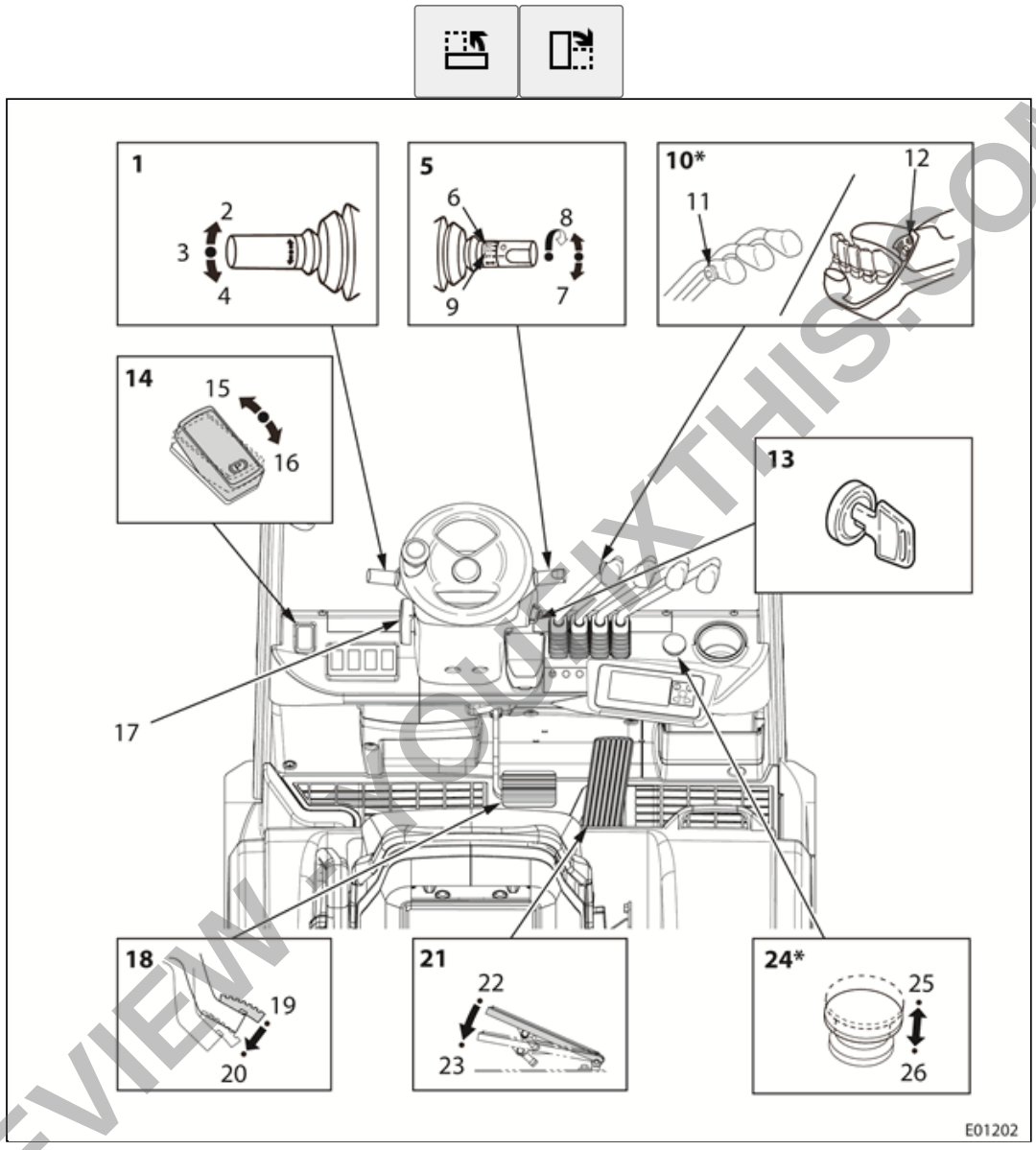
5. LIFT SWITCH
6. TILT SWITCH
7. ATTACHMENT SWITCH
8. BATTERY DISCONNECT SWITCH
13. STEERING COLUMN TILT LEVER
14. REAR WORK LIGHT SWITCH
15. OPERATOR SEAT

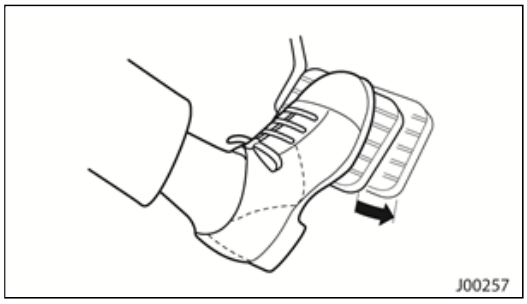
2.4 DRIVING SWITCHES AND CONTROLS



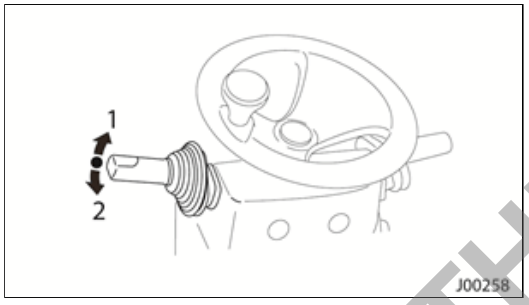
1. **DIRECTION LEVER**
2. FORWARD (F)
3. NEUTRAL (N)
4. REVERSE (R)
5. **TURN SIGNAL / LIGHT SWITCH**
6. HEAD LIGHT (POSITION 2)
7. RIGHT TURN
8. LEFT TURN
9. CLEARANCE LIGHT (POSITION 1, OPTION)
10. **HORN SWITCH**
    ***THE HORN SWITCH IS NOT ON THE STEERING WHEEL.**
11. PUSH TO ACTIVATE HORN (MC MODEL)
14. **PARKING BRAKE SWITCH**
15. RELEASE
16. APPLY
17. **STEERING COLUMN TILT LEVER**
18. **BRAKE PEDAL**
19. RELEASE
20. APPLY
21. **ACCELERATOR PEDAL**
22. RELEASE
23. APPLY
24. **BATTERY DISCONNECT SWITCH**
    ***THIS BUTTON DISCONNECTS THE BATTERY.**

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(1) Depress the brake pedal fully.

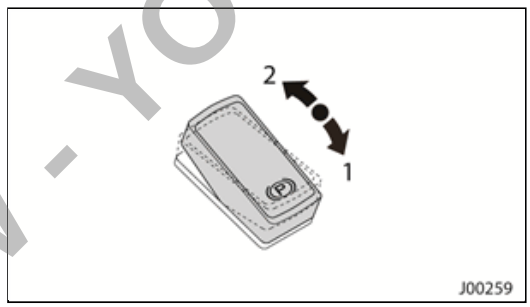


(2) Move the direction lever to FORWARD or REVERSE position.



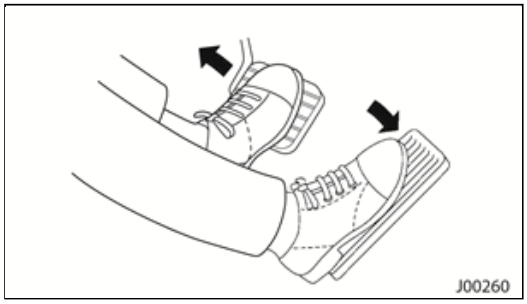
1. FORWARD
2. REVERSE

(3) Push the parking brake switch to release.



1. APPLY
2. RELEASE

(4) Gradually depress the accelerator pedal.



Foot direction control (Option)

(1) Depress the brake pedal fully.

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Item	Service	Page
Faulty Operation Found the Day Before	Check	Faulty Operation Found the Day Before
Oil or Battery Electrolyte Leaks	Check	Oil or Battery Electrolyte Leaks
Tires and Rims	Check	Tires and Rims
Wheel Nuts	Check	Wheel Nuts
Head Light and Rear Light	Check	Head Light and Rear Light
Hydraulic Hoses, Pipes, and Joints	Check	Hydraulic Hoses, Pipes, and Joints
Load Backrest Extension and Lift Bracket	Check	Load Backrest Extension and Lift Bracket
Lift Cylinder and Tilt Cylinder	Check	Lift Cylinder and Tilt Cylinder
Tilt Cylinder Socket Bolts	Check	Tilt Cylinder Socket Bolts
Forks	Check	Forks
Overhead Guard	Check	Overhead Guard
Assist Grip	Check	Assist Grip
Brake Fluid Level	Check	Brake Fluid Level
Hydraulic Oil Level	Check	Hydraulic Oil Level
Battery Electrolyte	Check	Battery Electrolyte
Operator Seat	Check	Operator Seat
Seat Belt	Check	Seat Belt
Accelerator Pedal	Check	Accelerator Pedal
Brake Pedal	Check free play	Brake Pedal
	Check performance	
Horn	Check	Horn
Parking Brake Switch	Check	Parking Brake Switch
Key Switch and Meter Panel	Check	Key Switch and Meter Panel
Battery Charge Level	Check	Battery Charge Level
Steering Wheel and Column	Check movement	Steering Wheel and Column
Lift Chains	Check	Lift Chains
Mast	Check operation	Mast
Mast Interlock System	Check	Mast Interlock System
Driving Interlock System	Check	Driving Interlock System
Parking Brake Warning Alarm	Check	Parking Brake Warning Alarm
Driving Control System (Traction Motors, Steering System, and Brake System)	Check operation	Driving Control System (Traction Motors, Steering System, and Brake System)
Rear Axle Steering Gear (3 Wheel Model)	Check operation	Rear Axle Steering Gear (3 Wheel Model)
	Check grease condition	
Motors	Check abnormal noise	-
	Check looseness of connections	
Attachment	Check	-
Oil pump	Check	-
Tilt Lever and Lift Lever	Check	-

Table 10-1. Every 10 Service Hours or Daily (Pre-Start), Whichever Comes First

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NOTE:

- Avoid mixing lubricants. In some cases, different brands of lubricants are not compatible with each other and deteriorate when mixed. It is best to stick with the same brand at successive service intervals.
- For refill capacities and measurements, see "Specifications (Standard Models)".
- For lubricants for the steering actuator and steering gear, contact your authorized Mitsubishi forklift truck dealer.

11.2 SPECIFICATIONS (STANDARD MODELS)

Item		Model		
		FB16PNT	FB18PNT	FB20PNT
Battery voltage		48 V		
Battery electrolyte gravity		1.28		
Steering wheel free-play		15 to 30 mm (0.6 to 1.2 in.)		
Brake pedal free play		5 to 7 mm (0.20 to 0.28 in.)		
Tire size	Front	18 x 7-12 1/8		
	Rear	15 x 5x 11.25		
Tightening torques for wheel nuts	Front	216 to 264 N·m (22 to 27 kgf·m) [159.3 to 194.7 lbf·ft]		
	Rear	216 to 264 N·m (22 to 27 kgf·m) [159.3 to 194.7 lbf·ft]		
Hydraulic tank	-Simplex mast (less than 6000 mm (236.22 in.) -Duplex mast (less than 4000 mm (157.48 in.) -Triplex mast (less than 6000 mm (236.22 in.)	1 ton class: 327 mm (12.87 in.) 2 ton class: 392 mm (15.43 in.)		
Transfer		0.53 L (0.14 U.S. gal)		
Hydraulic tank		MIN: 12.1 L (3.20 U.S. gal) MAX: 13.3 L (3.51 U.S. gal)		
Brake fluid reserve tank		MIN: 60 cc (3.66 cu in.) MAX: 102 cc (6.22 cu in.)		
Rear axle		0.35 L (0.09 U.S. gal)		

11.3 CAPACITIES AND FORKLIFT TRUCK WEIGHT (STANDARD MODELS)

3 Wheel Model

Item	Model		
	FB16PNT	FB18PNT	FB20PNT
Rated capacities, kg(lb)/610 mm (24 in.)	1361 (3000)	1588 (3500)	1814 (4000)
Forklift truck weights, kg (lb) (without battery)	2230 (4916)	2255 (4971)	2520 (5556)

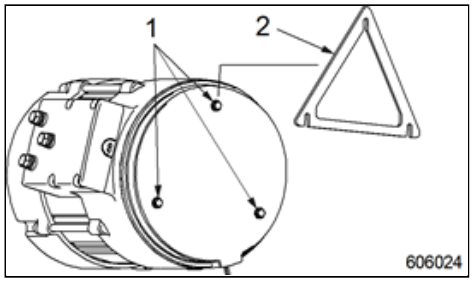
Units: kg(lb)/mm (in.)

Chapter 12 To The Mitsubishi Forklift Truck Owner

12.1 THE IMPORTANCE OF GENUINE PARTS

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1. BOLTS
2. BRAKE PLATE

NOTE: Tighten the bolts for both sides.
After releasing the brakes manually, contact your authorized Mitsubishi forklift truck dealer.

9.10 DIAGNOSTIC CODE LIST

Code	Description	Code	Description
E0	Traction Motor R.H.,Overheating	H2	Tilt Lever, Faulty Setting
E1	Traction Motor L.H.,Overheating	H3	Attach1 Lever, Faulty Setting
E2	Pump Motor, Overheating	H4	Attach2 Lever, Faulty Setting
E5	Traction Inverter R.H., Overheating	(L)	Seat Switch, Faulty Setting For Hydraulic
E6	Traction Inverter L.H., Overheating	EE	FNR Lever Fault
E7	Pump Inverter, Overheating	60	Display Communication Fault
E9	PS Controller, Overheating	61	Logic Card Initialize Failure
14	Traction Motor Current Sensor R.H. Fault	62	Logic Fault
15	Traction Motor R.H. Over-current	63	Traction Inverter R.H. Fault
16	Traction Motor R.H. Stall Timer	64	Traction Inverter L.H. Fault
24	Traction Motor Current Sensor L.H. Fault	65	Pump Inverter Fault
25	Traction Motor L.H. Over-current	67	Input Unit Fault
26	Traction Motor L.H. Stall Timer	68	Output Unit Fault
34	Pump Motor Current Sensor Fault	71	EPS Controller Fault
35	Pump Motor Over-current	72	Contactor Coil Fault
40	Line Contactor Fault	74	Hydraulic Lock Solenoid Fault
41	Steering Contactor Fault	75	Parking Brake Fault
45	Traction Motor R.H. Open	76	IPS Buzzer Fault
46	Traction Motor L.H. Open	78	Battery Voltage Too Low
47	Pump Motor Open	79	Battery Voltage Too High
49	PS Motor Open	(Lo)	Battery Consumption Too Much
50	Tire Angle Sensor Fault	80	Tilt Angle Sensor Fault
51	Accelerator Sensor Fault	81	Load Sensor Fault
52	Traction Motor R.H. Pulse Input Fault	82	Handle Sensor Fault
53	Traction Motor L.H. Pulse Input Fault	A4	PS Motor Current Sensor Fault
54	FC Lever Fault	A5	PS Motor Over-current
55	Output Unit Solenoid Fault	A7	PS Handle Brake Fault
56	Output Unit Solenoid Current Leak	A8	Battery side way exchange interlock
E	FNR Lever or Accelerator, Faulty Setting	A9	Parking Brake Warning
(E)	Seat Switch, Faulty Setting For Traction	None	High Battery Consumption

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Chapter 9 Troubleshooting

9.1 IF THE FORKLIFT TRUCK SHUTS DOWN SUDDENLY

Park the forklift in a safe area. Check the condition of the battery plug/connector. If this plug/connector is properly connected, check the main circuit fuses and, if they are burned out, replace them.

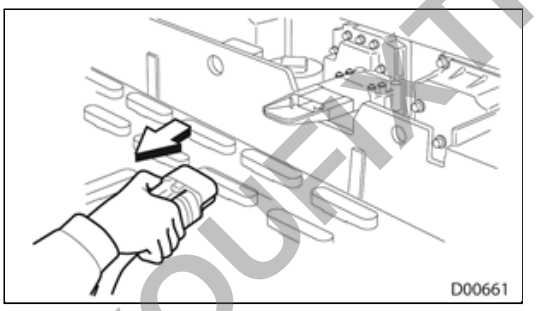
⚠ WARNING

If the fuses are not burned out and you cannot locate the cause, contact your authorized Mitsubishi forklift truck dealer.

9.1.1.1 FUSES REPLACEMENT

⚠ WARNING

BE SURE to turn the key switch to the OFF position and disconnect the battery plug/connector before replacing the fuses.

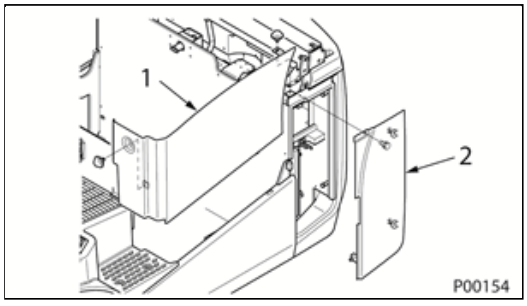


⚠ CAUTION

Use the correct ampere fuses for replacement.

3 wheel model

(1) Remove the battery cover (L) and rear side cover (L).



1. BATTERY COVER (L)
2. REAR SIDE COVER (L)

(2) Clean off dust and dirt from around the fuses.

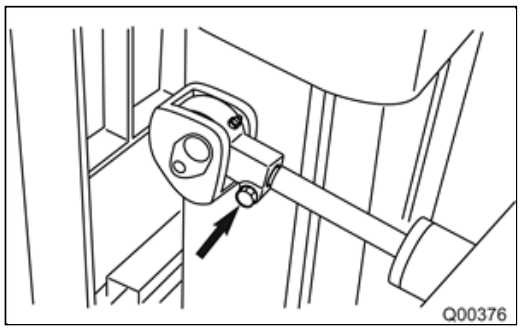
(3) Replace the fuses.

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- Are the socket bolts tightened properly?

Use a wrench.



Torque
157 to 182 (16 to 18.6) [115.8 to 134.2]

Units: Nm (kgf·m)[lbf·ft]

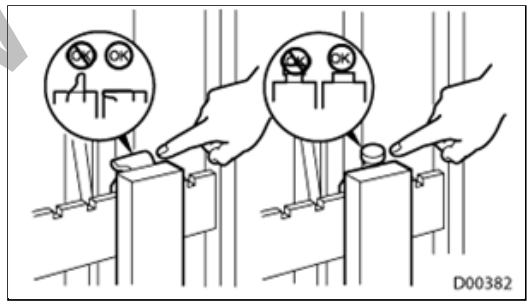
Table 10-7. Tightening torque for the bolt

NOTE: After retightening the bolt, put a matchmark across the bolt and tilt cylinder socket. This helps you to easily notice loosening of the bolt.

10.4.1.10 FORKS

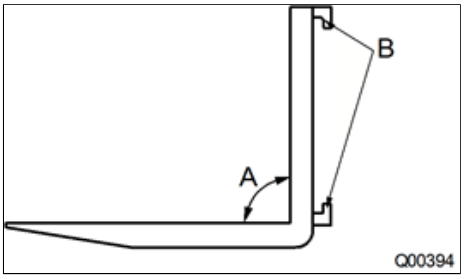
Check

- Is the fork locking pin properly engaged?
- Are the forks free of distortion and cracks?
- Are the welds of the hangers free of cracks?



If the forklift truck is used to carry maximum capacity loads, the forks should be checked daily.

(1) Carefully inspect the forks for cracks. Special attention should be given to the heel section, all weld areas and mounting brackets.



A. HEEL SECTION

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Distance
12 mm/15 min. (0.47 in/15 min.)

Table 10-15. Specific drift forward tilting distance (with load)

10.7.1.4 HYDRAULIC TANK FILTERS

Before disconnecting the hydraulic hoses and pipes, release internal oil pressure as following:

(1) Sit on the operator seat and turn the key switch to the ON position.

NOTE: You must sit on the operator seat. Otherwise, the mast is not operated because of the Mast Interlock System.

(2) Push the lift lever FORWARD to lower the fork on the ground.

(3) Repeat pushing FORWARD and releasing the lift lever a few times between lowering and NEUTRAL positions to release the internal pressure.

NOTE: DO NOT pull the lift lever nor operate any other hydraulic levers. If the hydraulic motor runs, high pressure is applied to all hydraulic circuits.

(4) Turn the key switch to the OFF position and disconnect the battery plug/connector.

⚠ WARNING

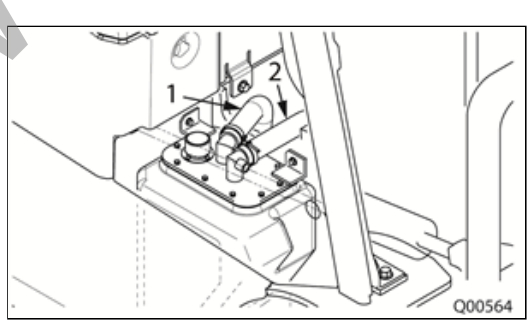
Prepare a drip pan to catch remaining oil in the pipes and hoses before disconnecting each pipe. Further, take appropriate measures for the connections of pipes and control valves to prevent dust and dirt from entering in the opening.

Procedure

(1) Remove the floor plates.

(2) Disconnect following hoses from the hydraulic tank.

- Low pressure hose (from the gear pump), hose clip
- Low pressure hose (2) (from the control valve), hose clip



1. LOW PRESSURE HOSE, HOSE CLIP
2. LOW PRESSURE HOSE (2), HOSE CLIP

(3) Remove the tank cap.

(4) Remove the tank cover and gasket.

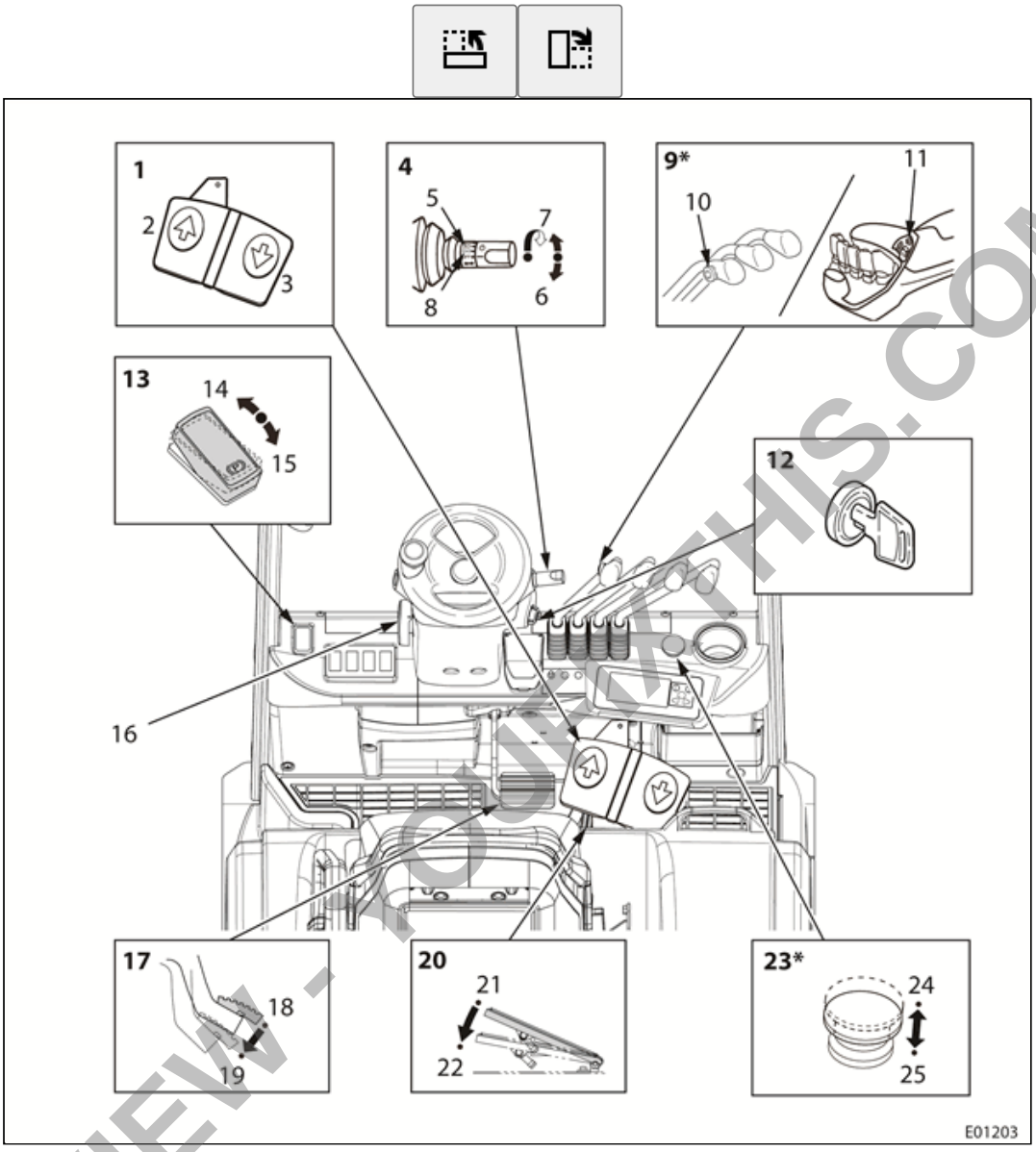
(5) Remove the return filter and suction filter from the tank cover.

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12. PUSH TO ACTIVATE HORN (FC MODEL)
13. **KEY SWITCH**
25. PULL THE SWITCH TO RELEASE.
26. PUSH THE SWITCH TO APPLY.

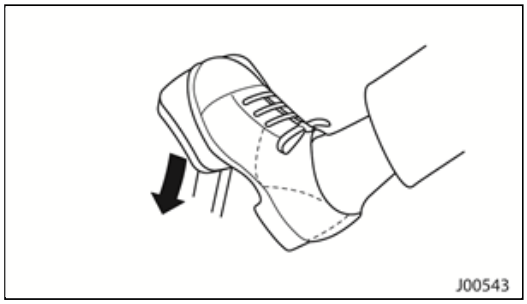
Foot direction control (Option)



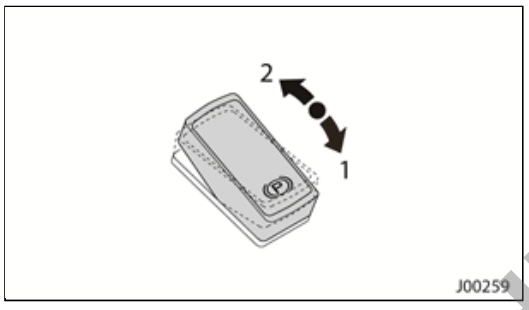
1. **FOOT DIRECTION CONTROL**
2. FORWARD (F)
3. REVERSE (R)
4. **TURN SIGNAL / LIGHT SWITCH**
5. HEAD LIGHT (POSITION 2)
6. RIGHT TURN
7. LEFT TURN
8. CLEARANCE LIGHT (POSITION 1, OPTION)
9. **HORN SWITCH**
   ***THE HORN SWITCH IS NOT ON THE STEERING WHEEL.**
10. PUSH TO ACTIVATE HORN (MC MODEL)
11. PUSH TO ACTIVATE HORN (FC MODEL)
12. **KEY SWITCH**
13. **PARKING BRAKE SWITCH**
14. RELEASE
15. APPLY
16. **STEERING COLUMN TILT LEVER**
17. **BRAKE PEDAL**
18. RELEASE
19. APPLY
20. **ACCELERATOR PEDAL**
21. RELEASE
22. APPLY
23. **BATTERY DISCONNECT SWITCH**
    ***THIS BUTTON DISCONNECTS THE BATTERY.**
24. PULL THE SWITCH TO RELEASE.
25. PUSH THE SWITCH TO APPLY.

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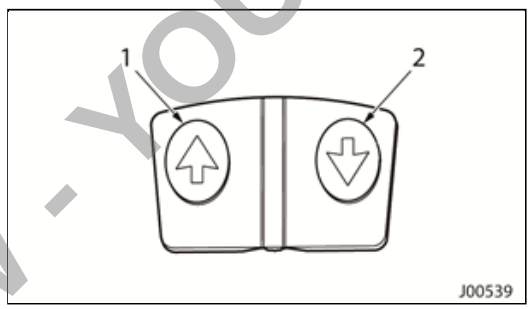


(2) Push the parking brake switch to release.



1. APPLY
2. RELEASE

(3) Place your right foot on FORWARD or REVERSE pedal on the foot direction control, and gradually depress the pedal.

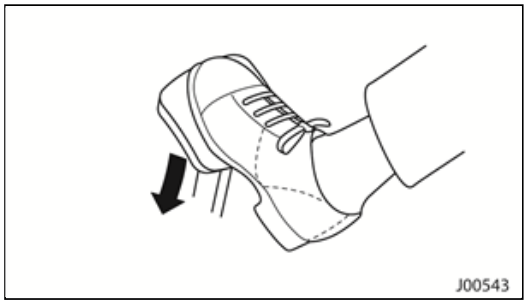


1. FORWARD
2. REVERSE

NOTE: Make sure to depress the arrow part on the foot direction control.

Armrest FNR switch (FC model option)

(1) Depress the rake pedal.



(2) Push the parking brake switch to apply.

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Item	Service	Page
Control valve	Check oil leaks	-
	Check safety valves	
Rear-view Mirror (Option)	Check	-
Additional Warning Devices (Strobe Lights, Backup Buzzer, etc.)	Check	-
Parking Brake (PKB) Check Mode	Check	Parking Brake (PKB) Check Mode
Warning Labels	Check	-

Table 10-1. Every 10 Service Hours or Daily (Pre-Start), Whichever Comes First

10.3.1.2 EVERY 50 SERVICE HOURS OR WEEKLY, WHICHEVER COMES FIRST

Item	Service	Page
Bolts and Nuts	Check/ Tighten	Bolts and Nuts
Battery Electrolyte Specific Gravity	Check	Battery Electrolyte Specific Gravity
Battery Electrolyte	Check	Battery Electrolyte

Table 10-2. Every 50 Service Hours or Weekly, Whichever Comes First

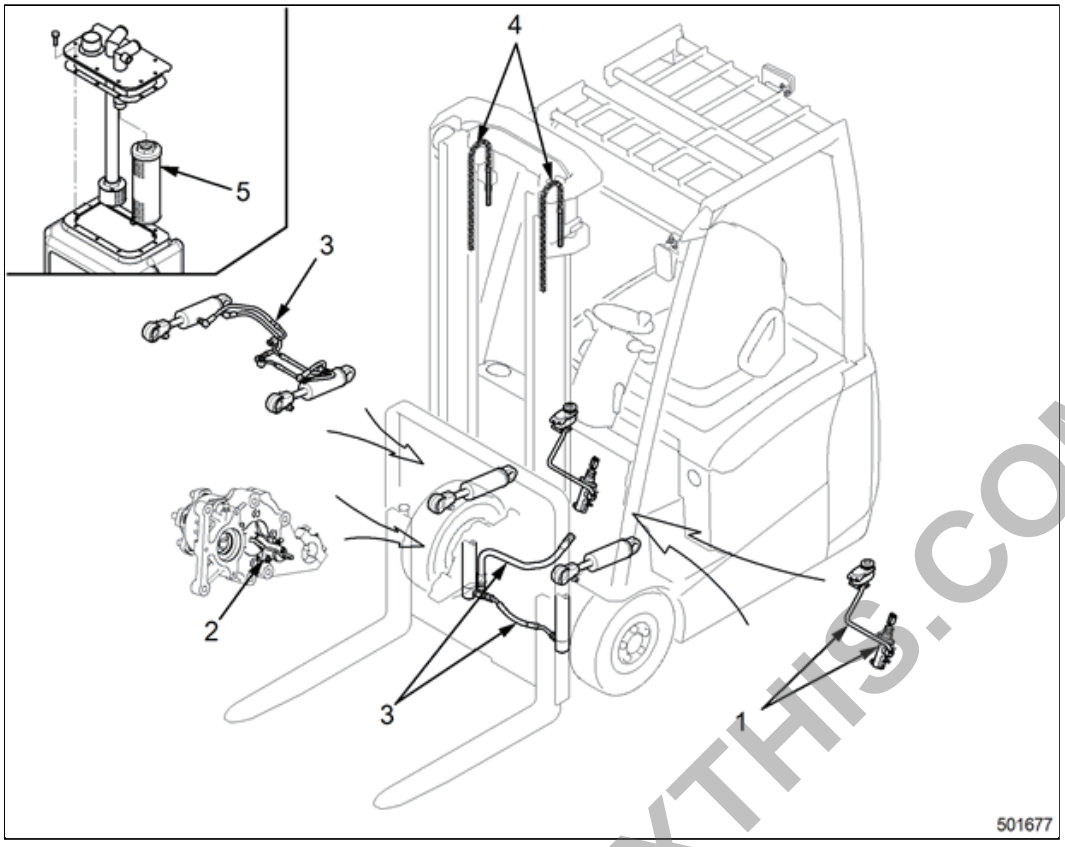
10.3.1.3 ONE MONTH (30 DAYS) OR 200 SERVICE HOURS AFTER DELIVERY,WHICHEVER COMES FIRST

Item	Service	Page
Electrical Wires	Check	Electrical Wires
Contactors and Fuses	Check	Contactors and Fuses
Microswitches and Steering Sensor	Check	Microswitches and Steering Sensor
Chain Wheel	Check bearing rattle	Chain Wheel
Transfer Oil	Replace	Transfer Oil
Rear Axle Oil	Replace	-
Motors	Check abnormal noise	-
	Check looseness of contactors	
Inverters	Check looseness	-
Battery Electrolyte	Check	Battery Electrolyte
Battery Electrolyte Specific Gravity	Check	Battery Electrolyte Specific Gravity
Battery	Check terminal corrosion, damage, contamination and looseness	-
	Check insulation resistance	
Foot Brake Switch	Check operating condition	-
	Check	
Parking Brake Switch	Check	Parking Brake Switch
Seat Switch	Check	-
Selector Switch	Check	-

Table 10-3. One Month (30 Days) or 200 Service Hours After Delivery,Whichever Comes First

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3 WHEEL MODEL

Chapter 11 Service Data

11.1 RECOMMENDED OILS AND GREASES

Item		Recommendation	Recommendation for Ambient Temperatures, °C (°F)						
			-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)
Transfer Oil		SUMICO 5L022 KROON F1052 SHELL DONAX TDL							
Hydraulic Oil		API service classification CD	SAE 5W			SAE 10W			
Rear axle Oil	3 wheel model	API service classification GL-4	SAE 80W						
Brake Fluid		F.M.V.S.S. No. 116 - DOT3 or DOT4 (SAE J1703)							
Grease	Wheel bearings	NLGI No.2 grade multipurpose type (lithium base), consistency: 265 - 295							
	Chassis	NLGI No.1 grade multipurpose type (lithium base), consistency: 310 - 340							

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