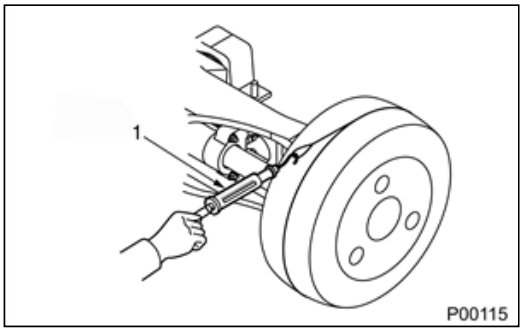


1. SPRING BALANCER

(6) Turn the rear wheel rim back and forth two to three times in the above condition to settle the cup and cone of the wheel bearing.

(7) Turn the wheel rim by hand again and tighten lock nut 4 until the turn becomes heavy.

(8) Insert the tab of the lock plate 3 aligning with the knuckle groove and gradually loosen lock nut 4 until the hole position of the lock plate 3 aligns with the screw position of lock nut 4.
Then secure lock nut 4 and lock plate 3 with two bolts 2.
Reversing the lock plate 3 changes the hole position.

(9) Turn the wheel rim back and forth two to three times and make sure that the preload is within the specification. If out of the range, readjust. In case of a long-used bearing, aim a low value of the allowance.
Checking preload.

(10) Insert the cap 1.

(11) Raise the lift truck and remove the blocking of the side frames.

(12) Lower the lift truck to the ground.

Tightening torque for bolt:
3.7 N·m to 5.0 N·m (0.4 kgf·m to 0.51 kgf·m) [2.7 lbf·ft to 3.7 lbf·ft]

Preload for bearings:	
1.5 to 2 ton compact models	2.8 N·m to 28.0 N·m (0.29 kgf·m to 2.9 kgf·m) [0.63 lbf·ft to 6.3 lbf·ft]
2 to 3.3 ton models	2.5 N·m to 25.0 N·m (0.25 kgf·m to 2.5 kgf·m) [0.56 lbf·ft to 5.6 lbf·ft]

⚠ CAUTION
After running for a while, retighten the outside nuts to the specified torque.

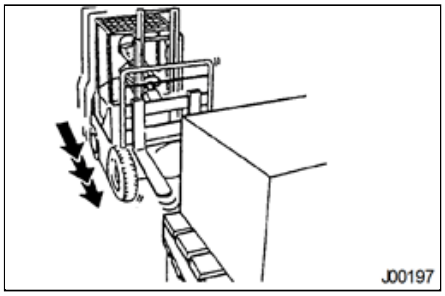
10.12 DIAGNOSTIC CODES AND EXPLANATIONS

Contact your authorized Mitsubishi forklift truck dealer when the error code is displayed.

Code	Explanation	Code	Explanation
E-03	VCM communication warning	F-01	Memory check fault
E-04	ECM communication warning	F-02	Battery voltage warning
E-07	MP communication warning	F-03	VCM communication warning
E-21	Air flow meter warning signal	F-04	ECM communication warning
E-22	Water temperature sensor warning signal	F-07	MP communication warning
E-23	Throttle sensor warning signal	F-09	Lift lever type warning

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⚠ CAUTION

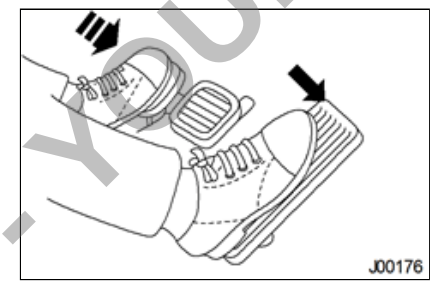
DO NOT ride the inching pedal. This causes a partly disengaged condition that may result in premature clutch plate wear. DO NOT depress inching pedal when inching is unnecessary.

(1) Stop the truck ahead of the load platform.

(2) Apply the parking brake lever, place the direction lever to the NEUTRAL position, tilt the mast VERTICALLY, and raise the forks to the height of the pallet insertion openings.

(3) Depress the inching pedal fully down, place the direction lever to the FORWARD position, and release the parking brake.

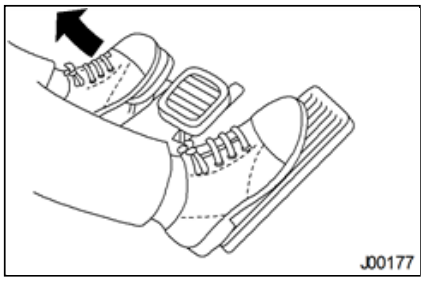
(4) Gently depress the accelerator pedal.



(5) When the left foot is slowly taken off the inching pedal, the truck will advance slowly.

(6) Insert the forks slowly, making sure that they do not hit the pallet.

(7) Stop inserting the forks after the heels of the forks come into light contact with the pallet.



5.8 STOPPING FORKLIFT TRUCK

⚠ WARNING

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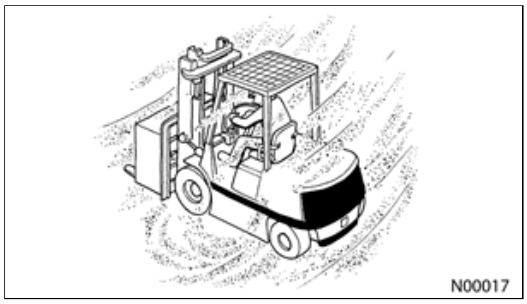
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9.3 SEVERE DUST OR LINT CONDITIONS

Check and service the air cleaner element more frequently.

Recommended Inspection Period	Every 50 service hours or weekly, whichever comes first

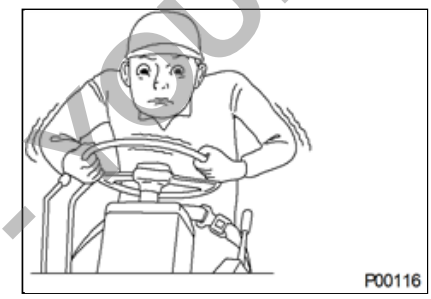
Check the radiator core more frequently for clogging or debris build-up. Clean or wash the forklift truck as required.



Chapter 10 TROUBLESHOOTING

10.1 STALLED ENGINE

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.



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.

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12.4 SPECIFICATIONS (STANDARD MODELS)

Item			Truck Model		
			FGC15N FGC18N FGC20CN	FGC20N FGC25N	FGC30N FGC33N
Alternator Drive Belt Deflection when pushed inward with 98 N (10 kgf) [22 lbf] pressure, mm (in.)			11 to 13 (0.4 to 0.5)		
Spark Plug	Type	NGK	FR2A-D		
	Gap, mm (in.)		0.9 (0.04)		
Engine Idling Speed (RPM)			700		
Steering Wheel Free Play when measured at rim with engine idling, mm (in.)			15 to 30 (0.6 to 1.2)		
Brake Pedal Free Play, mm (in.)			7 (0.3)	5 (0.2)	
Parking Brake Lever Operating Effort, N (kgf) [lbf]			245 to 295 (25 to 30) [55 to 66]		
Tire Size	Front		18 x 6 x 12 - 1/8	21 x 7 x 15	21 x 8 x 15
	Rear		14 x 5 x 10	16 x 6 x 10 - 1/2	
Tightening Torque for Wheel Nuts, N·m (kgf·m) [lbf·ft]			141.2 to 172.6 (14.4 to 17.6) [104 to 127]	339.8 to 415.4 (34.6 to 42.4) [251 to 306]	
Lift chain elongation limit, mm (in.) / 20 links			327 (12.9) (Excluding CC4000)	392 (15.4) (Including CC4000)	523 (20.6)

12.5 REFILL CAPACITIES

Item			Truck Model		
			FGC15N FGC18N FGC20CN	FGC20N FGC25N	FGC30N FGC33N
Refill Capacities (approx.), liter (U.S. gal.)	Engine Cooling System – 0.65 liter (1.4 pt) reserve tank included		6.8 (1.8)		7.4 (2.0)
	Engine Lubrication System	Crankcase	3.5 (0.9)		
		Oil Filter	0.3 (0.1)		
		Total	Low : 4.5 (1.2) / High : 5.5 (1.5)		
	Powershift transmission		5.0 (1.3)		
	Differential		2.7 (0.7)	3.8 (1.0)	4.7 (1.2)
	Hydraulic Tank	N level	34 (9.0)		
	Brake Fluid Reserve Tank, cc (cu.in.)		135 (8.2)		
Battery Electrolyte Specific Gravity, corrected to 20°C (68°F)			1.26 to 1.28		

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

12.6 CAPACITIES AND FORKLIFT TRUCK WEIGHT (STANDARD MODELS)

Item	Truck Model			

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⚠ CAUTION

A daily (Pre-Start) inspection is the key for safety. At the beginning of each shift, check your truck to make sure it is in a safe operating condition. Always inspect your truck under the following conditions:

- Park the truck on a hard and level surface.
- Lower the forks until the forktips touch the floor.
- Apply the parking brake.
- Place the direction lever in the NEUTRAL position.
- Turn the engine OFF.
- Engine stopped.
- Block the wheels.

⚠ CAUTION

- Avoid mixing lubricants. In some cases, different brands of lubricants are not compatible with each other and deteriorate when mixes. It is best to stick with the same brand at successive service intervals.
- Before refilling, clean filler holes. After filling, clean up spills.

⚠ CAUTION

Contact your authorized dealer for the proper disposal of wastes accumulated after replacement of tires, batteries, oils, and fluids.

11.3 MAINTENANCE SCHEDULE

11.3.1 MAINTENANCE SCHEDULE - OVERVIEW

As the operator, you are responsible for the performance of the daily Pre-Start inspection. You 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 change of rubber parts, however, rely on the expert knowledge of the dealer's well-trained mechanics, and consult your authorized dealer's workshop.

Periodic Inspection Time Intervals	- One month (30 days) or 200 service hours after delivery of a new forklift truck, whichever comes first - Every 200 service hours or monthly, 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 1 year, whichever comes first

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

Component Group	Item	Service	Page
General	Faulty Operation Found the Day Before	Check	Faulty Operation Found the Day Before
	Oil, Fuel or Coolant Leaks	Check	Oil, Fuel, or Coolant Leaks
Brake System	Service Brakes	Check fluid level	Service Brake Fluid

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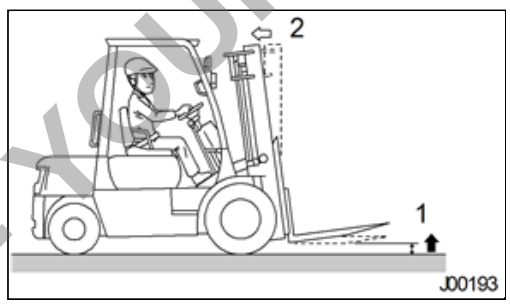
⚠ CAUTION

Before starting the engine, sit properly in the operator seat and make sure the following:

- No one is around the truck.
- The parking brake is applied.
- The direction lever is in the NEUTRAL position.

(1) Pull the lift lever to raise the forks to a safe traveling height of 15 to 20 cm (6 to 8 in.) from the floor.

(2) Tilt the mast fully back.



1. 15 TO 20 CM (6 TO 8 IN.)
2. TILT BACK

5.7 FORKLIFT TRUCK OPERATION

5.7.1 TRUCK OPERATION - OVERVIEW

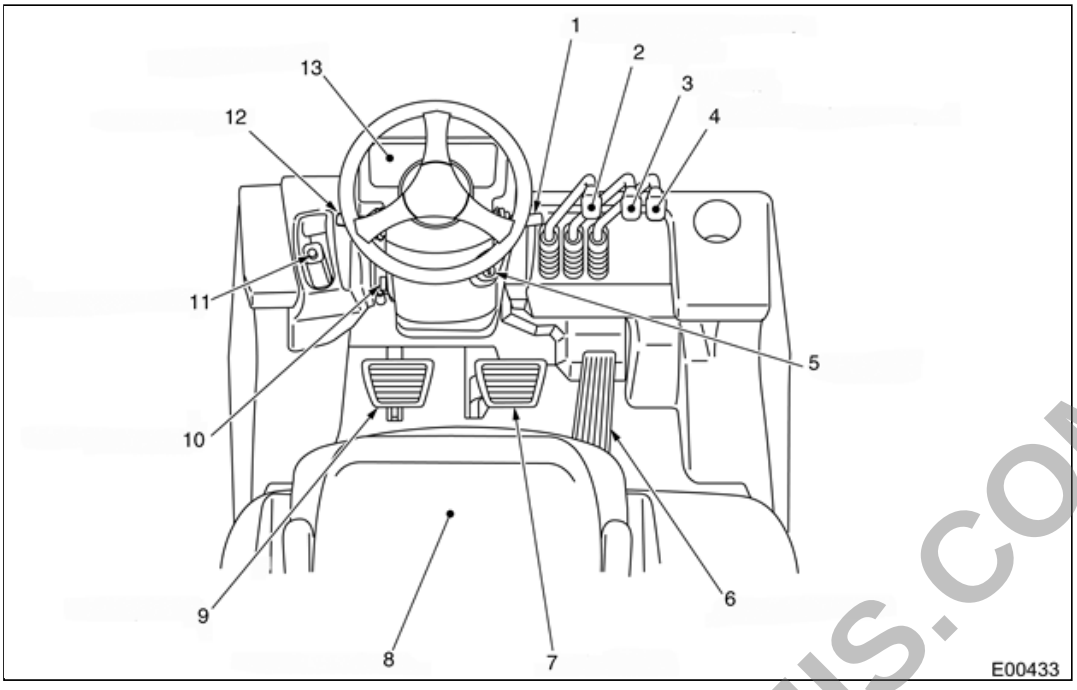
⚠ CAUTION

DO NOT "ride" the clutch/inching pedal during travel. This causes a partly disengaged condition that will result in premature clutch plate wear.

(1) Depress the inching pedal fully.

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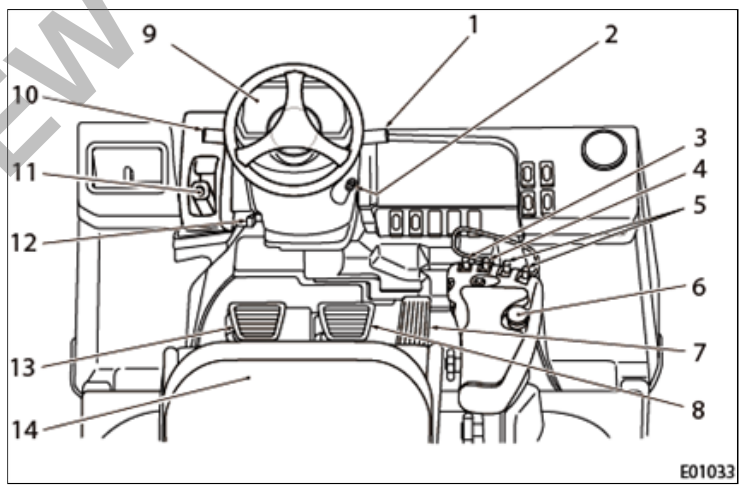
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1.	TURN SIGNAL / LIGHT SWITCH	8.	OPERATOR'S SEAT
2.	LIFT LEVER	9.	INCHING PEDAL
3.	TILT LEVER	10.	STEERING TILT LEVER
4.	ATTACHMENT CONTROL LEVER	11.	PARKING BRAKE LEVER
5.	KEY SWITCH	12.	DIRECTION LEVER
6.	ACCELERATOR PEDAL	13.	INSTRUMENT PANEL
7.	BRAKE PEDAL		

2.3.3 FC MODEL

FC Model (Type A)



1.	TURN SIGNAL/LIGHT SWITCH	8.	BRAKE PEDAL
2.	KEY SWITCH	9.	METER PANEL
3.	LIFT SWITCH	10.	DIRECTION LEVER
4.	TILT SWITCH	11.	PARKING BRAKE LEVER
5.	ATTACHMENT SWITCHES	12.	STEERING COLUMN TILT LEVER
6.	EMERGENCY MAST STOP BUTTON	13.	INCHING PEDAL

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Moisture is harmful to the controller. When washing, DO NOT splash water or steam over the VCM inside the right step, the ECM inside the engine compartment, INPUT UNIT under the FC lever box and OUTPUT UNIT inside the dashboard.

7.2.8 OTHER

More precautions may have to be taken according to the place of storage, storage period, and season.

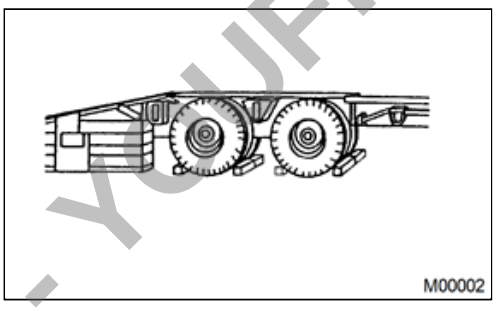
When you store your forklift truck, contact your authorized dealer.

Chapter 8 TRANSPORTATION HINTS

8.1 FORKLIFT TRUCK LOADING AND SHIPPING

Be sure to take the following safety precautions before loading and shipping forklift trucks:

- Always block the trailer or rail car wheels before loading the forklift truck.
- Position the forklift truck on the truck bed or rail car.
- Apply the service brake and then apply the parking brake. Place the direction lever in the NEUTRAL position.
- Turn the key switch to the OFF position and remove the key.
- Block the wheels and secure the forklift truck with tiedowns.
- Do not turn the steering wheel after the forklift truck has been secured. It may loosen the tie-downs.



⚠ WARNING

Check travel route for overpass clearances. Make sure there is adequate clearance if the forklift truck being transported is equipped with a high mast or cab. Remove ice, snow, or other slippery material from the shipping forklift truck and loading dock.

8.2 FORKLIFT TRUCK LIFTING AND TIE DOWN INFORMATION

Take the following safety precautions when lifting or tying down forklift trucks:

- Weight and instructions given here apply to forklift trucks manufactured by Mitsubishi Caterpillar Forklift America Inc.
- Use proper rated cables and slings for lifting. Position the crane so the forklift truck is level when lifted.
- Spreader bar widths should be sufficient to prevent contact with the forklift truck.
- Use the tie-down locations provided for forklift truck tie down.

⚠ CAUTION

Incorrect lifting or tie-downs may cause a load to shift and cause injury and/or damage.

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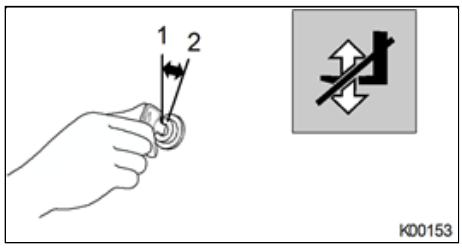
Code	Explanation	Code	Explanation
E-24	Accelerator sensor warning signal	F-10	Lift lever neutral warning
E-25	0_2 sensor warning signal	F-11	Tilt lever neutral warning
E-26	0_2 sensor heater warning signal	F-12	Attach-1 lever neutral warning
E-27	POS sensor warning signal	F-13	Attach-2 lever neutral warning
E-28	PHASE sensor warning signal	F-14	Attach-3 lever neutral warning
E-29	Self-shut system warning	F-15	ECU communication error
E-30	ECCS C/U warning signal	F-16	Shift lever abnormal signal
E-31	Electronic control throttle control warning signal	F-17	Speed warning
E-32	Overheat signal (STEP1)	F-18	ECU error 1
E-33	Overheat signal (STEP2)	F-19	ECU error 2
E-34	Spark system warning signal	F-20	Lift lever warning
E-35	LPG fuel injector disconnection diagnostic result signal	F-22	Tilt lever warning
E-36	LPG fuel pressure sensor diagnostic result signal	F-24	Attach-1 lever warning
E-38	LPG vaporizer diagnostic result signal	F-26	Attach-2 lever warning
E-39	Mast-high SW diagnostic result signal	F-28	Attach-3 lever warning
E-40	Oil pressure sensor diagnostic result signal	F-29	Joystick duplicate warning
E-41	Stop light SW warning signal	F-31	VCM-IM sensor voltage warning
E-42	Gas fuel system diagnostic result signal	F-32	Lift oil pressure sensor warning
E-43	LPG fuel system diagnostic result signal	F-34	Speed sensor warning

Code	Explanation	Code	Explanation
F-36	Tire angle sensor warning	F-79	Unload / Lift lock solenoid leak
F-38	Tilt angle sensor warning	F-80	Knob position solenoid warning
F-40	Steering warning	F-82	Tilt lock solenoid warning
F-41	Output unit warning	F-84	Knob position solenoid leak
F-44	Output unit PWM power voltage warning	F-85	T/M forward solenoid warning
F-45	Output unit communication warning	F-87	T/M backward solenoid warning
F-46	Input unit warning	F-89	T/M solenoid leak
F-49	Input unit communication warning		
F-50	Lift up solenoid warning	P-01	Memory check warning
F-52	Lift down solenoid warning	P-03	VCM communication warning
F-54	Lift solenoid leak	P-04	ECM communication warning
F-55	Tilt forward solenoid error	P-07	MP communication warning
F-57	Tilt backward solenoid warning	P-15	ECM communication warning
F-59	Tilt solenoid leak	S-01	Memory check warning
F-60	Attach-1A solenoid warning	S-02	Battery voltage warning
F-62	Attach-1B solenoid warning	S-03	VCM communication warning
F-64	Attach-1 solenoid leak	S-04	ECM communication warning
F-65	Attach-2A solenoid warning	S-07	PMP communication warning
F-67	Attach-2B solenoid warning	S-10	APS1 input signal warning
F-69	Attach-2 solenoid warning	S-11	APS2 input signal warning
F-70	Attach-3A solenoid warning	S-13	APS 1/2 correlated warning
F-72	Attach-3B solenoid warning	S-14	Idle switch warning
F-73	Hour meter gap warning	S-40	Service brake solenoid warning

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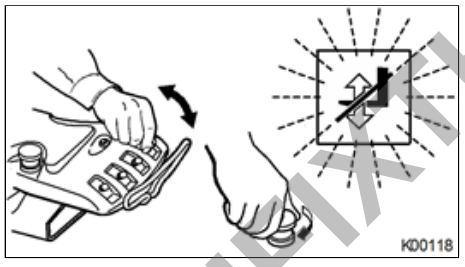
(4) Turn the key switch to the START position.



1. OFF
2. ON

Example 3 (FC model)

The mast interlock indicator icon will blink when you return the emergency stop button (if equipped) to the OPERATE position while the lift or tilt lever is placed to the OPERATING position.



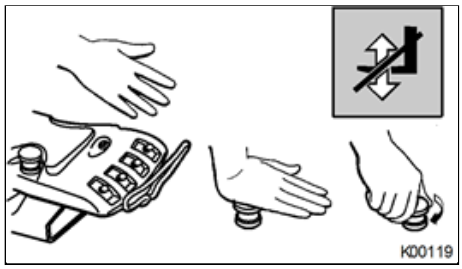
Remedy

(1) Place the lift or tilt lever to the NEUTRAL position.

(2) Push down on the emergency stop button once, then return it to the OPERATE position.

(3) Make sure the mast interlock indicator icon is OUT

(4) Start operation.



6.5 LIFTING THE LOAD

(1) Move up to the load and stop the truck 20 to 30 cm (8 to 12 in.) short of the load.

(2) Make sure the truck is square with the load and the forks are at the correct height.

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⚠ 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.

NOTE:

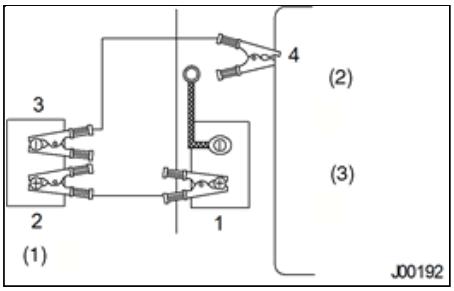
- Use 12-volt jumper cables to jump start the forklift truck. This forklift truck has a 12-volt starting system.
  Use only equal voltage for jump starting. Use of a welder or higher voltage will damage the electrical system.
- Jumper cables are available at your authorized dealer.
- Turn OFF the battery switch before the boost connection to prevent damage to electrical components on the stalled forklift truck. Many "dead" batteries can be recharged.
- 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.

(1) Position the second forklift truck, with its engine running, within jumper cable distance.

(2) Connect the jumper cables in the sequence shown. DO NOT short across the positive (+) and negative (-) terminals.

(3) After connecting the cables, increase the engine speed of the second forklift truck's engine and then start the engine of the stalled forklift truck that has the "rundown" battery.

(4) After the engine starts, disconnect the jumper cables in the reverse sequence.



(1) "GOOD" BATTERY

(2) CABLE END

(3) TRUCK BEING STARTED

10.3 IF LIGHTS WON'T GLOW

10.3.1 LIGHTS WON'T GLOW - OVERVIEW

⚠ CAUTION

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	FGC15N	FGC18N	FGC20CN	FGC20N
Capacity, kg (lb) / 500 mm (24 in.)	1500 (3000)	1750 (3500)	2000 (4000)	
Forklift Truck Weight, kg (lb), (approx.)	2750 (6050)	2930 (6450)	3180 (7000)	3340 (7350)

Item	Truck Model		
	FGC25N	FGC30N	FGC33N
Capacity, kg (lb) / 500 mm (24 in.)	2500 (5000)	3000 (6000)	3300 (6500)
Forklift Truck Weight, kg (lb), (approx.)	3700 (8150)	4300 (9500)	4510 (9950)

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

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.

⚠ CAUTION

The damage caused by parts other than genuine parts is not covered by Mitsubishi Forklift Trucks' warranty.



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13.2 PROPER DISPOSAL OF YOUR FORKLIFT TRUCK

Contact your authorized Mitsubishi forklift truck dealer for how and where to dispose of your forklift truck. Improper disposal of forklift trucks and other wastes such as tires, batteries, coolant, and hydraulic oil can be harmful to the environment, and this act is strictly prohibited by the law.

13.3 INSTRUCTIONS FOR ORDERING PARTS

When ordering parts, or when asking your authorized Mitsubishi forklift truck dealer to have your forklift truck repaired, be sure to provide the following items:

- Forklift truck model
- Forklift truck serial number
- Engine serial number

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