

# SECTION 5 STEERING SYSTEM



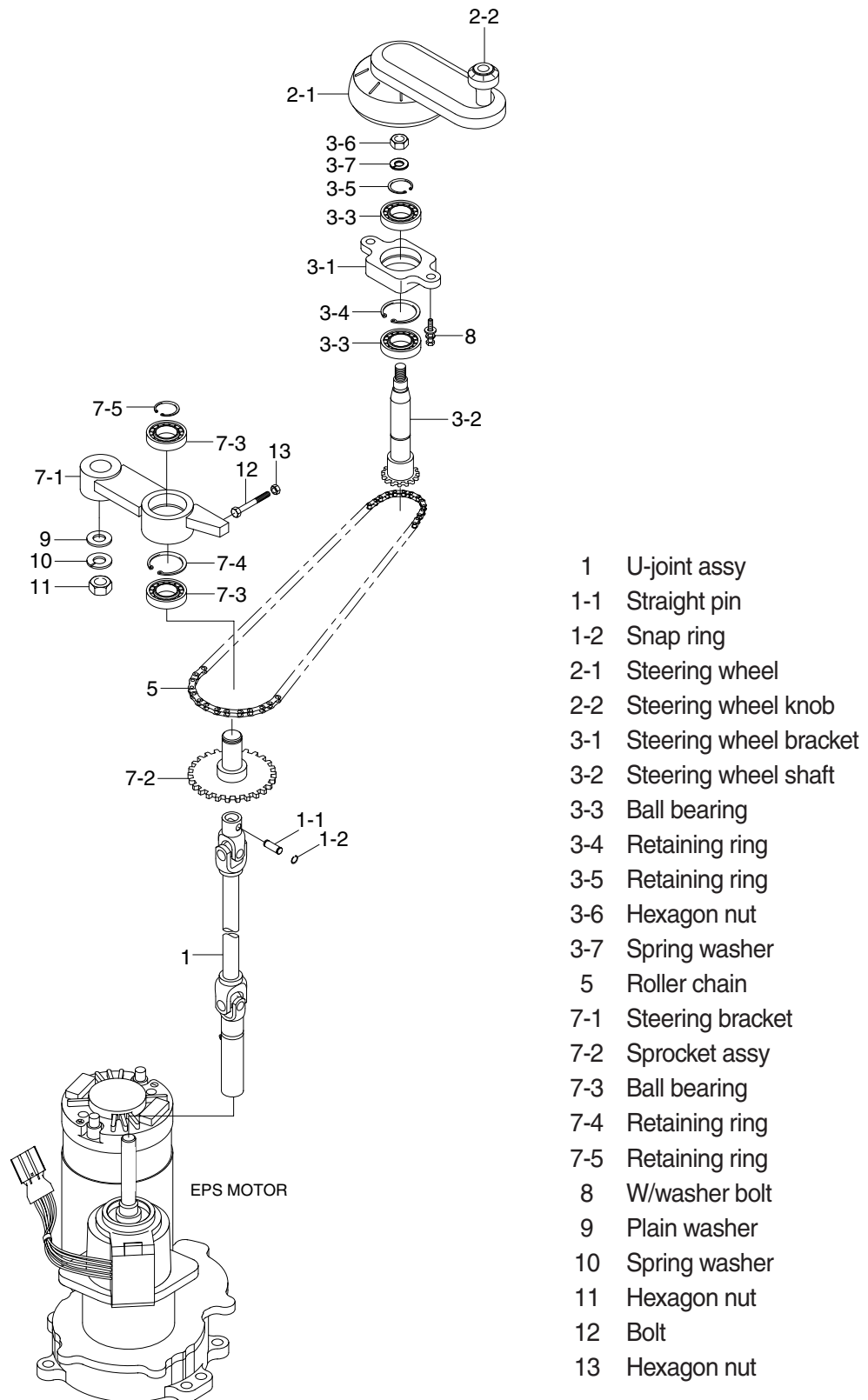
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# SECTION 5 STEERING SYSTEM

## GROUP 1 STRUCTURE AND FUNCTION

### 1. OUTLINE



15BR9ESE03

## 2. SPECIFICATIONS AND SERVICE STANDARD

Type	Unit	1st stage	Chain
		2st stage	Gear
Steering wheel diameter (mm)		ø 300	
Steering wheel free play (mm)		25~50	
Steering chain slack (mm)		3~5	
Steering angle	Right turn	79°	
	Left turn	101°	
Minimum turning radius (mm)	15BR-9E	1605	

## 3. TROUBLE SHOOTING

Problem		Cause	Remedy
Heavy steering	At traveling	<ul style="list-style-type: none"> <li>• Damage of bearing at steering pinion</li> <li>• Damage of bearing of steering shaft of drive unit</li> <li>• Lack of grease of bearing</li> </ul>	<ul style="list-style-type: none"> <li>• Replace bearing</li> <li>• Replace bearing</li> <li>• Lubricate grease</li> </ul>
	At releasing joint at spline	<ul style="list-style-type: none"> <li>• Damage of bearing in steering racket</li> <li>• Over tension of roller chain</li> </ul>	<ul style="list-style-type: none"> <li>• Replace bearing</li> <li>• Adjust the tension</li> </ul>
Steering play is large (STD : 25~50 mm)		<ul style="list-style-type: none"> <li>• Looseness of roller chain</li> <li>• Extension of roller chain</li> <li>• Looseness of rubber coupling is large</li> <li>• Looseness of spline and joint is large</li> <li>• Backlash of steering pinion and gear is large</li> </ul>	<ul style="list-style-type: none"> <li>• Adjust the tension</li> <li>• Adjust the tension or replace the chain</li> <li>• Replace coupling</li> <li>• Replace</li> <li>• Replace</li> </ul>
Steering wheel is robbed in one way during traveling		<ul style="list-style-type: none"> <li>• Eccentric wear of tire</li> <li>• Transformation of drive unit-rear axle</li> <li>• Transformation of frame</li> </ul>	<ul style="list-style-type: none"> <li>• Replace</li> <li>• Repair or replace</li> <li>• Repair or replace</li> </ul>

## GROUP 2 DISASSEMBLY AND ASSEMBLY

### 1. TOOL

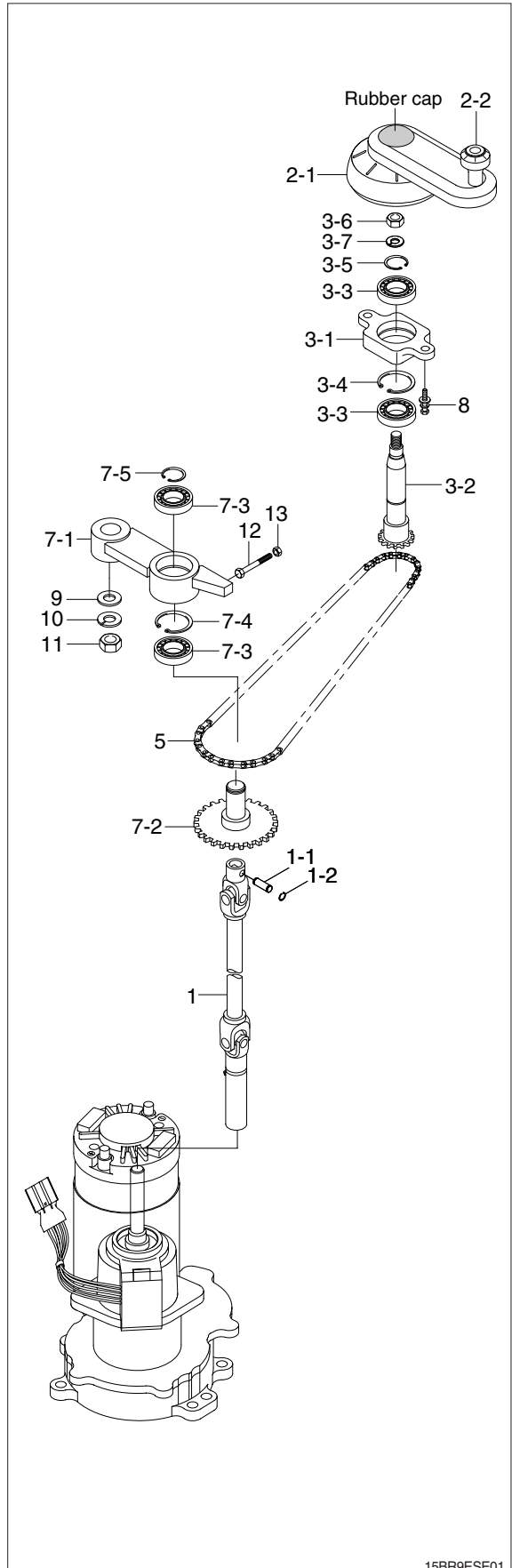
- 1) Standard tool
- 2) Universal puller
- 3) Vernier caliper

### 2. DISASSEMBLY

- 1) Remove the cap of steering wheel (2-1) and remove the hexagon nut (3-6) by means of box spanner.
- 2) Remove the steering wheel (2-1).
- 3) Loosen the nut (11) fixing the steering bracket (7-1).
  - Tightening torque (11) :  $16 \pm 2 \text{ kgf} \cdot \text{m}$   
( $116 \pm 4.5 \text{ lbf} \cdot \text{ft}$ )
- 4) Loosen the bolt (12) that extends chain.
- 5) Remove the bolt (8) fixing the steering wheel bracket (3-1).
  - Tightening torque (8) :  $7 \pm 0.7 \text{ kgf} \cdot \text{m}$   
( $50.6 \pm 5.1 \text{ lbf} \cdot \text{ft}$ )
- 6) Lift up the cover straighting up and remove the cover.
- 7) Remove the steering wheel bracket (3-1).
- 8) Take off the steering wheel shaft (3-2) after removing the snap ring (3-5).
- 9) Remove the steering bracket (7-1).
- 10) Take off the sprocket assy (7-2) after removing the snap ring (7-5, 1-2) and straight pin (1-1).
- 11) Remove the U-joint assy (1).

### 3. ASSEMBLY

Perform the disassembly in reverse order.



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#### 4. INSPECTION

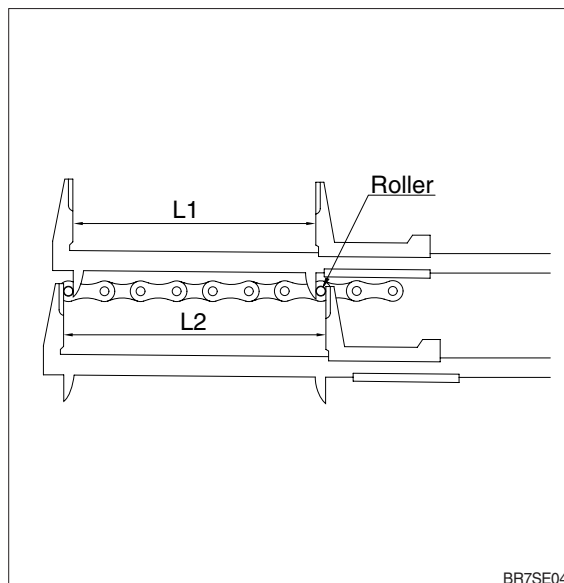
- 1) Inspect the steering chain for extension, cracks and damage and replace if defective.

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

Standard : L = 76.20 mm (3.00 in) (6Link)

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.



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#### 5. ADJUSTMENT

- Adjust the steering chain tension through the adjusting link so that the chain deflection will be 3-5 mm (0.12~0.20 in).
- Adjust the steering play to 25~80 mm (1.0~3.0 in).
- Adjust the steering wheel to close to operator's stand through fixing of spline in traveling.