

INTRODUCTION

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

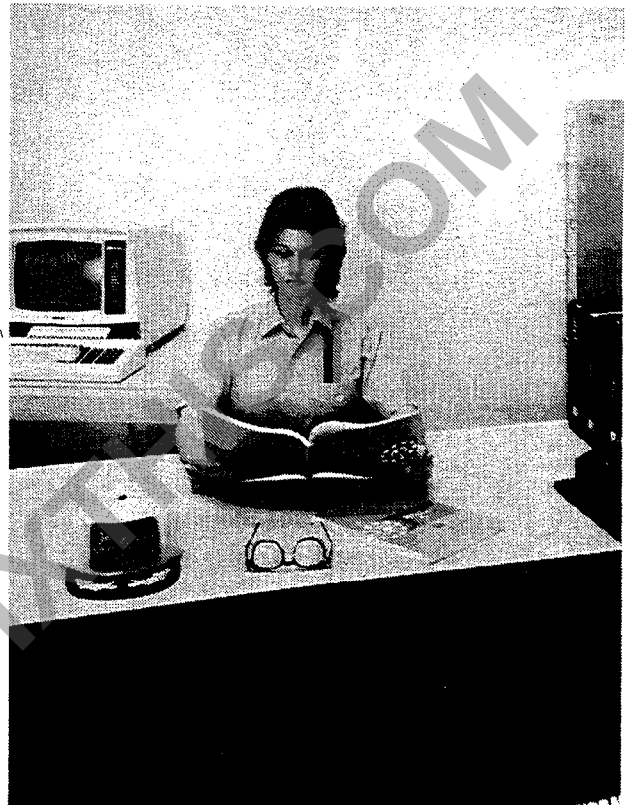
FOS Manuals - for reference

Technical Manuals - for actual service

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

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

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



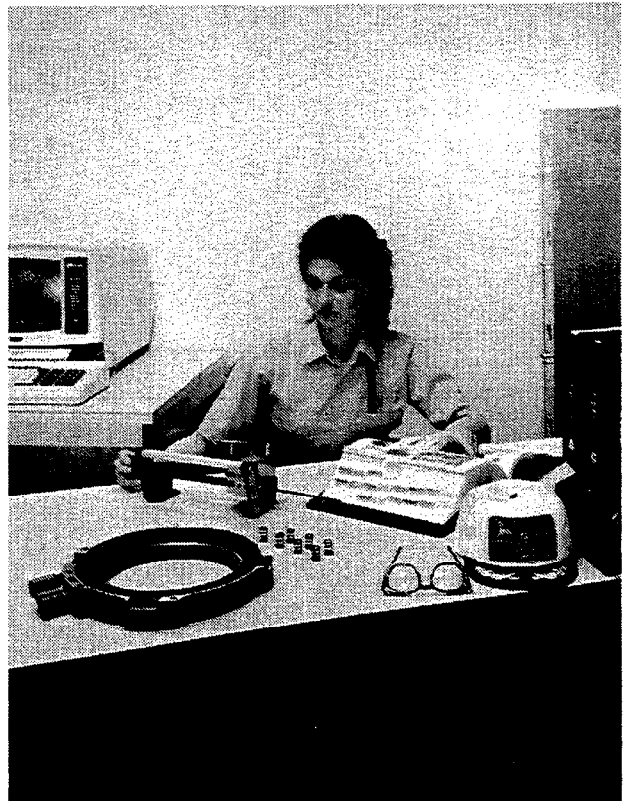
1TA/T5884BB, T82/SKPD HC 140984

FEATURES OF THIS TECHNICAL MANUAL

- John Deere ILLUSTRATION format emphasizing detailed pictures and fewer words in easy-to-use modules.
- Removal and installation groups preceding some repair groups.
- A section of system diagnostic testing.
- Table of contents of all sections at the front of the manual and a listing of all groups and headings at the front of each section.
- Essential tools and specifications listed at the front of each group they are used in.
- Essential tools illustrated in numerical order at end of manual.
- Alphabetical listing of all major components, specifications, and essential tools.
- Safety rules, general specifications, and lubrication specifications.

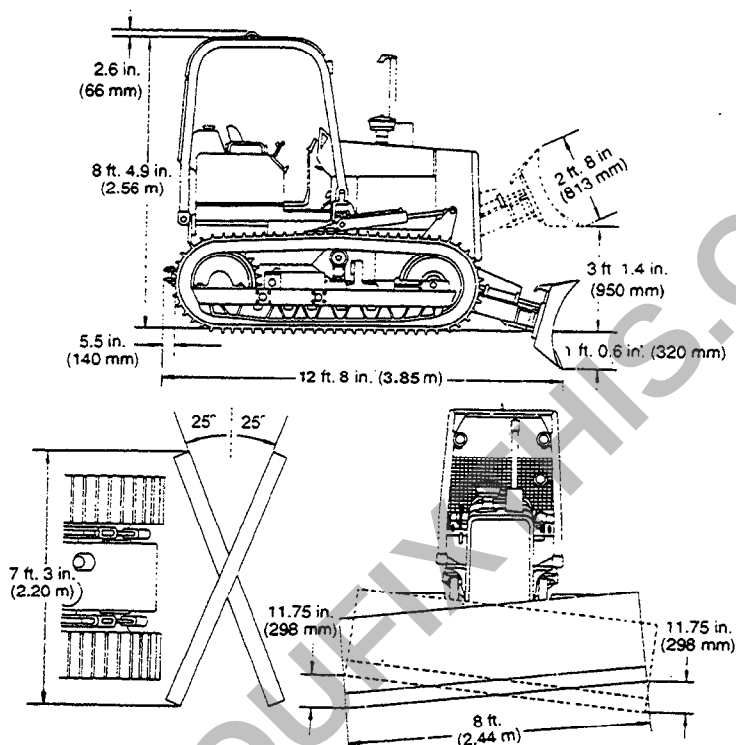
This technical manual was planned and written for you - an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



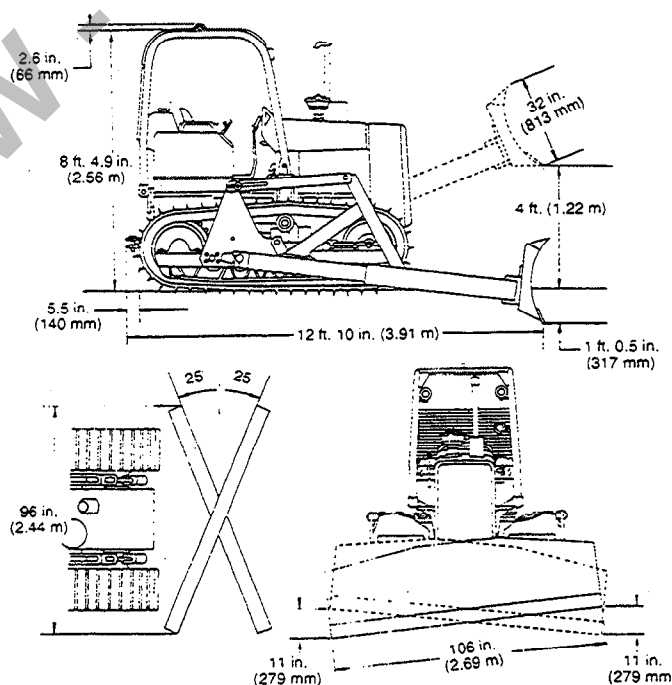
1TA/T5884BC T82/SKPD HD 140984

Group II Specifications



550B Crawler Tractor With 6405 Blade

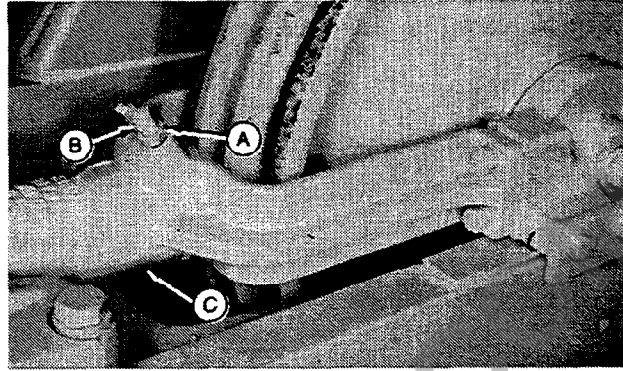
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550B Crawler Tractor With 6410 Blade

000;T6020AM T82;CRSP AA 030185

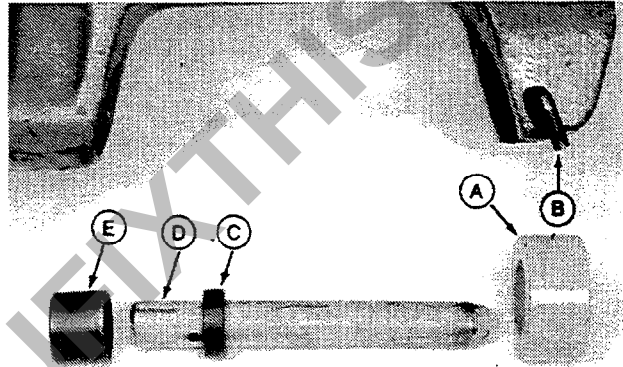
3. Release track tension by loosening nut (A) and turn set screw (B) out of the track adjusting cylinder (C) approximately three turns.



2AG/T93555 T47;0130 31 220783

IMPORTANT: Do not remove the track master pin with a hammer. This will enlarge the link pin bore requiring installation of a new track link.

4. Remove master pin from track link using master pin pusher. Install aligning adapter (A) into master pin pusher C-frame securing with holding screw (B). Put aligning bushings (C) over forcing pin (D) and install adapter (E) in C-frame.



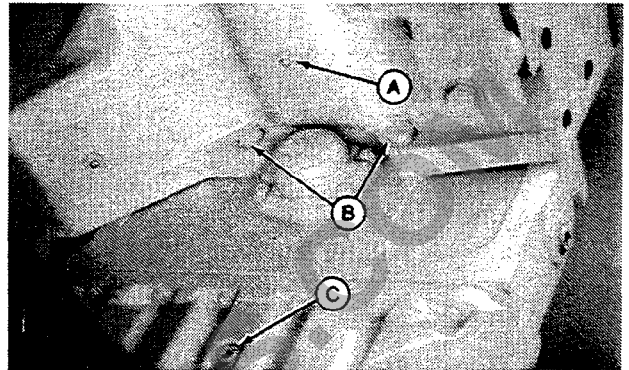
A—Aligning Adapter
B—Holding Screw
C—Aligning Bushing

D—Forcing Pin
E—Pin Adapter

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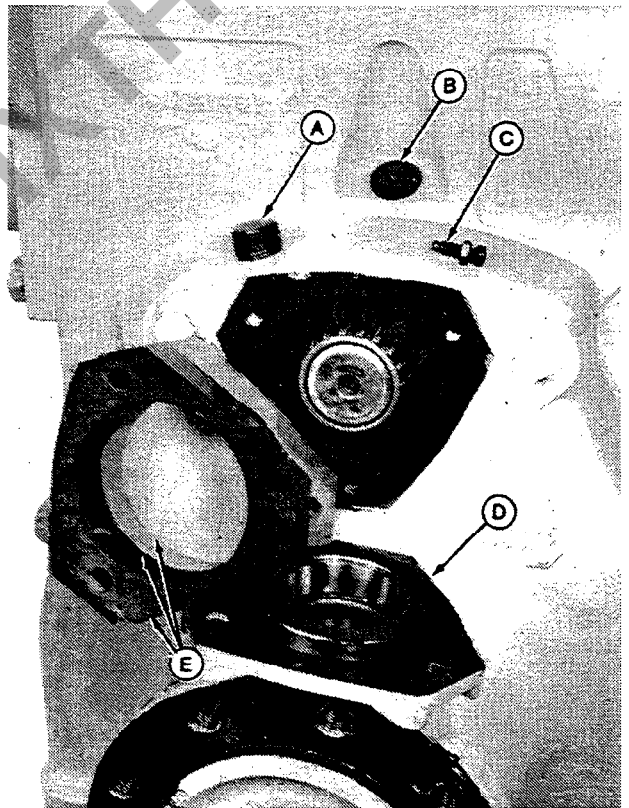
REMOVE FINAL DRIVE ASSEMBLY

1. Disconnect track chain (See instructions in this group)
2. Remove drive sprocket. (See instructions in this group).
3. Remove plug (C) and drain final drive housing.
4. Remove plug (A) and drain steering clutch housing.
5. Remove two cap screws and washers (B).



9AG;T93665 T47;0250 205 130783

6. Remove three cap screws to remove bearing quill (D).
7. Remove shims (E). Remove plug (A). Rotate steering clutch until set screw with jam nut (C) is visible in hole. Remove set screw and replace with 3/8 x 3 in. cap screw and washer (B). This will support the drum and keep it in alignment for removal of pinion and steering clutch shaft.



A—Plug
B—Cap Screw and Washer
C—Set Screw and Jam Nut

D—Quill
E—Shims

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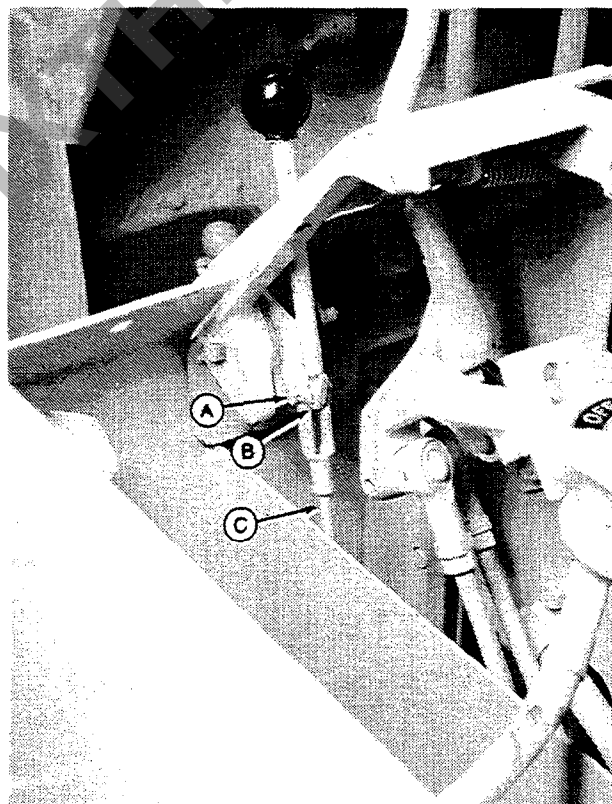
SPECIFICATIONS

Item	Measurement	Specification
Neutral lock plate	Endplay	0.76 mm (0.03 in.)
Neutral lock lever	Endplay	0.5 mm (0.02 in.)
Neutral start switch	Torque	27—34 N·m (20—25 lb-ft)
Shift lever from gear to gear	Pressure	22 N (5 lb force)

T48;0315 6037DE 010285

REMOVE AND INSPECT SHIFT CONTROL LINKAGE

1. Disconnect cotter pin (A) and pin (B) to disconnect engine speed control cable (C).
2. Remove speed control knob.

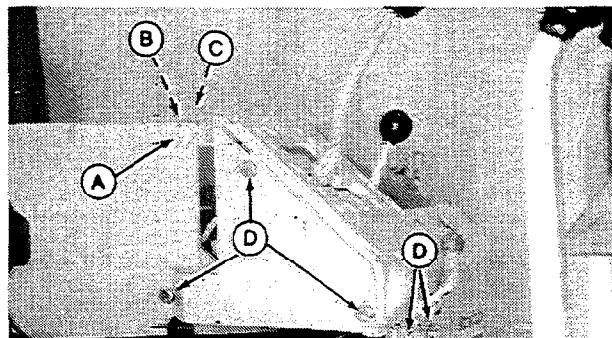


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3. Remove ground strap, nut and five cap screws (D).
4. Remove nut (C), washer (B), and cap screw (A).
5. Remove quadrant and shift control linkage.
6. Inspect all parts for wear or damage.

A—Carriage Bolt
B—Washer

C—Nut
D—Cap Screw



1AH;T91164 T48;0315 6046NE 101285

7. Remove air restriction indicator (D).
8. Disconnect air cleaner line (A). Close all openings using caps and plugs.
9. Remove cap screws (C) and remove air cleaner bracket and air cleaner.
10. Remove muffler (B).

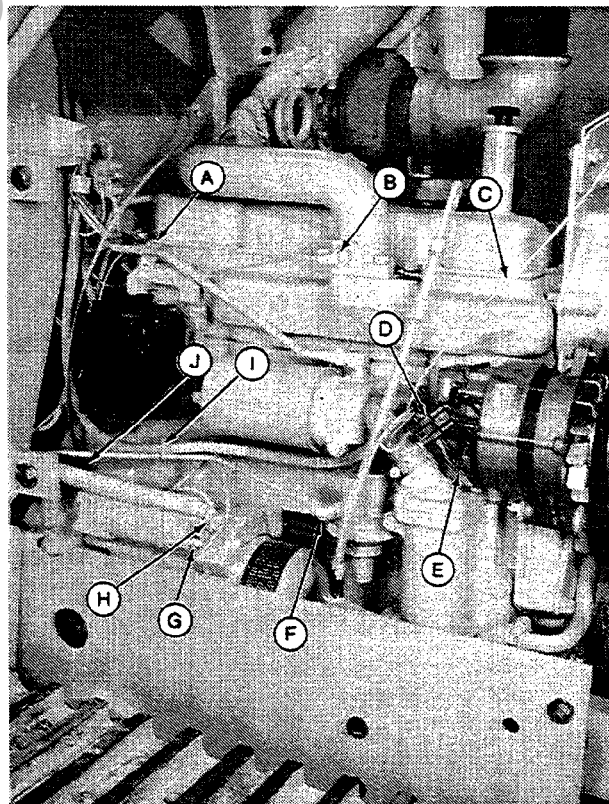


A—Line-Air Cleaner
B—Muffler

C—Cap Screws (3 used)
D—Air Restriction Indicator

9A1;T6043AX T49;0400 610 050285

11. Disconnect ether starting aid line (B). Remove line from clamp (A).
12. Remove clamp to free horn wire (C).
13. Disconnect voltage regulator connector (D) and alternator output lead (E).
14. Shut off fuel petcock at fuel tank and disconnect fuel transfer pump line (F). Remove the band (I).
15. Disconnect starter solenoid wire lead (G) and starting motor cable (H).
16. Disconnect engine oil pressure line (J).



A—Clamp
B—Line
C—Horn Wire Lead
D—Voltage Regulator Connector
E—Alternator Output Wire Lead

F—Line-Fuel Transfer Pump
G—Starting Solenoid Wire Lead
H—Starting Motor Cable
I—Tie Band
J—Line-Engine Oil Pressure

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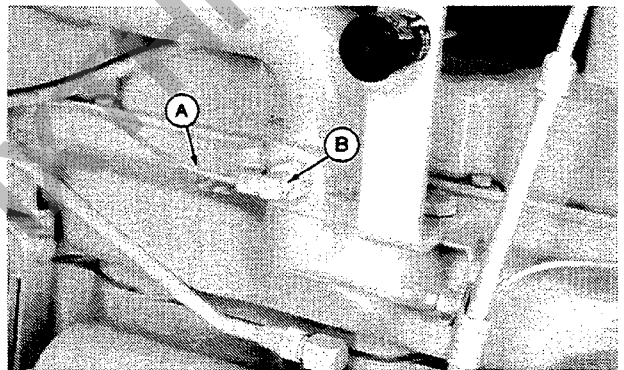
SPECIFICATIONS

Item	Measurement	Specification
Starting Aid Line Nuts	Torque	6—7 N·m (50—70 lb-in.)

T49;0505 57 050285

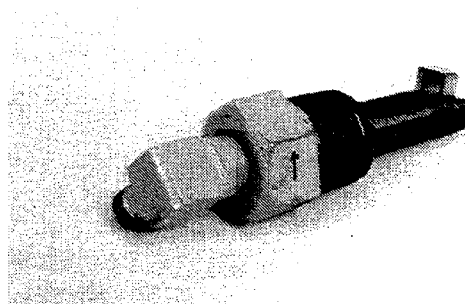
REMOVE, INSPECT AND INSTALL STARTING AID NOZZLE

1. Disconnect starting aid tube (A) and remove nozzle holder (B).
2. Inspect to see that line and opening in nozzle are open.



9AJ;T6021AE T49;0505 58 090185

3. Install nozzle and holder (A) with arrow on nozzle holder pointing up.
4. Install line and tighten nut to 6—7 N·m (50—70 lb-in.)



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Section 06 TORQUE CONVERTER

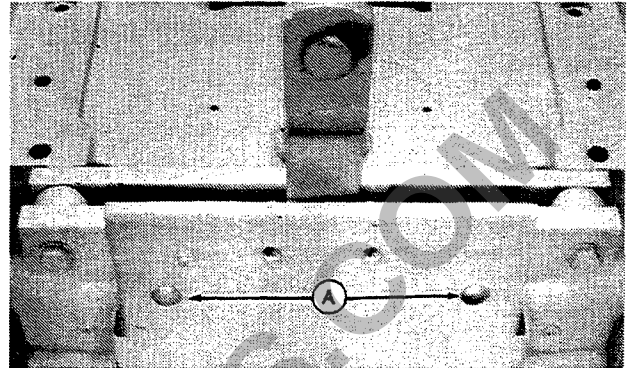
See Section 03, Group 0350 to Remove, Disassemble, Assemble and Install Torque Converter.

T50;0600 6040D0 080285

REMOVE AND INSTALL DRAWBAR ASSEMBLY

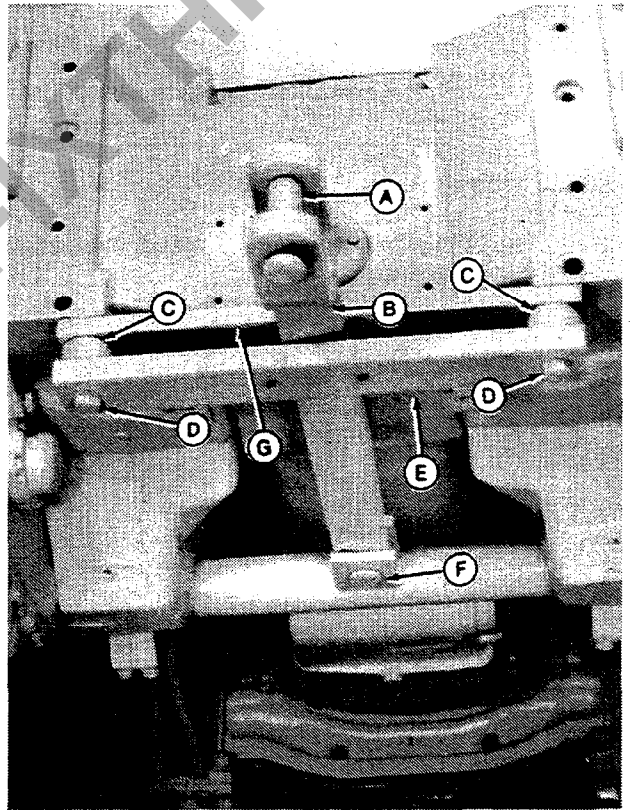
NOTE: For use without bottom guard counterweight.

1. Remove two cap screws and nuts (A) to lower rear of bottom guard.



4AL/T94181 T51;1511 01 250783

2. Remove cotter pin to remove pivot pin (F). Pull out drawbar (B).
3. Remove two cap screw and washers (D) to remove drawbar support (E) spacers (C) and cross member (G).
4. Remove quik-lock pin (A).
5. Install by reversing removal procedure.



A—Quick Lock Pin
B—Drawbar
C—Spacers (2 used)
D—Cap Screw (2 used)

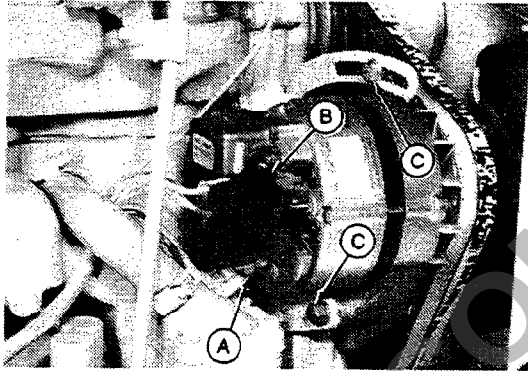
E—Drawbar Support
F—Pivot Pin
G—Quik-Lock Pin

4AL/T94182 T51;1511 02 261184

REMOVE ALTERNATOR

IMPORTANT: Turn battery disconnect switch to "OFF" position to prevent accidental grounding of alternator wires.

1. Disconnect wires (A) and wire leads (B).
2. Remove cap screws (C) to remove alternator.



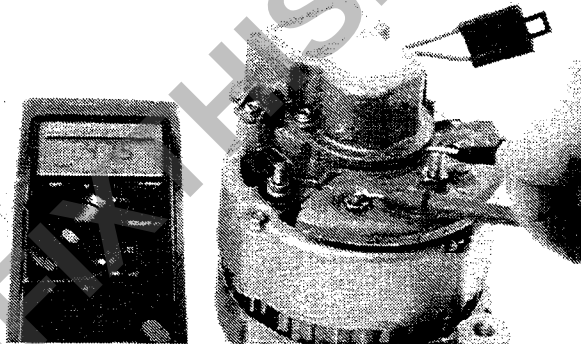
7AL:T6008AP3 T52:1672 60470A 060285

DISASSEMBLE AND TEST ALTERNATOR

NOTE: Never immerse alternator in cleaning solution. Scrape off dirt and grease before using a stiff brush and solvent.

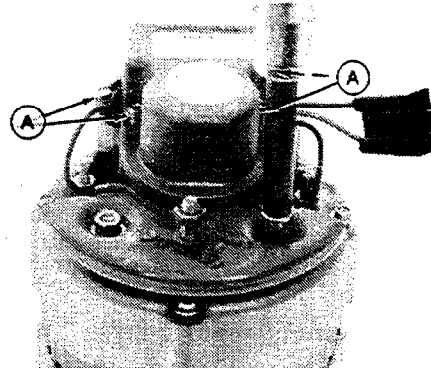
1. Check isolation diode using digital volt-ohm-amp meter with selector indicator in diode test position.

The meter must register OL in one direction and approximately 0.5 volts in the other. If it does not, replace diode.



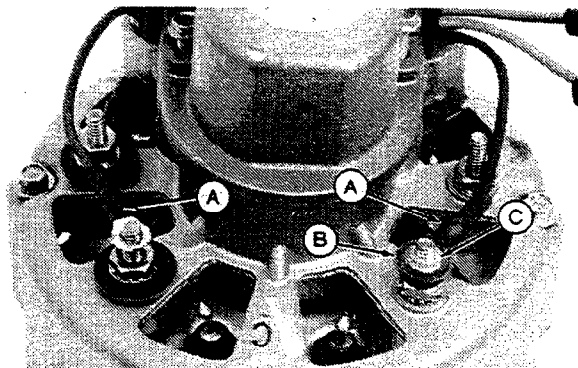
7AL:T6015BJ T52:1672 6015GG 160185

2. Loosen regulator cap screws (A). Remove two nuts to remove isolation diode plate.



7AL:T6015AZ T52:1672 6015GH 040185

3. Remove sleeve (C), insulator washer (B) and regulator wires (A) from alternator terminals.

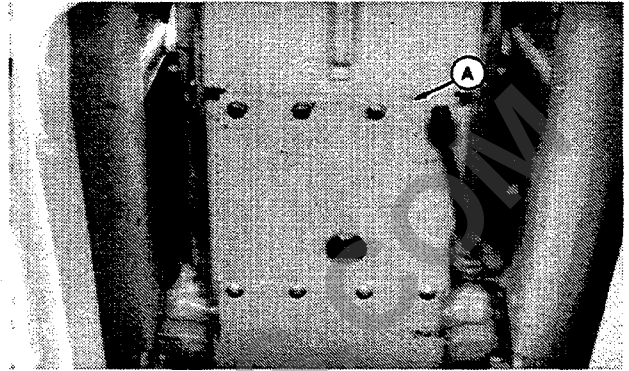
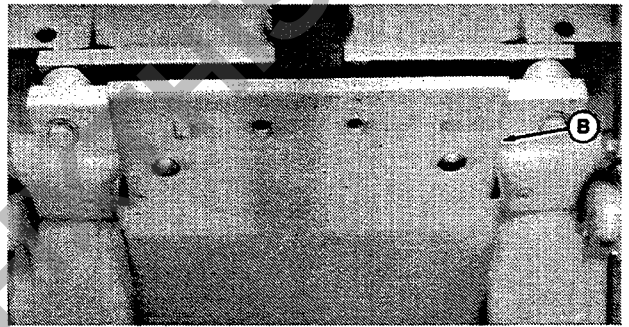


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Group 1746
FRAME BOTTOM GUARDS

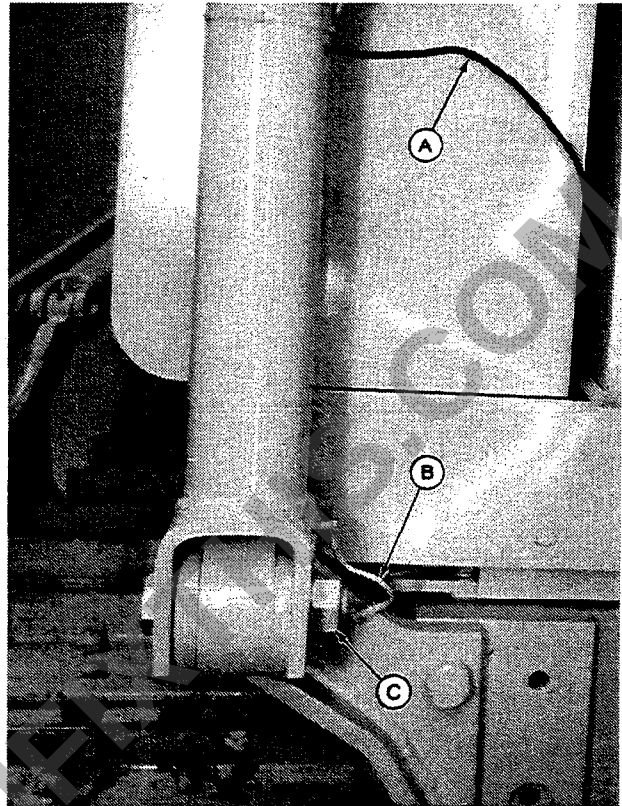
REMOVE AND INSTALL BOTTOM GUARDS

1. Remove 14 cap screws and washers to remove front bottom guard (A).
2. Remove four cap screws to remove rear bottom guard (B).
3. Install bottom guards by reversing removal procedure.



8AH/T91163, T91165 T52;1746 01 220783

2. Remove tie band and washer (A).
3. Disconnect ground wire (B).
4. Remove limb risers if equipped.
5. Remove four lock nuts and screws (C).

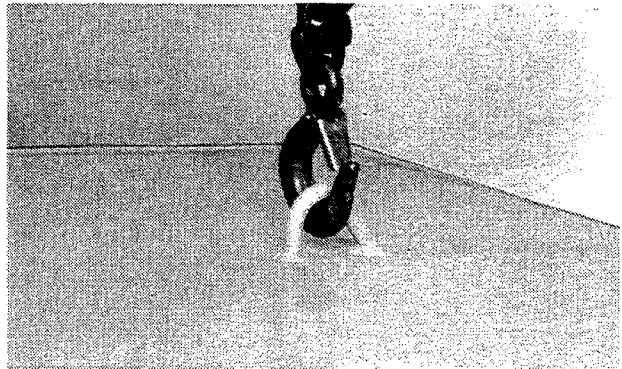


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6. Attach chain hoist to lifting hook on roof of ROPS (if equipped) or to sling under roof.

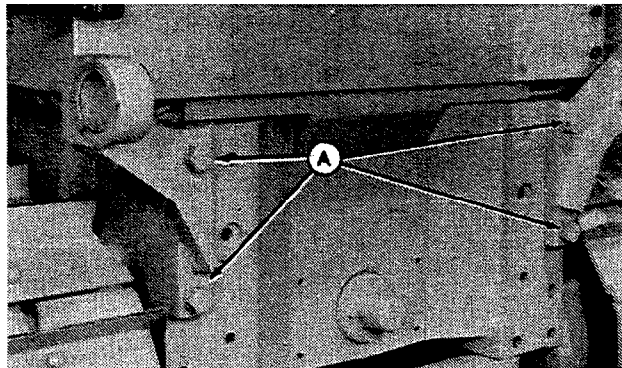


CAUTION: Use locking type chain hooks which will not detach as ROPS is pivoted over crawler



1AM;T6030AO T52;1810 6028DF 040185

7. Remove four cap screws and lock washers (A) to remove ROPS support.



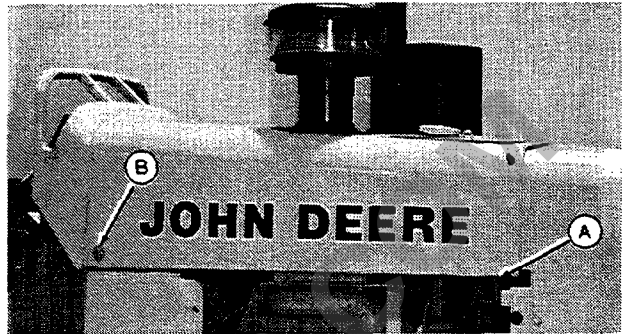
1AM;T94028 T52;1810 181 240883

Group 1910

Hood or Engine Enclosure

REMOVE AND INSTALL HOOD

1. Remove engine side shields.
2. Remove pre-cleaner and exhaust stack from muffler.
3. Unhook latches (A) and remove cap screws (B) on dozer (shown). Loader has latches at rear and no cap screws.
4. Reverse removal procedure for installation.



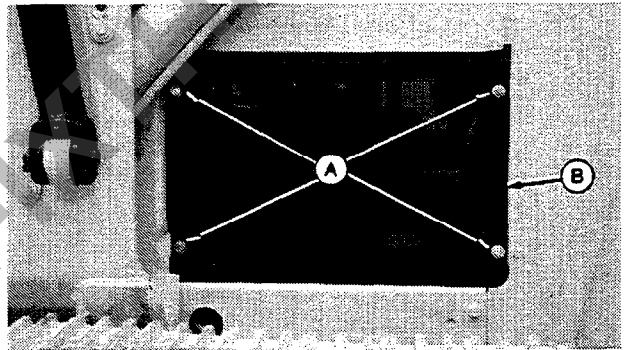
4AM;T91507 T52;1910 01 010683

REMOVE AND INSTALL ENGINE SIDE SHIELDS

1. Remove four cap screws (A) to remove side shield (B).

NOTE: Spring washers are located behind engine side shields on front two mounting studs.

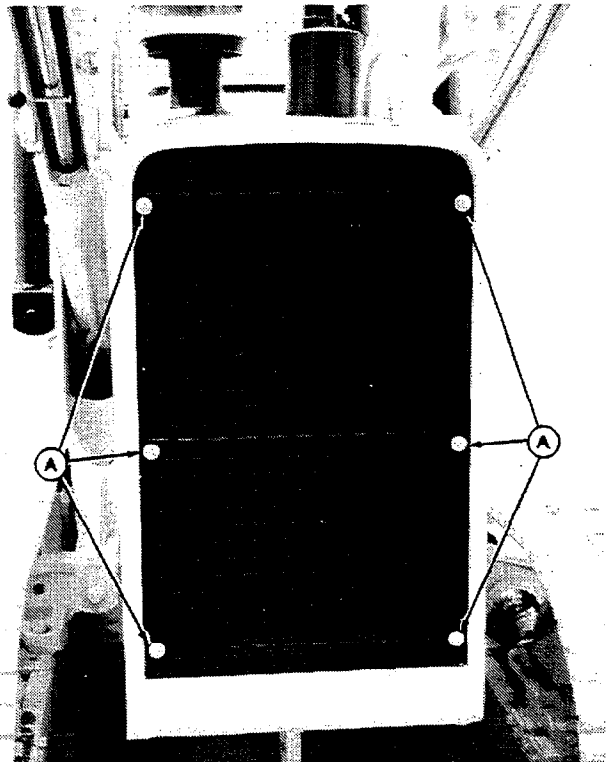
2. Be sure spring washers are in place and install side shields and cap screws.



4AM;T91508 T52;1910 02 010683

REMOVE AND INSTALL GRILLE HOUSING

1. Remove engine side shields.
2. Remove hood, pre cleaner and muffler stack.
3. Remove six cap screws (A) to remove grille.

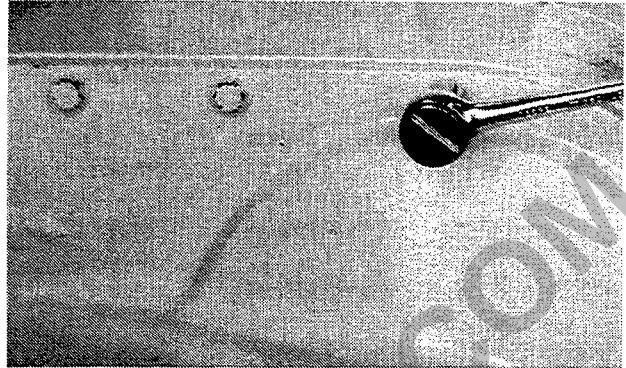


4AM;T91509 T52;1910 6048CB 050285

REMOVE BRAKE BAND AND BRAKE CYLINDER

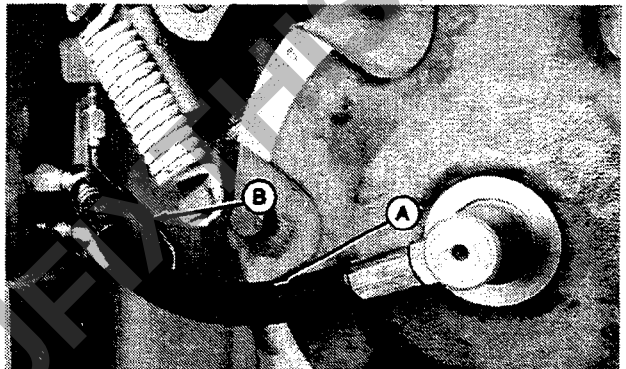
NOTE: Winch does not have to be removed to adjust or replace brake band, brake cylinder or brake piston.

1. Remove cap screws and left winch cover.



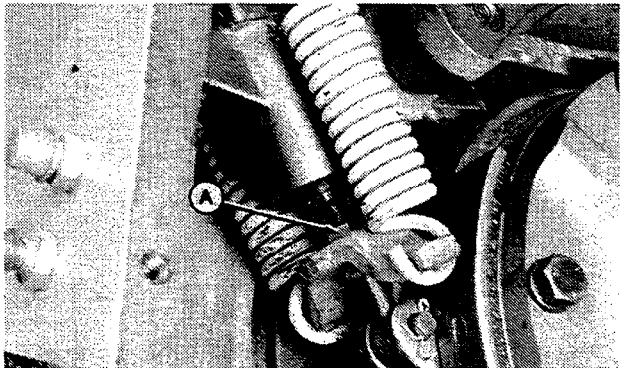
2AN;T92311 T53;3050 275 070684

2. Remove clutch pressure line (A).
3. Remove brake pressure line (B).



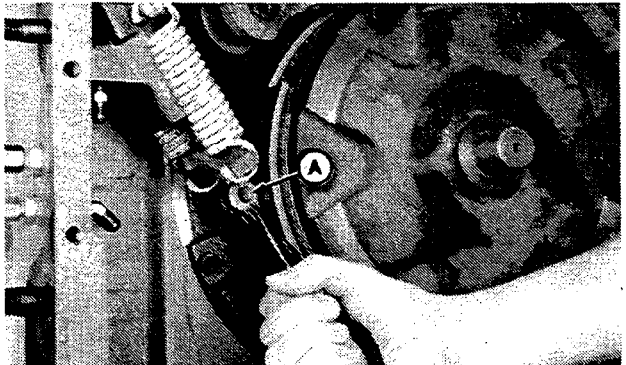
2AN;T92312 T53;3050 276 070684

4. Loosen nut (A) to relieve spring tension.



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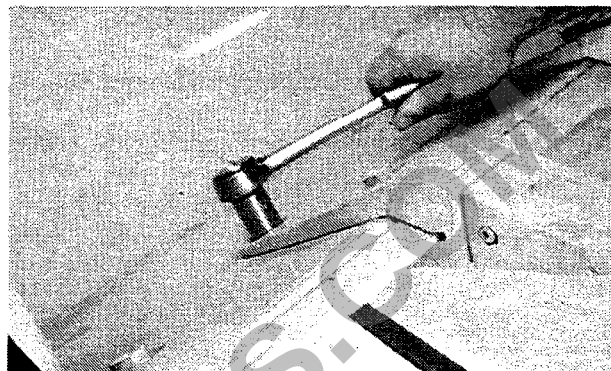
5. Remove cotter pin and pin (A).



2AN;T86051 T53;3050 278 070684

REMOVE AND INSTALL BUCKET TOOTH SHANKS

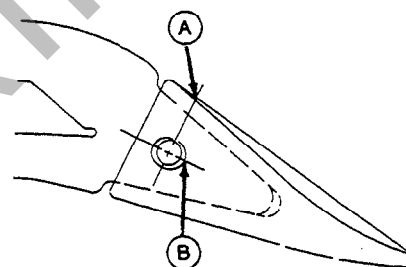
1. Remove two cap screws and nuts to remove bucket tooth shanks.
2. When installing tooth shanks, be sure shanks are tight against cutting edge as nuts are tightened. This results in load on teeth occurring at cutting edge rather than on the bolts.



4AN;T91397 T54;3102 01 020683

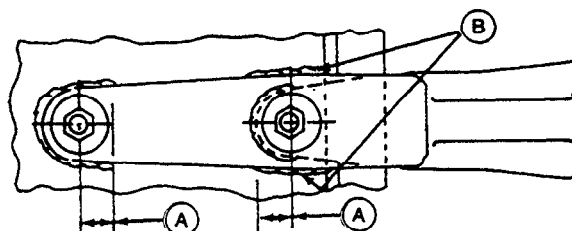
REMOVE AND INSTALL BUCKET TOOTH TIPS

1. Drive out pin and remove tooth tip.
2. Drive new tooth tip on shank until pin can be assembled or until center of hole (A) in shank aligns with center of slot in tooth tip.
3. Secure tip to tooth shank with pin.
4. Pin should not contact front edge of tooth tip slot (B). If it does, pin will fail under load. Try another tooth tip or elongate slot.



4AN;T91479 T54;3102 02 020683

5. Side impacting or wedging of rocks between bucket teeth can cause the tooth shank attaching hardware to loosen or fail. To prevent this, tooth shanks can be welded to the bucket using E-7018 Electrode.
6. Be sure tooth shank is properly positioned and hardware tight before welding.



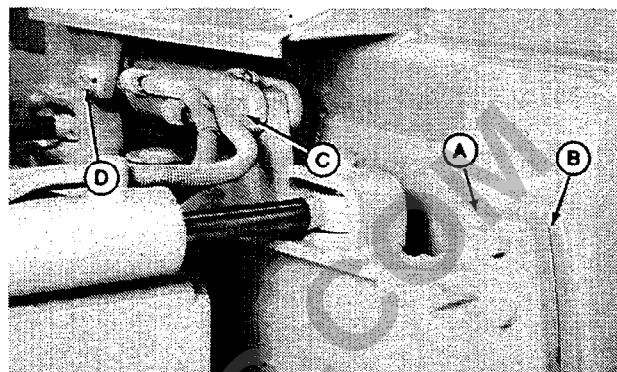
A—25.4 mm (1 in.)
B—7.9 mm (5/16 in.) all welds

4AN;T91480 T54;3102 03 020683

REMOVE AND INSTALL MODEL 6405 DOZER BLADE

NOTE: Model 6405-1 and 6405-2 Dozer Blades are used on wide track units.

1. Attach chain and hoist to blade.
2. Remove five cap screws and lock washers on each side to remove retainer (A) and shims (B).
3. Remove nut, lock washer, and cap screw to remove pin (C).
4. Remove spring pin to remove pin (D) and remove blade.
5. Install blade on center pivot by lifting into position with hoist.
6. Install five cap screws on each side to attach shims (B) and retainer (A).
7. Install cap screw, lock washer and nut to secure pin (C).
8. Install spring pin to secure pin (D).

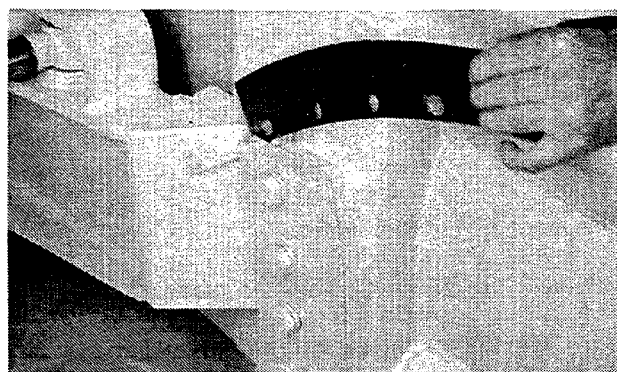


A—Retainer
B—Shims

C—Pin
D—Pin

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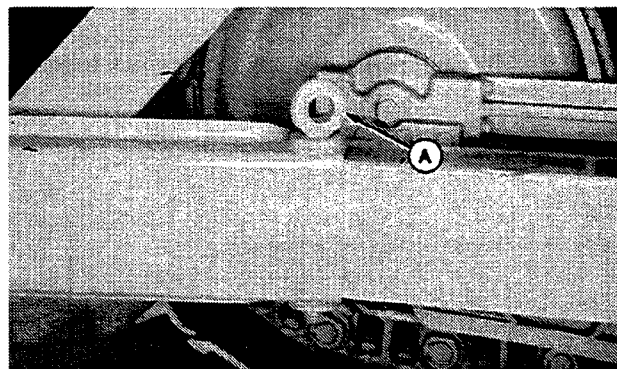
9. Check gap on each side of blade. If gap is the thickness of one shim, remove shims to minimize the gap. The blade must tilt without binding.



6AN;T94197 T54;3201 09 220783

REMOVE AND INSTALL MODEL 6410 DOZER BLADE

1. Lower blade to ground, stop engine and operate controls to relieve hydraulic pressure.
2. Attach hoist to blade to prevent tipping as pins are removed.
3. Remove angling arm pins (A).



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REMOVE 9300 BACKHOE

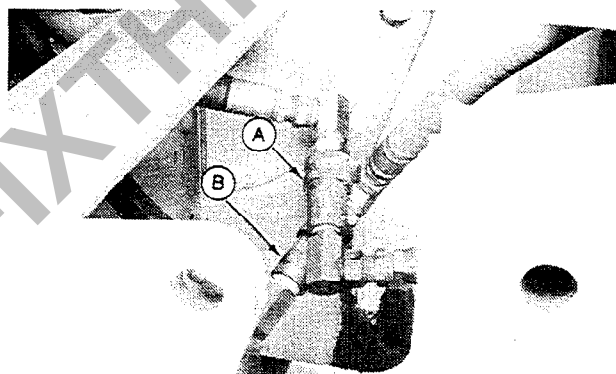
1. Lower the stabilizers until they are supporting the weight of the backhoe. Retract the bucket and dipperstick and extend boom cylinder until backhoe is fully extended and bucket is resting on the ground. Install swing locking pin in place to prevent tipping.
2. Remove cotter pin and drive out pin from both sides.



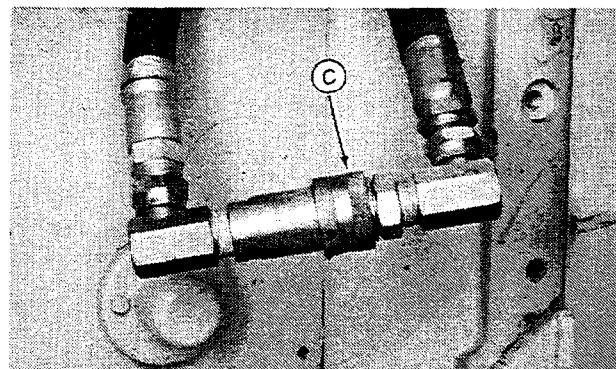
7AN;T93207 T54;3300A 28 041284

3. Use stabilizers to raise backhoe frame off the bottom mounting bracket hooks.
4. Drive unit ahead slightly.

CAUTION: Shut off the crawler engine before disconnecting the hydraulic lines to the backhoe. If the engine is left running, the operator may be sprayed with hot hydraulic oil.



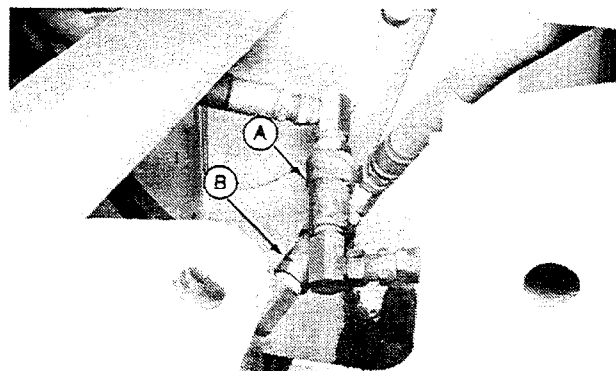
5. Disconnect the quick disconnect couplers (A and B).
6. Connect hoses (C) together to keep dirt out of the hydraulic system and to prevent system from running at relief pressure.



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INSTALL 9300 BACKHOE

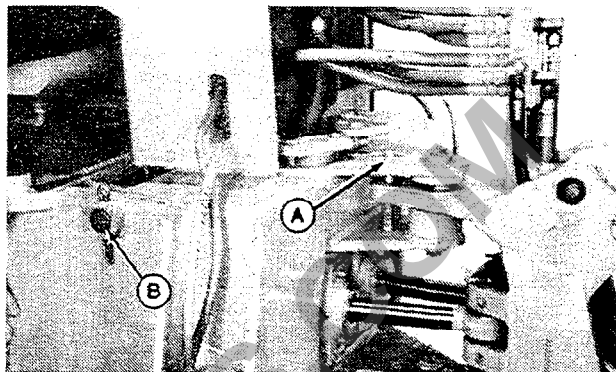
1. Back crawler close enough to backhoe so the hoses can be connected.
2. Lower all equipment to the ground. Shut engine off and operate control valve to release any pressure in the system.
3. Connect the quick disconnect couplers (A and B).



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REMOVE 9550 BACKHOE

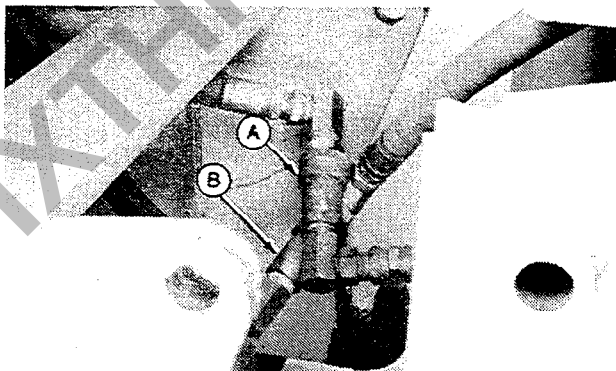
1. Lower the stabilizers until they are supporting the weight of the backhoe. Retract the bucket and dipperstick cylinders and extend the boom cylinder until backhoe is fully extended and bucket is resting on the ground. Install swing locking pin (A) in place to prevent tipping.
2. Remove cotter pin and drive out pin (B) from each side.



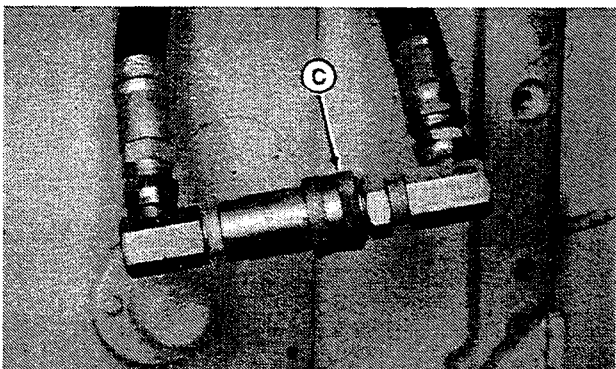
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3. Use stabilizer to raise backhoe frame off the lower mounting hooks.
4. Drive crawler ahead just enough to gain access to hydraulic hoses.

CAUTION: Shut off crawler engine before disconnecting hydraulic lines to the backhoe. If engine is left running, the operator may be sprayed with hot hydraulic oil.



5. Disconnect the quick couplers (A and B).
6. Connect the couplers (C) on the backhoe and on the crawler to each other to keep dirt out of the hydraulic system and to prevent system from running at relief pressure.



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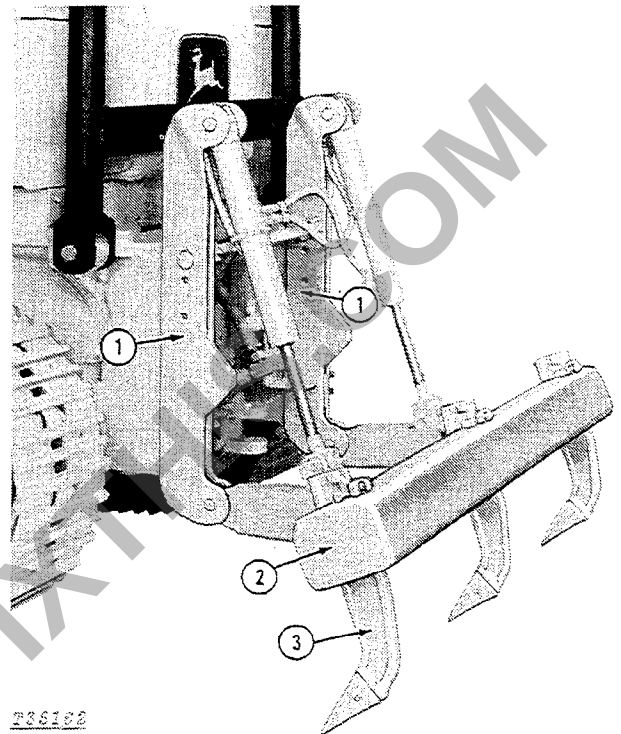


PREVIEW - YOUFIXTHIS.COM

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REMOVE AND INSTALL RIPPER FRAME AND MAST

1. Position ripper with tooth tips resting on ground.
2. Support ripper with a hoist.
3. With engine stopped, operate ripper control valve to relieve hydraulic pressure.
4. Disconnect hoses at rear of crawler.
5. Remove cap screws attaching ripper mast to mounting frame.
6. Lift ripper off lower hooks on mounting frame.
7. Inspect bushings and pins. Replace parts as required.
8. Install ripper frame and mast by reversing this procedure.



1—Mast (2 used)
2—Frame

3—Shank and Tooth

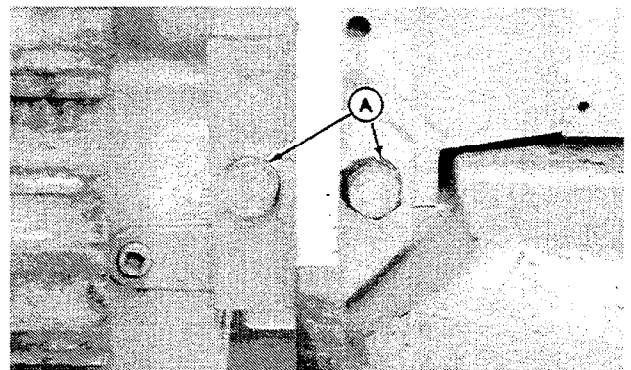
T35162

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REMOVE REAR MOUNTING BRACKET

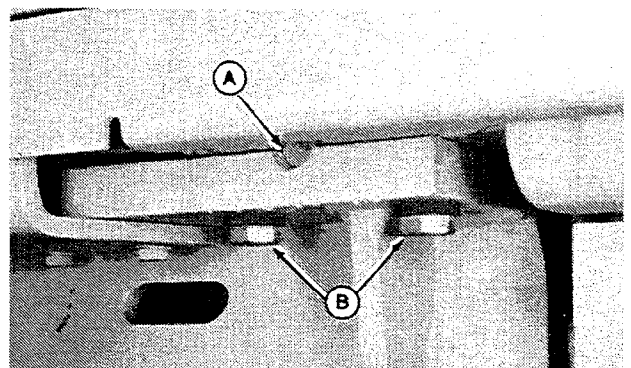
CAUTION: Mounting bracket weighs approximately 134 kg (295 lb).

1. Remove backhoe. (See Remove Main Frame in Group 3340.)
2. Remove two cap screws and washers (A) from both sides.



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3. Remove seat and center platform for easier access to pin.
4. Remove two cap screws and washers (B) and drive in pin (A) on each side of crawler.



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550A AND 555B OPERATIONAL CHECK-OUT PROCEDURE

Use this checkout procedure to check for normal operation of the machine. This procedure guides the service technician in checking the operation of the machine from the operator's seat.

The procedure can be done in less than 15 minutes when the transmission and hydraulic oil are at operating temperature. The drive test requires a large level area. No special tools are required.

Complete the necessary visual checks (all fluid levels and condition, external leaks, track sag, battery condition, loose or missing hardware, electrical connections, and loose or damaged linkages) before doing this checkout procedure.

Perform individual component test to verify problems.

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1. Indicators and Gauges Test (Engine Off)

ACTION: Battery Disconnect Switch Check

- Turn battery disconnect switch (in battery compartment) to "Off" position.

IMPORTANT: DO NOT turn battery disconnect switch to "Off" position while engine is running. This "load dumps" the alternator, which could cause damage to the charging system.

- Turn key switch to "Run" position (engine stopped).

LOOK: Alternator light must be "Off".

ACTION: Alternator Light Check

- Turn battery disconnect switch to "On" position.
- Turn key switch to "Run" position (engine stopped).

LOOK: Alternator light must be "On". Observe water temperature and oil temperature gauges for later reference.

NOTE: If gauges "Peg", a shorted wire is indicated.

ACTION: Hourmeter Check

Observe hourmeter.

NOTE: The hourmeter is energized when the key switch is turned to "Run" position.

NOTE: The hourmeter turns very slowly (one number every six minutes).

ACTION: Hydraulic Filter Restriction Indicator Check

- Turn key switch to "Run" position.
- Short out the nut on the hydraulic filter restriction switch (in hydraulic reservoir compartment) to the frame by using a key, knife blade, or anything metallic.

LOOK: Hydraulic filter restriction indicator light on dash must be "On".

NOTE: The hydraulic filter restriction indicator does not have a bulb check circuit.

ACTION: Air Filter Restriction Indicator Check

- Open hood door.
- Check air filter restriction indicator.

LOOK: Indicator must not show any red.

NOTE: Red indicates restricted air flow. Remove air cleaner elements and clean or replace; then reset indicator by pushing in on button.

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TURBOCHARGER OPERATION

The turbocharger provides additional air to burn more fuel and produce more power without increasing the size of the engine. In the thinner air of high altitudes, the turbocharger turbine wheel may turn as fast as 125,000 rpm to maintain power.

Exhaust gases from the engine pass through the turbine housing (B) causing the shaft (F) to rotate before the exhaust gas is discharged.

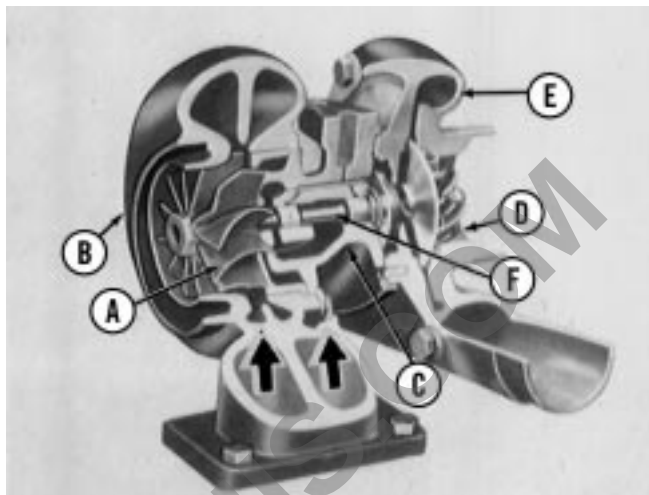
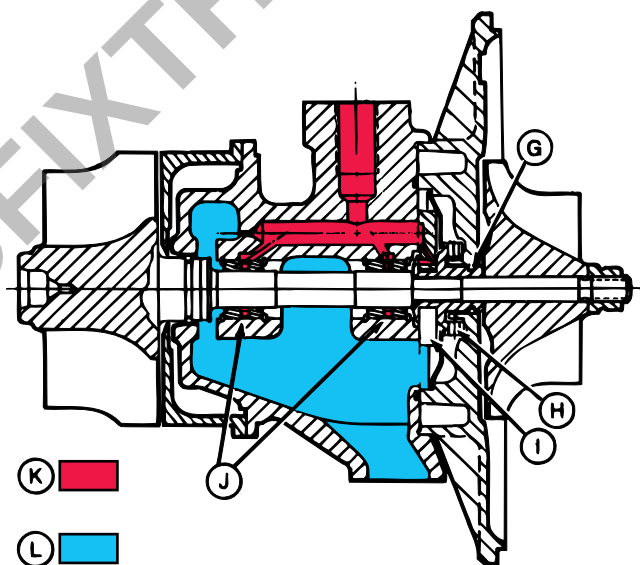
The compressor wheel (D) also mounted on shaft (F) rotates in the compressor housing (E). Inlet air is drawn into the housing, where it is compressed and delivered to engine cylinders.

Engine oil under pressure from the engine lubrication system is pumped through passages (K) in the center housing and directed to bearings (J) and thrust washer (I) through passages in the center housing and thrust collar (H). Oil is sealed from the compressor and turbine by a piston ring (G) at both ends of the center housing.

The turbocharger contains two floating bearings that have a clearance between the bearing O.D. and housing wall as well as a clearance between the bearing I.D. and the shaft O.D.

These clearances are lubricated by the oil supply and the bearings are protected by a cushion of oil.

The pressure free oil (L) drains by gravity from the center housing to the engine crankcase.



A—Turbine Wheel
B—Turbine Housing
C—Center Housing
D—Compressor Wheel
E—Compressor Housing
F—Shaft

G—Piston Ring
H—Thrust Collar
I—Thrust Washer
J—Bearings
K—Pressure Oil
L—Pressure-Free Oil

When the start relay (N) is energized, battery current flows through white wire #3 to the starting motor. This energizes the starting motor solenoid. Now battery current will flow to the starting motor pull-in winding, hold-in windings, and the armature coils through the field winding and brushes.

Fuel Shut-Off Solenoid Current

Current also flows from the "IGN" terminal of the key switch (F) through gray wire #23F, 8-way connector (I) gray wire #23F to the fuel shut-off solenoid in the injection pump (M).

Cold Weather Start Aid Circuit

Current from the "IGN" terminal of key switch (F) flows through orange wire #13B, orange wire #13C, orange wire #13D to the Start Aid button (J). When the start aid button is pushed, current flows through light blue wire #28, 4-way connector (H), light blue wire #28 to the coil of the cold weather start aid (B). The ground side of the coil is routed through black wire #27 to the neutral start switch (D). When the range lever is in neutral, the switch contacts close and the start aid coil is energized.

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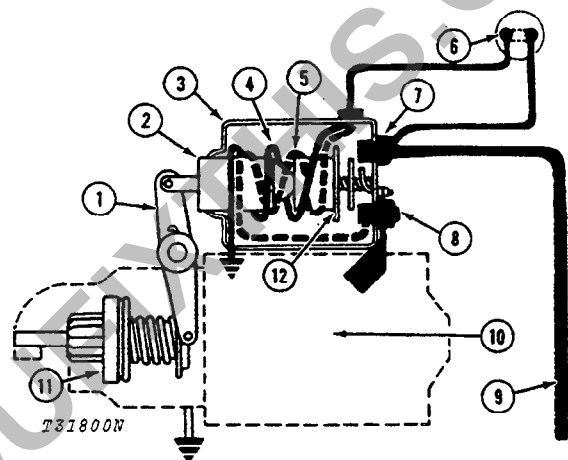
Starting Motor

When the starting motor solenoid (3) coil is energized a magnetic field is produced by the pull-in (5) and hold-in (4) windings. This magnetic field pulls the plunger (2) in. Linkage engages the pinion gear into the flywheel ring gear. The pinion gear is fastened to the starting motor armature by an overrunning clutch (11). Before the pinion gear is fully engaged into the flywheel ring gear, the plunger (2) closes the contacts from the battery terminal (7) and the motor terminal (8).

When the contacts are fully closed, battery current (9) flows directly into field windings and to the armature coils through the contact plate, and causes the armature to spin creating torque. When the armature spins, the pinion gear engages completely with the flywheel ring gear. When the overrunning clutch (11) is driven by the armature, the rollers between the clutch shell and pinion collar are moved into the narrower portion of the notches in the shell, which locks the armature shaft to the pinion gear. This allows a transfer of torque to pinion gear for engine cranking.

Once the solenoid plunger (2) is pulled in, less magnetism is required to hold it in. Thus the pull-in winding (5) is shorted by the contact disk (12) and only the hold-in winding (4) is energized to hold the plunger (2) in place until the start button is released.

Once the engine has started, the flywheel gear will drive the armature through the pinion gear faster than the armature is running. When the pinion gear is rotating faster than the armature, the rollers of the overrunning clutch (11) are forced into the larger portion of the notches against spring tension. This unlocks the rollers and the pinion gear will overrun the starting motor armature.



- | | |
|-------------------|--------------------------|
| 1—Shift Lever | 7—Battery Terminal |
| 2—Plunger | 8—Motor Terminal |
| 3—Solenoid | 9—Battery Positive Cable |
| 4—Hold-in Winding | 10—Starting Motor |
| 5—Pull-in Winding | 11—Overrunning Clutch |
| 6—Key Switch | 12—Contact Disk |

With the start button released, battery voltage is again applied to the pull-in winding and the hold-in winding in the same direction. Their magnetic field cancel each other and the plunger returns to the normal position by a return spring. This disengages the pinion gear from the flywheel ring gear.

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