



Before using this Hog Pump®, study and understand the entire Owner's Manual.

Serial Number _____

MODEL HP-20T4 HOG PUMP®

OWNER'S MANUAL



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INTRODUCTION

The Model HP-20T4 Hog Pump® is a self-contained, portable, robust machine built to deliver grout, mortar, or concrete on the job site. The system is ruggedly mounted on a sturdy frame complete with a hitch, a drop leg jack, outrigger legs, safety chains, wheels, brakes, and protected rear lighting. The unit is equipped with a front-mounted tool box for storage of clamps, clean out fittings, and a protective case for the remote control unit.

A 62HP Tier 4 emission Kubota diesel engine powers the hydraulic pump, driving twin hydraulic cylinders for outstanding pumping capabilities. The HP-20T4 Hog Pump® is capable of unloading 18 cubic yards of material an hour when using a 2-in. diameter line. The fully reversible S-Tube system operates automatically, but can be manually controlled for clearing clogs, simplifying cleanup. The HP-20T4 Hog Pump® handles up to 3/4-in. diameter aggregate, including pea gravel, and is ideal for filling block walls. The hopper can pivot 90 degrees to facilitate quick and efficient cleanup.

The system is controlled and monitored by a Plus+1 micro controller system and includes a digital display for operating conditions and system troubleshooting. A wireless remote control supports one-person operation and the ability to control other units. The well-designed operator control panel includes system gauges, a material flow joystick, engine key start, and engine throttle adjustment controls. Three emergency E-Stop buttons (one on each side of the hydraulic oil tank and one on the control panel) are provided for quick machine shut down. In addition to the E-Stops, the hopper grate has a safety switch that shuts the machine down when the grate is lifted. The shutdown event must be acknowledged by using the digital display or remote before machine operation can be resumed.

Before operating the HP-20T4 Hog Pump®, carefully read and understand the information contained in this manual. The manual provides basic guidelines for operator safety, proper operation, and maintenance of the HP-20T4 Hog Pump®. To prevent injury or death, conduct routine maintenance on the HP-20T4 Hog Pump®, do not operate outside of recommended use, and always be aware of the surroundings. Store this manual in the toolbox for easy referencing for operating, cleaning, and maintenance procedures.



A data plate is provided on the operator display side, lower frame of the machine. It is engraved with the unit serial number, the company website (www.ezgmfg.com), and the company toll-free telephone number (1-800-417-9272).

GENERAL INFORMATION









Illustrations throughout this manual are representative and may show details or components that may not be the same as your machine. Continuing machine design improvements may cause changes not included in this manual. The information in this document is subject to change without any prior notice.

ABOUT THIS MANUAL

This manual is provided with the HP-20T4 Hog Pump® to inform the equipment owner/operator how to safely operate the machine and become aware of hazards. It also contains important information regarding set up, operation, maintenance, and repair procedures. It is the responsibility of the equipment owner/operator to make sure anyone who operates this machine understands all safety warnings. If you do not understand any items in this manual, please contact the dealer where this product was purchased or the manufacturer at the number listed throughout this manual. If you have any suggestions about how to make this manual easier to understand, contact the manufacturer. Keep this manual available for reference wherever this piece of equipment is being used and make it available to any operators.

SAFETY INFORMATION

The following safety symbols and signal words will be used throughout this manual and on the product, for your safety and the safety of others, please become familiar with their meaning and heed their warnings.

	This symbol, either used alone or with a signal word, is used to call your attention to instructions involving your safety and/or the safety of others. Failure to follow these instructions will likely result in personal injury or death.
 	This signal word is used to identify a hazard which, if not avoided, will result in death or serious injury.
 	This signal word is used to identify a hazard which, if not avoided, could result in death or serious injury.
 	This signal word is used to identify a hazard which, if not avoided, could result in minor or moderate injury.
	This signal word is used to identify a hazard which, if not avoided, could result in property or equipment damage. It also may be used for special instructions related to performance, maintenance or general items.

To prevent serious injury or death, thoroughly read and understand all aspects of this manual. Ensure safety practices discussed in this chapter are put into practice when operating the HP-20T4 Hog Pump®. This chapter is NOT all-inclusive. It is the responsibility of each operator to abide by all other safety precautions implemented by the company, owner of the equipment, and state and federal government.

SAFETY PRECAUTIONS

Required Personal Protective Equipment (PPE)

The use of PPE is critical to safe operation and well-being of the operator. The following PPE and information (this list is not all-inclusive) should be used in the safe operation of the HP-20T4 Hog Pump®:

- Jewelry removed (especially necklaces and rings)
- Long hair tied back
- Close-fitting work clothes that do not hinder movement
- Safety glasses with side shields, or goggles
- Hearing protection
- Safety-toed footwear
- Occupational Safety and Health Administration (OSHA)-approved hard hats
- National Institute for Occupational Safety and Health (NIOSH)-approved ventilation masks when dust is present
- Protective gloves
- Rubber boots and rubber gloves when performing clean out procedures



General

- Make sure anyone operating the HP-20T4 Hog Pump® is thoroughly familiar and understand its operation. Keep all unauthorized and untrained personnel, especially children, away from the machine.
- For your safety and the safety of others, replace any missing or damaged warning decals by contacting the manufacturer at 1-800-417-9272.
- Never operate machine with the safety grate, guards, or safety devices removed or open. Do not alter any safety guards.
- Be sure any clothing you wear does not have strings, fringes, or other external tightening means that could be caught in moving parts.
- Keep all body parts, clothing, jewelry, and solid objects away from all moving parts.
- Never perform any work on the machine while it is running. Before working on or cleaning the unit, turn the ignition key off and disconnect the negative battery cable.
- Never operate the machine when under the influence of alcohol, drugs, or medications.
- Do not use the HP-20T4 Hog Pump® for anything other than its designed purpose of pumping mortar, grout, concrete, or small diameter (up to 3/4-in.) media (pea gravel).
- Mixes with crushed aggregate are not recommended and may cause material separation.
- Stay clear of moving parts while the machine is in operation.
- Operate machine only in a properly vented environment.
- Wear a mask and avoid breathing dust produced while using the machine. Dust may contain crystalline silica and may cause serious health problems.
- Always know the location of nearest fire extinguishers, first aid kit, and phone with first-responder contact numbers in case of emergency.

SAFETY PRECAUTIONS

WARNING

Towing

- Ensure the outrigger legs are pinned and locked in the stowage position before traveling. If the locking device is damaged or worn, it should be repaired immediately and the unit must not be driven until the outrigger legs can be positively locked.
- The Hog Pump® is supplied with a 2-5/16" ball hitch connection. Verify correct hitch before connecting to the Hog Pump®
- Safety chains must be used with Hog Pump® when unit is in tow.
- Insure tow vehicle and hitch have a rated GCWR, GTW, and tongue weight capacity to handle Hog Pump®
- Always chock wheels of Hog Pump® when not coupled to a tow vehicle.

Model	Empty Weight	Tongue Weight
HP-20T4	3,880 lbs. (1760 kg)	345 lbs. (156.5 kg)

Model	Tire Size	Tire Pressure
HP-20T4	ST225/75R15	65 psi (245 kPa)

Hydraulic System

- The hydraulic system is under pressure and oil may be hot.
- Always allow the machine to cool completely before performing service.
- Always relieve pressure in the hydraulic system before performing service.
- Always use appropriate safety equipment and clothing to protect exposed skin and eyes from high pressure oil.
- Tighten all connections to proper specifications before applying pressure.
- Never use bare hands to check for leaks. Oil under pressure can penetrate the skin, and can cause gangrene within a few hours if not properly removed. Use a piece of cardboard to check for leaks.
- Inspect all hoses and fittings for signs of damage, wear scrapes, kinks, or cracking. Replace hoses is any of these conditions are found. It is recommended to replace all hydraulic hoses every 5 years.

Electrical System

- Always disconnect the negative (-) before servicing, removing, or installing electrical components.
- Always disconnect the negative terminal first and positive terminal last. Connect positive terminal first and negative terminal last. Use care when dealing with live circuits to prevent arcing. Arcing may result in death or serious injury.
- Use care to prevent arcing when working on live circuits or components. Arcing can cause component damage and may ignite flammable materials.

SAFETY PRECAUTIONS

⚠ CAUTION

- Before operation, inspect all hoses, fasteners, bolts, and welds for nicks, cracks, cuts, damage, wear, or looseness before each use. Repair as needed.
- Always wear approved PPE, including glasses, hearing protection, hard hats, and ventilation masks when operating the machine.
- Avoid contact with hot hydraulic oil.
- Allow system to cool before performing any repairs or service, such as adding fuel, oil, or coolant.
- Use only factory authorized parts.
- Used lubricants such as engine oil, hydraulic oil, and hazardous waste must be taken to an authorized disposal or recycling center.
- The HP-20 Hog Pump must be stable before operating the machine. Level the machine if placed on a slope or uneven terrain. Failure to comply may result in personal injury or equipment damage.

California - Proposition 65 Warning

Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

Lead from lead based paints - Crystalline silica from bricks -Cement and other masonry products -Arsenic and chromium from chemically treated lumber

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: ALWAYS work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

EMERGENCY STOPS



1. **Machine Control Panel** - Turns off diesel engine (manual reset)
2. **Left Rear E-stop** - Halts pumping only (manual reset) (must be reset on remote if using remote option)
3. **Right Rear E-stop** - Halts pumping only (manual reset) (must be reset on remote if using remote option)
4. **Remote (Optional) (Not Shown)** - Halts pumping only (must be manually reset from remote display)

WARNING LABELS AND LOCATIONS

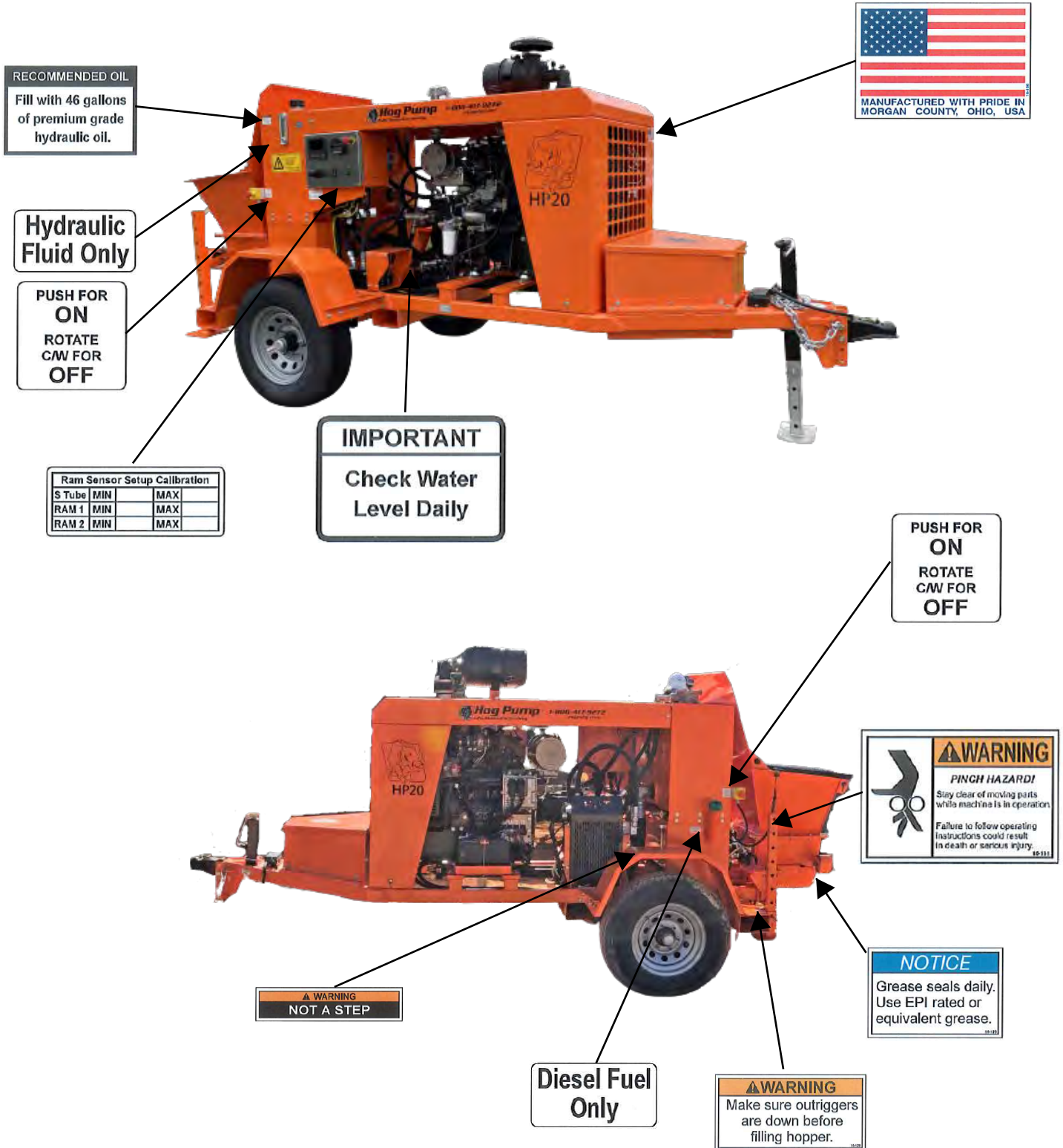
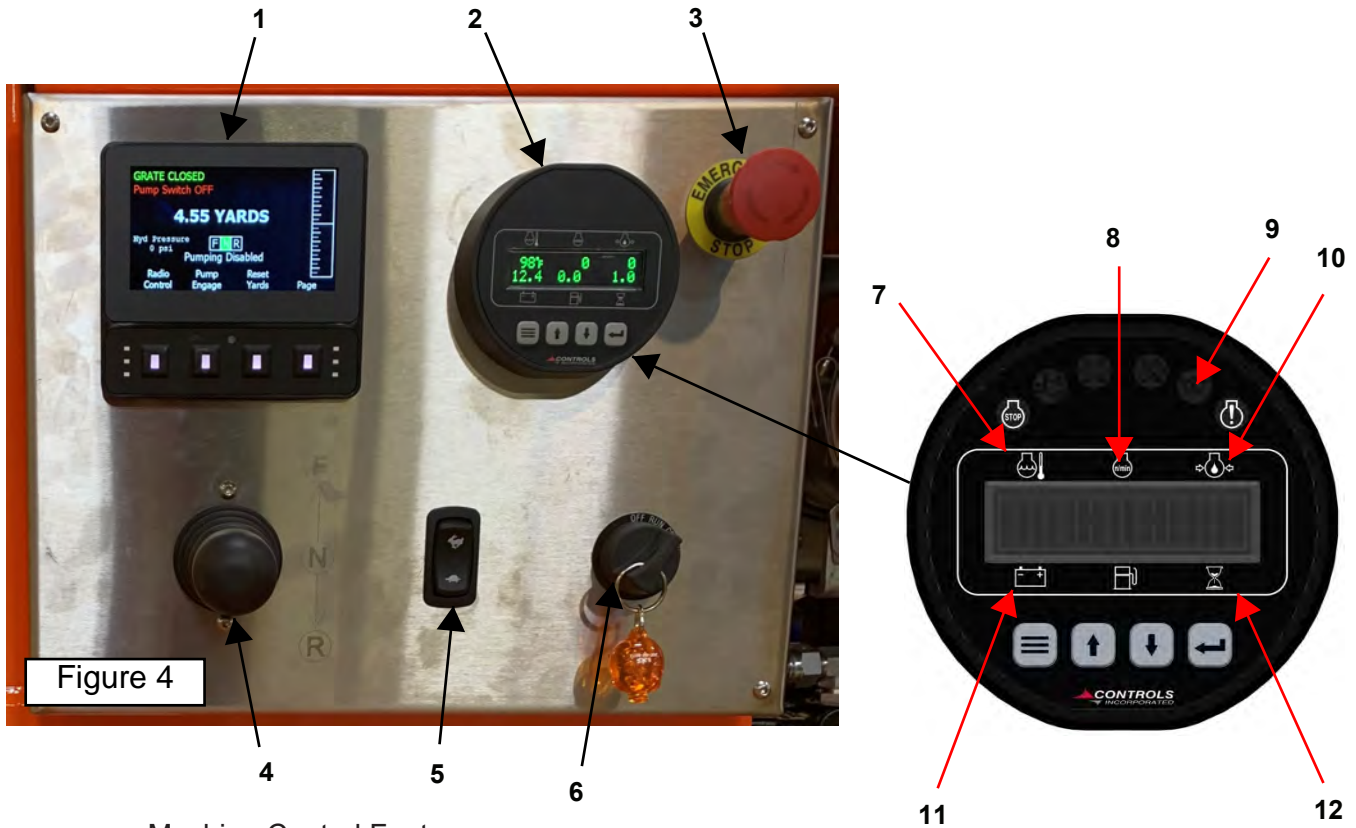


Figure 3

MACHINE CONTROLS



Machine Control Features

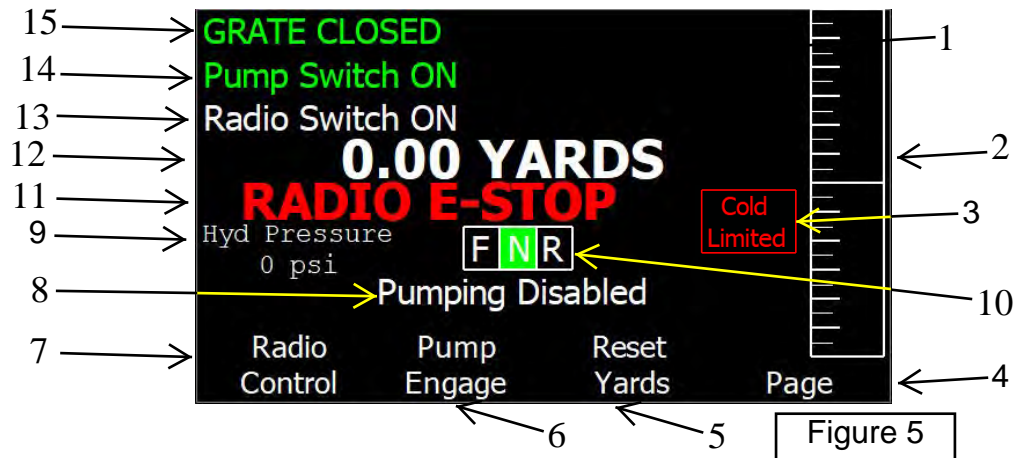
1. **DM430 Digital Display** - Display engine and pump info (see next section)
2. **MVP Engine Display** - Displays diesel engine status (see 7-12 below)
3. **Emergency Stop** - E-stop for diesel engine and pump.
4. **Material Flow Joystick** - Forward-Neutral-Reverse of pump
5. **Engine Throttle Control** - Press up (RABBIT) to increase or down (TURTLE) to decrease diesel engine speed
6. **Ignition Switch/Key** - Used to start diesel engine
7. **Engine Temperature** - Displays temperature of diesel engine coolant
8. **Engine RPM** - Displays diesel engine speed
9. **Heater** - Illuminates when engine intake heater is active
10. **Engine Oil Pressure** - Displays diesel engine oil pressure
11. **Battery Voltage** - Displays battery voltage
12. **Engine Hour Meter** - Displays diesel engine hours

DM430 DIGITAL DISPLAY

The digital display functions as the hub of communication for the HP-20T4 Hog Pump. The Controller Area Network (CAN)-based Plus+1 programmable display works in conjunction with the micro controller and wireless remote control. The digital display provides the operator complete control over the machine and provides useful troubleshooting information including system diagnostics. Multiple screens provide information on alarm status, volume of media pumped, and much more. The various screens can be viewed without starting the engine by turning the ignition key to the ON position.

The four soft touch buttons below the display are used to select the corresponding items directly above them (Radio Control, Pump Engage, Reset Yards, & Page). Information that appears on the display in red is a quick visual indicator to the operator that a condition has occurred that requires operator attention and/or action.

DM430 DIGITAL DISPLAY



Digital Display Homepage

1. **Engine RPM Digital** - Display engine RPM
2. **Material Flow Scale** - Displays pumping rate (0-100%) (Up is forward, down is reverse)
3. **Cold Limit** - Limits material flow until the hydraulics are warm
4. **Page** (Soft Key) - Scrolls to next page
5. **Reset Yards** (Soft Key) - HOLD for 5 seconds to reset yard counter
6. **Pump Engage** (Soft Key) - Press to engage pump.
 - **Pump Engage** - Indicates pump engaged
 - **Pump Engage** - Indicates pump in neutral
7. **Radio Control** (Soft Key) - Press to engage radio control
 - **Radio Control** - Indicates radio control active
 - **Radio Control** - Indicates radio control not active
8. **Pump Status** - Displays status of pump
 - OK to Pump - Pump ready
 - Pumping Disabled - Safety interlock holding pump from operation
9. **Hydraulic Pressure** - Displays pressure of hydraulic system
10. **Pump Direction** Indication - Shows direction of pump
11. **E-Stop Status** - Shows status of E-stops
 - (BLANK) - No E-stop Present
 - **E-STOP** - 1 of 3 E-Stops on pump engaged
 - **Radio E-STOP** - Radio E-Stop engaged
12. **Yardage Counter** - Displays total yards pumps since last reset
13. **Radio Switch Status**
 - (BLANK) - Indicates radio not in operation
 - **Radio Switch ON** - Indicates radio operation
14. **Pump Status**
 - **Pump Switch OFF** - Indicates material not pumping
 - **Pump Switch ON** - Indicates material pumping
15. **Grate Status**
 - **GRATE OPEN** - Grate switch interlock not made
 - **GRATE CLOSED** - Grate switch interlock made

DM430 DIGITAL DISPLAY

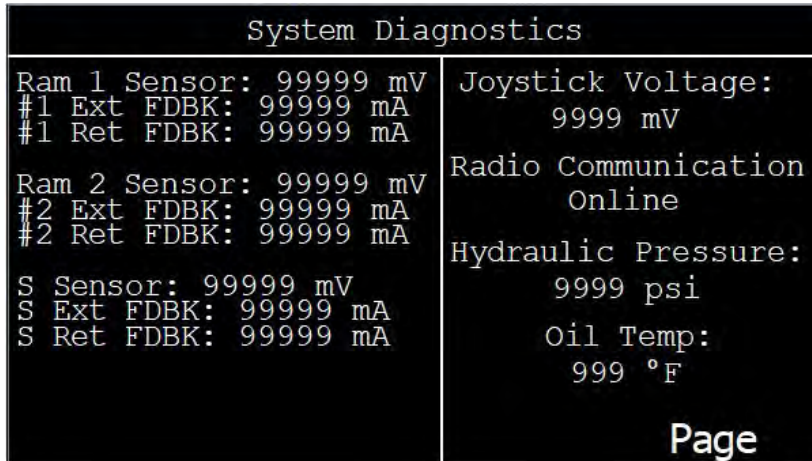


Figure 6

The **System Diagnostic** page can be accessed by pressing PAGE (Soft Key) once from the HOMEPAGE. It shows the signals for various function of the Hop Pump®. This display can be used to troubleshoot if a particular function is working correctly. Contact EZG Manufacturing technical support for details on this page.

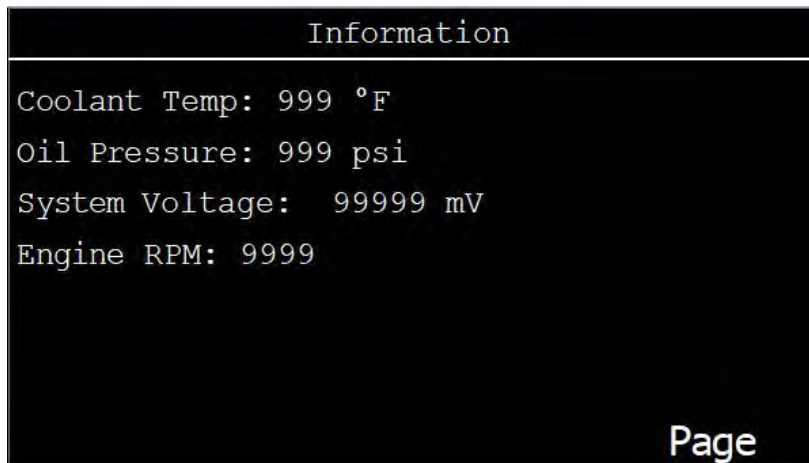
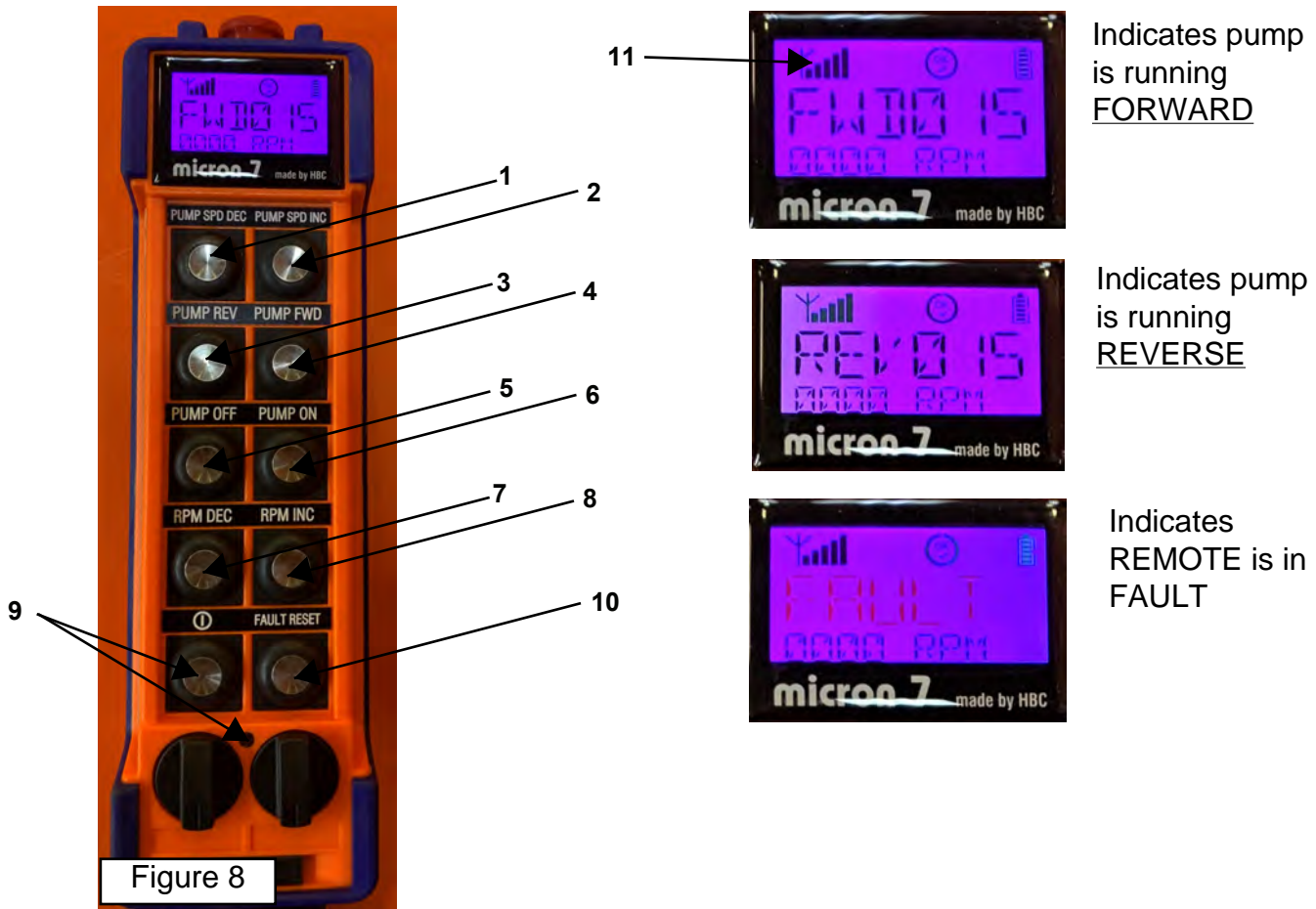


Figure 7

The **Engine Information** page can be accessed by pressing PAGE (Soft Key) twice from the HOMEPAGE. It shows the status of the engine that are redundant to the signals as displayed on the MVP Engine Display

REMOTE CONTROL (Optional)

The wireless remote control system consists of a portable transmitter, receiver, antenna, and supporting equipment. The portable transmitter controls cylinder forward and reverse motion, cylinder speed, and includes an E-Stop button. A rechargeable NiMH battery powers the unit. A green blinking light on the remote indicates communication is occurring between the transmitter and receiver. For serial numbers HP2016001 through HP2018012 wireless remote controls only, if no controls are used on the remote for 25 minutes, the remote will shut off and need to be reset at the digital display (Figure 13) before continuing use. See operational section for remote functionality.



Remote Control Features

1. **PUMP SPD DEC** - Press to decrease pumping speed (same function as Figure 4, Item 4)
2. **PUMP SPD INC** - Press to increase pumping speed (same function as Figure 4, Item 4)
3. **PUMP REV** - Sets pump to operate in reverse (same as Figure 4, Item 4)
4. **PUMP FWD** - Sets pump to operate in forward (same as Figure 4, Item 4)
5. **PUMP OFF** - Turns pump off (same function as Figure 5, Item 6)
6. **PUMP ON** - Engages pump (same function as Figure 5, Item 6)(direction by items 3 & 4 above)
7. **RPM DEC** - Decrease engine RPM (same as TURTLE Figure 4, Item 5)
8. **RPM INC** - Increase engine RPM (same as RABBIT Figure 4, Item 5)
9. **Remote On/Light** - Initiates the remote and indicated state with light
 - Not Connected - Single Red Flash
 - Tap once to initiate - solid green light
 - Hold for 3 seconds to connect - blinking green light
10. **FAULT RESET** - Resets faults or E-Stop after they clear
11. **Signal Strength** - Used to verify connect to the base unit.

SET-UP

⚠ WARNING

Do not operate the HP-20T4 Hog Pump® without outrigger legs extended and pinned in place. Machine will become very unstable without outriggers properly set. Failure to comply may result in injury or death.

⚠ CAUTION

The HP-20T4 Hog Pump® must be stable before operating the machine. Level the machine if placed on a slope or uneven terrain. Failure to comply may result in personal injury or equipment damage.



Figure 9

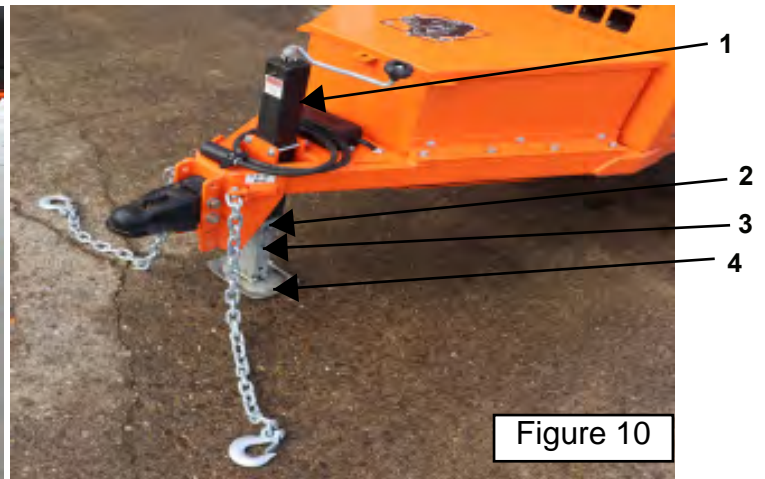


Figure 10

Item	Description
1	Outrigger leg
2	Hair Pin
3	Hitch Pin

Item	Description
1	Drop Leg Jack
2	Detent Clip
3	Keeper Pin
4	Foot Plate

1. While firmly holding left-hand outrigger leg (Figure 9, Item 1), remove hair pin (Figure 9, Item 2) and hitch pin (Figure 9, Item 3) from outrigger leg.
2. Extend outrigger leg to the ground surface and insert hitch pin through the closest alignment hole.
3. Replace hair pin.
4. Repeat steps 1 through 3 for the right-hand outrigger leg.
5. While firmly holding the lower part of the drop leg jack (Figure 10, Item 1), remove the foot plate detent clip (Figure 10, Item 2), and keeper pin (Figure 10, Item 3) with attached chain.
6. Lower the drop leg jack until the foot plate contacts the ground.
7. Insert keeper pin through the closest alignment hole and secure with detent clip.
8. Extend jack until both outriggers are touching the ground and the Hog Pump® is level. The tires should have limited load on them at this point. If not repeat steps 1 through 7.
9. Engage electric brake control (if equipped).

PRE-START CHECKLIST

⚠ CAUTION

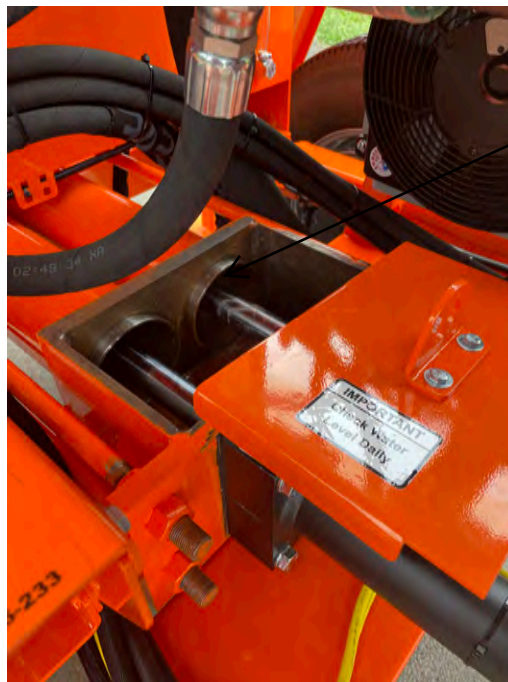
Ensure the one-inch retaining bolts that secure the hopper to the frame (Item #4 on Figure 9) are tightened prior to operation. Failure to comply may result in personal injury or equipment damage.

Pre-start checklist to be performed prior to each starting and operation of the Hog Pump®

- Machine is level and stable
- Engine oil level on dipstick, add oil if required
- Fuel tank level on sight gauge, fill if required
- Engine coolant level, add coolant if required
- Engine coolant hoses and fittings, repair if required
- Engine air filter minder (restriction gauge), change air filter if required
- Fuel hoses and fittings for leaks, repair as required
- Fuel filter, change fuel filter if required
- Fuel/water separator, drain water if required
- Hydraulic oil tank level, add oil if required
- Hydraulic oil tank filter, change filter if indicator is in the red zone
- Hydraulic hoses, cylinders, and fittings for leaks, repair as required
- Check water box level, fill as required.
 - Biodegradable oil is the preferred media for the water box
 - Antifreeze/water mix may be used as well
 - Water may be used but is not recommended

⚠ CAUTION

Consult local environmental regulation before filling water box.



Fill water box to top of cylinders with both cylinders retracted.

OPERATION WARNINGS

WARNING

- Appropriate PPE should be worn at all times while operating the HP-20 Hog Pump®. Failure to comply may result in injury or death. See page 5 of this manual for minimum requirements.
- Do not attempt to make repairs to HP-20T4 Hog Pump® while it is in operation. Failure to comply may cause injury or death.
- Do not overheat the starter. Crank the engine for 15 seconds, then wait 30 seconds before cranking again. Periodically check the starter temperature. Allow a hot starter to cool down before cranking again.

NOTICE

- HP-20T4 Hog Pump® is equipped with a cold start limit (Figure 5, Item 3) that limits the hydraulic operation until the hydraulic fluid is warmed. Wait until cold start limit indication is not illuminated before attempting full operation of the pump.
- All E-Stops (including remote control) must be in the pulled out position or pump will not engage.
- The diesel engine on this machine is equipped with a heater starting aid that must be engaged prior to attempting engine start procedures.

Start-up

1. Turn the fuel tank shutoff valve (located under fuel tank) to the ON position.
2. Turn ignition key (Figure 4, Item 6) to the ON position and hold until the heater indication turns off.
3. Verify Material Flow Joystick (Figure 4, Item 4) is in neutral. This can also be verified on the DM430 Display (Item 4, Item 1) Material Flow Scale (Figure 5, Item 2)
4. Once the heater indicator (Figure 4, Item 9) goes out, turn ignition key to start position and crank the engine until it starts.
5. Check the MVP Engine Display (Figure 4, Item 2) to verify all lights are out and engine readings are within normal range.
6. Press Engine Throttle Control RABBIT (Figure 4, Item 5) to increase engine 50% throttle to warm the engine
7. Check the digital display (Figure 4, Item 5) to ensure no system alarms or warnings are present. If a condition does exist, it must be corrected before proceeding.
8. Continue to run until Cold Limit (Figure 5, Item 3) is no longer illuminated.
 - a. Cold Limit should go off when hydraulic fluid reaches operating temperature.
9. Test operation - Press Pump Engage (Figure 5, Item 6) on the DM430 Digital Display to start the pump.
10. Press Pump Engage (Figure 5, Item 6) on the DM430 Digital Display to stop the pump after 1 minute.
11. Connect delivery hose to output of hopper assembly.
12. The HP-20T4 is now ready for operation.

Operation

CAUTION

A primer/slurry product should be introduced into the hopper before the initial concrete/masonry material is added. Fill the hopper halfway with a mix of primer/slurry and water. Allow the pump to cycle several times to prime cylinders and pre-lubricate the line. Failure to do so could result in damage to equipment.

The Hog Pump® is designed to operate at full (2500 RPM+) while pumping.

NOTICE

If the hopper grate is open, the pump will not engage, and Pumping Disabled will appear on the display.

The yardage pumped indication (Figure 5, Item 12) shows theoretical yards pumped and should be used for a reference only. It is not designed for material billing purposes.

Operation from On-machine Control Box

1. Increase engine to full operating speed (2500 RPM+) by pressing RABBIT (Figure 4, Item 5).
2. Fill hopper with the media to be pumped.
3. Press Pump Engage on the digital display.
4. Move Material Flow Joystick (Figure 4, Item 4) control from N (Neutral) to F (Forward) to begin pumping.
5. Adjust Material Flow Joystick to increase/decrease pumping/delivery to desired feed speed.
6. Use the Pump Engage on the display to stop/start pumping/delivery as job requires.
7. Pump as much material as possible from the hopper.
8. Clean Hog Pump® when complete. See instructions on page 18
9. Shut down Hog Pump® after cleaning. See instructions on page 19

NOTICE

Clear Remote fault before operations. See next page for instructions.

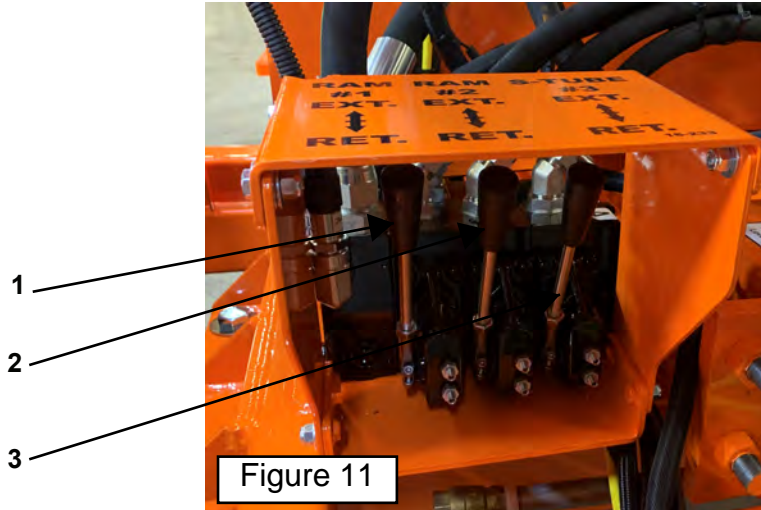
Operation from Remote

1. Tab Remote On (Figure 8, Item 9) to power on the remote. You will get a single red blink from the light.
2. Hold Remote On for 3 seconds to initiate remote. The light will continuously blink green.
3. Verify remote connection by increasing engine RPM (Figure 8, Item 8)
4. Increase engine to full operating speed (2500 RPM+) by pressing RPM INC (Figure 8, Item 8).
5. Fill hopper with the media to be pumped.
6. Press PUMP ON (Figure 8, Item 6) then PUMP FWD (Figure 8, Item 4) on the remote to begin pumping.
7. Press PUMP SPD INC (Figure 8, Item 2) to increase pumping/delivery to desired feed speed.
8. Use the Pump ON or PUMP OFF (Figure 8, Item 5) on the display to stop/start pumping/delivery as job requires.
9. Pump as much material as possible from the hopper.
10. Shut down Hog Pump® after cleaning. See instructions on page 18
11. Clean Hog Pump® when complete. See instructions on page 19

Operation

Emergency Manual Override

In case of electronics failure the HP-20T4 is equipped with manual overrides to the control valving. The manual override is intended to clear the hopper and for cleaning. It is not intended for continuous use or normal operation.



⚠ CAUTION

Material discharge hose will have pressure. Relieve pressure before removing.

1. Pull handles to retract Ram #1 (Figure 11, Item 1) and Ram #2 (Figure 11, Item 2).
2. Release handles when cylinder bottoms out. (Hydraulic system will go over relief)
3. Remove delivery hose from output of hopper assembly.
4. Open Cleanout Gate (Figure 12, Item 3) on bottom of hopper.
5. Wash as much material from hopper as possible through Cleanout Gate
6. Remove 1" Hopper Retaining Bolts (Figure 12, Item 4)
7. Swing Hopper (Figure 12, Item 2) 90° to expose cylinders.
8. Water wash inside of hopper and S-tube. Use S-Tube valve (Figure 11, Item 3) to move tube if not in optimum position to clean.
9. Water wash inside bore of cylinders.

E-Stop or Fault Reset

1. If E-stop on the main control panel was pushed, release E-stops by turning it counter clockwise and restart the diesel engine. E-stop buttons should extend when released.
2. Release the E-stops on Hog Pump® by hopper by turning them counter clockwise E-stop buttons should extend when released. Press Pump Engage (Figure 6, Item 6) to reinitialize the pump.
3. For a grate fault verify the grate is closed and switch is closed. Press Pump Engage (Figure 6, Item 6) to reinitialize the pump.
4. Push the Fault Reset button on the remote. The fault screen on the remote will clear when the pump is operation. Press Pump Engage (Figure 6, Item 6) to reinitialize the pump.
5. Resume normal operation of the pumps.

Cleaning Procedure

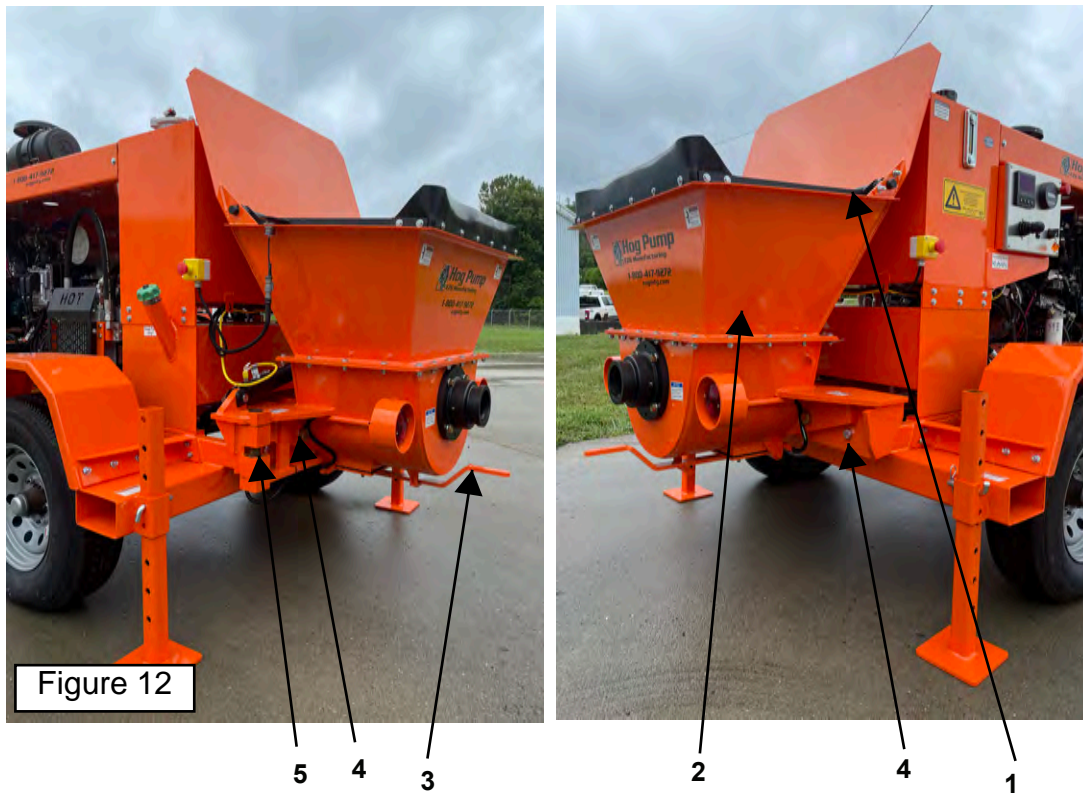
⚠ WARNING

Diesel engine must be off and key removed before cleaning Hog Pump®

NOTICE

The Hog Pump® is designed to be cleaned with water and a brush before concrete hardens. Leaving concrete in hopper to harden and using mechanical methods such as chipping the concrete away will damage the Hog Pump®, greatly affecting its performance and useful life.

If power washing the HP-20T4 Hog Pump, avoid direct pressure on the decals and safety labels. Promptly replace any decals or safety labels that are missing, damaged, or illegible



Item	Description
1	Hopper Grate
2	Hopper
3	Gate Handle
4	1" Hopper Retaining Bolts (one each side)
5	Hopper Hinge Pin

Cleaning Procedure

Line Flush

1. Pump as much material as possible out of the delivery system.
2. Pump water until water is free of debris.
3. On the digital display (Figure 2, Item 5), press Pump Disengage to stop the pumping operation.

Hopper Flush (Perform Shut-down Procedure Below before proceeding)

1. Disconnect the delivery hose from output of the hopper.
2. Move the gate handle (Figure 12, Item 3) to the right to open the Hopper Gate.
3. Remove both 1" Hopper Retaining Bolts (Figure 12, Item 4) and rotate the Hopper 90° away from the frame.
4. Thoroughly flush out the hopper (Figure 12, Item 2), S-Tube, and pumping cylinders with water.
5. Insert water hose into the hopper output and flush out remaining debris.
6. For easier cleanup, it is recommend to apply a thin coat of biodegradable form oil on the inside of the hopper.
7. Clean delivery hose (refer to delivery hose manufacturer).

WARNING

To avoid damage do not spray controls with high pressure water.

Do not use petroleum based materials on the controls, engine, or hoses.

Shut-Down Procedure

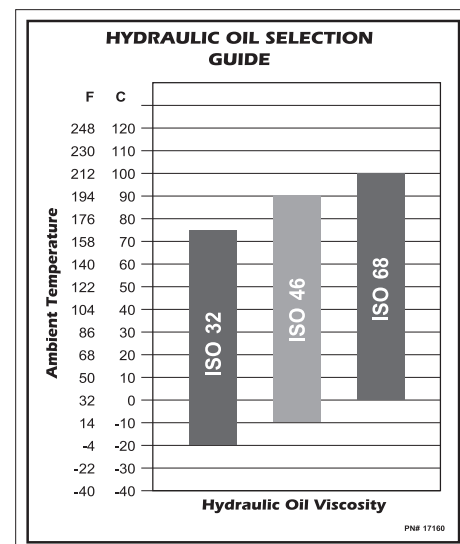
1. Idle diesel engine by pressing TURTTLE (Figure 4, Item 5).
2. On the digital display , press Pump Disengage (Figure 5, Item 6) to stop the pumping operation.
3. Turn off remote by holding power button (Figure 8, Item 9) for 3 seconds. (If using remote)
4. Turn ignition key (Figure 4, Item 6) to the OFF position.
5. Turn the fuel tank shutoff valve under fuel tank to the OFF position.
6. Thoroughly clean the machine. See Cleaning Procedure page 19

Maintenance - Hydraulic Fluid

CAUTION

The HP-20T4 is shipped from the factory with 46 gallons of ISO 68 hydraulic fluid.

Replace hydraulic fluid with appropriate grade for ambient temperature operating conditions outside of operational ranges for ISO 68 in the chart. Failure to do so could result in damage to equipment.



Daily Maintenance and Pre-start Checks

Category	Maintenance Operation
Engine	Check engine oil level on dipstick – add oil if required
	Check engine coolant level – add coolant if required
	Check engine coolant hoses and fittings – repair if required
	Check engine radiator cooling fins for blockages/plugging – clean if required
	Check engine air filter minder (restriction gauge) – change air filter if required
	Check engine fan belt condition – replace if required
	Check battery electrolyte, cables, and connections – fill/replace/repair if required
Fuel	Check fuel tank level on sight gauge – fill if required
	Check fuel/water separator – drain water out if required
	Check fuel filter – change fuel filter if required
	Check fuel hoses and fittings for leaks – repair if required
Hydraulic Oil	Check hydraulic oil tank level – add oil if required
	Check hydraulic oil tank filter – change filter if indicator is in the red zone
	Check filler cap/breather condition – clean/replace if required
	Check hydraulic oil heat exchanger cooling fins for blockages/plugging – clean if required
	Check hydraulic hoses, cylinders, and fittings for leaks, damage, or wear – repair as required
Electrical	Check all electrical components for functionality – repair as required
	Ensure all safety devices are working and safety labels are legible – repair/replace if required
Trailer/Frame	Check for loose, broken, or damaged structural components and fasteners – repair as required
	Check and grease all grease fittings
	Ensure hitch safety chains are in place and in good condition – replace if missing/broken
	Check tire air pressure – fill if required
	Check tires for wear/damage – replace if required
	Check wheel lug nuts for tightness – torque to specification if required
	Check jack hand crank for smooth operation – lubricate if required
	Check tail light operation – repair as required
Remote	Check if unit is functional – charge/replace battery if required
	Check antenna condition – replace if broken/missing
	Check plastic case condition – replace if cracked/broken
End of Day	Clean the machine thoroughly (See Cleaning Procedures)
	After machine is dry, spray all concrete/mortar contact areas with a thin coat of oil
	Grease all grease fittings
	Clean delivery lines/components (follow manufacturer’s guidelines)

Maintenance - Engine Fuel Filter Change

NOTICE

To avoid an engine starting problem, the engine fuel level should be checked frequently and not allowed to run dry. In the event the engine is allowed to run completely out of fuel or the fuel filter is changed, consult the Engine Manufacturers Manual for bleed and restart procedures.

Maintenance - Service Intervals

NOTICE

Routine maintenance ensures proper operation of equipment. All warranties are void if maintenance is neglected. Failure to follow any routine maintenance listed in this section may result in equipment damage or failure.

For specific engine maintenance and servicing, refer to the appropriate engine manufacturer service manual

Maintenance Service Intervals

Item	Interval (Hours)			
	Initial 50	100	250	500
Change engine oil and filter (refer to engine manufacturer's manual)				
Change hydraulic oil filter				
Check hydraulic hoses and fittings for wear/damage				
Check wheel lugs for tightness.				
Change water box oil and check for excess amount of contaminants				
Check hydraulic oil cooler and engine radiator for dirt/debris/clogging				
Check engine fan belt condition				
Check all structural components for integrity				
At the 250 hour interval, perform all the 100 hour interval items and the items listed below				
Send hydraulic oil sample for analysis.				
Change hydraulic oil filter (or when indicator is in the red zone)				
Check hydraulic hoses and fittings for wear/damage				
Check S-Tube and seals for wear				
Check S-Tube reversing cylinder pivot points for wear				
Check all electrical connections for corrosion, clean as needed				
Check fuel hoses/lines for leakage/wear/damage				
Check tow safety chains, hooks, and coupler for damage.				
Service engine (refer to engine manufacturer's manual)				
Check all decals and safety labels for wear/damage/readability				
Check all gauges for damage/functionality				
Check tire tread for excess wear				
At the 500 hour interval, perform all the 250 hour interval items and the items listed below				
Change hydraulic oil and filter				
Clean hydraulic oil tank and magnetic suction strainers				
Perform detailed examination of all welds/gussets for cracks				
Check wheel bearings for wear and repack				
Check clamps and cleanout fittings for wear/cracks/damage				
Replace hydraulic oil filler cap/breather				

Maintenance - Hydraulic Filter Change

NOTICE

Perform a hydraulic oil analysis (for contamination and oil condition) every 500 hours.

1. Turn off engine and remove the key from the ignition.
2. Ensure oil pressure gauges read zero.
3. Clean the Filter Housing (Figure 13, Item 1) and cover area with a clean, dry cloth.
4. Remove three screws and top plate of the Filter Housing. NOTE: **DO NOT** remove the bottom plate.
5. Remove sealing gasket. Replace if damaged.
6. Remove filter element and discard.
7. Install new filter.
8. Reinstall sealing gasket.
9. Install cover with three screws.
10. Start the machine and visually inspect for oil leaks. Repair as required.



Figure 13

Maintenance - Lubrication

NOTICE

EZG Manufacturing recommends biodegradable hydraulic fluid as a water box coolant.

Lubrication

Routine lubrication (using the recommended lubricants) should be performed on key locations to prevent premature equipment failure. Only use EP1-rated (or equivalent) lubricant.

S-Tube actuating cylinder – two fittings, grease once/hour during operation and after daily machine cleanup

S-Tube bearing – two fittings, grease once/hour during operation and after daily machine cleanup

S-Tube outlet – two fittings, grease once/hour during operation and after daily machine cleanup

Hopper pivot pin – two fitting, grease after daily machine cleanup

Trailer wheel bearings – repack bearings and inspect for wear or damage every 12,000 miles or 12 months

Hydraulic Oil Tank

The hydraulic oil tank has a access cover, fill cap/breather, top-mounted oil return filter (with indicator), internal magnetic suction strainers, a tank-mounted dual purpose sight level/temperature gauge, and a drain valve. A direct current-powered electric heat exchanger with fan maintains oil temperature.

When replenishing the oil, pour oil from an unopened container through a wire mesh strainer (200 mesh or finer) to remove any contaminants. Never use a cloth to strain oil as lint/fibers could contaminate hydraulic systems.

NOTICE

Contaminated hydraulic oil leads to premature system malfunctions and failures. Exercise care when filling the tank or working on fittings contamination. Failure to do so could result in damage to equipment.

Ensure all areas in close proximity of the cap, breather, or filter are clean before removing. Always cap or plug open ports and hydraulic lines when disconnecting. Check the oil filter indicator gauge daily. Change the filter if indicator is in the red zone.

Maintenance - Piston Cup & Seal

The abrasive nature of concrete, mortar, or other masonry materials ultimately wears parts, components, and seals. Periodically, these parts and components will need repair and/or replacement. The visual indicator for material piston cup (Figure 14, Item 4), seal (Figure 14 Item 1), and O-ring (Figure 14, Item 3) replacement is contamination visible in the water box. The HP-20 Hog Pump has two identical material piston assemblies, but only one is shown below for illustration purposes.

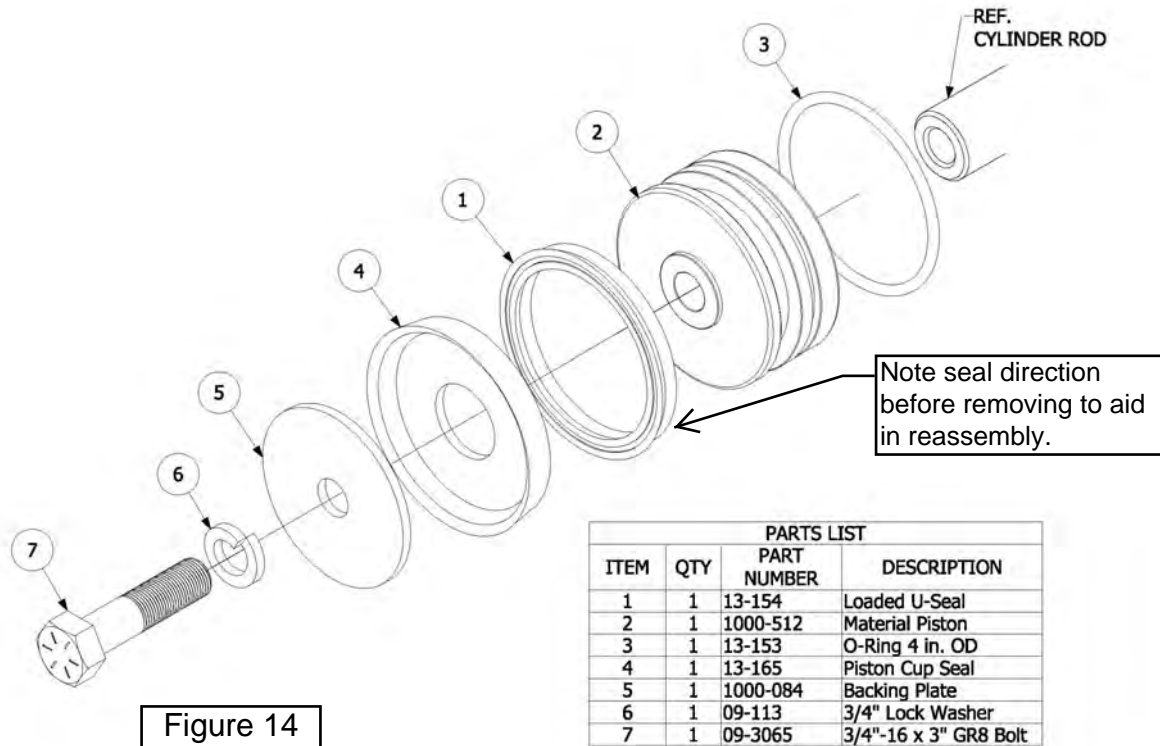


Figure 14

Removal

1. Remove both 1" Hopper Retaining Bolts (Figure 12, Item 4) and rotate Hopper (Figure 12, Item 2) 90°.
2. Start the engine.
3. Using the manual override (Figure 11, Item 1 & 2), fully extend the hydraulic rams. The engine will bog down when the fully extended position is reached. The bolt (Figure 14, Item 7), lock washer (Figure 14, Item 6), piston cup backup washer (Figure 14 Item 5), and piston cup (Figure 14, Item 4) will be extended past the frame for easy access.
4. Turn the engine off.
5. Using an impact tool, remove the 3/4-in. bolt from the material piston (Figure 13, Item 2).
6. Remove lock washer, piston cup backup washer, and piston cup.
7. Discard the piston cup.
8. Start the engine.
9. Using the manual override, partially retract the hydraulic ram.
10. Turn the engine off.

Maintenance - Piston Cup & Seal

CAUTION

Exercise care when pulling the material piston out of the cylinder to prevent piston and cylinder rod thread damage. Once loose, the piston may drop out onto the floor, causing damage to equipment or injury to personnel.

12. Insert a hooked end tool (or other suitable tool) into the bore of the material piston and firmly pull the material piston out of the cylinder.
13. Remove and discard the O-ring (Figure 14, Item 3) and loaded seal (Figure 14, Item 1) from the material piston. Note seal direction to aid in reassembly.

Installation

1. Start the engine.

NOTICE

An assistant and a tape measure will be needed to locate the correct position to stop the hydraulic ram for installing the material piston.

2. Have the assistant insert the end of a tape measure into the cylinder bore and make contact with the cylinder rod.
3. Using the directional control valve handle, the machine operator should slowly extend hydraulic ram.
4. Once the cylinder rod starts extending, the assistant should notify the operator to stop extending the ram when the cylinder rod measures 2 1/2-in. from the end plate.
5. Turn the engine off.
6. Liberally coat the O-ring and loaded seal with grease and install on the material piston.

NOTICE

Ensure the loaded seal is oriented correctly on the material piston. The beveled, raised portion of the seal should be facing in the direction of the hopper assembly.

7. Insert the material piston (with seal and O-ring) into the cylinder bore and press the piston in until it contacts the cylinder rod.

NOTICE

The cylinder rod has internal threads for the 3/4-in. bolt. Ensure the cylinder rod is seated into the material piston to prevent cross-threading. It may be necessary to use a drift bar or other tool to align the rod before installing the bolt. Do not damage threads.

Maintenance - Piston Cup & Seal

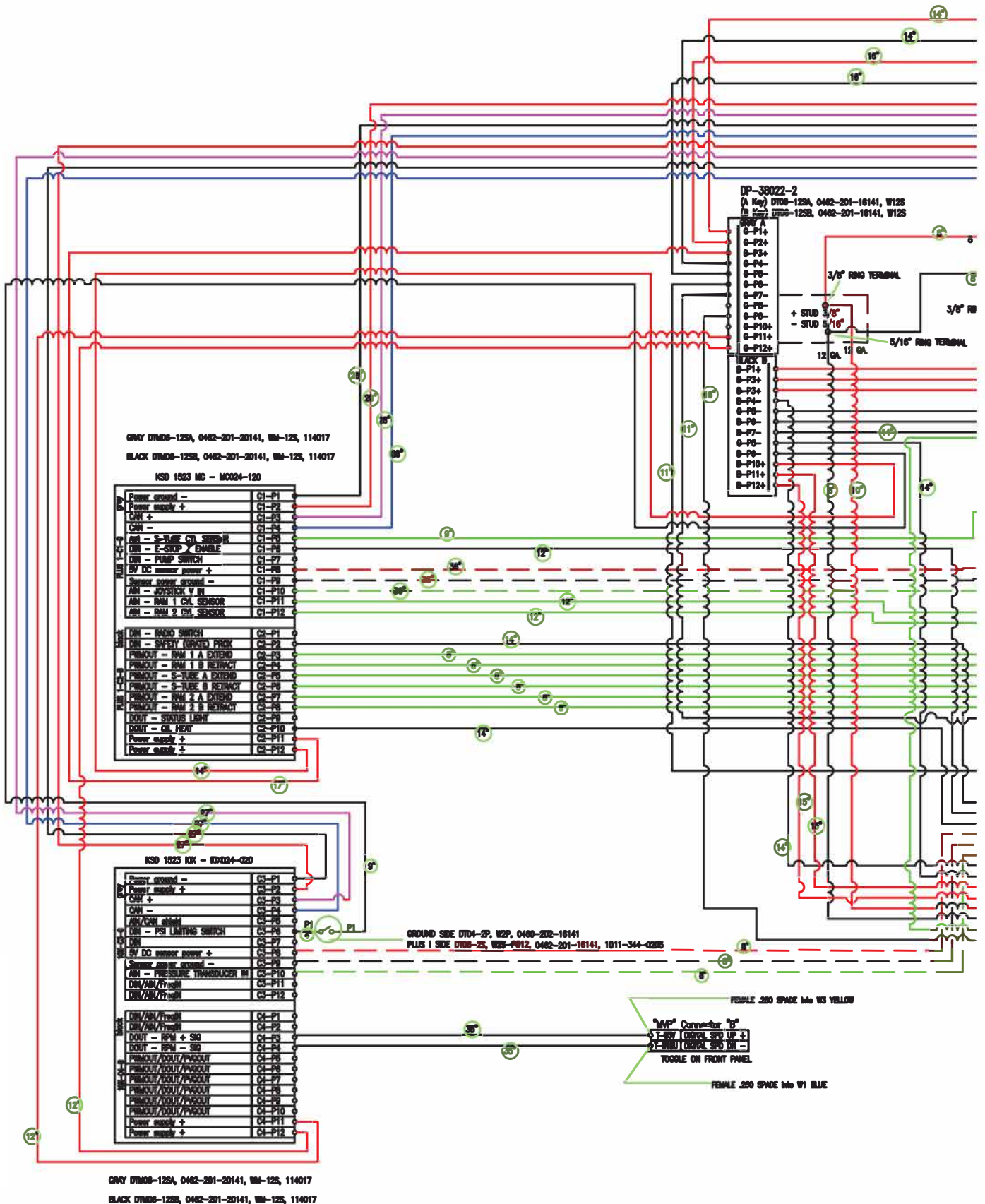
8. Start the engine.
9. Using the directional control valve handle, fully extend the hydraulic ram. The engine will bog down when the fully extended position is reached.
10. Turn the engine off.
11. Liberally coat the piston cup with grease.
12. Liberally coat the 3/4-in. bolt with antiseize compound.
13. Install piston cup, piston cup backup washer, lock washer, and 3/4-in. bolt.
14. Tighten the 3/4-in. bolt with an impact tool.
15. Start the engine.
16. Using the directional control valve handle, partially retract the hydraulic ram.

NOTICE

Retract rams from end of stroke. Failure to do so may result in damage to equipment.

17. Turn the engine off.
18. Rotate hopper assembly 90 degrees toward the frame.
19. Liberally coat the two 1-in. bolts with anti-seize compound.
20. Install two 1-in. bolts securing hopper assembly front plate to rear frame assembly.

Electrical Schematic





Warranty

EZG Manufacturing (“EZG”) warrants its products to be free of defects in material or workmanship that develop under normal use for two years.



Warranty period begins on the IN-SERVICE date (date of purchase by the end user of the product, date placed in service by a rental operator, or date of any utilization). All warranty is based on the following limited warranty terms and conditions, including the disclaimer of implied warranties and consequential damages. **Warranty registration is required to establish the in-service date and for the warranty to become effective.**

EZG Limited Warranty & Limitation of Liability Terms:

1. EZG obligation and liability under this warranty is limited to repairing or replacing parts if, after EZG’s inspection, there is determined to be a defect in material or workmanship. EZG reserves the choice to repair or replace.
2. If EZG chooses to replace the part, it will be at no cost to the customer and will be made available to the EZG Distributor, Dealer, or Rental Center from whom the End User purchased the product.
3. Replacement or repair parts, installed in the product, are warranted only for the remainder of warranty period of the product as though they were the original parts.
4. EZG does not warranty engines. Engine warranty claims should be made directly to an authorized factory service center for the particular engine manufacturer.
5. EZG’s warranty does not cover the normal maintenance of products or its components (such as engine tune-ups and oil & filter changes). The warranty also excludes normal replaceable wear items, i.e. gaskets, wear parts, seals, O-rings, belts, drive chains, clutches, etc. unless such items are deemed to fail due to defective material or workmanship.
6. EZG’s warranty will be void if it is determined that the defect resulted from operator abuse, failure to perform normal maintenance on the product, use of non-manufacturer parts, or failure to follow documented service instructions, alterations or modifications made to the product without the written approval of EZG.
8. EZG will pay shop labor on warranty items at the EZG Shop Labor Rate in existence on the date of the warranty claim. EZG technician will determine the time allowed to complete a repair which will govern the shop labor hours to be allowed.
9. EZG will pay freight on warranty replacement parts at worldwide standard ground rates. No warranty replacement parts will be shipped air freight at the expense of EZG. EZG only pays outbound freight charges when sending warranty replacement parts to the customer via ground service. EZG does not pay any inbound freight. However, if EZG determines this to be a warranted item, EZG will then reimburse the customer for inbound freight at standard ground rates.
10. The EZG WARRANTY POLICY WILL NOT COVER THE FOLLOWING: TAXES; SHOP SUPPLIES; ENVIRONMENTAL SURCHARGES; AIR FREIGHT; TRAVEL TIME; LOSS OF TIME; INCONVENIENCE; LOSS OF RENTAL REVENUE; RENTAL COSTS OF EQUIPMENT USED TO REPLACE THE PRODUCT BEING REPAIRED; LOSS OF USE OF THE PRODUCT; COMMERCIAL LOSS; OR ANY OTHER CHARGES WHATSOEVER OR ANY LIABILITIES FOR DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR DELAY.
11. EZG MANUFACTURING MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THIS LIMITED WARRANTY IS IN LIEU OF THE WARRANTY OF MERCHANTABILITY AND FITNESS. THERE ARE NO OTHER WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THIS DOCUMENT.
12. No EZG Manufacturing employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of EZG Manufacturing.



WARRANTY REGISTRATION IS REQUIRED TO ESTABLISH THE IN-SERVICE DATE AND FOR THE WARRANTY TO BE EFFECTIVE.
(some specialty equipment is exempted, or limitations may apply)