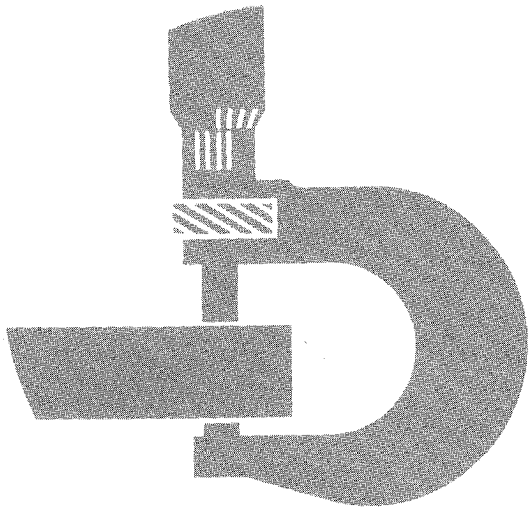
John Deere
762A
Scraper



TECHNICAL MANUAL

TM-1225
Litho in U.S.A. (T) NEW

762A SCRAPER
Technical Manual
TM-1225 (Jul-84)

SECTION AND GROUP CONTENTS OF THIS MANUAL

OOA
Litho in U.S.A.

SECTION AND GROUP CONTENTS OF THIS MANUAL—Continued

The specifications and design information contained in this manual were correct at the time it was printed. It is John Deere's policy to continually improve and update our machines. Therefore, the specifications and design information are subject to change without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

Litho in U.S.A.

ALPHABETICAL INDEX

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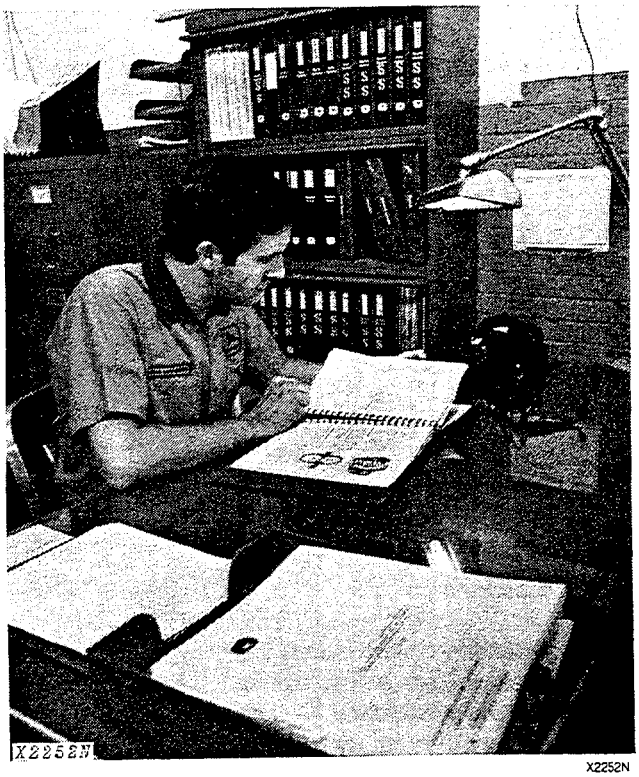
Group II
INTRODUCTION AND SAFETY INFORMATION
INTRODUCTION



X2252N

Use FOS Manuals for Reference

X2253N

Use Technical Manuals for Actual Service

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

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

•FOS Manuals—for reference

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

When a service technician should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the technical manual.

•Technical Manuals—for actual service

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.

This technical manual was written for you—an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Read it when you need to know correct service procedures or specifications.

Some features of this manual:

- Inside front cover - "Table of Contents".
- Section I - Contents, safety information, general specifications, general services and fuels and lubricants.
- Sections 1 through 42 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications are listed and illustrated at the end of each section.

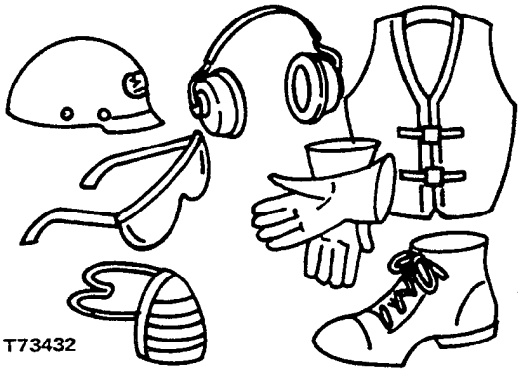
Litho in U.S.A.

MAINTENANCE WITHOUT ACCIDENT
WORK SAFELY

T27999N

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

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



T73432

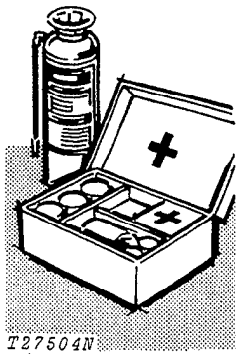
See your shop supervisor for specific instructions on a job, and the safety equipment you may need, such as:

- Hard hat
- Safety shoes
- Safety goggles
- Heavy gloves
- Reflector vest
- Hearing protectors
- Respirator

T27502N

BE ALERT!

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



T27504N

Maintenance Area

Make sure the maintenance area has enough ventilation.

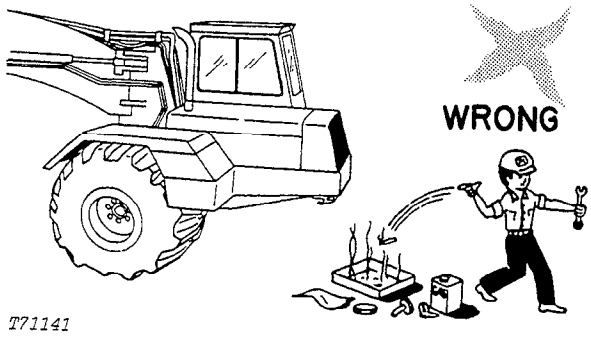
Keep the maintenance area CLEAN AND DRY. Oily and wet floors are slippery. Greasy rags are a fire hazard. When you work with electrical equipment, wet spots are dangerous.

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

MAINTENANCE WITHOUT ACCIDENT

AVOID FIRE HAZARDS

Fuel Is Dangerous!



Do not smoke while you fill the fuel tank.

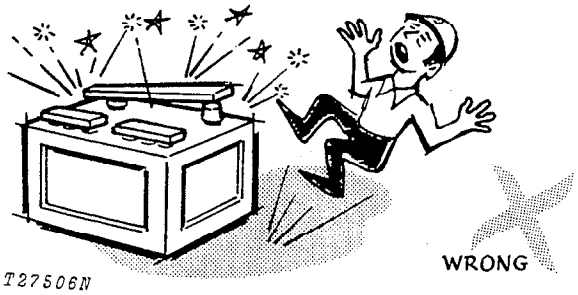
Do not smoke while you work with material that will start on fire easily.

Stop the engine before you fill the fuel tank.

Do not use gasoline or diesel fuel for cleaning parts. Use solvents that will not start on fire.

Battery Gas Is Highly Flammable!

When you charge a battery, be sure there is enough ventilation.



Do not put metal objects across terminals to check the battery charge.

Keep sparks and flames away from batteries.

Do not smoke near battery.

Flame Is Not a Flashlight!

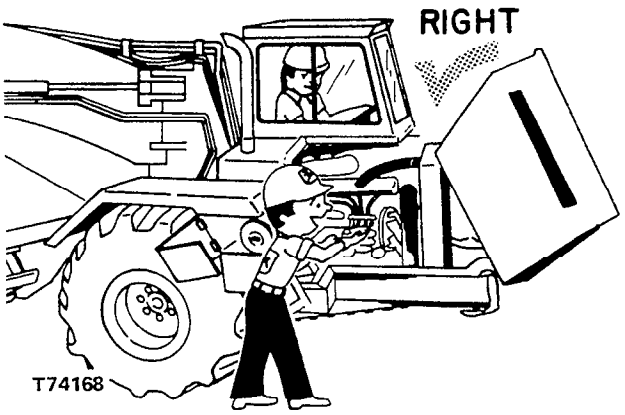
DO NOT USE OPEN FLAME AROUND THE MACHINE.

KNOW WHERE A FIRE EXTINGUISHER IS AND HOW TO USE IT.

UNDER ALL MAINTENANCE CONDITIONS—

Do not work on the equipment unless you are approved to do so. Then be sure you know the correct procedure.

Do not work on equipment while it is being operated.



When the engine is running, do not work on equipment unless the procedure is approved.

If you must work on the machine with the engine running, ALWAYS USE TWO service technicians. One must be at the controls. The other must be within sight of the operator.

Keep hands away from moving parts.

Put a support under all raised equipment.

Do not work under a raised bowl.

Lower the bowl to the ground.

If the machine is on a slope, use blocks to hold it in place.

Do not lift heavy parts by yourself. Use a hoist.

TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE AREA.

When you drill, grind, or hammer metal, wear safety glasses.

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BE CAREFUL DURING SERVICE AND REPAIR

T71143

Keep ALL equipment free of dirt and oil.

Clean oil, grease, mud, ice or snow from the operator's station, steps and hand rail.

When you get a machine ready for storage, remember that inhibitor changes easily into gas and is dangerous. After you add the inhibitor, seal and tape openings. When you are not using the inhibitor, keep the can tightly closed.

Do not remove the radiator cap unless the engine is cool. First, loosen the cap slowly to the stop. Then release all pressure in the cooling system before you remove the cap.

Check the exhaust system regularly for leaks.

Release hydraulic pressure before you work on the hydraulic system:

- Lower the bowl to the ground.
- Stop the engine.
- Move the steering wheel until the bowl does not move.

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

Before you work on the fuel system, close the fuel shutoff valve.

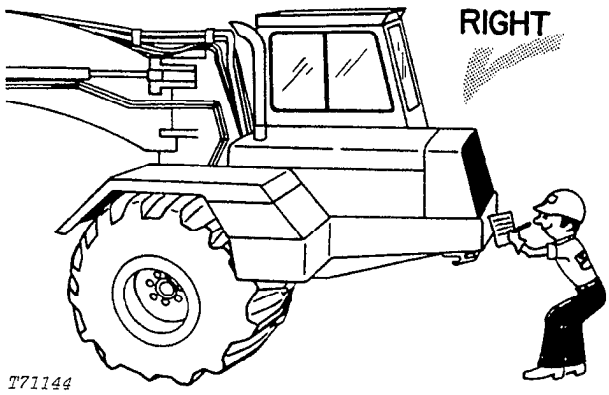
Before you work on the electrical system, or make major repairs, disconnect the battery ground strap.

KNOW EQUIPMENT IS READY!

All parts should be in good condition and fastened in place.

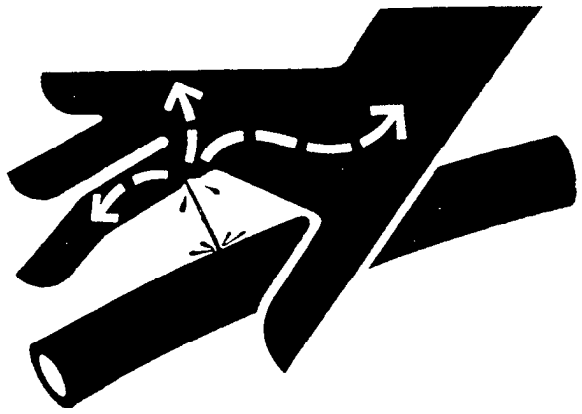
CHECK IT OUT!

- ☐ ROLL-OVER PROTECTIVE STRUCTURE
- ☐ SEAT BELT, ETC.



T71144

Carefully inspect all systems for leaks.



X9811

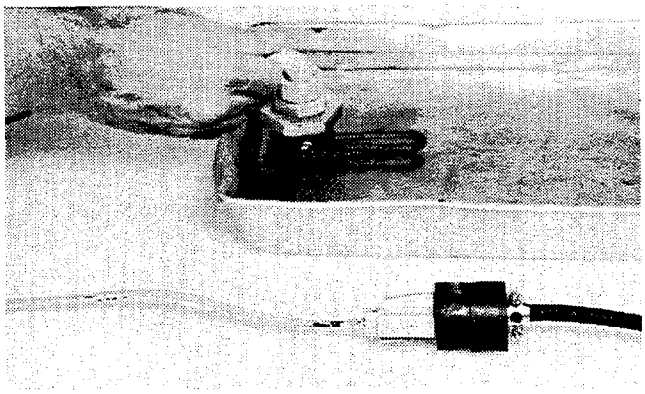
Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard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

Avoid possible injuiry 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, direction selector lever in neutral, and park brake applied.

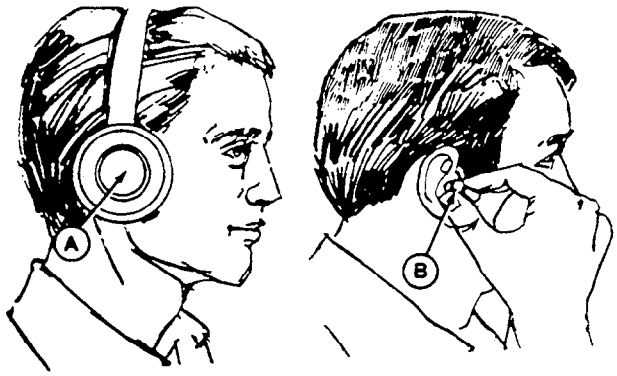


T87098

Test coolant heater in liquid only.

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

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



X7662

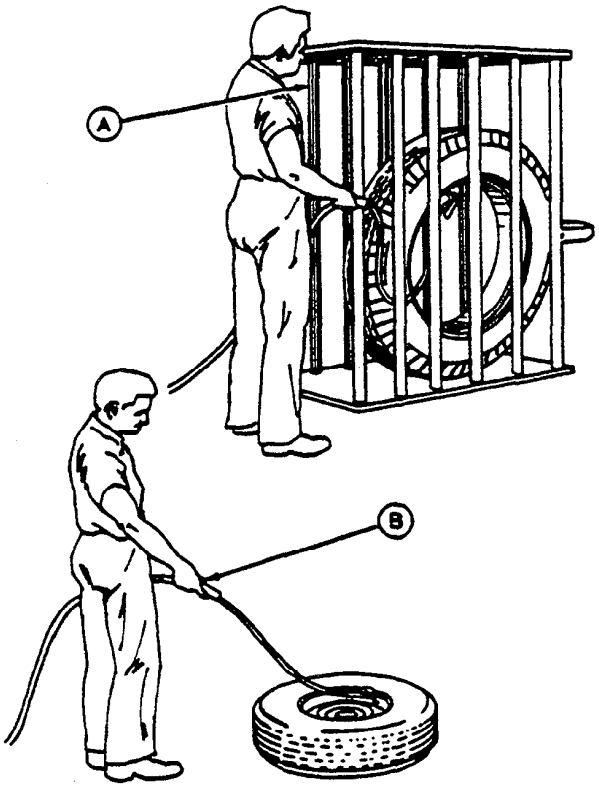
Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noise.

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.

T84920

If your machine has a roll-over protective structure, USE A SEAT BELT.

If your machine does not have a roll-over protective structure, DO NOT USE A SEAT BELT.



TS0123

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 tire 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.

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 23.5-25, 16 ply rating tires, ROPS canopy, full fuel tank, 175 lb. (80 kg) operator, and all standard equipment.)

Capacity (SAE heaped):
Volume ..... 11 cu. yd. (8.4 m³)
Total weight of payload
2500 lb./yd.³ (1483 kg/m³) 27,500 lb. (12 474 kg)

Power (@ 2100 engine rpm): **SAE** **DIN**
Gross ..... 190 hp (141.7 kW)
Net ..... 175 hp (130.5 kW) 177.5 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. altitude and 85°F temperature and DIN 70 020 standard conditions of 760 mm Hg barometer (sea level) and 20°C temperature. Engine maintains rated horsepower up to 7500 feet (2286 m) altitude.

Engine: John Deere turbocharged and intercooled diesel, 6-cylinder, 4-stroke cycle
Bore and stroke ..... 4.56x4.75 in. (116x121 mm)
Piston displacement ..... 466 cu. in. (7.6 L)
Compression ratio ..... 15.5 to 1
Maximum torque @
1300 rpm ..... 570 lb-ft (773 N·m) (78.8 kg-m)
NACC or AMA (U.S. Tax) horsepower 49.9
Main bearings 7
Lubrication ..... Pressure system w/full-flow filter
Cooling ..... Pressurized w/thermostat and controlled bypass
Fan ..... Suction
Aspirated air cleaner w/safety element and restriction indicator ..... Dry
Electrical system ..... 24 volt w/alternator
Batteries (two 12 volt) ..... Reserve capacity: 180 minutes

Torque Converter:
Two-phase single stage with 2.30 to 1 multiplication ratio, free-wheeling stator lockup clutch and automatic control.

Transmission:
Planetary Power-Shift, 6 forward, 1 reverse speeds. Microprocessor controlled, fully automatic shift with modulation.

Gear pump ..... 24 gpm (1.5 L/s) @ 2100 rpm for transmission lubrication, torque converter charge and transmission shift actuation.

Differential Lock ..... Foot-operated, hydraulically actuated

Drive Axle . . Differential drive; overall ratio 28.94 to 1; planetary final drives with 4.7 gpm (0.30 L/s) @ 2100 engine rpm for axle lubrication and differential lock actuation.

Brakes: Hydraulic, power actuated. An accumulator provides several brake applications after engine is stopped.

Tractor ..... Wet-disk between differential and planetaries. No adjustment needed.
Scraper . . . Expanding shoe, self-adjusting in wheels.
Parking ..... Manually controlled, mechanical, on axle input shaft.

Power Steering: Position-responsive
Articulated frame hydraulically actuated by dual cylinders.
Turning circle
(180 deg. turn) ..... 30 ft. (9.14 m)
Articulation ..... 180 deg.

Tractor Oscillation (total) ..... 27 deg.

Hydraulic System:
Main tractor system: Closed-center
System pressure ..... 2350 psi (16 203 kPa) (165.2 kg/cm²)
Operates steering, brakes, and all scraper functions except elevator drive.
Main pump . . . Variable displacement, constant pressure; delivers 34.6 gpm (2.18 L/s) @ 2100 engine rpm. Main charge pump delivers 13 gpm (0.82 L/s) @ 2100 engine rpm.
Elevator system . . . Engine-driven, 4.26 cu. in. (69.8 cm³) variable displacement, reversible hydrostatic pump delivers 36.6 gpm (2.31 L/s) @ 2100 engine rpm.
System pressure ..... 5000 psi (34 475 kPa) (351 kg/cm²)

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Filtration .....All systems are protected by replaceable filters.
Main hydraulic system ..... 10 micron filters
Elevator system ..... 10 micron filters
Transmission ..... 10 micron filters
Engine ..... 25 micron filters
Differential ..... 10 micron filters

Hydraulic Cylinders:	**Bore**	**Stroke**
Lift (2)	4.5 in. (114 mm)	18 in. (457 mm)
Sliding floor (1)	5.25 in. (133 mm)	30.1 in. (765 mm)
Ejector gate (2)	2.5 in. (64 mm)	34.8 in. (884 mm)
Steering (2)	3.5 in. (89 mm)	25.89 in. (658 mm)

Piston rods ... Ground, heat-treated, chrome plated, polished
Lift and steering cylinders ..... 2 in. (51 mm)
Sliding floor cylinder ..... 2.25 in. (57 mm)
Ejector gate cylinders ..... 1.50 in. (38 mm)

Elevator: ...Reversible, hydrostatic-drive with triple gear reduction
Number of flights 18
Spacing of flights ..... 12.44 in. (316 mm)
Width of flights ..... 5 ft. 6.9 in. (1.7 m)
Speed (variable) ..... 50 to 236 fpm (15-72 m/min)
Length (top to bottom) ..... 9 ft. 6 in. (2.9 m)

Bowl:...Heavy gauge steel with reinforcing and box construction. Sliding floor rides on heat-treated replaceable rails. Cutting edge retracts with sliding floor. Independent axles are vertically adjustable.

Cutting Edge:...7 ft. 6 in. (2.29 m) wide; 3 sections, reversible and replaceable, high-carbon steel. Each section is adjustable vertically 2 in. (51 mm).
Center section .. 0.75x10x54 in. (19x254x1372 mm)
End sections ..... 0.75x10x18 in. (19x254x457 mm)

Tires:
23.5-25, steel-cord radials
23.5-25, 16 ply rating, E2
23.5-25, 20 ply rating, E2

Capacities:	**U.S.**	**Imp.**	**Liters**
Cooling system	9 gal.	7.5 gal.	34.1
Fuel tank	72 gal.	60.0 gal.	272.5
Engine lubrication w/filter	19 qt.	15.8 qt.	18.0
Transmission w/filter	13 gal.	10.8 gal.	49.0
Differential case w/filter and hoses	23 qt.	19.1 qt.	21.8
Hyd. system w/hyd. filter and elevator filter	12 gal.	10.0 gal.	45.4
Elevator gearcase	13 qt.	10.8 qt.	12.6

Additional Standard Equipment:
Cigar lighter
Deluxe suspension seat
Cold weather starting aid
Fenders (tractor and scraper)
Gauges:
- Voltmeter
- Engine oil pressure
- Engine water temperature
- Fuel
- Hour meter
- Hydrostatic charge pressure
- Speedometer
- Tachometer
- Transmission lube pressure
- Transmission oil pressure
- Transmission oil temperature

Elevator charge pressure
Hitch, steering and rear frame central lube systems
Horn
Horizontal muffler
Indicator warning lights:
- Brake pressure
- Hydraulic filter
- Parking brake light and buzzer
- Transmission filter

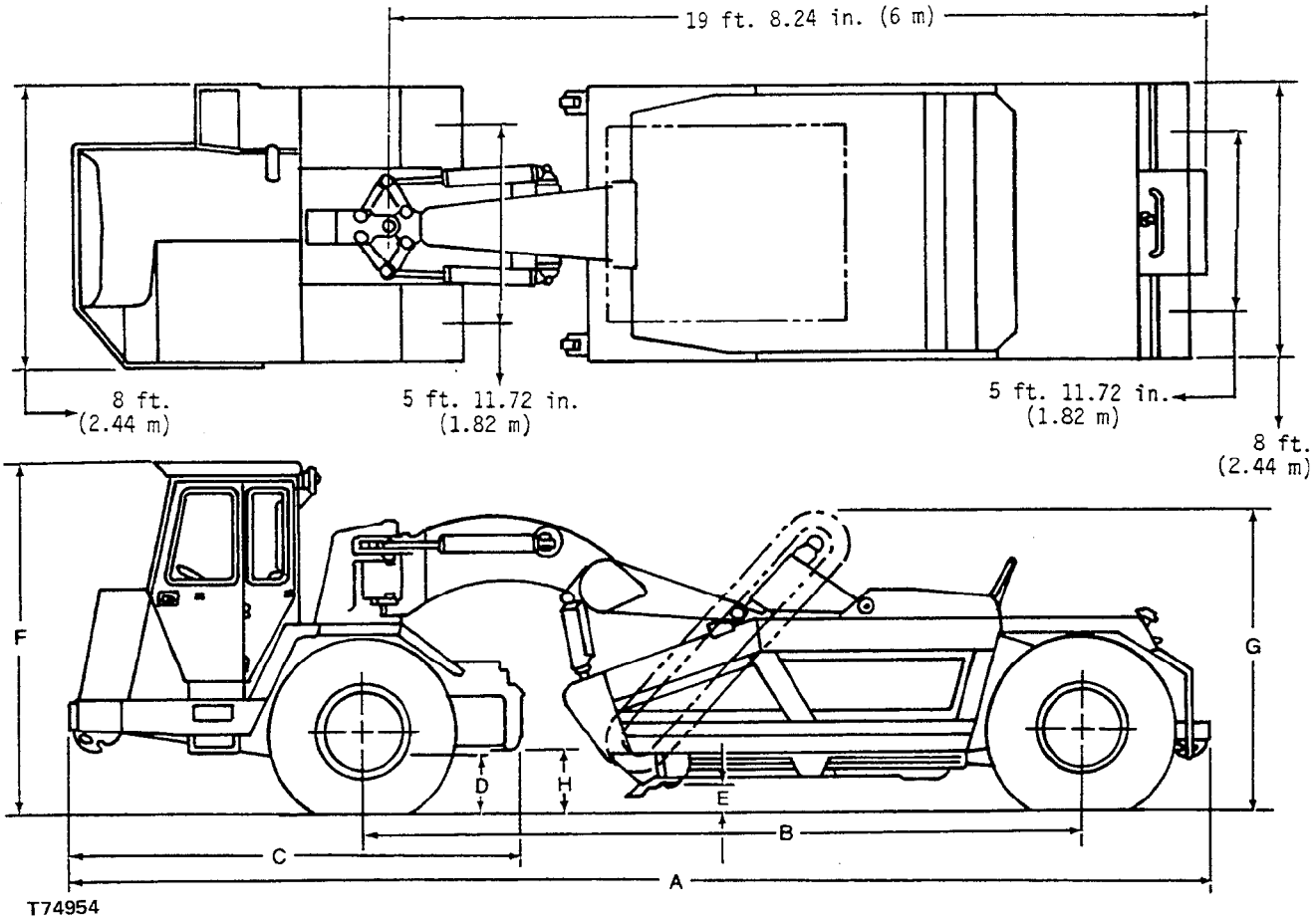
Lights (head and work)
Reverse warning alarm
ROPS canopy and seat belt
Windshield w/wiper
Turn signals and 4-way flasher
Vandal protection

Weight Distribution:		**lb.**	**kg**
Empty:	Drive axle	22,790	10 337
	Scraper axle	12,710	5 765
	Total	35,500	16 102
Loaded:	Drive axle	32,083	14 553
	Scraper axle	30,917	14 024
	Total	63,000	28 577

Special Equipment:
Air conditioner
Cab panels
Fender extensions and mud flaps for scraper wheels
Heater
Teeth for cutting edge
Extended side cutters
Ejector gate spill screen

Litho in U.S.A.

762A SCRAPER DIMENSIONS



	BOWL AT GROUND LEVEL	BOWL UP	BOWL LEVEL
A	32 ft. 9.5 in. (10 m)	32 ft. 2.5 in. (9.81 m)	32 ft. 5.4 in. (9.9 m)
B	21 ft. 0.25 in. (6.40 m)	20 ft. 4.1 in. (6.20 m)	20 ft. 7 in. (6.25 m)
C	12 ft. 11.5 in. (3.95 m)	13 ft. (3.96 m)	12 ft. 11.9 in. (3.96 m)
D (axle clearance)	18.5 in. (470 mm)	18.5 in. (470 mm)	18.5 in. (470 mm)
E	—	17.25 in. (438 mm) w/o teeth 15.50 in. (394 mm) w/teeth	12 in. (305 mm) w/o teeth 10 in. (254 mm) w/teeth
F	9 ft. 10 in. (3 m)	9 ft. 4 in. (2.84 m)	9 ft. 6.4 in. (2.90 m)
G	8 ft. 7 in. (2.62 m)	9 ft. 6 in. (2.89 m)	9 ft. 2 in. (2.79 m)
H (trans. clearance)	17.12 in. (435 mm)	21.9 in. (556 mm)	20 in. (508 mm)

CUSTOMARY HARDWARE TORQUE

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 chart below unless a special torque is specified.

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

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

Customary Hardware

Cap Screw Size-Inches	 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)

T88884

METRIC HARDWARE TORQUE SPECIFICATIONS

NOTE: Torques shown are for hardware with SAE 30W oil on threads.

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

Metric Standard Thread

Thread	8.8		10.9		12.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)
M5	5.9	(4.4)	7.9	(5.8)	9.8	(7.2)
M6	9.8	(7.2)	13.8	(10.2)	16.7	(12.3)
M8	24.6	(18.1)	34.4	(25.4)	40.2	(29.6)
M10	48.1	(35.5)	67.8	(50.0)	81.5	(60.1)
M12	84.4	(62.2)	118.0	(87.0)	142.0	(105.0)
M14	133.0	(98.0)	187.0	(138.0)	226.0	(167.0)
M16	206.0	(152.0)	290.0	(214.0)	348.0	(257.0)
M18	285.0	(210.0)	398.0	(294.0)	476.0	(351.0)
M20	402.0	(296.0)	570.0	(420.0)	677.0	(499.0)
M22	540.0	(398.0)	765.0	(564.0)	914.0	(674.0)
M24	697.0	(514.0)	980.0	(723.0)	1180.0	(870.0)

Metric Fine Thread

Thread	8.8		10.9		12.9	
	N·m	(lb-ft)	N·m	(lb-ft)	N·m	(lb-ft)
M8 x 1	26.5	(19.5)	37.3	(27.5)	44.2	(32.6)
M10 x 1	47.1	(34.7)	68.8	(50.7)	81.5	(60.1)
M12 x 1.5	88.4	(65.2)	123.0	(91.0)	147.0	(108.0)
M14 x 1.5	147.0	(108.0)	206.0	(152.0)	246.0	(181.0)
M16 x 1.5	221.0	(163.0)	309.0	(228.0)	373.0	(275.0)
M18 x 1.5	319.0	(235.0)	451.0	(333.0)	540.0	(398.0)
M20 x 1.5	451.0	(333.0)	628.0	(463.0)	755.0	(557.0)
M22 x 1.5	559.0	(442.0)	845.0	(623.0)	1030.0	(760.0)
M24 x 2	765.0	(564.0)	1080.0	(796.0)	1275.0	(940.0)
M26 x 2	1130.0	(833.0)	1570.0	(1158.0)	1915.0	(1412.0)

T5859AD

TUBE AND HOSE FITTING, 37° FLARE AND 30° CONE SEAT CONNECTOR SERVICE RECOMMENDATIONS

1. Inspect the flare and the flare seat. They must be free of dirt and defects. If repeated leaks occur, inspect for defects with a magnifying glass. If burrs and raised nicks on the connector body cannot be removed with a slip stone, replace the connector.

2. Defects in the tube flare cannot be repaired. Replace the tube. Overtightening a defective flared fitting will not stop leaks.

3. As a field repair, a ductile truncated cone shaped washer can be used between the tube flare and connector body. These washers are soft enough to fill defects in the seat and flare. They will also seal the connection. Ductile washers are available from industrial supply houses.

4. Align the tube with the fitting before attempting to start the nut. Failure to do so can cause a deformed flare and subsequent leaks. Install hoses without twists. A twisted hose attempts to straighten out when pressure is applied. This exerts a torque on the connection, eventually causing failure.

5. Lubricate the connection with hydraulic fluid, petroleum jelly or soap. Tighten the swivel nut by hand until it is snug.

6. Mark a line across the nut and connector body. This line will serve as a visual indicator as to whether the nut has been tightened and by how much.

7. Using two wrenches, one on the connector body and a torque wrench on the nut, tighten the nut to the torque value as shown in the chart. In the case of a hose, it may be necessary to use three wrenches to prevent twisting.

TUBE AND HOSE FITTING, 37° FLARE AND 30° CONE SEAT CONNECTOR TORQUE

Thread Size	Torque[1] N·m	Torque[1] (lb-ft)	New[2] Number of Flats	Used[3] Number of Flats
3/8-24 UNF	8	(6)	2-1/2	1
7/16-20 UNF	12	(9)	2-1/2	1
1/2-20 UNF	16	(12)	2-1/2	1
9/16-18 UNF	24	(18)	2	1
3/4-16 UNF	46	(34)	2	1
7/8-14 UNF	62	(46)	1-1/2	1
1-1/16-12 UN	102	(75)	1	3/4
1-3/16-12 UN	122	(90)	1	3/4
1-5/16-12 UN	142	(105)	3/4	3/4
1-5/8-12 UN	190	(140)	3/4	3/4
1-7/8-12 UN	217	(160)	1/2	1/2

1. Tolerance of ± 10%.

2. To be used if a torque wrench cannot be used. After tightening fitting by hand, put a mark across the fittings, then tighten fitting the number of flats shown.

3. Flare connection seal by deforming or squeezing the tube between the nut and the connector. More deformation is possible with new parts than with old. Therefore, if a torque wrench is not used for re-assembly, the values in this column must be used to prevent damage.

T5859AE

O-RING BOSS FITTING SERVICE RECOMMENDATIONS

1. Inspect boss O-ring seat. It must be free of dirt and defects. If repeated leaks occur, inspect for defects with a magnifying glass. Some raised defects can be removed with a slip stone.

Occasionally a lower durometer O-ring will seal against a rough seat. If neither of these solutions work, the component must be replaced.

2. Put hydraulic oil, petroleum jelly or soap on the O-ring. Put a thimble over the threads to protect O-ring from nicks. Slide O-ring over the thimble and into the turned down section of fitting.

For angle fittings, loosen special nut and push special washer against threads so O-ring can be installed into the turned down section of fitting.

3. Turn fitting into the boss by hand until special washer or washer face (straight fitting) contacts boss face and O-ring is squeezed into its seat.

4. To position angle fittings, turn the fitting counterclockwise a maximum of one turn.

5. Tighten straight fittings to the torque valve shown in chart. For angle fittings, tighten the special nut to valve shown in the chart while holding body of fitting with a wrench.

STRAIGHT FITTING OR SPECIAL NUT TORQUE (1)

Thread Size	Torque[1] N·m	(lb-ft)	Number Of Flats[2]
3/8-24 UNF	8	(6)	2
7/16-20 UNF	12	(9)	2
1/2-20 UNF	16	(12)	2
9/16-18 UNF	24	(18)	2
3/4-16 UNF	46	(34)	2
7/8-14 UNF	62	(46)	1-1/2
1-1/16-12 UNF	102	(75)	1
1-3/16-12 UNF	122	(90)	1
1-5/16-12 UNF	142	(105)	3/4
1-5/8-12 UNF	190	(140)	3/4
1-7/8-12 UNF	217	(160)	1/2

1. Tolerance ± 10%.

2. To be used if a torque wrench cannot be used. After tightening fitting by hand, put a mark on nut and boss; then tighten special nut or straight fitting the number of flats shown.

T5859AG

SAE FOUR BOLT FLANGE FITTING SERVICE RECOMMENDATIONS

1. Inspect the sealing surfaces for nicks or scratches, roughness or out-of-flat condition. Scratches cause leaks. Roughness causes seal wear. Out-of-flat causes seal extrusion. If these defects cannot be polished out, replace the component.

2. Install the correct O-ring (and backup washer if required) into the groove using petroleum jelly to hold it in place.

3. For split flange; loosely assemble split flange halves, being sure that the split is centrally located and perpendicular to the port. Hand tighten cap screws to hold parts in place. Do not pinch O-ring.

4. For single piece flange; put hydraulic line in the center of the flange and install four cap screws. With the flange centrally located on the port, hand tighten cap screws to hold it in place. Do not pinch O-ring.

5. For both single piece flange and split flange, be sure the components are properly positioned and cap screws are hand tight. Tighten one cap screw, then tighten the diagonally opposite cap screw. Tighten the two remaining cap screws. Tighten all cap screws within the specified limits shown in the chart.

DO NOT use air wrenches. DO NOT tighten one cap screw fully before tightening the others. DO NOT overtighten.

SAE FOUR BOLT FLANGE FITTING TORQUE

Nominal Flange Size	Cap Screw Size[1]	Torque[2] N·m Min.	N·m Max.	(lb-ft) Min.	(lb-ft) Max.
1/2	5/16 - 18 UNC	20	31	(15)	(23)
3/4	3/8 - 16 UNC	28	54	(21)	(40)
1	3/8 - 16 UNC	37	54	(27)	(40)
1-1/4	7/16 - 14 UNC	47	85	(35)	(63)
1-1/2	1/2 - 13 UNC	62	131	(46)	(97)
2	1/2 - 13 UNC	73	131	(54)	(97)
2-1/2	1/2 - 13 UNC	107	131	(79)	(97)
3	5/8 - 11 UNC	158	264	(117)	(195)
3-1/2	5/8 - 11 UNC	158	264	(117)	(195)
4	5/8 - 11 UNC	158	264	(117)	(195)
5	5/8 - 11 UNC	158	264	(117)	(195)

1. SAE Grade 5 or better cap screws with plated hardware.

2. Tolerance ± 10%. The torques given are enough for the given size connection with the recommended working pressure. Torques can be increased to the maximum shown for each cap screw size if desired. Increasing cap screw torque beyond this maximum will result in flange and cap screw bending and connection failures.

T5859AF

O-RING FACE SEAL FITTING SERVICE RECOMMENDATIONS

1. Inspect the sealing surfaces for nicks or scratches, roughness, or out-of-flat condition. Scratches cause leaks. Roughness causes seal wear. Out-of-flat causes seal extrusion. If these defects cannot be polished out, replace the component.

2. Lubricate O-ring and male threads with petroleum jelly.

For O-ring face seal fittings, push O-ring into groove.

For O-ring boss fittings, put a thimble over the threads to protect O-ring from nicks. Slide O-ring over the thimble and into the turned down section of fitting.

For angle fittings, loosen special nut and push special washer against threads so O-ring can be installed into the turned down section of fitting.

3. Install fitting and hand tighten until snug. To position angle fittings, turn fitting counterclockwise a maximum of one turn.

4. Tighten fitting for nut to the torque value shown in chart. Use one wrench to hold connector body and another wrench to tighten nut. When tightening a fitting on a hose, it may be necessary to use three wrenches to prevent twisting hose; one on the connector body, one on the nut, and one on the body of the hose fitting.

O-RING FACE SEAL FITTING TORQUE (1)

Nominal Tube O.D.			O-Ring Face Seal End					O-Ring Boss End		
			Thread	Swivel Nut Torque		Bulkhead Nut Torque		Thread	Straight Fitting or Jam Nut Torque	
mm	in.	Dash Size	Size in.	N·m	lb-ft	N·m	lb-ft	Size in.	N·m	lb-ft
4.76	0.188	-3	— — —	—	—	—	—	3/8-24	8	6
6.35	0.250	-4	9/16-18	16	12	5.0	3.5	7/16-20	12	9
7.94	0.312	-5	— — —	—	—	—	—	1/2-20	16	12
9.52	0.375	-6	11/16-16	24	18	9.0	6.5	9/16-18	24	18
12.70	0.500	-8	13/16-16	50	37	17.0	12.5	3/4-16	46	34
15.88	0.625	-10	1-14	69	51	17.0	12.5	7/8-14	62	46
19.05	0.750	-12	1-3/16-12	102	75	17.0	12.5	1-1/16-12	102	75
22.22	0.875	-14	1-3/16-12	102	75	17.0	12.5	1-3/16-12	122	90
25.40	1.000	-16	1-7/16-12	142	105	17.0	12.5	1-5/16-12	142	105
31.75	1.250	-20	1-11/16-12	190	140	17.0	12.5	1-5/8-12	190	140
38.10	1.500	-24	2-12	217	160	17.0	12.5	1-7/8-12	217	160

1. Tolerance: ± 15-20%.

T5859AH