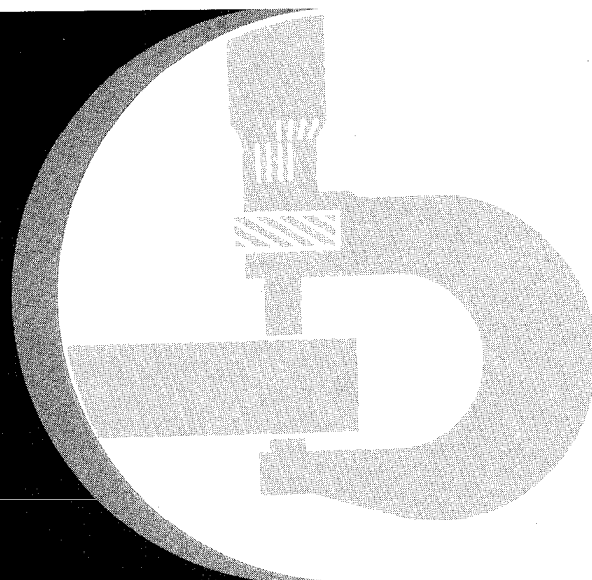


John Deere JD380, JD480-A, and JD480-B Forklifts



TECHNICAL MANUAL

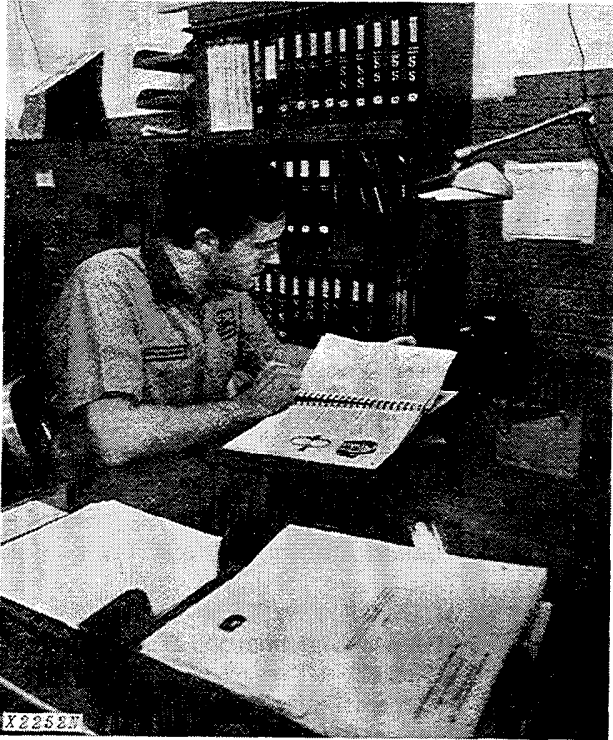
TM-1060

JD380, JD480-A and JD480-B Forklifts TECHNICAL MANUAL TM-1060 (Mar-84)

SECTION AND GROUP CONTENTS

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INTRODUCTION



Use FOS Manuals for Reference

This technical manual is part of a twin concept of service:

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

•FOS Manuals—for reference

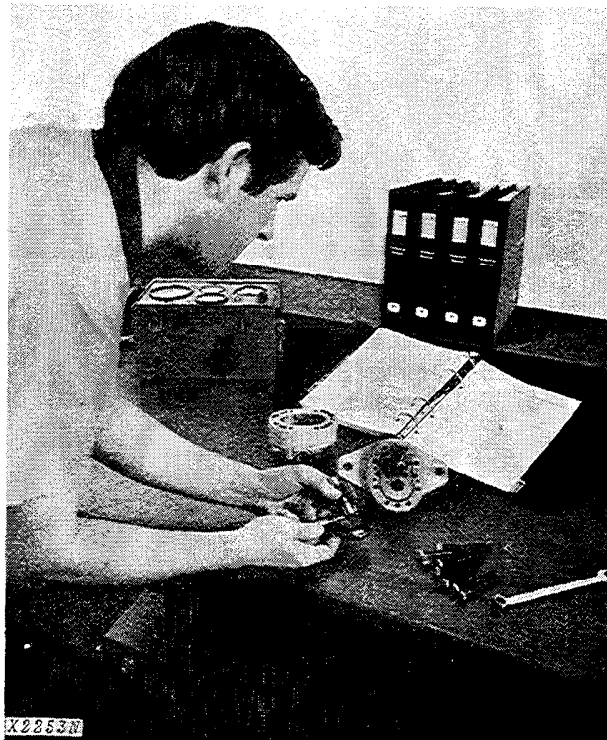
Fundamentals of Service (FOS) Manuals cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.



When a service technician should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the technical manual.

•Technical Manuals—for actual service

Technical Manuals are concise service guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.



Use Technical Manuals for Actual Service

This technical manual was written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.

Some features of this manual:

- Inside front cover - "Table of Contents" and "Maintenance Without Accident".
- Section 10 - General specifications and services.
- Section 20 - Engine
- Section 30 - Fuel system
- Section 40 - Electrical System
- Section 50 - Power train
- Section 60 - Steering and brakes
- Section 70 - Hydraulic system
- Section 80 - Miscellaneous components
- Inside rear cover - Index

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<https://www.ebooklibonline.com>

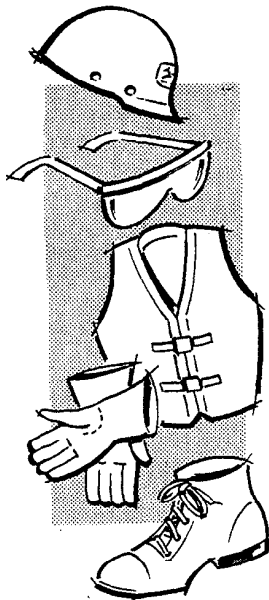
MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27999N

 This safety alert symbol identifies important safety messages in this manual and on the tractor. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

**EVERY EMPLOYER HAS A
SAFETY PROGRAM. KNOW
WHAT IT IS!**



T27501N

Consult your shop foreman for specific instructions on a job, and the safety equipment required.

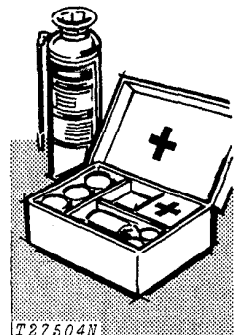
For instance, you may need: Hard hat, safety shoes, safety goggles, heavy gloves, reflector vests, ear protectors, respirators.

Litho in U.S.A.



BE ALERT!

Plan ahead—work safely—know how to use a first-aid kit and a fire extinguisher—and where to get assistance.



T27504N

Maintenance Area

Make sure the maintenance area is adequately vented.

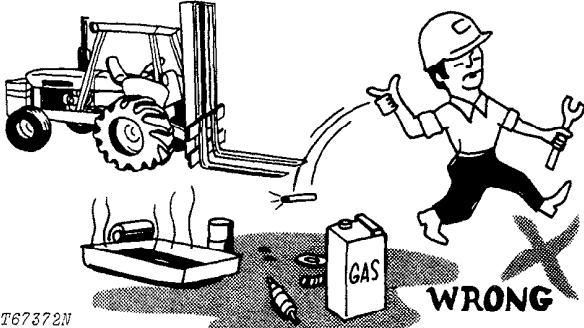
Keep maintenance area **CLEAN AND DRY**. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

Store starting aids in a cool and well-ventilated place, out of the reach of unauthorized personnel.

MAINTENANCE WITHOUT ACCIDENT

AVOID FIRE HAZARDS—

Fuel Is Dangerous!



T67372N

Don't smoke while refueling.

Don't smoke while handling highly flammable material.

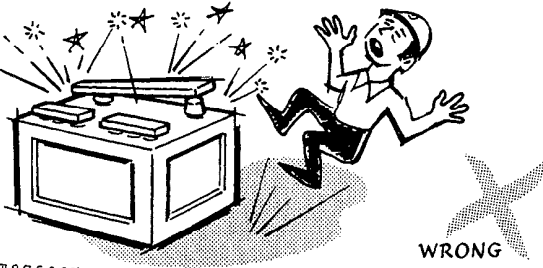
Engine should be shut off when refueling.

Use care in refueling if the engine is hot.

Don't use open pans of gasoline or diesel fuel for cleaning parts. Good commercial, nonflammable solvents are preferred.

Battery Gas Is Highly Flammable!

Provide adequate ventilation when charging batteries.



T27506N

Don't check battery charge by placing metal objects across the posts.

Don't allow sparks or open flame near batteries.

Don't smoke near battery.

Flame Is Not a Flashlight!

NEVER USE OPEN FLAME AROUND THE MACHINE.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

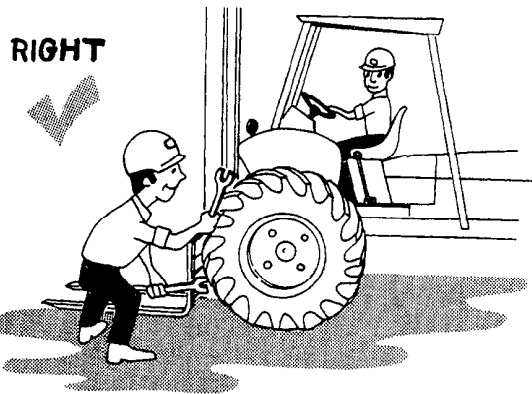
UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the equipment unless authorized to do so. Then be sure you know the safe and proper procedure.

Follow recommended procedures.

Never service the equipment while it is being operated.

When the engine is running, avoid working on equipment.



T67373N

If it is necessary to make checks with the engine running, **ALWAYS USE TWO** service technicians—one, the operator, at the controls, the other checking within sight of the operator.

KEEP HANDS AWAY FROM MOVING PARTS

Support all raised equipment.

Never work under raised fork.

Lower fork to ground.

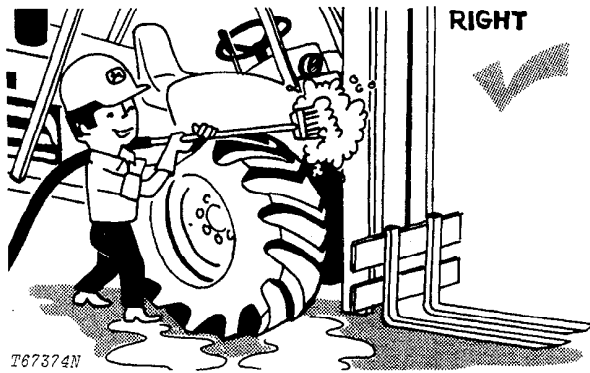
If the machine is on an incline, block it securely.

Use hoisting equipment for lifting heavy parts.

TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE VICINITY

Wear safety glasses when drilling, grinding, or hammering metal.

SERVICING PRECAUTIONS



Keep ALL equipment free of dirt and oil.

Be sure to clean any oil, grease, mud, ice, or snow from floor of operator's compartment and stepping points.

When preparing the engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape openings after adding the inhibitor. Keep container tightly closed when not in use.

Don't remove the radiator cap until coolant temperature is below the boiling point. Then loosen cap slowly to the stop to release pressure before removing.

Periodically check exhaust system for excessive leakage.

Relieve hydraulic pressure before working on hydraulic system: shut off engine, lower fork to ground, and move control levers and steering wheel until no response is felt.

When checking hydraulic pressure, be sure to use the correct test gauge.

PRECAUTIONS DURING REPAIR

Before working on hydraulic system release hydraulic pressure.

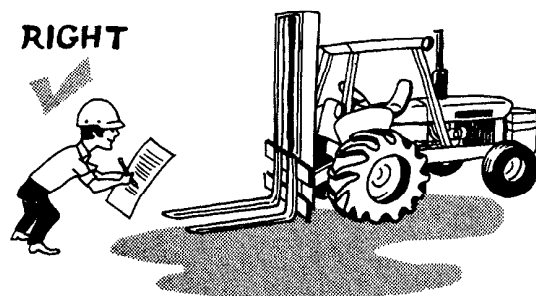
Before repairing the electrical system, or performing a major overhaul, disconnect batteries.

KNOW EQUIPMENT IS READY!

Check guards, canopies, safety guards — all protective devices installed on the unit. Every one should be in place and secure.

CHECK IT OUT!

- GUARDS
- CANOPIES
- SHIELDS
- PROTECTIVE DEVICES
- ROLL-OVER PROTECTIVE STRUCTURES
- SEAT BELTS, ETC.



Carefully inspect equipment for visual defects—leaks in fuel, lubrication, and hydraulic systems. Do not search for pressurized fluid leaks with your hands. Use cardboard or wood to search for leaks.

Section 10 GENERAL

CONTENTS OF THIS SECTION

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Group 5 - SPECIFICATIONS		Transmission-Hydraulic Oils	20-2
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Delivery	10-3	Removing and Installing Counterweight	25-2
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Engine Lubricating Oils	20-2	Specifications	30-1

Group 5 SPECIFICATIONS

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, these specifications are based on a unit equipped with 16.9-24 drive tires, 11L-15 steering tires, pallet fork, and standard equipment.)

Power (@ 2500 engine rpm):	SAE	DIN
Gross (JD380)	46 hp (34.3 kW)	
Net (JD380)	43 hp (32.1 kW)	45.7 PS
Gross (JD480-B)	66 hp (49.2 kW)	
Net (JD480-B)	62 hp (46.2 kW)	65.9 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. Gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500-ft. altitude and 85°F temperature and DIN 70 020 standard conditions of 760 mm Hg barometer (sea level) and 20°C temperature.

Engine: (JD380) John Deere 3-cylinder diesel, valve-in head, 4-stroke cycle
 Bore and stroke 3.86x4.33 in. (98x110 mm)
 Displacement 152 cu. in. (2491 cm³)
 Compression ratio 16.2 to 1
 Max. torque
 @ 1,300 rpm 110 lb-ft (149 Nm) (15.2 kg-m)
 NACC or AMA (U.S. Tax) horsepower 17.88
 Main bearings 4

(JD480-B) John Deere 4-cylinder diesel, valve-in-head, 4-stroke cycle
 Bore and stroke 4.02x4.33 in. (102x110 mm)
 Piston displacement 219 cu. in. (3588 cm³)
 Compression ratio 16.2 to 1
 Maximum torque
 @ 1,300 rpm 160 lb-ft (217 Nm) (22.1 kg-m)
 NACC or AMA (U.S. Tax) horsepower 25.65
 Main bearings 5

Lubrication Pressure system w/full-flow filter
Cooling Pressurized w/thermostat and
fixed bypass
Fan Suction
Air cleaner Dry
Electrical system 12-volt w/alternator
Battery (12 volt) reserve capacity 110 minutes

Engine Disconnect Clutch Hand-operated,
single 10-in. (254 mm) plate

Hydraulic System: Open-Center

Control 3-lever
Pump Gear, 23 gpm (1.45 L/s) @ 2500
engine rpm
Pressure 2000 psi (13 790 kPa) (140.6 kg/cm²)
Oil lines Seamless steel tubing; double-wire-
braid hose
Filter 33-micron paper cartridge in return

Transmission 8-speed transmission w/hydrauli-
cally-actuated no-clutch direction reverser. "Inch-
ing" pedal is provided.

Gear:	Travel Speeds:		km/h	
	mph		Fwd.	Rev.
	Fwd.	Rev.	Fwd.	Rev.
1	1.6	1.4	2.6	2.3
2	2.3	2.0	3.7	3.2
3	3.5	3.0	5.6	4.8
4	4.8	4.1	7.7	6.6
5	6.3	5.4	10.1	8.7
6	9.0	7.8	14.5	12.6
7	13.5	11.6	21.7	18.7
8	18.7	16.1	30.1	25.9

Final Drives Inboard, planetary

Brakes Hydraulically actuated, wet-disk.
Foot-operated individually or simultaneously.

Steering Power (hydrostatic)
Wheel rotation, max. left to max. right 3 turns

JD380:
Turning radius (brake applied
w/o fork) 10 ft. 8 in. (3.25 m)
Turning clearance (brake applied
w/o fork) 22 ft. 4 in. (6.81 m)

JD480-B:
Turning radius (brake applied
w/o fork) 10 ft. 10 in. (3.30 m)
Turning clearance (brake applied
w/o fork) 22 ft. 6 in. (6.86 m)

Tires:	Drive	Steering
	JD380	
16.9-24, 8-ply-rating, R4		7.50/8.00-16, 10-ply-rating, F3
19.5L-24, 8-ply-rating, R4		11L-15, 8-ply-rating, F3
	low profile, tubeless	

Tires:	Drive	Steering
	JD480-B	
21L-24, 8-ply-rating, R4		11L-15, 8-ply-rating, F3
16.9-24, 8-ply-rating, R4		
19.5L-24, 8-ply-rating, R4		
	low profile, tubeless	

Wheel Tread (front and rear) 62 in. (1.58 m)

Dimensions:

Overall width 6 ft. 7 in. (2.01 m)
Ground clearance, min. 1 ft. 2 in. (356 mm)
Reach from center line of drive wheels to front
or fork carriage 2 ft. 10 in. (864 mm)

Capacities:	U.S.	Imp.	Liters
Cooling system	3 gal.	2.5 gal.	11.4
Fuel tank	19.5 gal.	16.3 gal.	73.8
Engine lubrication, including filter	1.5 gal.	1.3 gal.	5.7
Hydraulic system	12.5 gal.	10.4 gal.	47.3

Additional Standard Equipment:

- Electric hour meter
- Vertical muffler w/rain cap
- Cold weather starting aid
- Overhead guard
- Hand throttle
- Foot throttle
- Differential lock
- Fenders
- Fuel filter
- Key switch safety start
- Antifreeze
- Fuel gauge
- Oil pressure indicator light
- Alternator charge indicator light
- Water temperature gauge
- Appropriate counterweight
- Lights
- Transistorized voltage regulator
- Horn
- Air cleaner restriction indicator

Special Equipment:

- Engine coolant heater
- Muffler extension
- Vandal protection

SAE Operating Weight (w/required counterweights):

JD380:

- 10 ft. 6 in., 4000-lb. capacity .. 9020 lb. (4091 kg)
- 14 ft., 4000-lb. capacity 9185 lb. (4166 kg)
- 21 ft. 6 in., 4000-lb. capacity 10,245 lb. (4647 kg)
- 28 ft., 4000-lb. capacity 11,290 lb. (5121 kg)

JD480-B:

- 14 ft., 6000-lb. capacity 10,980 lb. (4980 kg)
- 21 ft. 6 in., 5000-lb. capacity 10,845 lb. (4919 kg)
- 28 ft., 5000-lb. capacity 11,690 lb. (5303 kg)

Shipping Weight:

- Two 4-ft. (1.22 m) pallet tines
 (JD380) 350 lb. (159 kg)
- Two 4-ft. (1.22 m)
 5000-lb. (2268 kg) pallet tines
 (JD480-B) 350 lb. (159 kg)
- Two 4-ft. (1.22 m), 6000-lb.
 (2722 kg) pallet tines
 (JD480-B) 425 lb. (193 kg)

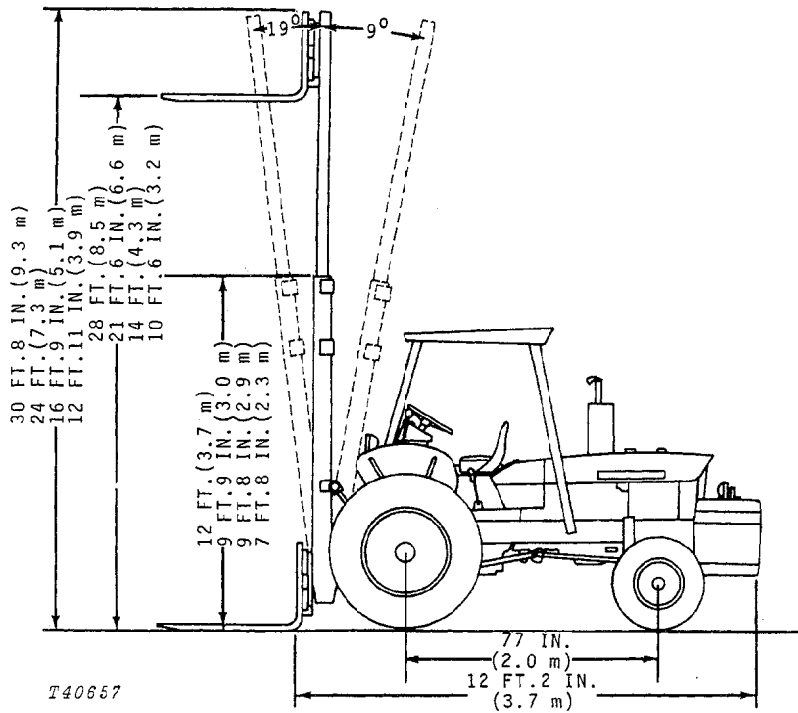
Operating Information (JD380)	Maximum Lifting Height			
	10 ft. 6 in. (3.20 m)	14 ft. (4.27 m)	21 ft. 6 in. (6.55 m)	28 ft. (8.53 m)
Max. lift capacity*	4000 lb. (1814 kg)	4000 lb. (1814 kg)	4000 lb. (1814 kg)	4000 lb. (1814 kg)
Lift capacity at full height*	4000 lb. (1814 kg)	4000 lb. (1814 kg)	2500 lb. (1134 kg)	1000 lb. (454 kg)
Side-shift. . . 3 in. (76 mm) to right and left center	Yes	Yes	Yes	No
Rate of lift @ 2500 engine rpm (max. load)	57 fpm (17.4 m/min)	57 fpm (17.4 m/min)	83 fpm (25.3 m/min)	83 fpm (25.3 m/min)
Rate of lift @ 2500 engine rpm (empty)	61 fpm (18.6 m/min)	61 fpm (18.6 m/min)	95 fpm (29.0 m/min)	95 fpm (29.0 m/min)
Rate of drop (max. load)	29 fpm (8.8 m/min)	29 fpm (8.8 m/min)	54 fpm (16.5 m/min)	54 fpm (16.5 m/min)
Rate of drop (empty)	33 fpm (10.1 m/min)	33 fpm (10.1 m/min)	68 fpm (20.7 m/min)	68 fpm (20.7 m/min)

*Measured at 24 in. (610 mm) from heel of fork, with load centered

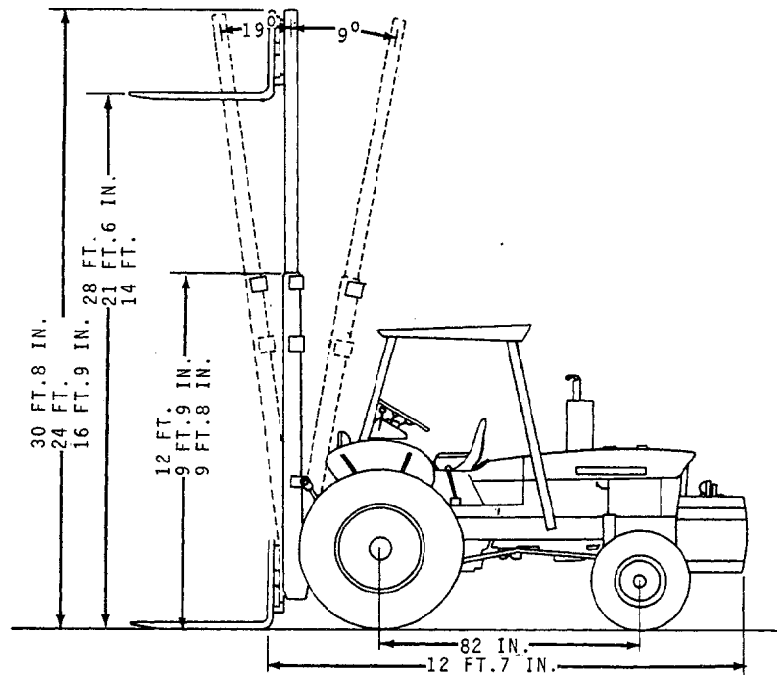
Operating Information (JD480-B)	Maximum Lifting Height		
	14 ft. (4.27 m)	21 ft. 6 in. (6.55 m)	28 ft. (8.53 m)
Max. lift capacity*	6000 lb. (2722 kg)	5000 lb. (2268 kg)	5000 lb. (2268 kg)
Lift capacity at full height*	6000 lb. (2722 kg)	2500 lb. (1134 kg)	1000 lb. (454 kg)
Side-shift. . . 3 in. (76 mm) to right and left of center	No	Yes	No
Rate of lift @ 2500 engine rpm (max. load)	57 fpm (17.4 m/min)	83 fpm (25.3 m/min)	83 fpm (25.3 m/min)
Rate of lift @ 2500 engine rpm (empty)	61 fpm (18.6 m/min)	95 fpm (29.0 m/min)	95 fpm (29.0 m/min)
Rate of drop (max. load)	29 fpm (8.8 m/min)	54 fpm (16.5 m/min)	54 fpm (16.5 m/min)
Rate of drop (empty)	33 fpm (10.1 m/min)	68 fpm (20.7 m/min)	68 fpm (20.7 m/min)

*Measured at 24 in. (610 mm) from heel of fork with load centered

JD380 OPERATING DIMENSIONS



JD480-B OPERATING DIMENSIONS



Group 10

PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY UNIT STORAGE

After receiving your unit from the factory and before putting the machine into temporary storage, perform the following checks and services.

For long term storage (over 30 days) information, consult your forklift operator's manual.

1. Check battery electrolyte level. Charge the battery, if necessary.
2. Check engine coolant level. Maintain midway between the radiator core and filler neck.
3. Fill the fuel tank.
4. Check crankcase oil level. Oil must be between marks on dipstick after machine has been shut down for 10 minutes.
5. Release hydraulic pressure by stopping engine, lowering fork and operating control levers and steering wheel until system fails to respond.
6. Reduce shipping pressure of all tires to the inflation pressure listed on page 10-10-8.

PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer and the customer.

Use the following list when preparing a unit for delivery to the customer.

1. Operator's Station

Check operation of key switch, horn, seat, seat belt, dash light, etc.

Equipment checked Yes No

2. Lights

Check operation of lights.

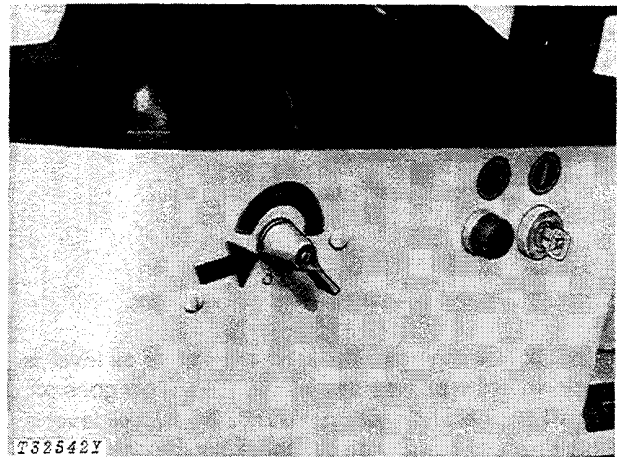


Fig. 1-Key Switch

Turn the key switch on to use the light switch. The light switch has four positions:

Position	Lights On
1 (left)	All lights off.
2	Bright front lights White rear light
3	Bright front lights Red rear light Amber warning lamps
4	Dim front lights Red rear light Amber warning lamps

Lights checked Yes No



Suggest:

If the above button click is invalid.

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Thank you so much for reading

3. Indicator Lights and Gauges

Check operation of indicator lights.

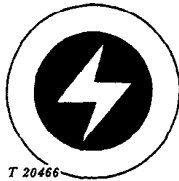


Fig. 2-Alternator Indicator Light

This light glows when alternator is not charging. If light goes on when engine is running, stop engine and find the cause. Light will go on when key is in start position and engine off.

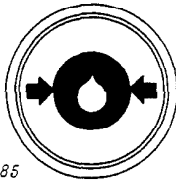


Fig. 3-Engine Oil Pressure Indicator Light

This light will go on when the crankcase oil level is low or when the oil pressure is low. When light goes on, shut off engine and check engine oil level. If oil level is not low, check for low oil pressure caused by restrictions or incorrect type of oil.

Check operation of gauges.

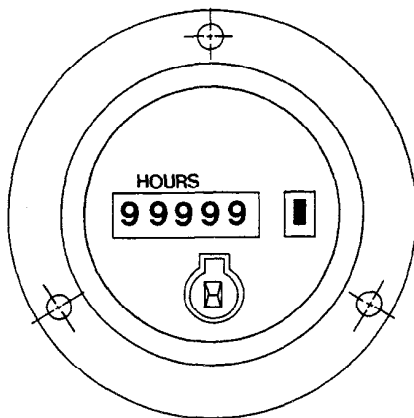
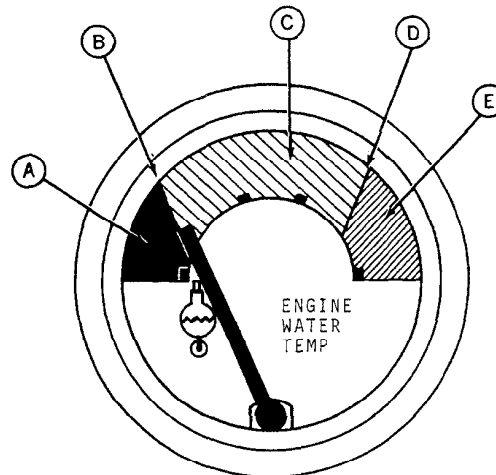


Fig. 4-Hour Meter

The electric hour meter records the accumulated hours of operation.



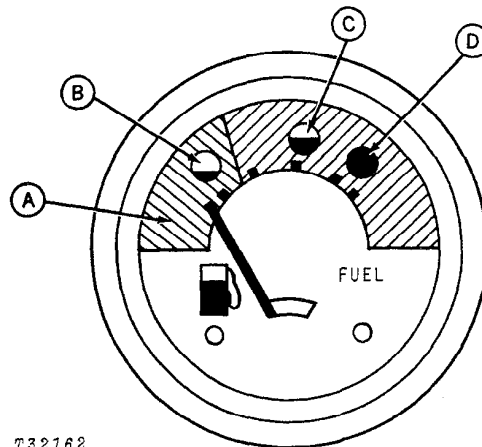
T32161

- A—Black Zone
- B—140°F (60°C)
- C—Operating Zone
- D—222°F (106°C)
- E—Red-Orange Zone

Fig. 5-Engine Coolant Temperature Gauge

Green zone (C) shows normal operating temperature.

If indicator hand goes into red-orange zone (E), stop engine and determine cause.



T32162

- A—Orange Warning Zone
- B—Empty Tank
- C—Half-Full Tank
- D—Full Tank

Fig. 6-Fuel Gauge

Fuel gauge shows amount of fuel in fuel tank.

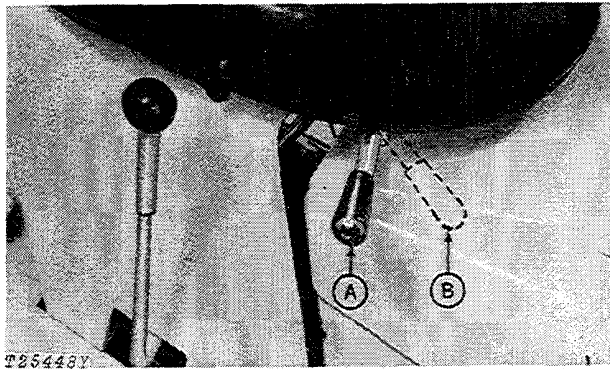
Fill fuel tank with correct fuel. Check action of gauge.

Indicator lights and gauges checked

Yes No

4. Hand Controls

Check operation of hand controls.



A—Fast Idle

B—Slow Idle

Fig. 7-Hand Throttle

Use hand throttle for engine speeds between slow idle and fast idle. See engine speeds chart on page 10-10-8.

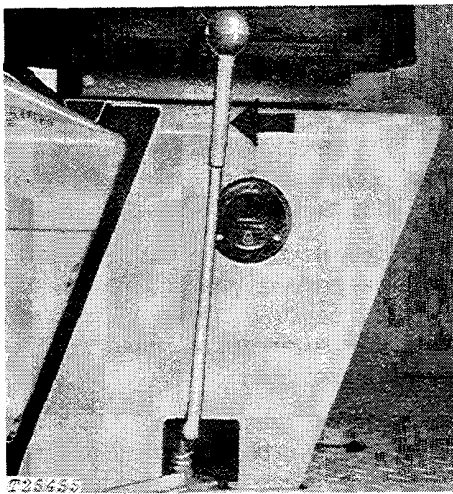


Fig. 8-Range Shift Lever

Use this lever to shift the transmission into low or high range.

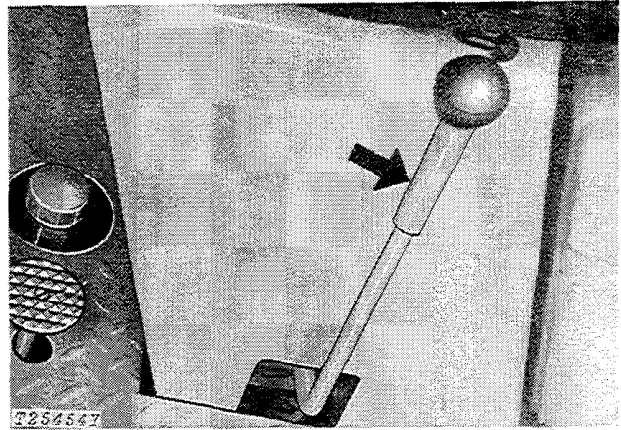
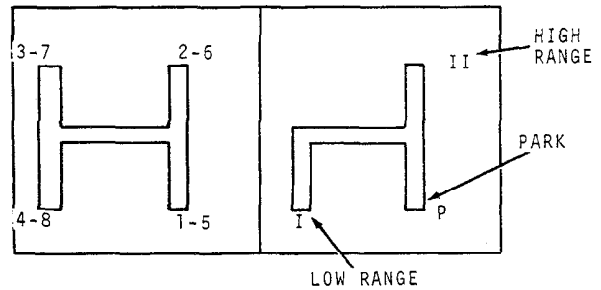


Fig. 9-Gear Shift Lever

Use this lever to shift the transmission into one of the eight gears.

GEAR SHIFT
 LEVER POSITIONS

RANGE SHIFT
 LEVER POSITIONS



T25457

Fig. 10-Transmission Shifting Pattern

When range shift lever is in low, you can move the gear shift lever into 1st, 2nd, 3rd, or 4th gear. When range shift lever is in high, you can move the gear shift lever into 5th, 6th, 7th, or 8th gear.

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