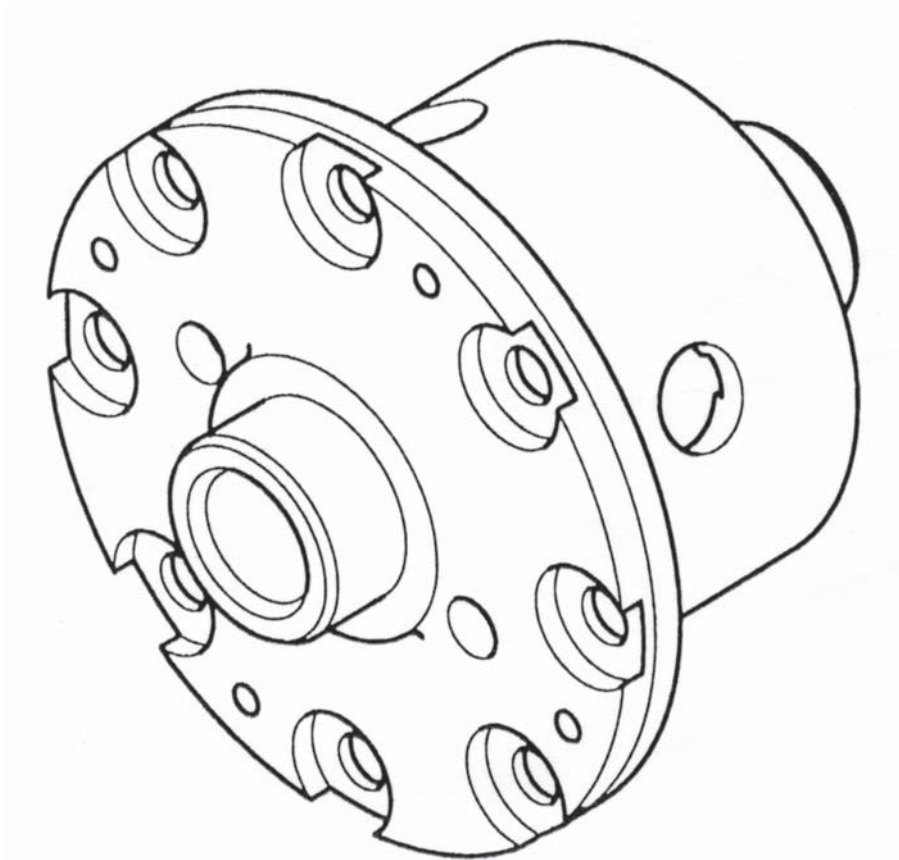




LIMITED SLIP DIFFERENTIAL OPERATOR'S MANUAL



ご使用前に必ずお読み下さい

Read the following instruction before use.

◆ Introduction

Thank you for purchasing the KAAZ LSD. This manual contains the instructions and precautions for installing and handling the KAAZ LSD.

Read this manual before use to install the unit safely and correctly. Use the unit correctly after fully understanding the precautions and the performance of the LSD. Be sure to give this manual to the customer.

◆ Safety Precautions

Caution

- (1) This product is exclusively used for racing. Never use it other than on a circuit.
- (2) Quality of this product is not warranted installation or use because the product is to be exclusively used for racing.
- (3) Read this manual before installing to use the unit safely and correctly.
Use the unit correctly after fully understanding the precautions and the performance of the LSD.
- (4) Understand the contents of the "Instruction Manual for This Product" and "Maintenance Manual for Cars Equipped with This Product" and observe the precautions when disassembling this product and the car equipped with this product. It is very dangerous if you do not observe the precautions because this product and the associated parts may be damaged and the car safety be lost possibly causing a major accident. Use this product after fully understanding its performance and characteristics.
- (5) When you notice abnormal vibration and noise while driving car equipped with this product, immediately stop car and inspect and repair as required.
- (6) Do not lend the car equipped with this product to any person who is not trained or familiar with the handling of this type.
- (7) The specifications and price of the product are subject to change without notice.
- (8) Keep this manual after reading.

◆ Confirmation

This product is adaptable to the vehicles and positions shown in the Adaptability Table.

This product may not be installed on non-adaptable vehicles and positions.

Be ready with the maintenance manual for the relevant car containing descriptions of the positions associated with the LSD installation before starting work.

◆ Precautions for Installing the LSD

Caution

- (1) Replacement must be performed at a certified shop.
- (2) Installation must be performed according to the maintenance manual for the relevant car and observing the precautions contained in this manual.
- (3) Correctly adjust side clearance, backlash and other adjusting items.
This is necessary to prevent damage and accidents.
- (4) Never modify or process this product.
This is necessary to prevent damage and accidents.
- (5) Never use this product in non-adaptable cars.
This is necessary to prevent damage and accidents.
- (6) For full-time 4WD car, the tire diameter (length of the external periphery) must be equal on all four wheels.
This is necessary to prevent damage and accidents.
- (7) Use the following oil for cars equipped with the KAAZ LSD.
Damage and abnormal noise may result if other oils are used.
KAAZ genuine POWERTRAIN GEAR OIL GL-5/80W-90

◆Disassembling and Re-assembling the LSD

Follow the steps below to disassemble and re-assemble this product for reason of maintenance,etc.It is dangerous if you do not observe the precautions,and this product and the peripheral parts may be broken.

⚠ Caution

This unit may not operate properly if foreign matter is included or mixed.
The relevant work should be performed in a clean environment.

Precautions for Disassembly

⚠ Caution

- (1) For models using hexagon socket head cap screws,loosen the bolts particularly slowly.
This is necessary to prevent the break of 1bolts.
- (2) The side gear, pinion cross shaft and 1.5way cam have a direction.
Take notes and sketch to facilitate re-assembly.

Precautions for Re-assembly

⚠ Warning

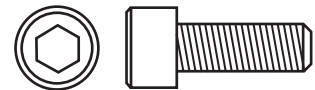
- (1) Fully coat the unit with the LSD oil.This is necessary to prevent seizure,galling and other failure.
- (2) When the case does not fit perfectly,do not forcibly fit it but disassemble and verify the cause.
The unit will not operate properly and failure or break may result if you forcibly fit the case.
- (3) When using the optional oversize clutch plate,check proper assembly each time you insert a plate.
When you use too many plates,the case may not fit and failure or break may occur.

⚠ Caution

- (1) Components contaminated with dust and foreign matter are a cause of failure.Be sure to remove and clean.
- (2) Check the direction of the side gear, pinion cross shaft and 1.5way cam when installing.
This is necessary to prevent break and damage.
Contact us when you are not sure.
- (3) Always use the matchmarks.Abnormalities can occur when installing and using the unit.

Tightening Hexagon Socket Head Cap Screws

- ① Remove the thread lock agent from the bolt holes on the case by tapping, and clean them by blowing air.
Tap:M6 × P1.0
- ② After fully degreasing and drying the bolts and the holes, coat the bolt threads with the specified thread lock agent, and tighten the bolts in a diametrically opposite sequence with the specified torque.
Anaerobic powerful adhesive:Three-Bond1342(low fixing strength)
Tightening torque $T = 2.0 \pm 0.1$ kg-m (19,6 N-m)
- ③ Lastly,check that all bolts are correctly tightened.



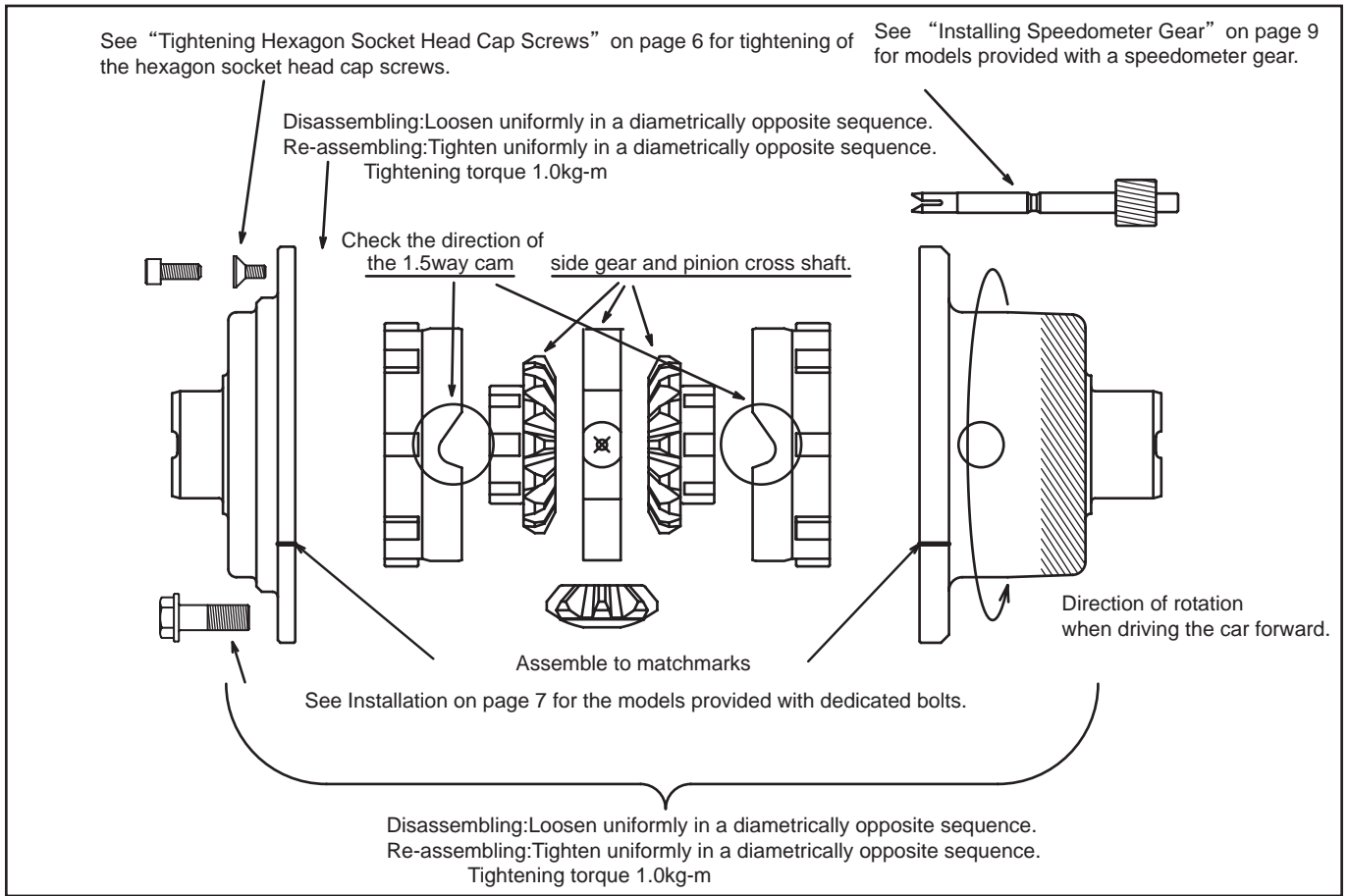
⚠ Warning

The hexagon socket head cap screws must always be tightened in the steps below.
The transmission will inevitably be damaged if the bolt falls in driving.

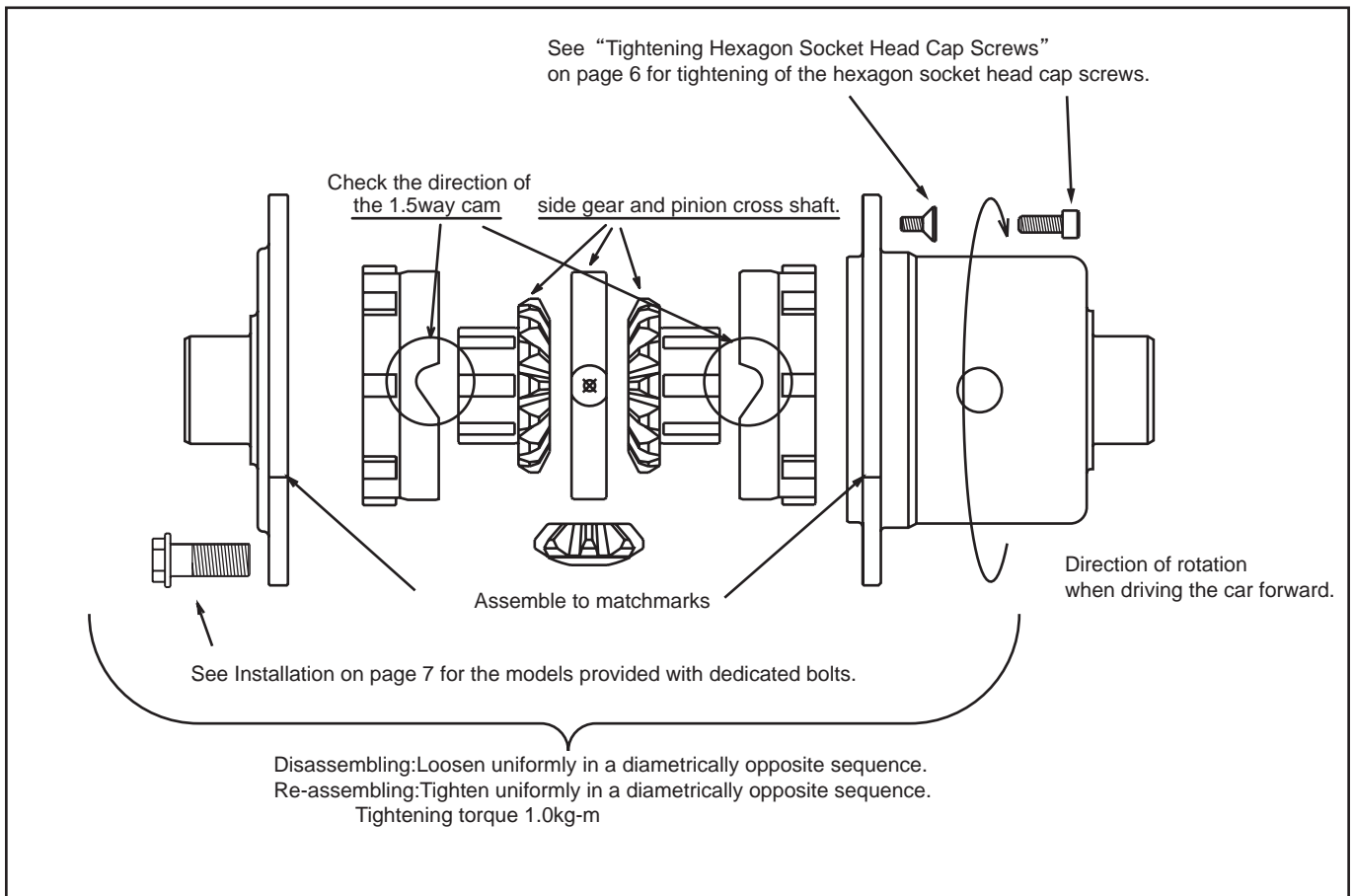
⚠ Caution

- (1) The bolt may not be re-used. All bolts are a dedicated special bolt. They look like a commercially available bolt but the materials and processing conditions are quite different. Never substitute other bolts.
This is necessary to prevent damage and accidents. This product is provided with one set of spares.
When you need extra bolts,purchase them as options.
- (2) Degrease the bolts thoroughly.If degreasing is not sufficient, the thread lock agent will not take effect.
- (3) Always apply the thread lock agent. The bolt may fall without the thread lock agent.
- (4) Observe the specified bolt tightening torque.The bolt may break if it is tightened too much or may fall if it is loose.
- (5) The thread lock agent will be set to its final strength in 24 hours.
Do not run the unit within 24 hours after assembling.

1.5way Cam Direction for HONDA (except EP3/DC5)Cars and DBM2010,DBM2011 and DBM2060



◆ 1.5way Cam direction for NISSAN, TOYOTA, MAZDA and SUBARU Cars, and MITSUBISHI Cars Other Than These



◆ Tightening Ring Gear Fixing Bolts

⚠ Warning

The ring gear fixing bolt, which is delivered together with this product, must be tightened according to the steps below. The transmission will be damaged if the bolt falls in running.

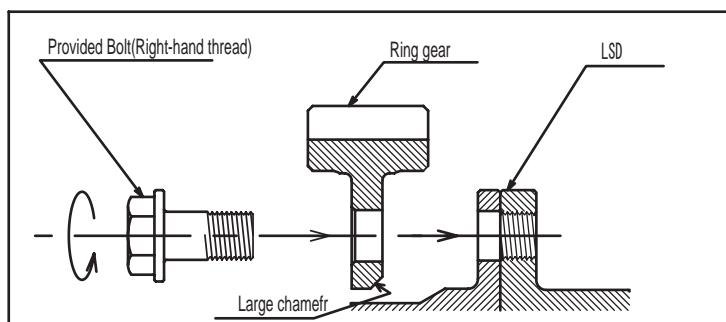
★ Tightening the Ring Gear Fixing Bolt for HONDA Cars

① Fix the ring gear on the LSD referring to the figure below.

Tightening torque $T = 10,3 \text{ kg-m} (101 \text{ N-m})$

⚠ Caution

- (1) The large chamfer on the inside diameter of the ring gear must face the inside diameter of the LSD. The unit will not operate properly, and damage will occur if this precaution is not observed.
- (2) You may not use the Honda genuine bolts. Always use the provided bolt. The HONDA genuine bolt is left-hand threaded while the provided bolt is right-hand threaded.



★ Tightening the Ring Gear Fixing Bolt for MITSUBISHI Cars

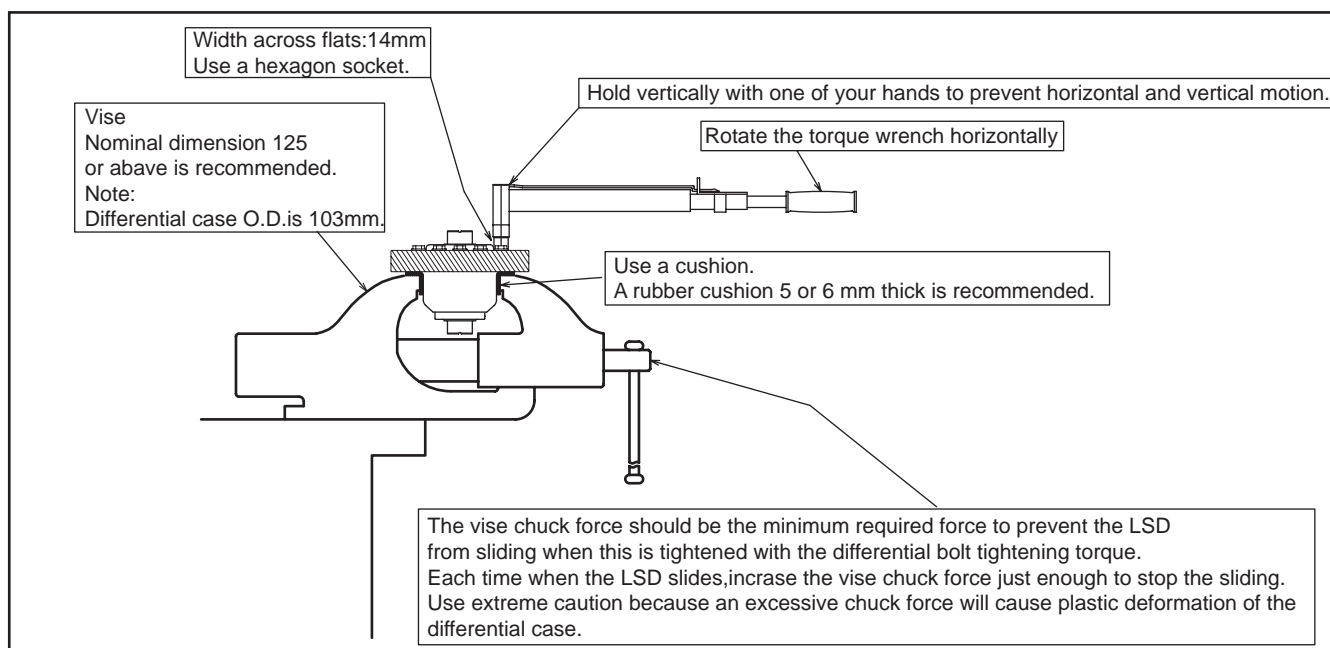
① Fix the ring gear on the LSD referring to the figure below. The thread lock agent to be used is Three Bond NO.1322 or 1324 (medium fixing strength) or the equivalent which is suitable for disassembly and maintenance.

Tightening torque $T = 13.5 \text{ kg-m} (132.3 \text{ N-m})$

② Disassemble the unit carefully referring to the figure below.

⚠ Caution

- (1) Always tighten and loosen the ring gear fixing bolt referring to the figure below. The bolt head may be broken because it is smaller than ordinary bolts.
- (2) You may not use the Mitsubishi genuine bolts. Always use the provided bolt. This is necessary to prevent failure and damage.



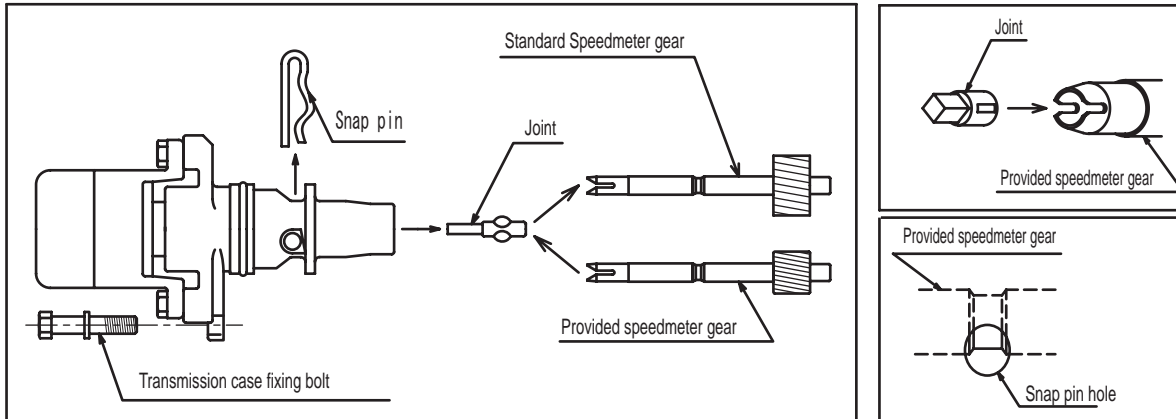
◆ Tightening the Ring Gear Fixing Bolt for HONDA Cars

⚠ Caution

- (1) For models equipped with a standard speedometer gear, the provided speedometer gear must be installed replacing the standard one. Follow the steps below.
This is necessary for proper operation of the LSD and to prevent failure and damage.
- (2) Insert the joint into the provided speedometer gear with the convex part of the joint in the slit on the speedometer gear as shown in the figure below.
- (3) Insert the joint until the snap pin hole meets the concave part on the speedometer gear.
This is necessary for proper operation of the LSD and to prevent damage.

★ For DBH1812 / DBH1822 / DBH1832 / DBH1852

- ① Replace the speedometer gear referring to the figure below.



◆ Assembling D B F 2 0 1 5

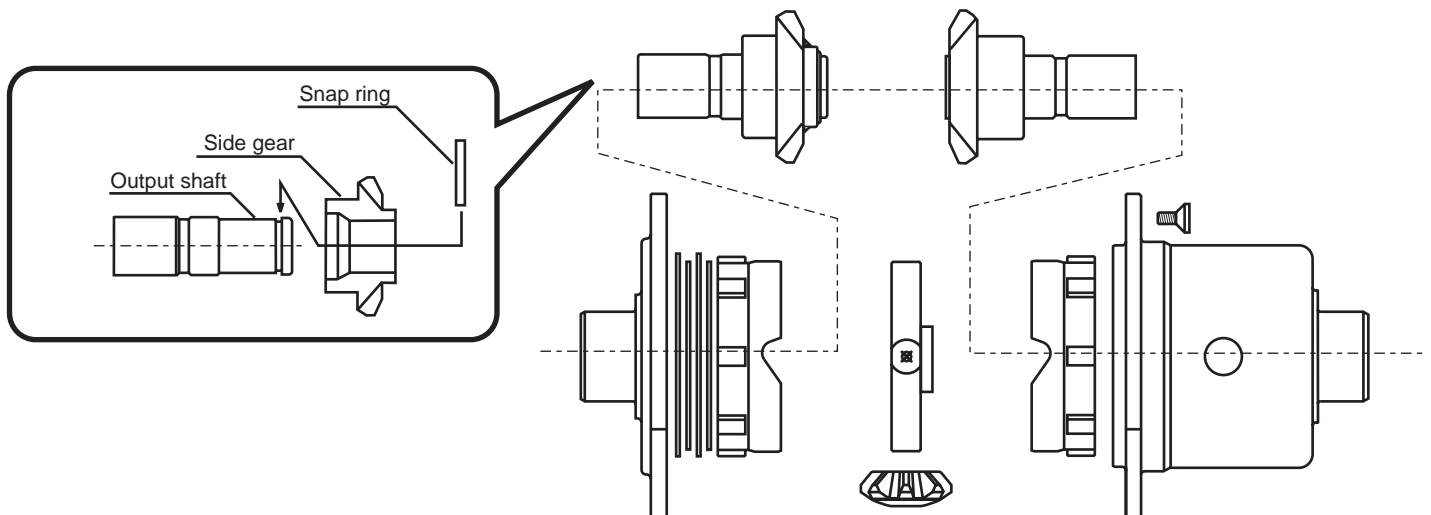
- ① Disassemble the LSD and assemble the vehicle standard front output shaft referring to the figure below.
- ② Assemble the unit into the car according to the maintenance manual.

⚠ Warning

Check that the coned disc sprong and washer are not stuck when assembling.
This is necessary to insure proper operation and prevent failure and damage.

⚠ Caution

- (1) Unlike other LSDs, the assemble of the DBF2015 requires assembly of the vehicle standard front output shaft by disassembling the LSD. Follow the steps below.
- (2) The side gear, pinion cross shaft and 1.5way cam have a direction. Take notes and sketch to facilitate re-assembly.
- (3) Always use the matchmarks. Abnormalities can occur when installing and using the unit.



◆ Assembling D B M 2 0 6 0

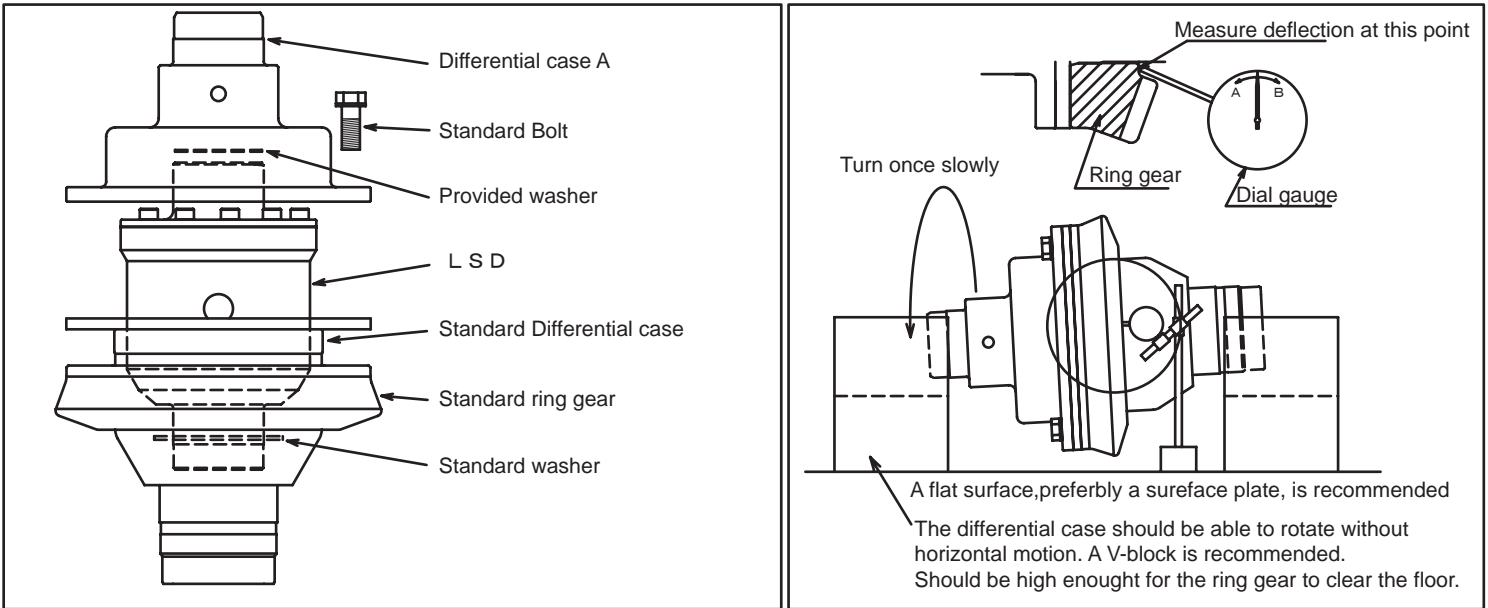
- ① Assemble the LSD unit into the transfer case as shown in the figure next page.
- ② Measure rear deflection referring to the figure below and adjust the deflection to within the standard values.
- ③ Tighten the fixing bolts according to the procedures specified by Mitsubishi Motors.
- ④ Assemble the unit into the car according to the maintenance manual.

⚠ Warning

Rear deflection must always be adjusted. This is necessary to prevent failure and damage.

⚠ Caution

- (1) Unlike other LSDs, installation of the DBM2060 requires special work. Follow the steps below.
- (2) Do not forget to insert the washer. Without the washer, the clearance will be increased, causing noise and damage.
- (3) Always use the matchmarks. Abnormalities can occur when installing and using the unit.



◆ Assembling D B M 2 0 7 0

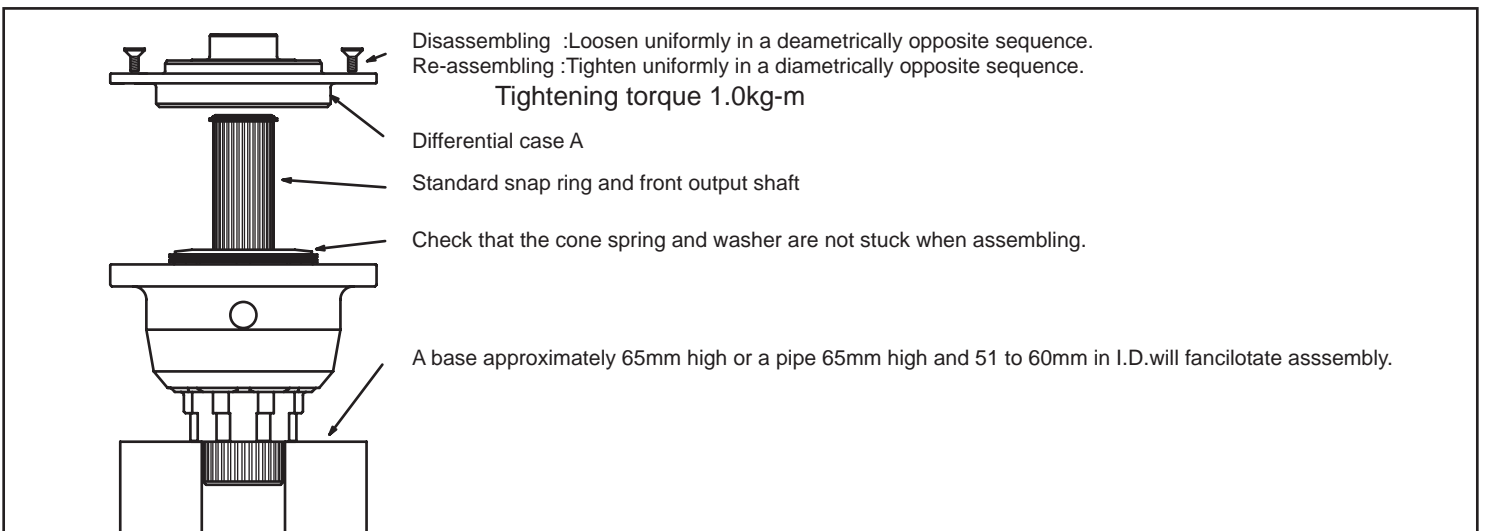
- ① Disassemble the LSD and assemble the vehicle standard front output shaft referring to the figure below.

⚠ Warning

Check that the coned disc spring and washer are not stuck when assembling. This is necessary to insure proper operation and prevent failure and damage.

⚠ Caution

Unlike other LSDs, the assembly of the DBM2070 requires assembly of the vehicle standard front output shaft by disassembling the LSD. Follow the steps below.



◆ Cautions after Installing the LSD(to the user)

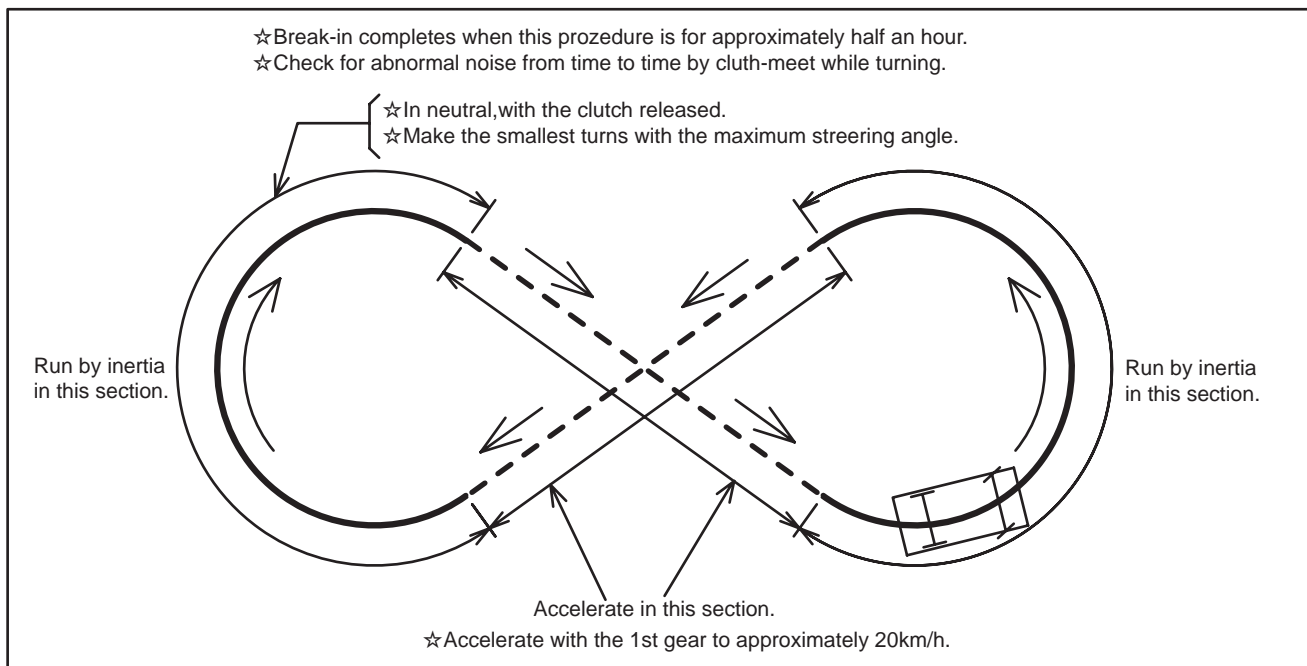
⚠ Caution

- (1) Use the following oil for cars equipped with the KAAZ LSD. Breathe or abnormal noise may occur if other oils are used.
KAAZ genuine POWERTRAIN IN GEAR OIL(GL-5/80W-90)
- (2) The driving performance of an LSD equipped car is quite different from the standard car.
Avoid sharp operations until you get familiar with the car. This is necessary to prevent accident.
- (3) Avoid sharp operations immediately after the replacement, and perform break-in. This is necessary to prevent damage to the LSD and abnormal noise. We recommend the following break-in procedure:

◆ KAAZ LSD Break-in Procedure

The purpose of break-in is to fit the surfaces of clutch plates.

It is therefore necessary to slip the clutch. Because the LSD is of the torque responsive type, when the accelerator is pressed (acceleration) or released (deceleration). To produce break-in effect, make the smallest turns with the clutch released (run by inertia).



⚠ Caution

- (1) Change the oil after break-in. This is necessary to prevent damage to the LSD and abnormal noise.
- (2) When making a small short turn, the LSD may issue abnormal noise.
- (3) Comparing with the standard car, the LSD-equipped car requires periodic oil change due to its structure.
Change oil when the abnormal noise (chatter) becomes great (we recommend to change every 3,000 km).
Failure to change oil results in damage and abnormal noise.
- (4) The LSD requires, due to its structure, maintenance and overhaul according to the driving distance.
Failure of maintenance and overhaul results in damage and deteriorated performance.
The work must be done in a certified shop.
- (5) One of the greatest features of the KAAZ LSD is that a sufficient driving torque is transmitted with a low initial torque.
Initial torque will decrease after break-in, but this is not a fault.
- (6) Do not increase the initial torque excessively. Not only deteriorated performance but also damage and failure will result.
- (7) Immediately stop the car and check in a maintenance shop when an abnormality (abnormal noise, vibration, etc.) should occur in driving. The car may be damaged or an accident may occur if you continue driving.

The manufacturer label is attached to the instruction manual.

A spare label is also included. Attach the label to the car or keep in a safe place.