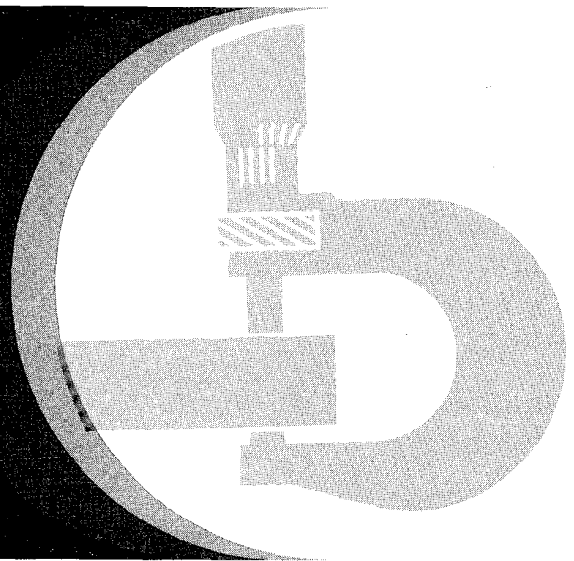


**John Deere
JD750
Crawler Bulldozer**



TECHNICAL MANUAL

**John Deere Dubuque Works
TM-1136 (Mar-84)**



Litho in U.S.A.

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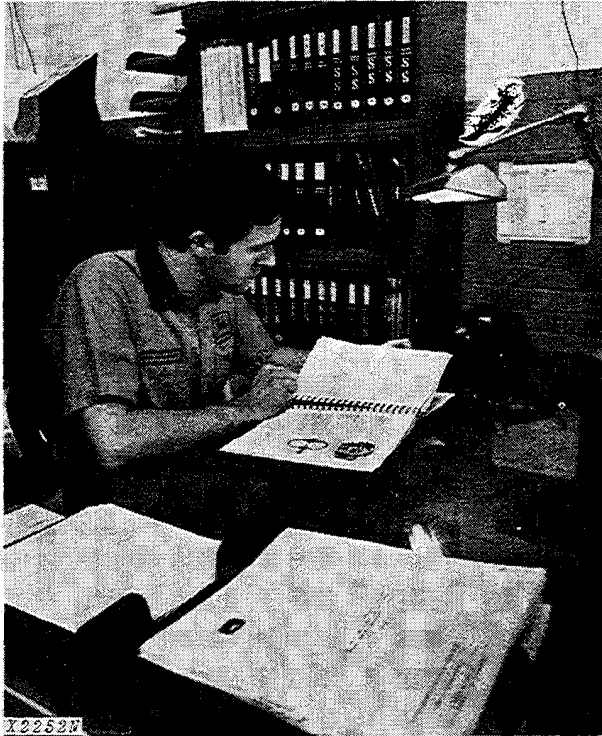
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Group II INTRODUCTION AND SAFETY INFORMATION

INTRODUCTION



Use FOS Manuals for Reference

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 TM to identify the reference.

•Technical Manuals—for actual service

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

Litho in U.S.A.



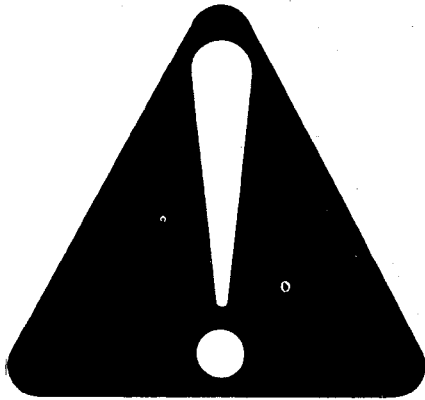
Use Technical Manuals for Actual Service

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 whenever in doubt about correct service procedures or specifications.


Some features of this manual:

- Inside front cover - "Table of Contents".
- Section 1 - Contents, safety information, general specifications and general services.
- 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 grouped and illustrated at the end of each section.

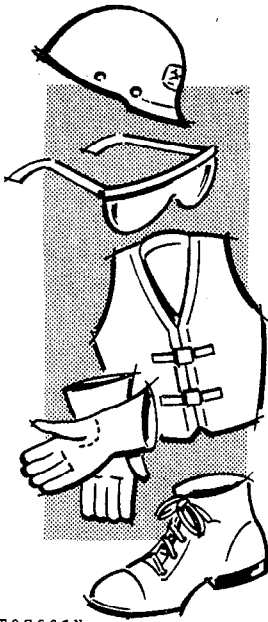
MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27999N

 This safety alert symbol is used for important safety messages. When you see this symbol, the possibility of personal injury exists if safety message is not followed.

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



T27501N

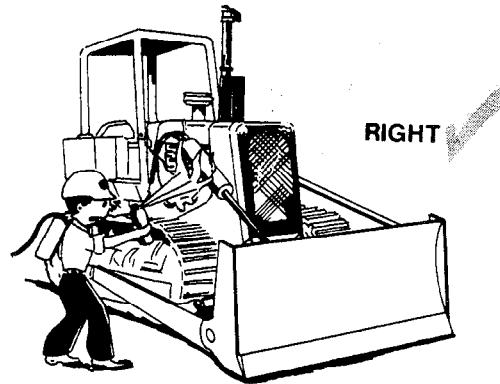
Consult your shop supervisor for specific instructions on a job, and the safety equipment required.

For instance, you may need: Hard hat, safety shoes, safety goggles, heavy gloves, reflector vests, ear protectors, respirators.



T27502N

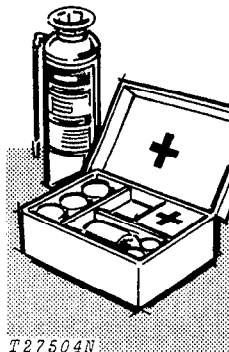
ALWAYS AVOID loose clothing or any accessory—flopping cuffs, dangling neckties and scarves, or rings and wrist watches—that can catch in moving parts and put you out of work.



T43666

BE ALERT!

Plan ahead — work safely — avoid accidental damage and injury. If a careless moment does cause an accident or fire, react quickly with the tools and skills at hand — know how to use a first aid kit and a fire extinguisher — and where to get aid and assistance. In an emergency, split-second action is the key to safety.



T27504N

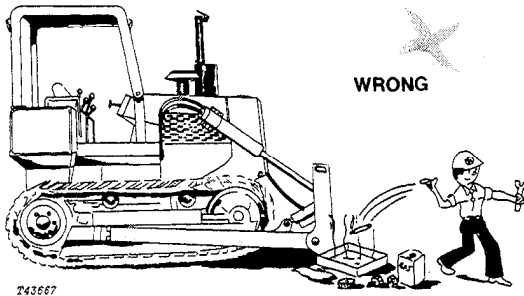
MAINTENANCE WITHOUT ACCIDENT

Specific safety procedures should always be observed, whether servicing or making repairs on the crawler. Remembering these—in time!—can prevent an injury...or save your life....

AVOID FIRE HAZARDS—

Fuel Is Dangerous!

- 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.



- 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 check fuel, battery electrolyte or coolant levels with an open flame.
- Never use an open flame to look for leaks anywhere on the equipment.

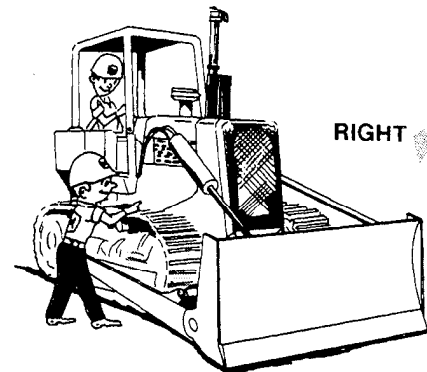
Never use an open flame as a light anywhere on or around the equipment.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

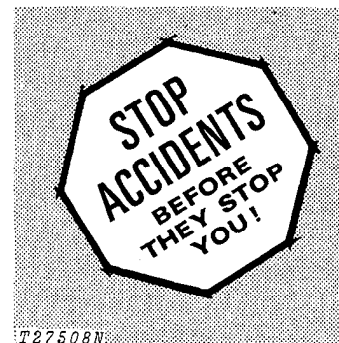
UNDER ALL MAINTENANCE CONDITIONS—

Do not perform any work on the crawler unless authorized to do so. Then be sure you understand the services required. Follow recommended procedures.

Never service the equipment while it is being operated.



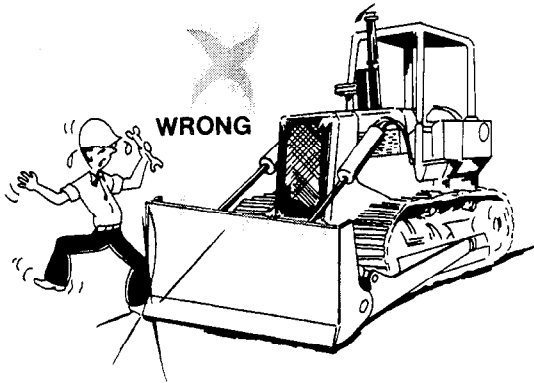
Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, **ALWAYS USE TWO SERVICE TECHNICIANS**—one, the operator, at the controls, the other checking in view of the operator. Also, put the transmission in neutral, set the parking brake, and apply any safety locks provided. **KEEP HANDS AWAY FROM MOVING PARTS.**



MAINTENANCE WITHOUT ACCIDENT

Before servicing, adjusting, or repairing crawlers which have attachments such as blades, etc.—**LOWER** attachments to the ground—or, if necessary to raise them for access to certain parts, **SECURELY SUPPORT** by external means. **DO NOT** rely on controls to support or position attachments for maintenance.

Never allow **ANYONE** to walk under equipment that is raised and not properly blocked.



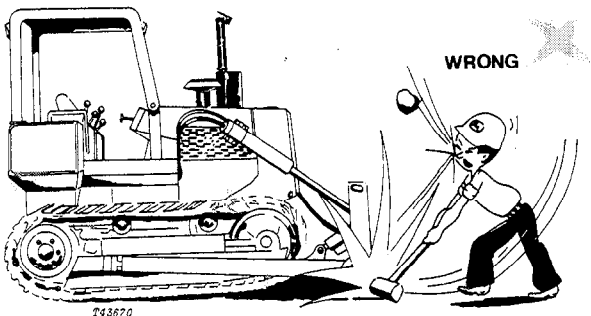
T43669

Avoid working directly under raised and blocked equipment unless absolutely necessary.

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

Use hoisting equipment for lifting heavy parts. **TAKE CARE! WATCH OUT FOR OTHER PEOPLE IN THE VICINITY.**

Use extreme caution in removing radiator caps, drain plugs, grease fittings, or hydraulic pressure caps.



T43670

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

Make sure the maintenance area is adequately vented.

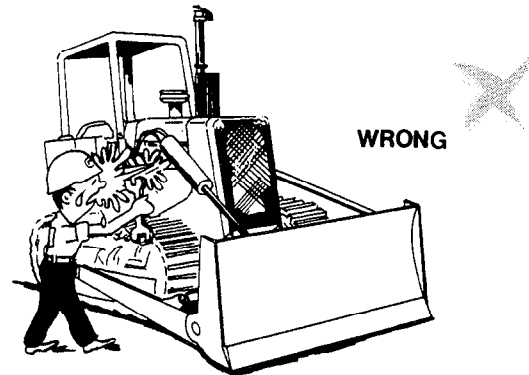
Keep maintenance area **CLEAN AND DRY**. Oily and wet floors are slippery; greasy rags are a fire hazard; wet spots are dangerous when working with electrical equipment.

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

SERVICING PRECAUTIONS

Stop the engine before cleaning or lubricating the crawler.

Lower blade and ripper to the ground *carefully*.



T43672

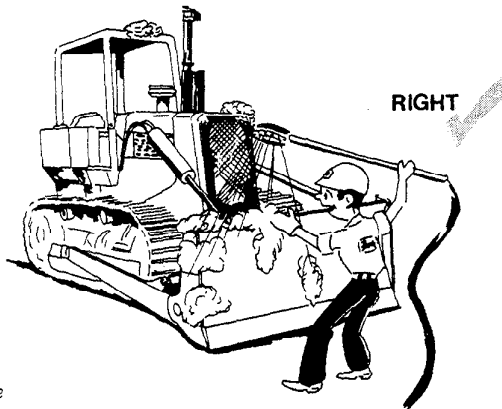
Engine coolant gets hot! Don't remove the radiator cap until coolant temperature is below the boiling point. Then turn cap slightly to relieve pressure before removing.

Exhaust gases are dangerous! Periodically check exhaust system for excessive leakage.

Don't forget a hydraulic system may be pressurized! To relieve system pressure, stop engine, lower blade and ripper and operate blade and ripper control levers until system fails to respond.

When checking hydraulic pressure, be sure to use the correct test gauge for the pressure in the particular system.

MAINTENANCE WITHOUT ACCIDENT



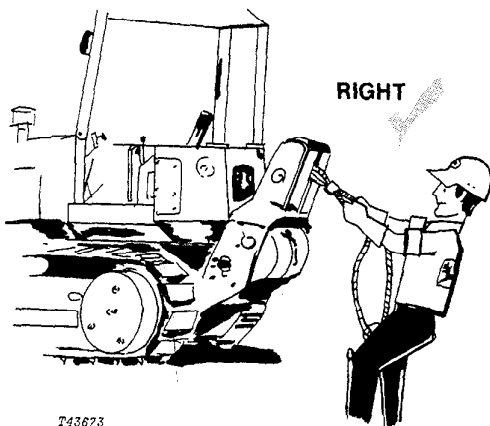
Keep ALL components free of dirt and oil. This attention will minimize fire hazards and facilitate spotting of loose or defective parts.

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.

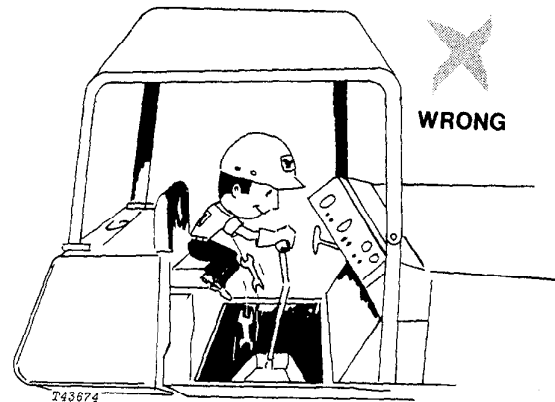
ADJUSTING PRECAUTIONS

....for Operating Adjustments

Before making adjustments, stop engine.



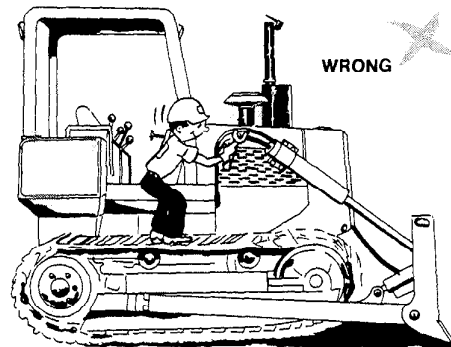
Always wear gloves when handling cable.



Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

....for Maintenance Adjustments

Don't attempt to check belt tension while the engine is running.

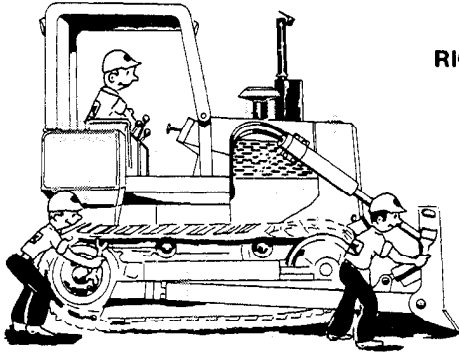


Don't adjust the fuel system while the machine is in motion.

MAINTENANCE WITHOUT ACCIDENT

PRECAUTIONS DURING REPAIR

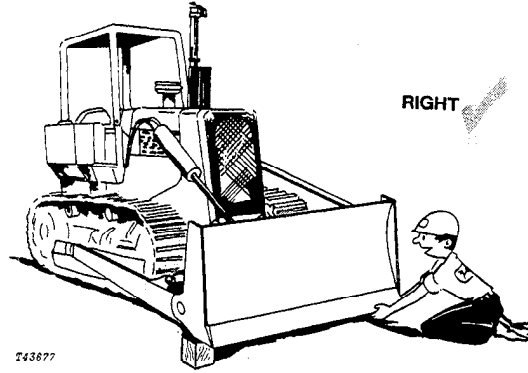
Before working on the engine fuel system—close fuel shutoff valve.



T43576

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.

Stop the engine and securely block the blade.



T43677

Never let your bare hands come in contact with sharp edges. WEAR GLOVES.

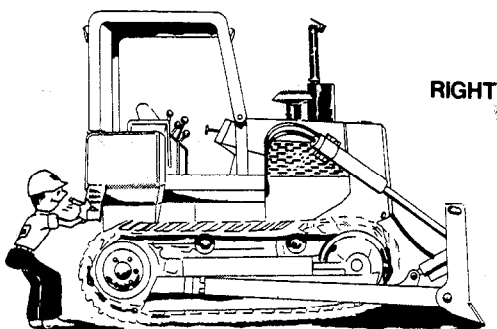
MAINTENANCE WITHOUT ACCIDENT

KNOW EQUIPMENT IS READY!

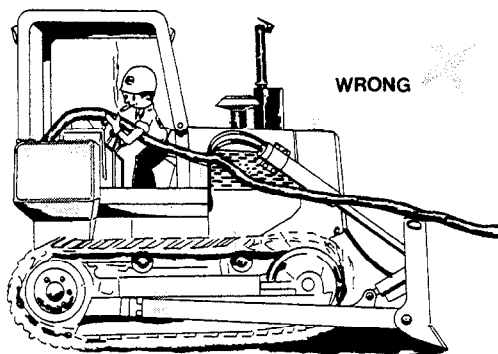
Check guards, ROPS, safety bars—all protective devices installed on the crawler. Every one should be in place and secure.

CHECK IT OUT!

- GUARDS
- SHIELDS
- PROTECTIVE DEVICES
- ROLL-OVER PROTECTIVE STRUCTURES
- SEAT BELTS
- FIRE EXTINGUISHER, ETC.

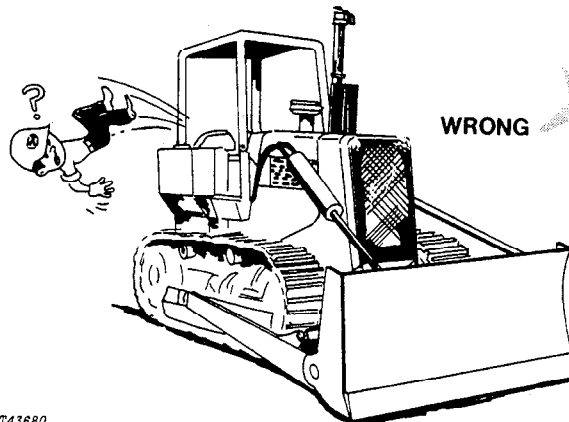


Carefully inspect equipment for visual defects—leaks in fuel, lubrication, and hydraulic systems. Do not search for pressurized fluid leaks with your hands. Use cardboard or wood to search for leaks.



Check levels of fuel, coolant, hydraulic fluid, and lubricating oil. If fuel must be added—**FIRST, PUT OUT THAT CIGARET.**

Check and secure all caps and filler plugs for fuel, oils, radiator, etc.



Be sure to clean any oil, grease or mud accumulation from floor of operator's compartment, stepping points, and grab rails to minimize the danger of slipping.

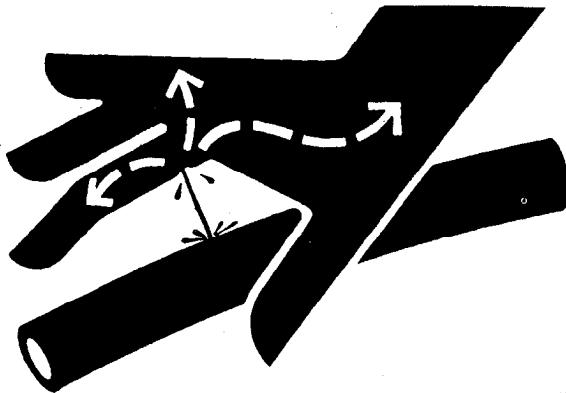
In freezing weather beware of snow or ice deposits on stepping points, grab rails, and floor.

Remove loose bolts, tools, or other objects from floor of operator's compartment.

Although it is impractical to try to cover every possible maintenance situation, the safety precautions recommended here should serve to develop and promote safe maintenance procedures.

The information contained in this manual is not intended to replace safety codes, insurance requirements, federal, state, and local laws, rules and regulations. In particular, your service area or jobsite activities may be subject to state safety rules and/or federal regulation under the Occupational Safety and Health Act (OSHA). Familiarize yourself with all regulations applicable to your situation in order to avoid possible safety violations.

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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.

High pressure may be present in track cylinder. If grease does not immediately escape from vent hole, drive crawler forward and backward slowly, then tighten check valve.

Use extreme care when servicing area of track adjuster and recoil spring. Do not attempt to disassemble without proper tools and knowledge of disassembly procedure.

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.

Prevent Fires Before Starting Engine

Check the fire extinguisher for correct charge.

Open both side shields and grille and remove trash.

Remove trash from bottom guards, drive lines, batteries, hydraulic lines, fuel tank and operator's station.

Check for leaking fuel lines, hydraulic lines, hoses, or fittings with a piece of cardboard or wood. Do not use your hands. Tighten loose fittings. If lines are bent or hoses kinked, install new parts.

Prevent Fires After Stopping Engine

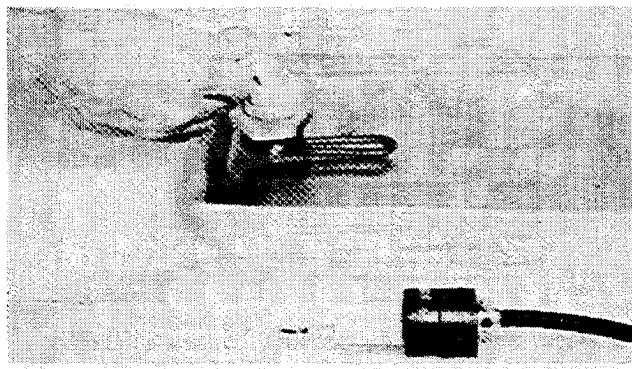
Temperature in engine compartment may go up immediately after you stop the engine. **BE ON GUARD FOR FIRES.**

Before you clean trash from the engine compartment, wait until the engine has cooled. Open side shields to cool the engine faster. While the engine cools, clean trash from other areas.

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.



T87098

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.

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 roll-over protective canopy, 18 in. (457 mm) grousers, full fuel tank, 175 lb (79 kg) operator, and standard equipment.

Power (@ 2100 rpm):	SAE	
Gross	122 hp (91 kW*)	
Net	110 hp (82 kW*)	111.5 PS

Net engine flywheel power is for an engine equipped with fan, air cleaner, water pump, lubricating oil pump, fuel pump, alternator and muffler. The gross engine power is without fan. Flywheel power ratings are under SAE standard conditions of 500 ft. (150 m) altitude and 85°F (29°C) temperature, and DIN 6270 conditions (non-corrected). No derating is required up to 10,000 feet (3 000 m) altitude.

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

Engine:

John Deere 6-cylinder turbocharged diesel, valve-in-head, 4-stroke cycle.

Bore and stroke	4.19x5 in. (106.4x127 mm)
Piston displacement	414 cu. in. (6 784 cm ³)
Compression ratio	16.2 to 1
Maximum torque @ 1300 rpm	345 lb-ft (468 N·m) (48 kg/m)
NACC or AMA (U.S. Tax) horsepower	42
Lubrication	Pressure system with full flow filters
Main bearings	7
Cooling	Pressurized with thermostat and controlled bypass
Fan	Blower
Air cleaner with restriction indicator	Dry, dual stage
Electrical system	24 volt with alternator
Batteries, two-12 volt	Reserve capacity: 180 minutes each

Transmission:

Cold weather starting . . . Disconnect clutch completely disengages splitter drive, hydrostatic drive and all hydraulics.

Splitter drive . . . Pressure-lubricated helical gears drive both hydrostatic transmissions, main hydraulic pump, winch drive shaft and auxiliary pump drive.

Drive . . . Dual-path, fully automatic, infinitely variable hydrostatic transmissions.

Speeds . . . Infinite from 0 to 6.5 mph (0 to 10.5 km/h) forward or reverse.

Control . . . Single, lever, variable speed, forward and reverse.

Steering:

Fully modulated, infinitely variable lever steering for live power turns and counter-rotation. Pedal steering optional. No need for steering clutches or steering brakes.

Brakes:

Service . . . Hydrostatic

Parking . . . Wet-disk brakes are automatically applied when engine is stopped, or manually applied with center foot pedal during normal operation.

Drawbar pull:

Maximum drawbar pull	47,500 lb. (213 kN) (21 550 kg)
	at 0.30 mph (0.48 km/h)

Usable pull will depend on traction and weight of the tractor.

Capacities:	U.S.	Liters
Cooling system	7 gal.	26.5
Fuel tank	73 gal.	276.3
Crankcase	18 qt.	17.0
Crankcase, including filter	20 qt.	18.9
Splitter drive	1.5 gal.	5.7
Final drive, each: 1st reduction	8.5 gal.	32.2
2nd reduction	3.5 gal.	13.2
Hydraulic system	33 gal.	124.9
Hydrostatic drives	33 gal.	124.9
SAE Operating Weight w/ROPS	29,390 lb. (13 330 kg)	

750 WIDE-TRACK BULLDOZER

Hydraulic System: Open-center

Control Single-lever, two-function control
 Pump Vane, 38 gpm (2.40 L/s) @ rated engine speed
 Pressure 2000 psi (13 790 kPa) (140.6 kg/cm²)

Hydraulic Cylinders:	Bore	Stroke
Lift, two	4.25 in. (108 mm)	31.85 in. (809 mm)
Tilt, one	5.5 in. (140 mm)	5.71 in. (145 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	
Cylinder pivot pins	Hardened steel (replaceable bushings)	

Tracks: 6-roller track frame w/front and rear track guides and sprocket guard. DURA-TRAX™ deep-heat-treated sealed track links and through-hardened sealed rollers provide maximum wear resistance.
 Grouser 34 in. (864 mm)
 Track shoes, each side 40
 Ground contact area 6120 sq. in. (39 484 cm²)
 Ground pressure 5.1 psi (35.2 kPa) (0.358 kg/cm²)
 Length of track on ground 90 in. (2.29 m)
 Track gauge 74 in. (1.88 m)
 Oscillation 10 in. (254 mm)
 Carrier rollers 2 each side
 Adjustment Hydraulic
 Minimum ground clearance 14 in. (356 mm)

Blade:

Cutting edge	3-piece
Center section	0.75 in. (19 mm)
End bits, boron steel	0.75 in. (19 mm)

Capacities:	U.S.	Liters
Cooling system	7 gal.	26.5
Fuel tank	73 gal.	276.3
Crankcase	18 qt.	17.0
Crankcase, including filter	20 qt.	18.9
Splitter drive	1.5 gal.	5.7
Final drive, each: 1st reduction	8.5 gal.	32.2
2nd reduction	4.5 gal.	17.0
Hydraulic system	33 gal.	124.9
Hydrostatic drives	33 gal.	124.9

SAE Operating Weight w/ROPS 31,375 lb. (14 230 kg)

750 NARROW-GAUGE BULLDOZER

Hydraulic System: Open-center

Control Single-lever, two function control
 Pump Vane, 38 gpm (2.40 L/s) @ rated engine speed
 Pressure 2000 psi (13 790 kPa) (140.6 kg/cm²)

Hydraulic Cylinders:	Bore	Stroke
Lift, two	4.25 in. (108 mm)	31.85 in. (809 mm)
Tilt, one	5.5 in. (140 mm)	5.71 in. (145 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	

Tracks: 6-roller track frame w/front and rear track guides and sprocket guard. DURA-TRAX™ deep-heat-treated sealed track links and through-hardened sealed rollers provide maximum wear resistance.
 Grouser 18 in. (457 mm)
 Track shoes, each side 40
 Ground contact area 3240 sq. in. (20 903 cm²)
 Ground pressure 9.02 psi (62.2 kPa) (0.634 kg/cm²)

Length of track on ground	90 in. (2.29 m)
Track gauge	64 in. (1.63 m)
Oscillation	10 in. (254 mm)
Carrier rollers, sealed	2 each side
Adjustment	Hydraulic
Minimum ground clearance	14 in. (356 mm)

Blade:

Cutting edge	3-piece
Center section	0.75 in. (19 mm)
End bits, boron steel	0.75 in. (19 mm)
Width over standard end bits	98.62 in. (2.50 m)
Width without end bits	95.9 in. (2.44 mm)

Capacities:	U.S.	Liters
Cooling system	7 gal.	26.5
Fuel tank	73 gal.	276.3
Crankcase	18 qt.	17.0
Crankcase, including filter	20 qt.	18.9
Splitter drive	1.5 gal.	5.7
Final drive, each: 1st reduction	5.375 gal.	20.3
2nd reduction	3.5 gal.	13.2
Hydraulic system	33 gal.	124.9
Hydrostatic drives	33 gal.	124.9

SAE Operating Weight w/ROPS 29,239 lb. (13 260 kg)

750 LOW GROUND PRESSURE BULLDOZER

Hydraulic System: Open-center

Control Single-lever, two function control
 Pump Vane, 38 gpm (2.40 L/s) @ rated engine speed
 Pressure 2000 psi (13 790 kPa) (140.6 kg/cm²)

Hydraulic Cylinders:	Bore	Stroke
Lift, two	4.25 in. (108 mm)	40.16 in. (1020 mm)
Tilt, one	5.25 in. (140 mm)	5.71 in. (145 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	

Tracks: 7-roller track frame w/front, center and rear track guides and sprocket guard. DURA-TRAX™ sealed chain, deep-hardened track links and rollers provide maximum wear resistance.

Shoe width	34 in. (865 mm)
Grouser height (single grouser shoe)	2.17 in. (55 mm)
Track shoes, each side	46
Ground contact area	7548 sq. in. (49 697 cm ²)
Ground pressure	4.5 psi (31 kPa) (0.316 kg/cm ²)
Length of track on ground	111 in. (2.82 m)
Track gauge	74 in. (1.88 m)
Oscillation	15 in. (381 mm)
Carrier rollers (each side)	2
Adjustment	Hydraulic
Minimum ground clearance	
With single-bar grouser (excluding grouser height)	14 in. (356 mm)
With swamp shoe (including grouser height)	17.2 in. (437 mm)

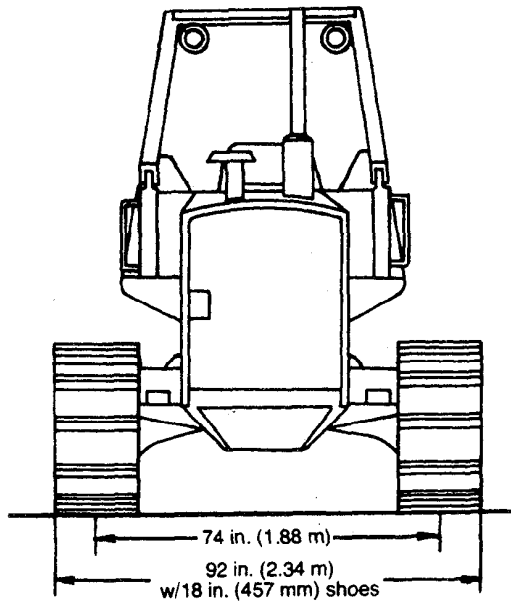
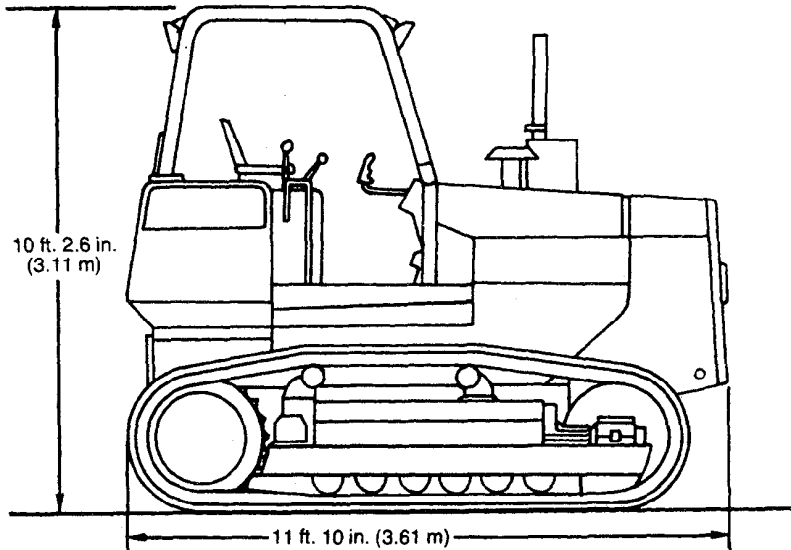
Cutting Edge:

Center section, heat-treated boron steel, reversible	0.75 in. (19 mm)
End bits, boron steel	0.75 in. (19 mm)

Capacities:	U.S.	Liters
Cooling system	7 gal.	26.5
Fuel tank	73 gal.	276.3
Crankcase	18 qt.	17.0
Crankcase, including filter	20 qt.	18.9
Splitter drive	1.5 gal.	5.7
Final drive, each: 1st reduction	8.5 gal.	32.2
2nd reduction	4.5 gal.	17.0
Hydraulic system	33 gal.	124.9
Hydrostatic drives	33 gal.	124.9

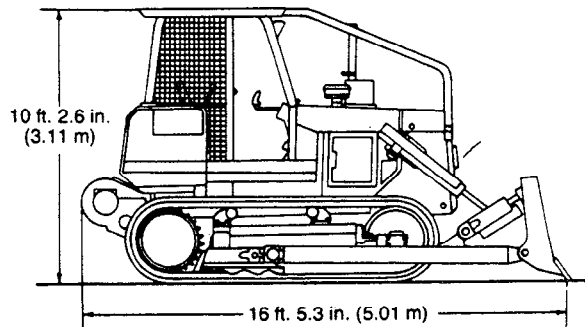
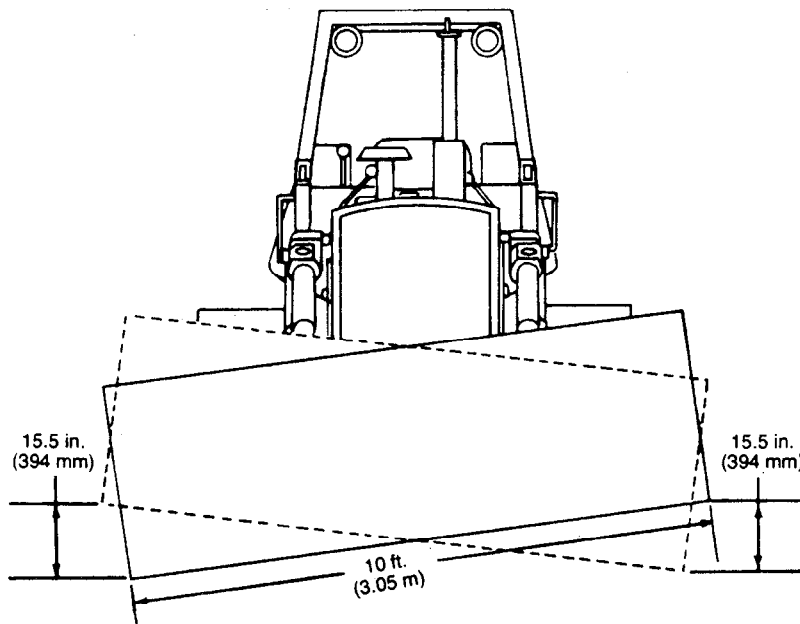
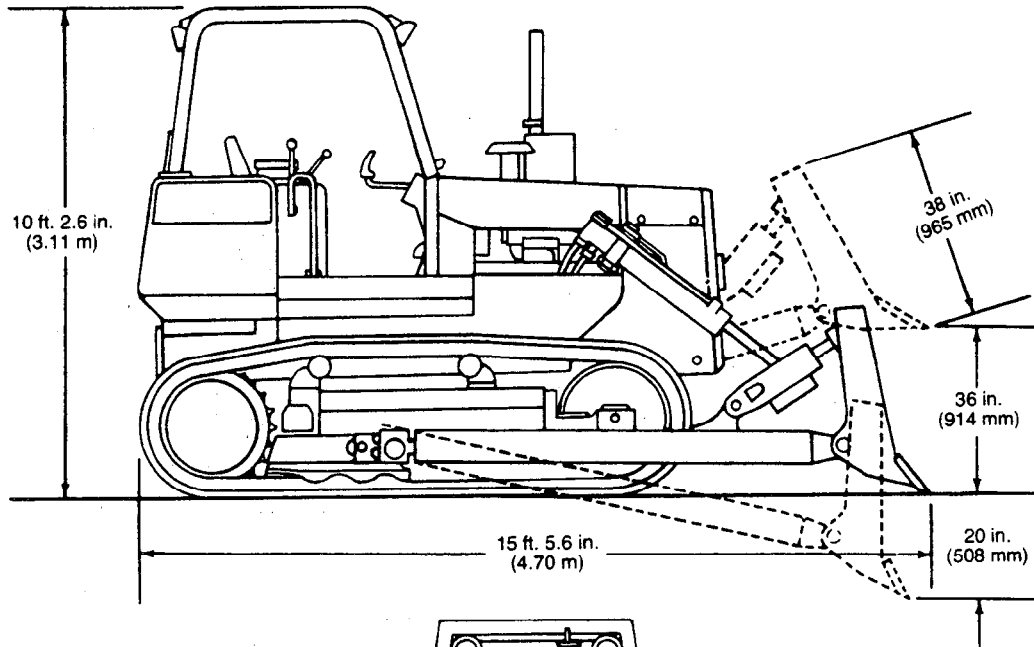
SAE Operating Weight w/ROPS 34,000 lb. (15 422 kg)

GENERAL-PURPOSE CRAWLER DIMENSIONS



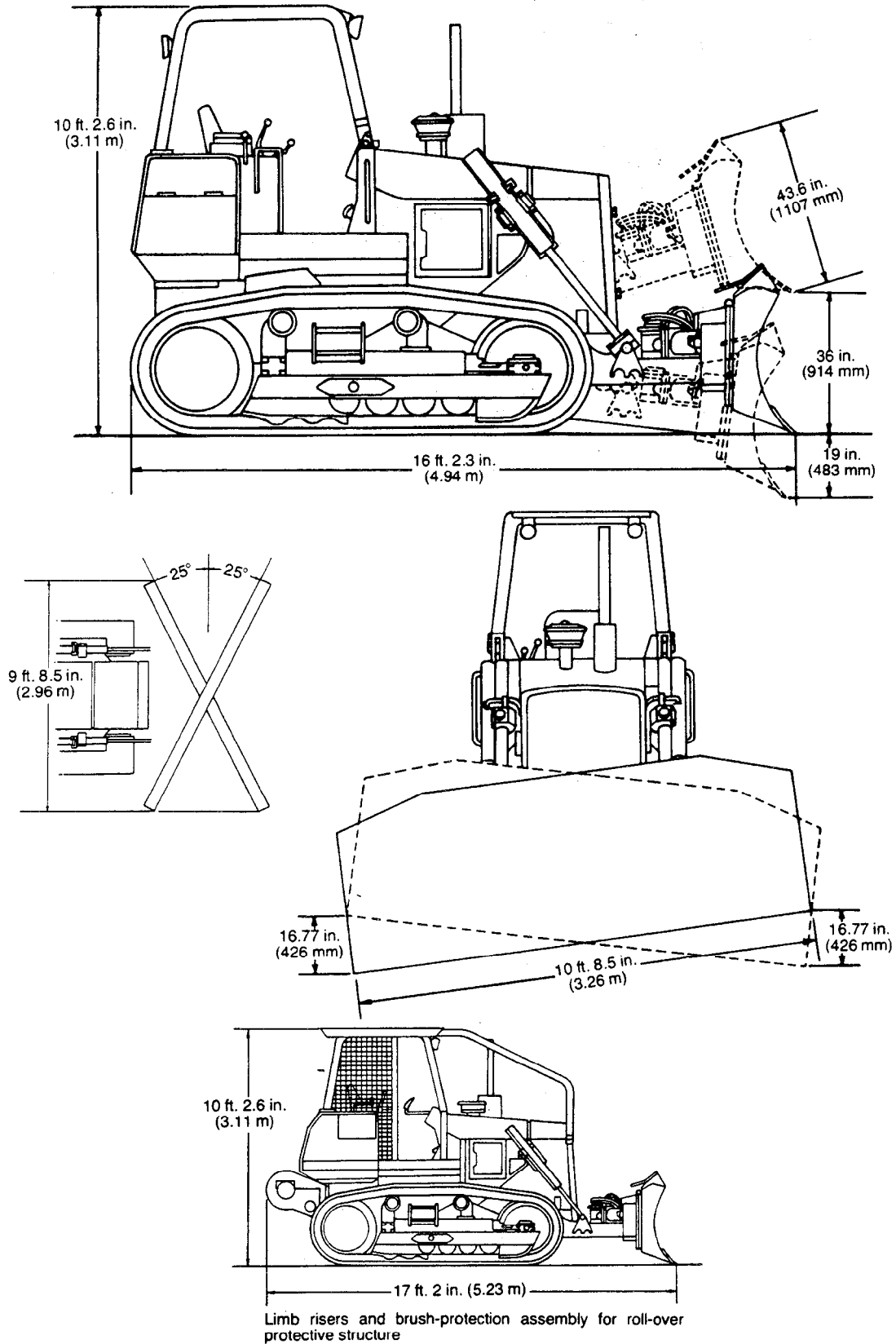
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6525 BULLDOZER DIMENSIONS

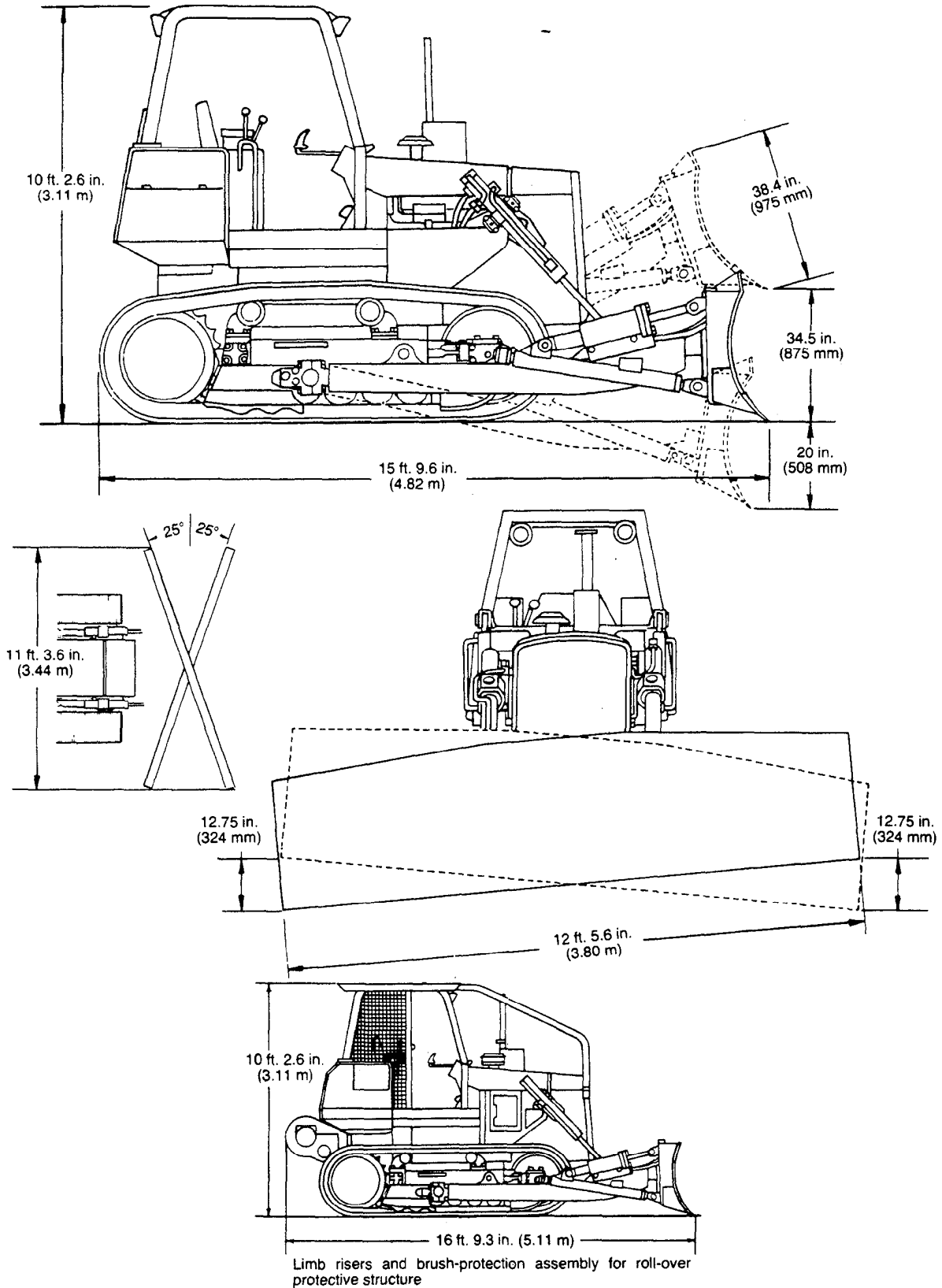


Limb risers and brush-protection assembly for roll-over protective structure

6505 ALL-HYDRAULIC DOZER DIMENSIONS

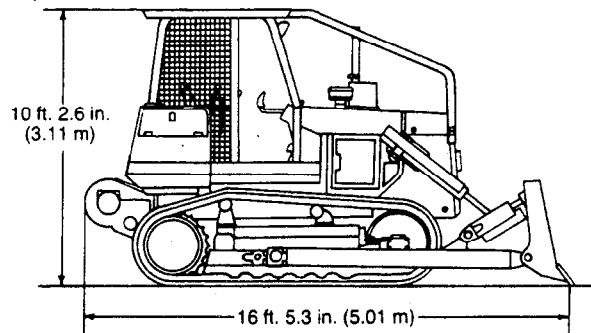
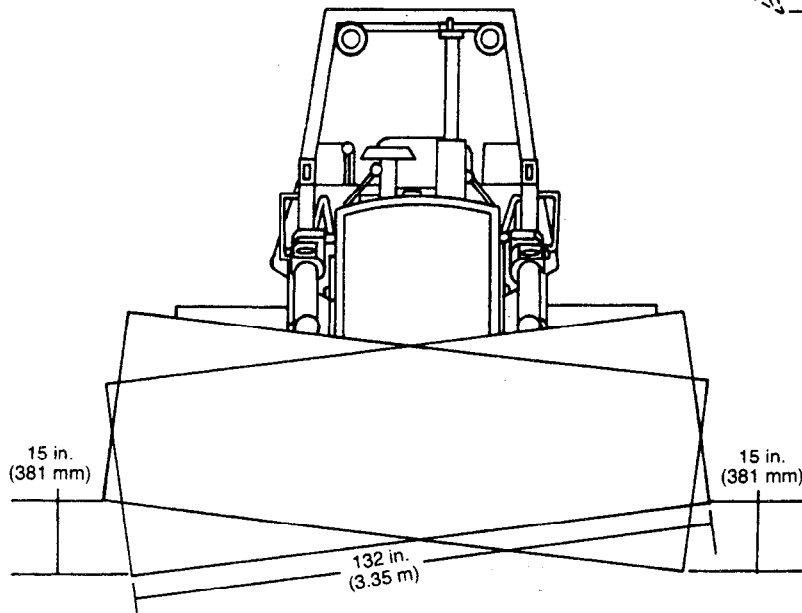
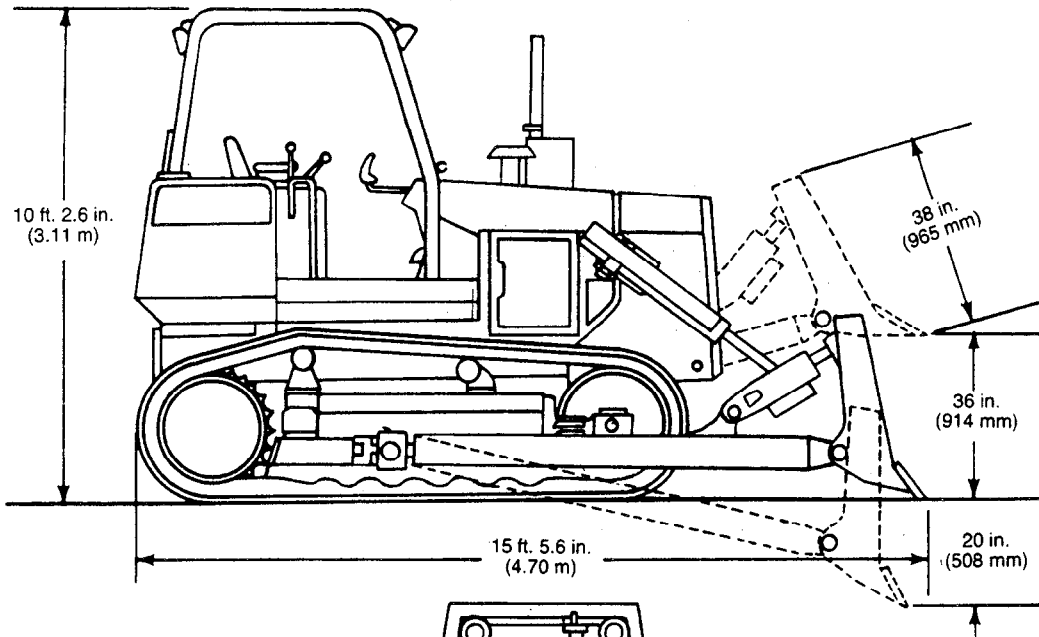


6520 ANGLEDOZER DIMENSIONS



T93549

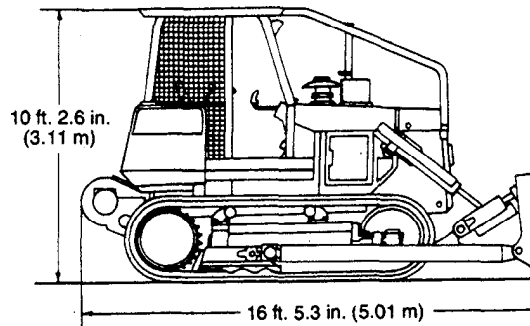
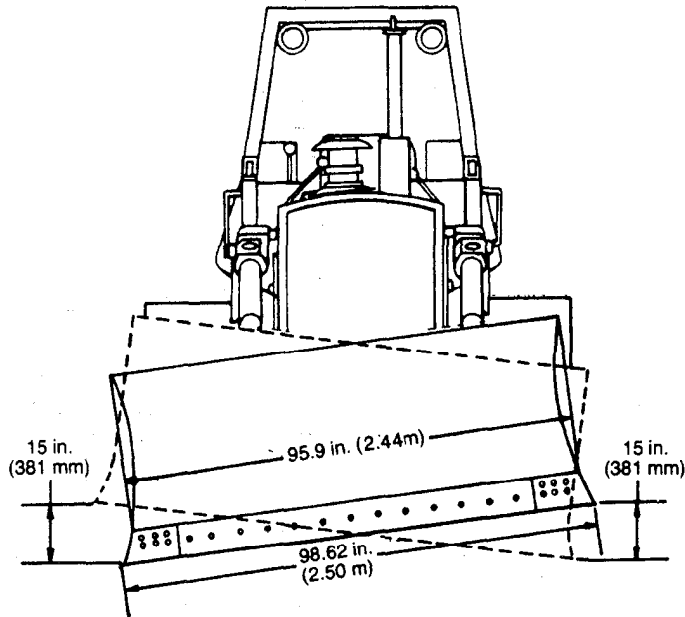
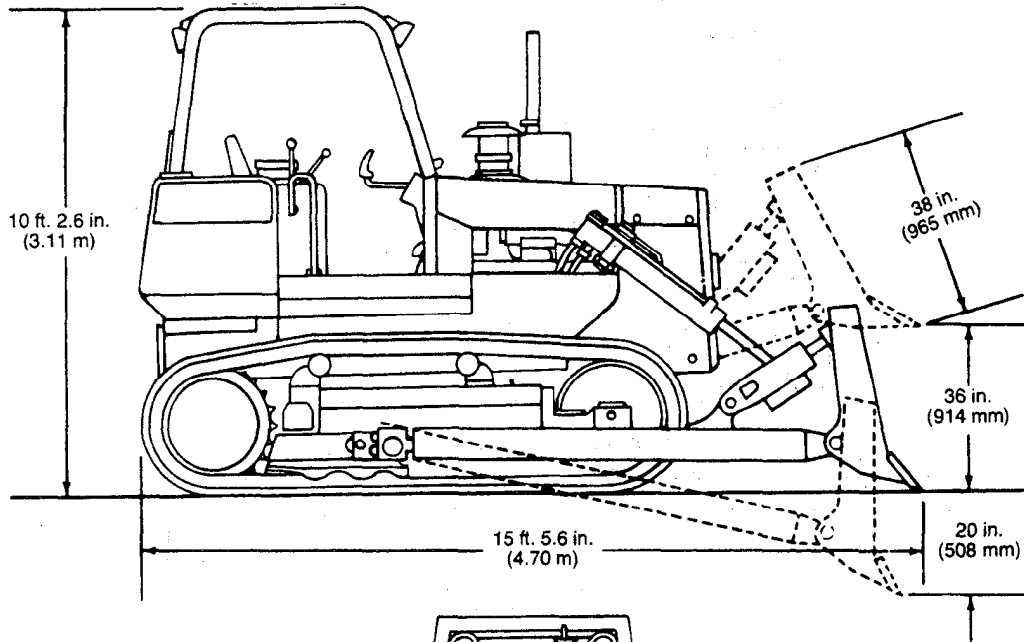
750 WIDE-TRACK BULLDOZER DIMENSIONS



Limb risers and brush-protection assembly for roll-over protective structure

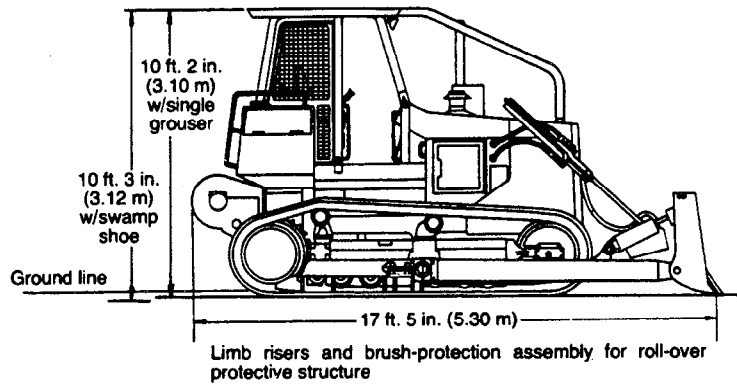
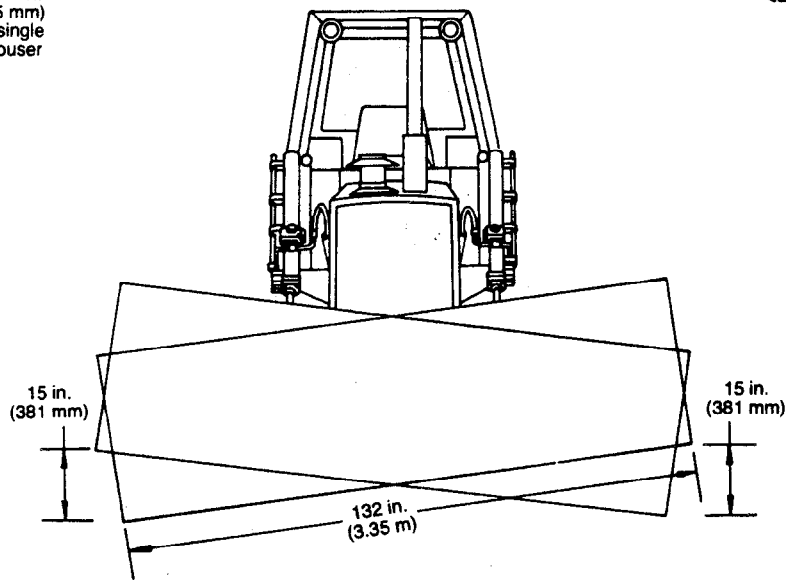
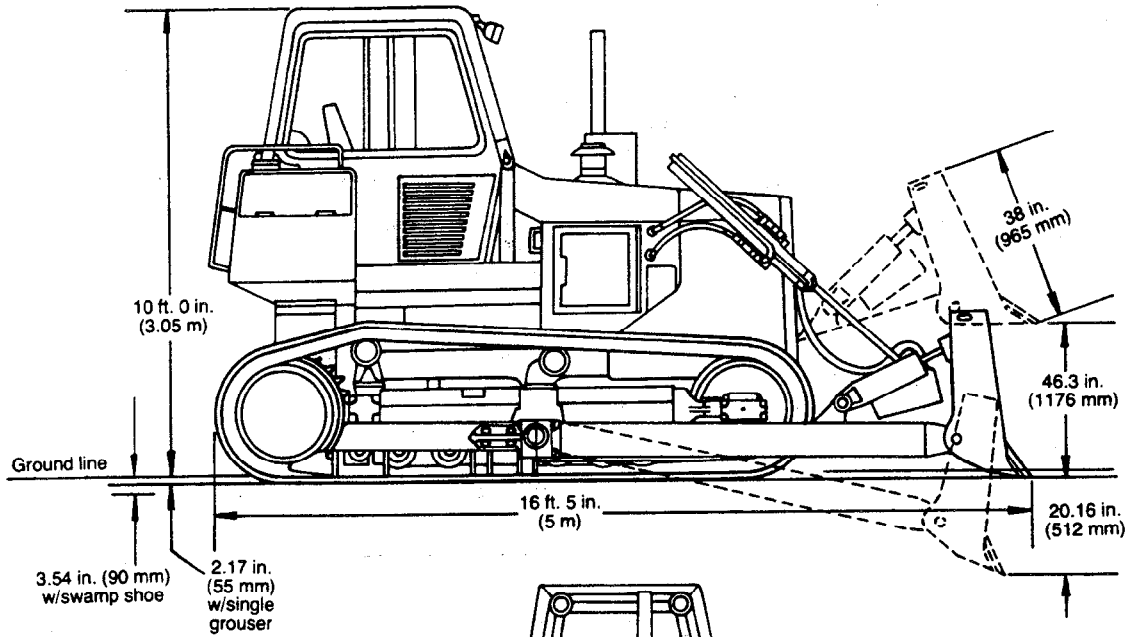
T93550

750 NARROW-GAUGE BULLDOZER DIMENSIONS



Limb risers and protection items for roll-over protective structure

750 LGP BULLDOZER DIMENSIONS






T93552

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.

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)

T8884

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	599.0	(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)

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 counter-clockwise a maximum of one turn.

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

STRAIGHT FITTING OR SPECIAL NUT TORQUE (1)

Thread Size	Torque ¹		Number Of Flats ²
	N·m	(lb-ft)	
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 UN	102	(75)	1
1-3/16-12 UN	122	(90)	1
1-5/16-12 UN	142	(105)	3/4
1-5/8-12 UN	190	(140)	3/4
1-7/8-12 UN	217	(160)	1/2

1. Tolerance \pm 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.

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	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.

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 over-tighten.

SAE FOUR BOLT FLANGE FITTING TORQUE

Nominal Flange Size	Cap Screw Size ¹	Torque ²			
		N·m		(lb-ft)	
		Min.	Max.	Min.	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 $\pm 10\%$. 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.

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-rings and male threads using 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 torque value shown in chart per dash size stamped on fitting.

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 hose fitting.

O-RING FACE SEAL FITTING TORQUE (1)

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

1. Tolerance: +15-20%.

Group IV PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY STORAGE

After receiving your crawler from the factory and before putting the machine into temporary storage perform the following checks:

1. Check battery electrolyte level and charge the battery, if necessary.
2. Check coolant level in the radiator. The coolant should be maintained at a level midway between the radiator core and filler neck.
3. Fill the fuel tank.
4. Check crankcase oil level. Oil should be at top mark of dipstick after crawler has been shut down for 10 minutes.
5. Relieve hydraulic pressure by stopping engine, lowering all equipment and operating control levers until system fails to respond.

PREDELIVERY SERVICE

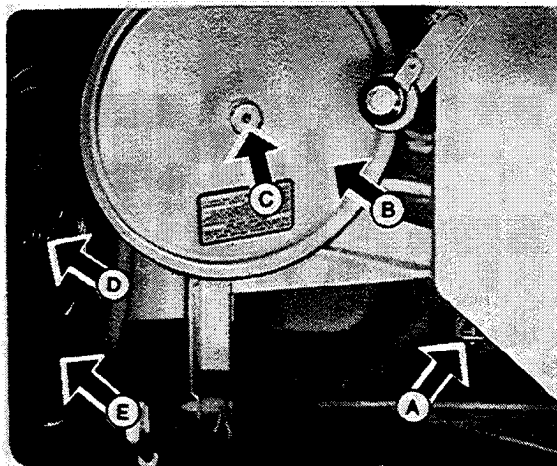
Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer and the customer.

If adjustments are required, procedures are found in the After-Sale section.

Install blade before starting the following predelivery points.

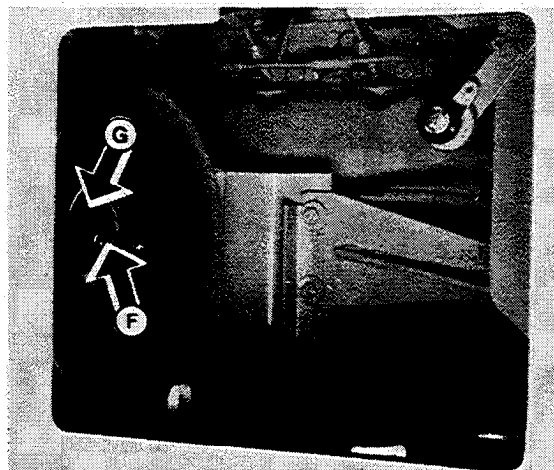
Use the following list when preparing a unit for delivery to the customer.

1. Air Cleaner



178373

- A—Restriction Indicator
- B—Cover
- C—Nut
- D—Wing Nut
- E—Primary Element



178374

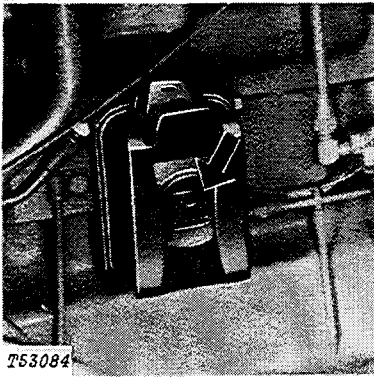
- F—Wing Nut
- G—Safety Element

Fig. 1 and 1A—Air Cleaner

Check air cleaner restriction indicator. If red signal locks in full view, look for restriction or blockage in air intake system.

Air cleaner elements checked	Yes	No
Restriction in system	Yes	No

2. Fuel Filters



153084

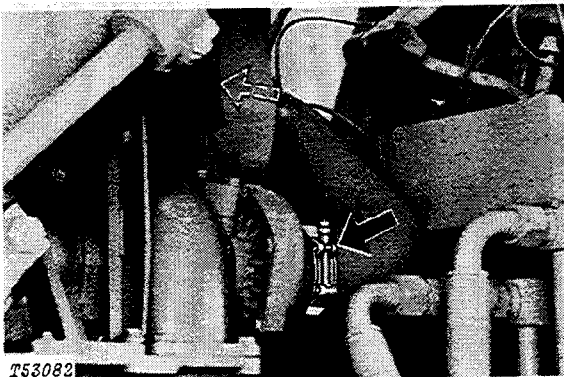
Fig. 2-Fuel Filter

Check fuel filter for sediment. Drain if necessary. To drain:

- 1 - Loosen drain plug.
- 2 - Work fuel pump primer lever until fuel, free of bubbles, flows from filter opening.
- 3 - Tighten drain plug.
- 4 - Bleed fuel system as follows:
 - A - Loosen bleed plug.
 - B - Work fuel pump primer lever until fuel, free of bubbles, flows from filter opening.
 - C - Tighten bleed plug.

Sediment present in filter	Yes	No
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3. Air Intake Hose



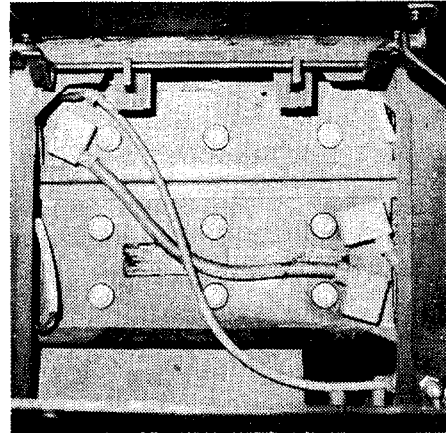
153082

Fig. 3-Air Intake Hose Connections

Check clamps on hose connecting air cleaner and engine. Tighten two hose clamps. Inspect hose for cracks.

Air intake hose checked	Yes	No
Loose connections	Yes	No

4. Batteries



186083

Fig. 4-Batteries

Check battery electrolyte level. If distilled water is not available, use clean soft water. Avoid use of hard water. Remove foreign material from top of battery and coat terminals with petroleum jelly.

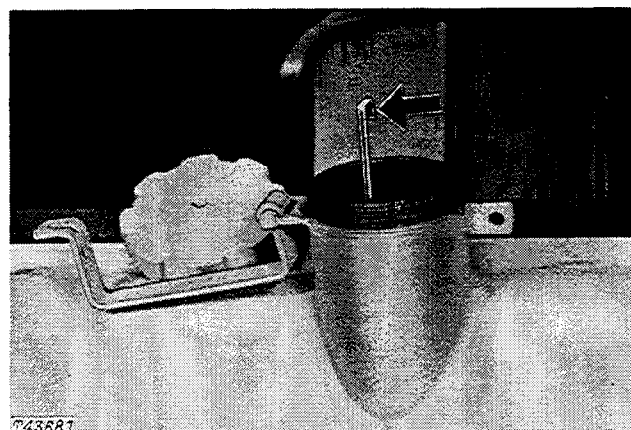
IMPORTANT: Never add water to battery in freezing weather unless engine is to be run 2 or 3 hours to assure mixing of water and electrolyte.

Check battery connections.

Punch date code on battery.

Water added	Yes	No
Batteries checked and serviced	Yes	No

5. Fuel Tank



143681

Fig. 5-Fuel Tank

Check fuel tank level. If low, add sufficient fuel to fill the tank. Capacity is 73 gal. (276.6 L). Check fuel system for leaks.

Fuel tank level	Full	1/2-Full	Empty
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6. Fuel Tank Sump

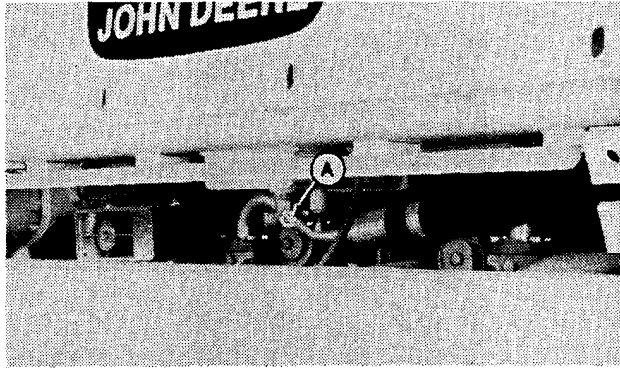


Fig. 6-Fuel Tank Sump

Open drain cock (A) located at bottom of fuel tank. Drain fuel until all sediment drains out. Close and tighten drain cock.

NOTE: Drain sump after crawler has been shut down for at least 2 hours.

Fuel tank sump drained	Yes	No
Filter checked	Yes	No

7. Radiator



Fig. 7-Radiator Filler Cap

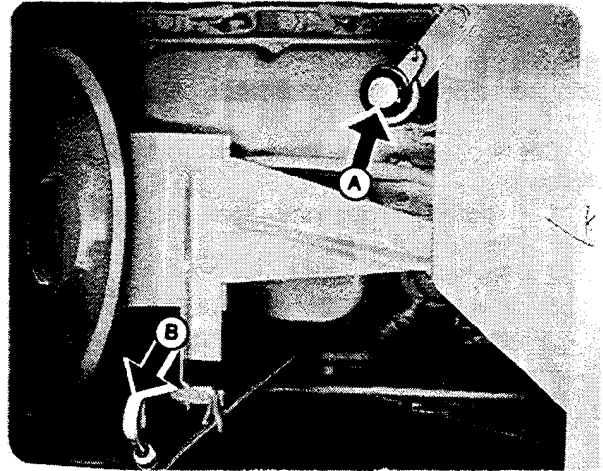
CAUTION: Do not remove radiator filler cap until engine is cool. Then loosen cap slowly to the stop to relieve any excess pressure before removing cap completely.

Check coolant level in radiator. Coolant level should be to the bottom of the filler neck. Add permanent type antifreeze if cold weather is expected. If coolant level is low, check cooling system for leaks.

Do not use methoxy propanol antifreeze (such as Dowtherm 209 antifreeze or its equivalent) in the coolant solution. It may damage the cylinder sleeves and seals. This antifreeze is also not compatible with either the precharge or service filters.

Radiator coolant level checked	Yes	No
Coolant or antifreeze added	Yes	No

8. Crankcase Oil Level



A—Oil Filler Cap

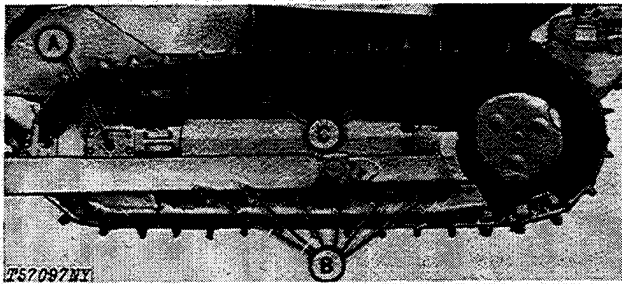
B—Dipstick

Fig. 8-Crankcase Oil Level

Check crankcase oil level with unit on level ground and engine shut off. Wait 10 minutes for oil to drain into oil pan. If oil level is at or below bottom mark on dipstick, add sufficient oil of the proper viscosity and type specified in the Lubrication section to bring oil level to between marks on dipstick. Do not operate engine with oil level below the bottom mark.

Crankcase oil level checked	Yes	No
Oil added	Yes	No

9. Front Idlers, Track Rollers and Carrier Rollers Oil Levels



T57097NY

A—Front Idler Check Plug C—Carrier Roller Check Plug
 B—Track Roller Check Plug

Fig. 9-Track Area Oil Levels

Check oil level in the carrier rollers. Oil level should be at check plug. If low, add oil specified in the Lubrication section to bring level up to check plug.

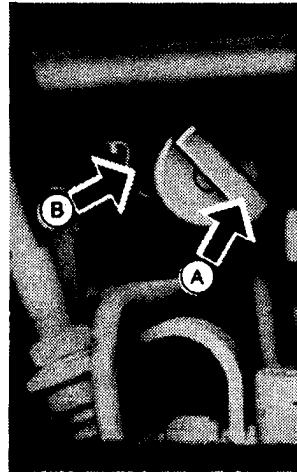
Check oil level in the front idlers and track rollers as follows:

- 1 - Thoroughly clean the nozzle and around the plug end of the shaft.
- 2 - Remove plug and O-ring.
- 3 - Using a JD-313 Lube Nozzle Kit, insert the nozzle in the shaft as far as it will go.
- 4 - Force oil slowly into the shaft until oil is flowing out of roller indicating roller or idler is full.
- 5 - Remove the nozzle and install O-ring and plug.

Front idler, track roller and carrier roller

oil levels checked	Yes	No
Oil added	Yes	No

10. Splitter Gearbox Oil Level



T81433

A—Dipstick B—Filler Tube

Fig. 10-Splitter Gearbox Oil Level

The filler tube and dipstick are located on the rear of the splitter housing under the floorboard plate.

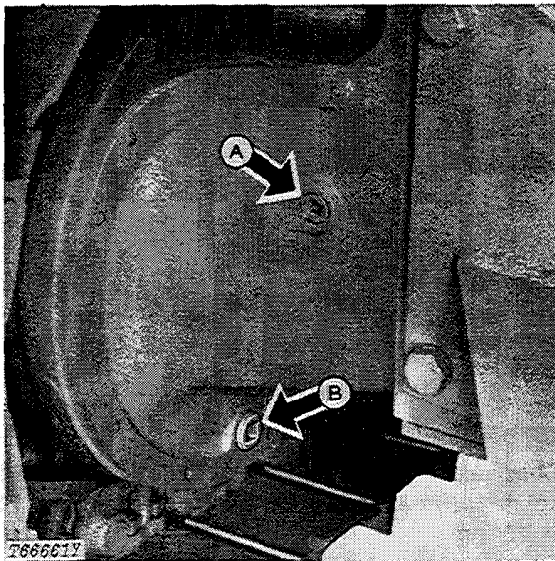
IMPORTANT: DO NOT overfill. Overfilling may cause overheating.

Park crawler on a level surface and stop the engine. Remove dipstick. Oil level should be between marks on the dipstick. If oil level is low, fill with oil specified in the Lubrication section.

Replace dipstick. Do not overtighten dipstick.

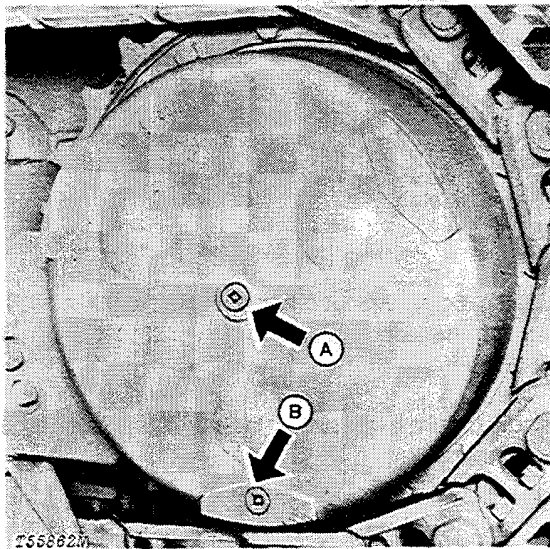
Splitter gearbox oil level checked	Yes	No
Oil added	Yes	No

11. Inner and Outer Final Drive Housing Oil Level



A—Level-Filler Plug B—Drain Plug

Fig. 11-Inner Final Drive Housing



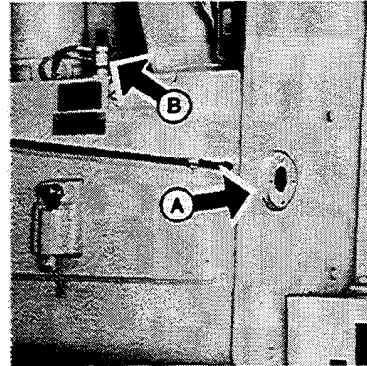
A—Level-Filler Plug B—Drain Plug

Fig. 12-Outer Final Drive Housing

Check the oil levels of the inner and outer final drive housings. Oil level should be at level-filler plug. If low, add oil specified in the Lubrication section to bring level up to fill plug.

Inner and outer final drive housing oil level checked	Yes	No
Oil added	Yes	No

12. Hydrostatic Transmission Oil Level



A—Oil Level Window B—Fill Plug

Fig. 13-Transmission Sump

Park crawler on a level surface and stop the engine.

Transmission oil level should be halfway up in oil level window.

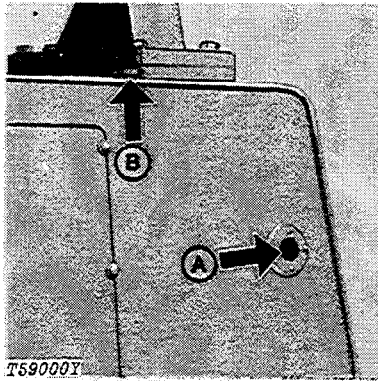
CAUTION: The hydrostatic transmission system is a sealed design and has no vent. Remove filler plug slowly to release pressure. When replacing the filler plug, be sure it is screwed down tight and the O-ring is in good condition.

If oil is not visible in window, add enough oil specified in the Lubrication section to bring up to this level. Check transmission system for leaks if oil level is low.

Total capacity is 28 gal. (106 L).

Transmission oil level checked	Yes	No
Oil added	Yes	No

13. Hydraulic Oil Level



A—Oil Level Window

B—Fill Plug

Fig. 14-Hydraulic Reservoir

Check oil level with crawler on a level surface, blade on ground, and ripper (if equipped) in transport position. Stop the engine.

Hydraulic oil level should be halfway up in oil level window.

CAUTION: The hydraulic reservoir is completely closed and pressurized. Slowly remove the fill plug to relieve the reservoir pressure. When replacing the fill plug, be sure it is screwed down tight and the O-ring is in good condition.

If oil is not visible in window, add enough oil specified in the Lubrication section to bring up to this level. Check hydraulic system for leaks if oil level is low.

Reservoir capacity is 28 gal. (106 L).

Hydraulic oil level checked	Yes	No
Oil added	Yes	No

14. Alternator-Fan-Compressor Belt Tension



Fig. 15-Checking Belt Tension

Check alternator belt tension. A force of 18 lb. (80 N) (8 kg) midway between pulleys should deflect belt 1/2-inch (13 mm).



Fig. 16-Checking Strand Tension

If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 135 lb. (600 N) (61 kg).

If adjustment is required, see the After-Sale Inspection section.

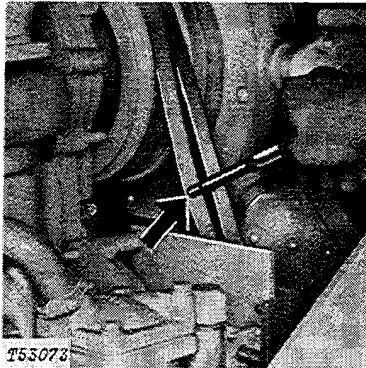


Fig. 17-Checking Belt Tension

Check fan belt tension. A force of 12 lb. (53 N) (5 kg) midway between pulleys should deflect belt 1/2-inch (13 mm).

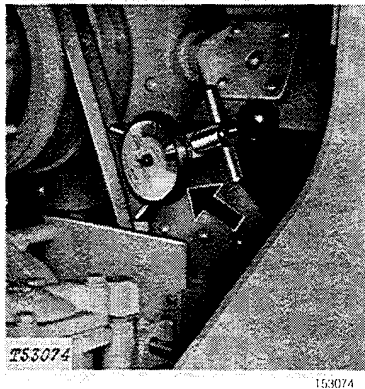


Fig. 18-Checking Strand Tension

If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 100 lb. (445 N) (45 kg).

If adjustment is required, see the After-Sale Inspection section.



Fig. 19-Checking Belt Tension

Check compressor belt tension. A force of 15 lb. (67 N) (7 kg) midway between pulleys should deflect belt 1/4-inch (6 mm).

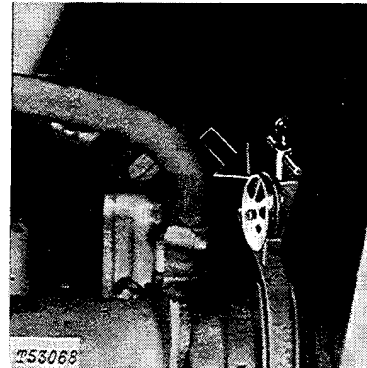


Fig. 20-Checking Strand Tension

If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 135 lb. (600 N) (61 kg).

If adjustment is required, see the After-Sale Inspection section.

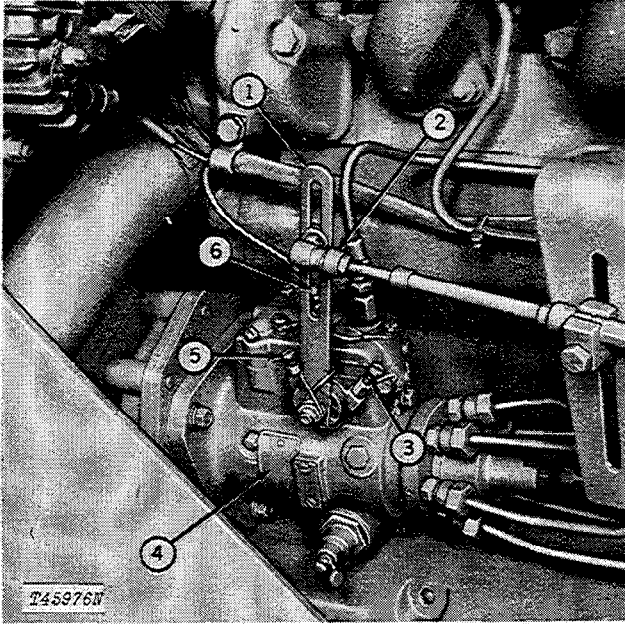
Alternator belt tension	_____ lbs. (N) (kg) tension
	_____ inch (mm) flex
Fan belt tension	_____ lbs. (N) (kg) tension
	_____ inch (mm) flex
Compressor belt tension	_____ lbs. (N) (kg) tension
	_____ inch (mm) flex

15. Engine Speeds

Warm up engine and attach a tachometer in the engine rotation tool hole to check engine speeds.

No-load, fast-idle speed should be 2300 - 2320 rpm. Slow idle should be 975 - 1000 rpm.

If engine speeds need adjustment, proceed as follows:



T45976N

- | | |
|------------------------|---------------------------|
| 1—Injection Pump Lever | 4—Fuel Injection Pump |
| 2—Speed Control Cable | 5—Low Idle Override Screw |
| 3—High Idle Stop | 6—Low Idle Stop |

Fig. 21-Engine Speed Adjustment

NOTE: Use to set fast and slow idle for engine operation.

A. Disengage engine cold weather disconnect clutch.

B. Disconnect engine speed control cable quick disconnect end (2, Fig. 21) from injection pump lever (1).

C. Check injection pump throttle lever for proper operation. Check to see that there is no debris between the high and low idle stop screws and stops, and that lever override works freely.

D. Warm engine up. Run engine and rotate injection pump throttle lever fully to the rear until it touches the high idle stop (3). Record engine speed. It should read 2300 to 2320 rpm. If not correct, adjust injection pump high idle stop screw to obtain specified speed.

E. Back out the low idle override screw (5) on the injection pump lever far enough to make sure the low idle stop screw (6) in the injection pump cover is being contacted.

F. Engage engine cold weather disconnect clutch. Rotate the injection pump lever fully forward until the low idle stop screw in the injection pump cover is contacted. Record the engine speed. It should read 975 to 1000 rpm. If not correct, adjust low idle stop screw (6) to obtain the specified speed.

G. With the injection pump lever held against the low idle stop, adjust the low idle override screw (5) until the engine speed just begins to raise above the low idle speed set in Step F. Then back off screw 1/2 turn and tighten.

H. Reconnect the engine speed control cable (2).

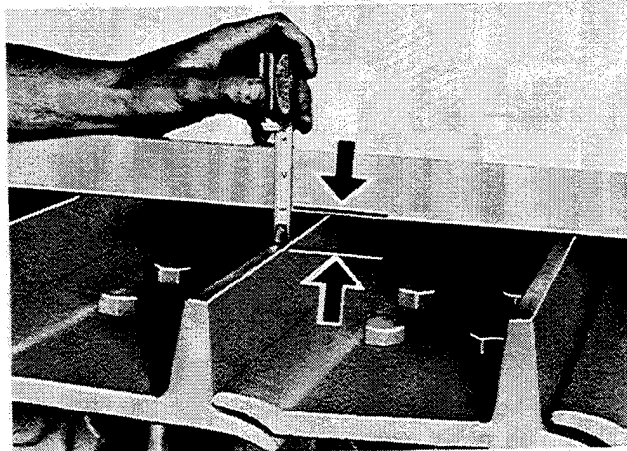
IMPORTANT: Whenever either the high or low idle speeds are adjusted on the injection pump, the engine speed control lever to injection pump cable adjustment has to be made. Refer to Section 90 for this adjustment.

Use the following test to check engine speed control linkage and automatic control valve linkage synchronization. This test requires a 100 ft (305 m) flat area to drive the machine.

1. Run the engine at slow idle.
2. Move the FNR speed control handle forward to approximately 3/4 speed position.
3. Slowly and evenly increase engine rpm at a rate in which the machine will travel approximately 100 ft (305 m) when fast idle position is obtained.
4. Run the engine at fast idle.
5. Slowly and evenly decrease engine rpm at a rate in which the machine will travel approximately 100 ft (305 m) when slow idle position is obtained.
6. The machine must not slow down or stop at any point in the rpm range. If a rpm decrease (dead spot) occurs, the engine speed control linkage and automatic control valve linkage are not synchronized. See Section 90 of this manual for adjustment.

Engine speeds checked	Yes	No
Adjustment required	Yes	No

16. Track Sag Adjustment



T74001

Fig. 22-Measuring Track Sag

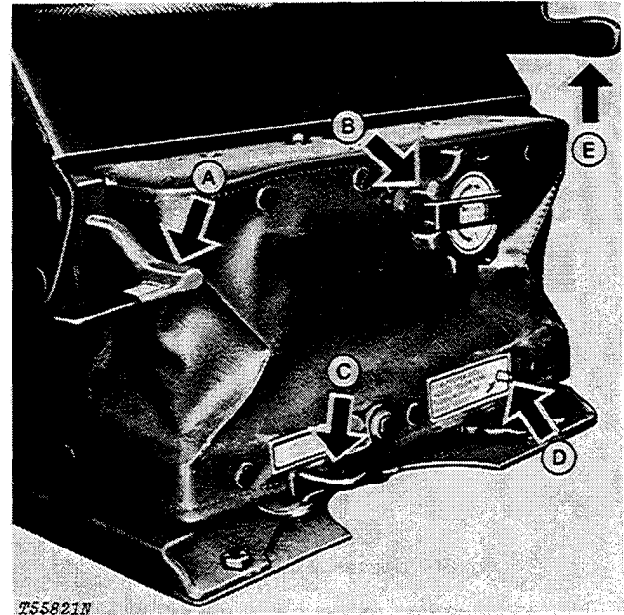
Check the amount of sag in center of track between front carrier roller and front idler. Sag should be 1 to 1-1/2 inches (25.4 to 38 mm). If adjustment is required, see the After-Sale Inspection section.

Check the vertical and horizontal movement of the front idler assembly on the track frame. If adjustment is required, see the After-Sale Inspection section.

Check the carrier rollers for proper alignment with the track. If adjustment is required, see the After-Sale Inspection section.

Track tension checked	Yes	No
Front idler and carrier rollers wear checked	Yes	No
Adjustment required	Yes	No

17. Seat Operation



T55821N

T55821

- A—Height Adjustment
- B—Weight Adjustment
- C—Forward/Rearward Adjustment
- D—Weight Adjustment Indicator
- E—Tilt Adjustment

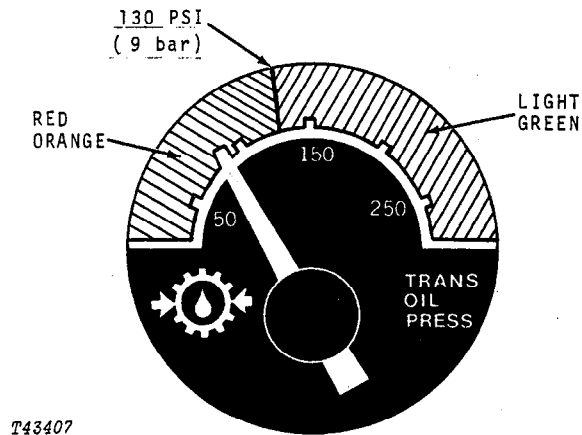
Fig. 23-Seat Adjustments

To adjust height, push down on lever (A) to move seat to the desired position. Release lever. To adjust weight, turn knob (B) until indicator (D) is flush with tube when seated. Use flip-out handle on the knob for rapid adjustment. To adjust forward or rearward, lift up on lever (C) and slide seat to the desired position. Release lever. To adjust tilt, lift up on lever (E) to flip seat backward or push down to tilt seat forward. Release lever.

Seat operational	Yes	No
------------------	-----	----

18. Indicator Lights and Gauges

When operating the crawler, check the following gauges for correct operation.



T43407

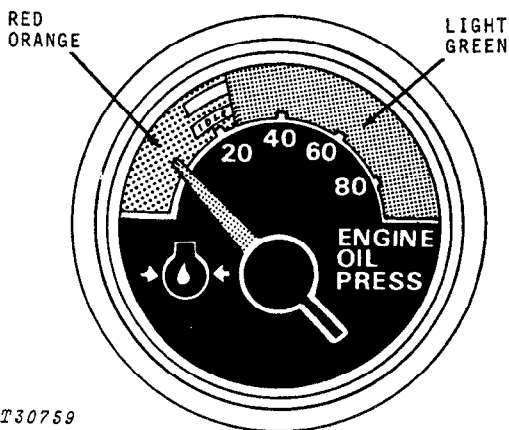
Fig. 24-Transmission Oil Pressure Gauge

T43407

Normal operating range is in the light green zone.

Check transmission oil pressure gauge during operation. If transmission oil pressure is not in the light green zone, shut off engine. Check transmission oil level. If oil is at proper level, troubleshoot the transmission system, checking for bent or broken lines and hoses. Also check for excessive leakage.

Transmission oil pressure may register slightly above the green zone in neutral or at full engine speed.

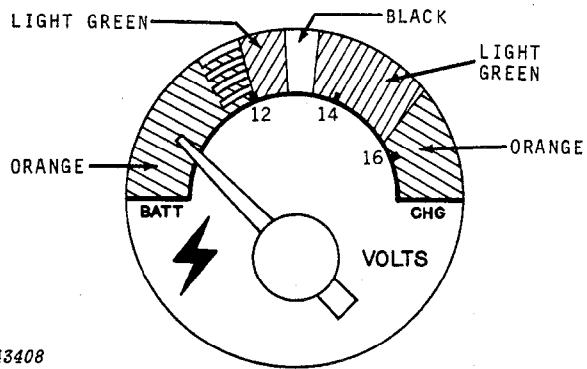


T30759

Fig. 25-Engine Oil Pressure Gauge

T30759

If the indicator hand of the engine oil pressure gauge drops into the red-orange zone, stop the crawler and check engine oil level. If oil level is not low, check for restrictions in oil lines or incorrect viscosity oil.



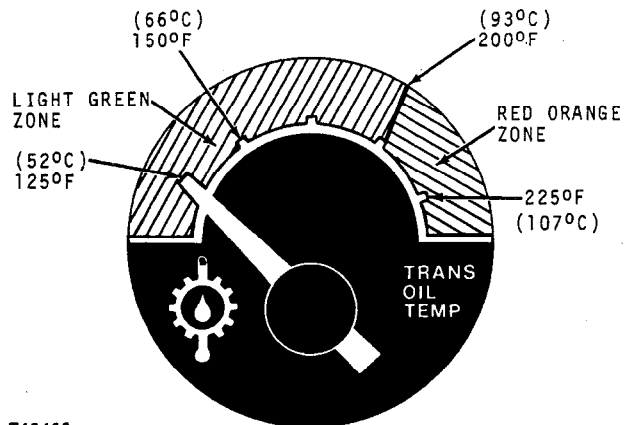
T43408

Fig. 26-Voltmeter

T43408

With key switch on and engine off, the indicator should be in the lower left light green zone.

When cranking the engine, the indicator will fall into the left-hand orange zone. When the engine starts, the indicator should move to stay in the right-hand light green zone.

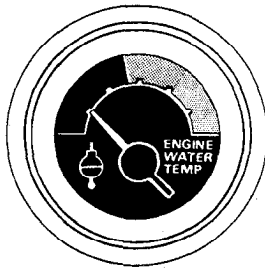


T43409

Fig. 27-Transmission Oil Temperature Gauge

T43409

Do not permit this temperature to exceed 200°F (93°C). If the temperature reaches this point during operation, stop the engine and locate the trouble.



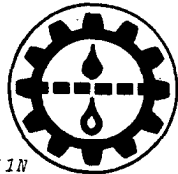
T30897N

T30897

Fig. 28-Engine Water Temperature Gauge

Normal operating temperature is in the light green zone.

If the indicator hand goes into the red-orange zone, check cooling system.



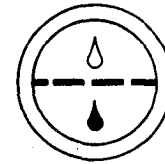
T23111N

T23111N

Fig. 29-Transmission Oil Filter Indicator Light

NOTE: Light should glow, if operative, with key switch in start position and engine off.

When the engine is running, the transmission oil filter indicator light should go out, indicating that there is no restriction in the transmission and oil filters. If light glows red while the engine is running, stop engine and determine cause.



T38471N

T38471N

Fig. 30-Hydraulic Oil Filter Restriction Indicator Light

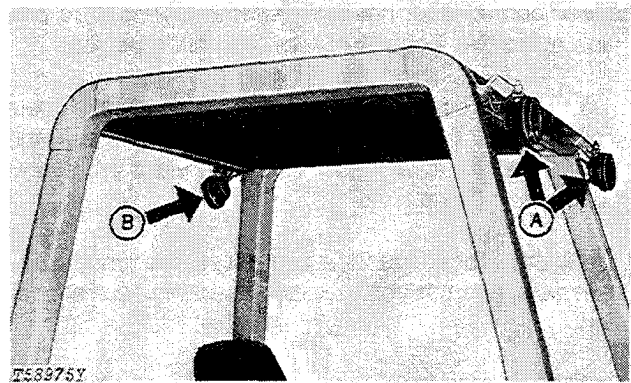
NOTE: Light should glow, if operative, with key switch in start position and engine off.

When the engine is running, the hydraulic oil filter indicator light should go out. If light glows red while the engine is running, stop engine and determine cause. Light may glow during initial operation until oil warms.

Gauges operational

Yes No

19. Light Operation



T58975Y

T58975

A—Front Lights

B—Rear Light

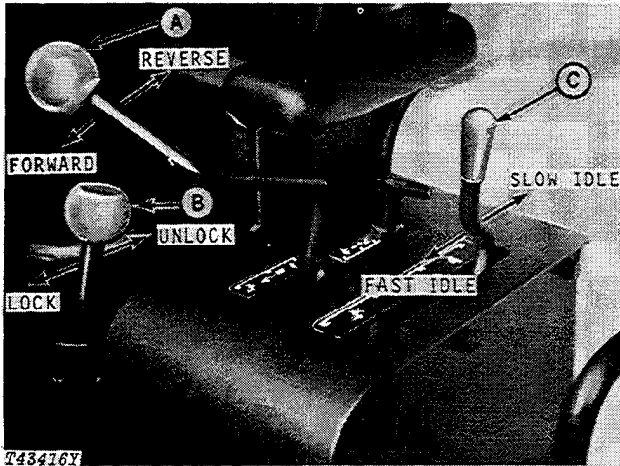
Fig. 31-Lights

All lights are controlled by the "push-pull" light switch. To turn on lights, pull out switch knob. To turn off lights, push in switch knob. The key switch must be in the "on" position before the lights will operate.

Lights operational

Yes No

20. Transmission Control



A—Forward and Reverse Speed Control Lever
 B—Neutral Lock Lever
 C—Hand Throttle

Fig. 32-Transmission Shifting

Move the forward and reverse speed control lever forward from "neutral" to provide control of forward ground speeds from zero to maximum.

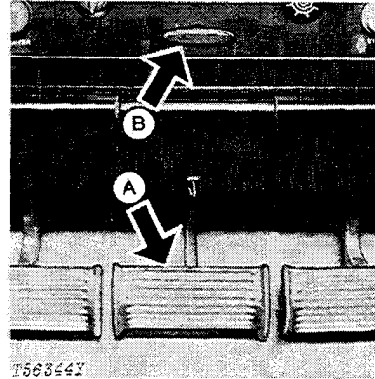
Move the lever rearward to control reverse ground speeds from zero to maximum. The forward and reverse speed control lever has a Z pattern movement to provide a positive location of the "neutral" position.

The forward and reverse speed control lever in "neutral" gives a braking effect. Engine braking is available as the control lever passes from forward or reverse speeds to neutral.

When the brake pedal is depressed, the forward and reverse speed control lever returns to the neutral position.

Transmission operational Yes No

21. Hydraulic Brake (Park Brake)



A—Park Brake Pedal
 B—Park Brake Lock Knob

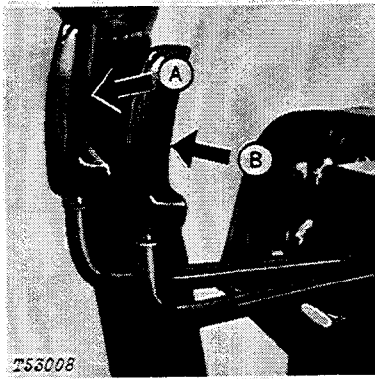
Fig. 33-Park Brake

When the brake pedal is depressed, the forward and reverse speed control lever returns to neutral automatically.

Operate the forward and reverse speed control lever to verify braking in neutral.

Brakes operational Yes No

22. Steering



A—Left Steering Lever

B—Right Steering Lever

Fig. 34—Steering Levers

Pull steering lever (right lever for right turn etc.) beyond the neutral position. This allows the tracks to travel in opposite directions. DO NOT attempt to pull both levers into this rearward position to reverse direction.

The same principle applies with pedal steering. Depressing pedal beyond neutral will reverse track rotation.

Steering operational

Yes No

23. Lubrication

The crawler bulldozer was checked and lubricated before it left the factory. However, to insure customer satisfaction, check each lubrication point shown in the following pages. Lubricate with several strokes of John Deere Multi-Purpose Grease, if necessary.

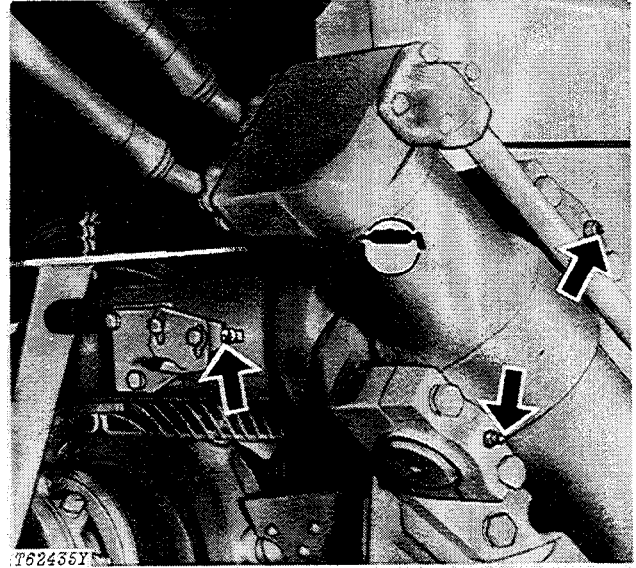


Fig. 35—Lift Cylinder Yokes and Trunnions (6 Points)

Lubricant required

Yes No

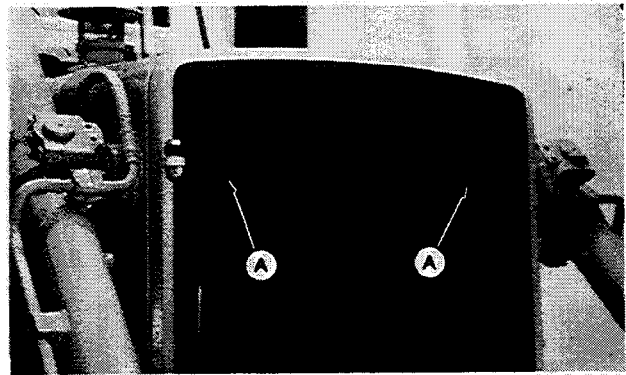


Fig. 36—Crossmember (Low Ground Pressure)

Crossmember grease fittings (A) for Low Ground Pressure machines are serviced through the grille.

Lubricant required

Yes No

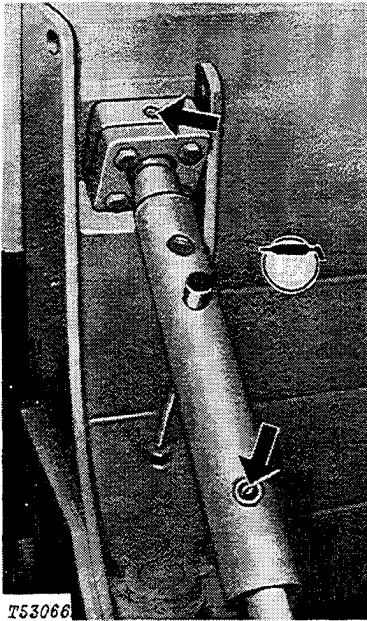


Fig. 37-Pitch Adjusting Jack and Socket (Dozer Blade) (2 Points)

Lubricant required

Yes No

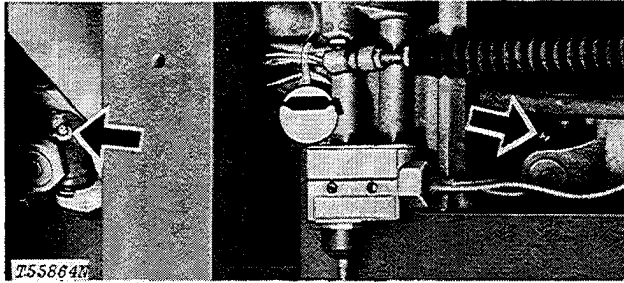


Fig. 39-Universal Joints (4 Points)

Lubricant required

Yes No

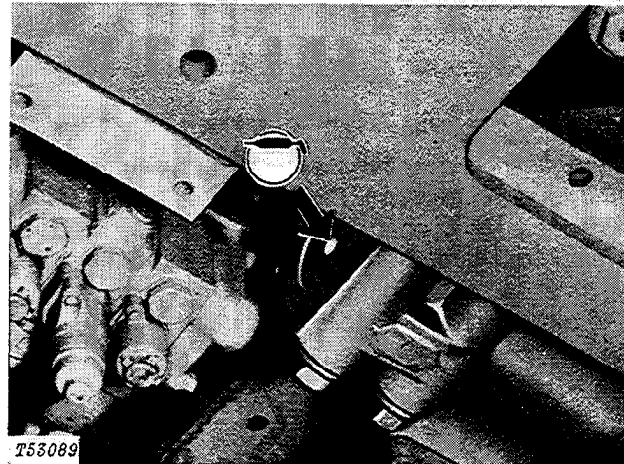


Fig. 40-Left and Right Track Frame Pivot Shaft (2 Points)

Lubricant required

Yes No

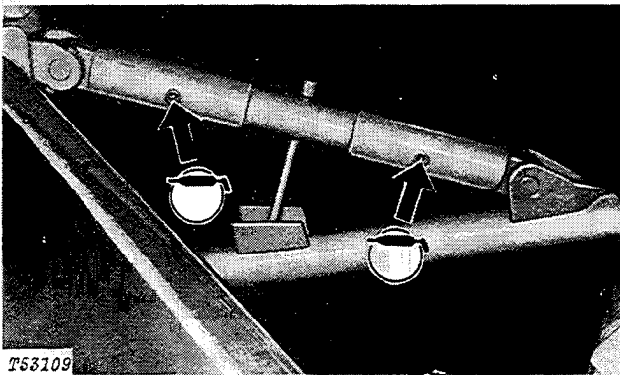


Fig. 38-Tilt Adjusting Jacks (Angle Dozer Blade) (4 Points)

Lubricant required

Yes No

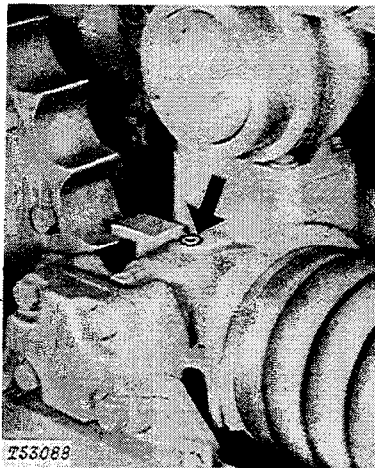


Fig. 41-Left and Right Track
 Frame Pivots (2 Points)

T53088

Remove plug. If fluid level is low, fill to top of shaft with a Multi-Purpose GL-5 Gear Oil - SAE 80W-90 weight meeting MIL-L-2105C specifications or an equivalent. Replace plug.

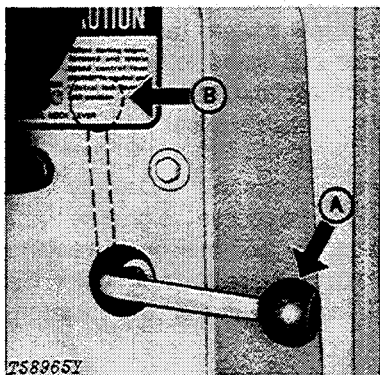
Left and right track
 frame pivots checked

Yes No

Oil added

Yes no

24. Neutral Lock Lever Operation



A—Run Position

B—Lock Position

T58965Y

Fig. 42-Neutral Lock Lever

Start crawler with neutral lock lever in the up (LOCK) position. The transmission is locked in the neutral position.

Move neutral lock lever to the down (UN-LOCK) position. The forward and reverse speed control lever is now unlocked, which makes it possible to drive the crawler.

Neutral lock lever operational

Yes No

25. Accessible Hardware Torque Values

Check all accessible cap screws and nuts for proper tightness. If hardware seems loose, tighten it to the proper torque. Group III gives correct torque values for various bolts and cap screws. The table lists torques in the U.S. unit of measure (lb-ft) and SI metrics (N-m). Most hardware used is high-strength (note dashes on hex. heads).

The types of bolts and cap screws are identified by head markings as follows:

Plain Head: regular machine bolts and cap screws.

3-Dash Head: tempered steel high-strength bolts and cap screws.

6-Dash Head: tempered steel extra high-strength bolts and cap screws.

Machine bolts and cap screws 7/8-inch and larger are sometimes formed hot rather than cold, which accounts for the lower torque.

All accessible hardware torqued

Yes No

26. Radiator Air Flow Pre-Test Inspection

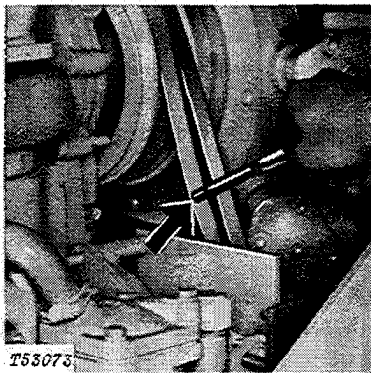


Fig. 42A-For Belt Tension

T53073

CAUTION: DO NOT remove radiator cap until radiator top tank feels cool.

1. Check coolant level.
2. Check belt tension. A force of 53 N (12 lb force) on belt halfway between pulleys must move belt 13 mm (0.500 in.). Adjust belt if necessary.
3. Check radiator fin condition. Make sure fins are not bent or damaged.
4. Check fan blade tips, shroud, and baffle, for damage. Fan blade tip to shroud distance must be equal at top and bottom.
5. Check for blower fan installation (sucker fan optional).

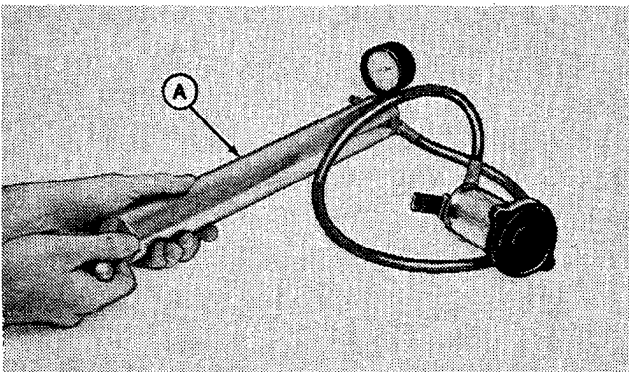


Fig. 42B-Checking Radiator Cap

T62483

6. Connect radiator cap to a D-05104ST Pressure Pump (A). Raise pressure until cap valve opens. Valve must hold pressure at 43 to 50 kPa (0.43 to 0.51 bar) (6.25 to 7.50 psi) for one minute. If pressure decreases, install a new cap.

27. Radiator/Oil Cooler Air Flow Test

1. Apply parking brake, put transmission in neutral, lock reverser lever in neutral, and start engine. Raise loader and install boom lock bar. Stop engine.
2. Remove side shields and grill screen.
3. Divide the surface of radiator into 16 equal squares with white chalk lines on the front of the radiator.
4. Install a D-01084AA Tachometer/Temperature Reader on the machine. Start engine and check low idle. Low idle must be 975—1000 rpm.
5. Run engine at 1075 rpm.
6. Connect JT05529 Air Flow Meter to D-27501BM Digital-Multimeter or JT27504 Heavy Duty Digital Multimeter. Turn switch on multimeter to 20 volts AC.

IMPORTANT: Unit is equipped with a blower fan (sucker fan is optional).

Direction arrow on Air Flow meter must be away from radiator for blower fan and towards radiator for sucker fan.

7. Hold Air Flow Meter in direct contact with radiator with direction arrow toward radiator. Hold multimeter with other hand and stand to side of unit to prevent interference with air flow. Make a record of the multimeter reading for each square.

8. Compare readings to Pre-Delivery Inspection records or repeat entire procedure on a new unit, with the same equipment for comparison. If readings are reduced by 20% or more, remove oil cooler. Clean external surfaces of both oil cooler and radiator. Install oil cooler.

Air Flow Test Readings

Record sum of individual values for future reference:

T94610

28. Final Check

The final predelivery procedure is the overall cleanup of the crawler. Make the crawler LOOK like a new crawler with the proper touch-up of chipped paint and a good wash job. Deliver to the customer a crawler anyone would be proud to own.

DELIVERY SERVICE

A thorough discussion of the operation and service of this new crawler at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of the dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints arise because the owner was not shown how to operate and service the new crawler properly. Devote enough time, at the customer's convenience, to introduce the owner to the new crawler. Explain how to operate and service it.

The following procedure is recommended before the service technician and owner complete the delivery acknowledgments portion of the Delivery Receipt.

Using the operator's manual as a guide, be sure that the owner understands these points thoroughly:

1. The importance of safety.
2. The importance of lubrication and periodic services.
3. The importance of the break-in period.
4. Controls and instruments.
5. How to start and stop the engine.
6. All functions of the hydraulic system.

After explaining and demonstrating the above features, have the owner sign the Delivery Receipt and give the owner the operator's manual.

AFTER-SALE INSPECTION

The purchaser of a new John Deere crawler is entitled to a free inspection at some mutually agreeable time within the warranty period after the equipment has been "run-in," usually after 50 to 100 hours of crawler operation. The terms of this after-sale inspection are outlined on the customer's John Deere Delivery Receipt.

The inspection is to make sure that the customer is receiving satisfactory performance from the crawler. At the same time, the inspection should reveal whether or not the crawler is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer an opportunity to answer questions that may have arisen during the first few days of operation.

During this inspection service, the dealer has the opportunity to promote the possible sale of other new equipment.

Check operation of all controls and instruments for freedom of movement and correct operation.

1. Engine Crankcase Oil and Filter Element

NOTE: Check with the customer if oil has been changed and filter replaced before performing this service.

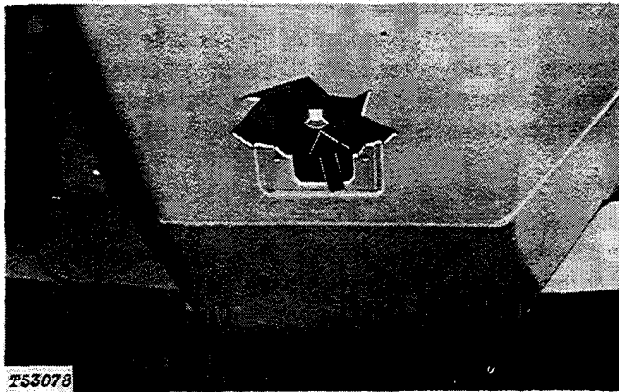
Normal sequence of service is as follows:

- Oil and Filter Change - after first 100 hours
- every 200 hours thereafter

If changed, record information below:

Approximate hours at change

If not, change as follows:

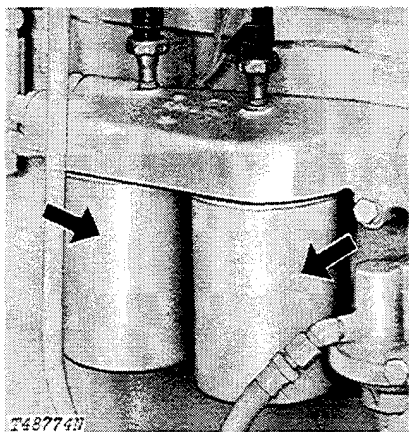


T53078

153078

Fig. 43-Engine Crankcase Drain Plug

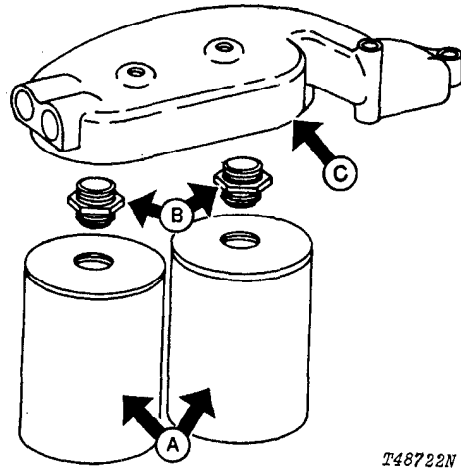
- 1 - Run engine to heat oil.
- 2 - Drain oil from engine crankcase.
- 3 - While crankcase is draining, replace filter elements as follows:



T487743

148774

Fig. 44-Engine Crankcase Filter Elements



T48722N

T48722

A—Oil Filter Element
 B—Nipples

C—Mounting Surface

Fig. 45-Crankcase Oil Filter Component

- A - Remove filter element. (Turn counter-clockwise.)
- B - Clean mounting surface.
- C - Apply film of oil to sealing rings.
- D - Tighten element until sealing rings touches mounting surface.
- E - Turn an additional 1-1/2 turns.
- F - Do not overtighten.

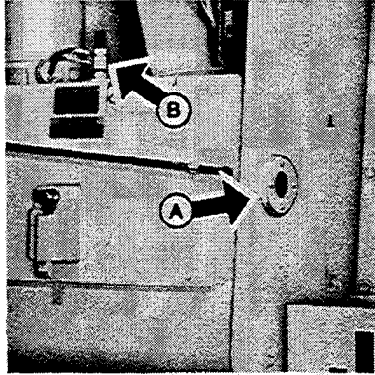
- 5 - Fill crankcase with new oil of proper viscosity. Capacity is 18 quarts (17.0 L) without filter, 20 quarts (18.9 L) with filter.
- 6 - Run engine a short time and check for leaks at filter bases and drain plug.
- 7 - Stop engine.
- 8 - Check oil level. Level should be between marks on dipstick.

Crankcase oil changed
 Oil filter element changed
 Oil added, if any

Yes No
 Yes No
 _____qts (L)

2. Hydrostatic Transmission Oil Level

Park crawler on a level surface and stop the engine. Check oil level in hydrostatic transmission system daily. Oil level should be halfway up in oil level window.



A—Oil Level Window

B—Filler Plug

T78378

Fig. 46-Check and Fill Areas

CAUTION: The hydrostatic transmission system is completely enclosed and pressurized. Remove filler plug slowly to release pressure. When replacing fill plug, be sure it is screwed down tight and the O-ring is in good condition.

If oil level is low, remove fill plug. Add oil specified in the Lubrication section until oil level reaches mid-point on the oil level window. Check transmission system for leaks if oil level is low.

Hydrostatic transmission
 oil level checked

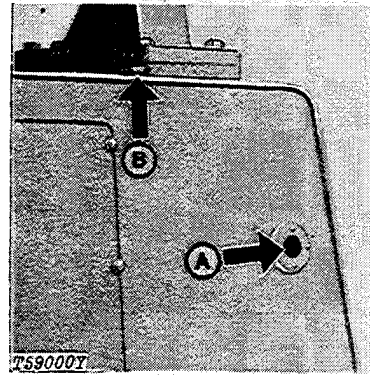
Yes No

Oil added, if any

—qts. (L)

3. Hydraulic Oil Level

Park crawler on a level surface, blade on ground and ripper (if equipped) in transport position. Stop the engine. Check oil in hydraulic system. Oil level should be halfway up in oil level window with the blade level on the ground and ripper (if equipped) in transport position.



A—Oil Level Window

B—Filler Plug

T59000Y

Fig. 47-Check and Fill Areas

CAUTION: The hydraulic reservoir is completely closed and pressurized. Slowly remove the fill plug to relieve the reservoir pressure. When replacing the fill plug, be sure it is screwed down tight and the O-ring is in good condition.

If oil level is low, remove fill plug located on top of the oil reservoir. Add oil specified in the Lubrication section until oil level reaches midpoint on the oil level window. Check hydraulic system for any leaks if oil level is low.

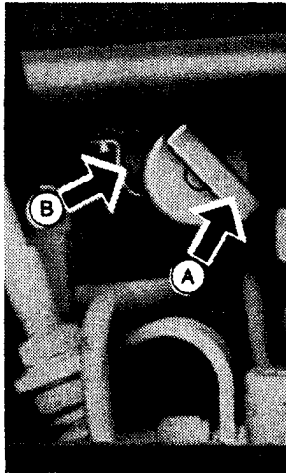
Hydraulic oil level checked

Yes No

Oil added, if any

—qts. (L)

4. Splitter Gearbox Oil Level



A—Dipstick

B—Filler Tube

T81433

Fig. 48-Splitter Gearbox

Filler tube and dipstick are located on the rear of the splitter housing under the floorboard plate.

IMPORTANT: DO NOT overfill. Overfilling may cause overheating.

Park crawler on a level surface and stop the engine.

Remove dipstick. Oil level should be between marks on the dipstick. If oil level is low, fill with oil specified in the Lubrication section and replace dipstick. Do not overtighten dipstick.

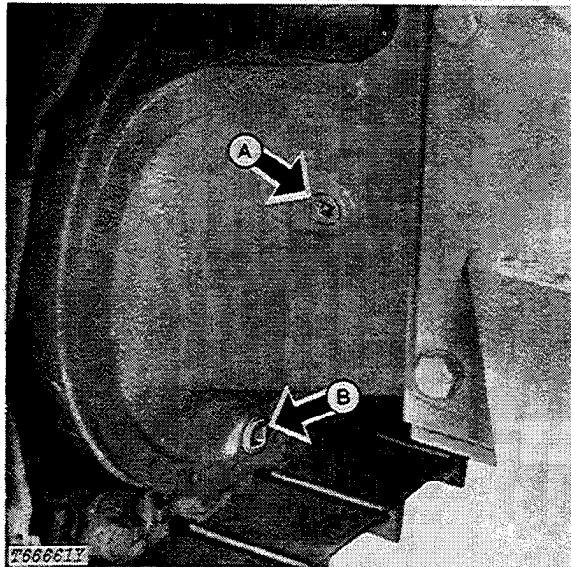
Splitter gearbox
oil level checked

Yes No

Oil added, if any

—qts. (L)

5. Inner and Outer Final Drive Housing Oil Level

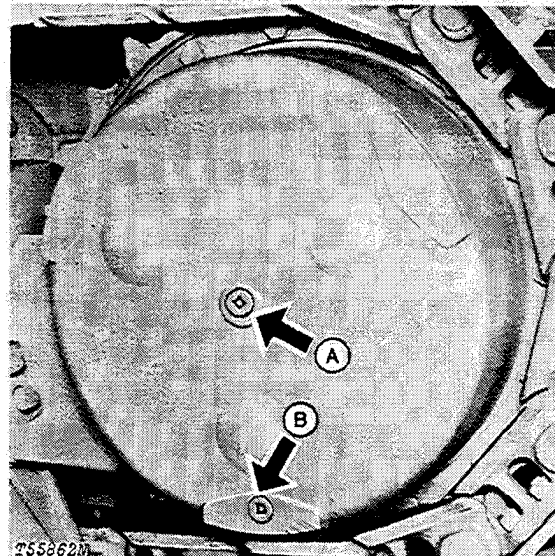


A—Level-Filler Plug

B—Drain Plug

T66661Y

Fig. 49-Inner Final Drive Housing



A—Level-Filler Plug

B—Drain Plug

T55862N

Fig. 50-Outer Final Drive Housing

Check the oil levels of the inner and outer final drive housings. Oil level should be at check and fill plug. If low, add oil specified in the Lubrication section to bring oil level to check and fill plug.

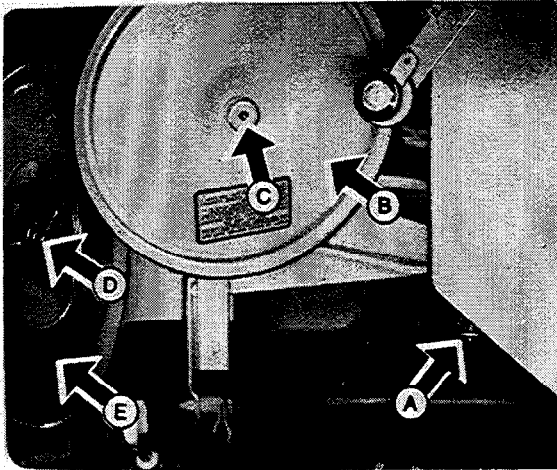
Inner and outer final drive
housing oil level checked

Yes No

Oil added, if any

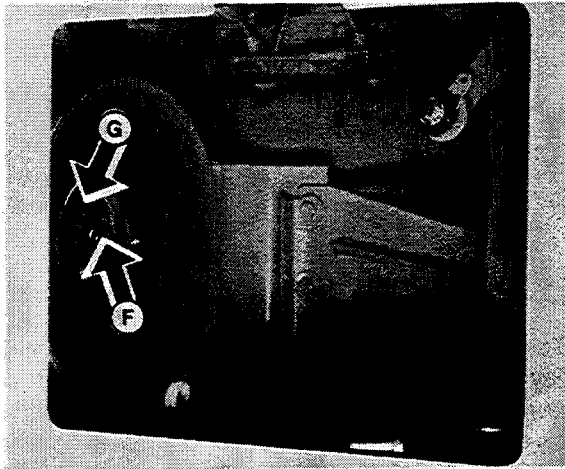
—qts. (L)

6. Air Cleaner



T78373

- A—Restriction Indicator
 B—Cover
 C—Nut
 D—Wing Nut
 E—Primary Element



T78374

- F—Wing Nut
 G—Safety Element

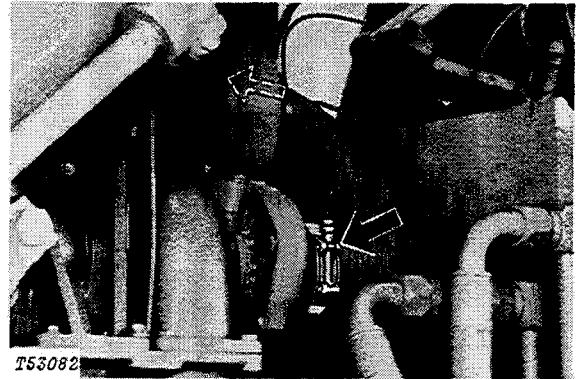
Fig. 51 and 52-Air Cleaner

Check air cleaner restriction indicator. If red signal locks in full view, remove and clean primary element. Replace element if necessary.

NOTE: If cleaning primary element does not return restriction indicator to normal, replace the safety element.

Air cleaner elements checked	Yes	No
Air cleaner elements cleaned or replaced	Yes	No

7. Air Intake Hose



T53082

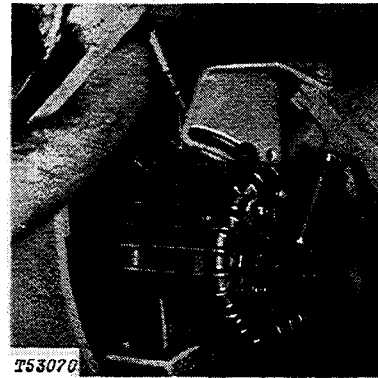
T53082

Fig. 53-Air Intake Hose Connections

Check clamps on hose which connects air cleaner and engine. Tighten hose clamps where necessary to prevent dirt from entering engine. Inspect hose for cracks and wear. Check air intake system for leaks.

Loose connections	Yes	No
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8. Alternator-Fan-Compressor Belt Tension

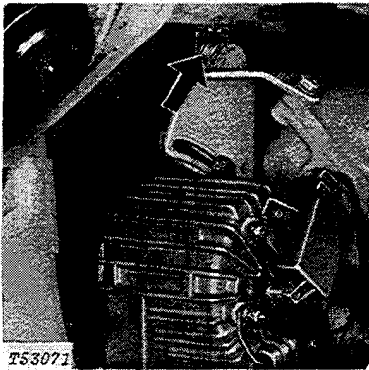


T53070

T53070

Fig. 54-Checking Belt Tension

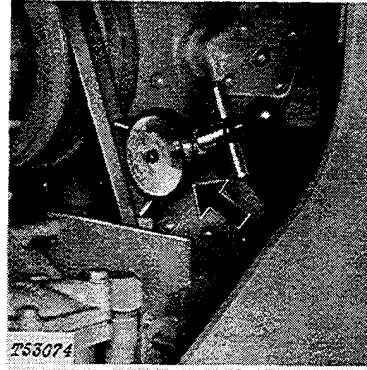
Check alternator belt tension. A force of 18 lb. (90 N) (8 kg) midway between pulleys should deflect belt 1/2-inch (13 mm).



T53071

Fig. 55-Checking Strand Tension

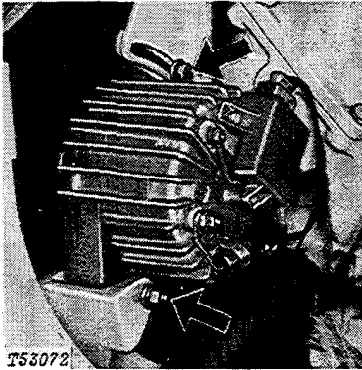
If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 135 lb. (600 N) (61 kg).



T53074

Fig. 58-Checking Strand Tension

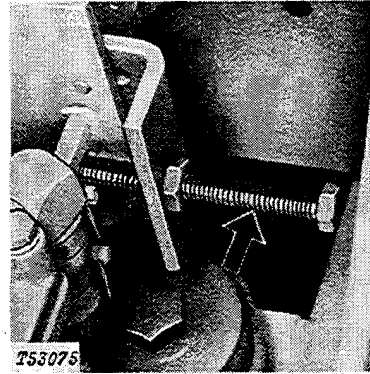
If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 100 lb. (445 N) (45 kg).



T53072

Fig. 56-Adjusting Screws

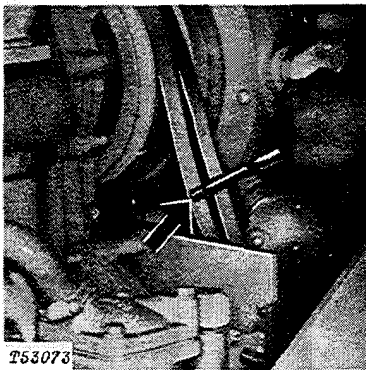
To adjust, loosen alternator bracket and adjusting screws.



T53075

Fig. 59-Adjusting Screws

To adjust, loosen the 2 cap screws holding the idler pulley support onto the idler pulley bracket. Turn cap screw on side of the idler pulley clockwise. This will apply outward pressure on the idler pulley. Tighten the 2 cap screws holding the idler pulley support onto the idler pulley bracket.



T53073

Fig. 57-Checking Belt Tension

Check fan belt tension. A force of 12 lb. (53 N) (5 kg) midway between pulleys should deflect belt 1/2-inch (13 mm).



T53067

Fig. 60-Checking Belt Tension

Check compressor belt tension. A force of 15 lb. (67 N) (7 kg) midway between pulleys should deflect belt 1/4-inch (6 mm).

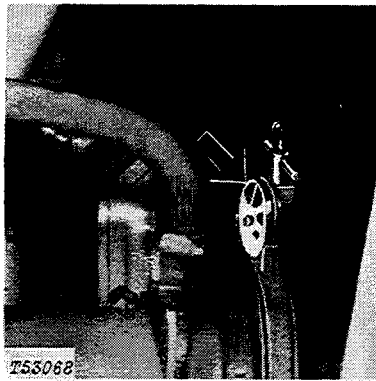


Fig. 61-Checking Strand Tension

If belt gauge is used, tighten used belt to 90 lb. (400 N) (41 kg) strand tension. Tighten new belt to 135 lb. (600 N) (61 kg).

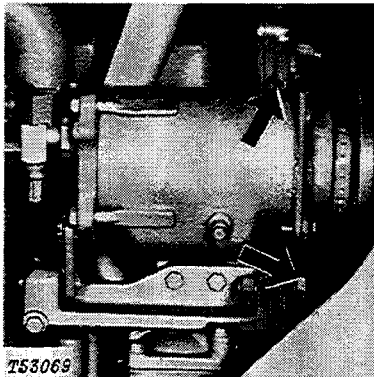


Fig. 62-Adjusting Screws

To adjust, loosen compressor bracket and adjusting screws.

Alternator belt tension	_____lbs. (N) (kg) tension
	_____inch (mm) flex
Fan belt tension	_____lbs. (N) (kg) tension
	_____inch (mm) flex
Compressor belt tension	_____lbs. (N) (kg) tension
	_____inch (mm) flex

9. Radiator Coolant Level



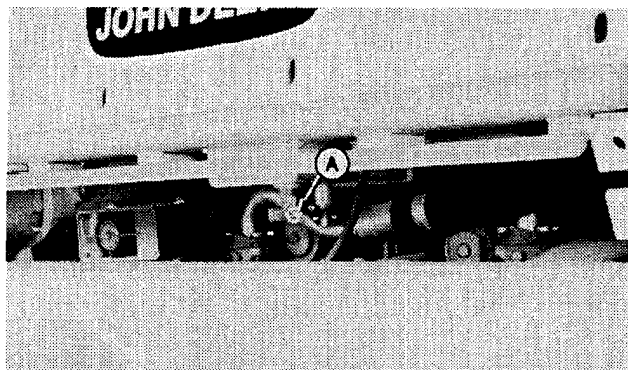
Fig. 63-Radiator Filler Cap

CAUTION: Remove radiator filler cap only when engine is cool. Then loosen the cap slightly to the stop to relieve pressure before removing the cap completely.

Check coolant level in the radiator. Coolant level should be at the bottom of filler neck. If coolant level is low, check cooling system for leaks.

Radiator coolant level checked	Yes	No
Coolant or anti-freeze added, if any	_____qts. (L)	

10. Fuel Tank Sump



T88977

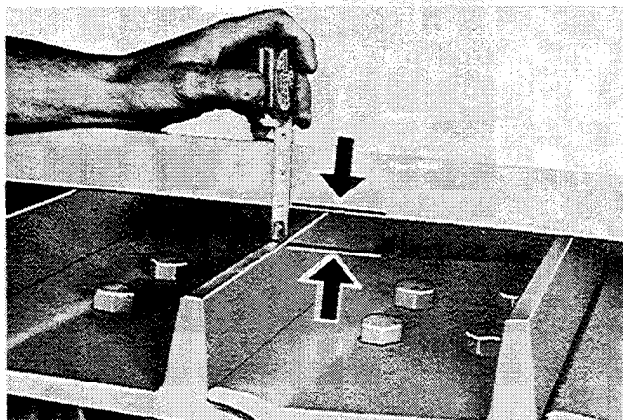
Fig. 64-Fuel Tank Sump

Open drain cock (A) located at bottom of fuel tank. Drain fuel until all sediment drains out. Close and tighten drain cock.

NOTE: Drain sump after crawler has been shut down for at least 2 hours.

Fuel tank sump drained	Yes	No
Filter checked	Yes	No

11. Track Sag Adjustment

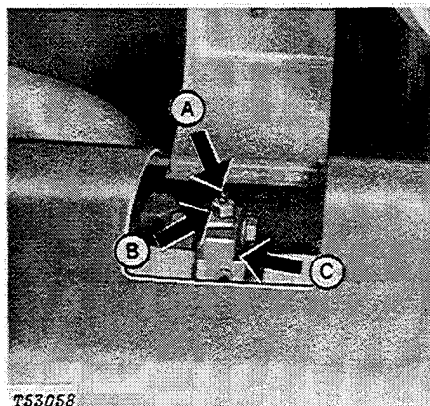


T74001

Fig. 65-Measuring Track Sag

Measure amount of sag in center of track between carrier roller and front idler. Sag should be 1 to 1-1/2 inches (25.4 to 38 mm).

NOTE: A pin and bushing must be lined up over the carrier roller.



T53058

T53058

A—Grease Fitting	C—Vent Hole
B—Check Valve	

Fig. 66-Adjusting Track Tension

Loosen screw and open access cover.



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To increase track tension:

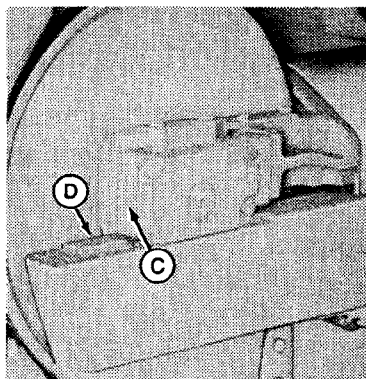
- 1 - Attach a grease gun (8000 psi [552 bar] [562 kg/cm²] max.) to the grease fitting (A) on the track adjuster.
- 2 - Apply grease until the proper track tension is achieved.

To decrease track tension:

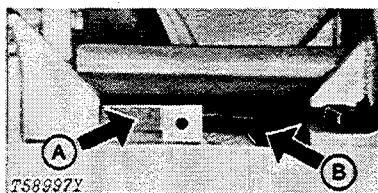
- 1 - Turn check valve (B) 1 to 3 turns counterclockwise. This will allow grease to escape through the vent hole (C).
- 2 - Turn check valve clockwise to close valve.

CAUTION: High pressure may be present in the track adjuster cylinder. If grease does not immediately escape from the vent hole, drive the unit forward and backward slowly, then tighten check valve.

IMPORTANT: Never lubricate fitting on hydraulic track adjusting cylinder except when track is in need of adjustment.



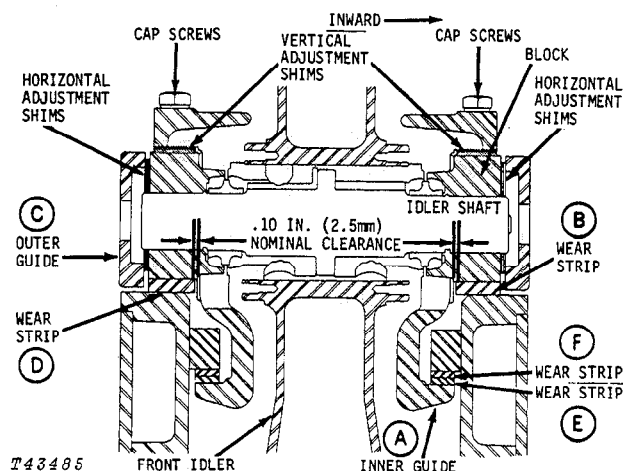
T94112



T58997Y

Fig. 67 and 68-Track Wear Check

IMPORTANT: When the forward edge of the front idler block (C) is approximately in line with the front edge of the top wear strip (D), the track adjuster stop (A) will contact the track frame (B) and no further increase in track tension can be obtained. To avoid damage, recondition track.



T43485

T43485

- | | |
|---------------|--------------|
| A—Inner Guide | D—Wear Strip |
| B—Wear Strip | E—Wear Strip |
| C—Outer Guide | F—Wear Strip |

Fig. 69-Track Wear Shim Adjustments

Slide the front idler inward. If inner guide (A, Fig. 69) does not contact inward side of wear strip (B), additional shims must be added. To add shims, remove outer guide (C). Add shims as required until outer guide contacts outward edge of wear strip (D) at the same time that the inner guide (A) contacts the inward side of wear strip (B). Replace and tighten cap screws on outer guide (C).

The same procedure applies when checking shim adjustment on the opposite side of the front idler. Repeat both procedures for checking front idler horizontal adjustment on opposite side of the crawler.

Loosen the two cap screws on the top of inner guide (A). Pry inner guide up between the inner guide and block. If inner guide (A) is free to move up, additional shims must be added. Remove the two cap screws and add vertical adjustment shims as required. When shimming is completed, there should be .00 to .04 (1 mm) maximum gap vertical movement between inner guide (A) and block.

The previous adjustment has eliminated the clearance between the wear strip on the inner guide (A) and the wear strip (F) on the track frame.

Replace and tighten cap screws on inner guide (A).

The same procedure applies when checking the shim adjustment on the opposite side of the front idler. Repeat both procedures for checking front idler vertical adjustment on opposite side of the crawler.

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