



Service Manual

MC/FC

Chassis, Mast & Options

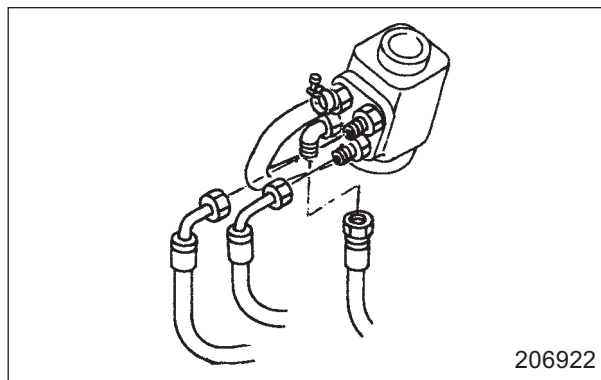
EP16N **ETB15-20011-up**

EP18N **ETB15-70001-up**

EP20CN **ETB17-20011-up**

5. Removing steering hoses

Disconnect the steering hoses and pipes at the connectors.

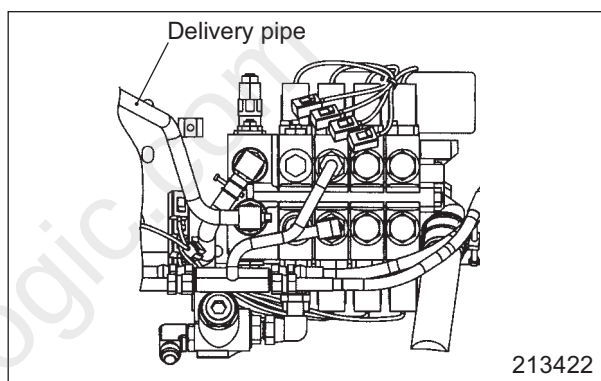


6. Removing delivery pipe and drive motor harness

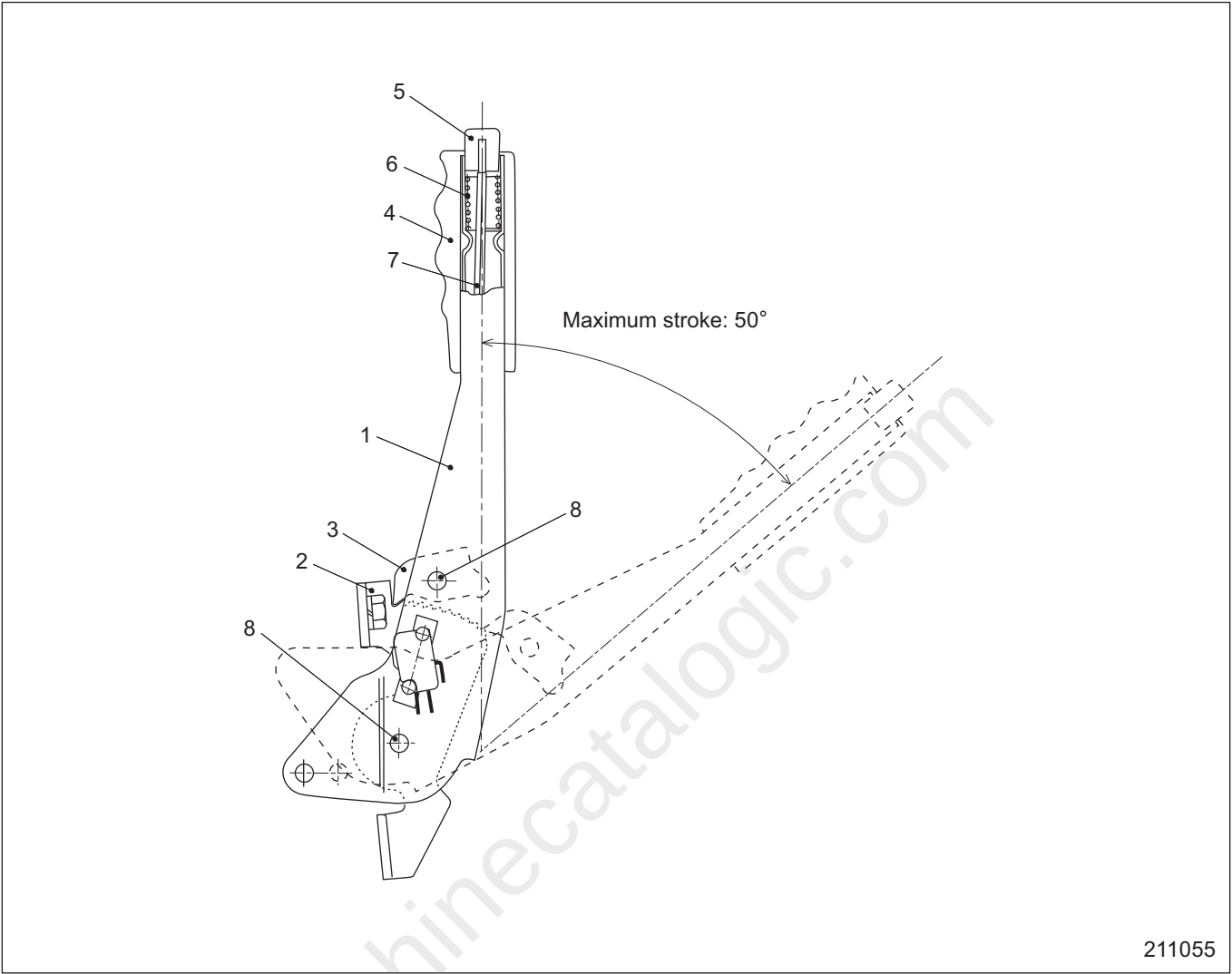
- (1) Remove the drive motor harness at the connector.

Disconnect the harnesses of the thermal and speed sensors located on the right and left sides.

- (2) The harnesses are secured to the delivery pipe with clamps. Loosen the clamps, and remove the delivery pipe.



Parking Brake Lever



- 1 Lever body
- 2 Gear
- 3 Pawl
- 4 Grip

- 5 Stopper
- 6 Spring
- 7 Hook
- 8 Pin

The parking brake lever is mounted on the left side of the dashboard.

When the grip is pulled, the parking brake cable moves the pad assembly of the caliper to clamp the brake disc and apply stopping force.

Pawl 3 engages with gear 2 to retain the lever in position. To release the parking brake, pull the grip and press stopper 5. This disengages the gear from the pawl, and the lever returns to the original position.

The maximum lever stroke is 50 degrees. There are a total of 10 gear teeth. Adjust the parking brake so that the brake activates and applies force when the third or fourth tooth of gear 2 engages with the pawl.

Unit: N (kgf) [lbf]

Grip operating effort	343 (35) [77]
-----------------------	---------------

Preparation

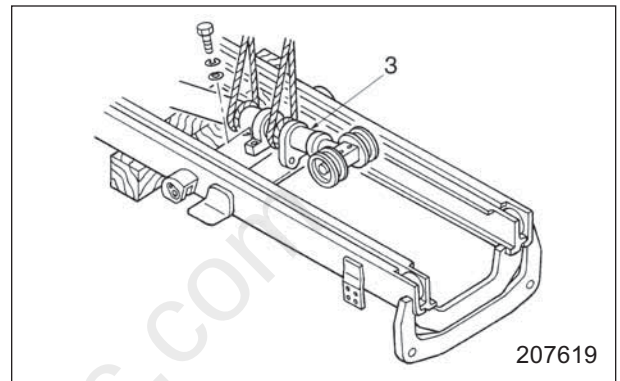
With the lift bracket side facing up, place the mast horizontally on wood blocks. Use a wood block as a wedge to prevent the inner mast from sliding.

Suggestions for Disassembly

1. Removing first lift cylinder 3

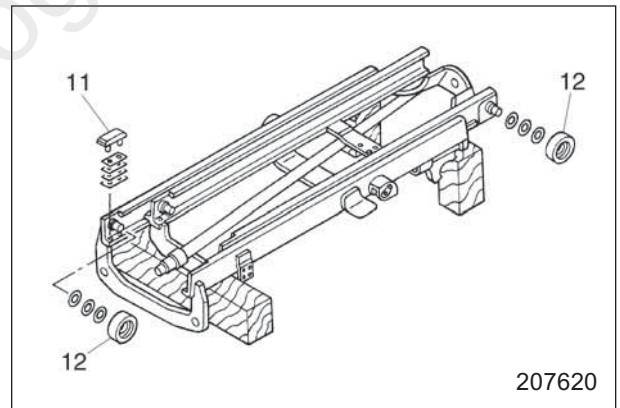
- (1) Remove retaining bolts from the first lift cylinder.
- (2) Hitch slings on first lift cylinder 3, and gently remove the cylinder.

Use two slings. Wind or tie slings securely to prevent from slipping.



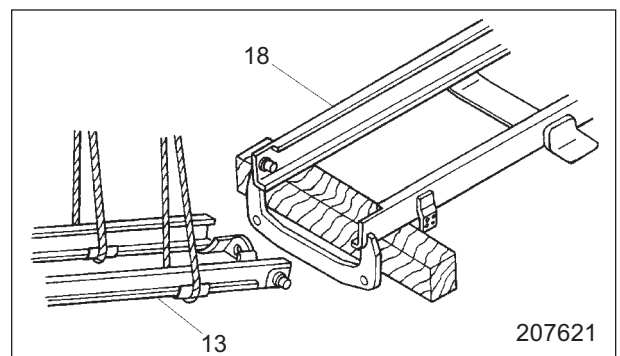
2. Removing main rollers 12 and mast strips 11

- (1) Remove clamp bolts from the second lift cylinders.
- (2) Remove bolts from the upper rod sections of the second lift cylinders, and place the cylinders on the outer mast.
- (3) Check the number of shims and the shim thickness at the rod end sections.
- (4) Lower the inner mast, then remove main rollers 12, mast strips and shims 11.



3. Removing inner mast 13

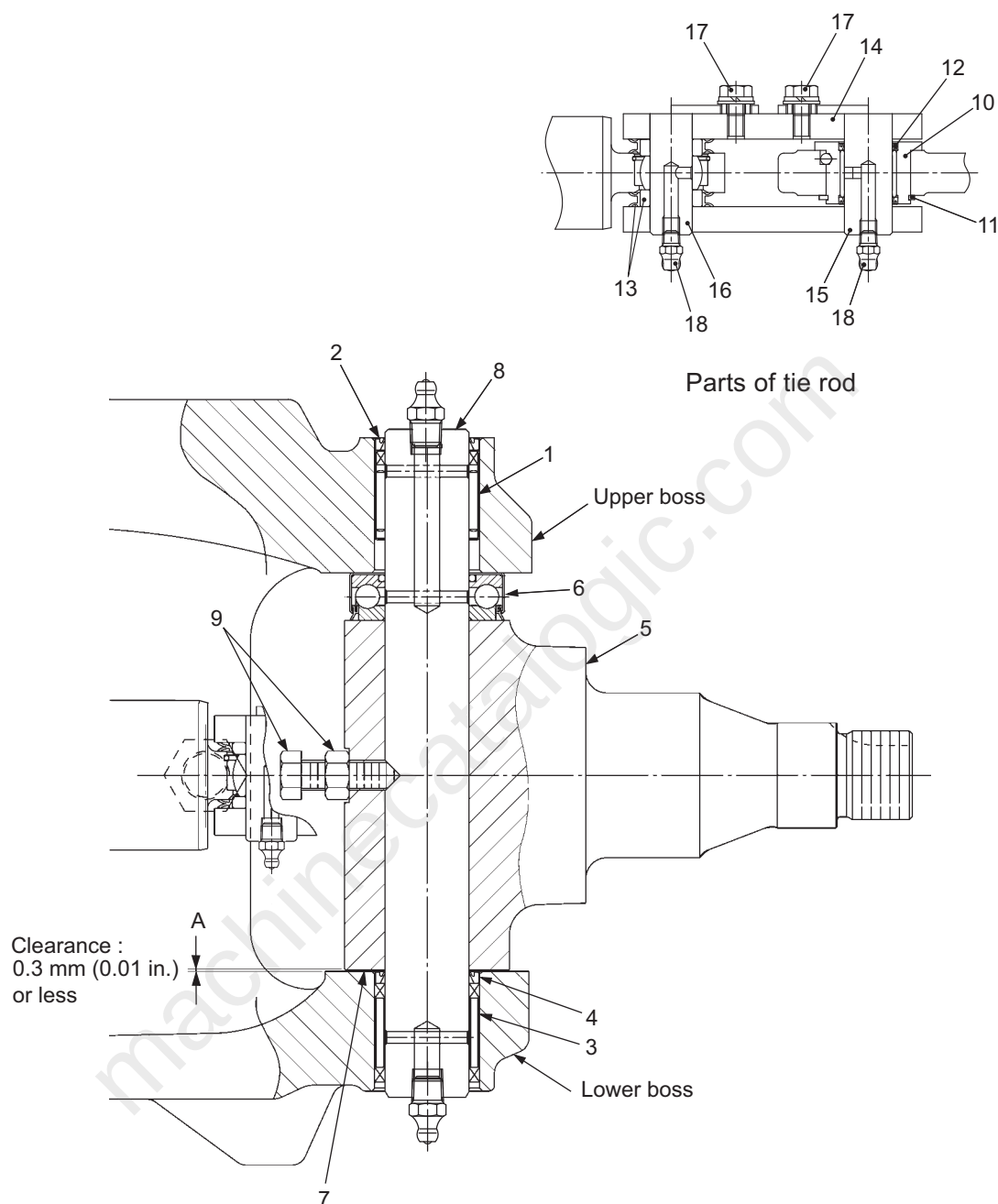
Using slings, lift and remove inner mast 13, steering it to pass over the roller shaft sections of outer mast 18.



Inspection after Disassembly

Follow the inspection procedure described in the dual-stage panoramic mast (simplex mast).

2. Assembling Knuckle and Kingpin



211275

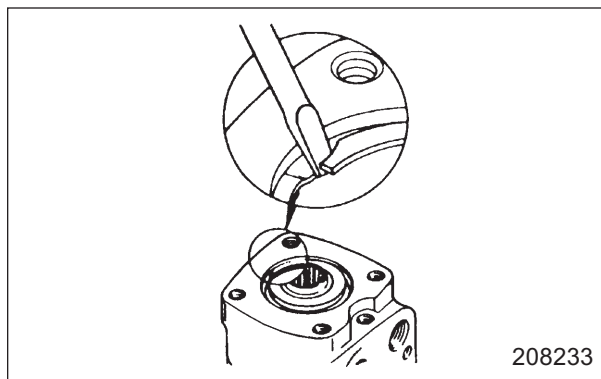
Sequence

- | | | |
|--|--------------------------|---|
| 1 Needle bearing
Length: 30 mm (1.18 in.) | 7 Shim | 15 Pin (knuckle side) |
| 2 Oil seal | 8 Kingpin | 16 Pin (cylinder side) |
| 3 Needle bearing
Length: 33 mm (1.3 in.) | 9 Stopper bolt, Lock nut | 17 Spacer, Plain washer, Lock
washer, Bolt |
| 4 Oil seal | 10 Tie rod bushing | 18 Grease nipple |
| 5 Knuckle | 11 Snap ring | |
| 6 Thrust bearing | 12 Oil seal | |
| | 13 Retainer, Dust seal | |
| | 14 Tie rod | |

Suggestions for Disassembly

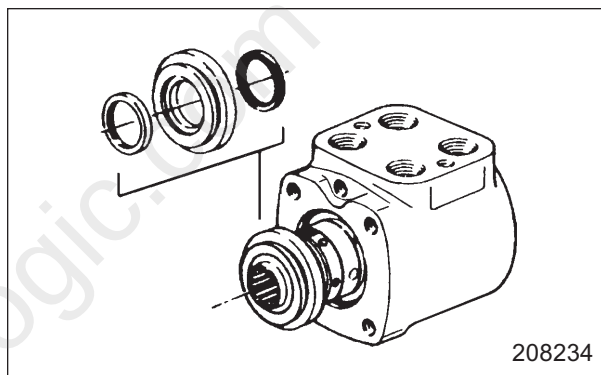
(1) Retaining ring removal

Remove the ring from the housing by prying the end of the ring out of the groove. Do not damage the machined surface.



(2) Seal gland bushing removal

Position the control spool and control sleeve assembly so that the pin is even with the center of the assembly. Remove the bushing.

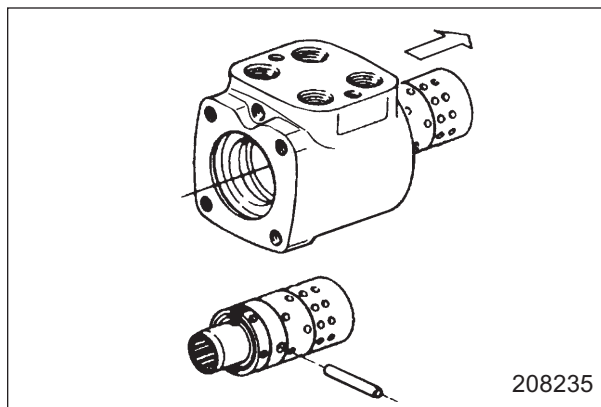


(3) Control spool and sleeve removal

Remove the control spool and sleeve assembly from the housing by pulling it toward the end of the housing opposite to the flange. Remove the pin from the assembly.

NOTE

To prevent damage to the housing, slowly pull out the assembly while twisting.

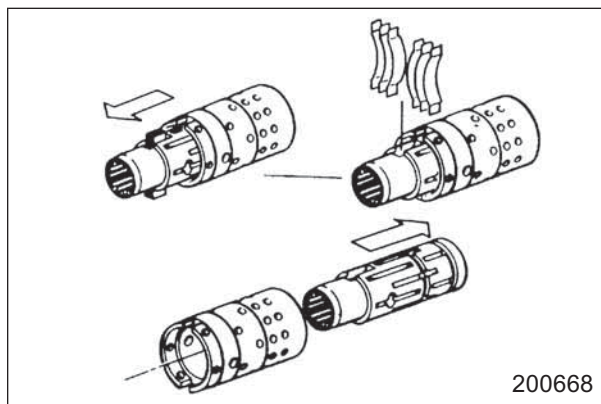


(4) Control spool and sleeve disassembly

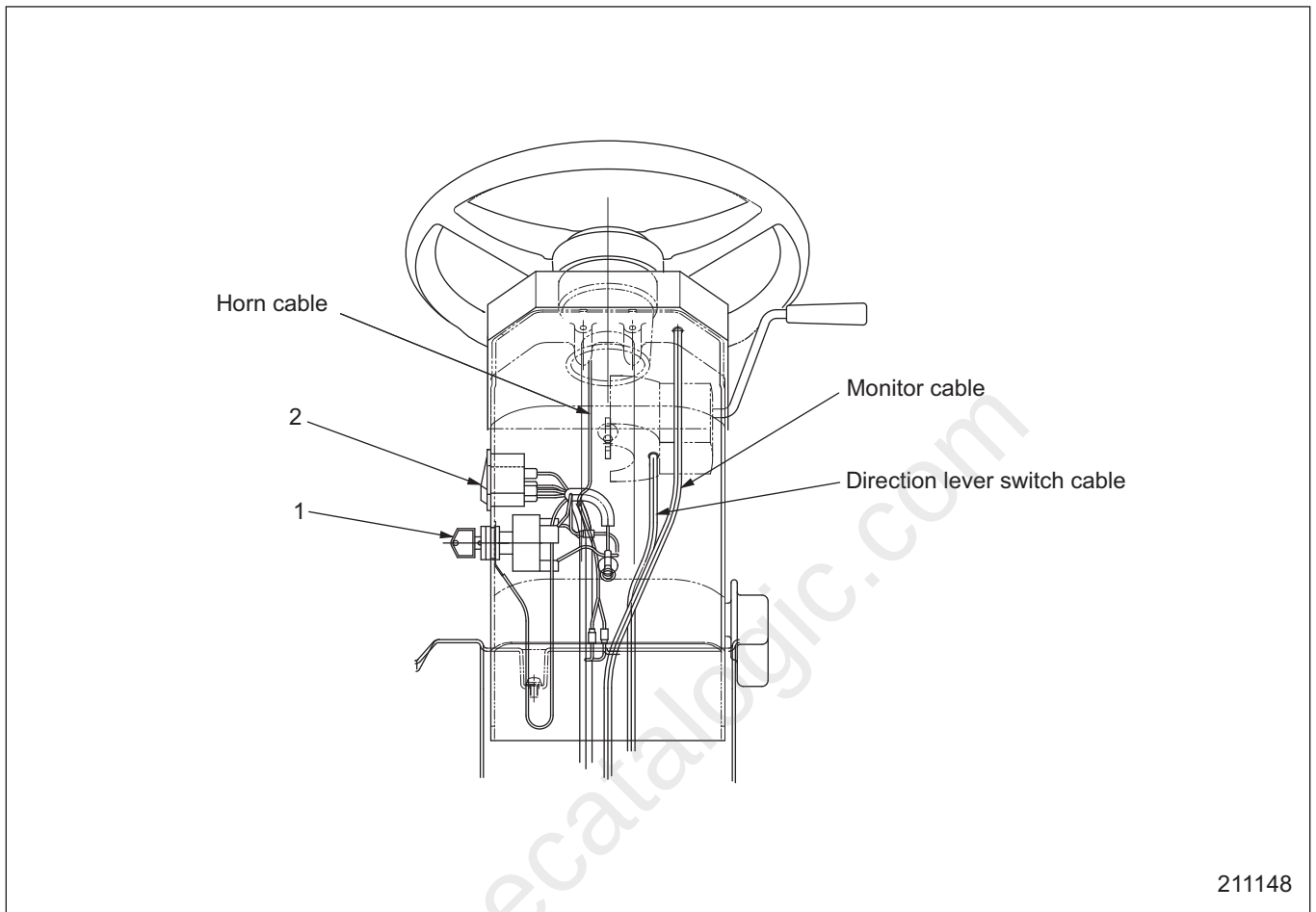
NOTE

Before removing the spool from the sleeve, put a mark across the spool and sleeve so that the spool can be installed in the same position.

Pull the control spool away from the sleeve just enough to permit removal of the centering springs. Remove the spool from the sleeve by pulling it toward the rear of the sleeve while turning slowly.



Electrical Components in Console Box



- 1 Key switch
- 2 Lighting switch

Inspection/Maintenance Location and Item		Pre-operation Inspection	Periodic Inspection Interval			Remarks Service Standard
			Every 3 Months or 500 Hours	Every 6 Months or 1000 Hours	Every 12 Months or 2000 Hours	
Safety devices and others						
Head guard and backrest	Mounting looseness	☐	☐	☐	☐	
	Deformation, cracking and damage	☐	☐	☐	☐	
Safety devices	Turn signal operation and mounting condition	☐	☐	☐	☐	
	Alarm device operation and mounting condition	☐	☐	☐	☐	
	Lamp operation and mounting condition	☐	☐	☐	☐	
	Backup warning device operation and mounting condition	☐	☐	☐	☐	
	Rear-view mirror dirtiness and damage	☐	☐	☐	☐	
	Rear-view mirror image and condition	☐	☐	☐	☐	
	Proper function of seat belt and hip restraint	☐	☐	☐	☐	
Instruments	Instrument operations	☐	☐	☐	☐	
Seat	Looseness and damage	☐	☐	☐	☐	
Vehicle body	Damage and cracking in frame and cross-members				☐	
Oil and grease replacement	Inspection of chassis lubricating conditions after cleaning		☐	☐	☐	
	Confirmation of oil replacement intervals		☐	☐	☐	

Full Version Available

Caterpillar EP20CN Forklift Service Manual (99759-67110)

Caterpillar EP20CN Forklift service manual, covers drive unit, hydraulics, wiring, and repairs. Searchable PDF download.

VIEW THE FULL MANUAL

<https://machinecatalogic.com/caterpillar-ep20cn-forklift-service-manual-99759-67110/>