

**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)

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The specifications and design information contained in this manual were correct at the time this machine was manufactured. It is John Deere's policy to continually improve and update our machines. Therefore, the specifications and design information are subject to change without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

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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
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**Thanks very much for your reading,
Want to get more information,
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manual**

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admin@servicemanualperfect.com**

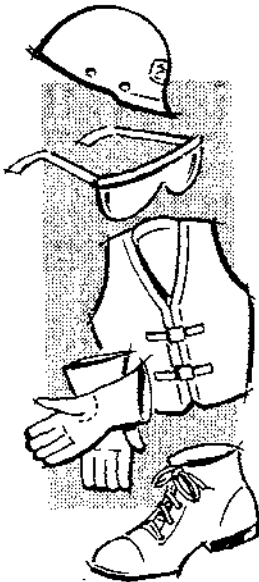
MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27523E

 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!**



T27501E

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.

RIGHT

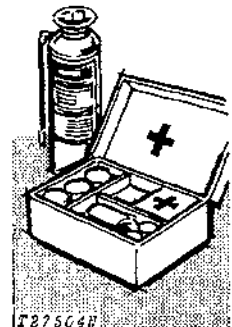


WRONG

T27502E

BE ALERT!

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



T27504E

Maintenance Area

Make sure the maintenance area is adequately vented.

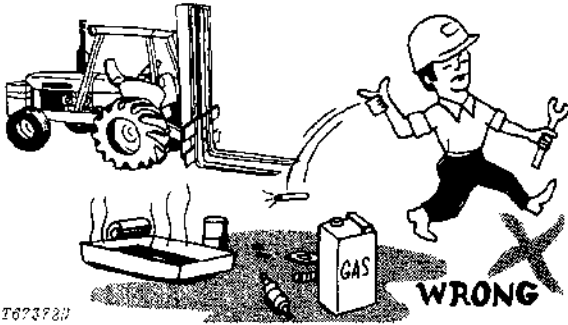
Keep maintenance area CLEAN AND DRY. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

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.



227506N

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!

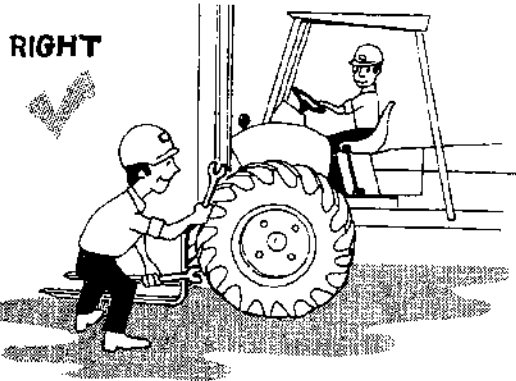
UNDER ALL MAINTENANCE CONDITIONS—

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.



T67372N

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.

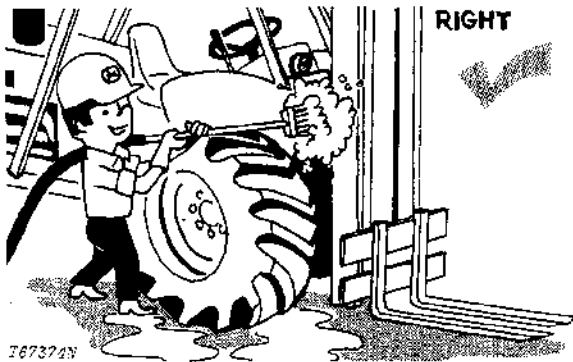
If the machine is on an incline, block it securely.

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.

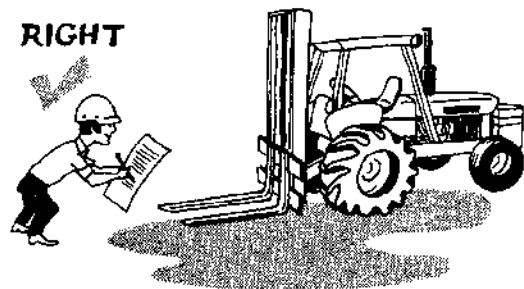
Before repairing the electrical system, or performing a major overhaul, disconnect batteries.

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.

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Section 10 GENERAL

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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/hydraulically-actuated no-clutch direction reverser. "Inching" pedal is provided.

Gear:	Travel Speeds:				
	mph		km/h		
	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 low profile, tubeless	11L-15, 8-ply-rating, F3

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)

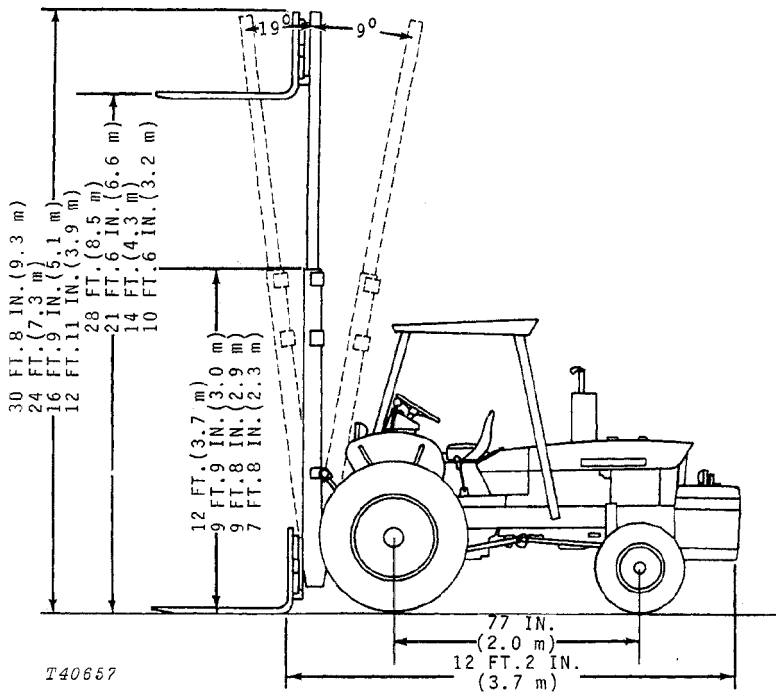
Operating Information (JD380)	Maximum Lifting Height			
	10 ft. 6 in. (3.20 m)	14 ft. (4.27 m)	21 ft. 6 in. (6.55 m)	28 ft. (8.53 m)
Max. lift capacity*	4000 lb. (1814 kg)	4000 lb. (1814 kg)	4000 lb. (1814 kg)	4000 lb. (1814 kg)
Lift capacity at full height*	4000 lb. (1814 kg)	4000 lb. (1814 kg)	2500 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

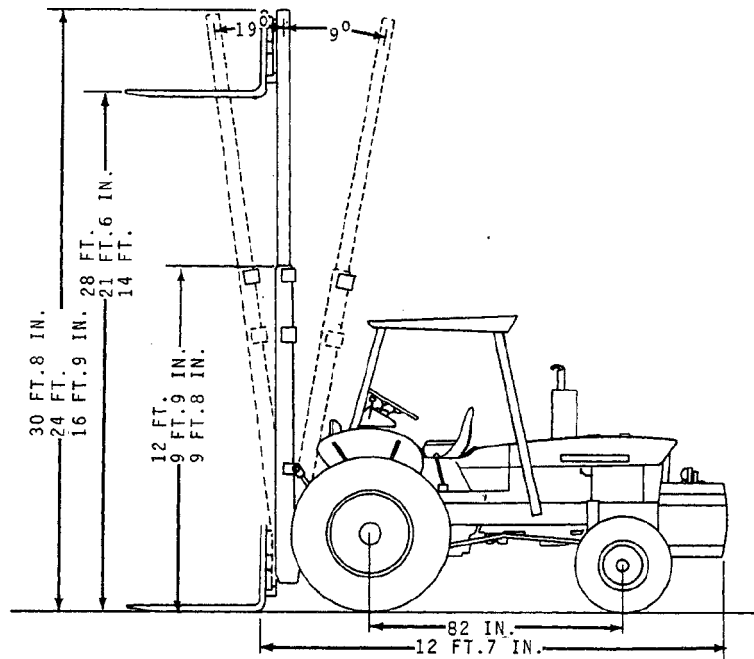
Operating Information (JD480-B)	Maximum Lifting Height		
	14 ft. (4.27 m)	21 ft. 6 in. (6.55 m)	28 ft. (8.53 m)
Max. lift capacity*	6000 lb. (2722 kg)	5000 lb. (2268 kg)	5000 lb. (2268 kg)
Lift capacity at full height*	6000 lb. (2722 kg)	2500 lb. (1134 kg)	1000 lb. (454 kg)
Side-shift... 3 in. (76 mm) 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.

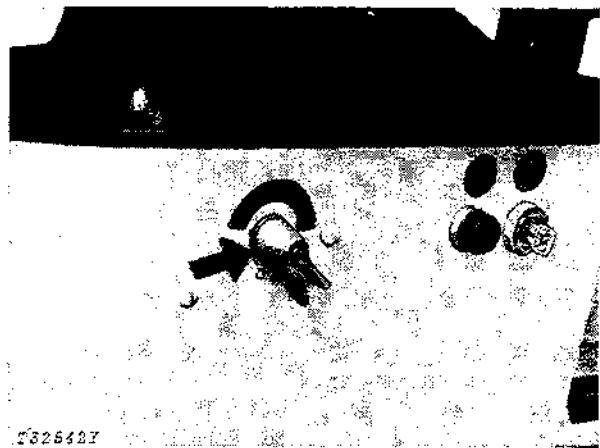


Fig. 1-Key Switch

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

3. Indicator Lights and Gauges

Check operation of indicator lights.

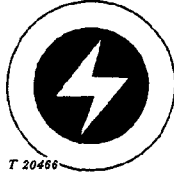


Fig. 2-Alternator Indicator Light

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.

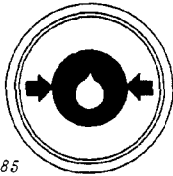


Fig. 3-Engine Oil Pressure Indicator Light

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.

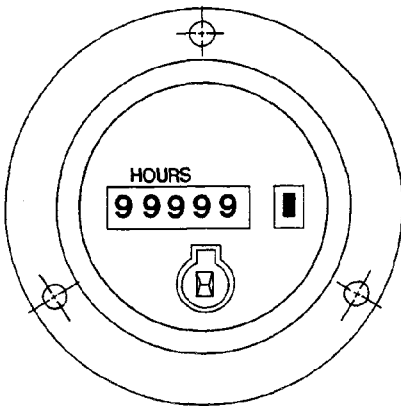
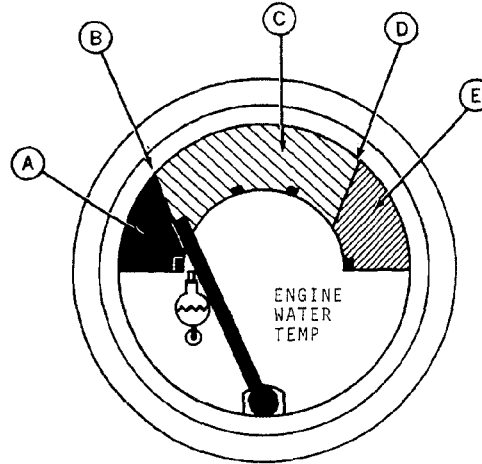


Fig. 4-Hour Meter

The electric hour meter records the accumulated hours of operation.



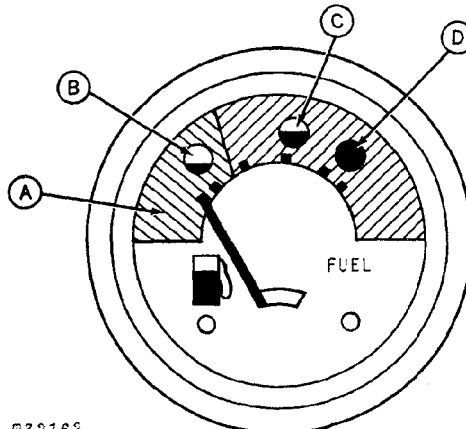
T32161

- 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

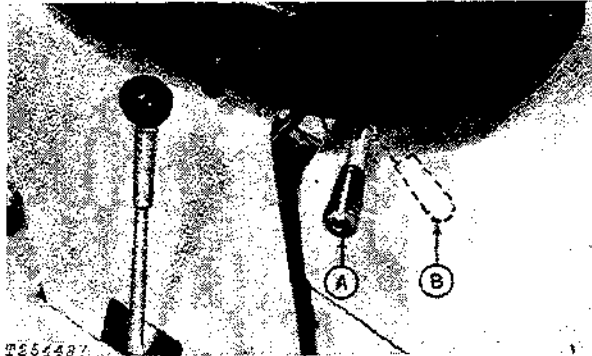
Fuel gauge shows amount of fuel in fuel tank.

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.

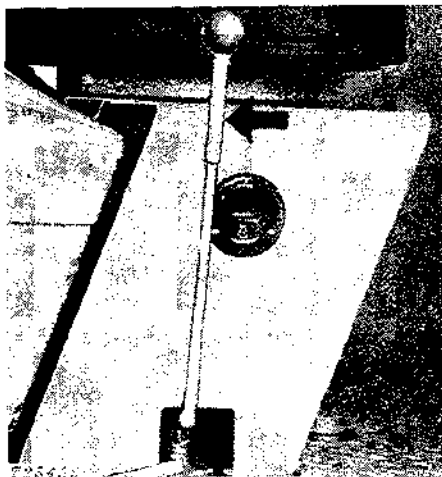


Fig. 8-Range Shift Lever

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

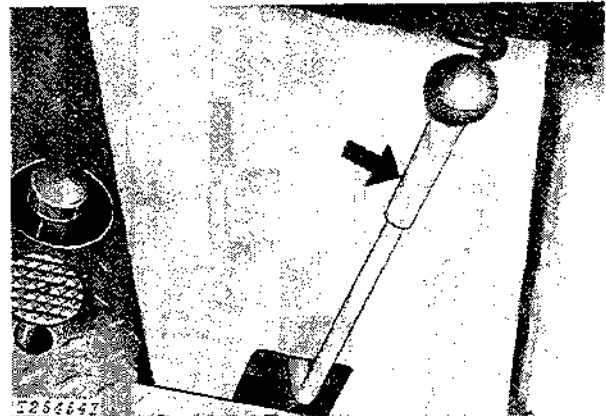


Fig. 9-Gear Shift Lever

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

GEAR SHIFT
LEVER POSITIONS

RANGE SHIFT
LEVER POSITIONS

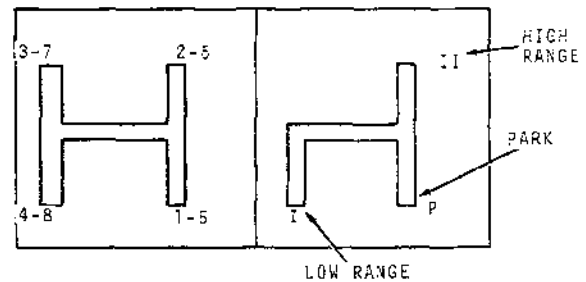
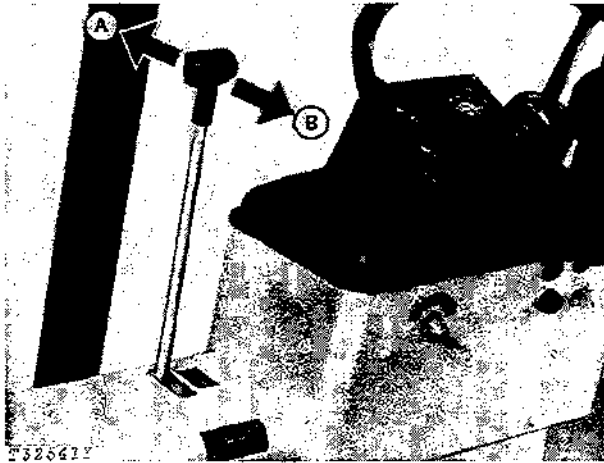


Fig. 10-Transmission Shifting Pattern

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.

Use the reverser control lever to change the direction of travel "on the go" without declutching or shifting gears.



A—Forward B—Reverse

Fig. 11-Reverser Control Lever

When the lever is forward the forklift is in forward drive. When the lever is rearward, the forklift is in reverse drive.

CAUTION: Forward speeds are 16 percent faster than their respective reverse speeds. Use care when reversing direction, especially at higher travel speeds.

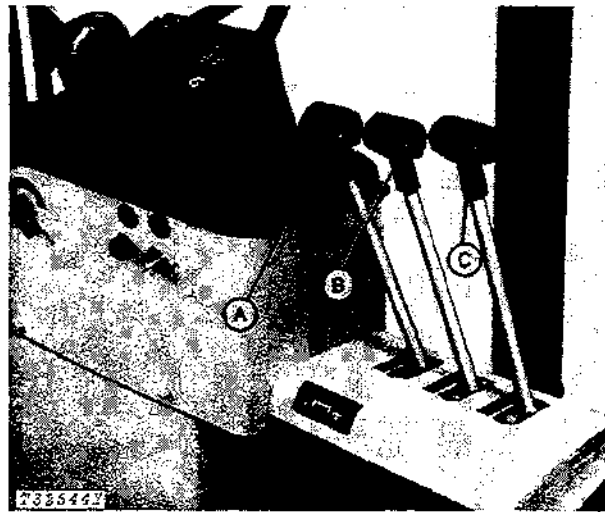
To shift from park, fully depress the clutch pedal. Move the range shift lever from (P) park into range desired. Move gear shift lever into any gear desired. Slide levers fully into position when gears stop rotating.

NOTE: The gear shift lever must be in gear before the range shift lever is put in park. The range shift lever must be out of park position before gear shift lever can be put into any gear desired.

By double clutching, you can shift gears within a range "on the go" by means of the gear shift lever. To double clutch, depress clutch pedal, shift to neutral, and release clutch pedal. Again depress clutch pedal, shift to desired gear, and release pedal.

To shift to another range, stop the forklift. Disengage the clutch before moving range shift lever.

To adjust reverser speed of shift, see page 10-10-16.



A—Lift Lever B—Tilt Lever C—Side Shift Lever or Allied Equipment Control Lever

Fig. 12-Forklift Control Levers

Lever A: Pull lever rearward to lift the fork. Push lever forward to lower the fork.

Lever B: Push the lever forward to tilt the mast forward 19 degrees. Pull the lever rearward to tilt the mast rearward 9 degrees.

Lever C: Pull the lever rearward to move the mast to the right 3 in. (76 mm). Push the lever forward to move the mast to the left 3 in. (76 mm).

When a control lever is released during operation, it will automatically return to neutral. The fork or mast will remain in the position reached at that time. After a cylinder is fully extended or retracted, release the control lever immediately.

When the forklift is not equipped with a side-shift cylinder, this lever can be used to control any hydraulic Allied Equipment which is available for the forklift.

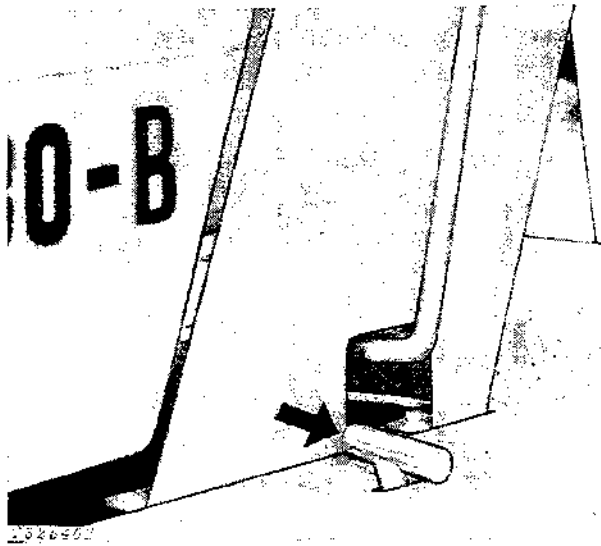


Fig. 13-Engine Clutch Disconnect

During cold weather, engine cranking speed may be increased by disengaging the clutch from the engine.

To do so lift the handle until it is locked in the disengaged position.

IMMEDIATELY after starting the engine, release the handle.

IMPORTANT: Be sure to engage the clutch disconnect as soon as the engine starts.

Engine must crank faster after handle is pulled up. Handle must lock in disengaged position.

If clutch disconnect does not work correctly, see Section 50, Group 10.

Hand controls checked Yes No

5. Foot Controls

Check operation of foot controls.

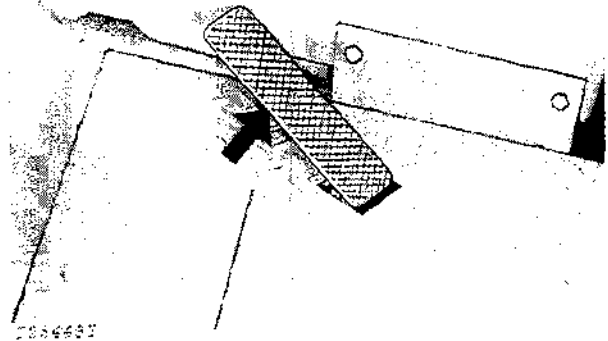


Fig. 14-Foot Throttle

Use the foot throttle to speed up the engine quickly. Use the foot throttle when the hands are busy with levers. When the pedal is released, the engine speed returns to the hand throttle setting.

See engine speed charts on page 10-10-8.

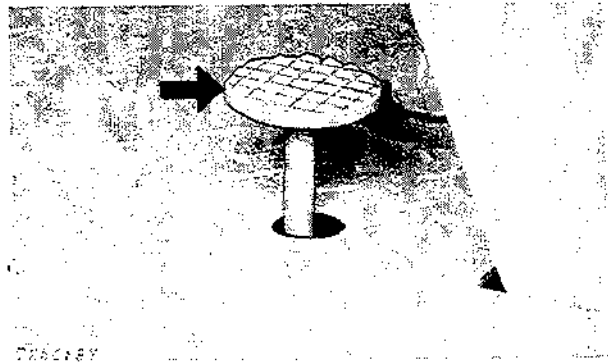


Fig. 15-Differential Lock Pedal

Drive the forklift straight ahead. Push down the differential lock pedal. Turn the steering wheel slightly to left and to right. Resistance must be felt.

IMPORTANT: Do not operate at high speeds or attempt to turn with the differential lock engaged.