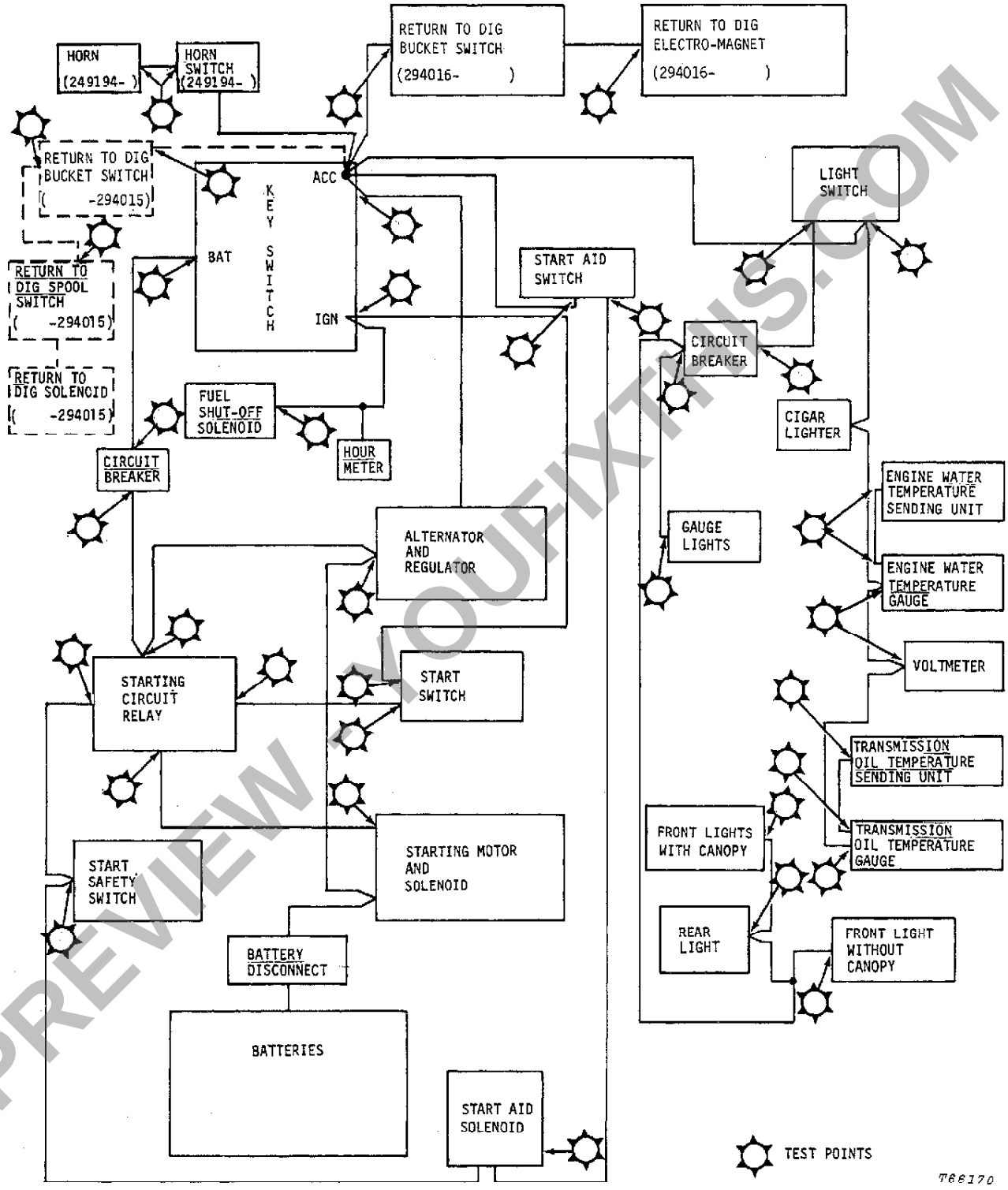


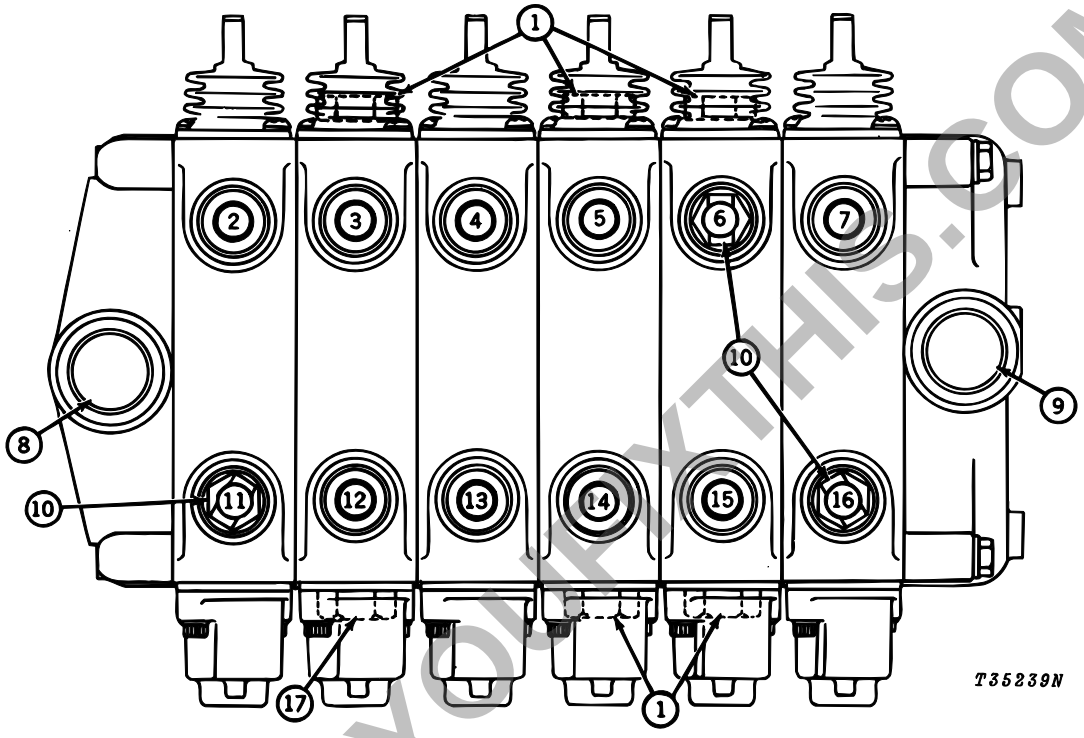
Fig. 6-Electrical System Block Diagram

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Group 3360
HYDRAULIC SYSTEM

GENERAL INFORMATION



1—Circuit Relief
2—Stab. Cyl. (Right Rod)
3—Crowd Cyl. (Piston End)
4—Bucket Cyl. (Piston End)
5—Swing Cyl. (Right)
6—Boom Cyl. (Rod End)
7—Stab. Cyl. (Left Rod)
8—Pressure Port
9—Return Port
10—Orifice Plate
11—Stab. Cyl. (Left Piston)
12—Crowd Cyl. (Rod End)
13—Bucket Cyl. (Rod End)
14—Swing Cyl. (Left)
15—Boom (Piston End)
16—Stab. Cyl. (Right Piston)
17—Plug

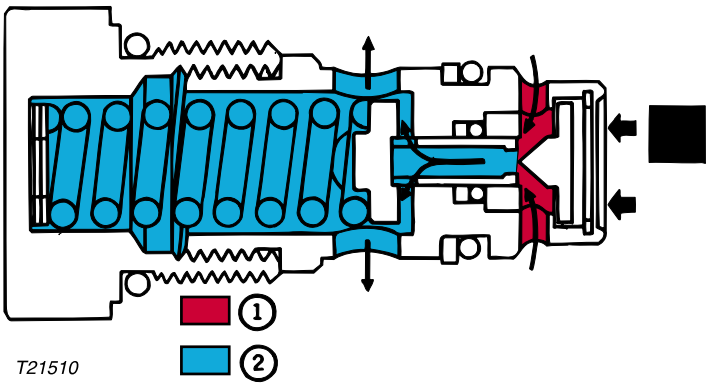
Fig. 1-Backhoe Control Valve

The backhoe control valve is an open-center, six-spool, stack-type valve.

All six valve sections are separate bodies containing single spools. All valve sections contain lift checks which serve as one-way valves to prevent pressure oil from entering the port passages and causing cylinder movement.

NOTE: The swing valve section also has a 0.104 in. (26.4 mm) orifice plate in the lift check.

Anti-cavitation check valves are contained in the boom and swing valve sections.



1—Pressure Oil
2—Return Oil

Fig. 2-Direct Acting Relief Valves

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A. Tighten to one-half the specified torque.

B. Shock both wedge bushings with a brass, lead, or aluminum hammer.

1. If the washers are accessible and large enough strike both washers three places.
2. If the washers are not accessible or are too small to strike directly, place a spacer over the bolt head or bolt nut and strike the spacer three times. Do not pound on the bolt or nut.

C. Tighten bolt(s) to full torque per torque chart.

D. Repeat Step B.

E Check torque.

F. Repeat Steps C & B alternately until shocking the assembly does not reduce the torque reading on the bolts.

G. Recheck for centered position.

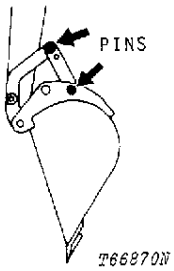


Fig. 48a-Power Dig Position

Be sure bucket is in power dig position shown above.

Tapered pins checked *Yes* *No*

Bucket position checked *Yes* *No*

2. Track Shoe Hardware

Check the torque of the track shoe retaining cap screws.

Tighten cap screws to 89 lb-ft (12.3 kg/m).

Track shoes tightened to specifications *Yes* *No*

3. Accessible Hardware Torque Values

Check all accessible cap screws and nuts for proper tightness. If hardware seems loose, tighten it to the proper torque. The table below gives correct torque values for various bolts and cap screws. Most hardware used is high-strength (note dashes on hex. heads).

RECOMMENDED TORQUE IN LB-FT [Kg-m]
COARSE AND FINE THREADS



Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10[1.4]	14[1.9]
5/16	Not used	20[2.8]	30[4.1]
3/8	Not used	35[4.8]	50[6.9]
7/16	35[4.8]	55[7.6]	80[11.1]
1/2	55[7.6]	85[11.8]	120[16.6]
9/16	75[10.4]	130[18.0]	175[24.2]
5/8	105[14.5]	170[23.5]	240[33.2]
3/4	185[25.6]	300[41.5]	425[58.8]
7/8	160[22.1]	445[61.5]	685[94.7]
1	250[34.6]	670[92.5]	1030[142.4]
1-1/8	330[45.6]	910[125.8]	1460[201.9]
1-1/4	480[66.4]	1250[172.8]	2060[284.8]

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Fig. 49-Torque Chart

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 (22 mm) and larger are sometimes formed hot rather than cold, which accounts for the lower torque.

All accessible hardware torqued *Yes* *No*

FINAL CHECK

4. Final Check

The final predelivery procedure is the overall clean-up 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.

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Group 0130
TRACK SYSTEMS

TRACK FRAMES AND UNDERCARRIAGES

GENERAL INFORMATION

The track frame assemblies are mounted on the crossbars to give the fixed tread of 52 inches (132 cm).

The track frame assemblies are held in position by the front and rear crossbars. The front crossbar is a cast nodular iron and is fastened to the side frames. The rear crossbar is a round solid steel bar.

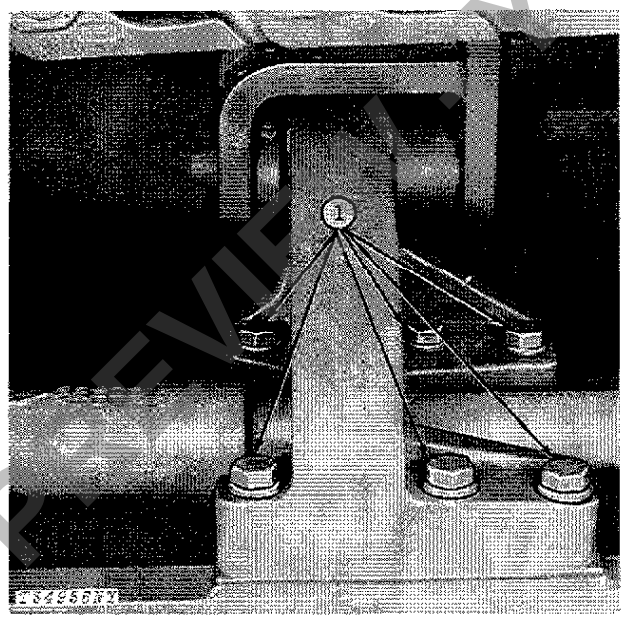
REMOVAL

Remove track (See Page 0130-9).

Remove sprocket weight as directed in Section 17, Group 1749 and drive sprocket (3, Fig. 2) as directed on Page 0130-7.

Slide front idler assembly from track frame.

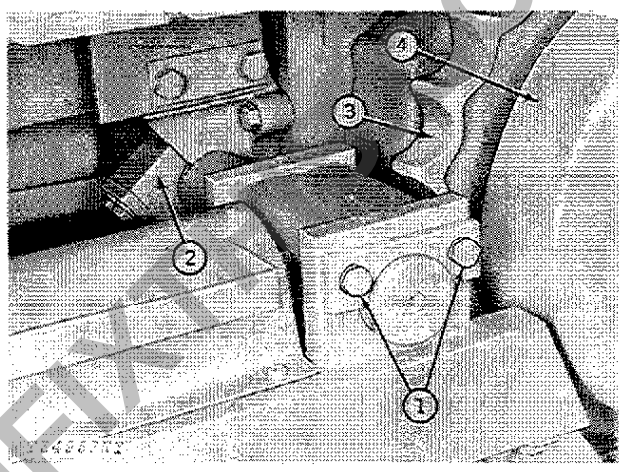
Remove six cap screws from front crossbar (1, Fig. 1).



1 - Front Crossbar Retaining Cap Screws

Fig. 1-Front Crossbar Attaching Points

Take out cap screws (1, Fig. 2) in rear crossbar retainer and remove retainer and shims.



1—Retainer Cap Screws
2—Rear Crossbar Cap
3—Drive Sprocket
4—Sprocket Weight

Fig. 2-Removing Track Frame

Place a jack under both crossbars and raise tractor until roller flanges clear the track. Drive track frame assembly free from rear crossbar and slide clear of crawler.

IMPORTANT: Do not lose or damage shims during track frame removal.

Support transmission case and final drives with jacks or blocks.

Remove cap screws attaching front and rear crossbars.

Lower jack and slide crossbars clear of the unit.

Due to welded construction of the track frame, no further disassembly of the frame should be attempted except for the track channel wear strips which can be removed if worn.

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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 1-1/4 cu. yd. (0.96 m³) digging bucket with teeth, roll-over protective structure and standard equipment.)

Power (@ 2,200 engine rpm):	SAE	DIN
Gross	80 hp (59.7 kW*)	
Net	72 hp (53.7 kW*)	73 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. Gross and net flywheel power ratings are under SAE standard conditions of 500-ft. (152 m) altitude and 85°F (29°C) temperature and DIN 70 020 conditions (non-corrected). No derating is required up to 10,000 feet (3000 m) altitude.

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

ENGINE:
John Deere, 4-cylinder, turbocharged diesel, 4-stroke cycle

Bore and stroke ..... 4.19 x 5.00 in. (106.4 x 127 mm)
Piston displacement ..... 276 cu. in. (4 523 cm³)
Compression ratio ..... 16.2 to 1
Maximum torque @ 1,200 rpm ..... 230 lb-ft (31.8 kg-m)
NACC or AMA (U.S. Tax) horsepower 28
Lubrication ..... Pressure system with full-flow filter and cooler
Main bearings 5
Cooling ..... Pressurized with dual thermostat and controlled bypass
Fan ..... Blower
Air cleaner with restriction indicator ..... Dry
Electrical system 12-volt
Battery ..... Reserve capacity: 180 minutes

TRANSMISSION:
Converter-driven, 3-speed forward and reverse, Power Shift.

STEERING:
Steering clutches and brakes are controlled by a single pedal for each track. A separate pedal provides braking, and lockdown for parking.
Clutches ..... Oil-cooled, hydraulically-actuated, multiple-disk, 11-in. (279 mm) disks; 16 friction surfaces per clutch.
Brakes ... Self-adjusting, self-energizing, oil-cooled contracting band with bonded lining.

TRAVEL SPEEDS:

	Forward		Reverse	
	mph	km/h	mph	km/h
1st	2.01	3.23	2.42	3.89
2nd	3.26	5.25	3.90	6.28
3rd	5.63	9.06	6.75	10.86

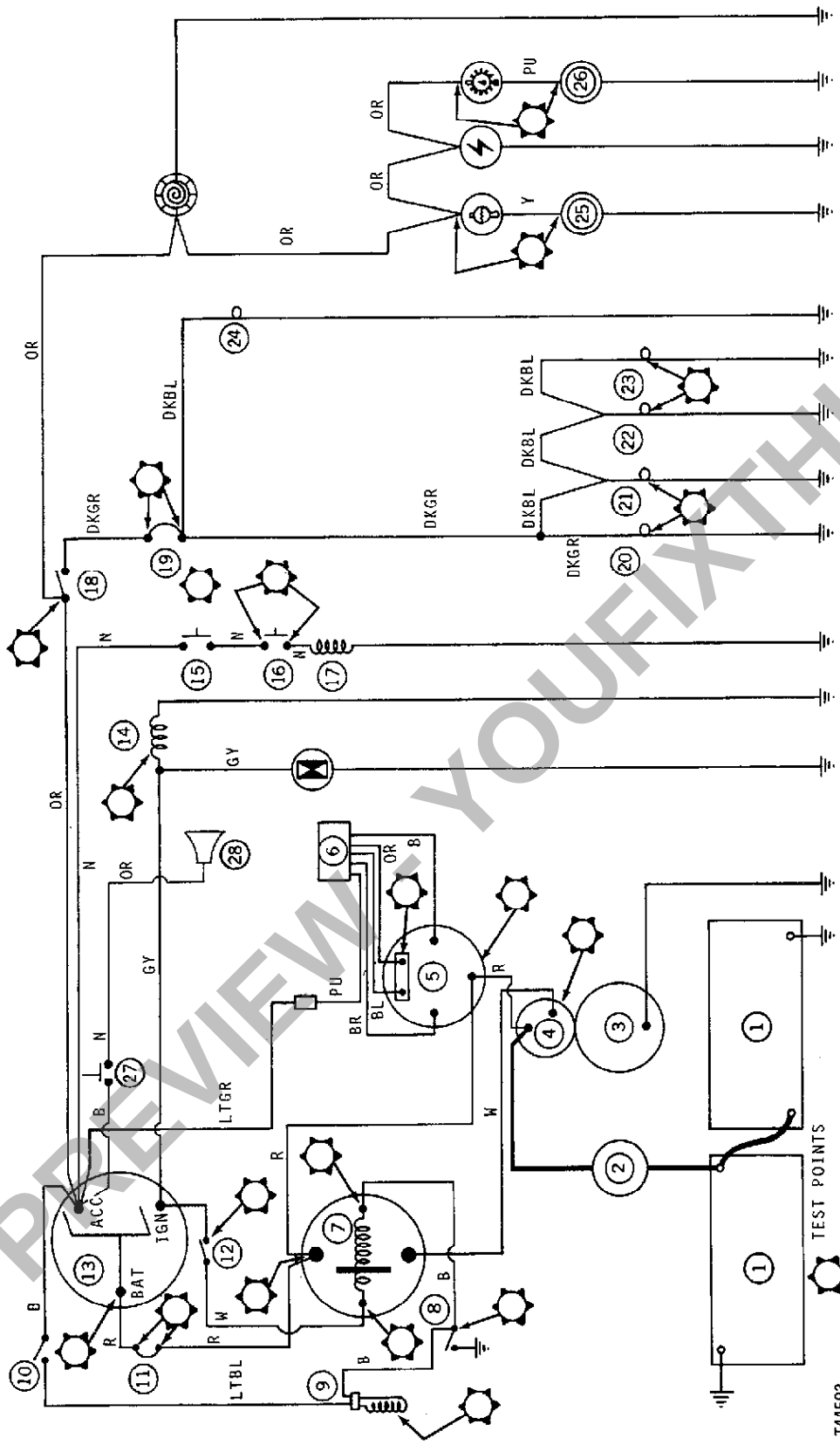
HYDRAULIC SYSTEM:
Control ..... Triple hydraulic valve with single-lever bucket control and third function control
Pump ..... Gear, 28 gpm (106 Lpm)
Pressure ..... 2,250 psi (158.2 kg/cm²)
Oil lines ..... Seamless steel tubing; double-wire braid hose
Filter ..... Micronic in return line

HYDRAULIC CYLINDERS:

	Bore	Stroke
Boom, two ...	4.25-in. (108 mm)	28.25-in. (718 mm)
Bucket, two	3.5 in. (89 mm)	31.1-in. (790 mm)
Cylinder rods	Ground, heat-treated, chrome-plated, polished	
Boom cylinder rods	2.25-in. (57 mm) dia.	
Bucket cylinder rods	1.75 in. (44.5 mm) dia.	

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1—Batteries
2—Battery Disconnect
3—Starting Motor
4—Solenoid
5—Alternator
6—Regulator
7—Starting Circuit Relay
8—Start Safety Switch
9—Start Aid Solenoid
10—Start Aid Switch
11—Circuit Breaker (30 amp)
12—Start Switch
13—Key Switch
14—Fuel Shut-Off Solenoid
15—Return to Dig Bucket Switch (-294015) Bucket Switch (294016-)
16—Return to Dig Spool Switch (-294015)
17—Return to Dig Spool Solenoid (-294015) Electro-Magnet (294016-)
18—Light Switch
19—Circuit Breaker (20 amp)
20—Front Light (without canopy)
21—Rear Light
22—Front Light (with canopy)
23—Front Light (with canopy)
24—Gauge Lights (six)
25—Engine Water Temperature Sending Unit
26—Transmission Oil Temperature Sending Unit
27—Horn Switch (249194-)
28—Horn (249194-)

R—Red
B—Black
LTBL—Light Blue
W—White
LTGR—Light Green
GR—Green
BL—Blue
BR—Brown
GY—Gray
N—Natural
OR—Orange
DKBL—Dark Blue
Y—Yellow
PU—Purple

Fig. 7-Electrical System Schematic

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MAIN HYDRAULIC SYSTEM

GENERAL INFORMATION

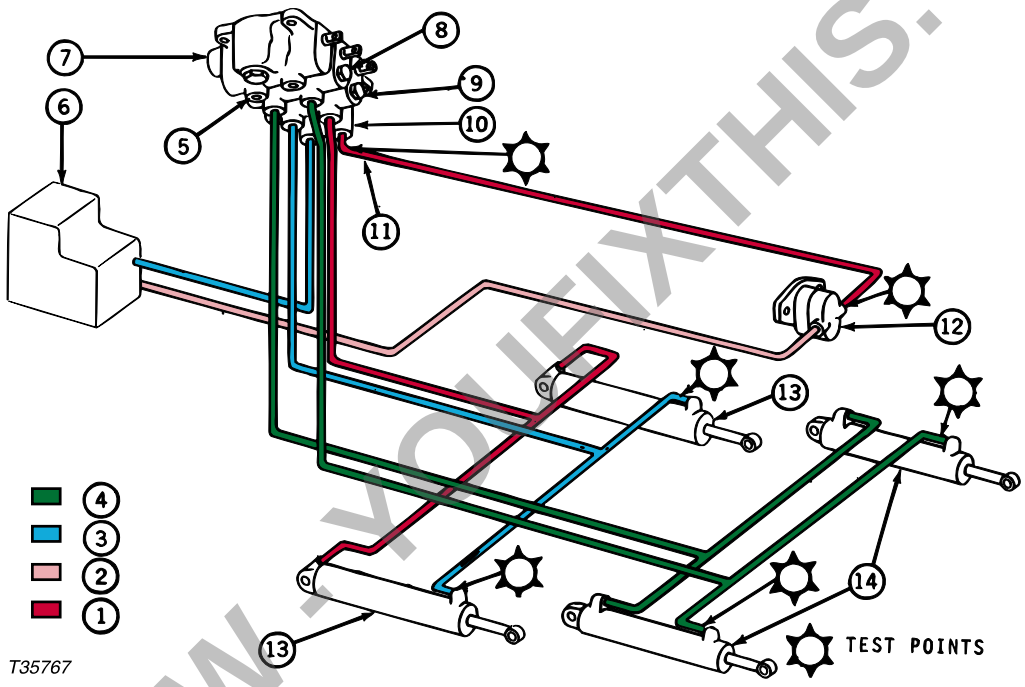
The hydraulic system for all crawler functions is of the open center type.

Basic crawler hydraulic systems consist of a 28 GPM [104.5 dm³/min] gear type hydraulic pump, oil reservoir, filter, control valve and cylinders.

System operating pressure is 2250 psi [158.2 kg/cm²].

The following hydraulic circuit diagrams give a brief description of each hydraulic system and its components.

Study the circuit diagrams when diagnosing hydraulic system difficulties.



1—Pressure Oil
2—Low Pressure Oil
3—Return Oil
4—Trapped Oil
5—Circuit Relief (Bucket)
6—Reservoir
7—Control Valve
8—Circuit Relief (Bucket)
9—Circuit Relief (Boom)
10—System Relief
11—Pressure Tap
12—Hydraulic Pump
13—Boom Cylinder
14—Bucket Cylinder

Fig. 2-Crawler Loader Circuit

Oil is drawn from the reservoir by the pump and is moved to the control valve. With the boom spool retracted to raise the boom, the inlet port to the next valve spool is blocked (see Section 31). Oil then is diverted to the boom cylinders by the boom valve spool.

As oil flows to the piston end of the cylinder, oil from the cylinder rod end is forced back through the control valve to the reservoir. Oil in the remaining cylinders and lines is trapped by the other valve spools.

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Group 0199
SPECIFICATIONS AND SPECIAL TOOLS

TRACK SYSTEMS

SPECIFICATIONS AND TORQUE VALUES

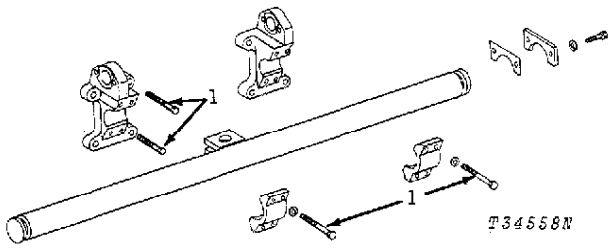


Fig. 1-Rear Crossbar

1 - Rear crossbar bracket cap screws ..... 250 lb-ft (339 Nm)

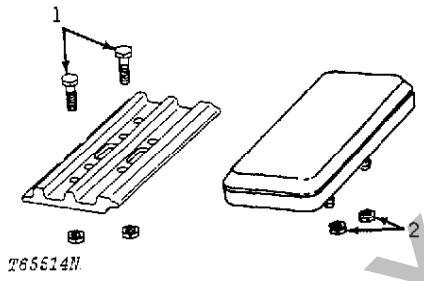


Fig. 2-Track Shoes

1 - Track shoe cap screws (lubricated) ..... 120 lb-ft torque (163 Nm)

2 - Rubber track shoe nuts (lubricated) ..... 89 lb-ft (121 Nm)

Track shoes per track 37

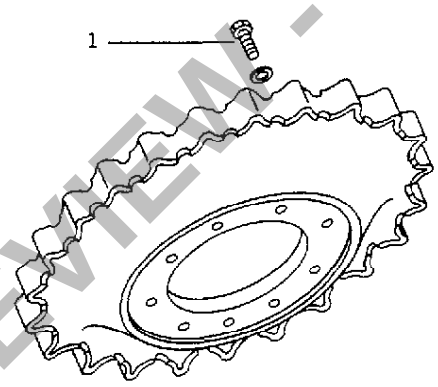


Fig. 3-Drive Sprocket

1 - Sprocket cap screws ..... 425 lb-ft (576 Nm)

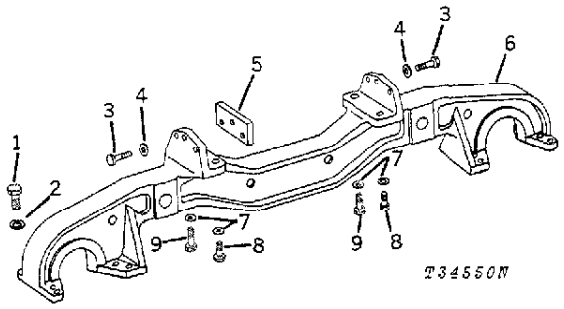
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REPAIR

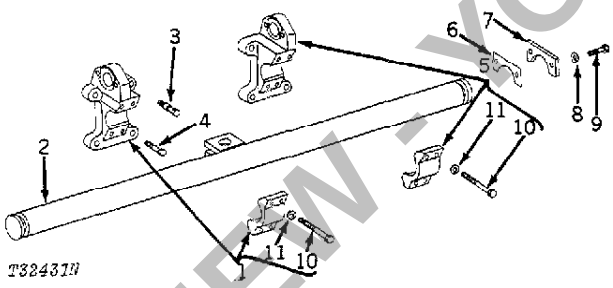
Disassembly and Assembly

Refer to Figs. 3 and 4 for position of parts during disassembly and assembly.



1—Cap Screw (12 used)
2—Washer (12 used)
3—Cap Screw (6 used)
4—Special Washer (6 used)
5—Tapping Bar (2 used)
6—Front Crossbar
7—Special Washer (4 used)
8—Cap Screw (2 used)
9—Cap Screw (2 used)

Fig. 3-Front Crossbar



1—Right Rear Bar Bracket
2—Rear Crossbar
3—Cap Screw (4 used)
4—Cap Screw (4 used)
5—Left Rear Bar Bracket
6—Shim (as required)
7—Retainer (2 used)
8—Lock Washer (4 used)
9—Cap Screw (4 used)
10—Cap Screw (8 used)
11—Special Washer (8 used)

Fig. 4-Rear Crossbar

INSTALLATION

Before installing track frame, be sure that front and rear crossbar are secure. Make sure that rear crossbar extends an equal distance from rear bar brackets on both sides. Tighten front crossbar-to-side frame horizontal cap screws and vertical cap screw. Add John Deere Lubriplate or equivalent to cap screws (3, Fig. 4) before assembly. Tighten cap screws to 300 ± 30 lb-ft (407 Nm). Evenly tighten the rear crossbar cap-to-bracket cap screws (10, Fig. 4) to 250 lb-ft (339 Nm).

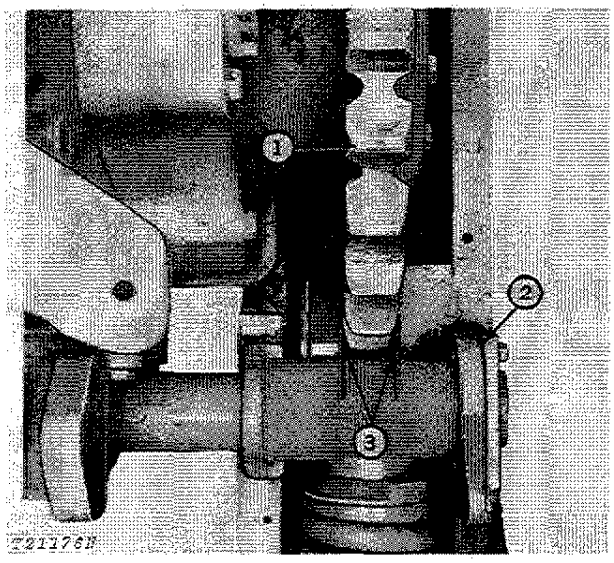
With the crawler supported under both crossbars, start the track frame on the rear crossbar and slide in place. Position the rear crossbar retainer (7) and shims (6) and loosely install the cap screws (9).

Install the drive sprocket on flanged axle shaft and tighten cap screws.

Shift track frame in or out until drive sprocket is centered between flanges of rear track roller (Fig. 5). Then install just enough shims to fill space between retainer and retainer seating surface.

Tighten the retainer cap screws (9, Fig. 4) and the front crossbar vertical cap screws (8 and 9, Fig. 3).

Recheck centering of sprocket between rear track flanges.



1—Sprocket
2—Adjusting Shims
3—Sprocket Centered

Fig. 5-Centering Drive Sprocket in Track Frame

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TRACKS (5-roller track frames with rock guards):

Triple semi-grouser, open-center	14-in. (356 mm)
Track shoes, each side	37
Ground contact area	2,128 sq. in. (13 729 cm²)
Ground pressure	8.2 psi (0.58 kg/cm²)
Length of track on ground	76 in. (1.93 m)
Track gauge	52 in. (1.32 m)
Carrier roller	1
Adjustment	Hydraulic
Clearance at rear crossbar	14.25 in. (362 mm)

BUCKETS:	SAE Heaped Capacity	Width
Digging	1-1/4 cu. yd. (0.96 m³)	72.25 in. (1.84 m)
Light Materials	1-3/4 cu. yd. (1.34 m³)	78.25 in. (1.99 m)
Multi-purpose	1-1/4 cu. yd. (0.96 m³)	73 in. (1.85 m)

OPERATING INFORMATION:

Breakout force	15,750 lb. (7 144 kg)
Lifting capacity, full height	10,600 lb. (4 808 kg)
Maximum dumping angle	50 deg.
Raising time	7.0 sec.
Dumping time	1.6 sec.
Lowering time	4.0 sec.

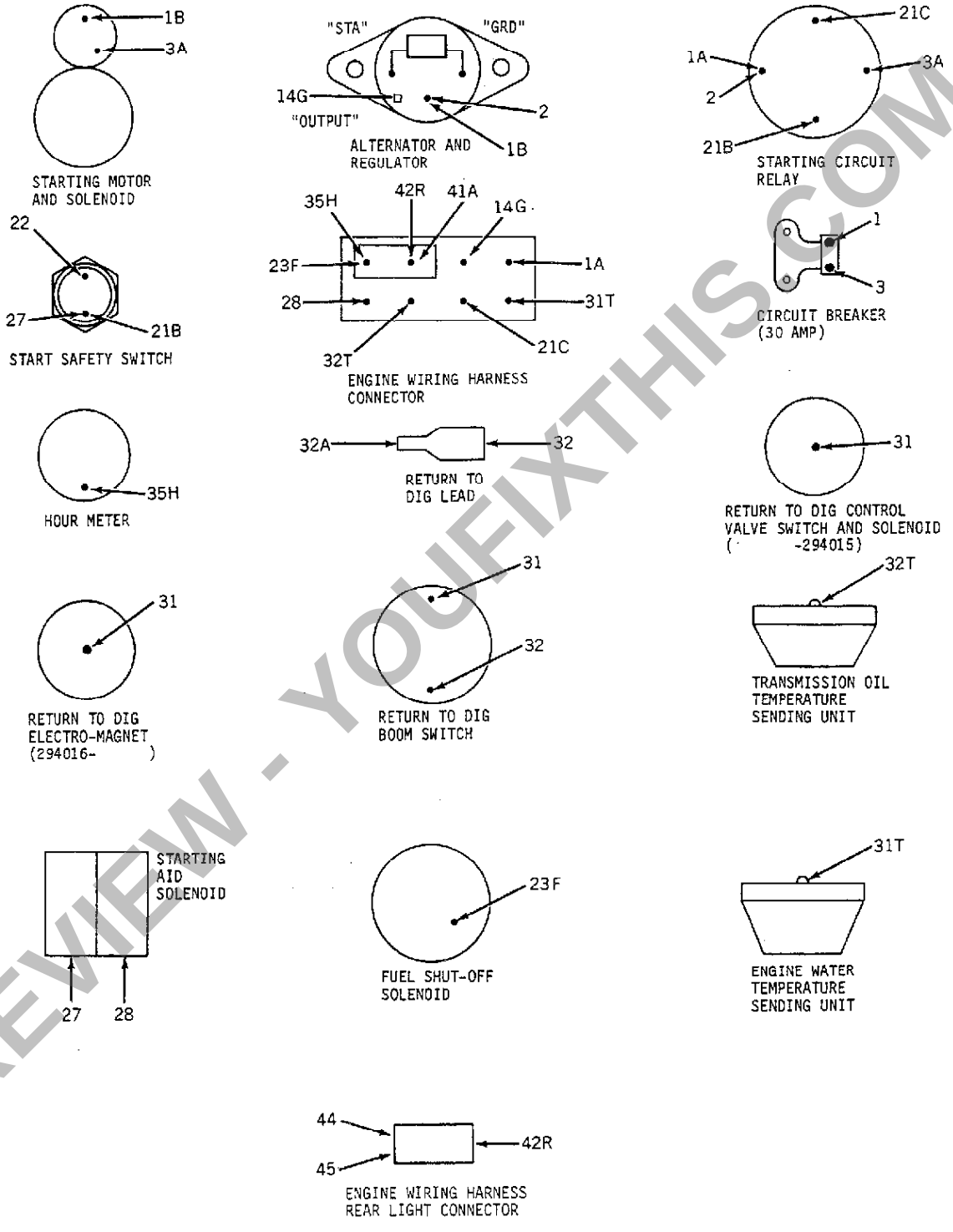
CAPACITIES:	U.S.	Litres
Cooling system	5 gal.	18.9
Fuel tank	36 gal.	136.3
Crankcase including filter	15 qt.	14.2
Transmission (total capacity)	13.5 gal.	51.1
Final drive (each)	7 qt.	6.6
Hydraulic reservoir	7 gal.	26.5
Hydraulic system	13 gal.	49.2
Steering clutch housing (each side)	28 qt.	26.5
Winch reservoir	9 qt.	8.5
SAE operating weight with ROPS	18,225 lb. (8 267 kg)	

ADDITIONAL STANDARD EQUIPMENT:
Front bottom guard
Front hitch
Cushion seat with arm rests
Key switch with push-button start switch
Precleaner
Electric hour meter
Cigar lighter
Vandal protection
Bottom guard counterweight with fixed drawbar
Bucket level indicator
Radiator sand shield
Sprocket weights
Lights
Enclosed alternator with solid state regulator
Engine side shields
Boom safety lock bar
Muffler
Tachometer
Cold weather starting aid
Front idler shields
Master electrical disconnect switch
Return-to-dig
Decelerator
Pedal steering

SPECIAL EQUIPMENT:
13-in. (330 mm) rubber shoes
Cab (includes ROPS)
Winch drive
Two batteries
Rear counterweight for multi-purpose bucket or log loader
Brush screens
Limb risers with overhead exhaust

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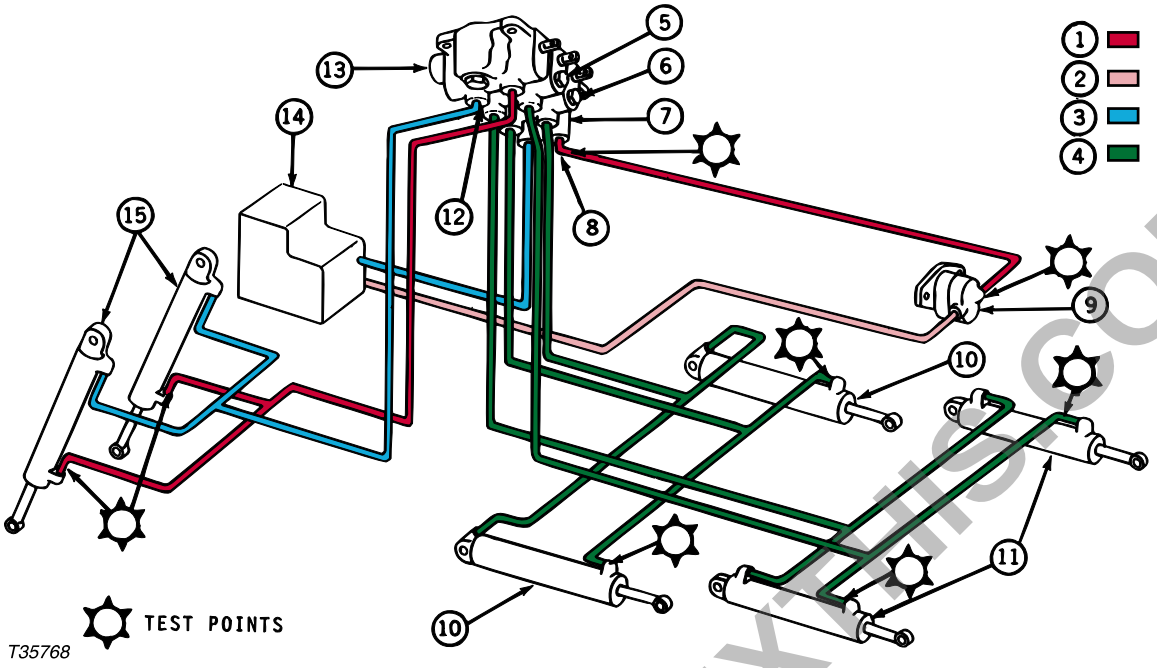


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Fig. 8-Component Wire Routing (Part I)

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1—Pressure Oil
2—Low Pressure Oil
3—Return Oil
4—Trapped Oil
5—Circuit Relief (Bucket)
6—Circuit Relief (Boom)
7—System Relief
8—Pressure Tap
9—Hydraulic Pump
10—Boom Cylinder
11—Bucket Cylinder
12—Circuit Relief (Bucket)
13—Control Valve
14—Reservoir
15—Ripper Cylinder

Fig. 3-Crawler Loader With Ripper

Oil is drawn from the reservoir by the pump and is moved to the control valve past the loader spools to the auxiliary valve. With the auxiliary spool retracted to raise the ripper, the outlet port back to the reservoir is blocked. Oil then is forced to the ripper cylinders.

As oil flows to the rod end of the cylinder, oil from the piston end is forced back through the control valve to the reservoir. Oil in the rest of the system is trapped by the position of the other control valve spools. The auxiliary valve section is protected by the loader system relief valve located in the valve boom section.

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AXLE SHAFTS, BEARINGS AND REDUCTION GEARS

SPECIFICATIONS AND TORQUE VALUES

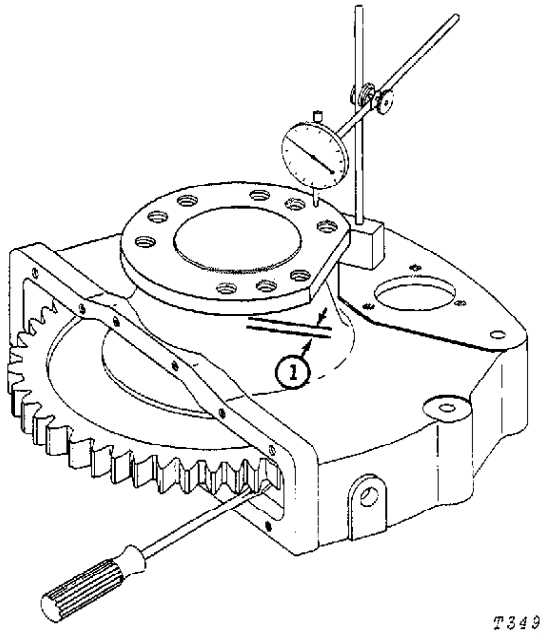


Fig. 4-Axle Shaft Introduced End Play

1. Flange axle shaft introduced end play ..... 0.001 to 0.005 inch (0.03 to 0.13 mm)
   Advance nut if necessary, to line up slot in nut with cotter pin hole in shaft. Then tighten nut one additional slot and install cotter pin.

   Rolling torque with new bearings ..... 90 to 115 lb-in. (10.2 to 13.0 Nm)

   Rolling torque with used bearings ..... 70 to 85 lb-in. (7.9 to 9.6 Nm)

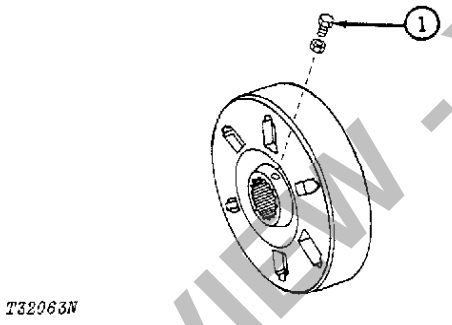


Fig. 5-Steering Brake Drum

1. Tighten cap screw to 10 lb-ft (14 Nm) (1 kg-m) and back out 1/4 turn. Tighten jam nut.

   NOTE: Apply John Deere Loctite Thread Lock and Sealer Medium Strength or an equivalent to cap screw.

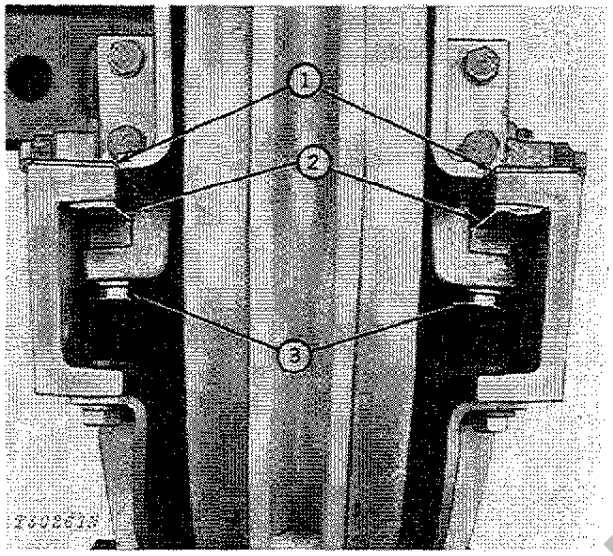
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Replacing Track Frame Channel Wear Strips

Inspect front idler wear strips on track frame channels for wear. If strips are excessively worn refer to Figure 6 and replace according to the following procedure.



1—Wide Wear Strip
2—Narrow Wear Strip
3—Idler Bracket Cap Screws

Fig. 6-Replacing Track Channel Wear Strip

IMPORTANT: Disconnect battery ground strap or turn off battery disconnect switch before doing any welding on the crawler. Failure to do so may damage the electrical system.

Release track cylinder pressure to loosen track. Remove master track pin and split track. Refer to page 0130-9.

The front idler wheel, idler bracket, crosshead, and tube can be removed from the track frame as a unit. However, it may be necessary to loosen or remove the cap screws (3, Fig. 6) that screw into the underside of the idler bracket.

IMPORTANT: Be careful not to pull piston from track adjusting cylinder as piston seal may be damaged. Make sure the track adjuster release screw is in the closed position.

Grind off the old wear strips on the track frame channel so that none of the strips or welds remain.

Install new wear strips.

NOTE: The wide wear strips (1, Fig. 6) fit on top of the track channel. The narrow strips (2) fit underneath.

Recommended Welding Procedure

1. Remove dirt, oil and paint from areas to be welded.

2. Use 5/32-inch diameter low hydrogen AWS-ASTM E-7018 covered electrode.

NOTE: Flux covering on low hydrogen electrodes readily takes on moisture which causes welding problems. Be sure electrodes are dry. Electrodes stored in open containers should be suspected of containing excessive moisture and may require baking prior to use.

3. Use AD or DC reversed polarity welding current [ELECTRODE POSITIVE (+)].

4. The suggested amperage range is 100 to 115 amps.

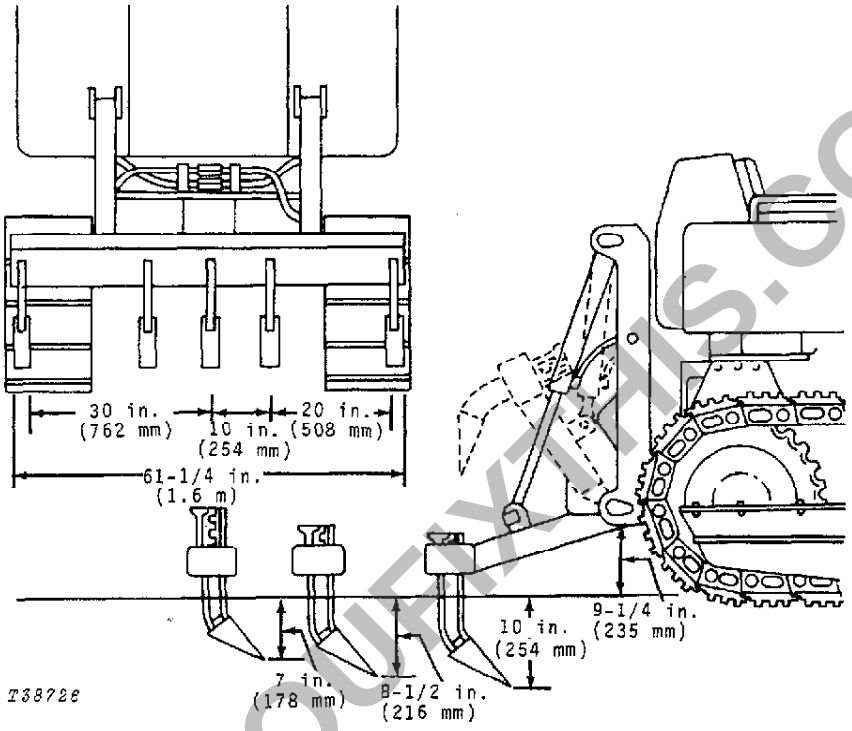
When putting on new wear strips, do not clamp wear strips firmly to channel. A secure clamping which still allows a slight wear strip shift will prevent cracking of weld fillet during the cooling process.

Weld the narrow wear strips (2) to track frame channel, melting as little as possible of the wear strips by starting and maintaining the arc primarily on the track frame channel. The wear strip is a high carbon steel so best results are obtained by washing the weld metal toward the wear strip. This will produce a slightly convex weld fillet.

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3110 RIPPER DIMENSIONS



Width (overall)	66 inches (1.7 m)
Working width (max.)	61-1/4 inches (1.6 m)
Penetration (Adjustable)	7, 8-1/2, 10 inches (178, 216 and 254 mm)
Cylinders	Double-Acting
Bore	2-1/2 inches (63.5 mm)
Stroke	15 inches (381 mm)
Weight with three teeth	685 pounds (311 kg)
Ground clearance at frame	9-1/4 inches (235 mm)

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JD555 Crawler Loader

Technical Manual
TM-1111 (Nov-86)

SECTIONAL CONTENTS OF THIS MANUAL

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Section 2 - Axles and Suspension Systems
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Repair

Disassembly and Assembly

For identification and correct location of parts, refer to Figure 27.

Bushing and Shaft Wear

Inspect bushings (12) in front idlers for scoring or excessive wear. The I.D. of the front idler bushing is 2.6285 to 2.6295 inches (66.76 to 66.79 mm). If it is necessary to replace the bushings, use a suitable driver to press old bushings out. Install new bushings 0.03 to 0.05 inch (0.8 to 1.3 mm) below face of roller.

NOTE: Replacement idler bushings are presized and, therefore, do not need to be sized after installation.

Check idler shaft O.D. at largest diameter, 2.6245 to 2.6255 inches (66.66 to 66.69 mm) and thrust plates for damage or excessive wear. Make sure oil passages in shafts are open. Note condition of oil seals. Replace all unserviceable parts.

NOTE: Since the assembly for the front idler is the same as for the roller assembly, follow roller assembly procedure when assembling front idler. Tighten the thrust plate-to-idler cap screws.

Apply Loctite Hydraulic Sealant or an equivalent to threads of bracket-to-idler shaft cap screws. Tighten the inner bracket-to-idler shaft cap screws (1). Tighten outer bracket-to-idler shaft cap screw (22) to 210 lb-ft (285 Nm).

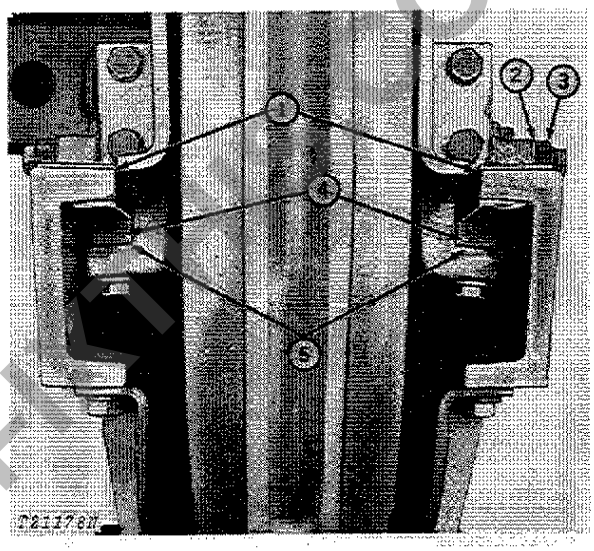
Fill assembly with approximately 3/4 pint (355 mL) of recommended oil. (See Section I, Group V for the type of oil to use).

If wear plates (20) have been removed, assemble them loosely to idler bracket using the same number of shims as removed. Refer to paragraph on "Front Idler" for procedure on checking and adjusting front idler wear plate and guides.

Attach track adjusting yoke to idler bracket using same shims as removed. If unit is equipped with front idler shields, attach them at this time.

Installation

Slip front idler assembly into position on track carrier frame assembly. Check for excessive play between idler bracket and track channels. If clearance is excessive, add shims under wear plates (Fig. 28). Tighten cap screws. Also check for vertical play in idler brackets. Add or subtract shims under idler guides to correct excessive clearance. Front idler should slide freely on track frames but not be loose.



1—Idler Brackets
2—Shims
3—Idler Guide
4—Wear Plates
5—Shims

Fig. 28-Installing and Adjusting Track Front Idler

Move the front idler assembly back and forth through its entire moveable range on the track frame channel, checking to see that the brackets do not bind on the rails. Remove shims if necessary to correct binding.

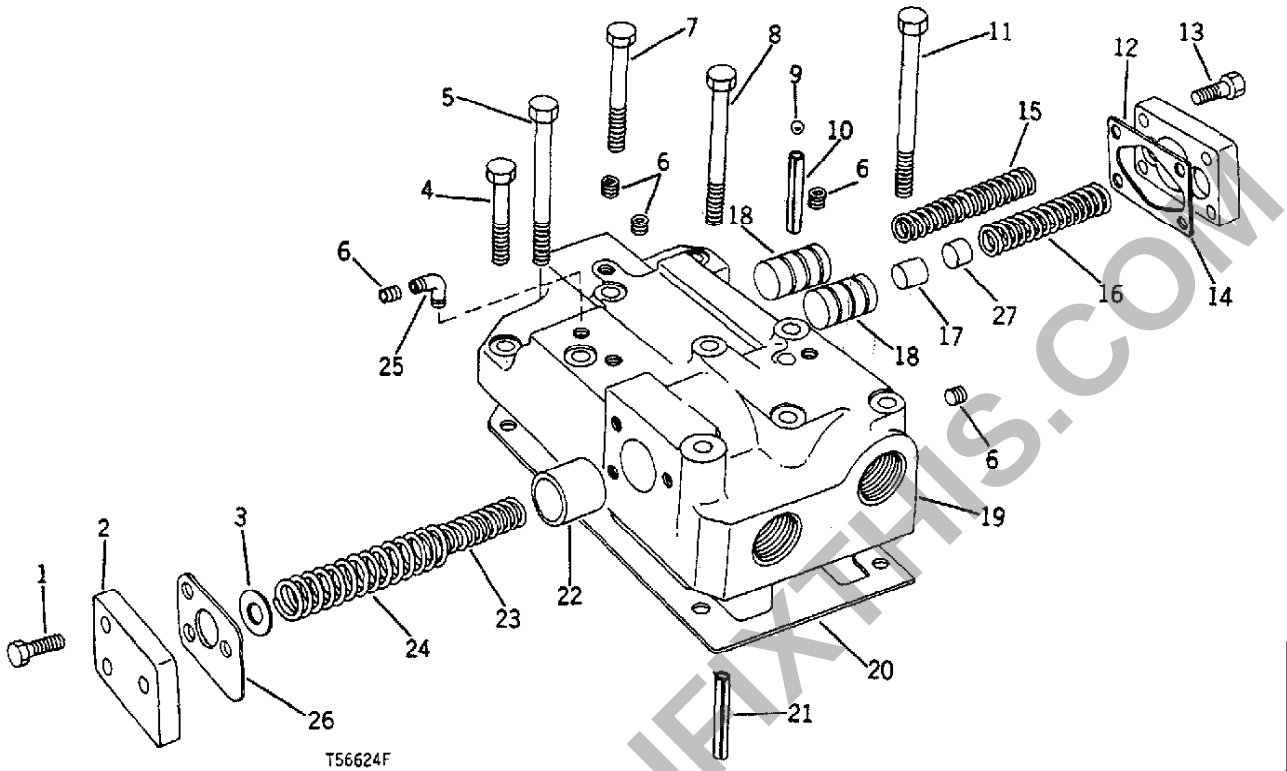
Install and connect the track (page 0130-14).

Adjust track tension and check track alignment (Section 90, Group 9030).

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1—Cap Screw (3 used)
2—End Plate
3—Washer (2 used)
4—Cap Screw (2 used)
5—Cap Screw
6—Pipe Plug (5 used)
7—Cap Screw
8—Cap Screw (2 used)
9—Ball
10—Spring Pin
11—Cap Screw (3 used)
12—End Plate
13—Cap Screw (4 used)
14—Gasket
15—Spring
16—Spring
17—Spacer
18—Piston (2 used)
19—Housing
20—Gasket
21—Spring Pin
22—Clutch Pressure Piston
23—Spring
24—Clutch Valve Spring
25—Elbow
26—Gasket
27—Spacer

Fig. 11-Control Valve Assembly

INSTALLATION

Use a new gasket (17, Fig. 11) and install control valve on top of sandwich plate.

Connect lines (2, 7 and 8, Figs. 10) to control valve.

Install service brake support (1, Fig. 10) and connect brake rod (3). Connect speed control cable (4, Fig. 10).

Install operator's platforms.

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Section 6
TORQUE CONVERTER

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INSTRUMENTS AND INDICATORS

SPECIFICATIONS AND TORQUE VALUES

Mechanical Instruments and Indicators

Transmission Oil Pressure Gauge
Gauge range ..... 0 to 200 psi (0 to 14.0 kg/cm²)
Normal operating range ..... 25 to 150 psi (1.8 to 10.5 kg/cm²)

Tachometer
Range ..... 0 to 2400 rpm
Engine Oil Pressure Gauge
Gauge range ..... 0 to 80 psi (0 to 5.6 kg/cm²)
Normal operating range ..... 25 to 80 psi (1.8 to 5.6 kg/cm²)

Electrical Instruments and Indicators

Transmission Oil Temperature Gauge
(-279944)
Gauge range ..... 0°F to 300°F (−17.8°C to 148.9°C)
Normal operating range ..... 0°F to 240°F (−17.8°C to 115.6°C)

Transmission Oil Temperature Gauge
(279945-)
Gauge Range ..... 0°F to 300°F (−18°C to 149°C)
Normal Operating Range ..... 0°F to 260°F (−18°F to 127°C)

Voltmeter
Range ..... 0 to 16 volts
Engine not running ..... 12.0 to 12.8 volts
Engine running ..... 13.4 to 15.5 volts

Engine Water Temperature Gauge
Gauge range ..... 100°F to 280°F. (37.8°C to 137.8°C)
Normal operating range ..... 160°F to 224°F (71.1°C to 106.7°C)

Gauge Lights (six)
Replacement bulb trade number 293

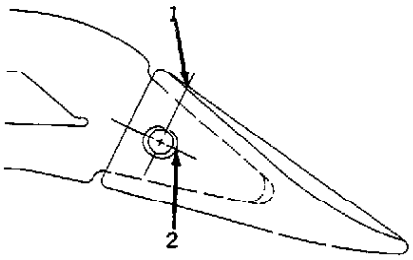
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Bucket Teeth

Drive out pin and remove old tip (12, Fig. 1) from bucket tooth shank (13).

Hand fit tip on tooth shank.



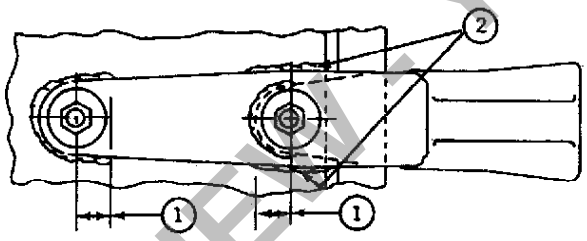
T21196

Fig. 2-Installing Tooth Tip

Drive tip on tooth shank until pin can be assembled or until center of hole in shank aligns with center of slot in tip (Point "1", Fig. 2).

Secure tip to tooth shank with grooved pin.

IMPORTANT: Pin should not contact front edge of slot (Point "2", Fig. 2). Point must fit tight with no movement between tooth shank and tip when twisted by hand.



T21197N

1—1 Inch [25.4 mm] **2—5/16 Inch Bead (all welds) [7.9 mm]**

Fig. 3-Tooth Shank Welded to Bucket

Side impacting or wedging or rocks between bucket teeth can sometimes cause the tooth shank attaching hardware to loosen or fail. To prevent this, tooth shanks can be welded to the bucket in the following manner.

See "Special Welding Instructions" (below) and weld tooth shank to bucket (Fig. 3).

Do not remove attaching hardware.

Special Welding Instructions

A low hydrogen (with iron powder) electrode (American Welding Society, Series E7018) is recommended for this type of work. The sizes most easily handled in horizontal or out of flat positions are 5/32-inch [3.97 mm] and 3/16-inch [4.76 mm] diameters.

To obtain maximum strength, it is imperative that all craters at the termination of each weld be filled. Because of the cupping action of heavy electrode coating, it is necessary to drag the electrode lightly or hold a very short arc.

As a second choice, an E7010 Series Electrode can be used in DC reverse polarity after preheating the cutting edge to approximately 300 degrees F. [148.9°C]. Allow the edge to cool slowly.

IMPORTANT: When repairing a small section of the cutting edge, it is necessary to preheat around damaged area regardless of the electrode used. This will prevent rapid cooling of the edge around the weld which could cause the cutting edge to become brittle.

When cutting edge is cracked, cut completely through cutting edge. Extend cut 1/2-inch [12.7 mm] beyond each end of crack.

Weld crack from both sides.

When welding cracks between cutting edge and bucket, extend weld at least 1/2-inch [12.7 mm] beyond each end of the crack.

Installation

Follow removal procedure in reverse order.

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Group 4051
GEARS, SHAFTS AND BEARINGS

GENERAL INFORMATION

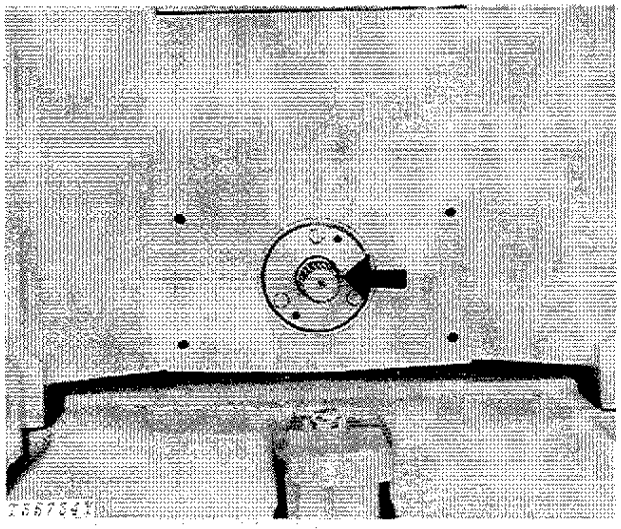


Fig. 1-Winch Drive

The JD555 Crawler is equipped with a 1400 rpm winch drive. The winch drive shaft drives the winch from the rear of the crawler (Fig. 1).

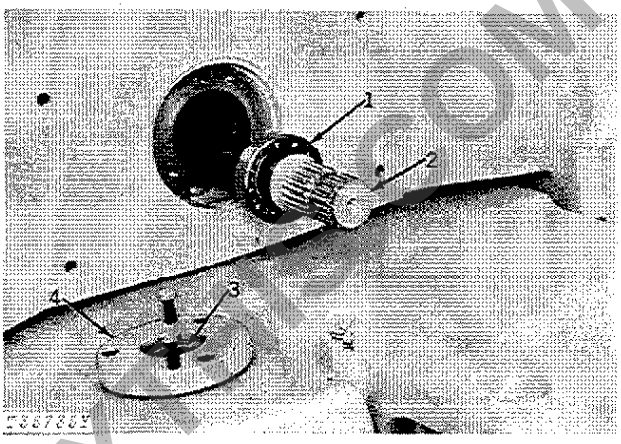
The converter impeller includes an engine driven gear driving the winch drive gear in converter housing. The winch drive shaft is splined into the winch drive gear.

The winch drive shaft is continuous running, that is, it is possible to stop crawler movement without stopping winch drive shaft rotation. By shifting to neutral, crawler movement is stopped, but the winch drive shaft will still rotate.

The winch drive shaft extends from the rear wall of the converter housing out through the rear of the transmission. The shaft is supported on the front by the winch drive gear and on the rear by a ball bearing in the bevel gear housing.

The winch drive shaft drive gears and bearings are lubricated by oil in the transmission reservoir.

REMOVAL



1—Ball Bearing
2—Winch Drive Shaft
3—Oil Seal
4—Housing

Fig. 2-Removing Winch Drive Shaft Rear Housing

Remove winch from crawler. Refer to Section 30, Group 3041.

Remove suction screen cover from transmission case and drain the entire case.

NOTE: An alternate method is to raise the rear of the crawler to a point where the oil level is below the winch drive shaft rear housing (6, Fig. 3). Securely block crawler.

To remove the winch drive shaft, take out the three cap screws fastening the rear winch drive shaft housing (4, Fig. 2) to transmission case. Withdraw winch drive shaft (2) with bearing from transmission case.

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Transmission and hydraulic torque converter is a unit which has its own sump and pump. The major components of the transmission hydraulic system are:

1. Pump With Relief Valve
2. Filter
3. Control Valve
4. Selector Valve
5. Oil Cooler
6. Torque Converter
7. Clutch Packs

The transmission system provides four basic functions of transmission operations as follows - (1) converter operation, (2) clutch actuation, (3) clutch cooling, and (4) lubrication of the transmission gears.

The pump supplies high pressure oil (265 psi [19 kg/cm²]) from transmission sump for clutch engagement as well as lubricating and cooling the transmission system. No suction line is visible for the pump as it is internal in the transmission.

A relief valve is attached to the pump and is set at 375 psi (26 kg/cm²). This allows cold oil to bypass and return to sump before excessive system pressure can result.

The pump output oil is routed to the oil filter through a line attached to the transmission at the lower front. From the filter the oil flows to the control valve mounted on top of the torque converter.

From the control valve oil flows internally to the selector valve to engage clutches and shift spools. Oil also flows through an orifice to assure a minimum quantity of oil will always flow through the torque converter and cooler for lubrication and cooling the transmission when the transmission is in neutral.

When the unit is in gear, pressure oil that is bypassed by the main regulator relief valve combines with the oil flow through the orifice to the converter inlet.

To prevent damage the converter inlet pressure is not allowed to increase above 150 psi (11 kg/cm²) by the converter relief valve. When pressure exceeds 150 psi (11 kg/cm²) pressure oil is bypassed by the relief valve to join with lube oil.

Return oil from the converter flows internally in the converter and the control valve to the line on the left hand side of the control valve. This oil then flows to the inlet of the cooler. From the oil cooler outlet the oil flows to the rear line on the right-hand side of the control valve. This oil joins with any oil bypassed by the cooler relief valve to develop lube pressure (30 psi [2 kg/cm²]) within the selector valve for cooling and lubricating the transmission.

When lube pressure exceeds 30 psi (2 kg/cm²) the lube relief valve bypasses lube oil to sump. The non-pressure side of each relief valve has a sump port to prevent relief valve piston leakage affecting system pressures.

Lube regulated oil is fed in three directions from the control valve, the largest flow passing to the directional clutch assembly. The line which feeds the directional clutch also provides lube oil to the selector valve assembly and spray to the bevel pinion housing gear train. Lube oil is also fed to the first, second and third clutch assemblies, the smallest quantity being supplied to third.

All clutch functions are actuated at the selector valve assembly by the combined movement of the range and directional spools. Although one of the range clutches is always engaged, crawler movement is prevented by central neutral position on the directional spool.

Engine start-up in gear is prevented by a spool safety switch actuated from the directional spool. When each shift is engaged all remaining disengaged clutches are provided with lube oil to affect the positive neutral position.

The following is an explanation of the oil flow in the different shift ranges.

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