insinger

45SA7

Technical Manual

45SA7-F2

TECHNICAL MANUAL

FOR

MODEL 45SA7-F2 DISHWASHERS

NSN 7320-01-414-3581

INSINGER MACHINE COMPANY
6245 STATE ROAD
PHILADELPHIA, PA 19135
1-800-344-4802

REVISION RECORD

Date of original manual: 1 April 1995

SN 950285 and higher.

Rev.	Date	Effective Serial No.	Description
A	7/24/00	950285	Correct typos in Fig. 7-4, 7-5, 7-6. Add Fig. 8-3.
B	12/1/04	040540	Update figures, obsolete parts and text.
C	1/5/09	080432	Raised pump for deck clearance, molded hose replaces copper tubing, re-inforced door, overflow pipe thru scrap screen.

TECHNICAL MANUAL VALIDATION CERTIFICATE

To be assigned

IDENTIFYING TECHNICAL PUBLICATION SHEET

To be assigned

WARNINGS (con't)

Page 5-1: Prior to any work on the Model 45SA7-F2 dishwasher involving service of electrical or water systems, the dishwasher and booster must be de-energized by turning the electrical supply power "Off" and closing appropriate valves.

Wear rubber gloves while performing the following steps. Do not drink, eat or smoke.

Troubleshooting of certain electrical functions require access to live electrical circuits inside the electrical control enclosure. Troubleshooting or repair of the electrical equipment should only be done by a qualified electrician.

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Page 6-4: The following steps require testing with machine power on. These tests should only be made by a qualified electrician.

Page 8-2: Dangerous voltages are present on connections to the electrical control enclosure and electric booster heater. Observe normal safety precautions for high voltage electrical equipment when connecting to the local distribution system. All work should be done by a qualified electrician.

Page 8-3: At startup, and after any draining of the electric booster, turn the 440 volt power to the booster OFF during the initial wash tank fill (2.3.6). This will allow the booster reservoir to fill and trapped air to be purged without overheating of booster heating elements.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

This technical manual provides information for the installation, operation, inspection and maintenance of the Model 45SA7-F2 dishwasher manufactured by the Insinger Machine Company, Philadelphia, PA:

1.2 SCOPE OF THE MANUAL

Chapters 1, 2, 3, and 8 provide information required for installation, start-up, and operation of the equipment. Chapters 4, 5, 6 and 7 provide information on maintenance operations.

1.3 EQUIPMENT DESCRIPTION

The Model 45SA7-F2 dishwasher is a single tank, front loading, undercounter dishwasher used for the washing of plates, glassware, and small utensils in 16" by 16" racks. The machine processes up to 45 racks per hour through timed wash and final hot rinse cycles.

1.4 EQUIPMENT SUPPLIED

The dishwasher and the final rinse water electric booster are mounted on a common frame. The following loose components are supplied for mounting adjacent to the machine by the installing activity:

Electrical control enclosure.
Thermometer bracket.
(2) Plate racks.
(2) Cup, bowl and cutlery racks.
(1) Manifold cleanout brush.

TABLE 1-1

DATA CHARACTERISTICS

Manufacturer:

Insinger Machine Company, Philadelphia, PA

Type:

Insinger Model 45SA7-F2.

Characteristics:

Type: Single tank, front loading, undercounter dishwasher.

Capacity: 45 racks (16" by 16") per hour, manually loaded.

Wash Tank Capacity: 6.2 gal.

Rinse Water Requirements:

Rated flow: 4.1 gpm peak at 20 psig.
36 gal/hr average flow.

Supply temperature: 140° F. minimum.

Electrical Power Requirements:

Power supply: 440 vac, 3 phase, 60 Hz.

Operating current: 3.1 amps (dishwasher)
17.9 amps (13.5 KW booster)

14.8

CHAPTER 2

2.0 OPERATION

2.1 INTRODUCTION

The Model 45SA7-F2 dishwasher is a heavy duty machine designed for daily use in a naval shipboard environment.

CAUTION

The operator should become thoroughly familiar with the equipment and these operating instructions prior to starting the machine.

2.2 CONTROLS AND INDICATORS

TABLE 2-1

CONTROLS AND INDICATORS

ITEM #	CONTROL	TYPE	FUNCTION
1	Power Switch	Toggle switch on control panel	Controls power on & off
2	Power On	Red pilot light on control panel	Signals control power on & off
3	Wash Cycle Switch	Toggle switch on control panel	Manual - will remain in continuous wash cycle for extended wash or de-liming procedure Auto - normal operation for timed wash and rinse cycles

2.3 START-UP PROCEDURE

2.3.1 Before starting the machine, inspect the inside and make sure that:

1. The drain overflow tube is in place.
2. The suction strainer is in place over the pump intake.
3. The scrap screen is clean and in place.
4. The upper and lower wash manifolds are securely installed.
5. The plastic caps at the ends of all manifolds are installed and hand tight.

2.3.2 Check that the hot water supply valve is open and electric power services are on.

2.3.3 Fill the detergent dispenser reservoir in accordance with the detergent supplier's recommendations. Only flake, beaded, or pelletized detergents should be used.

Turn the detergent dispenser power switch to the "On" position.

2.3.4 Connect the rinse injector supply line to a source of rinse water conditioner.

Turn the rinse injector power switch to the "On" position.

NOTE

The detergent dispenser and rinse injector systems are not furnished as a part of this machine.

2.3.5 On the electrical control enclosure, move the Wash Cycle Switch to the "Auto" position. Move the Power Switch to the "On" position. The red "Power On" light will illuminate.

2.3.6 Close the machine door. Machine will automatically fill to the operating level. When the wash tank reaches operating level, the machine will automatically cycle through a timed wash and rinse sequence then stop.

NOTE

The wash pump will not start if the water in the rinse booster is below 180° F. Allow time for the water to reach this temperature.

2.4.4 After draining, remove the upper wash manifold and the pump suction strainer.

2.4.5 Remove the end caps from the wash manifolds and clean with the provided brush. Flush after cleaning and replace caps.

2.4.6 Clean and flush the scrap tray and tray spacers, the pump suction strainer, and the drain overflow tube.

2.4.7 Clean and flush the entire inside of the wash tank, wash and rinse chamber, and door. Wipe the inside of the drain overflow tube fitting. Pay special attention to moving float mechanisms, detergent conductivity probe, and electric heater elements.

WARNING

Electric float switches, probes and heating elements must be cleaned daily. Accumulations of grease, minerals or debris will cause faulty operation of tank fill and heating systems. Use Scotch-Brite or equivalent cleaning pads on heavy dirt.

2.4.8 Use a small wire or pin to clean the rinse nozzles of mineral accumulations.

2.4.9 Replace all removed parts in reverse order.

2.4.10 Door should remain open to allow interior surfaces to dry.

CHAPTER 3

FUNCTIONAL DESCRIPTION

The 45SA7-F2 dishwasher consists of a wash tank and integral wash and rinse chamber with a front access door. A detergent solution in the wash tank is heated to a nominal 156° F. operating temperature by an electric immersion heater.

During the wash cycle, a centrifugal pump draws the hot detergent solution through a suction strainer and then forces the solution under pressure to the upper and lower wash manifolds, where the solution exits through slots and impacts against the dishware in the rack. The spent wash solution returns to the wash tank through the scrap tray, where debris from the dishware is captured for later disposal.

The detergent strength is maintained by a concentration sensing controller and detergent supply reservoir (by others).

A hot fresh final rinse cycle follows the wash cycle. The incoming fresh water supply is first reduced to 20 psig. by a pressure regulating valve and then heated to 180° F. (minimum) by an electrically powered booster heater located adjacent to the dishwasher. The hot rinse water enters the wash and rinse chamber through upper and lower rinse manifolds, and exits through rinse nozzles and impacts against the dishware in the rack. The spent rinse water returns to the wash tank through the scrap screens.

The electric booster has a low water temperature interlock that prevents or interrupts washing when the water in the booster is below 180° F.

The residual heat in the rinse water helps to maintain wash tank temperature. The additional volume of rinse water, when added to the wash tank, increases the solution level and then overflows into the drain, carrying away any floating grease and debris.

A feed pump (by others) injects a conditioner into the hot rinse water during the rinse cycle. This conditioner improves the rinsing and drying of the dishware by promoting a "sheeting" action of the rinse water.

CHAPTER 4

SCHEDULED MAINTENANCE

4.1 INTRODUCTION

The 45SA7-F2 dishwasher is a rugged and simple machine. The scheduled maintenance described in this chapter is mostly a periodic set of inspections and cleaning.

4.2 WEEKLY REQUIREMENTS FOR INSPECTION AND MAINTENANCE

4.2.1 Inspect for external leakage.

Inspect the outside of the machine, including all piping, piping components, and the rinse water booster, for leakage. Tighten or repair as necessary.

4.2.2 Inspection of probe and moving floats.

Turn the Power Switch to the "Off" position. Drain the wash tank.

WARNING

Inside of the machine is hot. Allow the machine to cool to 110° F. before proceeding. Wear rubber gloves.

After draining, manually move each float to verify that there is no binding or sticking. Check the detergent concentration probe for dirt and mineral accumulation. Clean as required.

4.2.3 De-liming.

Accumulated mineral deposits must be removed from the inside surfaces of the machine on a periodic basis. The frequency of de-liming depends on the hardness of the water, the type and concentration of detergents used, and the amount of washing time. Until the proper frequency can be determined, de-lime on a weekly schedule.

4.3.3.4 Inspect indicating lights; replace any cracked lenses or burned out bulbs.

4.3.3.5 Close and secure control enclosure cover.

CHAPTER 5

TROUBLESHOOTING

This chapter contains information to assist the operator and/or maintenance personnel in troubleshooting abnormal operation. Personnel involved must be familiar with the description of the equipment and the functioning of all components, as described in Chapter 3.

The following tables list the more common symptoms which may be experienced, their causes, and the recommended corrective action. The tables are separated into operator and maintenance actions.

WARNING

Prior to any work on the Model 45SA7-F2 dishwasher involving service of electrical or water systems, the dishwasher and booster must be de-energized by turning the electrical supply power "Off" and closing appropriate valves.

Wear rubber gloves while performing the following steps. Do not drink, eat or smoke.

Troubleshooting of certain electrical functions require access to live electrical circuits inside the electrical control enclosure. Troubleshooting or repair of the electrical equipment should only be done by a qualified electrician.

TABLE 5-1 (con't)

OPERATOR'S TROUBLESHOOTING GUIDE

6. Weak or ineffective final rinse spray.	a. Lime deposit on spray nozzles. b. Low water pressure. c. Closed supply valve.	a. Clean nozzles. b. Should be 20 PSI flowing. c. Open valve.

TABLE 5-2 (con't)

MAINTENANCE TROUBLESHOOTING GUIDE

4. Water leaks from around door.	a. Door is not seated.	a. Check for proper seating and repair as necessary.
	b. Clogged spray pipes.	b. Clean with brush provided.
5. Weak or ineffective wash spray.	a. Clogged spray pipes.	a. Clean with brush provided.
	b. Manifolds not installed properly.	b. Ensure proper placement of upper and lower spray pipes.
	c. Suction strainer clogged.	c. Clean suction strainer.
	d. Pump motor running in the wrong direction.	d. Correct electrically, proper pump direction indicated by arrow on pump housing.
	e. Pump impeller worn.	e. Replace pump impeller.
6. Weak or ineffective final rinse spray.	a. Lime deposit on spray nozzles.	a. Clean nozzles.
	b. Closed supply valve.	b. Open valve.
	c. Low water pressure.	c. Adjust to 20 PSI flowing.
	d. Final rinse nozzles worn.	d. Replace final rinse nozzles.

TABLE 5-2 (con't)

MAINTENANCE TROUBLESHOOTING GUIDE

10. (continued) Tank and/or booster will not hold specified temperature.	e. Power turned off. f. Immersion heaters limed or defective. g. Level float switch stuck in down position.	e. Turn power on. f. De-lime or replace immersion heater. g. Clean or replace level float switch.
11. Tank not filling/tank heat coming on with no water in tank.	a. Level float switch dirty or defective. b. Level control system not working.	a. Clean or replace level float switch. b. Troubleshoot level control circuitry using wiring diagram provided in this manual.

CHAPTER 6.0

CORRECTIVE MAINTENANCE

6.1 INTRODUCTION

This chapter contains instructions for maintenance and replacement of components that can be damaged or fail in normal operation.

6.2 MAINTENANCE AND REPAIR PROCEDURES

WARNING

Prior to any work on the Model 45SA7-F2 dishwasher involving service of electrical or water systems, the dishwasher and booster must be de-energized by turning the electrical supply power "Off" and closing appropriate valves.

Wear rubber gloves while performing the following steps. Do not drink, eat or smoke.

Troubleshooting of certain electrical functions require access to live electrical circuits inside the electrical control enclosure. Troubleshooting or repair of the electrical equipment should only be attempted by a qualified electrician.

6.2.1 Clean fresh hot rinse strainer in pressure reducing valve.

6.2.1.1 Close the rinse water shut-off valve.

6.2.1.2 The strainer is located within the pressure reducing valve. See Figure 6-1. Loosen the large hex nut on the bottom of the valve. Remove the nut with the attached strainer assembly. It is not necessary to remove the strainer screen from the assembly.

6.2.1.3 Clean the strainer screen and flush with water or a blast of compressed air.

1. At the rear of the dishwasher, loosen the split hex nut that holds the capillary bulb in the rinse line fitting or the wash tank wall. Withdraw the bulb.

2. Remove the thermometer mounting bracket and remove the outer hex nut from the stem of the thermometer. Withdraw the capillary and bulb through the hole in the bracket.

3. Install a new thermometer in the bracket. Pass the capillary and bulb through the hole in the bracket, and install and tighten the hex nut on the stem of the thermometer. Replace the thermometer bracket.

4. Clean the inside of the bulb fitting on the rear of the dishwasher. Install the bulb and tighten the split hex nut.

6.2.4 Overload relay settings and functions. See Figure 6-3.

6.2.4.1. Overload current setting. Lift the plastic cover. With a small screwdriver, align the set point on the overload setting dial with the value for the motor nameplate full load current for 440 volts. The nominal full load current for 440 volt operation of a typical 1/2 hp. motor is 1.2 amps.

6.2.4.2 Auto reset selection. The overload relay is factory installed in the auto reset configuration. A blue shutter appears in the reset selector window. Always use this configuration. If set to the manual reset function (which may be the case with a replacement part), a white plastic cover with an "H" covers the reset selector window. To change to auto reset, lift the plastic cover. Use a small screwdriver to pry off and discard the "H" cover. Slide the blue shutter downward until a faint "click" is heard.

6.2.4.3 Reset test. To test the overload trip function, press the red Stop button. The NC auxiliary contact (only) will open as long as the Stop button is pressed in. This contact is wired in series with the pump contactor M1 and, when opened, will stop the pump motor.

6.2.5 Adjust wash tank temperature.

6.2.5.1 The wash tank temperature should be 156° to 160° F.

1. A solenoid valve is opened by a mechanical plunger which is lifted when voltage is applied to the valve coil. Make sure there is voltage to the coil. If the solenoid valve will not open and there is no voltage at the coil, the problem is somewhere in the solenoid control circuit (thermostat, wires, or ON/OFF switch).

2. If the valve will not open and there is correct voltage to the coil, disconnect all power to machine and remove the coil. Visually check for signs of heat discoloration or carbon deposit due to a short circuit in the coil. Check the coil winding with a meter for electrical continuity. No continuity means an open coil and it must be replaced.

6.2.7.3 Inspection and repair of final rinse solenoid valve. See Fig. 6-6.

1. Disconnect electrical power supply to machine. Shut off water supply to the valve. Remove clip on top of molded coil and remove nameplate, coil, and fluxplate from solenoid base sub-assembly.

2. Unscrew 4 hex screws bolts and remove base sub-assembly, core assembly, and core spring. Remove diaphragm spring, diaphragm assembly, and body gasket.

3. Inspect rubber diaphragm for wear, deterioration, or holes. Inspect all parts for dirt, wear, lime build-up or physical damage. Clean or replace as required.

A repair kit (D2943-RK) is available to rebuild this valve. If the seat or the bottom half of the valve is worn or badly corroded, the entire valve must be replaced.

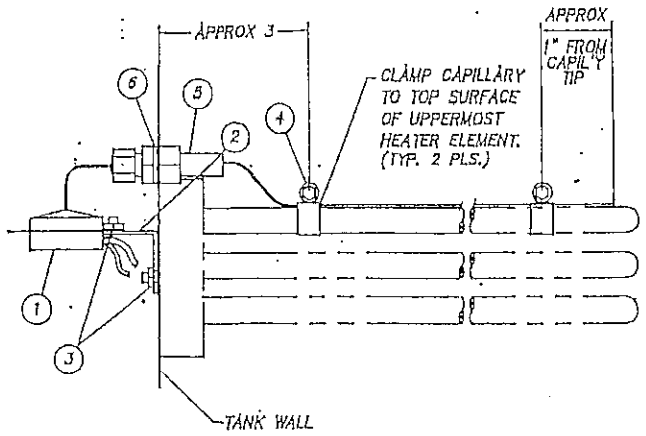
4. Reverse procedure to re-assemble valve. Note that the "tab" on the diaphragm must be above the valve "out" port.

6.2.8 Removal and replacement of recirculating pump.

6.2.8.1 Before disassembling a pump, drain the tank and remove the suction strainer (inside tank). Inspect the pump inlet for foreign objects.

6.2.8.2 Working parts of pump can be serviced by removing the pump motor and impeller adapter (held on by four (4) 3/8" dia. hex head screws) from the pump body. See Fig. 7-2.

NO.	PART NO.	DESCRIPTION	QTY.
1	DE5-61	HI-TEMP. CUT-OFF SWITCH 3/8 NPT	1
2	1192-11	BRACKET, CUT-OFF SWITCH	1
3	D312C-DC-2	NUT, HEX #8-32	3
4	D2839	HOSE CLAMP, S/S	2
5	D318F-B5-B5	BULKHEAD FITTING	1
6	D3-545	"O" RING	1



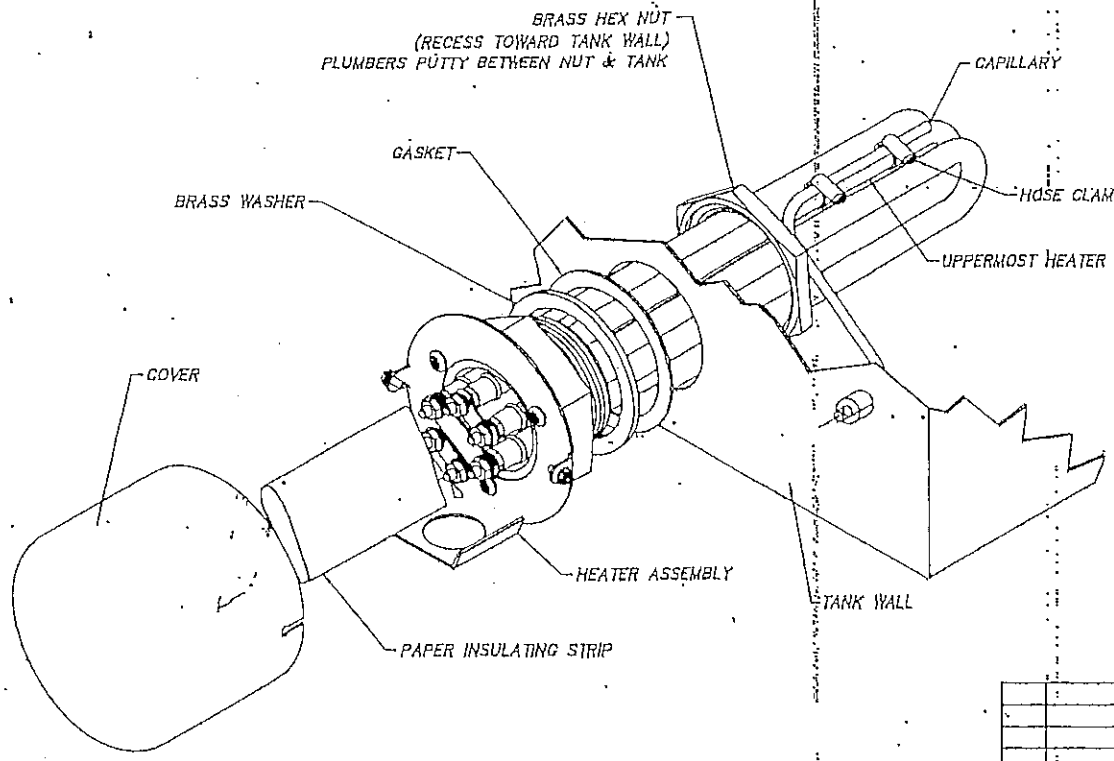


Fig. 6-2

6-8

REV	ECN NO	DATE
A	2006	3.2.04

FILE: SKETCH\SK-4596

TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED

TITLE: ELECTRIC HEATER INSTALLATION

NEXT ASSY
REQ'D 1

DWG. NO. SK-4596

MAT'L

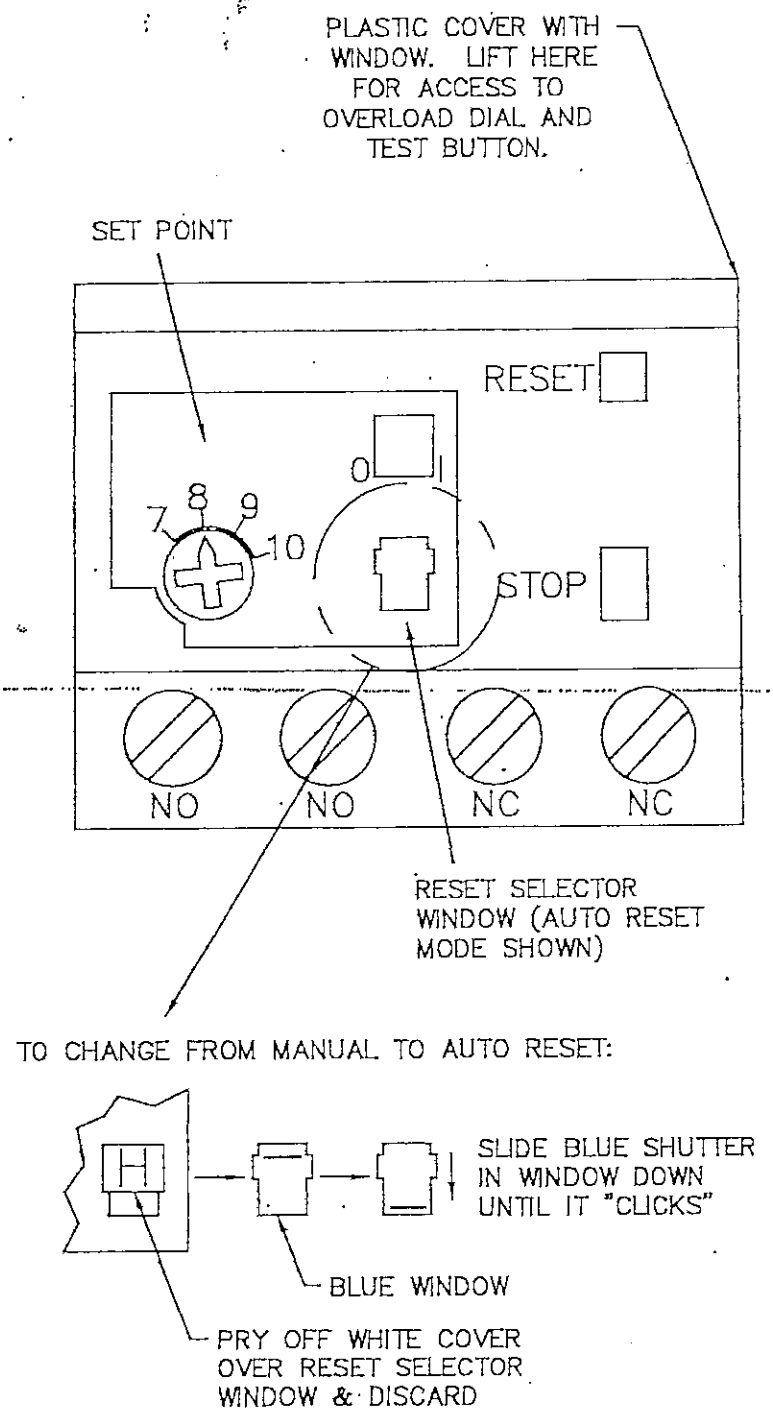
SCALE 1=2

USED ON 455AS

Insinger
Philadelphia, PA 19135
(215) 624-4800
FAX (215) 624-6966

DRWN/DATE GP 11.04.03

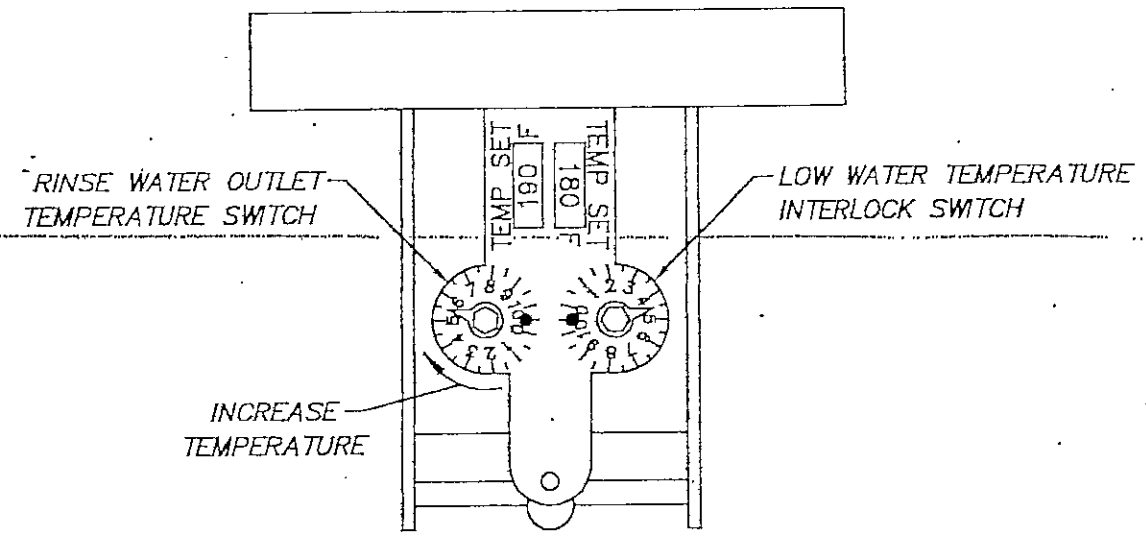
FIGURE 6–3



OVERLOAD RELAY SETTINGS

SKETCHA\SK–3829

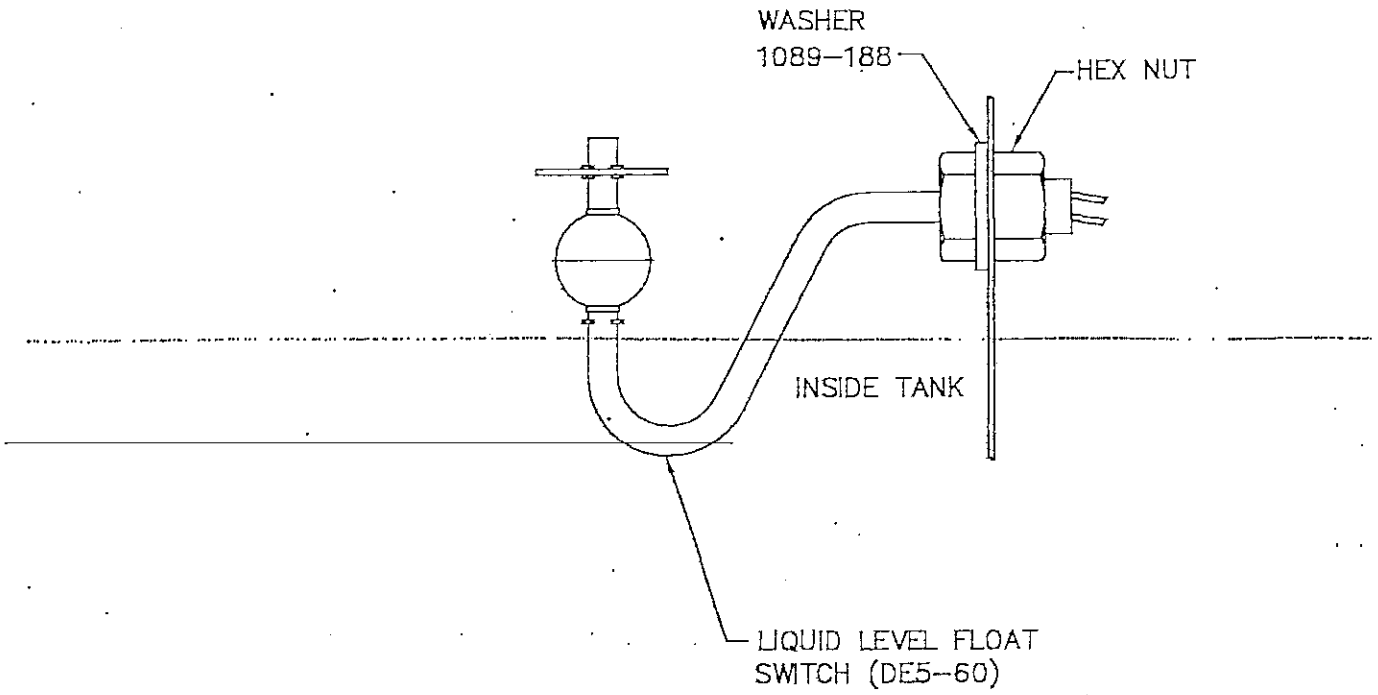
FIGURE 6–5



BOOSTER TEMPERATURE CONTROLLER
(D2301)

SKETCHA\SK–4687

FIGURE 6–7



LIQUID LEVEL. FLOAT. SWITCH

SKETCHA\SK–3704

CHAPTER 7.0

PARTS LIST

7.1 INTRODUCTION

This chapter lists replaceable parts, referenced to part breakdown drawings.

No listing has been provided for parts of permanently assembled items, or for those items which are not suited to field replacement.

7.2 PARTS PROCUREMENT

All parts are available from the Insinger Machine Company, Philadelphia, Pennsylvania 19135.

7.3 RECOMMENDED SPARE PARTS

Item	PN	NIIN	Description	Qty	Rec. Spares
			Parts List (see Fig. 7-1)		
1	3018-K188		Pump & motor assy	1	1
	D-432	01-167-2898	Impeller, 3.0" dia.	1	1
	D2-534	01-152-5505	Seal assy	2	2
2	975-181		Suction strainer assy	1	1
3	963-25		Drain overflow tube	1	2
4	1398-27		Scrap screen	2	1
6	D91		Thumb screw	2	2
7	D2-554-2	01-228-7749	Pipe plug, 3/4-10	8	8
8	D514	00-409-5695	Gasket	1	1
9	D2769	01-414-8033	Nozzle, upper rinse	4	4
14	DE5-60		Liquid level float switch	2	2
16	D2930		Thermometer	2	2
25	D2770	01-414-5611	Nozzle, lower rinse	6	6
26	967-77	01-416-0332	Microswitch assy	1	1
30	D2-558		End plug retainer	8	8

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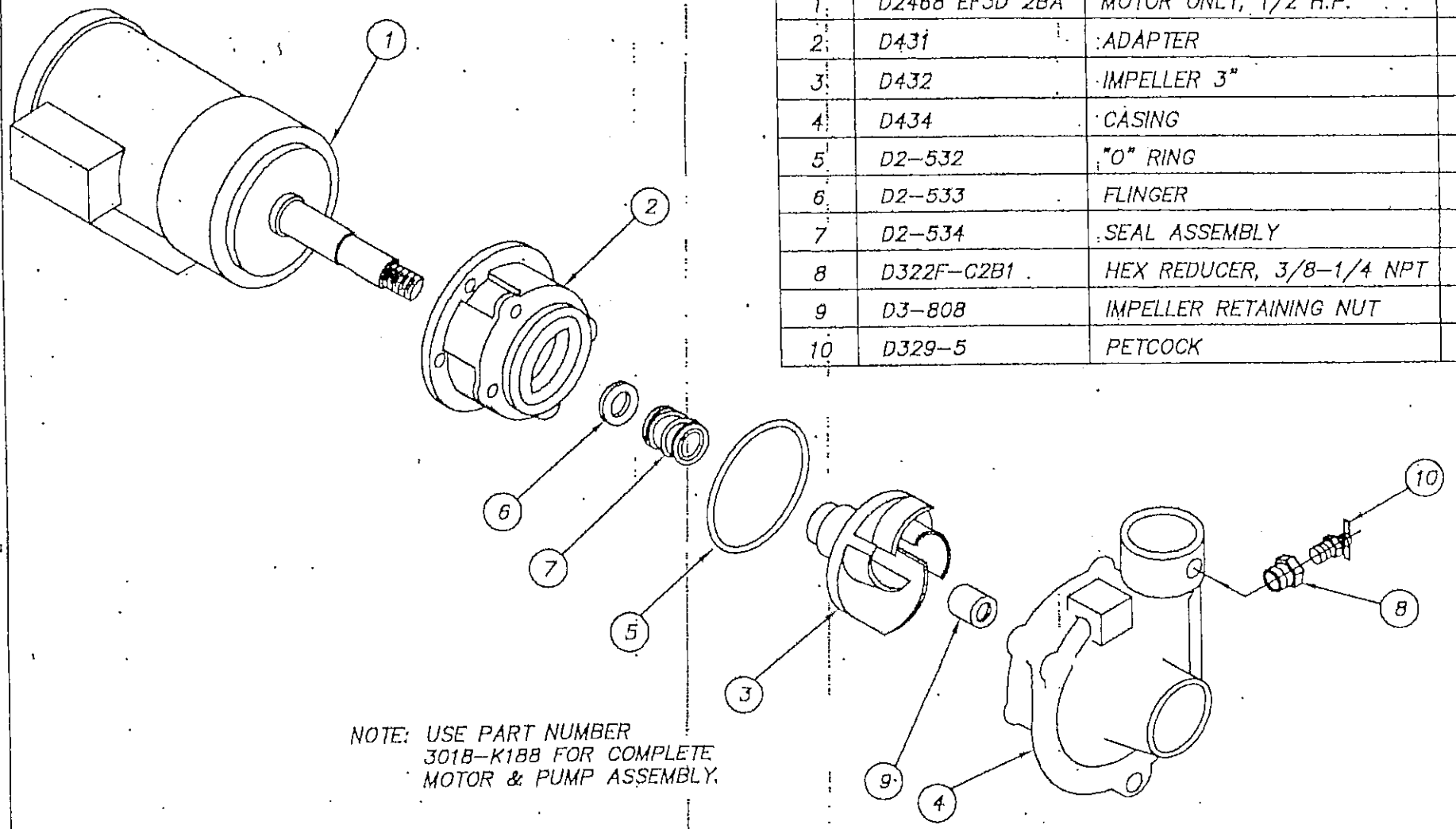
ITEM	PART NO.	DESCRIPTION	QTY.
1	D2468 EF3D 2BA	MOTOR ONLY, 1/2 H.P.	1
2	D431	ADAPTER	1
3	D432	IMPELLER 3"	1
4	D434	CASING	1
5	D2-532	"O" RING	1
6	D2-533	FLINGER	1
7	D2-534	SEAL ASSEMBLY	1
8	D322F-C2B1	HEX REDUCER, 3/8-1/4 NPT	1
9	D3-808	IMPELLER RETAINING NUT	1
10	D329-5	PETCOCK	1



NOTE: USE PART NUMBER 301B-K188 FOR COMPLETE MOTOR & PUMP ASSEMBLY.

REV	ECN NO	DATE

FILE: SKETCHA\SK-2397B

TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED

TITLE: PARTS LIST 1/2 HP PUMP

MAT'L: -

NEXT ASSY: -
REQ'D: -
SCALE: FULL
DWG. NO. SK-2397B
USED ON: 45SA7
DRWN/DATE: MFJ 12.8.04

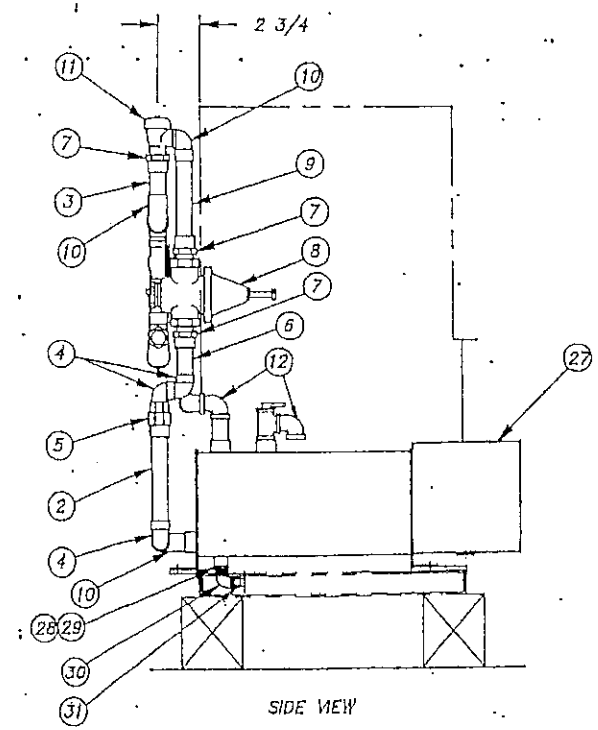
Insinger
Philadelphia, PA 19135
(215) 624-4800
FAX (215) 624-6966

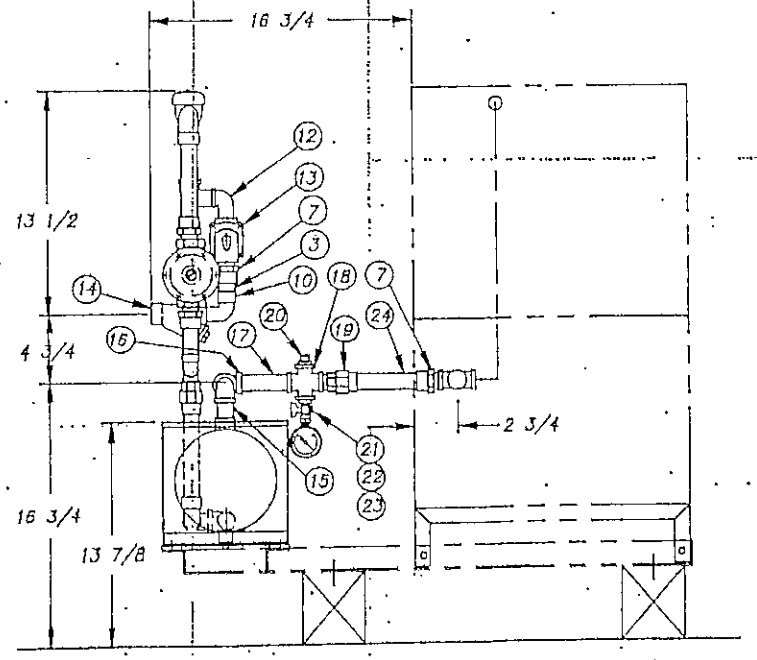
Fig. 7-2

ITEM	PART NO.	SIZE	DESCRIPTION	QTY.
23	SK1433	A	PRESSURE GAUGE 1/4 IPS	1
24	D207A-B6-18	--	COPPER TUBING 3/4 CTS X 4 1/2 LG.	1
25	D2242	--	VACUUM BREAKER KIT	REF.
26	D2943 RK	--	SOLENOID VALVE REPAIR KIT	REF.
27	1192-1	B	SELF CONTAINED BOOSTER	1
28	D314F-BC-00	--	CLOSE NIPPLE 1/4 IPS	1
29	D323F-C2-B1	--	RED. BUSH. FLUSH 3/8 MIPS X 1/4 FIPS	1
30	D316F-B1-B1	--	90° ELBOW 1/4 IPS	1
31	D329-5	--	PET COCK 1/4 IPS	1

ITEM	PART NO.	SIZE	DESCRIPTION	QTY.
12	D316F-E1-E2	--	90° STREET ELL 3/4 FIPS X 3/4 MIPS	3
13	D2943	--	SOLENOID VALVE 3/4 IPS	1
14	D2482	--	"Y" STRAINER 3/4 IPS	1
15	D314F-ES-16	--	NIPPLE 3/4 IPS X 2 LG.	1
16	D316F-E1-E1	--	90° ELBOW 3/4 IPS	1
17	D314F-ES-32	--	NIPPLE 3/4 IPS X 4 LG.	1
18	D327A-E1E1D1D1	--	CROSS 3/4 FIPS3/4FIPS1/2FIPS1/2FIPS	1
19	D318A-E3-E2	--	UNION 3/4 C X 3/4 MIPS	1
20	328F-D2	--	PIPE PLUG 1/2 IPS	1
21	D323F-D2-B1	--	REDUCER 1/2 MIPS X 1/4 FIPS	1
22	D2497	--	PET COCK 1/4 IPS	1

ITEM	PART NO.	SIZE	DESCRIPTION	QTY.
1	D314F-EC-00	--	CLOSE NIPPLE 3/4 IPS	1
2	D207A-B6-26	--	COPPER TUBING 3/4 C X 6 1/2 LG.	1
3	D207A-B6-8	--	COPPER TUBING 3/4 C X 2 LG.	2
4	D316A-E3-E4	--	90° ELBOW 3/4 C X 3/4 FTG.	3
5	D318A-E3-E3	--	UNION 3/4 C	1
6	D207A-B6-12	--	COPPER TUBING 3/4 C X 3 LG.	1
7	D317A-E3-E2	--	ADAPTER 3/4 C X 3/4 MIPS	5
8	D2508	--	PRESSURE REDUCING VALVE 3/4 IPS	1
9	D207A-B6-22	--	COPPER TUBING 3/4 C X 5 1/2 LG.	.1
10	D316A-E3-E2	--	90° ELBOW 3/4 C X 3/4 MIPS	4
11	D2243	--	VACUUM BREAKER 3/4 IPS	.1





REV	ECN NO	DATE
C	2025	12.8.04
B	1981	7.10.03
A	1778	7.24.00

FILE: PARTS\1398-42

TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED

TITLE: BOOSTER PIPING

MAT'L: AS NOTED

NEXT ASSY: 1398-1
REQ'D: 1
SCALE: 1:8
USED ON: 455A-7
DWG. NO.: 1398-42
DRWN/DATE: PG 5.20.94

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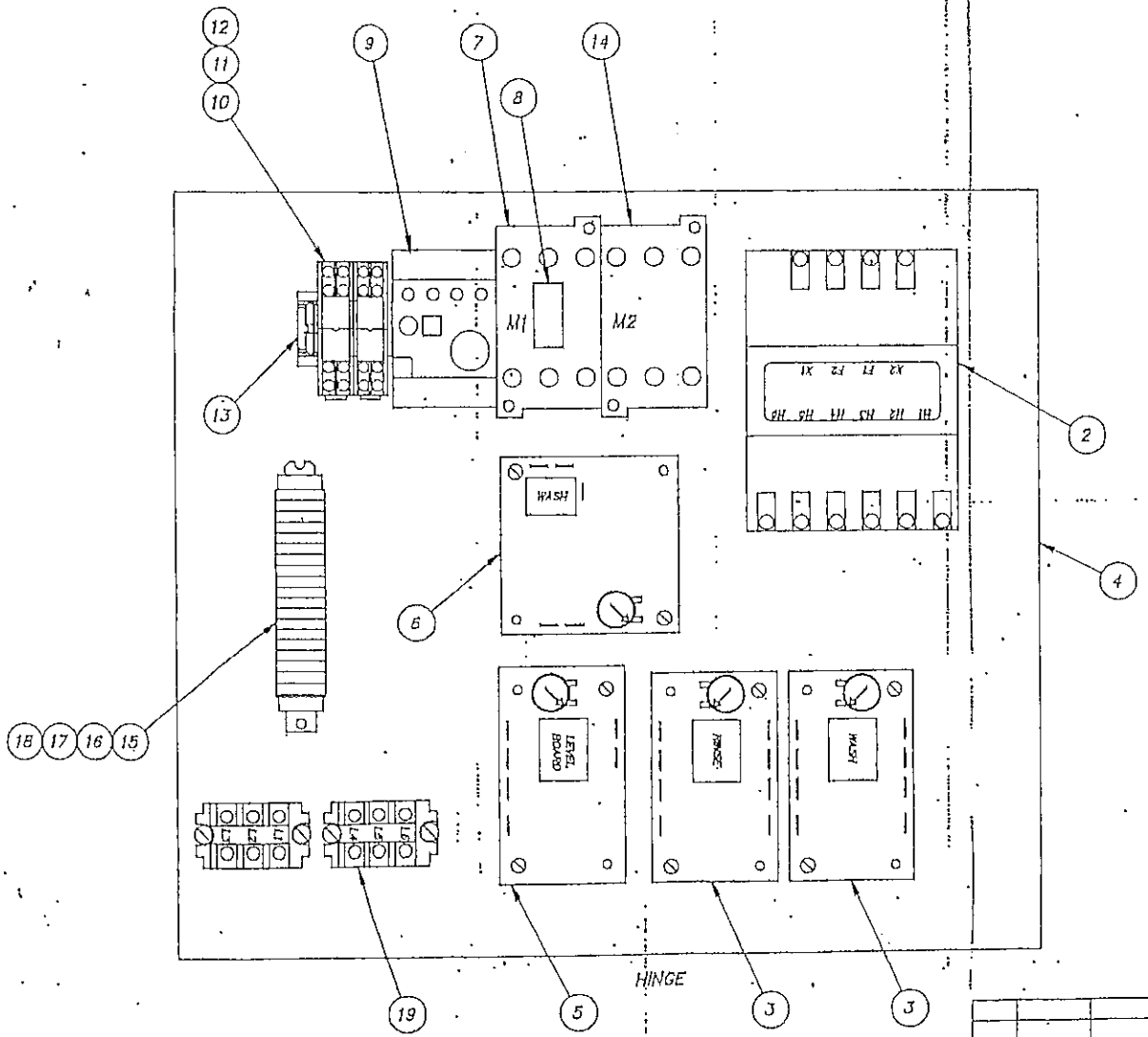
Fig. 7-4



PARTS LIST–CONTROL BOX COMPONENTS

ITEM	DESCRIPTION	PART NO.	QTY.
1	ENCLOSURE	DE9–37	1
2	TRANSFORMER	DE6–6	1
3	TIMER, WASH, RINSE	DE7–27	2
4	MOUNTING PLATE	DE9–37A	1
5	TIMER (LIQUID LEVEL)	DE7–31	1
6	TEMPERATURE CONTROL BOARD	DE9–251	1
7	CONTACTOR, PUMP	DE1–55AE	1
8	AUX CONTACT	DE1–62AE	1
9	OVERLOAD RELAY 480V–3PH–60HZ 1 – 1.7A	DE2–50	1
10	RELAY BASE	DE2–37	AR
11	RELAY	DE2–38	AR
12	RELAY HOLD DOWN SPRING	DE3–43	AR
13	DIN RAIL	DE9–84	1
14	CONTACTOR, WASH HEAT	DE1–55AE	1
15	TERMINAL SECTION	DE3–39	17
16	TERMINAL END COVER PLATE	DE3–40	1
17	TERMINAL END CLAMP	DE3–41	2
18	DIN RAIL (TERMINAL STRIP)	DE3–42	1
19	TERMINAL BLOCK ASS'Y.	DE3–3	2

AR – AS REQUIRED

SHEET 1 OF 2

REV	ECN NO	DATE
A	2025	12.6.01

FILE: SKETCH\SK–3627

TOLERANCES: FRACTIONS ±1/64, DECIMALS .XXX ± .005, .XX ± .01, ANGLES ±1/2° UNLESS OTHERWISE SPECIFIED

TITLE: CONTROL PANEL LAYOUT & COMPONENTS

MATL: NOTED

NEXT ASSY: –

REQ'D: 1

SCALE: 1=2

DWG. NO.: SK–3627

USED ON: 455A7

DRWN/DATE: MFJ 6.30.94

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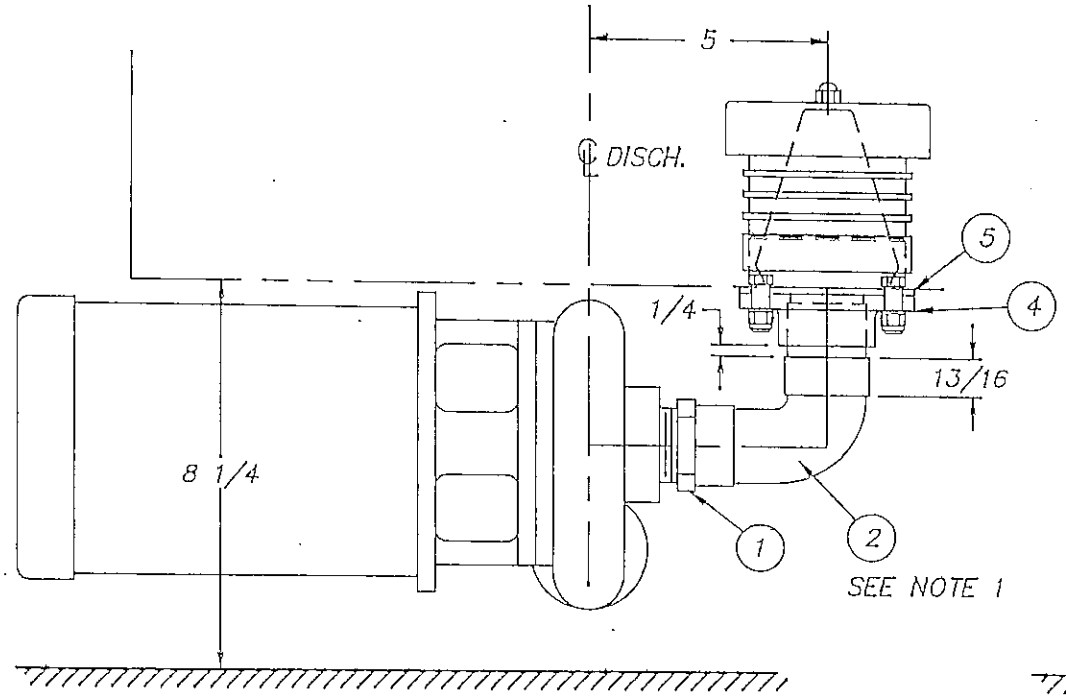
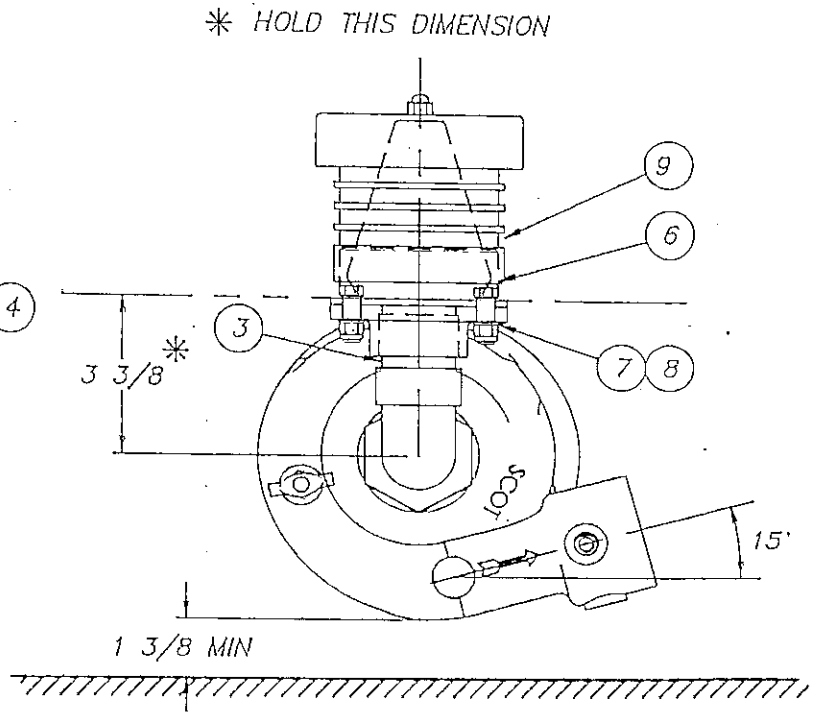
ITEM	PART NO.	SIZE	DESCRIPTION	QTY.
1	D317E-H3-H2	--	FTG. ADAPTER 1 1/2 C X 1 1/2 MIPS	1
2	D316E-H3	--	ELBOW 90° 1 1/2 C	1
3	D207E-B12-6	-	COPPER TUBING 1 1/2 CTS X 1 1/2 LG	1
4	D-134	A	FLANGE, TANK	1
5	D-514	A	GASKET	1

ITEM	PART NO.	SIZE	DESCRIPTION	QTY.
6	D309C-JC-7	-	HEX HD SCR 3/8-16 x 7/8 LG.	4
7	D313A-1J	-	COPPER WASHER 3/8	4
8	D312C-JC-5	-	LOCKNUT 3/8-16	4
9	D2-541	A	SUCTION STRAINER	1





NOTES:

1. TRIM 3/8" OFF SOCKET END OF ITEM #2. SHORTEN ITEM #4 IF NECESSARY.
2. COPPER MUST BE NICKEL PLATED.
3. SEE #1398-54A FOR S/S ALTERNATE CONSTRUCTION.
4. PUMP MOTOR IS ROTATED 24° TOWARD FRONT OF DISHMACHINE.

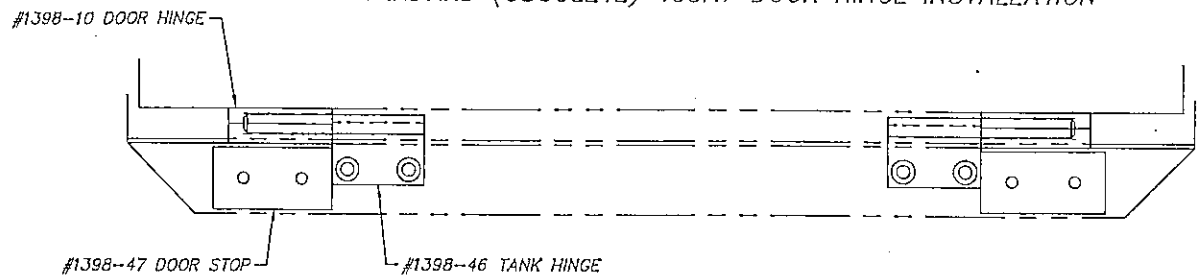
REV	ECN NO	DATE
FILE: PARTS\1398-54		

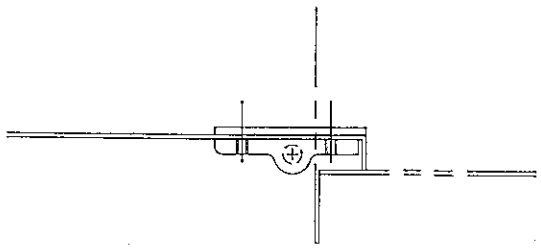
TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED

TITLE: SUCTION LINE ASSEMBLY SHORT SUBMARINE MOUNT		NEXT ASSY	DWG. NO. 1398-54
MAT'L: NOTED		REQ'D NOTED	
		SCALE 1=4	USED ON 45SA7
Insinger	Philadelphia, PA 19135 (215) 624-4800 FAX (215) 624-6966	DRWN/DATE CES 6.20.08	

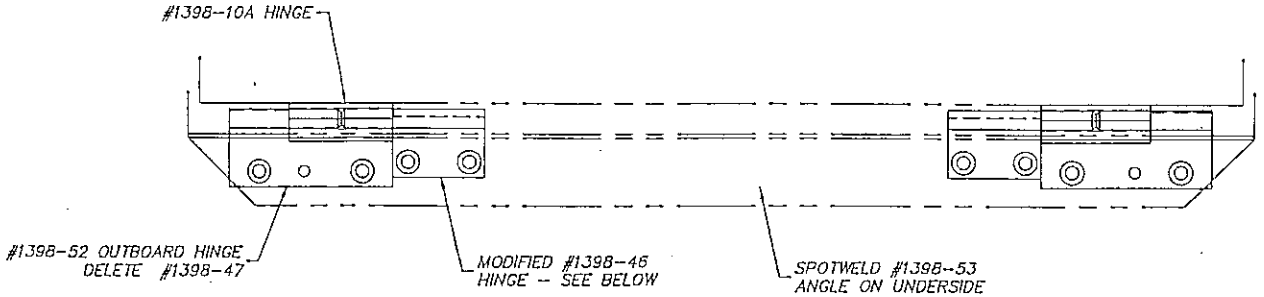
T-11

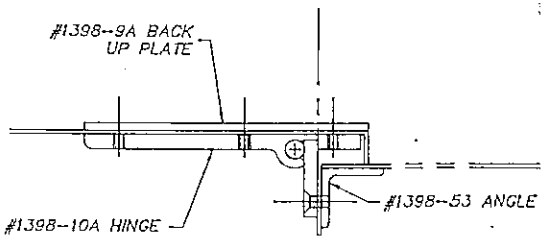
STANDARD (OBSOLETE) 45SA7 DOOR HINGE INSTALLATION

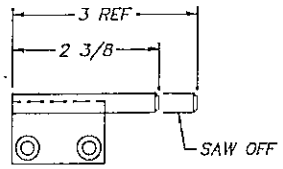




MODIFIED (NEW) 45SA7 DOOR HINGE INSTALLATION







MODIFY #1398--46
1 RH & 1 LH REQ'D

REF #1398--7

REV	ECN NO	DATE

FILE: SKETCH\SK--4843

TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS
OTHERWISE
SPECIFIED

TITLE: MAX REINFORCED DOOR INSTALLATION (RETRO-FIT)

MAT'L: NOTED

NEXT ASSY: 1398--1
REQ'D: 1 PR
SCALE: 1=2
USED ON: 45SA--7
DWG. NO.: SK--484
DRWN/DATE: CES 10.12.0

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CHAPTER 8

INSTALLATION

8.1 UNPACKING

The 45SA7-F2 dishwasher is shipped from the factory securely bolted to a single shipping pallet.

8.1.1 Carefully remove all external protective crating.

8.1.2 Remove all fasteners holding the dishwasher and component parts to the pallet.

8.1.3 Check that the following items have been received:

Qty.	Description
1	Dishwasher and booster assembly.
1	Electrical control enclosure
1	Thermometer bracket with thermometers.
2	Plate racks.
2	Cup, bowl and cutlery racks.
1	Manifold cleanout brushes.
2	Technical manuals.

8.2 INSTALLATION

8.2.1 Mechanical and Piping.

8.2.1.1 The dishwasher frame is designed for installation on shock absorbing mounts, supplied by others. Position the dishwasher frame on these mounts and complete the installation.

8.2.1.2 Connect a 3/4" hot water supply line (140° F. minimum) to the inlet strainer on the booster piping. Inlet water pressure should not be less than 20 psig. with water flowing, nor more than 125 psig static. Use unions in the piping system to facilitate the replacement of individual components.

8.2.1.3 Connect a 1-1/4" drain line to the drain coupling on the bottom of the wash tank.

NOTE

Power requirements for the dishwasher and booster heaters are listed in Table 1-1.

8.2.2.3 Install the power and control wires between the electrical control enclosure and the junction box on the dishwasher. Numbered terminals are provided in each enclosure for all wires.

8.2.2.4 Wire the detergent controller and rinse injector per manufacturers' recommendations. Terminals are provided in the main enclosure and junction box for the detergent dispenser probe wires.

8.2.3 Check-Out of the Installation.

8.2.3.1 Perform the Start-up Procedure, section 2.3.

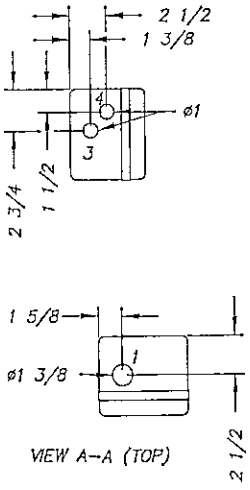
WARNING

At startup, and after any draining of the electric booster, turn off the 440 volt power to the booster during the initial wash tank fill (2.3.6). This will allow the booster reservoir to fill and trapped air to be purged without overheating of booster heating elements.

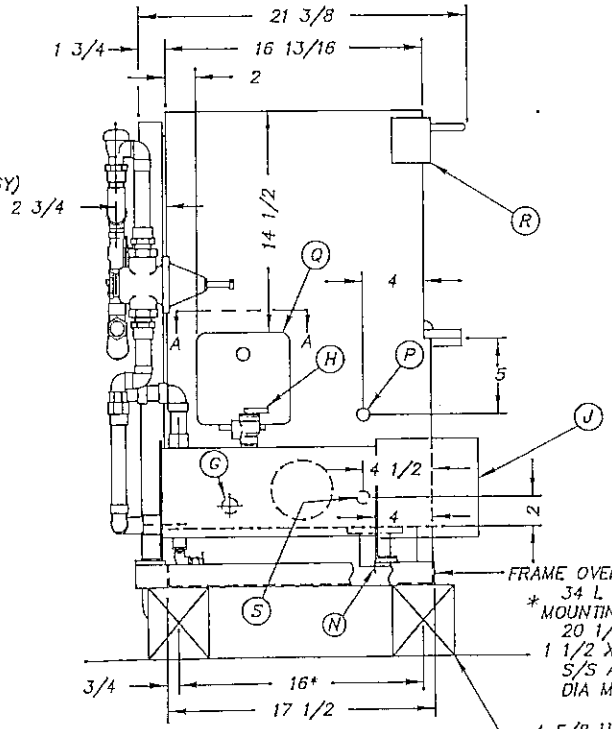
8.2.3.2 Verify that pump rotation is correct. An arrow on the pump casting indicates the correct direction.

8.2.3.3 Inspect all plumbing joints for leakage and verify that water is running freely through the drain.

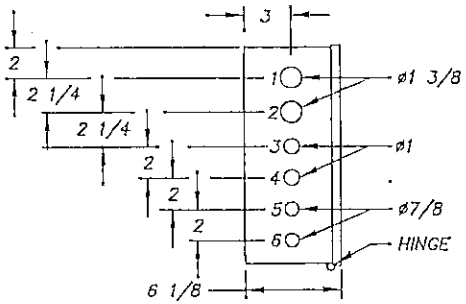
A= 3/4" INCOMING WATER SUPPLY LINE W/STRAINER TO BOOSTER (MACHINE FILL & FINAL RINSE)
B= RINSE CHEMICAL INPUT CONNECTION
C= WASHER INLET MACHINE FILL & FINAL RINSE
D= WASH WATER TEMP. GAUGE
E= FINAL RINSE TEMP. GAUGE
F= FINAL RINSE TEMP. SENSOR
G= WASH WATER TEMP. SENSOR
H= PRESSURE RELIEF VALVE (OMITTED FROM FRONT VIEW)
J= 13.5 KW RINSE WATER BOOSTER HEATER
K= VACUUM BREAKER
L= SOLENOID VALVE
M= UNION
N= 1 1/4" IPS DRAIN
P= 7/8 DIA HOLE (DETERGENT INLET FITTING) AT ASSY.
Q= 6x6x4 JUNCTION BOX FOR CONNECTIONS TO CONTROL BOX
R= DOOR INTERLOCK SWITCH
S= DETERGENT SENSOR (AT ASSY)

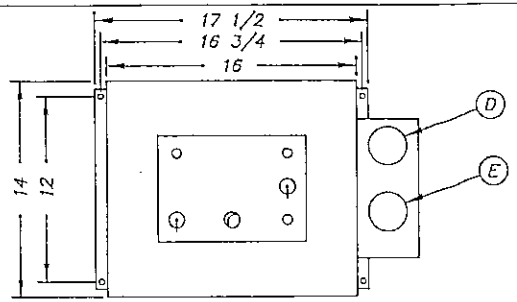


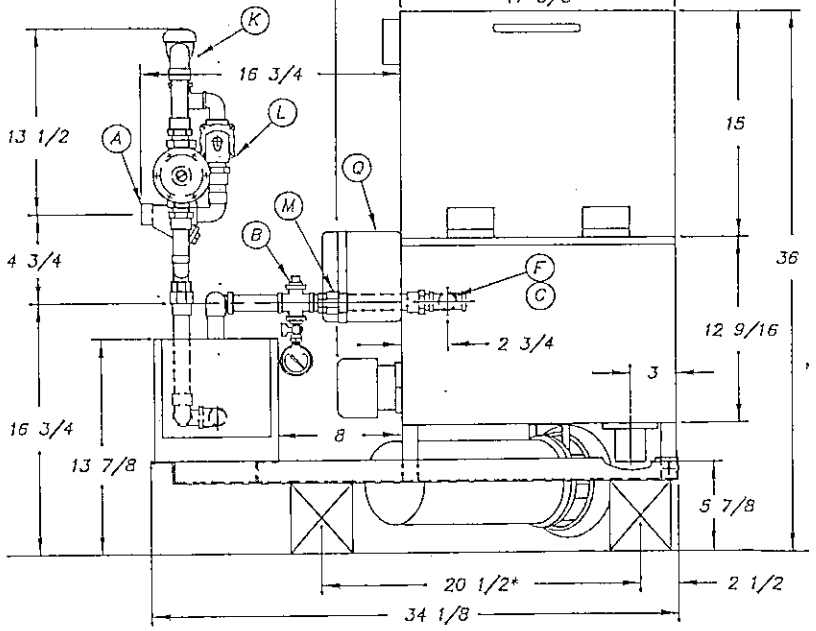
VIEW A-A (TOP)



SIDE VIEW







FRONT VIEW

FRAME OVERALL:
34 L X 17 1/2 W
* MOUNTING HOLE PATTERN
20 1/2 X 16
1 1/2 X 1 1/2 X 1/8
S/S ANGLE W/ 5/8
DIA MOUNTING HOLES

4 5/8 HIGH WOOD BLOCK FOR SHIPPING AND HANDLING PURPOSES ONLY.

GENERAL NOTES

1. STANDARD EQUIPMENT INCLUDES
   2-16 X 16 PLASTIC PLATE RACKS
   4-16 X 16 PLASTIC CUP & CUTLERY RACKS
   3-CLEANOUT BRUSHES
2. MACHINE WIRED FOR 440 VOLT THREE PHASE 60 HZ OPERATION WITH COMMERCIAL TYPE MOTOR & AUTO TIMER
3. TOTAL CYCLE = 50 SECONDS
   WASH = 38 SECONDS
   RINSE = 12 SECONDS
4. WEIGHT OF MACHINE 200 LBS.
   WEIGHT OF CONTROL PANEL 50 LBS.
5. PUMP RAISED FOR INCREASED DECK CLEARANCE.
   45SA7 = 45SA7-F2 = ELECTRIC HEAT

REV	ECN NO	DATE
L	2253	2.2.09
K	2075	10.4.06
J	1165	4.10.95
H	1122	2.3.95

FILE: STD\45SA7-F2

TOLERANCES
FRACTIONS ±1/64
DECIMALS
.XXX ± .005
.XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED

TITLE: INSTALLATION DRAWING
MAT'L: AS NOTED
NEXT ASSY
REQ'D 1
SCALE 1:8
DWG. NO. 45SA7
USED ON 45SA7
DRWN/DATE EBA 2.5.92

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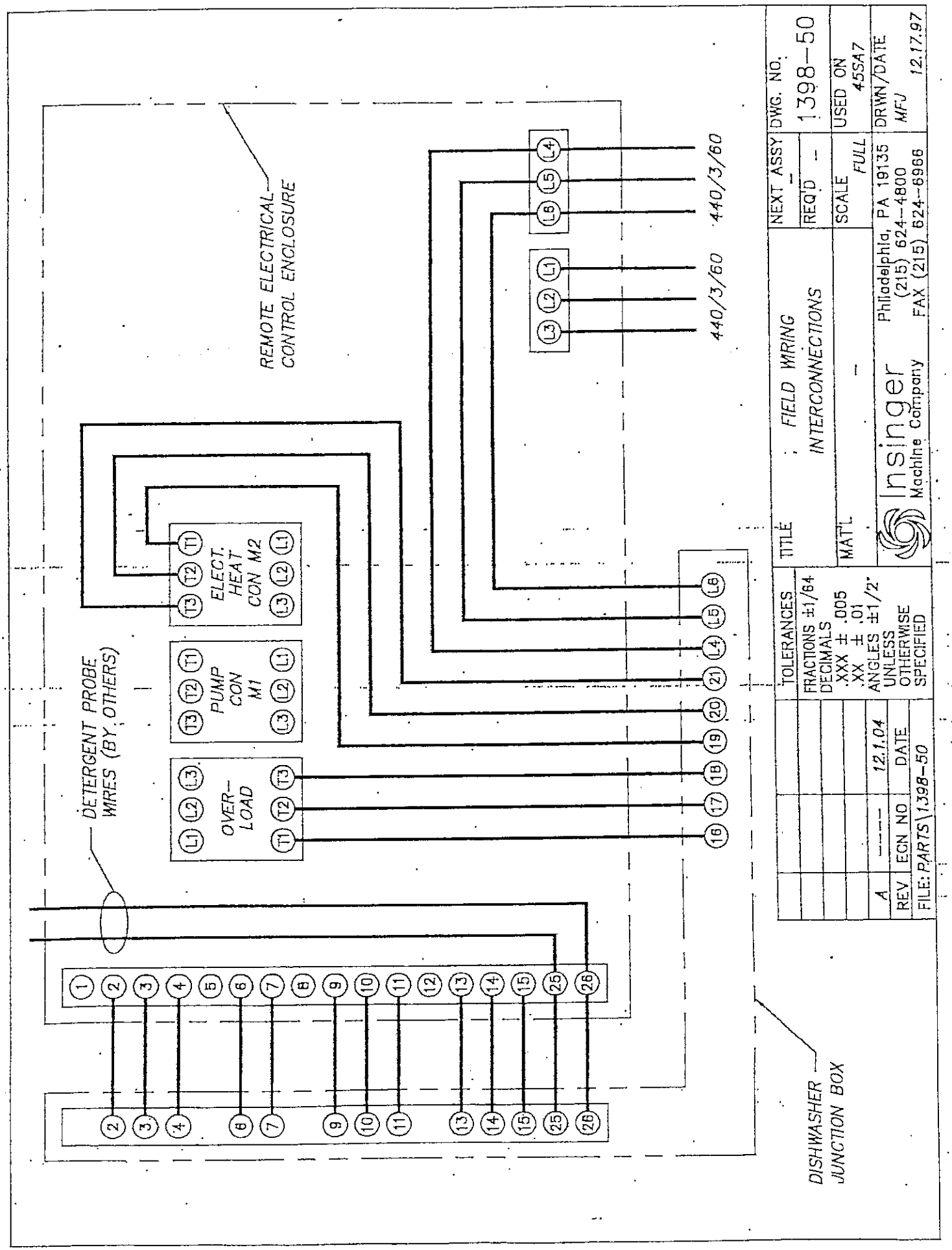
Fig. 8-3


REMOTE ELECTRICAL CONTROL ENCLOSURE
440/3/60
440/3/60
ELECT. HEAT CON M2
PUMP CON M1
OVER-LOAD
DETERGENT PROBE WIRES (BY OTHERS)
DISHWASHER JUNCTION BOX
FIELD WIRING INTERCONNECTIONS
TOLERANCES
FRACTIONS ±1/64
DECIMALS .XXX ± .005 .XX ± .01
ANGLES ±1/2°
UNLESS OTHERWISE SPECIFIED
MAT'L
SCALE FULL
NEXT ASSY
REQ'D --
DWG. NO. 1398-50
USED ON 45SA7
DRWN/DATE MFJ 12.17.97
Insinger Machine Company
Philadelphia, PA 19135
(215) 624-4800
FAX (215) 624-6966
REV A
ECN NO ----
DATE 12.1.04
FILE: PARTS\1398-50

Notes:

HOURS OF OPERATION

Insinger is available to assist you and your team day or night. Our regular business hours are Monday through Friday, 8:00 AM - 5:00 PM (EST). After-hours inquiries may take longer to respond.

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