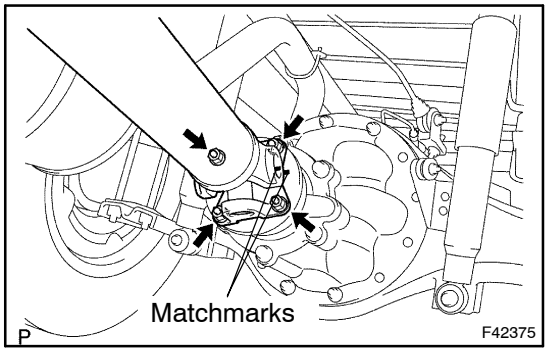
300II–01

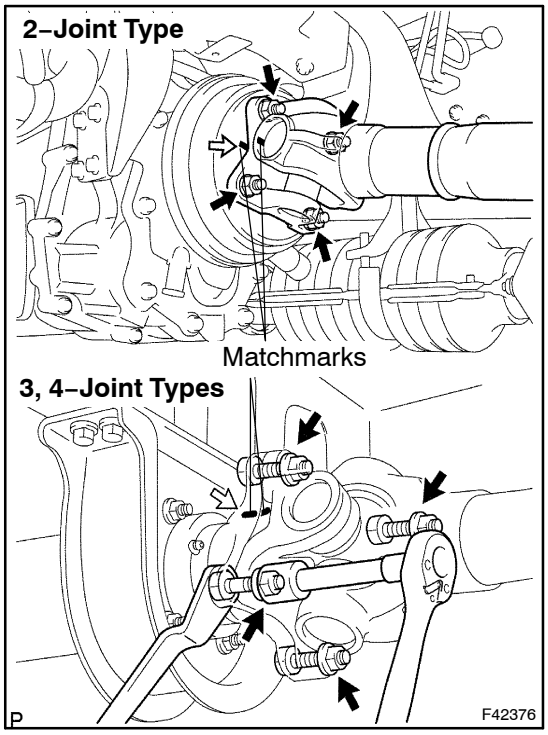
OVERHAUL



1. REMOVE PROPELLER SHAFT ASSY

(a) Place matchmarks on the propeller shaft flange and differential.

(b) Remove the 4 nuts, 4 bolts and 4 washers.



(c) 2–joint type:
Place matchmarks on the propeller shaft flange and parking brake drum.

(d) 3, 4–joint types:
Place matchmarks on the propeller shaft flange and intermediate shaft.

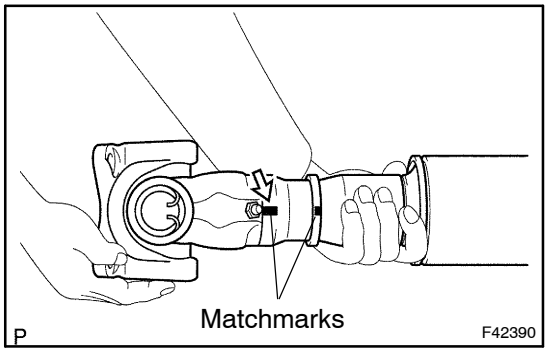
(e) Remove the 4 nuts, 4 washers and 4 bolts.

(f) Remove the propeller shaft.

2. INSPECT PROPELLER SHAFT ASSY

(a) Using a dial indicator, check the shaft runout.
Standard runout: 0 – 0.6 mm (0 – 0.024 in.)
Maximum runout: 1.0 mm (0.039 in.)

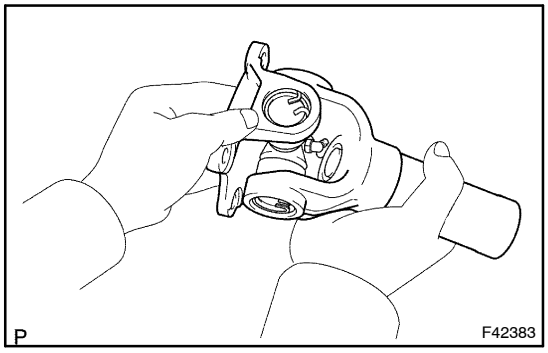
If the runout is greater than the maximum, replace the shaft assy.



3. REMOVE SLEEVE YOKE

(a) Place matchmarks on the sleeve yoke and sliding yoke.

(b) Remove the sleeve yoke from the sliding yoke.

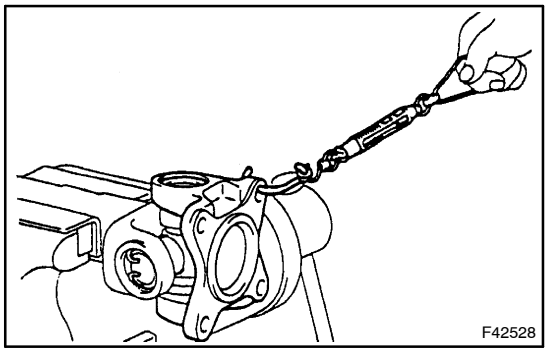


4. INSPECT UNIVERSAL JOINT SPIDER ASSY

(a) Check the spider bearings for wear or damage.

(b) Strongly shake the spider in the axial direction and right angle direction with both hands, and check that there is no looseness in the spider and needle roller bearing.

If necessary, replace the spider bearing.

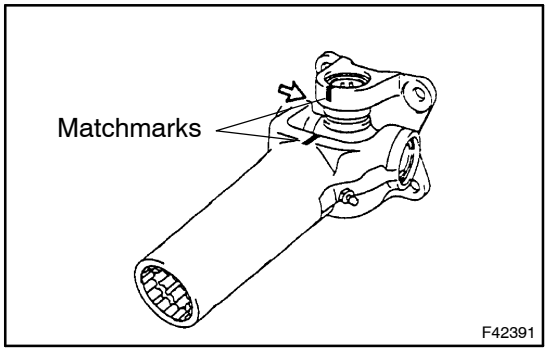


(c) Using a spring tension gauge, hang the hook of the spring tension gauge on the bolt hole of the flange yoke, and then measure the rotating torque.

Standard rotating torque (at starting):
1.5 – 2.9 N·m (15 – 30 kgf·cm, 13.3 – 25.7 in.·lbf)

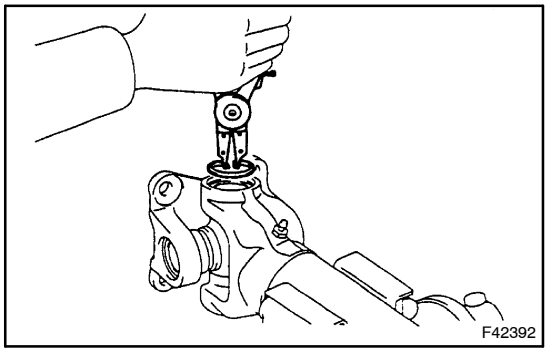
NOTICE:

- **The rotating torque should be measured at 2 positions of each universal joint by turning it by 90° in both directions (flange yoke side and end yoke side).**
- **When the rotating force is lighter than the standard, use a thicker retainer ring, and a thinner retainer ring when it is heavier.**



5. REMOVE UNIVERSAL JOINT SPIDER ASSY

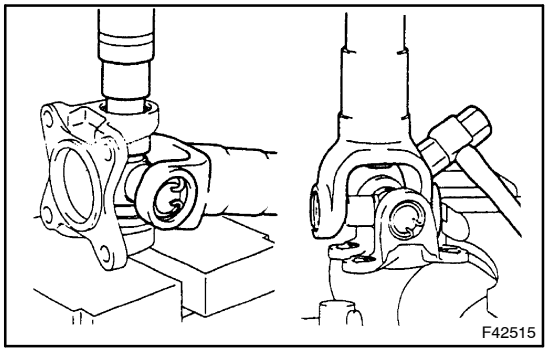
(a) Place matchmarks on the flange yoke and sleeve yoke.



(b) Using snap ring pliers, remove the retainer ring.

CAUTION:

Pay attention when installing and removing the retainer ring, because you may be injured by the flying retainer ring.



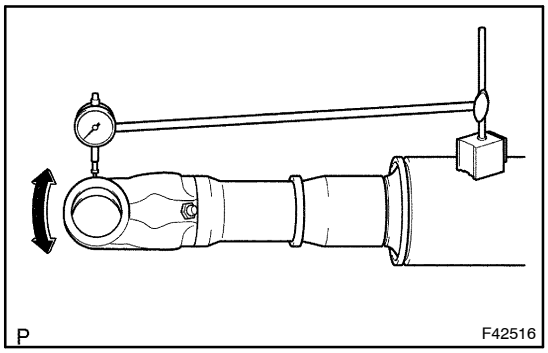
(c) Using a press, extrude the spider bearing just until the spider and yoke come into contact.

HINT:

Disassembly becomes easier if you remove the grease fitting in advance, because it will allows you to have more extruding area.

(d) Fix the spider bearing with a vice,Lightly hit the yoke of the propeller shaft with a hammer and remove the spider bearing.

(e) Remove the spider bearing on the opposite side as well in the same procedures shown in the (c) and (d).

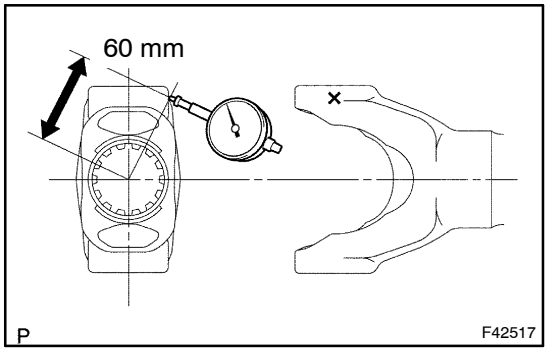


6. INSPECT FREE PLAY OF SLIDING YOKE

(a) Fixing the sliding yoke horizontally with a vise, place a dial indicator onto the yoke of the sleeve yoke to measure the free play.

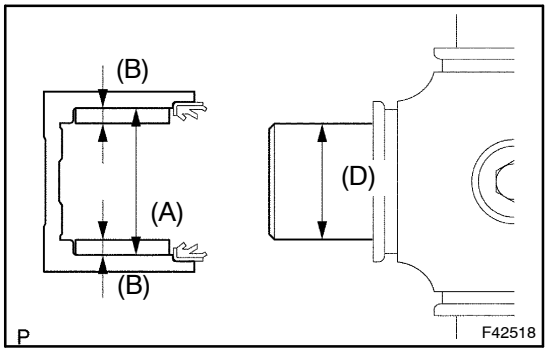
Standard free play:
0.062 – 0.174 mm (0.0024 – 0.0069 in.)
Maximum free play: 0.25 mm (0.0098 in.)

If the free play is greater than the maximum, replace the sliding yoke.



HINT:

Place the dial indicator at a spot of 60 mm (2.36 in.) away from the center of the sliding yoke.

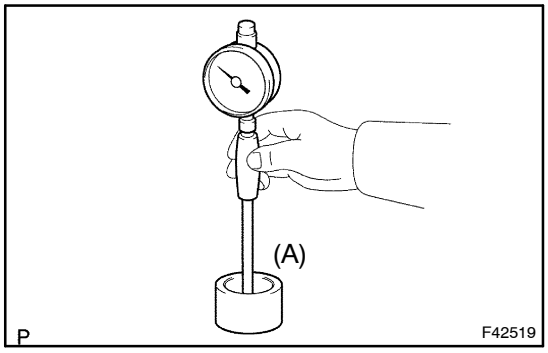


7. INSPECT CLEARANCE OF SPIDER JOURNAL AND NEEDLE ROLLER BEARING

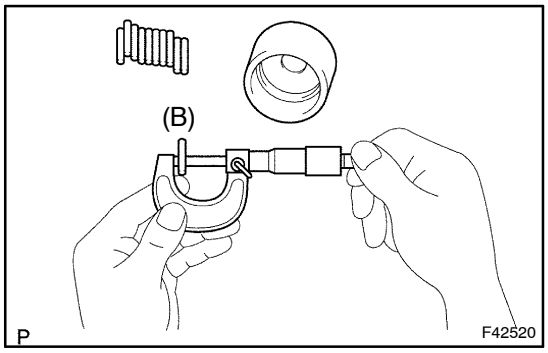
(a) Measure the diameter of the spider journal and the bore diameter of the needle roller bearing. If the clearance is greater than the maximum, change the spider journal or the needle roller bearing.

Standard clearance : A – (B x 2 – D)
0.024 – 0.064 mm (0.0009 – 0.0025 in.)
Maximum clearance: 0.1 mm (0.0039 in.)

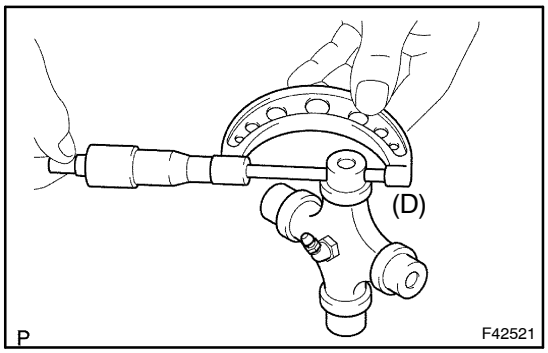
If the clearance is greater than the maximum, change the spider journal or the needle roller bearing.



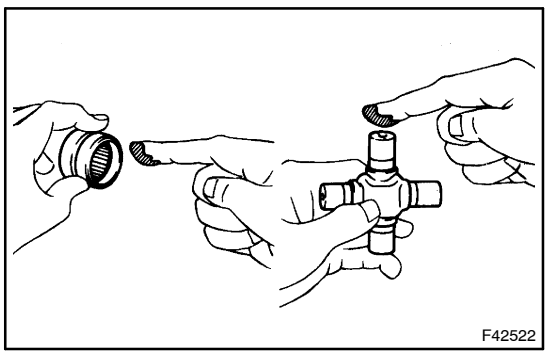
(1) Using a dial indicator, measure the bore diameter (A) of the bearing case of the needle roller bearing.



(2) Using a micrometer, measure the diameter (B) of the needle roller.

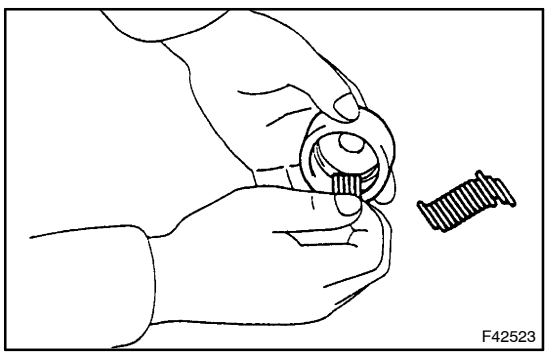


(3) Using a micrometer, measure the diameter (D) of the journal of the spider.

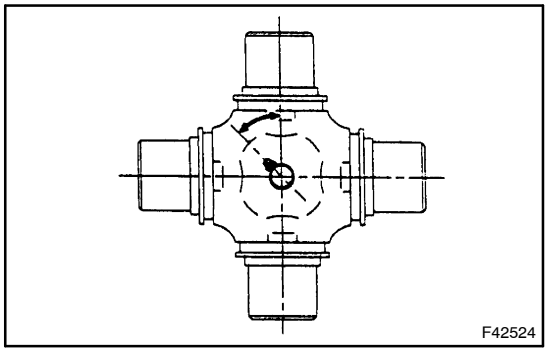


8. INSTALL UNIVERSAL JOINT SPIDER ASSY

(a) Apply MP grease to a new spider, bearing case and the both sides of the thrust washer.



(b) Insert the thrust washer and needle roller into the bearing case.

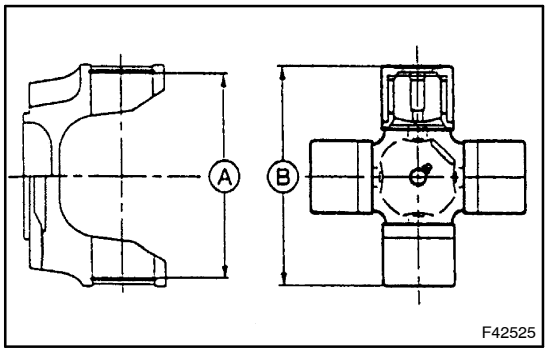

F42524

(c) Install the grease fitting onto the spider section.

NOTICE:

Turn the direction of the grease fitting by 45° toward the journal section of the spider.

(d) Install the bearing case with needle roller bearing to the spider.



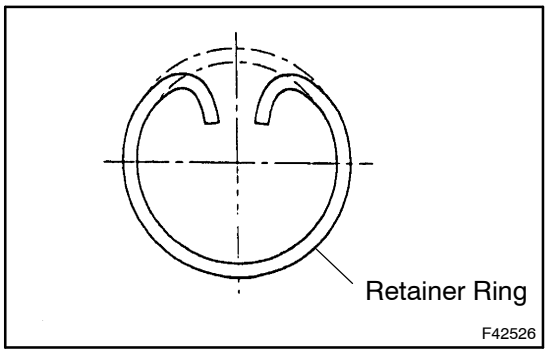
F42525

(e) Measure the size of groove "A" of the retainer ring of the yoke.

(f) After inserting the thrust washer and spider bearing into the spider journal section, measure the size of the universal joint "B".

NOTICE:

Size "B" should be measured with the universal joint fixed to the vice, because the spider and needle roller bearing will come stuck.



F42526

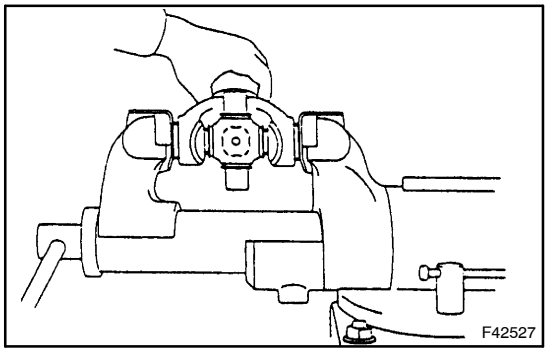
(g) Select the thickness of the retainer ring to make sizes "A" and "B" equal.

Thickness of the retainer ring:

Discrimination (Color)	Thickness mm (in.)
White	1.50 (0.0591)
Red	1.55 (0.0610)
Green	1.60 (0.0630)
Blue	1.65 (0.0650)
Yellow	1.70 (0.0669)

NOTICE:

- **Use a new retainer ring.**
- **Use retainer rings having the same thickness as much as possible on both ends.**

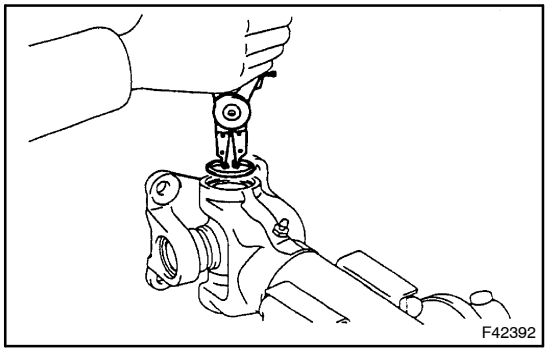

F42527

(h) Insert the spider into the yoke, and press in the needle roller bearing with a vice.

(i) Press in the needle roller bearing also to the opposite end in the same way specified in step.

CAUTION:

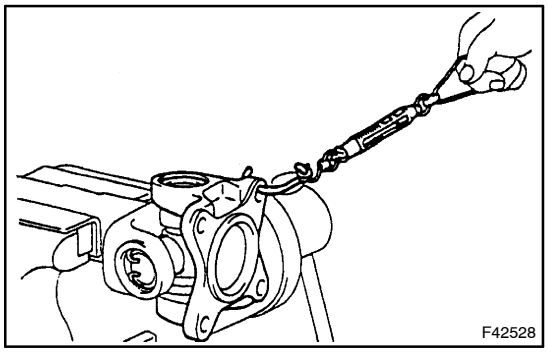
Pay attention when removing and replacing the retainer ring, because you may be injured by flying retainer ring.


F42392

(j) Using snap ring pliers, install the retainer ring.

NOTICE:

Pay attention when removing and installing the retainer ring, because you may be injured by the flying retainer ring.


F42528

9. INSPECT UNIVERSAL JOINT SPIDER ASSY

(a) Using a spring tension gauge, hang the hook of the spring tension gauge on the bolt hole of the flange yoke and measure the rotating torque.

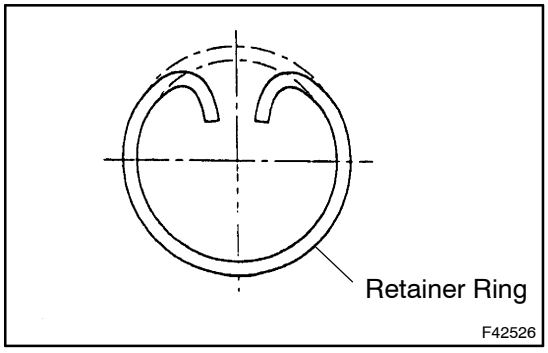
Standard rotating torque (at starting):

1.5 – 2.9 N·m (15 – 30 kgf·cm, 13.3 – 25.7 in.·lbf)

NOTICE:

The rotating torque should be measured at 2 positions of each universal joint by turning it by 90° in both directions (flange yoke side and end yoke side).

When the rotating torque is lighter than the standard, use a thicker retainer ring, and a thinner retainer ring when it is heavier.



F42526

Thickness of the retainer ring:

Discrimination (Color)	Thickness mm (in.)
White	1.50 (0.0591)
Red	1.55 (0.0610)
Green	1.60 (0.0630)
Blue	1.65 (0.0650)
Yellow	1.70 (0.0669)

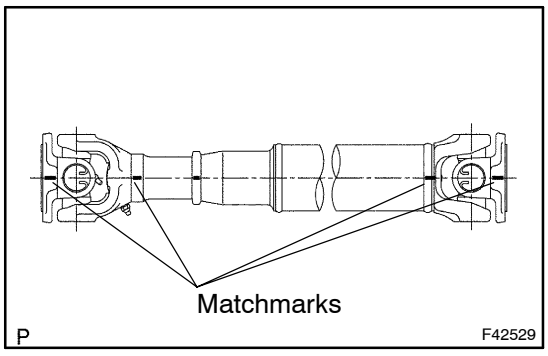
10. INSTALL SLEEVE YOKE

(a) Remove the old grease on the spline and sliding sections.

(b) Remove the rust and dirt on the spline sections.

(c) Apply bearing grease to the spline and sliding sections.

(d) Align the matchmarks of the sliding yoke and sleeve yoke, and insert the sleeve yoke.



F42529

NOTICE:

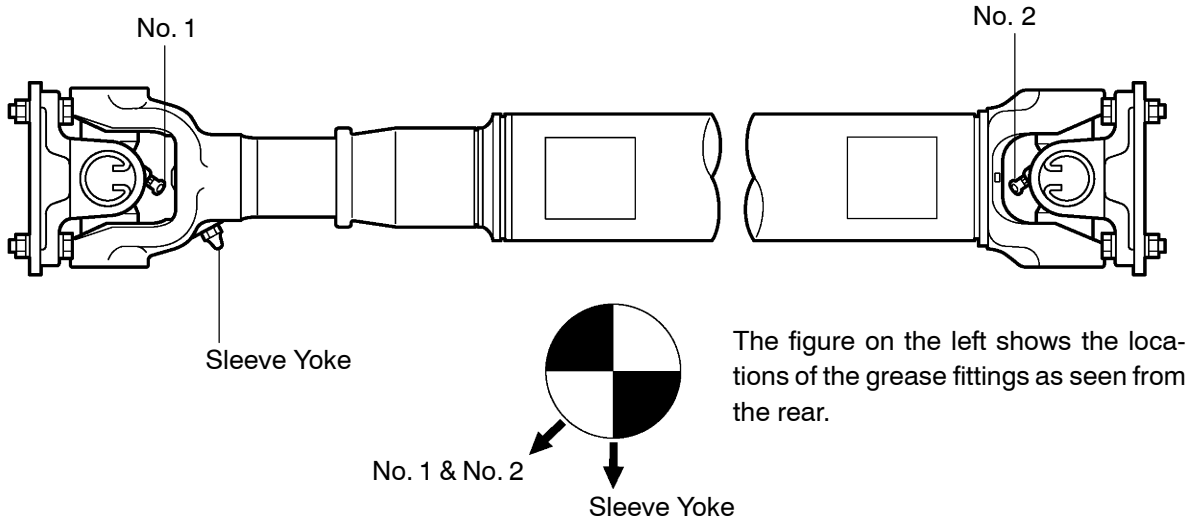
Because each yoke has a phase mark, align the matchmarks on the same line at the time of the installation.

11. INSPECT PROPELLER SHAFT ASSY

HINT:

When replacing the spider bearing, be sure that the grease fitting assembly hole is facing the direction shown in the illustration.

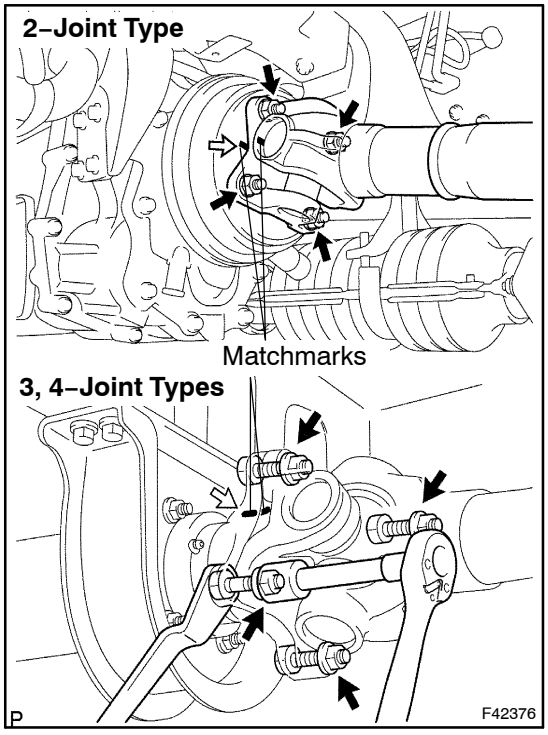
SPIDER GREASE FITTING ASSEMBLY DIRECTION
Propeller Shaft



The figure on the left shows the locations of the grease fittings as seen from the rear.

HINT:
T Fill up the grease fitting assembly hole with MP grease.

F42530

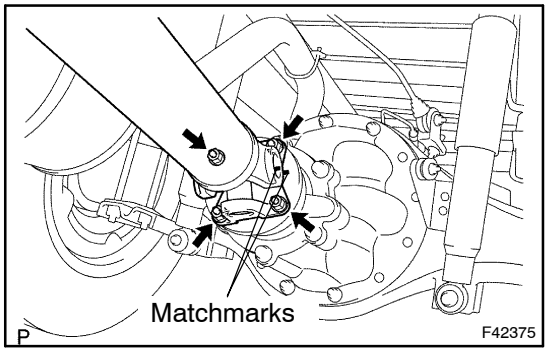


12. INSTALL PROPELLER SHAFT ASSY

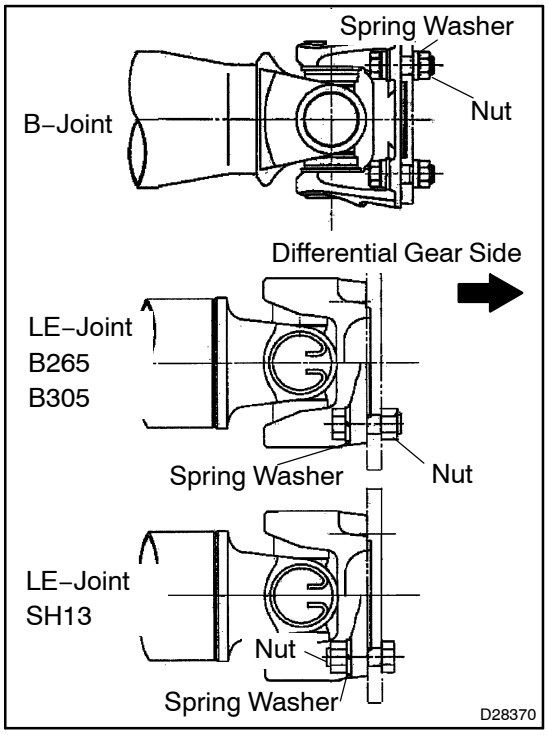
(a) 2–joint type:
Align the matchmarks on the propeller shaft flange and parking brake drum down or flange.

(b) 3, 4–joint types:
Align the matchmarks on the propeller shaft flange and intermediate shaft down or flange.

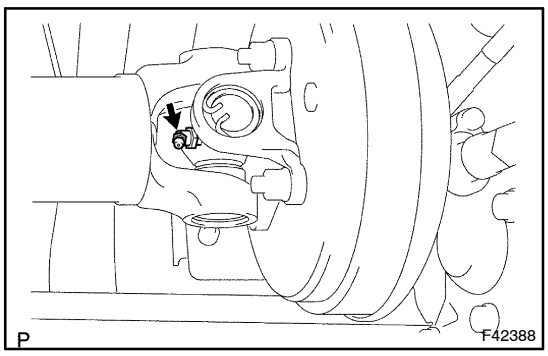
(c) Install the 4 bolts, 4 washers and 4 nuts.
Torque: 74.5 N·m (760 kgf·cm, 55 ft·lbf)



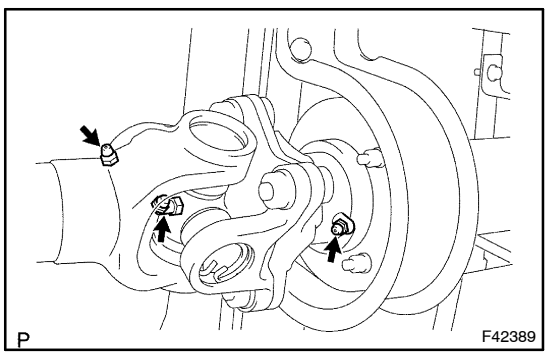
(d) Align the matchmarks on the yoke and differential flange.
(e) Install the 4 bolts, 4 washers and 4 nuts.
Torque: 74.5 N·m (760 kgf·cm, 55 ft·lbf)



NOTICE:
The bolt insertion direction and spring washer location differ depending on the type of the differential carrier on the installation side.



(f) Apply sufficient amount of MP grease from each grease fitting position of the universal joint, center bearing and sliding yoke.
(1) For the universal joint section, apply grease until it overflows from the bearing sealing.



(2) For the sliding yoke section, apply grease until it overflows from the center cap.