

# GROUND FORCE

WORLDWIDE

WORLD'S FINEST MINE SUPPORT EQUIPMENT

## **OPERATION & MAINTENANCE MANUAL**

# **RIGID FRAME WATER TANK**

**SERIAL # 713F14 • 20,000 GALLONS (75,708 LITERS)**

### **Ground Force Worldwide**

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#### ORIGINAL INSTRUCTIONS

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0	10/17/2019	JWEST	Initial release

**Valued Ground Force customer:**

Thank you for selecting **Ground Force Worldwide** as your mine equipment supplier. Our business is based on providing our customers with innovative solutions, manufactured of high quality, heavy-duty materials designed to out-perform in the most extreme applications.

Upon purchase of your equipment, we strive to provide superior service throughout the life of your product. Our **Parts & Product Support Department** is here to assist you by answering technical questions, troubleshooting your equipment when needed, and expediting your parts ordering. We stock the most commonly used parts for your equipment and can ship overnight, when needed. Our Parts and Product Support Representatives (PPSRs) are available 24/7.

Ground Force Worldwide proudly provides superior customer service through the life of your equipment. Call us anytime at 1 (208) 664-9291, or e-mail [service@gfworldwide.com](mailto:service@gfworldwide.com), and let us assist you.

Sincerely,

**Ground Force Worldwide**

Documentation Department

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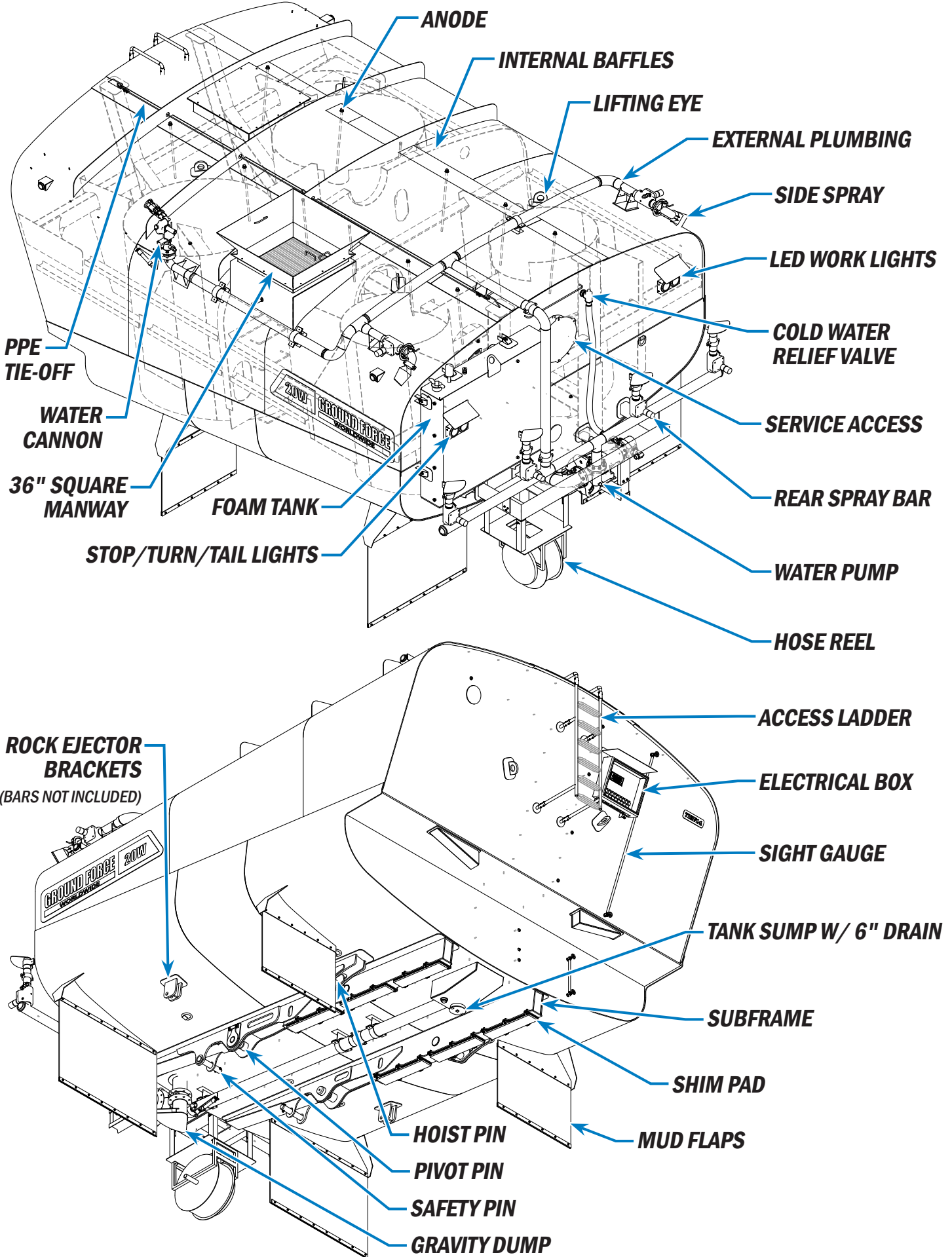
Web: [www.gfworldwide.com](http://www.gfworldwide.com)

## ***OPERATION & MAINTENANCE MANUAL***

# **INTRODUCTION**

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## SPECIFICATIONS

The Ground Force Worldwide Water Tanker is a heavy-duty, custom-engineered water delivery tank, offering solutions for dust suppression, fire fighting and general water truck needs.

Ground Force water tanks are engineered with an internal endoskeleton and dual-radius semi-elliptical design. This allows for an optimal center of gravity while providing the strength needed for the water

tank to last in tough conditions. Ground Force water tanks are fully baffled to break up water flow and increase stability.

### WARNING

Do not operate the Ground Force water tank in unsafe conditions. Do not operate the Ground Force water tank in a manner that violates local and site-specific laws and regulations.

### 713F14

- 20,000 gallon water truck kit for dealer or customer installation on Caterpillar 777
- Ground Force baffling system
- (1) transverse main baffle with 30" offset crawl-throughs
- 36" square manway with trash screen/safety grate; located drivers side rear of tank
- Removable exterior ladder with grab-rail
- Interior ladder for service access
- Tank level tube; fill level device of 1" pipe at the driver's side top of the tank to indicate when tank is full
- Anti-skid coating for top walkway w/ PPE tie-off (safety cable) full length top of tank
- Sump with 6" T-handle drain plug for cleanout
- Externally-mounted water pump (B4)
- Mudflap brackets and mudflaps
- D-ring PPE lanyard tie-off provisions on underside of tank and on rear tank head
- CAT yellow exterior paint
- Tail, turn and stop lights (Betts® brand LED) with water shedders
- Backup lights; backup alarm
- (2) Ground Force body manuals on thumb-drive in English
- Freight terms EXW GFM facility Post Falls, ID, USA
- Clearance lights
- Fill chute
- Provision for low-level shut-off
- Rock ejector brackets (bars not included)

### REAR SPRAY BAR

- (4) Staggered hydraulic-operated fan-sprays
- Auto-drain valves on spray valves

### 6" HYDRAULIC OPERATED DUMP VALVE

- Includes duckbill
- Installed tank center-rear

### MOUNTING

- Rear main pin bosses will be fully welded out and line-bored
- Rear pins will include grease zerks

### TWO (2) SERVICE ACCESS DOORS

- (1) centerline capped manway at front
- (1) rear head (Davit Hatch) with grab rail hoop above manway

### FLOODLIGHTS (2) (UTILIZES BACKUP LIGHTS)

- Mounted on rear of water body
- Includes installation, on/off switch and circuit protection

### SPRING REWIND HOSE REEL

- Water hose reel with 50' x 1-1/2" hose and adjustable nozzle
- Mounted on the rear of the machine, and plumbed to existing water plumbing in vicinity of reel
- Includes manual in-line shut-off (isolator) valve
- Air blow-down and control valve for hose draining

### CYLINDER LIFT: SPECIFIC FOR CAT 777

- Ground Force will supply upper mounting pins
- Ground Force will supply wing plate brackets; to be used with safety body retaining pins

### HYDRAULIC SIDE SPRAYS (2)

- Side spray (2) located at upper quadrant - rear of tank
- External plumbing to side sprays

### 8" TRIFECTA WATER DAM

- Permanently installed on water tank
- Extends across entire top and partially down each side of tank

### FIRE FOAM TANK ONLY

- (1) 200-gallon stainless steel foam reservoir (tank) for fire foam system installed on rear head of tank

## SPECIFICATIONS

### DOMESTIC FIELD SERVICE

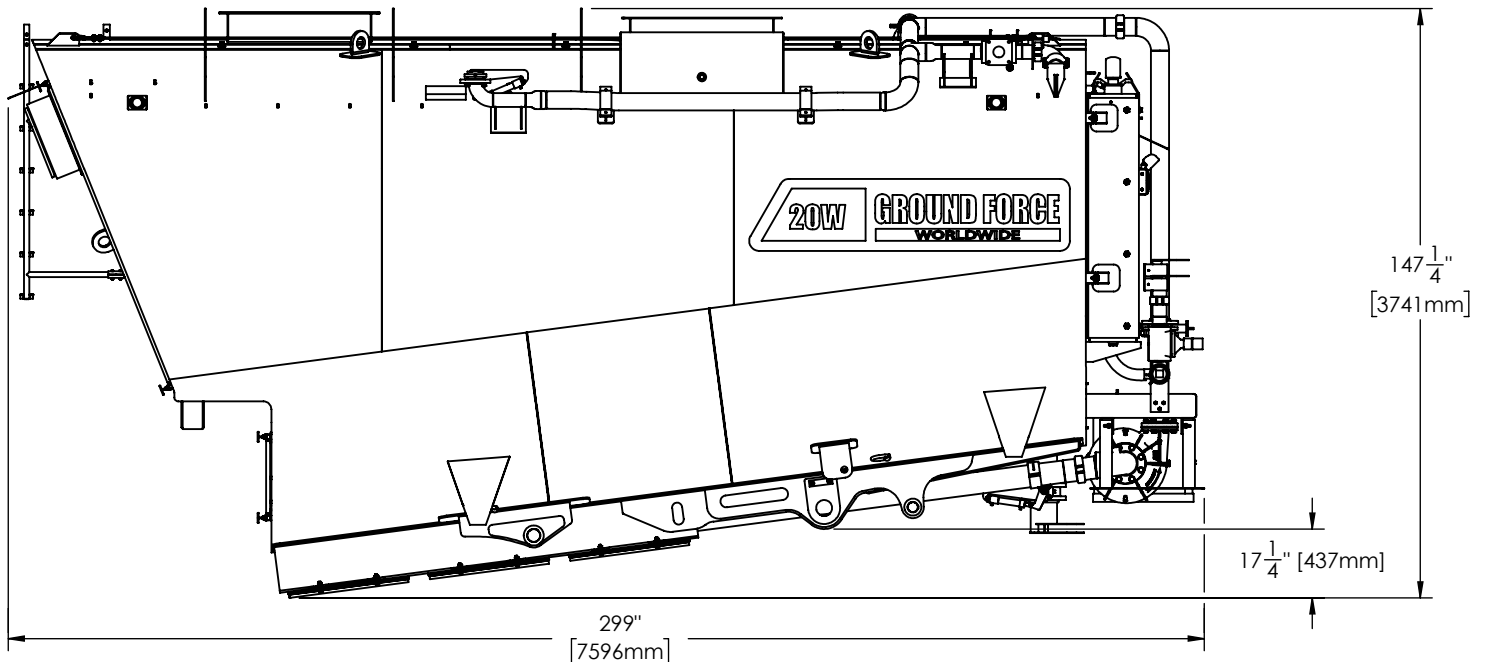
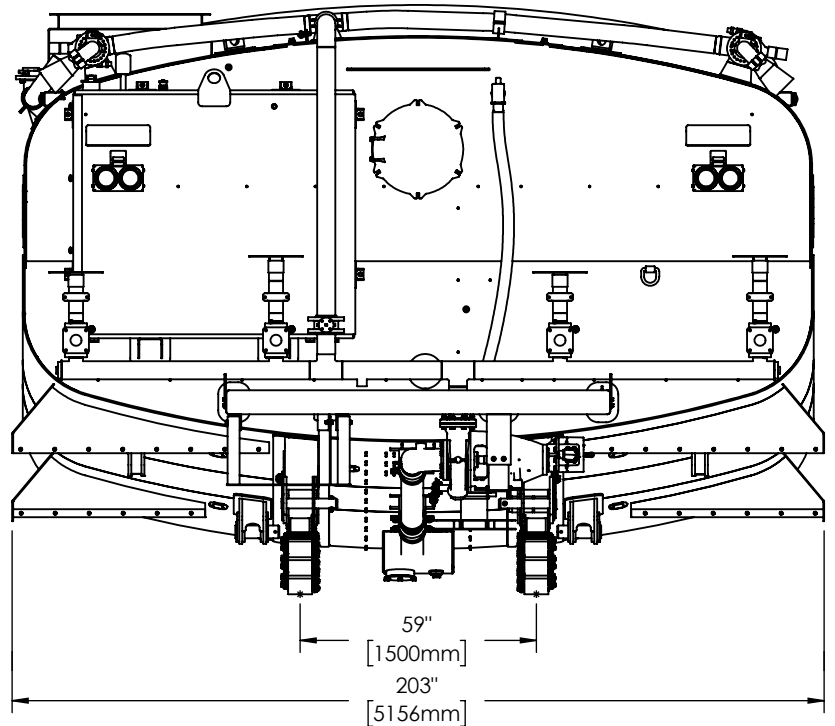
- (1) Ground Force technician to travel to site, provide guidance for field installation, perform commissioning and operator training for **GROUND FORCE PORTION ONLY**: (Open Loop System not included)
- On-site Duration = (4) days, including (1) day of commissioning and operator training; Up to 12 hours per day, including travel; Maximum 72 hours per week Open Loop Systems to provide and install foam system

### INTERIOR TANK COATING

- Interior of tank lined with polyurea liner
- Includes all material prep, sand blasting and final coating
- To be contracted to Rhino Linings of CDA

## SHIPPING DIMENSIONS

SHIPPING INFORMATION		
WIDTH:	59"	1500 mm
HEIGHT:	147 1/4"	3741 mm
LENGTH:	299"	7596 mm
WEIGHT: (APPROX)	43,000 LBS	19,505 kgs
SHIPPING CRATE INFORMATION		
WIDTH:	48"	1220 mm
HEIGHT:	60"	1525 mm
LENGTH:	96"	2440 mm
WEIGHT: (APPROX)	1,500 LBS	680 kg
<b>SHIPPING COMPANY TO SUPPLY THEIR OWN DUNNAGE</b>		




**GROUND FORCE**

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***OPERATION & MAINTENANCE MANUAL***  
**SAFETY**

 This safety guide is provided by Ground Force Worldwide to assist you in making a safer workplace. Specific regulations at the site of operations supersede all basic recommendations provided in preceding sections.

For more information contact your national, state, or local authority. The following links are provided to assist you in compliance:

[Occupational Safety and Health Administration](#)  
[Mine Safety and Health Administration](#)  
[Canadian Centre for Occupational Health and Safety](#)  
[European Agency for Safety and Health at Work](#)  
[Safe Work Australia](#)

## GUIDELINES

Equipment and vehicles must be maintained to be safe and reliable. Due to Ground Force Worldwide's global presence and distribution and the myriad of local, state, and federal regulations it is impractical to provide specific details of these regulations. The following are basic guide lines, which do NOT supersede on site requirements and regulations, which MUST be followed.

- Ensure that ALL operators have been trained on the equipment they use and operate
- Check vehicles at the beginning of each shift to ensure the parts, equipment and accessories are in safe operating condition. Repair or replace any defective parts or equipment prior to use
- Ensure the service, emergency and park brake systems are operational. Verify audible backup alarm system is operational and working. Headlights, tail lights, and brake lights MUST be operational. Verify the windshield is clear and the windshield wipers are operational
- DO NOT operate vehicle in reverse with an obstructed rear view unless it has a signal alarm capable of being heard above ambient noise levels or a signal observer indicates that it is safe to move vehicle. Some operational areas require a spotter at all times
- Equipment should have roll-over protection, and protection from falling debris as required by law
- Ensure that vehicles used to transport workers have seat belts, firmly secured and adequate for the number of workers to be carried or transported
- DO NOT modify the equipment's capacity or safety features without written approval from the Ground Force Mfg. Engineering Department
- Prior to permitting equipment or vehicles on to an access roadway or grade, verify that the roadway or grade is constructed and maintained to safely accommodate the equipment, vehicles and loads involved
- Vehicles and equipment loaded from the top must have cab shields or canopies to protect the operator while loading
- Verify the Pre-Shift Inspection has been completed and signed off
- Based on site conditions, you may choose to have the chassis supplier lock out the top gears to prevent excessive speed.

## WARNING

DO NOT attempt to use this equipment until you have thoroughly read this manual. It includes important safety precautions, detailed starting, operating and maintenance instructions, and parts lists.

### 2.1 READ INSTRUCTIONS



- Read and follow the Owner's Manual carefully before installing, operating, or servicing equipment. Read safety information at the beginning of the manual and in each section. Heed warning labels on equipment
- Use only genuine replacement parts from manufacturer
- Perform maintenance and service according to the Owner's Manual
- ALWAYS follow National, State, and Local codes

### 2.2 GENERAL SAFETY HAZARDS



- Always ensure vehicle is CLEAR of personnel before starting vehicle
- Always use wheel chocks when servicing or working on vehicle

### 2.3 ENGINE EXHAUST CAN KILL



- Operate in open, well ventilated areas or vent exhaust outside

### 2.4 MOVING PARTS CAN INJURE OR KILL



- Do not operate with doors open or guards off or removed
- Stop engine before servicing
- Keep hands, hair, loose clothing and tools away from moving parts and machinery

### 2.5 BATTERY FUMES AND EXPLOSIONS



- Follow battery manufacturer's instructions when working on or near a battery
- Stop engine before disconnecting or

connecting battery cables, battery charging cables, or servicing battery

- Always wear a face shield, rubber gloves and protective clothing when working on battery
- Batteries produce explosive gases during normal operation and when being charged. Keep sparks, flames, cigarettes and other ignition sources away from batteries
- Observe correct polarity (+ and -) on batteries
- Disconnect negative cable (-) first and reconnect negative (-) cable last
- DO NOT tip battery
- Replace damaged battery
- Do NOT charge a frozen battery
- Do NOT charge battery in a closed area or where ventilation is restricted
- In case of battery acid getting on face, on skin, or in eyes, flush immediately with water for 5 minutes and seek medical attention as soon as possible

### 2.6 FIRE HAZARD



- Stop engine while fueling
- DO NOT smoke while fueling
- DO NOT leave nozzle unattended while fueling
- Wipe up spilled fuel and allow fumes to clear before starting engine
- DO NOT overfill tank, fuel expansion may cause overflow

### 2.7 ELECTRICAL SHOCK CAN KILL



- DO NOT touch electrically live parts with skin or wet clothing
- Insulate yourself from work and use safety ground
- Always wear dry insulated gloves when working on electrical equipment
- Always lockout/tagout equipment before performing electrical work

## 2.8 FALL HAZARDS



- Equipment operators and maintenance Personnel are susceptible to falls from Equipment during repair and servicing. Prevent falls and slips by following these guidelines:
- **ON-SITE FALL HAZARD** requirements supersede all of the guidelines listed below. Closely follow on-site safety rules.
- Know and identify what slip, fall and trip hazards are, and what preventative measures are required
- Survey work area on and around equipment for slip and fall hazards and remove hazards from area
- Never jump from equipment to the ground
- Use three points of contact when climbing equipment
- Where there is a danger of falling use a **FALL PROTECTION SYSTEM** per OSHA AND MSHA requirements.
- Always follow national, state and local codes: <https://www.osha.gov/SLTC/fallprotection/>

## 2.9 PINCH POINT HAZARDS



- Never place yourself between a piece of heavy equipment or machinery and an immovable object
- Never work within the swing radius of rotating equipment
- Always work at a safe distance from equipment
- Caught-In hazards exist when workers remove or disable guards. Use extra caution when removing this safety equipment as required for servicing
- Never place your hands or body near moving parts
- Gloves, long sleeve shirts, hair, and loose fitting clothing can be hazardous if caught in moving parts
- Never exceed maximum load limits according to the equipment and machinery specifications
- All workers should wear bright protective clothing. Signs that are highly visible should be set up in a way to warn and discourage nonworkers from entering site
- Never forget one simple rule: **PARKING BRAKES**. They

are easy to operate and can save lives

- Always use wheel chocks when working on or near a vehicle
- Always verify that vehicle is clear before starting

## 2.10 LOCK-OUT / TAG-OUT



1. **IDENTIFY** the types of energy sources used, potential hazards, and control devices.
2. **NOTIFY** all affected employees.
3. **TURN OFF** all operating controls.
4. **LOCATE** all energy sources
5. **ISOLATE** all energy sources by blocking, bleeding and ventilating stored energy as found in springs, hydraulic systems, electrical systems and pneumatic systems.
6. **LOCK-OUT** all switches and energy controls in the OFF or SAFE position.
7. **TEST** operating controls. Put all controls in ON position. Be sure no one can get hurt before testing.
8. **RETURN** all operating controls to the OFF position.
9. **PERFORM** required task.
10. **REMOVE** lock-out devices only after the equipment is fully assembled and all affected employees have been notified. Each lock-out device must be removed by the person who put it on.

## 2.11 COMPRESSED AIR HAZARDS



### FOLLOW ON-SITE COMPRESSED AIR HAZARDS SAFETY REQUIREMENTS FOR PLACE OF OPERATIONS. THE FOLLOWING ARE ONLY BASIC GUIDELINES:

- Incorrect installation or operation of this unit could result in equipment failure and personal injury. Only qualified persons should install, operate, and service
- this unit according to the owner's manual, and industry standards, always in compliance with National, State and Local codes
- DO NOT exceed the rated output or capacity of the compressor or any equipment in the compressed air system Before working on the compressed air system, follow the in house (on site) LOCKOUT/TAG-OUT procedure of the unit
- Turn off and follow above lockout/tag out procedure; ensure that the pressure is released from the system, and cannot accidentally be applied
- The air compressor can start up at any time the switch is "on." Use caution any time the switch is on

## 2.12 CONFINED SPACE SAFETY

Some maintenance procedures on Ground Force Worldwide water trucks require entering the tank itself. Working inside a confined space such as a water tank is highly dangerous. Technicians working inside the tank must follow safety guidelines.

To work safely in a confined space, the entrant must be able to communicate with the attendant who is on duty outside the space. A system of communication must be set up prior to beginning work.

The attendant must always be aware of what is going on inside the space in order to be able to react in event of an emergency.

Oxygen-deficient atmospheres have less than 19.5 percent available oxygen by volume while normal air contains approximately 21 percent oxygen. Deviations from normal concentrations are a major concern in confined spaces.

Ground Force water truck tanks are considered "Permit-Required Confined spaces," based on the following guidelines:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and



tapers to a smaller cross-section.

- Contains any other recognized serious safety or health hazard, ex., reduced visibility, darkness, etc.

Equipment will include at a minimum:

- Ventilation Fans (1 minimum for Assembly, 2 minimum for Fabrication) and hoses.
- A calibrated and tested air monitor.
- PPE appropriate to the tasks or jobs being performed.
- Lighting equipment appropriate to the task or jobs being performed.
- Signs posting the confined space and restricting access.
- Stanchions or other barriers restricting the access of non-permit personnel.

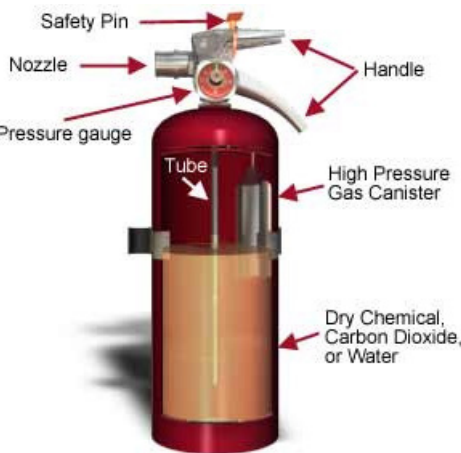
- Radio equipment as necessary to support communication between the attendant(s) and entrant(s)
- Rescue equipment tested and in a place near the confined space and readily available for rescue personnel.
- OSHA requires that a standby person be present with suitable rescue equipment when self-contained breathing apparatus or hose masks with blowers are used in atmospheres immediately dangerous to life or health.

The following are other hazards you should consider when evaluating a confined space:

- Temperature extremes can have an adverse effect on entrants. For example, if a space has been steam-cleaned, it must cool before any entry is made.
- Engulfment hazards such as loose material (grain, sand, coal, etc.) can crust over in a bin and break loose under your weight and trap you during entry.
- Noise can become excessive in a confined space and can not only damage hearing but can affect communication, causing warnings to go unheeded.
- Slick/wet surfaces can cause slips and falls and increase the chances of electric shock.
- Falling objects are a danger if work is being done above the entrant in a confined space.

## 2.13 FIRE EXTINGUISHER USE

Sound the fire alarm and call the fire department, if appropriate. Identify a safe evacuation path before approaching the fire. Do not allow the fire, heat, or smoke to come between you and your evacuation path. Select the appropriate type of fire extinguisher.



Discharge the extinguisher within its effective range using the PASS method (Pull, Aim, Squeeze, Sweep).

Back away from an extinguished fire in case it flames up again. Evacuate immediately if the extinguisher is empty and the fire is not out. Evacuate immediately if the fire progresses beyond the incipient stage.

**Most fire extinguishers operate using the following P.A.S.S. technique:**

1. **PULL** - Pull the pin. This will also break the tamper seal.
2. **AIM** - Aim low, pointing the extinguisher nozzle (or its horn or hose) at the base of the fire.
3. **NOTE:** Do not touch the plastic discharge horn on CO2 extinguishers. It gets very cold and may damage skin.
4. **SQUEEZE** - Squeeze the handle to release the extinguishing agent.
5. **SWEEP** - Sweep from side to side at the base of the fire until it appears to be out. Watch the area. If the fire re-ignites, repeat steps 2 - 4.

### **! WARNING**

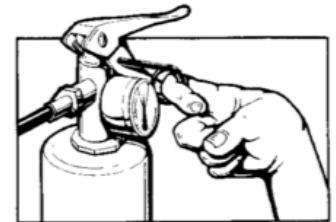
If you have the slightest doubt about your ability to fight a fire, **EVACUATE IMMEDIATELY**

### Remember:

If you are called on to use an extinguisher, just think of the word "P.A.S.S."

## PULL

the safety pin at the top of the extinguisher.



## AIM

the nozzle or hose at the base of the flames. Stay between six and eight feet away from the flames.



## SQUEEZE

or press the handle.







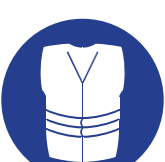



## SWEEP

from side to side at the base of the fire until it goes out.




By following these procedures, a fire can be extinguished in the quickest and safest manner possible.

## 2.14 PERSONAL PROTECTIVE EQUIPMENT

	<ul style="list-style-type: none"> <li>• <b>Hard hats.</b> All persons shall wear suitable hard hats when in an area where falling objects may create a hazard.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Protective footwear.</b> All persons shall wear suitable protective footwear when in or around an area where a hazard exists which could cause an injury to the feet.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Eye protection.</b> All persons shall wear safety glasses, goggles, or face shields or other suitable protective devices when in or around an area where a hazard exists which could cause injury to unprotected eyes.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Safety belts and lines.</b> Safety belts and lines shall be worn when persons work where there is danger of falling; a second person shall tend the lifeline when bins, tanks, or other dangerous areas are entered.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Reflective clothing.</b> Wear reflective clothing which is highly visible (360 degrees) when the arms are up or down or when the body is in any position and even on top of hard hat.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Ear protection.</b> Ear protection must be worn when the noise exposure level is above 85 dBA.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Respirators.</b> A respirator should be worn if there is danger of harmful dusts, fogs, smokes, mists, gases, vapors, and sprays.</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Hand protection.</b> Wear appropriate gloves if there is danger of skin absorption of harmful substances, chemical or thermal burns, electrical dangers, bruises, abrasions, cuts, punctures, fractures or amputations.</li> </ul>

***OPERATION & MAINTENANCE MANUAL***  
**PRE-COMMISSIONING**

	<b>PRE-SHIFT INSPECTION</b>
<input type="checkbox"/>	1. Check for and tighten any hydraulic fittings that may loosen. Fittings will frequently loosen and drip the first few weeks of operation.
<input type="checkbox"/>	2. Visually inspect the area around the truck for leakage. Repair any leaks identified during inspection. This inspection should include the interior of all compartments.
<input type="checkbox"/>	3. Visually inspect the body mounts daily for tightness. Loose body mounts are indicated by mud build-up cracking away, or by visible gaps between mounting components. Refer to maintenance section and tighten any loose mounts before operating vehicle.
<input type="checkbox"/>	4. Visually inspect all tanks mounts using step #4 as a guideline.
<input type="checkbox"/>	5. Check for loose hoses and/or wiring harnesses which may become entangled during operations. Secure any loose items before operating the vehicle.
<input type="checkbox"/>	6. Perform any other pre-operation inspections as required by the chassis manufacturer or required by local procedures.
<input type="checkbox"/>	7. On hose reels, if so equipped, apply one pump with a manual grease gun to the reel bearing every 2 months.

## SECTION 3

### WATER TRUCK COMMISSIONING PROCEDURE

The following procedures apply to units that have been mounted on the chassis at the factory. This procedure is written to provide the mechanics in the field with a list of steps and checks to be performed to ensure that the unit is ready to be placed in service. Most of these steps are very general in nature and assume that the technician performing them is already familiar with the basic operations of a water vessel. Truck-specific operating instructions will be found in the Ground Force Manufacturing (Ground Force Worldwide) Owner's manual provided. Any drawings that may be necessary for field installation of components are provided as separate documents (in crate with loose parts). If further guidance or clarification is required, please contact:

#### **Ground Force Worldwide Service Department**

E-mail: [service@gfworldwide.com](mailto:service@gfworldwide.com)

Telephone: 1 (208) 664-9291

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#### **3.1 GETTING STARTED - OVERVIEW**

Ground Force Manufacturing produces four distinct types of water vessels to meet customers' specific requirements. These water vessels are available with a large variety of options to meet specific needs for water vehicle applications. The four types of vehicles are typically specified by the customer based on water capacity requirements. The four chassis types are:

1. Articulated Frame - These trucks have a capacity range from 5,000 gallons to 9,000 gallons (18,927 to 34,068 L).
2. Rigid Frame - These trucks have a capacity range from 9,000 gallons to 60,000 gallons (34,068 - 227,124 L).
3. Water Pulls - These machines have a capacity range from 5,000 gallons to 12,000 gallons (18,927 - 45,424 L).
4. Underground Water Trucks - These machines have a capacity of 2,000 to 4,000 gallons (7,570 - 15,141 L).

#### **3.2 PRE-OPERATION NOTE**

Because of strict regulations which govern the overseas shipment of equipment, any fluids or oils which are not pertinent to or necessary for movement of this

unit, have most likely been removed or drained. This process may have been performed either at Ground Force's facility or prior to loading for shipment.

Any and all gate valves or ball valves pertaining to the hydraulic oil tank have been closed to help eliminate any interior contamination to the tank.

#### **3.3 POST-SHIPMENT PREPARATION**

This unit has been specially prepared to eliminate the detrimental effects that occur to equipment in the environment of ocean transport. There are a few procedures that may need to be addressed prior to operation of this unit.

- **Remove any shipping film that has been applied to surfaces. This film is typically applied by means of a paint spray gun. This is meant to provide protection directly on non-painted, machined surfaces such as control valves, shafts, couplings, cylinder piston rods, etc. The film may be removed by simply wiping down the surface with a rag soaked with lacquer thinner or strong grade rubbing alcohol. Because this film is very tacky and is not soluble with water or most oils, all surfaces must be cleaned thoroughly to prevent the malfunction of moving parts such as valve spools.**

### 3.4 PHYSICAL INSPECTION

After delivery of the unit, it should be inspected to ensure that components did not loosen during shipping. Particular attention should be paid to the following:

- **Body Mounts** - The rubber skirt board used will allow for some settling of the body during transport. Refer to the maintenance instructions provided in the Ground Force Worldwide Owner's Manual for body mount locations and torque specifications. Be sure that the rubber skirt board between the sub frame and the chassis frame is in the correct location, and re-torque all body mounting fasteners as defined in maintenance section of this manual.
- **Compartments** - Inspect all compartments and remove any loose parts shipped. Check that all hose reels, control panels, pumps, etc. are securely fastened to their respective mounting brackets.

### 3.5 OPTIONAL ACCESSORIES

There are a variety of accessories available on water trucks, with some options only available on specific chassis types.

#### General options available on all vehicles:

- Anodes
- Manway Access Hatch
- Fill Chute
- Low Level Shut Off
- Side Spray
- Visual Water Level Indicator
- Electric Water Level Indicator
- Foam Injection System
- Auxiliary Air Compressor
- Gravity Dump Bar
- Pressure Bar
- On Load/Fill Pump
- Pressure Washer System
- Remote Controlled Water cannon
- Suction Loading System
- Clearance Light System
- High Performance Pump
- Intermittent Spray Package

#### Platform Specific Options:

- Hydraulic Cylinder Lift
- Platform with Hydraulic Step

### 3.6 LOOSE PARTS

The floodlights are removed from the truck after testing and shipped as loose parts. This is to prevent damage during shipping. The floodlights should be re-installed and re-connected. There may be other loose parts shipped as well (bumpers, handrails, wheel chock holders, etc.) Refer to the overview drawings (or any specific instructions provided) and install these parts in their proper locations.

### 3.7 LIGHTING SYSTEMS

Note that lighting systems will only work on this body with the ignition key on. Refer to the Ground Force Worldwide Owner's Manual for specific information.

- Verify that all headlights, marker lights, turn signals, beacons, etc. work properly. Also check that the back-up alarm works.
- Check all exterior floodlights for proper operation.
- Check that any interior compartment lights are working properly.

### 3.8 CUSTOMER-INSTALLED COMPONENTS

Some components required for operation of this truck are supplied by you, the customer. These include such items as additional lighting or visibility items, quick disconnect (QD) couplings for product/foam tank filling, extra fire extinguishers/fire suppression systems, placards and signs relating to specific products to be placed in the product tanks, etc. Determine what components (if any) are required and install them prior to filling any product or foam tanks or placing truck in service.

### 3.9 PRE-START CHECKS

Refer to the Vehicle Owner's Manual and perform all New Unit Break-In and Pre-Startup Inspections.

### 3.10 ENGAGING HYDRAULIC SYSTEM

Once all of the above steps are complete, start the truck and engage the hydraulic system. When the hydraulic system is properly engaged and there is no hydraulic demand, the system standby pressure (normally 500 PSI) will be indicated on the system pressure gauge at the operator's station. This indicated pressure will rise and fall based on hydraulic system demand.

### 3.11 HYDRAULIC-OPERATED HOSE REELS

Verify that all of the hose reels are functioning correctly. If equipped with a hydraulic-operated hose reel, with the hydraulic system in “standby,” the operator must be able to stall any hydraulic hose reel motor by holding back on the delivery hose. If the hose reel motor cannot be stalled in this fashion, the standby pressure must be adjusted. This is also the case if the hose reels are excessively sluggish. Contact Ground Force Worldwide Service Dept. prior to adjusting the standby pressure.

### 3.12 WATER PUMP ROTATION

Reversing operation of a centrifugal water pump will result in poor water pump performance and will lead to water pump damage. Water pump direction of rotation should be verified before initial testing. When checking pump rotation prior to filling the water tank, use the level bypass feature to allow “bumping” of the water pump.

### 3.13 ELECTRICAL CONTROL CHECKS

Perform the below checks with the ignition key on but the engine not running. It is often convenient to perform these checks before filling the water tank. It may be necessary to engage the hydraulic system for some of these checks.

- Check all lighting circuits and the back-up alarm.
- The low level shutdown circuit must be tested prior to filling the tank with water. Turn the water pump control switch to on while observing the low level shutdown timer. The timer should shift and break the pump’s electrical control circuit after five seconds.
- Check that the spray head controls energize the correct solenoid coil. Check that the butterfly valve controls operate the correct valve in the proper direction.
- Verify that the water cannon responds correctly to the directional controls.

### 3.14 INITIAL START UP

1. Start the truck and allow the engine to warm up according to the manufacturer’s instructions.
2. Use the water pump control switch to “jog” the water pump. Verify that the hydraulic system engages and that the water pump direction of rotation is correct.
3. If the truck is equipped with hydraulically driven auxiliary components (spray heads, water cannon, butterfly valves, etc.), test the hydraulic pilot system by depressing the pilot pressure push button located near the water pump control switch. Audible indications of engine loading will indicate that the hydraulic pilot system is engaged.
4. Refer to the Operation section in this manual. Test all delivery functions according to these instructions.

Once all operational tests are complete, the water truck is ready to be placed in service.

#### NOTE

Refer to the proper portion of the Ground Force Worldwide Owner’s Manual for the specific operating instructions associated with this unit during performance of these checks and adjustments

### 3.15 TANK FILLING

Once all of the loose components have been re-installed and the controls have been verified, the water truck is ready to be filled in preparation for an operational test. Refer to the Water Control System section and check for proper operation of all water delivery systems.

- Before filling the water tank, verify that all low point drain valves are shut, and that all low point drain plugs are re-installed.
- After the drains are verified sealed, fill the water tank according to local procedures. Observe any tank level indicator system that may be installed to verify operation during water tank filling.
- Engage the hydraulic system and start the water

pump. Verify direction of rotation if not already performed. Reverse operation of a centrifugal water pump will result in poor water pump performance and often lead to water pump damage.

- Cycle each spray head individually and adjust collar for proper spray pattern.
- Engage the spray head timers and verify that the timers are working correctly and respond to operator input.
- Open the water cannon isolation valve and verify acceptable water cannon performance. It is necessary to raise engine speed to achieve optimum performance.

### 3.16 DIESEL-FIRED HEATING SYSTEM

If a heating system is installed, check its operation as follows:

- Verify that the system surge tank level is a minimum of halfway up the lower sight gauge. Fill this tank as necessary with engine coolant.
- Refer to the manufacturer's start-up instructions and start the heater.

- Monitor the heater's operation, and the level in the surge tank. It may be necessary to re-prime the heater's recirculation pump as air bubbles work out of the system.
- The heater is thermostatically controlled, and the burner will cycle on and off automatically. The system should be allowed to run until the burner cycles three or four times with no drop in surge tank level or re-priming of the recirculation pump.
- Even after this initial testing is complete, it is still possible for air pockets to be trapped in the system. These trapped air pockets will work themselves out of the system within the first few days of truck operations with the heater's recirculation pump running. During this time frame, the level in the surge tank must be carefully monitored to prevent allowing the pump to run dry and cause damage to the pump.

#### NOTE

For further information contact Ground Force Technical support to request the manufacturer's manual by writing to [service@gfworldwide.com](mailto:service@gfworldwide.com).

# ***OPERATION & MAINTENANCE MANUAL***

# **OPERATION**

## **SECTION 4**

### **WATER DELIVERY SYSTEMS**

#### **4.1 OPERATOR'S STATION**

All components and systems installed by Ground Force Worldwide are electrically controlled unless otherwise noted. Operator controls are located in the cab of the chassis.

Some components and systems may be controlled from the operator's station at the rear of the body.

Electrical power for all body-mounted systems is supplied from the fuse panel in the relay enclosure. This enclosure is physically located at the front of the water tank.

#### **4.2 NOISE LEVELS**

Noise levels present at the operator's station may vary, and depend on the equipment under service, the specific functions active, and the status of external doors. Use caution and evaluate each work site for the specific site-specific levels of airborne noise emissions. Hearing protection is mandatory when operating for extended periods or in noisy environments that exceed 85 dBa. Refer to the chassis manufacturer's information regarding internal cab sound rating.

### 4.3 WATER CANNON

A water cannon, if installed, is typically mounted at the front of the tank or on the front of the chassis. Water cannon controls are located in the cab.

To operate the water cannon:

1. Ensure the Ground Force water tank is full and the water pump is primed and started.
2. If a program utilizing the water cannon has been saved, navigate to that program using the Water Control System. (See the [Water Control System](#) instructions for Edit Program.) The operator can also use the 8-button keypad to engage the water cannon. Each button will be labeled with its function.



3. Once the water cannon valve is active, use the cannon's controls (typically a joystick or push-button remote) to direct the stream of water.

#### **CAUTION**

The water stream from the water cannon is very powerful.

Be sure that the water cannon is aimed away from equipment susceptible to water damage and all personnel prior to opening the water cannon isolation valve.

4. For most units, raising the engine speed will increase the range of the water cannon. Use engine speed in conjunction with the directional controls to direct the water stream as desired.
5. Shut the water cannon isolation valve once its use is no longer desired, or after the water pump stops automatically as the tank empties.

6. Stop the water pump (if necessary) after the water cannon isolation valve is shut.
7. Some water cannon directional controls are programmable. If so, the programming information is located with the other manufacturer's information.

Refer to the [Parts Drawings](#) section of the [Parts & Schematics Manual](#) for more information.

### 4.4 HOSE REEL

Some trucks may be equipped with a spring-rewind hose reel. To operate the hose reel:

1. Ensure the water tank has adequate water for the operation.
2. Using the Water Control System, make sure the water pump is engaged and running.
3. If equipped with a high idle switch, engage the high idle prior to dispensing water.
4. Open the ball valve.
5. Remove hose from the reel by simply pulling it off. Maintain positive control of the hose at all times during removal.
6. The hose is locked in place by latching the ratchet into the pawl. Positive control of the hose should be maintained until it is verified that the ratchet is latched.
7. When finished with water delivery, the hose reel is rewound by pulling on the hose, releasing the ratchet latch, and slowly allowing the spring tension to rewind the hose. Maintain positive control of the hose until the ball stop contacts the fairlead roller.

#### **CAUTION**

Prior to releasing tension on the hose, one of the following must be met:

1. The ratchet is seated against the pawl, locking the hose reel in place.
2. The ball stop on the hose is in contact with the fairlead rollers.

Always "walk" a hose back into a spring rewind hose reel. Positive control of the hose must be maintained at all times

## 4.5 STABILITY

When operating any machine on grade, the following criteria must be considered: machine configuration and model, maintenance condition, operating speed, conditions of the terrain, fluid levels, and tire inflation pressures. The skill and judgment of the operator are of primary importance.

<b>OPERATING RESTRICTIONS</b>	<b>GRADE</b>
<b>Maximum working grade .....</b>	<b>20%</b>
<b>Maximum side grade .....</b>	<b>10%</b>

**NOTE**

The stability of the water truck will change as the water level in the tank shifts during operation.

A well-trained operator following the instructions located in this manual will provide for the safest operation. Operator training provides a person with the following abilities: observation of working and environmental conditions, feel for the machine, identification of potential hazards, and operating the machine safely by making appropriate decisions. Consider the following points when working on slopes:

- **Speed of travel – At higher speeds, forces of inertia tend to make the machine less stable.**
- **Roughness of terrain or surface – The machine may be less stable with uneven terrain.**
- **Direction of travel – Avoid operating the machine across a slope. When possible, operate the machine up and down the slopes.**
- **Place the heaviest end of the machine uphill when you are working on an incline.**
- **Nature of surface – Ground that has been newly filled with earth may collapse from the weight of the machine.**
- **Surface material – Rocks and moisture of the surface material may drastically affect the machine’s traction and stability. Rocky surfaces may promote side slipping of the machine.**
- **Installed components – The equipment installed onto the base chassis or modifications made to the completed unit for reasons of service, breakdown, or dismantling may impact the overall machine stability. The balance of the machine will change as components are added or subtracted.**

As no modifications to the machine are foreseen at the time of the writing of this manual, evaluate all changes with consideration given to stability. When in doubt, contact Ground Force Worldwide, or its authorized representative, with any questions or concerns.

In general, avoid conditions that can lead to tipping the machine. The machine can tip when working on hills, banks, or side slopes. Ensure that every grade is evaluated for the criteria listed above and other individual circumstances before operating and that grade.

## 4.6 WATER SYSTEM DRAIN

The water system drain allows the operator to purge water left in spray heads. If equipped with a water drain system, use the Water Control System display to activate the drain valve (See the Water Control System section of this manual for instructions). The water pump must be off before activating the drain valve.

**NOTE**

The drain valve must be closed before engaging the water pump.

When the truck is started again, all valves, including the drain valves, will automatically close.

## 4.7 DIESEL-FIRED HEATER

The diesel-fired heating system will circulate warm coolant through jackets surrounding the water valves. A dedicated diesel burner is installed as a heat source.

These systems are not normally tied into the engine’s cooling systems. The diesel burner receives its fuel from a stand-alone tank installed on the rear of the water tank. The fuel tank must be filled at the beginning of each shift during use.

The heater will automatically shut off if it runs out of fuel, or if fluid is not being circulated.

**NOTE**

Operating the heater without the engine running can drain the chassis battery. Use a charging device if running the heater for extended periods of time without the engine running.

Machines equipped with an independent heater system will have an expansion/burp tank that has been installed as the high point in the circulation system. The level in this tank must be checked at the beginning of each shift during use. Any visible

level is acceptable when the system is at operating temperature. The minimum tank level for a cold system is halfway up the lower sight glass.

A control switch for the heating system is installed in the chassis cab. The heating system receives power directly from the chassis battery, so the switch must be manually turned off when not in use.

### NOTE

**Do not use bio-diesel in the diesel-fired heater.**

**Do not operate if the fluid level is too low.**

**Do not operate if the diesel fuel level is too low.**

**Use only Caterpillar Long Life coolant in the heating system.**

## 4.8 FREEZE PROTECTION

If the water truck is to be parked and there is a danger of freezing, perform the following:

1. Pump as much water out as possible before proceeding to the parking area.
2. Park the vehicle in an area with adequate drainage and open the gravity dump valve(s), if the water truck is equipped with dump valves.
3. Open the water cannon isolation valve (with WCS push button on display).
  - a. Aim the water cannon nozzle down. This will drain any water that would otherwise be trapped in the water cannon.
4. Low point drain valves have been installed to drain any residual water from the piping and components. Look in the following areas and open all drain valves/petcocks:
  - a. There is a drain installed on each spray head standpipe to drain the portion of pipe above the spray head isolation valve.
  - b. Due to individual tank configurations, some gravity dump valves are higher in elevation than the lowest point in the water tank. If the gravity dump valves will not fully drain the water tank, a drain port is installed at the lowest point in the water tank.
  - c. A drain is installed in the lowest port in the water pump housing. This is generally the lowest point in the water distribution system.

## 4.8 FREEZE PROTECTION (CONTINUED)

- d. Drains will also be installed anywhere that there is a possibility of water not draining through the above locations.
5. Utilize the air blow-out system to clear the hose reel of water. Close the ball valve at the hose reel, then connect compressed air to the fitting located at the hose reel. Use compressed air to eliminate all water trapped in the hose.

If the spray head controls use water pressure for pilot pressure, the diaphragm cavities must be drained through the plugs/petcocks that are installed in the valve bonnets. At the same time, the pilot lines should be disconnected and drained to protect the pilot valves. All valves should be left open, and all lines disconnected, as long as the truck will remain idle and there is a danger of freezing. Reconnect all lines removed, and shut all valves opened, before placing the water truck back in service.

### WARNING

**NOT PERFORMING THESE PROCEDURES FOR COLD WEATHER WILL VOID ALL WARRANTIES**

## 4.9 TROUBLESHOOTING

When problems arise, Ground Force is ready to help. Call any time to speak to one of our Product Support Representatives at +1 (208) 664-9291. Before calling, it is helpful to have some basic information available to assist in determining the nature of the problem:

1. What is the serial number of your machine? (For assistance locating the serial number, visit our Parts & Product Support page [HERE](#) for more information)
2. Describe the problem. What are the symptoms? Is there a certain pattern to their occurrence?
3. Provide as much information as possible.
  - For hydraulic problems, what is the main pressure at the system pressure gauge? What is the hydraulic oil temperature and ambient temperature? Are there signs of overheating? Are the functions “weak” or “slow”?
  - For electrical problems, what is the main system voltage? Are there error indications at the control panel?
  - For mechanical problems, provide pictures and descriptions of the affected area.

## 4.7 WATER TANK RAISE & LOWER PROCEDURE

Raising and lowering a Ground Force Worldwide water tank is very similar to operating a Caterpillar dump bed, but there are some special considerations. Please read the following instructions carefully.

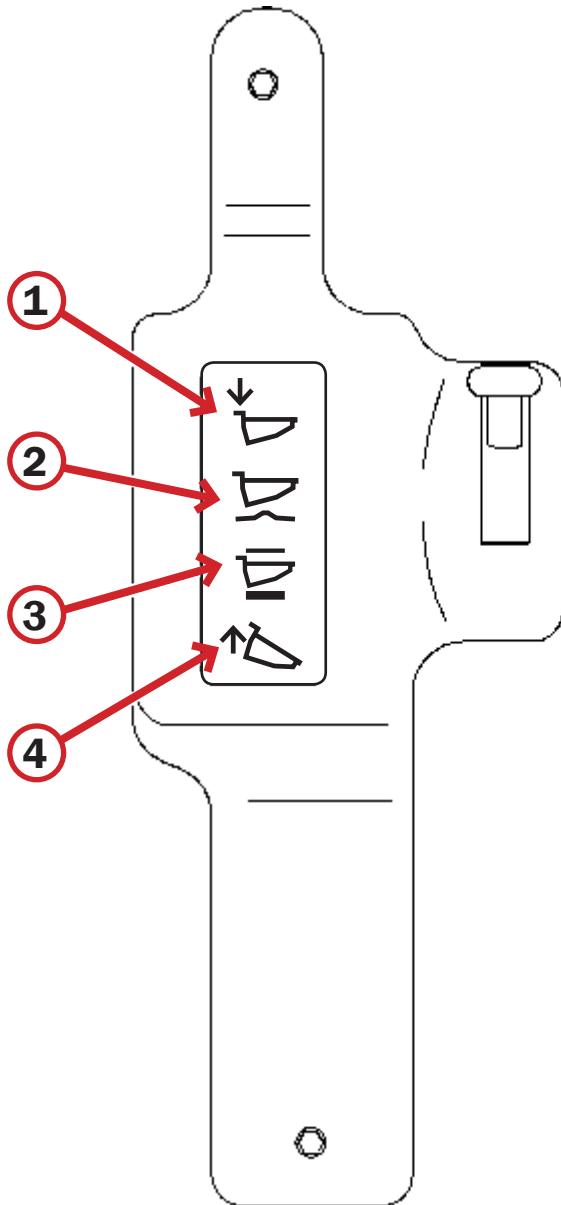
**NOTE**

Drain the water tank.

The water pump controls must be turned off in the Ground Force Water Control System.

Remove the quick fill plumbing.

Enable the hoist control in the ECM.



**CAUTION**

The Ground Force Worldwide water tank design has different tail clearances from a Caterpillar dump bed.

While tipping, closely observe the tank during operation of the raise function to prevent damage to the tank or surroundings. Remove anything that might interfere with raising the tank.



**LOWER (1)**

Hold the hoist control lever completely forward in order to lower the water tank. When the hoist control lever is released, the hoist control lever will return to the FLOAT position (2).



**FLOAT (2)**

When the hoist control lever is in FLOAT position (2), the water tank will seek a level. The hoist control will stay in this position until the hoist control lever is manually moved.



**HOLD (3)**

When the hoist control is in HOLD position (3), the water tank will not move. The hoist control will stay in this position until the hoist control lever is manually moved.



**RAISE (4)**

Hold the hoist control lever completely backward in order to raise the water tank. When the hoist control lever is released, the hoist control lever will return to HOLD position (3).

**WARNING**

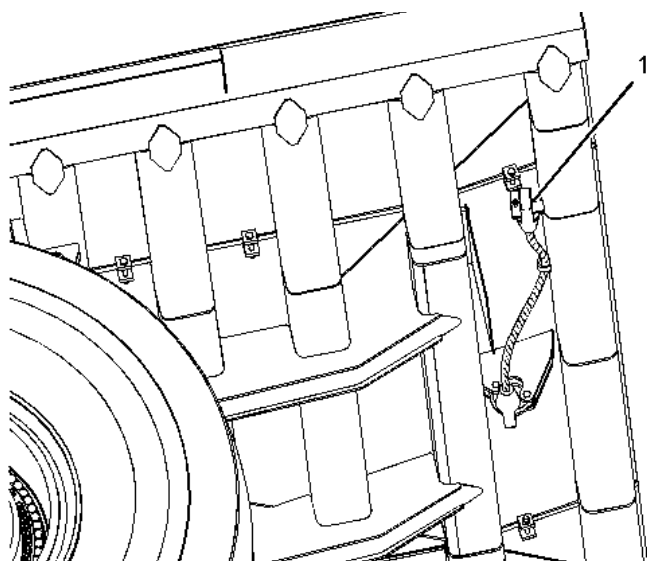
When it is necessary to work under the machine with the body (bed) raised, attach the body (bed) retaining cable to the rear tow point. Install the rear tow point pin through the end of the retaining cable.

Failure to properly secure the body (bed) may result in personal injury or death.

A raised body (bed) may fall unexpectedly if a damaged cable is used. Use of a damaged cable could result in personal injury or death.

Inspect the cable for damage and do not use a cable that is damaged.

Wear gloves when handling the cable.

**INSTALLATION PROCEDURE**

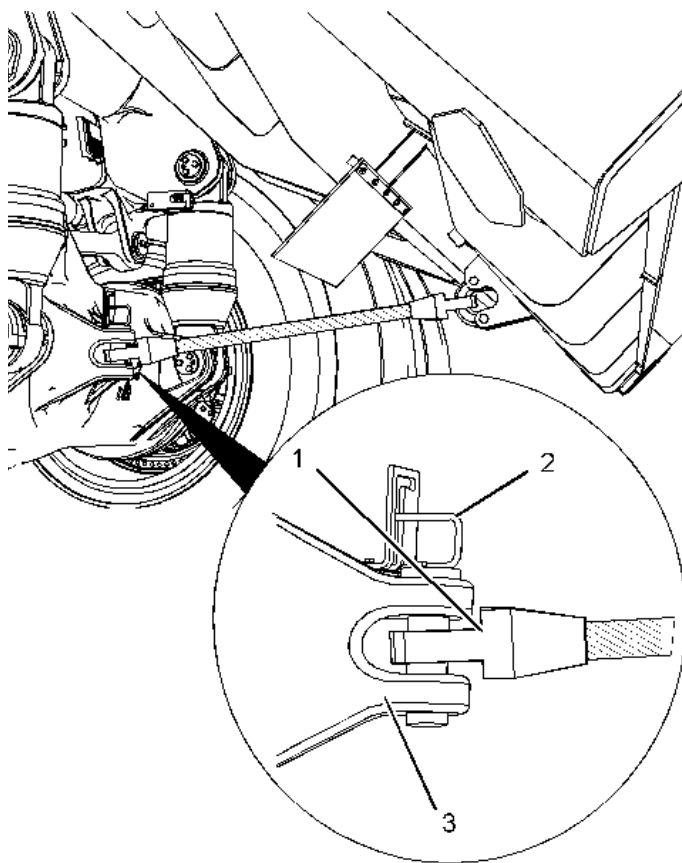
1. Remove all material and any residue from the body before the body is secured in the raised position.
2. Park the machine on a level surface.
3. Raise the body until the desired clearance is reached.
4. Remove cable end (1) from the stored location.
5. Position cable end (1) in rear tow point (3).
6. Install pin (2) through the tow point and the cable end.
7. Move the hoist control to the FLOAT position and lower the truck body until the cable is tight.

**WARNING**

Lowering the body to tension the retaining cables using the “Lower” position on the hoist control lever will damage the cables.

If the body is lowered against the retaining cables by using the “Lower” position, replace the retaining cables immediately. Always lower the body against the retaining cables by using the “Float” position on the hoist control lever.

Use of a damaged cable could result in personal injury or death.

**REMOVAL PROCEDURE**

1. Raise the body to the fully raised position in order to loosen the cable.
2. Release the cable end from the tow point.
3. Return the cable end to the stored location.
4. Lower the body.

**GROUND FORCE**

**WORLDWIDE**

WORLD'S FINEST MINE SUPPORT EQUIPMENT

***OPERATION & MAINTENANCE MANUAL***

# **MAINTENANCE SCHEDULES**

## PREVENTATIVE MAINTENANCE SCHEDULE

DAILY

WEEKLY

MONTHLY

YEARLY

### OVERVIEW

Maintaining your equipment will help prevent breakdowns and greatly extend the service life of your Ground Force equipment. It is a fairly simple process to maintain fluid levels, change fluids and filters when scheduled, and monitor and tighten bolts or fittings that have worked loose.

### MAINTENANCE SCHEDULES

Maintenance schedules are provided, including sample maintenance logs. This will help you with scheduling and tracking of maintenance.

### VENDOR-SUPPLIED COMPONENTS

See the manufacturer's manual for maintenance, safety and operation information for all non-Ground Force components. To request manufacturer's manuals, contact Ground Force Technical support to request by writing to [service@gfworldwide.com](mailto:service@gfworldwide.com).

	DAILY	WEEKLY	MONTHLY	YEARLY
LUBRICATE HOSE REEL ROLLERS			✓	
LUBRICATE HOSE REELS			✓	
GREASE/LUBE PUMPS AND MOTORS*		✓		
CHANGE HYDRAULIC OIL				✓
CHANGE HYDRAULIC FILTER			✓	
CLEAN IN-TANK SUCTION STRAINER*				✓
CHANGE HIGH-PRESSURE FILTERS*			✓	
CHECK HYDRAULIC FLUID LEVEL	✓			
CHECK HYDRAULIC CONTROL VALVES	✓			
CHECK HYDRAULIC HOSES & FITTINGS	✓			
<b>CHECK DRIVE COUPLINGS &amp; INSERTS*</b>				
• HYDRAULIC SYSTEM	✓			
• WATER SYSTEM	✓			
<b>CHECK BODY MOUNTS*</b>				
• SPRING BODY MOUNTS	✓			
• RIGID BODY MOUNTS	✓			
• REAR BODY PINS	✓			
<b>CHECK PUMP MOUNTING BOLTS*</b>				
• HYDRAULIC SYSTEM	✓			
• WATER SYSTEM	✓			
CHECK FUSES IN FUSE PANEL	✓			

\* IF APPLICABLE

# DAILY MAINTENANCE LOG

	<b>CHECK HYDRAULIC FLUID LEVEL</b>	<b>CHECK HYDRAULIC CONTROL VALVES</b>	<b>CHECK HYDRAULIC HOSES &amp; FITTINGS</b>	<b>CHECK DRIVE COUPLINGS &amp; INSERTS</b>	<b>CHECK BODY MOUNTS</b>	<b>CHECK REAR BODY PINS</b>	<b>CHECK PUMP MOUNTING BOLTS</b>	<b>CHECK FUSES IN FUSE PANEL</b>
<b>DATE</b>								



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**GROUND FORCE**

**WORLDWIDE**

WORLD'S FINEST MINE SUPPORT EQUIPMENT

***OPERATION & MAINTENANCE MANUAL***

**WARRANTY**

## LIMITED WARRANTY

- A. GROUND FORCE MANUFACTURING, LLC (GFM) warrants that the specialty equipment manufactured by (GFM), including accessory equipment and parts manufactured by (GFM), shall be free from:
1. Defects in material and workmanship furnished by (GFM) and used in the fabrication thereof;
  2. Defects arising from the selection of materials or processes of manufacture;
  3. Defects in the design thereof in view of the state of the art on the date hereof.
- The foregoing warranty shall apply also to accessories, equipment, and parts manufactured to (GFM) detailed design and specifications and supplied to (GFM) by other manufacturers.
- B. (GFM) makes no warranty with regard to component parts not manufactured by (GFM), but agrees to assign to the purchaser all of its rights under any original manufacturer's warranty covering such component parts and agrees to assist the purchaser in making such contacts with the manufacturer of such component parts as may be necessary to protect its right under the warranty covering them.
- C. In case of defects in materials, defects in workmanship, defects arising from the selection of material or processes of manufacture, or defects inherent in the design, such defects must become apparent in the machine, accessory, equipment, or part manufactured by (GFM) within one calendar year or 5,000 hours of operations, whichever shall first expire after the equipment is commissioned by the original purchaser. It is required that the original purchaser complete the Product Registration Form within 45 days from the time the equipment is placed into service. Failure to complete the Product Registration Form will void the warranty. The date of commissioning must be within 12 months from the original date of invoice by GFM. End user must provide all information, which is relevant to the warranty, to GFM upon request. GFM reserves the right to determine what information is relevant. The extent of (GFM) liability under this warranty, as to defects in materials, defects in workmanship, defects arising from the selection of material or processes of manufacture, or defects inherent in the design, is limited to the repair of such defects, or to the repair or replacement (with a new or rebuilt similar item, free from the defect in question) of any accessory, equipment, or part manufactured by (GFM), which is defective in any such respects.
- D. The (GFM) Limited Warranty does not cover, and (GFM) makes no warranty with respect to:
1. Defects not reported and defective items not returned to (GFM) within the warranty period;
  2. Failure and damages due to misapplication, lack of proper maintenance, abuse, improper installation, or abnormal conditions of temperature, moisture, dirt or corrosive matter;
  3. Failure due to operation, intentional or otherwise, in any improper manner;
  4. Damage caused by components, or parts, or accessories built by others, or which were not manufactured, nor installed, nor sold by (GFM);
  5. Damage that results from continued use of equipment after a defect has become apparent;
  6. Item(s) which have/has in any way been altered by anyone other than an authorized representative of (GFM);
  7. Damage which occurs during shipment, or otherwise, without the fault of (GFM);
  8. Taxes, consumables, environmental fees, or surcharges;
  9. Freight, transportation, or shipping;
  10. Rental expenses;
  11. Travel expenses, including travel labor, mileage, lodging and meals;
- E. (GFM) shall in no way be liable for any expenses incurred by the purchaser in any attempt to repair, replace, or rework any originally defective item of sale. (GFM) shall in no way be liable for any losses, costs, forfeiture or damages (including loss of profits, liabilities of the purchaser, its customers, or third persons, and all other consequential damages), whether direct or indirect, and whether or not resulting from, or contributed to by the default, or negligence of (GFM), its agents, employees and subcontractors, which might be claimed as a result of the defect, use, or failure of the item delivered.

Except as stated, there is no warranty, express or implied, in connection with the design, manufacture, sale, service or use of the machinery, accessories, equipment and parts sold by (GFM). (GFM) liability on its warranty shall in no event exceed the cost of the item of sale.

This warranty policy supersedes, merges and voids all negotiations, prior discussions, agreements, and understandings, whether oral or written. This warranty policy may not be altered or amended except by a document executed by officers of each party.

## **DISTRIBUTOR WARRANTY POLICY**

GROUND FORCE MANUFACTURING, LLC (GFM) will allow warranty claims for repairs on (GFM) manufactured equipment per the terms laid out in this warranty policy. All claims must follow the rules set forth in this policy; no other payment schedule will be recognized by (GFM). Proper procedure, including paper work, must be followed for warranty to be considered. The following warranty schedule will be applicable:

- Labor will be credited at 80% of the Distributor's prevailing in-shop service charge (at the time the repair is performed) up to, but not to exceed \$80 per hour for straight time, or \$100 per hour for approved overtime.
- Normally only straight time labor rate based on a 10 hour/day schedule will be paid. Overtime labor rate applies to labor over 10 hours worked on any day on (GFM) equipment ONLY. For example, if the technician works for a number of hours on other equipment and their hours move into overtime pay when they are working on (GFM) equipment, only straight time labor will be paid until they have worked for 10 hours on the (GFM) equipment, irrespective of how many hours they have been working. Any exceptions for warranty payment to be made on overtime labor claims must be pre-approved by the (GFM) Product Support Department. Otherwise all labor hours submitted for payment will be paid at straight time.
- A warranty job number must be assigned by (GFM) and referred to in any billing. The warranty job number expires 90 days from the date it is assigned by (GFM).
- All warranty labor hours are subject to review by (GFM) Product Support Department for validity. Excess labor hours charged due to Distributor's technicians' inexperience or lack of training on the servicing of (GFM) equipment is not covered under warranty.
- All warranty work, which may entail major repair of (GFM) equipment, is subject to being performed by (GFM) technicians dispatched from (GFM) plant rather than by Distributor's technicians. The decision whether to have (GFM) technicians perform said repair work is solely at the discretion of (GFM). Major repair work performed by Distributor without pre-approval from (GFM) is subject to claim denial.
- Warranty expenses incurred because of the failure of a component part used by (GFM) in the manufacture of equipment (GFM) builds is subject to coverage under the warranty of the component manufacturer in regard to the cost of the part, mileage, and to the labor cost for replacing it. (GFM) will submit non-GFM manufactured parts returned to (GFM) for warranty consideration to the component manufacturer; credit will be issued for the part if deemed payable by the component manufacturer (parts are billed for, when shipped, as per (GFM) Parts Warranty Policy).
- Warranty claims must be made in writing, utilizing the proper forms provided to the Distributor by (GFM). A detailed labor report will be required for warranty labor consideration.
- Claims arising from defects in materials, defects in workmanship, defects arising from the selection of material or processes of manufacture, or defects inherent in the design will be credited within 60 days from receipt of the warranty claim documentation at (GFM) if allowed.
- Warranty claims arising from component parts not manufactured by (GFM) will be credited per the respective manufacturer's warranty once the respective manufacturer has settled the claim.

This warranty policy supersedes, merges and voids all negotiations, prior discussions, agreements, and understandings, whether oral or written. This warranty policy may not be altered or amended except by a document executed by officers of each party.

Effective April 2, 2018

## WARRANTY PARTS

GROUND FORCE MANUFACTURING, LLC (GFM) utilizes parts made by many vendors. All vendor component parts have their respective manufacturer's warranties. (GFM) makes no warranty with regard to component parts not manufactured by GFM, but agrees to assign to the purchaser all of its rights under any original manufacturer's warranty covering such component parts, and agrees to assist the purchaser in making such contacts with the manufacturer of such component parts as may be necessary to protect its right under the warranty covering them.

### HOW TO FILE A CLAIM

1. Locate the (GFM) serial number (six digits).
2. Prepare a PO for the replacement part and shipping
3. Call (GFM) at (208) 664-9291 with the serial number of your (GFM) equipment and the purchase order number and request to speak with the Parts and Product Support Representative for your area. Alternatively, you can also e-mail the serial number and purchased order number to the Parts and Product Support Representative for your area.
4. (GFM) will ship the part out to you, along with a Return Materials Authorization (RMA).
5. Replace the failed part and return it, along with the RGA, to the address instructed on the RGA.
6. Upon arrival, (GFM) will route the part to the appropriate vendor for warranty consideration.
7. The vendor will report their findings to (GFM) and either deny the claim or issue a credit.
8. (GFM) will forward the vendor's findings to you, the customer. If a credit is issued, by the vendor, (GFM) will pass the credit on to you by issuing a credit to your account.

Effective August, 2016

## PRODUCT REGISTRATION

(Must be completed and submitted within 45 days of commissioning to activate warranty coverage)

Please visit our Web site to submit your product registration form online.

### [GROUND FORCE PRODUCT REGISTRATION](#)

+1 (208) 664-9291 | info@gfworldwide.com



HOME

PRODUCTS

PRODUCT SUPPORT

OUR COMPANY

INVENTORY

CONTACT US



### GROUND FORCE WORLDWIDE PRODUCT REGISTRATION

We believe in our products and strive to provide you with World-class service! To do so, we offer a Product Registration form to make sure we have all the necessary information to communicate with you efficiently. Please take a moment to fill in this form and submit to us. We will use the information to better serve you. Thank you for choosing Ground Force Worldwide!

*Product Registration Form must be submitted within 45 days of commissioning to activate warranty coverage.*

[PRODUCT REGISTRATION FORM](#)

**?** QUESTIONS? CONTACT OUR PRODUCT SUPPORT DEPARTMENT.

Service@gfworldwide.com | +1 (208) 664-9291



**REGISTER & LET US TAKE CARE OF THE REST.**

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