OPERATOR'S MANUAL

TIGERCAT L830/LX830/X830 FELLER BUNCHER

ISSUE 2.0, MARCH, 2006

TABLE OF CONTENTS

830-OM00-2

L830/LX830/X830 Feller Buncher Available Literature

Operator's Manual (This Manual) ..... Part No. 24545A
Service Manual, 822/L830 ..... Part No. 24941A
Service Manual, LX830/X830 ..... Part No. 24942A
Parts Catalog ..... Part No. 17866A

Tigercat®

Tigercat Industries Inc.
P.O. Box 544
Paris, Ontario
Canada N3L 3T6

Tel: (519) 442-1000 Fax: (519) 442-1855

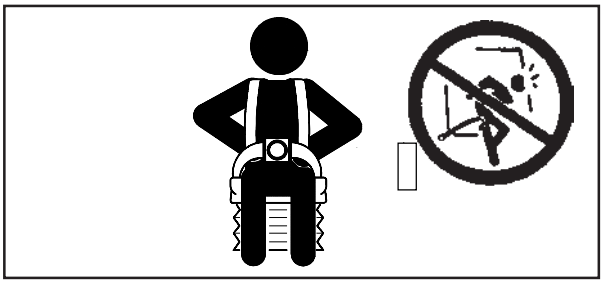
OPERATING SAFETY PRECAUTIONS

Shut off engine when refuelling - DO NOT refuel the engine while smoking or near open flame or sparks.

Check that no other personnel have moved into a hazardous area before starting the machine.

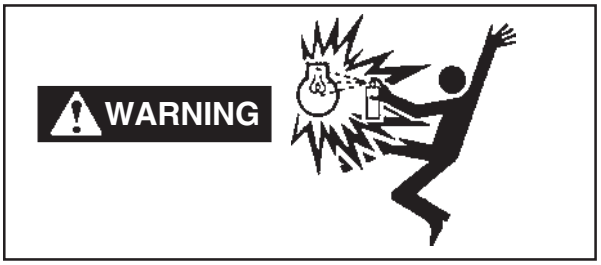
Sound the machine horn before starting the machine.

The operator's seat is equipped with lap and shoulder harness belts. Use either of these restraint systems at all times when operating the machine.



Start the engine according to the instructions in this manual. Refer to OPERATING MACHINE in SECTION 2 of the OPERATOR'S MANUAL.

Never use a liquid starting aid to start an engine.



Before moving the machine to the work site, check to ensure that all doors, panels, and access covers are installed properly and secured.

CAB EXITS

There are three ways to exit the cab in case of an emergency.

1. **Front door**, this is also the main point of entry and is the **only** door that should be used under normal operating conditions to enter or leave the cab. This door is also equipped with a SAFETY INTERLOCK SWITCH. See SAFETY INTERLOCK SWITCH ON FRONT DOOR in THIS SECTION.
2. **Side door,** should be used for emergency exits only. **Do not use this door** to routinely enter or leave the cab. This door is **not** equipped with a safety interlock switch and therefore when left open will not deactivate the pilot controls in the cab. ALWAYS shut OFF engine before using the side door exit.
3. **Escape hatch**, this is a third cab exit for use if the side exit or front door exit become blocked.

   This hatch is **not** equipped with a safety interlock switch and therefore when left open will not deactivate the pilot controls in the cab. ALWAYS shut OFF engine before using the escape hatch exit.

It is important that the operator of the machine be familiar with these emergency exits and how to use them.

All three exits should be checked to make sure that they are operational and will function in an emergency. The safety interlock mechanism on the front door or the side door and escape hatch retaining mechanisms must not be tampered with or defeated.

IMPORTANT

Unlock both doors before operating machine to allow opening from the outside in case of an emergency. Make sure that the doors are operational, open the doors twice, once using the interior latch handle and once using the exterior handle.

For additional information, refer to EMERGENCY EXITS in SECTION 2 of the OPERATOR'S MANUAL.

FIRE PREVENTION

When working in a forest environment, it is impossible to prevent combustible debris from collecting in tight corners of the machine. This debris, in itself, may cause a fire; however, when mixed with fuel, oil or grease in a hot or confined place, the danger of fire is greatly increased.

The following fire prevention guidelines should be used to supplement the operator's fire prevention efforts. In no case should the guidelines be used, or assumed, as replacements for diligent operator efforts at preventing fires.

The following guidelines will help to keep your equipment up and running efficiently **and keep the risk of fire damage to a minimum.**

1. **Maintain a CHARGED fire extinguisher** on the machine at all times and KNOW HOW TO USE IT.
2. **Inspect the machine** for any signs of fuel or hydraulic system leakage and check for worn or eroded fuel or hydraulic lines before starting up any equipment.
3. **Inspect the EXHAUST SYSTEM DAILY** for any signs of **LEAKAGE**. Check for worn, cracked, broken, or damaged pipes or muffler. Also check for missing or damaged bolts or clamps. Should any exhaust leaks or defective parts be found, repairs must be made immediately. Engine exhaust leaks can cause fires, **DO NOT OPERATE** the machine until the exhaust leak is repaired.
4. **During daily operation** of the machine, the occurrence of **exhaust leaks** are usually accompanied by a **change or increase in engine exhaust noise levels**. These **audible warnings** cannot be ignored. Should any exhaust leaks occur during operation, the machine must be **shut down immediately** and not put back to work until the necessary repairs have been completed.
5. **Remove debris and blow out dust regularly** from the air intake doors, engine radiator, hydraulic oil cooler, A/C condenser core and charge air cooler to prevent overheating of the engine and hydraulics. Refer to CLEANING A/C CONDENSER AND COOLING ASSEMBLY in SECTION 2 of the OPERATOR'S MANUAL.
6. **Blow off all debris and dust accumulated** near hot engine exhaust components (turbocharger and exhaust manifold as well as exhaust pipes and muffler) at the completion of each work shift or more frequently depending on logging conditions. Visual inspection after blow off to ensure thorough cleanliness is vital. Engine exhaust systems provide numerous small pockets where saw dust, small wood chips and other flammable forest debris can gather. Even small accumulations close to hot exhaust components can ignite and smolder. If dislodged by vibration this smoldering debris can fall into other areas of the machine and thereby spread a fire.
7. **Clean out all accumulated forest debris** (twigs, pine needles, branches, bark, leaves, saw dust, small wood chips) and any other combustible materials from inside the machine belly pans or lower machine structures as well as from areas in proximity to the engine, fuel and hydraulic oil systems no less frequently than at the completion of each work shift.
8. **AFTER transporting (trucking) a machine** from one job sight to the next, open all doors and access panels and blow off any debris that could have re-positioned itself onto the engine and exhaust parts due to wind turbulance caused by the journey.
9. **Clean up any grease, diesel fuel, hydraulic and lubricating oil** accumulation and spillage immediately.
10. **Steam clean the engine,** transmission, brake, fuel and hydraulic tank compartments of all equipment at least once a month or more frequently depending on logging conditions.
11. **Be cautious when smoking.** An open flame, a lighted cigarette, etc., should not be permitted around any vehicle, especially during fuelling operations and/or when the fuel system is open to the atmosphere, and/or when servicing batteries.

Continued on page 18

COMMENTS AND INSTRUCTIONS

Recognizing the Dangers

While it may appear that these illustrated danger areas can be visually recognized on the job by observing how far chips fly during a cut, that is only true for chips and other light weight materials. Metal parts and wooden spears can be thrown to surprisingly greater distances. Even distant personnel on the ground, in other vehicles, or in buildings are at risk if the throw is in their direction.

Direction of throw

The direction of possible tangential throw for metal parts and stones is dependent on the housing configuration and might be expected to be the same as observed for the chips. However, these throws can occur at any time the saw is running, in whichever direction the angle of throw is pointed by boom geometry, not just when a cut is being made.

Throw distance

The throw distance for metal pieces and stones, can be many times the distance shown by the pattern for chips. More testing and data collection is needed to pin down a “safe distance” but if someone or something is in a place that can be seen by the operator and in the throw direction of a high speed disc saw, then the operation is not safe regardless of the distance.

Safe operating areas

These saw heads must not be used in areas where the logging operation does not have control over the presence and movement of people. In particular, clearing of vegetation in urban and populated areas should not be done with a Tigercat manufactured or supplied high speed disc saw. High speed disc saw heads are intended for high productivity wood harvesting in areas remote from normal habitation. The possible presence of people and property within throw range and the likelihood of encountering scrap metal, wire fencing, steel posts and concrete must be respected.

Assessing the potential dangers on the job site

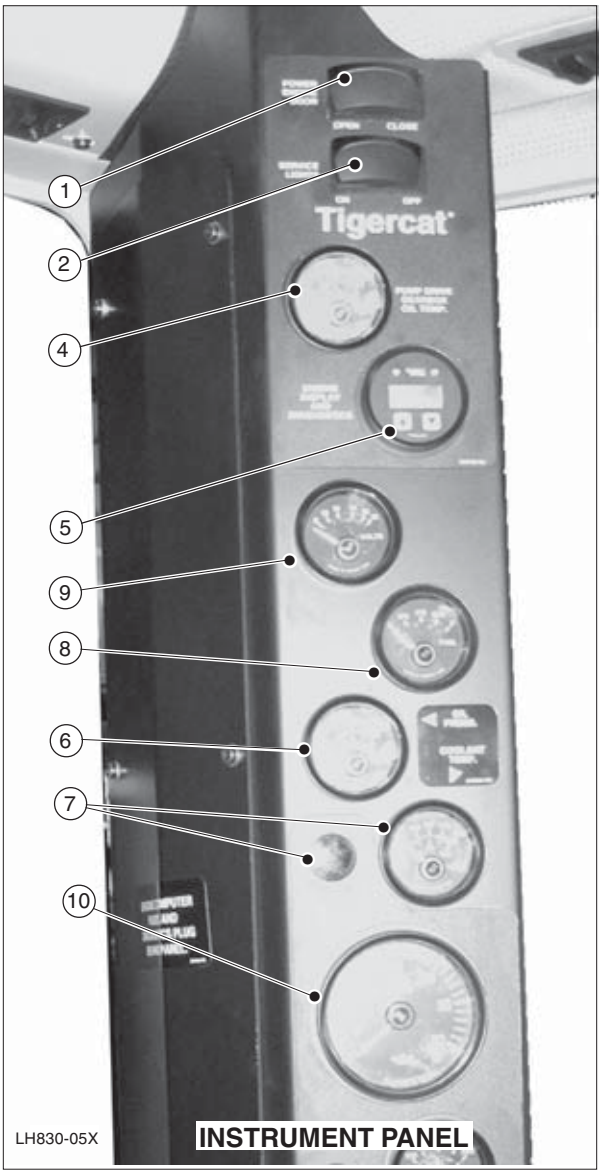
The extent of danger from high speed disc saws on the logging operation has to be assessed on the job site, depending on how much other work activity is in the area and whether the operator can do his job of cutting and bunching with good control of throw patterns. Danger is greater if the saw is equipped with detachable, or fragile, or brittle teeth, or if the site contains stones or abandoned metal.

Tigercat L830/LX830/X830 Feller Buncher

SECTION 2 - CONTROLS & OPERATION

MARCH 2006

CONTENTS - SECTION 2



INSTRUMENT PANEL

Two push button switches (UP and DOWN) are used to scroll through the *parameter list* or *main menu* (see below). Two LEDs (amber and red) are used to draw attention to active fault messages received by the module.

To read any of the engine parameters press either the UP or DOWN arrows until the display shows the desired information.

ACTIVE ENGINE SERVICE CODES

When a fault occurs the display will show the message "SrvcCode" every five seconds interrupting the currently displayed parameter. In addition the *amber LED* will start to flash during *active service code faults* and the *red LED* will be ON during shut-down faults. These warnings will continue until the fault is corrected.

To view the active service codes, select the *service code sub-menu* by pressing the UP or DOWN arrows until the display shows the message "SrvcCode". Press BOTH the UP and DOWN arrows SIMULTANEOUSLY to access the *sub-menu*. If the service codes are not available, the display will show the message "SrvcCode - No Code".

A list of "SPN(S)" FAULT CODES for the Cummins engines are enclosed with the machine document package.

Also refer to the enclosed MURPHY OPERATION MANUAL for a more detailed explanation of this module and how it should be used.

The following are some of the engine parameters displayed:

1. Engine hours
2. Engine RPM
3. System voltage
4. % engine load at current RPM
5. Coolant temperature
6. Engine oil pressure
7. Fuel economy
8. Throttle position (N/A)
9. Manifold air temperature
10. Current fuel consumption
11. Active service codes
12. Stored service codes from engine
13. Set Imperial/Metric Units
14. View engine configuration parameters

6. ENGINE OIL PRESSURE - GAUGE

This gauge displays information transmitted by the MDDM diagnostics module in the traditional analog format.

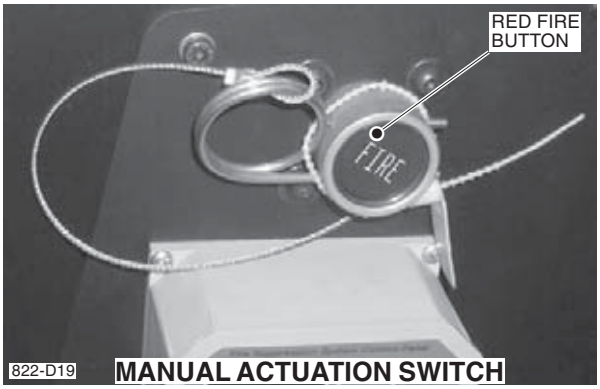
The engine oil pressure should be greatest after starting a cold engine. Check oil pressure as soon as engine starts. If gauge does not rise above minimum oil pressure of **15 psi** within **5 seconds**, stop engine and determine cause.

When the engine is running at full load rated speed, using **SAE 10W30** oil and engine oil at normal operating temperature, the normal operating oil pressure should be between **40** and **70 psi**. If the oil pressure gauge registers less than stated above at **high idle**, check the engine oil level. If pressure drops below **15 psi.**, shut the machine down immediately.

DISCHARGE OF THE SYSTEM

When an electrical signal (automatic or manual) is received by the control panel it sends a discharge signal to the electrical actuator located on top of the pressurized cylinder. When activated the electrical actuator extends a control shaft which mechanically opens the agent cylinder valve. This releases the dry chemical in the discharge area protected by the system. At the same time the control panel will also automatically shut down the engine.

The automatic engine shutdown feature will either shutdown the engine **immediately** the fire suppression system is discharged (non levelling machines) OR will delay the shutdown for a period of between **10 to 15 seconds** for levelling machines. The time delay period is a factory setting. This delay feature allows the operator to lower the load or move the machine to a safer location before the engine shuts down. The operator can extend the delay by pressing the SHUTDOWN RESET button on the control panel to repeat the preset delay period. This button can be pressed repeatedly until the operator has brought the machine to a safe stop. The SHUTDOWN RESET button does not delay the discharge of the fire suppression system.



MANUAL ACTUATION SWITCH

IN CASE OF FIRE:

If a fire starts in any space protected by the system, DO NOT wait for the system to operate automatically. Instead, operate the system manually:

1. Safely lower the boom to the ground.

2. Pull locking pin.

3. Press red FIRE button.

The system will activate the *discharge system* and the *automatic engine shutdown system*. There will be a cloud of dry chemical dispersed in the discharge area. The engine will automatically shutdown either **immediately** or will be delayed for **10 to 15 seconds** if the machine is a leveller.

IMPORTANT: Stop the engine before discharging the system. This will keep the dry chemical in the engine area.

Get away from the machine. Take a portable fire extinguisher along if possible or obtain one from another location.

Stand by with a portable fire extinguisher and watch for any flashbacks after the system has discharged.

Do not restart the machine until it has been serviced and cleaned. Do not return the machine to service until the source of the fire has been located and neutralized. The fire suppression system must be recharged by Amerex Factory Certified Personnel before returning the machine to service.

CAUTION

Wear protective clothing and masks when cleaning up after a discharge

Before cleaning up after a discharge, read the AMEREX manual. If water mixes with the dry chemical it becomes corrosive and can seriously damage wiring connections.

Dry chemical must be vacuumed or blown off with compressed air.

RIDES TOO SOFT OR BOTTOMS OUT AND PINCHES OPERATOR

The **air ride control valve** has under pressurized the seat air suspension ride adjustment Insufficient pressure exaggerates the knee-action movement of the seat. This usually happens because the operator is trying to lower the seat by decreasing the amount of air pressure instead of using the **Height Adjustment lever**. Refer to height adjustment.

SEAT TOO HIGH/SEAT TOO LOW

There are several things which can cause improper seat height. Refer to the HEIGHT ADJUSTMENT and adjust seat to the desired position. If the proper height cannot be reached using one of the four height adjustment settings, it may be necessary to install the seat on a higher base.

OPERATOR'S LEGS FALLING ASLEEP

The seat is adjusted too high, and the **air ride control valve** has under pressurized the seat air suspension ride adjustment, resulting in the operator sitting in a "bucket". Refer to height adjustment and RIDE ADJUSTMENT.

CAUTION

Use compressed air for cleaning only when the machine is cold to avoid the risk of fire caused by debris contacting hot surfaces. If using compressed air for cleaning, use at 30 psi or less.

Always use personal protective equipment to guard against flying debris

avoid the risk of fire caused by debris contacting hot surfaces. **Care must be taken** not to set the pressure too high otherwise damage to the components could result.

Pay particular attention to cleaning in the corners of the cooler as these areas usually plug deeply. Reversing the fan at least once per hour will help reduce the dust accumulation in the cores.

CAUTION

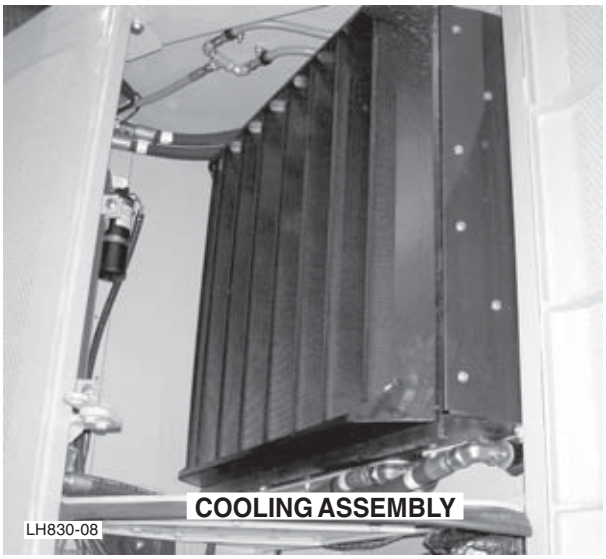
Avoid the risk of fire caused by debris accumulating on surfaces that may become hot during machine operation. Always use care when cleaning to ensure that debris removed from one area of the machine does not accumulate on other areas of the machine.

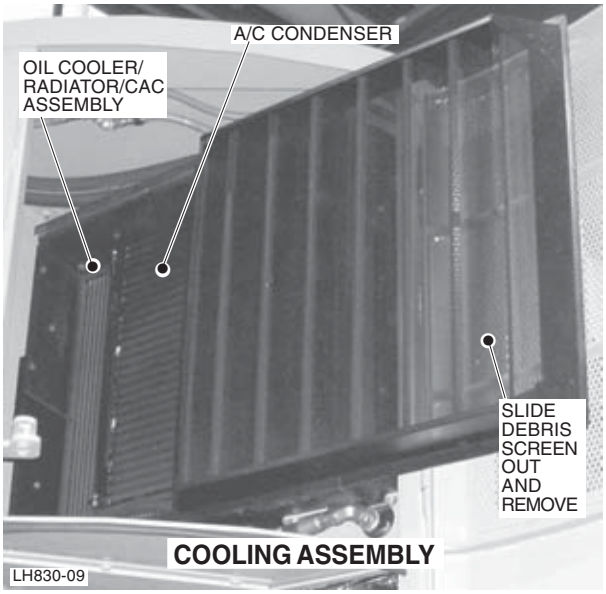
Avoid the risk of fire caused by debris accumulating on surfaces that may become hot during machine operation. Always use care when cleaning to ensure that debris removed from one area of the machine does not accumulate on other areas of the machine. For more information on fire prevention refer to FIRE PREVENTION in SECTION 1 of THIS MANUAL.

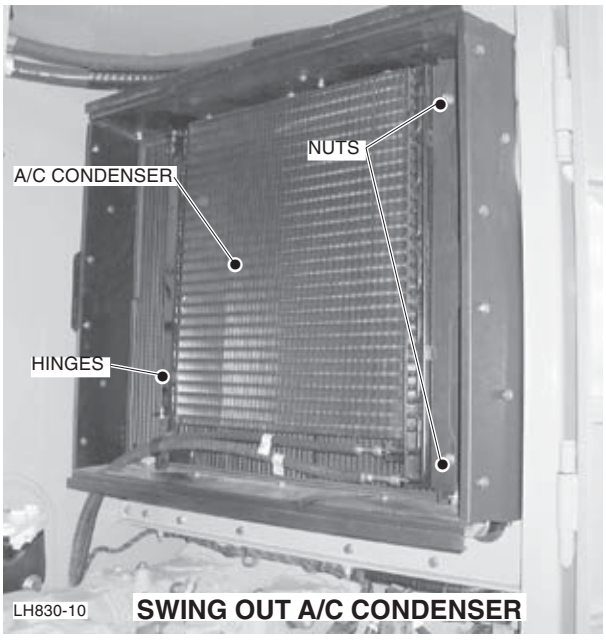
If an oil leak occurs in this area it should be thoroughly power-washed with a mild soap to ensure that all of the oil is removed. The presence of oil causes dust and dirt to cling to surfaces which will impair the reversible fan's ability to remove dust and dirt particles.

WARNING

Stay clear of fan at all times to avoid risk of personal injury.







TRAVELLING (BOOM RAISED)

1. Select the appropriate drive range.

   Place the track switch in the LOW or DRIVE position.

   When in LOW the machine moves slower but with increased drive force. All harvesting should be done in LOW.

   When in DRIVE the machine moves faster but with less drive force. Travelling over longer distances (and not harvesting) should be done in DRIVE to allow for faster travel speeds when the terrain permits. DO NOT travel down steep slopes in DRIVE range. Also, DO NOT travel continuously for more than 10 minutes, take 5 minute breaks, this will help prevent the track drive gearboxes from over heating.

   For a more detailed description of drive range refer to TRACK, LOW/DRIVE SWITCH in THIS SECTION.

2. Place swing brake switch in OFF position.
3. Move throttle control to the HIGH idle position.
4. Operate the drive foot pedals to maneuver the machine.

OPERATING TIPS WITH LOAD SENSING

When using the controls on a load sensing system think of what the system is trying to do for you. If you move the lever or pedal 20% of its total angle, the system will provide whatever pressure it takes (up to its maximum capacity if needed) to meet this speed requirement. If you move the lever past the point needed in an attempt to speed up the boom movement, you will only overshoot the speed you wanted. Relax and try to use the least amount of lever action you can.

Load sensing systems respond to rough operation by amplifying these movements. If you find the boom is jerky or always giving “feedback”, you’re probably too active on the controls. If slowing down doesn’t eliminate the roughness, the ***margin pressure*** setting may be too high and can be reduced to calm down the machine’s response.

Refer to SET MARGIN PRESSURE in SECTION 4 of the SERVICE MANUAL

SCHEDULED MAINTENANCE

EVERY 250 HOURS:~

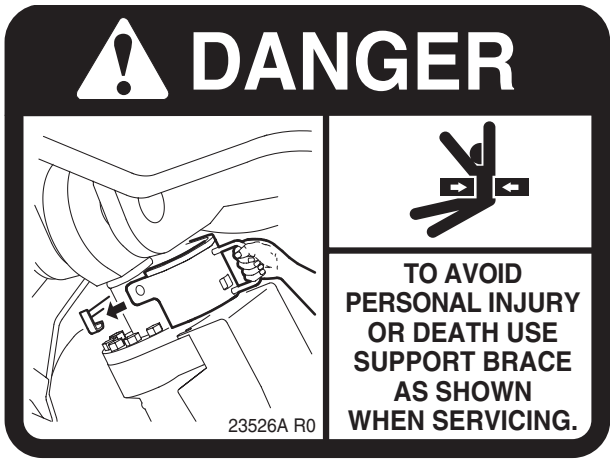
- **Perform "frequently" maintenance**
- **Perform 8 hour maintenance**
- **Perform 24 hour maintenance**
- **Perform 125 hour maintenance**

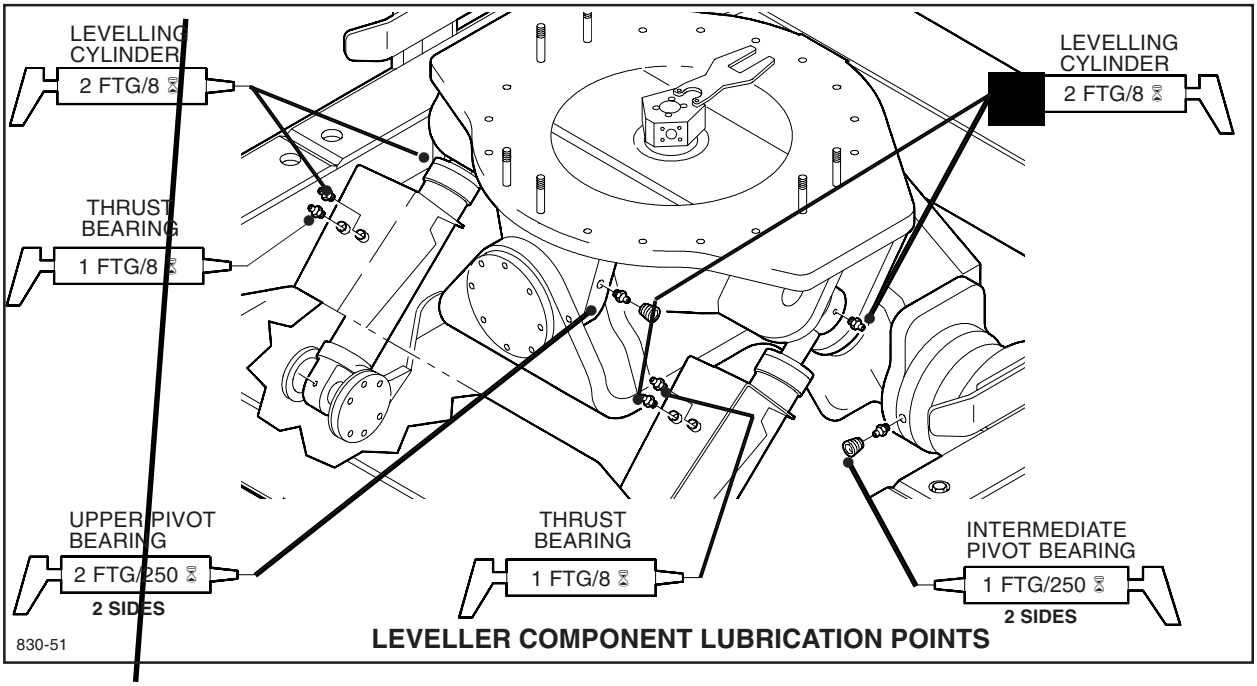
And in addition:~

- Check all hydraulic pressures
- Lubricate leveller, intermediate pivot points; 2-fittings total - purge. Remove/replace protection plugs to access. (If equipped with leveller)
- Lubricate leveller, upper pivot points; 4-fittings total - purge. Remove/replace protection plugs to access. (If equipped with leveller)
- Lubricate swing drive gearbox lower bearing; 2-fittings - 5 shots each ‡ **Do not use a power grease gun.**

‡ With swing gearbox at operating temperature slowly add 5 shots of lithium based EP2 to each side of the gearbox. **Note:** During cold weather applications the swing function must be operated for several hours to achieve operating temperature. **Caution:** Do not force grease, gearbox failure may result. **Do not use winter grease.** Grease should purge from gearbox pinion seal.

- Check condition and tension of fan belts.
- Replace engine oil and filter.
- Replace engine fuel filter(s).
- Replace filter in fuel filter/water separator.
- Replace air intake primary element.
- Replace oil in track drive gearboxes with one level plug at 6 O'Clock and the other at 9 O'Clock
- Replace oil in pump drive gearbox. (if equipped - applies to X830 & LX830 only)

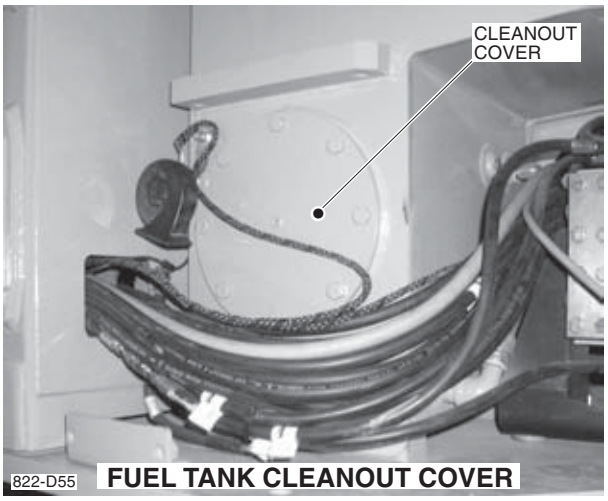




LEVELLER COMPONENT LUBRICATION POINTS

FUEL TANK STRAINER

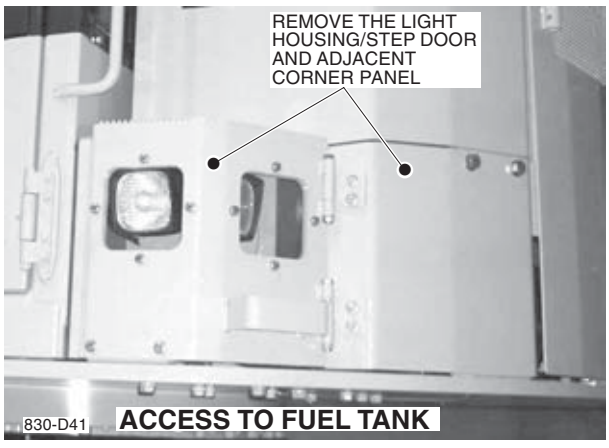
This is a stainless steel fuel strainer, screwed on to the inlet pipe of the engine fuel feed line inside at the bottom of the fuel tank.



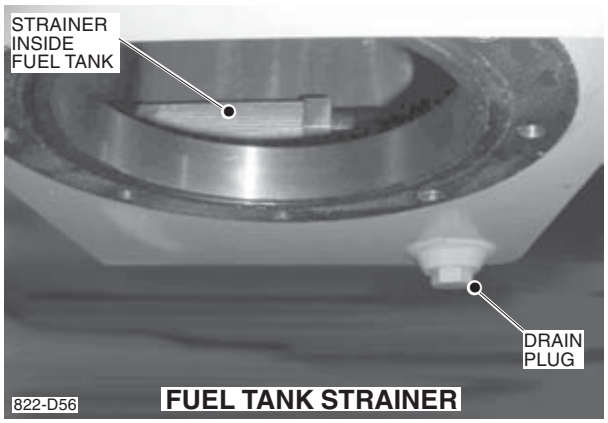
Changing or cleaning the strainer:

NOTE:
This should only be required if excessive quantities of foreign material has built up inside the tank.

1. Park machine on level ground with felling head resting on the ground.
2. Stop engine. Turn battery disconnect switch to the OFF position. Always install a “DO NOT START ENGINE” sign on the operator’s cab door and in the engine compartment when making repairs to the machine.



3. Remove the light housing fasteners and swing out the light housing panel to access the fuel tank cleanout cover.
4. Drain the fuel tank. (plug in bottom)
5. Remove the round fuel tank access cover plate and “O” ring.



6. Before removing the strainer, clean any debris from the bottom of the tank and wipe it clean.
7. Remove the fuel strainer using the hex on the end of strainer. Carefully clean the strainer (it may be damaged by rough handling).
8. Check for a **accumulation of foreign materials** where the strainer screws onto the pipe and elbow.
9. Reinstall the strainer using the hex on end.
10. Reinstall fuel tank cover plate with a NEW “O” ring.
11. Reinstall corner panel and light housing/step door.
12. Fill the fuel tank and check for leaks. Start the engine and check for leaks again.