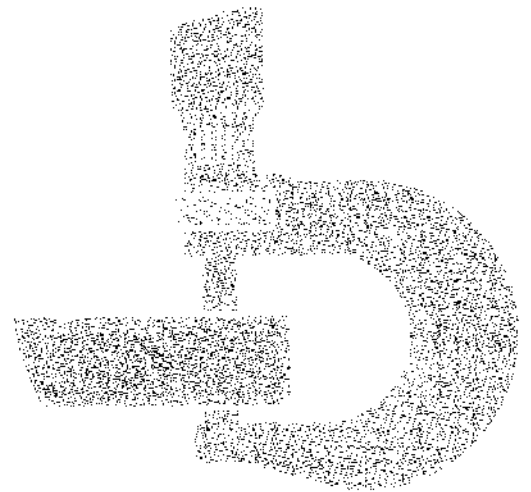


655 Crawler Loader



TECHNICAL MANUAL

TM-(1250) (Apr-87)

LITHO IN U.S.A.

**655 CRAWLER LOADER
Technical Manual
TM-1250 (Apr-81)**

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The specifications and design information contained in this manual were correct at the time it was printed. 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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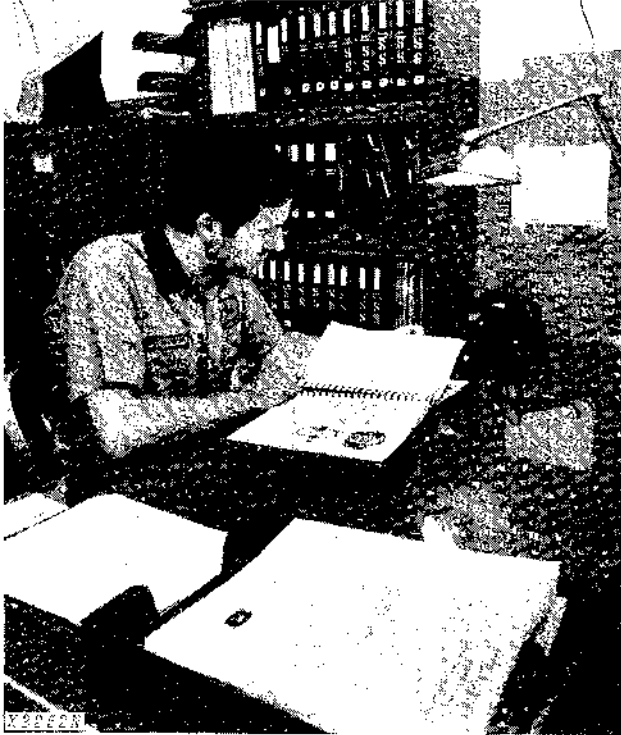
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Group II INTRODUCTION AND SAFETY INFORMATION

INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

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 service 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 TM to identify the reference.

•Technical Manuals—for actual service

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

This technical manual was planned and written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Some features of this manual:

- Inside front cover - "Table of Contents".
- Section I - Contents, Introduction and Safety Information, General Specifications, and Lubrication.
- Sections 1 through 42 - Removal repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

MAINTENANCE WITHOUT ACCIDENT

SAFETY AND YOU



T27999N

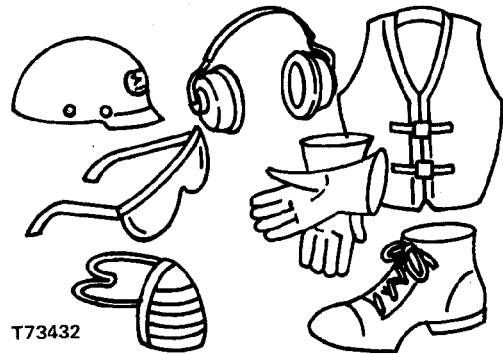
CAUTION: This safety symbol followed by the word "caution" identifies important safety messages in this manual and on the crawler loader. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



T73433

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located - know how to use them.

T73433



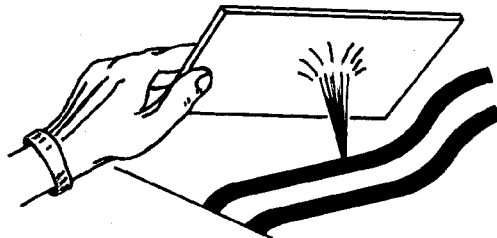
T73432

Wear safety equipment.



T45672

Wear fairly tight clothing.



T45794

CAUTION: Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious injury. Before disconnecting lines, be sure to relieve pressure. Before applying pressure, be sure connections are tight and lines, pipes and hoses are not damaged. Use a piece of cardboard or wood, rather than hands, to search for leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

MAINTENANCE WITHOUT ACCIDENT

KEEP SHOP AND STORAGE AREA CLEAN

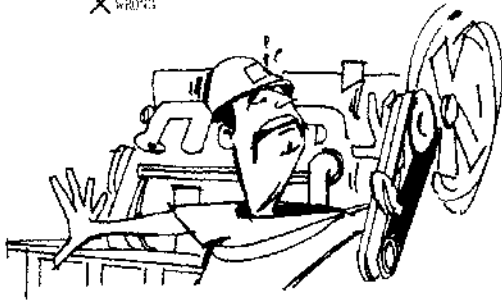


- Maintenance area should be adequately vented.
- Keep maintenance area clean and dry.
- Store flammable materials in a cool and well-vented area out of reach of unauthorized personnel.

FOLLOW SAFE WORKING CONDITIONS

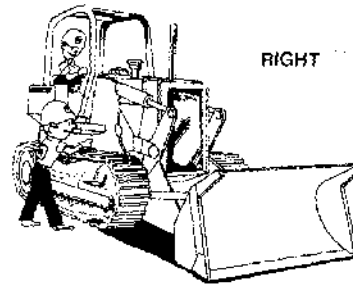
- Perform work on equipment only if authorized to do so.
- Follow recommended procedures.

✗ WRONG



- Do not service equipment while it is being operated or engine is running.
- Keep hands away from moving parts.
- Do not use open flame around machine.
- If machine is on an incline, block it securely.
- Use hoisting equipment for lifting heavy parts.

Litho in U.S.A.

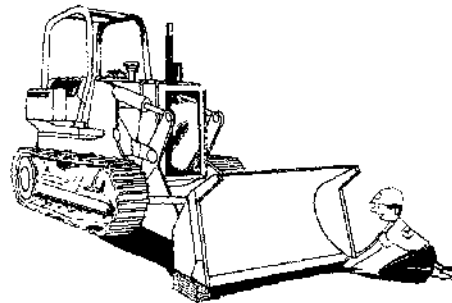


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RIGHT

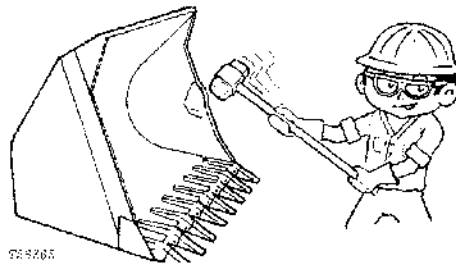
743671

- 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.



743672

- Support all raised equipment.
- Do not work under raised bucket.
- Always lower bucket before working on it.

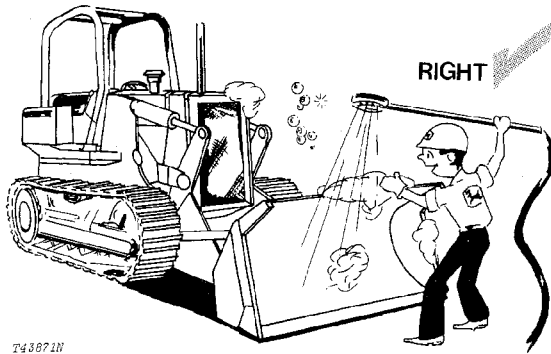


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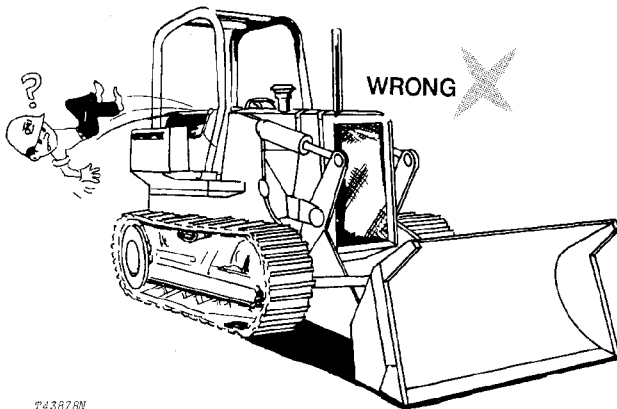
- Wear safety glasses when drilling, grinding or hammering metal.

MAINTENANCE WITHOUT ACCIDENT

OBSERVE SERVICE PRECAUTIONS



Keep all equipment free of dirt and oil.



Remove oil, grease, mud, ice, or snow from floor of operator's compartment or steps.

Do not remove radiator filler cap unless engine is cool. Then loosen cap slowly to the stop. Release pressure before you remove cap.

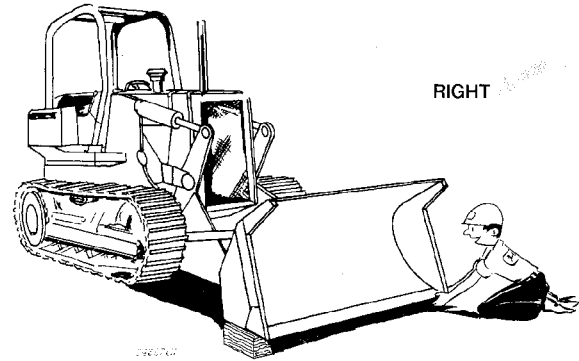
Check exhaust system periodically for excessive leakage.

Relieve hydraulic pressure before working on hydraulic system.

Use the correct test group when checking hydraulic pressure.

Discharge accumulators completely before recharging or servicing.

OBSERVE REPAIR PRECAUTIONS



Securely block bucket before changing cutting edges. Wear gloves when working with sharp edges.

Relieve hydraulic pressure before working on hydraulic system.

Turn off battery disconnect switch before repairing the electrical system or performing a major overhaul.

Install lift arm locking pin before working in engine area.

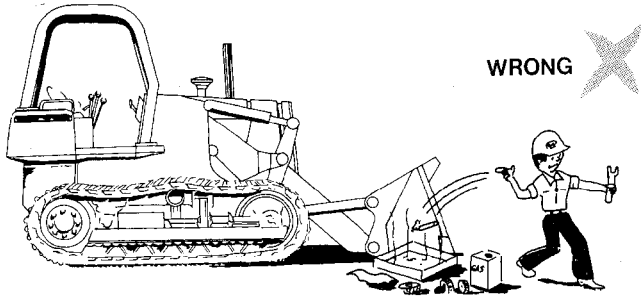
CHECK SAFETY EQUIPMENT ON MACHINE

Check that all protective devices (guards, canopies, shields, ROPS, seat belts, etc.) are installed and secured on machine.

Inspect machine carefully for leakage from lines, hoses, and fittings.

MAINTENANCE WITHOUT ACCIDENT

AVOID EXPLOSIONS OR FIRE



T43866N

Do not smoke while refueling.

Do not smoke while handling highly flammable materials.

Shut off engine when refueling.

Use care in refueling if engine is hot.

Use good commercial, nonflammable solvents for cleaning parts.

Although it is impractical to try to cover every possible maintenance situation, the safety precautions recommended here should serve to develop and promote safe maintenance procedures.

The information contained in this manual is not intended to replace safety codes, insurance requirements, federal, state, and local laws, rules and regulations. In particular, your service area or jobsite activities may be subject to state safety rules and/or federal regulation under the Occupational Safety and Health Act (OSHA). Familiarize yourself with all regulations applicable to your situation in order to avoid possible safety violations.

OBSERVE BATTERY PRECAUTIONS



T27506N

Do not place metal objects across posts to check charge.

Do not smoke near battery.

Do not allow sparks or open flame near battery.

Provide adequate ventilation when charging batteries.

Group III General 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 2 cu. yd. (1.53 m³) bucket with teeth, roll-over protective canopy, four counterweights, and standard equipment.)

Power (@ 2100 rpm):	SAE	DIN
Gross	122 hp (91 kW)	
Net	110 hp (97 kW)	111.5 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. The gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500-ft. altitude and 85°F. temperature, and DIN 6270 conditions (non-corrected). No derating is required up to 10,000 feet (3000 m) altitude.

Engine: John Deere 6-cylinder turbocharged diesel, valve-in-head, 4-stroke cycle.
 Bore and stroke 4.19 × 5 in. (106.4 × 127 mm)
 Piston displacement 414 cu. in. (6.785 L)
 Compression ratio 16.2 to 1
 Maximum torque @ 1300 rpm .. 345 lb-ft (468 N·m)
 (47.7 kg-m)
 NACC or AMA (U.S. Tax) horsepower 42
 Lubrication Pressure system with full flow filters
 Main bearings 7
 Cooling Pressurized with thermostat and controlled bypass
 Fan Blower
 Dual-stage aspirated air cleaner
 with restriction indicator Dry
 Electrical system 24 volt with alternator
 Batteries (two 12-volt) Reserve capacity:
 180 minutes each

Transmission:

Cold weather starting Disconnect clutch completely disengages hydrostatic drive and all hydraulics.
 Splitter drive Pressure-lubricated helical gears drive both hydrostatic transmissions, main hydraulic pump, winch drive shaft and auxiliary pump drive.
 Drive Dual-Path, fully automatic, infinitely variable hydrostatic transmissions.
 Speeds Infinite from 0 to 6.5 mph (0 to 10.5 km/h) forward or reverse.
 Control Single-lever, variable speed, forward and reverse.

Steering:

Fully modulated, infinitely variable pedal steering for live power turns and counterrotation. No need for steering clutches or steering brakes.

Brakes:

Service Hydrostatic
 Parking ... Wet-disk brakes are automatically applied when engine is stopped, or manually applied with center foot pedal during normal operation.

Hydraulic System: Open-center

Control Single-lever bucket control with automatic bucket positioner and float position. Three-function valve.
 Pump Vane, 55 gpm (3.47 L/s) @ rated engine speed
 Pressure 2500 psi (15 514 kPa) (158.2 kg/cm²)
 Oil lines Seamless steel tubing; double-wire-braid hose
 Filter 10 micron filter in return line w/bypass

Hydraulic Cylinders: Bore Stroke

Boom (2)	5.50 in. (140 mm)	32 in. (813 mm)
Bucket (2)	4.50 in. (114 mm)	21.52 in. (547 mm)
Cylinder rods ..	Ground, heat-treated, chrome-plated, polished	
Boom cylinder rods	3.75 in. (95 mm) dia.	
Bucket cylinder rods	2.25 in. (57 mm) dia.	

Tracks (6-roller track frame with front and rear track guides and sprocket guard):

Two bar grouser 15 in. (381 mm)
 Track shoes, each side 40
 Ground contact area 2724 sq. in. (17 575 cm²)
 Ground pressure .. 11.8 psi (81.4 kPa) (0.830 kg/cm²)
 Length of track on ground 90.8 in. (2.31 m)
 Track gauge 64 in. (1.63 m)
 Carrier roller 1 each side
 Adjustment Hydraulic
 Minimum ground clearance 15.3 in. (389 mm)