Tigercat®

S855C/LS855C SHOVEL LOGGER

OPERATOR'S MANUAL

SERIAL NUMBER 85551001 TO 85552000
SERIAL NUMBER 85501001 TO 85502000

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VIBRATION AND NOISE LEVEL INSIDE CAB

Noise Level Inside Cab dB(A) As per Tigercat test ETR00047				
	Microphone direction:			
	Forward	Rear	Left	Right
Driving max speed (High)	77	76	77	76
Driving max speed (Low)	73	72	72	73
Boom opertation	72	73	72	73

NOISELEVELS.PDF

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. This machine exceeds 70 dB(A) in the cab and exceeds 85 dB(A) when servicing machine engine.

Check with your local Safety Commission to determine if hearing protection is required at these levels.

Vibration Level - Whole-body As per Tigercat test ETR007 & ISO 2631-1 Weighted rms acceleration (m/s^2)				
	Seat		Seat-back	Feet
	Health	Comfort		
Driving max speed (High)				
x-axis (back-to-chest)	0.2370		0.5630	0.4020
y-axis (right-to-left)	0.2310		0.3200	0.4200
z-axis (buttocks-to-head)	0.4660		0.2110	0.6140
S	0.6571	0.5700	0.4850	0.2850
Driving max speed (Low)				
x-axis (back-to-chest)	0.1140		0.2150	0.1200
y-axis (right-to-left)	0.0764		0.0977	0.1440
z-axis (buttocks-to-head)	0.2170		0.0669	0.2230
S	0.2890	0.2568	0.1800	0.1000
Boom opertation				
x-axis (back-to-chest)	0.4510		0.6140	0.1830
y-axis (right-to-left)	0.3710		0.2470	0.3300
z-axis (buttocks-to-head)	0.4440		0.0838	0.3670
S	0.9304	0.7310	0.5070	0.1740

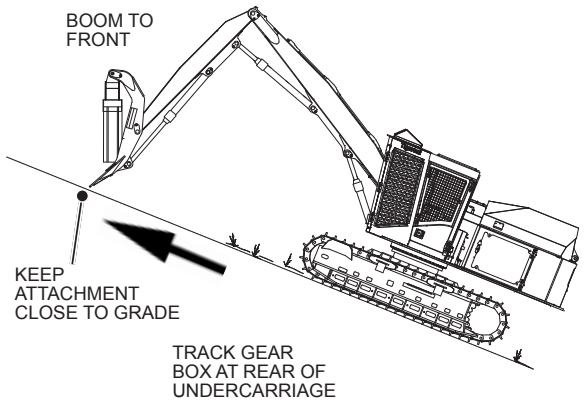
Vibration Level - Hand/Arm As per Tigercat test ETR007 Weighted rms acceleration (m/s^2)	
Driving max speed (High)	
S	1.770
Driving max speed (Low)	
S	1.170
Boom opertation	
S	0.770

**Note for hand/arm, all weighted RMS acceleration values are below 2.5 m/s^2 as per clause 3.6.3 Machinery Directive 98/37/EC Annex 1.*

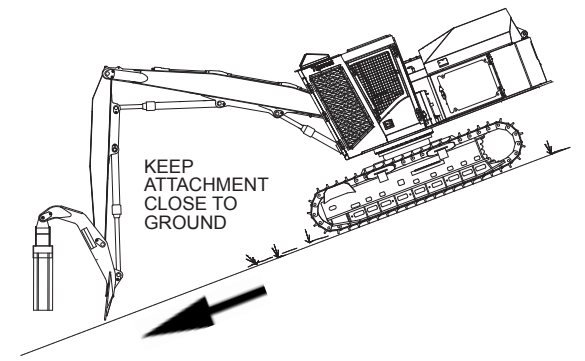
VIBRATION LEVELS.XLS

OPERATING SAFETY PRECAUTIONS continued

- **NEVER** travel across a STEEP slope or side hill.
- Always carry any load on the uphill side of the machine.
- Do not lift or move objects that exceed machine stability.
- Always be prepared to release the load in case it causes the machine to tip.
- Always position the cab so that you have a clear view in the direction of travel. Be aware of ground conditions and obstacles in the machine's path before moving the machine.
- When crossing obstacles (boulders, stumps, ditches etc.) the machine can shift rapidly, greatly affecting the stability of the machine. Move slowly over obstacles, and position the boom against the ground to reduce the risk of the machine shifting rapidly.
- Backing over obstacles unexpectedly while travelling down a slope poses a tipping risk. Know the path of the tracks whenever the machine is moved.
- When climbing a slope the boom should face uphill and the attachment should be kept close to the ground (FIG. 3). When descending a slope the boom should face down hill and the attachment should be kept close to the ground (FIG. 4). Be aware that the machine is in its least stable position on a slope with the boom to the rear. Be particularly aware of machine stability when changing directions on, or travelling back down a slope.
- As you gain experience, recognize that the maximum slope on which the machine can operate cannot be defined simply by an angle value. Variables in surface terrain, soil types, rocks, boulders, stumps, and fallen trees, changing weather conditions, and first and foremost the operator's experience and skill levels greatly affect the maximum slope limitations. Be aware that these factors can result in a shallow slope posing greater risk than a relatively steeper slope. **DO NOT attempt to work on slopes beyond your personal capability level**.



860CS-004 **FIG. 3 - CLIMBING SLOPE**



860CS-003 **FIG. 4 - DESCENDING SLOPE**

SERVICING SAFETY PRECAUTIONS continued

Work in a ventilated area. If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension to remove toxic exhaust fumes.

If you don't have an exhaust pipe extension, either work outside, or open the shop doors.

Dispose of fluids properly.

Do not pour fluids into the ground, stream, pond or lake.

Before draining any fluids, know the proper way to dispose of them.

When performing required hydraulic checks and blade speed adjustments. **Install the saw blade guard.** Refer to attachment manufacturer's instructions.

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

MACHINE MODELS EQUIPPED WITH A LEVELING SYSTEM

Always install support braces in the leveling mechanism while performing service and maintenance tasks. This area is a crush zone. Keep clear to avoid personal injury or death.

DRY CHEMICAL CLEANUP PROCEDURES

Both ABC dry chemical fire extinguishers and fire suppression systems discharge a chemical powder to extinguish the fire. The chemical makeup and the small particle size of the powder as well as the force of the discharge all contribute to the fire fighting capability. These same characteristics also permit the powder to penetrate into and fully cover all components in the vicinity of the discharge.

The following are recommendations for the cleanup and neutralizing of areas exposed to dry chemical powder.

Workers performing this work should wear protective clothing, safety goggles and a fine particle dust mask to minimize their personal exposure to the dry chemical powder.

Ensure that all electrical systems have been completely de-energized prior to any cleanup.

1. In areas of the machine that remained cool and dry during the fire, the dry chemical will stay in powder form.

   Be certain to clean these areas immediately to prevent any settled residual powder from coming into contact with moisture whether through direct contact or humidity in the air.

   Remove the powder residue by blowing off with air, sweeping, dusting or vacuuming using a HEPA filter capable of trapping the small dry chemical particles. Then wipe all surfaces with a damp cloth.

2. In areas exposed to moisture, the dry chemical powder will combine with water to form a paste that is mildly acidic.

   NOTE: that all surfaces covered by this dry chemical paste including electrical contacts are vulnerable to corrosive attack.

   To neutralize the acidic paste on large surfaces, spray or wash these areas with a mixture of three parts hot water to one part baking soda. Allow this mixture to stand for several minutes before rinsing with warm water. Wash the area with a mild soap and water solution. Rinse thoroughly with water. Blow-dry to remove all residual water.

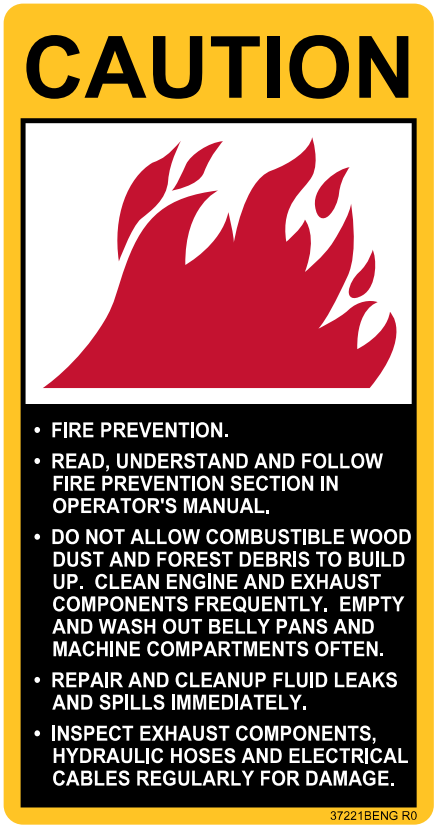
   Cleaning of electrical contacts should be done using an electrical contact cleaner that has no flash or fire point and is noncorrosive and non-conductive such as CRC Contact Cleaner 2000.

3. In areas exposed to heat during the fire, the dry chemical powder will melt forming a coating that cakes or crusts on all surfaces.

   To break down the caked dry chemical, spray or wash these areas with a 50/50 mixture of hot water and isopropyl alcohol. Allow this mixture to stand in place for several minutes.

   The caked dry chemical when exposed to moisture is also mildly acidic. Therefore when the break down procedure has been completed, follow this immediately with the neutralizing procedure as described in step 2

FIRE PREVENTION!



This label advises operators 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.

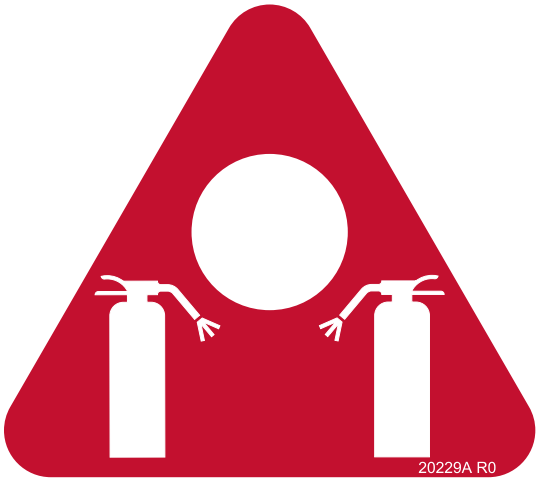
Maintain a CHARGED fire extinguisher on the machine at all times, know where it is and **KNOW HOW TO USE IT**!

CHECK DAILY

In addition to the previous label this label is a reminder to check the machine daily for the possibility of debris build-up, leaks, damaged wires and hoses and take the necessary action required to clean up any debris accumulation, repair any leaks, damaged wires or hoses.

The label also advises to check and ensure that all fire fighting devices are in good working order.

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 door, pump compartment door and L.H. service door.

= Critical Message


= Defrost, Front Window


= Disc Saw


= Engine Menu


= Engine Anti-stall


= Engine Anti-stall ON


= Engine Anti-stall OFF


= Engine Boost Pressure


= Engine Air Intake Pressure
(Engine Air Intake Filter Restricted)


= Engine Charge Air Temperature


= Engine Coolant Temperature


= Engine Diagnostics

= Engine - Percentage of Load

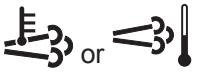

= Engine Oil Pressure

= Engine Speed - rpm


= Engine WAIT TO START


= Engine Emission Filter


= Engine Emission Inhibit Mode



= Engine Emission System Temperature

= ER Boom Function ON

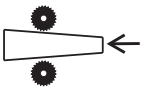
= ER Boom Function OFF

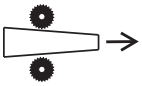
= Fan Auto Reversing/Cleaning


= Fan Full ON


= Fan Reverse/Clean


= Fan - Ventilation Blower


= Feed Rollers - Forward


= Feed Rollers - Reverse


= Fluid Level High


= Fluid Level Low


= Foot Pedal Control


= Fuel Consumption Rate

= Fuel - Diesel

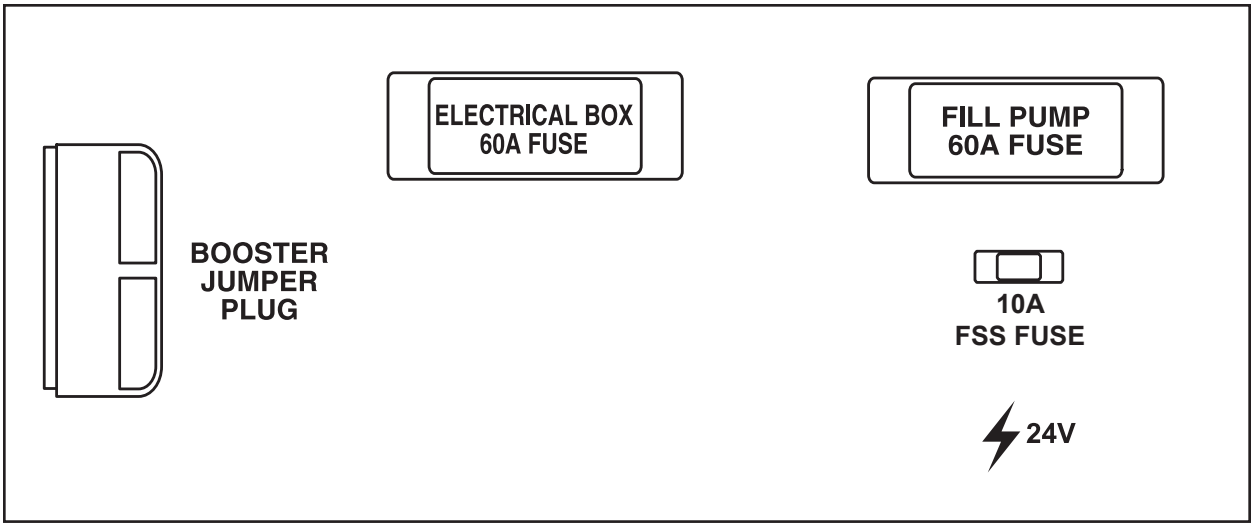

= Fuel Heater

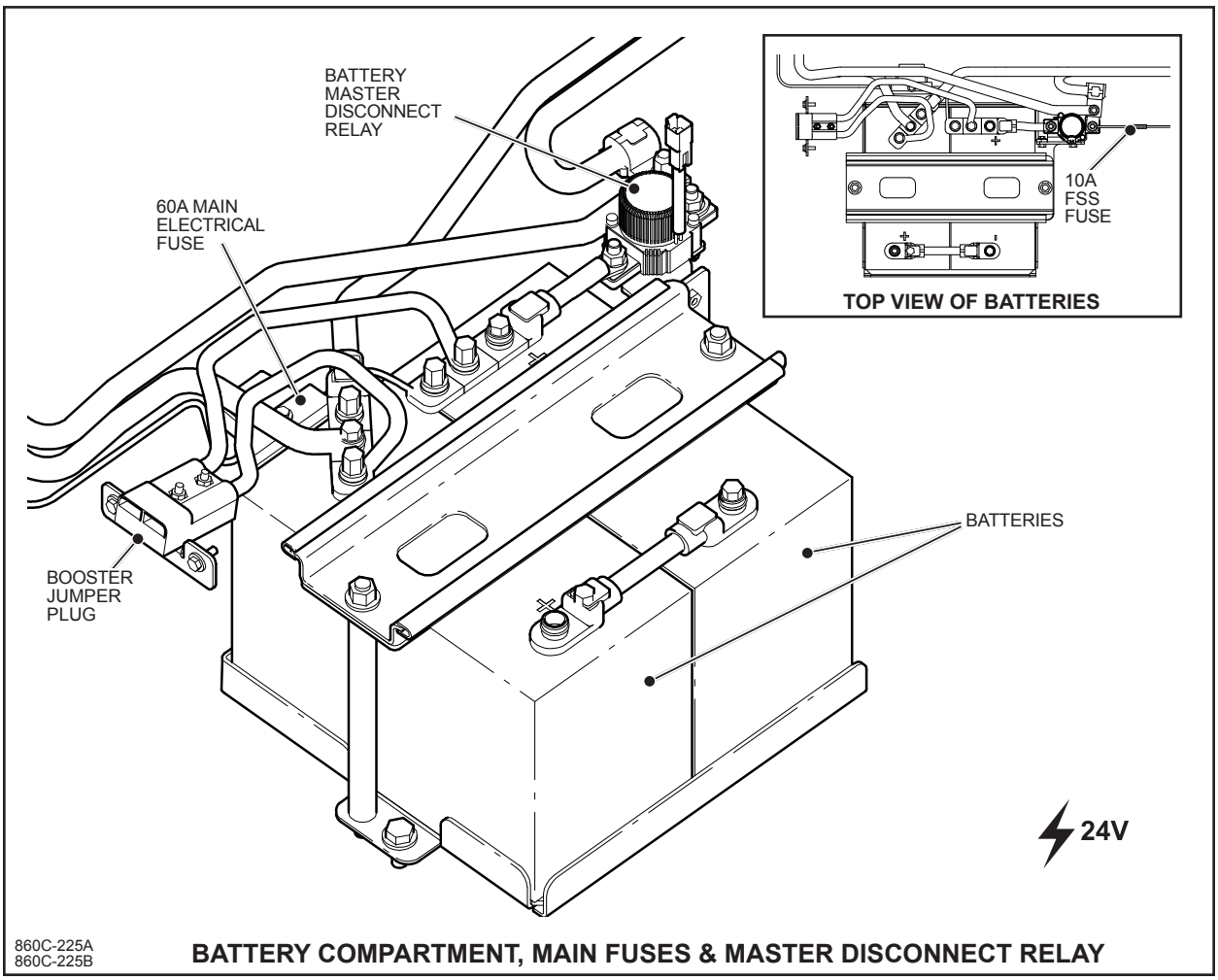
5. FUSES AND RELAYS, ENGINE COMPARTMENT

There are three areas where Fuse and Relay Electrical Components are mounted as follows:

IMPORTANT
24 VOLT ELECTRICAL SYSTEM

- **Main Electrical Fuse, Master Disconnect Relay and Amerex (FSS) 10A Fuse**, located in the engine compartment beside the battery box.





860C-225A
860C-225B

BATTERY COMPARTMENT, MAIN FUSES & MASTER DISCONNECT RELAY

10. TRACK, LOW/DRIVE - SWITCH WITH LIGHT

This is a two position switch  LOW and  DRIVE.

NOTE: See also TRAVEL SPEED CONTROL earlier in this section.

LOW: Placing the switch in the  LOW position will provide the slowest travel speed but with increased torque or driving force.

The  DRIVE position will provide a faster travel speed range but with a lower driving force.

It is recommended that *during all harvesting functions* and when *travelling on slopes* that the range switch be placed in the LOW position to maximize drive motor life. Low position is indicated by a light on the Track Low/drive switch.

DRIVE: When this switch is in the DRIVE position the travel speed (and torque) ranges of the drive system become infinitely variable and will automatically adjust to any point between the HIGH and LOW speed/torque set points, relative to the terrain or load conditions.

It should be noted that the available torque when travelling at maximum speed is only half of that in LOW.

The DRIVE position will provide a faster travel speed range but with a lower driving force. However, when the machine encounters tougher terrain conditions, e.g. stumps, soft ground or slopes etc., the drive system will automatically adjust* to a slower travel speed/ higher torque range.

*This amount of adjustment can be anywhere from a slight reduction in speed all the way down to LOW, this will be dependent on the terrain conditions encountered.

NOTE: The operator should be aware that this automatic speed/torque range adjustment will cause the machine to gradually slow down over a period of one to two seconds, due in part to the infinitely variable displacement drive motors used. When travelling on relatively flat terrain it is not necessary to place the range switch in the LOW position .

11. HORN, SAFETY ALERT - SWITCH

This is a two position “momentary” switch. Press and hold this switch to sound the safety alert horn.

Always use this horn prior to starting the engine and to alert other personnel in the area of your presence.

12. CIGARETTE LIGHTER (24V)

Cigar/Cigarette lighter (24V).

13. SAW - SWITCH

This is a two position switch labelled ON/OFF. On Shovel Logger Machines this saw switch supplies power to the attachment’s control systems. A lockout button is incorporated into the switch to prevent the switch from being turned ON accidentally. To turn the switch ON, push and hold the lockout button UP and place the switch in the ON position.

Place throttle in FULL position before turning attachment ON.

NOTE: If the engine has been turned off or the *pilot shut off system* tripped (Front Door opened) with the saw switch left in the ON position, the attachment will not start up when the engine is restarted or the front door closed. In this case press the PILOT RESET button and turn the saw switch OFF and then ON.

NOTE : On Harvester Machines and on Feller Buncher Machines equipped with the Shear Felling Head this saw switch supplies power to the attachment’s control systems.

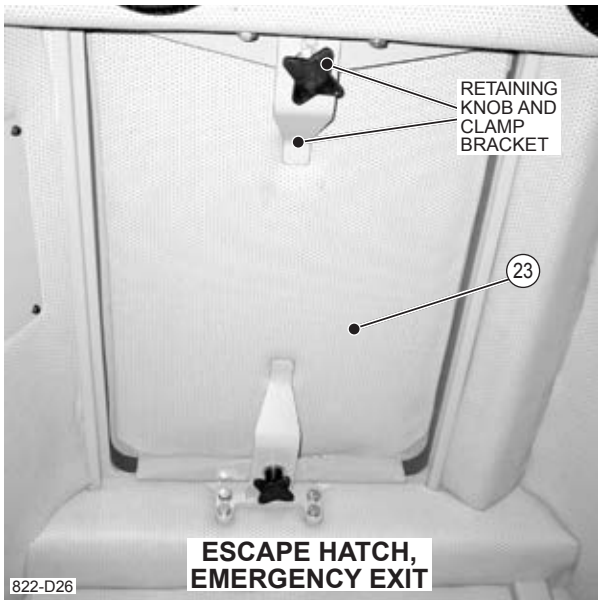
NOTE : The function of this switch may vary depending on the attachment model used and method of installation. Verify all functions before operating this machine.

21. AM/FM STEREO RADIO/CD

With dual front mounted speakers. Refer to stereo manufacturer's manual for operation and safety warnings.

22. SIDE DOOR EMERGENCY EXIT

This side door serves as one of two emergency exit routes from the cab. Shut off engine before using this exit. Opening the side door **WILL NOT DE-ACTIVATE** the pilot system, for this reason only use this door in an emergency. In the event that it cannot be used, use the emergency escape hatch in the roof of the cab.



23. ESCAPE HATCH, EMERGENCY EXIT

This is a third cab exit for use if the side exit and the front door exit become blocked. Shut off engine before using this exit. There are two retaining knobs on the inside to allow removal of the hatch. These knobs should only be HAND TIGHTENED to allow them to be unscrewed in case of an emergency.

It should be noted that the escape hatch on this machine can only be opened from inside the operator's cab.

For more information refer to ESCAPE HATCH AND SIDE DOOR EMERGENCY EXIT MAINTENANCE GUIDE in THIS SECTION.

⚠ WARNING

Heat from sun exposure can cause the exit seals to bond to the cab's painted surfaces. Careless use of glues or sealants to repair leaks also bond the exit panel.
Failure to follow these proper maintenance procedures can result in the exit being unusable in an emergency.

INFORMATION MODE SELECTION

Press the F3 button to access the INFORMATION MENU.

The information menu displays the following information:

- Event Counter
- Main Hydraulic Pump Load Sense Pressure (bar or psi)
- Engine Hours (h)
- Machine Hours (h)
- Hydraulic Oil Temperature (°C or °F)
- Hydraulic Oil Level %
- Total Fuel Used (L or US gal)
- Trip Fuel Functions (since last reset)
  - Trip Fuel Used (L or US gal)
  - Trip Time (h)
  - Trip Average Fuel Rate (L/h or US gph

Press the F1 button to toggle between metric or imperial units of measure.

Press the F2 button to reset trip fuel used, trip time and trip average fuel rate functions.

Press the back button to return to the Main Display.

INFORMATION FUNCTIONS

1. **Event Counter #**

   This display indicates a manual event count that is triggered every time the centre left thumb switch on the RH joystick is activated. The count can be reset by pressing the F3 (RESET#) button.

2. **Main Hydraulic Pump Load Sense Pressure (bar or psi)**

   This display indicates the main pump load sense pressure reading.

3. **Engine Hours (h)**

   This display indicates the total number of hours the engine has run.

4. **Machine Hours (h)**

   This display indicates the total number of hours the machine has run.

5. **Hydraulic Oil Temperature (°C or °F)**

   This display indicates the current hydraulic oil temperature registered in the main hydraulic tank.

   If the temperature rises above the recommended operating range for the type of hydraulic oil in use, alarm will sound, reduce load on engine and activate the cooling system CLEAN function using the cooling fan cooling fan switch. If the temperature does not drop quickly after the clean cycle, stop engine and check the following:

   - Plugged oil cooler
   - Malfunction in a hydraulic circuit
   - Malfunction of hydraulic fan drive system
   - Malfunction of engine Anti-Stall system
   - Low hydraulic oil level in reservoir
   - Correct Hydraulic Oil Grade Selection

   If hydraulic oil temperature rises above the recommended operating range Do not continue to operate the machine.

   NOTE : Hydraulic oil temperature can also be monitored using the hydraulic oil temperature gauge shown on the main display. In addition the color of the hydraulic oil temperature icon is an indicator of hydraulic oil temperature state (cool, normal, warm or overheat) for the type of hydraulic oil in use.

This is the Stop ramp setting. This is the amount of time it will take the current to drop from the Max to the Min setting when the valve is deactivated.

Increasing this setting will result in a less aggressive stop of the rotate function while decreasing the setting will result in a more aggressive stop. Use the up or down arrow buttons to adjust this setting and press OK.

The default setting is 250 mS.

ROTATE FUNCTION CW (SHOVEL LOGGER)

Push the F4 button to access the clockwise rotate adjust menu and press OK twice.

NOTE: When in the Min Adjust menu only the Min current will be applied to the clockwise rotate valve when the function is activated.

Activate and hold the clockwise rotate function on the joystick and at the same time using the up or down arrow buttons adjust the Min setting so the grapple just begins to rotate.

NOTE: An innacurate adjustment of the Min setting renders the start and stop ramps innacurate.

Once the setting has been adjusted press OK.

The default setting is 200 mA.

NOTE: When in the Max Adjust menu only the Max current will be applied to the tilt up valve when the function is activated.

Activate and hold the tilt up function on the joystick and at the same time using the up or down arrow buttons adjust the Max setting to the desired tilt speed. It may be necessary to switch between the tilt up and down on the joysticks to set this adjustment. Increasing this setting will increase the tilt speed while decreasing the setting will slow it down. Once the setting has been adjusted press OK.

The default setting is 500 mA.

Using the up or down arrow buttons adjust the tilt up start setting. Adjustment of this setting (along with the Min setting) will determine how the head will begin to tilt. Increasing this setting will result in a less aggressive start while decreasing the setting will result in a more aggressive start. Once the setting has been adjusted press OK.

The default setting is 250 mS.

Using the up or down arrow buttons adjust the tilt up stop setting. Adjustment of this setting (along with the Min setting) will determine how the head will stop when the tilt up function is deactivated. Increasing this setting will result in a less aggressive stop while decreasing the setting will result in a more aggressive stop. Once the setting has been adjusted press OK.

The default setting is 250 mA.

The Tilt Up adjustment is now complete.

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Press the F3 button to access the Plus + (cylinder extend) selection and press OK.

The Min Current default setting is 300 mA and this should be used.

Use the up or down arrow buttons to adjust the value if required. Once the setting has been adjusted press OK.

Activate and hold the Tilt Left function on the joystick and then using the up or down arrow buttons adjust the Max mA setting.

Increasing or decreasing this value will speed up or slow down the cylinder speed.

For the level cylinder function this value is typically about 600 mA, however it will vary slightly from machine to machine. This is due to slight differences in the coils ,spool cut on the valve, various attachment manufacturers and the largest factor in this case, operator preference.

Once the setting has been adjusted press OK.

Press the F4 button to access the Minus -(Retract) menu and then press OK twice.

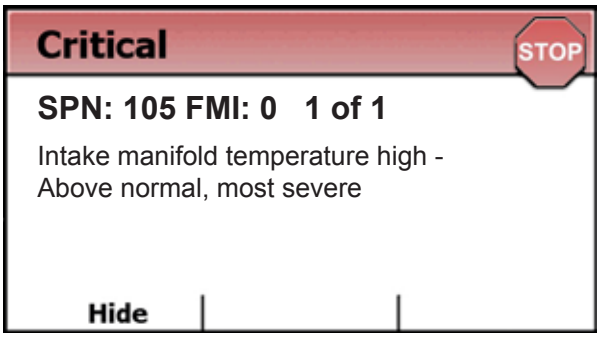
DATE ADJUSTMENT

Press F1 to select DATE. Use the up arrow or down arrow buttons to scroll through the YEAR list to select the year. Press OK to set the year selected.

When the year has been confirmed the display will highlight the MONTH. Use the up arrow or down arrow buttons to change the month. Press OK to set the month selected.

When the month has been set, the display will highlight the DAY. Use the up arrow or down arrow buttons to change the day. Press OK to set the day selected.

The display will return to the DATE TIME menu.



INTAKE MANIFOLD TEMPERATURE HIGH

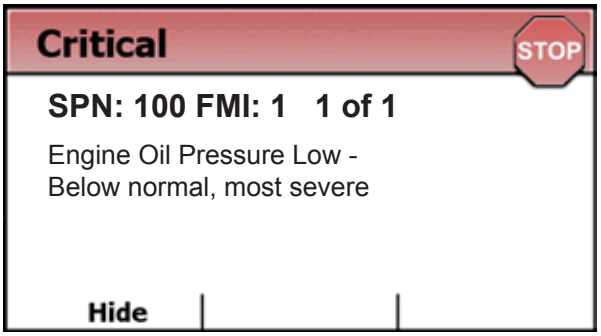
This message will be displayed, alarm light will flash and alarm will sound when engine charge air cooler temperature exceeds recommended temperatures.

When this alarm is activated check for:

- Plugged air intake access panel screens
- Plugged charge air cooler.

Do not continue to operate machine.

Refer to CLEANING A/C CONDENSER, OIL COOLER, RADIATOR AND CHARGE AIR COOLER in SECTION 2 of the OPERATOR'S MANUAL.

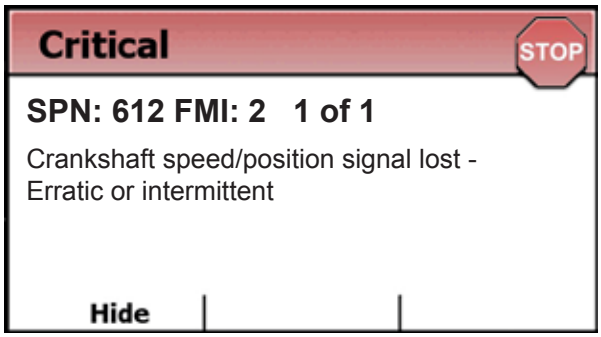


ENGINE OIL PRESSURE LOW

This message will be displayed, alarm light will flash and alarm will sound when engine oil pressure falls below 0.7 bar (10psi).

Stop the engine when this alarm is activated. Check engine oil levels.

Refer to STARTING ENGINE in SECTION 2 of the OPERATOR'S MANUAL for more information.



ENGINE FAULT CODE MESSAGES - CRITICAL

Critical engine fault message(s) will be displayed, alarm light will flash and alarm will sound when a critical engine fault message is received from the engine electronic control module.

They provide the SPN code (suspect parameter number) and the FMI code (fault mode identifier) as well as a message describing the fault (when available).

Critical engine fault codes are higher priority messages than alert level engine fault code messages. Critical messages can be hidden but immediate action must be taken, stop machine operation and service engine immediately to resolve the cause of the fault.

An example of a critical engine fault message is shown above.

Note that some less common engine fault codes will appear without a message describing the fault. Make a note of the SPN and FMI codes and contact service for more information.

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

A list of **ALERT MESSAGES** is as follows:

Charge Filter Restricted (Swing)

Engine Air Intake Filter Restricted

Hydraulic Oil Level Low

RH Joystick Interlock

LH Joystick Interlock

Starter Disengaged

Hardware Fault - MD3

Hardware Fault - XS2

Hardware Fault - XA2

Hardware Failure - VIN

Hardware Failure - DIN

Hardware Failure -DOUT

Hardware Failure -COUT

Engine Voltage Low

Engine Voltage High

Engine Fault Code Messages - Alert

Some types of computer system generated alert messages are listed below:

Module High Temperature - Alert

Module High Supply Voltage - Alert

Module Low Supply Voltage - Alert

* Note that not all system generated alert messages are shown.

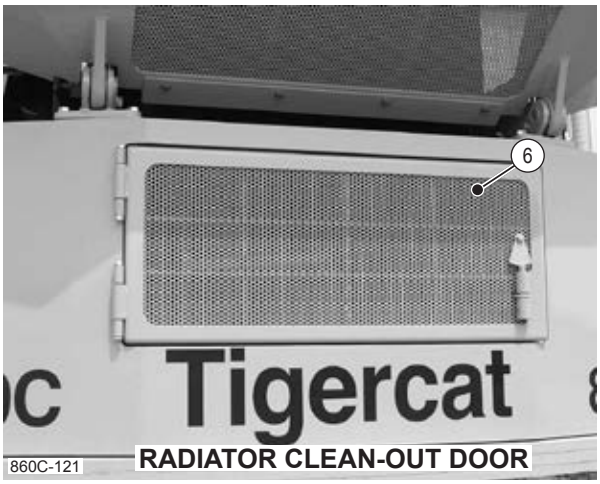
SERVICE ACCESS DOORS

Service access doors:

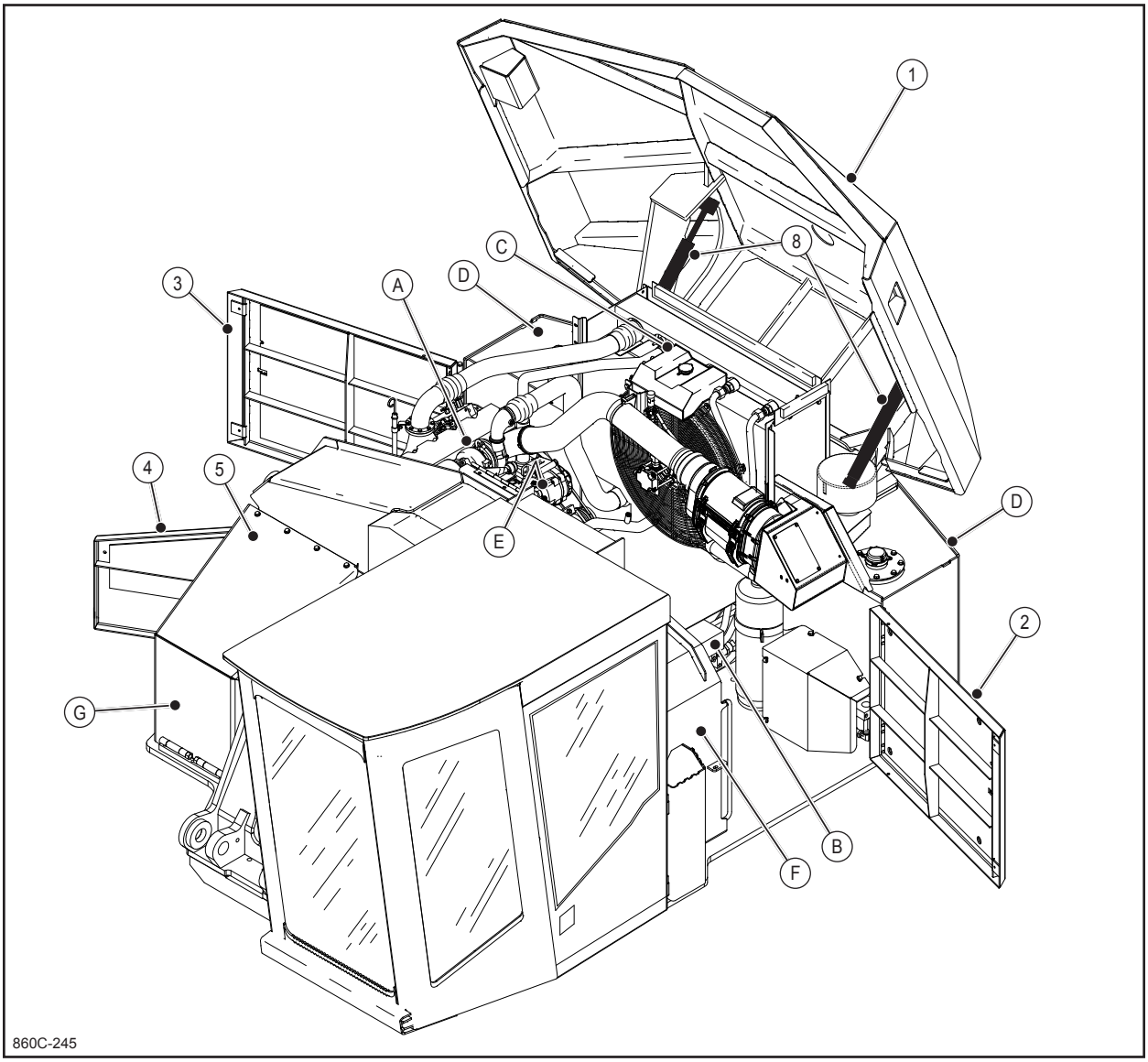
1. Main Service Compartment Roof
2. L.H. Access Door
3. R.H Access Door
4. Pump Compartment Access Door
5. Pump Compartment Cover
6. Radiator Clean-out Door
7. Main Service Compartment Door Switch
8. Main Service Compartment Door Cylinders

Provide access to the:

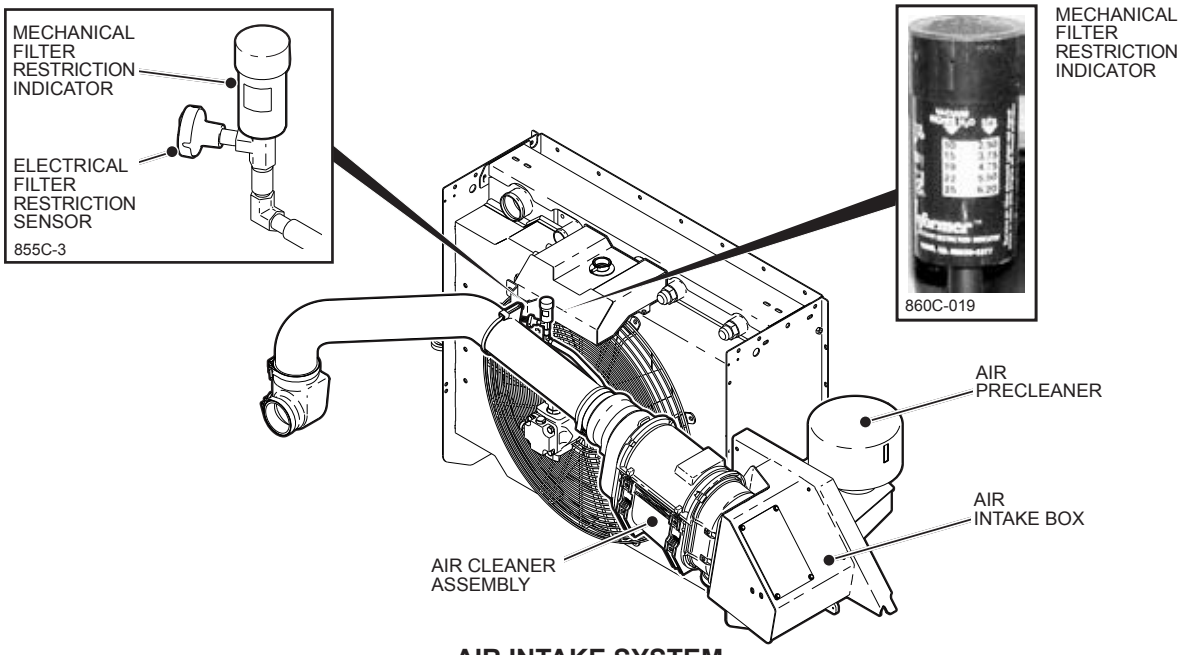
A. Engine Compartment
B. Battery Compartment
C. Radiator/Oil Cooler/Charge Air Cooler
D. Fuel Tank
E. Hydraulic Valves
F. Hydraulic Oil Tank
G. Hydraulic Pump Compartment



RADIATOR CLEAN-OUT DOOR



AIR INTAKE SYSTEM - 855*1001 TO 855*1025

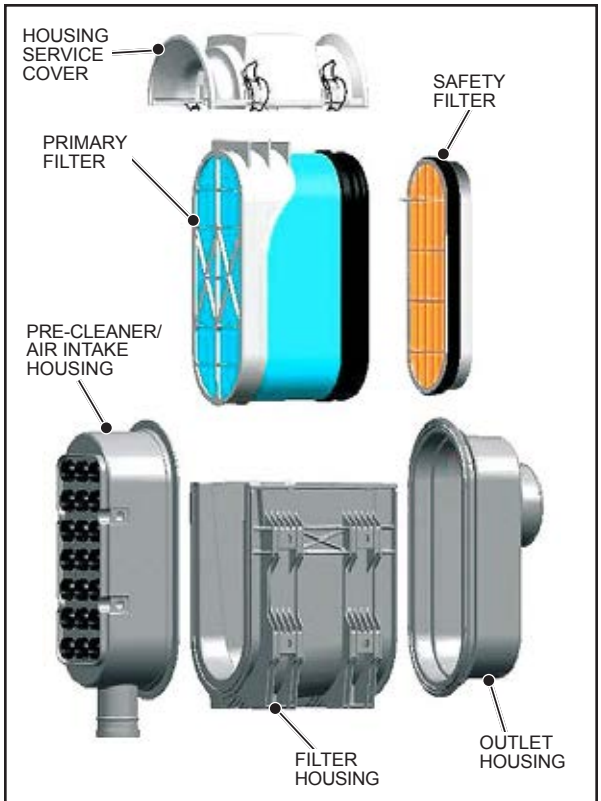


AIR INTAKE SYSTEM

AIR CLEANER

This style of air cleaner uses two filters, a primary filter and a safety filter. The air intake should be **checked daily** to make sure that foreign materials have not plugged the air intake area.

To ensure maximum engine protection, it is important that the filters be serviced correctly and at proper servicing intervals. Refer to ENGINE AIR CLEANER MAINTENANCE, in SECTION 3 of THIS MANUAL.



AIR CLEANER ASSEMBLY

STARTING ENGINE

1. Ensure that PRE-START CHECKS have been performed and that the area is clear of personnel prior to starting the engine. Refer to OPERATING MACHINE~PRE-START CHECKS in THIS SECTION.
2. Sound horn to warn personnel of machine start-up.
3. Turn ignition key switch to the RUN position. The WAIT TO START icon below will appear on the display during the “key ON” engine pre-heat time. Heating elements (grid heater elements) located in the engine air intake manifold are turned ON to heat the intake air when starting the engine. The engine **must not** be started until this icon turns OFF automatically.

4. Then turn *ignition key switch* to the START position to crank engine.
5. When the engine starts, release the ignition key switch to the ON position.

   NOTE: If the engine does not start after three attempts, check the fuel supply system.
6. Set throttle to LOW IDLE speed and wait **three to five minutes** before operating with a load.
7. Increase engine speed (rpm) slowly to provide adequate lubrication to the bearings and allow oil pressure to stabilize.

   If engine stalls while operating the machine, turn the ignition key switch to the OFF position and REPEAT STEPS (1) to (5).

IMPORTANT!
Allow a cold engine to warm up at LOW IDLE for at least five minutes before applying any load. Check all measured values on the MD3 display terminal often during the warm-up period. See also, COLD IDLE ENGINE SPEED setting in THIS SECTION.

⚠ CAUTION

Do not attempt to start engine by shorting across starter terminals as personal injury could occur. Start engine only from operator’s seat.

⚠ WARNING

DO NOT USE ETHER! Engine is equipped with an ELECTRICAL starting aid. Use of ether may cause an explosion and severe injury.

VEHICLE MOVING INSTRUCTIONS

FOR 800 SERIES TRACKED MACHINES

IMPORTANT:

READ AND UNDERSTAND THESE SAFETY INSTRUCTIONS BEFORE OFF LOADING THIS MACHINE. SEE OPERATOR'S MANUAL IN PLASTIC CASE BEHIND SEAT IN CAB FOR ADDITIONAL INFORMATION. THE NORMAL GROSS WEIGHT OF THIS MACHINE IS LOCATED ON THE SERIAL PLATE LOCATED ON THE REAR INSIDE WALL OF THE CAB. FOR FURTHER ASSISTANCE CALL TIGERCAT INDUSTRIES, CANADA AT (519) 753-2000

1. TURN **BATTERY DISCONNECT** SWITCH **ON** | .
2. ENSURE AREA IS CLEAR BEFORE MOVING MACHINE AND THAT ANY PERSONNEL IN THE AREA ARE AT A SAFE DISTANCE.
3. SIT IN OPERATOR'S SEAT AND CLOSE THE DOOR.
4. PLACE BOTH SEAT ARMRESTS IN DOWN, OPERATING POSITION.
5. ENSURE THAT **SWING BRAKE** SWITCH IS IN **ON** | POSITION.
6. ENSURE THAT **TRACK** SWITCH IS IN **LOW** POSITION.
7. ENSURE THAT **ANTI-STALL** SWITCH IS IN THE **OFF** ○ POSITION.
8. CHECK THAT OUTSIDE PERSONNEL HAVE NOT MOVED INTO A HAZARDOUS LOCATION NEAR THE MACHINE BEFORE STARTING ENGINE.
9. PRESS **HORN** SWITCH SEVERAL TIMES TO SOUND HORN TO ALERT PERSONNEL IN THE AREA OF YOUR INTENT TO START ENGINE.
10. **START ENGINE**: TURN KEY TO **RUN** POSITION. WAIT FOR **WAIT TO START** ON DISPLAY TO TURN OFF.
11. TURN KEY TO **START** POSITION TO CRANK ENGINE. AFTER ENGINE STARTS, RELEASE **KEY**.
12. INCREASE ENGINE SPEED TO 1500 RPM WITH **THROTTLE SWITCH** .
13. PRESS GREEN **PILOT ON** | SWITCH TO ACTIVATE THE CONTROLS. ***WARNING: ALL CONTROLS ARE NOW OPERATIONAL.*** PRESSING THE RED **PILOT OFF** ○ SWITCH WILL STOP MACHINE CONTROL.
14. ***ENSURE AREA IS CLEAR BEFORE MOVING MACHINE AND THAT ANY PERSONNEL IN THE AREA ARE AT A SAFE DISTANCE.***

WARNING!

- THIS MACHINE HAS POOR TRACTION ON HARD SURFACES AND MAY SLIDE.
- INCLINED SURFACES REDUCE MACHINE STABILITY.

15. IF MACHINE IS EQUIPPED WITH A BOOM, RAISE BOOM BY PULLING BACK ON THE RIGHT HAND JOYSTICK.
16. MOVE MACHINE BY DEPRESSING BOTH RIGHT AND LEFT FOOT PEDALS FORWARD (TOE) FOR **FORWARD** MOVEMENT AND BACKWARDS (HEEL) FOR **REVERSE.** TRACK DRIVE SPROCKETS ARE AT REAR OF MACHINE.
17. STEER MACHINE BY SLOWLY OPERATING EACH FOOT PEDAL INDIVIDUALLY.
18. LOWER BOOM FULLY BY PUSHING FORWARD ON THE RIGHT HAND JOYSTICK.
19. PRESS RED **PILOT OFF** ○ SWITCH TO DISENGAGE PILOT SYSTEM, HAND AND FOOT CONTROLS.
20. LOWER ENGINE SPEED TO IDLE AND SHUT OFF ENGINE.
21. TURN **BATTERY DISCONNECT** SWITCH **OFF** ○ .

SCHEDULED MAINTENANCE

FREQUENTLY:

- **Check engine cooling** air intake screens for possible restriction
  In broad leaf applications it may be necessary to reverse the cooling fan as frequently as every **10 mins**.
- **Check for debris,** snow and ice buildup on emergency exits and remove accumulation immediately.
- **ER Boom system:**
  Periodically, the main boom must be lifted up as far as it will go and then lowered to operating height in an area free from overhead obstructions in order to circulate hydraulic oil from the cylinders back through the cooler and filters. This oil does not circulate through the cooler or filters during normal horizontal motion and the oil does not get completely changed during normal vertical motion, so it is important that this procedure be followed at least once every hour.

EVERY 8 HOURS:

- **Perform frequently maintenance**

And in addition:~

- Check engine coolant level.
- Check engine oil level.
- Drain water from fuel/water separator.
- Check air intake pre-cleaner operation.
- Check air cleaner unloader valve if equipped.
- Check air intake filter restriction indicator.
  Replace primary filter if indicator is in red zone.
  Replace secondary (safety) filter every third primary filter change to guarantee maximum performance and reliability.
- Check hydraulic oil level.
- Check swing drive gearbox upper gearing gear oil level.

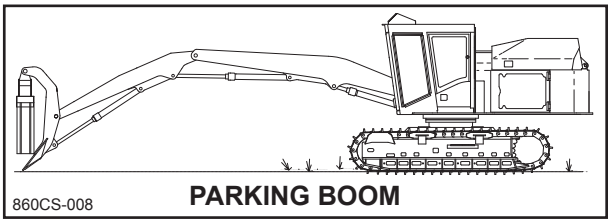
Lubricate:

- Swing pinion; 2-fittings - 10 shots each
- Cylinders, Leveling; 4-fittings total - purge (If equipped with leveler)
- Thrust bearing, Leveling; 2-fittings - purge (If equipped with leveler)
- ‡ Boom joints:
  Conventional Boom; 6-fittings - purge
  Conventional w/Tilt Link; 12-fittings - purge
  ER Boom System; 12-fittings - purge
- ‡ Cylinders; hoist, stick & heel;
  Conventional Boom; 8-fittings - purge
  ER Boom System; 10-fittings - purge

‡ **Lubricating cylinder pins and boom joints:-**

1. Ensure machine is on level ground.
2. Fully retract telescopic stick (if equipped).
3. Lay attachment on ground.
4. Force tip of stick boom onto support.
5. While in this position lubricate all cylinder retaining pins and boom joints.

   NOTE: This procedure will allow grease to flow to the normally "loaded side" of the pin/bearing surfaces.



860CS-008 **PARKING BOOM**

Clean:

- Oil cooler, engine radiator and enclosure screens.
- Remove potentially damaging limbs or sticks.

Check:

- All air intake system components (including charge air cooler) 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.
- Charge Air Cooler for damage, wear, cracks, or leaks and repair immediately.
- For leakage around hydraulic components and flexible hoses.
- For loose nuts, bolts and fittings.
- Condition and tension of belts.
- Visually check condition of tracks.
- Exhaust system for leaks.
- Conduct an overall visual inspection.
- Refer to diesel engine service manual and attachment manual for additional required maintenance at this scheduled time period.

APPROVED HYDRAULIC OILS

Use one of the following oils to fill or replenish the hydraulic system.

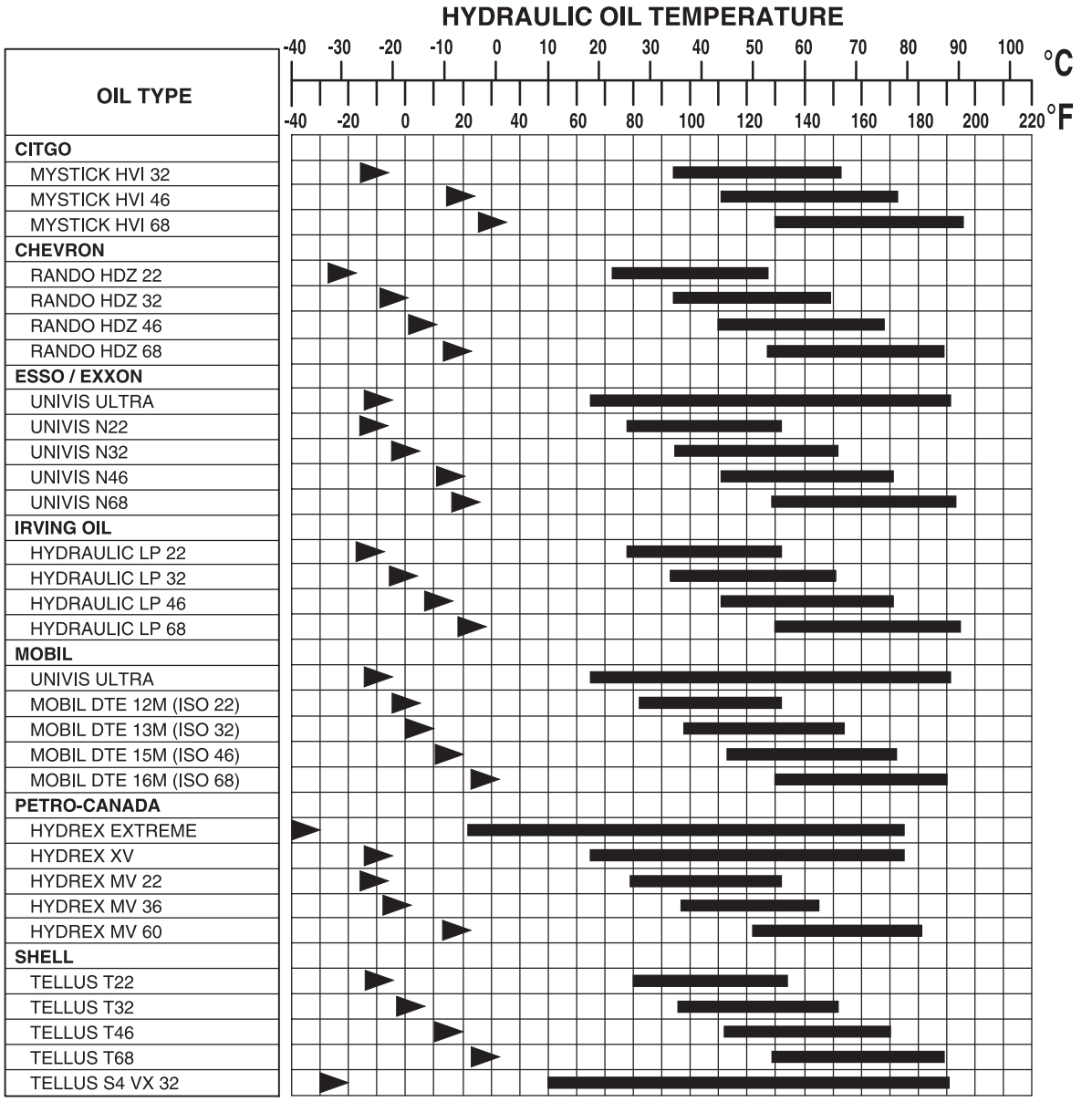
HYDRAULIC OIL OPERATING RANGE

(Not suitable for axle applications)

Tigercat

OPERATING TEMP. RANGE

LOWEST START-UP TEMP.



NOTICE OPERATING MACHINE OUTSIDE LIMITS SHOWN WILL RESULT IN FAILURE OF HYDRAULIC COMPONENTS.

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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.

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.

Use of hydraulic oil filters other than the Tigercat brand could lead to severe wear and rapid failure of hydraulic system components.

⚠ WARNING

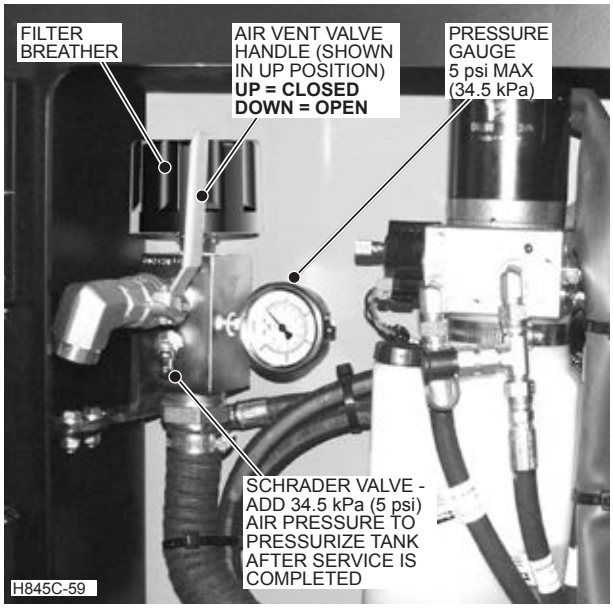
WARNING, HOT HYDRAULIC OIL AND HOT MACHINE SURFACES CAN CAUSE SERIOUS BURNS!

- Before servicing the machine, allow the 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).

HYDRAULIC TANK PRESSURIZATION INSTRUCTIONS.

IMPORTANT! PRESSURIZED HYDRAULIC TANK. 34.5 kPa (5 psi) MAXIMUM.
Before servicing hydraulic system, release air pressure from tank using air vent valve.

To release pressure from the hydraulic tank:



Wearing eye protection, release air from the hydraulic tank by opening the AIR VENT VALVE. Pull valve handle down 90° to open. Push valve handle up to close.

Note: Expelled air from vent valve will blow accumulated loose debris in the enclosure.

Releasing hydraulic tank pressure in the event of a hose breakage may reduce oil loss.

IMPORTANT! AIR VENT VALVE MUST BE OPENED BEFORE CHANGING HYDRAULIC FILTERS AND STRAINERS OR PERFORMING ANY OTHER SERVICE ON HYDRAULIC CIRCUITS. DO NOT OPERATE MACHINE WITH THE AIR VENT VALVE IN THE OPEN POSITION.

During a filter change or return hose replacement, air is able to enter the return hydraulic circuit. It is important to bleed as much of this air as possible out prior to restarting the machine. See **HYDRAULIC OIL RETURN FILTERS *"filter change procedure"*** for instructions on bleeding air from return circuit. AIR BUBBLES IN THE HYDRAULIC SYSTEM WILL DAMAGE THE PUMPS.

After service is completed, close air vent valve and add air pressure from a clean air source to the hydraulic tank via the schrader valve. **Do not exceed 34.5 kPa (5 psi)**.

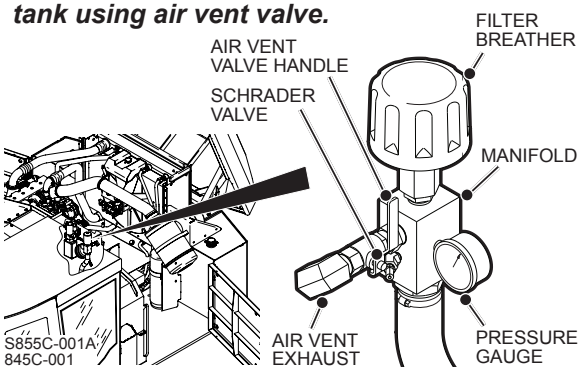
CASE DRAIN STRAINERS

IMPORTANT

PRESSURIZED HYDRAULIC TANK.

34.5 kPa (5 psi) MAXIMUM.

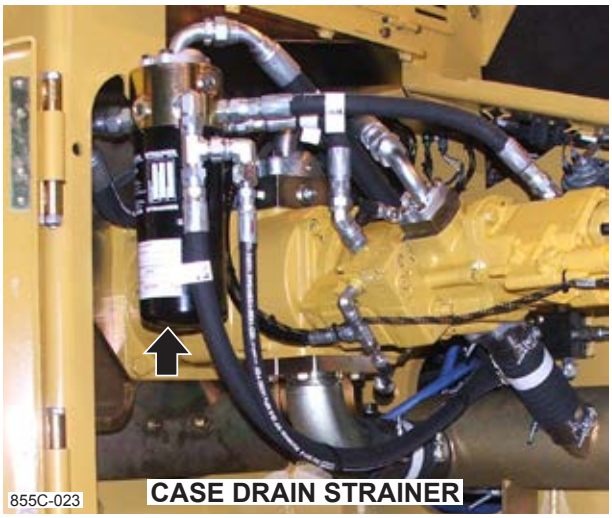
Before servicing hydraulic system, wearing eye protection, release air pressure from tank using air vent valve.



After service is completed, close air vent valve and add air pressure from a clean air source to the hydraulic tank via the schrader valve. **Do not exceed 34.5 kPa (5 psi)**.

Two case drain strainer elements are located on the machine.

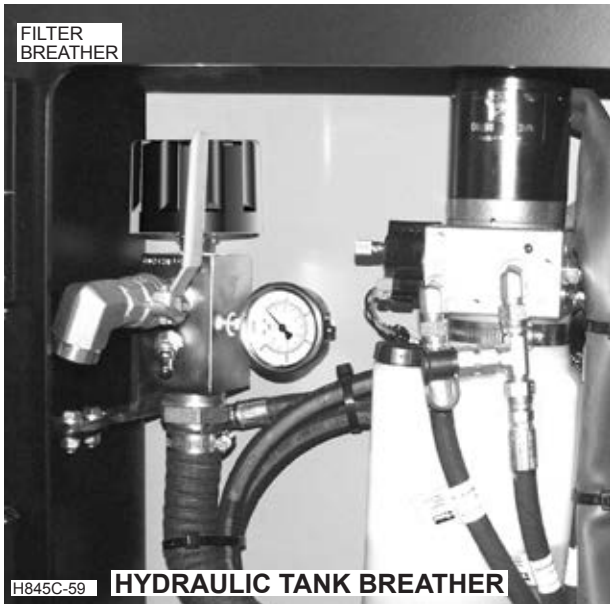
IMPORTANT!
Only in the event of a catostrophic failure of the pump or motor should these elements be serviced. Always use the correct replacement element.



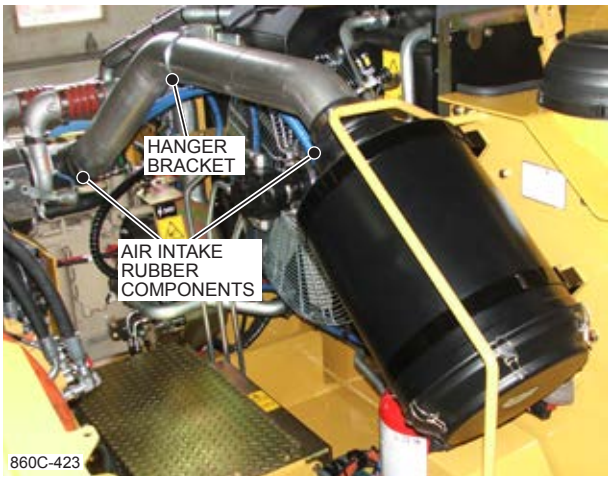
One strainer is located in the pump compartment and services most pump case drains.

The other strainer is located under the main valve in the valve compartment. This element is dedicated to case returns from the attachment head.

HYDRAULIC TANK BREATHER



The hydraulic tank breather is located in the compartment at the rear of the operator cab. This breather should be replaced every 2000 hours.



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.

NOTE: High temperature silicone connectors do not need to be replaced unless damaged.

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