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Subject: KNOCKING / SQUEAKING NOISE FROM FRONT SHOCK ABSORBER, CREAKING NOISE FROM FRONT LOWER ARM BUSHING	Bulletin No: 02-003/17
	Last Issued: 01/13/2017

BULLETIN NOTE

This bulletin supersedes the previously issued bulletin(s) listed below: The changes are noted in Red beside the change bars.

Previously issued TSBs:	Date issued:
02-010/16	10/10/2016, 07/21/2016, 04/05/2016, 03/10/2016
02-006/16	02/23/2016
02-003/15	12/17/2015 and 02/04/2015
02-001/15	11/20/2015 and 01/14/2015
02-005/14	12/12/2014
02-005/13	08/24/2013 and 11/11/2013

APPLICABLE MODEL(S)/VINS

2016 CX-3 vehicles with VINs lower than JM1 DK ***** 136727 (produced before March 07, 2016)

2013-2016 CX-5 vehicles with VINs lower than JM3 KE ***** 742261 (produced before November 16, 2015)

2014-2016 Mazda6

2017 Mazda6 vehicles with VINs lower than JM1 GL ***** 117187 (produced before November 7, 2016)

2016 CX-9 vehicles with VINs lower than JM3 TC ***** 127909 (produced before November 8, 2016)

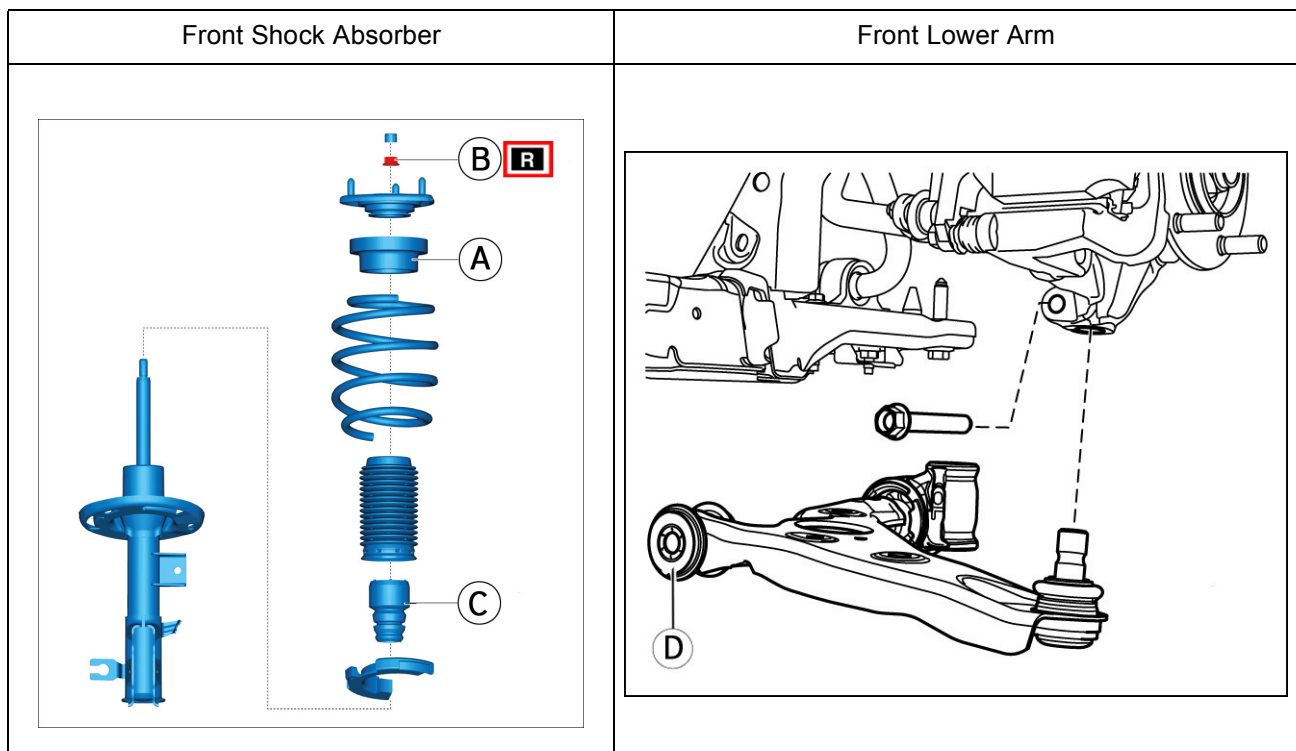
CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers 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.

DESCRIPTION

Some vehicles may exhibit a knocking / squeaking noise from the front shock absorber when driving on rough roads and/or when turning the steering wheel while the vehicle is stopped.

The noise may be due to:

- upper front strut bearing (A) damage. (CX-5 and Mazda6)
- stick/slip between the front strut bearing and coil spring. (CX-3, CX-5 and Mazda6)
- the bump stopper (C) may be contacting the strut bearing when the front shock absorber is compressed, causing a popping noise. (Mazda6 only)
- The front lower arm bushing (D) is making a stick-slip noise in wet road conditions. (CX-5, Mazda6 and CX-9).



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

1. The material and production method of the front strut bearing (A) has been changed. (CX-5 and Mazda6)
2. A protector has been installed onto the coil spring. (CX-5 and Mazda6)
3. The shape of the bump stopper (C) will be modified in the future. (Mazda6 only)
4. The shape of the coil spring has been changed. (CX-3 only)
5. Friction of the lower arm bushing has been reduced by adding a dry coating. (CX-5, Mazda6 and CX-9).

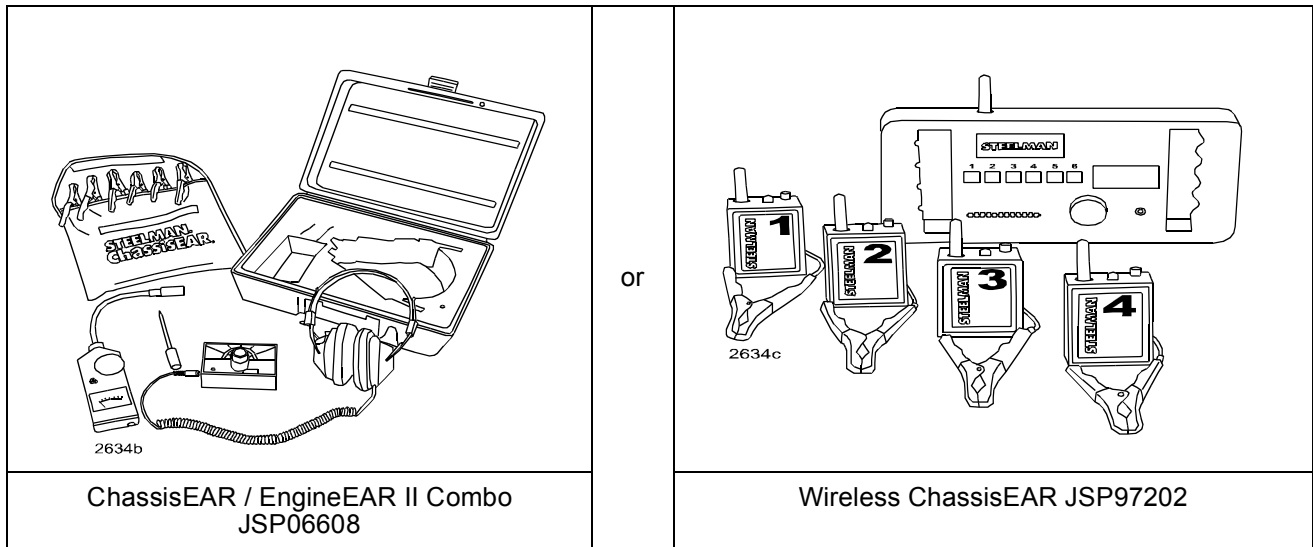
NOTE: The piston rod nut (B) requires replacement.

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

REPAIR OUTLINE

1. Use Special Service Tool (SST) ChassisEAR / EngineEAR II Combo JSP06608 or Wireless ChassisEAR JSP97202 to confirm noise is coming from the front suspension when driving over bumps and/or turning the steering wheel while the vehicle is stopped:

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



2. Was the noise verified?

- Yes - Use the table below to determine if the subject vehicle is a Type A, Type B, Type C, Type D, or Type E vehicle.
- No - This bulletin does not apply.

Year	Model	Type A	Type B	Type C	Type D	Type E
2014-2016	Mazda6 JM1GJ*****	100001-121430	121431-404928	404929-488592	---	---
2017	Mazda6 JM1GL*****	---	---	100001-117187	100001-117187	---
2013-2016	CX-5 JM3KE*****	100001-343673	343674-615843	615844 - 742260	---	---
2016	CX-3 JM1DK*****	---	---	---	---	100001-136727
2016	CX-9 JM3TC*****	---	---	100001-127909	---	---

3. Use the table below to identify the appropriate repair.

Repair (Perform On Both Sides)	Type A	Type B	Type C	Type D	Type E
1. Inspect the front strut bearing for damage. If damaged, replace it.	Perform	Do Not Perform	Do Not Perform	Do Not Perform	Do Not Perform
2. Install the protector onto the coil spring. (Refer to "Protector Installation Procedure".	Perform	Perform	Do Not Perform	Do Not Perform	Perform
3. Replace the lower arm bushing.	Perform	Perform	Perform	Do Not Perform	Do Not Perform
4. Replace the bump stopper. (Mazda6 Only)	Perform	Perform	Perform	Perform	Do Not Perform

NOTE:

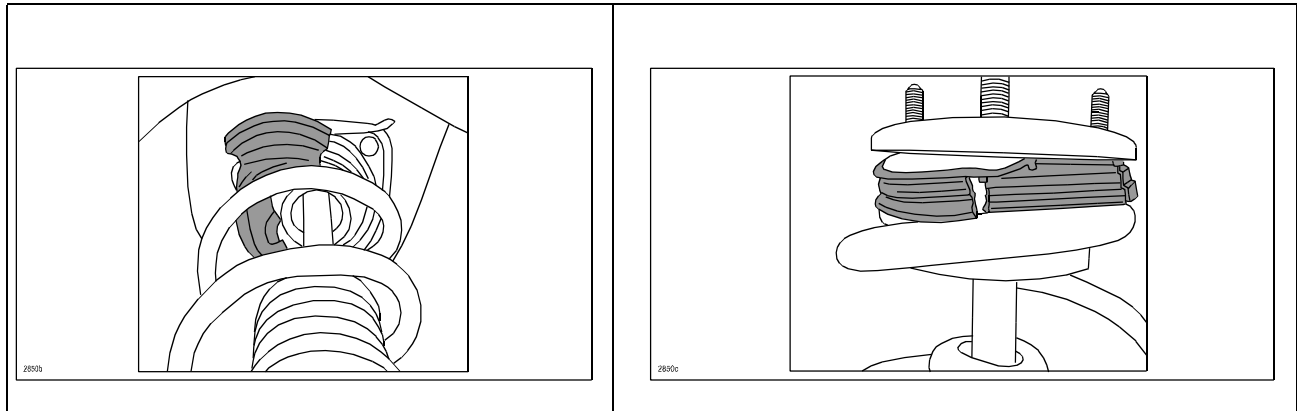
- For removal/installation and disassembly/assembly of the front shock absorber, refer to the workshop manual "FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY".
- Before removing the mounting rubber, put the position mark so the mounting rubber can be installed back in the original position.

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.

REPAIR PROCEDURE

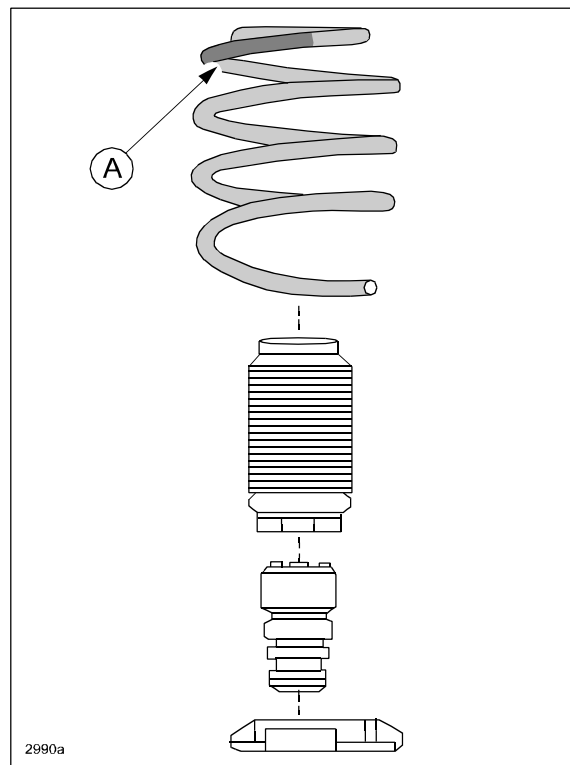
Inspect Front Strut Bearing for damage (For Vehicle Type A only)

1. Remove the front strut bearing and coil spring according to the MS3 online instructions or the Workshop Manual (section 02-13 FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY).
2. Replace the front strut bearing if damaged*.



Install Protector onto Coil Spring (For Vehicle Type A, B and E)

Coil Spring Protector (A) Installation:

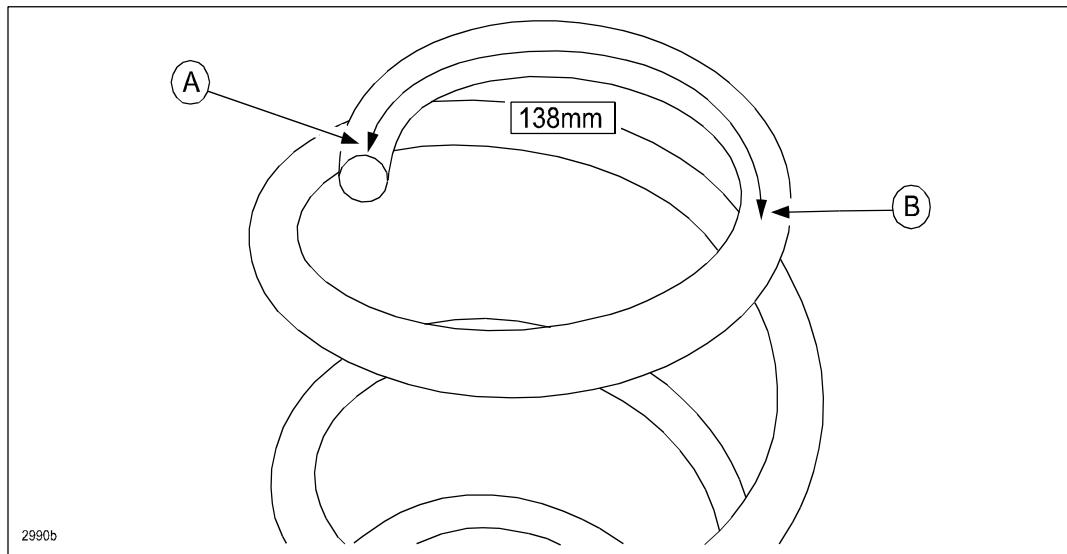


3. Starting from the top of the coil spring, decrease the spring 1.5 coils downward.

4. Cut a thin strip of paper to 138 mm in length (or use a cloth type measuring tape).

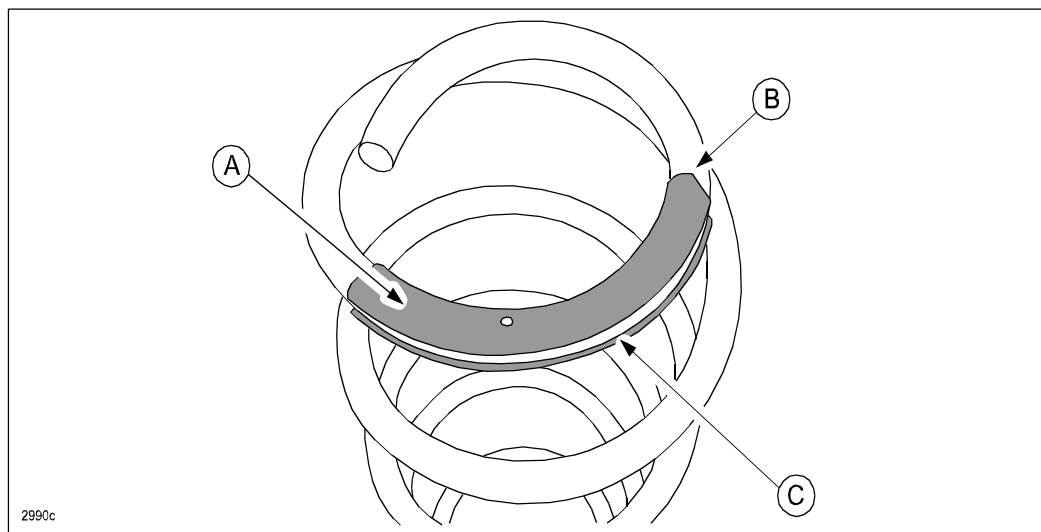
NOTE: For CX-3, use 130 mm in length.

5. Place the strip of paper (or cloth measuring tape) along the inner side of the coil spring starting at point (A).
6. Mark the spot on the spring where (B) is. (B) is the starting point for the protector installation.



7. Install the protector (A) onto the coil spring aligning the end (slant cut side) with the marking at spot (B).

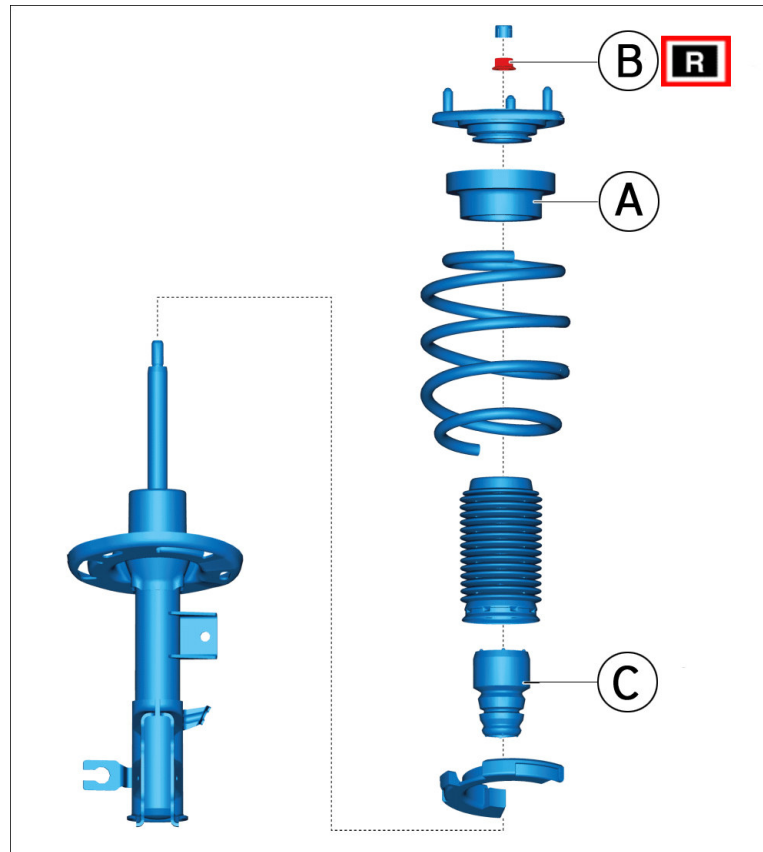
NOTE: Install the protector so the gap (C) is evenly aligned around the outer edge of the coil spring.



8. The inner side of the protector contains adhesive glue. After installing the protector onto the spring, press the inner side to firmly adhere it to the spring.
9. Assemble the coil spring to the strut assembly and make sure the protector is seated onto the bearing even when the shock absorber is fully extended.

Replace Bump Stopper (For all Mazda6 vehicles, Type D)

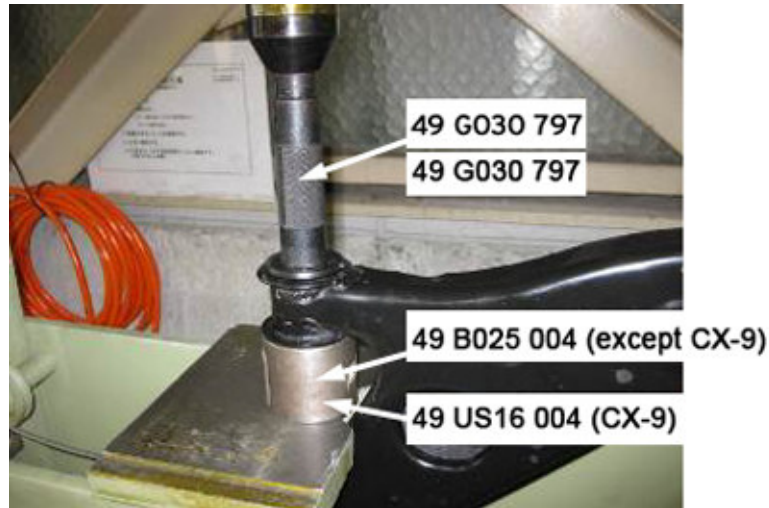
1. Remove the front strut bearing and coil spring according to MS3 online instructions or the Workshop Manual (section 02-13 FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY).
2. Replace the bump stopper (C).



3. Reinstall the front strut bearing and coil spring according to MS3 online instructions or the Workshop Manual (section 02-13 FRONT SHOCK ABSORBER AND COIL SPRING DISASSEMBLY/ASSEMBLY).
4. Repeat Steps 1 - 3 on the opposite side front suspension.
5. Verify repair.

Replace Lower Arm Bushing (For Vehicle Type A, B and C)

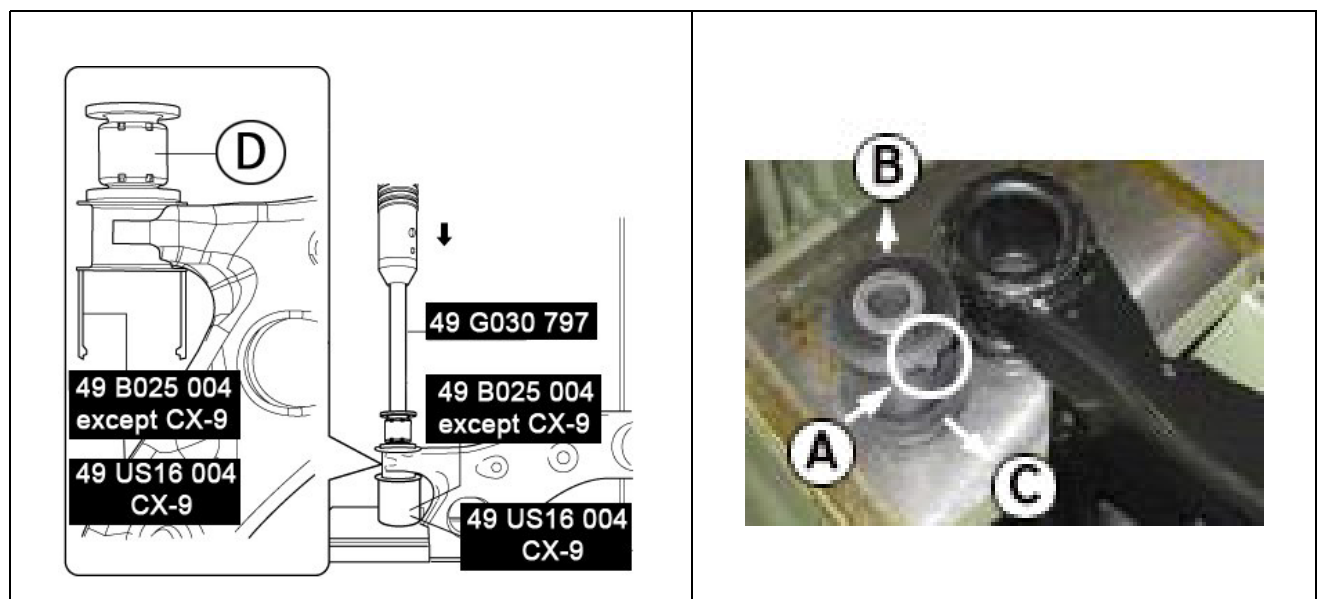
1. Remove the front lower arm (both sides) according to MS3 online instructions or the Workshop Manual (section 02-13 FRONT LOWER ARM REMOVAL/INSTALLATION).
2. Remove the front lower arm bushing using the SSTs.
Set SSTs [49 G030 797 and 49 B025 004 (except CX-9) / 49 US16 004 (CX-9)] and the front lower arm on a shop press as shown in the figure and remove the front lower arm bushing.





3. Install the front lower arm bushing (D) using SSTs.
Install the front lower arm bushing so that the projection (A) shown in the figure is pointing toward the front (B) and out of the vehicle (C).

NOTE:

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

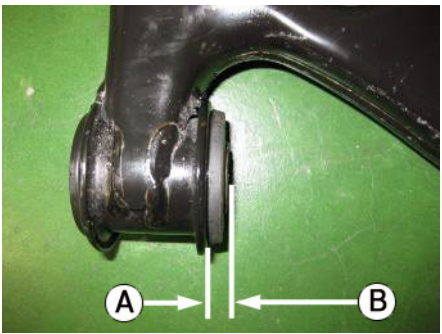




CAUTION: Make sure that the bushing has been properly inserted by checking that the tab of the bushing is completely expanded as shown in the OK illustration.

OK	NG
Tab is completely expanded	Tab is NOT completely expanded yet
	

4. After the installation, verify that the front lower arm bushing has been installed to the correct position by the procedure shown in the figure.

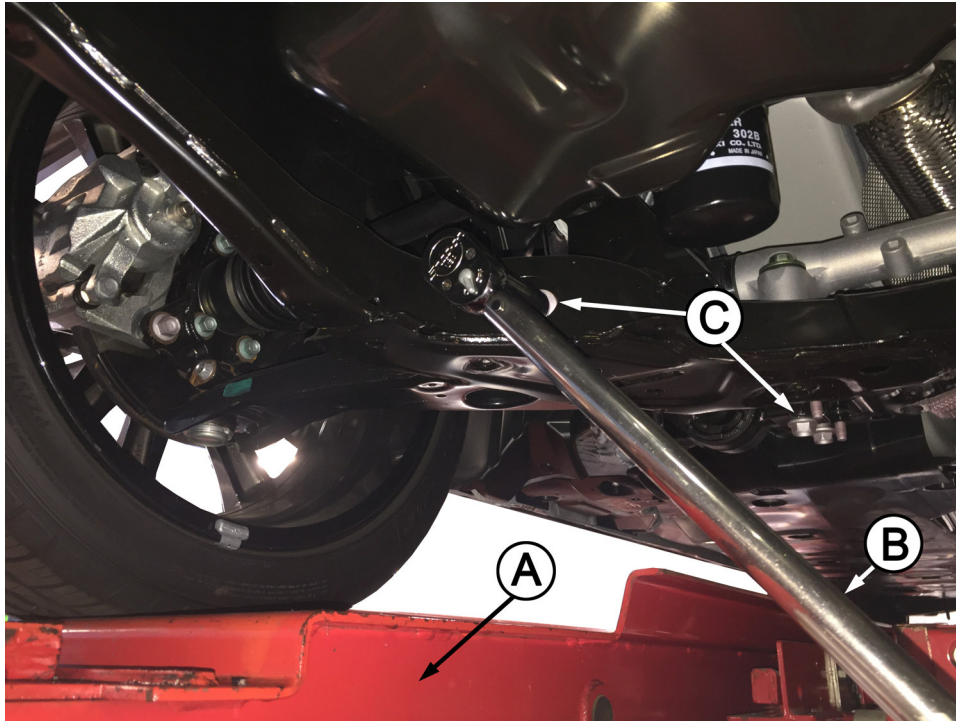
Specification: Width: **5.6 +/- 0.8mm** (0.22 +/- 0.03 in)

Measure the distance of the lower arm end face (A) and the inner pipe bushing (B).		Measure the width as shown
		

5. Install the front lower arm (both sides) according to MS3 online instructions or the Workshop Manual (section 02-13 FRONT LOWER ARM REMOVAL/INSTALLATION).

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.

The Mazda6 is shown below as an example.



6. Inspect the wheel alignment and adjust if necessary.
7. Verify repair.

PART(S) INFORMATION

Part Number	Description	Qty.	Notes
KR27-34-38X	Front Strut Bearing	1 or 2	Type A only
9YB0-41-237	Piston Rod Nut	2	All Non-reuseable nut R
KDY5-34-081	Protector	2	Type A , B and E
GHY9-34-111 or GRT7-34-111	Bump Stopper	2	Mazda6 only GHY9-34-111 is a service part GRT7-34-111 is a mass production part
TK48-34-470	F. Lower Arm Rubber Bushing	2	Type A, B and C

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.
- Type A, B and C repairs have two different causal parts (front shock absorber and lower arm). Submit two (2) separate claims.

Front Shock Absorber Repair (All Types)

	CX-5, Mazda6	CX-5, Mazda6	CX-3
Warranty Type	A	A	A
Symptom Code	82	82	82
Damage Code	9A	9A	97
Part Number Main Cause	KR27-34-38X	KR27-34-38X	7777-SP-K08
Quantity	0, 1 or 2	0, 1 or 2	0
Operation Number / Labor Hours	<u>With</u> front lower arm bushing replacement	<u>Without</u> front lower arm bushing replacement	XXL9PBRX / 0.9 Hrs.
	XXX8NDRX / 0.6 Hrs.	XXKBKXRX / 0.9 Hrs.	

Front Lower Arm Repair (Type A, B and C)

	CX-5, Mazda6 and CX-9
Warranty Type	A
Symptom Code	82
Damage Code	93
Part Number Main Cause	TK48-34-470
Quantity	2
Sublet Code	If Wheel Alignment Check and Adjust was performed outside of shop, claim the actual invoice amount with the sublet code "Z9" for CX-5 and Mazda6. Use sublet code "C1" for CX-9.
Operation Number / Labor Hours	Replace both lower arm bushings Select one applicable repair below
	<p>1. Wheel Alignment Check & Adjust was performed outside of shop. XXK8NARX, 0.8Hrs. (CX-5 and Mazda6) XXMBMARX, 0.9Hrs. (CX-9)</p> <p>2. Wheel Alignment Check & Adjust was performed at dealer using 4-wheel alignment tester XXK8NBRX, 1.8Hrs. (CX-5 and Mazda6) XXMBMBRX, 2.0Hrs. (CX-9)</p> <p>3. Wheel Alignment Check & Adjust was performed at dealer using 4-wheel alignment tester with Wireless Type. XXK8NCRX, 1.4Hrs. (CX-5 and Mazda6) XXMBMCRX, 1.6Hrs. (CX-9)</p>