

2004 Honda Element DX

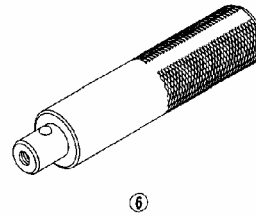
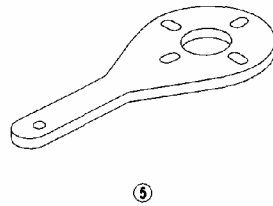
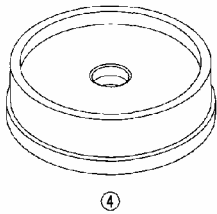
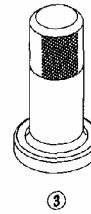
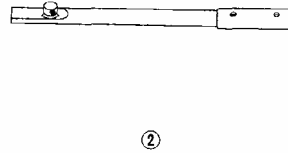
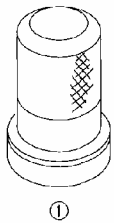
2003-06 DRIVELINE/AXLE Rear Differential - Element

2003-06 DRIVELINE/AXLE

Rear Differential - Element

SPECIAL TOOLS

Ref. No.	Tool Number	Description	Qty
①	07GAD-PH70201	Oil Seal Driver	1
②	07JAB-001020A	Holder Handle	1
③	07JAD-PL90100	Oil Seal Driver	1
④	07NAD-PX40100	Attachment, 78 x 80 mm	1
⑤	07RAB-TB4010B	Companion Flange Holder	1
⑥	07749-0010000	Driver	1



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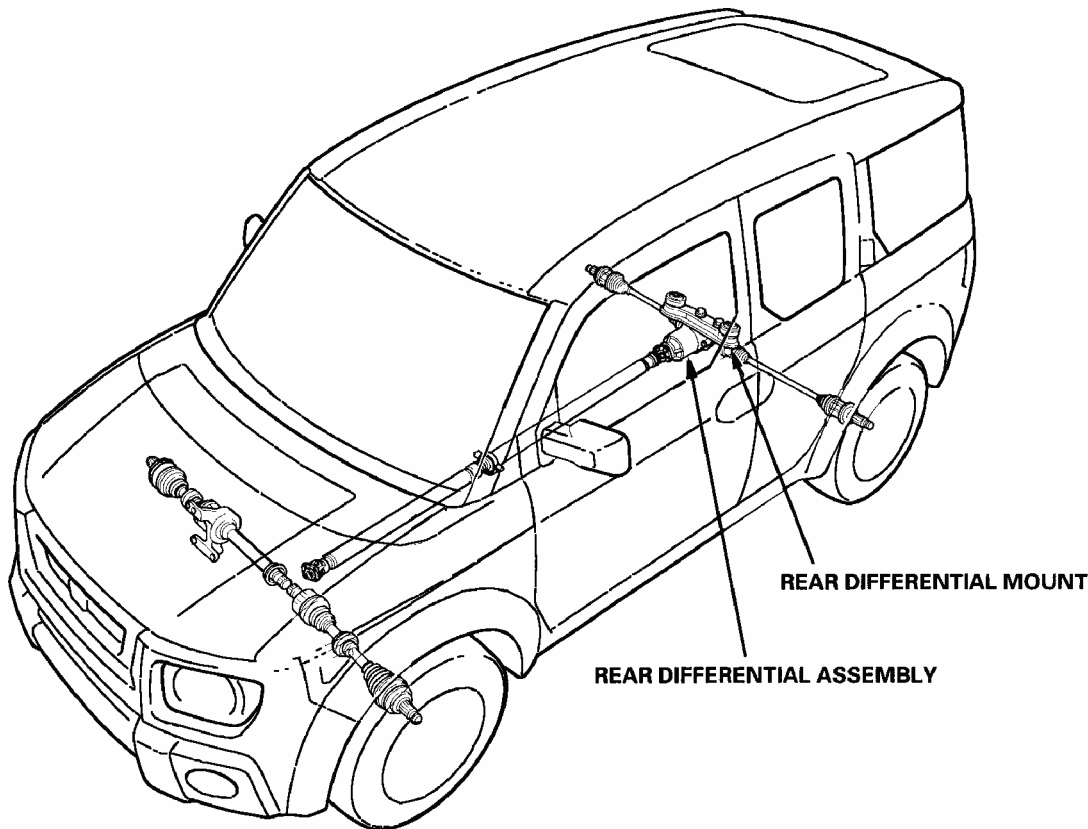
Fig. 1: Identifying Special Tools

Courtesy of AMERICAN HONDA MOTOR CO., INC.

COMPONENT LOCATION INDEX

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Fig. 2: Identifying Rear Differential Components
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SYSTEM DESCRIPTION

OUTLINE

The Real-time 4WD-Dual Pump System model has a hydraulic clutch and a differential mechanism in the rear differential assembly. Under normal conditions, the vehicle is driven by the front wheels. However, depending on the driving force of the front wheels and the road conditions, the system instantly transmits appropriate driving force to the rear wheels without requiring the driver to switch between 2WD (front wheel drive) and 4WD (four wheel drive). The switching mechanism between 2WD and 4WD is integrated into the rear differential assembly to make the system light and compact.

In addition, the dual pump system switches off the rear-wheel-drive force when braking in a forward gear. This allows the braking system to work properly on models equipped with an Anti-lock Brake System (ABS).

CONSTRUCTION

The rear differential assembly consists of the torque control differential case assembly and

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the rear differential carrier assembly. The torque control differential case assembly consists of the differential clutch assembly, the companion flange, and the oil pump body assembly. The rear differential carrier assembly consists of the differential mechanism.

The differential drive and driven gears are hypoid gears.

The oil pump body assembly consists of the front oil pump, the rear oil pump, the hydraulic control mechanism, and the clutch piston. The clutch piston has a disc spring that constantly provides the differential clutch assembly with a preset torque to prevent abnormal sound.

The clutch guide in the differential clutch assembly is connected to the propeller shaft via the companion flange, and it receives the driving force from the transfer assembly. The clutch guide rotates the clutch plate and the front oil pump in the oil pump body.

The clutch hub in the differential clutch assembly has clutch discs that are splined with the hypoid drive pinion gear.

The hypoid drive gear drives the rear oil pump.

The front and rear oil pumps are trochoidal pumps. The rear oil pump capacity is 2.5 percent larger than the front oil pump to handle the rotation difference between the front and rear wheels caused by worn front tires and tight corner braking. The oil pumps are designed so the fluid intake works as a fluid discharge when the oil pumps rotate in reverse.

Honda Dual Pump Fluid is used instead of differential fluid.

OPERATION

When there is a difference in rotation speed between the front wheels (clutch guide) and rear wheels (hypoid driven gear), hydraulic pressure from the front and rear oil pumps engages the differential clutch, and drive force from the transfer assembly is applied to the rear wheels.

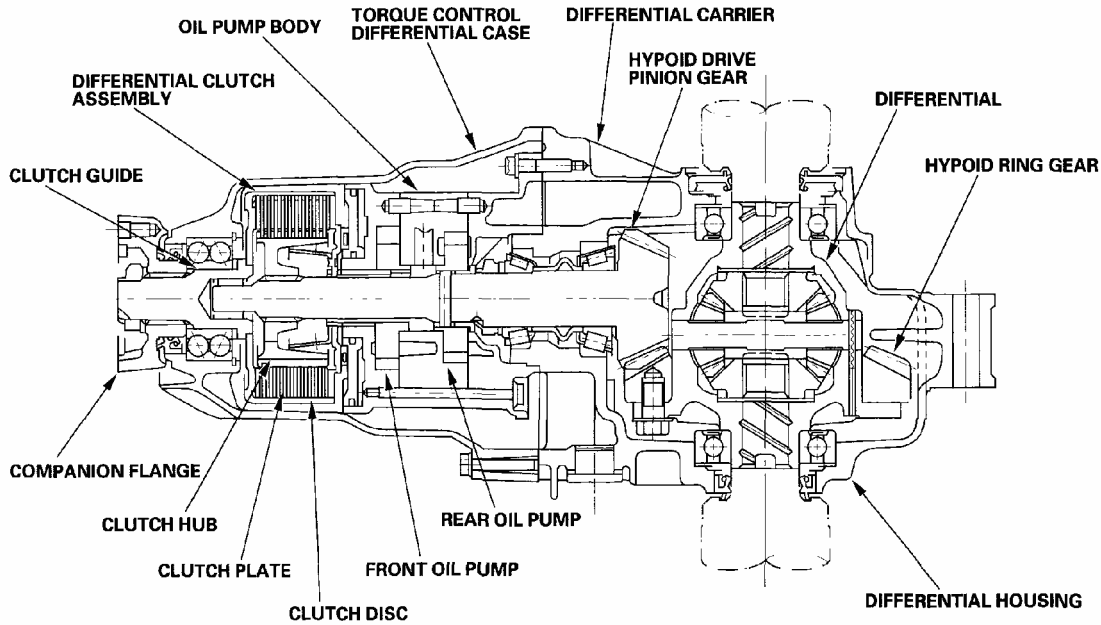
The hydraulic pressure control mechanism in the oil pump body selects 4WD mode when the vehicle is started abruptly, or when accelerating in a forward or reverse gear (causing rotation difference between the front and rear wheels), or when braking in reverse gear (when decelerating). It switches to 2WD mode when the vehicle is driven at a constant speed in forward or reverse gear (when there is no rotation difference between the front and rear wheels), or when braking in a forward gear (when decelerating).

To protect the system, the differential clutch assembly is lubricated by hydraulic pressure generated by the oil pumps in both 4WD and 2WD modes. Also, the thermal switch relieves the hydraulic pressure on the clutch piston and cancels 4WD mode if the temperature of the differential fluid rises above normal.

Rear Differential Assembly

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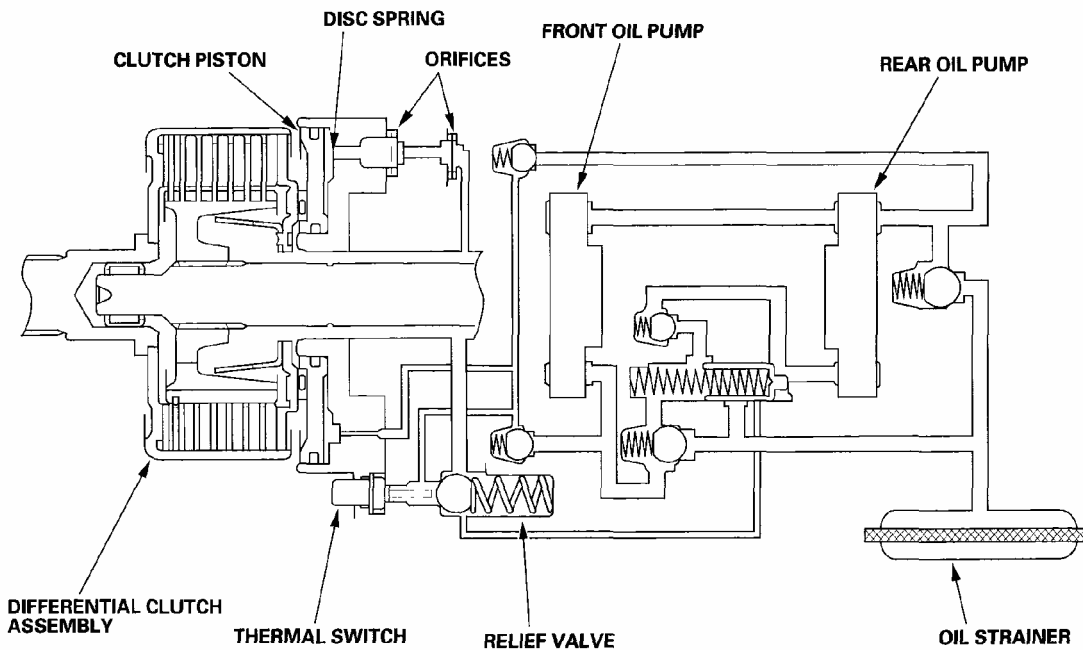
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Fig. 3: Identifying Rear Differential Assembly
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Hydraulic Control System



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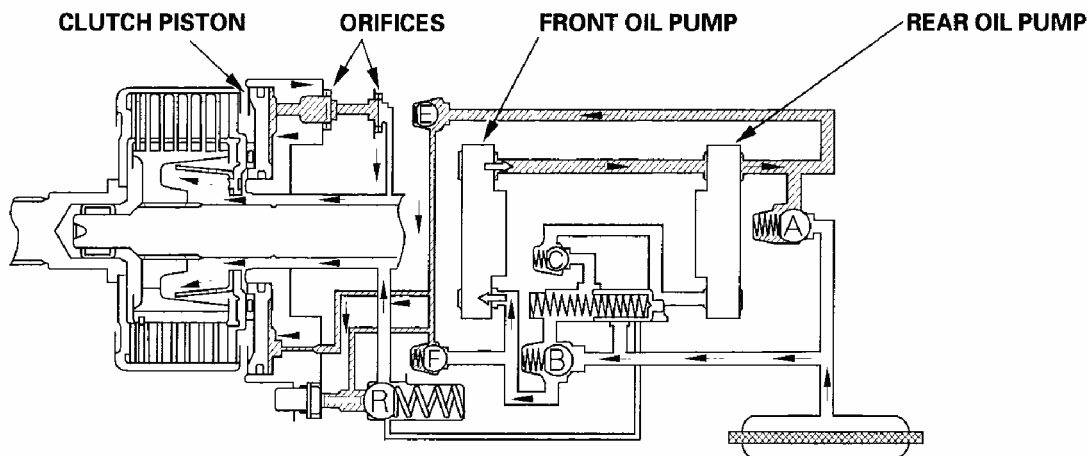
Fig. 4: Identifying Differential Components - Hydraulic Control System
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Forward Start and Acceleration (4WD)

During a forward start and forward acceleration, the dual pump system can engage four wheel drive.

If the front wheels spin faster than the rear wheels, the front oil pump spins faster than the rear oil pump. The front pump draws fluid through check valve B and discharges it. Some of the discharged fluid is drawn in by the rear oil pump. The remaining fluid will pass through check valve E into the clutch piston. There, hydraulic pressure is regulated by two orifices.

The regulated hydraulic pressure at the clutch piston pushes the plates and discs of the clutch together to form a connection. The engaged clutch then passes driving force from the transfer assembly to the rear wheels, producing 4WD.



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Fig. 5: Identifying Hydraulic Control System Flow - Forward Start And Acceleration (4WD)

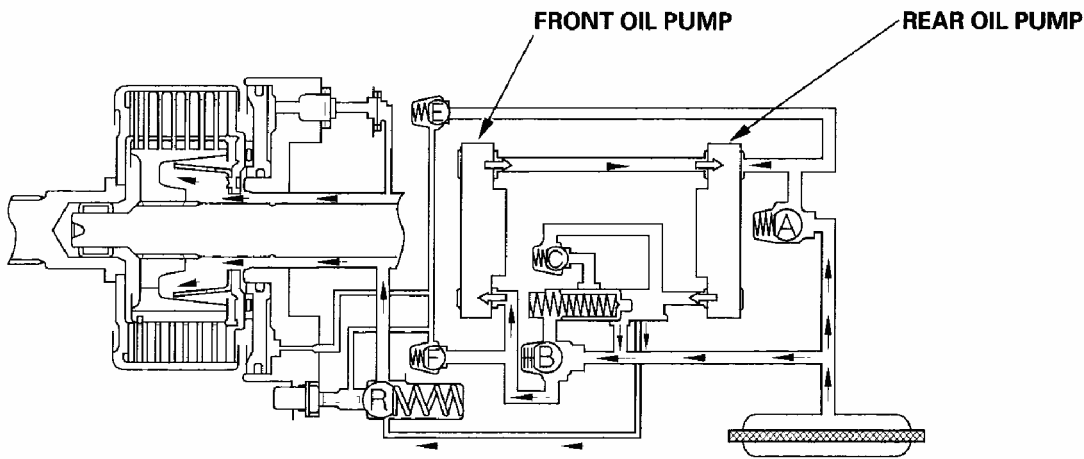
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Forward Driving at Constant Speed (2WD)

When driving forward at a constant speed (cruising), the dual pump system functions in two wheel drive mode. The rotation speed of the front and rear wheels is the same, so the speed of the front and rear pumps is also the same. Fluid discharged by the front oil pump is drawn in by the rear oil pump and is circulated through the system. Because there is no pressure built up at the clutch piston, the clutch does not engage, and the vehicle remains in 2WD (front wheel drive).

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Fig. 6: Identifying Hydraulic Control System Flow - Forward Driving At Constant Speed (2WD)

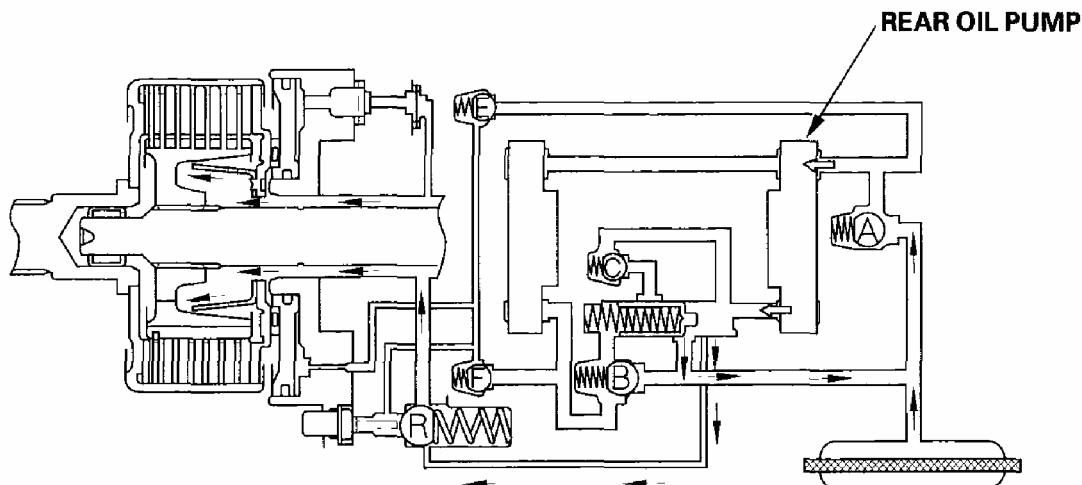
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Forward Deceleration (2WD)

During forward deceleration, the dual pump system functions in two wheel drive mode.

Because of braking characteristics, the speed of the rear wheels may exceed the speed of the front wheels during deceleration. If so, the rear oil pump spins faster than the front oil pump.

Fluid discharged by the rear oil pump is simply drawn in again by the rear pump and recirculated. Because there is no pressure built up at the clutch piston, the clutch piston does not engage, and the vehicle remains in 2WD (front wheel drive).



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Fig. 7: Identifying Hydraulic Control System Flow - Forward Deceleration (2WD)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

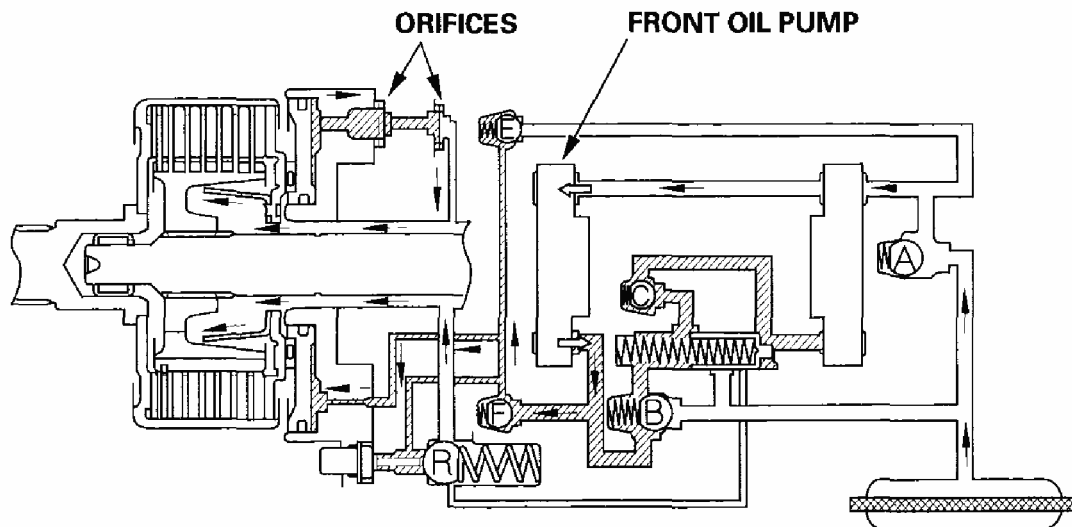
Reverse Start and Acceleration (4WD)

During reverse start and reverse acceleration, the dual pump system can engage four wheel drive.

If the front wheels spin faster than the rear wheels, the front oil pump spins faster than the rear oil pump. The front oil pump draws in fluid through check valve A and discharges it. (Note that in reverse, the direction of the pumps is the opposite of that during forward driving.)

Some of the fluid that is discharged by the front oil pump is drawn in by the rear oil pump. The remaining fluid passes through check valve F into the cylinder of the clutch piston, where it is regulated by two orifices.

The regulated hydraulic pressure at the clutch piston may force the plates and discs of the clutch together to form a connection. The engaged clutch passes driving force from the transfer assembly to the rear wheels, producing 4WD.



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Fig. 8: Identifying Hydraulic Control System Flow - Reverse Start And Acceleration (4WD)
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

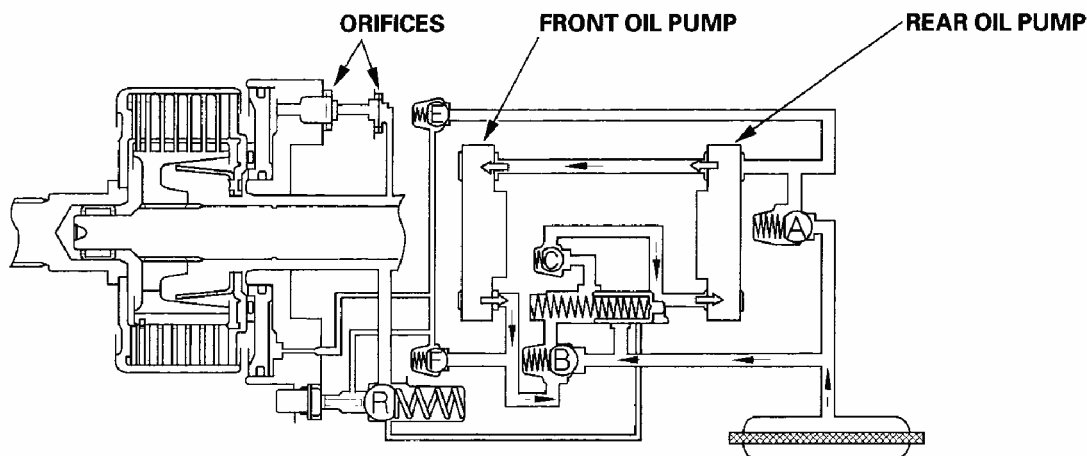
Reverse Driving at Constant Speed (2WD)

When driving in reverse at a constant speed, the dual pump system functions in two wheels drive mode.

The rotation speed of the front and rear wheels is the same, so the speed of the front and rear pumps is also the same.

Fluid discharged by the front oil pump is drawn in by the rear oil pump and is circulated through the system. But, because there is a difference in the capacity between the two pumps, fluid flows through check valve E, and then through orifices. This fluid lubricates and cools the clutch assembly and bearings.

In this condition, only a low pressure is built up at the clutch piston. Therefore the clutch does not engage, and the vehicle remains in 2WD (front wheel drive).



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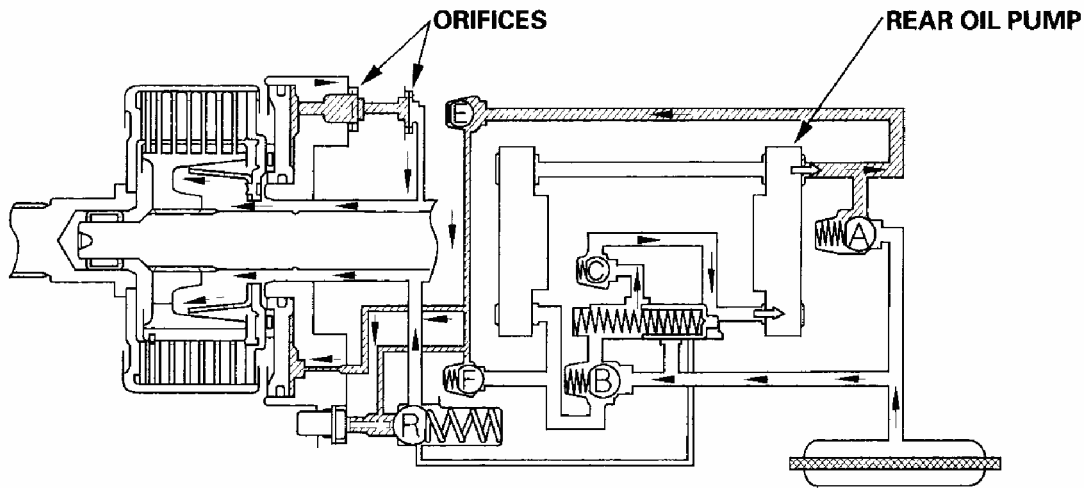
Fig. 9: Identifying Hydraulic Control System Flow - Reverse Driving At Constant Speed (2WD)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Reverse Deceleration (4WD)

During reverse deceleration, the dual pump system can engage four wheel drive.

When decelerating in reverse direction, the speed of the rear wheels may exceed the speed of the front wheels (due to engine braking). In this condition, the rear oil pump draws fluid through check valves B and C. Fluid discharged from the rear oil pump then flows through check valve E to the clutch piston. There, pressure is regulated by two orifices. The regulated hydraulic pressure at the clutch piston may force the plates and discs of the clutch together to form a connection. The engaged clutch passes driving force from the transfer assembly to the rear wheels, producing 4WD.



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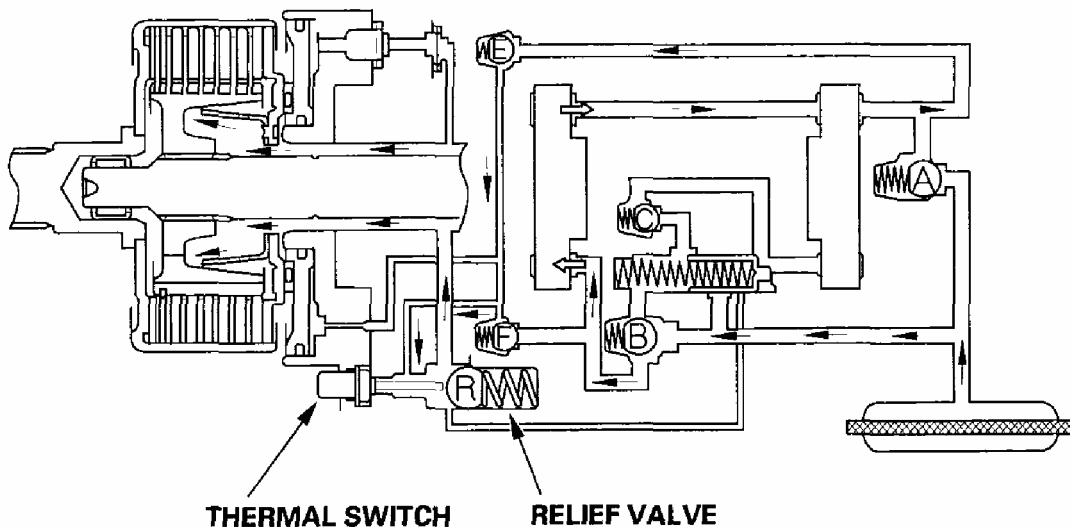
Fig. 10: Identifying Hydraulic Control System Flow Components - Reverse Deceleration (4WD)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Thermal Switch Operation (2WD)

During 4WD operation, pressure-regulated fluid is in contact with the clutch piston and the thermal switch.

If the temperature of the fluid in the differential goes too high, the thermal switch pushes open the relief valve R. This causes the pressure in the clutch piston to drop, and 4WD mode is disengaged.



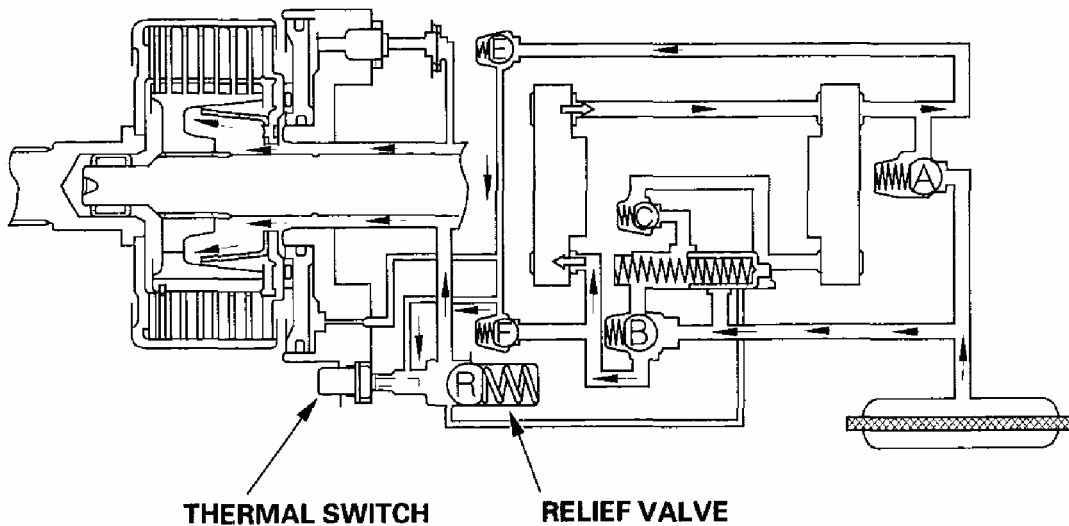
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Fig. 11: Identifying Hydraulic Control System Flow - Thermal Switch Operation (2WD)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Relief Valve Operation

When the fluid pressure goes higher than the relief valve spring force, check valve R opens. Pressure applied at the clutch piston is held constant. This feature adds stability by preventing the rear wheel drive system from experiencing excessive torque.



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Fig. 12: Identifying Hydraulic Control System Flow - Relief Valve Operation

Courtesy of AMERICAN HONDA MOTOR CO., INC.

DUAL PUMP SYSTEM FUNCTION TEST

AUTOMATIC TRANSMISSION

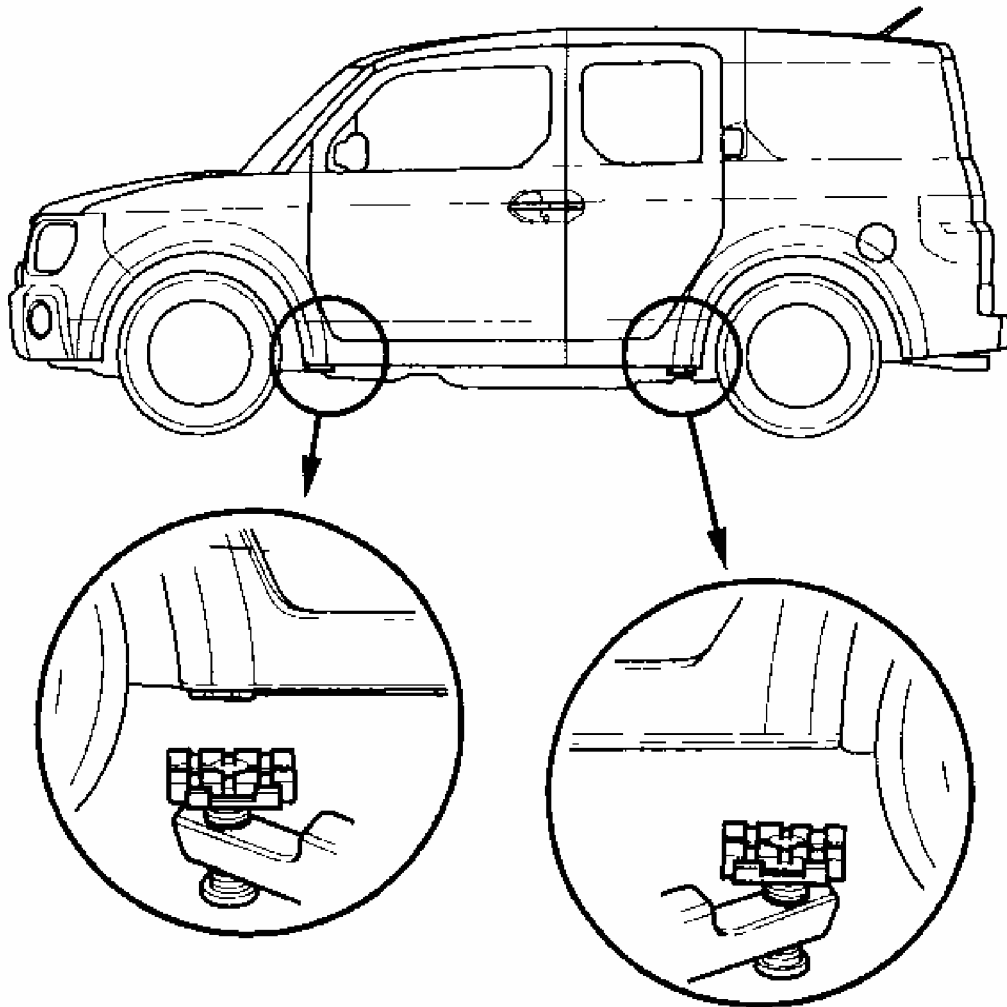
Starting And Accelerating In Forward Gears (4WD mode)

NOTE: Do not test repeatedly or the fluid will overheat.

1. Lift up the vehicle so all four wheels are off the ground (see LIFT AND SUPPORT POINTS).

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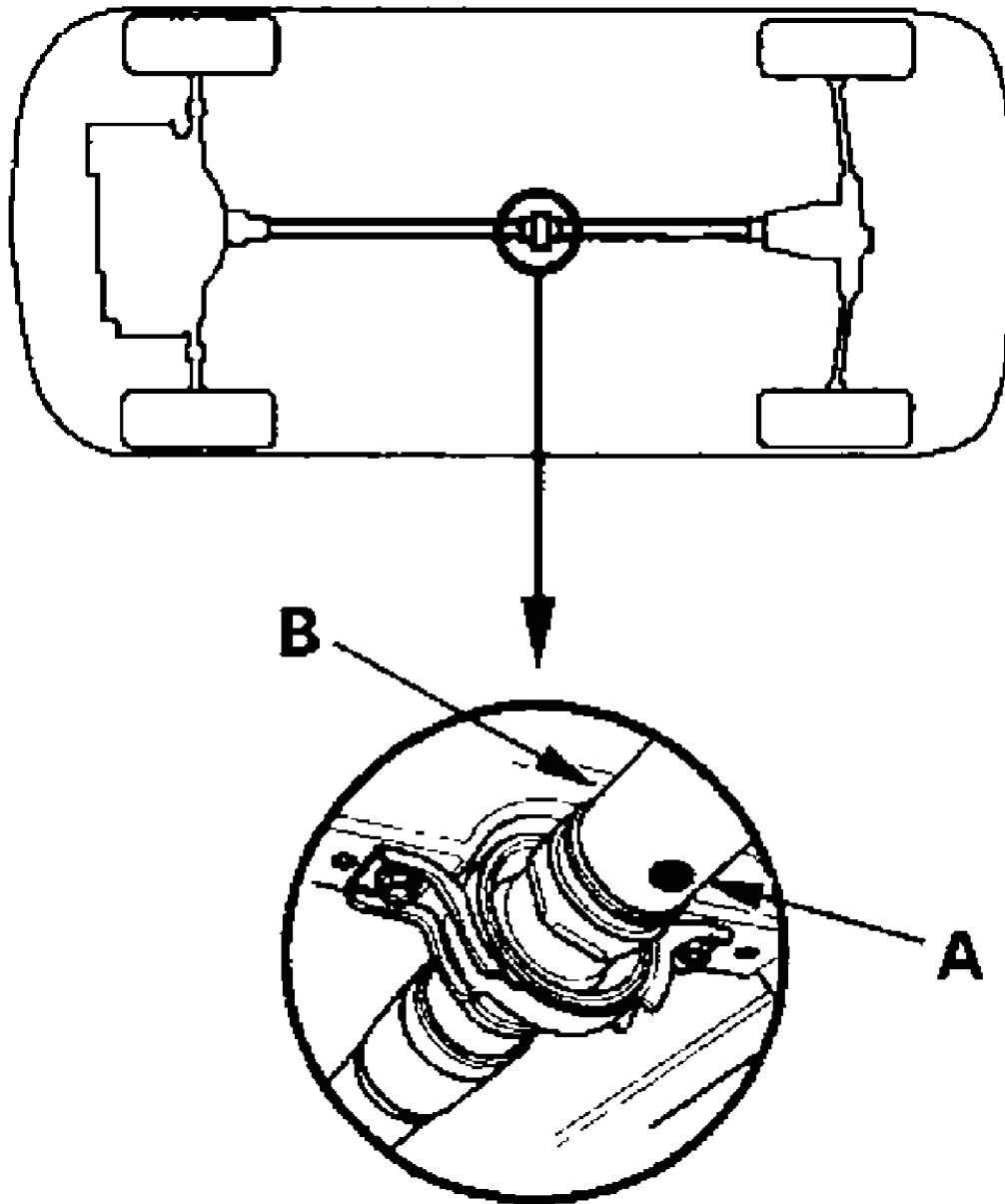


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Fig. 13: Identifying Lifting Points

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Make a mark (A) on either No. 1 or No. 2 propeller shaft (B).



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Fig. 14: Identifying Mark On Propeller Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
4. With the engine at idle, shift to the 1 position.
5. Firmly apply the parking brake to lock the rear wheels, and measure the time it takes

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the propeller shaft to rotate 10 times.

- If the measured time is more than 10 seconds, the 4WD system is normal.
- If the time is less than 10 seconds, there is a problem in the 4WD system. Check the differential fluid. If the differential fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).

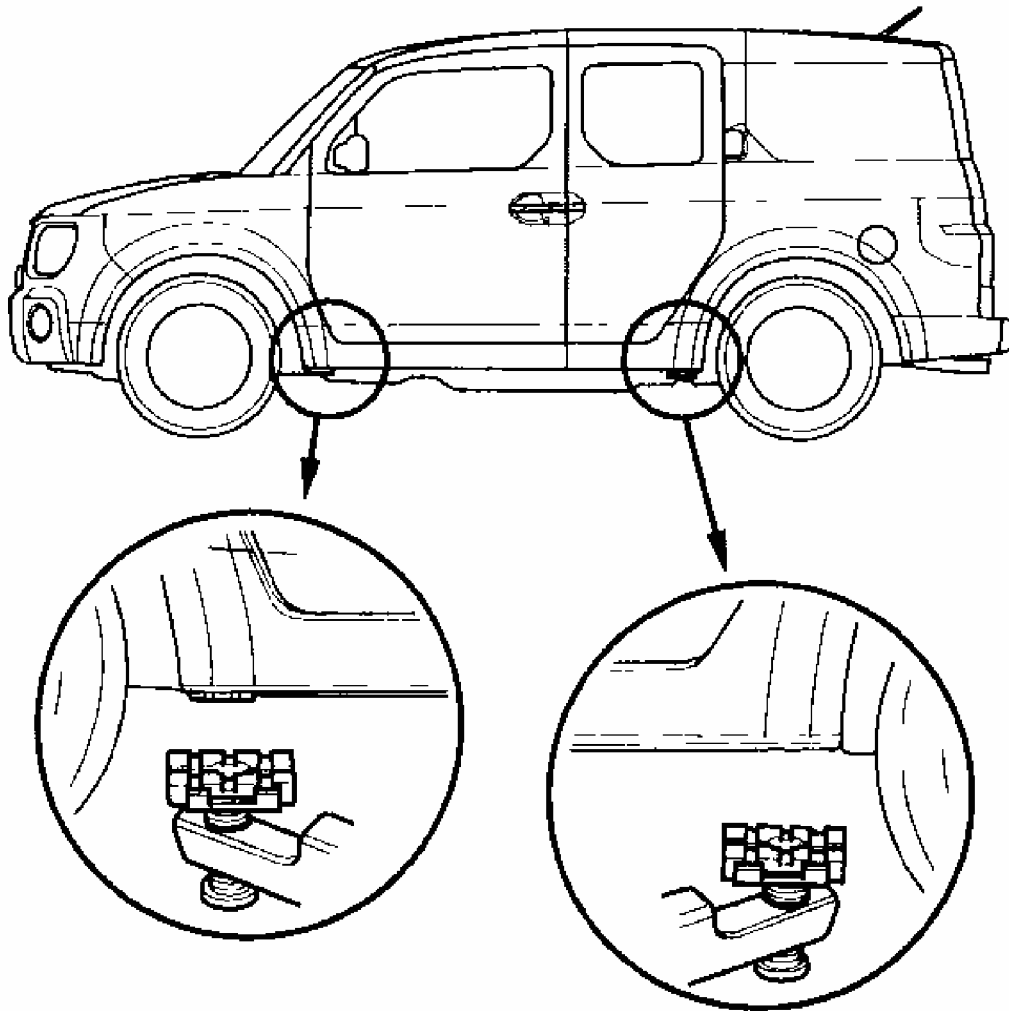
Starting and accelerating in reverse gear (4WD mode)

NOTE: Do not test repeatedly or the fluid will overheat.

1. Lift up the vehicle so all four wheels are off the ground (see **LIFT AND SUPPORT POINTS**).

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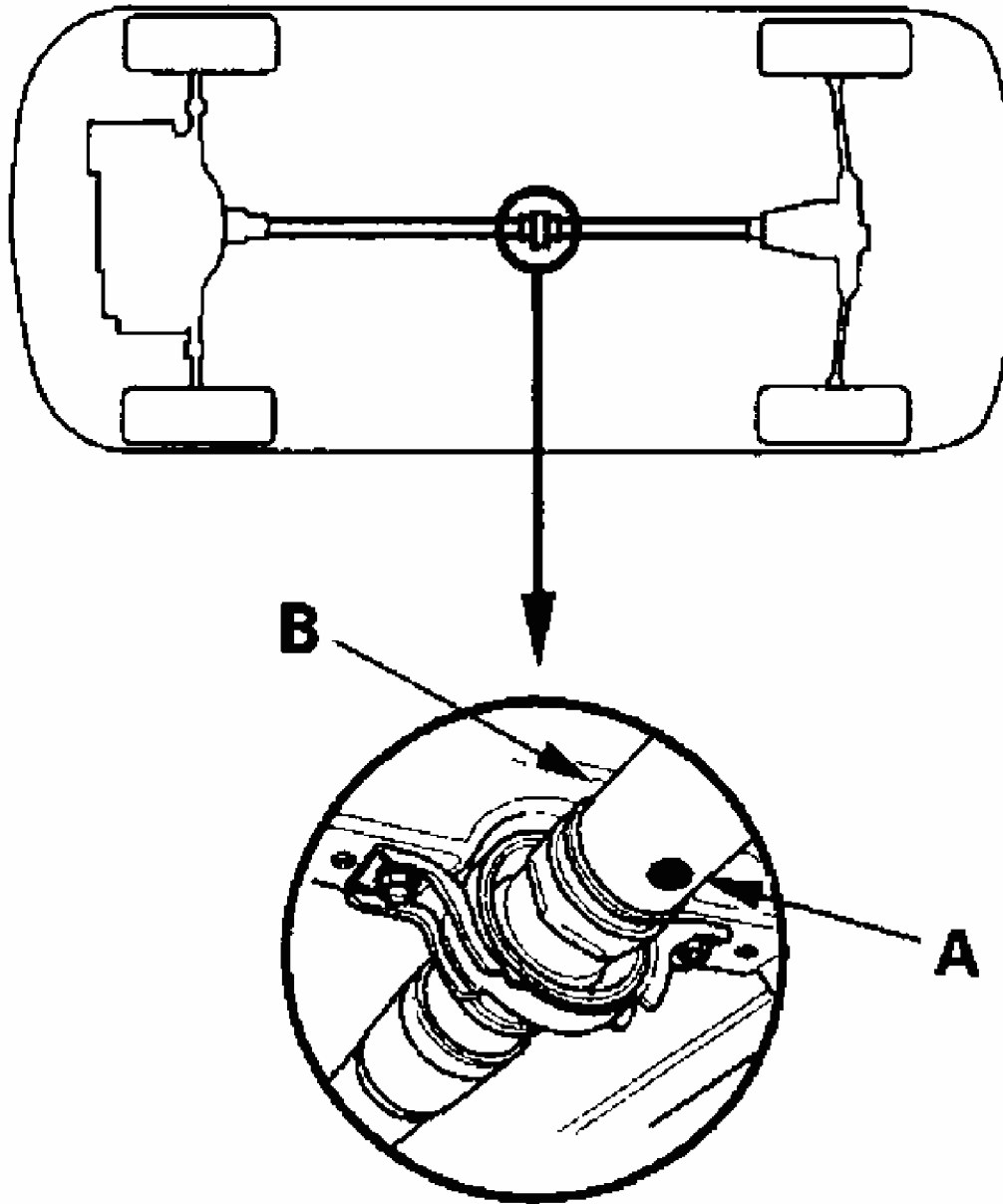


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Fig. 15: Identifying Lifting Point

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Make a mark (A) on either No. 1 or No. 2 propeller shaft (B).



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Fig. 16: Identifying Making Mark On Propeller Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
4. With the engine at idle, shift to the R position.
5. Firmly apply the parking brake to lock the rear wheels, and measure the time it takes

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the propeller shaft to rotate 10 times.

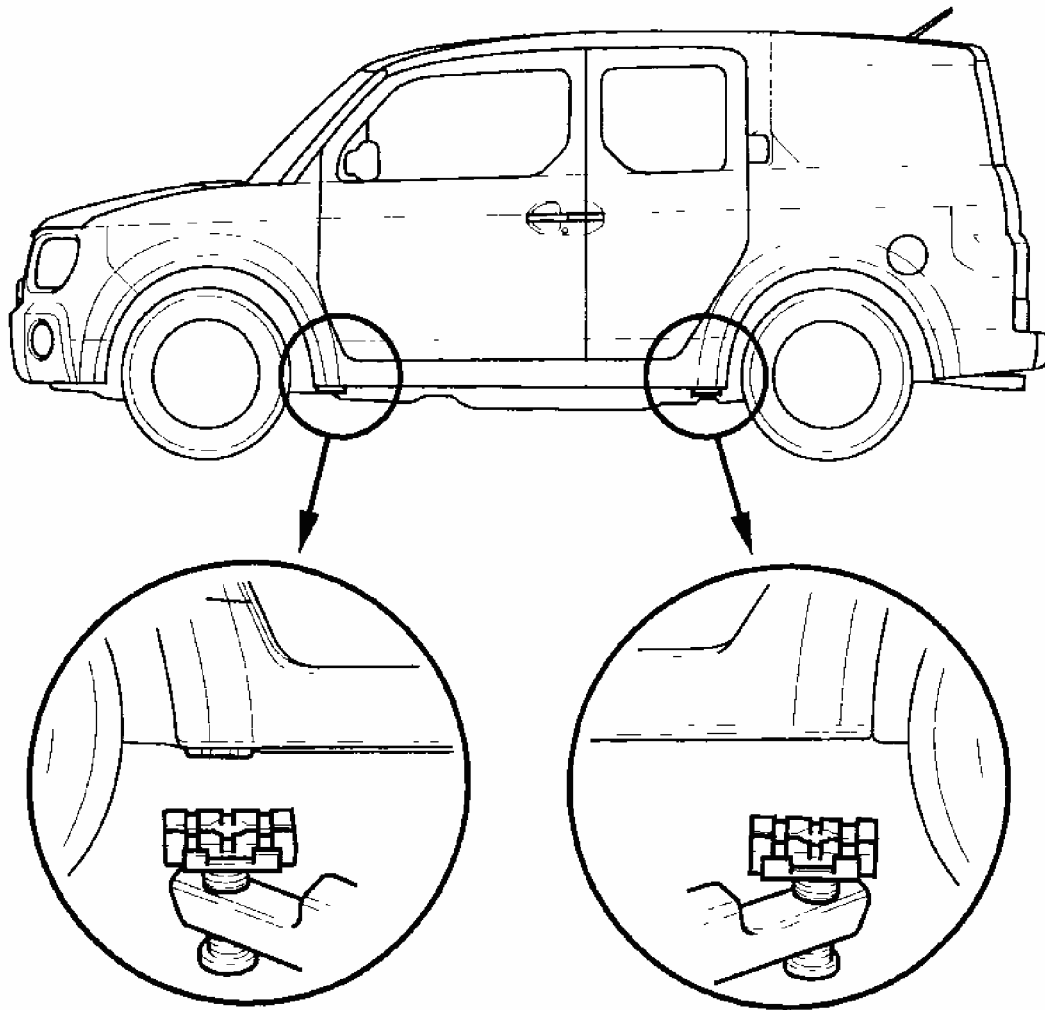
- If the measured time is more than 10 seconds, the 4WD system is normal.
- If the time is less than 10 seconds, there is a problem in the 4WD system. Check the differential fluid. If the differential fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).

MANUAL TRANSMISSION

Starting and accelerating in forward gears (4WD mode)

NOTE: **Do not test repeatedly or the fluid will
overheat.**

1. Lift up the vehicle so all four wheels are off the ground (see **LIFT AND SUPPORT POINTS**).



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Fig. 17: Identifying Lift Up Point

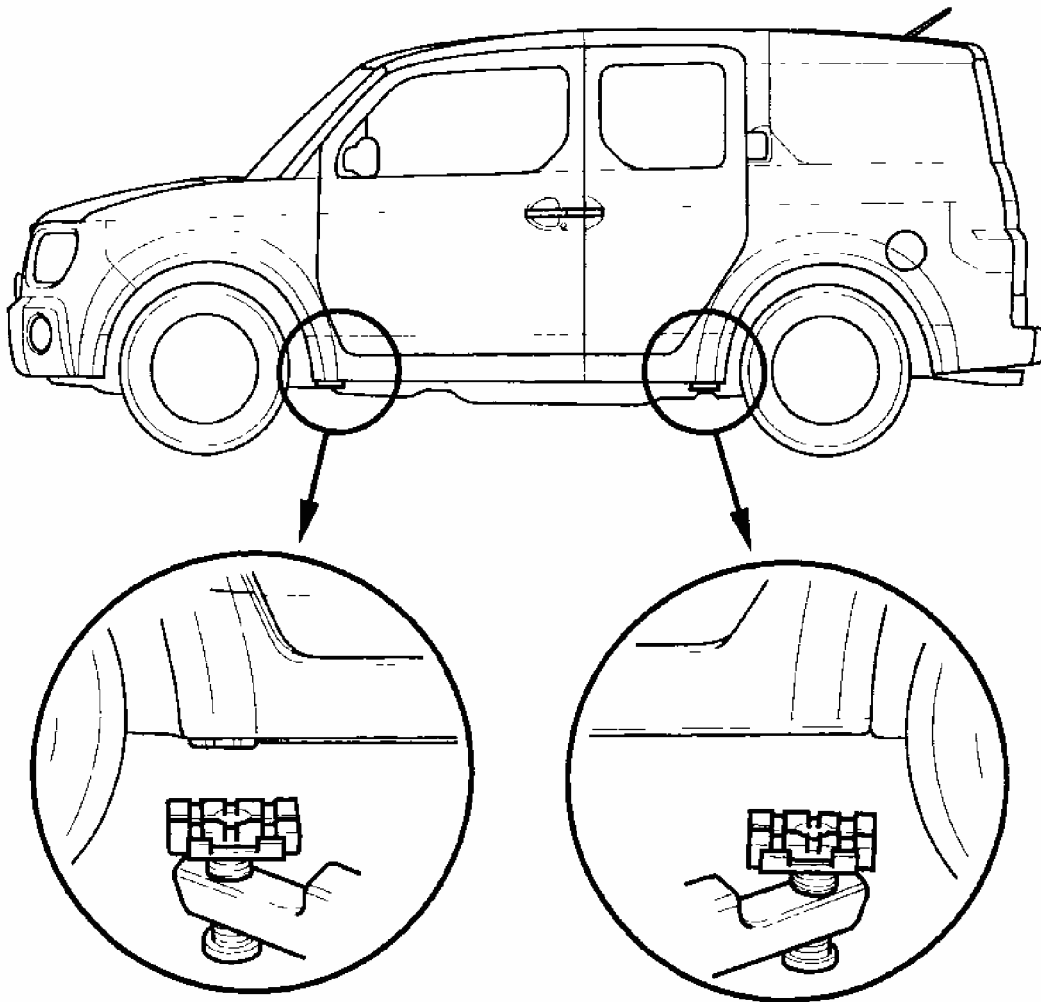
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
3. With the engine at idle, shift into 1st gear, and release the clutch.
4. Firmly apply the parking brake to lock the rear wheels.
 - If the engine stalls, the 4WD system is normal.
 - If the engine continues running, there is a problem in the 4WD system. Check the differential fluid. If the differential fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).

Starting and accelerating in reverse gears (4WD mode)

NOTE: Do not test repeatedly or the fluid will overheat.

1. Lift up the vehicle so all four wheels are off the ground (see **LIFT AND SUPPORT POINTS**).



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Fig. 18: Identifying Lift Up Point
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Start the engine, and let it run until it warms up (the radiator fan comes on at least twice).
3. With the engine at idle, shift into reverse gear, and release the clutch.
4. Firmly apply the parking brake to lock the rear wheels.
 - If the engine stalls, the 4WD system is normal.

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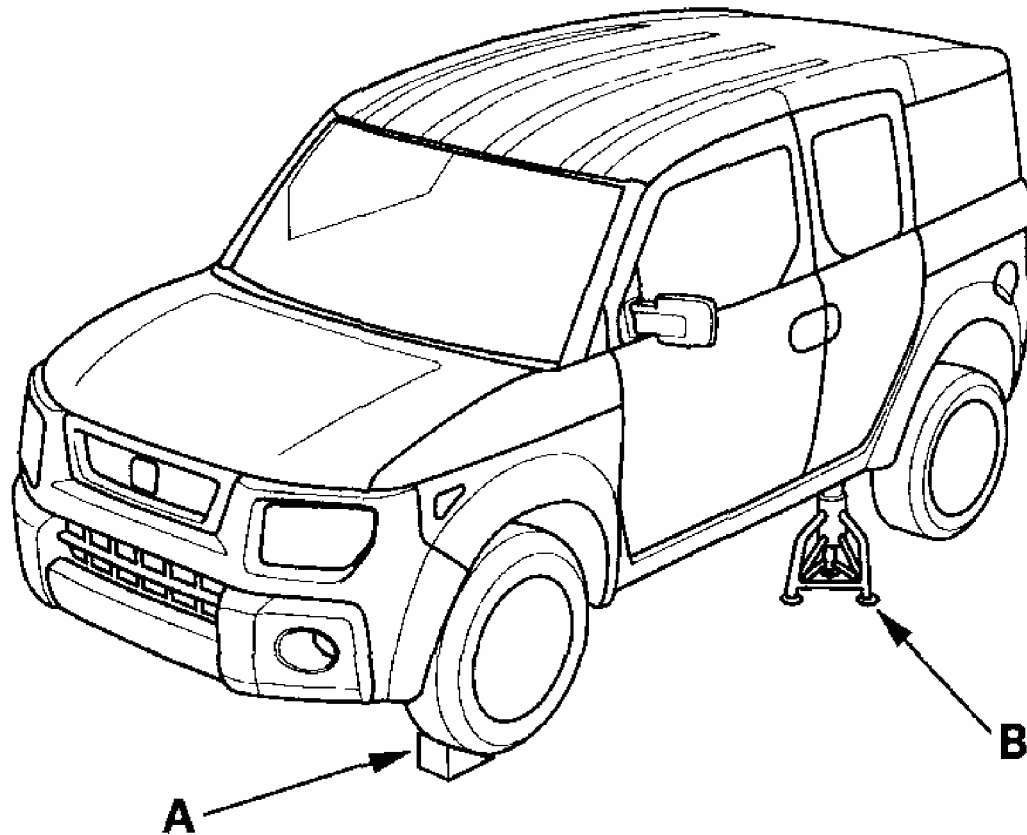
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- If the engine continues running, there is a problem in the 4WD system. Check the differential fluid. If the differential fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).

AUTOMATIC TRANSMISSION/MANUAL TRANSMISSION

Decelerating in a forward gears (2WD mode)

1. Block the front wheels (A), raise the left rear wheel, and support it with a safety stand (B) as shown.



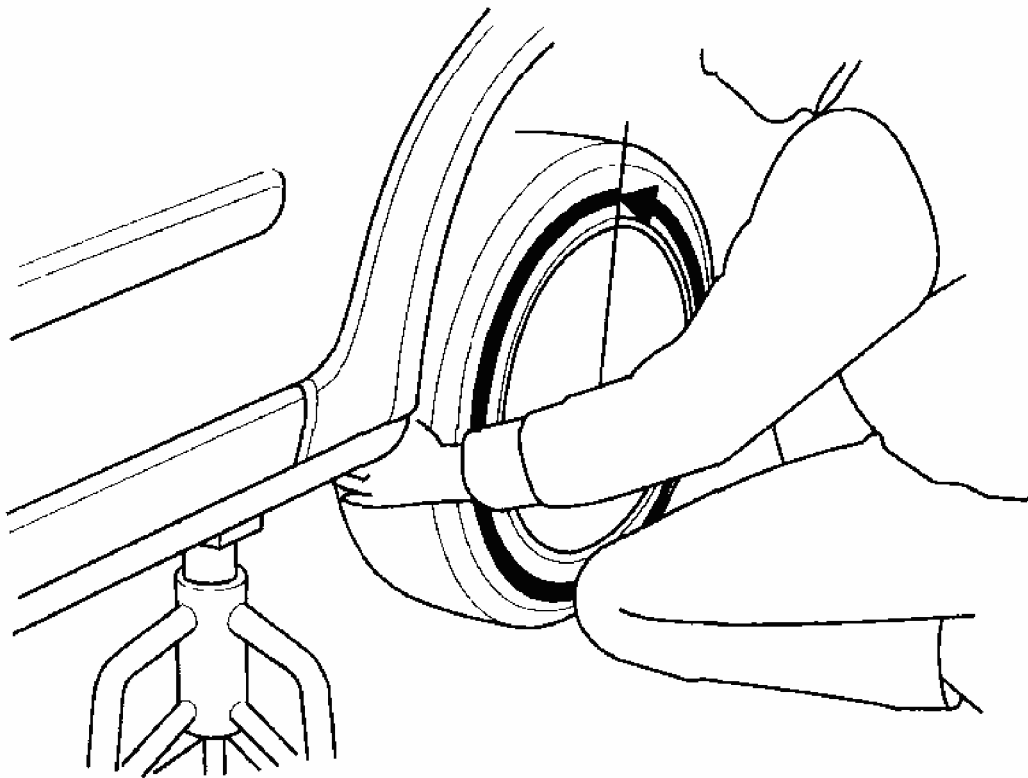
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Fig. 19: Blocking Front Wheels

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Hold the tire, and turn it counterclockwise continuously for more than one rotation.
 - If the rotation of the wheel does not gradually feel heavy while rotating, the 2WD system when decelerating in a forward gear is normal.

- If the rotation of the wheel gradually feels heavy, there is a problem in the system. Check the differential fluid. If the fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).



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Fig. 20: Holding Tire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Decelerating in reverse gears (4WD mode)

1. Block the front wheels (A), raise the left rear wheel, and support it with a safety stand (B) as shown.

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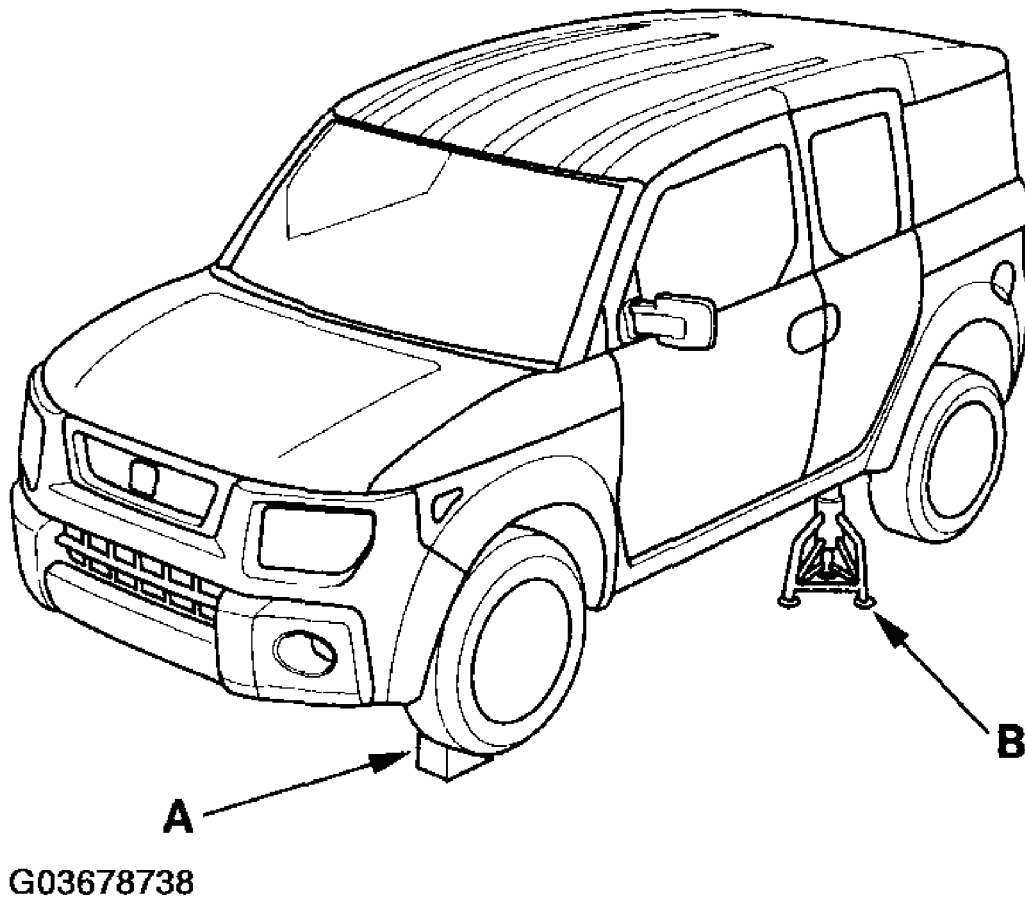
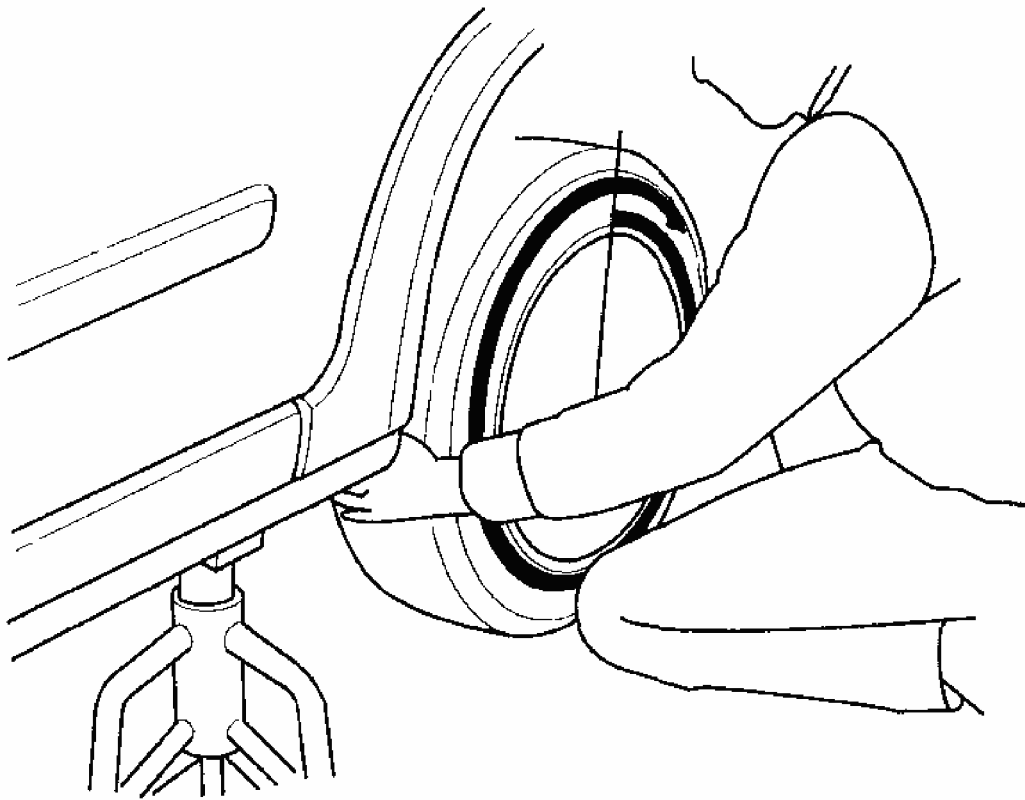


Fig. 21: Blocking Front Wheels

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Hold the tire, and turn it clockwise continuously for more than one rotation.
 - If the rotation of the wheel gradually feels heavy, the 4WD system when decelerating in reverse gear is normal.
 - If the rotation of the wheel does not gradually feel heavy, there is a problem in the system. Check the differential fluid. If the fluid is normal, replace the torque control differential (TCD) case kit (front pump portion).



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Fig. 22: Holding Tire

Courtesy of AMERICAN HONDA MOTOR CO., INC.

SYMPTOM TROUBLESHOOTING INDEX

SYMPTOM TROUBLESHOOTING INDEX

Symptom	Diagnostic Procedure	Also check for
Will not go into 4WD mode	<ul style="list-style-type: none"> • Fluid level too low. Add recommended fluid. • Incorrect fluid type. Drain and fill the differential with the recommended fluid. 	Most problems in the unit are to be diagnosed by identifying noises from the gears or bearings. Be careful during diagnosis not to confuse differential noises with those from other drivetrain components.
Will not return to 2WD mode	Incorrect fluid type. Drain and fill the differential with the recommended fluid.	
Gear or bearing	<ul style="list-style-type: none"> • Fluid level too low. Add 	

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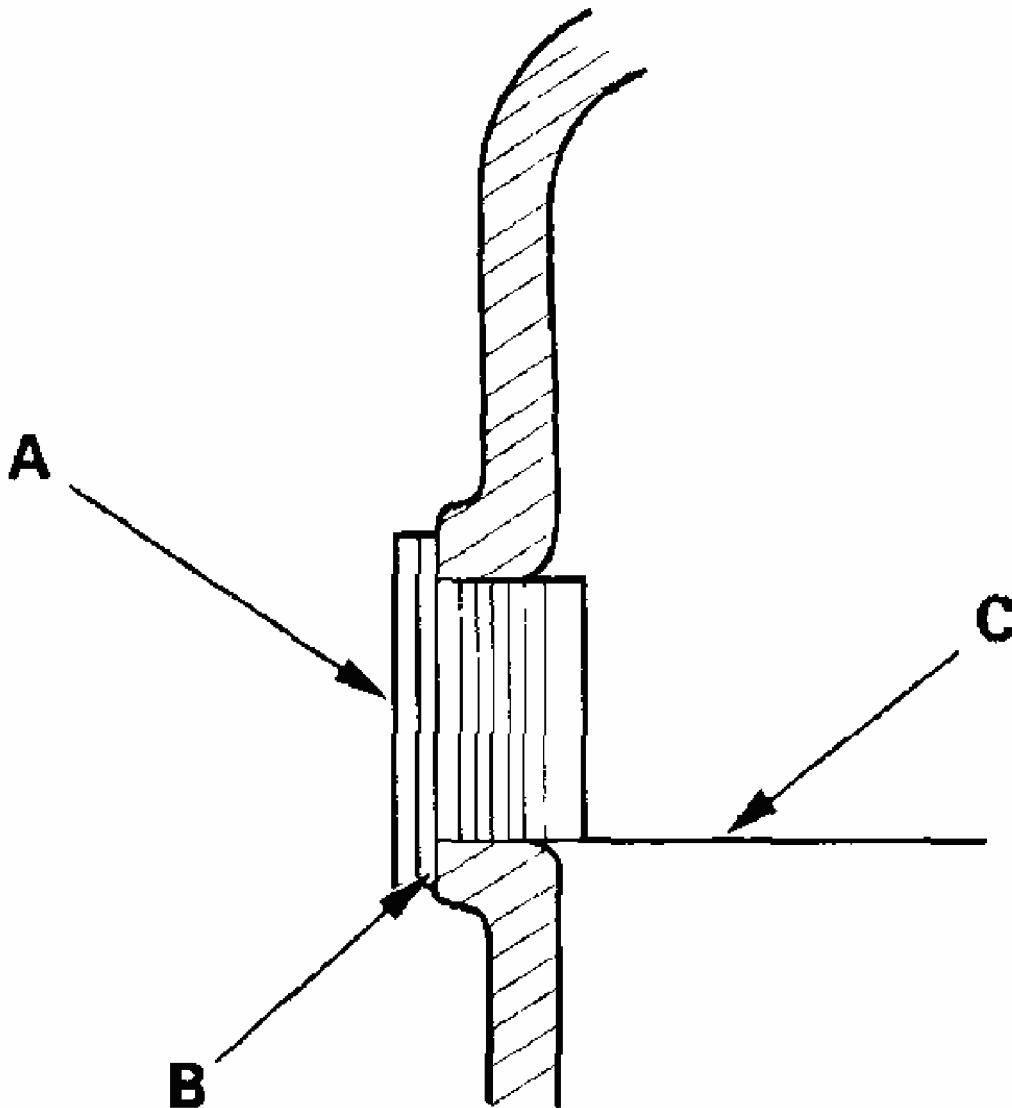
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noises	<p>recommended fluid.</p> <ul style="list-style-type: none">• Incorrect or worn out fluid. Drain and fill the differential with the recommended fluid.• Damaged or chipped gears. Replace the differential carrier assembly.
Rear differential overheats	<ul style="list-style-type: none">• Fluid level too low. Add recommended fluid.• Incorrect fluid type. Drain and fill the differential with the recommended fluid.
Rear differential leaks fluid	<ul style="list-style-type: none">• Fluid level too high. Lower to proper level.• Clogged breather hose. Clean or replace.• Worn or damaged oil seal. Replace.<ul style="list-style-type: none">• Damaged sealing washer. Replace.• Loose mounting bolts or inadequate sealing. Recheck torque or apply sealant.
Rear differential screeches, whines, moans, or squeaks	<ul style="list-style-type: none">• Fluid level too low. Add recommended fluid.• Incorrect or worn out fluid. Drain and fill the differential with the recommended fluid.• Incorrect tire rolling circumference. Adjust tire pressure or replace tires.<ul style="list-style-type: none">• Damaged pump. Replace torque control differential (TCD) front

pump.

DIFFERENTIAL FLUID INSPECTION AND REPLACEMENT

1. With the vehicle on level ground, inspect the differential fluid with the ignition switch turned to LOCK (0).
2. Remove the oil filler plug (A) and sealing washer (B), then check the condition of the fluid, and make sure the fluid is at the proper level (C).



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Fig. 23: Removing Oil Filler Plug And Sealing Washer
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. The fluid level must be up to the fill hole. If it is below the hole, add the recommended fluid until it runs out, then reinstall the oil filler plug with a new sealing washer.
4. If the fluid is dirty, remove the drain plug (A), and drain the fluid.

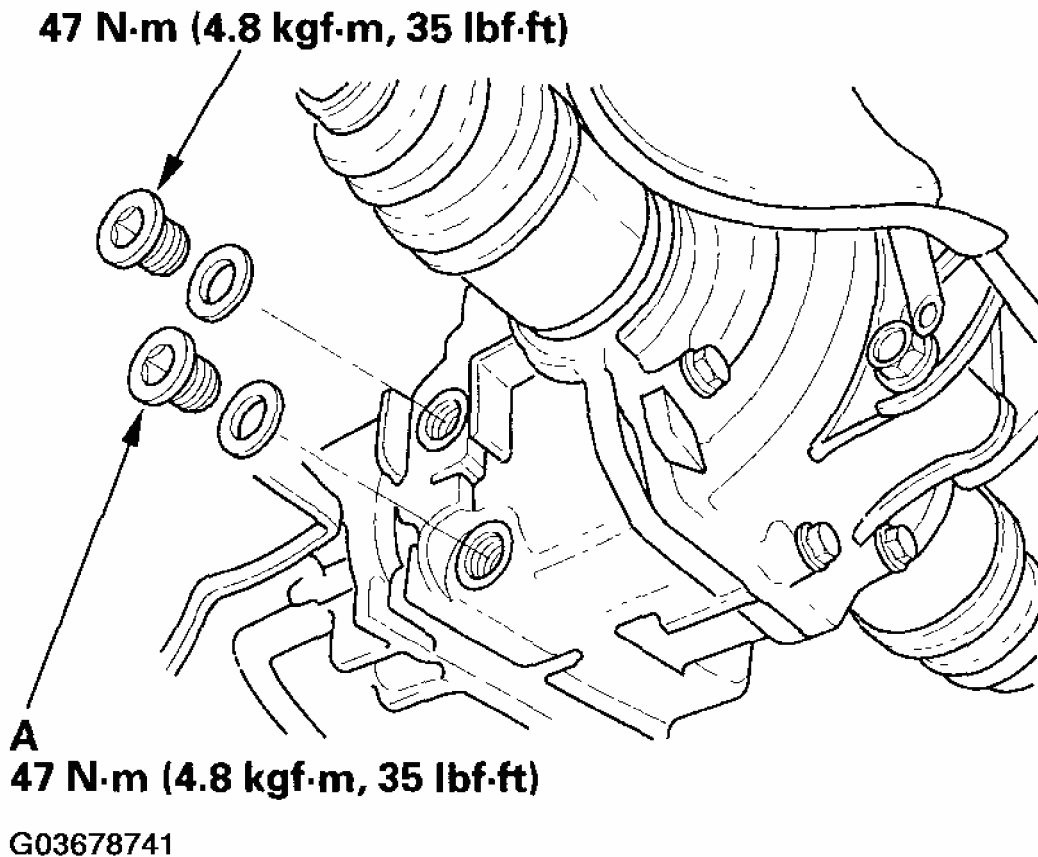


Fig. 24: Removing Drain Plug And Drain Fluid With Specified Torques
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Clean the drain plug, then reinstall it with a new sealing washer, and refill the differential with the recommended fluid to the proper level.

NOTE: If you disassemble the differential, check the fluid level again after the 4WD system check is finished. Add fluid if necessary.

Fluid Capacity

1.0 L (1.1 US qt) at fluid change

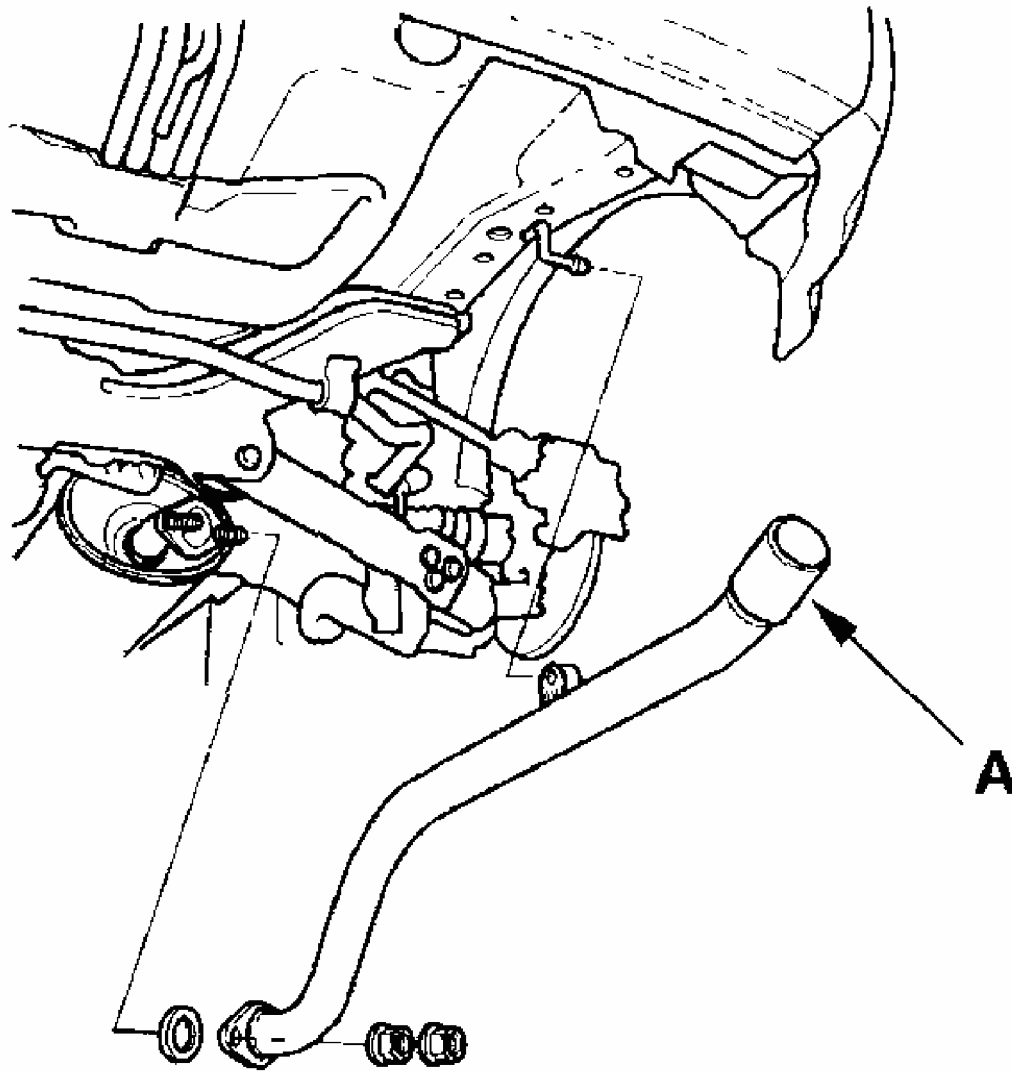
1.2 L (1.3 US qt) at overhaul

Recommended fluid: Honda Dual Pump Fluid (P/N 08200-9002)

6. Reinstall the oil filler plug with a new sealing washer.

DIFFERENTIAL REMOVAL

1. Drain the differential fluid (see **DIFFERENTIAL FLUID INSPECTION AND REPLACEMENT**).
2. Remove the tail pipe (A).

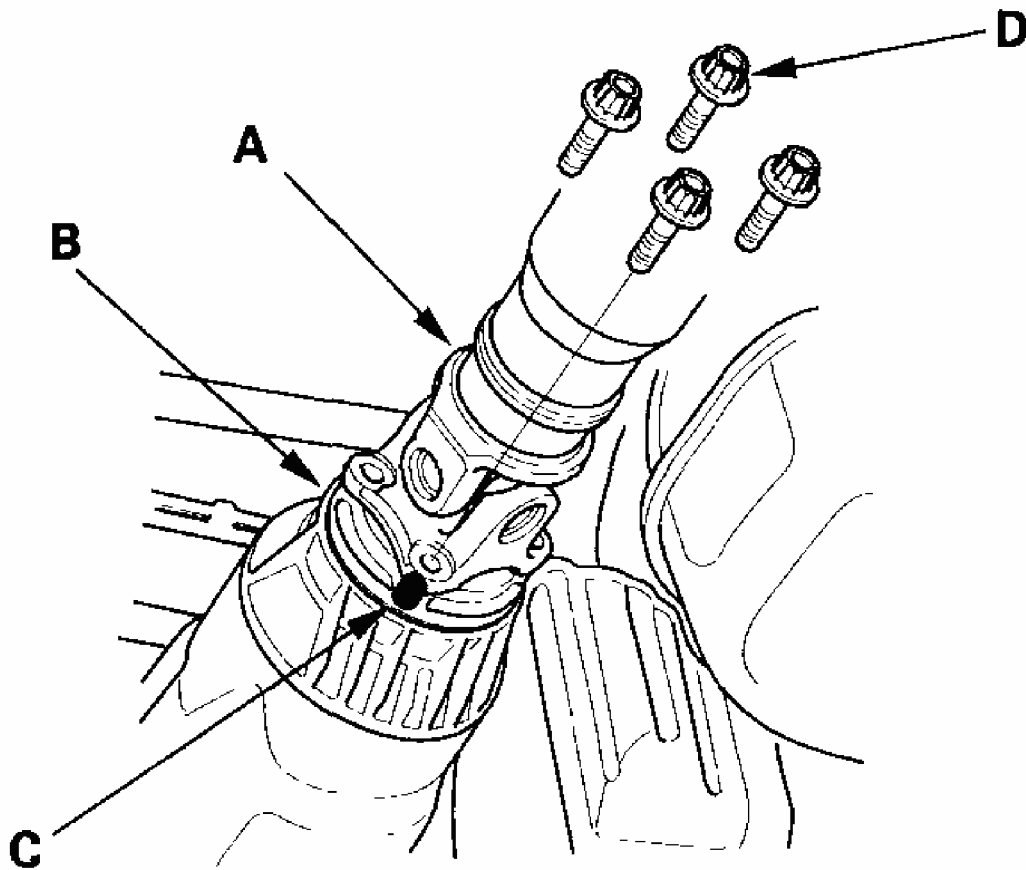


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Fig. 25: Removing Tail Pipe

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Mark the propeller shaft (A) and companion flange of the rear differential assembly (B) so they can be reinstalled in their original positions (C).



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Fig. 26: Applying Mark On Propeller Shaft And Companion Flange Of Rear Differential Assembly

Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove and discard the propeller shaft mounting bolts (D), then separate the propeller shaft from the rear differential assembly.
5. Remove the rear differential damper (A).

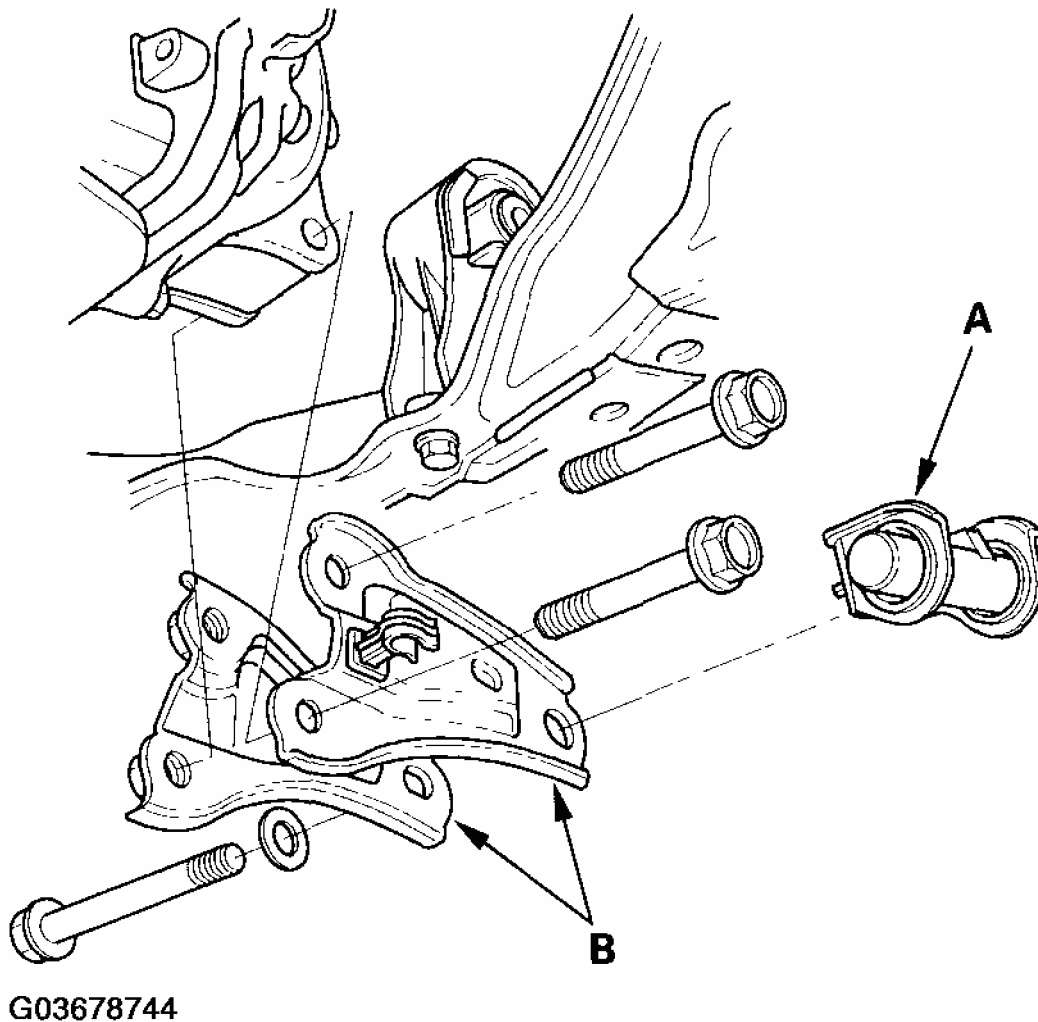
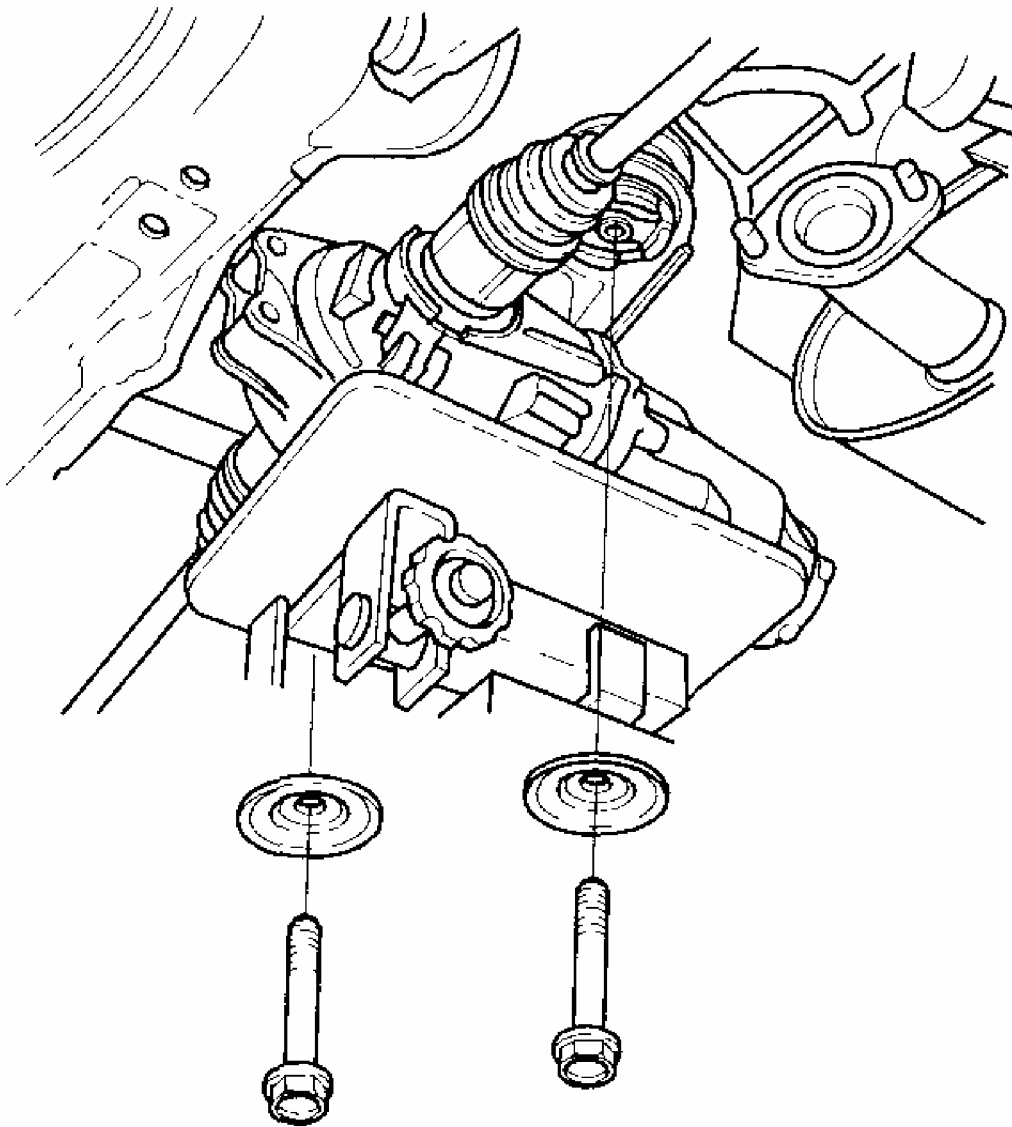


Fig. 27: Removing Rear Differential Damper
Courtesy of AMERICAN HONDA MOTOR CO., INC.

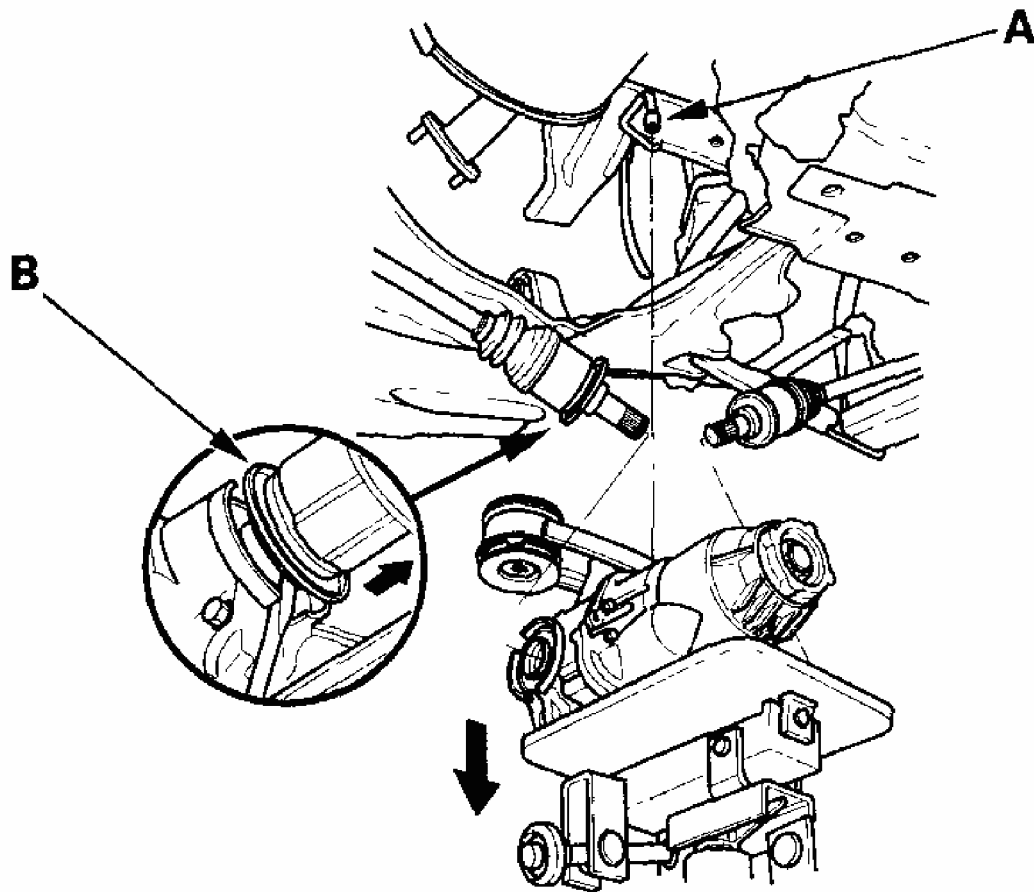
6. Place a transmission jack under the rear differential assembly, then remove the right and left rear differential mounting brackets B.
7. Remove the mounting bolts and the plates.



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Fig. 28: Removing Mounting Bolts And Plates
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Disconnect the breather tube (A) from the breather tube fitting.



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Fig. 29: Disconnecting Breather Tube From Breather Tube Fitting
Courtesy of AMERICAN HONDA MOTOR CO., INC.

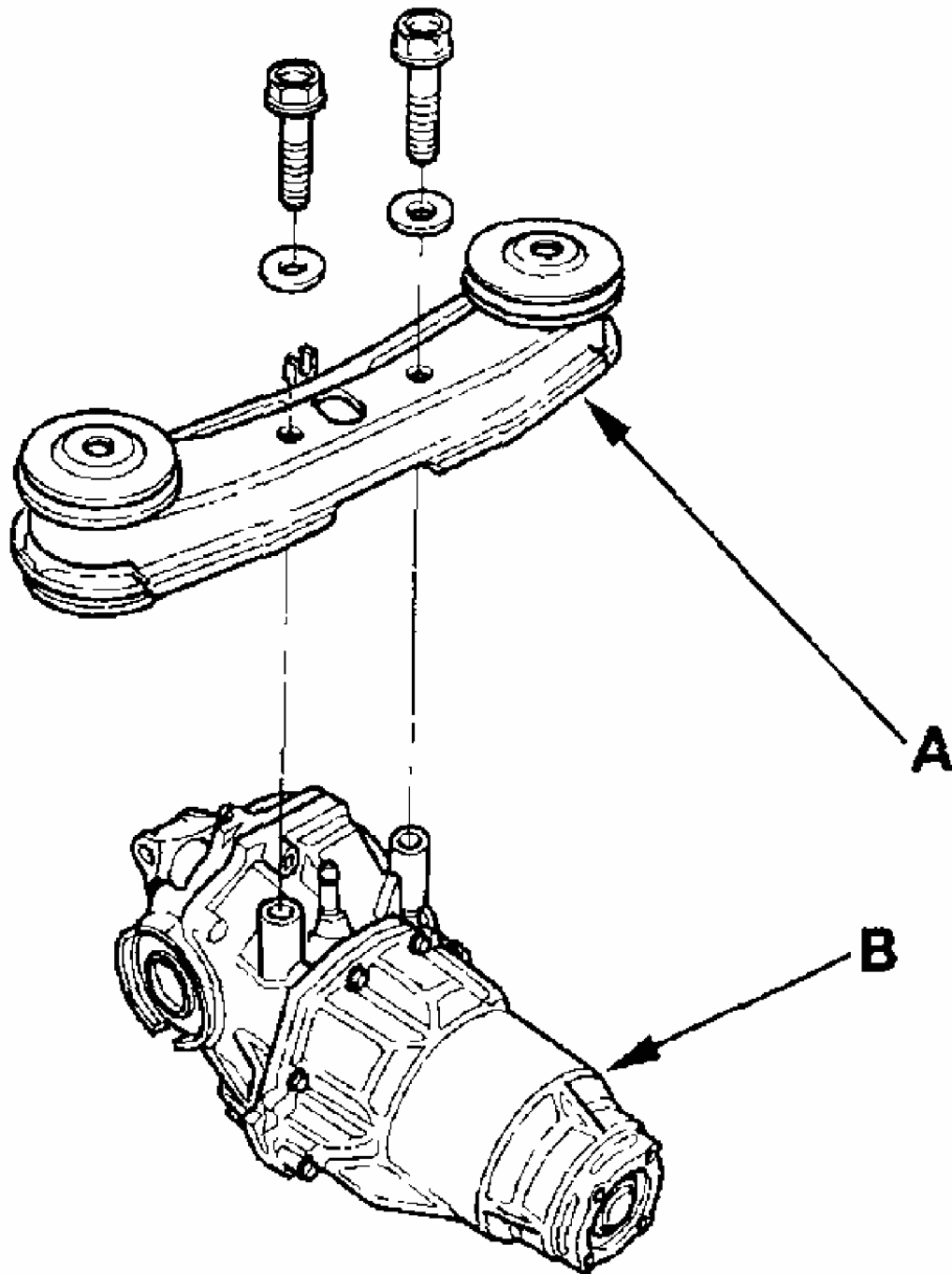
9. Lower the rear differential assembly while pulling both driveshaft inboard joints out of the rear differential assembly.

NOTE: Be careful not to damage the driveshaft ring (B) when prying out the driveshaft inboard joints.

10. Remove the rear differential mount assembly (A) from the rear differential assembly (B).

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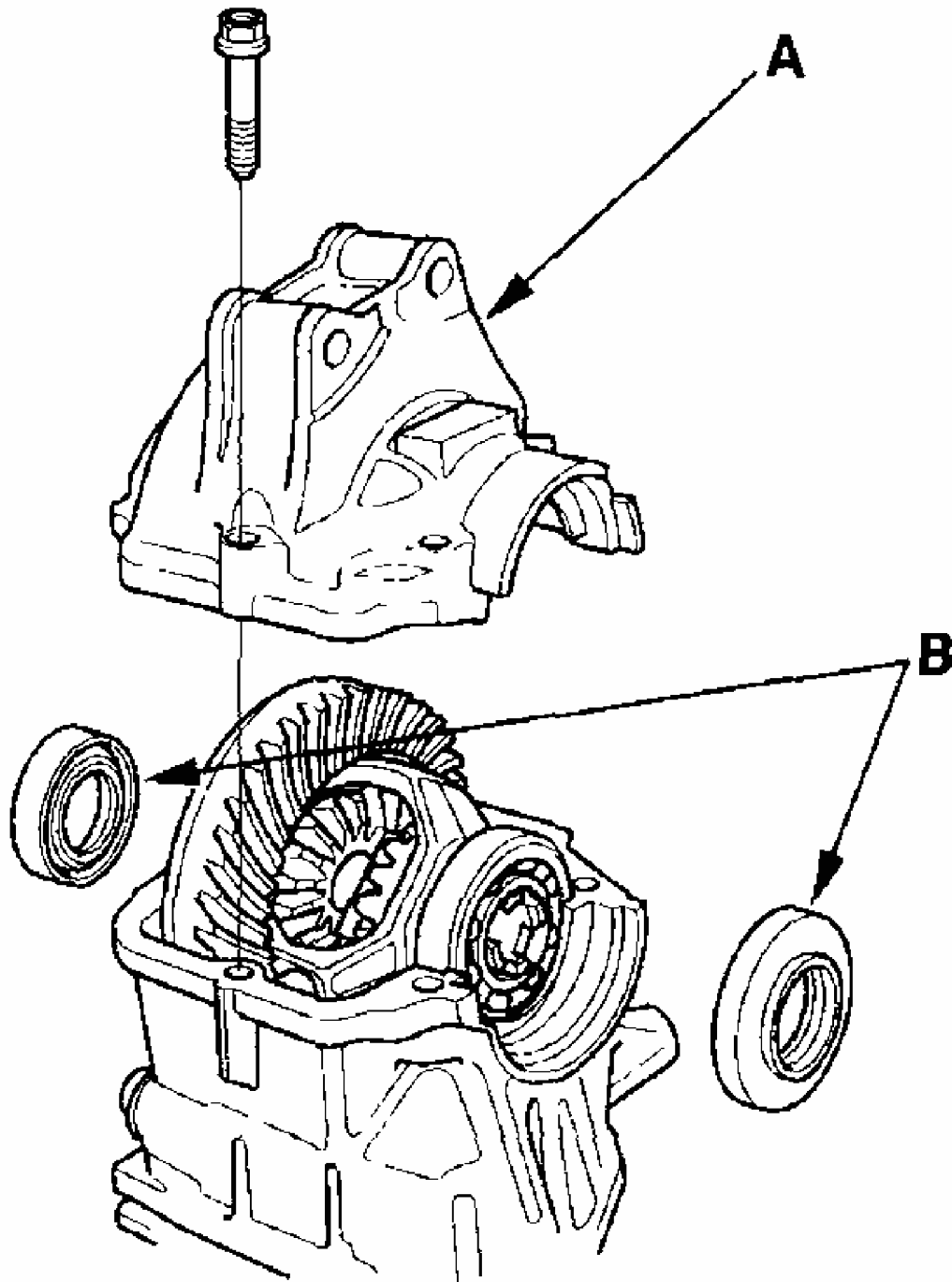
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Fig. 30: Removing Rear Differential Mount Assembly From Rear Differential Assembly

Courtesy of AMERICAN HONDA MOTOR CO., INC.

DIFFERENTIAL HOUSING ASSEMBLY REMOVAL AND INSTALLATION

1. Remove the six mounting bolts in a crisscross pattern in several steps, then remove the differential housing assembly (A) and oil seals (B).



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Fig. 31: Removing Differential Housing Assembly And Oil Seals
Courtesy of AMERICAN HONDA MOTOR CO., INC.

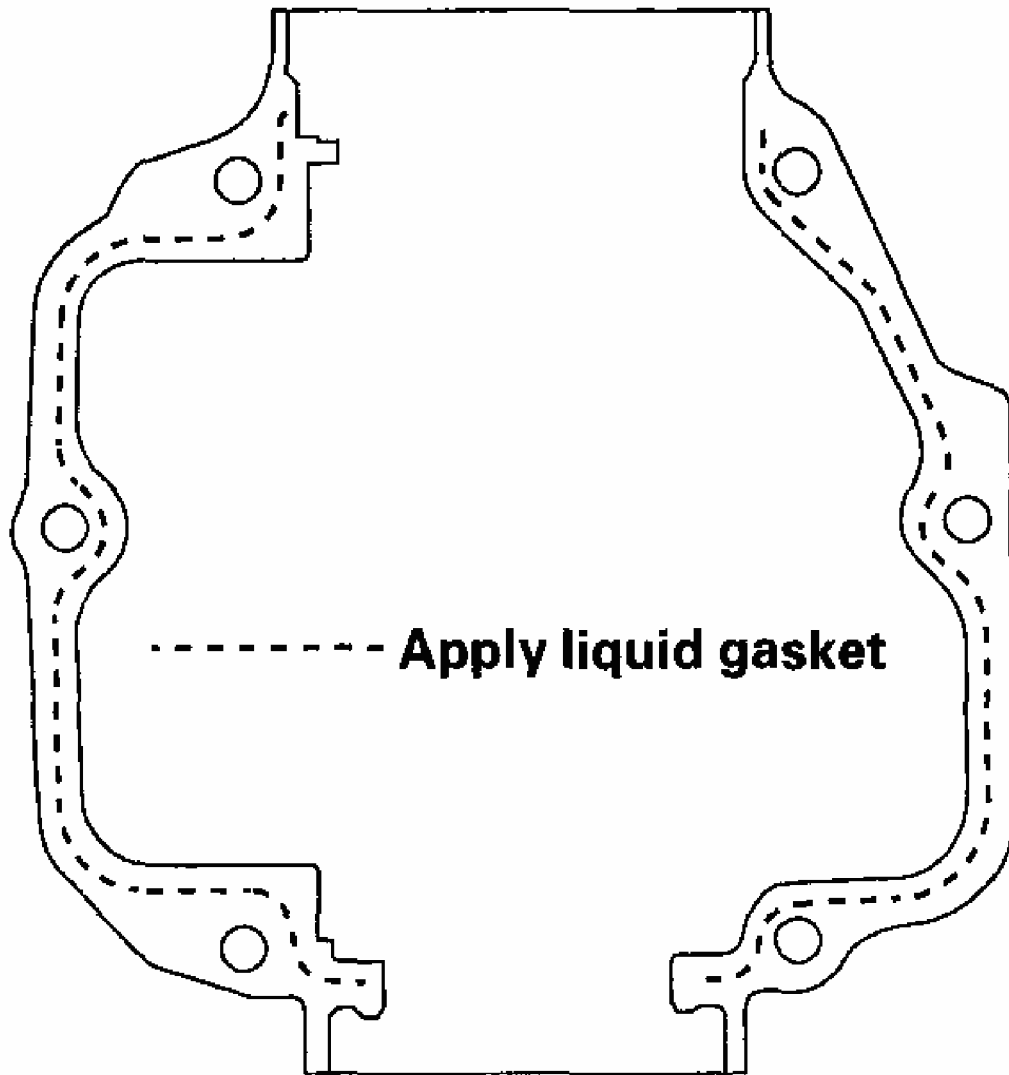
2004 Honda Element DX

2003-06 DRIVELINE/AXLE Rear Differential - Element

2. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N 08718-0001 or 08718-0002) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent oil leakage.

NOTE:

- **Do not install the components if too much time has passed after applying the liquid gasket (for P/N 08718-0002, no more than 4 minutes, for all others, no more than 5 minutes). Instead, remove the old residue, and reapply the liquid gasket.**
- **Allow it to cure at least 30 minutes after assembly before filling the differential with the recommended fluid.**



G03678749

Fig. 32: Applying Liquid Gasket To Sealing Surface
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the differential housing assembly (A), then torque the six mounting bolts (B) in a crisscross pattern in several steps.

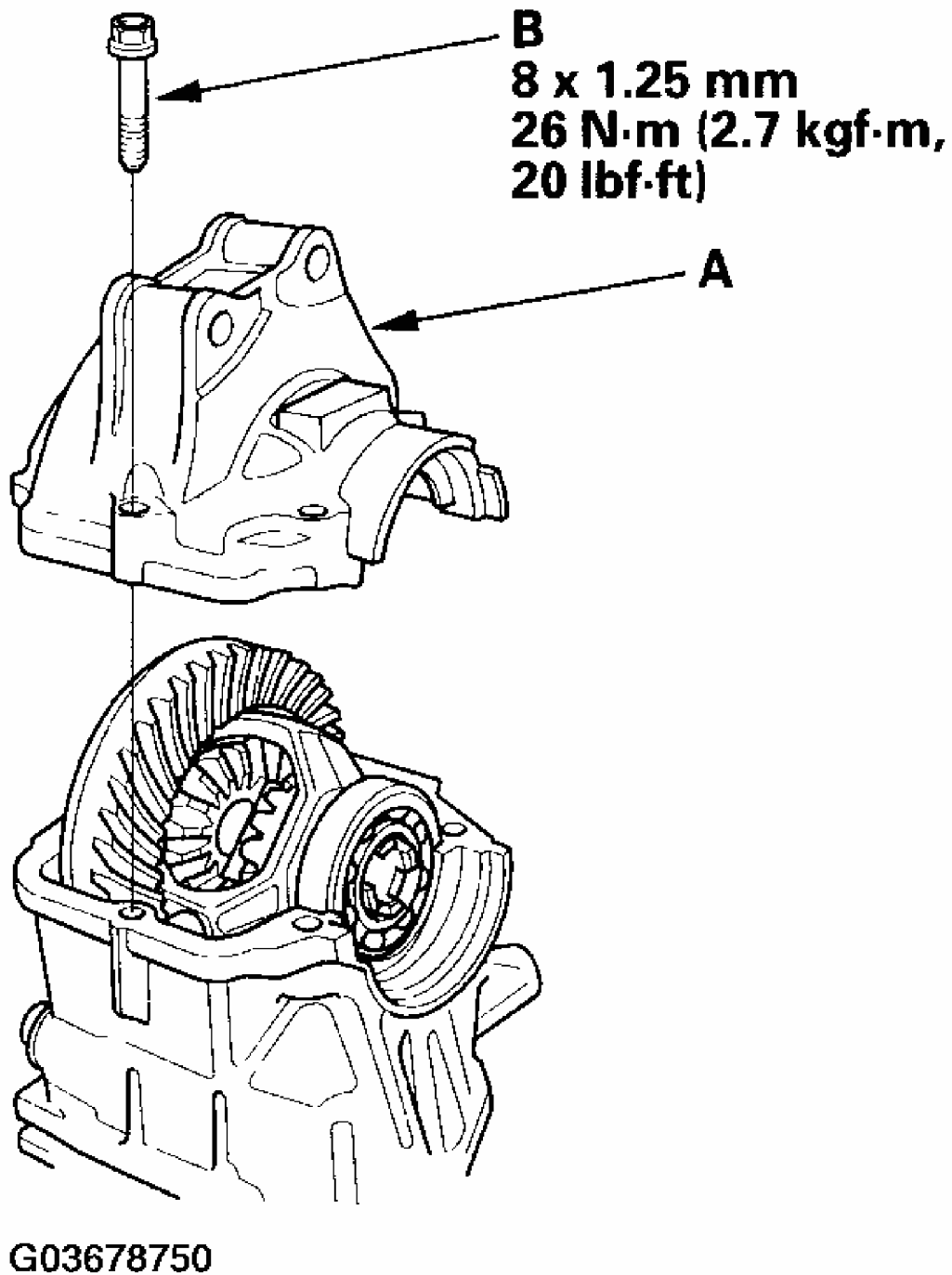


Fig. 33: Installing Differential Housing Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Install the oil seals.

OIL SEAL REPLACEMENT

Special Tools Required

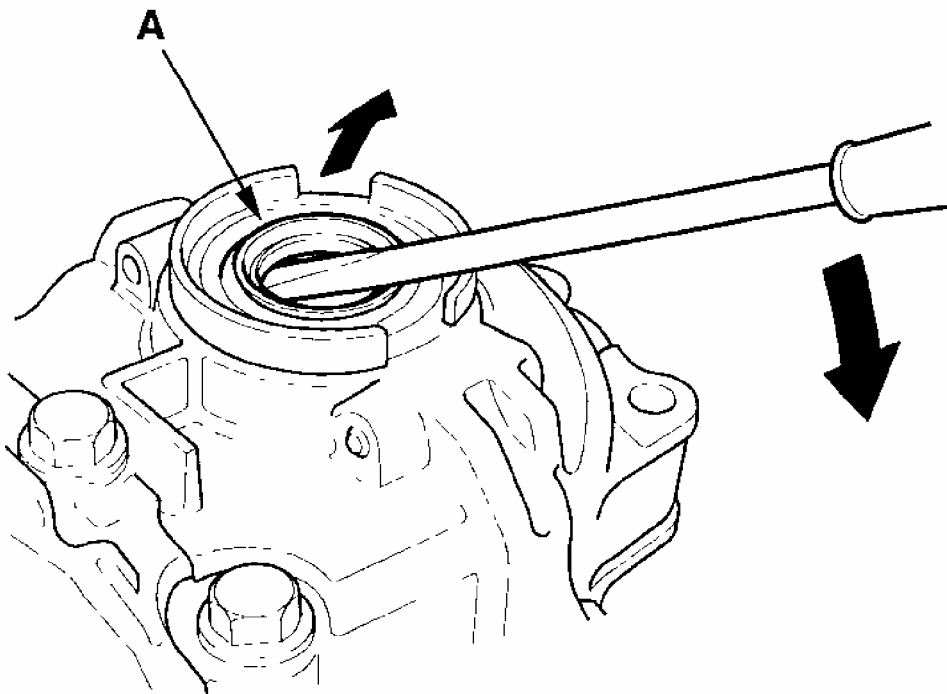
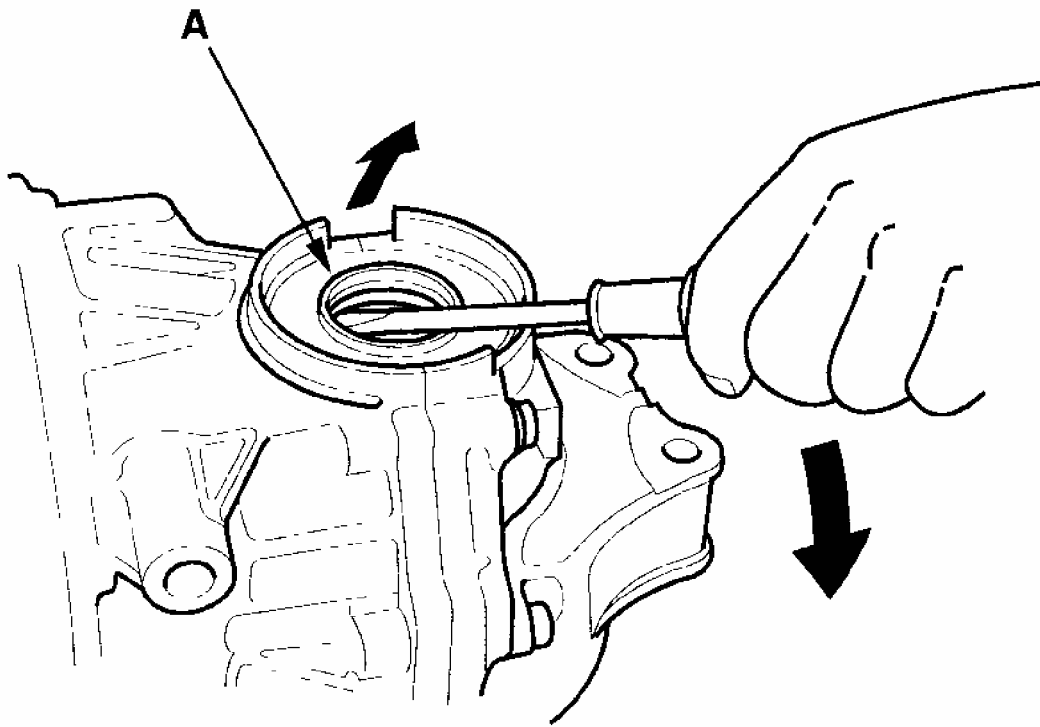
- Oil seal driver 07GAD-PH70201
- Oil seal driver 07JAD-PL90100
- Attachment, 78 x 80 mm 07NAD-PX40100
- Driver 07749-0010000

1. Remove the oil seals (A) from the differential housing.

NOTE: Be careful not to damage the differential carrier while prying out the seals.

2004 Honda Element DX

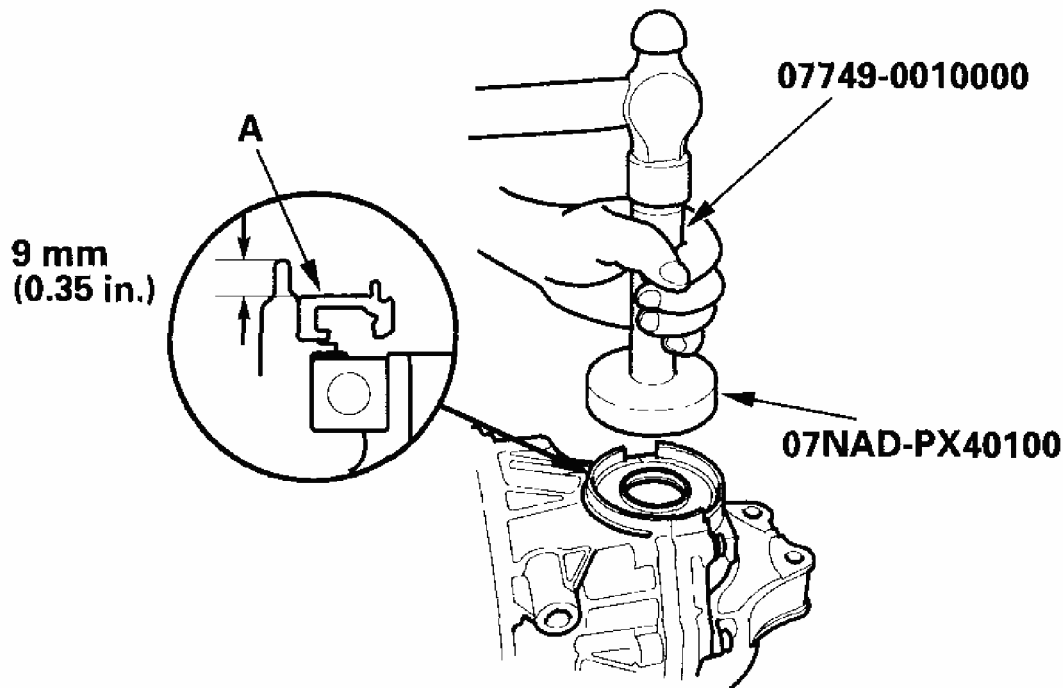
2003-06 DRIVELINE/AXLE Rear Differential - Element



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Fig. 34: Removing Oil Seals From Differential Housing Using Special Tools
Courtesy of AMERICAN HONDA MOTOR CO., INC.

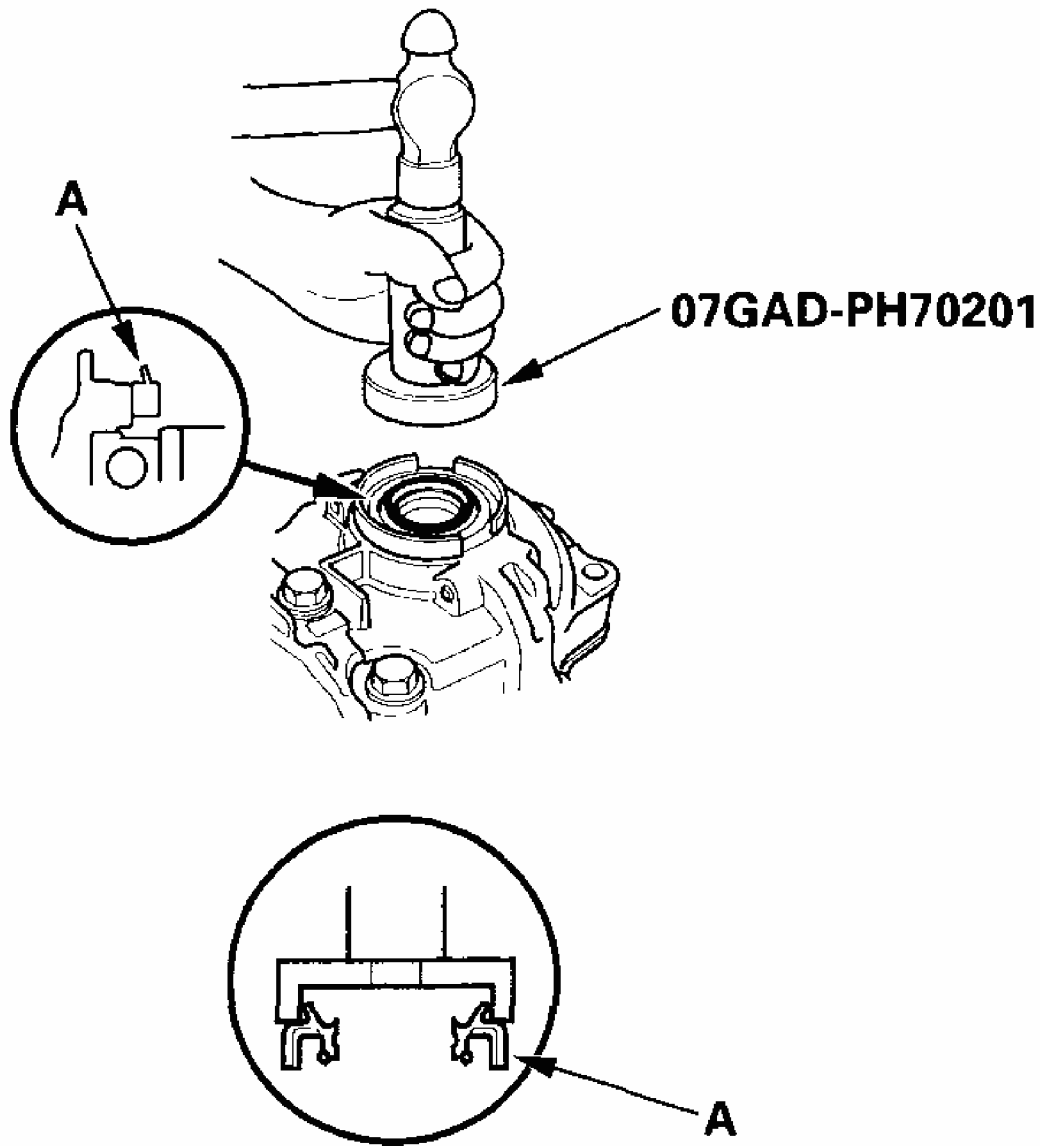
2. Install the right side oil seal (A) squarely using the special tools. Installation depth of the oil seal is 9 mm (0.35 in.) below the machined edge of the differential carrier assembly. Be careful not to damage the lip of the oil seals.



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Fig. 35: Installing Right Side Oil Seal Squarely Using Special Tools
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the left side oil seal (A) squarely and flush with the machined edge of the differential carrier assembly using the special tools. Be careful not to damage the lip of the oil seal.

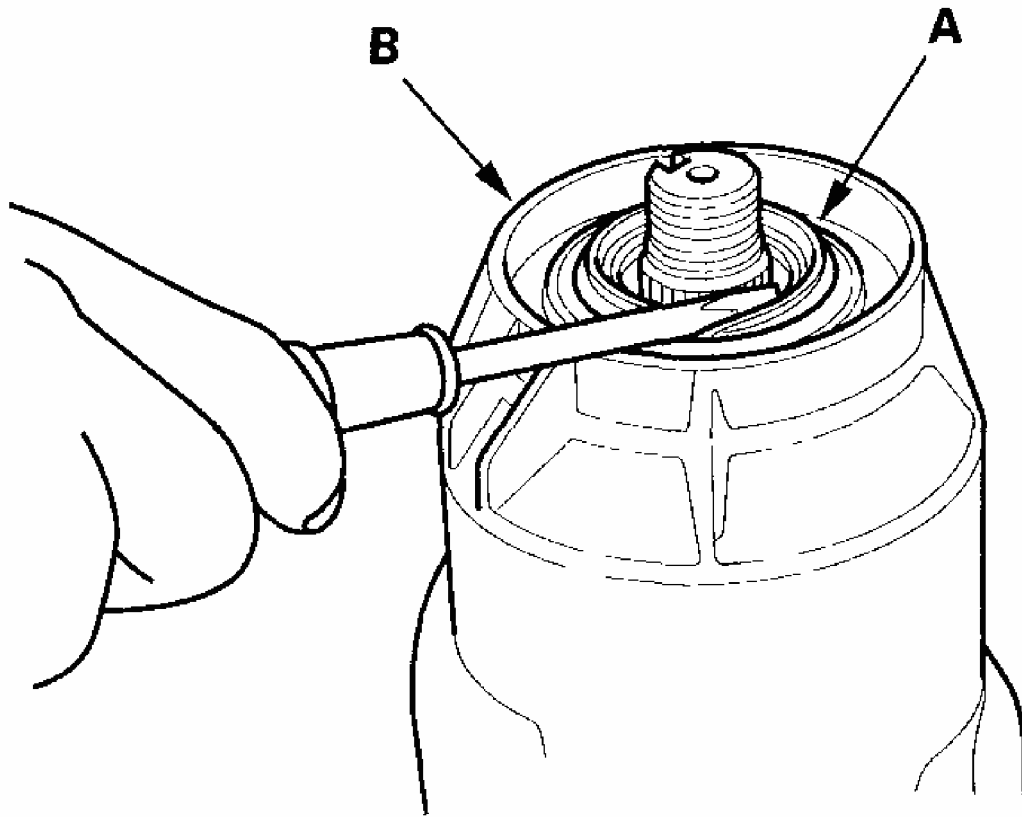


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Fig. 36: Installing Left Side Oil Seal Squarely And Flush With Machined Edge
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Remove the oil seal (A) from the torque control differential case (B).

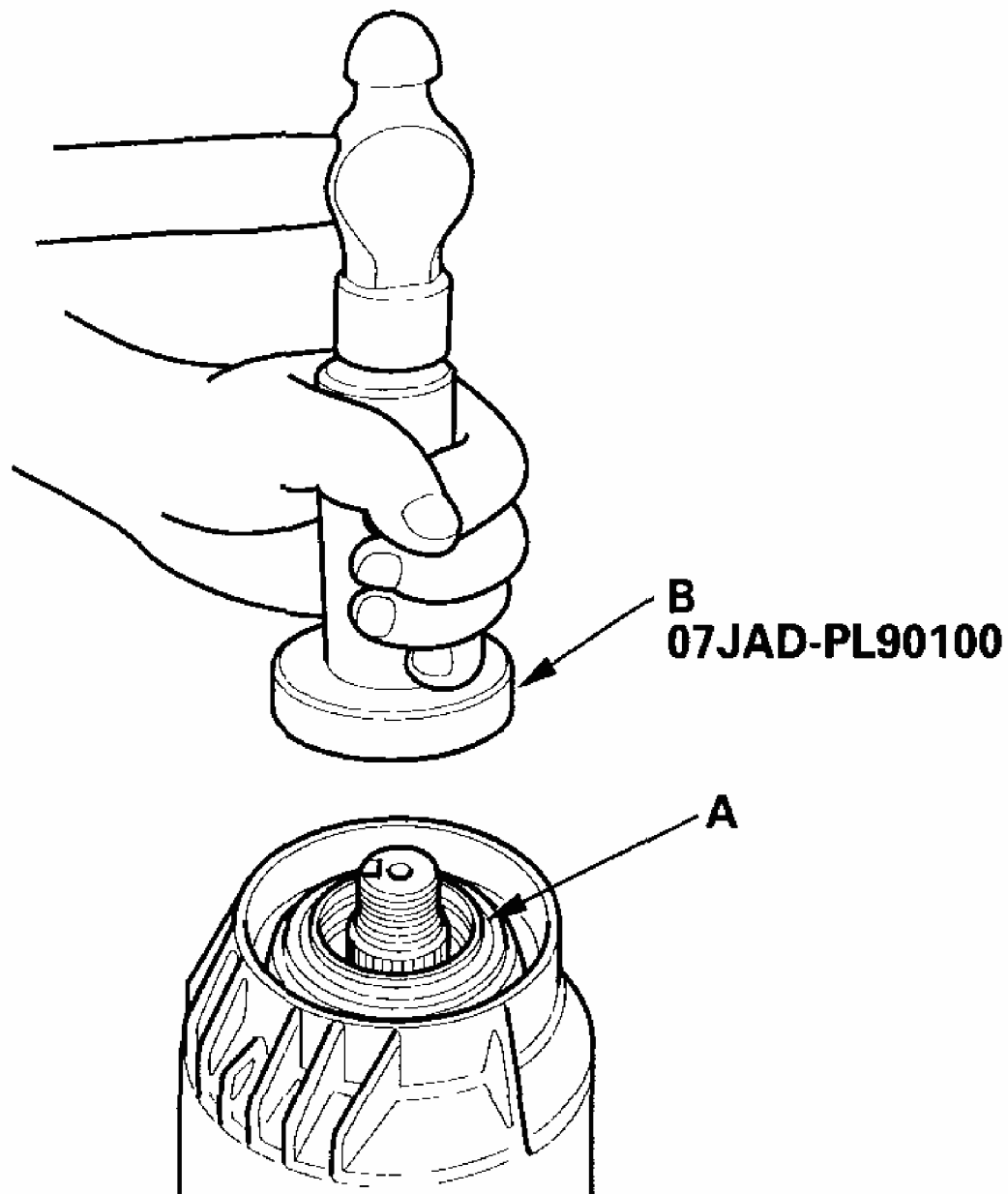
NOTE: Be careful not to damage the shaft or case while prying out the seal.



G03678754

Fig. 37: Removing Oil Seal From Torque Control Differential Case
Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the oil seal (A) squarely using the special tool (B). Be careful not to damage the lip of the oil seal.



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Fig. 38: Installing Oil Seal Squarely Using Special Tools
Courtesy of AMERICAN HONDA MOTOR CO., INC.

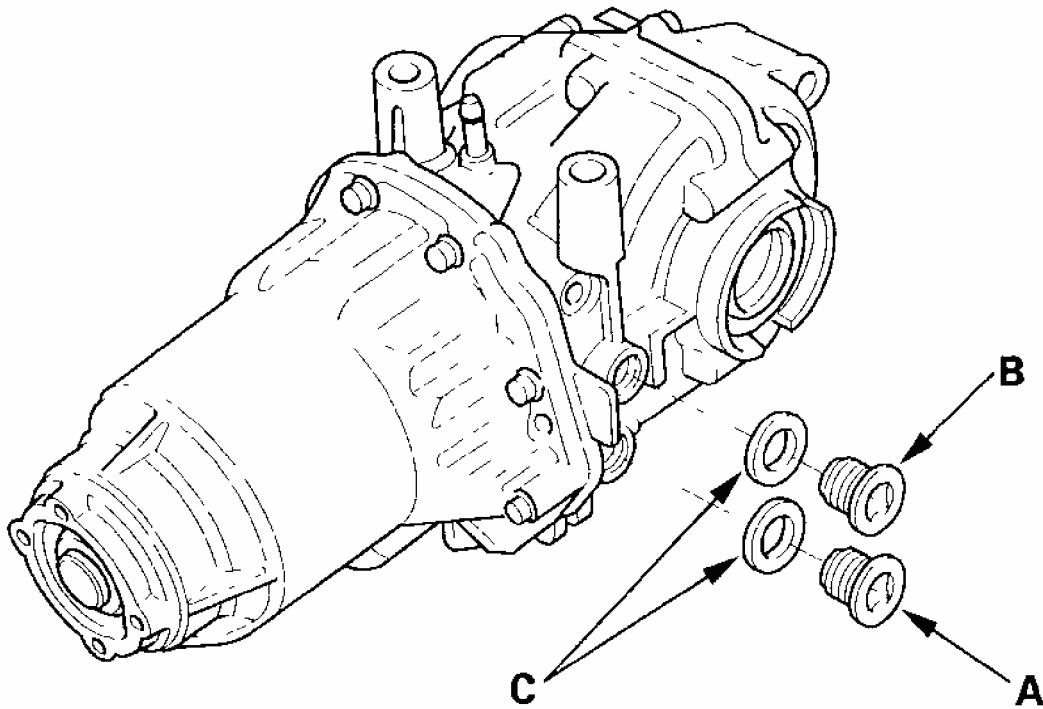
DIFFERENTIAL DISASSEMBLY

Special Tools Required

- Holder handle 07JAB-001020A

- Companion flange holder 07RAB-TB4010B

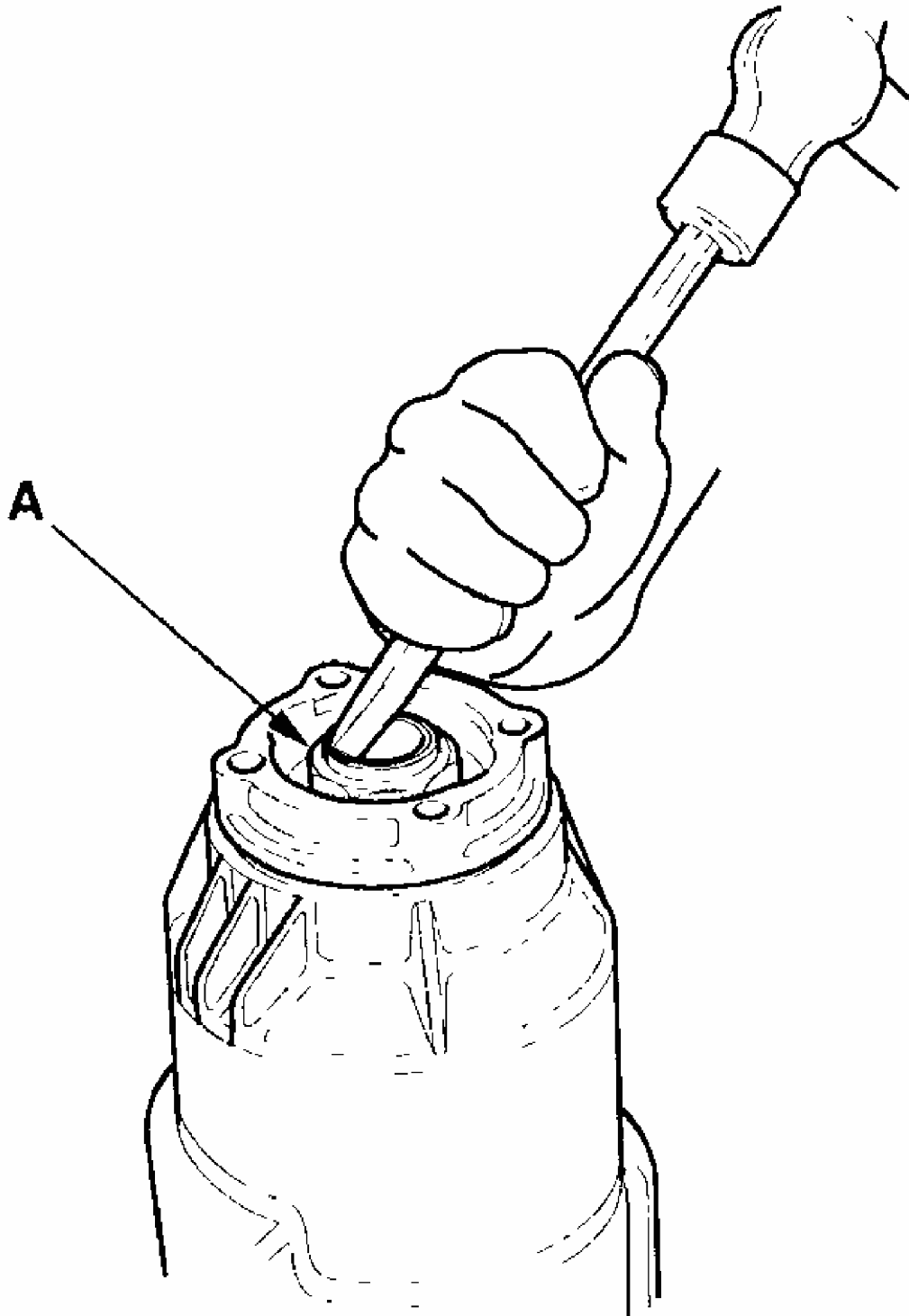
1. Remove the drain plug (A) and the oil filler plug (B) with sealing washers (C).



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Fig. 39: Removing Drain Plug And Oil Filler Plug With Sealing Washers
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Raise the locknut tab (A) from the groove of the clutch guide, making sure that the tab completely clears the groove to prevent damaging the clutch guide.



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Fig. 40: Raising Locknut Tab From Groove Of Clutch Guide

Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Install the special tools (A) on the companion flange.

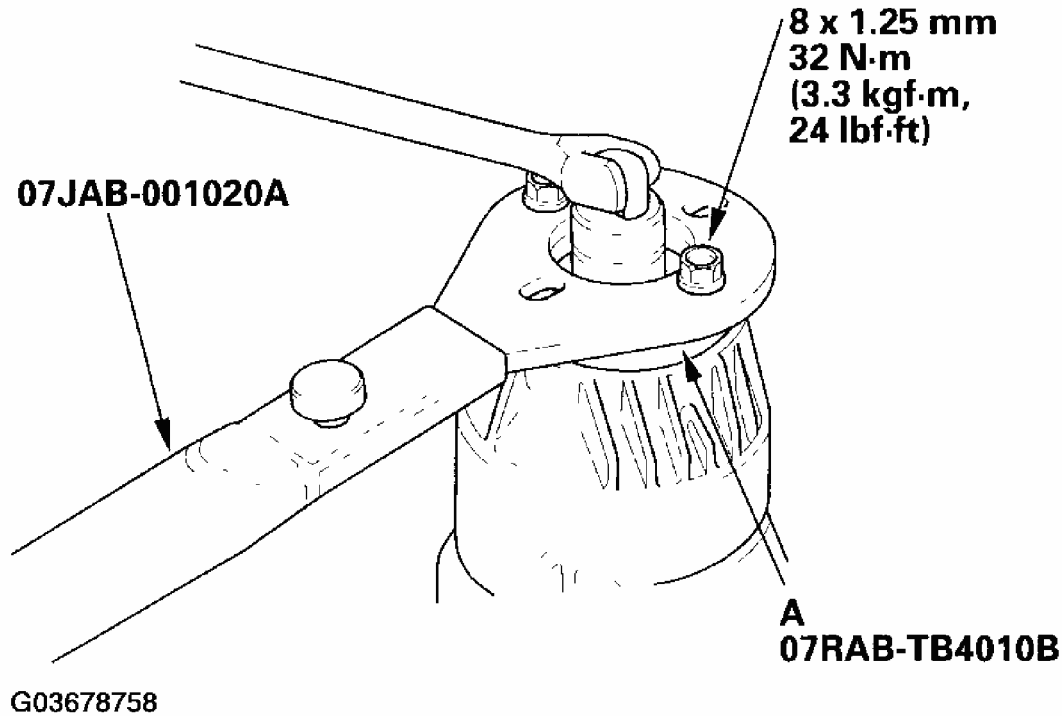
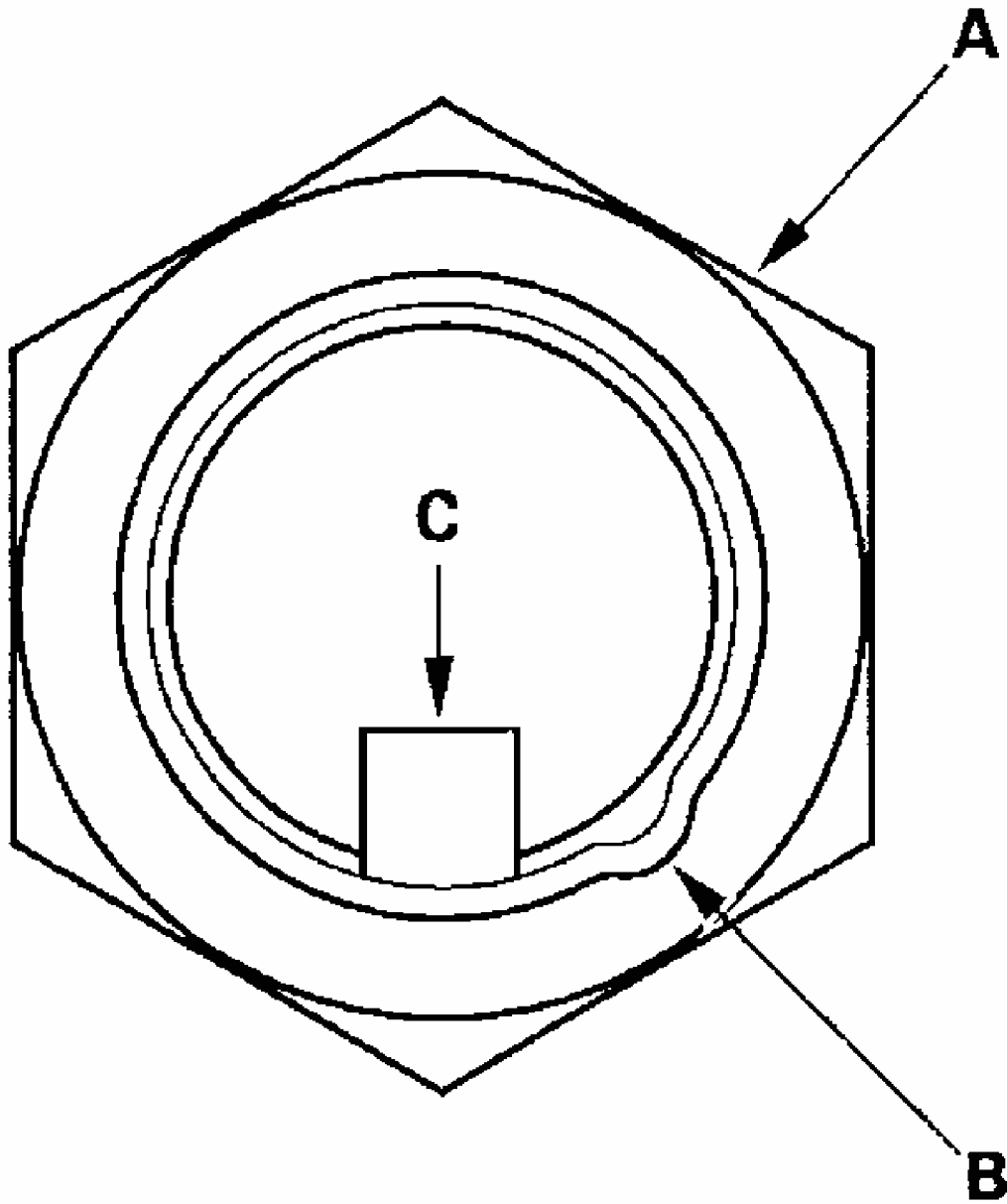


Fig. 41: Installing Special Tools On Companion Flange And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Loosen the locknut (A) counterclockwise so that its tab (B) comes out from the groove (C) in the clutch guide.

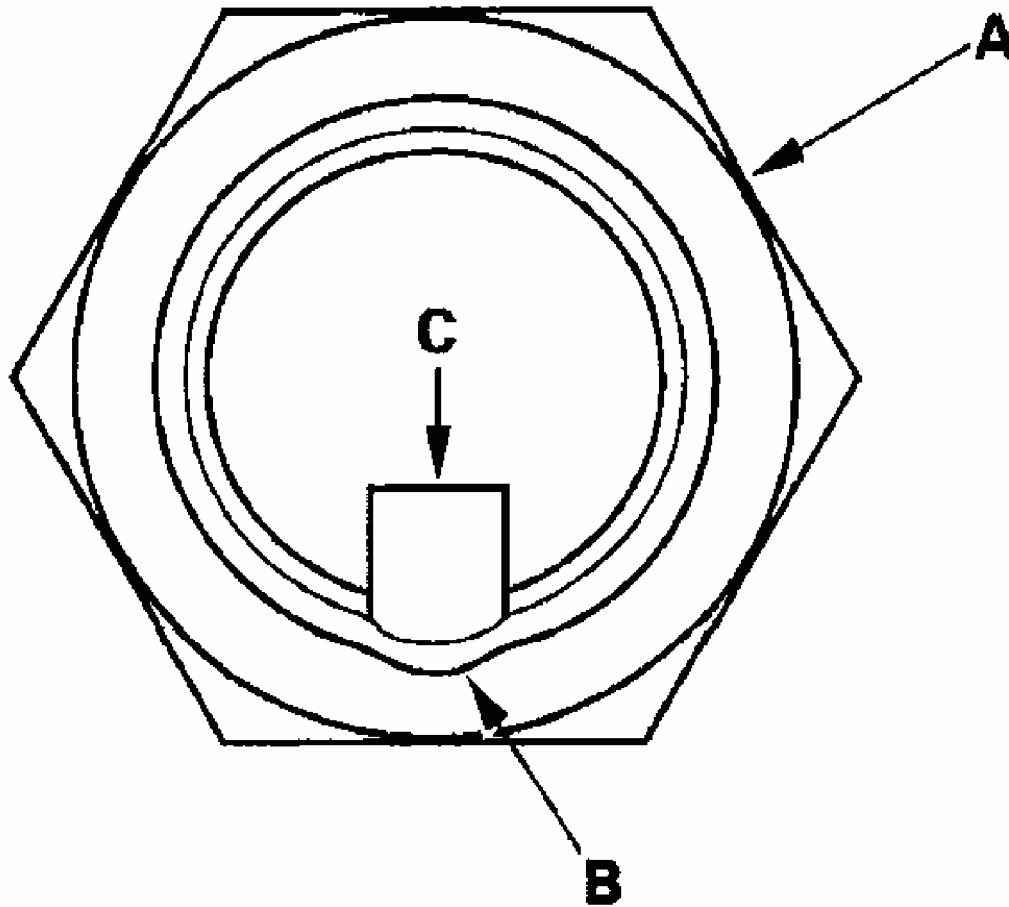


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Fig. 42: Loosening Locknut

Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Tighten the locknut (A) until its tab (B) aligns with the groove (C).

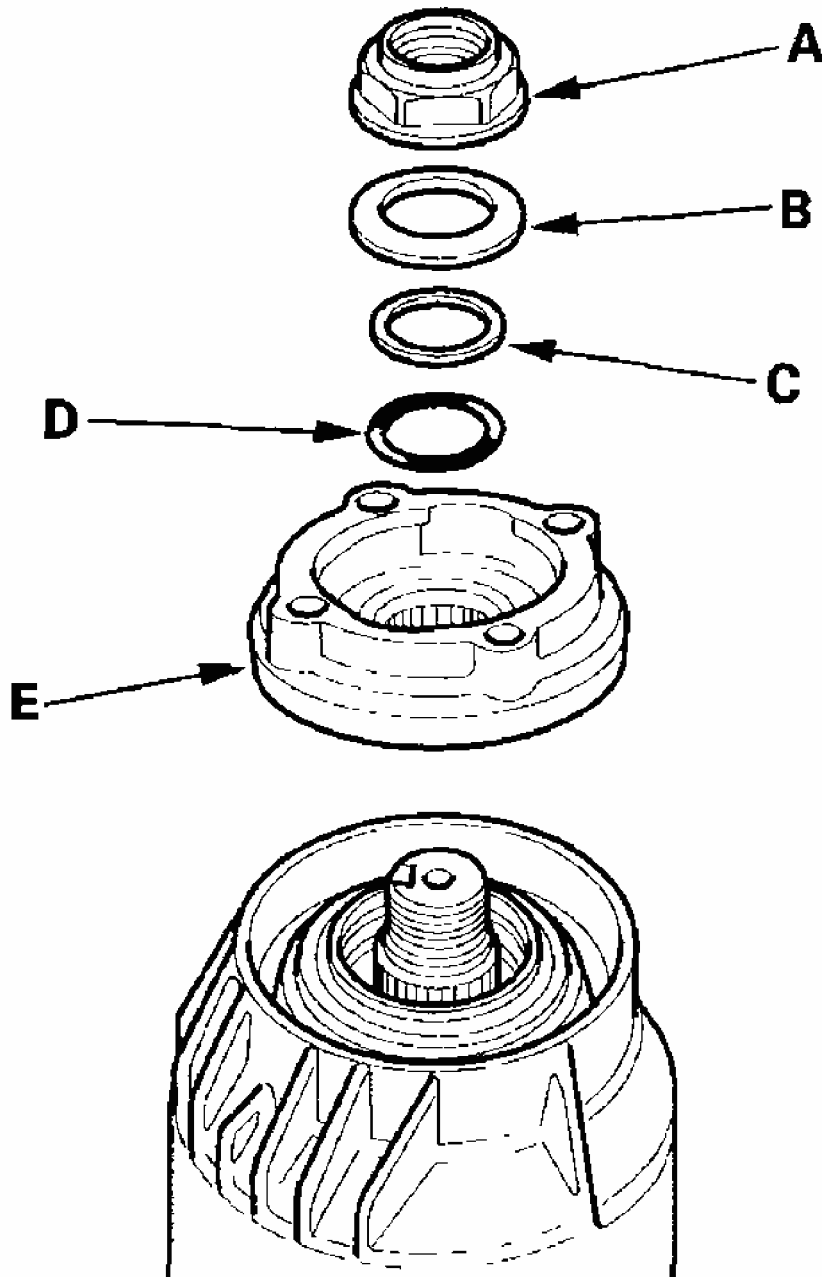


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Fig. 43: Tightening Locknut

Courtesy of AMERICAN HONDA MOTOR CO., INC.

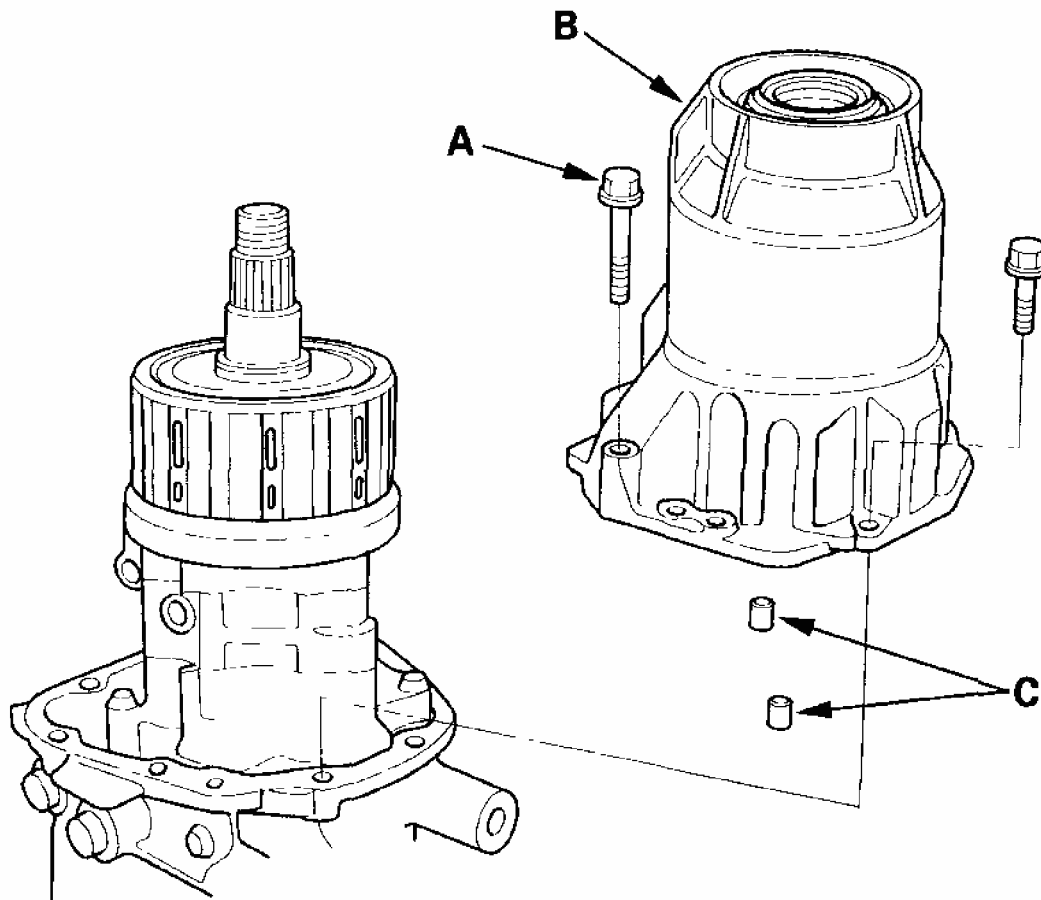
6. Remove any dirt from inside of the groove in the clutch guide, then loosen the locknut.
7. Remove the locknut (A), the disc spring washer (B), the back-up ring (C), the O-ring (D), and the companion flange (E).



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Fig. 44: Removing Locknut, Disc Spring Washer, Back-Up Ring, O-Ring, And Companion Flange
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the eight mounting bolts (A) in a crisscross pattern in several steps, then remove the torque control differential case (B) and the dowel pins (C).

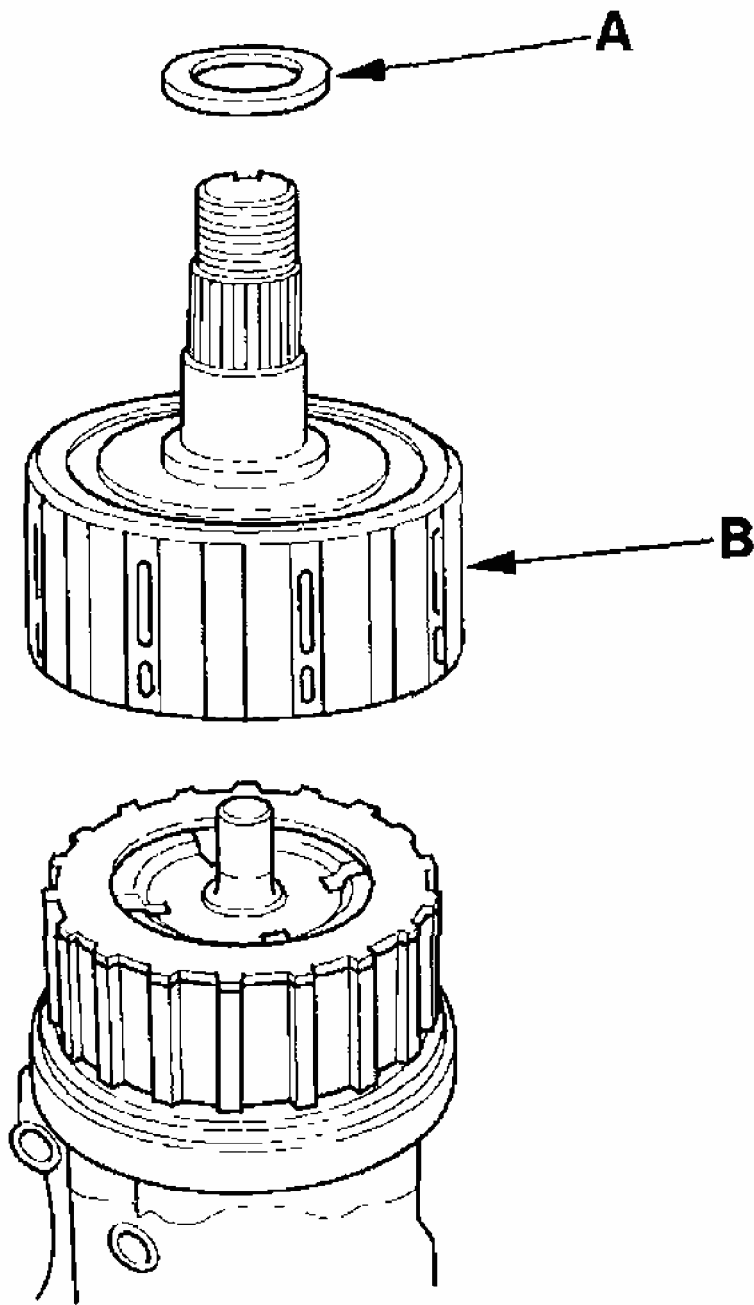


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Fig. 45: Removing Mounting Bolts, Torque Control Differential Case And Dowel Pins

Courtesy of AMERICAN HONDA MOTOR CO., INC.

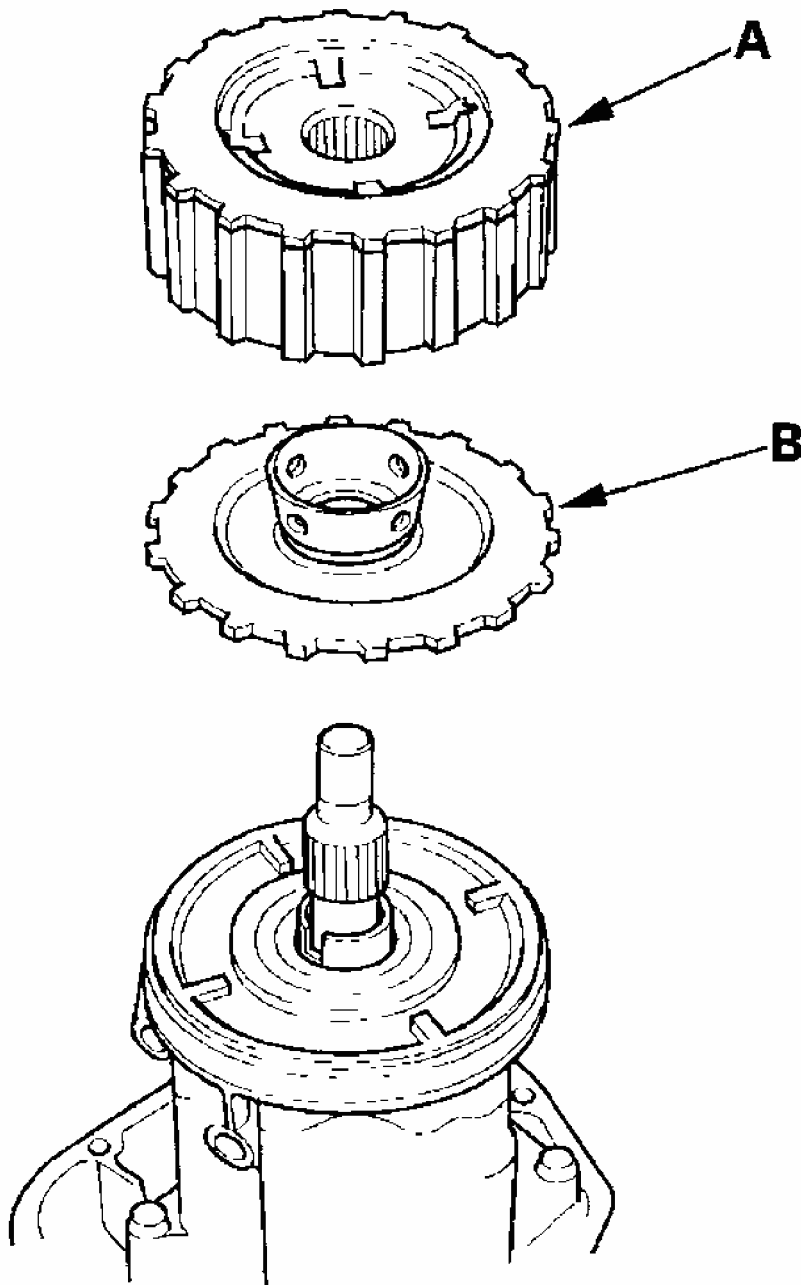
9. Remove the shim (A) and the clutch guide (B).



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Fig. 46: Removing Shim And Clutch Guide
Courtesy of AMERICAN HONDA MOTOR CO., INC.

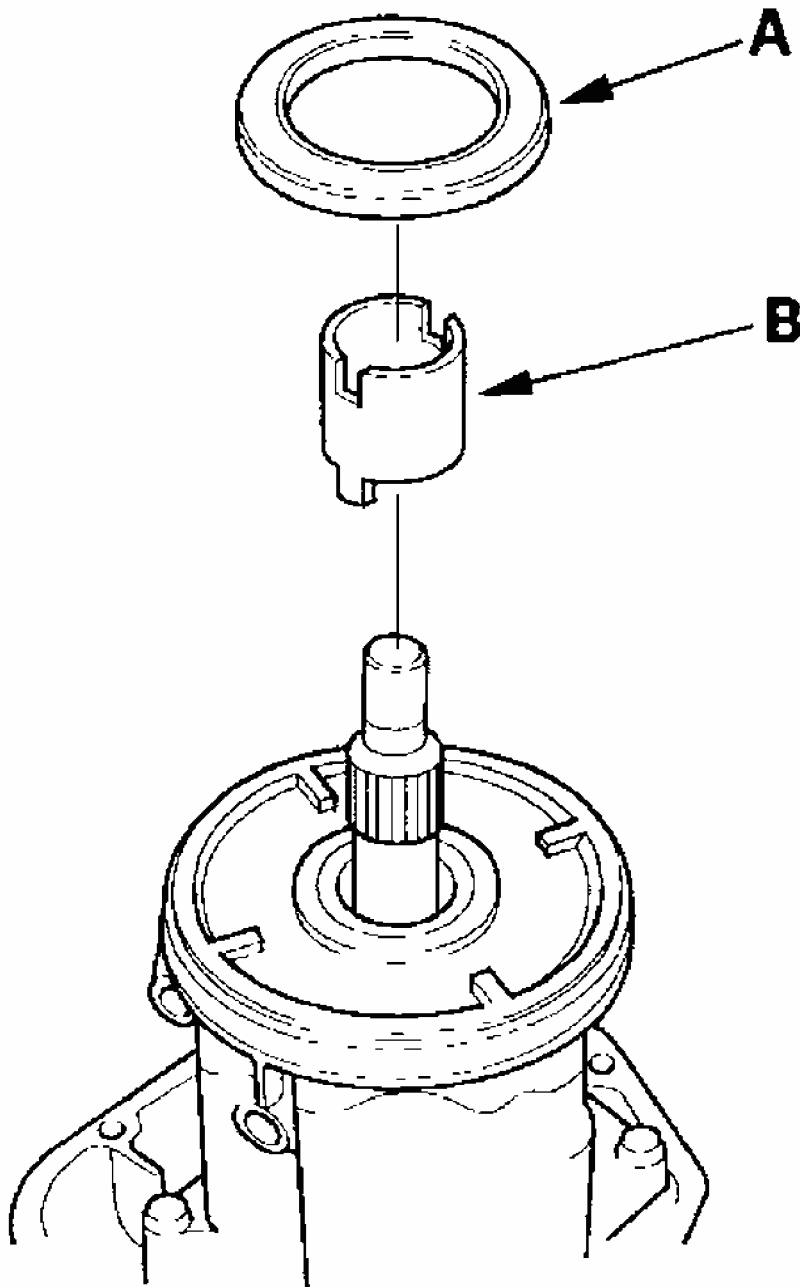
10. Remove the clutch hub/plates/discs (A) and the pressure plate (B).



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Fig. 47: Removing Clutch Hub/Plates/Discs And Pressure Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

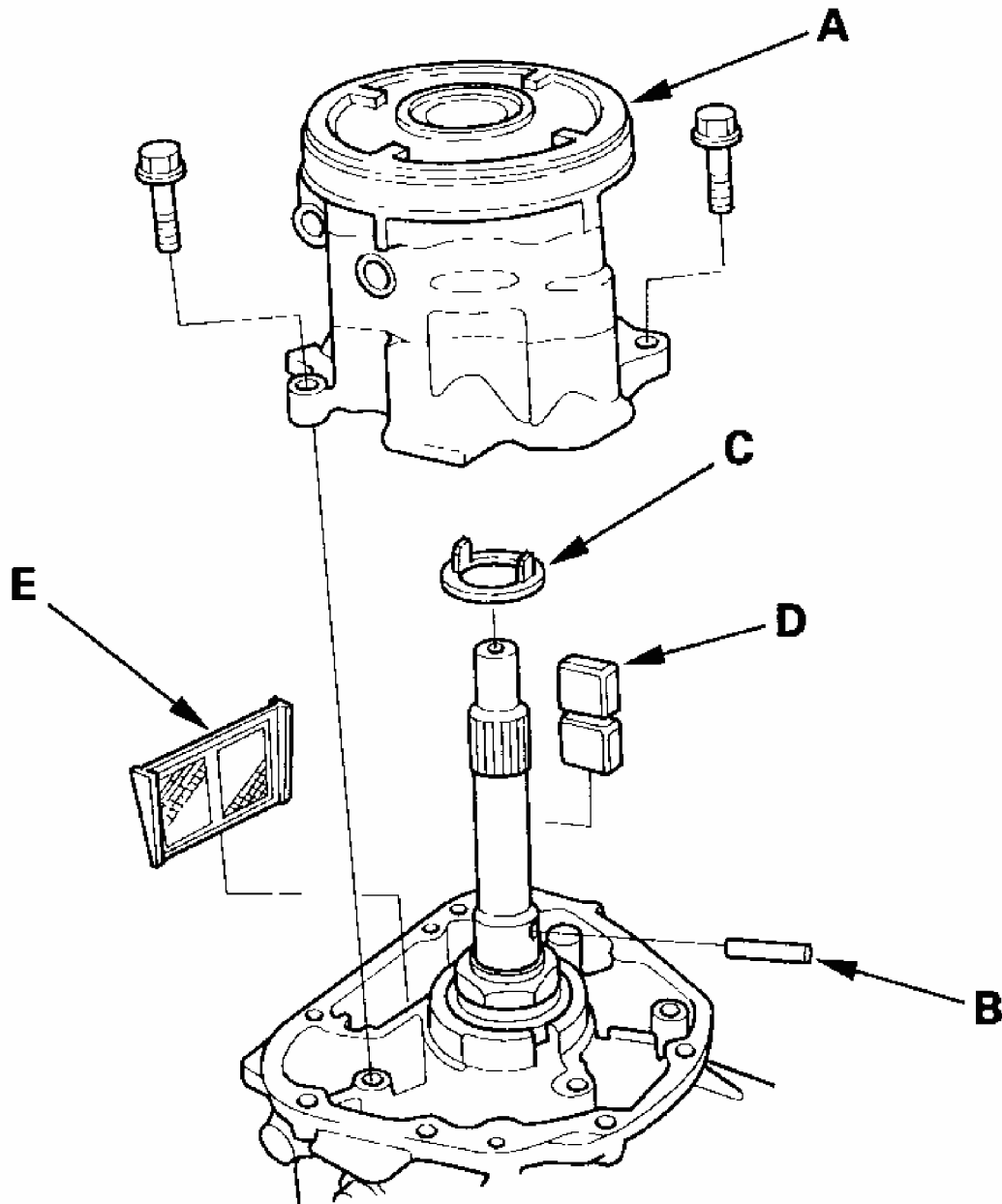
11. Remove the thrust needle bearing (A) and the oil pump driveshaft (B).



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Fig. 48: Removing Thrust Needle Bearing And Oil Pump Driveshaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

12. Remove the oil pump body assembly (A), the oil pump pin (B), the collar (C), the magnet (D), and the ATF strainer (E).



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Fig. 49: Removing Oil Pump Body Assembly, Oil Pump Pin, Collar, Magnet, And ATF Strainer

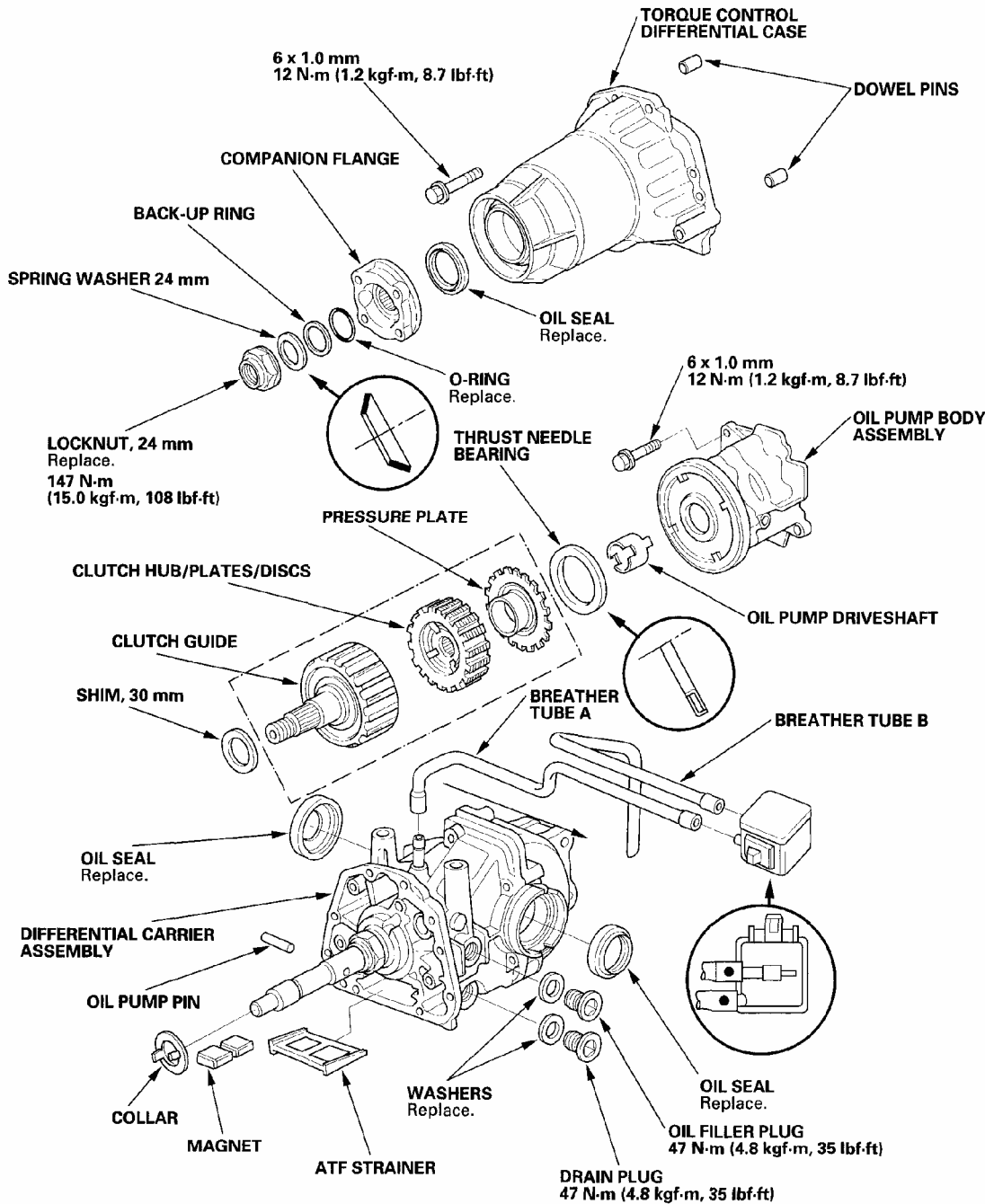
Courtesy of AMERICAN HONDA MOTOR CO., INC.

DIFFERENTIAL REASSEMBLY

EXPLODED VIEW

2004 Honda Element DX

2003-06 DRIVELINE/AXLE Rear Differential - Element



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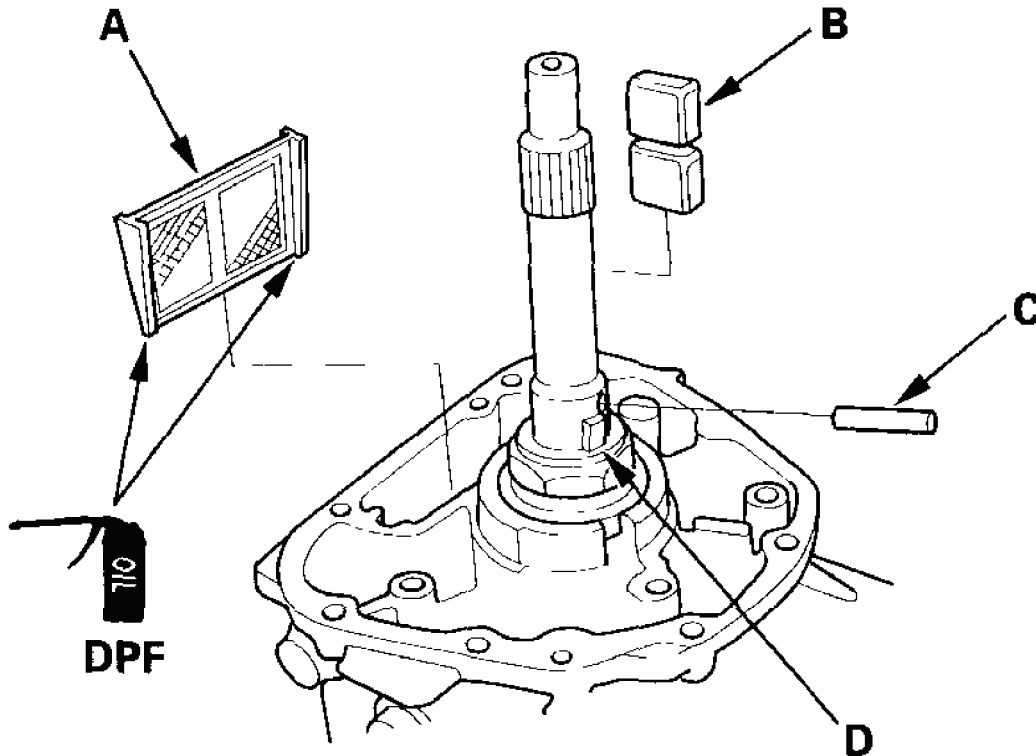
Fig. 50: Exploded View Of Differential Reassembly And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Special Tools Required

- Holder handle 07JAB-001020A
- Companion flange holder 07RAB-TB4010B

1. Apply Dual Pump Fluid to the rubber of the ATF strainer (A), then install the ATF

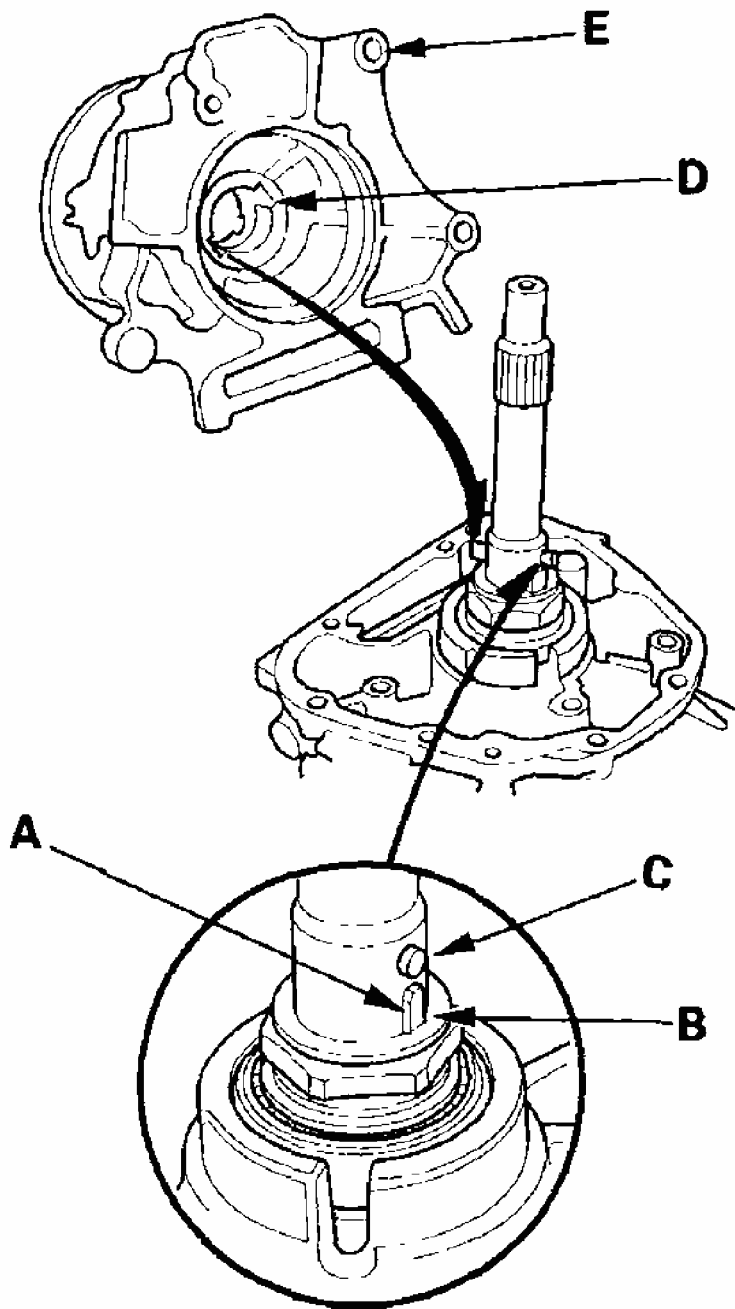
strainer, the magnet (B), the oil pump pin (C), and the collar (D) in the differential carrier assembly.



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Fig. 51: Applying Dual Pump Fluid To Rubber Of ATF Strainer
Courtesy of AMERICAN HONDA MOTOR CO., INC.

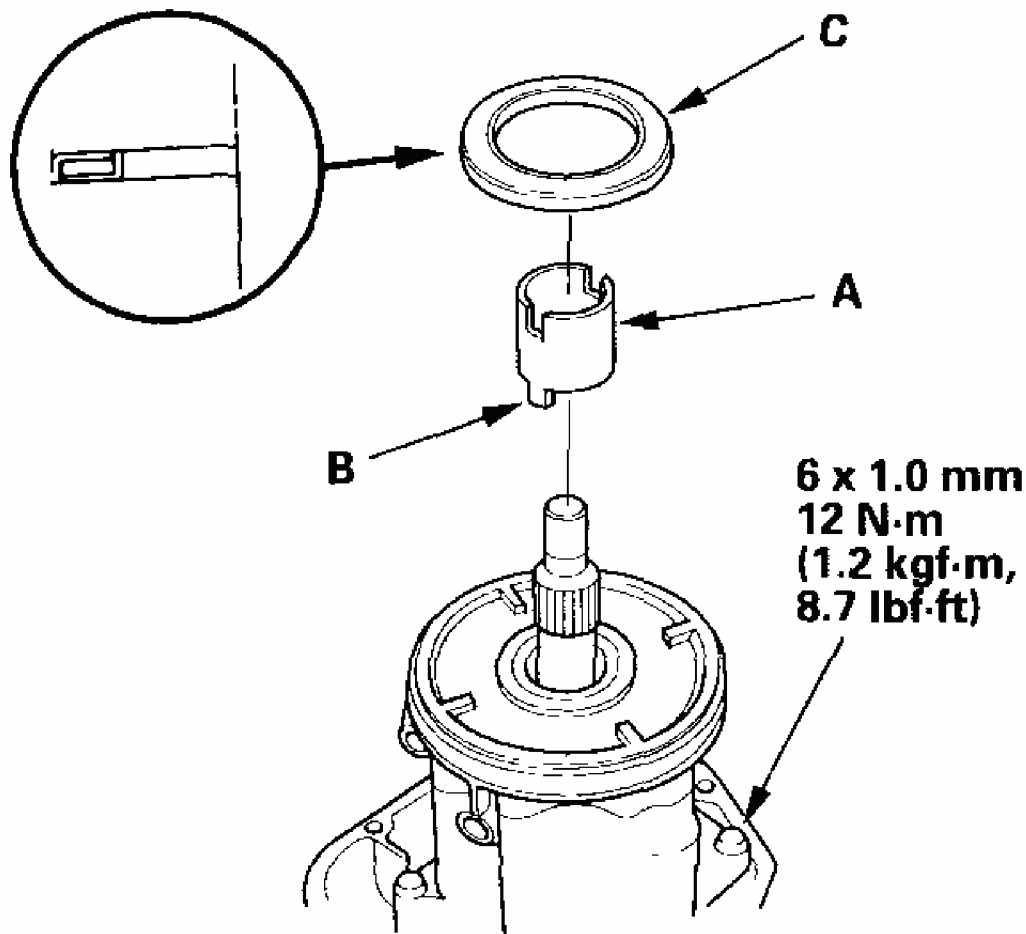
2. Align the tabs (A) of the collar (B) with the oil pump pin (C). Align the grooves (D) of the rear oil pump with the oil pump pin and collar tabs, then install the oil pump body assembly (E) on the differential carrier assembly.



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Fig. 52: Installing Oil Pump Body Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

3. Tighten the oil pump body assembly mounting bolts.
4. Install the oil pump driveshaft (A) by aligning the projection (B) of the oil pump driveshaft with the groove of the front oil pump in the oil pump body assembly.

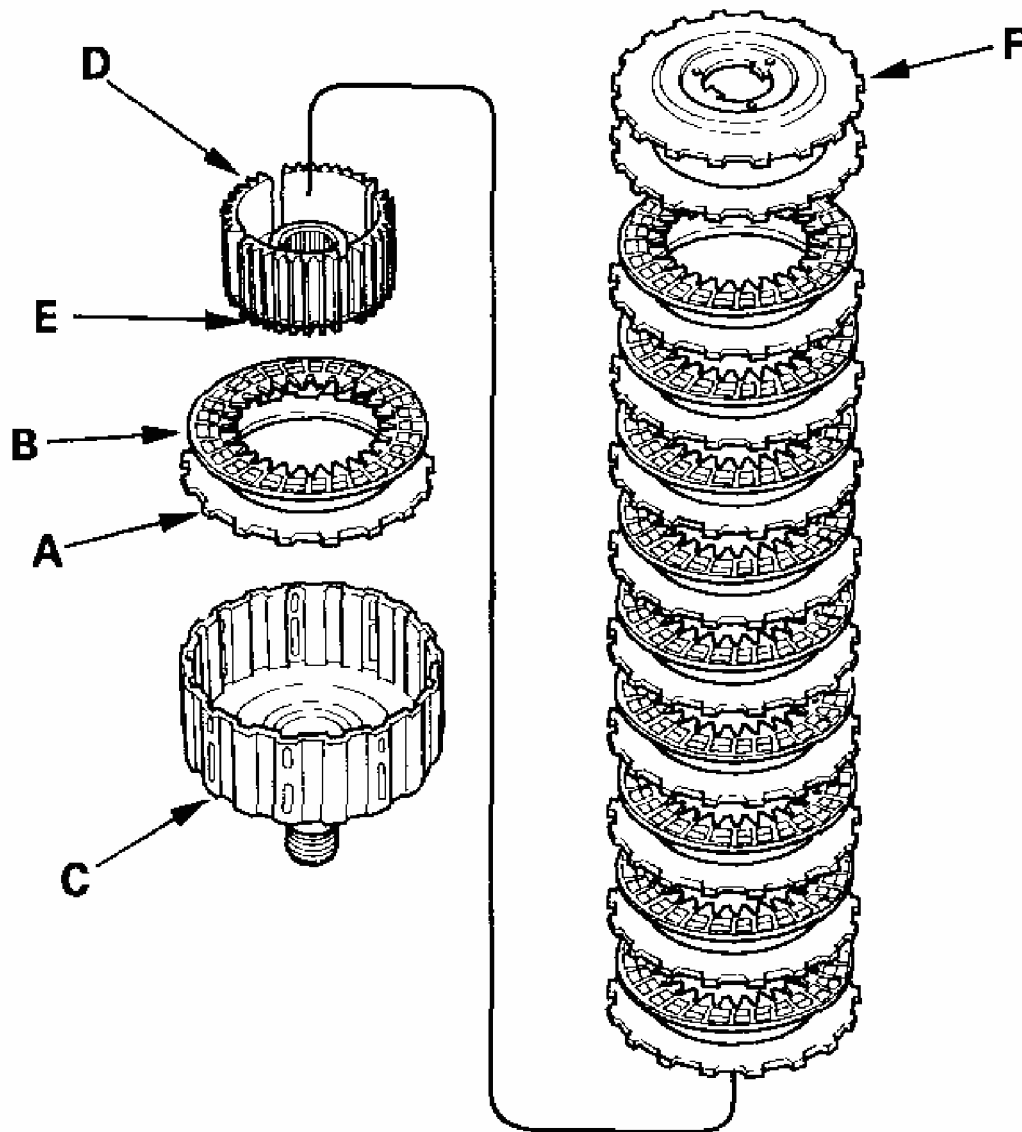


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Fig. 53: Installing Oil Pump Driveshaft And Torque Specifications
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

5. Install the thrust needle bearing (C).
6. If necessary, reassemble the differential clutch, and note these items:
 - Install one metal clutch plate (A) and one fiber clutch disc (B) in the clutch guide (C), then install the clutch hub with snap ring (D) into the clutch guide.
 - Make sure the splines of the clutch hub and fiber clutch disc line up below the snap ring (E).
 - Install the remaining metal clutch plates and fiber clutch discs alternately until you have installed a total of eleven plates and ten discs, then install the pressure plate (F).
 - Make sure the differential clutch is assembled correctly. The pressure plate should

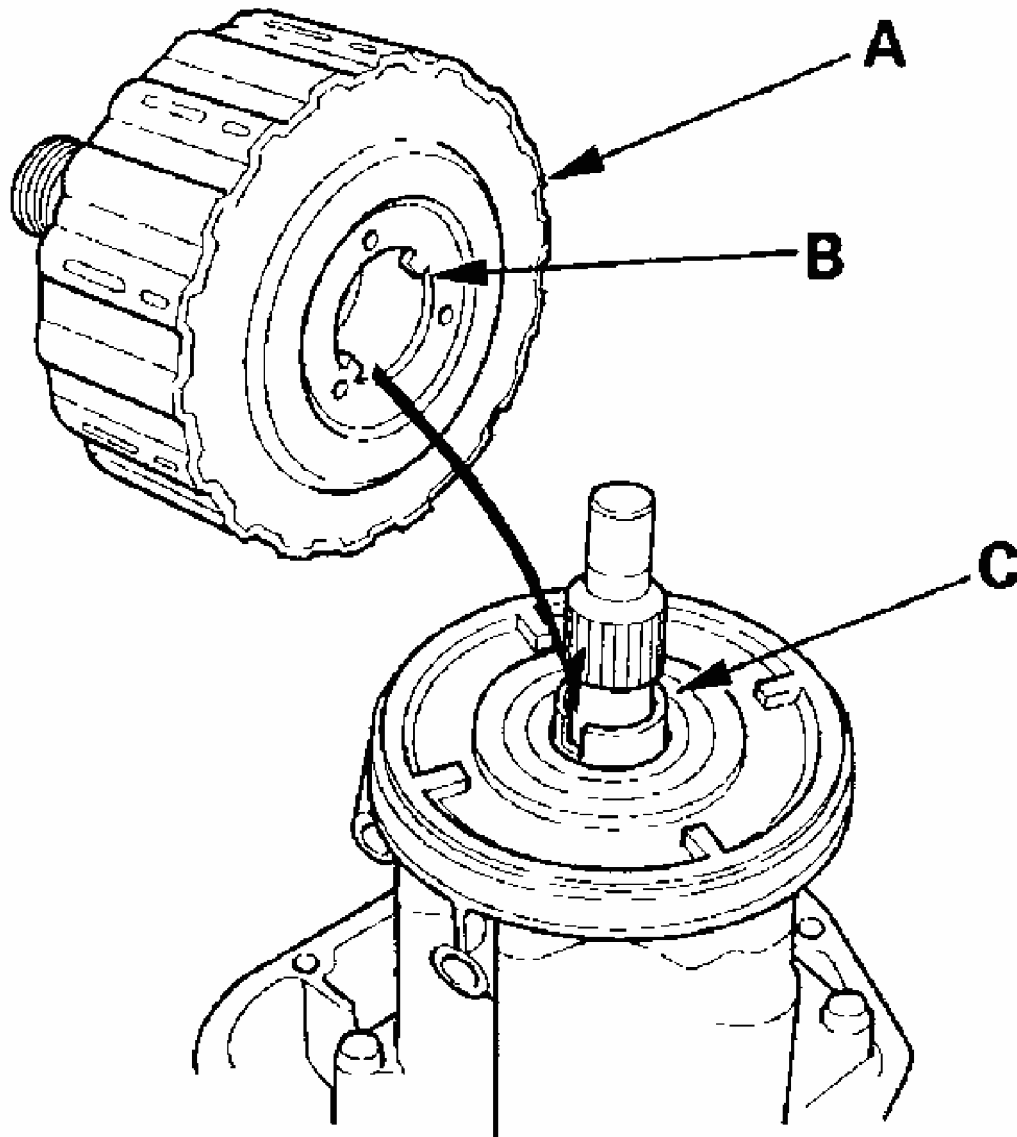
be flush with the top of the clutch guide.



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Fig. 54: Installing Metal Clutch Plate, Fiber Clutch Disc And Pressure Plate
Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the differential clutch assembly (A) by aligning the tabs of the pressure plate (B) with the grooves of the oil pump driveshaft (C). Be careful not to let the pressure plate fall out of the clutch guide during assembly.



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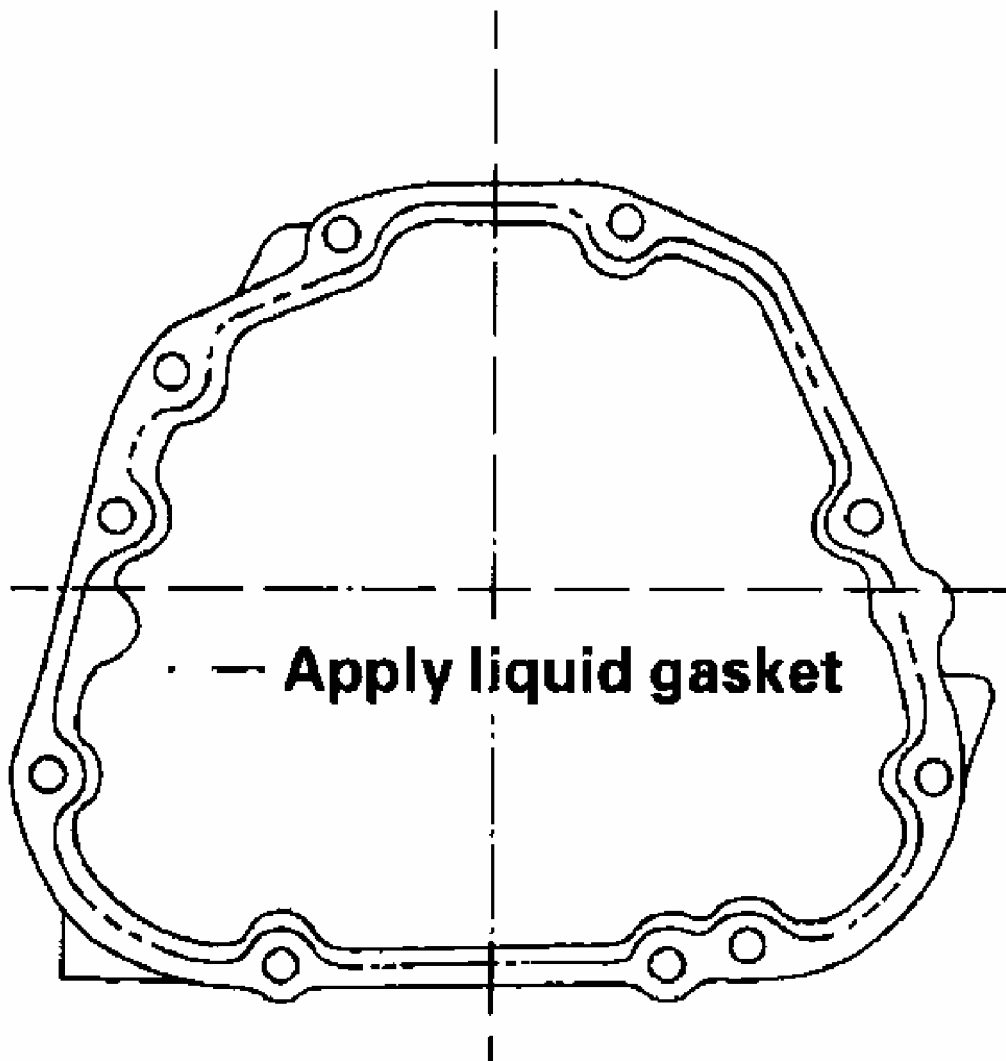
Fig. 55: Installing Differential Clutch Assembly
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Remove the dirt and oil from the sealing surfaces. Apply liquid gasket (P/N 08718-0001 or 08718-0002) to the sealing surface. Make sure you seal the entire circumference of the bolt holes to prevent fluid leakage.

NOTE: • Do not install the components if too much time has

passed after applying the liquid gasket (for P/N 08718-0002, no more than 4 minutes, for all others, no more than 5 minutes). Instead, remove the old residue, and reapply the liquid gasket.

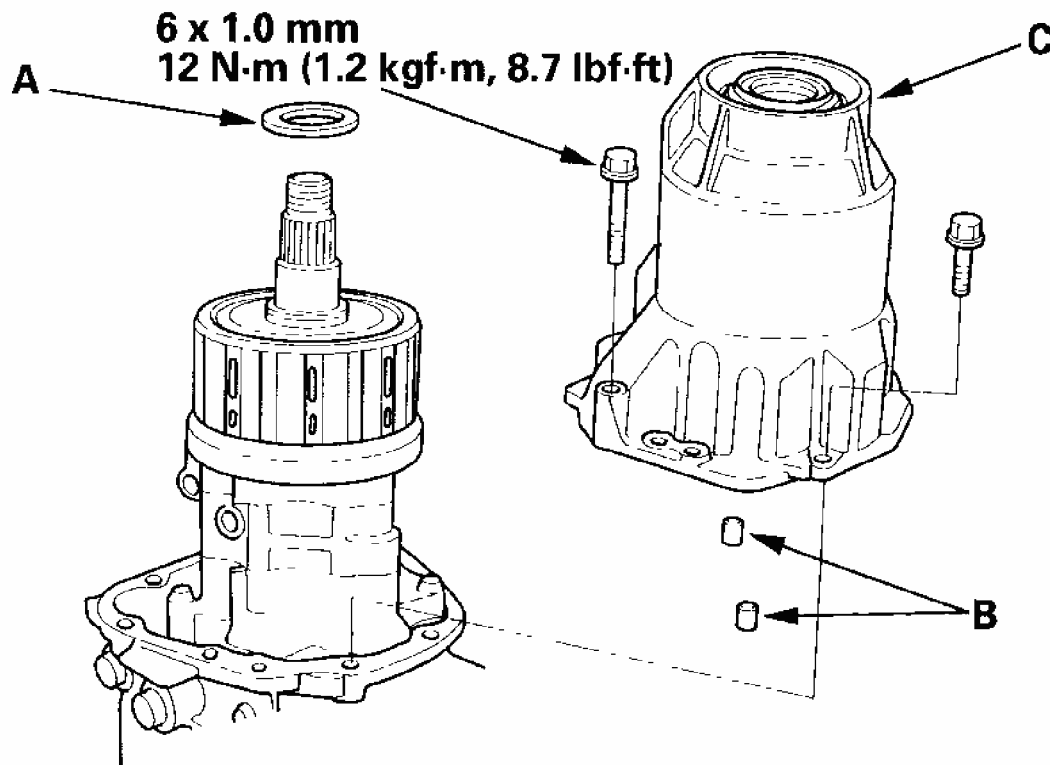
- Allow it to cure at least 30 minutes after assembly before filling the differential with the recommended fluid.



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Fig. 56: Removing Dirt And Oil From Sealing Surfaces
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Install the 30 mm shim (A), the 6 x 1.0 mm dowel pins (B), and the torque control differential case (C). Torque the eight mounting bolts in a crisscross pattern in several steps.

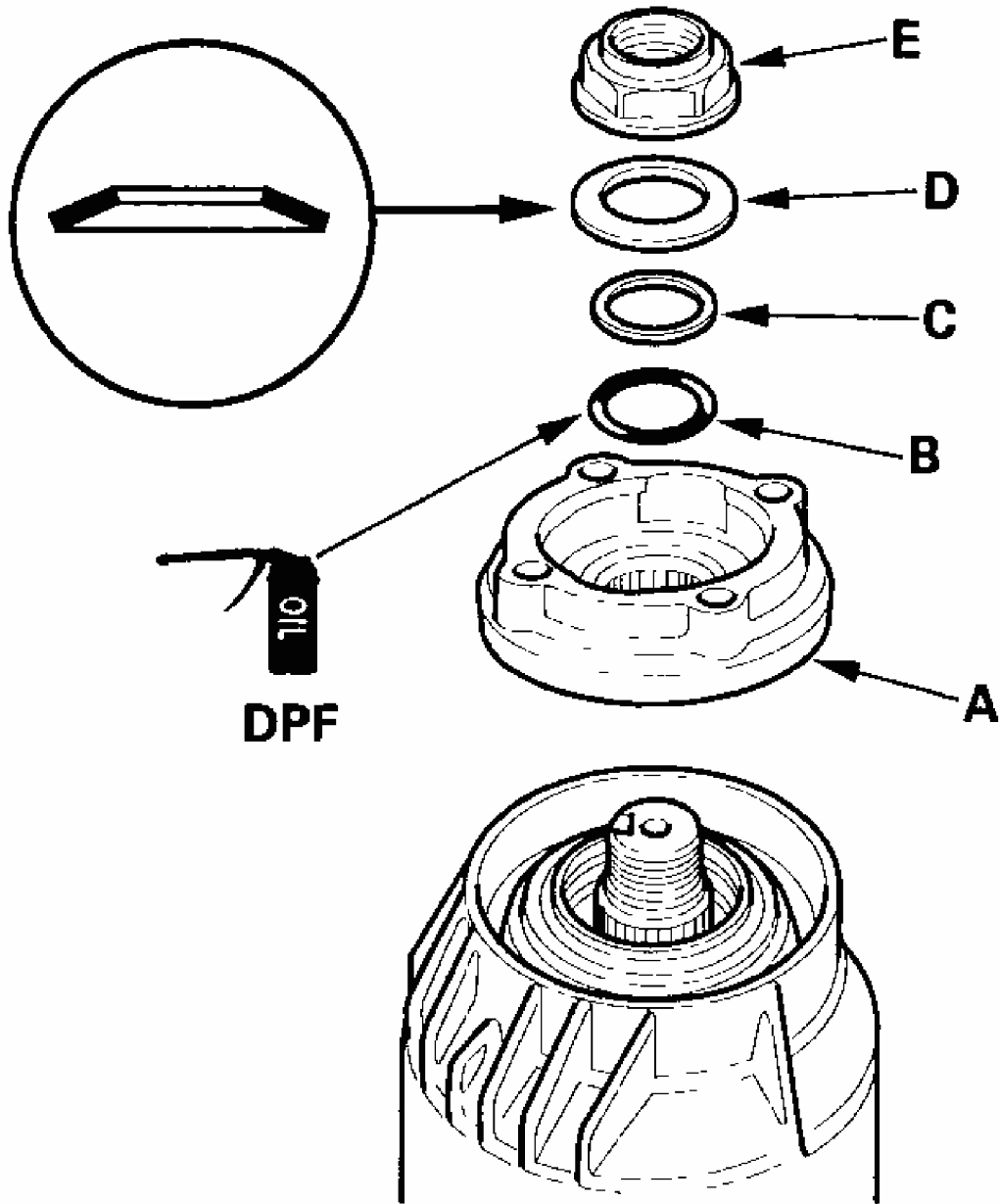


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Fig. 57: Installing Shim And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Install the companion flange (A), a new O-ring (B), back-up ring (C), disc spring washer (D), and a new locknut (E).

NOTE: Apply the recommended fluid to the O-ring.



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Fig. 58: Installing Companion Flange, O-Ring, Back-Up Ring, Disc Spring Washer And Locknut
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Install the special tools (A) to the companion flange, then tighten the new locknut to the specified torque.

Torque: 147 N·m (15.0 kgf·m, 108 lbf·ft)

Torque: 147 N·m (15.0 kgf·m, 108 lbf·ft)

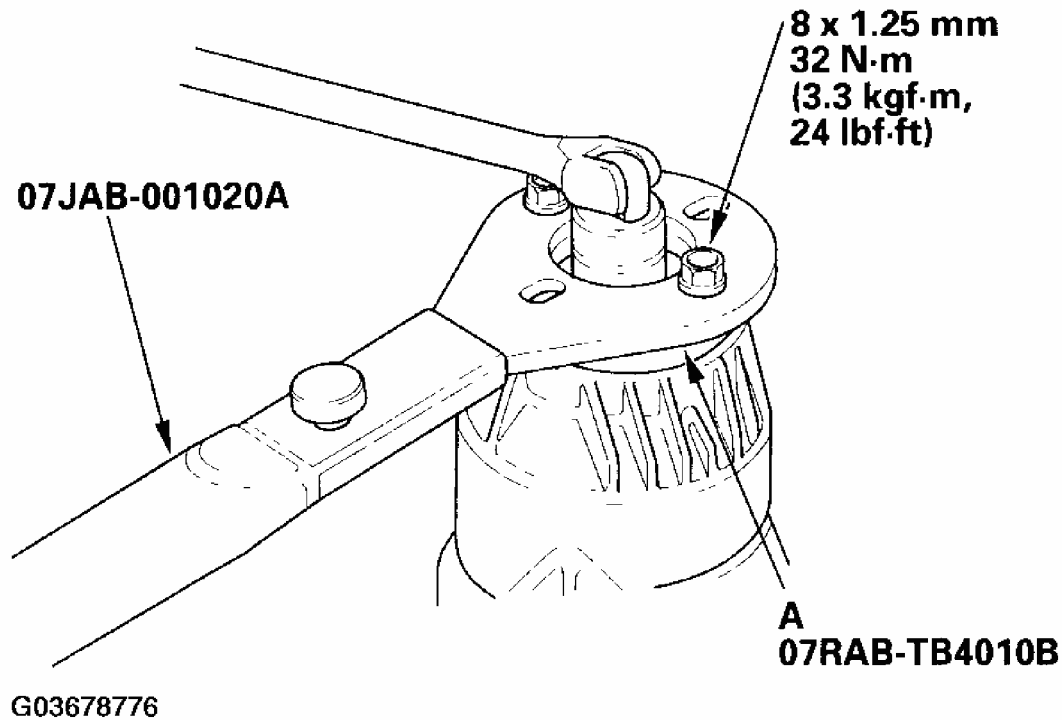
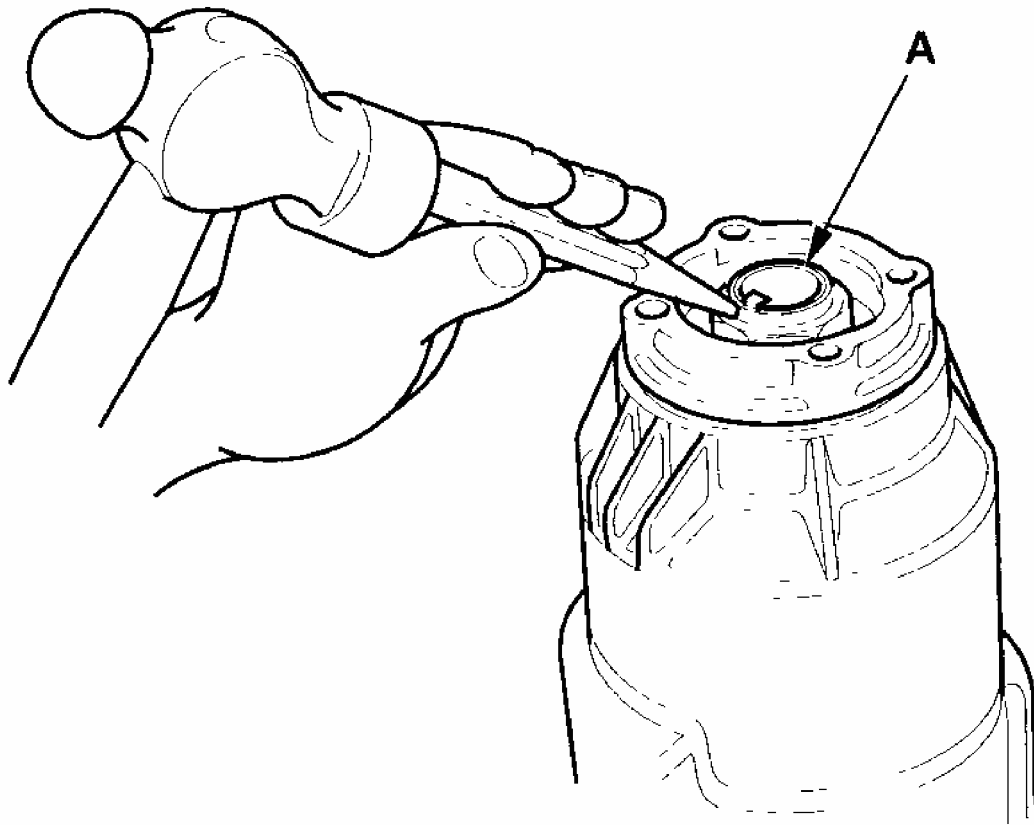


Fig. 59: Installing Special Tools To Companion Flange And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

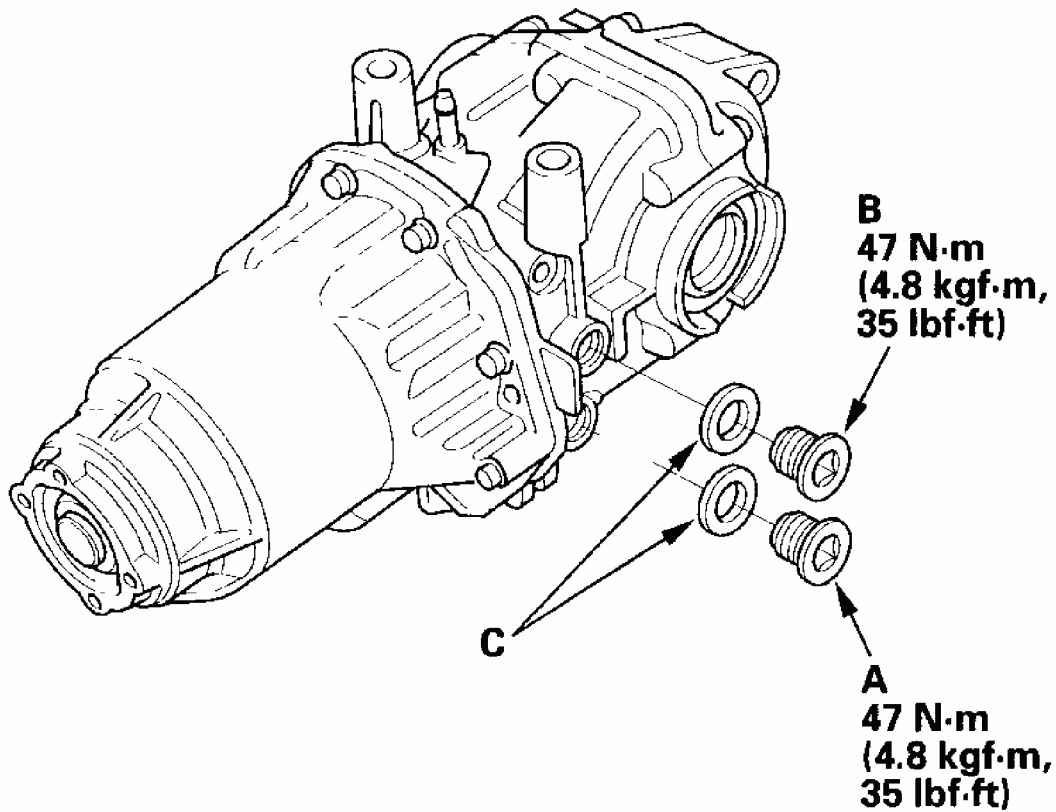
12. Stake the locknut tab (A) into the groove in the clutch guide.



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Fig. 60: Staking Locknut Tab Into Groove In Clutch Guide
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. Install the drain plug (A) and the oil filler plug (B) with new washers (C).



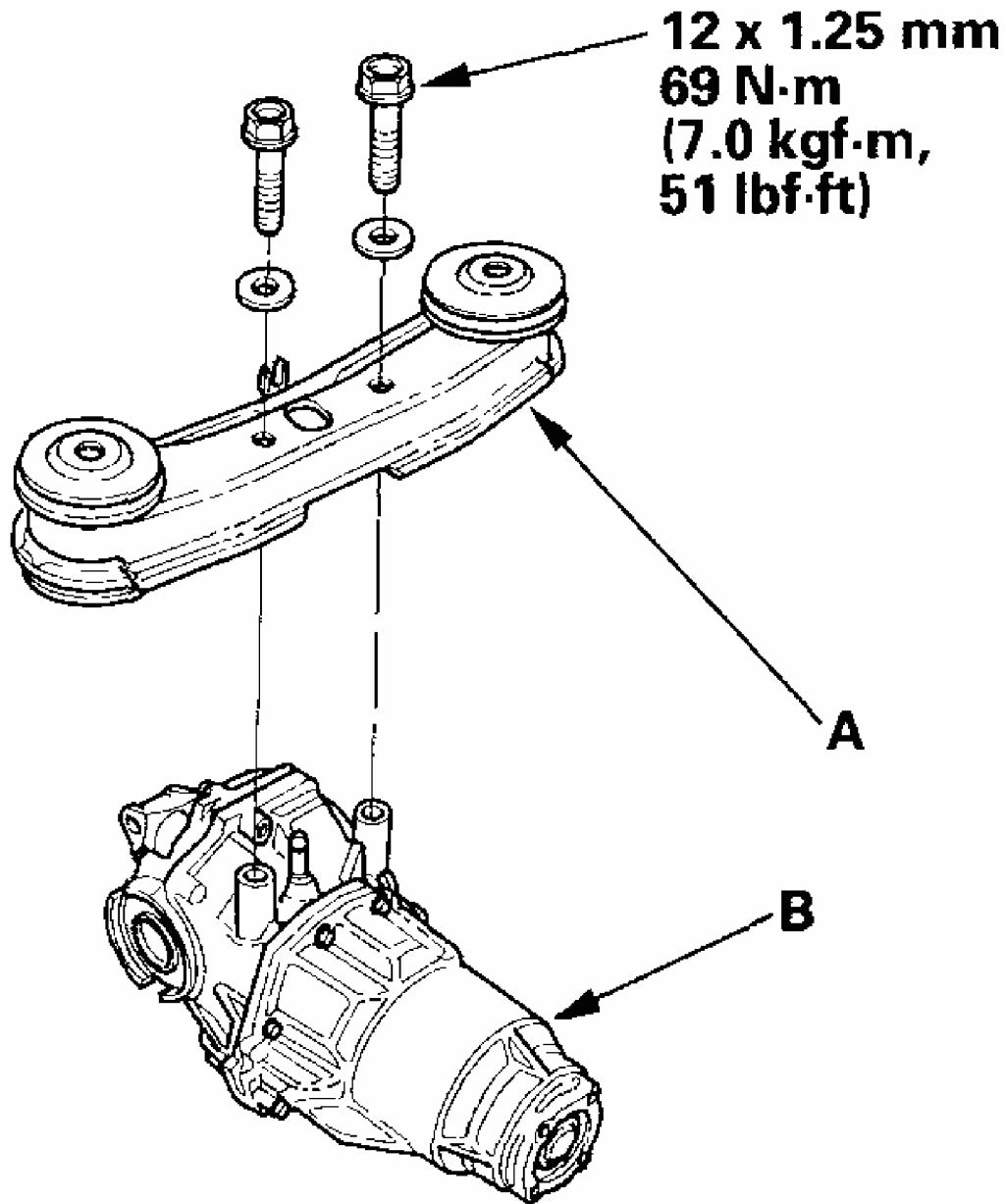
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Fig. 61: Installing Drain Plug And Oil Filler Plug With New Washers With Specified Torques

Courtesy of AMERICAN HONDA MOTOR CO., INC.

DIFFERENTIAL INSTALLATION

1. Install the rear differential mount assembly A to the rear differential assembly (B).

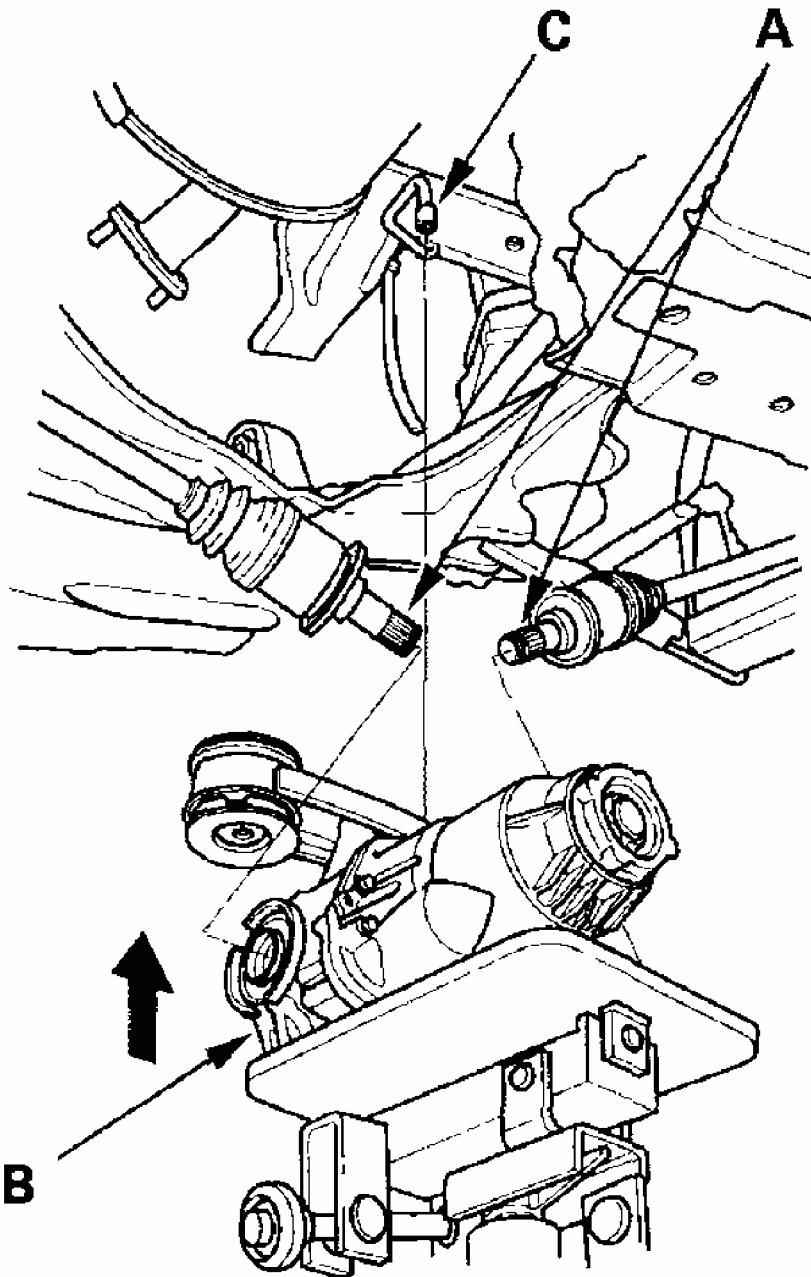


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Fig. 62: Installing Rear Differential Mount Assembly To Rear Differential Assembly And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Jack up the rear differential.
3. Install the new set rings (A) onto the driveshafts, then insert the driveshafts into the rear

differential (B).

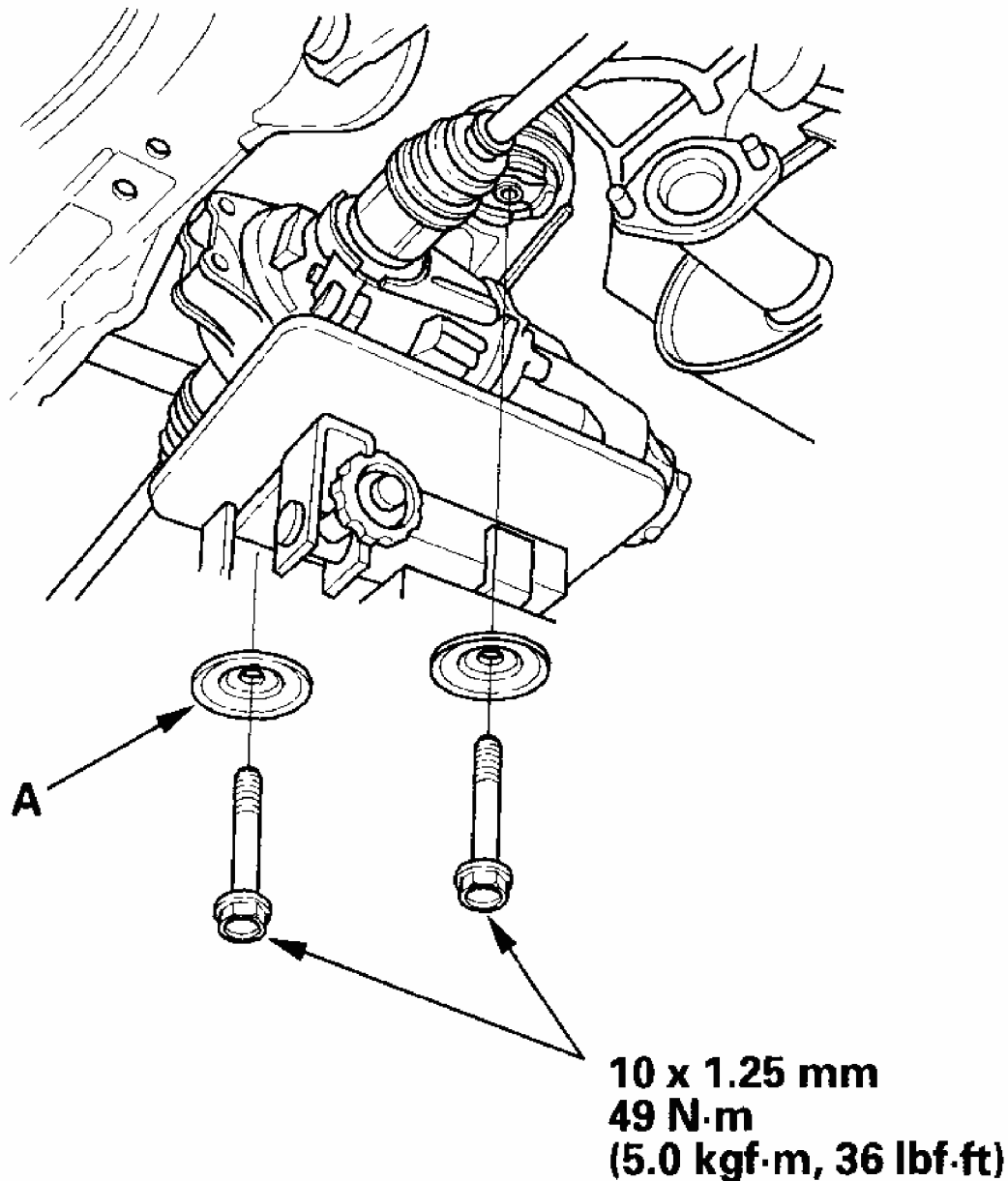


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Fig. 63: Installing Set Rings Onto Driveshafts
Courtesy of AMERICAN HONDA MOTOR CO., INC.

4. Lift the rear differential up into position, then push on both driveshafts to lock the set rings into place. Connect the breather tube (C).

5. Install the plates and the rear differential mount assembly mounting bolts.



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Fig. 64: Installing Plates And Rear Differential Mount Assembly Mounting Bolts With Specified Torques
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Install the right and left rear differential mount brackets B, then torque the bolts (A) and rear differential damper (C).

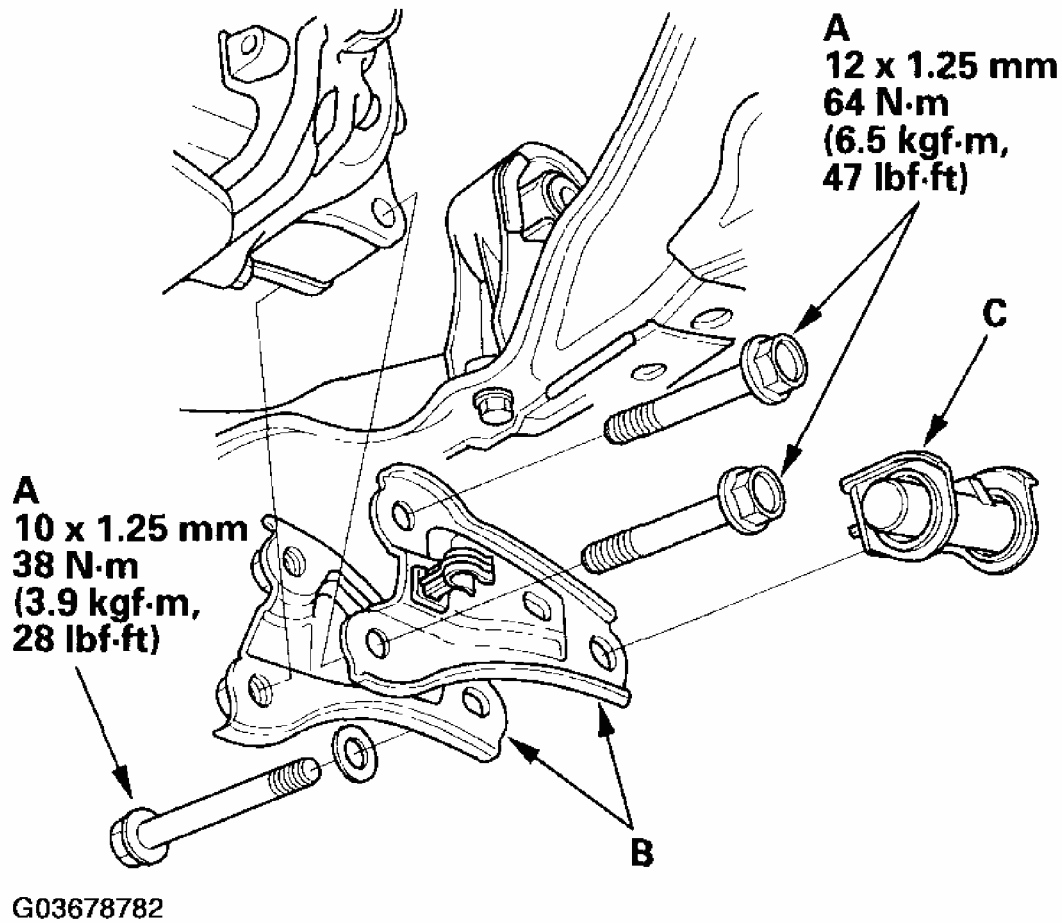


Fig. 65: Installing Right And Left Rear Differential Mount Brackets With Specified Torques

Courtesy of AMERICAN HONDA MOTOR CO., INC.

7. Install the No. 2 propeller shaft (A) onto the rear differential (B) by aligning the reference marks (C) made during removal. Make sure you use new mounting bolts (D).

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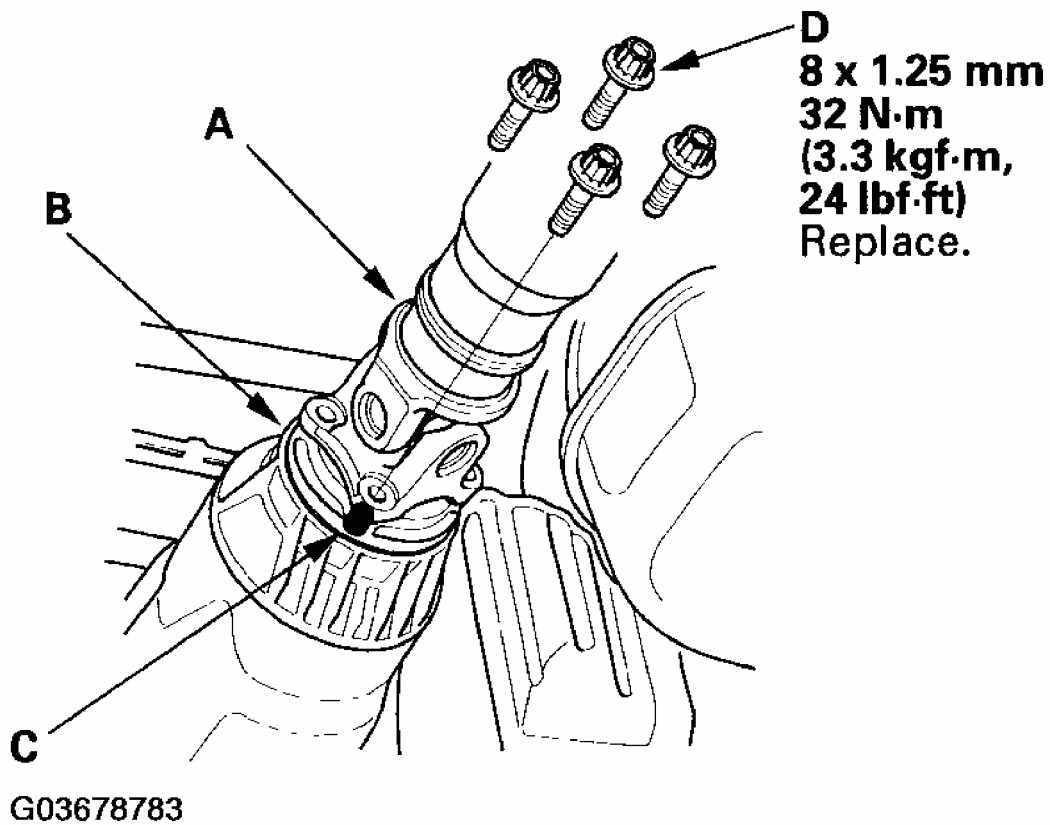


Fig. 66: Installing Propeller Shaft And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. install the tail pipe (A).

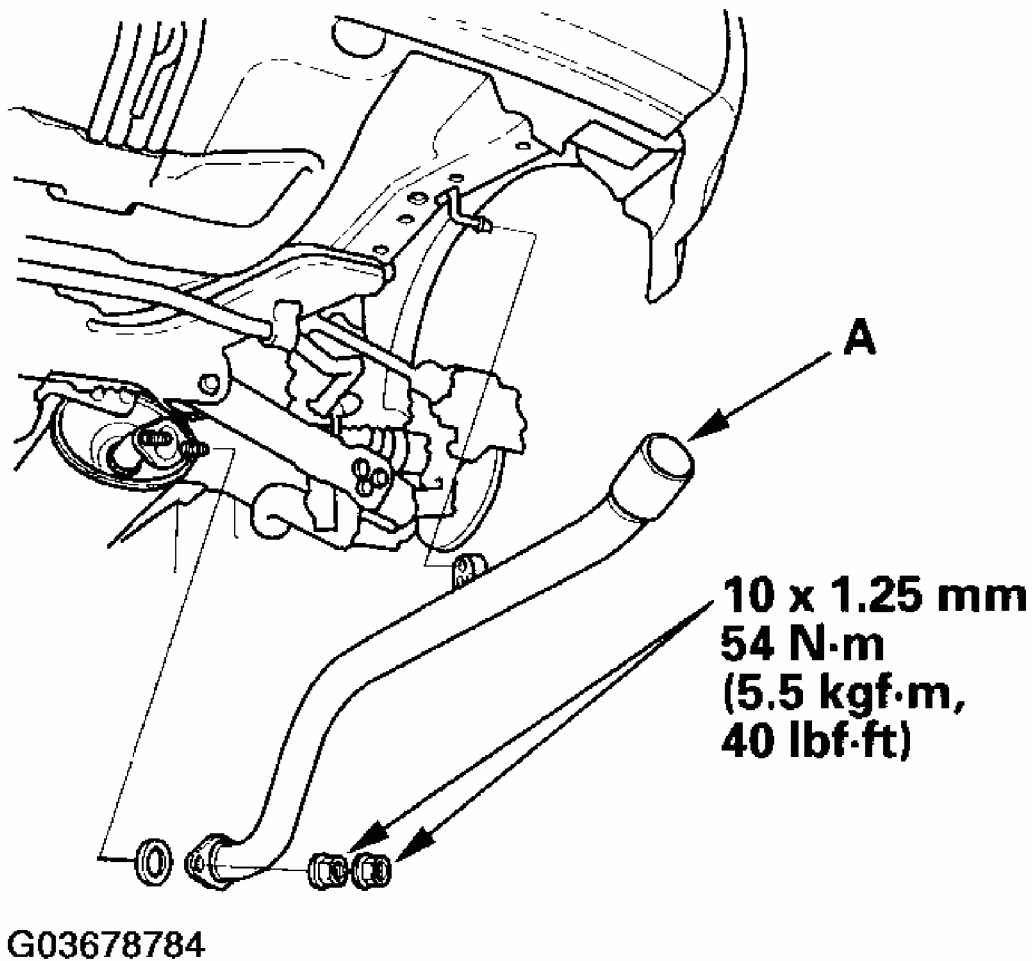


Fig. 67: Installing Tail Pipe And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Fill the rear differential with the recommended fluid (see **DIFFERENTIAL FLUID INSPECTION AND REPLACEMENT**).

DIFFERENTIAL MOUNT REPLACEMENT

EXPLODED VIEW

2004 Honda Element DX

2003-06 DRIVELINE/AXLE Rear Differential - Element

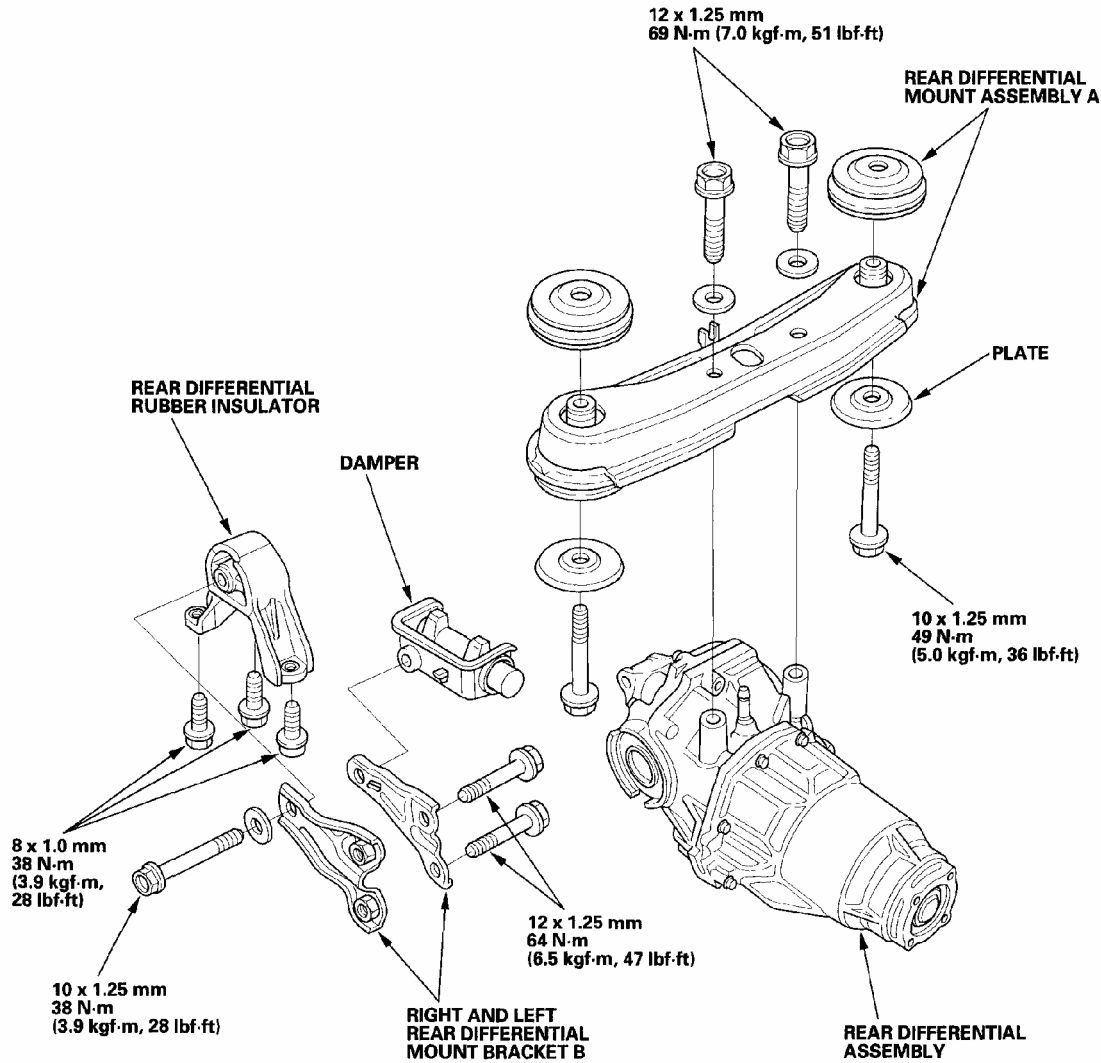


Fig. 68: Exploded View Of Differential Mount And Torque Specifications
Courtesy of AMERICAN HONDA MOTOR CO., INC.