TECHNICAL MANUAL

Installation, Operation and Maintenance Instructions

LIEUTENANT SERIES

LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE DISHWASHER

LT-40S

LT-40H

Insinger Machine Company
6245 State Road
Philadelphia, PA 19135-2996

800-344-4802
Fax 215-624-6966
www.insingermachine.com

Insinger®

Thank you for purchasing a quality Insinger product.

In the space provided below please record the model, serial number and start-up date of this unit:

Model:_____

Serial Number:_____

Start-Up Date:_____

When referring to this equipment please have this information available.

Each piece of equipment at Insinger is carefully tested before shipment for proper operation. If the need for service should arise please contact your local Authorized Insinger Service Company.

To find your local authorized Service Company please visit our web site, www.insingermachine.com or call Insinger at 800-344-4802.

Please read the Insinger Limited Warranty and all installation and operation instructions carefully before attempting to install or operate your new Insinger product.

To register your machine for warranty, or for answers to question concerning installation, operation, or service contact our Technical Service Department.

TECHNICAL SERVICE CONTACTS	
Toll-Free	800-344-4802
Fax	215-624-6966
e-mail	service@insingermachine.com
Web site	www.insingermachine.com

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Insinger

Project _____ CSI - 11400 _____
Item _____ Approval _____
Quantity _____ Date _____

LIEUTENANT SERIES

LT-40S

Low Temperature Chemical Sanitizing Door Type Dishwasher

- Automatic door type, single tank dishwasher with timed detergent, sanitizer, and rinse cycle
- 1.02 gallon/rack
- Capacity is forty (Qty. 40) 20" x 20" racks per hour or six hundred and forty (Qty. 640) dishes per hour
- Ideal for cafés, bakeries, schools, churches, commissaries, bars, prep kitchens, diners, limited service hotels, and small restaurants

STANDARD FEATURES

- Type 304 stainless steel construction is chemical resistant and easy to clean with damp rags or approved cleaning tools
- 0.75 HP 3500 RPM Pump Motor
- Top-mounted NEMA 12 control panel
- Control box mounted drain button- operator does not come in contact with water
- Control box mounted fill button for initial fill
- Keyed lock to limit access to top-mounted control panel
- Rack-O-Matic cycle counter—Insinger's dishwashing odometer—to track total number of dishwashing cycles
- Toggle-style Delime/Normal cycle selector switch conveniently located on rear side of control panel
- Single point electrical connection: motor, controls (115V or 230V)
- Lines to chemical dispensing pump conveniently located on front of machine for inspection/cleaning/service
- Non-proprietary commercially available pump motor and components
- Electro-mechanical timer
- LED indicator lights
- Door safety switch
- Easy-glide door
- Oversized stainless steel food waste accumulator with self-seating pan and drain connection
- Laser cut stainless steel dish rack support with reinforced weld studs
- Stainless steel frame, legs and feet
- Adjustable bullet style feet for leveling dishwasher
- Stainless steel front panel
- Quick release panels for easy access to vital components
- Ergonomic stainless steel door handles
- Internal sump system
- Contoured dishwasher tank naturally diverts water to sump
- Pneumatic fasteners for sturdy frame construction
- Analog temperature gauge for durability
- Adjustable fill cam timer to set in field based on incoming water pressure
- Rocker-style push buttons for priming chemical dispensing pumps
- Easy front access to chemical dispensing pumps
- Stainless steel single-piece wash arm with ball bearings and threaded hub
- Machine air gap for extreme durability and back flow prevention
- Food-grade gaskets and seals are chemical resistant
- Manifold clean-out brush

OPTIONS

☐ Plastic 20" x 20" racks (plate or silver)
☐ False Interior Panel Kit for corner installation (available at time of purchase or after)

LT-40S

AUTOQUOTES

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LT-40S
Low Temperature Chemical Sanitizing Door Type Dishwasher

Capacity Per Hour	40 racks 640 dishes
Tank Capacity	1.02 gallons (40.8 GPH)
Motor Size	0.75 hp (wash)
Electrical Usage	115V or 230V
Chemical Sanitizing	
Water Temperature (°F/°C)	
MInimum Wash Temperature	120/49
Minimum Rinse Temperature	120/49
Incoming Water Temperature	120/49
Other Water Requirements	
Water Flow Pressure (PSI)	15
Flow Rate Minimum	1.02
Water Line Size	1/2"
Drain Line Size	2.0"
Minimum Chlorine Required (PPM)	50
Shipping Weight	300 lbs.
Current Draw Amps	
115/1/60	
230/1/60	

SPECIFICATIONS

CONSTRUCTION- Hood and tank constructed of 16 gauge type 304 S/S. Hood unit of all welded seamless construction. S/S frame, legs and feet.

DOORS- Three (both sides and front) simultaneously opening doors. Operating doors have fingertip control, balanced by externally mounted springs. All doors have easy-glide strips. Corner installations can utilize optional false panel kit that is mounted inside the wash chamber.

PUMP- One 0.75 HP pump motor mounted to sump and tank on angle to allow back flow into sump.

CONTROLS- Top mounted control cabinet, housing motor controls, chemical pumps, CAM timer, and other dishwasher integral controls. Adjustable CAM timer to control drain time, water volume and chemical volumes. Keyed lock to limit access to controls.

SPRAY SYSTEM- One upper and one lower spray arm made of stainless steel. Spray arm is designed with 7 slots which are precision milled for water control and produce a fan spray. Upper and lower spray arm assemblies are easily removable for cleaning.

DRAIN- Drain valve internally controlled by a solenoid. Tank can be drained at end of shift using a button on control box. Overflow tube is removable without the use of tools for drain line inspection and to manually drain tank.

Note: Due to product improvement we reserve the right to change information and specifications without notice.

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Project _____ CSI-11400 _____
Item _____ Approval _____
Quantity _____ Date _____

LIEUTENANT SERIES

LT-40H

Low Temperature Chemical Sanitizing Extra High Door Type Dishwasher

- Automatic extra-high, door type, single tank dishwasher with timed detergent, sanitizer, and rinse cycle
- 1.62 gallon/rack
- Capacity is forty (Qty. 40) 20" x 20" racks per hour or six hundred and forty (Qty. 640) dishes per hour
- Handles mixer agitators, 18" x 26" sheet pans, large utensils & mixing bowls up to 60 quarts
- Ideal for cafés, bakeries, schools, churches, commissaries, bars, prep kitchens, diners, limited service hotels, and small restaurants

STANDARD FEATURES

- Type 304 stainless steel construction is chemical resistant and easy to clean with damp rags or approved cleaning tools
- 1 HP 3500 RPM Pump Motor
- Top-mounted NEMA 12 control panel
- Control box mounted drain button- operator does not come in contact with water
- Control box mounted fill button for initial fill
- Keyed lock to limit access to top-mounted control panel
- Rack-O-Meter cycle counter—Insinger's dishwashing odometer—to track total number of dishwashing cycles
- Toggle-style Delime/Normal cycle selector switch conveniently located on rear side of control panel
- Single point electrical connection: motor, controls (115V or 230V)
- Lines to chemical dispensing pump conveniently located on front of machine for inspection/cleaning/service
- Non-proprietary commercially available pump and components
- Electro-mechanical timer
- LED indicator lights
- Door safety switch
- Easy-glide door
- Oversized stainless steel food waste accumulator with self-seating pan and drain connection
- Laser cut stainless steel dish rack support with reinforced weld studs
- Stainless steel frame, legs and feet
- Adjustable bullet style feet for leveling dishwasher
- Stainless steel front panel
- Quick release panels for easy access to vital components
- Ergonomic stainless steel door handles
- Internal sump system
- Contoured dishwasher tank naturally diverts water to sump
- Pneumatic fasteners for sturdy frame construction
- Analog temperature gauge for durability
- Adjustable fill cam timer to set in field based on incoming water pressure
- Rocker-style push buttons for priming chemical dispensing pumps
- Easy front access to chemical dispensing pumps
- Stainless steel single-piece wash arm with ball bearings and threaded hub
- Machine air gap for extreme durability and back flow prevention
- Food-grade gaskets and seals are chemical resistant
- Manifold clean-out brush

OPTIONS

☐ Plastic 20" x 20" racks (plate or silver)
☐ False Interior Panel Kit for corner installation (available at time of purchase or after)

LT-40H

AUTOQUOTES

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Insinger

LT-40H

Low Temperature Chemical Sanitizing Extra High Door Type Dishwasher

Capacity Per Hour	40 racks 640 dishes
Tank Capacity	1.62 gallons (64.8 GPH)
Motor Size	1 HP (wash)
Electrical Usage	115V or 230V
Chemical Sanitizing	
Water Temperature (°F/°C)	
MInimum Wash Temperature	120/49
Minimum Rinse Temperature	120/49
Incoming Water Temperature	120/49
Other Water Requirements	
Water Flow Pressure (PSI)	15
Flow Rate Minimum	1.62
Water Line Size	1/2"
Drain Line Size	2.0"
Minimum Chlorine Required (PPM)	50
Shipping Weight	350 lbs.
Current Draw Amps	
115/1/60	
230/1/60	

SPECIFICATIONS

CONSTRUCTION- Hood and tank constructed of 16 gauge type 304 S/S. Hood unit of all welded seamless construction. S/S frame, legs and feet.

DOORS- Three (both sides and front) simultaneously opening doors. Operating doors have fingertip control, balanced by externally mounted springs. All doors have easy-glide strips. Corner installations can utilize optional false panel kit that is mounted inside the wash chamber.

PUMP- One 1 HP pump motor mounted to sump and tank on angle to allow back flow into sump.

CONTROLS- Top mounted control cabinet, housing motor controls, chemical pumps, CAM timer, and other dishwasher integral controls. Adjustable CAM timer to control drain time, water volume and chemical volumes. Keyed lock to limit access to controls.

SPRAY SYSTEM- One upper and one lower spray arm made of stainless steel. Spray arm is designed with 7 slots which are precision milled for water control and produce a fan spray. Upper and lower spray arm assemblies are easily removable for cleaning.

DRAIN- Drain valve internally controlled by a solenoid. Tank can be drained at end of shift using a button on control box. Overflow tube is removable without the use of tools for drain line inspection and to manually drain tank.

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2_2018

LT-40 LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE SERIES

INTRODUCTION

This manual contains all pertinent information to assist in the proper installation, operation, cleaning, maintenance, and parts ordering for the LT-40S and LT-40H.

The installation instructions are intended for qualified equipment installers.

The operation and cleaning instructions are intended for the daily users of the equipment.

The maintenance and drawing sections are intended for qualified service and/or maintenance technicians.

Replacement parts may be ordered directly from our factory or from your local Authorized Insinger Service Company.

DEFINITIONS

Throughout this guide you will find the following terms: **WARNING, CAUTION, & NOTE**.

WARNING indicates potential physical danger.

CAUTION indicates potential equipment damage.

NOTE indicates helpful operating hints or tips.

You will visually be able to identify each as shown below:

WARNING:
Indicates potential physical danger.

CAUTION:

Indicates potential equipment damage.

NOTE:
Indicates helpful operating hints or tips.

SAFETY SUMMARY

The following are general safety precautions that are not related to any specific procedures. These are recommended precautions that personnel must understand and apply during many phases of operation and maintenance.

Keep Away From Live Circuits

Operating personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the power supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position. To avoid casualties and injuries, always remove power, red tag and lockout machine, and ground a circuit before touching it.

Do Not Service or Adjust Alone

Under no circumstances should any person reach into or enter the enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

Resuscitation

Personnel working with or near high voltages should be familiar with modern methods of resuscitation. Such information may be obtained from the Bureau of Medicine and Surgery.

INSINGER MACHINE COMPANY LIMITED WARRANTY

Insinger Machine Company, Inc. (Insinger) hereby warrants to the original retail purchaser of this Insinger Machine Company, Inc. product, that if it is assembled and operated in accordance with the printed instructions accompanying it, then for a period of either 15 months from the date of shipment from Insinger or 1 year (12 months) from the date of installation or start-up that said Insinger product shall be free from defects in material and workmanship. Whichever one of the two aforestated limited warranty time periods is the shortest shall be the applicable limited warranty coverage time period.

Insinger may require reasonable proof of your date of purchase; therefore, you should retain your copy of invoice or shipping document.

This limited warranty shall be limited to the repair or replacement of parts which prove defective under normal use and service and which on examination shall indicate, to Insinger's satisfaction, they are defective. Any part that is claimed to be defective and covered by this limited warranty must be returned to Insinger. An RMA# must be obtained from the Insinger Warranty Department before returning any material. Return may be done through an Authorized Service Agency. Furnish serial number of machine and RMA # with shipment and send to:

Insinger Machine Company
6245 State Road
Philadelphia, PA 19135-2996

If Insinger's inspection confirms the defect and the claim, Insinger will repair or replace such part without charge and return it to you freight or postage prepaid.

This limited warranty does not cover any failure or accident, abuse, misuse, alteration, misapplication, improper installation, fire, flood, acts of God or improper maintenance or service, or failure to perform normal and routine maintenance as set out in the instruction booklet (operating instructions) or for improper operation or failure to follow normal operating instructions (as set out in the instruction booklet). Insinger is not responsible nor liable for any conditions of erosion or corrosion caused by corrosive detergents, acids, lye or other chemicals used in the washing and or cleaning process.

Service must be done by either Insinger Appointed Service Agencies or agencies receiving prior authorization from Insinger.

All warranty work must be done during normal working hours, unless purchaser receives prior authorization from Insinger.

There are no other express warrants except as set forth herein and any applicable implied warranties of merchantability and fitness are limited in duration to the period of coverage of this express written limited warranty. This limited warranty supersedes all other express warranties, implied warranties of merchant-ability and fitness or limited warranties as of this date, January 1, 1998. Some states do not allow limitation on how long an implied warranty lasts so this limitation may not apply to you.

Insinger is not liable for any special, indirect or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so this limitation nor exclusion may not apply to you.

Insinger does not authorize any person or company to assume for it any other obligation or liability in connection with the sale, installation, use, removal, return or replacement of its equipment: and no such representations are binding on Insinger.

LT-40 LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE SERIES

INSTALLATION INSTRUCTIONS

These installation instructions are intended for qualified equipment installers.

Placement

Carefully uncrate the machine. Take caution not to damage components which may be mounted on the top or sides of the machine.

Set the unit in place and adjust the feet to level the machine.

Tabling

Load and unload tables should be pitched towards the machine to return excess water into the machine.

Fasten the tables to the load and unload side of the machine. Most installations require fastening the turn-down lip of the dish tables to the side of the machine with flathead countersunk screws. The table design should provide horizontal clearance of 30" for servicing.

Electrical Connections

Connect electrical lines sized for the correct voltage, current and phase of the machine. These should agree with the machine requirements indicated on the nameplate and labels on the control panel.

A single-point electrical connection is provided for the pumps, and control circuit. A laminated wiring diagram is inside the control panel.

CAUTION:

Connections must be made to a circuit breaker or fused disconnect as provided by the end-user and required by local codes.

LT-40S ELECTRICAL CHARACTERISTICS		
VOLTS	**115**	**230**
PHASE	1	1
FREQUENCY	60	60
WASH MOTOR AMPS	13A	7A
TOTAL LOAD	13A	7A

LT-40H ELECTRICAL CHARACTERISTICS		
VOLTS	**115**	**230**
PHASE	1	1
FREQUENCY	60	60
WASH MOTOR AMPS	13A	7A
TOTAL LOAD	13A	7A

Mechanical Connections

All lines must be flushed prior to use to remove debris.

Connect water line for tank fill as tagged and noted on the installation drawings.

Connect the drain line. Drain lines must be as specified on installation drawings.

Drain line should be properly vented and should have a fall of not less than 1/4" to the foot of proper flow.

CAUTION:

Some area plumbing codes require drains to flow into an open gap with an opening twice the diameter of the pipe. Check with your local plumbing codes for the type of drain connection required.

CAUTION:

Do not reduce the size of lines as specified in installation drawings. All lines are sized to facilitate necessary flows, pressures, etc.

Chemical Supplies

The LT-40 control box is provided with detergent, rinse aid and sanitizer chemical feeder pumps. Each pump is equipped with a supply tube which has a stiffener tube attached at the end. Place the chemical container such as detergent, rinse aid, and sanitizer in a place where the stiffener tube can appropriate them. Insert each individual supply tube into each chemical container.

Red Supply Tubing = Detergent

Blue Supply Tubing = Rinse Aid

White Supply Tubing = Sanitizer

Pump Priming Instructions

When all the chemical tubes are connected correctly, follow the below procedure to prime the pumps:

1. Close the doors and turn the MAIN POWER switch to the ON position.
2. Press and hold the FILL button to fill the tank with water.
3. The detergent, rinse aid, and sanitizer PRIME switches are located on the control box beneath each pump. To prime each pump, press and hold the PRIME switch until the chemical has entered the sump. This can be verified by opening the doors slightly.
4. Once complete, close the doors and run one empty cycle.
5. At the end of the cycle, press and hold the DRAIN button to empty the tank.
6. Turn the MAIN POWER switch to the OFF position. Open the doors. The machine is now ready to use.

Setting Chemical Volumes

Your chemical supplier will be able to provide you with the appropriate chemicals to meet your needs.

The supplier will also be able to tell you the correct volume of each chemical required per cycle.

The chemical pumps have a flow rate of 1.95 mL per rotation with 22 rpm. You can set the fill volume of the sanitizer, detergent and rinse aid by adjusting the right side of CAMs 5,6, and 7 respectively.

The chlorine concentration in the wash tank must be at least 50 ppm. To verify this, follow these steps:

1. Close the doors and turn the MAIN POWER switch to the ON position.
2. Press and hold the FILL button to fill the tank with water.
3. Open the doors and wait for 10 seconds. Close the doors to start a cycle.
4. At the end of the cycle turn the MAIN POWER switch to the OFF position and open the doors.
5. Using a chlorine titration kit, measure the concentration of chlorine in the tank.
6. If necessary, adjust the right side of CAM 5 to ensure the concentration is at least 50 ppm.

Setting Water Fill Volume

Before washing ware ensure that CAM 4 is set for the correct fill volume:

1. Close the doors and turn the MAIN POWER switch to the ON position.
2. Press and hold the FILL button to fill the tank with water.
3. Open the doors and wait for 10 seconds. Close the doors to start a cycle.
4. At the end of the cycle turn the MAIN POWER switch to the OFF position and open the doors.
5. Verify that the water level is between the two lines on the drain stopper pipe. If not adjust the right side of CAM 4 and run another cycle.

CAM TIMER SETTINGS

CAM 1 is used for the cycle/reset control.

The CAM is NOT adjustable and is activated by the door switch. When machine is on, the CAM will stay idle until the door is open. It will then move to start position. Once the door is closed, the CAM powers the timer motor and the cycle starts.

CAM 2 controls the wash and rinse cycle timing.

The CAM is NOT adjustable and controls the power to the water pump motor. The pump will be energized when the contact is open. The CAM switch will open just after the door is closed, energizing the pump motor for the wash cycle. The CAM switch then drops into the notch, de-energizing the pump motor. After the dwell period, the CAM will energize the pump motor for the rinse cycle.

CAM 3 controls the drain solenoid timing.

The CAM is adjustable and controls the power to the drain solenoid. The drain solenoid is energized and water will be drained when the contact is open. The left side of the CAM is set to activate the drain solenoid just before the water pump is de-energized at the end of the wash cycle. Drain time can be controlled by adjusting the right side of the CAM.

CAM 4 controls the fill solenoid timing.

The CAM is adjustable and controls the power to the fill solenoid. The fill solenoid is energized and allows water to fill when the contact is closed. The CAM may need to be adjusted according to different water pressures to obtain the required water level. The left side of the CAM is set to activate the fill valve just before the drain is de-energized. Water volume can be controlled by adjusting the right side of the CAM.

CAM 5 controls the sanitizer pump timing.

The CAM is adjustable and controls the power to the to the sanitizer pump. The sanitizer pump is energized and adds sanitizer into the tank when the contact is closed. The CAM may need to be adjusted according to accommodate water condition and type of chemical. The left side of the CAM is set to activate the sanitizer pump after the drain solenoid is de-energized. The sanitizer volume can be controlled by adjusting the right side of the CAM.

CAM 6 controls the detergent pump timing.

The CAM is adjustable and controls the power to the detergent pump. The detergent pump is energized and adds detergent into the tank when the contact is closed. The CAM may need to be adjusted to accommodate water condition and type of chemical. The left side of the CAM is set to activate the detergent pump after the water pump is energized for the wash cycle. The detergent volume can be controlled by adjusting the right side of the CAM.

CAM 7 controls the rinse aid pump timing.

The CAM is adjustable and controls the power to the rinse aid pump. The rinse aid pump is energized and adds rinse aid into the tank when the contact is closed. The CAM may need to be adjusted to accommodate water condition and type of chemical. The left side of the CAM is set to activate the rinse aid pump after the drain solenoid is de-energized. The rinse aid volume can be controlled by adjusting the right side of the CAM.

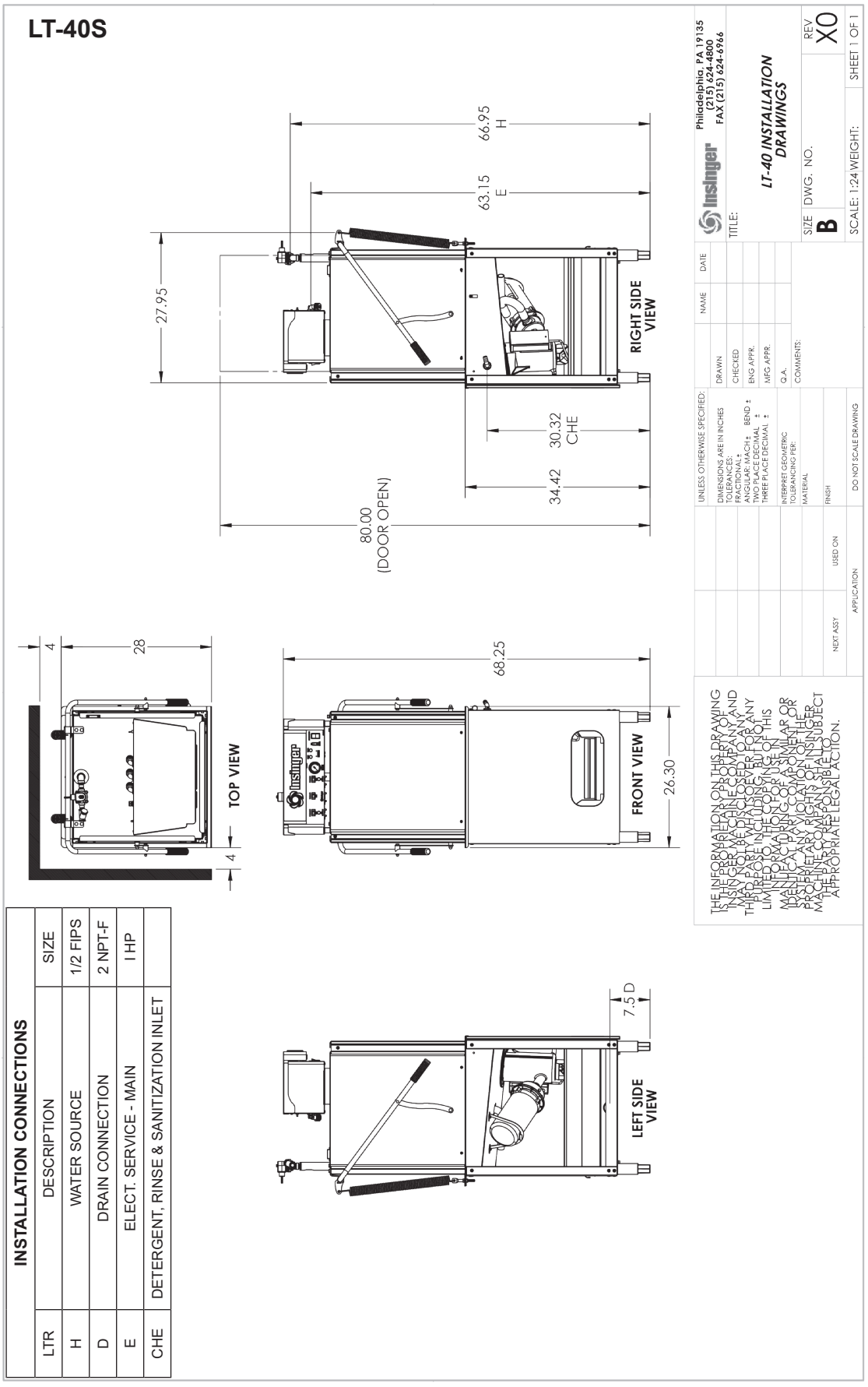
CAM 8 controls the cycle counter.

The CAM controls the power to the cycle counter. Towards the end of the cycle the counter is energized. This adds a cycle to the total count.

CAUTION:

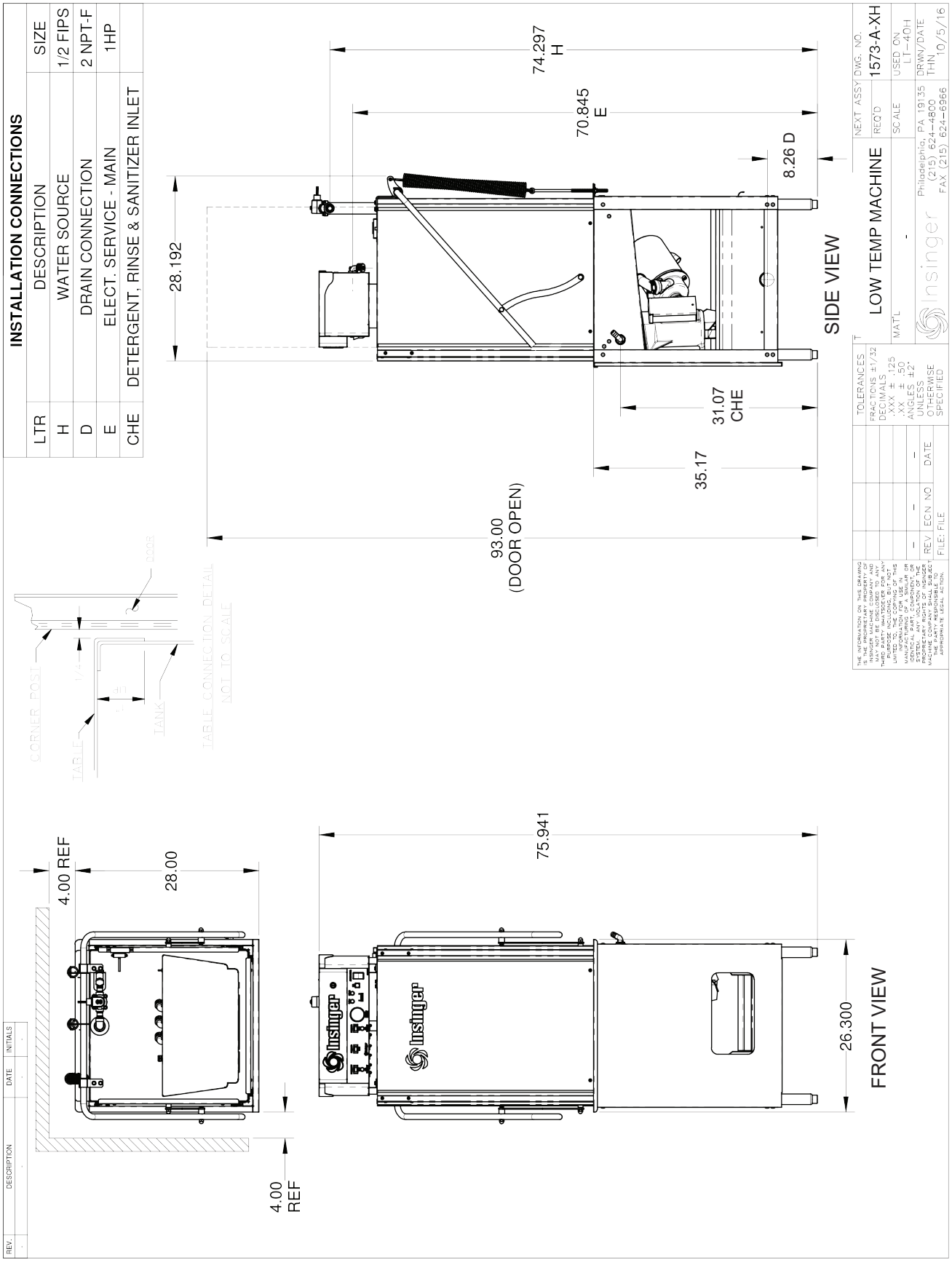
Verify water fill level and chlorine concentration before washing ware.

LT-40S



INSTALLATION CONNECTIONS		
LTR	DESCRIPTION	SIZE
H	WATER SOURCE	1/2 FIPS
D	DRAIN CONNECTION	2 NPT-F
E	ELECT. SERVICE - MAIN	I HP
CHE	DETERGENT, RINSE & SANITIZATION INLET	

LT-40H


INSTALLATION CONNECTIONS
LTR
DESCRIPTION
SIZE
H
WATER SOURCE
1/2 FIPS
D
DRAIN CONNECTION
2 NPT-F
E
ELECT. SERVICE - MAIN
1HP
CHE
DETERGENT, RINSE & SANITIZER INLET
74.297
H
70.845
E
8.26 D
28.192
31.07
CHE
35.17
93.00
(DOOR OPEN)
SIDE VIEW
LOW TEMP MACHINE
1573-A-XH
Insinger
Philadelphia, PA 19135
(215) 624-4800
FAX (215) 624-8966
10/5/16
CORNER POST
TANK
TABLE CONNECTION DETAIL
NOT TO SCALE
4.00 REF
28.00
75.941
26.300
FRONT VIEW
4.00
REF
REV.
DESCRIPTION
DATE
INITIALS

LT-40 LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE SERIES

OPERATION INSTRUCTIONS

These instructions are intended for the daily users of this machine.

PREPARING MACHINE

1. Ensure drain stopper pipe is in place to allow the tank to fill.
2. Check for proper installation and cleanliness of drain and sump strainers.
3. Ensure all water lines are open.
4. Ensure electrical circuits are on.
5. Check the chemical lines are connected to the correct chemical containers:
   Red - detergent line
   Blue - rinse aid line
   White - sanitizer line

NOTE:
When using the machine for the first time or after replacing the chemical containers, ensure the pumps are primed. Refer to the **Pump Priming Instructions** in the **INSTALLATION INSTRUCTIONS** section.

STARTING MACHINE

1. Close the machine doors.

CAUTION:
Only turn the machine ON and OFF when the doors are fully closed.

2. Turn the MAIN POWER switch to the ON position. The POWER light will turn on to indicate the machine is on.
3. Press and hold the FILL button for approximately 10 seconds to fill the machine. Water will start to flow out of the drain when the tank is full.
4. Ensure that there are no major water leakages on the unit. Verify that the water level is between the two lines on the drain stopper pipe. The tank must be filled to the appropriate level before running a cycle.

WASHING A RACK

1. Open the doors. Insert a rack of soiled dishware into the machine.

CAUTION:
Overloading racks will minimize the proper cleaning of the ware.

2. Close the doors to run a cycle automatically. The CYCLE light will be on while the cycle is running.
3. When the CYCLE indicator light turns off, the machine cycle is complete.
4. Open the doors and remove the rack of clean ware. For the first rack, check the water level is between the two lines on the drain stopper pipe. If not refer to **CAM TIMER SETTINGS**.
5. Insert a new soiled rack and close the doors to run another cycle.

WARNING:
Wash tank water will be hot and hot water may be dripping from the doors.

WARNING:
Do not open the doors during the cycle as hot water is being sprayed. A switch is provided to stop the cycle if the doors are opened, but hot water may spray out if doors are opened too quickly.

SHUTDOWN

1. Remove your final rack of clean ware. Close the doors to run an empty cycle.
2. Once the cycle has finished (the CYCLE indicator light will be off), press and hold the DRAIN button to empty the tank.
3. Turn the MAIN POWER switch to the OFF position. The POWER light will turn off.
4. Refer to the CLEANING PROCEDURES for proper clean-up of the dishmachine.
5. Report any unusual occurrences to qualified service personnel.

LT-40 LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE SERIES

CLEANING INSTRUCTIONS

DAILY CLEANING

1. Remove and clean drain stopper pipe.
2. Once the tank is drained, remove the sump and drain strainers. Flush the strainers.
3. Remove the wash arms. Remove the endcaps and flush the wash arms. Ensure all nozzles are clear of matter.
4. Leave doors open to allow drying of interior surfaces.

WEEKLY CLEANING

1. The entire machine should be wiped down using a commercial foodservice stainless steel cleaner. Do not use steel wool.
2. Under the supervision of your detergent supplier the machine interior must be properly delimed. Refer to the **DELIME INSTRUCTIONS**.

DELIME INSTRUCTIONS

1. Disconnect the chemical feeder pumps.
2. While the doors are closed turn MAIN POWER switch to the ON position.
3. Press and hold the FILL button for approximately 10 seconds to fill the tank.
4. While the doors are closed turn MAIN POWER switch to the OFF position.
5. Fill the dishmachine with the correct amount of delime solution as recommended by the manufacturer of the chemicals.
6. Close the doors. Turn the MAIN POWER switch to the ON position.
7. Flip the DELIME switch to the DELIME position. This will cause the machine to run continuously.

NOTE:
The DELIME switch is located on the back of the control box.

7. Run the machine for the recommended length of time.
8. Flip the DELIME switch to NORMAL.
9. Press and hold the DRAIN button to empty the tank.
10. Turn the MAIN POWER switch to the OFF position.
11. Open the doors and step away for 5 minutes.
12. Inspect interior of the unit for lime deposit. If the results do not meet expectations, repeat steps 2 to 11.
13. Close the doors and turn the MAIN POWER switch to the ON position.
14. Refill the unit by holding the FILL button for approximately 10 seconds.
15. Flip the DELIME switch to the DELIME position and run the unit for 10 minutes.
16. Flip the DELIME switch to the NORMAL position.
17. Press and hold the DRAIN button to empty the tank.
18. Turn the MAIN POWER switch to the OFF position.
19. Open the doors.
20. Reconnect the chemical feeder pumps.
21. The machine is ready to use.

WARNING:
Use of deionized water or other aggressive fluids will result in corrosion and failure of materials and components. Use of deionized water or other aggressive fluids will void the manufacturer's warranty.

NOTE:
The water quality in some areas requires deliming to be done more frequently. Contact your detergent supplier for recommended de-liming frequency.

LT-40 LOW TEMPERATURE CHEMICAL SANITIZING DOOR TYPE SERIES

MAINTENANCE REQUIREMENTS

This section is intended for qualified service and/or maintenance technicians.

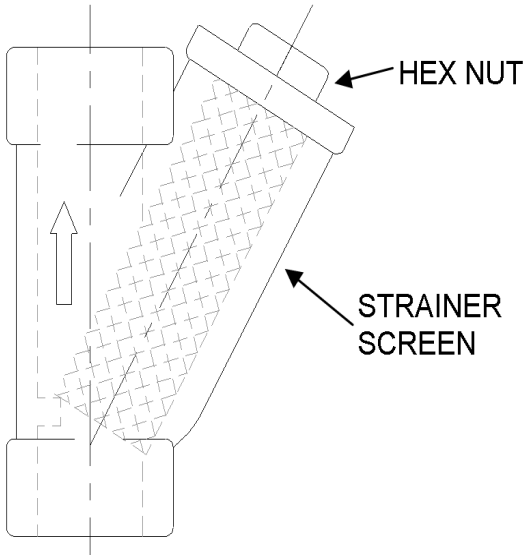
The following maintenance should be conducted quarterly:

1. Remove and clean the strainer screens on the water lines. If the screens cannot be cleaned, replace.
2. Inspect the condition of the fill solenoid valve seats, and diaphragms. Replace as necessary.
3. Inspect drain stopper for leakage. Replace as necessary.
4. Check door spring tension and adjust as necessary.
5. Check wash arm bearing and replace as necessary.

MAINTENANCE PROCEDURES

Liner Strainer Disassembly

1. Shut off water supply.
2. Remove large hex nut on bottom of strainer body.
3. Remove strainer screen. Inspect and clean or replace as necessary.
4. Reassemble in reverse of disassembly. Water flow must be same direction as arrow on line strainer body. Use new gaskets to insure a tight seal.



Solenoid Valve Disassembly

(See dwg. SK-5825)

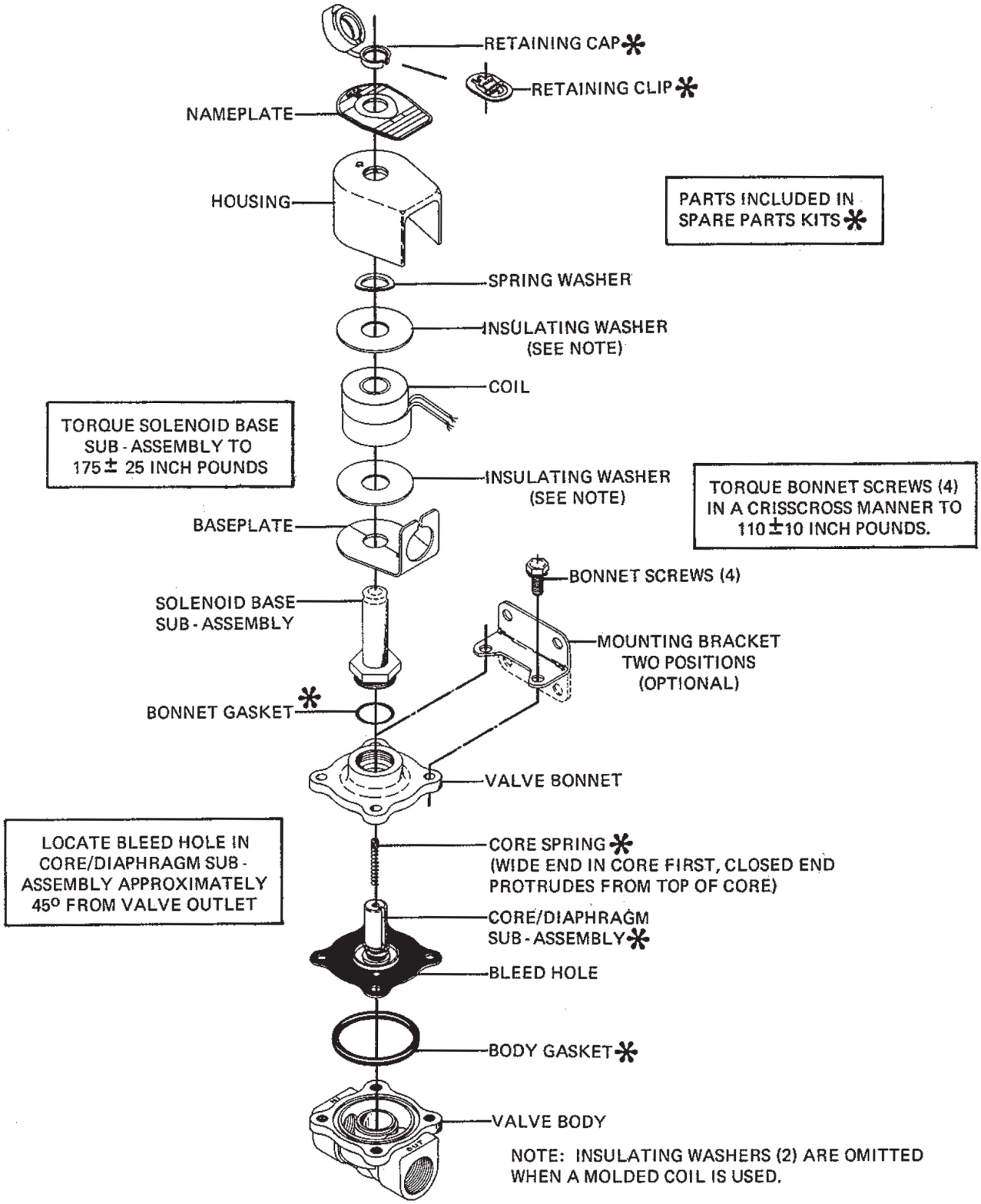
1. Disconnect the power supply to the machine. Turn off the water supply.
2. Remove cap on top of the coil. Remove the coil.
3. Remove the 4 hex bolts and lift bonnet from valve body. Note positioning of spring and plunger.
4. Remove main piston.
5. Inspect for dirt, wear or lime build-up. Clean or replace as required.
6. Reassemble in reverse of disassembly.

Pump Disassembly

1. Before disassembling pump ensure there are no obstructions in the pump intake by removing and cleaning the sump strainer (inside tank).
2. Remove the pump motor and impellar by removing the 4 hex bolts attaching them to the pump housing.
3. Repair or replace the pump parts as required.
4. Reassemble in reverse of disassembly.

TROUBLESHOOTING

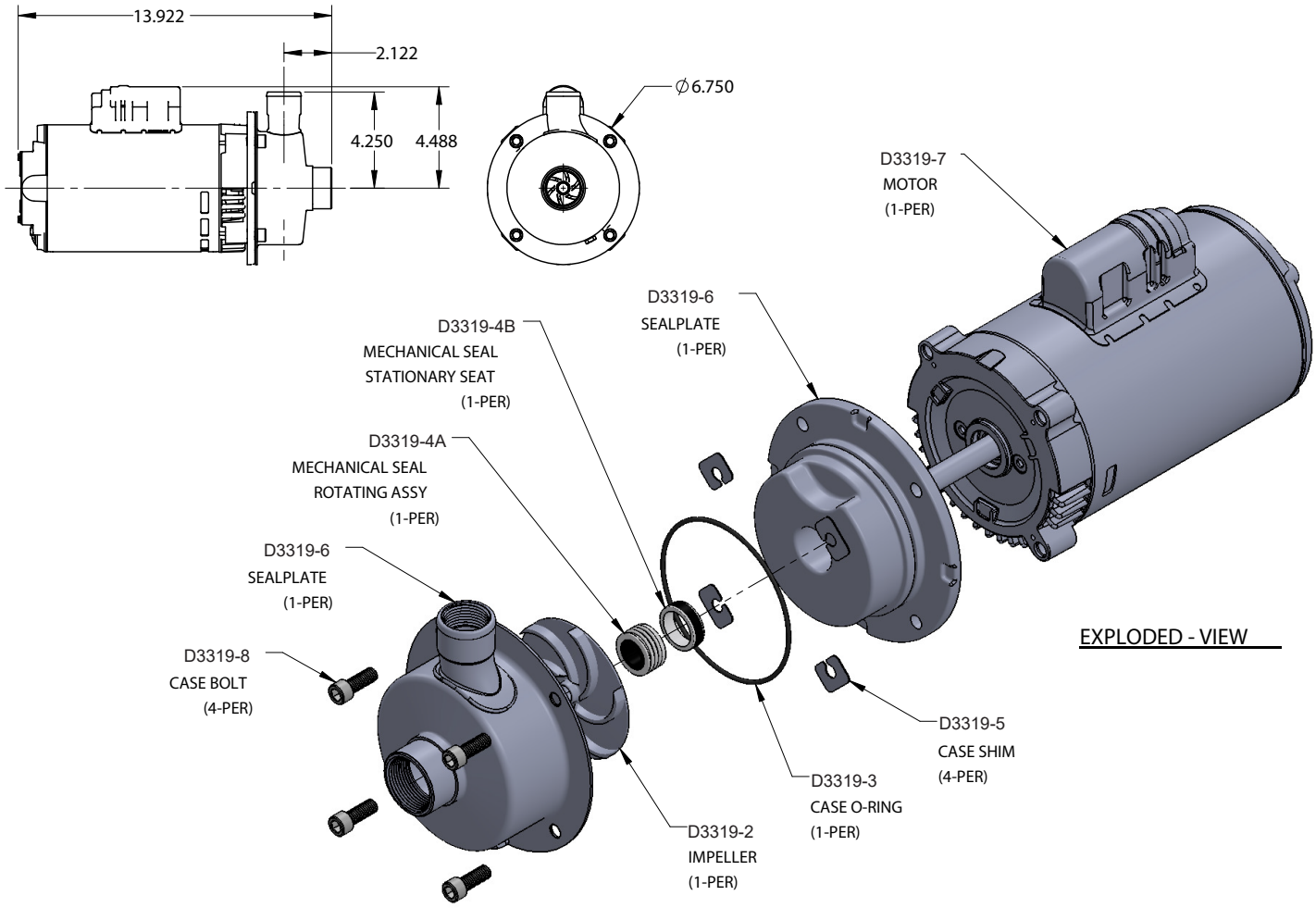
TECHNICAL ISSUES	POSSIBLE CAUSES	SOLUTIONS
Dishmachine will not start.	1. Service disconnect switch is off or faulty. 2. Branch circuit breaker is tripped. 3. Electrical connections are loose or broken.	1. Make sure it is on. 2. Reset or replace the part. 3. Tighten or replace them.
Machine will not run in ON position or in DELIME mode.	Door switch, MAIN POWER switch or DELIME switch is defective.	Call the service technician.
Machine fills continuously even with no power applied to the machine.	Water inlet solenoid valve is allowing water into machine.	1. Check the water pressure during fill, water pressure must be 15 psi. 2. Repair or replace the water inlet solenoid valve.
Machine runs continuously in the wash cycle.	1. Check if machine is in DELIME mode. 2. Possible issues with CAM timer.	1. Flip the switch to NORMAL position. 2. Contact service technician.
Machine will not hold water.	1. Drain stopper is in bad condition. 2. Obstructed drain hole. 3. Drain linkage is binding.	1. Replace the part. 2. Remove the obstruction from drain. 3. Repair damaged drain mechanism parts.
Machine will not fill, other functions works.	1. Line strainer clogged. 2. Incoming water to unit is turned off. 3. Faulty MAIN POWER switch. 4. Faulty solenoid coil.	1. Refer to MAINTENANCE PROCEDURE for cleaning instruction. 2. Turn on water to the unit. 3. Replace the part. 4. If coil has voltage but no continuity, replace the solenoid.
Machine fills slowly and or the rinse is weak.	1. Clogged or obstructed wash arms. 2. Low incoming water pressure. 3. Line strainer is clogged. 4. CAM 4 not set to correct fill time.	1. Remove and clean the arms. 2. Adjust water pressure to 15 psi. 3. Refer to MAINTENANCE PROCEDURE for cleaning instruction. 4. Adjust the right side of CAM 4 to increase fill time.
Water will not drain from the machine.	Drain solenoid and drain mechanism are faulty.	Call service technician.
Water leaks at wash pump.	Wash pump seal is defective.	Replace the part.
Dishes/Glasses are not clean.	1. Machine temperatures are not up to the minimum requirements. 2. No detergent/too much detergent. 3. Dry food soil on ware.	1. Ensure that the incoming water meets the requirement listed on the machine data page. 2. Adjust the concentration as recommended by the chemical provider. 3. Pre-scrap moist food soil or pre-soak ware



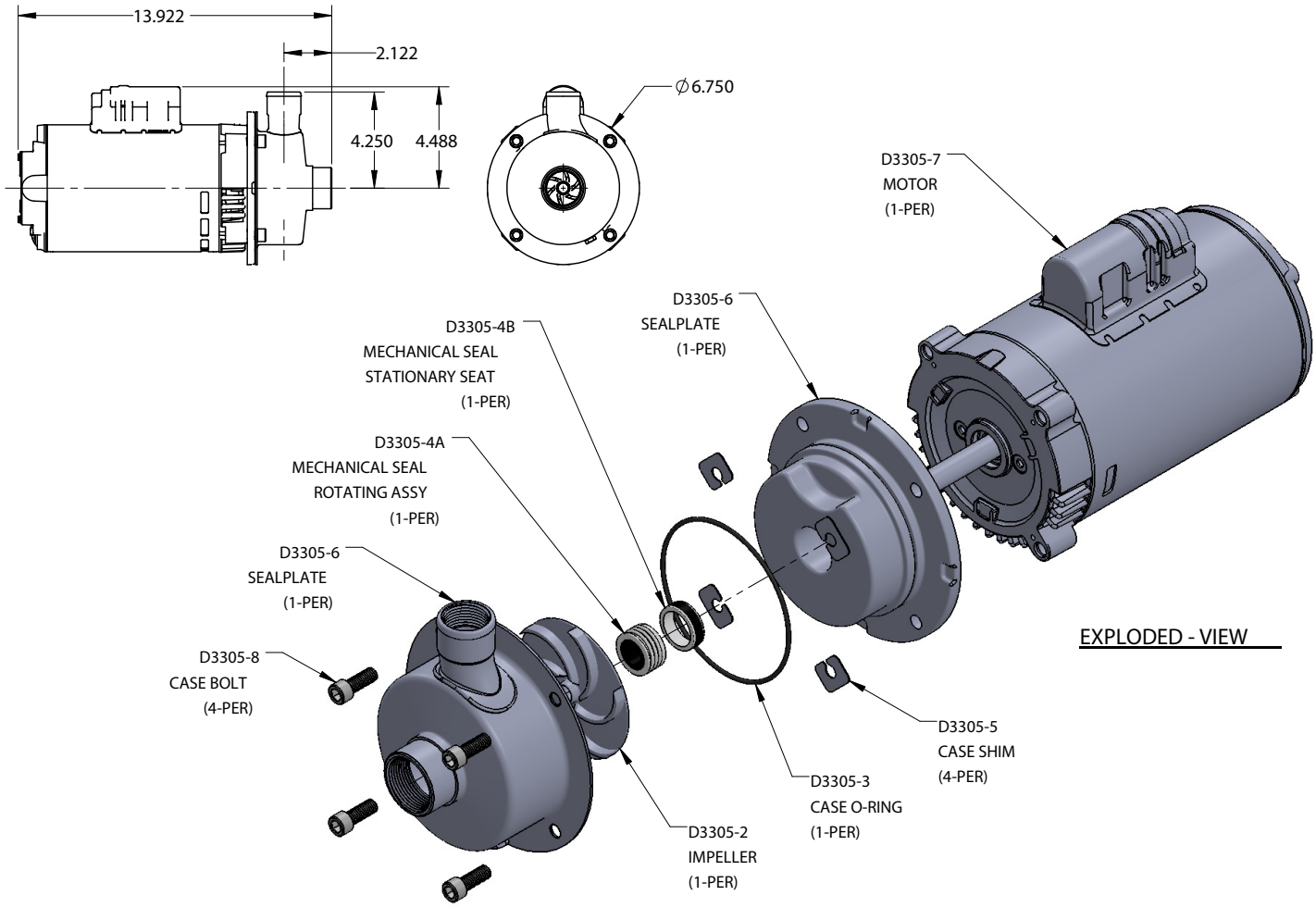
Solenoid Valve
Final Rinse
6-17

Sketch A/ SK-5825

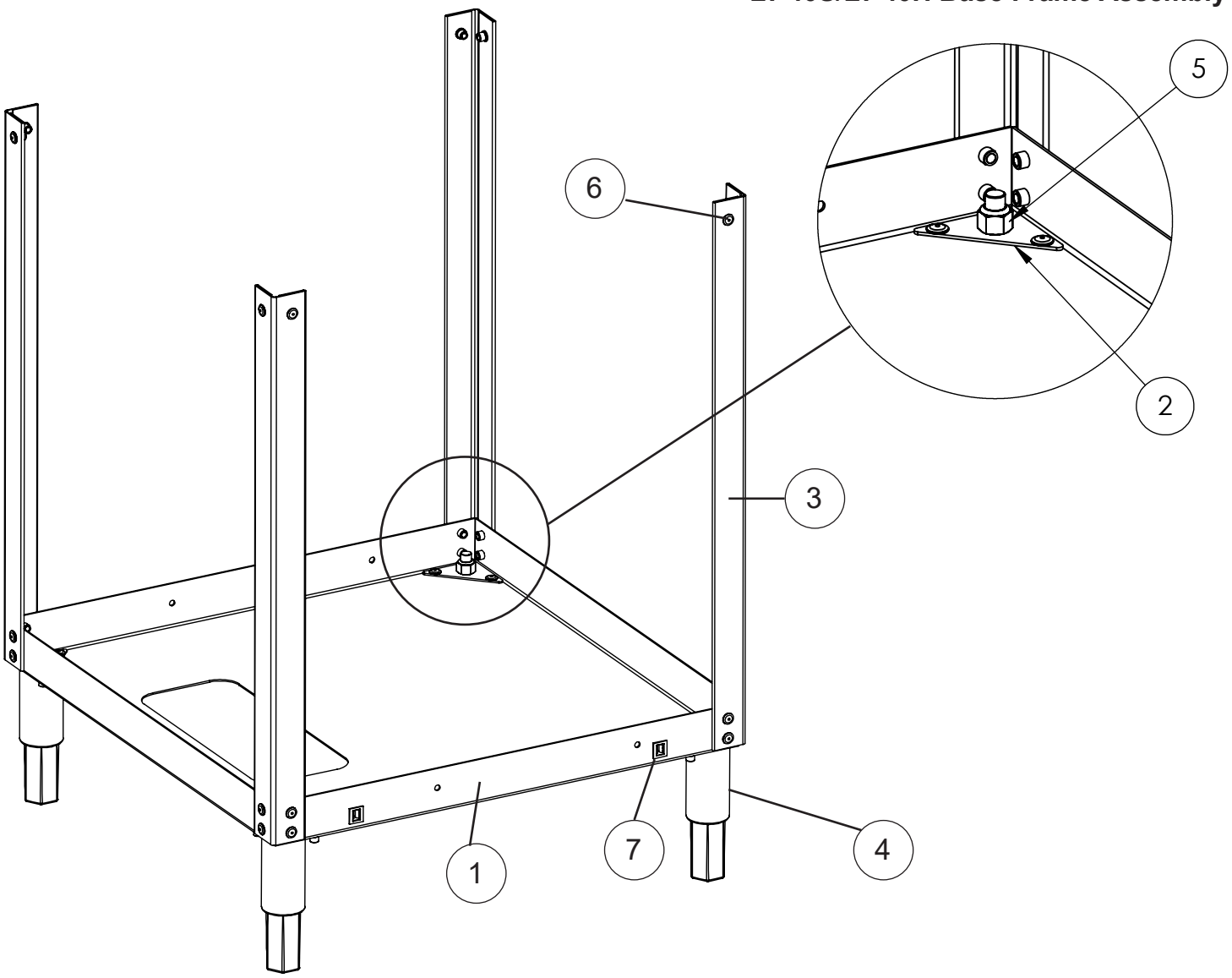
LT-40S 3/4HP Pump Motor



LT-40H 1HP Pump Motor

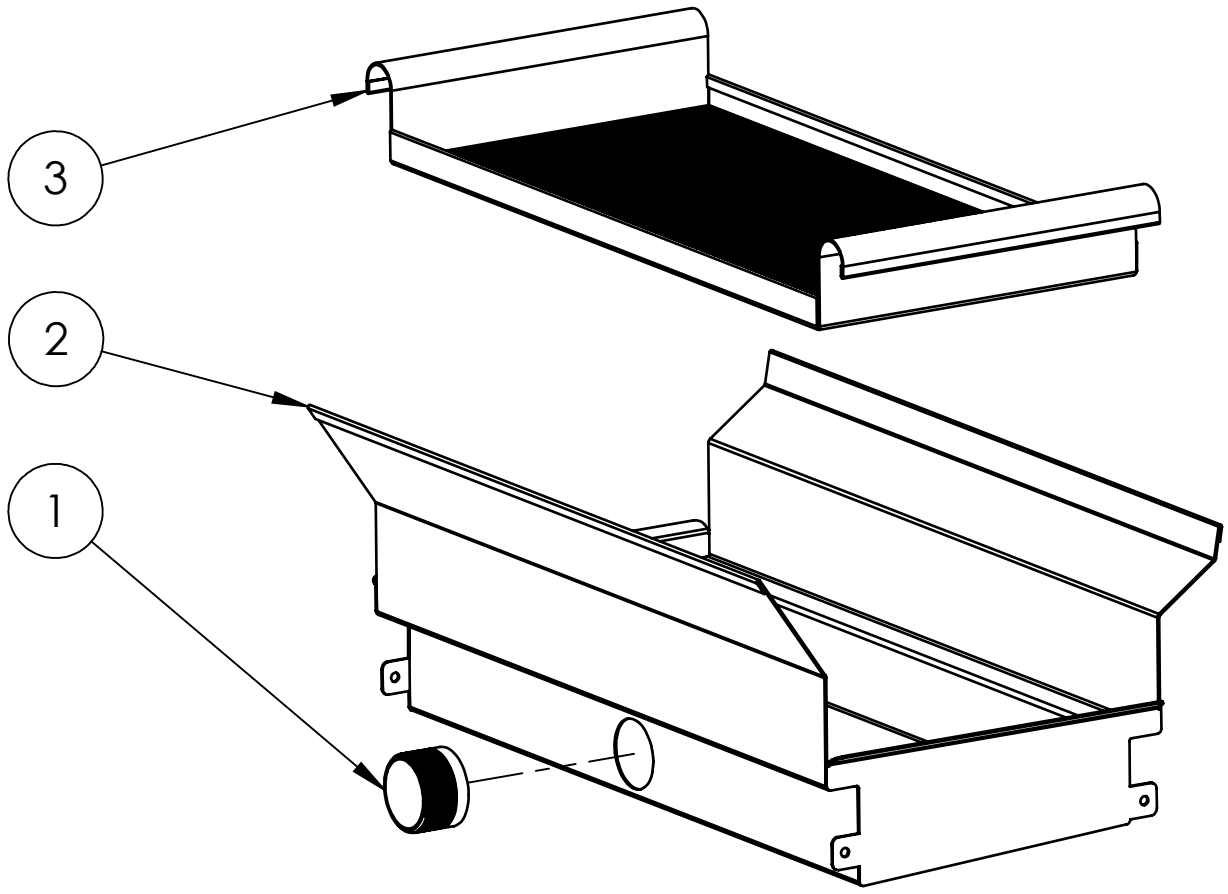


LT-40S/LT-40H Base Frame Assembly



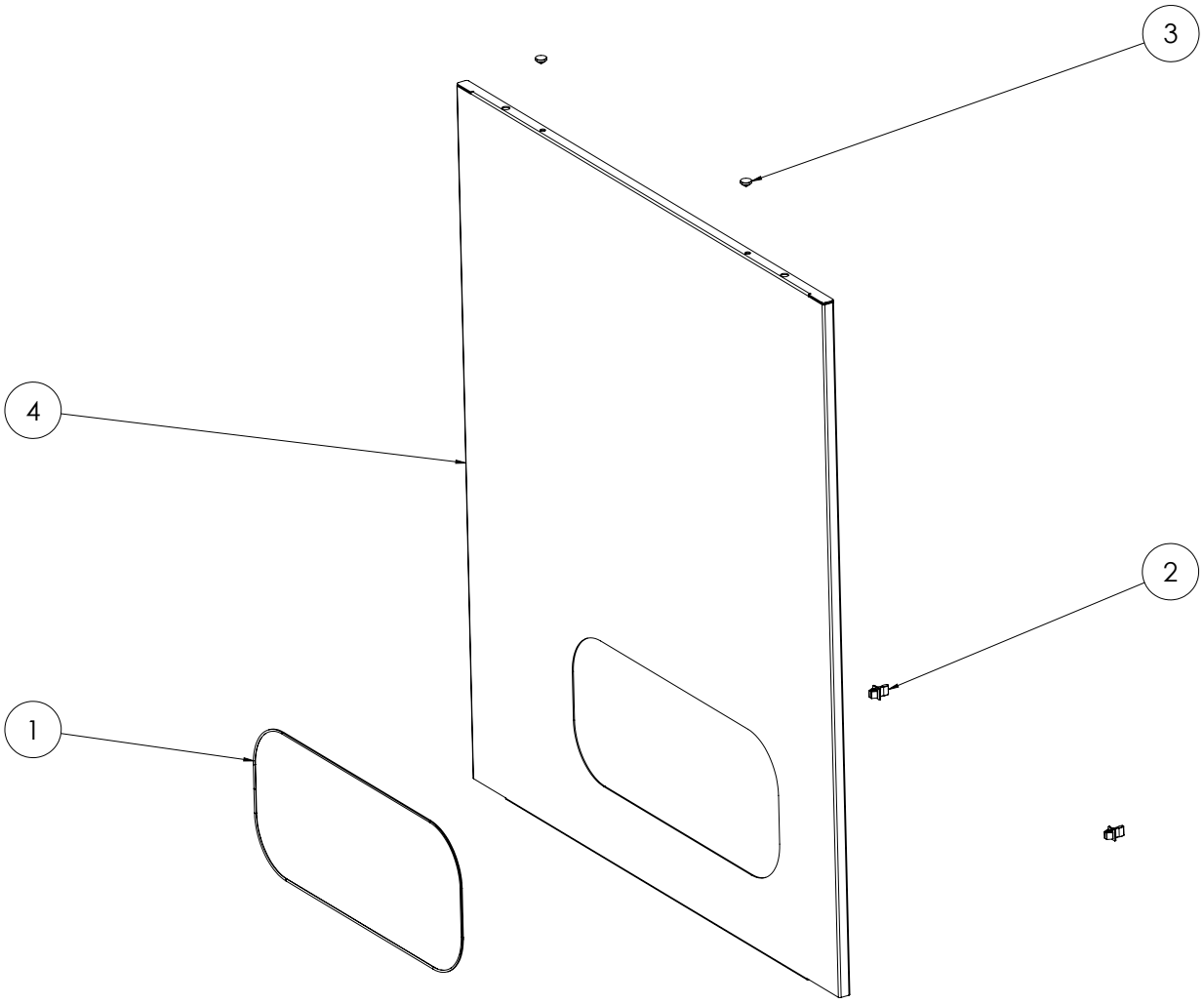
Item No.	Part No.	Description	Quantity
1	LT-1	Base Pan	1
2	LT-2	Base Pan Corner Gusset	4
3	LT-3	Vertical Support Leg	4
4	D3322	S/S Adjustable Leg	4
5	D312C-LC-5	1/2-13 S/S Coarse Locknut	4
6	D353C-GP-2B	.25 Diameter x .25 Grip Huck Bolt	32
7	D3301	Fastener Latch	2

LT-40S/LT-40H Drain Accumulator Assembly



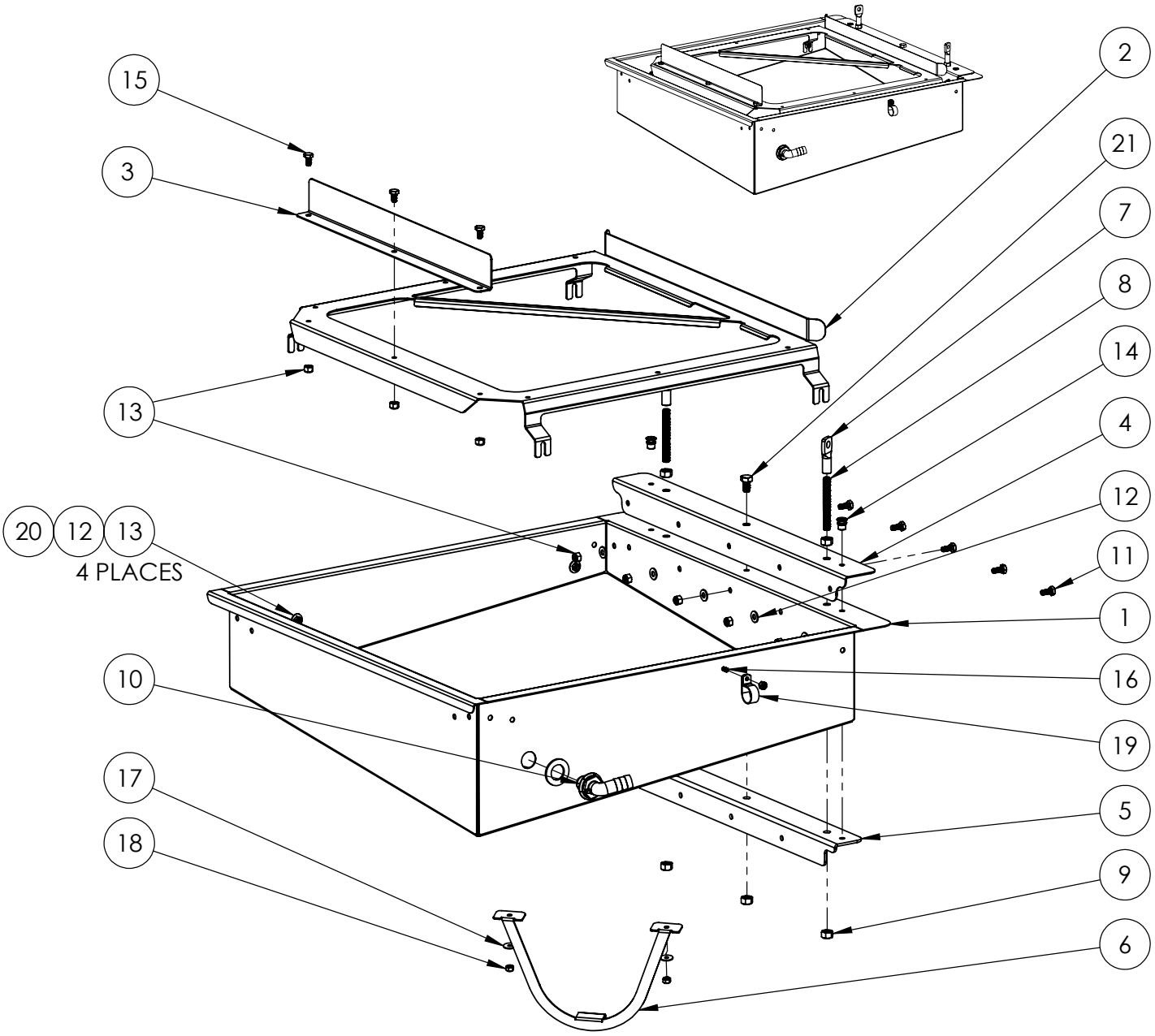
Item No.	Part No.	Description	Quantity
1	D314C-JS-24	2 Pipe Size x 3 Lg. Thread Pipe Nipple	0.5
2	LT-4	Drain Accumulator	1
3	LT-5	Drain Strainer	1

LT-40S/LT-40H Access Panel Assembly



Item No.	Part No.	Description	Quantity
1	D2-581A	Door Edge Trim	1
2	D3302	Fastener Strike	2
3	D3327	Panel Bumper	2
4	LT-45	Front Access Panel	1

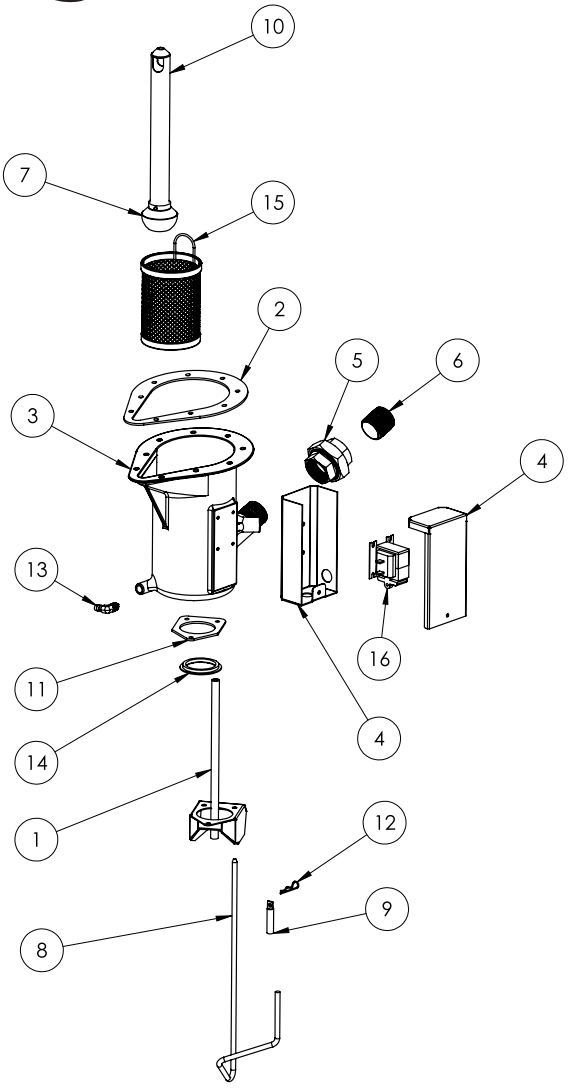
LT-40S Tank Assembly

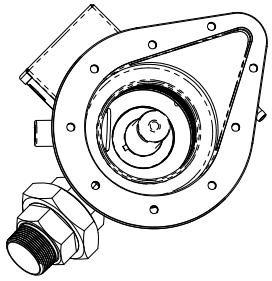


Item #	Part No.	Description	Qty.
1	LT-6	Tank	1
2	LT-7	Rack Support	1
3	LT-8	Rack Guard	1
4	LT-42	Upper Spring Bracket	1
5	LT-43	Lower Spring Bracket	1
6	LT-47	Motor Bracket	1
7	D3323	3/8"-16 Eye Coupling (Brighton Best)	2
8	D258C-JC	3/8-16 S/S T304 Threaded Rod X 4' LG	2
9	D312C-JC-2	3/8-16 S/S Hex Nut (Medium)	5
10	LT-46	Chemical Pipe Guide Assy	1
11	D309C-GC-5A	1/4-20 X 5/8 S/S Hex Head Screw	5

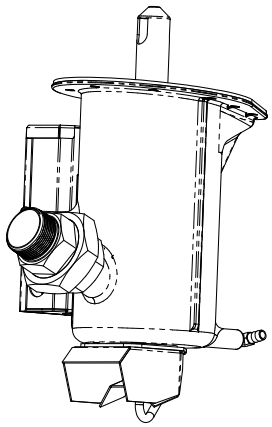
Item #	Part No.	Description	Qty.
12	D313C-G1	1/4" S/S Flatwasher	11
13	D312C-GC-5	1/4-20 S/S Coarse Locknut with Nylon	12
14	D353C-GP-2B	.25 Diameter x .25 Grip Huck Bolt	2
15	D309C-GC-4A	1/4-20 X 1/2 S/S Hex Head Screw	3
16	D309C-EF-4G	#10-32X1/2" S/S Weld Stud	3
17	D2806	#10-32 S/S Fender Washer	2
18	D312C-EF-5	#10-32 S/S Fine Locknut with Nylon	3
19	D3307	.50 Wide x .875 ID Loop Clamp	1
20	D309C-EF-4G	1/4-20 X 1/2 S/S Weld Stud	4
21	D309C-JC-5A	3/8-16 X 5/8 S/S Hex Head Screw	2

LT-40S Sump Assembly





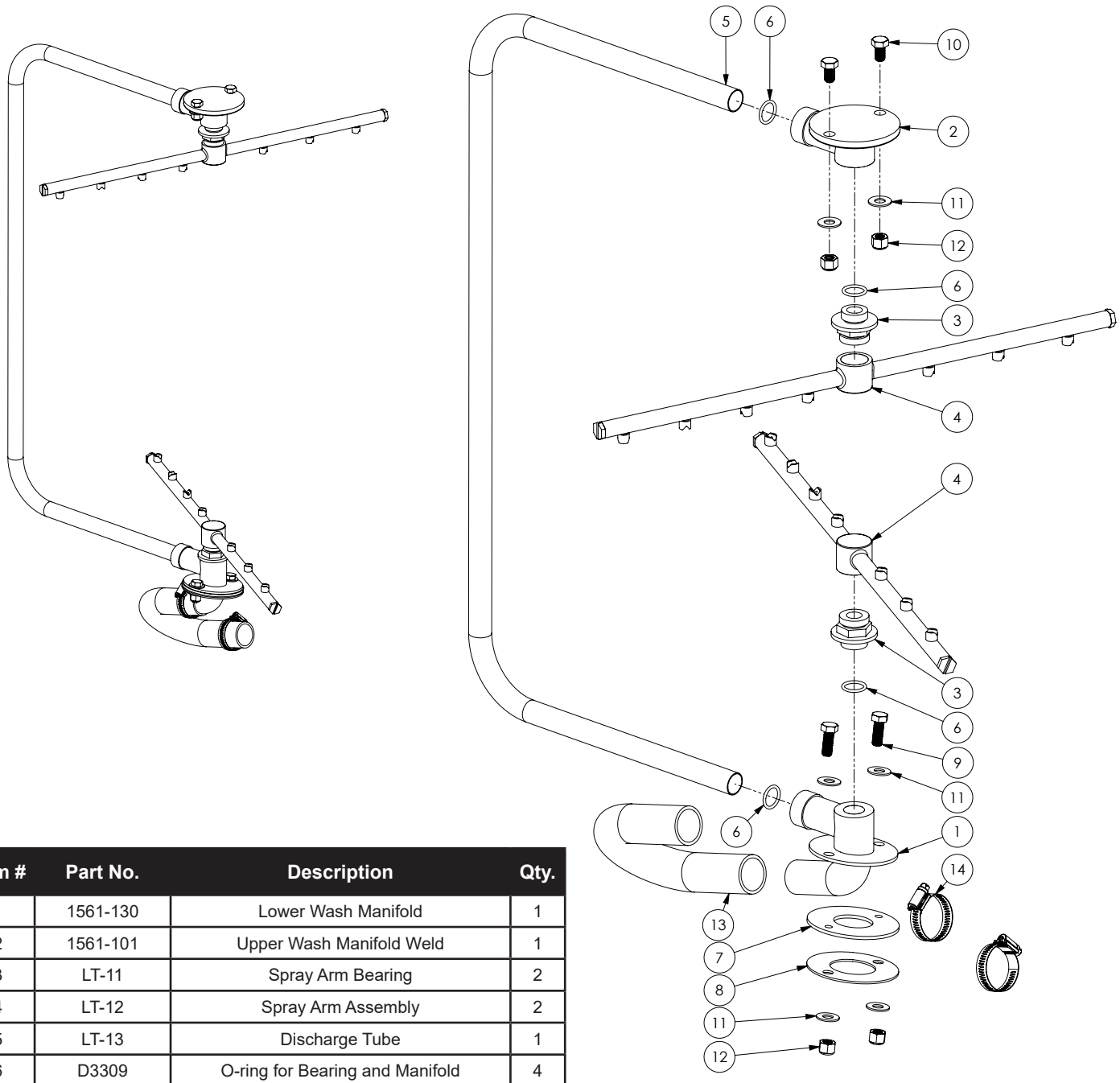
TOP VIEW



FRONT VIEW

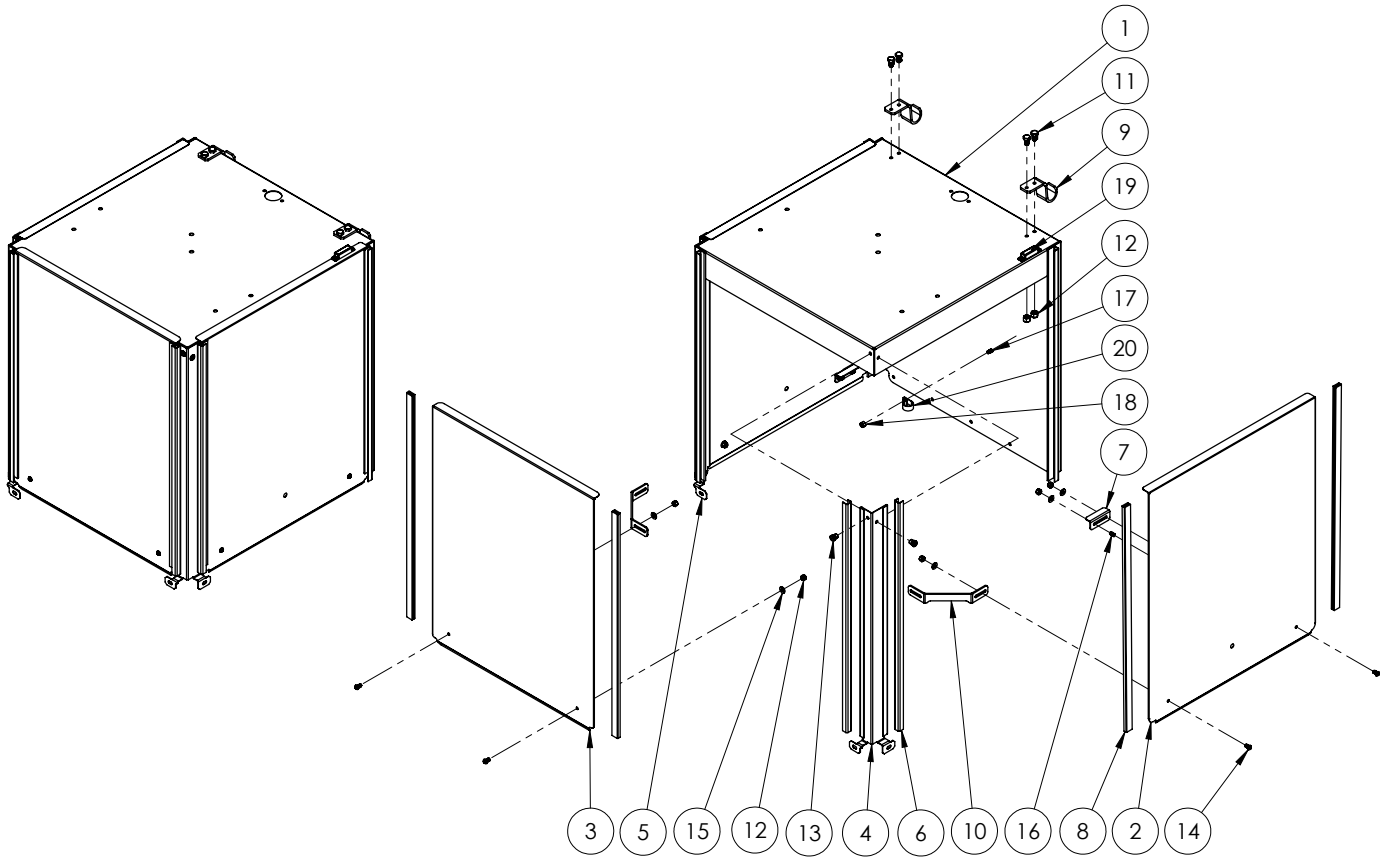
Item No.	Part No.	Description	Quantity
1	LT-16	Drain Channel Assembly	1
2	LT-15	Sump Gasket	1
3	LT-14	Sump	1
4	LT-24 & LT-25	Drain Solenoid Box Assembly	1
5	D318C-G1-G1	1.25" Pipe Size X 150 PSI Threaded Pipe Union Fitting	1
6	D314C-FS-16	1.25" Pipe Size X 2" Lg. Thread Pipe Nipple	1
7	LT-21	Rubber Drain Stopper	1
8	LT-22	Pop Rod	1
9	LT-23	Clevis Thread	1
10	LT-20	Overflow Tube	1
11	LT-18	Drain Channel Gasket	1
12	D3326	Cotter Pin	1
13	D3315	.375" Hose x .25" NPT Elbow Brass Fitting	1
14	LT-17	Drain Flange	1
15	LT-19	Sump Strainer Assembly	1
16	DE9-338	Drain Solenoid	1

LT-40S Spray Arm Assembly



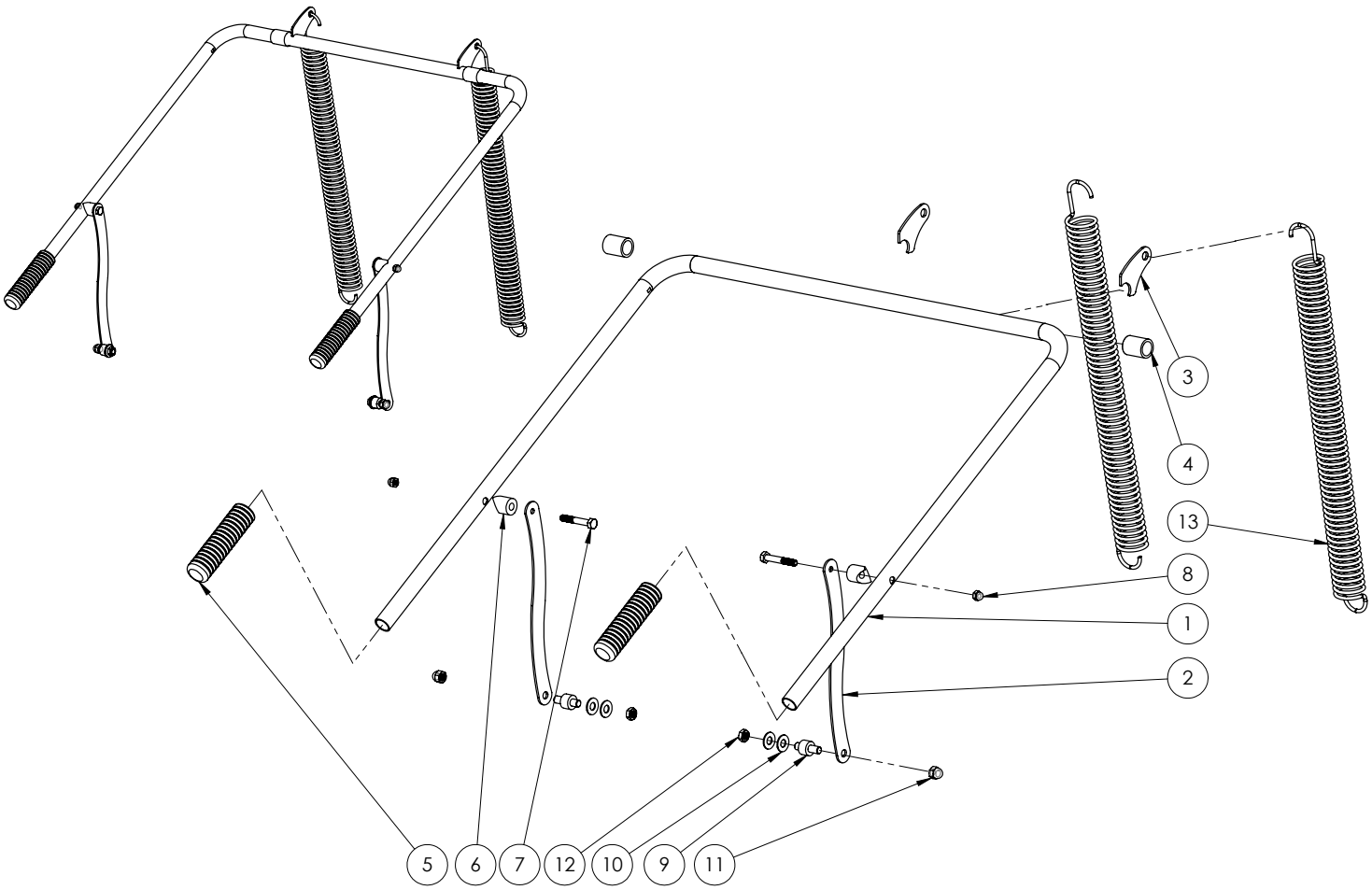
Item #	Part No.	Description	Qty.
1	1561-130	Lower Wash Manifold	1
2	1561-101	Upper Wash Manifold Weld	1
3	LT-11	Spray Arm Bearing	2
4	LT-12	Spray Arm Assembly	2
5	LT-13	Discharge Tube	1
6	D3309	O-ring for Bearing and Manifold	4
7	LT-10	Lower Manifold Gasket	1
8	LT-9	Lower Manifold Spacer Ring	1
9	D309C-JC-8A	3/8-16 X 1 S/S Hex Head Screw	2
10	D309C-JC-6A	3/8-16 X 3/4 S/S Hex Head Screw	2
11	D313C-J7	3/8 Diameter Washer	6
12	D312C-JC-5	3/8-16 S/S Locknut with Nylon	4
13	D3314	Silicone Hose - 1.25 ID 180 Degree Bend	1
14	D3217	HOSE CLAMP S/S 7/8" - 1-3/4"	2

LT-40S Hood & Door Assembly



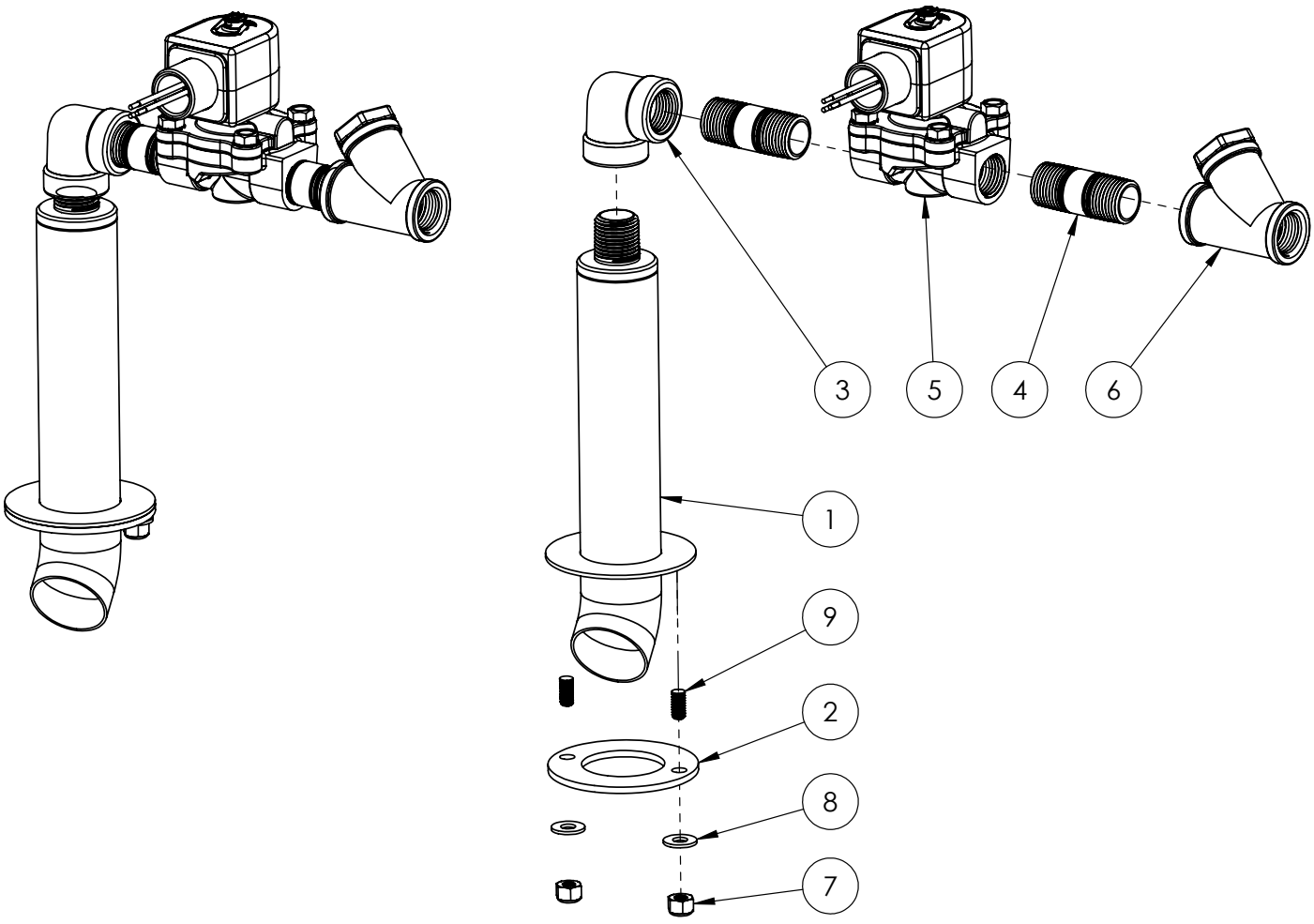
Item No.	Part No.	Description	Qty.
1	LT-26	Hood	1
2	LT-27	Side Door	2
3	LT-28	Front Door	1
4	LT-33	Corner Post-RH	1
5	LT-32	Corner Post-LH	1
6	LT-34	Door Channel	4
7	LT-30	Door Stopper Bracket	2
8	LT-35	Plastic Door Strips	6
9	1084-39	Handle Pivot Bracket	2
10	LT-29	Door Alignment Bracket	2
11	D309C-GC-4A	1/4-20 X 1/2 S/S Hex Head Screw	4
12	D312C-GC-5	1/4-20 S/S Locknut with Nylon	12
13	D353C-GP-2B	.25 Diameter x .25 Grip Huck Bolt	4
14	D3324	1/4-20 X 1/2 Round Head Hex Socket Screw	6
15	D313C-G1	1/4" S/S Flatwasher	8
16	D309C-EF-4G	1/4-20 X 1/2 S/S Weld Stud	2
17	D309C-EF-4G	#10-32 X 1/2" S/S Weld Stud	1
18	D312C-EF-5	#10-32 S/S Fine Locknut with Nylon	1
19	DE5-106	Guardswitch	1
20	D3307	.50 Wide x .875 ID Loop Clamp	1

LT-40S Handle Assembly



Item No.	Part No.	Description	Qty.
1	LT-38	Handle	1
2	LT-39	Handle Door Link	2
3	LT-41	Spring Handle Bracket	2
4	975-44	Plastic Bushing Sleeve	2
5	D3325	Rubber Handle Grips	2
6	1463-15	Handle Link Spacer	2
7	D309C-GC-16A	1/4-20 X 2 S/S Hex Head Screw	2
8	D312C-GC-6	1/4-20 S/S Coarse Acorn Nut	2
9	957-26	Door Link Spacer with Thread	2
10	D313C-J1	3/8" S/S Flatwasher	4
11	D312C-JC-6	3/8-16 S/S Coarse Acorn Nut	2
12	D3099	3/8-16 S/S Thin Sealnut with Nylon	2
13	SK2294A-001	Compression Helical Spring	2

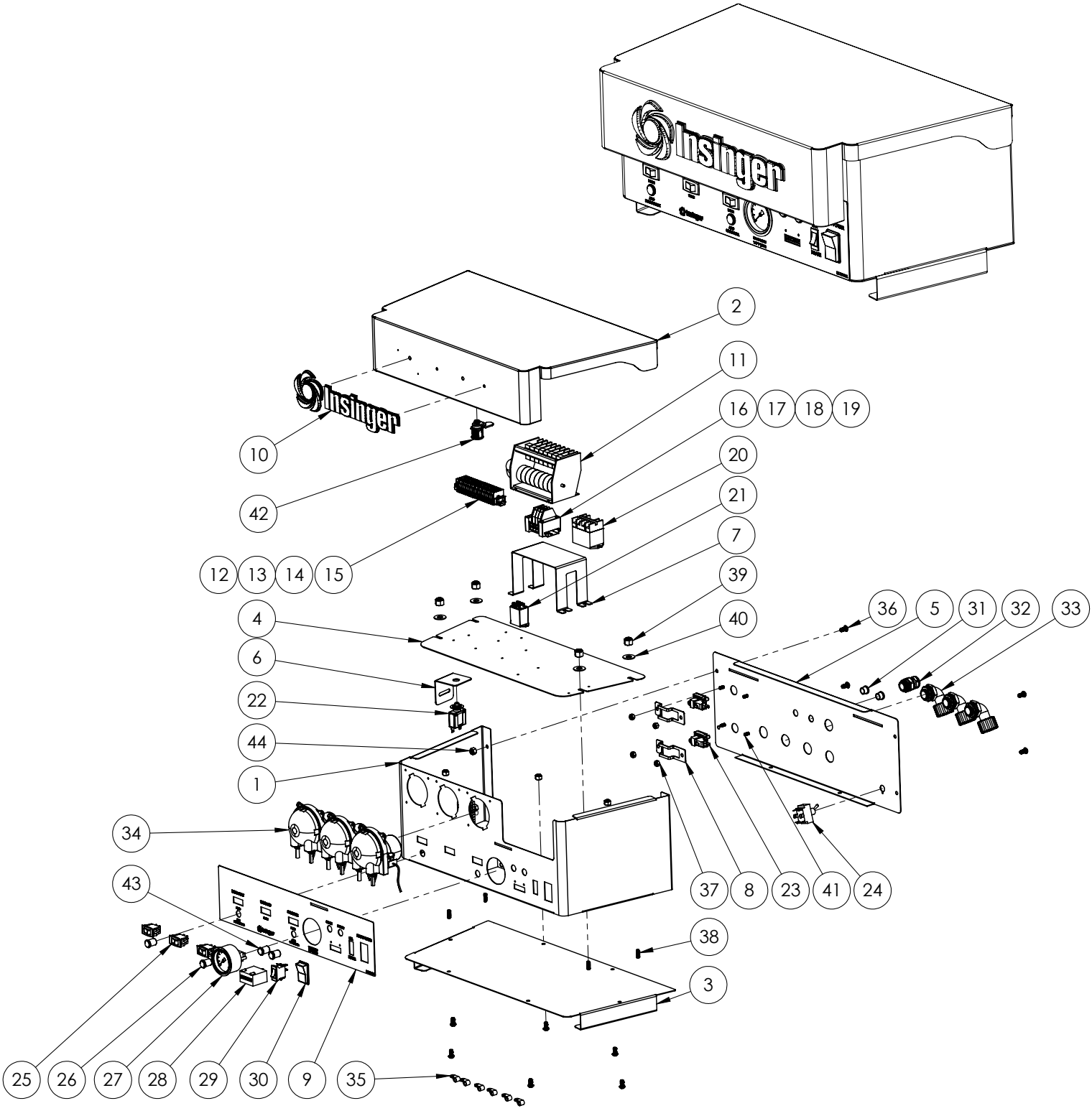
LT-40S/LT-40H Fill Manifold Assembly



Item No.	Part No.	Description	Qty.
1	LT-36	Fill Inlet Manifold Assembly	1
2	LT-37	Fill Inlet Manifold Gasket	1
3	D316F-D1-D1	.50 Pipe Female Elbow	1
4	D314F-DS-16	Brass Nipple 1/2" x 2"	2
5	D3304	110V x .50 Inlet Solenoid Valve	1
6	D2483A	Conbraco "Y" 1/2" Strainer	1
7	D312C-GC-5	1/4-20 S/S Coarse Locknut with Nylon	2
8	D313C-G1	1/4" S/S Flatwasher	2
9	D309C-EF-4G	1/4-20 X 1/2 S/S Weld Stud	2

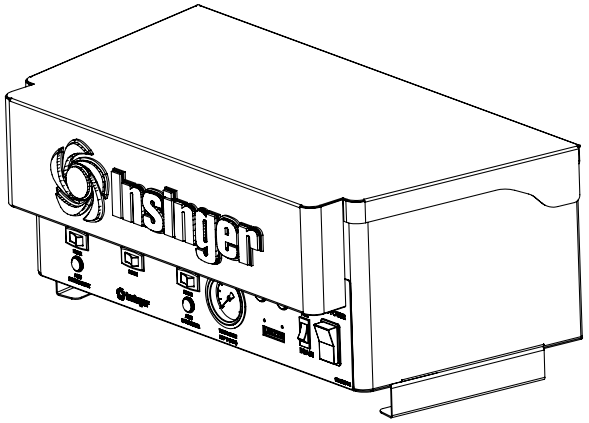
LT-40S/LT-40H Control Box Assembly

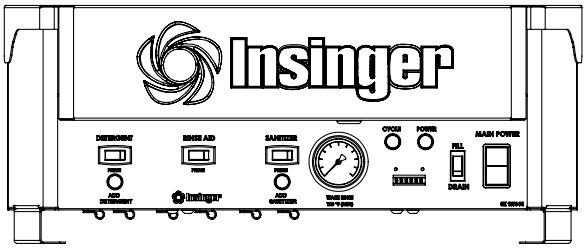
See next page for parts reference chart.

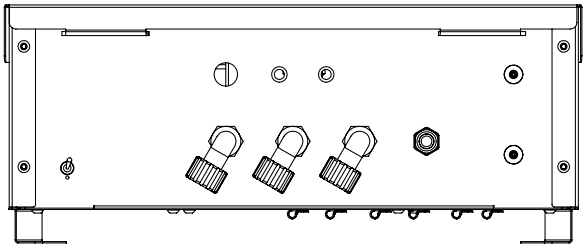


LT-40S/LT-40H Control Box Assembly

Item No.	Part No.	Description	Qty.
1	LT-49	Control Box Main Panel	1
2	LT-51	Control Box Top	1
3	LT-50	Control Box Bottom	1
4	LT-52	Control Box Mounting Plate	1
5	LT-48	Control Box Back	1
6	LT-55	Pressure Switch Bracket	1
7	LT-54	Cam Timer Bracket	1
8	LT-53	Vacuum Switch Bracket	2
9	1573-74	Control Box Overlay Sticker	1
10	SK-5118	Insinger Logo	1
11	DE7-51	CAM Timer 8xNO/NC Contacts	1
12	DE3-39	Terminal Block #MBK 2.5/E	21
13	DE3-40	Terminal End Cover D-MBK 2.5/E	1
14	DE3-41	Terminal End Clamp E/MK	2
15	DE3-42	15mm Mounting Rail	1
16	DE3-3A	Terminal Block	3
17	DE3-9B	Terminal Block End Plate	1
18	DE3-9C	Terminal Block End Clamp	2
19	DE9-84(AE)	35mm Mounting Rail	1
20	DE3-181	Power Relay Screw Terminal	1
21	DE2-101	Relay: DPDT	1
22	DE15-72	Pressure Reset Breaker	1
23	DE5-103	Vacuum Switch PSF 109 SERIES	2
24	DE5-11	Toggle Switch DPDT (On/Off)	1
25	DE9-270	Rocker Switch SPST Off-(ON)	3
26	DE9-332	Flush Indicator Light Red	3
27	D3013-8	Analog Thermometer w/ Logo 8ft	1
28	DE9-334	Counter Rear Mtg	1
29	DE9-271	Fill/Drain Switch Rocker SPST On/Off	1
30	DE5-105	DPDT (Power In) Maintained Rock	1
31	D3318	.500 Grommet	2
32	EM170	Liquid Tite Conn. 3/8" Straight	1
33	EM174	Liquid Tite Conn. 3/8" 45 Deg.	3
34	D3330	Welco Chemical Pump	2
35	D796	Replenishing Line Brkt. 5/8 X 1-1/2	6
36	D3324	1/4-20 X 1/2 Round Head Hex Socket Screw	10
37	D312C-CC-5	#6-32 S/S Coarse Locknut with Nylon	4
38	D309C-EF-5G	#10-32 X 5/8" S/S Weld Stud	4
39	D312C-EF-5	#10-32 S/S Fine Locknut with Nylon	4
40	D2806	#10-32 S/S Fender Washer	4
41	D309C-CC-26	S/S #6-32 X 1/4 Weld Stud	4
42	D3300	Cam Lock (5/8")	1
43	DE9-331	Flush Indicator Light Green	1
44	D312C-GC-5	1/4-20 S/S Coarse Locknut with Nylon	10





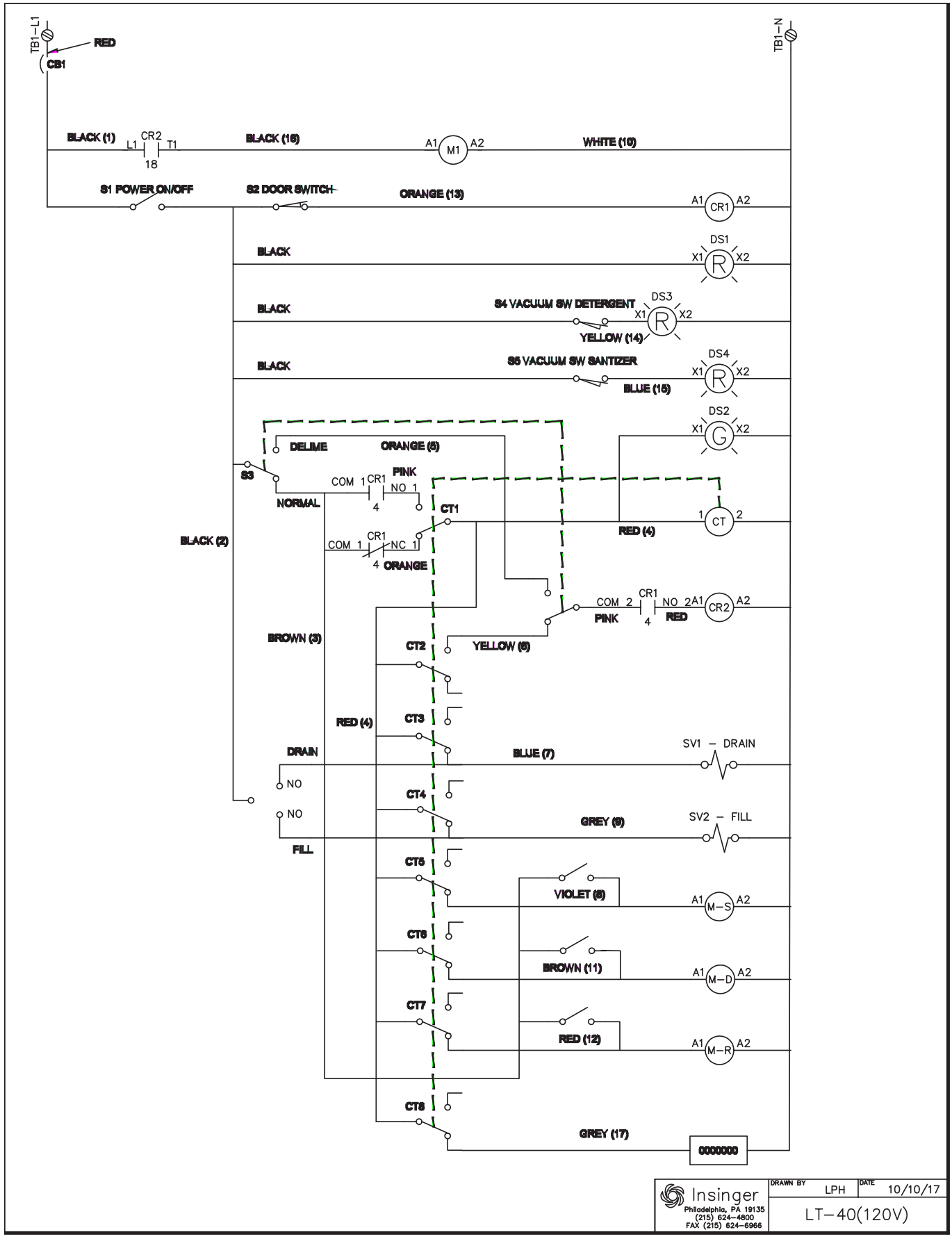


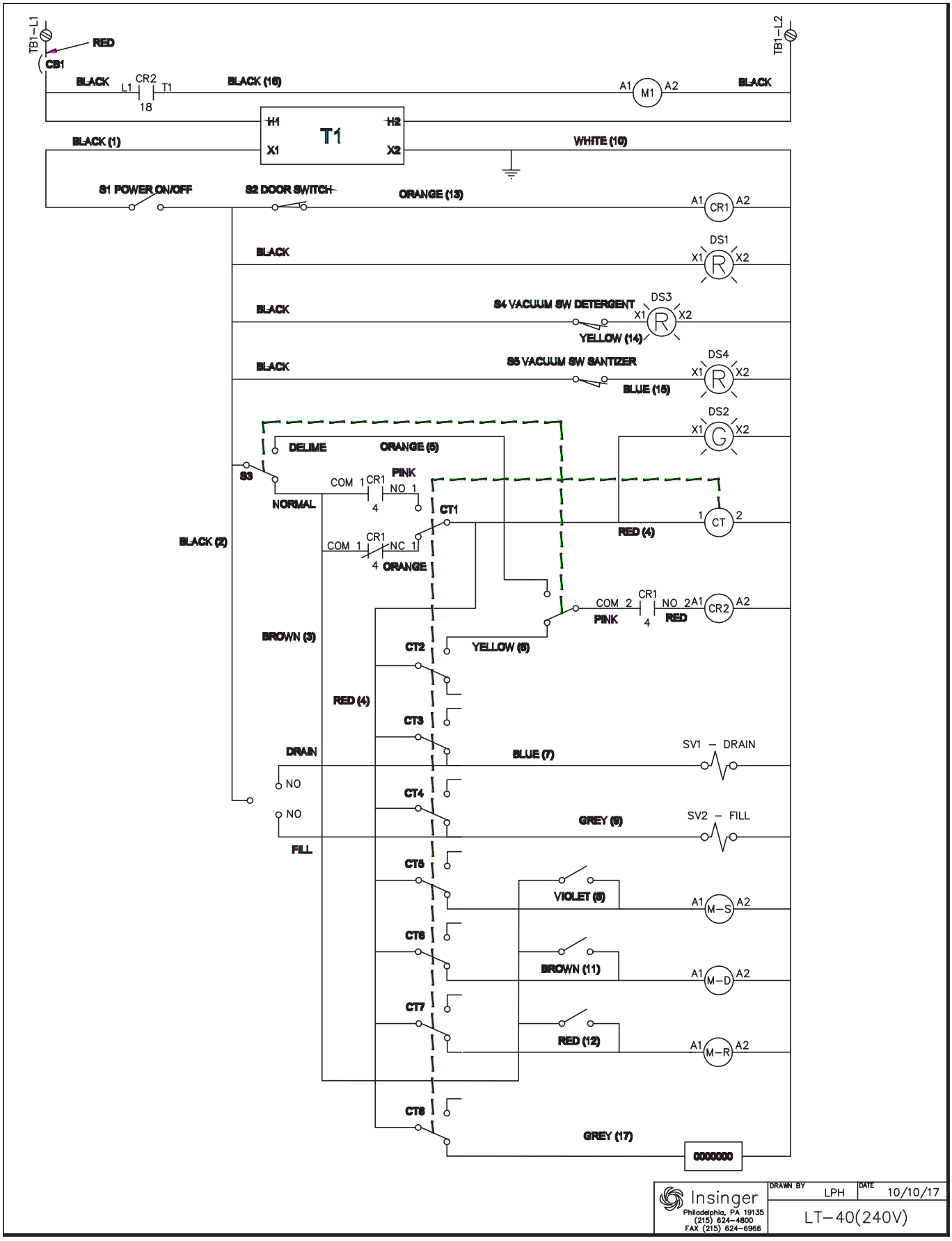
LT-40H Part Numbers

The parts in the chart below vary for the LT-40S and the LT-40H.

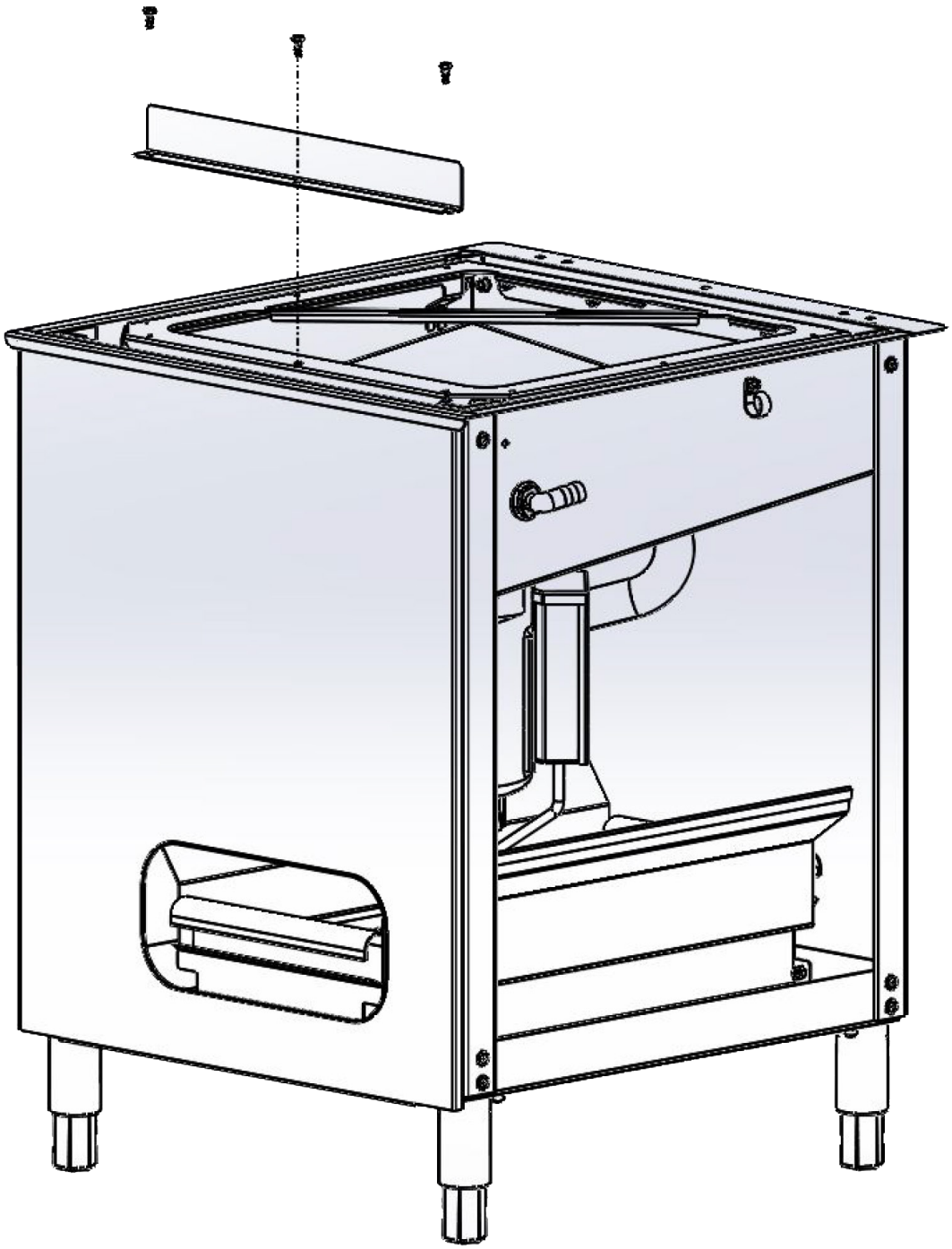
LT-40S Part #	LT-40H Part #	LT-40H Part Description
LT-13	LT-13XH	Discharge Tube (Extra High)
LT-20	LT-20XH	Overflow Tube (Extra High)
LT-26	LT-26XH	Hood (Extra High)
LT-27	LT-27XH	Side Door (Extra High)
LT-28	LT-28XH	Front Door (Extra High)
LT-32	LT-32XH	Corner Post-LH (Extra High)
LT-33	LT-33XH	Corner Post-RH (Extra High)
LT-34	LT-34XH	Door Channel (Extra High)
LT-35	LT-35XH	Plastic Door Strips (Extra High)
LT-38	LT-38XH	Handle (Extra High)
LT-39	LT-39XH	Handle Door Link (Extra High)
D3323	925-44	Spring Extension Rod
D258C-JC		
D3319	D3305	1 HP Pump

Additional Parts: The LT-40H has a third Compression Helical Spring (SK2249A-001) that requires a third Spring Extension Rod (925-44) and a third Spring Handle Bracket (LT-41).

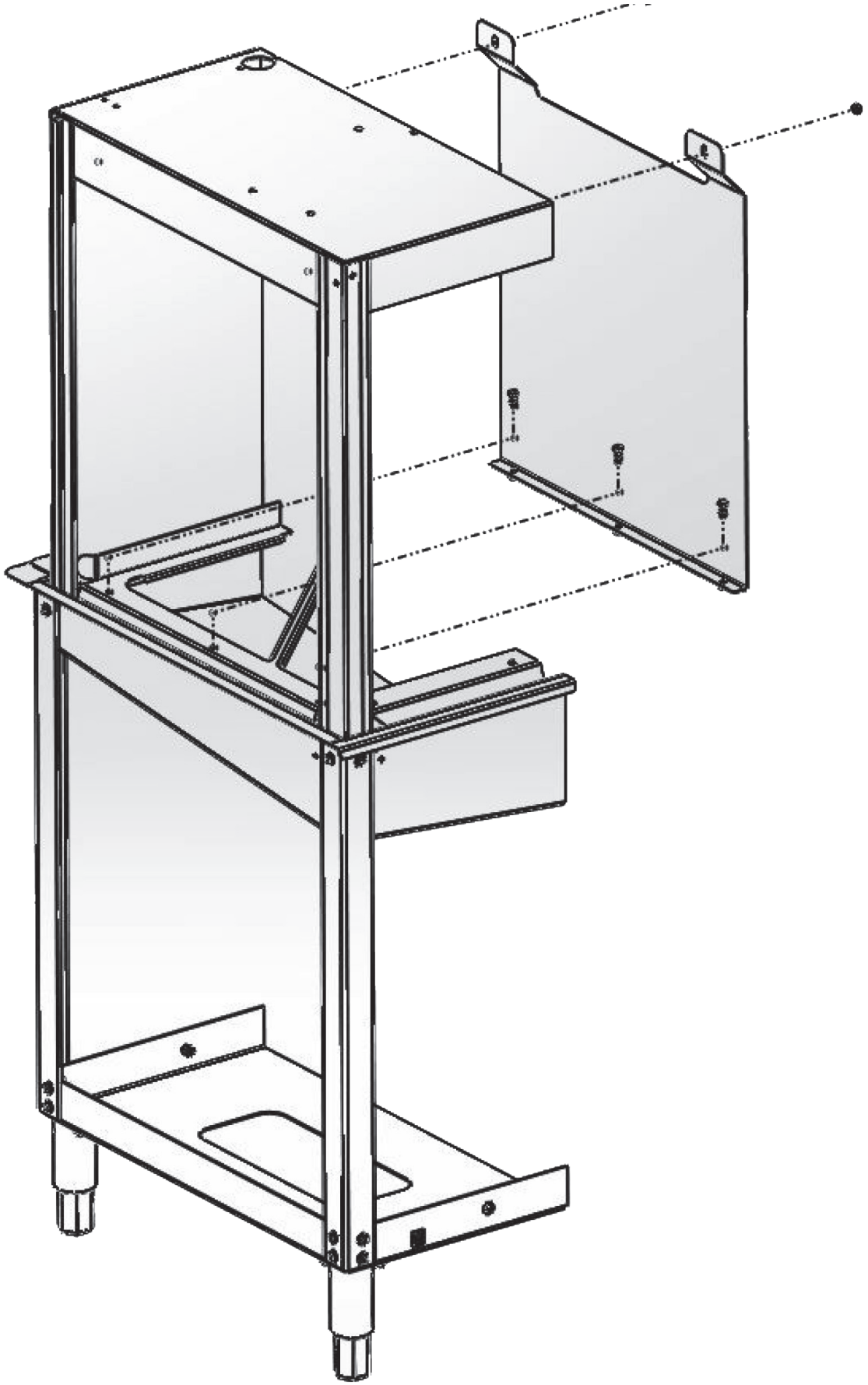

TB1–L1
RED
CB1
TB1–N
BLACK (1)
CR2
L1
T1
18
BLACK (16)
A1
M1
A2
WHITE (10)
S1 POWER ON/OFF
S2 DOOR SWITCH
ORANGE (13)
A1
CR1
A2
BLACK
DS1
X1
R
X2
BLACK
S4 VACUUM SW DETERGENT
DS3
X1
R
X2
YELLOW (14)
BLACK
S5 VACUUM SW SANITIZER
DS4
X1
R
X2
BLUE (15)
DS2
X1
G
X2
DELIME
ORANGE (5)
S3
NORMAL
COM 1
CR1
PINK
NO 1
4
CT1
1
CT
2
RED (4)
BLACK (2)
COM 1
CR1
NC 1
4
ORANGE
COM 2
CR1
NO 2
A1
CR2
A2
PINK
4
RED
BROWN (3)
CT2
YELLOW (6)
CT3
RED (4)
DRAIN
BLUE (7)
SV1 – DRAIN
NO
CT4
NO
GREY (9)
SV2 – FILL
FILL
CT5
VIOLET (8)
A1
M–S
A2
CT6
BROWN (11)
A1
M–D
A2
CT7
RED (12)
A1
M–R
A2
CT8
GREY (17)
0000000
Insinger
Philadelphia, PA 19135
(215) 624–4800
FAX (215) 624–6966
DRAWN BY
LPH
DATE
10/10/17
LT–40(120V)


TB1–L1
RED
CB1
TB1–L2
BLACK
L1
CR2
T1
18
BLACK (18)
A1
M1
A2
BLACK
H1
H2
T1
X1
X2
BLACK (1)
WHITE (10)
S1 POWER ON/OFF
S2 DOOR SWITCH
ORANGE (13)
A1
CR1
A2
BLACK
DS1
X1
R
X2
BLACK
S4 VACUUM SW DETERGENT
DS3
YELLOW (14)
BLACK
S5 VACUUM SW SANITIZER
DS4
BLUE (15)
DS2
G
DELIME
ORANGE (5)
S3
NORMAL
COM 1
CR1
PINK
NO 1
4
CT1
1
CT
2
RED (4)
BLACK (2)
COM 1
NC 1
ORANGE
COM 2
NO 2
RED
BROWN (3)
CT2
YELLOW (6)
RED (4)
CT3
DRAIN
BLUE (7)
SV1 – DRAIN
NO
CT4
NO
GREY (9)
SV2 – FILL
FILL
CT5
VIOLET (8)
M–S
CT6
BROWN (11)
M–D
CT7
RED (12)
M–R
CT8
GREY (17)
0000000
Insinger
Philadelphia, PA 19135
(215) 624–4800
FAX (215) 624–6966
DRAWN BY
LPH
DATE
10/10/17
LT–40(240V)

STEP 1



STEP 2



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