

# **TECHNICAL MANUAL**

Installation, Operation and Maintenance Instructions

# **ADMIRAL SERIES**

**Rack Conveyor Dishwasher** 

ADMIRAL 44-4 ADMIRAL 66-6

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

**800-344-4802** Fax: 215-624-6966

www.insingermachine.com



Thank you for purchasing this quality Insinger product.

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

Model:	 	
Serial Number:	 	
Start-Lin 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.

A Service Network Listing is provided on our web site, www.insingermachine.com or call Insinger at 800-344-4802 for your local authorized servicer.

For proper activation of the *Insinger Limited Warranty* a SureFire<sup>™</sup> Start-Up & Check-Out Service should be completed on your machine. Refer to the Introduction section in this manual for an explanation of Insinger SureFire<sup>™</sup> Start-Up & Check-Out Program.

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 by phone, fax or the internet or for answers to question concerning installation, operation, or service contact our Technical Services Department:

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

TABLE OF CONTENTS  Part 1 Technical Information  Introduction  Cut-sheets & Installation Drawings  Warranties	3-13
Part 2 Installation Instructions  Installation and Start-Up Procedures	14-17
Part 3 Operating Instructions  • Operating Procedures	18
Part 4 Cleaning Instructions • Daily and Weekly Procedures	19
Part 5 Maintenance & Repair Procedures  • Maintenance & Repair Procedures  • Basic Service Guide	20-22
Part 6 Electrical Schematics & Replacement Parts  • Machine Wiring Diagrams  • Control Panel Layout & Component Drawings	23-32
Part 7 Spare Parts List	33
Part 8 Replacement Parts  Overall Assembly Drawings for: Admiral 44-4 Admiral 66-4  Drain Assembly  Motor/Pump Assembly  Conveyor & Chain Tensioner Assemblies Rinse Converter  Scrap Screen Arrangement  Top Baffles and Curtain Location  Drive Mechanism Assembly  Final Rinse Assemblies  Electric Heaters & Boosters  Steam Coils, Injectors and Boosters  Discharge Lines Assemblies  Rear Track Assemblies	34-64





Project
Item
Quantity
CSI - 11400
ApprovaL
Date

# ADMIRAL44-4

# **Single Tank Conveyor Dishwasher**

- Automatic conveyor, rack type, single tank dishwasher with recirculating wash and fresh water final rinse.
- 0.63 gallons per rack at 20 PSI
- Capacity is 233 (20" x 20") racks per hour or 5,825 dishes per
- CrossFire Wash System provides superior cleaning
- Error proof replacement with color-coded curtains



The patented CrossFire Wash System power sprays water horizontally, as well as, from above and below, cleaning and sanitizing the dirtiest of ware.

#### STANDARD FEATURES

- CrossFire Wash System
- Color-coded curtains
- Tank heat:
  - Electric immersion heater
  - Steam injector
- Manifold clean-out brush
- S/S 304 stainless steel construction
- Automatic tank fill
- Low water protection
- Single point electrical connetion: motor, controls and tank heat. (Optional booster requires a separate connection)
- Detergent connection provision
- Elevated top mounted NEMA 12 control panel
- Door safety switches
- Standard frame drip proof motors
- Energy saver
- Override switch for de-liming
- SureFire Start-Up & Check-Out Service
- Ventilation fan connection provision
- End caps/pipe plugs secured to prevent loss
- Timing belt conveyor drive

# **OPTIONS**

- □ Tank heat:
  - ☐ Steam coil
  - ☐ Infrared gas
- ☐ Built-in or stand alone electric booster heater
- □ Pressure reduction valve and line strainer
- Steam booster
- ☐ Vent cowl collar with adjustable damper controls
- ☐ Chemical sanitizer injector package for low temperature operations (Chemical pump supplied by others)
- ☐ Security package
- □ Totally enclosed motors
- □ Rack limit switch
- Power Loader
- Power Unloader
- Door activated drain closer
- ☐ Plastic 20" x 20" racks (plate or silver)













# ADMIRAL44-4

# **Single Tank Conveyor Dishwasher**

Capacity Per Hour	233 racks 5825 dishes 225-500 meals
Tank Capacity	21 gals. (wash) 37 gals. (gas wash)
Motor Size	2 hp (wash) 1/15 hp (conveyor)
Electric Usage	17.5 kW tank 15 kW b.i. booster 40° rise 27 kW b.i. booster 70° rise 15 kW rem. booster 40° rise 27 kW rem. booster 70° rise
Gas Consumption	50,000 BTUH 49 CFH nat. gas 20 CFH propane
Steam Consumption at 20 psi min.	54 lbs./hour tank 52 lbs./hour booster 40° rise 91 lbs./hour booster 70° rise
Final Rinse Peak Flow at 20 psi min.	2.5 gallons/minute
Final Rinse Consumption at 20 psi min.	147 gallons/hour 0.63 gallons/rack
Exhaust Air Requirement	200 CFM Load 200 CFM unload
Peak Rate Drain Flow	9 gallons/minute
Installation distance from vertical combustible surface	2"
Shipping Weight	600 lbs.

Machine Electrica	*Booster Electrical				
Motors, Con- trols Tank Heat	Steam	Gas	Electric	40° Rise	70° Rise
240/1/60 208/3/60 240/3/60 480/3/60	14.3 8.5 7.8 3.9 4.7	14.3 9.2 8.5 4.2	87.2 57.1 49.9 25.0	62.5 41.7 36.1 18.1	112.5 75.0 65.0 32.5
380/3/50		5.1	31.3	23.0	38.1

#### **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. All internal castings are non-corrosive lead free nickel alloy, bronze or S/S.

DOORS- Zero-Infringement Doors are extra large die formed, type 304 S/S, double-walled, insulated, front inspection doors. The vertically opening doors with spring assist, glide in full length tracks on either side. Automatic safety catch at full open locations.

CONVEYORS- One S/S roller chain conveyor, with rack driving lugs every sixth link, running along the front of the machine. Eight free spinning rollers placed along the back wall of the machine. Conveyor accommodates all standard 20" racks. Conveyor drive system includes direct drive gear motor with frictionless, trouble-free clutch system, spring-loaded and automatically re-engaging. Racks conveyed automatically through washing and rinsing systems, powered by an independent 1/15 hp drive motor.

PUMP- Centrifugal type "packless" pump with a brass petcock drain. Construction includes ceramic seal and a balanced cast impeller on a precision ground stainless steel shaft, extension or sleeve. All working parts mounted as an assembly and removable as a unit without disturbing pump housing. 2 hp motor, standard horizontal C-face frame, drip proof, internally cooled with ball-bearing construction.

CONTROLS- Top mounted NEMA 12 control enclosure, housing motor overload protection, contactors, transformers and all other dishwasher controls. All controls safe low voltage 24 VAC.

ENERGY SAVER- Rack actuated lever automatically operates the final rinse solenoid only when a rack passes, saving water and energy. The lever also activates an adjustable timer control. If no ware passes during the set time, the machine shuts down.

SPRAY SYSTEM- Spray arms made of type 304 stainless steel pipe. Spray assemblies removable without the use of tools.

WASH- Upper and lower manifolds with the patented CrossFire® Wash System. One manifold above with 3 power wash arms, each with 5 high pressure cleaning slots and one manifold below with 4 power wash arms, each with 7 high pressure cleaning slots. The slots are precision milled for water control producing a fan spray. Wash arms are fillet welded to the S/S manifold. The CrossFire® Wash System provides 2 horizontally spraying high pressure nozzles.

FINAL RINSE- Three nozzles above and four nozzles below threaded into S/S schedule 40 pipes. Nozzle assemblies produce a fan spray reducing water consumption, maximizing heat retention.

DRAIN- Drain valve externally controlled. Overflow assembly with skimmer cap is removable without the use of tools for drain line inspection. Heater is protected by low water level control.

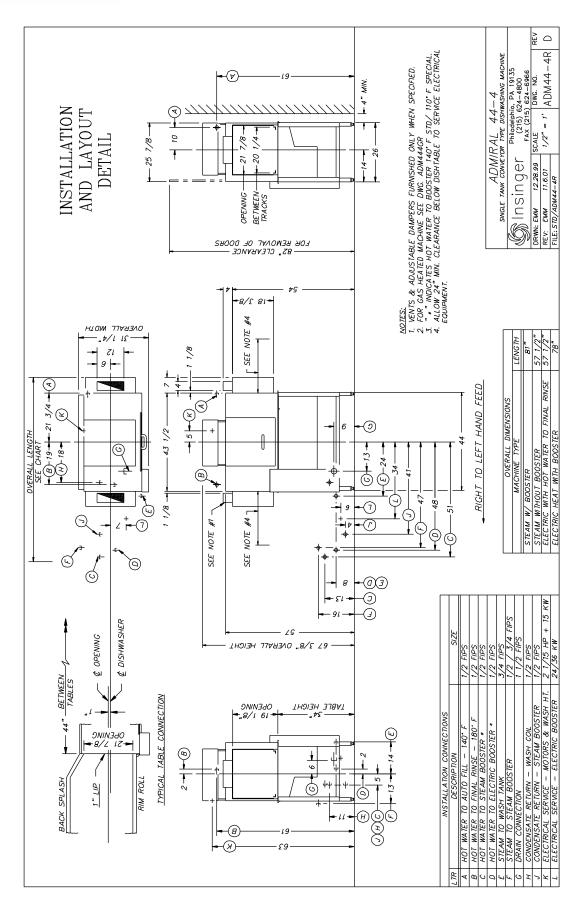
Note: Exhaust requirements are for pant leg connections only. For hood type, CFM requirements vary, consult hood manufacturer for specific sizing.

Contact Insinger Sales at 800-344-4802 for an installation drawing specific to your application.

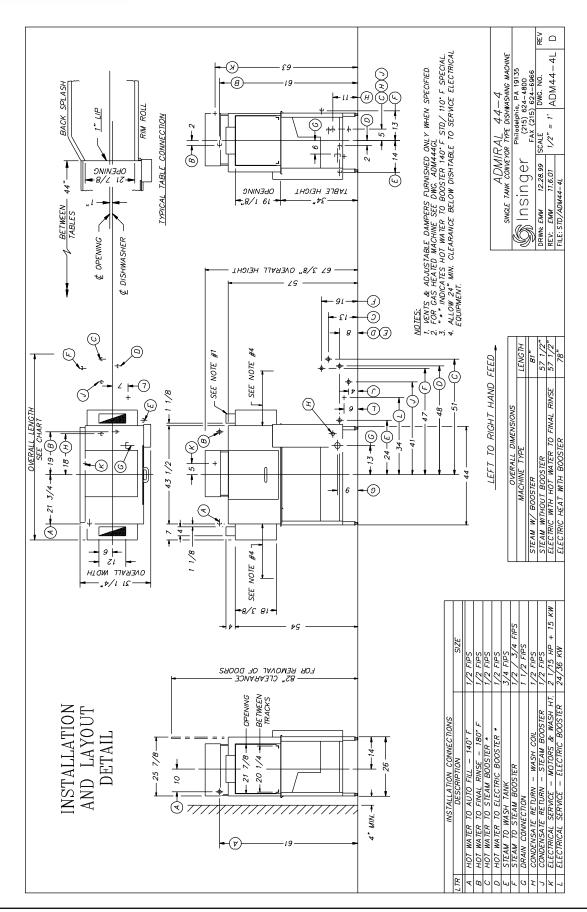
This drawing is available on the Insinger webstie at www.insingermachine.com

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













# **ADMIRAL**<sup>66-4</sup>

# Single Tank Conveyor Dishwasher with Recirculating Pre-wash

- Automatic conveyor, rack type, single tank dishwasher with recirculating pre-wash and wash and fresh water final rinse.
- 0.63 gallons per rack at 20 PSI
- Capacity is 233 (20" x 20") racks per hour or 5,825 dishes per
- CrossFire Wash System provides superior cleaning
- Wide access doors make daily maintenance easy and efficient
- Error proof replacement with color-coded curtains



The patented CrossFire Wash System power sprays water horizontally, as well as, from above and below, cleaning and sanitizing the dirtiest of ware.

# STANDARD FEATURES

- CrossFire® Wash System
- Color-coded curtains
- Tank heat:
  - Electric immersion heater
  - Steam injector
- Manifold cleanout brush
- S/S 304 stainless steel construction
- Automatic tank fill
- Low water protection
- Single point electrical connection: motor, controls and tank heat. (Booster requires a separate connection)
- Detergent connection provision
- Elevated top mounted NEMA 12 control panel
- Door safety switches
- Standard frame drip proof motors
- Energy saver
- Override switch for de-liming
- SureFire<sup>™</sup> Start-Up & Check-Out Service
- Ventilation fan connection provision
- End caps/pipe plugs secured to prevent loss
- Timing belt conveyor drive

# **OPTIONS**

- □ Tank heat:
  - ☐ Steam coil
  - Infrared gas
- ☐ Built-in or stand alone electric booster heater
- Pressure reduction valve and line strainer
- Steam booster
- ☐ Vent cowl collar with adjustable damper controls
- ☐ Chemical sanitizer injector package for low temperature operations (Chemical pump supplied by others)
- ☐ Security package
- □ Totally enclosed motors
- Rack limit switch
- Power Loader
- Power Unloader
- Door activated drain closer
- ☐ Plastic 20" x 20" racks (plate or silver)













# ADMIRAL66-4

# **Single Tank Conveyor Dishwasher**

Capacity Per Hour	233 racks 5825 dishes 225-500 meals
Tank Capacity	21 gals. (wash) 37 gals. (gas wash)
Motor Size	2 hp (wash) 1/15 hp (conveyor)
Electric Usage	17.5 kW tank 15 kW b.i. booster 40° rise 27 kW b.i. booster 70° rise 15 kW rem. booster 40° rise 27 kW rem. booster 70° rise
Gas Consumption	50,000 BTUH 49 CFH nat. gas 20 CFH propane
Steam Consumption at 20 psi min.	54 lbs./hour tank 52 lbs./hour booster 40° rise 91 lbs./hour booster 70° rise
Final Rinse Peak Flow at 20 psi min.	2.5 gallons/minute
Final Rinse Consumption at 20 psi min.	147 gallons/hour 0.63 gallons/rack
Exhaust Air Requirement	200 CFM Load 200 CFM unload
Peak Rate Drain Flow	9 gallons/minute
Installation distance from vertical combustible surface	2"
Shipping Weight	600 lbs.

Machine Electrica	*Booster Electrical				
Motors, Controls Tank Heat	Steam	Gas	Electric	40° Rise	70° Rise
240/1/60	14.3	14.3	87.2	62.5	112.5
208/3/60	8.5	9.2	57.1	41.7	75.0
240/3/60	7.8	8.5	49.9	36.1	65.0
480/3/60	3.9 4.7	4.2	25.0	18.1	32.5
380/3/50		5.1	31.3	23.0	38.1

# **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. All internal castings are non-corrosive lead free nickel alloy, bronze or S/S.

DOORS- Zero-Infringement Doors are extra large die formed, type 304 S/S, double-walled, insulated, front inspection doors. The vertically opening doors with spring assist, glide in full length tracks on either side. Automatic safety catch at full open locations.

CONVEYORS- One S/S roller chain conveyor, with rack driving lugs every sixth link, running along the front of the machine. Eight free spinning rollers placed along the back wall of the machine. Conveyor accommodates all standard 20" racks. Conveyor drive system includes direct drive gear motor with frictionless, trouble-free clutch system, spring-loaded and automatically re-engaging. Racks—conveyed automatically through washing and rinsing systems, powered by an independent 1/15 hp drive motor.

PUMP- Centrifugal type "packless" pump with a brass petcock
 drain. Construction includes ceramic seal and a balanced cast impeller on a precision ground stainless steel shaft, extension or sleeve. All working parts mounted as an assembly and removable
 as a unit without disturbing pump housing. 2 hp motor, standard horizontal C-face frame, drip proof, internally cooled with ball-bearing construction.

CONTROLS- Top mounted NEMA 12 control enclosure, housing motor overload protection, contactors, transformers and all other dishwasher controls. All controls safe low voltage 24 VAC.

ENERGY SAVER- Rack actuated lever automatically operates the final rinse solenoid only when a rack passes, saving water and energy. The lever also activates an adjustable timer control. If no ware passes during the set time, the machine shuts down.

SPRAY SYSTEM- Spray arms made of type 304 stainless steel pipe. Spray assemblies removable without the use of tools.

WASH- Upper and lower manifolds with the patented CrossFire® Wash System. One manifold above with 3 power wash arms, each with 5 high pressure cleaning slots and one manifold below with 4 power wash arms, each with 7 high pressure cleaning slots. The slots are precision milled for water control producing a fan spray. Wash arms are fillet welded to the S/S manifold. The CrossFire® Wash System provides 2 horizontally spraying high pressure nozzles.

FINAL RINSE- Three nozzles above and four nozzles below threaded into S/S schedule 40 pipes. Nozzle assemblies produce a fan spray reducing water consumption, maximizing heat retention.

DRAIN- Drain valve externally controlled. Overflow assembly with skimmer cap is removable without the use of tools for drain line inspection. Heater is protected by low water level control.

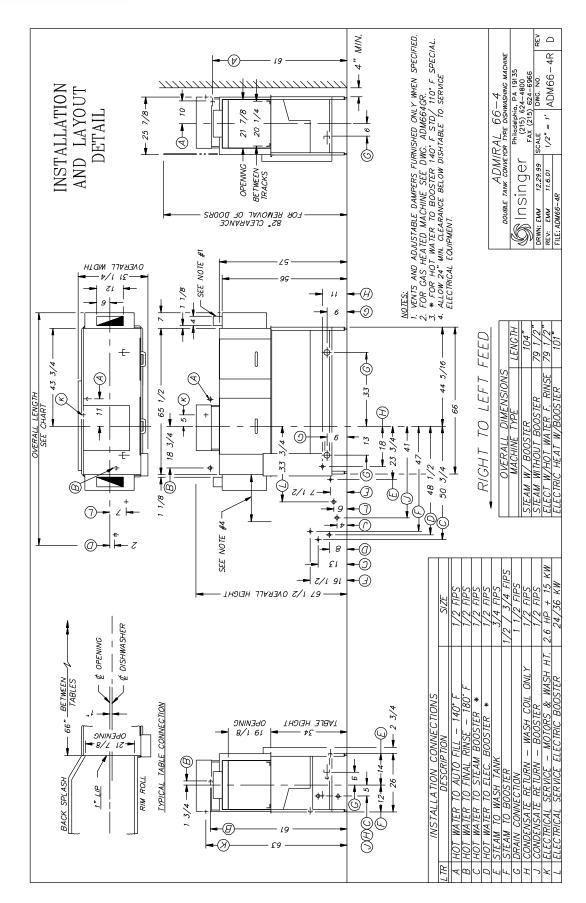
Note: Exhaust requirements are for pant leg connections only. For hood type, CFM requirements vary, consult hood manufacturer for specific sizing.

Contact Insinger Sales at 800-344-4802 for an installation drawing specific to your application.

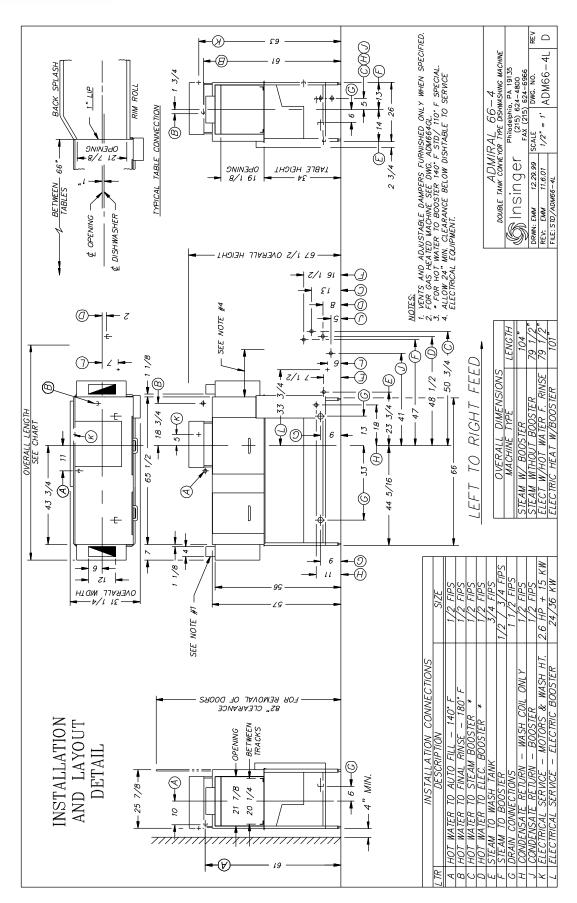
This drawing is available on the Insinger webstie at www.insingermachine.com

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











#### ADMIRAL RACK CONVEYOR SERIES

#### INTRODUCTION

# Purpose

The purpose of this technical manual is to provide installation, operation, cleaning and maintenance directions.

A section is provided for replacement parts.

# Scope

This manual contains all pertinent information to assist in the proper installation, operation, cleaning, maintenance, and parts ordering for Insinger Rack Conveyor Admiral Dishwasher Series.

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 parts sections are intended for qualified service and/or maintenance technicians. Replacement parts may be ordered directly from our factory or from your local Insinger Authorized Service Agency. You can speak to the Insinger Technical Services Department, 800/344-4802, or e-mail us at service@insingermachine.com. When calling for warranty information or replacement parts please provide the model and serial number of your Insinger Equipment. These important numbers should be noted in this manual on the spaces provided on the opening page.

Surefire™ Start-up & Check-out Program Insinger is proud to offer our exclusive Surefire™ Start-up & Check-out Program to our commercial customers. This service is included in the purchase price of your new Insinger dishwasher. We will provide an authorized factory service technician for the initial start-up of your new Insinger dishwasher to ensure it is running at optimum levels from the very first pass. Please call the factory or your local Insinger Sales Representative to schedule this service.

NSF 3-2003 requirements for detergent and chemical sanitizer dispensers.

This machine must be operated with an automatic detergent dispenser and, if applicable, an automatic chemical sanitizer feeder, including a visual means to verify that detergents and sanitizers are delivered or a visual or audible alarm to signal if detergents and sanitizers are not available for delivery to the respective washing and sanitizing systems. Please see instructions for electrical and plumbing connections located in this manual and in the feeder equipment manual.

#### 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.



#### NOTE:

Indicates helpful operating hints or tips.

# CAUTION:

Indicates potential equipment damage.



#### 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, 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 longest 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, this may be done through an Authorized Service Agency. Furnish serial number of machine 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.



# INSINGER MACHINE COMPANY LIMITED WARRANTY COMMERCIAL MARINE USE

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 (installation manual), then for a period of 18 months from the date of installation on board the vessel, that said Insinger product shall be free from defects in material and workmanship.

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

This limited warranty shall be limited to the 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. Furnish serial number of machine with shipment and send to:

Insinger Machine Company, Inc. 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. If part damages are not covered, Insinger will contact the customer and advise.

If a factory trained authorized technician is required to repair or replace defective parts or material during the 18 month warranty period, the cruise line will be responsible for the payment of travel expense and a minimum of four hours labor.

Labor will be billed to the customer at a reduced rate of \$40.00 per hour. If sailing with a vessel is required, then an eight hour per day minimum will apply.

This limited warranty does not cover accident, abuse, misuse, alteration, misapplication, improper installation, fire, flood, 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, caring and or cleaning process.

Warranty service must be done by either Insinger Appointed Service Agencies or agencies, customers galley engineers receiving 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 merchantability and fitness or limited warranties as the above date.

Insinger does not authorize any person or company locally or overseas 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.



# INSTALLATION INSTRUCTIONS

#### Placement

Carefully uncrate machine. Take caution not to damage components which may be mounted on the top or sides of the machine. Set unit in place and adjust the feet to level 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 table to the side of the machine with flathead counter-sunk screws. The table design should provide horizontal clearance of 30" for servicing underneath the table.

#### **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.

On machines not provided with a single-point connection (optional) there is an electrical connection required for the: **1.** Pumps and control circuit, **2.** Wash tank heater(s) and, **3.** Rinse tank heaters (if provided).

If an electric booster is provided, connect power directly to the booster.

Fusing must be in accordance with the Fuse Sizing Chart below.

# CAUTION:

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

A laminated wiring diagram is inside the control panel.

FUSE SIZING CHART					
Model	208VAC/3È	230VAC/3È	380VAC/3È	460VAC/3È	220VAC/IÈ
Admiral 44-4 Steam or Electric	15A	10A	10A	6A	20A
Admiral 44-4 Steam or Electric Power Loader	15A	15A	10A	6A	25A
Admiral 44-4 Steam or Electric Power Unloader	15A	15A	10A	10A	25A
Admiral 44-4 Steam or Electric Power Loader Power Unloader	20A	15A	10A	10A	25A
Admiral 44-4 Gas Heat	15A	15A	10A	6A	20A
Admiral 44-4 Gas Heat Power Loader Power Unloader	15A	15A	10A	10A	25A
Admiral 44-4 Admiral 66-4 Electric Heat Single-Point Electric	60A	50A	30A	25A	n/a
Admiral 44-4 Electric Heat Single-Point Electric Power Unloader	60A	50A	30A	25A	n/a



		FUSE SIZING	G CHART		
Model	208VAC/3È	230VAC/3È	380VAC/3È	460VAC/3È	220VAC/IÈ
Admiral 44-4 electric heat single-point electric power unloader	60A	50A	35A	25A	n/a
Admiral 44-4 electric heat single-point electric power loader power unloader	60A	50A	35A	25A	n/a
Admiral 66-4 steam or electric	15A	15A	10A	6A	25A
Admiral 66-4 steam or electric power loader	15A	15A	10A	10A	35A
Admiral 66-4 steam or electric power unloader	20A	15A	10A	10A	30A
Admiral 66-4 steam or electric power loader power unloader	20A	20A	10A	10A	30A
Admiral 66-4 gas heat	15A	15A	10A	10A	25A
Admiral 66-4 gas heat power loader or unloader	20A	15A	10A	10A	30A
Admiral 66-4 gas heat power loader and unloader	20A	15A	10A	10A	35A
Admiral 66-4 electric heat single-point electric power loader or unloader	60A	50A	35A	25A	n/a
Admiral 66-4 electric heat single-point electric power loader and unloader	60A	60A	35A	30A	n/a
Admiral 44-4 <sup>1</sup> Admiral 66-4 <sup>1</sup> electric heat non-SPC	60A	45A	30A	25A	80A

<sup>&</sup>lt;sup>1</sup> This circuit is required for all machines with electric tank heat that are not configured for single point connection.

# CAUTION:

As with any 3 phase system, an electrician must check all motors for proper phasing, i.e., pump motors must be running in direction indicated by arrow on housing.



#### Mechanical Connections

Connect water lines for tank fills as tagged and noted on the installation drawings.

If machine is provided with steam heat connect the steam lines and steam condensate lines as tagged and noted on installation drawings. If machine is provided with gas heat, connect the gas line.

If a booster is provided a hot water connection is necessary (110° F or 140° F).

# CAUTION:

Drain lines must be as specified on installation drawings.

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

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:

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

# CAUTION:

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

#### **HVAC**

The ventilation system should be sized to provide adequate ventilation per machine specs. Refer to spec sheet.

Stainless steel, watertight ducting should be connected to the vent cowls (optional) on each end of the machine.

#### Chemicals

Upon the completed installation of the dishwasher, contact a local detergent/chemical supplier for the correct chemicals for your soil load and geographical area.

Electrical connection points for the detergent dispenser and rinse injector are located inside the control panel. Refer to the wiring diagram for this machine for the proper connection points.

Dispensers may be connected on either the primary voltage side of the machine or the 24VAC control voltage side.

# CAUTION:

When connecting on the 24VAC control voltage side of the transformer, total VA *must* not exceed 5Kva.

The detergent density probe can be placed in the provided hole (labeled "Detergent Probe") in the wash tank.

## Tabling

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

#### CAUTION:

Machines with unload tables less than 48" should utilize a rack limit switch to shut the machine down if clean racks pile-up. This extends the life of the drive system.



# Initial Start-Up Adjustments

# Tank Overfill Adjustment

- Locate tank overfill timer in the control panel.
   See the control panel layout drawing located in Section 6, Electrical Schematic and Replacement Parts.
- The overfill timer starts timing when the upper level float is actuated. Adjust the overfill timer potentiometer to turn the tank fill solenoid off when the water level is 1/4" below the lip of the overflow tube.
- 3. The timer has a built in dwell timing delay of 5 seconds (nominal to dampen float bounce caused by tank water motion.

# Conveyor Jam Adjustment

- 1. Remove the mechanism guard to gain access to the conveyor drive.
- 2. Locate the compression spring (refer to Drawing #1397-1, Drive Mechanism Assembly).
- The factory set compression dimension is a nominal 3 13/16". Installations washing heavier ware may need to adjust this for more compression to keep the machine from shutting down prematurely.
- Should the drive mechanism switch be activated by a conveyor jam, the Check Conveyor Light on the control panel will illuminate and the machine will shut down.
- 5. To restart the machine, clear the jam and press the green Start Button.

## Final Rinse Pressure Adjustment

 The final rinse pressure must be adjusted to 20PSI. This is done by adjusting the pressure regulator.



Insinger dishmachines are user-friendly, making them the easiest dishmachines on the market to operate and maintain.

By following these operating procedures your Insinger dishwasher will give you years of trouble free service.

#### OPERATION INSTRUCTIONS

- Ensure drain overflow tube is in place. Close all tank drain valves. One drain is provided for each tank of the dishmachine.
- Check for proper installation and cleanliness of all internal, removable components such as suction strainers, scrap screens, and spray manifolds.
- 3. Ensure all water, steam, and gas lines are open. Ensure electrical circuits are on.
- 4. Close machine doors.



## NOTE:

An interlock is provided to shut the machine down if the doors are open, therefore the machine will not run if the doors are opened.

- 5. Move the power toggle switch to the ON position.
- 6. The machine will begin to fill.
- 7. When the tanks are full the tank heat will operate automatically.

# **CAUTION:**

To ensure proper operation of the auto tank fill feature and the tank heaters, the tank level floats MUST be cleaned daily.

- 8. Depress the GREEN button to start the conveyor.
- The system is now ready for operation. All ware should be properly scrapped. Do not overload racks.

# **CAUTION:**

Overloading racks will impede proper cleaning of the ware and also put extra strain on the conveyor system.

- 10. Slide the rack into the dishmachine, the conveyor
- 11. will pass the rack through the various machine cycles. Upon entering the final rinse section of the machine the rack will engage the final rinse actuator allowing the water to sanitize the dishes.
- 12. Should a conveyor jam occur, the CHECK CON-VEYOR light will illuminate and the machine will shutdown. To re-start the machine, clear the conveyor jam and press the GREEN START button. If the CHECK CONVEYOR light comes back on, contact a qualified service technician.
- 13. Upon completion of ware cleaning depress the RED button to stop the conveyor system.
- 14. Move the POWER toggle switch to the OFF position.
- 15. Refer to the cleaning procedures for proper cleaning of the dishmachine.
- 16. Report any unusual occurrences to qualified service personnel.



The following cleaning procedures should be done daily, at the end of the shift.

#### DAILY CLEANING PROCEDURES

- 1. Remove all internal removable parts including spray manifolds, scrap screens, drain overflow tubes, suction strainers and curtains.
- Remove the end caps from the spray manifolds and clean with the brush provided. Flush the manifolds.
- 3. Flush scrap screens.
- 4. Clean drain overflow tube.



#### NOTE:

V-cup seal on the drain overflow tube may become gummed not allowing the overflow tube to seal. This will cause the drain to leak water. Remove any build-up on the V-cup seal. When the seal becomes worn, replace with part # D2-557.

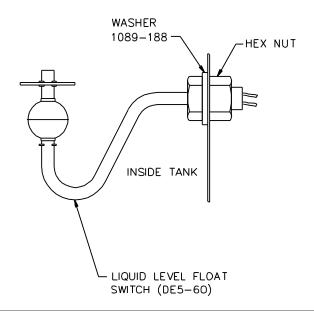
5. Clean the suction strainers of build-up.



#### NOTF:

Improper cleaning of the suction strainers will cause the pumps to cavitate. This will cause poor washing results.

6. Clean the tank level float with a plastic abrasive pad (do not use steel wool).





# NOTE:

Level floats must be cleaned daily. Build-up of grease and dirt will cause faulty operation of the tank fill heating system.

The LIQUID LEVEL FLOAT is located below the scrap screens in those tanks which contain water heating devices (coils, steam injectors, or electric immersion heaters) and pump inlet strainers. They are usually located, in rackless and rack conveyor style machines, on the inside tank wall, at approximately water level, opposite and parallel to the inspection doors. In the door, stationary rack type machines, the LIQUID LEVEL FLOAT may be found beneath the scrap screen.

- 7. Clean curtains. When the curtains are beyond cleaning or torn they should be replaced.
- 8. Clean final rinse nozzles of matter clogging the jet spray.
- 9. Leave the doors open to allow the drying of the interior surfaces.

#### WEEKLY CLEANING PROCEDURES

An ENERGY SAVER SWITCH is provided on the control panel. When running the machine with de-liming solution, place this switch in the OFF position to allow the machine to run continuously. When not de-liming, the switch should be in NORMAL. Consult your detergent supplier for deliming solution concentration and frequency of use.



The following is a basic guide for the repair and replacement of common dishwasher parts. Refer to the Basic Services Guide for troubleshooting tips.

#### MAINTENANCE REQUIREMENTS

#### Daily

 Refer to the operations and cleaning instructions provided in this manual for daily cleaning procedures.

# Weekly

- 1. The entire machine should be wiped down using an industrial grade stainless steel cleaner.
- Under the supervision of your detergent supplier the machine interior must be properly delimed.
- A switch is provided on the control panel to run the machine continuously. For de-liming, move the selector switch to the DE-LIME position, then operate the machine normally. When deliming is completed, return the selector switch to "normal".

# þ

#### NOTE:

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

# Quarterly

- Remove and clean the strainer screens on the water and steam lines. If the screens cannot be cleaned, replace.
- Inspect the condition of the solenoid valve seats, and diaphragms. Replace where necessary.
- 3. Inspect drain O-Rings for leakage. Replace where necessary.
- 4. Grease the drive chain and sprockets.
- 5. Adjust conveyor chain tension using adjustment bolts located on the exit ends of the machine.

#### MAINTENANCE PROCEDURES

# Solenoid Valve Disassembly

- Disconnect the power supply to the machine.
   Turn off the water supply.
- 2. Remove cap on top of the coil. Remove the coil.
- 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.

# Liner Strainer Disassembly

- 1. Shut off water or steam supply.
- 2. Remove large hex nut on bottom of strainer body.
- Remove strainer screen. Inspect and clean or replace as necessary.
- 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.

## Pump Disassembly

 Before disassembling pump ensure there are no obstructions in the pump intake. Remove and clean the suction strainer (inside tank). See dwg. SK-2456A



#### NOTE:

It is not necessary to remove the pump housing from the machine to disassemble pump.

- 2. Remove the pump motor and impeller 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.



#### MAINTENANCE PROCEDURES

# Immersion Heater Replacement

- The immersion heater MUST be completely submerged at all times. If this is not the case contact a qualified service technician. The heated surface should never be in contact with sludge. See dwg. SK-4703.
- 2. Remove the housing covering the wiring terminations. Disconnect the immersion heater wires.
- Remove the immersion heater by loosening and removing the large hex nut.
- 4. Install in reverse of removal.

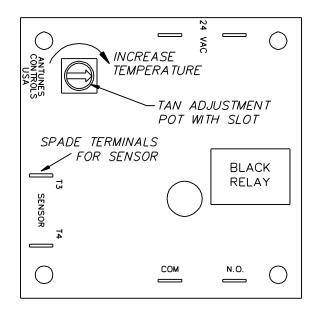


# NOTE:

Use plumbers putty as gasketing around the immersion heater to minimize leaks.

# Tank Heat Temperature Adjustment

- A temperature control board is provided in the control panel for easy adjustment of tank temperature. Though tank temperature is adjusted during the machines factory test it is sometimes necessary to re-adjust the temperature at startup.
- Locate the temperature control board (P/N DE9-96). Use the control panel layout drawing located in Section 4, Electrical Schematic and Replacement Parts.
- Adjust the tank temperature to the desired temperature by turning the potentiometer located on the temperature control board. An arrow on the potentiometer indicates increase.
- If the temperature does not change refer to Troubleshooting Tank Temperatures in the section below.



TANK TEMPERATURE CONTROL BOARD (DE9-251)

# Troubleshooting Tank Temperatures

#### Electric Heat

- If temperature does not change check the temperature control board (P/N DE9-251) proper operation. If the temperature control board is faulty, replace.
- 2. Verify tank heat contactor is working correctly. If not, replace.
- 3. Verify all immersion heaters are working properly and not limed. If not, replace.

#### Steam Heat

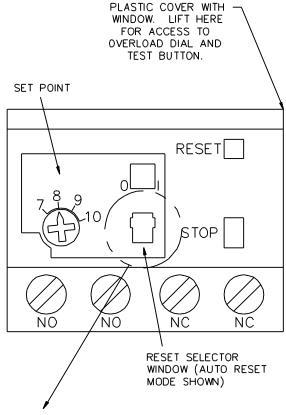
- If temperature does not change check the temperature control board (P/N DE9-251) proper operation. If the temperature control board is faulty, replace.
- 2. Verify steam pressure per machine specifications.
- 3. Verify steam trap is not clogged. If so, replace.



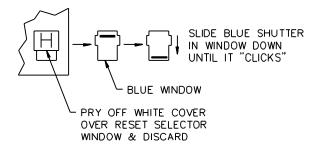
#### Motor Overloads

All motors used on Insinger Machines are provided with motor overloads. Motor overloads are adjusted when the machines are factory tested. Should it be necessary to adjust the motor overloads in the field first verify the motor current draw for the voltage the machine is using.

Using the Control Panel Component Layout Dwg. located in Section 3 to identify the overload adjust by turning the dial to the appropriate AMP draw.



TO CHANGE FROM MANUAL TO AUTO RESET:



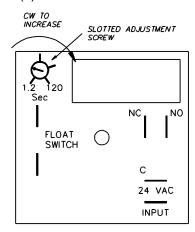
SKETCHA\SK-3829 OVERLOAD RELAY

## Level System

The level control system consists of one overfill timer (P/N DE7-35) and one level float (P/N DEF-60) per tank.

When the system is powered-up, the tank(s) will begin to fill (assuming no water is in the tanks).

When the level float is actuated, the overfill timer begins to time-out and continues the filling process until the tank(s) is full.



Liquid Level Timer DE7-35 Sk-4698

#### Final Rinse Actuator

The final rinse is actuated by a level located on the rear wall of the dishwasher near the exit end. When a rack depresses it a switch is closed and a solenoid energized.

The activation of the lever also resets the Energy Saver Timer (P/N DE7-28). The timer will then start counting from 0. The timer is adjustable between 0 and 300 seconds (5 minutes). See dwg. 116-145.



#### NOTF:

The overfill timer MUST be adjusted during initial start-up. Adjustment depends on water fill pressure. The water level MUST be 1/4" below the lip of the overflow tube. Adjust by increasing or decreasing the potentiometer on the level timer.

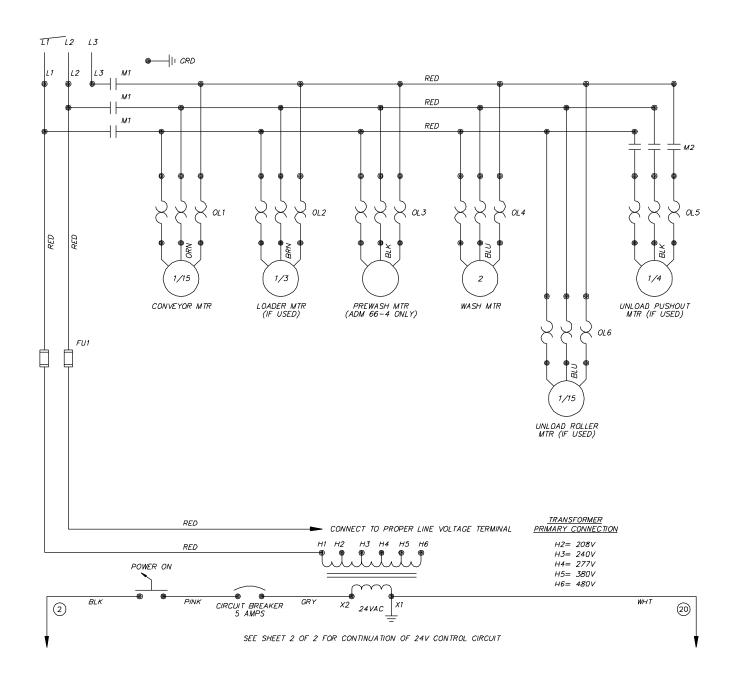


#### NOTE:

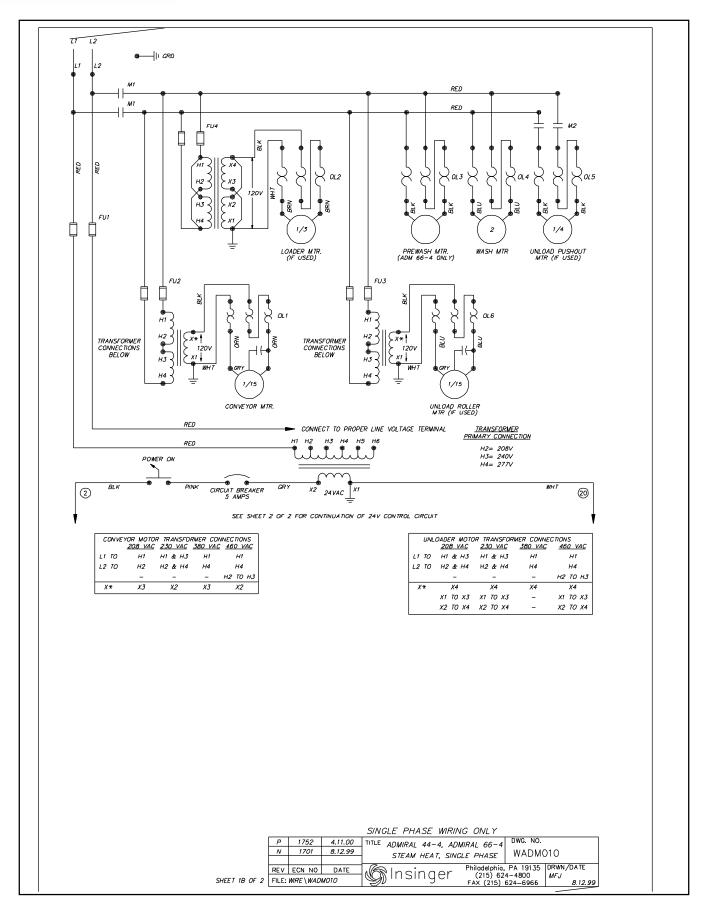
Dirty level floats will cause the tank heat to energize with no water in the tanks.

LEVEL FLOATS MUST BE CLEANED DAILY.

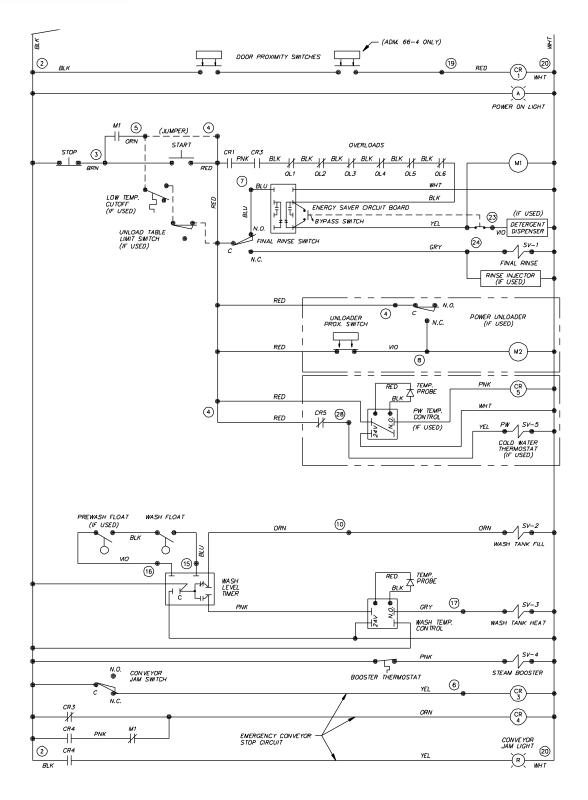






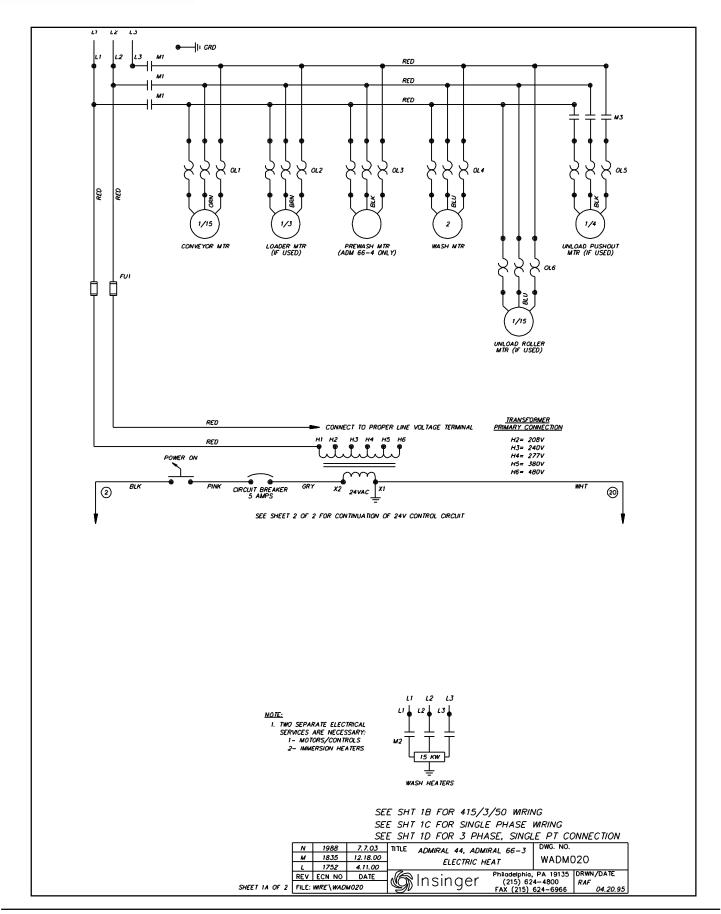




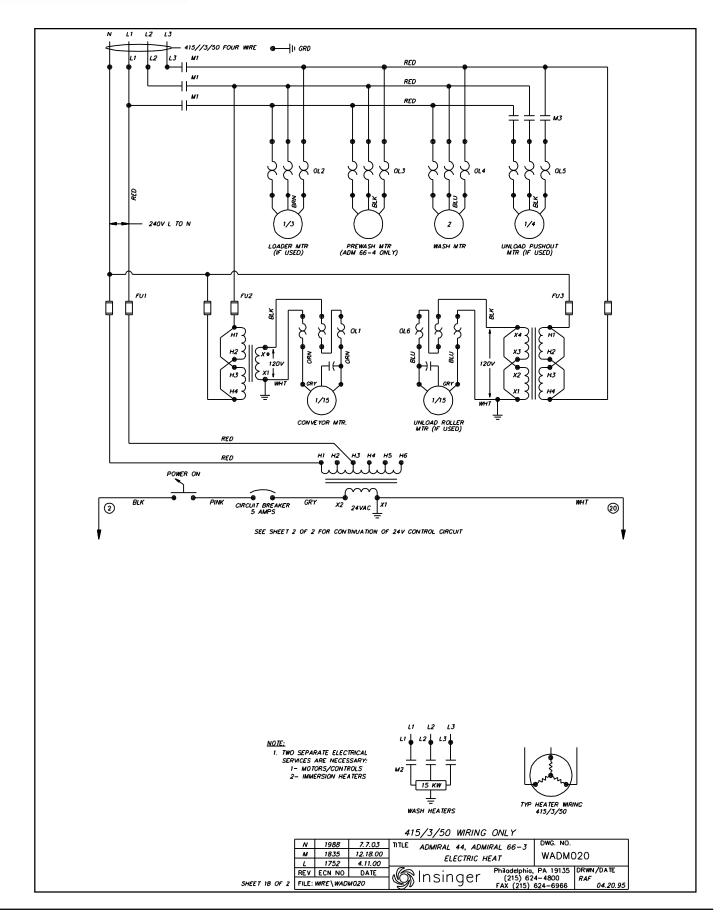


	Р	1752	4.11.00	TITLE ADMIRAL 44-4, ADMIRAL 66-4 DWG. NO.
	N	1701	8.12.99	STEAM HEAT WADMO10
	М	1583	12.1.97	STEAM TIEAT
	REV	ECN NO	DATE	Philadelphia, PA 19135 DRWN/DATE
SHEET 2 OF 2	FILE:	WIRE\WAD	<b>W</b> 010	INSINGER (215) 624-4800 RAF FAX (215) 624-6966 04.10.95

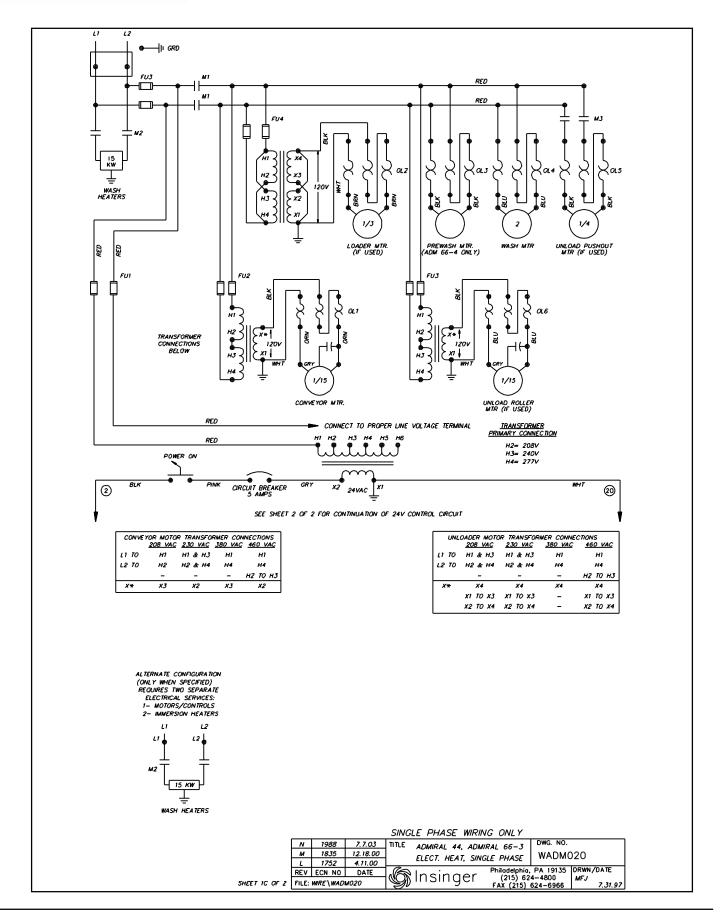




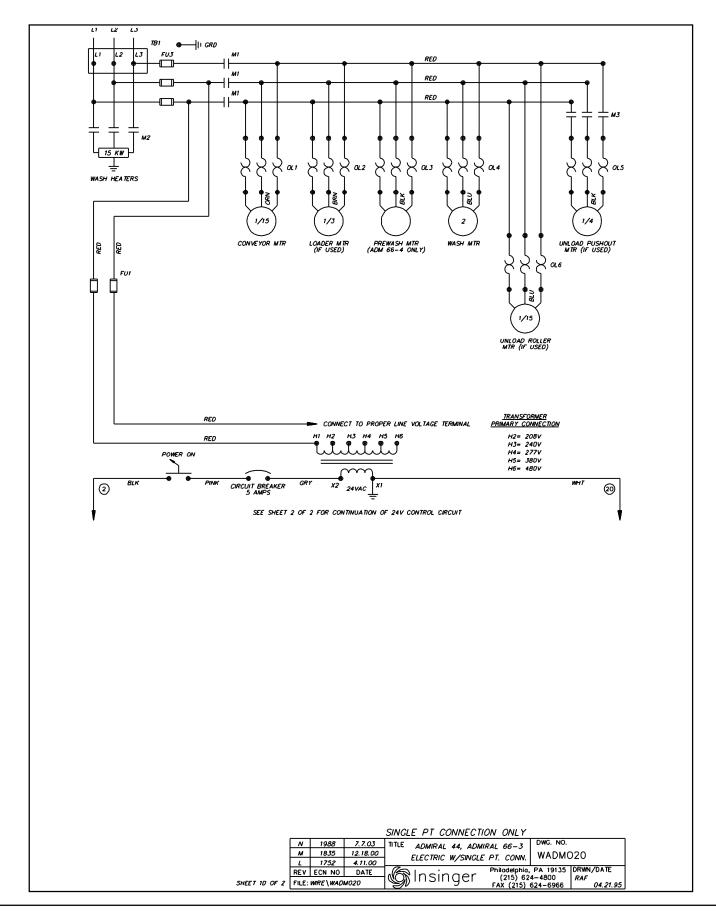




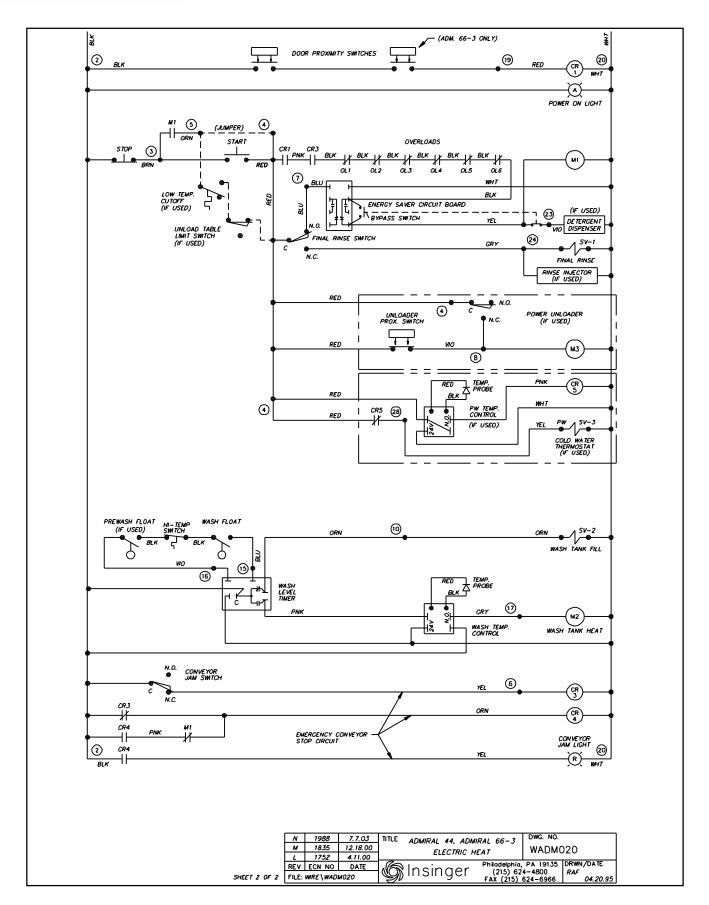




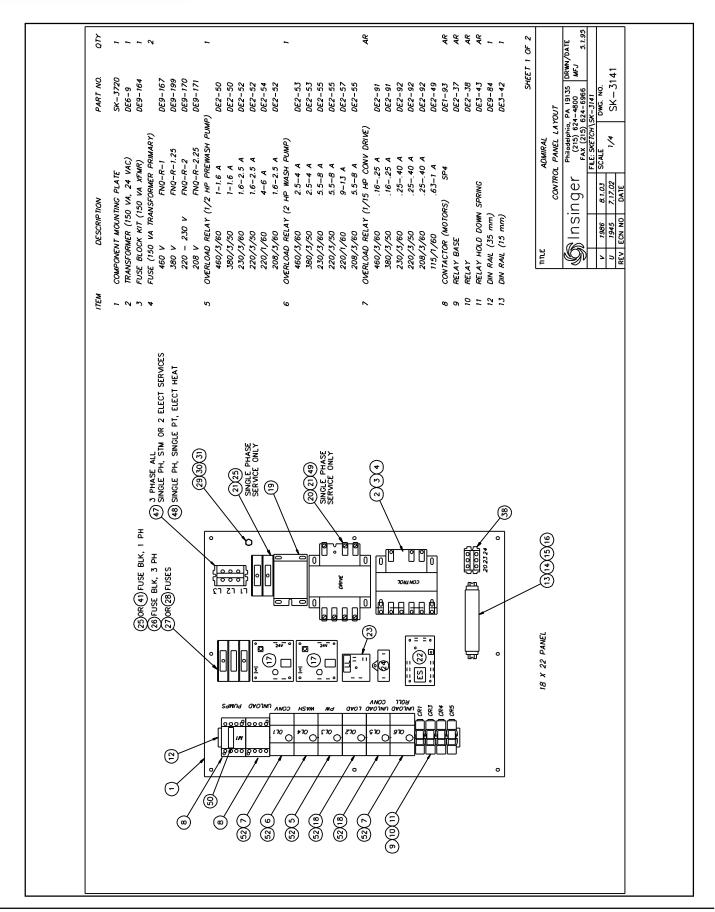




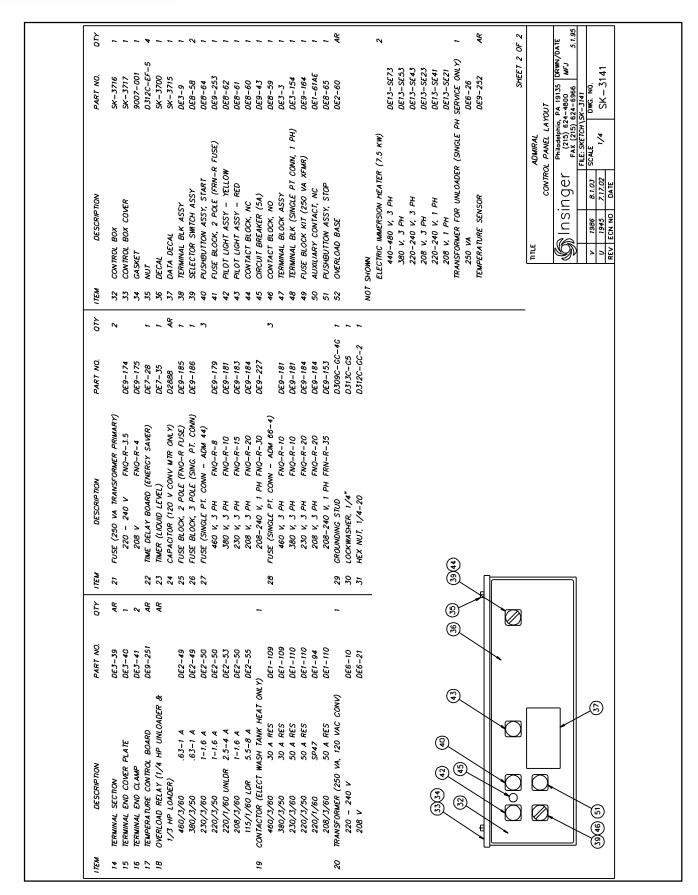












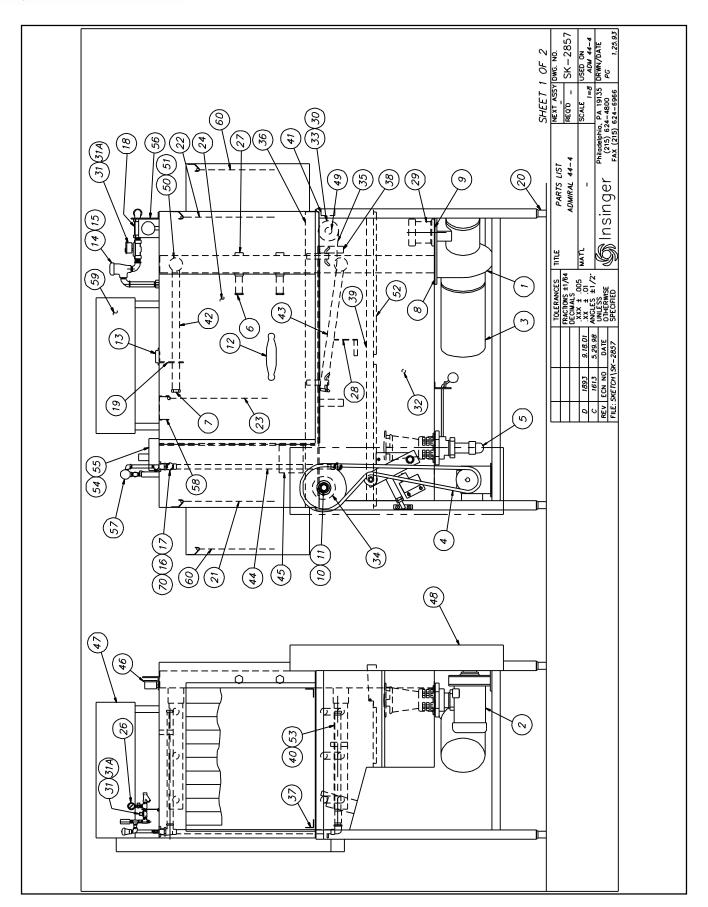


RECOMMENDED A	DMIRAL SEF	RIES SPARE PARTS LIST
Part Number	Quantity	Description
Mechanical Parts		
32-541	1	Suction Strainer
D2242	1	Vacuum Breaker Repair Kit
D2-554-3	4	End Plug
D2-554-2	4	End Plug
D2498	3	Spray Nozzle, FR
D2700	3	Spray Nozzle, FR
D2390	1	Temperature Gauge– Wash
UP15	1	Seal, Pump
954-30K	1	Drain Assembly
D2-104	1	Shaft Bearings
D2-761	1	O-ring, Manifold
D2495	1	Temperature Gauge– FR
D2930RK	1	Solenoid Valve Repair Kit, 1/2" Water
Electrical Components		
DE3-68	1	Timer
DE7-33	1	Timer, Level
DE5-60	1	Level Float
DE9-251	1	Temperature Control Board
DE1-93	1	Magnetic Switch
DE9-252	1	Switch
For Electric Tank Heat Add:		
DE13-SE73		Immersion Heater
For Steam Tank Heat Add:		

Kit, 3/4" Steam

D2946

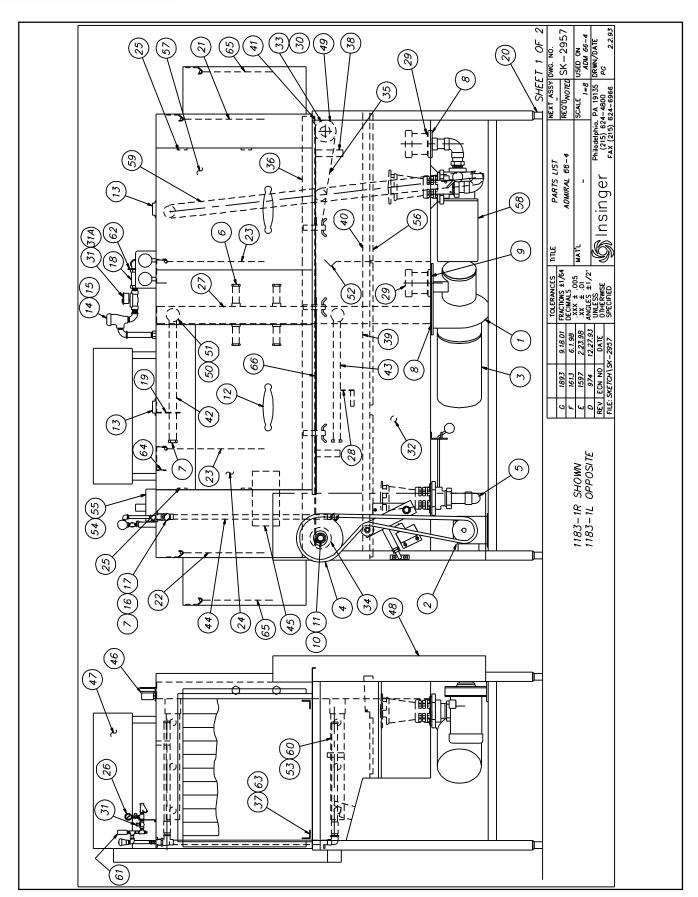






REO.	1717ER   1   1   1   1   1   1   1   1   1
DESCRIPTION	SOLENOID VALVE SOLENOID VALVE SOLENOID VALVE REPAIR KIT FLOAT SWITCH ASSEMBLY DRIVEN SPROCKET CONVEYOR CHAIN FRONT TRACK REAR TRACK ASSEMBLY (SEE PARTS LIST) TRACK BRACKET SCRAP SCREEN SPACER SPRAY PIPE FINAL RINSE - LOWER SPRAY PIPE FINAL RINSE - LOWER TINAL RINSE-INSIDE PIPING (STANDARD) FINAL RINSE - LEVER ASSEMBLY THERMOMETER CONTROL BOX & CHANNEL MECHANISM GUARD CONVEYOR FOLLOWER SHAFT STOP BRACKET, UPPER MANIFOLD O-RING, MANIFOLD O-RING, MANIFOLD SCRAP SCREEN SPRAY SPRAY SPRAY SPRING TOR BAFILE INSTALLATION LABEL LOCATION LABEL LOCATION CURTAIN - VESTIBULE TOR BAFILE INSTALLATION LABEL LOCATION CURTAIN - VESTIBULE TORD BAFILE STALLATION STALL STALL STALLATION LABEL LOCATION CURTAIN - VESTIBULE TORD BAFILE STALLS TO
ITEM# PART#	31 D2606 314 D2641 32 1089-189 33 D2857 34 512-207A 35 0183-12 37 1169-25 38 1183-48 40 1472-184 41 1169-159 42 1169-54 44 1169-165 50 D3-849 51 D2-564 52 D2853 54 816-58 55 DE5-4 56 D290 60 D3-550 60 D3-550 60 D3-550 60 D3-550 60 D3-550
REO.	TS LIST) 1  2  2  2  2  1  1  1  1  1  1  1  1  1
DESCRIPTION	GEAR MOTOR, WASH GEAR MOTOR MOTOR MOTOR MOTOR DRIVE MECHANISM ASSEMBLY (SEE PARTS LIST) PIPE PLUG 3/8-9UNC-2A PIPE PLUG 3/4-10UNC-2A DISCHARGE GASKET SUCTION GASKET BEARING BRACKET FRONT & REAR CONVEYOR DRIVE SHAFT DOOR HANDLE MAGNETIC SWITCH VACUUM BREAKER REPAIR KIT 1/2 SPRAY NOZZLE - UPPER BALL VALVE 1/2 LATCH ASSEMBLY (SPRAY PIPE) ADJUSTABLE FOOT CURTAIN - ENTER CURTAIN - ENTER DOOR LATCH, RIGHT DOOR STAINORRY STOP SUCTION STRAINER HUB SPACER HUB SPACER
PART#	2762 2762 28. 1397-1 1169-60 102-554-2 0214 0514 0530 1162-16 0162-16 0162-16 0162-16 0162-16 0162-16 0162-16 0162-16 0162-16 01639 0239 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02339 02406 03-508 03-528 03
ITEM#	- 0 2 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

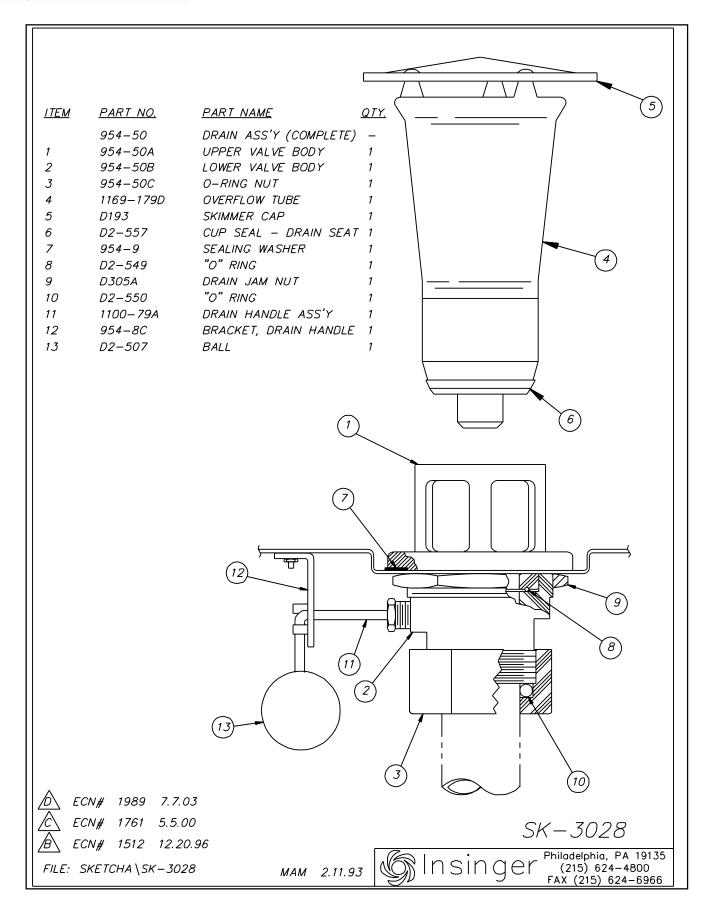




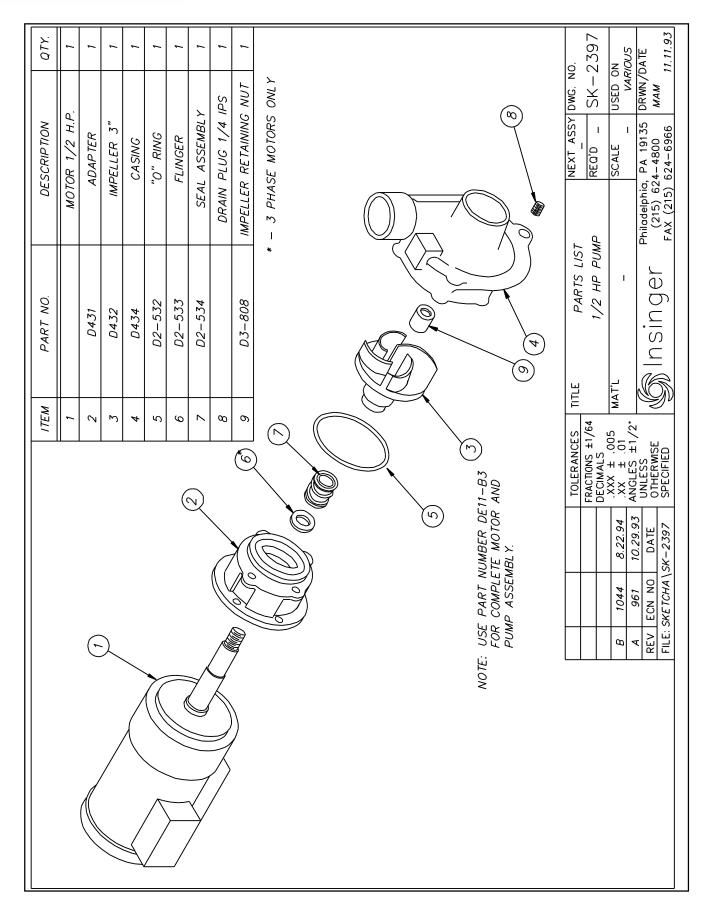


DESCRIPTION   THE DESCRIPTION   THE DESCRIPTION   DESCRIPTION   DESCRIPTION	DESCRIPTION	-LOAT SWITCH ASSEMBLY	EN SPROCKET	CHAIN	**************************************	SSEMBLY (SEE PA T – FRONT	PACER - WASH	ISSEMBLY (SE	– UPPEŘ	PING	SEMBL >			3						70	i K						- I	ع ا	.*1
72 1089-18  1 33 512-200  1 34 512-200  1 35 1089-18  2 36 1183-12  2 40 1183-28  2 40 1183-29  2 44 1169-54  2 44 1169-54  2 45 1169-56  2 46 1169-56  2 47 1169-56  2 48 1162-66  2 55 169-37  2 63 1460-21  5 65 13-25  6 64 1183-21  6 65 13-25  6 64 1183-21  6 65 13-25  6 64 1183-21  6 65 13-25  6 64 1183-21  6 65 13-25  6 67 140-13  6 1440-13		_	DRIV	CONVEYOR	FRONT TRACK	TRACK BRACKE	SCRAP SCREEN SI	CHAIN TENSIONER A	MANIFOLD ASSEMBLY	FINAL RINSE - INSIDE F	FINAL RINSE — LEVER AS	CONTROL BOX & CHANNEL	MECHANISM GUARD	CONVEYOR FOLLOWER SHAFT	SIUP BRACKEI, UFFER MANIFUL, O-RING, MANIFOLD	TANK BAFFLE	SPRAT NOZZLE - LUWER SPRING	SWITCH, FINAL RINSE	SCRAF SCREEN DOOR (PREWASH)	A 1011000	SPRAY PIPE FINAL RINSE - LOW	THERMOMETER, FINAL RINSE BRACKET PIPING SUPPORT	TRACK BRACKET - REAR	CURTAIN – VESTIBULE TRACK BRACKET – REAR		TILE	MATL	ANGLES ±1/2.	
20000000000000000000000000000000000000	PART#	1089–189	512-206A	9014-010	1183-12	1460-11 1440-10	1183-48	1182–28 1169–159	1169-53	1169-45	1169-145	<i>02390</i> 1183–23	1162-60	1169-165	U3-649 D-580	1169-38R	<i>Uza</i> 33 816–58	DE5-4	1460-14	**	1472-18A	02495 828-52	1440-13	03-50 03-550 1440-13				-	E: SKETCH\SK-2957
	ITEM#	32	33	35 35	36	38 38 38	39	0 4 1	42	0 4 4 4	45	46	4 4	49	50 51	52	5. 5.	55	57	58	99	62	59	65 65 66				<u>    a</u>	:  <u>-</u>
PUMP & MOTOR, WASH GEAR MOTOR PIPE PLUG 7/8-90NC-2A PIPE PLUG 3/4-10UNC-2A DISCHARGE GASKET BUCHOR OASKET BERRING BRACKET CONVEYOR DRIVE SHAFT DOOR HANDLE MACNETIC SWITCH VACUUM BREAKER REPAIR KIT 1/2 SPRAY NOZZLE - UPPER SPRAY NOZZLE - UPPER BALL VALVE 1/2 LATCH ASSEMBLY (SPRAY PIPE) ADJUSTABLE FOOT CURTAIN - EXIT CURTAIN	REQ.	1	-	ARTS LIST) 1				- 0	1 ~ 1	~ ~	1 0	~ ~	) -	1	← 4		- N	ı ~ !	~ ~			7-	-00	N	IF MACHINE				
	DESCRIPTION		GEAR MOTOR	DRIVE MECHANISM ASSEMBLY (SEE P.	DRAIN ASSEMBLY (SEE PARTS LIST)	PIPE PLUG //8-3UNC-2A PIPE PLUG 3/4-10UNC-2A	DISCHARGE GASKET	SUCTION GASKET BEARING BRACKET	CONVEYOR DRIVE SHAFT	DOOR HANDLE MAGNETIC SWITCH	1/2					CURTAIN - ENTER	CURTAIN = EXIT CURTAIN = CENTER	DOOR (WASH)	DOOR LATCH, LEFT	>	-	SUCTION STRAINER HIR SPACER	SOLENOID	SOLENOID VALVE REFAIR KIT	= MUST SPECIFY SERIAL NO.				

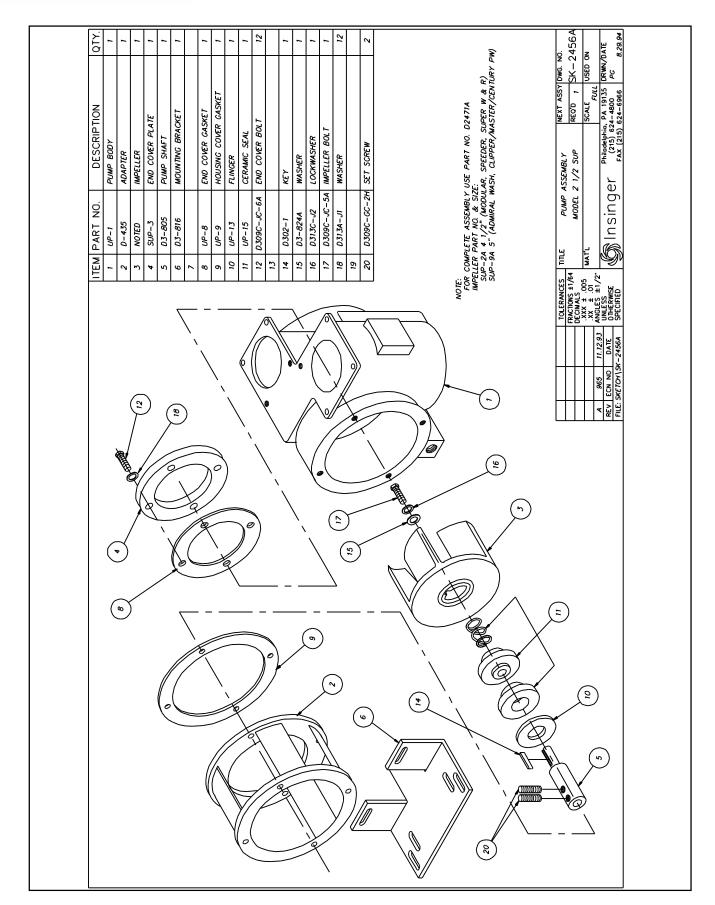




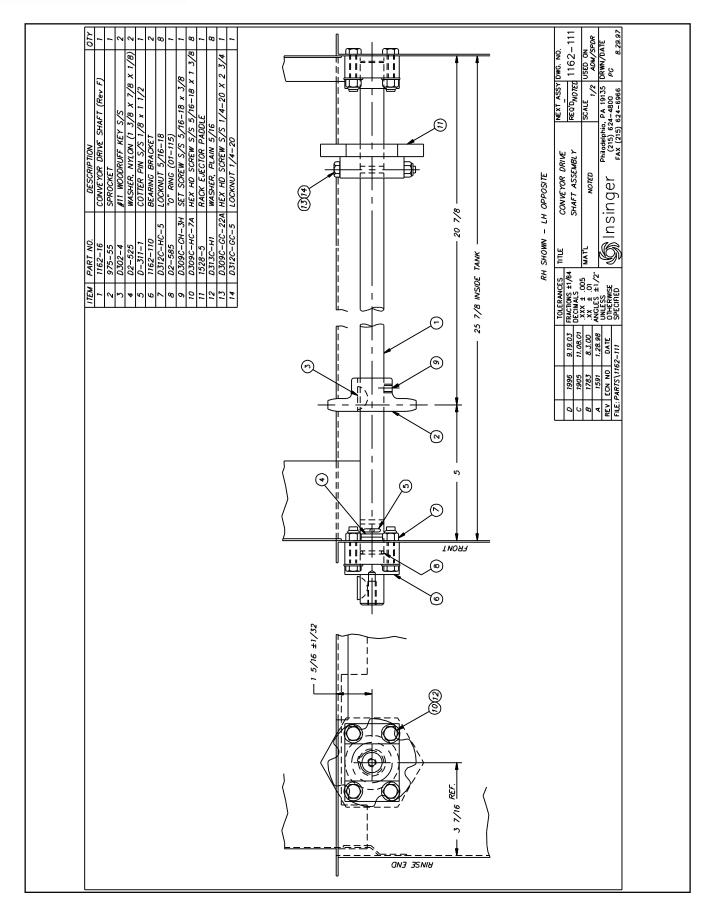




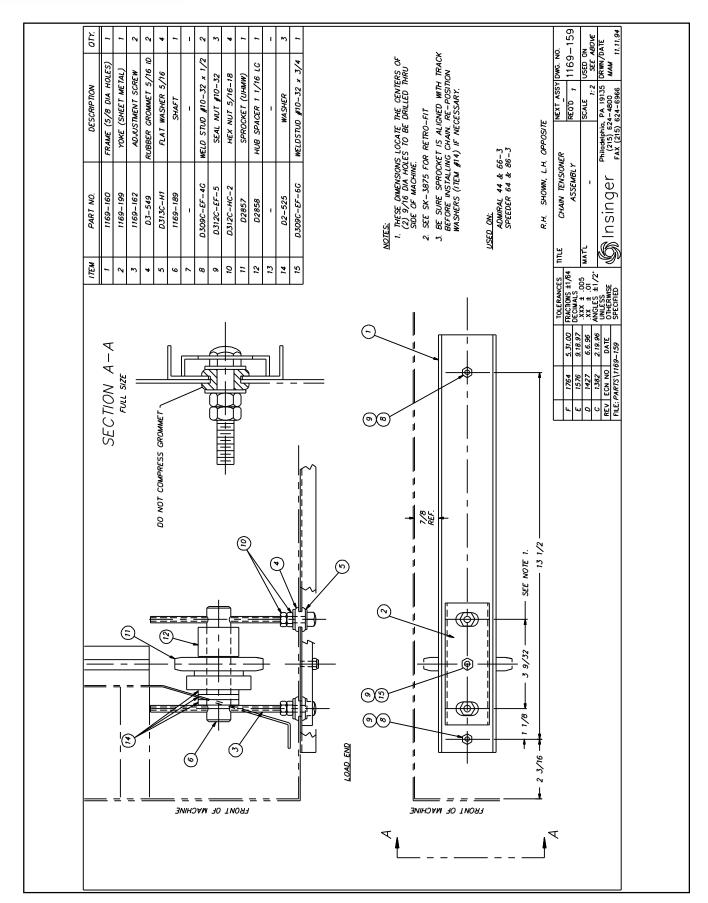




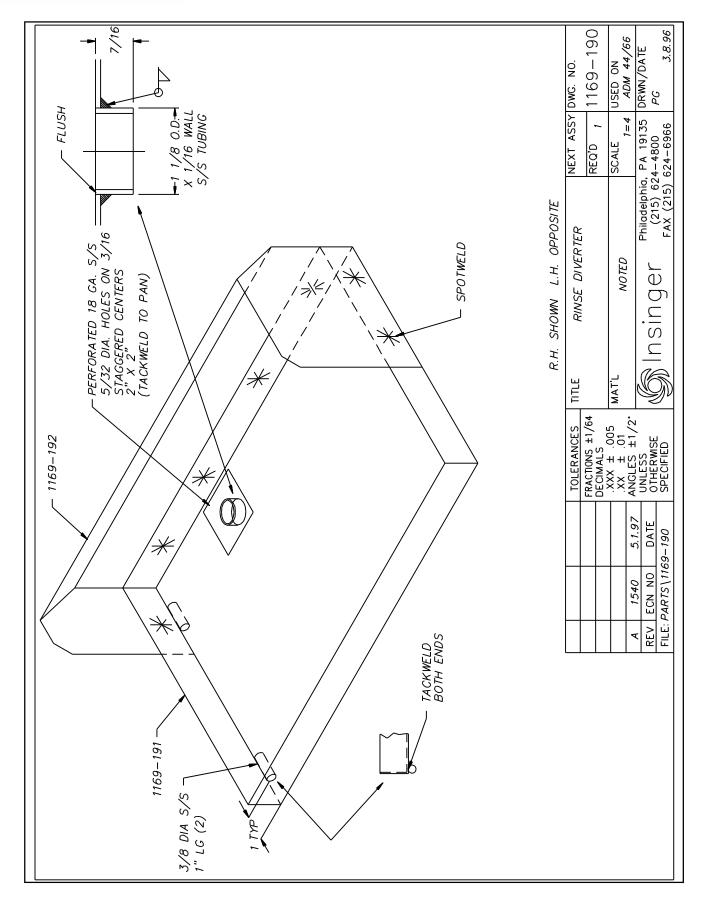




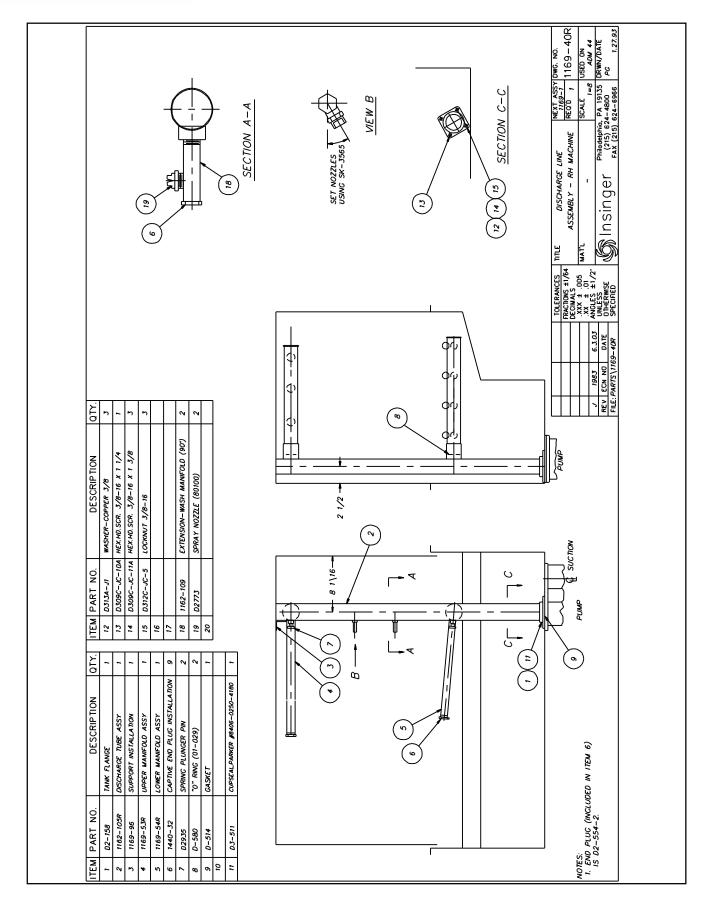




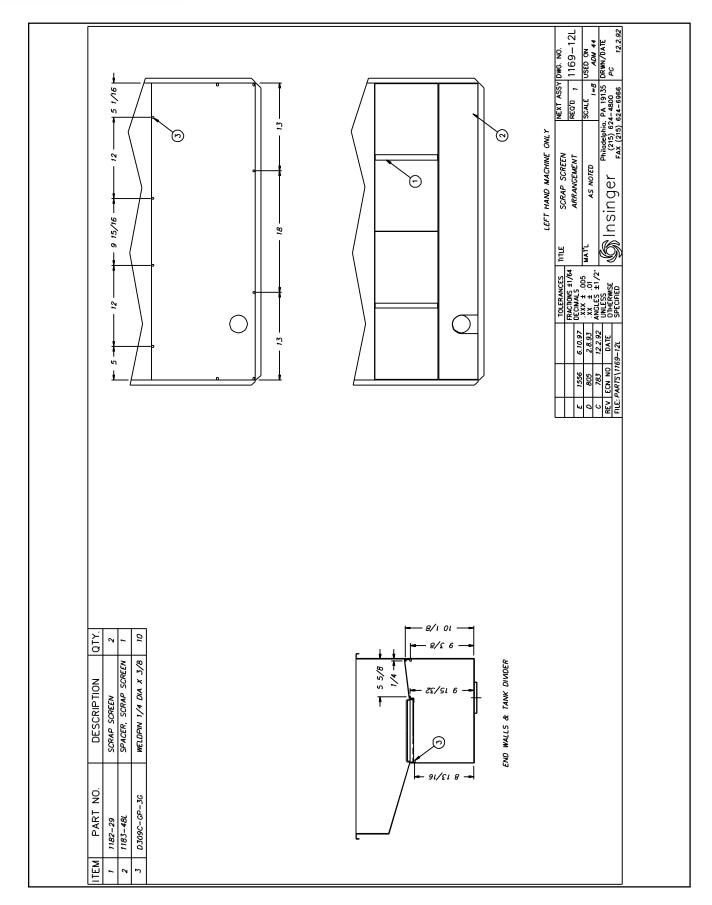




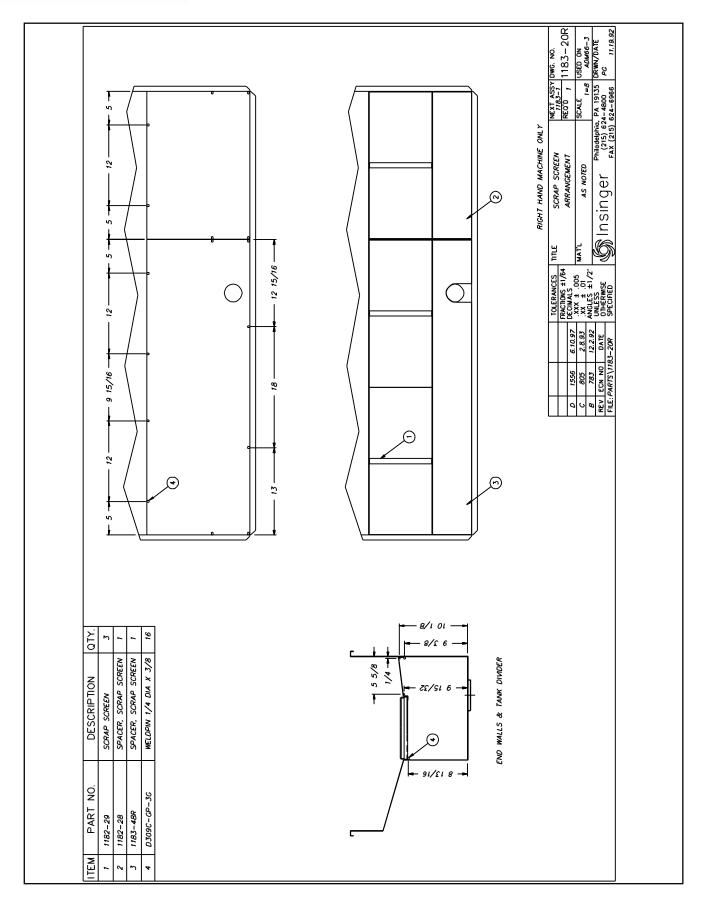




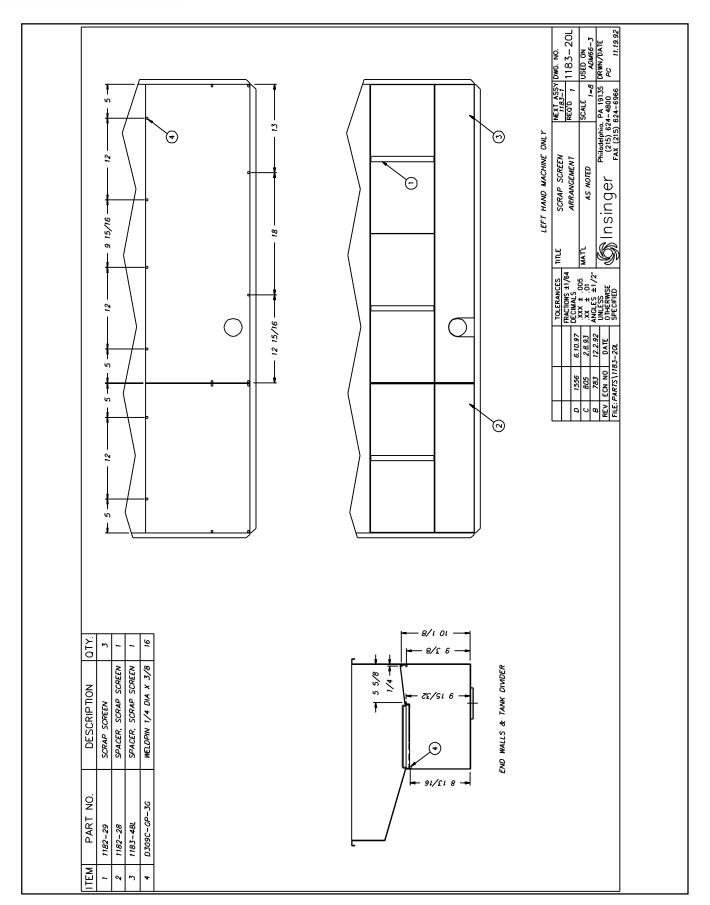




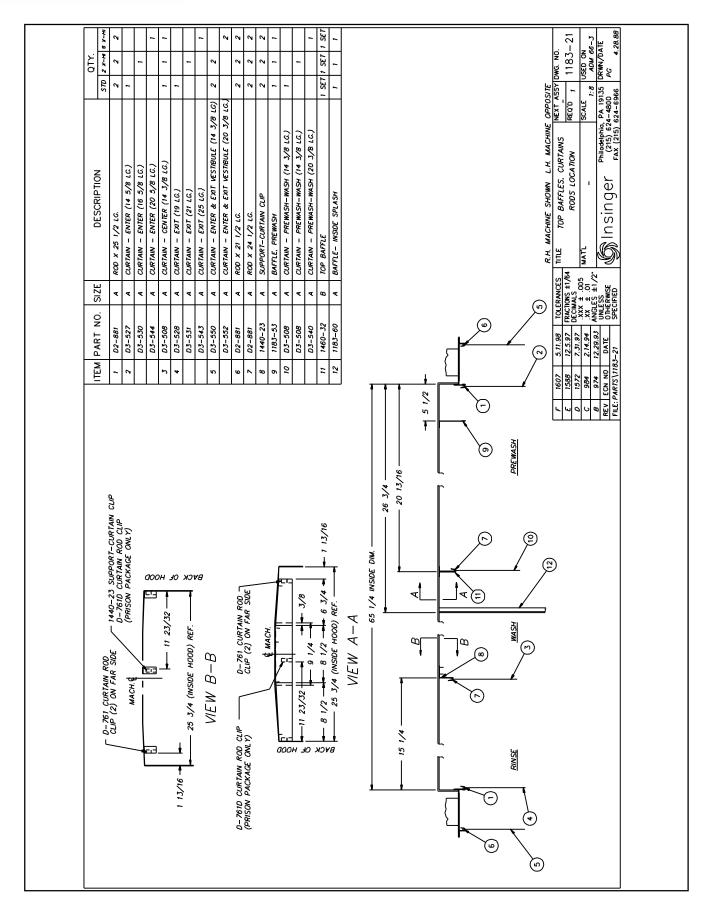




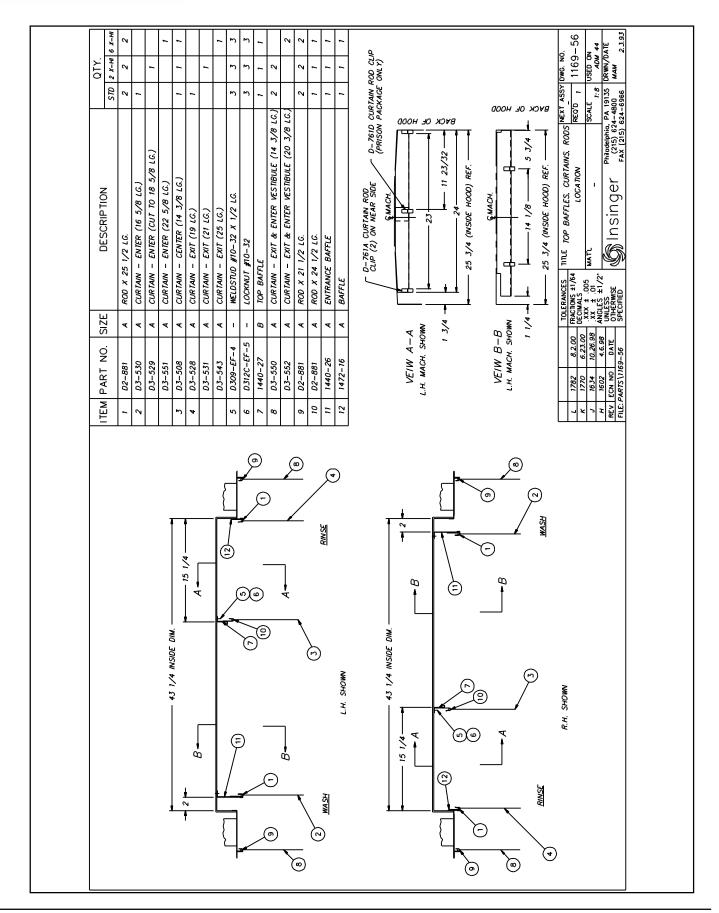




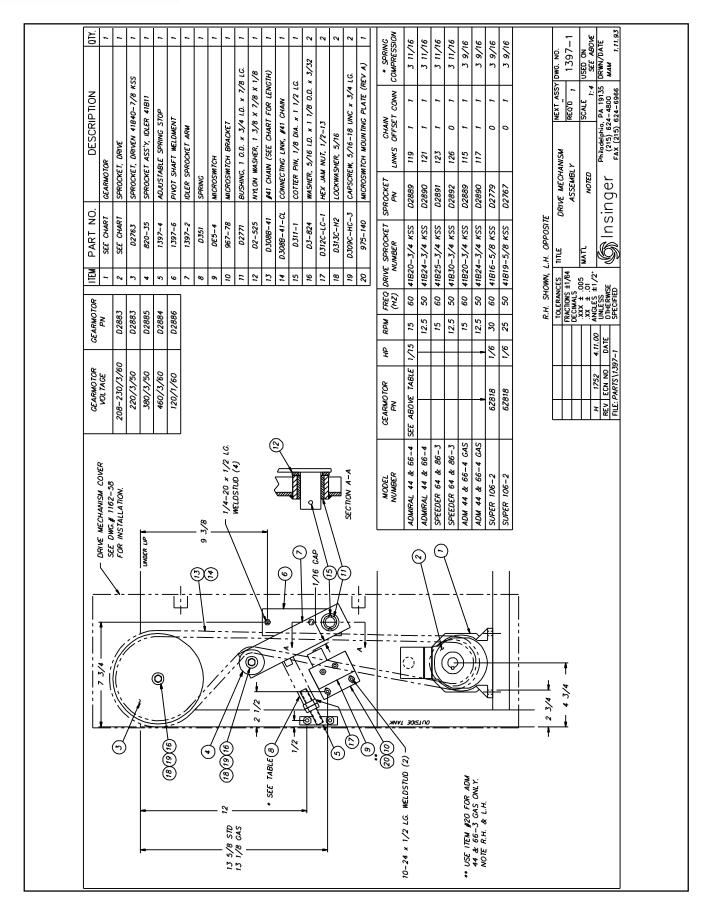




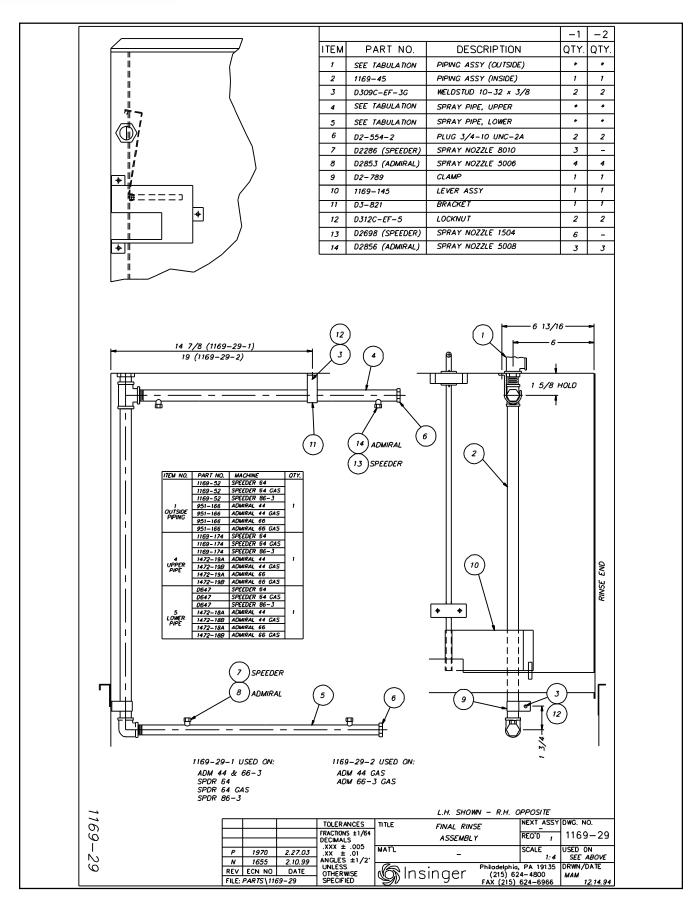




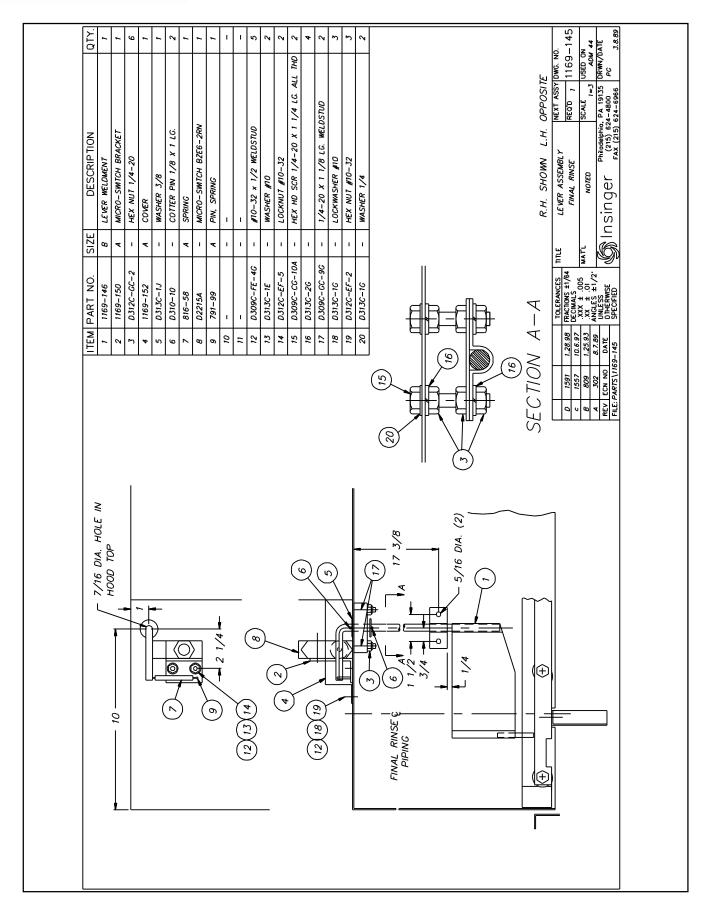




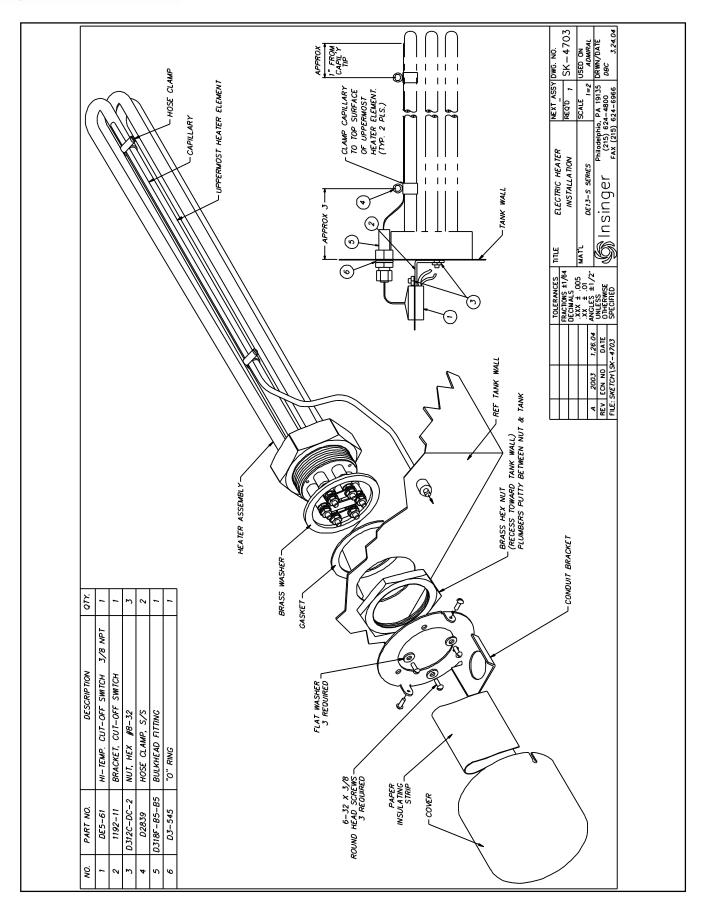




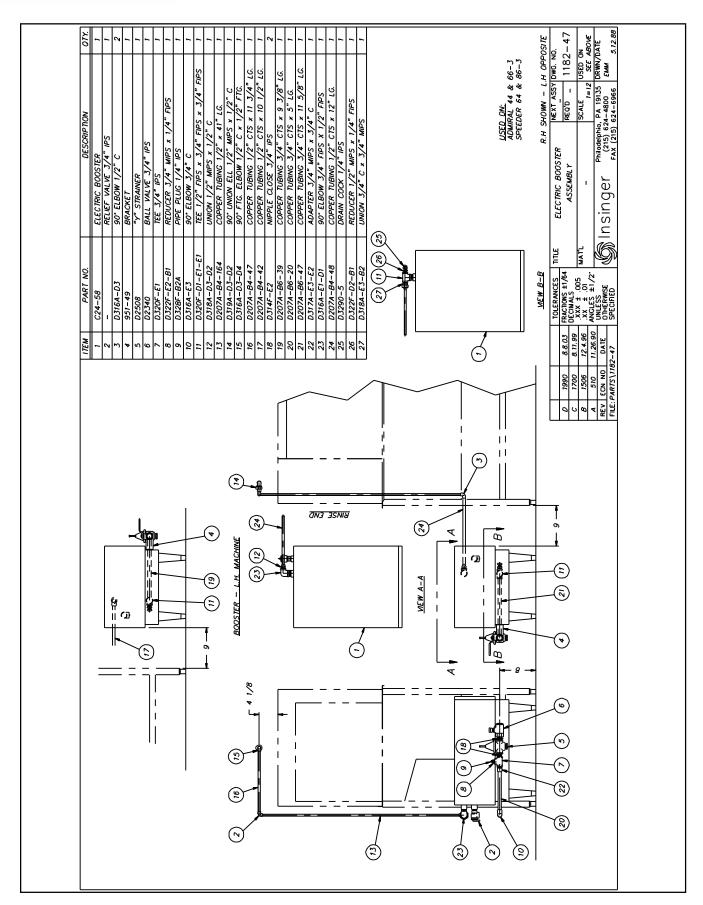




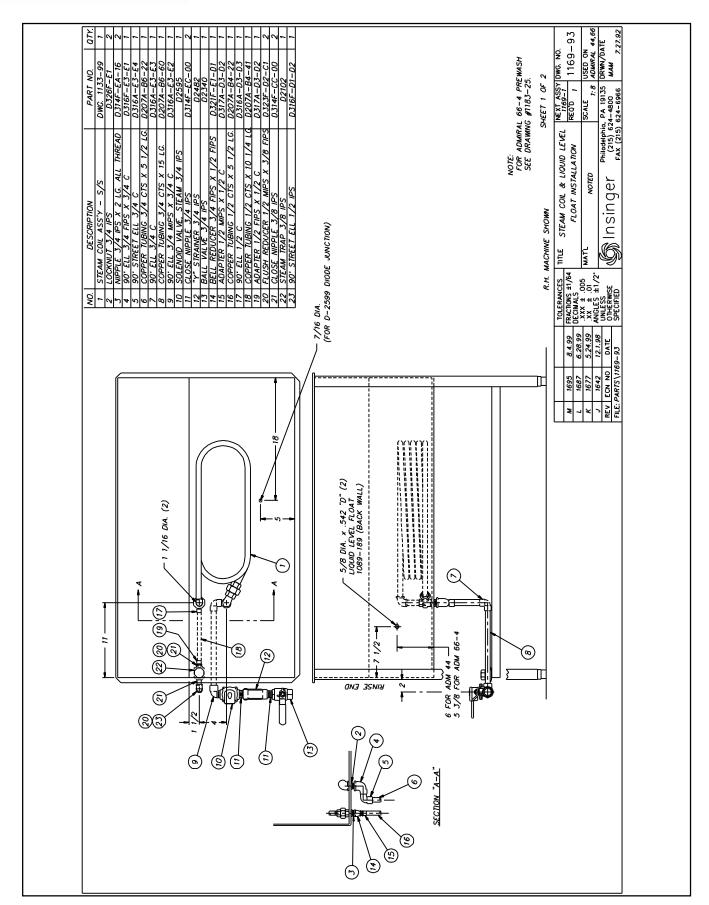




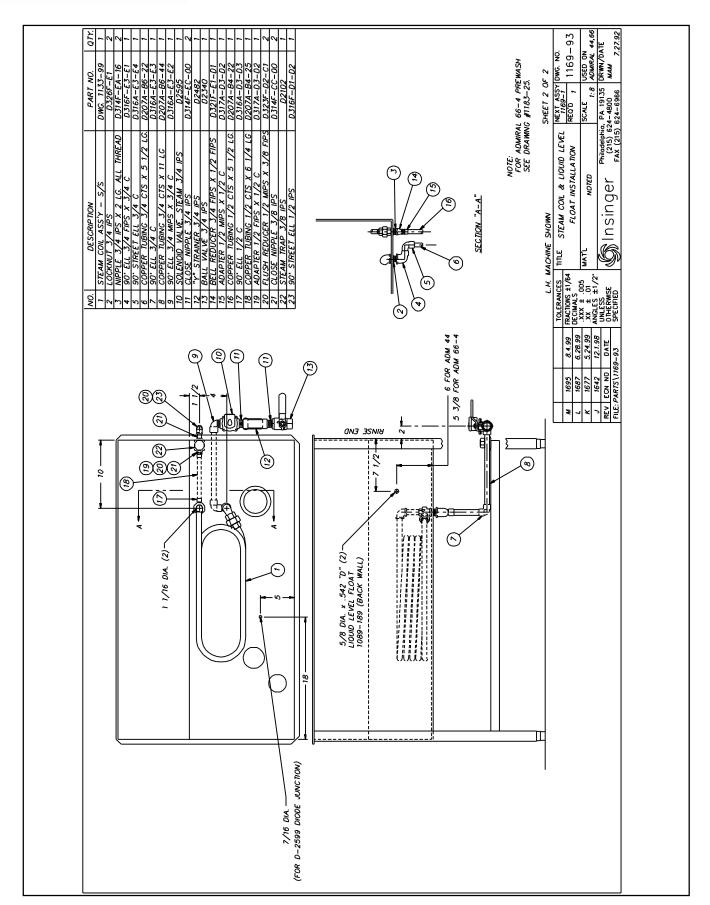




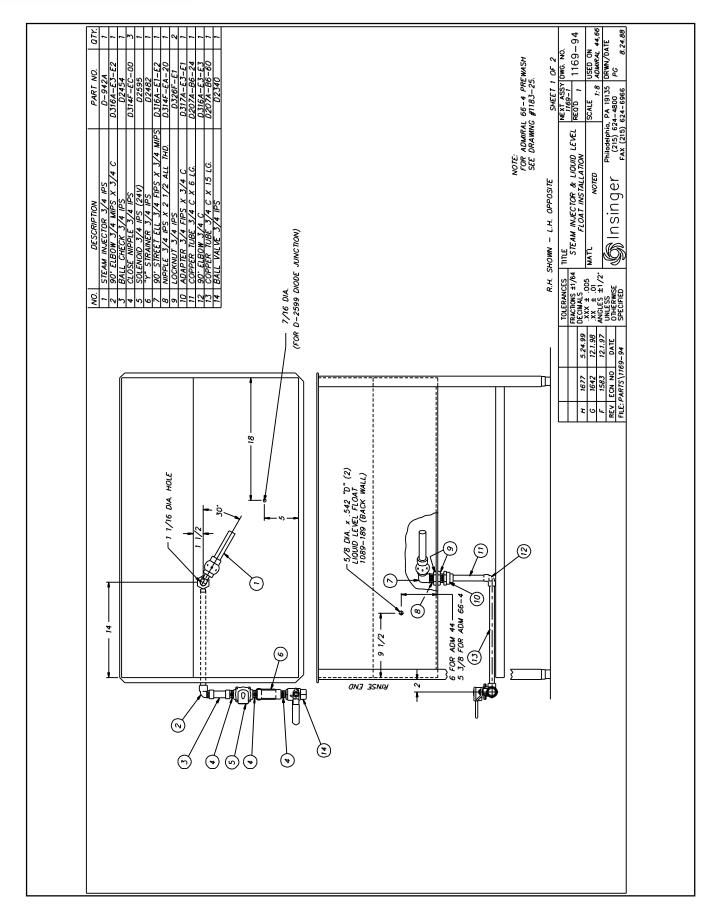




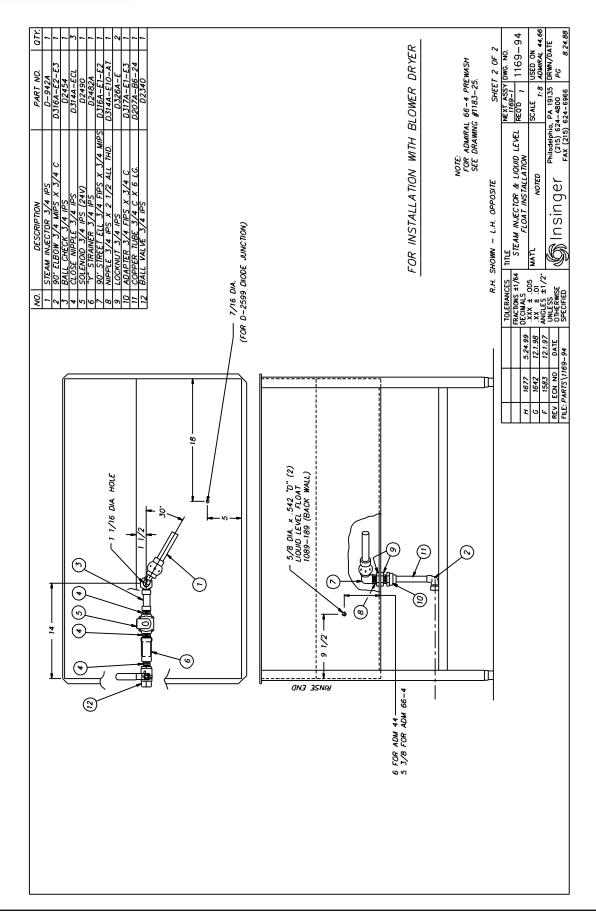




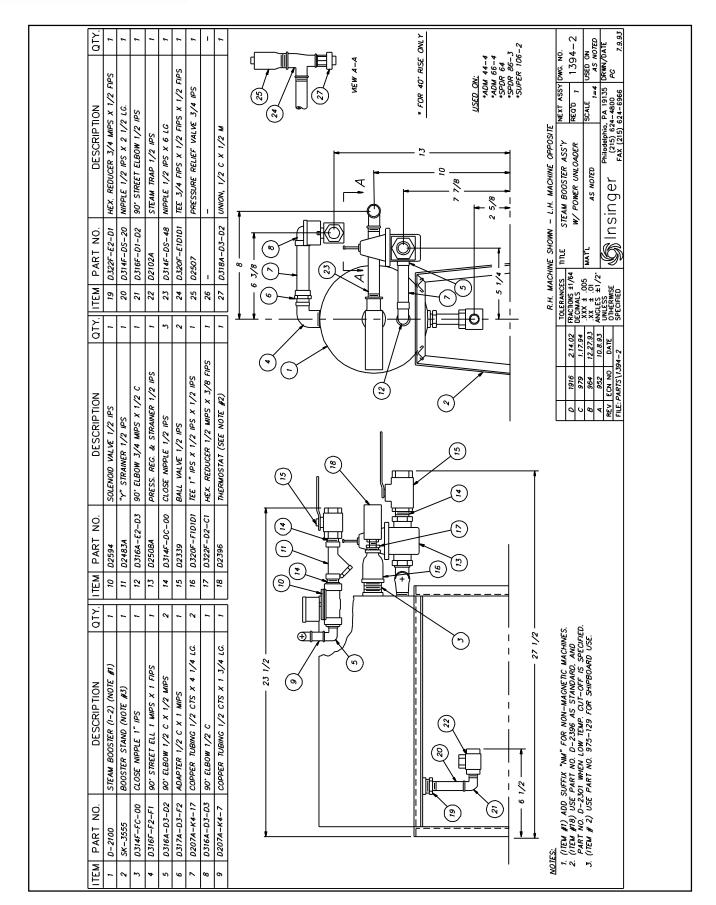




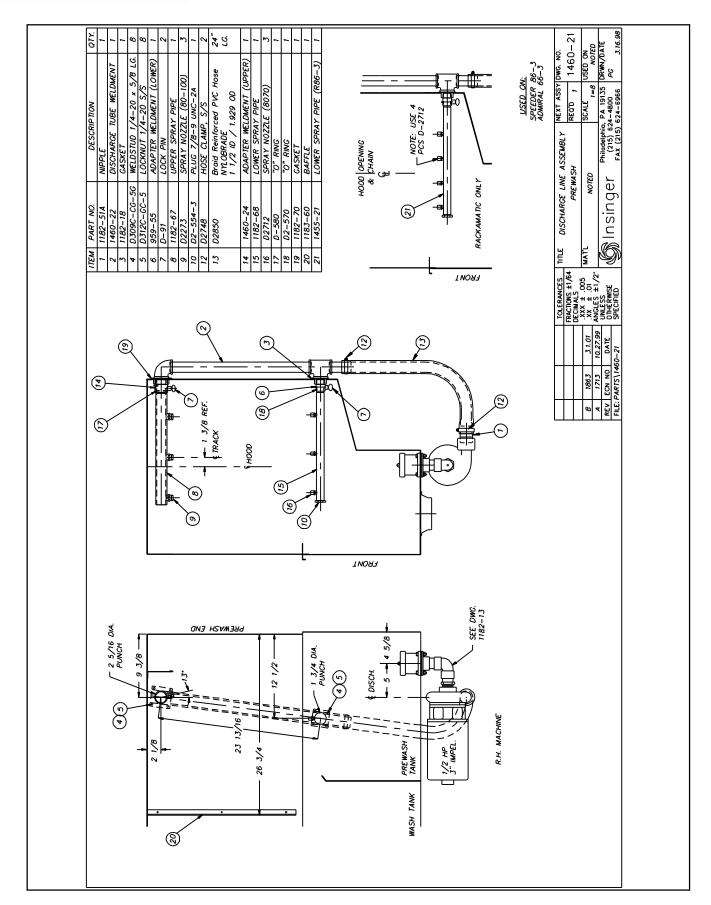




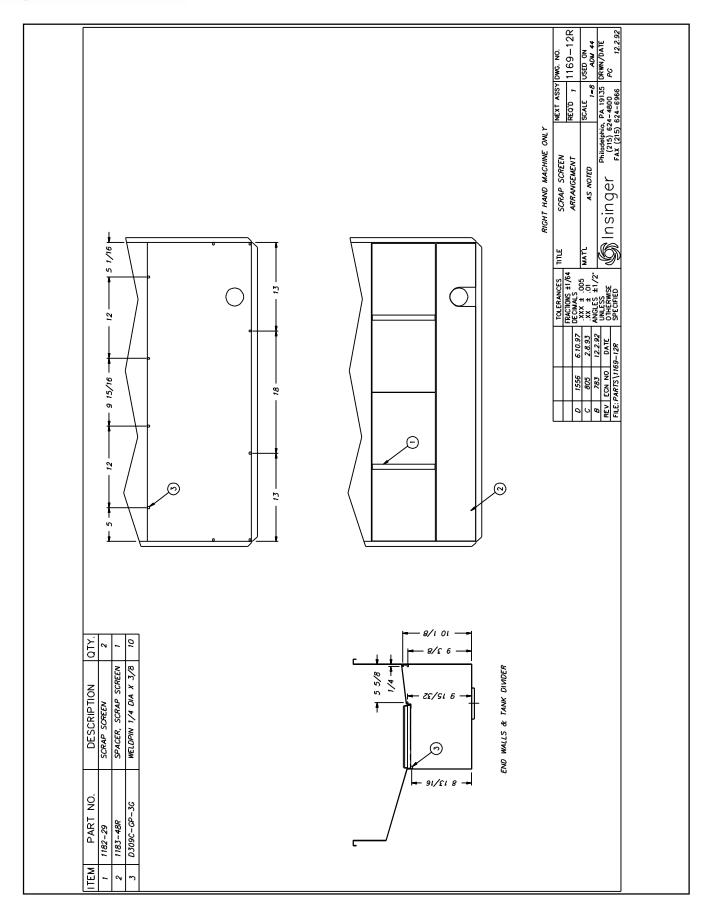




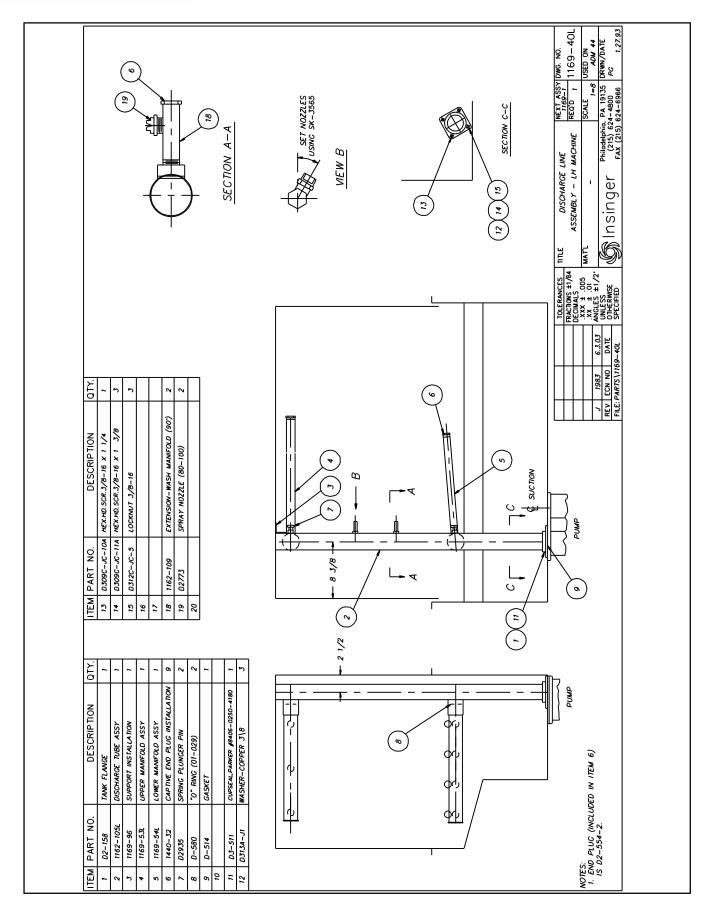




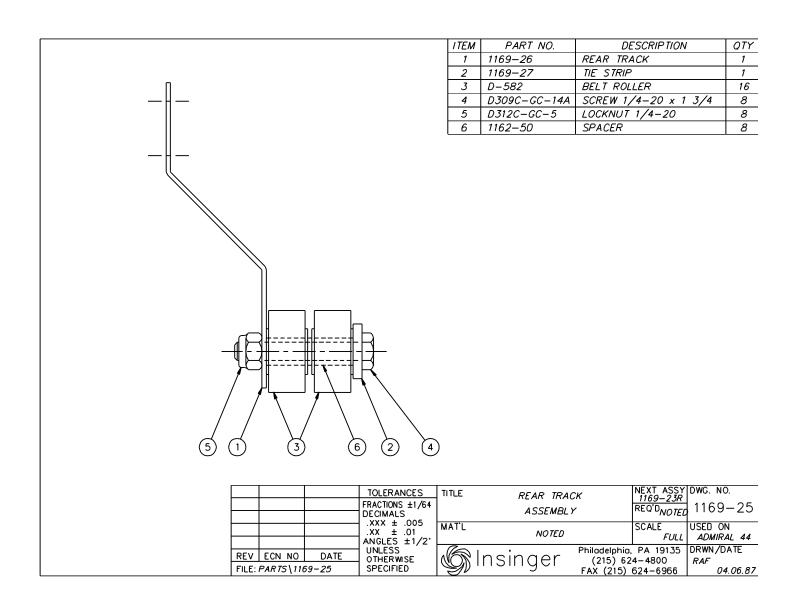




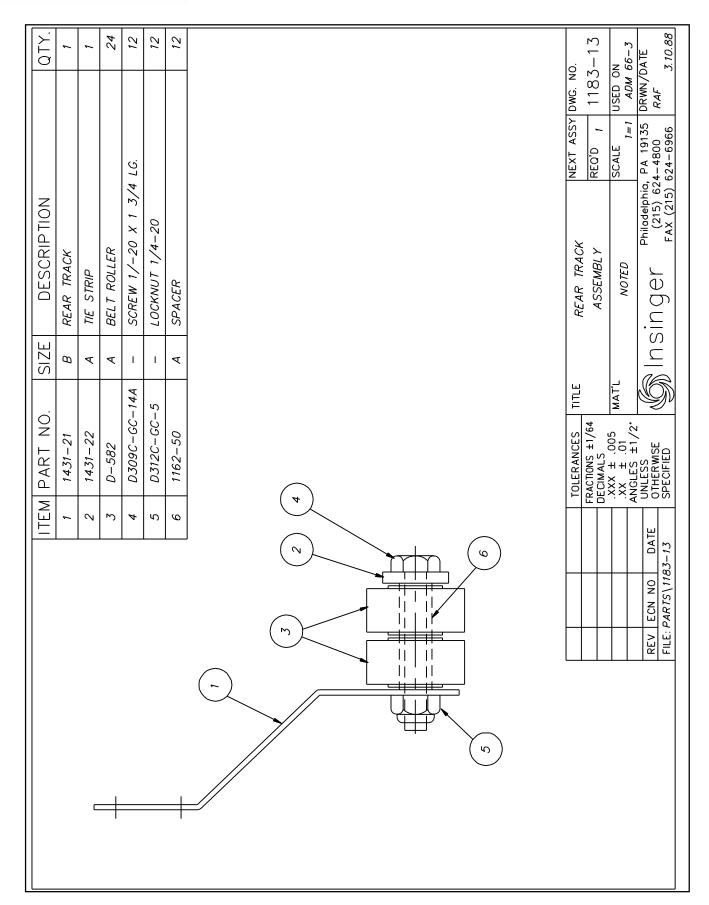














Insinger Machine Company 6245 State Road Philadelphia, PA 19135-2996 800-344-4802 Fax: 215-624-6966 www.insingermachine.com