTALLATION).

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

NOTE: For the joint sections with rubber bushings, raise the vehicle using a lift, and then temporarily tighten the installation bolts. Then raise the vehicle using a wheel alignment lift rack (A) or lower the vehicle to the ground (to load the suspension). Use a torque wrench (B) to tighten the bolts (C) to the specified tightening torque.

Mazda6 shown below as an example:



6. Inspect the front wheel alignment and adjust it if necessary according to the instructions on MGSS online (FRONT WHEEL ALIGNMENT).

7. Verify the repair.

Repair 2 (For Vehicle Type A): Install protector onto coil spring (both sides) and replace bump stopper with modified service part (affected side(s))

1. Remove the coil spring of the front shock absorbers (both sides) according to the instructions on MGSS

Page 7 of 13

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

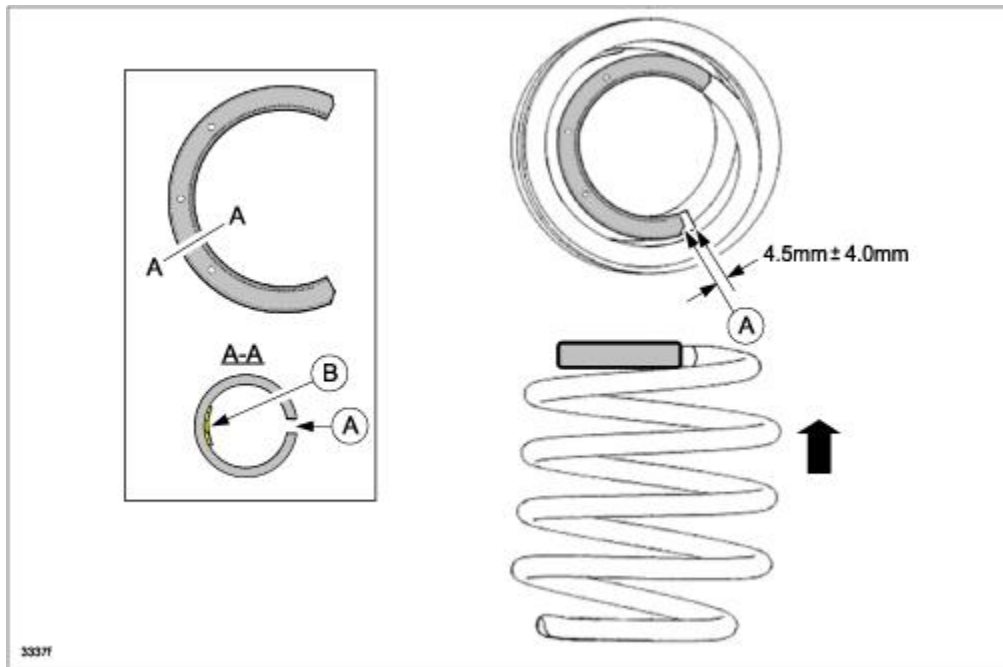
online (FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION).

NOTE: When the lower arm bushings are not replaced, perform the following step so that a front wheel alignment not unnecessary.

Put a position mark before removing the mounting rubber, so the mounting rubber can be reinstalled back to the original position. If this is done, it won't be necessary to perform a front wheel alignment because the front shock absorber and the mounting rubber were not replaced.

2. Degrease one turn of the spring from the top.
3. Install the protector onto the coil spring aligning the end of the protector as shown below.

NOTE: Install the protector so that the gap (A) is: **4.5 +/- 4.0mm (0.177 +/- 0.157 in)**



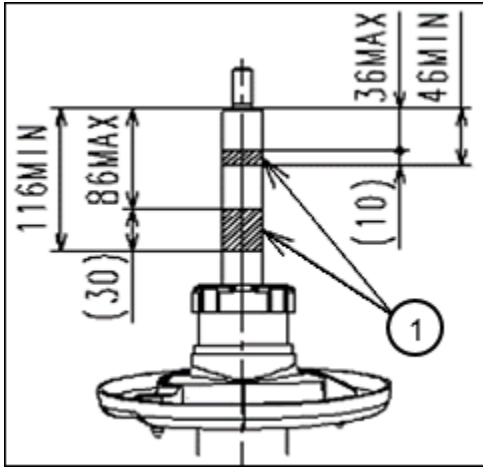
4. The inner side of the protector contains adhesive glue (B), so, after the installation, press on the protector to adhere it to the spring.
5. Using the modified bump stopper, assemble and install the shock absorbers according to the instructions on MGSS online (FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION).
6. Verify the repair.

Repair 3 (For Vehicle Type A, B andC): Replace the bump stopper with modified service part (**affected side(s)**)

1. Replace the bump stopper with the modified service part (**affected side(s)**) according to the instructions on MGSS online (**FRONT SHOCK ABSORBER AND COIL SPRING REMOVAL/INSTALLATION**).

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

NOTE: Before installing the new bump stopper, apply rubber grease to the area (1) on the shaft as shown below. The grease may be applied outside of the area.



NOTE: Perform the following steps so the adjustment of the front wheel alignment is not necessary. Before removal of the mounting rubber, place a position mark on it so it can be installed back in the original position. If this has been done, it is not necessary to adjust the front wheel alignment because the front shock absorber and the mounting rubber were not replaced.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

PARTS INFORMATION

| Parts Number | Description | Qty. | Notes |
|---------------------|--------------------------------------|---------------|-------------------|
| TK48-34-470A | Front Lower Arm Rubber Bushing | 2 | --- |
| TKY8-34-081 | Protector Tube | 2 | --- |
| 9YB0-41-414 | Piston Rod Nut, Front Shock Absorber | 2 | Replace |
| TK48-34-111D | Bump Stopper | 1 or 2 | Service part only |

WARRANTY INFORMATION

NOTE:

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under Mazda's New Vehicle Limited Warranty term.
- Additional diagnostic time cannot be claimed for this repair.

According to the vehicle type, use the following warranty information to submit claim(s).

| | Repairs | | | Warranty Information Type(s) To Use | | | |
|--------------|----------------------------|--------------------|----------------------|-------------------------------------|--|-----------------------------------|-----|
| | | | | WA | WB | WC | WD |
| Vehicle Type | Replace Lower Arm Bushings | Install Protectors | Replace Bump Stopper | Replace Lower Arm Bushings | Install Protector and Replace Bump Stopper | Replace Bump Stopper (See Note 1) | |
| A | X | X | X | X | X | L. Time included in B | |
| B | X | --- | X | X | --- | --- | X |
| C | --- | --- | X | --- | --- | X | --- |

NOTE:

- Type **WD** Warranty Information, the total labor time for duplicate work between Lower Arm Bushing, R&R is deducted.
- Type **WC** Warranty Information includes the full labor time for Bump Stopper, R&R only.

Page 10 of 13

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

- For Vehicle Types A and B, submit two claims separately.

WA. (For Vehicle Type A and B): Replace Lower Arm Bushing with modified parts and Bump Stopper (Both Sides)

| | |
|---------------------------------|---|
| Warranty Type | A |
| Symptom Code | 82 |
| Damage Code | 99 |
| Part Number Main Cause | TK48-34-470A (Front Lower Arm Rubber Bushing) |
| Quantity | 2 |
| Operation Number / Labor Hours: | <p><u>Lower Arm Bushing, Replace (Both sides)</u> Select one applicable to the actual repair.</p> <p>1. Front Wheel Alignment Check Adjust was performed at sublet shop. XXMBMARX, 0.9 Hrs.</p> <p>2. Front Wheel Alignment Check Adjust was performed at dealer using 4-Wheel Alignment Tester. XXMBMBRX, 2.0 Hrs.</p> <p>3. Front Wheel Alignment Check Adjust is performed at dealer using 4-wheel alignment tester with Wireless Type. XXMBMCRX, 1.6 Hrs.</p> |
| Sublet Code: | If Wheel Alignment Check and Adjust was performed at sublet shop, claim the actual invoice amount with the sublet code "C1". |

WB. (For Vehicle Type A Only): Install Protectors onto Coil Springs (Both Sides) and Bump Stopper (Affected Side(s))

NOTE: Use this SRT when the lower arm bushings are replaced at the same time. The time for the duplicated operations incurred for both operations is reduced.

| | |
|---------------|----|
| Warranty Type | A |
| Symptom Code | 82 |
| Damage Code | 99 |

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

| | |
|---------------------------------|--|
| Part Number Main Cause | TKY8-34-081 (Protector Tube) |
| Quantity | 2 |
| Operation Number / Labor Hours: | XXN26ARX / 0.6 Hr. (Protector (Both Sides)) and Bump Stopper (One or Both Sides) , Install) |

NOTE: Enter Bump Stopper as a related part.

WC. (For Vehicle Type C Only): Replace Bump Stopper with modified service parts (Both Sides)

| | |
|---------------------------------|--|
| Warranty Type | A |
| Symptom Code | 82 |
| Damage Code | 99 |
| Part Number Main Cause | TK48-34-111D (Bump Stopper) |
| Quantity | 1 or 2 |
| Operation Number / Labor Hours: | XXN26ERX / 0.5 Hr. (Bump Stopper, Install (One Side) XXN26BRX / 0.7 Hr. (Bump Stopper, Install (Both Sides) |

WD. (For Vehicle Type B Only): Replace Bump Stopper with modified service parts (Affected Side(s))

NOTE: Use this SRT when the lower arms are replaced at the same time. The time for the duplicated operations incurred for both operations is reduced.

| | |
|---------------------------------|--|
| Warranty Type | A |
| Symptom Code | 82 |
| Damage Code | 99 |
| Part Number Main Cause | TK48-34-111D (Bump Stopper) |
| Quantity | 1 or 2 |
| Operation Number / Labor Hours: | XXN26CRX / 0.4 Hr. (Bump Stopper, Install (Both Sides) XXN26CRX / 0.4 Hr. (Bump Stopper, Install (Both Sides) XXN26FRX / 0.2 Hr. (Bump Stopper, Install (One Side) XXN26CRX / 0.4 Hr. (Bump Stopper, Install (Both Sides) |

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.