





LANCER EVOLUTION X
SUPER TRACTION FRONT L.S.D. KIT
RA857885S1


INSTALLATION AND HANDLING INSTRUCTIONS


Thank you for purchasing the RALLIART product.
 Read this publication carefully to ensure correct installation and use of the product with proper knowledge of it.
 Keep this publication near at hand for reference when maintenance is required.

Attention

● The following symbols are used in this publication for your particular attention.

 Warning	and	 Caution	are particularly important precautions to ensure safety in the installation and handling of the product.
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 **Warning ...** Precautions to be observed for safety. Failure to follow given instructions could lead to serious injury or death.

 **Caution ...** Precautions to be observed for safety. Failure to follow given instructions could lead to injury or accident.

 **Advice ...** Instructions to be followed for proper installation.

- Failure to follow instructions given in this publication during installation not only prevents the product from working as it should but may lead to trouble with the vehicle. Be sure to follow all given instructions and install the product properly.
- RALLIART is not responsible for any defects or difficulties caused by or resulting from the installation of this product.
- Defects that may be directly or indirectly caused to the vehicle equipped with this product are NOT covered in any way by Mitsubishi Motors Corporation's warranty for its product.

To the dealer	<ul style="list-style-type: none"> ● Be sure that the customer receives this publication.
To the customer	<ul style="list-style-type: none"> ● Read handling instructions carefully before use. ● Keep this publication neat at hand (in the glove compartment, for example) for reference in case of need.

To the Customer

■ Handling Instructions

Caution

1. Do not use this product for any other purposes than intended.
2. Do not modify this product in any way.
3. Never use or install this product on any other vehicle than specified. Otherwise, damage or accident could be caused.
4. This product cannot be installed in combination with any other product. Be sure to use it in the kit.
5. Check the vehicle as required to ensure that this product is always in normal condition including the installed state.
6. After this product is installed, when the vehicle develops any abnormality during driving, stop it immediately and have it checked, and repaired as necessary, at an appropriate service shop. Otherwise damage to the vehicle or accident may result.
7. If this product fails to function as it should due to deterioration, damage or for any other reason, replace it without delay.
8. Being a mechanical (multi-disc) type L.S.D., this product may cause squeals of driving wheels and chattering noises of gears in the differential during normal cornering.
9. Depending on measuring conditions, data shown in this publication may be found different from measured values.
10. This product is designed for competition use. This product may deteriorate sooner than its standard counterpart.
11. When participating in a competition with this product installed, it is the entrant's responsibility to confirm that the installation of this product conforms to the technical rules of the competition.

■ Applicable Model

Model name	Type	Classification	T/M	Part No.
LANCER EVOLUTION X	CZ4A	GSR	5FM/T	RA857885S1
		RS		

Precautions for Installation

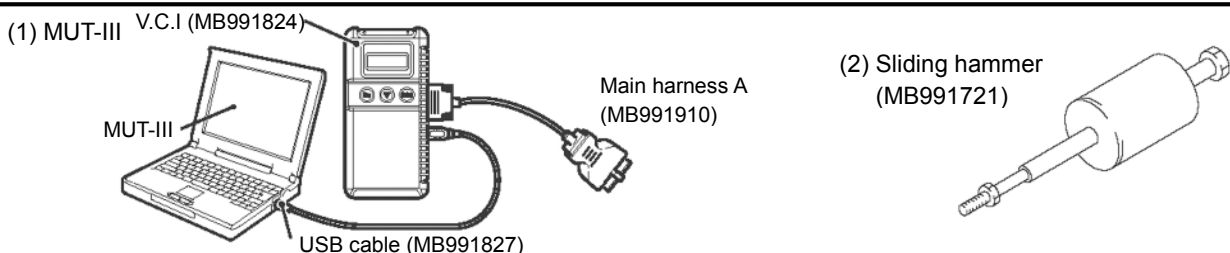
Caution

1. To ensure safety, always turn the ignition switch to OFF and apply the parking brake securely.
2. When jacking up, make sure that the vehicle is firmly supported with rigid racks.
3. To avoid possible deformation, be sure to apply rigid racks to the vehicle at designated places.
4. Be careful not to damage the front under cover and rear differential carrier assembly.

Advice

5. This publication only describes the main points in installation work. For specific installation procedures, backlash adjustment, etc., refer to the relevant workshop manual issued by Mitsubishi Motors Corporation.
6. Be sure to tighten the fasteners to their specified torques.

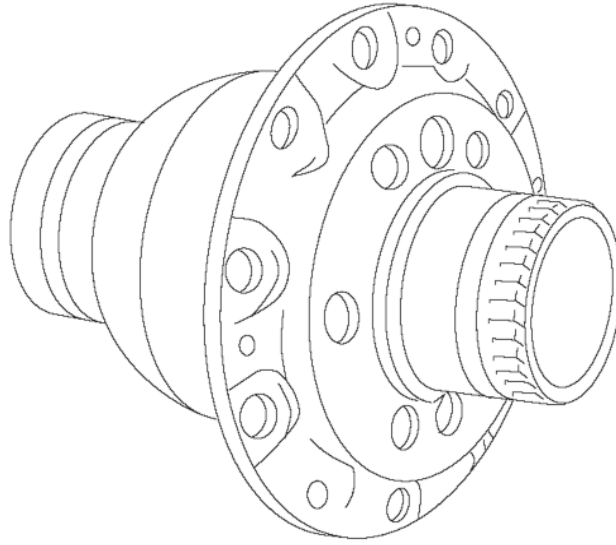
Special Tools (Make the following tools ready for use.)



R023-0278-0806

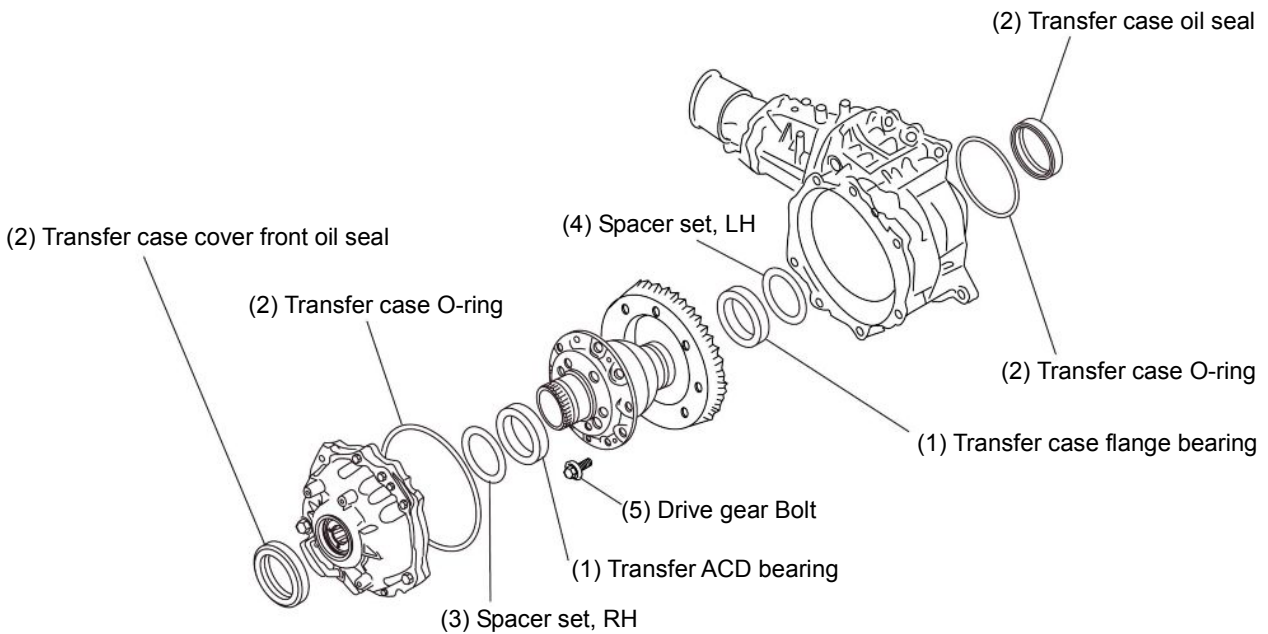
Components (Make sure that all of the following components were included in the kit.)

(1) L.S.D. kit: 1



Required Parts (Necessary for installation)

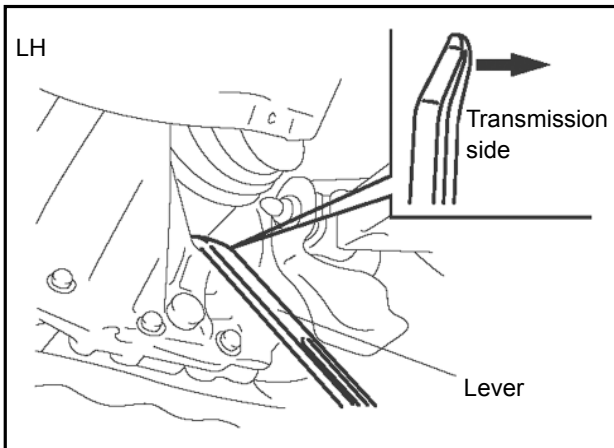
- (1) Taper roller bearing set (RA317750S1)
- (2) Transfer overhaul set (RA315750S1)
- (3) Spacer set, RH (RA314750S1)
- (4) Spacer set, LH (RA315850S1)
- (5) Drive gear Bolt (RACZ4206K1)



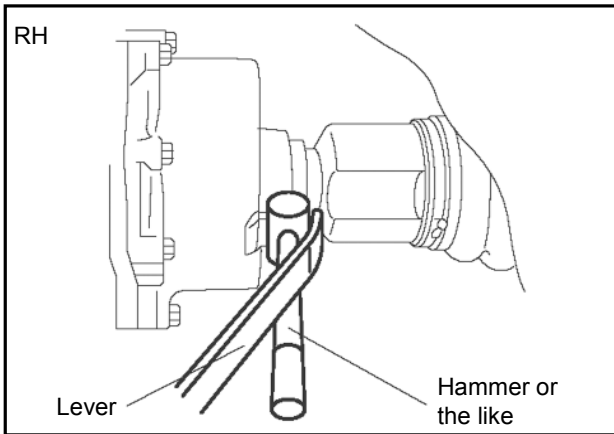
Installation Procedures

1. Removing the transfer assembly

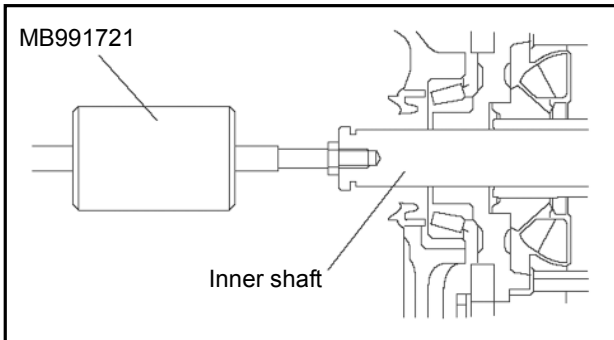
Before removing the transfer assembly, drain oil from the transmission and transfer and remove the front exhaust pipe, propeller shaft, center member, etc.



- 1) Inserting a lever between the transmission case or transfer and the front drive shaft, draw out the front drive shaft from the transmission.



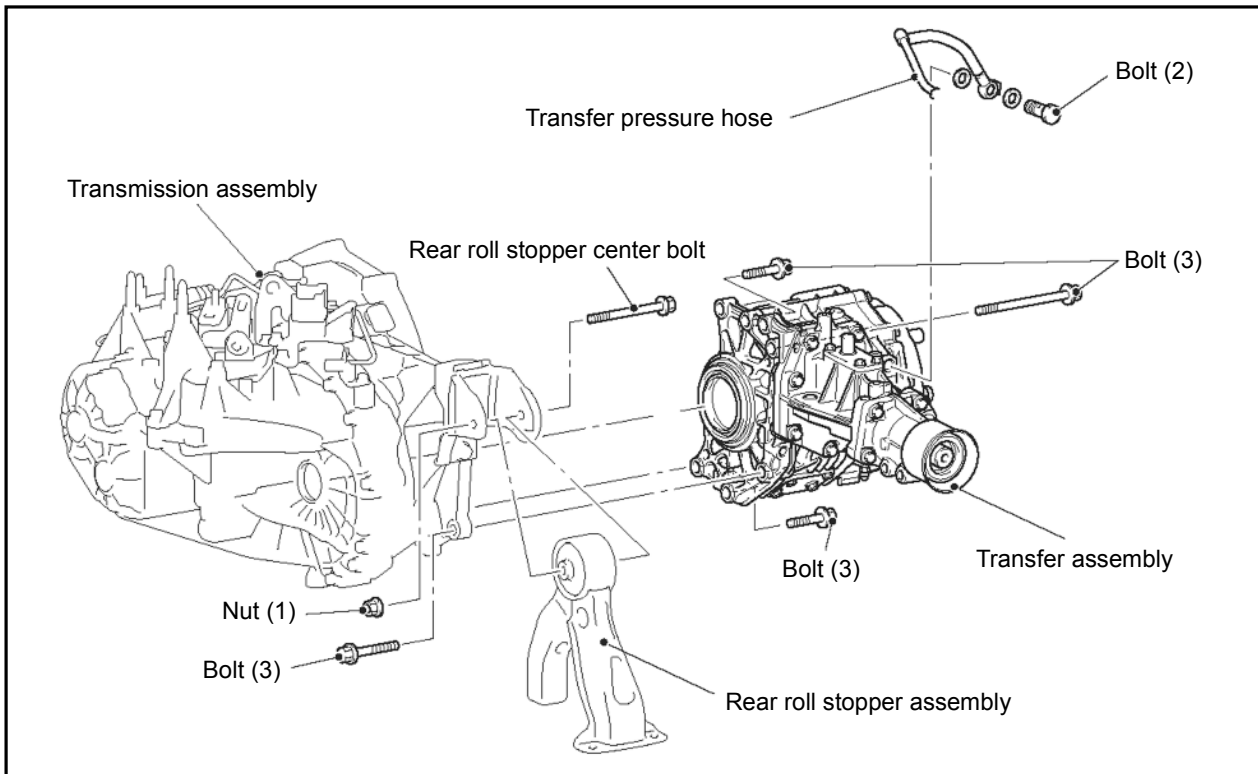
- 2) Remove the left and right inner shafts using the special tool.



Caution

When removing the inner shafts from the transmission, be careful not to damage the oil seal with the splines on the inner shaft.

Installation Procedures



- 3) Remove the nut (1), bolt (2) and bolts (3).

Advice

- Bolt tightening torque
Tightening torques: Nut (1): 53 ± 8 N·m
Bolt (2): 44 ± 5 N·m
Bolt (3): 69 ± 9 N·m
- To tighten the nut (1), first tighten it partway, then fully tighten it in a state of engine weight being exerted on the body.

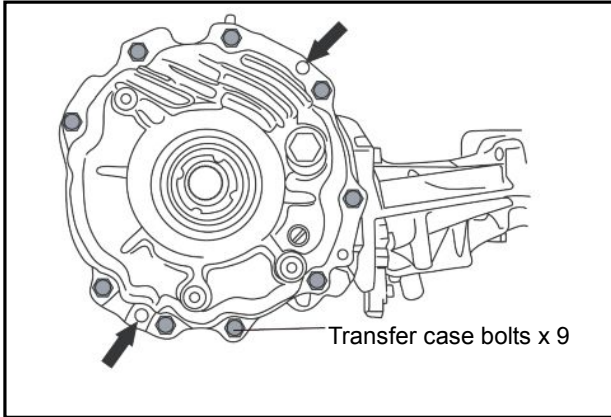
- 4) With engine mount and transmission mount attached, move the engine and transmission assembly toward the front of the vehicle to make a clearance between the engine and transmission assembly and the crossmember. Then take out the transfer assembly through that clearance.

Caution

Be careful not to damage the transfer oil seal lip.

Installation Procedures

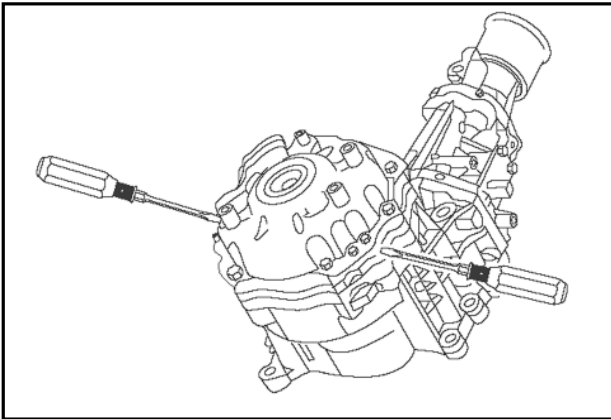
2. Disassembling the transfer assembly



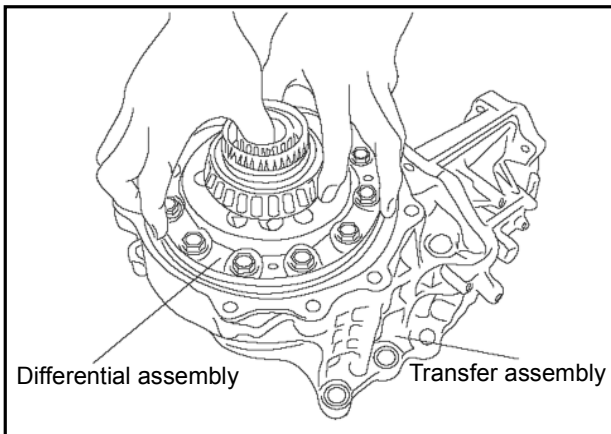
- 1) Remove the nine transfer case bolts.

Advice

- Leave the arrow-marked two bolts intact.



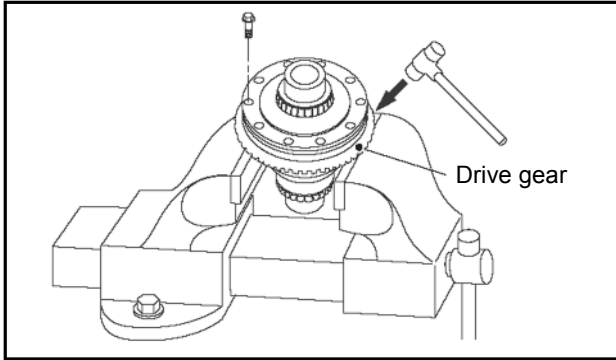
- 2) Pry open the transfer case cover using flat-blade screwdrivers or the like as shown.



- 3) Take out the differential assembly from the transfer assembly.

Installation Procedures

3. Removing the drive gear from the differential assembly

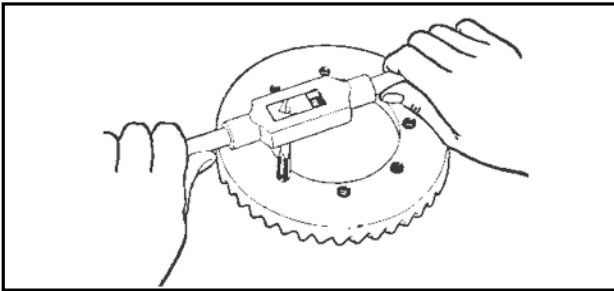


- 1) Remove the drive gear bolts. Remove the drive gear from the differential assembly by tapping the gear with a plastic hammer.

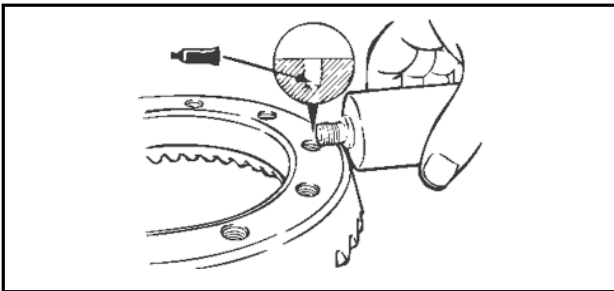
Advice

Keep the removed drive gear and bolts as they will be reused.

4. Installing the front L.S.D. assembly

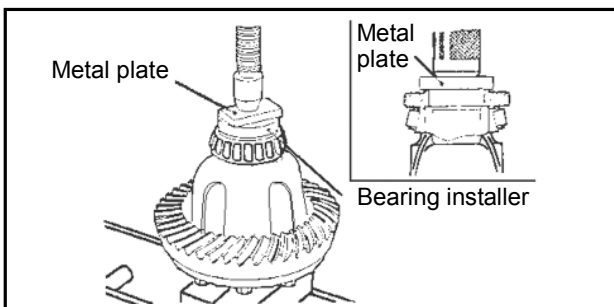


- 1) Clean the drive gear mounting bolts to remove residual adhesive.
- 2) Remove residual adhesive from the bolt holes in the drive gear using a tap and then clean the holes with compressed air.
- 3) Apply anaerobic adhesive into the bolt holes in the drive gear and install the drive gear to the L.S.D. assembly by tightening the mounting bolts to the specified torque.

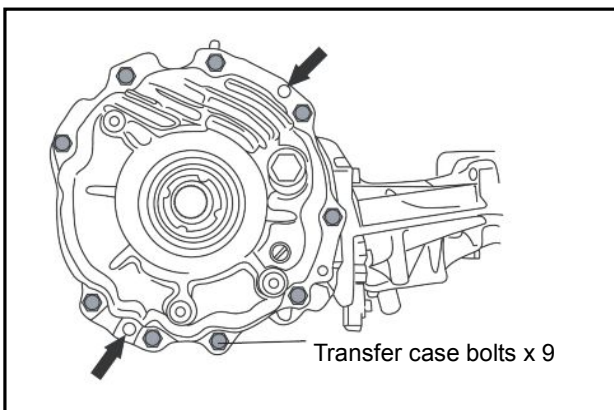


Advice

- Bolt tightening torque:
 74 ± 4 N·m
- Specified anaerobic adhesive:
Three-Bond 1303, Loctite 648 or equivalent



- 4) Using a bearing installer or the like, press-fit the differential side bearing inner race.



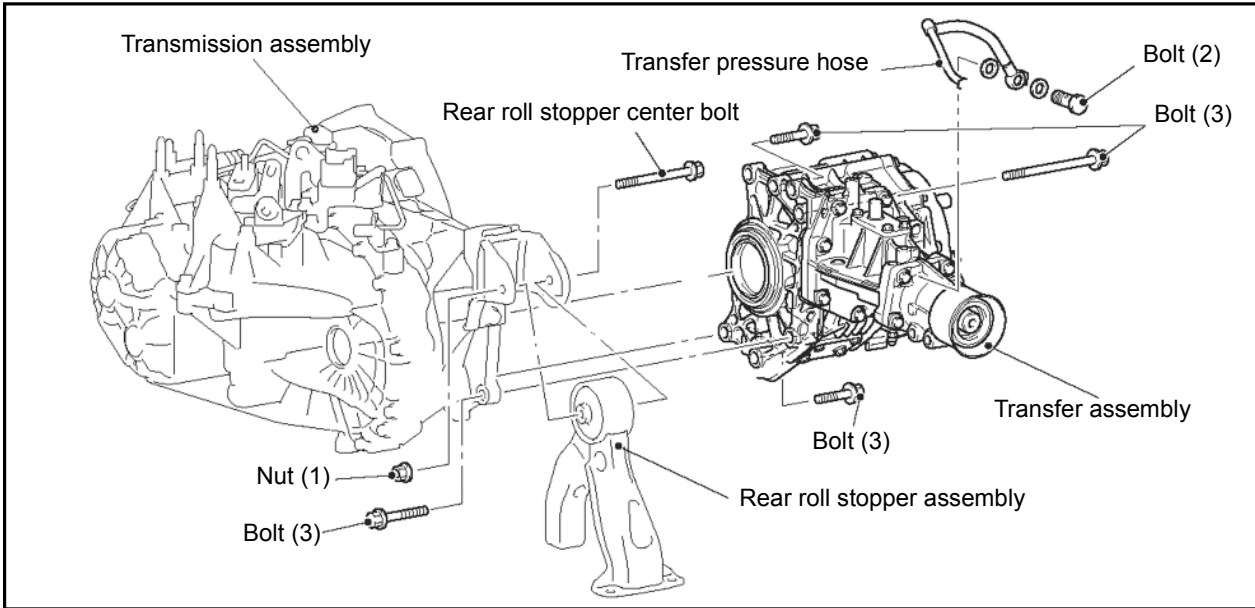
- 5) Reassemble the transfer in the reverse sequence of removal and tighten the transfer case bolts to the specified torque.

Advice

- Bolt tightening torque:
 23 ± 3 N·m
- Do not touch the two arrow-marked bolts.

Installation Procedures

5. Reinstalling the transfer assembly

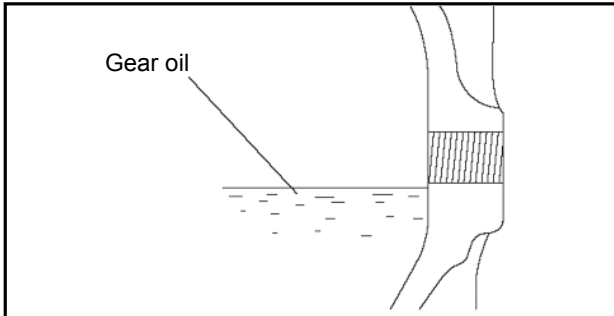


- 1) Reversing the sequence of removal, install the transfer assembly to the vehicle.

Advice

- Tightening torques

Nut (1):	53 ± 8 N·m
Bolt (2):	44 ± 5 N·m
Bolt (3):	69 ± 9 N·m
- To tighten the nut (1), first tighten it partway, then fully tighten it in a state that engine weight being exerted on the body.



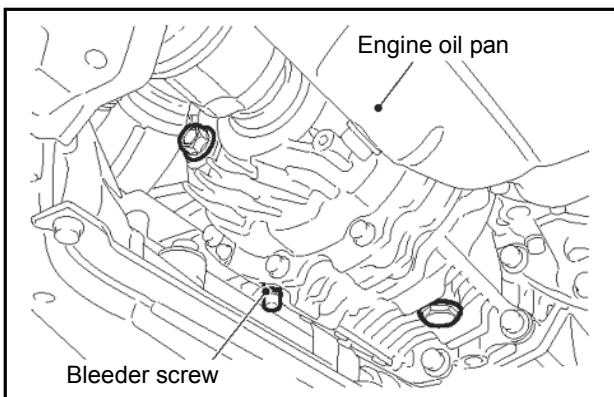
- 2) Fill the specified gear oil up to the lower edge of the filler plug hole of each transmission assembly and transfer assembly as shown. Install the filler plugs and tighten them to their specified torques.

Advice

- Specified gear oil:
Mitsubishi genuine DiaQueen LSD gear oil
- Tightening torque

Transmission filler plug:	32 ± 2 N·m
Transfer filler plug:	32 ± 2 N·m

6. Bleeding of ACD (For details, refer to the appropriate workshop manual issued by Mitsubishi Motors Corporation.)

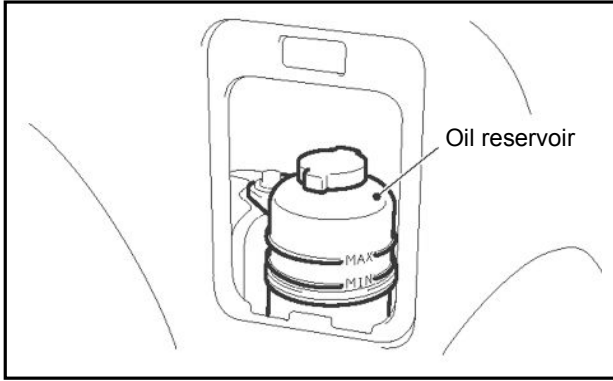


- 1) Lift up the vehicle. Connect the Multi-Use Tester-III to the diagnosis connector. Perform the actuator test using the MUT-III to operate the hydraulic unit forcibly.
- 2) Remove the cap from the bleeder screw on the transfer and connect a vinyl hose to the screw. Perform the bleeding of ACD.

Caution

- During bleeding, replenish the oil reservoir with additional fluid to maintain proper fluid level.
- Incomplete bleeding may cause an abnormal noise from the hydraulic unit and deteriorate the pump, etc.

Installation Procedures



3) After bleeding, check the fluid level in the oil reservoir.

Advice

- The fluid level in the oil reservoir must be between the MIN and MAX lines.
- Specified fluid: Mitsubishi genuine DiaQueen ATF SP III

Supplementary Instructions

■ Supplementary Instructions

Item	Interval	Quantity (dm ³)	Specified oil fluid
Transmission oil	Every 20,000 km	2.5	Mitsubishi genuine DiaQueen LSD gear oil
Transfer oil		0.9	
ACD and hydraulic unit fluid	Every 40,000 km	0.9	Mitsubishi genuine DiaQueen ATF SP III

Advice

- This replacement interval is a rough estimate. Depending on the operating condition, the oil/fluid may deteriorate more quickly. To be on the safe side, earlier change is recommended.

MEMO

OVERHAUL INSTRUCTIONS

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Caution

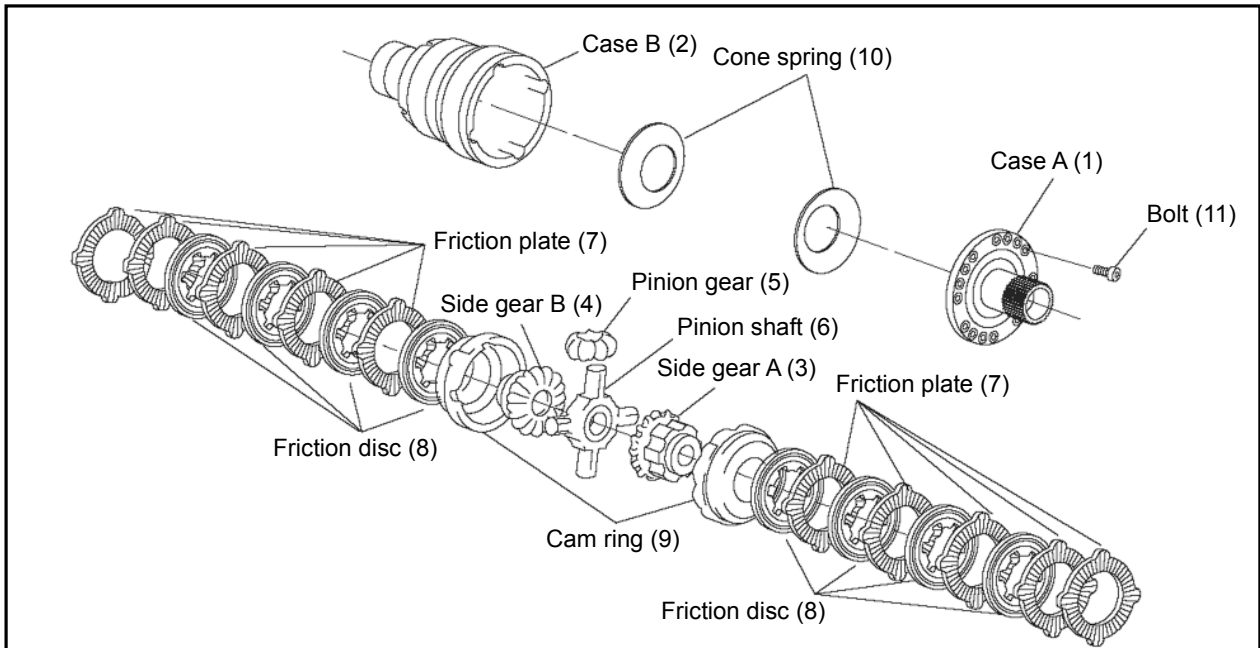
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■ Applicable Model

Model name	Type	Classification	T/M	Part No.
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		RS		

Information

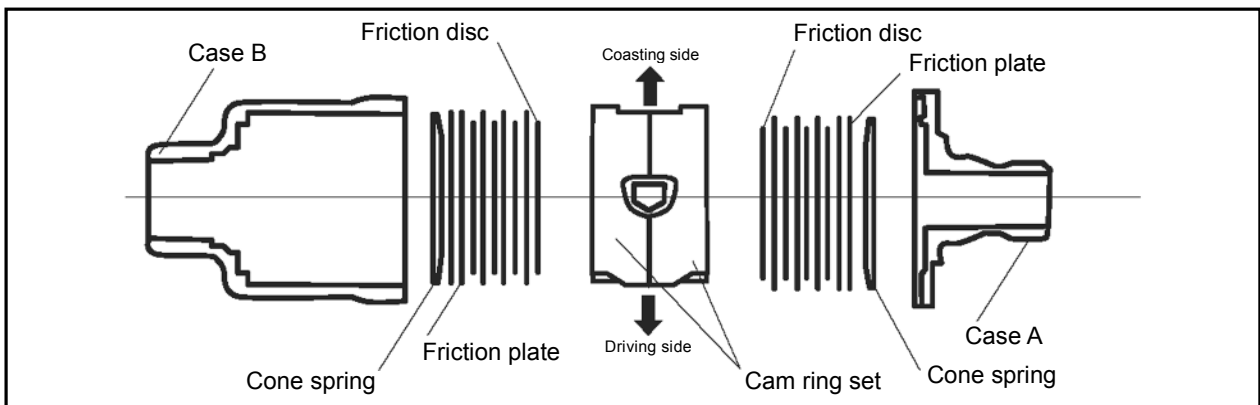
[Component Parts of Rear L.S.D. Assembly]



No.	Part name	Q'ty	Service parts availability	Remarks
1	Case A	1	—	
2	Case B	1	—	
3	Side gear A	1	—	
4	Side gear B	1	—	
5	Pinion gear	4	—	
6	Pinion shaft	1	—	
7	Friction plate	10	O	Outer pawl
8	Friction disc	8	O	Inner pawl
9	Cam ring set	1	O	40°/0° – 50°/0°
10	Cone spring	2	O	T = 1.8 mm
11	Bolt	12	—	Tightening torque: 37.2 N·m (3.8 kgf·m) Apply ThreeBond 1303 or Loctite 648.

[Installation Condition of Front L.S.D Assembly]

1. Assembling sequence and direction of friction discs and plates



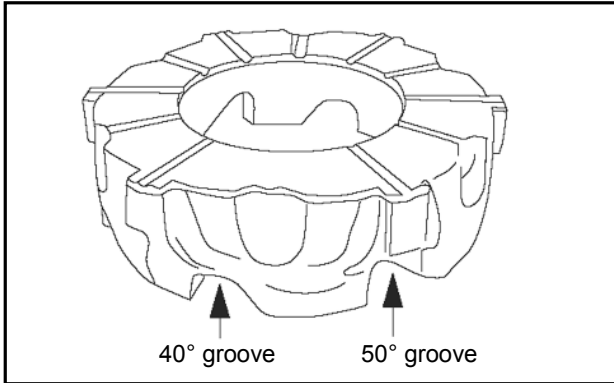
Advice

- Subsequent explanations are based on the assembling sequence and direction shown above.

Installation Procedures

2. Installation of pinion shaft to cam rings

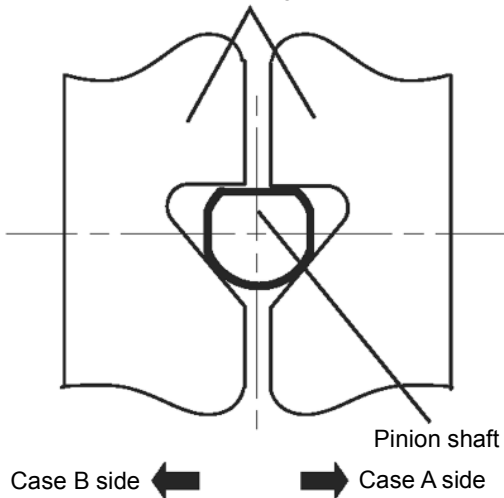
- 1) The cam rings are provided with two types of grooves: one has 50° angle and the other has 40° angle at the driving side.



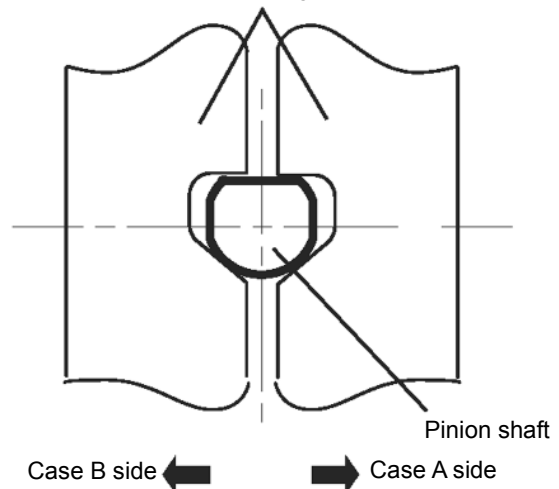
Caution

To avoid possible damage to the L.S.D., the pinion shaft should be installed to the cam rings with their mutual contact surfaces fitted to each other as shown.

When shaft is installed using 50° groove
Cam ring



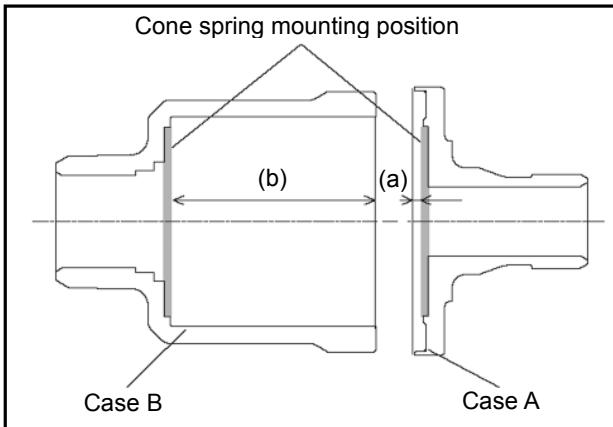
When shaft is installed using 40° groove
Cam ring



Installation Procedures

3. Adjustment

1) Before assembling the L.S.D. assembly, adjust the gap (S) in the differential case within specification. The gap (S) is obtained from the case depth (A) and the inner plate assembly height (D).



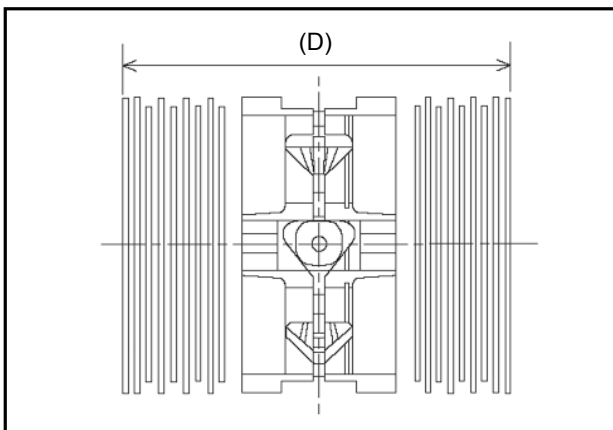
2) Measurement of case depth (A)

Measure the depths of the case A and case B and calculate the case depth (A) as follows.

$$(A) = (b) - (a)$$

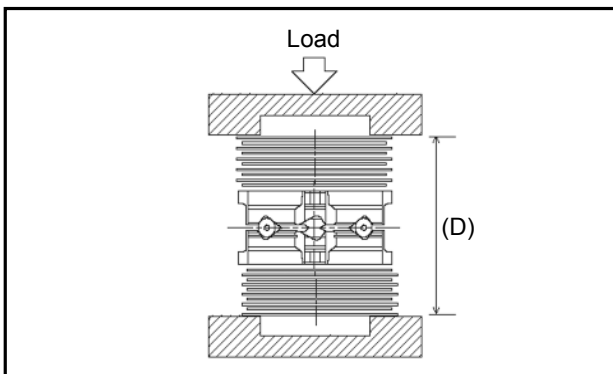
Advice

- Cone spring fitting depth is excluded from the measurement.



3) Measurement of inner plate assembly height (D)

Assemble the friction plates and discs, cam rings, pinion shaft, pinion gears and side gears. Then measure the inner plate assembly height (D) using a micrometer.



Advice

- The inner plate assembly height (D) should be measured with inner plates fully pressed against each other from both sides.
- The parts are cleaned enough before the measurement.
- The cam rings must be fitted to the pinion

4) Calculation of clearance

The clearance (S) is obtained from the case depth (A) and inner plate assembly height (D) as follows.

$$(S) = (A) - (D)$$

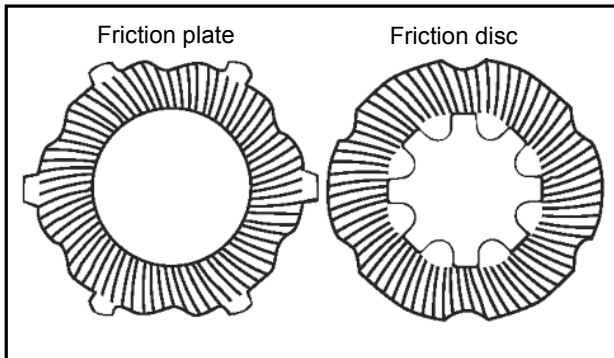
Advice

- Specified clearance (S): 0.4 to 0.6 mm

Installation Procedures

5) Adjustment of clearance

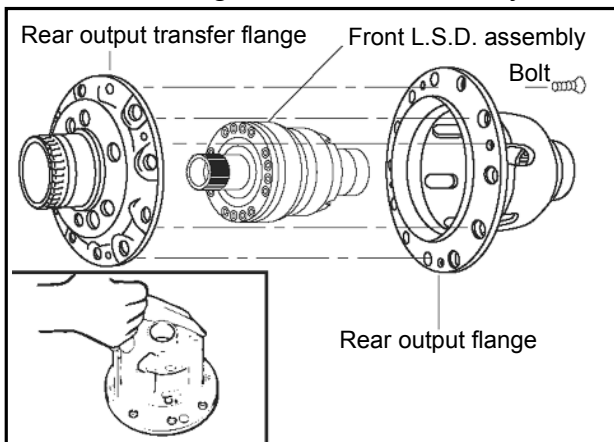
If the clearance is out of specification, select the friction plates of appropriate thicknesses and adjust the clearance within the standard value.



Advice

- Friction plate thickness
RACZ4203K1: 1.6 mm
RACZ4203K2: 1.8 mm
- Friction disc thickness
RACZ4202K1: 1.6 mm

4. Reassembling the L.S.D. assembly



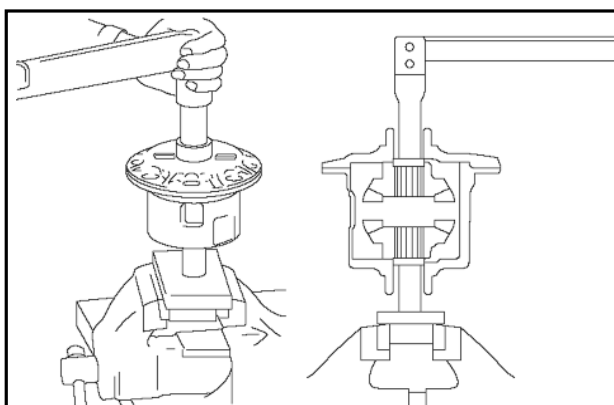
Reassemble the L.S.D. assembly as shown.

Advice

- Bolt tightening torque: 14.7 N·m

5. Cam angle and initial torque at the time of delivery

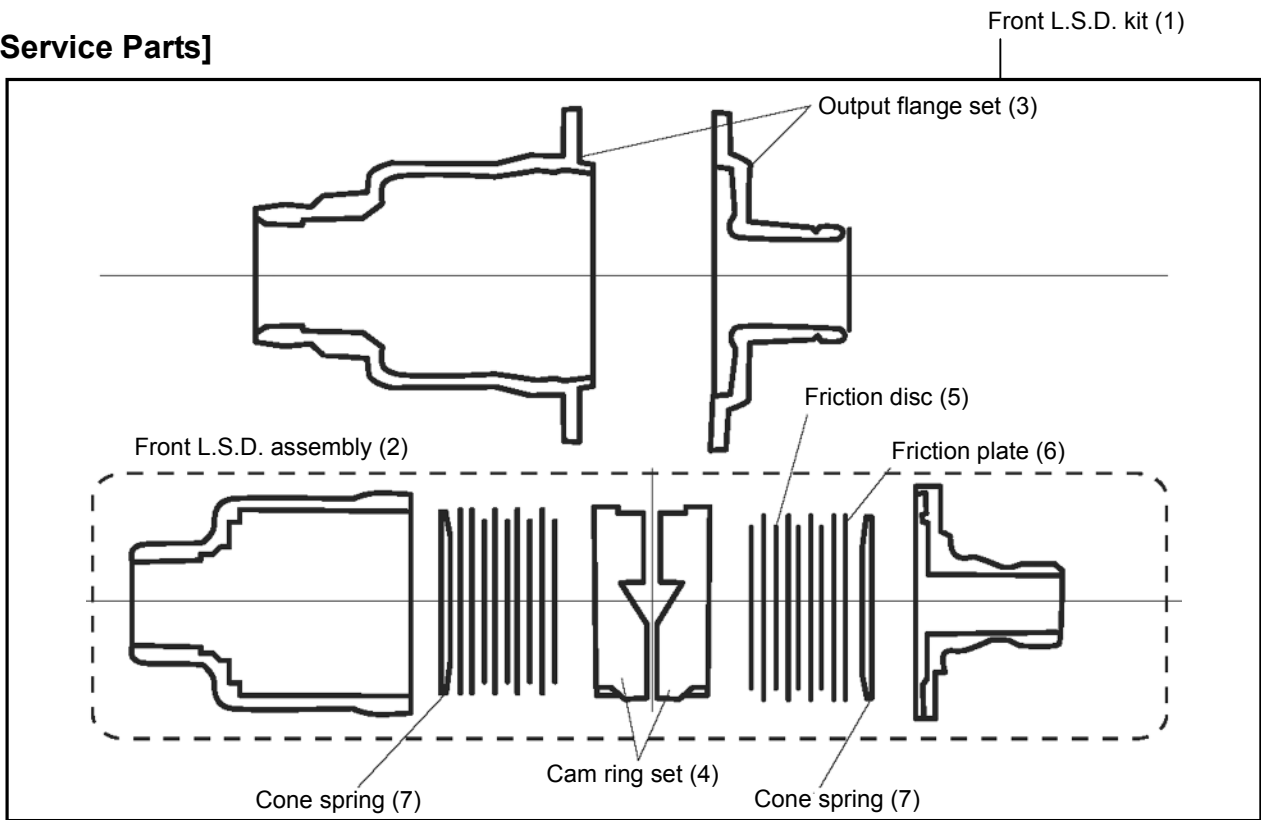
Cam angle	Initial torque
50°/0°	Approx. 80 N·m



* The initial torque given above is the value when mounted on the vehicle. If measured as shown in the drawing, the value should be a half of the above.

Installation Procedures

[Service Parts]



No.	Part name	RALLIART part No.	Remarks
1	Front L.S.D. kit	RA857885S1	Set of (2) and (3)
2	Front L.S.D. assembly	RA857885K1	50°/0° – 40°/0°
3	Output flange set	RA310250S1	
4	Cam ring set (set of LH and RH cam rings)	RACZ4201S1	50°/0° – 40°/0°
5	Friction disc	RACZ4202K1	Inner pawl (T = 1.6 mm)
6	Friction plate	RACZ4203K1	Outer pawl (T = 1.6 mm)
		RACZ4203K2	Outer pawl (T = 1.8 mm)
7	Cone spring	RACZ4204K1	T = 1.8 mm