John Deere
644-B
Loader

JOHN DEERE

TECHNICAL MANUAL

John Deere 644-B
Loader

TM1095 (01AUG78) English

John Deere Davenport Works
TM1095 (01AUG78)

LITHO IN U.S.A.
ENGLISH

JD644-B LOADER

Technical Manual
TM-1095 (Aug-78)

CONTENTS

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 IEMC standards.

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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 failure 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 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" and "Maintenance Without Accident".
- Section 10 - General specifications and services.
- Sections 20 through 60 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 70 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

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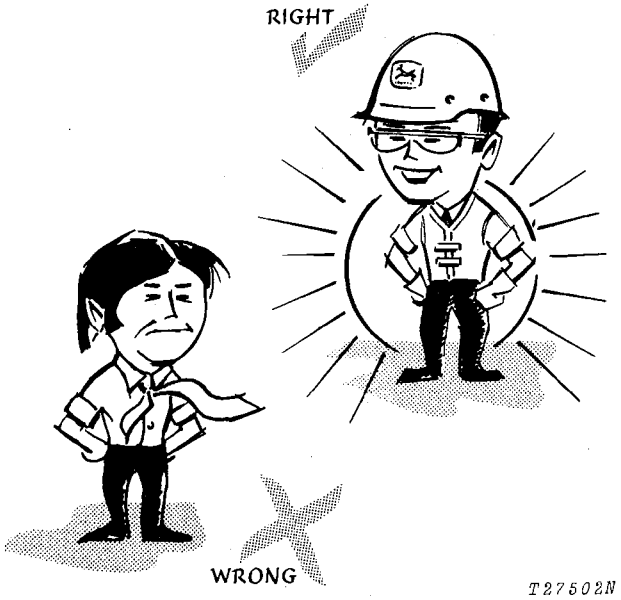
MAINTENANCE WITHOUT ACCIDENT
WORK SAFELY

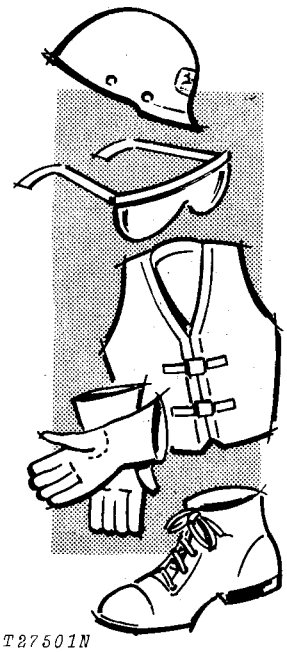

T27999

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



T27502N

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.

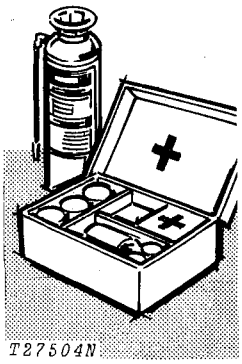
For instance, you may need: Hard hat, safety shoes, safety goggles, heavy gloves, reflector vests, ear protectors, respirators.

ALWAYS AVOID loose clothing or any accessory—flopping cuffs, dangling neckties and scarves, or rings and wrist watches—that can catch in moving parts and put you out of work.

T32701N

BE ALERT!

Plan ahead — work safely — avoid accidental damage and injury. If a careless moment does cause an accident or fire, react quickly with the tools and skills at hand — know how to use a first aid kit and a fire extinguisher — and where to get aid and assistance. In an emergency, split-second action is the key to safety.


T27504N

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MAINTENANCE WITHOUT ACCIDENT

Specific safety procedures should always be observed, whether servicing the equipment or making the repairs. Remembering these—in time!—can prevent an injury. . . or save your life. . . .

AVOID FIRE HAZARDS—

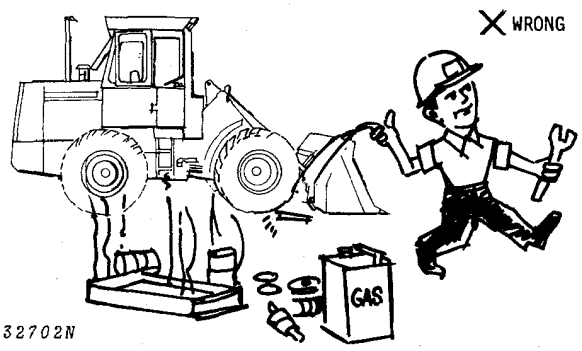
Fuel Is Dangerous!

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.



T32702N

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

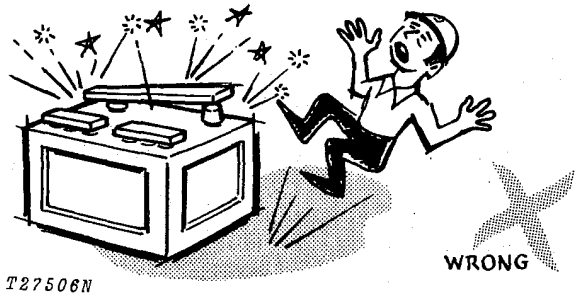
Flame Is Not a Flashlight!

Never check fuel, battery electrolyte or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use an open flame as a light anywhere on or around the equipment.

Know Where Fire Extinguishers Are Kept!



T27506N

Battery Gas Is Highly Flammable!

Provide adequate ventilation when charging batteries.

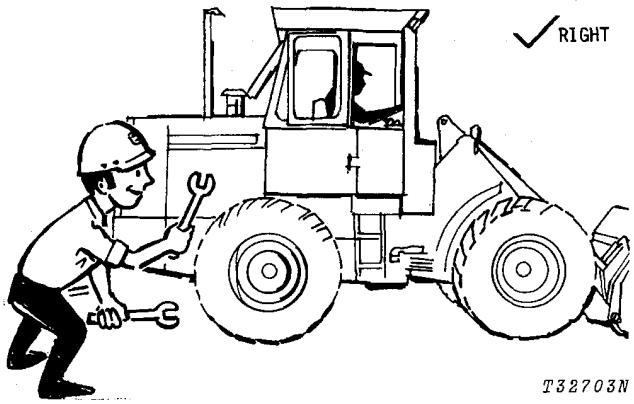
Don't check battery charge by placing metal objects across the posts.

Don't allow sparks or open flame near batteries.

Don't smoke near battery.

UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the equipment unless authorized to do so. Then be sure you follow recommended procedures.



T32703N

Never service the equipment while it is being operated.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running. **ALWAYS USE TWO TECHNICIANS**—one, the operator, at the controls, the other checking where the operator can see. Also, put the transmission in neutral, set the parking brake, and apply any safety locks provided. **KEEP HANDS AWAY FROM MOVING PARTS.**

T27508N

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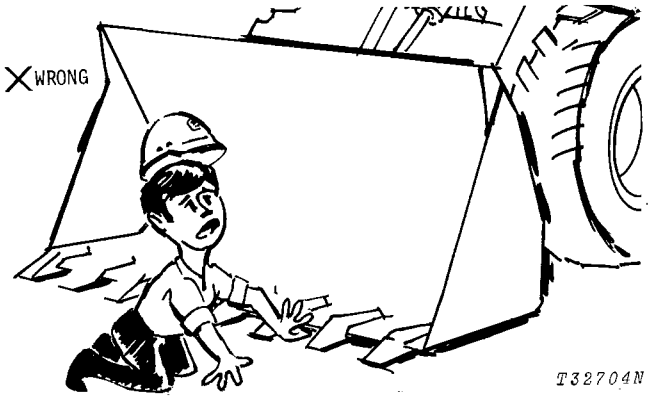
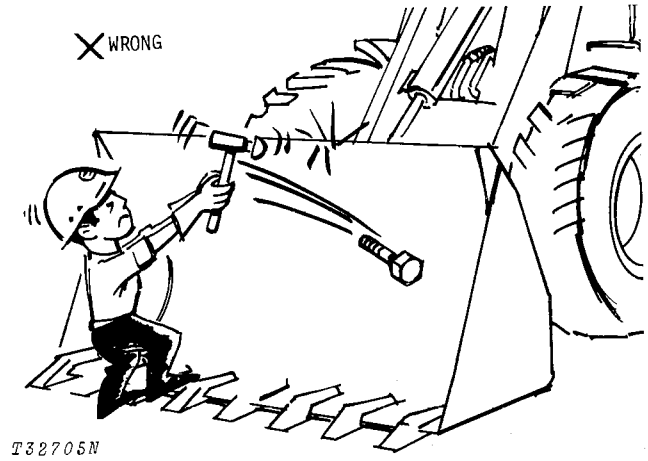
MAINTENANCE WITHOUT ACCIDENT

Before servicing, adjusting, or repairing loaders which have attachments such as log and lumber forks, buckets, etc. —**LOWER** attachments to the ground—or, if necessary to raise them for access to certain parts, **SECURELY SUPPORT** by external means. **DO NOT** rely on controls to support or position attachments for maintenance.

Never allow **ANYONE** to walk under equipment that is raised and not properly blocked.



Avoid working directly under raised and blocked equipment unless absolutely necessary.



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

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.**

Use extreme caution in removing radiator caps, drain plugs, grease fittings, or hydraulic pressure caps.

Make sure the maintenance area is adequately vented.

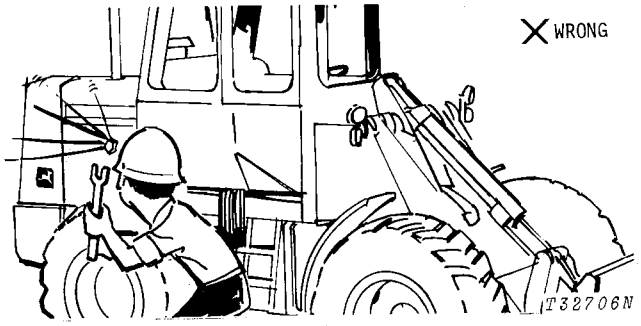
Keep maintenance area CLEAN AND DRY. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

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

SERVICING PRECAUTIONS

Stop the engine before cleaning or lubricating the equipment.

Lower mounted equipment and tools to the ground *carefully.*



Engine coolant gets hot! Don't remove the radiator cap until coolant temperature is below the boiling point. Then turn cap slightly to relieve pressure before removing.

Exhaust gases are dangerous! Periodically check exhaust system for excessive leakage.

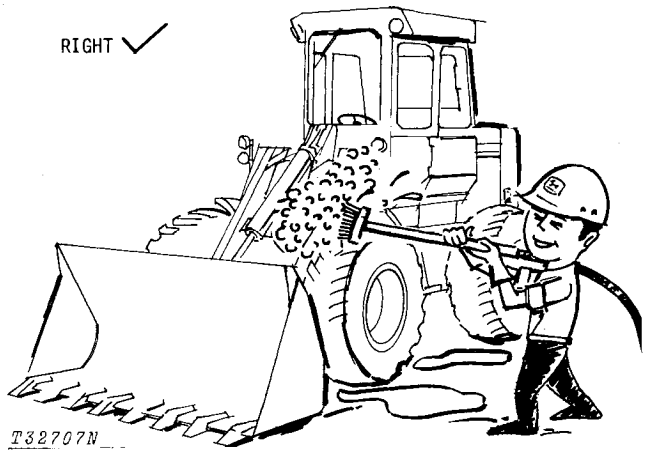
Don't forget a hydraulic system may be pressurized! To relieve pressure, follow the technical manual.

The loader is equipped with a hydraulic accumulator—recharge by using only dry nitrogen. Again follow the technical manual for procedure.

When checking hydraulic pressure, be sure to use the correct test gauge for the pressure in the particular system.

MAINTENANCE WITHOUT ACCIDENT

When preparing 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.



T32707N

Keep ALL equipment free of dirt and oil. This attention will minimize fire hazards and facilitate spotting of loose or defective parts.

ADJUSTING PRECAUTIONS

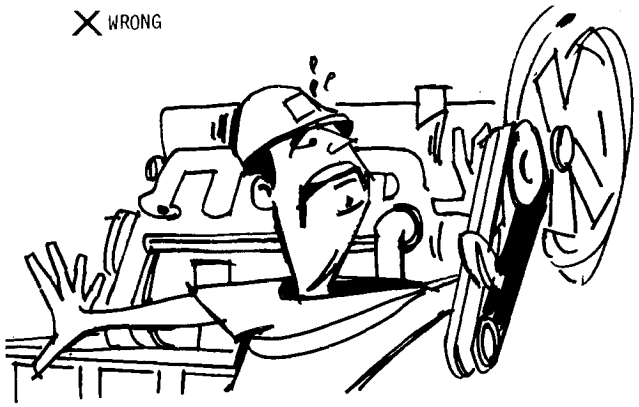
. . . . for Operating Adjustments

Keep clutch and brake control units properly adjusted at all times. Before making adjustments, stop engine.

T32708N

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

. . . . for Maintenance Adjustments



T32709N

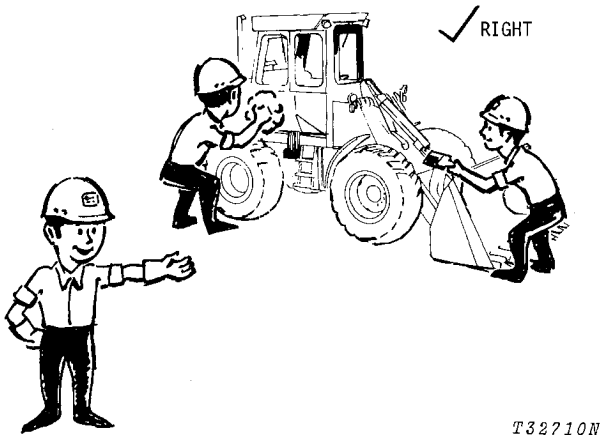
Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.

MAINTENANCE WITHOUT ACCIDENT

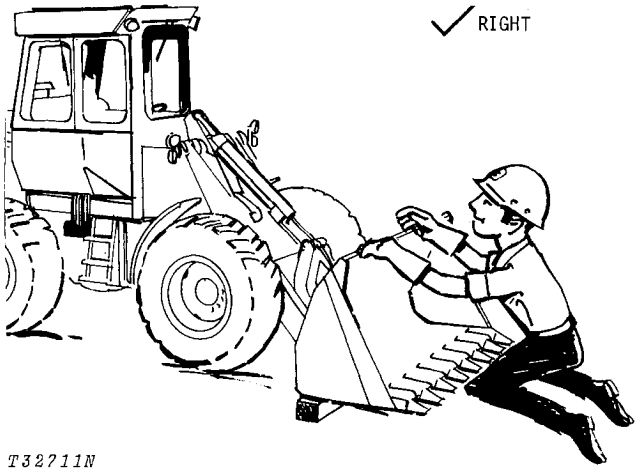
PRECAUTIONS DURING REPAIR

Before working on hydraulic systems—make sure engine is not running and the system pressure is relieved by working the control levers, steering wheel and brakes in all directions with the engine shut off.



T32710N

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.



T32711N

When changing cutting edges on bucket—

Stop the engine and securely block the bucket.

Never let your bare hands come in contact with the sharp edges. WEAR GLOVES.

T27508N

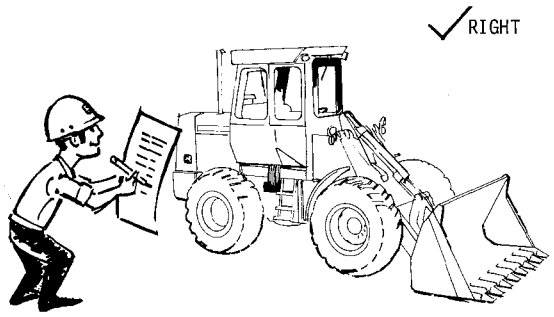
MAINTENANCE WITHOUT ACCIDENT

KNOW EQUIPMENT IS READY!

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

CHECK IT OUT!

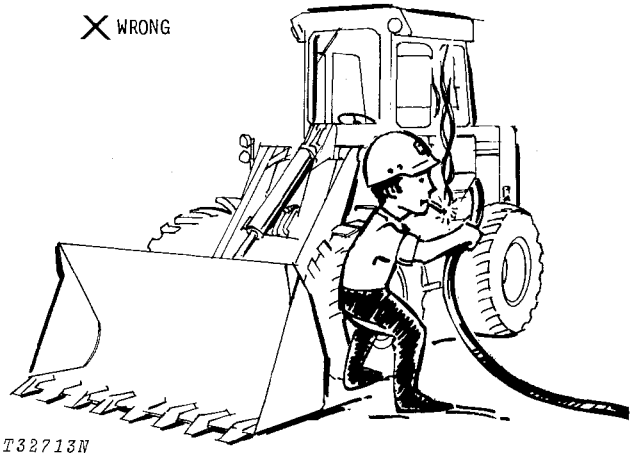
- ☐ GUARDS
- ☐ CANOPIES
- ☐ SHIELDS
- ☐ PROTECTIVE DEVICES
- ☐ ROLL-OVER PROTECTIVE STRUCTURES
- ☐ SEAT BELTS, ETC.



T32712N

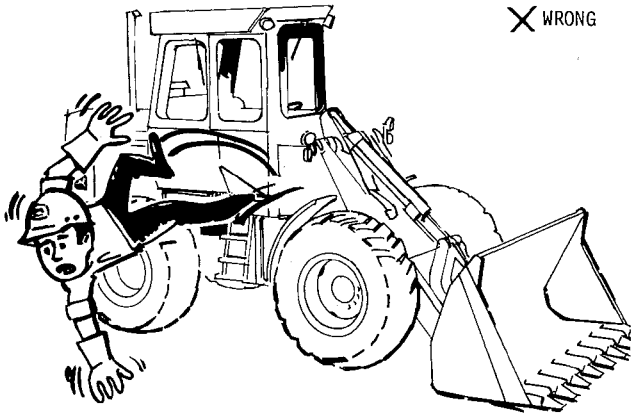
Carefully inspect equipment for visual defects—leaks in fuel, lubrication, and hydraulic systems. Do not search for pressurized fluid leaks with your hands. Use cardboard or wood to search for leaks.

Check and secure all caps and filler plugs for fuel, oils, radiator, etc.



T32713N

Check levels of fuel, coolant, hydraulic fluid, and lubricating oil. If fuel must be added—**FIRST, PUT OUT THAT CIGARET.**



T32714N

Be sure to clean any oil, grease or mud accumulation from floor of operator's compartment, stepping points, and grab rails to minimize the danger of slipping.

In freezing weather beware of snow or ice deposits on stepping points, grab rails, and floor.

Remove loose bolts, tools, or other objects from floor of operator's compartment.

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.

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Section 10
GENERAL

CONTENTS OF THIS SECTION

Group 5
GENERAL MACHINE SPECIFICATIONS

(Specifications and design are subject to change without notice. Wherever applicable, specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, specifications are based on a machine equipped with all standard equipment, 20.5-25, 12-ply, loader-tread tires with 1820 lb. (826 kg) of $CaCl_2$ solution in rear tires, side counterweights, ROPS cab, full fuel tank, and 175 lb. (79.4 kg) operator.)

Power (at 2,200 engine rpm): **SAE** **DIN**
Gross ..... 160 (119.3 kW*)
Net ..... 145 (108.1 kW*) 147.5 PS
**Net engine flywheel horsepower 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. (152 m) altitude and 85°F. (29.4°C) temperature and DIN 70 020 conditions (non-corrected). No derating is required up to 10,000 ft. (3 000 m) altitude.*
**In the international system of units (SI), power is expressed in kilowatts (kW).*
Engine: John Deere turbocharged diesel, vertical 6-cylinder, valve-in-head, 4-stroke cycle.
Bore and stroke ..... 4.75 x 5 in. (120.5 mm x 127 mm)
Piston displacement ..... 531 cu. in. (8 702 cm^3)
Compression ratio ..... 15.8 to 1
Maximum torque @ 1500 rpm ..... 432 lb-ft (59.7 kg-m)
NACC or AMA (U.S. Tax) horsepower 54.0
Lubrication ..... Pressure system with full-flow filter
Cooling ..... Pressurized with thermostat and fixed bypass
Fan ..... Blower
Air cleaner with restriction indicator ..... Dry
Electrical system ..... 12-volt (12V) with alternator
Batteries (2) ..... Reserve capacity: 310 minutes each battery

Torque Converter:
Type ..... Twin-turbine
Torque multiplication ..... 4.9 to 1

Transmission ..... Power shift planetary

Forward Speeds	**mph**	**km/h**
1	0-3.3	0-5.3
2	3.3-7	5.3-12.6
3	0-12.5	0-20.1
4	12.5-25.8	20.1-41.5

Reverse Speeds		
1	0-4.5	0-7.2
2	4.5-10.2	7.2-16.4

NOTE: Shift from 1st to 2nd and 3rd to 4th is automatic.

Differentials:
Front ..... No-Spin
Rear ..... Standard

Drive Axles ... Inboard-mounted planetary gears to each wheel. Front axle fixed. Rear axle oscillates 22-degree total. 15.3 inches (389 mm) vertical travel at center of tire.

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Brakes:
Service..Power actuated, 4-wheel, inboard-mounted wet disk. Foot-operated by either right or left pedal.
Parking..10 x 1.5-inch (254 mm x 38 mm) expanding shoe on transmission output shaft. Adjustable, hand-operated with warning light and buzzer.

Steering.....Full power steering. Frame articulated 80 degrees by two hydraulic cylinders. Turning radius of 15 feet 5 inches (4.7 m).

Hydraulic Systems:
Loader functions...Independent engine-driven, gear pump delivers 58.2 gpm (220 Lpm) at 600 psi (42 kg/cm²) and 220 engine rpm. 2,250 psi (158.2 kg/cm²) relief-valve pressure setting.
Control ..... Single-lever, dual hydraulic valve. Optional triple hydraulic valve for fork or multipurpose bucket.
Steering and brakes....Engine-driven, eight-piston, variable-displacement pump delivers 26.5 gpm (100 Lpm) at 2,200 engine rpm and 2,000 psi (140.6 kg/cm²). Maximum system pressure is 2,400 psi (169 kg/cm²).

Hydraulic Cylinders:	**Bore**	**Stroke**
Boom, two	6.25 in. (159 mm)	25.55 in. (649 mm)
Bucket, one	6.25 in. (159 mm)	29.60 in. (752 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	
Boom and bucket cylinder rods	2.75 in. (70 mm) dia.	

Tires:
17.5-25, 12-ply-rating, loader tread, L-2
20.5-25, 12-ply-rating, rock tread, L-3
20.5-25, 12-ply-rating, loader tread, L-2
20.5-25, 16-ply-rating, rock tread, L-3

Wheel Treads:
Front and rear ..... 80 in. (2.03 m)

Capacities:	**U.S.**	**Litres**
Cooling system	49 qt.	46.4
Fuel tank	56 gal.	211.9
Crankcase	20 qt.	18.9
Crankcase, includes filter	22 qt.	20.8
Transmission case and filters	39 qt.	36.9
Front differential	24 qt.	22.7
Rear differential	25 qt.	23.7
Loader hydraulic sump	70 qt.	66.2

Additional Standard Equipment:
Adjustable cushioned seat
Engine side shields
Front fenders
Gauges:
- Transmission oil temperature
- Transmission oil pressure
- Fuel
- Coolant temperature
- Engine oil pressure
- Electric hour meter
- Voltmeter

Loader hydraulic system indicator
Key switch
Pushbutton safety start
Cigar lighter
Parking brake warning light and buzzer
Transistorized voltage regulator
Vandal protection
Horn
Lights
Fuel filter
Automatic return-to-dig
Rear counterweight
Fixed drawbar
Exhaust w/rain cap
Rear bottom guard
Hand grips
ROPS w/cab and seat belt
Heater
Antifreeze
Cold weather starting aid
Flashing and turning lights
Work lights
Precleaner

Special Equipment:
Rear axle disconnect
ROPS canopy and seat belt
Instrument panel cover with lock
Reverse warning alarm
Triple loader hydraulic valve
Bucket teeth
Auxiliary side weights
Splash guard for fenders
Front bottom guard
License plate bracket
Defroster fan
Automatic boom height control
Engine coolant heater
SMV emblem
ROPS quiet cab
Auxiliary cutting edges
Air conditioning
Adjustable suspension seat

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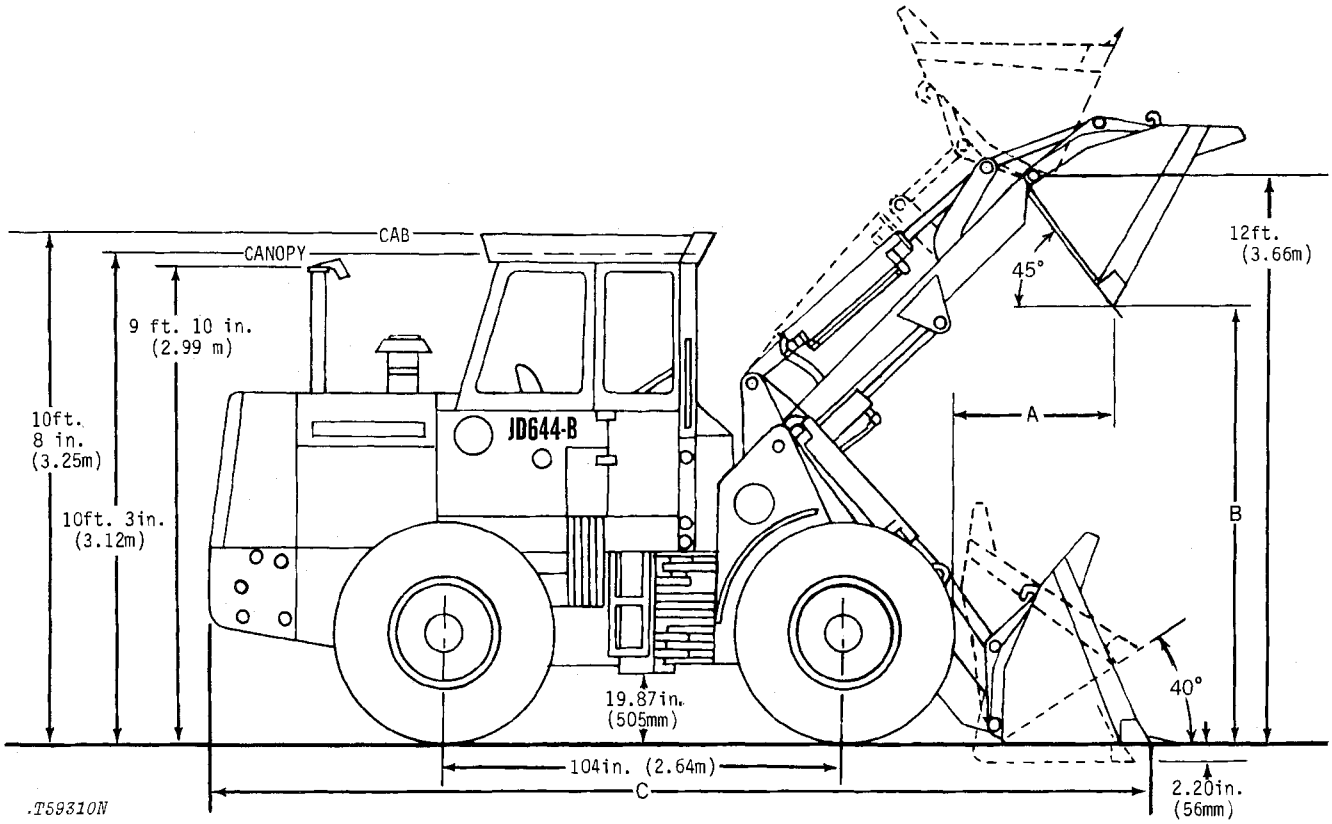
DIMENSIONS



BUCKET CAPACITIES	DIMENSIONS		
	A	B	C
2-1/2 cu. yd. bucket	34.6 in. (87 mm)	9 ft. 4 in. (2.84 m)	21 ft. 0.06 in. (6.40 m)
3 cu. yd. bucket	37.8 in. (9 mm)	9 ft. 0.9 in. (2.7 m)	21 ft. 5.1 in. (6.53 m)
4-1/2 cu. yd. bucket	45 in. (1 143 mm)	8 ft. 5.7 in. (2.58 m)	22 ft. 3.3 in. (6.79 m)
2-1/2 cu. yd. multipurpose	36.3 in. (922 mm)	8 ft. 8.4 in. (2.65 m)	21 ft. 11.8 in. (6.70 m)

OPERATING INFORMATION

OPERATING INFORMATION	BUCKET			
	General purpose	General purpose	Loose materials	Multipurpose
Capacity, heaped, SAE	2-1/2 cu. yd. (1.91 m³)	3 cu. yd. (2.29 m³)	4-1/2 cu. yd. (3.44 m³)	2-1/2 cu. yd. (1.91 m³)
Capacity, struck, SAE	2.05 cu. yd. (1.57 m³)	2.50 cu. yd. (1.80 m³)	3.73 cu. yd. (2.45 m³)	1.92 cu. yd. (1.47 m³)
Bucket width	104.75 in. (2.66 m)	104.75 in. (2.66 m)	110.75 in. (2.81 m)	104.75 in. (2.66 m)
Bucket weight	1930 lb. (875 kg)	2115 lb. (959 kg)	2530 lb. (1148 kg)	3260 lb. (1479 kg)
Breakout force, J732C SAE Standard using bucket hinge pin as pivot	24,120 lb. (108.11 kN) (10 940 kg)	21,080 lb. (94.48 kN) (9 562 kg)	15,975 lb. (71.60 kN) (7 246 kg)	20,270 lb. (90.85 kN) (9 194 kg)
Tipping load, straight	22,905 lb. (10 390 kg)	22,420 lb. (10 170 kg)	21,480 lb. (9 743 kg)	19,910 lb. (9 031 kg)
Tipping load, 40-deg. Full Turn, SAE	19,610 lb. (8 895 kg)	19,160 lb. (8 691 kg)	18,280 lb. (8 292 kg)	16,855 lb. (7 645 kg)
Turning clearance, outside bucket	35 ft. 10 in. (10.92 m)	36 ft. 1 in. (11 m)	37 ft. (11.27 m)	36 ft. 5 in. (11.1 m)
Loader operating weight	28,100 lb. (12 746 kg)	28,280 lb. (12 828 kg)	28,695 lb. (13 016 kg)	29,425 lb. (13 347 kg)

Maximum recommended material weight, lb. per cu. yd. (kg/m³):

All standard equipment with 20.5-25, 12-ply-rating tires	2-1/2 cu. yd. (1.91 m³) General purpose	3 cu. yd. (2.29 m³) General purpose	4-1/2 cu. yd. (3.44 m³) Loose materials	2-1/2 cu. yd. (1.91 m³) Multipurpose
Loader less cab or canopy	2575 (1 528)	2085 (1 237)	1315 (780)	2152 (1 276)
Loader with canopy	2660 (1 578)	2160 (1 282)	1360 (807)	2230 (1 323)
Loader with cab	2715 (1 610)	2205 (1 308)	1390 (825)	2275 (1 350)
Loader with cab and fluid	3090 (1 833)	2515 (1 492)	1590 (943)	2630 (1 560)
Loader with cab, fluid, and first set of side counterweights	3450 (2 047)	2810 (1 667)	1785 (1 059)	2965 (1 759)
Loader with cab, fluid, first and second sets of side counterweights	3795 (2 252)	3095 (1 836)	1975 (1 172)	3285 (1 949)

Adjustments to operating weights and tipping loads:

Add (+) or deduct (−) lb. (kg) as indicated for loader equipped with:	Loader Operating Weight	Tipping Load, Straight	Tipping Load, 40-deg. Full Turn, SAE
Less ROPS cab	−950 lb. (431 kg)	−830 lb. (377 kg)	−770 lb. (349 kg)
ROPS canopy in lieu of ROPS cab	−320 lb. (145 kg)	−305 lb. (138 kg)	−275 lb. (125 kg)
Less side counterweights	−1175 lb. (533 kg)	−2430 lb. (1 102 kg)	−2025 lb. (919 kg)
17.5-25, 12-ply-rating, loader tread tires	−184 lb. (83 kg)	−250 lb. (113 kg)	−215 lb. (98 kg)
20.5-25, 12-ply-rating, rock tread tires	+174 lb. (79 kg)	+230 lb. (104 kg)	+200 lb. (91 kg)
Less $CaCl_2$ in rear tires	−1820 lb. (826 kg)	−2435 lb. (1 105 kg)	−2115 lb. (959 kg)
Second set of side counterweights	+1294 lb. (587 kg)	+2300 lb. (1 043 kg)	+1945 lb. (882 kg)
Bucket teeth	+230 lb. (105 kg)	−330 lb. (150 kg)	−330 lb. (150 kg)

Group 10
PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY STORAGE

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

For long term storage (over 30 days) information, consult your JD644-B Operator's Manual.

1. Check battery electrolyte level and charge the battery, if necessary.

2. Check coolant level in the radiator. The coolant should be maintained at a level midway between the radiator core and filler neck.

3. Fill the fuel tank.

4. Check crankcase oil level. Oil should be at top mark of dipstick after loader has been shut down for ten minutes.

5. Relieve hydraulic pressure by stopping engine, lowering bucket and operating steering wheel or control levers until system fails to respond.

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.

If adjustments are required, procedures are found in the After-Sale section.

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

1. Pre-cleaner

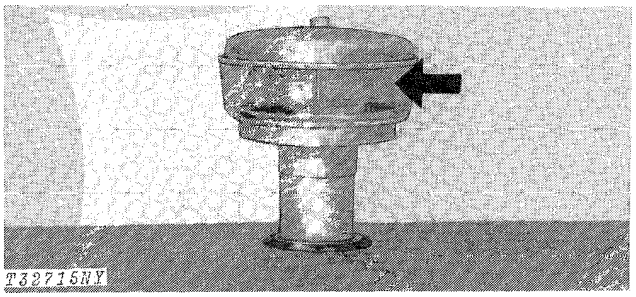


Fig. 1-Pre-cleaner

Check and clean pre-cleaner bowl.

Pre-cleaner checked and cleaned. *Yes* *No*

2. Air Cleaner

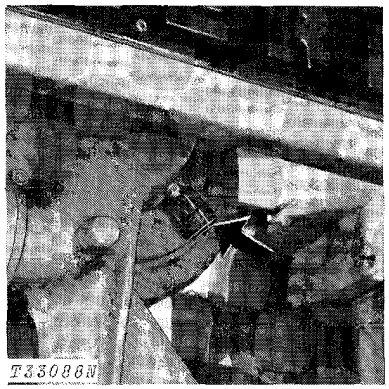
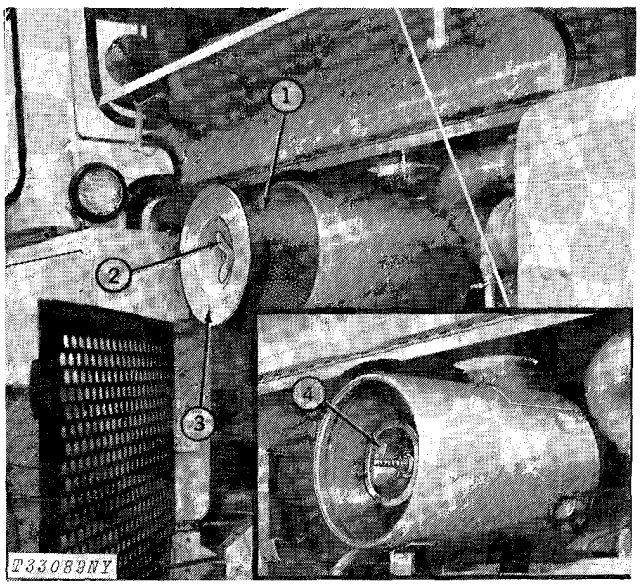


Fig. 2-Air Cleaner Restriction Indicator

Check air cleaner restriction indicator. If red signal locks in full view, look for restriction or blockage in air intake system.



1—Primary Element
2—Wing Nut
3—Air Cleaner Cover
4—Safety Element

Fig. 3-Air Cleaner

Air cleaner checked *Yes* *No*

Filters replaced *Yes* *No*

3. Fuel Filters

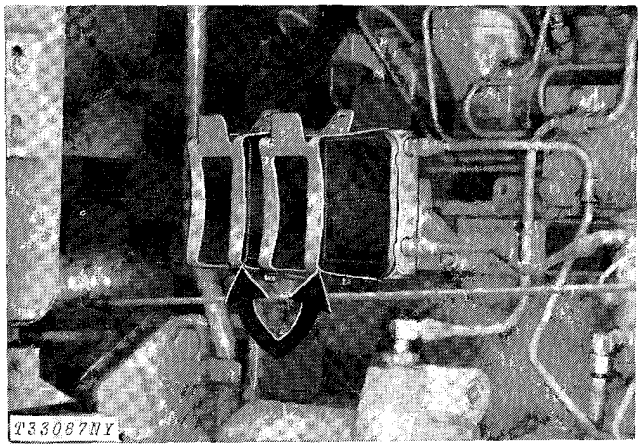


Fig. 4-Fuel Filters

Check fuel filters and drain any sediment that is present.

Sediment present in filters *Yes* *No*

4. Air Intake Hoses

Check air intake hoses for loose or improper connections. Check air cleaner-to-exhaust stack aspirator hose for restrictions, damage or loose connections.

Hoses checked *Yes* *No*

5. Batteries

Check battery electrolyte level. Batteries are located to the left of the operator and are accessible through the top door in the battery compartment. If distilled water is not available, use clean soft water. Avoid use of hard water. Remove foreign material from top of battery and coat terminals with petroleum jelly.

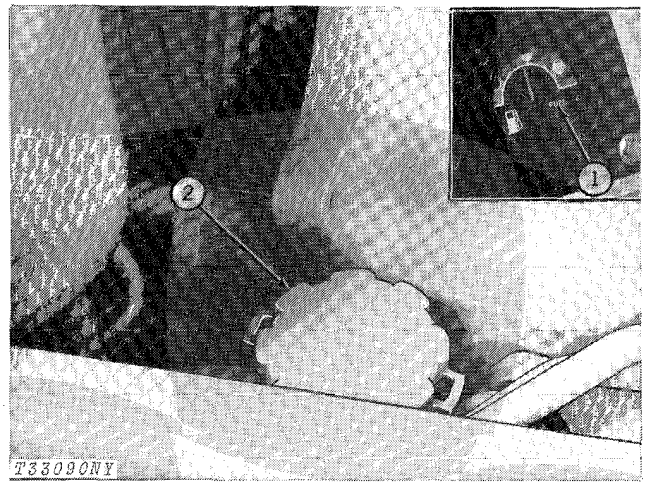
IMPORTANT: Never add water to battery in freezing weather unless engine is to be run long enough (two or three hours) to assure mixing of water and electrolyte.

Check battery connections.

Punch date code on battery.

Water added *Yes* *No*

6. Fuel Tank



1—Fuel Gauge **2—Fuel Tank Filler**

Fig. 5-Fuel Tank Filler and Fuel Gauge

Check the fuel gauge. If fuel gauge indicates a low fuel supply, add sufficient fuel to fill the fuel tank. Fuel tank capacity is 56 U.S. gal. (211.9 L).

Fuel tank level *Full* *1/2 Full* *Empty*

7. Radiator

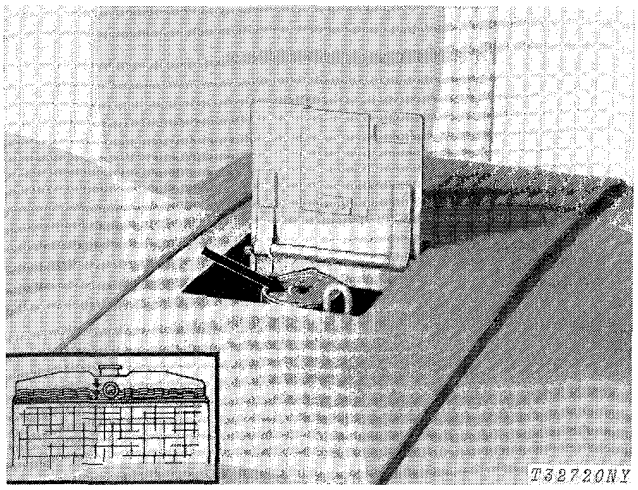


Fig. 6-Radiator Cap

Check coolant level in the radiator. Coolant level should be midway between the radiator core and filler neck.

Radiator coolant level checked *Yes* *No*

Coolant or anti-freeze added *Yes* *No*

8. Crankcase Oil Level

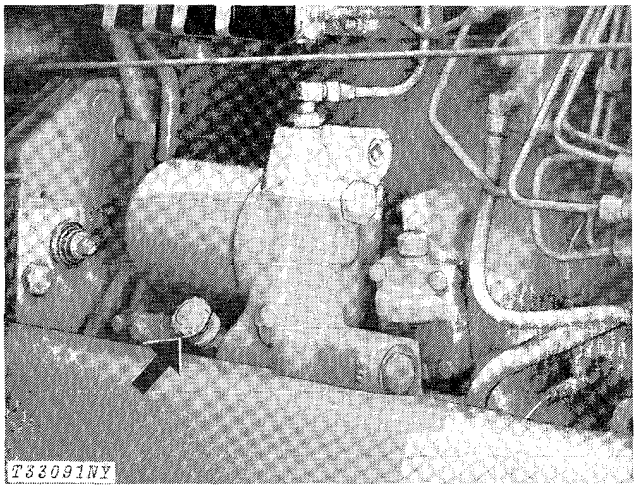


Fig. 7-Crankcase Dipstick

Check crankcase oil level with loader on level ground and the engine off. (Allow a minimum of 10 minutes for the oil to drain down before checking. If oil level is at or below bottom mark on dipstick, add sufficient oil of the proper viscosity and type specified on page 10-15-2 to bring oil level up to the top mark on the dipstick.

NOTE: There is a two-quart (1.89 L) difference between the bottom mark and the top mark on the dipstick.

Crankcase oil level checked *Yes* *No*

Oil added *Yes* *No*

9. Hydraulic Oil Level

Check loader hydraulic system oil level.

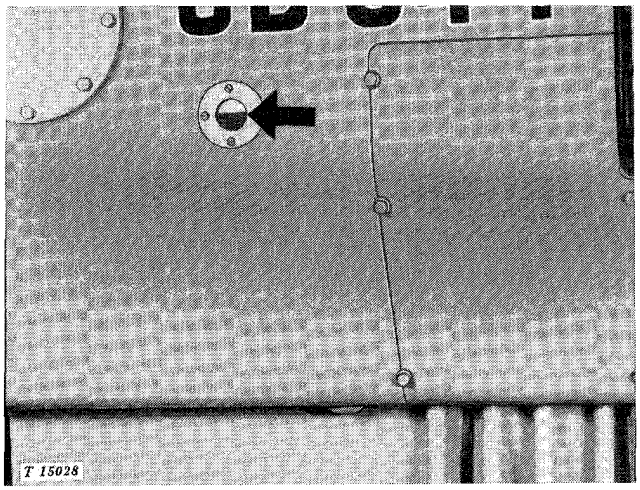


Fig. 8-Loader Hydraulic System Window Indicator

Check loader hydraulic system oil level with bucket resting on the ground. The oil level should be halfway up the window on the reservoir. If oil is low, add oil as specified on page 10-15-2 to bring level up to this point. The filler opening is located under the lid on top of the reservoir. Prevent dirt from entering system. Do not overfill.

Hydraulic system oil level checked *Yes No*
Oil added, if any _____ *qts. (L)*

10. Transmission Oil Level

Check transmission oil level.

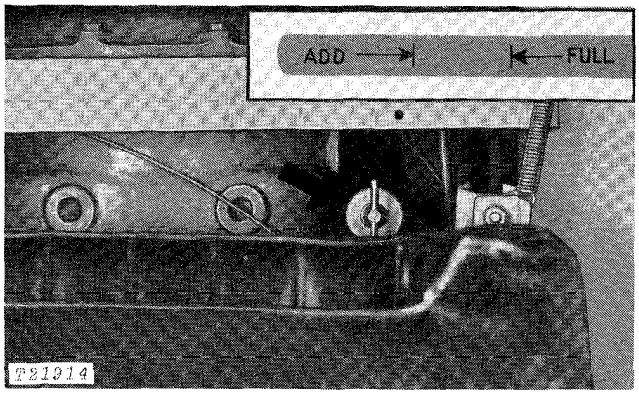


Fig. 9-Transmission Dipstick

A dipstick, located on the left side of the transmission, is accessible by tilting the back of the seat forward. The correct oil level check is made with the dipstick fully inserted in dipstick tube.

Perform both of the following transmission oil level checks: (a) Before starting the engine check the oil level with dipstick. If the oil level is at or near the upper (FULL) mark, there is sufficient oil in the system to permit starting the engine. If oil level is low add John Deere Torque-Converter Fluid (Type C-3) or equivalent. Replace dipstick and tighten finger tight.

(b) Operate loader until the transmission reaches normal operating temperature. Idle the engine and shift through all ranges slowly. This will fill all parts in the system with oil. Shift to neutral, apply the brakes and allow engine to idle. Check oil level again. It should now be at or above the lower (ADD) mark and not above the upper (FULL) mark on the dipstick. If not, add oil. Do not overfill.

Transmission oil level checked *Yes No*
Transmission oil added, if any _____ *qts. (L)*

11. Front and Rear Differential Oil Level

Check front and rear differential oil level.

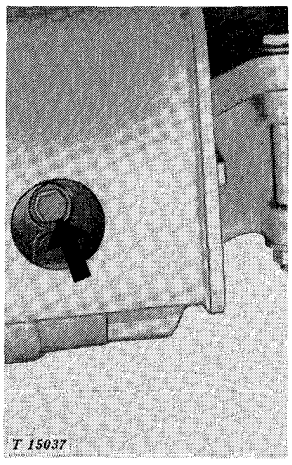


Fig. 10-Front Differential Check Plug

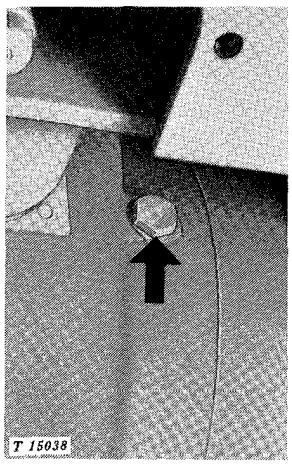


Fig. 11-Rear Differential Check Plug

Check oil level at oil level - filler plug on the side of the differential housings. Oil must be cold and loader must be on level ground. The oil level should be up to the plug. Add John Deere HY-GARD Oil or an equivalent, if necessary.

Differential oil levels checked *Yes No*
Oil added, if any _____ *qts. (L)*

12. Alternator-Fan Belt Tension

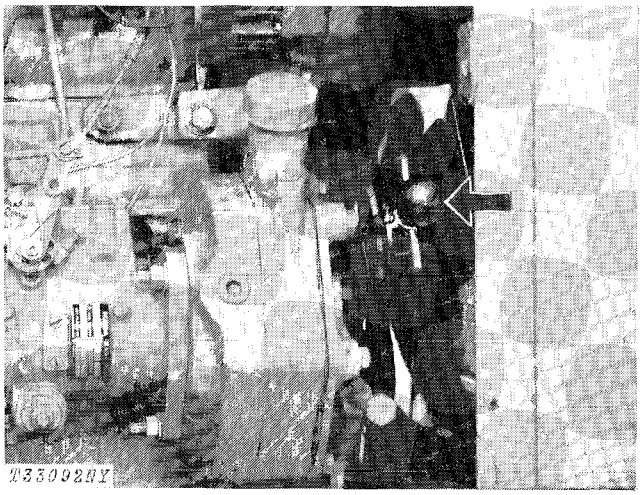


Fig. 12-Alternator-Fan Belt Adjustment

Check alternator belt tension using a deflection gauge. A force of 17 pounds (76 N) on the alternator belt midway between the pulleys should deflect the belt 0.25 inch (6.4 mm).

IMPORTANT: Do not pry on the rear alternator housing as this may damage the alternator.

Loosen alternator bracket and adjusting cap screws. Apply outward pressure to the front alternator frame. Adjust to desired tension. Tighten adjusting cap screws on alternator bracket.

When a belt tension gauge is used, the initial reading should be 130 to 140 pounds (579 to 623 N) strand tension. After 3 minutes of operation recheck belt tension. The gauge should read a minimum of 85 to 95 pounds (378 to 423 N) strand tension.

Check fan belt tension using a deflection gauge. A force of 20 pounds (89 N) on the fan belts midway between the pulleys should deflect the belts 0.75 inch (19 mm).

To adjust, turn the idler pulley adjusting screw to adjust tension on idler pulley. Tighten idler pulley adjusting screw.

When a belt tension gauge is used, the initial reading should be 95 to 105 pounds (423 to 467 N) strand tension. After 3 minutes of operation recheck belt tension. The gauge should read a minimum of 85 to 95 pounds (378 to 422 N) strand tension.

Alternator belt tension _____*lb. (kg) tension*
_____*in. (mm) flex*

Fan belt tension _____*lb. (kg) tension*
_____*in. (mm) flex*

13. Check Engine Speeds

Warm up engine and attach a tachometer to engine tachometer drive to check engine speeds.

No-load, fast idle speed should be 2375-2425 rpm. Slow idle should be 700 rpm.

If engine speeds need adjustment, see page 10-10-24.

Engine speeds checked *Yes* *No*

14. Check Lubrication

The loader was checked and lubricated before it left the factory. However, to insure customer satisfaction, check each lubrication point shown in the following pages. Lubricate with several strokes, if necessary.

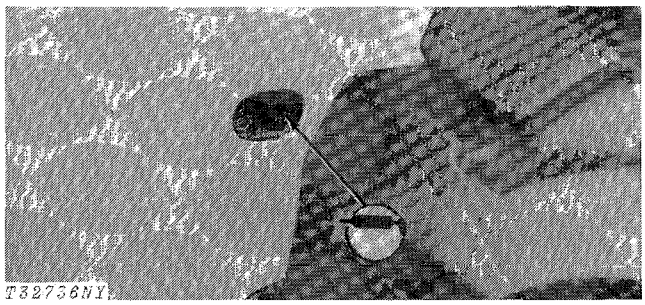


Fig. 13-Steering Cylinder Rear Pivot Pins (2 Points)

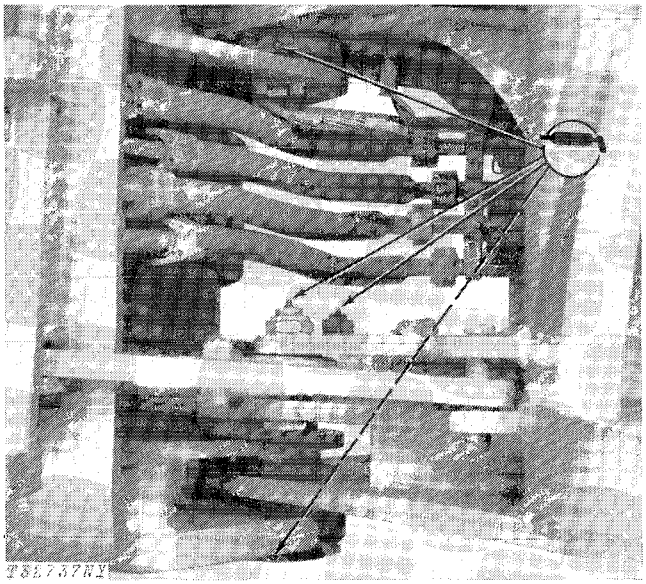


Fig. 14-Steering Cylinder Front Pivot Pins (2 Points) and Frame Hinge Pivots (2 Points)

Lubricant required *Yes* *No*

Lubricate all pivot points in the linkage from the control lever to the control valves with engine oil.

Lubricant required *Yes* *No*

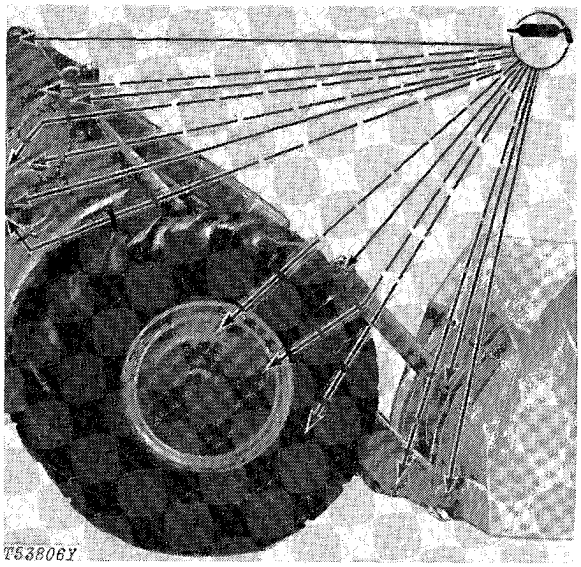


Fig. 15-Loader Boom and Bucket Cylinders and Pivots (14 Points)

Lubricant required Yes No

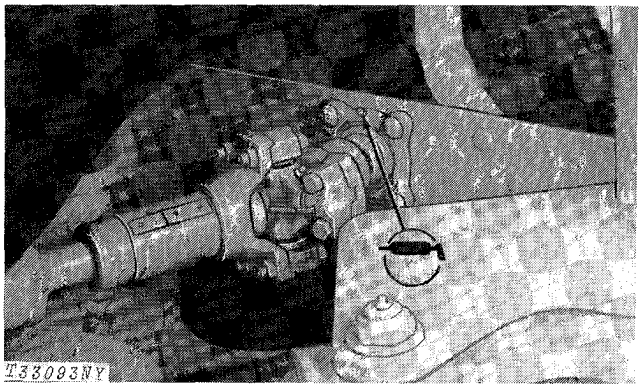


Fig. 16-Front Drive Shaft Support Bearing (1 Point)

Lubricant required Yes No

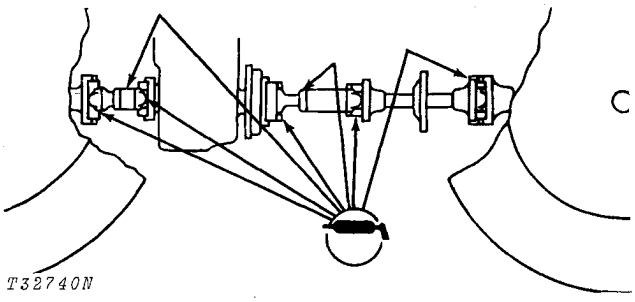


Fig. 17-Transmission-to-Differential Drive Lines (7 Points)

Lubricant required Yes No

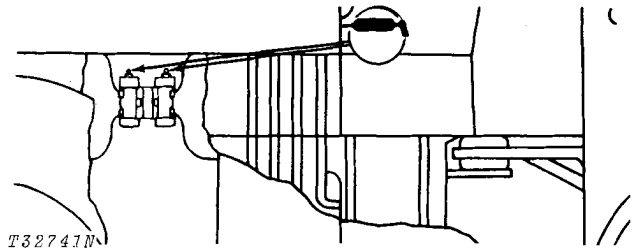


Fig. 18-Engine-to-Transmission Universal Joint (2 Points)

Lubricant required Yes No

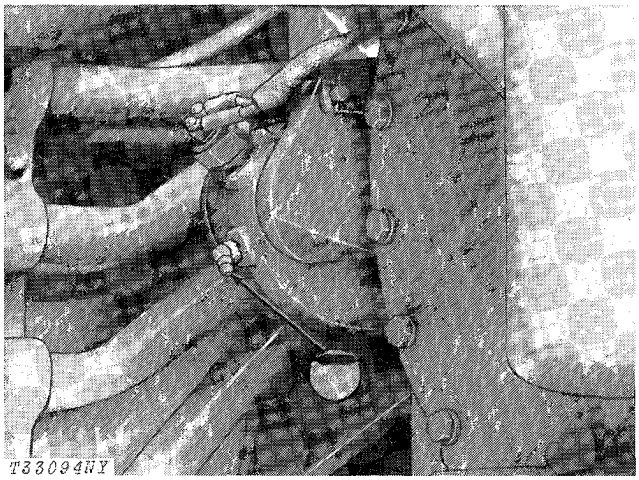


Fig. 19-Shift Control Bell Crank Fitting (1 Point)

Lubricant required Yes No

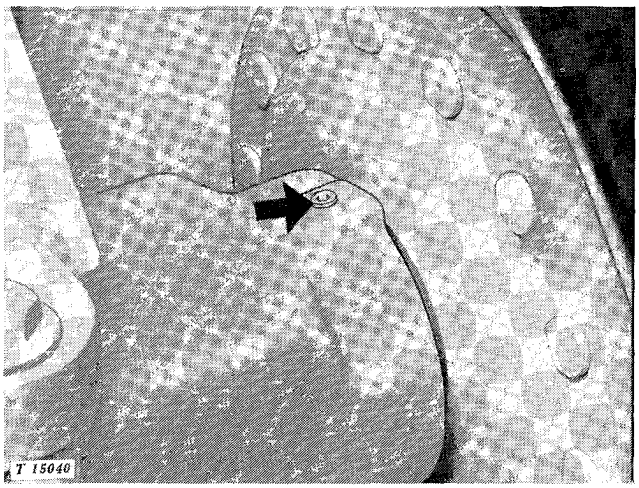


Fig. 20-Axle Bearing Plug (Front Shown) (4 Points)

If lubrication is required, remove pipe plug in each wheel and install grease fittings. Reinstall pipe plug after greasing.

Lubricant required Yes No