



Service Manual

Chassis & Mast

EC15N, EC18N

A4EC1-10200-up

A4EC1-20200-up

EC20N, EC25N

A4EC2-10200-up

A4EC2-20200-up

EC25EN, EC25LN, EC30N

A4EC3-20200-up

A4EC3-30200-up

A4EC3-40200-up

Suggestions for Disassembly

1. Remove the bevel pinion shaft 6 as follows:

- (1) Using a chisel, cut the staked portion of the nut 4, taking care not to damage the bevel pinion shaft.
- (2) Hold the input gear 15 with the special tool to prevent the bevel pinion 6 from rotating, then remove the nut 4 and shims 5.

Special tool needed

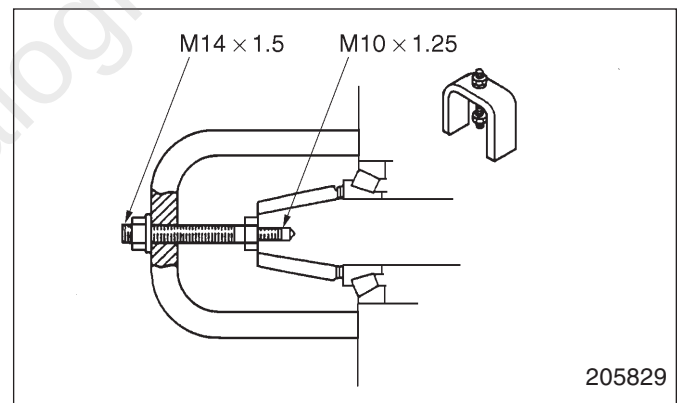
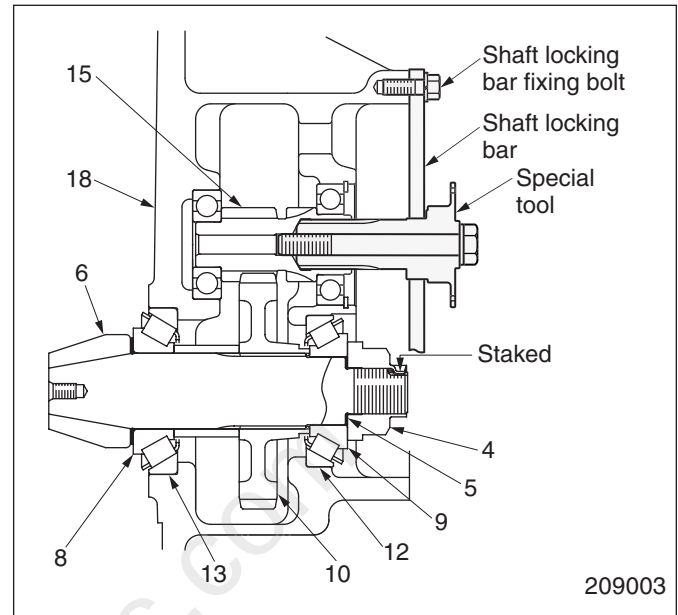
Transfer bearing tool	97E67-00100
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- (3) Using the bevel pinion puller (special tool), pull the bevel pinion 6 out of the bearing cone 9 (See the drawing on the right).

Special tool needed

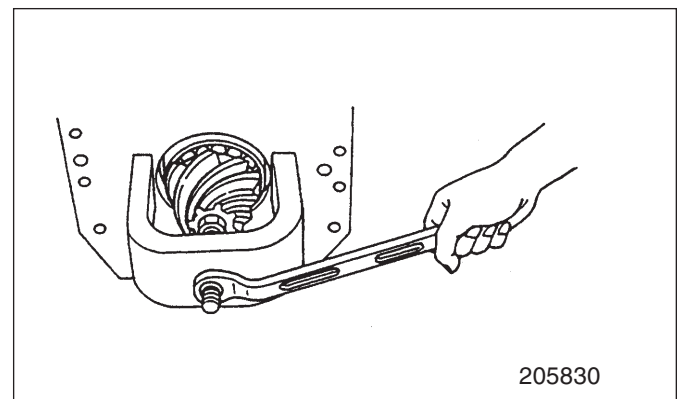
Bevel pinion puller	91268-00300
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- (4) If the bearing cone 8 needs to be removed, use a bearing puller and a press to pull it from the bevel pinion 6.
- (5) If the bearing cups 12 and 13 need to be removed, use a bearing cup puller to pull them out of the transfer case 18.



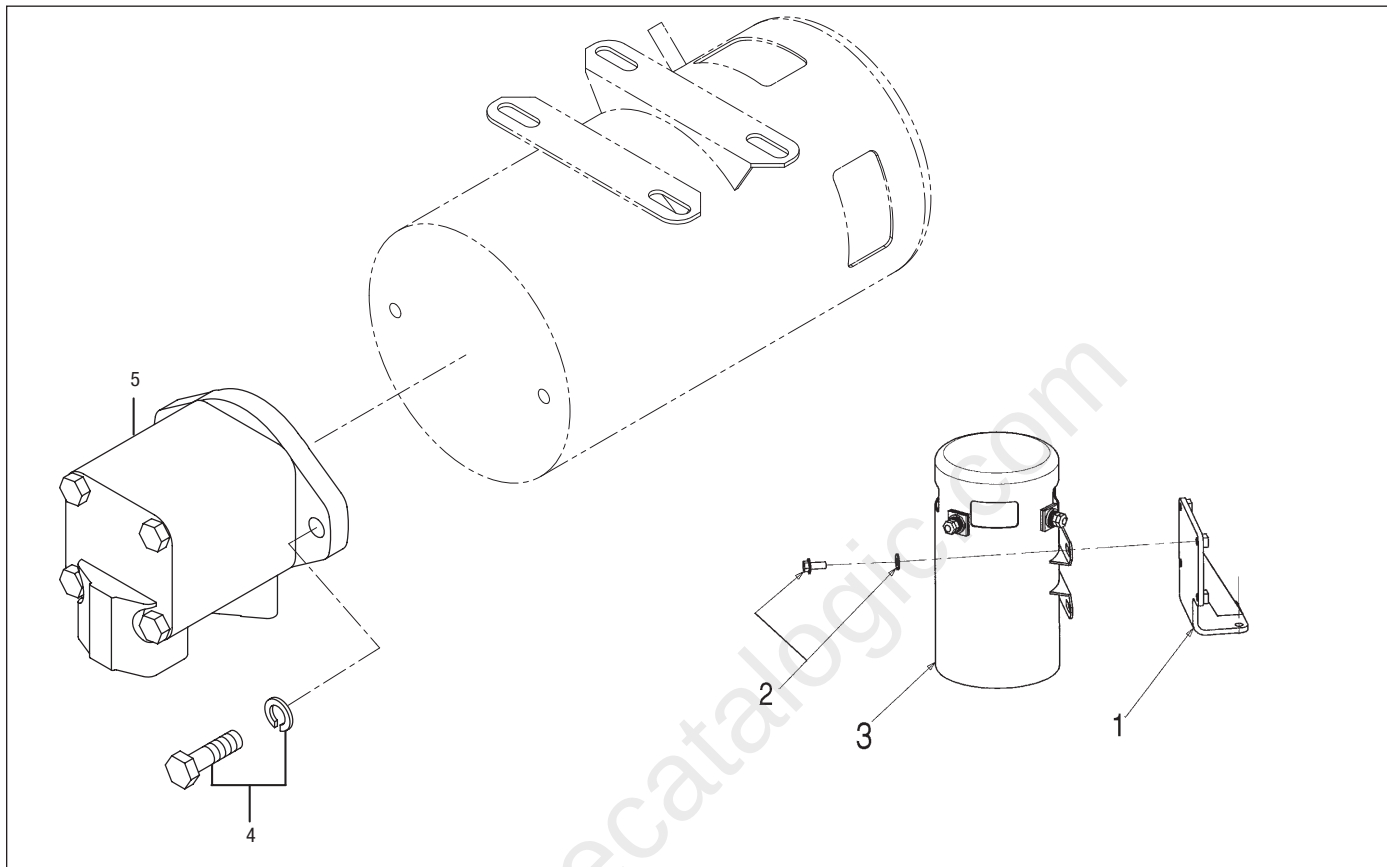
NOTE

- (1) The taper roller bearing cup and cone are an exclusive pair. If either the cup or cone of a pair is faulty, replace them as a set.
- (2) The removed shims should be kept together until they are reinstalled. (This only applies when the bevel pinion and/or taper roller bearing are/is reused.)
- (3) The bevel pinion and bevel gear are an exclusive pair. If either of them is defective, replace them as a set.



Steer Pump

Removal



Sequence

- | | | |
|----------------------------|---------------------------|---------|
| 1. Motor mounting bracket | 3. Motor | 5. Pump |
| 2. Motor mounting hardware | 4. Pump mounting hardware | |

Start By:

1. Remove the battery.
2. Remove the acid tray.
3. Disconnect the cables and wires from the steer pump motor. Mark the wire leads and cables so they can be correctly reconnected.
4. Disconnect the hydraulic lines from the pump.

Steering System

Complaint	Possible Cause		Remedy
Slow steering, hard steering or loss of steering	Worn or malfunctioning pump		Replace
	Malfunctioning relief valve		Readjust or replace
	Worn or malfunctioning steer gear		Replace
	Pipe or tube flattened, or restriction in an oil line		Clean or replace
Truck wanders	Air in system	Low level of oil	Fill as required
		Leaking joint	Tighten joint
		Pinched pipe or hose	Straighten or replace
	Worn steer gear		Replace
Steering slip	Worn steer gear		Replace
	Leakage of cylinder seals or at lines between steer gear and cylinder		Repair
Temporary hang-up in steering	Thermal shock—caused by actuation of hydraulic lift and tilt for long periods of time without actuation of steering system, creating more than a 28°C (50° F) temperature differential between the oil in the tank and the oil in the steer gear.		Correct operating procedure
Erratic steering	Air in system	Low level of oil	Fill as required
		Leaking joint	Tighten joint
		Pinched pipe or hose	Straighten or replace
	Thermal shock damage to steer gear		Replace
	Motor not operating at correct speed		Repair/replace
Spongy or soft steering	Air in system	Low level of oil	Fill as required
		Leaking joint	Tighten joint
		Pinched pipe or hose	Straighten or replace
		Air trapped in cylinder	Bleed air

Inspection after Disassembly

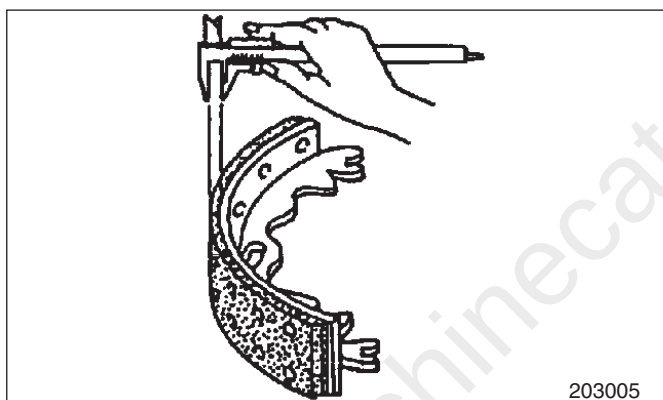
Backing Plate

1. Check the backing plate for cracks.
2. Tighten the backing plate mounting bolts to the specified torque.

Tightening torque for backing plate mounting bolts	16 kgf•m (116 lbf•ft) [157 N•m]
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Shoes and Linings

1. Check each shoe and lining for cracks.
2. Replace the lining if it is dirty, greasy, burnt, or glazed.
3. Check the thickness of the lining. Replace the lining if it exceeds the service limit.



		EC15N–EC18N	EC20N–EC30N
Lining thickness	A	4.87 (0.19)	6 (0.24)
	B	2.5 (0.10) maximum	3 (0.12) maximum

Unit: mm (in.)

A = Assembly standard B = Repair or service limit

Brake Drums

Check the inside (friction) surface of the drum for abnormal wear, grooving, and other defects. Minor grooving can be removed by grinding, provided that the service limit on the inside diameter is not exceeded.

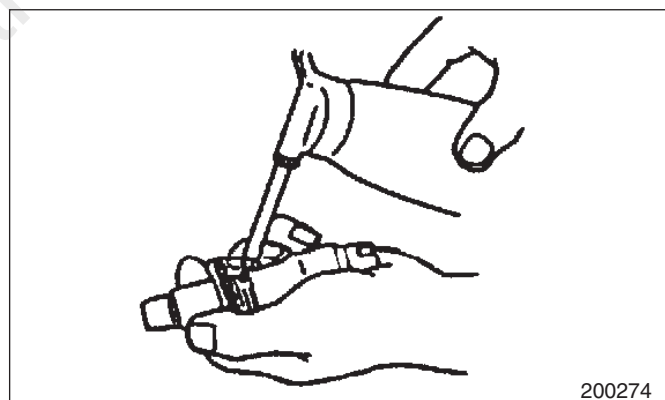
		EC15N–EC18N	EC20N–EC30N
Inside diameter of brake drum	A	$254 + {}^{0.13}_0$ ($10.0 + {}^{0.0051}_0$)	$310 + {}^{0.15}_0$ ($12.2 + {}^{0.0059}_0$)
	B	256 (10.08)	312 (12.28)

Unit: mm (in.)

A = Assembly standard B = Repair or service limit

Adjusting Screws

Check the wheel teeth for wear. Turn the screw by hand to ensure its rotating parts turn freely.



Parking Brake Cable

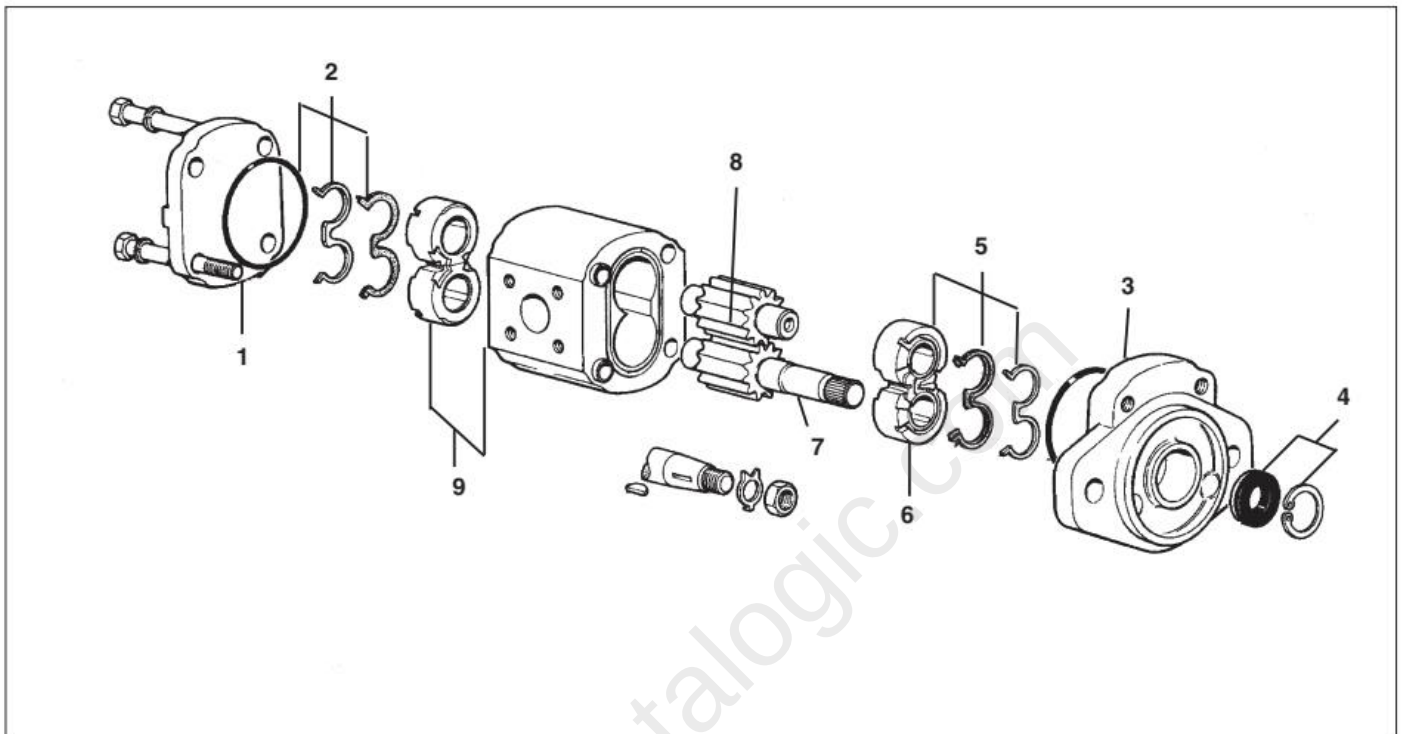
Replace a cable if it is permanently stretched, rusted, or damaged.

Other:

1. Check the return springs for cracks or fatigue.
2. Check the adjusting springs for cracks or fatigue.
3. Check the fitting cables for stretching.

Reassembly

Trucks with Standard Hydraulic Pump



Sequence

- | | | |
|--|--|-------------------------|
| 1. End cover | 4. Shaft seal and retainer ring | 7. Drive shaft |
| 2. O-ring, bush seal, and back-up seal | 5. O-ring, bush seal, and back-up seal | 8. Gear pack |
| 3. Flange | 6. Front bushes | 9. Body and rear bushes |

Start By:

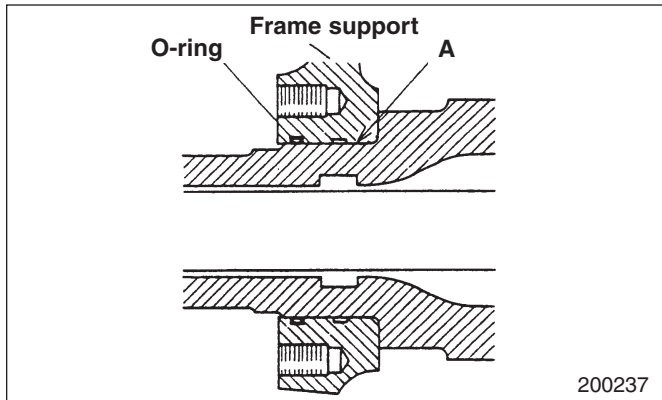
Ensure that all parts are perfectly clean. Lubricate the bushes and gears with clean hydraulic fluid. Ensure that the O-ring recess and end faces of the body remain dry. This will assist the assembly of the components with the body bores.

Reassembly

To reassemble, reverse the steps of the disassembly sequence and do the following steps.

Axle Housing

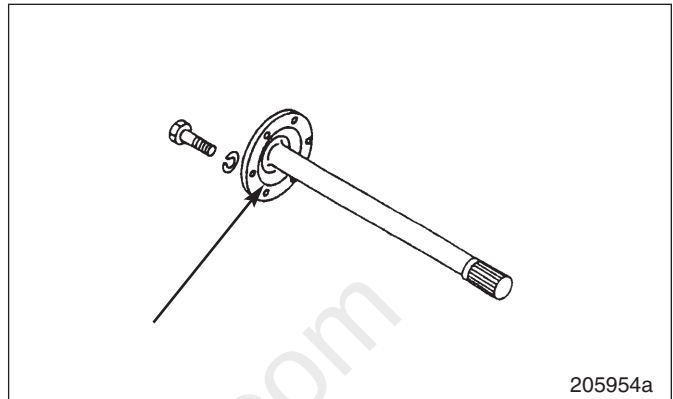
1. Install the O-ring in the outer groove (of the two grooves in the bore of each frame support).
2. Apply grease to the surfaces A of the support and axle housing.



Check for excessive movement between frame support and axle housing.

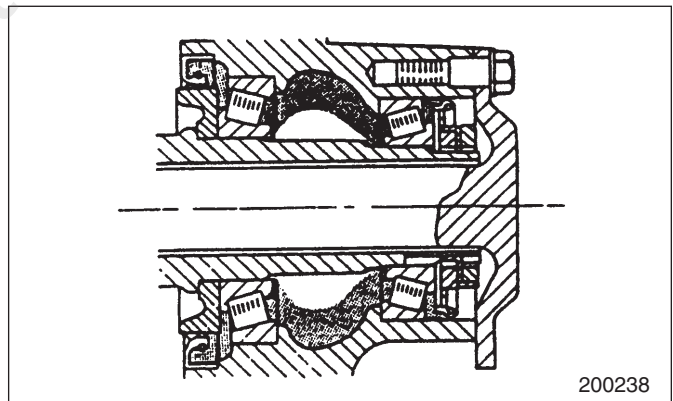
Front Wheel Hub

1. Fill the front wheel hub, especially the roller holder and oil seal lip groove, with grease.
Pack both bearings with grease.



NOTE

Be careful not to apply grease to the brake drum.



Full Version Available

Caterpillar EC25N Forklift Service Manual (99759-6K110)

Caterpillar EC25N Forklift service manual, covers hydraulics, mast, drive unit, wiring, and diagnostics in PDF. Instant PDF download.

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