WOLFE

https://www.wolfeequipment.com/

Wolfe Wheel Trencher

Operator and Safety Manual

Table of Contents

1: To the Owner

The safety, operation, maintenance and service of this machine are covered in the Wolfe Plows Operator and Safety Manual, the Caterpillar Operations and Maintenance Manual, and the Track One Use and Maintenance Manual with Square Parts. These manuals contain important information about the safe operation, service, adjustment, and maintenance of your Wolfe Plow.

At Wolfe, we are continually making improvements to the machines we build. Because of these minor changes, some of the illustrations in this manual may vary slightly depending on how your Wolfe Plow has been built. Consult your dealer for any further information or assistance about your machine. If you are unsure about something, please ask before operating on your machine.

WARNING: DO NOT operate or permit anyone to operate or service this machine until every person involved has completely read and understood the safety, operation, and maintenance instructions in the Wolfe Plows Operator and Safety Manual, the Caterpillar Operations and Maintenance manual, and the Track One Use and Maintenance Manual with Square Parts. Make sure that all personnel have been properly trained and understand the characteristics and hazards of operating or servicing the machine. Only trained operators or service personnel who have demonstrated the ability to operate and service this machine correctly and safely, are allowed to use, service, or repair this piece of equipment.

These manuals are to be stored in the machine and kept in good condition. Consult your dealer if extra copies of this manual are required.

2: Machine Safety

Most accidents involving machine operations and maintenance can be avoided by following basic rules and precautions. Read and understand all safety messages in this manual and all safety decals on the machine before you operate or service the machine. Consult your dealer if you have any questions.

Read this manual completely and make sure you understand the characteristics and operation of this machine before operating it.

This safety manual is to be stored in the machine and kept in good condition. Consult your dealer if extra copies of this manual are required.

DANGER: This signal word indicates an important safety message. When you see this message, carefully read the following message and be alerted of hazardous situations that will result in death or serious injury if not heeded.

WARNING: This signal word indicates an important safety message. When you see this message, carefully read the following message and be alerted of hazardous situations that could result in death or serious injury if not heeded.

CAUTION: This signal word indicates an important safety message. When you see this message, carefully read the following message and be alerted of hazardous situations or unsafe practices that could result in minor to moderate injury if not heeded.

IMPORTANT: This signal word indicates an important message. When you see this message, carefully read the following message and be alerted of situations or bad practices that could result in machine damages.

NOTE: This signal word indicates an important message. When you see this message, carefully read and remember the following message to be alerted of proper processes or extra note-worthy information.

Pictures in this manual may show protective shields and guards opened or removed for illustration purposes. Make sure that all shields and guards are in place and in good working order prior to operating this machine.

The safety information in this manual does not replace any safety codes, insurance regulations, federal / provincial / state or local laws. Make sure your machine has the correct safety equipment according to these rules, laws or regulations.

3: Utility Safety

Safety precautions must be followed when working near buried utility lines.

When operating this machine it is likely that you will be working around utility lines which may include, but not limited to:

- Electrical lines
- Gas lines
- Water Lines
- Communication Lines - Telephone or cable Television

Before beginning any construction work it is your responsibility to be aware of and avoid all utility lines that are buried in the area you are working. Always have all local utility companies mark the locations of their lines.

In Canada and the USA, call one of the “One Call System” services. If you do not know the local number, call the nation number (USA and Canada only) 1 888 258 0808.

Check with local authorities for laws, regulations requiring you to locate and avoid existing utilities.

Know the utility colour code (USA and Canada)

- Electric - Red
- Gas, Oil, or Petroleum - Yellow
- Television - Orange
- Water - Blue
- Sewer - Green/Brown
- Proposed Excavation - White
- Surveying - Pink
- Reclaimed Water and Slurry - Purple

After locating the utility lines, carefully dig a hole by hand and/or with automatic vacuum equipment down to the utility line. Verify the location and depth of the line.

4: Operator Safety Precautions

Personnel Safety Precautions

- Be prepared for emergencies. Always have a first aid kit and a working fire extinguisher with you. Know how to use each.
- Avoid wearing or having loose fitting clothing, loose or uncovered long hair, jewelry, and loose personnel articles that can snag on controls or on other parts of the machine.
- Know and use the protective equipment that is to be worn when operating the machine. Hard hats, protective glasses, protective shoes, gloves, reflector type vests, respirators and ear protection are examples of protective equipment that may be required.
- Protective equipment may need to be periodically replaced or renewed. Be sure that your protective equipment is current and in good working order. See the safety equipment manufacturer's recommendations.
- Do not rush. Walk, don't run.
- Know and use hand signals required for certain jobs. Know who has the responsibility of signaling.

Sound Safety Information

Hearing protection may need to be worn when operating or working around the machine. Noise levels may vary around different areas of the machine depending on the location of the machine relative to other equipment, buildings, or obstacles. Sound level checks should be done and hearing protection should be worn around the machine in accordance with all local regulations.

WARNING: DO NOT operate this machine or perform maintenance work if you have not been appropriately trained and have not fully read and understood the instructions and warnings in this manual.

General Safety Precautions

- It is the responsibility of the operator to read and understand the Operator Manual and other information provided with this machine.
- It is the operator's responsibility to use the correct operating procedures when using this machine.
- The operator must always wear the seat belt when operating this machine. Inspect the seat belt daily for any defects and to ensure its integrity.
- Do not permit riders on the machine while operating.
- Make sure that all protective devices and guards are in place and in working order prior to operating this machine.
- Remove all loose objects stored in the machine. Remove all objects which do not belong in or on the machine.

Seat Belt Safety Precautions

Before starting the engine ensure that your seat belt is securely fastened. The seat belt can help ensure your safety if it is used and properly maintained. Never wear the seat belt loose or with slack in the belt system. Never wear the seat belt with the belt twisted or pinched between the seat and structural members.

WARNING: Fasten seat belt before starting the engine.

To Latch the Seat Belt

- To latch the seat belt, pull the right belt strap from the retractor.
- Insert the metal end into the latch mechanism on the left side of the seat.
- Pull the seat belt to ensure that it is secured in the latch mechanism.

To Unlatch the Seat Belt

- To unlatch the seat belt press the button on the left side latch mechanism.
- The seat belt will automatically retract back into the retractor.

Mounting, Dismounting and Climbing Safety Precautions

- Always use the hand rails and steps when getting on and off the machine.
- Face the machine when using the steps and stairs to climb on and off the machine.
- Keep the steps and platforms clean: free from grease, ice, mud or debris which may cause slippery or tripping conditions.
- Do not jump off the machine.
- Do not mount or dismount while the machine is being operated or in motion.

Starting and Stopping Safety Precautions

WARNING: Before starting the engine, walk around the machine and warn all personnel who may be working around or in the machine's path. Do not start the machine until all personnel are clearly away from the machine and it is safe to do so.

- Before starting the machine make sure that all guards are in place and in good working order.
- Before starting the machine make sure that all the cab windows are clean and free of any debris that may obstruct your view.
- Before starting the machine make sure that you know what obstructions are around the machine. Walk around the machine to ensure that you are familiar with the work site, noting all the hazards and obstructions such as ditches, underground lines, overhead electrical wires, trees, cliffs or areas where there is danger of a slide.
- Before starting the machine, fasten your seat belt and make sure that your seat is adjusted so that you can operate all the controls and necessary functions of the machine. Always wear your seat belt when operating the machine. Do not operate the machine unless you are sitting in the operator's seat with your seatbelt secured. The seat belt should be inspected regularly to ensure that all parts and components are in good working order.
- If a warning tag is attached to the engine start switch or to the machine controls, do not start the engine and do not move any controls.
- Make sure that the reverse travel alarm and all other warning devices are functioning correctly.
- Check all cameras (if equipped) to make sure they are functioning correctly.
- Warm up engine and hydraulic oil before operating the machine. Operating the machine with a cold engine or hydraulic oil may be unsafe and can damage the machine.

WARNING: Use jumper cables only in the recommended manner. Improper use can result in battery explosion or unexpected machine motion that may cause personal injury. Batteries may be located in separate compartments.

NOTE: The electrical system is a 24 Volt DC with a negative ground. Refer to the Caterpillar Operation and Maintenance Manual for using jump start cables instruction.

Continued on next page

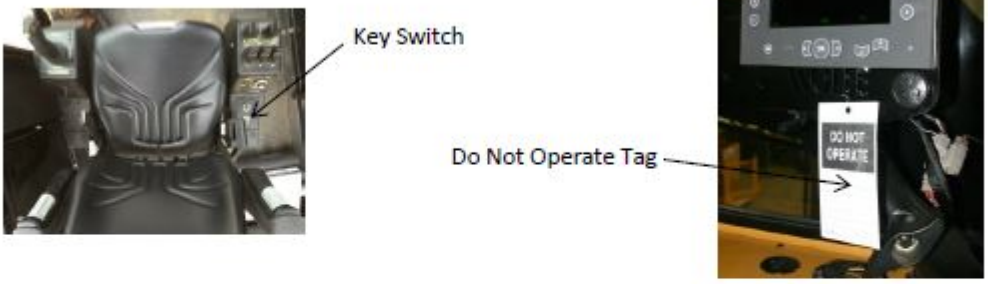
- Ventilate the battery area before using jumper cables. Make sure that using cables will not interfere or harm electronic processing or computer equipment.
- Never jump across the starter solenoid terminals in order to start the engine. Unexpected machine movement, damage to the machine or personal injury could result.

WARNING: Diesel engine exhaust contains products of combustion which can be harmful to your health. Always run the engine in a well-ventilated area. If you are in an enclosed area, vent the exhaust to outside. Do not operate the engine in an enclosed area without appropriate ventilation.

- Do not stop the engine immediately after the machine has been operated under load. This can cause damage to the machine. Refer to the Caterpillar Operation and Maintenance Manual for the stopping the engine procedure. Only park the machine on level ground. If you must park the machine on a grade securely, block the tracks to prevent the machine from unintended movement.
- Before leaving the operator's station, place the machine in anti-creep, lower the mole and any auxiliary equipment in the down position, and turn off the engine. Refer to the Caterpillar Operation and Maintenance Manual for stopping the engine procedure.
- Remove the starter key and turn off the master switch if the machine is going to be left unattended.
- Turning off the master switch will prevent the battery from draining by stopping any draw from certain electronic circuits.

Operating Safety Precautions

- To shut down the machine, refer to the parking the machine and stopping the engine section in this manual.
- After the machine has been started, check and operate all the machine controls and functions to insure proper operation before operating on the machine.
- Observe all gauges and/or warning instruments for proper operation. If any malfunction is found, shut the machine down, remove the key and turn the master switch off. Place a “DO NOT OPERATE” tag on the machine controls until the malfunction is corrected.



Main Disconnect
(Brand or style of switch may vary from machine to machine)
(Some machines may have the Main Disconnect located on the left hand side – opposite side to shown in picture)

- If a failure that causes loss of control such as steering or control of the engine, stop the machine motion as quickly as possible, shut down the engine, remove the key and turn the main disconnect switch off. Place a “DO NOT OPERATE” tag on the machine controls until the malfunction is corrected.
- Only operate the machine while you are in the operator seat with your seat belt fastened.
- Understand the machine’s limitations and keep the machine under control.

WARNING: Hillside operation can be dangerous. Rain, snow, ice, loose gravel or dirt, soft ground, etc. can be hazardous when operating this machine on a hillside or ramp. You must make sure that your machine can be safely operated on any hill side or ramp.

Continued on next page

- Operate and drive the machine with care and at a speed that is compatible with the conditions or the type of operation you are using the machine for. Use extra caution when operating the machine over slippery, rough or uneven ground, on slopes, and while turning.
- Note and avoid all hazards and obstructions such as ditches, underground lines, overhead electrical wires, trees, cliffs, or areas where there is danger of a slide.
- Avoid any ground conditions that could cause the machine to tip. Tipping can occur when you are working on hills, banks, or on slopes. Tipping can also occur when you cross ditches, ridges, or other obstructions.
- Know and understand that job site conditions may change throughout the day. It is your responsibility to monitor these changes and operate the machine accordingly.
- You must judge if the conditions of the work site will not permit the safe operation of this machine. Do not operate this machine if the site conditions are not safe.
- Watch for bystanders and never allow anyone to be under or to reach through the machine and its equipment while operating.
- Do not allow riders on the machine.
- If crossing a road, use a signalman or flagman to monitor traffic and ensure that it is safe to cross. If a tow cable or chain is being used, keep people a safe distance away from the tow cable or chain.
- Make sure that the tow cable or chain is appropriately sized for the application that you are using it for.
- Inspect and make sure that tow cables, chains, clevises, towing eyes and any other devices that are used to tow the machine are rated for the proper loads and in good working order.
- Only pull or tow the machine from the tow eye that has been installed on the mole. DO NOT pull or tow this machine from any other location on the machine.
- DO NOT pull or tow this machine if it is disabled or non-functional.
- Before you operate the machine at night, check that all the lights illuminate as required. If the machine is not equipped with the lighting package do not operate the machine at night.
- If you operate the machine in an enclosed area make sure that the proper ventilation is used to extract the engine exhaust. Engine exhaust can cause death.
- Before operating the machine, make sure that all the cab windows are clean and free of any debris that may obstruct your view. If the windows become dirty throughout the day stop the machine and clean the windows before proceeding to operate the machine.
- Dust, ice, fog, smoke, etc. can decrease your vision and cause an accident. Stop the machine until you can see clearly.

Continued on next page

- Before beginning any construction work, it is your responsibility to be aware of all underground utility lines that are buried in the area that you are working and to avoid them.
- Always have all local utility companies mark the locations of their lines. It is your responsibility to know all federal, state/provincial, or local safety codes or regulations. Contact the appropriate authorities if required.
- Do not operate the machine if you do not feel well.
- Do not operate this machine if you are under the influence of alcohol, controlled substances or uncontrolled substances.

WARNING: Be alert and always know the location of all workers in your area. keep all other persons completely away from the machine. Injury or death can result if you do not follow these safety instructions.

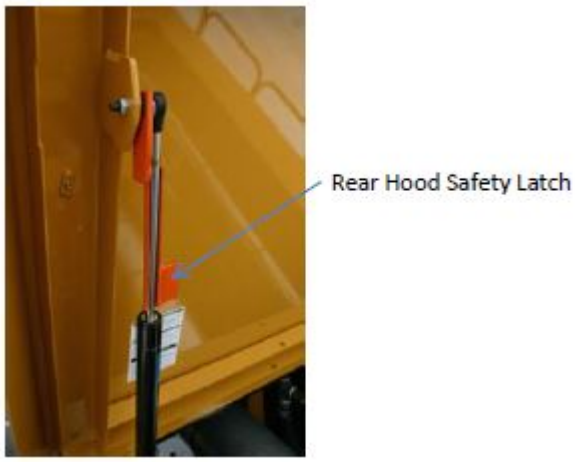
Emergency Stop Button

WARNING: This machine is equipped with an Emergency Stop which can be used in an emergency situation. The Emergency Stop button will stop the machine and shut down the engine immediately.

Maintenance Safety Precautions

- Before servicing this machine, put a “DO NOT OPERATE” tag on the start key switch or machine controls. “DO NOT OPERATE” tags are available at your local dealer.
- When opening the Rear Hood, make sure that the Rear Hood Safety Latch is in the lock position to prevent the hood from accidentally falling closed. Do not work under this hood unless the safety latch is in the locked position. Failure to do so could result in personal injury.

WARNING: DO NOT attempt to repair this machine if you have not been properly trained. Refer to the manuals and experienced repair personnel for help. Make sure that you are aware of all the dangers that exist while servicing the machine: pinch points, crush-points, hot areas, and components that may be under pressure.



- Wear protective glasses / face shields and other required safety equipment when servicing or repairing this machine.
- Disconnect the battery before working on the electrical system. Know the consequences of disconnecting any electronic or computer devices.
- Never put maintenance fluids into glass containers. Drain all liquids into a suitable container.
- Obey all local regulations for the disposal of liquids and any other waste that may be produced during the maintenance of this machine.
- Use all cleaning solutions with care.
- Care must be taken in order to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the machine. Prepare to collect the fluid with suitable containers before opening any compartment or disassembling any component that contains fluids.

Continued on next page

- Avoid lubrication or mechanical adjustment with the machine in motion or the engine operating. If the engine must be running to make certain adjustments, place the machine into the anti-creep mode and use extreme caution. See machine controls section for instructions on how to place the machine into the anti-creep mode.

WARNING: Before servicing or repairing this machine, make sure that all machine components or auxiliary equipment are in the down or safe position. Support the components or auxiliary equipment properly before you perform any work or maintenance beneath the machine. NEVER work under a component or piece of equipment that is suspended by the hydraulic system. DO NOT depend on the hydraulic system to support a component or piece of equipment for you to work under. Securely block the machine or any component that may fall before working on the machine or component. If possible, use a back-up or secondary blocking device to ensure that the machine or component is safe to work on or under.

WARNING: Whenever there are equipment linkages, the clearance in the linkage area will change with the movement of the equipment or the machine, causing a pinch or crush point. Stay clear of linkages when moving the equipment or machine.

- Stay clear of any rotating or moving parts.
- Keep objects away from moving fan blades. Damage to the machine or personal injury could occur.
- When you strike a retainer pin with force, the retainer pin can fly out. The loose retainer pin can cause injury. Make sure that the area is clear of people when you strike a retainer pin. To avoid eye injury, wear protective glasses when you strike a retainer pin.
- Chips or other debris can fly off an object when you strike it. Make sure that no one can be injured by flying debris before striking any object.

WARNING: Never make repairs to components that are pressurized with hydraulic fluid, gas, air or mechanical pressure. Relieve the pressure or block up the mechanical pressure before doing any service or repair on the component or machine. Failure to do so could result in serious injury or death.

Continued on next page

WARNING: Pressure can be trapped in a hydraulic system. Releasing trapped pressure can cause sudden machine movement or attachment movement. Use caution if you disconnect hydraulic lines or fittings. High pressure oil that is released can cause a hose to whip. High pressure oil that is released can cause oil to spray. Fluid penetration can cause serious injury and possible death.

- Pressure can be trapped in the hydraulic circuit long after the engine has been stopped. Do not remove or disassemble any hydraulic components or parts until pressure has been relieved. Failure to do so could cause personal injury or death.
- To relieve the pressure in the hydraulic system, use the manual handles on the hydraulic valves with the engine not running. Move all of the handles **SLOWLY** in both directions. The machine components may move so make sure that everyone is clear before proceeding.

- When loosening any hydraulic fittings, use safety glasses, safety shields, and gloves. Be sure to loosen the hydraulic fittings slowly (use caution) as there may be some residual pressure in the system.
- Bleed the compressed air using the drain valve on the bottom of the reservoir before servicing or repairing any of the pneumatic components on the machine.

WARNING: Use EXTREME CAUTION when removing spring loaded components, radiator caps, drain plugs, grease fittings, or pressure traps.

Continued on next page

- Allow the machine to cool down before removing the radiator cap or any drain plugs.
- The track tensioners are spring loaded. Use EXTREME CAUTION when working around the track tensioners. Refer to the Track One Use and Maintenance Manual with Spare Parts for servicing the tracks.
- Replace all missing, illegible, or damaged safety decals. Keep all safety decals clean.
- Report all necessary or required repairs
- Do not smoke when servicing the air conditioner or if refrigerant gas is present. Inhaling the fumes that are released from a flame that contains air conditioning refrigerant can cause bodily injury or death. Inhaling gas from an air conditioner refrigerant through a lighted cigarette can cause bodily harm or death.
- Pressurized air and/or water can cause debris and/or hot water to be blown out. This could result in personal injury. When pressurized air and/or pressurized water are used for cleaning, wear protective clothing, protective shoes, and eye protection. Eye protection includes goggles or a protective face shield. The maximum air pressure for cleaning purposes must be reduced to 205 kPa (30 psi) when the nozzle is deadheaded. The maximum water pressure for cleaning purposes must be below 275 kPa (40 psi).
- Never allow pressurized air or water to come in contact with your skin. Pressurized air and water can penetrate body tissue and cause bodily injury or death. If fluid or air is injected into your skin, you must get treatment immediately. Seek treatment from a doctor that is familiar with this type of injury.

Fueling Safety Precaution

- Use Diesel Fuel only
- Do not smoke or permit open flames while fueling or near fueling operations.
- Never allow fuel to spill on hot machine components.
- Never allow fuel to spill on the environment.
- To avoid spilling fuel, maintain control of the fuel filler nozzle when filling the tank.
- Do not fill fuel tank completely to the top. Allow room for expansion.
- Clean up spilled fuel immediately and dispose of contaminated material in an environmentally correct way.

- Tighten fuel tank cap securely. Should the fuel cap be lost, replace it only with the original manufacturers approved cap. Use of a non-approved cap without proper venting may result in pressurization of the tank.
- Never use fuel for cleaning purposes.
- Use correct fuel grade for the operating season.

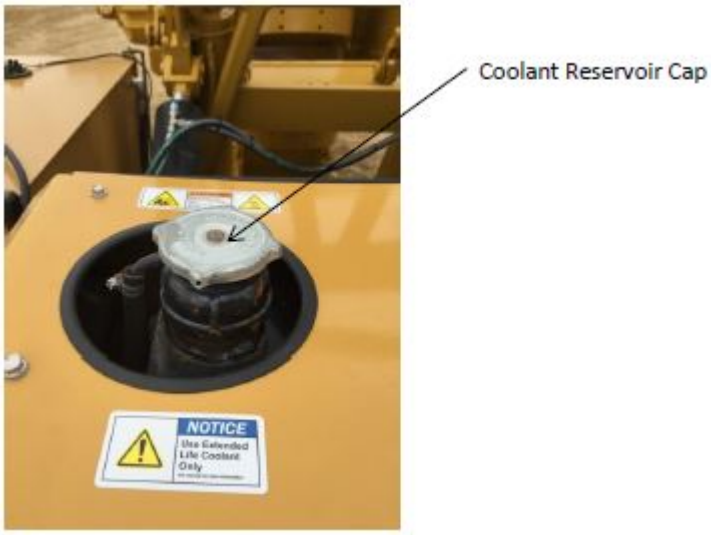
Burn Safety Prevention

Do not touch any part of the engine or other equipment on the machine that may be hot during operation. Allow the machine to cool before any maintenance is performed on the machine. Relieve all pressure in the air system, in the oil system, in the lubrication system, in the fuel system, or in the cooling system before any lines, fittings or related items are disconnected.

Coolant Safety Prevention

WARNING: Hot Coolant can cause severe burns.

- When the engine is at operating temperature, the engine coolant is hot. The coolant is also under pressure. The radiator, reservoir and all lines to the heaters or to the engine contain hot coolant.
- Hot coolant can spray out if the reservoir cap is removed while the cooling system is hot. To remove the reservoir cap let the cooling system cool, turn the cap slowly ¼ turn to make sure there is not pressure behind the cap. If there is pressure, allow the pressure to release before turning further to remove the reservoir cap.

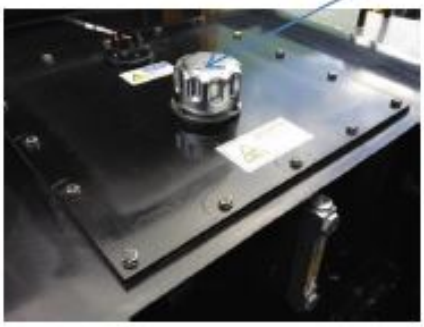


- Any contact with hot coolant or with steam can cause severe burns. Allow cooling system components to cool before the cooling system is drained.
- Check the coolant level only after the engine has been stopped and the cooling system has cooled down.
- Ensure that the filler cap is cool before removing. The filler cap must be cool enough to touch with a bare hand. Remove the filler cap slowly in order to relieve pressure.
- Cooling system conditioner contains alkali. Alkali can cause personal injury. Do not allow alkali to contact the skin, the eyes, or the mouth.

Oil Safety Precautions

- Allow machine oils to cool down before performing any service or repairs on machine
- Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components to contact the skin.
- Remove the hydraulic tank filler cap only after the engine has been stopped and the system has cooled down. The filler cap must be cool enough to touch with a bare hand.

Hydraulic Tank Filler Cap



WARNING: Hot oil can cause serious burns

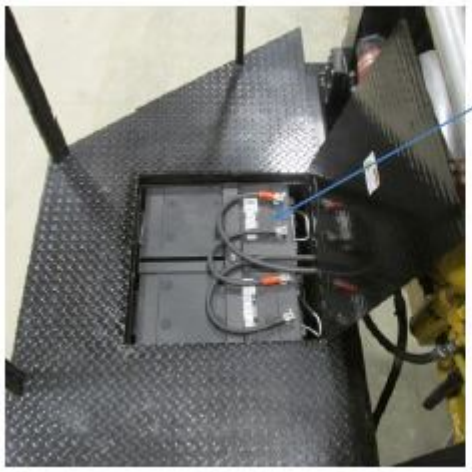
Batteries Safety Precautions

WARNING: Battery acid causes serious burns.

- Batteries contain sulfuric acid that can cause personal injury. Avoid contact with skin, eyes or clothing.
- Always wear eye protection and face shields when working with batteries.
- Wash hands after handling batteries or working around batteries.
- Always keep batteries out of the reach of children.

Continued on next page

- Antidote: External – Flush with clean water.
- Antidote: Internal – Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately.
- Eyes – Flush with water for 15 minutes and seek medical attention immediately.



WARNING: Machines may be equipped with two or four batteries. Four battery machines may have batteries located in the battery boxes on both sides of the machine, or all four in one battery box. Be sure to disconnect the negative battery terminals if servicing or repairing the electrical system on the machine. For the four battery systems, the negative cable will have to be disconnected from both battery sets. Failing to do so could result in damage to the machine or personal injury.

WARNING: Batteries produce explosive gases.

- Keep sparks or flames, away from batteries.
- DO NOT smoke near batteries.
- Ventilate when charging or using in enclosed area.
- Always wear eye protection and face shields when working with batteries.
- Wash hands after handling batteries or working around batteries.
- Always keep batteries out of the reach of children.

Continued on next page

WARNING: When the battery electrolyte is frozen, the battery can explode if you try to charge it or try to jump start the engine. To prevent the battery electrolyte from freezing, keep the battery fully charged. If you do not follow these instructions, you or others in the area can be injured.

NOTE: Refer to the Caterpillar Operation and Maintenance Manual for information and procedures for starting the machine engine with jump start cables.

Hazardous Chemical Safety Precautions

- If you are exposed or come in contact with hazardous chemicals, you can be seriously injured.
- The fluids, lubricants, paints, adhesives, coolants, etc. used in this machine, can be hazardous.
- Material Safety Data Sheets (MSDS) provide information about the chemical substances within a product. The MSDS sheets provide information on how to safely handle the product, first aid measures and procedures to be taken when the product is accidentally spilled or released.
- MSDS sheets are available online or from the manufacturer.
- Before servicing your machine, check the MSDS for each of the fluids, lubricants, and coolants etc. that are used in this machine. This information indicates what risks are and how to handle these products safely. Follow this information when servicing the machine.
- Always dispose of any waste fluids in an environmentally safe manner. Check with your local environmental or recycling center for correct disposal.

Fire and Explosion Prevention Safety Precautions

- All fuels, most lubricants, and some coolant mixtures are flammable.
- Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire. Fire may cause personal injury and property damage.
- Remove all flammable materials such as fuel, oil, and debris from the machine. Do not allow any flammable materials to accumulate on or in the machine.
- Store fuels and lubricants in properly marked containers away from unauthorized persons.
- Store oily rags and any flammable materials in protective containers.
- Do not smoke in areas that are used for storing flammable materials.
- Do not operate the machine near any flame.

WARNING: Do not weld on lines or on tanks that contain flammable fluids. Do not flame cut lines or tanks that contain flammable fluid.

- Clean any such lines or tanks thoroughly with a non-flammable solvent prior to welding or flame cutting.
- Check all electrical wires daily. Repair any wires that are loose or frayed before you operate the machine.
- Clean and check all electrical connections and tighten all electrical connections as required.
- Inspect all lines and hoses for wear or for deterioration. The hoses must be properly routed.
- The lines and the hoses must have adequate support and secure clamps. Tighten all connections to the recommended torque. Leaks can cause fires.
- Use caution when you are refueling a machine. Do not smoke while you are refueling a machine. Do not refuel a machine near open flames or sparks.
- Always stop the engine before refueling.
- Fill the fuel tank outdoors.
- Gases from a battery can explode. Keep any open flames or sparks away from the batteries.
- Do not smoke close to the batteries.
- Never check the battery charge by placing a metal object across the terminal posts. Use a voltmeter or a hydrometer.
- Improper jumper cable connections can cause an explosion that can result in injury.
- Do not charge a frozen battery. This may cause an explosion.

Fire Extinguisher

- Make sure that a fire extinguisher is available. Be familiar with the operation of the fire extinguisher. Inspect the fire extinguisher and service the fire extinguisher regularly or as local regulations require. Obey the recommendations on the instruction plate. The recommended location for mounting the fire extinguisher is in the cab in an accessible location away from the operator's work area.
- It is recommended that you have a minimum 5 pound fire extinguisher that is approved for type A. B, and C type fires.

Ether and Cold Starting Safety Precautions

WARNING: Ether is explosive, flammable, and poisonous. Do not use aerosol types of starting aids, Such could result in an explosion and can causes personal injury or death.

NOTE: Refer to the Caterpillar Operation and Maintenance Manual for starting a cold engine.

Electrical Storm Injury Prevention and Safety Precautions

- When lightning is striking in the vicinity of the machine, the operator should never attempt to mount or dismount the machine.
- If you are in the operator's station during an electrical storm, stay in the operator's station until the storm has passed.
- If you are on the ground during an electrical storm, stay away from the vicinity of the machine until the storm has passed.

Lines, Tubes, and Hoses Safety Precautions

- Do not bend high pressure lines.
- Do not strike high pressure lines.
- Do not install any lines that are damaged.
- Repair any lines that are loose or damaged. Leaks can cause fires.
- Check lines, tubes and hoses carefully.
- Do not use your bare hand to check for leaks. Use cardboard to check for leaks.
- Tighten all connections to the recommended torque. Consult your dealer for further information.
- Make sure that all clamps, guards, and heat shields are installed correctly. During machine operation, this will help to prevent vibration, rubbing against other parts, and excessive heat.

Replace the parts if any of the following are present:

- End fittings are damaged, leaking or displaced.
- Outer coverings of hydraulic hoses are chafed or cut.
- Flexible parts of the hoses are kinked.
- If the outer coverings of wires are damaged and wires are exposed.
- If the outer coverings of wires are ballooning.
- If the outer coverings of wires are worn or have been pinched.

Track Safety Precautions

WARNING: The track system has track adjusting components and components that are spring loaded that use steel springs, liquid springs, grease or oil that can be under very high pressure. These components can be extremely dangerous if not worked on or handled appropriately. DO NOT attempt to adjust or repair the track systems unless you have read the Track One Use and Maintenance Manual with Spare Parts, have had proper training and understand all the dangers associated with servicing or repairing the track systems. Failure to do so can result in serious injury or death.

- Refer to track section of this manual for more information. Contact your dealer if you have any questions.
- Grease or oil coming out of the relief valve under high pressure, can penetrate the body causing injury or death.
- The pins and bushings in a track pin joint can become very hot. It is possible to burn the fingers or hands if there is more than brief contact with these components.

5: Safety and Notice Decals and Decal Locations

There are a number of specific safety and notice messages on this machine. The locations of the hazards and description of the hazards are reviewed in this manual. Please become familiar with all of the safety messages.

Safety and Notice Decals on this machine may use the words Danger, Warning, Caution or Notice which are defined as follows:

- **DANGER:** indicates a hazardous situation that, if not avoided will result in death or serious injury. The color associated with danger is red.
- **WARNING:** indicates a hazardous situation that, if not avoided could result in death or serious injury. The color associated with Warning is Orange.
- **CAUTION:** indicates a hazardous situation that, if not avoided could result in minor or moderate injury. The color associated with Caution is Yellow.
- **Notice:** indicates potential damage to the machine if not heeded.

Replace all missing, illegible, or damaged safety signs. Keep all safety signs clean. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. Safety messages can be provided by your Wolfe dealer.

WARNING: Injury or death can result if you cannot read a safety decal or if a safety decal is missing. Replace any missing or damaged safety decals and keep all safety decals clean. Contact your dealer if you require new decals.

- Make sure that you read and understand all the safety and instructional decals.
- Check decals to make sure they are clean and can be read.
- Clean decals with soap and water. Do not use solvents or gasoline to clean decals.
- Replace any decal that is damaged, missing, or cannot be read. If a decal is on a part that is replaced, make sure the decal is on the new part. If the decal is not on the new part contact your dealer for replacement decals.
- See below for the location of all decals on the machine.

WARNING: Because machines can vary depending on customer's requirements the decal location may change slightly from machine to machine. The hazards and the decals warning of the hazards will still exist. Contact your dealer if you are not sure of what hazard is being identified by the decals on the machine.

Cab Decals

Decals are located on the front left hand, on the inside of the door in the cab.

Diesel Fuel Only Decal

Decal is located on the top of the fuel tank near the fill cap.

Crush Hazard Decals

- Decals are located at the front of the machine on the sides of the battery and tool box. (Some machines use both boxes for batteries)
- Decals are also located at the rear of the machine on the cab and fuel tank mount.
- A decal is located under the hood for accessing the engine bay.

Crush Hazard Decals - Wheel

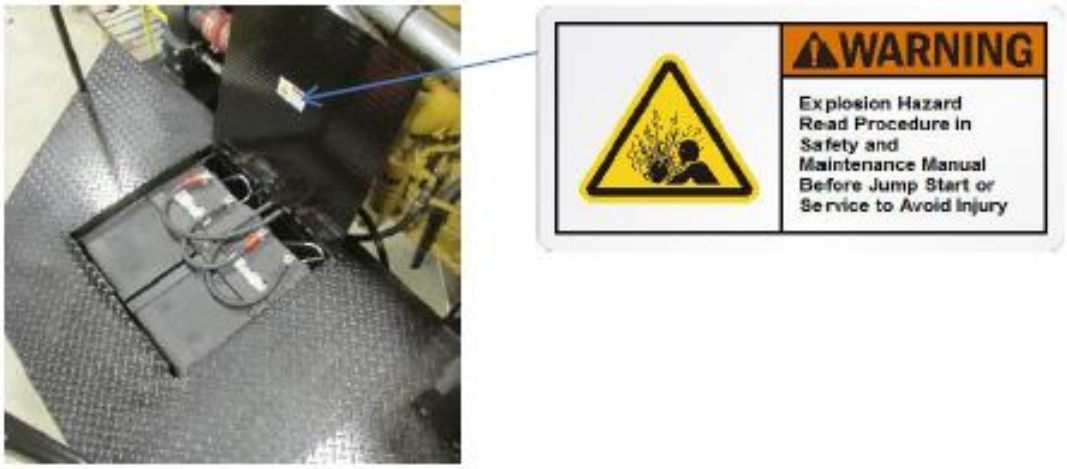
Decals are located on each side of the machine on the uprights - mast.

Entanglement Hazard Decal

- Decals are located on each side of the wheel assembly, near the underside of the SMA Wheel Motor.

Battery Box Decals

- Decals are located on the inside face of the battery box lid.
- Some machines have batteries and battery boxes on both sides of the machine



Burn Hazard Decal/Extended Life Coolant Only Decal

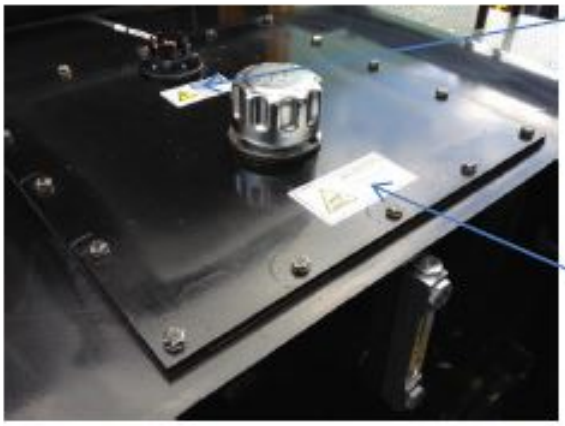
Decals are located on the rear hood close to the radiator reservoir cap.

Burn Hazard/Rotating Fan Blades Decals

Decals are located on the top of each radiator fan shroud.

Burn Hazard Decal/Hydraulic Fluid Only Decal

Decals are located on the hydraulic oil tank near the fill cap.



Caution Stand Clear When Wheel in Motion Decal

Decal is located on the middle and end of the wheel on both sides if the machine.

Compressed Air/Gas Decal

- Compressed air decal is located on the front compressed air tank underneath the machine.
- Compressed gas decal is located on the nitrogen accumulator in the middle of the machine.

6: Machine Use

This machine, and the attachments and equipment available for use with this machine, are intended for closed trench installation of underground services. DO NOT use this machine for any application or purpose other than what the machine is intended for.

WARNING: Unauthorized electrical or mechanical modifications to this machine may cause serious injury or death. It may also cause damage to the machine. Anyone making unauthorized modifications is responsible for the consequences.

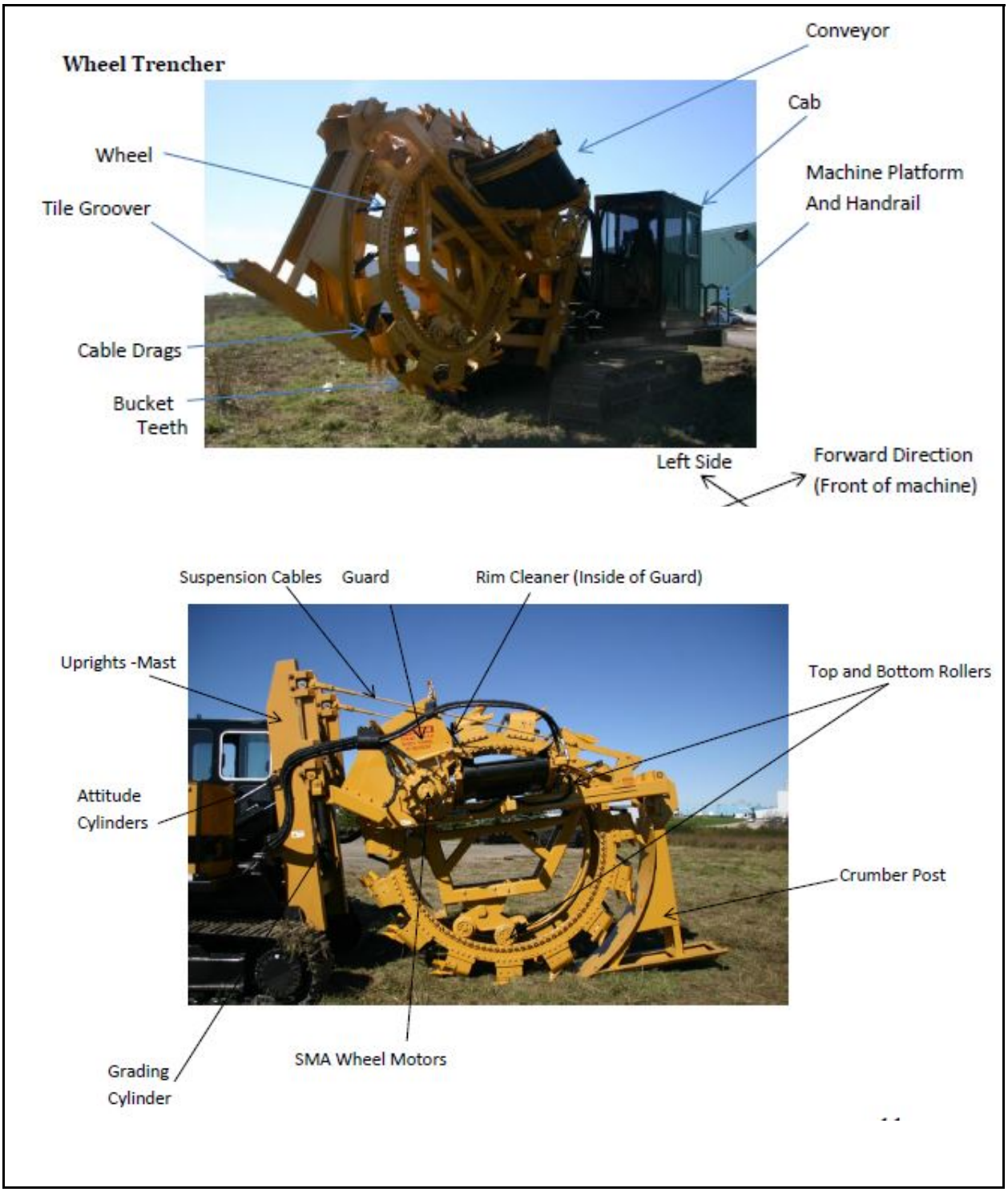
Consult your dealer for any further information or assistance about your machine. Your dealer has approved service parts.

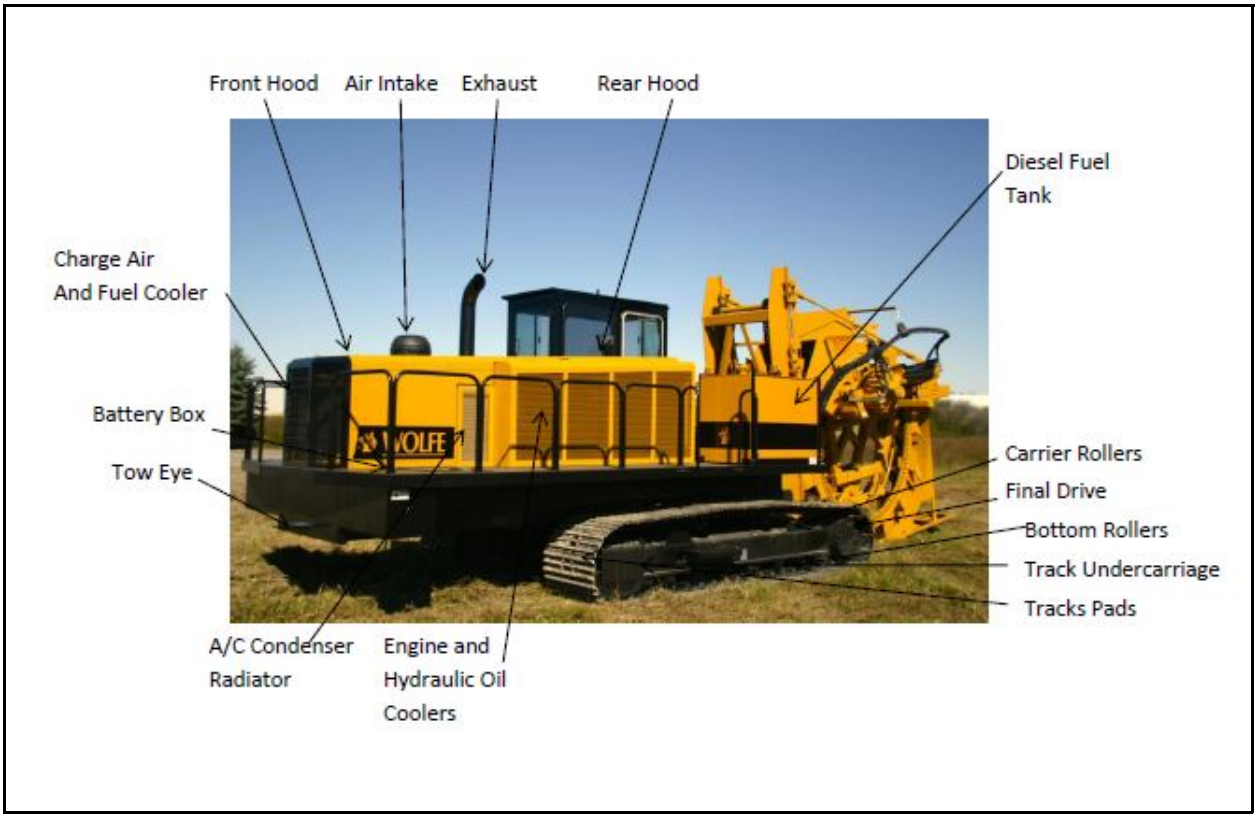
Wolfe Heavy Equipment (Wolfe) cannot anticipate every possible circumstance involving a potential hazard. The warnings in this publication and on the machine are, therefore, not all inclusive. If a tool, procedure, work method, or operating technique is not specifically recommended by Wolfe is used, you must satisfy yourself that is safe for you and for others. Your should also ensure that the machine will not be damaged or be made unsafe by the operation, lubrication, maintenance, or repair procedures that you choose.

The information, specifications, and illustrations in this publication are on the basis of information that was available at the time the publication was written. The specifications, torques, pressures, measurements, adjustments, illustrations, and other items can change at any time, These changes can affect the service that is given to the product. Obtain the complete and most current information available. You can also download a copy of this manual from our website https://www.wolfeequipment.com/.

7: Machine Basics

This manual uses a number of terms and references for parts and components. These terms and references vary slightly throughout the industry. Below are illustrations to clarify some of the terms and references that are used in this manual. Some components are common between all plow models.




Front Hood
Air Intake
Exhaust
Rear Hood
Diesel Fuel Tank
Charge Air And Fuel Cooler
Battery Box
Tow Eye
Carrier Rollers
Final Drive
Bottom Rollers
Track Undercarriage
Tracks Pads
A/C Condenser Radiator
Engine and Hydraulic Oil Coolers

8: Machine Options

Dual Joystick Control

Single Joystick Control

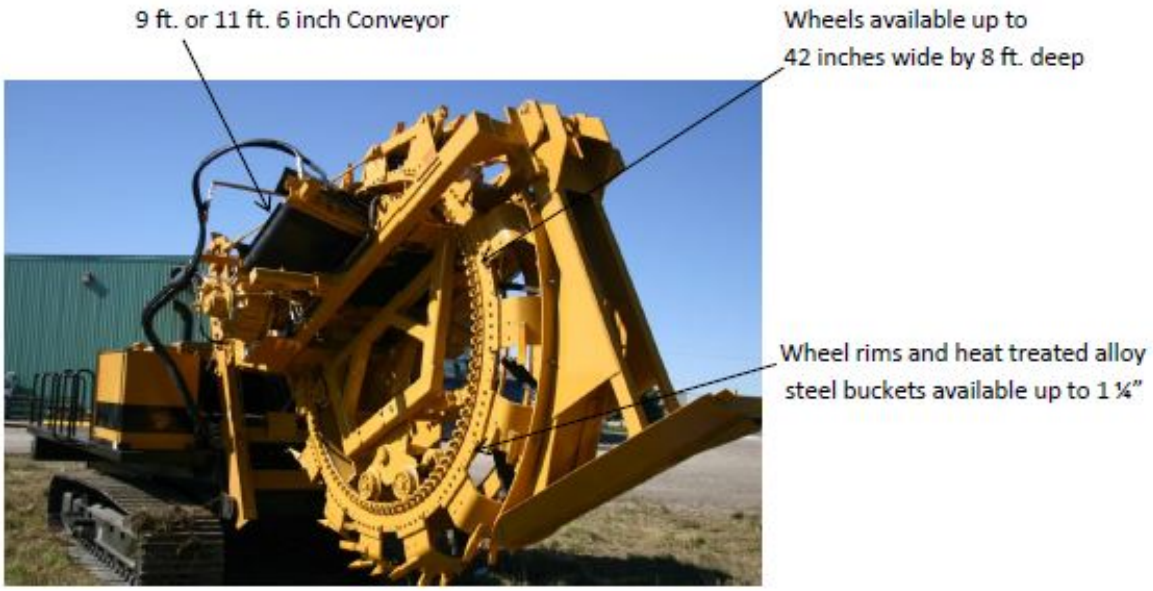
Trench Boxes

Tile Lift Boom

Carbide Bucket Teeth

Cable Drags

Camera Package


9 ft. or 11 ft. 6 inch Conveyor
Wheels available up to
42 inches wide by 8 ft. deep
Wheel rims and heat treated alloy
steel buckets available up to 1 ¼”

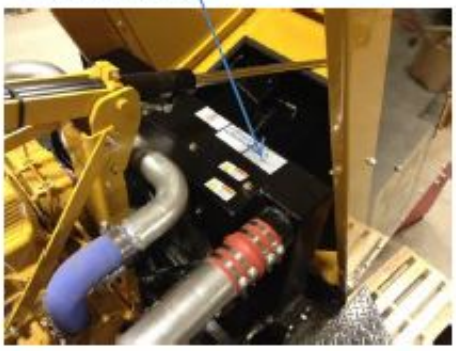
9: Identification Numbers

Engine Serial Number

Machine Serial Number

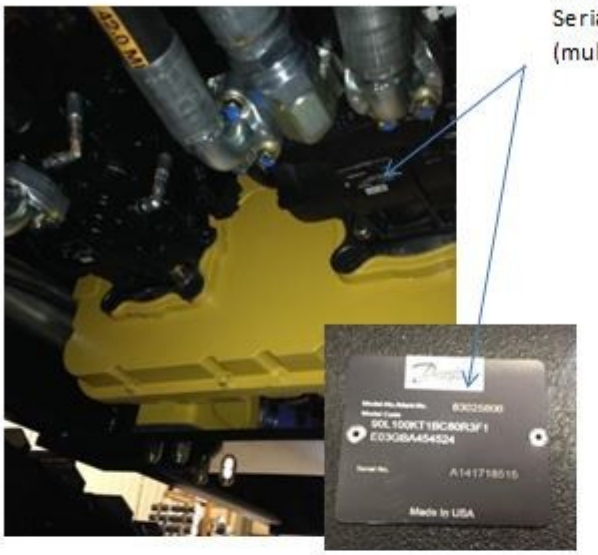
Track Serial Number (Both tracks)

Charge Air / Fuel Cooler Serial Number



Engine Cooler Serial Number (Under guard)

Hydraulic Oil Cooler Serial Number (Under guard)


Hydraulic Pump
Serial Number
(multiple pumps)
Made in USA


Pump Drive
Serial Number

10: Loading, Unloading and Transporting the Machine on a Trailer

Loading and Transporting the Machine

WARNING: If the machine is equipped with the side tilt option ensure that the cab is in the down position after the machine is loaded onto the trailer, before transporting. The machine will be over height if the cab is not in the down position.

WARNING: The machine can slip and fall from a trailer or ramp and cause serious injury or death. Make sure the trailer and ramps are not slippery. Carefully move the machine onto or off of the trailer with the machine centered on the trailer or ramp.

- Block or chock the front and rear of the trailer wheels.
- Lower the ramps and make sure that the spacing of the ramps are appropriate for loading the machine.
- Very carefully and slowly drive the machine onto the trailer
- Lower the mole and any other auxiliary equipment that is suspended by the hydraulic system.
- Ensure that all machinery and machine components are in their ship position.
- Turn the machine's Anti-Creep function on.
- Stop the engine.
- Make sure that all cab windows and doors are closed.
- Use the appropriate sized and rated chains and binders to fasten the machine to the trailer.
- Measure the width and height of the machine and trailer to ensure that you are within the local height and width restrictions.
- Make sure that you know the weight of your machine and that your trailer is rated accordingly.
- Know and abide by the rules, laws, regulations, and have the proper safety equipment necessary for transporting this machine on the road or highway.
- Never transport this machine without the proper tie down chains, binders and equipment in place to ensure the machine is securely fastened to the trailer.
- Ensure that the appropriate lights, flags and warning lights are used while transporting this machine.
- After you have driven a few miles stop and check your load. Make sure that the chains are still tight and that the machine has not moved on the trailer.

Unloading the Machine from a Trailer

- Block or chock the front and rear of the trailer wheels.
- Lower the ramps and make sure that the spacing of the ramps are appropriate for unloading the machine.
- Remove all the chains and binders.
- Start the engine. Refer to the Caterpillar Operations and Maintenance Manual for more instruction.
- Raise the mole and any auxiliary equipment as required.
- Very carefully drive machine off the trailer.

11: Towing or Pulling the Machine

Towing or Pulling an Enabled Machine

WARNING: When towing or pulling this machine, keep all personnel a safe distance away from the tow cable in case the towing hardware brakes. Failing to do so can cause serious injury or death.

- When towing or pulling an enabled machine make sure that the tow cable is appropriately sized for the application that you are using it for.
- Inspect and make sure that tow cables, clevises, towing eyes, and any other devices that are used to tow the machine are rated for the proper loads and in good working order.
- Do not use a chain to tow this machine.

WARNING: It is impossible for Wolfe to know what size of machine will be used to pull or tow your machine. It is the operator's responsibility to make sure that the tow equipment is the appropriate size for the application. Do not pull or tow this machine unless you are sure that you are using the appropriate towing equipment. Failing to do so can cause damage to the machine or cause personal injury.

IMPORTANT: Only pull or tow the machine (if it is functional and running) from the tow eye that has been installed on the mole. DO NOT pull or tow this machine from any other location on the machine. Failure to do so will cause damage to the machine.

Towing or Pulling a Disabled Machine

WARNING: Personal injury or death could result when towing a disabled machine incorrectly. When towing or pulling this machine keep all personnel a safe distance away from the tow cable in case the towing hardware brakes. Failing to do so can cause serious injury or death. It is impossible for Wolfe to know what size of machine will be used to pull or tow your machine. It is the operator's responsibility to make sure that the tow equipment is the appropriate size for the application. Do not pull or tow this machine unless you are sure that you are using the appropriate towing equipment. Failing to do so can cause damage to the machine or cause personal injury.

WARNING: Do not use a chain to tow this machine. A chain link can break causing personal injury or death.

WARNING: Block the machine to prevent movement before final drives are disengaged. The machine can roll free if it is not block properly. With the final drives disengaged the machine cannot be stopped or steered.

WARNING: Relieve the hydraulic pressure before any disassembly. If the machine has been running the hydraulic fluid may be very hot and will cause server burns. Allow the hydraulic fluid to cool before loosening any fittings or removing hydraulic

IMPORTANT: DO NOT pull or tow this machine if it is disabled or non-functional without first disengaging both final drives. Damage to the hydraulic system will occur. Only pull or tow the machine from the tow eye that has been installed on the mole. DO NOT pull or tow this machine from any other location on the machine. Failure to do so will cause damage to the machine.

- These towing instructions are for moving a disabled machine for a short distance at low speed. Move the machine at a speed of 2 km/h – 1.2 mph or less to a convenient location for repair. These instructions are only for emergencies. Always haul the machine if long distance moving is required.
- Keep the tow angle to a minimum. Do not exceed a 30 degree angle from the straight ahead position.

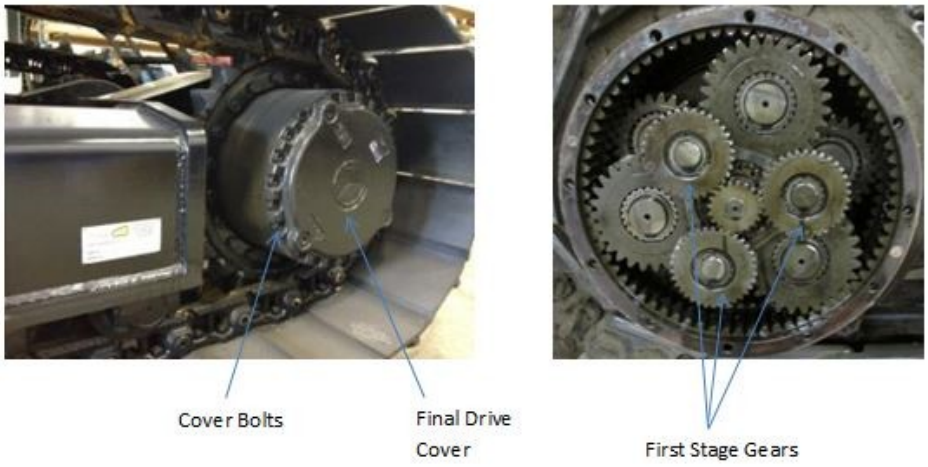
Continued on next page

- Quick machine movement could overload the tow cable or draw bar. This could cause the low line or draw bar to break. Gradual, steady machine movement will be more effective.
- Normally, the towing machine should be as large as or larger than the disabled machine.
- Make sure the towing machine has enough brake capacity, enough weight, and enough power. The towing machine has to be able to control both machines for the grade that involved and for the distance that is involved.
- You must provide sufficient control and sufficient braking when you are moving the disabled machine downhill. This may require a larger towing machine or additional machines that are connected to the rear of the disabled machine. This will prevent the disabled machine from rolling away out of control.

WARNING: All situations cannot be listed. It is the operator's responsibility to make sure that the tow equipment is the appropriate size for the application. Do not pull or tow this machine unless you are sure that you are using the appropriate towing equipment. Failing to do so, can cause damage to the machine or cause personal injury.

Disengaging Final Drives

IMPORTANT: DO NOT pull or tow this machine if it is disabled or non-functional without first disengaging both final drives. Damage to the hydraulic system will occur. Do not tow machine without oil in the final drive. Damage to the final drive will occur.



Continued on next page

- Refer to the track manual for exploded views and more information about the final drive.
- Thoroughly clean the area around the final drive. Make sure that you clean the track pads that are above the final drive as well to make sure that no dirt will falls into the final drive when disassembled.
- Drain final drive oil into a suitable container.
- Remove all the cover bolts from the final drive cover except one bolt at the top. Loosen the one bolt at the top but do not completely remove it at this time. This bolt is used to help support the cover while separating the cover from the final drive.
- Gently use a hammer and wedge to separate the cover from the final drive. The ring gear is bolted to the inside of the cover and will be removed as well.
- Remove the loose bolt while holding the cover.
- Completely remove the cover.
- Gently pry first stage gear assembly out of the final drive. The three gears are removed as an assembly.
- Replace the final drive cover and install the bolts.
- Fill the final drive with new oil.
- Repeat all steps for the other final drive.
- The machine is now ready for towing.

12: Machine Controls and Operations

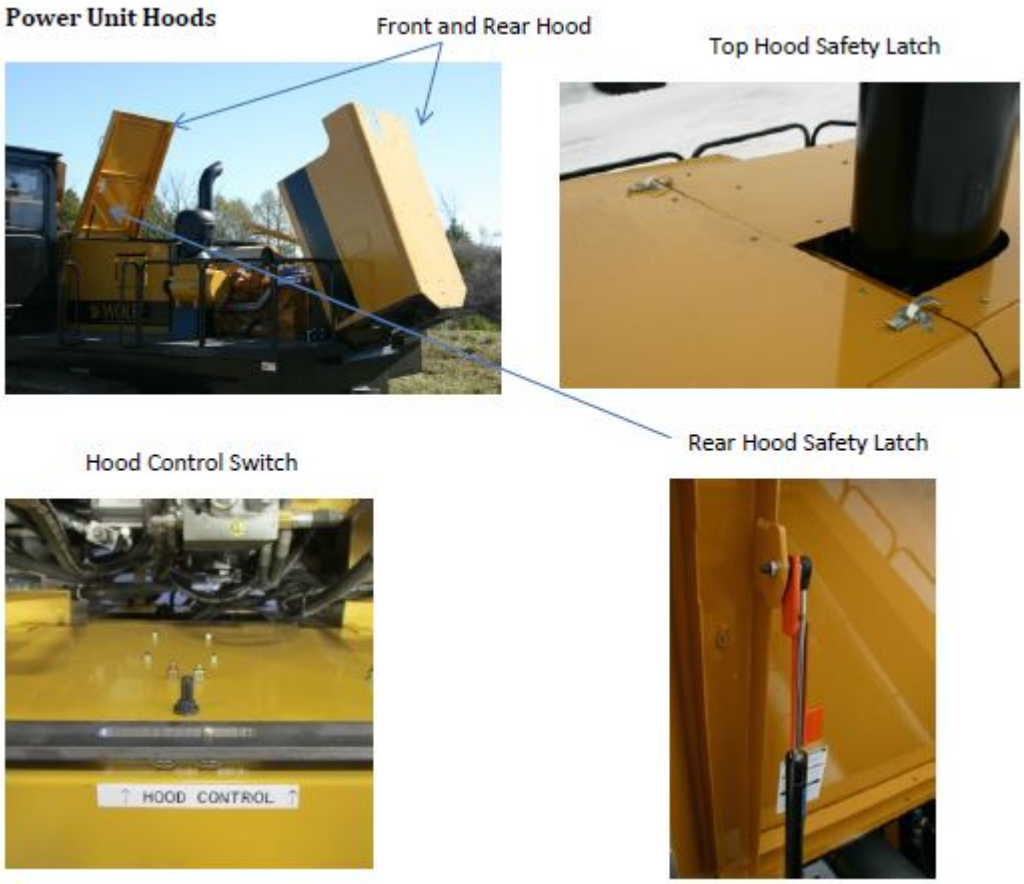
WARNING: The operator of this machine must familiarize themselves with the various controls and instruments provided for its operation. Though many operators may be familiar with the controls on similar machines, there may be important differences making it very important to read and understand this section regardless of their experience.

WARNING: DO NOT operate or permit anyone to operate this machine until all personnel have completely read and understand the safety and operation instructions in the Wolfe Plows Operator and Safety Manual, the Caterpillar Operations and Maintenance Manual, and the Track One Use and Maintenance Manual with Spare Parts. Make sure that all personnel have been properly trained and understand the characteristics and hazards of operating this machine. Only trained operators who have demonstrated the ability to operate this machine correctly and safely are allowed to use this piece of equipment.

WARNING: Before each period of operation, check the machine for correct operation of the steering, hydraulic controls, instruments and safety equipment. Check the neutral position of the joysticks. A machine that runs correctly can prevent accidents. Make all the necessary repairs or adjustments before you operate the machine.

WARNING: Jumping on or off the machine can cause an injury. Always face the machine, use the hand rails and steps, and get on and off the machine slowly.

Power Unit Hoods



IMPORTANT: To avoid damage to the hoods and hood components, close all hoods before moving the machine.

To Open

- Unlatch the two hood latches.
- Lift rear hood to the full open position.
- Ensure that the rear hood safety latch is in the lock position to prevent the hood from accidentally falling closed. Do not work under this hood unless the safety latch is in the locked position.
- Push the hood control switch up (located on the back of the electrical panel) to raise the front hood completely. Never work under the front hood unless it is in the completely open position.

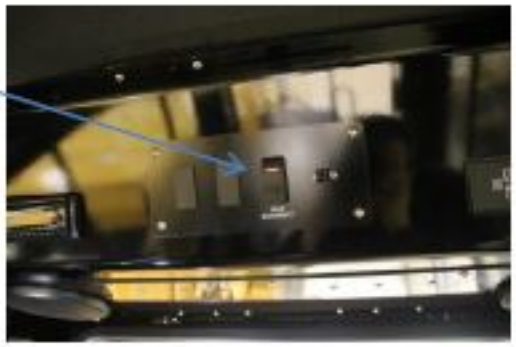
Continued on next page

To Close

- Push the hood control switch (located on the back of the electrical panel) down to completely close the front hood.
- Lift the rear hood safety latch.
- Push the rear hood down to close. Ensure not to drop the hood. Keep hands clear to prevent pinching or injury.
- Latch hood latches.

Main Disconnect

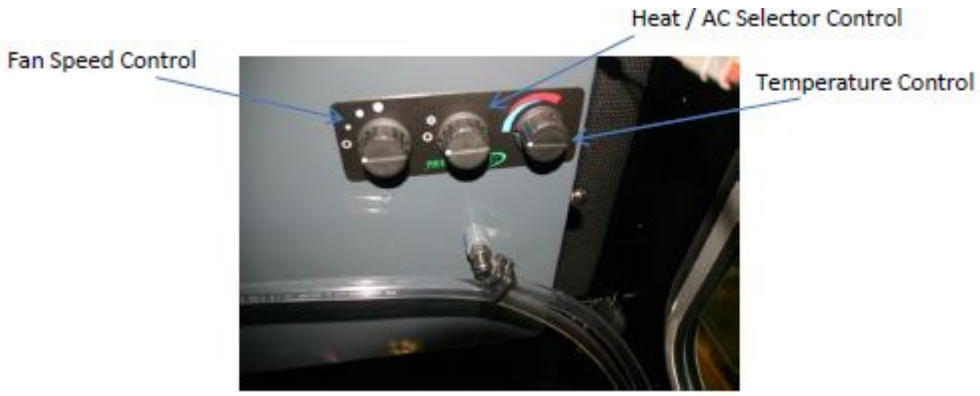
Main Disconnect
Located in the cab



- The style and brand may vary from machine to machine
- Some machines may have the Main Disconnect located on the left hand side – opposite side to shown in picture
- When the Main Disconnect is in the off position all power is cut off to the machine controls and electronics. If the machine is going to sit for long periods of time the Main Disconnect should be turned off to prevent the batteries from draining due to the electronics drawing power from the system.
- The Main Disconnect should be in the off position if the machine is being serviced or repaired.

Cab HVAC System

Heater and A/C Controls



Fan Speed Control

- The fan speed control switch has four settings. Fan off, low, medium and high fan speed.
- Push the arrow up button to increase the fan speed.
- Push the arrow down button to decrease the fan speed.

Celsius/Fahrenheit Control

- The digital display can be set to read in C° or F°
- Push the button to set the system to C°
- Push the button again to set the system to F°

Digital Display

- The digital display indicates what the system temperature has been set to in C° or F°

Temperature Control

- The Temperature Control buttons are used to set the desired temperature.
- Watching the digital display push the arrow up button to increase the desired temperature.
- Watching the digital display push the arrow down button to decrease the desired temperature.

Air Circulation Louvers and Filters

Air Louvers

- The air louvers can rotate, adjust angle and can be completely closed.
- Rotate each air louver so that the air blows in the desired direction.
- Adjust the angle of the louver bars.
- These louvers are intended to be used for defrosting the windows as required. If further window defrost is required the auxiliary fan can be used.

Recirculating Air Intake Filter

The recirculating air intake filter will clean the air that is being circulated through the cab.

Sliding Windows

Opening and Closing Sliding Windows

- To open the sliding windows pinch the window latch and slide window open.
- To close slide window completely closed. The latch will automatically catch and hold the window in place.
- Ensure that windows are closed before transporting this machine at highway speeds.

Interior Door Latch

To open the doors from the interior push down on the latch lever.

External Door Latch

- To open the doors form the exterior, push down on the latch lever.
- The exterior door latch can be locked by inserting a pad lock through the pad lock rings on the door latch lever

Door Catch (for open door)

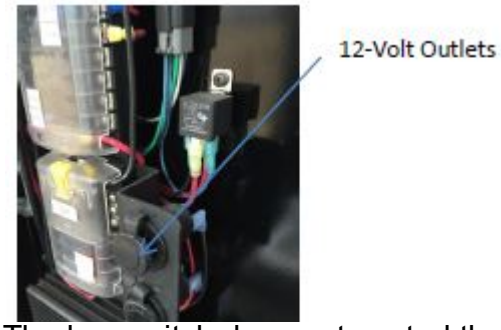
The door catches are used to hold the doors in the open position.

Door Bumper and Catch

- Push the door completely open until it meets the rubber bumper.
- Release the catch pin and insert into the hole in the catch plate.
- To release the door, pull down on the catch pin and twist to lock the catch pin in the down position.

IMPORTANT: Do not transport this machine on a trailer at highway speeds with the doors latched in the open position. Damage to the door and cab could occur

12 Volt Outlets



The key switch does not control the 12V outlets. The outlets are continually supplied with 12V power.

Seat Console Controls

Track Control

Wolfe Plows can be ordered with either dual stick control or single stick control.

WARNING: The operator must completely familiarize themselves and understand the track controls before operating this machine. Failing to do so can cause unintended machine motion, serious injury, or death.

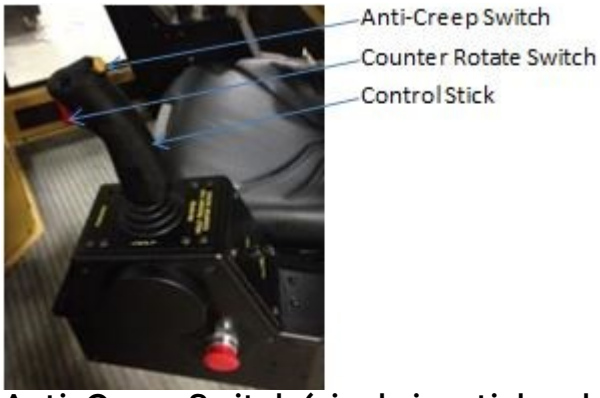
WARNING: Before operating this machine, walk around the machine and warn all personnel who may be working around the machine or in the machine's path. Do not move the machine until all personnel are clearly away from the machine and it is safe to do so.

WARNING: Move the control sticks gradually and smoothly. Excessive speed and quick control movements without regard for the conditions or circumstances can be hazardous and may cause serious injury or death.

Dual Joystick Controls

- Forward, reverse, speed, and turning maneuvers are accomplished by moving the control sticks.
- Each track is controlled by individual stick controls. The left stick controls the left track and the right stick controls the right track.
- If you push the stick forward the corresponding track will rotate in the forward direction. If you pull the stick back the corresponding track will rotate in the reverse direction.
- Each track control stick has a neutral position in the center of its stroke or travel. The track control sticks are NOT spring-return to neutral. The operator is required to move the control sticks to the neutral position in order to stop the track from rotating.
- The track control sticks provide infinite speed control to each individual track. Moving the control sticks further away from the neutral position in either direction steadily increases the speed of the track up to the maximum speed.
- To move the machine in a forward direction in a straight line, push both sticks equally in the forward direction.
- To move the machine in the reverse direction in a straight line, pull both sticks equally in the back direction.
- To move the machine forward and turn to the left, push the sticks forward with the right stick pushed further forward than the left stick.
- To move the machine forward and turn to the right push the sticks forward with the left stick pushed further forward than the right stick.
- To move the machine backward and turn to the right, pull the sticks back with the left stick pulled further back than the right stick.
- To move the machine backward and turn to the left, pull the sticks back with the right stick pull further back than the left stick.
- For very sharp turns to the left, push the right stick forward and pull the left stick back.
- For very sharp turns to the right, push the left stick forward and pull the right stick back.

Single Joystick Control



Anti-Creep Switch (single joystick only).

- Press the anti-creep button to turn the anti-creep function on (Anti-Creep ON will illuminate on the machine control system).
- Press the anti-creep button again to turn the anti-creep function off (Anti-Creep Off will illuminate on the machine control screen).
- When the anti-creep function is enabled all track functions are turned off.

WARNING: All hydraulic functions are active except the track hydraulics when the anti-creep function is enabled. Continue to keep all persons clear of the machine. Failing to do so could result in serious injury or death.

Control Stick

- Forward, reverse, speed and turning maneuvers are accomplished by moving the single stick control.
- Both tracks are controlled by a single stick control.
- The single stick control has a neutral position in the center of its stroke or travel. The control stick is NOT spring-return to neutral. The operator is required to move the control stick to the neutral position in order to stop the track from rotating.
- The single stick control provides infinite speed control. Moving the control stick further away from the neutral position in either direction, steadily increases the speed of the track up to the maximum speed.
- To move the machine in a forward direction, in a straight line, push the control stick in the forward direction.
- To move the machine in the reverse direction, in a straight line, pull the control stick in the back direction.
- To move the machine forward and turn to the left, push the control stick forward and to the left.
- To move the machine forward and turn to the right, push the control stick forward and to the right.

Continued on next page

- To move the machine backward and turn to the right, pull the control stick back and to the right.
- To move the machine backward and turn to the left, pull the control stick back and to the left.

Counter Rotate Switch

- For very sharp turns to the left, move the control stick in the neutral position for a minimum of two seconds. Push the counter rotate button and move the control stick to the left. The right track will rotate in the forward direction and the left track will rotate in the reverse direction.
- For very sharp turns to the right, move the control stick in the neutral position for a minimum of two seconds. Push the counter rotate button and move the control stick to the right. The left track will rotate in the forward direction and the right track will rotate in the reverse direction.

Key Switch

Key Switch

- The Key Switch is located on the right hand seat console under the arm rest.
- When the Key Switch is turned to the run position the machine control screen will power up
- To start the engine the Key Switch needs to be turned to the run position with the electronics powered up. The starter push button is used to turn over the engine. (Refer to the Caterpillar Operation and Maintenance Manual for instruction on starting the engine)
- The Key Switch is turned to the off position to shut down the machine and power down the machine control screen. (Refer to the Caterpillar Operation and Maintenance Manual for instruction on stopping the engine)
- If the machine is being repaired or serviced the key should be removed and a Do Not Operate tag placed on the machine controls.
- A number of the electronic components have machine power supplied when the Key Switch is in the off position, making it important to turn the Master Switch off before servicing or repairing the machine. Damage could occur to the machine electronics if service or repair work is done while the electronics have power supplied to them.

Engine Start Button

- The engine start button is located on the right hand seat console next to the Key Switch under the armrest.
- The engine start button is used to turn over the engine.
- The Key Switch needs to be in the run position before pressing the engine start button.

NOTE: The Caterpillar Operation and Maintenance Manual refers to turning the key switch to the start position to turn over the engine. The Wolfe Power Units are equipped with an engine start button that is used to turn over the engine. There is no start position on the key switch.

Starting the Engine and Engine Operation

Refer to the Caterpillar Operation and Maintenance Manual for all the engine related operation information and procedures.

NOTE: Refer to the Caterpillar Operation and Maintenance Manual for information and procedures for starting the machine engine with jump start cables.

Parking the Machine and Stopping the Engine

- Move the machine to a level area. The machine must be on level ground before stopping the engine.
- As a last resort, if you must park the machine on a grade securely block the tracks to prevent the machine from unintended movement.
- Turn the machine's anti-creep function on.
- Lower the mole and any auxiliary equipment that is suspended by the hydraulic system completely.
- Refer to the Caterpillar Operation and Maintenance Manual for instruction on stopping the engine.
- If the machine is going to sit for long periods of time the Master Switch should be turned off to prevent the batteries from draining due to the electronics drawing power from the system.

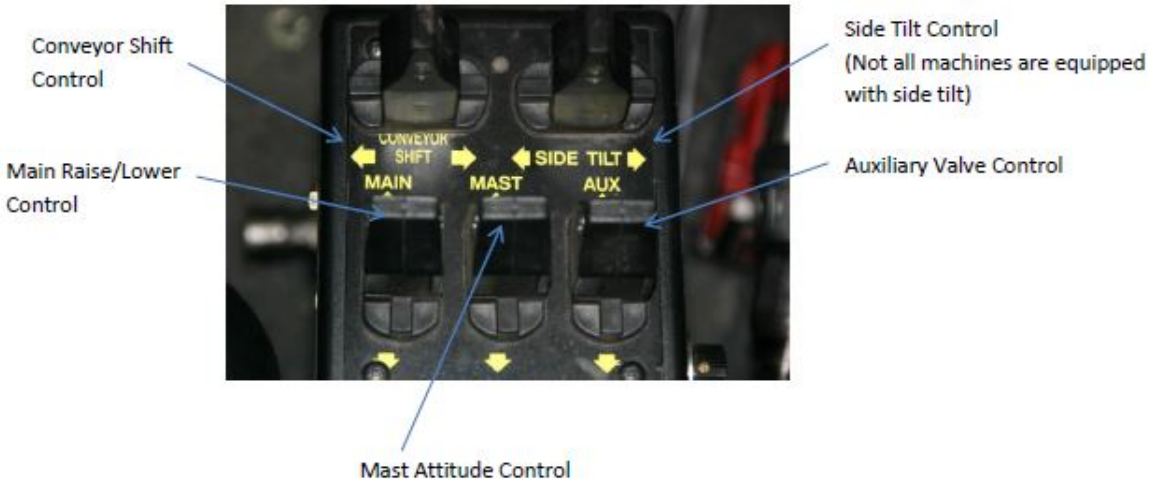
High, Low Range Selector Switch

This machine is equipped with 2 separate speed ranges. The range selector switch is a 2-position switch for the operator to select the desired speed range

- 143 Low ft./minute
- 236 High ft./minute

Right Hand Upper Console

On the right hand upper console there are a number of controls that may not be present depending on the options that were purchased with the machine. Proportional control is a system where you have variable speed control for each of the hydraulic circuits. The further you push the control lever in either direction the faster the machine component that is hooked to that circuit will move (from zero to maximum speed).



WARNING: All hydraulic functions are active except the track hydraulics when the anti-creep function is enabled. Continue to keep all persons clear of the machine. Failing to do so could result in serious injury or death.

Conveyor Shift Control

- This lever is used to shift the conveyor to the left or to the right.
- While facing forward in the cab, press the lever to the left to shift the conveyor to the left, or press the lever to the right to the shift the conveyor to the right.

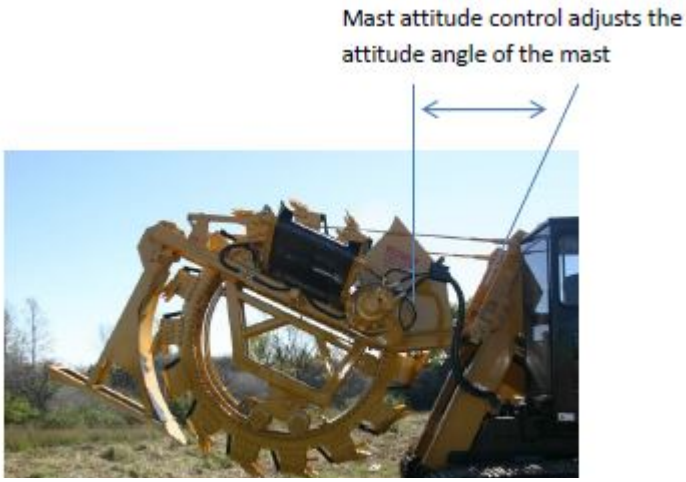
Main Raise/Lower Control

- This lever is used to raise or lower the wheel.
- Press the main lever backwards (toward you) to raise the wheel, press the lever forward (away from you) to lower the wheel.

Main raise lower control raises and lowers the wheel

Mast Attitude Control

- This lever is used to tilt the mast forward or backward.
- Pull the lever toward you to tilt the mast forwards, press the lever away from you to tilt the mast backward.



Side Tilt Control (Not all machines are equipped with side tilt)

- This lever is used to manually tilt the machine to the left or right. Depending on the options purchased either the whole machine will tilt or only the wheel will tilt.
- With the side tilt auto/manual switch in manual mode, press the lever to the left to tilt the machine to the left. Press the button to the right to tilt the machine to the right.

Auxiliary Valve Control

- The auxiliary valve can control a number of different functions depending on what operations have been ordered and installed on the machine.
- In most cases the auxiliary valve is plumbed into the rim clean knife hydraulic circuit.

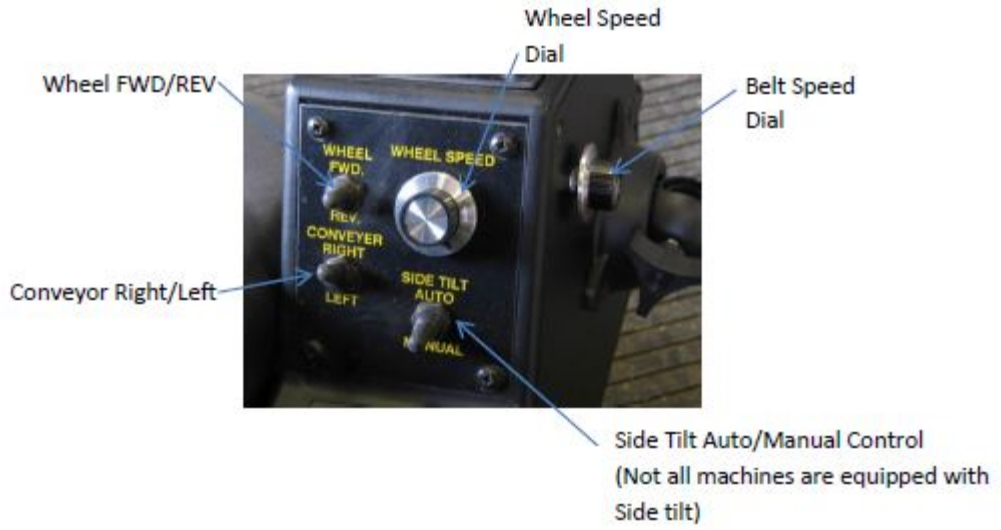
WARNING: Always check and make sure that you are familiar with which hydraulic function this lever controls before operating this machine. Not knowing what function is connected to this Auxiliary Control can cause unexpected machine movement, serious injury, or death.

Auxiliary Valve - Rim Cleaner - Nitrogen Accumulator

- The nitrogen accumulator is located at the rear of the machine. It acts as a spring to ensure the rim cleaner knives are able to retract if a large piece of debris has enough force on the rim cleaner knives, the knives will retract and allow the piece of debris to clear. Once the debris has cleared the knives will spring back into position.
- The auxiliary valve is tied into the rim cleaner hydraulic circuit. The auxiliary control is used to increase or decrease the force of the rim cleaner knives.
- To increase or decrease the force on the rim cleaner knives open the gate valve located near the accumulator tank. Press the auxiliary control lever in either direction until the pressure gauge reaches the desired pressure. (Normal working range 800 -1000 psi). Then close the gate valve.

Right Hand Lower Console

On the right hand lower console there are a number of controls. Depending on the options that were purchased with the machine some controls may not be present.



Wheel FWD/RAEV Switch

- The wheel fwd/rev switch controls which way the wheel is turning.
- The wheel fwd/rev switch is a three position switch with the center position being neutral.
- For wheel start up, switch must start in the neutral position.
- To operate the wheel in the forward direction push the switch to the FWD position. (digging direction)
- To operate the wheel in the reverse direction push the switch to the REV position. Reverse is only used to clear the wheel of a jammed object. Caution should be taken when clearing the wheel

WARNING: Use caution when running the wheel in reverse or removing jammed objects from the wheel. Be sure that all personnel are clear of the machine before operating the wheel.

Wheel Speed Dial

- The wheel speed dial controls the speed of the wheel.
- Turn the dial clockwise to increase the speed of the wheel
- Turn the dial counter-clockwise to decrease the speed of the wheel.

Belt Speed Dial

- The belt speed dial controls the speed of the wheel.
- Turn the dial clockwise to increase the speed of the belt
- Turn the dial counter-clockwise to decrease the speed of the belt.

Conveyor Right/Left Switch

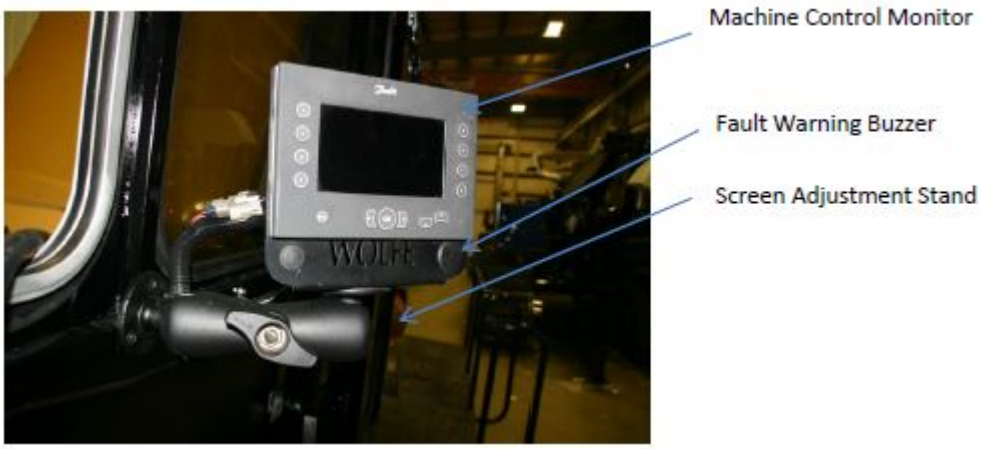
- The conveyor right/left switch controls the direction of the conveyor belt.
- The conveyor right/left switch is a three position switch with the center position being neutral.
- Press the switch right position for the conveyor to unload on the right side of the wheel
- Press the switch the left position for the conveyor to unload on the left side of the wheel

Left and right conveyor direction

Side Tilt Auto/Manual Switch

- The side tilt auto/manual switch allows the operator select auto or manual side tilt.
- Press the switch to the auto position to enable auto side tilt.
- In auto the machine will automatically keep the wheel vertical when the machine is operated on slopes. (maximum tilt 7 degrees)
- Press the switch to the manual position to enable manual side tilt. With the side tilt auto/manual switch in the manual mode the operator can tilt the machine manually with the side tilt control lever located on the upper right hand seat console.
- If in manual and auto is selected the machine will self-level.

Machine Control Monitor



Fault Warning Buzzer

- This buzzer will only sound to indicate that the high pressure loop system pressure is low.
- After the buzzer sounds the machine will only run for 3 seconds and shutdown to protect the hydraulic system.

Screen Adjustment Stand

- To adjust the location of the machine control screen, loosen the large black wing nut while holding onto the screen (the screen will fall if not held onto). Move to the desired location and tighten the black wing nut.

Machine Control Screens

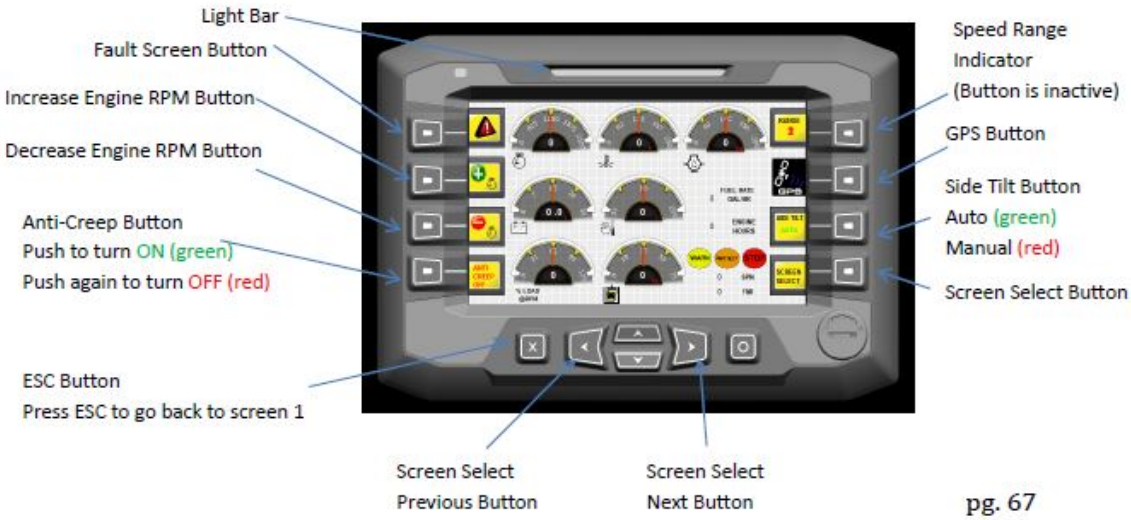
NOTE: To move between screens, the operator has a choice to either use the active buttons that are located down each side of the display, or the active icons that are located on the touch screen display.

Main Screen

From the main screen, the operator can chose from the list of secondary screens.

NOTE: For the Engine, Tracks, and Work screens the buttons and icons down each side of the display remain the same, and have the same function. Either the buttons or the corresponding icons on the touch screen can be used to move through the screens.

Control Monitor Functions



pg. 67

Continued on next page

Light Bar

- The light bar with illuminate red when a fault has occurred.

Fault Screen Button

- Icon will illuminate in green when no faults exist.
- Icon will illuminate red if a fault has occurred.
- Press the fault screen button to view the list of machine faults.

Increase Engine RPM Button/Auto Idle

- Press the increase engine RPM button to increase the engine RPM (revolutions per minute).
- Each time you press the increase RPM button the engine RPM increases by 300 revolutions per minute.
- If the auto idle option is activated in the setup- machine configuration screen the machine will idle down after 5 seconds of no functions being used. The machine will automatically increase the RPM to the previous setting if any of the functions are activated.

Decrease Engine RPM Button

- Press the decrease engine RPM button to decrease the engine RPM (revolutions per minute).
- Each time you press the decrease RPM button the engine RPM decreases by 300 revolutions per minute.

Anti-Creep Button

- Press the anti-creep button to turn the anti-creep function on. (Anti-Creep ON will illuminate in green)
- Press the anti-creep button again to turn the anti-creep function off. (Anti-Creep Off will illuminate in red)
- When the anti-creep function is enabled all track functions are turned off.

WARNING: All hydraulic functions are active except the track hydraulics when the anti-creep function is enabled. Continue to keep all persons clear of the machine. Failing to do so could result in serious injury or death.

ESC Button

- Press the ESC button to go back one screen.
- This function is only active when the note “ESC to EXIT” existing on the lower left corner of the screen.

Continued on next page

Next/Previous Buttons

- These buttons are used to scroll between the Engine, Tracks and Work Screens
- These buttons are also used to scroll between the fault pages
- Press the up button to view the next screen.
- Press the down button to view the previous screen.

Screen Select Button

- Press this button to go back to the main screen.
- This button is only active when the “Screen Select” icon is illuminated in the bottom right corner of the screen.

Side Tilt Auto/Manual (if equipped)

- This control is used to select auto/manual side tilt of the entire machine.
- Press the side tilt button to turn the side tilt function to auto. (Side Tilt AUTO will illuminate in green)
- Press the side tilt button again to turn the side tilt function off. (Side Tilt MANUAL will illuminate in red)
- When the side tilt function is in AUTO, the machine will automatically keep the machine vertical when the machine is being used on slopes.
- When the side tilt function is in MANUAL, the operator can manually tilt the machine by using the side control lever on the right hand lower console.

GPS Button

- Press this button to enable GPS Auto-steer CAN communication.
- Press this button again to deactivate GPS Auto-steer CAN Communication.

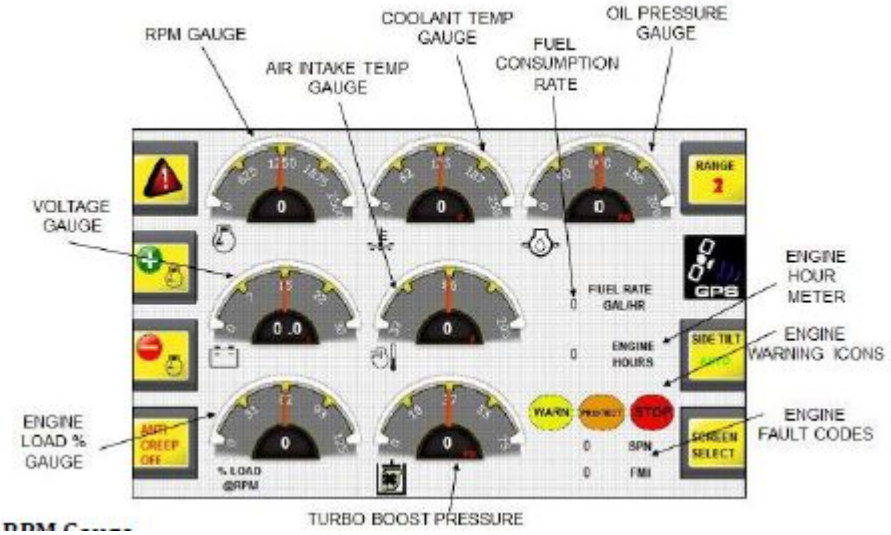
Speed Range Indicator Button (Also on seat)

This icon indicates which speed range the machine is set to operate in.

The selector switch on the lower left hand console is used to set the desired speed range:

- 1st range up to 120 ft/min
- 2nd range up to 260 ft/min
- Dig Mode up to 30 ft/min

Engine Screen



Voltage Gauge

The voltage gauge shows system voltage of the machine.

RPM Gauge

The RPM gauge shows the speed of the engine in revolutions per minute.

Air Intake Temperature Gauge

The air intake temperature gauge shows the temperature of the air going into the engine in degrees F.

Coolant Temperature Gauge

The coolant temperature gauge shows the temperature of the coolant in degrees F.

Engine Oil Pressure Gauge

The engine oil pressure gauge shows the engine oil pressure in pounds per square inch (PSI).

Fuel Consumption Rate

The fuel consumption rate shows how much fuel is being used in gallons / hour.

Continued on next page

Engine Load % Gauge

The engine load % gauge shows the percentage of the maximum rated horsepower that the engine working at.

Turbo Boost Pressure Gauge

The turbo boost pressure gauge shows the turbo boost pressure inside the engine in pounds per square inch (PSI).

Engine Warning Icons

Engine Stop Icon

- The engine stop icon will illuminate in red when the engine detects a critical engine problem.
- The engine will shut down automatically if this occurs.
- Check the engine fault code on the active faults page.

Engine Warning Icon

- The engine warning icon will illuminate in yellow when the engine detects an engine problem which is not critical.
- The engine will continue to run but will need service to repair the issue.
- Check the engine fault code on the active faults page.

Engine Protect Icon

- The engine protect icon will illuminate in red when the engine detects an engine problem and the electronic controls de-rate the maximum output horsepower of the engine.
- The engine will continue to run but will need service to repair the issue.
- Check the engine fault code on the active faults page.

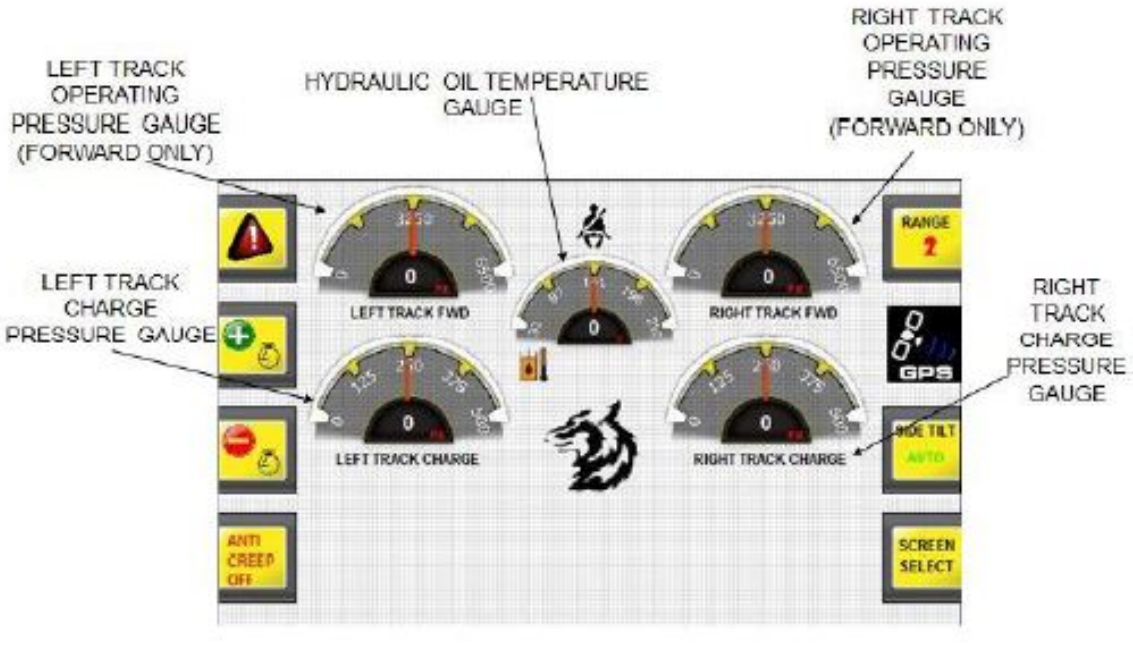
Engine Fault

- The engine fault codes show what fault the engine electronics is detecting.
- The fault codes are used to troubleshoot any issues with engine.
- See the fault code chart in the Caterpillar Operations and Maintenance Manual for more information.

Engine Hour Meter

The Hour meter shows how many hours the machine has to run.

Track Screen



Left Track Forward Pressure Gauge

The left track forward pressure gauge shows the hydraulic pressure that is being used on the left track while the machine is moving forward in PSI (pounds per square inch).

Right Track Forward Pressure Gauge

The right track forward pressure gauge shows the hydraulic pressure that is being used on the right track while the machine is moving forward in PSI (pounds per square inch).

Coolant Temperature Gauge

The coolant temperature gauge shoes the hydraulic oil temperature in degrees F.

Left Track Charge Pressure Gauge

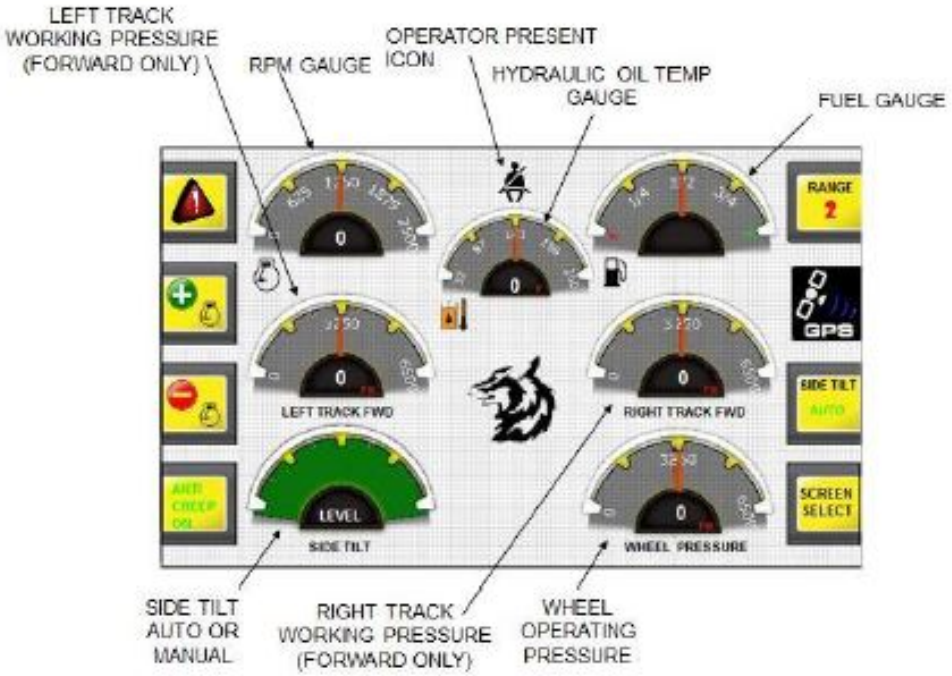
The left track charge pressure gauge shows the left track pump charge pressure in pounds per square inch (PSI).

Right Track Charge Pressure Gauge

The right track charge pressure gauge shows the right track pump charge pressure in pounds per square inch (PSI).

Continued on next page

Work Screen



RPM Gauge

The RPM gauge shows the speed of the engine on revolutions per minute (RPM).

Coolant Temperature Gauge

The coolant temperature gauge shoes the hydraulic oil temperature in degrees F.

Operator Present Icon

- The operator present icon flashes when the seat switch detects that the operator is NOT in the seat.
- If the operator leaves the seat while the machine is in motion the machine will stop after 5 seconds.

Fuel Level Gauge

The fuel gauge shows the amount of fuel that is in the fuel tank.

Left track Forward Pressure Gauge

The left track forward pressure gauge shows the hydraulic pressure that is being used on the left track while the machine is moving forward in PSI (pound per square inch).

Continued on next page

Right Track Forward Pressure Gauge

The right track forward pressure gauge shows the hydraulic pressure that is being used on the right track while the machine is moving forward in PSI (pounds per square inch).

Side Tilt Gauge (if equipped)

The side tilt gauge shows when the mole is level (vertical) leaning to the right or leaning to the left.

Back Pressure Gauge (attitude circuit)

The attitude back pressure gauge shows the hydraulic pressure in the attitude cylinders in PSI (pounds per square inch)

Wheel Operating Pressure Gauge

The wheel operating pressure gauge shows the wheel operating pressure in pounds per square inch (PSI).

Conveyor Screen

Fault Button
Navigate to fault page. Alert icon will flash if fault has been detected.

Calibration Instructions Button
Instructions on how to calibrate minimum value of the wand sensor.

Select Direct Button
Select direction of rotation of the tile stringer.

Calibrate Button
Select to enable minimum calibrated value of the wand sensor when in calibration mode.

Enter Button
Captures the minimum calibrated value of the wand sensor when in calibration mode.

Auto/Manual Icon
Shows if the tile stringer is in Auto Mode or Manual Mode.

Continued on next page

Wand Gauge

- Shows the MV sent from the sensor.
- Indicates where the speed control arm is relative to its full rotary stroke in volts DC.
- If there is a large tile droop and the speed control arm is down, the gauge will read closer to 0 and the tile reel rotation will slow down or stop.
- If there is a very small tile droop, the speed control arm will be high in its stroke and the gauge will read closer to 5 VDC and the tile reel will speed up.

Potentiometer Gauge

- Shows the MV sent from the potentiometer on the seat.
- The potentiometer gauge indicates the target position that you want the speed control arm to work in. Once you have this set, the machine will always try to feed the proper amount of tile to keep the speed control arm in that position; basically setting the center of the control arm working range.
- Every time the key power is turned off, the hose position will need to be set.

Changing the Setting While the Machine is Not Moving

- Switch the speed control selector switch on the seat console to manual (see below for information on the seat console controls).
- Lift the speed control arm to the center of the working range that you desire.
- Switch the speed control selector switch back to auto.
- The hose position will be set.
- If you switch the speed control back to manual this setting will be lost and will need to be reset.

Changing the Setting While the Machine is Installing Tile

- Switch the speed control selector switch on the seat console to manual.
- Turn the manual speed control dial to 0 to reset the speed control to manual.
- Using the manual speed control dial speed up or slow down the tile reel so that the speed control arm and the tile droop is in the center of the working range that you want.
- Switch the speed control selector switch on the seat console back to auto.
- The hose position will be set.
- If you switch the speed control back to manual this setting will be lost and will need to be reset.

Minimum Calibrated Value Display

- This number is captured when calibrating the wand.
- The wand gauge will show this number when the stringer stops all movement.

Continued on next page

Active Faults Icon

- The active fault icon on the main screen will illuminate in **red** when a fault occurs.
- Press the icon to enter the fault screens.

Engine, Tracks, Work Screens - Fault Display

Light Bar

The Light bar will illuminate **red** when a fault has occurred.

Continued on next page

Fault Screen Button

- A **red** triangle icon will illuminate if a fault has occurred.
- Press the fault screen icon to view the list of machine faults.

Fault Screens

- If a monitored fault occurs, the box next to the fault will illuminate in red.
- Refer to the trouble shooting reference guide and schedules for trouble shooting tips.

Page 1

- Engine J1939 Canbus Fault – refer to schedule 1
- Mc 50 Pin Canbus Fault – refer to schedule 2
- LH Charge Pressure Sensor Fault – refer to schedule 3
- RH Charge Pressure Sensor Fault – refer to schedule 3
- LH Fwd. Pressure Sensor Fault – refer to schedule 3
- Wheel Fwd. Sensor Fault – refer to schedule 3
- RH Fwd. Pressure Sensor Fault – refer to schedule 3
- Fan Fwd. Coil Fault – refer to schedule 4
- Fan Rev Coil Fault – refer to schedule 4
- Left Track Fwd. Coil Fault – refer to schedule 4
- Left Track Rev Coil Fault – refer to schedule 4
- Right Track Fwd. Coil Fault – refer to schedule 4
- Right Track Rev Coil Fault – refer to schedule 4
- Track Joystick Y-Axis Fault – refer to schedule 5
- Track Joystick Y-Axis Not Calibrated – refer to schedule 6
- Track Joystick X-Axis Fault – refer to schedule 5
- Track Joystick X-Axis Not Calibrated – refer to schedule 6
- Fuel Level Sensor Fault – refer to schedule 3
- Oil Temperature Sensor Fault – refer to schedule 3
- Mast Joystick Not Calibrated – refer to schedule 6
- Mast Joystick Fault – refer to schedule 5
- Wheel Speed POT Not Calibrated – refer to schedule 6
- Wheel Speed POT Fault – refer to schedule 8
- Aux Joystick Not Calibrated – refer to schedule 6
- Aux Joystick Fault – refer to schedule 5
- Main Joystick Not Calibrated – refer to schedule 6
- Main Joystick Fault – refer to schedule 5
- Conveyor Joystick Not Calibrated – refer to schedule 6
- Conveyor Joystick Fault – refer to schedule 5
- Conveyor Speed POT Not Calibrated – refer to schedule 6
- Conveyor Speed POT Fault – refer to schedule 8
- Tilt Joystick Not Calibrated – refer to schedule 6
- Tilt Joystick Fault – refer to schedule 5
- Mast Up Coil Fault – refer to schedule 4
- Mast Down Coil Fault – refer to schedule 4
- Main Cylinder Up Coil Fault – refer to schedule 4
- Main Cylinder Down Coil Fault – refer to schedule 4
- Output Module Offline – refer to schedule 7
- Input Module Offline – refer to schedule 7
- High Speed Coil Fault – refer to schedule 4
- Wheel Pump 1 Fwd. Coil Fault – refer to schedule 4
- Wheel Pump 1 Rev Coil Fault – refer to schedule 4

Continued on next page

- Wheel Pump 2 Fwd. Coil Fault – refer to schedule 4
- Wheel Pump 2 Rev Coil Fault – refer to schedule 4
- Conveyor Fwd. Coil Fault – refer to schedule 4
- Conveyor Rev Coil Fault – refer to schedule 4
- Conveyor Left Coil Fault – refer to schedule 4
- Conveyor Right Coil Fault – refer to schedule 4
- Aux Valve Up Coil Fault – refer to schedule 4
- Aux Valve Down Coil Fault – refer to schedule 4
- Main Cylinder Up Coil Fault – refer to schedule 4
- Tilt Left Coil Fault – refer to schedule 4
- Tilt Right Coil Fault – refer to schedule 4
- Oil Level Sensor Fault – refer to schedule 3
- Wheel 1 Charge Pressure Sensor Fault – refer to schedule 3
- Wheel 2 Charge Pressure Sensor Fault – refer to schedule 3
- Conveyor Charge Pressure Sensor Fault – refer to schedule 3
- Conveyor Fwd. Pressure Sensor Fault – refer to schedule 3
- Conveyor Rev Pressure Sensor Fault – refer to schedule 3
- Oil Heater Fault – refer to schedule 4
- CAC Fwd. Coil Fault – refer to schedule 4
- CAC Rev Coil Fault – refer to schedule 4
- Rad Fwd. Coil Fault – refer to schedule 4
- Rad Rev Coil Fault – refer to schedule 4
- MC050 B C.A.N Fault – refer to schedule 3

Schedule 1

- Check connections
- Check continuity on cables
- Replace 50 pin module
- Check engine ECM

Schedule 2

- Check connections
- Check continuity on cables
- Replace 50 pin module
- Replace output module

Schedule 3

- Check connections
- Check continuity on cables
- Check supply voltage and ground
- Replace sensor

Schedule 4

- Check connections
- Check continuity on cables
- Check supply voltage and ground
- Replace coil

Schedule 5

- Check connections
- Check continuity on cables
- Check supply voltage and ground
- Replace joystick

Schedule 6

- Hold fwd or right for 5 seconds
- Hold rev or left for 5 seconds
- Calibration should be complete

Schedule 7

- Turn key to off position and back on
- check connections
- check continuity on cables
- check supply voltage and ground
- Replace module

Schedule 8

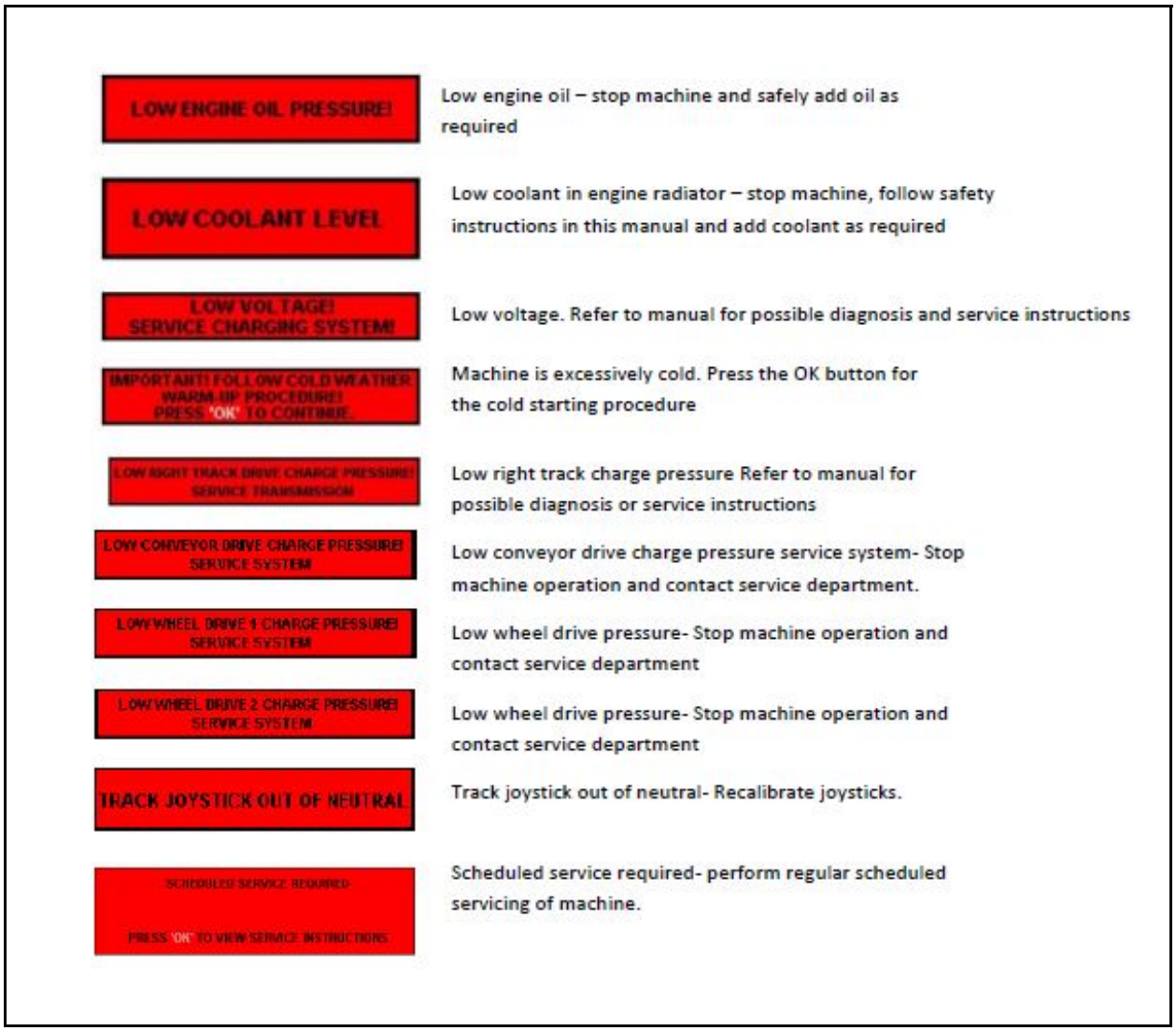
- Check connections
- Check continuity on cables
- Check supply voltage and ground
- Check output voltage
- Replace potentiometer

Active Fault Banner

A fault banner will illuminate in **red** if the following faults occur.

!! ANTI-CREEP ENABLED !!	Anti-creep is on. Machine will not move. If you wish to move the machine turn the Anti-creep off
LH JOYSTICK OUT OF NEUTRAL	Left joystick is out neutral. Move joystick to neutral
RH JOYSTICK OUT OF NEUTRAL	Right joystick is out of neutral. Move joystick to neutral
HIGH COOLANT TEMPERATURE!	Coolant temperature is high. Refer to manual for possible diagnosis and service instructions
HIGH AIR INTAKE MANIFOLD TEMPERATURE!	Intake air temperature is high. Refer to manual for possible diagnosis and service instructions
JOYSTICK X-AXIS OUT OF NEUTRAL	Joystick is out of neutral (single joystick only). Move joystick to Neutral
LOW LEFT TRACK DRIVE CHARGE PRESSURE! SERVICE TRANSMISSION	Low left track charge pressure. Refer to manual for possible diagnosis and service instructions
HIGH HYDRAULIC TEMPERATURE! DECREASE POWER!	High hydraulic fluid temperature. Refer to manual for possible diagnosis and service instructions
LOW HYDRAULIC OIL LEVEL! STOP AND ADD OIL!	Low hydraulic oil level. Stop machine and safely add hydraulic oil as required
PRE-HEATING - WAIT TO START!	Engine preheater is on – wait to start

Continued on next page


LOW ENGINE OIL PRESSURE!
Low engine oil – stop machine and safely add oil as required
LOW COOLANT LEVEL
Low coolant in engine radiator – stop machine, follow safety instructions in this manual and add coolant as required
LOW VOLTAGE!
SERVICE CHARGING SYSTEM!
Low voltage. Refer to manual for possible diagnosis and service instructions
IMPORTANT! FOLLOW COLD WEATHER WARM-UP PROCEDURE!
PRESS 'OK' TO CONTINUE
Machine is excessively cold. Press the OK button for the cold starting procedure
LOW RIGHT TRACK DRIVE CHARGE PRESSURE!
SERVICE TRANSMISSION
Low right track charge pressure Refer to manual for possible diagnosis or service instructions
LOW CONVEYOR DRIVE CHARGE PRESSURE!
SERVICE SYSTEM
Low conveyor drive charge pressure service system- Stop machine operation and contact service department.
LOW WHEEL DRIVE 1 CHARGE PRESSURE!
SERVICE SYSTEM
Low wheel drive pressure- Stop machine operation and contact service department
LOW WHEEL DRIVE 2 CHARGE PRESSURE!
SERVICE SYSTEM
Low wheel drive pressure- Stop machine operation and contact service department
TRACK JOYSTICK OUT OF NEUTRAL
Track joystick out of neutral- Recalibrate joysticks.
SCHEDULED SERVICE REQUIRED
PRESS 'OK' TO VIEW SERVICE INSTRUCTIONS
Scheduled service required- perform regular scheduled servicing of machine.

Calibrating Joysticks and Dials

If any of the joysticks or dials need to be calibrated, the fault icon will illuminate in red on work, engine, tracks, and conveyor/wheel screens.

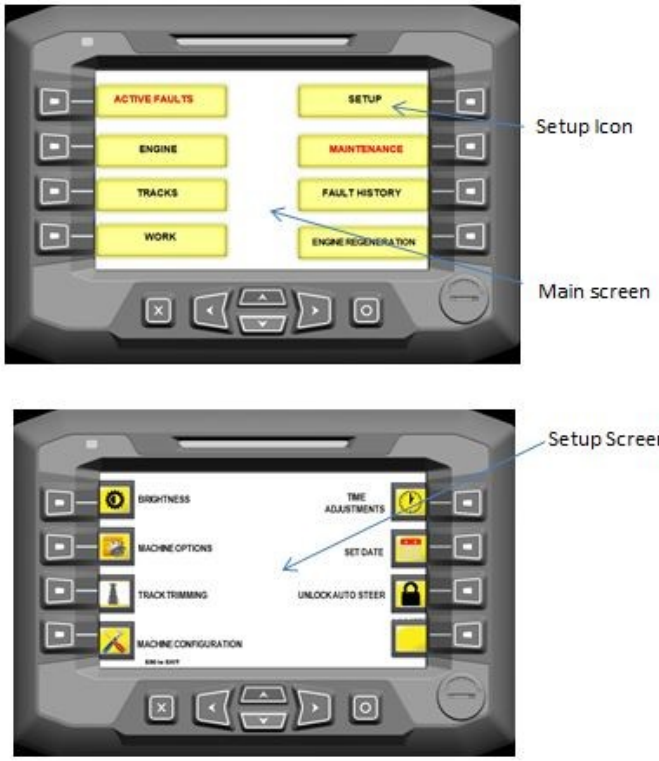
- Press the fault button to view the fault.
- The box beside the calibration that has the fault will illuminate in red.
- Press the according joystick completely forward or to the right. For dial calibration rotate completely clockwise.
- Hold for 5 seconds. (Make sure the hold time is 5 seconds or the calibration will not work)
- Press the joystick completely rearward or to the left. For dial calibration rotate completely counter-clockwise.
- Hold for 5 seconds.
- The calibration should be complete and the fault should be cleared on the fault screen.

Fault History Screen

Viewing The Fault History Screen

- From the main screen, press the fault history icon.
- The fault history screen will appear.
- You can scroll through the pages of the faults if there is more than one page using the up/down buttons.

Machine Setup



- From the main screen, press the setup icon.
- From the setup screen, the operator can select the required setup icon.

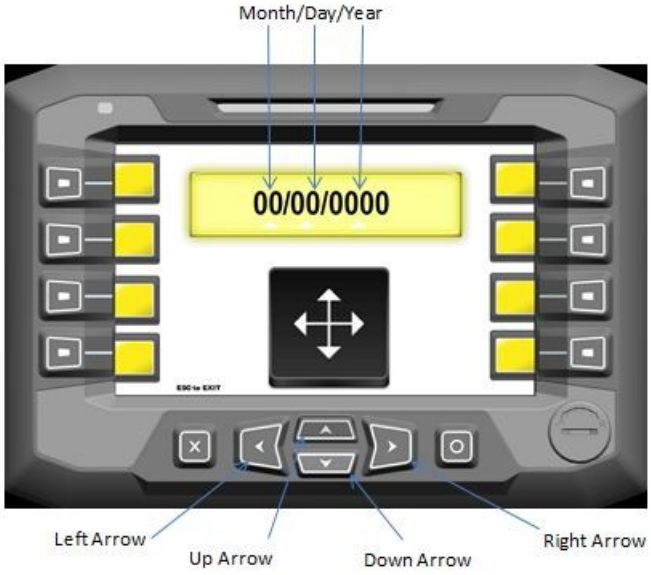
Screen Brightness Adjustment

Continued on next page

Adjusting the Screen Brightness

- To adjust the screen brightness, press the increase or decrease icon.
- Press ESC to exit screen.

Date Adjustment



Month/Day/Year

Indicates the month, day and year the screen has been set to.

Left Arrow

Select either month, day or year to change.

Right Arrow

Select either month, day or year to change.

Up Arrow

Increases the numeric value of the selected section

Down Arrow

Increases the numeric value of the selected section

Machine Options Screen

For each option press the pertaining icon multiple times to make the selection desired.

Grading Option

- Select the communications protocol that will be used with the GPS or laser control system by pressing the grading option button multiple times to select the desired setting.
- Setting options are: None, Ratio Metric, Digital.

Attitude Option

- Select the communications protocol that will be used with the GPS or laser control system by pressing the attitude option button multiple times to select the desired setting.
- Setting options are: None, Ratio Metric, Digital.

Increase Button (Single Joystick Only)

Press the increase button to increase the maximum steering percentage.

Decrease Button (Single Joystick Only)

Press the decrease button to decrease the maximum steering percentage.

Continued on next page

Maximum Steering Percentage (Single Joystick Only)

- The maximum steering percentage is a setting for how aggressive a machine with the single joystick option will steer when the control stick is pushed completely to the left or right.
- To increase the sensitivity of the joystick steering function, set the percentage to a higher number.
- To decrease the sensitivity of the joystick steering function, set the percentage to a lower number.

Load Control On/Off

- Press the load control button to enable the load control function. (ON will illuminate green)
- Press the load control button again to disable the load control function. (OFF will illuminate red)
- When load control is enabled the machine will automatically be limited to the maximum engine horsepower output to the pre-set limit that has been setup in the machine parameters. To adjust the maximum engine horsepower output parameters consult your local Wolfe dealer.

Backup Alarm Enable/Disable

- Press the backup alarm button to enable / disable the backup alarm function.

Backup Alarm Enable/Disable

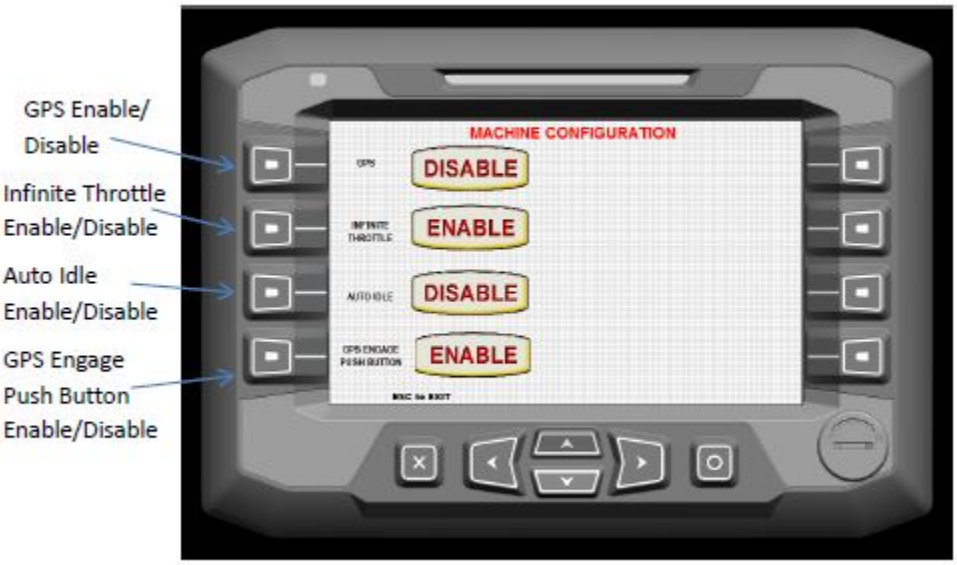
- Press the dig mode button to enable / disable the dig mode function

Track Trimming

- From the engine, tracks or work screen select which range that you would like to trim
- Press the screen select icon to bring you back to the main screen
- Press the setup icon on the main screen
- At the bottom middle of the screen you will see which range you are calibrating
- Track trimming adjustment can be made for both forward and reverse machine directions in the 2 ranges
- Push the joystick forward
- Increase or decrease the track speed percentages for the left and right tracks as required.
- Pull the joystick back for reverse
- Increase or decrease the track speed percentages for the left and right as required.
- Repeat for each speed range as required

Track Trimming Screen

Machine Configuration



GPS Enable/Disable

- Enable/disable the GPS as needed.
- Press the button multiple times to select your setting.

Infinite Throttle Enable/Disable

- Enable / Disable the infinite throttle. The machine must be equipped with the optional infinite throttle.
- Press the button multiple times to select your setting.

GPS Engage Push Button

- Enable / Disable GPS Auto-steer button.
- Press the button multiple times to select your setting.

Auto Idle Enable/Disable

- Enable / Disable the auto idle.
- Press the button multiple times to select your setting.
- When the auto idle is enabled the machine will idle down after 5 seconds of no functions being used. The machine will automatically increase the RPM to the previous setting if any of the functions are activated.

Dig Mode

Dig mode is an extra slow track speed setting used in tough digging conditions or when a very slow machine speed is required.

GPS Enable/Disable

- Press the increase / decrease button to speed up or slow down the left track in dig mode
- Percentage increase will be shown in the white box

Infinite Throttle Enable/Disable

- Press the increase / decrease button to speed up or slow down the right track in dig mode
- Percentage increase will be shown in the white box

GPS Engage Push Button

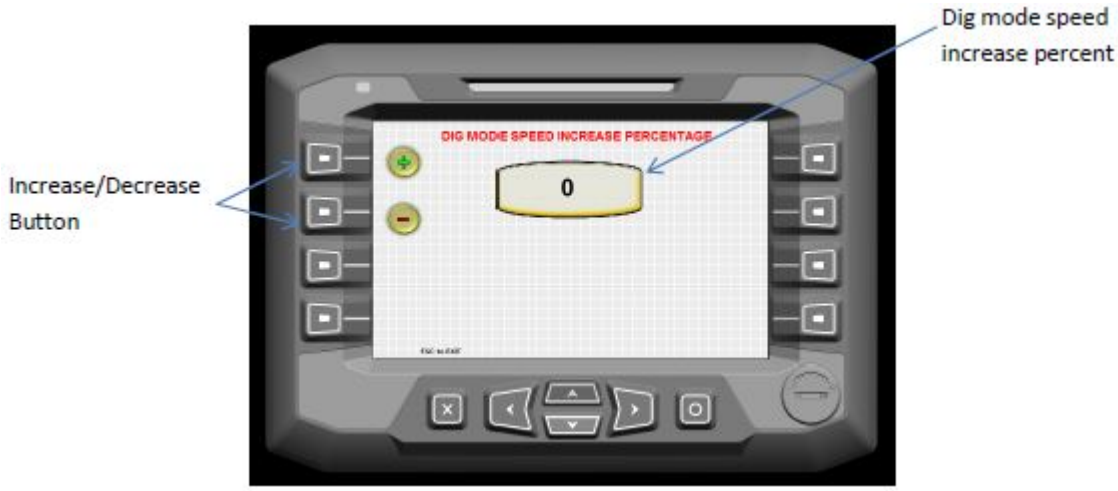
- Press the increase / decrease button to speed up or slow down the left track in dig mode
- Percentage increase will be shown in the white box

Auto Idle Enable/Disable

- Press the increase / decrease button to speed up or slow down the right track in dig mode
- Percentage increase will be shown in the white box

Dig Mode Speed

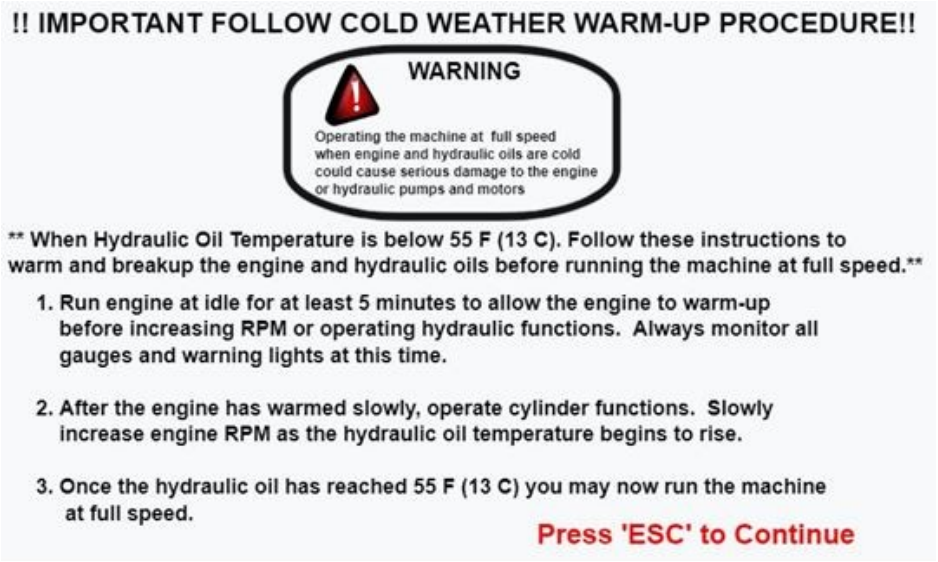
- For a change us speed while in dig mode, press the increase / decrease buttons.
- Speed percentage change will be shown in the white box.



Cold Weather Starting

- If the temperature is below 55F (13C) this warm up warning will appear on the machine control screen.
- Press the escape button to continue.

NOTE: Refer to the Caterpillar operation and maintenance manual for cold weather starting.



Cold Weather Operation

Cold weather conditions cause special problems. During these conditions your machine will require special attention to prevent serious damage. Cold weather maintenance will extend the service life of your machine.

WARNING: Operating this machine at full speed when the engine and hydraulic oils are cold could cause serious damage to the engine or hydraulic pumps and motors.

- Clean the batteries and make sure they are at full charge. A fully charge battery at 0°F (18°C) has only 40% of the normal cranking power. If the temperature is -20°F (-29°C) the batteries only have 18% of the normal cranking power.
- If you add water to the batteries, make sure that you charge the batteries completely to prevent freezing.

Continued on next page

- Inspect the battery cables and terminals. Clean the terminals and apply a coat of grease on each terminal to prevent corrosion.
- Make sure that you use the correct oil in all components and that the oil and filters are changed as indicated in the manual.
- Check with your fuel supplier for the correct cold weather fuel. Engine power will be reduced if wax particles are in the fuel filter. Make sure that the water separator is drained regularly and the fuel is changed as indicated in the manual.
- Obtain a coolant sample and test to ensure the coolant has the correct mixture to prevent freezing. Refer to the Caterpillar operation and maintenance manual for more instructions.
- When starting your machine in cold weather, follow the procedure in the Caterpillar operation and maintenance manual.
- After the engine has warmed up, slowly operate the cylinder functions. Slowly increase the RPM of the engine as the hydraulic oil temperature increases.
- After the hydraulic oil has reached 55°F (13°C) you may run the machine at full speed.

Hot Weather Operation

- Obtain a coolant sample and test to ensure the coolant has the correct mixture. This will ensure the coolant has the most efficient cooling capabilities. Refer to the Caterpillar Operation and Maintenance manual for more instructions.
- Test the radiator cap to make sure it is working within the proper pressure range. Refer to the Caterpillar Operation and Maintenance manual for more instructions.
- Check and clean all cooling radiators as indicated in this manual.
- Make sure that you use the correct oil in all components and that the oil and filters are changed as indicated in the manual.
- Check and clean the air intake filter. Refer to the Caterpillar Operation and Maintenance manual for more instructions.
- Check the HVAC system as indicated in this manual.

Maintenance Screens

Service Schedule Screens

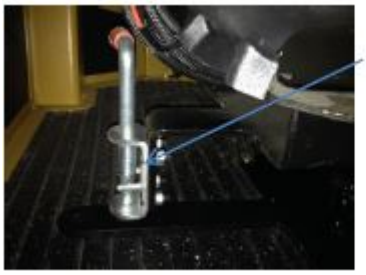
- The service schedule screens will appear on the machine control monitor at the regular service intervals.
- Press ESC to acknowledge that the service will be completed.

Manual Reverse Fans

The fans automatically reverse clean all the coolers every 45 minutes provided the machine isn't under load. If the machine is under load, the fans will reverse clean at the earliest time when the machine is no longer under load.

- If the coolers require cleaning prior to the 45 minutes, stop the machine to ensure it is not under load.
- Push the manual fan reverse button while machine is not under load.
- The fans stop, then continue to run in reverse for approximately 10 seconds.

Air Ride Seat Adjustment



Armrest Adjustment

- The armrest may be folded completely up or completely down.
- The low arm rest position can be adjusted to tip up.
- Turn the knob clockwise to tip the armrest up.
- Turn the knob counter-clockwise to tip the armrest down.

Backrest Adjustment

- Sit in the seat and lift the backrest adjustment lever to adjust.
- The backrest is spring-loaded to tilt forward.
- Lean back or forward to adjust the backrest to the desired location. Keep in mind that the seat may need to be moved forward to prevent the backrest from contacting the window when rotating the seat.
- Release the lever and make sure the backrest is in the locked position.

Continued on next page

Seat Cushion In/Out Adjustment

- Lift the seat cushion in/out lever.
- Move the seat cushion in or out to adjust to the desired setting.
- Release the lever and make sure the seat cushion is in the locked position.

Seat Cushion Up/Down Adjustment

- The seat cushion front can tip up and down.
- Lift the seat cushion up/down lever.
- Move the seat cushion front up or down to the desired setting.
- Release the lever and make sure that the seat cushion is in the locked position.

Forward/Rearward Adjustment

- Lift the forward/rearward lever.
- Move the seat forward or rearward to the desired location. Keep in mind that the right hand console can contact the dash when rotating the seat if the seat is adjusted too far forward. The seat backrest can contact the window if the seat is adjusted too far rearward.
- Release the lever and make sure the seat is in the locked position.

Air Ride Adjustment

- Pull the air ride lever up to increase the air pressure in the air ride system. This will raise the seat and give a more firm ride.
- Push the air ride lever down to decrease the air pressure in the air ride system. This will lower the seat and give a less firm ride.

Seat Swivel Latch

- The seat can be locked to prevent it from swiveling.
- Swivel the seat cross-ways so that the operator would be facing the dash.
- Rotate the latch so that it releases the plunger into the hole in the seat base.
- To unlock the seat lift the latch.
- Rotate so that the latch and lock the plunger in the up position.

Seat Belt Safety Precautions

Before starting the engine ensure that your seat belt is securely fastened. The seat belt can help insure your safety if it is used and properly maintained. Never wear the seat belt loose or with slack in the belt system. Never wear the seat belt with the belt twisted or pinched between the seat and structural members.

WARNING: Fasten seatbelt before starting the engine.

To Latch the Seat Belt

- To latch the seat belt, pull the right belt strap from the retractor.
- Insert the metal end into the latch mechanism on the left side of the seat.
- Pull the seat belt to ensure that it is secured in the latch mechanism.

To Unlatch the Seat Belt

- To unlatch the seat belt, press the button on the left side latch mechanism.
- The seat belt will automatically retract back into the retractor.

13: Machine Options - Controls & Operations

WARNING: Many of the machine options are controlled by the options/ auxiliary hydraulics control levers or switches. Depending on what functions the machine is equipped with, there may be more than one option/auxiliary hydraulic valve and control. Always check and make sure that you are familiar with all the hydraulic functions before operating this machine. Not knowing what function is connected to the controls can cause unexpected machine movement, serious injury, or

The machine options – the controls and operation section gives instruction on the use of the options that your machine is equipped with. If the option has no instruction required (such as grouser bar extensions) there is no information provided.

Side Tilt Option

The side tilt option allows the frame to tilt from side to side, which keeps the digging wheel vertical on a slope up to 7 degrees (for some machines, only the wheel will tilt).

Continued on next page

Auto and Manual Tilting Option (see the right seat upper and lower console controls instruction)

- Push the tilt auto/manual switch to auto to initiate the machine to self-level function.
- Push the tilt auto/manual switch to manual, to manually adjust the tilt function.
- If the power unit is tilted in manual mode, selecting auto will self-level the machine.

Dual Joystick Control

See the Machine Controls and Operation section of this manual for information on the dual joystick option.

Single Joystick Control

See the Machine Controls and Operation section of this manual for information on the single joystick option.

Camera Package

See the camera manual for more information on using the camera system

Light Package

See the Machine Controls and Operation section of this manual for information on the light package option.

Tow Eye

WARNING: When towing or pulling this machine keep all personnel a safe distance away from the tow cable or chain in case the towing hardware brakes. Failing to do so can cause serious injury or death.

WARNING: It is impossible for us at Wolfe to know what size of machine will be used to pull or tow your Wolfe machine. It is the operator's responsibility to make sure that the tow equipment is the appropriate size for the application. Do not pull or tow this machine unless you are sure that you are using the appropriate towing equipment. Failing to do so can cause damage to the machine or cause personal injury.

IMPORTANT: Only pull or tow the machine (if it's functional) from the tow eye that has been installed on the front. DO NOT pull or tow this machine from any other location on the machine. Failure to do so will cause damage to the machine

IMPORTANT: DO NOT pull or tow this machine if it is disabled or non-functional. Damage to the hydraulic system will occur.

14: Fluids and Lubricants - Service and Maintenance

WARNING: Improper service or repair can cause damage to this machine and could cause serious injury or death. If you do not understand the service procedures for this machine, contact your local Wolfe dealer.

The following information covers the servicing of this machine with recommended lubricants and coolants with intervals under normal working conditions. To ensure long service and efficient operation, follow the service intervals listed. Extreme working conditions require shorter service intervals. Contact your local Wolfe dealer if you have any questions regarding the service or maintenance of this machine.

WARNING: Read the safety decals and information decals on the machine. Read and understand this safety, operation and maintenance manual before servicing or repairing this machine.

Before you service or repair this machine, put on a “DO NOT OPERATE” tag on the controls of the machine. If you require additional tags contact your local Wolfe dealer.

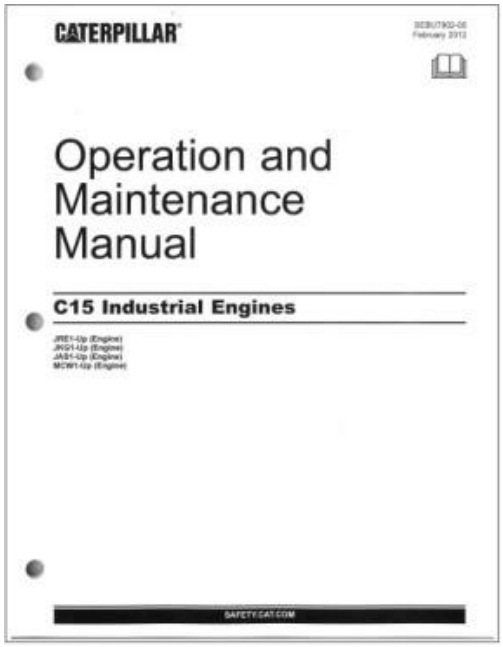
WARNING: Before attempting to service or repair this machine, it is your responsibility to understand related hazards. Be sure to properly release all hydraulic pressure, air pressure, and coolant pressure as required. Make sure that all machine components of auxiliary equipment are in the down or safe position. Support the components or auxiliary equipment properly before you perform any work or maintenance beneath the machine. NEVER work under a component or piece of equipment that is suspended by the hydraulic system. DO NOT depend on the hydraulic system to support a component or piece of equipment for you to work under. Securely block the machine or any component that may fall before working on the machine or component. If possible use a back-up or secondary blocking device to ensure the machine or component is safe to work on or under.

Engine Hour Meter

Service this machine at the intervals as indicated on the Service and Maintenance Intervals Chart. When you service your machine, use only high quality lubricants as suggested. Use the engine hour meter along with the Service and Maintenance Intervals Chart to service your machine at the correct time periods.

Caterpillar Industrial Engine Operation and Maintenance

A Caterpillar Industrial Engine Operation and Maintenance Manual has been provided with this machine. Refer to this manual for any of the safety, operation, maintenance or service information that you require for the Caterpillar engine.



C15 manual shown above. If your machine is equipped with a different engine, the appropriate manual will be supplied accordingly. This manual must be kept with the machine at all times. Additional Caterpillar Operation and Maintenance Manuals are available at your local Wolfe dealer.

Caterpillar 320 Undercarriage Operations and Maintenance Manual or Track One Use and Maintenance Manual With Spare Parts

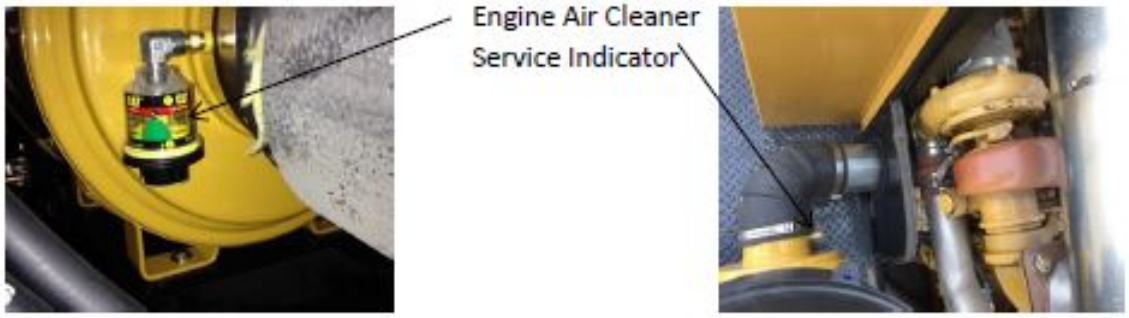
Depending on what your machine has been equipped with a Caterpillar 320 Undercarriage Operations and Maintenance Manual or a Track One use and maintenance manual with spare parts has been provided with this machine. Refer to this manual for any of the operation, maintenance or service information that you require for the undercarriage.

This manual must be kept with the machine at all times. Additional Manuals are available at your local Wolfe dealer.

Engine Air Intake Filter

The air intake filters should be cleaned or replaced as indicated in the Caterpillar Operation and Maintenance Manual.

IMPORTANT: Make sure the machine is not running when servicing the air filter system since this will allow dirt to enter the engine. Each time you service the air filter system, make sure both filters are seated properly and the cover is secure. Failing to do so can cause damage to the machine's engine. For more information on the servicing of the air cleaner elements, refer to the Caterpillar Operation and Maintenance Manual.



Engine Air Cleaner Service Indicator

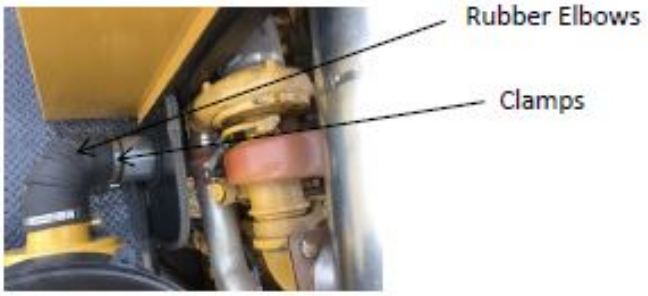
Refer to the Caterpillar Operation and Maintenance Manual for information on the engine air cleaner service indicator.

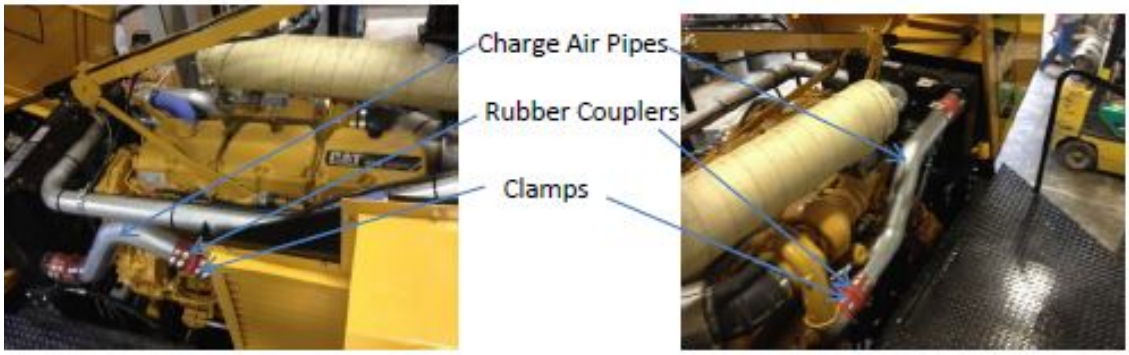
Cleaning or Replacing the Air Intake Filter

- Make sure that machine is not running.
- Lift the lever and unhook both latches.
- Remove the cover.
- Remove the primary filter element.
- Remove the secondary filter element.
- Use a clean damp cloth to clean the inside of the filter body.
- For cleaning the primary and secondary filter elements refer to the Caterpillar Operation and Maintenance Manual for instructions.
- Install new or cleaned secondary filter element.
- Install new or cleaned primary filter element.
- Install the cover.
- Hook and press down both latch levers to secure the cover.
- Check to make sure the pre-cleaner clamp is in place properly and tight.

Air Intake System

The air intake system should be inspected every 250 hours to make sure that no unfiltered air can enter the system. The below pictures are examples. These examples do not show every rubber elbow, coupler, and clamp. Contact your dealer if you require more information.



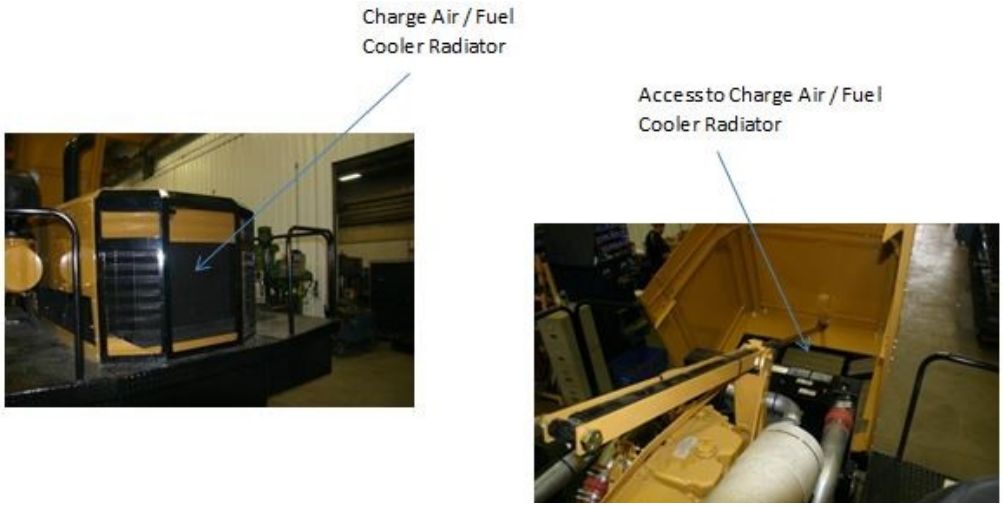


Checking the Air Intake System

- Inspect the rubber elbows and couplers for cracks, splits or wear and replace if required.
- Check to make sure the clamps are in place, not damaged and tight. Replace if required.
- Inspect the air intake and charge air piping for cracks, splits or wear and replace if required.
- Inspect the air intake pipe insulation for damage and replace if required.

Charge Air/Fuel Cooler Radiator

The charge air / fuel cooler radiator should be checked every 10 hours to make sure that it is clean and not clogged with debris. If the machine is being used in dusty conditions, the radiator may need to be checked more frequently.



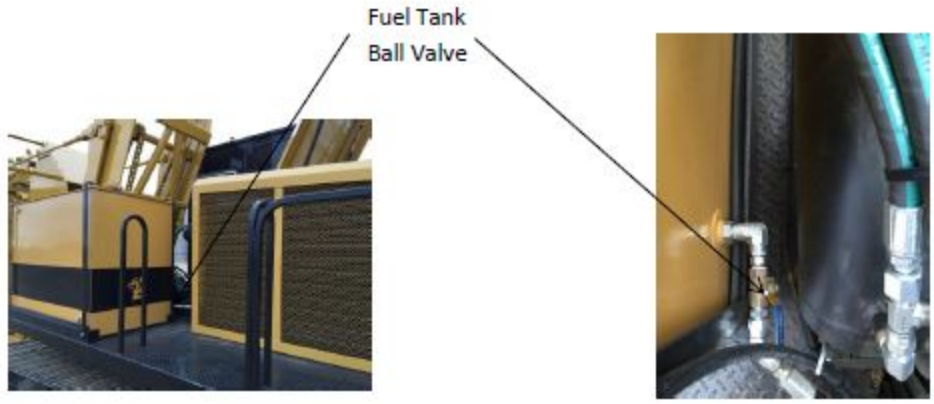
Checking and cleaning Charge Air/Fuel Cooler Radiator

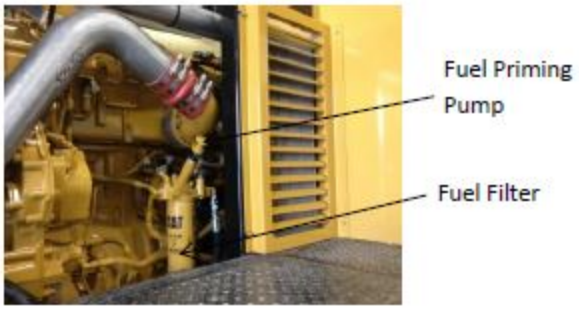
- Open both the rear and front hoods (see Plow Hood section in this manual).
- Inspect charge air / fuel cooler radiator for debris.
- Remove any large debris.
- Blow clean from the back side of the radiator with compressed air.

WARNING: Make sure that the machine is NOT running. Allow the machine to cool before attempting to clean radiators. Wear proper safety glasses or face shield when using compressed air to clean radiators. Failing to heed to this warning can cause serious injury.

Fuel Filter

Replace the fuel filter as indicated in the Caterpillar Operation and Maintenance Manual.





IMPORTANT: Prior to changing the fuel filter turn the ball valve off on the fuel tank to prevent the tank from draining through the fuel filter head. Be sure to turn the ball valve on before priming and starting engine.

Changing The Fuel Filter/Fuel Priming Pump

- For information and instruction on how to change the fuel filter refer to the Caterpillar Operation and Maintenance Manual.
- For information and instruction on how to use the fuel primer pump refer to the Caterpillar Operation and Maintenance Manual.

Fuel System Water Separator

Drain or replace the fuel system water separator as indicated in the Caterpillar Operation and Maintenance Manual.

Drain or Replace the Fuel System Water Separator

IMPORTANT: Prior to changing the fuel system water separator, turn the ball valve off on the fuel tank to prevent the tank from draining through the fuel filter head. Be sure to turn the ball valve on before running the engine.

For information and instruction on how to drain or replace the fuel system water separator refer to the Caterpillar Operation and Maintenance Manual.

Engine Oil and Oil Filter

The engine oil level should be checked, the oil and oil filter changed as indicated in the Caterpillar Operation and Maintenance Manual.

IMPORTANT: Prior to changing the engine oil, be sure to remove the keys and place a "DO NOT OPERATE" tag on the controls to ensure that the engine is not started with no oil in the system. Failure to do so may result in damage to the machine's engine.

Oil Dipstick Access Panel
(Not equipped on all machines)

Oil Dipstick
(May be located on either side of the machine)

Oil Filter
(Some engines have 2 oil filters)

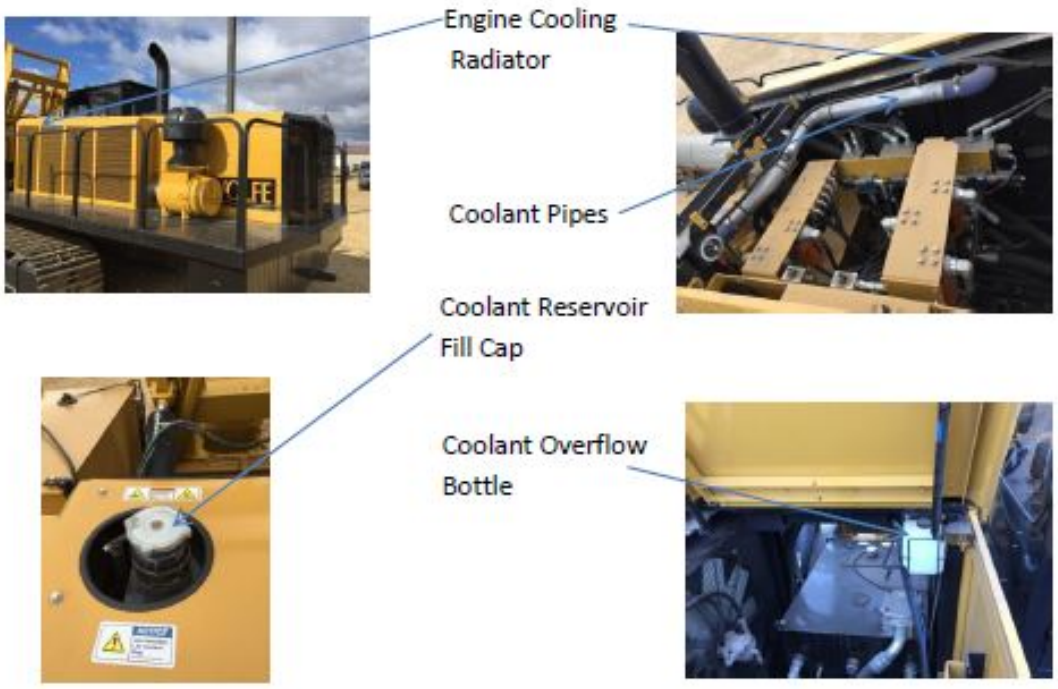
Changing the Oil and Replacing the Oil Filter

For information and instruction on how to change the engine oil and replace the oil filter refer to the Caterpillar Operation and Maintenance Manual.

Engine Cooling System

The engine cooling radiator should be check every 10 hours to make sure that it is clean and not clogged with debris. If the machine is being used in dusty conditions, the radiator may need to be checked more frequently.

IMPORTANT: Only use Extended Life Coolant as recommended by Caterpillar when topping up or replacing the coolant. Refer to Caterpillar Operation and Maintenance Manual for more information.



Checking and Cleaning the Engine Cooling Radiator

- Inspect the radiator through the grill for debris and dust.
- Remove any large debris by hand.
- Blow clean from the back side of the radiator with compressed air.

WARNING: Make sure that the machine is NOT running. Allow the machine to cool before attempting to clean radiators. Wear proper safety glasses or face shield when using compressed air to clean radiators. Failing to heed to this warning can cause serious injury.

Continued on next page

Coolant Level, Maintenance and Replacement

- The coolant reservoir is equipped with an electronic level sensor. A fault will appear on the machine control screen if the coolant falls below a satisfactory level.
- For coolant related information including but not limited to coolant level / top up, maintenance and replacement, refer to the Caterpillar Operation and Maintenance Manual.

WARNING: Pressurized System. Hot coolant can cause serious burns. To open that cooling system filler cap, stop the engine and wait until the cooling system components are cool. Loosen the cap slowly to in order to relieve the pressure.

Exhaust System

Check the exhaust system every 250 hours of operation.

NOTE: The design of the muffler box may vary from machine to machine.

Checking the Exhaust System

- Check the exhaust system for leaks or cracks every 250 hours.
- To identify leaks or cracks look for black residue where the exhaust may have been leaking out of the system.
- If you detect any leaks or cracks, repair as soon as possible.

WARNING: If the machine has been running the exhaust system, components will be hot. Allow to cool before inspecting or servicing the exhaust system.

Hydraulic System

Clean hydraulic fluid is a very important part of keeping your machine running and operating as intended. The proper service and maintenance of the hydraulic system will ensure that your machine will give you years of service and reduce you overall cost of ownership.

NOTE: A Lubrication Analysis for the hydraulic oil is recommended every 1000 hours of operation or once per year, whichever comes first.

WARNING: Hydraulic fluid injected into your skin can cause severe injury or death. Keep your hands and body away from any pressurized leak. If fluid is injected into your skin see a doctor immediately.

WARNING: If the machine has been running, the hydraulic system components will be hot. Allow to cool before inspecting or servicing the hydraulic system. Failing to do so may cause serious burns.

IMPORTANT: Prior to changing the hydraulic oil be sure to remove the keys and place a Do Not Operate tag on the machine controls to ensure that the engine is not started with no oil in the system. Failure to do so may result in damage to the machines hydraulic system.

NOTE: When the hydraulic fluid level is low, a small amount of hydraulic fluid will remain on the lower part of the sight gauge window. This condition does not show a correct fluid level.

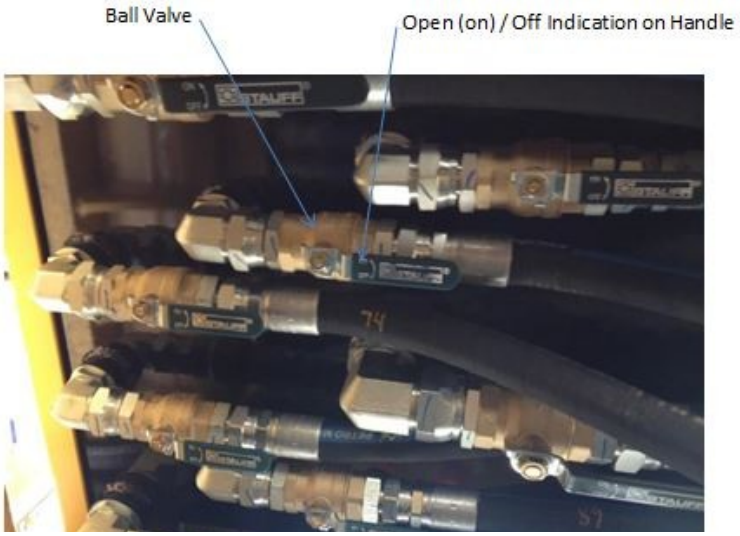
NOTE: If the hydraulic fluid supply to the pumps has been interrupted due to hydraulic fluid change, pump replacement, or a broken hydraulic line, the hydraulic system will need to be properly primed. See the Hydraulic System Priming procedure in this manual or call your location Wolfe dealer for more information.

IMPORTANT: Make sure that the hydraulic tank ball valves are in the open (or on) position before starting the machine. Failing to do so will cause severe damage to the machine's hydraulic system.

Hydraulic Tank Ball Valves

The hydraulic tank ball valves are located on the bottom of the hydraulic tank.

IMPORTANT: Make sure that the hydraulic tank ball valves are in the open (or on) position before starting the machine. Failing to do so will cause severe damage to the machine's hydraulic system.



Hydraulic System Priming

If the hydraulic fluid supply to the pumps has been interrupted due to hydraulic fluid change, pump replacement, or a broken hydraulic line the hydraulic system will need to be properly primed.

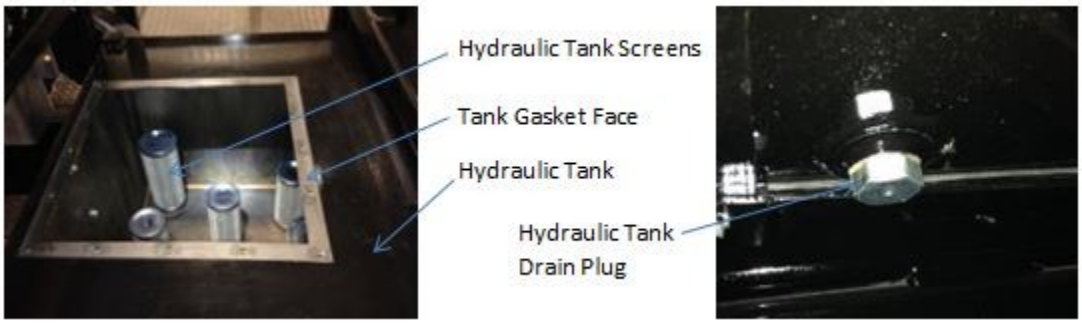
Continued on next page

Priming the hydraulic System

- Fill the hydraulic tank with oil.
- Ensure that all ball valves on the bottom of the hydraulic tank are open.
- Clean around the N port on top of the 4 high pressure pumps.
- Loosen the N port plugs. You may have to remove the plugs completely to allow all the air to escape.
- Allow the air to escape.
- Install the plug in each N port after the oil begins to flow out and tighten.
- Remove the electrical plug screw from the ECM connection plug.
- Unplug the ECM connection plug from the engine.
- Turn the master switch to the on position.
- Turn the key in the operator station to the run position.
- Go to screen #3 on the machine control monitor.
- Press the start button to roll over the engine until the charge pressures are at 250 psi.
- Plug the ECM connection plug into the engine.
- Install the electrical plug screw.
- Check the hydraulic oil level and top up as required.
- Start the engine and make sure that the charge pressures come up to 250 psi.

Hydraulic Tank Screens

Clean the hydraulic tank screens every 1000 hours of operation or once per year, whichever comes first. Replace screens as required.



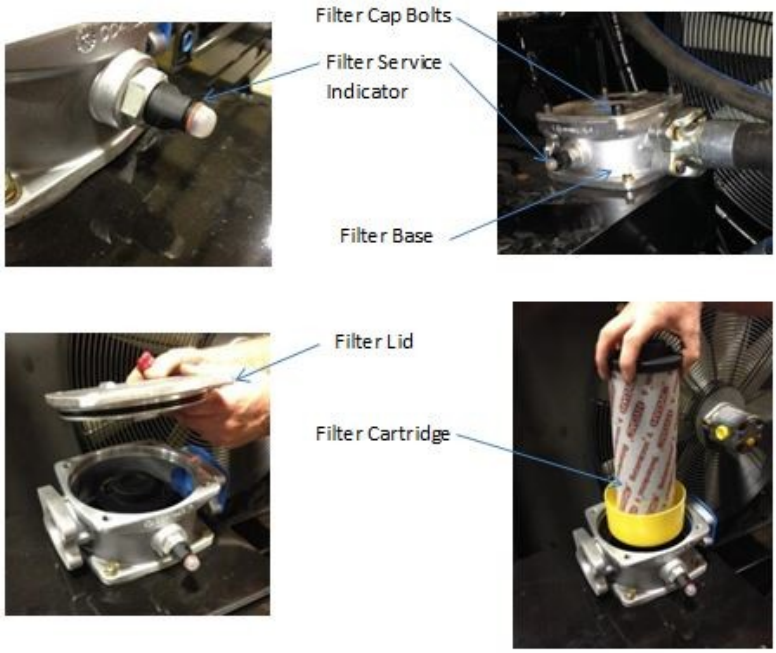
NOTE: If the hydraulic fluid supply to the pumps has been interrupted due to hydraulic fluid change, pump replacement, or a broken hydraulic line the hydraulic system will need to be properly primed. See the Hydraulic System Priming procedure in this manual or call your local Wolfe dealer for more information.

Cleaning the hydraulic Tank Screens

- Hydraulic Tank Screens
- Tank Gasket Face
- Hydraulic Tank
- Hydraulic Tank
- Drain Plug
- In the winter if the oil is cold the machine will need to be run until the hydraulic oil is warm to the touch. (NOT HOT)
- Run the engine until the side of the hydraulic oil reservoir is warm.
- Place a container under the drain plug that will hold 450 liters (118 US Gallons)
- Clean around the fill cap and drain plug.
- Remove the fill cap and the drain plug from the hydraulic reservoir.
- Allow time for the hydraulic oil to completely drain
- Clean the top of the hydraulic reservoir to ensure that no dirt can fall into the tank.
- Remove all the bolts on the access cover
- When removing the access cover. Be careful not to damage the seal. If the seal is damage replace accordingly.
- With a clean rag wipe the bottom of the tank to remove any sediment
- Turn the screens counter-clockwise with a wrench to remove.
- Flush the screens using a cleaning solvent.
- Use compresses air, blow from the inside of the screen to the outside to remove any excess cleaning solvent. Blow off the treads on the screen and allow drying.
- Apply Red Loctite to the threads on the cleaned or new screens
- Install the cleaned or new screens, turn the screen clockwise and tighten with a wrench.
- Clean the gasket face on the tank and tank access cover
- Inspect gasket on the access cover and replace if damaged
- Install access cover and all bolts. Tighten with a wrench
- Install the drain plug
- Fill the reservoir until the oil level is a minimum of ¾ up the sight gauge window.
- Start the engine and operate all the hydraulic controls.
- Stop the engine, check the oil level and top up if necessary
- Install the fill cap

Return Line Filter

If the machine is new, replace the return line filter after 50 hours of use. Then replace the return line filter every 1000 hours, once per year, or if the filter service indicator shows service is required, whichever comes first.

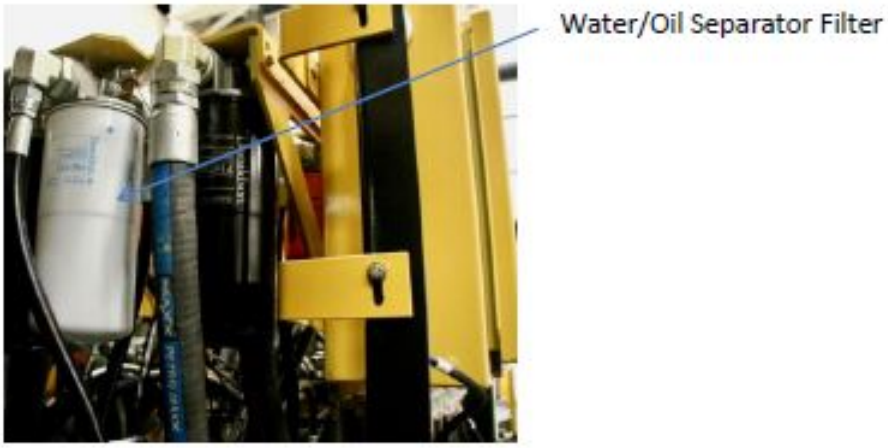


Changing the Return Line Filter

- Clean the area around the filter cap.
- Remove the 4 filter cap bolts.
- Remove the filter cap.
- Remove the filter cartridge from the filter base.
- Insert new filter cartridge into the filter base.
- Clean the seal surfaces on the filter cap and filter base.
- Install the filter cap onto the filter base.
- Install the 4 filter cap bolts and tighten.

Oil/Water Separator

If the machine is new, replace the water separator filter after 50 hours of use. Then, replace the water separator filter every 1000 hours, once per year, or if the filter service indicator shows service is required, whichever comes first.

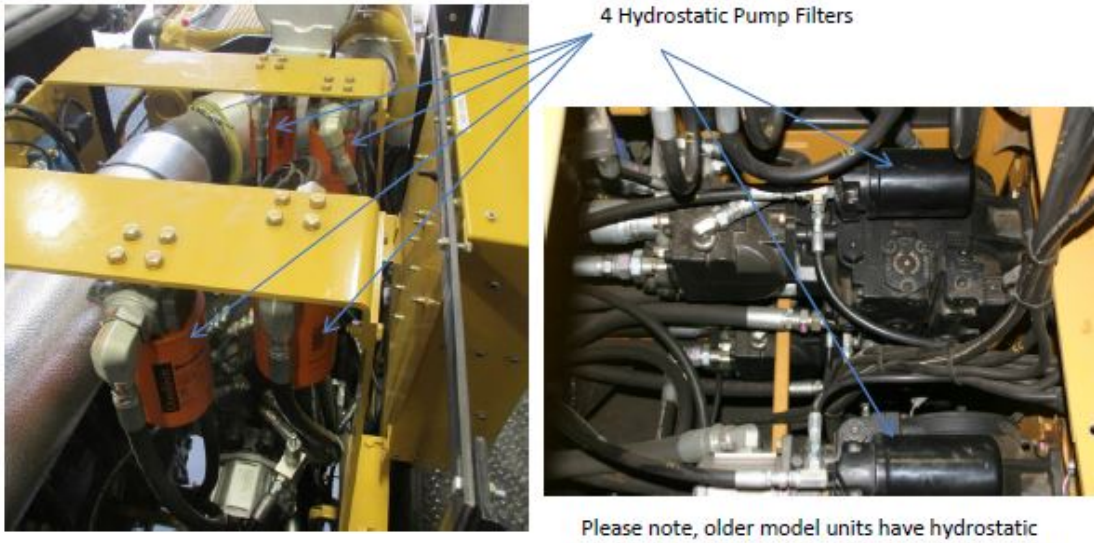


Changing the Oil/Water Separator Filter

- Clean the area around the filter.
- Remove the filter.
- Replace using the brown O-Ring supplied with the filter.
- No other gasket is required.
- Apply a small amount of hydraulic oil to the seal of the new filter.
- Install the new oil filter and tighten hand tight.

Hydrostatic Pump Filters

If the machine is new, the hydrostatic pump filters should be changed after 50 hours of operation. Then replace the filters after every 1000 hours of operation or once per year, whichever comes first. Depending on the model of the unit, hydrostatic pump filters may vary in color and location. Operations remain the same for installation of new pump filters for both models.



Please note, older model units have hydrostatic pump filters located on the top and bottom of the pumps (2 top, 2 bottom)

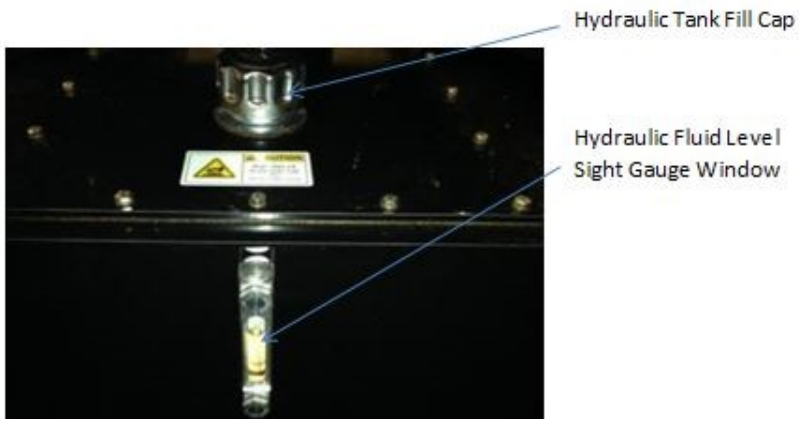
Changing the 4 Hydrostatic Pump Filters

- Clean the area around the filter and the filter base
- Use a filter wrench to remove filter. Turn the filter counter-clockwise
- Clean the sealing surface of the filter base. Ensure that all old seal material is removed
- Apply clean engine oil to the rubber seal of the new filter.
- Install the new filter onto the filter base.
- Turn the new filter clockwise until the rubber seal on the filter contacts the sealing surface of the filter base.
- Turn an extra ½ turn by hand.

IMPORTANT: Do not tighten the oil filter with a filter wrench. Only tighten by hand. Over tightening may cause damage to the filter base and will make it difficult to remove the filter in the future.

Hydraulic Oil Level

Check the level of the hydraulic system every 50 hours of operation or each week, whichever comes first.



Checking the Hydraulic Oil Level

- The hydraulic fluid reservoir is equipped with an electronic level sensor. A fault will appear on the machine control screen if the hydraulic oil falls below a satisfactory level.
- The hydraulic fluid reservoir is equipped with a sight gauge window to visually check the hydraulic fluid level. The oil level should be no lower than ¾ up the sight gauge window.
- Allow the hydraulic fluid to cool.
- Clean the area around the fill cap.
- Remove the fill cap to top up the fluid level as required.
- Install the fill cap.

Continued on next page

Changing the Hydraulic Oil

Change the hydraulic oil every 1000 hours of operation or once per year, whichever comes first.

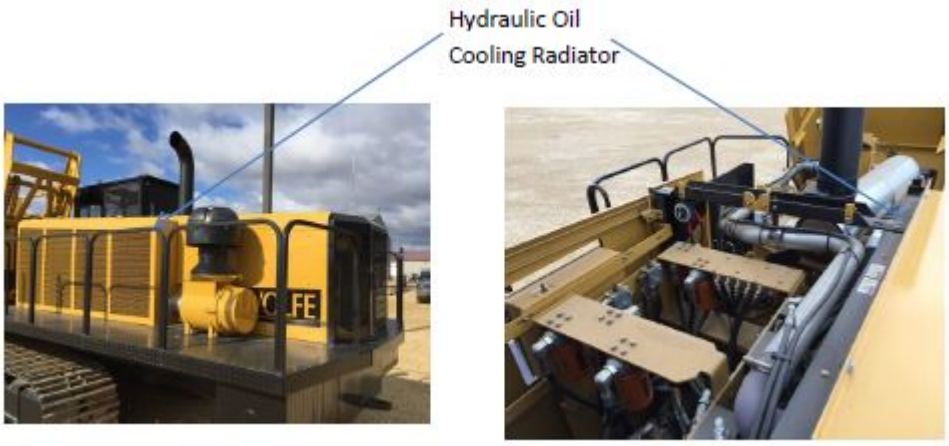
- In the winter if the oil is cold, the machine will need to be run until the hydraulic oil is warm to the touch (NOT HOT).
- Run the engine until the side of the hydraulic oil reservoir is warm.
- Place a container under the drain plug that will hold 450 liters (118 US Gallons).
- Clean around the fill cap and drain plug prior to removing.
- Remove the fill cap and the drain plug from the hydraulic reservoir.
- Allow time for the hydraulic oil to completely drain.
- Install the drain plug (make sure drain plug is clean).
- Fill the reservoir until the oil level is a minimum of ¾ up the sight gauge window.
- Start the engine and operate all the hydraulic controls.
- Stop the engine, check the oil level and top up if necessary.
- Install the fill cap.

IMPORTANT: Prior to changing the hydraulic oil, be sure to remove the keys and place a Do Not Operate tag on the machine controls to ensure that the engine is not started with no oil in the system. Failure to do so may result in damage to the machine's hydraulic system.

NOTE: When the hydraulic fluid level is low, a small amount of hydraulic fluid will remain on the lower part of the sight gauge window. This condition does not show a correct fluid level.

NOTE: If the hydraulic fluid supply to the pumps has been interrupted due to hydraulic fluid change, pump replacement, or a broken hydraulic line the hydraulic system will need to be properly primed. See the Hydraulic System Priming Procedure in this manual or call your location Wolfe dealer for more information.

Hydraulic Oil Cooling Radiator



WARNING: Make sure that the machine is NOT running. Allow the machine to cool before attempting to clean radiators. Wear proper safety glasses or face shield when using compressed air to clean radiators. Failing to heed to this warning can cause serious injury.

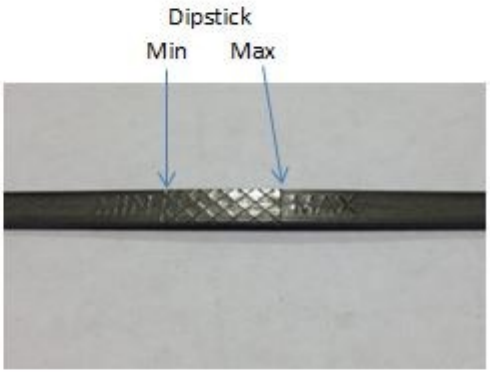
Checking and Cleaning the Hydraulic Oil Cooling Radiator

- Inspect the radiator through the grill for debris and dust.
- Remove any large debris by hand.
- Blow clean from the backside of the radiator with compressed air.

Pump Drive Maintenance

IMPORTANT: A Lubrication Analysis for the pump drive lubrication oil is recommended every 1000 hours of operation or once a year, whichever comes first

IMPORTANT: Prior to changing the pump drive oil, be sure to remove the keys and place a Do Not Operate tag on the controls to ensure that the engine is not started with no oil in the system. Failure to do so may result in damage to the machine's pump drive.



WARNING: Hot oil and hot components can cause personal injury. Do not allow hot oil or hot components to contact the skin.

Continued on next page

Checking the Pump Drive Oil Level

Check the pump drive oil level every 10 hours

- Clean the area around the dip stick.
- Remove the dipstick.
- Wipe dipstick with a clean rag.
- Install dipstick making sure it is seat properly into the dipstick tube.
- Remove the dipstick.
- The oil level should be between the min and max on the dipstick.
- Top up the oil level if required. Do not overfill the pump drive past the max mark on the dipstick.
- To add oil, clean around the vented fill plug to prevent any dirt from falling into the pump drive.
- Remove the fill plug with a wrench.
- Top up the oil as required.
- Install the fill plug (ensure that the fill plug is clean before installing).

Changing the Pump Drive Oil

If the machine is new the pump drive oil should be changed after 50 hours of operation. Then replace the oil after every 1000 hours of operation or once per year, whichever comes first.

- In the winter if the oil is cold the machine will need to be run until the pump drive oil is warm to the touch (NOT HOT).
- Run the engine until the side of the pump drive is warm.
- Place a container under the drain plug that will hold 10 liters (10.7 US Quarts).
- Clean around the drain plug.
- Remove the drain plug from the pump drive.
- Allow time for the oil to completely drain.
- Install the drain plug.
- Clean around the fill plug.
- Remove the fill plug.
- Fill the reservoir until the oil level on the dipstick is between the min and max.
- Install the fill plug (ensure that the fill plug is clean before installing).

A/C Condenser Radiator

Check the A/C condenser radiator every 10 hours of operation. Clean as required.

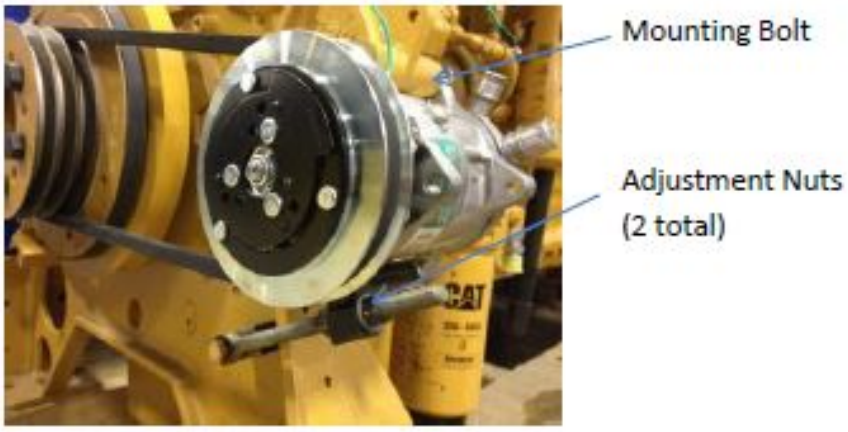
Checking and cleaning the A/C Condenser Radiator

- Inspect the radiator through the grille for debris and dust.
- Remove any large debris by hand.
- Blow clean from the back side of the radiator with compressed air.

WARNING: Make sure that the machine is NOT running. Allow the machine to cool before attempting to clean radiators. Wear proper safety glasses or face shield when using compressed air to clean radiators. Failing to heed to this warning can cause serious injury.

A/C Condenser Belt - Inspect, Adjust, Replace

Inspect the A/C compressor belt every 250 hours of operation.



A/C Compressor Belt Inspection

- Inspect the A/C compressor drive belt for wear or cracking.
- Replace if the belt is not in good condition

A/C Compressor Belt Tension

- Check the belt tension. A too loose belt will allow slippage when driving the compressor and may cause unnecessary wear to belts, bearings or pulleys due to vibration. Belts that are too tight will place unnecessary stress on the belts, bearings or pulleys, which will reduce the service life of the components.
- To adjust the belt tension loosen the mounting bolt
- Loosen the adjustment nuts
- To tighten the belt turn the adjustment nut closest to the center of the engine counter-clockwise until the belt is the correct tension.
- Tighten the second adjustment nut and the mounting bolt.
- To loosen the belt turn the adjustment nut closest to the center of the engine clockwise until the belt is the correct tension.
- Tighten the second adjustment nut and the mounting bolt.
- After tightening the second adjustment nut and mounting bolt recheck the tension of the belt.

Cab Maintenance

Seat Swivel, Doors, Back Platform (Parallel Link Machine only) and Cab Pivot Lubrication

Grease the seat swivel and door hinges every 100 hours of operation.

Door Hinge
Grease Nipple
(2 places)

Seat Base
Grease Nipple

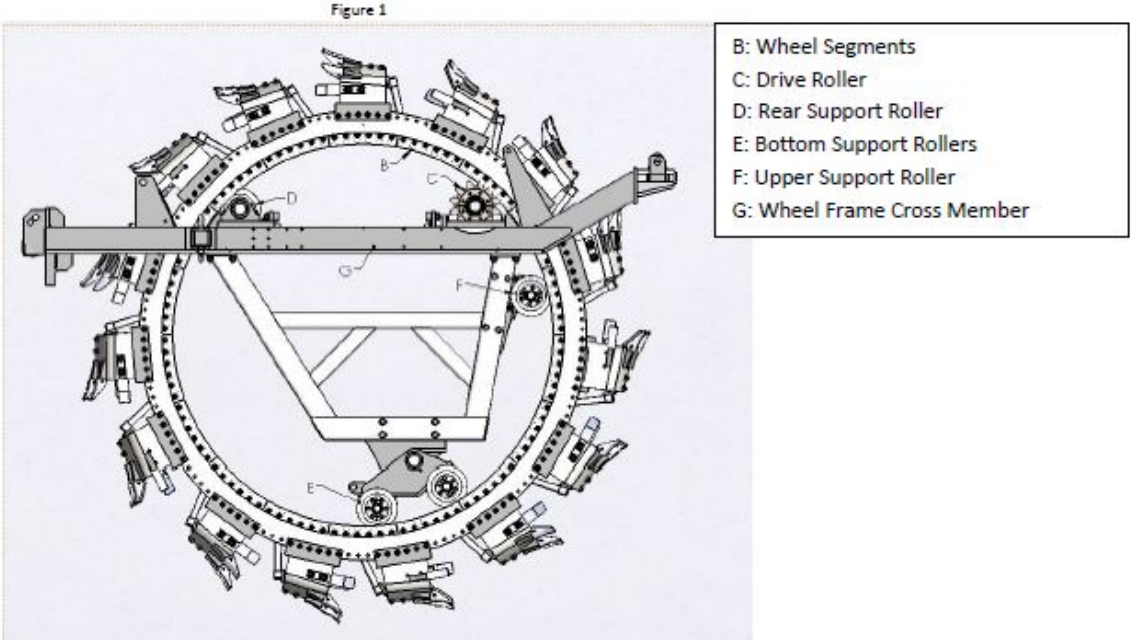
Wheel Maintenance

Digging Wheel Truck & Support Roller Adjustment

Digging wheel drive & support rollers should be adjusted in accordance with the following instructions, with the digging wheel off the ground, hanging on the hoist cables. Place the digging wheel frame in a horizontal position by digging a shallow ditch and raising the wheel to approximately level cross member G, figure 1.

- Adjust upper support roller, F, Figure 1, to obtain ¼" [6.35mm] clearance between roller and the segments. Figure 2, Loosen nut C, and turn nut B, clockwise to raise and counter clockwise to lower the support rollers. Tighten nut C, after ¼" [6.35mm] clearance has been obtained.
- Adjust lower truck rollers (single or bogie) E, so they have ¼" [6.35mm] clearance between the segments. Figure 3, Loosen nut C, and turn nut B, clockwise to raise and counter clockwise to lower the lower truck rollers. Tighten nut C, after rollers have obtained ¼" [6.35mm] clearance.
- Rotate the digging wheel several revolutions and recheck all adjustments

Figure 1



IMPORTANT: Do not impose a preload between these rollers and the digging rims, to do so may cause bearing failures in the roller assemblies.

Continued on next page

Figure 2

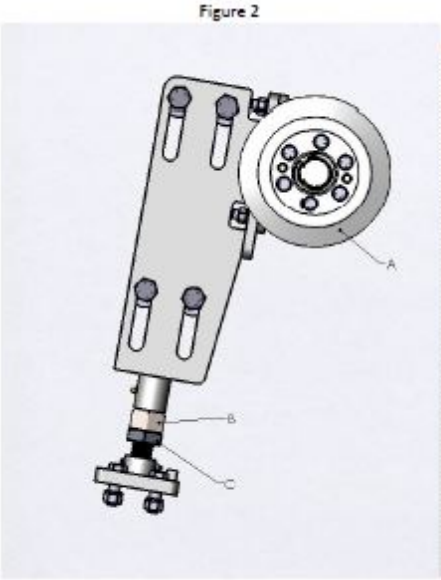
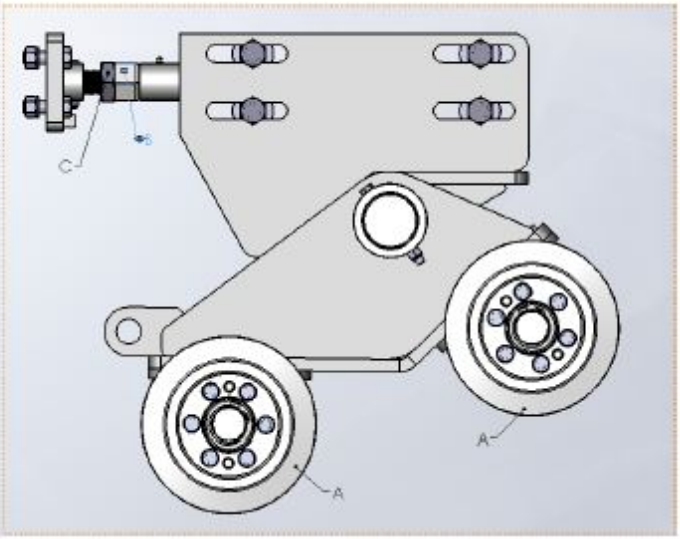


Figure 3



NOTE: Roller assemblies with lip type seals are adjusted with shims located behind the roller hubs.

Digging Wheel Drive Roller, Support Rollers, and Drive Pinion Spacing

- Adjust truck roller and support roller spacing to 1/8” [3.175mm] per side. Ensure wheel assembly is centered, shown in figure 4 by using shims.
- Adjust the digging wheel drive pinion spacing to 1/8” [3.175mm] per side. Ensure wheel assembly is centered, shown in figure 5, by using shims.

NOTE: Adjust roller and drive pinion spacing to provide equal tolerance at right and left digging rims so that the digging wheel will be “Centered” on the support rollers and drive pinions. For true digging wheel alignment, the truck roller flanges and the drive pinion teeth should be touching the digging rims. However, if a slight tolerance has been adjusted between the digging rims and the drive pinion teeth, then this tolerance should be duplicated when adjusting the spacing between the digging rims and the truck roller flanges.

Continued on next page

Figure 4

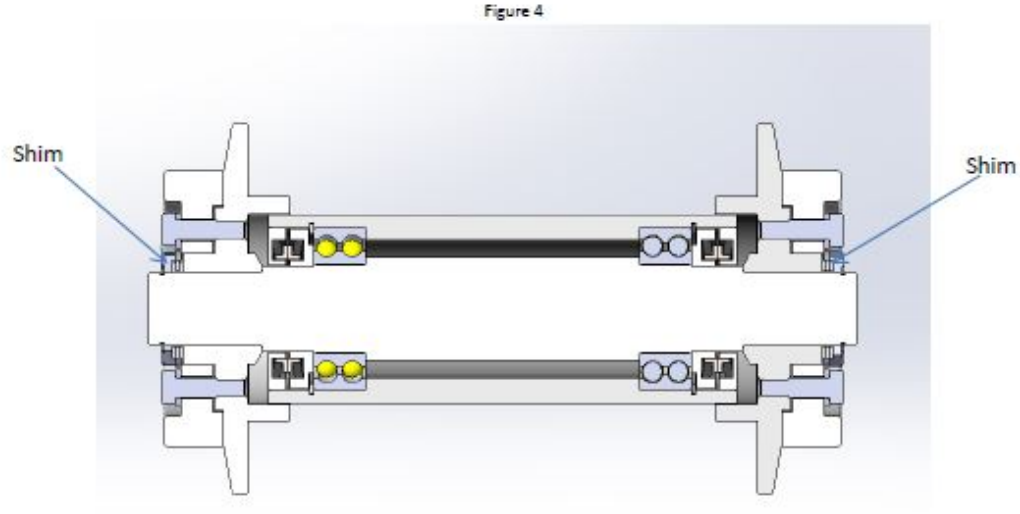
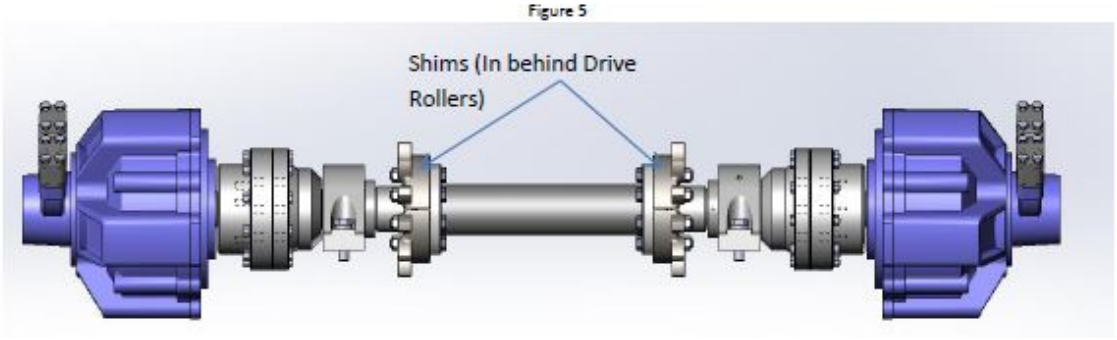


Figure 5



Track Undercarriage Maintenance

Inspect and service the CAT 320 Undercarriage or the Track One undercarriage as indicated in the Caterpillar Operations and Maintenance Manual or the Track One Use and Maintenance Manual with Spare Parts.

IMPORTANT: A Lubrication Analysis for the final drive oil is recommended every 1000 hours of operation or once per year, whichever comes first.

WARNING: The track system has track adjusting components and components that are spring loaded that use steel springs, liquid springs, grease or oil that can be under very high pressure. These components can be extremely dangerous if not worked on or handled appropriately. DO NOT attempt to adjust or repair the track systems unless you have read the Track One Use and Maintenance Manual with Spare Parts, have had proper training and understand all the dangers associated with servicing or repairing the track systems. Failure to do so can result in serious injury or death.

IMPORTANT: Do not over-tighten the tracks. Over-tightening the track system will result in significant damage to a number of the track components. This shortens the life of the components significantly.

Track Pad Bolts

When the machine is new, check the track pad bolts every 50 hours of machine operation until the track pad bolts stay tight. Check track pad bolts every 250 hours of machine operation.

Batteries

Machines may be equipped with two or four batteries. Four battery machines have batteries located in the battery boxes on both sides of the machine. Clean the batteries, check the electrolyte levels and battery terminals for corrosion every 250 hours.

WARNING: Machines: Always wear eye protection and face shields when working with batteries.

WARNING: Machines are equipped with two batteries. Be sure to disconnect the negative battery terminals if servicing or repairing the electrical system on the machine. Failing to do so could result in damage to the machine or personal injury.

Checking the Battery Electrolyte

- Use a clean rag and battery cleaner to clean the batteries.
- Remove the battery caps.
- The electrolyte should be 3mm (1/8 inch) below the split ring at the bottom of each opening.
- Top up the electrolyte in each cell if required using clean distilled water.
- Replace the battery caps.
- If required use baking soda and flush the outside of the batteries with water.

IMPORTANT: If the temperature is below 0 degrees C (32F) and you have added water to the batteries, connect a battery charger to the batteries or run the engine for approximately 2 hours to prevent the batteries from freezing.

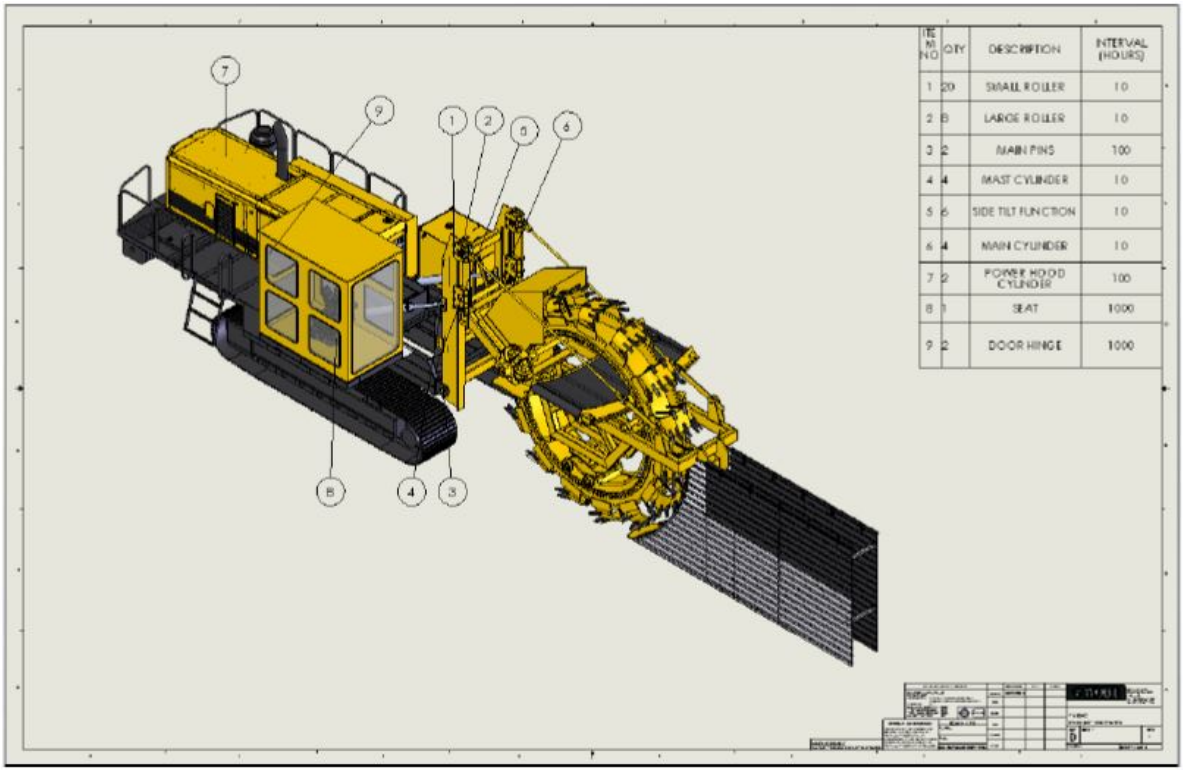
Continued on next page

IMPORTANT: Do not run the engine with the battery cables or alternator wires disconnected. Do not use a steam cleaner or cleaning solvent to clean the alternator.

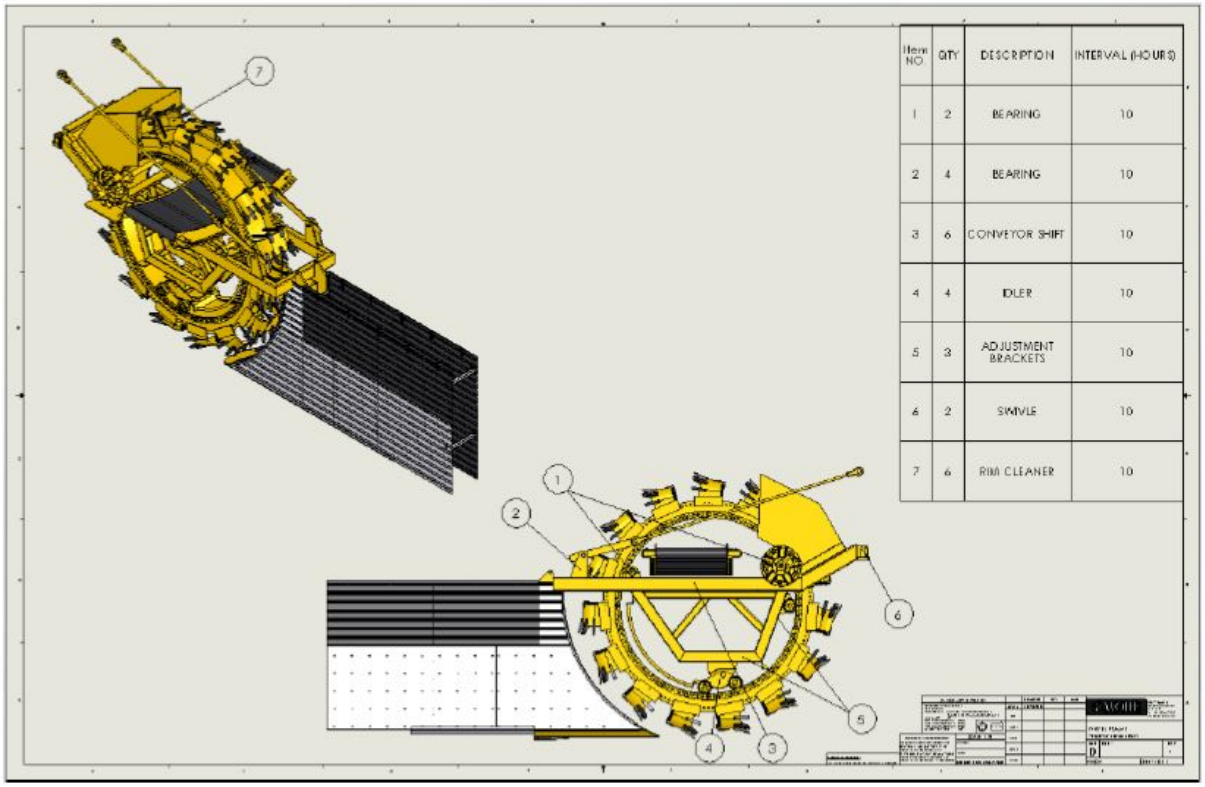
IMPORTANT: Before using an electric welder to weld on the machine disconnect, the negative battery cables, the alternator wires, and turn the master switch off. Failing to do so may cause damage to the machine.

Grease Points

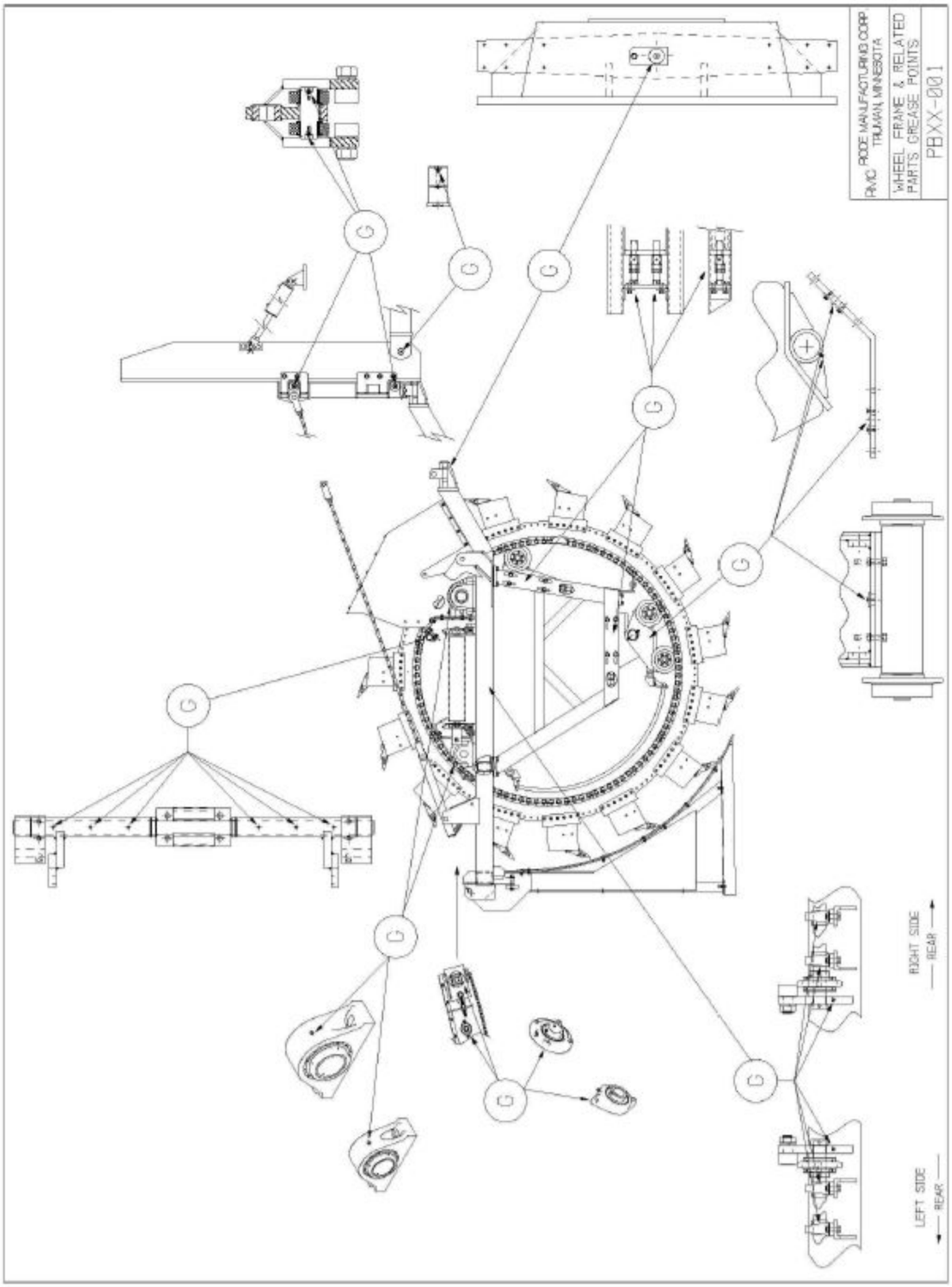
See the following charts for the grease points and intervals



ITEM NO	QTY	DESCRIPTION	INTERVAL (HOURS)
1	20	SMALL ROLLER	10
2	8	LARGE ROLLER	10
3	2	MAIN PINS	100
4	4	MAST CYLINDER	10
5	6	SIDE TILT FUNCTION	10
6	4	MAIN CYLINDER	10
7	2	POWER HOOD CYLINDER	100
8	1	SEAT	1000
9	2	DOOR HINGE	1000



Item NO	QTY	DESCRIPTION	INTERVAL (HOURS)
1	2	BEARING	10
2	4	BEARING	10
3	6	CONVEYOR SHIFT	10
4	4	IDLER	10
5	3	ADJUSTMENT BRACKETS	10
6	2	SWIVLE	10
7	6	RIM CLEANER	10


RIGHT SIDE
REAR
LEFT SIDE
REAR
WHEEL FRAME & RELATED
PARTS GREASE POINTS
PBXX-001

15: Service and Maintenance

Service and Maintenance Specifications

The following charts provide information for certain service tasks and required maintenance parts.

Fluids & Lubricants Chart

Machine Component	Fluid Type	Approximate Capacity
Engine Crankcase	Refer to CAT Manual	Refer to CAT Manual 34-36 L (36-38 US QT)
Engine Cooling System	Refer to CAT Manual	120 L (32 US GAL)
Fuel Tank	Refer to CAT Manual (Ultra Low Sulphur Diesel Fuel)	750 L tank (200 US GAL)
Hydraulic System	Hydrex MV 68 HVI	8 L (8.5 US QT)
Pump Drive	SAE 80W-90 Gear Oil	8 L (8.5 US QT)
Track Final Drives	Traxon Synthetic 80W-140 Gear Oil	22 L (23 US QT)
Lower Rollers	SAE 80W-90 Gear Oil	As Required
Hood Lift Hydraulic System	Hydrex MV 68 HVI	6 L (6.3 US QT)
Machine Grease point (Standard)	Precision XL EP02	As Required
Manual Grease Station (Option)	Precision XL EP02	As Required
Auto Greaser (Option)	Precision XL EP00	4 L (1.0 US GAL) Tank + Lines as required
C13B DEF Tank	Refer to CAT Manual DEF fluid	65 L (17 US GAL)
C15/C18 DEF Tank	DEF fluid	30 L (7.9 US GAL)

Filter Chart

Filter Location	Part Number	Quantity Required
C13B Engine Oil Filter Element	CAT PN 1R-1808	1
C15 Engine Oil Filter Element	CAT PN 1R-1808	1
C18 Engine Oil Filter Element	CAT PN 249-2347	2
C13B/C15/C18 Engine Primary Fuel Filter Element (Fuel/Water Separator)	CAT PN 326-1643	1
C13B/C15/C18 Secondary Fuel Filter Element	CAT PN 1R-0749	2
Hydraulic Tank, In-Tank Return Filter Element	Wolfe PN 90189	1
Open Loop Filter Element	Wolfe PN 90046 (Filter) Wolfe PN 91273 (Gasket - See Note)	1 1
Closed Loop Filter Element	Wolfe PN 90046 (Filter) Wolfe PN 91273 (Gasket - See Note)	2 2
Oil/Water Separator Filter Element	Wolfe PN 90052	1
Charge Pump Filter Element	Wolfe PN 90054	4

Service and Maintenance Records

Fill out each of the following charts when the stated time is reached. These checklists are to be completed and sent to your dealer up until 2000 hours for warranty purposes.

Service at 50 Hour Break-In Period

Change

- ❑ Engine Oil
- ❑ Fuel/Water Separator
- ❑ Fuel Filter Change
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Sample

- ❑ Hydraulic Fluid Oil

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 250 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH

Check

- ❑ Coolant Anti-Freeze Concentration

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 1000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 1500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 2000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element

Hours:	Date:	Work Carried Out By:

Send fluid sample information to your local dealer & info@wolfeequipment.com

Service at 2500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration
- ❑ Engine Valve Lash

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 3000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 3500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 4000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element

Hours:	Date:	Work Carried Out By:

Service at 4500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 5000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration
- ❑ Engine Valve Lash

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element
- ❑ DEF Filter
- ❑ DEF Injector

Clean

- ❑ ADR Spark Plug
- ❑ Diesel Particulate Filter

Hours:	Date:	Work Carried Out By:

Service at 5500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 6000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element

Hours:	Date:	Work Carried Out By:

Service at 6500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 7000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil

Hours:	Date:	Work Carried Out By:

Service at 7500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration
- ❑ Engine Valve Lash

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 8000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element

Hours:	Date:	Work Carried Out By:

Service at 8500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 9000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil

Hours:	Date:	Work Carried Out By:

Service at 9500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 10000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration
- ❑ Engine Valve Lash

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element
- ❑ DEF Filter
- ❑ DEF Injector
- ❑ DEF Manifold Filters

Clean

- ❑ ADR Spark Plug
- ❑ Diesel Particulate Filter

Hours:	Date:	Work Carried Out By:

Service at 10500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 11000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil

Hours:	Date:	Work Carried Out By:

Service at 11500 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator

Hours:	Date:	Work Carried Out By:

Service at 12000 hours

Sample

- ❑ Engine Oil
- ❑ Pump Drive Oil
- ❑ Hydraulic Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Coolant

Check

- ❑ Coolant Anti-Freeze Concentration

Change

- ❑ Engine Oil and Filter
- ❑ Fuel Water/Separator Filter
- ❑ Fuel Filter
- ❑ Pump Drive Oil
- ❑ Final Drive Oil - LH & RH
- ❑ Open Loop Filter
- ❑ Closed Loop Filter
- ❑ In-Tank Return Filter
- ❑ Charge Pump Filter
- ❑ Water Separator
- ❑ Hydraulic Oil
- ❑ Fumes Disposal Filter Element

Hours:	Date:	Work Carried Out By:

Service and Maintenance Intervals

Do not reference the following lists as a checklist. This information only shows the different services required for different time intervals, and should only be used a reference point for those who wish to extend the checklist or create their own checklist.

Daily Service

Grease Machine Points
Check Engine Oil Level
Check Hydraulic Oil Level
Check Coolant Level
Check DEF Level
Check Engine Air Cleaner
Walk Around Inspection
Insure that Coolers are Clean and Free from Debris

50 Hour Break-In Period Only

Sample

Hydraulic Fluid Oil

Change

Engine Oil
Fuel/Water Separator
Fuel Filter Change
Pump Drive Oil
Final Drive Oil - LH & RH
Open Loop Filter
Closed Loop Filter
In-Tank Return Filter
Charge Pump Filter
Water Separator

250 Hour Samples

Sample

Engine Oil
Pump Drive Oil
Hydraulic Oil
Final Drive Oil - LH & RH

Check

Coolant Anti-Freeze Concentration

Service Every 500 hours

Sample

Coolant

Change

Engine Oil and Filter
Fuel Water/Separator Filter
Fuel Filter
Pump Drive Oil
Final Drive Oil - LH & RH
Open Loop Filter
Closed Loop Filter
In-Tank Return Filter
Charge Pump Filter
Water Separator

Service Every 1000 hours

Change

Hydraulic Oil

Service Every 2000 hours

Change

Fumes Disposal Filter Element

Service Every 2500 hours

Check

Engine Valve Lash

Service Every 5000 hours

Change

DEF Filter
DEF Injector

Clean

ADR Spark Plug
Diesel Particulate Filter

Service Every 10000 Hours

Change

DEF Manifold Filters

Service Every 12000 Hours

Change

Coolant

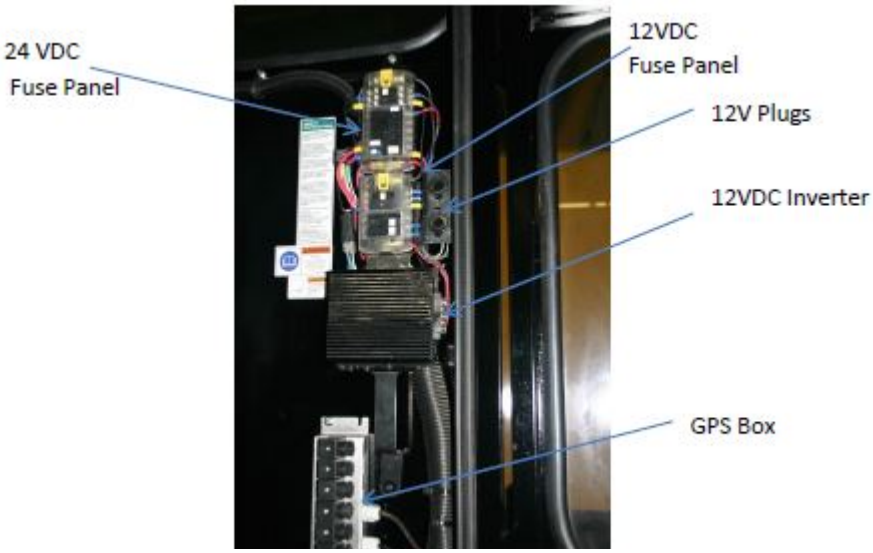
16: Electrical

IMPORTANT: The electrical and electronic system on this machine has a number of different voltages ranging from 24VDC to 5VDC. If you have not been trained and are not familiar with the electrical system, do not attempt to service or repair this machine. Failing to do so can cause damage to this machine.

Electrical Panel

In the electrical panel, the master, propel and auto-steer (if equipped) modules are stacked. The OXO24 and tile stringer (if equipped) modules are also stacked.

The 24 VDC fuse panels and the 12-volt inverter are located on the swing down panel above the rear door.

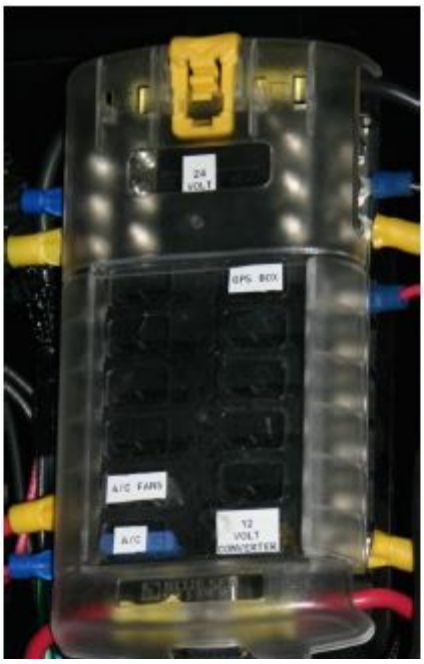


24 VDC Switched Power Fuse Panels

Spare		Shift 10 amp.
Spare		Anti Creep 10 amp.
Spare		Seat Air Ride 10amp.
Spare		Seat Switch 10 amp.
Spare		50 Pin 15 amp.
Spare		ECM Run 15 amp.

24 Pin Power 15 amp.		Screen 15 amp.
Start 10 amp.		Spare
Run 10 amp.		Spare
Conveyor 10 amp.		Spare
Wheel 10 amp.		Spare
Side Tilt 10 amp		Spare

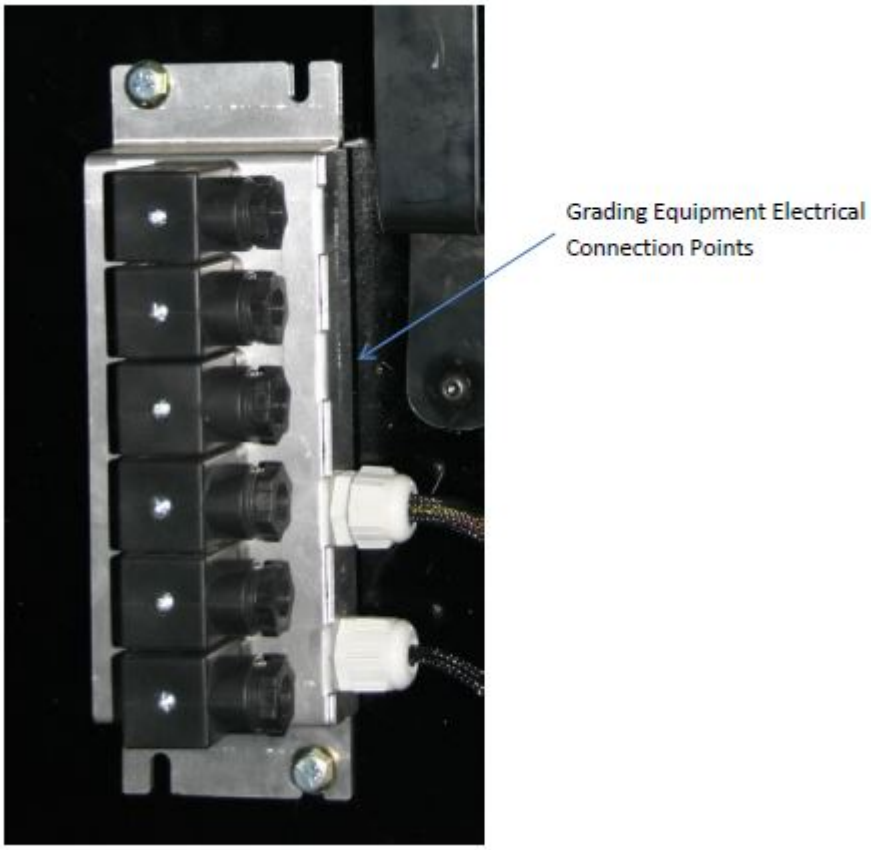
24 VDC Fuse Panel

Spare		GPS Box 10 amp.
Spare		Spare
Spare		Spare
Spare		Spare
A/C Fans 25 amp.		Spare
A/C 15 amp.		12 Volt Converter 20 amp.

12 VDC Fuse Panel

Spare		Spare
Spare		12 Volt Aux #1 10 amp.
Spare		12 Volt Aux #2 10 amp.

Grading Equipment Electrical Connection Points



Numerics

A

B

C

D

E

F

G

H

I

K

L

M

O

P

R

S

T

U

V

W