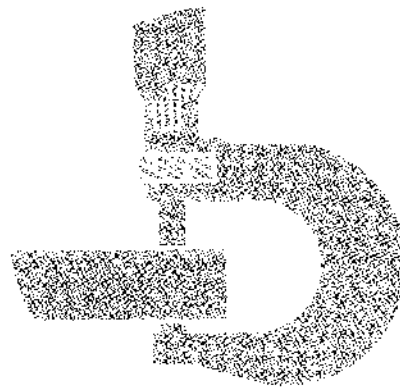


# **401D Tractor**



## **TECHNICAL MANUAL**

**TM-1271 (OCT-84)**  
LITHO IN U.S.A.



# **401D TRACTOR TECHNICAL MANUAL TM-1271 (OCT-84)**

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*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. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.*

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

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**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](mailto:admin@servicemanualperfect.com)**

# INTRODUCTION AND SAFETY INFORMATION

## INTRODUCTION

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

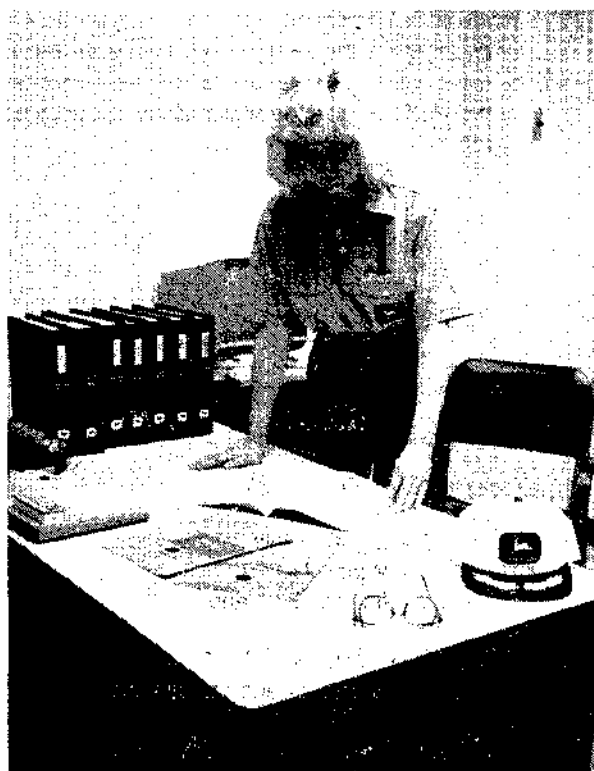
### FOS Manuals - for reference

### Technical Manuals - for actual 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.



63A/TB5956, T28:1 1115 150383

## FEATURES OF THIS TECHNICAL MANUAL

- John Deere ILLUSTRATION format emphasizing detailed pictures and fewer words in easy-to-use modules.
- Removal and installation groups preceding some repair groups.
- A section of system diagnostic testing.
- Table of contents of all sections at the front of the manual and a listing of all groups and headings at the front of each section.
- Special tools and specifications listed at the front of each group they are used in.
- Special tools illustrated in numerical order at end of manual.
- Alphabetical listing of all major components, specifications, and special tools.
- Safety rules, general specifications, and lubrication specifications.

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.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



63A/TB5959 T28:1 1115 150383

## SAFETY AND YOU



**CAUTION:** This safety symbol is used for important safety messages. When you see this symbol, follow the safety message to avoid personal injury.



63A/T61309 T202 002 150385

## 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.

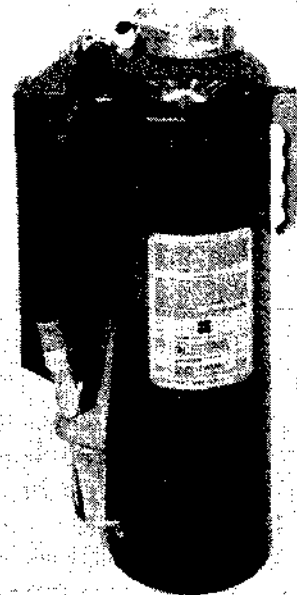
Never check fuel, battery electrolyte, or coolant levels with an open flame.

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.



68A/T66075 T62/SKSA L 150385

## Introduction And Safety Information

### UNDERSTAND MACHINE OPERATION

Only qualified people should operate the machine.

Learn the location and purpose of all controls, instruments, indicators, and labels.



63A/T08357 T02,TL5A A 191202

### WEAR PROTECTIVE CLOTHING

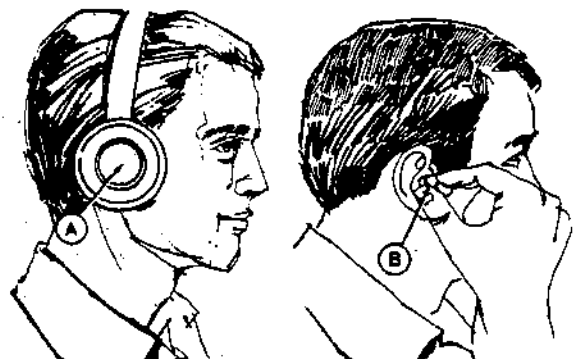
Wear fairly tight clothing . . . and safety equipment.



88A/T05056 T82,EX5A B 100183

### 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,BH5A E 100183

### 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. 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.



88A/X9811 T82,BH5A F 100183



## **START ENGINE FROM OPERATOR'S SEAT ONLY**

Avoid possible injury or death from machinery runaway.

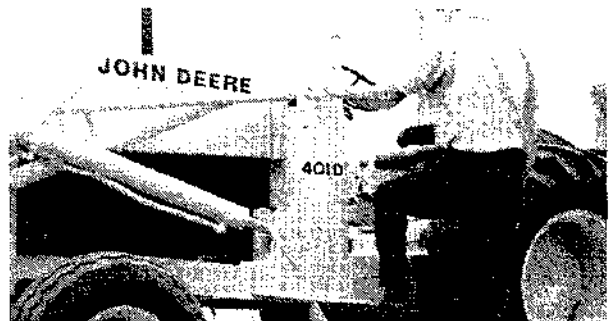
Do not start engine by shorting across starter terminals. Machine will start in gear and will move if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral, reverser in neutral, and park brake applied.

T82/BWSA G 250882

## **USE HAND HOLDS AND STEPS**

When you get on and off the machine, use handholds and steps.



63A/T88368 T82/TL5A 8 191282

## **OPERATE MACHINE SAFELY**

DO use your seat belt if your machine has a roll-over protective structure (ROPS).

DO NOT use your seat belt if your machine does not have a ROPS.



63A/T88368 T82/TL5A 0 140363

Before you move any equipment, be sure all persons are away from the machine.

When the machine is operating, ONLY the operator should be on it.

Keep operating area level.

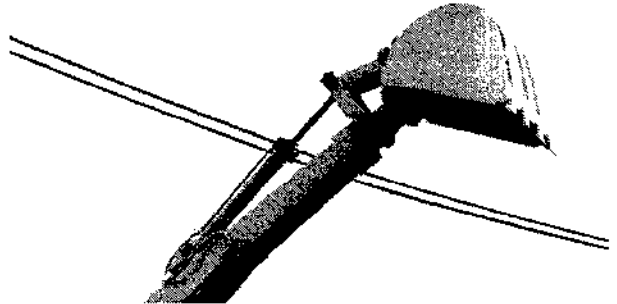
T82/CRSA F 210283

## Introduction And Safety Information

### AVOID POWER LINES

Serious injury or death can result from contact with power lines.

DO NOT touch power lines with any part of the machine.

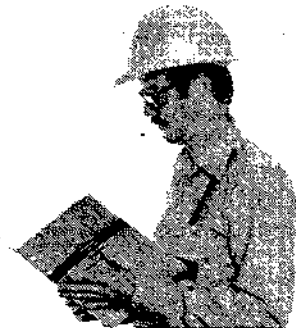


63A/T86872 T82/BKSA L 050183

### UNDERSTAND CORRECT SERVICE

Be sure you understand a service procedure before you work on the machine.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



88A/T87358 T82/TL5A H 191282

If it is necessary to make checks with the engine running, ALWAYS USE TWO PEOPLE — with the operator at the controls, able to see the person doing the checking.

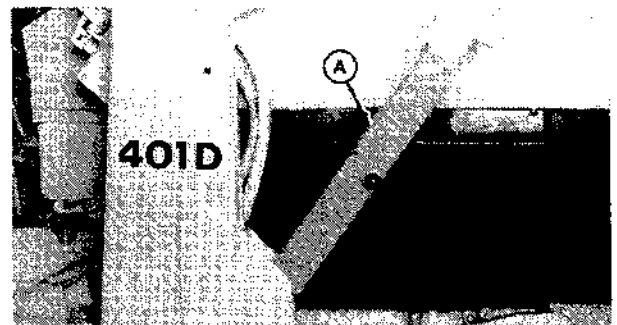
KEEP HANDS AWAY FROM MOVING PARTS.

T82/BKSA P 080482

### SUPPORT RAISED EQUIPMENT

Put a support (A) under all raised equipment.

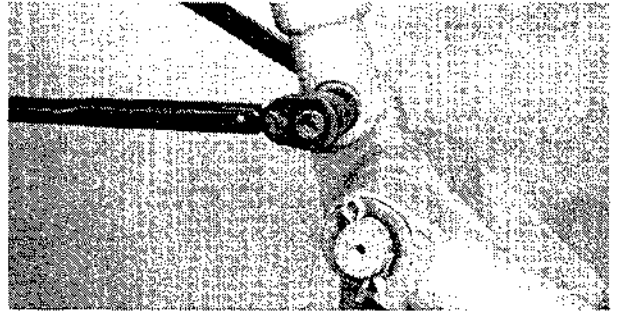
Do not work under a raised bucket. Lower the bucket to ground or onto blocks.



63A/T88365 T82/TL5A K 191282

## KEEP ROPS INSTALLED PROPERLY

If ROLL-GARD® protective frame or ROLL-OVER protective equipment is loosened or removed for any reason, make certain all parts are reinstalled correctly. Tighten mounting bolts to proper torque. The protection offered by ROPS will be impaired if the ROPS is subject to structural damage, has been involved in an overturn incident or is in anyway altered. Damaged ROPS should be replaced, not reused.

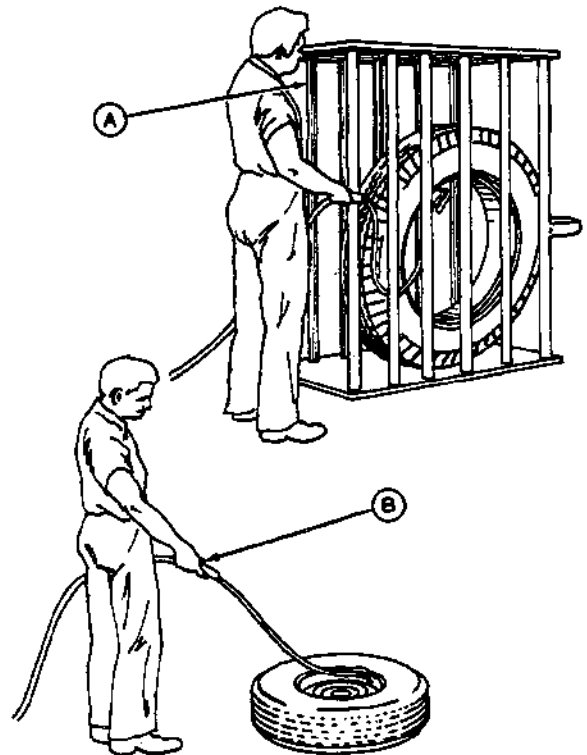


63A/T88366 T82:TL5A L 191282

## SERVICE TIRES SAFELY

Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death. Do not attempt to mount a tire unless you have the proper equipment and experience to perform the job. Have it done by your John Deere dealer or a qualified repair service.

Detailed tire mounting instructions, including necessary safety precautions are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks, available through your John Deere dealer. Such information is also available from the Rubber Manufacturers Association and from tire manufacturers.



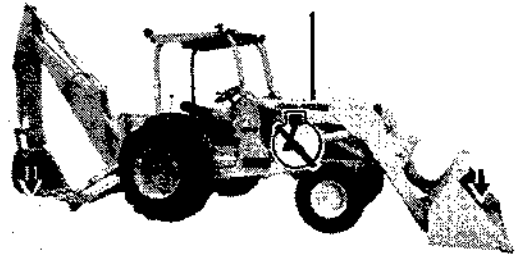
- A—Use a Safety Cage if available.  
B—DO NOT Stand Over Tire. Use a Clip-On Chuck and Extension Hose.

63A/TS0123 T82:TL5A M 191282

*Introduction And Safety Information*

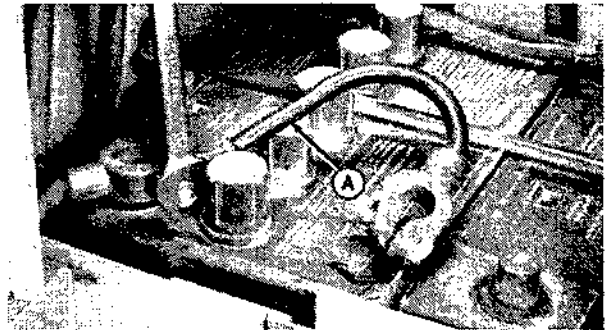
**PREPARE MACHINE FOR REPAIR**

1. Lower all equipment to the ground.
2. Put transmission in PARK or engage parking brake.
3. Stop the engine.
4. Operate all hydraulic control levers to release hydraulic pressure in the system.



63A;T85572 T82;TLP0 AD 150483

5. Disconnect negative (-) battery cable (A).



63A;T85574 T82;TLP3 AE 150483

*Introduction and Safety Information*

## Group II

(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 equipped with 16.9-24, 8 PR, R4 rear tires; 11L-15, 8 PR front tires; 3/4-cu. yd. (0.57 m<sup>3</sup>) loader bucket; 24-in. (610 mm) backhoe bucket, diesel engine, full fuel tank, 175-lb. (79 kg) operator and standard equipment.)

**SAE**

## DIN

Gross .....	66 hp (49.2 kW)	
Net .....	62 hp (46.2 kW)	66 hp (48 kW)

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator, and muffler. Gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500-ft. (150 m) altitude and 85°F (29.5°C) temperature and DIN 70 020 standard conditions of 760 mm Hg barometer (sea level) and 20°C temperature.

**Engine:** John Deere 4-cylinder diesel, valve-in-head, 4-stroke cycle

Bore and stroke	4.02 x 4.33 in. (102 x 110 mm)
Displacement	219 cu. in. (3,589 L)
Compression ratio	16.2 to 1
Maximum torque @ 1300 rpm	160 lb-ft (217 N·m) (22.1 kg·m)
NACC or AMA (U.S. Tax) horsepower	25.65
Main bearings	5
Lubrication	Pressure system w/full-flow filter
Cooling	Pressurized w/thermostat and fixed bypass
Fan	Suction
Air Cleaner	Dry
Electrical system	12-volt w/alternator
Battery (12 volt)	Reserve capacity (each): 110 minutes
Alternator	35 amps

**Engine Clutch:**..... Foot-operated, single 10 in. (255 mm) plate

**Transmission:** .... Constant mesh, 8 speeds forward, 8 reverse.

Standard hydraulic direction reverser permits no-clutch reversing in all gears.

## Forward

## Reverse

Gear	mph	km/h	mph	km/h
1	1.4	2.3	1.6	2.6
2	2.0	3.2	2.3	3.7
3	2.9	4.7	3.4	5.5
4	4.1	6.6	4.7	7.6
5	5.4	8.7	6.2	10.0
6	7.7	12.4	8.9	14.3
7	11.4	18.3	13.2	21.2
8	15.9	25.6	18.5	29.8

**Final Drives** ..... Inboard, planetary

**Brakes:** ..... Hydraulically actuated, fully enclosed, wet-disk.

**Self-equalizing.** Foot-operated individually or simultaneously.

**Steering:** ..... Hydrostatic Power

Turning radius (brake applied) .....	11 ft. 6 in. (3.50 m)
Turning clearance circle, dia. (brake applied) .....	32 ft. (9.75 m)
Number of turns, far left to far right .....	2.8
far right to far left .....	2.3

**Hydraulic System:** ..... Closed center

Max. pressure	2320 psi (16 000 kPa) (163 kg/cm <sup>2</sup> )
Loader control	Single-lever
Backhoe control	Two-lever
Pump	Piston, constant pressure, variable displacement, 28 gpm (1.76 L/s) at 2500 engine rpm
Filter	25-micron steel enclosed paper cartridge in return

### Hydraulic Cylinders:

## Non-Self-

## Leveling Loader

Leveling Loader	Bore	Stroke	Rods
Loader boom . . . . .	2.75 in. (70 mm)	28.3 in. (718 mm)	1.75 in. (44 mm) dia.
Loader bucket . . . . .	2.50 in. (74 mm)	27.3 in. (693 mm)	1.50 in. (38 mm) dia.

Cylinder rods . . . . . Ground, heat-treated, chrome-plated, polished

### Self-Leveling

## Loader

Loader boom . . . . .	3.25 in. (83 mm)	28.6 in. (726 mm)	1.75 in. (44 mm) dia.
Loader bucket . . . . .	2.50 in. (64 mm)	15.1 in. (384 mm)	1.25 in. (32 mm) dia.

Cylinder rods . . . . . Ground, heat-treated, chrome-plated, polished

### Backhoe (9250B)

<b>Backhoe (9250B)</b>	<b>Bore</b>	<b>Stroke</b>	<b>Rods</b>
Boom .....	4.00 in. (102 mm)	33.5 in. (851 mm)	2.00 in. (52 mm)
Crowd .....	3.50 in. (89 mm)	31.9 in. (794 mm)	1.75 in. (44 mm)
Bucket .....	3.00 in. (76 mm)	26.5 in. (673 mm)	1.75 in. (44 mm)
Swing .....	3.50 in. (89 mm)	8.9 in. (226 mm)	1.75 in. (44 mm)
Stabilizer .....	3.50 in. (89 mm)	15.5 in. (394 mm)	1.75 in. (44 mm)

Cylinder rods . . . . . Ground, heat-treated, chrome-plated, polished

**Tires:**

Front ..... 7.50/8.00-16, 10 PR, F3, standard  
11L-15, 8 PR, F3  
Rear ..... 16.9-24, 8 PR, R4, standard  
17.5L-24, 8 PR, R4  
19.5L-24, 8 PR, R4

**Wheel Treads:**

Front .....	58 in. (1.45 m)
Rear .....	62 in. (1.57 m)

**Dimensions:**

Overall height to top of muffler .....	8 ft. 8 in. (2.65 m)
Overall height to top of canopy .....	7 ft. 8 in. (2.35 m)
Overall height to top of lights .....	7 ft. 10 in. (2.40 m)
Overall width w/o bucket .....	6 ft. 8 in. (2.05 m)
Overall length .....	22 ft. 7 in. (6.90 m)
Wheelbase .....	82 in. (2.10 m)
Ground clearance (under front axle) .....	1 ft. 5 in. (430 mm)
Ground clearance, min. ....	13 in. (330 mm)

## Capacities

Capacities	U.S.	Liters
Cooling system .....	12 qt.	11.4
Fuel tank .....	19.5 gal.	73.8
Engine lubrication, including filter .....	9 qt.	8.5
Transmission and hydraulic system .....	10 gal.	37.9
Loader hydraulic system .....	3 gal.	11.4
Backhoe hydraulic system .....	5 gal.	18.9

## General Specifications

### OPERATING INFORMATION

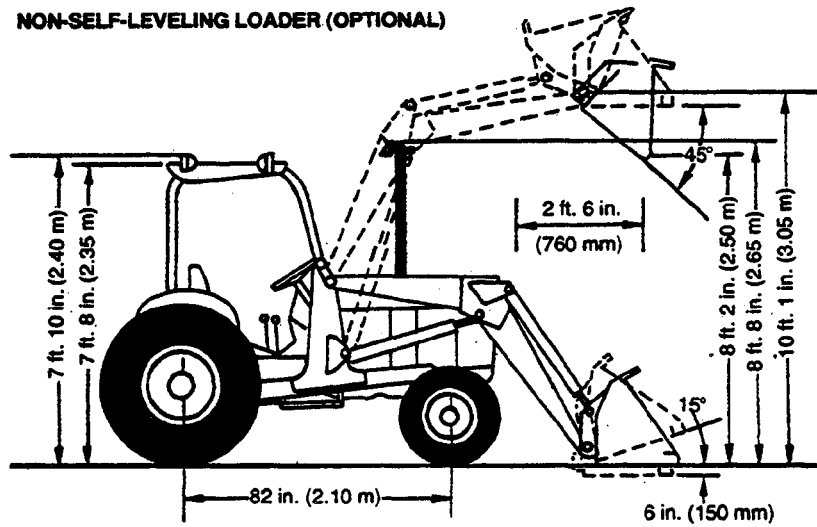
#### Buckets:

	NON SELF-LEVELING LOADER	SELF-LEVELING LOADER
Nominal heaped capacity .....	3/4 cu. yd. (0.57 m <sup>3</sup> )	3/4 cu. yd. (0.57 m <sup>3</sup> ) 1. cu. yd. (0.76 m <sup>3</sup> )
Width .....	81.1 in. (2.05 m)	81.1 in. (2.05 m)
Rollback at ground level .....	15 deg.	27 deg.
Breakout force .....	5500 lb. (24.5 kN) (2495 kg)	7900 lb. (35.1 kN) (3585 kg)
Digging depth below ground level (w/bucket level) .....	6 in. (150 mm)	6 in. (150 mm)
Lifting capacity, full height .....	3500 lb. (1590 kg)	4800 lb. (2180 kg)
Height to bucket hinge pin .....	10 ft. 1 in. (3.05 m)	10 ft. 1 in. (3.05 m)
Maximum dump angle .....	45 deg.	45 deg.
Clearance, bucket dumped @ 45 degrees .....	8 ft. 2 in. (2.50 m)	8 ft. 2 in. (2.50 m)
Reach at maximum height, bucket dumped @ 45 degrees .....	2 ft. 6 in. (760mm)	2 ft. 6 in. (760 mm)
Raising time to full height .....	3.2 sec.	3.8 sec.
Bucket dump time .....	2.0 sec.	1.5 sec.
Lowering time (power) .....	2.0 sec.	3.0 sec.
Float-down time .....	3.5 sec.	5.1 sec.
Minimum effective rear wheel counterweight required, except when used with backhoe .....	2350 lb. (1065 kg)	4450 lb. (2020 kg)

T82;TLSP B 30018\*

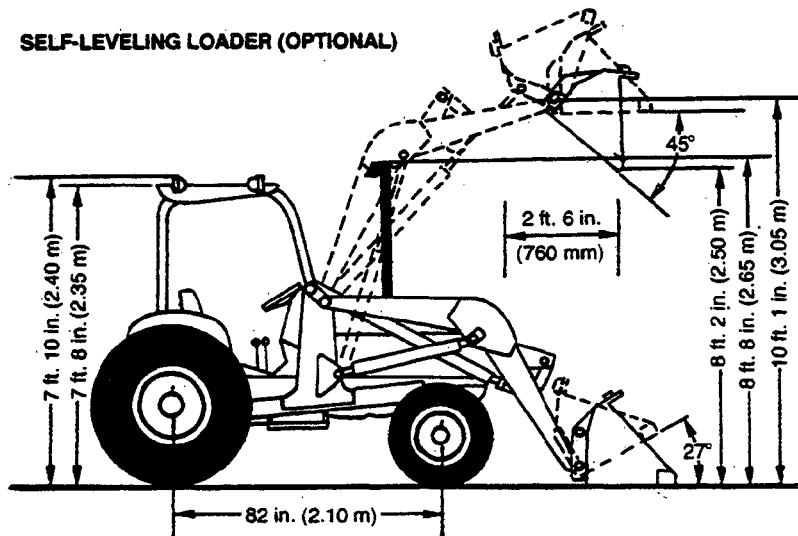
# General Specifications

## NON-SELF-LEVELING LOADER (OPTIONAL)



SAE Operating Weight . . . . . 7930 lb. (3595 kg)

## SELF-LEVELING LOADER (OPTIONAL)



SAE Operating Weight . . . . . 8160 lb. (3700 kg)

63A/T96255, T96256 T82;TLSP D 300184



## General Specifications

### BACKHOE (9250B):

#### Digging depth (CED):

Maximum .....	14 ft. 2 in. (4.30 m)
2-ft. (610 mm) flat bottom .....	14 ft. (4.25 m)
8-ft. (2.45 m) flat bottom .....	10 ft. 4 in. (3.15 m)

Swing arc ..... 180 deg.

#### Lifting capacity:

##### To full height

Boom .....	1300 lb. (590 kg)
Dipperstick (boom holding) .....	2200 lb. (1000 kg)

##### To 10 ft. (3.05 m)

Boom .....	1300 lb. (590 kg)
Dipperstick (boom holding) .....	2800 lb. (1270 kg)

#### Digging force:

Bucket cylinder in power-dig position .....	7500 lb. (32.9 kN) (3355 kg)
Crowd cylinder .....	4100 lb. (18.2 kN) (1860 kg)

#### Reach:

From center of swing mast .....	17 ft. 3 in. (5.25 m)
From center of rear axle .....	20 ft. 4 in. (6.20 m)

Loading height (truck-loading position) ..... 11 ft. 8 in. (3.55 m)

Transport height ..... 11 ft. 2 in. (3.40 m)

#### Stabilizer Width:

Transport position .....	6 ft. 8 in. (2.05 m)
Operating position (overall) .....	9 ft. 8 in. (2.95 m)
Operating position (ICED) .....	8 ft. 6 in. (2.60 m)

#### Attachments:

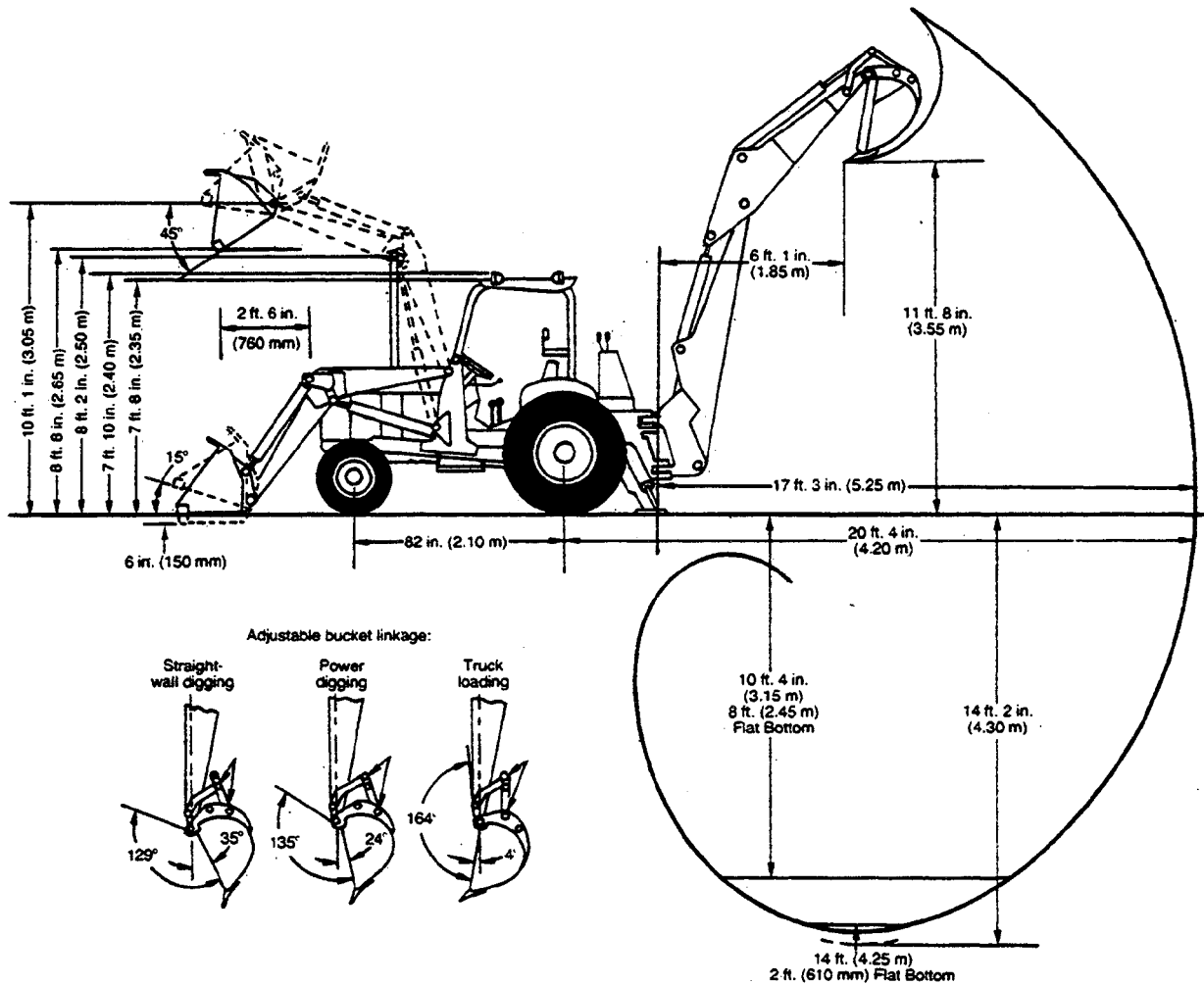
Ripper tooth replaces backhoe bucket. Cast steel; 225 lb.. (100 kg) tooth has hardened replaceable tip. Bolt-on rubber street pads for stabilizer pads.

### BUCKETS

Loader:	Width		Struck Capacity		Nominal Heaped Capacity	
	In.	(mm)	Cu. Ft. (m <sup>3</sup> )		Cu. Yd. (m <sup>3</sup> )	
Loader:	81.125	(206)			0.75	(0.57)
	81.125	(206)			1.0	(0.76)
Backhoe:	12	(305)	1.6	(0.05)		
	16	(406)	2.6	(0.07)		
	18	(457)	3.6	(0.10)		
	24	(610)	4.8	(0.14)		
	30	(762)	6.0	(0.17)		
	36	(914)	7.2	(0.20)		
Heavy-duty	18	(457)	3.6	(0.10)		
	24	(610)	4.8	(0.14)		
Cemetery	36	(914)	7.2	(0.20)		
Special						

T82;TLSP E 300184

## General Specifications



Loader Backhoe

63A;T96257 T82;TLSP C 300184

***General Specifications***

## Group III TORQUE VALUES




### HARDWARE TORQUE SPECIFICATIONS

Check all cap screws and nuts, which can be easily reached, to be sure they are tight. If hardware is loose, tighten it to torque shown on the following chart on next page unless a special torque is specified.

T82;EXMA V 080284

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

*NOTE: Torque wrench tolerance is  $\pm 10$  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)

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