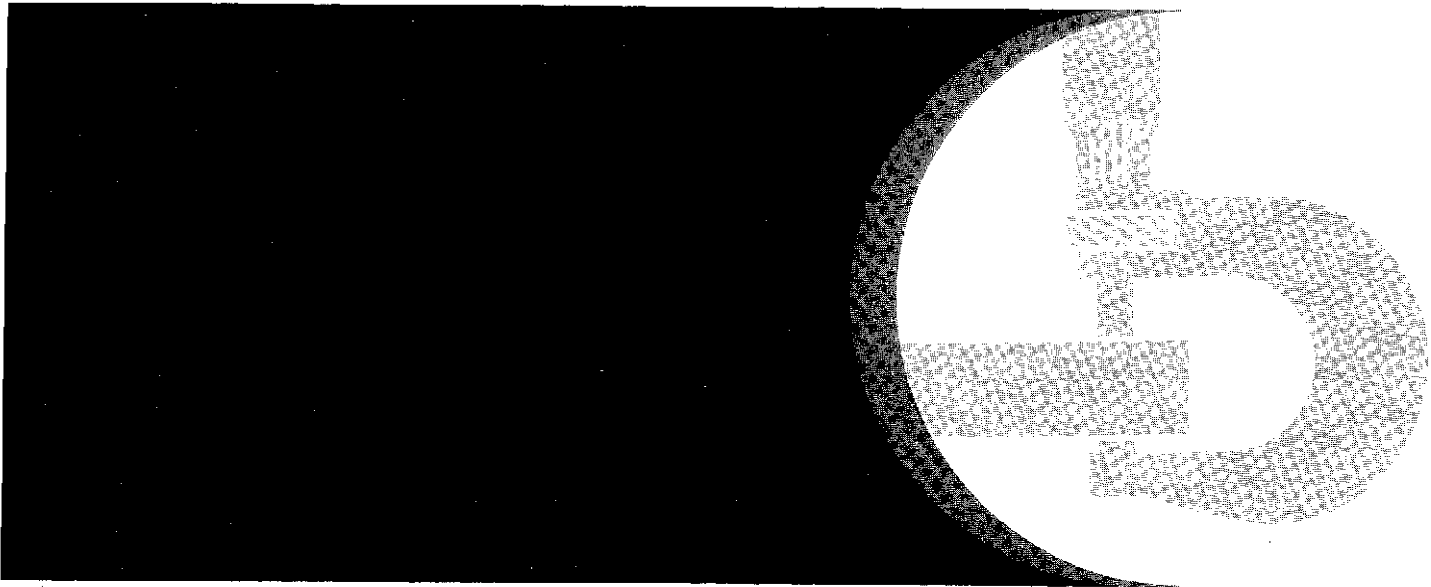


# JD644C Loader JD646C Compactor



## TECHNICAL MANUAL

# 644C LOADER AND 646C COMPACTOR TECHNICAL MANUAL TM-1229 (MAR-84)

## SECTION AND GROUP CONTENTS

### SECTION I—GENERAL INFORMATION

- Group I—Introduction and Safety Information
- Group II—General Specifications
- Group III—Torque Values
- Group IV—Fuels and Lubricants

### SECTION 01—WHEELS

- Group 0110—Powered Wheels and Fastenings

### SECTION 02—AXLES AND SUSPENSION SYSTEMS

- Group 0200—Removal and Installation
- Group 0210—Differential or Bevel Drive
- Group 0225—Input Drive Shafts and U-Joints
- Group 0250—Axle Shafts, Bearings and Reduction Gears
- Group 0260—Hydraulic Systems

### SECTION 03—TRANSMISSION

- Group 0300—Removal and Installation
- Group 0315—Controls
- Group 0325—Input Drive Shafts and U-Joints
- Group 0350—Gears, Shafts, Bearings and Power Shift Clutch
- Group 0360—Hydraulic System

### SECTION 04—ENGINE

- Group 0400—Engine Removal and Installation
- Group 0401—Crankshaft and Main Bearings
- Group 0402—Camshaft and Valve Actuating Means
- Group 0403—Connecting Rods and Pistons
- Group 0404—Cylinder Block

### SECTION 04—ENGINE—Continued

- Group 0407—Oiling System
- Group 0408—Ventilating System
- Group 0409—Cylinder Head and Valves
- Group 0410—Exhaust Manifold
- Group 0413—Fuel Injection System
- Group 0414—Intake Manifold
- Group 0416—Turbocharger
- Group 0417—Water Pump
- Group 0418—Thermostats, Housings and Piping
- Group 0419—Oil Cooler
- Group 0420—Fuel Filter
- Group 0422—Starting Motor and Fastenings
- Group 0429—Fan Drive
- Group 0433—Flywheel, Housing and Fastenings

### SECTION 05—ENGINE AUXILIARY SYSTEMS

- Group 0505—Cold Weather Starting Aids
- Group 0510—Cooling Systems
- Group 0515—Speed Controls
- Group 0520—Intake System
- Group 0530—External Exhaust Systems
- Group 0540—Mounting Frame
- Group 0560—External Fuel Supply Systems

### SECTION 06—TORQUE CONVERTER

- Group 0651—Turbine, Gears, Shafts and Bearings

*All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.*

COPYRIGHT© 1984  
DEERE & COMPANY  
Moline, Illinois  
All rights reserved  
A JOHN DEERE ILLUSTRATION  
Previous Edition  
Copyright© 1983 Deere & Company  
Copyright© 1982 Deere & Company  
Copyright© 1980 Deere & Company

T09:1229 01 150384

## SECTION AND GROUP CONTENTS—CONTINUED

### SECTION 09—STEERING SYSTEM

- Group 0930—Emergency Steering
- Group 0960—Hydraulic System

### SECTION 10—SERVICE BRAKES

- Group 1011—Active Elements
- Group 1015—Controls Linkage
- Group 1060—Hydraulic System

### SECTION 11—PARKING-EMERGENCY BRAKES

- Group 1111—Active Elements
- Group 1115—Controls Linkage

### SECTION 16—ELECTRICAL SYSTEMS

- Group 1671—Batteries, Support and Cables
- Group 1672—Alternator, Regulator and Charging System Wiring
- Group 1673—Lighting System
- Group 1674—Wiring Harness and Switches
- Group 1675—System Controls
- Group 1676—Instruments and Indicators

### SECTION 17—FRAME, CHASSIS, OR SUPPORTING STRUCTURE

- Group 1740—Frame Installation
- Group 1746—Frame Bottom Guards
- Group 1749—Chassis Weights

### SECTION 18—OPERATOR'S STATION

- Group 1800—Removal and Installation
- Group 1810—Operator Enclosure
- Group 1821—Seat and Seat Belt
- Group 1830—Heating and Air Conditioning

### SECTION 19—SHEET METAL AND STYLING

- Group 1910—Hood or Engine Enclosure
- Group 1921—Grille and Grille Housing
- Group 1927—Fenders

### SECTION 20—SAFETY, CONVENIENCE AND MISCELLANEOUS

- Group 2002—Mirror
- Group 2003—Fire Extinguisher
- Group 2004—Horn and Warning Devices
- Group 2006—Cigar Lighter

### SECTION 21—MAIN HYDRAULIC SYSTEM

- Group 2160—Hydraulic System

### SECTION 31—LOADER

- Group 3102—Buckets
- Group 3115—Controls Linkage
- Group 3140—Frames
- Group 3160—Hydraulic System

### SECTION 90—SYSTEM TESTING

- Group 9005—General Information—Seven Basic Steps of Diagnosis and Testing
- Group 9010—Engine
- Group 9015—Electrical System
- Group 9020—Power Train
- Group 9025—Hydraulic System
- Group 9031—Heating and Air Conditioning

### SECTION 99—SPECIAL TOOLS

### INDEX

## SAFETY AND YOU



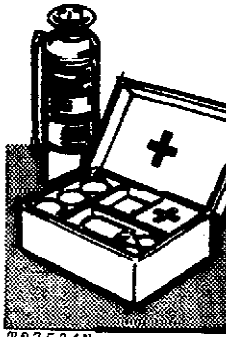
**CAUTION:** This safety symbol followed by the word "caution" identifies important safety messages in this manual and on the loader or compactor. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



T27999N

02A:T27999 N T09:III02 160181

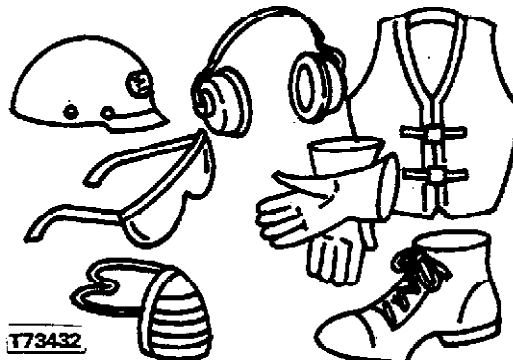
Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located - know how to use them.



T27504N

02A:T27504 N T09:III03 160181

Wear safety equipment.



T73432

02A:T73432 T09:III04 160181

## Introduction and Safety Information

Wear fairly tight clothing.



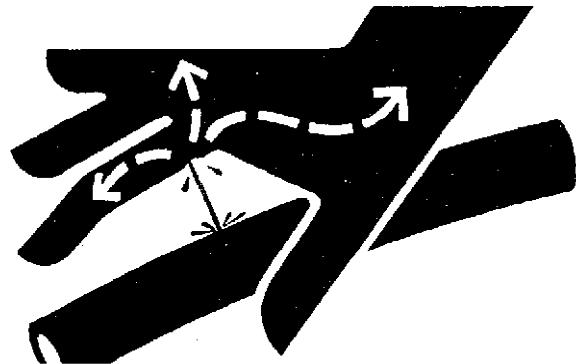
T45672

02A;T45672 T09;III05 150384

### AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



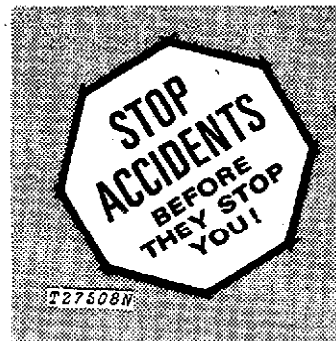
8NA;X9811 T62;BH5A F 120184

### 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.



02A;T27508 N T09;III07 160181

## FOLLOW SAFE WORKING CONDITIONS

Perform work on equipment only if authorized to do so.

Follow recommended procedures.

Do not service equipment while it is being operated or engine is 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.

Do not work under raised bucket.

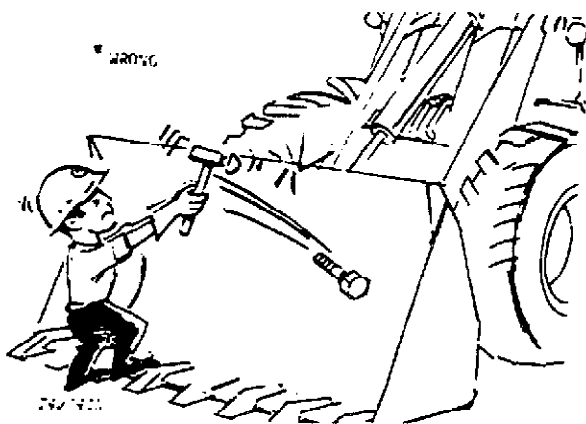
Always lower bucket before working on it.

If machine is on an incline, block it securely.

Use hoisting equipment for lifting heavy parts.

Wear safety glasses when drilling, grinding or hammering metal.

Do not use open flame around machine.



T32709 N, T49041 N T09;I108 190181

## START ENGINE FROM OPERATOR'S SEAT ONLY

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear and will move if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat. Move range selector lever to park position or apply park brake.

T82;TL5A N 120184

## 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.

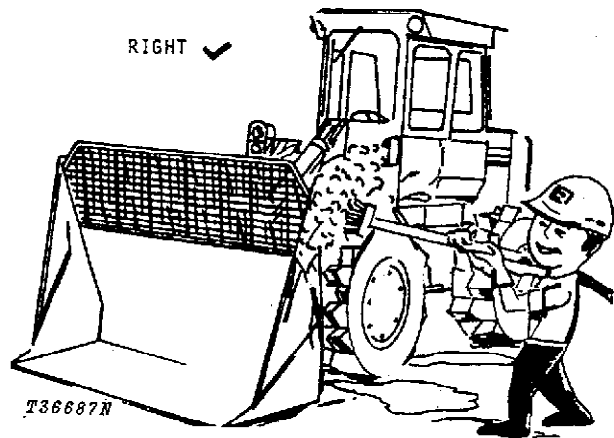
Do not remove radiator filler cap until coolant temperature is below the boiling point. Then loosen cap slowly to relieve pressure before removing.

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.



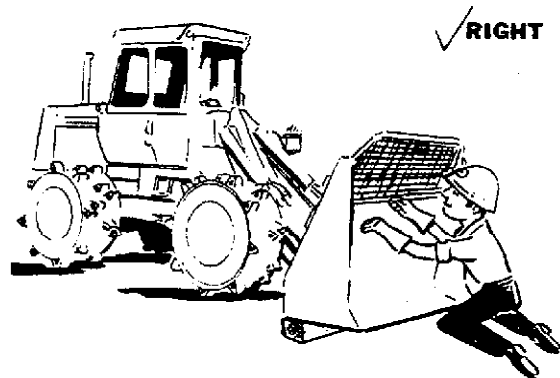
02A;T36687 N T09;H109 190181

## OBSERVE REPAIR PRECAUTIONS

Relieve hydraulic pressure before working on hydraulic system.

Disconnect batteries before repairing the electrical system or performing a major overhaul.

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



02A;T36689 T09;H110 190181

### 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.

X WRONG



T32708N

02A;T32708 N T09;III11 190181

### AVOID EXPLOSIONS OR FIRE

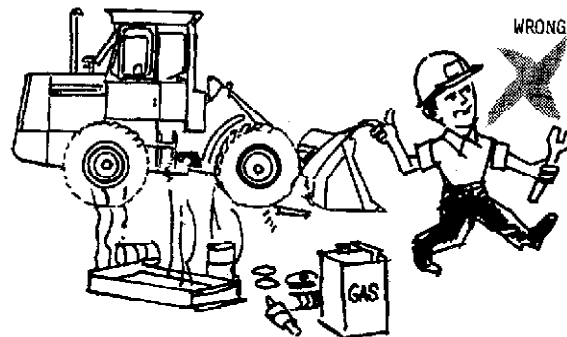
Do not smoke while refueling.

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.



02A;T49038 N T09;III12 190181

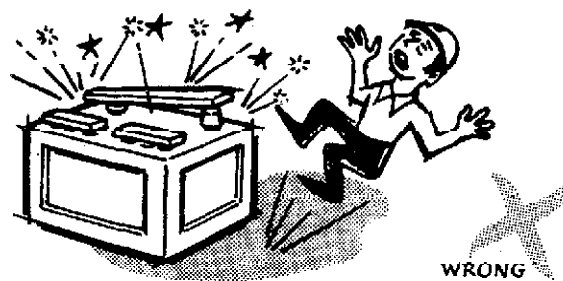
### OBSERVE BATTERY PRECAUTIONS

Provide adequate ventilation when charging batteries.

Do not place metal objects across posts to check charge.

Do not smoke near battery.

Do not allow sparks or open flame near battery.



02A;T27506 N T09;III13 190181



## HANDLE STARTING FLUID SAFELY

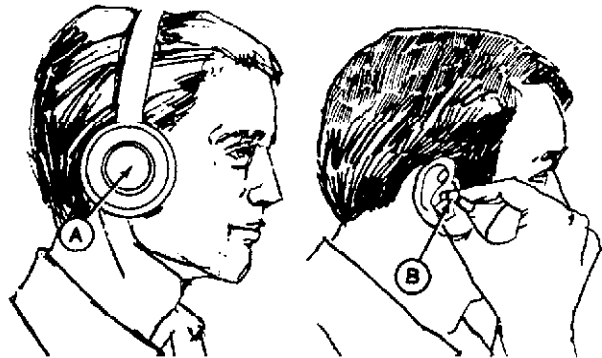
If your machine is equipped with a starting fluid starting aid, remember starting fluid is highly flammable. DO NOT incinerate or puncture a starting fluid container. DO NOT store a starting fluid container in a high-temperature area.



8NA;T90207 T82;CRSA G 120184

## PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noise.



8NA;X7662 T82;8H5A E 120184

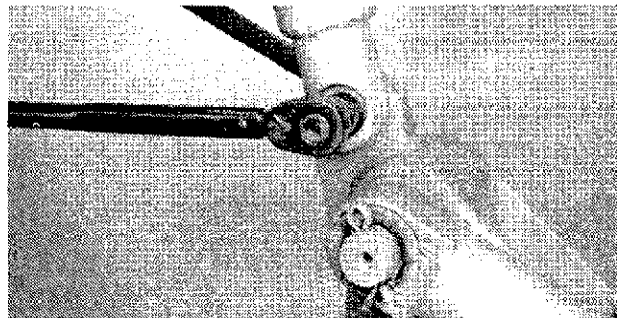
## USE HAND HOLDS AND STEPS

When you get on and off the machine, use handholds and steps.

T82;TL5A 0 150384

## KEEP ROPS INSTALLED PROPERLY

If ROLL-GARD® protective frame or ROLL-OVER protective equipment is loosened or removed for any reason, make certain all parts are reinstalled correctly. Tighten mounting bolts to proper torque. The protection offered by ROPS will be impaired if the ROPS is subject to structural damage, has been involved in an overturn incident or is in anyway altered. Damaged ROPS should be replaced, not reused.

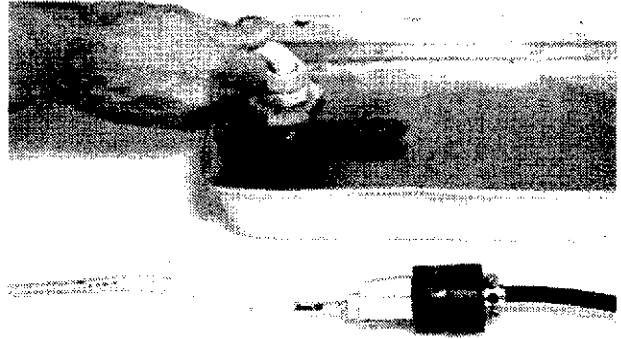


8NA;T88366 T82;TL5A L 130184

### TEST COOLANT HEATER IN LIQUID ONLY

Use a heavy-duty grounded cord to connect coolant heater to electrical power.

Do not plug into electrical power unless heating element is immersed in coolant. Sheath could burst and result in personal injury.

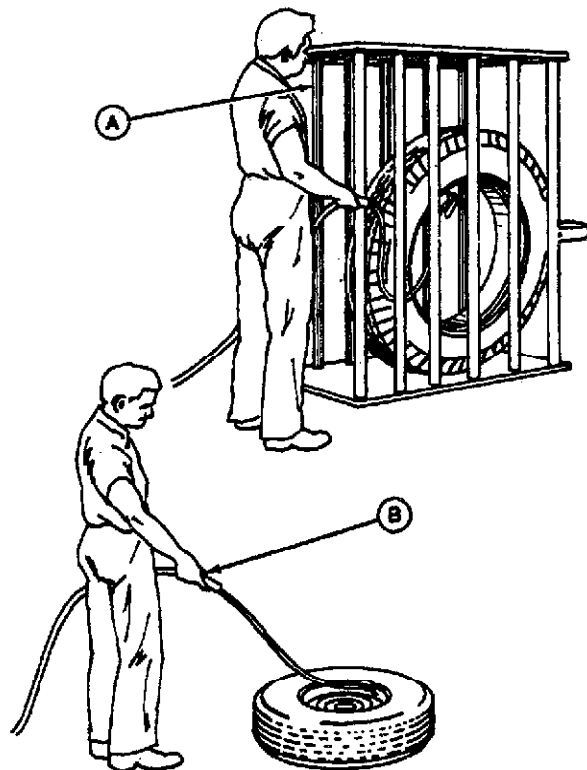


8NA/T87098 T82/EHSA T 110183

### SERVICE TIRES SAFELY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Have it done by your John Deere dealer or a qualified repair service.

Detailed tire mounting instructions, including necessary safety precautions are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks, available through your John Deere dealer. Such information is also available from the Rubber Manufacturers Association and from tire manufacturers.



- A—Use a Safety Cage if available.
- B—DO NOT Stand Over Tire. Use a Clip-On Chuck and Extension Hose.

8NA/TS0123 T82/LSA M 130184