

Service Manual

EP16, EP18, EP20, EP25, EP30

Chassis with MicroCommand II™ Controller

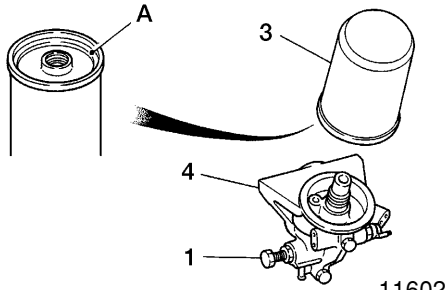
For 36/48V Trucks

EP16 & EP18	E1EP1-60001 & up
EP20 & EP25	E1EP2-60001 & up
EP30	E1EP3-60001 & up

For 72/80V Trucks

EP16 & EP18	E1EP1-80001 & up
EP20 & EP25	E1EP2-80001 & up
EP30	E1EP3-80001 & up

<Upward-facing type>



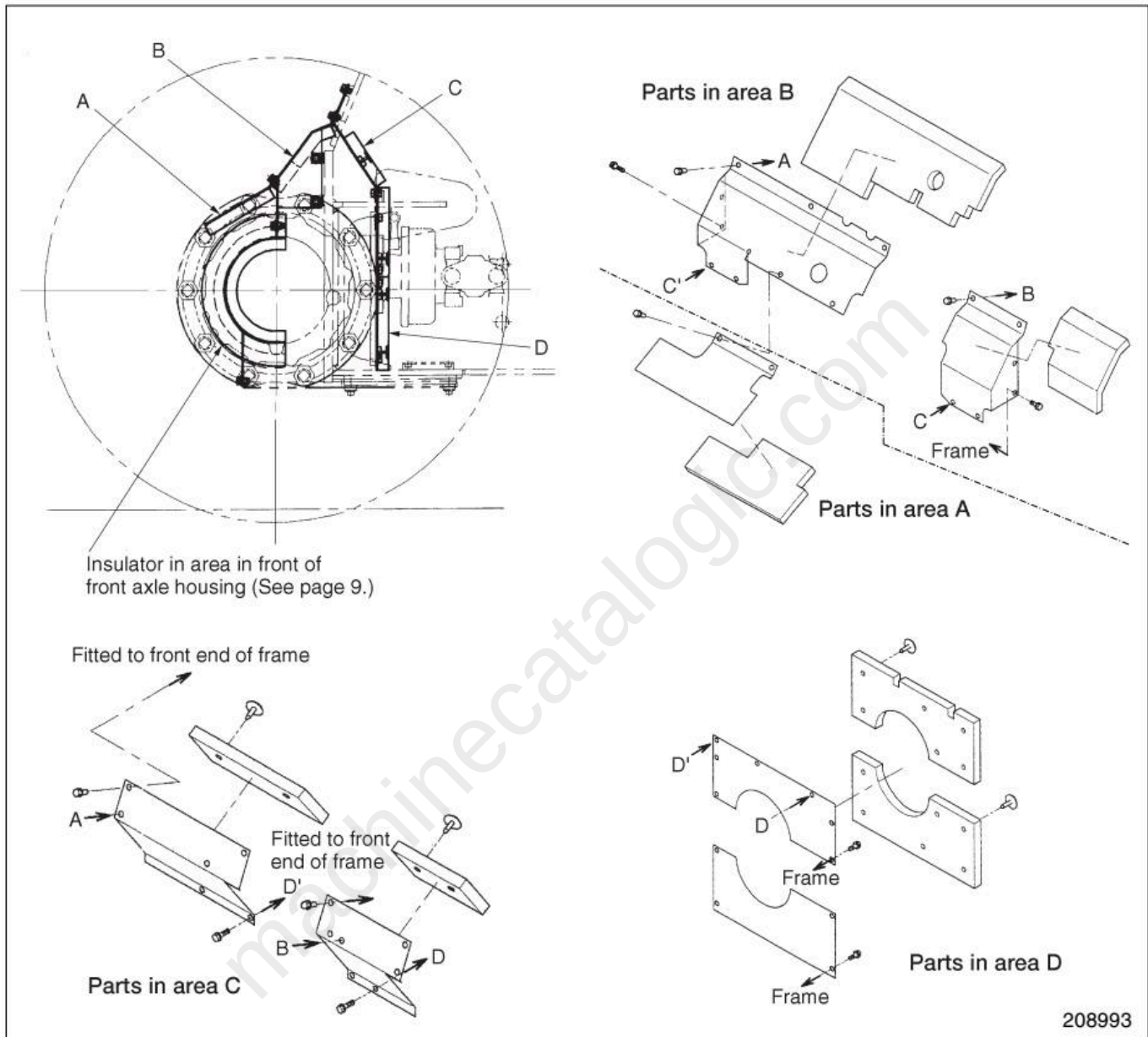
[Installation]

- Clean the surface on oil filter head 4 that makes contact with oil filter 3.
- Apply a film of engine oil to gasket area A of filter 3.
- Screw oil filter 3 into oil filter head 4 until gasket area A touches the oil filter head.
- Tighten filter 3 by a further $1 \frac{1}{8}$ to $1 \frac{3}{8}$ of a turn.
- Fit oil filter drain valve 1.
- Start the engine and check that no oil leaks from gasket area A.
- Check the engine oil level and add oil if necessary.

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5. Insulating the front area of the engine-transmission compartment

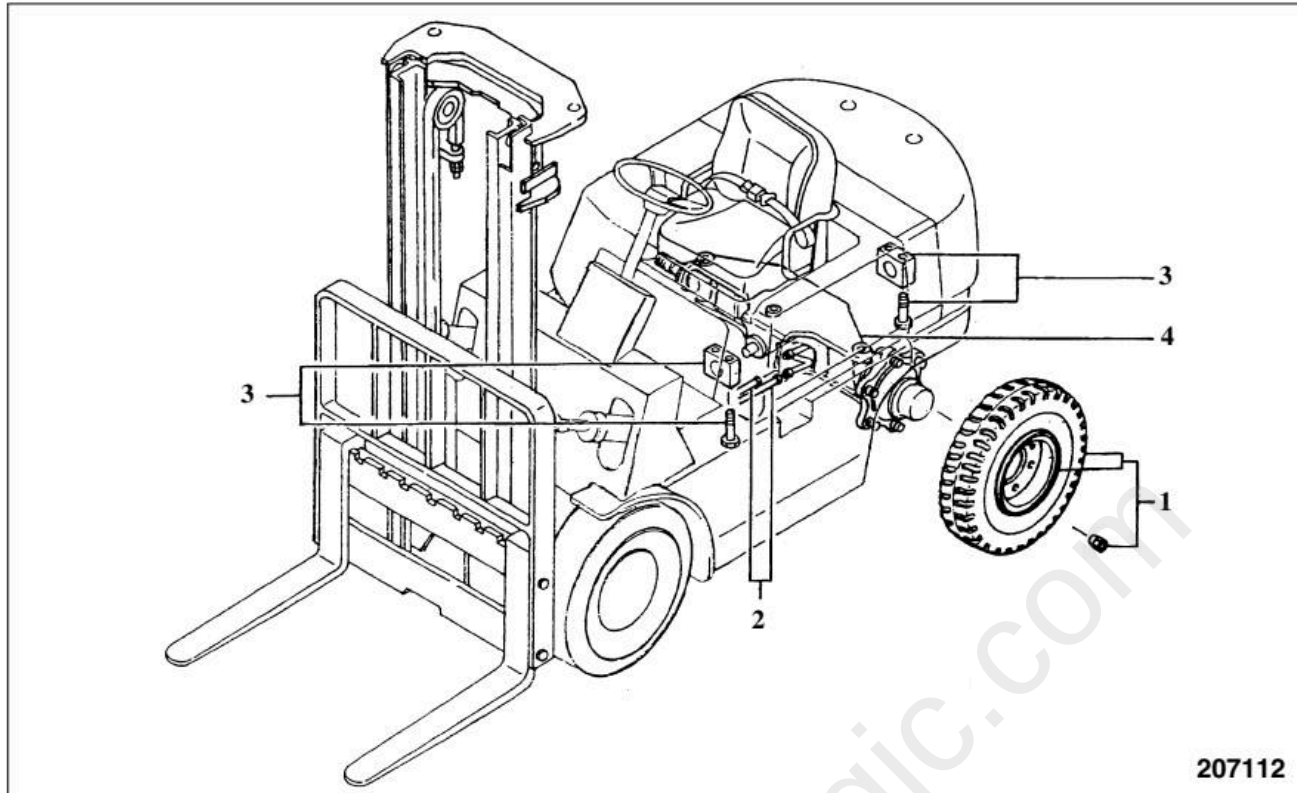
- (1) To effectively confine engine and transmission noise, the front area of the engine-transmission compartment (the rear area of the front axle housing) and the area above the front axle housing are closed with insulator.



REAR AXLE

Rear Axle

Removal



Sequence

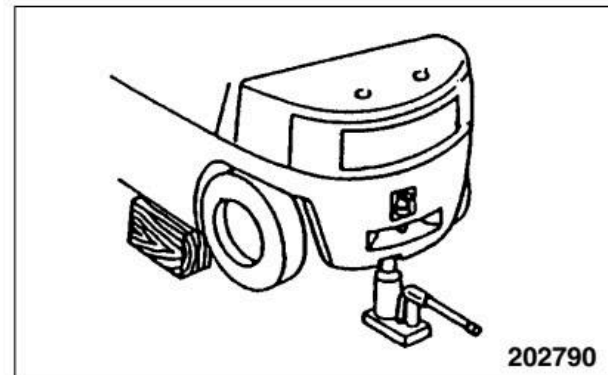
- | | |
|-------------------------|--------------------------------------|
| 1 Rear wheel, wheel nut | 3 Bearing support |
| 2 Steering hose | 4 Rear axle assembly [thrust washer] |

Start by:

1. Apply the parking brake and block the front wheel.
2. Raise the rear end of the truck with a jack and place wood blocks under the side frames (with the left and right rear wheels slightly clearing the floor).
3. A hoist can be used instead of the jack to raise the rear end (counterweight).

⚠ WARNING

Be sure the pressure in the hydraulic system is released before any lines or hoses are disconnected.

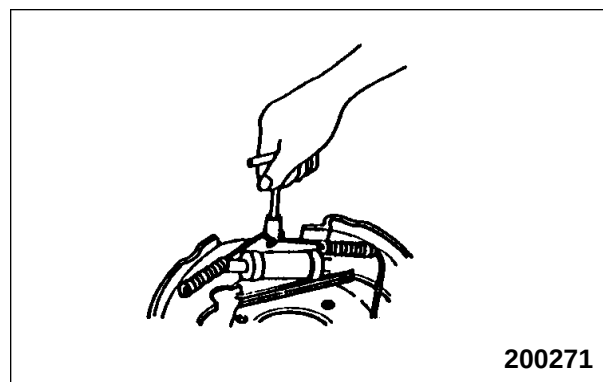


Suggestions**1. Removing return springs**

Use a special tool to remove the return springs.

Special tool needed

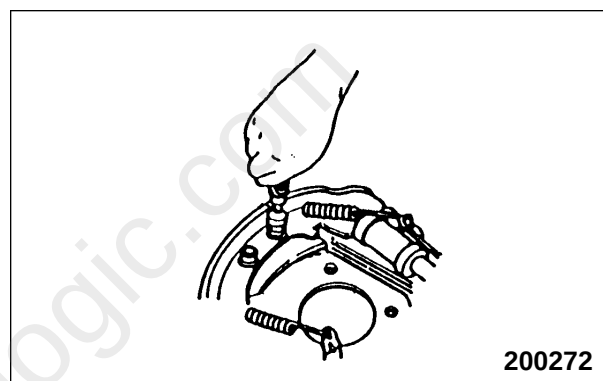
Spring remover	64309-15411
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**2. Hold-down springs removal**

Use a special tool to remove the hold-down springs.

Special tool needed

Spring retainer	64309-15412
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**Inspection after Disassembly****1. 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	157 N·m (16 kgf·m) [116 lbf·ft]
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2. Shoes and linings

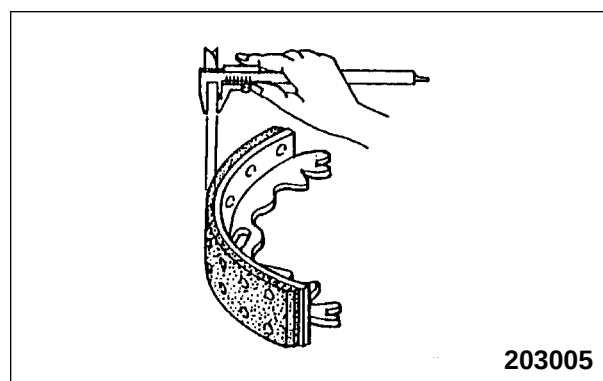
- (1) Check each shoe and lining for cracks.
- (2) Replace the lining if it is fouled with grease matter, burnt or glazed.
- (3) Check the thickness of the lining, and replace the lining if it is worn to the service limit.

A = Assembly standard

B = Repair or service limit

Unit: mm (in.)

		1 to 1.8 ton models	2 to 3.5 ton models
Thickness of linings	A	4.87 (0.19)	6 (0.24)
	B	2.5 (0.10) maximum	3 (0.12) maximum



Indication: “60” display. Vehicle (drive and pump motors) operate.

(1) Situation

Indication: “60” display. Vehicle operates.

(2) Cause

Faulty display, faulty wiring, faulty logic card.

(3) Inspection

Disconnect battery plug. Check continuity between display CN4-149W (white) and logic card CN3-59W (white), and between CN4-150B (black) and CN3-61B (black).

Continuity

No continuity

(4) Inspect display.

Acceptable

Unacceptable

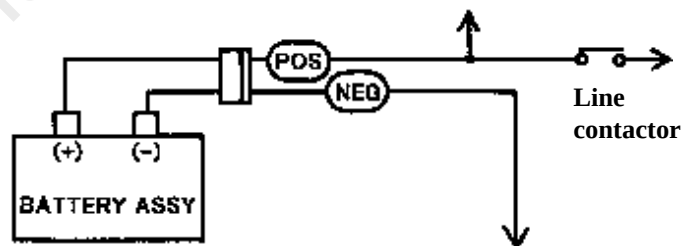
(5) Replace logic card.

(6) Replace display.

(7) Correct or replace wiring.

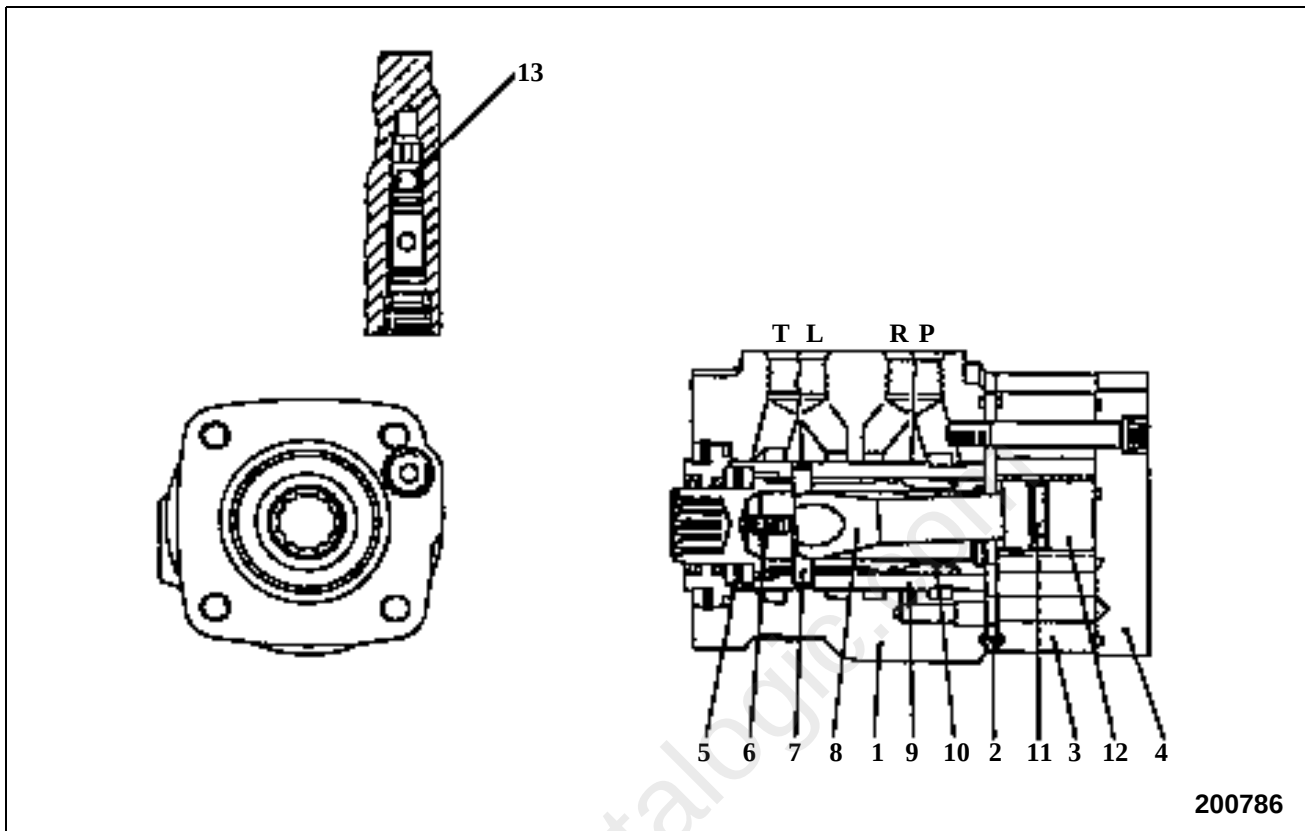
Problem: EEPROM, Abnormality

Indication: “61” display. Vehicle operation disabled.



207727

Steering Control Valve



1 Long housing

2 Spacer plate

3 "Gerotor" set

4 End cap

5 Thrust needle

6 Centering spring

7 Pin

8 Drive shaft

9 Control sleeve

10 Control spool

11 Spacer

12 Spacer

13 Check valve

P Pump port

T Tank port

L Cylinder port (left)

R Cylinder port (right)

Troubleshooting

Gear noise comes out continuously during traveling	- Reduction bevel gear teeth badly worn - Bearing preload too much or too little, or bearings worn excessively - Hub bearings damaged - Improper tooth contact between reduction bevel pinion and reduction gear	— Replace. — Readjust or replace. — Replace. — Readjust.
Irregular noise comes out during traveling	- Reduction taper roller bearings or hub bearings broken - Differential gears having broken teeth, or thrust washers worn - Foreign substance in axle housing - Bolts securing axle shaft or differential carrier	— Replace. — Replace gears or washers. — Clean and replace oil. — Retighten.
Abnormal noise comes out when turning a corner	- Fit of differential gears in differential case out of specification due to wear - Differential gear teeth broken or seized on spider, or damaged by wear gear or pinions.	— Replace worn parts. — Replace defective parts.
Overheated reduction case after traveling	- Bearings damage due to excessive preload - Backlash between reduction bevel pinion (on output shaft) and reduction bevel gear too small	— Replace bearings and readjust preload. — Readjust tooth contact and backlash.

Full Version Available

Caterpillar N Range Forklift Service Manual (SENB8637)

Caterpillar N Range Forklift service manual, covers hydraulics, mast, drive systems, wiring, and service data. Instant PDF download.

VIEW THE FULL MANUAL

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