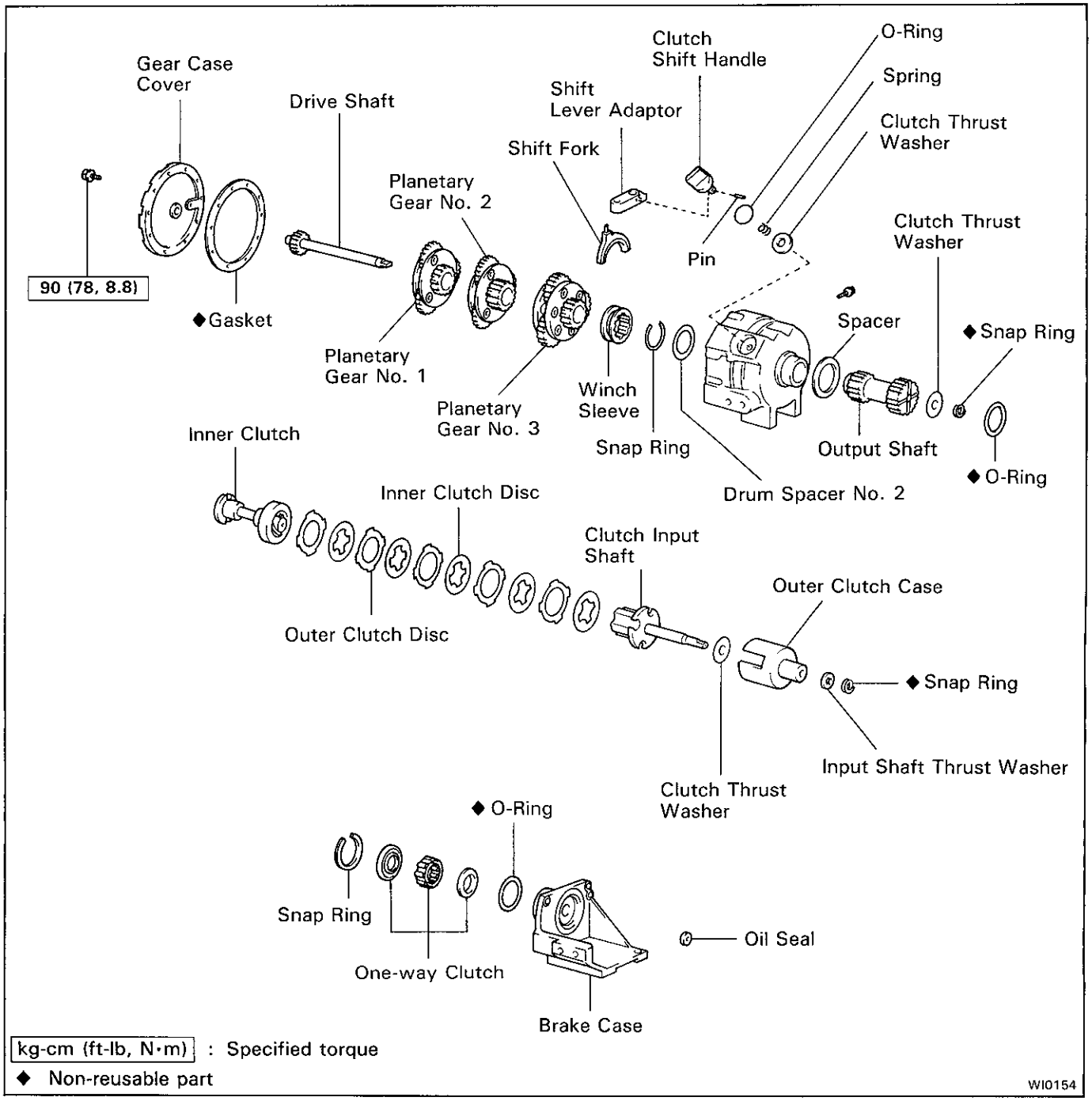
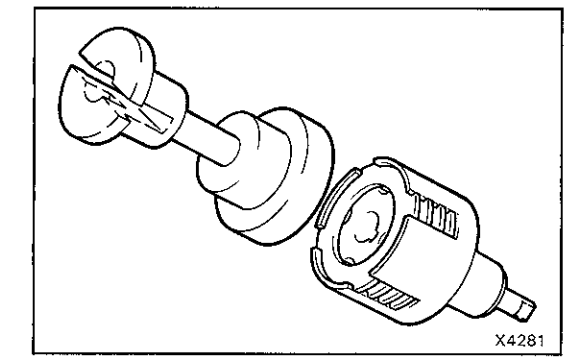
Winch Components

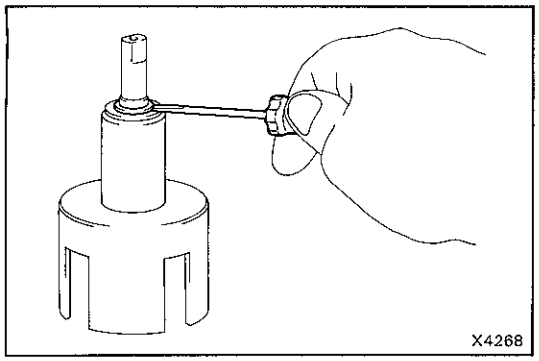
COMPONENTS





DISASSEMBLY OF WINCH COMPONENTS

1. **REMOVE INNER CLUTCH, CLUTCH DISCS FROM OUTER CLUTCH**

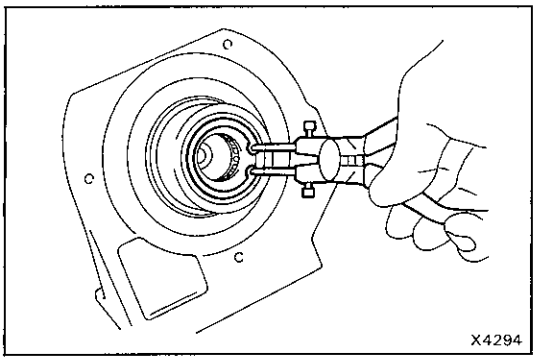


2. REMOVE OUTER CLUTCH

(a) Using a screwdriver, remove the snap ring.

(b) Remove the thrust washer.

(c) Remove the clutch input shaft and thrust washer.

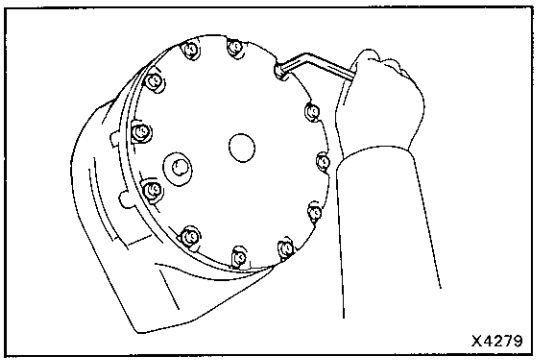


3. REMOVE ONE-WAY CLUTCH FROM BRAKE CASE

(a) Using snap ring pliers, remove the snap ring.

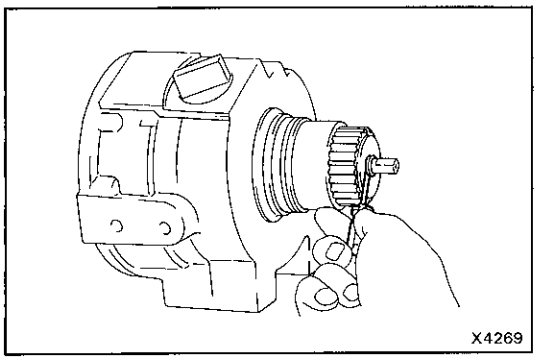
(b) Remove the one-way clutch.

(c) Remove the O-ring.



4. REMOVE GEAR CASE COVER

Using a hexagon wrench, remove the gear case cover and gasket.

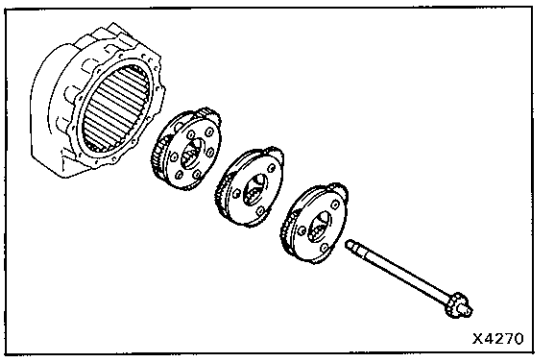


5. REMOVE PLANETARY GEAR NO.1, NO.2, NO.3 AND DRIVE SHAFT

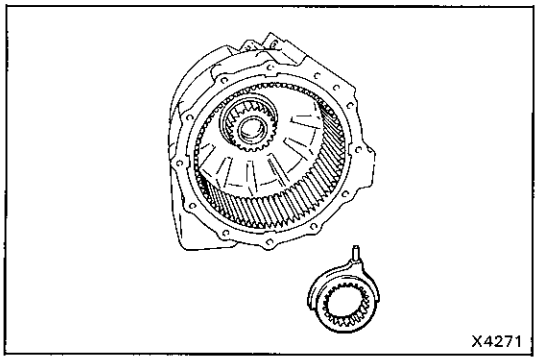
(a) Using a screwdriver, remove the snap ring.

(b) Remove the thrust washer.

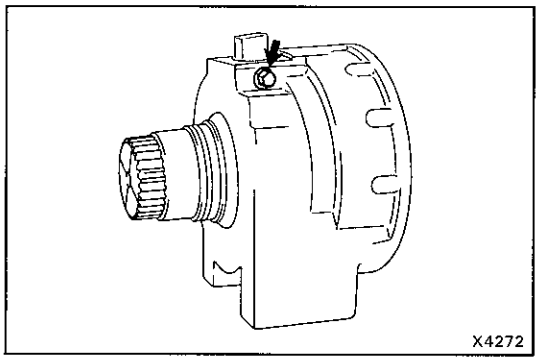
(c) Remove the O-ring.



(d) Pull out the drive shaft, and remove the planetary gear No.1, No.2 and No.3.

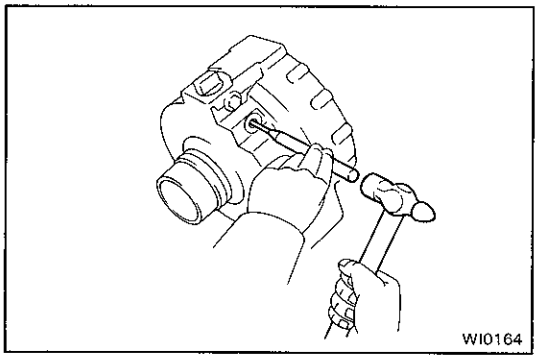


6. REMOVE WINCH SLEEVE WITH SHIFT FORK



7. REMOVE CLUTCH SHIFT HANDLE

(a) Remove the bolt and washer.

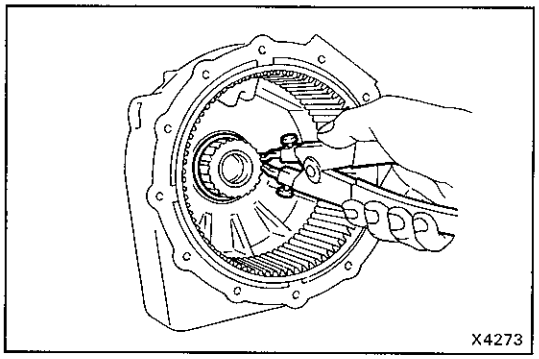


(b) Using a pin punch and a hammer, drive out the pin.

(c) Remove the shift lever adaptor.

(d) Remove the clutch shift handle.

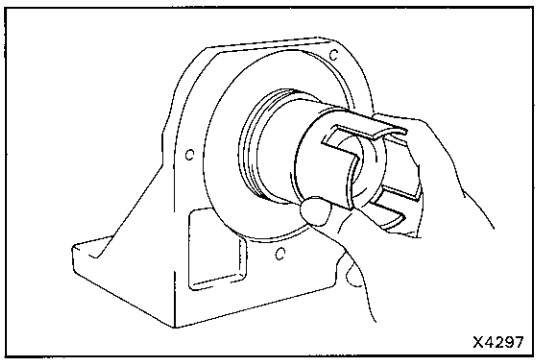
(e) Remove the thrust washer, spring and O-ring.



8. REMOVE OUTPUT SHAFT

(a) Using snap ring pliers, remove the snap ring and drum spacer No.2.

(b) Remove the output shaft and spacer.



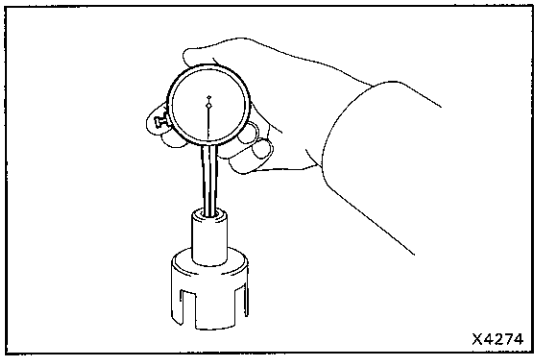
INSPECTION AND REPLACEMENT OF WINCH COMPONENTS

1. INSPECT ONE-WAY CLUTCH

(a) Install one-way clutch.
(See page WI-48)

(b) Install the outer clutch and turn it. Then the outer clutch turns freely counterclockwise and locks clockwise.

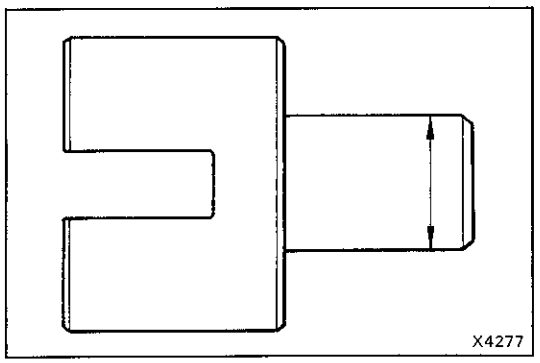
(c) If necessary, replace the one-way clutch.



2. INSPECT OUTER CLUTCH

(a) Using a caliper gauge, measure the bushing bore.

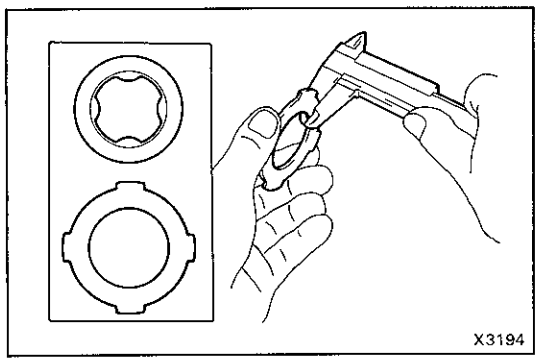
Standard bore: 12.00 mm (0.4724 in.)
Maximum bore: 12.03 mm (0.4736 in.)



(b) Inspect the outer clutch for wear or damage.

If necessary, replace the drive shaft.

Standard outer diameter: 27.77 mm (1.0933 in.)

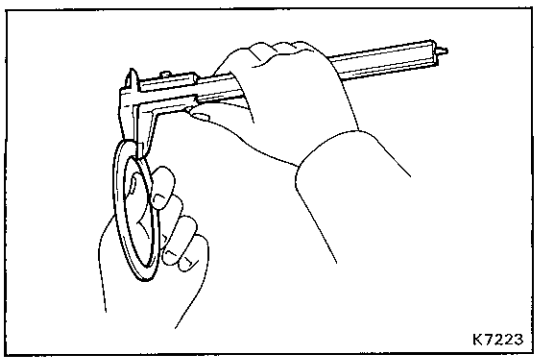


3. INSPECT CLUTCH OUTER DISC AND INNER DISC

Using calipers, measure the thickness of clutch outer disc and inner disc.

Outer disc:
Standard thickness: 1.60 mm (0.0630 in.)
Minimum thickness: 1.50 mm (0.0591 in.)

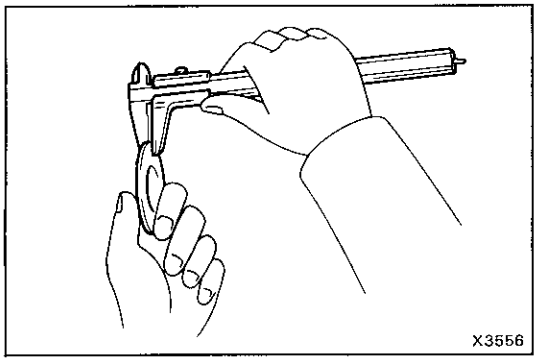
Inner disc:
Standard thickness: 2.30 mm (0.0906 in.)
Minimum thickness: 2.15 mm (0.0846 in.)



4. INSPECT DRUM SPACER NO.2

Using calipers, measure the thickness of drum spacer No.2.

Standard thickness: 1.4 mm (0.0551 in.)
Minimum thickness: 1.0 mm (0.0394 in.)



5. INSPECT INPUT SHAFT THRUST WASHER, CLUTCH THRUST WASHER

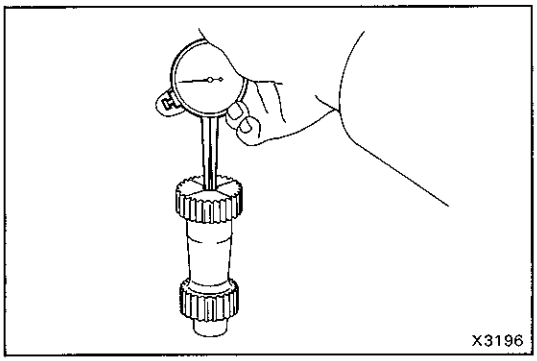
Using calipers, measure the thickness of thrust washers.

INPUT SHAFT THRUST WASHER

Standard thickness: 2.00 mm (0.0787 in.)
Minimum thickness: 1.80 mm (0.0709 in.)

CLUTCH THRUST WASHER

Standard thickness: 1.25 mm (0.0492 in.)
Minimum thickness: 1.00 mm (0.0394 in.)



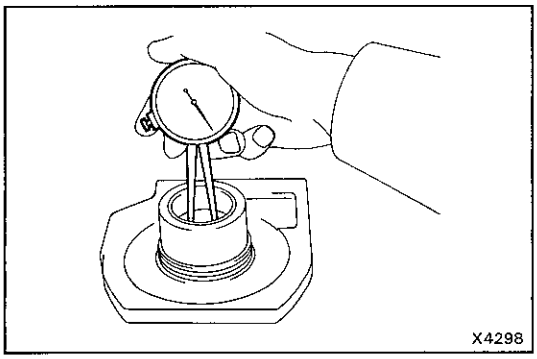
6. INSPECT OUTPUT SHAFT

(a) Using a caliper gauge, measure the bushing bore.

Standard bore: 12.00 mm (0.4724 in.)
Maximum bore: 12.03 mm (0.4736 in.)

(b) Using a caliper, measure the outer diameter of the bushing.

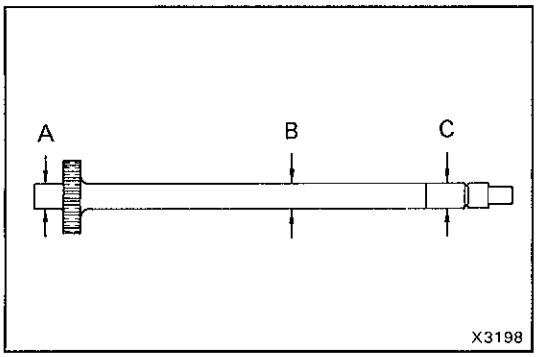
Standard diameter: 28.00 mm (1.1024 in.)
Minimum diameter: 27.90 mm (1.0984 in.)



7. INSPECT BRAKE CASE

Using calipers, measure the bushing bore.

Standard bore: 27.76 mm (1.0929 in.)
Maximum bore: 27.82 mm (1.0953 in.)



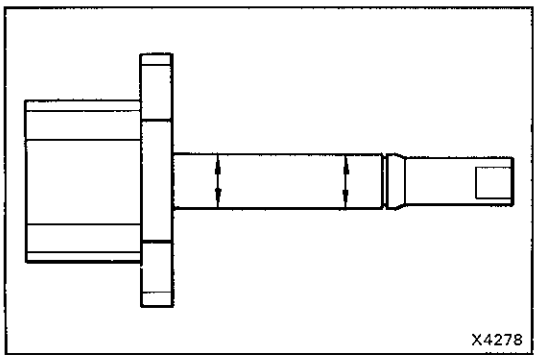
8. INSPECT DRIVE SHAFT

(a) Inspect the drive shaft for wear or damage the drive shaft.

(b) Using a micrometer, measure the outer diameter of the drive shaft.

Minimum outer diameter:

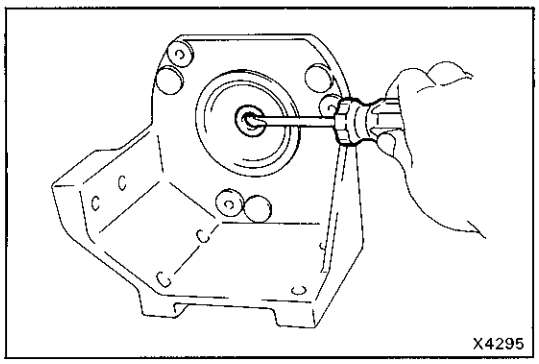
Part A 11.86 mm (0.4669 in.)
B 11.70 mm (0.4606 in.)
C 11.95 mm (0.4705 in.)



9. INSPECT CLUTCH INPUT SHAFT

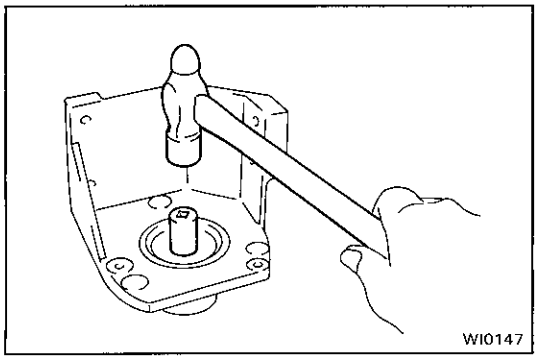
Inspect clutch input shaft for wear or damage.
If damage, replace the clutch input shaft.

Standard outer diameter: 11.95 mm (0.4705 in.)

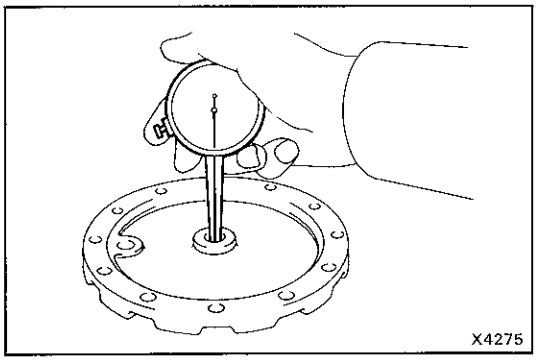


10. REPLACE WINCH BRAKE CASE OIL SEAL

(a) Using a screwdriver, pry out the oil seal.



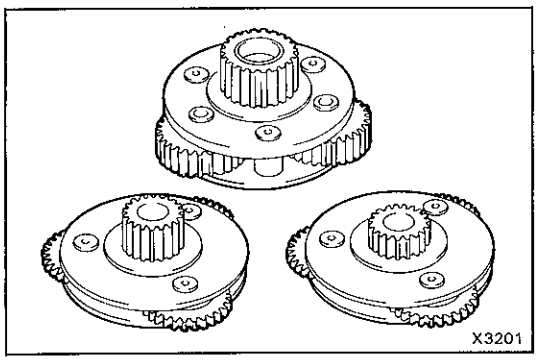
(b) Using a socket wrench, install the oil seal.



11. INSPECT WINCH GEAR CASE COVER

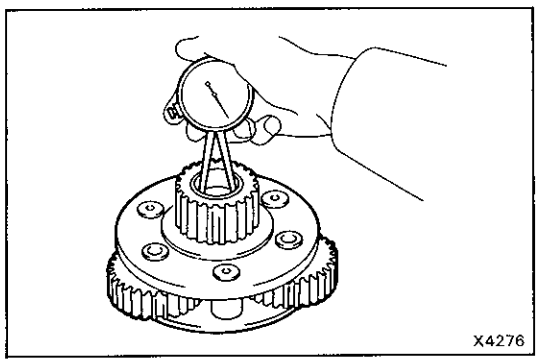
Using a caliper gauge, measure the bushing bore.

Standard bore: 12.00 mm (0.4724 in.)
Maximum bore: 12.15 mm (0.4783 in.)



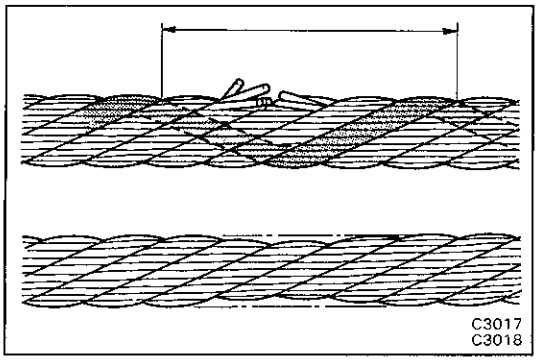
12. INSPECT PLANETARY GEAR NO.1, NO.2 AND NO.3

(a) Check that the bearing rotates smoothly.



(b) Using a caliper gauge, measure the bushing bore of the planetary gear No.3.

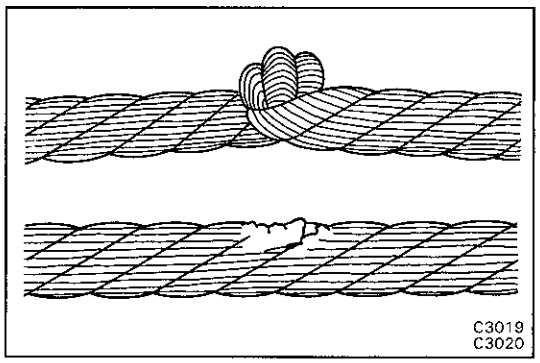
Standard bore: 28.00 mm (1.1024 in.)
Maximum bore: 28.05 mm (1.1043 in.)


C3017
C3018

13. INSPECT WINCH WIRE

Inspect the winch wire for the following items.
If damage, replace the winch wire.

- Wire than 12 severed strands per wind.
- Wire diameter of less than 7.5 mm (0.295 in.)

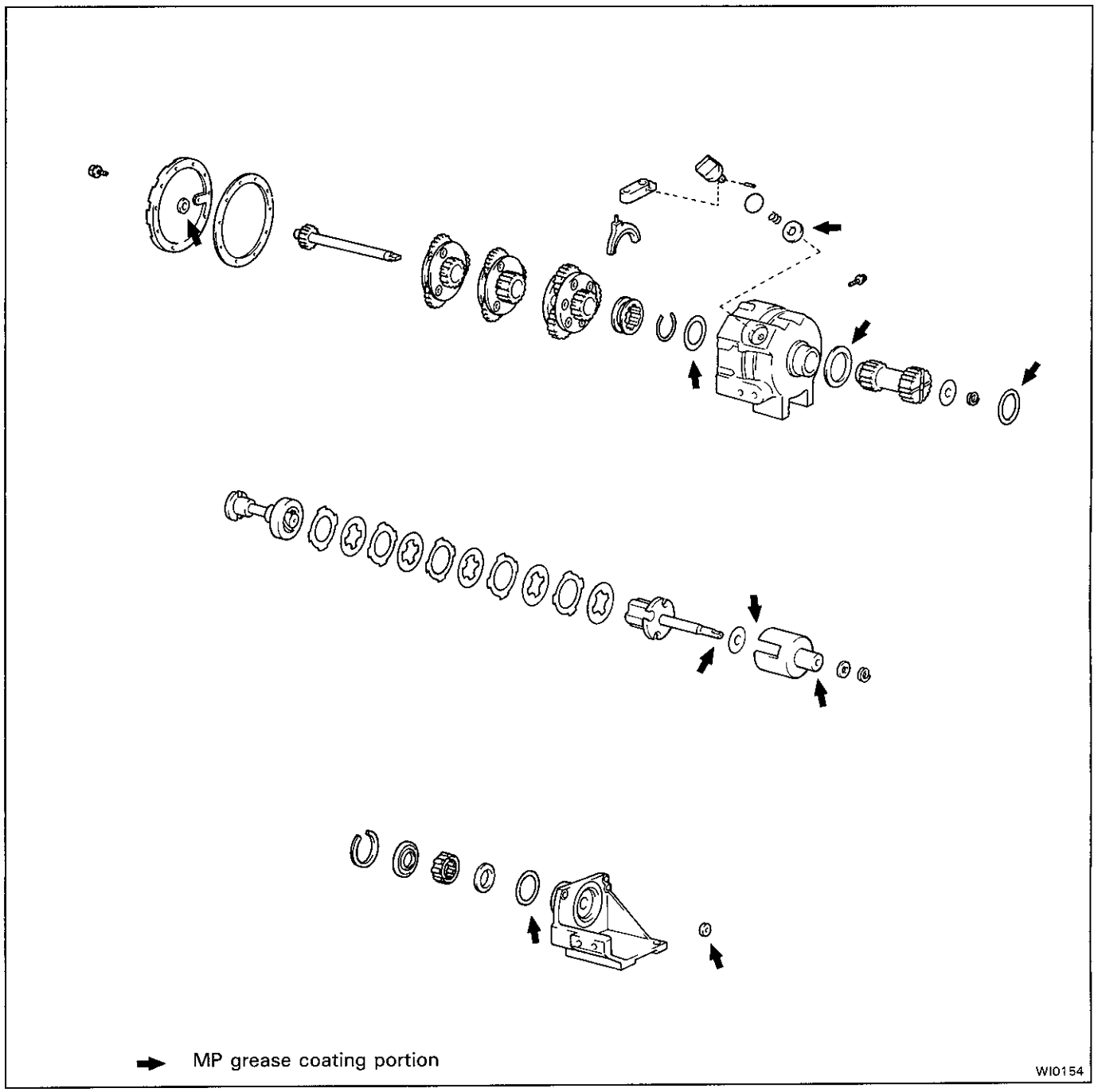

C3019
C3020

- Kinks
- Corrosion
- Fraying

ASSEMBLY OF WINCH COMPONENTS

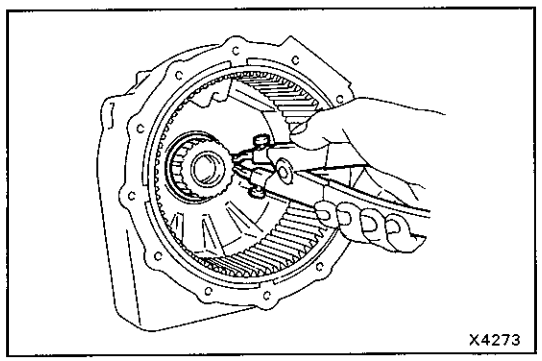
(See page WI-39)

1. **COAT MP GREASE ON FOLLOWING PARTS:**



➡ MP grease coating portion

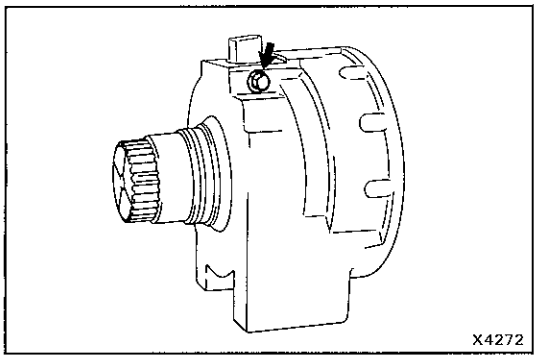
WI0154



X4273

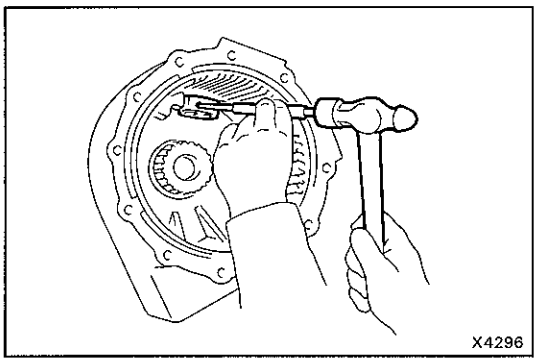
2. **INSTALL OUTPUT SHAFT**
   (a) Install output shaft to the gear case.
   (b) Using snap ring pliers, install the snap ring.

3. **INSTALL CLUTCH SHIFT LEVER**
   (a) Install a new O-ring, the spring and the thrust washer.
   (b) Install the shift lever adaptor.
   (c) Install the clutch shift lever.

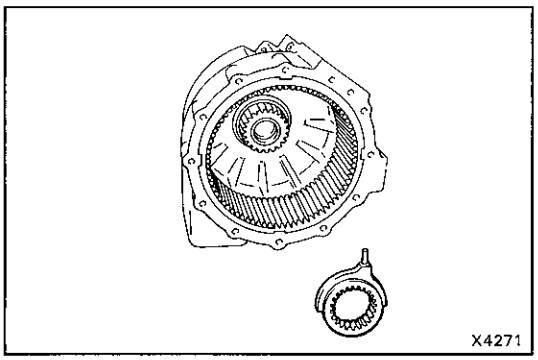


(d) Install the bolt and washer.

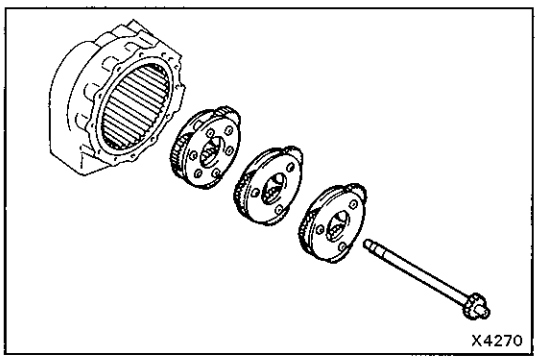
Torque: 45 kg-cm (39 in.-lb, 4.4 N·m)



(e) Using a pin punch and a hammer, drive in the pin.



4. INSTALL WINCH SLEEVE WITH SHIFT FORK



5. INSTALL PLANETARY GEAR NO.3, NO.2, NO.1 AND DRIVE SHAFT

(a) Coat the each gear with ATF.

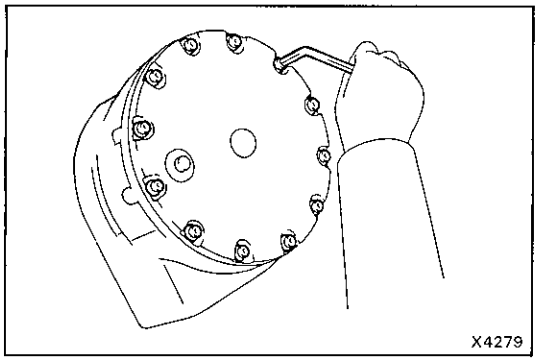
Fluid type: ATF DEXRON® II

(b) Install the planetary gear No.3, No.2, No.1 and the drive shaft.

(c) Install a new O-ring.

(d) Install the thrust washer.

(e) Install the snap ring.



6. INSTALL GEAR CASE COVER

Using a hexagon wrench, install a new gasket and the gear case cover.

Torque: 90 kg-cm (78 in.-lb, 8.8 N·m)

7. INSTALL ONE-WAY CLUTCH

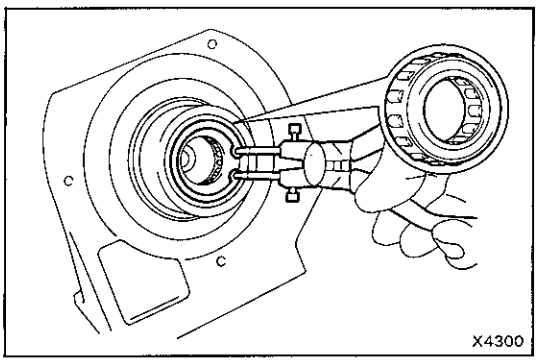
(a) Install a new O-ring.

(b) Install the one-way clutch.

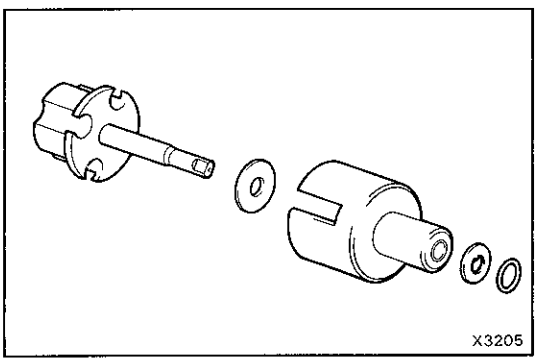
(c) Coat the one-way clutch with ATF.

Fluid type: ATF DEXRON® II

HINT: Install in proper direction only.



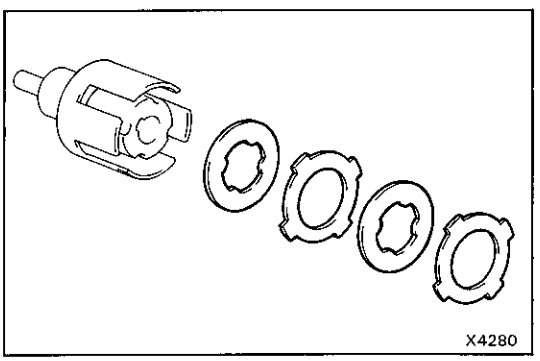
(d) Using snap ring pliers, install the snap ring.



8. INSTALL OUTER CLUTCH

(a) Install the clutch input shaft and thrust washer to the outer clutch.

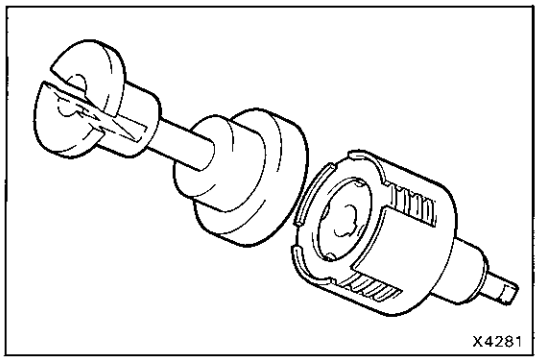
(b) Install the input shaft thrust washer and the snap ring.



(c) Install the inner disc and the outer disc to the outer clutch.

HINT: Before assembly new clutch discs, soak them in automatic transmission fluid for at least two hours.

Fluid type: ATF DEXRON® II



(d) Install the inner clutch.

HINT: Coat the threads of the inner clutch with ATF and install inner clutch.