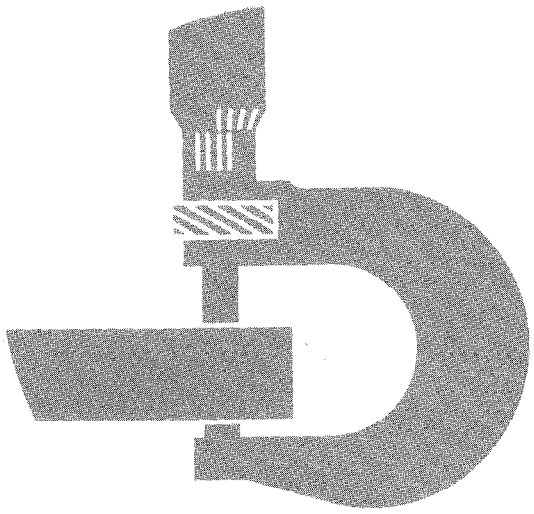
John Deere JD640 Skidder- Grapple Skidder



TECHNICAL MANUAL

TM-1124

Litho in U.S.A. (T) Revised

JD640 SKIDDER—GRAPPLE SKIDDER TECHNICAL MANUAL TM-1124 (JUN-87)

SECTION AND GROUP CONTENTS

Continued on next page

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.

T64;1124 01 020787

SECTION AND GROUP CONTENTS—Continued

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SECTION AND GROUP CONTENTS—Continued

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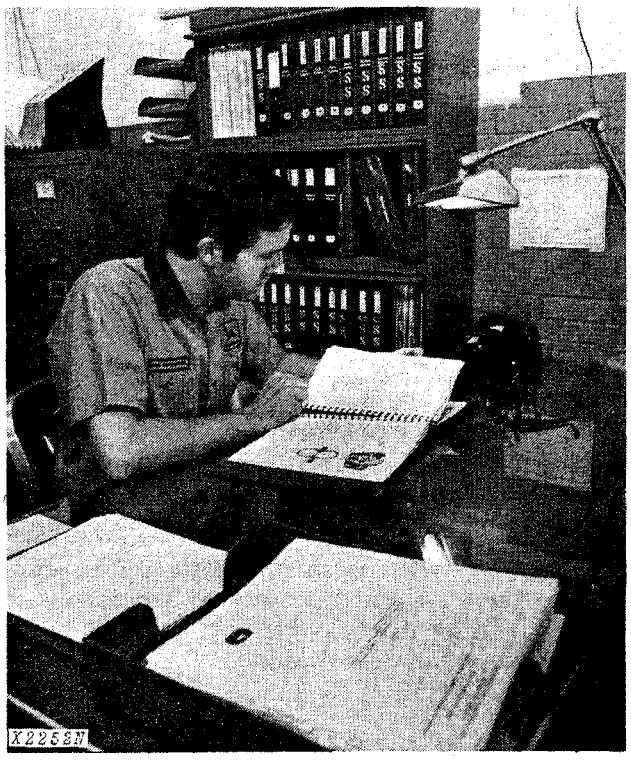
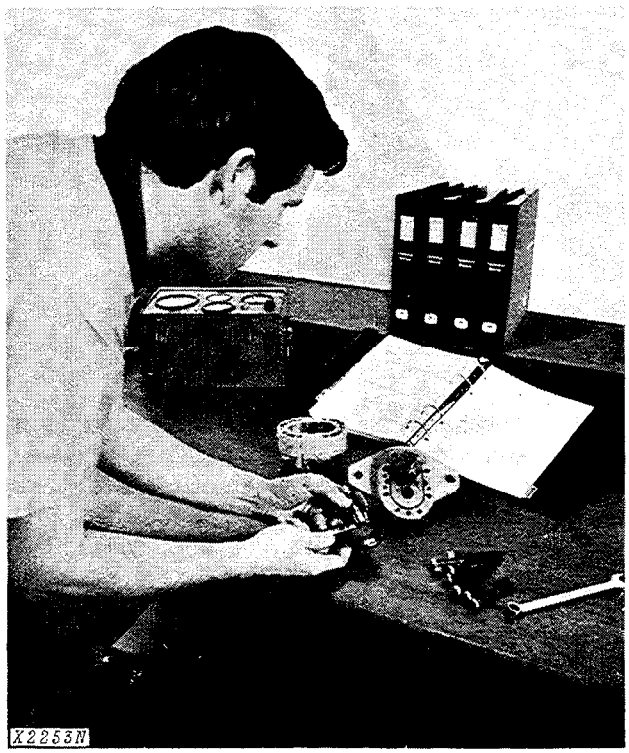
Group I
INTRODUCTION AND SAFETY INFORMATION
INTRODUCTION



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 - Section and Group Contents.
- Section I - Introduction and safety information, torque values, general specifications and general services.
- Sections 1 through 40 - 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.

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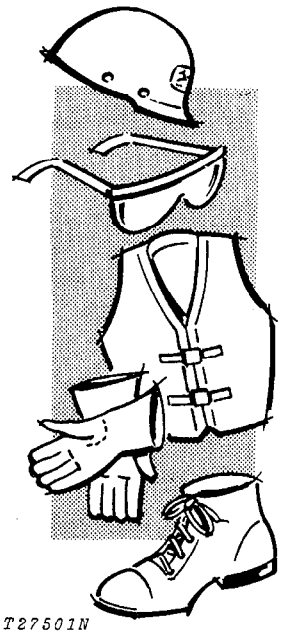
MAINTENANCE WITHOUT ACCIDENT
WORK SAFELY


T27999N

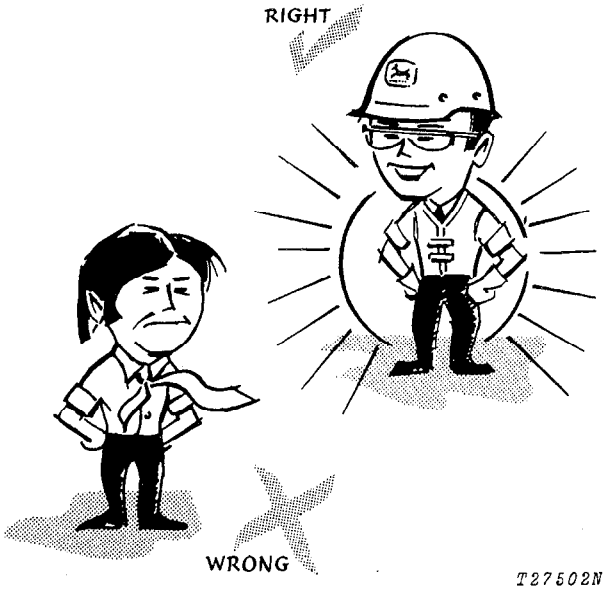
This safety alert symbol is used for important safety messages. When you see this symbol, the possibility of personal injury exists if safety message is not followed.

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


T27501N

Consult your shop supervisor 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.



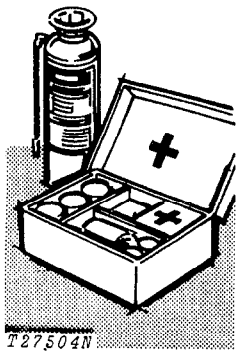
T27502N

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.

T27503

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

MAINTENANCE WITHOUT ACCIDENT

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

AVOID FIRE HAZARDS—

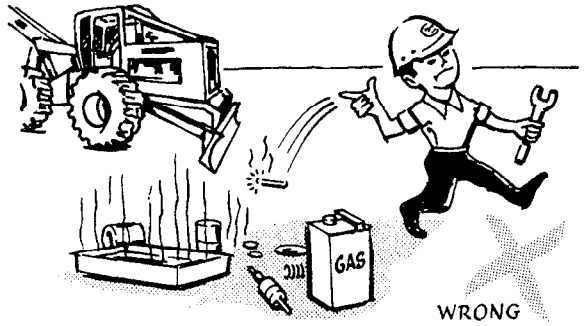
Fuel Is Dangerous!

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.

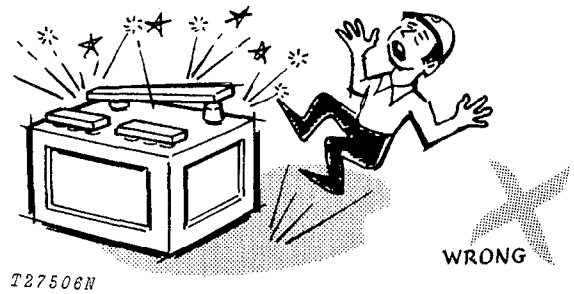


T33257N

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 check fuel, battery electrolyte or coolant levels with an open flame.

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

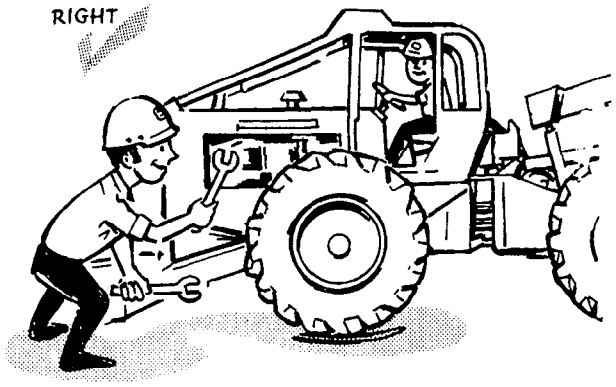
Never use an open flame as a light anywhere on or around the equipment.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the skidder unless authorized to do so. Then be sure you understand the services required. Follow recommended procedures.

Never service the equipment while it is being operated.



T33258N

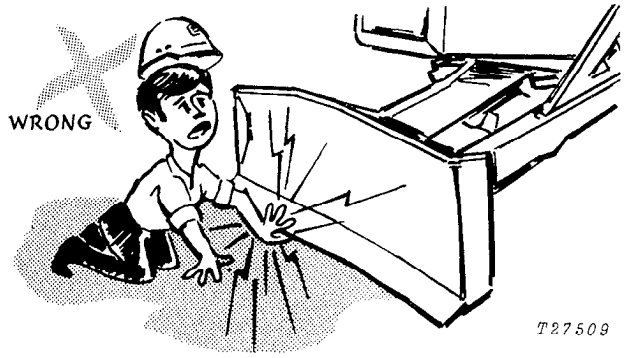
Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, **ALWAYS USE TWO SERVICE TECHNICIANS**—one, the operator, at the controls, the other checking in view of the operator. Also, put the transmission in neutral, set the brake, and apply any safety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

T27508N

MAINTENANCE WITHOUT ACCIDENT

Before servicing, adjusting, or repairing skidders which have attachments such as blades, grapple tongs, 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.

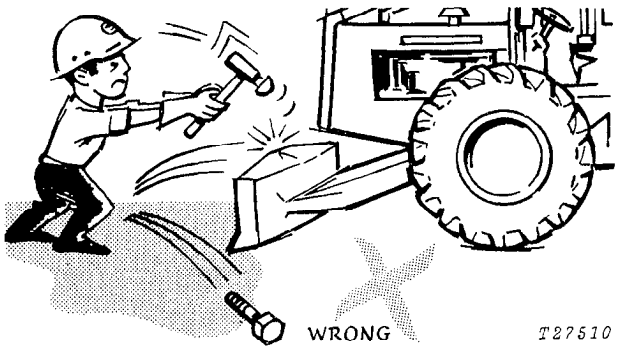


Avoid working directly under raised and blocked equipment unless absolutely necessary.

If the skidder 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.



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

Make sure the maintenance area is adequately vented.

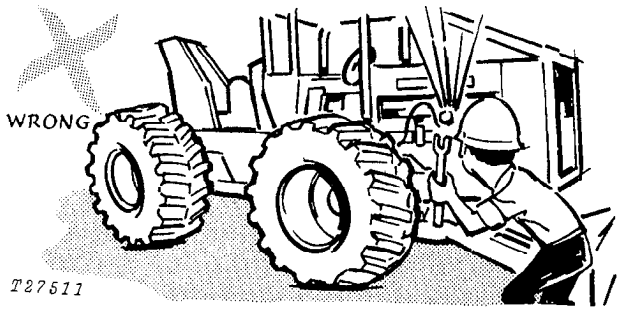
Keep maintenance area CLEAN AND DRY. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

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 skidder.

Lower blade and grapple 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 system pressure, stop engine, lower blade and boom, operate steering wheel and service brakes, and operate blade, boom, and grapple controls until system fails to respond.

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

The skidder is equipped with a brake accumulator—recharge by using only dry nitrogen. To discharge brake accumulator apply the brake pedal about 30 times.

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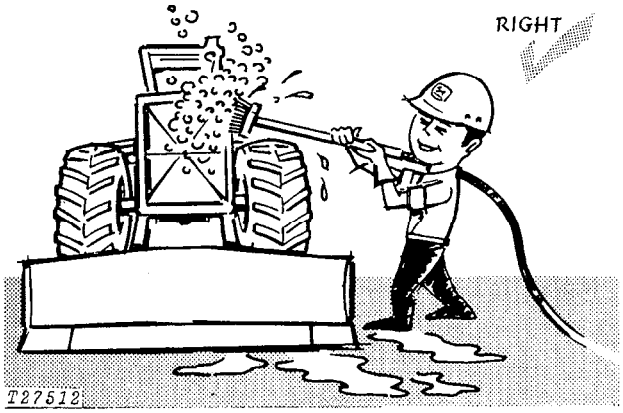
MAINTENANCE WITHOUT ACCIDENT



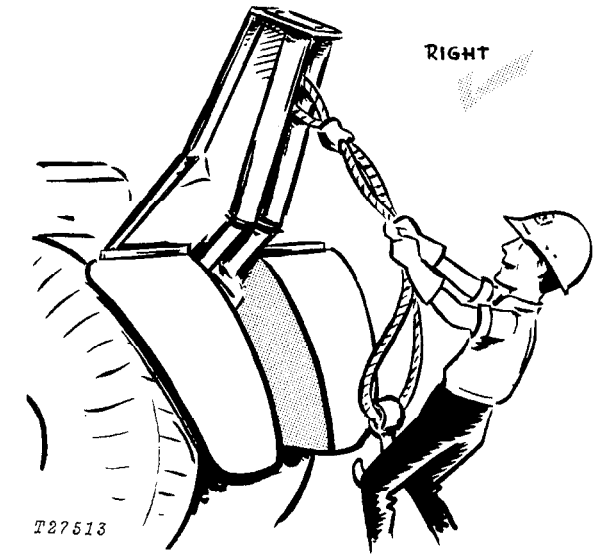
Keep ALL components free of dirt and oil. This attention will minimize fire hazards and facilitate spotting of loose or defective parts.

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

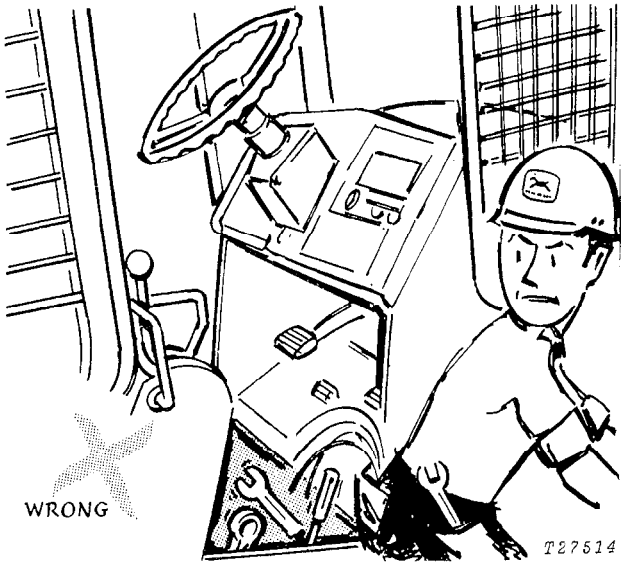
ADJUSTING PRECAUTIONS

. . . . for Operating Adjustments

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



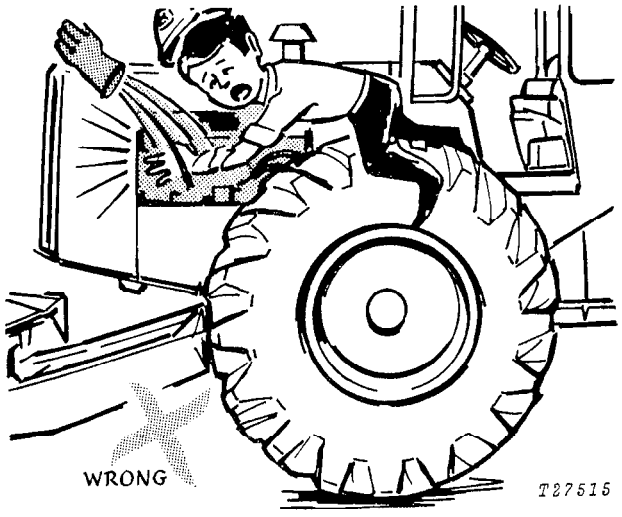
Always wear gloves when handling cable.



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

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

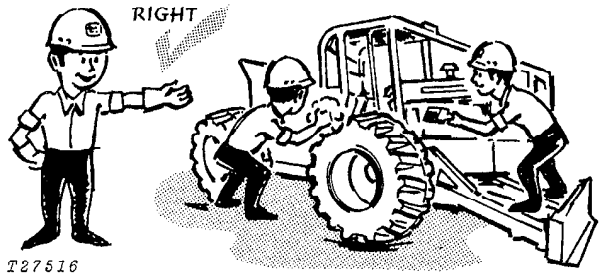


Don't adjust the fuel system while the machine is in motion.

MAINTENANCE WITHOUT ACCIDENT

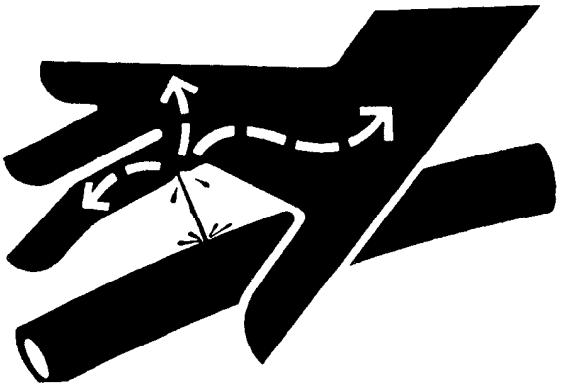
PRECAUTIONS DURING REPAIR

Before working on the engine fuel system—close fuel shutoff valve.



T27516

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

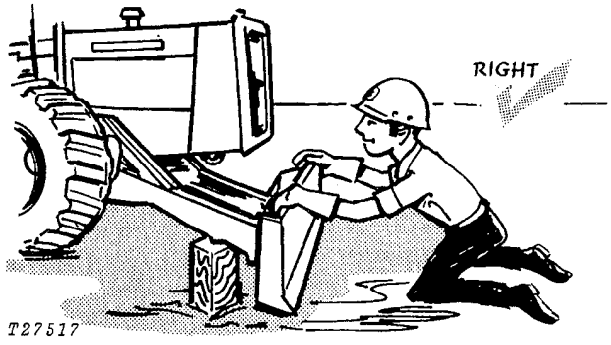


X9811

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. Do not use your hand.

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.

When changing cutting edges on blade—
Stop the engine and securely block the blade.



T27517

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

X7662

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.

Group III
GENERAL SPECIFICATIONS

(Specifications and design subject to change without notice. Whenever applicable, specifications are in accordance with ICED and SAE standards. Except where otherwise noted, these specifications are based on a unit equipped with 24.5-32, 12 ply-rating steel-ply tires, full fuel tank, 175 lb. (79 kg) operator, and standard equipment.)

SKIDDER

CAPACITIES:	U.S.	Litre
Fuel tank	42 gal.	158.9
Cooling system	13 gal.	49.2
Engine lubrication, with filter	20 qt.	18.9
Transmission-hydraulic-winch system	23 gal.	87.1
Front differential	18 qt.	17
Rear differential	18 qt.	17

SAE OPERATING WEIGHT . . . . . 19,900 lb. (9 027 kg)

WINCH:
Cable capacities*:
- 1/2-in. (12.7 mm) cable . . . . . 577 ft. (175.87 m)
- 5/8-in. (15.8 mm) cable . . . . . 379 ft. (115.52 m)
- 3/4-in. (19.1 mm) cable . . . . . 267 ft. (81.38 m)
- 7/8-in. (22.2 mm) cable . . . . . 192 ft. (58.52 m)
- 1-in. (25.4 mm) cable . . . . . 149 ft. (45.42 m)

*Calculated: No allowance made for loose or uneven spooling.

GRAPPLE SKIDDER

CAPACITIES:	U.S.	Litre
Fuel tank	47 gal.	177.9
Cooling system	13 gal.	49.2
Engine lubrication, with filter	20 qt.	18.9
Transmission-hydraulic-winch system	26 gal.	98.4
Front differential	18 qt.	17
Rear differential	18 qt.	17

SAE OPERATING WEIGHT . . . . . 26,250 lb. (11 907 kg)
(Dual Function Boom)

SAE OPERATING WEIGHT* . . . . . 22,900 lb. (10 387 kg)
(Single Function Boom)

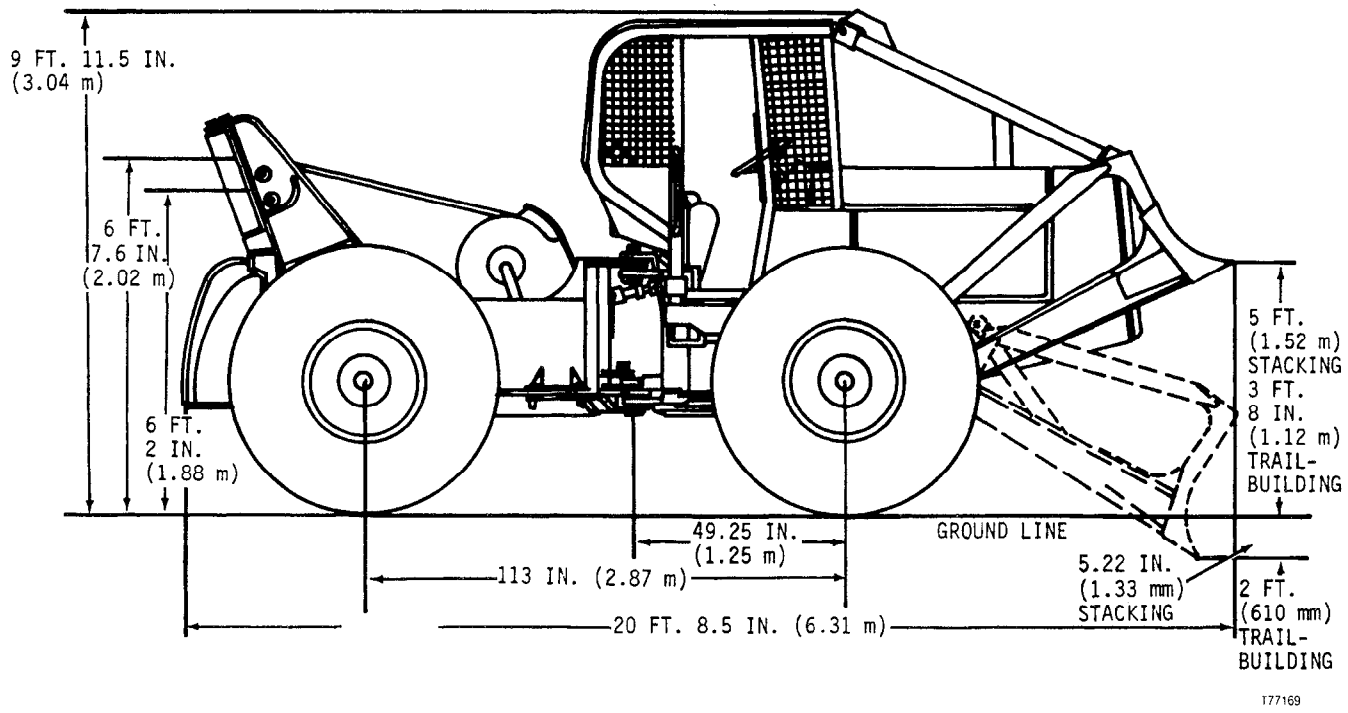
*Specifications based on a unit equipped with 23.1-26 10 ply-rating steel-ply tires.

WINCH:
Cable capacities*:
- 1/2-in. (12.7 mm) cable . . . . . 217 ft. (66.1 m)
- 5/8-in. (15.8 mm) cable . . . . . 142 ft. (43.3 m)
- 3/4-in. (19.1 mm) cable . . . . . 100 ft. (30.5 m)

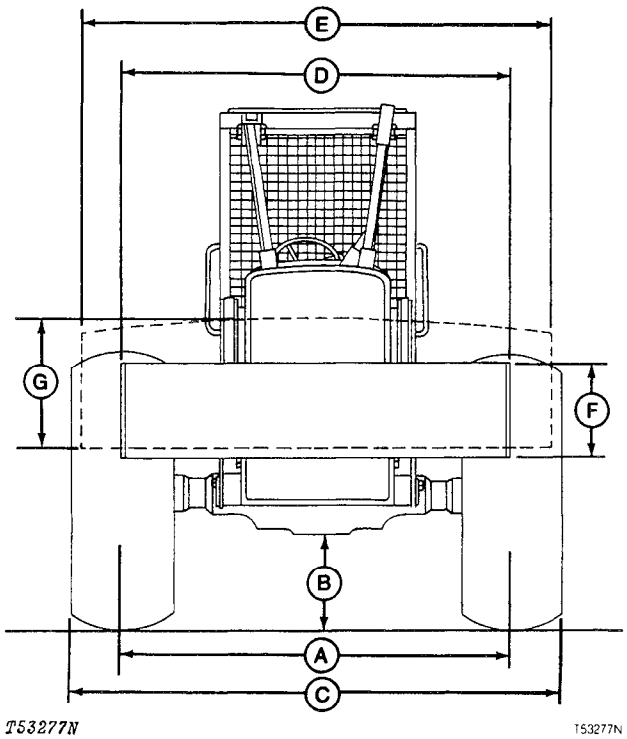
*Calculated: No allowance made for loose or uneven spooling.

Litho in U.S.A.

SKIDDER



Side view dimensions are for skidder equipped with 24.5 x 32 tires



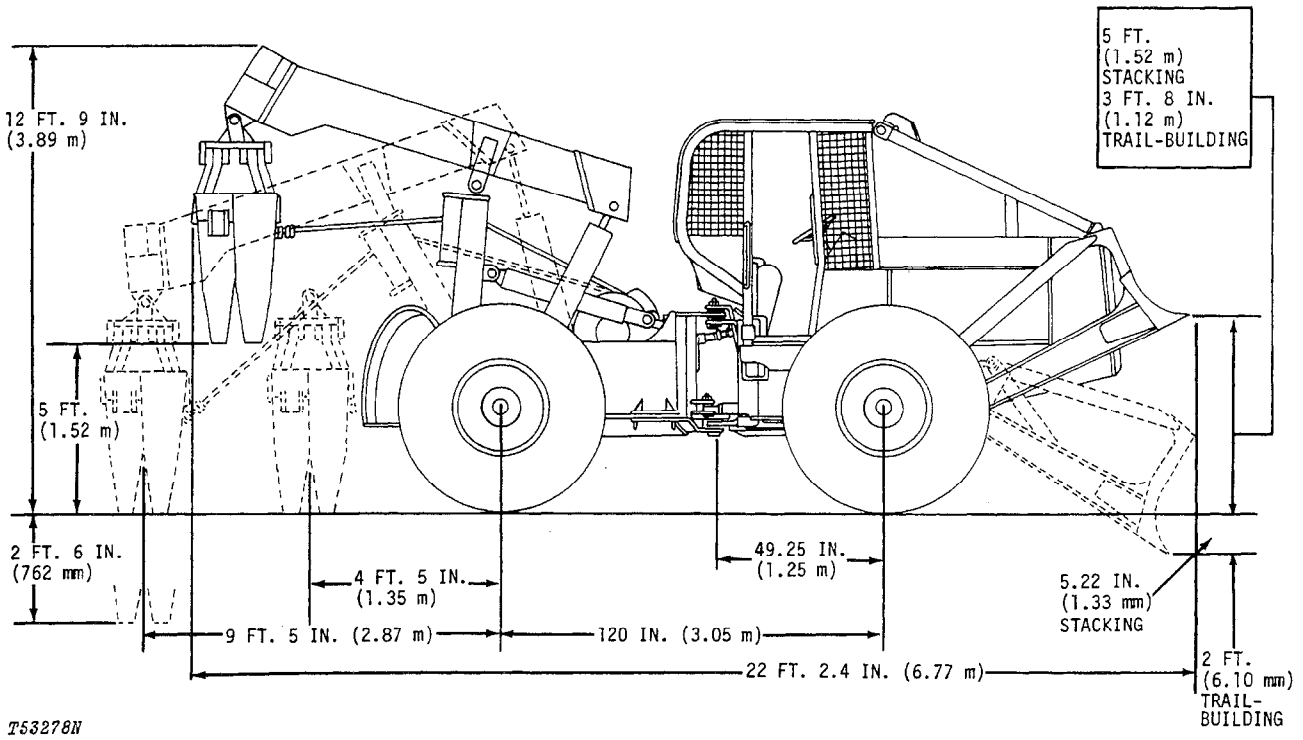
DIMENSIONS:

TIRE SIZE	A WHEEL TREAD	B GROUND CLEARANCE	C OVERALL WIDTH
23.1-26	80.2 in. (2.04 m)	19.2 in. (488 mm)	8 ft. 7.8 in. (2.64 m)
24.5-32	84.2 in. (2.14 m)	23.7 in. (602 mm)	9 ft. 1 in. (2.76 m)
28.1-26	87.5 in. (2.22 m)	20 in. (508 mm)	9 ft. 8 in. (2.84 m)
30.5-32	90.2 in. (2.29 m)	23.1 in. (587 mm)	10 ft. 0 in. (3.05 m)
68/34-26	97.5 in. (2.48 m)	20.9 in. (531 mm)	10 ft. 9 in. (3.28 m)

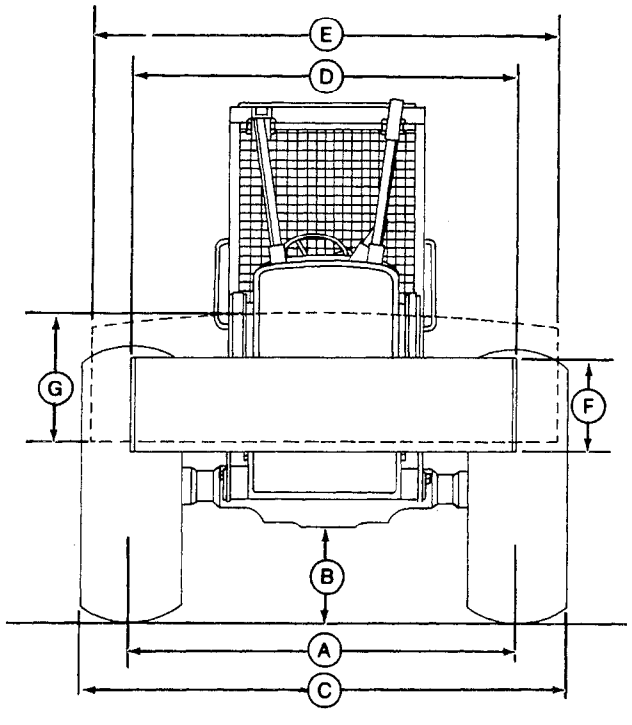
BLADE DIMENSIONS:

D WIDTH Stacking	E WIDTH Trail-Building	F HEIGHT Stacking	G HEIGHT Trail-Building
7 ft. 2 in. (2.18 m)	9 ft. 4 in. (2.84 m)	1 ft. 8.5 in. (521 mm)	2 ft. 8 in. (813 mm)

GRAPPLE SKIDDER (DUAL FUNCTION BOOM)



Side view dimensions are for grapple skidder equipped with 24.5 x 32 tires, grapple open



DIMENSIONS:

TIRE SIZE	A WHEEL TREAD	B GROUND CLEARANCE	C OVERALL WIDTH
24.5-32	84.2 in. (2.14 m)	23.7 in. (602 mm)	9 ft. 1 in. (2.77 m)
68/34-26	97.5 in. (2.48 m)	20.9 in. (531 mm)	10 ft. 9 in. (3.28 m)
30.5-32	90.2 in. (2.29 m)	23.1n. (587 mm)	10 ft. 0 in. (3.05 m)
28L-26	8.75 in. (2.22 m)	20 in. (508 mm)	9 ft. 8 in. (2.84 m)

BLADE DIMENSIONS:

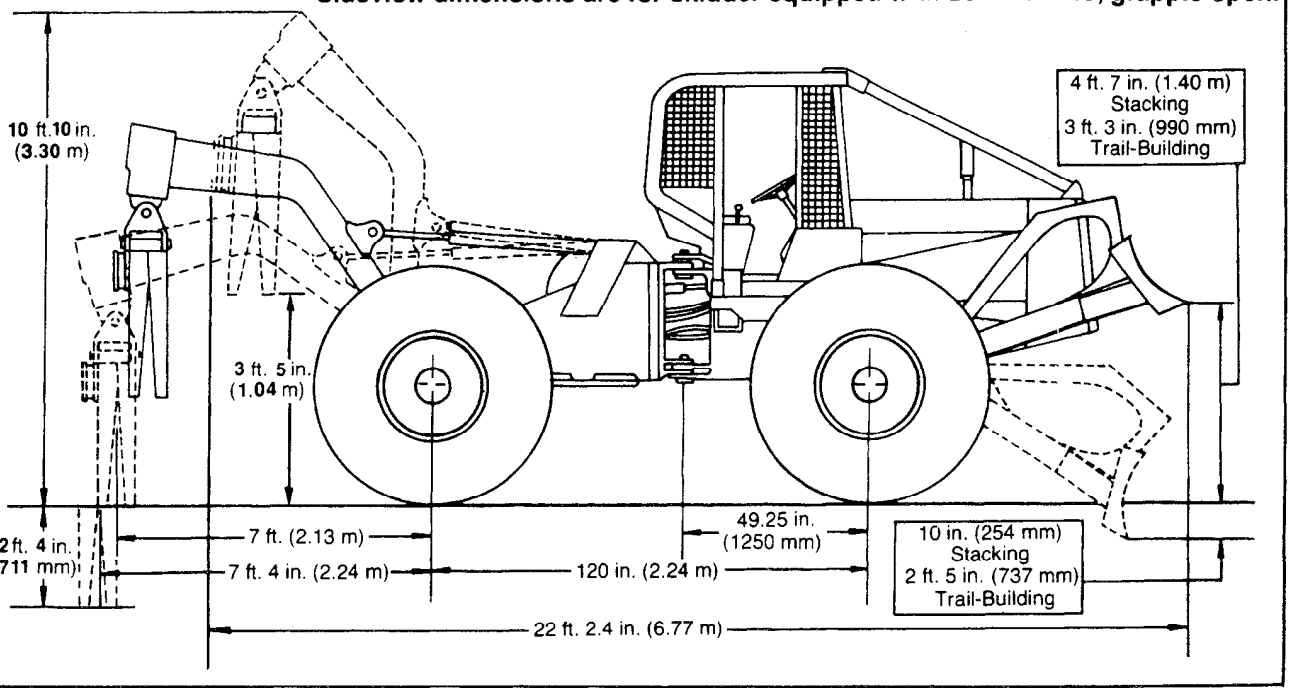
D WIDTH Stacking	E WIDTH Trail-Building	F HEIGHT Stacking	G HEIGHT Trail-Building
7 ft. 2 in. (2.18 m)	9 ft. 4 in. (2.84 m)	1 ft. 8.5 in. (521 mm)	2 ft. 8 in. (813 mm)

DIMENSIONS NOT SHOWN:

Distance between extended grapple tongs . . 10 ft. (3.05 m)
Diameter of smallest log . . . . . 6 in. (152 mm)
Tip closure force . . . 5400 lb. (24.20 kN) (2449 kg)
Enclosure area, tips meeting . . 15 sq. ft. (1.39 m^2)

GRAPPLE SKIDDER (SINGLE FUNCTION BOOM)

Sideview dimensions are for skidder equipped with 23.1-26 tires, grapple open.



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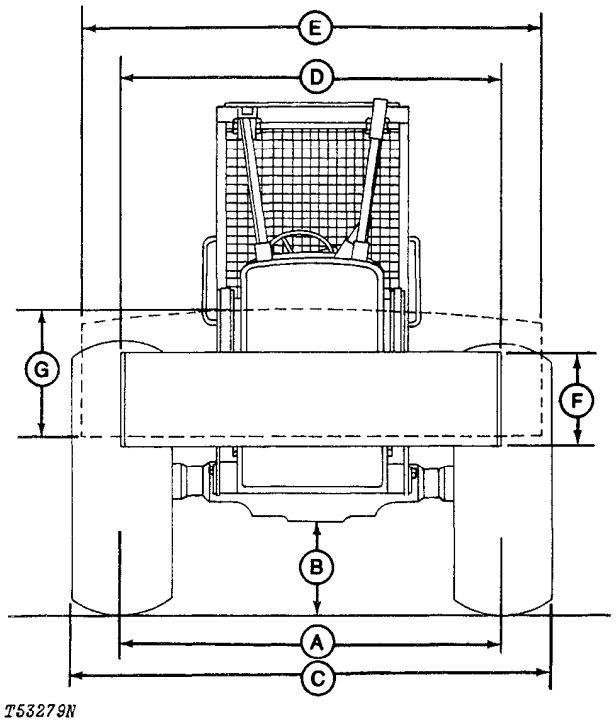

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DIMENSIONS:

TIRE SIZE	A WHEEL TREAD	B GROUND CLEARANCE	C OVERALL WIDTH
23.1-26	80.2 in. (2.04 m)	19.2 in. (488 mm)	8 ft. 8 in. (2.64 m)
24.5-32	84.2 in. (2.14 m)	23.7 in. (602 mm)	9 ft. 1 in. (2.77 m)
28L-26	87.5 in. (2.22 m)	19.6 in. (498 mm)	9 ft. 8 in. (2.95 m)
30.5-32	90.2 in. (2.29 m)	23.1 in. (587 mm)	10 ft. 0.5 in. (3.06 m)
68/34-26	97.5 in. (2.48 m)	20.9 in. (531 mm)	10 ft. 9 in. (3.28 m)

BLADE DIMENSIONS:

D WIDTH Stacking	E WIDTH Trail-Building	F HEIGHT Stacking	G HEIGHT Trail-Building
7 ft. 2 in. (2.18 m)	9 ft. 4 in. (2.84 m)	1 ft. 8.5 in. (521 mm)	2 ft. 8 in. (813 mm)

DIMENSIONS NOT SHOWN:

Distance between extended grapple tongs . . . . . 9 ft. 3 in. (2.82 m)
Diameter of smallest log . . . . . 6 in. (152 mm)
Tip closure force . . . 5400 lb. (24.20 kN) (2449 kg)
Enclosure area, tips meeting . . 15 sq. ft. (1.39 m²)

Litho in U.S.A.

DRIVE AXLES:
Four-wheel drive with inboard planetary gears on all axles. Front axle oscillates 15 degrees above and below horizontal. 24.9 in. (632 mm) total travel at tire center line at narrowest tread.

BRAKES:
Service ..... Hydraulic power-actuated, pedal-controlled, wet-disk on 4 wheels.
Winching ..... Manually locked service brakes.
Parking ..... Hand-operated mechanical disk.

POWER STEERING:
Articulated frame hydraulically actuated by dual cylinders.
Turning radius ..... 18 ft. 6 in. (5.64 m)
Curb clearance circle (w/o braking) ..... 38 ft. 6 in. (11.73 m)
Wheel rotation, max. left to right ..... 3 turns

HYDRAULIC SYSTEM:
Closed-center, constant pressure. Variable-displacement pump driven from crankshaft .... 54 gpm (204 L/min) @ 2000 psi (138 bar) (140.6 kg/cm²) @ 2200 engine rpm. Oil cooler included in system.

Hydraulic Cylinders:	Bore	Stroke
Boom and arch (2 ea.)	4.0 in. (102 mm)	29.81 in. (757 mm)
Grapple (1)	5.50 in. (140 mm)	19.75 in. (502 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	
Boom and arch cylinder rods	2-in. (51 mm) dia.	
Grapple cylinder rod	2.50 in. (64 mm) dia.	

TIRES:
24.5-32, 16 ply rating, kevlar-ply, LS-2*
30.5-32, 16 ply rating, kevlar-ply, LS-2*
24.5-32, 12 ply rating, steel-ply, LS-2
30.5-32, 12 ply rating, steel-ply, LS-2
30.5-32, 16 ply rating, steel-ply, LS-2
Canada only

WINCH:
Cable capacities*:
1/2-in. (12.7 mm) cable ..... 217 ft. (66.14 m)
5/8-in. (15.8 mm) cable ..... 142 ft. (43.28 m)
3/4-in. (19.1 mm) cable ..... 100 ft. (30.48 m)
*Calculated: No allowance made for loose or uneven spooling.

Line pull (maximum engine torque):
Bare drum .... 39,251 lb. (175.93 kN) (17 804 kg)
Full drum ..... 24,154 lb. (108.26 kN) (10 956 kg)

Line speed (2200 rpm):
Bare drum ..... 115 fpm (35.1 m/min)
Full drum ..... 187 fpm (56.9 m/min)

ARCH (integral in grapple frame):
Horizontal roller ..... 6 in. (152 mm) dia.
Vertical rollers (through-hardened steel) ..... 4.5 in. (114 mm) dia.

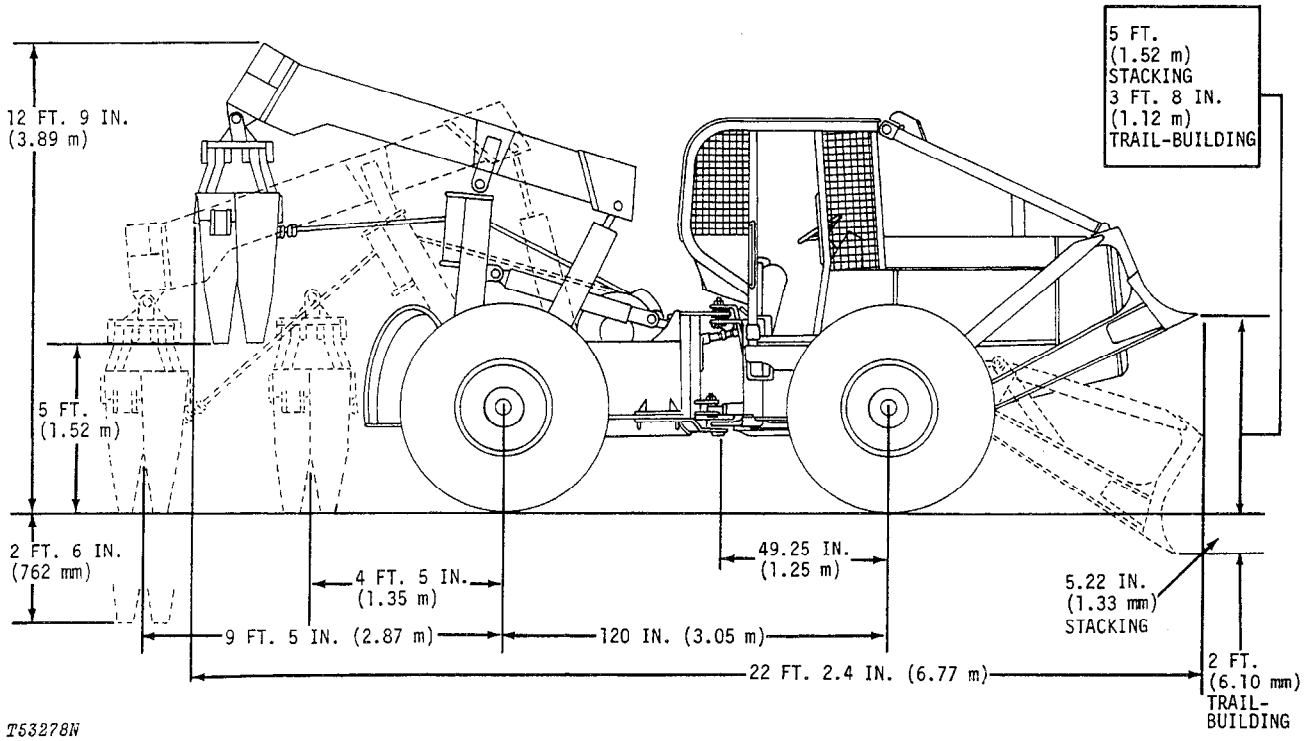
CAPACITIES:	U.S.	Litre
Fuel tank	47 gal.	177.9
Cooling system	13 gal.	49.2
Engine lubrication, with filter	20 qt.	18.9
Transmission-hydraulic system	26 gal.	98.4
Front differential	18 qt.	17
Rear differential	18 qt.	17

SAE OPERATING WEIGHT ..... 26,250 lb. (11 907 kg)

ADDITIONAL STANDARD EQUIPMENT:
Exhaust with rain deflector
Muffler
Transistorized voltage regulator
Key switch with pushbutton safety start
Fire extinguishers (2)
Bottom guards
Cold weather starting aid
Vandal protection
Horn
Engine side shields with trash screens
Adjustable seat with seat belt
Cigar lighter
Gauges:
- Engine oil pressure
- Coolant temperature
- Electric hour meter
- Transmission oil temperature
- Fuel

ROPS canopy with brush screens
Lights
Hand and foot throttle
Hinge lock bar
Parking brake
Parking brake warning light and buzzer
Altitude compensator with turbocharger

SPECIAL EQUIPMENT:
Wheel weights
Trail-building blade
Cab
Automatic fire suppression system



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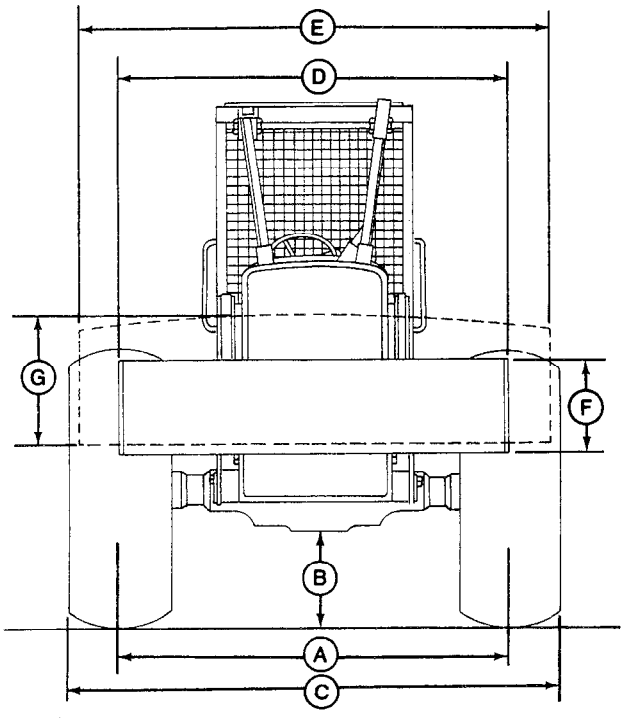
Side view dimensions are for grapple skidder equipped with 24.5 x 32 tires



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DIMENSIONS:

TIRE SIZE	A WHEEL TREAD	B GROUND CLEARANCE	C OVERALL WIDTH
24.5-32	86.7 in. (2.20 m)	23.7 in. (602 mm)	9 ft. 3.5 in. (2.83 m)
30.5-32	90.2 in. (2.29 m)	23.1 in. (587 mm)	10 ft. 0.5 in. (3.06 m)

BLADE DIMENSIONS:

D WIDTH Stacking	E WIDTH Trail-Building	F HEIGHT Stacking	G HEIGHT Trail-Building
7 ft. 2 in. (2.18 m)	9 ft. 4 in. (2.84 m)	1 ft. 8.5 in. (521 mm)	2 ft. 8 in. (813 mm)

DIMENSIONS NOT SHOWN:

Distance between extended grapple tongs .... 10 ft. (3.05 m)
Diameter of smallest log ..... 6 in. (152 mm)
Tip closure force .... 5400 lb. (24.20 kN) (2449 kg)
Enclosure area, tips meeting.... 15 sq. ft. (1.39 m²)

Group IV
PREDELIVERY, DELIVERY AND AFTER-SALE SERVICES

TEMPORARY MACHINE STORAGE

After receiving your skidder from the factory and before putting the skidder into temporary storage, perform the following checks:

For long term storage (over 30 days) information, consult your JD640 operator's manual.

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

2. Check coolant level in radiator. Maintain coolant at a level midway between radiator core and filler neck.

3. Check crankcase oil level. Oil should be at top mark of dipstick after machine has been shut down for 10 minutes.

4. Relieve hydraulic pressure by stopping engine, lowering blade and boom, and operating 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.

DELIVERY SERVICE

A thorough discussion of the operation and service of this new skidder at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints arise because the owner was not shown how to operate and service the new skidder properly. Devote enough time, at the customer's convenience, to introduce the owner to the new skidder. Explain how to operate and service it.

The following procedure is recommended before the service technician and owner complete the delivery acknowledgements portion of the Delivery Receipt.

Using the operator's manual as a guide be sure that the owner understands these points thoroughly:

1. The importance of safety.
2. The importance of lubrication and periodic services.
3. The importance of the break-in period.
4. Controls and instruments.
5. How to start and stop the engine.
6. All functions of the hydraulic system.
7. Proper use and maintenance of the fire extinguisher.

After explaining and demonstrating the above features, have the owner sign the Delivery Receipt and give the owner the operator's manual.

AFTER-SALE INSPECTION

The purchaser of a new John Deere skidder is entitled to a free inspection at some mutually agreeable time within the warranty period after the equipment has been "run-in," usually after 50 to 100 hours of skidder operation. The terms of this after-sale inspection are outlined on the customer's John Deere Delivery Receipt.

This inspection is to make sure that the customer is receiving satisfactory performance from the skidder. At the same time, the inspection should reveal whether or not the skidder is being operated, lubricated, and serviced properly.

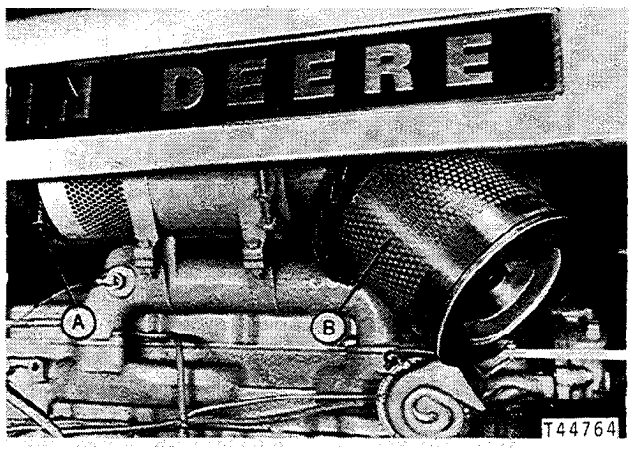
If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minior irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer an opportunity to answer questions that may have arisen during the first few days of operation.

During the inspection service, the dealer has the opportunity to promote the possible sale of other new equipment.

Check operation of all controls and instruments for freedom of movement and correction operation.

Use the following check list when preparing a skidder for delivery to the customer (PDI) and when checking the skidder at the after-sale inspection (ASI).

1. Air Cleaner—PDI and AIS



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A—Restriction Indicator **B—Primary Element**

Fig. 1-Air Cleaner

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

Check air cleaner elements for clogging or damage. Clean elements, if dirty. If elements are ruptured, replace elements.

2. Radiator—PDI and ASI

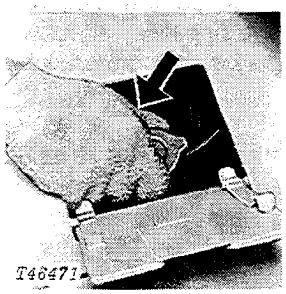

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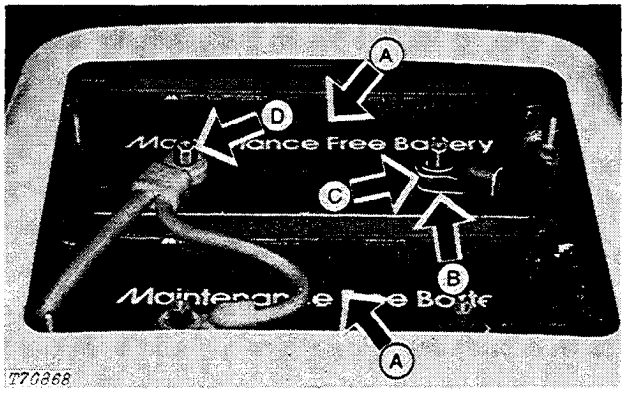
Fig. 2-Radiator Filler Cap

CAUTION: Do not remove radiator filler cap until coolant temperature is below its boiling point. Then loosen cap slowly to the stop to relieve any excess pressure before removing cap completely.

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

The antifreeze-water ratio is approximately 50 percent each. This protects to at least −34°F (−37°C).

3. Batteries—PDI and ASI



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A—Batteries **C—Eyelet**
B—Stud Pad **D—Nut**

Fig. 3-Batteries

Check terminals and connections.

If terminals are corroded, clean them with a stiff brush.

The cable connector seal should not be pinched between the stud pad and eyelet.

Check torque on four nuts. Torque should be 15 lb-ft (20 N·m).

If needed, clean batteries with a damp cloth.

4. Tire Pressure—PDI and ASI

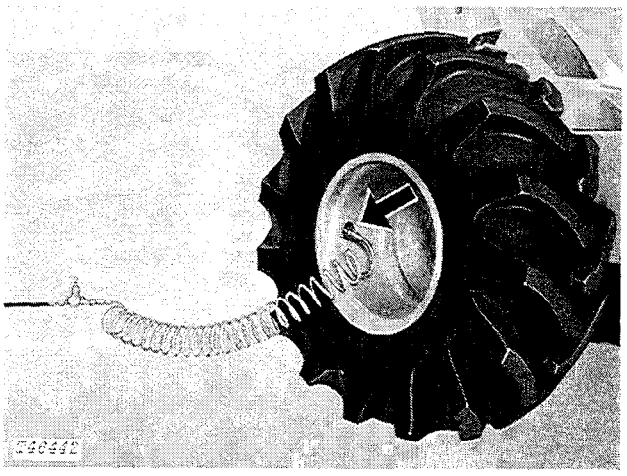

Fig. 4-Correct Tire Testing Procedure

Check the air pressure in the tires with an accurate gauge having 1 psi (0.07 kg/cm²) graduations.

Tire Size	Type	Ply Rating	Pressure
Skidder			
23.1x26	LS-2	10	20 psi (138 kPa)
23.1x26*	LS-2	16	25 psi (172 kPa)
24.5x32	LS-2	12	20 psi (138 kPa)
24.5x32*	LS-2	16	25 psi (172 kPa)
28L-26**	LS-2	14	25 psi (172 kPa)
30.5-32	LS-2	12	20 psi (138 kPa)
30.5-32	LS-2	16	25 psi (172 kPa)
68/34-26	LS-2	16	25 psi (172 kPa)
Grapple Skidder			
23.1x26***	LS-2	10	20 psi (138 kPa)
23.1x26***	LS-2	16	25 psi (172 kPa)
24.5x32*	LS-2	16	25 psi (172 kPa)
24.5x32	LS-2	12	20 psi (138 kPa)
28L-26**	LS-2	14	25 psi (172 kPa)
30.5-32	LS-2	12	20 psi (138 kPa)
30.5-32	LS-2	16	25 psi (172 kPa)
68/34-26	LS-2	16	25 psi (172 kPa)

**Canada only (kevlar-ply).*
***Cannot be used with wheel weights.*
****Only with single function boom and stacking blade.*

CAUTION: Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely.

Detailed tire mounting instructions, including necessary safety precautions are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks.

5. Check Engine Oil Level—PDI and ASI

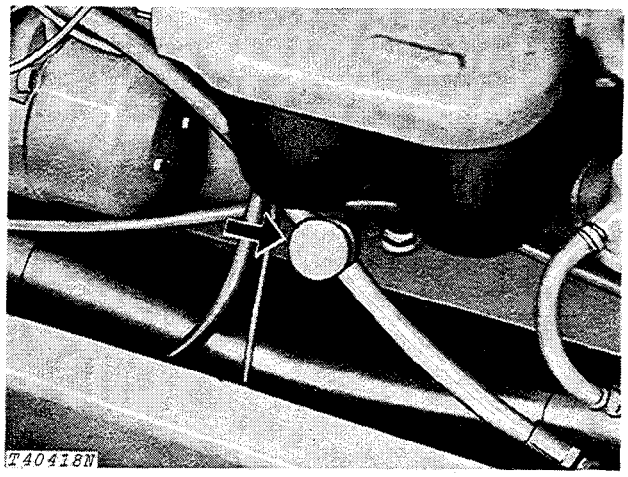

Fig. 5-Crankcase Oil Level

Check crankcase oil level with skidder on level ground and 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 in the Lubrication Section to bring oil level to between marks on dipstick. Do not operate engine with oil level below the bottom mark.

6. Change Engine Oil and Filter Elements—ASI

NOTE: check with the customer if oil has been changed and filter replaced before performing this service.

Normal sequence of service is as follows:

Oil and Filter Change - after first 100 hours
- every 200 hours thereafter

If oil has not been changed, change as follows:

1 - Run engine to heat oil.

CAUTION: The engine frame guard will swing rearward when all cap screws and safety chain are removed. Be careful when lowering guard to prevent debris from falling in your eyes. Guard is heavy and could come off completely if allowed to swing freely. Lower slowly and lift up to remove guard from skidder.

2 - To change oil the bottom guard must be dropped down. To drop guard remove the four 5/8-inch cap screws and allow the engine frame guard to be held by the safety chain. Remove crankcase plug.
3 - While crankcase is draining, replace filter elements as follows:

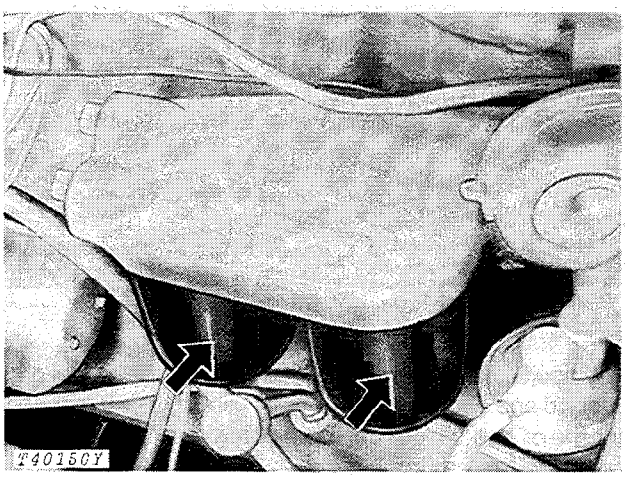

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Fig. 6-Engine Crankcase Oil Filters

A - Remove filter elements. (Turn counterclockwise.)
B - Clean mounting surface.
C - Apply film of oil to sealing ring.
D - Tighten elements until sealing ring touches mounting surface.
E - Turn an additional 1/2 to 3/4 turn.
F - Do not overtighten.

4 - Install drain plug.
5 - Fill crankcase with new oil of proper viscosity. Capacity is 18 quarts (17 L) without filter, 20 quarts (19 L) with filter.
6 - Run engine a short time and check for leaks at filter base and drain plug.
7 - Stop engine.
8 - Check oil level. Level should be between marks on dipstick.
9 - Reinstall engine frame guard.

7. Check Transmission-Hydraulic System Oil Level—PDI and ASI

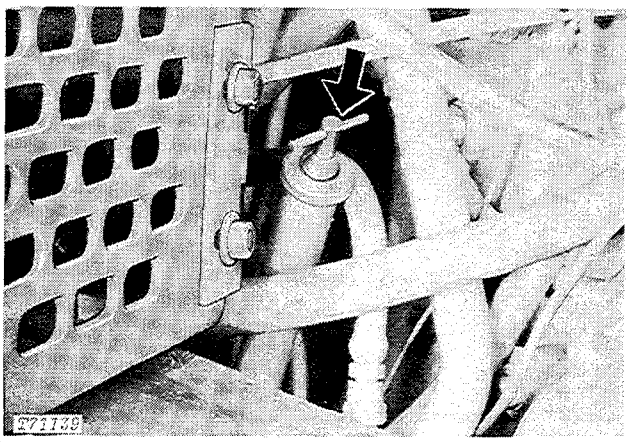

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Fig. 7-Dipstick and Oil Filler Cap

Run engine two to three minutes.

Check oil level with:
1 - Skidder on level ground.
2 - Blade lowered (with engine running).
3 - Grapple tongs opened and lowered to ground as close to rear as possible (with engine running).
4 - Engine stopped.

Allow a minimum of 5 minutes after shutdown before checking oil.

If oil level is below "add" mark on dipstick with dipstick in normal position, add oil specified in the Lubrication Section to bring oil level to full mark.

If oil level is overfull on the cable skidder operate winch in "FREESPOOL" position with the engine running for 15-20 minutes. Then check oil level again.

IMPORTANT: Transmission clutches and brakes are pressure lubricated. To prevent damage, the transmission must be filled to the proper level.

NOTE: If skidder is equipped with emergency steering accumulators, shut off engine and operate steering wheel back and forth to relieve pressure on the accumulators. Allow a minimum of 5 minutes after engine shutdown before checking oil. Oil level should be 3 inches (76.2 mm) above the full mark with dipstick in normal position. If oil level is low, add oil specified in the Lubrication Section to bring oil level up to 3 inches (76.2 mm) above the full mark.

8. Change Transmission-Hydraulic System Oil Filter Elements—ASI

NOTE: Before checking oil level find out if customer has changed filter elements (first 50 hours service).

If not, change filter element as follows:

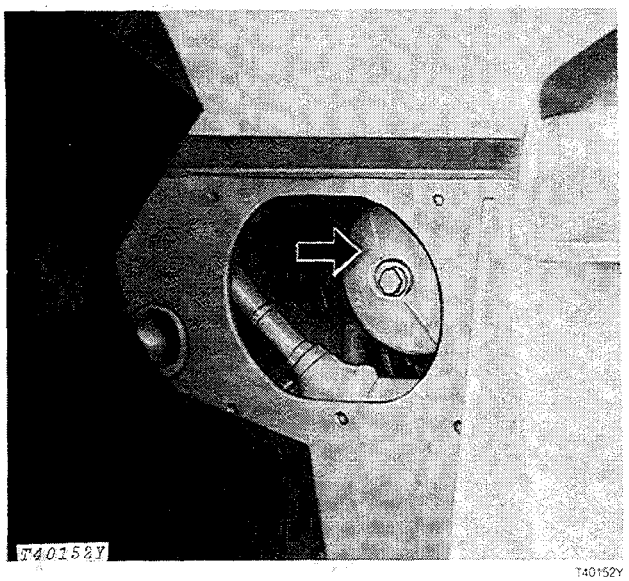
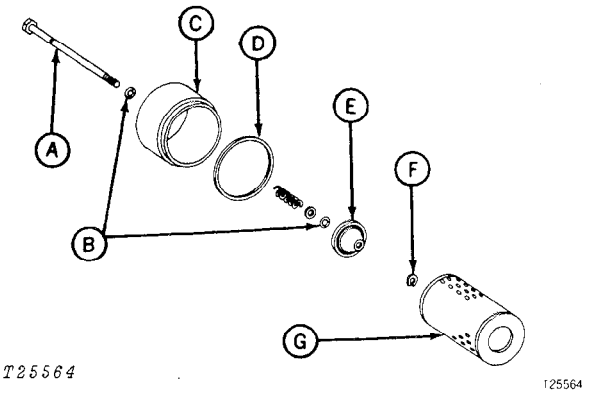


Fig. 8-Transmission Filter



A—Special Screw
B—O-Rings
C—Cover
D—Packing
E—Retainer
F—Snap Ring
G—Element

Fig. 9-Transmission Filter Assembly

1 - Remove cover (C, Fig. 9).
2 - Remove packing (D) and element (G).
3 - Install new packing. Be sure it's fully seated.
4 - Install new element and filter cover.
5 - Tighten special screw (A) to 35 lb-ft (5 kg-m).

NOTE: It is not necessary to drain the transmission oil when replacing filter element. If element is changed quickly, oil loss will be slight.

NOTE: Clean transmission pump intake screen located next to the transmission oil filter. Remove four cap screws and screen cover. Then remove gasket and intake screen. Clean screen in diesel fuel. Reinstall screen, gasket and cover assembly.

6 - Swing grille screen out.

7 - Remove nut (1, Fig. 11) from top end of filter rod (7) and lift off filter end cover (3).

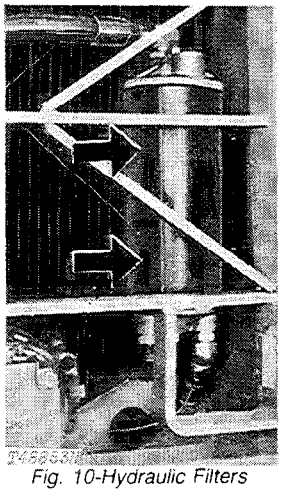
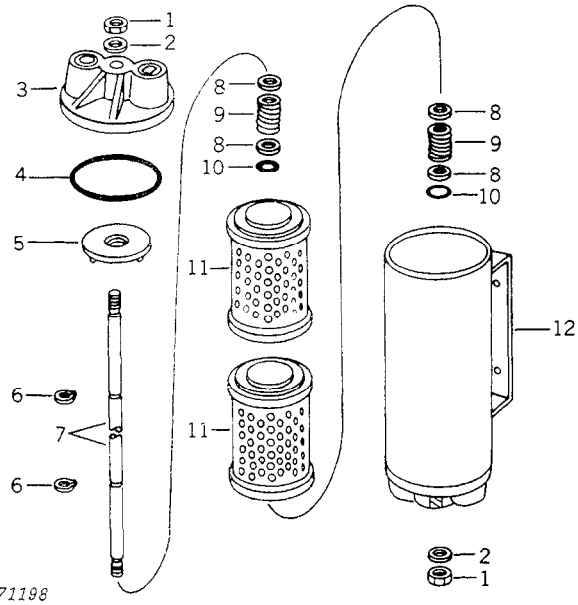


Fig. 10-Hydraulic Filters



1—Nut
2—Special Washer
3—Filter End Cover
4—O-Ring
5—Oil Filter Retainer
6—Retaining Ring
7—Filter Rod
8—Special Washer
9—Spring
10—O-Ring
11—Element
12—Filter Tube

Fig. 11-Hydraulic Filter Assembly

8 - Remove O-rings (4) and elements (11).

9 - Install new O-rings. Be sure they are fully seated.

10 - Install new elements. Be sure they are properly located on bottom of filter cover (12) and retainer (5).

11 - Install filter end cover (3) and attach top end of filter rod (7) using nut (1).

12 - Swing grille screen back in place.

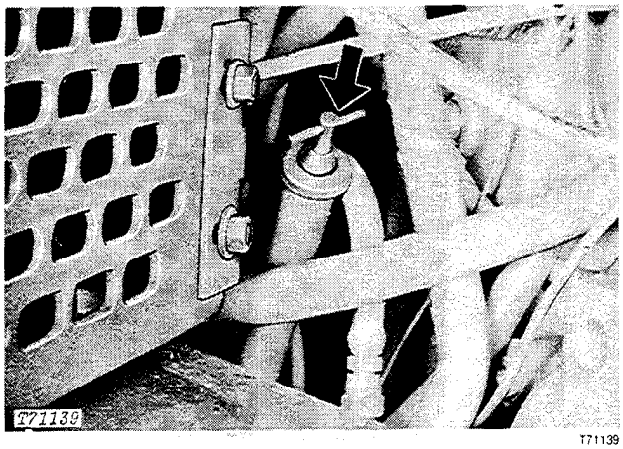


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Fig. 12-Dipstick and Oil Filler Cap

13 - Add oil specified in the Lubrication section.

14 - Run engine 2-3 minutes.

15 - Check oil level (see check list item 7).

9. Fuel Filter—PDI and ASI

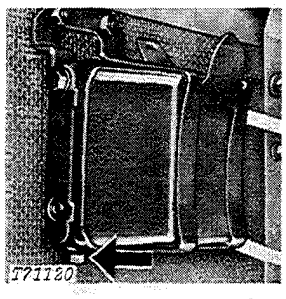

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Fig. 13-Drain Screw

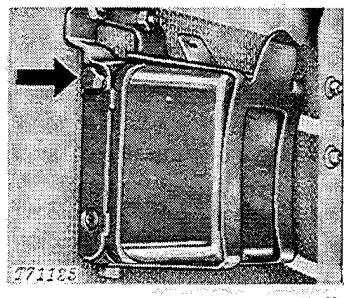

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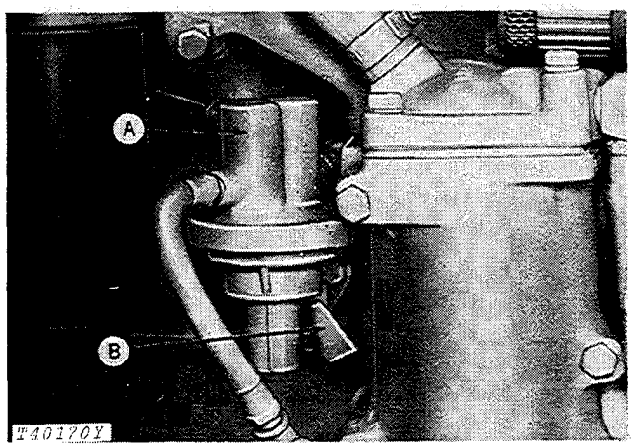
Fig. 14-Bleed Screw



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A—Fuel Transfer Pump **B—Primer Lever**

Fig. 15-Fuel Transfer Pump

Check fuel filter for sediment. If necessary, drain as follows:

1 - Loosen drain screw, (Fig. 13).
2 - Work primer lever on fuel transfer pump (B, Fig. 15) until deposits are drained.
3 - Tighten screw.

Bleed fuel system as follows:

1 - Loosen bleed screw, (Fig. 14).
2 - Work fuel transfer pump primer lever until fuel, free of bubbles, flows from filter opening.
3 - Tighten bleed screw.

NOTE: It may be necessary to turn engine over slightly so lobe on engine crankshaft is in position when operating lever for the fuel transfer pump.

10. Fuel Tank Sump Filter—PDI

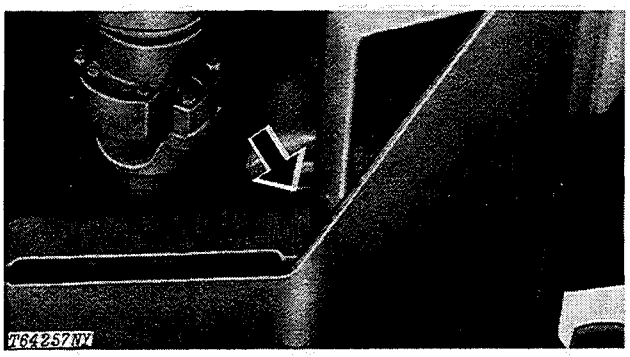

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Fig. 16-Fuel Tank Sump Filter Plug (Skidder)

The fuel tank sump filter is located on the side on the bottom of the fuel tank on the grapple skidder.

Clean sump filter as follows:
1 - Drain all fuel from tank.
2 - Remove sump plug.
3 - Inspect filter. Clean or replace.
4 - Install sump plug.
5 - Fill fuel tank.

11. Fuel Gauge—PDI and ASI

Check fuel gauge. Turn on key switch and check for movement of indicator on gauge. If no movement is noted, add a small amount of fuel and repeat procedure.

If no indicator movement is noted, gauge is not functioning.

12. Grease Fittings—PDI and ASI

Lubricate with several strokes of John Deere Multi-Purpose Grease or equivalent, if necessary.

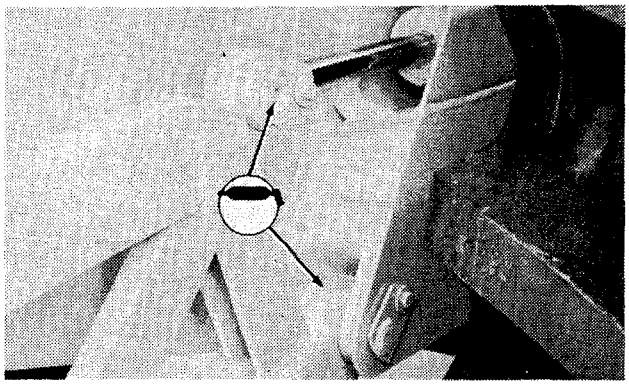

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Fig. 17-Front Blade Pivot Points (4 Points)

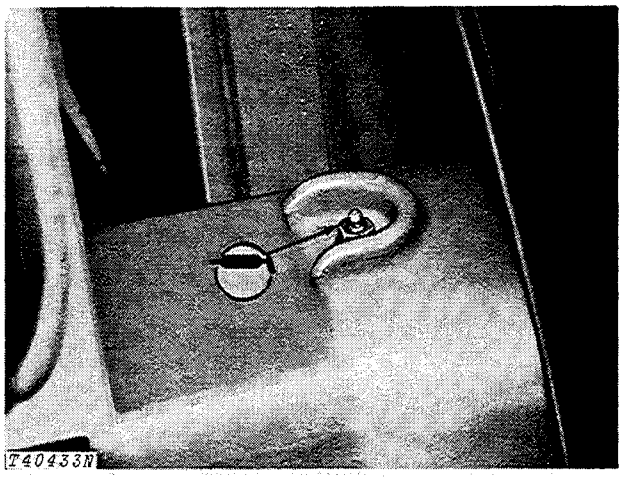

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Fig. 18-Axle Bearings (4 Points)

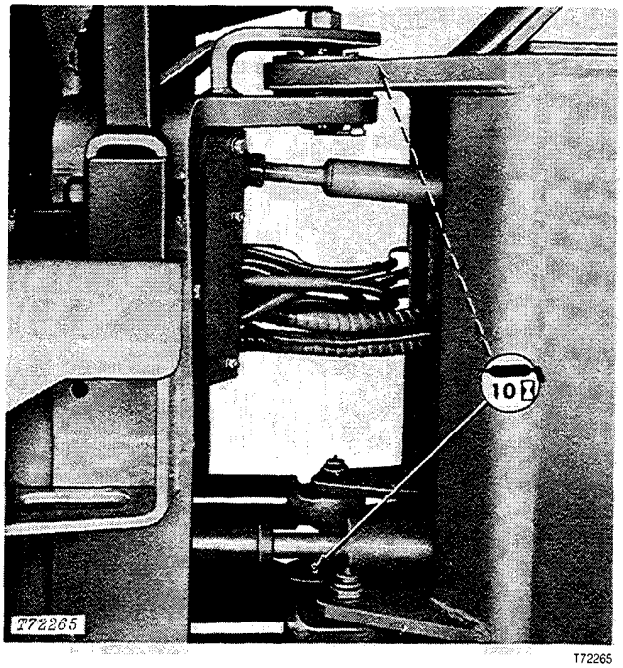

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Fig. 19-Frame Hinge Pivot (2 Points)

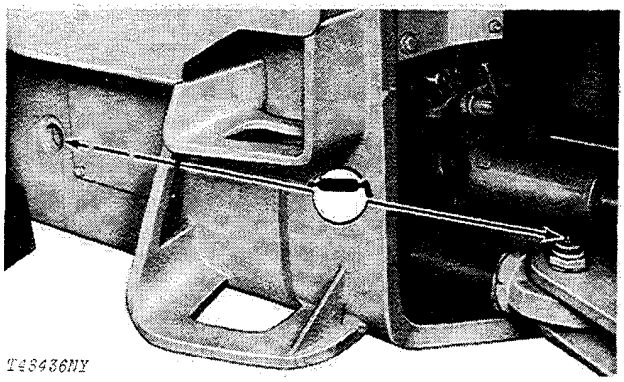

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Fig. 20-Cylinder Pivot Points (4 Points)

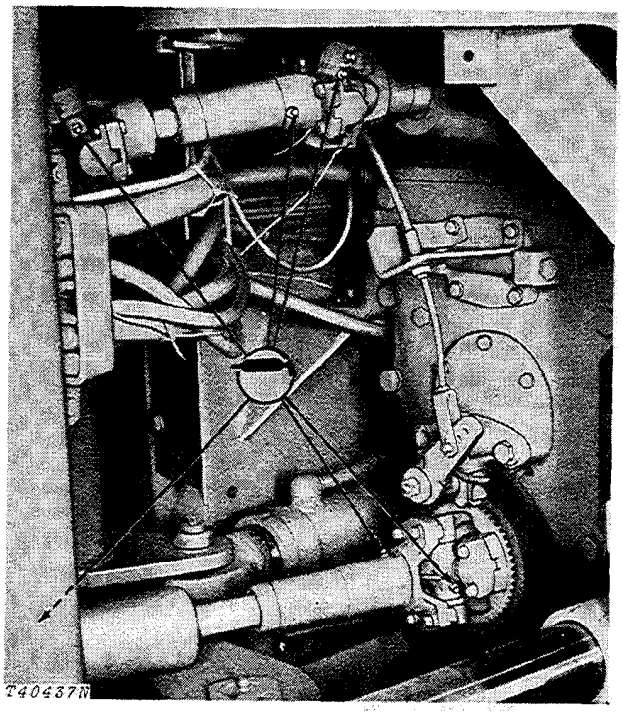

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Fig. 21-Winch Drive Line and Lower Telescoping Universal Joints (6 Points)

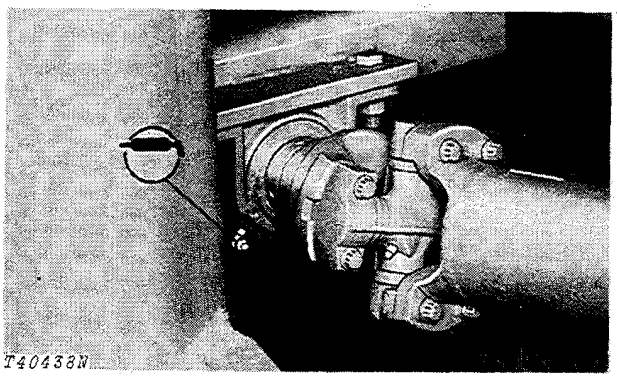

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Fig. 22-Lower Drive Shaft Support Bearing (1 Point)

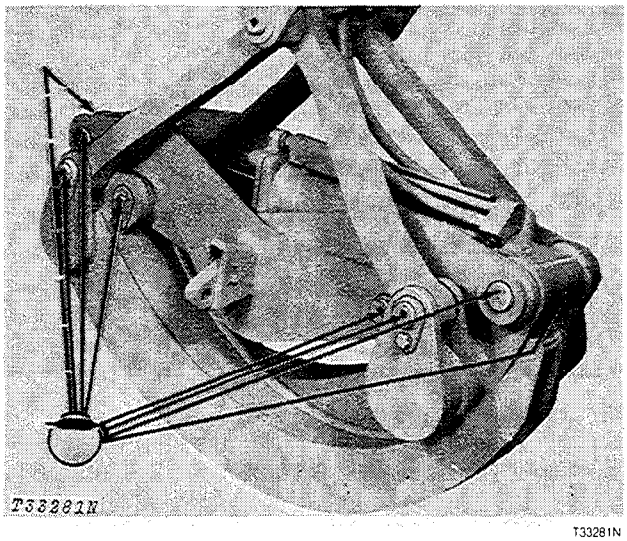

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Fig. 23-Grapple Pins - Dual Function Boom (8 Points)

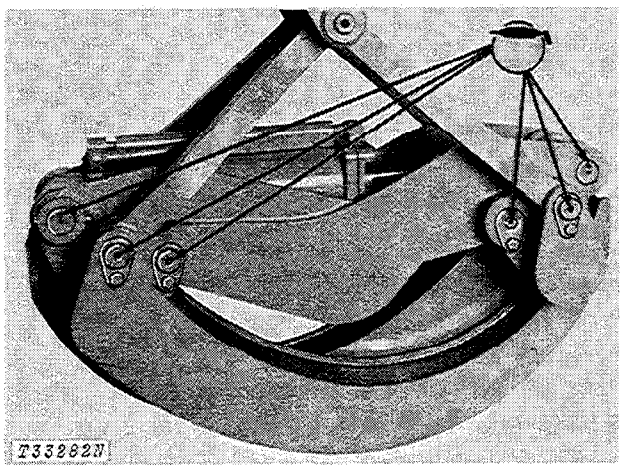

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Fig. 23A-Grapple Pins - Dual Function Boom (6 Points)

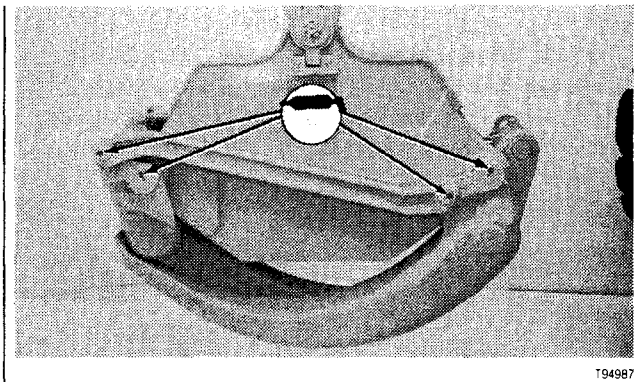

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Fig. 24-Grapple Pins - Single Function Boom (4 Points)

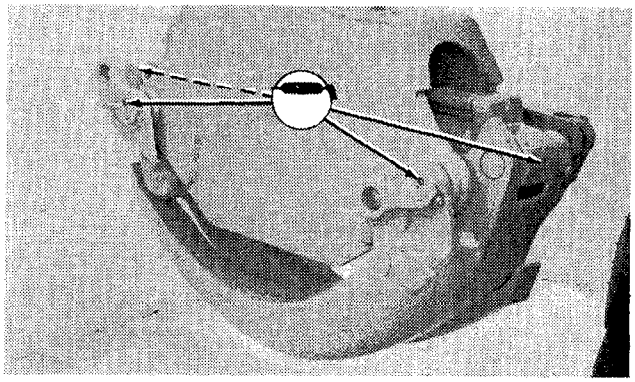

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Fig. 24A-Grapple Pins - Single Function Boom (4 Points)

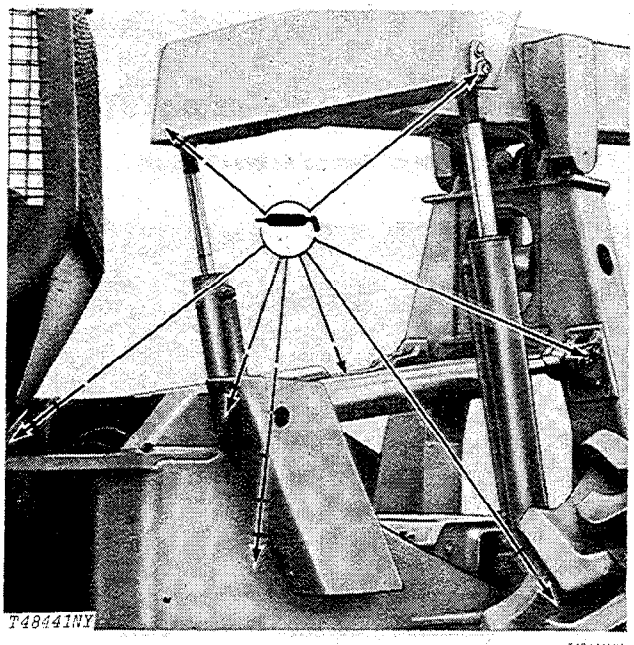

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Fig. 25-Cylinder Pins - Dual Function Boom (8 Points)

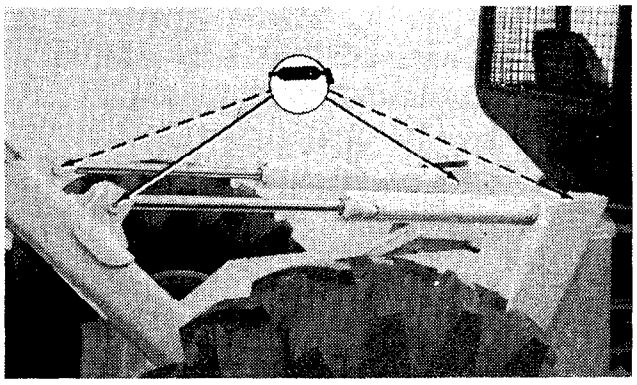

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Fig. 26-Cylinder Pins - Single Function Boom (4 Points)