

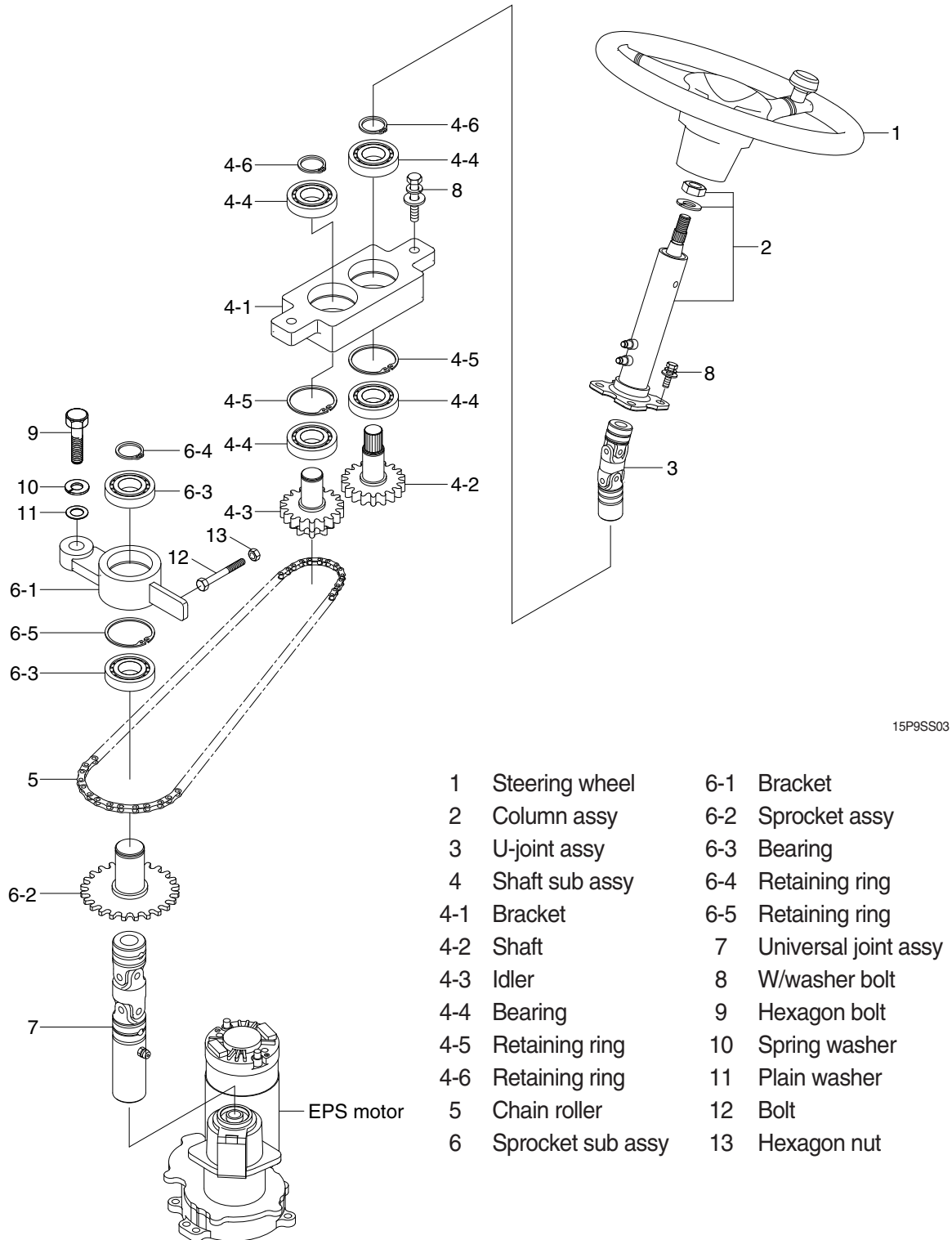
SECTION 5 STEERING SYSTEM

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SECTION 5 STEERING SYSTEM

GROUP 1 STRUCTURE AND FUNCTION

1. OUTLINE



2. SPECIFICATIONS AND SERVICE STANDARD

Type		1st stage	Chain
		2st stage	Gear
Steering wheel diameter	(mm)	ø 320	
Steering wheel free play	(mm)	30~60	
Steering chain slack	(mm)	10 (load 10 kg)	
Steering angle	Right turn	90°	
	Left turn	90°	
Minimum turning radius (mm)	15P-9	2413 (7' 0")	
	40T-9	1573 (5' 2")	

3. TROUBLE SHOOTING

Problem		Cause	Remedy
Heavy steering	At traveling	<ul style="list-style-type: none"> • Damage of bearing at steering pinion • Damage of bearing of steering shaft of drive unit • Lack of grease of bearing 	<ul style="list-style-type: none"> • Replace bearing • Replace bearing • Lubricate grease
	At releasing joint at spline	<ul style="list-style-type: none"> • Damage of bearing in steering bracket • Over tension of roller chain 	<ul style="list-style-type: none"> • Replace bearing • Adjust the tension
Steering play is large (STD : 30~60 mm)		<ul style="list-style-type: none"> • Looseness of roller chain • Extension of roller chain • Looseness of rubber coupling is large • Looseness of spline and joint is large • Backlash of steering pinion and gear is large 	<ul style="list-style-type: none"> • Adjust the tension • Adjust the tension or replace the chain • Replace coupling • Replace • Replace
Steering wheel is robbed in one way during traveling		<ul style="list-style-type: none"> • Eccentric wear of tire • Transformation of drive unit-rear axle • Transformation of frame 	<ul style="list-style-type: none"> • Replace • Repair or replace • Repair or replace

GROUP 2 DISASSEMBLY AND ASSEMBLY

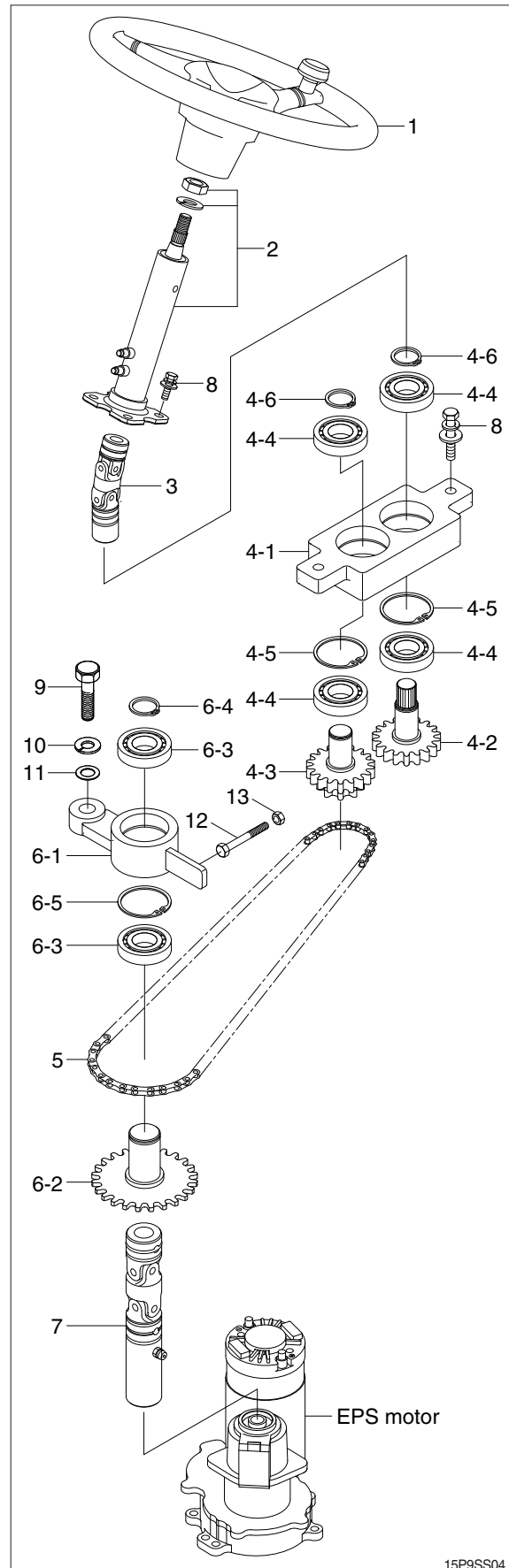
1. STEERING SYSTEM

1) TOOL

- (1) Standard tool
- (2) Universal puller
- (3) Vernier caliper

2) DISASSEMBLY

- (1) Remove the steering wheel (1) after loosening the hexagon nut (2) by using box spanner.
- (2) Loosen the hexagon bolts (8) and remove the column assy (2) together with U-joint assy (3).
 - Retightening bolts torque (8) :
 $5 \pm 1 \text{ kgf} \cdot \text{m}$ ($36.15 \pm 7.25 \text{ lbf} \cdot \text{ft}$)
- (3) Loosen the bolts (8) and remove the shaft sub assy (4).
- (4) Dismantle the shaft (4-2), idler (4-3) and bearing (4-4) and bracket (4-1) after taking off retaining rings (4-6).
 - ※ Check the bearings (4-4) and teeth of the shafts (4-2) and the replace it if necessary.
- (5) Remove the roller chain (5) from the sprocket shaft assy (6).
- ※ Check the roller chain (5) for damage or defects.
- (6) Sprocket sub assy (6) and universal joint assy (7).
- (7) After removing the retaining rings (6-4, 6-5), dismantle the sprocket (6-2), bearings (6-3) and bracket (6-1) from the sprocket sub assy (6).
 - ※ Check the sprocket assy (6) and bearings (6-3) for damage or defects.



15P9SS04

3) ASSEMBLY

Assembly is reverse order of the disassembly.

※ When assembling the steering linkage assembly, observe performing the following works.

(1) After completion of assembly the steering linkage, keep sufficiently the chain tension by using chain tension adjusting bolt.

※ When taking the force with 5 kg for the chain, keep the deflection within 10 mm.

Adjusting method.

Loosen the hexagon bolt (9) and adjusting chain tension by using bolt (12) and then tighten the hexagon bolt (9) and hexagon nut (13).

(2) When assembling the universal joint assy (7) in the EPS motor, observe that the inserting depth of the spline is 30 mm at least.

(3) Maximum turning of the steering wheel is 5.8 ± 0.5 turns.

(4) When assembling the U-joint assy (3) and universal joint assy (7), apply sufficiently grease.

4) INSPECTION

(1) Inspect the steering chain for extension, cracks and damage and replace if defective.

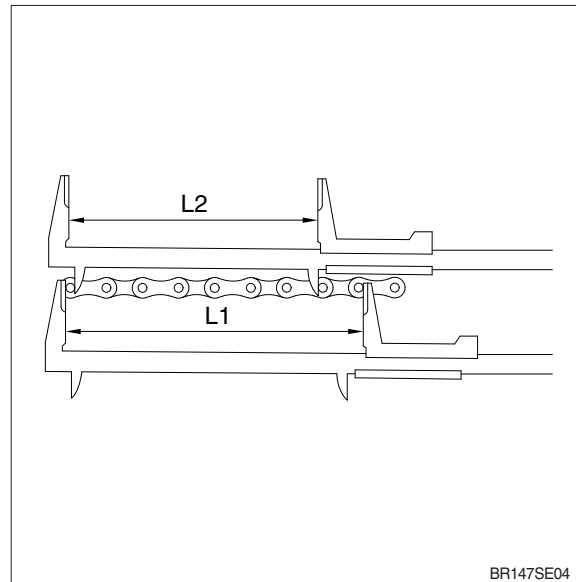
$$L = \frac{L1 + L2}{2}$$

Standard : L = 76.20 mm (3.00 in)

Limit : L = 77.34 mm (3.04 in)

(2) Inspect the sprockets assy and steering wheel shaft for cracks and damage, and replace if defective.

(3) Inspect the rubber coupling for cracks and the universal joint for faulty operation, and replace if defective.



5) ADJUSTMENT

- Adjust the steering chain tension through the adjusting link so that the chain deflection will be 10 mm (0.39 in) at load of 5 kgf.
- Adjust the steering play to 30~60 mm (1.2~2.4 in).
- Adjust the steering wheel to close to operator's stand through fixing of spline in traveling.

GROUP 2 DISASSEMBLY AND ASSEMBLY

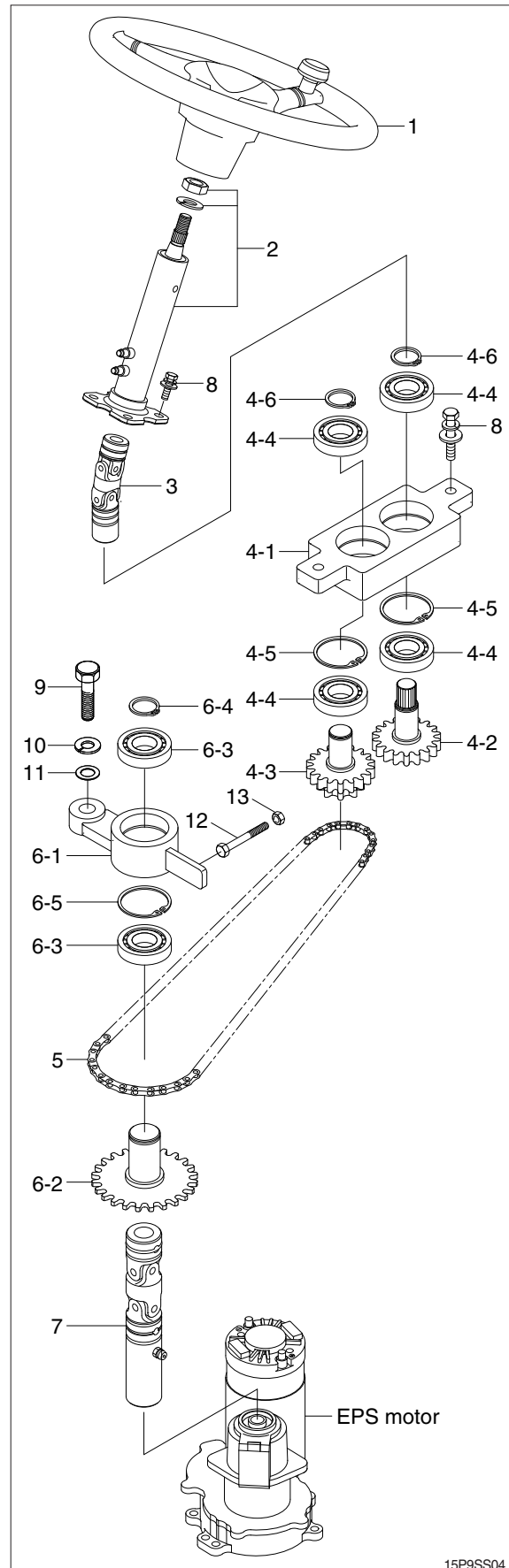
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- ※ Check the roller chain (5) for damage or defects.
- (6) Sprocket sub assy (6) and universal joint assy (7).
- (7) After removing the retaining rings (6-4, 6-5), dismantle the sprocket (6-2), bearings (6-3) and bracket (6-1) from the sprocket sub assy (6).
 - ※ Check the sprocket assy (6) and bearings (6-3) for damage or defects.



15P9SS04

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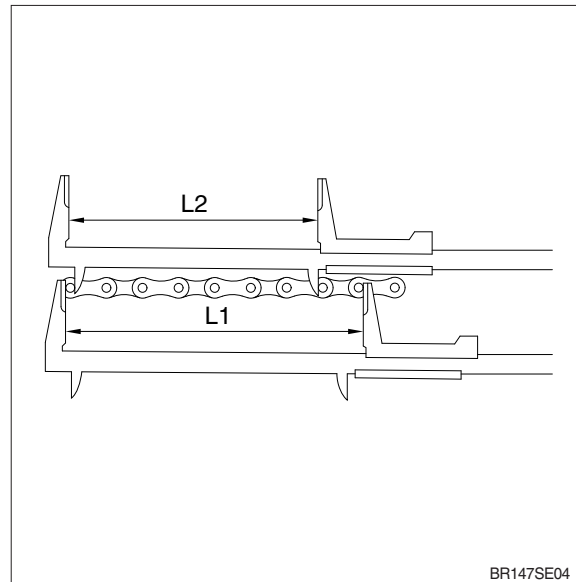
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