FRONTLINE® international

INSTALLATION AND PRODUCT MANUAL

Waste Oil Pump Station Installation Instructions

Version 2.0 / 9.25

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1. INTRODUCTION

1.1 About this Manual

This manual contains the following information about Frontline Internationals Containment Tank, Waste Oil Pump Station (WOPS) and Remote Fill Station integrated with the Remote Pump Switch.

- Installation
- Troubleshooting
- Technical Specifications

1.2 About Frontline International, Inc.

- Through a dedication to the development, manufacture, and delivery of quality cooking oil management systems, Frontline International, Inc. remains a leading global source for equipment solutions that safely and efficiently dispense, contain, monitor, extract, transport, or filter cooking oil for immediate on-premise recycling and use.
- A stakeholder focused organization, our sustainability relies on initiatives that benefit associates, customers and community – from responsible manufacturing techniques to conservation of resources and performance metrics.
- With our valued network of service and installation experts our branded and custom products enhance productivity, improve operations and save costs for professionals within foodservice, hospitality, and other markets around the world, every day.

2. GETTING STARTED

This section will outline the general guidelines, tools and materials needed for installation.

2.1 Installation Guidelines

- Installer must read and understand these directions in its entirety before beginning the system installation.
- All work must be executed by qualified personnel.
- Failure to understand and follow these directions may result in injuries to the installer, bystanders, end user and/or equipment.
- Use caution to avoid hidden wires and pipes when penetrating any wall.
- Use only the proper equipment for the task being performed.
- Verify installation and ensure installation area(s) are free of any construction debris.
- The installer should confirm with the restaurant manager/owner the location for the equipment.
- Consider the relationship of the equipment to the fryer when selecting its location.
- Pipe thread sealant must be applied on all exposed threads.
- Ideally the unit should be placed within 9ft of an electrical outlet. A new receptacle will need to be installed if not achievable.

2.2 Plumbing Specifications

2.2.1 Pipe Specifications

The following pipe materials can be used to plumb the WOPS or Remote Fill Station to the Containment Tank:

- Galvanized Steel

2.2.2 Pipe Sizing

Pipe sizing is determined by the length of plumbing needed to connect the WOPS to the waste oil containment tank. Reference the below to select the proper pipe size:

- Up to 70′ – 3/4″
- 70′ to 100′ – 1″
- 100′ to 125′ – 1 1/4″

Note: The maximum vertical rise from the pump is 10′ and must be 3/4″.

2.3 Installation Tools and Materials

2.3.1 Tools

- Electric Drill
- 3/8″ or 1/2″ Pilot Bit
- Hammer Drill
- 3/8″ or 1/2″ Masonry Pilot Bit
- 3/16″ Masonry Pilot Bit
- 3/4″ Masonry Core Bit
- 18″ and 24″ Pipe Wrench
- 9/16″ Socket/Ratchet and Wrench
- Flat Blade Screwdriver or 5/16″ Nut Driver

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- Caulking Gun
- 50′ & 100′ Extension Cord
- 24″ Level
- Permanent Marker
- 4′ or 6′ Ladder
- Paper Towels or Rags

2.3.2 Materials

- 3/4″ Escutcheon
- 3/4″ Stand Offs
- Insulating Foam
- WOPS Mounting Plate Fasteners
  - Stud Wall – (4) 5/16″ x 1″ Lag Screw
  - Hollow Wall – (4) 1/4″ x 20 toggle anchors
  - Concrete Wall – (4) 1/4″ x 1 1/4″ concrete anchors
- Pipe Straps
- Pipe Hangers
- Washers
- Pipe Thread Sealant
- Silicone Caulk

3. MECHANICAL INSTALLATION

This section will cover the mechanical installation steps to be taken to mount the Waste Oil Pump Station

3.1 Placing the Waste Oil Containment Tank

Waste Oil Pump Station (WOPS) and Remote Fill Station integrated with the Remote Pump Switch.

A. Verify the location of the Containment tank with the restaurant manager/owner, ideally with a power source nearby and close to where plumbing will penetrate through the wall.

B. Orient the tank so that either one of the flat faces of the tank enclosure is flush with the wall, if possible.

3.2 Mounting the Waste Oil Pump Station

A. Verify the WOPS location with the restaurant manager/owner. Consider both the minimum clearances for the mounting plate (see illustration on next page) and availability of an electrical outlet. A new electrical outlet will need to be installed if not located within 9 ft.

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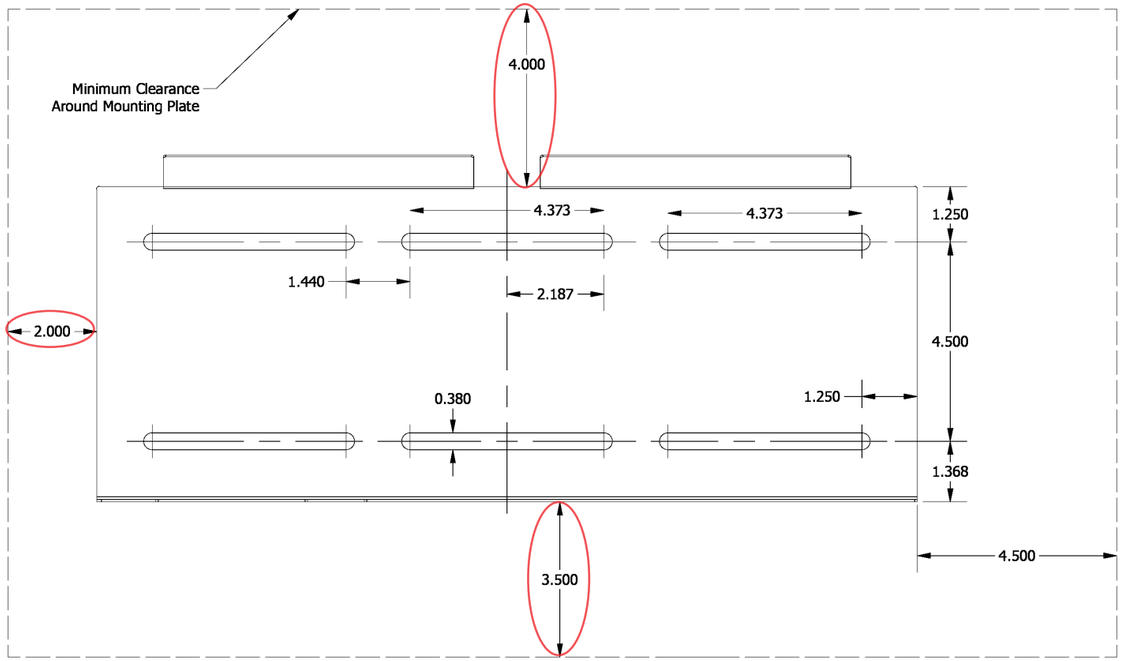

Fig. 1

B. Place the WOPS Mounting Plate level on the wall. Trace around the slots of the mounting plate with a pencil to use as a guide for pilot holes.
C. Depending on the wall construction, the WOPS mounting plate can be secured with lag bolts, toggle anchors or concrete anchors. Below outlines the application for each fastener. A combination of fasteners can be used if necessary.
    a. 5/16" Lag Bolt – Used on typical drywall or similar material where a stud is present.
    b. 1/4" Toggle Anchor – Used on typical drywall or similar material where a stud is not present.
    c. 1/4" Concrete Anchor – Used on concrete/masonry wall
D. Drill four pilot holes within the traced markers (two on top set, two on bottom set). Pilot holes sharing the same horizontal axis must be at least 14" apart from each other (see figure 1 above).
    a. If studs are present behind a wall, use a 3/16" drill bit for the lag screws.
    b. If the wall is hollow, use a 1/2" drill bit for the toggle anchors.
    c. If the wall is concrete, use a 3/16" masonry drill bit for the anchors.
E. Hold the plate against the wall and fasten screws.
    a. For lag bolts, use a 5/16" socket to tighten. Maximum torque is 5 lb-ft.
    b. For toggle anchors, insert the 1/4" machine screw through a washer and use a Phillips head bit to tighten. Maximum torque is 5 lb-ft.
    c. For concrete anchors, use 1/4" socket to tighten. Maximum torque is 5 lb-ft.

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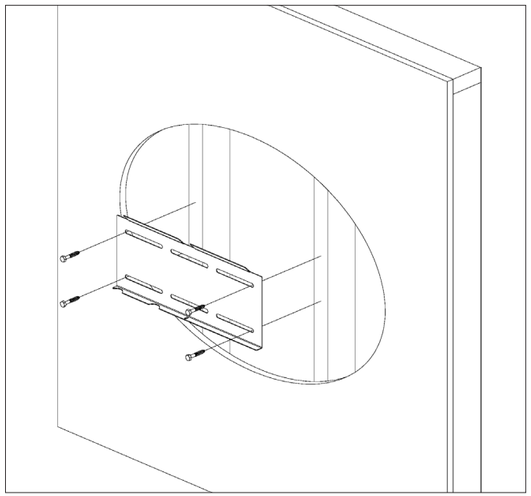

Fig. 2

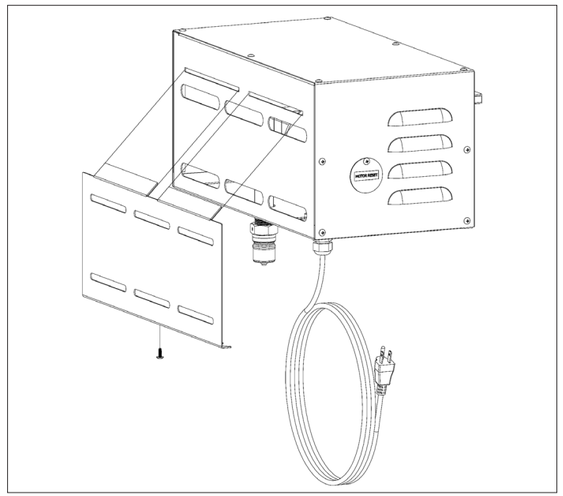

Fig. 3

F. Hang the WOPS unit on the mounting plate. The flanges of the mounting plate should insert through the slots on the back of the WOPS unit. Once the mounting plate has received the WOPS unit, secure the mounting plate to the pump station with the bottom locking screw (see figure 2 above).

3.3 Mounting the Remote Pump Switch (if applicable)

A. Verify the location of the Remote Pump Switch with the restaurant manager/owner. As mentioned in section 3.1, ideally a power source is nearby. Additionally, the switch should be installed 36" – 54" from the ground so the unit can easily be accessed.
B. Place the Remote Pump Switch on the desired location. Ensure the unit is level and trace the three mounting holes of the enclosure with a pencil (two outer holes on top, one center hole on bottom).
C. Depending on the wall construction, drill a pilot hole for the screw or anchor being used and secure the Remote Pump Switch to the wall.

3.4 Plumbing WOPS to Containment Tank

Several approaches can be taken when plumbing the WOPS to a containment tank given unit location, restaurant construction, existing mechanicals, etc. The below steps outline a typical system with a dropped ceiling.

A. Begin the plumbing line running towards the wall with the 3/4" close nipple, 3/4" elbow, 3/4" x 5.5" nipple, 3/4" T and 3/4" plug.
B. Run the necessary length of 3/4" pipe from the Tee through the ceiling. Place a 3/4" Tee with one end plugged on the pipe.
C. Install a pipe strap halfway through the vertical plumbing line.

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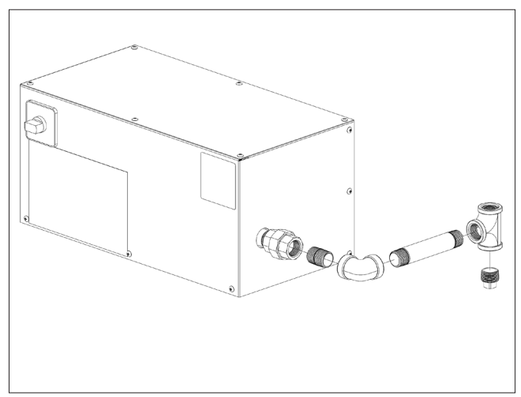


Fig. 3

D. Continue the run horizontally toward the containment tank. Slope the horizontal run towards the containment tank by 1/8″ per 12′ of piping. For installations greater than 70′, increase the pipe size at the beginning of the horizontal run.

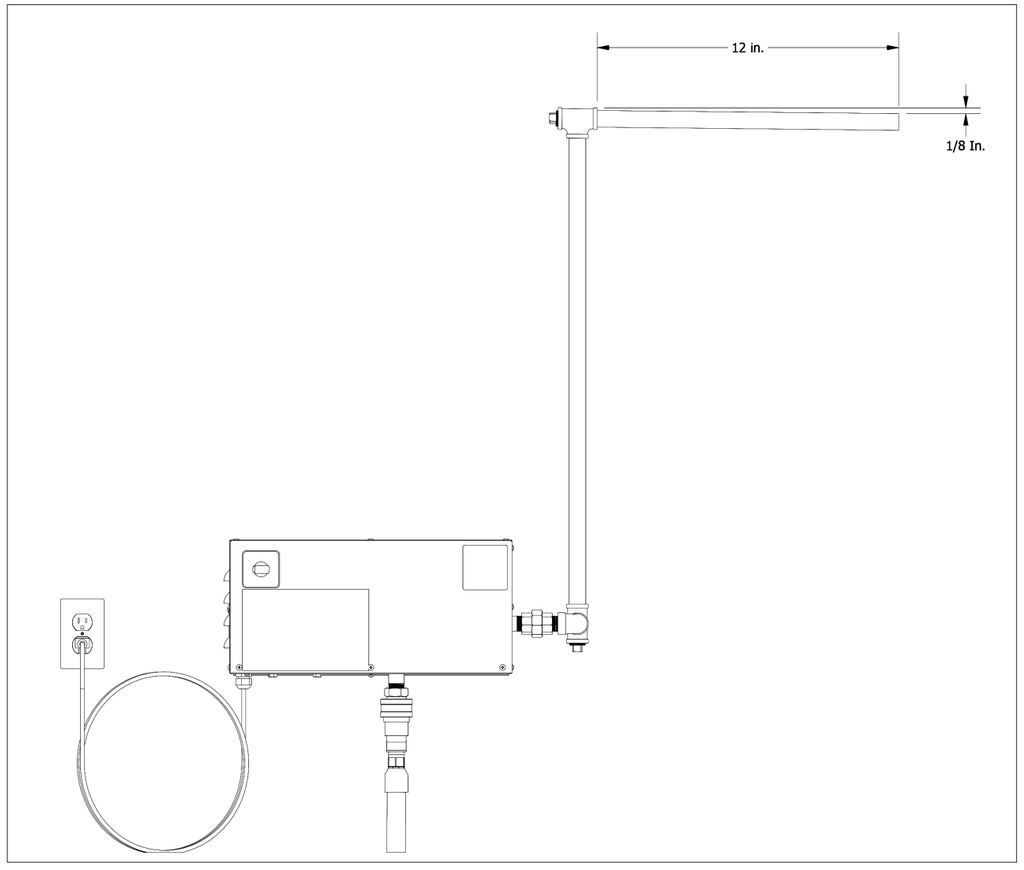


Fig. 4

E. Install pipe hangers for the horizontal plumbing line every 12′.
F. Drill a 3/4″ hole through the wall to allow the pipe to run outside towards the containment tank.
G. Continue running the plumbing line outside and connect to the 3/4″ union fitted on the containment tank.
H. Fill the 3/4″ hole with insulating foam and install a 3/4″ escutcheon around the outside pipe.
I. Install a pipe strap half way through the vertical plumbing line.

4. INSTALLATION VERIFICATION & TROUBLESHOOTING

4.1 Installation Verification

Complete this verification checklist after installation to ensure safe and proper operation:

Item	Pass (Y/N)
All fasteners secure and tight.	
All electrical connections secure and tight.	
Unit can be powered on and motor runs.	
No leaks in plumbing line. (If possible, ask restaurant to discard a small amount of oil).	

4.2 Troubleshooting

Review this table to troubleshoot any abnormalities with the system:

Problem	Probable Cause	Corrective Action
WOPS will not run.	Switch on the unit is not turned on.	Turn the WOPS switch on.
	WOPS motor reset switch has tripped.	Slide motor reset cover and press the button.
	Contactors on start/ stop button wired incorrectly.	Verify wiring against diagrams in Appendix B.
WOPS motor runs but oil will not pump.	Disconnect fittings are not properly connected.	Ensure male and female disconnect fittings are properly connected
	Hose may be plugged with grease.	Run hose under hot water to liquefy any greast that may be clogging the hose.
	Plumbing may be plugged with grease.	Plumbing needs to be inspected for clogs. Remove the plug on one of the Tee fittings and apply compressed air to clear the clog.
	Tank is reading full.	Verify tank level and dispose of oil. Verify wiring against diagrams in Appendix B.

APPENDIX A: WASTE OIL PUMP STATION DRAWINGS

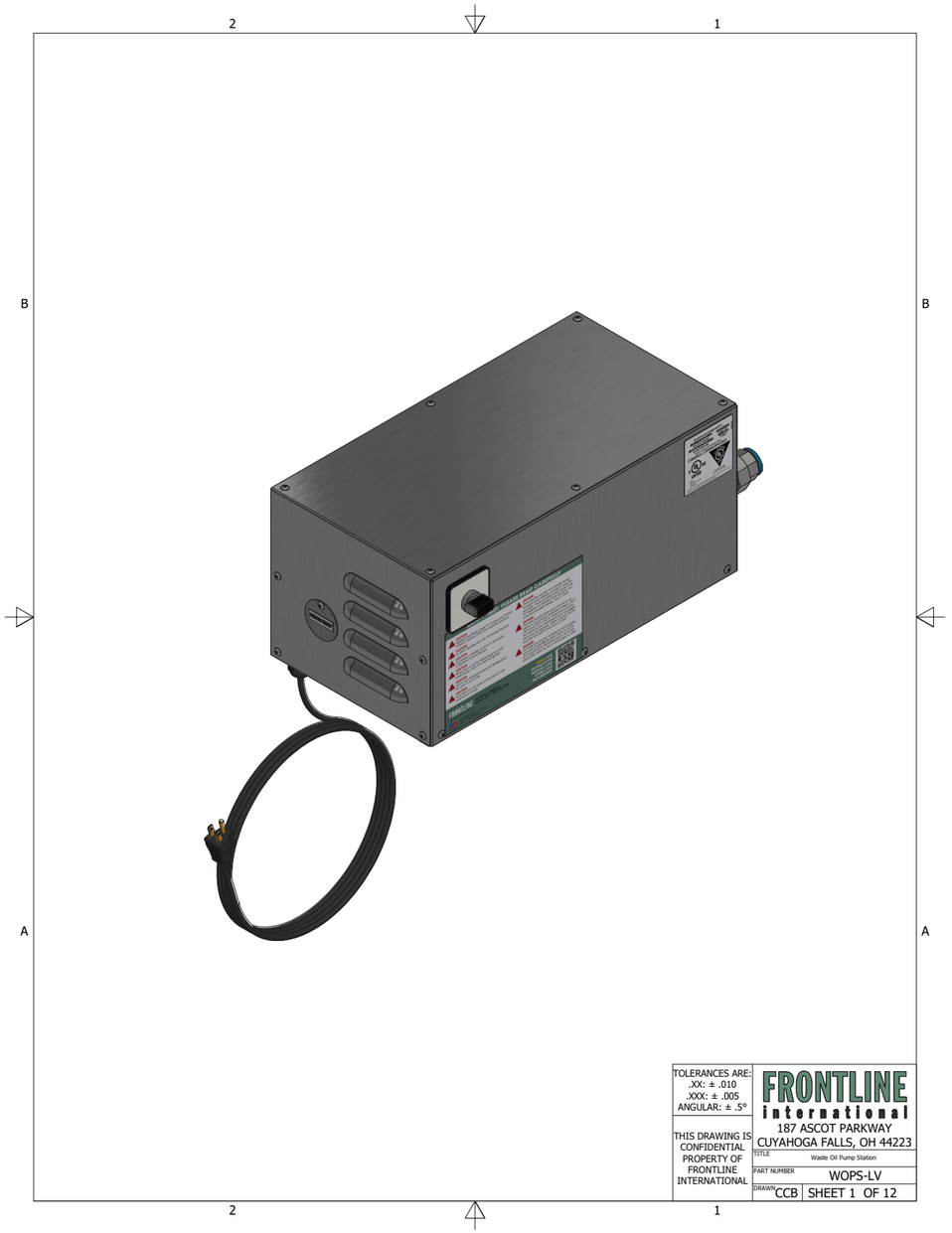


Fig. 5

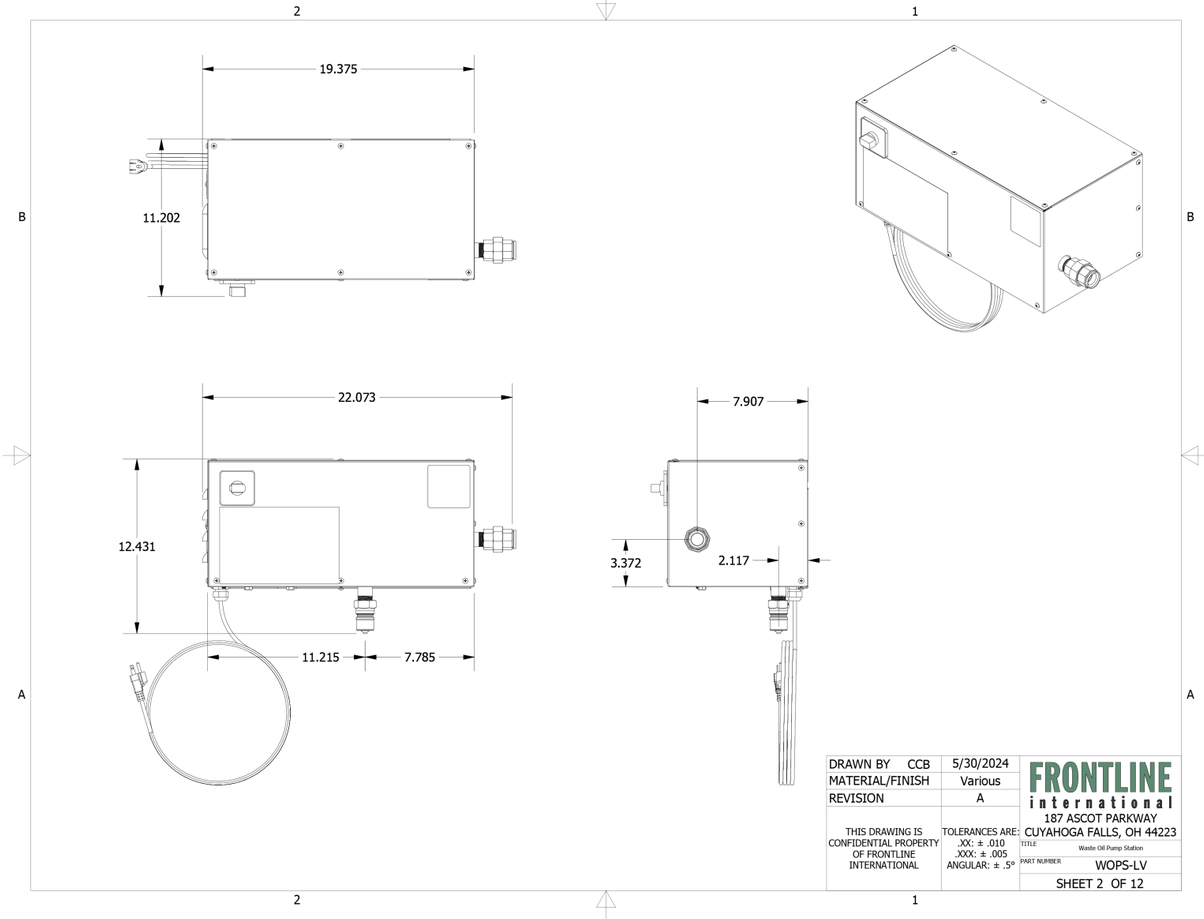
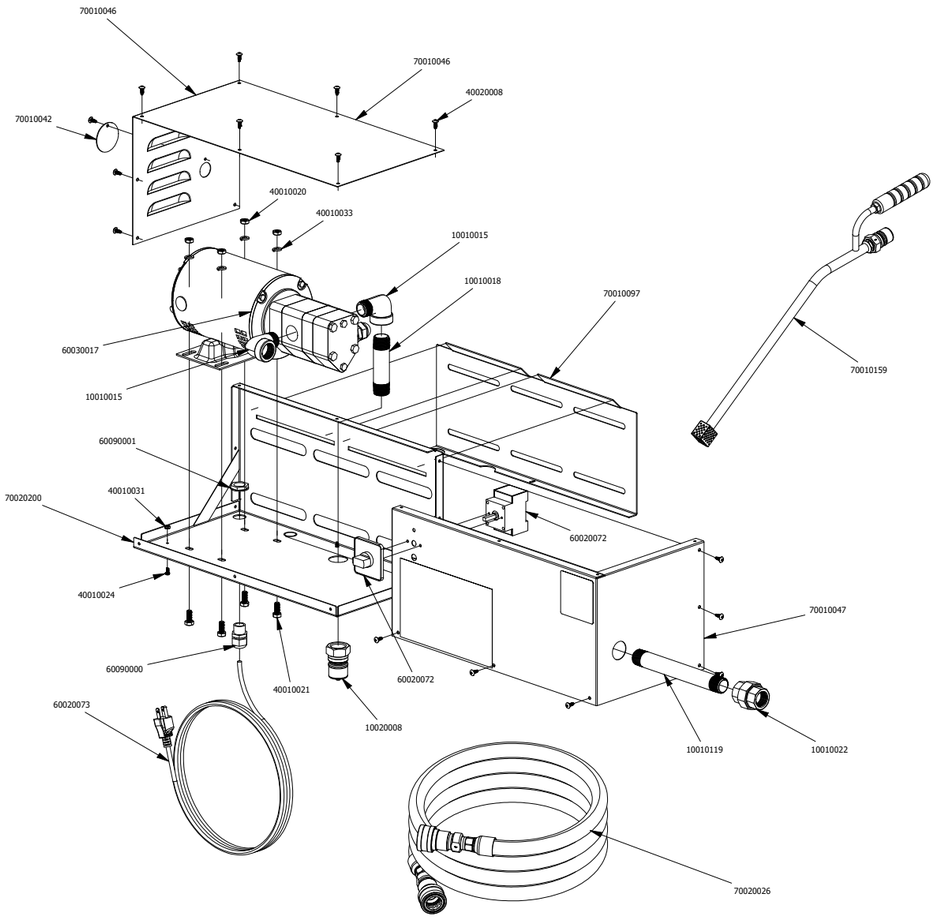


Fig. 6

WOPS-LV
Parts View



Part Number	Description	Qty	Part Number	Description	Qty
10010015	3/4" Galv. 90 deg. Street Elbow	2	60020072	Front Mount On/Off Switch, Includes Knob and Legend	1
10010018	3/4" X 4" Galv. Nipple	1	60030017	1/3 HP Viking Motor w/Pump (SG-0519)	1
10010022	3/4" Galvanized Union	1	60090000	1/2" NPT Domed Cord Strain Relief	1
10010119	3/4" x 8" Galv. Nipple	1	60090001	1/2" NPT Nut	1
10010174	3/4" Plastic Plug	1	70010042	Motor Reset Cover	1
10020008	3/4" Quick Disconnect Fitting, Nipple, Food Grade	1	70010046	WOPS Upper Skin	1
40010020	5/16"-18 Hex Nut	4	70010047	WOPS Front Skin	1
40010021	5/16"-18 x 3/4" Unslotted Hex Screw	4	70020200	Formed & Welded WOPS Base	1
40010024	6-32 x 3/8" Panhead Screw	1	70010097	Mounting Plate for WOPS	1
40010031	6-32 Hex Keps Nut	1	70020025	WOPS Wand	1
40010033	5/16" Medium Split Lockwasher	4	70020026	15' WOPS Hose Complete Assembly	1
40020008	10-24 x 1/2" Truss Head Screw	18	60020073	10' NEMA 5-15P Power Cord	1

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TITLE	WOPS-LV Parts View
PART NUMBER	WOPS-LV
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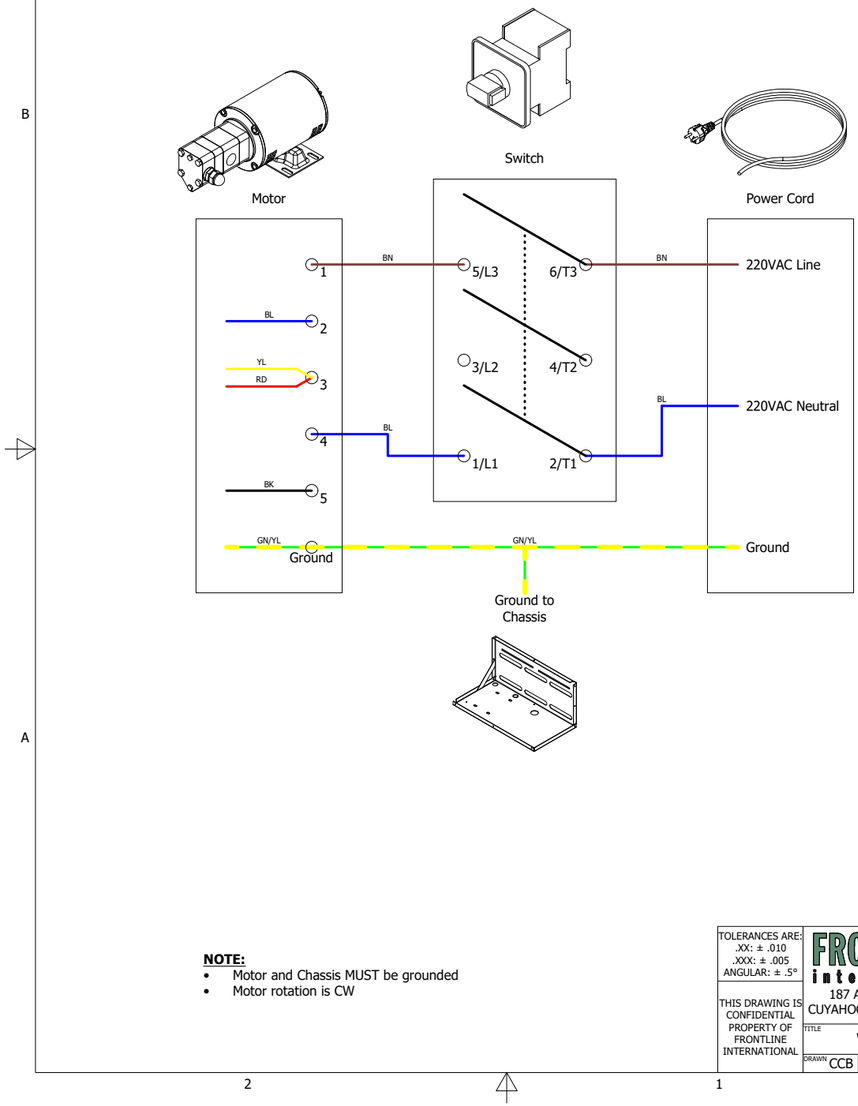
Fig. 7

WOPS-HV
Electrical Diagram



NOTE:
- Motor and Chassis MUST be grounded
- Motor rotation is CW

TOLERANCES ARE:
.XX: ± .010
.XXX: ± .005
ANGULAR: ± .5°

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TITLE	Wiring Diagram
DRAWN	CCB
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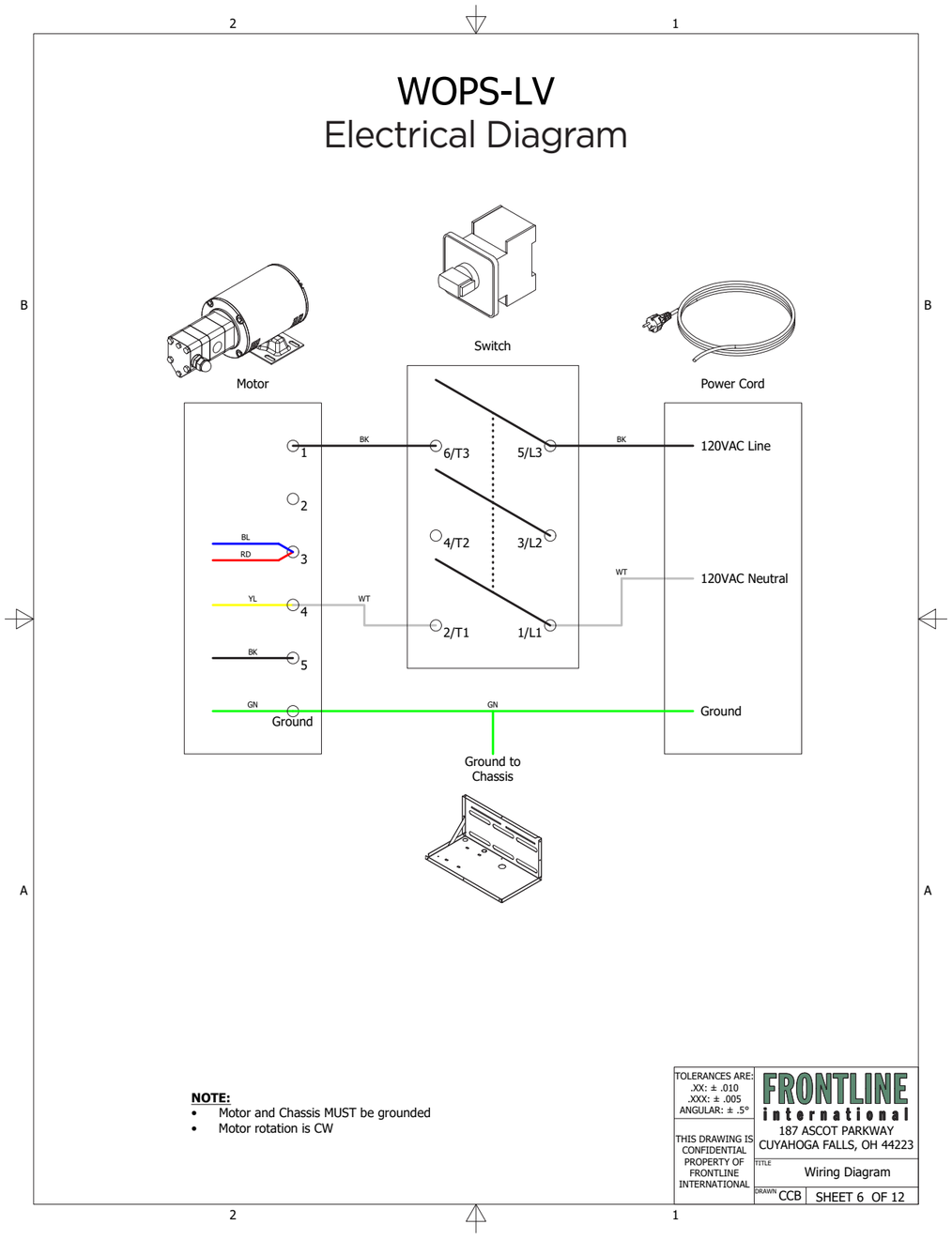
Fig. 8


WOPS-LV
Electrical Diagram
Motor
Switch
Power Cord
BK
BL
RD
YL
WT
GN
BK
GN
1
2
3
4
5
6/T3
5/L3
4/T2
3/L2
2/T1
1/L1
120VAC Line
120VAC Neutral
Ground
Ground
Ground to Chassis
NOTE:
Motor and Chassis MUST be grounded
Motor rotation is CW
TOLERANCES ARE:
.XX: ± .010
.XXX: ± .005
ANGULAR: ± .5°
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SHEET 6 OF 12

Fig. 9

NOTES

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