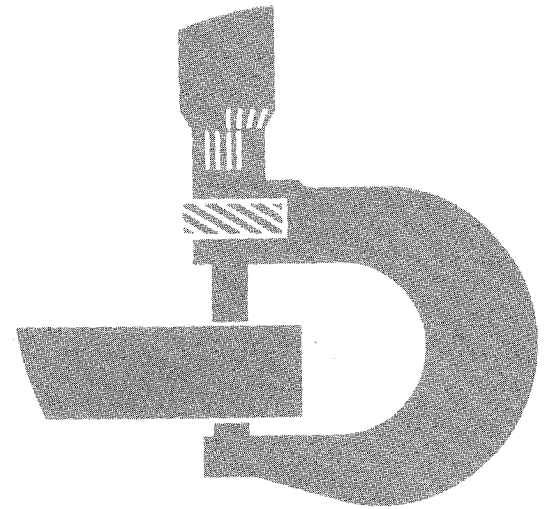


**John Deere
JD743
Tree Harvester
JD743
Feller-Buncher**



TECHNICAL MANUAL

TM-1159
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, safety information, general specifications and general services.
- Sections 1 through 44 - Removal, repair, testing (components removed), installation, and adjustment.
- Section 90 - Detailed explanation of system operation, diagnosis, visual inspection, testing, and adjustments.
- Specifications grouped and illustrated at the end of each section.

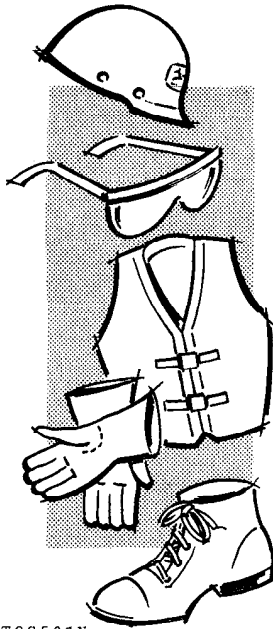
MAINTENANCE WITHOUT ACCIDENT WORK SAFELY



T27999N

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

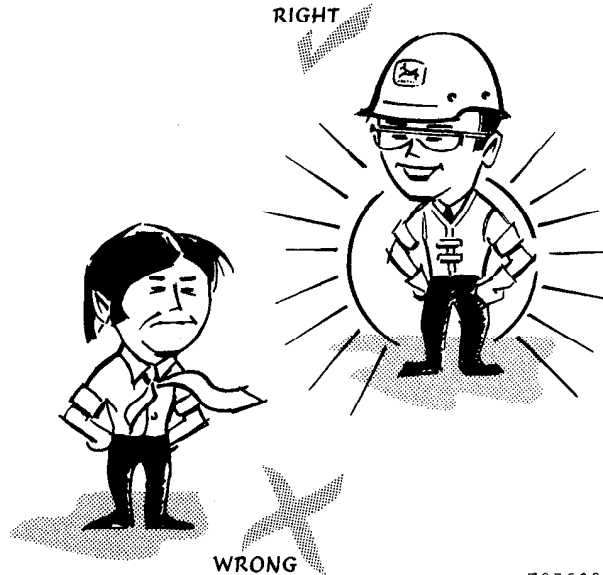
**EVERY EMPLOYER HAS A
SAFETY PROGRAM. KNOW
WHAT IT IS!**



T27501N

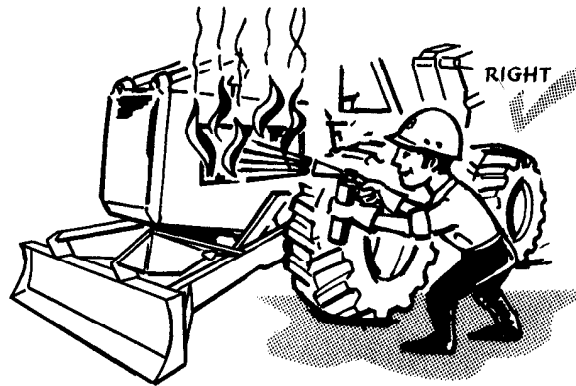
Consult your shop supervisor for specific instructions on a job, and the safety equipment required.

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



T27502N

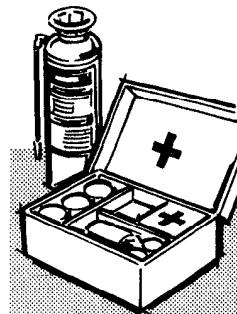
ALWAYS AVOID loose clothing or any accessory—flopping cuffs, dangling neckties and scarves, or rings and wrist watches—that can catch in moving parts and put you out of work.



T50632N

BE ALERT!

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



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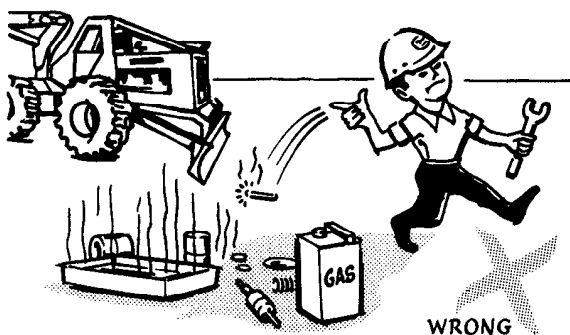
MAINTENANCE WITHOUT ACCIDENT

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

AVOID FIRE HAZARDS—

Fuel Is Dangerous!

- Don't smoke while refueling.
- Don't smoke while handling highly flammable material.
- Engine should be shut off when refueling.
- Use care in refueling if the engine is hot.

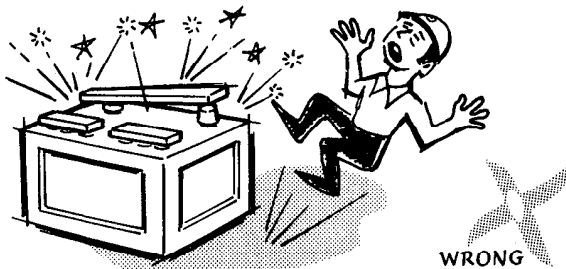


T50633N

Don't use open pans of gasoline or diesel fuel for cleaning parts. Good commercial, nonflammable solvents are preferred.

Battery Gas Is Highly Flammable!

Provide adequate ventilation when charging batteries.



T27506N

- Don't check battery charge by placing metal objects across the posts.
- Don't allow sparks or open flame near batteries.
- Don't smoke near battery.

Flame Is Not a Flashlight!

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

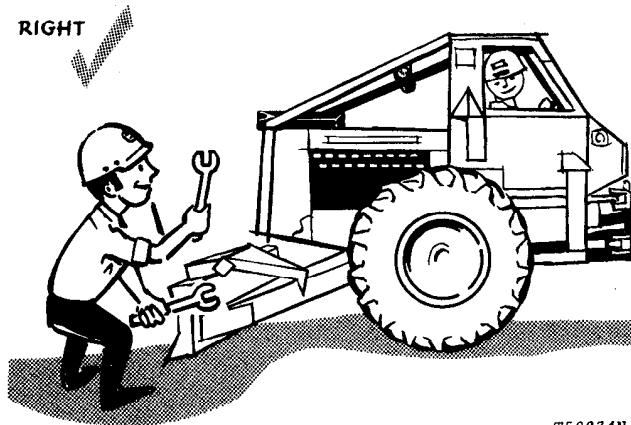
Never use an open flame as a light anywhere on or around the equipment.

KNOW WHERE FIRE EXTINGUISHERS ARE KEPT!

UNDER ALL MAINTENANCE CONDITIONS—

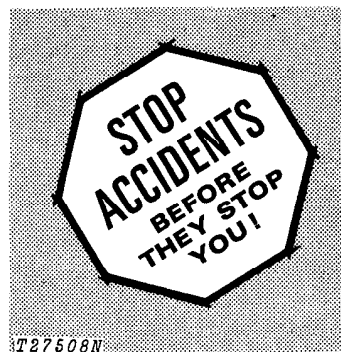
Do not perform any work on the tree harvester or feller-buncher unless authorized to do so. Then be sure you understand the services required. Follow recommended procedures.

Never service the equipment while it is being operated.



T50634N

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

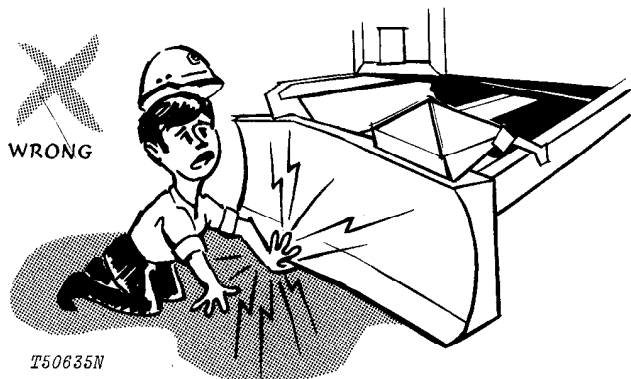


T27508N

MAINTENANCE WITHOUT ACCIDENT

Before servicing, adjusting, or repairing tree support blade or tree shear—**LOWER** equipment to the ground—or, if necessary to raise them for access to certain parts, **SECURELY SUPPORT** by external means. **DO NOT** rely on controls to support or position equipment for maintenance. The tree shear must be lowered to the ground or hung on transport peg to prevent mast rotation when engine is shut off.

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

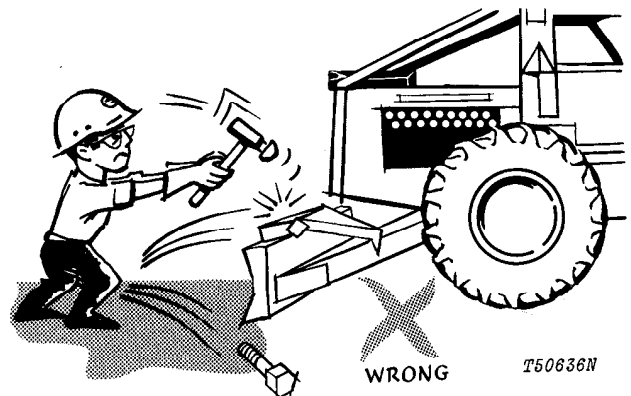


Avoid working directly under raised and blocked equipment unless absolutely necessary.

If the tree harvester or feller-buncher is on an incline, block it securely.

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

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



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

Make sure the maintenance area is adequately vented.

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

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

SERVICING PRECAUTIONS

Stop the engine before cleaning or lubricating the tree harvester or feller-buncher.

Lower blade and shear to the ground *carefully*.



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

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

Don't forget a hydraulic system may be pressurized! To relieve system pressure, stop engine, lower blade and shear and operate tree support blade and boom controls until system fails to respond.

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

The tree harvester or feller-buncher is equipped with brake and steering accumulators. To discharge brake accumulator apply the brake pedal about 30 times. To discharge steering accumulator, turn steering wheel back and forth until there is no frame movement.

Group IV PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

TEMPORARY STORAGE

After receiving your tree harvester or feller-buncher from the factory and before putting the tree harvester or feller-buncher into temporary storage, perform the following checks.

For long term storage information, consult your JD743 Tree Harvester or JD743 Feller-Buncher Operator's Manual.

1. Check battery electrolyte level and charge the battery, if necessary.
2. Check coolant level in the radiator. The coolant should be maintained at a level midway between the radiator core and filler neck.
3. Check crankcase oil level. Oil should be between marks of dipstick after machine has been shut down for 10 minutes.
4. Relieve hydraulic pressure by stopping engine, lowering boom and tree support blade and operating boom and tree support blade control levers until system fails to respond.

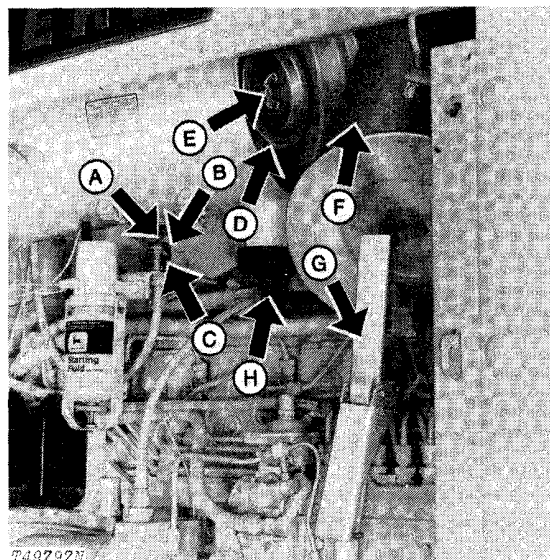
PREDELIVERY SERVICE

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

If adjustments are required, procedures are found in the after-sale section.

Use the following list when preparing a tree harvester or feller-buncher for delivery to the customer.

1. Air Cleaner



- | | |
|-------------------------|-------------------|
| A—Reset Button | E—Wing Nut |
| B—Restriction Indicator | F—Primary Element |
| C—Red Signal | G—Lever |
| D—Safety Element | H—Unloader Valve |

Fig. 1—Air Cleaner Components

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

Air cleaner elements checked	Yes	No
Restriction in system	Yes	No

2. Air Intake Hoses

Check clamps on hoses connecting air cleaner and engine. Tighten all hose clamps and inspect hoses for cracks.

Air intake hoses checked Yes No

3. Radiator

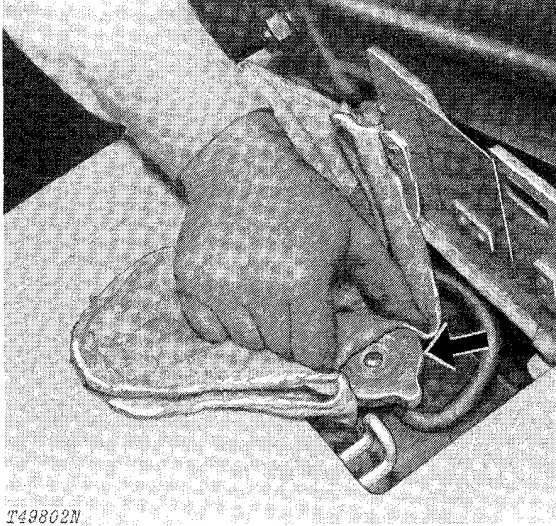


Fig. 2-Radiator Filler Cap

CAUTION: Do not remove radiator filler cap until coolant temperature is below its boiling point. Then loosen cap slowly to the stop to relieve any excess pressure before removing cap completely.

Check coolant level in radiator. Coolant should be maintained at a level midway between the radiator core and filler neck.

The antifreeze-water ratio is approximately 50 percent each. This protects to at least -34°F (-37°C).

Radiator coolant level checked Yes No

4. Batteries

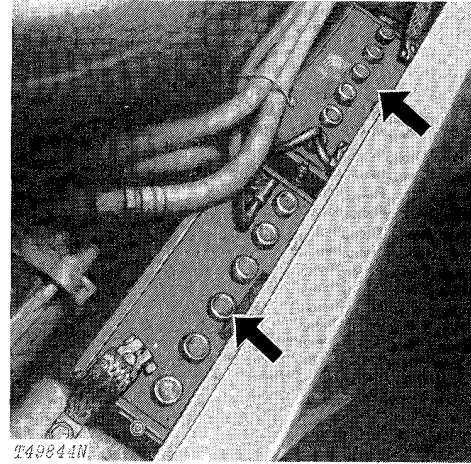


Fig. 3-Batteries

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

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

Check battery connections.

Punch date code on battery.

Water added Yes No

Battery connections checked Yes No

5. Tire Pressure

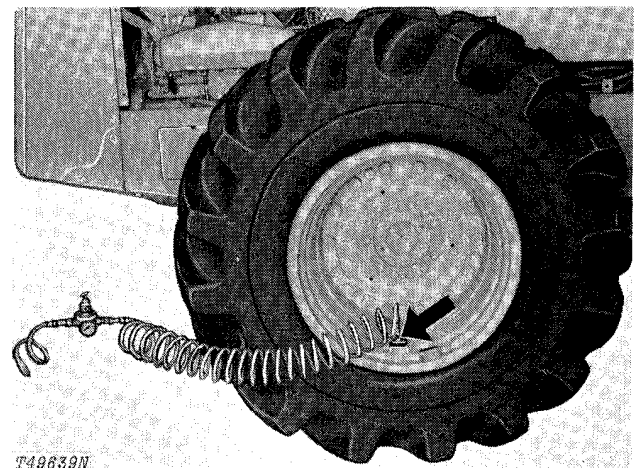


Fig. 4-Correct Tire Filling Procedure

Check air pressure in the tires with an accurate gauge having 1 psi (0.05 bar) (0.05 kg/cm²) graduations.

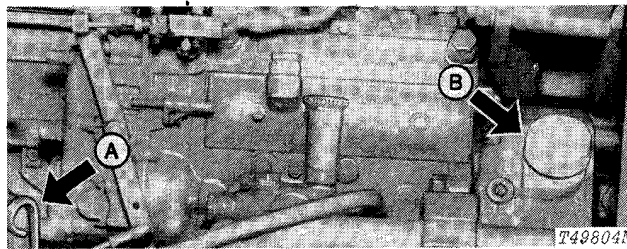
Tire Size	Bead	Type	Ply Rating	Inflation Pressure
24.5-32	Single	LS-2	12	24 psi (2 bar)
24.5-32	Dual	LS-2	16	25 psi (2 bar)
30.5-32	Dual	LS-2	12	24 psi (2 bar)
30.5-32	Dual	LS-2	16	25 psi (2 bar)

CAUTION: Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious bodily injury. DO NOT attempt to mount a tire unless you have the proper equipment and experience to perform the job safely.

Detailed tire mounting instructions, including necessary safety precautions are contained in John Deere Fundamentals of Service (FOS) Manual 55, Tires and Tracks.

Tire pressure checked Yes No

6. Crankcase Oil Level



A—Dipstick

B—Oil Filler Cap

Fig. 5-Crankcase Oil Level

Check crankcase oil level with tree harvester or feller-buncher on level ground. (Allow a minimum of 10 minutes for the oil to drain down before checking.) If oil level is at or below bottom mark on dipstick, add sufficient oil of the proper viscosity and type specified to bring oil level to between marks on dipstick. Do not operate engine with oil level below the bottom mark.

Crankcase oil level checked Yes No

Oil added, if any _____qts (L)

7. Transmission-Hydraulic System Reservoir Oil Level

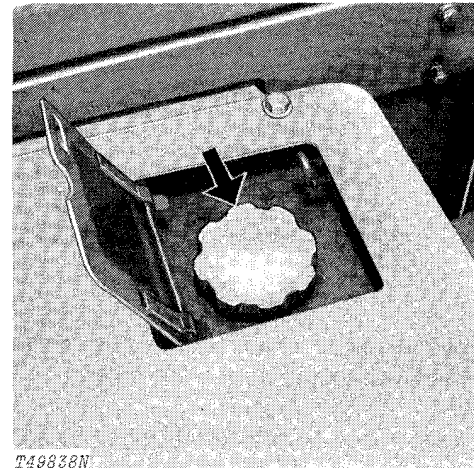


Fig. 6-Filler Cap

Check oil level with:

- 1 - Machine articulated to the right;
- 2 - Tree support blade lowered;
- 3 - Shear closed;
- 4 - Grapple tongs closed;
- 5 - Delimber knives closed;
- 6 - Feed rolls opened.
- 7 - Shear extended off left-hand front corner of equipment frame with shear upright on ground and secondary boom cylinder fully extended.

Check oil level as follows:

- 1 - Start engine.
- 2 - Engage engine disconnect if disengaged.
- 3 - Watch transmission oil pressure light. Shut off engine immediately if light does not go out after 30 seconds of operation.
- 4 - Check oil level on bayonet gauge in hydraulic reservoir tank after 10 minutes of operation. Oil level should be to the FULL mark on bayonet gauge while resting on top of strainer. If not full, check again after an additional 20 minutes of operation.
- 5 - If oil level is low, add John Deere HY-GARD oil or equivalent. Capacity of the hydraulic system is 57 gallons (215.8 L).

Oil Level checked Yes No

Oil added, if any _____qts (L)

8. Delimber Gearboxes Oil Level

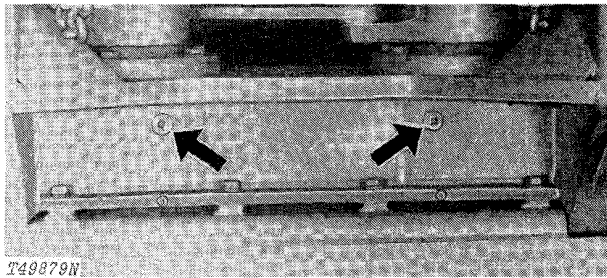


Fig. 7-Check and Fill Plugs

Remove plugs to check oil level in delimb gear boxes. Oil level should be to filler holes.

If oil level is low, fill with John Deere HY-GARD Oil or an equivalent.

Delimber gearboxes oil level checked Yes No
Oil added, if any _____qts (L)

9. Delimber Final Drives Oil Level

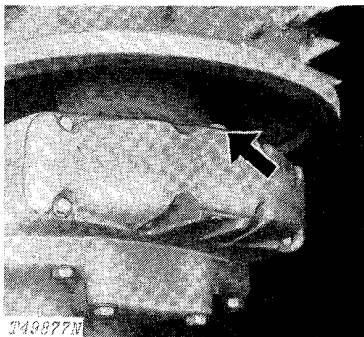


Fig. 8-Left Check and Fill Plug

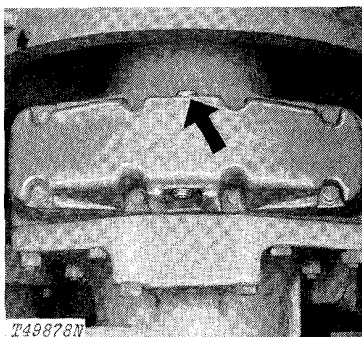


Fig. 9-Right Check and Fill Plug

Remove plugs to check oil level in roller final drives. Oil level should be to filler holes.

If oil level is low, fill with John Deere HY-GARD Oil or an equivalent.

Delimber final drives oil level checked Yes No
Oil added, if any _____qts (L)

10. Differential Housings Oil Level

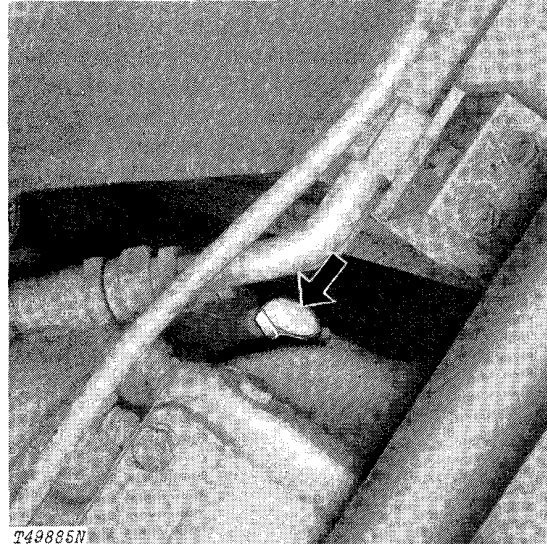


Fig. 10-Front Differential Oil Level and Fill Plug

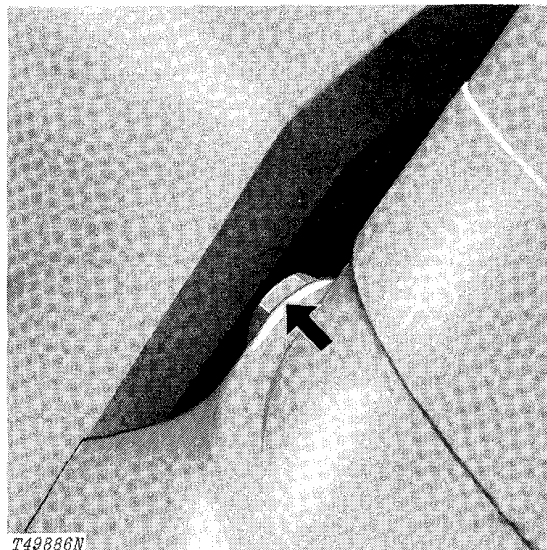


Fig. 11-Rear Differential Oil Level and Fill Plug

Check oil level in front and rear differential housings. If oil level is low, add John Deere HY-GARD Oil or equivalent.

Differential housings oil levels checked Yes No

Oil added, if any _____ qts (L)

11. Fuel Filters

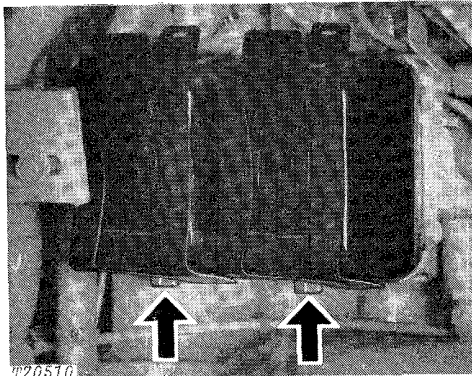


Fig. 12-Drain Plugs

Check fuel filter for sediment. If necessary, drain as follows:

- 1 - Loosen drain plugs.
- 2 - Allow all fuel to drain from filters.
- 3 - Tighten drain plugs.
- 4 - Drain fuel tank sump if water is present in fuel filters (see page I-IV-6).
- 5 - Bleed fuel system (see page I-IV-30).

Sediment present in filter Yes No

12. Fuel Transfer Pump Sediment Bowl

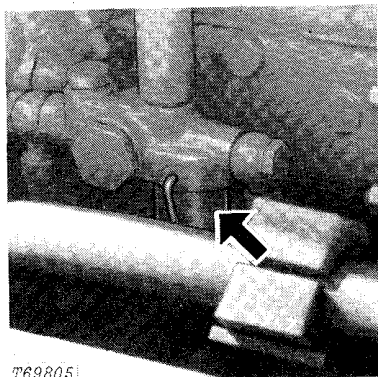
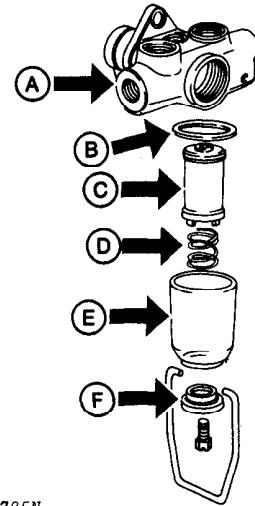


Fig. 13-Filter Screen



T49785N

- | | |
|-----------|------------------|
| A—Housing | D—Spring |
| B—Gasket | E—Filter Housing |
| C—Filter | F—Clamping Nut |

Fig. 14-Fuel Transfer Pump Sediment Bowl Components

- 1 - Loosen clamping nut (F, Fig. 14) holding filter housing (E).
- 2 - Remove filter housing, spring (D), filter (C), and gasket (B).
- 3 - Clean filter. Replace if necessary.
- 4 - Install gasket, filter, spring, and filter housing.
- 5 - Tighten clamping nut tight.
- 6 - Bleed fuel system (see page I-IV-30).

Fuel transfer pump filter checked Yes No

Fuel transfer pump filter cleaned Yes No

13. Fuel Tank Filler Screen

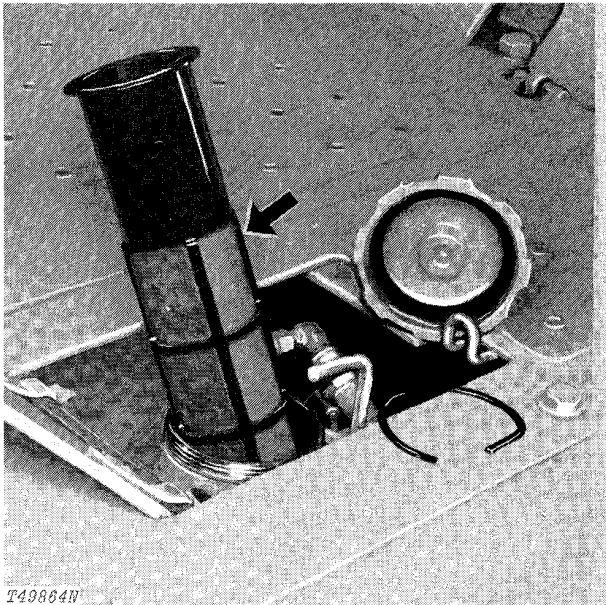


Fig. 15-Filler Screen

To clean screen:

- 1 - Remove fuel tank cap.
- 2 - Remove screen.
- 3 - Clean screen with diesel fuel.
- 4 - Install screen.
- 5 - Install fuel tank cap.

Fuel tank filler screen checked Yes No

Fuel tank filler screen cleaned Yes No

14. Fuel Tank Sump

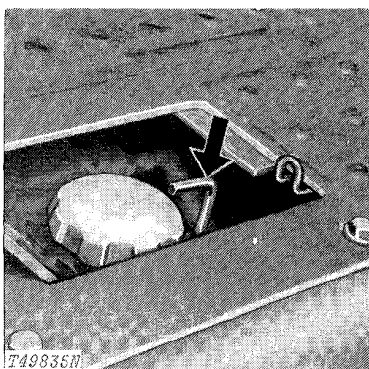


Fig. 16-Drain Handle

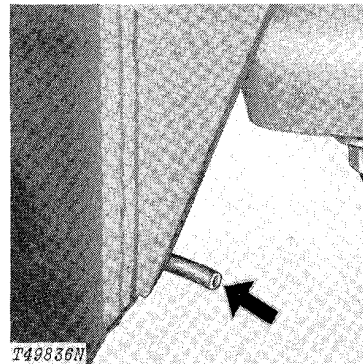


Fig. 17-Sump Drain

Drain fuel tank sump as follows:

- 1 - Open sump drain valve by turning sump drain handle clockwise 90°.
- 2 - Drain for 3 seconds.
- 3 - Turn sump drain handle counterclockwise to close sump drain valve.

Fuel tank sump checked Yes No

Fuel tank sump drained Yes No

15. Alternator-Fan-Compressor Belt Tension

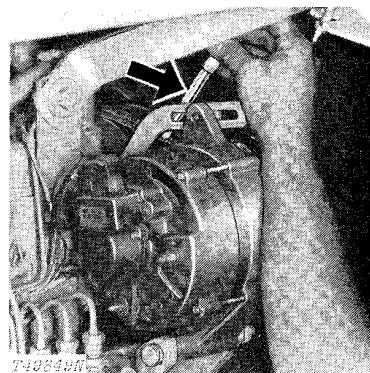


Fig. 18-Tension Tester

Check alternator belt tension. If tension tester is used, a force of 17 lb (76 N) (8 kg) midway between pulleys should deflect belt 1/4-inch (6 mm).

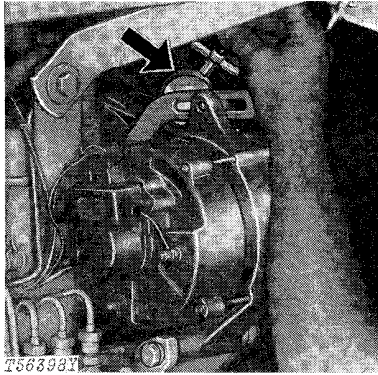


Fig. 19-Strand Tension Gauge

If strand tension gauge is used, it should read 90 lb (400 N) (41 kg) strand tension.

If adjustment is required, see page I-IV-31.

If strand tension gauge is used, it should read 90 lb (400 N) (41 kg) strand tension.

NOTE: Check tension on front belt.

If adjustment is required, see page I-IV-31.

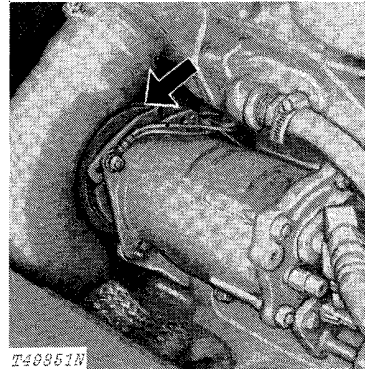


Fig. 22-Tension Tester

Adjust compressor belt tension. If tension tester is used, a force of 17 lb (76 N) (7 kg) midway between pulleys should deflect belt 1/4 inch (6 mm).

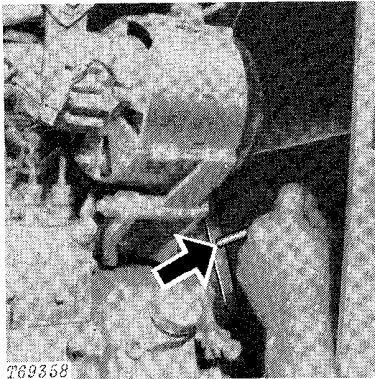


Fig. 20-Tension Tester

Check fan belt tension. If tension tester is used, a force of 25 lb. (111 N) (11 kg) midway between pulleys should deflect belts 3/4-inch (19 mm).

NOTE: Check tension on front belt.

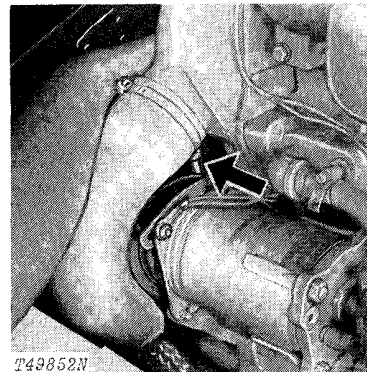


Fig. 23-Strand Tension Gauge

If strand tension gauge is used, it should read 90 lb (400 N) (41 kg) strand tension.

If adjustment is required, see page I-IV-32.

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

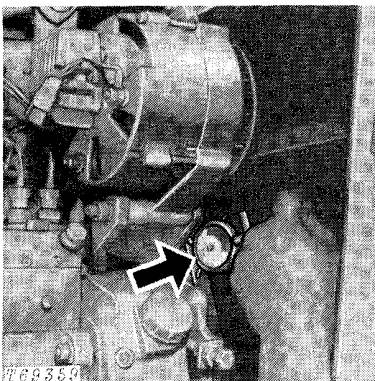


Fig. 21-Strand Tension Gauge

16. Lubrication

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

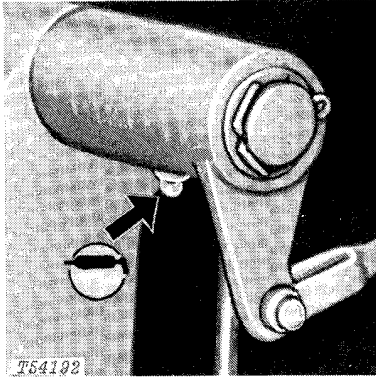


Fig. 24-Parking Brake Bell Crank (1 Point)

Lubricant required

Yes No

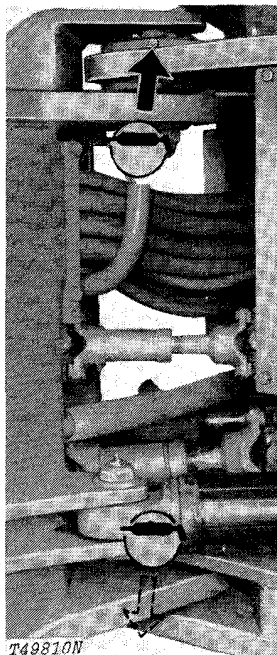


Fig. 25-Frame Hinge Pivots (2 Points)

Lubricant required

Yes No

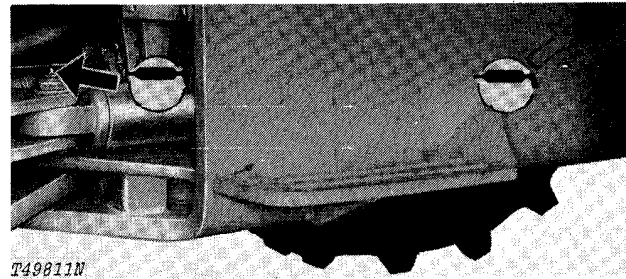


Fig. 26-Steering Cylinder Pivot Pins (4 Points)

Lubricant required

Yes No

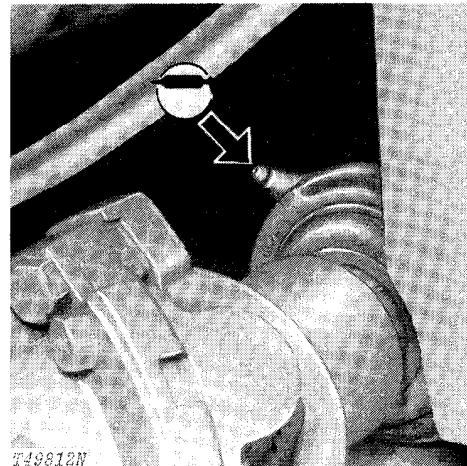


Fig. 27-Lower Drive Shaft Support Bearing (1 Point)

Lubricant required

Yes No

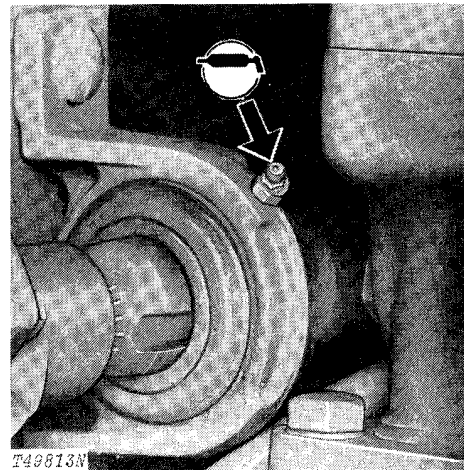


Fig. 28-Delimber Transmission Drive Shaft Support Bearing (1 Point)

Lubricant required

Yes No

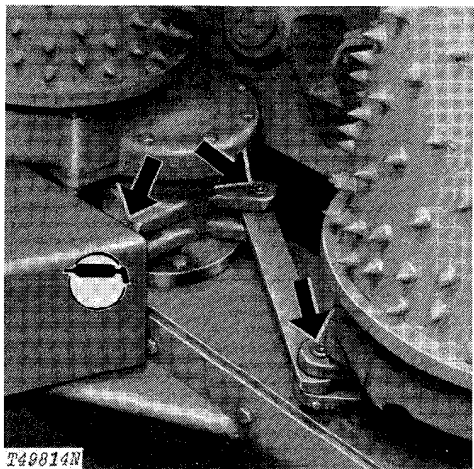


Fig. 29-Feed Roll Cylinder Rod End Pivot and Feed Roll Crosslink (3 Points)

Lubricant required Yes No

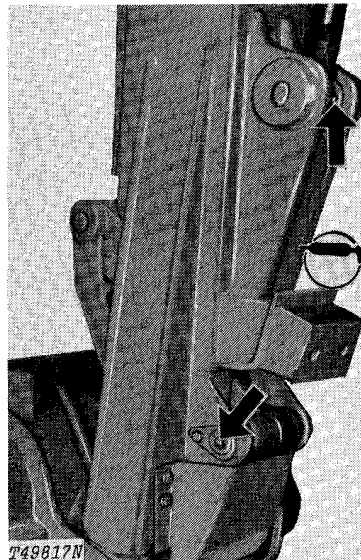


Fig. 32-Secondary Boom Cylinder Rod End and Tilt Linkage (2 Points)

Lubricant required Yes No

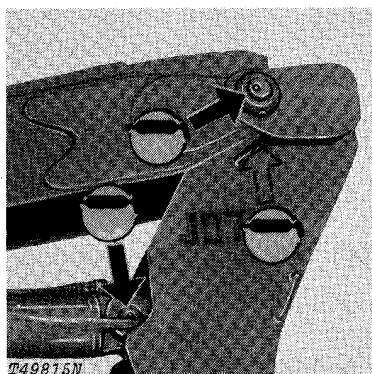


Fig. 30-Booms and Mast (3 Points)

Lubricant required Yes No

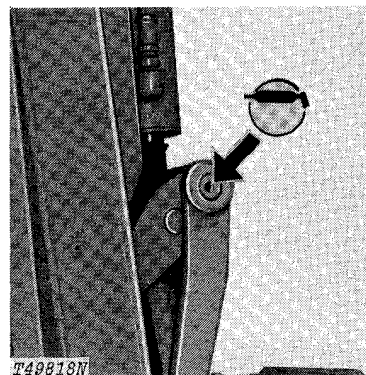


Fig. 33-Tilt Linkage (1 Point)

Lubricant required Yes No

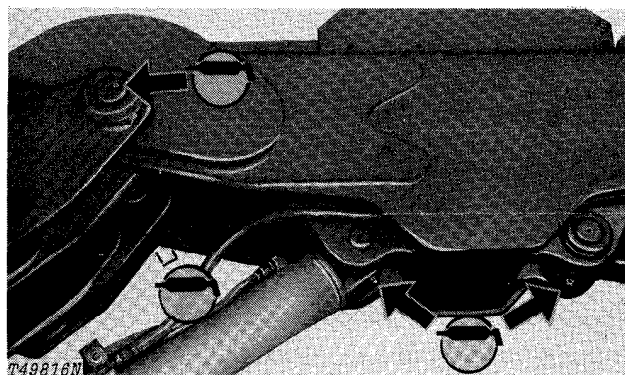


Fig. 31-Booms (4 Points)

Lubricant required Yes No

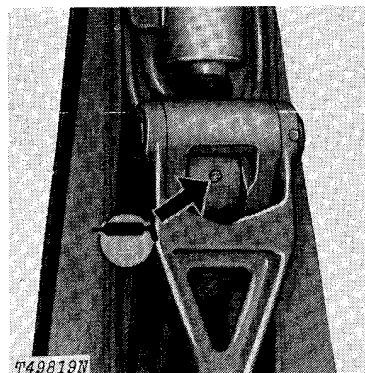


Fig. 34-Tilt Cylinder Rod End (1 Point)

Lubricant required Yes No

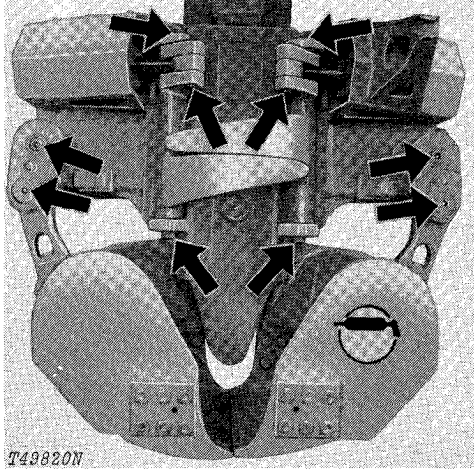


Fig. 35-Tree Shear (10 Points)

Lubricant required

Yes No

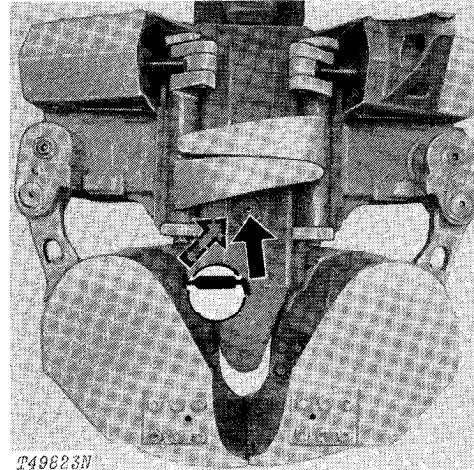


Fig. 38-Shear Knife Pivot Shaft (2 Points)

Lubricant required

Yes No

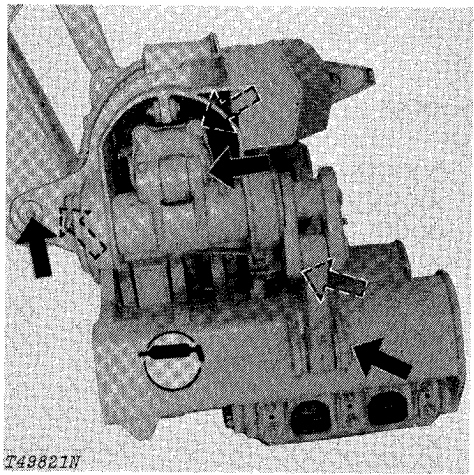


Fig. 36-Tree Shear (6 Points)

Lubricant required

Yes No

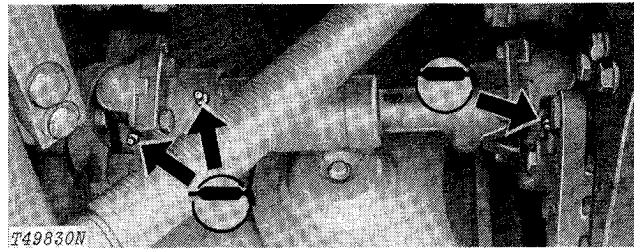


Fig. 39-Lower Telescoping Universal Joints (3 Points)

Lubricant required

Yes No

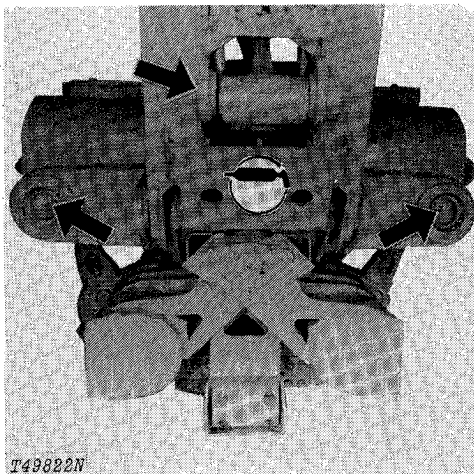


Fig. 37-Tree Shear (3 Points)

Lubricant required

Yes No

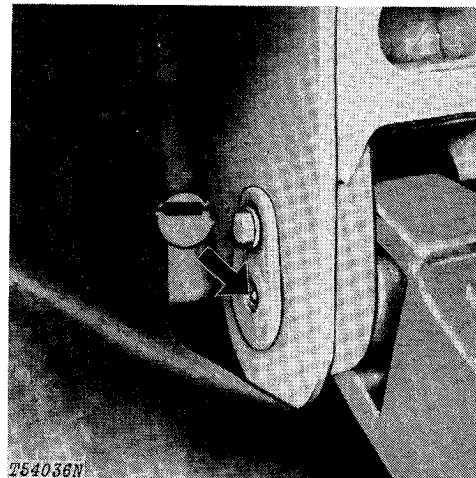
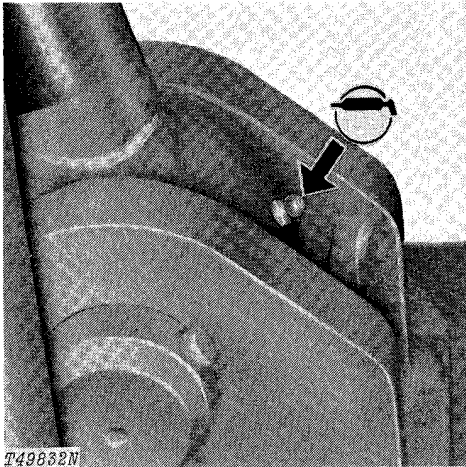


Fig. 40-Rear Tree Support Blade Pivots (2 Points)

Lubricant required

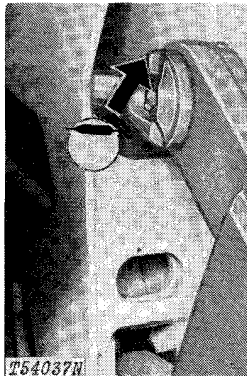
Yes No



T49832N

Fig. 41-Axle Stabilizer Cylinder (1 point)

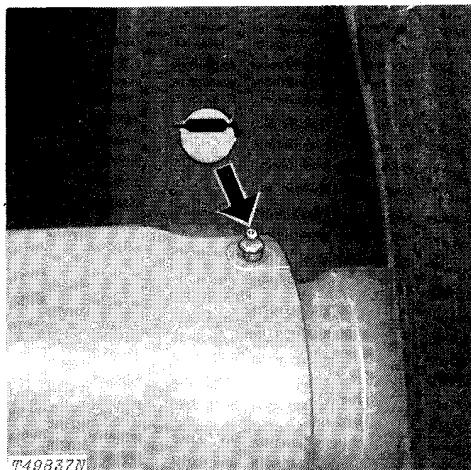
Lubricant required Yes No



T54037N

Fig. 42-Tree Support Blade Cylinder (1 Point)

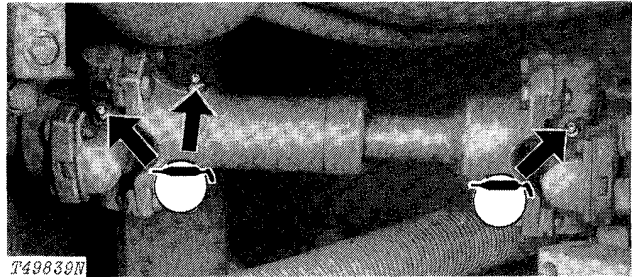
Lubricant required Yes No



T49837N

Fig. 43-Axle Bearings (4 Points)

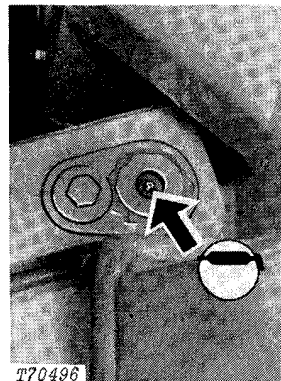
Lubricant required Yes No



T49839N

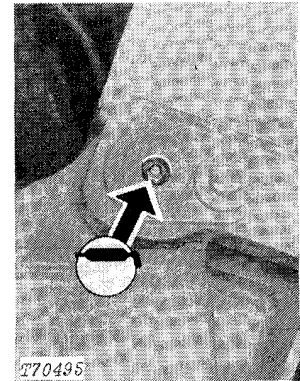
Fig. 44-Delimber Drive Line (3 Points)

Lubricant required Yes No



T70496

Left

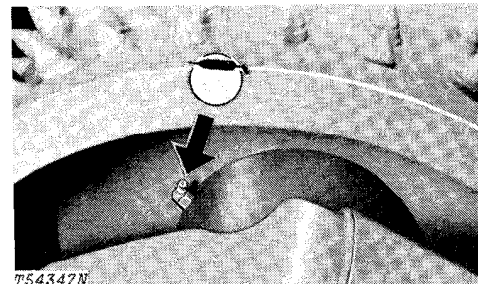


T70495

Right

Fig. 45-Delimber Carriage Pivot Pins (2 Points) and
 Knife Bushings (4 Points - Not Shown)

Lubricant required Yes No



T54347N

Fig. 46-Feed Roll Final Drive Shaft Upper Bearing (2 Points)
 (Right Side Shown)

Lubricant required Yes No

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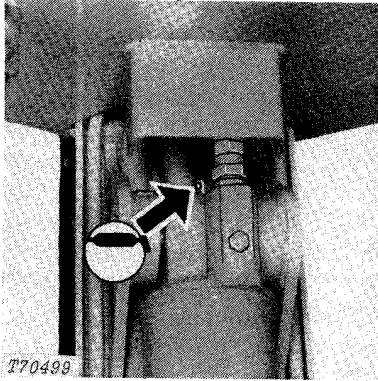


Fig. 47-Tilt Cylinder Head End (1 Point)

Lubricant required Yes No

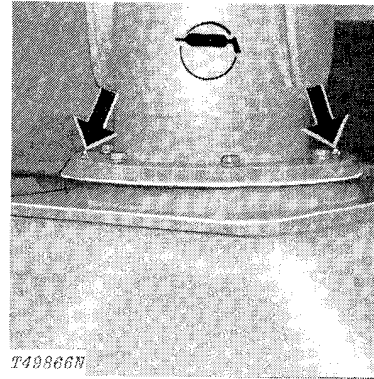
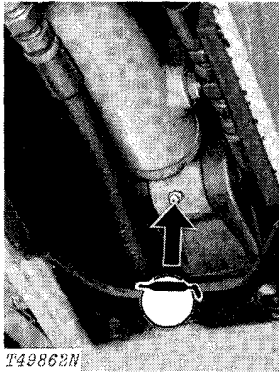
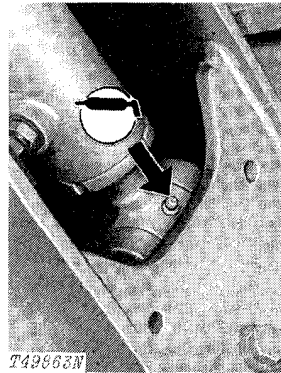


Fig. 49-Upper Swing Bearing (2 Points)

Lubricant required Yes No



Left



Right

Fig. 48-Delimb Cylinders (2 Points)

Lubricant required Yes No

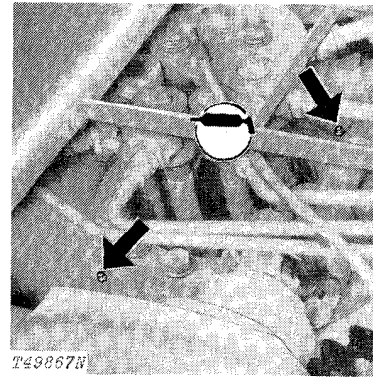


Fig. 50-Lower Swing Bearing (2 Points)

Lubricant required Yes No

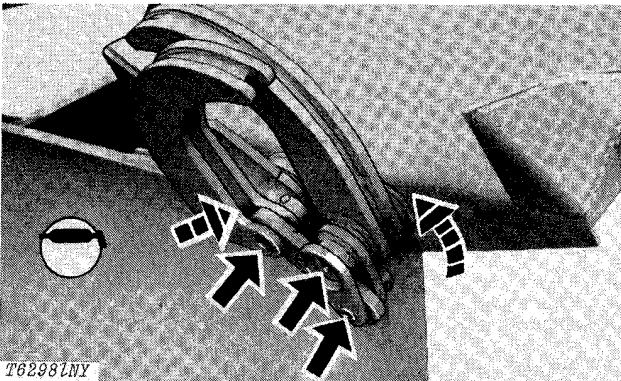


Fig. 48a-Log Accumulator (5 Points)

Lubricant required Yes No

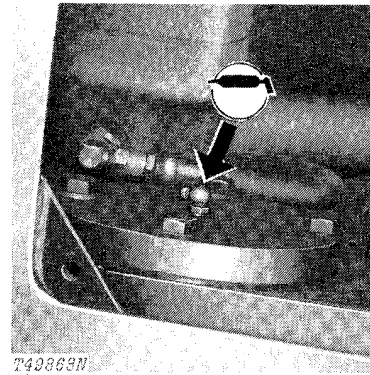


Fig. 51-Upper Cluster Gear Shaft Bearing (1 Point)

Lubricant required Yes No

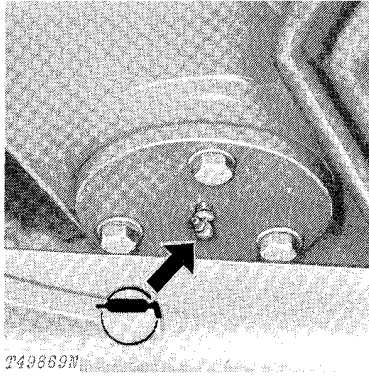


Fig. 52-Lower Cluster Gear Shaft Bearing (1 Point)

Lubricant required Yes No

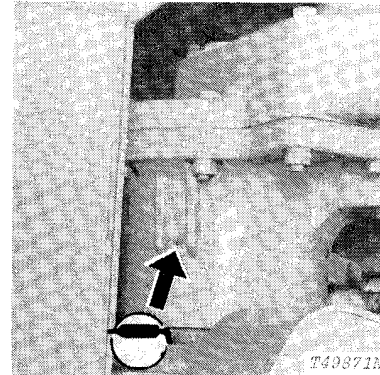


Fig. 54-Left Feed Roll Final Drive Main Housing Pivot (1 Point)

Lubricant required Yes No

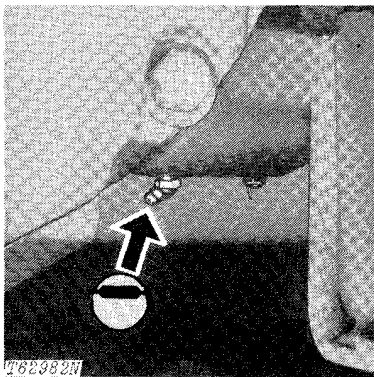


Fig. 53-Rear Axle Pivot Pin (1 Point)

Lubricant required Yes No

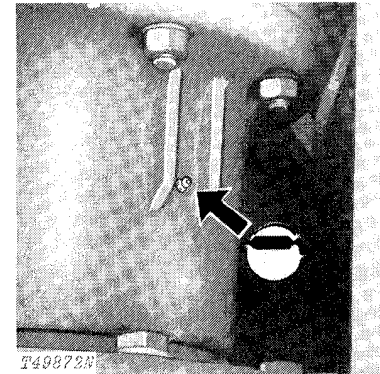


Fig. 55-Right Feed Roll Final Drive Main Housing Pivot (1 Point)

Lubricant required Yes No

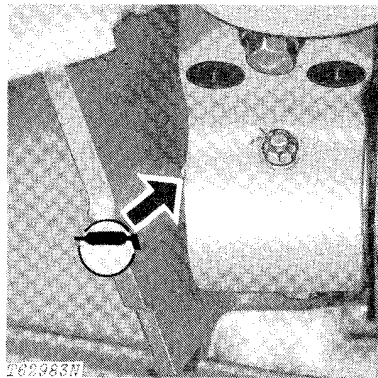


Fig. 53a-Rear Axle Pivot Pin (1 Point)

Lubricant required Yes No

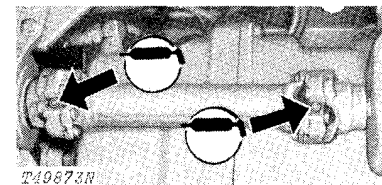


Fig. 56-Rear Axle Universal Joints (2 Points)

Lubricant required Yes No

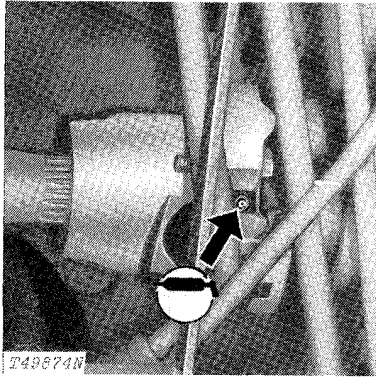


Fig. 57-Front Axle Universal Joint (1 Point)

Lubricant required Yes No

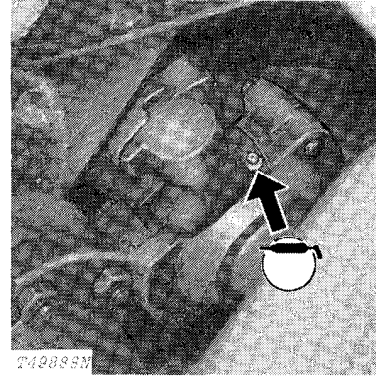


Fig. 60-Engine-to-Transmission Universal Joint (Transmission End) (1 Point)

Lubricant required Yes No

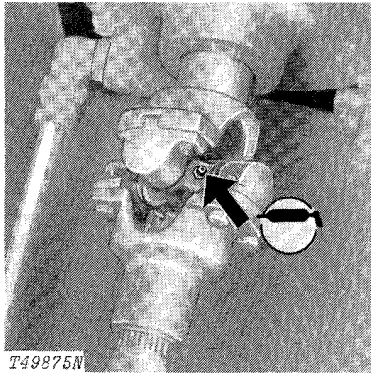


Fig. 58-Delimb Drive Universal Joint (1 Point)

Lubricant required Yes No

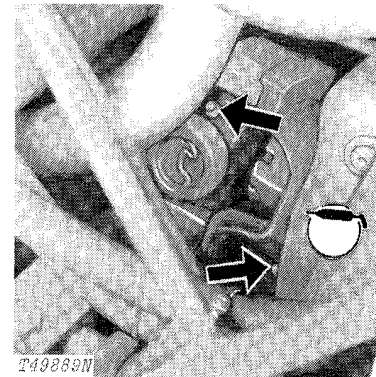


Fig. 61-Engine-to-Transmission Universal Joint (Engine End) and Engine Disconnect Clutch Bearing (2 Points)

Lubricant required Yes No

17. Engine Speeds

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

No load, fast idle speed should be 2200 rpm. Slow idle should be 800 rpm.

If engine speeds need adjustment, see page I-IV-40.

Engine speeds checked Yes No

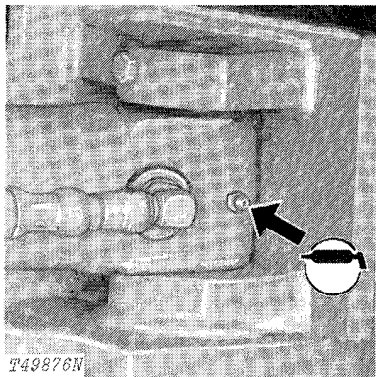


Fig. 59-Feed Roll Cylinder Head End (1 Point)

Lubricant required Yes No