

SPECIFICATIONS > FASTENER SPECIFICATIONS

Application	Specification	
	Metric	English
Front Lower Control Front Link Bolt (Requires a NEW bolt.)		
• First Pass:	100 N.m	74 lb ft
• Final Pass:	90-105 Degrees	
Front Lower Control Rear Link Bolt (Requires a NEW bolt.)		
• First Pass:	100 N.m	74 lb ft
• Final Pass:	90-105 Degrees	
Front Stabilizer Shaft Insulator Clamp Nut	22 N.m	16 lb ft
Front Stabilizer Shaft Link Nut	100 N.m	74 lb ft
Front Suspension Strut Mount Nut (With F55 at Top of Front Suspension Strut Mount)	50 N.m	37 lb ft
Front Suspension Strut Mount Nut (Without F55 at Top of Front Suspension Strut Mount)	65 N.m	48 lb ft
Front Suspension Strut Nut (at Steering Knuckle)		
• First Pass:	150 N.m	111 lb ft
• Final Pass:	80-95 Degrees	
Front Suspension Strut Upper Mounting Bolt	22 N.m	16 lb ft
Front Wheel Bearing and Hub Assembly Bolt		
• First Pass:	100 N.m	74 lb ft
• Final Pass:	15-30 Degrees	
Steering Knuckle Nut		

• First Pass:	40 N.m	30 lb ft
• Final Pass:	120-135 Degrees	

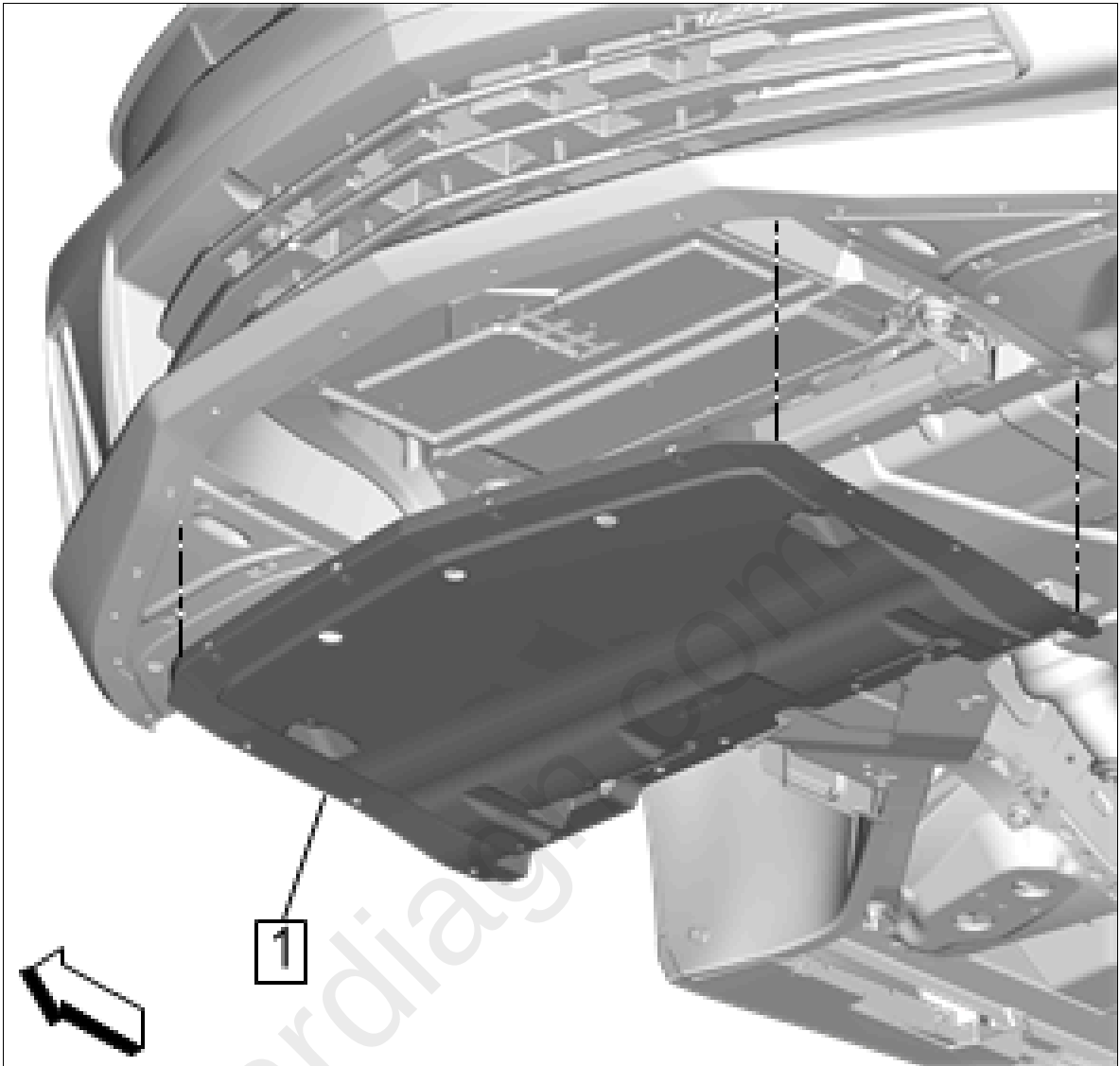
SPECIFICATIONS > ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

Application	Type of Material	GM Part Number	
		United States	Canada
Front Wheel Bearing and Hub Assembly Bolt	Thread Locking Adhesive	89021297	10953488

REPAIR INSTRUCTIONS > STABILIZER SHAFT REPLACEMENT (LGX, LTG) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assemblies. Tire and Wheel Removal and Installation

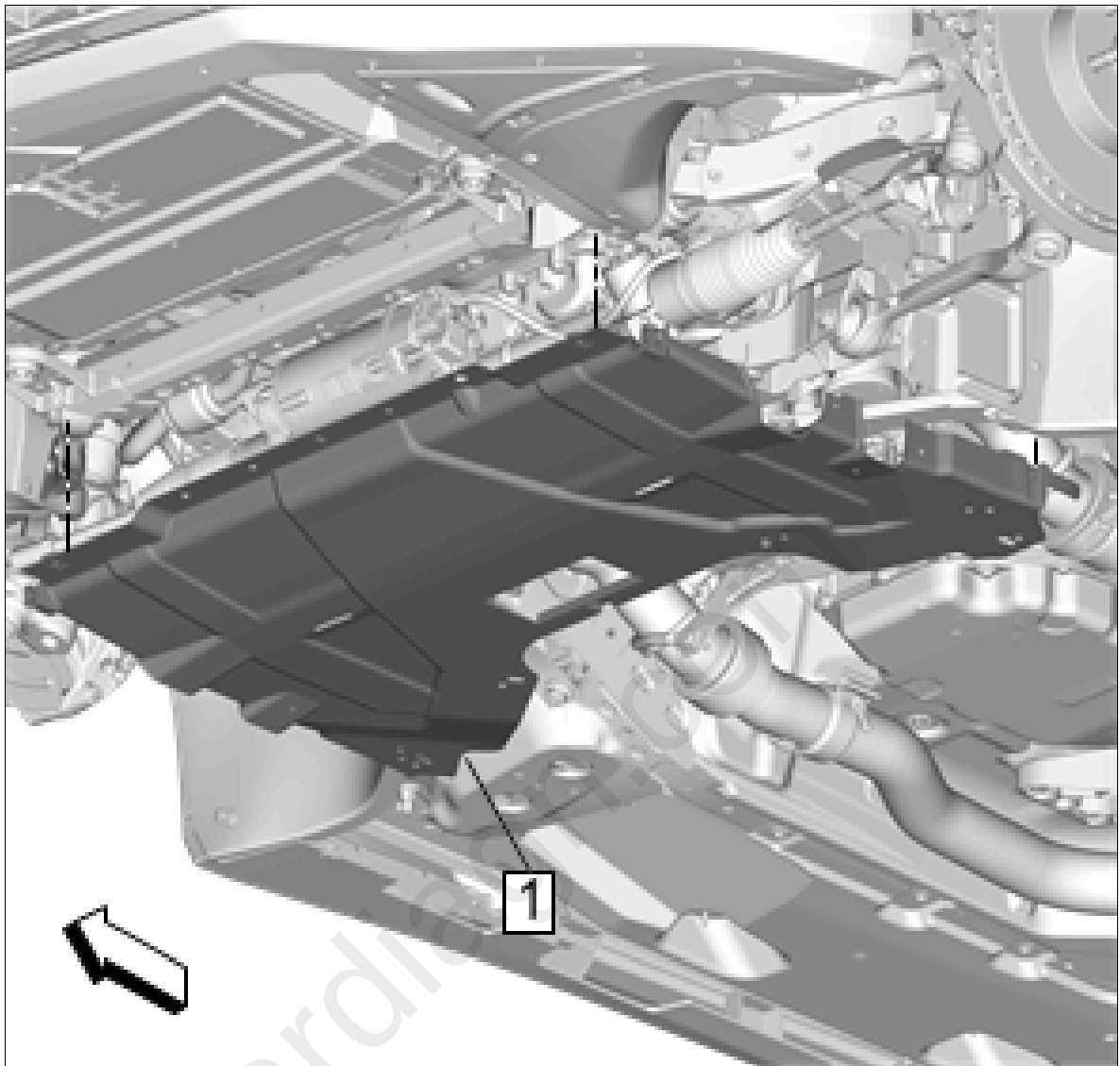
Fig 1: Front Compartment Air Deflector



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Compartment Air Deflector (1) - Front Compartment Air Deflector Replacement (Convertible - LGX, LTG)Front Compartment Air Deflector Replacement (Coupe - LGX, LTG)

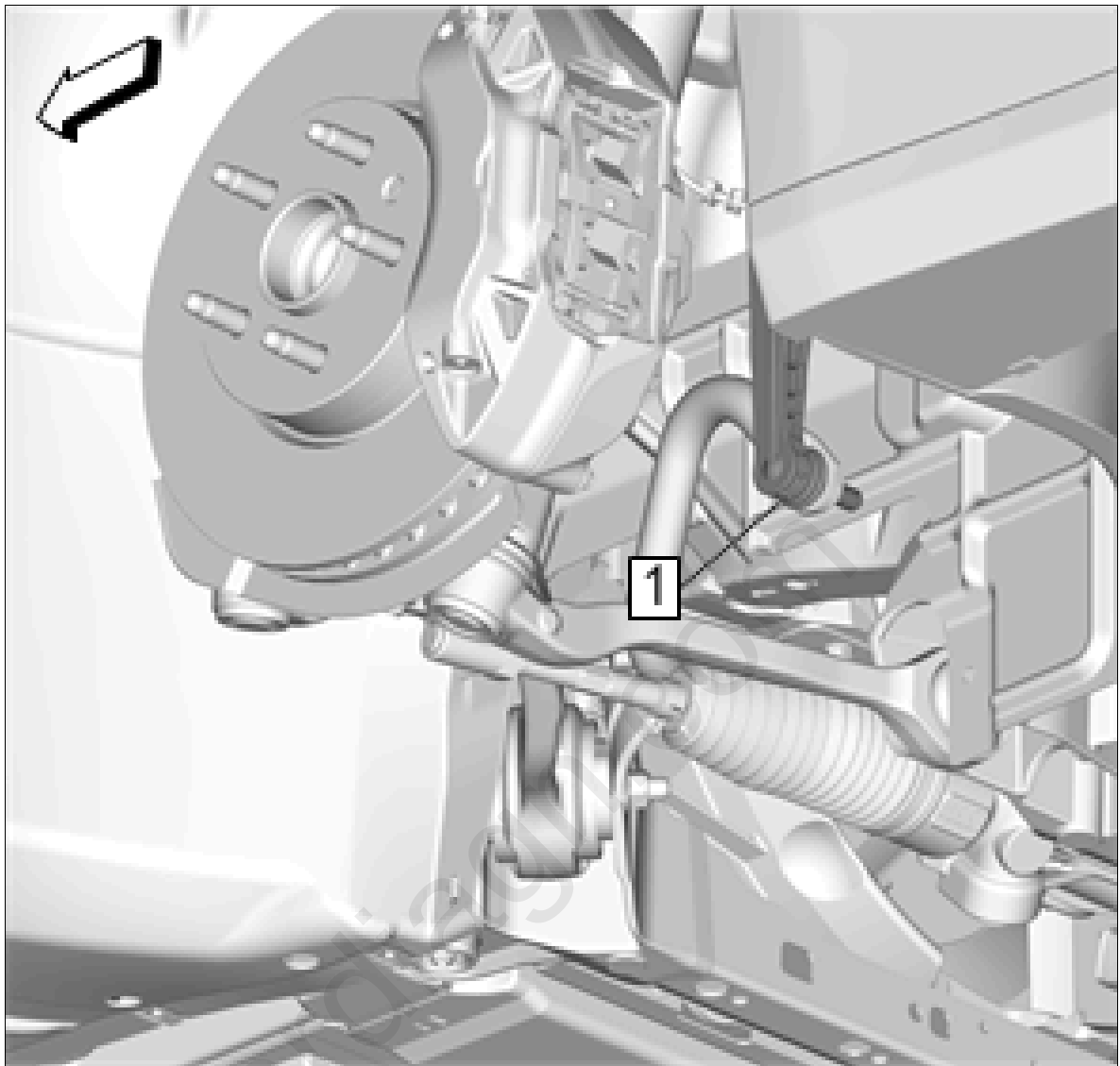
Fig 2: Front Compartment Lower Noise Shield



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Compartment Lower Noise Shield (1) - Front Compartment Lower Noise Shield Replacement (Coupe - LGX, LTG)

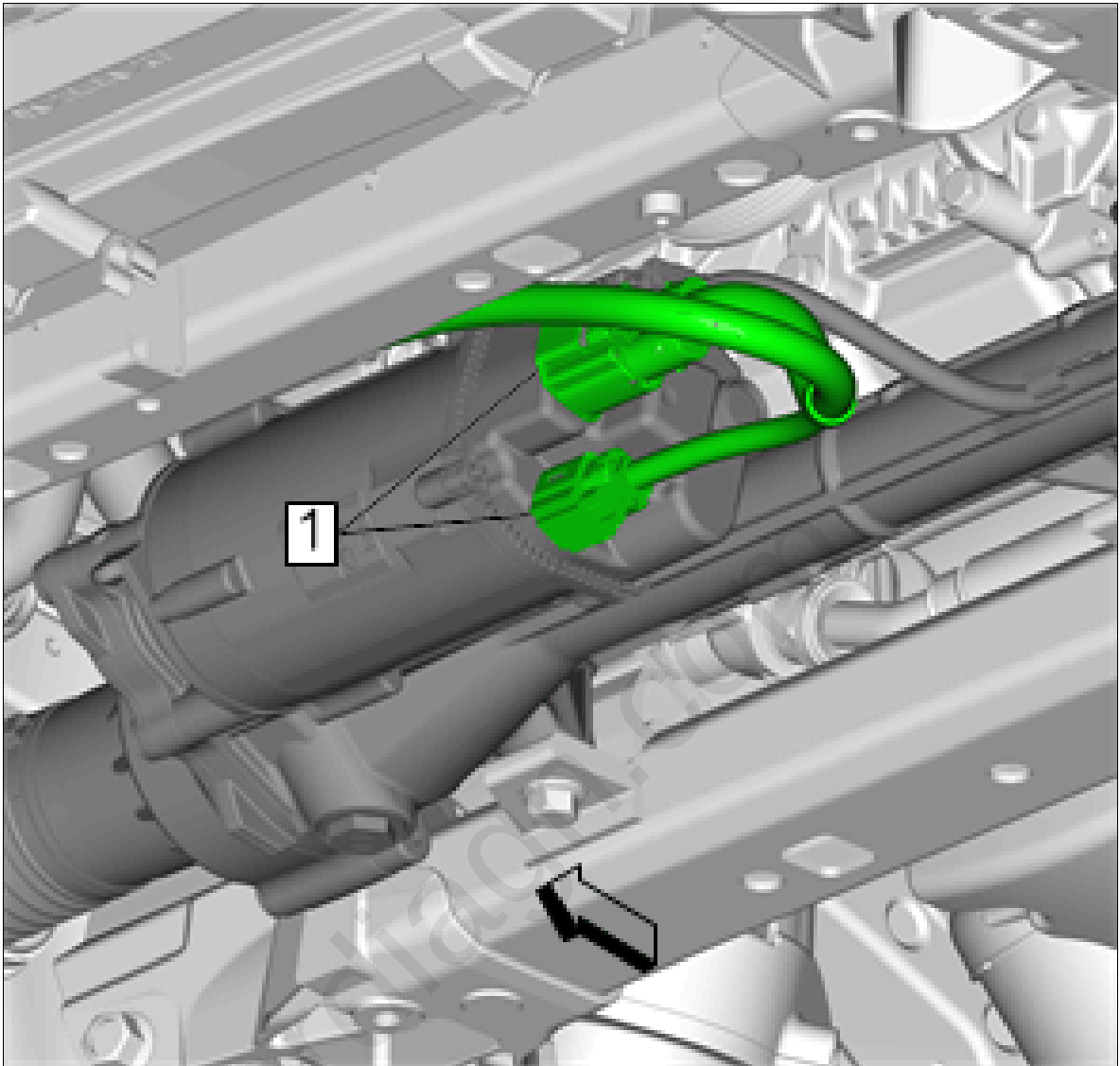
Fig 3: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Stabilizer Shaft Link (1) at Front Stabilizer Shaft - Stabilizer Shaft Link Replacement (LGX, LTG)

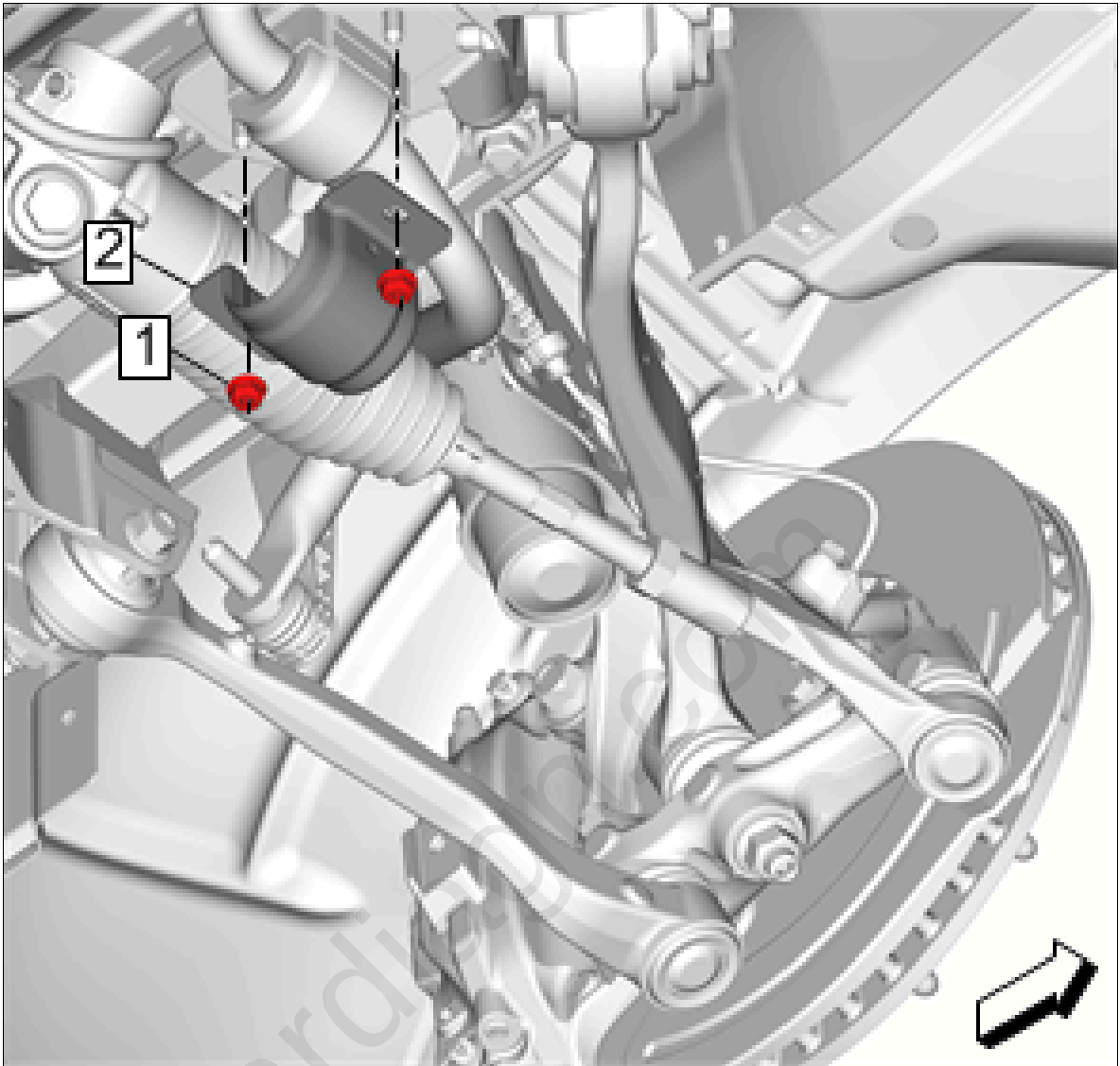
Fig 4: Steering Gear Electrical Connectors



Courtesy of GENERAL MOTORS COMPANY

5. Disconnect the steering gear electrical connectors (1).

Fig 5: Left Side Front Stabilizer Shaft Insulator Clamp Nuts



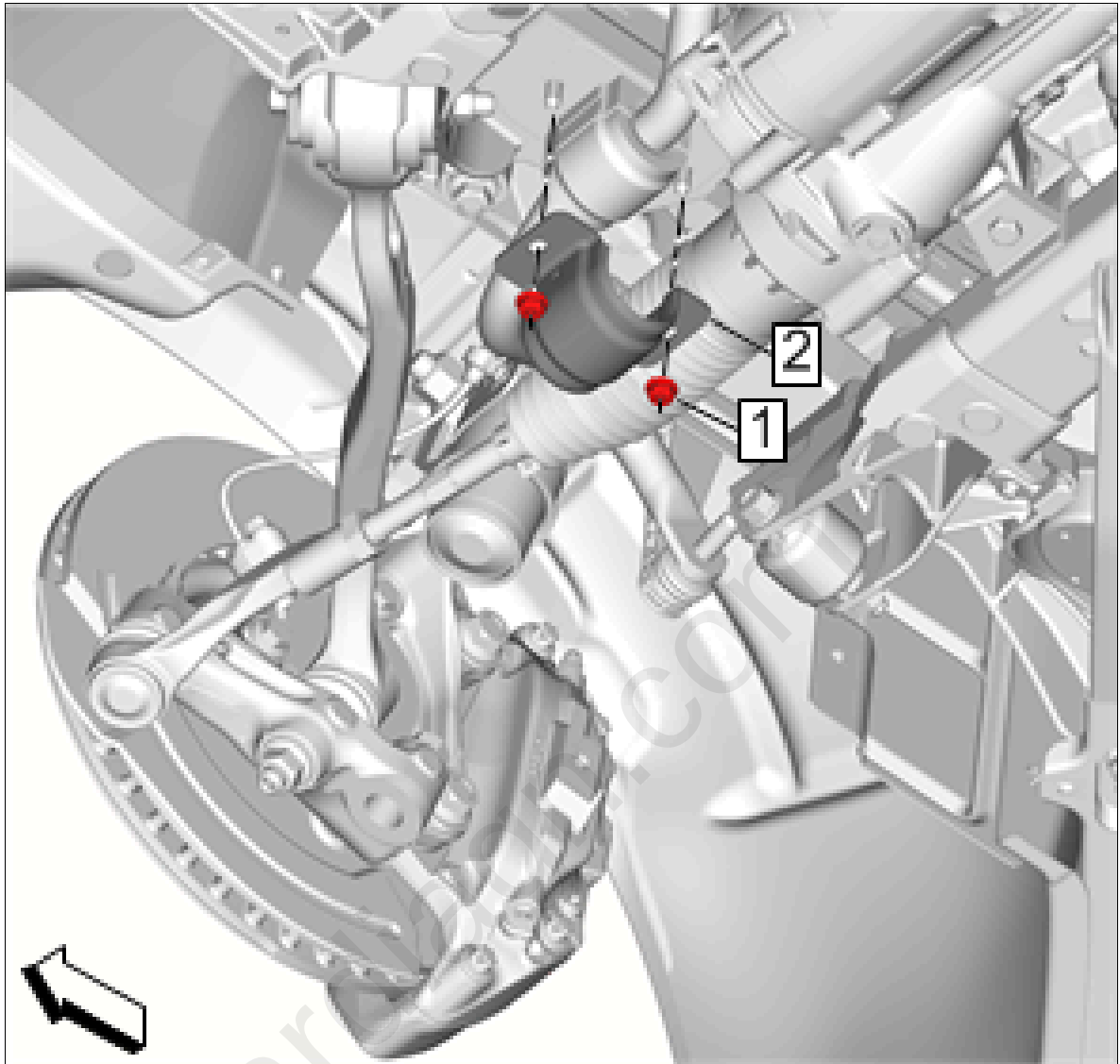
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

6. Using a swivel socket, remove the left side front stabilizer shaft insulator clamp nuts (1) and clamp (2).

Fig 6: Right Side Front Stabilizer Shaft Insulator Clamp Nuts



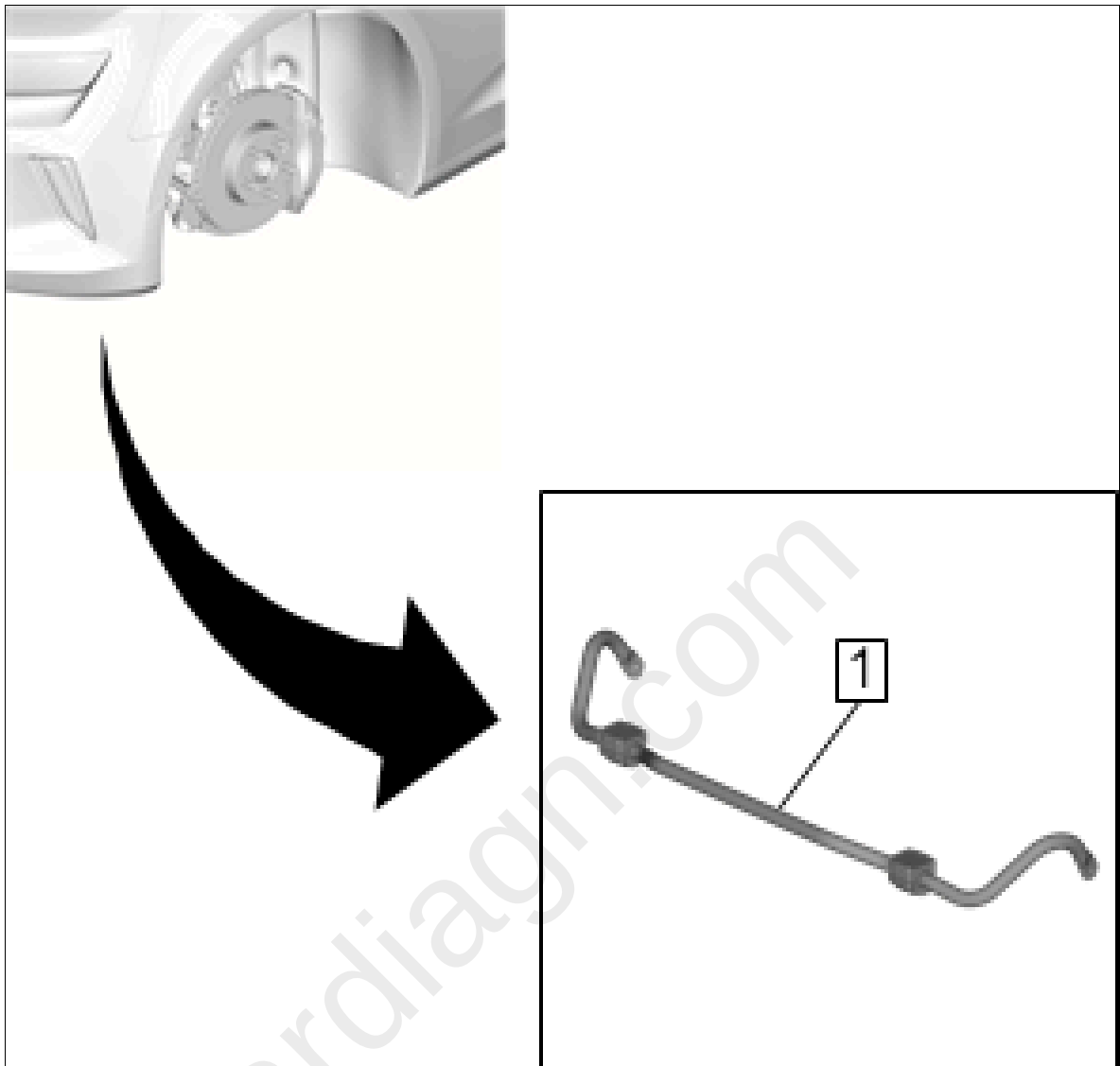
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

7. Using a swivel socket, remove the right side front stabilizer shaft insulator clamp nuts (1) and clamp (2).

Fig 7: Front Stabilizer Shaft



Courtesy of GENERAL MOTORS COMPANY

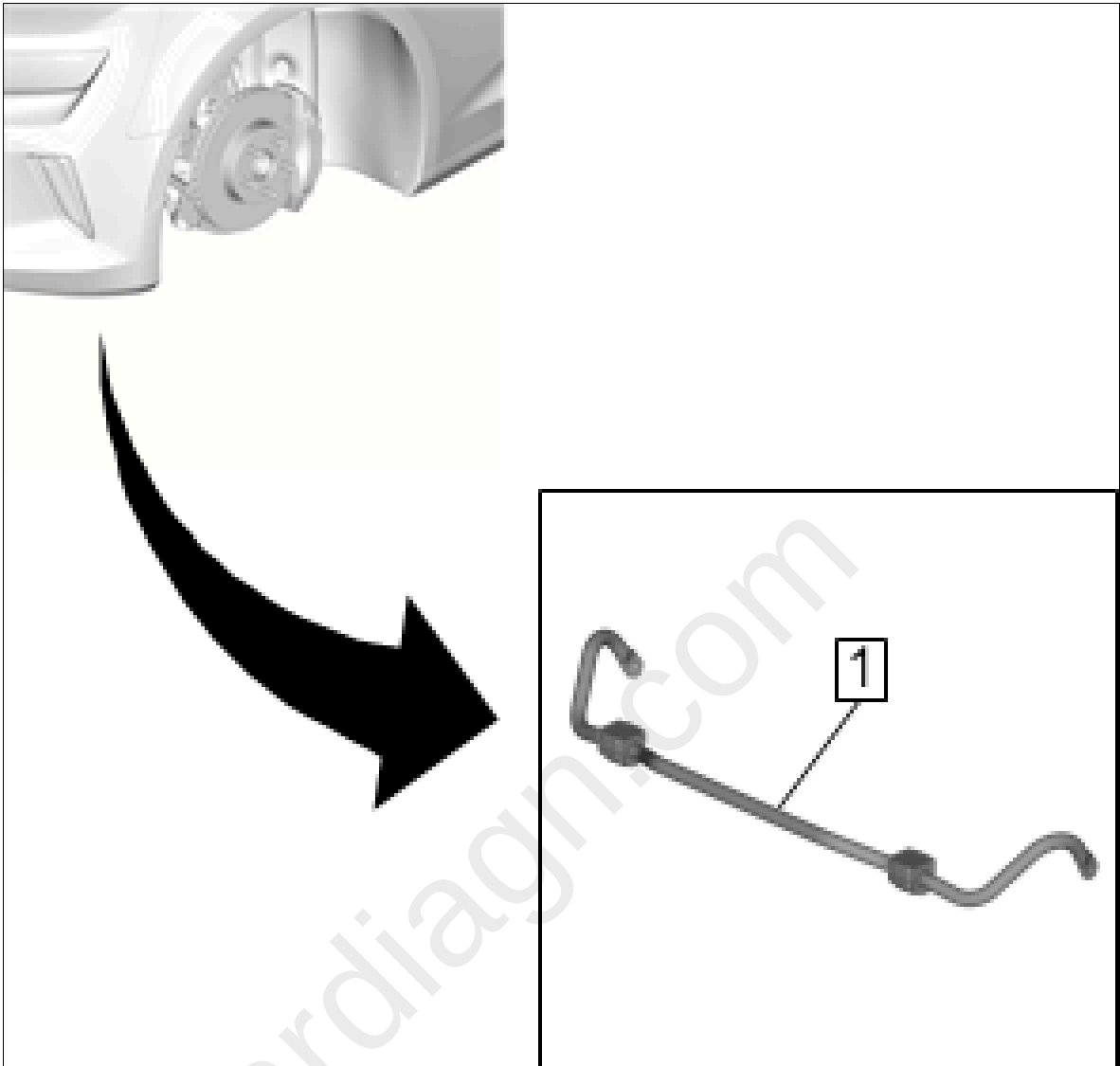
 NOTE:

The front stabilizer shaft insulators are NOT serviceable. Do NOT transfer the insulators.

8. Remove the front stabilizer shaft (1) from the vehicle.

**REPAIR INSTRUCTIONS > STABILIZER SHAFT REPLACEMENT (LGX, LTG) >
INSTALLATION PROCEDURE**

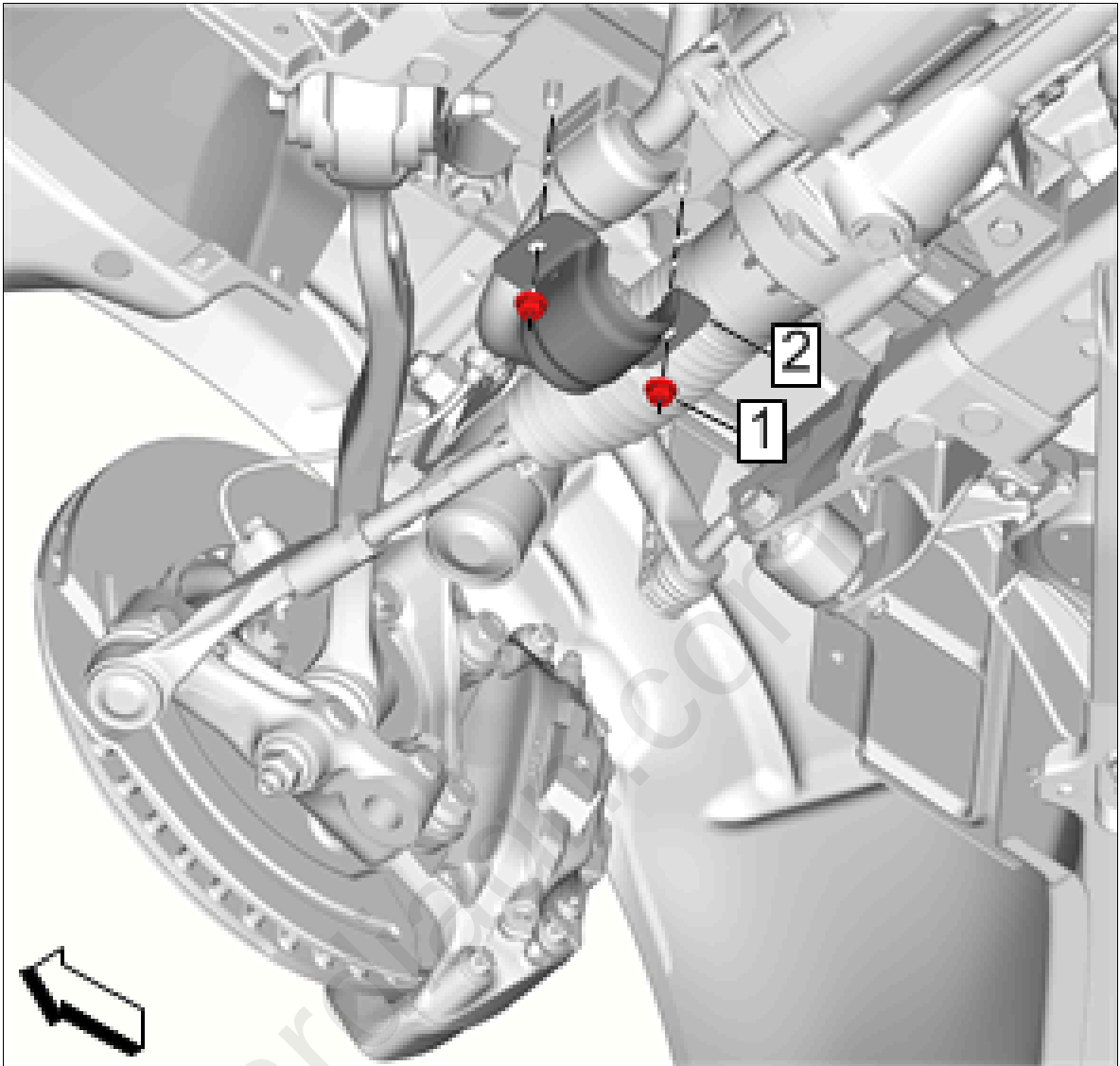
Fig 1: Front Stabilizer Shaft



Courtesy of GENERAL MOTORS COMPANY

1. Position the front stabilizer shaft (1) on the vehicle.

Fig 2: Right Side Front Stabilizer Shaft Insulator Clamp Nuts



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

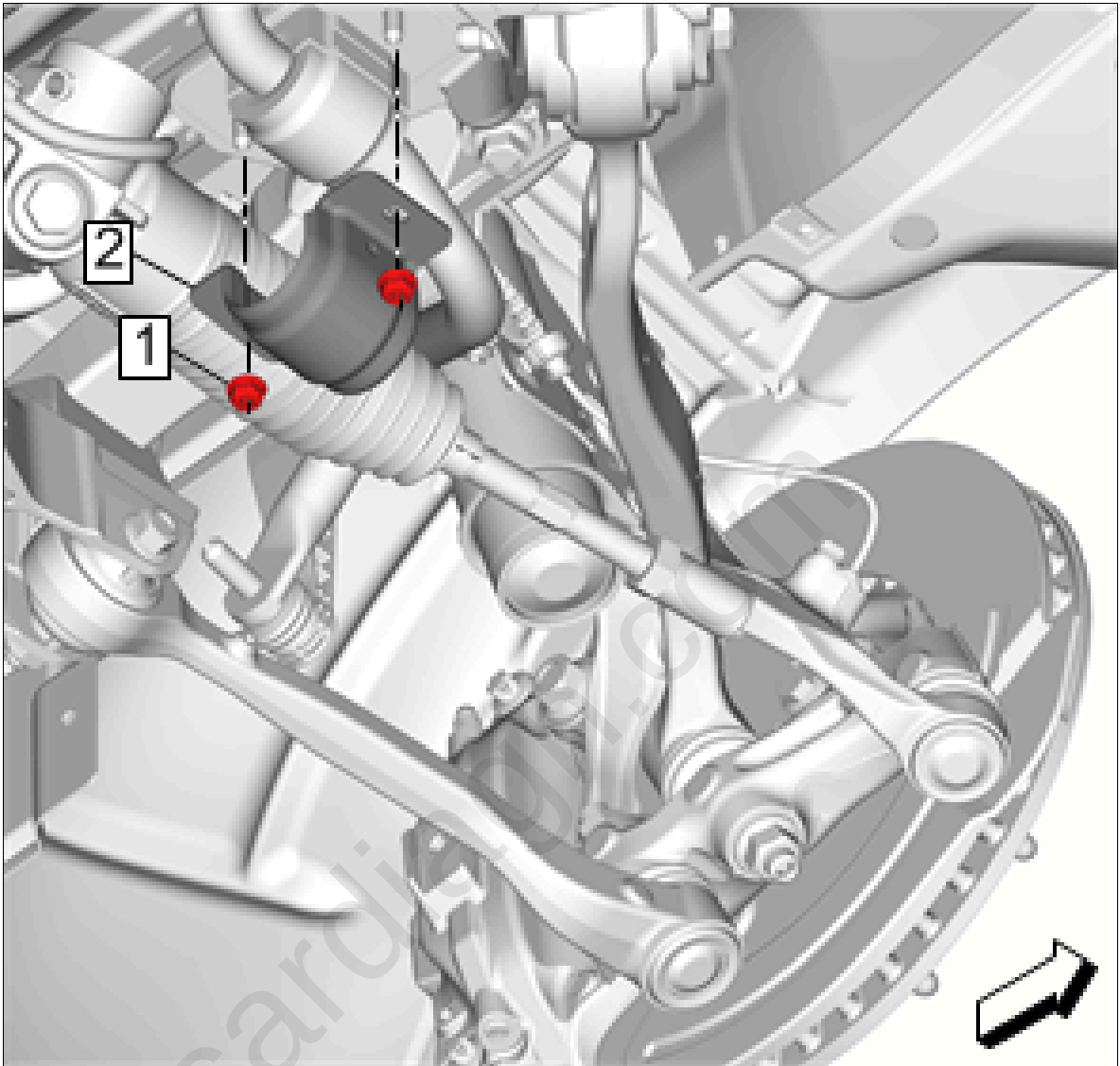
Refer to Fastener Caution .

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

2. Using a swivel socket, install the right side front stabilizer shaft insulator clamp (2) and nuts (1) and tighten the nuts to 22 N.m (16 lb ft).

Fig 3: Left Side Front Stabilizer Shaft Insulator Clamp Nuts



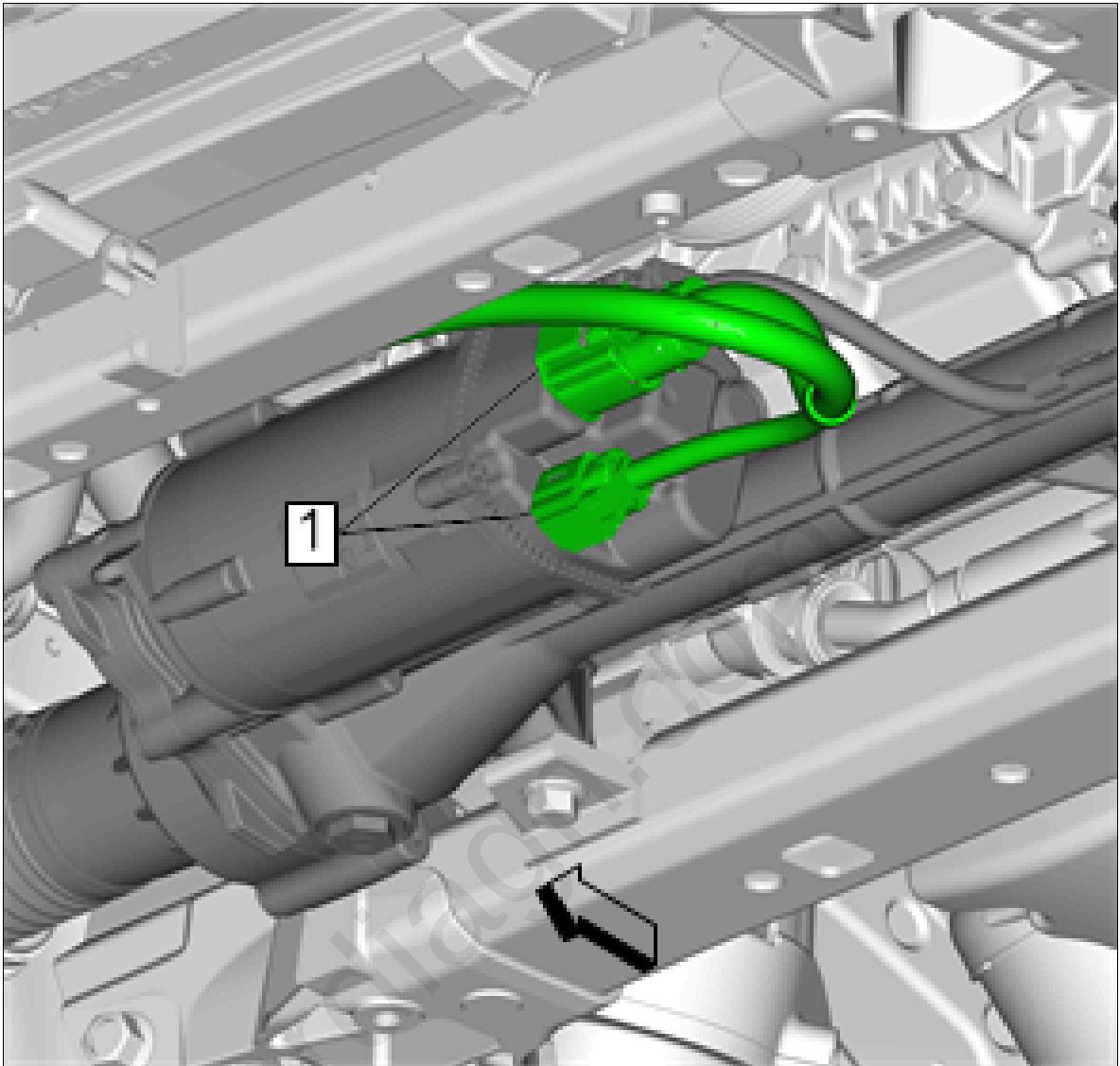
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

3. Using a swivel socket, install the left side front stabilizer shaft insulator clamp (2) and nuts (1) and tighten the nuts to 22 N.m (16 lb ft).

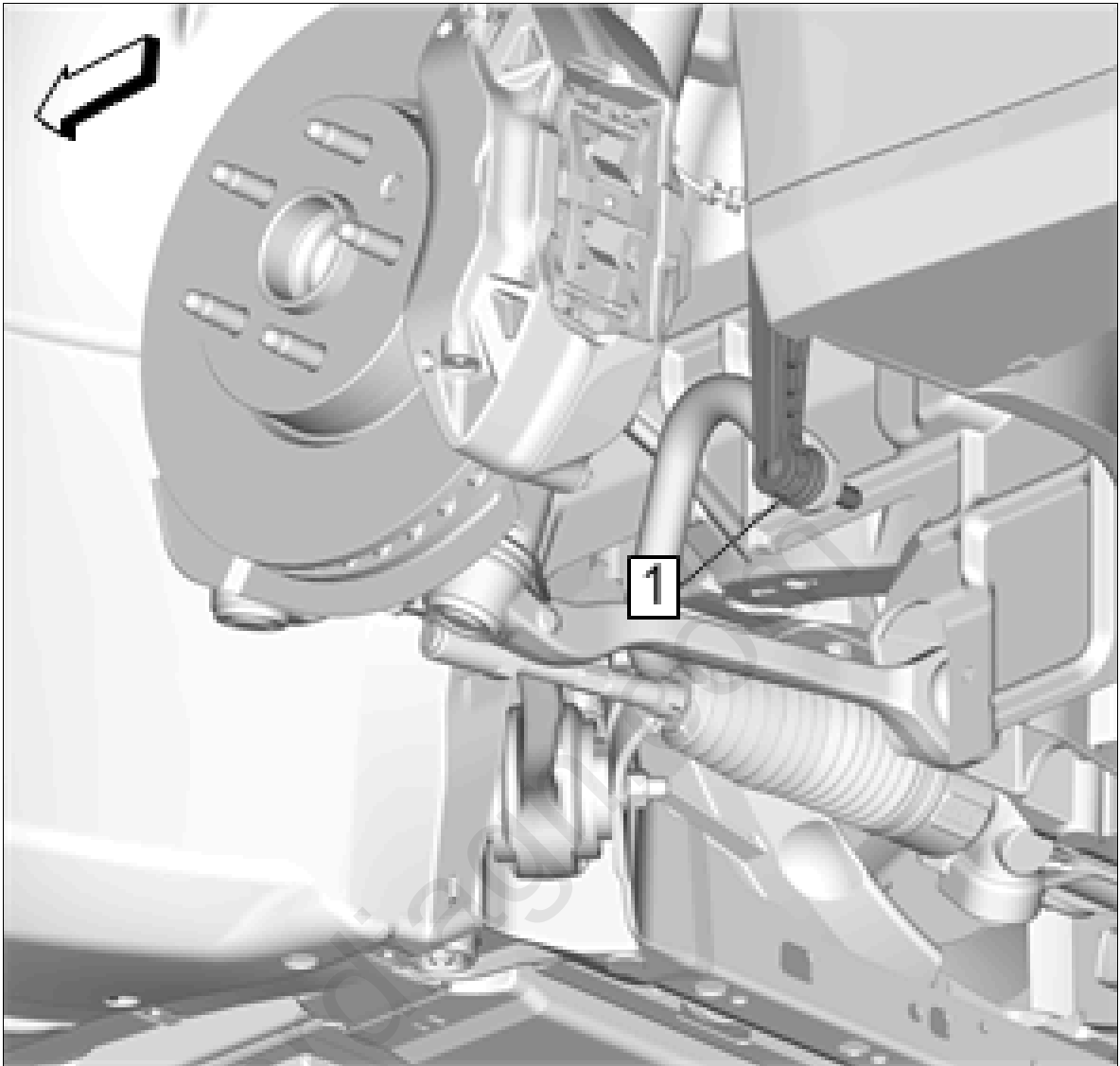
Fig 4: Steering Gear Electrical Connectors



Courtesy of GENERAL MOTORS COMPANY

4. Connect the steering gear electrical connectors (1).

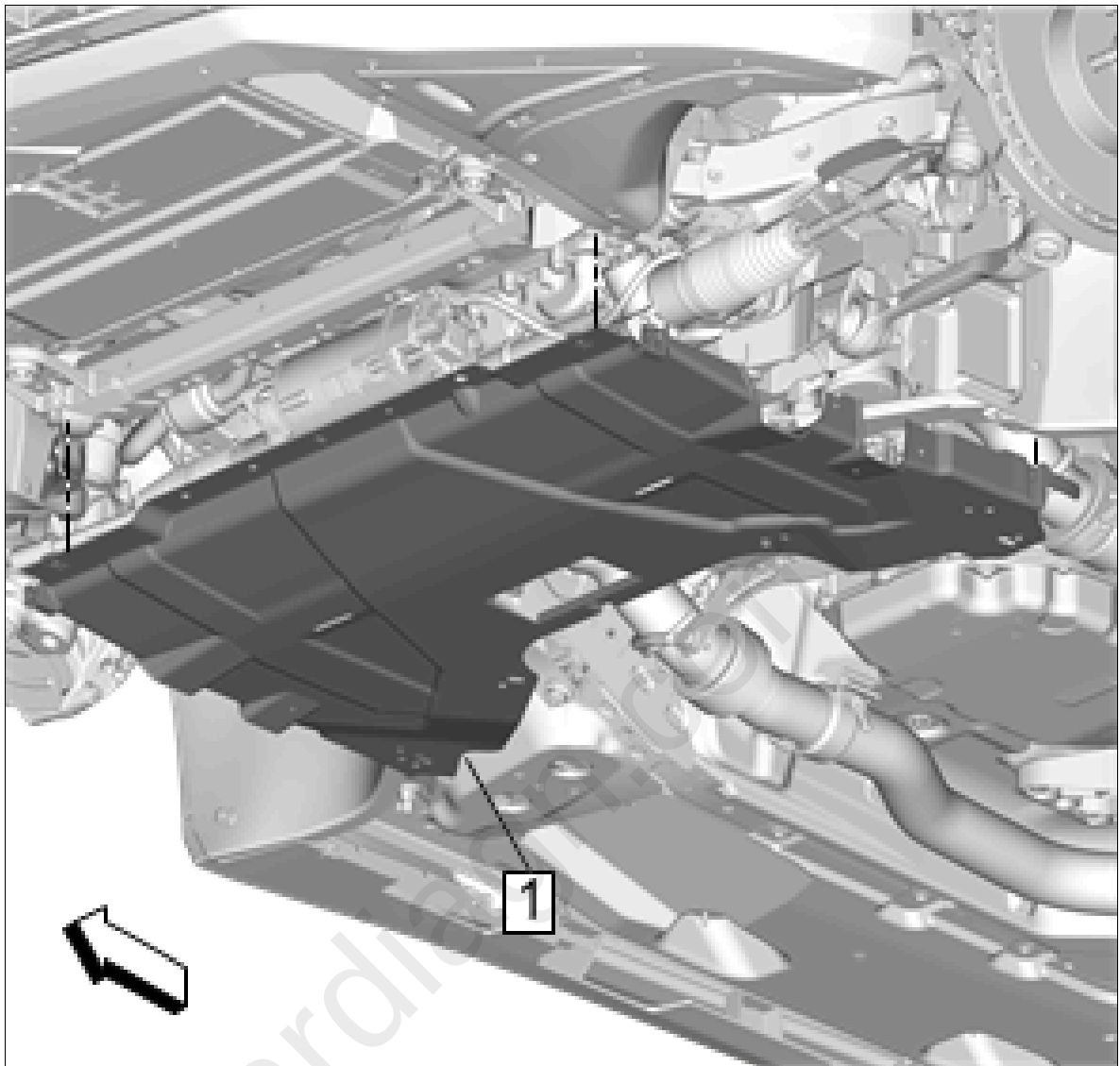
Fig 5: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

5. Install Front Stabilizer Shaft Link (1) at Front Stabilizer Shaft - Stabilizer Shaft Link Replacement (LGX, LTG)

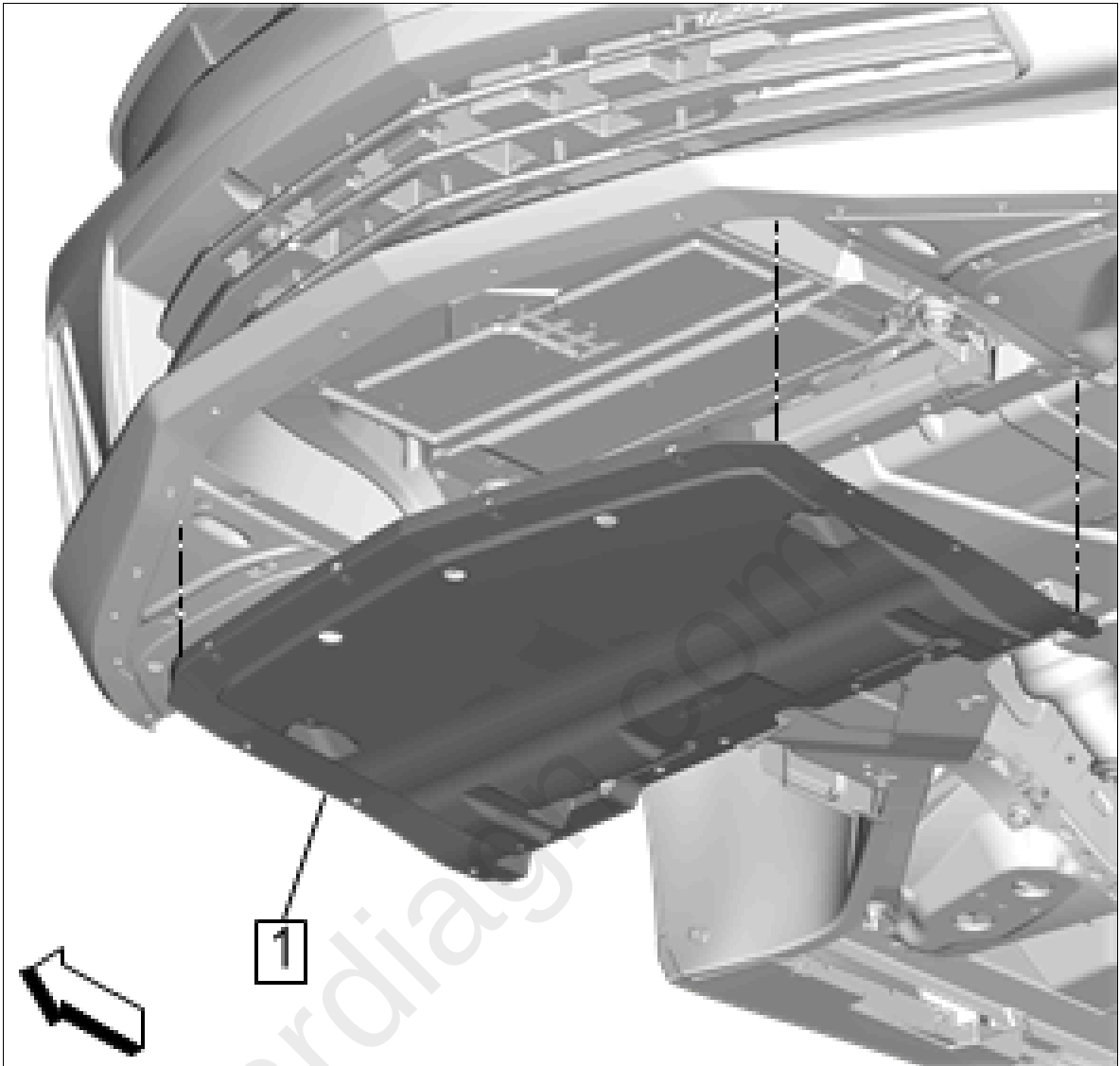
Fig 6: Front Compartment Lower Noise Shield



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Compartment Lower Noise Shield (1) - Front Compartment Lower Noise Shield Replacement (Coupe - LGX, LTG)

Fig 7: Front Compartment Air Deflector



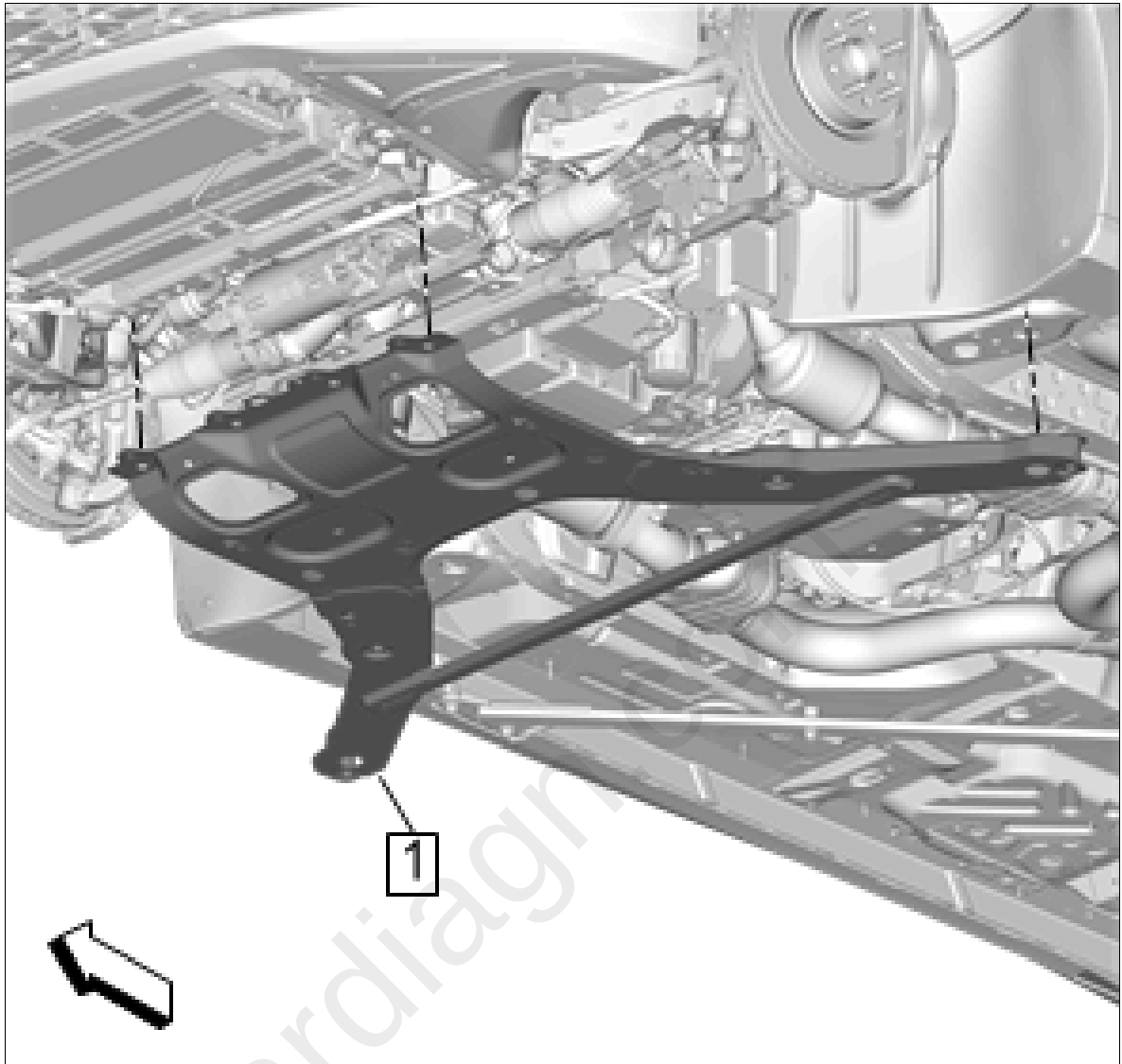
Courtesy of GENERAL MOTORS COMPANY

7. Install Front Compartment Air Deflector (1) - Front Compartment Air Deflector Replacement (Convertible - LGX, LTG)Front Compartment Air Deflector Replacement (Coupe - LGX, LTG)
8. Install the front tire and wheel assemblies. Tire and Wheel Removal and Installation

REPAIR INSTRUCTIONS > STABILIZER SHAFT REPLACEMENT (LT1) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assemblies. Tire and Wheel Removal and Installation

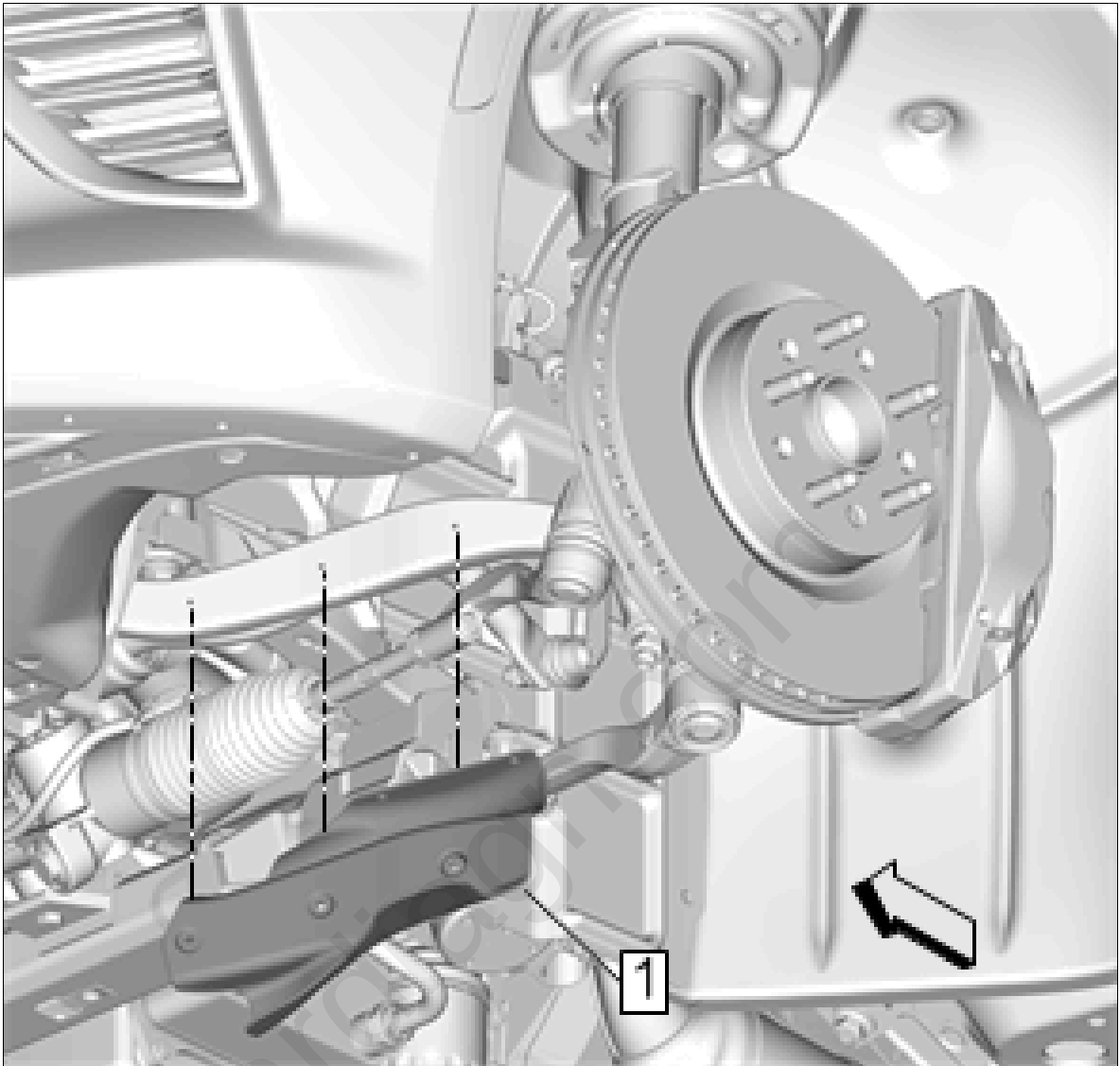
Fig 1: Front Cradle Shear Plate



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Cradle Shear Plate (1) - Front Cradle Shear Plate Replacement

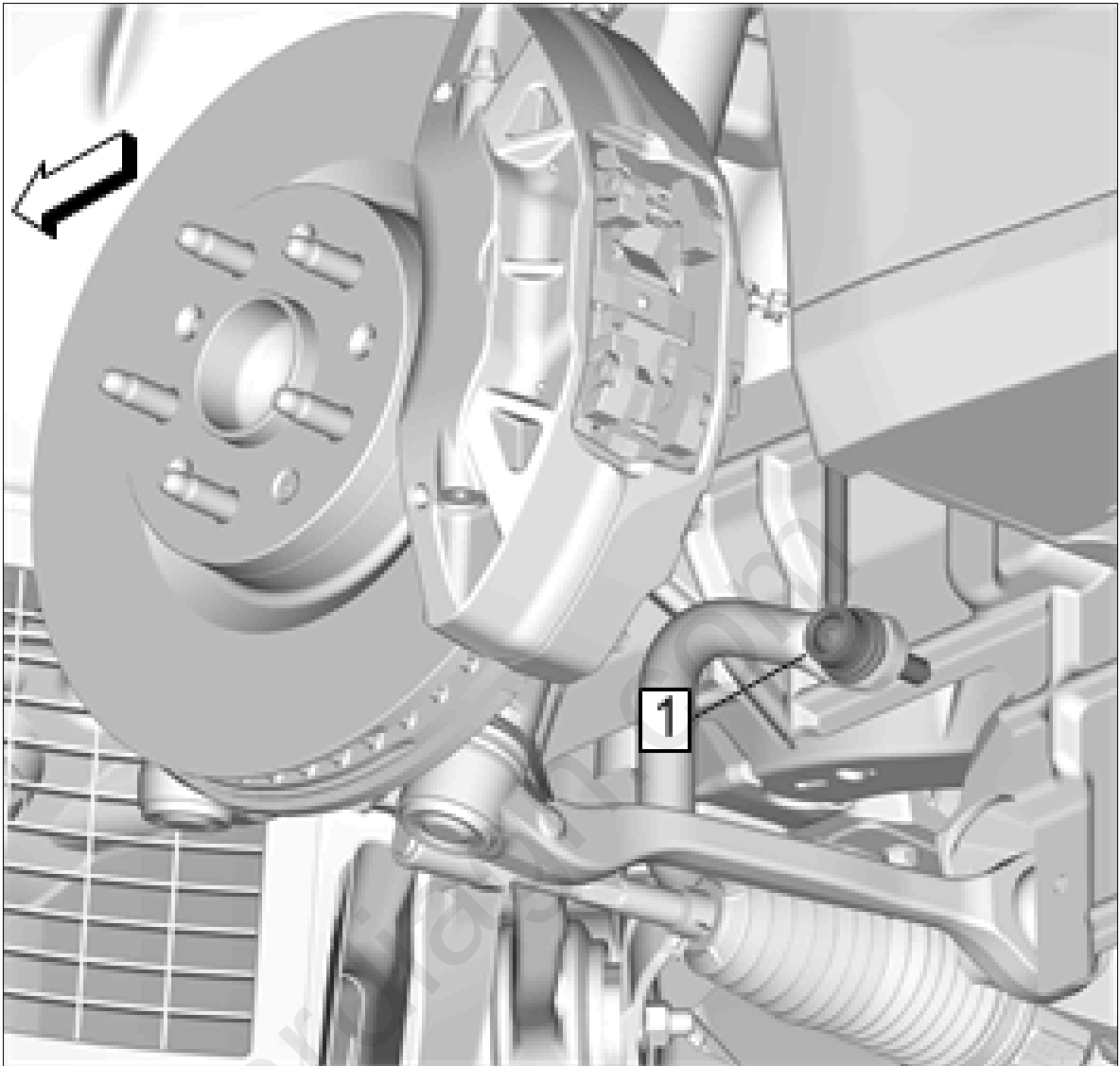
Fig 2: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement

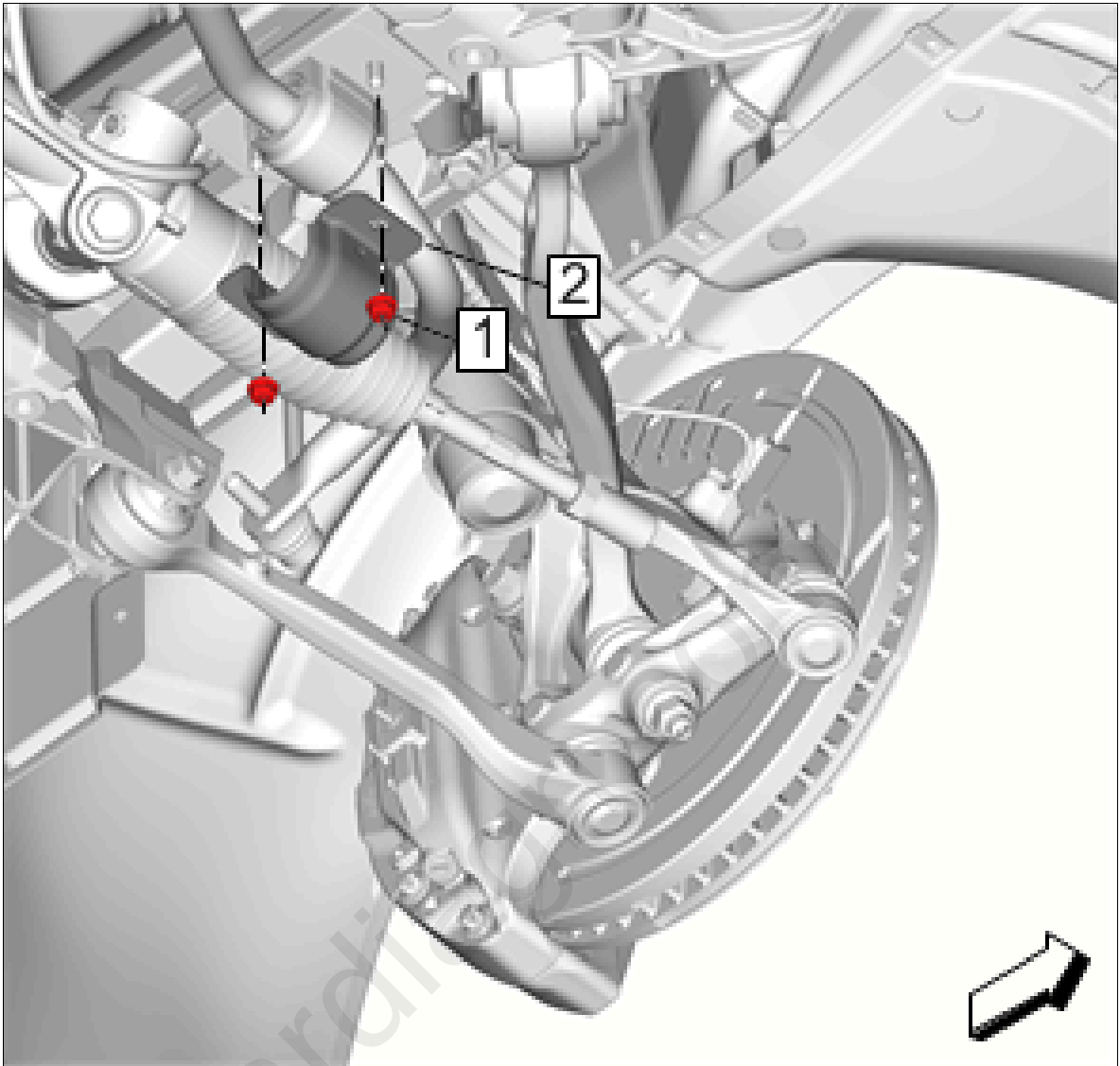
Fig 3: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Stabilizer Shaft Link (1) at Front Stabilizer Shaft - Stabilizer Shaft Link Replacement (LT1)

Fig 4: Left Side Front Stabilizer Shaft Insulator Clamp Nuts



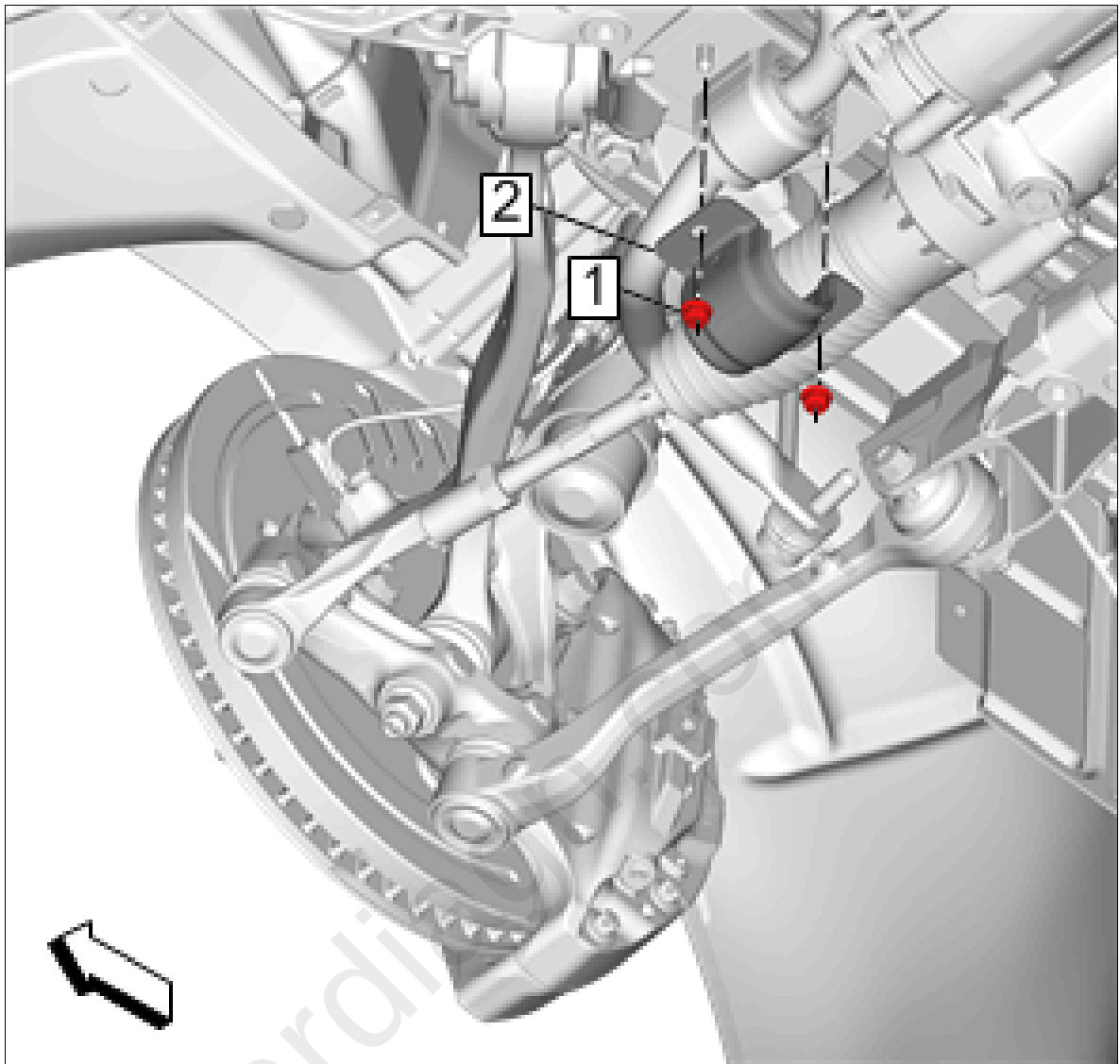
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

5. Using a swivel socket, remove the left side front stabilizer shaft insulator clamp nuts (1) and clamp (2).

Fig 5: Right Side Front Stabilizer Shaft Insulator Clamp Nuts



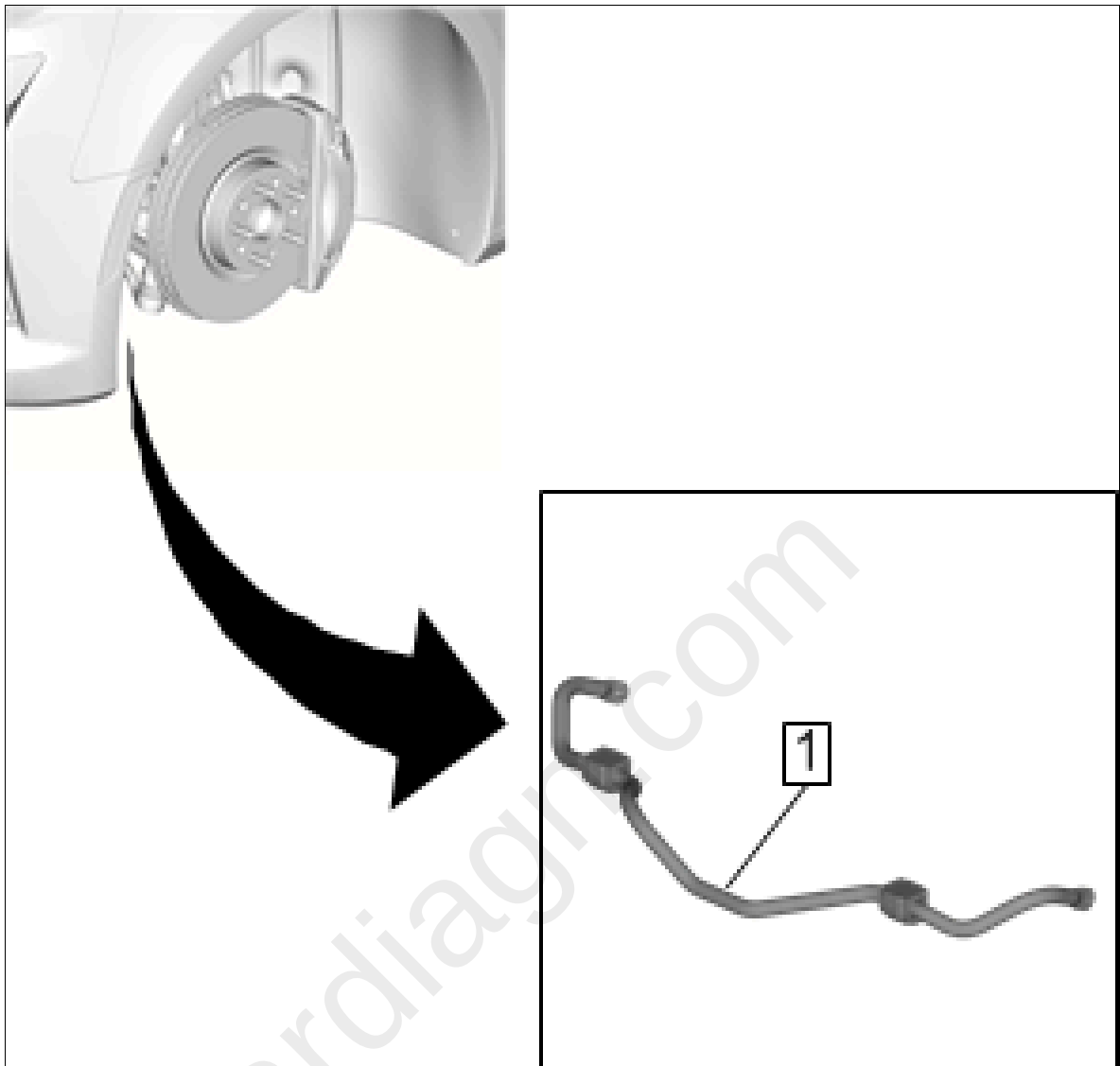
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

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6. Using a swivel socket, remove the right side front stabilizer shaft insulator clamp nuts (1) and clamp (2).

Fig 6: Front Stabilizer Shaft



Courtesy of GENERAL MOTORS COMPANY

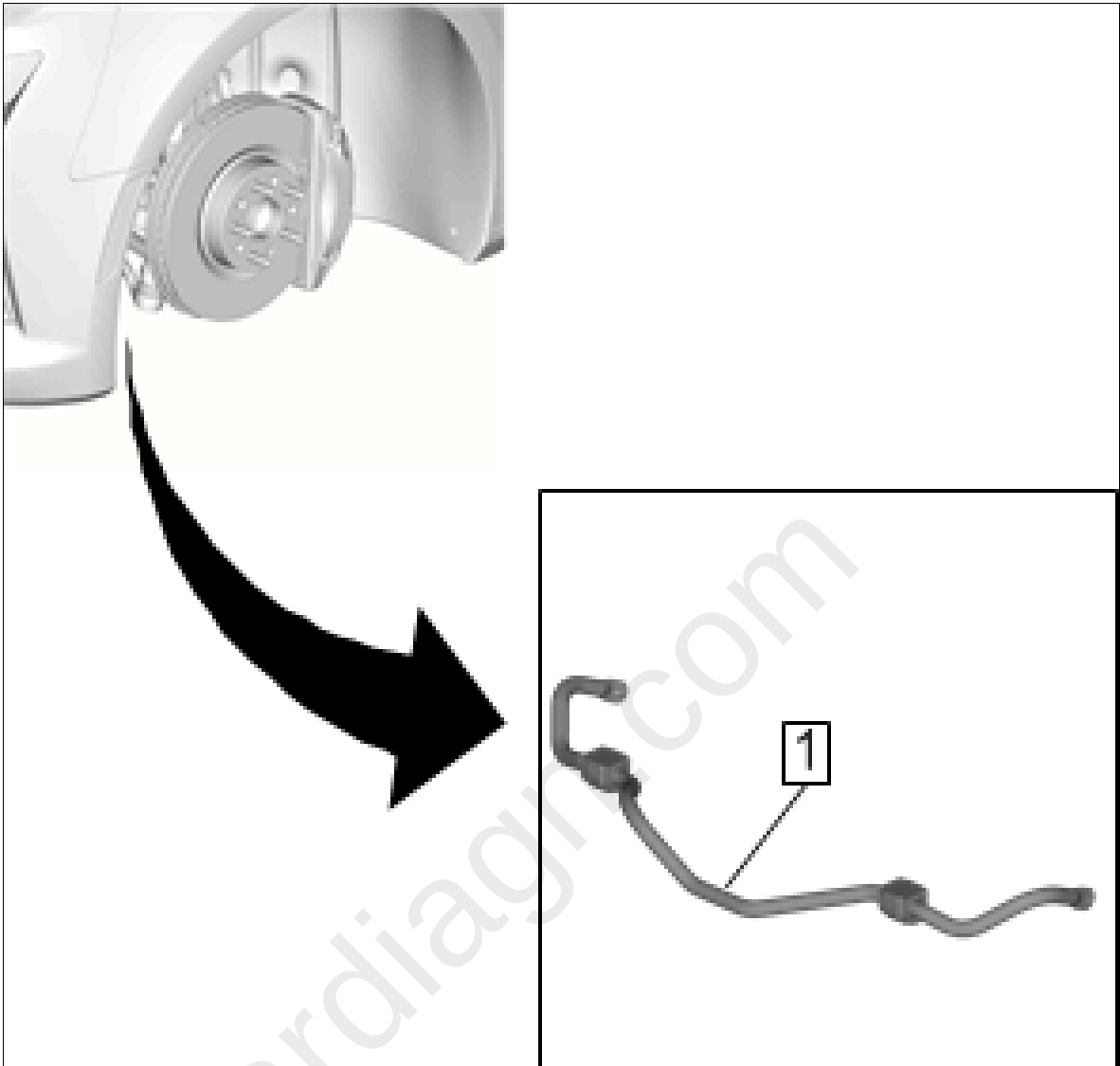
 NOTE:

The front stabilizer shaft insulators are NOT serviceable. Do NOT transfer the insulators.

7. Remove the front stabilizer shaft (1) from the vehicle.

**REPAIR INSTRUCTIONS > STABILIZER SHAFT REPLACEMENT (LT1) >
INSTALLATION PROCEDURE**

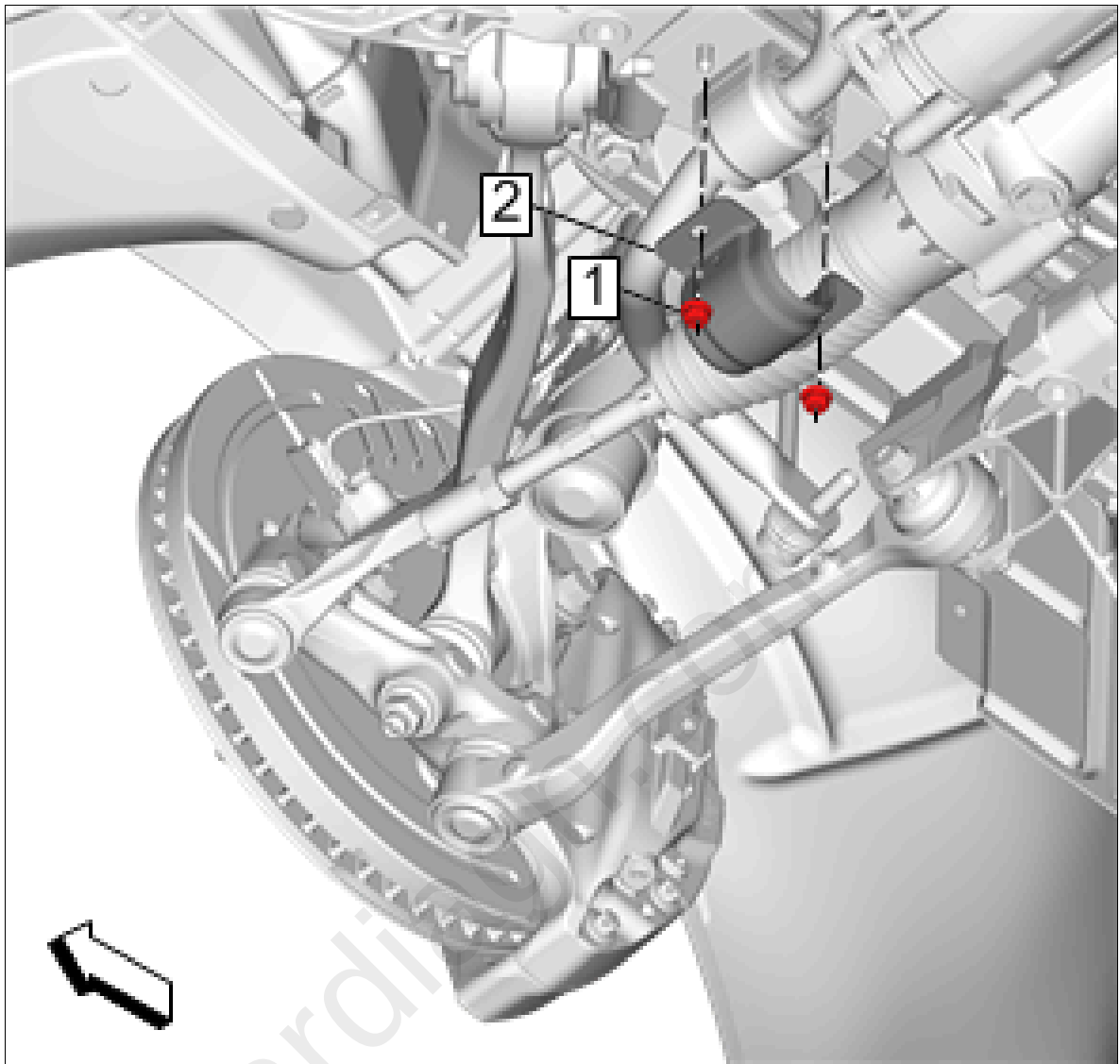
Fig 1: Front Stabilizer Shaft



Courtesy of GENERAL MOTORS COMPANY

1. Position the front stabilizer shaft (1) on the vehicle.

Fig 2: Right Side Front Stabilizer Shaft Insulator Clamp Nuts



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

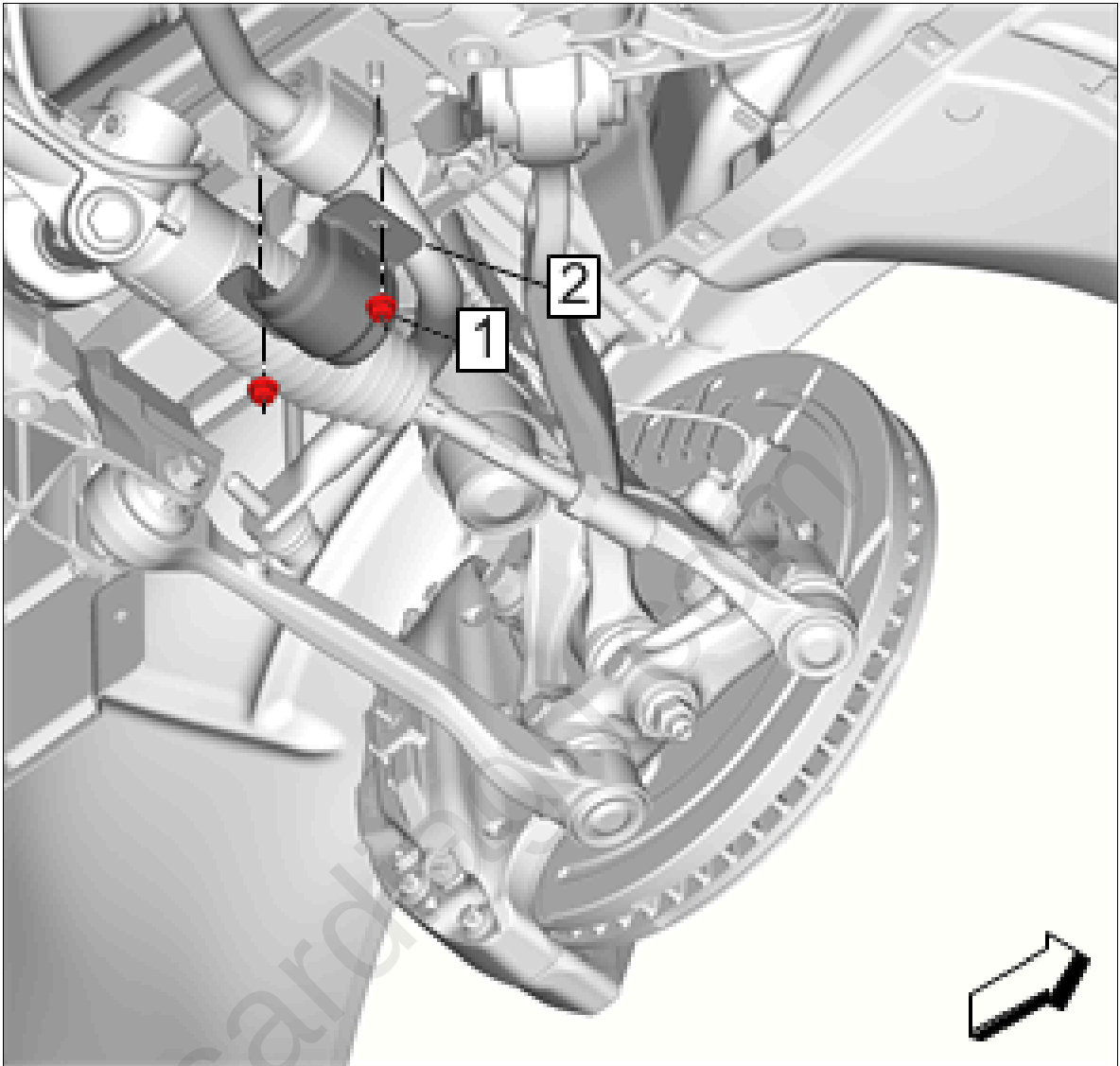
Refer to Fastener Caution .

 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

2. Using a swivel socket, install the right side front stabilizer shaft insulator clamp (2) and nuts (1) and tighten the nuts to 22 N.m (16 lb ft).

Fig 3: Left Side Front Stabilizer Shaft Insulator Clamp Nuts



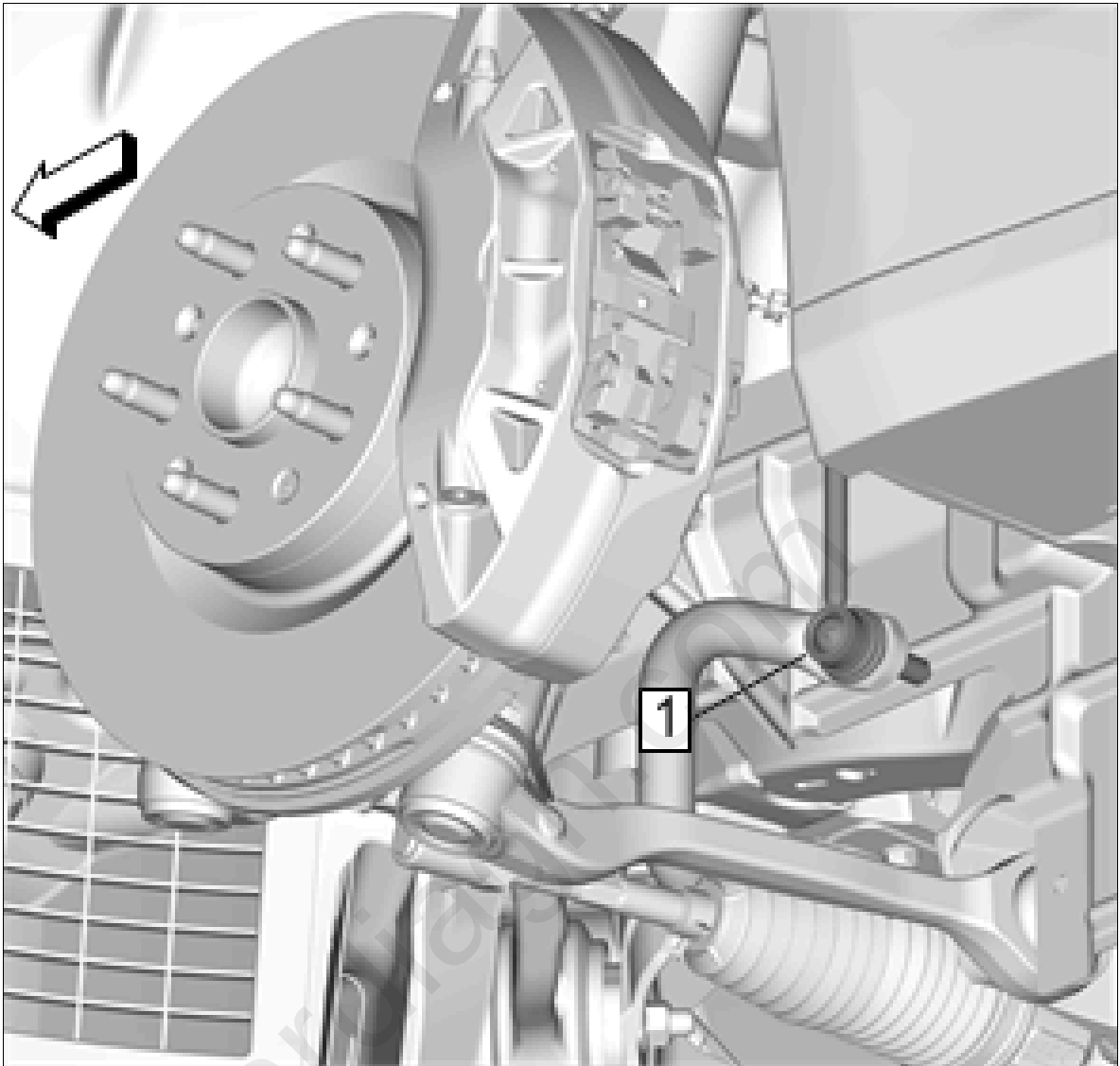
Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

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3. Using a swivel socket, install the left side front stabilizer shaft insulator clamp (2) and nuts (1) and tighten the nuts to 22 N.m (16 lb ft).

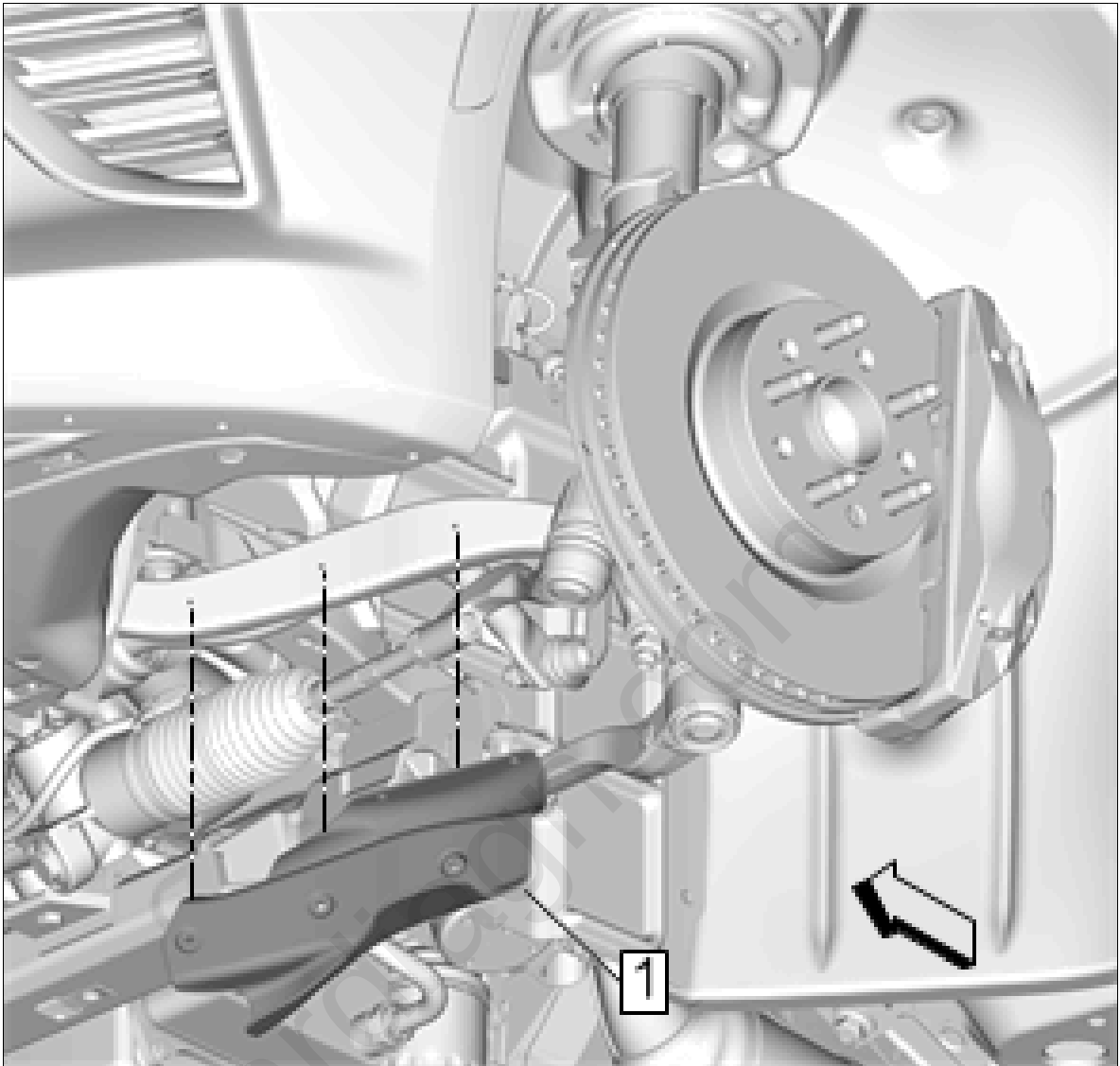
Fig 4: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

4. Install Front Stabilizer Shaft Link (1) at Front Stabilizer Shaft - Stabilizer Shaft Link Replacement (LT1)

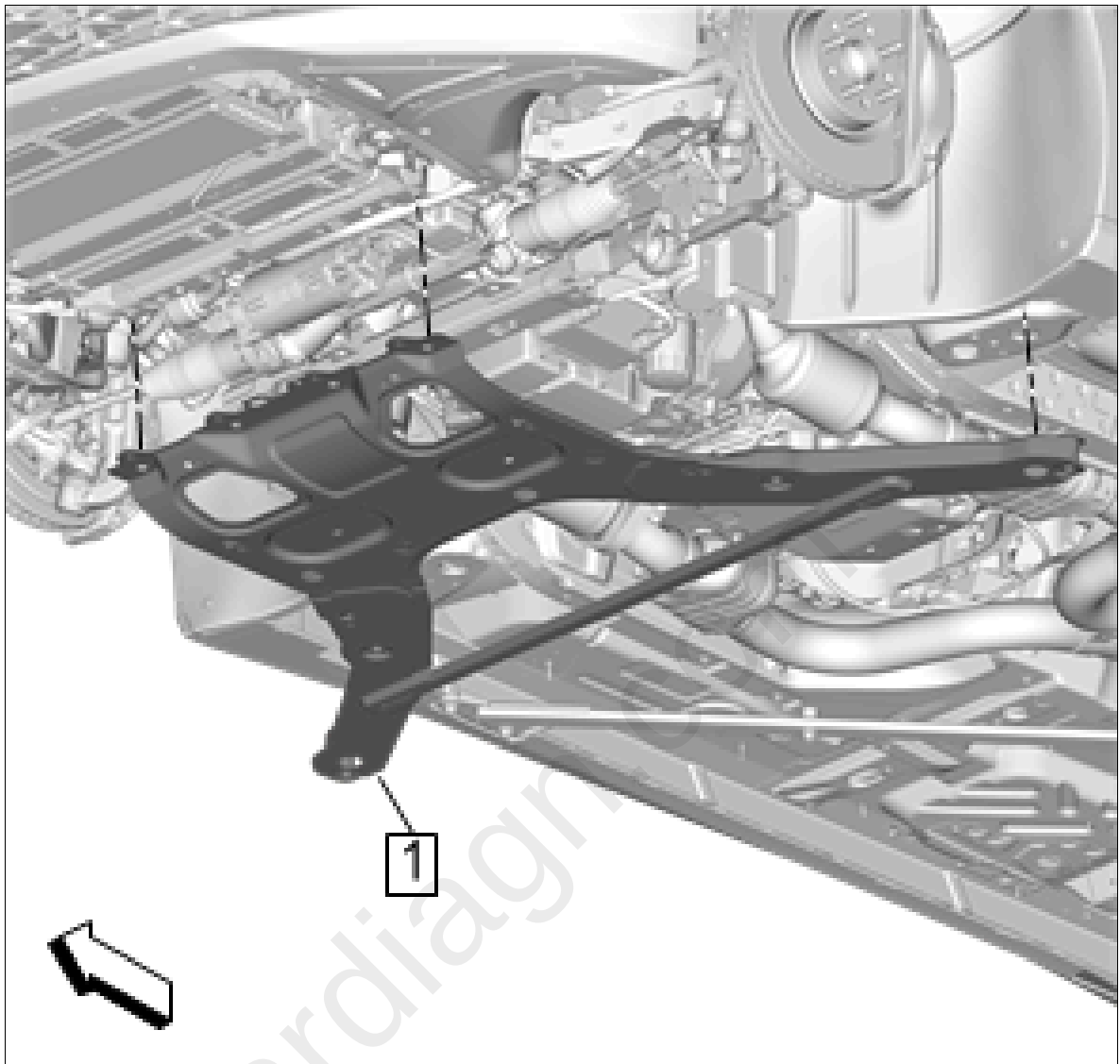
Fig 5: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

5. Install Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement

Fig 6: Front Cradle Shear Plate



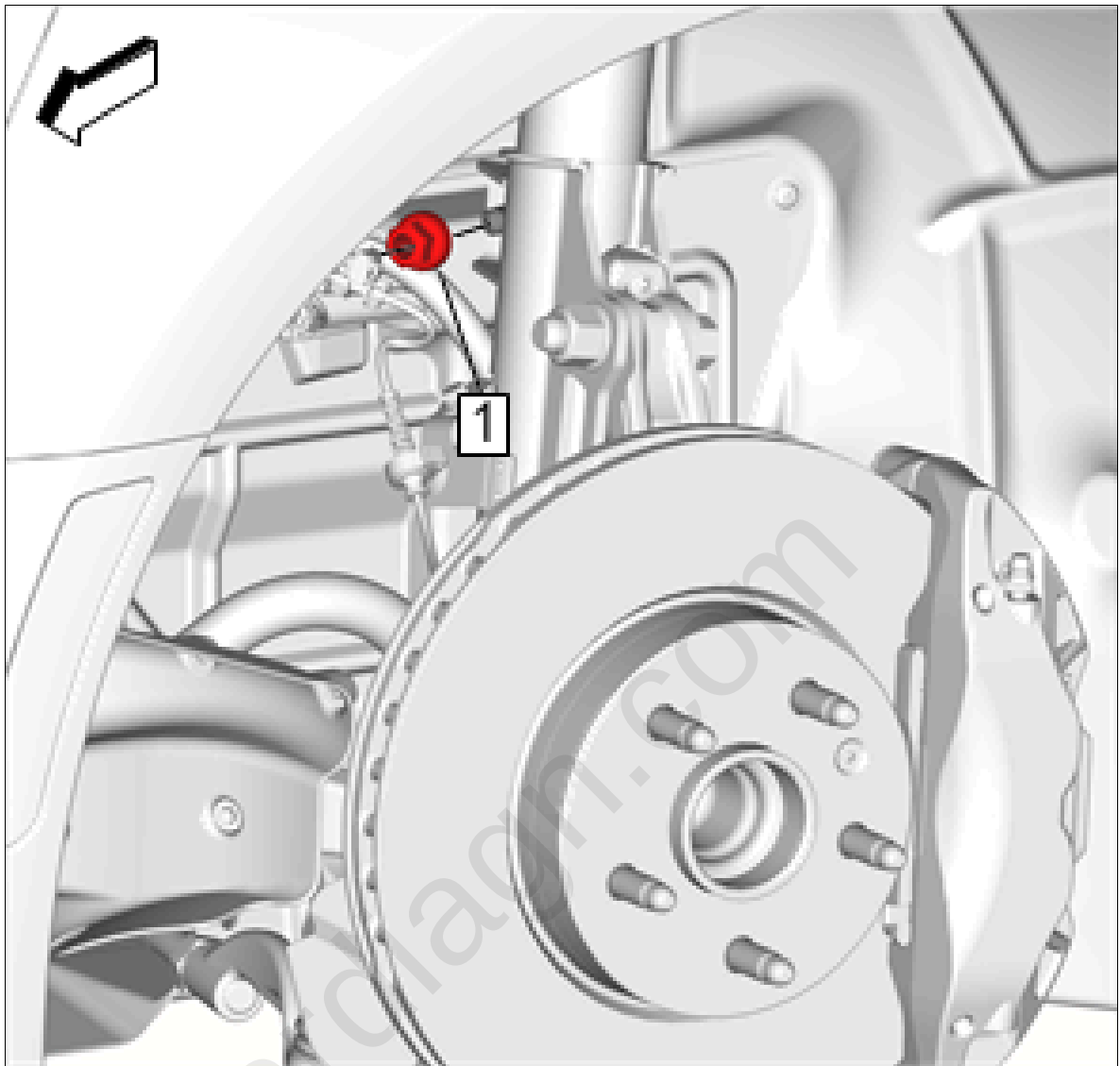
Courtesy of GENERAL MOTORS COMPANY

6. Install Front Cradle Shear Plate (1) - Front Cradle Shear Plate Replacement
7. Install the front tire and wheel assemblies. Tire and Wheel Removal and Installation

REPAIR INSTRUCTIONS > STABILIZER SHAFT LINK REPLACEMENT (LGX, LTG) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

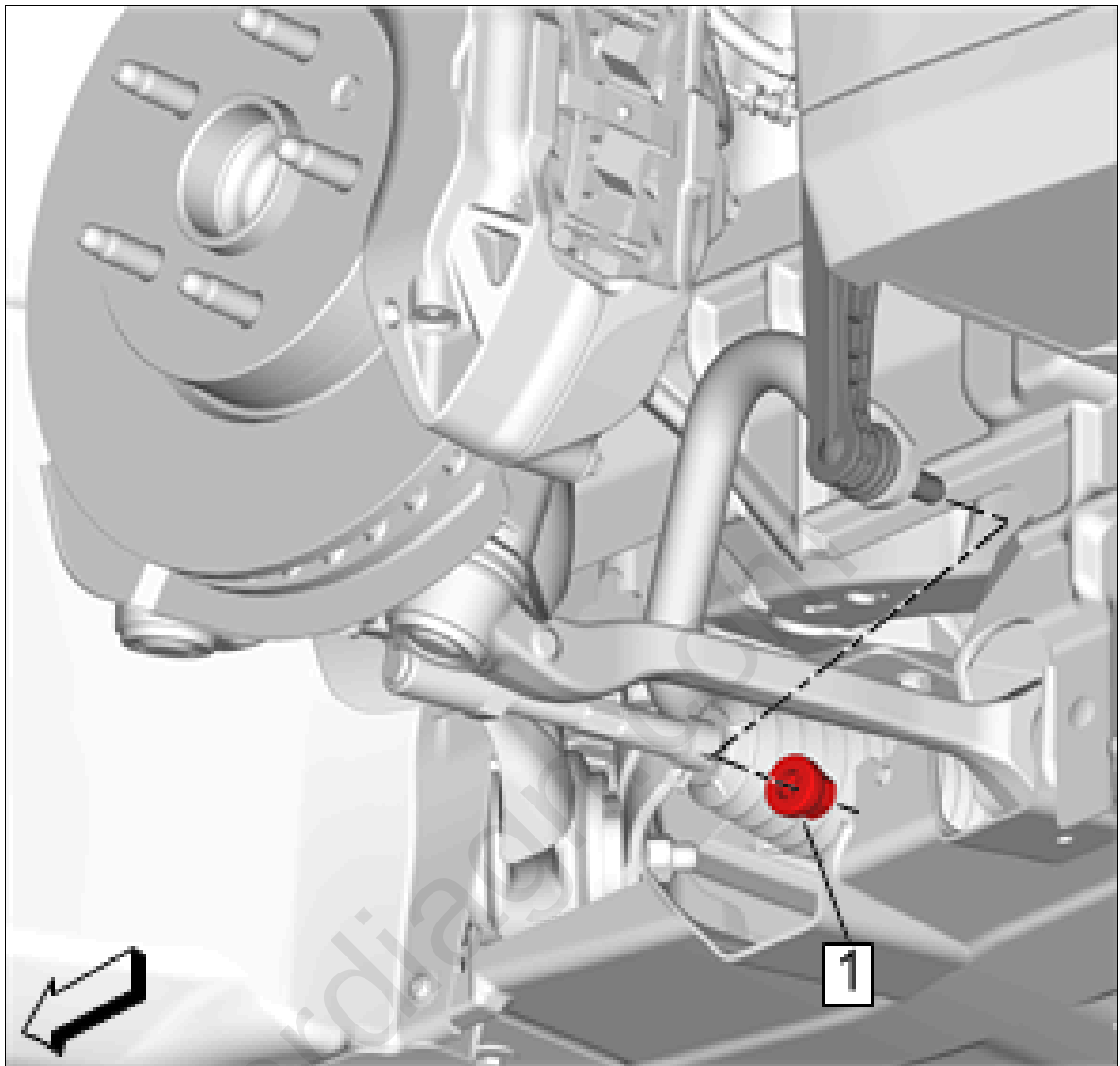
Fig 1: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Stabilizer Shaft Link Nut (1)

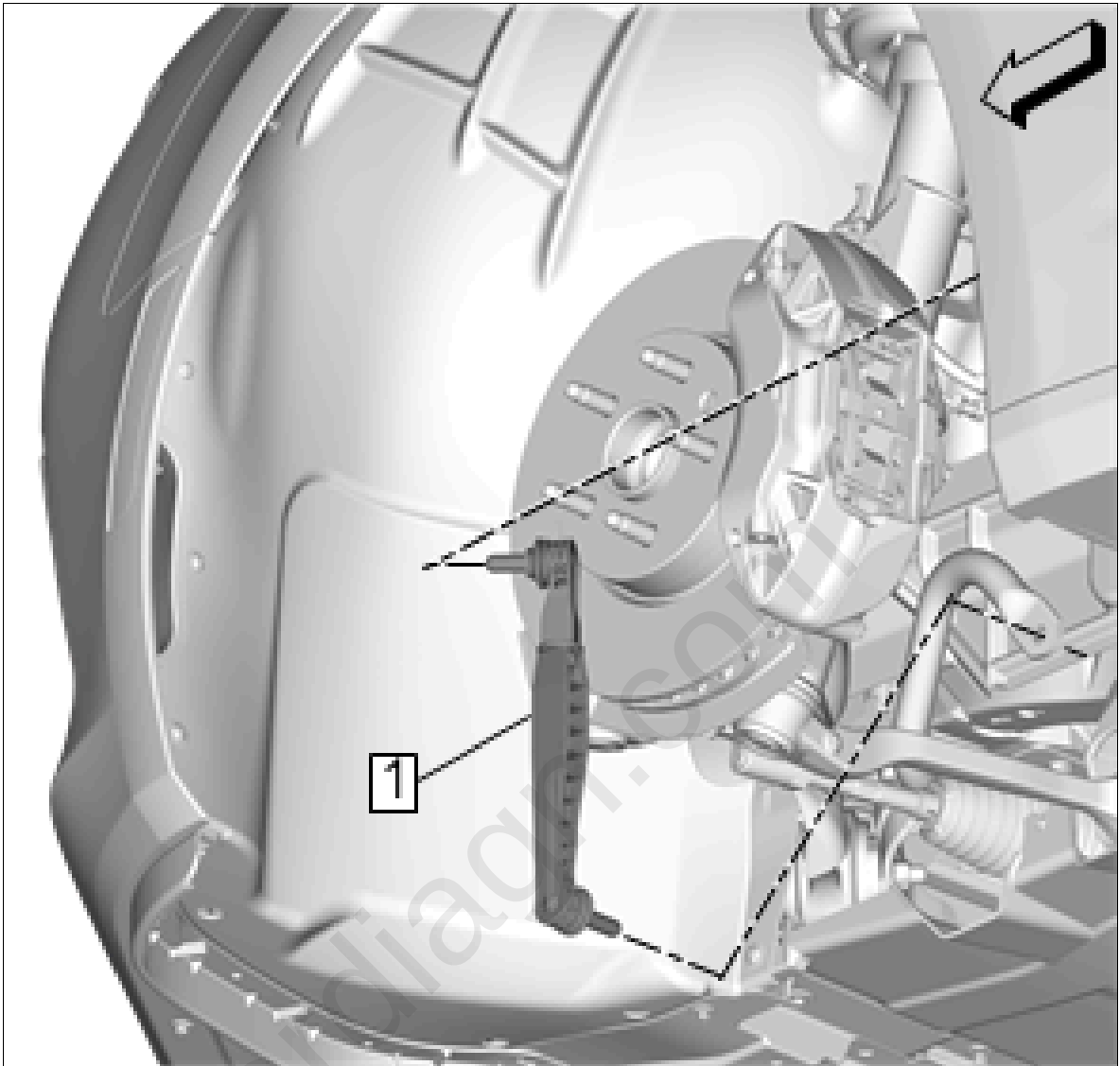
Fig 2: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Stabilizer Shaft Link Nut (1)

Fig 3: Front Stabilizer Shaft Link

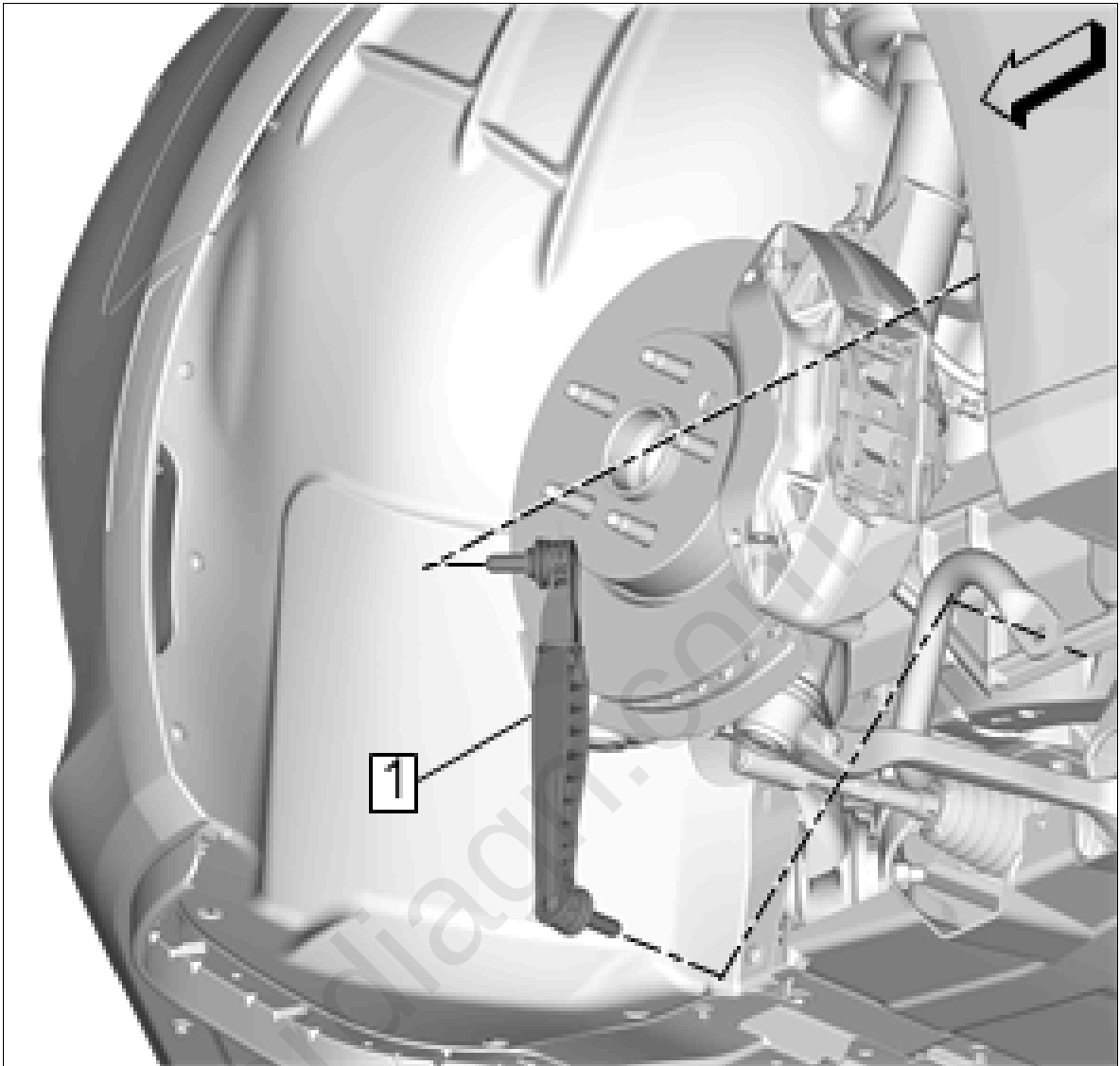


Courtesy of GENERAL MOTORS COMPANY

4. Remove the front stabilizer shaft link (1) from the vehicle.

REPAIR INSTRUCTIONS > STABILIZER SHAFT LINK REPLACEMENT (LGX, LTG) > INSTALLATION PROCEDURE

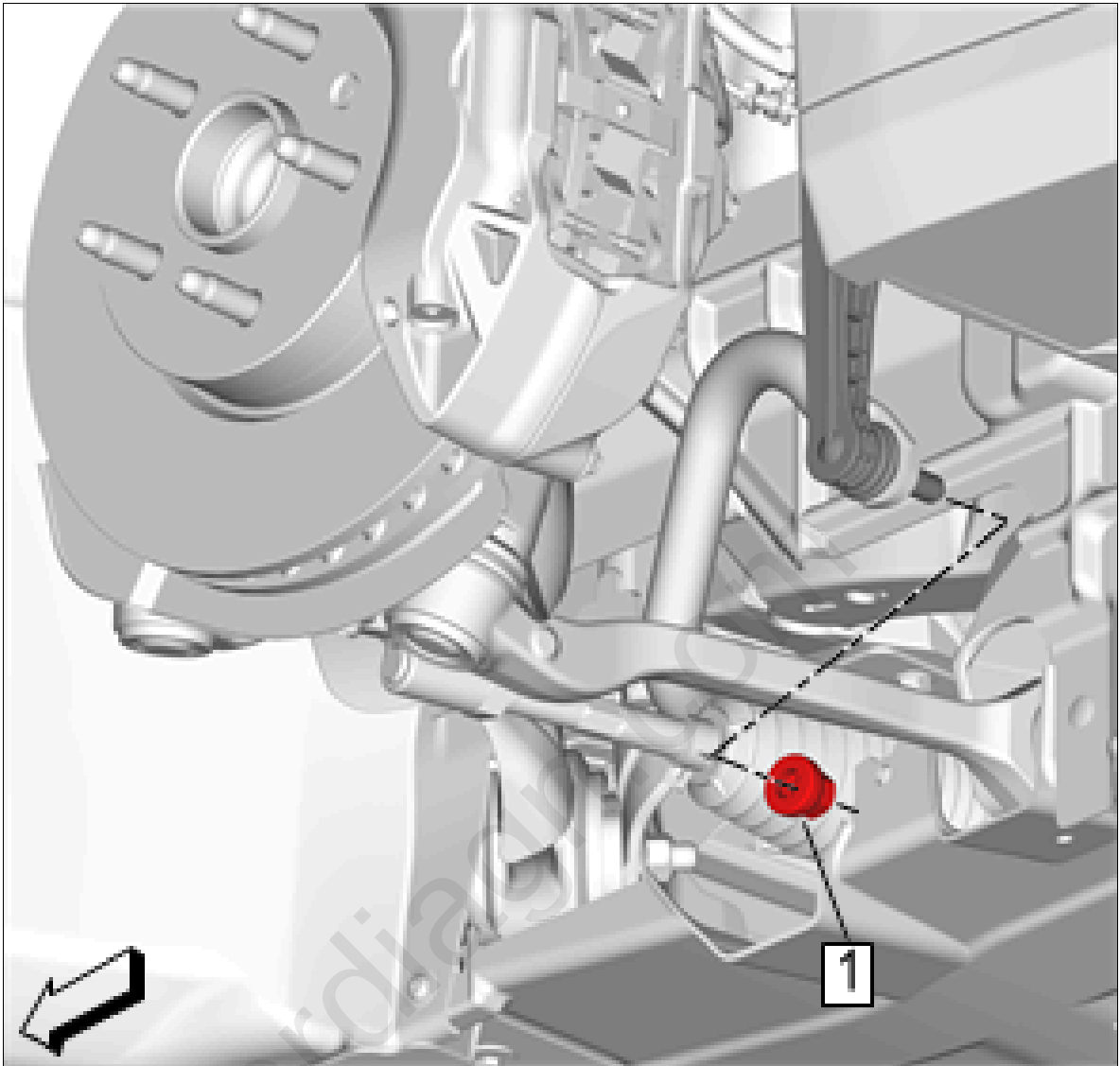
Fig 1: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front stabilizer shaft link (1) on the vehicle.

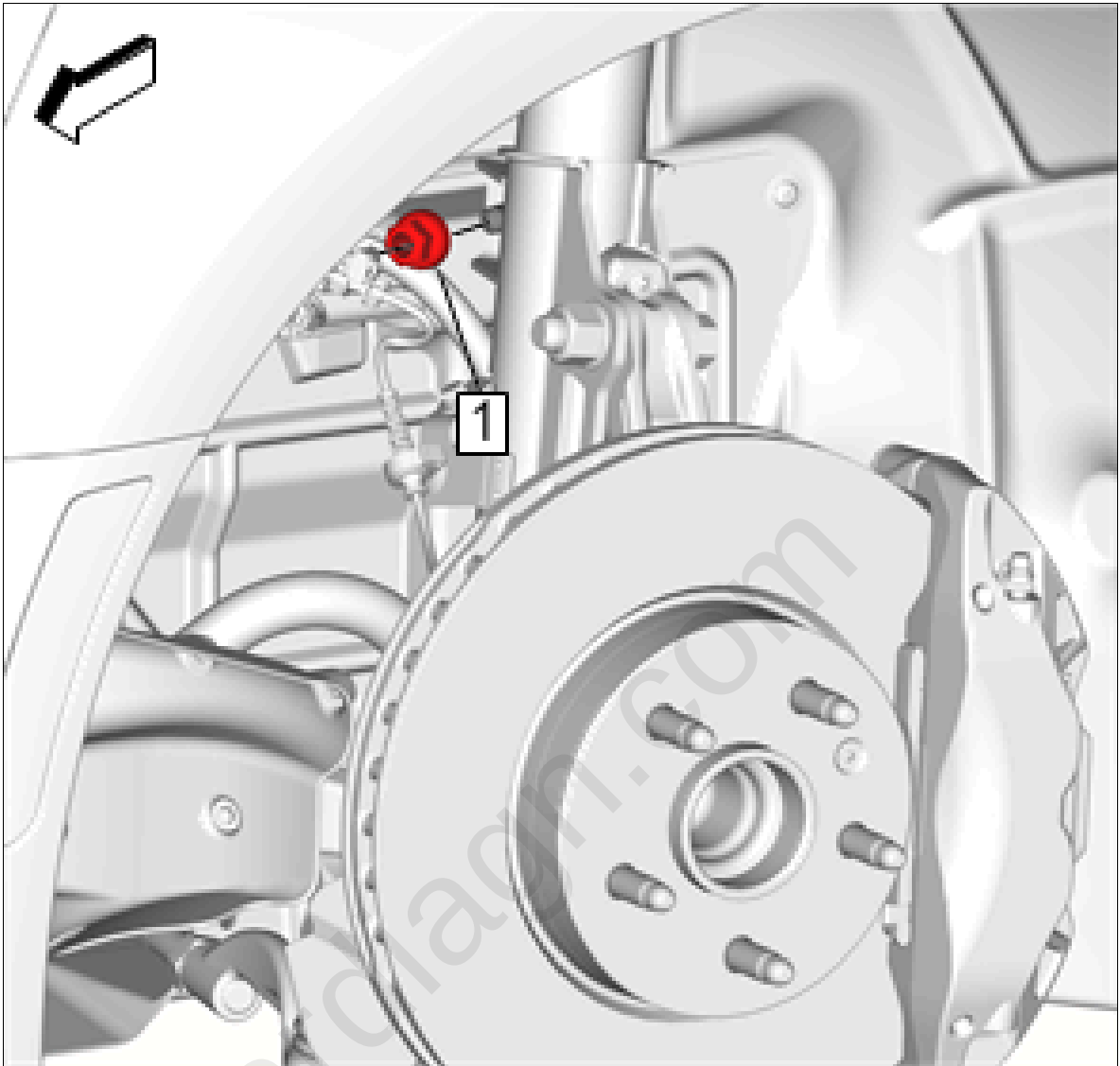
Fig 2: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

2. Install Front Stabilizer Shaft Link Nut<p01>>Install and tighten 100 N.m (74 lb ft)

Fig 3: Front Stabilizer Shaft Link Nut



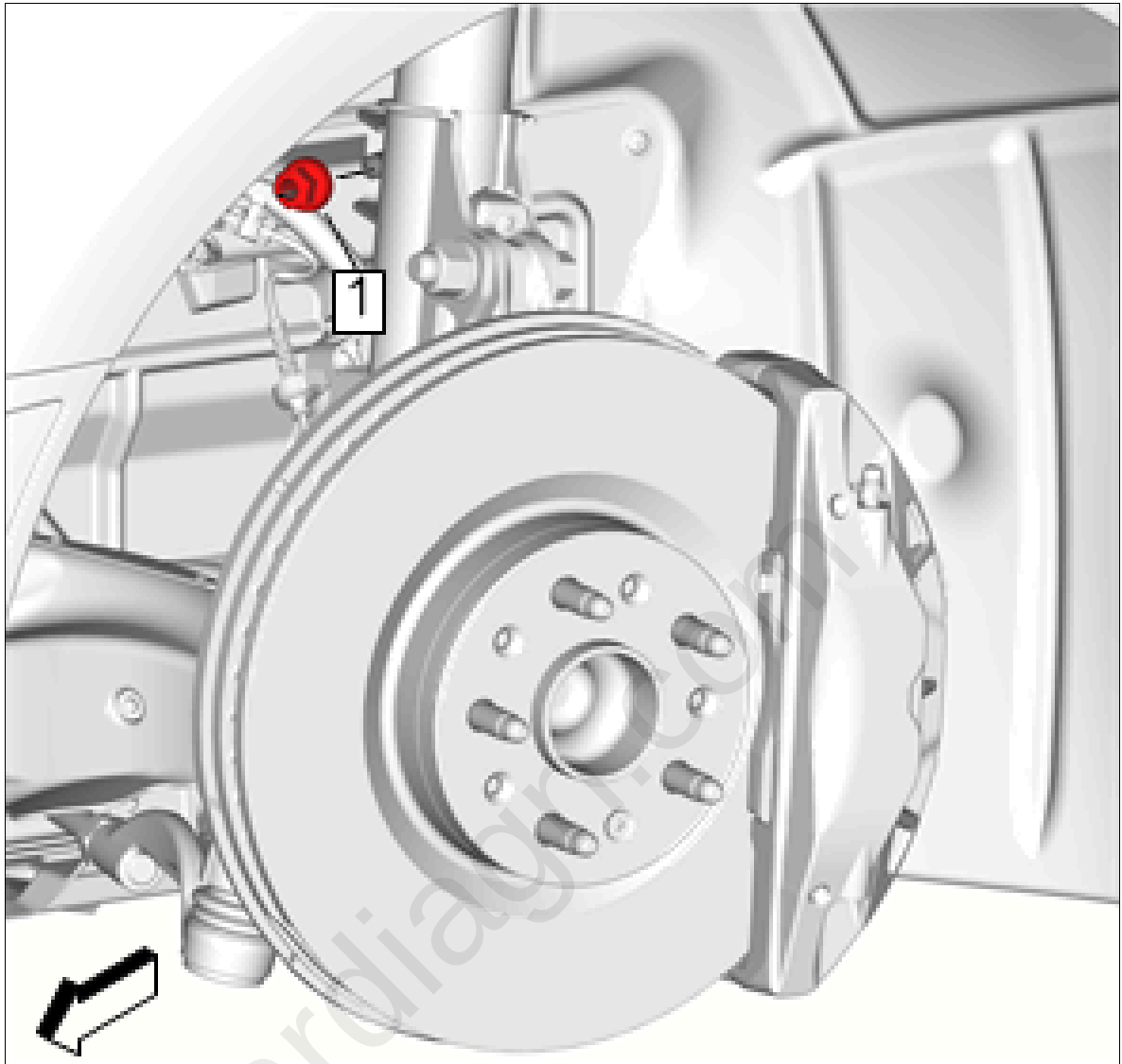
Courtesy of GENERAL MOTORS COMPANY

3. Install Front Stabilizer Shaft Link Nut (1) and tighten to 100 N.m (74 lb ft)
4. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation

REPAIR INSTRUCTIONS > STABILIZER SHAFT LINK REPLACEMENT (LT1) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

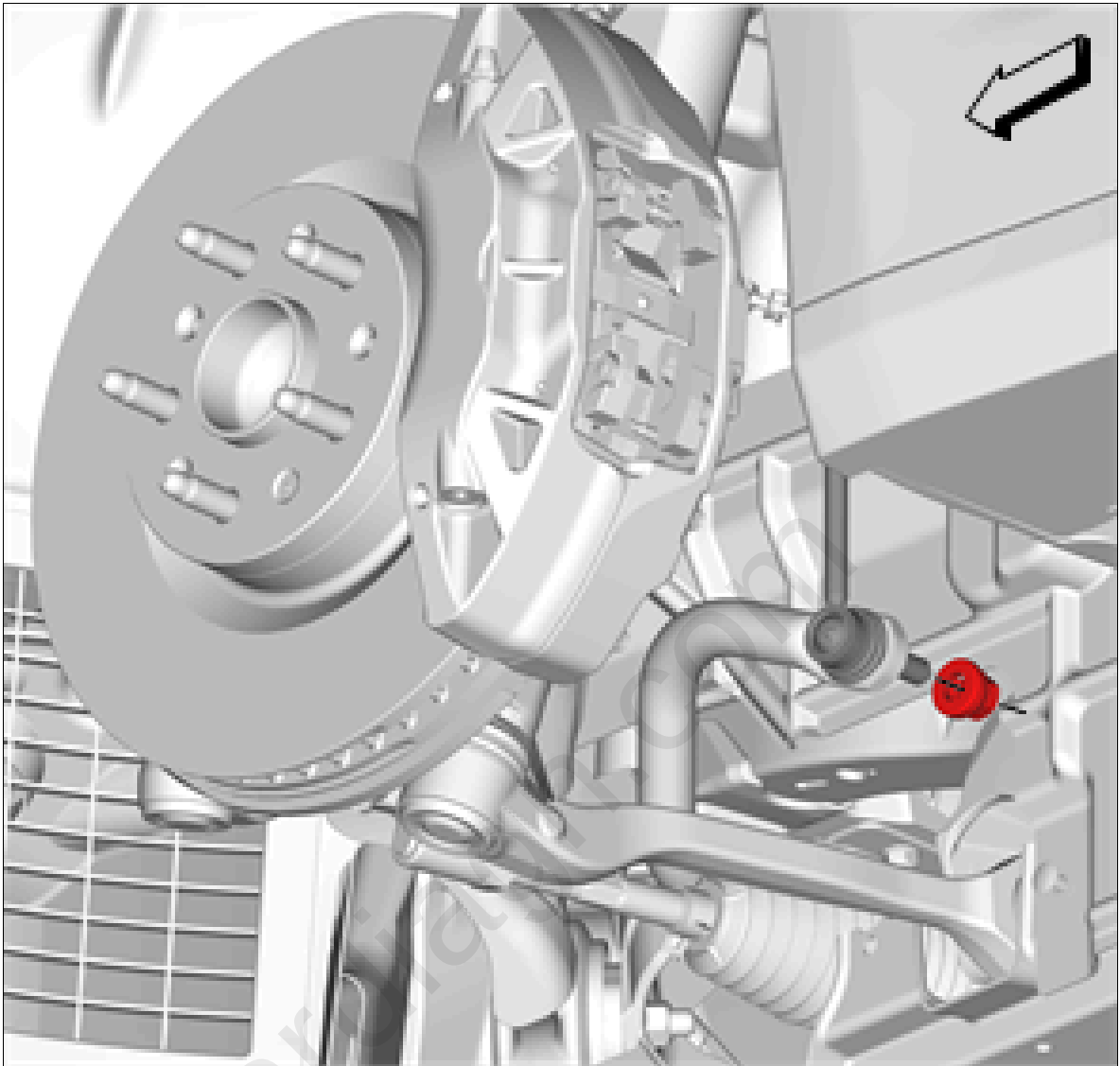
Fig 1: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Stabilizer Shaft Link Nut (1)

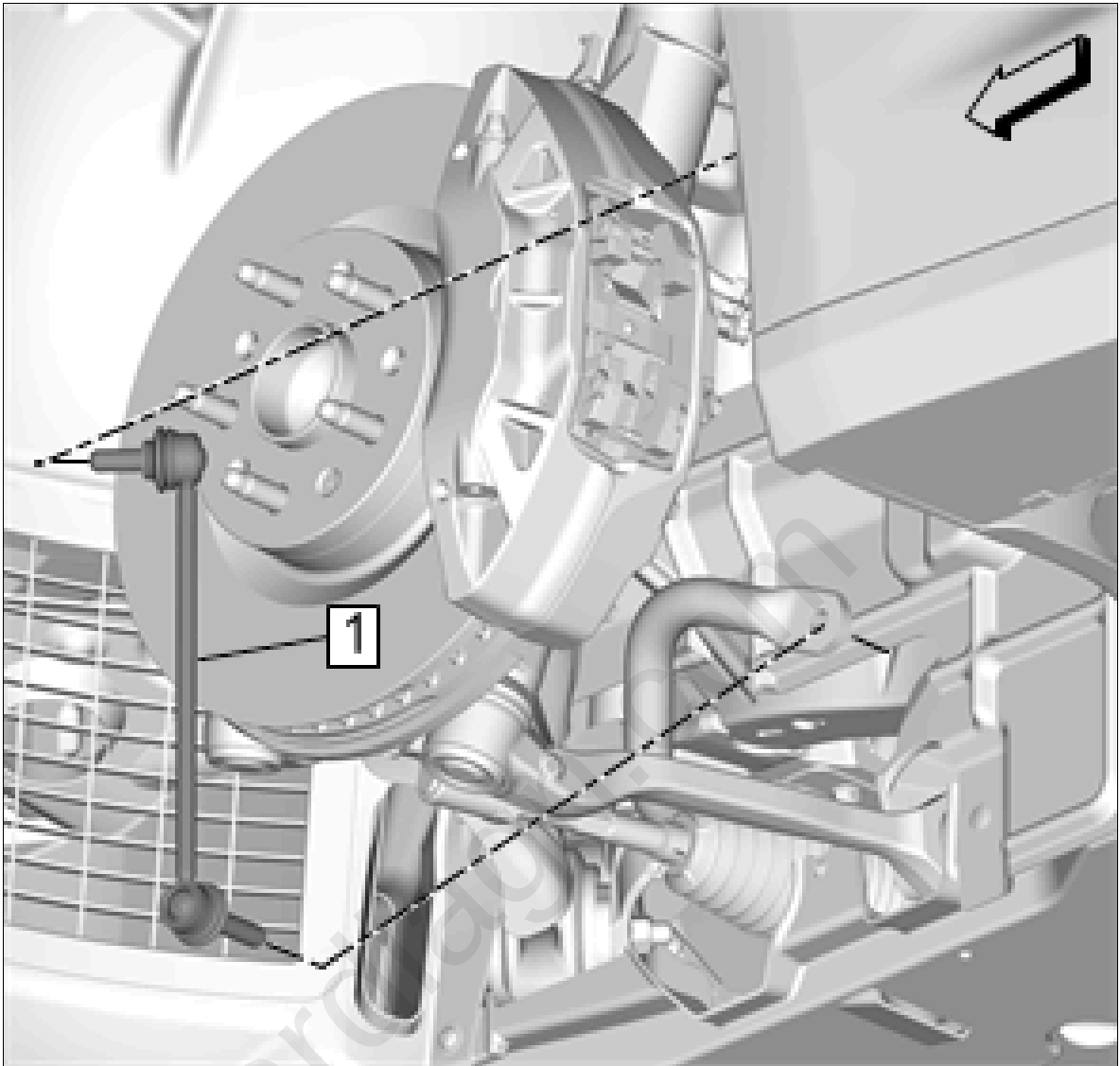
Fig 2: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Stabilizer Shaft Link Nut (1)

Fig 3: Front Stabilizer Shaft Link

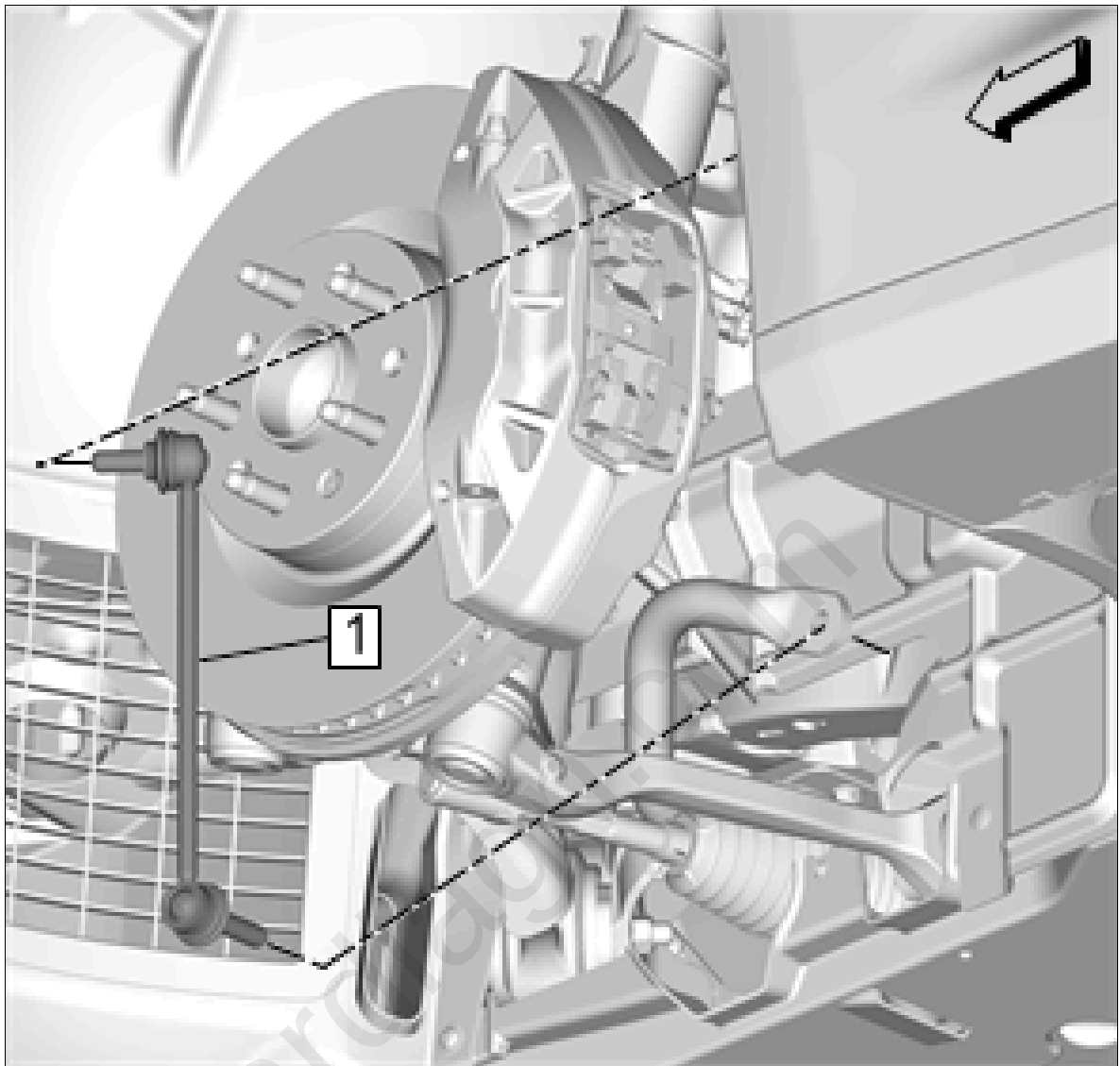


Courtesy of GENERAL MOTORS COMPANY

4. Remove the front stabilizer shaft link (1) from the vehicle.

REPAIR INSTRUCTIONS > STABILIZER SHAFT LINK REPLACEMENT (LT1) > INSTALLATION PROCEDURE

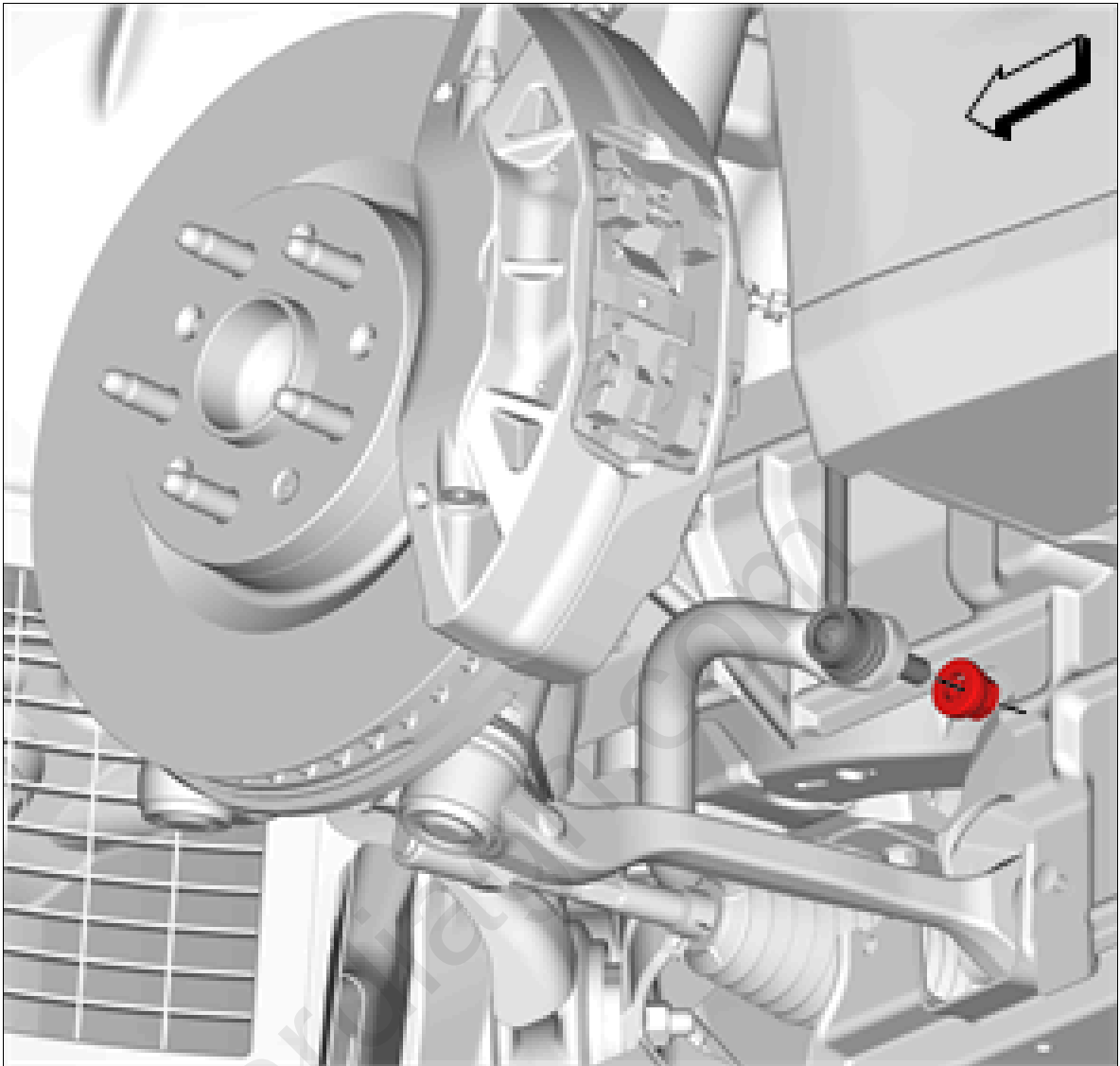
Fig 1: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front stabilizer shaft link (1) on the vehicle.

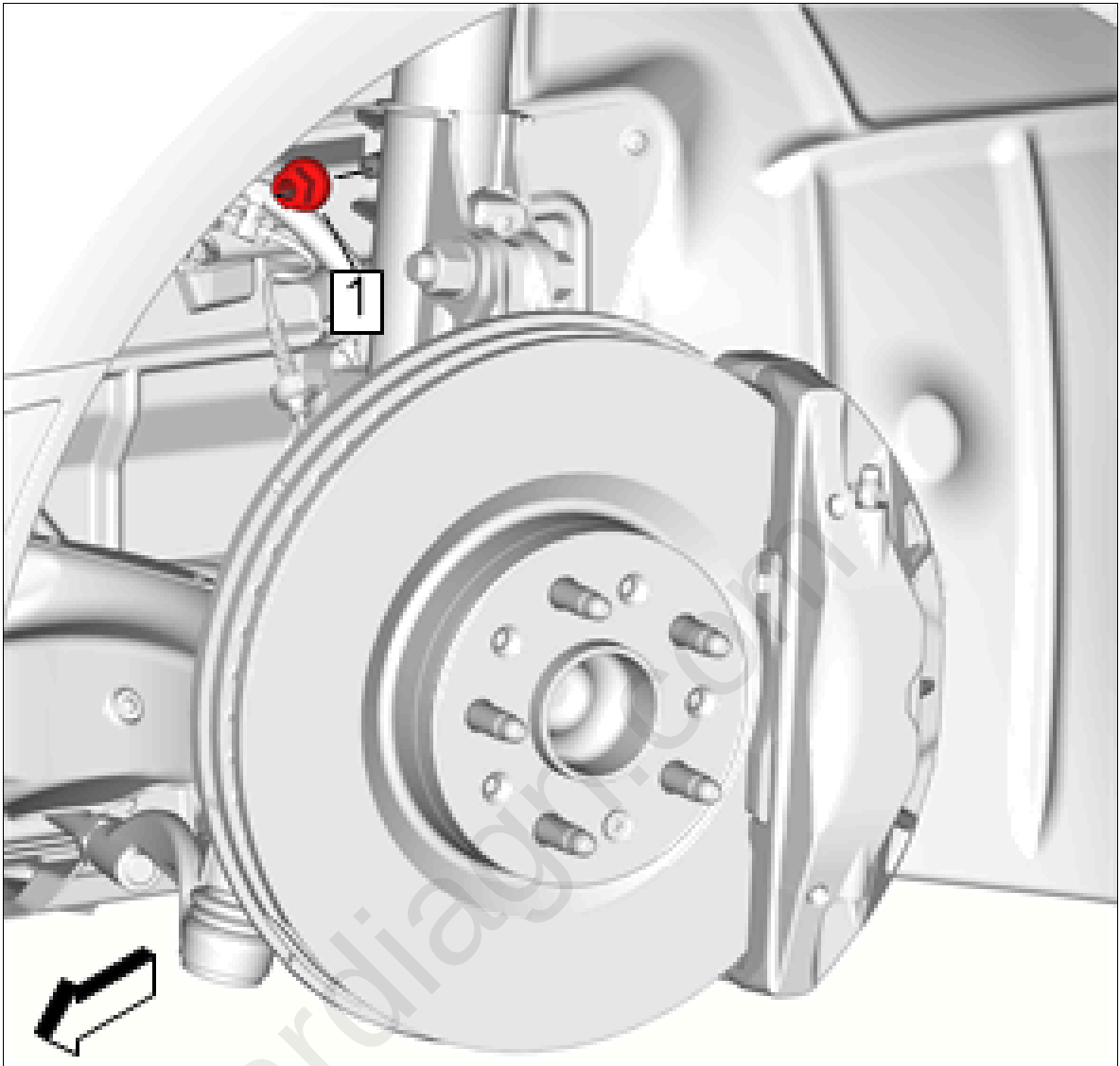
Fig 2: Front Stabilizer Shaft Link Nut



Courtesy of GENERAL MOTORS COMPANY

2. Install Front Stabilizer Shaft Link Nut (1) and tighten to 100 N.m (74 lb ft)

Fig 3: Front Stabilizer Shaft Link Nut

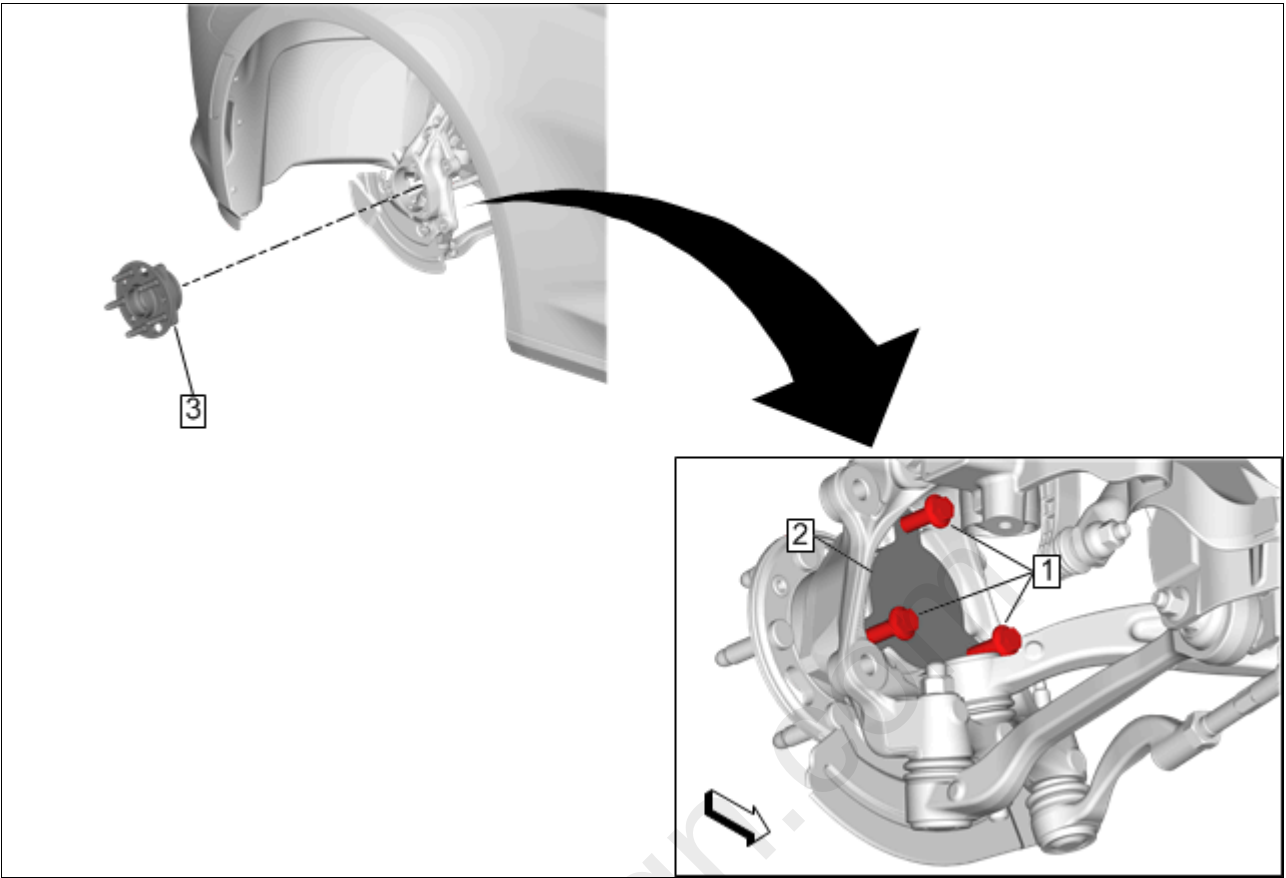


Courtesy of GENERAL MOTORS COMPANY

3. Install Front Stabilizer Shaft Link Nut (1) and tighten to 100 N.m (74 lb ft)
4. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation

**REPAIR INSTRUCTIONS > FRONT WHEEL BEARING AND HUB REPLACEMENT
(LGX, LTG)**

Fig 1: Front Wheel Bearing And Hub (LGX, LTG)



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
Preliminary Procedures 1. Front Brake Rotor Replacement (JL9) Front Brake Rotor Replacement (J55) Front Brake Rotor Replacement (J6G) 2. Remove Front Wheel Speed Sensor at Steering Knuckle - Front Wheel Speed Sensor Replacement	
1	Front Wheel Bearing and Hub Assembly Bolt (Qty: 3) CAUTION: <i>Refer to Fastener Caution .</i> Procedure 1. Thoroughly clean the old thread locking adhesive residue from the threads of each front wheel bearing and hub assembly bolt with an approved solvent and allow to dry.

2. Thoroughly clean the old thread locking adhesive residue from each front wheel bearing and hub assembly bolt hole with an approved solvent and allow to dry.
3. Apply threadlocker to 2/3 of the threaded length of the front wheel bearing and hub assembly bolts and the front wheel bearing and hub assembly bolt holes. Adhesives, Fluids, Lubricants, and Sealers
4. Ensure there are no gaps in the threadlocker along the filled area of the front wheel bearing and hub assembly bolts and the front wheel bearing and hub assembly bolt holes.
5. Allow the threadlocker to cure approximately 10 minutes before installing the front wheel bearing and hub assembly bolts.

Tighten

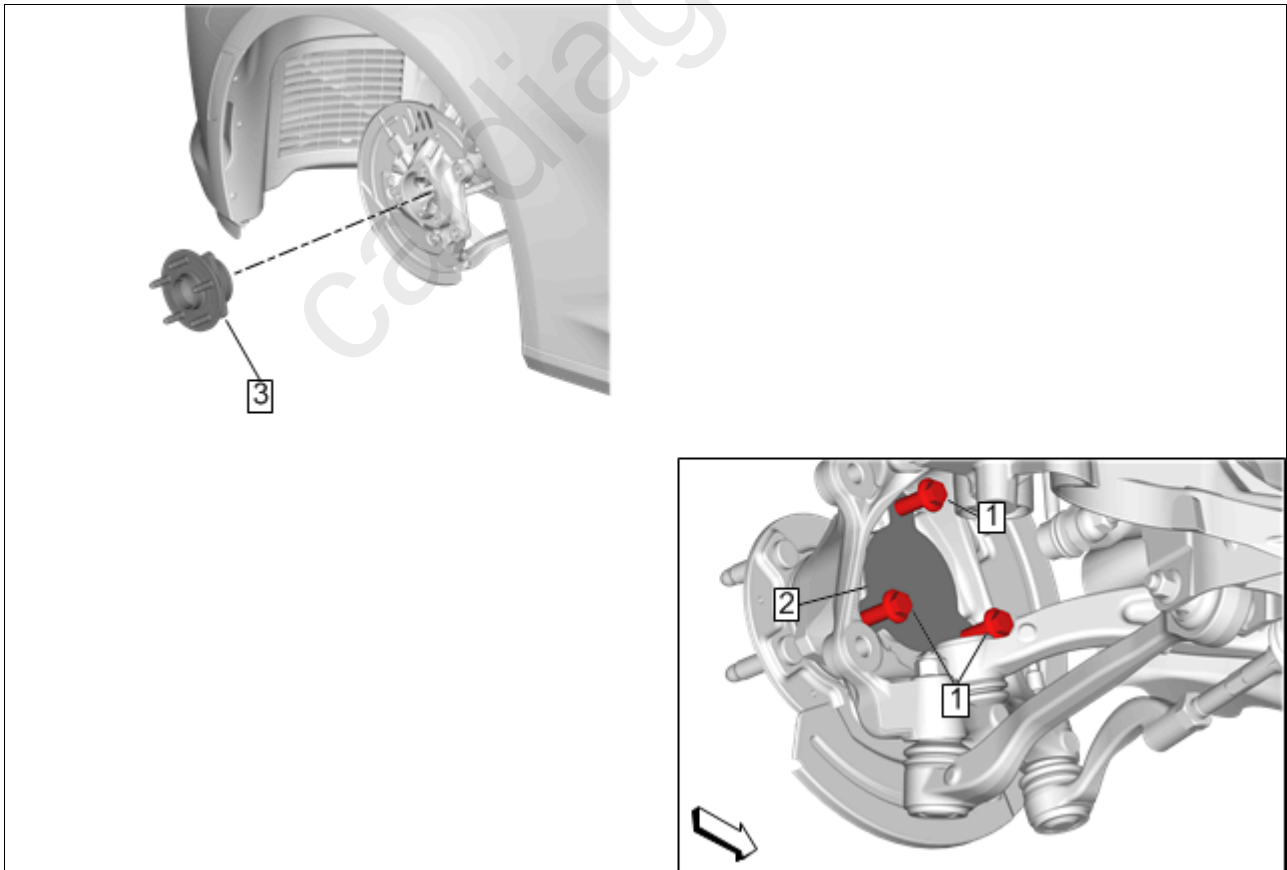
First Pass: 100 N.m (74 lb ft)

Final Pass: (15-30 degrees)

2	Front Wheel Bearing and Hub Assembly Debris Shield
3	Front Wheel Bearing and Hub Assembly

REPAIR INSTRUCTIONS > FRONT WHEEL BEARING AND HUB REPLACEMENT (LT1)

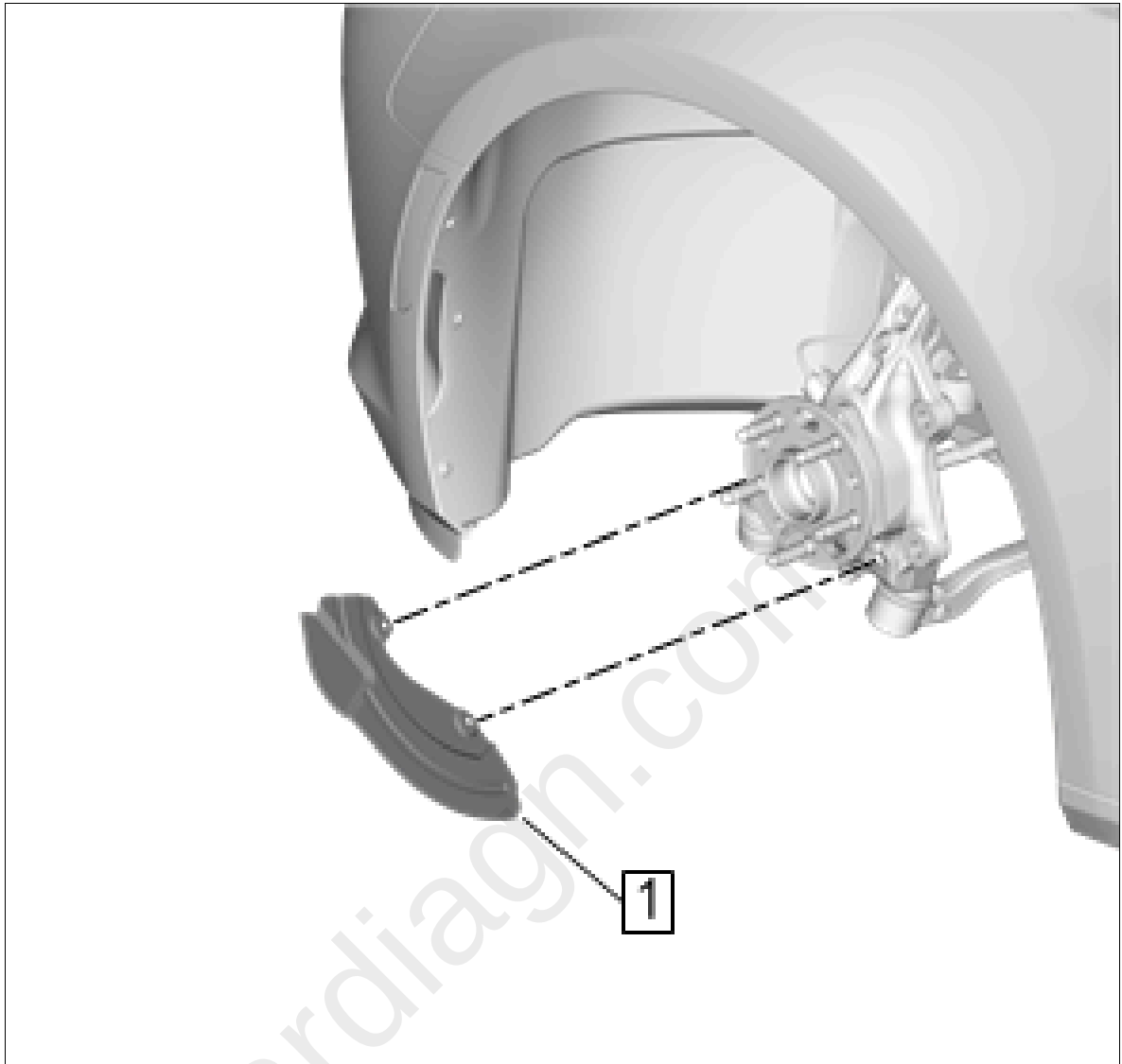
Fig 1: Front Wheel Bearing And Hub (LT1)



Callout	Component Name
Preliminary Procedures 1. Front Brake Rotor Replacement (JL9) Front Brake Rotor Replacement (J55) Front Brake Rotor Replacement (J6G) 2. Separate Front Wheel Speed Sensor at Steering Knuckle - Front Wheel Speed Sensor Replacement	
1	Front Wheel Bearing and Hub Assembly Bolt (Qty: 3) CAUTION: <i>Refer to Fastener Caution .</i> Procedure 1. Thoroughly clean the old thread locking adhesive residue from the threads of each front wheel bearing and hub assembly bolt with an approved solvent and allow to dry. 2. Thoroughly clean the old thread locking adhesive residue from each front wheel bearing and hub assembly bolt hole with an approved solvent and allow to dry. 3. Apply threadlocker to 2/3 of the threaded length of the front wheel bearing and hub assembly bolts and the front wheel bearing and hub assembly bolt holes. Adhesives, Fluids, Lubricants, and Sealers 4. Ensure there are no gaps in the threadlocker along the filled area of the front wheel bearing and hub assembly bolts and the front wheel bearing and hub assembly bolt holes. 5. Allow the threadlocker to cure approximately 10 minutes before installing the front wheel bearing and hub assembly bolts. Tighten First Pass: 100 N.m (74 lb ft) Final Pass: (15-30 degrees)
2	Front Wheel Bearing and Hub Assembly Debris Shield
3	Front Wheel Bearing and Hub Assembly

REPAIR INSTRUCTIONS > STEERING KNUCKLE REPLACEMENT (LGX, LTG) > REMOVAL PROCEDURE

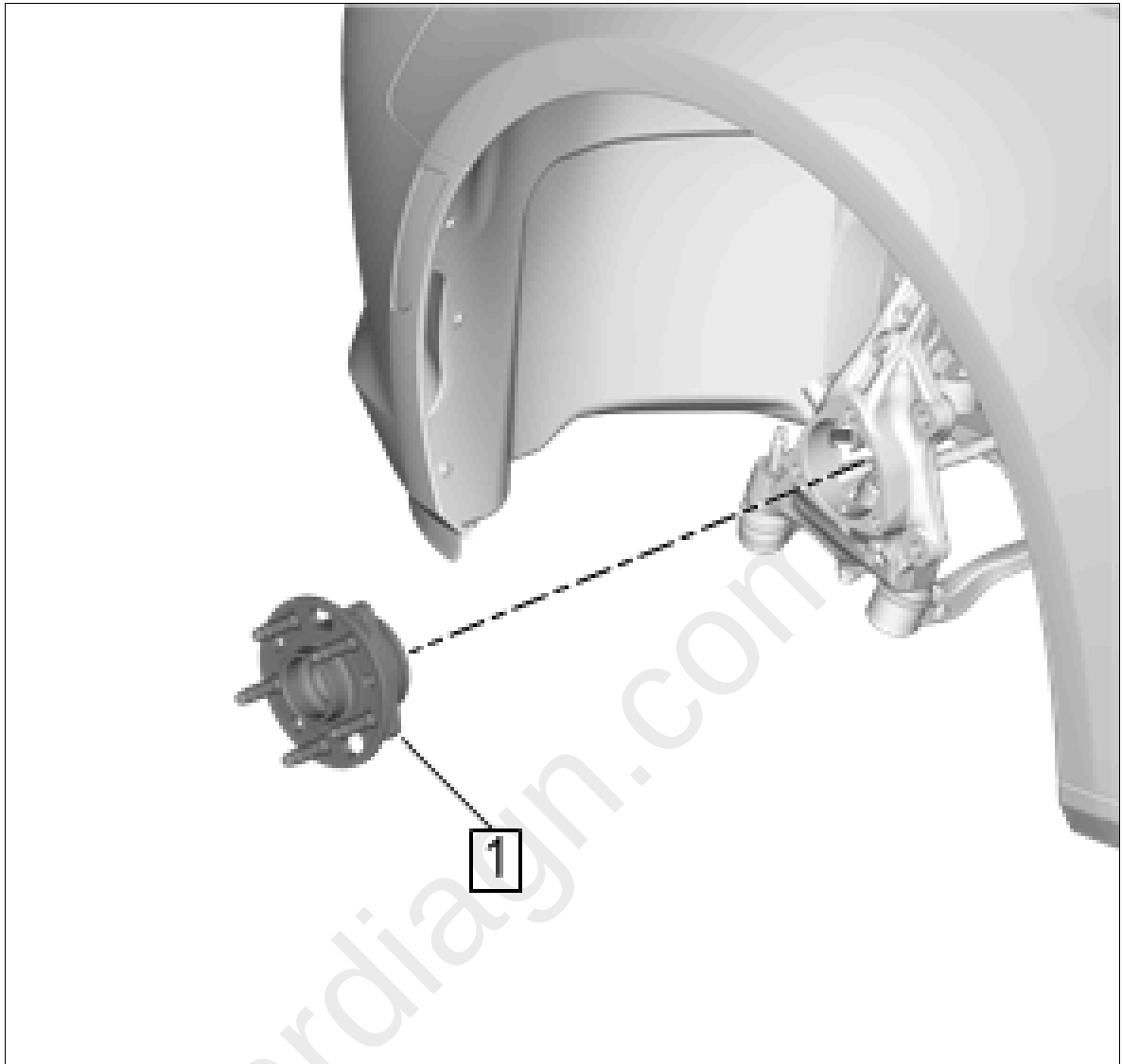
Fig 1: Front Brake Shield



Courtesy of GENERAL MOTORS COMPANY

1. Remove Front Brake Shield (1) - Front Brake Shield Replacement

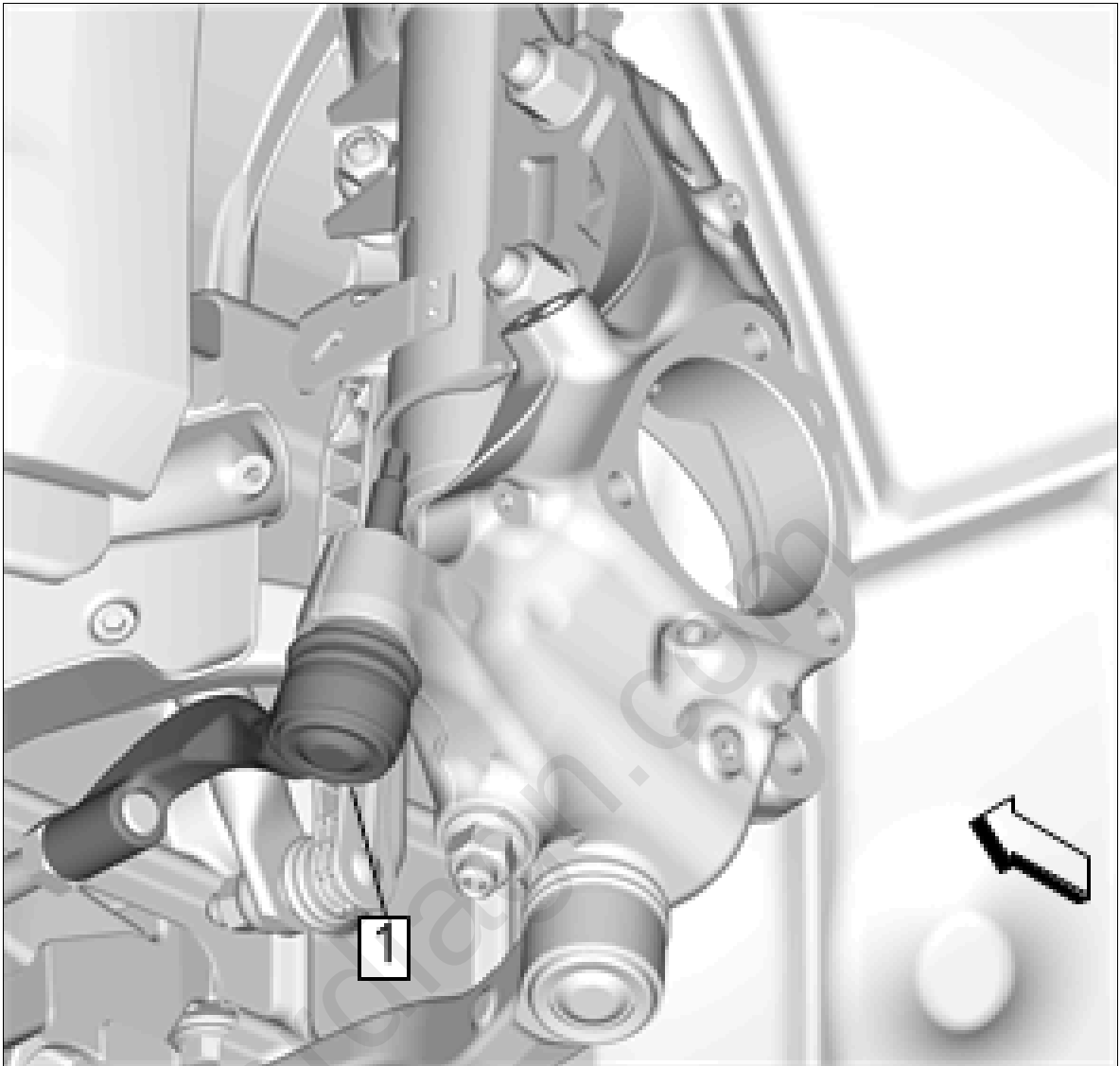
Fig 2: Front Wheel Bearing and Hub Assembly



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Wheel Bearing and Hub Assembly (1) - Front Wheel Bearing and Hub Replacement (LGX, LTG)

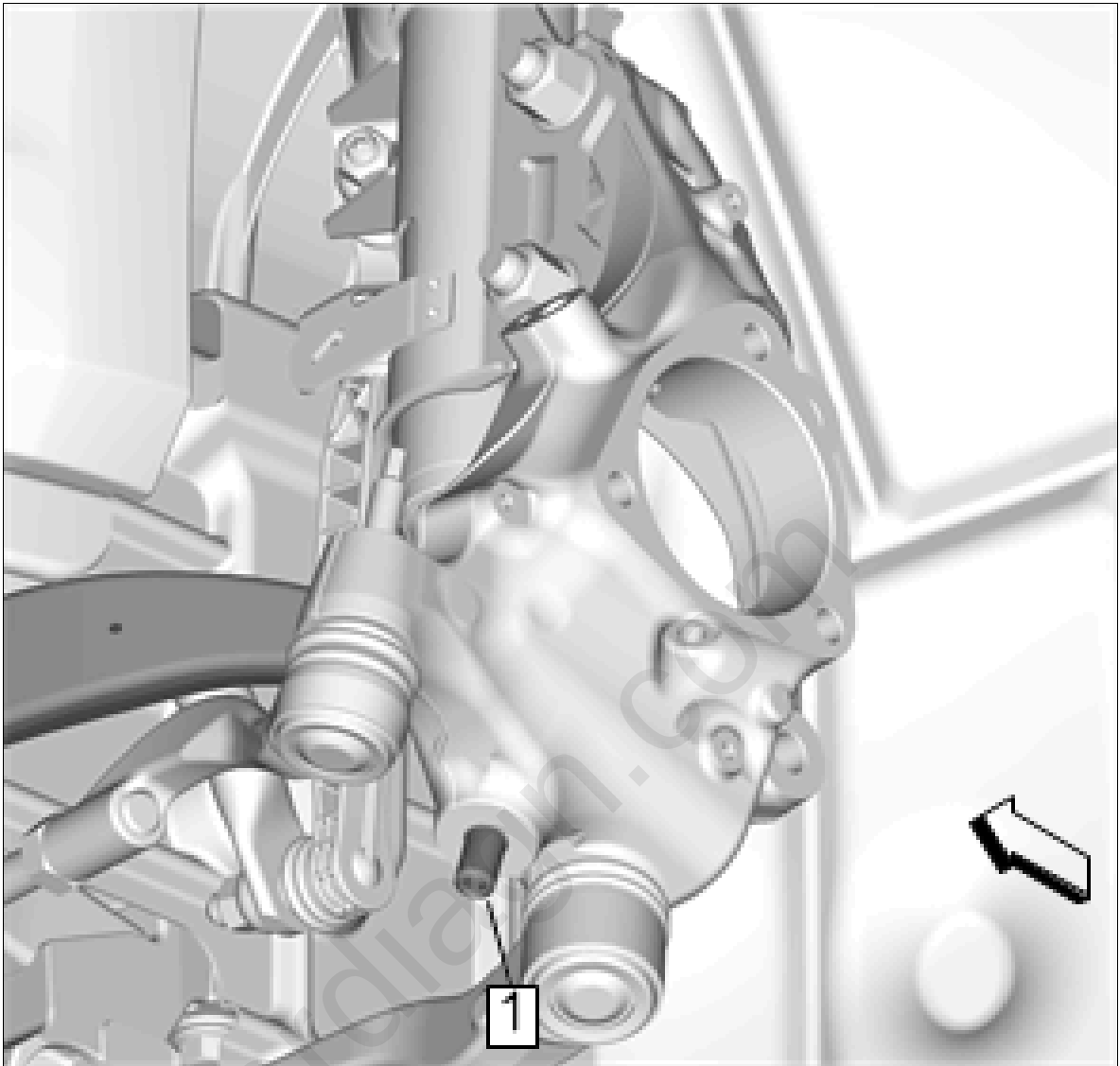
Fig 3: Steering Linkage Outer Tie Rod



Courtesy of GENERAL MOTORS COMPANY

3. Separate Steering Linkage Outer Tie Rod (1) at Steering Knuckle - Steering Linkage Outer Tie Rod Replacement

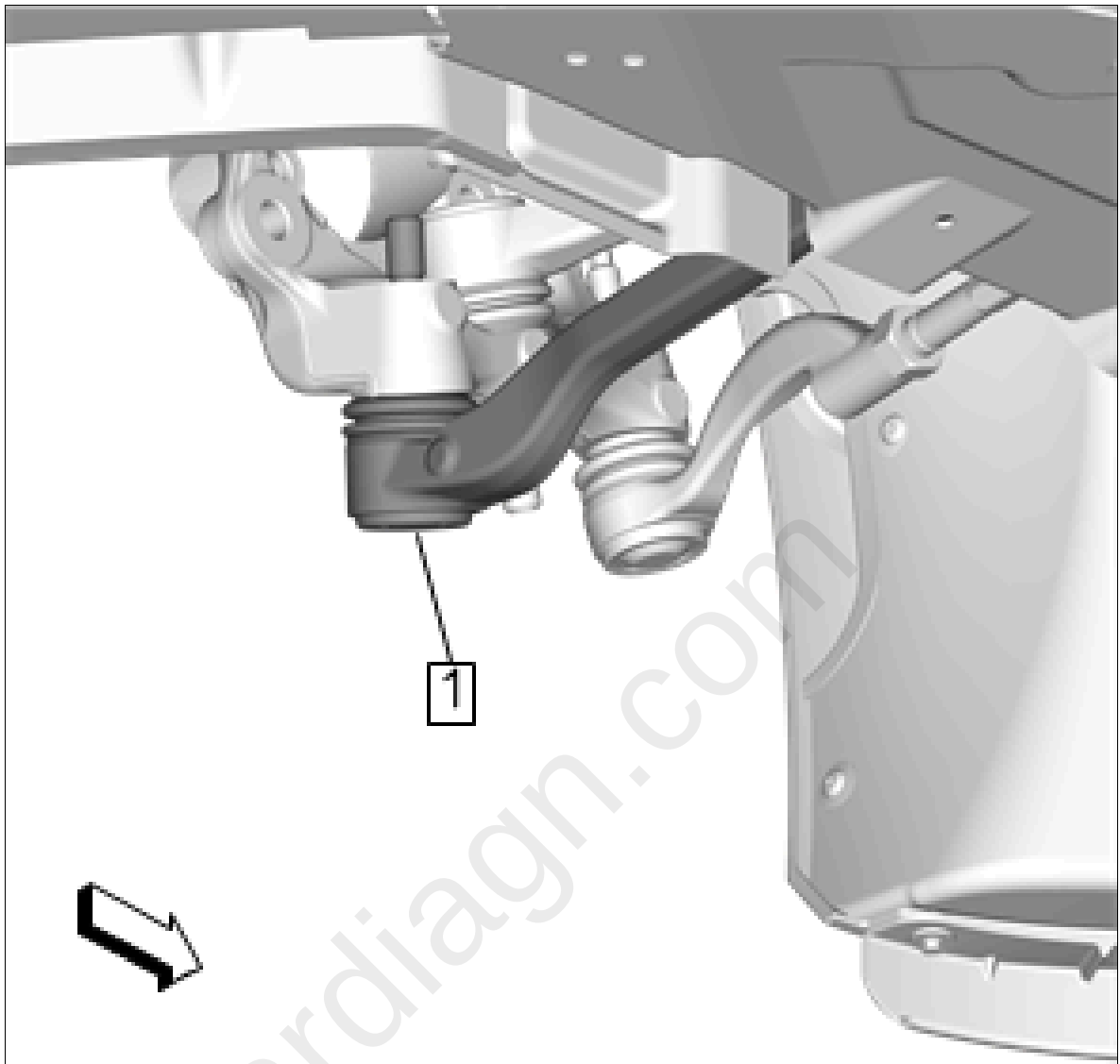
Fig 4: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Lower Control Front Link (1) at Steering Knuckle - Front Lower Control Front Link Replacement (LGX or LTG, Without V18) Front Lower Control Front Link Replacement (LGX or LTG, With V18)

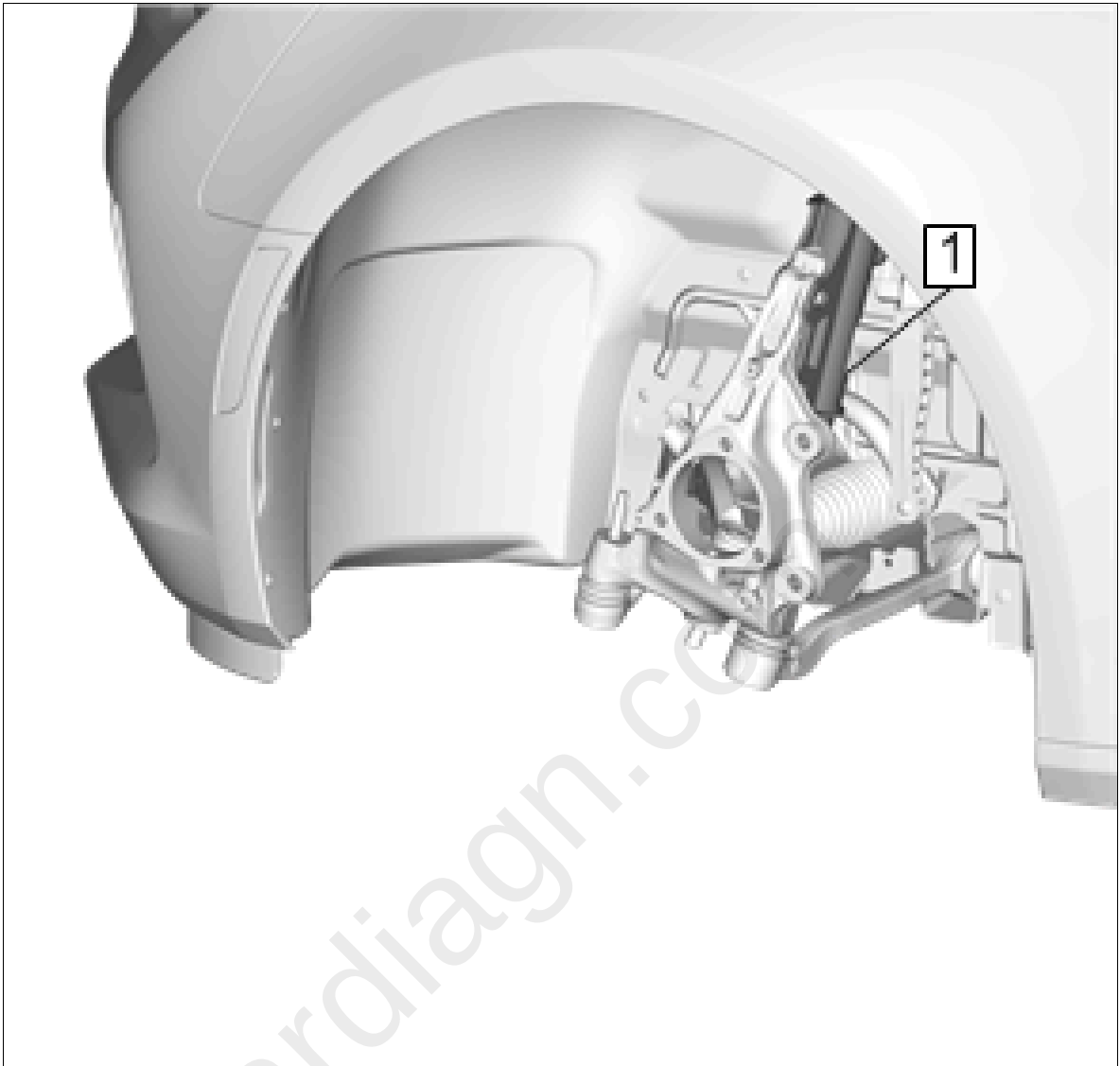
Fig 5: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

5. Separate Front Lower Control Rear Link (1) at Steering Knuckle - Front Lower Control Rear Link Replacement (LGX, LTG)

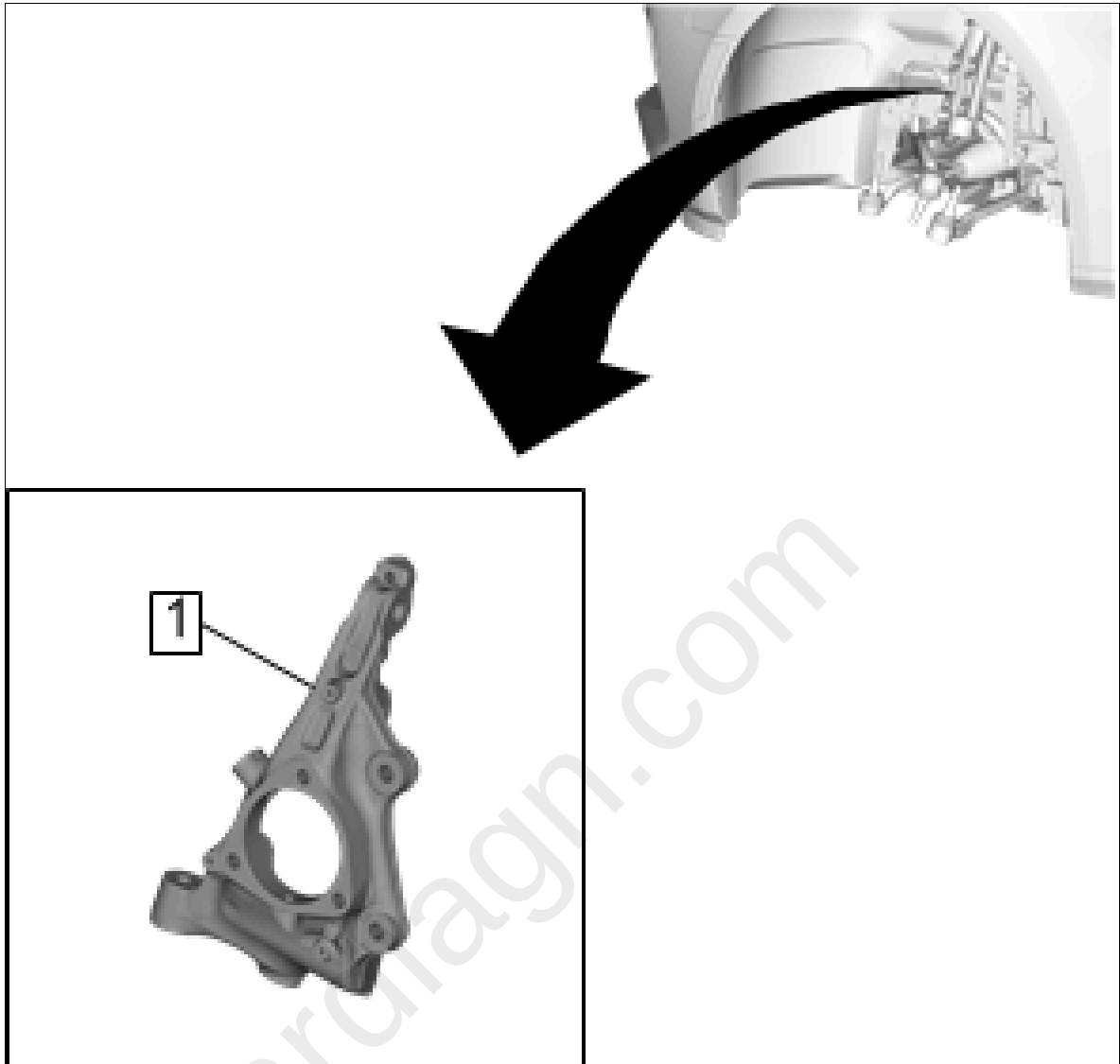
Fig 6: Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

6. Separate Strut Assembly (1) at Steering Knuckle - Strut Assembly Removal and Installation (LGX or LTG, Without F55)

Fig 7: Steering Knuckle

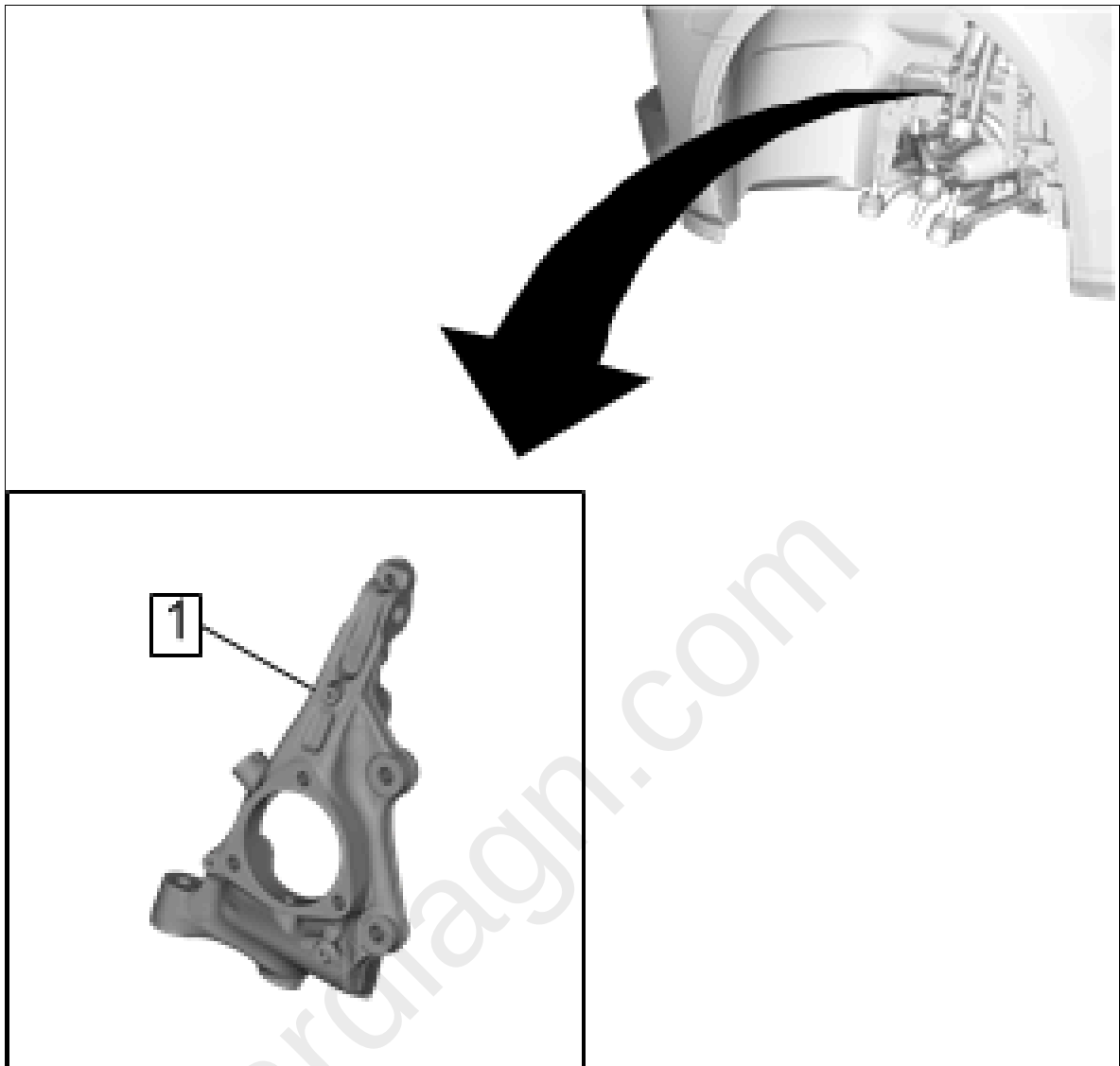


Courtesy of GENERAL MOTORS COMPANY

7. Remove the steering knuckle (1) from the vehicle.

**REPAIR INSTRUCTIONS > STEERING KNUCKLE REPLACEMENT (LGX, LTG) >
INSTALLATION PROCEDURE**

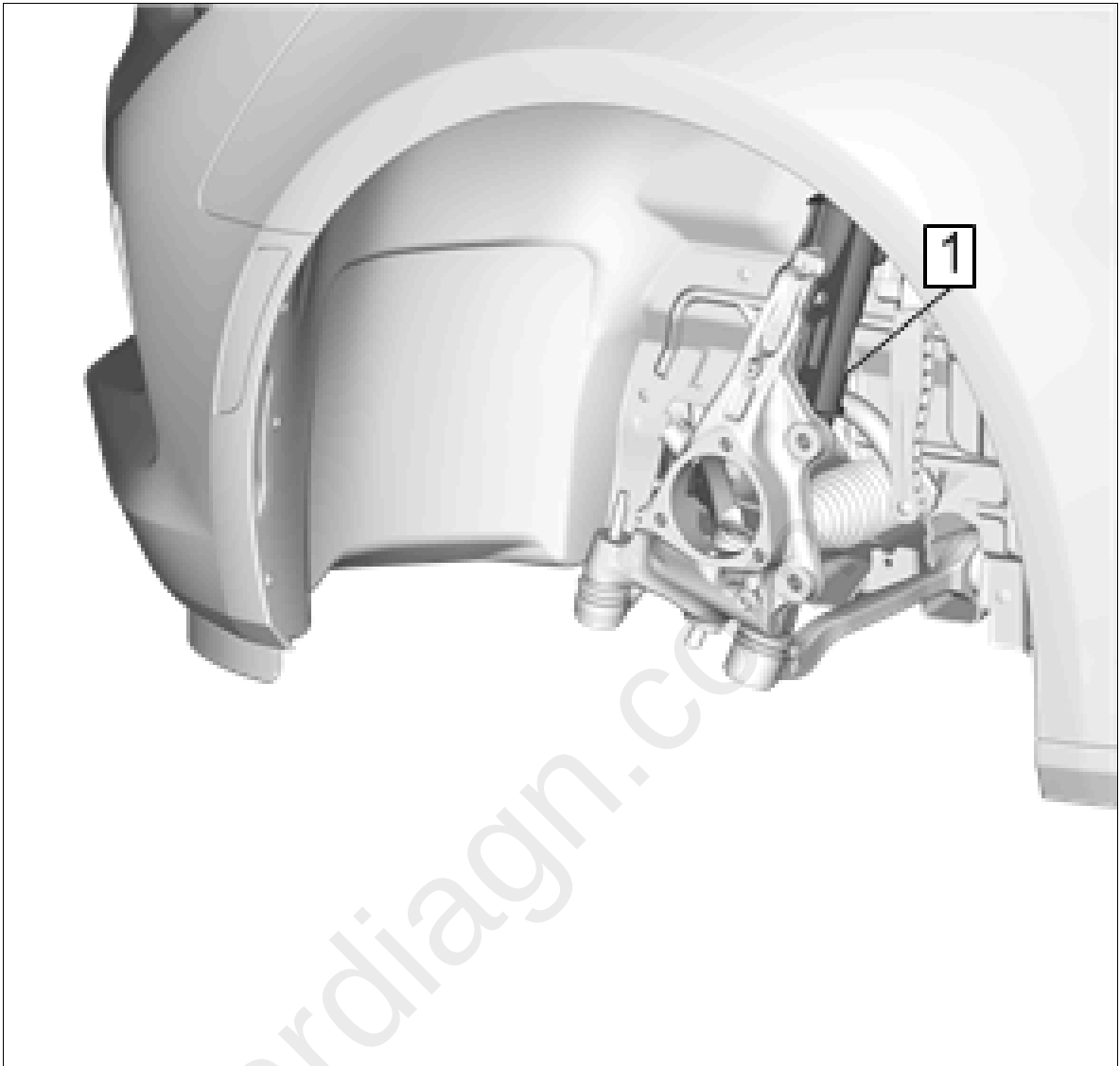
Fig 1: Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

1. Position the steering knuckle (1) on the vehicle.

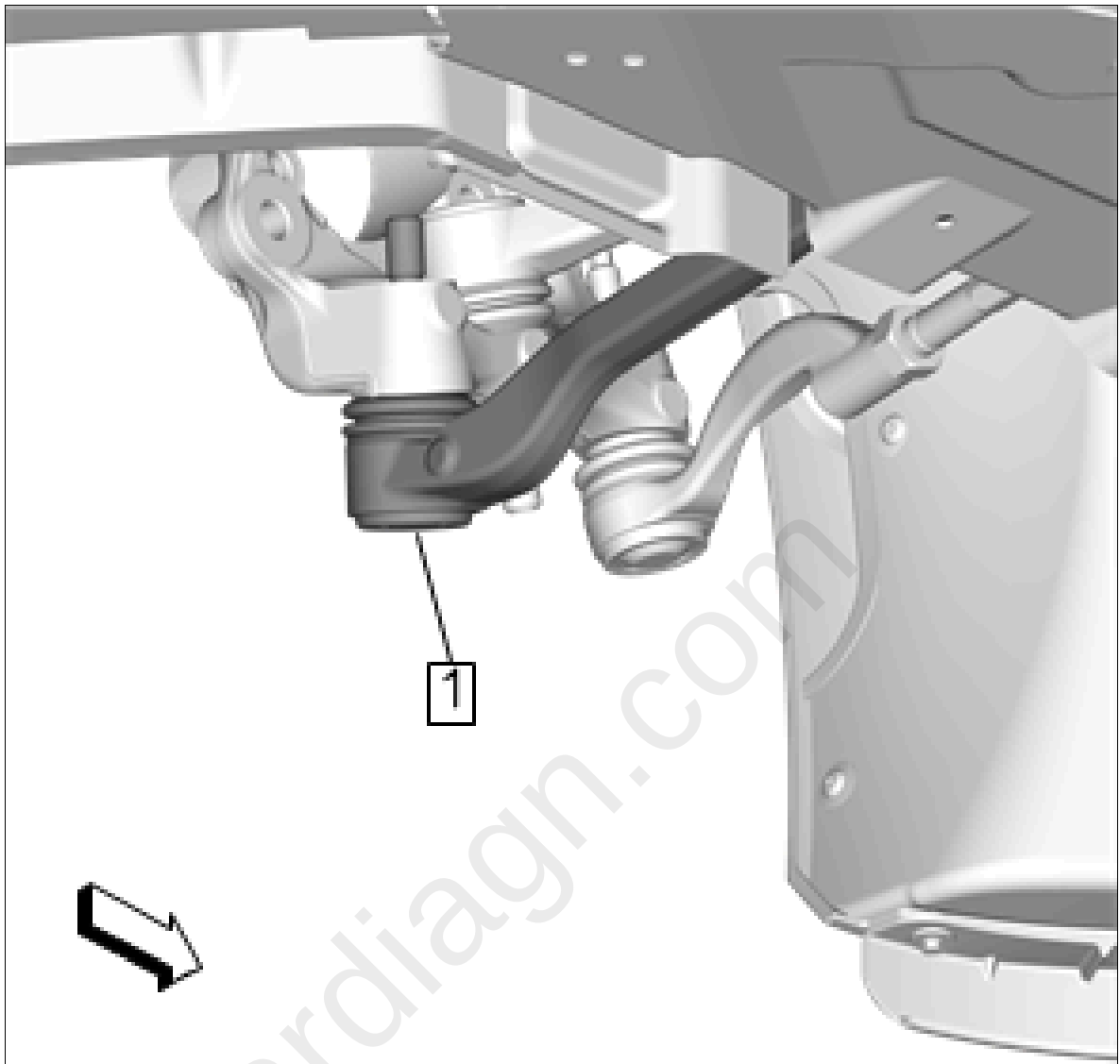
Fig 2: Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

2. Install Strut Assembly (1) at Steering Knuckle - Strut Assembly Removal and Installation (LGX or LTG, Without F55)

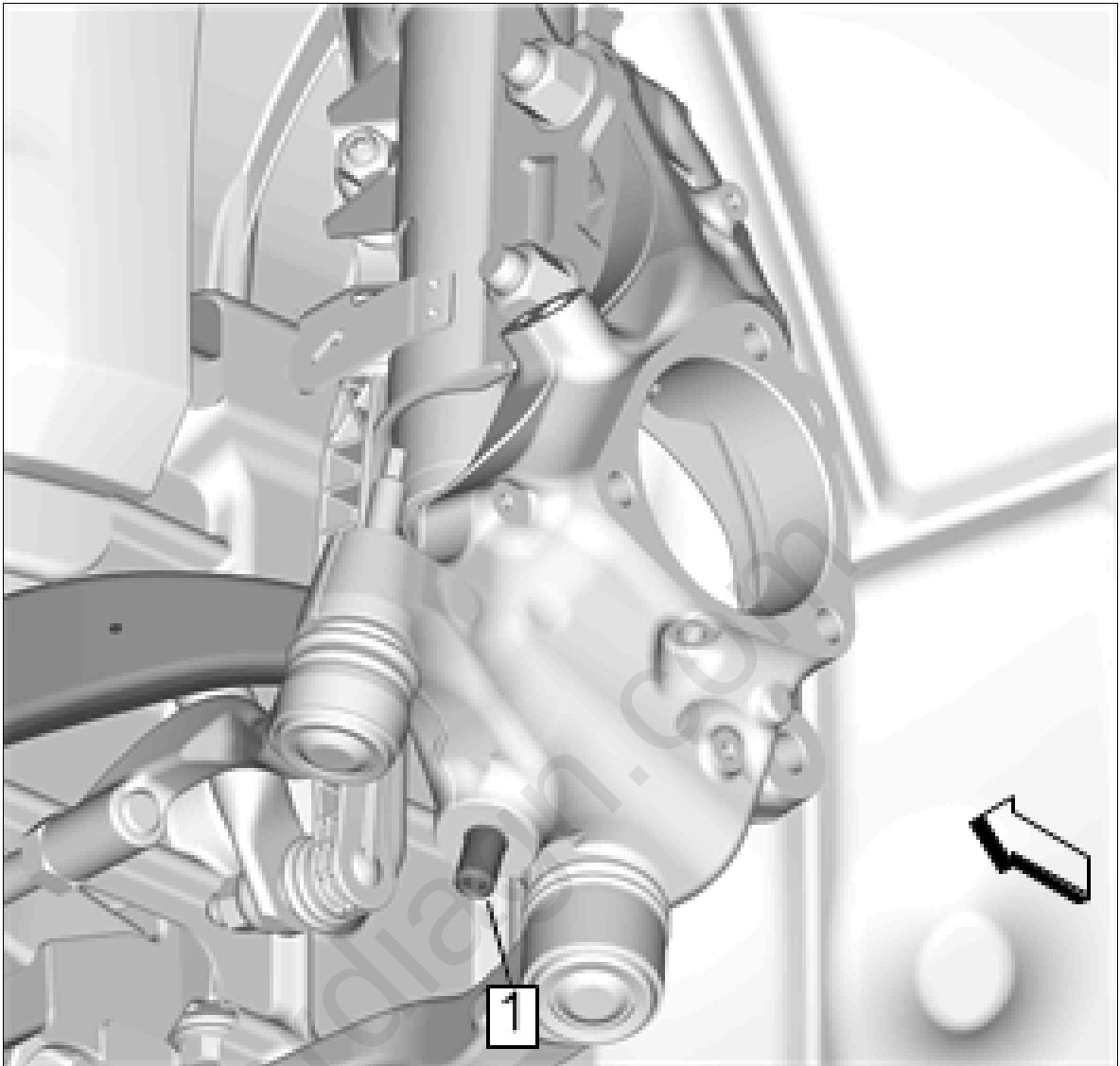
Fig 3: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

3. Install Front Lower Control Rear Link (1) at Steering Knuckle - Front Lower Control Rear Link Replacement (LGX, LTG)

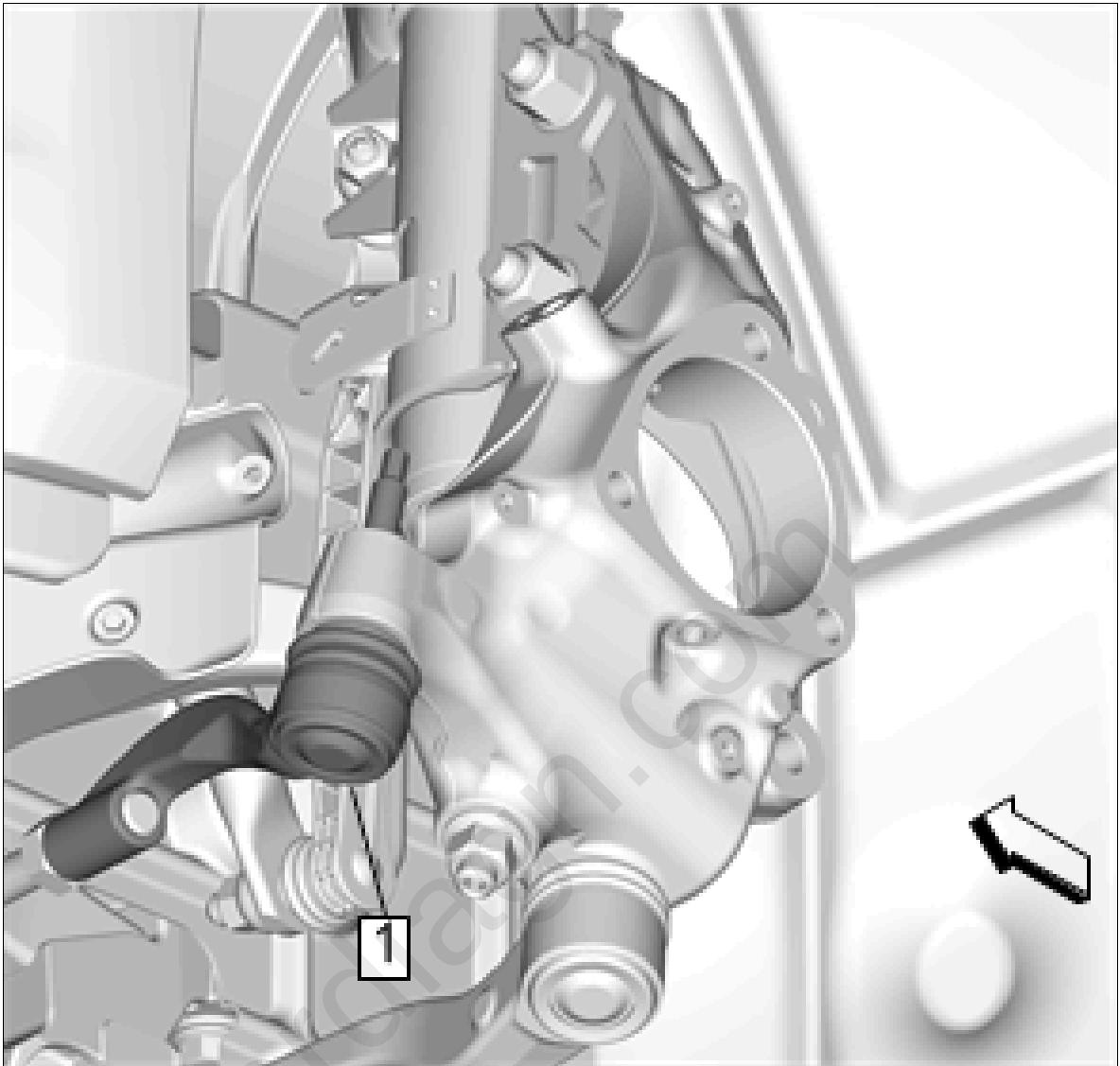
Fig 4: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

4. Install Front Lower Control Front Link (1) at Steering Knuckle - Front Lower Control Front Link Replacement (LGX or LTG, Without V18) Front Lower Control Front Link Replacement (LGX or LTG, With V18)

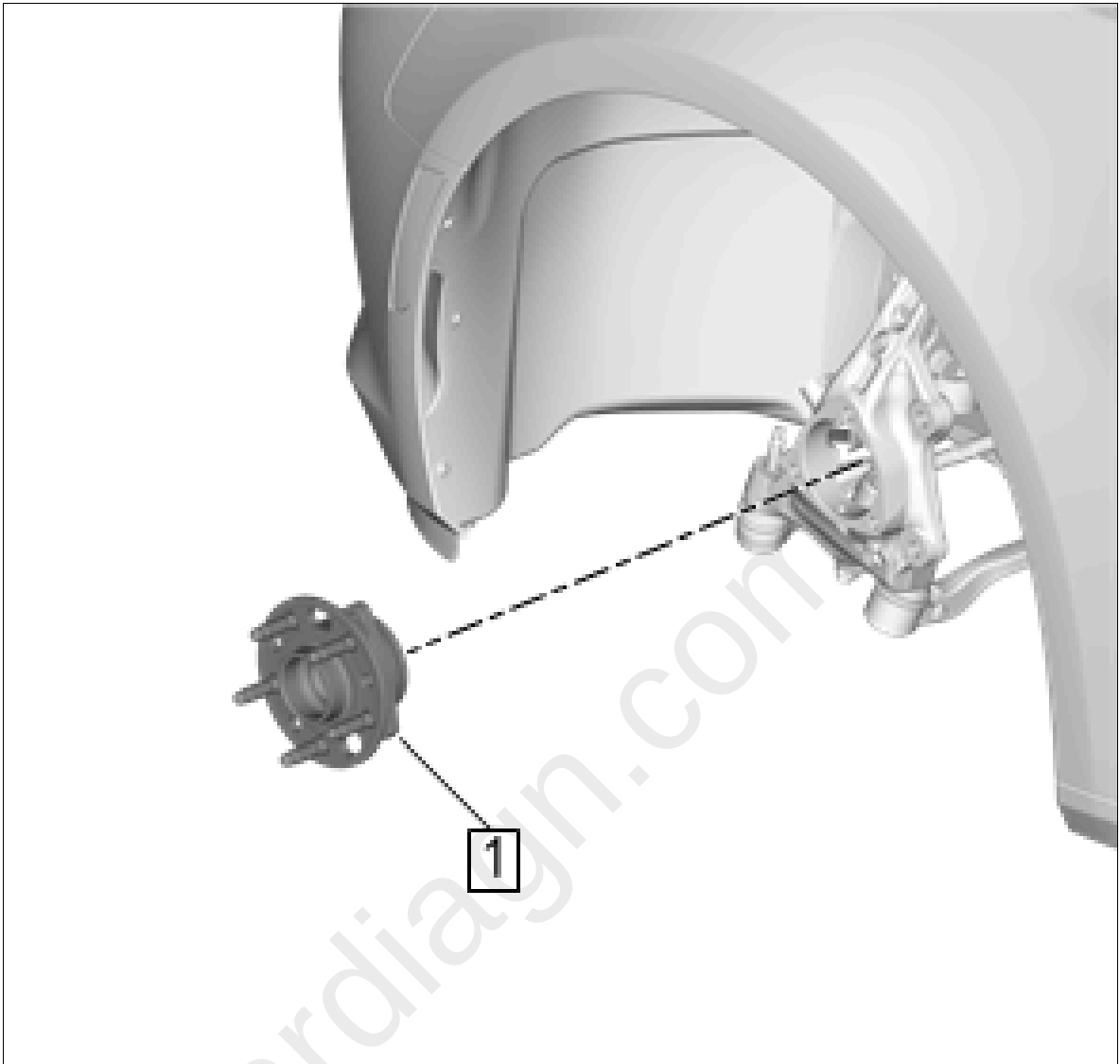
Fig 5: Steering Linkage Outer Tie Rod



Courtesy of GENERAL MOTORS COMPANY

5. Install Steering Linkage Outer Tie Rod (1) at Steering Knuckle - Steering Linkage Outer Tie Rod Replacement

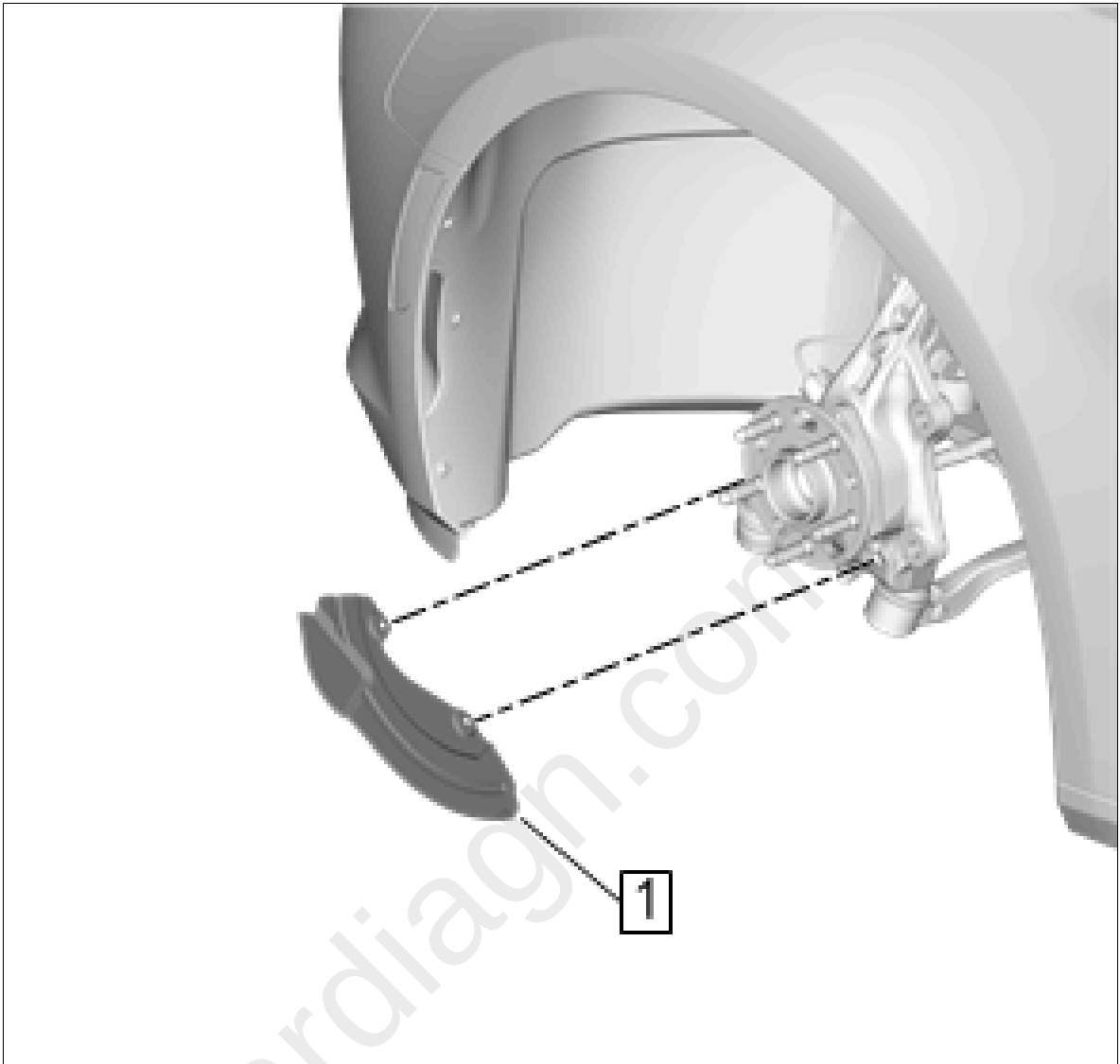
Fig 6: Front Wheel Bearing and Hub Assembly



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Wheel Bearing and Hub Assembly (1) - Front Wheel Bearing and Hub Replacement (LGX, LTG)

Fig 7: Front Brake Shield

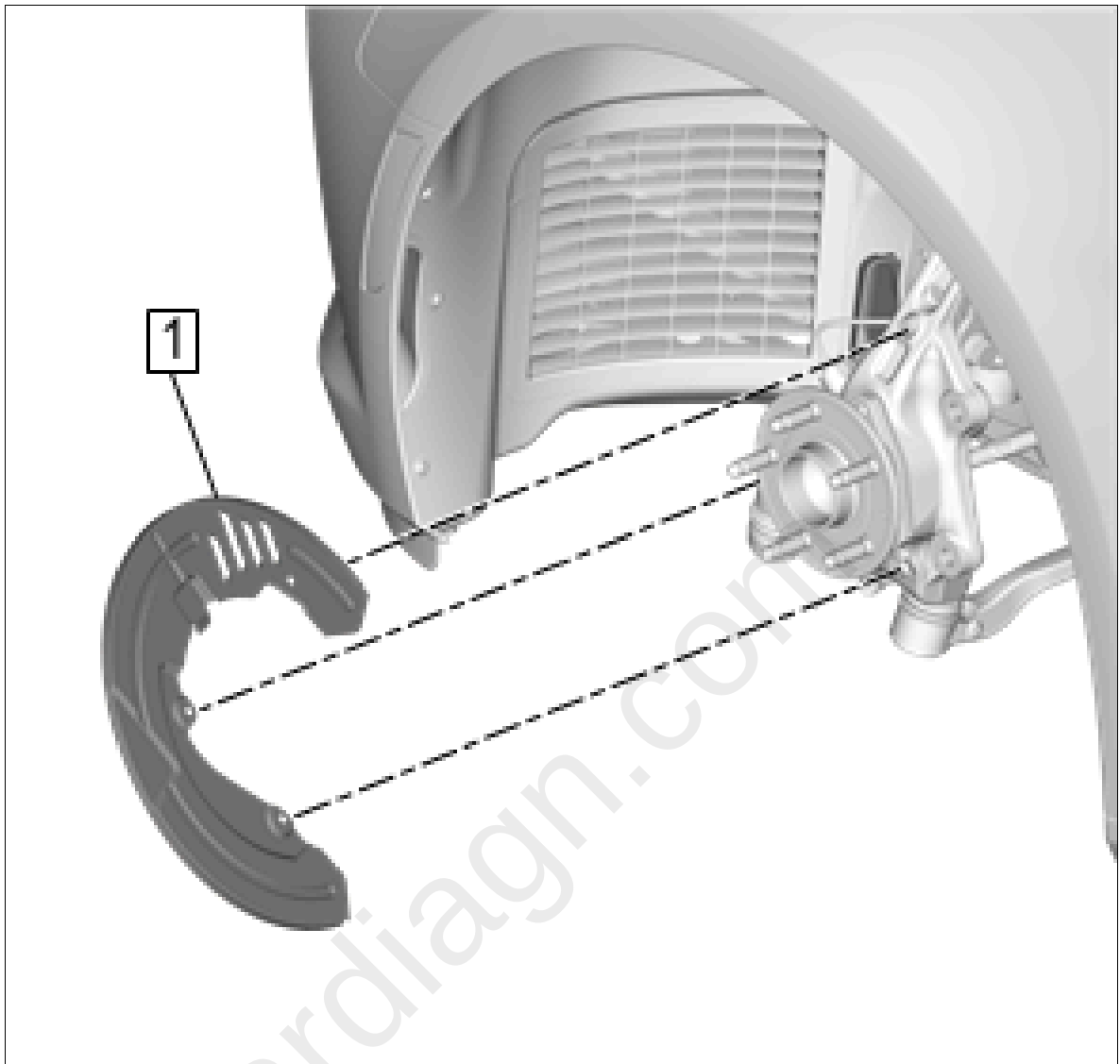


Courtesy of GENERAL MOTORS COMPANY

7. Install Front Brake Shield (1) - Front Brake Shield Replacement
8. Measure and adjust the wheel alignment. Wheel Alignment Measurement

**REPAIR INSTRUCTIONS > STEERING KNUCKLE REPLACEMENT (LT1) > REMOVAL
PROCEDURE**

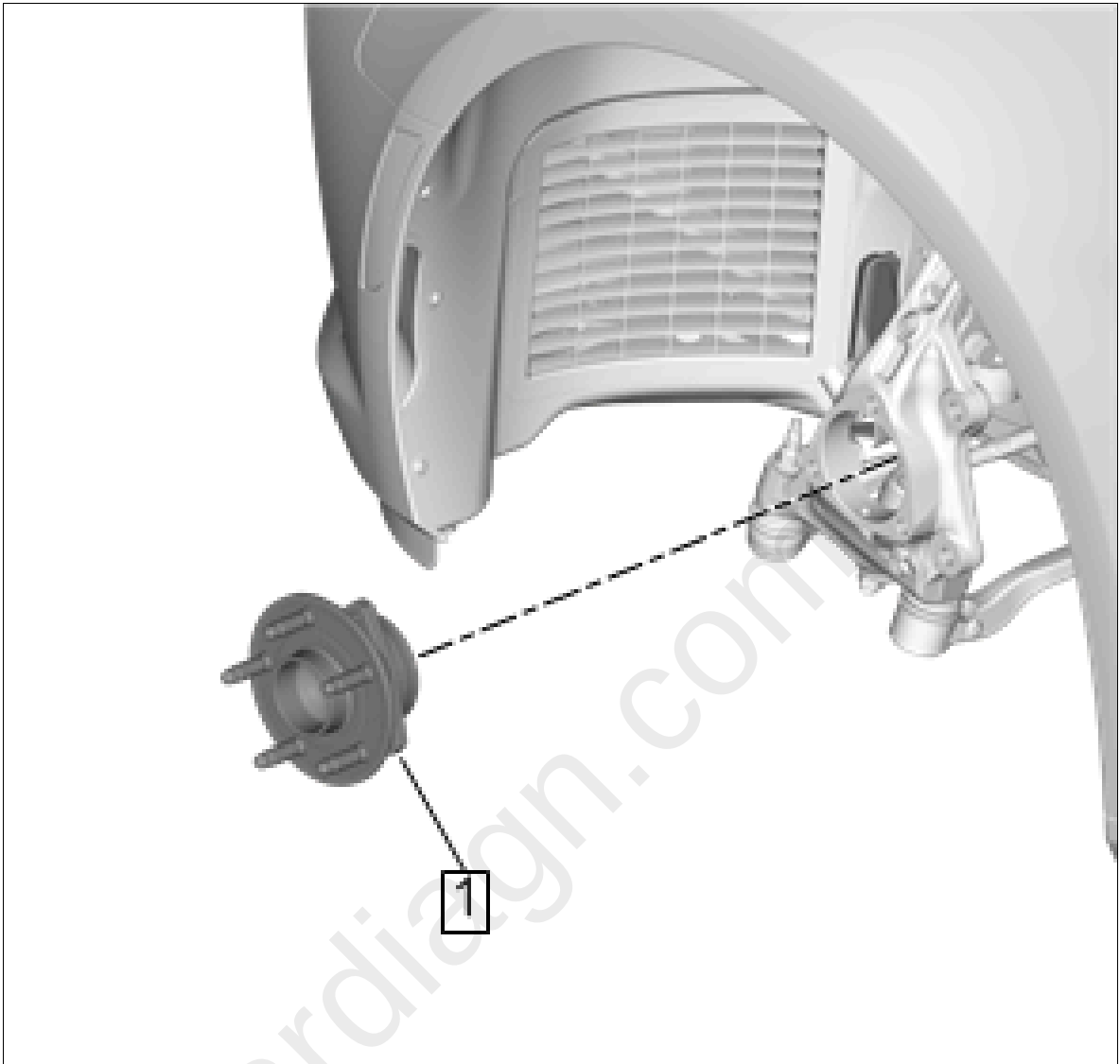
Fig 1: Front Brake Shield



Courtesy of GENERAL MOTORS COMPANY

1. Remove Front Brake Shield (1) - Front Brake Shield Replacement

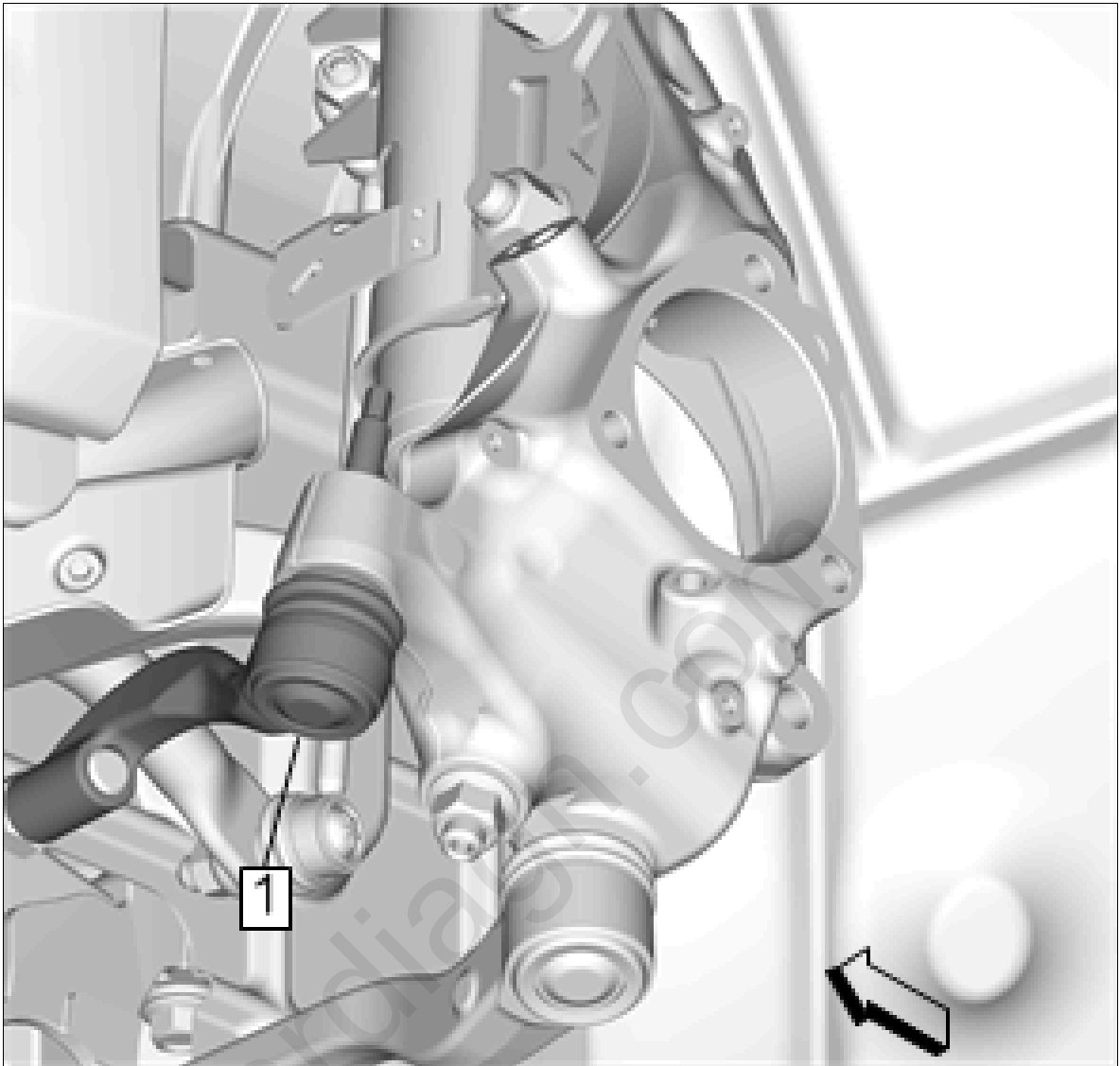
Fig 2: Front Wheel Bearing And Hub Assembly



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Wheel Bearing and Hub Assembly (1) - Front Wheel Bearing and Hub Replacement (LT1)

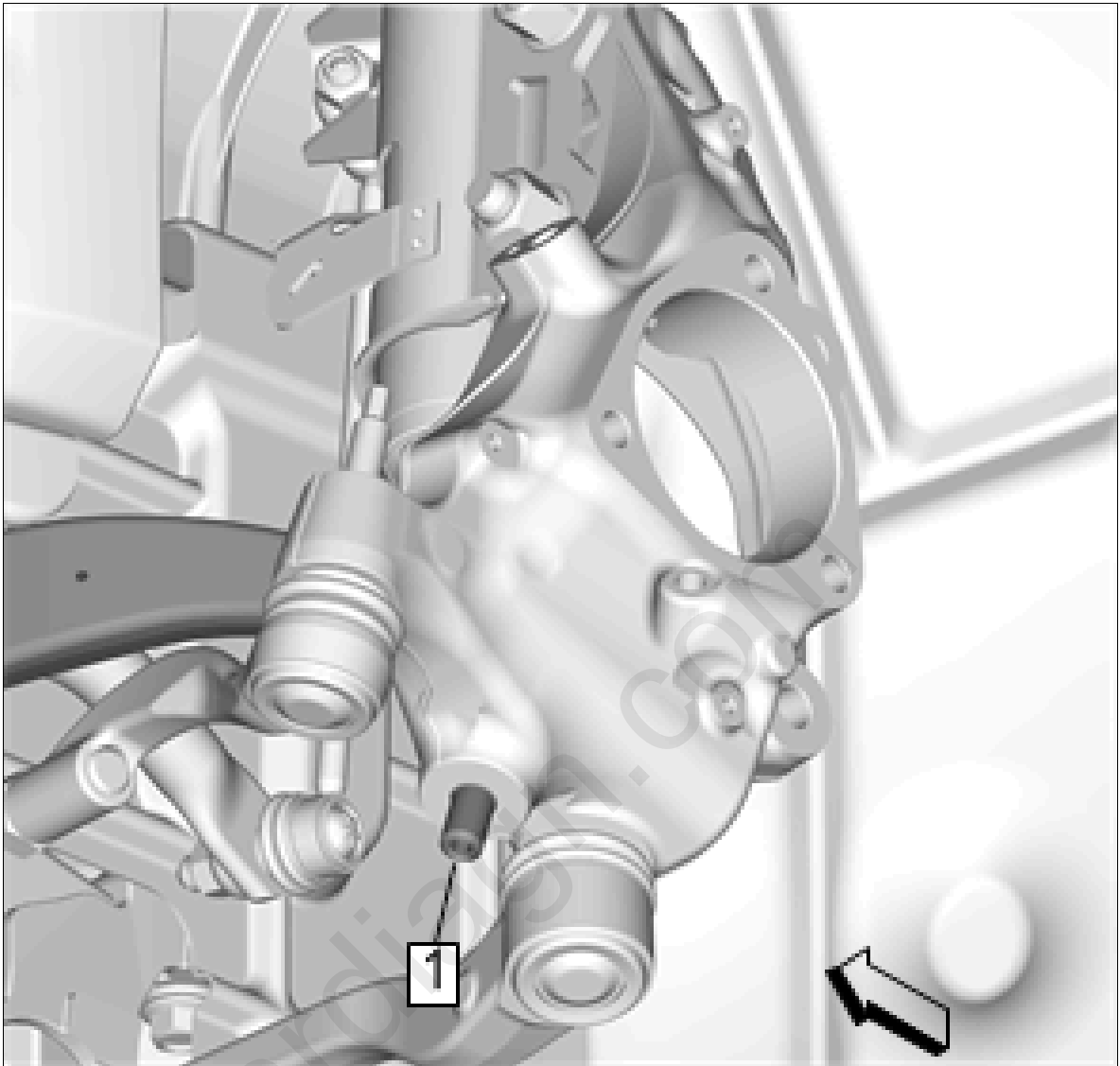
Fig 3: Steering Linkage Outer Tie Rod



Courtesy of GENERAL MOTORS COMPANY

3. Separate Steering Linkage Outer Tie Rod (1) at Steering Knuckle - Steering Linkage Outer Tie Rod Replacement

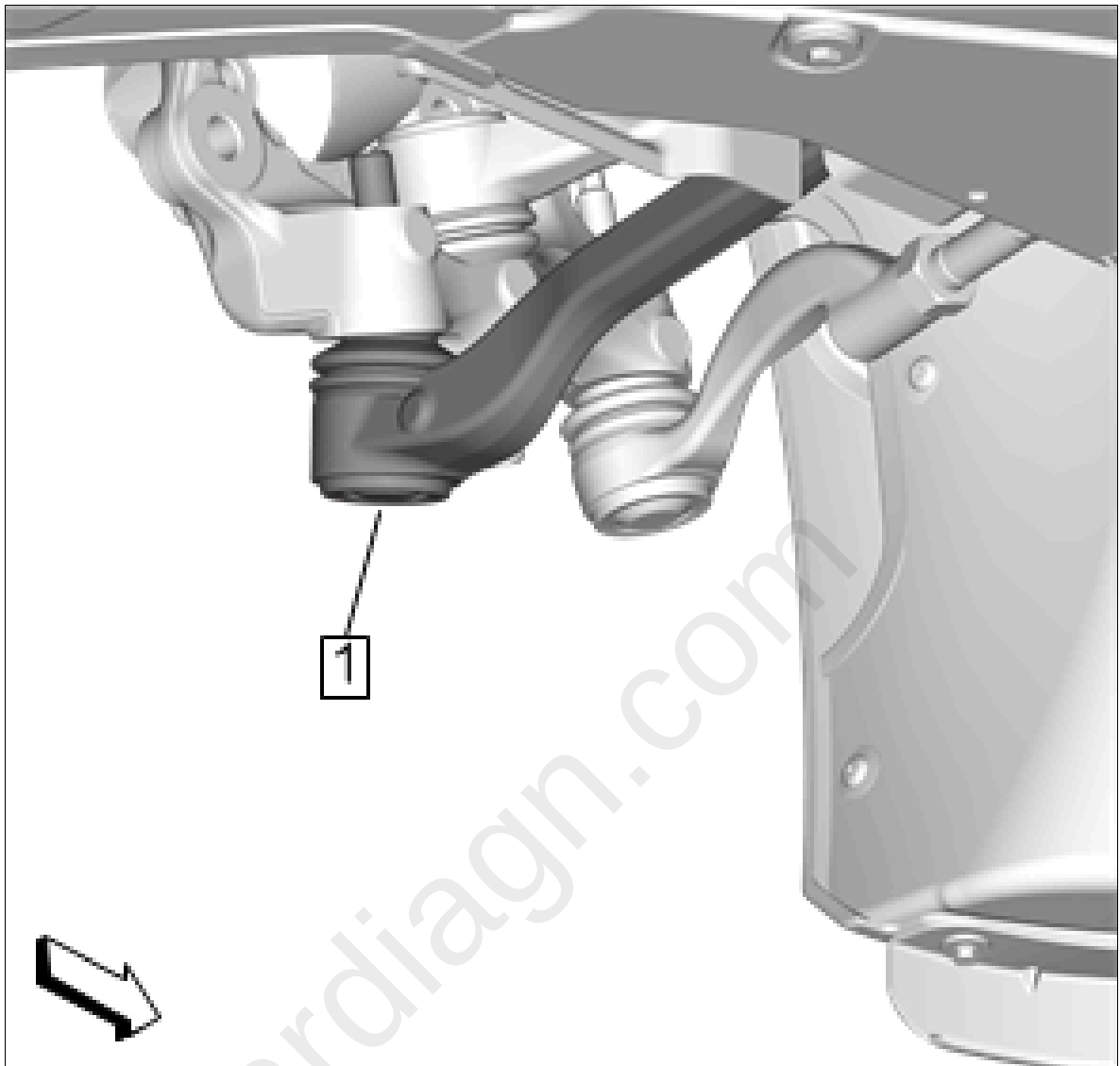
Fig 4: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Lower Control Front Link (1) at Steering Knuckle - Front Lower Control Front Link Replacement (LT1, Without V18) Front Lower Control Front Link Replacement (LT1, With V18)

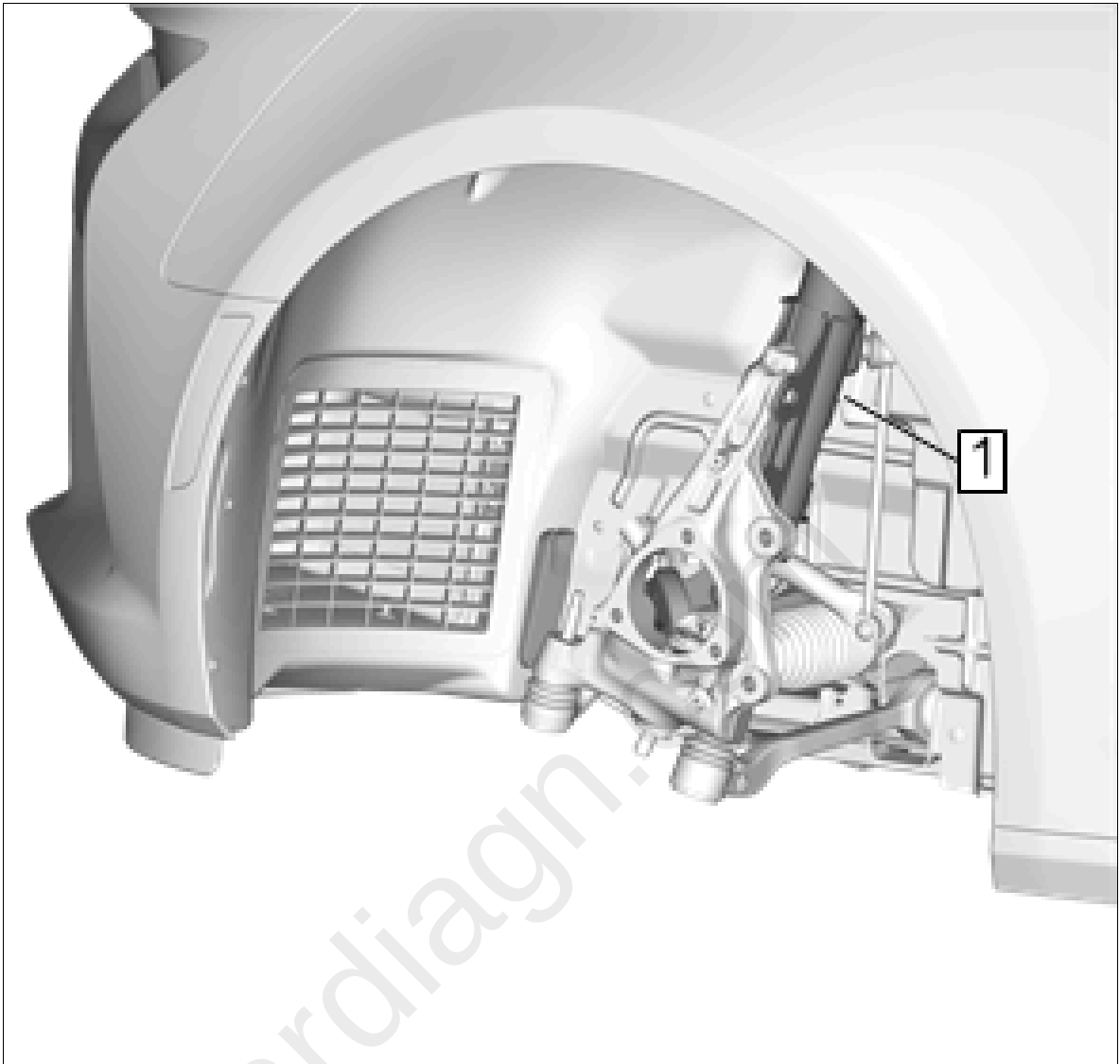
Fig 5: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

5. Separate Front Lower Control Rear Link (1) at Steering Knuckle - Front Lower Control Rear Link Replacement (LT1)

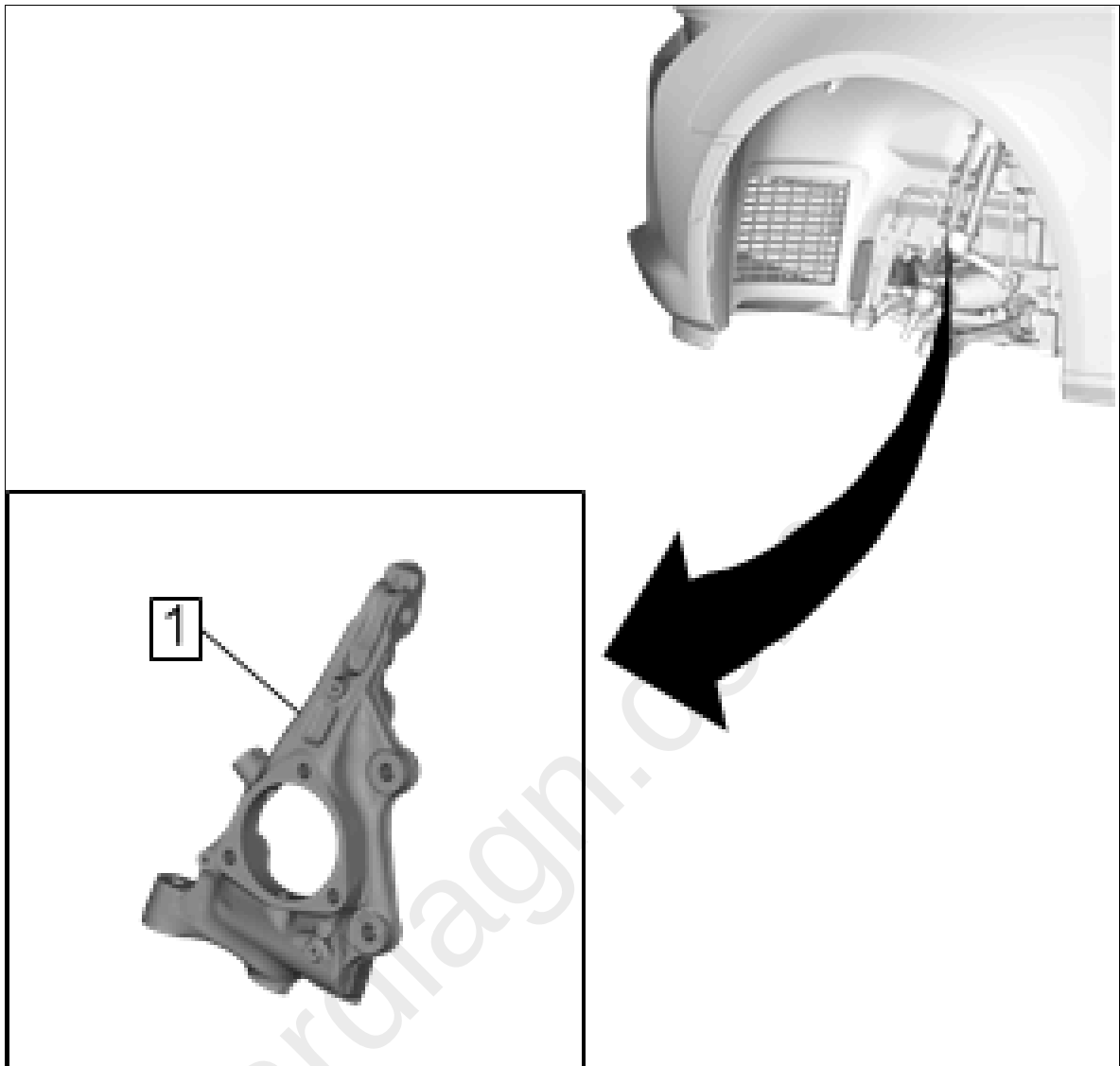
Fig 6: Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

6. Separate Strut Assembly (1) at Steering Knuckle - Strut Assembly Removal and Installation (LT1, With or Without F55)

Fig 7: Steering Knuckle

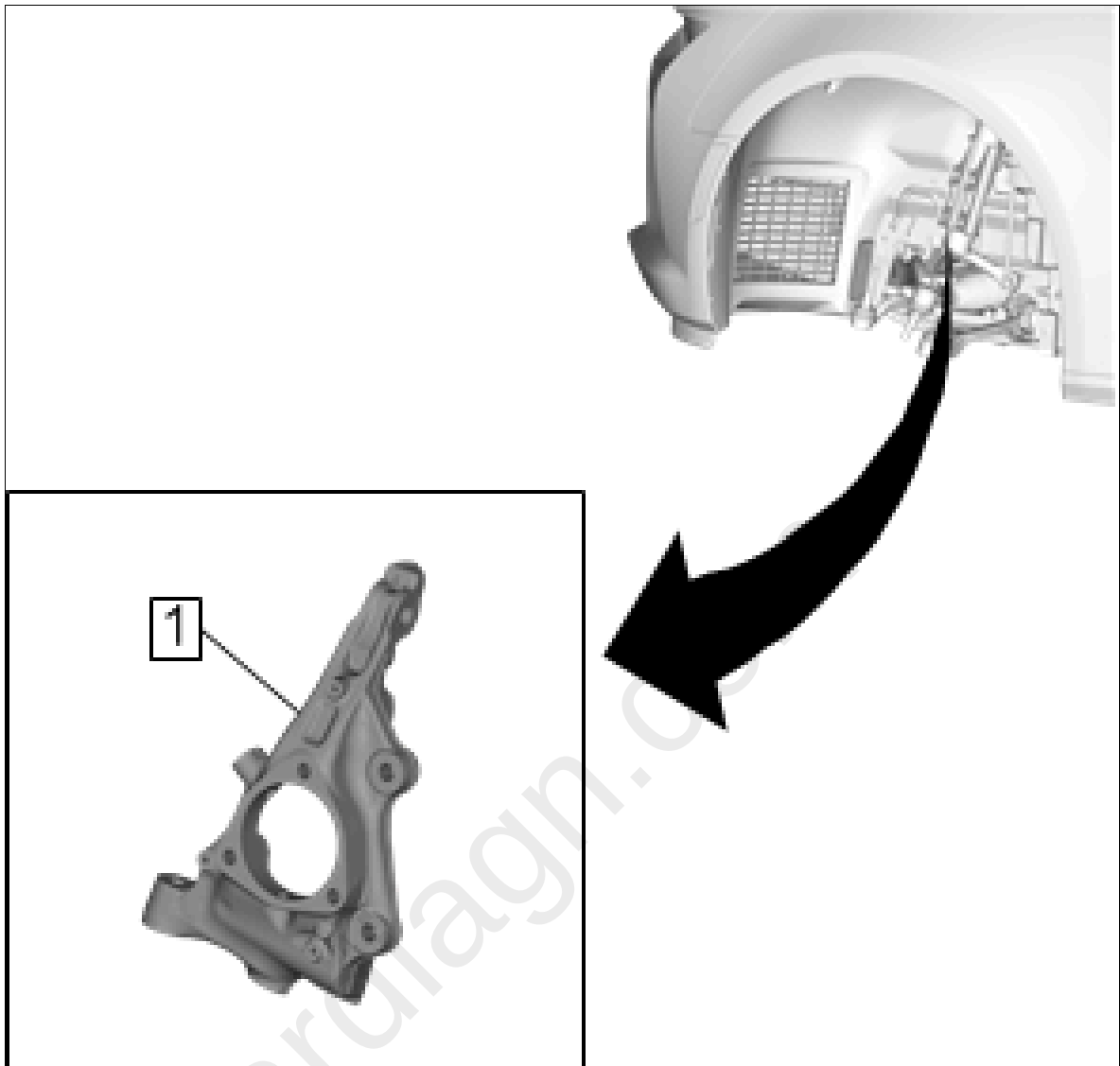


Courtesy of GENERAL MOTORS COMPANY

7. Remove the steering knuckle (1) from the vehicle.

**REPAIR INSTRUCTIONS > STEERING KNUCKLE REPLACEMENT (LT1) >
INSTALLATION PROCEDURE**

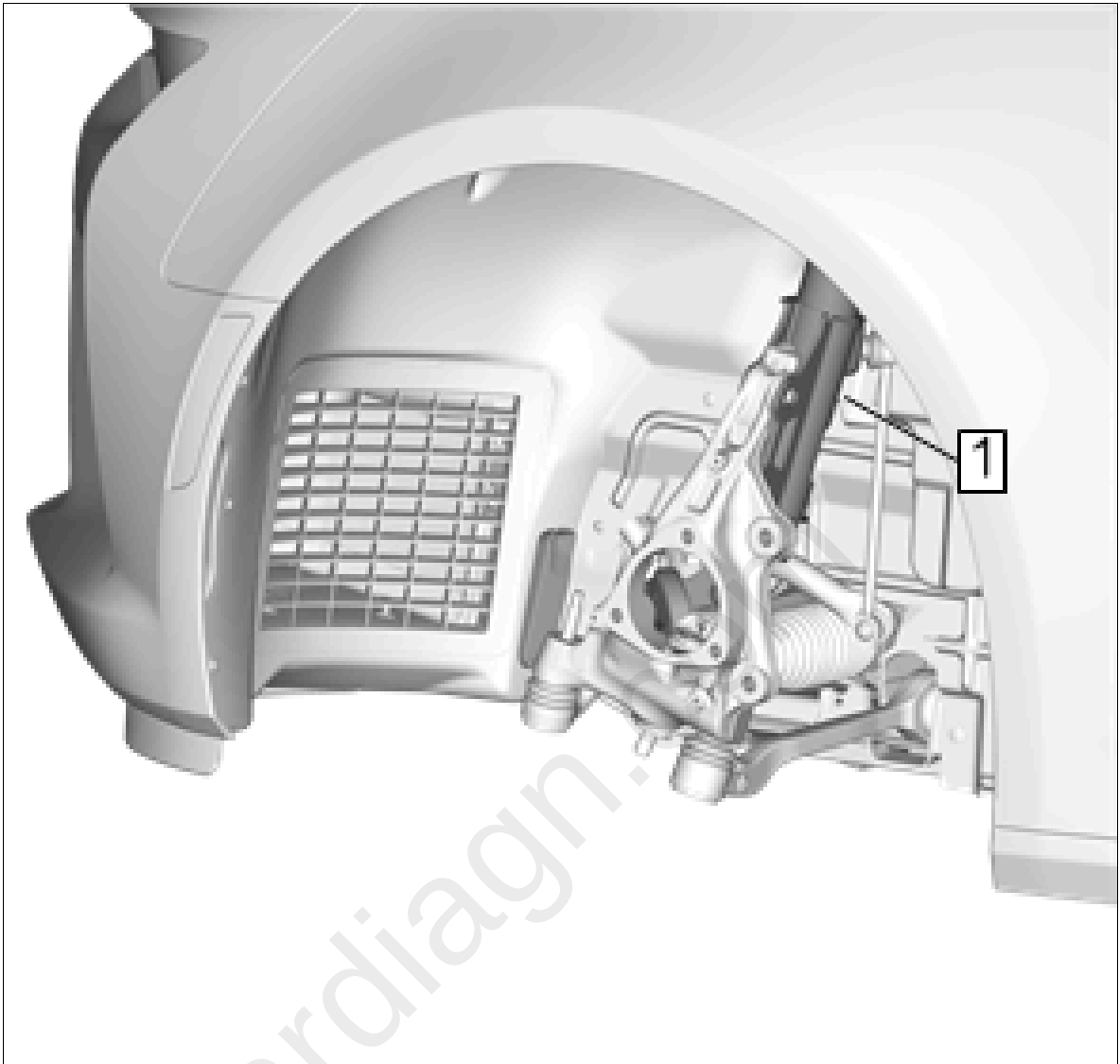
Fig 1: Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

1. Position the steering knuckle (1) on the vehicle.

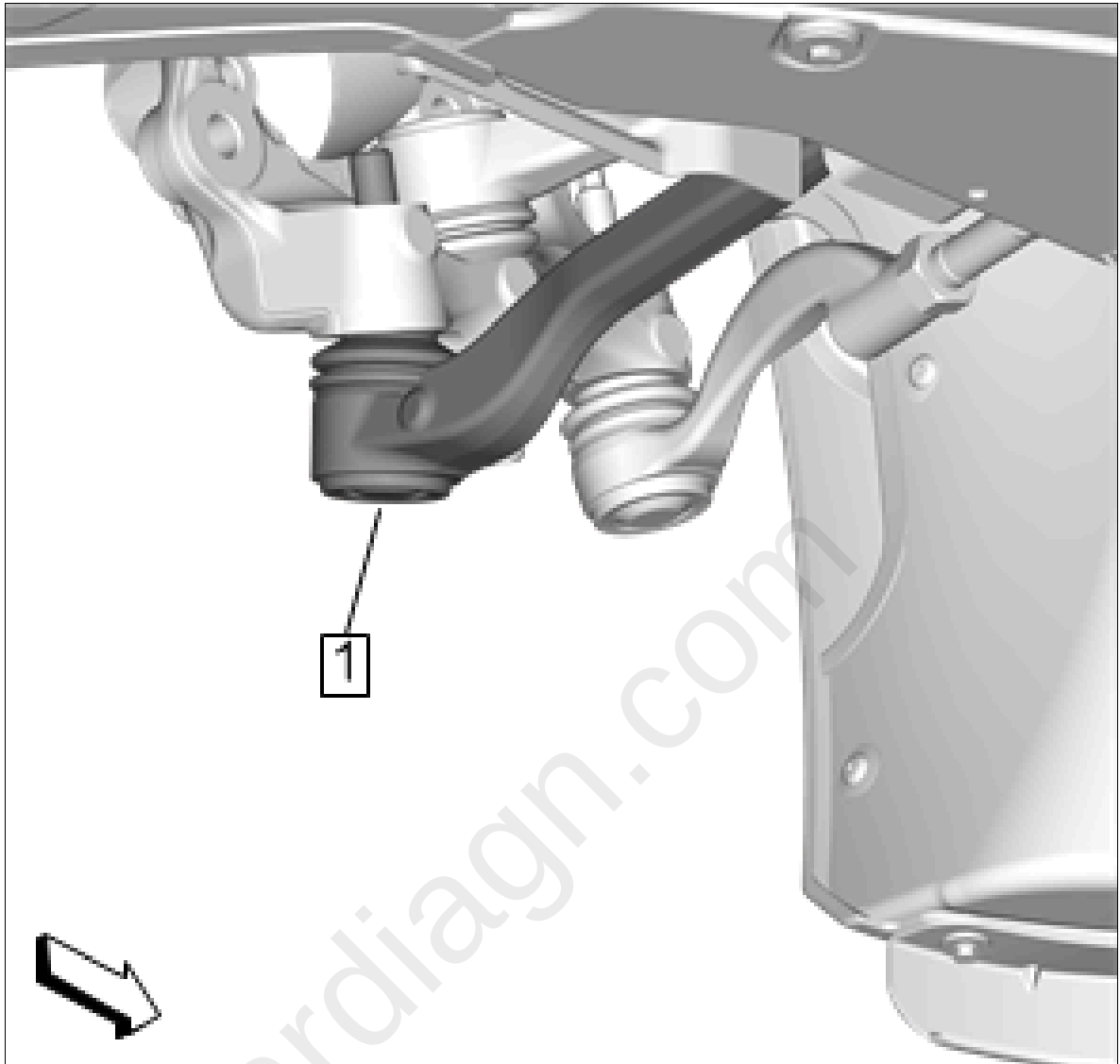
Fig 2: Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

2. Install Strut Assembly (1) at Steering Knuckle - Strut Assembly Removal and Installation (LT1, With or Without F55)

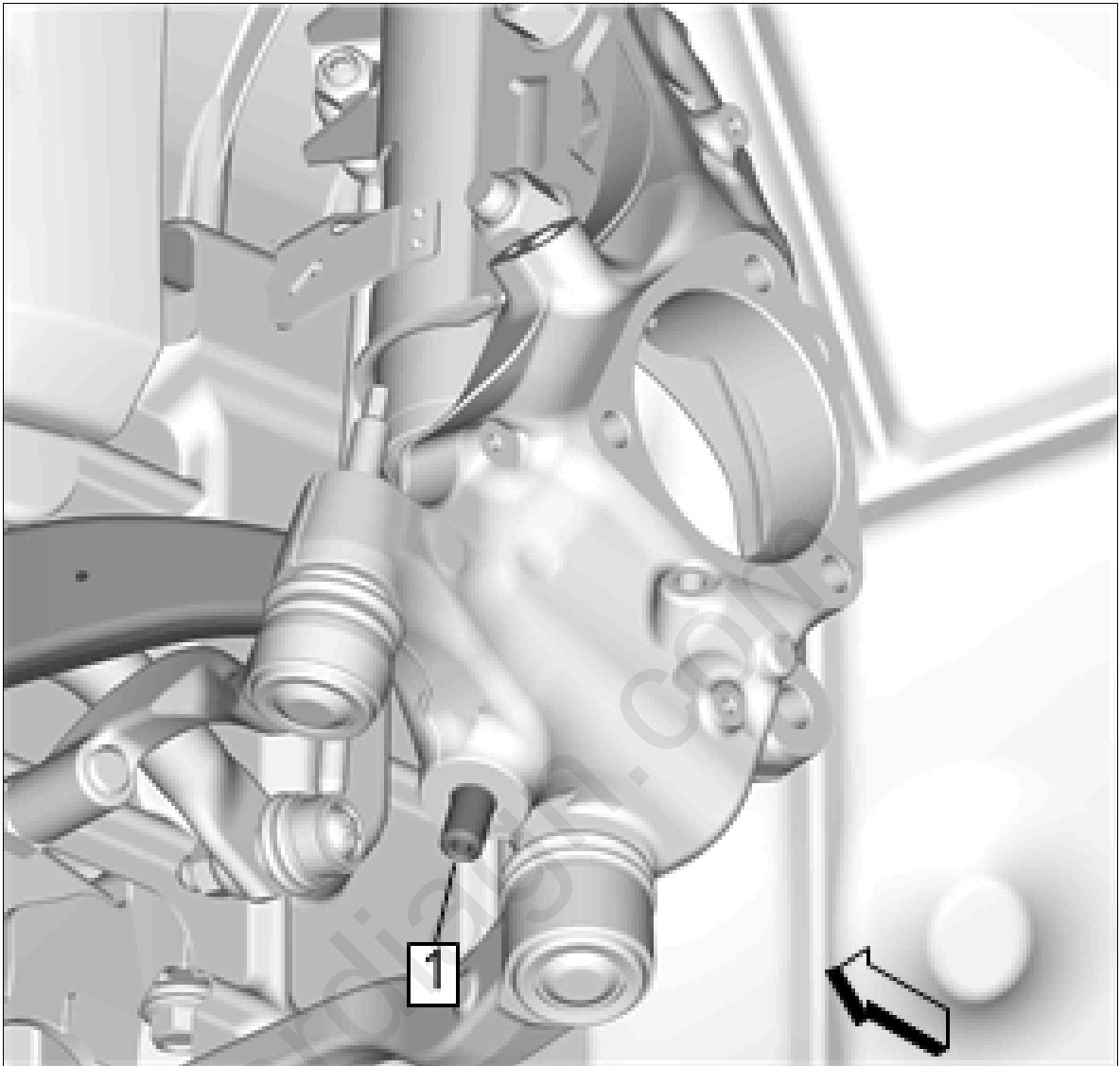
Fig 3: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

3. Install Front Lower Control Rear Link (1) at Steering Knuckle - Front Lower Control Rear Link Replacement (LT1)

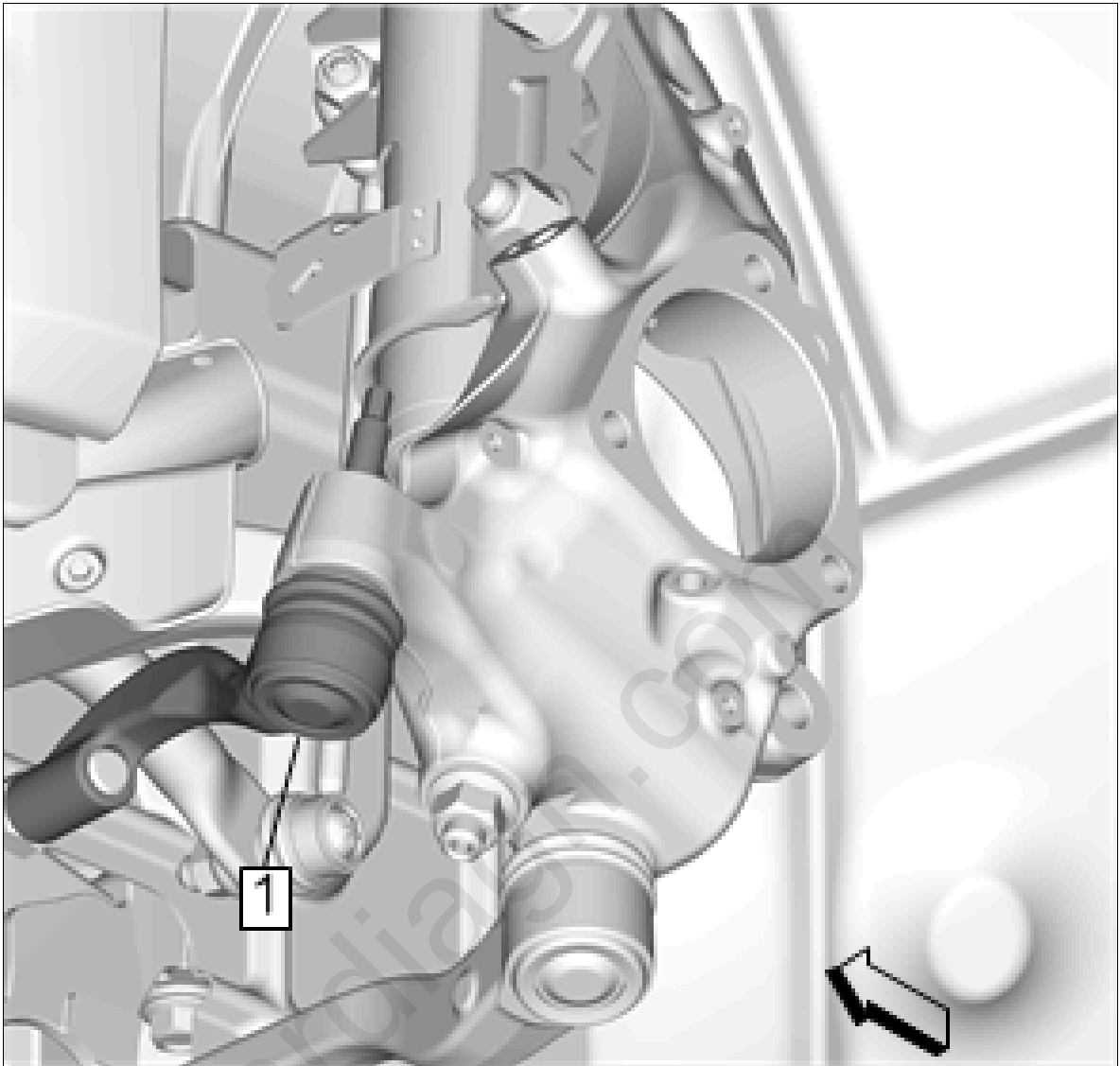
Fig 4: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

4. Install Front Lower Control Front Link (1) at Steering Knuckle - Front Lower Control Front Link Replacement (LT1, Without V18) Front Lower Control Front Link Replacement (LT1, With V18)

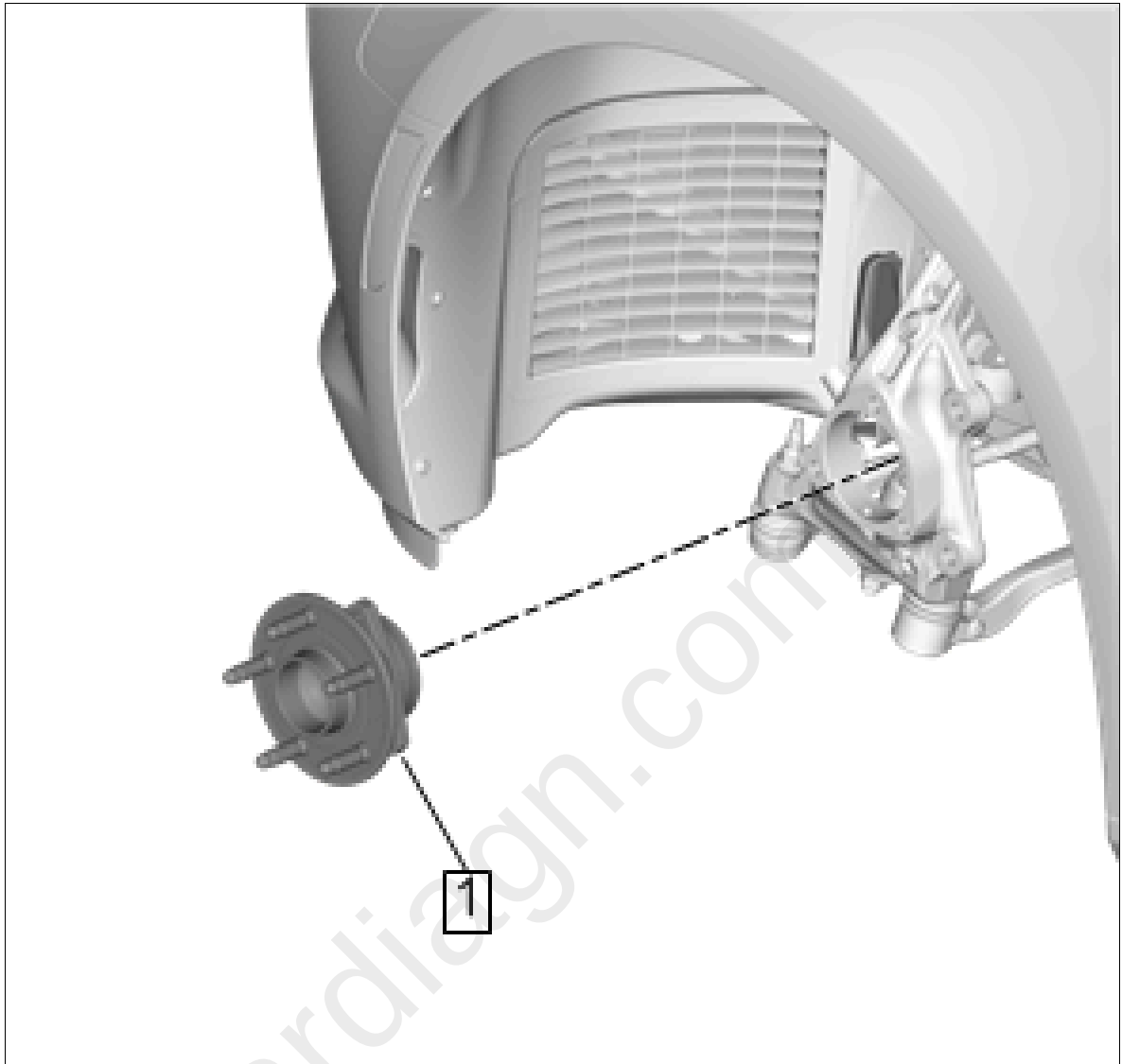
Fig 5: Steering Linkage Outer Tie Rod



Courtesy of GENERAL MOTORS COMPANY

5. Install Steering Linkage Outer Tie Rod (1) at Steering Knuckle - Steering Linkage Outer Tie Rod Replacement

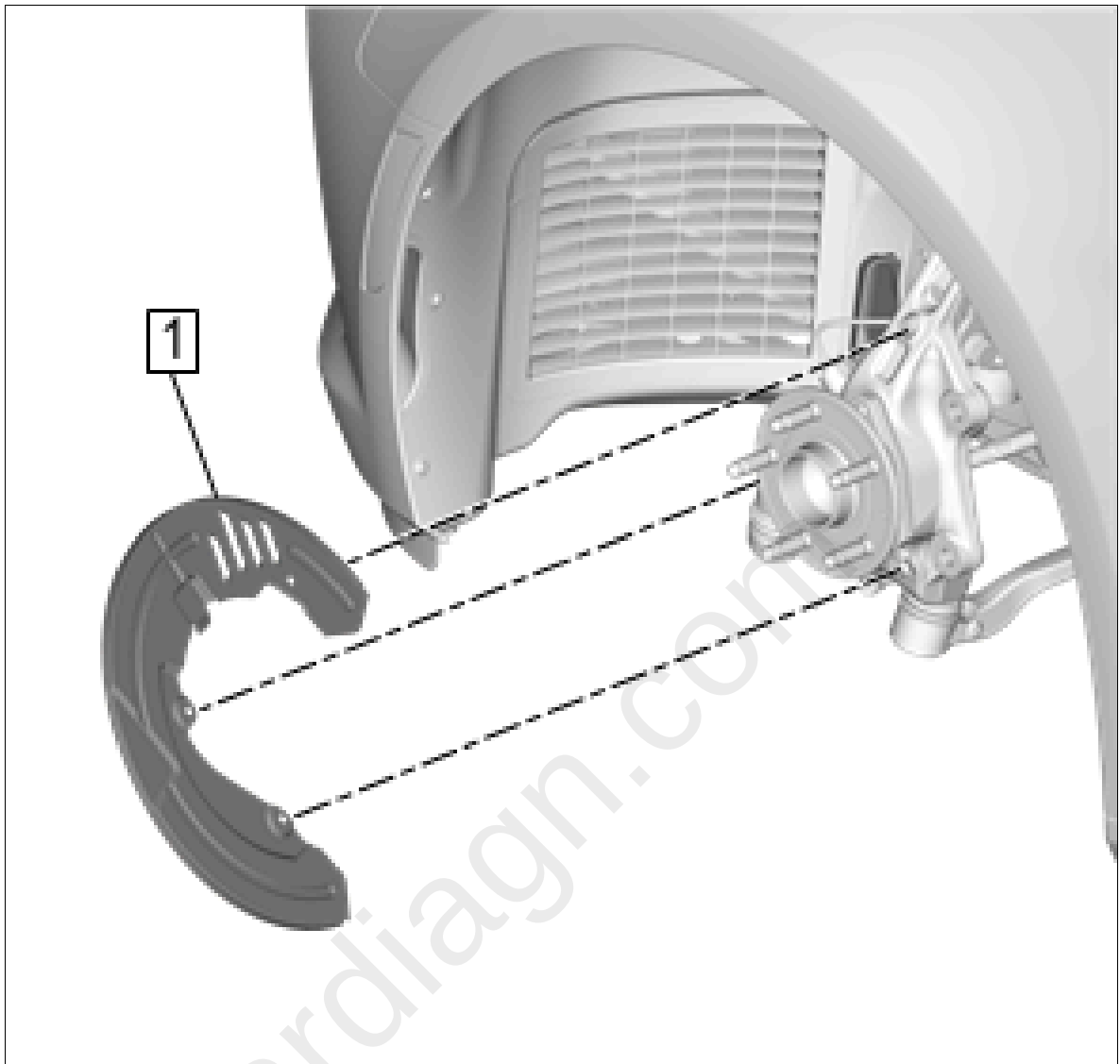
Fig 6: Front Wheel Bearing And Hub Assembly



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Wheel Bearing and Hub Assembly (1) - Front Wheel Bearing and Hub Replacement (LT1)

Fig 7: Front Brake Shield



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Brake Shield (1) - Front Brake Shield Replacement
8. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LGX OR LTG, WITHOUT V18)

Special Tools

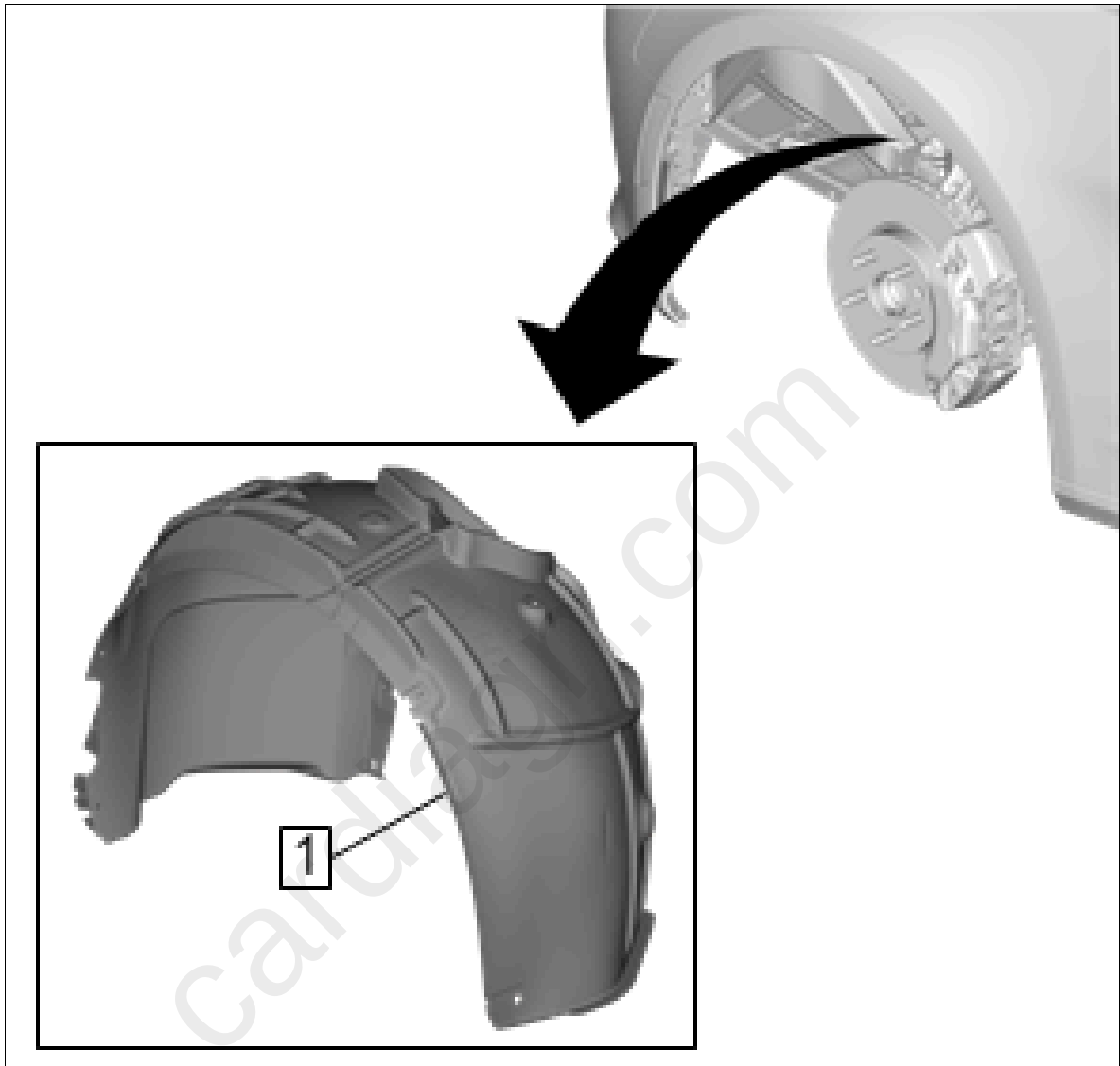
CH-42188-B Ball Joint Separator

Equivalent regional tools: Special Tools

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LGX OR LTG, WITHOUT V18) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

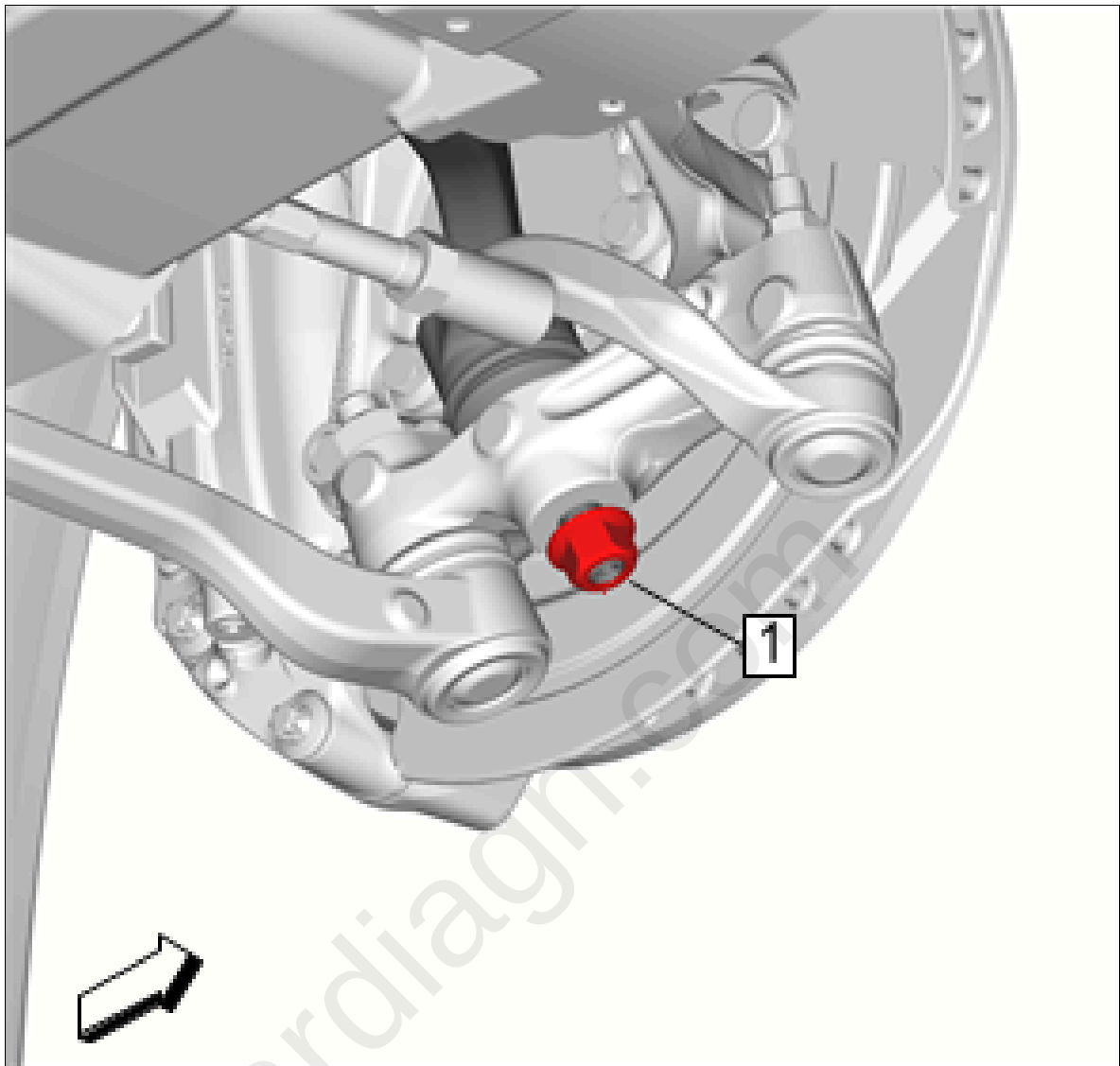
Fig 1: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

Fig 2: Steering Knuckle Nut

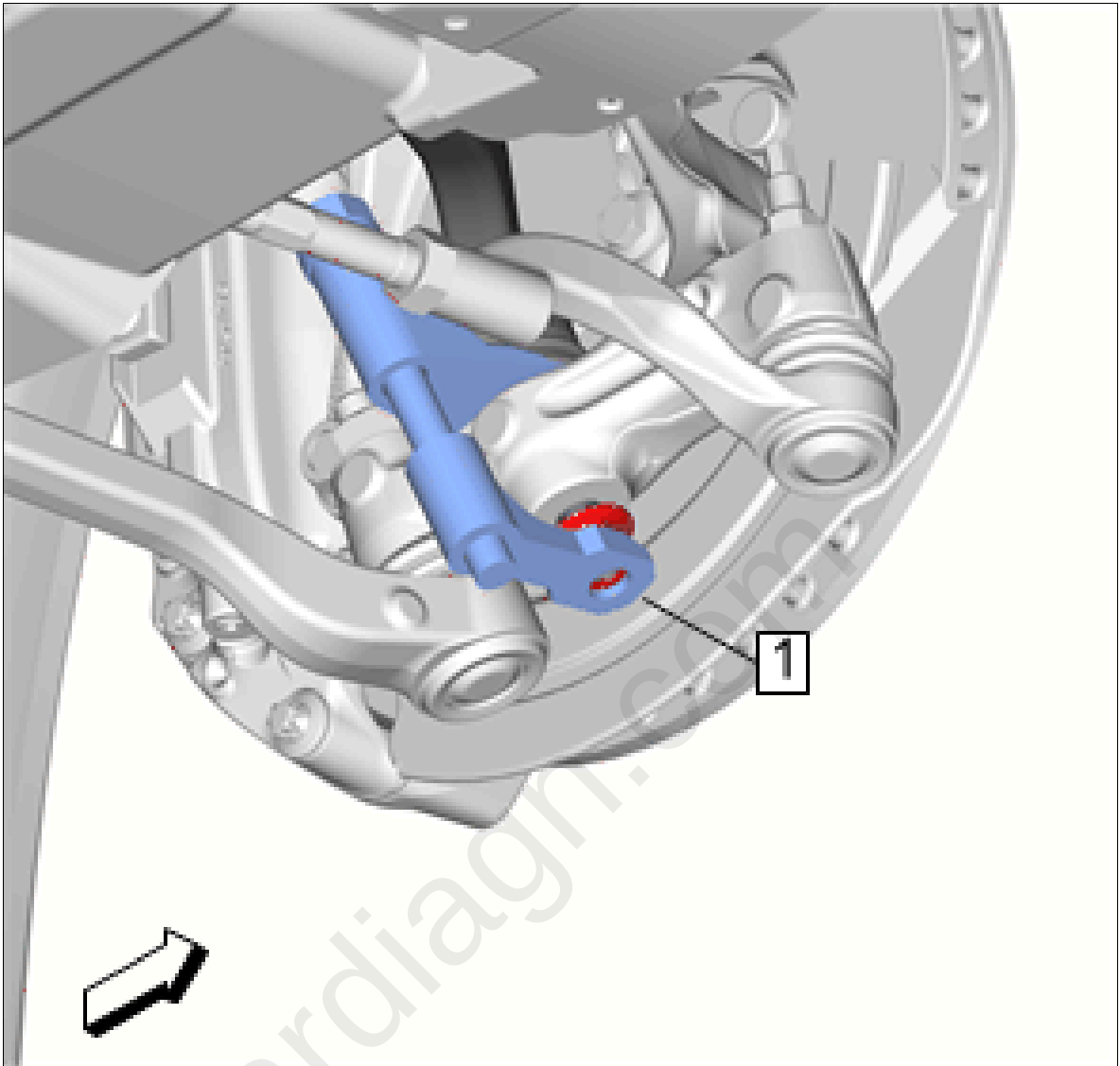


Courtesy of GENERAL MOTORS COMPANY

3. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

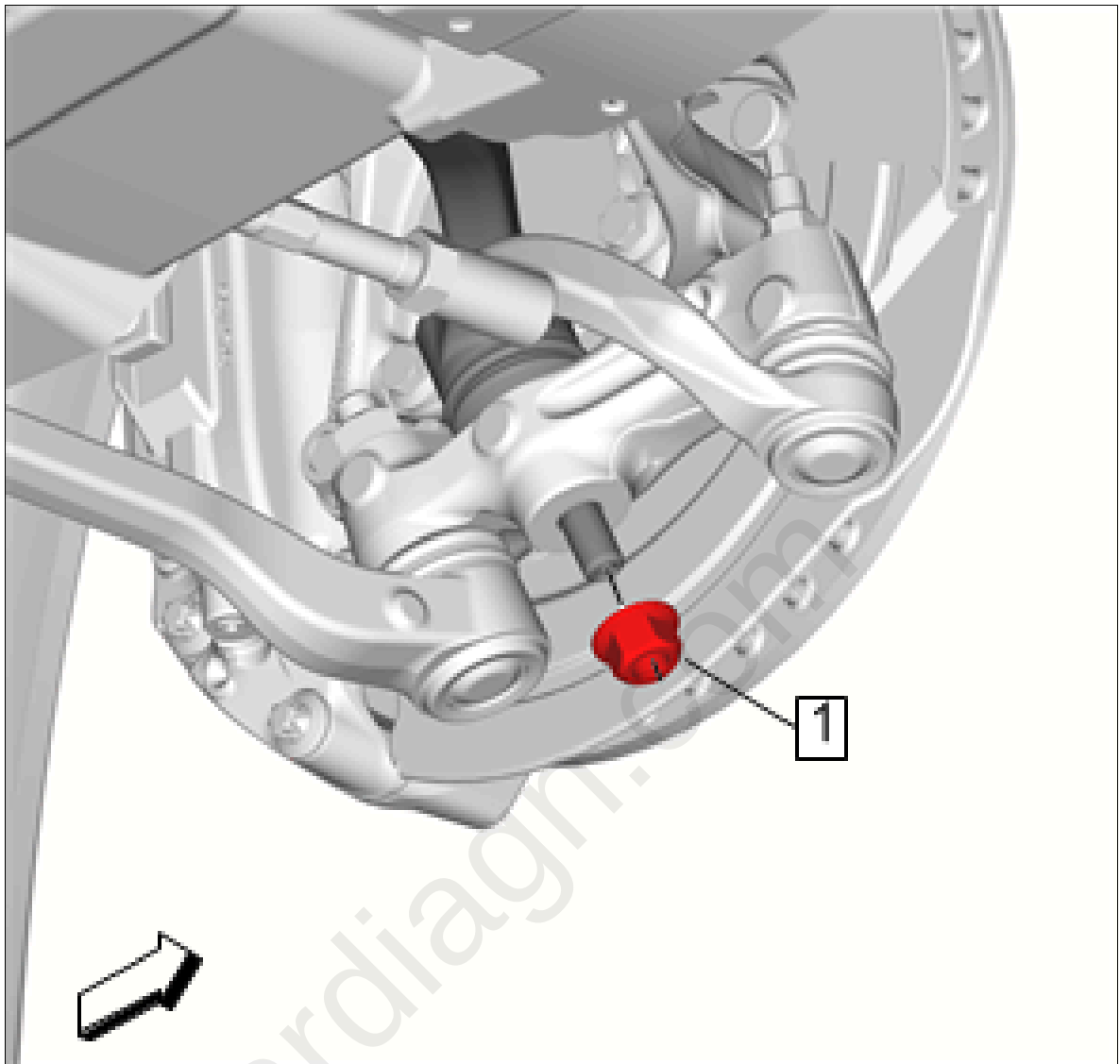
Fig 3: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

4. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

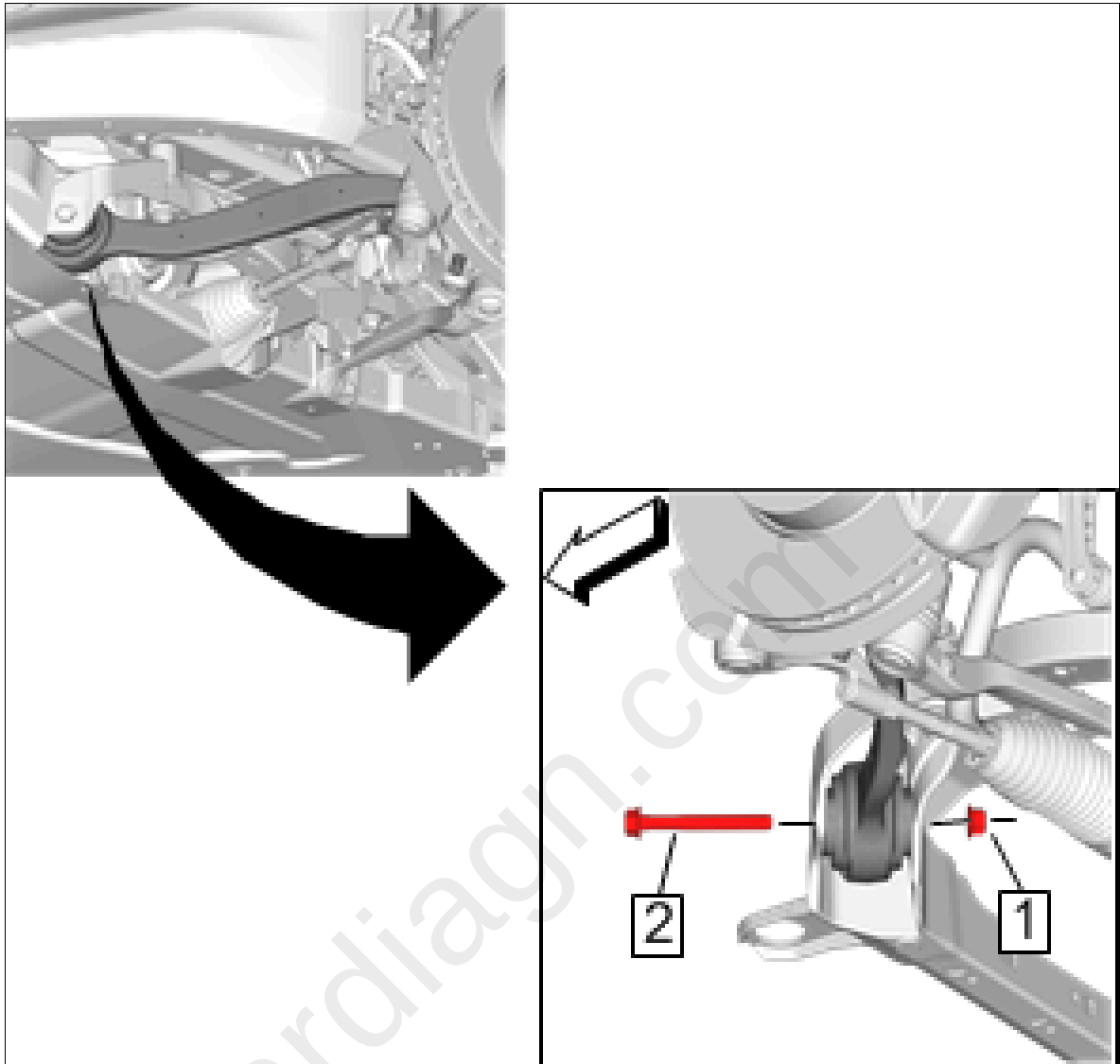
Fig 4: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

5. Remove Steering Knuckle Nut (1)

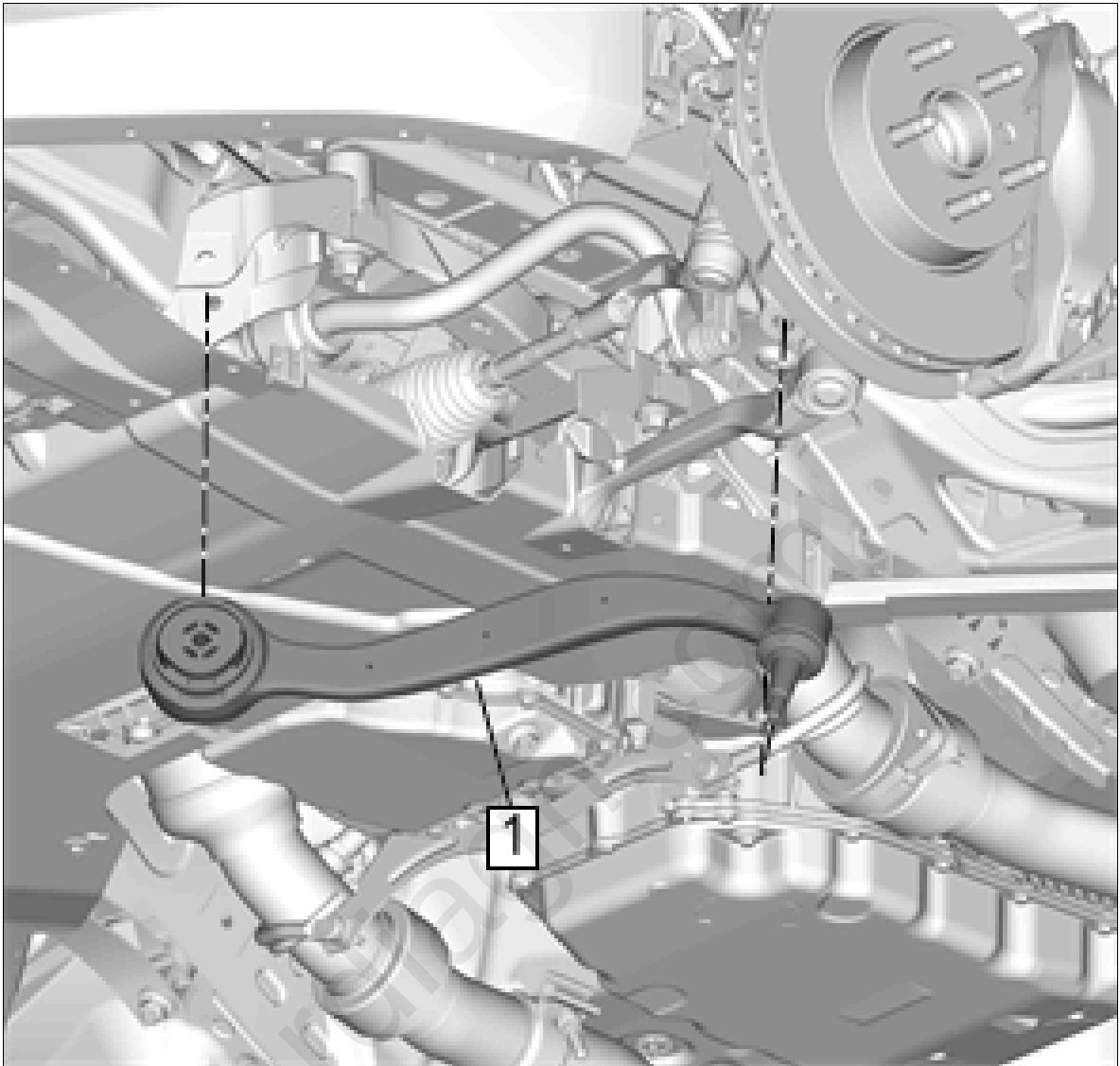
Fig 5: Front Lower Control Front Link Nut



Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Lower Control Front Link Nut (1)
 7. Remove Front Lower Control Front Link Bolt (2)
- DISCARD the bolt.

Fig 6: Front Lower Control Front Link

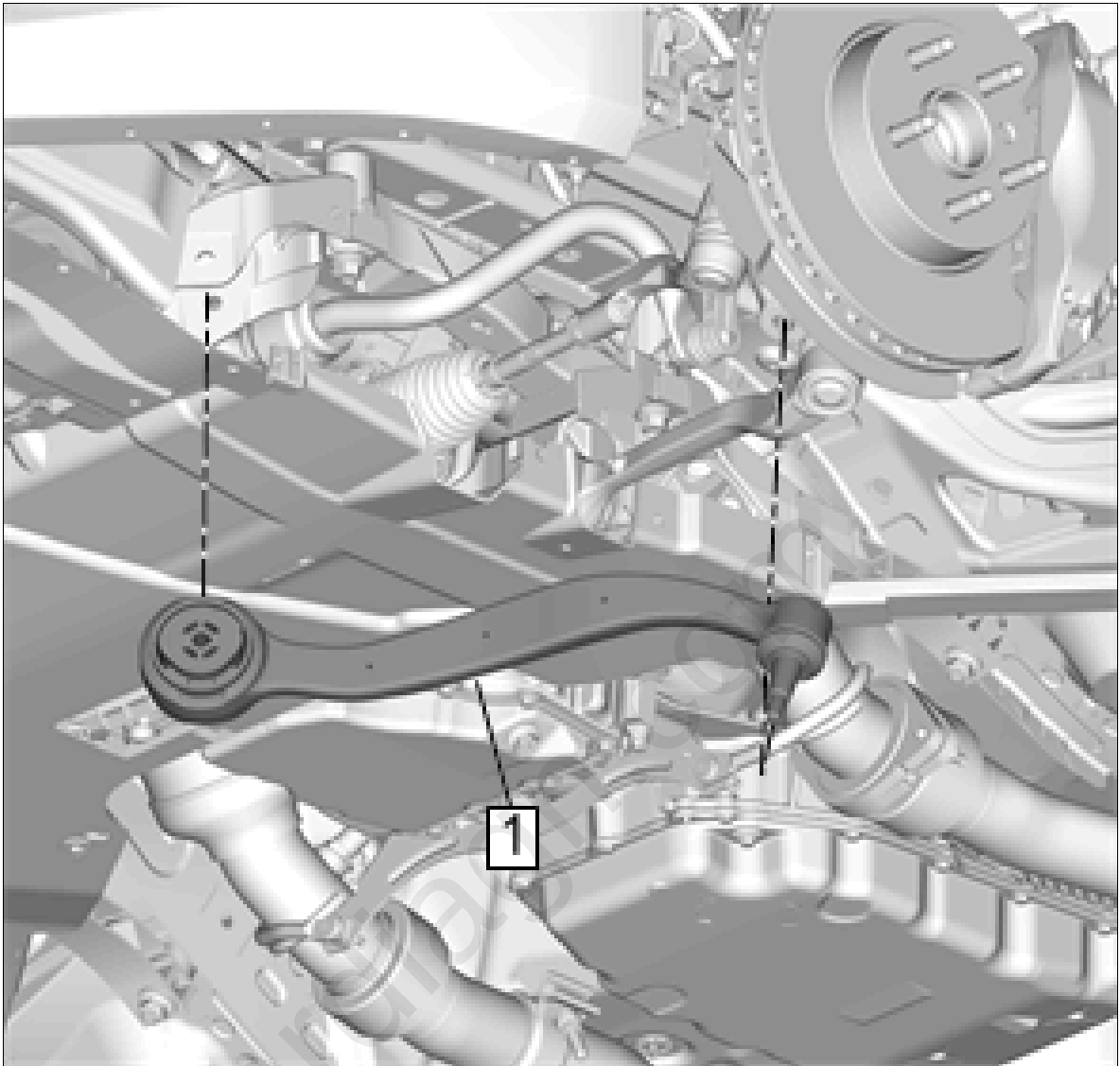


Courtesy of GENERAL MOTORS COMPANY

8. Remove the front lower control front link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT
(LGX OR LTG, WITHOUT V18) > INSTALLATION PROCEDURE**

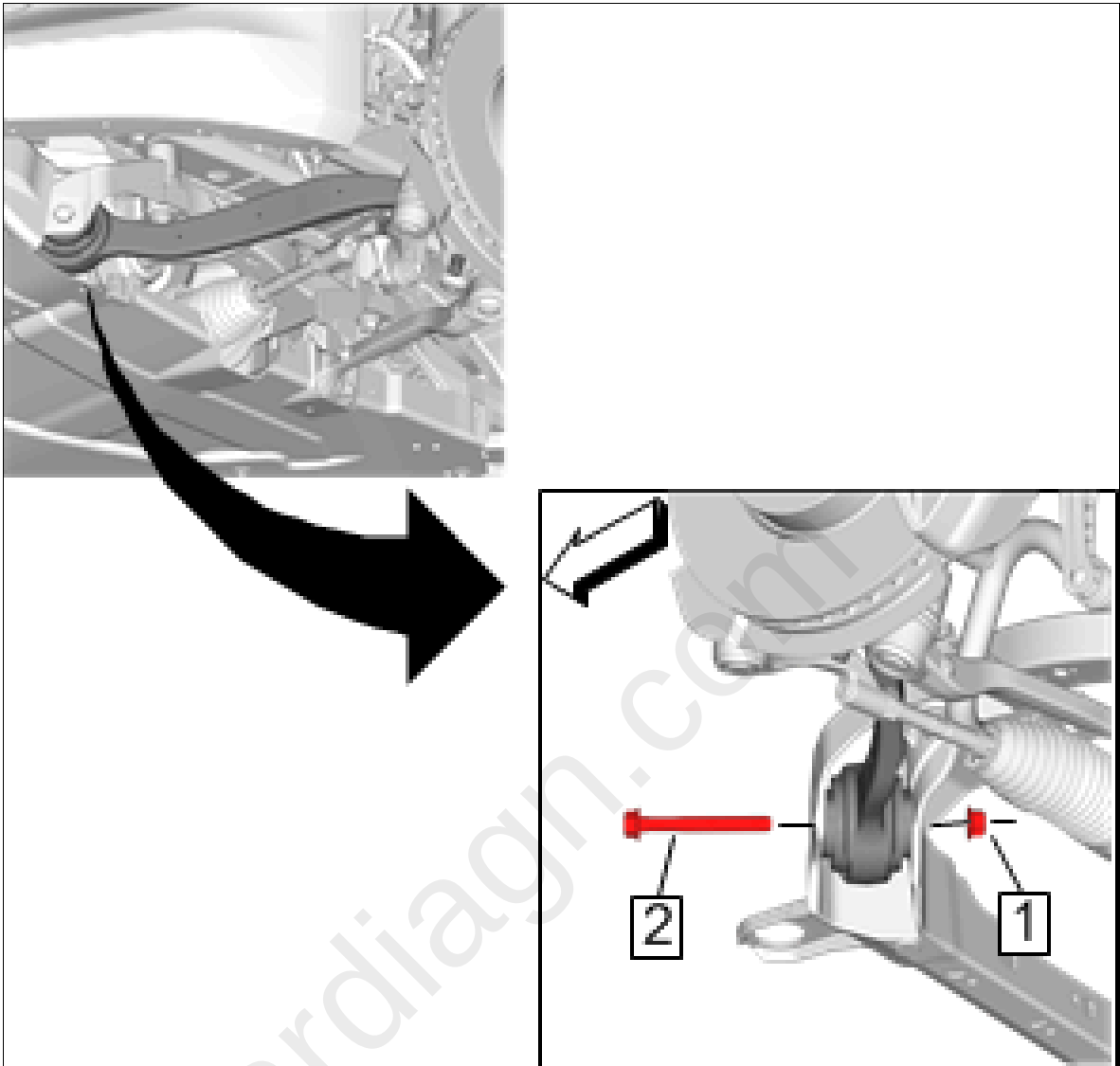
Fig 1: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control front link (1) on the vehicle.

Fig 2: Front Lower Control Front Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install Front Lower Control Front Link Bolt (2)

Install a NEW bolt.

3. Install Front Lower Control Front Link Nut (1)

 CAUTION:

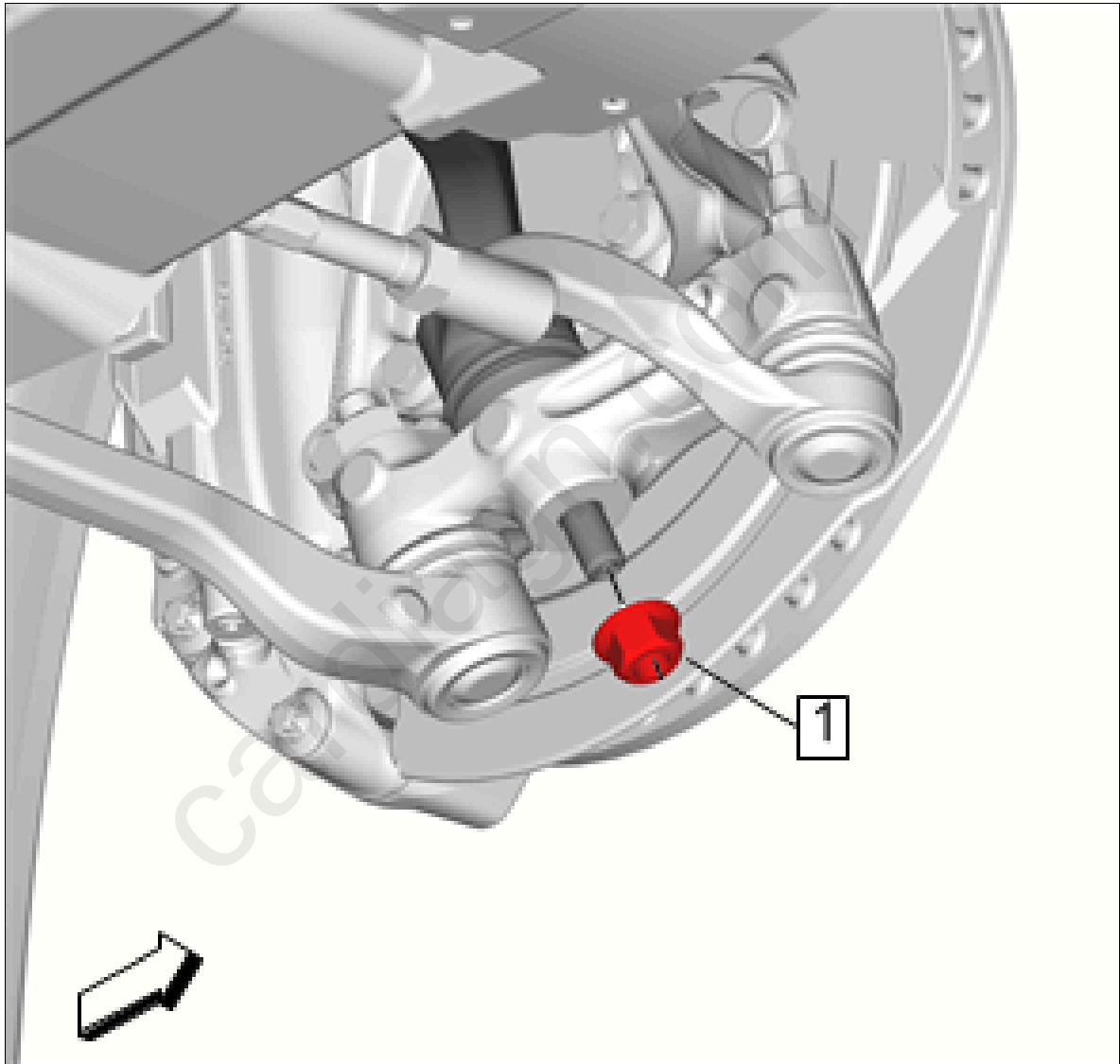
Refer to Fastener Caution .

4. Tighten Front Lower Control Front Link Bolt (2)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

Fig 3: Steering Knuckle Nut



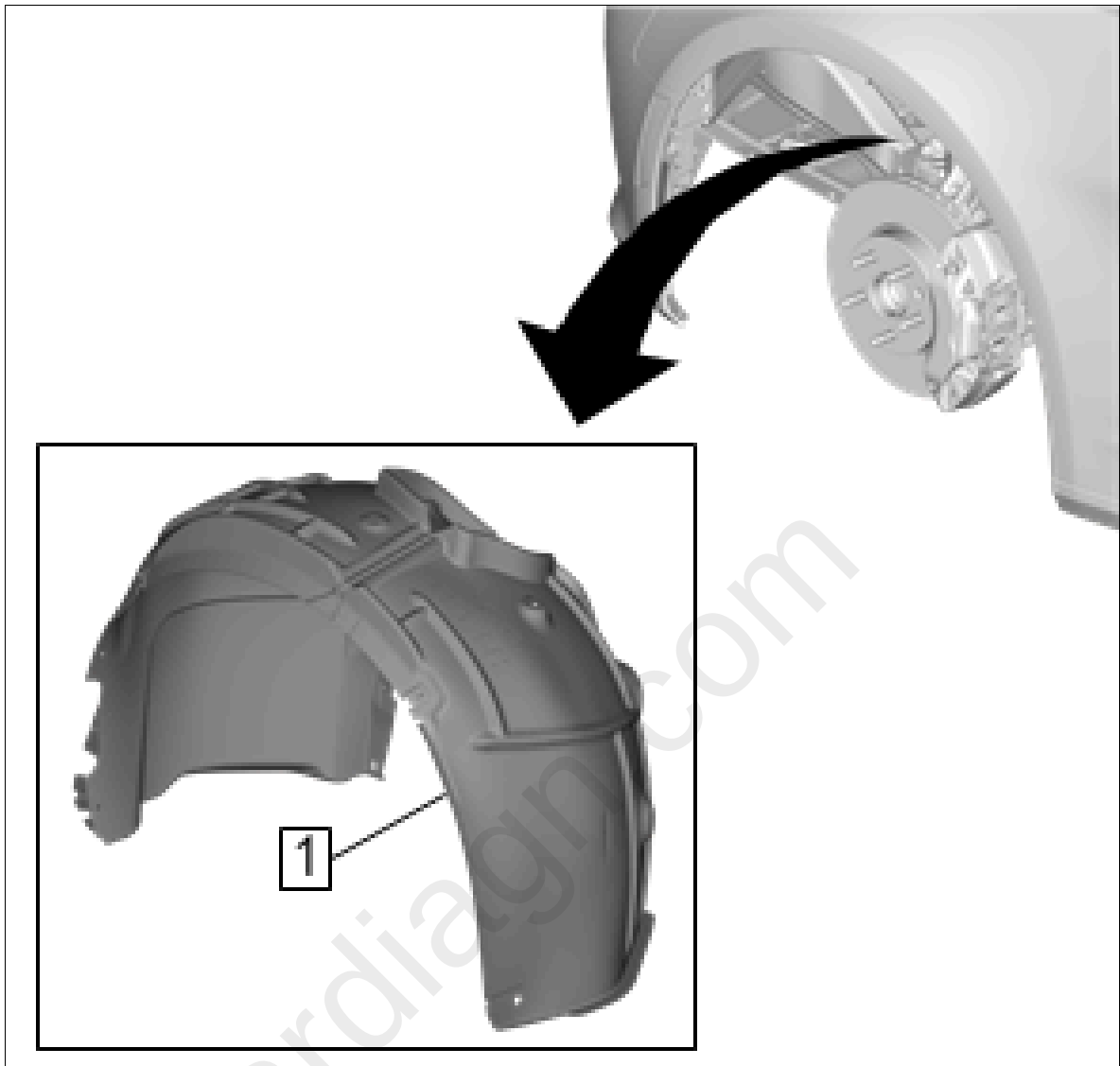
Courtesy of GENERAL MOTORS COMPANY

5. Install Steering Knuckle Nut (1) and tighten

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

Fig 4: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement
7. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
8. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LT1, WITHOUT V18)

Special Tools

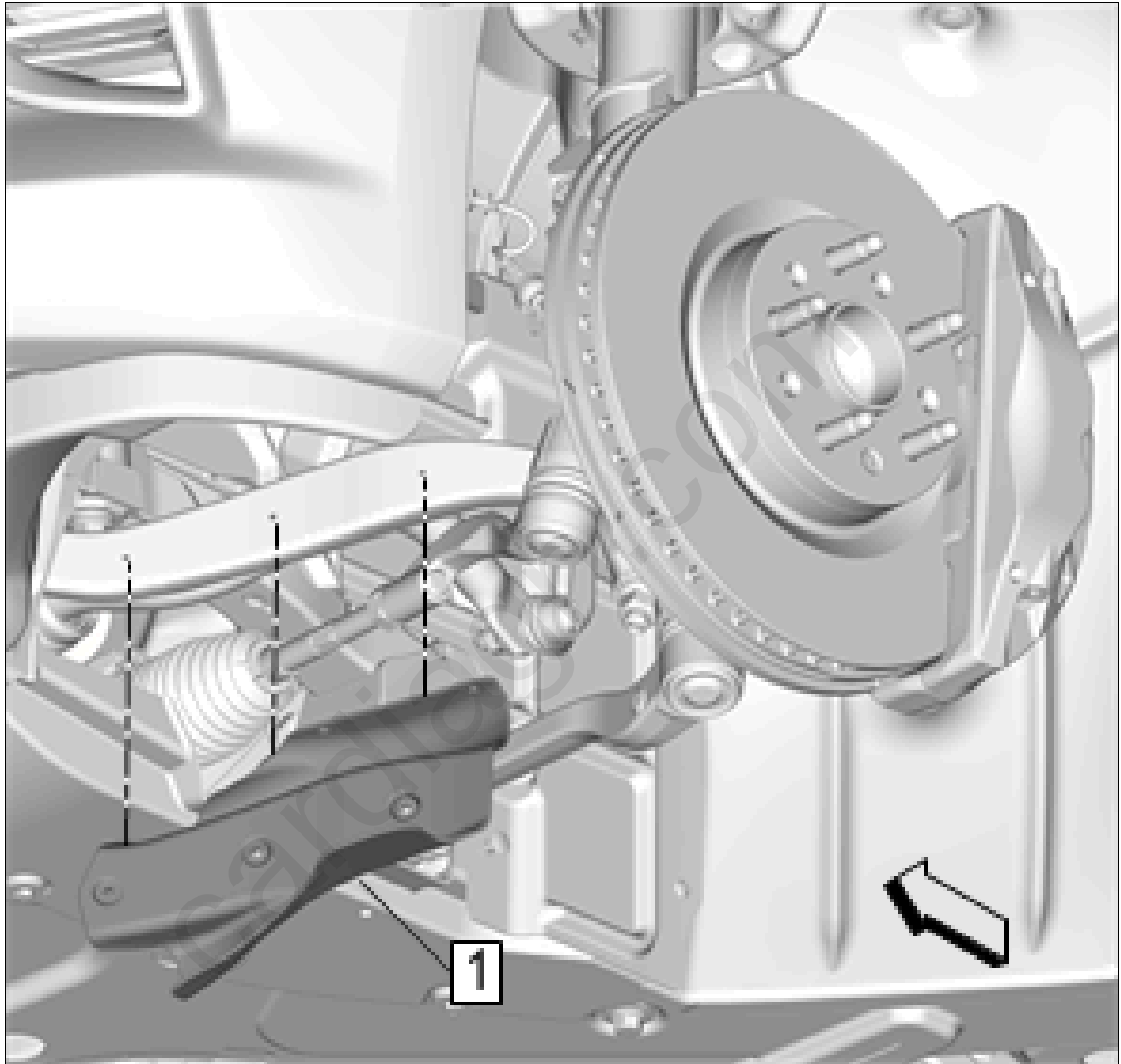
CH-42188-B Ball Joint Separator

Equivalent regional tools: Special Tools

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LT1, WITHOUT V18) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

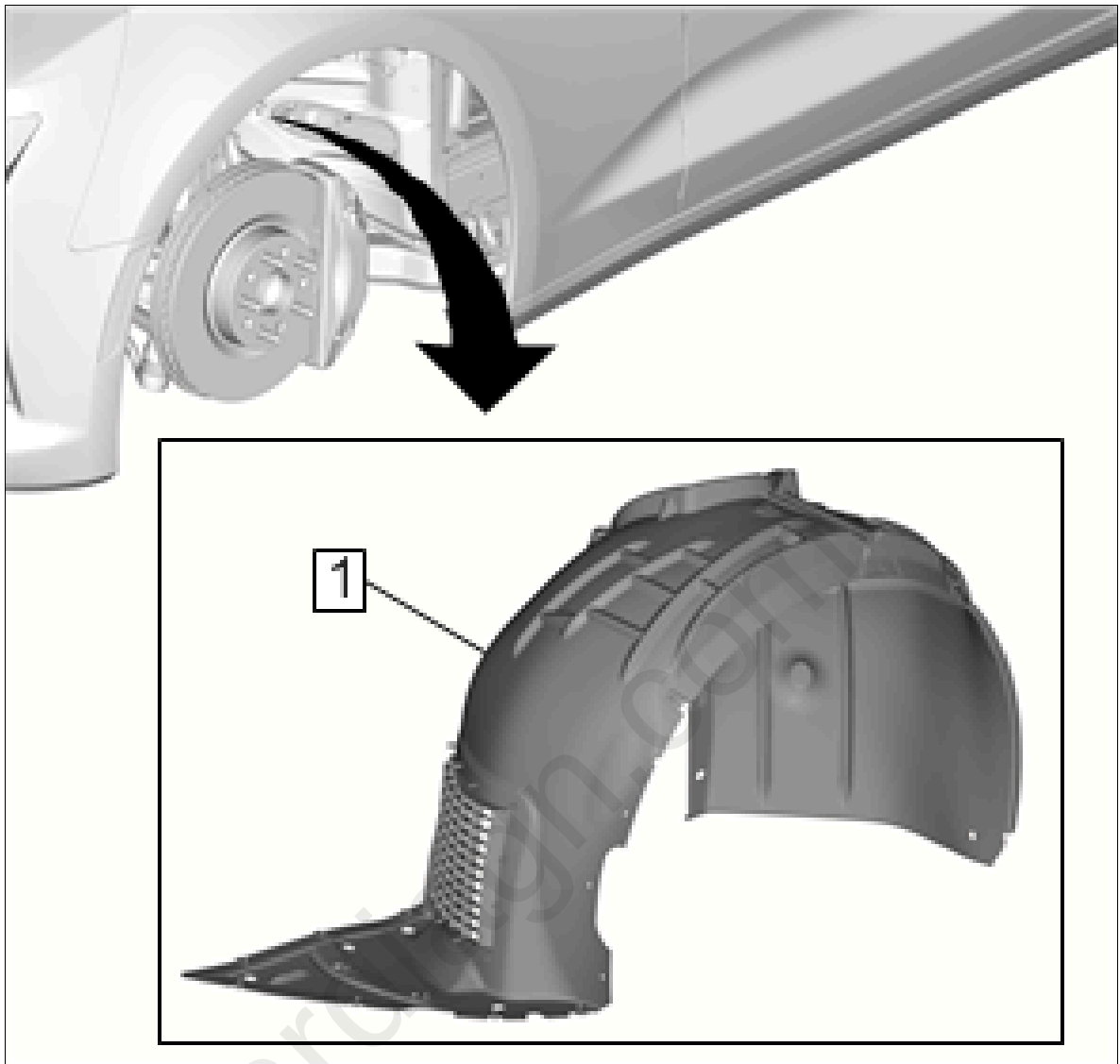
Fig 1: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement

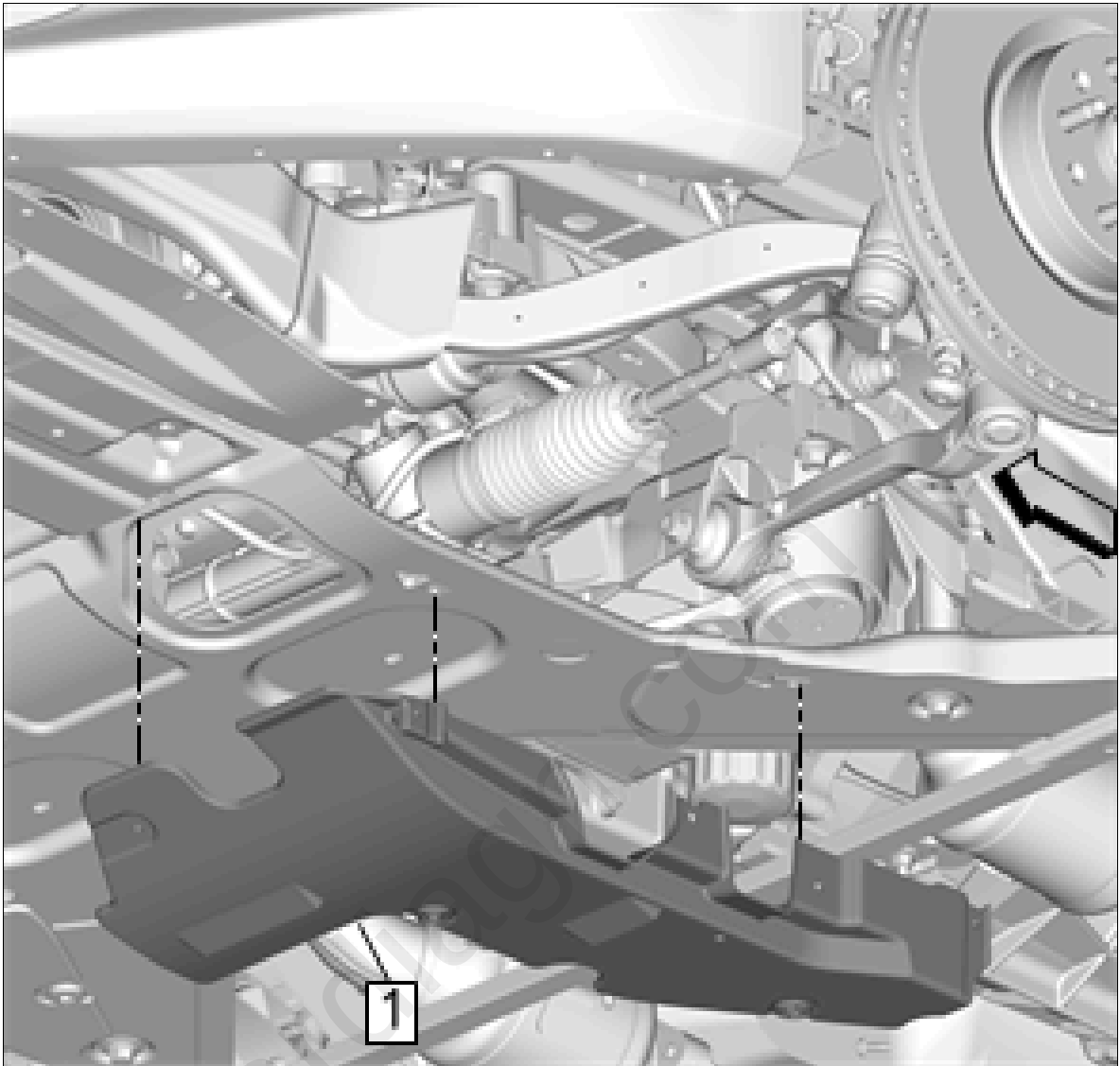
Fig 2: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

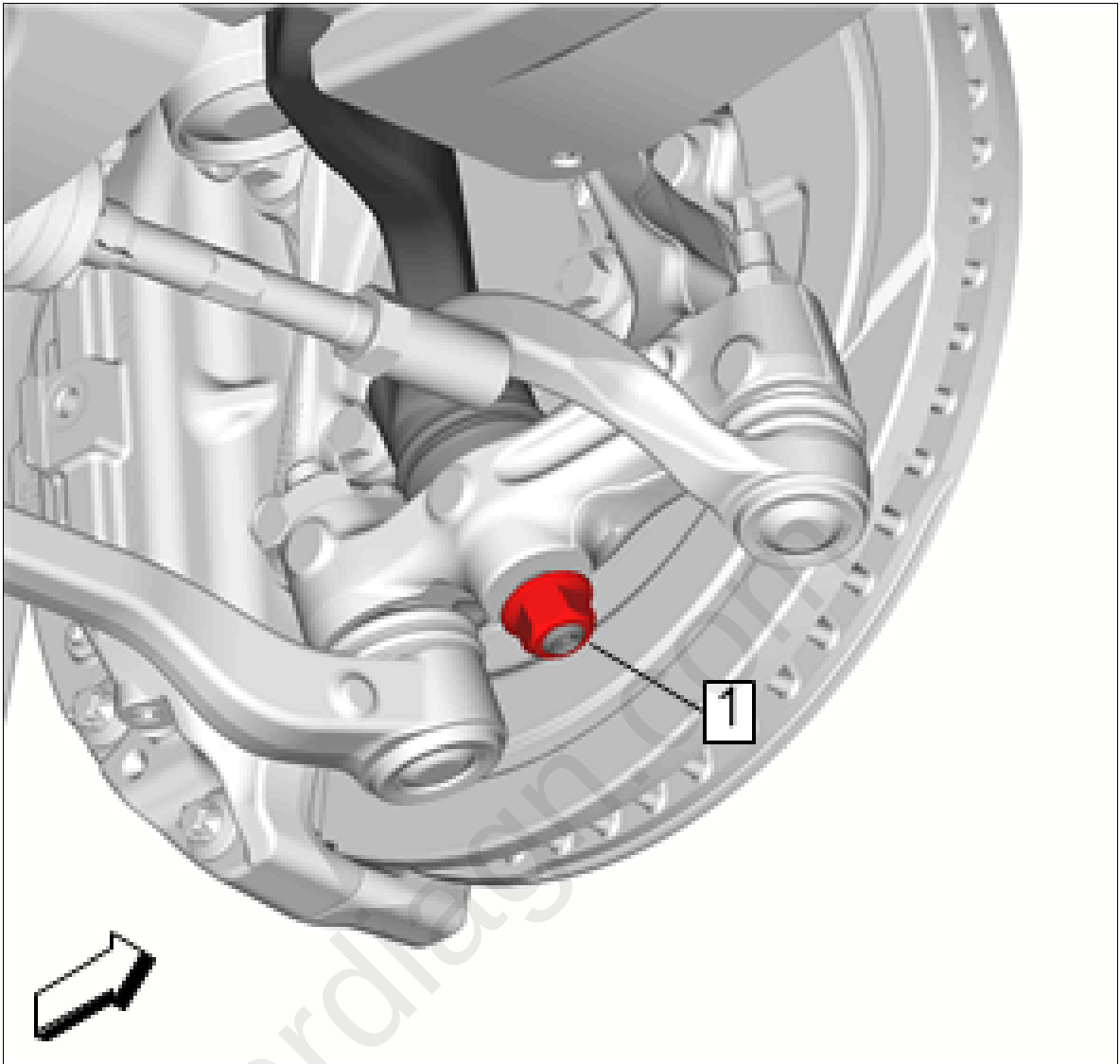
Fig 3: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

4. Remove Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

Fig 4: Steering Knuckle Nut

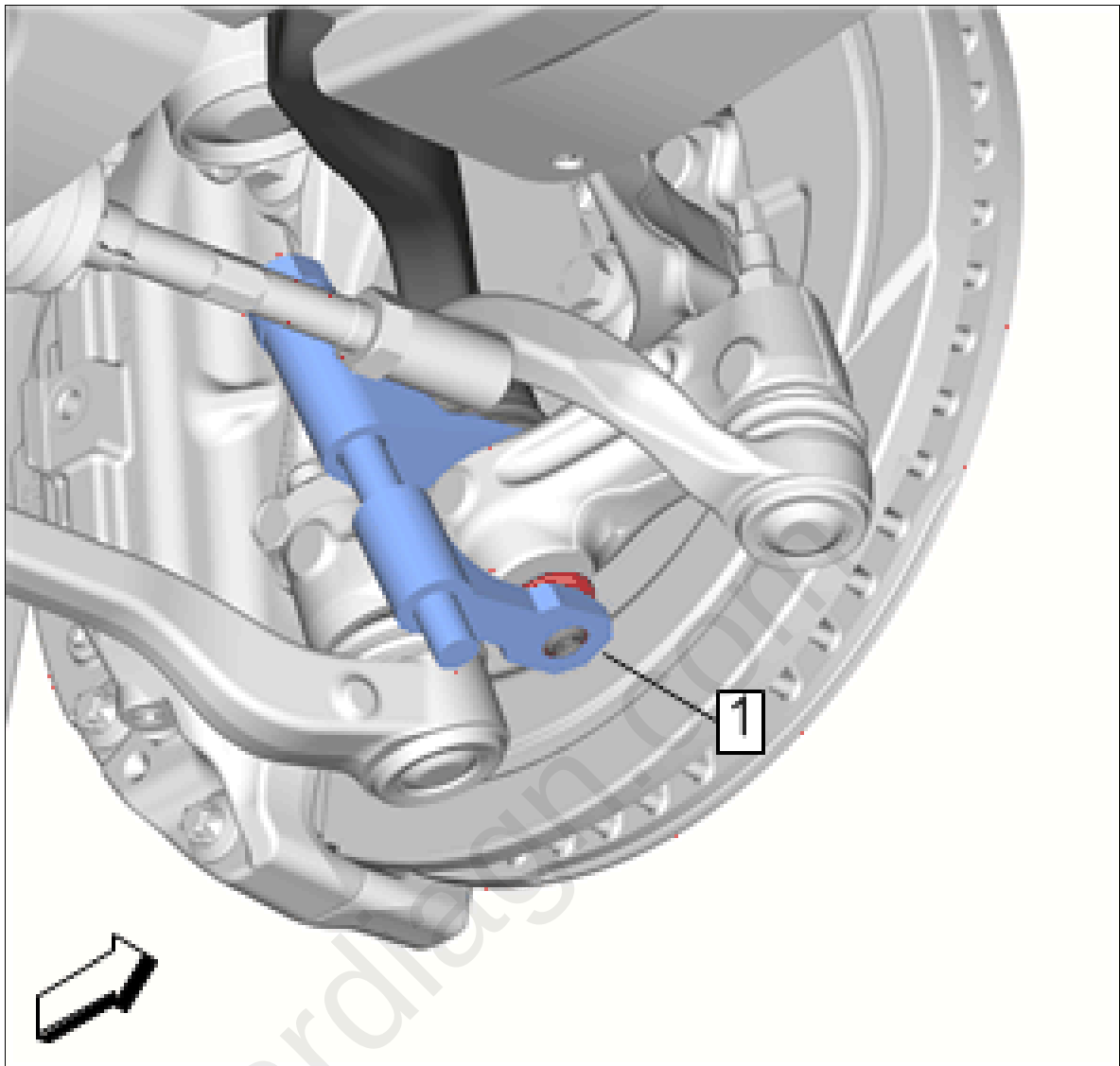


Courtesy of GENERAL MOTORS COMPANY

5. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

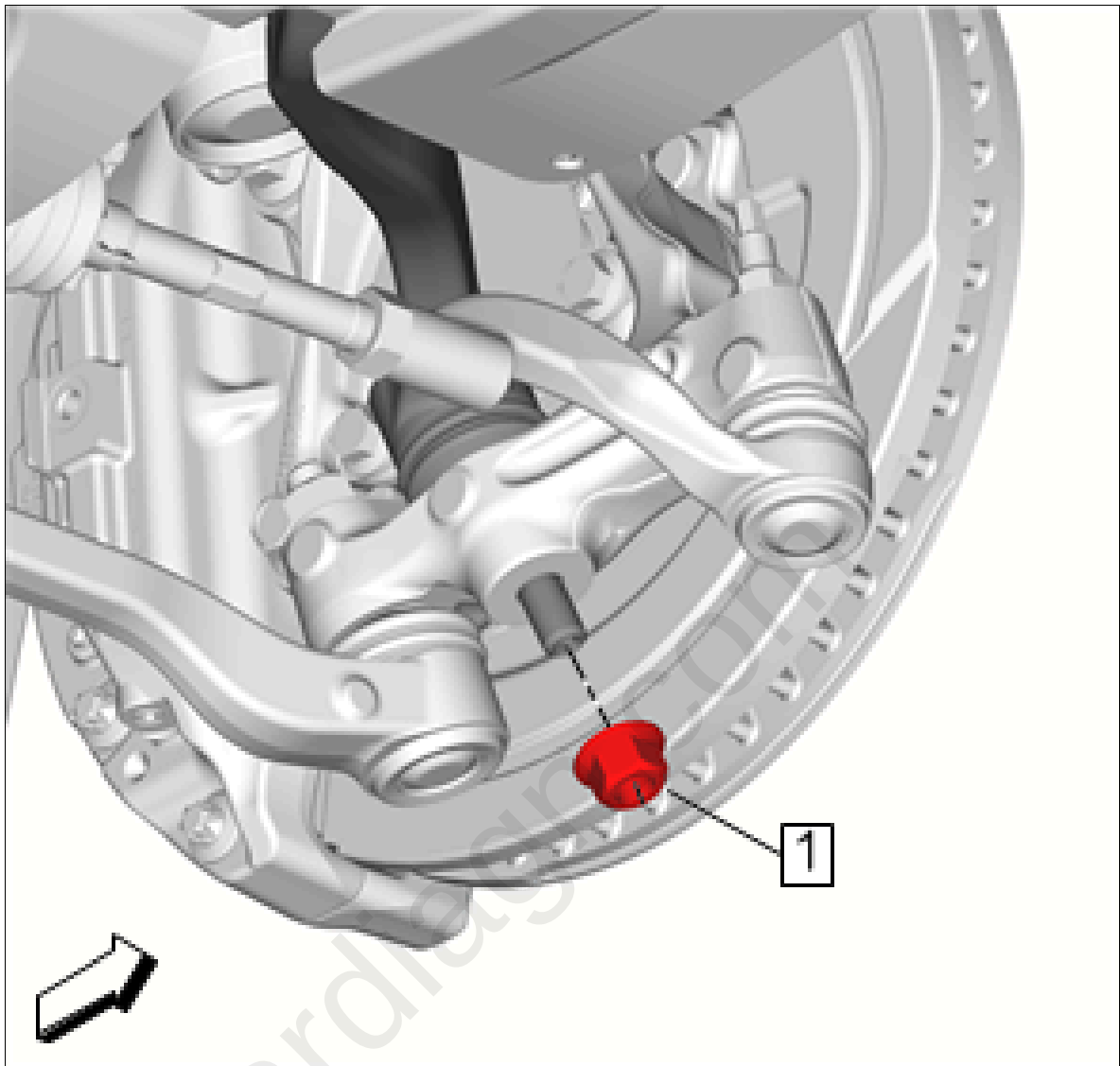
Fig 5: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

6. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

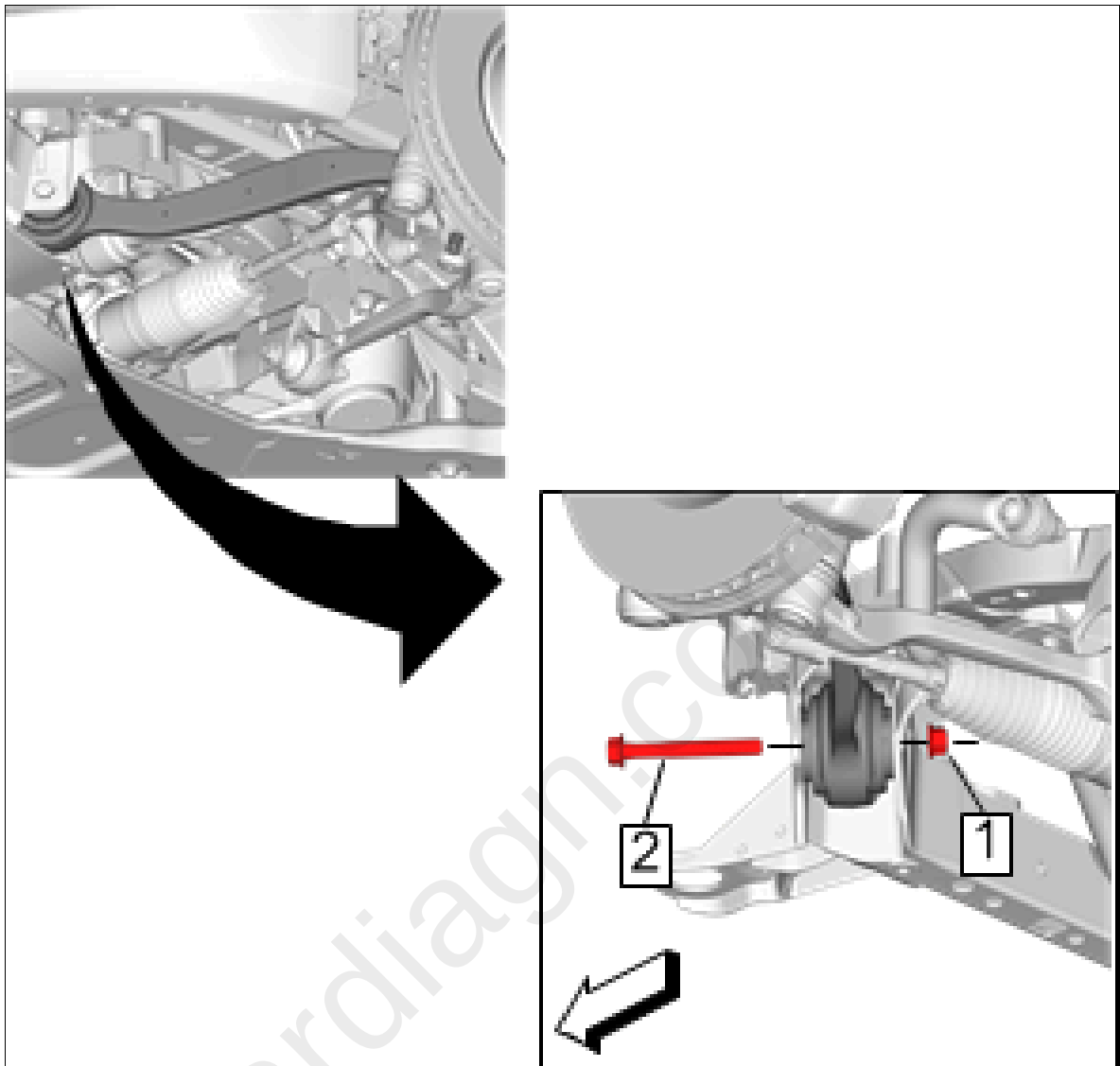
Fig 6: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

7. Remove Steering Knuckle Nut (1)

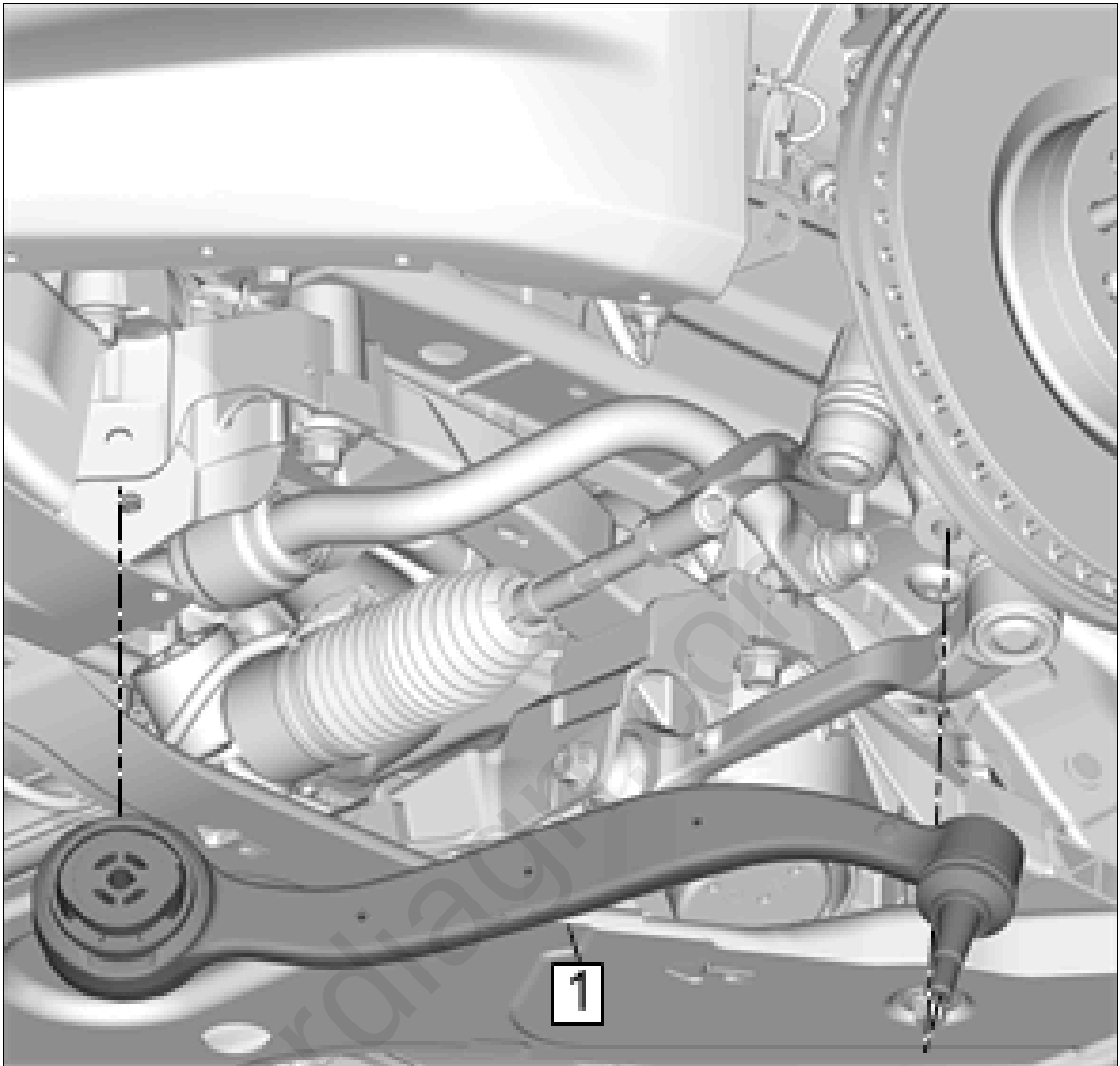
Fig 7: Front Lower Control Front Link Nut



Courtesy of GENERAL MOTORS COMPANY

8. Remove Front Lower Control Front Link Nut (1)
 9. Remove Front Lower Control Front Link Bolt (2)
- DISCARD the bolt.

Fig 8: Front Lower Control Front Link

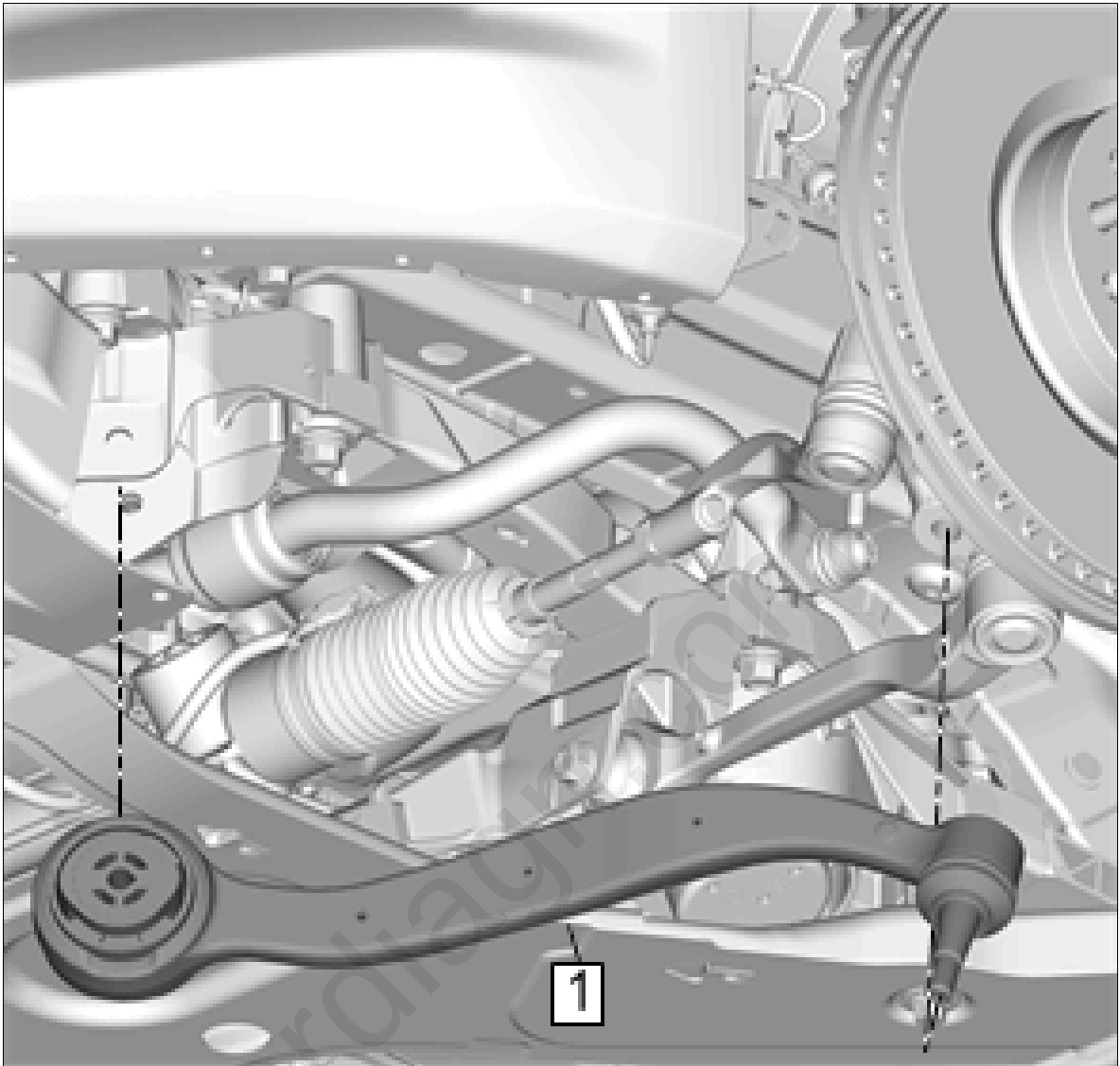


Courtesy of GENERAL MOTORS COMPANY

10. Remove the front lower control front link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT
(LT1, WITHOUT V18) > INSTALLATION PROCEDURE**

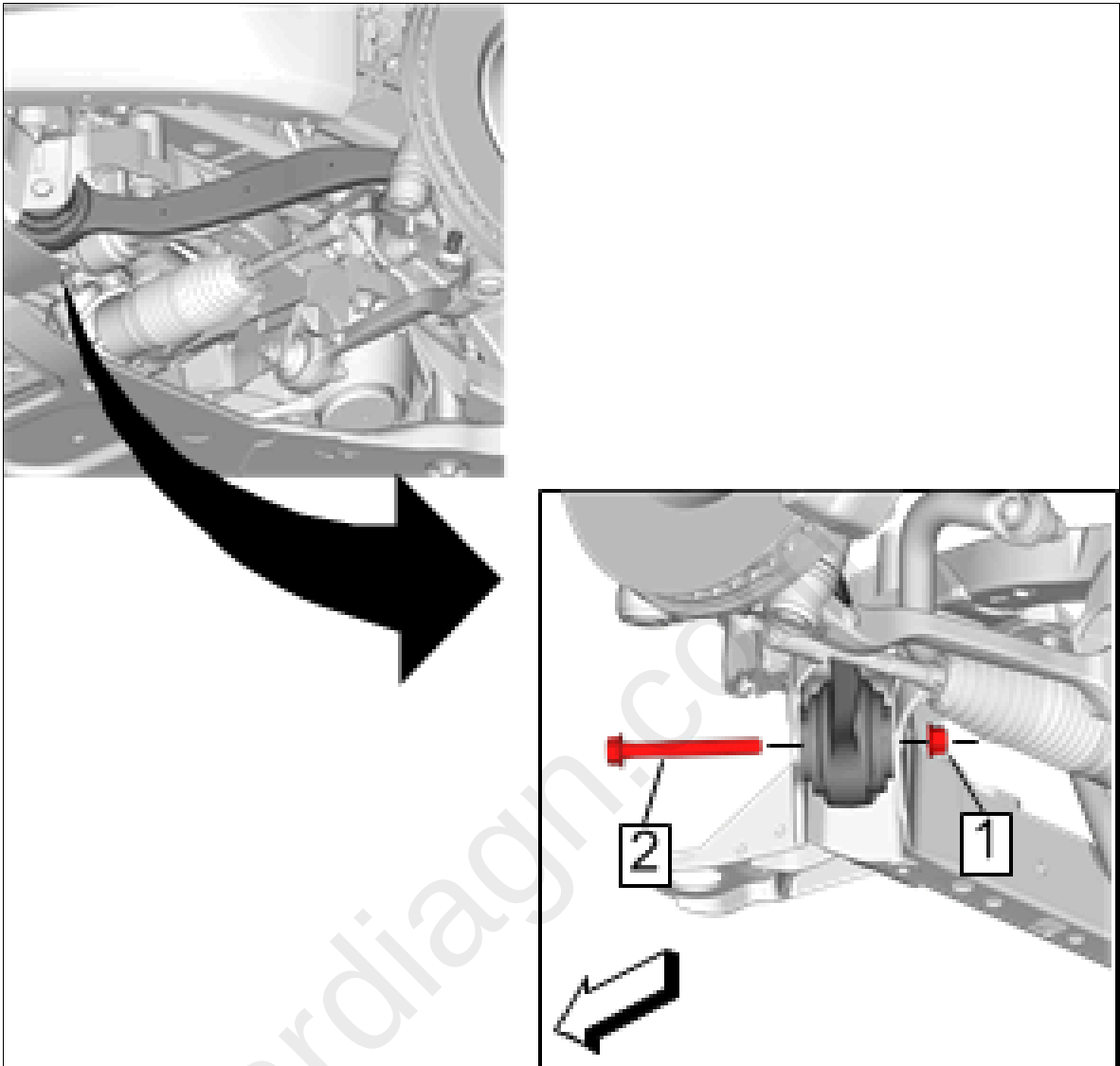
Fig 1: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control front link (1) on the vehicle.

Fig 2: Front Lower Control Front Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install Front Lower Control Front Link Bolt (2)

Install a NEW bolt.

3. Install Front Lower Control Front Link Nut (1)

 CAUTION:

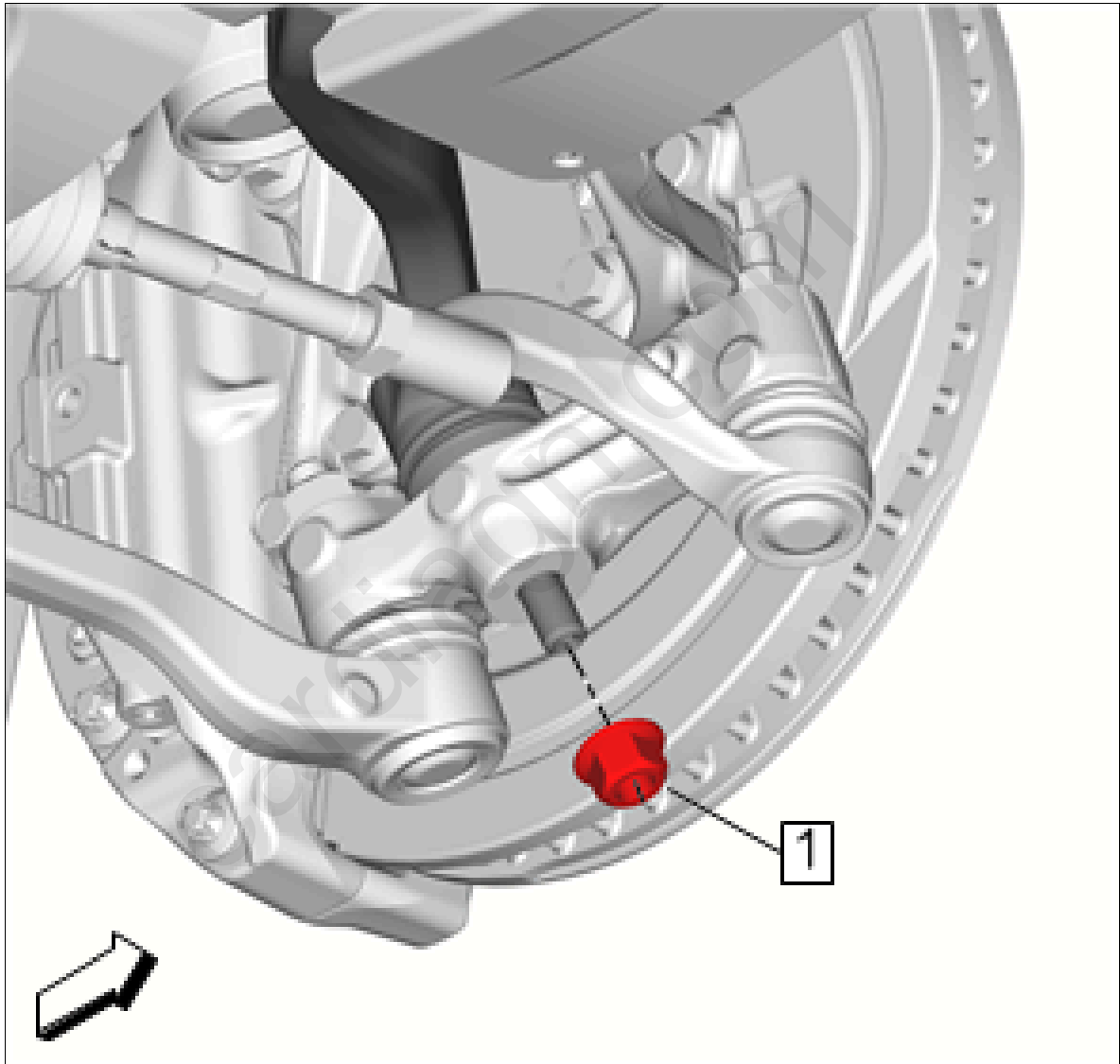
Refer to Fastener Caution .

4. Tighten Front Lower Control Front Link Bolt (2)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

Fig 3: Steering Knuckle Nut



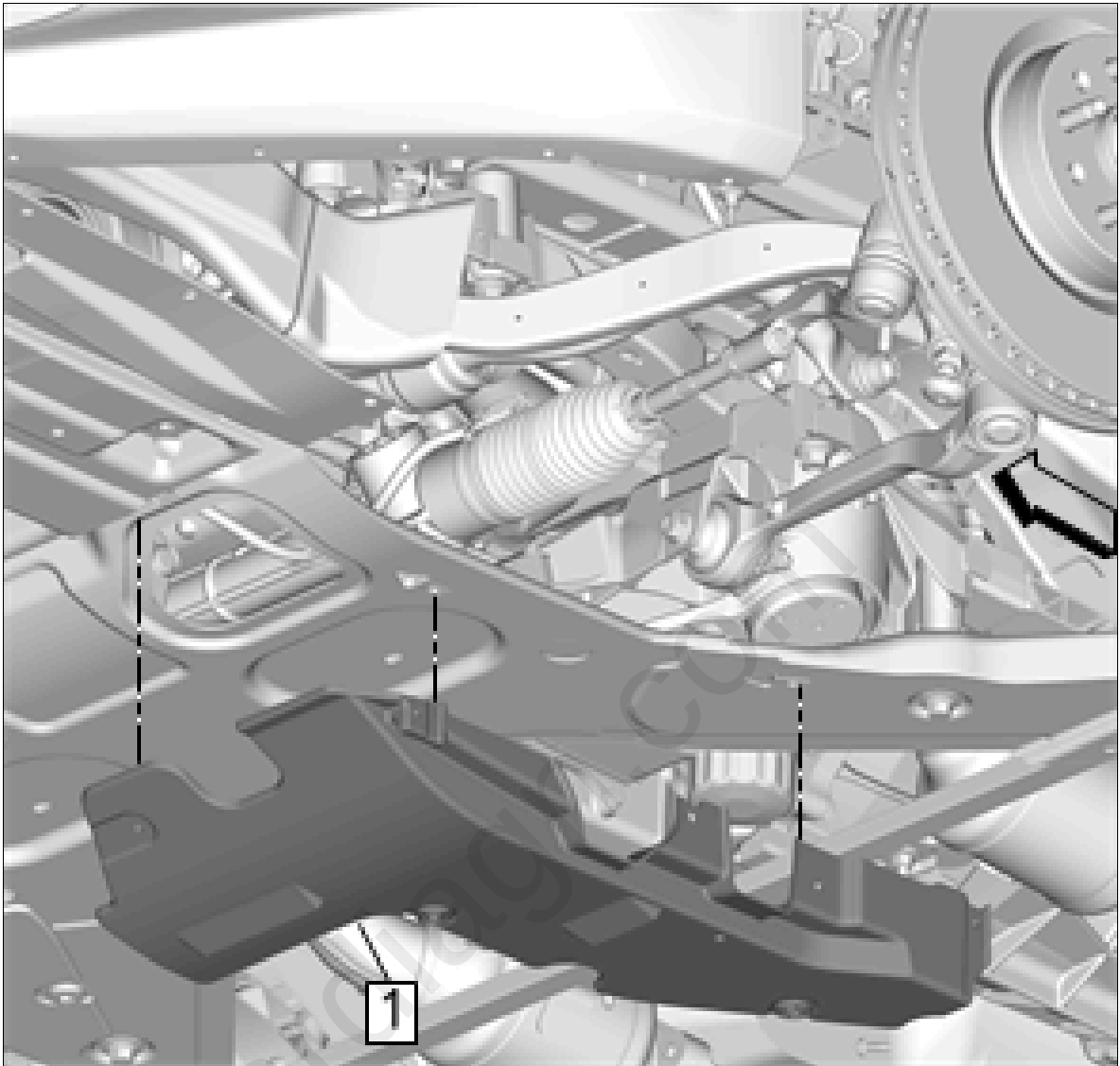
Courtesy of GENERAL MOTORS COMPANY

5. Install Steering Knuckle Nut (1) and tighten

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

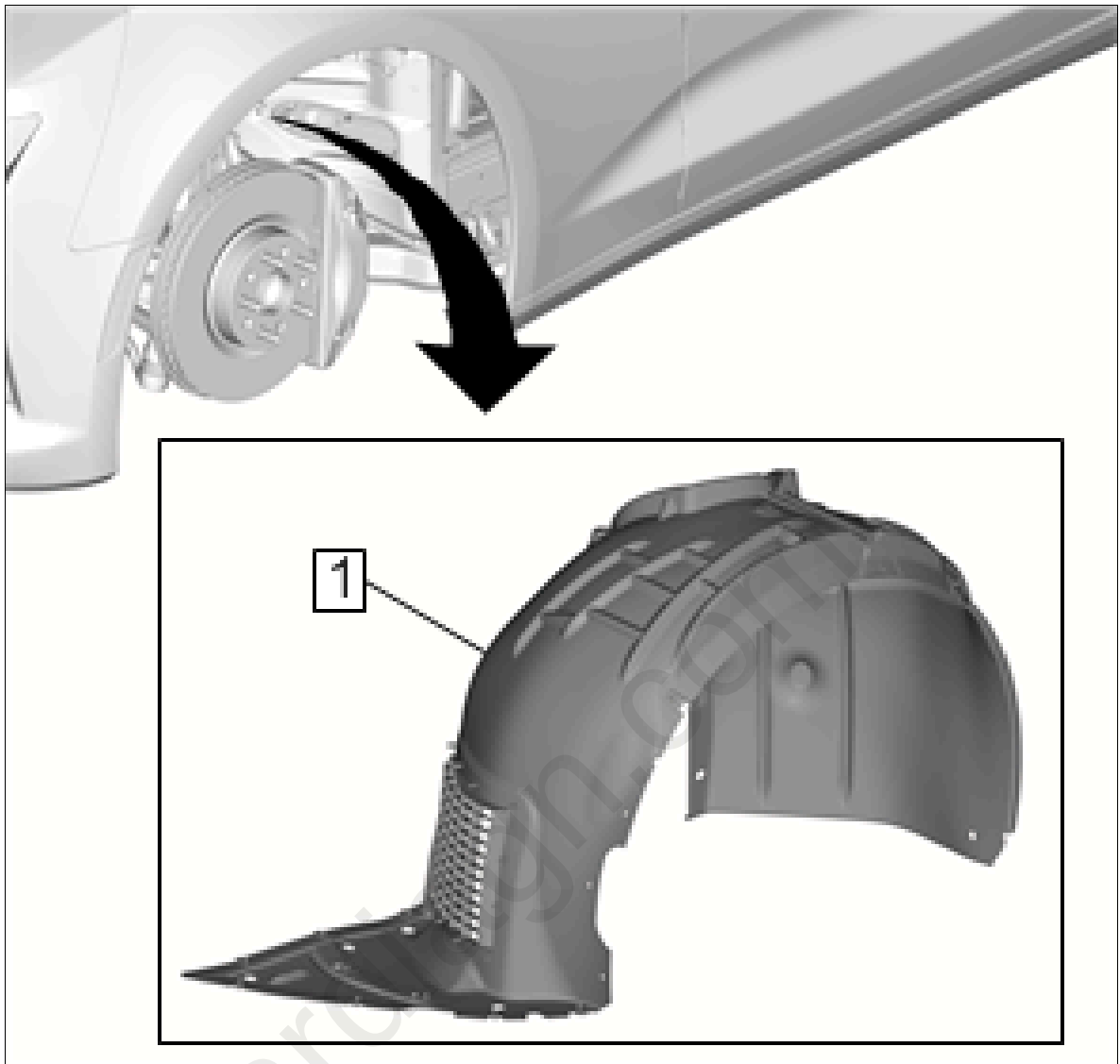
Fig 4: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

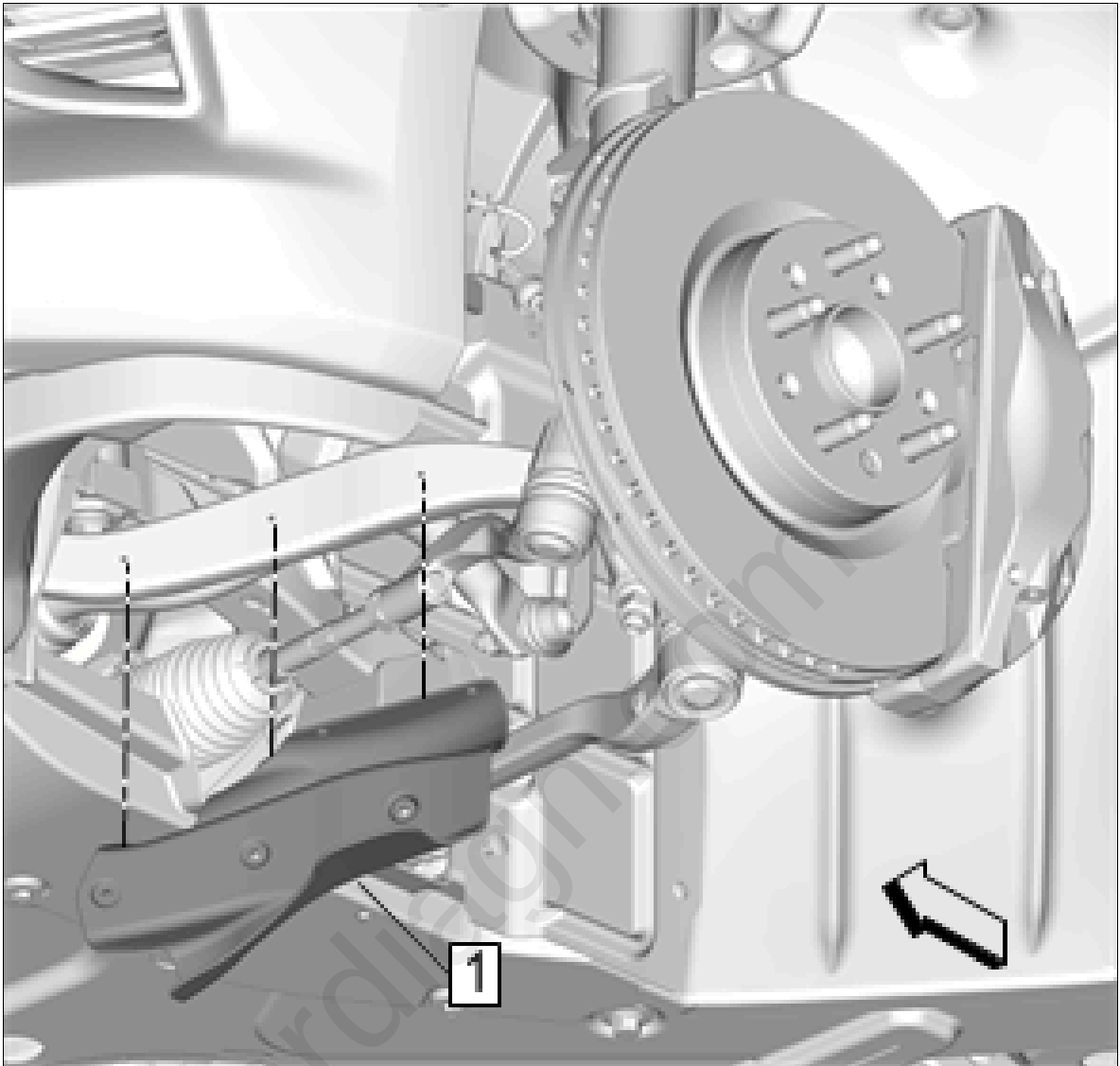
Fig 5: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

Fig 6: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

8. Install Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement
9. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
10. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LGX OR LTG, WITH V18)

Special Tools

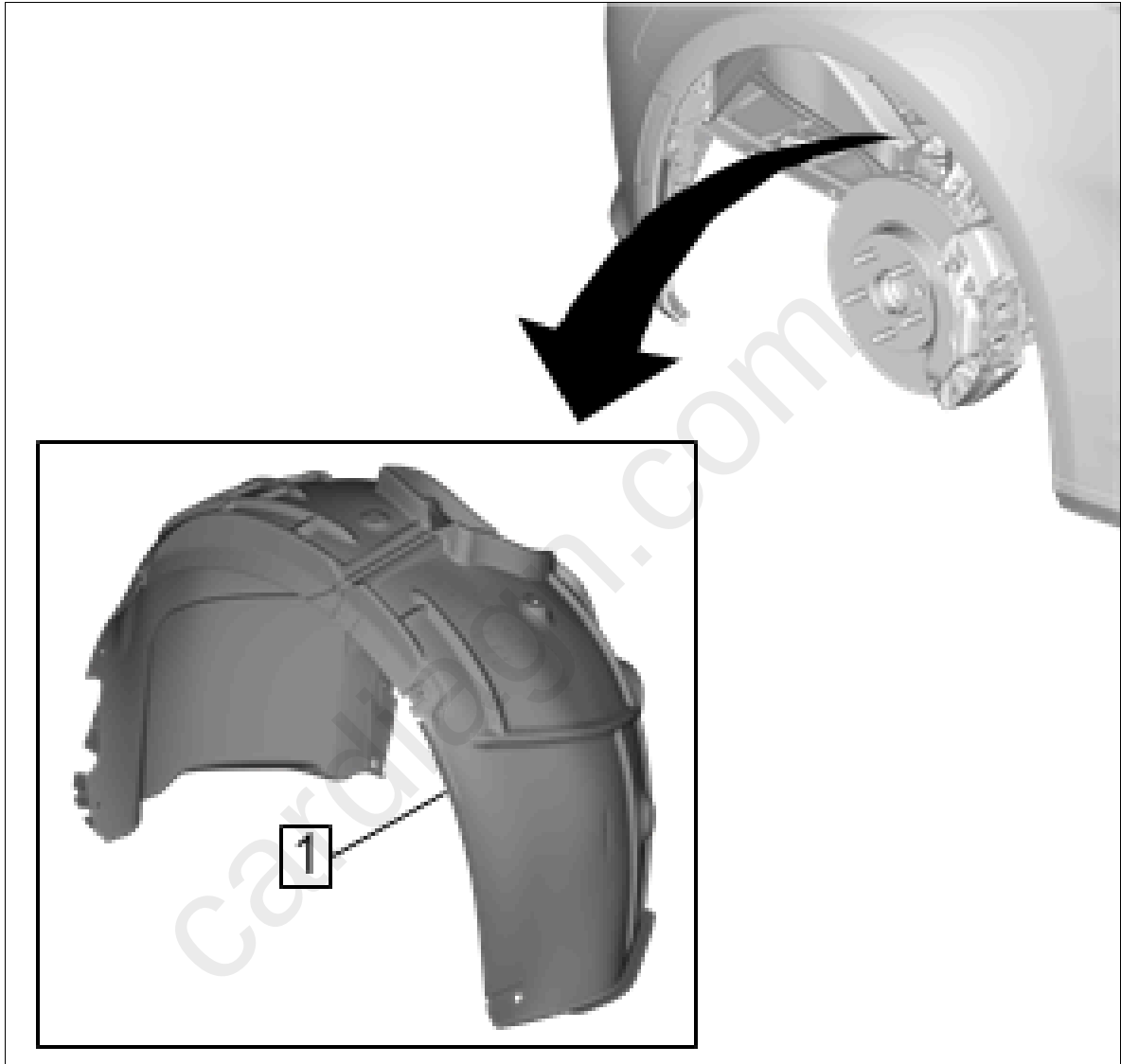
CH-42188-B Ball Joint Separator

Equivalent regional tools: Special Tools

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LGX OR LTG, WITH V18) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

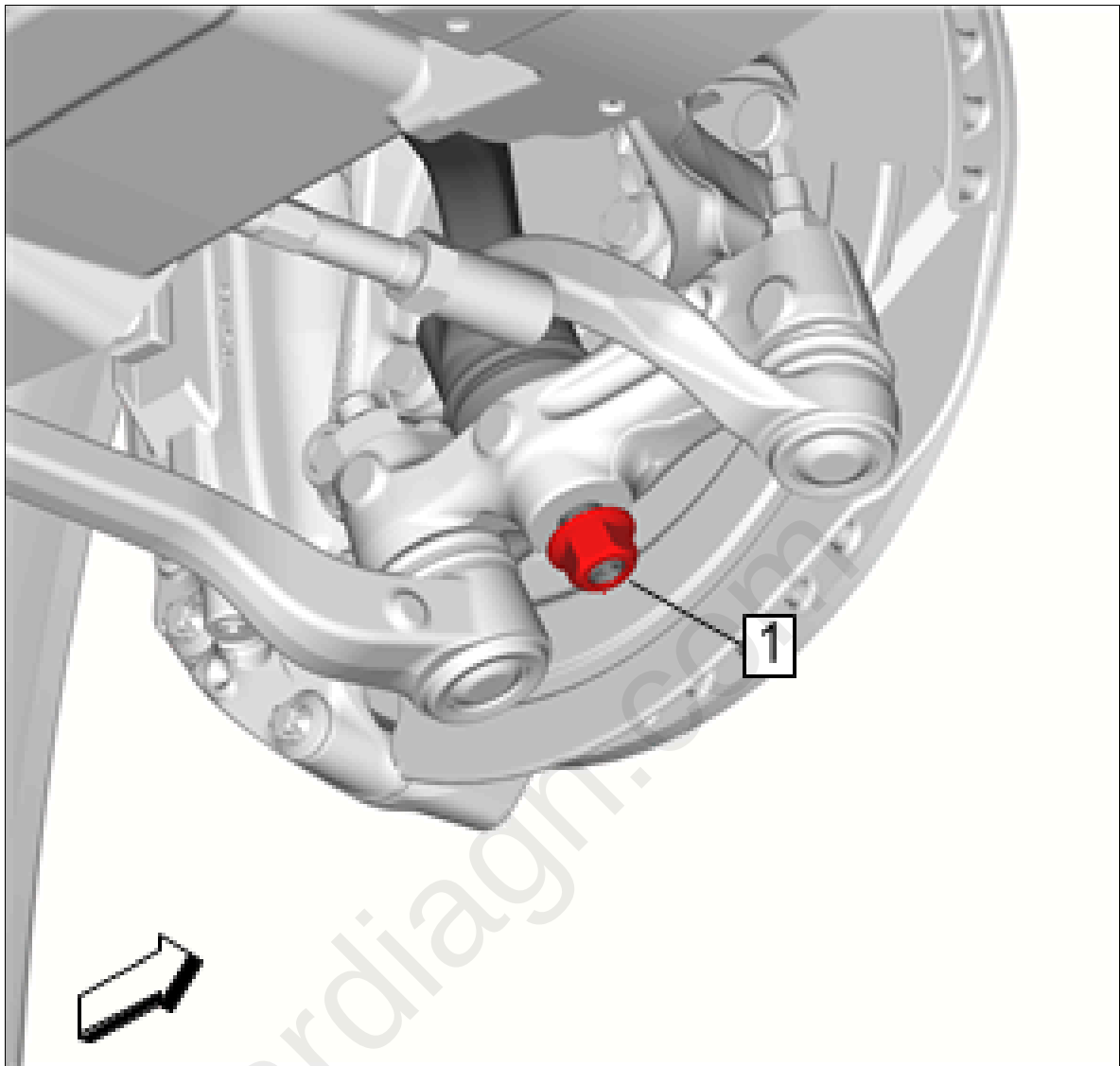
Fig 1: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

Fig 2: Steering Knuckle Nut

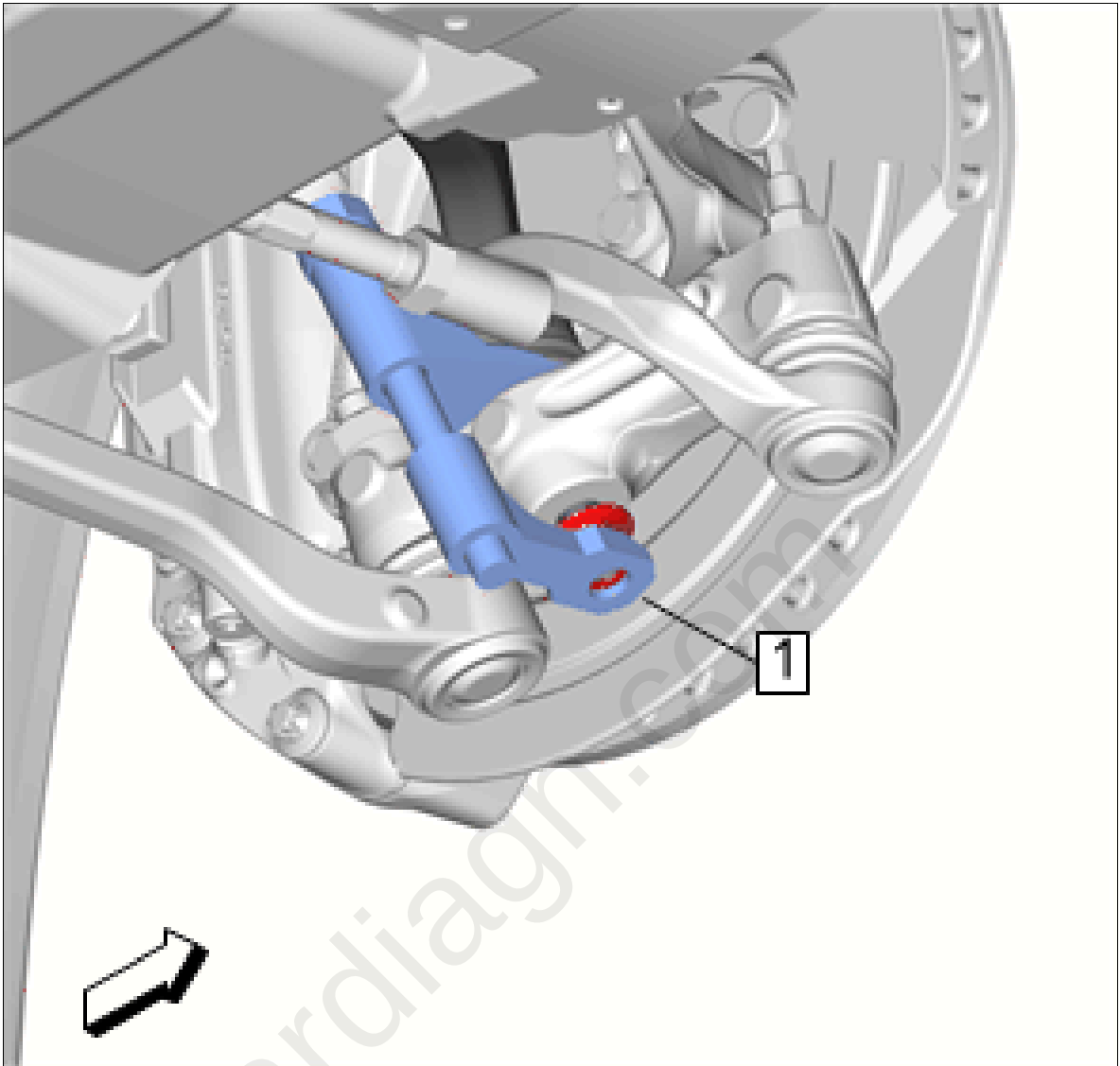


Courtesy of GENERAL MOTORS COMPANY

3. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

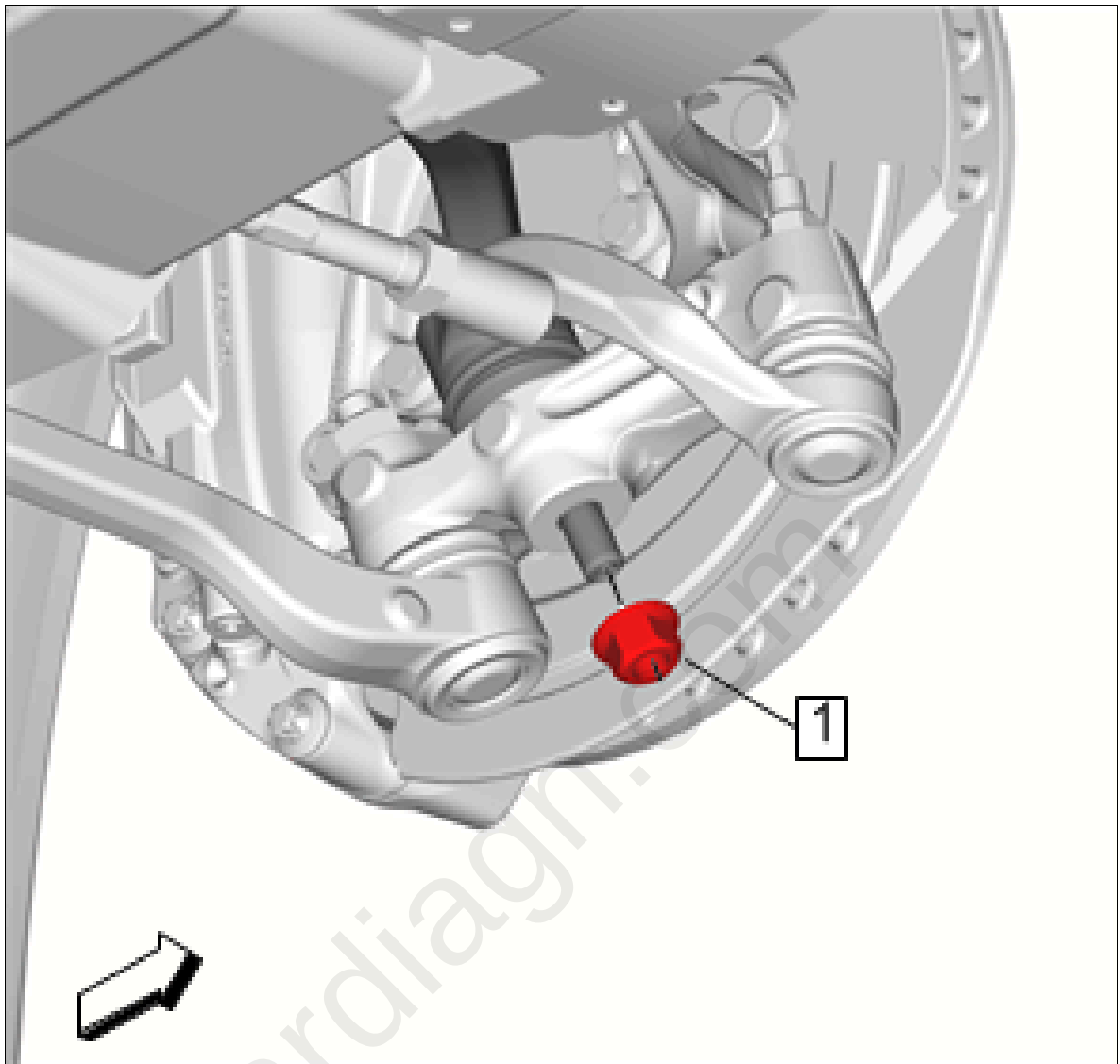
Fig 3: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

4. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

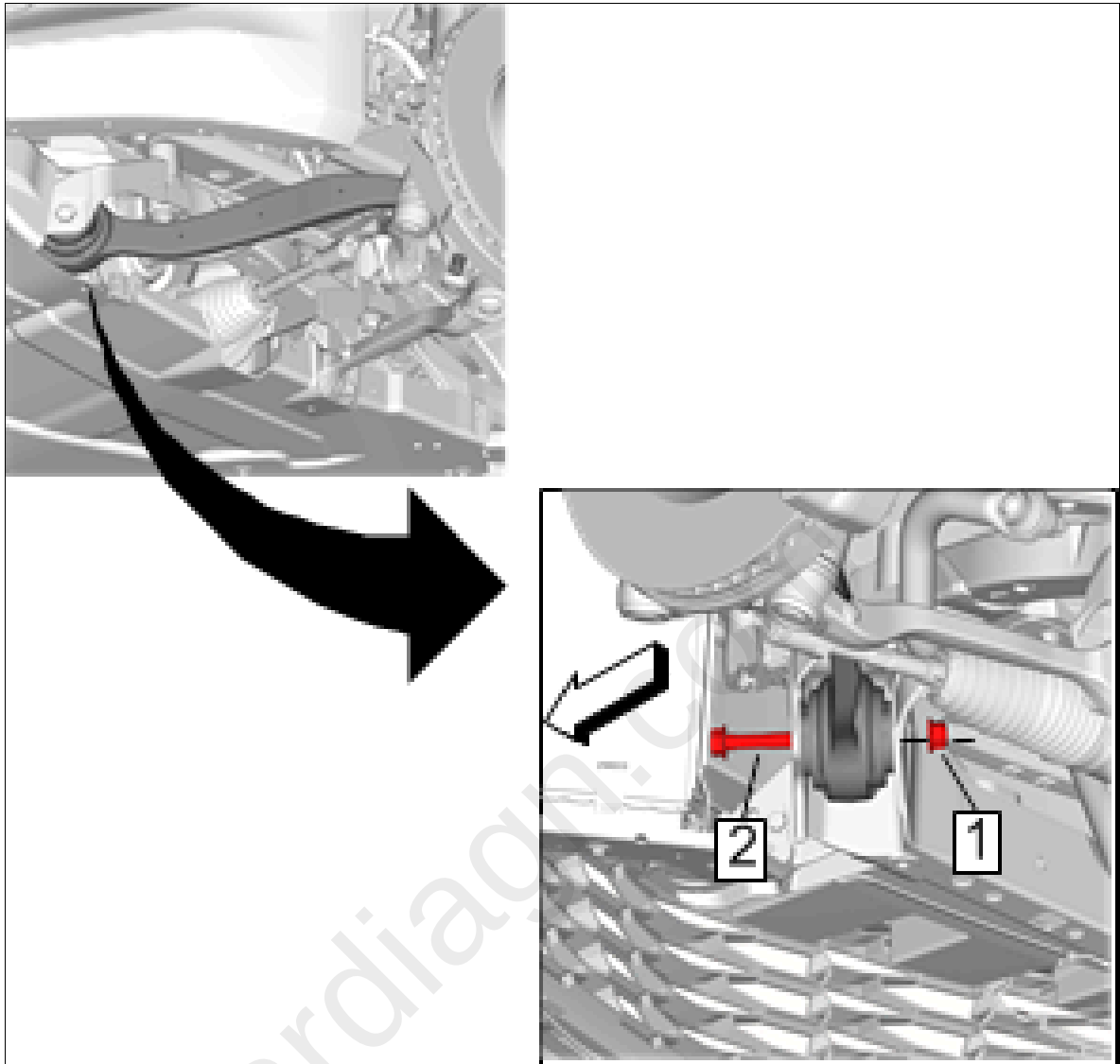
Fig 4: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

5. Remove Steering Knuckle Nut (1)

Fig 5: Front Lower Control Front Link Nut



Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Lower Control Front Link Nut (1)

 NOTE:

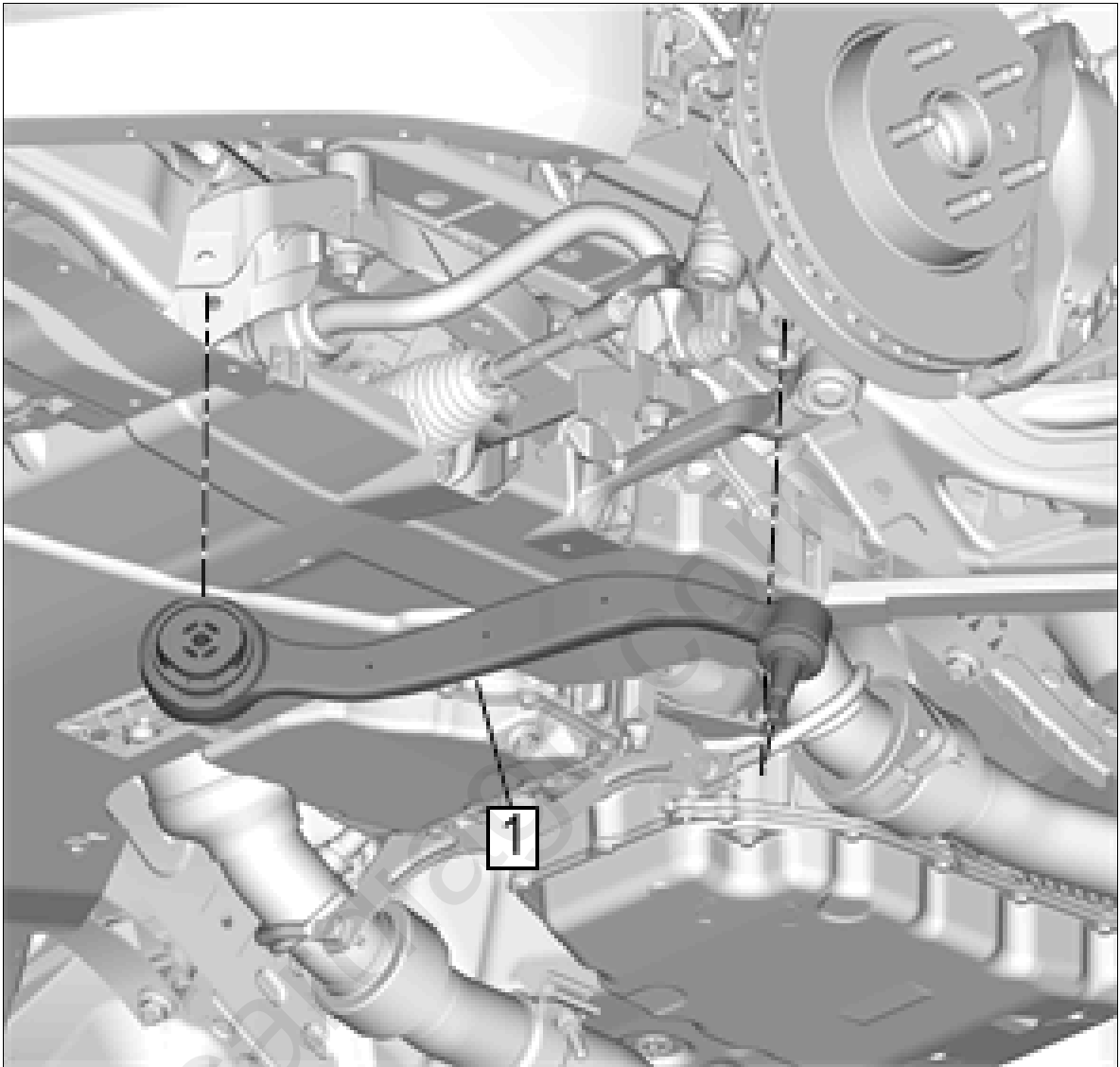
1. On vehicles with RPO V18 Charge Air Cooling, the front lower control front link bolt CANNOT be removed completely.
2. Use the appropriate cutting tools to remove the front lower control front link bolt.
3. Do NOT use a torch to cut the front lower control front link bolt.

7. Remove the front lower control front link bolt (2) as far as possible and cut the bolt in half.

8. Use a punch to remove the remaining front lower control front link bolt (2).

DISCARD the bolt.

Fig 6: Front Lower Control Front Link

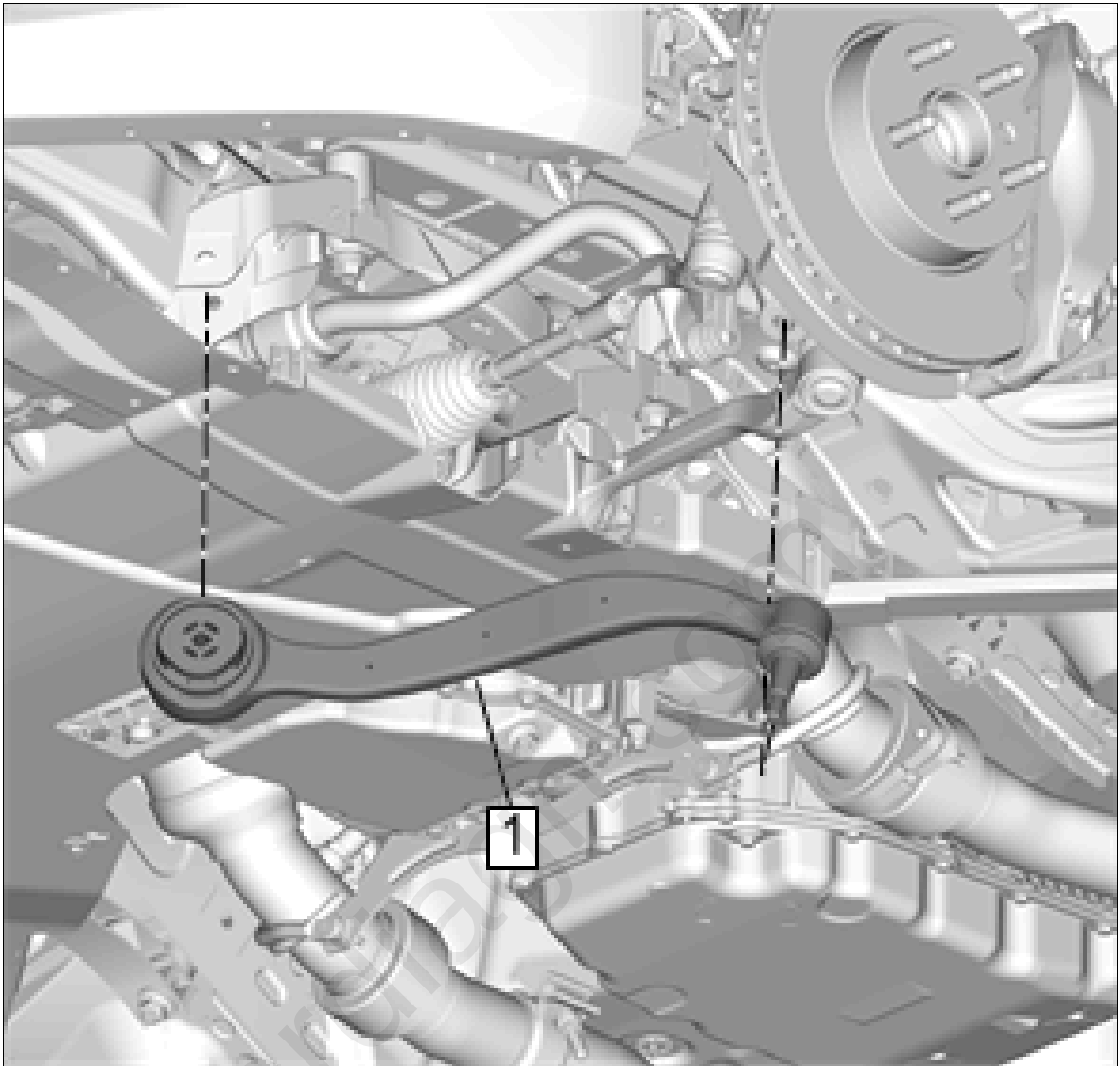


Courtesy of GENERAL MOTORS COMPANY

9. Remove the front lower control front link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT
(LGX OR LTG, WITH V18) > INSTALLATION PROCEDURE**

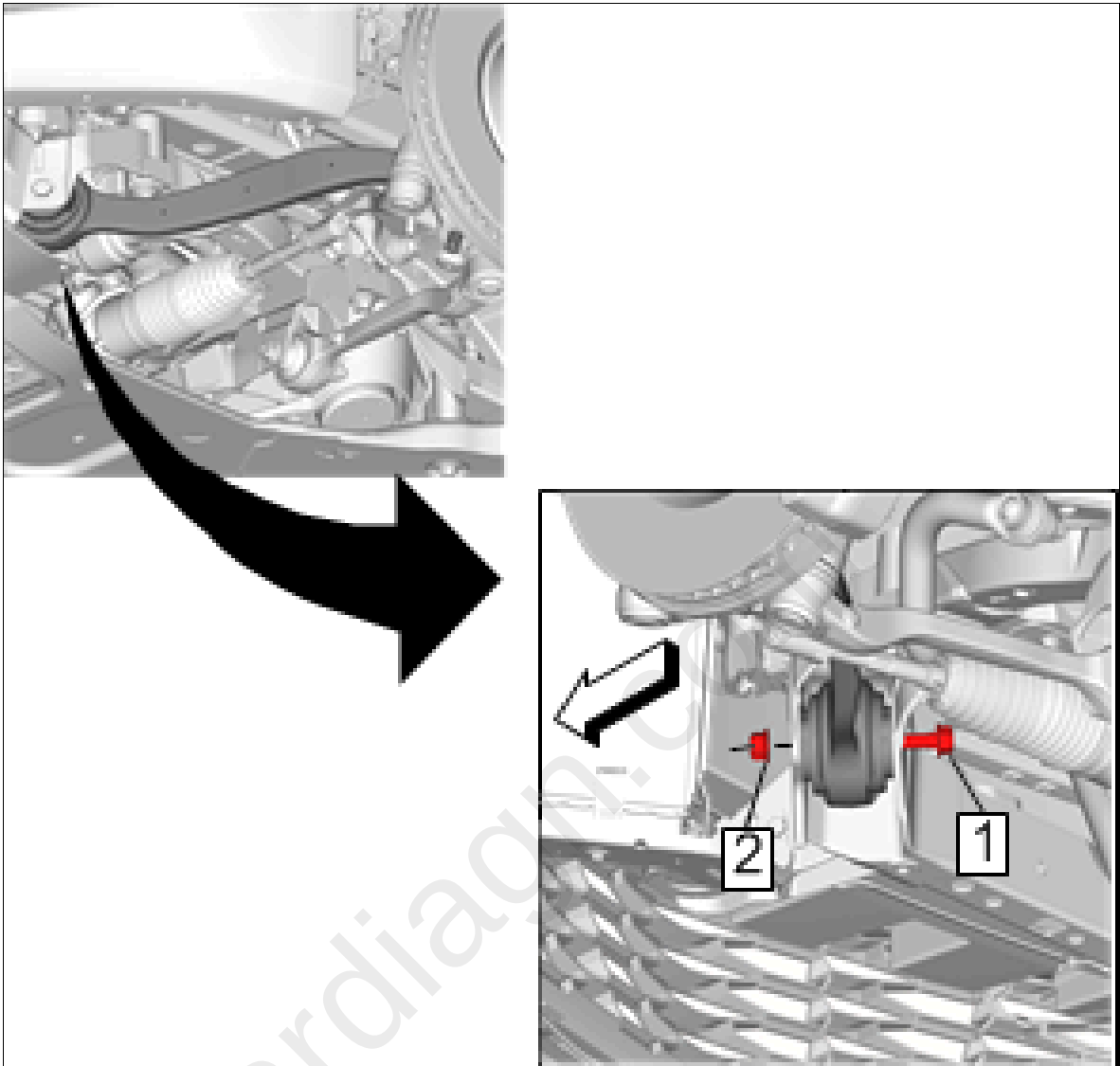
Fig 1: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control front link (1) on the vehicle.

Fig 2: Front Lower Control Front Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install the front lower control front link bolt (1) in the opposite direction that the bolt was originally installed.

Install a NEW bolt.

3. Install Front Lower Control Front Link Nut (2)

 **CAUTION:**

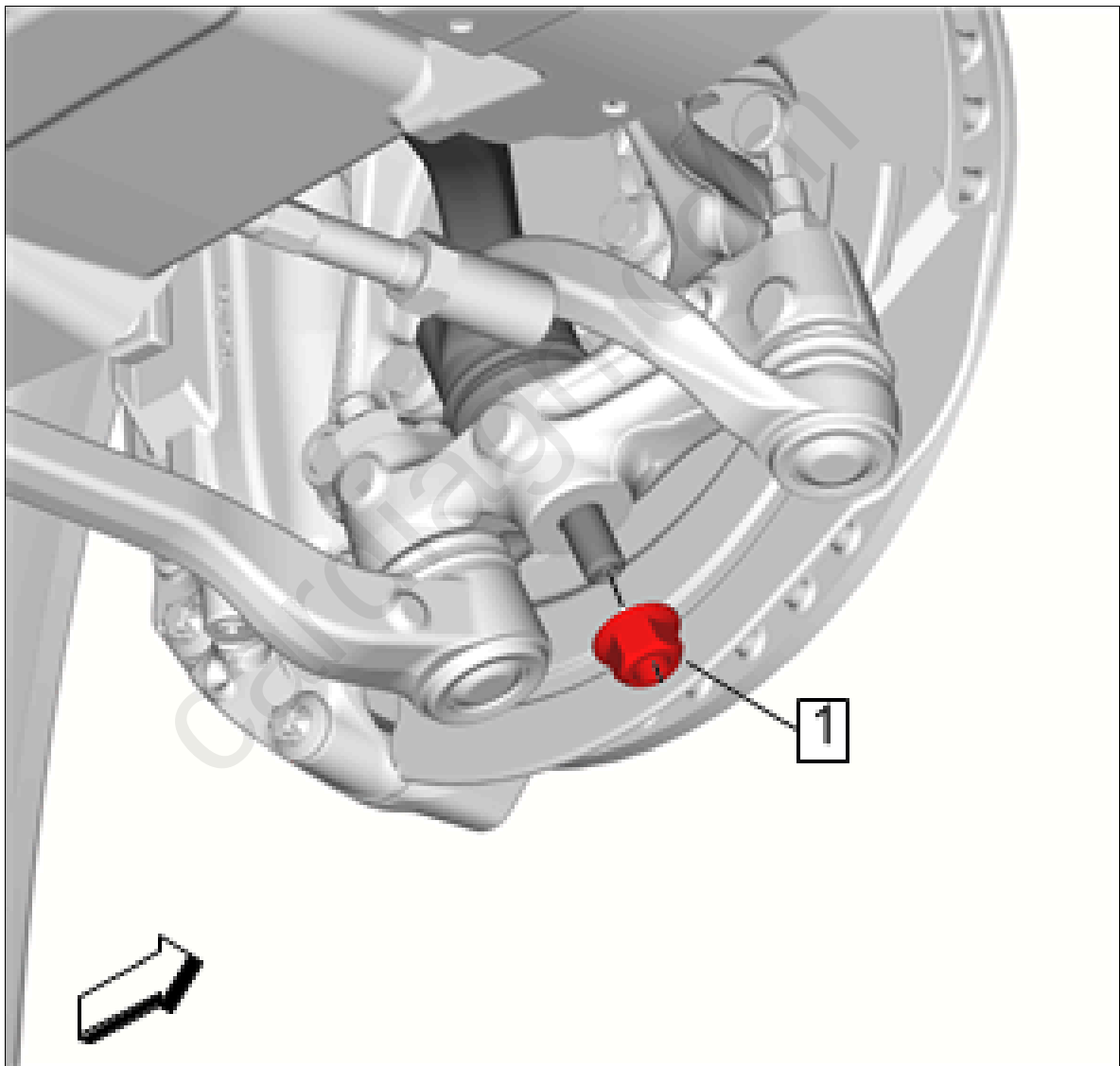
Refer to Fastener Caution .

4. Tighten Front Lower Control Front Link Bolt (1)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

Fig 3: Steering Knuckle Nut



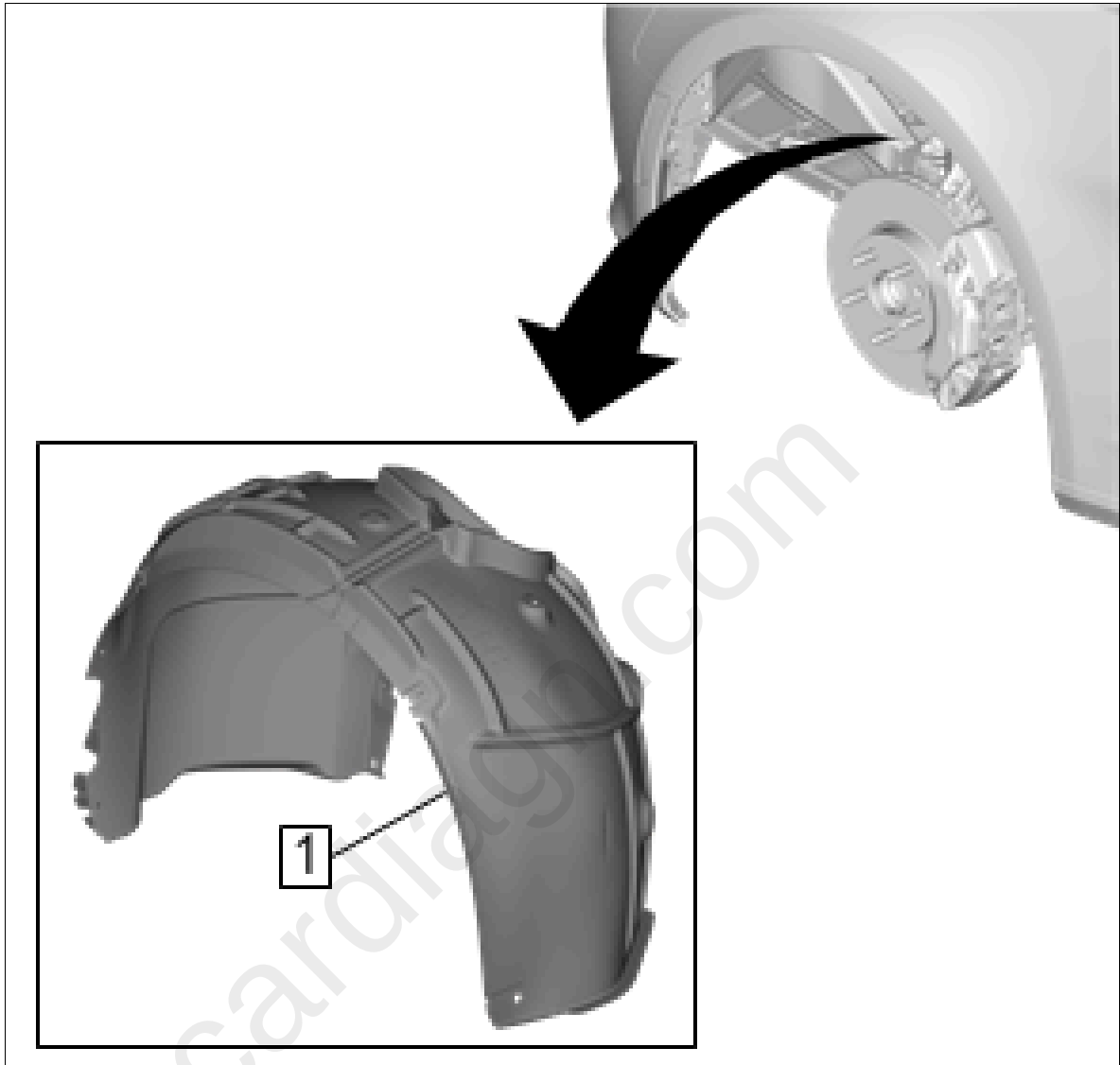
Courtesy of GENERAL MOTORS COMPANY

5. Install and tighten Steering Knuckle Nut (1)

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

Fig 4: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement
7. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
8. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LT1, WITH V18)

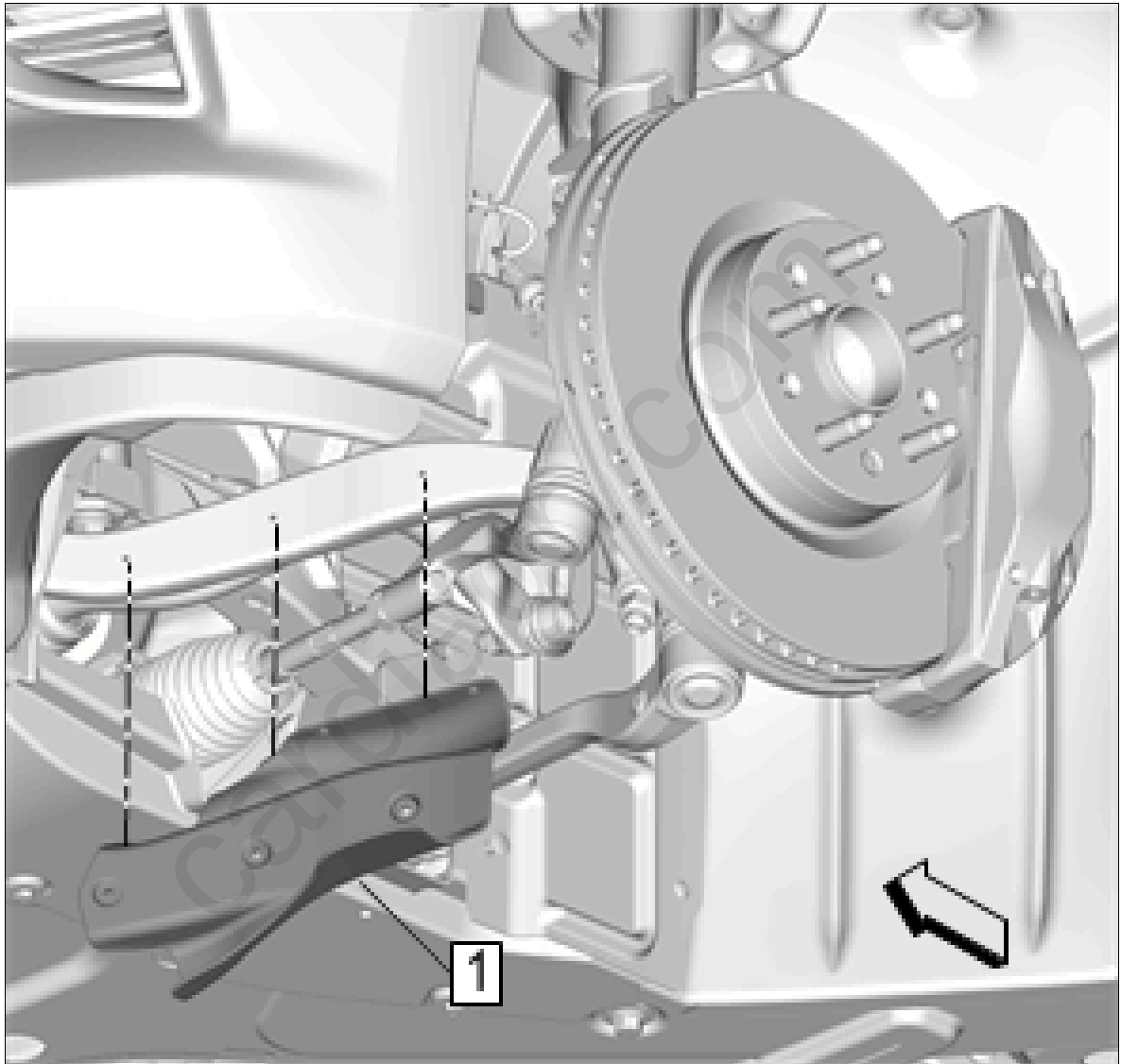
Special Tools

CH-42188-B Ball Joint Separator

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT (LT1, WITH V18) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

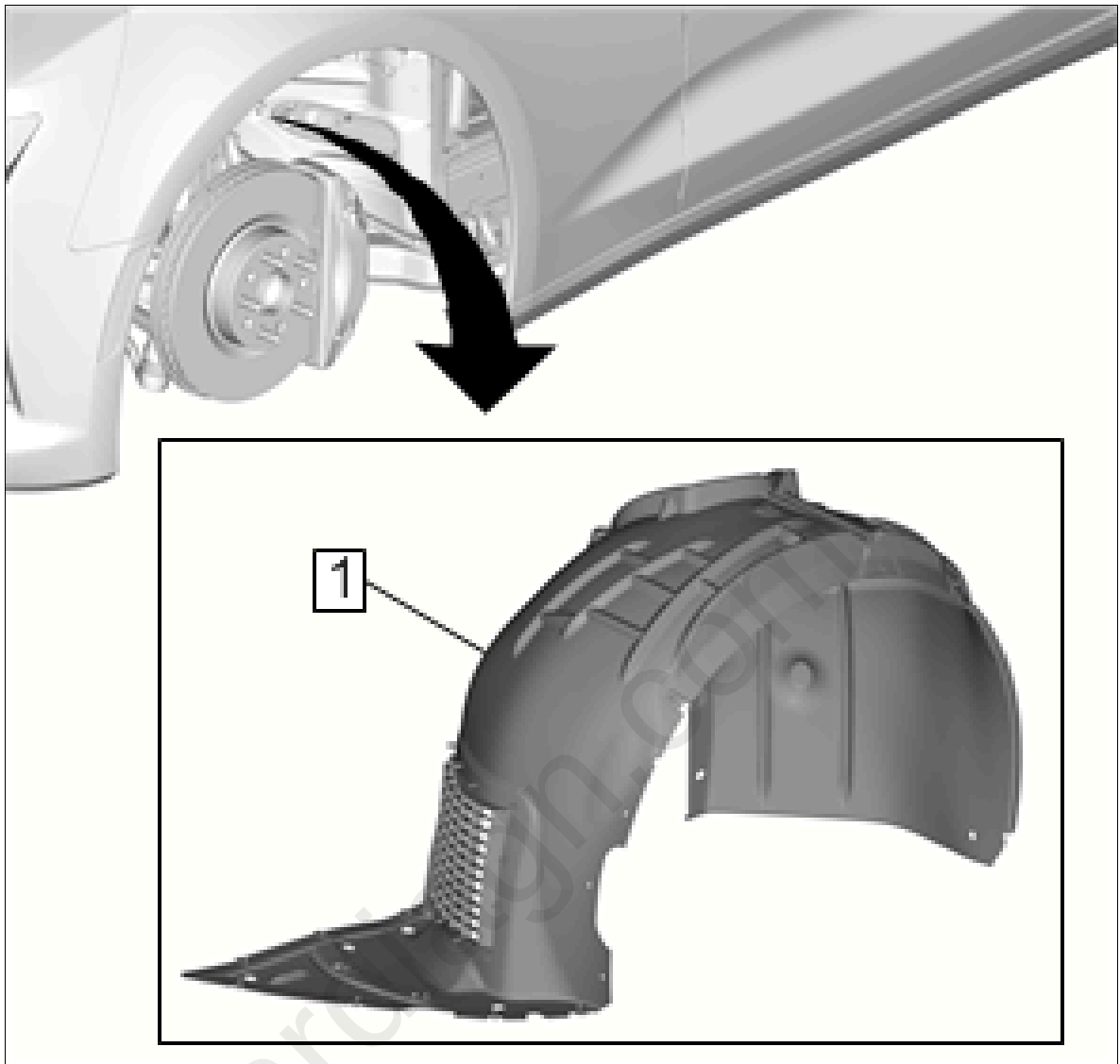
Fig 1: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement

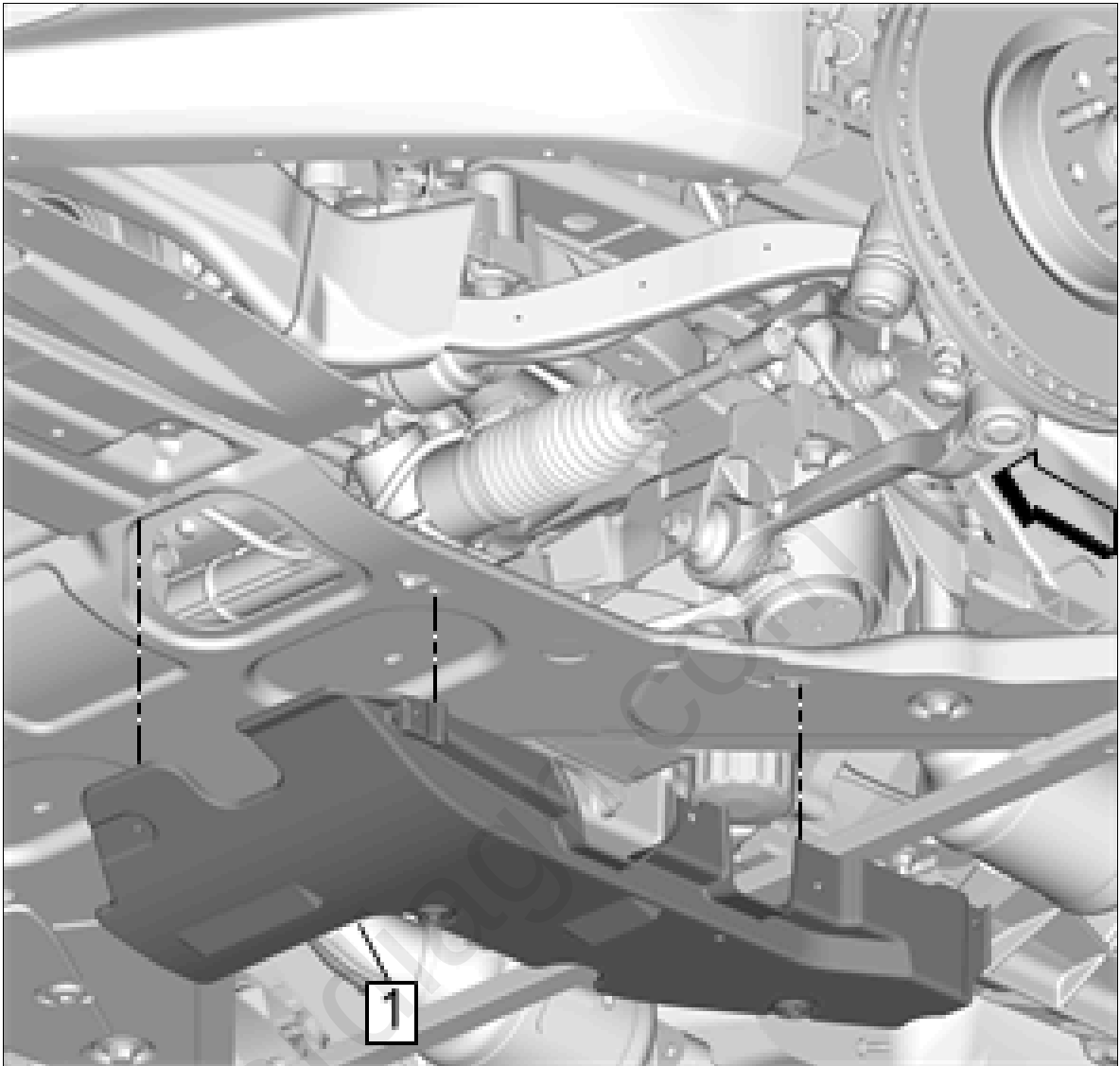
Fig 2: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

3. Remove Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

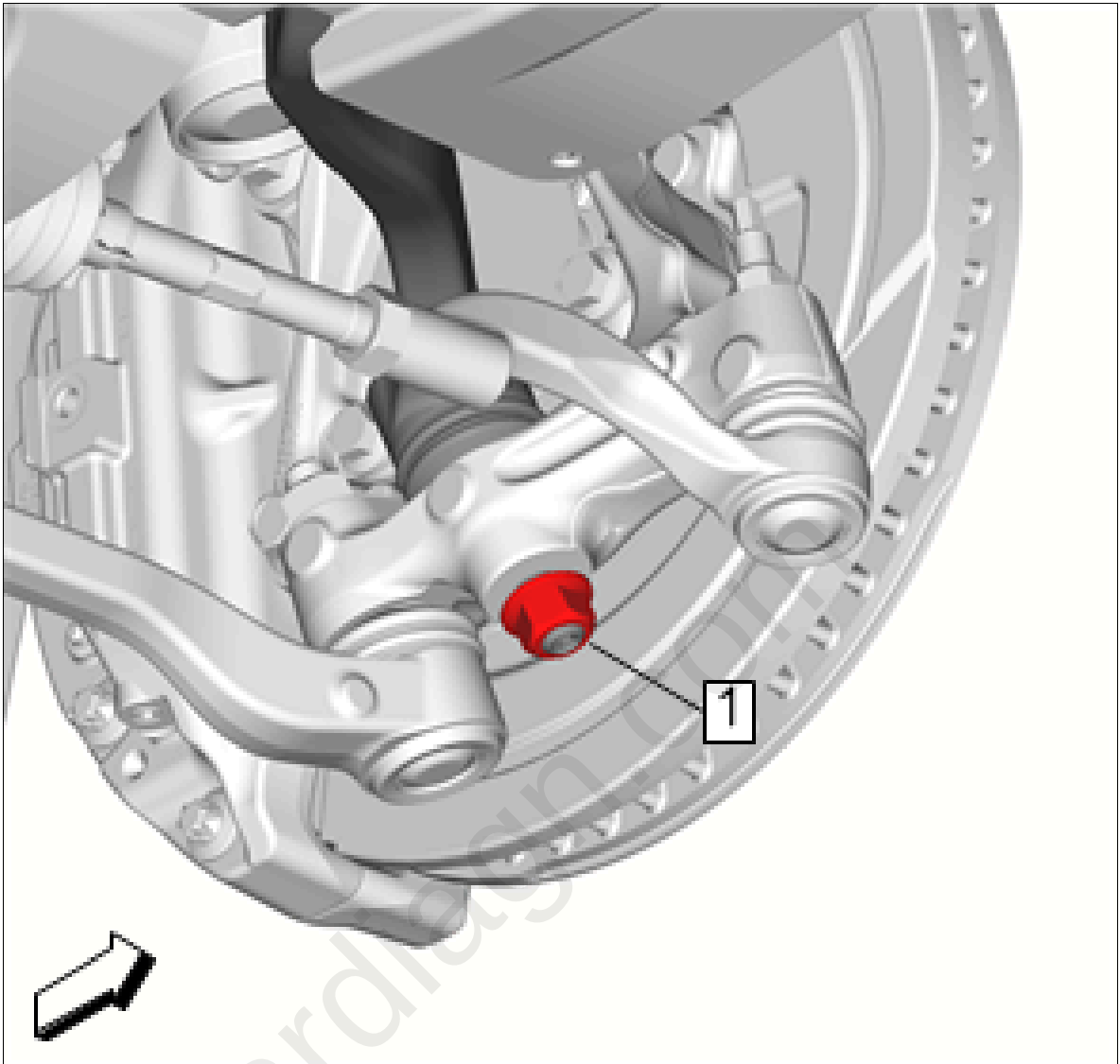
Fig 3: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

4. Remove Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

Fig 4: Steering Knuckle Nut

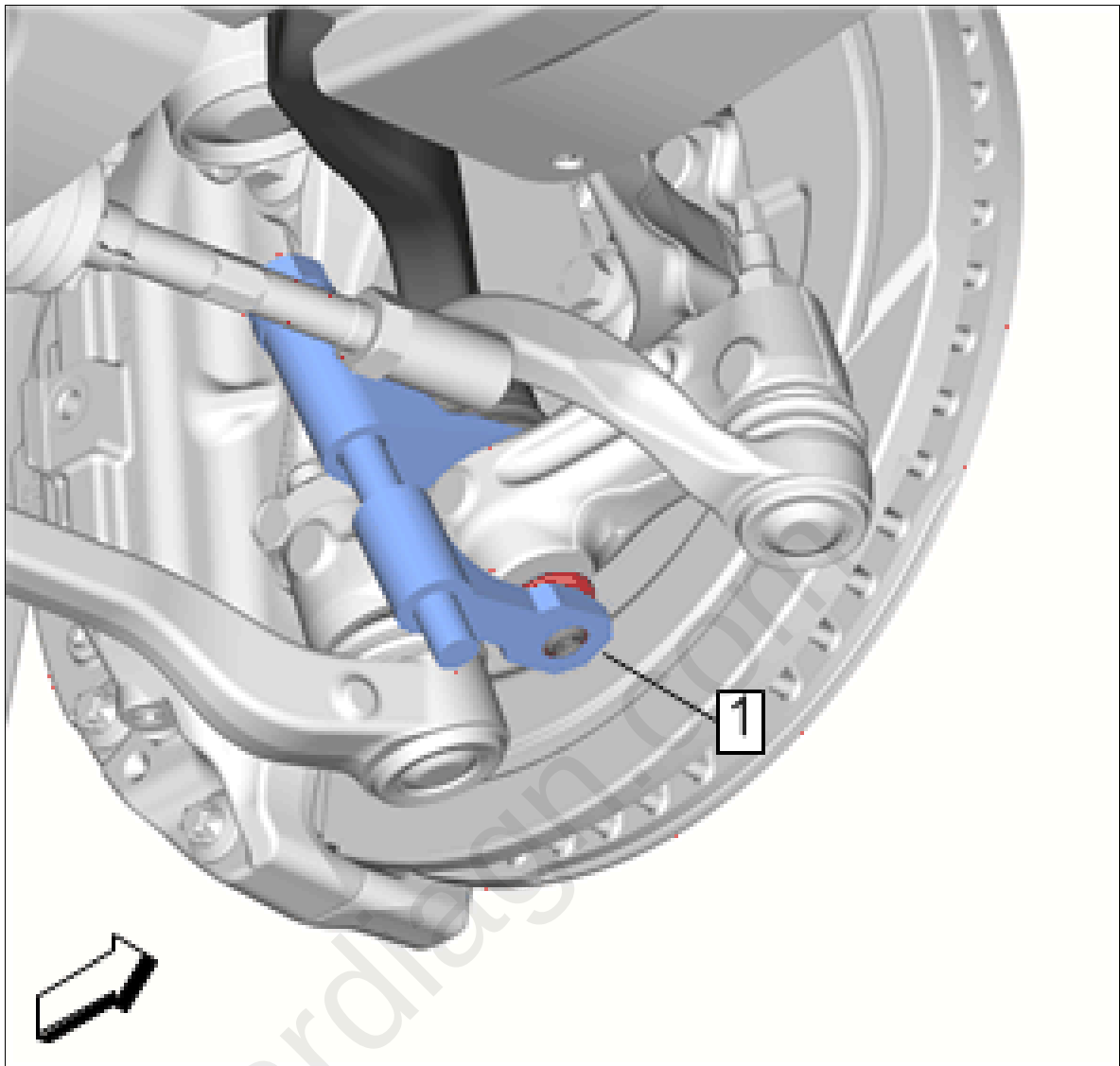


Courtesy of GENERAL MOTORS COMPANY

5. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

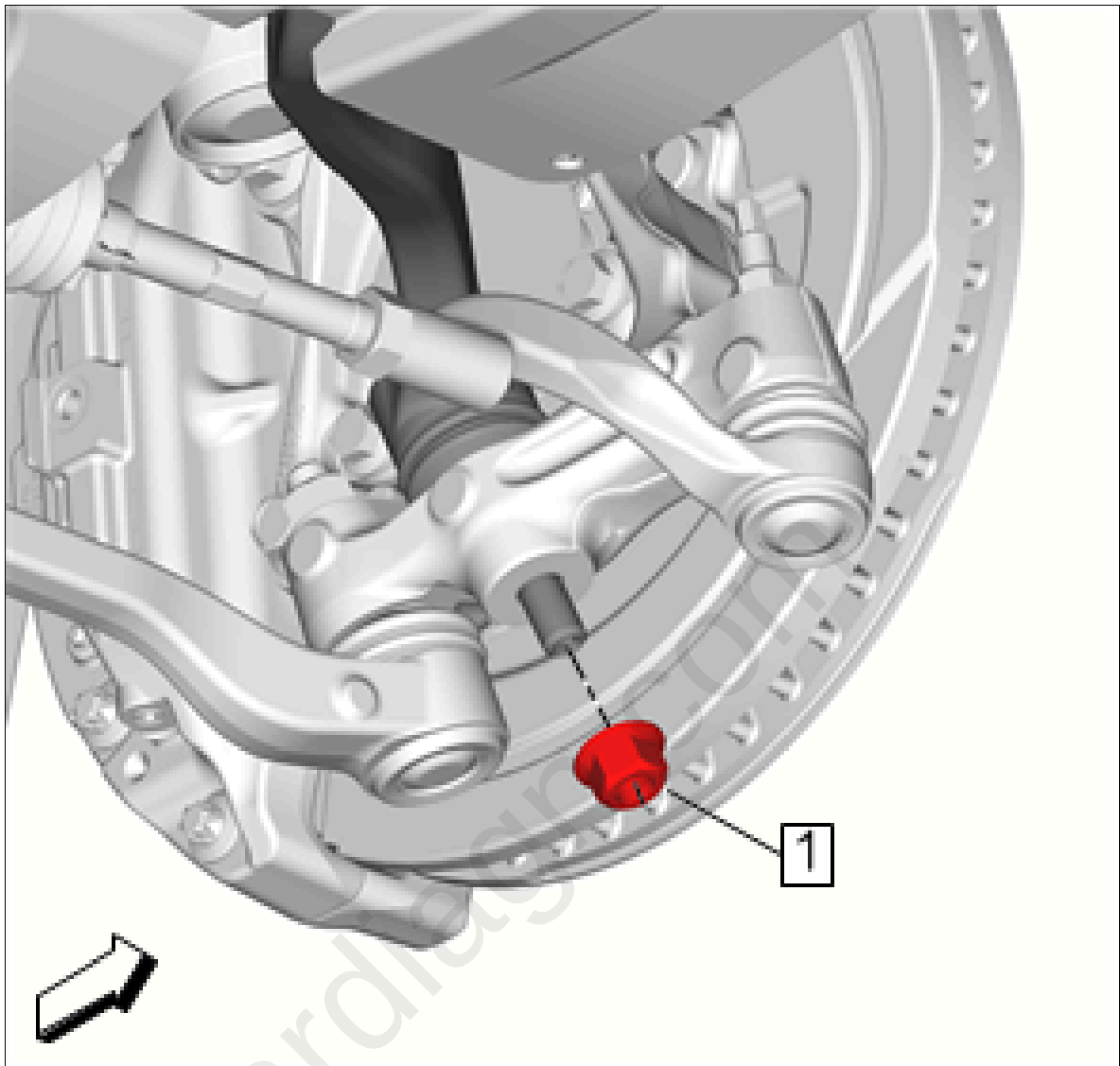
Fig 5: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

6. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

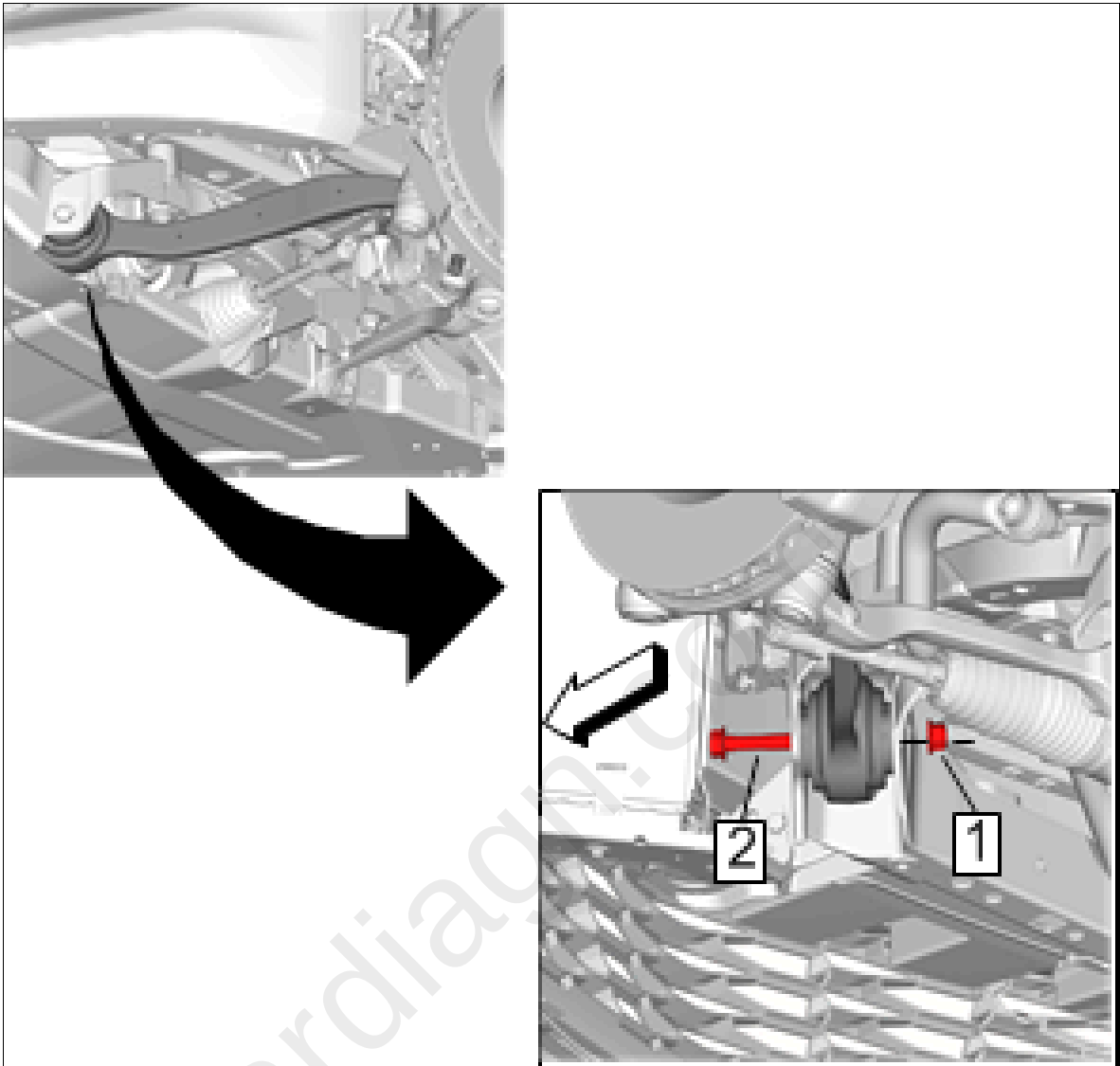
Fig 6: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

7. Remove Steering Knuckle Nut (1)

Fig 7: Front Lower Control Front Link Nut



Courtesy of GENERAL MOTORS COMPANY

8. Remove Front Lower Control Front Link Nut (1)

 NOTE:

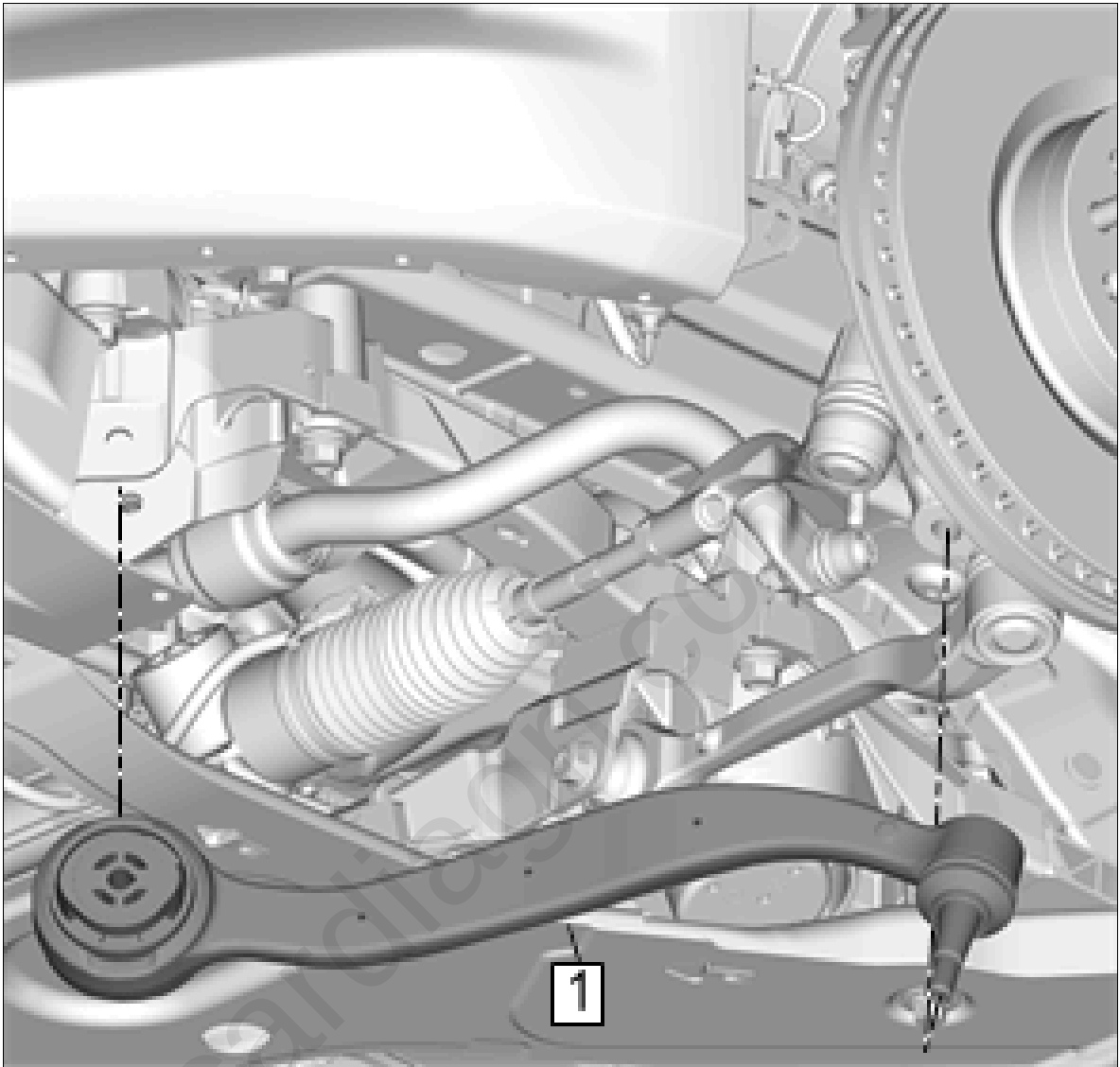
1. On vehicles with RPO V18 Charge Air Cooling, the front lower control front link bolt CANNOT be removed completely.
2. Use the appropriate cutting tools to remove the front lower control front link bolt.
3. Do NOT use a torch to cut the front lower control front link bolt.

9. Remove the front lower control front link bolt (2) as far as possible and cut the bolt in half.

10. Use a punch to remove the remaining front lower control front link bolt (2).

DISCARD the bolt.

Fig 8: Front Lower Control Front Link

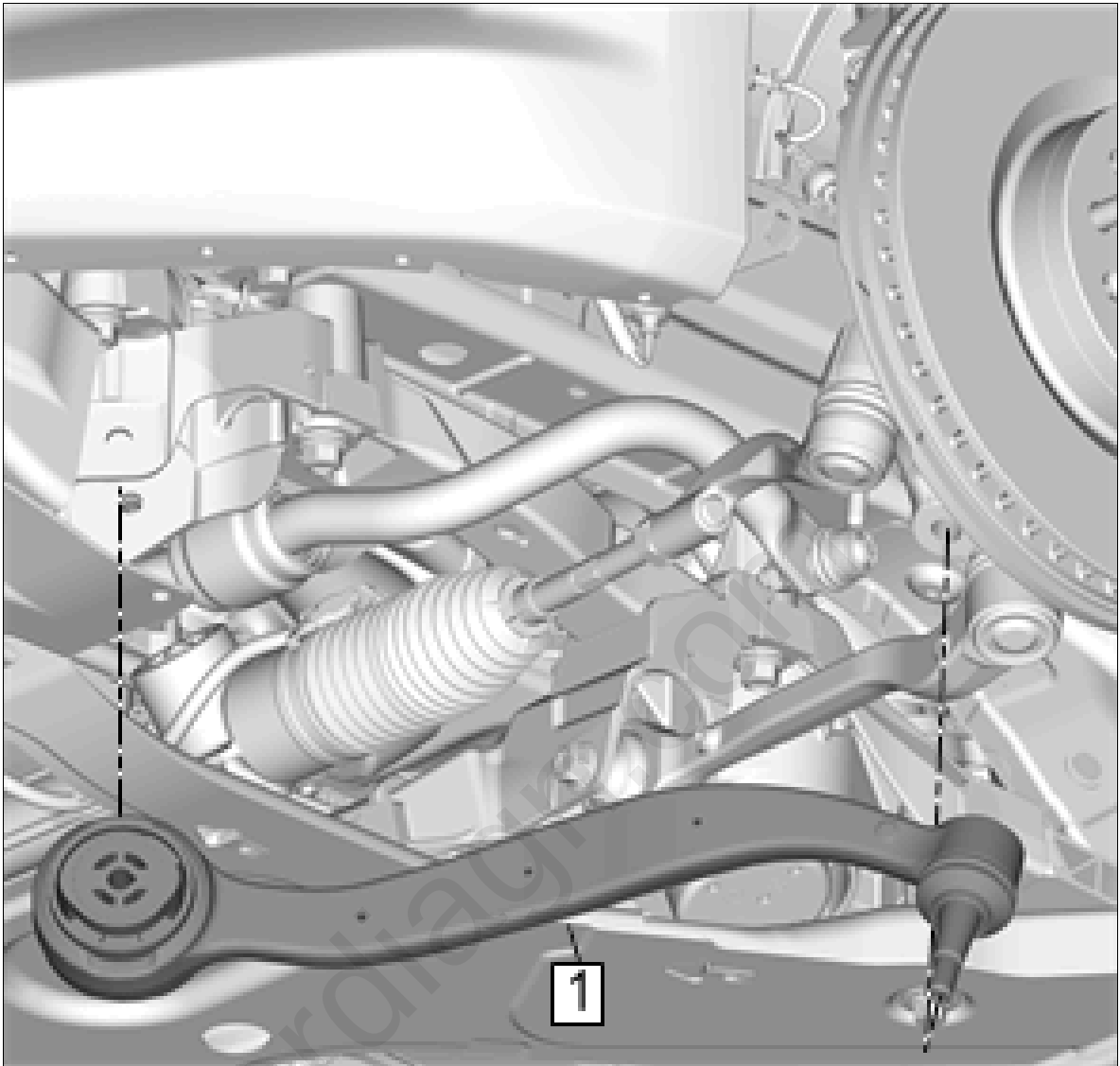


Courtesy of GENERAL MOTORS COMPANY

11. Remove the front lower control front link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL FRONT LINK REPLACEMENT
(LT1, WITH V18) > INSTALLATION PROCEDURE**

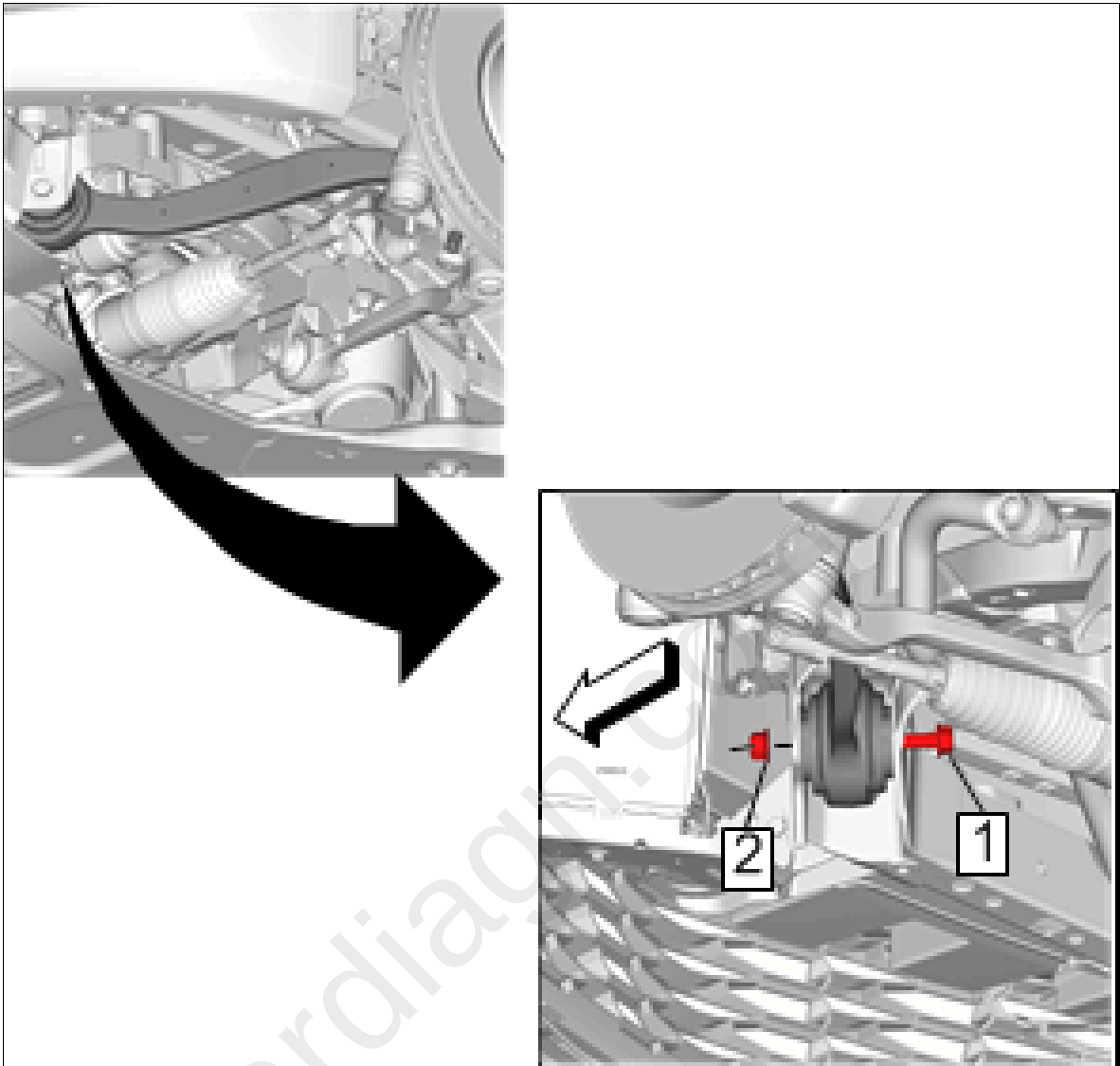
Fig 1: Front Lower Control Front Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control front link (1) on the vehicle.

Fig 2: Front Lower Control Front Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install the front lower control front link bolt (1) in the opposite direction that the bolt was originally installed.

Install a NEW bolt.

3. Install Front Lower Control Front Link Nut (2)

 **CAUTION:**

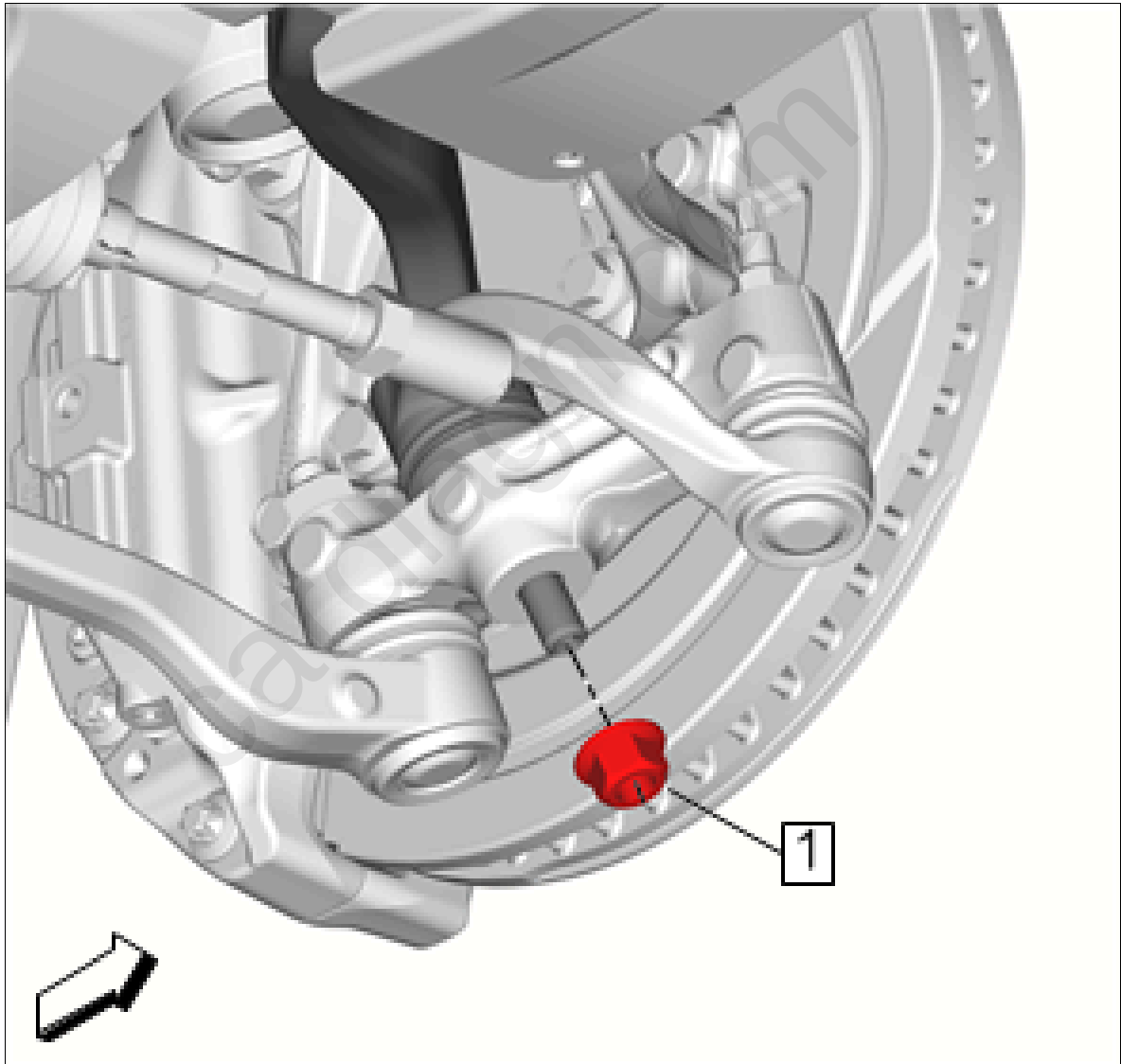
Refer to Fastener Caution .

4. Tighten Front Lower Control Front Link Bolt (1)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

Fig 3: Steering Knuckle Nut



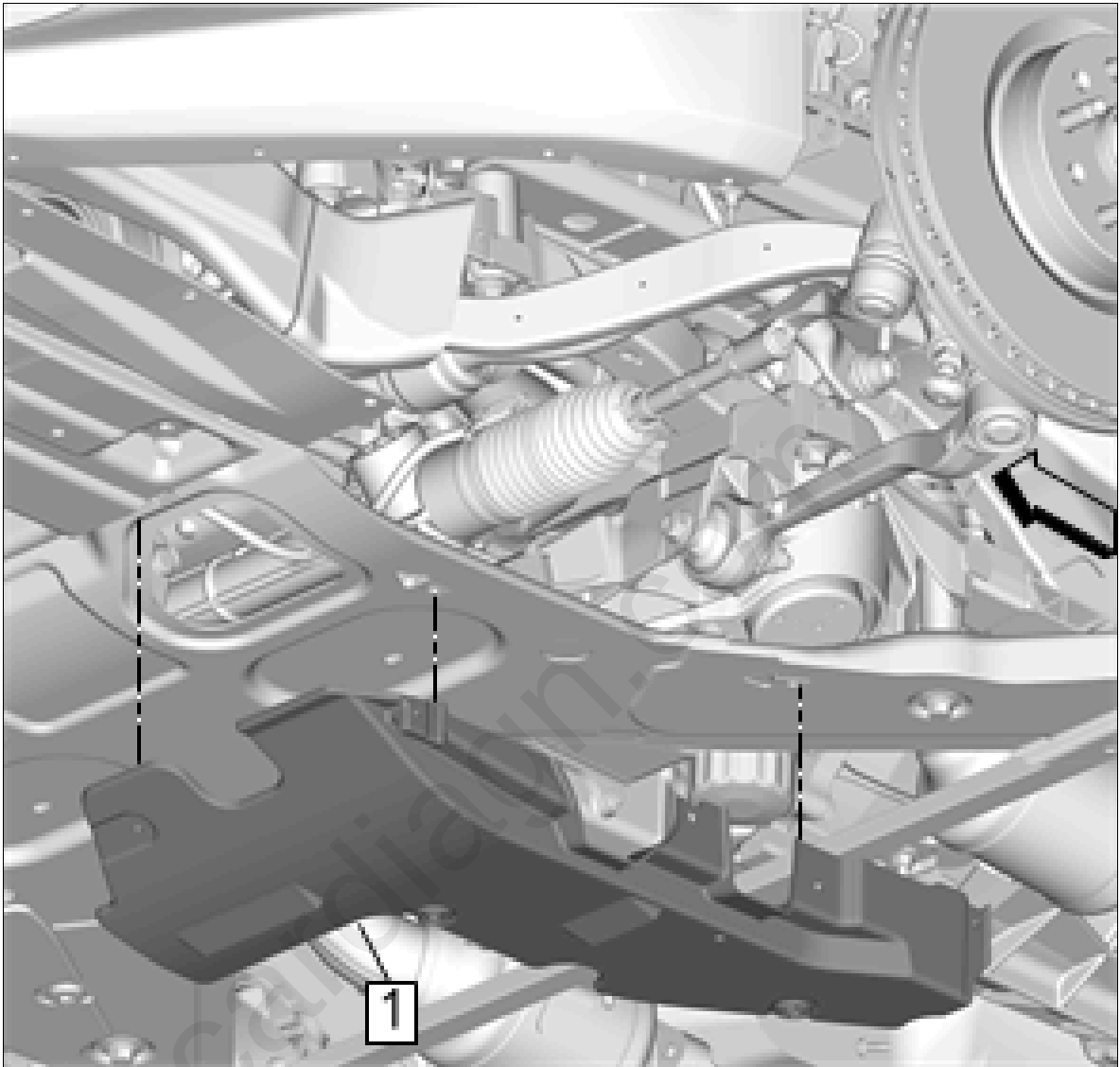
Courtesy of GENERAL MOTORS COMPANY

5. Install Steering Knuckle Nut (1) and tighten

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

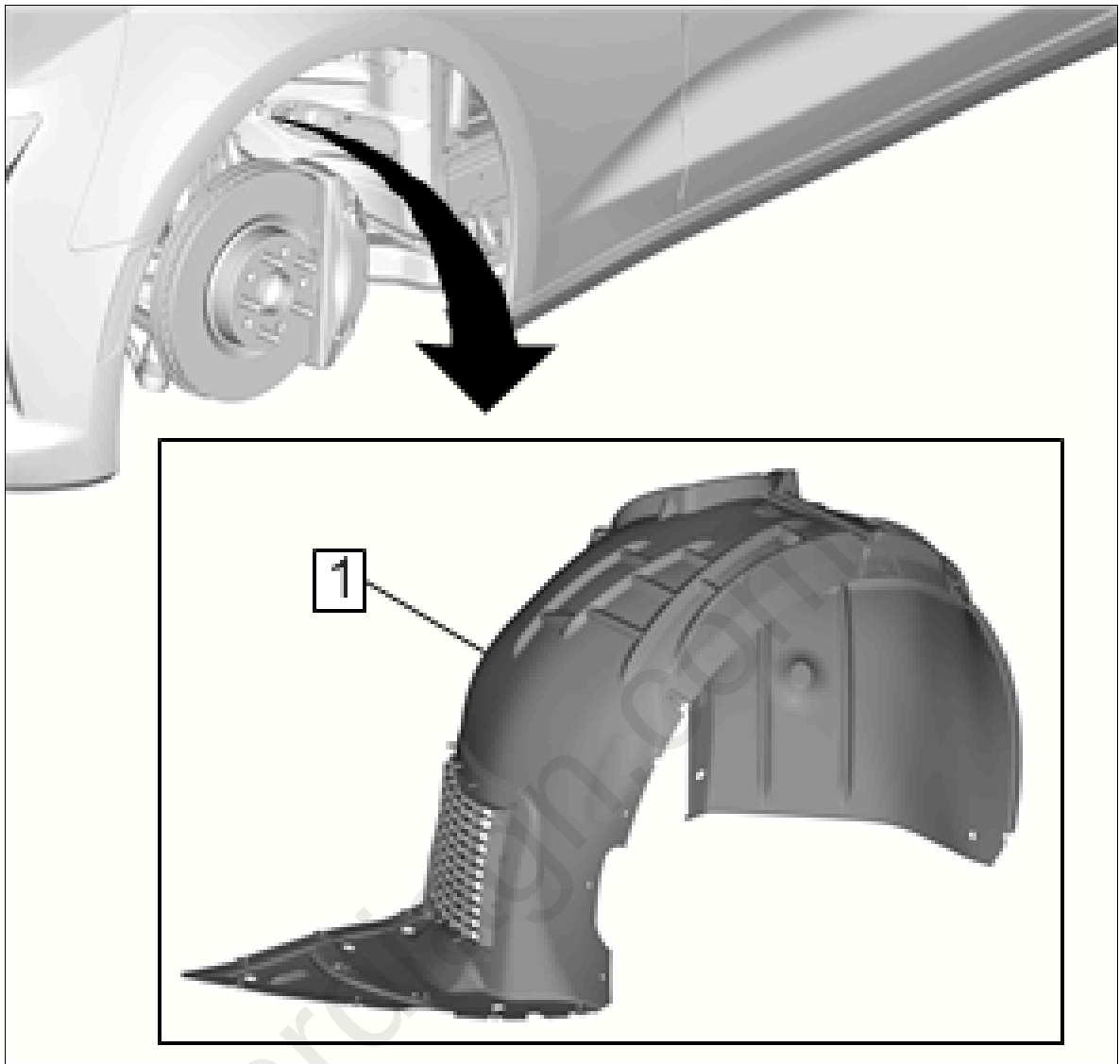
Fig 4: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

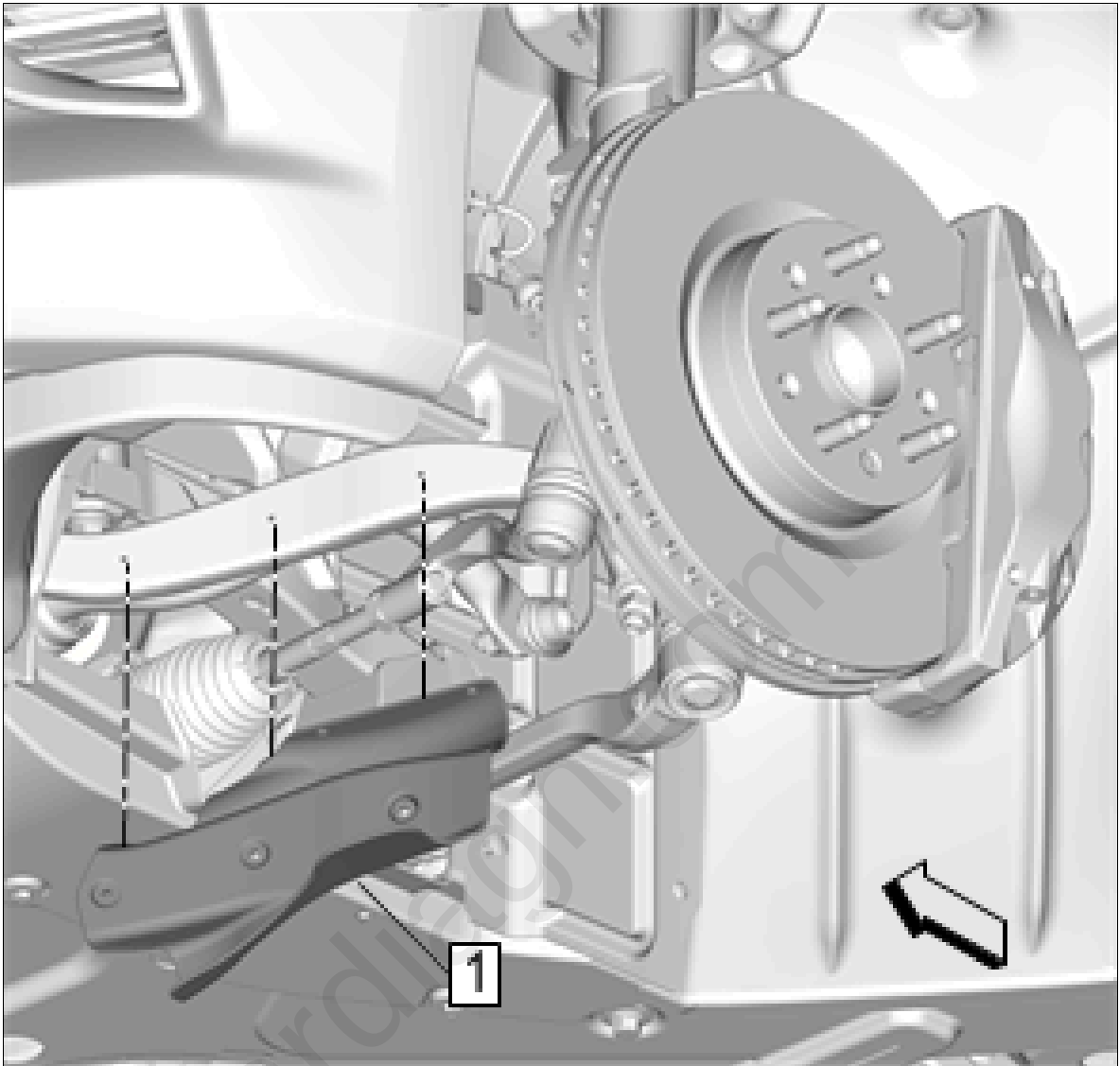
Fig 5: Front Wheelhouse Liner



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Wheelhouse Liner (1) - Front Wheelhouse Liner Replacement

Fig 6: Front Brake Rotor Cooling Duct Deflector



Courtesy of GENERAL MOTORS COMPANY

8. Install Front Brake Rotor Cooling Duct Deflector (1) - Front Brake Rotor Cooling Duct Deflector Replacement
9. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
10. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT (LGX, LTG)

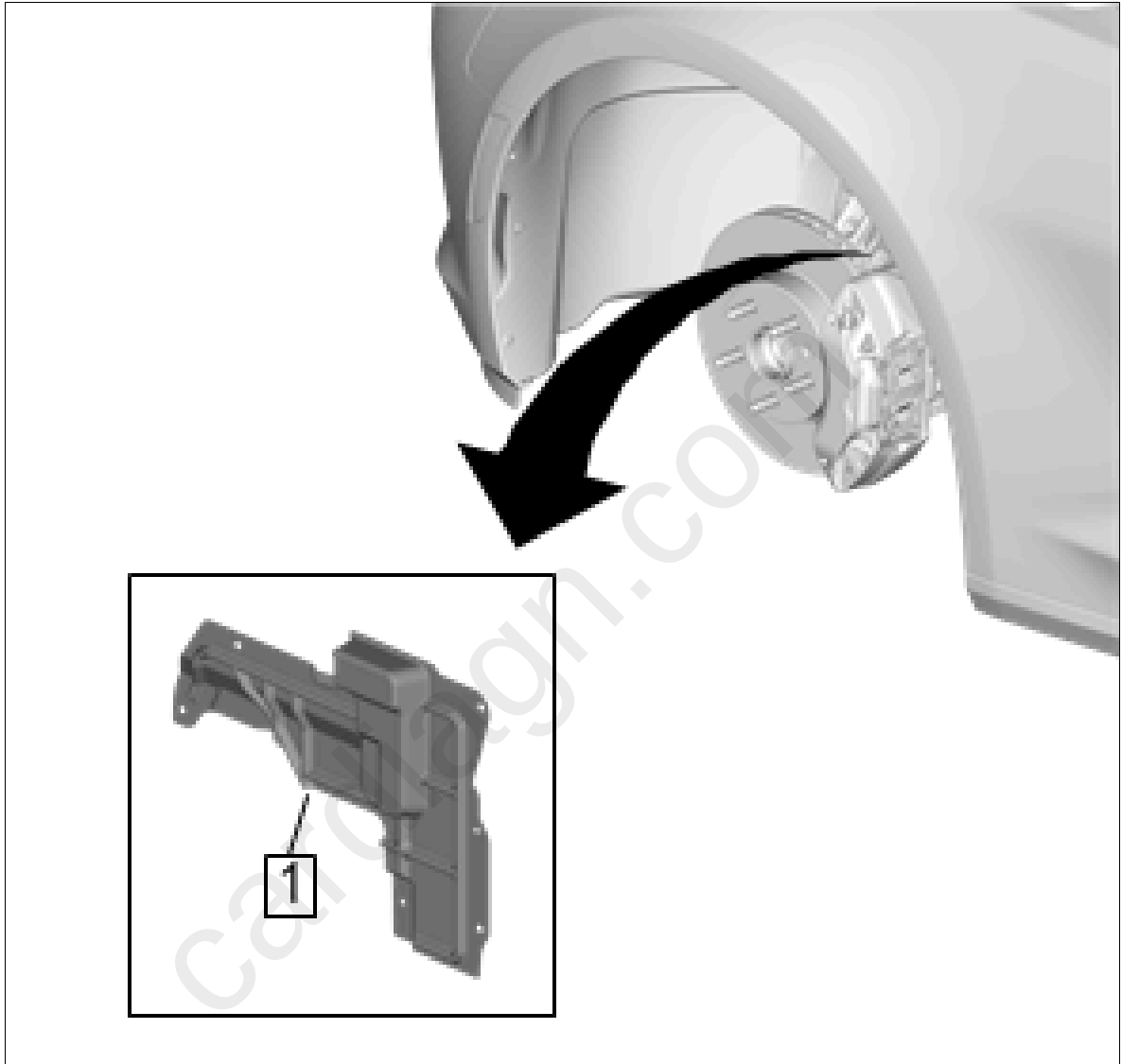
Special Tools

CH-42188-B Ball Joint Separator

Equivalent regional tools: Special Tools

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT
(LGX, LTG) > REMOVAL PROCEDURE**

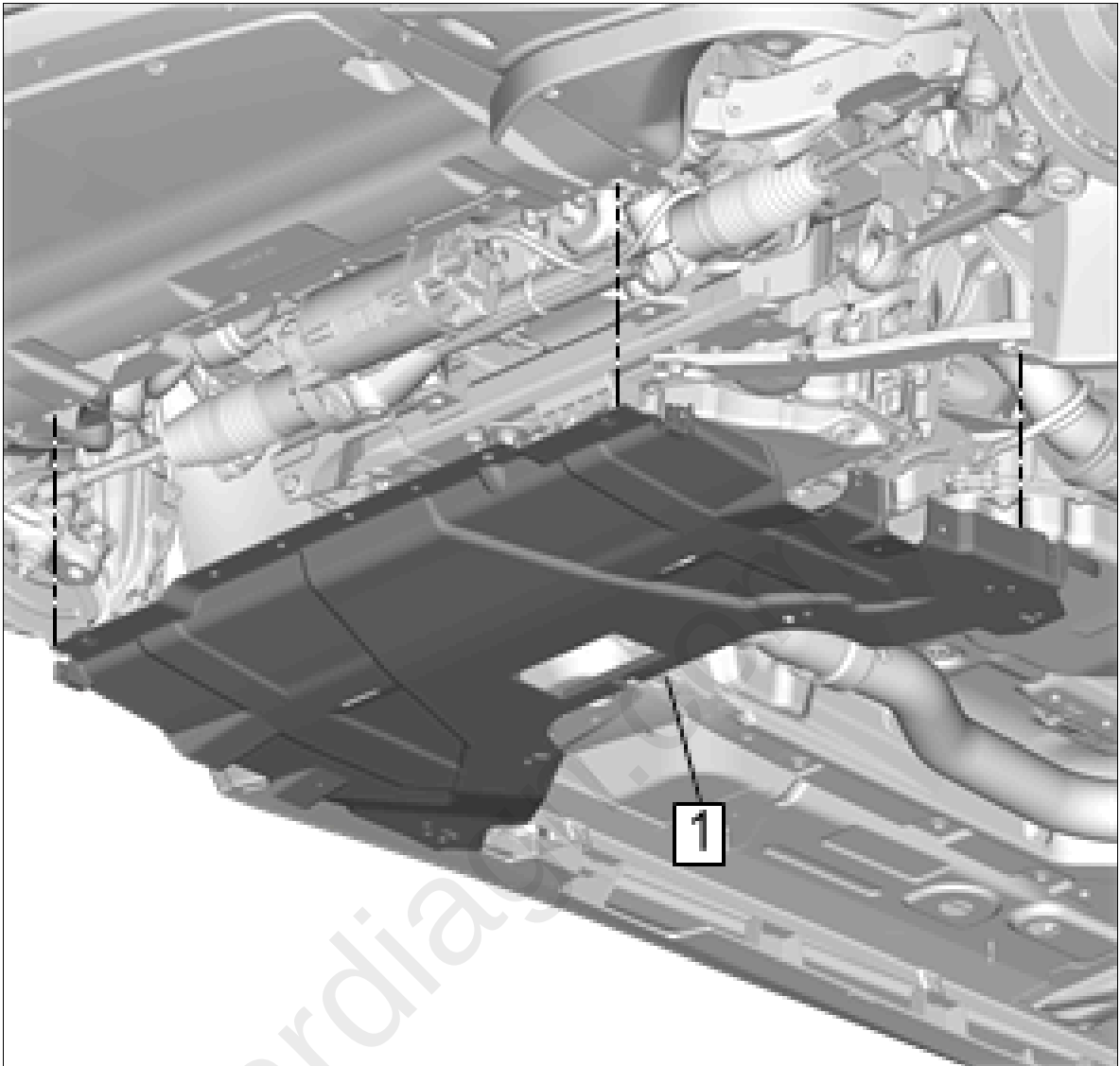
Fig 1: Front Wheelhouse Splash Shield



Courtesy of GENERAL MOTORS COMPANY

1. Remove Front Wheelhouse Splash Shield (1) - Front Wheelhouse Splash Shield Replacement

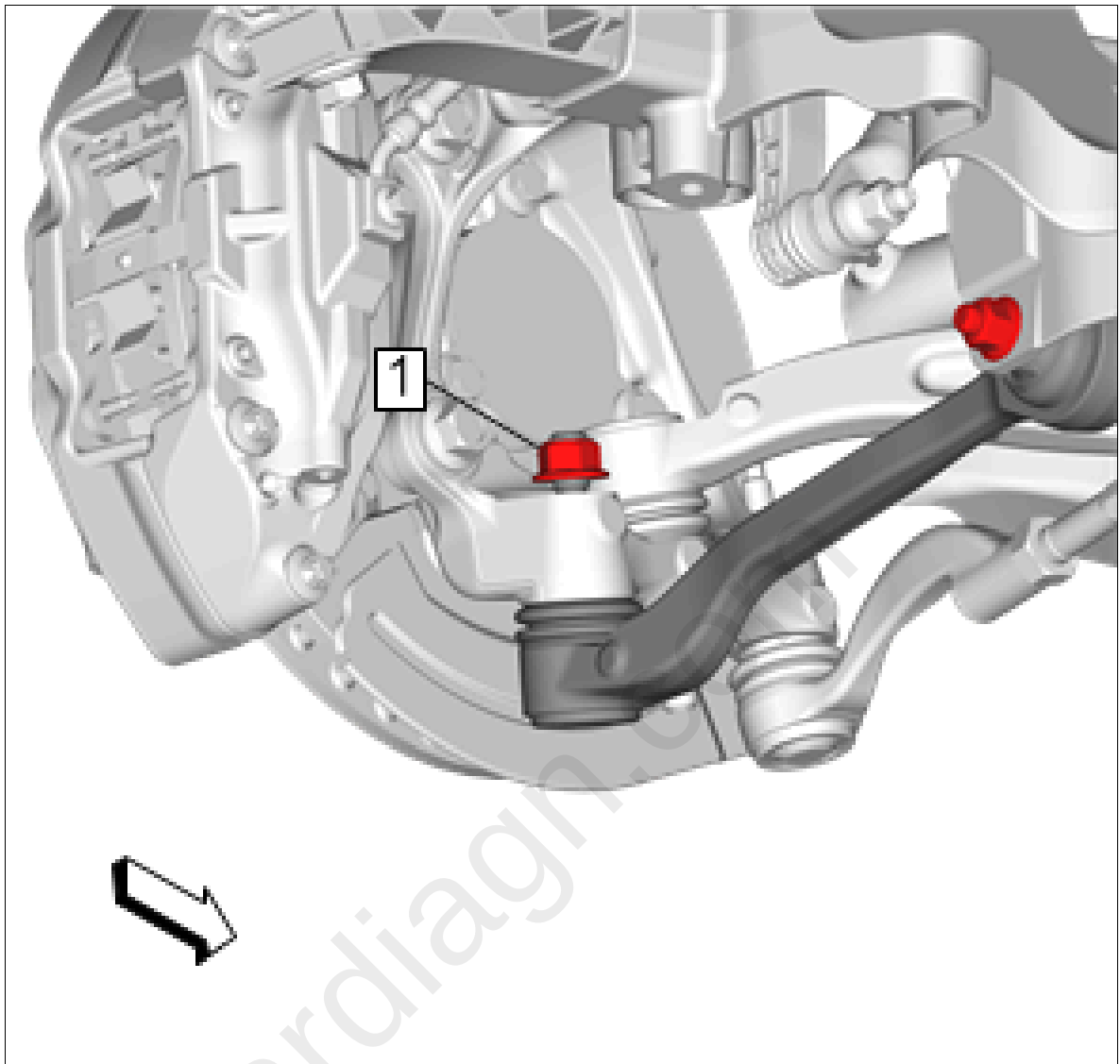
Fig 2: Front Compartment Lower Noise Shield



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Compartment Lower Noise Shield (1) - Front Compartment Lower Noise Shield Replacement (Coupe - LGX, LTG)

Fig 3: Steering Knuckle Nut

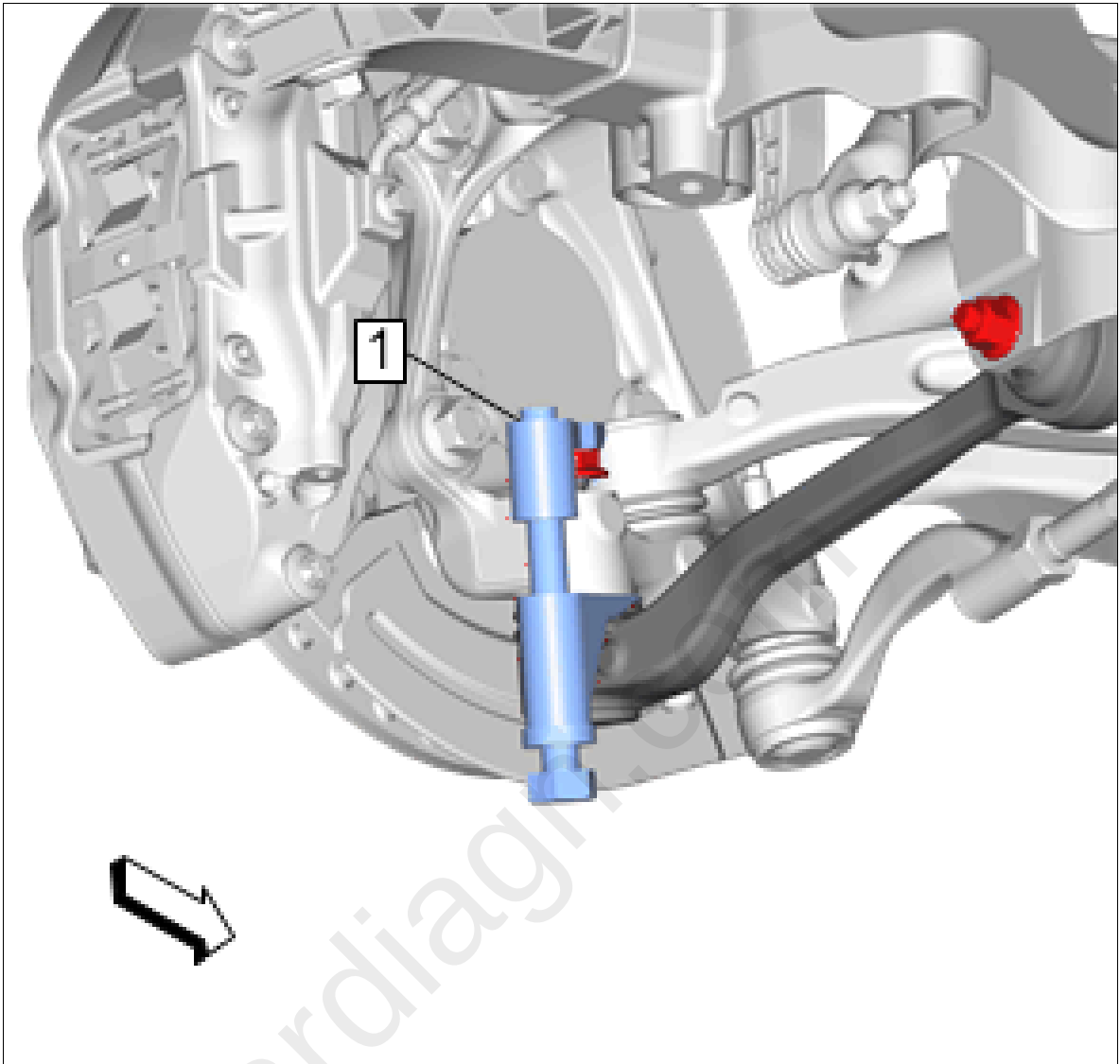


Courtesy of GENERAL MOTORS COMPANY

3. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

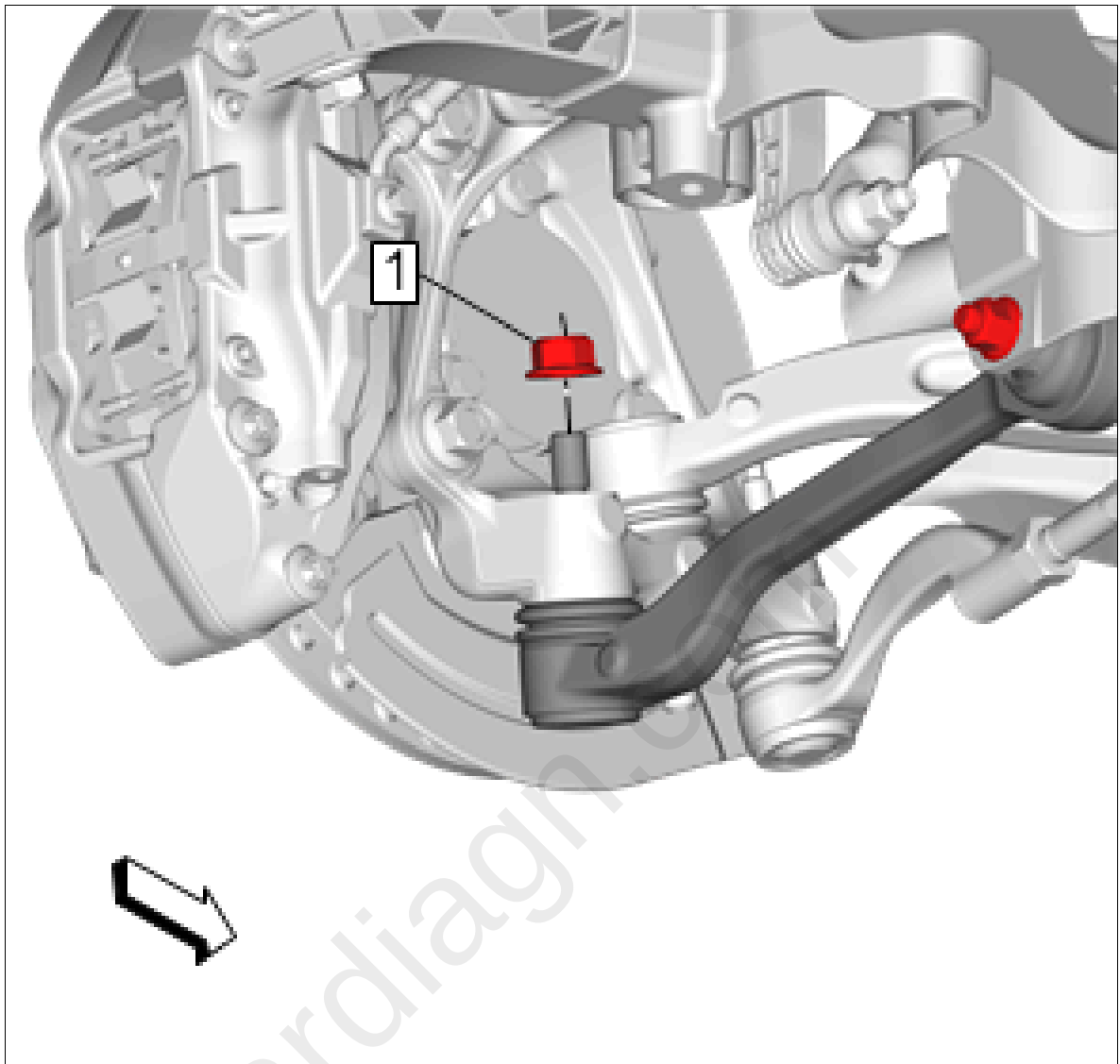
Fig 4: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

4. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

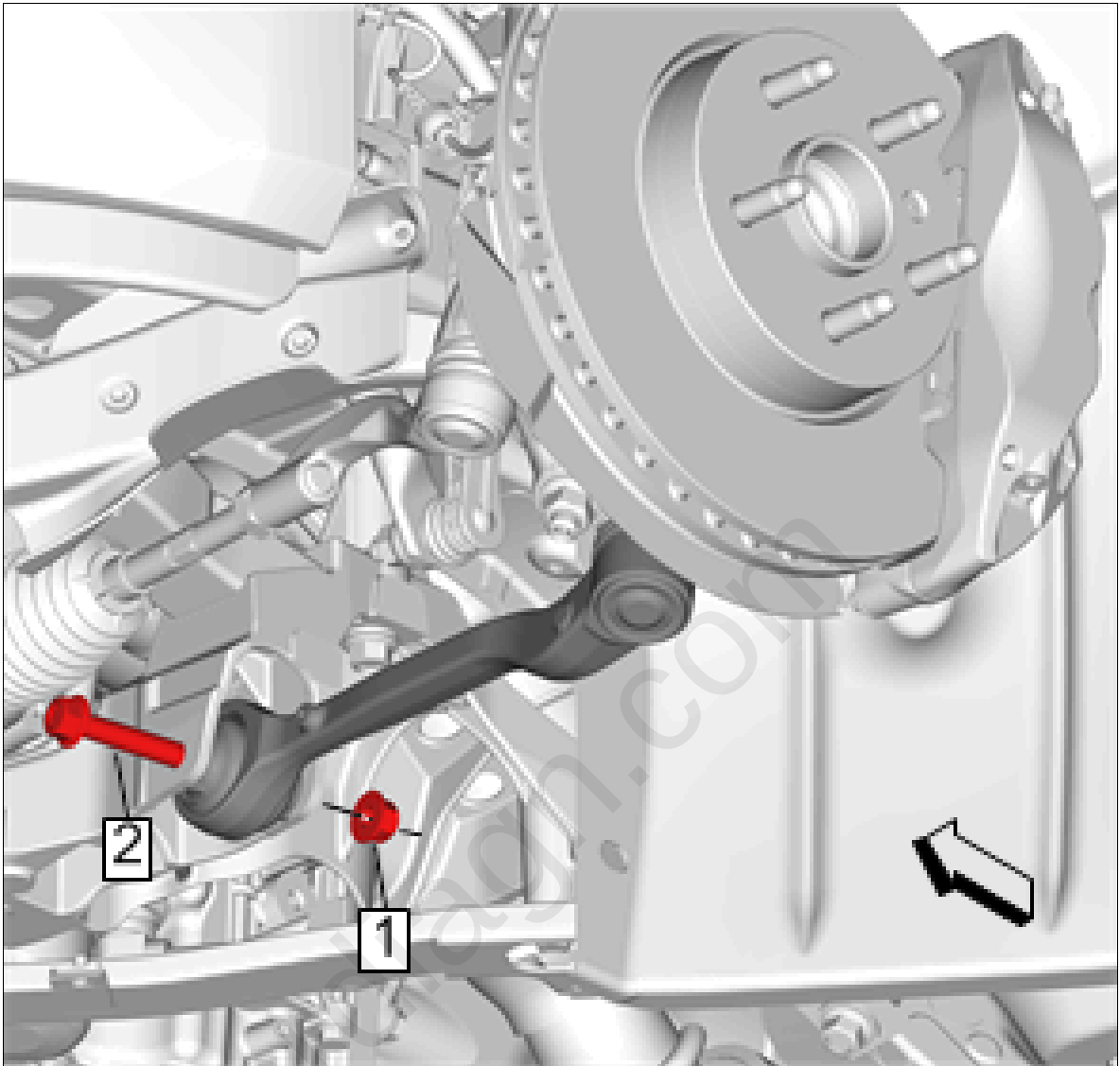
Fig 5: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

5. Remove Steering Knuckle Nut (1)

Fig 6: Front Lower Control Rear Link Nut



Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Lower Control Rear Link Nut (1)

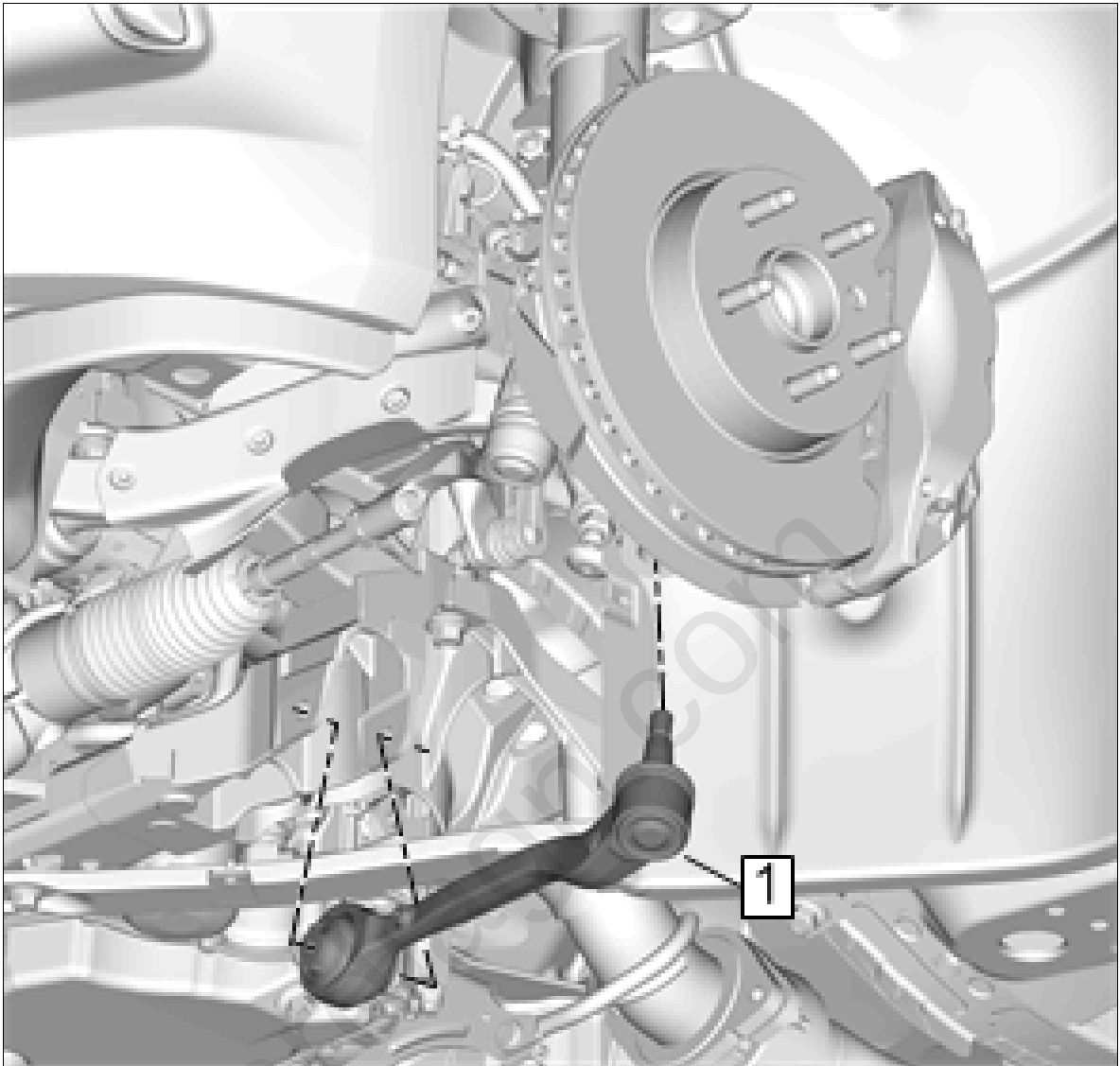
 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

7. Remove Front Lower Control Rear Link Bolt (2)

DISCARD the bolt.

Fig 7: Front Lower Control Rear Link

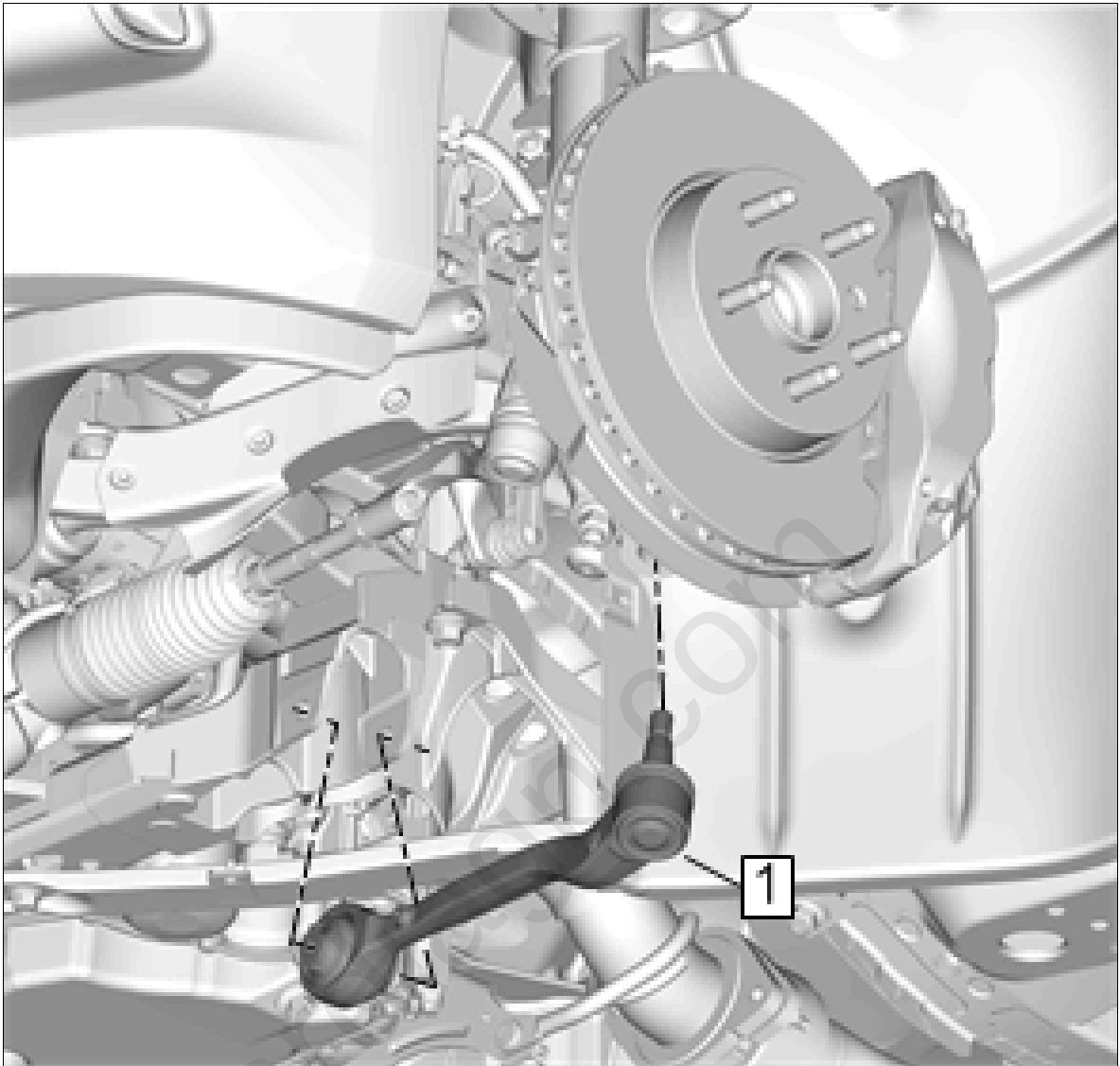


Courtesy of GENERAL MOTORS COMPANY

8. Remove the front lower control rear link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT
(LGX, LTG) > INSTALLATION PROCEDURE**

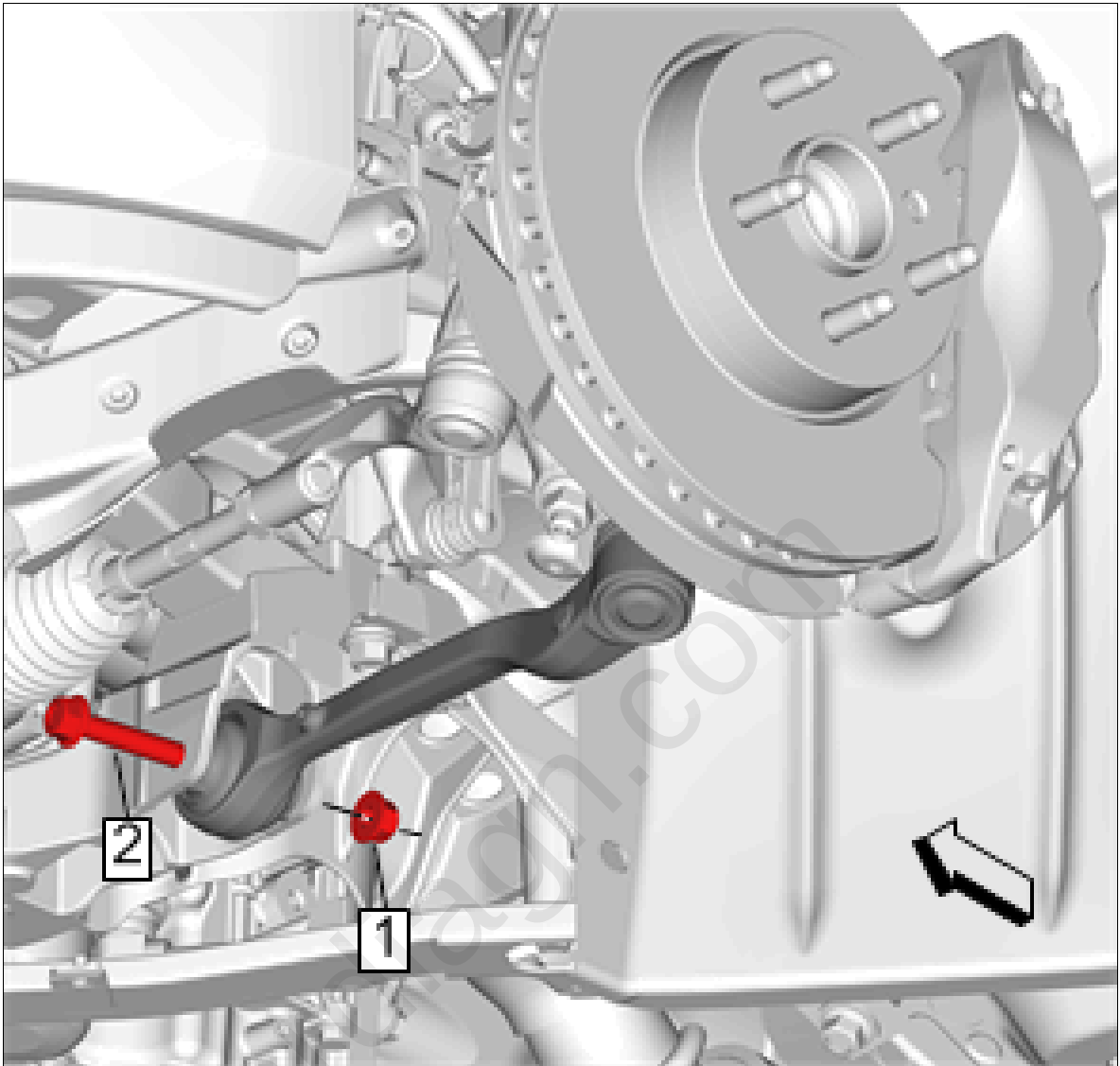
Fig 1: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control rear link (1) on the vehicle.

Fig 2: Front Lower Control Rear Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install Front Lower Control Rear Link Bolt (2)

Install a NEW bolt.

3. Install Front Lower Control Rear Link Nut (1)

 CAUTION:

Refer to Fastener Caution .

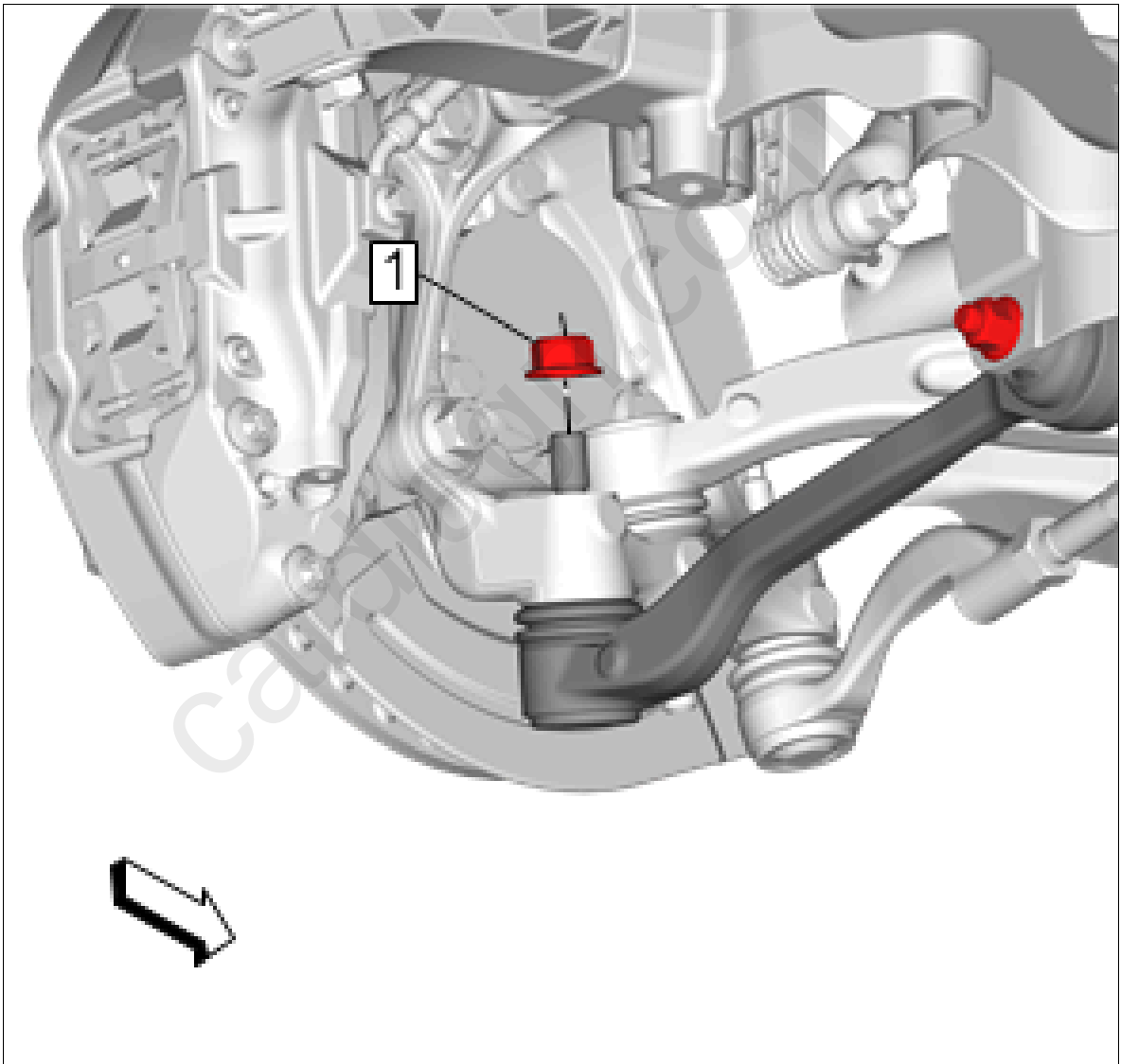
4. Tighten Front Lower Control Rear Link Bolt (2)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

5. Inspect steering gear boot for damage. If any damage is noted, replace the steering gear boot. Steering Gear Boot Replacement

Fig 3: Steering Knuckle Nut



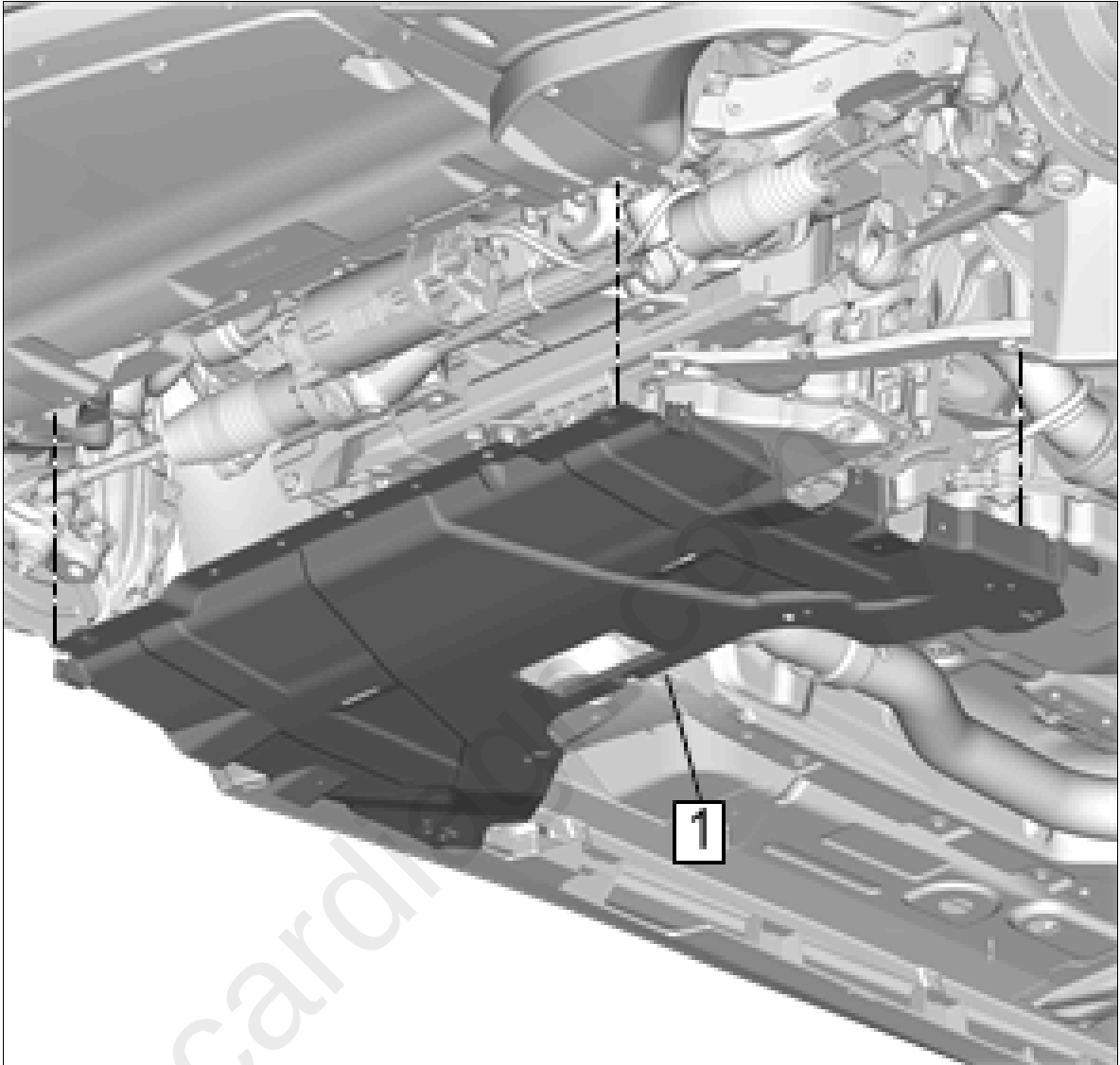
Courtesy of GENERAL MOTORS COMPANY

6. Install Steering Knuckle Nut (1) and tighten

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

Fig 4: Front Compartment Lower Noise Shield



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Compartment Lower Noise Shield (1) - Front Compartment Lower Noise Shield Replacement (Coupe - LGX, LTG)

Fig 5: Front Wheelhouse Splash Shield



Courtesy of GENERAL MOTORS COMPANY

8. Install Front Wheelhouse Splash Shield (1) - Front Wheelhouse Splash Shield Replacement
9. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT (LT1)

Special Tools

CH-42188-B Ball Joint Separator

Equivalent regional tools: Special Tools

REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT (LT1) > REMOVAL PROCEDURE

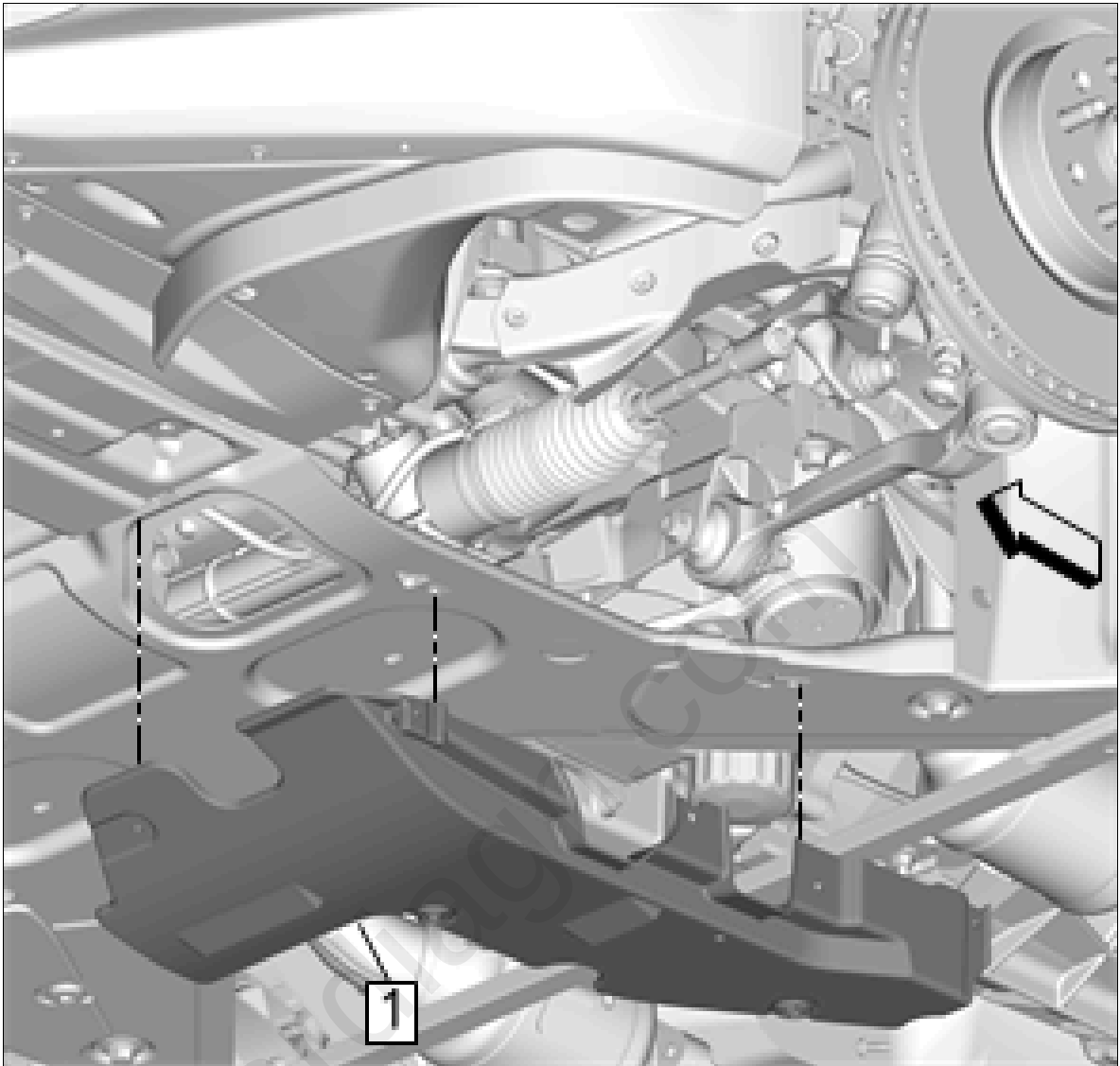
Fig 1: Front Wheelhouse Splash Shield



Courtesy of GENERAL MOTORS COMPANY

1. Remove Front Wheelhouse Splash Shield (1) - Front Wheelhouse Splash Shield Replacement

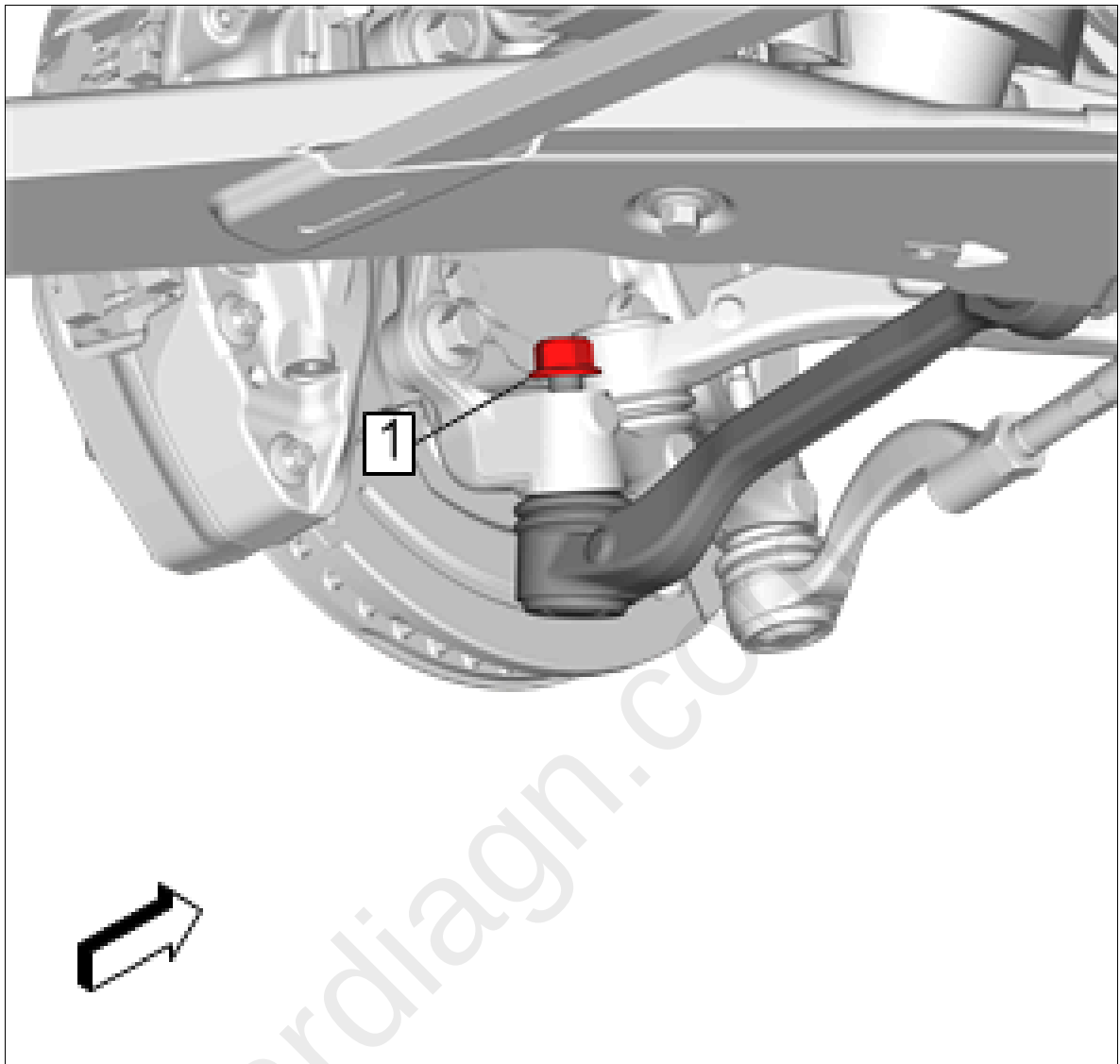
Fig 2: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

2. Remove Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

Fig 3: Steering Knuckle Nut

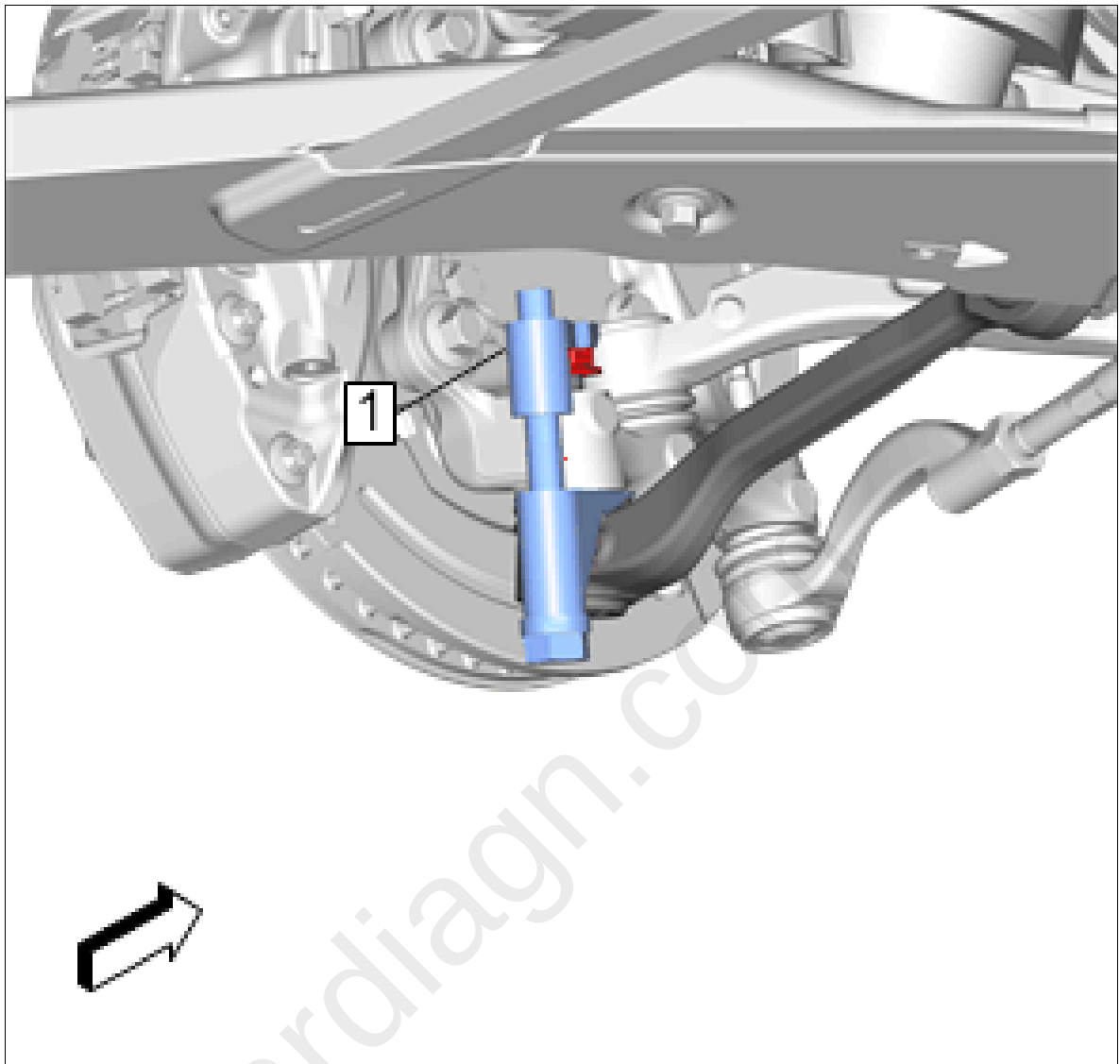


Courtesy of GENERAL MOTORS COMPANY

3. Loosen Steering Knuckle Nut (1)

Do NOT remove the nut.

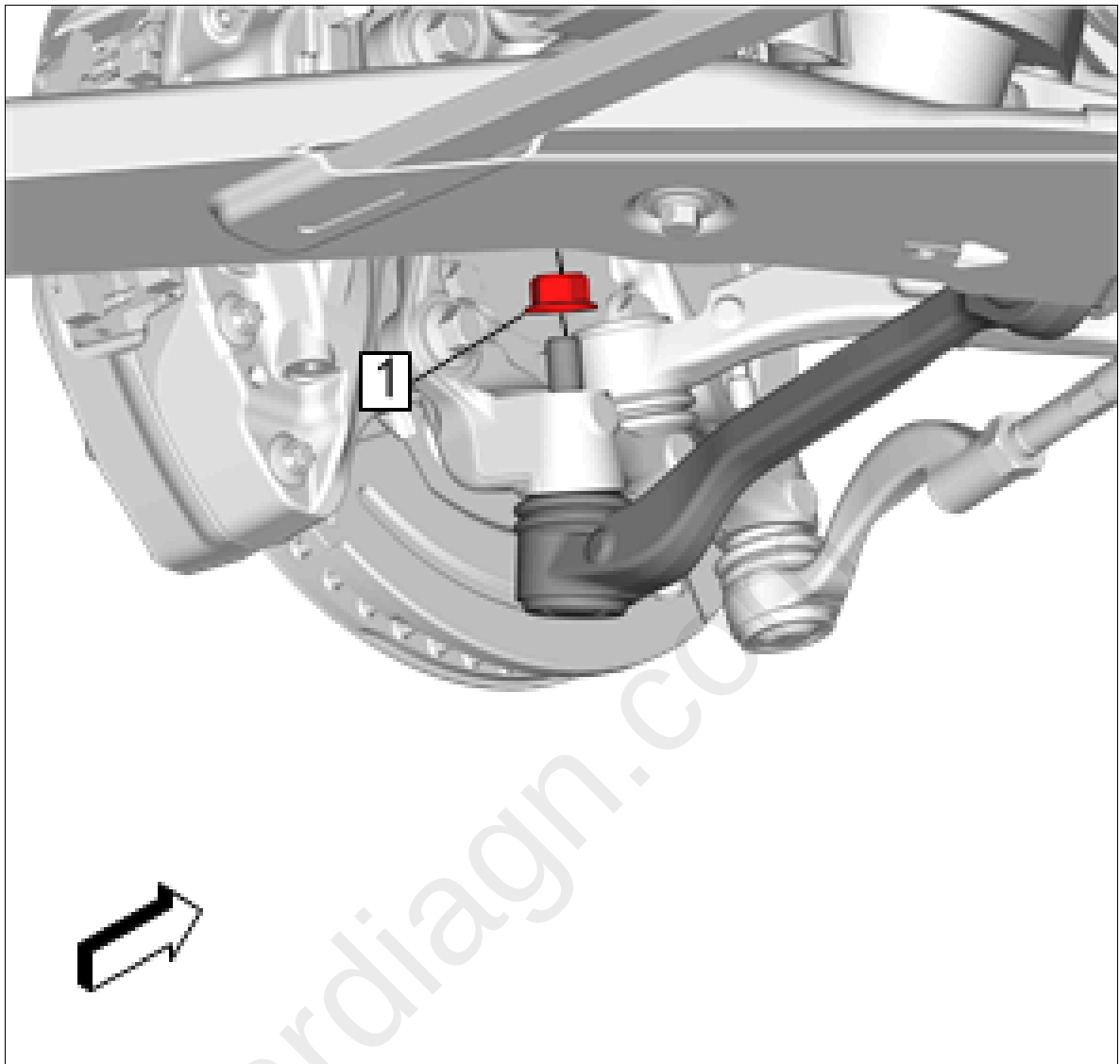
Fig 4: Separating Front Lower Control Front Link From Steering Knuckle



Courtesy of GENERAL MOTORS COMPANY

4. Use the **CH-42188-B** separator (1) to separate the front lower control front link from the steering knuckle.

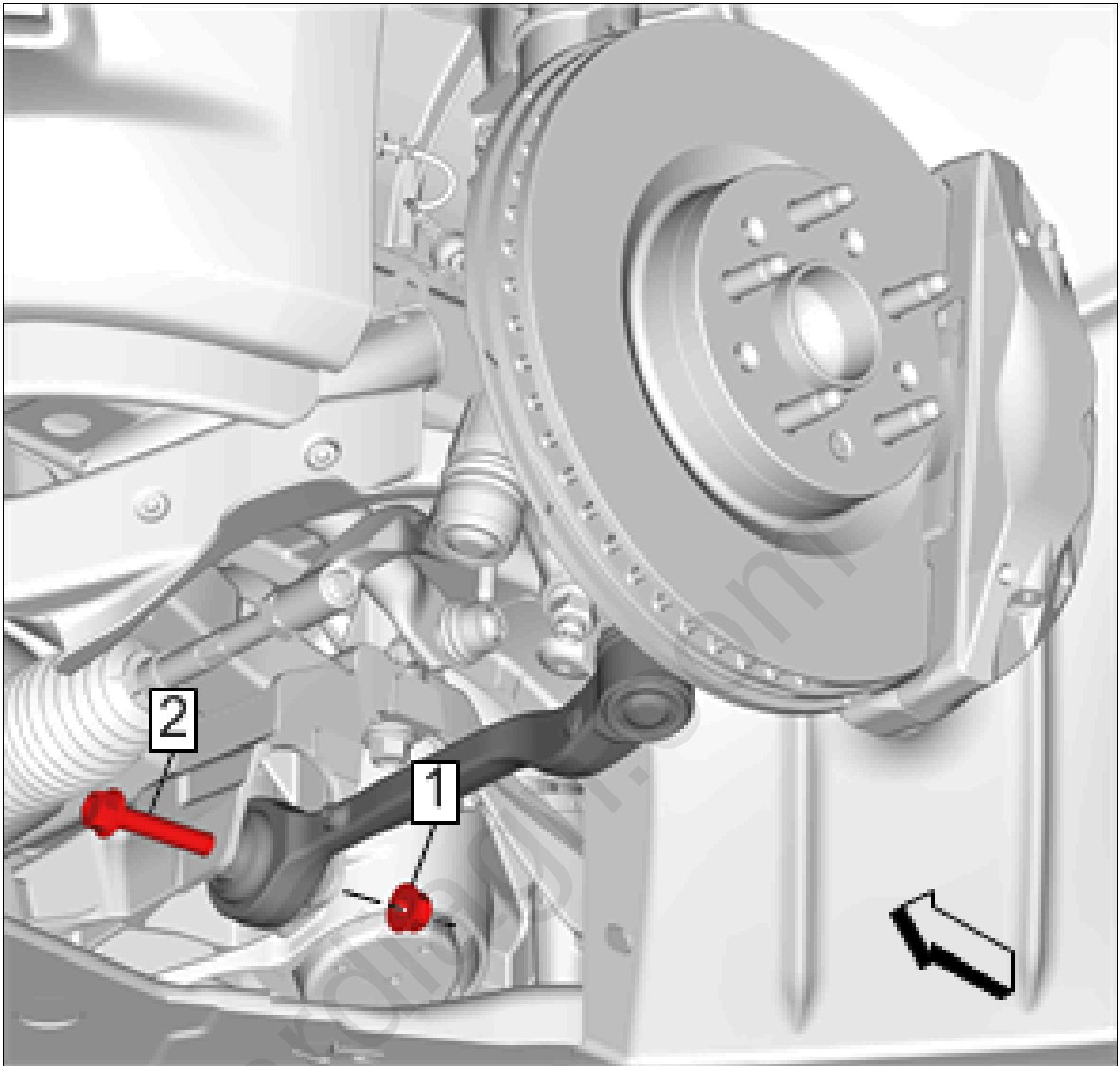
Fig 5: Steering Knuckle Nut



Courtesy of GENERAL MOTORS COMPANY

5. Remove Steering Knuckle Nut (1)

Fig 6: Front Lower Control Rear Link Nut



Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Lower Control Rear Link Nut (1)

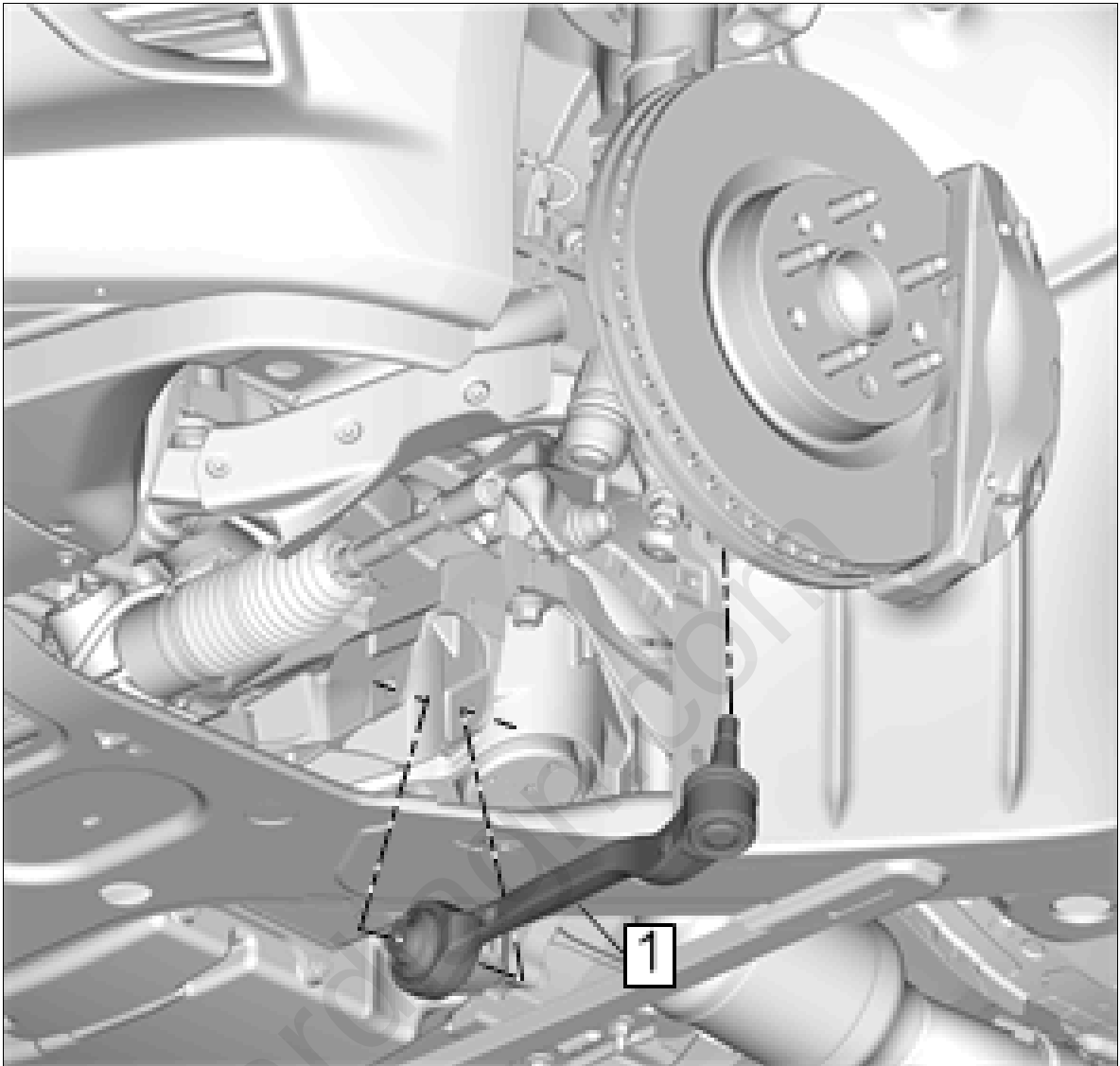
 CAUTION:

Use caution when removing components surrounding the Steering Gear Boots. Avoid tool contact with the steering gear boot and clamps. Damage to the steering gear boot may lead to dirt and water contamination in the steering gear rack and components requiring a preventable replacement of the Steering Gear and its Components.

7. Remove Front Lower Control Rear Link Bolt (2)

DISCARD the bolt.

Fig 7: Front Lower Control Rear Link

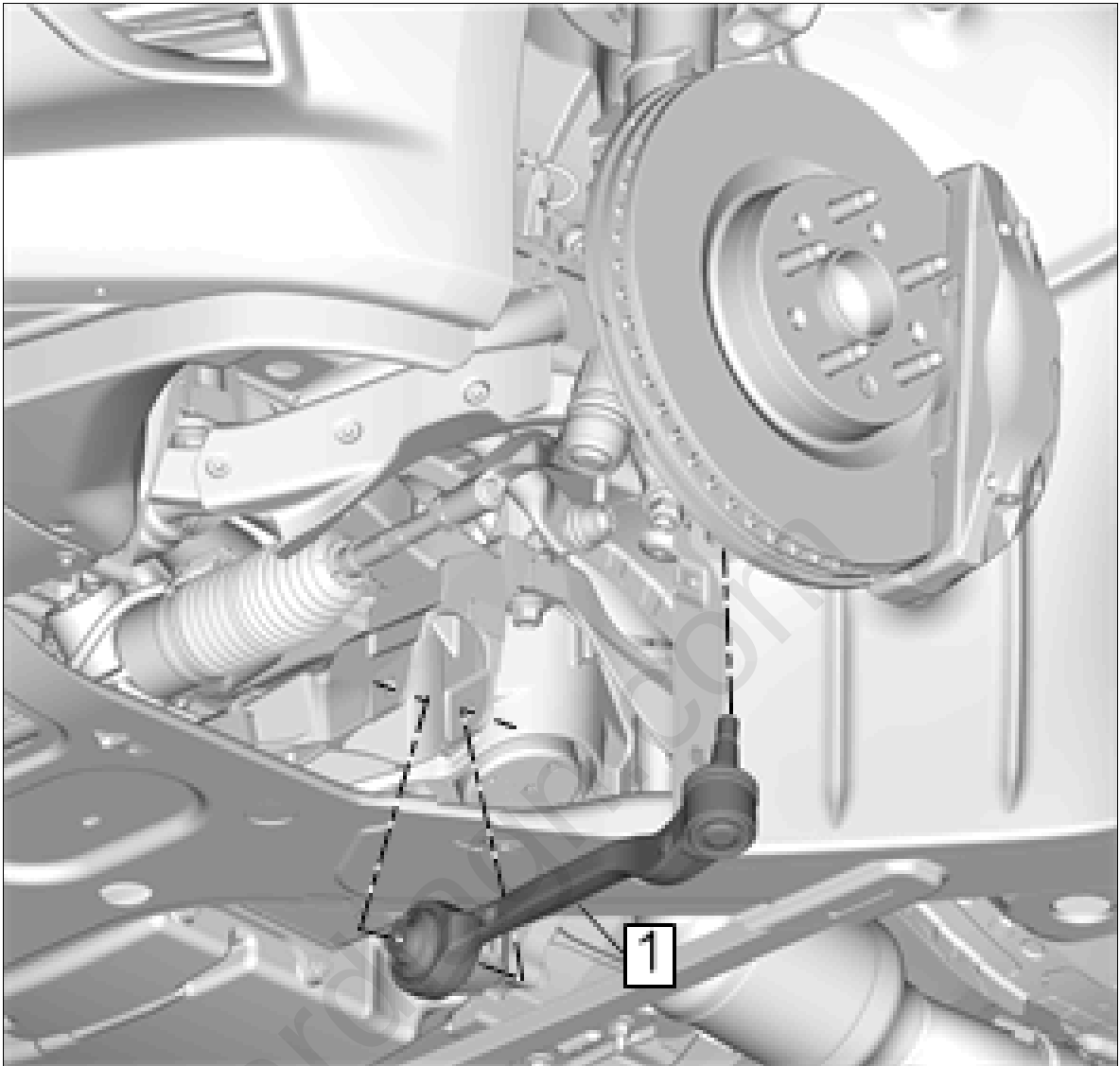


Courtesy of GENERAL MOTORS COMPANY

8. Remove the front lower control rear link (1) from the vehicle.

**REPAIR INSTRUCTIONS > FRONT LOWER CONTROL REAR LINK REPLACEMENT
(LT1) > INSTALLATION PROCEDURE**

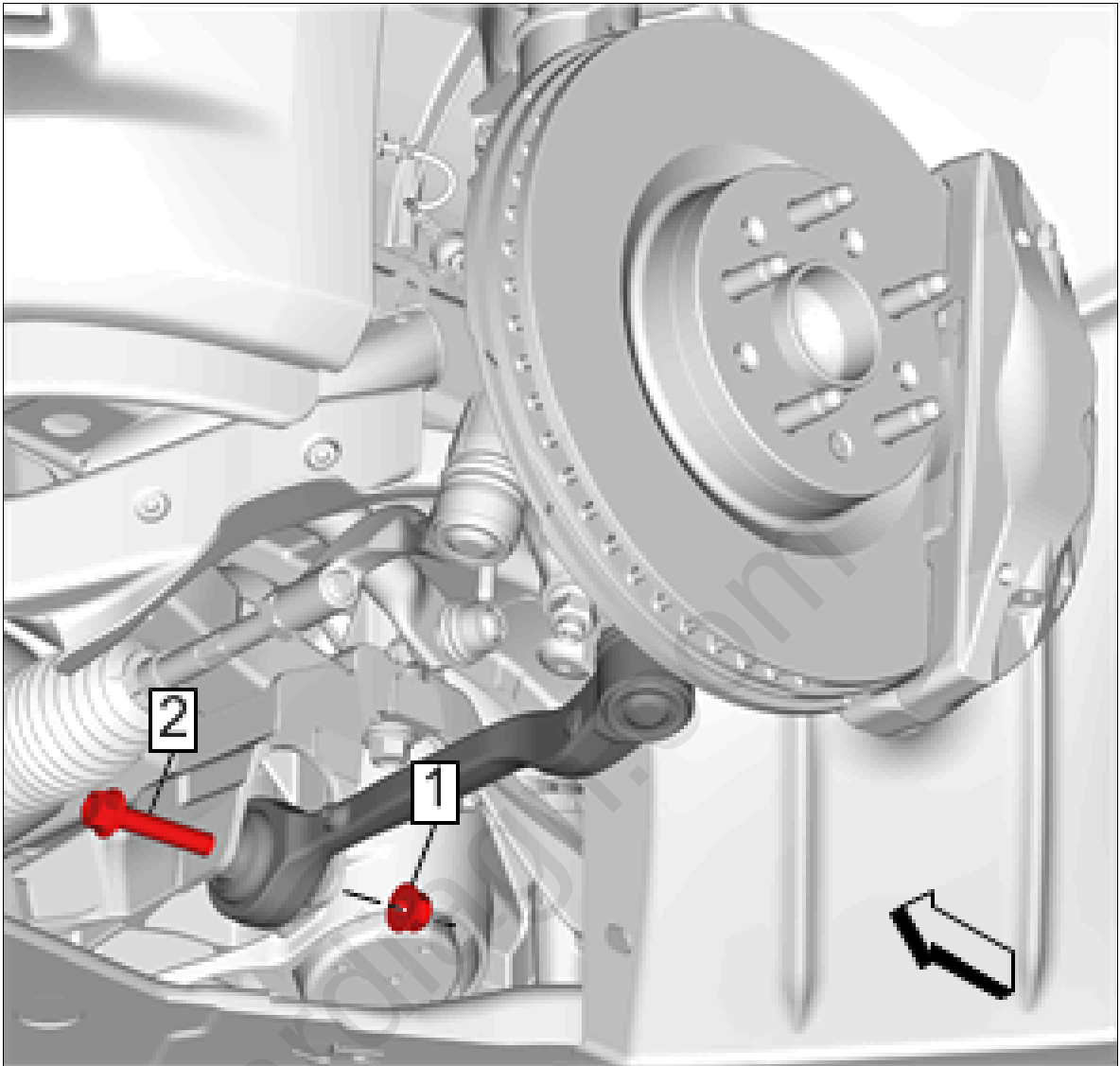
Fig 1: Front Lower Control Rear Link



Courtesy of GENERAL MOTORS COMPANY

1. Position the front lower control rear link (1) on the vehicle.

Fig 2: Front Lower Control Rear Link Bolt



Courtesy of GENERAL MOTORS COMPANY

 CAUTION:

This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.

2. Install Front Lower Control Rear Link Bolt (2)

Install a NEW bolt.

3. Install Front Lower Control Rear Link Nut (1)

 CAUTION:

Refer to Fastener Caution .

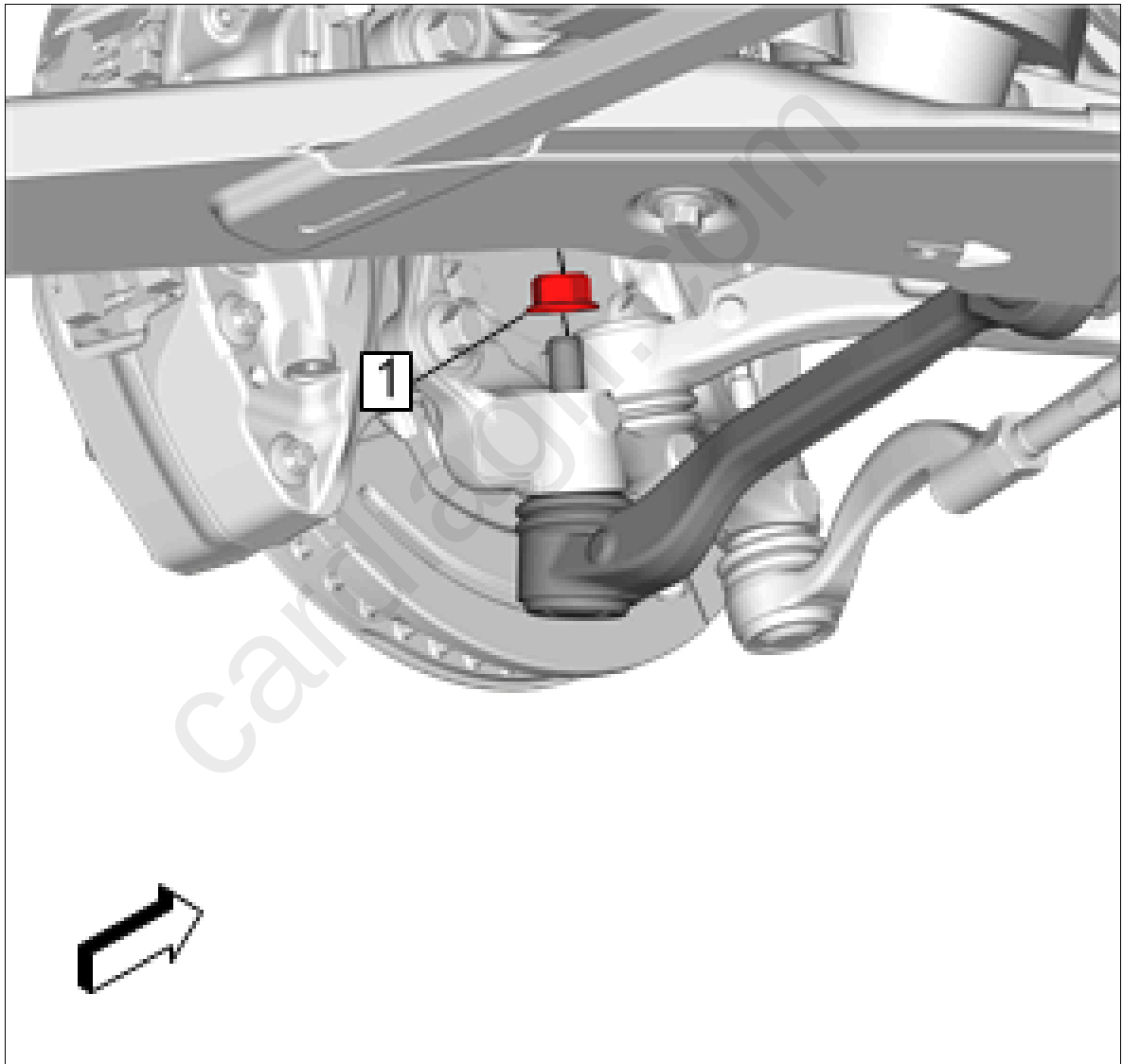
4. Tighten Front Lower Control Rear Link Bolt (2)

Tighten

1. First Pass: 100 N.m (74 lb ft)
2. Final Pass: (90-105 degrees)

5. Inspect steering gear boot for damage. If any damage is noted, replace the steering gear boot. Steering Gear Boot Replacement

Fig 3: Steering Knuckle Nut



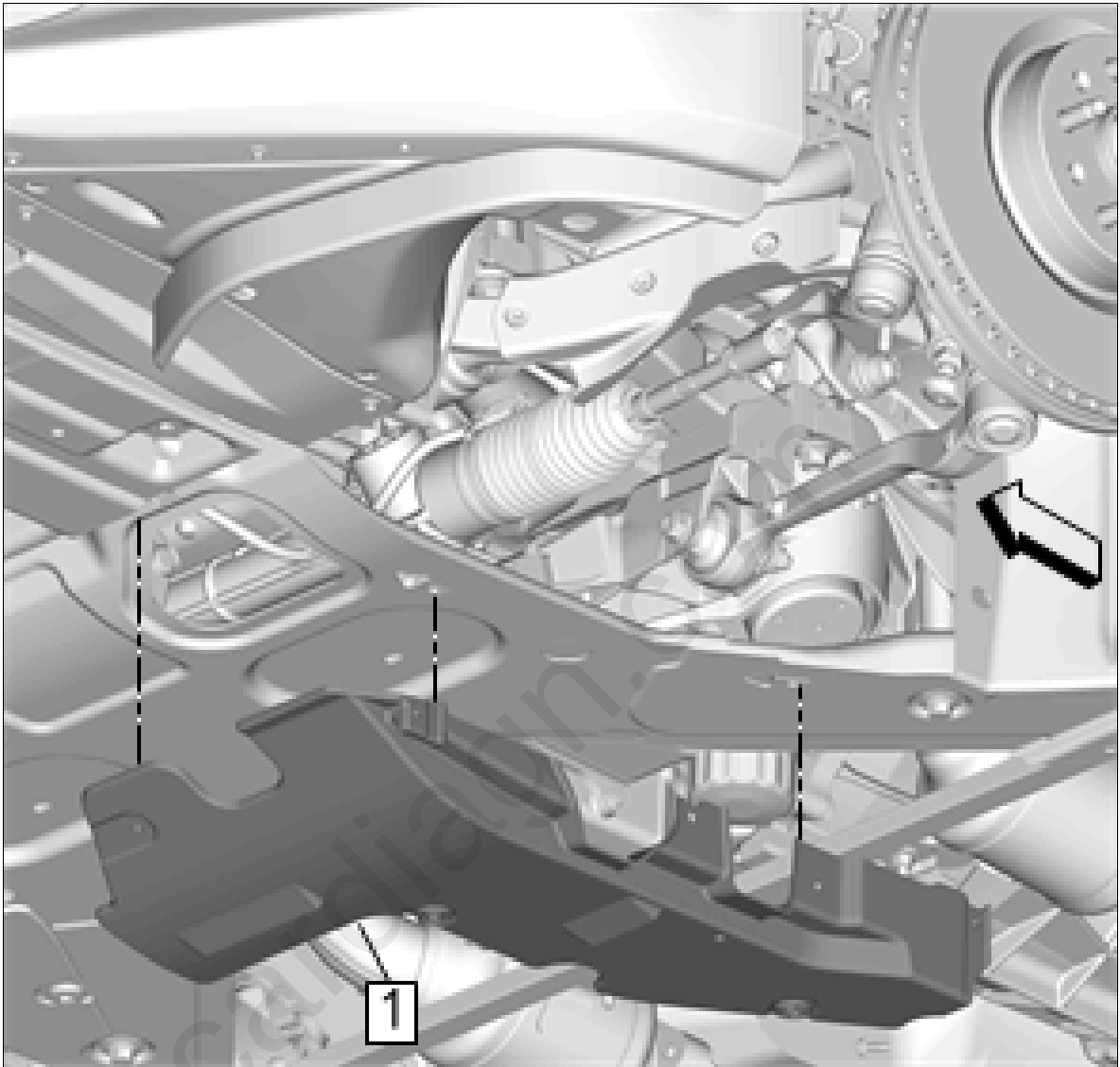
Courtesy of GENERAL MOTORS COMPANY

6. Install Steering Knuckle Nut (1) and tighten

Tighten

1. First Pass: 40 N.m (30 lb ft)
2. Final Pass: (120-135 degrees)

Fig 4: Front Compartment Side Noise Shield



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Compartment Side Noise Shield (1) - Front Compartment Side Noise Shield Replacement

Fig 5: Front Wheelhouse Splash Shield



Courtesy of GENERAL MOTORS COMPANY

8. Install Front Wheelhouse Splash Shield (1) - Front Wheelhouse Splash Shield Replacement

9. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > WHEEL STUD REPLACEMENT

Special Tools

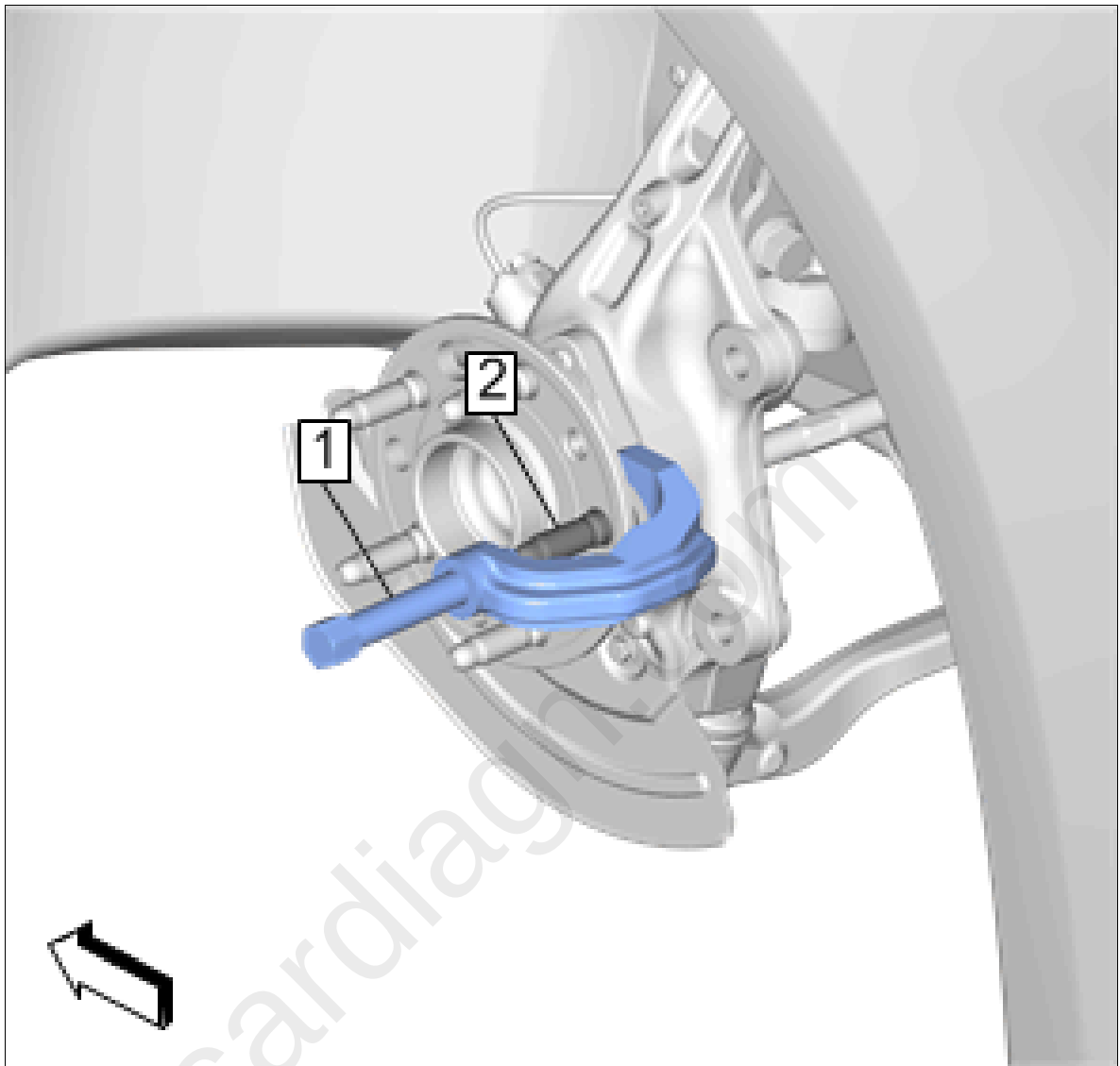
CH-43631 Ball Joint Separator

Equivalent regional tools: Special Tools

REPAIR INSTRUCTIONS > WHEEL STUD REPLACEMENT > REMOVAL PROCEDURE

1. Remove Front Brake Rotor - Front Brake Rotor Replacement (JL9)Front Brake Rotor Replacement (J55)Front Brake Rotor Replacement (J6G)

Fig 1: Removing Wheel Stud From Flange On Hub Assembly



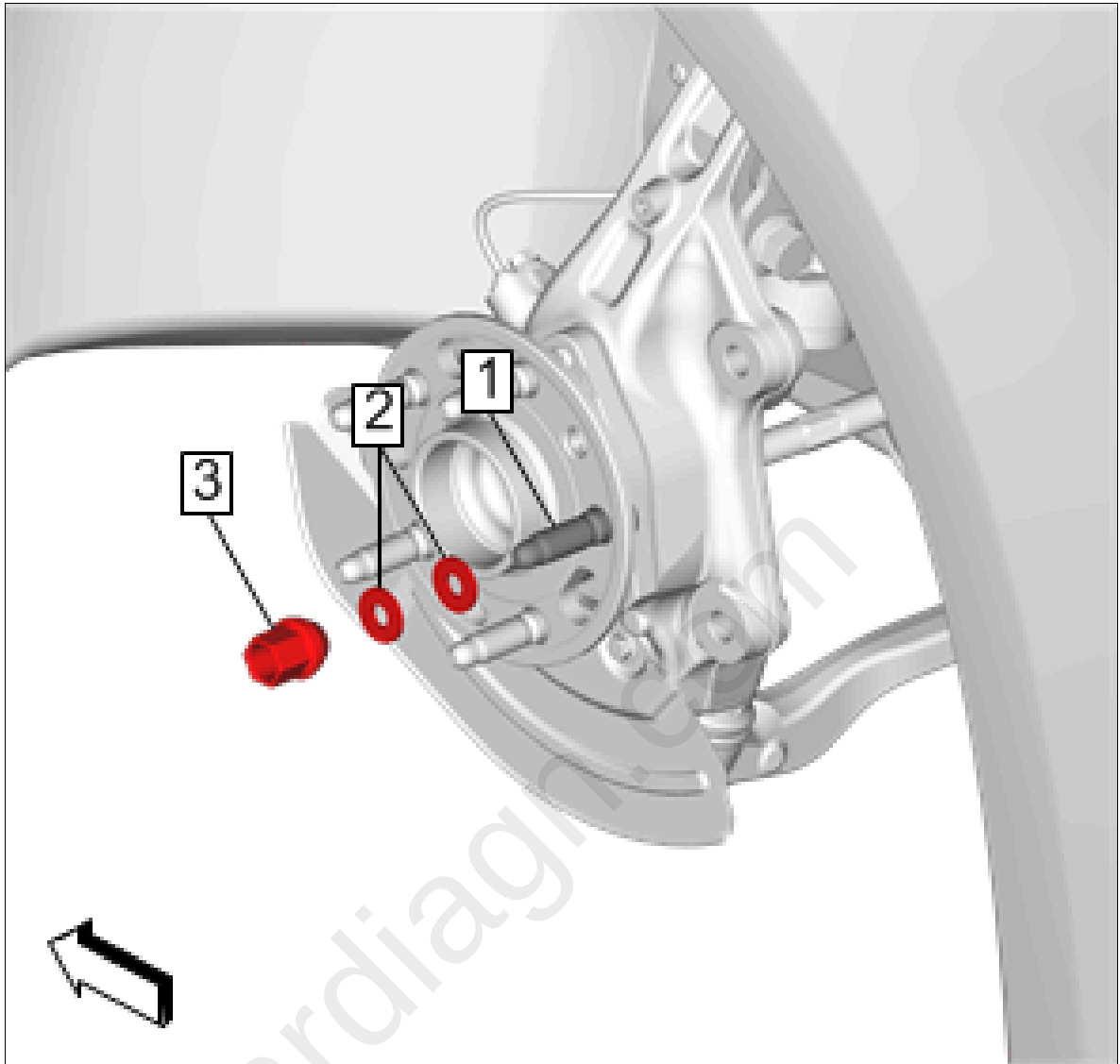
Courtesy of GENERAL MOTORS COMPANY

2. Use the **CH-43631** separator (1) to remove the wheel stud (2) from the flange on the hub assembly.

DISCARD the stud.

**REPAIR INSTRUCTIONS > WHEEL STUD REPLACEMENT > INSTALLATION
PROCEDURE**

Fig 1: NEW Wheel Stud



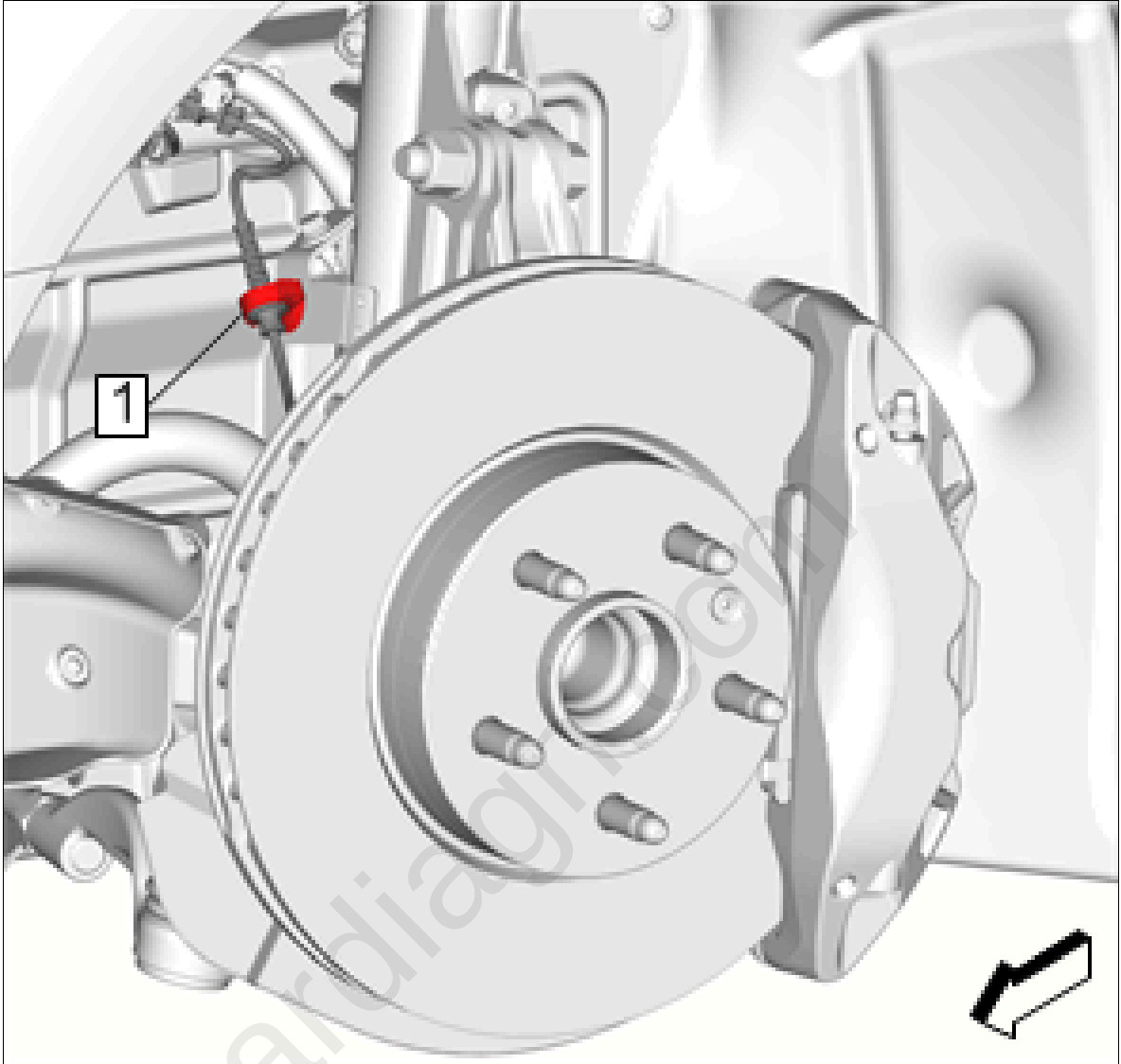
Courtesy of GENERAL MOTORS COMPANY

1. Position the NEW wheel stud (1) in the flange of the hub assembly.
2. Install flat washers (2) and an OLD wheel nut (3) on the wheel stud.
3. Use a suitable tool to prevent the flange on the hub assembly from rotating.
4. Tighten the wheel nut until the wheel stud is firmly seated.
5. Remove the wheel nut and flat washers.
6. Install Front Brake Rotor - Front Brake Rotor Replacement (JL9)Front Brake Rotor Replacement (J55)Front Brake Rotor Replacement (J6G)

REPAIR INSTRUCTIONS > STRUT ASSEMBLY REMOVAL AND INSTALLATION (LGX OR LTG, WITHOUT F55) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation

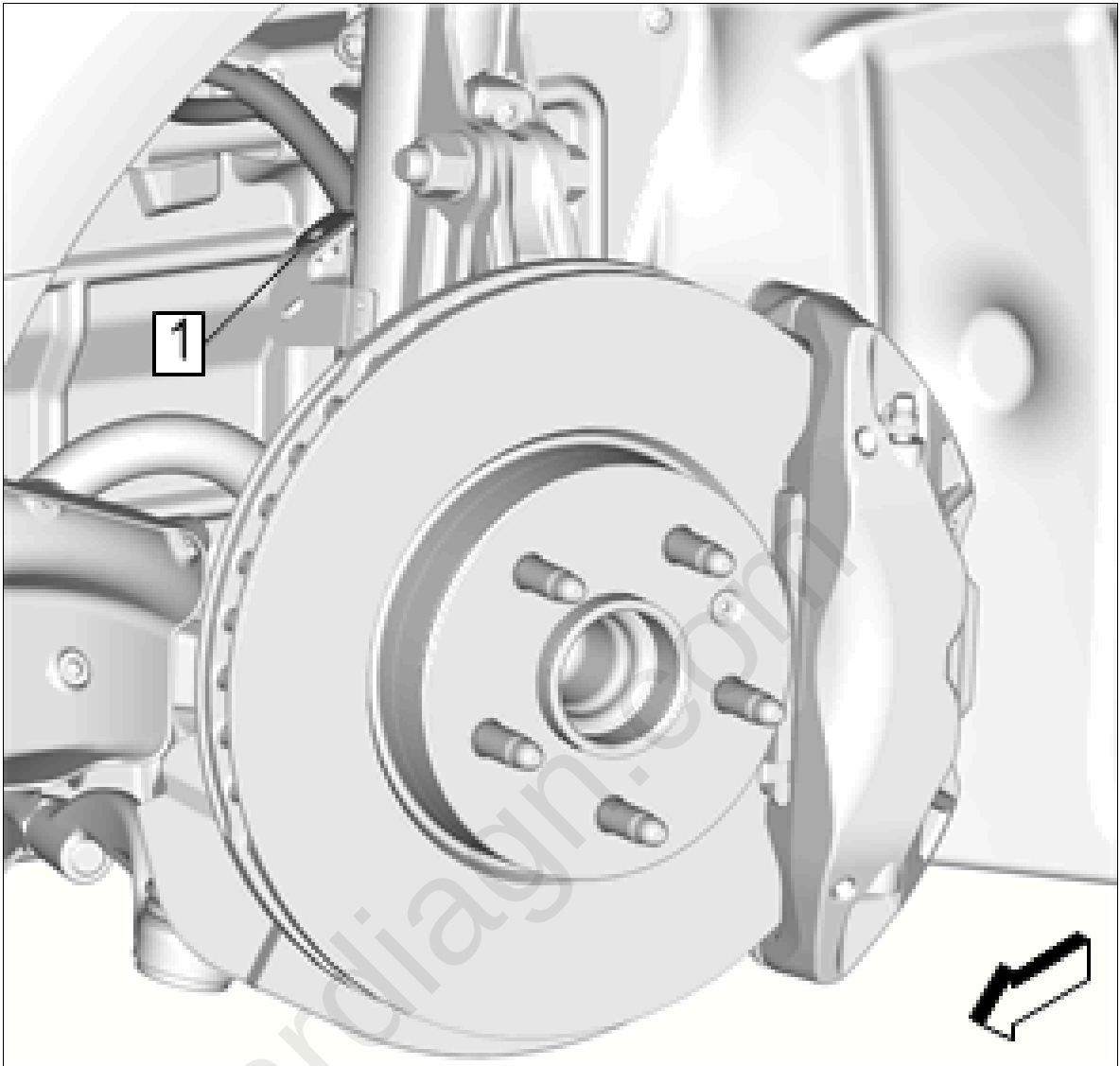
Fig 1: Front Wheel Speed Sensor Wiring Harness



Courtesy of GENERAL MOTORS COMPANY

2. Separate Front Wheel Speed Sensor Wiring Harness (1) at Strut Assembly - Front Wheel Speed Sensor Replacement

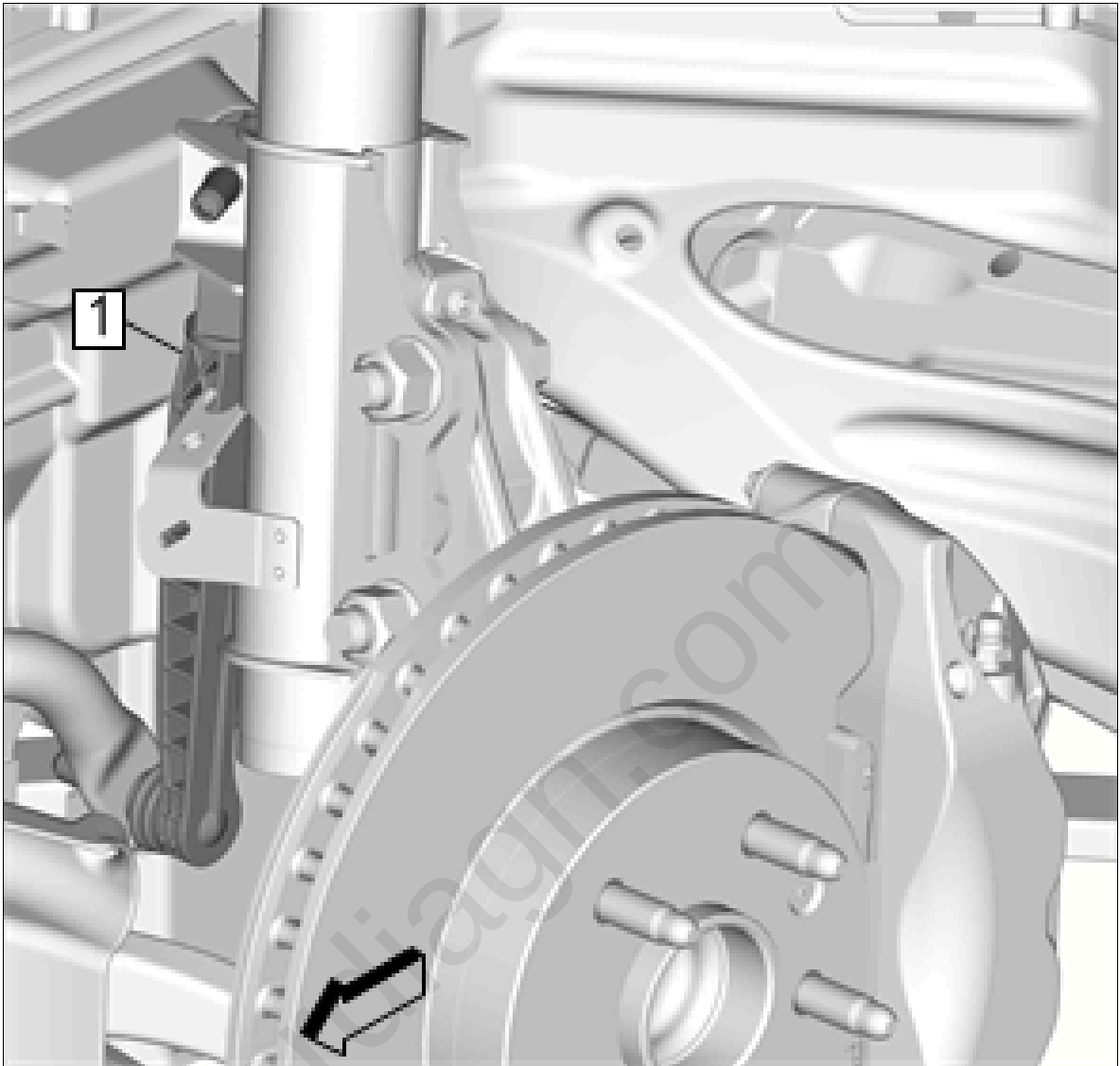
Fig 2: Front Brake Hose



Courtesy of GENERAL MOTORS COMPANY

3. Separate Front Brake Hose (1) at Strut Assembly - Front Brake Hose Replacement (J55, J6G)Front Brake Hose Replacement (JL9)

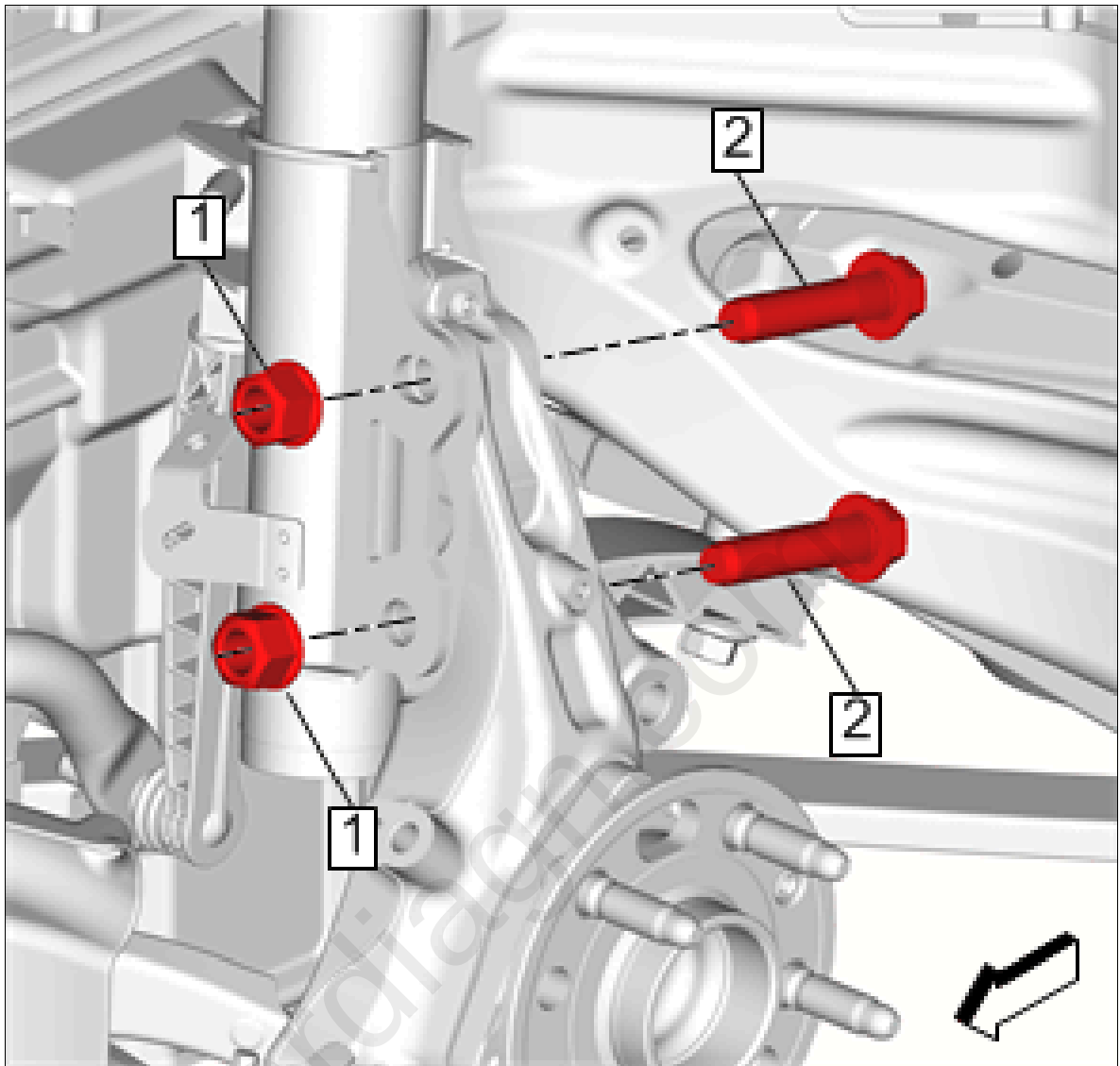
Fig 3: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Stabilizer Shaft Link (1) at Strut Assembly - Stabilizer Shaft Link Replacement (LGX, LTG)

Fig 4: Front Suspension Strut Nut

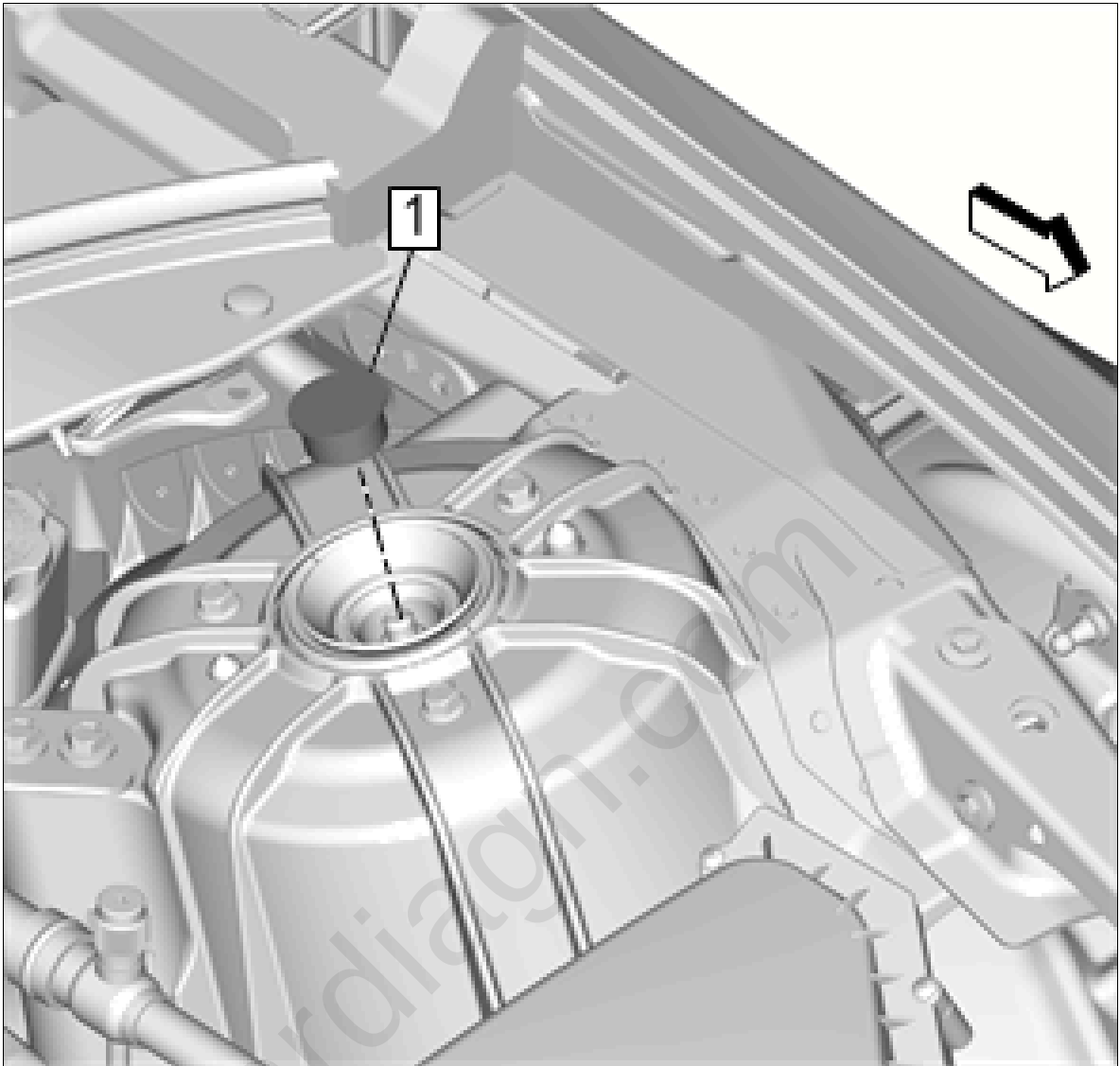


Courtesy of GENERAL MOTORS COMPANY

5. Remove Front Suspension Strut Nut (1) (Qty: 2)

6. Remove Front Suspension Strut Bolt (2) (Qty: 2)

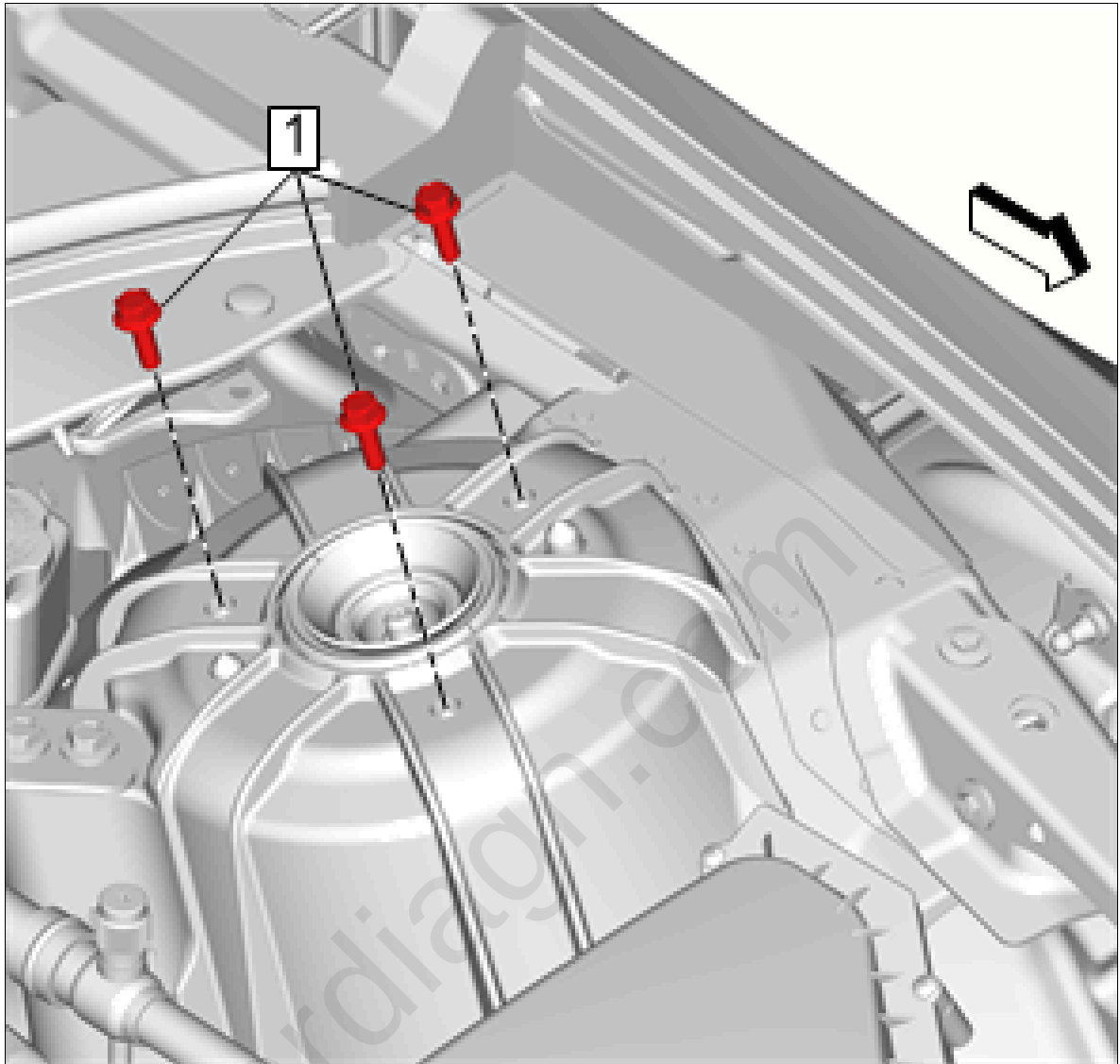
Fig 5: Front Suspension Strut Upper Mounting Cap



Courtesy of GENERAL MOTORS COMPANY

7. Remove Front Suspension Strut Upper Mounting Cap (1)

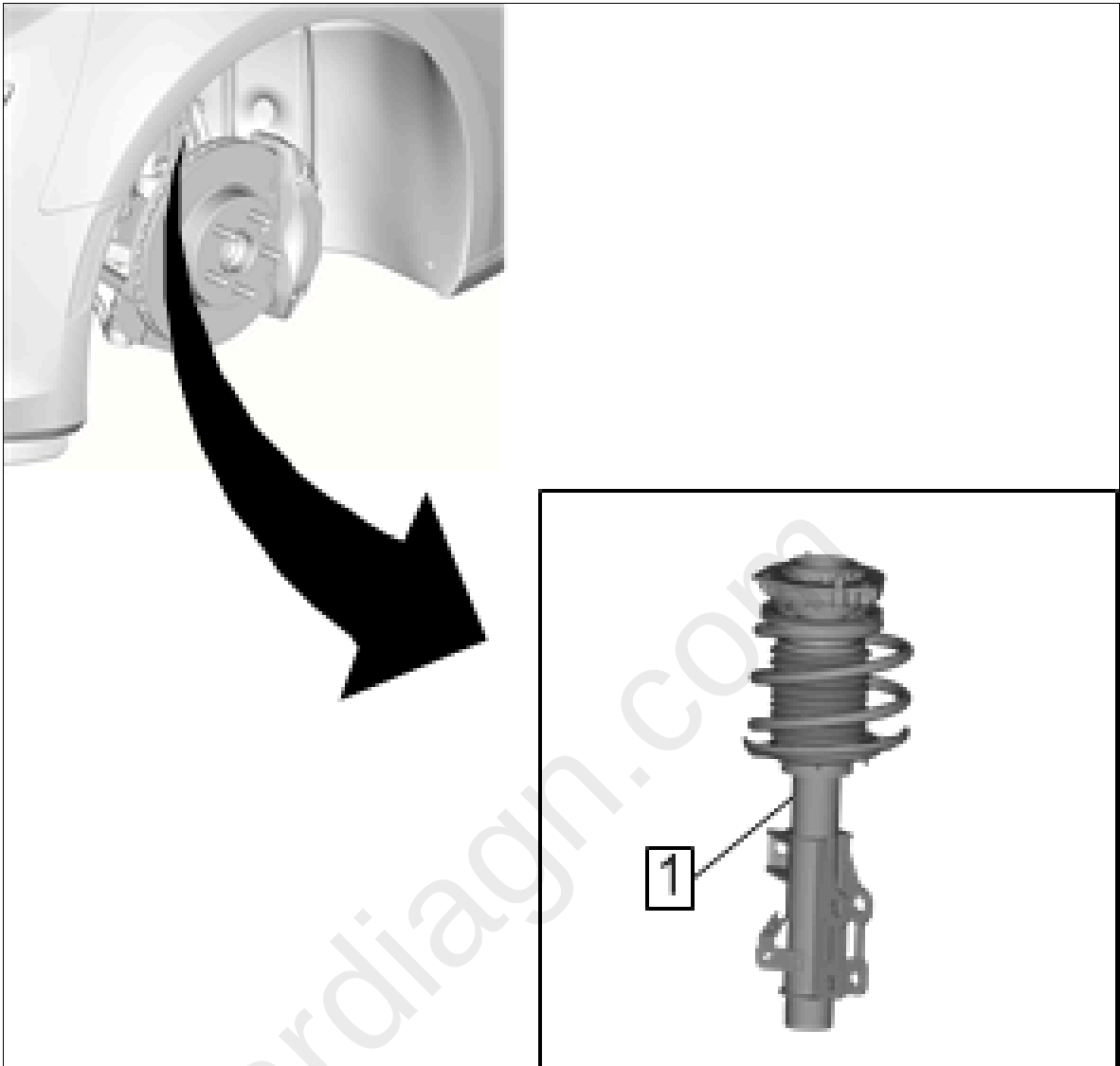
Fig 6: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

8. Remove Front Suspension Strut Upper Mounting Bolt (3) (Qty: 3)

Fig 7: Front Suspension Strut Assembly

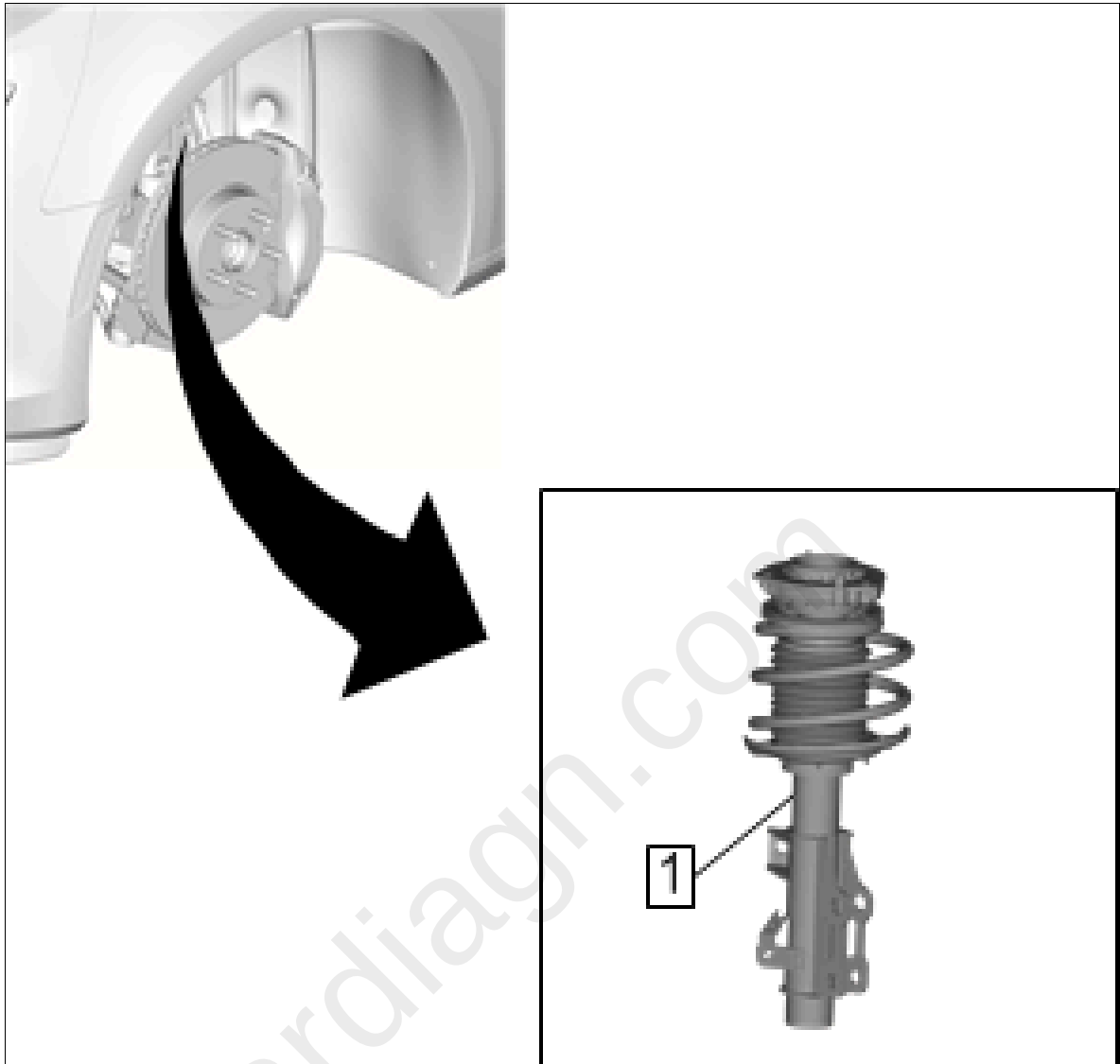


Courtesy of GENERAL MOTORS COMPANY

9. Remove the front suspension strut assembly (1) from the vehicle.
10. Transfer components as necessary.

REPAIR INSTRUCTIONS > STRUT ASSEMBLY REMOVAL AND INSTALLATION (LGX OR LTG, WITHOUT F55) > INSTALLATION PROCEDURE

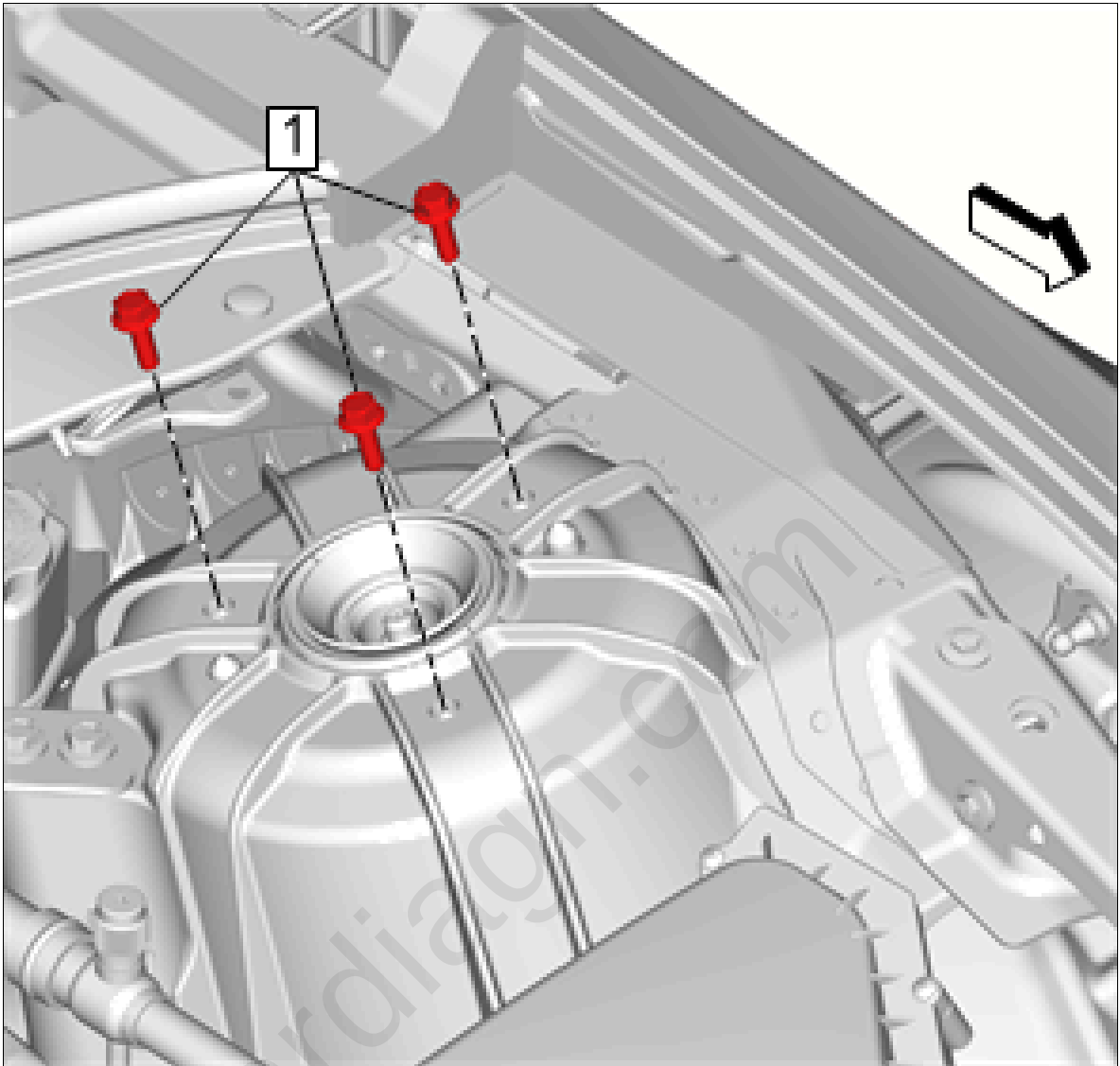
Fig 1: Front Suspension Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

1. Position the front suspension strut assembly (1) on the vehicle.

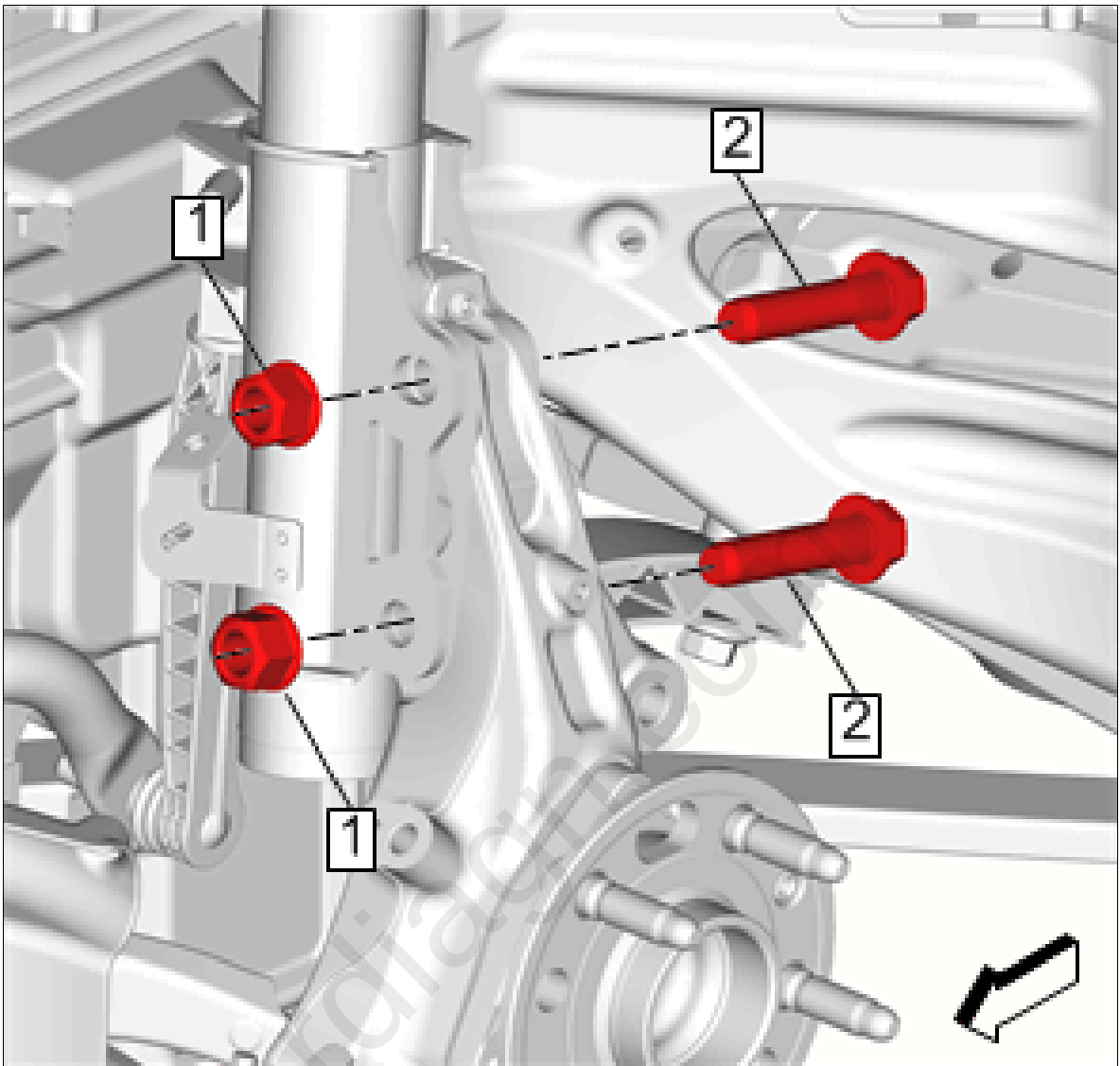
Fig 2: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

2. Install, but do NOT tighten Front Suspension Strut Upper Mounting Bolt (1) (Qty: 3)

Fig 3: Front Suspension Strut Bolt



Courtesy of GENERAL MOTORS COMPANY

3. Install Front Suspension Strut Bolt (2) (Qty: 2)

 **CAUTION:**

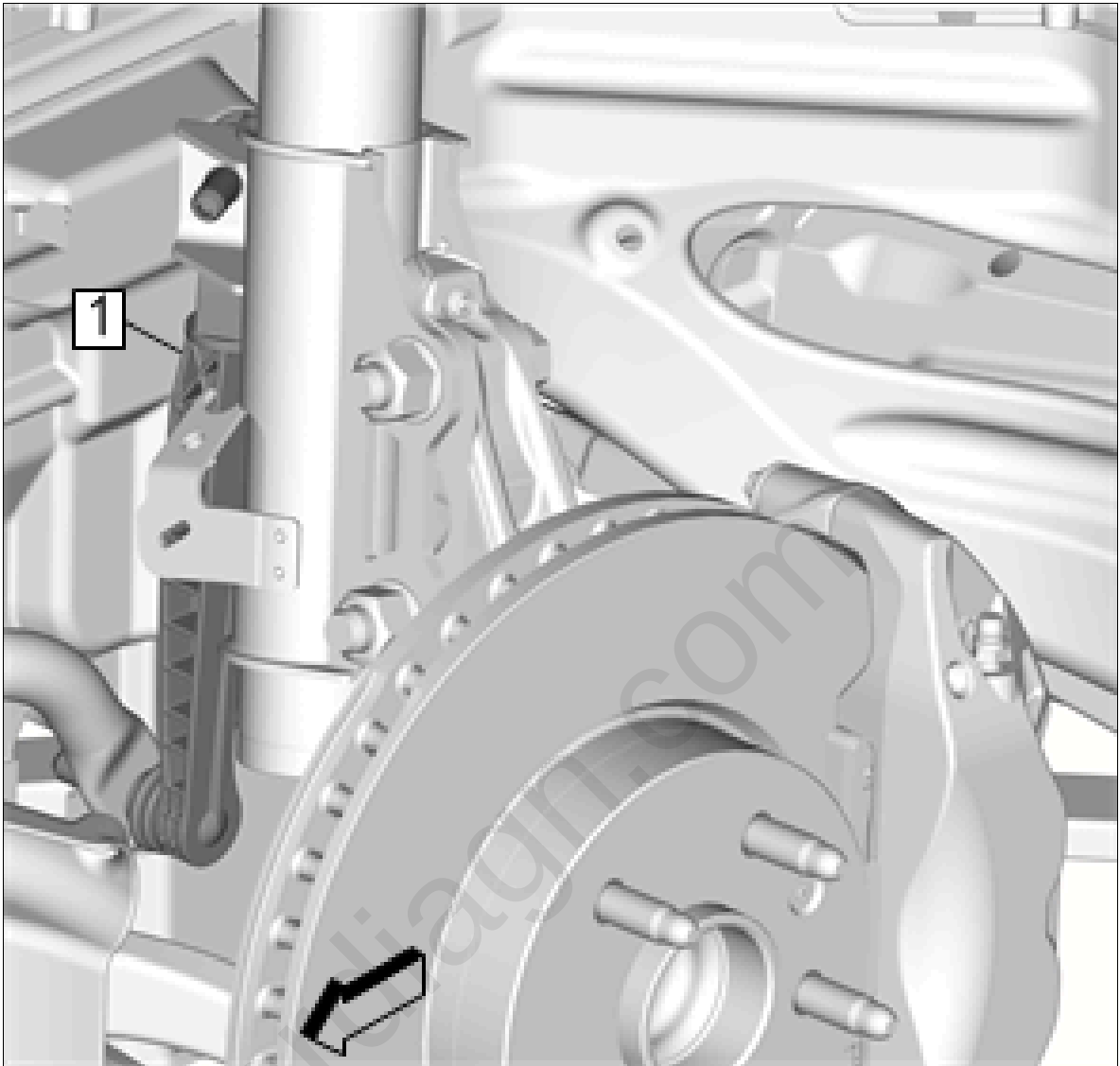
Refer to Fastener Caution .

4. Install Front Suspension Strut Nut (1) (Qty: 2) and tighten

Tighten

1. First Pass: 150 N.m (111 lb ft)
2. Final Pass: (80-95 degrees)

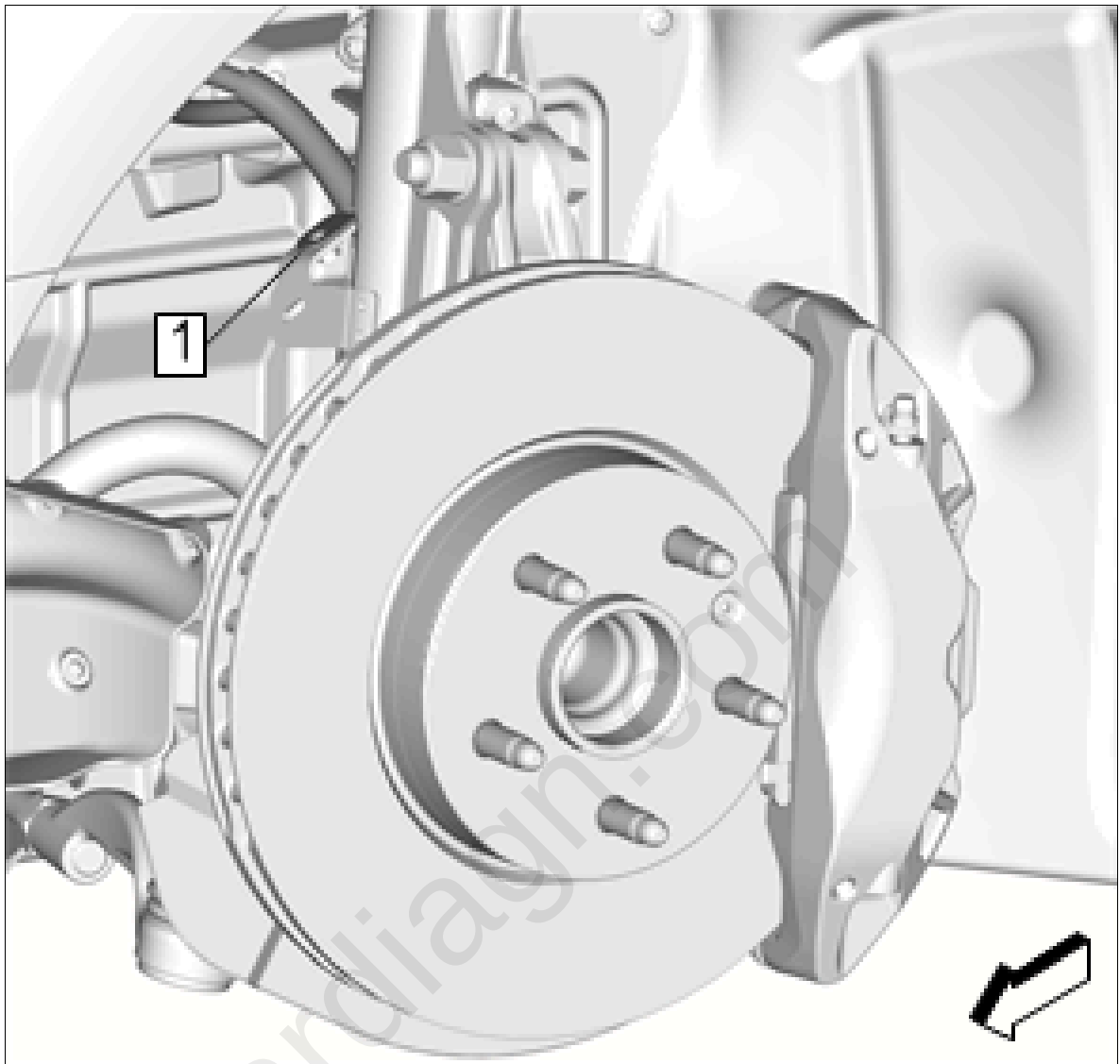
Fig 4: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

5. Install Front Stabilizer Shaft Link (1) at Strut Assembly - Stabilizer Shaft Link Replacement (LGX, LTG)

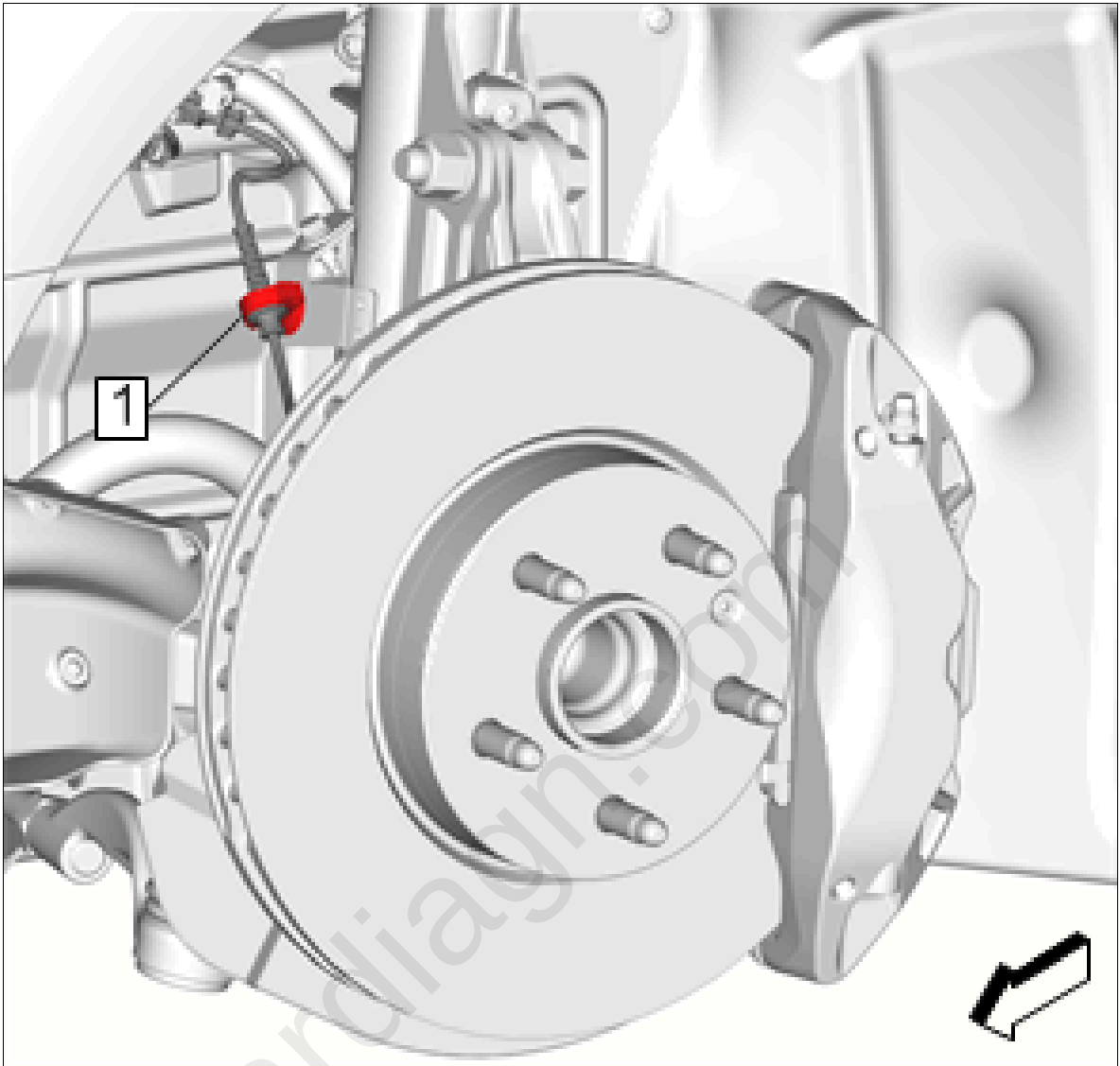
Fig 5: Front Brake Hose



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Brake Hose (1) at Strut Assembly - Front Brake Hose Replacement (J55, J6G)Front Brake Hose Replacement (JL9)

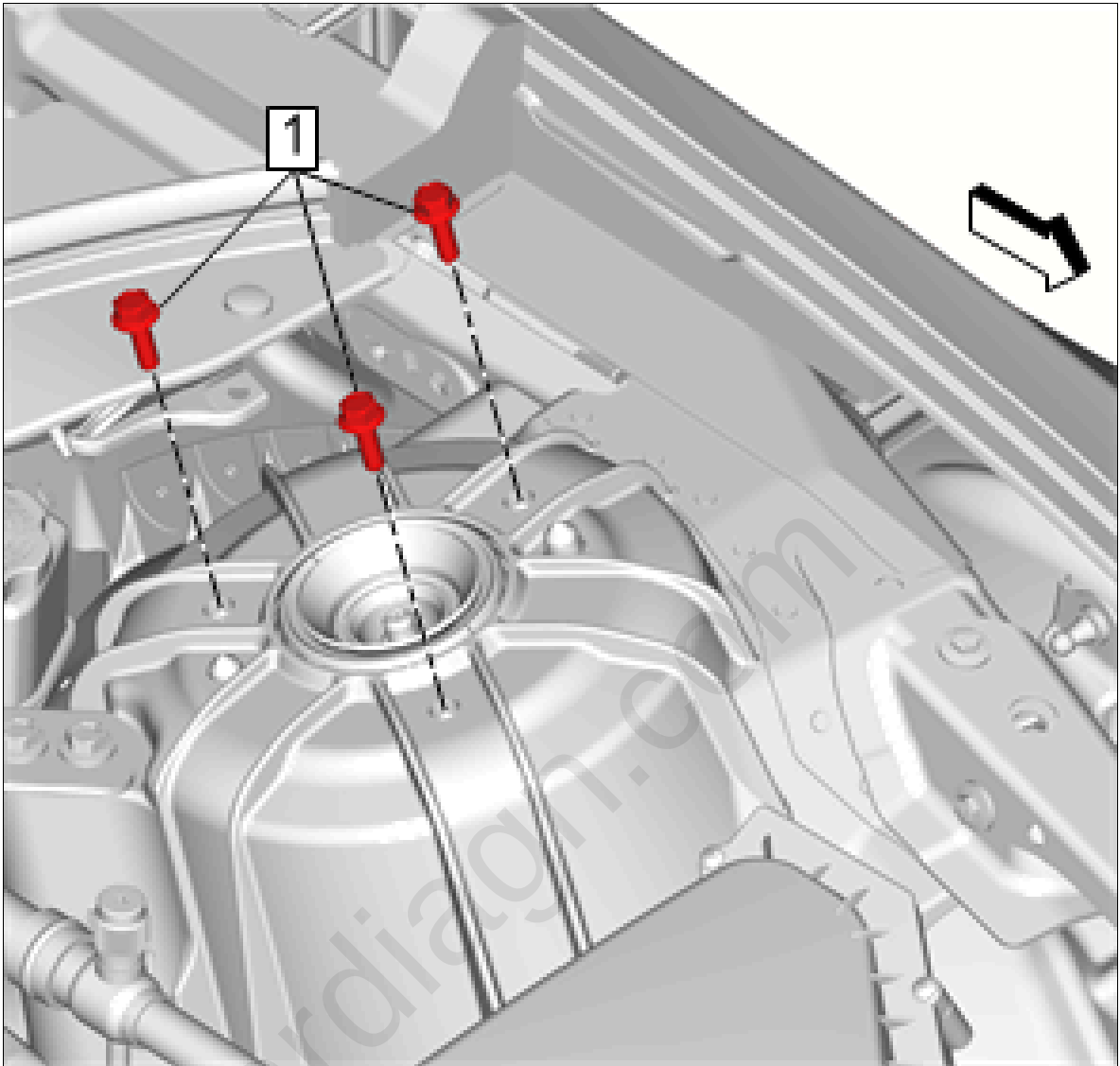
Fig 6: Front Wheel Speed Sensor Wiring Harness



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Wheel Speed Sensor Wiring Harness (1) at Strut Assembly - Front Wheel Speed Sensor Replacement
8. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
9. Lower the vehicle completely.

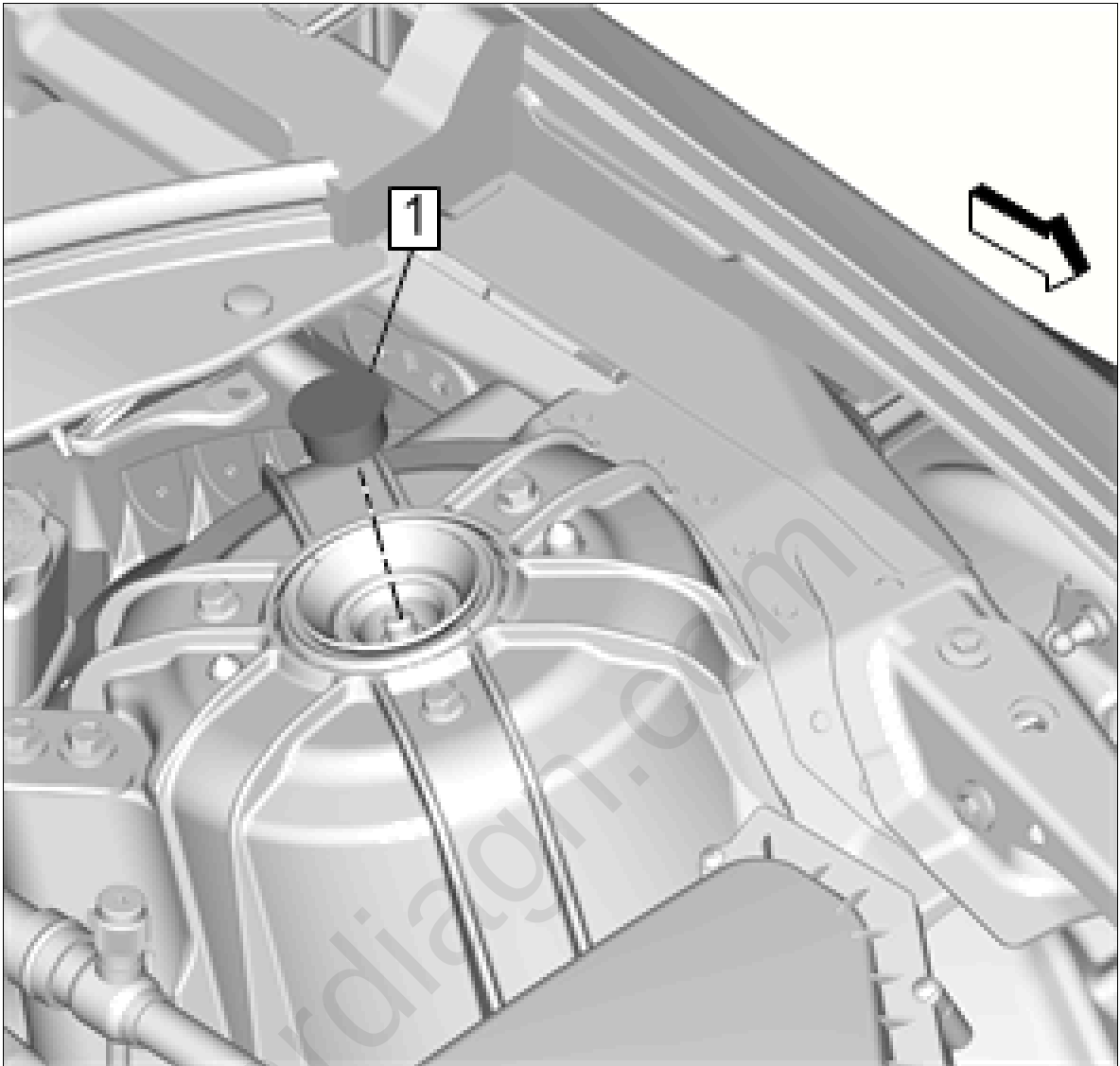
Fig 7: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

10. Tighten Front Suspension Strut Upper Mounting Bolt (1) (Qty: 3) to 22 N.m (16 lb ft)

Fig 8: Front Suspension Strut Upper Mounting Cap



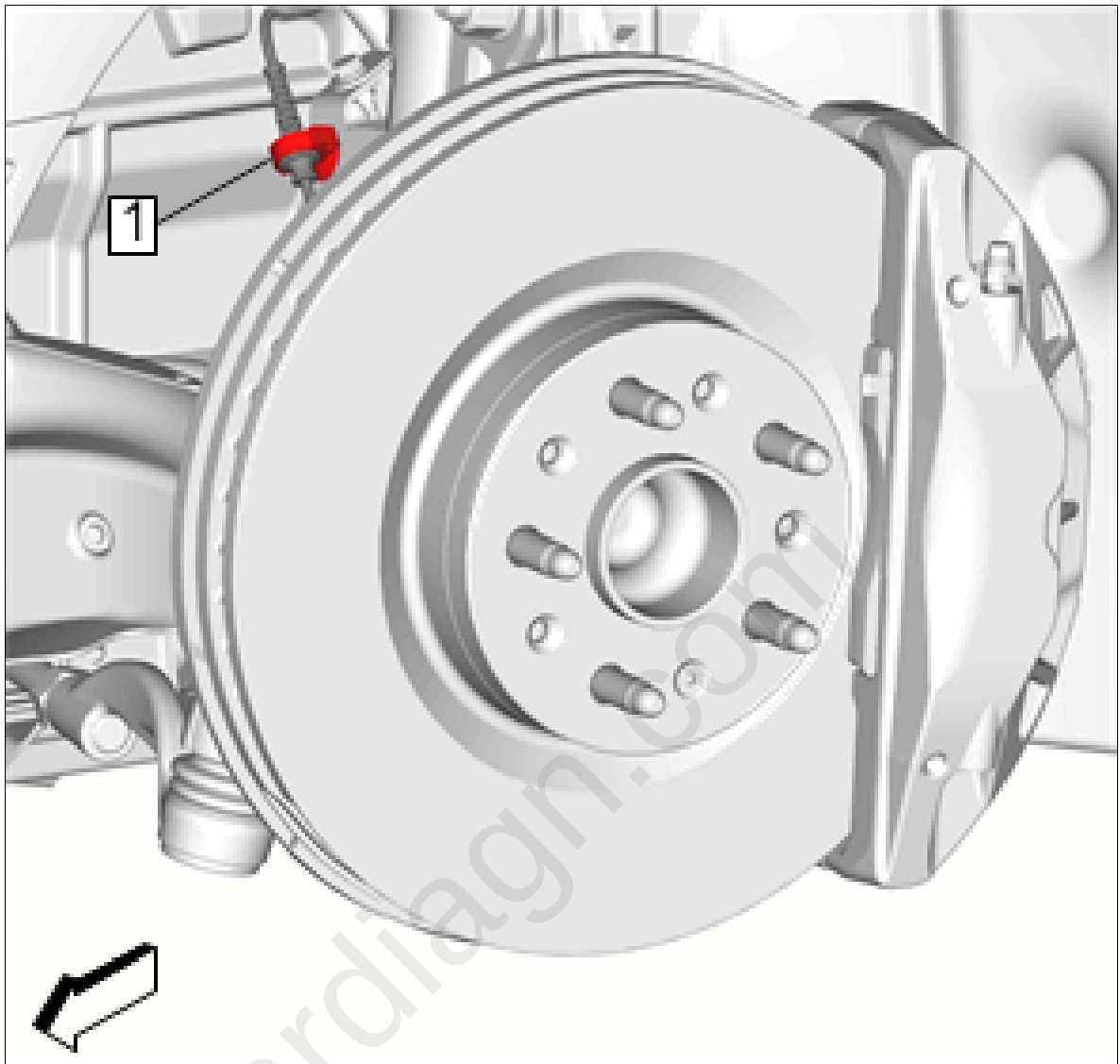
Courtesy of GENERAL MOTORS COMPANY

11. Install Front Suspension Strut Upper Mounting Cap (1)
12. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > STRUT ASSEMBLY REMOVAL AND INSTALLATION (LT1, WITH OR WITHOUT F55) > REMOVAL PROCEDURE

1. Remove the front tire and wheel assembly. Tire and Wheel Removal and Installation
2. { If equipped } Disconnect Electrical Connector at Strut Assembly

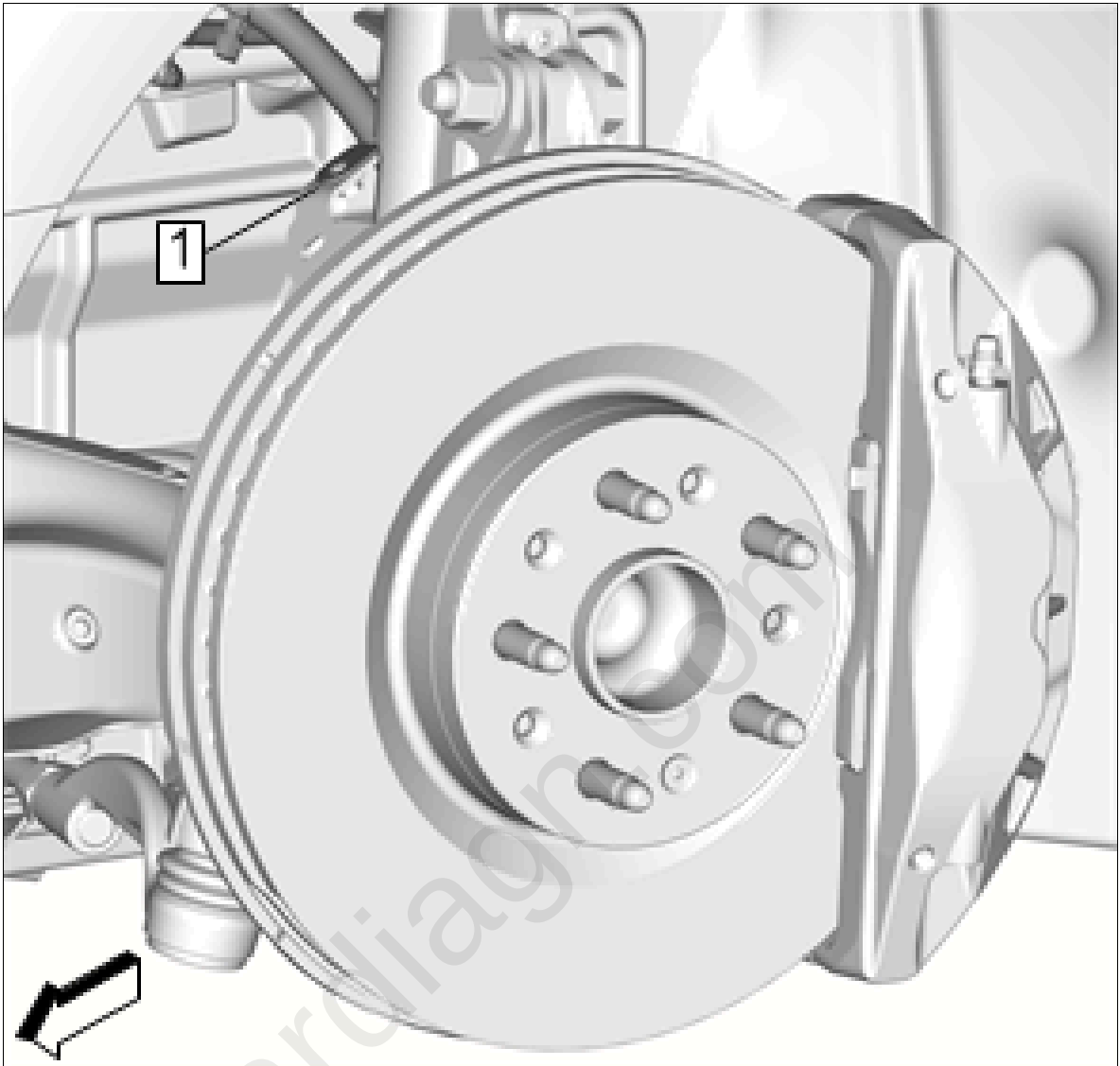
Fig 1: Front Wheel Speed Sensor Wiring Harness



Courtesy of GENERAL MOTORS COMPANY

3. Separate Front Wheel Speed Sensor Wiring Harness (1) at Strut Assembly - Front Wheel Speed Sensor Replacement

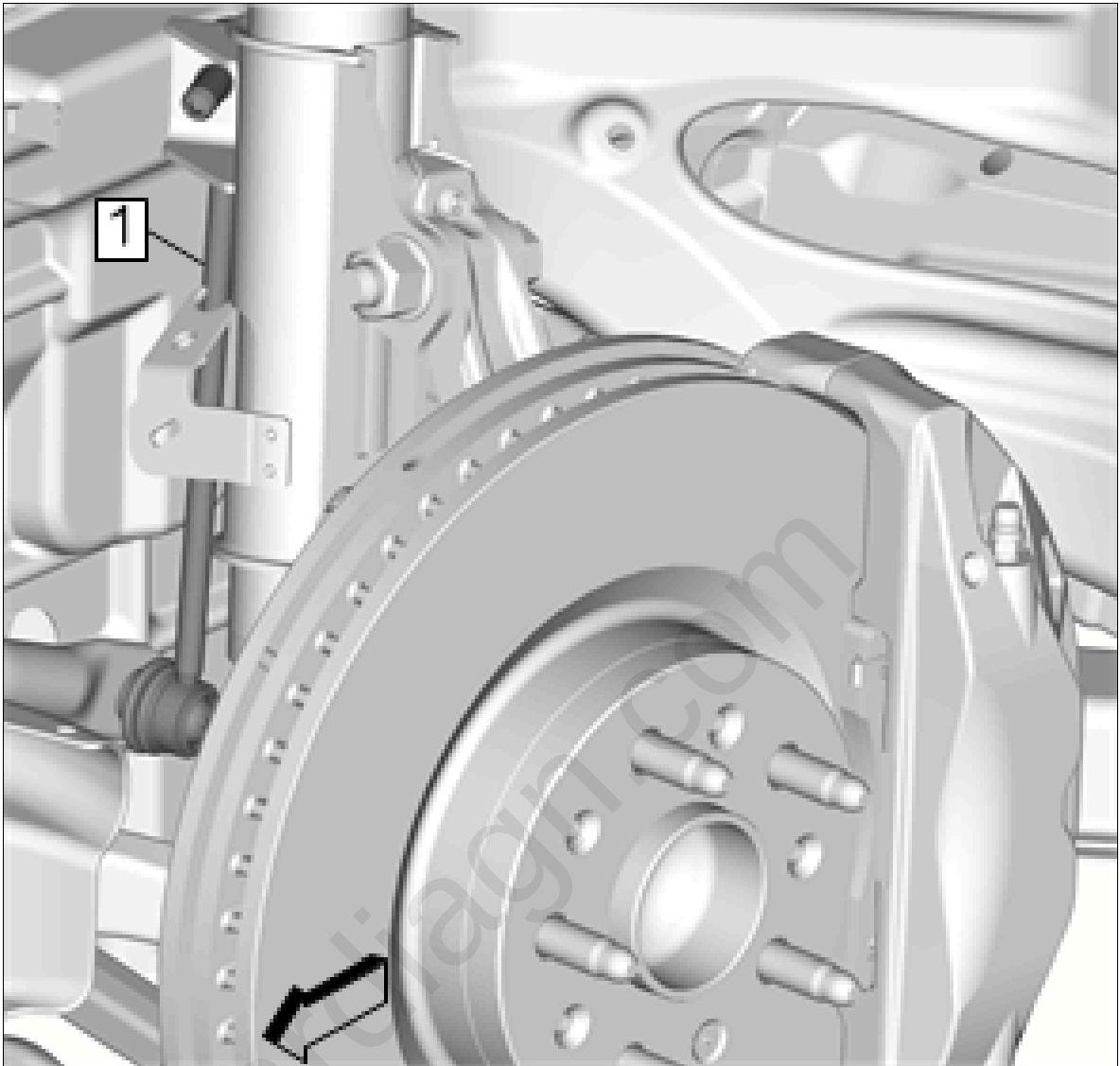
Fig 2: Front Brake Hose



Courtesy of GENERAL MOTORS COMPANY

4. Separate Front Brake Hose (1) at Strut Assembly - Front Brake Hose Replacement (J55, J6G)Front Brake Hose Replacement (JL9)

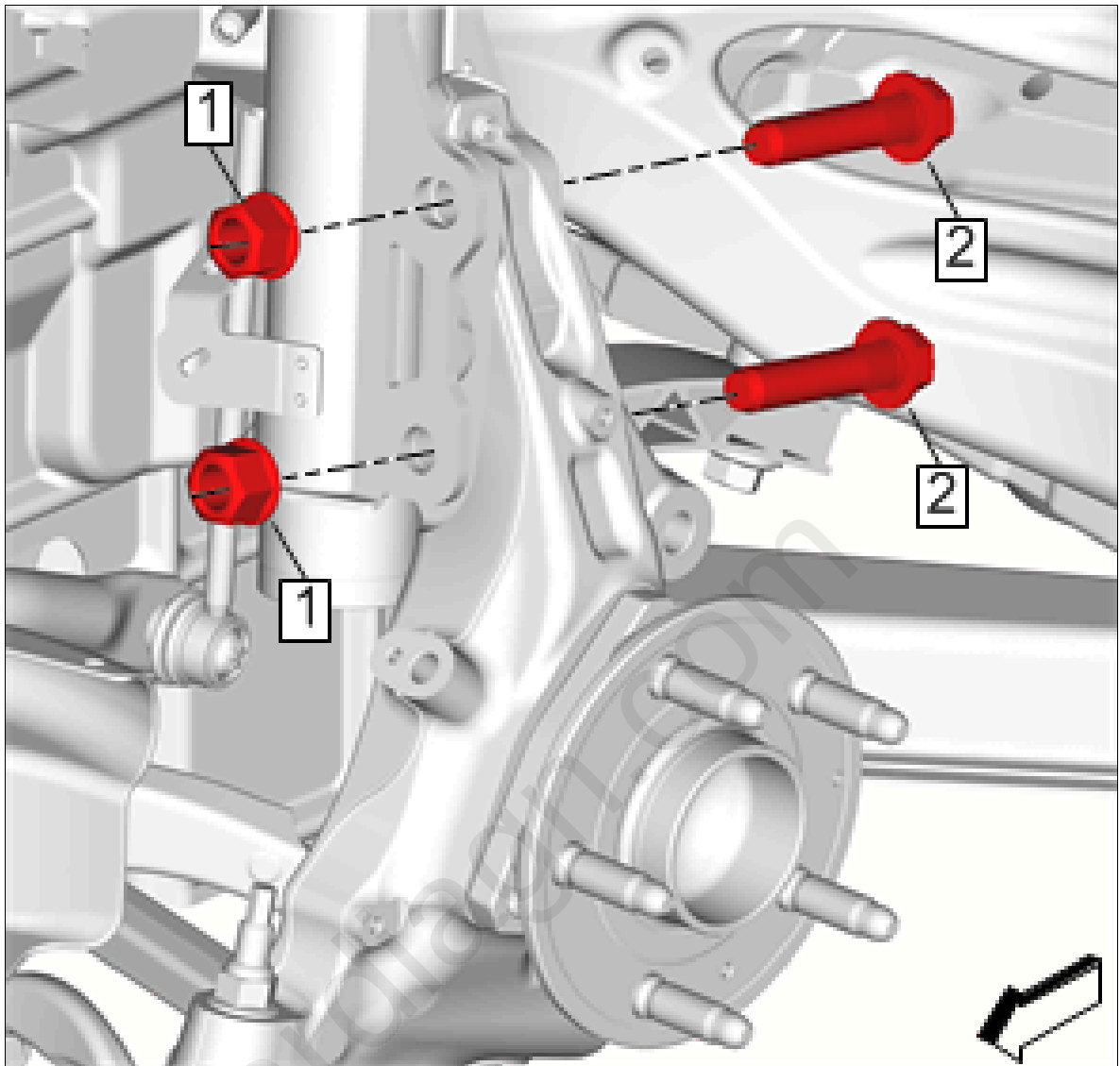
Fig 3: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

5. Separate Front Stabilizer Shaft Link (1) at Strut Assembly - Stabilizer Shaft Link Replacement (LT1)

Fig 4: Front Suspension Strut Nut

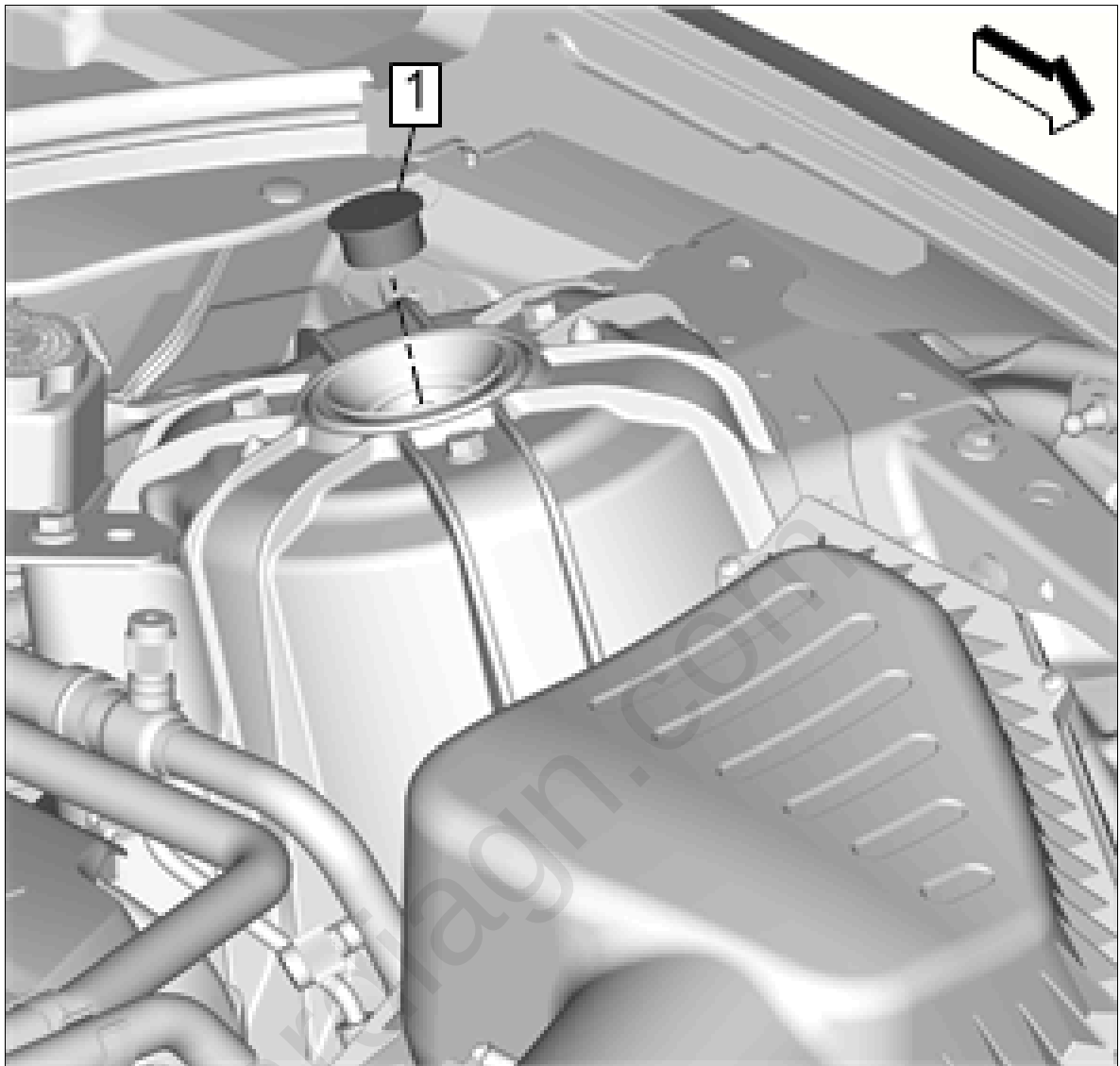


Courtesy of GENERAL MOTORS COMPANY

6. Remove Front Suspension Strut Nut (1) (Qty: 2)

7. Remove Front Suspension Strut Bolt (2) (Qty: 2)

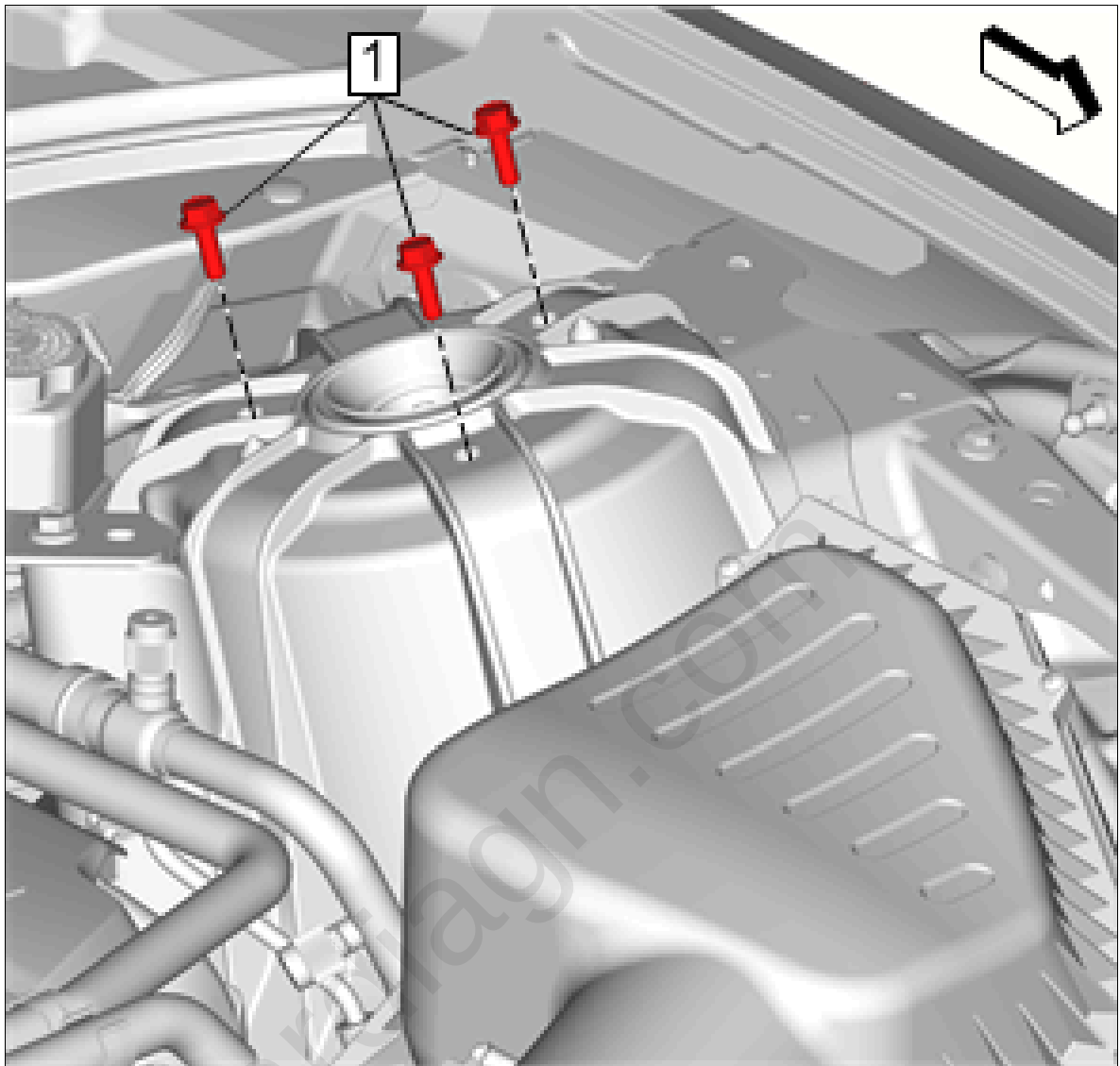
Fig 5: Front Suspension Strut Upper Mounting Cap



Courtesy of GENERAL MOTORS COMPANY

8. Remove Front Suspension Strut Upper Mounting Cap (1)

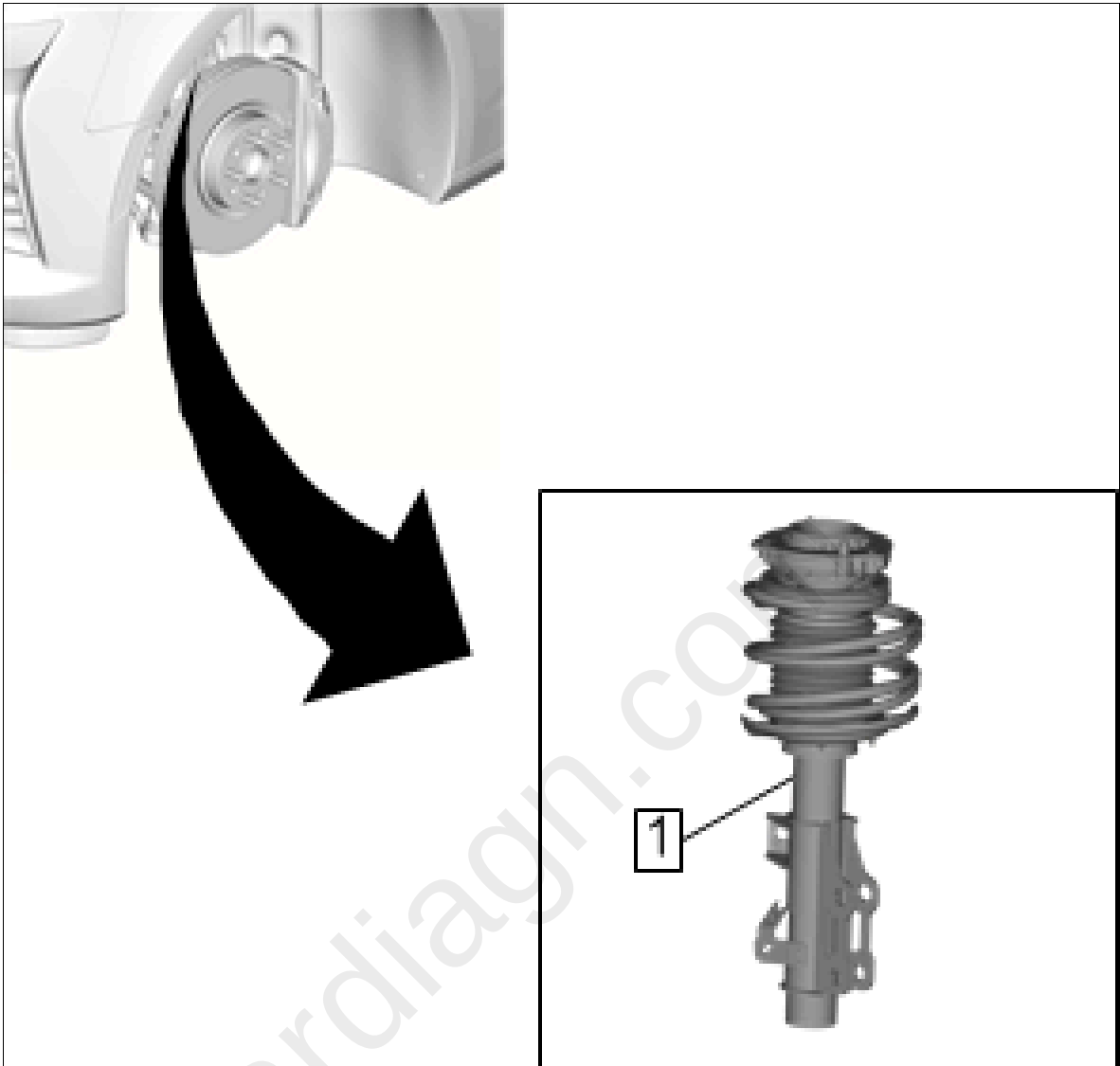
Fig 6: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

9. Remove Front Suspension Strut Upper Mounting Bolt (1) (Qty: 3)

Fig 7: Front Suspension Strut Assembly

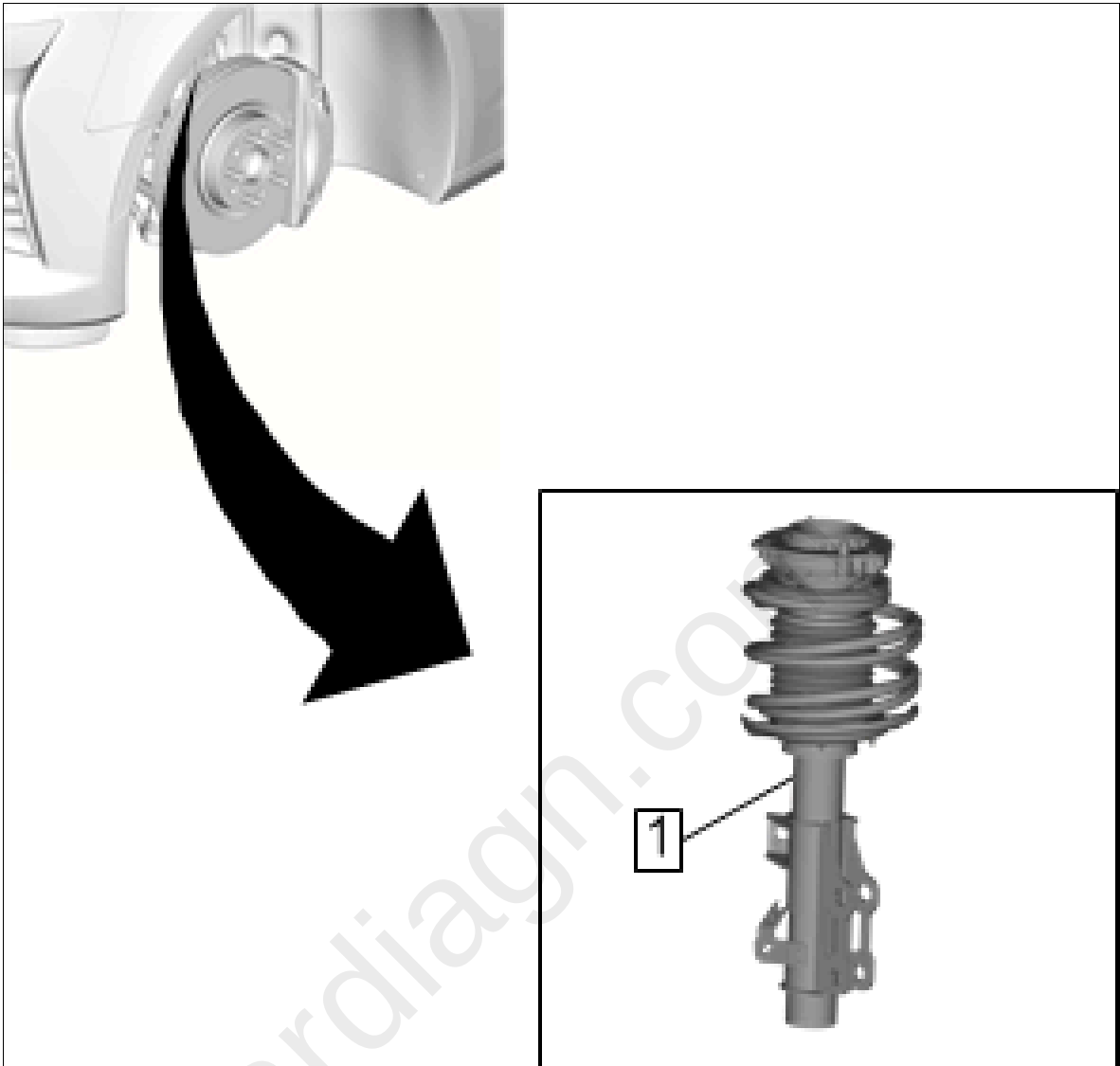


Courtesy of GENERAL MOTORS COMPANY

10. Remove the front suspension strut assembly (1) from the vehicle.
11. Transfer components as necessary.

**REPAIR INSTRUCTIONS > STRUT ASSEMBLY REMOVAL AND INSTALLATION (LT1,
WITH OR WITHOUT F55) > INSTALLATION PROCEDURE**

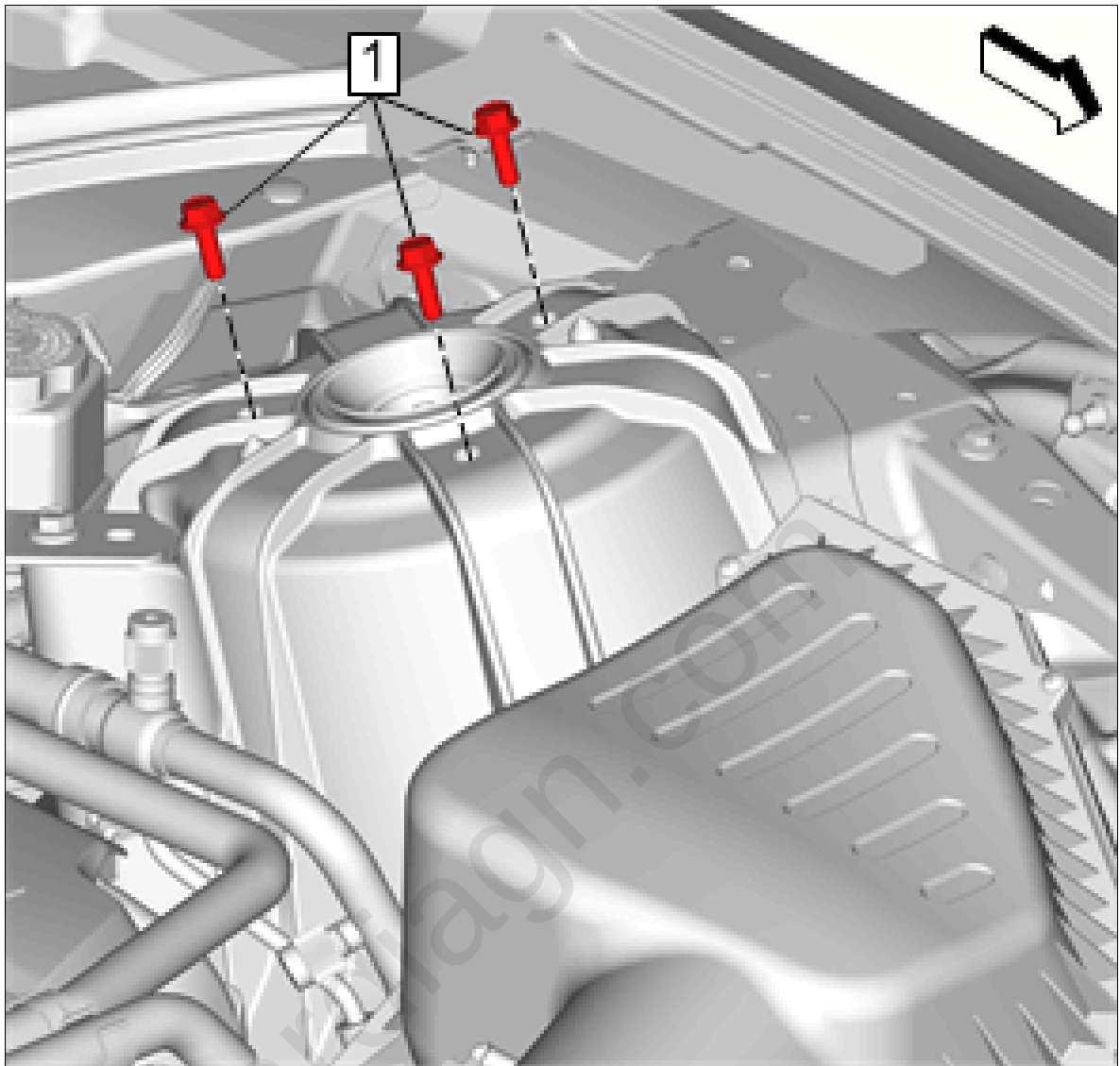
Fig 1: Front Suspension Strut Assembly



Courtesy of GENERAL MOTORS COMPANY

1. Position the front suspension strut assembly (1) on the vehicle.

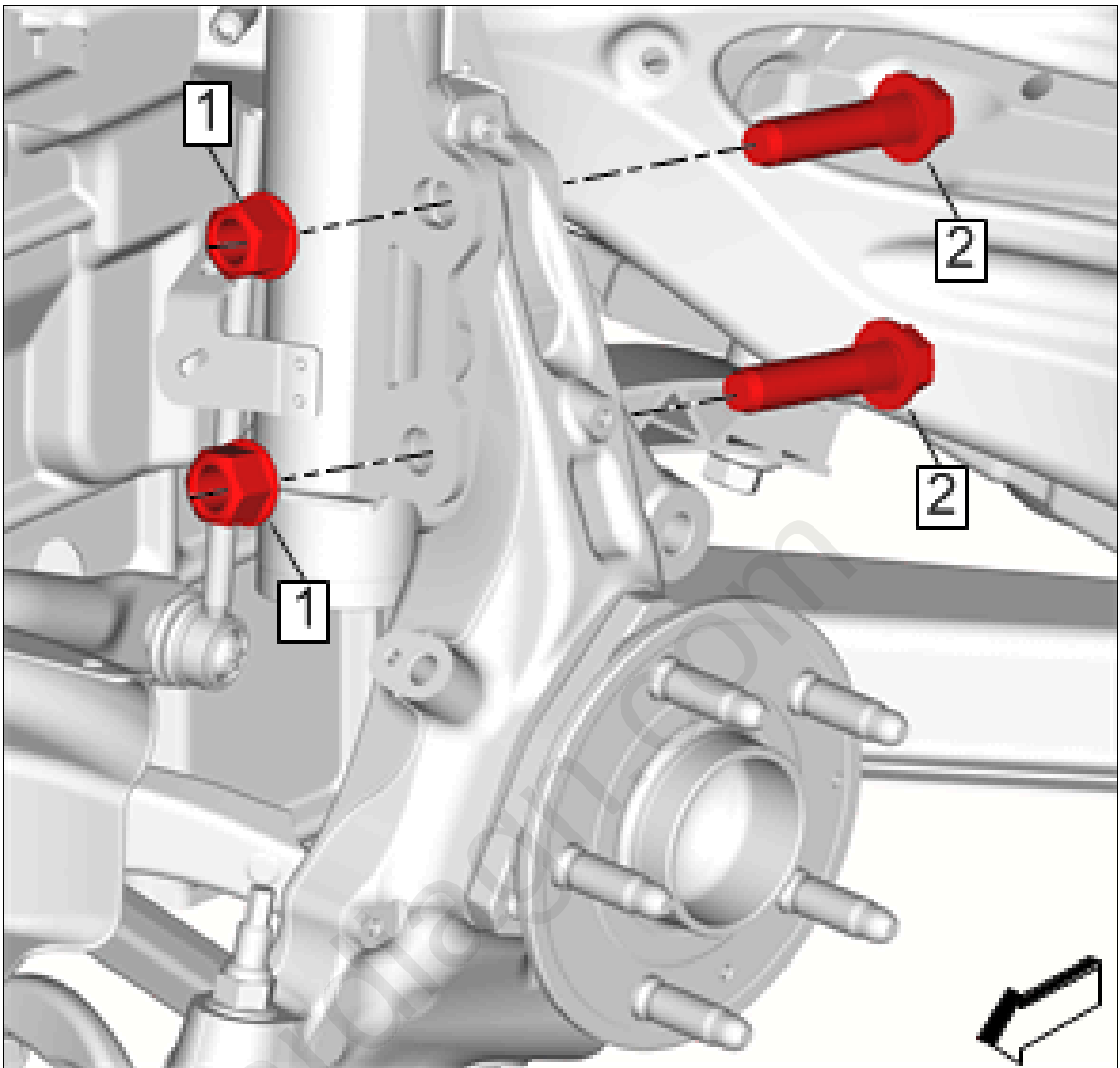
Fig 2: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

2. Install, but do NOT tighten Front Suspension Strut Upper Mounting Bolt (1) (Qty: 3)

Fig 3: Front Suspension Strut Bolt



Courtesy of GENERAL MOTORS COMPANY

3. Install Front Suspension Strut Bolt (2) (Qty: 2)

 **CAUTION:**

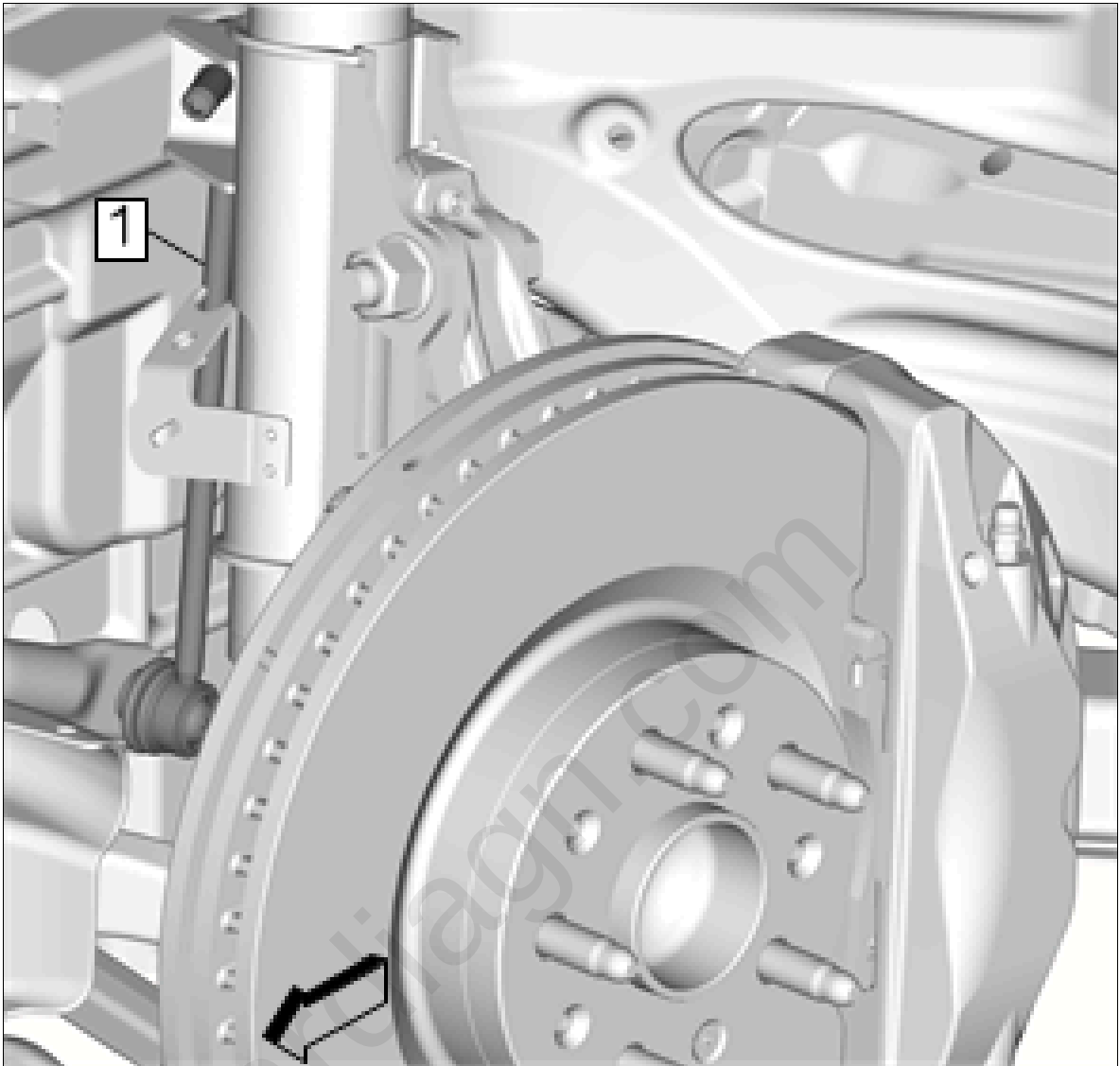
Refer to Fastener Caution .

4. Install Front Suspension Strut Nut (1) (Qty: 2) and tighten

Tighten

1. First Pass: 150 N.m (111 lb ft)
2. Final Pass: (80-95 degrees)

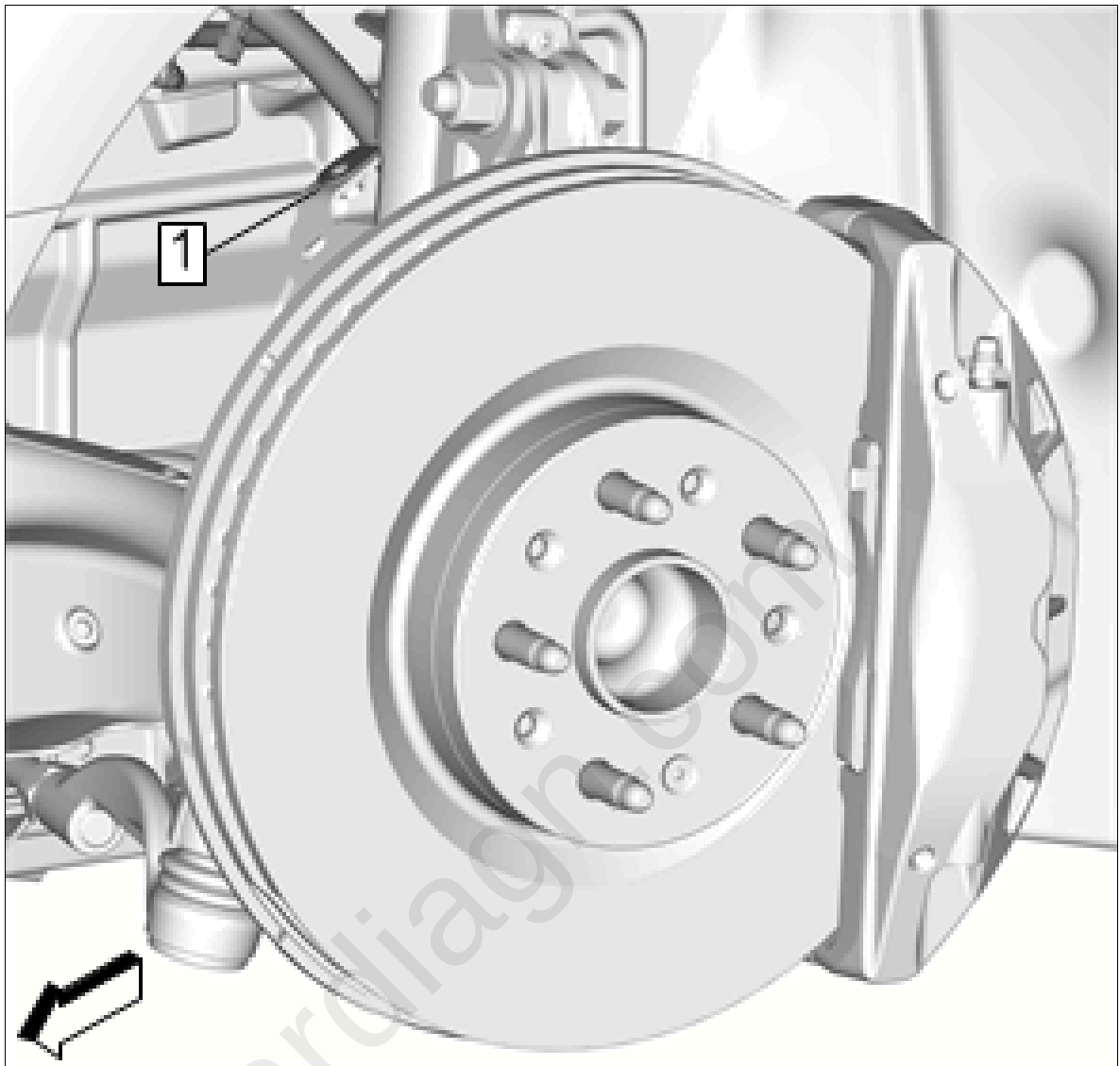
Fig 4: Front Stabilizer Shaft Link



Courtesy of GENERAL MOTORS COMPANY

5. Install Front Stabilizer Shaft Link (1) at Strut Assembly - Stabilizer Shaft Link Replacement (LT1)

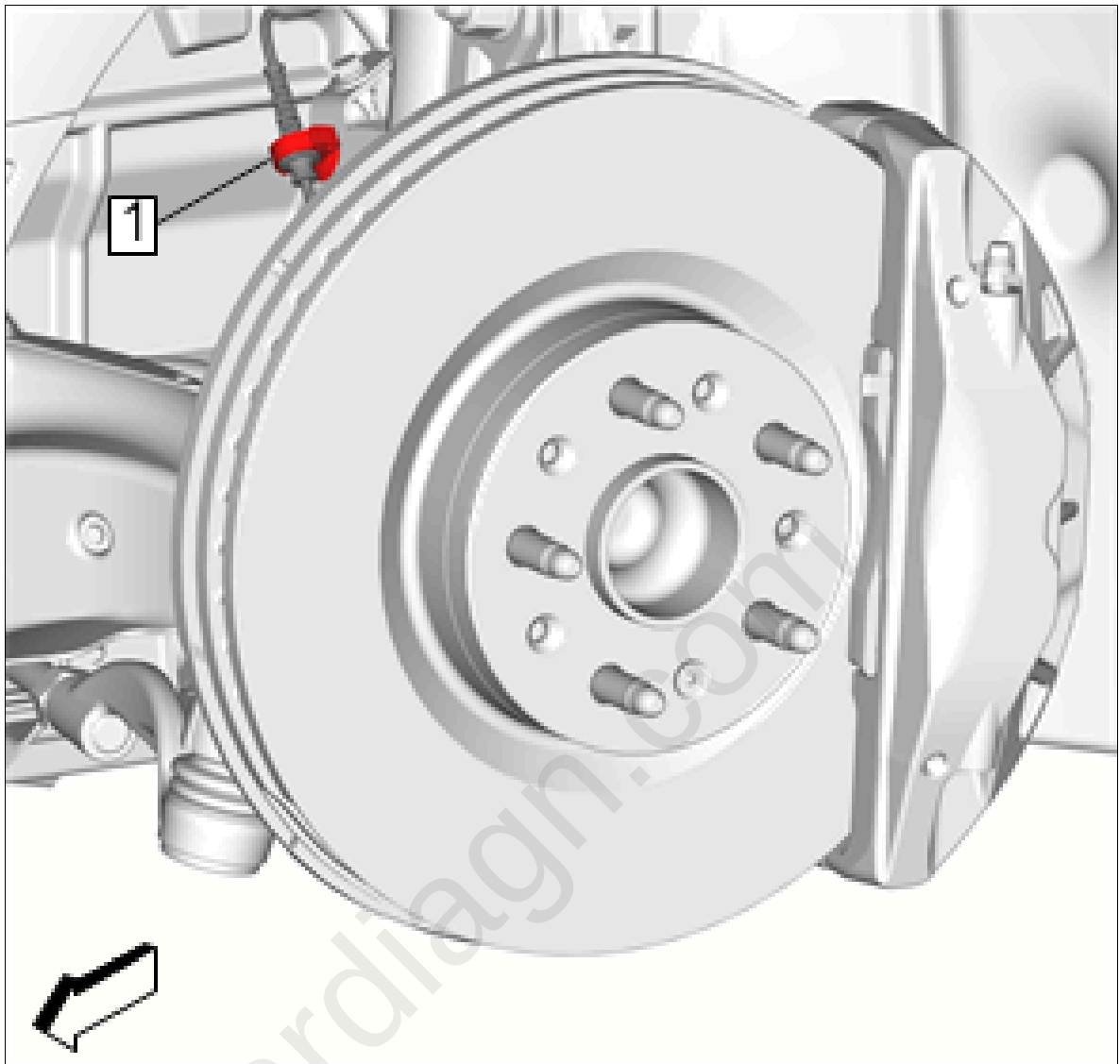
Fig 5: Front Brake Hose



Courtesy of GENERAL MOTORS COMPANY

6. Install Front Brake Hose (1) at Strut Assembly - Front Brake Hose Replacement (J55, J6G)Front Brake Hose Replacement (JL9)

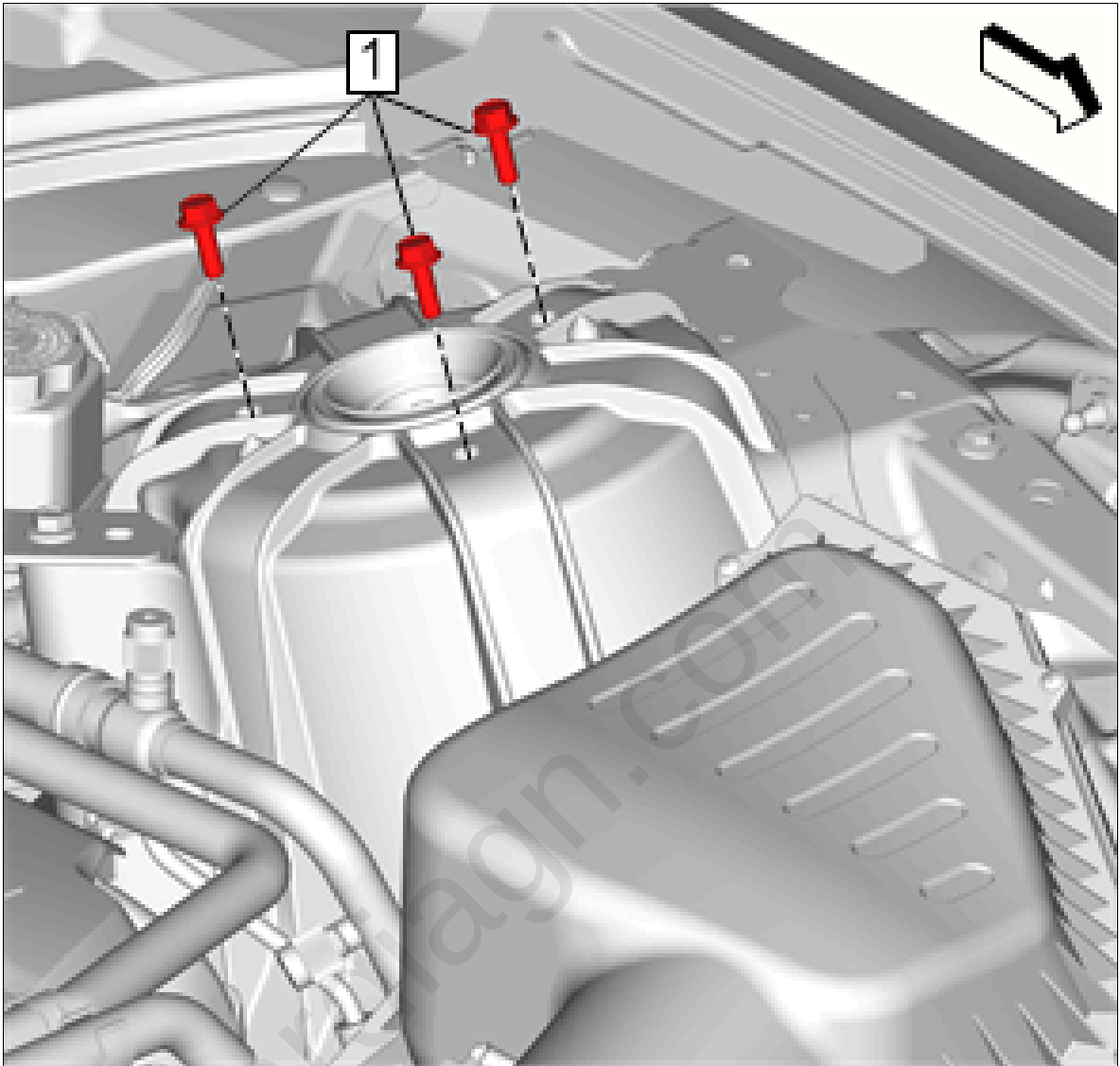
Fig 6: Front Wheel Speed Sensor Wiring Harness



Courtesy of GENERAL MOTORS COMPANY

7. Install Front Wheel Speed Sensor Wiring Harness (1) at Strut Assembly - Front Wheel Speed Sensor Replacement
8. { If equipped } Connect Electrical Connector at Strut Assembly
9. Install the front tire and wheel assembly. Tire and Wheel Removal and Installation
10. Lower the vehicle completely.

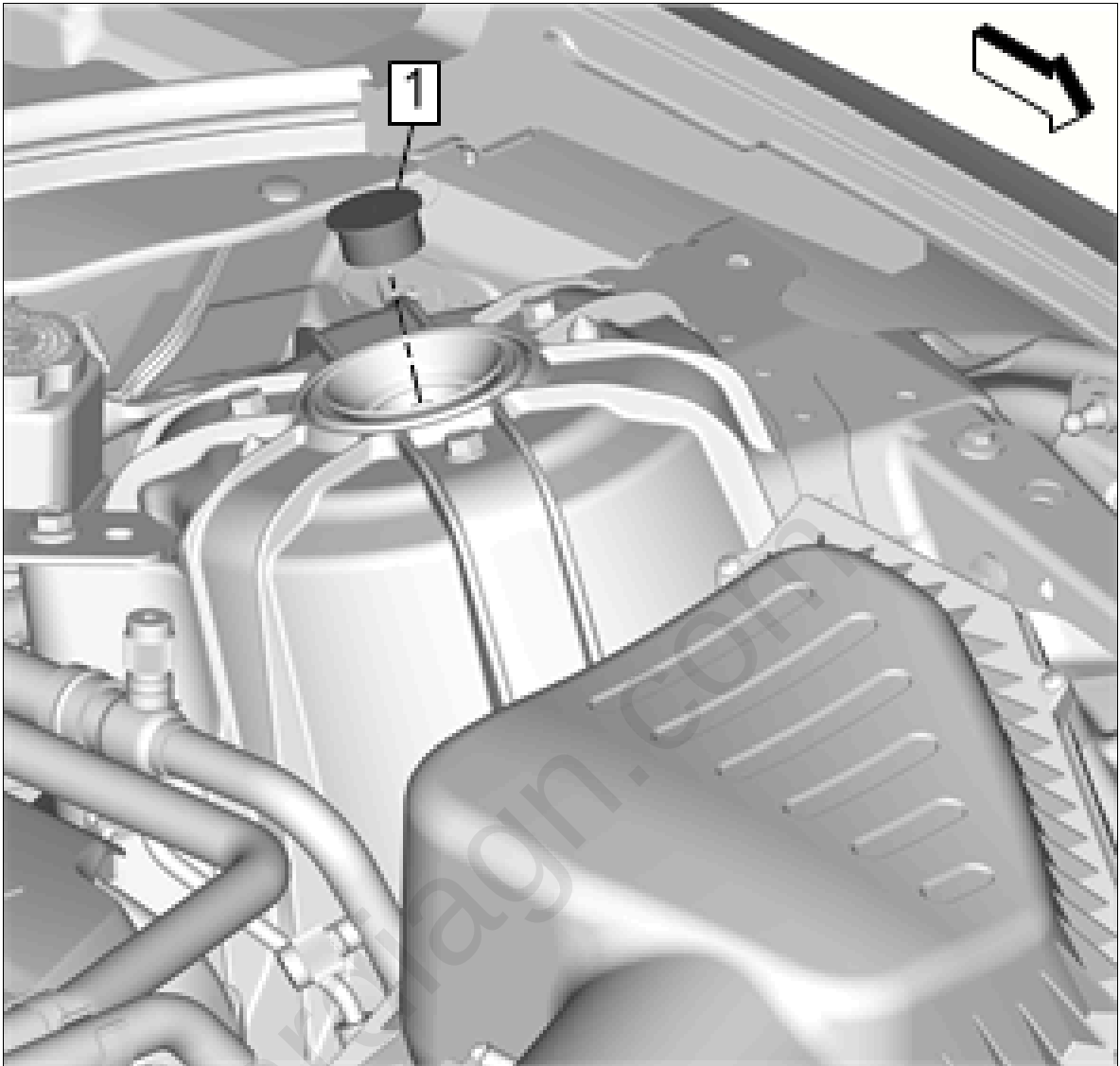
Fig 7: Front Suspension Strut Upper Mounting Bolt



Courtesy of GENERAL MOTORS COMPANY

11. Tighten Front Suspension Strut Upper Mounting Bolt (1) (Qty: 3) to 22 N.m (16 lb ft)

Fig 8: Front Suspension Strut Upper Mounting Cap



Courtesy of GENERAL MOTORS COMPANY

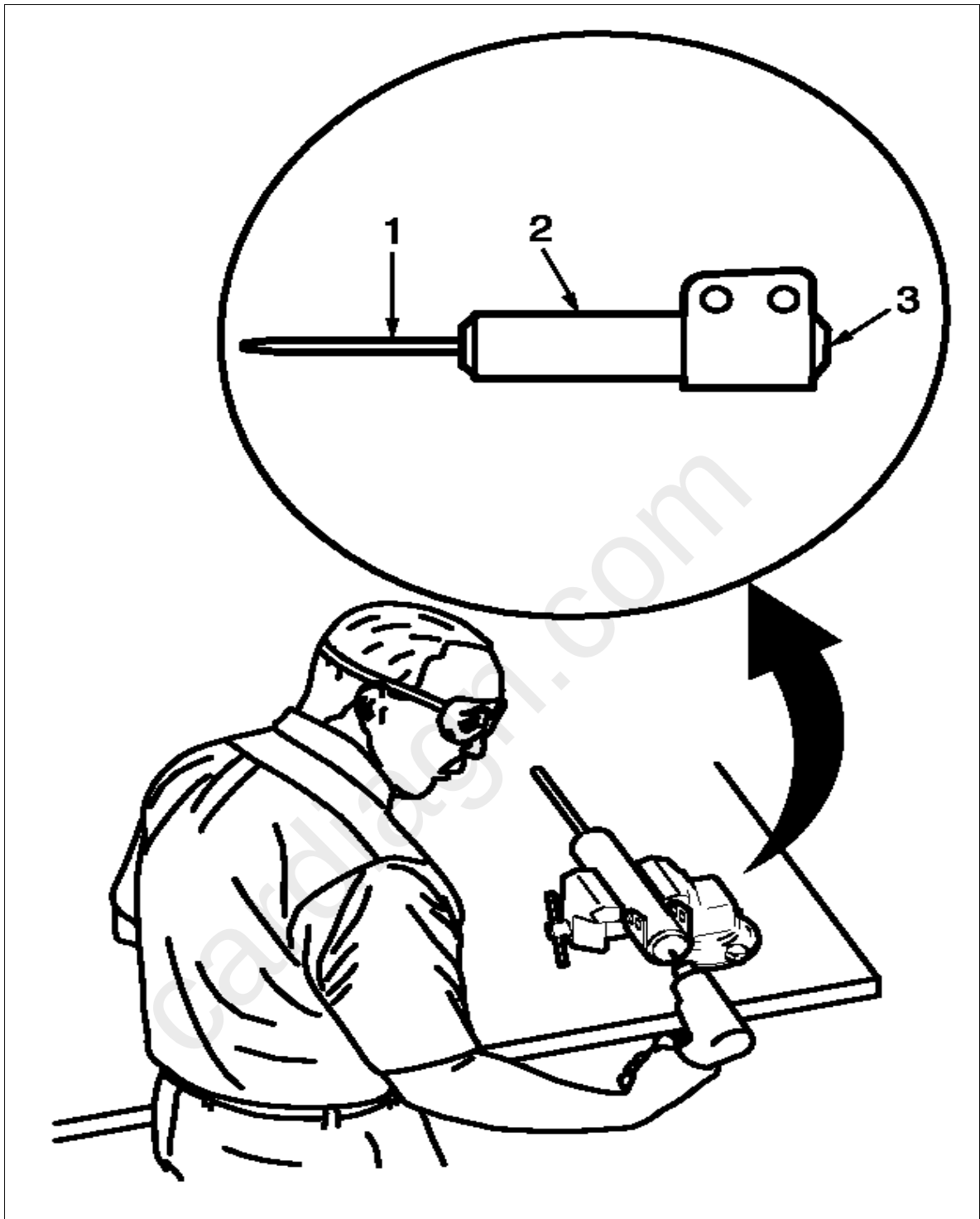
12. Install Front Suspension Strut Upper Mounting Cap (1)
13. Measure and adjust the wheel alignment. Wheel Alignment Measurement

REPAIR INSTRUCTIONS > SUSPENSION STRUT DISPOSAL

⊗ WARNING:

Use the proper eye protection when drilling to prevent metal chips from causing physical injury.

Fig 1: Drilling Hole In Strut At Center Of End Cap



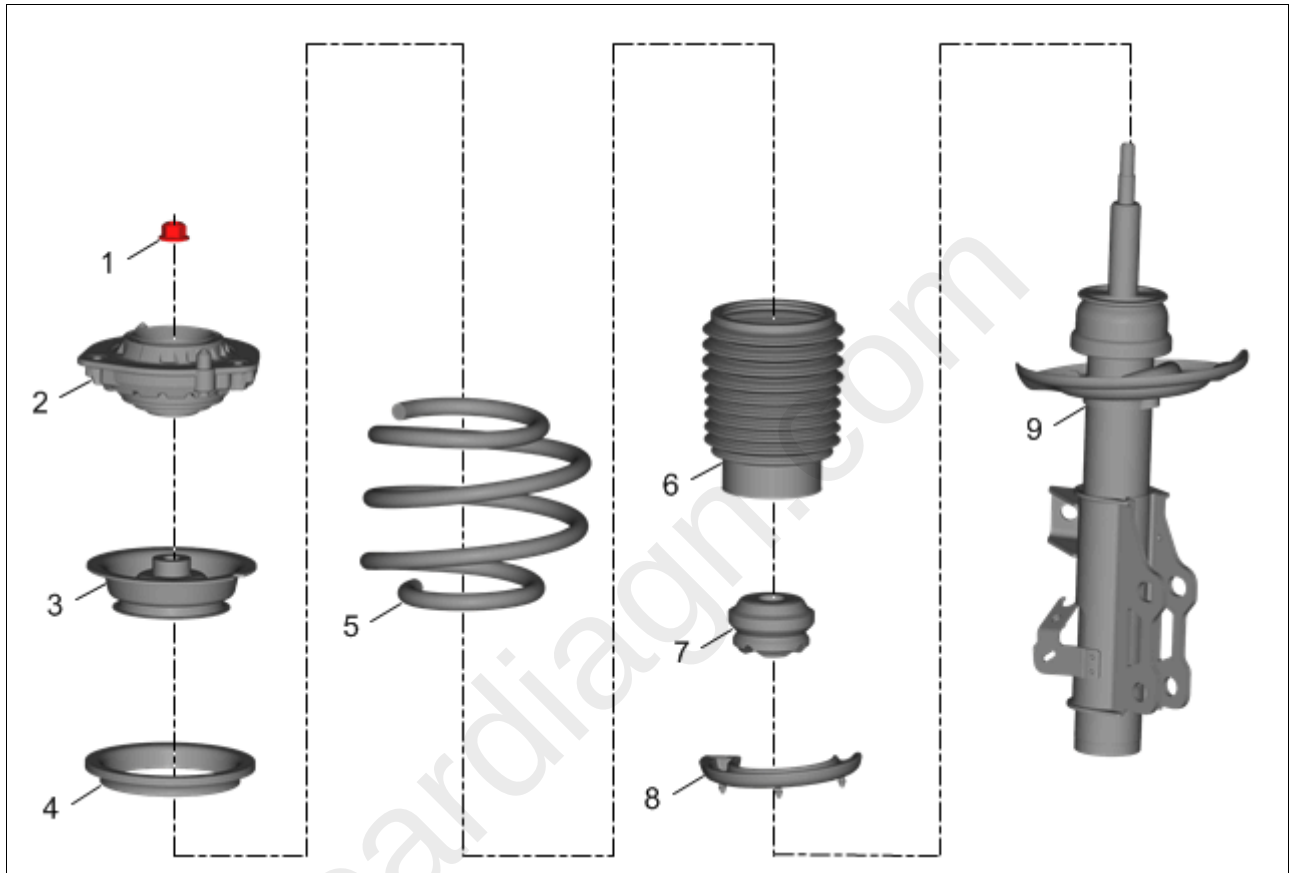
Courtesy of GENERAL MOTORS COMPANY

1. Clamp the strut in a vise horizontally with the rod (1) completely extended.
2. Drill a hole in the strut at the center of the end cap (3) using a 5 mm (3/16 in) drill bit. Gas or a gas/oil mixture will exhaust when the drill bit penetrates the strut. Use shop towels in order to contain the escaping oil.
3. Remove the strut from the vise.

4. Hold the strut over a drain pan vertically with the hole down.
5. Move the rod (1) in and out of the tube (2) to completely drain the oil from the strut.

REPAIR INSTRUCTIONS > STRUT, STRUT COMPONENT, OR SPRING REPLACEMENT (FE2 OR FE3, WITHOUT F55)

Fig 1: Strut, Strut Component, or Spring (FE2 or FE3, Without F55)



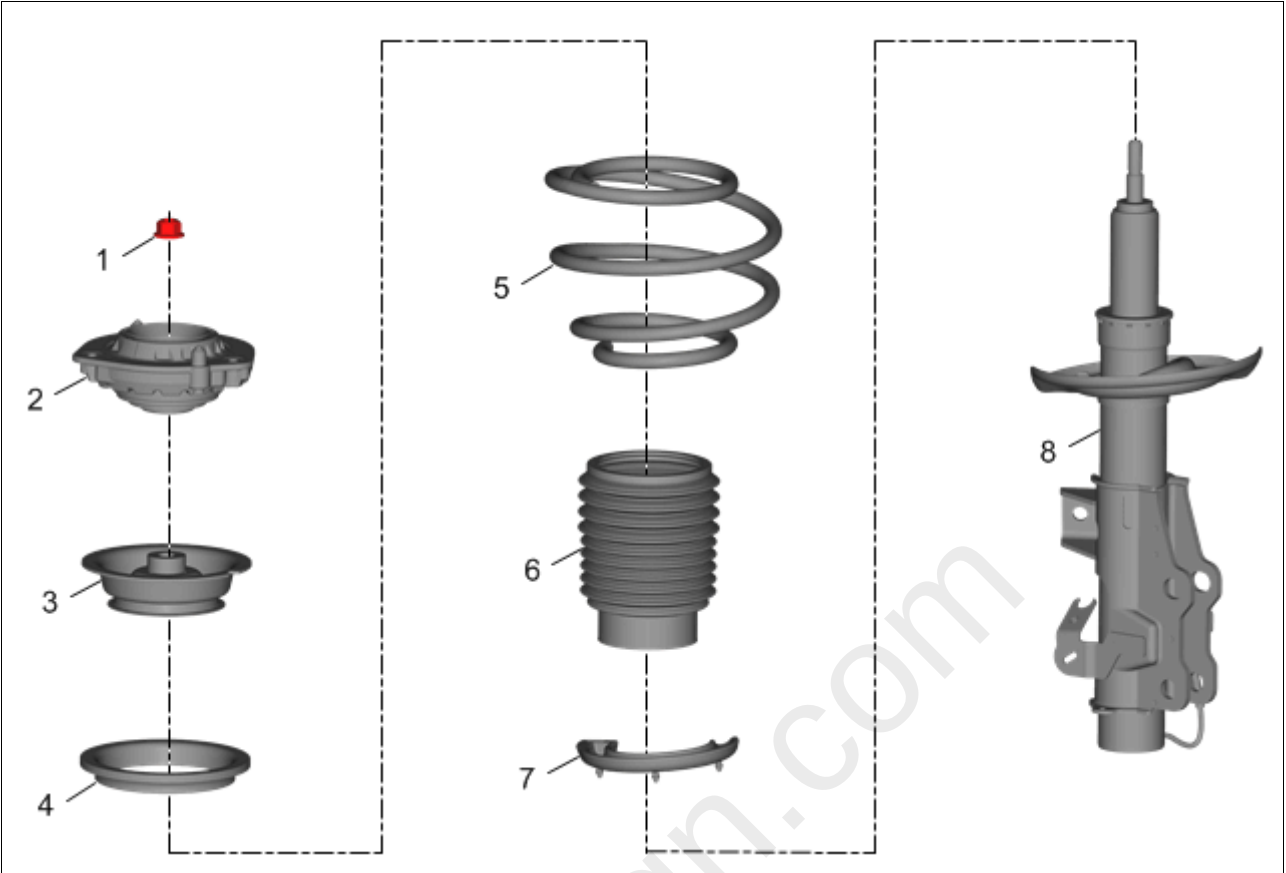
Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: <i>To prevent personal injury and/or component damage, use the proper tools to support and compress the coil spring prior to removal of the strut shaft nut when removing the coil spring. The coil spring is under extreme pressure and can become a projectile should the spring separate from the strut before all of the tension is relieved.</i>	
Preliminary Procedure Strut Assembly Removal and Installation (LGX or LTG, Without F55) Strut Assembly Removal and Installation (LT1, With or Without F55)	

	Front Suspension Strut Mount Nut
	CAUTION: <i>Refer to Fastener Caution .</i>
1	Procedure 1. Use the CH-45400-A compressor to compress the front coil spring. 2. Use the CH-50732 socket to remove and install the front suspension strut mount nut. Tighten 65 N.m (48 lb ft) Special Tools • CH-45400-A Strut Spring Compressor • CH-50732 Strut Rod Nut Socket, 18 mm Equivalent regional tools: Special Tools
2	Front Suspension Strut Mount
3	Front Coil Spring Upper Seat
4	Front Coil Spring Upper Insulator
5	Front Coil Spring  NOTE: <i>Do NOT blemish or modify the coating on the front coil spring in any manner.</i>
6	Front Strut Boot
7	Front Suspension Strut Bumper
8	Front Coil Spring Lower Insulator
9	Front Suspension Strut

**REPAIR INSTRUCTIONS > STRUT, STRUT COMPONENT, OR SPRING REPLACEMENT
(FE3, WITH F55)**

Fig 1: Strut, Strut Component, or Spring (FE3, With F55)



Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
WARNING: <i>To prevent personal injury and/or component damage, use the proper tools to support and compress the coil spring prior to removal of the strut shaft nut when removing the coil spring. The coil spring is under extreme pressure and can become a projectile should the spring separate from the strut before all of the tension is relieved.</i>	
Preliminary Procedure Strut Assembly Removal and Installation (LT1, With or Without F55)	
1	Front Suspension Strut Mount Nut CAUTION: <i>Refer to Fastener Caution .</i> Procedure

	1. Use the CH-45400-A compressor to compress the front coil spring. 2. Use the CH-50732 socket to remove and install the front suspension strut mount nut. Tighten 50 N.m (37 lb ft) Special Tools • CH-45400-A Strut Spring Compressor • CH-50732 Strut Rod Nut Socket, 18 mm Equivalent regional tools: Special Tools
2	Front Suspension Strut Mount
3	Front Coil Spring Upper Seat
4	Front Coil Spring Upper Insulator
5	Front Coil Spring  NOTE: Do NOT blemish or modify the coating on the front coil spring in any manner.
6	Front Strut Boot
7	Front Coil Spring Lower Insulator
8	Front Suspension Strut

DESCRIPTION AND OPERATION > FRONT SUSPENSION DESCRIPTION AND OPERATION

The front suspension has 2 primary purposes:

- Isolate the driver from irregularities in the road surface.
- Define the ride and handling characteristics of the vehicle.

The front suspension absorbs the impact of the road wheel travelling over irregular road surfaces and dissipates this energy throughout the suspension system. This process isolates the vehicle occupants from the road surface. This process isolates the vehicle occupants from the road surface. The suspension system must allow for the vertical movement of the tire and wheel assembly as the vehicle travels over irregular road surfaces while maintaining the tire's horizontal relationship to the road.

The steering knuckle is connected to two lower control arms and a strut assembly. The lower control

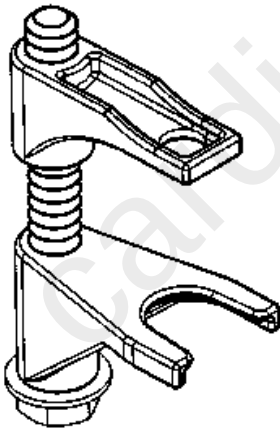
arms attach to the steering knuckle with balls joints at the outermost point. The upper portion of the steering knuckle is attached to a strut assembly by two bolts and nuts. The upper most hole in the strut is a slot which allows for front camber adjustment.

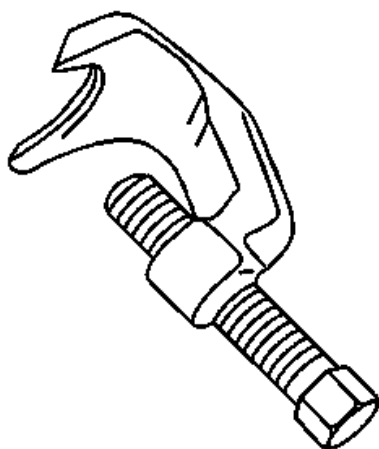
The strut assembly contains a spring, shock absorber, a jounce bumper, boot, and a top mount. The top mount includes a bearing to allow the strut assembly and knuckle to rotate when the steering wheel is turned. The strut assembly is a coil over shock design that bolts to the lower control arm and the body structure. The spring absorbs the movement of the knuckle as the wheel travels over rough roads. The shock absorber dampens the oscillations of the coil spring.

The lower control arms are connected to the vehicle frame through two rigid bushings which allow the control top pivot up and down with respect to the vehicle frame and body structure. The forward most attachment points uses a bolt with a cam and slotted hole to allow for caster adjustment. A ball joint at the outermost and of the control arm allows the steering knuckle to maintain the perpendicular relationship to the road surface and to rotate as the steering wheel is turned.

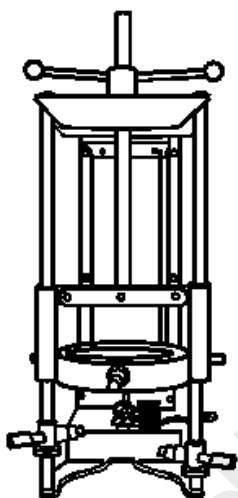
A stabilizer shaft is used to help reduce body roll when the vehicle is driven around a turn. The stabilizer shaft is mounted to the sub frame or front cradle by two clamps and insulators. A link is used to connect the ends of the stabilizer shaft to each front suspension strut assembly. Each link has a ball joint on each end.

SPECIAL TOOLS AND EQUIPMENT > SPECIAL TOOLS

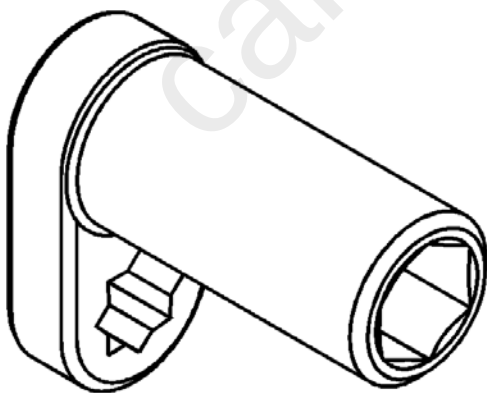
Illustration	Tool Number/ Description
	CH-42188-B J-42188-B Ball Joint Separator



CH-43631
CH-49455
J-43631
Ball Joint Separator



CH-45400-A
DW320-010
J-45400-A
Strut Spring Compressor



CH-50732
MLR-9362
Strut Rod Nut Socket, 18 mm