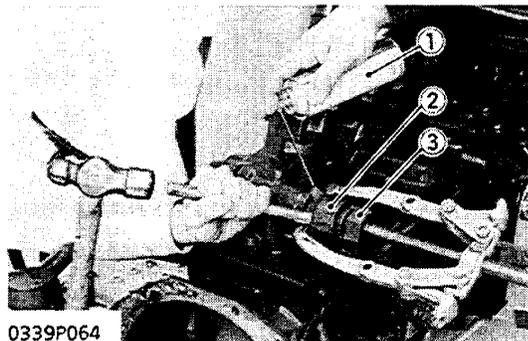


[2] POWER STEERING

[B1550-B1750-B1550HST-B1750HST]

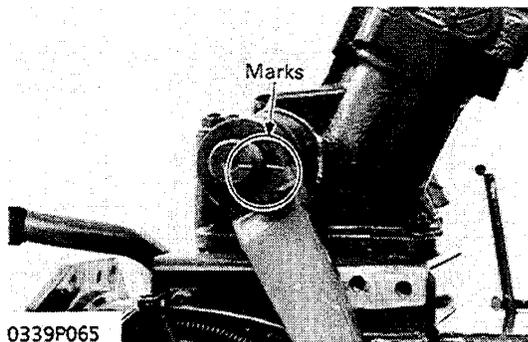
This power steering is based on that of the domestic model (Saturn Tractor X-20, 24), but the following points have been modified; valve assembly, steering shaft, steering column assembly and pitman arm (namely steering wheel shaft connection.)

DISASSEMBLING AND ASSEMBLING



0339P064

- (1) Penetrating Oil
- (2) Pitman Arm
- (3) Nut



0339P065

Removing Meter Panel, Steering Wheel and Pipes

- See page S.5-8.

Pitman Arm

1. Loosen the nut (3) and remove the pitman arm (2) with a puller. If it is hard to remove, apply a penetrating oil (1) between pitman arm (2) and sector gear shaft and then strike the pitman arm (2) during pulling with the puller.
2. Remove the nut (3), spring washer and pitman arm from the sector gear shaft.

(When reassembling)

■ IMPORTANT

- Install the pitman arm to the sector gear shaft so that their marks align.

Tightening torque	Pitman arm mounting nut (3)	98.1 to 147.1 N·m 10.0 to 15.0 kgf·m 72.3 to 108.5 ft·lbs
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Removing Steering Assembly

- See page S.5-9, 12.

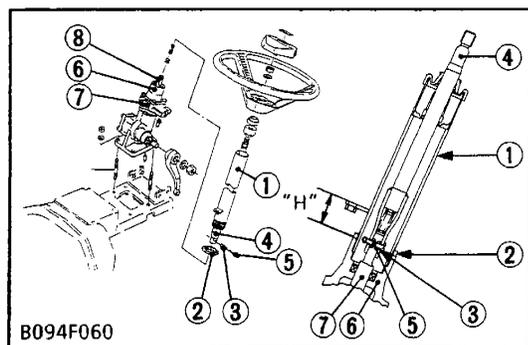
Steering Column

1. Secure the steering assembly in a vise.
2. Turn the steering shaft several times to drain oil.
3. Loosen the lock nut (2) and unscrew the steering column (1) to remove it.

(When reassembling)

■ IMPORTANT

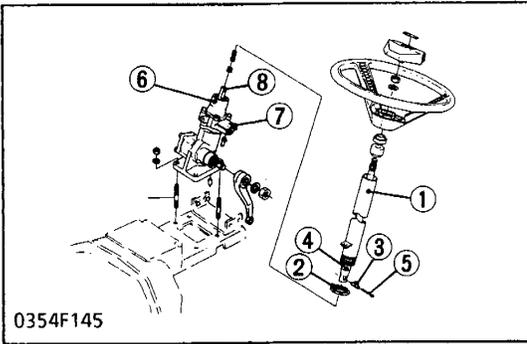
- Screw in the column (1) until the height "H" reaches 32.7 to 34.7 mm (1.29 to 1.37 in.), then lock it.



B094F060

- (1) Steering Column
- (2) Lock Nut
- (3) Spring Pin
- (4) Steering Shaft
- (5) Cotter Pin
- (6) Top Cover
- (7) Valve Assembly
- (8) Worm Shaft

Tightening torque	Column lock nut (2)	98.1 to 127.5 N·m 10.0 to 13.0 kgf·m 72.3 to 94.0 ft·lbs
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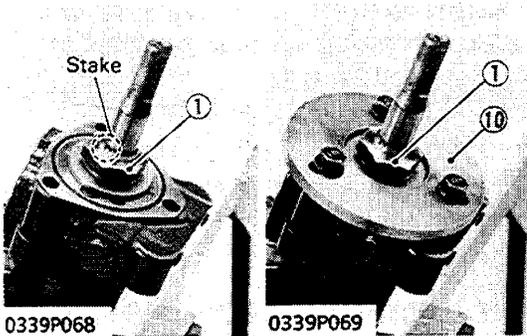
Steering Shaft and Top Cover

1. Remove the cotter pin (5) and spring pin (4) for separating the steering shaft (4) from the power steering assembly.
2. Remove the screws which secure the top cover (6), and remove the top cover.

(When reassembling)

Tightening torque	Top cover mounting screws	23.5 to 27.5 N·m 2.4 to 2.8 kgf·m 17.4 to 20.3 ft-lbs
-------------------	---------------------------	---

- | | |
|---------------------|--------------------|
| (1) Steering Column | (5) Cotter Pin |
| (2) Lock Nut | (6) Top Cover |
| (3) Spring Pin | (7) Valve Assembly |
| (4) Steering Shaft | (8) Worm Shaft |



Valve Assembly

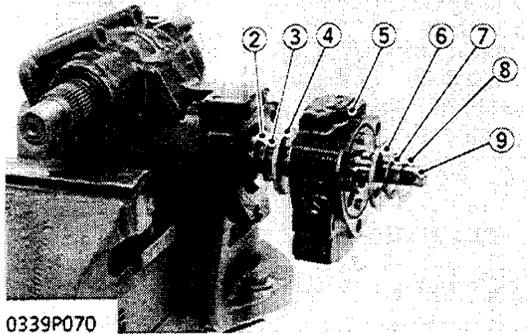
1. Mount the power steering valve holder (10) (Code No.: 07916-52891).
2. Put back the stakes of the nut (1), then remove the nut (1).
3. Remove the holder (10) and valve assembly. Set the worm shaft horizontally to remove each part easily.

(When reassembling)

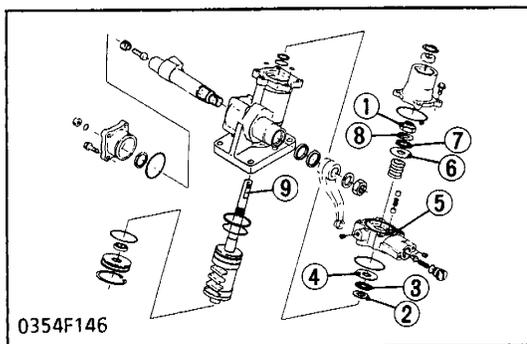
■ IMPORTANT

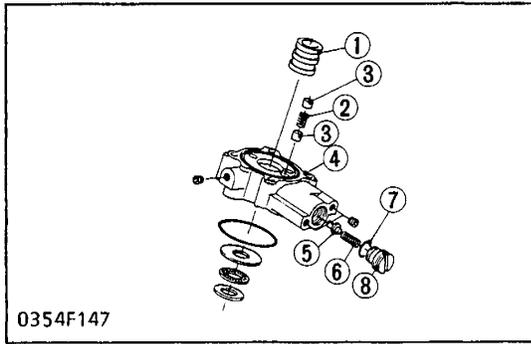
- Lightly tighten the nut (1) by hand so that the axial play of the worm shaft is within the factory spec. while holding the worm shaft (9) with a wrench. Never tighten the nut (1) hardly. Stake the nut (1) with a pin punch.

Axial play of worm shaft	Factory spec	0 to 0.05 mm 0 to 0.0020 in.
--------------------------	--------------	---------------------------------



- | | |
|---------------------------|---------------------------|
| (1) Nut | (6) Thrust Race |
| (2) Thrust Race | (7) Thrust Needle Bearing |
| (3) Thrust Needle Bearing | (8) Thrust Race |
| (4) Thrust Race | (9) Worm Shaft |
| (5) Valve Housing | (10) Valve Holder |





- (1) Spool
- (2) Centering Spring
- (3) Reaction Pistons
- (4) Valve Housing
- (5) Relief Valve Poppet
- (6) Relief Spring
- (7) O-ring
- (8) Adjusting Screw

Disassembling Valve Housing

IMPORTANT

- Do not disassemble the relief valve needlessly, since it has been factory-adjusted.

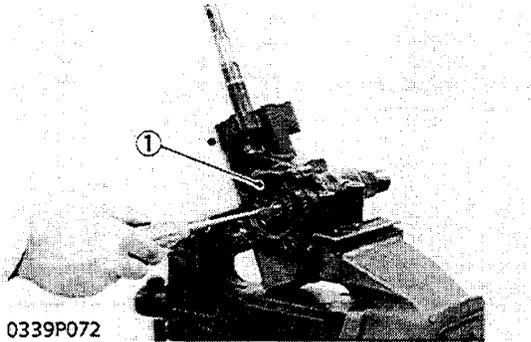
1. Remove the centering springs (2) and reaction pistons (3).
2. Remove the spool (1) and remember the direction of it against valve housing (4).
3. Remove the relief valve if needed.

(When reassembling)

- Apply grease to seals in the valve.
- When installing the spool (1), face the small chamfered side of the spool bore toward the "P" mark (top side) on the valve housing (4).

IMPORTANT

- If the relief valve is disassembled, after reassembly, be sure to adjust the setting pressure and stake the adjusting screw with a pin punch.
- When the valve housing (4) or spool (1) are damaged, replace them as a unit.



0339P072
(1) Side Cover

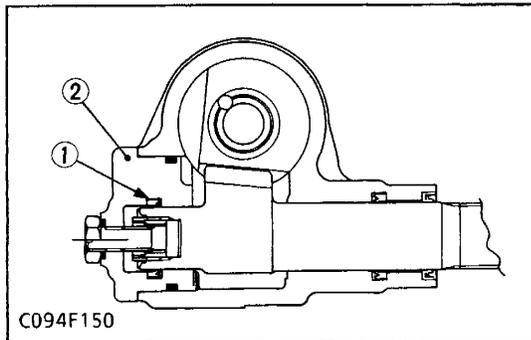
Side Cover

1. Put back the stakes of the lock nut and remove it on the adjusting screw.
2. Remove the side cover mounting screws.
3. Turn the adjusting screw clockwise to remove the side cover (1).

(When reassembling)

- Apply grease to the O-ring.
- Stake the lock nut with a pin punch.

Tightening torque	Lock nut	39.2 to 45.1 N·m 4.0 to 4.6 kgf·m 28.9 to 33.3 ft-lbs
	Side cover mounting screw	23.5 to 27.5 N·m 2.4 to 2.8 kgf·m 17.4 to 20.3 ft-lbs



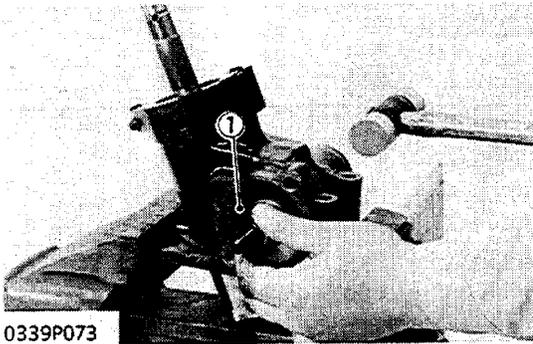
C094F150
(1) Oil Seal (2) Side Cover

Oil Seal on Side Cover

1. Remove the oil seal inside of the side cover.

(When reassembling)

- Apply grease to the ring groove, before mounting the oil seal on it.
- Direct the lip of the oil seal inward.



0339P073

Sector Gear Shaft

1. Tap out the sector gear shaft (1) toward the side cover while holding the another end to avoid dropping.

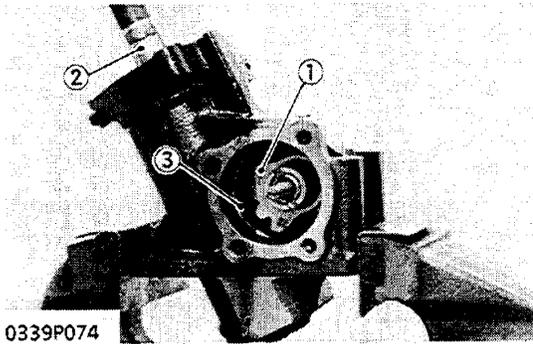
(When reassembling)

- Turn the worm shaft (2) so that the ball nut (3) is centered in its travel.
Then, install the sector gear shaft (1) so that the center of its teeth engages the center of the teeth of the ball nut (3).

NOTE

- When setting the sector gear shaft (1), take care not to damage the oil seal and U-seal in the gear box.

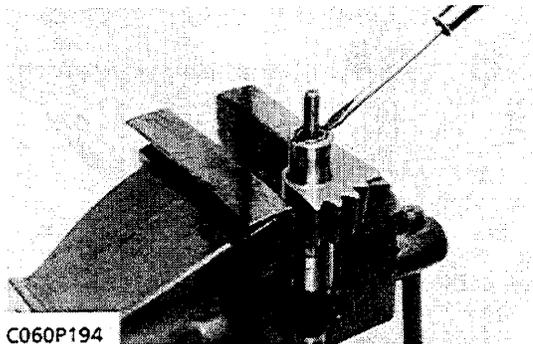
- (1) Sector Gear Shaft
- (2) Worm Shaft
- (3) Ball Nut



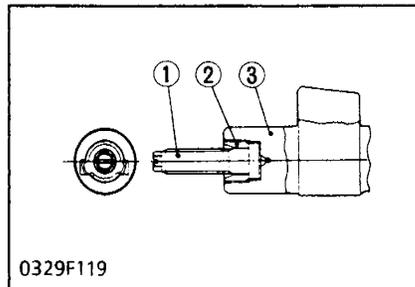
0339P074

Adjuster of Sector Gear Shaft

1. Remove the stakes and adjuster.



C060P194



0329F119

- (1) Adjusting Screw
- (2) Adjuster
- (3) Sector Gear Shaft

(When reassembling)

- Apply grease to the head of adjuster.
- Set the adjuster so that the axial play of the adjusting screw is within the factory spec.

Axial play of adjusting screw	Factory spec	0.03 to 0.05 mm 0.0012 to 0.0019 in.
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- Stake the adjuster with a pin punch.

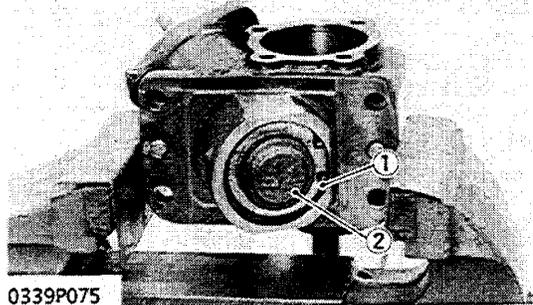
Snap Ring

1. Remove the snap ring (1) which retains the end cover (2).

(When reassembling)

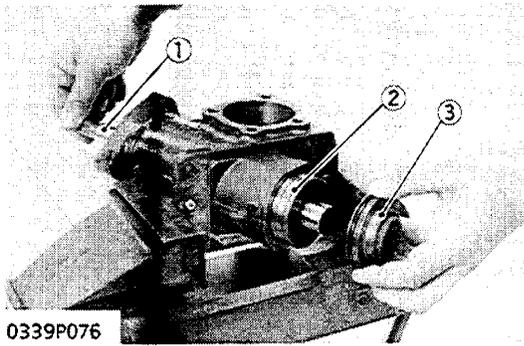
NOTE

- Direct the blunt edge side of the snap ring (1) to the end cover (2).



0339P075

- (1) Snap Ring
- (2) End Cover



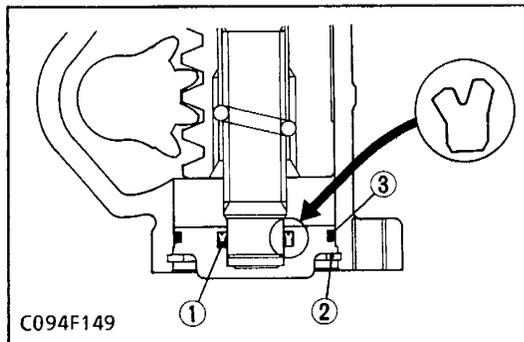
End Cover and Ball Nut Assembly

1. Tap out the worm shaft (1) toward the end cover (3) to remove it.
2. Remove the ball nut (2) and worm shaft (1) (ball nut assembly) as a unit.

NOTE

- When drawing out the ball nut assembly, take care not to damage the seal rings on the ball nut (2) and ball nut surface.
- Never disassemble the ball nut assembly.

- | | |
|----------------|---------------|
| (1) Worm Shaft | (3) End Cover |
| (2) Ball Nut | |



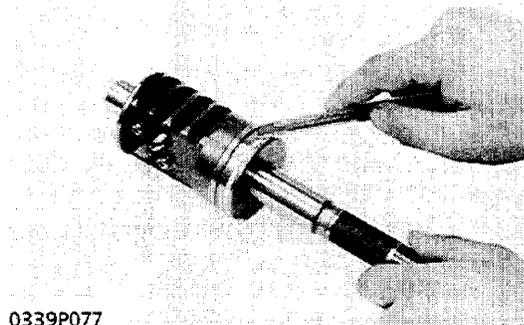
Seal Rings on End Cover

1. Remove the SR seal (1) and O-ring (3).

(When reassembling)

- Replace the SR seal (1) and O-ring (3) with new ones.
- Apply grease to the O-ring (3) and SR seal (1).
- Before setting them inside of the end cover and on it, apply grease to the ring grooves.

- | | |
|---------------|------------|
| (1) SR Seal | (3) O-ring |
| (2) Snap Ring | |



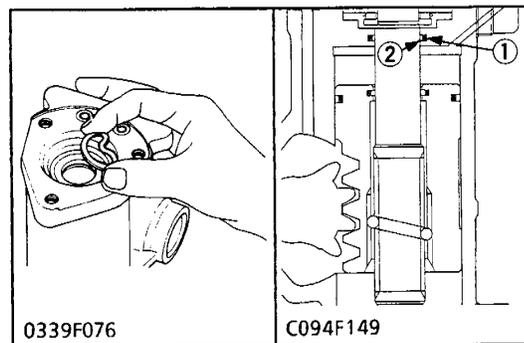
Seal Rings on Ball Nut

1. Cut the teflon ring with a knife and remove it.
2. Remove the O-ring inside the teflon ring.

(When reassembling)

- Apply grease to the ring groove.
- Replace the seal rings with new ones.
- Stretch the teflon ring by hand, install it on the ball nut, and press it so that it is restored to its original form.

- (1) Ball Nut



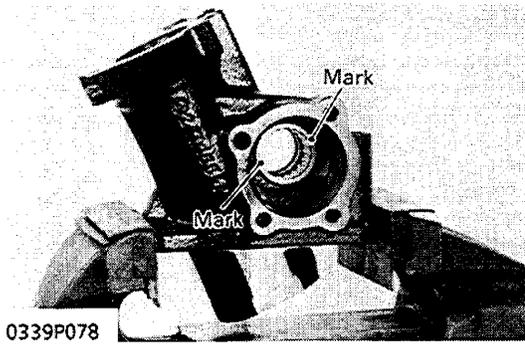
Seal Rings on Gear Box

1. Remove the seal ring (1).
2. Remove the seal ring (2).

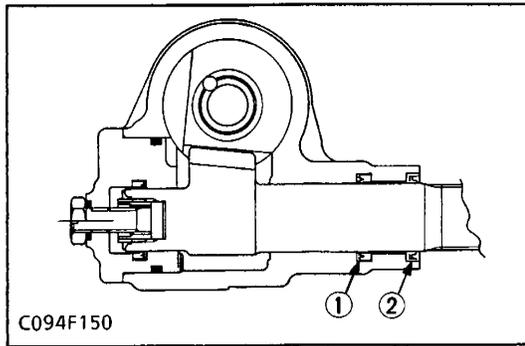
(When reassembling)

- Apply grease to the ring groove.
- Replace the seal rings (1) (2) with new ones.
- Change the shape of the seal ring (1) to the heart figure by fingers, install it on the gear box and press it so that it is restored to its original form.

- | | |
|---------------|---------------|
| (1) Seal Ring | (2) Seal Ring |
|---------------|---------------|



0339P078



C094F150

Oil Seal, and Dust Seal on Gear Box

1. Remove the oil seal (1) with a sharp tool.
2. Remove the dust seal (2).

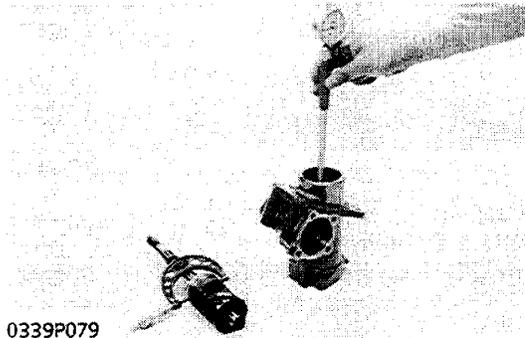
(When reassembling)

- Replace the oil seal (1) and dust seal (2) with new ones.
- Direct the lip of the dust seal (2) outward.
- Direct the lip of the oil seal (1) inward.
- After applying grease to the ring groove and to seals, set them.

(1) Oil Seal

(2) Dust Seal

SERVICING



0339P079

Clearance between Steering Gear Box and Ball Nut

1. Measure the steering gear box cylinder I.D. with a cylinder gauge.
2. Measure the ball nut O.D. with an outside micrometer, and calculate this clearance.
3. If the clearance exceeds the allowable limit, replace the steering gear box or ball nut assembly.

Clearance between steering gear box and ball nut	Factory spec.	0.030 to 0.079 mm 0.00118 to 0.00311 in.
	Allowable limit	0.15 mm 0.0059 in.

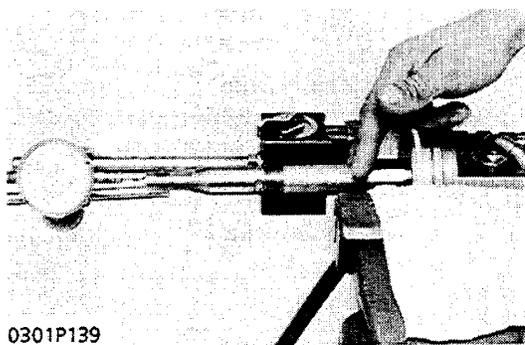
Gear box bore I.D.	Factory spec.	56.00 to 56.030 mm 2.2047 to 2.20591 in.
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Ball nut O.D.	Factory spec.	54.951 to 54.970 mm 2.16343 to 2.16417 in.
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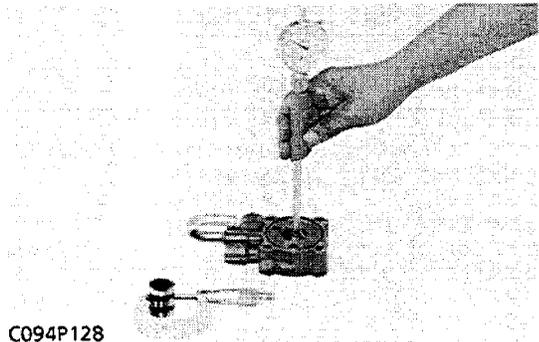
Axial Play of Ball Nut Assembly

1. Secure the ball nut assembly in a vise.
2. Set a dial indicator with its finger on the worm shaft of the ball nut assembly.
3. Move the worm shaft axially and measure the play.
4. If the play exceeds the allowable limit, replace the ball nut assembly.

Axial play of ball nut assembly	Factory spec.	0 to 0.05 mm 0 to 0.0020 in.
	Allowable limit	0.100 mm 0.00394 in.



0301P139



C094P128

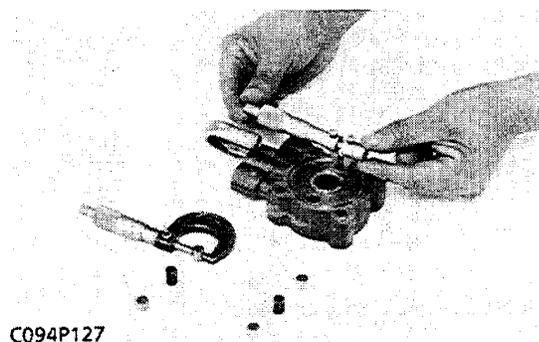
Clearance between Valve Housing and Spool

1. Measure the valve housing I.D. with a cylinder gauge and the spool O.D. with an outside micrometer, and calculate this clearance.
2. If the clearance exceeds the allowable limit, replace the spool and valve housing as a unit.

IMPORTANT

- Check to see if the spool slides smoothly in the valve housing.

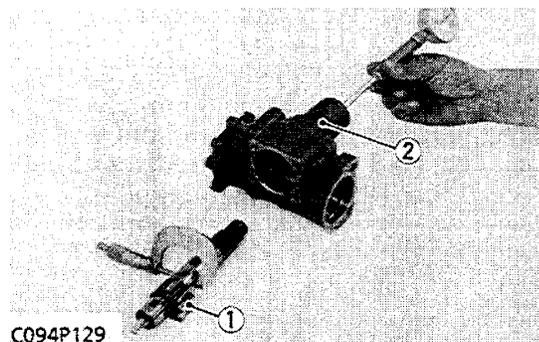
Clearance between valve housing and spool	Factory spec.	0.005 to 0.020 mm 0.00020 to 0.00079 in.
	Allowable limit	0.04 mm 0.0016 in.
Spool O.D.	Factory spec.	28.000 to 28.005 mm 1.10236 to 1.10256 in.
Valve housing I.D.	Factory spec.	28.010 to 28.020 mm 1.10276 to 1.10315 in.



C094P127

Clearance between Valve Housing and Piston

Clearance between valve housing and piston	Factory spec.	0.005 to 0.030 mm 0.00020 to 0.00118 in.
	Allowable limit	0.06 mm 0.0024 in.
Piston O.D.	Factory spec.	9.990 to 10.005 mm 0.39331 to 0.39390 in.
Valve housing I.D.	Factory spec.	10.010 to 10.020 mm 0.39409 to 0.39449 in.



C094P129

(1) Section Gear Shaft (2) Steering Gear Box

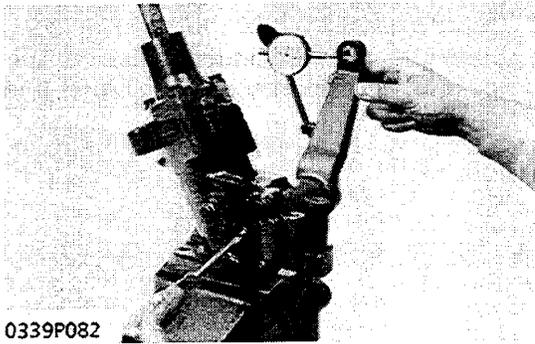
Sector Gear Shaft

1. Measure the sector gear shaft O.D. (1) (steering gear box side, side cover side) with an outside micrometer.
2. If the measurement exceeds the allowable limit, replace the sector gear shaft.

Sector gear shaft O.D.	Steering gear box side	Factory spec.	27.997 to 28.000 mm 1.10224 to 1.10236 in.
		Allowable limit	27.900 mm 1.09843 in.
	Side cover side	Factory spec.	25.997 to 26.000 mm 1.02350 to 1.02362 in.
		Allowable limit	25.900 mm 1.01969 in.

Clearance between Steering Gear Box and Sector Gear Shaft

Clearance between steering gear box and sector gear shaft	Factory spec.	0.020 to 0.033 mm 0.00079 to 0.00130 in.
	Allowable limit	0.10 mm 0.0039 in.
Steering gear box I.D.	Factory spec.	28.020 to 28.030 mm 1.10315 to 1.10354 in.
Side cover I.D.	Factory spec.	26.020 to 26.030 mm 1.02441 to 1.02480 in.

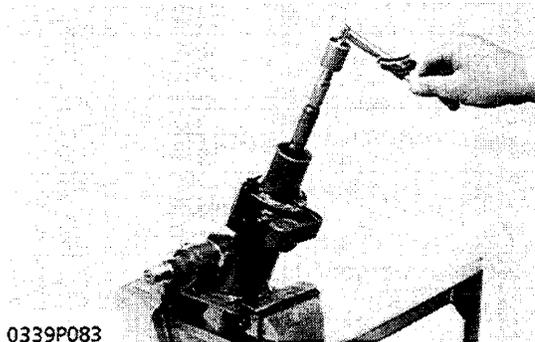


0339P082

Backlash between Sector Gear Shaft and Ball Nut

1. Attach the pitman arm having no play.
2. Set a dial indicator with its finger on the pitman arm.
3. Move the pitman arm lightly, and measure the deflection.
4. If the measurement is not within the factory specification, adjust the backlash with the adjusting screw.

Backlash between sector gear shaft and ball nut	Factory spec.	Less than	0.30 mm 0.0118 in.
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0339P083

Turning Torque of Worm Shaft

1. Set the torque wrench on the worm shaft and measure the torque required to initial turning.
2. If the measurement is not within the factory specification, disassemble the steering gear box.

Turning torque of worm shaft	Factory spec.	Less than	1.18 N·m 0.12 kgf·m 0.87 ft-lbs
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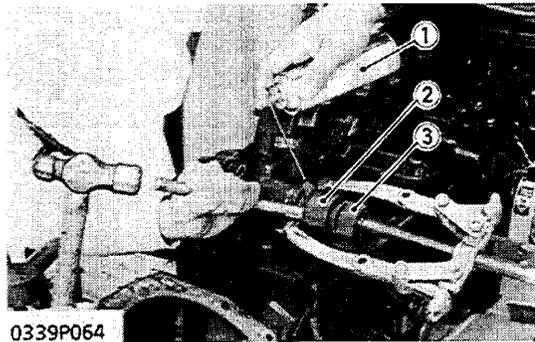
[B2150-B2150HST]

This power steering is the same as that of B9200.

DISASSEMBLING AND ASSEMBLING

Removing Meter Panel, Steering Wheel and Pipes

- See page S.5-20.



0339P064

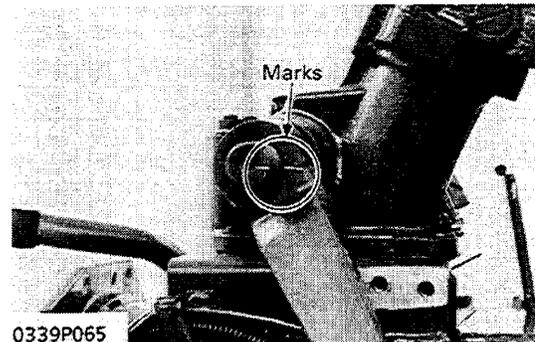
Pitman Arm

1. Loosen the nut (3) and remove the pitman arm (2) with a puller. If it is hard to remove, apply a penetrating oil (1) between pitman arm (2) and sector gear shaft and then strike the pitman arm (2) during pulling with the puller.
2. Remove the nut (3), spring washer and pitman arm from the sector gear shaft.

(When reassembling)

■ IMPORTANT

- Install the pitman arm to the sector gear shaft so that their marks align.



0339P065

Tightening torque	Pitman arm mounting nut (3)	176.5 to 235.4 N·m 18.0 to 24.0 kgf·m 130.2 to 173.6 ft-lbs
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- (1) Penetrating Oil
- (2) Pitman Arm
- (3) Nut

Removing Steering Assembly

- See page S.5-21, 27.

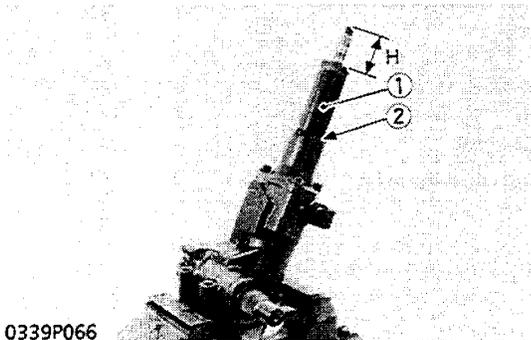
Steering Column

1. Secure the steering assembly in a vise.
2. Turn the steering shaft several times to drain oil.
3. Loosen the lock nut (2) and unscrew the steering column (1) to remove it.

(When reassembling)

■ IMPORTANT

- Screw in the column (1) until the height "H" reaches 61 to 65 mm (2.40 to 2.56 in.), then lock it.



0339P066

(1) Steering Column (2) Lock Nut

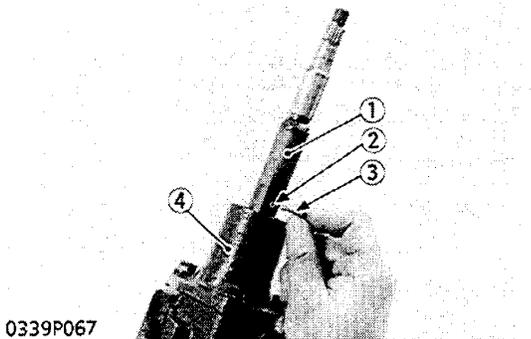
Tightening torque	Column lock nut (2)	98.1 to 127.5 N·m 10.0 to 13.0 kgf·m 72.3 to 94.0 ft·lbs
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Steering Shaft and Top Cover

1. Remove the rivet (3) and tap out the spring pin (2) connecting the steering shaft (1) to worm shaft. Pull up the steering shaft (1).
2. Remove the screws securing the top cover (4). Remove the top cover (4).

(When reassembling)

Tightening torque	Top cover mounting screws	37.3 to 56.9 N·m 3.8 to 5.8 kgf·m 27.5 to 42.0 ft·lbs
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0339P067

(1) Steering Shaft (2) Spring Pin (3) Rivet (4) Top Cover

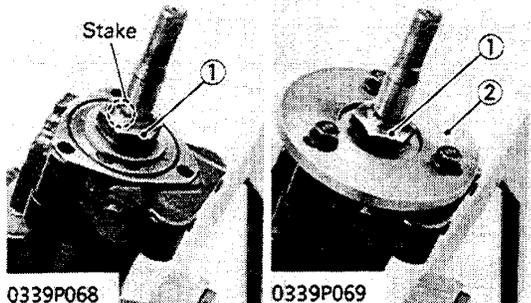
Valve Assembly

1. Mount the power steering valve holder (2) (Code No.: 07916-52891).
2. Put back the stake of the nut (1), then remove the nut (1).
3. Remove the holder (2) and valve assembly. Set the worm shaft horizontally to remove each part easily.

(When reassembling)

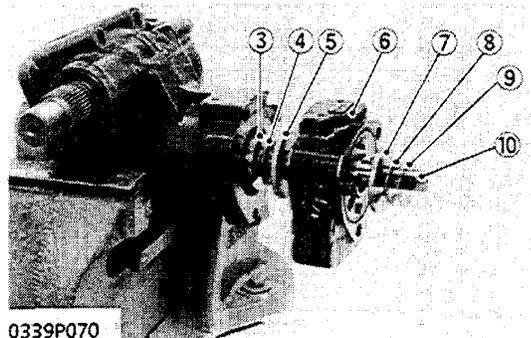
■ IMPORTANT

- Lightly tighten the nut (1) by hand while holding the worm shaft (10) with a wrench. Never tighten the nut (1) hardly. Stake the nut (1) with a pin punch.



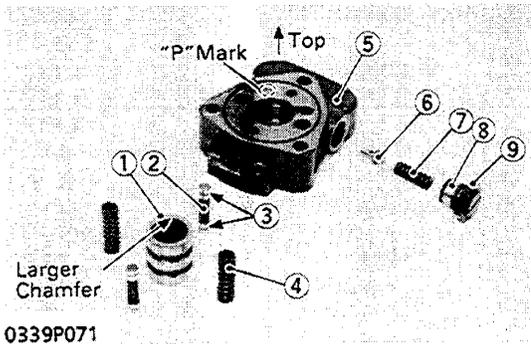
0339P068

0339P069



0339P070

- | | |
|---------------------------|---------------------------|
| (1) Nut | (6) Valve Housing |
| (2) Valve Holder | (7) Thrust Race |
| (3) Thrust Race | (8) Thrust Needle Bearing |
| (4) Thrust Needle Bearing | (9) Thrust Race |
| (5) Thrust Race | (10) Worm Shaft |



0339P071

- (1) Spool
- (2) Centering Spring
- (3) Reaction Pistons
- (4) Centering Spring
- (5) Valve Housing
- (6) Relief Valve Poppet
- (7) Relief Spring
- (8) Adjusting Screw
- (9) Lock Nut

Disassembling Valve Housing

IMPORTANT

- Do not disassemble the relief valve needlessly, since it has been factory-adjusted.

1. Remove the centering springs (2) (4) and reaction pistons (3).
2. Remove the spool (1) and remember the direction of it against valve housing (5).
3. Remove the relief valve if needed.

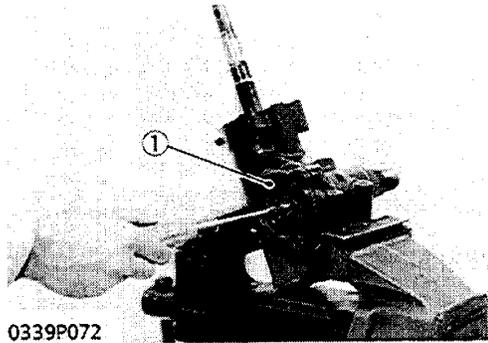
(When reassembling)

- Apply grease to seals in the valve.
- When installing the spool (1), face the small chamfered side of the spool bore toward the "P" mark (top side) on the valve housing (5).

IMPORTANT

- If the relief valve is disassembled, after reassembly, be sure to adjust the setting pressure.
- When the valve housing (5) or spool (1) are damaged, replace them as a unit.

Tightening torque	Relief valve lock nut (9)	49.0 to 78.5 N·m 5.0 to 8.0 kgf·m 36.2 to 57.9 ft-lbs
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0339P072

- (1) Side Cover

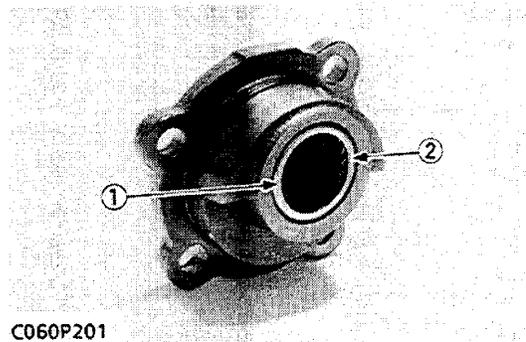
Side Cover

1. Remove the cap nut, copper gaskets and lock nut on the adjusting screw.
2. Remove the side cover mounting screws.
3. Turn the adjusting screw clockwise to remove the side cover (1).

(When reassembling)

- Apply grease to the O-ring.

Tightening torque	Lock nut and cap nut	19.6 to 29.4 N·m 2.0 to 3.0 kgf·m 14.5 to 21.7 ft-lbs
	Side cover mounting screw	37.3 to 56.9 N·m 3.8 to 5.8 kgf·m 27.5 to 42.0 ft-lbs



C060P201

- (1) Type Mark
- (2) Manufacturer's Mark

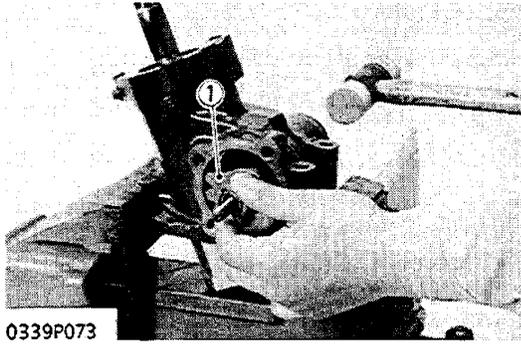
Needle Bearing on Side Cover

IMPORTANT

- Do not remove the needle bearing except when it needs replacing.

(When reassembling)

- Install the needle bearing so that manufacturer's mark and type mark face to the gear box.
- Press-fit the needle bearing so that it flushes with the side cover boss end.



Sector Gear Shaft

1. Tap out the sector gear shaft (1) toward the side cover while holding the other end to avoid dropping.

(When reassembling)

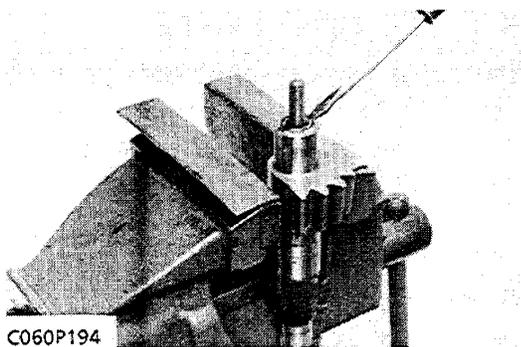
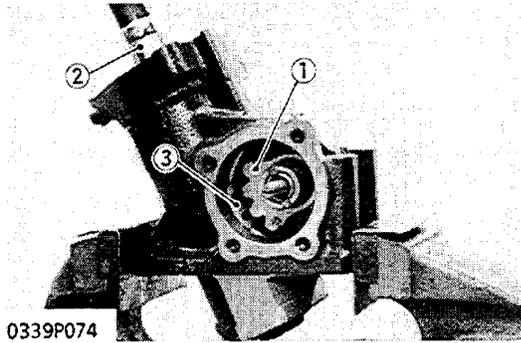
- Turn the worm shaft (2) so that the ball nut (3) is centered in its travel.
Then, install the sector gear shaft (1) so that the center of its teeth engages the center of the teeth of the ball nut (3).

NOTE

- When setting the sector gear shaft (1), take care not to damage the oil seal and U-seal in the gear box.

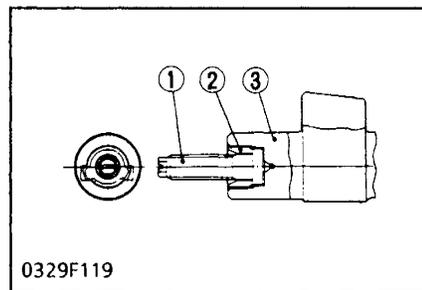
- (1) Sector Gear Shaft
(2) Worm Shaft

- (3) Ball Nut



Adjuster of Sector Gear Shaft

1. Remove the stake and adjuster.



- (1) Adjusting Screw
(2) Adjuster
(3) Sector Gear Shaft

(When reassembling)

- Apply grease to the head of adjuster.

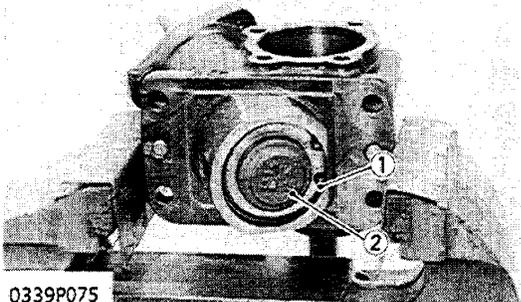
Snap Ring

1. Remove the snap ring (1) which retains the end cover (2).

(When reassembling)

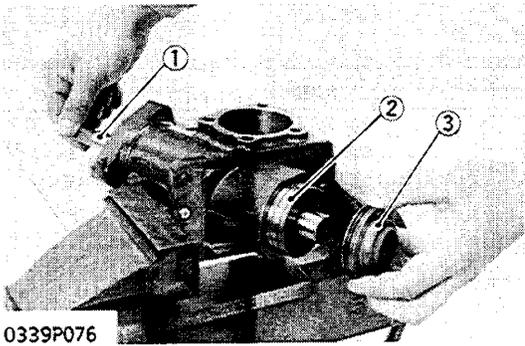
NOTE

- Direct the blunt edge side of the snap ring (1) to the end cover (2).



- (1) Snap Ring

- (2) End Cover



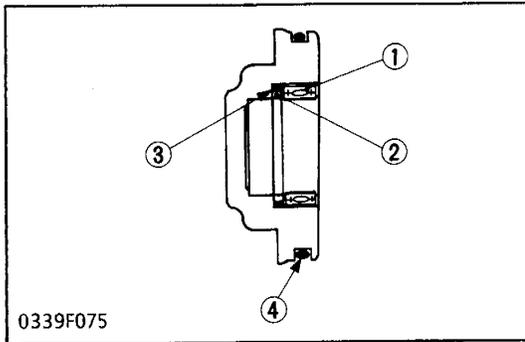
End Cover and Ball Nut Assembly

1. Tap out the worm shaft (1) toward the end cover (3) to remove the end cover (3).
2. Remove the ball nut (2) and worm shaft (1) (ball nut assembly) as a unit.

NOTE

- When drawing out the ball nut assembly, take care not to damage the seal rings on the ball nut (2) and ball nut surface.
- Never disassemble the ball nut assembly.

- | | |
|----------------|---------------|
| (1) Worm Shaft | (3) End Cover |
| (2) Ball Nut | |



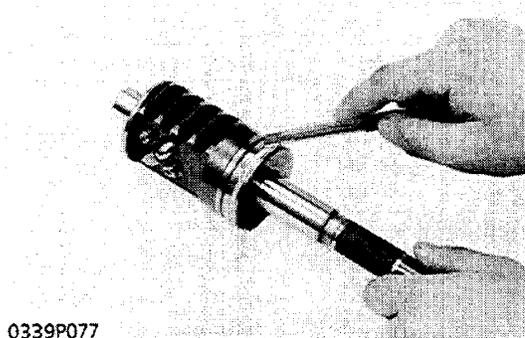
Seal Rings and Needle Bearing on End Cover

1. Remove the teflon ring (2) and O-rings (3) (4).
2. Remove the needle bearing (1).

(When reassembling)

- Replace the teflon ring (2), O-rings (3) (4) and needle bearing with new ones.
- Apply grease to the O-ring (4).
- Install the needle bearing (1) so that the manufacturer's mark and type mark face to the top.
- Press fit the needle bearing (1) until its race surface is flush with the end cover surface.

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|--------------------|------------|
| (1) Needle Bearing | (3) O-ring |
| (2) Teflon Ring | (4) O-ring |

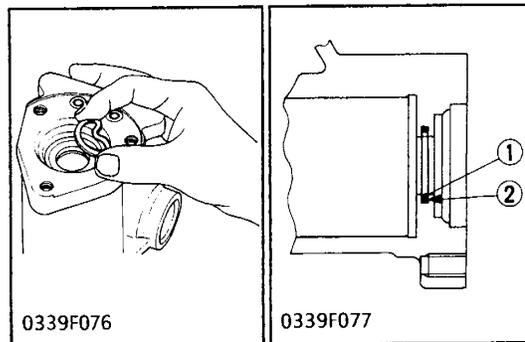


Seal Rings on Ball Nut

1. Cut the teflon ring with a knife and remove it.
2. Remove the O-ring inside the teflon ring.

(When reassembling)

- Apply grease to the ring groove.
- Replace the seal rings with new ones.
- Stretch the teflon ring by hand, install it on the ball nut, and press it so that it is restored to its original form.



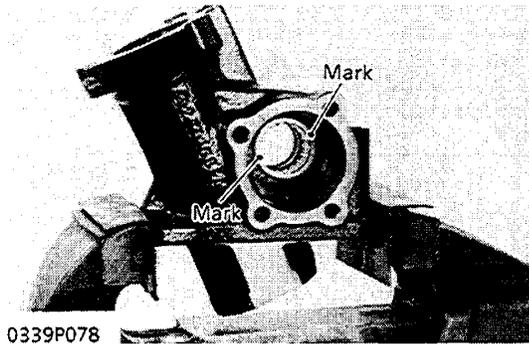
Seal Rings on Gear Box

1. Cut the teflon ring (1) with a knife and remove it.
2. Remove the O-ring (2).

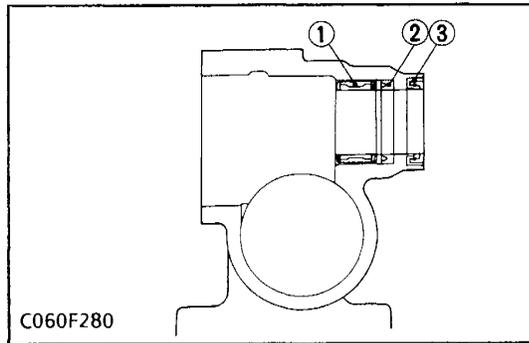
(When reassembling)

- Apply grease to the ring groove.
- Replace the seal rings (1) (2) with new ones.
- Change the shape of the teflon ring (1) to the heart figure by fingers, install it on the gear box and press it so that it is restored to its original form.

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| (1) Teflon Ring | (2) O-ring |
|-----------------|------------|



0339P078



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Oil Seal, U-seal and Needle Bearing on Gear Box

1. Remove the oil seal (3).
2. Remove the U-seal (2) with a sharp tool.
3. Remove the needle bearing (1).

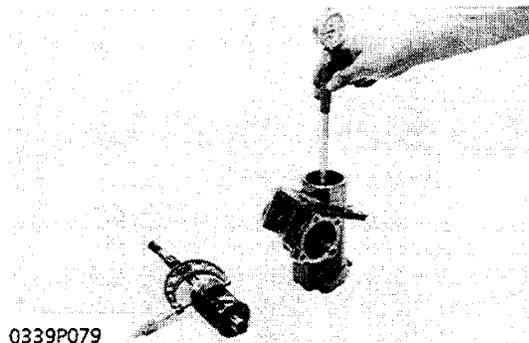
(When reassembling)

- Replace the oil seal (3), U-seal (2) and needle bearing (1) with new ones.
- Direct the lip of the oil seal (3) outward.
- Install the needle bearing (1) so that the manufacturer's mark and type mark face to the inside of the gear box. Press fit it until its race surface is flush with inside surface of gear box.

(1) Needle Bearing
(2) U-seal

(3) Oil Seal

SERVICING



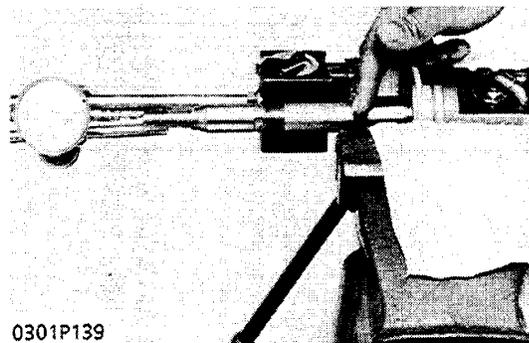
0339P079

Clearance between Steering Gear Box and Ball Nut

1. Measure the steering gear box cylinder I.D. with a cylinder gauge.
2. Measure the ball nut O.D. with an outside micrometer, and calculate the clearance.
3. If the clearance exceeds the allowable limit, replace the steering gear box or ball nut assembly.

Clearance between steering gear box and ball nut	Factory spec.	0.030 to 0.079 mm 0.00118 to 0.00311 in.
	Allowable limit	0.15 mm 0.0059 in.

Gear box bore I.D.	Factory spec.	61.000 to 61.030 mm 2.40158 to 2.40276 in.
Ball nut O.D.	Factory spec.	60.951 to 60.970 mm 2.39965 to 2.40040 in.

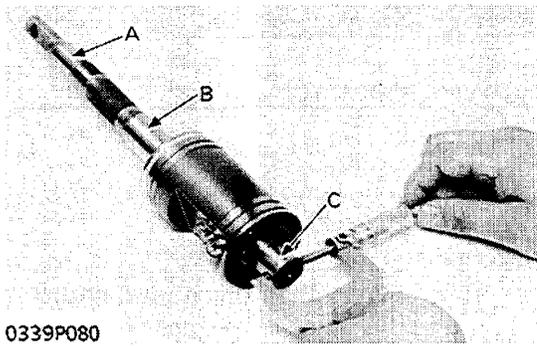


0301P139

Axial Play of Ball Nut Assembly

1. Secure the ball nut assembly in a vise.
2. Set a dial indicator with its finger on the worm shaft of the ball nut assembly.
3. Move the worm shaft axially and measure the play.
4. If the play exceeds the allowable limit, replace the ball nut assembly.

Axial play of ball nut assembly	Factory spec.	0 to 0.020 mm 0 to 0.00079 in.
	Allowable limit	0.100 mm 0.00394 in.

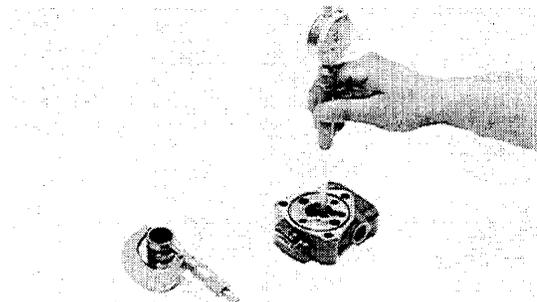


0339P080

Worm Shaft Wear

1. Measure the worm shaft O.D. with an outside micrometer.
2. If the measurement is less than the allowable limit, replace the ball nut assembly.

Worm shaft O.D.	A	Factory spec.	19.996 to 20.009 mm 0.78724 to 0.78776 in.
		Allowable limit	19.900 mm 0.78346 in.
	B	Factory spec.	24.996 to 25.009 mm 0.98410 to 0.98461 in.
		Allowable limit	24.900 mm 0.98031 in.
	C	Factory spec.	24.996 to 25.009 mm 0.98410 to 0.98461 in.
		Allowable limit	24.900 mm 0.98031 in.



0339P081

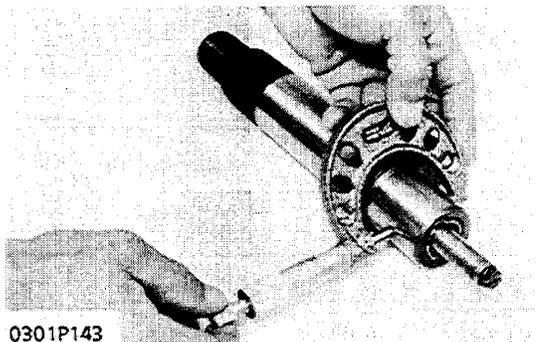
Clearance between Valve Housing and Spool

1. Measure the valve housing I.D. with a cylinder gauge.
2. Measure the spool O.D. with an outside micrometer, and calculate the clearance.
3. If the clearance exceeds the allowable limit, replace the spool and valve housing as a unit.

■ IMPORTANT

- Check to see if the spool slides smoothly in the valve housing.

Clearance between valve housing and spool	Factory spec.	0.008 to 0.015 mm 0.00031 to 0.00059 in.
	Allowable limit	0.025 mm 0.00098 in.

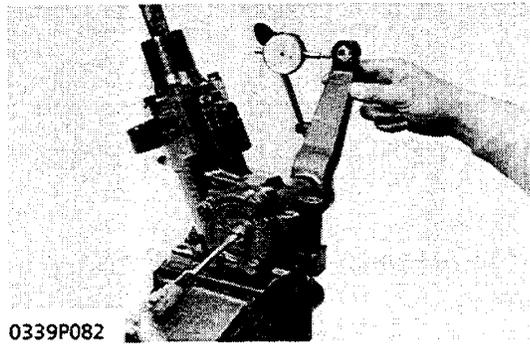


0301P143

Sector Gear Shaft

1. Measure the sector gear shaft O.D.s (steering gear box side, side cover side) with an outside micrometer.
2. If the measurement exceeds the allowable limit, replace the sector gear shaft.

Sector gear shaft O.D.	Steering gear box side	Factory spec.	34.957 to 35.000 mm 1.37626 to 1.37795 in.
		Allowable limit	34.900 mm 1.37402 in.
	Side cover side	Factory spec.	27.987 to 28.000 mm 1.10185 to 1.10236 in.
		Allowable limit	27.900 mm 1.09843 in.

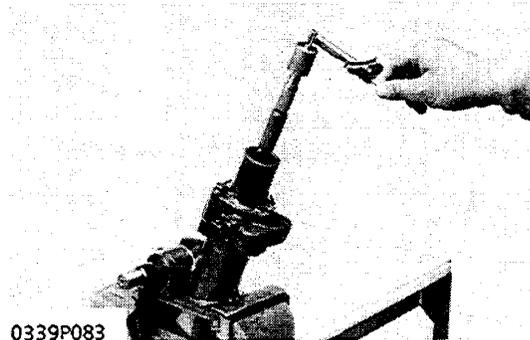


0339P082

Backlash between Sector Gear Shaft and Ball Nut

1. Attach the pitman arm having no play.
2. Set a dial indicator with its finger on the pitman arm.
3. Move the pitman arm lightly, and measure the deflection.
4. If the measurement is not within the factory specification, adjust the backlash with the adjusting screw.

Backlash between sector gear shaft and ball nut	Factory spec.	Less than	0.30 mm 0.0118 in.
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0339P083

Turning Torque of Worm Shaft

1. Set the torque wrench on the worm shaft and measure the torque required to initial turning.
2. If the measurement is not within the factory specification, disassemble the steering gear box.

Turning torque of worm shaft	Factory spec.	Less than	1.18 N·m 0.12 kgf·m 0.87 ft-lbs
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