Chapter 4 REFUELING

4.1 DIESEL ENGINE

⚠ WARNING

- BE SURE to use the fuels specified in the SERVICE DATA. If not, the engine could fail.
- Trucks must be refueled only at designated safe locations. Safe outdoor locations are preferable to those indoors.
- Turn the engine OFF and get off the truck during refueling.

⚠ WARNING

- Explosive fumes could be present during refueling.
- DO NOT smoke in refueling areas.

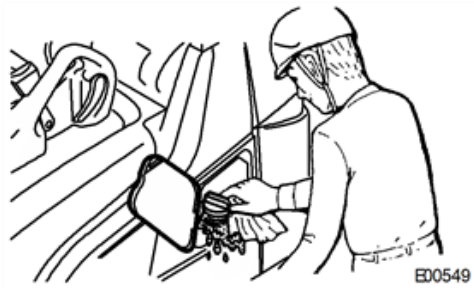
⚠ WARNING

Fire caused by static electricity!

- In dry seasons there is a lot of static electricity.
- When refueling, touch grounded metals with bare hand to discharge the static electricity before opening the filler cap. If not, the fuel could catch fire due to the static electrical spark.

⚠ CAUTION

- DO NOT allow the truck to become low on fuel or completely run out of fuel. Sediment or other impurities in the fuel tank could be drawn into the fuel system. This could result in difficult starting or damage to components.
- Fill the fuel tank at the end of each day of operation to drive out moisture laden air and to prevent condensation.
- DO NOT fill the tank to the top. Fuel expands when it gets warm and may overflow.



Refueling steps

(1) Park the truck only at a location designated safe.

(2) Lower the forks until the forktips touch the floor.

(3) Apply the parking brake.

(4) Place the direction lever in the NEUTRAL position.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Diagnostic Code	Explanation	Diagnostic Code	Explanation
D-29	Atmospheric Pressure Sensor Warning	D-83	DPF Inlet Temperature Sensor Warning
D-30	CAN Signal Warning	D-84	DPF Absolute Pressure Sensor Warning
D-31	Starter Relay Warning	D-85	DPF Differential Pressure Sensor Warning
D-32	Water Temperature Sensor Warning	D-87	DPF Warning
D-33	ECM System Warning	D-89	Engine Oil Pressure Sensor Warning
D-34	Injector Circuit Warning	D-90	Engine Oil Viscosity Warning
D-35	Fuel Temperature Sensor (Inlet) Warning	D-92	Intake Manifold Pressure Sensor Warning
D-37	EGR Position Sensor Warning	D-93	Intake Manifold Temperature Sensor Warning
D-40	EGR Motor Warning	D-94	Air Intake Temperature Sensor Warning
D-43	ECM Relay Warning	D-95	Rail Pressure Sensor Warning

Diagnostic Code	Explanation	Diagnostic Code	Explanation
D-96	Fuel Leak Warning	F-49	Input Unit Communication Warning
D-97	ECM System Warning	F-50	Lift Up Solenoid Warning
D-98	DPF Warning	F-52	Lift Down Solenoid Warning
		F-54	Lift Solenoid Leak
F-01	Memory Check Warning	F-55	Tilt Forward Solenoid Warning
F-02	Battery Voltage Warning	F-57	Tilt Backward Solenoid Warning
F-03	VCM Communication Warning	F-59	Tilt Solenoid Leak
F-04	ECM Communication Warning	F-60	Attach-1A Solenoid Warning
F-07	MP Communication Warning	F-62	Attach-1B Solenoid Warning
F-09	Operation Setting Communication Warning	F-64	Attach-1 Solenoid Leak
F-10	Lift Lever Neutral Warning	F-65	Attach-2A Solenoid Warning
F-11	Tilt Lever Neutral Warning	F-67	Attach-2B Solenoid Warning
F-12	Attach-1 Lever Neutral Warning	F-69	Attach-2 Solenoid Warning
F-13	Attach-2 Lever Neutral Warning	F-70	Attach-3A Solenoid Warning
F-14	Attach-3 Lever Neutral Warning	F-72	Attach-3B Solenoid Warning
F-15	ECM Communication Warning	F-73	Hour Meter Gap Warning
F-16	Shift Lever Warning	F-74	Attach-2 Solenoid Warning
F-17	Speed Warning	F-75	Unload Solenoid Warning
F-20	Lift Lever Warning	F-76	Parking Brake Solenoid Warning
F-22	Tilt Lever Warning	F-77	Lift lock Solenoid Warning
F-24	Attach-1 Lever Warning	F-78	Parking Brake Solenoid Leak
F-26	Attach-2 Lever Warning	F-79	Unload / Lift Lock Solenoid Leak
F-28	Attach-3 Lever Warning	F-80	Knob Position Solenoid Warning
F-29	Joystick Duplicate Warning	F-82	Tilt Lock Solenoid Warning
F-31	VCM-IM Sensor Voltage Warning	F-84	Knob Position Solenoid Leak
F-32	Lift Oil Pressure Sensor Warning	F-85	T/M Forward Solenoid Warning
F-34	Speed Sensor Warning	F-87	T/M Backward Solenoid Warning
F-36	Tire Angle Sensor Warning	F-88	Parking Brake Oil Pressure Warning

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

The operators are responsible for the performance of the daily Pre-Start inspection. The operators are also responsible for those items listed under Every 50 Service Hours or Weekly, Whichever Comes First to keep your truck in a proper working condition.

For periodic inspection and periodic replacement of rubber parts, however, rely on the expert knowledge of the dealer's well-trained mechanics, and contact your authorized dealer workshop.

Periodic Inspection Time Intervals

- Every 10 service hours or daily (pre-start), whichever comes first
- Every 50 service hours or weekly, whichever comes first
- One Month (30 days) or 200 Service Hours After Delivery of a New Truck, Whichever Comes First
- Every 500 Service Hours or 3 Months, Whichever Comes First
- Every 1000 Service Hours or 6 Months, Whichever Comes First
- Every 2000 Service Hours or 12 months, Whichever Comes First

11.3.2 EVERY 10 SERVICE HOURS OR DAILY (PRE-START), WHICHEVER COMES FIRST

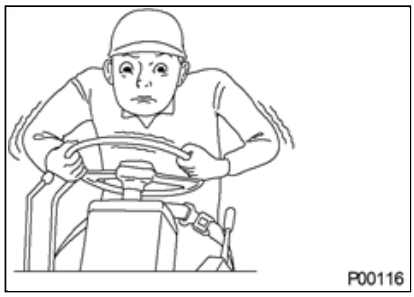
Component Group	Item	Service
General	Faulty Operation Found the Day Before	Check
	Oil, Leaks and Damage of Piping	Check
	Oil, Fuel, or Coolant Leaks	Check
Brake System	Brake Hoses, Pipes, and Joints	Check
	Brake Pedal	Check free play
	Parking Brake Switch	Check
	Brake Pump	Check oil leaks
	Brake Fluid Level	Check fluid level
	Brake Oil (Wet Disc Brake)	Check oil level
Cooling System	Cooling Fan	Check
	Engine Coolant	Check coolant level
	Fan and Alternator Drive Belt	Check / Adjust tension
Electrical System	Battery	Check electrolyte level
	Battery Terminal	Check loosen cables and damage
	Electric Wires	Check
	Horn	Check
	Icons of Meter Panel	Check
	Backup Lights	Check
	Stop Lights	Check
	Turn Signal Lights	Check
	Head Light and Working Light	Check
	Mast Interlock System	Check
	Driving Interlock System	Check
	Parking Brake Warning Icon and Warning Buzzer	Check
Engine	Engine (Exhaust, Noise, and Vibration)	Check
	Engine Oil	Check oil level
Frame and Chassis	Assist Grips	Check
	Overhead Guard	Check

*Not required if battery type is maintenance free.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

If the engine stalls, hydraulic pressure is lost in the power steering. This increases your steering effort. In this case, stop your forklift truck in a safe area and restart the engine.



Before Starting the Engine Again

Check the following items, and remove the cause of the stall:

- Lack of fuel
- Engine overloading

10.2 STARTING WITH JUMPER CABLES

To start a forklift truck with a "run-down" battery, use a booster battery or jumper cables from the battery of a second forklift truck.

⚠ WARNING

- Batteries give off flammable gas which could explode.
- Keep flames and sparks away from batteries. They could cause gas to explode.
- DO NOT allow jumper cable ends to contact each other or the forklift truck.
- DO NOT smoke when checking battery electrolyte levels.
- Electrolyte is an acid and could cause injury if it contacts skin or eyes. Always wear eye protector when starting an engine in the forklift truck with jumper cables.
- Incorrect jump start procedures could cause an explosion that could result in injuries. Turn OFF all lights and accessories on the stalled forklift truck.
- Always connect battery positive (+) to battery positive (+) and battery negative (-) to engine body.
- Jump only with a battery source of the same voltage as the stalled forklift truck.

⚠ WARNING

- DO NOT try to start the engine by pushing the forklift truck.
- BE SURE to connect the cable end 4 to the ENGINE BODY. If it is connected to the negative (-) terminal of the battery, sparks could ignite the gases.

⚠ CAUTION

- Connect the jumper cables away from the moving parts in the engine compartment.
- DO NOT touch the cable with wet hands. If touched, it may result in an electrical shock.
- When carrying batteries, provide short circuit prevention to the terminals. If metals come in contact with the terminals, a short circuit could result.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Fuel or Oil		Recommendation	Recommendation for Ambient Temperatures, °C (°F)						
			-30 (-22)	-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)
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							

Antifreeze solution	Ambient Temperature,°C (°F)	-45 (-49)	-39 (-38)	-30 (-22)	-25 (-13)	-20 (-4)	-15 (5)	-10 (14)
	Concentration (%)	60	55	50	45	40	35	30

⚠ CAUTION

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 one and the same brand at successive service intervals.

NOTE: For refill capacities and measurements, see Specifications in this section.

12.4 SPECIFICATIONS (STANDARD MODELS)

NOTE: The values in the table below are for the standard model.

Diesel engine model

Item			Class (ton)				
			4.0	4.5	5.0C	5.0	5.5
Alternator drive belt deflection-when pushed inward with 98 N (10 kgf) [22 lbf] pressure			11 to 13 mm (0.43 to 0.51 in.)				
Engine idling speed (min-1)			650 to 700 mm (25.59 to 27.56 in.)				
Steering wheel free play (when measured at rim with engine idling)			15 to 30 mm (0.59 to 1.18 in.)				
Inching pedal free play			3 to 6 mm (0.12 to 0.24 in.)				
Brake pedal free play			6 mm (0.23 in.)				
Tire size	Front tire	Single	8.25-15-14PR(1)	300-15-18PR (1)			
		Double	7.50-16-12PR (1)				
	Rear tire		7.00-12-12PR (1)				7.00-12-14PR (1)
Tire pressure	Front tire	Single	800 kPa (8.17 kgf/cm2) [116.04 psi]				
		Standard dual	700 kPa (7.14 kgf/cm2) [101.54 psi]				
	Rear tire		700 kPa (7.14 kgf/cm2) [101.54 psi]		850 kPa (8.67 kgf/cm2) [123.30 psi]		1000 kPa (10.20 kgf/cm2) [145.05 psi]
Tightening torque of wheel nuts	Front tire		600 ± 60 N·m (61.18 ± 6.12 kgf·m) [442.80 ± 44.28 lbf·ft]				

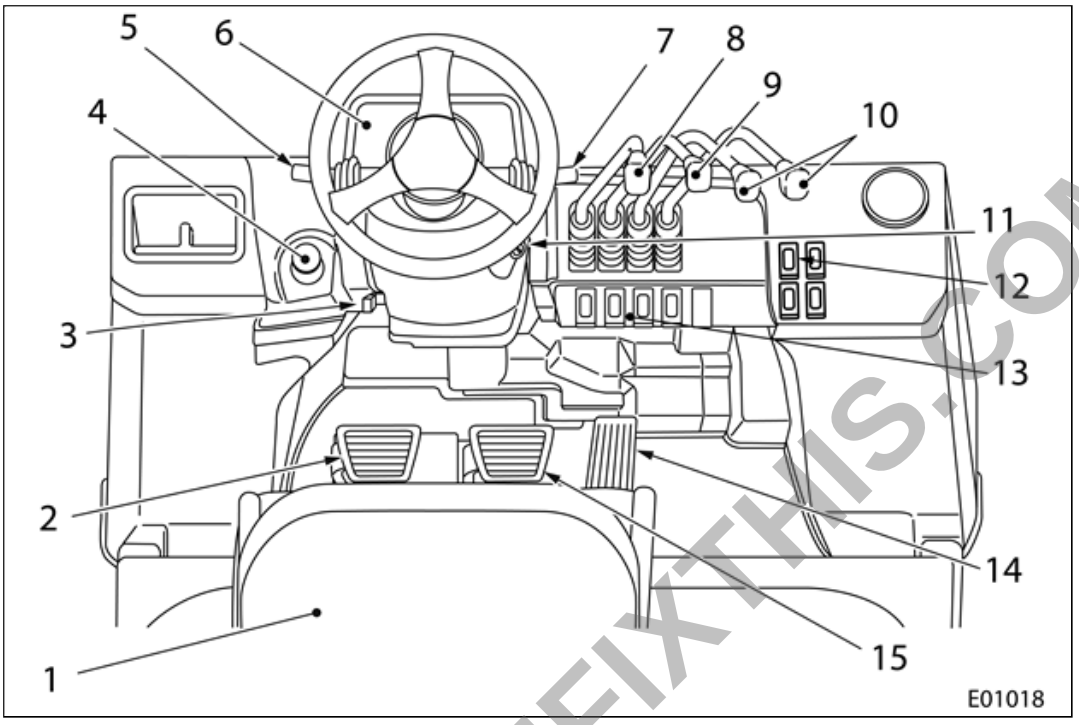
NOTE: The service data are subject to change without notice.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

13. COUNTERWEIGHT
14. ASSIST GRIP
27. TURN SIGNAL LIGHT (IF EQUIPPED)

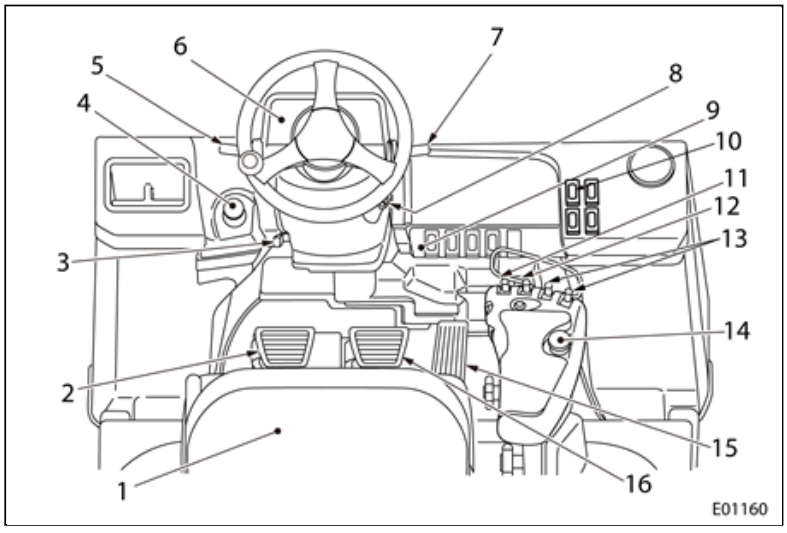
2.3.2 MC MODEL



1. OPERATOR SEAT
2. INCHING PEDAL
3. STEERING COLUMN TILT LEVER
4. PARKING BRAKE SWITCH
5. DIRECTION LEVER
6. METER PANEL
7. TURN SIGNAL (IF EQUIPPED) / LIGHT SWITCH
8. LIFT LEVER
9. TILT LEVER
10. ATTACHMENT LEVER
11. KEY SWITCH
12. ENGINE OIL WARNING ICON
13. SIDE PANEL
14. ACCELERATOR PEDAL
15. BRAKE PEDAL

2.3.3 FC MODEL

FC Model (Type A)



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(5) Turn the engine OFF.

(6) Block the wheels.

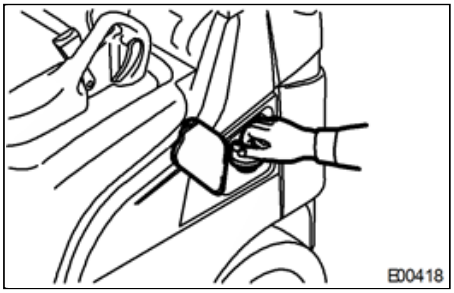
(7) Discharge static electricity.

(8) Open the filler cap.

(9) Fill the fuel tank slowly.

(10) Close and tighten the filler cap.

(11) If spillage occurs, wipe off excess fuel and wash down the area with water.



NOTE: - Drain water and sediment from the fuel tank as required. Also, drain water and sediment from the main fuel storage tank before it is filled and as a weekly routine. This will help prevent water or sediment being pumped from the storage tank into the truck fuel tank.

Chapter 5 OPERATION

5.1 NEW FORKLIFT TRUCK BREAK-IN

Correct "break-in" is important for operation and the long life of your truck. The first 100 service hours of operation are the "break-in period". Carefully read the following precautionary instructions:

⚠ CAUTION

- After starting the engine, BE SURE to run it at idle speeds with no load for about 5 minutes. During this time, check all the meter panel indicator icons.
- DO avoid long periods of idling. This may cause cylinder wall glazing and prevent the piston rings from seating properly.
- DO NOT pump the accelerator pedal and DO NOT rev up the engine. This may cause cylinder wall scuffing and scoring.
- If the truck does not have to be put to work immediately, or the operation is light and slow, break in the truck under a simulated working condition.
- Try NOT to drive the truck continuously at the same speeds as the parts tend to better adjust themselves to other parts if various speeds are used. Also, try NOT to make severe brake applications to allow the brake linings to seat against the brake drums.
- Operate the truck under a lighter load and lower speeds than normal.
- It is recommended to replace and lubricate oils at shorter intervals than normal periods.
- Carefully check on and around the truck for loose bolts and nuts. Retighten them as required.

5.2 BEFORE STARTING ENGINE

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Diagnostic Code	Explanation	Diagnostic Code	Explanation
F-38	Tilt Angle Sensor Warning	F-89	T/M Solenoid Leak
F-40	Steering Warning	F-92	Parking Brake Miss Operation During Running
F-41	Output Unit Warning	F-93	Shift Solenoid 1 Warning
F-44	Output Unit PWM Power Voltage Warning	F-96	EAT Setting Warning
F-45	Output Unit Communication Warning		
F-46	Input Unit Warning		

Diagnostic Code	Explanation	Diagnostic Code	Explanation
P-01	M/P Memory Check Warning	P-07	MP Communication Warning
P-03	VCM Communication Warning	P-15	ECM Communication Warning
P-04	ECM Communication Warning		

Chapter 11 MAINTENANCE

11.1 GENERAL

Taking proper care of your truck is a vital part of the overall planned maintenance program. Your participation in this program will provide an early identification of potential maintenance problems. Do-it-yourself maintenance does not include repairs. If your truck requires any repairs, contact your authorized dealer. The mechanics of your authorized dealer are well trained and know how to safely make repairs.

⚠ WARNING

Follow these rules to help save you from injury and to service your truck properly.

- Make sure the service area is safe.
- Park the truck on a hard and level surface with the forks lowered until the forktips touch the ground, parking brake applied, direction lever in the NEUTRAL position, engine stopped, and the wheels blocked.
- All repairs must be made by authorized personnel.
- Follow the recommended safety procedures.
- Use only the correct tools for the job.

⚠ WARNING

DO NOT bypass any electrical switches on this truck.

⚠ WARNING

If during operation the truck becomes unsafe in any way, the matter must be reported immediately to the user's designated authority, and the truck must not be operated until it has been restored to a safe operating condition.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Component Group	Item	Service
	Operator Seat	Adjust operator seat
	Seat Belt	Check
	Rear-View Mirrors (If Equipped)	Check
Fuel System	Fuel	Check fuel level
	Fuel System	Drain Primary Filter/Water Separator
Hydraulic System	Hydraulic Oil	Check oil level and dirt
Mast and Forks	Lift Chains	Check / Adjust
	Tilt and Lift Cylinder	Check oil leaks and damage
	Mast and Forks	Check
	Lift Cylinder Mounting Bolts	Check
	Mast Strip Sliding Surfaces	Check
	Tilt Cylinder Socket Bolts	Check
	Load Backrest Extension and Lift Bracket	Check
Steering System	Steering Wheel and Column	Check movement
Driving System	Accelerator Pedal	Check
	Inching Pedal	Check
	Powershift Transmission	Check oil level
Front Axle and Rear Axle	Tires and Rims	Check
	Wheel Nuts	Check

*Not required if battery type is maintenance free.

11.3.3 EVERY 50 SERVICE HOURS OR WEEKLY, WHICHEVER COMES FIRST

Component Group	Item	Service
Fuel System	Fuel Hoses, Pipes, and Joints	Check oil leaks and damage
Hydraulic System	Hydraulic Hoses, Pipes, and Joints	Check
Mast and Forks	Lift Chains	Lubricate
Intake System	Air Cleaner Element	Clean / Inspect

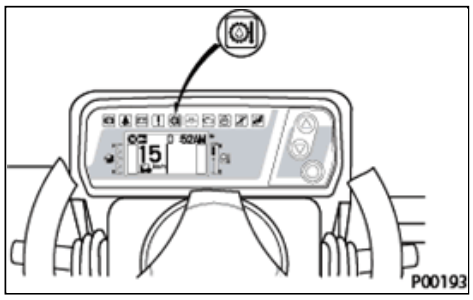
11.3.4 ONE MONTH (30 DAYS) OR 200 SERVICE HOURS AFTER DELIVERY OF A NEW TRUCK, WHICHEVER COMES FIRST

Component Group	Item	Service
Cooling System	Radiator Filler Cap	Check
	Radiator Rubber Hoses	Check rubber hose condition
Electrical System	Alternator	Check
	Starter	Check
Engine	Cylinder Head Bolt and Manifold Nut	Check
	Engine Oil	Replace engine oil
	Engine Oil Filter	Replace engine oil filter
	Water Separator	Check
Frame and Chassis	Loosen Bolts and Nuts	Check
Fuel System	Primary Fuel Filter	Replace filter
	Secondary Fuel Filter	Replace filter
Hydraulic System	Return Oil Filter and Wash Strainer in Hydraulic System	Replace return oil filter / Clean strainer

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

(5) After the warning icon has gone OUT, operate the forklift truck again.

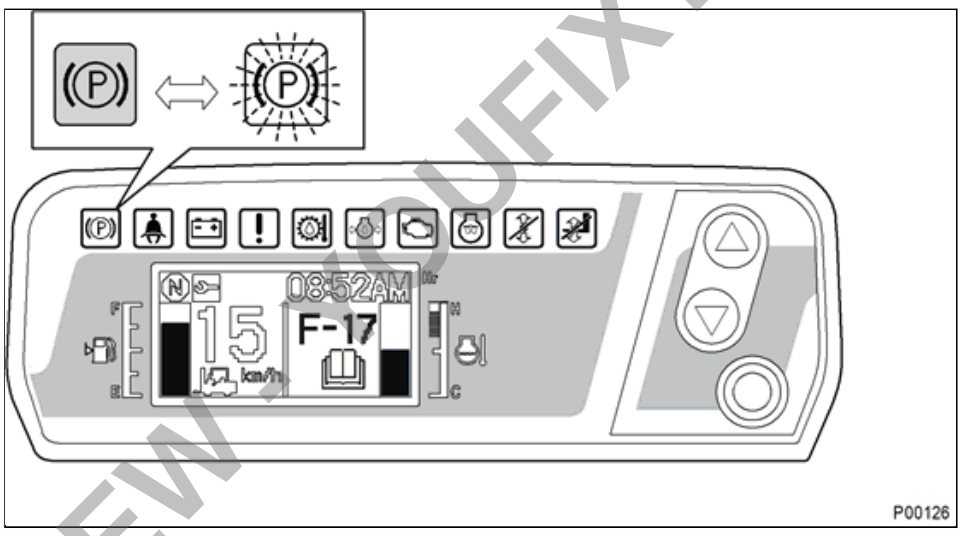


⚠ CAUTION
If the warning icon does not go OUT, or if it constantly glows, contact your authorized dealer.

10.6 IF THE FORKLIFT TRUCK WON'T MOVE

If the operator half rises from the operator seat for more than 2 seconds with the direction lever being placed in the FORWARD or REVERSE position, the operator presence switch in the operator seat activates the driving interlock system.

Check the following points if the truck will not move even after the direction lever is shifted to the FORWARD or REVERSE position:



The driving interlock indicator icon starts blinking and the truck stops moving.

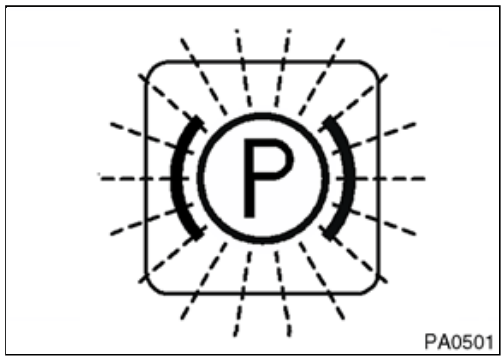
Are you seated?

YES

Stop working and move the truck to a safe area. Turn the engine OFF and contact your authorized dealer.

NO

Sit securely with the seat belt fastened, and apply the parking brake. Then release the parking brake.



The driving interlock indicator icon is OFF but the truck fails to move.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Item		Class (ton)				
		4.0	4.5	5.0C	5.0	5.5
	Rear tire	377.3 ± 37 N·m (38.47 ± 3.78 kgf·m) [278.45 ± 27.30 lbf·ft]				
Lift chain elongation limit (mm/20 links)		523 mm (20.59 in.)		654 mm (25.75 in.)		
Fuel tank capacity		87 L (22.99 US gal.)		105 L (27.74 US gal.)		
Engine cooling system (0.65 liter [0.17 US gal.] reservoir tank included)		11 L (2.9 US gal.)				
Engine oil	Crankcase	11.0 L (2.91 US gal.)				
	Oil filter	1.0 L (0.3 US gal.)				
	Total	12.0 L (3.2 US gal.)				
Transmission oil		17 L (4.5 US gal.)				
Transfer and differential gear oil level		7.9 L (2.1 US gal.)				
Hydraulic oil	N level	72 L (19.0 US gal.)		81 L (21.4 US gal.)		
Cooling oil level inside wet disc brake (if equipped)		8.9 L (2.4 US gal.)				
Battery electrolyte specific gravity, corrected to 20°C (68°F)		8.9 L (2.4 US gal.)				

NOTE: The service data are subject to change without notice.

12.5 CAPACITIES AND FORKLIFT TRUCK WEIGHT (STANDARD MODELS)

Item		Truck model				
		FD40N1	FD45N1	FD50CN1	FD50N1	FD55N1
Rated capacity, kg (lb)/500 mm (20 in.)		4000 (8820)	4500 (9920)	5000 (11030)	5000 (11030)	5500 (12130)
Truck weight, unloaded kg (lb)	Single drive tires	5920 (13050)	6330 (13960)	6840 (15100)	7300 (16100)	7630 (16800)
	Dual drive tires	6040 (13300)	6410 (14160)	6920 (15300)	7380 (16300)	7710 (17000)
	Solid dual tires	6120 (13500)	6450 (14300)	7000 (15450)	7460 (16450)	7790 (17150)

NOTE: Capacities shown apply to forklift trucks with genuine Mitsubishi forklift truck standard tires.

PREVIEW - YOUFIXTHIS.COM

Chapter 13 TO THE MITSUBISHI FORKLIFT TRUCK OWNER

13.1 THE IMPORTANCE OF GENUINE PARTS

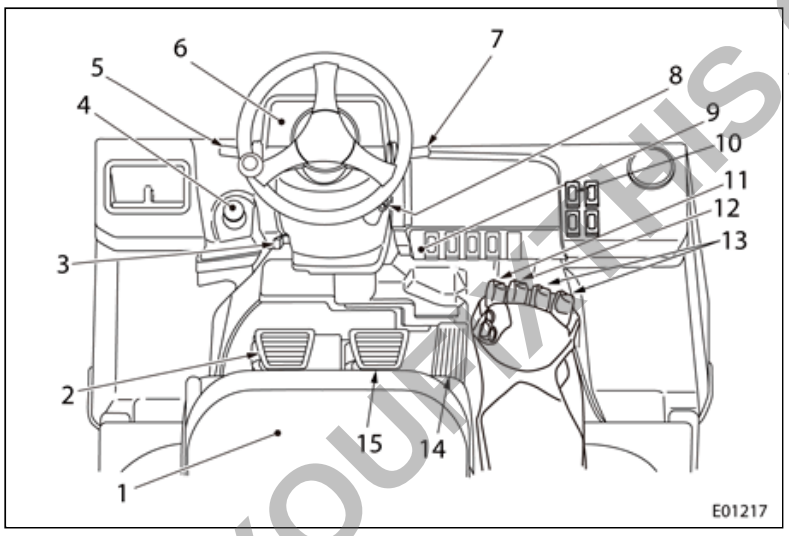
The dealers and the owners are urged to use ONLY genuine parts to maintain forklift trucks in a safe and efficient operating condition. Safe and efficient operation of your forklift truck could be endangered by the use of inferior parts. In most cases, imitations sold as cheap parts invariably could mean a short part life and a higher maintenance cost.

Genuine parts provide safe and reliable performance.

Download full manual at youfixthis.com

1. OPERATOR SEAT
2. INCHING PEDAL
3. STEERING COLUMN TILT LEVER
4. PARKING BRAKE SWITCH
5. DIRECTION LEVER
6. METER PANEL
7. TURN SIGNAL (IF EQUIPPED) / LIGHT SWITCH
8. KEY SWITCH
9. SIDE PANEL
10. ENGINE OIL WARNING ICON (IF EQUIPPED)
11. LIFT SWITCH
12. TILT SWITCH
13. ATTACHMENT SWITCH
14. EMERGENCY MAST STOP BUTTON
15. ACCELERATOR PEDAL
16. BRAKE PEDAL

FC Model (Type B)



1. OPERATOR SEAT
2. INCHING PEDAL
3. STEERING COLUMN TILT LEVER
4. PARKING BRAKE SWITCH
5. DIRECTION LEVER
6. METER PANEL
7. TURN SIGNAL (IF EQUIPPED) / LIGHT SWITCH
8. KEY SWITCH
9. SIDE PANEL
10. ENGINE OIL WARNING ICON (IF EQUIPPED)
11. LIFT SWITCH
12. TILT SWITCH
13. ATTACHMENT SWITCH
14. ACCELERATOR PEDAL
15. BRAKE PEDAL

2.4 METER PANEL

2.4.1 METER PANEL - OVERVIEW

When any warning icon in the meter panel glows or blinks, stop the truck and take corrective action. (Except for the glow plug pilot indicator icon.)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 12 of 221 pages

The full manual includes:

- All 221 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Mitsubishi FD40N1, FD45N1, FD50CN1, FD50N1, FD55N1 Operator Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual