Tigercat®

T234 TRACK LOADER

OPERATOR'S MANUAL

SERIAL NUMBER 234T0301 TO 234T1000

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Safety Hazards - Viton Seals

O-rings and other seals manufactured of Viton material (fluorine rubber) produce a highly corrosive acid (Hydrofluoric) when subjected to temperatures above 600°F (315°C).

This contamination can have extreme consequences on human tissue since it is almost impossible to remove after contact.

The following procedures are recommended when inspecting equipment that has been subjected to high temperatures such as fire:

- Visually inspect any seals or gaskets which have suffered from heat; they will appear black and sticky.
- If these are found, **Do Not Touch!!!**
- Determine the material composition of any seals or gaskets, If fluoro-elastomer seals (Viton, fluorel, or tecmoflon) have been used, the affected area must be decontaminated before undertaking further work. Natural rubber and nitrile materials are not hazardous.
- Disposable heavy duty gloves (neoprene) must be worn and the affected area decontaminated by washing thoroughly with limewater (Calcium Hydroxide solution).
- Any cloths, residue and gloves must be safely discarded after use.

NOTE:
Burning discarded items is not recommended except in an approved incineration process where the dangerous products are treated by alkaline scrubbing.

Safety Hazards - Operating

Maintain a charged fire extinguisher on the vehicle at all times and KNOW HOW TO USE IT.

Do not carry passengers either in the cab or anywhere else on the machine. The vehicle is provided and approved with seating for the operator only.

Do not allow anyone to operate the machine who may not be physically fit or who may be under the influence of alcohol or drugs.

When moving the machine, watch that enough clearance is available on both sides and above the machine or any of its attachments. Extra clearance may be required particularly where the ground is uneven.

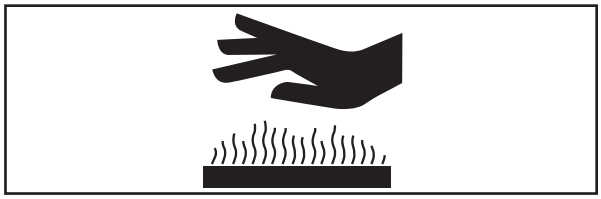
Approach with extreme caution any area where overhanging electrical power lines are present. Serious injury or death by electrocution can result if the machine or any of its attachments are not kept a safe distance from these lines.

Maintain a distance of 10 ft. (3m) between the machine or boom and any power line carrying up to 50,000 volts or less plus 1/2 inch (10mm) for each addition 1,000 volts above the 50,000 volt level.

If State/Provincial, local or job site regulations require even greater safety distances than stated above, adhere strictly to these regulations for your own protection.

If the machine must be transported, make sure that it is adequately secured to the transporting vehicle. Refer to vehicle moving instructions page in SECTION 2 of the OPERATOR'S MANUAL.

Stopping the engine immediately after it has been working under load can result in overheating and premature wear of the engine components. Reduce engine speed to LOW IDLE and let run for approximately 5 minutes to allow gradual dissipation of heat and also to reduce turbo speed. This will also prevent loss of coolant by after boil and possible hot spot damage to the engine.



Be aware when performing service and maintenance tasks that surfaces and grab handles in and around the engine and cooling system may become very hot when the engine has been running. Contact with hot surfaces may cause injury.

Comply with instructions in this manual and also your company's regulations for the operation of this machine.

Read, understand and follow all general safety precautions specified by attachment manufacturer.

⚠ WARNING

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

GREASE INJECTION INJURY WHEN USING PNEUMATIC GREASE GUNS

Pneumatic grease guns can deliver grease at pressures from 17 - 400 Bar (246 - 5801 psi). It takes less than 7 Bar (100 psi) to inject a substance through human skin.

ALWAYS ***get professional medical treatment immediately*** after any type of injection injury.

Provide the physician with information on the type of grease, the pressure setting of the gun, and similar details.

The amount of fluid injected, type of fluid (or material), pressure at which it was injected, and the elapsed time between injection and surgery all influence the chances of successful treatment for this type of serious injury.

Prior to using a high pressure pneumatic grease gun perform the following:

- All operators of high pressure pneumatic grease guns MUST be trained in the hazards of its operations and the treatment for such injuries.
- DO NOT OPERATE a high pressure pneumatic grease gun unless you have been trained in the proper operation and are aware of all safety precautions of such a tool.
- Wear protective clothing such as gloves, safety hat and safety glasses.
- Inspect all parts of the grease gun for wear and tear and replace all worn or damaged parts.
- Ensure that protective shrouds are installed on all grease gun nozzles as safety devices.
- Remove dirt and grease from grease fittings prior to greasing.
- Replace any defective grease fittings on equipment with new fittings immediately.
- When badly positioned fittings are identified, replace them with angled or swivel fittings for easier access.

EMERGENCY EXIT HAND TIGHTEN ONLY

The right hand sliding window in the cab can be used as an emergency exit. The screen on the outside of this window can be released by handles both on the inside and the outside of the cab. All handles should be **hand tight only** at all times. This will prevent entrapment during an emergency by providing an exit point through the sliding window if the cab door is blocked. Refer also to EMERGENCY CAB EXITS in THIS SECTION.

SLIPPERY SURFACE WHEN WET

This label is located on the access area of the upper platform it warns of a slippery surface when wet. Avoid mounting or dismounting the machine in areas with slippery surfaces. If this is not possible clean up or cover slippery surfaces with a non-slip material.

NO RIDERS

NO RIDERS INSIDE OR OUTSIDE OF THE MACHINE . Do not carry passengers either in the cab or anywhere else on the machine. The vehicle seating accommodation is for one operator only. Persons riding on the outside of the machine are subject to hazards such as falling off the machine, crush hazards, thrown object hazards and many other hazards **WHICH COULD RESULT IN DEATH OR SERIOUS INJURY**.

If any person attempts to climb onto the machine during operation, **STOP THE MACHINE IMMEDIATELY**. Do Not Operate the machine until other personnel are a safe distance away from the machine.

PICTOGRAM DESCRIPTIONS CONTINUED

 = Engine Oil Pressure

 = Engine Run

= Engine SPEED RPM

 = Engine Start

= Engine STOP

 = Engine WAIT TO START

 = Engine WARNING

 = Engine Menu Icon

 = Error Message Symbol

 = Flow Adjustment

 = Foot Pedal Control

 = Fuel Consumption Rate

= Fuel - Diesel

 = Fuel Heater

 = Fuel Level Low

 = Grapple CLOSE

 = Grapple OPEN

 = Grapple ROTATE CLOCKWISE

 = Grapple ROTATE COUNTERCLOCKWISE

 = Grapple Saw CUT

 = Hand tighten only

 = Heel Boom IN

 = Heel Boom OUT

 = Horn

 = Hours, Engine

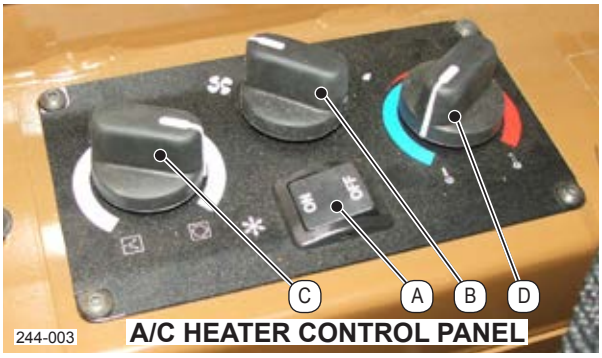
 = Hours, Machine

 = Hydraulic Oil

 = Hydraulic Oil GRADE

 = Hydraulic Oil Temperature

 = Hydraulic Oil Temperature High



A/C HEATER CONTROL PANEL

22. AIR CONDITIONER/HEATER

The controls on this panel are used to adjust the heating and air conditioning temperature for operator comfort in the operator's cab.

A. AIR CONDITIONER ON/OFF SWITCH

This is a push/on push/off power switch.

B. FAN SPEED - OFF/LOW/MED/HIGH

This is a rotary, four position switch for the fan speed.

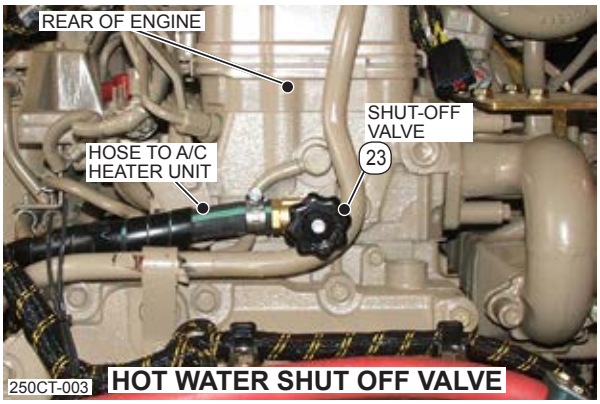
C. AIR SOURCE

This is a variable, rotary dial to select either, outside fresh air or to re-circulate inside air.

D. TEMPERATURE - VARIABLE

This is a variable, rotary dial to adjust the air temperature of the cab by controlling the flow of engine coolant through the heater core. Make sure this control is set to the MAX COLD position when using the air conditioning. See NOTE below.

NOTE: To maximize the efficiency of the air conditioning, the temperature control must be rotated to the MAX COLD position and the hot water shut off valve on the engine should be turned to the OFF position. Also refer to HOT WATER SHUT OFF VALVE, in THIS SECTION.



HOT WATER SHUT OFF VALVE

23. HOT WATER SHUT OFF VALVE (ENGINE)

To maximize the efficiency of the air conditioning, the HEAT control knob (D) on the A/C Heater control panel must be rotated to the "OFF" position. During times when cab heating is not required the HOT WATER SHUT OFF VALVE, on the heater hose from the engine, should also be closed to prevent hot water from seeping through the A/C unit, thereby reducing the effect of the cooling.

ENGINE MENU

From the main menu press the F1 button to select the engine display.

When selected the engine menu icon is on display and the engine functions will also be displayed. The engine functions on display are as follows:

- Charge Air Temperature - °C or °F
- Turbocharger Boost Pressure - (Bar or psi)
- Engine Load %
- Engine Speed rpm
- Engine Temperature - °C or °F
- Battery Voltage - Volts
- Engine Oil Pressure - (Bar or psi)
- Fuel Rate - L/h or gph (instantaneous)

Note: To set metric or imperial measure press F °C/°F to change mode.

ADJUSTMENT MENU

From the main menu press F2 button to select the ADJUSTMENT MENU.

The adjustment menu screen will be displayed. The adjustment menu icon is on display and all the adjustment selections will also be displayed. The adjustment selections are as follows:

- Anti Stall Mode - select F1
- Oil Grade Adjustments - select F2
- Slasher Saw Auto Retract Time, Delimber Status (present/not present) and Saw Flow Adjustments - select F3
- Control Adjustments - select F4

An information message appears on the display. The message requires confirmation before the limp mode will be activated. The message is:

Entering Limp Mode

Screen commands are now active! Extra care must be taken when manually activating controls. Pilot system is ACTIVE!

Press the F2 button to hide the message to proceed to the limp mode.

The limp mode menu appears on the display and the following functions can be operated:

Hoist Boom Up/Down - select and hold F1 button then press arrow up to extend the cylinder (raise the boom) or arrow down to retract the cylinder (lower the boom).

Stick Boom In/Out - select and hold F2 button then press arrow up to extend the clinder (boom Out) or arrow down to retract the cylinder (boom In).

Grapple Rotate - select and hold F3 button then press arrow up to rotate clockwise or arrow down to rotate counterclockwise.

Grapple Open/Close - select and hold F4 button then press arrow up to close the grapple or arrow down to open the grapple.

NOTE: Holding the arrow up or down will increase the function speed to a maximum of 50%. To stop the function, simply release the F1, F2, F3 or the F4 button and the speed will reset to 0%.

DISPLAY ADJUSTMENT

After selecting F1 the display adjustment screen opens and the following adjustments can be selected:

RETURN TO MAIN MENU - Select F1

BACKLIGHT ADJUSTMENT - Select F2

SCREEN SAVER - Select F3

BACKLIGHT ADJUSTMENT

After selecting F2 the backlight adjustment screen opens. Use the Arrow Up or Arrow Down buttons to adjust the display backlight. The range is 10 to 100. The default setting is 100.

When the desired setting is selected press the OK button. A good rule to follow is the lower the number the longer the life of the display unit.

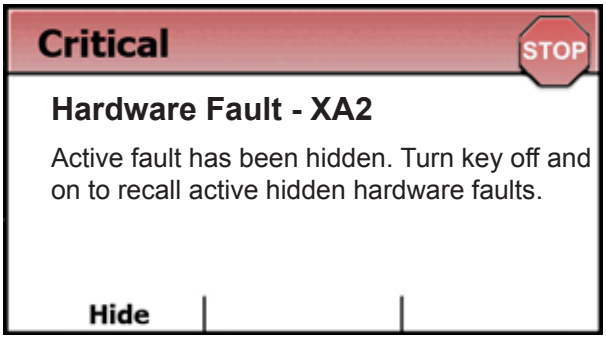
SCREEN SAVER ADJUSTMENT

Select F3 to open the screen saver adjustment screen. Use the Arrow Up and Arrow Down buttons to scroll through the choices. Three choices are available:

- SCREEN SAVER OFF
- DIMMED - Timeout 5 seconds
- BLACK - Timeout 5 seconds

After making a selection press the OK button to confirm selection and press the back button to return to the main menu screen.

HARDWARE FAULT - XA2

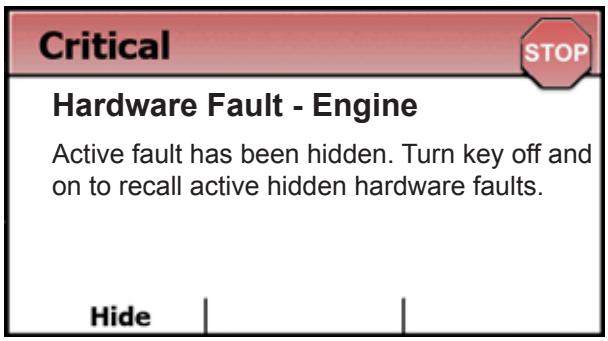


This warning will be displayed, alarm warning light will flash and alarm will sound when a critical active hardware fault related to the XA2 module has been hidden.

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

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

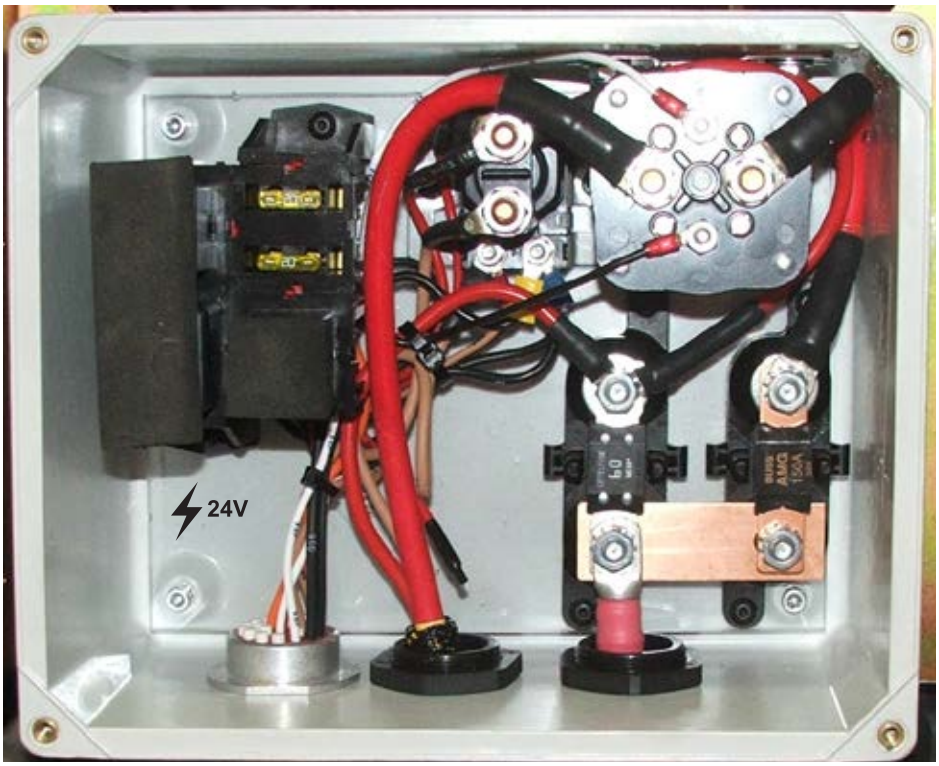
HARDWARE FAULT - ENGINE



This warning will be displayed, alarm warning 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.



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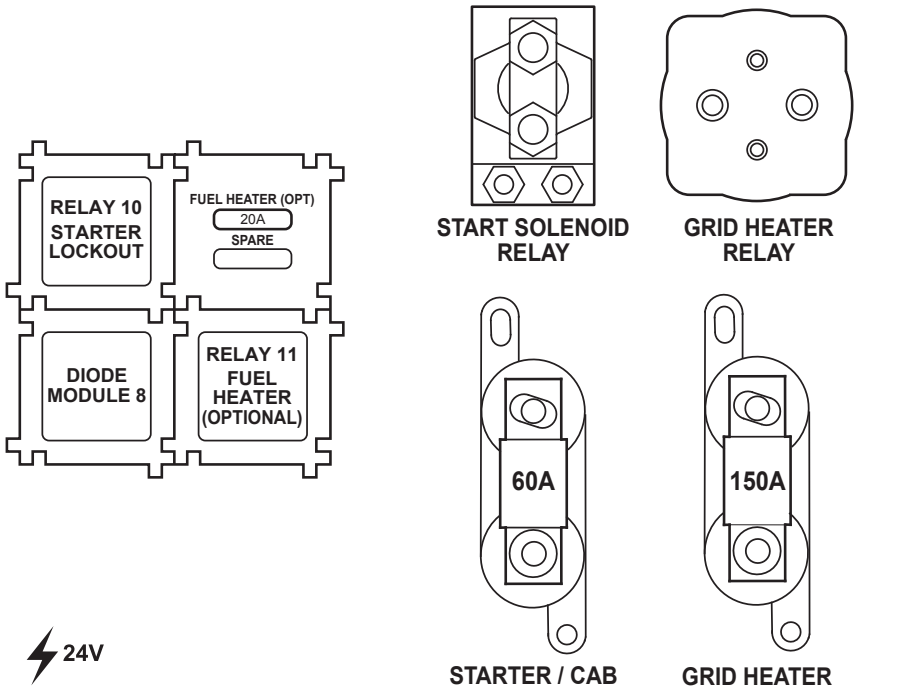
MAIN FUSE AND RELAY ELECTRICAL BOX



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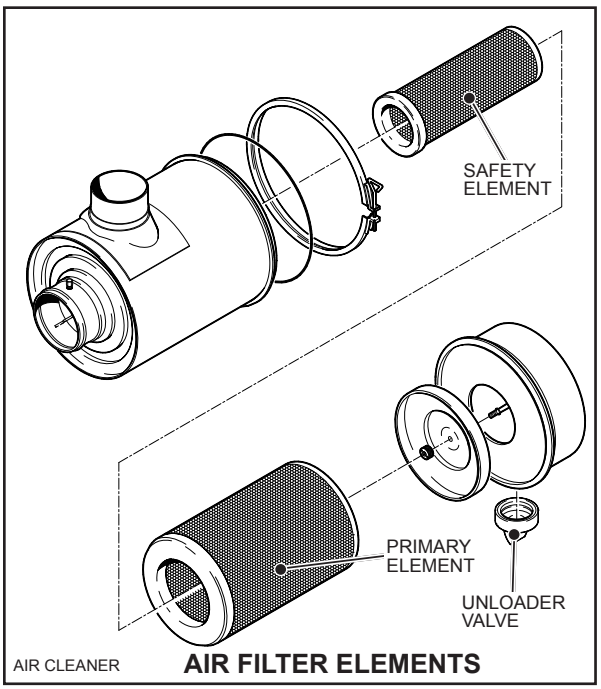
MAIN FUSE AND RELAY ELECTRICAL BOX LABEL

FUSES AND RELAYS - ELECTRICAL BOX

This Main Fuse and Relay electrical box is located in the engine compartment.

AIR CLEANER - Tier 3 Engine



AIR FILTER ELEMENTS

The air cleaner on this machine uses 2 filter elements, a primary element and a safety element.

To ensure maximum engine protection, it is important that the elements be serviced correctly and at proper servicing intervals.

FILTER RESTRICTION INDICATOR

FILTER RESTRICTION INDICATOR

A filter restriction indicator is located on a bracket beside the air cleaner. The indicator is connected to the outlet side of the air filter with a 1/4" diameter hose. Replace the primary air filter when the indicator shows RED. This indicator provides a continuous reading whether the engine is running or is shut down. After replacing the filter, reset the indicator by pressing the reset button.

NOTE: Replace the safety element every third primary filter change.

AIR CLEANER

AIR CLEANER UNLOADER VALVE

This rubber valve on the tube of the air cleaner housing should be checked at the beginning of every shift. (8 hours) If this valve is missing, damaged or has become hard, it will cause the air cleaner to become ineffective. The unloader valve should be replaced every 1000 hours.

Remove the unloader valve from the tube of the air cleaner housing.

Check and clean the valve. A good valve should be soft and flexible. If it is plugged, then check the filter elements, they may need replacing. Re-attach the valve to the tube.

The valve should suck closed at about 1/3 of full throttle.

When operating in high dust conditions this valve should be checked and squeezed every 2 hours to release dust buildup.

Refer to SECTION 3 of THIS MANUAL for service intervals and additional AIR CLEANER MAINTENANCE instructions.

INTAKE TUBING AND JOINTS

Check all air intake system components, rubber elbows, connector hoses, tubes and clamps for damage, hardening, wear, cracks, leaks, loose clamps or loose hanger bracket hardware and repair or replace immediately.

Replace all air intake rubber components such as elbows and connectors every 2000 hours - High temperatures in this area can cause the rubber to harden.

CLEANING INSTRUCTIONS

The viewing surfaces of polycarbonate cab windows are specially treated with a hard coating to provide enhanced resistance to abrasion and ultra-violet (UV) radiation.

The following instructions are provided to prolong the life of this protective hard coating.

1. Rinse the window thoroughly with lukewarm water
2. Using a soft cloth, cellulose sponge or chamois, gently wash the window with a mild solution of soap or detergent in lukewarm water. Do not scrub or use brushes or squeegees.

   Brand name soaps and detergents recommended for cleaning polycarbonate are:
   - Fantastik
   - Formula 409
   - Hexcel F.O. 554
   - Joy
   - Lysol
   - Mr. Clean
   - Neleco-Placer
   - Pine-Sol
   - Top Job
3. Rinse the window thoroughly with lukewarm water.
4. Dry the window with a moist soft cloth, cellulose sponge or chamois to prevent water spotting.
5. To remove grease or oil, first rub lightly with a good grade of VM&P Naphtha or isopropyl alcohol followed by the same rinse, wash, rinse and dry procedure described in steps 1 to 4.

   Refer also to RESISTANCE TO CHEMICALS for a list of chemicals which should not be permitted to come into contact with polycarbonate windows.

CAUTIONS

- DO NOT use abusive cleaning procedures either by hand or pressure washing on polycarbonate windows.
- DO NOT use brushes, razor blades, scrapers, squeegees or other sharp tools on polycarbonate windows.
- DO NOT clean polycarbonate windows when the daytime temperature is high or in direct sunlight.
- DO NOT use abrasive or highly alkaline cleaners on polycarbonate windows.
- DO NOT use glass cleaners in either aerosol or non-aerosol containers to clean polycarbonate windows.
- Failure to follow these cleaning instructions will shorten the service life of polycarbonate and may cause visual hazing, loss of light transmission and delamination of the polycarbonate hard surface coating.

CONCEALING HAIRLINE SCRATCHES

The appearance of scratches and minor abrasions on the surfaces of polycarbonate windows can be minimized by using a mild automotive polish such as:

- Johnson’s Paste Wax
- Novus Plastic Polish #1 and #2
- Mirror Glaze Plastic Polish

Be certain to clean the polycarbonate window as outlined prior to application of an automotive polish. Refer to CLEANING INSTRUCTIONS.

SCHEDULED MAINTENANCE

EVERY 500 HOURS:~

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

And in addition replace:~

- Replace engine fuel filter
- Replace fuel/water separator filter
- Hydraulic oil return filters †
- Hydraulic oil pilot pressure filter †
- Oil in swing gearbox

  Fill reservoir to halfway mark

Lubricate:~

- Door and cover hinges
  8 fittings - 1 shot

Check:~

- Torque on swing bearing and swing gearbox retaining bolts
- Torque on track drive gearboxes and motor mounting bolts
- Track rollers and idlers for oil leakage. These components are filled with oil and considered maintenance free. If oil leakage is detected repair of component(s) will be necessary.
- Refer to diesel engine service manual and attachment manual for additional required maintenance at this scheduled time period.

EVERY 1000 HOURS:~

- **Perform 8 hour maintenance**
- **Perform 125 hour maintenance**
- **Perform 250 hour maintenance**
- **Perform 500 hour maintenance**
- Replace air cleaner unloader valve.

And in addition:~

- Check fuel in tank strainer
- Drain and refill track drive gearboxes.
  Fill track drive gearbox with both level plugs in line with the horizontal plane and above center.
- Refer to diesel engine service manual and attachment manual for additional required maintenance at this scheduled time period.

EVERY 2000 HOURS:~

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

And in addition:~

- Drain and refill hydraulic oil tank with recommended hydraulic oil. See APPROVED HYDRAULIC OILS
- Replace all air intake rubber components such as elbows and connectors - High temperatures in this area can cause the rubber to harden. See AIR INTAKE MAINTENANCE in THIS SECTION.
- Refer to diesel engine service manual and attachment manual for additional required maintenance at this scheduled time period.

EVERY 5000 HOURS:~

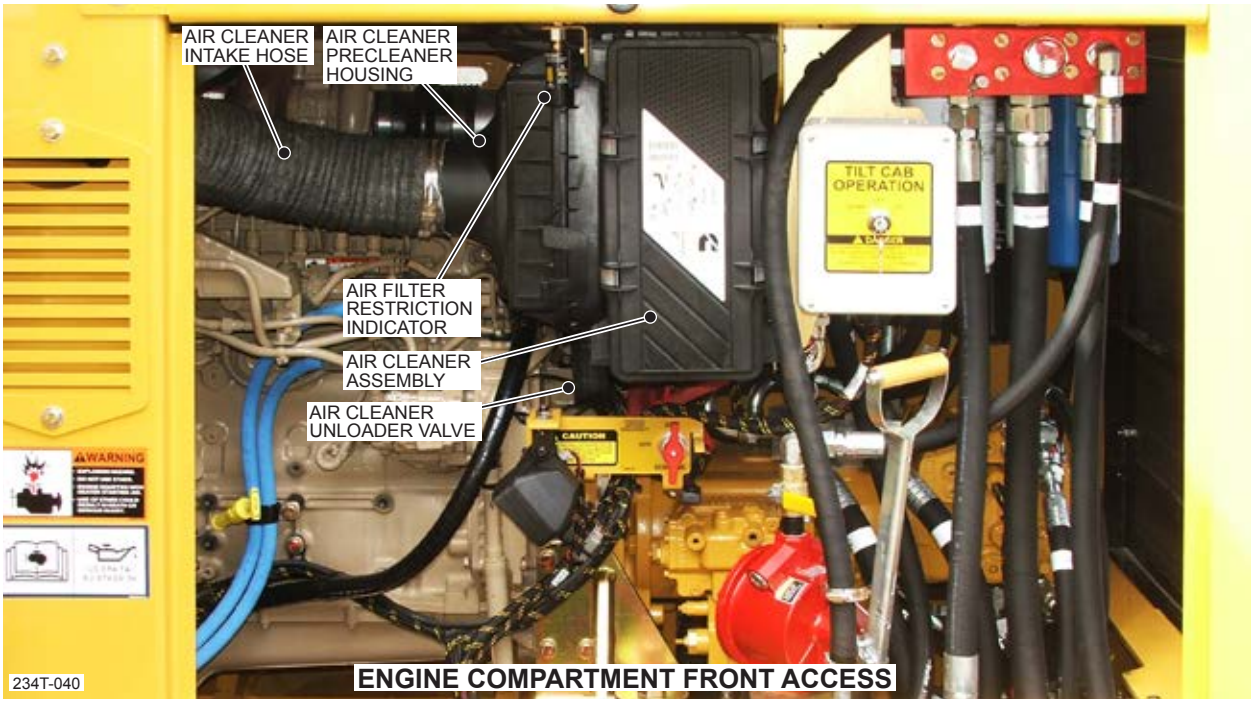
- **Perform 8 hour maintenance**
- **Perform 125 hour maintenance**
- **Perform 250 hour maintenance**
- **Perform 500 hour maintenance**
- **Perform 1000 hour maintenance**
- **Perform 2000 hour maintenance**

And in addition:~

- **Refer to diesel engine service manual and attachment manual for additional required maintenance at this scheduled time period.**

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

AIR CLEANER MAINTENANCE - Tier 4 Engine



ENGINE COMPARTMENT FRONT ACCESS

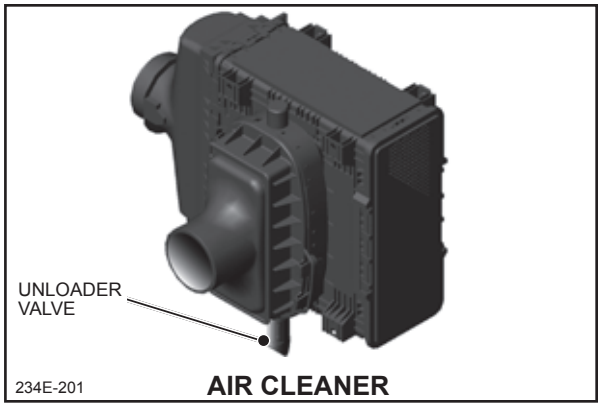
The air cleaner on this machine uses 2 filter elements, a primary element and a safety element.

To ensure maximum engine protection, it is important that the elements be serviced correctly and at proper servicing intervals.

AIR FILTER RESTRICTION INDICATOR

A filter restriction indicator is located in the engine enclosure beside the air cleaner. The indicator is remote mounted and is connected to the outlet side of the air filter with a 1/4" diameter hose. ***Replace the primary air filter when the restriction indicator shows RED***. This indicator provides a continuous reading whether the engine is running or is shut down. After replacing the filter, reset the indicator by pressing the reset button.

NOTE: ***Replace the safety element every third primary filter change***.



AIR CLEANER

AIR CLEANER UNLOADER VALVE

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Remove the unloader valve from the tube of the air cleaner housing.

Check and clean the valve. A good valve should be soft and flexible. If it is plugged, then check the filter elements, they may need replacing. Re-attach the valve to the tube.

The valve should suck closed at about 1/3 of full throttle.

When operating in high dust conditions this valve should be checked and squeezed every 2 hours to release dust buildup.