



Service Manual

Chassis & Mast

MC/FC

FD40N	CF12C-00011-up
FD45N	CF19E-50001-up
FD50CN	CF19E-80001-up
FD50N	CF28D-50001-up
FD55N	CF28D-80001-up

FG40N	CF40A-00011-up
FG45N	CF29E-50001-up
FG50CN	CF29E-80001-up
FG50N	CF33D-50001-up
FG55N	CF33D-80001-up

6. Seat Belt Warning Lamp

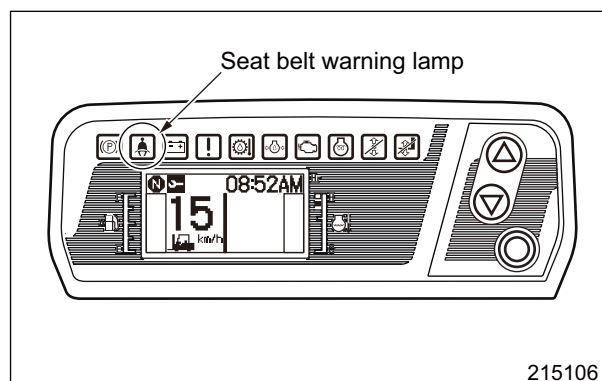
6.1 Function

Seat belt warning lamp

This lamp glows when the seat belt is not worn or not buckled properly.

•Controller function

The controller sends a warning signal to the instrument panel if the seat belt is not fastened.



6.2 Seat Belt Warning Lamp Checking Procedure

- (1) Connect the service tool to the VCM-4 controller.
- (2) Turn the key switch to the ON position and start the engine.
- (3) Display the input monitor screen of the service tool.
- (4) Make sure that the seat switch status is ON on the input monitor screen when the seat belt is not worn or not buckled properly. (Fig. 3-1)
Also check that the seat belt warning lamp glows on the instrument panel. (Fig. 3-3)

The screenshot shows a window titled 'Input Monitor' with a table of sensor data. An arrow points to the 'Seat Switch' row, which shows a value of 'ON'. The 'Seatbelt Switch' row shows a value of 'OFF'. The table lists various switches and joystick signals with their normal ranges and current values.

Item	Normal Range	Value
Seat Switch	* - *	ON
Seatbelt Switch	* - *	OFF
Accel Switch	* - *	ON
Park brake Switch	* - *	ON
Direction lever F	* - *	OFF
Direction lever N	* - *	ON
Direction lever R	* - *	OFF
FNR lever	* - *	Neutral
Joystick (Lift lever 1) signal [%]	-100 - 100	0
Joystick (Lift lever 1) status	* - *	Normal
Joystick (Lift lever 2) signal [%]	-100 - 100	0
Joystick (Lift lever 2) status	* - *	Normal
Joystick (Tilt lever 1) signal [%]	-100 - 100	0
Joystick (Tilt lever 1) status	* - *	Normal
Joystick (Tilt lever 2) signal [%]	-100 - 100	0
Joystick (Tilt lever 2) status	* - *	Normal
Joystick (ATT1 lever 1) signal [%]	-100 - 100	0
Joystick (ATT1 lever 1) status	* - *	Normal
Joystick (ATT1 lever 2) signal [%]	-100 - 100	0
Joystick (ATT1 lever 2) status	* - *	Normal
Joystick (ATT2 lever 1) signal [%]	-100 - 100	0
Joystick (ATT2 lever 1) status	* - *	Normal
Joystick (ATT2 lever 2) signal [%]	-100 - 100	0

Fig. 3-1 Input monitor screen

3. Disassembly and Reassembly

3.1 Disassembly and Reassembly of Wheel Hub

Disassembly sequence

- 1 Hub cap
- 2 Lock nut (hexagon nut)
- 3 Lock plate
- 4 Lock nut (hexagon nut)
- 5 Bearing cone
- 6 Hub (with bearing cup)
- 7 Bearing cone
- 8 Oil seal
- 9 Bearing cup
- 10 Bearing cup

Suggestions for Disassembly

- (1) Remove rear wheels beforehand.
- (2) Check the hub for looseness. If there is looseness, the bearing may be worn.
- (3) If the bearing is not damaged, it is not necessary to remove it.
- (4) The cup and the cone of the bearing make a pair. When replacing, replace them as a set.
- (5) When removing the oil seal 8, replace it with a new one. Do not reuse it.
- (6) Use a special service tool to remove the bearing.

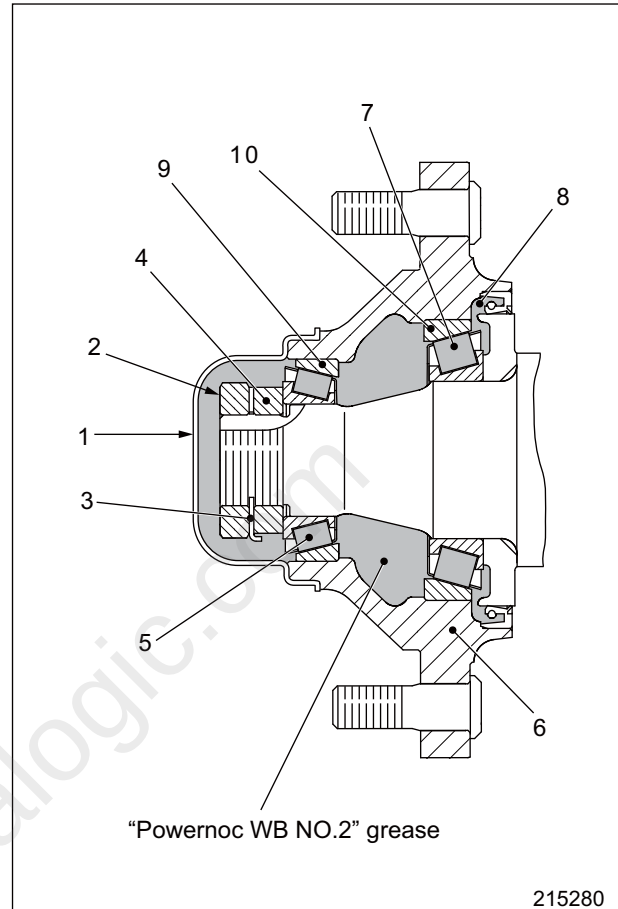
Inspections after Disassembly

- (1) Bearing
Replace the bearing if damage, seizure, peel, rotation failure or unusual noise is found.
- (2) Hub
Replace the hub if cracks are detected by dye check.
- (3) Oil seal
Replace the damaged or worn oil seal with a new one.

Suggestions for Reassembly

For reassembly, follow the disassembly sequence in reverse, while observing the instructions below.

- (1) Fill "Powernoc WB No.2" grease or an equivalent wheel bearing grease into the shaded area as shown in the illustration on the right. Make sure that sufficient grease is applied to the roller retainer. Also, apply grease to the oil seal lip groove.
- (2) Adjust the bearing. Refer to "Adjusting procedure of wheel bearing reassembly" on the next page.
- (3) Before installation, fill the inside of the hub cup 1 with grease, then install the hub cup 1 to the wheel hub.



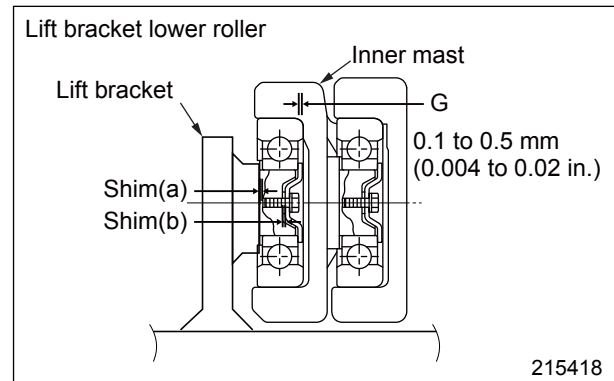
(3) Adjusting clearance G between the lower rollers and the inner mast

- Measure clearance G between the lower rollers and the inner mast. If the measured clearance G does not meet the standard value, adjust clearance G by referring to the following steps.

Note: For clearance measurement, refer to "14.4 Adjusting Clearance between Lift Bracket Roller and Inner Mast."

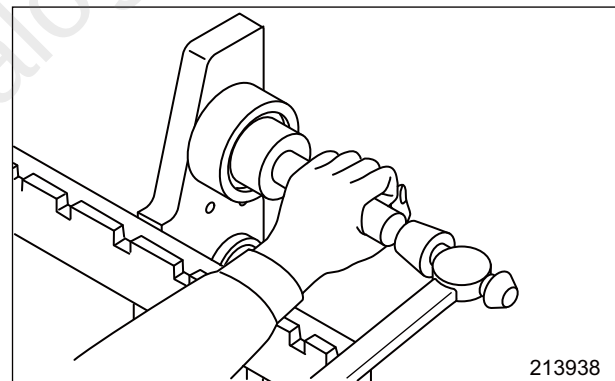
♦ Adjustment steps

- 1) If clearance G is large, increase the number of shims (a) as required.
- 2) Adjust the number of shims (b) so that the shims (b) thickness equals that of shim (a).
- 3) Shims (a) are available in two thicknesses: 0.5 and 1 mm (0.02 and 0.04 in.) and shims (b) are available in only 1 mm (0.04 in.) thicknesses.
- 4) If a shim with a thickness of 0.5 mm (0.02 in.) is added to shim (a) thickness adjustment using shim (b) is unnecessary.



(4) Installing Main Rollers

To install main rollers on shafts, use a driving tool, and be careful not to strike the outer roller surface with the driving tool. The side of the roller with larger chamfering must face toward the outside. Make sure the rollers rotate smoothly when installed.



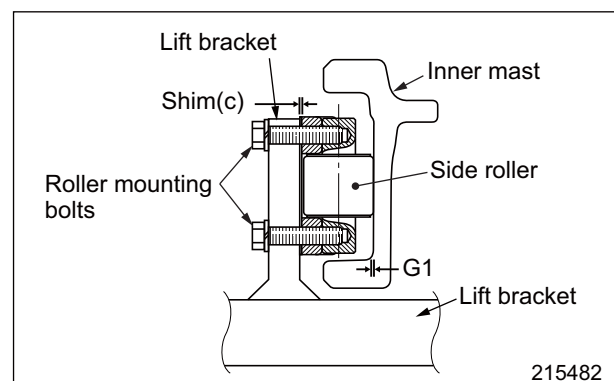
(5) Adjusting clearance G1 between the side roller and the inner mast

- Measure clearance G1 between the side roller's rolling contact surface and the inner mast. If the measured clearance G1 does not meet the standard value, adjust clearance G1 by referring to the following steps.

Note: For clearance measurement, refer to "14.4 Adjusting Clearance between Lift Bracket Roller and Inner Mast."

♦ Adjustment steps

If clearance G1 is large, increase the number of shims (c) as required. Shim (c) is available in two thicknesses: 0.5 and 1 mm (0.02 and 0.04 in.)



6.2 Inspection and Repair

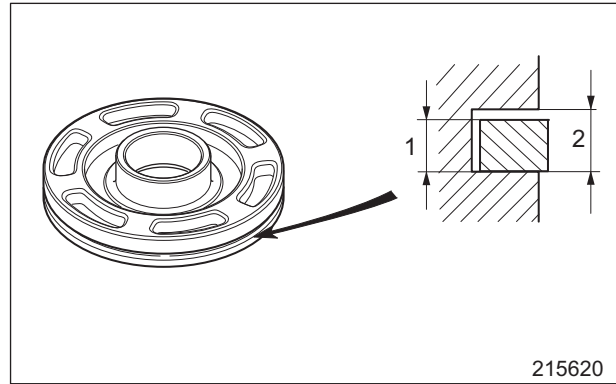
(1) Clutch piston

- (a) Inspect sliding area for wear and damage.
If any scratches are found, polish the scratched surface using a fine grit sandpaper. If significant scratches are found, replace the clutch piston with a new one.
- (b) Measure the width of both the clutch piston seal groove and the piston seal, and if the measured width exceeds the service limit, replace it with a new one.

Unit: mm (in.)

Clutch piston seal width 1	A	$4 \begin{smallmatrix} 0 \\ -0.1 \end{smallmatrix} (0.16 \begin{smallmatrix} 0 \\ -0.004 \end{smallmatrix})$
	B	3.8 (0.150)
Clutch piston seal groove width 2	A	$4 \begin{smallmatrix} +0.2 \\ +0.1 \end{smallmatrix} (0.16 \begin{smallmatrix} +0.008 \\ +0.004 \end{smallmatrix})$
	B	4.3 (0.169)

A : Standard value B: Service limit



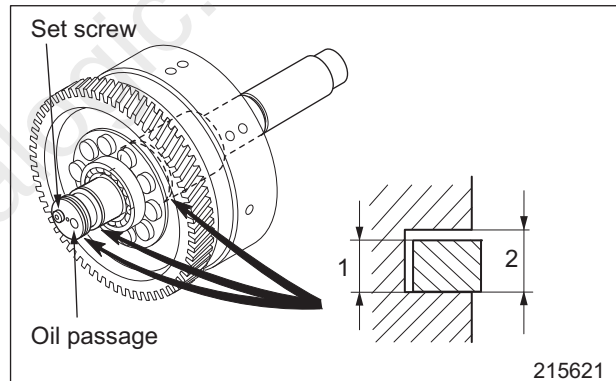
(2) Clutch shaft

- (a) Check both the spline and bearing mounting portions for wear or damage.
- (b) Measure the width of both the seal ring and clutch shaft groove, and if the measured width exceeds the service limit, replace it with a new one.

Unit: mm (in.)

Clutch shaft seal ring width 1	A	$2.5 \pm 0.05 (0.098 \pm 0.0020)$
	B	2.3 (0.091)
Clutch shaft groove width 2	A	$2.5 \begin{smallmatrix} +0.2 \\ +0.1 \end{smallmatrix} (0.098 \begin{smallmatrix} +0.008 \\ +0.004 \end{smallmatrix})$
	B	2.8 (0.110)

A : Standard value B: Service limit



- (c) Check oil passage for clogs.

If the passage is clogged, remove the set screw, and blow out the passage with compressed air.

Note: 1. After the set screw is removed, apply LOC-TITE 242 to the set screw before reinstalling.

2. Be sure to use filtered compressed air.

- (d) Check the fit between the clutch drum and clutch shaft and check rivets for looseness.

(3) Gear

Check gears for wear or damage.

(4) Clutch drum

Check clutch piston sliding portion, mating plate contact area and snap ring groove for wear or damage.

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Mitsubishi FD50CN Forklift Service Manual (99739-5E110)

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