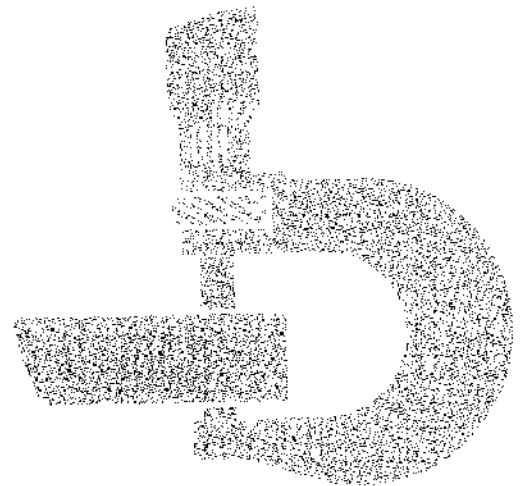


640D Skidder 648D Grapple Skidder Repair



TECHNICAL MANUAL

For complete service information also see:

640D Skidder, 648D Grapple Operation and Test	TM1440
6414 Engine	CTM4
Radial Piston Pumps	CTM7
Engine Accessories	CTM11

TM1440 (11SEP90)

LITHO IN U.S.A.

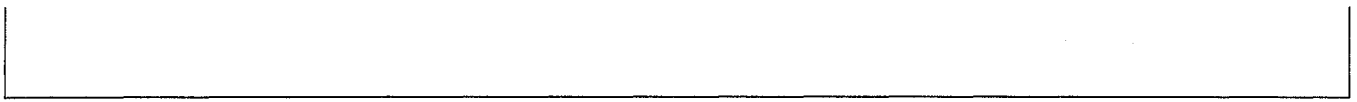
JOHN DEERE DEALERS

IMPORTANT: Please remove this page and route through your service department.

This is a complete revision for TM-1440, 640D Skidder and 648D Grappler Skidder.

This manual was revised to:

1. Add front and rear differential serial number break information.
2. Add axle shaft-to-bearing cup grease dam wear specification information.
3. Add information concerning old and new style clutch pack disks.
4. Add additional information on clutch pressure plate and disk.
5. Add information on hydraulic pump.
6. Add 4000 series winch story with adjustments.
7. Add or update miscellaneous information throughout manual.



**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

**Have any questions please write to me:
admin@servicemanualperfect.com**

Contents

SECTION I—GENERAL INFORMATION

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

SECTION 01—WHEELS

- Group 0110—Powered Wheels and Fastenings

SECTION 02—AXLES AND SUSPENSION SYSTEM

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

SECTION 03—TRANSMISSION

- Group 0300—Removal and Installation
- Group 0315—Controls Linkage
- Group 0350—Gears, Shafts, Bearings And Power Shift Clutch
- Group 0360—Hydraulic System

SECTION 04—ENGINE

- Group 0400—Removal and Installation

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 System
- Group 0560—External Fuel Supply System

SECTION 07—CLUTCH

- Group 0715—Controls Linkage
- Group 0752—Elements

SECTION 09—STEERING SYSTEM

- Group 0930—Secondary Steering

- Group 0960—Hydraulic System

SECTION 10—SERVICE BRAKES

- Group 1011—Active Elements
- Group 1060—Hydraulic System

SECTION 11—PARK BRAKE

- Group 1111—Active Elements
- Group 1115—Controls Linkage
- Group 1160—Hydraulic System

SECTION 16—ELECTRICAL SYSTEM

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

SECTION 17—FRAME, CHASSIS OR SUPPORT STRUCTURE

- Group 1740—Frame Installation
- Group 1746—Frame Bottom Guards

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

SECTION 20—SAFETY, CONVENIENCE AND MISCELLANEOUS

- Group 2004—Horn and Warning Devices

SECTION 21—MAIN HYDRAULIC SYSTEM

- Group 2160—Hydraulic System

Continued on next page

All information, illustrations and specifications in this 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.

TM1440-19-11SEP90

COPYRIGHT® 1990
DEERE & COMPANY
Moline, Illinois
All rights reserved
A John Deere ILLUSTRATION™ Manual
Previous Editions
Copyright® 1988 Deere & Company

SECTION 30—WINCH

- Group 3000—Removal and Installation
- Group 3015—Controls Linkage
- Group 3050—Drive and Clutch
- Group 3060—Hydraulic System

SECTION 32—BULLDOZERS (STACKING AND TRAILBUILDING BLADES)

- Group 3201—Blades
- Group 3215—Controls Linkage
- Group 3260—Hydraulic System

SECTION 37—ARCH OR BOOM

- Group 3740—Frames

SECTION 38—GRAPPLE

- Group 3803—Grapple Mechanism
- Group 3815—Controls Linkage
- Group 3840—Frames
- Group 3860—Hydraulic System

SECTION 40—WINCH DRIVE

- Group 4025—Input Drive Shaft

SECTION 99—DEALER FABRICATED TOOLS

- Group 9900—Dealer Fabricated Tools

Section I GENERAL INFORMATION

Contents

Page

Group I —Safety Information	I-I	-1
Group II —General Specifications	I-II	-1
Group III —Torque Values	I-III	-1
Group IV —Fuels and Lubricants	I-IV	-1
Group V —Inspection Procedure	I-V	-1

Contents

Group I Safety Information

HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



DX,FLAME -19-04JUN90

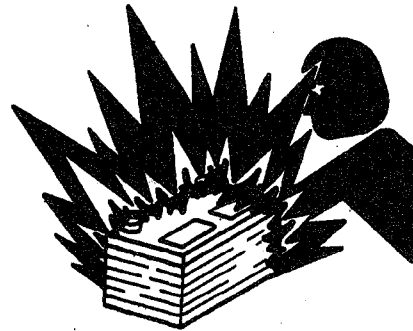
TJ227
-JUN-23AUG88

PREVENT BATTERY EXPLOSIONS

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to 16°C (60°F).



DX,SPARKS -19-04JUN90

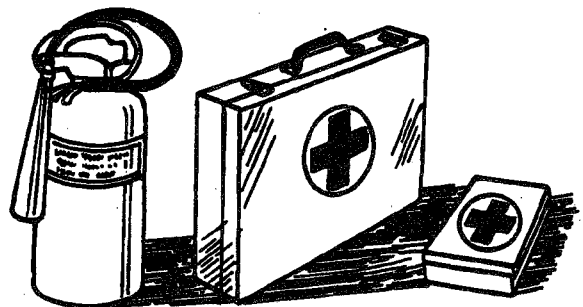
TJ204
-JUN-23AUG88

PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



DX,FIRE2 -19-04JUN90

TJ291
-JUN-23AUG88

PREVENT ACID BURNS

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

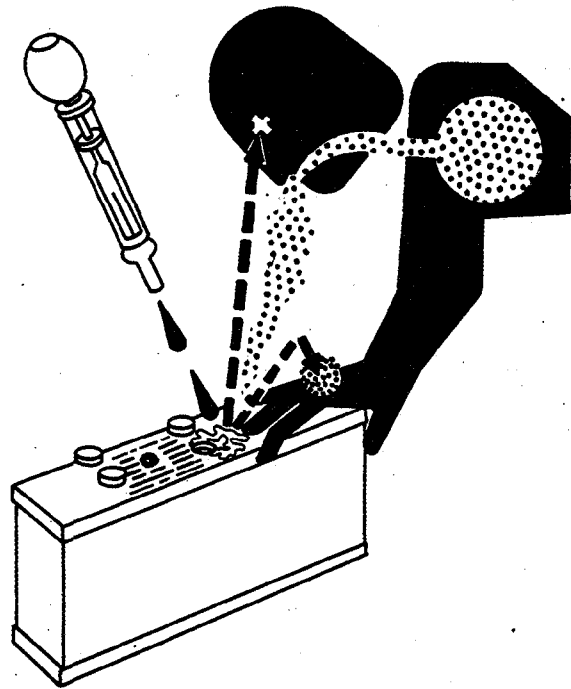
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 10—15 minutes. Get medical attention immediately.

If acid is swallowed:

1. Drink large amounts of water or milk.
2. Then drink milk of magnesia, beaten eggs, or vegetable oil.
3. Get medical attention immediately.



TS203
-JUN-23/AUG88

DX, POISON -19-04JUN90

Safety Information

AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or other knowledgeable medical source.



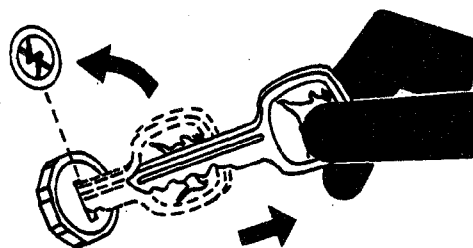
X9811 -JUN-23AUG88

DX,FLUID,NA -19-11JUN90

PARK MACHINE SAFELY

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



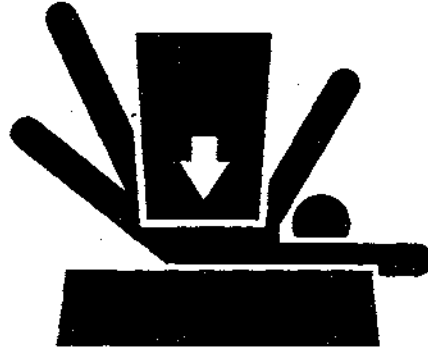
TS230 -JUN-24MAY89

DX,PARK -19-04JUN90

SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



DX,LOWER -19-04JUN90

-JUN-23AUG88
TS229

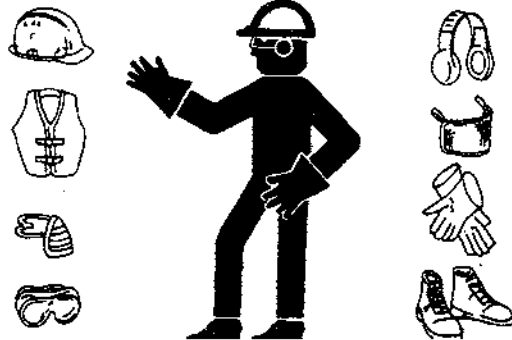
WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



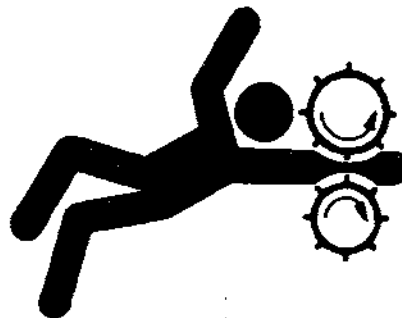
DX,WEAR -19-10SEP90

-JUN-23AUG88
TS206

SERVICE MACHINES SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



DX,LOOSE -19-04JUN90

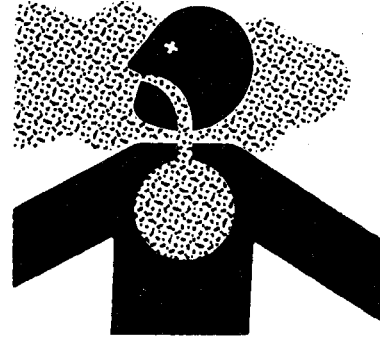
-JUN-23AUG88
TS228

Safety Information

WORK IN VENTILATED AREA

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, remove the exhaust fumes from the area with an exhaust pipe extension.

If you do not have an exhaust pipe extension, open the doors and get outside air into the area.

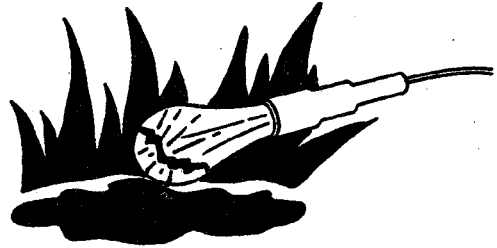


DX,AIR -19-04JUN90

TS220
-JUN-23AUG88

ILLUMINATE WORK AREA SAFELY

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.

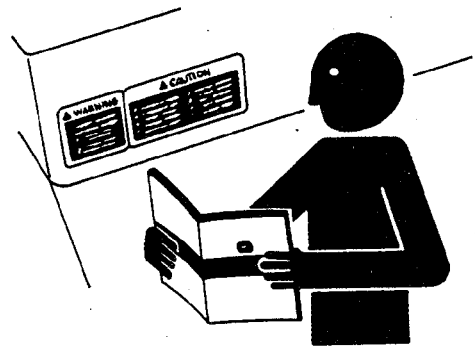


DX,LIGHT -19-04JUN90

TS223
-JUN-23AUG88

REPLACE SAFETY SIGNS

Replace missing or damaged safety signs. See the machine operator's manual for correct safety sign placement.



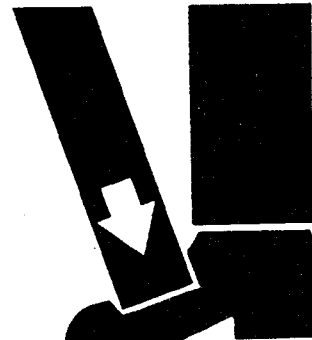
DX,SIGNS1 -19-04JUN90

TS201
-JUN-23AUG88

USE PROPER LIFTING EQUIPMENT

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



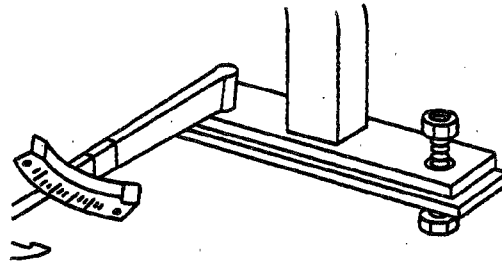
DX,LIFT -19-04JUN90

TS226
-JUN-23AUG88

KEEP ROPS INSTALLED PROPERLY

Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) is loosened or removed for any reason. Tighten mounting bolts to proper torque.

The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



TS212 -UN-23AUG88

DX,ROPS3 -19-04JUN90

SERVICE TIRES SAFELY

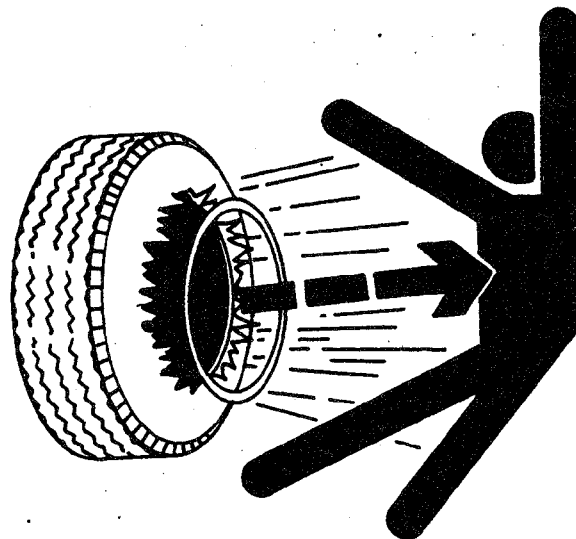
Explosive separation of a tire and rim parts can cause serious injury or death.

Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job.

Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. The heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.

When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.

Check wheels for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



TS211 -UN-23AUG88

DX,RIM -19-24AUG90

Safety Information

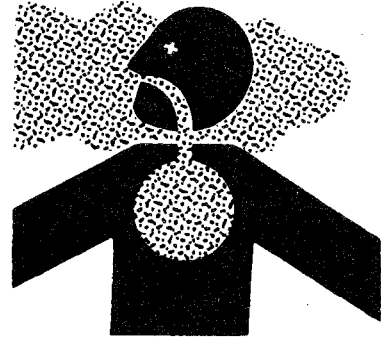
AVOID HARMFUL ASBESTOS DUST

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding of asbestos containing materials. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, wet the asbestos containing materials with a mist of oil or water.

Keep bystanders away from the area.



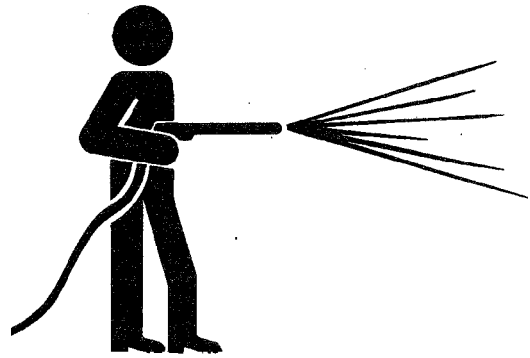
TS220 -JUN-23AUG88

DX,DUST -19-27AUG90

WORK IN CLEAN AREA

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.



T6642EJ -JUN-18OCT88

DX,CLEAN -19-04JUN90

Safety Information

USE PROPER TOOLS

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. **DO NOT** use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.



-JUN-08NOV89

TS779

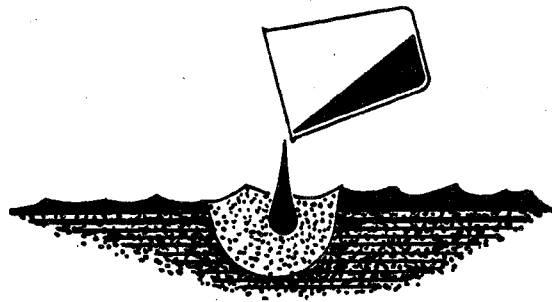
DX,REPAIR -19-04JUN90

DISPOSE OF FLUIDS PROPERLY

Improperly disposing of fluids can harm the environment and ecology. Before draining any fluids, find out the proper way to dispose of waste from your local environmental agency.

Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

DO NOT pour oil into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, and other harmful waste.



-JUN-23AUG88

TS222

DX,DRAIN -19-05JUN90

LIVE WITH SAFETY

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



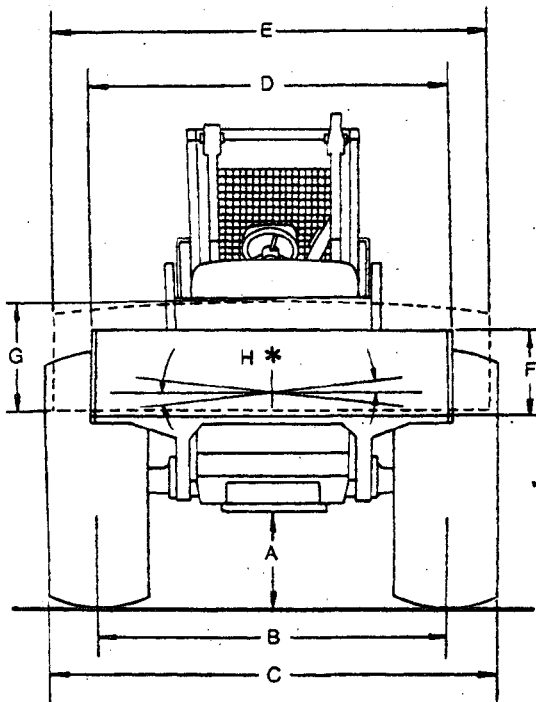
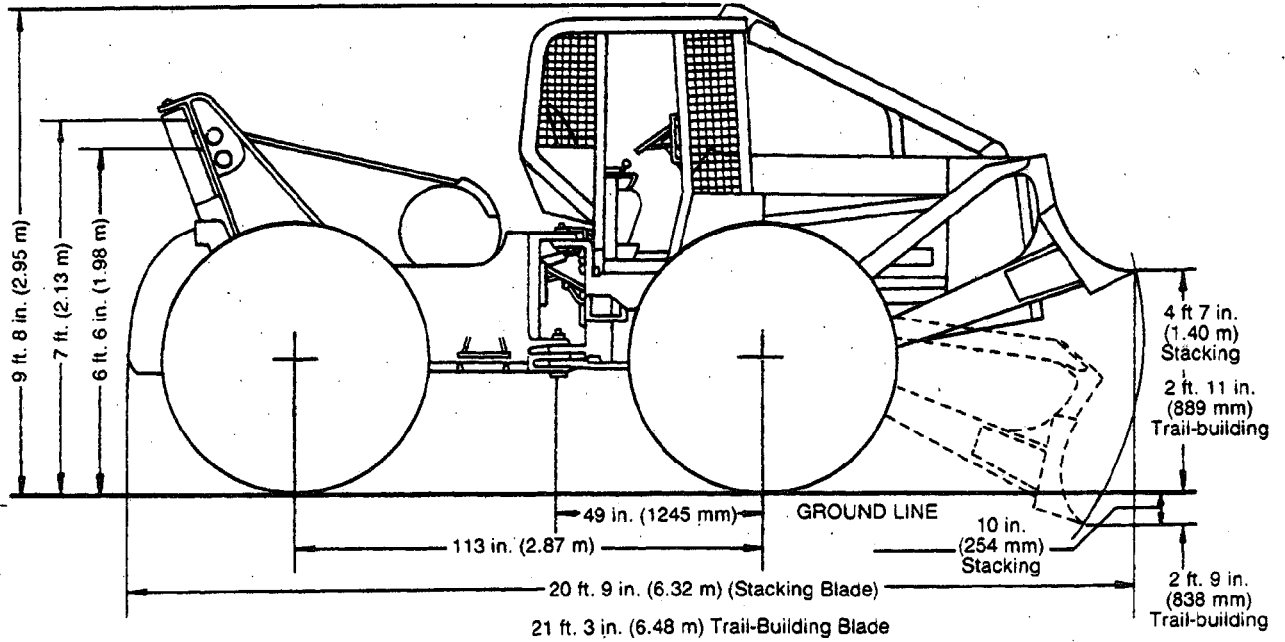
-19-07OCT88

TS231

DX,LIVE -19-04JUN90

Group II General Specifications

640D SKIDDER



* $\pm 7^\circ$ Trail-building blade oscillation from horizontal
H

NOTE: Unit equipped with 23.1 x 26 tires.

TIRE SIZE	A GROUND CLEARANCE	B WHEEL TREAD	C OVERALL WIDTH
23.1-26	19.2 in. (488 mm)	80.2 in. (2.04 m)	8 ft. 8 in. (2.64 m)
24.5-32	23.8 in. (605 mm)	84.2 in. (2.14 m)	9 ft. 0.7 in. (2.76 m)
28L-26	20 in. (508 mm)	87.5 in. (2.22 m)	9 ft. 8 in. (2.95 m)
30.5-32	24.4 in. (620 mm)	90.2 in. (2.29 m)	9 ft. 11.6 in. (3.04 m)

BLADES

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. 9 in. (533 mm) Ends	2 ft. 8 in. (813 mm)
		2 ft. 4 in. (711 mm) Middle	

General Specifications

640D SKIDDER—CONTINUED

NOTE: Unit equipped with 23.1 x 26 tires.

Specifications and design are subject to change without notice. Wherever applicable, specifications are in accordance with SAE Standards. Except where otherwise noted, these specifications are based on a unit with 23.1-26, 10 PR, steel-ply tires, full fuel tank, 175-lb. (80 kg) operator and standard equipment.

Rated Power @ 2200 rpm:	SAE	DIN 70 020
Net	120 hp (90 kW)	90 kW
Gross	128 hp (95 kW)	

Net engine power is with standard equipment including air cleaner, exhaust system, alternator, and cooling fan, at standard conditions per SAE J1349 and DIN 70 020, using No. 2-D fuel @ 35 API gravity. No derating is required up to 10,000 feet (3050 m) altitude. Gross power is without cooling fan.

Engine: John Deere 6-414T

Type	4-stroke cycle, turbocharged diesel	
Bore and stroke	4.19 x 5.00 in. (106.5 x 127 mm)	
No. of cylinders	6	
Displacement	414 cu. in. (6.785 L)	
Maximum net torque @ 1300 rpm	358 lb-ft (485 Nm) (50 kg-m)	
Compression ratio	16.8 to 1	
Cooling fan	Blower	
Lubrication	Pressure system w/full-flow filter	
Air cleaner w/service indicator and unloader valve	Dry	
Electrical system	12-volt w/42-amp alternator	
Batteries (2)	Reserve capacity: 320 minutes	

Differentials:

Front and rear Full differentials with hydraulic lock

Engine Clutch Disconnect:

Hand-operated, spring-loaded, dry disk. Single plate, 12 in. (305 mm).

Transmission:

Power Shift with planetary gears, hydraulically actuated wet-disk clutches and brakes; provides 8 speeds forward, 4 reverse. Controlled by single lever on console. Air-to-oil cooler.

Travel Speeds: (2200 engine rpm, no tire slip)

	mph	km/h
Forward	1.58-17.13	2.5-27.6
Reverse	2.03-5.76	3.3-9.3

Drive Axles:

Four-wheel drive with inboard planetary gears on all axles. Front axle oscillates 15 degrees above and below horizontal. 21 in. (533 mm) travel at tire center line.

Power Steering:

Articulated frame hydraulically actuated by two double-acting cylinders with cushioned stops. Steering system has hydraulic pressure priority.

Outside clearance circle w/o blade	38 ft. 4 in. (11.68 m)
Outside clearance circle w/blade	39 ft. 7 in. (12.07 m)

Brakes:

Service Wet-disk brakes.
 Parking, winching and emergency stop Hand-operated mechanical wet-disk. Brake located on driveline for braking front and rear axles. Has hydraulic release.

Hydraulic System:

Closed center, constant pressure. Variable-displacement pump driven from crankshaft 25 gpm (95 L/min), 2000 psi (13 790 kPa) (140.6 kg/cm²) @ 2200 engine rpm. Full-flow filtration.

Hydraulic Cylinders:	Rod Dia.	Bore	Stroke
Blade lift cylinders (2) ...	1.75 in. (44.5 mm)	4.00 in. (101.6 mm)	13.82 in. (351 mm)
Blade tilt cylinder (1) ...	2.25 in. (57.2 mm)	4.50 in. (114.3 mm)	3.00 in. (76.2 mm)
Steering cylinders (2) ...	1.75 in. (44.5 mm)	3.00 in. (76.2 mm)	15.75 in. (400 mm)

Cylinder rods are ground, chrome-plated and polished.

Tires:

23.1-26, 10 PR, steel-ply, LS2
 24.5-32, 12 PR, steel-ply, LS2
 28L-26, 14 PR, steel-ply, LS2
 30.5-32, 12 PR, steel-ply, LS2, dual bead

Capacities:

	U.S.	Liters
Fuel tank	46.5 gal.	176
Cooling system	8.5 gal.	32.2
Engine lubrication including filter	20 qt.	18.9
Transmission-hydraulic system	9 gal.	34.1
Winch	12 gal.	45.4
Front differential	4.5 gal.	17
Rear differential	4.5 gal.	17

SAE Operating Weight w/Stacking Blade ... 20,180 lb. (9154 kg)
SAE Operating Weight w/o Stacking Blade ... 18,815 lb. (8534 kg)

Winch:

Winch capacities*	
1/2-in. (12.7 mm) cable	569 ft. (173.4 m)
5/8-in. (15.8 mm) cable	373 ft. (114 m)
3/4-in. (19.1 mm) cable	263 ft. (80.2 m)
7/8-in. (22.2 mm) cable	189 ft. (58 m)
1-in. (25.4 mm) cable	147 ft. (45 m)

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

Linepull:**

Bare drum	32,100 lb. (143 kN) (14 600 kg)
Full drum	20,400 lb. (91 kN) (9300 kg)

**Based on winch clutch capacity and .75 in. (19 mm) cable.

Line speed (2200 rpm) and .75 in. (19 mm) cable:

Bare drum	145 fpm (44.2 m/min)
Full drum	228 fpm (69.6 m/min)

Arch:

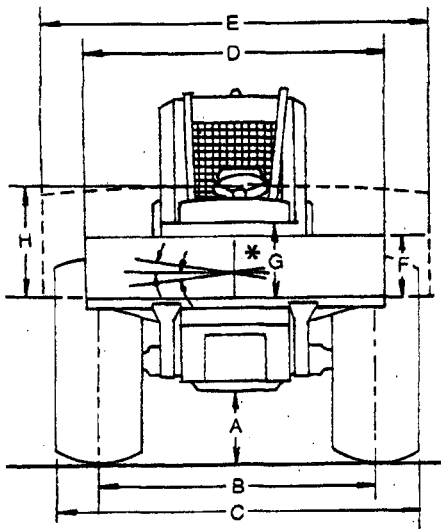
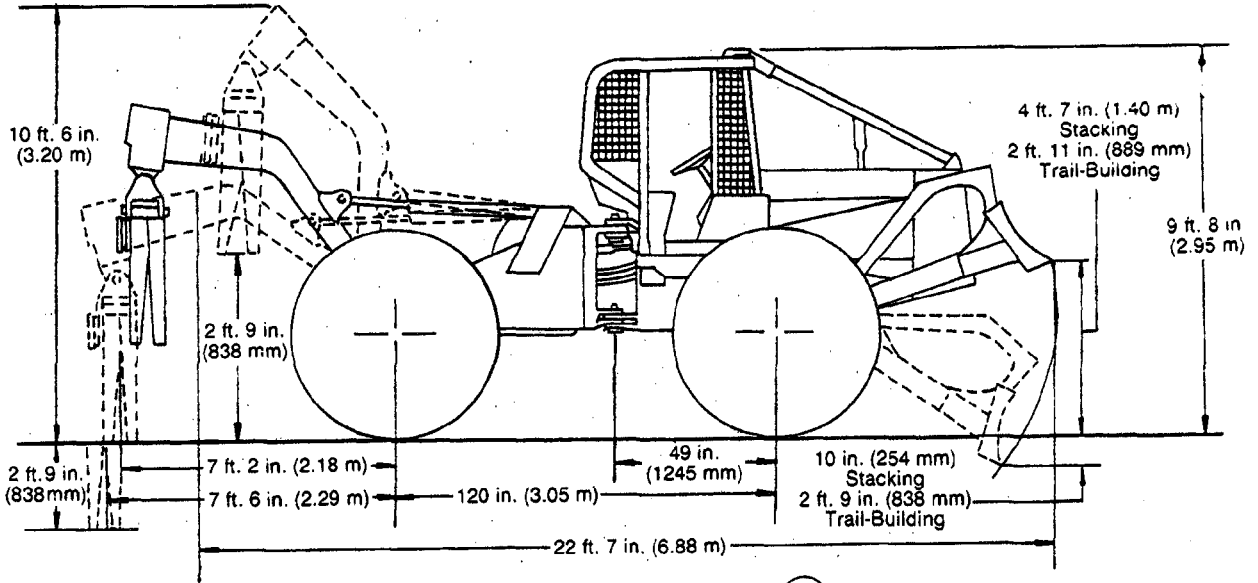
Horizontal rollers 6 in. (152 mm) dia.
 Vertical rollers 4.5 in. (114 mm) dia.
 Working height (top of horizontal roller to ground): Adjustable to two positions.

T6793AJ -19-02MAR89

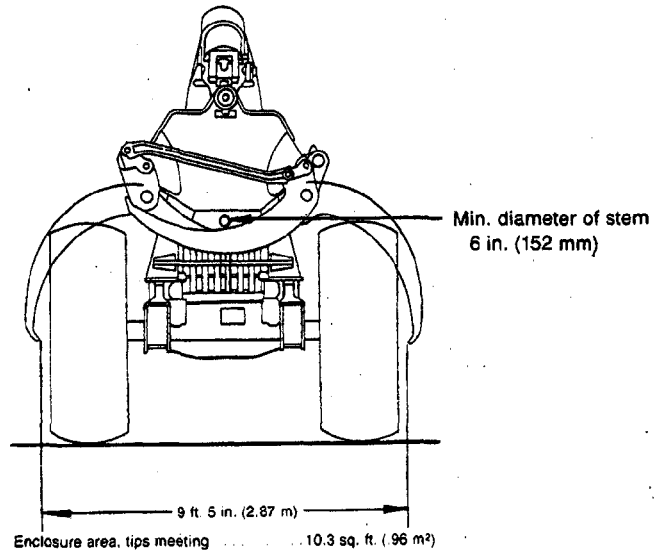
General Specifications

640D/7413 GRAPPLE SKIDDER (SINGLE FUNCTION BOOM)

NOTE: Unit equipped with 23.1 x 26 tires.



* ± 7° Trail-building blade oscillation from horizontal



BLADES

D WIDTH Stacking	E WIDTH Trail-Building	F HEIGHT Stacking	G HEIGHT Stacking	H HEIGHT Trail-Building
7 ft. 2 in. (2.18 m)	9 ft. 4 in. (2.84 m)	1 ft. 9 in. (533 mm)	2 ft. 4 in. (711 mm)	2 ft. 8 in. (813 mm)

TIRE SIZE	A GROUND CLEARANCE	B WHEEL TREAD	C OVERALL WIDTH
23.1-26	19.2 in. (488 mm)	80.2 in. (2.04 m)	8 ft. 8 in. (2.64 m)
24.5-32	23.8 in. (605 mm)	84.2 in. (2.14 m)	9 ft. 0.7 in. (2.76 m)
28L-26	20 in. (508 mm)	87.5 in. (2.22 m)	9 ft. 8 in. (2.95 m)
30.5-32	24.4 in. (620 mm)	90.2 in. (2.29 m)	9 ft. 11.6 in. (3.04 m)

05T,115,K72 -19-11MAY90