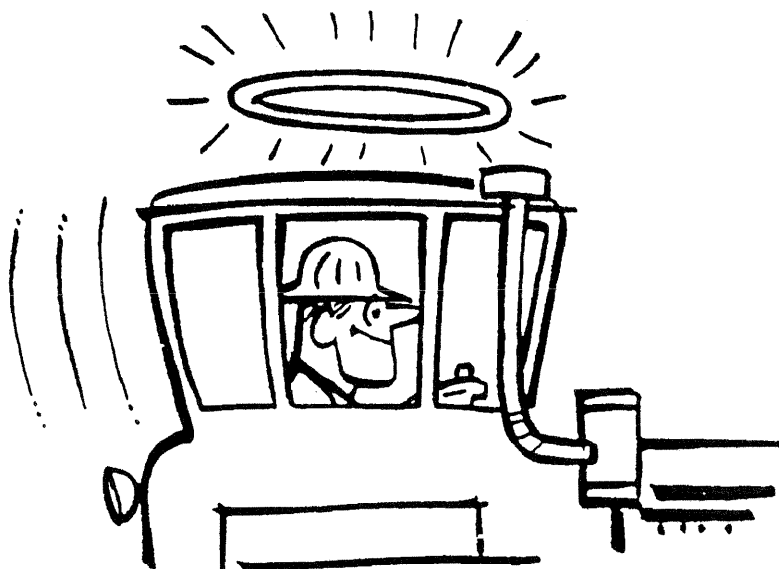


---

# Chip Dozer Operation



## Safety Is Your Business

Why? Because **SAFETY**, based on knowledge, technical skill, and years of experience has been carefully built into your Wagner Chipdozer. Time, money and effort have been invested in making your machine a safe product. The dividend from this investment is **YOUR PERSONAL SAFETY**.

However, it must be realized that no power-driven equipment can be any safer than the person behind the controls. If you don't operate and maintain your Chipdozer safely, our efforts will have been in vain.

The safety instructions and warnings, as documented in this manual and shipped with the machine, provide the most reliable procedures for the safe operation and maintenance of your Chipdozer. It's your responsibility to see that they are carried out.

The following terms define the various precautions and notices in this manual:

**NOTE:** Whenever information exists that requires additional emphasis beyond the standard text, the term "NOTE" is used.

**IMPORTANT:** Whenever information exists that requires special attention to procedures or to ensure proper operation of the equipment or to prevent its possible failure, the term "IMPORTANT" is used.

**CAUTION:** Whenever potential damage to equipment exists, requiring correct procedures for prevention, the term "CAUTION" is used.

## **WARNING**

Whenever potential personal injury or death situations exist, requiring correct procedures or practices for prevention, this "WARNING" symbol is used.

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

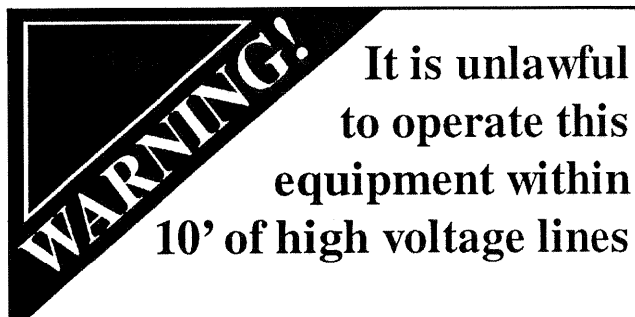
**NOTE:** All possible safety hazards cannot be foreseen so as to be included in this manual. Therefore, the operator must always be alert to possible hazards that could endanger personnel or damage the equipment.

## Operation Warnings

- You must be trained in the operation of this machine prior to operation.
- Be extremely careful if you do not normally operate this machine. Re-orient yourself to the machine before starting, and then proceed slowly. However, you must not operate without having received proper training.
- Know your company's chip pile rules. Some have specific dozing directions and procedures. The methods outlined in this manual provide a basis for safe operation. Because of special conditions, your company's chip handling procedures may be somewhat different from those shown in this manual.
- Always face the ladder when going up and down ladders. Use both hands.
- Never jump on or off the machine.
- All walking surfaces (steps, ladders, etc.) must be free of ice, grease, oil, or other materials that could cause or contribute to a slip or fall.
- The only person required on the machine is the operator. Never allow anyone to ride on the machine or its attachments.
- Do not operate this machine if you know of malfunctions, missing parts, and/or mis-adjustments.

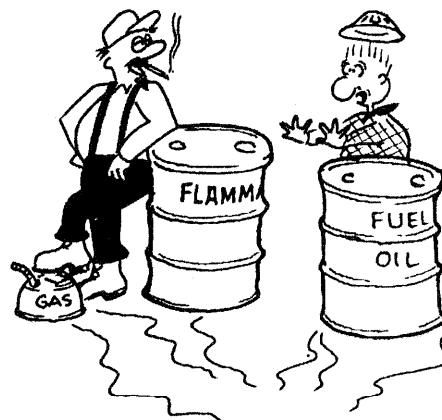
These situations can cause or contribute to an accident or damage to the machine. Stop the machine immediately if problems arise after starting.

- The hydraulic tank heater and/or engine block heater use a 110 or 220VAC external power source. An electrical shock could be fatal.
- All electrical cables and connectors must be in good condition. Use caution in wet weather to avoid danger from electric shock. The hydraulic tank and/or engine block heater must be properly grounded.
- Do not operate the machine before disconnecting hydraulic tank or engine block heaters.
- Do not start the engine if the key has been tagged with a "DO NOT START" or "RED" tag.
- Never operate any of the cab controls from anywhere other than the operator's seat.
- Sound the horn to alert personnel in the area before starting the engine, and make sure everyone is clear. Be sure that all controls are in neutral before starting the engine.
- Be aware that several people can stand in the engine compartment, completely out of sight of the operator.
- Electrical energy under high voltage can discharge to ground through the machine without direct contact with the machine's structure. Minimum clearances from energized power lines or other power sources must be maintained. If electrical energy does discharge through the machine, **Remain In The Cab. Do Not Permit Anyone To Come Into Contact With The Machine's Structure.**



## Maintenance Warnings

- Maintenance, lubrication and repair of this machine can be dangerous unless performed properly. Each person must satisfy himself that he has the necessary skills and information, proper tools and equipment, and that his work method is safe, correct, and meets his own company's requirements.
- Do not attempt to make adjustments, or perform maintenance or service unless you are authorized and qualified to do so.
- Never attempt maintenance or lubrication procedures while the machine is moving or the engine is running.
- Keep hands, feet, long hair and clothing away from power-driven parts. Do not wear loose fitting clothing or jewelry while performing maintenance and lubrication.
- Before performing maintenance or service under the machine, move the machine to a level surface, engage the parking brake and stop the engine.
- Tag the key switch with a **'DO NOT START'** sign, and/or remove the key.
- Block the tires to keep the machine from rolling.
- Perform all maintenance and lubrication procedures with the machine on level ground, parked away from traffic lanes.
- Never rely on the hydraulic system to support any part of the machine during maintenance or lubrication. If necessary, support components with appropriate safety stands. Never stand under a component that is supported only by the hydraulics. Make sure it is resting on its mechanical stops.
- Use caution when working around hot oils. Always allow lubricating and hydraulic oil to cool before draining. Burns can be severe.
- Diesel fuel and hydraulic oil are flammable. Do not smoke when checking levels or filling tanks. Keep open flames and sparks away from the machine.
- Keep the machine free of oil, grease and trash accumulations. Regular steam cleaning is recommended for fire prevention and general safety.



- Never overfill the fuel or hydraulic tanks. Any overflow could cause a fire. Immediately repair any hydraulic or fuel leaks and clean up any spills.
- Use extreme caution when using compressed air to blow parts dry. The pressure should not exceed 30 psi (208 kPa). Never use air to blow yourself off. Air pressure penetrating your skin can be fatal.
- Engine exhaust fumes can cause death. If it is necessary to run the engine in an enclosed space, remove the exhaust fumes from the area with an exhaust pipe extension. Use ventilation fans and open shop doors to provide adequate ventilation.
- DO NOT remove the radiator cap when the engine is hot. The coolant will be under pressure and can flash to steam with explosive force, causing severe burns. To prevent burns, remove the radiator cap only when the engine is cool.
- Before disconnecting hydraulic lines, be sure to lower all loads and relieve all hydraulic pressure. The load could fall on you, or escaping hydraulic oil could cause severe personal injury.



- Batteries produce explosive gases. Keep sparks, flame and cigarettes away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries. When removing battery cables, always turn the battery disconnect switches OFF first, then disconnect the (-) negative cable. When installing a battery, always connect the (+) positive cable first. This procedure will help to prevent a spark which could cause an explosion.
- Before making adjustments on the engine or electrical system, disconnect the battery. An electrical spark could cause a fire, explosion or severe burns.
- Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing.
- It is essential to personnel safety that safe ladders, personnel lifts and/or scaffolding be used while servicing this machine. Always use safety tread walks and hand holds to reach lubrication points or to inspect or adjust the machine. These areas can be dangerously slick under conditions of rain, frost or oil smears.

## CAUTION

1. Before operating: Know your machine. Read the Operator's Manual
2. Operate at low speeds in crowded areas or soft terrain
3. Avoid abrupt changes in boom direction. Do not drop load.
4. Lower hydraulic equipment before leaving operator's position.
5. Shut power off before lubricating or making equipment adjustment unless otherwise specified in the Operator's Manual.
6. Keep hands, feet and clothing away from power driven parts.
7. Keep off equipment while operating unless seat or operator's platform is provided.
8. Make certain everyone is clear of equipment before operating.
9. This machine is not designed for lifting or moving persons.

## Start and Stop Procedures

### Engine Pre-Start

Before operating this machine, the operator must have prior operator training, a familiarity with this manual, and a complete understanding of all the procedures and functions that may be performed with this machine.

### Pre-start Inspection

Planned maintenance and inspections are to be performed after the machine has been delivered, and prior to each shift. The operator should be aware of these procedures and be able to perform spot checks during operation.

**NOTE:** These inspections may be performed by maintenance personnel or by the operator. In either case, it is the operator's responsibility to see that the machine is ready for operation prior to starting.

Refer to the planned maintenance chart, Section 5, for a complete list of the daily checks that are to be performed.

### Engine Oil Level

The oil level should be checked prior to starting the engine.

**NOTE:** A 15 minute drain-back time is recommended (if the engine has been running) to obtain an accurate reading.

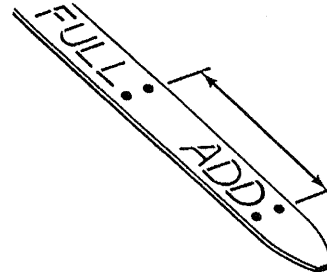


Fig. 4-2 Typical Dipstick

The oil level must be maintained between the "L" (low) or "add" mark, and the "H" (high) or "full" mark. Maintain the oil level as close to the "H" or "full" mark as possible.

**CAUTION:** Never operate the engine with the oil level below the "L" (low) mark, or above the "H" (high) mark. Refer to the engine's Opera-

tion and Maintenance manual for detailed engine service information.

**CAUTION:** Use only approved engine oil (see Lubricant Specifications Chart, Section 5). Do not overfill.

## Engine Coolant Level



**Never remove the radiator cap if the engine is hot. The coolant will be under pressure and could flash to steam with explosive force, causing severe burns. Remove the radiator cap only when the engine is cool.**

Daily inspection of the coolant level is recommended. Cooling systems using de-aeration baffles restrict visual observation of the true coolant level. If the coolant cannot be seen, the system may not be full. To gain a true fill, add coolant slowly up to the bottom of the fill neck and allow a 30 second settling period. Remember to compensate for the loss of anti-freeze when adding water.

**NOTE:** If the engine is hot, the coolant level will be higher than when it is cold.

Inspect the radiator daily for restriction caused by leaves, paper or other foreign material. Clean out if necessary. Inspect the radiator, cap, hoses, and connectors for any signs of leakage or damage.

## Hydraulic Oil Level

Always check the hydraulic oil level prior to operation. The dipstick and fill pipe are located on the RH chassis deck, to the right of the operator's cab.

**CAUTION:** Always open the tank breather petcock (located on the breather pipe) before removing the dipstick, filler cap, or in-tank filter cover plate. Failure to vent the tank can result in personal injury and/or a substantial oil spill. Be sure to close the petcock before operating the machine.

The oil level should be checked with the hoist cylinder retracted (down). The oil level should be at or near the "H" (high) mark on the dipstick. Fill with approved hydraulic fluid as required (See Lubricant Specifications Chart, Section 5). Do not overfill.

## Transmission Oil Level

Always check that the transmission petcocks show at least some oil prior to starting the engine. The level should be checked after engine warm-up, with the transmission at normal operating temperature. The fill tube is located in the swivel hinge area. Always check the level with the engine running, at normal operating temperature, with the transmission in neutral. The oil level should be between the "H" (high) and "L" (low) petcocks. Fill with approved fluid only (See Lubricant Specification Chart, Section 5). Do not overfill.

## "Walk Around" Inspection

Perform a "walk around" inspection, looking for leaks, loose or missing fasteners, damaged hoses, structural cracks or damage, etc.

**Do Not** operate the machine until any problems have been corrected.

## Tires

Visually inspect the tires for low air pressure and damage to the tread and side walls. If a tire appears suspect, appropriate maintenance personnel should thoroughly check it prior to machine operation.

## Engine Pre-start

1. Make sure that oil and coolant levels have been checked before attempting to start the engine.
2. Sit in your normal operating position and adjust the seat for your personal comfort. It is recommended that you wear your seat belt.
3. Check for emergency/parking brake engagement: Pull the knob to set the brake.
4. Place the transmission shift lever in the "neutral" (middle) position.

**NOTE:** All current Wagner units are equipped with a neutral start switch which prevents the engine from starting unless the transmission is in neutral.

5. Give warning that you are going to start the engine. Remember, there is ample space in the swivel hinge area for a person to stand, and you may not be able to see him from the cab. Be sure that the area around the machine is clear of all personnel and obstructions.

## **WARNING**

**Don't start the engine if the key switch has been tagged with a "Do Not Start" or "red" tag.**

6. Turn the key switch to the ON position. The emergency brake light and circuit lights should come on. Also, the engine protection system bell and light should come on.
7. With Caterpillar and Detroit Diesel engines, check that the emergency shutdown control is pushed IN.

### Engine Start-up

1. Turn the key switch to the START position. Release the switch to the RUN position as soon as the engine starts.

**CAUTION: If the engine does not start within 30 seconds, allow the starter to cool for at least 2 minutes before re-engagement.**

In cold weather it may be necessary to use the cold weather starting procedure.

2. After the engine starts, let it idle. Do not accelerate. Remember, high rpm and full load conditions on cold oil can severely damage the engine, transmission and hydraulic system.

The engine warning light and bell should go out within a few seconds after starting. If engine oil pressure fails to rise sufficiently after approximately 40 seconds of running, the engine may automatically shut-down.

**IMPORTANT: Your WAGNER is equipped with an audio/visual engine protection system. If oil pressure drops below a safe level, or coolant temperature becomes excessive, the engine warning light and bell will come on. With some models, if the condition continues, the engine will shut down automatically. If your unit is not equipped to shut down automatically, it is vitally important that you immediately shut down the engine if the light and bell come on.**

3. If a rise in oil pressure of the engine or transmission is not observed within 5 seconds, or a rise in air pressure is not observed in 10 seconds, shut down the engine and have maintenance determine the cause of the problem. Do not operate the machine until the problem has been corrected.
4. Warm the engine at idle until the air pressure reaches at least 60 psi, then recheck that the transmission is in

neutral and that the parking brake is applied. Using the hand throttle, continue to warm the engine at 1000 rpm until the engine temperature reaches at least 130° F, and the air pressure rises to 120 psi.

5. Release the hand throttle. Meanwhile, observe the gauges for proper readings and operation. Also, check the operation of all safety equipment and accessories.

### Cold Weather Starting Procedure

**NOTE:** For maximum engine protection and easier starting:

Keep the batteries fully charged.

Keep the fuel clean and free of water.

Change the engine oil to the recommended viscosity for the air temperature.

1. Before cranking the engine, pull the "cold start" handle out. Wait 3 seconds for the valve to fill.
2. While cranking the engine, push the handle in to discharge the ether into the engine.
3. In extremely cold weather additional shots may be required to keep the engine running.

## **WARNING**

**Starting fluid is extremely flammable and toxic. Never smoke while using starting fluid. Never make a hole in the starting fluid container. Do not use near an open flame or put the container into a fire. Use only small amounts of starting fluid. Never store starting fluid in a hot area or the operator's cab.**

### Temperatures below 32° F (0° C)

1. Let the engine idle for approximately 15 to 20 minutes before putting any load on the engine. Check all gauges for normal readings.
2. After the engine is warm, move the machine to full work capacity slowly until the hydraulic oil is at operating temperature.

### Temperatures below 0° F (-18° C)

**CAUTION: If the temperature of the hydraulic oil is below its pour point, do not start the engine. The high oil viscosity could cause**

---

**immediate pump cavitation, resulting in severe damage. The oil in the hydraulic tank must be heated prior to engine start-up.**

If the machine will be shut down for several hours or longer, with ambient temperatures below 32° F ( 0° C), the hydraulic tank heater should be plugged in as soon as the machine is shut down. This will help to maintain hydraulic oil temperature.

### **WARNING**

The hydraulic tank heater uses a 220 or 110 VAC external power source. An electrical shock could be fatal. Don't forget to disconnect the heater cable before beginning operation. All electrical cables and connectors must be in good condition. Use caution in wet weather to avoid danger from electrical shock. The heater must be properly grounded.

Let the engine idle for approximately 10 minutes before putting any load on the engine. Check all gauges for normal readings. In extremely cold temperatures, allow sufficient warm-up time.

### **Engine Shut-down**

1. Move the throttle to idle speed, and let the engine idle for at least 5 minutes in order to normalize internal engine temperatures.

**CAUTION:** Except in emergencies, never shut the engine down immediately after operation. Allow the engine to idle for at least 5 minutes. Failure to do this could cause severe engine damage.

2. Meanwhile, place all controls in neutral and set the emergency brake.
3. To stop the engine, turn the key switch to the OFF position.