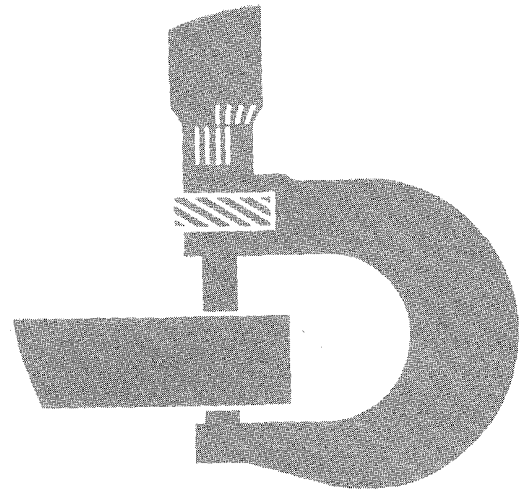


**John Deere  
JD770  
Motor Grader**

**TECHNICAL  
MANUAL**



**TM-1123**

LITHO IN U.S.A.

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II INDEX

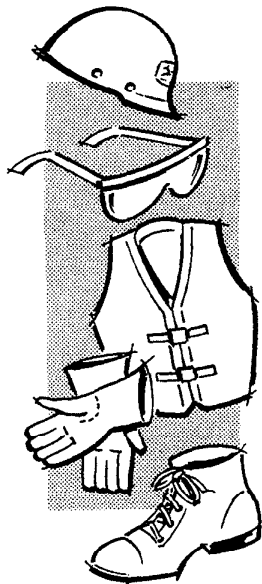
## MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27999N

 This safety alert symbol identifies important safety messages in this manual and on the motor grader. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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



T27501N

Consult your shop foreman 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.

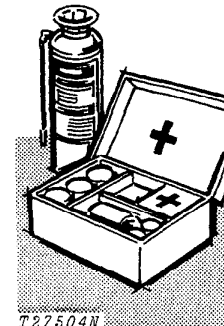
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T27502N

### BE ALERT!

Plan ahead—work safely—know how to use a first-aid kit and a fire extinguisher—and where to get aid and assistance.



T27504N

### Maintenance Area

Make sure the maintenance area is adequately vented.

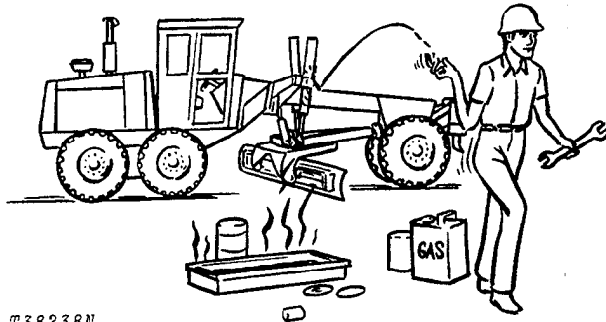
Keep maintenance area **CLEAN AND DRY**. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

Store starting aids in a cool and well-ventilated place, out of the reach of unauthorized personnel.

## MAINTENANCE WITHOUT ACCIDENT

### AVOID FIRE HAZARDS—

#### Fuel Is Dangerous!



T38238N

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.

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 USE OPEN FLAME AROUND THE MACHINE.**

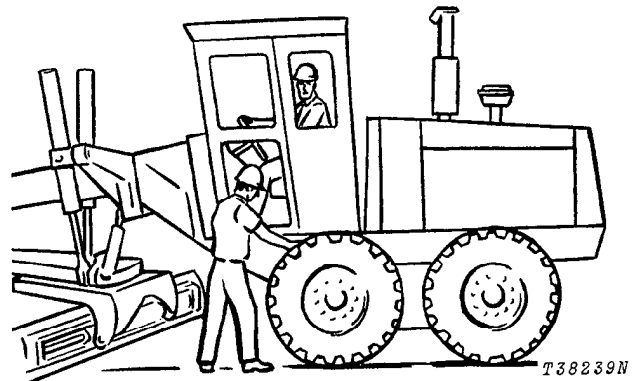
**KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!**

### UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the equipment unless authorized to do so. Then be sure you know the safe and proper procedure.

Follow recommended procedures.

Never service the equipment while it is being operated.



T38239N

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 within sight of the operator.

### KEEP HANDS AWAY FROM MOVING PARTS

Support all raised equipment.

Never work under raised blade, ripper, or scarifier.

Lower all equipment to ground.

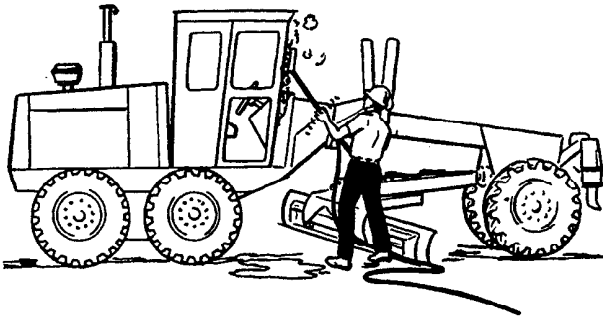
If the machine is on an incline, block it securely.

Use hoisting equipment for lifting heavy parts.

### TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE VICINITY

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

## SERVICING PRECAUTIONS



T38242N

Keep ALL equipment free of dirt and oil.

Be sure to clean any oil, grease, mud, ice, or snow from floor of operator's compartment, stepping points, and grab rails.

When preparing the 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.

Don't remove the radiator cap until coolant temperature is below the boiling point. Then turn cap slightly to relieve pressure before removing.

Periodically check exhaust system for excessive leakage.

Relieve hydraulic pressure before working on hydraulic system: shut off engine, lower all equipment to ground, and move control levers until no response is felt.

When checking hydraulic pressure, be sure to use the correct test gauge.

## PRECAUTIONS DURING REPAIR

Before working on hydraulic system relieve hydraulic pressure.

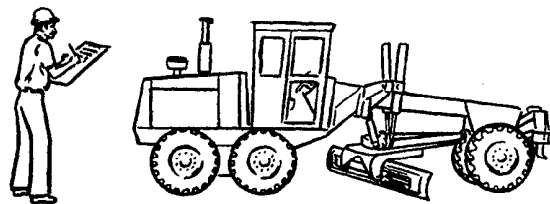
Before repairing the electrical system, or performing a major overhaul, disconnect batteries.

## KNOW EQUIPMENT IS READY!

Check guards, safety bars—all protective devices installed on the grader. Every one should be in place and secure.

## CHECK IT OUT!

- GUARDS
- SHIELDS
- PROTECTIVE DEVICES
- SEAT BELTS, ETC.



T38243N

Carefully inspect equipment for visual defects—leaks in fuel, lubrication, and hydraulic systems. Do not search for pressurized fluid leaks with your hands. Use cardboard or wood to search for leaks.

## Group III

# GENERAL SPECIFICATIONS

(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 13.00-24, 10-ply-rating, tubeless tires, 13-ft. (3.96 m) moldboard, and standard equipment.

Power (@ 2200 engine rpm):	<b>SAE</b>	
Gross .....	152 (113.5 kW*)	
Net .....	142 (106 kW*)	144 PS

\*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 (20°C) temperature and DIN 70 020 conditions (non-corrected). No derating is required up to 10,000 ft. (3 000 m)

*\*In the international system of units (SI), power is expressed in kilowatts (kW).*

- Engine: John Deere Turbocharged diesel, vertical 6-cylinder, valve-in-head, 4-stroke cycle.
- Bore and stroke .. 4.75 x 5.00 in. (120.6 x 127 mm)
- Piston displacement ..... 531 cu. in (8 702 cm<sup>3</sup>)
- Compression ratio ..... 15.8 to 1
- Maximum torque  
 @ 1,400 rpm ..... 440 lb-ft (597 Nm)
- NACC or AMA (U.S. Tax) horsepower ..... 54.15
- Main bearings..... 7
- Lubrication..... Pressure system with full-flow filter
- Cooling ..... Pressurized with thermostat and fixed bypass
- Fan ..... Suction
- Air cleaner with restriction indicator..... Dry
- Electrical system ..... 24 volt (24 V) with alternator
- Batteries (2) ..... Reserve capacity: 360 minutes
- Transmission..... Power Shift, 8 forward and 4 reverse selections
- Differential Lock.....Foot-operated, hydraulically-actuated
- Final Drives.....Inboard planetary

Travel Speeds (2,200 engine rpm, no tire slip, 14.00 - 24 tires)

Shift Lever Position		mph	km/h
Forward	1	2.3	3.7
	2	3.3	5.3
	3	5.2	8.9
	4	6.7	10.8
	5	8.8	14.2
	6	11.5	18.5
	7	14.6	23.6
	8	25.1	40.4
Reverse	1	3.0	4.8
	2	4.2	6.8
	3	6.6	10.6
	4	8.6	13.9

- Brakes:
- Service .....Foot-operated, hydraulically-actuated, wet-disk, effective on 4 tandem wheels
- Parking..... Foot-operated, mechanical, dry-disk effective on 4 tandem wheels

- Steering:
- Front.....Full hydraulic power system
- Rear ..... Hydraulically-articulated frame steering (25 deg. left or right)
- Turning radius ..... 22 ft. (6.7 m)
- Range..... 47.5 deg. left or right

- Hydraulic System: Closed-center
- Pressure..... 2,000 psi (138 bar)
- Pressure (stand-by)..... 2,350 psi (162 bar)
- Pump ..... Variable-displacement, 57 gpm (216 L/min. @ 2,200 engine rpm)

- Circle: Welded angle, 5 ft. (1.5 m) dia.
- Rotation ..... 360 deg.
- Drive..... Hydraulic motor and worm gear

- Drawbar ..... Welded box, 3.5x7x0.5 in. (89x178x13 mm) wall, w/ball and socket pivot

Blade:	<b>Standard</b>	<b>Optional</b>
Length .....	13 ft. (3.96 m)	12 ft. (3.66 m)
Height .....	24 in. (610 mm)	24 in. (610 mm)
Thickness .....	0.88 in. (22 mm)	0.88 in. (22 mm)

Blade Lifting Mechanism:

Control .....	Dual lever, hydraulic
Cylinders (2) .....	3.5 in. (89 mm) dia. bore; 49 in. (1.25 m) stroke

Blade Range:

Lift above ground .....	17 in. (432 mm)
-------------------------	-----------------

Blade side-shift:

Right or left .....	26.9 in. (683 mm)
---------------------	-------------------

Shoulder reach outside wheels:

Right .....	92.5 in. (2 350 mm)
Left .....	92 in. (2 337 mm)
Pitch .....	35 deg. total

Lift arms:

Positions .....	7
Control .....	Hydraulic, foot operated

Frame:

Rear main frame .....	Flanged box section from articulation joint to main frame arch
Top and bottom plate, width .....	14 in. (356 mm)
thickness .....	0.875 in. (22 mm)
Side plates, minimum height .....	10.25 in. (260 mm)
thickness .....	0.50 in. (13 mm)
Weight per ft., min. ....	112 lb. (51 kg)
Minimum vertical-section modulus .....	127 inches cubed (323 cm cubed)

Front main frame ... Formed box section from main frame arch to front hood

Width .....	10 in. (254 mm)
Height, min. ....	13 in. (330 mm)
Thickness .....	0.625 in. (16 mm)
Weight per ft., min. ....	92.3 lb. (42 kg)
Minimum vertical section modulus .....	100 inches cubed (254 cm cubed)

Tandems: Welded steel box section 2 ft. 3 in. (686 mm) x 7.56 in. (192 mm)

Drive .....	2.00 in. (51 mm) pitch roller chain
Axle dia. at bearings .....	3.63 in. (92.2 mm) 3.35 in. (85.1 mm)

Front Axle: Fabricated steel box frame with steel spindles, tapered roller bearings

Diameter at bearing seats .....	3.5 in. (90 mm) 1.87 in. (48 mm)
---------------------------------	-------------------------------------

Total oscillation .....	30 deg.
Wheel lean (either direction) .....	20 deg.

Rear Drive Axle: Full floating with tapered roller bearings

Diameter at bearings .....	3.63 in. (92.2 mm)
----------------------------	--------------------

Tires .....	13.00 - 24, 10 and 12 ply-rating 8 in. (203 mm) rim
	14.00 - 24, 8, 10 and 12 ply-rating 8 or 10 in. (203 or 254 mm) rim
	17.5 - 25 and 12 ply-rating 14 in. (356 mm) rim

Scarifier (Special Equipment): V-type for 4 ft. (1.22 m) cut with 3 manual pitch positions

Number of teeth .....	5 (standard), 9 (possible)
Lift above ground .....	22 in. (559 mm)
Penetration .....	12 in. (305 mm)
Shank size .....	1.25x4.0 in. (31.7x102 mm)

Ripper (Special Equipment): 8 ft. (2.44 m) cut width, parallelogram linkage, 2 manual shank vertical positions.

Number of shank pockets .....	5
Number of shanks .....	3
Lift above ground .....	14.5 in. (368 mm)
Penetration .....	14 in. (356 mm)
Shank size .....	2x5 in. (51x127 mm)
Lift above ground (shank in upper position) .....	23.5 in. (597 mm)

Capacities:	<b>U.S.</b>	<b>Litres</b>
Fuel tank .....	70 gal.	265
Cooling system .....	10 gal.	37.8
Engine lubrication, including filter .....	22 qt.	21
*Transmission-hydraulic system .....	31 gal.	117
Tandem housings (each) .....	4 gal.	15
Worm gearbox .....	3 qt.	2.8

SAE

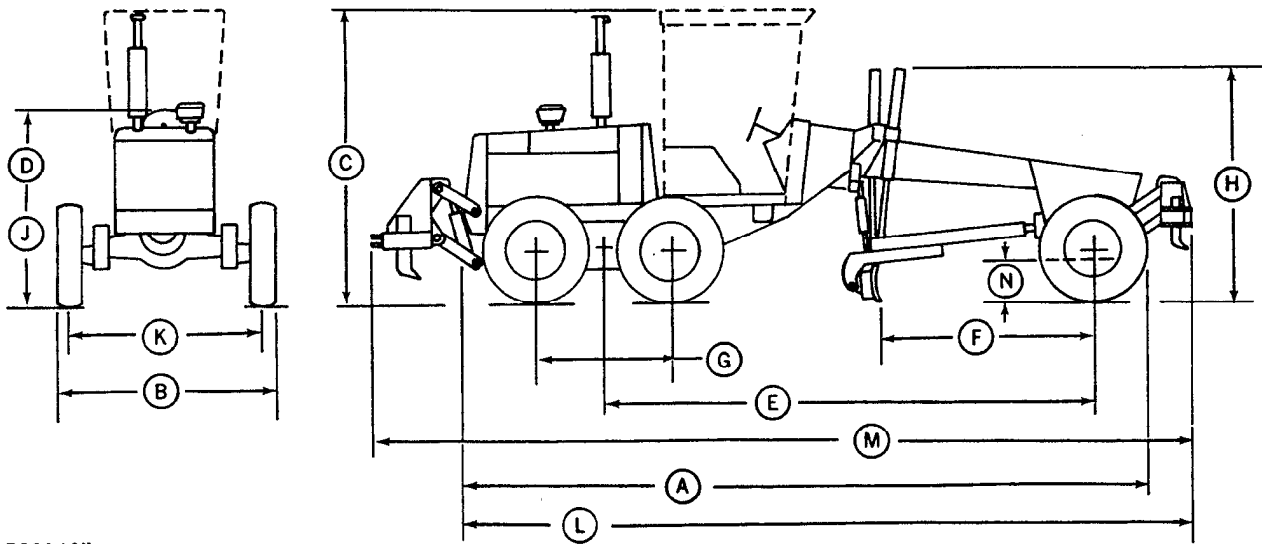
Operating Weight	On Front Wheels	On Rear Wheels	Total
Standard equipment .....	8,220 lb. (3 729 kg)	21,625 lb. (9 809 kg)	29,845 lb. (13 538 kg)

Standard equipment, and scarifier .....	9,434 lb. (4 279 kg)	21,626 lb. (9 809 kg)	31,059 lb. (14 038 kg)
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Standard equipment, scarifier and ripper .....	8,637 lb. (3 918 kg)	24,922 lb. (11 304 kg)	15,222 lb. (6 905 kg)
--	-------------------------	---------------------------	--------------------------

\*Includes approximately 8 gal. (30 L) for hydraulic cylinders, lines, filters, etc.





T38246N

**OVER-ALL DIMENSIONS**

- A. Length ..... 27 ft. 9.5 in. (8.47 m)
- B. Width (13.00 - 24 tires)  
    (Front and rear) ..... 7 ft. 10 in. (2.38 m)
- Width (17.5 - 25 tires)  
    (Front and rear) ..... 8 ft. 6 in. (2.59 m)
- Width (14.00 - 24 tires)  
    (Front and rear) ..... 8 ft. (2.44 m)
- C. Height (with Cab) ..... 10 ft. 6 in. (3.2 m)
- D. Height (w/o Cab - To Top of  
    Steering Wheel) ..... 90 in. (2.3 m)
- E. Wheel Base ..... 19 ft. 7 in. (5.97 m)
- F. Blade Base ..... 8 ft. 11 in. (2.72 m)
- G. Tandems (Center Line) ..... 5 ft. 0.7 ft. (1.54 m)
- H. Height (Top Lift Cylinders) ... 9 ft. 7 in. (2.92 m)
- J. Height (Top Air Cleaner) ..... 96 in. (2.4 m)

**OVER-ALL DIMENSIONS**

- K. Tread  
    (Front) (13.00 - 24 tires) .... 76.6 in. (1.94 m)
- (Front) (17.5 - 25 tires) .... 79.36 in. (2.01 m)
- (Front) (14.00 - 24 tires) .... 76.6 in. (1.94 m)
- (Rear) (13.00 - 24 tires) .... 79.61 in. (2.02 m)
- (Rear) (17.5 - 25 tires) .... 82.37 in. (2.09 m)
- (Rear) (14.00 - 24 tires) .... 79.61 in. (2.02 m)
- L. Length with Scarifier (In Up  
    Position) ..... 29 ft. 9 in. (9.07 m)
- M. Length with Scarifier and  
    Ripper (Both in Up  
    Position) ..... 32 ft. 1 in. (9.78 m)
- N. Front axle ground clearance  
    with 13.00 - 24 tires ..... 22 in. (559 mm)
- with 17.5 - 25 tires ..... 23.2 in. (589 mm)
- with 14.00 - 24 tires ..... 22.5 in. (571 mm)

**Additional Standard Equipment:**

- |   |   |
|---|---|
| Transistorized voltage regulator                | Gauges:                                 |
| Lights (2 white front with stop and tail-light) | Water temperature                       |
| Cigaret lighter                                 | Transmission temperature                |
| Horn  | Transmission pressure                   |
| Deluxe bucket seat                              | Engine-oil pressure                     |
| Front windshield wiper                          | Transmission lube                       |
| Floor mat                                       | Fuel                                    |
| Engine side shields                             | Pre-cleaner                             |
| Horn  | ROPS with cab and seat belt             |
| Turn signals                                    | Air filter indicator                    |
| Mechanical hour meter                           | Rear windshield wiper                   |
| Cold weather starting aid                       | Work lights (2 front and 2 rear floods) |

**Special Equipment:**

- |  |   |
|--|---|
| Scarifier                              | Heavy-duty batteries (2)<br>(620 min. reserve capacity) |
| Cab heater                             | Coolant heater  |
| Cab defroster fan                      | Bench seat  |
| ROPS canopy with seat belt             | 2 ft. (610 mm) moldboard extensions, right or left      |
| Rear mounted ripper with drawbar hitch | 13 ft. (3.96 m) moldboard                               |
| Below-cab blade lights                 | 14 ft. (4.27 m) moldboard                               |
| Reverse warning system                 | Engine disconnect                                       |
| 3-in. seat belt                        | Overlay end bits  |
| Articulation indicator                 | Transmission bottom guard                               |
|  | Drawbar hitch   |
|  | Tool box  |
|  | Sound-baffled engine side shields                       |

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