



# User Guide

For Spray King<sup>®</sup>

SK40H

On-Highway Tank Truck  
for

International<sup>®</sup>

MV607 4X6

**HOLT Manufacturing**  
2000 Texas Central Parkway  
Building 100  
Waco, TX 76712  
**844.465.8634**

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This guide is valid from the date of manufacture, however, there are ongoing updates and improvements to the information presented. Please download [the latest version here](#):





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Questions? Call us at 844.465.8634.

[www.holtmfg.com](http://www.holtmfg.com)  
[support.holtmfg.com](http://support.holtmfg.com)

# SAFETY FIRST: BEFORE STARTING

Read and become familiar with the basic safety and operations manual for your International on-highway truck as well as with the information in this guide for operation of the water tank. Your safety, your coworkers' safety, and the quality of the productivity of the equipment you're operating depend on a thorough walkaround inspection before operations begin to ensure your machine is in safe working order. Make sure you are trained in the safe operation of your International truck and the Spray King water tank before starting.

This manual contains information necessary to safely operate the HOLT Spray King water truck, including basic maintenance procedures. For any questions, please call HOLT Manufacturing, 844.465.8634.

Follow HOLT Manufacturing instructions to operate and maintain your Spray King® water tank. Unless otherwise instructed by this guide or by HOLT, use only HOLT supplied parts during installation for your safety and to maintain your warranty.

Use appropriate personal protective equipment and clothing, safety helmets, safety harnesses, and procedures.

Before performing any work, proper machine power lockout procedures should be followed, and wheels should be chocked.

## Special Note

This truck exceeds most Department of Transportation weight limits to drive on roads with a full water tank. Do not drive truck over the road with the tank more than 75% full without a permit. Operator is responsible for all DOT permitting required by local laws.

DOT Legal: 48,635 lbs (3,000 gallons)

Full Tank: 56,975 lbs

Empty: 23,615 lbs

## Contact Us

For questions regarding your tank operation, troubleshooting, or maintenance, please contact HOLT Manufacturing, at 844.465.8634.

# DEFINITIONS: SAFETY PRECAUTIONS & SIGNS

Definitions of symbols and words used in this manual and in the operation of the HOLT Spray King water truck. Follow safety precautions before proceeding.



**WARNING:** Follow safety precautions before proceeding.

**NON POTABLE WATER**

**WARNING: Non-potable.** Water held within tank is non-potable. Do not use tank for transport of water intended for human or animal consumption. Serious injury or death may result.



**WARNING: Rotating Shaft.** Do not place your hand or tools within pump bell while pump is rotating and/or pressure held within the motor supply hose.



**WARNING: Slip and Fall Hazard.** Don't walk on the top of tank without fall arrest PPE. Serious injury or death could result from a fall.



**WARNING: Trip Hazard.** Take care using steps and walking on top of tank.



**WARNING: Confined Space.** Permit-required confined spaces contain hazards that could cause death or serious injury to workers.



**WARNING: Freeze Hazard.** Drain tank, fill pipe, pump, monitor, and valves in freezing weather.





**WARNING: Crush/Pinch Risk.** Do not place your hand or tools near the butterfly valve (if equipped) when the truck is in operation.



**WARNING: Check for pedestrians before spraying.** Before engaging spray heads or monitor, make sure there are no pedestrians present.



**WARNING:** Tank must be dry/empty before lifting; use lift points.



**NOTICE:** Fire extinguisher is located just inside the driver's side door on the floor of the truck.



**WARNING: Always lock out/tag out** the engine before working on or near exposed PTO shaft. You can snag clothing, skin, hair, hands, etc., and cause serious injury or death.

## Location of Fire Extinguisher

Fire extinguisher is located just inside driver's side door under the seat. Instruction manuals are located in the red canister behind the driver's seat.

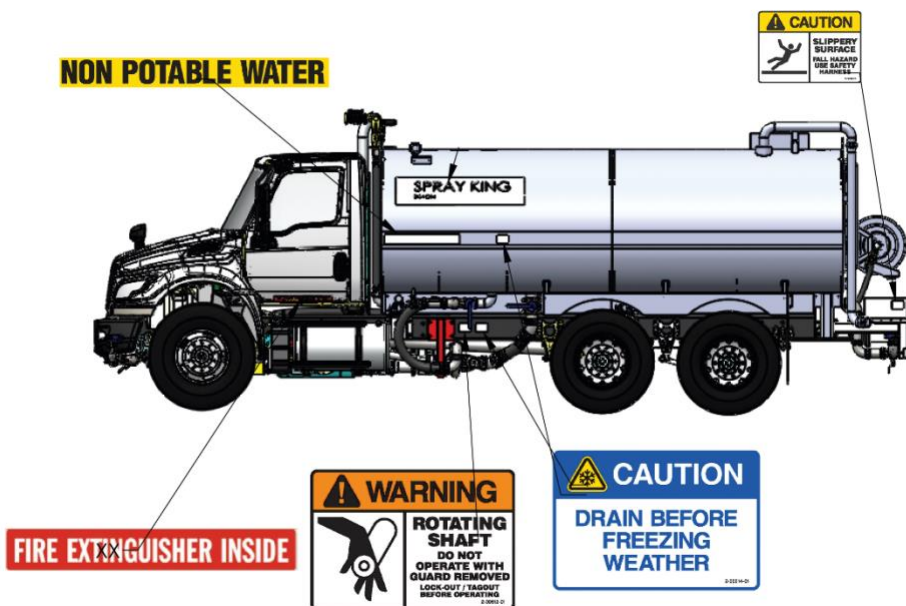
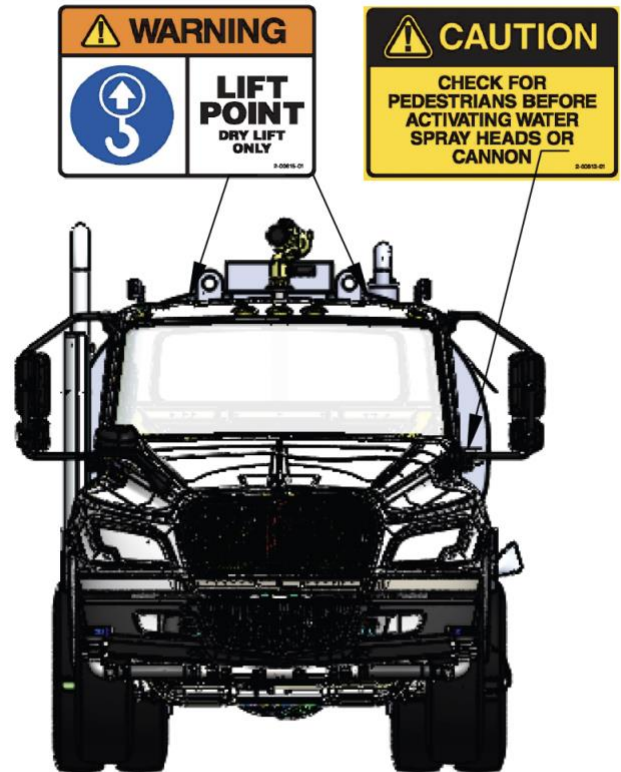


## Main Power Disconnect

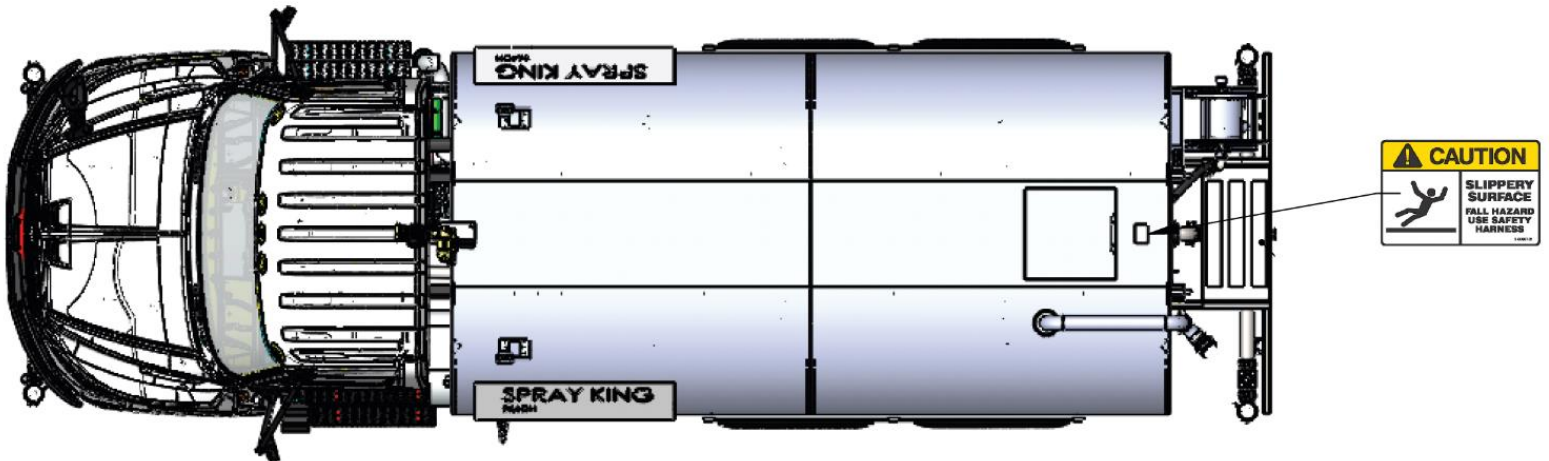
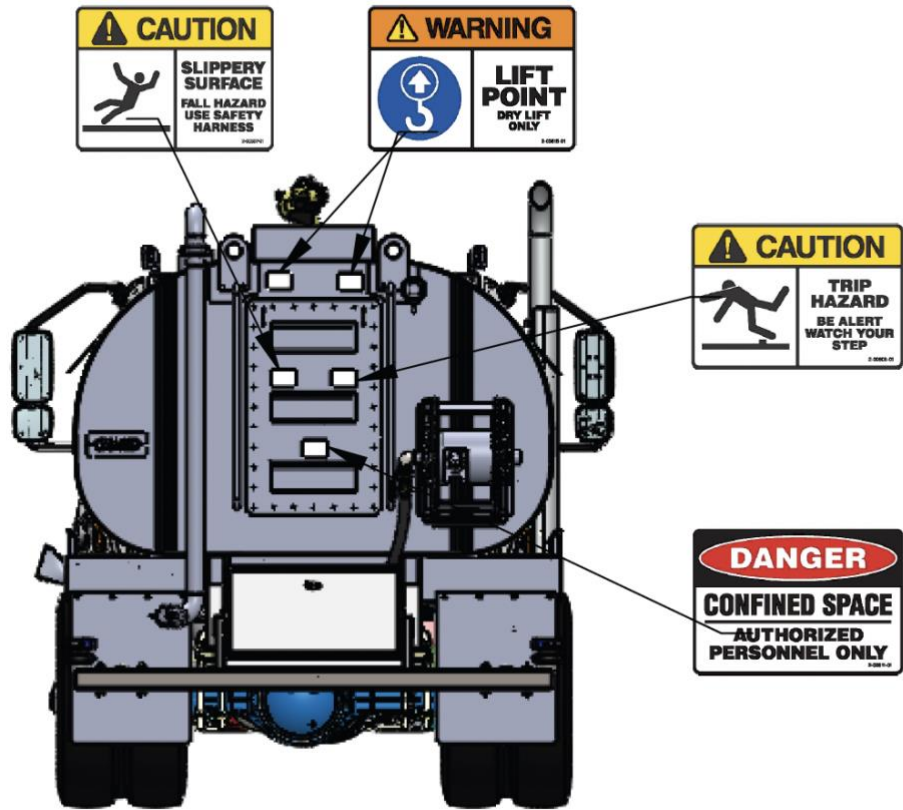


Located under the passenger door, turn the **main power switch to 0** before working on the pump, PTO, or anything under the truck. Use lockout/tagout labels and procedures.

# LOCATIONS: SAFETY PRECAUTIONS & SIGNS







## STANDARD FEATURES & CAPABILITIES

### **Chassis:**

International MV607 4X6  
Diesel Engine: Cummins® L9-330  
Allison 3000RDS Transmission  
Parker PTO to drive water pump

### **Tank:**

HOLT Spray King SK40H: 4,000 gallons

### **Weights:**

GVWR: 54,000 lbs.  
Empty weight: 23,615 lbs.  
75% full weight: 48,635 lbs.  
100% full weight: 56,975 lbs.

### **Filling System:**

Hydrant fill  
Standard top fill  
Lake fill compatible

### **Standard Features:**

Backup sounder  
Road Hazard Kit  
Fire Extinguisher  
4 Spray heads (2 front, 2 rear)  
Integrated toolbox  
Hose Reel manual retract  
Exterior Work Lights

### **Optional Features:**

2 Additional Spray heads (2 middle)  
Water monitor: Nitro 8100  
Hose Reel motorized retract

# WARRANTY

## HOLT MANUFACTURING LIMITED WARRANTY

The Manufacturer warrants that products produced shall be free from defects in material and workmanship that develop under normal use for a period of one year from the date of delivery to buyer on all products. The preceding shall be the exclusive remedy of the buyer and the exclusive liability of the Manufacturer. Our warranty excludes normal replaceable wear items (e.g., gaskets, wear parts, seals, O-rings, belts, drive chains, clutches, batteries, tires, etc.). Any equipment, part or product which is furnished by the Manufacturer but manufactured by another, bears only the warranty given by such other manufacturer. This Limited Warranty is non-transferable.

Warranty is voided by product abuse, alterations, use of equipment in applications for which it was not intended, use of non-manufacturer parts or failure to follow documented service instructions. Equipment which is substantially damaged by collision, accident, flood, fire, vandalism or other similar occurrences are not covered by this Limited Warranty. Any delays in Manufacturer's performance under the Warranty resulting from strikes, acts of God, or other occurrences beyond the reasonable control of Manufacturer that cause any type of loss to buyer are not covered and will not result in any additional compensation to buyer. Buyer will pay Manufacturer its cost to diagnose and investigate claims unless the repairs are covered under this Limited Warranty. **The foregoing warranty is exclusive of all other warranties whether written or oral, expressed or implied. No warranty of merchantability or fitness for a particular purpose shall apply.** The agents, dealers and employees of Manufacturer are not authorized to make modifications to this warranty, or additional warranties binding on the Manufacturer. Therefore, additional statements, whether oral or written, do not constitute warranty and should not be relied upon.

The Manufacturer's sole responsibility for any breach of the foregoing warranty provisions, with respect to any product or part not conforming to the Warranty or the description herein contained, is at the Manufacturer's option: (a) to repair, replace, or refund such product or parts upon the prepaid return thereof to location designated specifically by the Manufacturer (product returns not shipped prepaid will be refused); in the event buyer requests an expedited repair charges may include overtime if applicable, (b) as an alternative to the foregoing modes of settlement the Manufacturer's dealer may repair defective units with reimbursement for expenses if expressly allowed for in writing by Manufacturer. A written description of problem or cause must accompany all warranty claims. All repairs must be performed by Manufacturer and at a location designated by Manufacturer. Manufacturer shall pay usual and customary ground shipping charges for parts needed for warrantable repairs made at a Manufacturer's location. This Warranty does not apply to routine maintenance.

*(warranty continued on next page)*

Except as set forth here in above and without limitation of the above, there are no warranties or other affirmation which extend beyond the description of the products on the fact here of, or as to operational efficiency, product reliability, or maintainability or compatibility with products furnished by others. **In no event, whether as a result of breach of contract or warranty or alleged negligence, shall the Manufacturer, be liable for special, indirect, incidental, punitive or consequential damages including but not limited to: loss of profits or revenue, personal injury, property damage, strict liability, loss of use of the product or any associated product, cost of capital, cost of substitute products, facilities or services or claims of customers.** The Manufacturer does not assume responsibility for any accident due to equipment modification, unless approved prior in writing by a Holt Manufacturing engineer.

No claim will be allowed for products lost or damaged in transit. Such claims should be filed with the carrier within fifteen days.

THE PARTIES HERETO SHALL SUBMIT TO BINDING ARBITRATION ANY DISPUTED QUESTIONS OR CONTROVERSY ARISING FROM OR RELATED TO THIS LIMITED WARRANTY OR RELATED TO THE TRANSACTION CONTEMPLATED BY THIS LIMITED WARRANTY. ANY SUCH ARBITRATION SHALL BE CONDUCTED IN BEXAR COUNTY, TEXAS UNDER THE COMMERCIAL ARBITRATION RULES OF THE AMERICAN ARBITRATION ASSOCIATION. THE ISSUE OF WAIVER PURSUANT TO THIS PARAGRAPH IS AN ARBITRABLE ISSUE. THE AWARD OF THE ARBITRATORS SHALL BE FINAL AND NON-APPEALABLE.

THE PROVISIONS OF THIS LIMITED WARRANTY SHALL BE INTERPRETED AND GOVERNED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS.

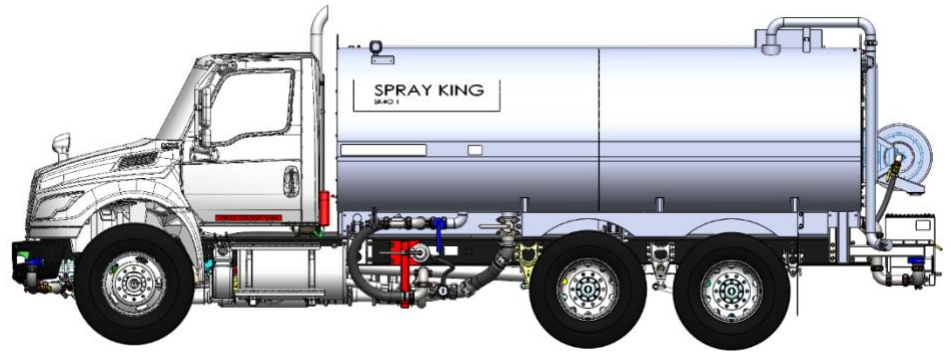


## Interior View

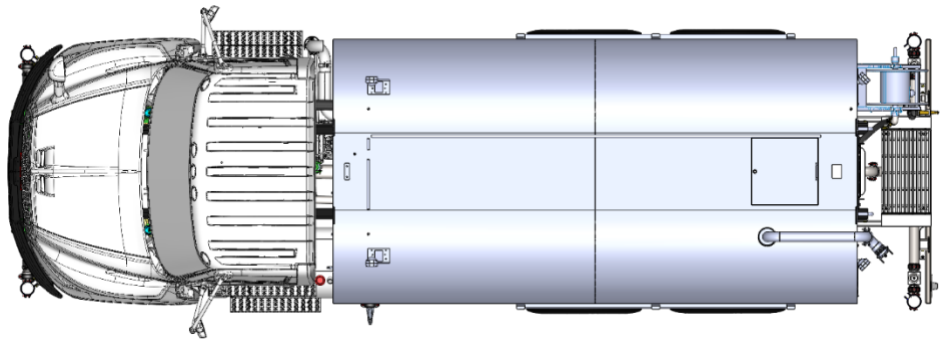


## Exterior View

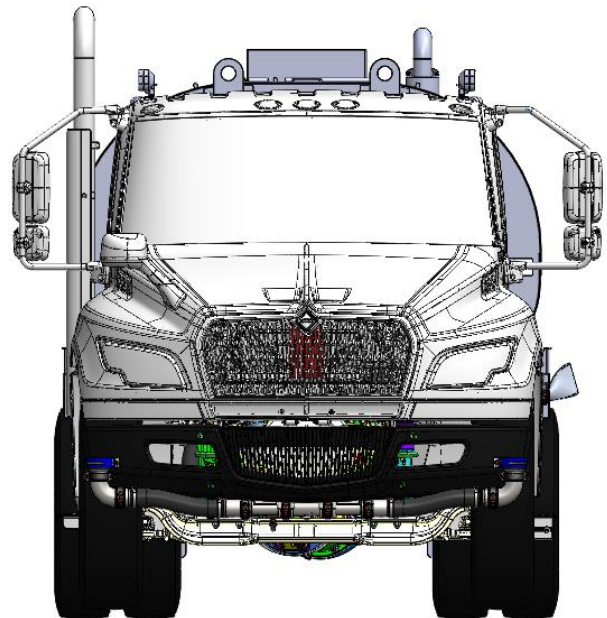
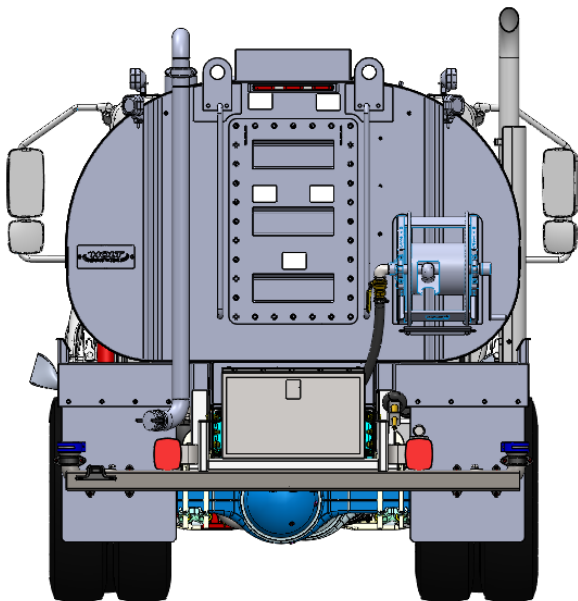
Left Side View



Top View



Rear/Front Views



# PRE-OPERATION INSPECTION

## Walk Around Inspection



**Complete a detailed walk around inspection at the start of every workday.**

At ground level, look for:

- Damage
- Excessive wear
- Loose or missing bolts
- Debris or trash buildup
- Damaged or missing safety signs

On a second trip around, additionally:

- Examine all tank mounts for tightness.
- Examine all seals, covers and hoses for leaks.
- Check fluid levels.
- Check tires and tire inflation.
- Check that windows are clear and that all steps and handrails are clean and clear.
- Store and secure all loose tools and objects in the cab or toolbox.



# OPERATION

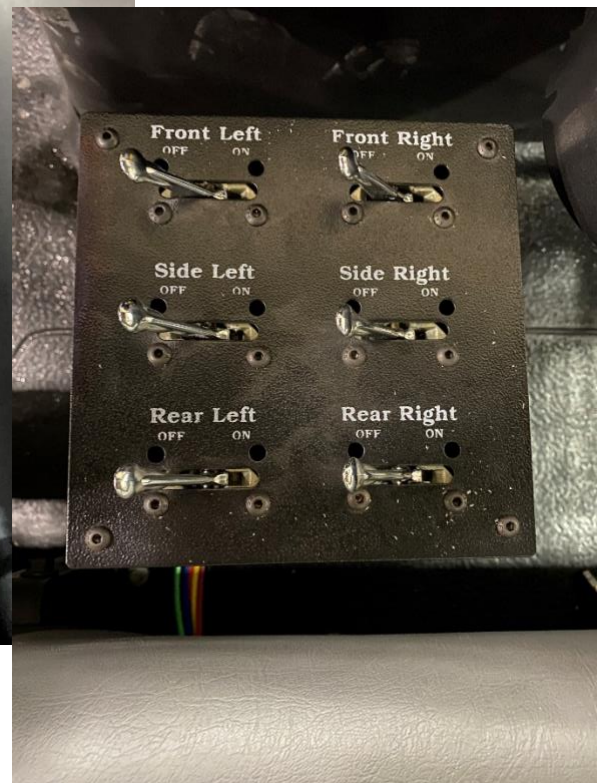
## View of Cab Controls

*Tank water level indicator*

*Switch for work lights*



*Spray head control box*





*PTO switch on dash at center*

*Steering wheel cruise control switches, on (center), up (Res + at top), and down (Set – at bottom)*







*Work lights are located on the sides and at the rear of the truck. On/off switch for the lights is in the cab on the side of the spray control tower.*



## Filling the Tank

There are three ways to fill the tank based on the water source and the customer's needs – hydrant fill, using a water hydrant source that is under pressure; top fill, using gravity to fill from an overhead water tank source; and lake/creek fill, pumping the water in using a local untreated water source. Note the water level on the water level indicator in the dashboard of the truck.

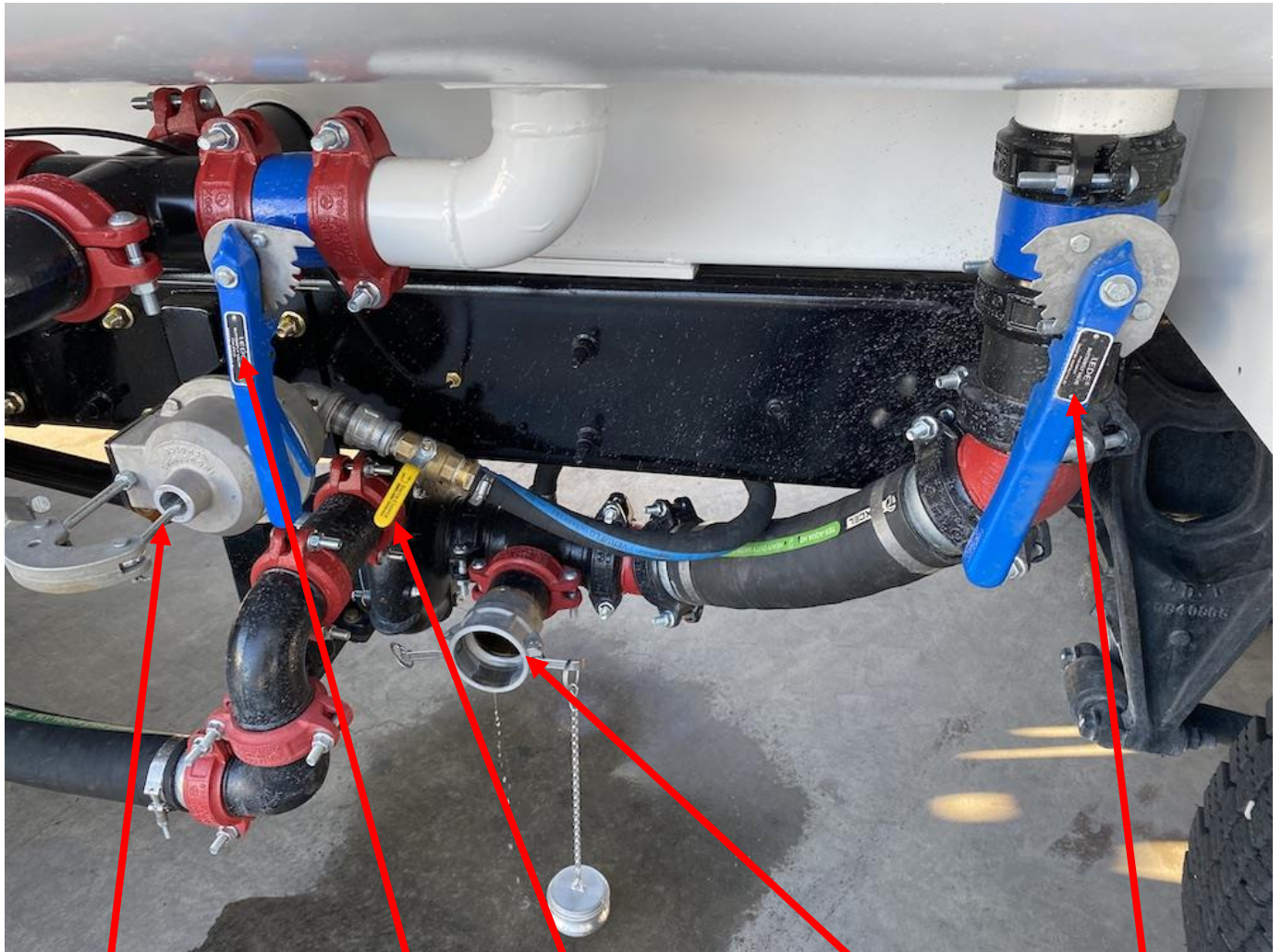
### *Hydrant fill:*

Using the connection at the left rear of the truck, attach a hose to the truck and the other end to the hydrant to fill tank.



### *Top fill:*

To fill with a hose from a water stand tank, use the manhole port on the top of the tank. Remove pin/lanyard from the forward side of the port cover, lift handle, and slide cover toward the front of the truck. Fill tank, and slide cover back into place and replace pin to secure cover.



*Manual priming pump*

*Valve B*

*Ball Valve*

*Lake fill hose connection*

*Valve A*



## Lake Fill: Priming the Pump

In certain situations it is necessary to prime the water pump before beginning spray operations, including if the tank has been fully emptied, when filling the tank from using lake fill, and returning the truck to service after winterization.

Should the tank run dry, there is a way to prime the pump. To prime the pump with lake fill option:

1. Connect the lake fill hose stored on the rear wheel fenders and drop hose end in water
2. Open Valve B (left blue handle)
3. Close Valve A (right blue handle)
4. Open yellow ball valve
5. Manually operate the draft (primer) pump. Use at least 10 pumps to fully prime the pump, until you see water coming out of the port behind the primer pump.
6. With truck in idle, turn on the PTO engaging the pump
7. Turn on the cruise control (center button)
8. Press the Res+ button one time (RPMs rise to 1750) then
9. Press the Set- button one time (RPMs fall to 1000).
10. Verify water is pumping into the tank. You may need to manually prime the pump a few more times to assure water is flowing into the tank.

Pump should fill the tank. Watch the water level indicator and turn the pump off with the PTO switch when filled to the desired level. Close the ball valve, close Valve B, and remove and replace hoses.

## Spray Heads

Spray heads are adjustable. Front and rear spray heads may be tilted or narrowed by loosening the bolts on the couplings and rotating the spray head if desired.

Side spray heads may be turned to spray vertically or horizontally and tilted.



*Front and rear spray heads*

*Side spray head*



## Spray Operations



Before engaging spray valves, make sure:

- To check surroundings and ensure any bystanders are kept away from the area of operation.
- To be sure the valves are adjusted and tightened in place for the desired spray pattern.
- To select the desired spray valves

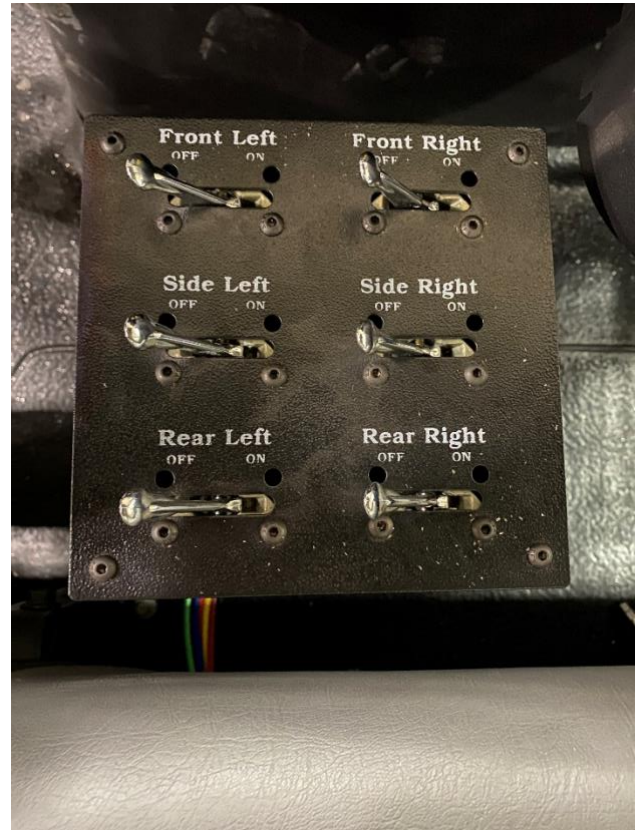
### General Instructions

#### In-cab Sprayer Control Tower

1. Front Left Spray Head
2. Front Right Spray Head
3. Side Left Spray Head
4. Side Right Spray Head
5. Rear Left Spray Head
6. Rear Right Spray Head

Always engage spray heads while truck is idling, and the transmission is in park. It is recommended to engage the spray heads at a low RPM to preserve longevity of the pump system.

It is recommended to drive in second gear, or not faster than 15 mph while spraying. Should the RPMs of the engine go too high while spraying, the pump will disengage.



**Caution:** Engage spray heads while truck is idling, and the transmission is in park. It is recommended to engage the spray heads at a low RPM to preserve longevity of the pump system.



**Caution:** Before engaging spray heads or monitor, check for pedestrians or other obstructions.

## Spraying Water: Engaging Spray Heads

After starting the vehicle there are two ways to engage the spray heads. With a full tank, follow these steps:

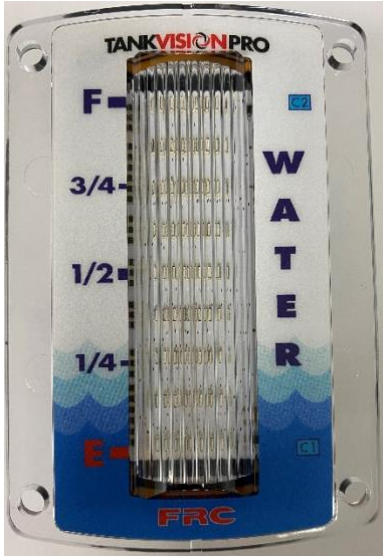
1. Truck is in idle; parking brake on.
2. Open Butterfly Valve A.
3. Turn on the PTO engaging the pump
4. Turn on the cruise control (center button)
5. Press the Res+ button one time (RPMs rise to 1750) then
6. Press the Set- button one time (RPMs fall to 1000).
7. Using Sprayer Control Tower, turn on spray heads to be engaged.
8. Disengage parking brake and drive while spraying as needed. Keep RPMs as low as possible, use only up to second gear, driving not more than 15 mph. Driving over recommended RPMs will automatically disengage pump.

**Turn off engaged spray heads and pump to stop spraying water when water level indicator goes below 1/8 full.**



Warning: Do not run tank dry. Stop spraying water when water level indicator goes below 1/8 full. Pump will not automatically disengage. Running without water may damage pump.





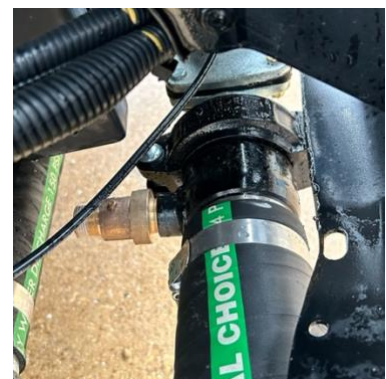
## Disengaging Spray Heads

To disengage the spray heads, follow these steps:

1. Turn off engaged spray heads.
2. Turn off pump (PTO).
3. Turn off cruise control.
4. Once outside the truck: Close Valve A.

### Automatic Drain Valves:

The spray head manifolds will automatically drain once the spray heads are disengaged and water pressure falls. A small amount of water will drain from underneath the front of the tank (1 automatic drain) and under the front bumper (2 automatic drains).



## Using the Sprayer and Hose Reel

HOLT Spray King is equipped with COXREELS® outlet hose reels.

**Before use, remove locking pin.**

With the truck idling and the parking brake engaged, make sure there is water in the tank and the pump (PTO) turned on. Turn on the cruise control (center button).

Press the Res+ button one time (RPMs rise to 1750) then press the Set- button one time (RPMs fall to 1000)



Engage the hose reel as follows:

1. Open Valve A.
2. Turn on Hose Reel with ball valve at reel.
3. Remove hose from nozzle holder and engage sprayer using swivel shutoff valve at nozzle head.



**Warning:** High pressure water - Do not operate hose until all personnel are a safe distance away from the vehicle. Equipment damage can be caused by water flowing at maximum pressure. Don't point hose directly at equipment or any sensitive components.



*Swivel shutoff valve at nozzle head.*

Disengage by:

1. Closing valve at nozzle head.
2. Close ball valve at reel.

*In order to drain the hose, you may wish to open the nozzle head shutoff valve again before rewinding the hose onto the reel.*

3. Retracting hose onto reel.
4. If open, close shutoff valve at nozzle head.
5. Replacing the nozzle in holder.
6. Replace locking pin to secure reel.
7. Close Valve A.
8. Disengage pump/PTO.

**REPLACE LOCKING PIN BEFORE MOVING VEHICLE.**



## Optional Equipment: Nitro HD Monitor



An option available on the HOLT Spray King is a Nitro HD® monitor, and joystick controller. The joystick provides basic directional movement of the monitor and actuation of the nozzle.

The controller for the Nitro HD is mounted on the front of the tank.



Before operating, inspect the Nitro system for signs of excessive wear or abnormal damage, water or hydraulic hose leaks.

Look for signs of loose mounting or wiring connections.

Flow water to check the nozzle pattern; if pattern is disrupted, clear any debris. Check any joints for leaks.

Store nozzle facing downward to drain and to lower the profile and height of the truck. Monitor could be damaged by low hanging tree limbs or other obstructions.

## Rotation Limits

For safety, the fire hose is set to of 180 degrees horizontal rotation and 90 degrees vertical rotation.



**Warning:** High pressure water - Do not operate monitor until all personnel are a safe distance away from the vehicle. Equipment damage can be caused by water flowing at maximum pressure. Don't point monitor directly at equipment or any sensitive components.



## Operating the Monitor

For Spray King models equipped with a monitor, refer to the latest version of the user manual [here](#).

## Other Parts: Pump



**Warning: Rotating parts.** Can catch hands, feet, or clothing. Stay clear of equipment and keep shields in place while pump is running. Stop motor or engine before servicing pump.

HOLT Spray King includes a Berkeley® pump.

- Periodically inspect pump and system components for signs of wear, damaged or leaking hoses, excessive vibration, or unusual sounds.
- Check operating temperature, which is 150 degrees F, which is normal. If the surface temperature of the pump bracket or driver is excessive, discontinue use and call for service.
- To prevent freezing, draining the tank will drain the pump, see below. An additional drain valve is at the base of the pump. Do not allow pump, piping, or any other system component containing water to freeze. Freezing may damage system, leading to injury or flooding. Allowing pump or system components to freeze will void warranty.
- Pump water only.
- Never run pump dry.

## Draining the Pump

At left, using a strap wrench or wrench cup, remove the octagonal PVC fitting at the front of the tank to drain the tank and the pump.

Below, the monitor will automatically drain when the butterfly valve shuts off water to the monitor.



**WARNING:** Drain pump and lines when experiencing freezing weather.

Remove the plug on the bottom of the pump to drain any residual water.

# MAINTENANCE

## Pump Maintenance, Start Up and Winterization

For less down time and to extend the life of the pump, keep the pump well maintained.

A routine maintenance and inspection schedule should be set up on a weekly, quarterly, and annual basis with records kept of these actions.

### *Weekly Checks: Lubrication*

LIQUID END of pump requires no lubrication. Wear rings, packing rings, and models using a mechanical shaft seal, are lubricated by the liquid being pumped. Do not run dry! BEARING FRAME - add approximately 2 ounces of a lithium-based NGLI No. 2 extra pressure ball bearing grease to each bearing during quarterly inspection. Excess grease will cause bearings to run hot.

The following are factory approved brands of grease for use with Berkeley Pumps: Alvania EP2, Shell Oil; Mobilith AW2, Mobil Oil, Ronex MP, Exxon, Litholine EP2, Atlantic Richfield; and Amolith EP2, Amoco.

NOTE: Grease fitting in packing area is for priming only. See PRIMING in start-up section for instruction.

### *Weekly Observational Maintenance*

Observe the following:

- **VIBRATION:** All rotating machines can be expected to produce some vibration; however, excessive vibration can reduce the life of the unit. If the vibration seems excessive, discontinue operation, determine cause of the excessive vibration, and correct.
- **NOISE:** When the unit is operating under load, listen closely for unusual sounds that might indicate that the unit is in distress. Determine the cause and correct.
- **OPERATING TEMPERATURE:** During operation, heat is dissipated from the pump and the driver. After a short period of time, the surface of the pump bracket will be quite warm (as high as 150°F), which is normal. If the surface temperature of the pump bracket or driver is excessive, discontinue operation, determine cause of the excessive temperature rise, and correct. Bearings will run hotter for a brief run-in period after packing which is normal. However, worn bearings will cause excessive temperatures and need to be replaced. The pump unit is cooled by the water. For quarterly and annual maintenance, refer to check list on the following page.



**WARNING:** To avoid damage, drain pump during freezing weather.

### *Winterizing*

If pump is to be out of service for an extended period, such as the winter months, the following storage procedures should be followed.

- Remove exterior dirt and grime or any substance that may trap moisture. Exposed metal is subject to oxidation, prime and repaint if necessary. If this is not possible, coat with grease or heavy oil.
- Flush suction and discharge lines. Check for leaks and replace any worn gaskets.
- Remove lowest plug-in pump and drain pump casing and suction and discharge lines.
- Lubricate bearings.
- If possible, keep unit clean and dry during storage period to guard against corrosion.
- Seal all open ports to keep out foreign objects such as insects, rodents, dust and dirt.
- Rotate driver shaft periodically to prevent freeze-up of internal components.
- Shelter unit from elements if possible.
- Work oil into impeller wear ring by dripping oil into the gap while rotating by hand.

### *Spring Start-Up*

- Inject sufficient grease into the bearings to displace old grease.
- Visual inspection.
- Rotate by hand, if any binding occurs, disassemble, and inspect.
- Prime the pump before using, manually pumping the draft pump 10 times.

Quarterly and annual inspections are on the next page.

## Maintenance Routine Inspection Record

### I. QUARTERLY INSPECTION

- ☐ Inspect all system piping connections for leakage or possible misalignment.
- ☐ Check pump foundation for soundness and see that all hold-down bolts are secure.
- ☐ Complete any lubrication requirements as dictated by pump and driver owner's manual.
- ☐ Inspect packing or mechanical seal for possible replacement. Examine shaft sleeve, if present, for wear and replace if necessary.
- ☐ Inspect pumping plant panel for signs of wear (ie: replace pitted contactors, etc., as needed).
- ☐ Check pump and motor bearings from signs of wear. Repack or replace as necessary.
- ☐ Check alignment of couplings and/or pulleys and belt tension if applicable.
- ☐ \_\_\_\_\_

### II. QUARTERLY INSPECTION

- ☐ Inspect all system piping connections for leakage or possible misalignment.
- ☐ Check pump foundation for soundness and see that all hold-down bolts are secure.
- ☐ Complete any lubrication requirements as dictated by pump and driver owner's manual.
- ☐ Inspect packing or mechanical seal for possible replacement. Examine shaft sleeve, if present, for wear and replace if necessary.
- ☐ Inspect pumping plant panel for signs of wear (ie: replace pitted contactors, etc., as needed).
- ☐ Check pump and motor bearings from signs of wear. Repack or replace as necessary.
- ☐ Check alignment of couplings and/or pulleys and belt tension if applicable.
- ☐ \_\_\_\_\_

### NOTES:

### III. QUARTERLY INSPECTION

- ☐ Inspect all system piping connections for leakage or possible misalignment.
- ☐ Check pump foundation for soundness and see that all hold-down bolts are secure.
- ☐ Complete any lubrication requirements as dictated by pump and driver owner's manual.
- ☐ Inspect packing or mechanical seal for possible replacement. Examine shaft sleeve, if present, for wear and replace if necessary.
- ☐ Inspect pumping plant panel for signs of wear (ie: replace pitted contactors, etc., as needed).
- ☐ Check pump and motor bearings from signs of wear. Repack or replace as necessary.
- ☐ Check alignment of couplings and/or pulleys and belt tension if applicable.
- ☐ \_\_\_\_\_

### IV. QUARTERLY INSPECTION

- ☐ Inspect all system piping connections for leakage or possible misalignment.
- ☐ Check pump foundation for soundness and see that all hold-down bolts are secure.
- ☐ Complete any lubrication requirements as dictated by pump and driver owner's manual.
- ☐ Inspect packing or mechanical seal for possible replacement. Examine shaft sleeve, if present, for wear and replace if necessary.
- ☐ Inspect pumping plant panel for signs of wear (ie: replace pitted contactors, etc., as needed).
- ☐ Check pump and motor bearings from signs of wear. Repack or replace as necessary.
- ☐ Check alignment of couplings and/or pulleys and belt tension if applicable.
- ☐ \_\_\_\_\_

### ANNUAL INSPECTION

- ☐ Inspect pump and entire pumping system for signs of wear.
- ☐ Inspect system valves, screens, etc.
- ☐ If electric motor is used, check windings for degradation, rewind if necessary.
- ☐ Check pump impeller eye for clearance.
- ☐ Inspect impeller, volute case, and seal chamber for signs of excessive wear or corrosion.

## Maintenance: Monitor

The complete system should be inspected before each use or once a month on a scheduled basis. Visually inspect the nozzle carefully for damage:

- Check the system for signs of excessive wear or abnormal damage.
- Examine monitor, nozzle, joystick, and wire harnesses for loose mounting or wiring connections.

Flow water as a test to check the nozzle pattern. If the pattern is disrupted, clear the nozzle of debris. If the obstruction remains, remove the nozzle and check for debris lodged between the nozzle stem and monitor or in the nozzle stream shapers.



**Warning:** Do not use high pressure spray to clean the Nitro HD. This can damage seals and lead to serious damage of electrical components.

During nozzle flow test, inspect the monitor swivel joints for leaks, and inspect all exposed wiring for signs of damage.

Grease fittings are provided for the up-down and left-right gear cases. Routine greasing should be done. Mobil™ Mobilux™ EP 2 grease is recommended to lubricate the monitor gearing.



## Appendix

- I. Electrical Schematic
- II. Pneumatic Flowchart
- III. Nitro Monitor Wiring Diagram





I. Electrical Schematic (Available as a PDF [download here.](#))

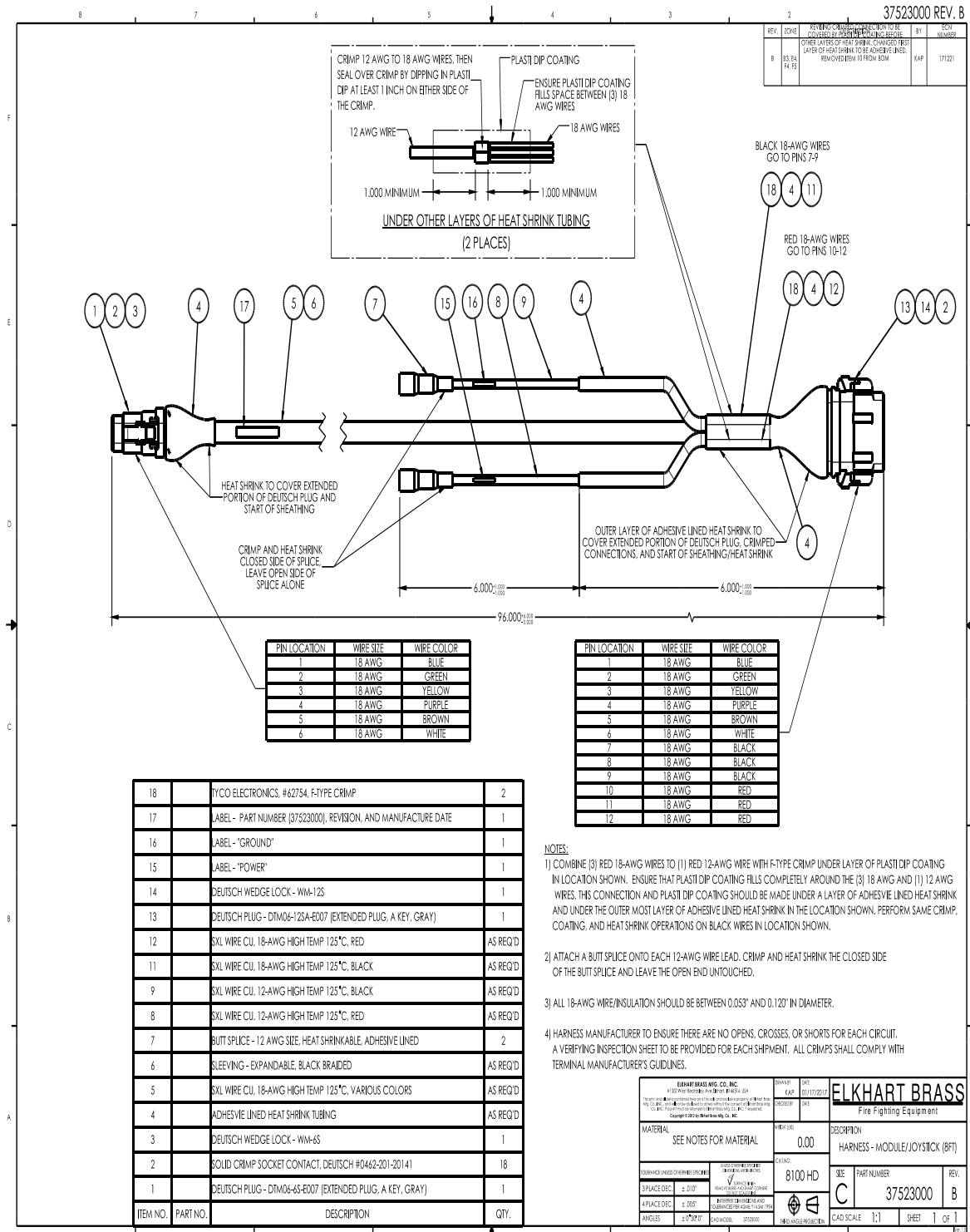








## II. Nitro Monitor Wiring Diagram



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# ABOUT HOLT MANUFACTURING

The Holt name has been associated with a heritage of innovation for more than 100 years. HOLT Manufacturing owners Peter J. Holt and Corinna Holt Richter are direct descendants of Benjamin Holt, who revolutionized farming in the late 1800s with the Holt Combined Harvester and then in 1904 developed the first successful track-type tractor, which he named the "Caterpillar."

Within HOLT Manufacturing and the family of Holt companies, innovation has meant everything from the original Caterpillar track-type tractor to today's Spray King® Water Tanks, engine and generator packaging, root plows, custom attachments, and special application machines. HOLT Manufacturing's values date all the way back to the incredible work ethic of Benjamin Holt. Centered around a belief in unmatched customer service, Holt instilled many of the values that still live within HOLT Manufacturing to this day. Holt developed "link belt" combined harvesters in the late 1880's. By the turn of the century, Holt Manufacturing was the largest combine manufacturer in America and was exporting to countries around the world.

Finding that heavy farm equipment bogged down in the loose soil of the San Joaquin River Delta in California, Holt put his inventive mind to work again. In 1904, Holt Manufacturing introduced the first successful track-type tractor, which they named the "Caterpillar." Its continued success was assured once Holt found a way to power it with a gasoline engine in 1908. In 1925, Holt Manufacturing Company merged with one of its longtime competitors to form Caterpillar Tractor Company. Today, Caterpillar, Inc., is the world's largest manufacturer of construction equipment.

In 1933, Ben's second son William K. "Bill" Holt established the William K. Holt Machinery Co. in San Antonio, Texas, as a Caterpillar equipment dealership. Seeing the need for specialized land-clearing equipment, Bill Holt encouraged the development of the Holt root plow during the 1940's. In quick succession he developed other brush management implements and today HOLT land-clearing equipment is sold all over the world, a tribute to the second generation of Holt ingenuity.

Over the years, this custom design and manufacturing has included specialized tools, modifications to existing products, and development of unique products for unique customer applications. Today, the original William K. Holt Machinery company is known as HOLT CAT, the largest Caterpillar equipment dealership in the United States. HOLT CAT sells, rents and services Caterpillar machines, engines and generator sets in a 118-county territory in Texas. Five other companies, including HOLT Manufacturing, make up the Holt Companies, a name synonymous with quality, integrity, and commitment to customer service.

The HOLT Manufacturing company name lives on through Benjamin Holt's direct descendants and a team who believe in his original values and vision. The innovation that started with linked belts and self-laying tracks also continues through modern technology and advances.