

# Technical Manual

## **John Deere 450E Crawler Bulldozer 455E Crawler Loader Repair**

TM1330 (01OCT87)



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-1330, 450E Crawler Bulldozer and 455E Crawler Loader.

Binder and tabs from old manual may be saved and used with this bound manual.

The new pages are dated (Oct-87). Listed below is a brief explanation of "WHAT" was changed and "WHY" it was changed.

This manual was revised:

1. To include the correct art and story for steering linkage.
2. To include story to apply a small amount of heat to backhoe cylinder nut to oxidize the thread lock and sealer (medium strength).

T64;1330 DCSR 211087



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# 450E CRAWLER BULLDOZER AND 455E CRAWLER LOADER TECHNICAL MANUAL TM-1330 (Oct-87)

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*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.*

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## INTRODUCTION

This technical manual is part of a twin concept of service.

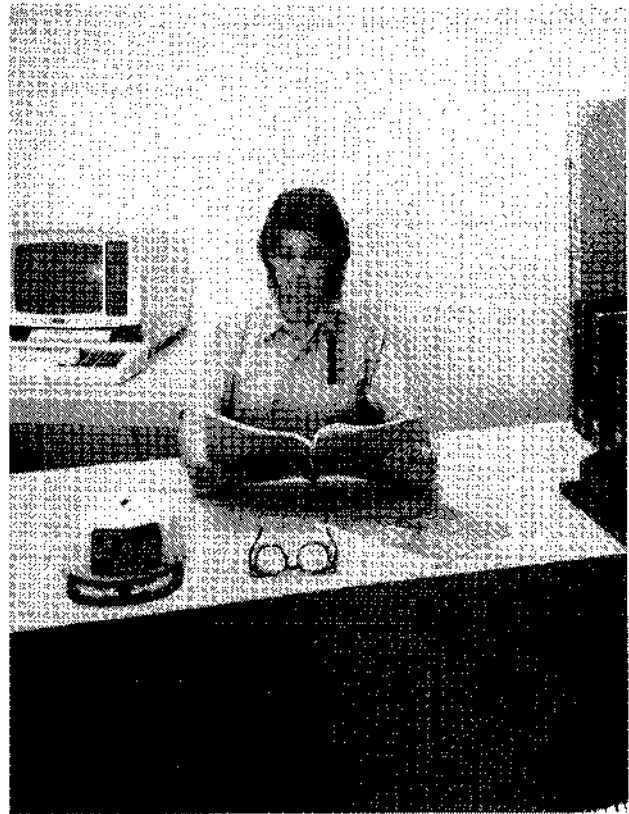
### FOS Manuals - for reference

### Technical Manuals - for machine service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

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



018;T58848B T82;FLPD G 310785

## FEATURES OF THIS TECHNICAL MANUAL

John Deere ILLUSTRATION format emphasizing illustrations and concise instructions in easy-to-use modules.

Emphasis on diagnosis, analysis, and testing so you can understand the problem and correct it.

Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

Step-by-step instructions for teardown and assembly.

Summary listing at the beginning of each group of all applicable specifications, wear tolerances, torque values, essential tools, and materials needed to do the job.

An emphasis throughout on safety—so you do the job right without getting hurt.

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 when you need to know correct service procedures or specifications.



018;T58848C T82;FLPD H 310785

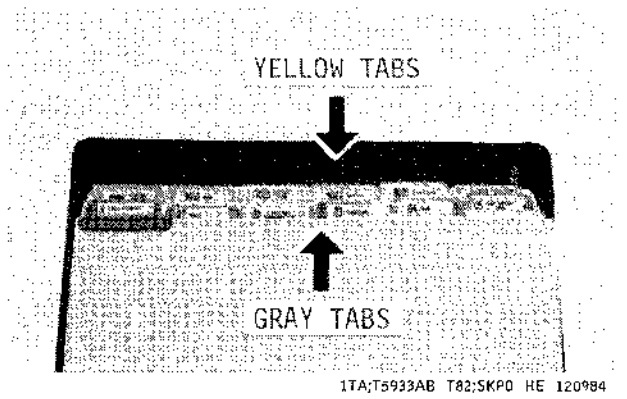


## USING TABS

To fully utilize this technical manual, you must understand how it is organized.

Only two tab colors are used—gray and yellow. Each color represents a different type of information.

Spend a minute reading this now and save many minutes of searching later.



1TA;T5933AB T82;SKPO HE 120984

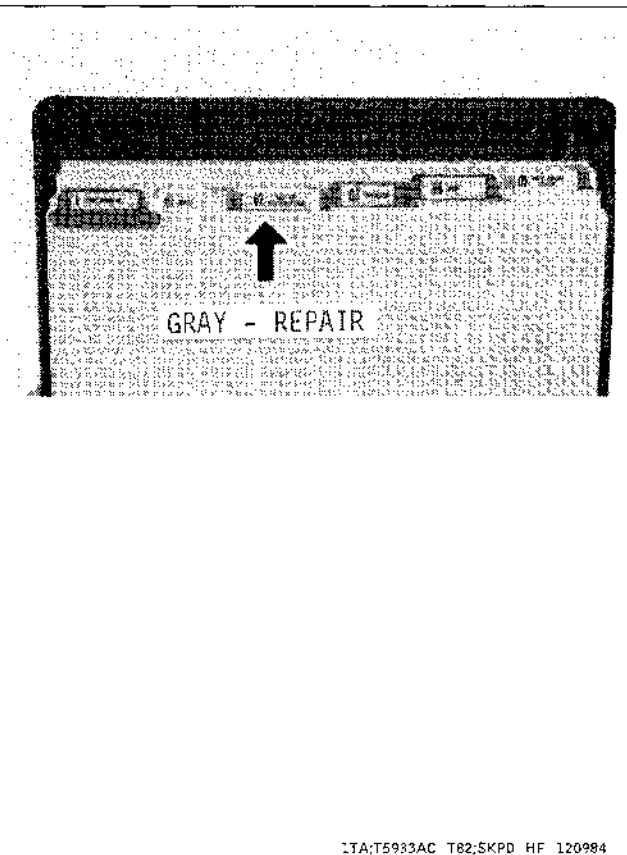
## GRAY TAB SECTIONS

The gray tab sections are repair sections that tell how to repair the components of the various systems.

Repair of a component includes:

- Removal from machine (when necessary)
- Disassembly
- Inspection
- Replacement of parts
- Assembly
- Adjustment
- Installation on machine (when necessary)

The numbers used for the repair (gray tab) sections are part of an overall service publication numbering system. The numbers identify the same sections in the parts catalog, flat rate manual, service information bulletins, and service training courses.

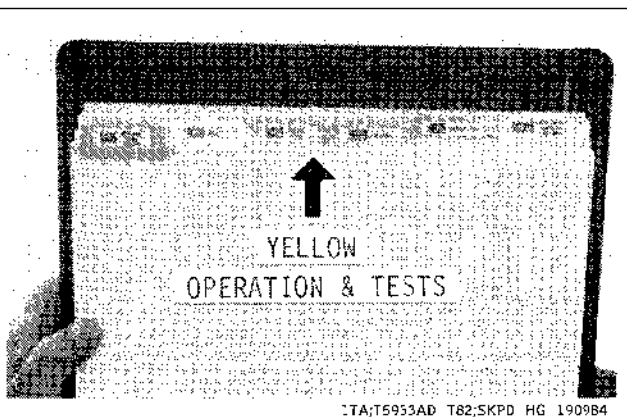


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## YELLOW TAB SECTIONS

Each yellow tab section contains information on:

Groups	
05	Theory of Operation
10	System Operational Checks
15	Diagnostic Information
20	Adjustments
25	Tests

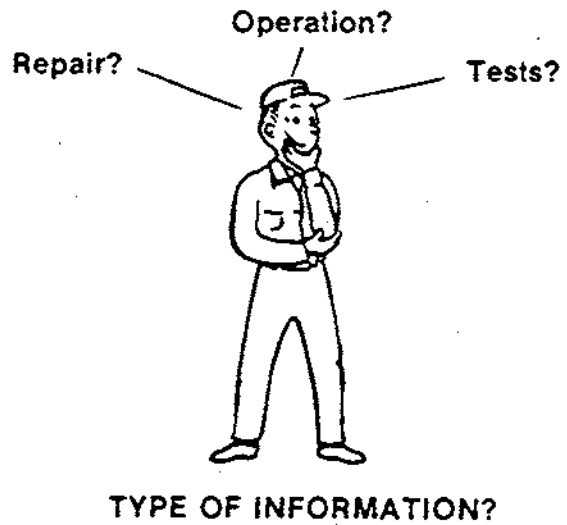


1TA;T5933AD T82;SKPD HG 120984

### THREE-STEP PROCEDURE

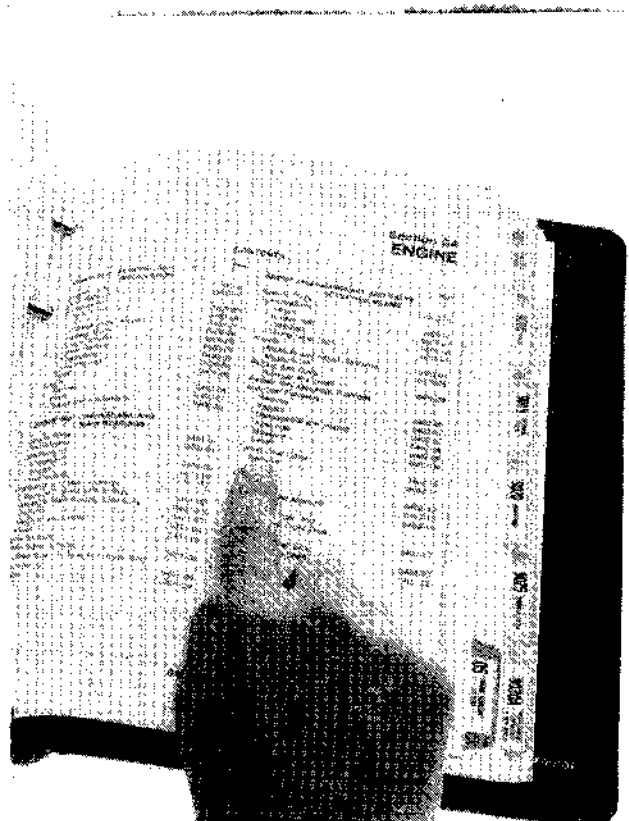
Use the following three-step procedure to locate the desired information.

1. Determine the type of information you need. Is it repair, operation, or tests?
2. Go to the appropriate section tab:  
Gray for Repair  
Yellow for Operation or Tests



1TA;T5940AT T82;SKPD HI 120984

3. Use the table of contents on the first page of the section to locate the information.



1TA;T5933AF T82;SKPD HJ 140984

**SAFETY AND YOU**

This safety-alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

When you see this symbol on your machine or in your manual, be alert to the possibility of personal injury. Follow the instructions in the safety message.



018:781389 T82:FLPD N 061186

## **AVOID FIRE HAZARDS**

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

Do not smoke while refueling or handling highly flammable material.

Shut off the engine when refueling.

Use care in refueling if the engine is hot.

Do not use open pans of gasoline or diesel fuel for cleaning parts. Use good commercial, nonflammable solvents.

Provide adequate ventilation when charging batteries.

Do not check battery charge by placing metal objects across the posts.

Do not allow sparks or open flame near batteries.

Do not smoke near battery.

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 light anywhere on or around the equipment.

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.

Inspect electrical wiring for worn or frayed insulation. Install new wiring if wires are damaged.

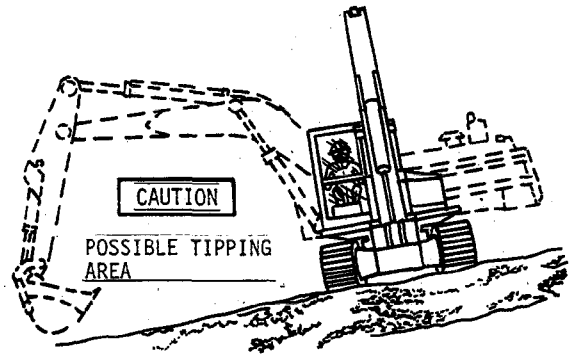


## AVOID TIPPING

When you operate on a slope, do not swing the bucket down-hill if possible.

When you swing heavy loads to the side of the tracks, avoid tipping the excavator.

When the bucket is loaded, be careful when you swing or lift the boom.



44A;182326 T82;EXSA G 030282

## WEAR PROTECTIVE CLOTHING

Wear fairly tight clothing . . . and safety equipment.



44A;T85056 T82;EXSA B 060684

## PROTECT AGAINST NOISE

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

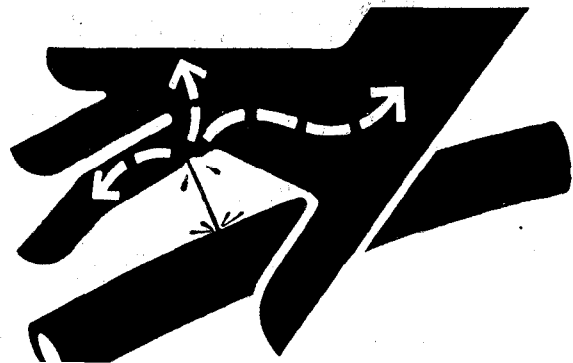


88A;X7662 T82;BHS A E 070684

## AVOID HIGH-PRESSURE FLUIDS

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

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



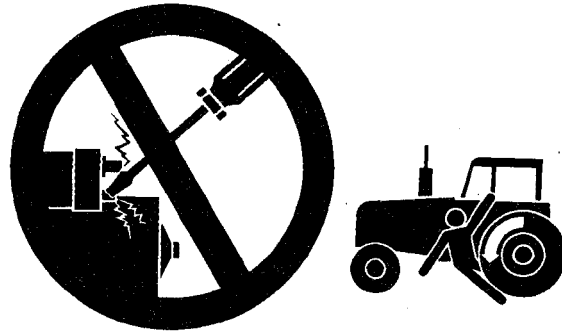
44A;X9811 T82;BHS A F 140984

## PREVENT MACHINE RUNAWAY

Avoid possible injury or death from machine runaway.

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

NEVER start engine while standing on ground. Start engine only from operator's seat, with gear shift lever in neutral position, HLR lever in neutral position and locked, and brake lock lever engaged.



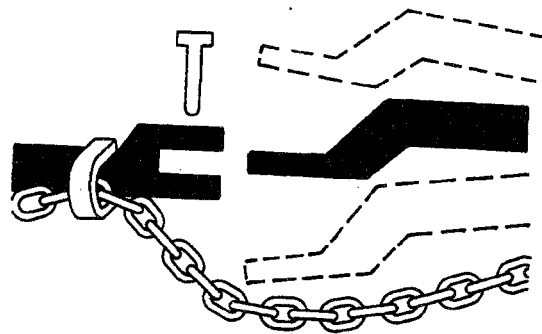
AB6;TS177 T82;CRSA AI 201284

## USE A SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Provide only enough slack in the chain to permit turning.

See your John Deere dealer for a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.

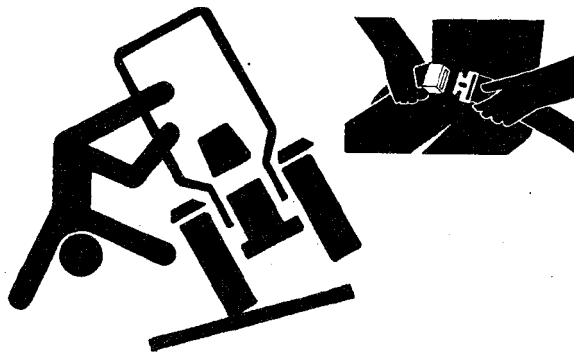


AB6;TS208 053;CHAIN 180987

## USE SEAT BELT PROPERLY

Use a seat belt when you operate with a roll-over protective structure (ROPS) to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS.

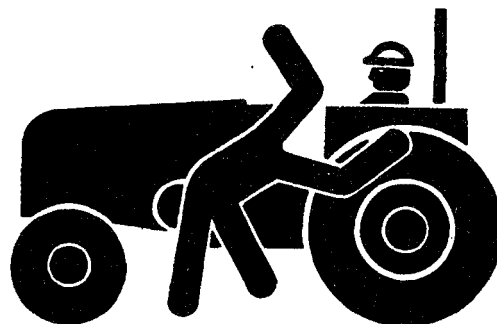


AB6;TS205 053;ROPS1 230487

## KEEP RIDERS OFF MACHINE

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.



AB6;TS213 053;RIDER 160687

### HANDLE STARTING FLUID SAFELY

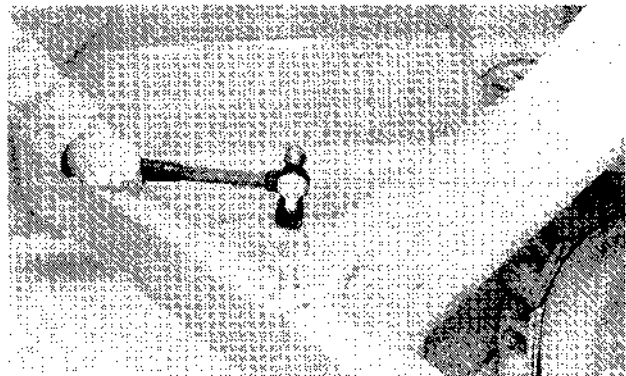
If your machine is equipped with a starting fluid starting aid, remember starting fluid is highly flammable. DO NOT incinerate or puncture a starting fluid container. DO NOT store a starting fluid container in a high-temperature area.



44A;T90207 182;CRSA G 070684

### PROTECT AGAINST FLYING DEBRIS

When you drive connecting pins in or out, guard against injury from flying pieces of metal or debris. Wear goggles or safety glasses and hard hat.



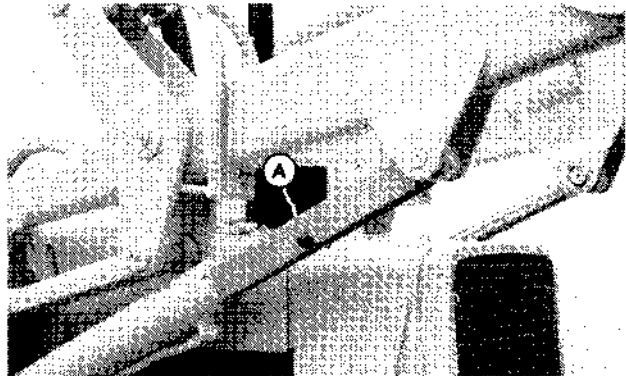
86A;T90211 T82;CRSA K 040984

### SUPPORT RAISED EQUIPMENT

Do not work under raised equipment unless it has a support under it.

On crawler loaders, use the boom safety lock bar (A) stored in the battery compartment.

If a support is not available, lower equipment to the ground.

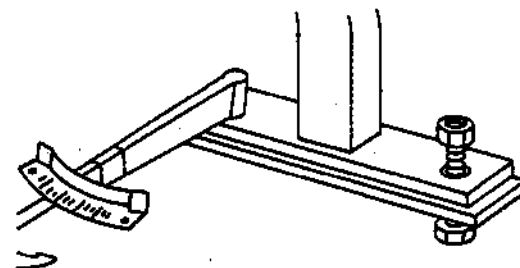


86A;T91444 82;CRSA AQ 051284

### 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.

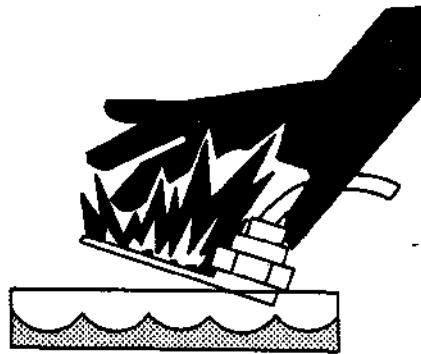
The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



A66;TS212 053;R0P53 230487

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

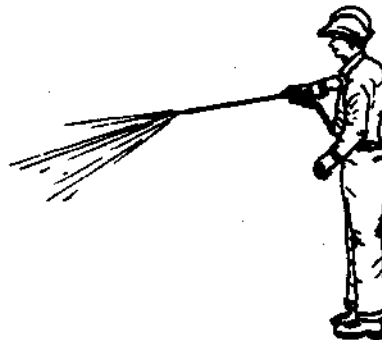
Use a heavy-duty grounded cord to connect coolant heater to electrical power.



AB6;TS210 02T;05 K53 221087

### CLEAN THE MACHINE REGULARLY

Remove any grease, oil or debris build-up to avoid possible injury or machine damage.



000;T5B13AM T82;CRSA AH 051284

### PREPARE MACHINE FOR REPAIR

1. Lower all equipment to the ground.
2. Move HLR lever to neutral "N" position.
3. Turn HLR neutral-lock lever to lock position.
4. Move gear shift lever to the neutral "N" position.
5. Apply and lock foot brake.
6. Stop the engine.
7. Operate all hydraulic control levers to release hydraulic pressure in the system.
8. Disconnect negative (-) battery cable.

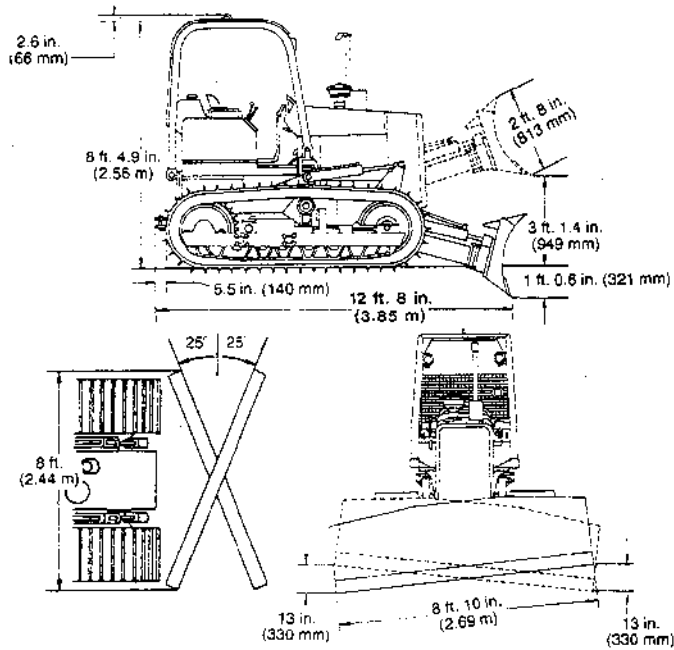


88A;T5933AM T82;CRSA AZ 080185



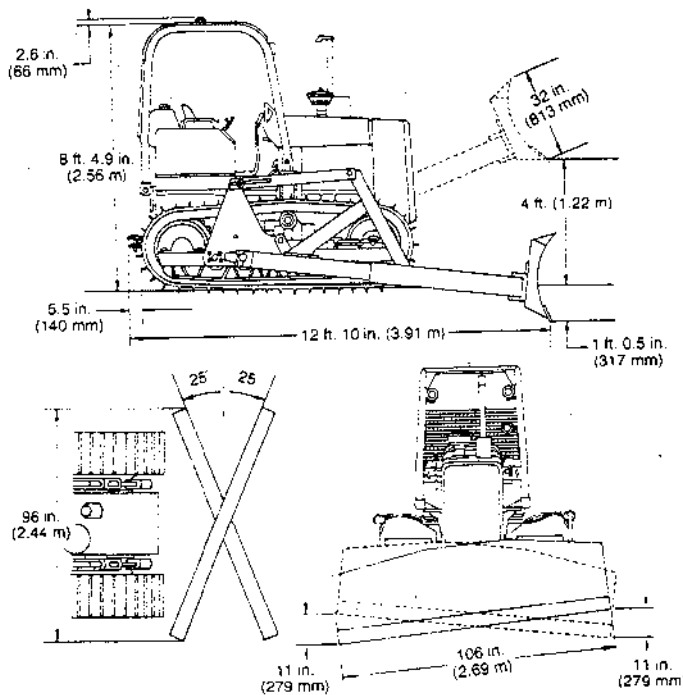
*Introduction and Safety*

# Group II Specifications



**450E Crawler Tractor With 6405 Blade**

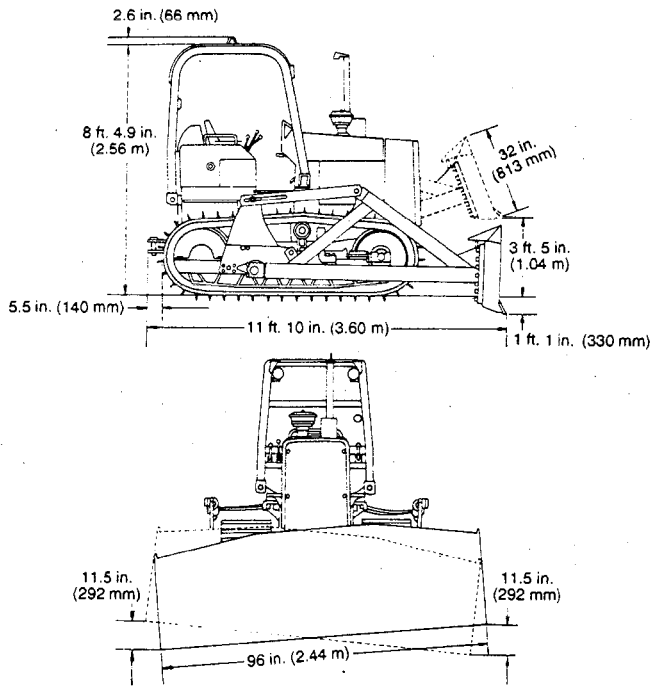
000;T6020AM T82;CRSP S 030185



**450E Crawler Tractor With 6410 Blade**

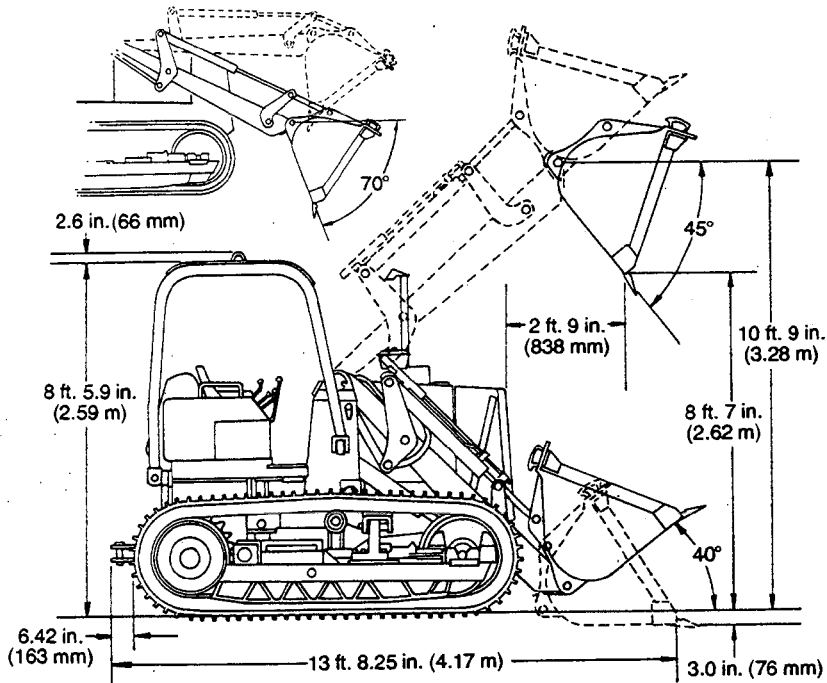
000;T6020AM T82;CRSP T 030185

## Specifications



**450E Crawler Tractor With 6415 Blade**

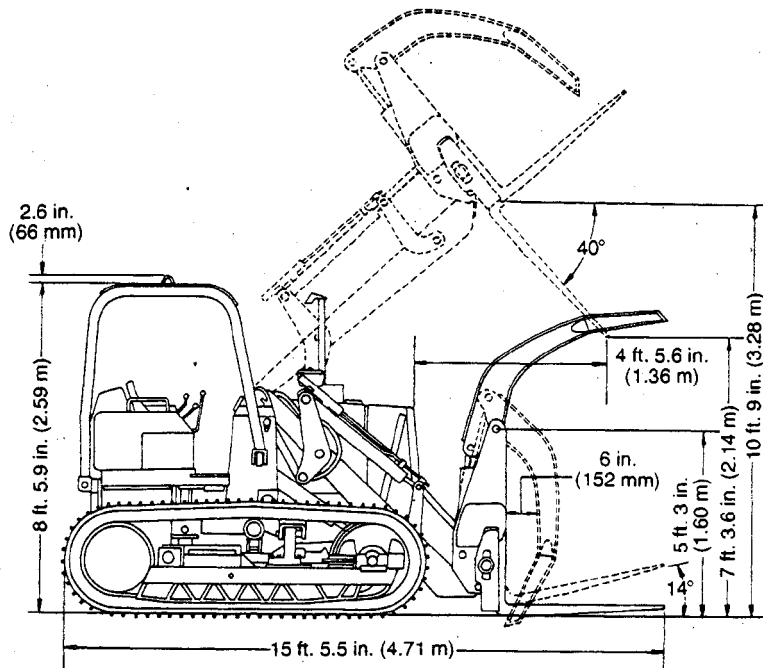
000;T6020AP T82;CRSP U 030185



**455E Crawler Loader**

88A;T92254 T82;CRSP X 111284

## Specifications



**455E Log and Lumber Loader**

88A/T5936AB T82;CRSP Y 111284

### GENERAL SPECIFICATIONS

#### Engine:

John Deere 4-cylinder turbocharged diesel  
 SAE net horsepower ..... 70 hp (52 kw)  
 Piston displacement ..... 276 cu. in. (4.524 L)  
 Fan ..... Blower  
 Electrical system ..... 12 volt with alternator  
 Battery (12 volt) . Reserve capacity: 180 minutes

#### Steering:

Clutches ..... Oil-cooled, hydraulically activated,  
 multiple disk, 11 in. (279 mm)  
 disks; 16 friction surfaces per  
 clutch.

#### Hydraulic Cylinders

(450E):	Bore	Stroke
Lift (2) .....	3.5 in. (89 mm)	15 in. (381 mm)
Angle (2) .....	3.5 in. (89 mm)	13.375 in. (343 mm)
Tilt (1) (6405) ..	3.5 in. (89 mm)	3 in. (76 mm)
Tilt (1) (6415) ..	4.5 in. (114 mm)	3 in. (76 mm)
(455E):	Bore	Stroke
Boom (2) ..	4.25 in. (108 mm)	28.25 in. (718 mm)
Bucket (2) .....	3.5 in. (89 mm)	31.1 in. (790 mm)

#### Hydraulic System:

Pressure .....	2250 psi (15 514 kPa)
Pump flow at 2000 rpm (450E):	
Large pump ... New—	18.1 gpm (68.4 L/min)
Used—	15.3 gpm (57.7 L/min)
Small pump .... New—	14.2 gpm (53.7 L/min)
Used—	11.2 gpm (42.3 L/min)
Long Track .... New—	12.0 gpm (45.4 L/min)
Used—	9.4 gpm (35.7 L/min)
Pump flow at 2000 rpm (455E):	
Pump .....	New—23.3 gpm (88.3 L/min)
Used—	19.7 gpm (74.6 L/min)

#### Undercarriage:

Track shoes, each side:	
450E .....	36
450ELT .....	39
455E .....	37
Track gauge .....	52 in. (1.27 m)
450ELT .....	54 in. (1.37 m)
450ELT Wide Track .....	60 in. (1.52 m)
Clearance at rear crossbar ..	14.25 in. (362 mm)

T82;CRSP AT 200285