Tigercat®

724E FELLER BUNCHER

OPERATOR'S MANUAL

SERIAL NUMBER 7243001 TO 7243100

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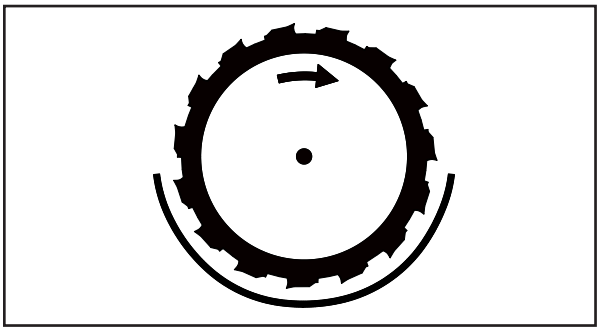
KEEP BACK 150 m (500 ft)

When approaching an operating machine on foot, stay at least 150 m (500 ft) away until the operator recognizes your presence. Make sure that all equipment has been shut down before advancing to the machine.



⚠ DANGER

ROTATING SAW

The safety of persons outside the cab is the responsibility of the machine operator

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

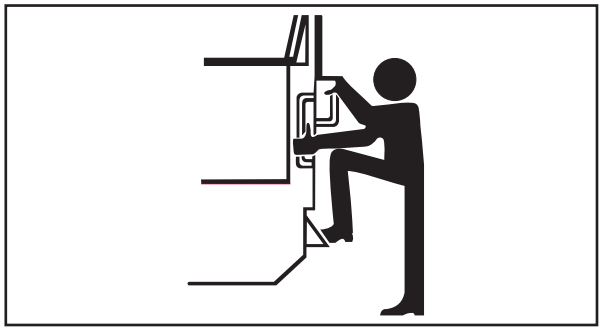
Always use the handrails and steps provided when mounting and dismounting from the machine.

Do not jump off the machine at any time.

Do not try to climb onto or off a moving machine.

Do not use the seat armrest or joystick as handles when entering or leaving the cab.

Do not use the machine foot controls as a step.



When mounting or dismounting the machine always use the three point technique. Use one hand with two feet or two hands with one foot.

⚠ WARNING

It is not recommended to walk on machine surfaces that are not designated walking areas.

No attempt should be made to walk on angled steel surfaces or surfaces that are irregular in shape.

Walking surfaces on the machine must be covered with anti-slip materials to provide a safe foot hold and prevent slipping.

These anti-slip surfaces should be maintained on a regular basis. If the surface shows signs of wear, the anti-slip material must be replaced immediately.

⚠ WARNING

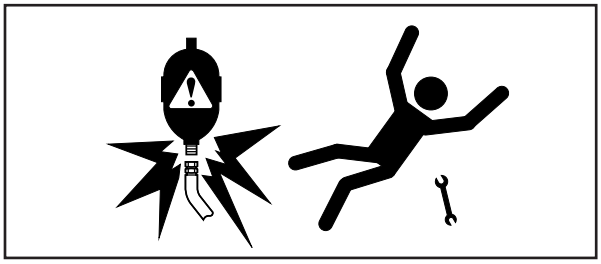
Do not walk on machine surfaces with steel cleated foot wear. Steel cleats on steel surfaces are slippery and do not provide a safe foot hold.

WARNING

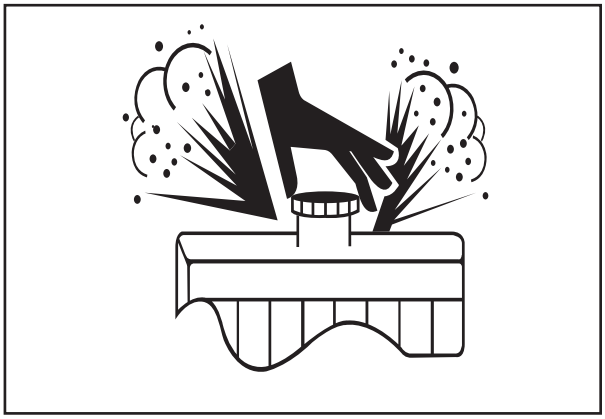
Diesel fuel or hydraulic fluid under pressure can penetrate the skin and cause serious personal injury, blindness, or death. If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with treating this type of injury.

Never use bare hand to check for fluid leaks.

Fluid leaks under pressure may not be visible. When searching for leaks, wear work gloves and use a wrench or piece of wood to move hydraulic hoses. Do not grab hold of hydraulic hoses. Wear safety goggles for eye protection.



Pressure can be maintained in a hydraulic system long after the power source and pump have been shut down. Lower the attachment to the ground, stop engine and relieve trapped pressure from pilot system and brake accumulators before performing work on components, or disconnecting any hoses. For information on relieving pressure, refer to PARKING THE MACHINE in THIS SECTION.



Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

Do not change any pressure or relief setting unless authorized instruction has been obtained.

Use the proper tool for the job. Repair or replace worn or damaged tools including lifting equipment immediately.

WARNING

WARNING, HOT FLUIDS AND HOT MACHINE SURFACES CAN CAUSE SERIOUS BURNS!

- **Before servicing the machine, allow the engine cooling system, fuel system, exhaust system, hydraulic system and machine surfaces to cool down.**
- **Use a thermometer to check surface and system temperatures to ensure it is safe to begin service work.**
- **DO NOT begin service work until the surface or system temperature has cooled down to below 38°C (100°F)!**

- Ensure that the nozzle of any hand held extinguisher and pressurized water system available on the machine and at the work site fits within the access holes in the doors of the machine.
- Ensure that your fire detection system* is in working order. Refer to FIRE DETECTION SYSTEM in SECTION 2 of the OPERATOR'S MANUAL.
- Ensure that your fire suppression system** is charged and in working order. Refer to FIRE SUPPRESSION SYSTEM in SECTION 2 of the OPERATOR'S MANUAL.
- Ensure that you are familiar with the recommended procedures for fire contained in the emergency action plan of your company.
- Ensure that you follow all national, state / provincial and local regulations dealing with fire fighting in effect in your specific geographic region. Regulations will vary from region to region but most will usually require that:
    1. Workers assigned to fire fighting duties must be physically capable of performing them safely and effectively.
    2. Workers designated to use fire fighting equipment as part of an emergency action plan must receive full and proper training from a qualified instructor.
    3. Whenever portable fire extinguishers are provided for use in the workplace, training must be provided to familiarize workers with the general principles of fire extinguisher use and the hazards involved with fire fighting.
    4. Training must be provided upon initial employment and at least annually thereafter.
- Ensure that after you have received the training as outlined above, that you know how to use the fire extinguisher, the pressurized water system (if applicable) and the fire suppression system** on your machine. There is not enough time available to read instructions during a fire emergency.
- Ensure that all information necessary for you to immediately contact all sources of help (local fire department, etc) in the event of a fire emergency is recorded and readily available at all times.

WHAT TO DO <u>WHEN</u> A MACHINE FIRE OCCURS

If operating the machine when a fire occurs:

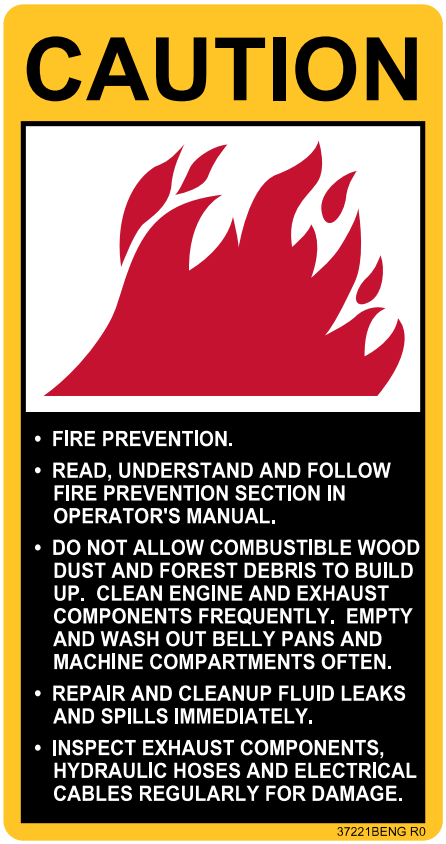
1. Lower all working attachments to the ground.
2. Shut the engine off.
3. Activate the fire suppression system**.
4. Radio or call for help. Be certain to report a fire immediately.
5. Exit the machine taking fire extinguisher and pressurized water system hose (if applicable) with you.
6. At all times ensure your own personal safety and the safety of anyone that may be in the area. Approach any fire with extreme caution. All fires can be very dangerous and life threatening.
7. Only if you can safely do so, turn OFF the battery disconnect switch.

Before deciding to fight the fire, be certain that:

1. The fire is small and not rapidly spreading.
2. There is always a clear, safe escape route to your back.
3. You have received training in the use of the available fire extinguishing systems and are confident that you can operate them effectively.

- Be aware that engine coolant , diesel fuel or hydraulic hoses could fail during a fire. If this happens, hot coolant, fuel or oil could possibly be ignited by the fire.
- If in any doubt about whether or not to fight the fire – DON'T. Instead stand well clear of the fire and wait for help to arrive.
- If possible a dry chemical fire extinguisher or fire suppression system** should be used first to fight a machine fire. Then immediately afterwards use the pressurized water hose supplied with the machine (if applicable) or a pressurized water extinguisher (if available). A fire suppressed by dry chemical may re-ignite from the heat retained by any debris in the area. The water will cool the area, reducing the chances of re-ignition.

FIRE PREVENTION!



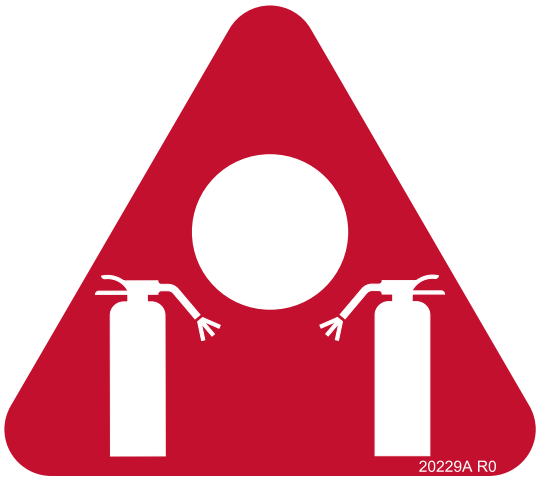
This label advises operator's of the following:

READ UNDERSTAND AND FOLLOW THE FIRE PREVENTION GUIDELINES IN THIS MANUAL. These guidelines provide all the necessary action required to preventing fires on this machine. DO NOT OPERATE THIS MACHINE until you have read these instructions and have performed any necessary maintenance required that will prevent the potential of a fire from starting on this machine.

It is also important to note that fire prevention inspections and maintenance MUST BE PERFORMED FREQUENTLY (several times per day). A clean combustible free machine as well as frequent inspections of the exhaust components, hydraulic hoses and electrical cables and performing any necessary repairs immediately will help prevent fires.

Maintain a CHARGED fire extinguisher on the machine at all times, know where it is and **KNOW HOW TO USE IT**!

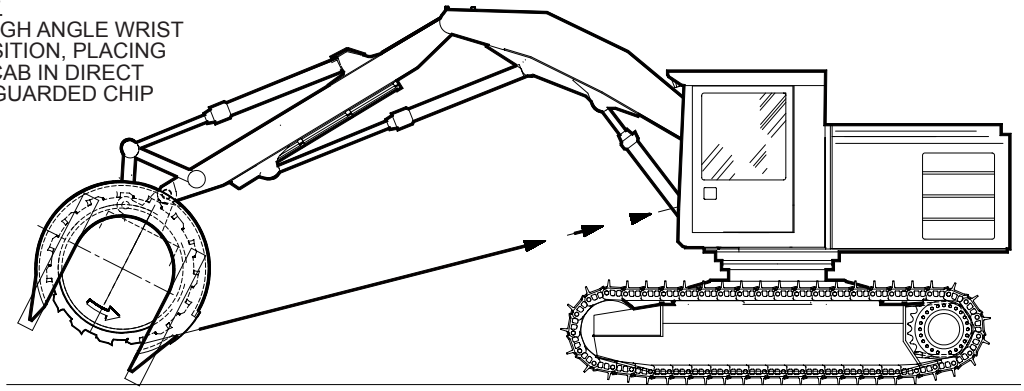
FIRE EXTINGUISHER ACCESS HOLE

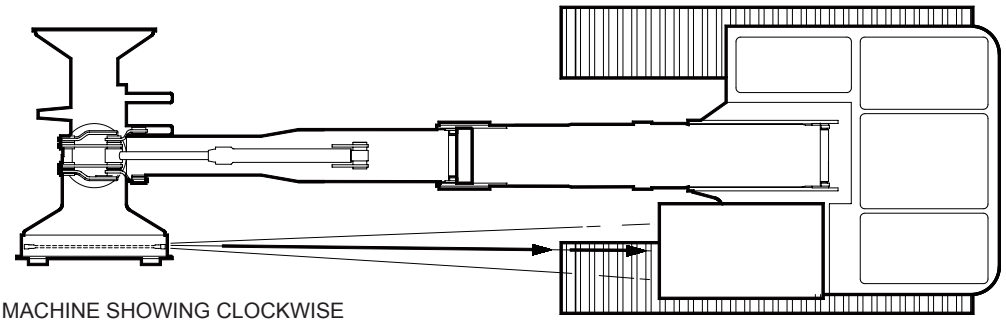


This label indicates the location of each **FIRE EXTINGUISHER ACCESS HOLE**. The label is installed on each fire extinguisher hole on the engine hood.

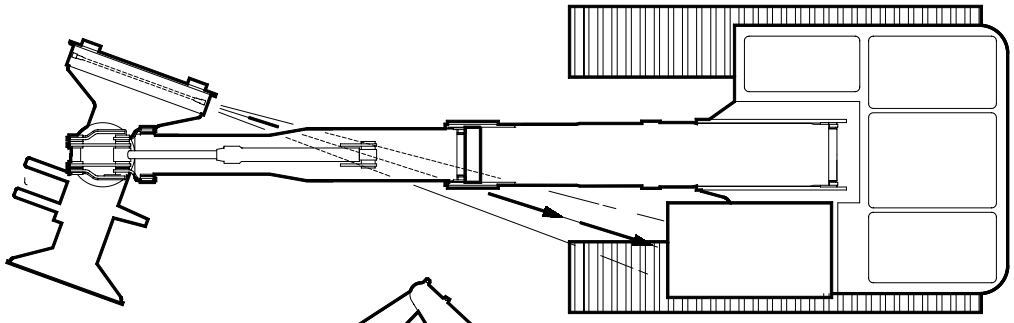
FELLING HEAD
- WITH A CHIP ESCAPE PORT AND SHORT SNOUT.
- SHOWN IN A HIGH ANGLE WRIST ROTATION POSITION, PLACING OPERATOR'S CAB IN DIRECT LINE WITH UNGUARDED CHIP ESCAPE PORT

FIGURE 7a





PLAN VIEW OF MACHINE SHOWING CLOCKWISE AND COUNTERCLOCKWISE BLADE ROTATION



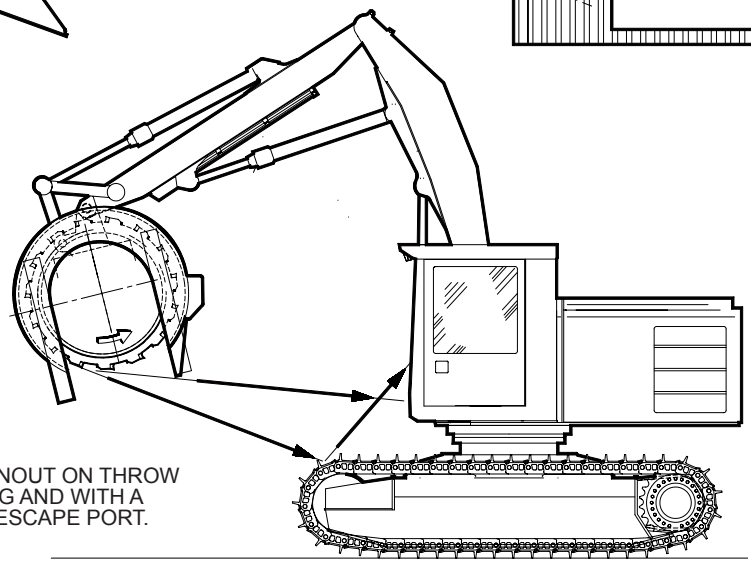


FIGURE 7b

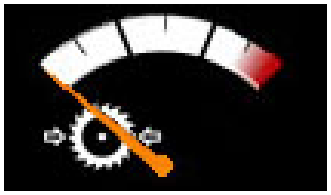
FELLING HEAD
- WITH LONGER SNOUT ON THROW SIDE OF OPENING AND WITH A GUARDED CHIP ESCAPE PORT.

FIGURE 7: DISC SAW FELLING HEAD WITH HIGH ANGLE WRIST ROTATION CAPABILITY

NOTE: If the engine is turned off or the interlock system has been deactivated with the switch in the ON position, the saw will not start up when the engine is restarted. The switch must be turned off and then back on for the saw to start.

Always decrease the engine speed to idle for several minutes to allow the saw to slow down before turning the saw off.

SAW PRESSURE INDICATOR



Each increment on the gauge represents approximately 69 bar (1000 psi). During cutting operations the indicator value will rise as the blade slows down due to cutting, and fall as the blade speeds up. A 2/3 value or higher indicates that the blade has not attained full speed from the previous cut or has jammed. Further cutting should be delayed until the indicator value falls below the 1/3 increment to prevent stalling the saw blade during the next cut. Below 1/3 the saw blade is at optimum cutting speed.

6. FAN SWITCH (ENGINE COOLING)

This is a three position momentary switch, FULL ON/AUTO/ CLEAN*. This switch along with the MD3 Computer, controls the operation of the variable pitch fan.

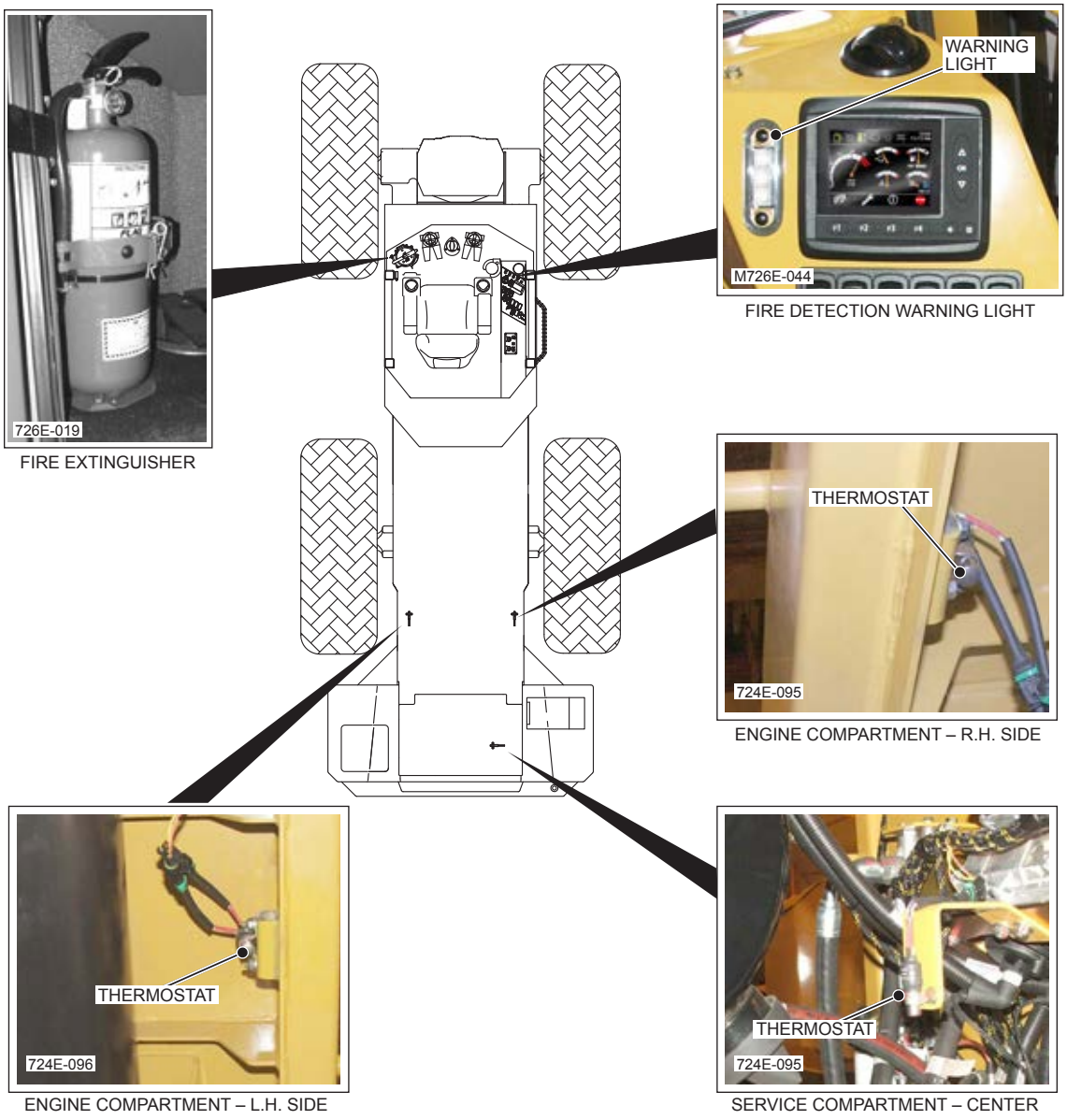
AUTO POSITION – AUTO is the normal operating position for the fan control switch. When the switch is in the AUTO position, the fan will operate completely in an automatic mode.

NOTE: The MD3 Computer is programmed to reverse fan direction automatically when the fan switch is in the AUTO position. The default setting is reverse every ten minutes for ten seconds, This setting is adjustable See COOLING FAN PURGE INTERVAL and COOLING FAN PURGE LENGTH in this section for adjustment information.

FULL ON POSITION – When the switch is in the FULL ON (OVERRIDE) position, the fan control system is overridden and the fan will operate at full speed forward. The FULL ON (OVERRIDE) position is intended for use in the event of a temporary failure of the fan control system. AUTOMATIC reversing/ cleaning does not function in full on position.

CLEAN POSITION – When the switch is pressed momentarily to the CLEAN position, the fan direction is reversed. Reverse direction is used to help clean the charge air cooler, radiator, oil cooler, A/C condenser and air intake door screen. By 'reversing' the fan blade direction, air flow is propelled in the opposite direction, thereby helping to force dust and debris off of the heat exchanger cores and screens.

It is also important to manually clean debris from the machine on a regular basis to maintain low machine operating temperatures. Refer to CLEANING A/C CONDENSER, CHARGE AIR COOLER, OIL COOLER AND RADIATOR in THIS SECTION.



724E-003

FIRE DETECTION SYSTEM AND FIRE EXTINGUISHER LOCATION

AVOIDING DAMAGE AND FALSE SIGNALS DURING MACHINE SERVICE:

Pay attention to the location of the components of the fire detection system. Take care not to damage heat sensors or wiring, this includes hitting, cutting, bending, denting, etc. Damage to heat sensors due to shock could make the system inoperable and/or cause false signals. Cut, pinched, or kinked wiring could make the system inoperable and/or cause false signals.

In addition thermostats are sensitive to heat from welding torches, steam cleaning or other outside sources which may create a false detection by the system.

If any of the components are damaged, replace them immediately before operating the machine.

⚠ WARNING

Failure to follow these instructions and guidelines may result in serious bodily injury, death, and property damage.

FIRE PREVENTION

Refer to Section 1 of this manual for fire prevention information/techniques.

COOLING FAN CLEAN DURATION

Scroll to the Fan Clean Duration selection in the General Settings menu. Press the OK button to make adjustments.

The Fan Clean Duration menu will appear. The setting value can be adjusted between 10 seconds and 30 seconds. This is the time the cooling fan will remain in the clean (reverse/clean) mode. The factory default is 10 seconds. Press the arrow up or arrow down to scroll to the desired selection and press the OK button when desired value is selected.

Press the back button to return to the engine settings menu or back button twice to return to the adjustment menu. Press the Back button again to return to the main menu.

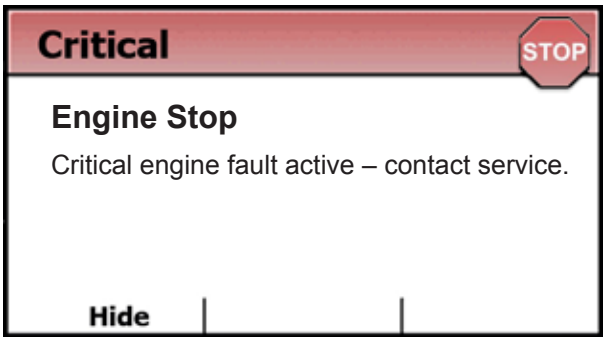
COLD OIL INDICATOR

A blue cold oil temperature Icon (1) appears on the display when the hydraulic oil is at or below minimum temperature setting. When the oil warms, the cold oil icon turns off.

IMPORTANT!

To prevent damage to the machine, it is not recommended to run the attachment circuit or work the machine hard until the cold oil icon disappears.

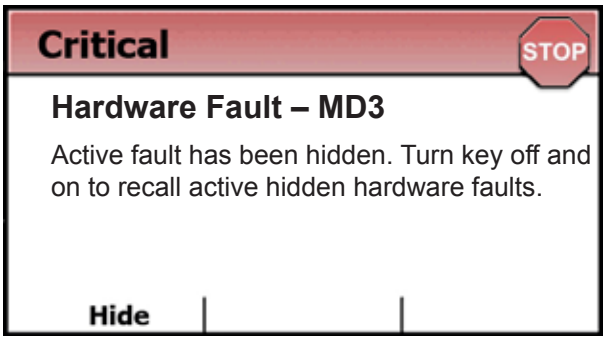
ENGINE STOP



This message will be displayed, alarm light will flash and alarm will sound when critical engine alarms are triggered. STOP ENGINE.

Refer to engine manufacturer's manual for specific information regarding the engine.

HARDWARE FAULT – MD3

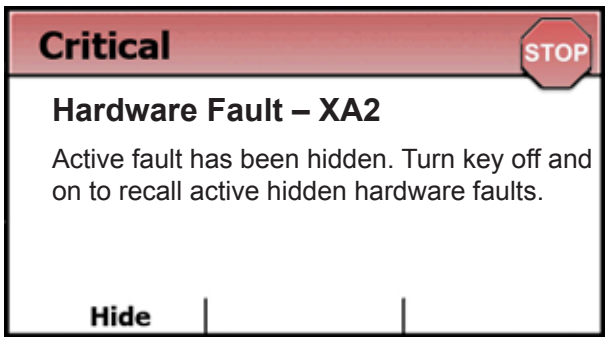


This message will be displayed, alarm light will flash and alarm will sound when a critical active hardware fault related to the MD3 Display module has been hidden.

To recall the original active fault(s) the operator must turn the key off and on.

A VREF (modules reference voltage) error is an example of the type of hardware fault which will be the original active fault which triggers this message.

HARDWARE FAULT – XA2

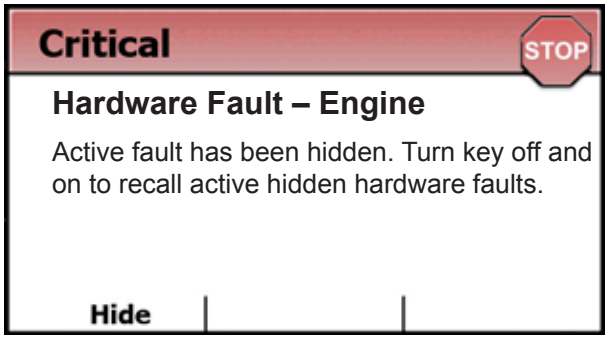


This message will be displayed, alarm light will flash and alarm will sound when a critical active hardware fault related to the XA2 module has been hidden.

To recall the original active fault(s) the operator must turn the key off and on.

A VREF (modules reference voltage) and no contact errors are examples of the type of hardware fault which may be the original active fault which triggers this message.

HARDWARE FAULT – ENGINE



This message will be displayed, alarm light will flash and alarm will sound when a critical active hardware fault related to the Engine has been hidden.

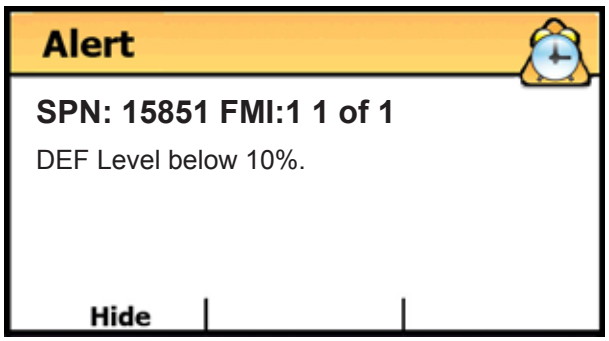
To recall the original active fault(s) the operator must turn the key off and on.

No contact error is an example of the type of hardware fault which may be the original active fault which triggers this message.

DIESEL EXHAUST FLUID LEVEL MESSAGES

There are three levels of diesel exhaust fluid level messages generated by the Denox Module.

DIESEL EXHAUST FLUID LEVEL <10%

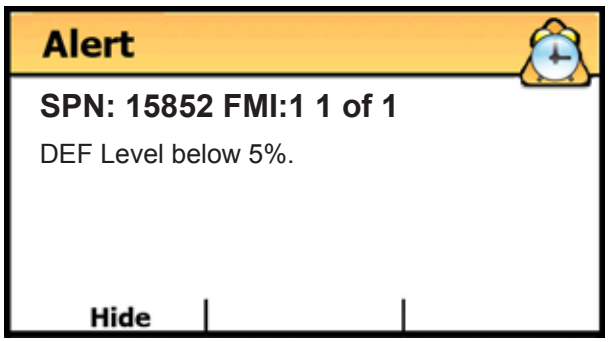


This message will be displayed, alarm light will flash and alarm will sound when a diesel exhaust fluid level below 10% is detected. Action to correct DEF levels should be taken immediately to avoid affecting engine performance and damage to the selective catalytic reduction (SCR) after treatment system components.

Fill DEF tank and restart engine to clear the warning.

Refer to DIESEL EXHAUST FLUID TANK in SECTION 2 of THIS MANUAL.

DIESEL EXHAUST FLUID LEVEL <5%

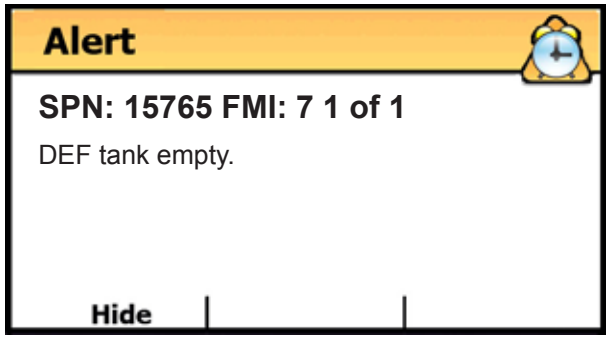


This message will be displayed, alarm light will flash and alarm will sound when a diesel exhaust fluid level below 5% is detected. Action to correct DEF levels should be taken immediately to avoid affecting engine performance and damage to the selective catalytic reduction (SCR) after treatment system components.

- Beginning immediately after a DEF level <5% warning, there will be a ramp down of Engine Speed by 60% and Torque by 65% over 40 minutes.

Fill DEF tank and restart engine to clear the message.

DIESEL EXHAUST FLUID LEVEL EMPTY



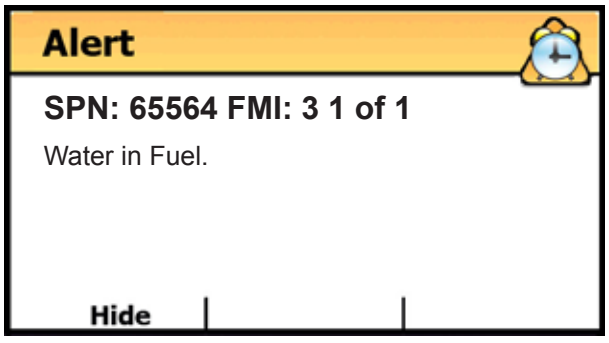
This message will be displayed, alarm light will flash and alarm will sound when diesel exhaust fluid level empty is detected. Action to correct DEF levels should be taken immediately to avoid affecting engine performance and damage to the selective catalytic reduction (SCR) after treatment system components.

- Beginning immediately after a DEF level empty message, the engine is derated to idle within 30 minutes.

Fill DEF tank and restart engine to clear the message.

Note that an Engine Torque Derate Active message will also be triggered as the engine begins to derate. Refer to COMPUTER – MESSAGES AND WARNINGS – CRITICAL ~– ENGINE TORQUE DERATE ACTIVE.

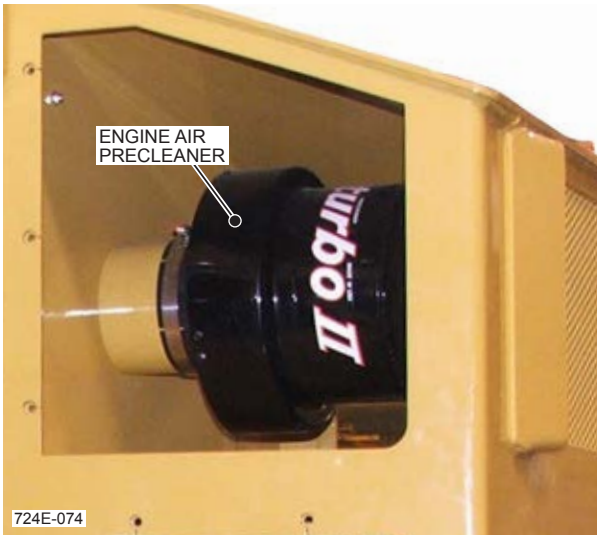
FUEL – WATER IN FUEL



This message will be displayed when water is detected in the fuel by the engine computer system.

Refer to engine manufacturer's manual for specific information regarding the engine.

ENGINE AIR PRECLEANER

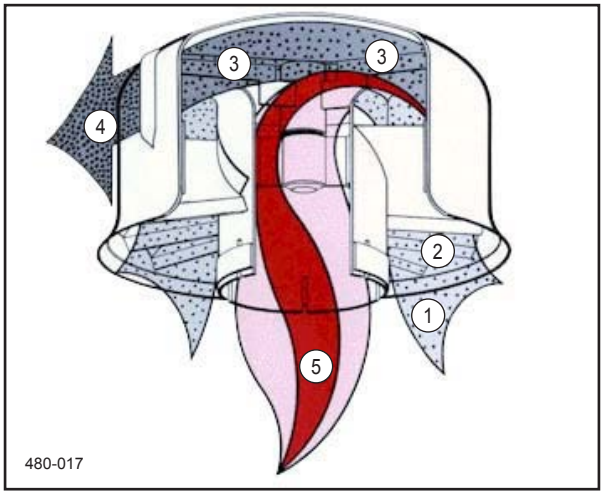


The engine air precleaner cleans engine air before it reaches the air cleaner filter elements. It removes contaminants such as dust, powder, insects, rain and snow. This precleaner is self powered and self cleaning requiring virtually no maintenance. However, it should be checked periodically to make sure that foreign materials have not plugged the intake area or the exhaust port area.

NOTE: The precleaner compartment should be checked and cleaned out daily to ensure proper operation of the precleaner.

NOTE: Periodically remove the precleaner assembly and check the spinner assembly for wear or dirt build-up on the blades. Clean the spinner assembly or replace it if the blades are worn.

HOW IT WORKS



1. Dirty air (1) enters the Precleaner, which is clamped onto the engine air intake.
2. Specially-designed vanes (2) curved and angled to precisely direct air flow, move the dirty air toward the stainless steel impeller (3).
3. The dynamically balanced, one-piece impeller (3) creates a tornado inside the housing.
4. The centrifugal force of the tornado expels the heavier than air dirt particles (4), chaff, dust, snow, rain, etc., out the discharge louver.
5. Cleaned air (5) enters the engine air cleaner intake pipe, and the filter element has only the very light particles to remove.

RESULTS

- Cleaner Air for The Engine!
- Longer Filter Element Life!
- Increased Engine Life!
- Increased Engine Performance!
- Reduced Operating Costs!

MACHINE PREPARATION SYSTEM TEST AND WARM-UP

Before commencing operations, proceed with steps (a) through (n) to accomplish:

- **Warm up the hydraulic system.**
- **Test all systems for proper operation.**
- **Inspect for hydraulic oil leaks.**

Assuming machine was parked on level ground at last shutdown:

⚠ CAUTION

If any system fails to respond to the controls, stop the warm-up procedure and call a mechanic, otherwise serious damage to pumps and other components could result.

(a) Start engine.

(b) Ensure computer display is indicating normal operating conditions.

(c) Check that all personnel are clear of the machine.

(d) Set engine speed to 1100 rpm.

(e) Slowly raise and lower boom, check for proper operation.

With the attachment raised slightly off the ground:

(f) Operate the accumulator and clamp arms and check for proper operation.

(g) Tilt the attachment forward and back and check that it is operating correctly.

(h) Steer the machine to the left and right.

(i) When cold weather conditions exist, continue the process of warming up the hydraulic system by repeating steps (e) through (h) several times. As the hydraulic system warms up, engine speed can be increased gradually to the HIGH IDLE position.

(j) Turn attachment on.

(k) After completion of the warm-up and system testing, turn the attachment OFF, stop the blade and rest the attachment on the ground.

(l) Set the parking brake ON.

(m) Set engine speed to LOW IDLE.

(n) Leave the cab and visually check hose connections and cylinders for leaks. Check under the machine for oil leaks.

⚠ WARNING

Ensure that the saw blade has stopped rotating before leaving the cab.

⚠ WARNING

Never use your bare hand to check for fluid leaks.

Fluid leaks under pressure may not be visible. When searching for leaks, wear work gloves and use a wrench or piece of wood to move hydraulic hoses. Do not grab hold of hydraulic hoses. Wear safety goggles for eye protection.

Tigercat 724E Feller Buncher
SECTION 3 – LUBRICATION & MAINTENANCE

MAY, 2014

CONTENTS – SECTION 3

SCHEDULED MAINTENANCE

EVERY 1000 HOURS:

- **Perform 8 hour maintenance**
- **Perform 125 hour maintenance**
- **Perform 250 hour maintenance**
- **Perform 500 hour maintenance**

And in addition replace:

- Engine air cleaner unloader valve.
- Strainer in accumulator charge valve.
- Oil in axles, front and rear.
  NOTE: Refer to the service manual section 8 for oil change procedure.

And in addition:

- Lubricate front and rear axle pinion grease seal. 1-fitting per axle, purge.

Check:

- In-tank fuel strainer.
- Check the center joint for looseness. Refer to CENTER JOINT MAINTENANCE in THIS SECTION for instructions. If a problem is found corrective action should be taken immediately. Refer also to CENTER JOINT in SECTION 11 of the SERVICE MANUAL for more detailed checking and adjustment procedures.
- Refer to engine operation and maintenance manual and attachment manual for additional required maintenance at this scheduled time period.

EVERY 1500 HOURS:

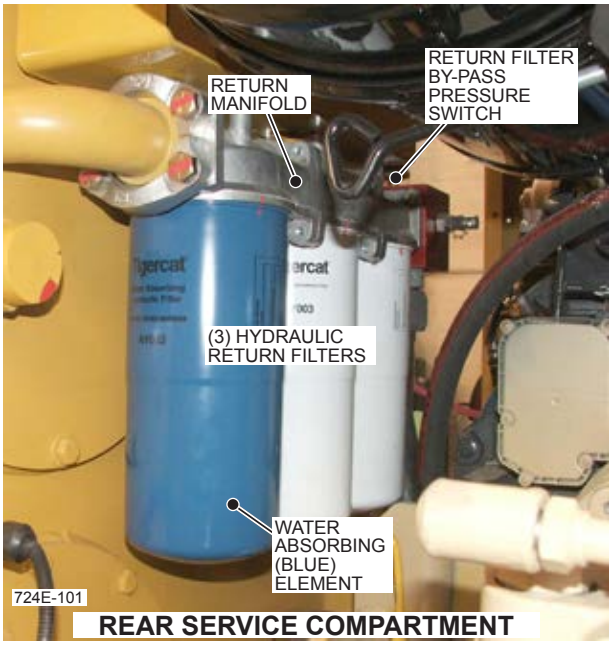
- **Perform 8 hour maintenance**
- **Perform 125 hour maintenance**
- **Perform 250 hour maintenance**
- **Perform 500 hour maintenance**
- **Perform 1000 hour maintenance**

And in addition replace:

- Engine blow-by filter
- Refer to engine operation and maintenance manual and attachment manual for additional required maintenance at this scheduled time period.

† Use of filters other than genuine Tigercat replacement filters is not recommended.

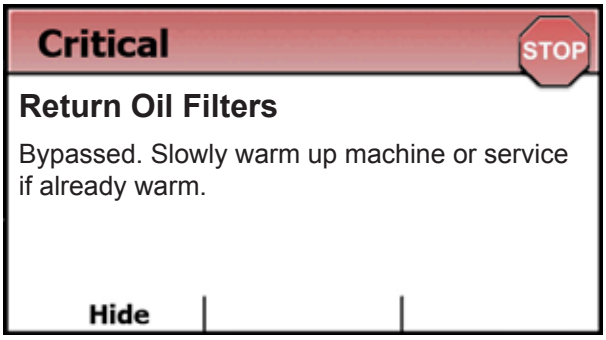
HYDRAULIC OIL RETURN FILTERS



REAR SERVICE COMPARTMENT

The return oil entering the hydraulic tank passes through four replaceable filters mounted on filter heads beside the tank and one mesh type reusable strainer on the end of the return tube in the reservoir. Machine 7243001 has two return tubes and strainers. For service and replacement intervals see SERVICE AND LUBRICATION CHART in THIS SECTION.

There is a bypass valve built into each filter head preset at 1.7 bar (25 psi), which will open in the event the elements become restricted. Before this valve is activated, a 1.4 bar (20 psi) filter restriction switch, located on the return manifold will generate a critical message on the computer screen.



IMPORTANT!
Contaminated hydraulic fluid can lead to premature failure of hydraulic components and costly repairs. Filters must be replaced at the recommended time intervals, Refer to scheduled maintenance in this section.

HYDRAULIC FILTER SERVICING GUIDELINES

IMPORTANT!

NEVER PRE-FILL HYDRAULIC FILTERS

Tigercat generally does not recommend the pre-filling of spin-on filters due to the risk of damage to the hydraulic system caused by unfiltered oil. Unfiltered oil used to pre-fill filters enters directly into the hydraulic circuit. Contaminants in unfiltered oil can cause significant and costly damage to hydraulic valves, pumps and motors. The cleanliness of hydraulic oil cannot be guaranteed unless it is always pre-filtered before use.

Use of hydraulic oil filters other than the Tigercat brand is not recommended.

Changing the filters:

1. Park machine on level ground, install articulation lock bar, lower attachment to ground, stop engine, engage parking brake and block wheels.
2. Wipe clean the area around the filter and head.
3. Place rags below to catch the spillage of oil.
4. Wearing face protection (in case of an oil squirt), unscrew the old filter. Dispose of old filter and any oil properly.
5. Check the seating area for the gasket on the filter head and wipe it clean.
6. The new **Tigercat** filter is supplied with two gaskets enclosed, examine the filter head closely to determine which gasket should be used and follow the instructions to ensure proper installation.

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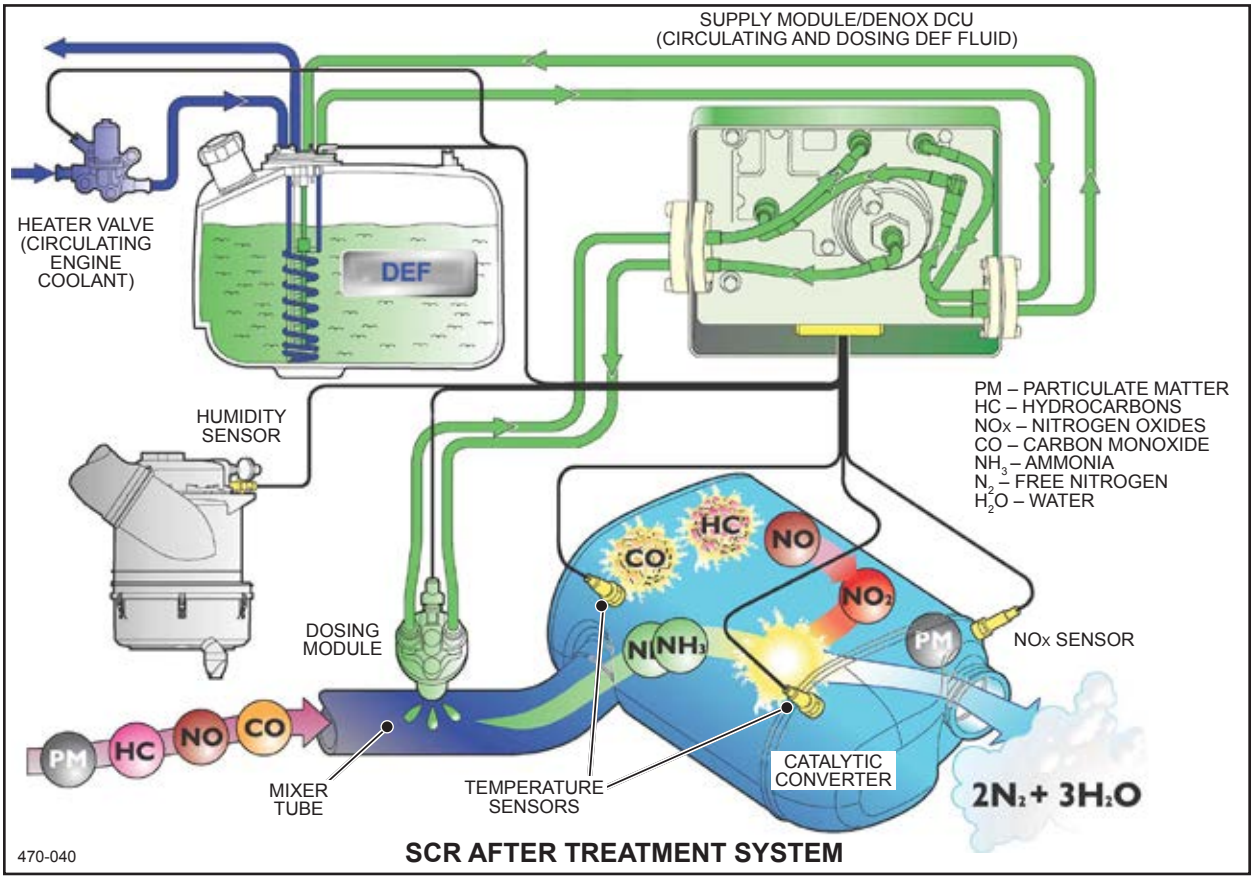


SCR AFTER TREATMENT SYSTEM

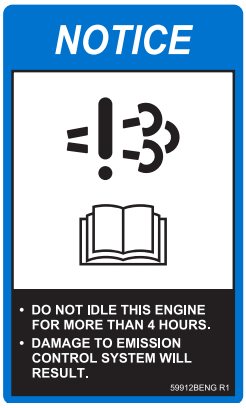
The SCR after treatment system is electronically managed by the DCU (Dosing Control Unit) incorporated in the supply module. The DCU calculates and adjusts the flow rate of the DEF solution into the system based on current engine speed, torque delivered, exhaust temperature, amount of nitrogen oxides present and humidity levels in intake air.

The supply module pump picks up the DEF solution from the tank and sends it under pressure to the dosing module (DEF injector) and mixer tube to be injected into the exhaust pipe upstream of the catalytic converter.

The first phase of the process takes place in the first part of the catalytic converter: high temperature exhaust gas evaporates the DEF solution instantly and, by hydrolysis, converts it into ammonia (NH_3) and carbon dioxide (CO_2).

Evaporation of the solution lowers exhaust gas temperature, bringing it closer to the optimum temperature required by the process.

The exhaust fumes and ammonia at the proper reaction temperature, are introduced into the catalytic converter, where the second phase of the process takes place: by reacting with the oxygen in the exhaust gases the ammonia is converted into free nitrogen (N_2) and water vapor (H_2O).



IMPORTANT!

Engine should not idle longer than 4 consecutive hours. Damage to the emission control system will result. When this machine idles for an extended period excess hydrocarbon buildup is created in the SCR after treatment system. Burn off of excess hydrocarbon at full load immediately after a long idle period will generate excess heat which will cause damage to emission control system components. It will take 45 minutes at 40% load (or an SCR exhaust outlet temperature of 320°C [608°F]) to burn off the hydrocarbon that accumulates during a 4 hour long idle.

START-UP PROCEDURE AFTER MAJOR MACHINE MAINTENANCE

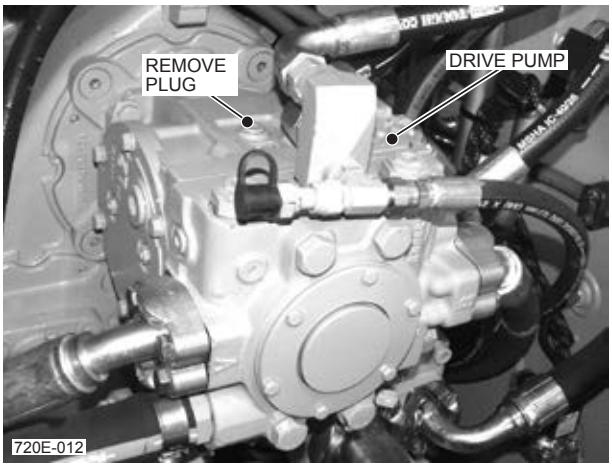
This procedure should be followed:

- **After major service or a rebuild.**
- **Whenever the machine has been drained of hydraulic oil.**
- **When any major component has been removed, repaired or replaced.**
- **If the engine fuel supply has been disconnected or drained, refer to priming fuel system procedure in the engine manufacturer's maintenance manual.**

PRE-STARTUP AND FILLING

1. Check oil levels in the engine, the pump drive gearbox and the transmission.
2. Check coolant level in the radiator.
3. Do a final inspection of all fittings and clamps to make sure they are tight and will not leak.
4. Install the articulation lock bar and engage parking brake.
5. **Do not start engine.** Purge air from hydraulic system as follows**:**

- Ensure all filters are in place.



- Remove the plug on the top case port of the drive pump. This port will assist in venting air as hydraulic oil is filling the system components. Reinstall the plug when hydraulic oil free of air begins to flow out the port.
- Fill the hydraulic tank if it has been drained.
- Fill all the pumps and motors with pre-filtered hydraulic oil through the highest case drain ports and close the ports.

NOTE: If the axles were drained of oil, refer to FILLING THE AXLES in this SECTION and in SECTION 8 of THE SERVICE MANUAL.

NOTE: Changing strainers, filters and replacing the hydraulic oil tends to aerate the oil. For maximum pump life, the machine should sit for 1 hour after servicing to allow entrained air to escape from the oil prior to applying working pressures to the pumps.

- Proceed to MACHINE START-UP procedure.