

205-02 : Rear drive axle / Differential

Specifications

Specifications

General Specifications

Item	Specification
Differential Ratio	3.31 : 1

Lubricants, Fluids, Sealers and Adhesives

	Specifications
Differential fluid type	M2C 192A Synthetic

Capacities

	Liters
<u>Differential fluid capacity</u>	<u>1.25 liters</u>

Torque Specifications

Item	Nm	lb-ft	lb-in
Differential flange to driveshaft flange - nuts/bolts*	88	65	-
Differential flange to pinion shaft - nut*	A	-	-
Differential front mounting - bolt*	90	66	-
Differential rear mounting - bolt*	163	120	-

NOTE:

A = refer to the procedure for correct torque sequence.

* New nut/bolt must be installed.

Description and operation

Rear Drive Axle and Differential - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8

COMPONENT LOCATION



E64049

Item	Part Number	Description
1		Differential

INTRODUCTION

The differential is supported at three mounting points, one at the front of the unit, and two at the rear, through rubber bushes to the vehicle's rear subframe. This mounting arrangement plus the subframe to vehicle-body mounting arrangement provides the rear driveline with double isolation from the vehicle's body.

The unit is constructed of a lightweight cast-iron main casing and an aluminum rear cover. The rear cover incorporates fins to aid cooling.

The pinion shaft aligns with the centerline of the vehicle's body and is supported by two taper-roller bearings. The hypoid-gear set is also supported by taper roller bearings.

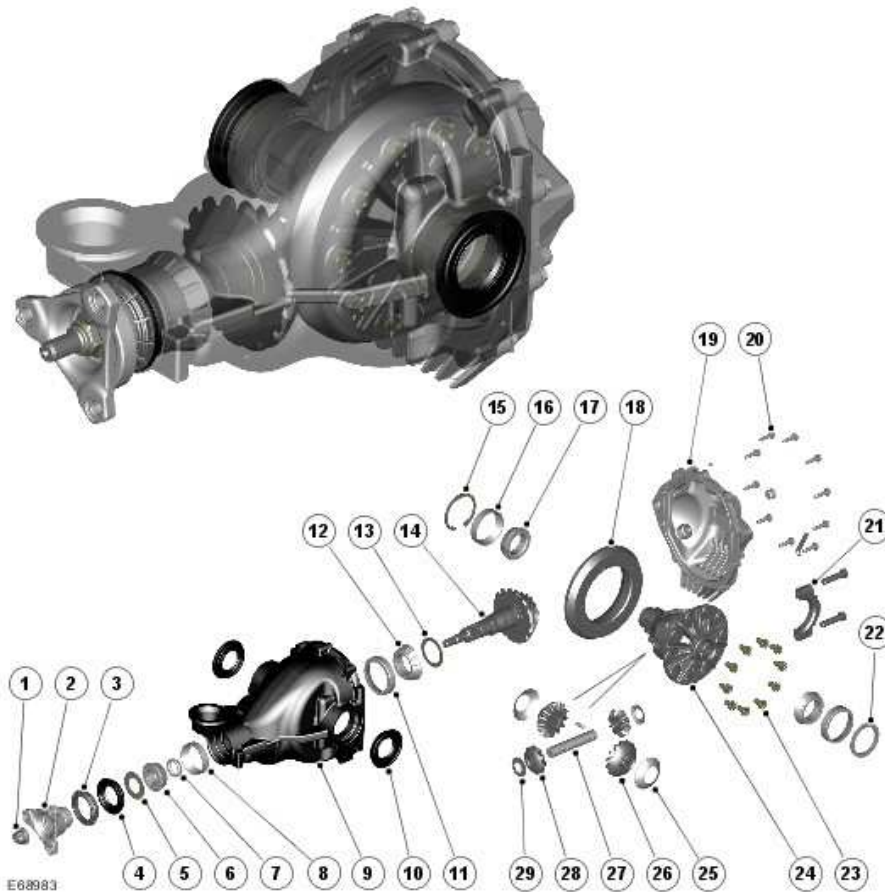
The unit has a final drive ratio of 3.31:1 and the lubricant is fill for life.



CAUTION: Running-in For Final Drive Unit During the first 1500 km (940 miles) and if at any time a new final drive unit is fitted:

- avoid full throttle applications
- do not exceed 190 km/h (120 mph)
- do not participate in motor racing events, test track days, sports driving schools or similar
- avoid towing during running-in period.

OPERATION



Item	Part Number	Description
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1		Pinion nut
2		Pinion flange
3		Dust shield
4		Pinion oil seal
5		Pinion shaft oil slinger
6		Pinion bearing
7		Collapsible spacer
8		Pinion bearing cup
9		Differential housing
10		LH Output shaft oil seal
11		Differential pinion bearing cup
12		Pinion bearing
13		Drive pinion bearing adjustment shim
14		Pinion
15		Circlip
16		Differential bearing cup
17		Differential pilot bearing
18		Ring gear
19		Differential rear cover
20		Rear cover bolt (10 off)
21		Differential bearing cap
22		Differential bearing adjustment shim
23		Ring gear bolt (10 off)

24		Differential
25		Dished plate
26		Sunwheel
27		Shaft
28		Planet gear
29		Thrust washer

The rear axle drive pinion receives power from the engine through the transmission and driveshaft. The drive pinion gear rotates the differential drive gear, which is bolted to the differential housing outer flange. Inside the differential housing, two differential pinion gears are mounted on a differential shaft, which is pinned to the differential housing. These differential pinion gears are engaged with the differential side gears to which the halfshafts are splined. As the differential gear turns, it rotates the halfshafts and rear wheels.

When it is necessary for one wheel and halfshaft to rotate faster than the other, the faster turning differential side gear causes the differential pinion gears to roll on the slower turning differential side gear. This allows differential action between the two halfshafts.

Axle Assembly - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8, Vehicles Without: Differential Drain Plug (51.25.13)

Special Service Tools



Power train assembly jack HTJ
1200-2

Removal

- 1 . Remove the cover and disconnect the battery ground cable.
For additional information, refer to

2





- . **WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.**

Raise and support the vehicle.

- 3 . Remove both the rear halfshafts.
For additional information, refer to Rear Halfshaft (47.10.13)

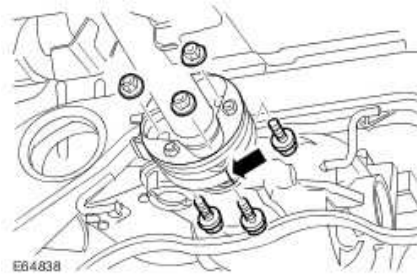
- 4 . Remove the exhaust system.
For additional information, refer to Exhaust System

- 5 .  **CAUTION: Mark the position of the driveshaft flange in relation to the drive pinion flange.**

 **CAUTION: Under no circumstances must the flexible coupling (or it's fixings) be loosened or removed from the driveshaft.**

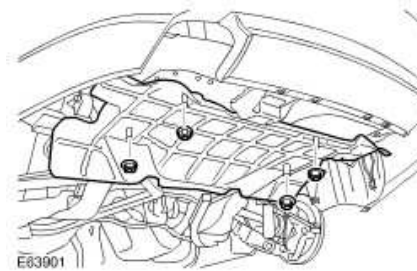
Release the driveshaft from the rear axle drive flange.

- ▶ Remove the 3 nuts and bolts.



- 6 . Remove the exhaust rear heat shield .

- ▶ Remove the 4 nuts.

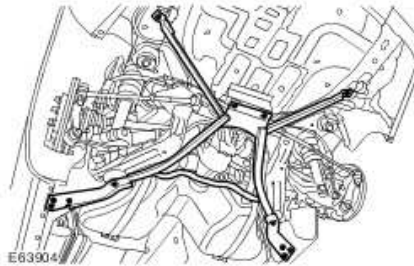


7 . With assistance: Remove the body K-frame.

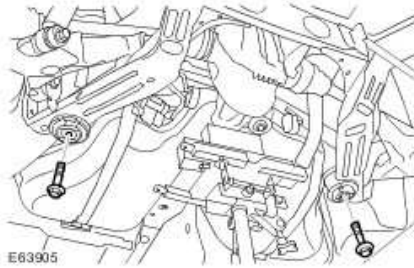
▶ Using a jack, support the differential.

▶ Remove the 8 bolts.

▶ Remove the 4 Torx bolts.



8 . Install the 2 sub-frame mounting bolts and remove the support jack.

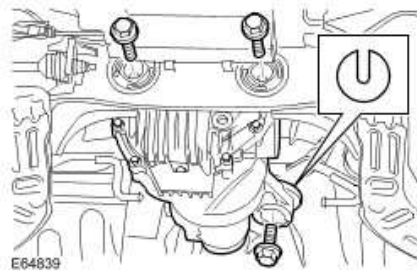


9 . Using a transmission jack, support the differential.

10 .  **CAUTION: Note the fitted position of the special washers.**

Remove the rear differential.

▶ Remove the 3 bolts.



Installation

1 . NOTE:

Align to the position noted on removal.

Install the rear differential.


- ▶ Tighten the 14mm bolts to 163Nm (120 lb.ft).
- ▶ Tighten the 12mm bolt to 90Nm (66 lb.ft).

2 . With assistance, install the K-frame.

- ▶ Remove the 2 bolts.
- ▶ Tighten the M10 bolts to 40 Nm (30 lb.ft).
- ▶ Tighten the M12 bolts to 133 Nm (98 lb.ft).
- ▶ Tighten the sub frame bolts to 60 Nm (44 lb.ft), then a further 240 degrees.

3 . Remove the transmission jack.


4 . Install the heat shield.

 Tighten the nuts to 10 Nm (7 lb.ft).

5 . **NOTE:**

Align to the position noted on removal.

Install the driveshaft.

 Tighten the nuts and bolts to 88Nm (65 lb.ft).


6 . Install the exhaust system.

For additional information, refer to Exhaust System

7 . Install both the halfshafts.

For additional information, refer to Rear Halfshaft (47.10.13)

8 . Check and top-up the differential case.

 Tighten the filler plug to 34 Nm (25 lb.ft).

9 . Connect the battery ground cable and install the cover.

For additional information, refer to

**Axle Assembly - 4.2L NA V8 - AJV8/4.2L
SC V8 - AJV8, Vehicles With: Differential
Drain Plug (51.25.13)**

No Data Available

Axle Housing Bushing - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8 (64.25.30)

Special Service Tools



204-275

Forcing screw
204-275



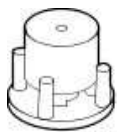
204-274

Forcing screw nut
204-274



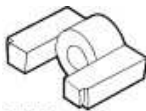
JAG-061

Bearing kit JAG-061



205-534

Receiving cup and mount plate
205-534



205-533

Remover front mount bush
205-533




Installer front mount bush
204-243



Installer front mount bush
204-243

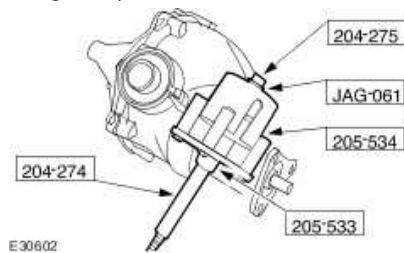
Removal

- 1  **WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.**

Raise and support the vehicle.

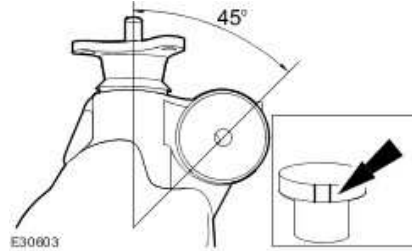
- 2 Remove the rear differential.
 - For additional information, refer to Axle Assembly - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8, Vehicles Without: Differential Drain Plug (51.25.13)

- 3 . Using the special tools, remove the differential bushing.

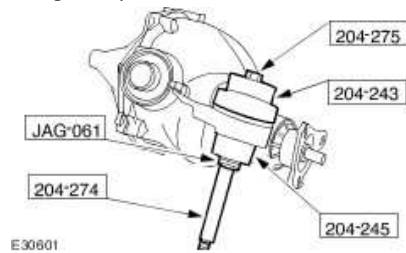


Installation

- 1 The raised mouldings on the bushing, should be set at 45 degrees to the center line of the pinion shaft.



- 2 . Using the special tools, install the bushing.



- 3 Install the rear differential.
 - . For additional information, refer to Axle Assembly - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8, Vehicles Without: Differential Drain Plug (51.25.13)

Drive Pinion Seal - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8 (51.20.01)

Special Service Tools



Flange holding tool
205-053



Pinion seal installer
204-264



Flange remover/replacer
204265



Flange remover/replacer boss
204-266




Flange remover/replacer shaft centre
204-267




Flange remover/replacer forcing screw
204-269


Removal

- 1  **WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.**

Raise and support the vehicle.

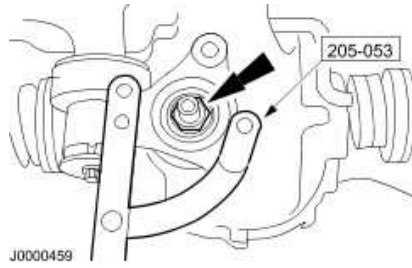
- 2 Remove the driveshaft.
 - For additional information, refer to Driveshaft - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8 (47.15.01)

- 3  **CAUTION: The following step must be carried out to make sure the correct drive pinion flange retaining nut torque is achieved.**

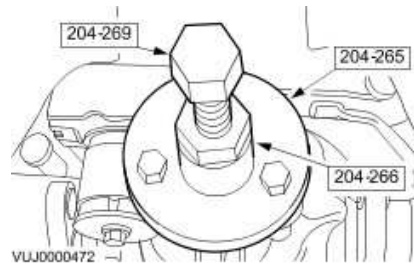
 **CAUTION: Only use a paint mark to match mark the drive pinion flange, loosen the nut 180 degrees then tighten back to mark and note the torque value.**

Remove the drive pinion flange retaining nut.

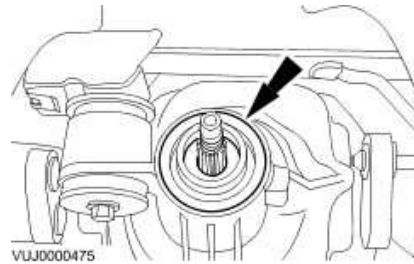
- ▶ Mark the drive pinion flange to nut relationship.
- ▶ Loosen the nut 180 degrees, then tighten back to the mark and note the torque value.



4 . Using the special tool, remove the drive pinion flange.

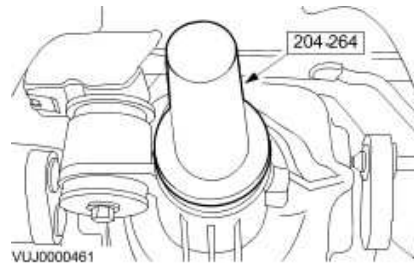


5 . Carefully remove and discard the oil seal.

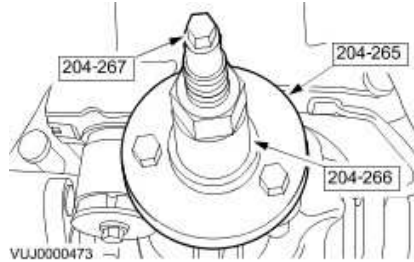


Installation

1 . Using the special tool, install a new oil seal.



2 . Using the special tools, install the drive flange.



3

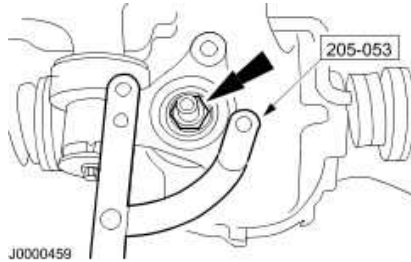


CAUTION: Tighten the drive pinion flange nut to the force noted on removal.




CAUTION: Tighten the drive pinion flange nut to a further 10%.

Install the drive pinion flange retaining nut, and tighten to the torque noted on removal, then a further 10%.



4 . Check and top-up the differential case.

 Tighten the filler plug to 34 Nm (25 lb.ft).

5 Install the driveshaft.

· For additional information, refer to Driveshaft - 4.2L NA V8 - AJV8/4.2L SC V8 - AJV8 (47.15.01)