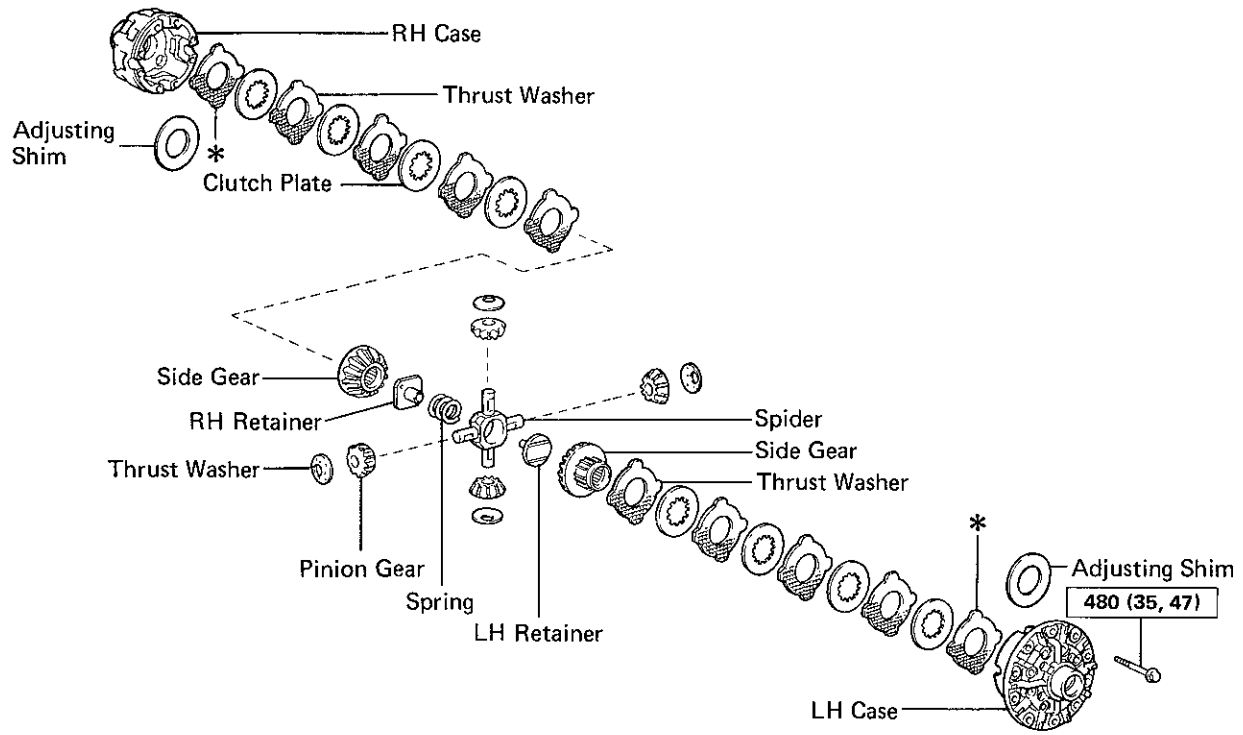
Differential Case (Limited Slip Differential)

COMPONENTS

HINT: *These thrust washers (thicker than the others) are used only by the manufacturer to adjust the pinion gear backlash and are not available as spare parts. For after-sales service, when replacing the thrust washers, replace them with a set of ten of the thinner thrust washers and adjust the pinion gear backlash using separately available adjusting shims.

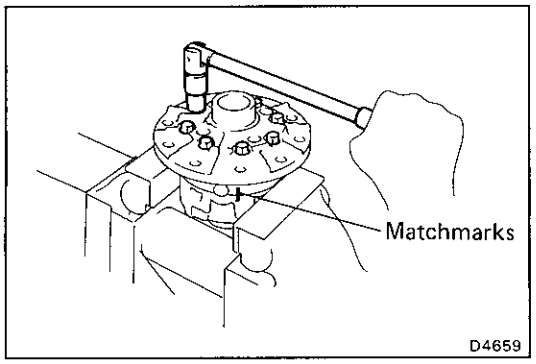


kg-cm (ft-lb, N·m) : Specified torque

D4656

REMOVAL OF DIFFERENTIAL CASE

1. **REMOVE DIFFERENTIAL (See page SA-127)**
2. **REMOVE DIFFERENTIAL CASE FROM CARRIER (See page SA-130)**



DISASSEMBLY OF DIFFERENTIAL CASE

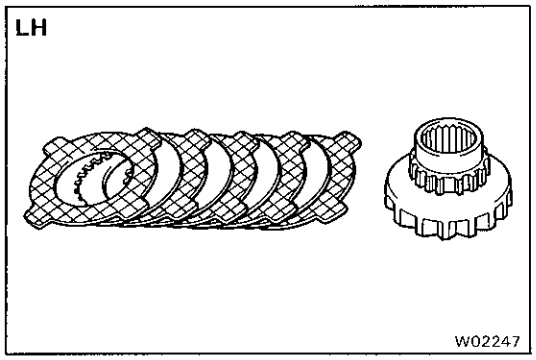
(See page SA-132)

1. DISASSEMBLE DIFFERENTIAL CASE

(a) Place matchmarks on the LH and RH cases.

(b) Remove the eight bolts uniformly, little at a time.

(c) Using a plastic hammer, separate the LH and RH cases.



2. REMOVE FOLLOWING PARTS FROM CASE:

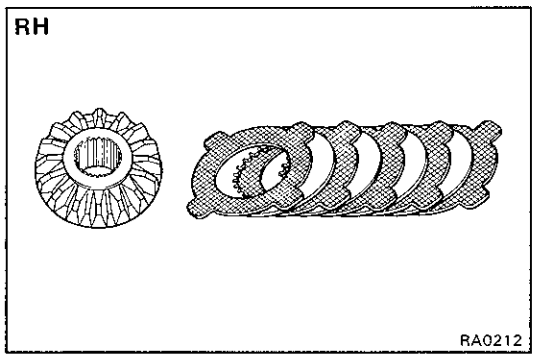
HINT: Keep the disassembled parts in order as shown in the illustration.

(a) Remove the following parts from LH case:

(1) Side gear

(2) Side gear thrust washer (5 pieces)

(3) Clutch plate (4 pieces)



(b) Remove the following parts from RH case:

(1) Spring LH retainer and two springs

(2) Spider with pinion gear

(3) Spring RH retainer

(4) Side gear

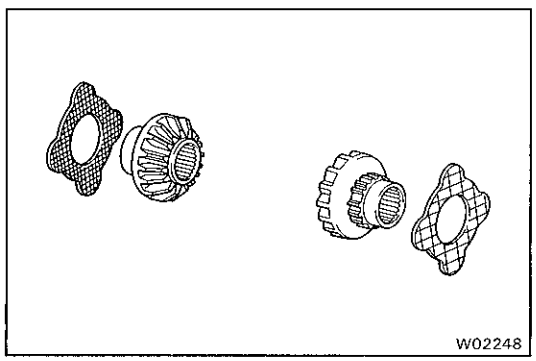
(5) Side gear thrust washer (5 pieces)

(6) Clutch plate (4 pieces)

INSPECTION OF COMPONENTS

1. REPLACE PARTS THAT ARE DAMAGED OR WORN

HINT: If replacing the side gear, also replace the thrust washer contacting it.



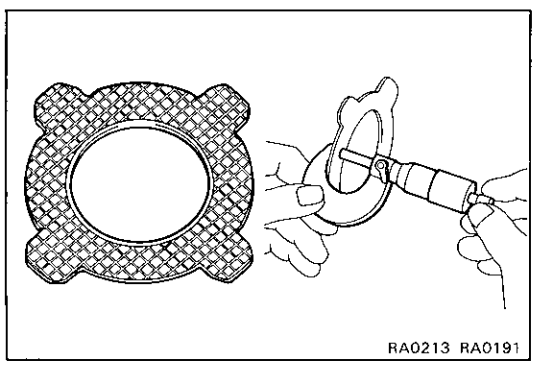
2. INSPECT THRUST WASHERS FOR WEAR OR DAMAGE

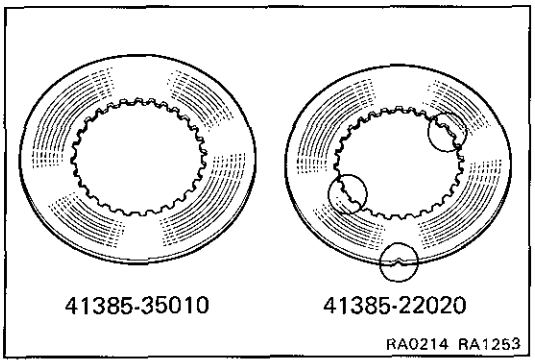
Check that the contact surface of the thrust washer is even and that no bare metal is showing.

(For reference)Thickness limit: 1.74 mm (0.0685 in.)

If necessary replace the thrust washers.

HINT: If replacing the thrust washer, also replace the clutch plate contacting with it.

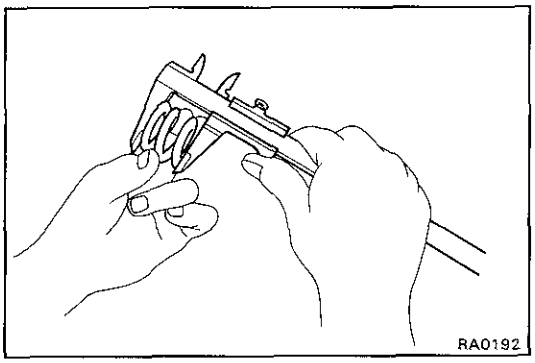




3. INSPECT CLUTCH PLATE FOR WEAR OR DAMAGED

Check see that there is no abnormal wear.If necessary, replace the clutch plate.

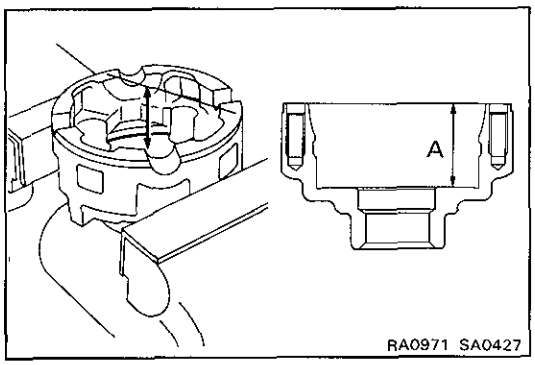
HINT: As shown in the illustration, there are two types of clutch plates. The clutch plate in differential will either have a notched portion on its rim or teeth missing at two places on the inner ring (right side), or a clutch plate with no missing teeth or notched portion (left side). Therefore, when replacing the clutch plates never mix these two types inside the same differential.



4. INSPECT SPRING FREE LENGTH

Measure the free length of the spring.

Limit: Length 31.3 mm (1.232 in.)



SELECT ADJUSTING SHIM

1. MEASURE RH CASE

Measure the RH case as shown in the figure.

"A" = Case dimension.

2. MEASURE SIDE GEAR, THRUST WASHER AND CLUTCH PLATE

(a) Assemble the side gear, thrust washers and clutch plates on the side gear.

HINT: Do not assemble the adjusting shims.

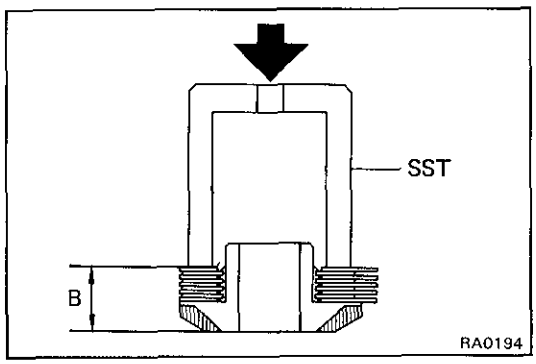
(b) Using SST to press down the thrust washers and clutch plates with about 10 kg (22 lb) of pressure, measure dimension "B".

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TOTAL SHIM THICKNESS C:

"C" = "A" – "B" – 16.15 mm (0.6358 in.)

(c) Refering to the selection table on the next page select the proper adjusting shims.



HINT: The thrust washer attached to the outside of the side gear is marked from A to M according to thickness. This part is used only during assembly at the factory and therefore is neither a supply part, nor does it have a part number.
During repair, install the selected adjusting shim (marked A through E) between the outermost thrust washer and case.

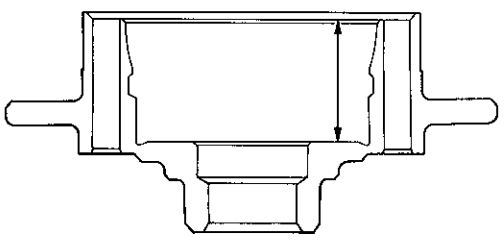
Adjusting shim thickness mm (in.)

Mark	Thickness	Mark	Thickness
A	0.15 (0.0059)	D	0.30 (0.0118)
B	0.20 (0.0079)	E	0.35 (0.0138)
C	0.25 (0.0098)		

Adjusting shim selection table mm (in.)

B Dimension	A Dimension 45.00 .00 (1.7717)	.01 (1.7720)	.02 (1.7724)	.03 (1.7728)	.04 (1.7732)	.05 (1.7736)	.06 (1.7740)	.07 (1.7744)
28.10 (1.1063)							Ⓒ + Ⓒ + Ⓓ	
.12 (1.1071)								
.14 (1.1079)					Ⓒ + Ⓒ + Ⓒ			
.16 (1.1087)								
.18 (1.1094)					Ⓔ + Ⓔ			
.20 (1.1102)								
.22 (1.1110)					Ⓓ + Ⓔ			
.24 (1.1118)								
.26 (1.1126)								
.28 (1.1134)					Ⓓ + Ⓓ			
.30 (1.1142)								
.32 (1.1150)				Ⓒ + Ⓓ				
.34 (1.1157)								
.36 (1.1165)								
.38 (1.1173)					Ⓒ + Ⓒ			
.40 (1.1181)								
.42 (1.1189)				Ⓑ + Ⓒ				
.44 (1.1197)								
.46 (1.1205)								
.48 (1.1213)					Ⓑ + Ⓑ			
.50 (1.1220)								
.52 (1.1228)					Ⓔ			
.54 (1.1236)								
.56 (1.1244)								
.58 (1.1252)					Ⓓ			
.60 (1.1260)								
.62 (1.1268)				Ⓒ				
.64 (1.1276)								
.66 (1.1283)			Ⓑ					
.68 (1.1291)	Ⓐ							
.70 (1.1299)								

LH Case



SA0428

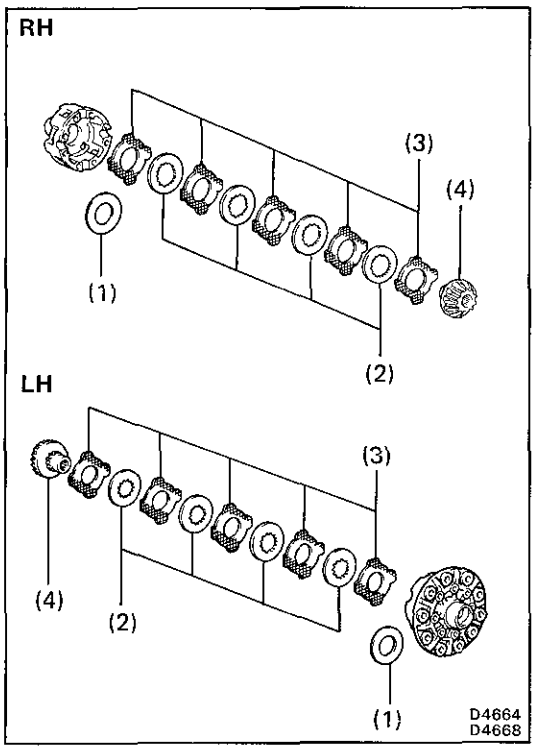
3. SELECT ADJUSTING SHIMS FOR LH CASE IN SAME PROCEDURE

ASSEMBLY OF DIFFERENTIAL CASE

(See page SA-132)

HINT:

- Using a rag, clean off any foreign matter from the parts.
- Apply LSD oil to the contact surfaces of the clutch plates and the thrust washers.
- When installing, the thrust washers (Marking A — M) are not used. To adjust the backlash, use one new thrust washer or the adjusting shim.



1. MEASURE SIDE GEAR BACKLASH

(a) Install the following parts to the LH and RH cases:

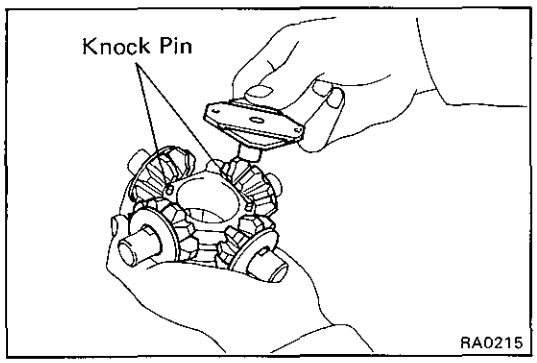
(1) Adjusting shim (0 to 3 pieces)

(2) Clutch plate (4 pieces)

(3) Side gear thrust washer (5 pieces)

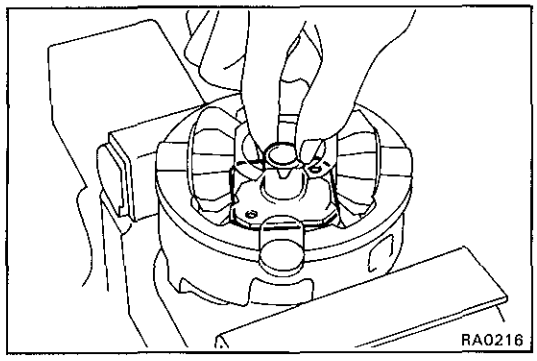
(4) Side gear

HINT: Face the rough side of the thrust washer to the differential case.



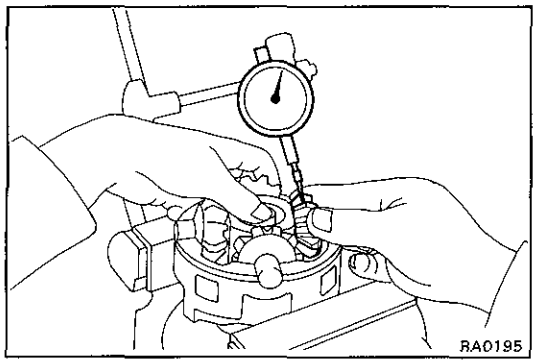
(b) Install the four pinion gears and thrust washers to the spider.

(c) Align the RH retainer holes with the spider knock pins and install the RH retainer.



(d) Install the pinion gear and spider to the RH case.

HINT: Install the spider to the RH case tightly, and don't move the spring retainer.



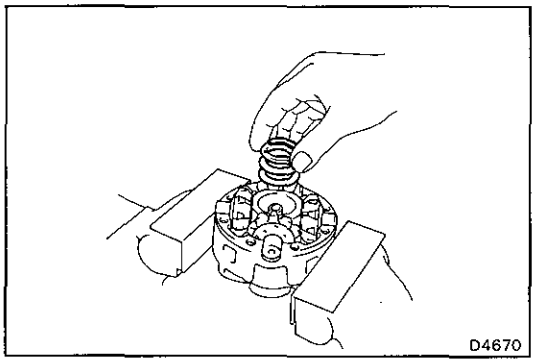
(e) Hold the side gear and spider, measure the side gear backlash.

Backlash: 0.05 — 0.20 mm (0.0020 — 0.0079 in.)

HINT:

- Measure the backlash at the RH case and at the LH case.
- Measure at all four locations.

If the backlash is not within specification, select an adjusting shim.

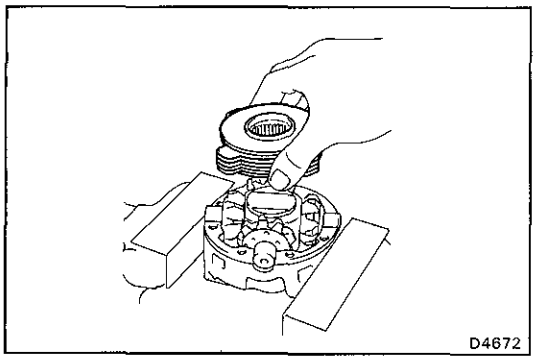


2. ASSEMBLE DIFFERENTIAL CASE

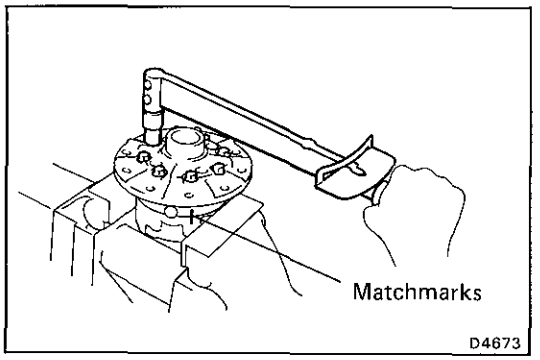
(a) Reinstall the spider and spring RH retainer to the RH case.

HINT: Install the spider the RH case tightly, and don't move the spring.

(b) Install the compression spring and spring LH retainer.



(c) Install the side gear, thrust washers and clutch plates.



(d) Align matchmarks and assemble LH and RH cases.

HINT: Be careful not to drop the side gear, and check the pinion and side gear alignment.

(e) Tighten the eight bolts uniformly, a little at a time.

Torque: 480 kg-cm (35 ft-lb, 47 N·m)

INSTALLATION OF DIFFERENTIAL

1. INSTALL DIFFERENTIAL CASE IN CARRIER
(See page SA-130)

2. INSTALL DIFFERENTIAL
(See page SA-127)