

Technical Manual

John Deere 450E Crawler Bulldozer 455E Crawler Loader Operation & Tests

TM1330 (01OCT87)
LITHO IN U.S.A. (REVISED)



Litho in U.S.A.

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

SECTION AND GROUP CONTENTS

SECTION I - GENERAL INFORMATION

- Group I - Introduction and Safety Information
- Group II - General Specifications
- Group III - Torque Specifications Chart
for Cap Screws and Hydraulic
Fittings
- Group IV - Lubrication

SECTION 9005 - OPERATIONAL CHECKOUT PROCEDURE

SECTION 9010 - ENGINE

- Group 9010-05 - Theory of Operation
- Group 9010-10 - System Operational Checks
- Group 9010-15 - Diagnostic Information
- Group 9010-20 - Adjustments
- Group 9010-25 - Tests

SECTION 9015 - ELECTRICAL SYSTEM

- Group 9015-05 - Theory of Operation
- Group 9015-10 - System Operational Checks
- Group 9015-15 - Diagnostic Information
- Group 9015-25 - Tests

SECTION 9020 - POWER TRAIN

- Group 9020-05 - Theory of Operation
- Group 9020-10 - System Operational Checks
- Group 9020-15 - Diagnostic Information
- Group 9020-20 - Adjustments
- Group 9020-25 - Tests

SECTION 9025 - HYDRAULIC SYSTEM

- Group 9025-05 - Theory of Operation
- Group 9025-10 - System Operational Checks
- Group 9025-15 - Diagnostic Information
- Group 9025-25 - Tests

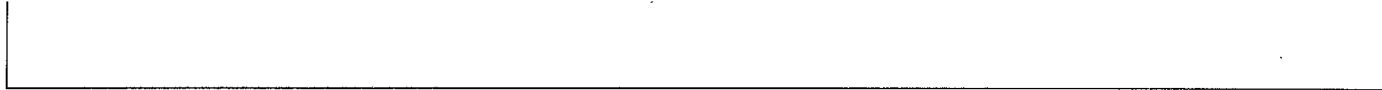
SECTION 9030 - MISCELLANEOUS COMPONENTS

- Group 9030-05 - Theory of Operation
- Group 9030-15 - Diagnostic Information
- Group 9030-20 - Adjustments
- Group 9030-25 - Tests

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admin@servicemanualperfect.com**

INTRODUCTION

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

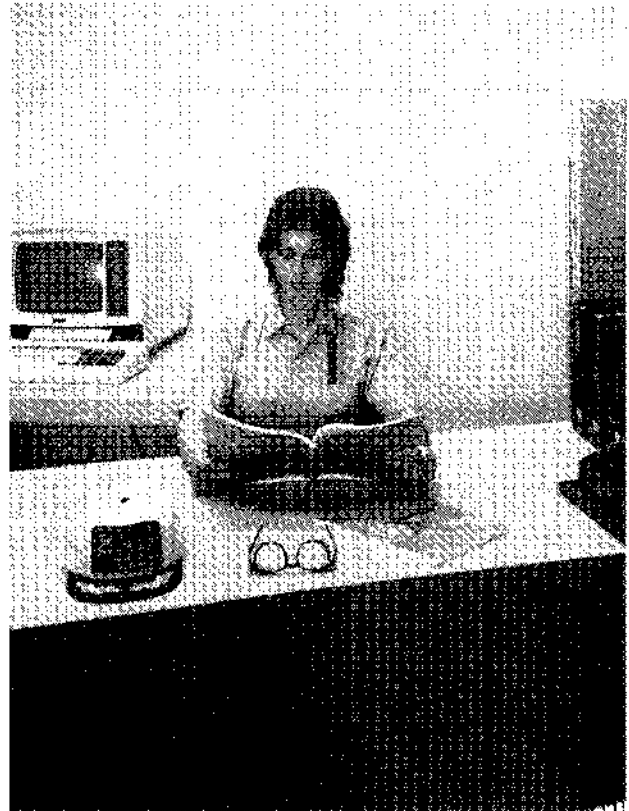
FOS Manuals - for reference

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;T5884BB 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.

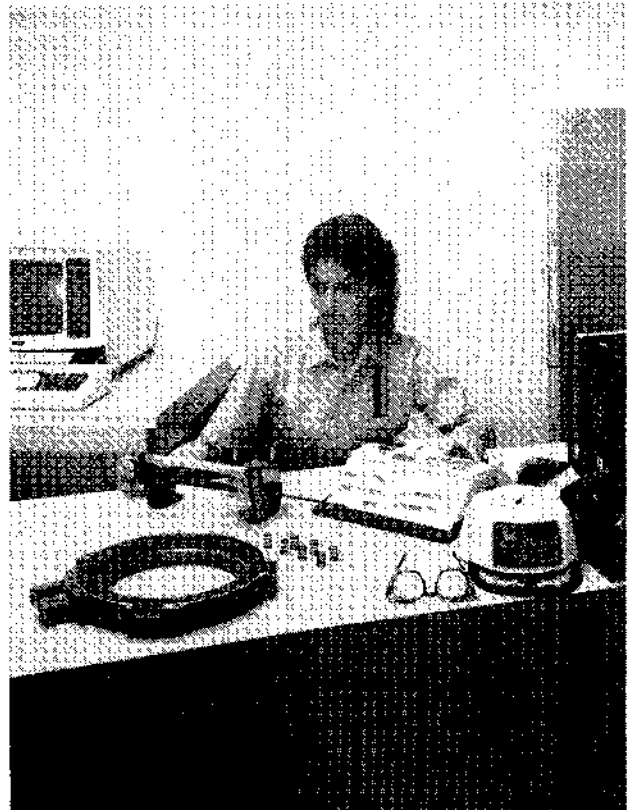
Diagnostic information presented with the most logical and easiest to isolate problems first to help you identify the majority of routine failures quickly.

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.



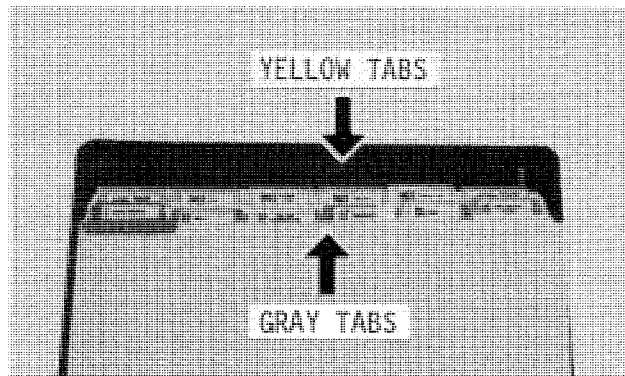
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USING TABS

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;SKPD HE 120984

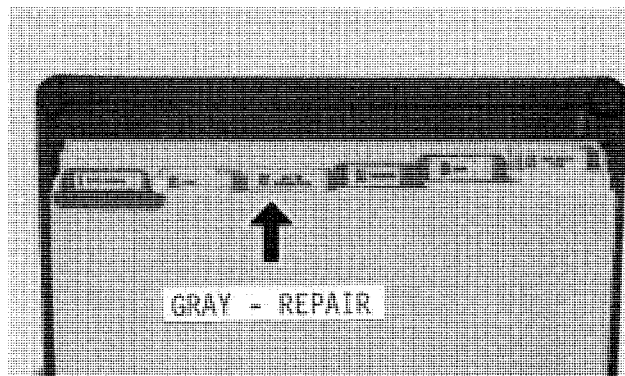
GRAY TAB SECTIONS

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.

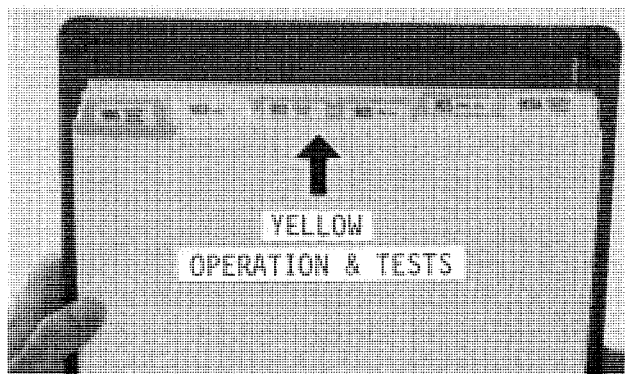


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YELLOW TAB SECTIONS

Each yellow tab section contains information on:

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

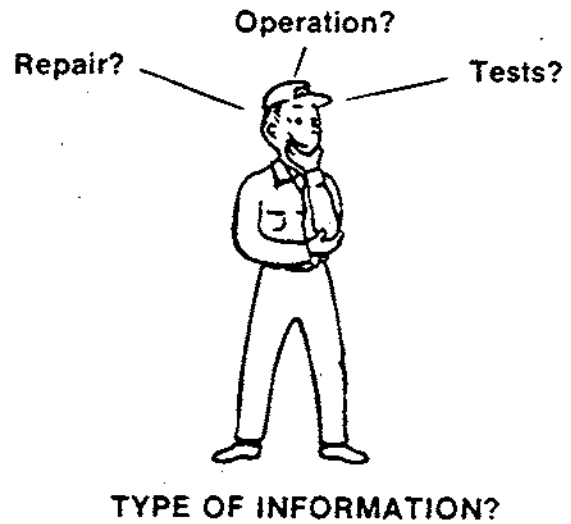


1TA;T5933AD T82;SKPD HG 190984

THREE-STEP PROCEDURE

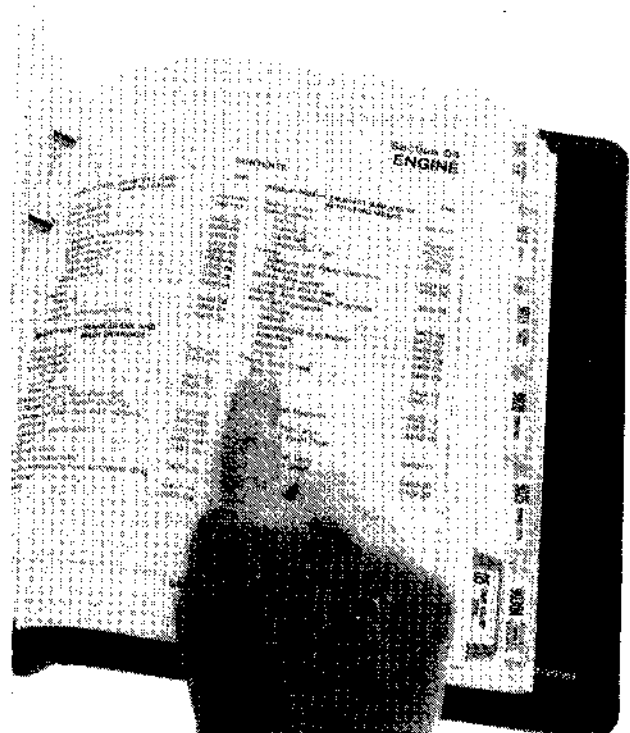
Use the following three-step procedure to locate the desired information.

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



ITA:T5940AT T82;SKPD HI 120984

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



ITA: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.



016/T81389 T82/FLPD N 001186

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.

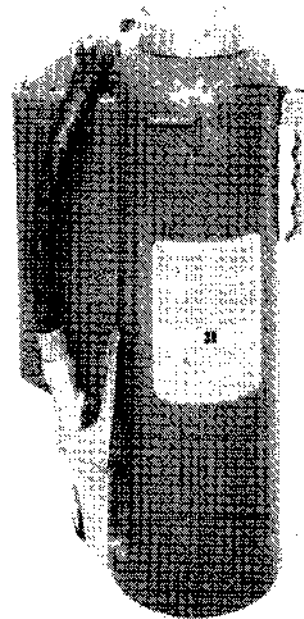
Never check fuel, battery electrolyte, or coolant levels with an open flame.

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.



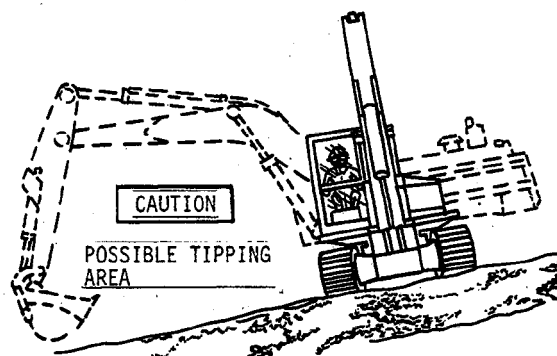
88A:T86875 T82:SKSA L 050984

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;T82326 T82;EXSA G 030282

WEAR PROTECTIVE CLOTHING

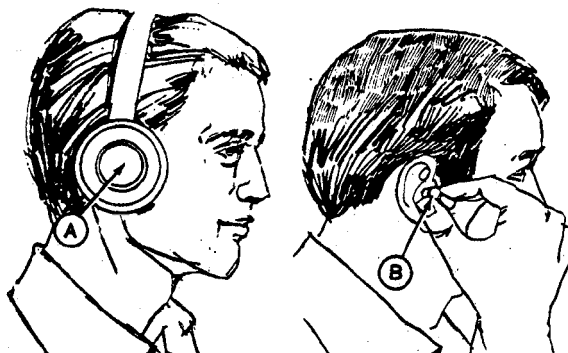
Wear fairly tight clothing . . . and safety equipment.



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;BHSA 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.



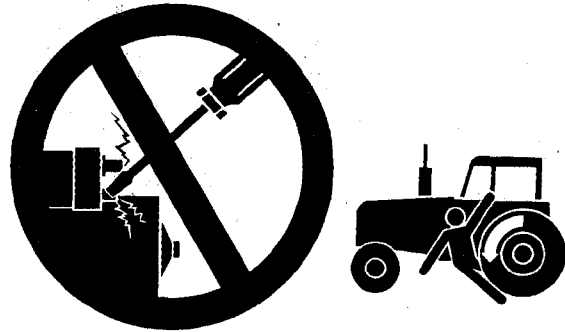
44A;X9811 T82;BHSA F 140984

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.



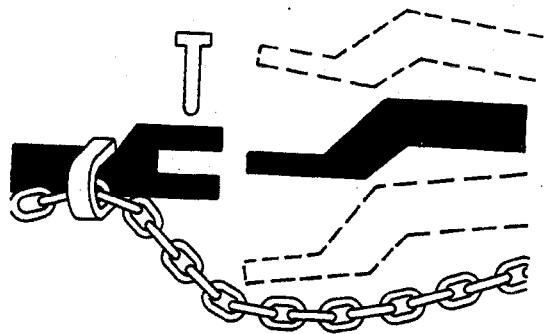
AB6;TS177 T82;CRSA AI 201284

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.

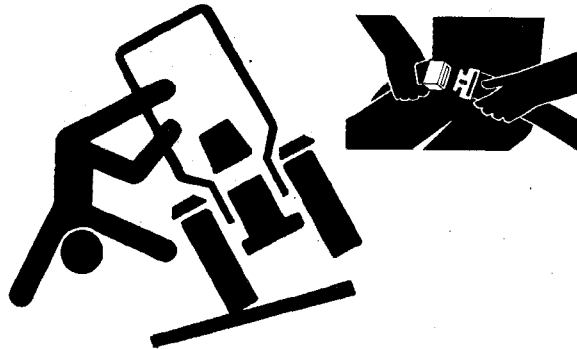


AB6;TS208 053;CHAIN 180987

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.

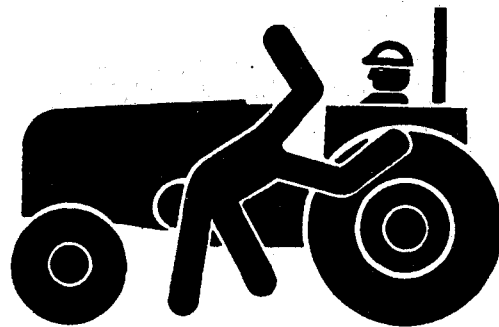


AB6;TS205 053;ROPS1 230487

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

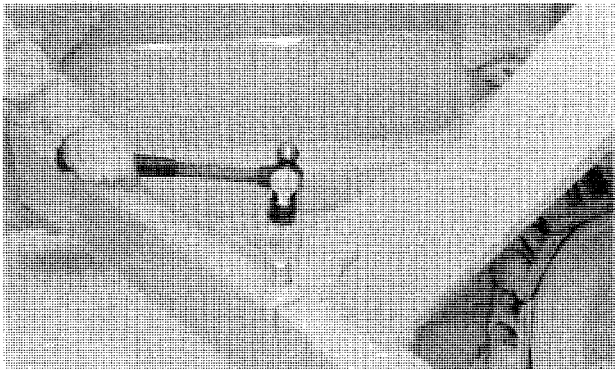
If your machine is equipped with a starting fluid starting aid, remember starting fluid is highly flammable. DO NOT incinerate or puncture a starting fluid container. DO NOT store a starting fluid container in a high-temperature area.



44A;T90207 T82;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.



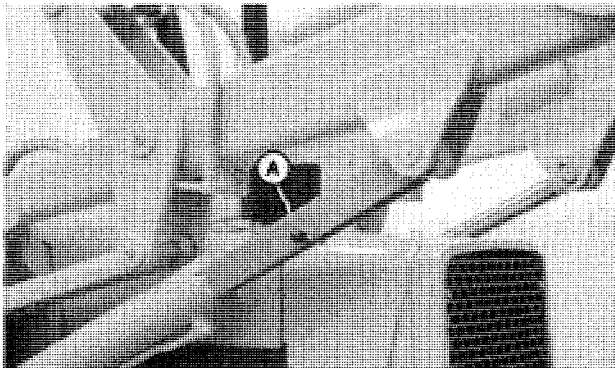
88A;T90211 T82;CRSA K 040984

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.

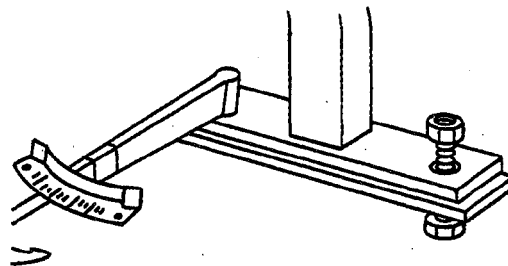


88A;T91444 82;CRSA AQ 051284

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.

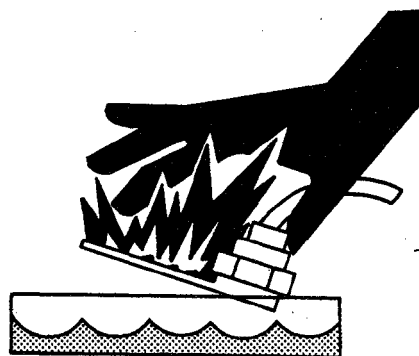
The protection offered by ROPS will be impaired if ROPS is subjected to structural damage, is involved in an overturn incident, or is in any way altered by welding, bending, drilling, or cutting. A damaged ROPS should be replaced, not reused.



AB6;TS212 053;ROPS3 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.

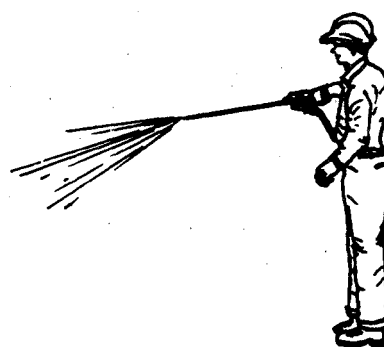
Use a heavy-duty grounded cord to connect coolant heater to electrical power.



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;T5813AM T82;CRSA AH 051284

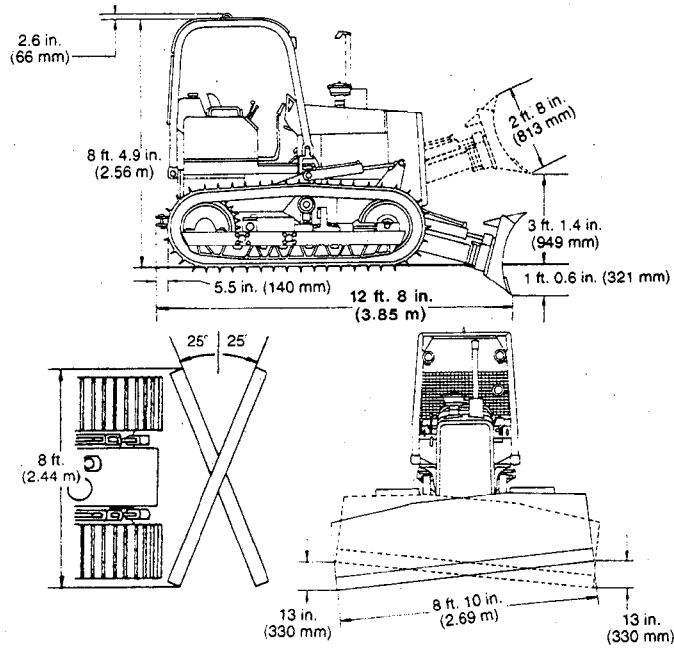
PREPARE MACHINE FOR REPAIR

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.



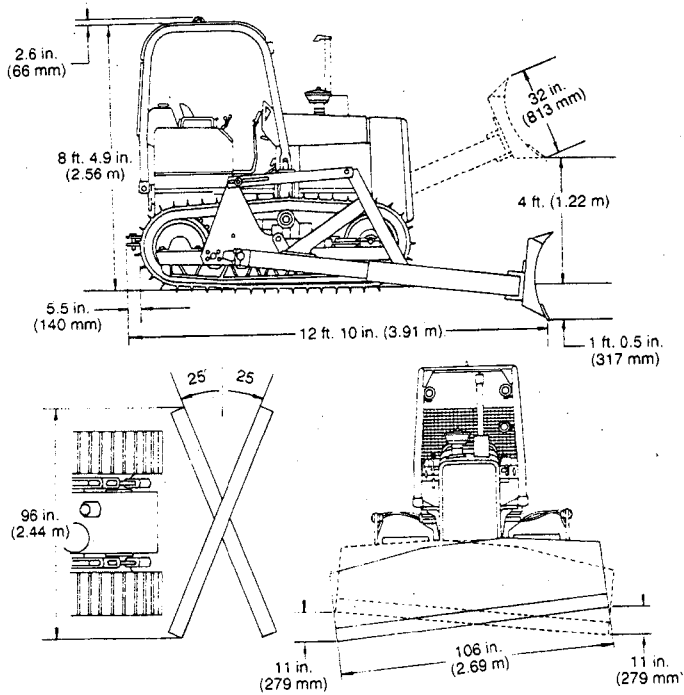
88A;T5933AM T82;CRSA AZ 080185

Specifications



450E Crawler Tractor With 6405 Blade

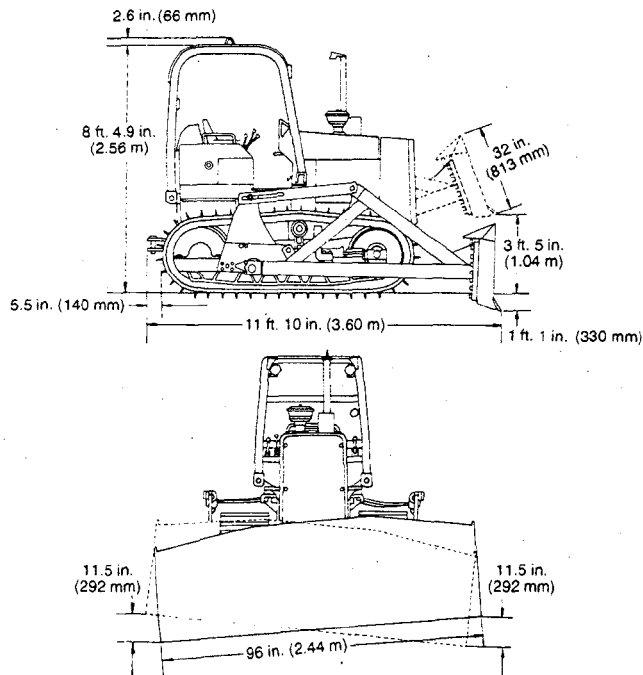
000;T6020AN T82;CRSP S 030185



450E Crawler Tractor With 6410 Blade

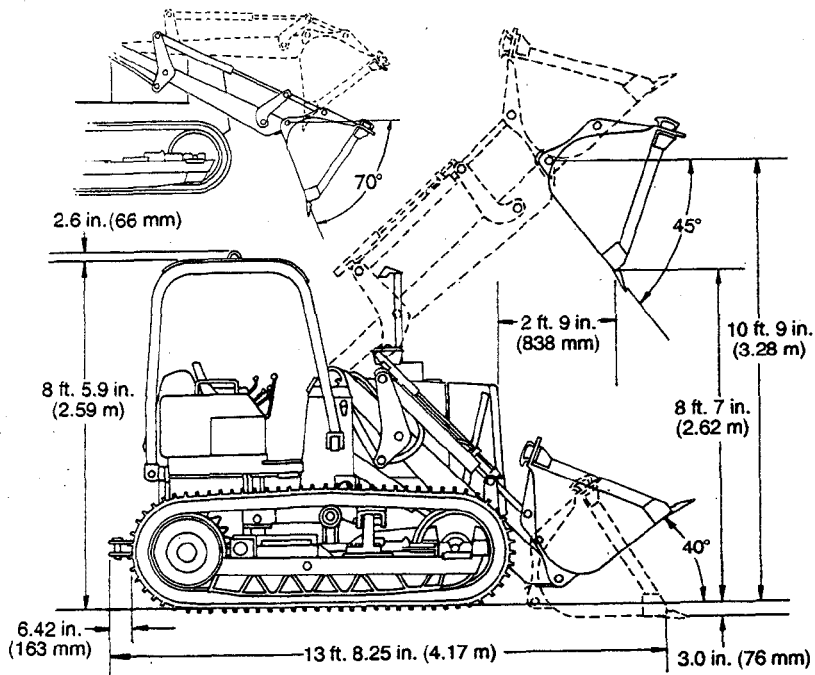
000;T6020AM T82;CRSP T 030185

Specifications



450E Crawler Tractor With 6415 Blade

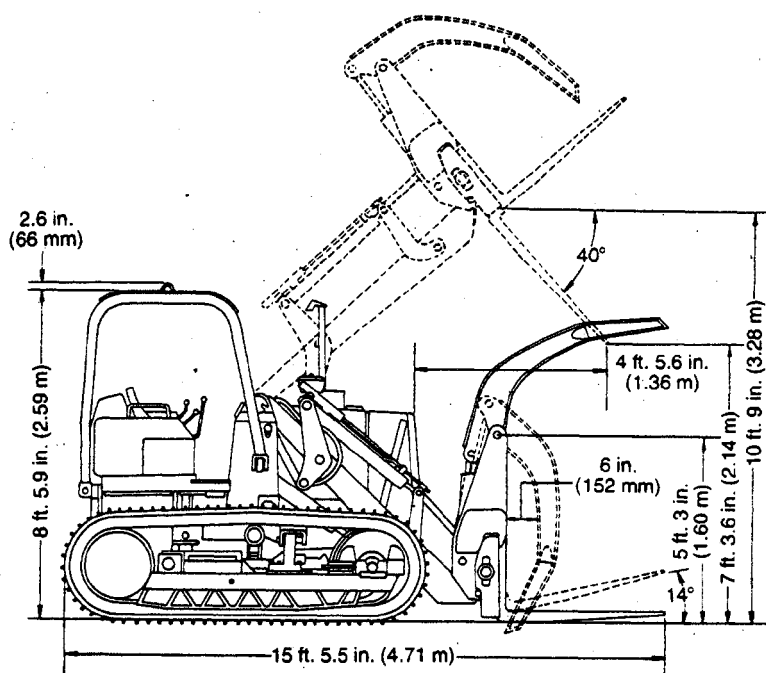
000;T6020AF T82;CRSP U 030185



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

Specifications

Travel Speeds (rated engine speed shown in mph [km/h]):

Gear	High		Low		Reverse	
	450E/455E	450ELT	450E/455E	450ELT	450E/455E	450ELT
1	1.8 (2.9)	1.8 (2.9)	1.3 (2.1)	1.3 (2.1)	1.7 (2.7)	1.7 (2.7)
2	2.9 (4.6)	2.8 (4.5)	2.1 (3.5)	2.0 (3.2)	2.8 (4.5)	2.7 (4.3)
3	4.3 (6.9)	4.2 (6.7)	3.0 (4.8)	2.9 (4.6)	4.1 (6.6)	4.0 (6.4)
4	6.5 (10.4)	6.3 (10.1)	4.6 (7.4)	4.5 (7.2)	6.2 (9.9)	6.1 (9.8)

T82;CRSP AU 150285

CAPACITIES

	U.S.	Metric
Engine coolant (450E and 455E)	4 gal	15.0 L
Engine coolant (450E Long Track)	4.25 gal	16.9 L
Engine oil including filter	9 qt	8.5 L
Transmission	8 gal	30.3 L
Final drive (each side)	6.25 qt	5.9 L
Hydraulic reservoir (450E)	6 gal	22.7 L
Hydraulic reservoir (455E)	7 gal	26.5 L
Hydraulic system (450E):		
(6405 dozer)	9.5 gal	36.0 L
(6410 dozer)	8.5 gal	32.2 L
(6415 dozer)	8.5 gal	32.2 L
Hydraulic system (455E)	13 gal	117.3 L
Steering clutch housing (each side)	3.5 gal	13.2 L
Fuel tank (450E and 455E)	31 gal	117.3 L
Fuel tank (450E Long Track)	36 gal	135.0 L

SAE Operating Weight (450E):

16 in. (406 mm) grouser shoes	12,260 lb (5560 kg)
6405 dozer and 16 in. (406 mm) grouser shoes	14,640 lb (6640 kg)
6410 dozer and 18 in. (457 mm) grouser shoes	14,830 lb (6727 kg)
6415 dozer and 18 in. (457 mm) grouser shoes	15,240 lb (6913 kg)

SAE Operating Weight (455E) 17,150 lb (7780 kg)

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with ICED and SAE Standards. Except where otherwise noted, these specifications are based on a unit with roll-over protective structure and standard equipment.)

T82;CRSP Z 260785




HARDWARE TORQUE SPECIFICATIONS

Check cap screws and nuts to be sure they are tight. If hardware is loose, tighten it to torque shown on the following charts unless a special torque is specified.

T82;CRMA EC 260785

NOTE: Torques shown are for dry (no lubrication on threads) hardware.

NOTE: Torque wrench tolerance is ± 10 per cent of specified torque.

Cap Screw Size-Inches	Customary Hardware					
						
	Grade B		Grade D		Grade F	
	lb-ft. (N-m)		lb-ft. (N-m)		lb-ft. (N-m)	
1/4	----	----	10	(14)	14	(19)
5/16	----	----	20	(27)	30	(41)
3/8	----	----	35	(47)	50	(68)
7/16	35	(47)	55	(75)	80	(108)
1/2	55	(75)	85	(115)	120	(163)
9/16	75	(102)	130	(176)	175	(237)
5/8	105	(142)	170	(230)	240	(325)
3/4	185	(251)	300	(407)	425	(576)
7/8	160	(217)	445	(603)	685	(929)
1	250	(339)	670	(908)	1030	(1396)
1-1/8	330	(447)	910	(1234)	1460	(1979)
1-1/4	480	(651)	1250	(1695)	2060	(2793)

44A;T88884 T82;EXMA S 120684