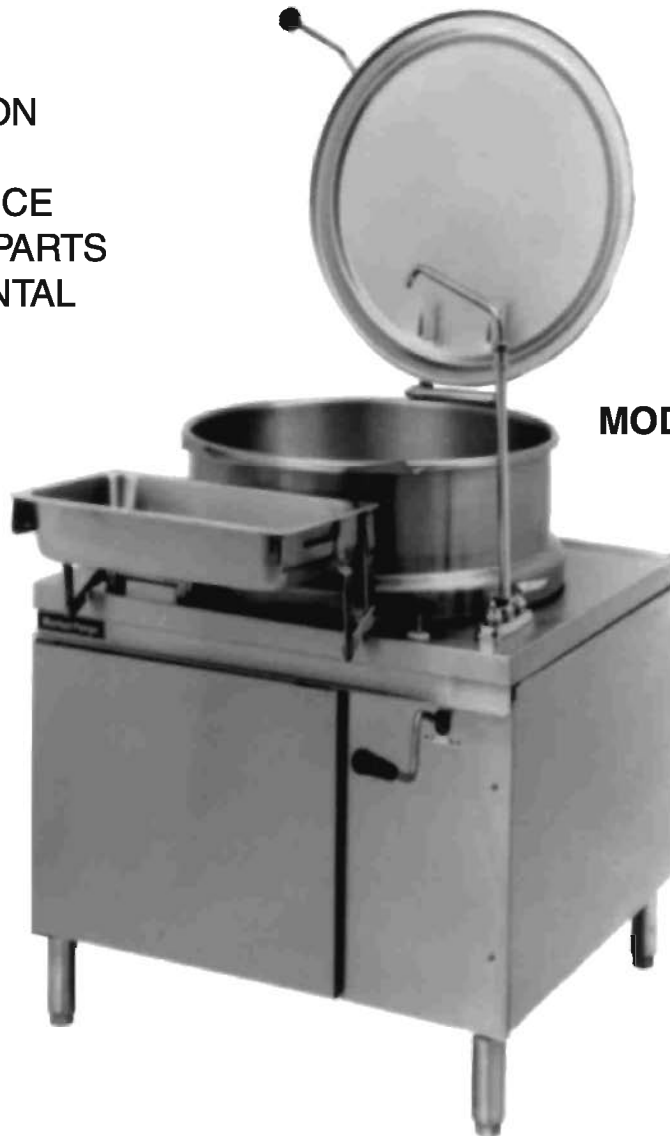


OWNER'S MANUAL

SELF-CONTAINED ELECTRIC TILTING STEAM-JACKETED KETTLE

COVERING:

INSTALLATION
OPERATION
MAINTENANCE
SERVICE & PARTS
SUPPLEMENTAL



MODELS: MT-25EO
MT-40EO
MT-60EO



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An Employee Owned Company



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SECTION 1 INTRODUCTION

This Service and Parts Manual contains descriptive and maintenance information (Including Trouble-Shooting) for Model MT-40EO. Parts List is also included in which each replaceable part is identified and shown in an accompanying illustration unless otherwise stated.

1.1 DESCRIPTION

Market Forge® Model MT-40EO (40 gallon capacity) is a self-contained, tilting, steam-jacketed kettle. Each kettle has a jacket of double-wall construction forming a sealed reservoir around the lower two-thirds of the kettle.

The stainless kettle is enclosed in a cabinet base containing a 24 KW electrically powered boiler for kettle operation.

1.2 BASIC FUNCTIONING

Model MT-40EO becomes operational when the power switch is placed in the ON position. At this point, the boiler reservoir begins to fill with water automatically until the water level reaches a factory preset, high water level. At the high water level, incoming water flow is shut off.

Once the water level is sufficiently above the heating elements, the heater reset switch is momentarily placed in the ON position. This action releases closing contactors to heating elements.

After steam pressure builds up to proper operating pressure, the steam control valve on the cabinet top is manually operated. This open valve allows steam to flow into kettle jacket-heating both kettle and contents. As water level drops due to steam conversion, the automatic water level control system opens and closes incoming water valve to maintain constant water level. If level control system fails, an automatic low water cutoff switch turns off power to heating elements.

1.3 SERVICE

Required service, both preventive and corrective, is explained in Section 2. Should repairs be required, a network of authorized agencies are available to assist with prompt service. A current Directory of Authorized Service Agencies may be obtained by contacting:

Product Service Department
Market Forge Company®
35 Garvey Street
Everett, MA 02149
Telephone: (617) 387-4100

The model and serial numbers must be referenced when corresponding with Market Forge®. These numbers can be found on the data plate located on the upright frame behind the right hand cabinet base door.

SECTION 2 MAINTENANCE

2.1 GENERAL

This section contains trouble-shooting and maintenance information intended for use by authorized personnel except for preventive maintenance (*subsection 2.4*) which may be performed by maintenance personnel at the establishment in which the kettle is installed.

It is recommended that the operator never attempt to make repairs without the assistance of authorized personnel. A current Directory of Authorized Service Agencies may be obtained from Market Forge. (*see subsection 1.3*)

2.2 TROUBLE-SHOOTING GUIDES

Table 2-1 gives information to assist service personnel in locating the general source of problems which may occur with the MT-40EO kettle. Table 2-2 specifically trouble-shoots a contactor.

Before attempting to locate any source of difficulty, the technician should be familiar with the basic functioning of the unit described in section 1.2.

**Table 2-1
GENERAL TROUBLE-SHOOTING GUIDE**

PROBLEM Probable Cause	Remedy
1. POWER ON/OFF SWITCH FAILS TO LIGHT WITH SWITCH IN ON POSITION.	
a. Power to kettle off.	a. Located external Shut-Off (circuit breaker) for incoming power & place in ON position.
b. Low water level in kettle reservoir.	b. Fill reservoir.
c. Power ON/OFF light burned out.	c. Replace switch.
d. Faulty power ON/OFF switch.	d. Replace switch.
e. Faulty water level control.	e. Replace control (<i>see subsection 2.3.5</i>)
f. Faulty wiring.	f. Inspect condition of wire & tightness of all connectors. Correct as required.
2. KETTLE NOT HOT ENOUGH TO BOIL WATER.	
a. Air in kettle reservoir.	a. Replace steam trap as needed.
b. Faulty (weeping) safety relief valve.	b. Replace valve.
c. Burned out heating elements.	c. Replace as required. (<i>see subsection 2.3.4</i>)
d. Pressure switch faulty.	d. Recalibrate or replace as required. (<i>see subsection 2.3.2</i>)
3. LOW WATER LIGHT ON.	
a. Low water level in reservoir.	a. Fill reservoir.
b. Faulty wiring.	b. Inspect & repair as required.
c. Defective water level control.	c. Replace control as required.
4. KETTLE HARD TO TILT.	
a. Bearing loose or lacking lubrication.	a. Repair or replace as required.
5. WATER DOES NOT ENTER BOILER.	
a. Water main shut-off.	a. Turn off.
b. Power not reaching unit.	b. Check main fuse.
c. lack of water level probe sensitivity due to lime build-up.	c. Clean probe. (<i>see subsection 2.3.5.4</i>)
d. Defective water fill valve.	d. 1. Clean strainer. 2. Check oil for continuity. Replace if defective.
e. Defective water switch (marked power switch on control box).	e. Check continuity. Replace if defective.
f. Defective warrick controller.	f. Replace controller
g. Water pressure to low.	g. Increase water pressure to 25-50 PSI.
6. BOILER OVERFILLS WITH WATER.	
a. Lack of water level probe sensitivity due to lime build-up.	a. Clean probe. (<i>see subsection 2.3.5.6</i>)
b. Water fill valve fails to close.	b. Clean valve seat & strainer.
c. Defective warrick controller.	c. Replace controller.
d. Water pressure to high.	d. Check pressure. If above 25-50 PSI, decrease pressure.

**Table 2-1
GENERAL TROUBLE-SHOOTING GUIDE (CONTINUED)**

PROBLEM Probable Cause	Remedy
7. WATER ENTERS BOILER VERY SLOWLY.	
<ul style="list-style-type: none"> a. Dirty strainer screen in water fill valve. b. Dirt or lime accumulation of water fill valve seat. c. Water pressure too low. 	<ul style="list-style-type: none"> a. Clean or replace strainer screen. b. Clean valve seat. c. Increase pressure to 25-50 PSI.
8. BOILER FAILS TO BUILD UP PRESSURE WHEN WATER LEVEL IS PROPER & HEAT SWITCH IS TURNED ON.	
<ul style="list-style-type: none"> a. Circuit breaker in main not turned on. b. Contactors not pulling in. c. Defective steam trap. d. Heating elements defective. 	<ul style="list-style-type: none"> a. Clean probe. <i>(see subsection 2.3.5.6)</i> b. Check continuity of coil. If open replace. c. Replace trap. d. Replace if continuity check through the circuitry of each element shows deficiency. <i>(see subsection 2.3.4)</i>
9. BOILER FAILS TO REACH FULL OPERATING PRESSURE (OF APPROX. 15 LBS).	
<ul style="list-style-type: none"> a. Pressure gauge reads inaccurately. b. Operating pressure control & high limit control switches out of adjustment. c. Safety valve not seating properly. d. Contactor coils (1 or both) not energizing & closing circuits to the heating elements. 	<ul style="list-style-type: none"> a. Replace pressure gauge. b. Readjust or replace as required. <i>(see subsection 2.3.2.1)</i> c. Clean or replace as required. d. 1. Check contactor. Replace either contactor coils or complete contactor as required. 2. Measure amperage at terminal block. Check to ensure that there is an even draw on all 3 Phases. See wiring diagram for correct amperage draw. If uneven or '0' amp draw is found on 1 of the 3 phases, check for blown fuse. If fuse not blown, shut off power. 3. Remove wires from heating elements & run continuity check. Replace as required.
10. CONTACTOR CHATTERS.	
<ul style="list-style-type: none"> a. Incorrect supply voltage. b. Dirty or worn contactor points. c. Weak coil. 	<ul style="list-style-type: none"> a. Check to see that voltage supply matches with coil in connectors. b. Clean or replace contactor. c. Replace with correct voltage coil.
11. SAFETY VALVE BLOWS OFF PREMATURELY.	
<ul style="list-style-type: none"> a. Pressure set too high. b. Pressure gauge reads incorrectly. c. Lime or dirt on valve seat. d. Weak spring in valve. 	<ul style="list-style-type: none"> a. Readjust pressure switch. b. Replace pressure gauge. c. Clean valve seat. d. Replace valve.
12. BOILER BUILDS UP TO PRESSURE, THEN SHUTS DOWN & FAILS TO COME BACK ON.	
<ul style="list-style-type: none"> a. High limit switch set too low or operating pressure control switch too high. 	<ul style="list-style-type: none"> a. Readjust or replace as required. <i>(see subsection 2.3.2.1)</i>
13. AIRVENT LEAKING.	
<ul style="list-style-type: none"> a. Not closing. 	<ul style="list-style-type: none"> a. Replace.
14. COLD WATER CONDENSER DOES NOT FUNCTION.	
<ul style="list-style-type: none"> a. Main water line shut-off. b. Thermostat out of adjustment or defective. c. Loose fit. d. Coil not continuous. 	<ul style="list-style-type: none"> a. Turn on. b. Readjust for proper operation or replace if defective. <i>(see subsection 2.3.2.2)</i> c. Tighten coil as close to body of valve as possible. d. If open, replace.

SECTION 2 MAINTENANCE

**Table 2-2
CONTACTOR TROUBLE-SHOOTING GUIDE**

PROBLEM Probable Cause	Remedy
CONTACTOR	
1. CONTACT CHATTER.	
a. Low Voltage.	a. 1. Check voltage condition. Check momentary voltage dip during starting. Low voltage prevents magnet sealing. 2. Check coil voltage rating. Correct voltage condition as required.
b. Defective or incorrect coil.	b. Replace coil. Rating of coil must match the line voltage
2. WELDING OR FREEZING.	
a. Abnormal inrush of current.	a. Check for grounds or shorts in system. Correct as required.
b. Low voltage preventing magnet from sealing.	b. Correct voltage condition.
c. Short circuit.	c. Remove short fault & check that fuse or breaker size is correct. Correct as required.
3. SHORT CONTACT BUTTON LIFE &/OR OVERHEATING OF CONTACTS.	
a. Filing or dressing.	a. Do not file silver tips. Rough spots or discoloration will not harm tips or impair their efficiency. Replace as required.
b. interrupting excessively high current.	b. Check for grounds, shorts or excessive current. Correct.
c. Discolored contacts caused by insufficient contact pressure, loose connections, etc.	c. 1. Check contact carrier for deformation or damage. Replace as required. 2. Clean & tighten connections.
d. Dirt or foreign matter on contact surface.	d. Clean contact surface with carbon tetrachloride.
e. Short circuit.	e. Check that fuse or breaker size is correct. Remove fault. Correct as required.
COLIS	
4. OPEN CIRCUIT.	
a. Mechanical damage.	a. Handle & store carefully. Do not handle coils by leads. Replace as required.
b. Burnt out coil due to over voltage or defect.	b. Replace coil.
5. OVERHEATED COIL.	
a. Over voltage or high ambient temperature.	a. Check application & circuit. Correct as required.
b. Incorrect coil.	b. Check rating (voltage/frequency) If rating correct replace with proper coil.
c. Short turns.	c. Replace coil.
d. Voltage shortage (failure of magnet to seal in).	d. Correct system voltage. Install NEW coil.

2.3 REPAIR & REPLACEMENT

2.3.1 GENERAL

Section 3 of this manual contains a listing of replaceable parts and associated illustrations of the unit. Disassembly procedures will be obvious from the illustrations.

When replacing probes or gauges which connect to the boiler, it is essential to install replacements in a manner which ensures a pressure-tight seal. Siliconetape sealant or equivalent should be used.

2.3.2 ADJUSTMENTS

2.3.2.1 Braksdale Pressure Switch Adjustments

(See figure 3-12)

WARNING: Because power must be on to adjust pressure switches, be sure to protect against electrical shock.

H15 - High Limit Switch (See figure 3-12, #.5)

F15 - Operating Control (See figure 3-12, #.6)

SECTION 2 MAINTENANCE

2.3.2.1 Braksdale Pressure Switch Adjustments (Cont'd)

1. Check that the (2) different switches are actually used.
2. Set switch H15 all the way to maximum at 15 PSI.
3. Set switch F15 to 13V2-14 PSI maximum.

When unit is properly operating, switch F15 will shut boiler off at approximately 14 PSI and turn back on at approximately 11 PSI.

Also, switch H15 will cause low water light on boiler control box (under cabinet) to come on due to reaching high limit or low water.

2.3.2.2 Cold Water Condenser Adjustment

(See figure 3-12)

The function of the cold water condenser is to keep the temperature in the drain line from exceeding 150°F (66°C). Solenoid valve (See figure 2-1) controls the water flow to the cold water condenser. The valve opens and runs cold water through the drain until the temperature drops below 150°F (66°C). The water flow may be regulated by adjusting thermostat dial (See figure 3-12, #.9).

The valve has a built-in water strainer which should be removed and periodically cleaned.

2.3.2.3 Lid Counterbalance Adjustment

The kettle lid is equipped with a torsion spring counterbalance device to assist in lid lifting and to prevent slamming. The device is shown assembled in figure 2-2 and exploded in figure 3-3. If lid slams closed when handle is released, spring tension should be increased. If lid lifts up or refuses to remain down on kettle, tension should be reduced. To adjust spring tension, proceed as follows:

1. Loosen 1/4" hex nut.
2. Adjust spring tension by turning V4" hex head cap screw. Tighten to increase tension; loosen to reduce tension.
3. Operate lid several times. Repeat step 2 until desired operation is obtained.
4. Hold hex head screw firmly in position and tighten hex nut to lock adjustment.

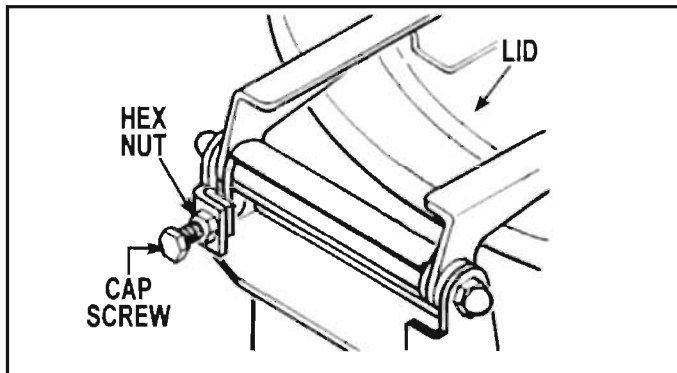


Figure 2-1 Lid Counter Balance

2.3.3 CABINET EXTERIOR REMOVAL

Side and rear panels of the 36" cabinet are easily removed without the use of tools. Each panel is grasped at the bottom edge and pulled out sharply to release it from the panel mounting brackets shown in figure 3.2. Replacement is complete by pushing panel up under cabinet top and pressing in at the bottom until panel mounting brackets are engaged.

Doors may be removed to improve access to cabinet interior for repairs as shown in figure 3-2. The two flat head screws (46) and nuts (48) holding cabinet hinge (21) are removed and the door lifted out. When doors are remounted, the final tightened position of hinge (21) determines the alignment of the door and must be set with care.

2.3.4 HEATING ELEMENT REPLACEMENT

Check for defective heating elements as follows:

With the unit in operation, connect an ohmmeter to the two leads of each element at room temperature. Resistance should be as follows:

VOLTS	OHMS
208	5.4 plus or minus 5%
240	7.2 plus or minus 5%
480	28.8 plus or minus 5%

If not, element is defective and must be replaced. Proceed as follows:

1. Shut down power to unit.
2. Drain water from boiler by opening snap-connect hose behind kettle and draining into a suitable container.

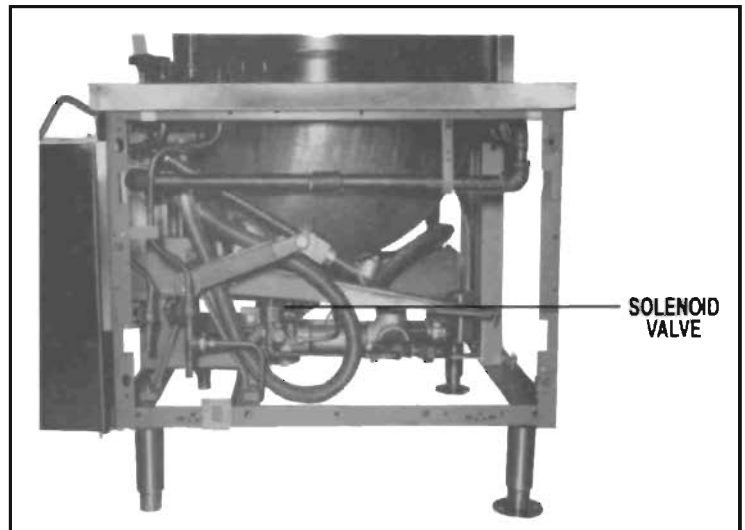


Figure 2-2 Cabinet (Internal) Side View

3. Disconnect wires.
4. Place special socket (Market Forge, PIN #20-0263) on element, pulling wires through hole in socket.
5. Turn counterclockwise until element is freed.
6. Replace with new element, using pipe dope or teflon tape to seal threads. If teflon tape is used, use 1 1/2 turns, leaving the two end threads bare.

HEATING ELEMENT			PART NO.
208V	8KW	Cart. Heater	10-8312
240V	8KW	Cart. Heater	10-8313
480V	8KW	Cart. Heater	10-8314

SECTION 2 MAINTENANCE

2.3.5 WATER LEVEL CONTROL

2.3.5.1 Circuit Operation

Boiler water level is controlled by rising and falling water level which makes and breaks circuits between three different length probe electrodes inside boiler and the grounded boiler wall.

The short and medium length probes are used to turn water on and off as required. The long probe is used to cut off power to the heating elements and give a signal alarm when water is too low.

2.3.5.2 Water Level Control Operation (Refer Fig. 3-14)

Starting with an empty boiler, switch S1 is closed to start the following sequence.

1. Solenoid R-1 energizes allowing water to flow into boiler. At the same time, the primary circuit of T-1 is energized.
2. Boiler continues to fill until water level reaches tip of electrode probe A completing the secondary circuit of T-1 and energizing C-3.
3. When C-3 is energized, NC (normally closed) contact opens which de-energizes R-1 and stops water flow. NO (normally open) contact closes completing circuit to probe B.

As water boils away below the end of probe B, the following occurs:

1. Secondary circuit of T -1 is broken and C-3 de-energizes.
2. When C-3 de-energizes, NO contact opens to break circuit to probe A while NC contact closes which energizes R-1 and allows boiler to fill.

2.3.5.3 Low Water Cut-Off

When S-1 is closed, the following also occurs:

1. Primary circuit of T -2 is energized.
2. When water level reaches probe C and S-2 is momentarily closed, C-4 is energized.
3. When C-4 is energized, NO contacts close completing low water cut-off circuit through contacts 7 and 8 and completing circuit through contacts 3 and 4 energizing C-1 and C-2 which closes heater circuit.

If water drops below probe C, the following occurs:

1. Secondary circuit of T-2 breaks and C-4 de-energizes. Contact 7 and 8 and 3 and 4 open to break circuit to C-1 which opens circuit to heating elements.

C-1 and C-2 will not operate until water level in boiler is normal and S-2 is momentarily closed.

2.3.5.4 Water Level Control Maintenance & Cleaning

The water level probe assembly, screwed into the top of boiler (see fig. 3-9 no.11), should be removed periodically for inspection of the probe. Inspection should be done at least (2) times a year as determined by local water conditions. Probe electrodes must be as free of scale and sludge build-up as possible to insure proper functioning of water level control system.

Electrode lengths must be checked to insure proper water level settings.

2.3.5.5 Probe Removal & Disassembly

To remove probe assembly for inspection, use the following procedure:

1. Remove cover of wiring box.
2. Disconnect wires from tops of probe electrodes.
3. Remove wiring box from top of probe housing and push off to one side leaving wire conduit attached.
4. Unscrew probe housing assembly from boiler and pull assembly out.
5. Remove bottom strainer by loosening screw on side of probe housing and pulling strainer out.

If probe electrodes and housing appear to have little or no build up of scale or sludge, use Market Forge Total Concept Chemical Cleaner/Descaler (PIN. 20-0307) for this minor cleaning. This type of cleaning should be done at least twice a year. Refer to S-2313 for complete Total Concept Application Instructions.

After completion of Total Concept application, proceed to probe reassembly (2.3.5.7), steps 6 thru 10 only. If build-up is considerable, proceed to disassemble as follows:

6. Remove nuts, washers, and ceramic insulators from threaded ends of probe electrodes.
7. Loosen probe electrodes one at a time by tapping lightly with a hammer straight down on threaded end until top of threads is about 1/8" above top of teflon sheath. Be careful not to damage threads or bend electrodes.
8. Pull loosened electrodes through open end of pipel housing.
9. Remove teflon sheaths by carefully tapping tops with hammer until they pop out.

2.3.5.6 Probe Cleaning

The following procedure should be followed for cleaning probe assembly when build-up is considerable (at least once a year):

1. Clean all parts of probe including strainer, probe housing, teflon sheaths, and electrodes in detergent and water using a nylon brush for scrubbing. Rinse thoroughly in clear water. If scale and sludge build-up has been removed, proceed to probe reassembly (2.3.5.7). If probe assembly has not been disassembled and detergent and water did not remove scale from electrodes proceed to step 3 or disassemble and proceed to step 2.
2. Use emery cloth or sandpaper to remove scale from electrodes. Rinse thoroughly in clear water.
3. A U.S.D.A. approved boiler cleaner may be used for more thorough cleaning of electrodes.

SECTION 2 MAINTENANCE

WARNING:

These cleaners are acids which must only be used by persons trained in their proper use. If used, directions and warnings accompanying the cleaner must be followed exactly. Make sure that acids have been properly neutralized and all parts thoroughly rinsed with clear water.

2.3.5.7 Probe Reassembly & Reinstallation

Reassemble and reinstall probe as follows (skip to step 4 if probe was not disassembled):

1. Push teflon sheaths onto threaded ends of electrodes as far as they will go. Threads must protrude from tapered ends of sheaths.
2. Push sheathed ends of electrodes into proper opening so that electrodes are in correct position inside probe housing. Short probe goes into opening "A"; medium probe goes into opening "B"; and long electrode goes into opening "C".
3. Lightly tap bottoms of electrodes with hammer and screwdriver until teflon sheath is as far in opening as it will go. Lip at beginning of taper will be flush with inside top of probe housing.
4. Measure distance from open end of probe housing to each electrode and use hammer and screwdriver to lightly and carefully tap electrode from top or bottom into proper position if needed. Probe "A" should be 1" in from end; probe "B" should be 5/8" in from end; and probe "C" should be 1/4" in from end.

CAUTION:

If probe is assembled already, loosen nuts before tapping threaded end.

5. Replace ceramic insulators, washers, and nuts on threaded ends of electrodes. Tighten nuts enough to hold electrodes, insulators, and sheath in place- but not tight enough to move electrode or crack insulator.
6. Replace strainer on open end of probe housing. Tighten strainer so that it is flush with probe housing all the way around. Bend mounting bracket if needed to ensure proper fit.
7. Screw probe assembly back into probe opening in boiler top until distance from top of probe to boiler top is 1 V2" (See figure 2-3). This distance must be exact in order to ensure proper setting of water levels in boiler.
8. Remount wiring box on top of probe.
9. Reattach wires to probe electrodes. Wire #38 goes to probe "A"; wire #41 goes to probe "B"; and wire #42 goes to probe "C".
10. Reattach wiring box cover.

2.3.6 DRAW-OFF VALVE REPAIR

An exploded view of the draw-off valve is shown in figure 3-7. Refer to figure 3-7 for the valve repairs that follow. All pans are replaceable.

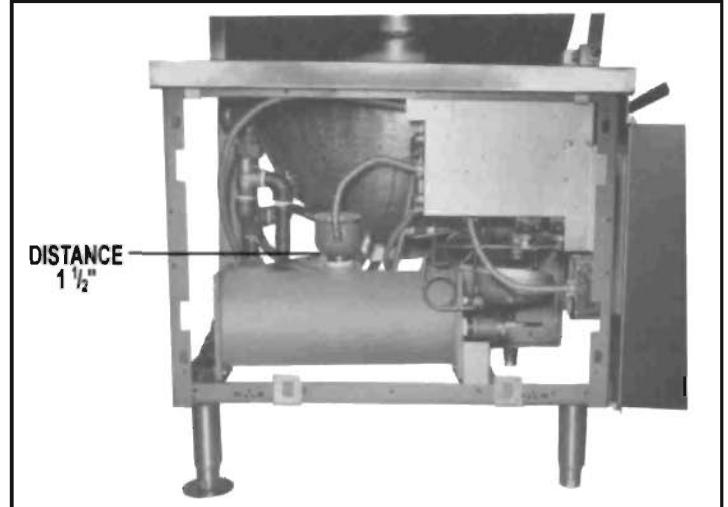


Figure 2-3 Probe Housing Reinstallation

2.3.6.1 Common Leak Repairs

To repair a valve leak, the source must first be determined. Leaks from around the valve stem are corrected by replacing the rubber "O" ring (5). Dripping from the valve outlet which occurs with the valve tightly closed indicates faulty seating of the valve disc (pan of 6) against the valve seat. Dripping is often corrected by cleaning residue from disc and seat using very fine emery.

2.3.6.2 Valve Seat Lapping

If either the disc (pan of 6) or seat is found damaged, it is necessary to either replace the entire valve or perform the lapping procedure as follows:

1. Disassemble valve and clean both disc and valve seat.
2. Attach handle (2) to stem with valve bonnet (4) removed.
3. Apply a good grade of fine lapping compound to disc and insert it into valve to make light contact against seat.
4. Rotate stem disc against seat by turning handle. This rotation allows stem to wobble in space the bonnet would normally occupy. Continue with light pressure until compound dries.
5. Reassemble and test for leaks with valve closed. If dripping occurs, repeat lapping procedure as many times as required to obtain a water-tight seal.

2.3.7 TILTING MECHANISM REPAIR

MT40EO tilting kettles are equipped with tilting mechanisms as shown in figure 3-10. Figure 3-10 serves as the reference view for the tilting mechanism repairs which follow.

2.3.7.1 Saginaw Screw Assembly Removal

The assembly is removed with the kettle in the lowered position. Assembly removal proceeds as follows:

1. Remove the two bolts which hold ball nut assembly in screw lever (7).
2. Remove the two 5/16" hex head cap screws which fasten the screw housing (11) to cabinet frame, (not shown).
3. Lift screw assembly from cabinet.

NOTE:

Proceed in reverse order to replace the assembly.

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2.3.7.2 General Inspection & Cleaning

The screw assembly should run smoothly throughout the entire stroke. If operation is not uniform, remove the screw assembly (Subsection 2.3.7.1) and proceed as follows:

1. Inspect screw shaft for accumulation of foreign matter in the ball grooves.
2. Using cleaning fluid or solvent, remove dirt from ball grooves. Be sure to flush the ball nut assembly thoroughly.
3. Cycle the ball nut along the screw shaft several times. Then, wipe with a dry, lintless cloth and lubricate immediately.

2.3.7.3 Crank Sleeve Replacement

The driving end of the Saginaw Screw (2) is formed into a slotted sleeve which receives the engagement pins of the removable hand crank (1). A worn or chipped sleeve which causes the hand crank to slip out of engagement during tilting can be repaired with Crank Sleeve Replacement Kit (PIN 91-2156).

The Saginaw Screw assembly must be removed from the kettle to complete installation (subsection 2.3.7.1). The collar (next to the ratchet wheel, fig.3-10) is removed by driving out the roll pin which secures it to the screw shaft. The replacement sleeve slides over the faulty shaft end and is fastened with a roll pin. The repair is completed by remounting the Saginaw Screw assembly.

2.4 PREVENTIVE MAINTENANCE

Preventive maintenance may be performed by maintenance personnel at the establishment in which the kettle is installed.

The most important preventive maintenance operation on the steam jacketed kettle is the cleaning procedure after each use. (See Operator's Manual.) Additional preventive maintenance operations are presented in this section.

2.4.1 Cleaning

IMPORTANT:
**WHEN CLEANING THIS APPLIANCE, DO NOT
HOSE DOWN ELECTRICAL PARTS INSIDE.**

All kettle cleaning procedures should be faithfully completed by the end of each day's operation. (See Operator's Manual.) In addition, cabinet doors, top, fixtures, kettle lid, etc., should be washed and rinsed to remove all food spills.

2.4.2 Tilting Mechanism Lubrication

Lubrication of the tilting mechanism is the only required preventive maintenance other than daily cleaning. Inspect the screw of the tilting mechanism 1 annually for adequate lubrication. If screw appears "dry", apply good grade bearing grease directly on the threads so that the threads appear to be barely damp. If mechanism fails to run smoothly, (see subsection 2.3.7.)

SECTION 3 ILLUSTRATED PARTS LIST

3.1 GENERAL

This section contains a complete listing of all replaceable parts of the MT-40EO and accessories. For the purpose of parts identification, cut-away drawings and photos are used. Exploded views of subassemblies are also provided where greater detail is needed. Each parts list contains the figure index number, the Market Forge part number and an abbreviated description.

3.2 ORDERING INFORMATION

Orders for repair parts should be directed to the nearest authorized parts distributor. For a current Market Forge Authorized Parts Distributor List, contact:

Product Service Department
Market Forge Company
35 Garvey Street
Everett, MA 02149
Telephone: (617) 387-4100

All orders should contain the Market Forge part number(s), the part description(s), and the model and serial numbers of the kettle for which the part(s) is ordered.

3.3 INDEX OF ILLUSTRATED PARTS LISTS

Figure		Page
3-1	Tilting Kettle	3-3
3-2	Kettle on 36" Cabinet	3-4
3-3	Hinge & Lid Assembly	3-6
3-4	Faucet & Nozzle Assembly	3-7
3-5	Hot Water Line	3-8
3-6	Cold Water Line	3-8
3-7	Draw-Off Valve	3-9
3-8	Steam Trap	3-9
3-9	Plumbing	3-10
3-10	Tilting Mechanism	3-12
3-11	Contacting Box	3-13
3-12	Electrical Control Box	3-14
3-13	Wiring Diagram	3-15
3-14	Schematic	3-16

SECTION 3 ILLUSTRATED PARTS LIST

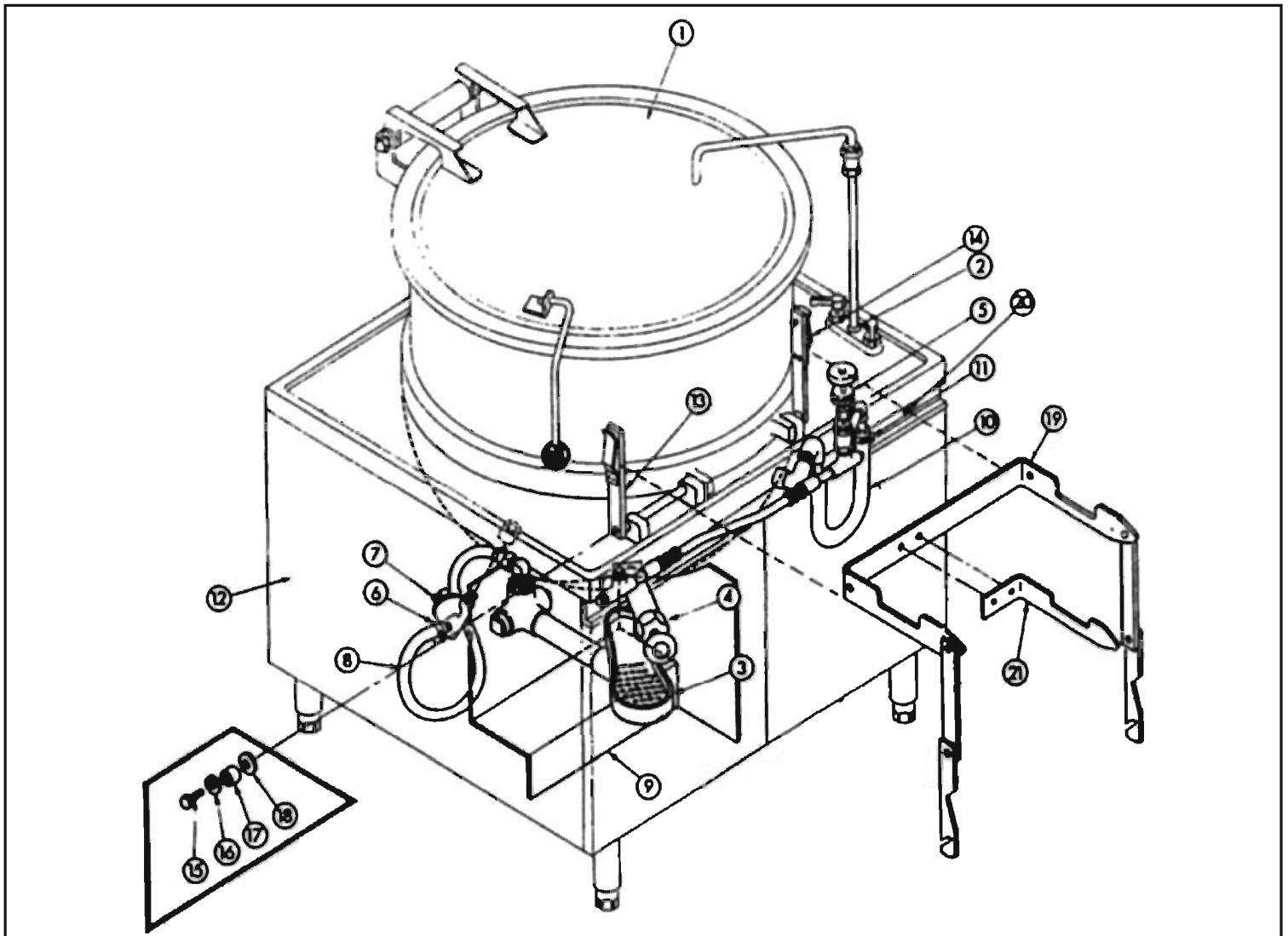


Figure 3-1 Tilting Kettle

Fig. 3-1 INDEX NO.	PART NO.	DESCRIPTION
1	---	Hinge & Lid Assembly, (see figure 3-3)
2	---	Faucet & Spout Assembly, (see figure 3-4)
3	91-1834	Drain, Swing
4	10-4928	Valve, Draw-off, 1-1/2", complete, (see figure 3-7)
5	10-5242	Valve, Angle Steam, 1/2"
6	10-3945	Clamp, Hose
7	10-5319	Trap, Steam with Hose Fitting, (see figure 3-8)
8	90-7493	Hose, Condensate, 3/8", 36" Lg.
9	91-3358	Splash Guard Assembly
10	90-7495	Hose, Steam 3/4" I.D.
11	10-3916	Clamp, Hose
12	---	Cabinet, 36", (see figure 3-2)
13	90-3789	Support, Pan, Upright, Left
14	90-3787	Support, Pan, Upright, Right
15	10-1791	Screw, Machine, 1/4" x 7/8" Lg.
16	10-2403	Washer, 1/4"
17	90-3476	Spacer, Large
18	91-1159	Spacer
19	90-0326	Support, Pan, Removable
20	---	Tilting Mechanism, (see figure 3-10)
21	90-3796	Support, Pan, Adaptor (Optional)

SECTION 3 ILLUSTRATED PARTS LIST

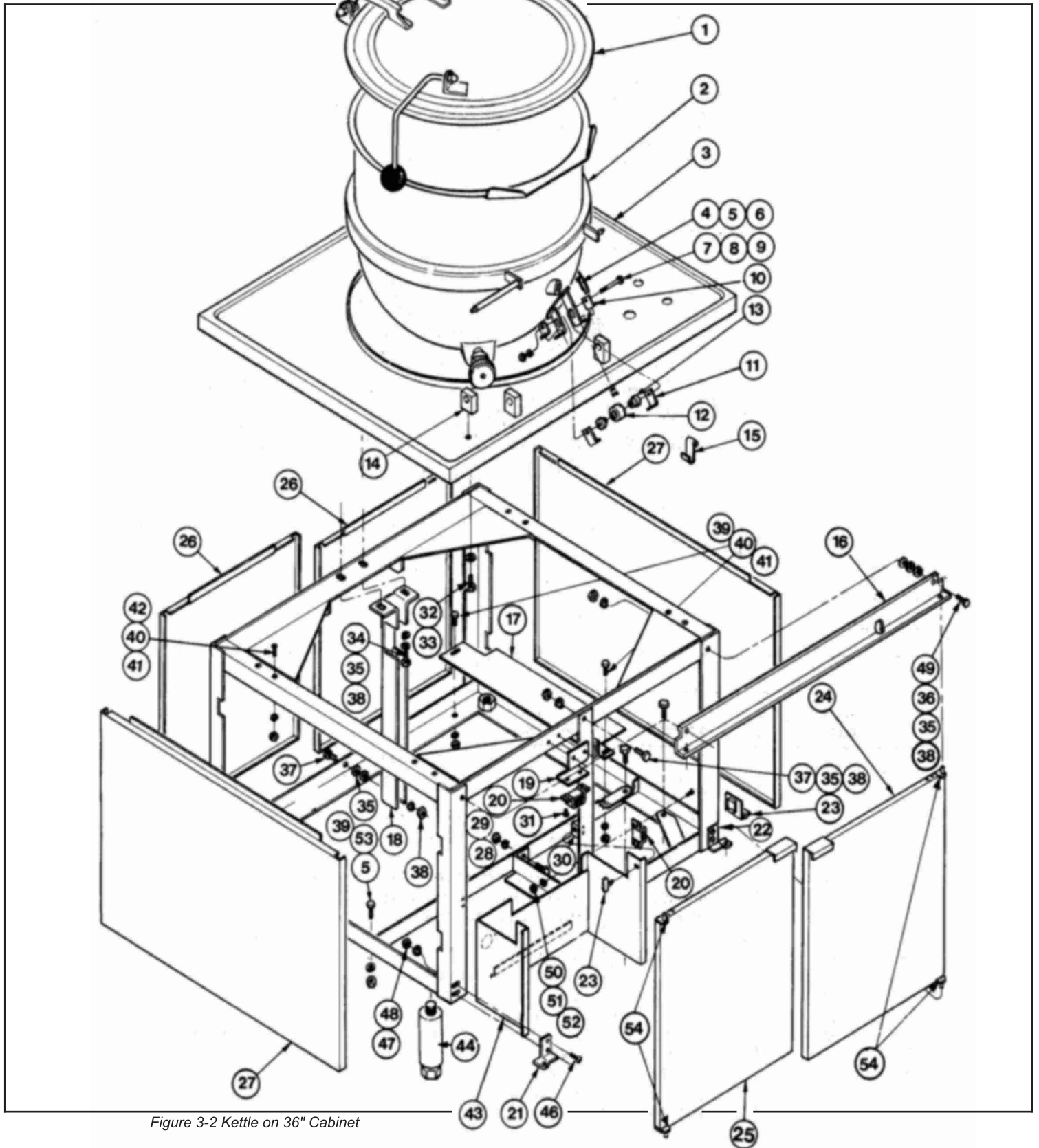


Figure 3-2 Kettle on 36" Cabinet

SECTION 3 ILLUSTRATED PARTS LIST

Fig. 3-2 INDEX NO.	PART NO.	DESCRIPTION
1	91-3099	Assy. Cover Kettle
2	91-3024	Rim for 40 Gallon Kettle
3	90-8983	Top, Cabinet, 40 Gallon Kettle
4	10-2085	Screw Hex Hd. Cap 1/4-20 X 1-3/4 Lg.
5	10-2500	Washer, Lock St. 1/4
6	10-2308	Nut, Hex, St. 1/4-20
7	10-1872	Screw, Hex Hd. Cap 3/8"-16 X 3/4 Lg.
8	10-2503	Washer, Lock 3/8
9	10-2317	Nut, Hex St. St. 3/8-16
10	90-4103	Bracket, Adjusting
11	90-4104	Bracket, Stop
12	90-6786	Spacer, Large
13	10-1561	Bearing, Ball, Double Row
14	90-3490	Post, Hinge (Machined)
15	90-9048	Clip, Hold Down
16	10-0495	Strip Feature
17	91-8126	Tray, Hose
18	91-3348	Channel, Rear Frame Support
19	90-3210	Bracket for Door Magnet
20	10-5561	Magnet, Door
21	91-5482	Hinge, Left, Bottom
22	91-5481	Hinge, Right Bottom
23	90-2663	Bracket, Side and Rear Steel
24	91-5490	Assy., Door, Right Hand
25	91-5484	Assy., Door Left Hand
26	91-6132	Panel, Rear, aluminized Steel
27	90-2661	Side Panel- R & L Stn. Stl.
28	10-1928	Stud
29	10-1927	Receptacle
30	10-1929	Retainer, Split Ring
31	10-8057	Screw, Rd. Hd. St. 6-32 x 5/8 Lg.
32	10-2050	Screw, Hex Hd. Cap 3/8-16 x 1/8 Lg.
33	10-2503	Washer, Lock 3/8
34	10-2141	Screw, Hex Hd. Cap St. 5/16-18 x 1-1/2 Lg.
35	10-2511	Washer, Lock 5/16
36	10-2405	Washer, Plain St. 5/16
37	10-2147	Screw, Hex Hd. Cap 5/16-18 x 3/4
38	10-2307	Nut, 5/16-18
39	10-2089	Screw, Hex Hd. Cap St. 1/4-20 x 1/8 Lg.
40	10-2500	Washer, Lock, St. 1/4
41	10-2308	Nut, Hex, St. 1/4-20
42	10-1755	Screw, Mach. Flat Hd. St. 1/4-20 x 1 Lg.
43	91-3358	Assy., Guard, Splash
44	10-0631	6" Adjustable Feet
45	10-0636	6" Adjustable feet with Flange (Not Shown)
46	10-1869	Screw, Flat Hd. 10-32 x 1/2 Lg.
47	10-2505	Washer, Lock #10
48	10-2340	Nut, Hex 10-32
49	10-2143	Hex Head Cap Screw, 5/16-18 x 1-3/4
50	10-1836	Screw, Rd. Hd. St. 8-32 x 1/2 Lg.
51	10-2521	Washer Lock #8
52	10-2332	Nut, Hex #8-32
53	10-2400	Washer Plain 1/4
54	10-1582	Bearing, Flange Type-Nylon

SECTION 3 ILLUSTRATED PARTS LIST

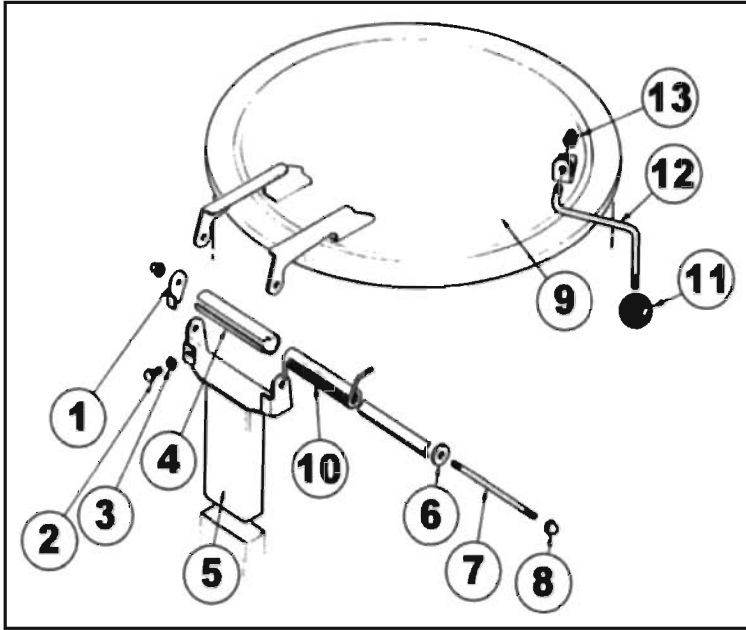


Figure 3-3 Hinge & Lid Assembly

Fig. 3-3 INDEX NO.	PART NO.	DESCRIPTION
1	91-5165	Plate, Adjustment
2	20-1814	Screw, Hex Head Cap 1/4-20 x 3/4"
3	10-2336	Nut, Hex 1/4-20
4	91-1232	Cover Torsion Spring
5	91-3156	Top Bracket & Hinge Assembly
6	10-2448	Washer, Nylon
7	90-3042	Rod, Torsion Spring Retaining
8	10-2359	Nut, Acorn 1/4-20
9	91-3099	Kettle Cover Assembly
10	10-2747	Spring Torsion
11	10-0060	Knob Plastic
12	91-1523	Handle Removable
13	10-2355	Nut Acorn 3/8"

Fig. 3-4 INDEX NO.	PART NO.	DESCRIPTION
1	10-7680	Faucet
2	10-0996	Sweat Valve Shut Off
3	10-3682	Connector, Male 3/8 O.D. X 3/8 IPS
4	10-0991	Nut Coupling
5	10-0990	Tailpiece
6	90-1791	Water Line Cold
6A	90-1790	Line, Water, Hot
7	10-0989	Washer, Fiber
8	91-0887	Riser
9	10-1100	Swivel Body
10	---	Fiber Washer (Part of Item 9)
11	---	O-ring (Part of Item 9)
12	10-5753	Swing Nozzle

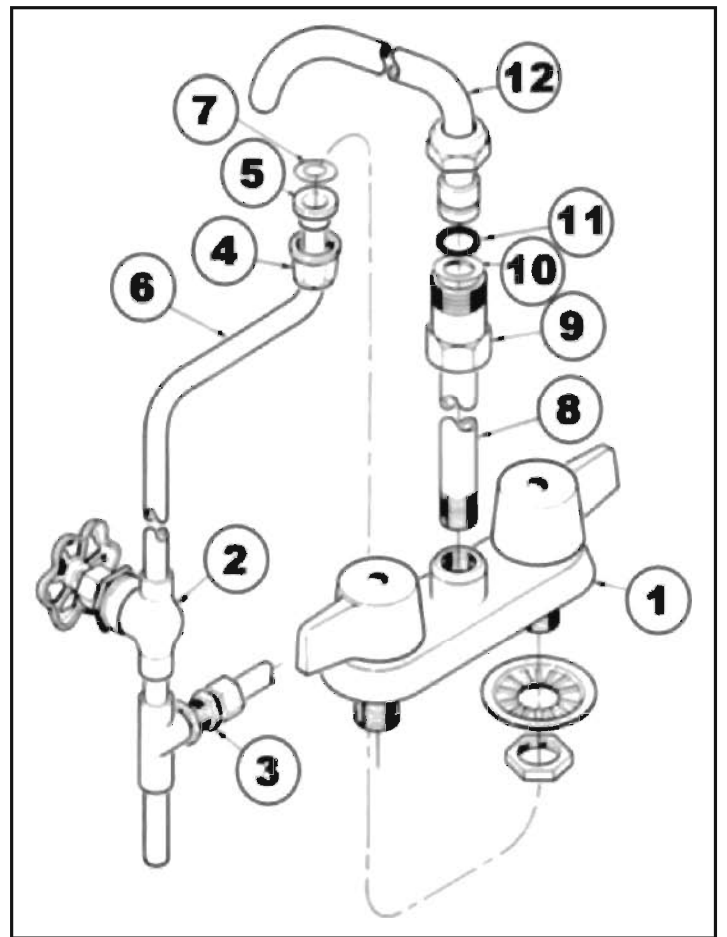


Figure 3-4 Faucet & Nozzle Assembly

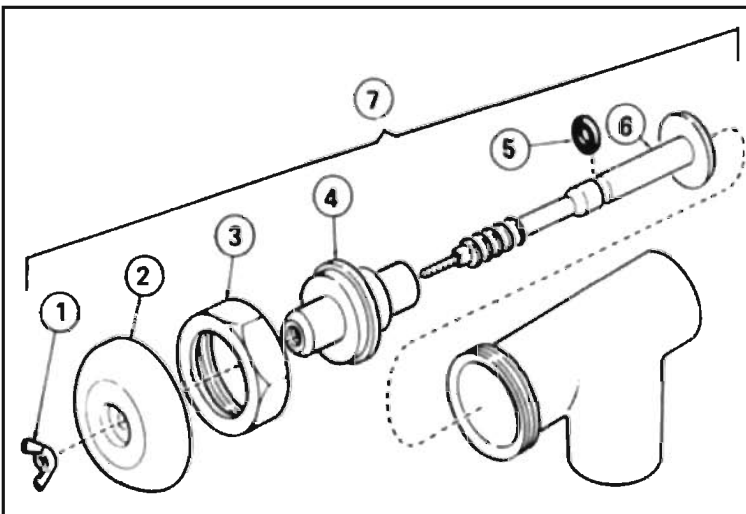


Figure 3-5 Draw-Off Valve

Fig. 3-5 INDEX NO.	PART NO.	DESCRIPTION
1	10-4972	Nut, Wing
2	10-4971	Handle
3	10-4970	Nut, Hex
4	10-4968	Bonnet
5	10-4969	O-Ring, Rubber
6	10-4967	Steam
7	10-4928	Valve, Draw-Off Complete 1-1/2"

SECTION 3 ILLUSTRATED PARTS LIST

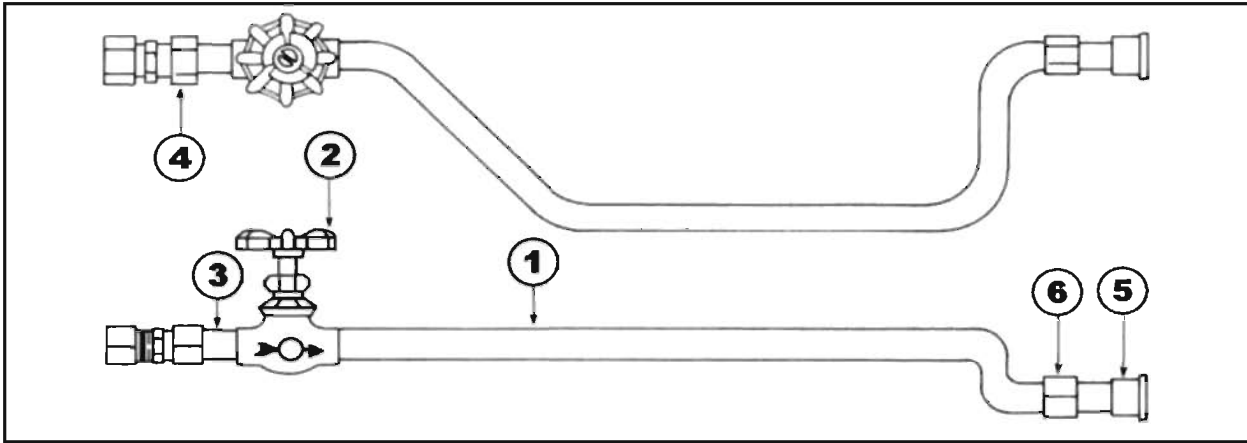


Figure 3-6 Hot Water Line

Fig. 3-6 INDEX NO.	PART NO.	DESCRIPTION
1	90-1790	Line, Hot Water
2	10-0996	Valve, 3/8" Nominal
3	90-9925	Tubing, 1-1/2" Lg.
4	10-1324	Union-Compression
5	10-0990	Tailpiece
6	10-0991	Nut, Coupling

Fig. 3-7 INDEX NO.	PART NO.	DESCRIPTION
1	90-1791	Line, Hot Water
2	90-9357	Tubing, Copper 7/8" Lg.
3	90-9925	Tubing, 1-1/2" Lg.
4	10-8295	Reducing Tee 3/8" x 3/8" x 1/4" IPS
5	10-0996	Valve, 3/8" Nominal
6	10-0991	Nut, Coupling
7	10-0990	Tailpiece

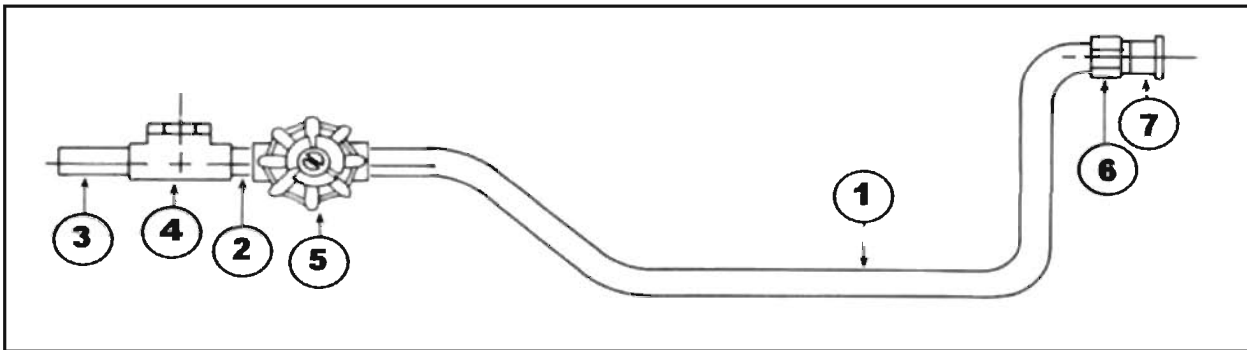


Figure 3-7 Cold Water Line

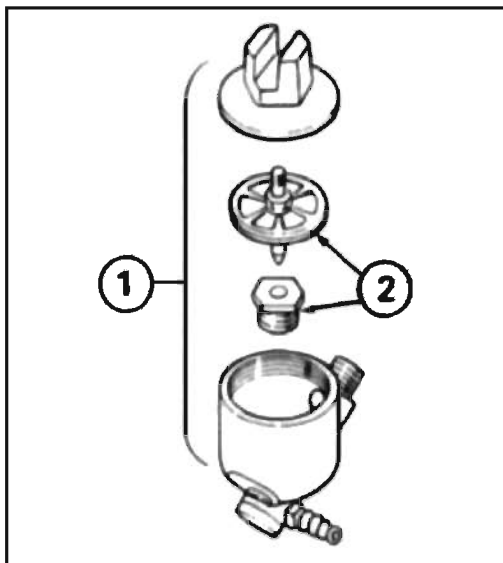


Figure 3-8 Steam Trap

Fig. 3-8 INDEX NO.	PART NO.	DESCRIPTION
1	10-5319	Trap, Steam, with Hose Fitting 1/2"
2	10-4937	Thermostat, Steam Trap

SECTION 3 ILLUSTRATED PARTS LIST

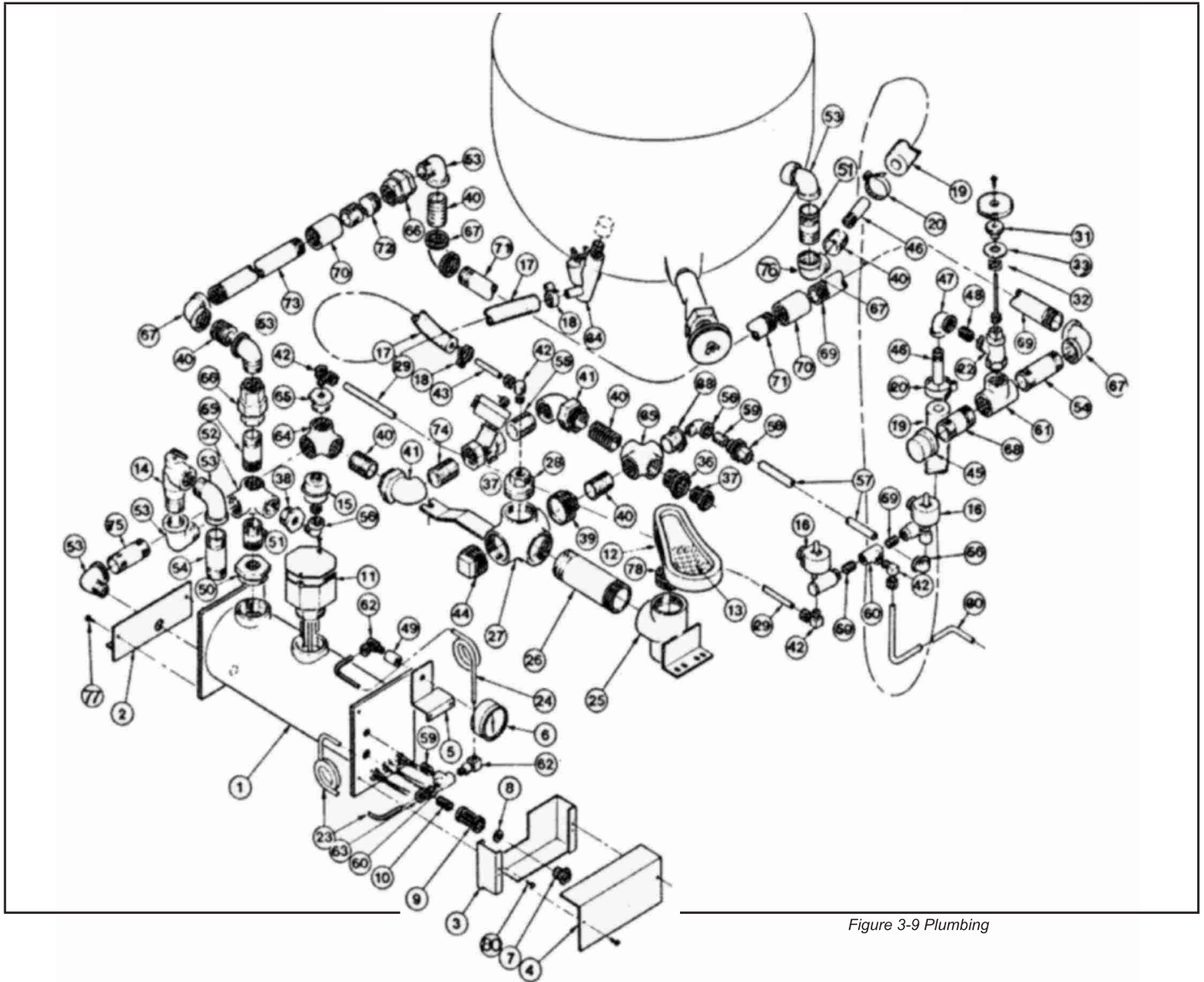


Figure 3-9 Plumbing

Fig. 3-9 INDEX NO.	PART NO.	DESCRIPTION
1	91-8040	Boiler MT-40EO
2	91-3350	Bracket, Mounting Rear
3	91-3351	Bracket, Box Front Mounting
4	91-8504	Cover, Heater Box
5	91-8041	Bracket, Pressure Gauge
6	10-4804	Gauge, Pressure
7	10-7974	Sight, Window
8	91-3368	Reflector
9	10-8288	Coupling, Plain Brass 1 "
10	10-8287	Nipple Close Brass 1 " IPS
11	09-6520	Electrode with Baffle & Cover
12	91-1834	Drain, Swing Machined
13	91-1835	Cover, Swing Drain
14	10-5320	Valve, Pressure Relief
15	09-4815	Airvent
16	09-7013	Valve, Solenoid, Hays
17	90-7493	Hose, Rubber 3/8 ID 40 Lg.
18	10-3945	Clamp, Hose

SECTION 3 ILLUSTRATED PARTS LIST

Fig. 3-9 INDEX NO.	PART NO.	DESCRIPTION
19	90-7495	Hose, Steam 3/4 ID 36 Lg.
20	10-3916	Clamp, Hose
21	10-1311	Valve, Drain Asco (Not Shown)
22	10-5242	Valve, Angle, BR. 1/2
23	91-8503	Tube, Boiler to controllers
24	91-8042	Tube, Anti-Syphon, Pressure Gauge
25	90-1873	Assy, Angle Bracket & Tee
26	10-1166	Nipple 2 IPS x 6-1/2 Lg.
27	90-1872	Assy, Bracket & Tee
28	10-1161	Bushing, Hex Reducing 2 x 1/2
29	91-8501	Tube, Cold Water Condenser Sol. Valve to Drain Term
30	91-8502	Tube, C.W. Line to Water Valve Assy.
31	10-6303	Collar valve
32	90-3968	Washer, Cad. Pl. 10 Ga. St. 5/8 x 1-3/4
33	10-2540	Speed Nut
34	10-5319	Steam Trap with Hose Fitting
35	10-9156	Cross M I 3/4
36	10-2820	Bushing, Outside, Hex MI 3/4 x 1/2
37	10-3389	Bushing, Outside, Hex MI 1/2 x 3/8
38	10-4056	Bushing, Outside, Hex MI 3/4 x 1/4
39	10-1162	Bushing, Inside, Hex CI 2 x 3/4
40	10-2847	Nipple, Close, BI 3/4
41	10-1025	Elbow, Union 90° MI 3/4
42	10-3357	Elbow, 90°, Comp. 3/8 OD x 1/4 Brass
43	90-3697	Nipple, Hose
44	10-1152	Plug, Pipe 2 IPS
45	10-3917	Cap, Screwed 3/4
46	90-8058	Nipple for 3/4 Hose
47	10-2811	Elbow, 90° Street MI 1/2
48	10-2810	Nipple, Close, BI 1/2
49	10-3349	Coupling, Plain MI 1/4
50	10-3701	Bushing, Inside, Hex MI 1-1/2 x 3/4
51	10-3617	Nipple BI 3/4 x 2-1/4 Lg.
52	10-3490	Tee, Side Outlet MI 3/4
53	10-2830	Elbow, 90° Street MI 3/4
54	10-2823	Nipple BI 3/4 x 4 Lg.
55	10-2836	Nipple BI 3/4 x 3 Lg.
56	10-3832	Elbow 90° Street MI 1/4
57	10-3853	Nipple, BI 1/4 x 8 Lg.
58	10-3614	Union, Std. Octagon MI 1/4
59	10-3615	Nipple, Close 1/4
60	10-3613	Tee, Straight MI 1/4
61	10-2824	Tee, Reducing MI 3/4 x 3/4 x 1/2
62	10-3918	Elbow, 90°, Comp 1/4 x 1/4 Brass
63	10-2904	Comp, Straight V4 x 1/4 IPS Brass
64	10-3489	Elbow, goo, Side Outlet MI 3/4
65	10-4056	Bushing, Outside Hex MI 3/4 x 1/4
66	10-2844	Union, Std., Octagon MI 3/4
67	10-2841	Elbow, 90° MI 3/4
68	10-3840	Nipple, BI 3/4 x 2-3/4 Lg.
69	10-2871	Nipple, BI 3/4 x 12 Lg.
70	10-3475	Coupling, Plain Std. %
71	10-3928	Nipple, BI 3/4 x 13 Lg.
72	10-3747	Nipple, BI 3/4 x 6 Lg.
73	10-4376	Nipple, BI 3/4 x 17-1/2 Lg.
74	10-3669	Nipple 3/4 BI 1-3/4 Lg.
75	10-3816	Nipple, BI 3/4 x 3-3/4 Lg.
76	10-2835	Elbow, 90° MI, 3/4 x 1/2
77	10-2089	Screw, Hex Hd. Cap, 1/4-20 x 7/8 Lg.
78	90-6574	Nipple, Support, Swing Drain
79	90-1846	Bushing, Reducing Rework 2 x 1-1/2 (Not Shown)
80	10-2308	Nut, Hex, 1/4 x 20

SECTION 3 ILLUSTRATED PARTS LIST

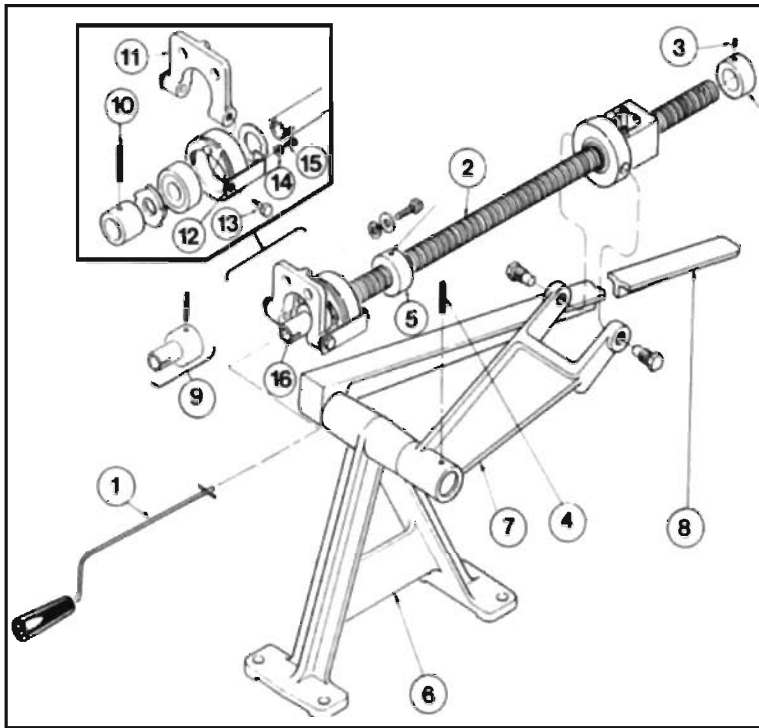


Figure 3-10 Tilting Mechanism

Fig. 3-10 INDEX NO.	PART NO.	DESCRIPTION
1	90-4037	Hand Crank
2	90-8728	Saginaw Screw Assembly, Complete
3	10-3026	Set Screw, Allen Head, 5/16" X 18 X 5/16"
4	10-2610	Roll pin, 3/8" X 2" Lg.
5	10-3591	Stop Collar
6	90-8754	'A' Frame
7	90-8755	Screw Lever
8	90-9449	Arm, Lever, Assembly
9	91-2156	Kit, Crank Sleeve Replacement
10	10-1683	Roll Pin
11	90-8757	Housing, Screw
12	90-8732	Bracket, Brake Mounting
13	90-8731	Screw, Shoulder
14	10-2500	Washer, Lock
15	10-2073	Screw, Hex Hd., 1/4-20 x 1/2 Lg. S. St.
16	91-6219	Sleeve, Support

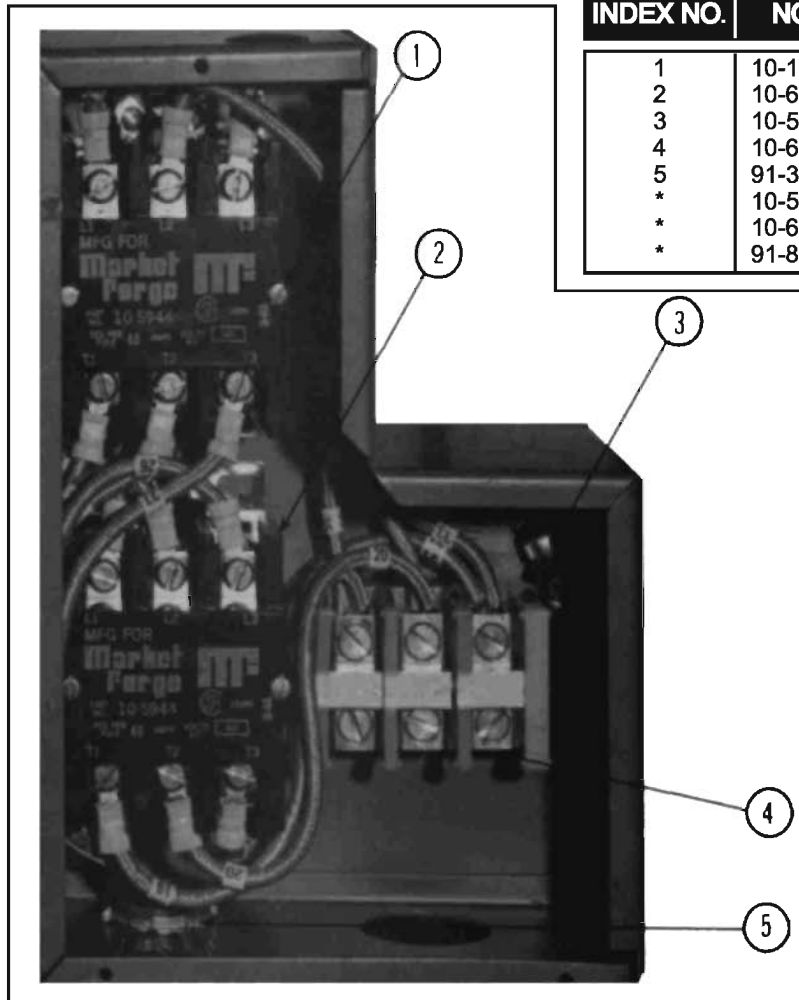


Figure 3-11 Contactor Box

Fig. 3-11 INDEX NO.	PART NO.	DESCRIPTION
1	10-1719	Screw, Rd. Hd. Machine
2	10-6963	Block, Terminal, End Section
3	10-5220	Lug, Ground
4	10-6962	Block, Terminal, Contact Section
5	91-3598	Harness, Wiring, Assembly
*	10-5944	Contactors, 40 Amp 115 Volts
*	10-6817	Label, Ground
*	91-8101	Spline, For Terminal Block

SECTION 3 ILLUSTRATED PARTS LIST

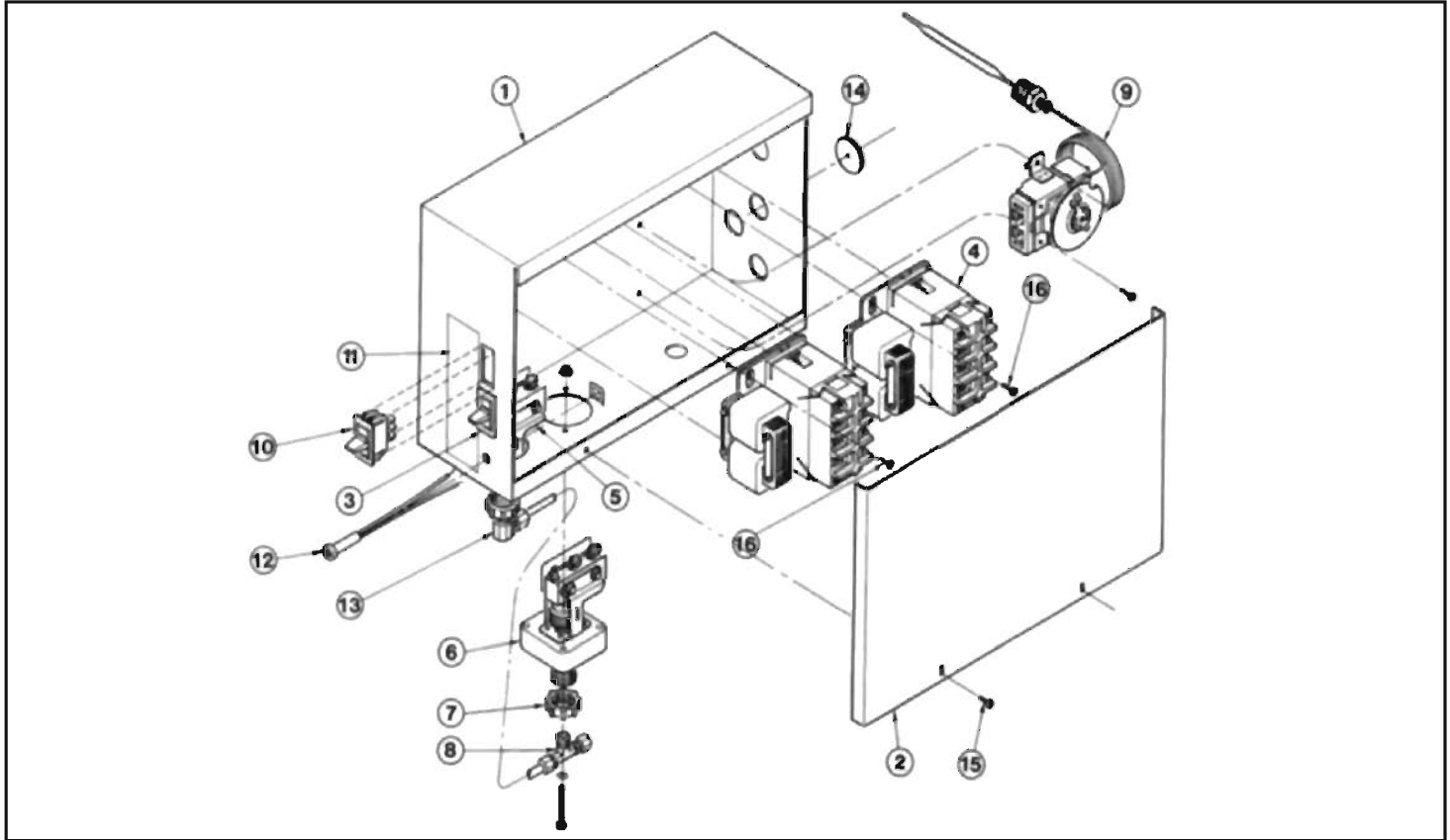
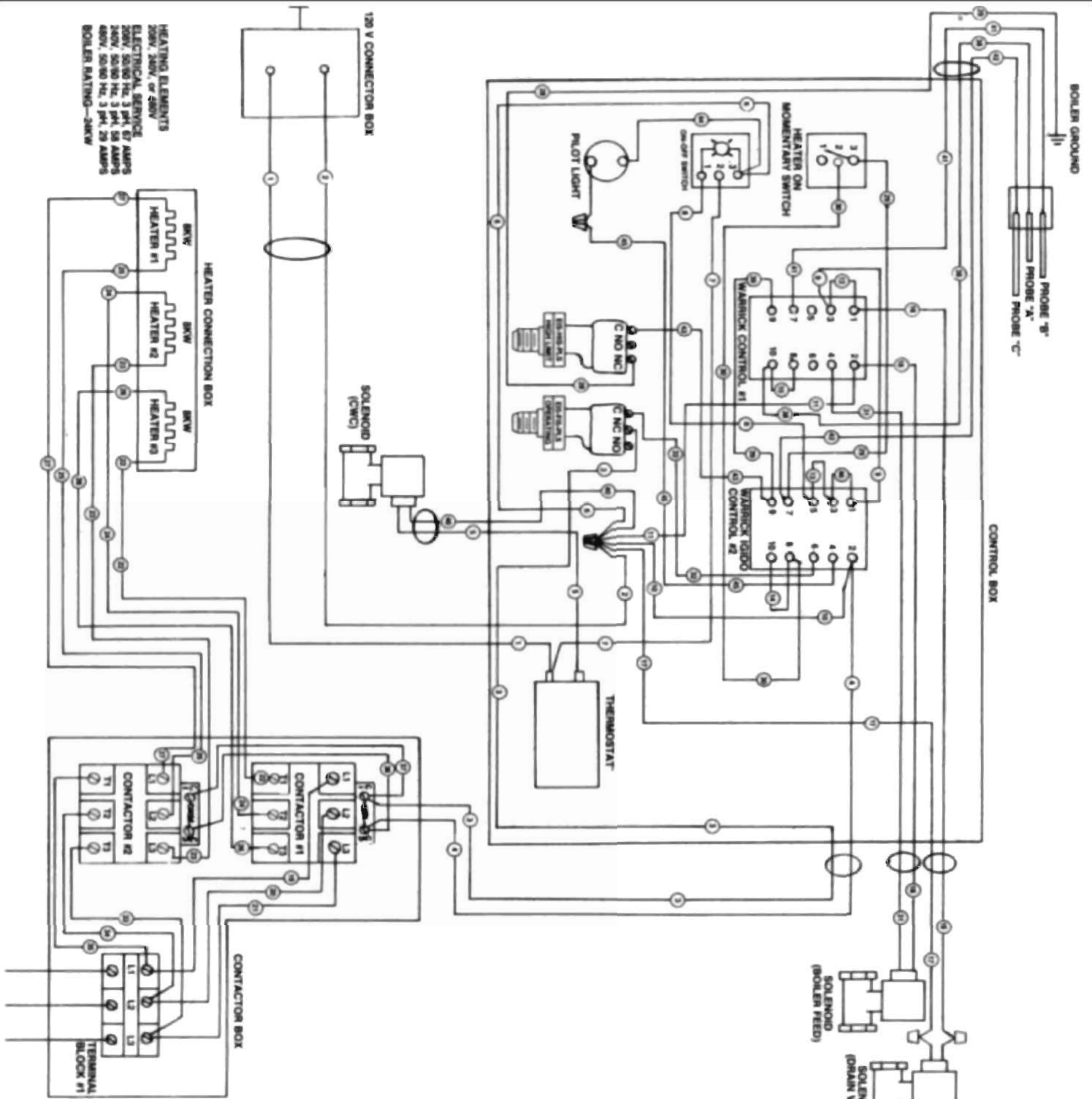


Figure 3-12 Electric Control Box

Fig. 3-12 INDEX NO.	PART NO.	DESCRIPTION
1	91-8360	Control Box
2	91-8062	Control Box Cover
3	10-7372	On/OH Switch
4	10-8429	Warrick Controller
5	10-8410	Barksdale Pressure Switch H15
6	10-8411	Barksdale Pressure Switch F15
7	10-5020	Bushing, Conduit
8	10-7940	Tee, Branch, Male, Comp, 114 Nom.
9	10-4653	Thermostat
10	10-7373	Momentary Switch
11	10-8970	Nameplate
12	91-3340	Light, Low Water, Pilot
13	10-2858	Elbow, Male, goo Comp, 114 x 1/8 Nom.
14	10-0235	Grommet, Rubber, 1" I.D. x 11/4" O.D.
15	10-1855	Screw, Pan Hd. 8-32 x 318 Lg.
16	10-1919	Screw, Truss Hd., 6-32 x 5/16 Lg

SECTION 3 ILLUSTRATED PARTS LIST

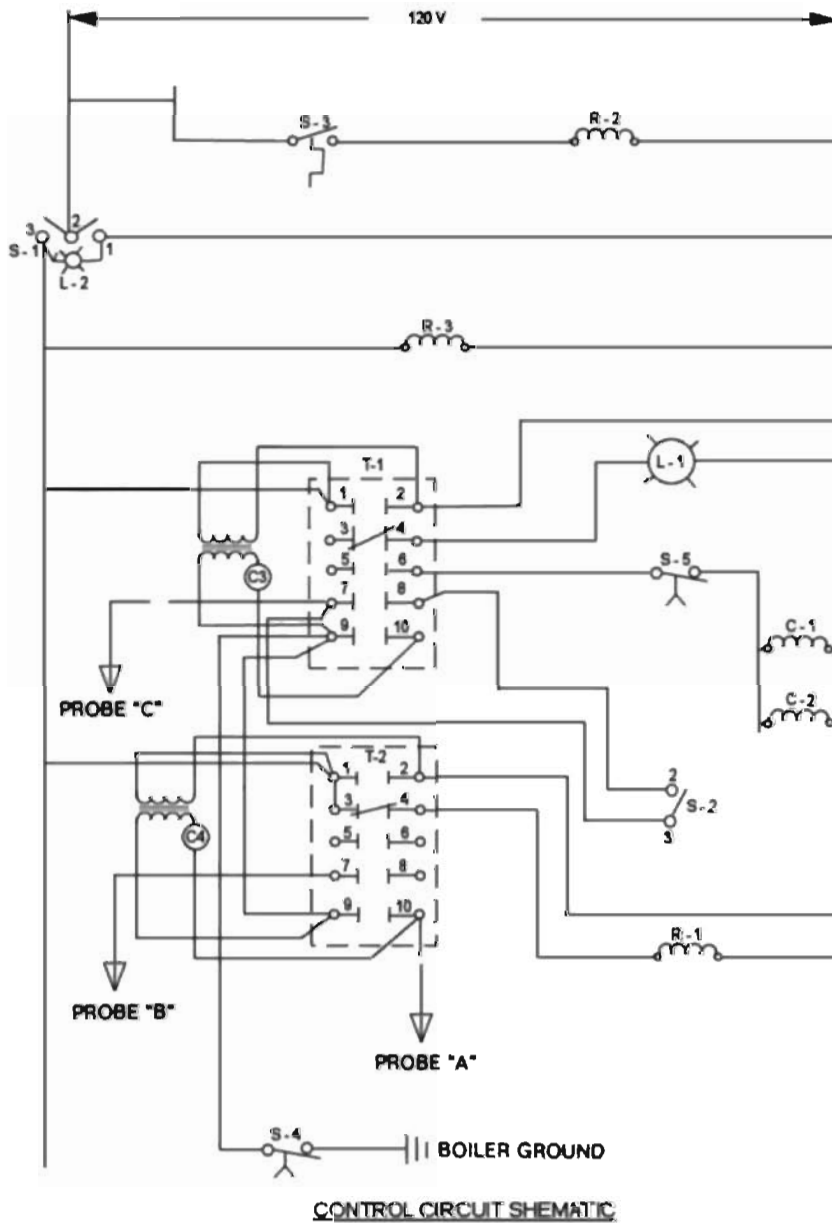


HEATING ELEMENTS
250V, 280V, or 280V
ELECTRICAL SERVICE
200V, 50/60 Hz, 3 ph, 57 AMPS
240V, 50/60 Hz, 3 ph, 58 AMPS
480V, 50/60 Hz, 3 ph, 29 AMPS
BOILER RATING—28kW

- NOTES:**
1. Use 18 GA., 125°, GE Vulkene insulated motor & appliance lead wire (See Note 3)
 2. Alternate wire SFF-2 (SEWF-2) 600V, 150°C, Copper conductor, insulation to be silicone, 1/32" wall coated fiberglass.
 3. Unit must be grounded
- Contactor box & elec. box to use 10 GA., 250°, except for lead no. 36 & 37.

Figure 3-13 Wiring Diagram

SECTION 3 ILLUSTRATED PARTS LIST



- T-1 WARRICK CONTROL IGIDO, LOW WATER CUT-OFF
- T-2 WARRICK CONTROL IGIDO, WATER LEVEL CONTROL
- S-1 POWER SWITCH
- S-2 HEATER ON MOMENTARY SWITCH
- S-3 THERMOSTAT
- S-4 HIGH PRESSURE CUT-OFF, 15 PSI NC
- S-5 OPERATING PRESSURE CONTROL 14 PSI NC
- R-1 BOILER FEED SOLENOID NC
- R-2 COLD WATER CONDENSER SOLENOID NC
- R-3 DRAIN SOLENOID N.O.
- C-1 CONTACTOR COIL
- C-2 CONTACTOR COIL
- C-3 COIL PART OF T-1
- C-4 COIL PART OF T-2
- L-1 LOW WATER INDICATOR LIGHT
- L-2 POWER ON INDICATOR LIGHT PART OF S-1
- PROBE A SHORT PROBE WATER LEVEL REACHED WATER OFF
- PROBE B MEDIUM PROBE LOW WATER BOILER FILL WATER ON
- PROBE C LONG PROBE LOW WATER HEATER SHUT OFF

Figure 3-14 Schematic

SUPPLEMENT PARTS LISTINGS & WIRING DIAGRAMS

- MT-25EO
- MT-40EO
- MT-60EO

This supplement is based on **HEATING ELEMENT CONFIGURATIONS** (See Attachments) titled by styles. Each **STYLE** is identified with a serial number and corresponding part numbers.

In addition, a supporting **SPARE PARTS LIST** will help identify the most commonly used components for **STYLES 2-3-&-4**. A brief description of each style is as follows:

- STYLE 1:** This style is the original version and it is supported by the service & parts manual from number S-2312 Rev. 09/03
- STYLE 2:** This style began with a **SERIAL NUMBER (144039)** and is supported by the spare parts list attached. Uses (2) screws - in heaters, each rated at 12KW (**SEE ATTACHED WIRING DIAGRAM D91-8520**)
- STYLE 3:** This style began with a **SERIAL NUMBER (161712)** and is supported by the spare parts list attached. Uses a (1) piece heater design that replaced the heating element configuratio outlined in **STYLE 2. (SEE ATTACHED WIRING DIAGRAM D91-8520)**
- STYLE 4:** This is our current design which began with a **SERIAL NUMBER (171656)** and is supported by the attached spare parts list. Uses (2) bolt in flanged heaters, each rated at 12KW (**SEE ATTACHED WIRING DIAGRAM D91-8520**)

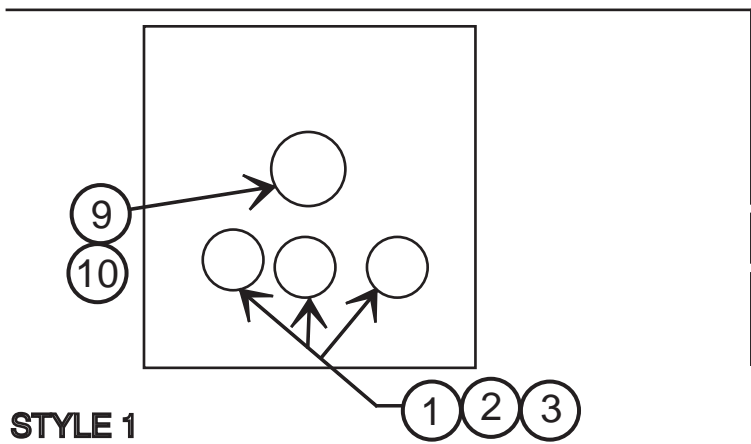
Sincerely,



Mark Manganiello

Sales Administration / Service Manager

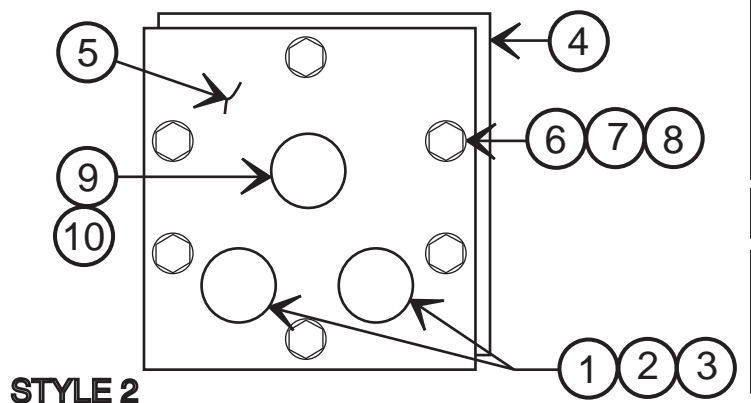
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STYLE 1

STYLE 1 OLDER MODELS
HTG. ELE. CONFIGURATIONS FOR MT-25EO, MT-40EO & ,T60EO

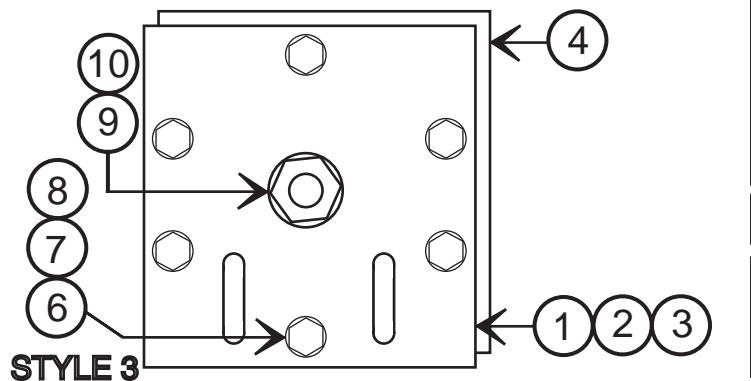
Part Number	Description	Qty.	Status
1. 10-8312	HTG. ELE. 208V-8KW	3	Available
2. 10-8313	HTG. ELE. 240V-8KW	3	Available
3. 10-8314	HTG. ELE. 480V-8KW	3	Available



STYLE 2

STYLE 2 BEGINING W/ SER NO. 144039
HTG. ELE. CONFIGURATIONS FOR MT-25EO, MT-40EO & ,T60EO

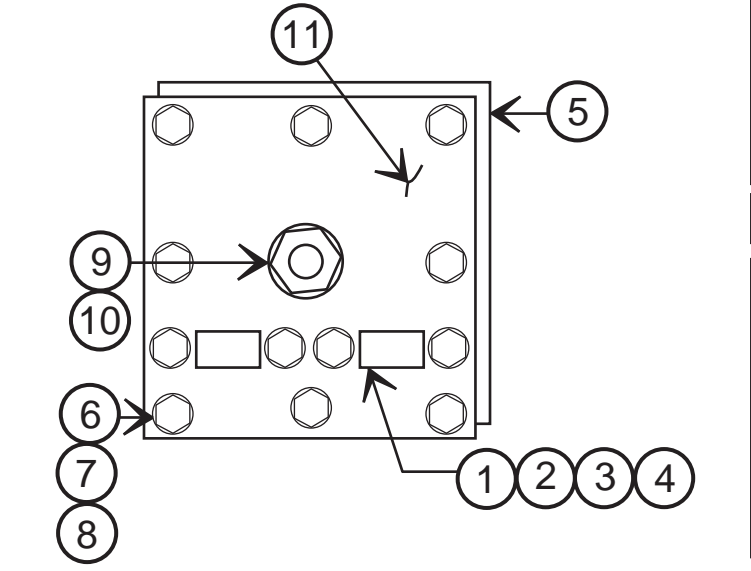
Part Number	Description	Qty.	Status
1. 08-6347	HTG. ELE. 208V-12KW	2	OBS to 08-6388
2. 08-6348	HTG. ELE. 240V-12KW	2	OBS to 08-6389
3. 08-6349	HTG. ELE. 480V-12KW	2	OBS to 08-6390
4. 91-6281	PLATE, GASKET	1	Available
5. 91-6268	WELDMENT, CVR. PLATE	1	OBS, N.L.A.



STYLE 3

STYLE 3 BEGINING W/ SER NO. 161712
HTG. ELE. CONFIGURATIONS FOR MT-25EO, MT-40EO & ,T60EO

Part Number	Description	Qty.	Status
1. 08-6388	HTG. ELE. 208V-24KW	1	Available
2. 08-6389	HTG. ELE. 240V-24KW	1	Available
3. 08-6390	HTG. ELE. 480V-24KW	1	Available
4. 91-6281	PLATE, GASKET	1	Available



STYLE 4

STYLE 4 BEGINING W/ SER NO. 171656*
HTG. ELE. CONFIGURATIONS FOR MT-25EO, MT-40EO & ,T60EO

Part Number	Description	Qty.	Status
1. 08-6415	HTG. ELE. 208V-12KW	2	Available
2. 08-6416	HTG. ELE. 240V-12KW	2	Available
3. 08-6417	HTG. ELE. 480V-12KW	2	Available
4. 91-8660	GASKET, HTG. ELE	2	Available
5. 91-8756	GASKET, ACCESS CVR.	1	Available
6. 10-2455**	WASHER, SEALING	12	Available
7. 10-1790**	HX. HD. 1/4-20 X 7/8"	12	Available
8. 10-2500**	LOCKWASHER, 1/4	12	Available
9. 10-7974**	SIGHT GLASS	1	Available
10. 91-3368**	REFLECTOR	1	Available
11. 91-8754**	WELDMENT, CVR. PLATE	1	Available

*INDICATED THAT THERE MAY BE AN OVERLAP BETWEEN STYLE (3) & STYLE (4).
**INDICATED COMMON PARTS BETWEEN STYLES 1-2-3-&-4.

SPARE PARTS LIST**STYLES: 2-3-&-4****PROBE LEVEL CONTROL**

QTY.	PART NUMBER	DESCRIPTION	STYLE
1	08 - 6328	LIQUID LEVEL CONTROL BD. (120 VOLTS)	
1	08 - 6329	LIQUID LEVEL CONTROL BD. (240 VOLTS)	
1	08 - 6337	LIQUID LEVEL PROBE (WATER FILL)	
1	08 - 6338	LIQUID LEVEL PROBE (LOW WATER LEVEL)	

WATER SUPPLY VALVES

2	08 - 4822	SKINNER VALVE (120 VOLTS)	
	08 - 4871	REMOVABLE STRAINER FOR SKINNER VALVE	

DRAIN VALVES

1	10 - 1311	DRAIN VALVE	
1	10 - 3015	DRAIN VALVE REPAIR KIT (NEW STYLE)	

BOILER SHELL

1	91 - 6262	SHELL, BOILER	2 & 3 BOILERS
1	91 - 8750	SHELL, BOILER	4 BOILERS ONLY

ELECTRICAL COMPONENTS

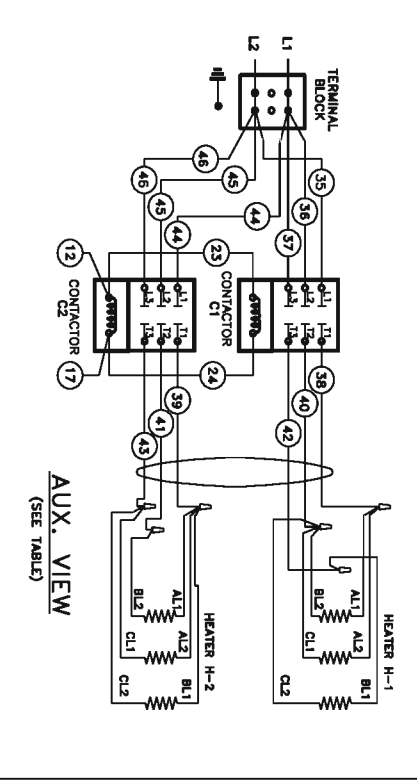
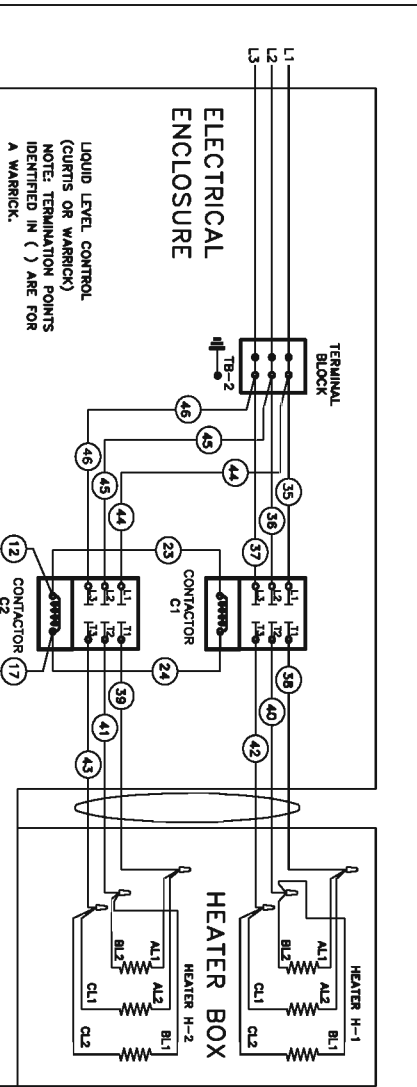
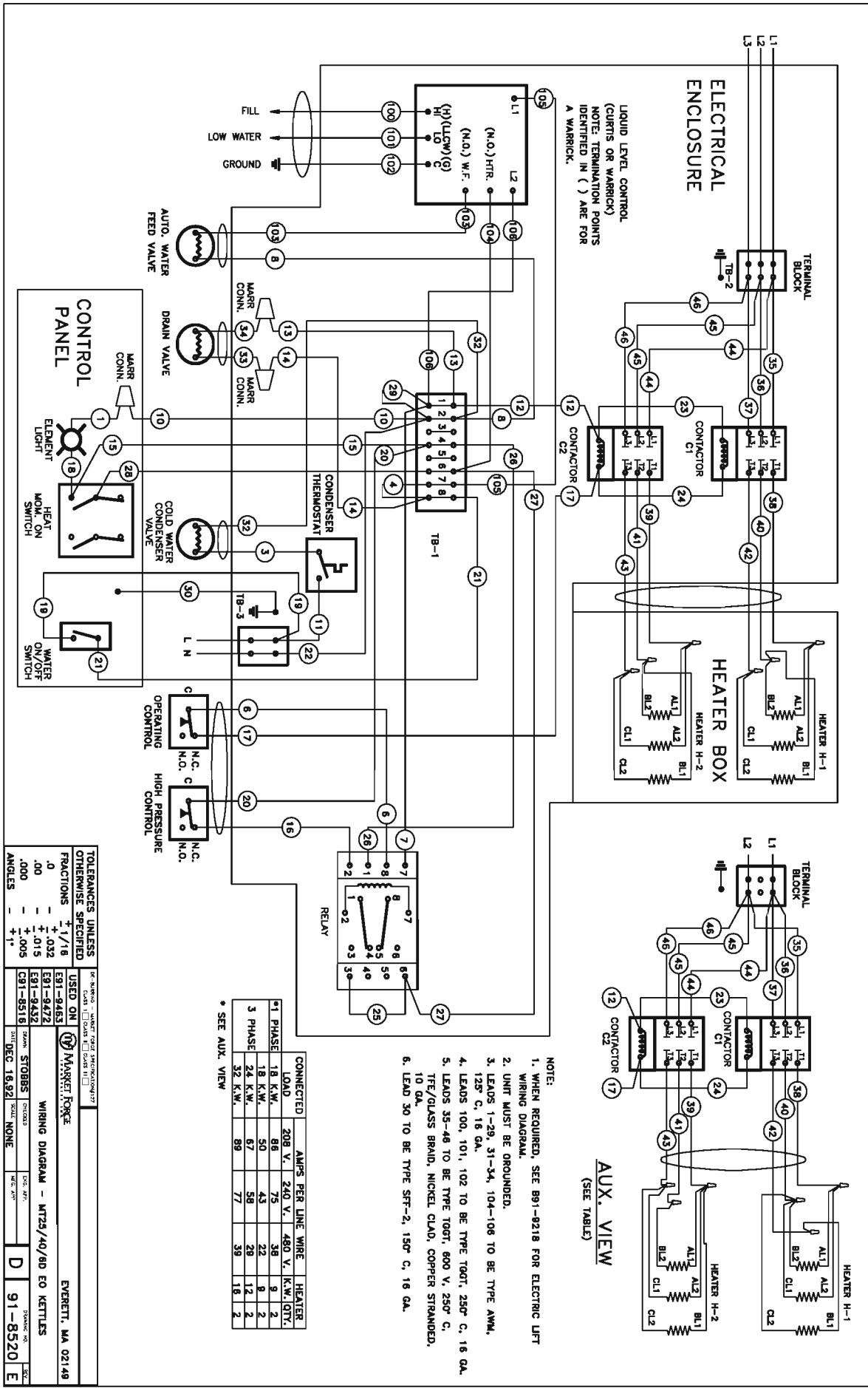
1	10 - 4634	TIME DELAY RELAY (120 VOLTS)	
1	10 - 4653	THERMOSTAT (DRAIN CONDENSATE)	
1	10 - 5022	ON / OFF SWITCH S.P.S.T.	
1	10 - 5485	HEAT SWITCH D.P.D.T. (MOMENTARY)	
2	10 - 5944	CONTACTOR 40 AMP (120 VOLT COIL)	
1	10 - 6169	PILOT LIGHT	
1	10 - 6512	RELAY SOCKET	

PRESSURE SWITCHES

1	10 - 8410	PRESSURE SWITCH (HIGH LIMIT)	
1	10 - 8411	PRESSURE SWITCH (OPERATING PRESSURE)	

MISCELLANEOUS HARDWARE & PLUMBING

1	10 - 4804	PRESSURE GAUGE	
1	09 - 4815	AIR VENT	
1	10 - 7955	15# SAFETY VALVE	
1	91 - 6281	GASKET, HTG. ELEMENT COVER	2 & 3 BOILERS
1	90 - 8756	GASKET, HTG. ELEMENT COVER	4 BOILERS ONLY
1	10 - 7974	WATER GAUGE	
1	91 - 3368	WATER GAUGE GLASS REFLECTOR	
1	08 - 0034	DESCALER	



NOTE:
 1. WHEN REQUIRED, SEE 891-8218 FOR ELECTRIC LIFT WIRING DIAGRAM.
 2. UNIT MUST BE DROUNDDED.
 3. LEADS 1-29, 31-34, 104-106 TO BE TYPE AWM, 125° C, 16 GA.
 4. LEADS 100, 101, 102 TO BE TYPE T80T, 250° C, 16 GA.
 5. LEADS 35-48 TO BE TYPE T80T, 600 V, 250° C, TFE/GLASS BRAND, NICKEL CLAD, COPPER STRANDED, 10 GA.
 6. LEAD 30 TO BE TYPE SFT-2, 150° C, 16 GA.

CONNECTED LOAD	208 V.	240 V.	480 V.	HEATER K.W. (DLY.)
1 PHASE	18 K.W.	50	75	8
3 PHASE	18 K.W.	50	75	8
	24 K.W.	67	99	12
	32 K.W.	89	128	2

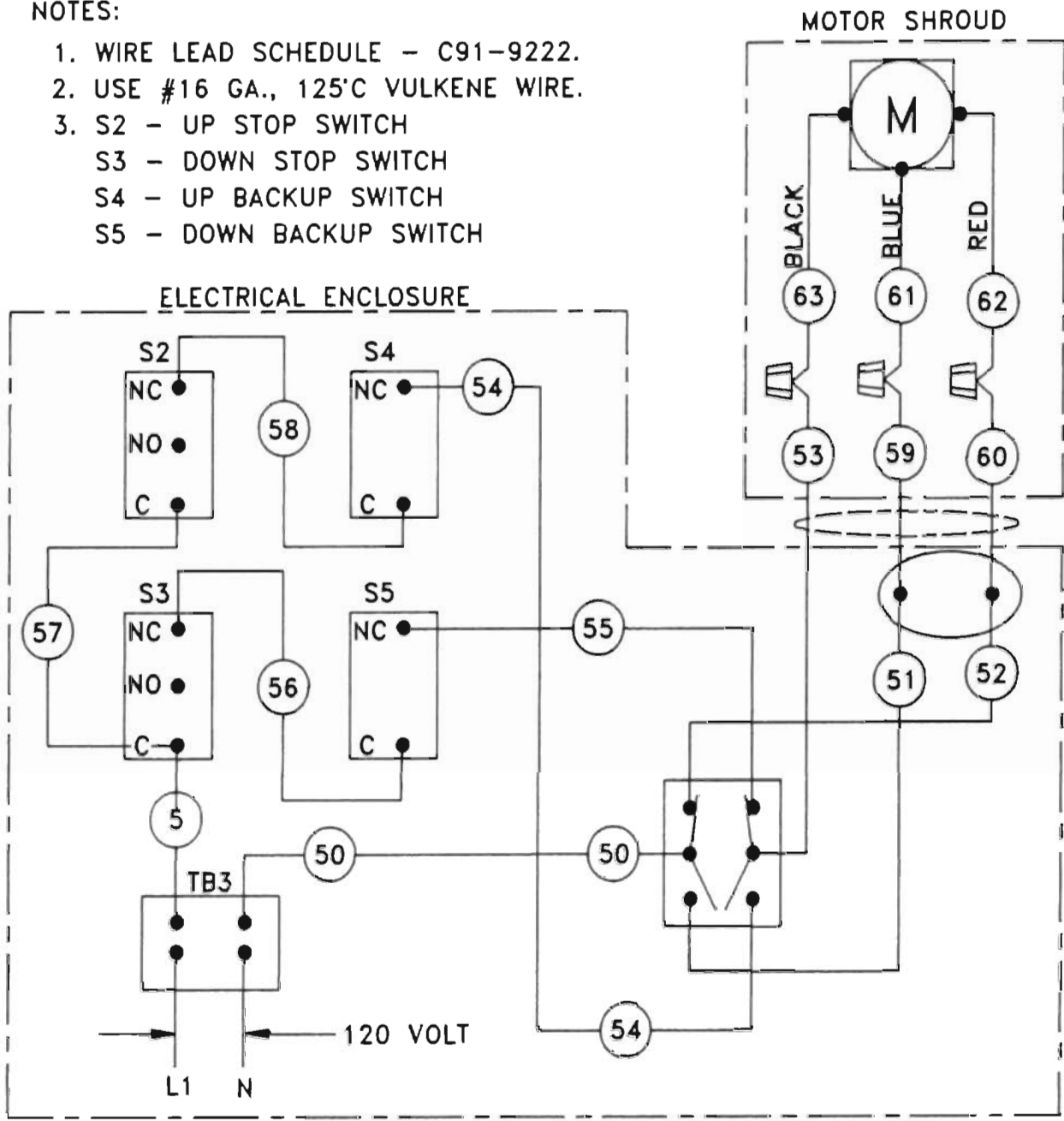
* SEE AUX. VIEW

TOLERANCES UNLESS OTHERWISE SPECIFIED	USED ON	MARKET FORCE	EVERETT, MA 02148
FRACTIONS ± 1/16	E81-8483	MARKET FORCE	EVERETT, MA 02148
0 ± .032	E81-8472	MARKET FORCE	EVERETT, MA 02148
.00 ± .013	E81-8432	MARKET FORCE	EVERETT, MA 02148
.000 ± .005	E81-8518	MARKET FORCE	EVERETT, MA 02148
ANGLES ± 1°	E81-8518	MARKET FORCE	EVERETT, MA 02148

WIRING DIAGRAM - NTZ5/40/BD EO KETTLES	DATE	BY	CHK
WIRING DIAGRAM - NTZ5/40/BD EO KETTLES	DEC 16, 1921	STOBBS	NONE
		SCALE	NONE
		DRW	D
		CHK	91-8520
		APP	E

NOTES:

1. WIRE LEAD SCHEDULE - C91-9222.
2. USE #16 GA., 125°C VULKENE WIRE.
3. S2 - UP STOP SWITCH
 S3 - DOWN STOP SWITCH
 S4 - UP BACKUP SWITCH
 S5 - DOWN BACKUP SWITCH



USED ON	MFI MARKET FORGE		EVERETT, MA. 02149	
B91-9201				
KIT 91-9219	WIRING DIAGRAM - MT25ELX, MT40ELX, MT60ELX KETTLES			
C91-8516				
D91-8520	STOBBS	Scale	(120 V., 60 HZ)	B
C91-9196	JUL 21,94	FULL		91-9218
				Rev A