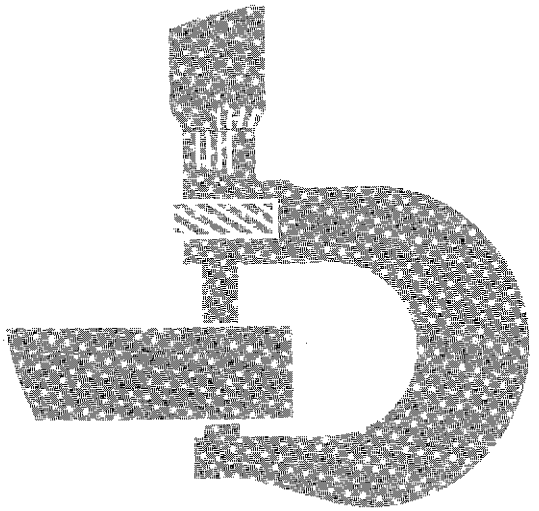
755A
Crawler Loader



TECHNICAL MANUAL

TM-1231

LITHO IN U.S.A.

755A CRAWLER LOADER
Technical Manual
TM-1231 (Mar-84)

SECTION AND GROUP CONTENTS OF THIS MANUAL

Litho in U.S.A.

SECTION AND GROUP CONTENTS OF THIS MANUAL—Continued

All information, illustrations and specifiations contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

Litho in U.S.A.

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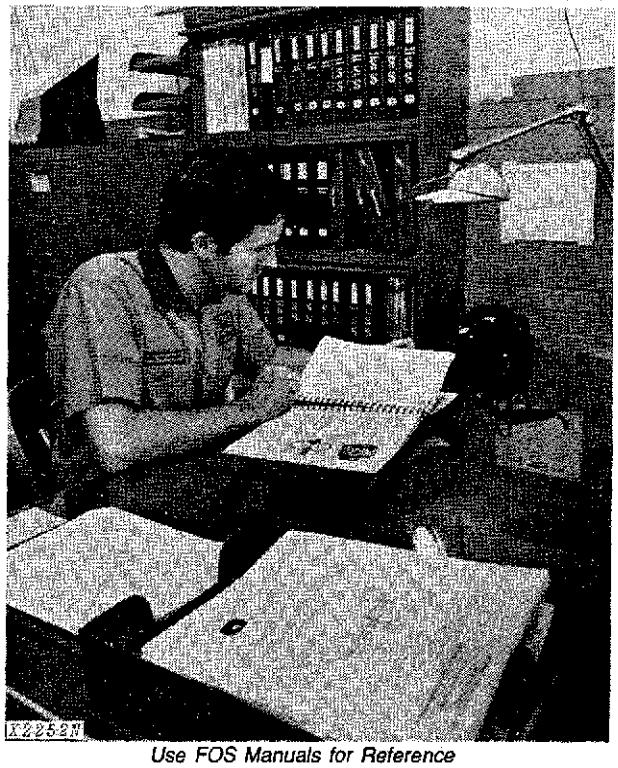
Group II
INTRODUCTION AND SAFETY INFORMATION

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.

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 I - Contents, Introduction and Safety Information, General Specifications, and Fuels and Lubricants.
- Sections 1 through 42 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

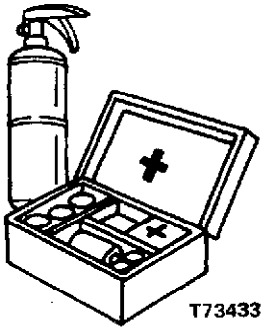
Litho in U.S.A.

MAINTENANCE WITHOUT ACCIDENT

SAFETY AND YOU

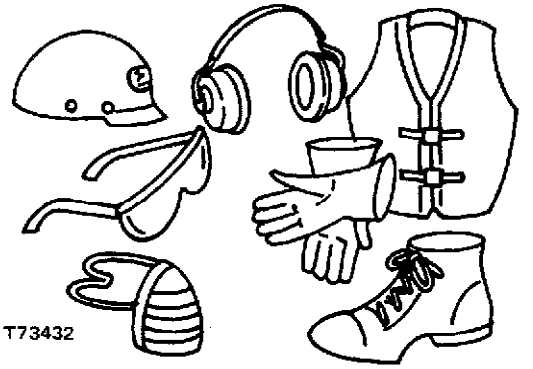
T27999N

⚠ CAUTION: This safety symbol followed by the word "caution" identifies important safety messages in this manual and on the crawler loader. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



T73433

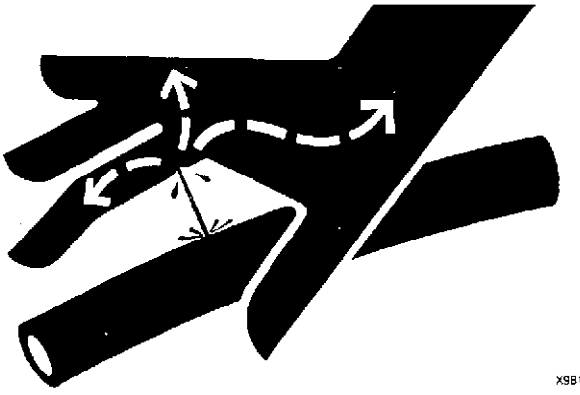
Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located - know how to use them.



Wear safety equipment.

T45672

Wear fairly tight clothing.



X981

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.

Litho in U.S.A.

MAINTENANCE WITHOUT ACCIDENT

KEEP SHOP AND STORAGE AREA CLEAN

T27508N

Maintenance area should be adequately vented.

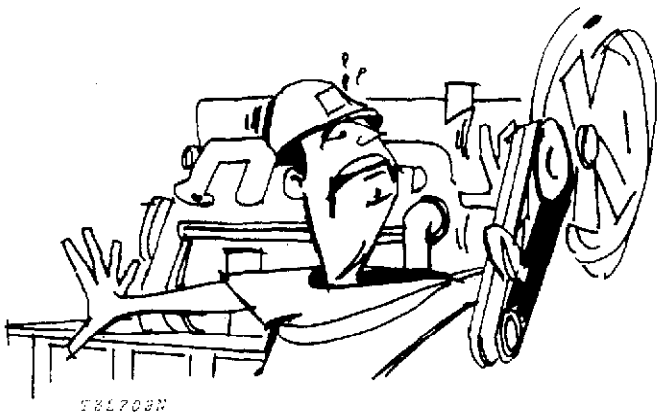
Keep maintenance area clean and dry.

Store flammable materials in a cool and well-vented area out of reach of unauthorized personnel.

FOLLOW SAFE WORKING CONDITIONS

Perform work on equipment only if authorized to do so.

Follow recommended procedures.


T27709N

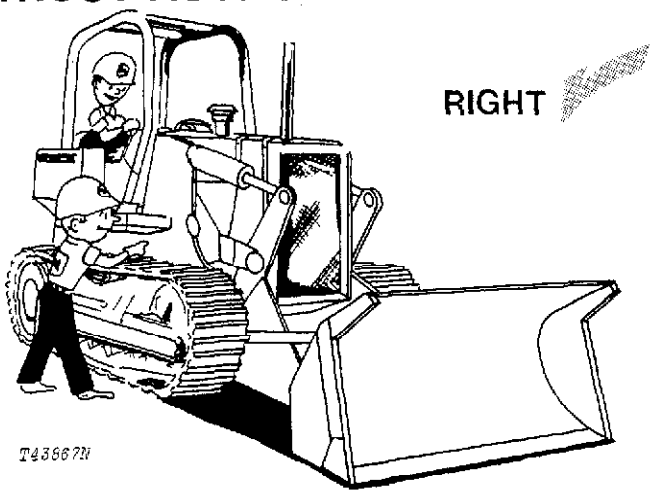
Do not service equipment while it is being operated or engine is running.

Keep hands away from moving parts.

Do not use open flame around machine.

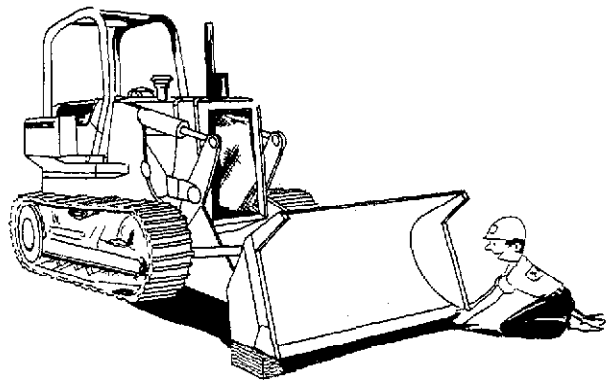
If machine is on an incline, block it securely.

Use hoisting equipment for lifting heavy parts.



T43667N

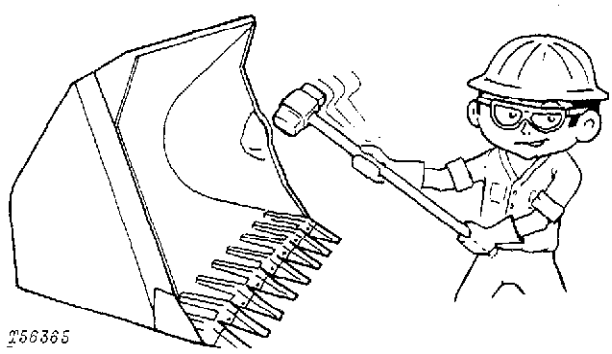
Always use two service technicians - one, the operator at the controls, the other checking within sight of the operator.


T56364

Support all raised equipment.

Do not work under raised bucket.

Always lower bucket before working on it.

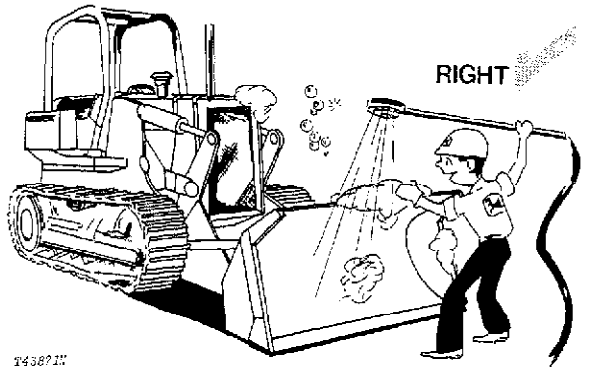

T56365

Wear safety glasses when drilling, grinding or hammering metal.

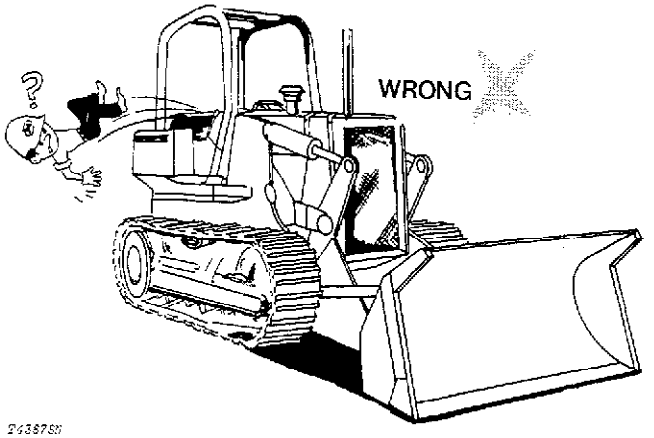
Litho in U.S.A.

MAINTENANCE WITHOUT ACCIDENT

OBSERVE SERVICE PRECAUTIONS



Keep all equipment free of dirt and oil.



Remove oil, grease, mud, ice, or snow from floor of operator's compartment or steps.

Do not remove radiator filler cap unless engine is cool. Then loosen cap slowly to the stop. Release pressure before you remove cap.

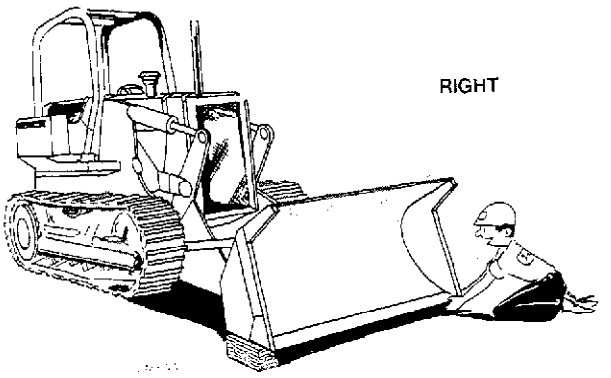
Check exhaust system periodically for excessive leakage.

Relieve hydraulic pressure before working on hydraulic system.

Use the correct test group when checking hydraulic pressure.

Discharge accumulators completely before recharging or servicing.

OBSERVE REPAIR PRECAUTIONS



Securely block bucket before changing cutting edges. Wear gloves when working with sharp edges.

Relieve hydraulic pressure before working on hydraulic system.

Turn off battery disconnect switch before repairing the electrical system or performing a major overhaul.

Install lift arm locking pin before working in engine area.

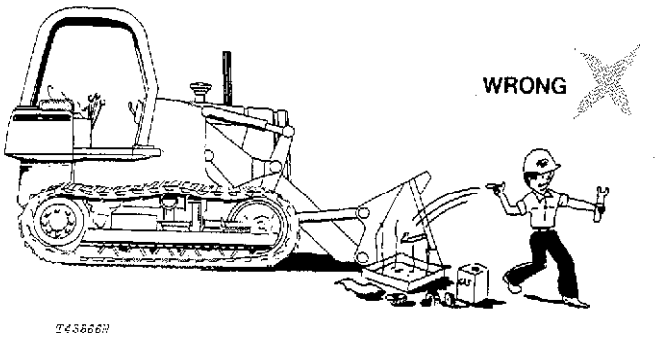
CHECK SAFETY EQUIPMENT ON MACHINE

Check that all protective devices (guards, canopies, shields, ROPS, seat belts, etc.) are installed and secured on machine.

Inspect machine carefully for leakage from lines, hoses, and fittings.

MAINTENANCE WITHOUT ACCIDENT

AVOID EXPLOSIONS OR FIRE



T43866N

Do not smoke while refueling.

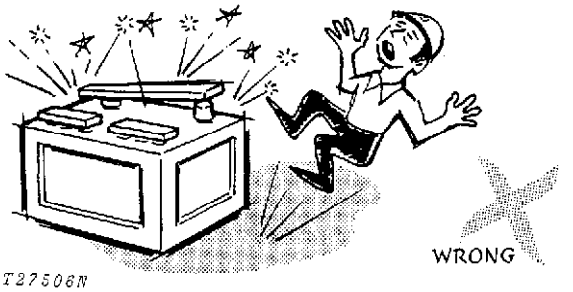
Do not smoke while handling highly flammable materials.

Shut off engine when refueling.

Use care in refueling if engine is hot.

Use good commercial, nonflammable solvents for cleaning parts.

OBSERVE BATTERY PRECAUTIONS



T27506N

Do not place metal objects across posts to check charge.

Do not smoke near battery.

Do not allow sparks or open flame near battery.

Provide adequate ventilation when charging batteries.

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.

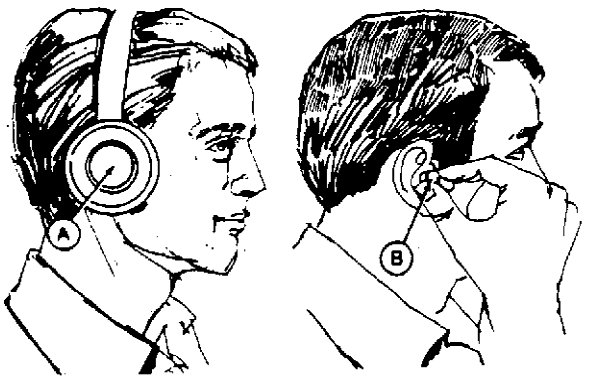
The information contained in this manual is not intended to replace safety codes, insurance requirements, federal, state, and local laws, rules and regulations. In particular, your service area or jobsite activities may be subject to state safety rules and/or federal regulation under the Occupational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

TEST COOLANT HEATER IN LIQUID ONLY

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

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

PROTECT AGAINST NOISE



X7662

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

UNDERSTAND CORRECT SERVICE

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

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

PREPARE MACHINE FOR REPAIR

Lower all equipment to the ground.

Put forward and reverse speed control lever in neutral position. Move neutral lock lever to locked position.

Stop the engine.

Operate all hydraulic control levers to release hydraulic pressure in the system.

Disconnect negative (−) battery cable.

KEEP ROPS INSTALLED PROPERLY

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

START ENGINE FROM OPERATOR'S SEAT ONLY

Avoid possible injury or death from machinery runaway.

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

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

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 2.25 cu. yd. [1.72 m³] bucket with teeth, roll-over protective canopy, four counterweights, fuel tank, 175 lb. [79 kg] operator and standard equipment.)

Power (@ 2100 rpm):	**SAE**	**DIN**
Gross	142 hp (106 kW)	
Net	30 hp (97 kW)	132 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. (152.4 m) altitude and 85°F (29°C) temperature, and DIN 6270 conditions (non-corrected). No derating is required up to 10,000 feet (3000 m) altitude.

Engine: John Deere 6-cylinder turbocharged diesel, valve-in-head, 4-stroke cycle.
Bore and stroke .... 4.19 × 5 in. (106.4 × 127 mm)
Piston displacement ..... 414 cu. in. (6.785 L)
Compression ratio ..... 16.2 to 1
Maximum torque @ 1300 rpm .. 400 lb-ft (542 N·m) (55.3 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
Dual-stage aspirated air cleaner with restriction indicator ..... Dry
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 6.7 mph (0 to 10.8 km/h) forward or reverse.
Control ..... Single-lever, variable speed, forward and reverse.

Steering:
Fully modulated, infinitely variable pedal steering for live power turns and counterrotation. 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.

Hydraulic System: Open-center
Control ..... Single-lever bucket control with automatic bucket positioner and float position. Three-function valve.
Pump ..... Vane, 55 gpm (3.4 L/s) @ rated engine speed
Pressure ..... 2500 psi (17 237 kPa) (175.7 kg/cm²)
Oil lines ..... Seamless steel tubing; double-wire-braid hose
Filter ..... 10 micron filter in return line with bypass

Hydraulic Cylinders:	**Bore**	**Stroke**
Boom (2)	5.50 in. (140 mm)	32 in. (813 mm)
Bucket (2)	4.50 in. (114 mm)	21.52 in. (547 mm)

Cylinder rods .. Ground, heat-treated, chrome-plated, polished
Boom cylinder rods ..... 3.75 in. (95 mm) dia.
Bucket cylinder rods ..... 2.25 in. (57 mm) dia.

Tracks (6-roller track frame with front and rear track guides and sprocket guard):
Two bar grouser width ..... 17 in. (432 mm)
Track shoes, each side 36
Ground contact area ..... 3173 sq. in. (20 472 cm²)
Ground pressure .. 11.0 psi (75.8 kPa) (0.773 kg/cm²)
Length of track on ground ..... 93.5 in. (2.37 m)
Track gauge ..... 66 in. (1.68 m)
Carrier roller ..... 1 each side
Adjustment ..... Hydraulic
Minimum ground clearance ..... 15.3 in. (389 mm)

Litho in U.S.A.

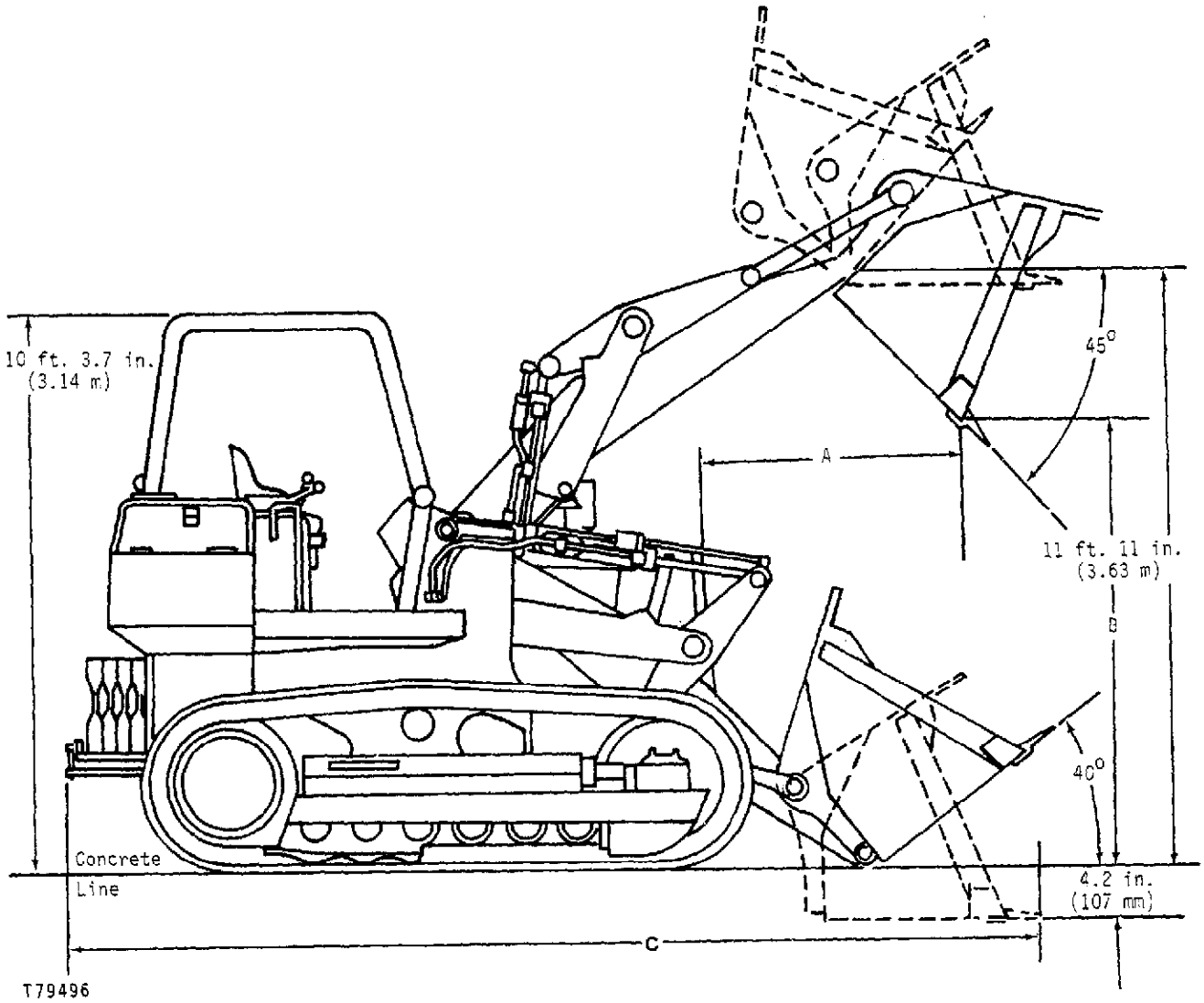
SAE Operating Weight with ROPS ..... 35,000 lb. (15 900 k)

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	6.25 gal.	23.6
2nd reduction	3.5 gal.	13.2
Loader hydraulic system	37 gal.	140.1
Hydrostatic drives	33 gal.	124.9

SAE Operating Weight with ROPS ..... 35,000 lb. (15 900 kg)

SAE Operating Weight with ROPS Cab ..... 35,400 lb. (16 060 kg)

LOADER DIMENSIONS



T79496

BUCKET CAPACITIES	DIMENSIONS		
	A	B	C
2.25 cu. yd. (1.72 m³) bucket	47 in. (1194 mm)	9 ft. 4 in. (2.84 m)	18 ft. 3 in. (5.56 m)
2 cu. yd. (1.53 m³) multipurpose	47.4 in. (1.20 m)	9 ft. 3.6 in. (2.83 m)	18 ft. 3.5 in. (5.58 m)

LOADER OPERATING DIMENSIONS

OPERATING INFORMATION	BUCKET	
	General Purpose	**Multipurpose**
Capacity, heaped, SAE	2.25 cu. yd. (1.72 M^3)	2.0 cu. yd. (1.53 M^3)
Capacity, struck, SAE	1.90 cu. yd. (1.45 m^3)	1.60 cu. yd. (1.22 m^3)
Bucket width	87.15 in. (2.21 m)	88.2 in. (2.24 m)
Bucket weight, without teeth	1790 lb. (812 kg)	2770 lb. (1256 kg)
SAE breakout force	27,500 lb. (122 kN) (12 474 kg)	27,000 lb. (120 kN) (12 247 kg)
SAE tipping load (w/drawbar and four counterweights)	25,300 lb. (11 476 kg)	24,320 lb. (11 030 kg)
Raising time	5.86 sec.	5.86 sec.
Dumping time	1.27 sec.	1.27 sec.
Lowering time	3.23 sec.	3.23 sec.
SAE operating weight w/ROPS canopy	35,000 lb. (15 900 kg)	35,980 lb. (16 320 kg)

Adjustments to operating weights and tipping loads:		
Add (+) or deduct (−) lb. (kg) as indicated for loader equipped with:	**Loader Operating Weight**	**Tipping Load**
Cab	+400 lb. (181 kg)	+440 lb. (200 kg)
Bucket teeth, bolt on	−165 lb. (75 kg)	+215 lb. (98 kg)
Air conditioning	+109 lb. (49 kg)	+30 lb. (14 kg)
Ripper (w/o drawbar and four counterweights)	−106 lb. (48 kg)	−200 lb. (91 kg)
Counterweight (each)	+or −500 lb. (227 kg)	+or −865 lb. (392 kg)

CUSTOMARY HARDWARE TORQUE

HARDWARE TORQUE SPECIFICATIONS

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

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

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

Customary Hardware

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

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METRIC HARDWARE TORQUE

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

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

Metric Standard Thread

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

Metric Fine Thread

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

O-RING BOSS FITTING SERVICE RECOMMENDATIONS

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

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

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

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

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

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

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

STRAIGHT FITTING OR SPECIAL NUT TORQUE

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

1. Tolerance ± 10%.

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

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

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

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

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

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

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

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

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

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

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

1. Tolerance of ± 10%.

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

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

SAE FOUR BOLT FLANGE FITTING SERVICE RECOMMENDATIONS

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

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

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

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

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

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

SAE FOUR BOLT FLANGE FITTING TORQUE

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

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

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

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

1. Tolerance: +15-20%.

Group IV
FUELS AND LUBRICANTS

GENERAL INFORMATION

Below is a copy of the periodic service chart which is on the outside of the left console (without cab) or outside the left side of the cab. More detailed information for working on the crawler loader is in the current 755A operator's manual.

Use the operator's manual and periodic service chart as references when working on the crawler loader. Tell your customer to thoroughly read the operator's manual before operating or working on the crawler loader.

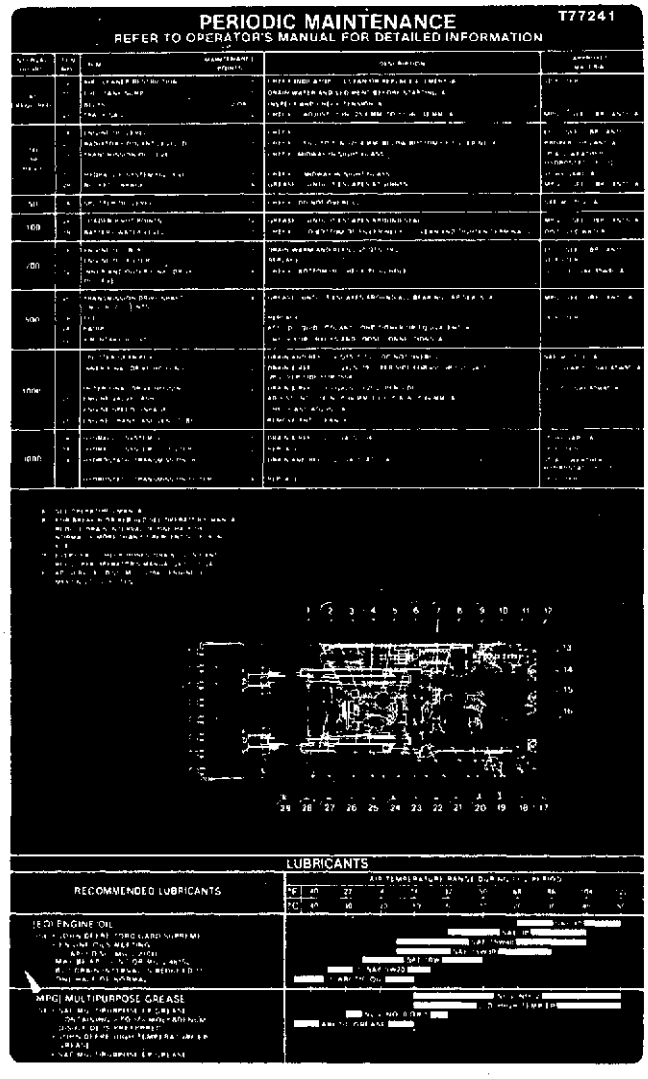


Fig. 1-Periodic Service Chart

FUEL SPECIFICATIONS

Use ONLY clean, high-quality fuel.

Use Grade No. 2-D fuel above 40°F (4°C).

Use Grade No. 1-D fuel at temperatures below 40°F (4°C).

Use Grade No. 1-D fuel for all air temperatures at altitudes above 5000 ft. (1 500 m).

IMPORTANT: If fuel sulfur content exceeds 0.5 percent, the engine oil drain interval must be reduced by 50 percent (to 100 hours).

Use fuel with less than 1.0 per cent sulfur. If possible, use fuel with less than 0.5 per cent sulfur.

For maximum filter life, sediment and water should not exceed 0.10 per cent.

The cetane number should be 40 minimum. If you operate your machine where air temperatures are normally low or where altitudes are high, you may need fuel with a high cetane number.

Cloud Point - For cold weather operation, cloud point should be 10°F (6°C) below lowest normal air temperature.

FUEL STORAGE

NOTE: Diesel fuels stored for a long time may form gum and plug filters.

Keep fuel in a clean container in a protected area. Water and sediment must be removed before fuel gets to the engine. Do not use de-icers to remove water from fuel. Do not depend on fuel filters to remove water.

If possible, install a water separator at the storage tank outlet. See your John Deere dealer for this part.

IMPORTANT: Keep all dirt, scale, water, and other foreign matter out of fuel.

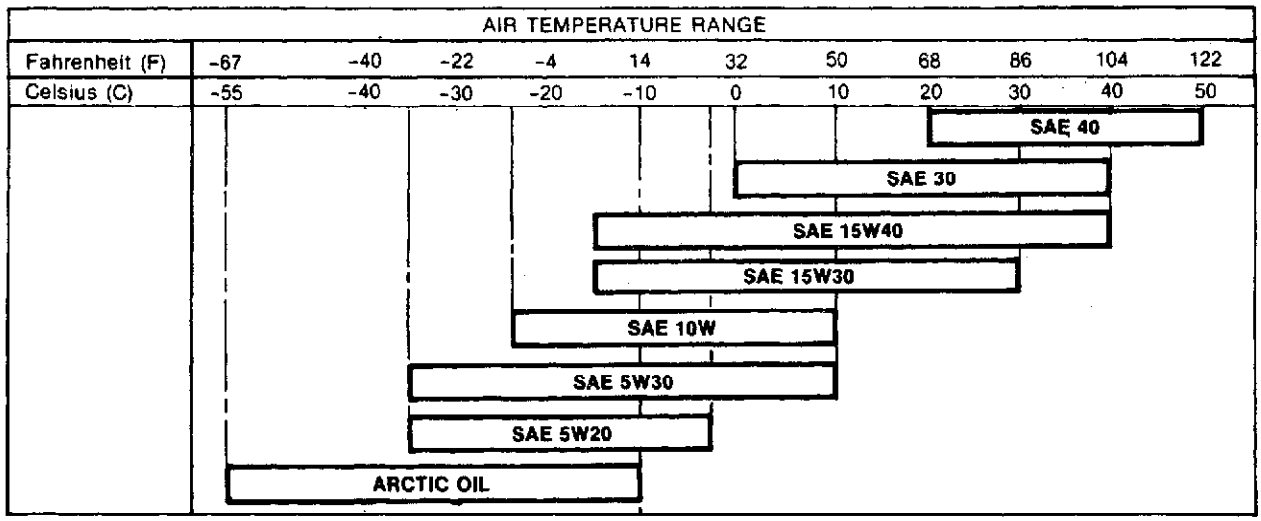
Store fuel drums on their sides with plugs up.

FUEL TANK

CAUTION: Handle fuel carefully. If the engine is hot or running, do not fill the fuel tank. Do not smoke while you fill fuel tank or work on fuel system.

To avoid condensation, fill the fuel tank at the end of each day's operation.

ENGINE OIL



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Depending on the expected air temperature range between oil changes, use oil viscosity shown on the chart above.

Additives are not required nor recommended.

John Deere TORQ-GARD SUPREME® engine oil is recommended. If other oils are used, they must have the following minimum specifications:

Oil Specification	Use
API Service CD/SC (MIL-L-2104C)	Recommended
API Service CC/SC• or MIL-L-46152•	For SAE 5W20, SAE 5W30 and arctic oil only, use if recommended oil is not available
MIL-L-46167•	For arctic oil only

• Change oil at 100 hours, which is half the normal drain interval.

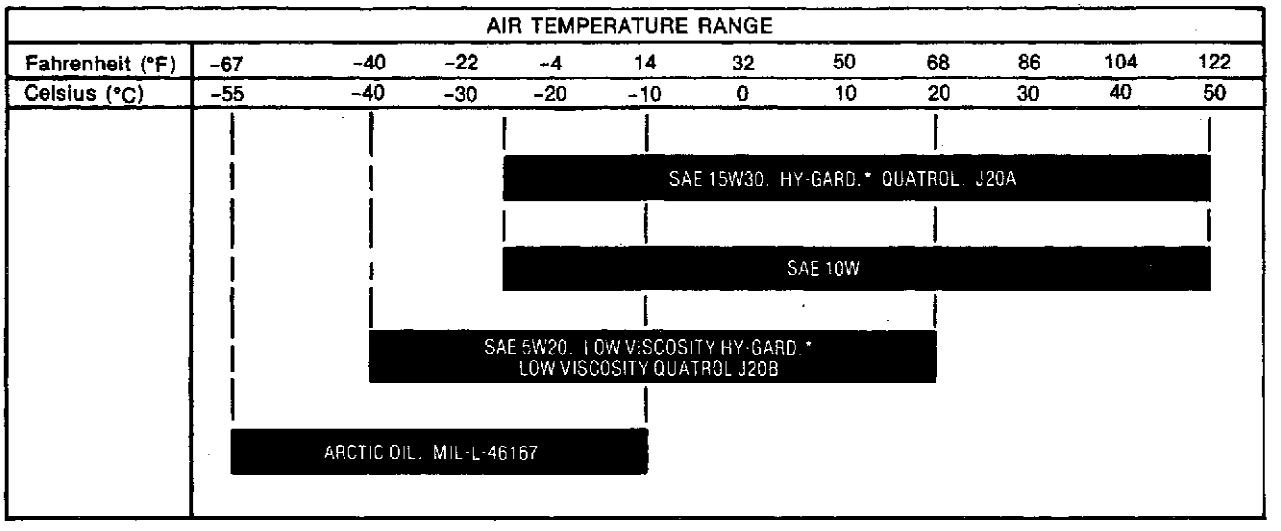
TRANSMISSION OIL

Use:

John Deere All-Weather Hydrostatic Fluid.

Oils meeting John Deere Standard JDM J21A.

HYDRAULIC SYSTEM OIL



Depending on the expected air temperature range between oil changes, use oil viscosity shown on the chart above.

The following oils are recommended:

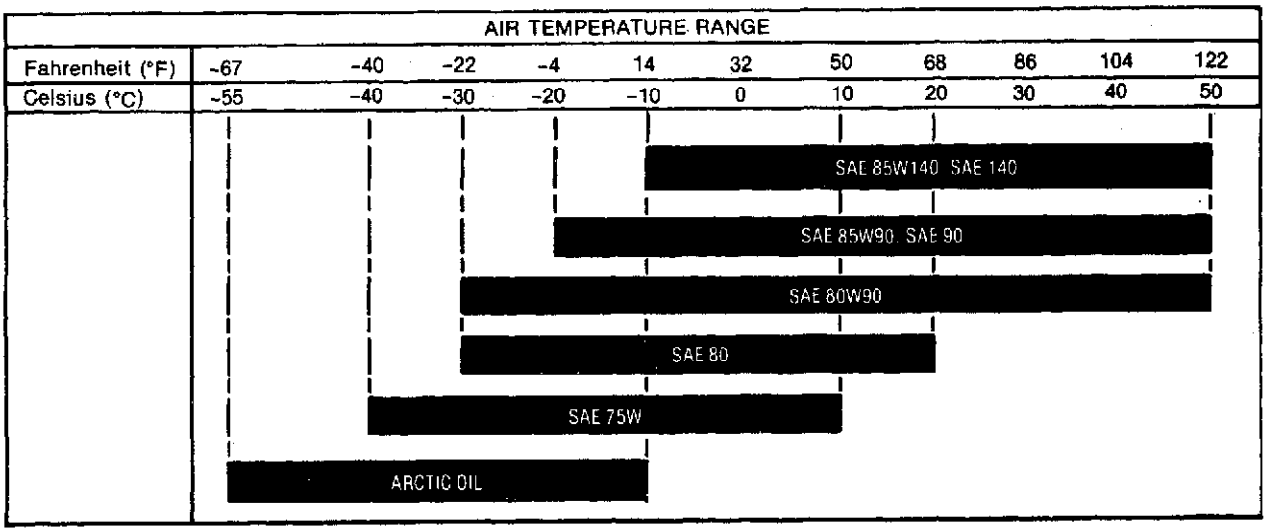
John Deere HY-GARD® Transmission and Hydraulic Oils

Engine oil meeting API Service CD/SC (MIL-L-2104C), C/SC, or MIL-L-46152.

You may also use QUATROL® oils, which are oils that meet John Deere standards, or other oils meeting John Deere Standard J20A or J20B.

Oil meeting MIL-L-46167 may be used as an arctic oil.

FINAL DRIVE OIL



Depending on the expected air temperature range between oil changes, use oil viscosity shown on the chart above.

The following oils are recommended:

John Deere API GL-5 Gear Oil

Oils meeting API Service GL-5 (MIL-L-2105B or MIL-2105C)

Oil meeting MIL-L-10324A may be used as arctic oil.

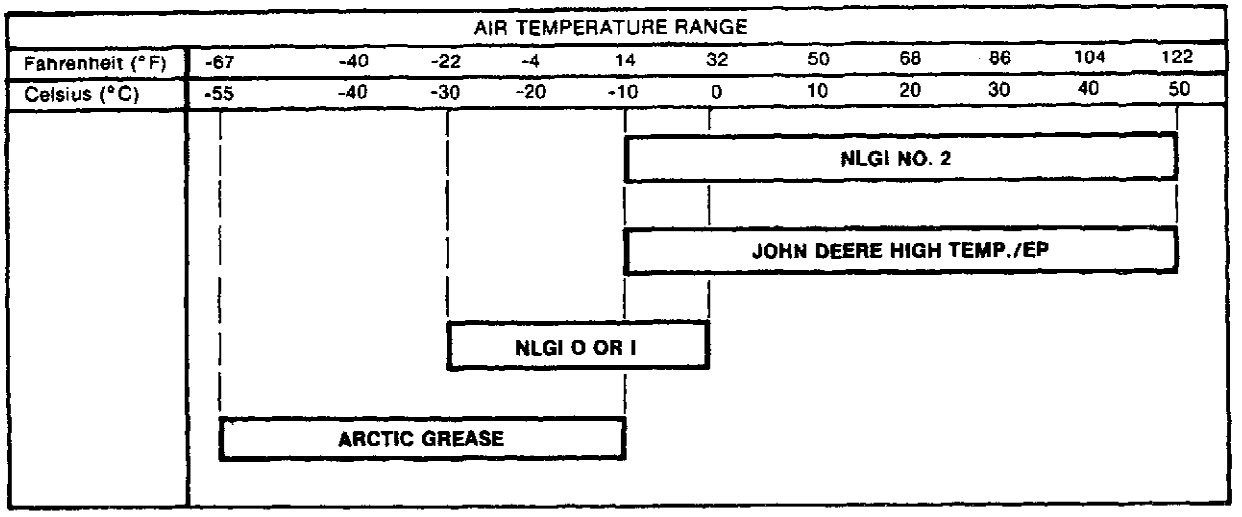
SPLITTER DRIVE OIL

Use SAE 30 engine oil meeting API Service CD/SC (MIL-L-2104C), CC/SC, or MIL-L-46152.

TRACK ROLLER, FRONT IDLER, AND CARRIER ROLLER OIL

Use SAE 80W90 EP gear oil meeting API Service GL-5 (MIL-L-2105B or MIL-L-2105C).

GREASE



Depending on the expected air temperature range during use, use grease shown on chart above.

Greases recommended are:

SAE Multipurpose Grease with Extreme Pressure (EP) performance and containing 3 to 5 per cent molybdenum disulfide (preferred)

John Deere High Temperature/EP Grease

SAE multi-purpose EP grease

Grease meeting MIL-G-10924C specifications may be used as arctic grease.

COLD WEATHER OPERATION

Additional information on cold weather operation is available from your John Deere Industrial Region office.

ALTERNATIVE LUBRICANTS

Conditions in certain geographical areas may require special lubricants and lubrication practices which do not appear in this manual. If you have any questions, consult your John Deere Industrial Region office to obtain the latest information and recommendations.

LUBRICANT STORAGE

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture, and other contamination.

Section 1
TRACKS

CONTENTS OF THIS SECTION

Group 0130
TRACK SYSTEMS

ROCK GUARDS AND TRACK GUIDES

GENERAL INFORMATION

Rock guards and track guides help prevent rocks and debris from entering the track system. They also help to keep the tracks centered on the rollers.

REMOVAL

Remove cap screws (2, 4, 6 and 10, Fig. 1) and bottom two cap screws from sprocket shield to remove rock guards (7 and 9) and track guides (1 and 11).

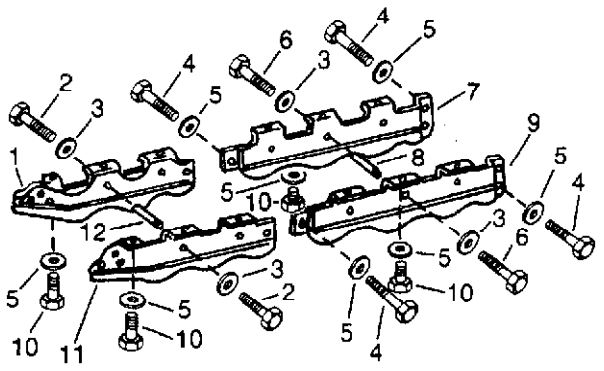
REPAIR

Inspect rock guards (7 and 9) and track guides (1 and 11) for wear and damage. Repair, weld or replace parts as necessary.

IMPORTANT: Good welds are important. Have only a qualified welder repair the components. Use E7018 electrodes. Before welding, clean all dirt and paint from the weld areas and turn the battery disconnect switch to "OFF". Connect the welder ground clamp close to each weld area so electrical current does not pass through any bearings.

INSTALLATION

Apply John Deere Loctite® Thread Lock and Sealer High Strength or an equivalent to the track guide-to-track frame cap screws (4 and 10, Fig. 1), spacer cap screws (2 and 6) and sprocket shield-to-track guide cap screws.



1—Left Guide	7—Left Rock Guard
2—Cap Screw (6 used)	8—Spacer (3 used)
3—Special Washer (12 used)	9—Right Rock Guard
4—Cap Screw (6 used)	10—Cap Screw (16 used)
5—Special Washer (22 used)	11—Right Guide
6—Cap Screw (6 used)	12—Spacer (3 used)

Fig. 1-Rock Guards and Track Guides

Install inner rock guard (7, Fig. 1) and inner guide (1) and fasten with cap screws (4) and washers (5).

Install cap screws (2 and 6) and washers (3) through inner rock guard and track guide. Screw into spacers (8 and 12).

Install outer rock guard (9) and outer track guide (11), and fasten with cap screws (2 and 6) and washers (3).

Install bottom two sprocket shields-to-track guide cap screws, and tighten to (325 N·m) 240 lb-ft.

CARRIER ROLLERS

GENERAL INFORMATION

Carrier rollers are provided to support and guide the track chain between the drive sprocket and the front idler.

MEASURING CARRIER ROLLER WEAR

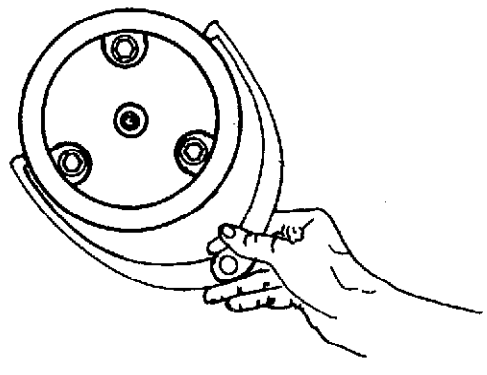


Fig. 2-Carrier Roller Wear Measurement

Measure carrier roller wear of both treads using roller calipers and scale from JT05518 or JT05523 Undercarriage Inspection Service Tool Kit. Position calipers over the most worn area of the roller running surface, and close until caliper tips just touch tread surface. Measure caliper tip spread using the scale to the nearest (0.5 mm) 0.020 in.

Also check for flat spots on carrier roller tread, which indicate roller is not free to turn.

CARRIER ROLLER WEAR SPECIFICATION

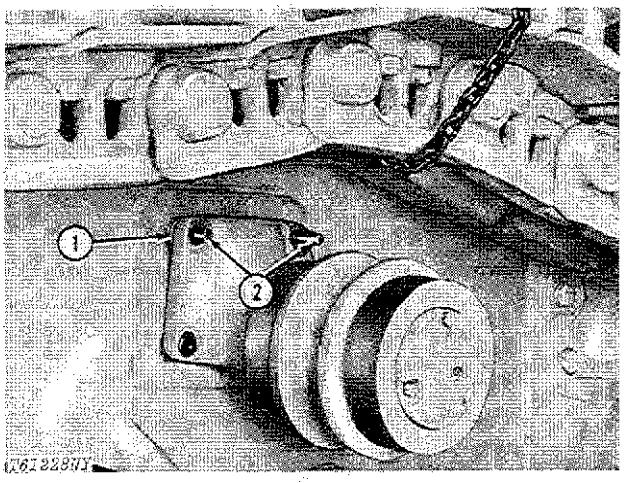
O.D. of new carrier roller	(165 mm) 6.5 in.
Minimum recommended O.D.	(145.3 mm) 5.72 in.

NOTE: For additional information on measuring carrier roller wear, refer to UNDERCARRIAGE APPRAISAL MANUAL SP-236.

REMOVAL

See page 0130-33 to release tension from track chain.

Raise and support track chain so it is clear of carrier rollers.



T61228NY

1—Shims **2—Guide Screws**

Fig. 4-Removing Carrier Roller

Remove top two cap screws and install two cap screws with the heads cut off to use as guide screws (2, Fig. 4).

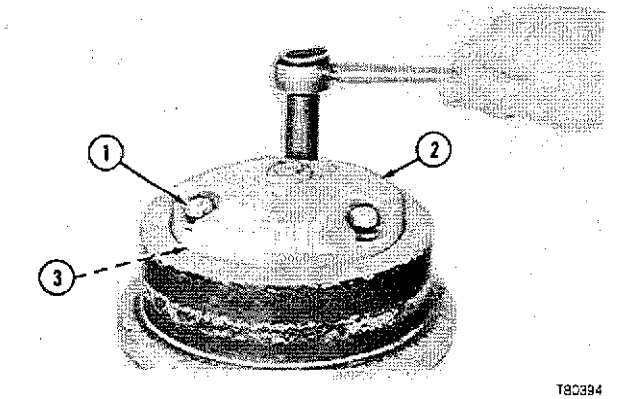
Note the number of shims (1) used behind the carrier roller support to aid in installation.

Remove bottom cap screws and shims.

Remove carrier roller.

REPAIR

Disassembly

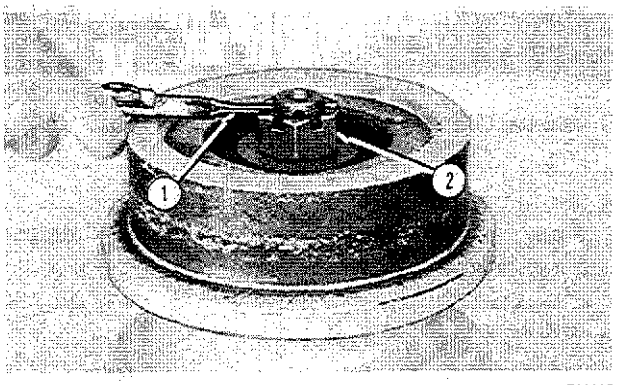


T80394

1—Cap Screw (3 used) **2—Cover**
3—Gasket

Fig. 5-Remove Cover

Remove cap screws (1, Fig. 5) to remove cover (2) and gasket (3).



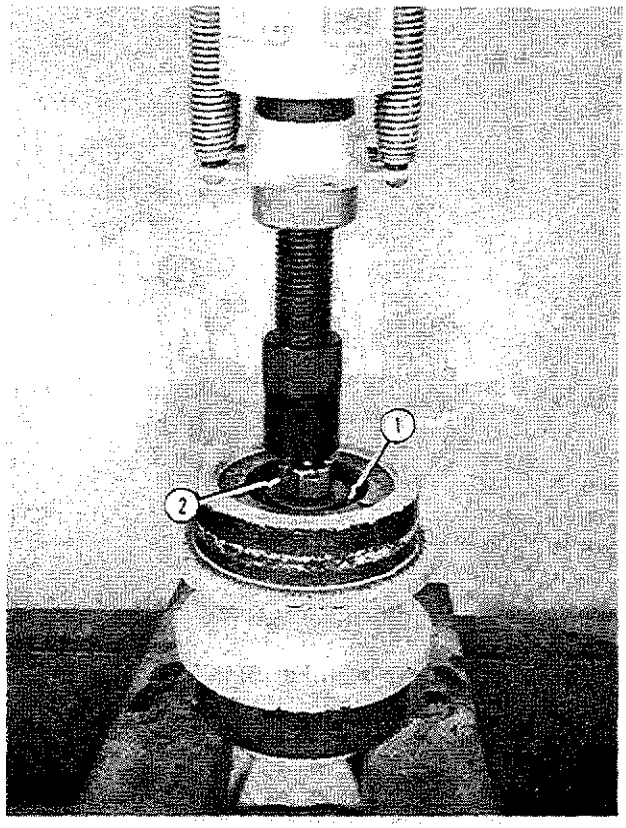
T80395

1—Cotter Pin **2—Nut**

Fig. 6-Remove Nut

Remove cotter pin (1, Fig. 6).

Loosen nut (2). Do not remove nut at this time.



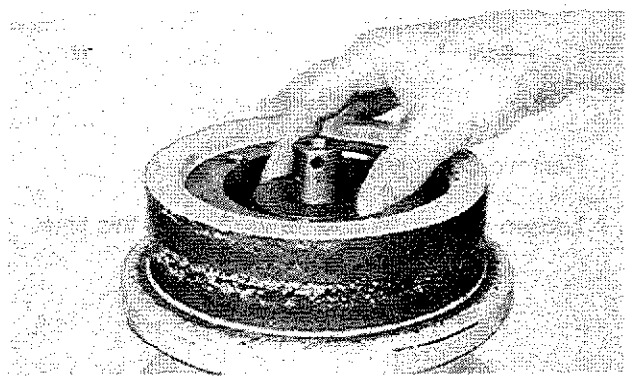
T80396

1—Bearing Cone **2—Nut**

Fig. 7-Remove Bearing Cone

Remove bearing cone (1, Fig. 7) from support bracket using a press.

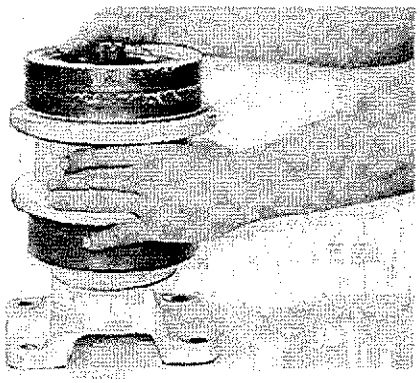
Remove nut (2).



T80397

Fig. 8-Washer

Remove washer (Fig. 8).

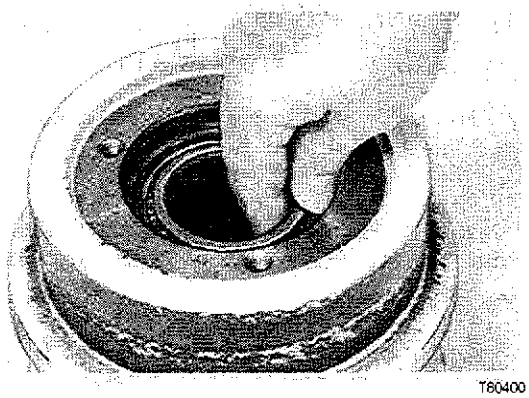


T80398

Fig. 9-Roller Shell

Remove roller shell (Fig. 9).

Inspect the roller shell for grooved, burred or galled condition. Replace parts if necessary.



T80400

Fig. 10-Bearing Cone

Remove bearing cone (Fig. 10).

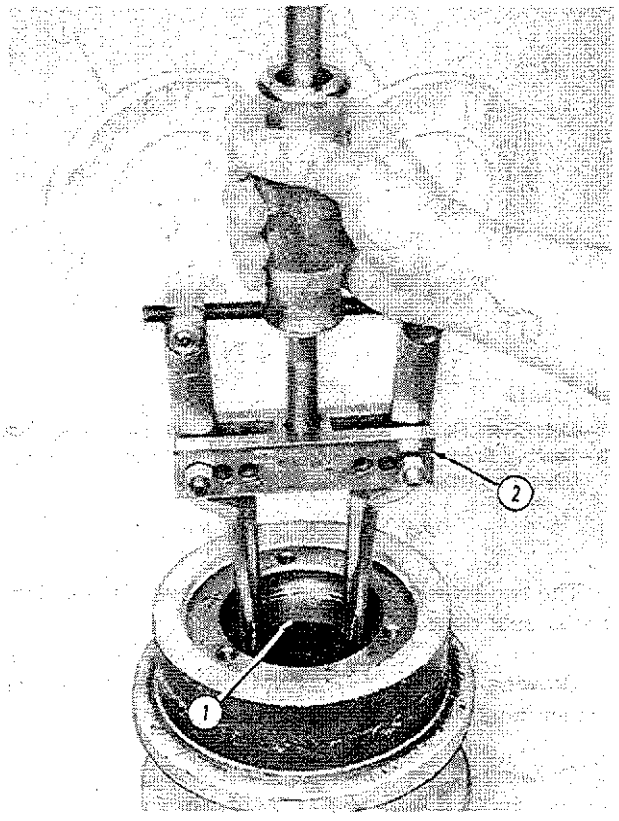
Wash bearing cones thoroughly in volatile mineral spirits.

Before inspection, oil the bearings with the same type of oil that will be used in the carrier roller.

NOTE: Never dry bearings with compressed air. Do not rotate bearings while they are not lubricated.

Inspect bearings for roughness of rotation. Replace a bearing if its rotation is still rough after cleaning and oiling.

Inspect bearings for scored, pitted, scratched, cracked or chipped races, and for indication of excessive wear of rollers. If one of these defects is found, replace the bearing.

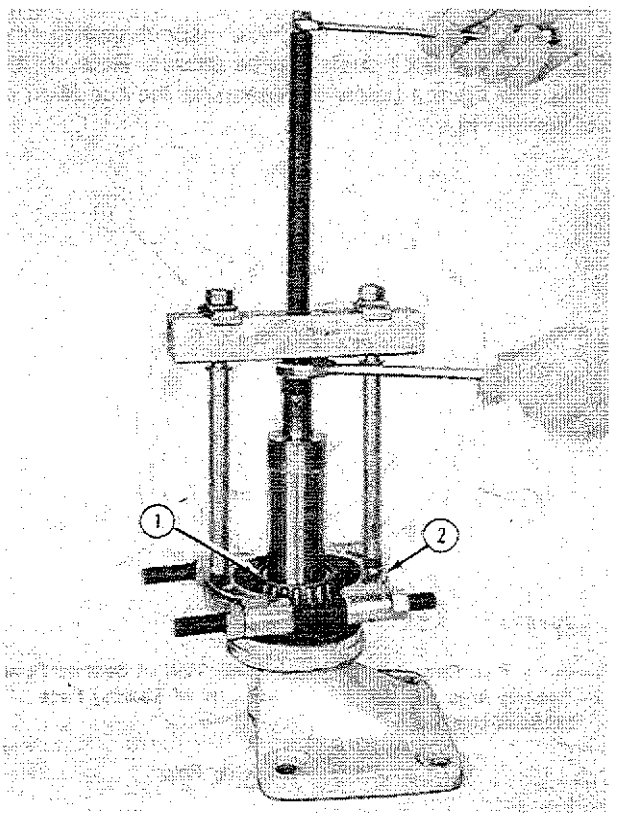


T80401

1—Bearing Cups (2 used) **2—Two Jaw Puller**

Fig. 11-Bearing Cup

Remove bearing cups (1, Fig. 11) with a two jaw puller (2) from the D-01047AA Puller Set.

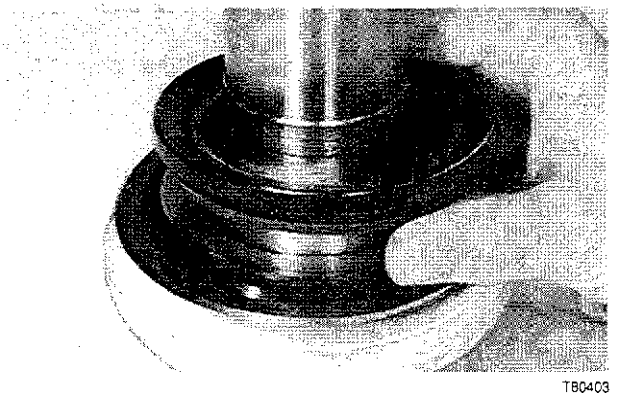


T80402

1—Bearing Cone **2—Puller**

Fig. 12-Bearing Cone

Remove bearing cone (1, Fig. 12) with a puller (2) from the D-01047AA Puller Set.

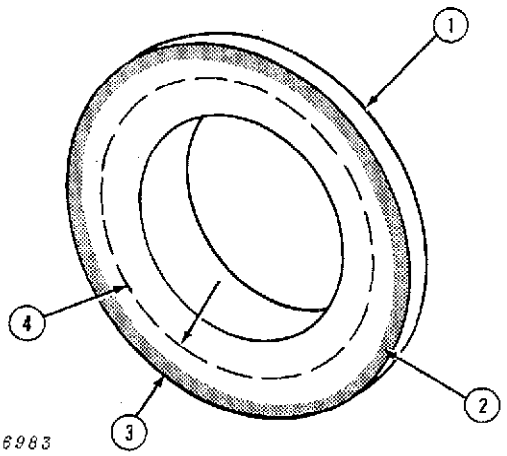


T80403

Fig. 13-Metal Face Seal

Remove metal face seals (Fig. 13). Tape the metal face seals together to keep them in matched sets.

After removal of sealing rings, inspect sealing ring pattern to find out if seals can be reused. Refer to the steps and figures below to determine the condition of the metal rings.



1—Metal Seal Ring
2—Sealing Area (shaded portion)
3—Outer Half of Sealing Face
4—Center of Sealing Face

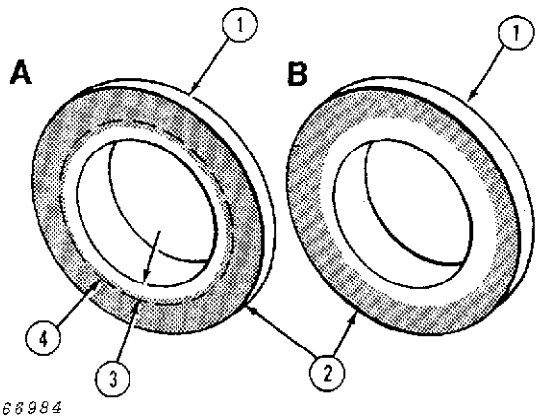
Fig. 14-A Good Sealing Ring

The following three steps are specifications which determine a good sealing ring.

1. The narrow, highly polished sealing area (2, Fig. 14) must be within outer half of the sealing face (3).

2. The sealing area (2) must be uniform and concentric with the I.D. and O.D. of metal seal ring (1).

3. The sealing area must not be chipped or scratched in any way.



1—Metal Seal Ring
2—Sealing Area (shaded portion)
3—Inner Half of Sealing Face
4—Center of Sealing Face

Fig. 15-A Poor Sealing Ring

The two drawings in Fig. 15 show examples of poor metal seal rings.

Drawing A (Fig. 15) shows the sealing area (2) within inner half of sealing face (3).

Drawing B (Fig. 15) shows the sealing area (2) not concentric with I.D. and O.D. of metal seal ring (1).

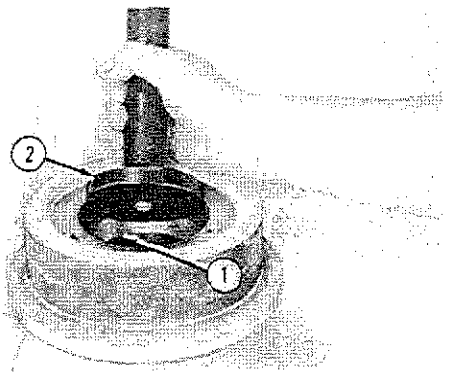
Clean the metal sealing rings as follows:

Remove any corrosion or hardened material that may exist on the metal ring other than the sealing area. Use a scraper and/or any stiff bristled fiber brush to remove the foreign material from the surface.

Wash the metal sealing rings with a volatile, non-petroleum base type solvent to remove all oil and wipe dry. Use the lint free wiper furnished in the new seal package to remove all traces of oil or grease from all surfaces.

NOTE: If metal rings appear to be useable, keep the two metal face seals together as matched sets. If the metal rings are not within proper specifications, DO NOT rebuild the seal, use a completely new seal.

Assembly

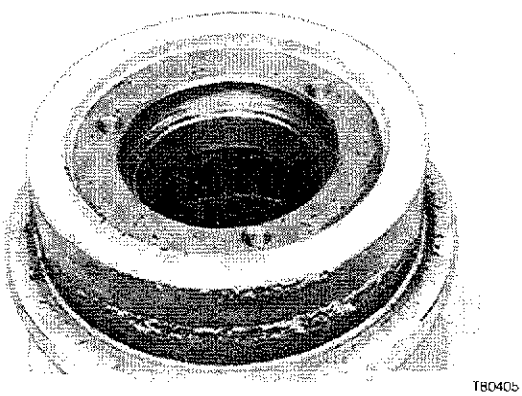


T80404

1—Bearing Cup (2 used) **2—27534 Disk**

Fig. 16-Install Bearing Cup

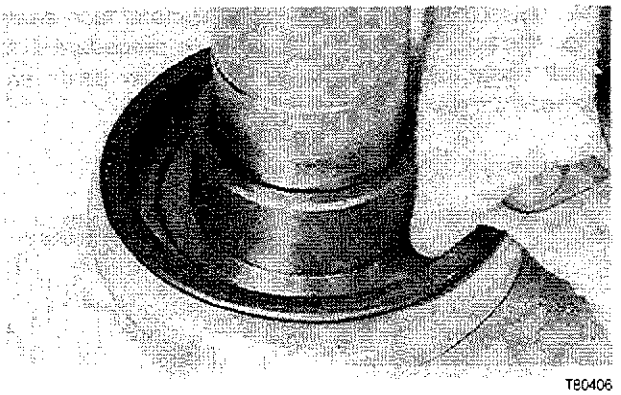
Install bearing cups (1, Fig. 16) to bottom of roller shell bore with a 27534 Disk (2) and a handle from the D-01045AA Driver Set.



T80405

Fig. 17-Roller Shell Bore

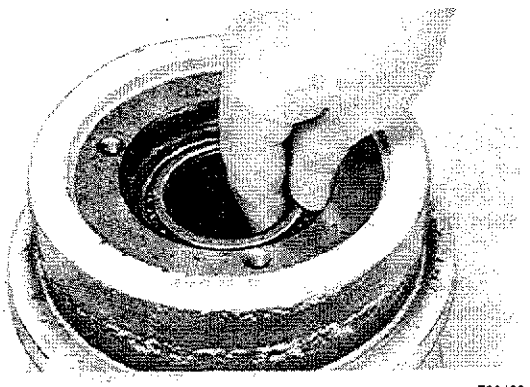
Thoroughly clean the seal cavities in the roller shell (Fig. 17). Be sure they are dry and oil free.



T80406

Fig. 18-Support Bracket

Thoroughly clean the seal cavity in the support bracket (Fig. 18). Be sure they are dry and oil free.



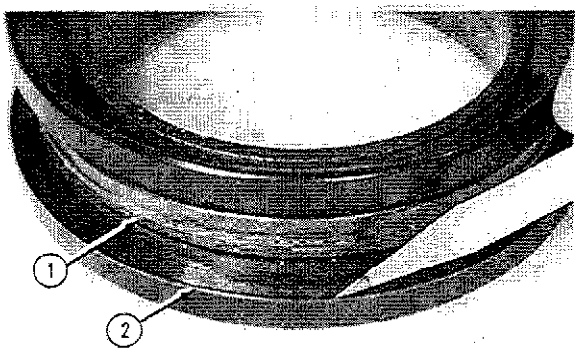
T80400

Fig. 19-Install Bearing Cone

Install bearing cone (Fig. 19). Be sure seal cavity is clean.

NOTE: Use procedure 1 to install metal face seals when the entire seal is replaced. Use procedure 2 to install metal face seals when the rubber seals are replaced (metal seal rings reused).

Procedure 1: New Seal



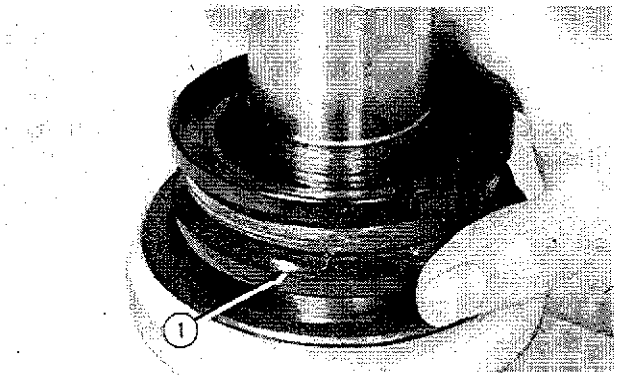
T80407

1—Plastic Retainer Band **2—Retainer Lip**

Fig. 20-Locating Retainer Lip

DO NOT remove plastic retainer band (1, Fig. 20) from new seal before installation.

Find the side of seal that has a retainer lip (2) on the rubber seals.



T80408

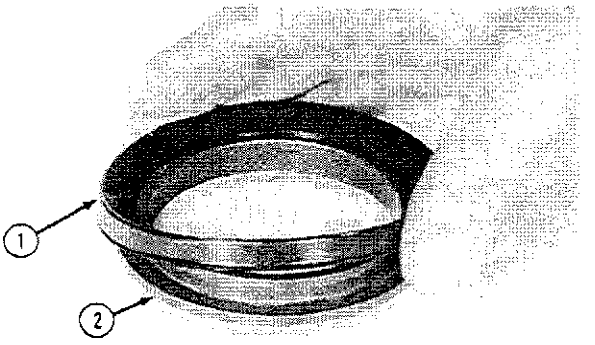
1—Retainer Lip

Fig. 21-Install Seal

Install metal face seal, with retainer lip (1, Fig. 21) first, into the seal bore in the support bracket.

Be sure the seal is seated on bottom of bore and sits straight.

Procedure 2: New Rubber Seals and Used Metal Seal Rings



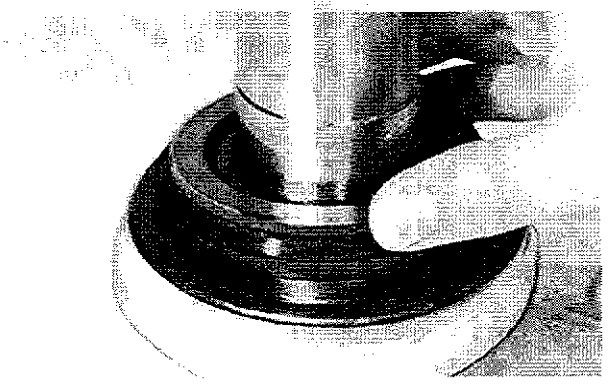
T80409

1—Rubber Seal **2—Metal Seal Ring**

Fig. 22-Install Rubber Seal

Clean metal seal rings (2, Fig. 22) in a volatile non-petroleum base type solvent and wipe dry with lint free cloth.

Install new rubber seals (1) onto the metal seal rings. Be sure the rubber seal is tight and straight against the metal seal ring shoulder flange. Be sure the rubber seals are free of oil.



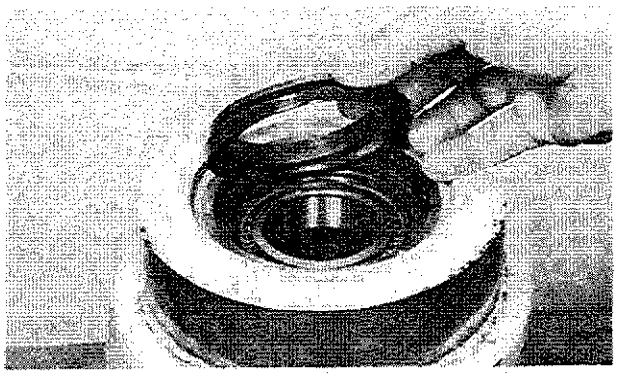
T80410

Fig. 23-Install Seal

Install metal face seal half, with retainer lip first, into the seal bore in the support bracket (Fig. 23).

Be sure the seal is tight against the seal bore and sits straight.

IMPORTANT: The new rubber seal must have a retainer lip to hold the seal half in the bore before the seal is compressed.



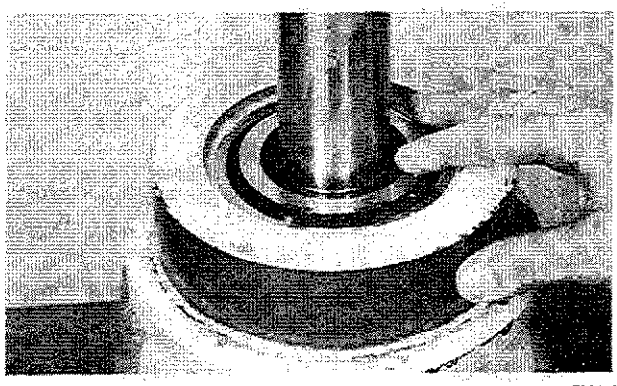
T80411

Fig. 24-Install Seal

Install metal face seal half, with retainer lip first, into the seal bore in the roller shell (Fig. 24).

Be sure the seal is tight against the seal bore and sits straight.

IMPORTANT: The new rubber seal must have a retainer lip to hold the seal half in the bore before the seal is compressed.



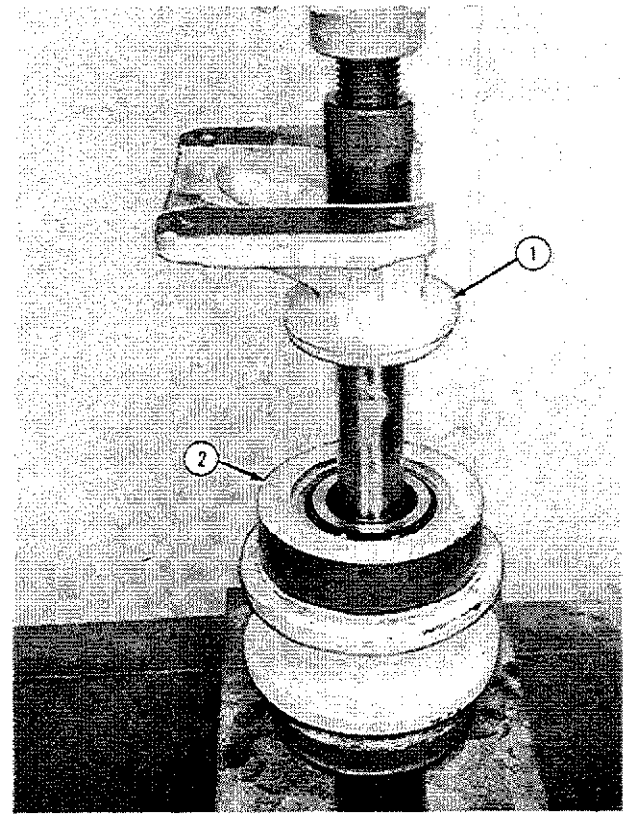
T80412

Fig. 25-Apply Oil

Wipe both metal seal ring faces dry with a lint free cloth.

Apply a thin film of oil, as used in the roller, to the shiny sealing area on both metal seal rings.

Be sure the rubber seals are free of oil.



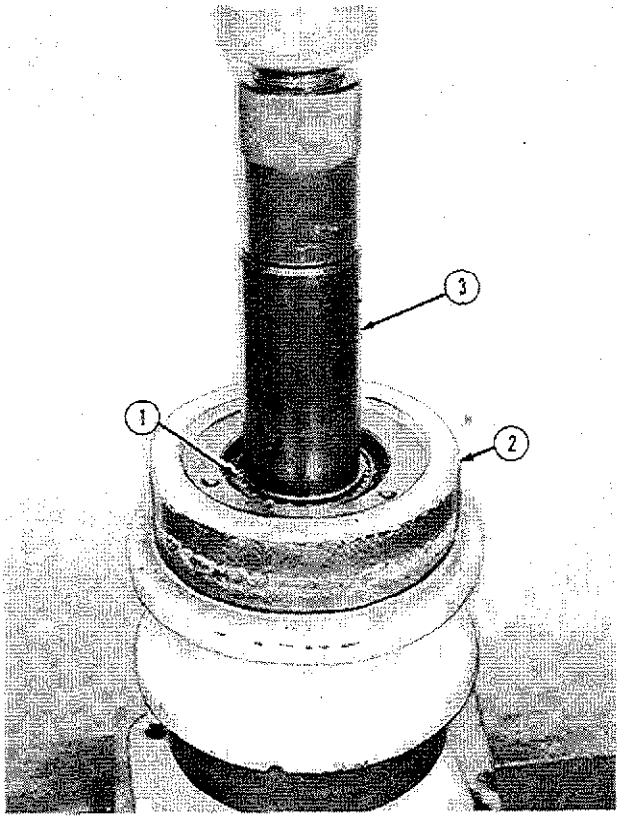
T80413

1—Support Bracket **2—Roller Shell**

Fig. 26-Install Support Bracket

IMPORTANT: Hold the support bracket (1, Fig. 26) to prevent it from falling when the shaft of the support bracket is pressed below the bearing cone.

Install the support bracket into the roller shell (2) with a press.

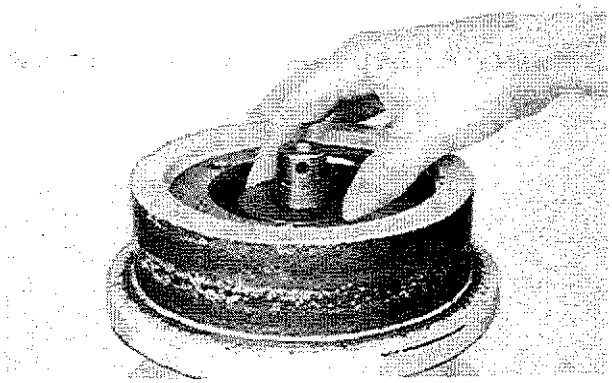


T80414

1—Bearing Cone **2—Roller Shell**
3—JD-357

Fig. 27-Install Bearing Cone

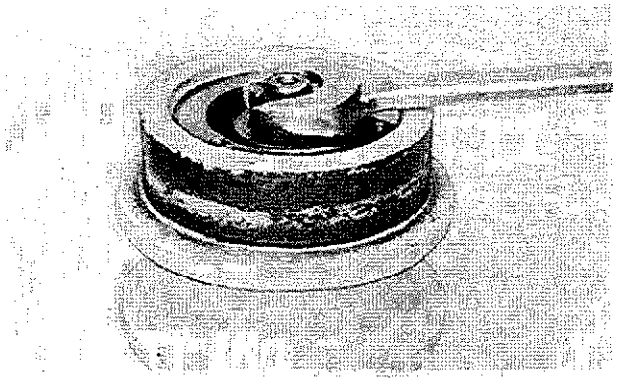
Install bearing cone (1, Fig. 27) into the roller shell (2) with a JD-357 Driver (3) and a press.



T80397

Fig. 28-Washer

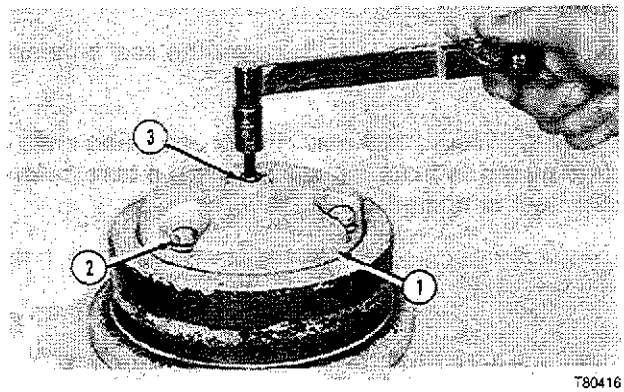
Install washer (Fig. 28).



T80415

Fig. 29-Install Nut

Install nut (Fig. 29) and tighten slightly.



T80416

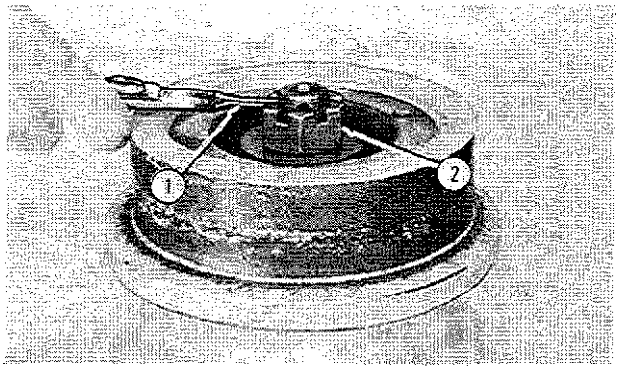
1—Cover **2—Cap Screw (3 used)**
3—Oil Fill Plug

Fig. 30-Checking Rolling Drag Torque

Install cover (1, Fig. 30) and cap screws (2).

Use the oil fill plug (3) to check the rolling drag torque. The rolling drag torque of the carrier roller must be (7.6 to 8.2 N·m) 67 to 73 lb-in. If the rolling drag torque is not correct, remove cover and tighten or loosen nut (Fig. 29). Repeat rolling drag torque procedure.

Remove cover after rolling drag torque is correct.



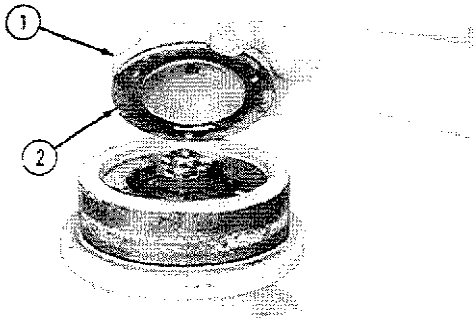
T80395

1—Cotter Pin **2—Nut**

Fig. 31-Install Nut

Turn nut (2, Fig. 31) counterclockwise 1/4 turn and install cotter pin (1). This should result in (0.00 to 0.15 mm) 0.000 to 0.006 in. end play.

Add approximately (491 mL) 16.6 oz. of recommended oil to carrier roller cavity. (See Section 1, Group IV.)

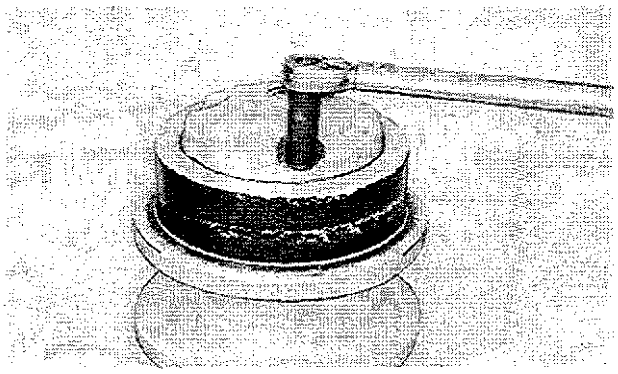


T80417

1—Cover **2—Gasket**

Fig. 32-Install Cover

Install cover (1, Fig. 32) and a new gasket (2).



T80418

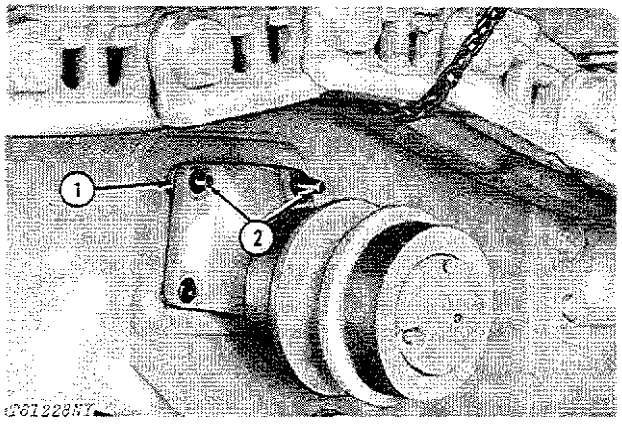
Fig. 33-Install Cap Screws

Apply Permatex Form-A-Gasket number 3 or an equivalent to roller cover cap screws and plug. Install lock washers and cap screws.

NOTE: Carrier rollers require lubrication only at the time of assembly.

See page 0130-68 to test carrier roller for leakage.

INSTALLATION



T6122BNY

1—Shims **2—Guide Screws**

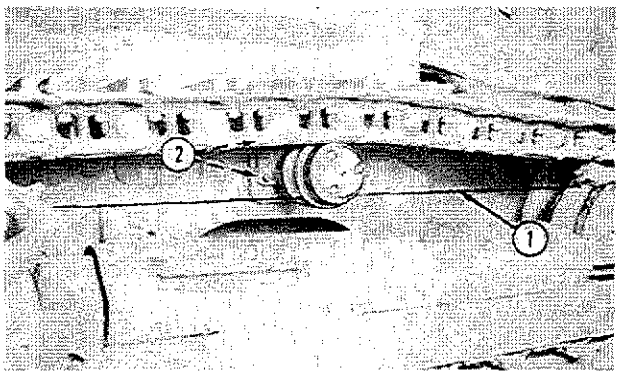
Fig. 34-Install Carrier Roller

Install guide screws (2, Fig. 34).

Install the same number of shims (1) as was removed behind the carrier roller support. Install carrier roller and cap screws.

If carrier roller must be aligned, place the carrier roller on the guide screws without any shims.

Install shims on the bottom until carrier roller is level.



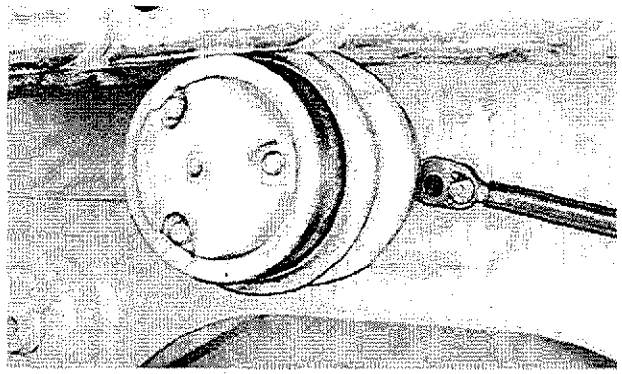
T80419

1—String **2—Shims (as required)**

Fig. 35-Aligning Carrier Roller

Center the front idler in the track frame. Stretch a string (1, Fig. 35) tight between the center of the front idler flange and the center of the sprocket teeth.

Add an equal number of shims (2) on the top and bottom to bring the center line of the carrier roller out to the string.



T80420

Fig. 36-Install Cap Screws

Install cap screws and washers. Tighten cap screws (230 N·m) 170 lb-ft.

Lower track onto carrier rollers.

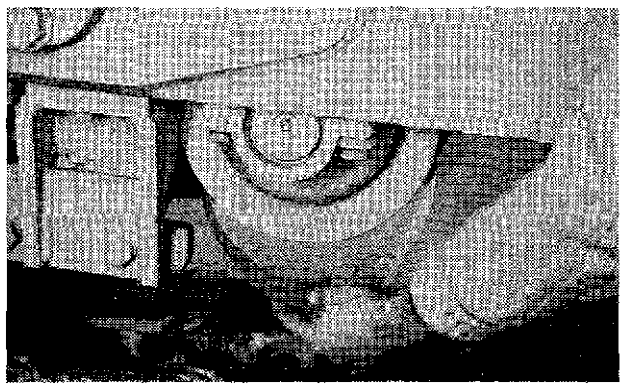
See Group 9030 to adjust track tension.

TRACK ROLLERS

GENERAL INFORMATION

Six track rollers are used on each side to support the load of the crawler. The first, fourth and sixth rollers are single flanged. The second, third and fifth rollers are double flanged.

CHECKING ROLLER WEAR



T95414

Fig. 37-Track Roller Wear Measurement

Raise unit off the ground and block it for support. Release track tension by turning ball check valve one turn counterclockwise to allow grease to escape from track adjusting cylinder. Clean track roller to be measured.

Measure track roller using roller calipers and scale from JT05518 or JT05523 Undercarriage Inspection Service Tool Kit. Measure inside and outside tread diameters of the roller at the area of most wear using the calipers; then measure caliper tip spread with the scale to the nearest (0.5 mm) 0.020 in.

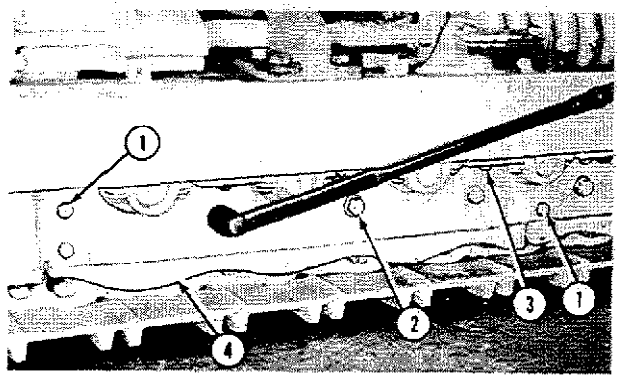
TRACK ROLLER WEAR SPECIFICATION

O.D. of new track roller	(210 mm) 8.27 in.
Minimum recommended O.D.	(188 mm) 7.40 in.

NOTE: For additional information on measuring carrier roller wear, refer to UNDERCARRIAGE APPRAISAL MANUAL SP-236.

REMOVAL

See page 0130-33 to realease track chain.

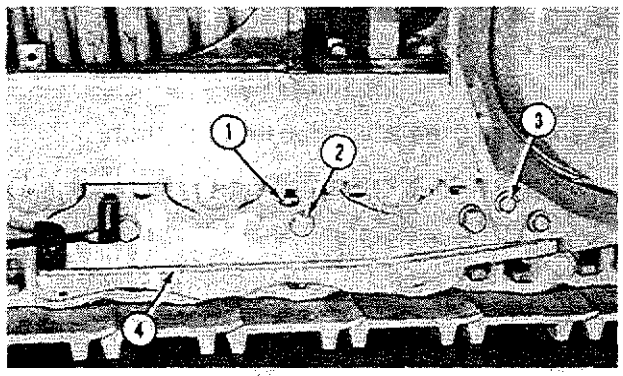


T80421

1—Cap Screw (6 used)
2—Cap SCrew (6 used)
3—Cap Screw (6 used)
4—Left Rock Guard

Fig. 39-Rock Guards

Remove cap screws (1, 2, and 3, Fig. 39) to remove left rock guard (4) and right rock guard.

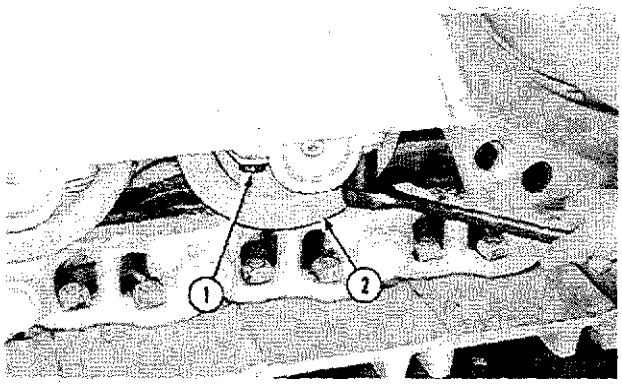


T80422

1—Cap Screw (10 used)
2—Cap Screw (6 used)
3—Cap Screw (4 used)
4—Left Track Guide

Fig. 40-Track Guide

Remove cap screws (1, 2 and 3, Fig. 40) to remove left track guide (4) and right track guide.



T80423

1—Cap Screw (4 used)
2—Track Roller

Fig. 41-Remove Roller Cap Screws

Remove cap screws (1, Fig. 41) to remove track roller (2).

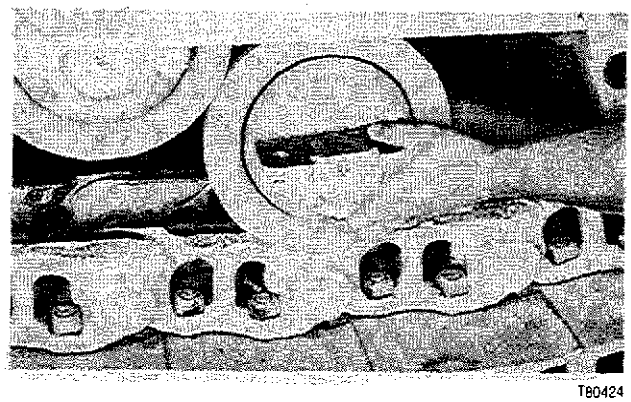


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Fig. 42-Remove Roller

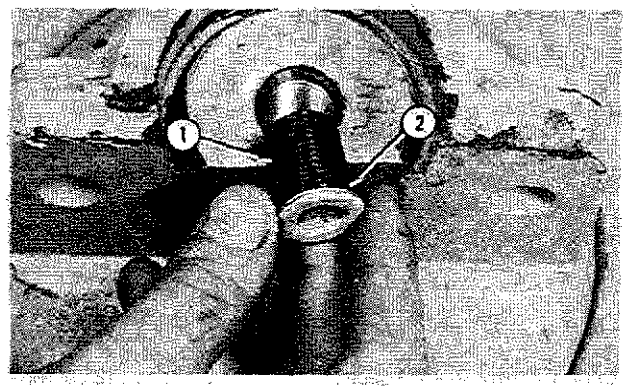
Lift the crawler using a service jack or hoist until the rollers can be removed. Put blocking under the crawler.

Remove the track roller (Fig. 42).

REPAIR

Disassembly

NOTE: Single flange rollers and double flange rollers are of the same design. Disassembly and assembly procedures are the same for both types of rollers.



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1—Plug
2—O-Ring

Fig. 43-Remove Plug

Remove plug (1, Fig. 43) with O-ring (2) to drain oil from the roller.

Remove lock from inner collar before installing collar in the press.