S6161-JB-FSE-010

0910-LP-641-2046

[*SGML Version See Change Record*]
TECHNICAL MANUAL

INSTALLATION, OPERATION &
SERVICE MANUAL

SINGLE OR TWIN AUTOMATIC COUNTER MOUNTED MID LINE COFFEE URNS

PUBLISHED BY DIRECTION OF COMMANDER, NAVAL SEA SYSTEMS COMMAND

JUN 30, 1990

RECORD OF CHANGES

CHANGE NO.	DATE	TITLE OR BRIEF DESCRIPTION	ENTERED BY

NOTE

THIS TECHNICAL MANUAL (TM) HAS BEEN DEVELOPED FROM AN INTELLIGENT ELECTRONIC SOURCE KNOWN AS STANDARD GENERALIZED MARKUP LANGUAGE (SGML). THERE IS NO LOEP. ALL CHANGES, IF APPLICABLE, ARE INCLUDED. THE PAGINATION IN THIS TM WILL NOT MATCH THE PAGINATION OF THE ORIGINAL PAPER TM; HOWEVER, THE CONTENT IS EXACTLY THE SAME. ANY CHANGES RECEIVED AFTER RECEIPT OF THIS TM WILL ONLY FIT IN THIS PAGINATED VERSION.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER 1

SECTION

ELECTRIC, STEAM, GAS

TWIN MODELS:

7443

7446

74410

SINGLE MODELS:

7413

7416

74110

MID LINE AUTOMATIC COFFEE URNS FRESH WATER BREWING SYSTEM THE MID LINE URN...American's Budget Cutter, completely automatic coffee urn. When a basic, no trills, nothing added urn is needed, this is it! Then build by adding what you want - such as air agitation for mixing of coffee, or any other of the many extras found in the OPTIONS SECTION of this catalog.

AMERICAN STANDARD FEATURES

•FRESH WATER BREWING Special large area heat exchange coil resists scale problems. Heats water for brewing/sprayover as it travels through coil, fresh for each batch brewed.

•FULLY AUTOMATIC ONE TOUCH BREWING TIMER Most foolproof for operator. No dial or knob to turn. Concealed setting. Adjust with screwdriver through front panel. Stop sprayover with one touch. Use for spray rinse of coffee liner.

•AUTOMATIC REFILL OF WATER COMPARTMENT Saves time and attention required to manually fill. Unlimited supply of hot water for tea, etc. always available.

•ADJUSTABLE BYPASS ON SPRAY ARM Enables proper brew extraction even with variations caused by soft or treated water.

•DIAL THERMOMETER WITH MARKED BREW ZONE

•ALL A.I.S.I. TYPE 304 18-8 stainless steel construction.

•ONE ALL STAINLESS STEEL BREW BASKET With 25 filter papers.

•CONTROL BOX ON RIGHT HAND END If requested, the control box can be located on left hand end of urn at no additional cost.

•LOW WATER CUTOFF SYSTEM Solid state probe sensor system provides positive protection against heater burnout, at start-up or in operation.

•GREATEST SAFETY FOR OPERATOR (OSHA) All controls operate on 120 Volt.

•SPECIAL PINPOINT CONTROL THERMOSTAT Super sensitive, highest accuracy and reliability, lowest service cost. Includes marked ″Nite Standby″ position for energy savings.

•CLOSED CHAMBER BREWING Brews with NSF approved cover on brew basket. Prevents costly steam/ moisture loss to room. Saves energy with savings of air conditioning load.

•EASY ADJUSTMENT OF SPRAYOVER RATE Simple screwdriver adjustment. No awkward changing of parts. Improved two stage flow regulator system gives same volume time after time.

•VELVET SMOOTH SPRAY ARM Special teflon coating on spray arm piston prevents liming and insures smooth operation. Positive ″stops″ on spray arm for operator safety.

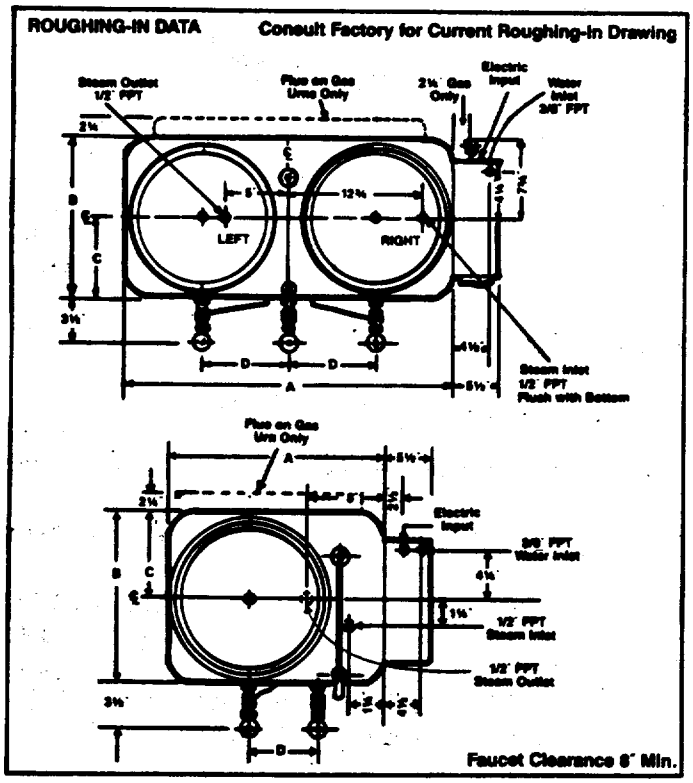
•DRAIN IN BOTTOM

•OPTIONS AVAILABLE Select from Options Section of this catalog.

•DOUBLE SERVICE (SELF SERVICE) FAUCETS Available on both twin and single urns. Choose from Options Section of this catalog.

•MILITARY SPECIFICATIONS-MARINE MODIFICATIONS Twin and single automatic urns MIL-U-43263D or latest specification.

Available modified for marine (shipboard) use; no spillage of liquid with 15° list in any plane, and other requirements. Contact factory for detailed quotation and data.



Roughing-In Data

Roughing-In Data Parts List

Model No.	A	* B	C	D	+ Work Height	+ Overall Height
7443	30-1/2	15-1/4	7-5/8	7-3/4	21-5/8	27-1/8
7446	34	16-3/4	8-3/8	8-5/8	27-5/8	33-1/8
74410	34	16-3/4	8-3/8	8-5/8	27-5/8	34-5/8
7413	18	15-1/4	7-5/8	5-1/2	21-5/8	27-1/8

Roughing-In Data Parts List - Continued

Model No.	A	* B	C	D	+ Work Height	+ Overall Height
7416	21	16-3/4	8-3/8	7-5/8	27-5/8	33-1/8
74110	21	16-3/4	8-3/8	7-5/8	27-5/8	34-5/8

*Add 2-1/4″ for flue on gas-allow additional 6″ wall clearance.

+Add 2-1/2″ on gas.

Brew Baslet Selection Chart

Brews	3 Gal.	6 Gal.	10 Gal.	1/2 Batch on 6 Gal.	1/2 Batch on 10 Gal.
Part No.	BB3	BB6	BB810	BB6-3	BB810-6

NOTE

All SS Permanent Filter Brow Basket with SS woven wire cloth bottom is available. Filter paper is available from our stock. See price list.

TWIN MODELS: 7443 • 7446 • 74410

SINGLE MODELS: 7413 • 7416 • 74110

PRODUCTION-ENGINEERING DATA

MODEL NO.	7443	7446	74410	7413	7416	74110
Coffee Capacity Each Liner	**3 Gal.**	**6 Gal.**	**10 Gal.**	**3 Gal.**	**6 Gal.**	**10 Gal.**
* Gals. Per Hour (Up To) Electric, Steam	25	30	42	15	18	20
Gas	18	24	28	9	16	19
No. of 5 Oz. Electric, Steam	625	750	1050	375	450	500
Cups Per Hour Gas	450	600	700	225	400	475
Max. Steam Demand						
Lbs. Per Hour	50	70	70	30	70	70
Gas Consumption						
BTU Per Hour	35,000	35,000	35,000	18,000	24,000	24,000

*Based on spraying over amount of water equal to capacity of liner.

ELECTRIC HEAT Specify electric service desired. Standard is dual voltage 120/240 Volt or 120/208 Volt single phase 3 wire (neutral wire required). Watts and amps as shown.

Standard Voltage

	120/240 Volt		120/208 Volt	
	1-PH.	3 WIRE	1-PH.	3 WIRE
MODEL	KW	AMPS	KW	AMPS
7443	8	34	6	29
7446	11.5	48	8.5	41
74410	15	63	15	72
7413	7	29	5.5	25
7416	11.5	48	8.5	41
74110	15	63	15	72

Standard Voltage (cont'd)

	+ 240 Volt		120/108 Volt		+ 480 Volt	
	3-PH.	3 Wire	3-PH.	4 Wire	3PH.	3 Wire
	Specify Opt. 21B		Specify Opt. 21A		Specify Opt. 21C	
MODEL	KW	AMPS	KW	AMPS	KW	AMPS
7443	10.5	25	8	22	12	14
7446	12	29	11.5	31	12	14
74410	* 15	36	* 15	42	15	18
7413	10.5	25	8	22	12	14
7416	12	29	11.5	31	12	14
74110	* 15	36	* 15	42	15	18

+Control transformer (Option 22) included when no 120 Volt in the field.

*No extra charge.

STEAM HEAT Specify operating steam pressure. Standard is 10 to 25 PSI Gage. 1/2″ FPT steam inlet and outlet. Requires plug-in of 3 wire cord to 120 Volt AC outlet. Steam trap to be supplied by others.

GAS HEAT Specify Natural or L.P. gas. Standard includes thermostat with 100% safety pilot shutoff, stainless steel flue on rear and combustion chamber with aluminum heat shield under gas burner. Requires plug-in of 3 wire cord to 120 Volt AC outlet. Six and ten gallon models require connection to 160°F hot water line.

OPTIONAL ONE YEAR SERVICE Covers service/labor and parts for one year from date of installation (maximum of 18 months from date of shipment). See price list.

SECTION

ELECTRIC HEATED MODELS

7443

7446

74410

7413

7416

GENERAL DESCRIPTION

This urn is an automatic, pushbutton operated, volume brewing unit. It consists of a non-pressure, vented water tank of large capacity into which two stainless steel liners are inserted.

Electric heat is used to keep water in the tank always at the desired temperature. For this type of heat, a thermostat, sensing the water temperature and controlling a contactor, switches on and off the electric immersion heater found inside.

Also in this tank is a heat exchange coil that carries fresh (cold) water up to a top mounted, swivelly attached sprayarm for discharging a hot water spray over ground coffee during brow. A pushbutton start, electric reset timer measures the quantity of water sprayed over by timing a constant water flow. The flow of sprayover water is maintained accurately by a two-stage, adjustable regulator system. Flow through the heat exchange coil starts and stops as the timer opens and closes a water (brew) solenoid valve. Whenever this brow process is going on in the urn, an orange pilot light also lights up.

Automatic refill is provided to keep the tank always full of water. Whenever the level drops, a built-in control causes water to enter the tank by opening a second water solenoid valve. This refill valve closes when ″full″ is reached.

Low water cutoff is included to prevent damage to the urn or heater that can be caused by a low water level. Even at initial start-up, no heat can come on until a safe water level is reached in the tank.

Air agitation, If provided, blends the brewed coffee by allowing low pressure air to bubble up through the coffee in the coffee liner. Programmed agitation is automatic at the end of each brew cycle. Depressing a manual agitation switch provides further mixing between brews.

All components of the control system are enclosed in a stainless steel housing on one end of the urn.

INSTALLATION

1. Position urn so that the faucets drip into a drain trough or drain receptacle of some type.
2. Level urn both front to back and left to right. The feet are adjustable for this purpose.

UTILITY CONNECTIONS

Water

1. 3/8″ NPT water inlet located beneath control box.
2. Cold or hot water may be used. Heat input capacity is ample for cold water, and cold water should be used for best results.
3. Provide shutoff valve and union in supply line near urn.
4. Minimum operating pressure at urn should be 30 PSI.
5. Maximum pressure recommended at urn is 75 PSI.
6. Copper or aluminum tubing should be used for flexibility and avoiding strain on the urn.
7. To insure pressure at the urn of at least 30 PSI, use 3/8″ O.D. tubing for short runs, 1/2″ O.D. tubing for longer runs, and larger size tubing for unusually long runs.

Electric

1. Field terminal block located inside control box.

2. An experienced electrician should be responsible for connecting urn to electric power.
3. Check rating marking on urn to be sure supply lines match voltage and phase requirements.
4. Neutral wire normally required on all single phase and on 208 Volt three phase power supplies to operate 120 Volt AC control Circuit. If single phase, 2 wire service (no neutral) or 3 phase 3 wire service (no neutral), a transformer is installed to supply 120 volt AC power to control circuit.
5. A fused disconnect switch should be installed near urn.
6. Urn body must be grounded. A grounding conductor terminal is provided for this purpose. Other means of positively grounding urn may be used.
7. Use only copper wire to connect this urn.

OPERATION START-UP

1. Turn power on to urn. Have spray arm in ″Park″ position, with nozzle in vent tube opening at center rear. Turn on water supply to urn. With automatic refill, water compartment will fill automatically. Time required to fill is 10 to 15 minutes. In case of failure to fill, refer to Automatic Refill Service Instruction page.
2. Turn thermostat knob to ″Brew″ position. Pilot light at top of thermostat bezel should light up. Water in urn should heal up, and rise to high end of ″Brew″ zone on thermometer within approximately 55 minutes, depending on temperature of water in urn. Pilot light at top of thermostat bezel should go out when water in urn is at brew temperature. This pilot light will also go out in case of dangerous low water conditions, or no power at urn due to blown fuses, switch off, or while urn is refilling.

OPERATION START-UP CHECKS

1. Turn thermostat dial to ″Brew″ position. Pilot light at top of thermostat bezel should light up and when thermometer pointer is in high ″Brew″ zone, this pilot light should go out. Water in urn tank is now at brew temperature. NOW and ONLY at initial start-up, we advise checking time of flow of hot water to spray nozzle.
2. Checking Spray-Over Volume and Rate Remove cover from brew basket over one liner. Position spray nozzle over this brew basket. Liner should be empty and faucet shut off. Push in timer start button and brew pilot should light up. Hot water should start to spray into brew basket. Allow to spray until brew pilot light goes out and sprayover stops.

Measure amount sprayed over by drawing off into a calibrated one gallon measure. If amount is more or less than desired, remove cover to reveal timer adjustment and reset timer using a screwdriver. Longer time-more sprayover, shorter time-less sprayover. Each 1/4 minute increase or decrease adds or subtracts about 1/3 gallon to sprayover total. Replace cover after setting.

Note that setting of sprayover bypass valve effects amount of sprayover. Set as desired.

Before actual use of urn, it should be thoroughly cleaned and washed. It is also recommended that a batch of coffee be brewed in each liner based on a final brewing cycle timer setting, actual muslin bag or filter to be employed. We recommend that these first batches be thrown out and not used. Strength of brew may be checked by hydrometer or evaporation tests but flavor test might be poor on first batch.

COFFEE BREWING AND URN BREW CYCLE

Measurement of water quantity sprayed over is by a precision electric timer, controlling an electric solenoid water valve. When timer is started, water solenoid valve opens, and water line pressure forces fresh water to flow

through heat exchange coil and come out of the spray nozzle and spray over the coffee in the brew basket. The rate at which the water flows is controlled by a two stage water flow regulator system designed to provide accurate flow rate under all conditions.

All urns with coffee liner capacity of 6, 8, or 10 gallons have an adjustable bypass on the spray arm. (Some 3 gallon models may also be so equipped). This bypass allows some spray-over water to bypass the brew basket and go directly into the coffee liner. By adjusting bypass valve, brew can be controlled for ideal extraction from coffee.

Variable brewing factors which the coffee urn cannot control are:

1. The uniformity and type of grind on coffee supplied.
2. The uniformity and quality of roasting, and selection of blend and type of coffee beans used, and the freshness of ground coffee used in a brew.
3. Water chemistry - i.e., mineral content, taste factors (chlorine, fluorine, iron, etc.) and effects of any treatment process occurring ahead of urn.
4. Uniformity and quality of filter paper is also important, and proper storage and handling of paper effects final brew.
5. Proper and regular, frequent cleaning of all coffee brewing equipment is vital to insure the most delicious tasting brew.

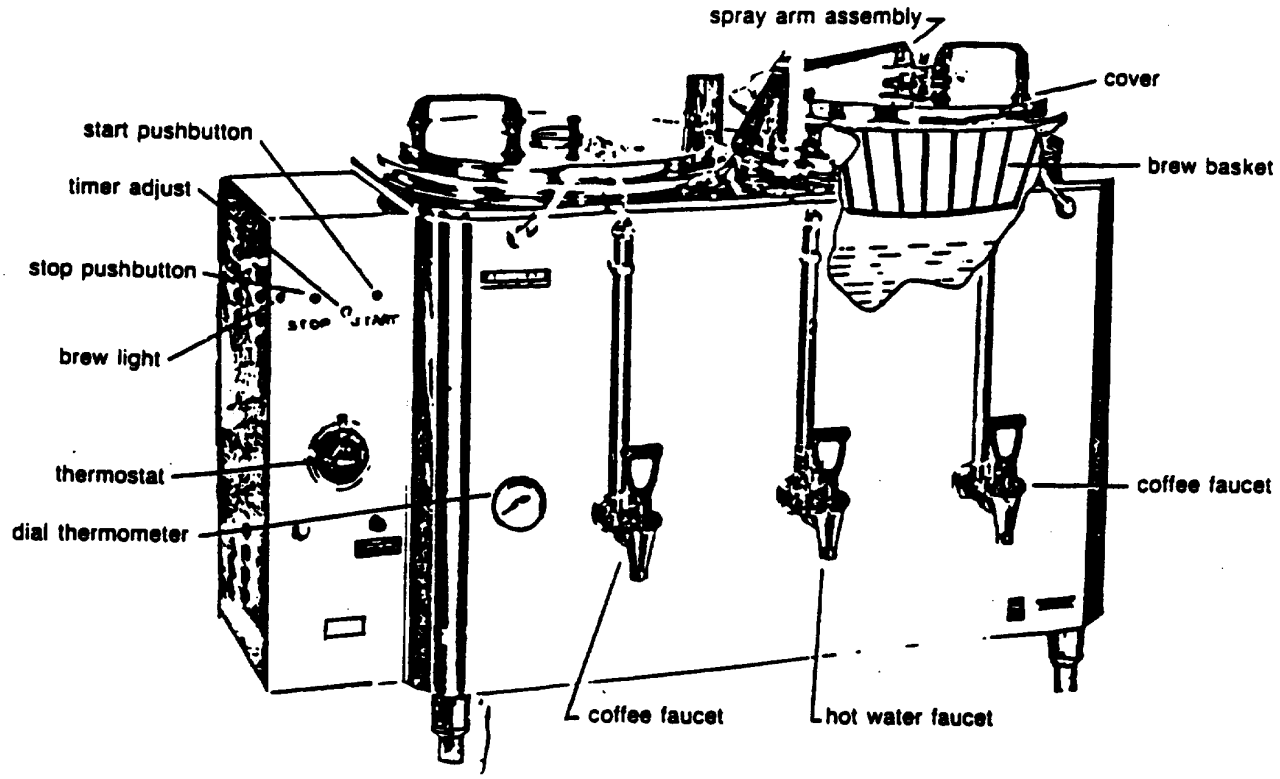


Figure (2)

HOW TO BREW IN AN AUTOMATIC URN

1. Place filter in brew basket with designated amount of ground coffee (automatic urns are designed to use 1, 2, or 3 lbs. of coffee). Make certain you have a level bed of coffee.
2. Replace cover and move spray head over center of coffee grounds.
3. Check thermometer to make certain urn is at brewing temperature. Press start button.
4. When brew cycle is completed (brew light shuts off), remove brew basket and dispose of spent grounds.
5. Mixing of finished brow is accomplished automatically at the end of the brow cycle if the urn has an air agitation option. Where urn is not equipped with air agitation, draw one gallon for each three gallons of finished brow from coffee faucet, and pour over top into coffee liner.

   Coffee ready to serve.

   Variable brewing factors which this coffee urn can control are:

   1. Contact time of water with ground coffee.
   2. Accuracy of water spray-over volume.
   3. Temperature of water spray-over.
   4. Holding temperature of finished brew.
   5. Proper and uniform extraction over coffee brew basket bed area.
   6. Proper coffee bed depth in brew basket.
   7. Proper and thorough mixing of first rich brew with later, weaker brew for uniform final brew.

Final decision of brewing formula and brewing cycle adjustments rests with the operator and the coffee supplier.

COMPLETE URN BREW CYCLE ADJUSTMENT PROCEDURE

See charts on page following and also Parts Breakdown drawing, following service section of this manual.

Urn must be full of water, and heated to operating range (thermometer pointer at high end of ″Brew″ zone) before starting adjustment.

1. Set spray arm bypass valve.
2. Set timer for 2 minutes.
3. Remove cover from control housing. Remove cover and brew basket from left liner.
4. Measure one gallon of water and pour into left liner and mark level on gage shield with pencil. Drain liner. Close faucet. Swing spray arm over left liner.
5. Push brew timer start button, and use second hand of watch or stop watch to time spray-over of one gallon (to pencil line on gage shield). Then drain liner and close faucet.
6. Check number of seconds required for spray-over of one gallon, approximately 80 seconds recommended.
7. If spray-over time in seconds is too long, loosen lock nut and screw in adjusting screw (turn clockwise) on flow regulator inside housing about 1/8 turn. Tighten lock nut. If spray-over time in seconds is too short, loosen lock nut and screw in adjusting screw out (turn counter clockwise) on flow regulator about 1/8 turn. Tighten lock nut. Recheck spray-over time as in Step 5.
8. Now set timer to quantity of water desired.

9. Push brew timer start button and allow to spray-over full timer amount into liner. Check total spray-over water by drawing off into one gallon measure, a gallon at a time. If spray-over is slightly over or under desired amount, change timer setting; longer time to increase amount, shorter time to decrease amount
10. Replace cover on control housing and timer cover if applicable. No further adjustment of the flow regulator should be necessary. Fine adjustments can be made at any time on the timer setting only.

NOTE

This urn has a two stage water flow regulator system. The first stage regulator, located outside under the control housing is factory set at 25 PSI. Do not change or adjust this regulator.

The second stage regulator, located inside the control housing is adjustable for rate and amount of sprayover desired

HALF BATCH BREWING

Standard brew basket is designed for full batch brewing with proper bed depth. Half batch brew will result in weak final brew, because of thin bed depth, unless half batch brew adaptor is used, or more than normal amount of coffee is used. Half batch brew baskets are available for 6, 8, and 10 gallon models. They require using a smaller filter paper size.

Occasional half batches can be brewed in standard full batch brew basket by using slightly more then half of usual weight of coffee, and using an inverted soup bowl in the center of the brew basket to increase coffee bed depth around the soup bowl and also reduce bottom filtration area.

CARE AND CLEANING OF COFFEE URNS

1. Always rinse urn immediately after each use.
2. Add small quantity of hot water, brush sides and rinse with hot water until it runs clean. Urn is now ready for next batch.
3. At end of each day clean and brush urn several times, then rinse thoroughly with hot water.
4. Remove clean-out cap at end of coffee faucet (or take apart faucets which have no caps) and scrub pipe leading to center of urn. Clean urn gage glass with brush and urn cleaner. Rinse!
5. Scrub the faucet, then rinse it thoroughly with hot water.
6. Place a gallon or more of fresh water in urn until next use.
7. Remove cover and clean. Replace cover, and leave partly open.
8. ALWAYS REMEMBER TO EMPTY, AND RINSE THE URN WITH HOT WATER BEFORE USING AGAIN.

NOTE

On automatic urns, use brew start and stop switches, or the rinse switch, to spray scalding hot water into liner for cleaning and rinsing. On pourover urns, draw hot water directly from urn. Make sure urn water tank is kept near full, and heat is on.

SEMI-WEEKLY CLEANING PROCEDURE

1. Be sure outer jacket is full of water.

2. Turn on heat and fill urn liner 3/4 full of water; use only urn cleaning compounds (See Note) following manufacturer's directions; mix thoroughly and let stand about 30 minutes.

3. Clean gage glasses, faucet pipe, plugs, etc., using long thin brush. Use urn cleaning solution for scrubbing. Take faucet valve apart and clean thoroughly. Clean all tubes well.

4. Scrub inside of urn and inside of cover with long handled brush. Be sure to clean ″lug nut″ in base of urn liner.

5. Rinse inside of urn three or four times with hot water-scrubbing each time. Also rinse parts well. Repeat until all traces of foreign odor and cleaning solution are removed.

6. Leave a gallon or more of fresh water in urn with cover partly open until next use. If cold water is used, allow urn to cool to prevent cracking liner.

7. Urn baskets may be cleaned by immersing in urn cleaner solution and scrubbing with a stiff brush. Rinse thoroughly and let dry. Sprayheads should be checked to see that all holes are open. If any are clogged, remove sprayhead and use stiff wire to open.

8. Don't use soap, scouring powders, or abrasives to clean coffee brewing equipment.

WARNING

Cleaner used can effect taste of coffee if not thoroughly flushed out as covered ABOVE.

NOTE

Coffee system cleaners that have been used successfully:

DIP-IT manufactured by Economics Laboratories, Inc.
4 Corporate Park Drive, White Plains, NY 10604

OXYLITE manufactured by Avril, Inc., Syndet Division
601 N. Third Street, Reading, PA 19601

FIGURE (3)

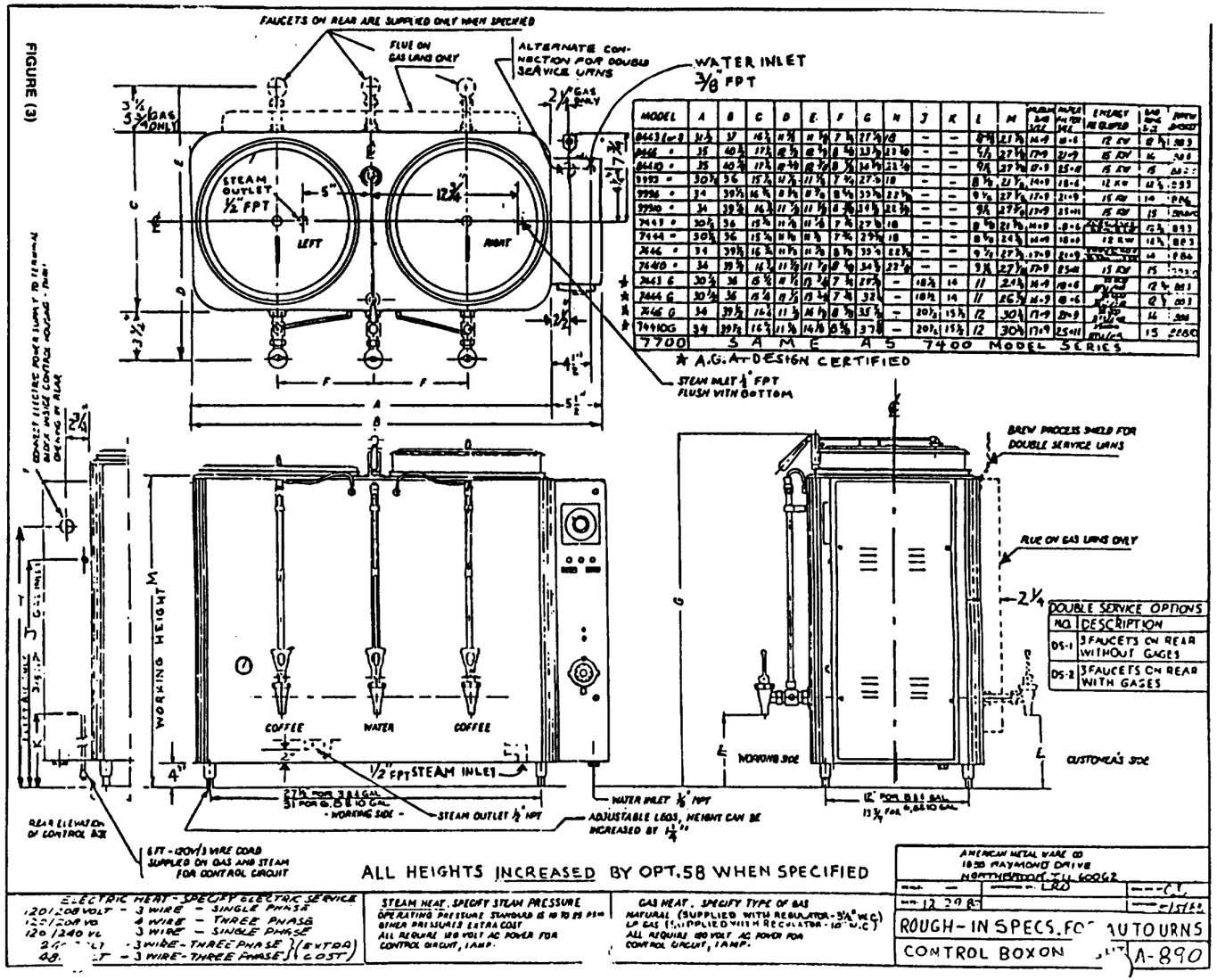


Figure (3) ROUGH-IN SPECS. FOR AUTO URNS

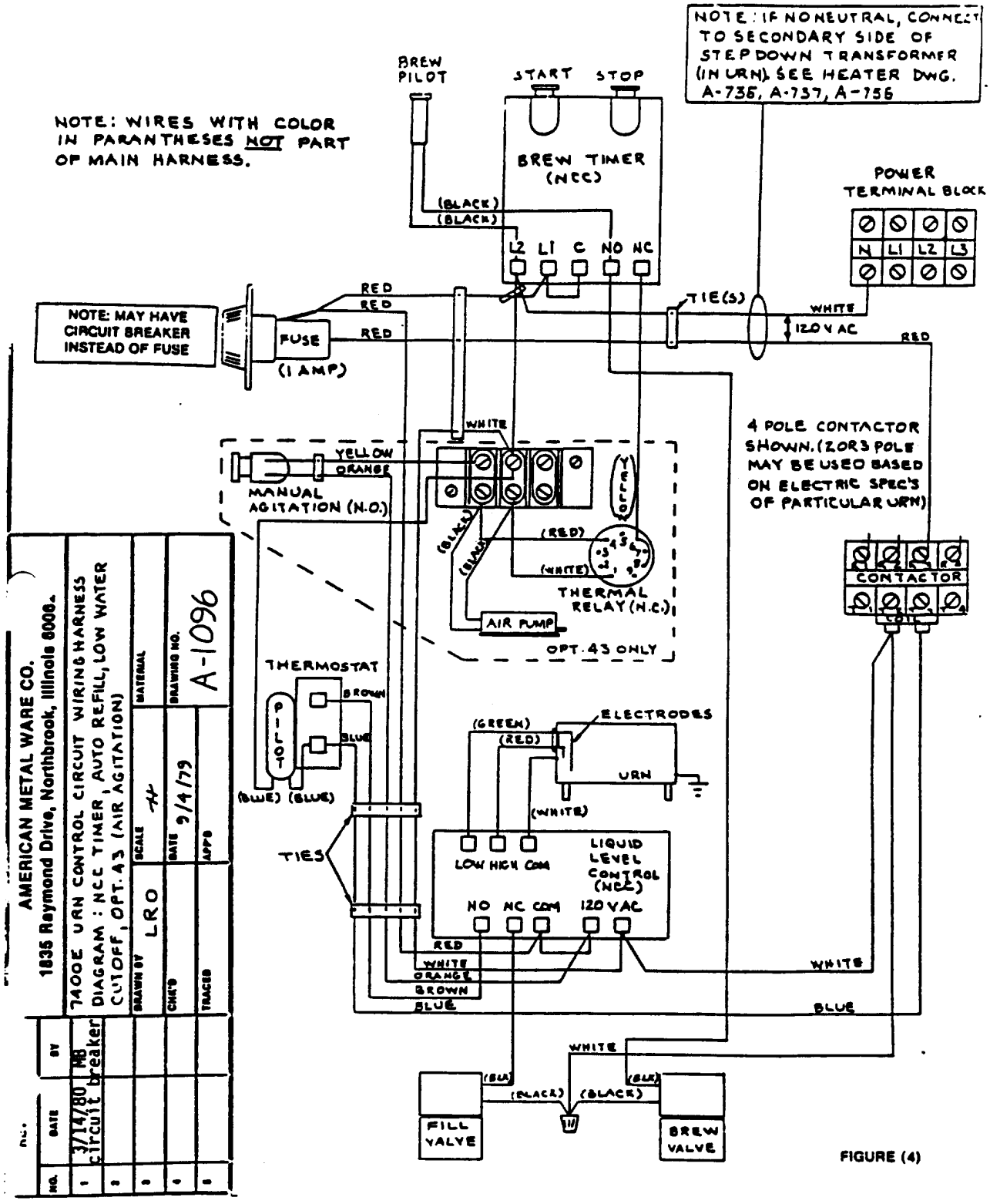


FIGURE (4)

Figure (4) 7400E URN CONTROL CIRCUIT WIRING HARNESS DIAGRAM: NCC TIMER, AUTO REFILL, LOW WATER CUTOFF, OPT. 43 (AIR AGITATION)

FIGURE (5)

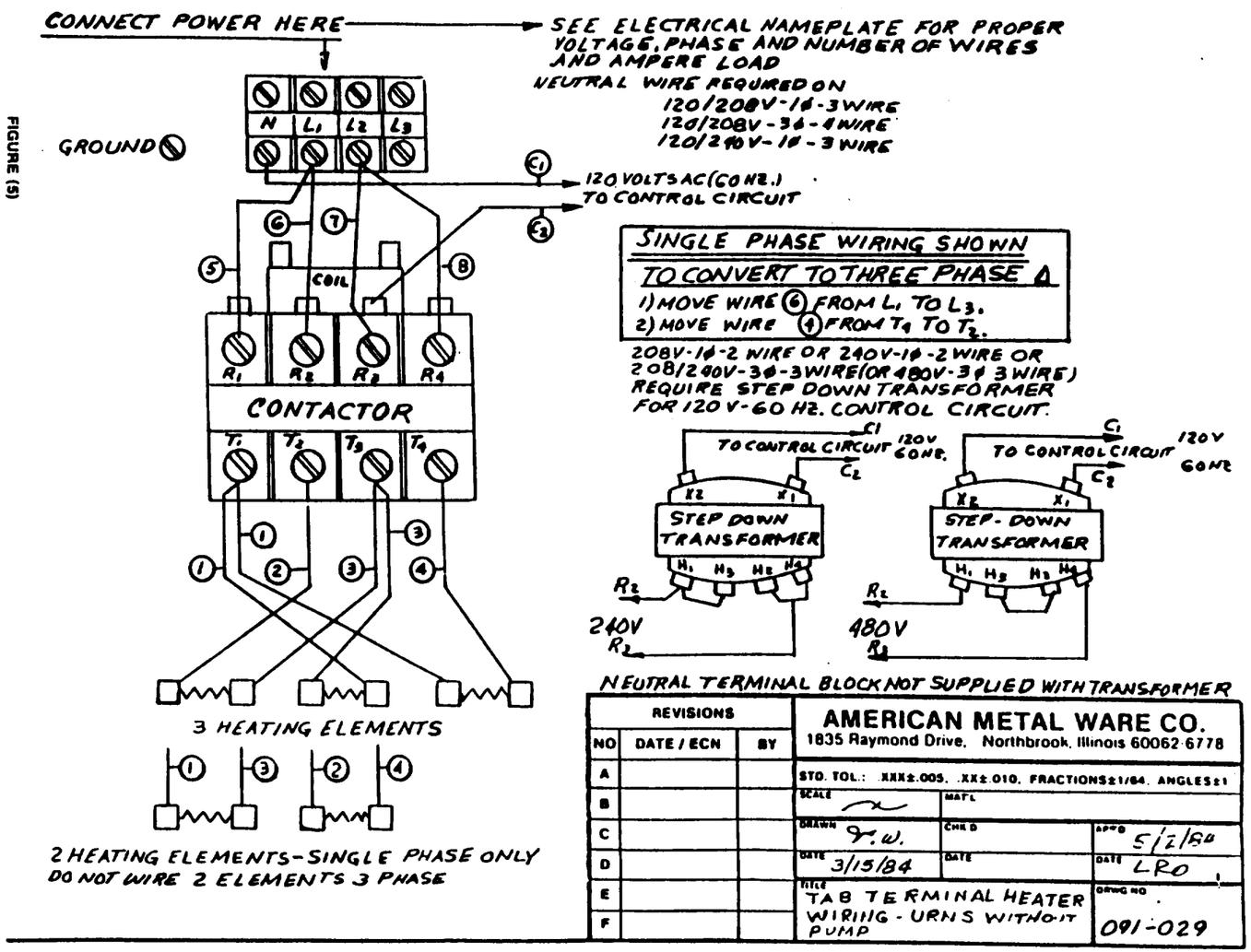


Figure (5) TAB TERMINAL HEATER WIRING - URNS WITHOUT PUMP

IV. Trouble Shooting Auto Refill, Low Water Cutoff, and Liquid Level Control System.

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	REMEDY
A. Overfilling of water compartment when power to urn is ″OFF″.	1. Fill solenoid valve leaking due to dirt or scale holding valve open, or worn plunger seat.		Disassemble and clean out. May require new plunger assembly. Caution is advised to avoid damage to valve. See S301 valve instruction sheet.
	2. Fill solenoid valve installed backwards.	Visual.	Install so that port marked ″IN″ is Connected to outside fresh water supply.
B. Overfilling of water compartment only when power to urn is ″ON″	1. High electrode mated with scale.	Jumper from HIGH terminal to urn body stops fill.	Remove electrode assembly. Clean both electrodes. See note 1
	2. Missing or faulty common connection for electrode circuit. (COM terminal to urn body.)	Jumper from COM terminal (next to HIGH) to urn body stops fill.	Make good, secure connection.
	3. Liquid level plug-in relay faulty.	Plug-in relay pushed all the way onto socket.	Replace liquid level control, if problem continues with relay plugged in all the way.
	4. Liquid level printed circuit board faulty.		Replace liquid level control.
C. Auto refill is erratic in filling. (Sometimes fills, sometimes doesn't)	1. Electrodes shorting to ground completely or intermittently.	Urn fills with electrode wires disconnected from HIGH and LOW terminals.	Replace electrode assembly. See note 1 .
	2. Liquid level plug-in relay faulty.	Plug-in relay pushed all the way onto socket. Jumper from NC terminal to adjacent COM terminal starts fill.	Replace liquid level control, if problem continues with relay plugged in all the way and urn fills only with jumper in place.
	3. Liquid level control faulty.	Urn does not fill with electrode wires disconnected from HIGH and LOW terminals.	Replace liquid level control.
D. Auto refill fails to fill water compartment. (Low water cutoff failure if heat comes on.)	1. No power at urn.	Nothing operates on urn.	Make sure main switch(es), fuse(s), circuit breakers) provide power to urn, that fuse* on urn is OK, and master switch, if provided, is on. * - or circuit breaker
	2. No water at urn.	No sprayover on automatic urns.	Make stirs all water supply line valves are open.
	3. First stage (outside) regulator clogged.		Disassemble and clean out. May require renewal parts.
	4. First stage (outside) regulator backwards.	Visual	Install so that port marked ″IN″ is connected to outside fresh water supply.

IV. Trouble Shooting Auto Refill, Low Water Cutoff, and Liquid Level Control System. - Continued

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	REMEDY
	5. Water strainer clogged.	No sprayover on automatic urns.	Remove and clean micromesh screen filter located in water strainer. (In line with fill solenoid valve).
	6. Fill solenoid valve clogged with scale or frozen closed.	Disassemble.	Clean out and/or replace plunger assembly, or replace entire valve. May require new coil. Caution is advised to avoid damage to valve. See S301 valve instruction sheet.
	7. Fill solenoid valve coil inoperative.	Jumper from NC terminal to adjacent COM terminal does not start fill.	Replace coil. Also check for frozen plunger. See S301 valve instruction sheet.
	8. Electrodes shorting to ground.	Urn fills with electrode wires disconnected from HIGH and LOW terminals.	Replace electrode assembly. See note 1 .
	9. Liquid level plug-in relay faulty.	Plug-in relay pushed all the way onto sock. et. Jumper from NC terminal to adjacent COM terminal starts fill.	Replace liquid level control if problem continues with relay plugged in all the way and urn fills only with jumper in place.
	10. Liquid level control faulty.	Urn does not fill with electrode wires disconnected from HIGH and LOW terminals.	Replace liquid level control.
E. Slow, uneven chattering at end of fill cycle; settles down; thermostat pilot light switches on and off in unison with noise. single phasing See note 2 .	1. Low electrode coated with scale.	Jumper from LOW terminal to urn body during chatter stops it.	Remove electrode assembly. Clean both electrodes. See note 1 .
	2. High and low electrode wires reversed on liquid level control.	Visual.	Red wire should be on HIGH terminal, green wire on LOW.
	3. Electrodes not vertical.	Visual.	Electrode wires should be across from one another (horizontal) at the electrode assembly fitting.
	4. Liquid level plug-in relay faulty.		Replace liquid level control.
	5. Liquid level printed circuit board faulty.		Replace liquid level control.

IV. Trouble Shooting Auto Refill, Low Water Cutoff, and Liquid Level Control System. - Continued

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	REMEDY
F. High speed (rapid fire) chattering that ends with liquid level control system failure. See note 2 .	1. Capacitor failure on liquid level control printed circuit board causes rapid back and forth switching between fill and heat.	Visual and audio.	Replace liquid level control. Also, check contactor or steam valve or gas valve, fill solenoid valve, and if provided, control circuit transformer.
G. Thermostat set on brew. Water cold.	1. No power at urn.	Check main fuse or breaker-check circuit breaker on urn	Reset breaker or new fuse. Reset urn breaker.
	2. Power at urn-no power at heater terminals.	Check circuit breaker on urn.	Reset breaker or replace.
		Check water level should be at stop level on gage.	Open water supply valve to urn. Clean out water line strainer.
		Check power at thermostat terminals.	If none replace thermostat or liquid level system board.
	3. Voltage at heater terminals but no heat.	Check heater for open element.	If necessary, replace defective element. Remove coffee liner to replace.
H. Water boils continuously on brew setting.	1. Thermostat out of calibration.	Thermostat should cut off power to heater when thermometer needle at far right end in blue brew zone.	With stat knob set on brew. Pull off knob. Turn adjusting screw inside knob shaft clockwise to reduce cut off setting.
	2. Thermostat inoperative.	Will not accept calibration (Item 1 above)	Replace thermostat. (Necessary to drain all water from urn.)
	3. Contactor sticking in closed position.	Will not click on or off.	Replace contactor
J. Urn circuit breaker trips frequently.	1. Liquid level relay malfunction.	Check with OHmeter to ground.	Replace entire unit.
	2. Solenoid valves grounding out.	Check coils to ground with OHmeter.	Replace coil.
K. Continuous leak from spray nozzle (slight dripping during heat up is normal due to expansion drippage).	Dirt or scale on solenoid seat.	Dripping stops with power to urn off.	Clean out solenoid valve - replace rubber seat if necessary.
L. Quantity of water sprayed over erratic.	1. Adjust flow regulator inside control box out of adjustment.		Turn adjusting screw clockwise to increase flow - counter-clockwise to decrease.
	2. Line water pressure too low (under 30 PSI at urn).	Measure water pressure in line to urn. Check for undersized lines or other equipment on same supply.	Increase water pressure to urn. Replace water lines w/ 3/8″ tube or larger.
	3. Timer repeating.	Check 2-3 cycles for accuracy.	Replace timer if erratic.

IV. Trouble Shooting Auto Refill, Low Water Cutoff, and Liquid Level Control System. - Continued

PROBLEM	POSSIBLE CAUSE	SERVICE CHECK	REMEDY
M. Water never reaches brewing temperature. (High end brew zone on thermometer.)	Thermostat set too low.	Thermometer needle should stop at least 1/4″ from high end brew zone.	Turn thermostat knob to brew. Remove and reset adjusting screw in shaft - counter-clockwise to increase, cut off temperature.
N. Water spray over rate slows shortly after installation of urn.	Water supply line strainer clogged.	Spray over pattern should be full cone shape	Remove cleanout cap on ″Y″ strainer on water supply line in urn. Remove sleeve filter. Clean & replace.

note [1]The electrode assembly is located in the upper portion of the control box. To remove assembly, first remove hex nut from fitting; then, turn assembly approximately 90° towards front of urn and pull out carefully. Electrode tips can be cleaned with a knife or emery cloth. When replacing, DO NOT OVERTIGHTEN hex nut. Make sure electrodes are vertical; electrode wires should be across from one another (horizontal) at the fitting.

note [2]Chattering may overwork contactor coil, control circuit transformer, gas valve or steam valve coil, and fill solenoid valve coil. Check that these components are functioning properly.

NOTE

Beginning January, 1979, relay no longer plug-in type, but soldered directly to liquid level control.

AUTO REFILL AND LOW WATER CUTOFF: WHAT THEY ARE

1. Auto Refill of the water compartment keeps the urn body filled with water. When water is used, the fill valve opens automatically to let in more. The fill valve closes when the water level reaches full.
2. Low Water Cutoff prevents the electic immersion heater from burning out when there is not enough water to cover it. When low water occurs, the heat automatically switches off. The heat stays off until more water is added.
3. A device called a Liquid Level Control keeps the urn filled with water and turns off the heat when the water level is low.

DESCRIPTION AND OPERATION OF LIQUID LEVEL CONTROL SYSTEM

A. Components

1. Liquid Level Control - switches power to either the thermostat or the fill solenoid valve by sensing change in water level.

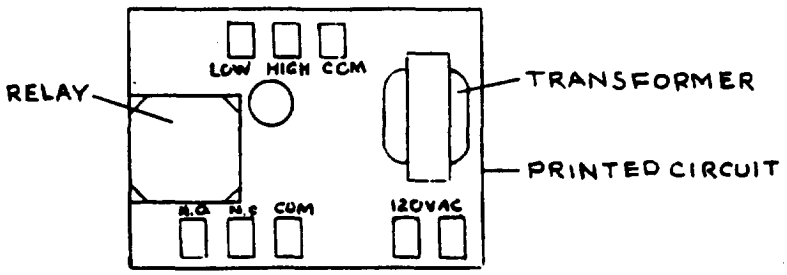


Figure (7)

2. Electrode Assembly - consists of a high (short) and a low (long) sensing electrode molded in an epoxy body.

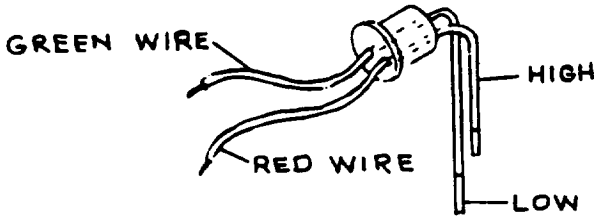


Figure (8)

3. Urn Body - provides a common (ground) connection for the electrode circuit.

B. Operation

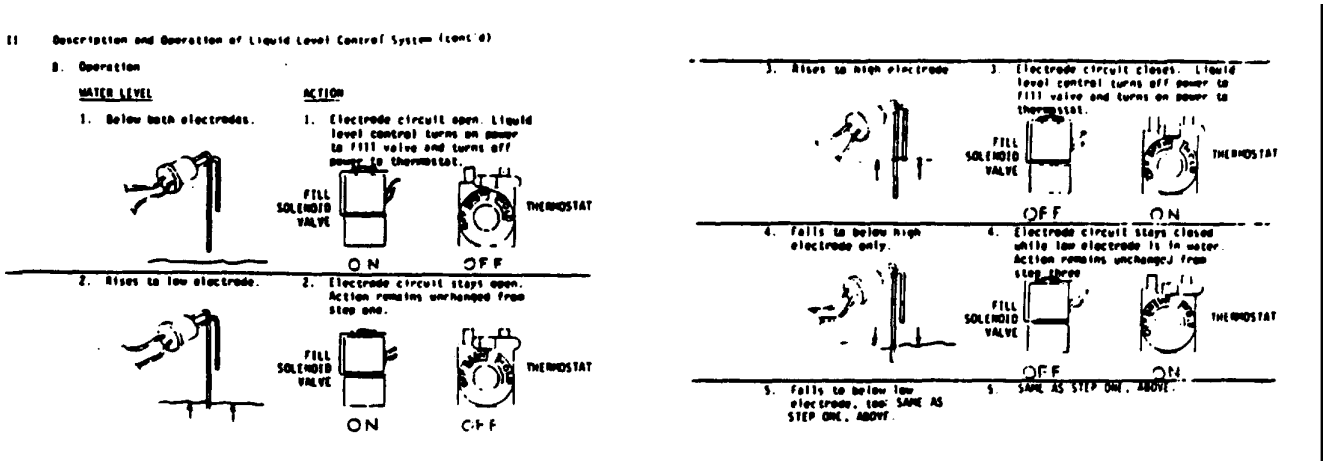


Figure (9)

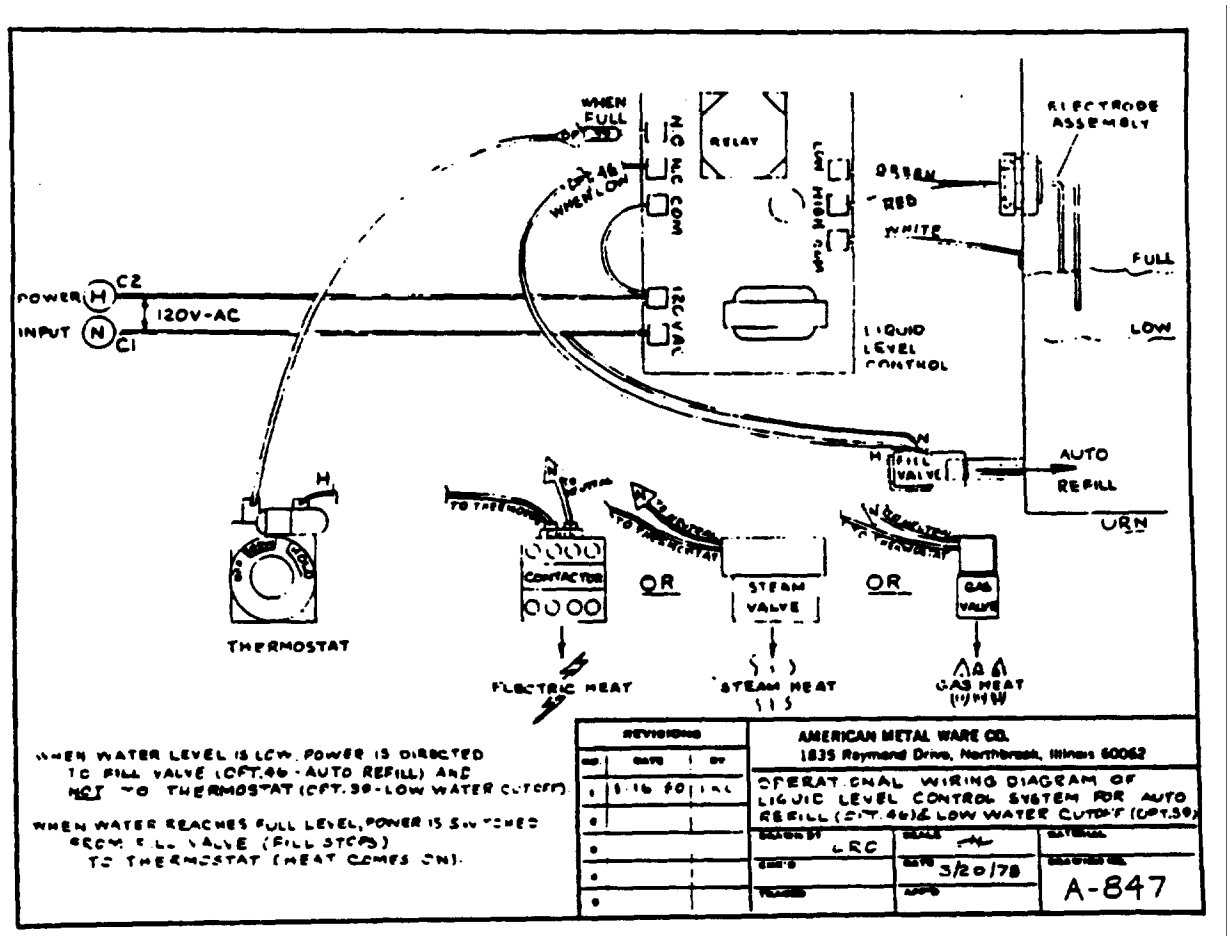


Figure (10)

QUICK SERVICE CHECK OF LIQUID LEVEL CONTROL SYSTEM

1. All wires secure and property connected.

2. Plug-in relay on printed circuit board seated all the way onto socket.*
3. Clean the electrodes. Lime (mineral scale) build-up can interfere with the operation of any liquid level control system.

REPAIR/REPLACEMENT INSTRUCTIONS FOR ELECTRICAL AND MECHANICAL COMPONENTS

Thermostat - Part Number 504001

1. Shut off electric power and water supply to urn.
2. Drain water compartment below gland fitting.
3. Remove access cover from control housing.
4. Loosen 5/16 hex packing gland from capillary tubing at packing gland fitting at urn body. Remove packing gland fitting, using 7/8″ wrench. Pull out capillary tubing and thermostat sensing bulb.
5. Pull off thermostat knob on front of control panel. Remove 2-6/32 bezel screws and push thermostat into control box. Disconnect wiring from terminals. Remove thermostat.
6. Install new thermostat; reverse procedure as outlined above. Use thread compound or teflon tape when reinstalling packing gland fitting.
7. Turn on water and power to urn. Turn thermostat knob to brew position. Urn should fill up to stop mark. With thermostat knob set at BREW, urn should heat. Adjust thermostat for proper setting.

Seat Cup, Silicone Faucet - Part Number 522102

1. Empty coffee liner or water compartment through faucet until flow stops. (If water faucet, shut off power to urn).
2. Grasp black threaded faucet bonnet nut and turn counter-clockwise until free.
3. Remove bonnet assembly and clean inside faucet body.
4. Grasp seat cup and pull off bonnet stem.
5. Press new seat cup on stem and reassemble.
6. Hand tighten bonnet nut so faucet does not leak.

Handles, Urn Cover - Part Number 513006 - Figure 19

1. Remove 10/24 x 1-1/4″ hex head stainless steel bolts-underside of cover.
2. Remove black metal handle and 2 spacer sleeves.
3. Position 10/24 x 1-1/4″ hex head stainless steel bolts on cover.
4. Install spacer sleeves, larger diameter up.
5. Mount black metal handle atop spacers and tighten bolts.

Spray Arm Assembly - Part Numbers 1214015 and 1214019

1. Urn must be in ″NO SPRAY OVER″ cycle.
2. Loosen and remove knurled nut from spray arm inlet chamber at handle end.

*Beginning January, 1979, relay no longer plug-in type, but soldered directly to liquid level control.

3. Lift complete spray arm assembly off inlet piston.
4. Replace ″O″ rings and teflon seal (see elastomer kit Part Number 521021 - Figure 12) on inlet piston and lubricate with silicone grease.
5. To replace inlet piston, loosen locknut below cam washers and unscrew from hex base fitting.
6. Install new inlet piston-reversing above procedure-position cam washers as in item 7.
7. Install new spray arm assembly-hand tighten knurl nut plus 1/8″ turn-position lugs on cam washers to index spray arm nozzle over spray opening in each urn cover.

Brew Pilot Light - Part Number 515016

1. Turn off power to urn.
2. Remove access cover from control housing.
3. Disconnect wire leads to pilot light.
4. Remove press nut from pilot light inside of control housing.
5. Push out pilot light from inside control housing.
6. Install new light from outside.
7. Reverse procedure outlined above.

Gage Glasses - Coffee or Water - Part Numbers 522033-034-035 and 522032-049-048

1. Empty coffee liner or water compartment through faucet until flow stops. (If water compartment, shut off power to urn).
2. Remove threaded clean out cap and upper gage glass washer (see Part 521021 elastomer kit - Drawing A-385-B) from top of gage glass protector tube.
3. Grasp glass gage through slots in protector tube, pull upward and out.
4. Install new lower gage glass washer (see Part 521021-elastomer kit-Drawing A-385-B) in bottom of protector tube.
5. Install new glass tube and new upper gage washer and reassemble.
6. Tighten cap nut finger tight.

Faucet - Coffee or Water - Part Number 522094

1. Empty coffee liner or water compartment through faucet until flow stops. (If water faucet, shut off power to urn).
2. Loosen union nut connecting faucet to faucet shank.
3. Remove faucet.
4. Install new faucet and tighten connecting union nut hand tight plus 1/4 turn.

Electric Heater

1. Shut off power to urn.
2. Shut off water supply to urn.
3. Empty water compartment through faucet and drain valve in bottom. Close drain valve.
4. Remove left liner, as follows:

a. Place alignment mark on liner ring and urn top.
b. Remove screws at top, fastening liner ring to urn body (if supplied).
c. Insert 1/4″ x 1-1/2″ x approximately 15″ long flat bar stock into slot in liner drain nut at bottom.
d. With wrench applied to bar stock, unscrew drain nut counter clockwise-remove drain nut.
e. Tap inside of liner near bottom with clenched fist or rubber mallet, to loosen. Lift liner out of urn; save silicone rubber washer for resealing connection.

5. Disconnect wiring from heater terminals.

[*] IF END MOUNTED HEATER, PROCEED AS FOLLOWS: Figure 17

6. Using end wrench or socket wrench, remove outside locknut from bulkhead fitting.
7. Remove all three heating elements through inside of urn.
8. Install three new heaters from inside of urn. It may be necessary to bend replacement heaters slightly to avoid interference with heat exchange coil or liner.
9. Tighten locknut securely.
10. Reconnect wires to terminal and reverse Steps 1 through 4, being sure to place silicone rubber washer between liner elbow fitting and bottom of liner.

Control Circuit Transformer - Part Number 515043

1. Shut off power to urn.
2. Remove access cover from control housing.
3. Disconnect wiring from transformer.
4. Remove transformer fastening screws.
5. Replace transformer; check primary wiring against instructions on transformer for voltage being used.
6. Reconnect leads per schematic in Technical Manual or on Nameplate.
7. Replace access cover and turn on power.

Electric Contactor - Figure 18

1. Shut off power to urn.
2. Remove access cover from control housing.
3. Disconnect all power cables and 120 volt coil wiring.
4. Remove contactor fastening screws; remove contactor.
5. Install new contactor.
6. Reconnect 120 volt to coil and power cables to clamp type connections on contactor (all power cable connections to be tightened down securely).
7. Replace access cover to control housing.
8. Turn on power to urn.

Solenoid Valve - Brew/Refill Water - Pan Number 505023 - Figure 19

Regulator - Water - Part Number 505021

[*]This type heater commences with serial number 972-683.

1. Shut off power to urn.
2. Shut off water supply to urn.
3. Remove access cover from control housing.
4. Disconnect 2 brew/refill water solenoid valves from electric circuit.
5. Disconnect tube flare nut on water supply at Y strainer.

If slip joint assembly, remove as follows:

6. Grasp complete water supply assembly in control housing with 2 hands and pull straight out-holding on even plane-connection into urn at front and rear are slip joint type (no lock nuts).

* If union flare nut assembly, remove as follows:

7. Support complete water supply assembly in control housing with one hand and disconnect one flare nut at each end of assembly.
8. Disassemble assembly to replace either water regulator Part Number 505021 or water solenoid valves - brew or refill - entire plumbing 1/4″ NPT.
9. Reassemble.
10. Install in urn reversing procedure outlined above.

NOTE

If slip joint assembly, replace o-rings (elastomer kit - Part Number 521021) on male slip fitting and lubricate with silicone grease before installing in urn. Also line up on horizontal plane before installing to prevent shearing o-rings.

11. Reconnect wiring to solenoid valves - see schematic in Technical Manual or an Nameplate.
12. Turn on power and water supply.
13. Adjust water pressure regulator for proper brew flow per instructions

Electrode Assembly - Part Number 518005 - Figure 16

1. Shut off power to urn.
2. Remove access cover from control housing.
3. Disconnect Red and Green wires from H (high) and L (low) terminals on liquid level control.
4. Trace Red and Green wire to upper right control housing. Remove 1-1/16 hex electrode packing nut.
5. Grasp molded composition electrode holder and turn 90° counterclockwise, working gently, remove entire assembly from urn.
6. Place identifying mark on top of new electrode holder for vertical positioning in urn.
7. With electrodes in horizontal position, electrodes pointing towards operator’s side of urn, insert electrode into urn, line up to vertical position by turning clockwise 90°.
8. Screw on electrode packing nut, hand tighten only.
9. Rewire per schematic in Technical Manual or on Nameplate.
10. Replace control housing access cover.

*This type assembly commences with serial number 972-1429.

11. Turn on power.

Timer - Part Number 507028 - Figure 11

1. Shut off power to urn, and remove access cover from control housing.

2. Disconnect all wiring from timer.

3. Remove 2-6/32 screws from timer dial on front panel of control housing.

4. Push timer into control housing and remove.

5. Install new timer through inside of control housing.

6. Position dial plate over timer on front panel control housing, and fasten timer with 2-6/32 screws.

7. Rewire per schematic in Technical Manual or on Nameplate. Exercise care not to bond terminal tabs on micro switch; shorts can result.

8. Replace control housing access cover, and turn on power.

9. Adjust timer as desired.

Liquid Level Control - Part Number 505002 - Figure 12

1. Shut off power to urn, and remove access cover from control housing.

2. Disconnect wiring from all terminals.

3. Remove and replace entire liquid level control. (Never replace an individual part on above).

4. Rewire per schematic in Technical Manual or on Nameplate.

5. Replace control housing access cover and turn on power.

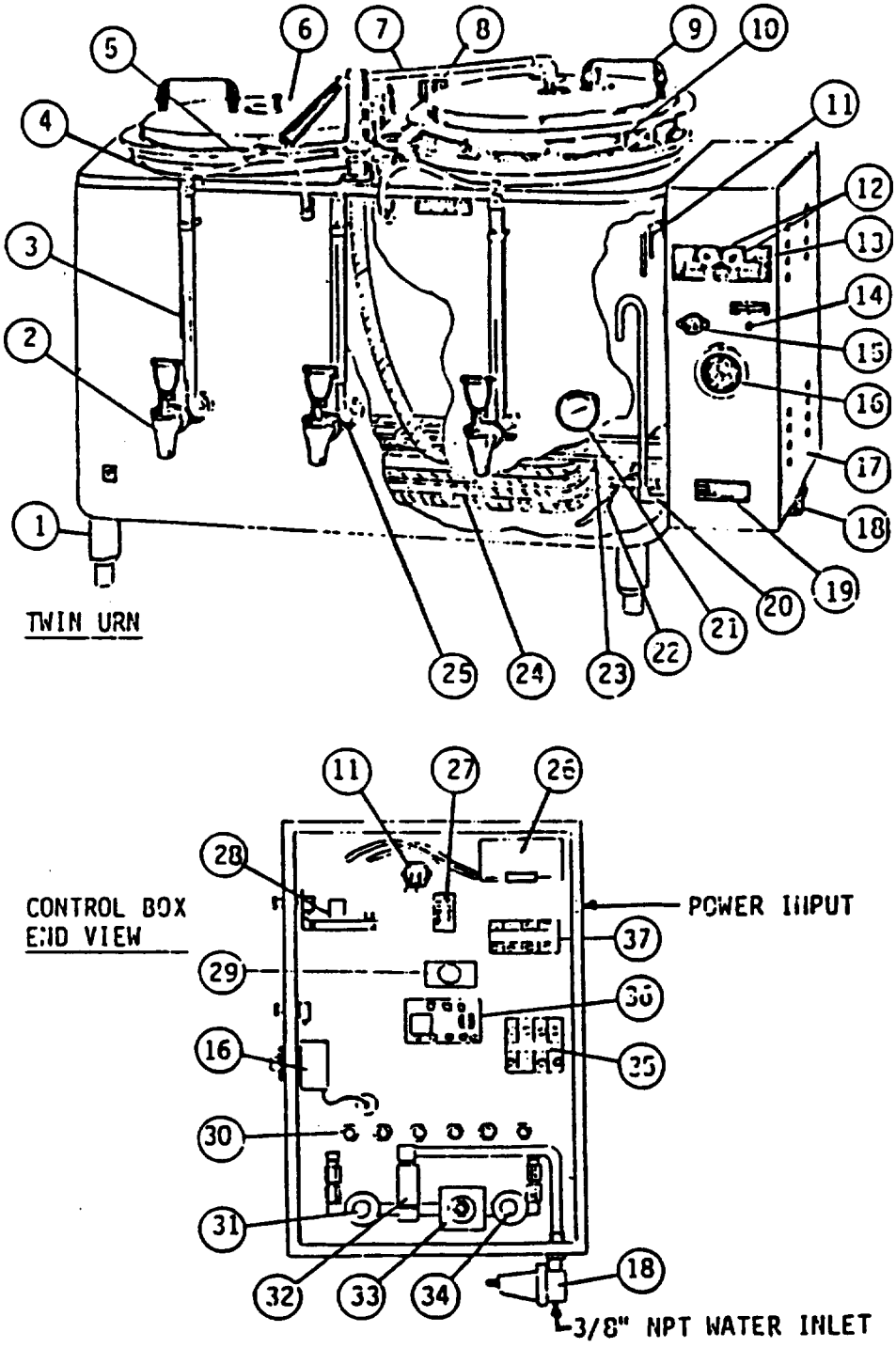


Figure (6) ILLUSTRATED PARTS BREAKDOWN 7400 SERIES

PART NUMBERS & QUANTITY REQUIRED FOR 1 YEAR

Part Numbers and Quantities

FIG. & REF.	DESCRIPTION	7413 7413EX	7443 7443EX	7444 7444EX	7416 7416EX	7446 7446EX	MANUFAC-TURER	MFR. CODE	MFR. PART NO.
3	GAGE SHIELDS								
	522003-Coffee	1	2				Tomlinson Ind.	87294	A-78-10-1/2
	522002-Water	1	1					87294	A-78-9-1/2
	522004-Coffee			2				87294	A-78-13
	522047-Water			1				87294	A-78-12
	522005-Coffee				1	2		87294	A-78-15
	522046-Water				1	1		87294	A-78-14
3	GAGE SHIELDS								
	522033-Coffee	1	2				Tomlinson Ind.	87294	18-6830-80-10-1/2
	522032-Water	1	1					87294	18-6830-81-9-1/2
	522034-Coffee			2				87294	18-6830-81-13
	522049-Water			1				87294	18-6830-81-12
	522035-Coffee				1	2		87294	18-6830-81-15
	522048-Water				1	1		87294	18-6830-81-14
3	GAGE GLASS SHIELDS								
	542050-Upper	2	3	3	2	3		87294	19-668600
	542052-Lower	2	3	3	2	3		87294	19-666200
10	SS BAG RINGS								
	542055-3-4 gal	1	2	2			Am. Metal Ware	02594	
	542011-6 gal				1	2		02594	
10	MUSLIN CLOTH FILTERS								
	542050-3-4 gal	10	20	20			Gen. Bag Co.	20011	14x9
	542052-6 gal				10	20		20011	17x9
2	522094-Faucet-Coffee/Water	1	1	1	1	1	Tomlinson Ind.	87294	Model S
2	522102-Faucet Seat Cup	2	3	3	2	3		87294	3-S-7
12	515016-Brew Pilot Light-5/16	1	1	1	1	1	Leecraft	95263	36N2313
7 31-34	521021 Urn Elastomer Kit	1	1	1	1	1		02594	

Part Numbers and Quantities - Continued

FIG. & REF.	DESCRIPTION	7413 7413EX	7443 7443EX	7444 7444EX	7416 7416EX	7446 7446EX	MANUFAC-TURER	MFR. CODE	MFR. PART NO.
9	513006-Urn Handle Kit	1	1	1	1	1		02594	
28	507028-Timer-NCC	1	1	1	1	1	National Controls	28081	TAM-1432-120
36	505002-Liquid level Control	1	1	1	1	1		02594	
11	518005-Electrode Assbly.	1	1	1	1	1		02594	
16	504001-Elect. Thermostat	1	1	1	1	1	Robertshaw Cntrls	77857	KX-136-36
31-34	505023-Solenoid-Brew/Refill	1	1	1	1	1	ITT Gen. Controls	60219	S-301PMO2V3BD7
31-34	505010-Wrench for Solenoid	1	1	1	1	1		60219	106198E6
21	506001-Thermometer-Water	1	1	1	1	1		02594	
33	505021-Regulator, Sprayover	1	1	1	1	1		02594	
7	1214015-Spray Arm Assbly.	1	1	1				02594	
7	1214019-Spray Arm Assbly.				1	1		02594	
	520001-Silicone Liner Washer	2	4	4	2	4		02594	
35	514005-Contactor-Pole	1	1	1	1	1	Furnas Elect.	23826	42CE25AF2
15	515072-Circuit Breaker-120V	1	1	1	1	1		02594	
31-34	505013-Rep. Kit-505023 Solenoid	1	2	2	1	2		02594	
33	505026-Rep. Kit-505021 Regultr.	1	1	1	1	1		02594	
23	Elect/Immersion Htrs.-End Mntd.							02594	
	A-668-1-(208V-8.5KW-1PH)				2	2		02594	

FIG. & REF.	DESCRIPTION	7413 7413EX	7443 7443EX	7444 7444EX	7416 7416EX	7446 7446EX	MANUFAC-TURER	MFR. CODE	MFR. PART NO.
	A-668-2-(208V-5.5KW-1PH)	2						02594	
	A-668-5-(208V-6.0KW-1PH)		2	2				02594	
	A-668-1-(240V-11.5KW-1PH)				2	2		02594	
	A-668-2-(240V-7.0KW-1PH)	2						02594	
	A-668-5-(240V-8.0KW-1PH)		2	2				02594	
	A-668-2-(208V-8.0KW-3PH)	3	3	3				02594	
	A-668-4-(208V-11.5KW-3PH)				3	3		02594	
	A-668-2-(240V-10.5KW-3PH)	3	3	3				02594	
	A-668-5-(240V-12.0KW-3PH)				3	3		02594	
	A-668-7-(480V-12.0KW-3PH)	3	3	3	3	3		02594	

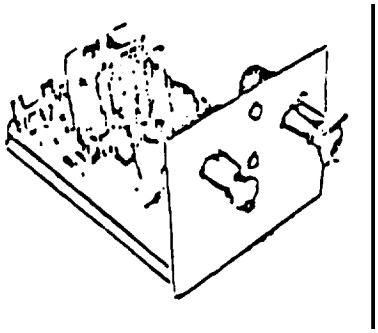


Figure (11) 507028 NCC Timer

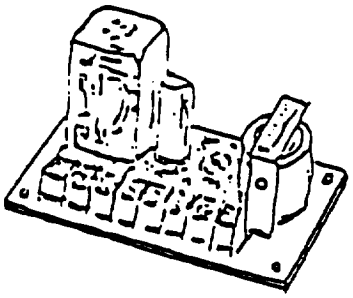


Figure (12) 505002 Liquid Level Control

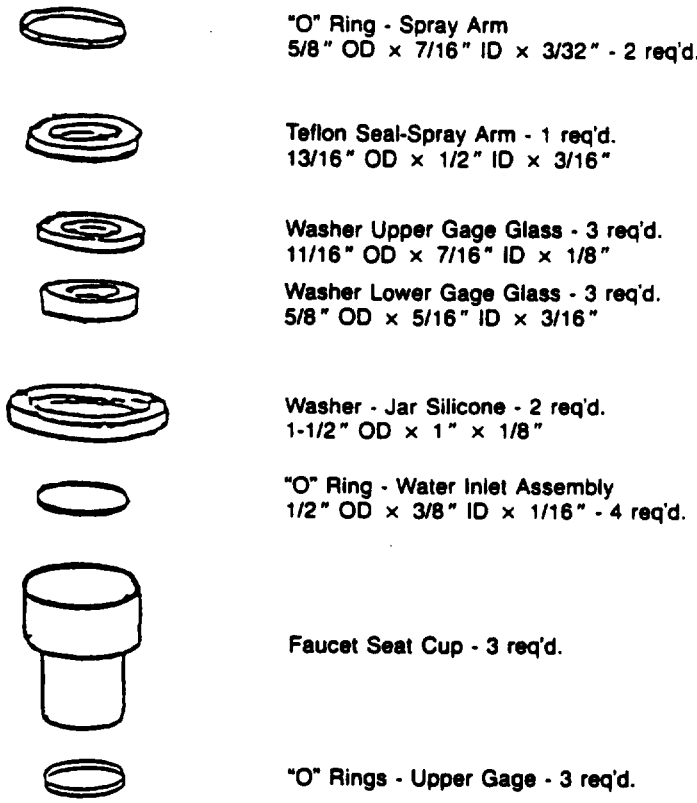


Figure (13) 521021- Urn Elastomer Kit

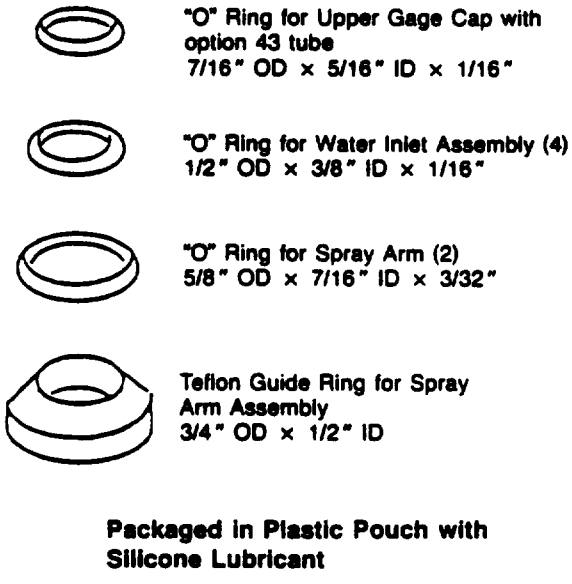


Figure (14) Seal Kit P/N 521028

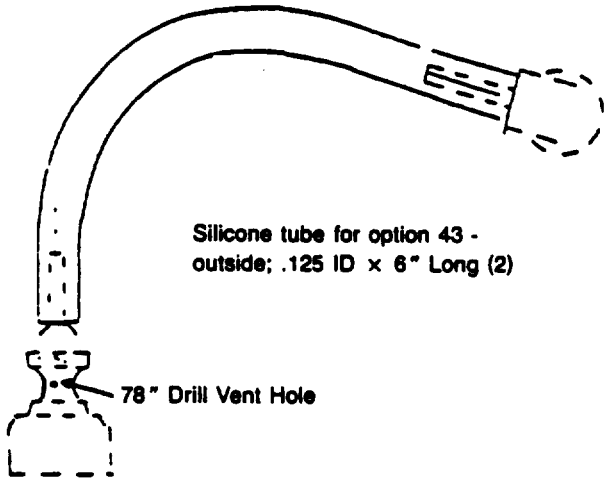


Figure (15) Option 43 Outside Tube Kit P/N 512015 When Supplied.

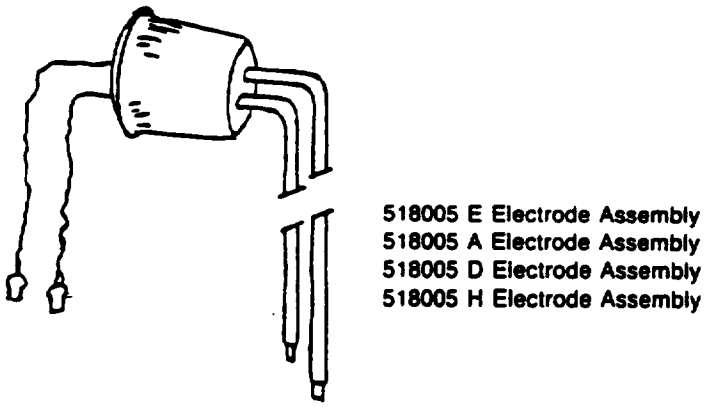
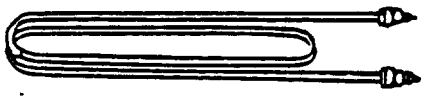
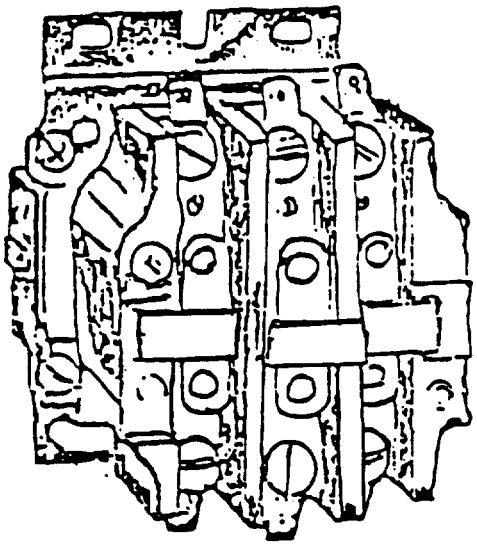


Figure (16)



503052 Electric Heater
A-668-2 Electric Heater
A-668-3 Electric Heater
A-668-4 Electric Heater
A-668-6 Electric Heater
A-668-7 Electric Heater
A-668-1 Electric Heater
A-668-5 Electric Heater

Figure (17)



514009 - Heater Contactor
514007 - Heater Contactor
514002 - Heater Contactor

Figure (18)

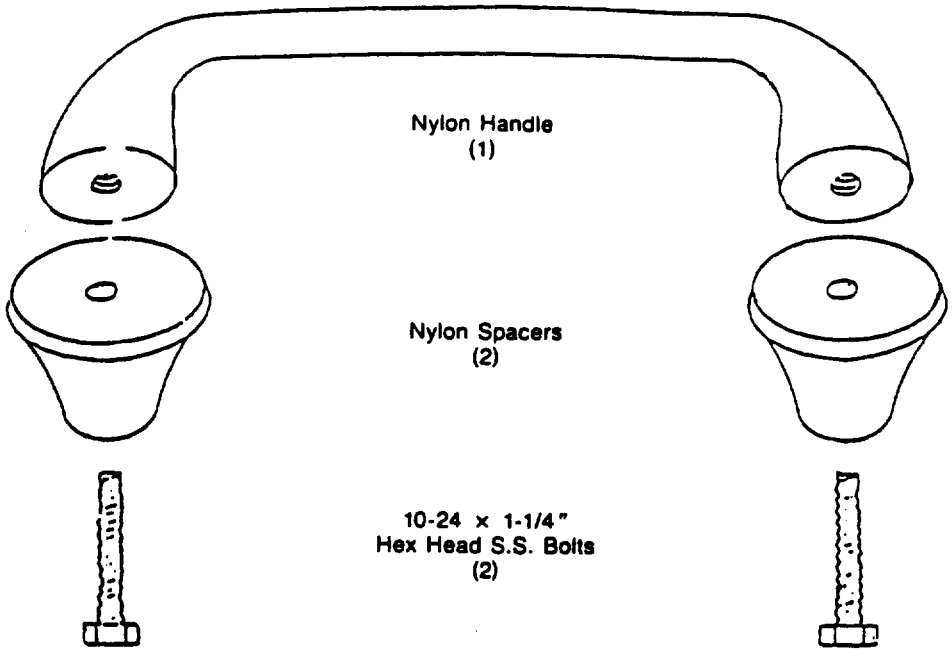


Figure (19) .5CC Disposable Tube of Loctite 271 Cover Handle Kit for Automatic Urns P/N 513001

SECTION
INSTALLATION AND SERVICE

DESCRIPTION

S301 Standard Open Frame Solenoid Valve is a 2-way, normally closed, direct acting, general purpose type. All stainless steel construction with optional synthetic seating and sealing materials.

Valves my be mounted in any position. A spring loaded plunger assures positive shutoff. CS4 solenoid coil is rated at 10 watts.

SPECIFICATIONS

Safe working pressure-psi: See Valve nameplate.

Maximum Flow Media Temp. at 77°F (25°C) ambient Class ″A″ (M) Coil: 185°F (85°C)

On-off cycling-300cpm, max.

Cv Factor-

Port	Cv
3/64″	.05
1/16″	.10
3/32″	.21
1/8″	.36
5/32″	.44
3/16″	.65
1/4″	.85
3/8″	1.70

INSTALLATION

Check valve specification to make sure of proper application.

CAUTION

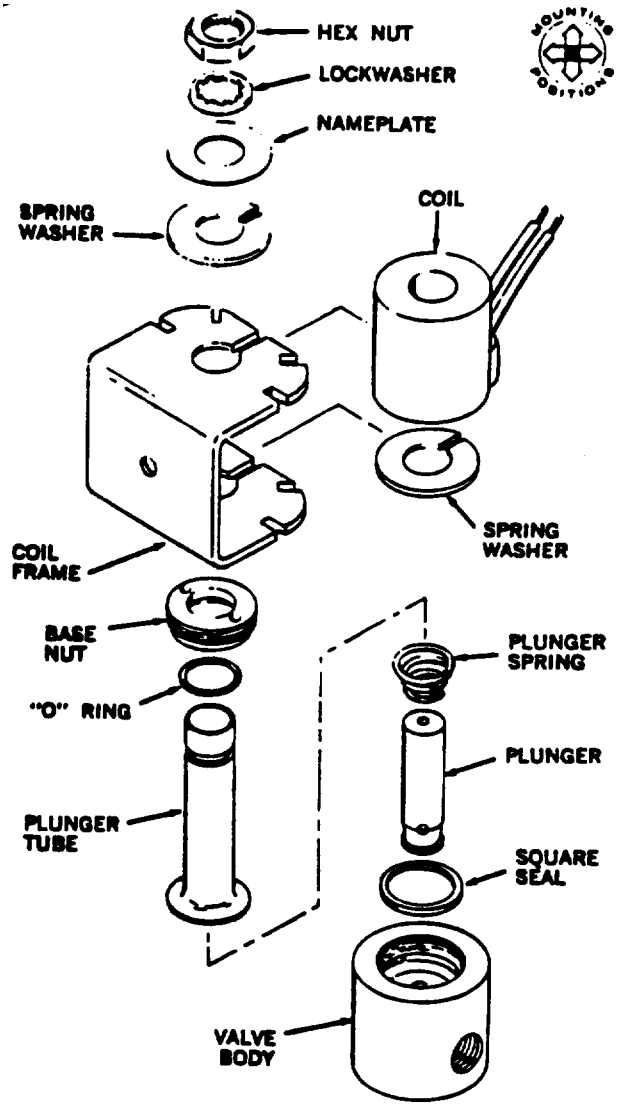
This solenoid valve should be installed only by a qualified service person.

1. Clear all lines of foreign matter.
2. Valves are multipoised and may be mounted in any position. Flow must be in direction indicated on valve body.

CAUTION

Valves with ″W″ in 5th digit position of valve catalog number must be mounted on a horizontal pipe line with solenoid in an upright position.

3. Apply thread seal sparingly to male threads only.
4. Provide clearance for solenoid removal
5. Wire in accordance with applicable national and local codes.



S301 Standard Open Frame Solenoid Valve

SERVICE AND REPAIR

WARNING

Disassembly, reassembly or internal adjustment without factory test may result in hazardous condition. If control does not operate properly after following the INSTALLATION and SERVICE Instructions, complete control must be replaced by qualified person.

S301 standard solenoid valves provide dependable operation for many years. However, foreign matter between valve seat and disc can cause leakage.

VALVE DISASSEMBLY

1. Unscrew hex nut from plunger tube to remove lock-washer, nameplate and spring washer.
2. Lift coil frame, coil and bottom spring washer from valve body. Be careful, do not disarrange solenoid assembly.
3. Use ITT/GC wrench No. 63591A to remove solenoid base nut and plunger tube from valve body. Be careful, do not nick, dent or damage plunger tube or seating surfaces.
4. Slip base nut from plunger tube and check ″O″ ring for damage.
5. Remove plunger assembly and spring from body. Check plunger seating surface for damage and wear.
6. Check square seal ring and valve body seating surface for damage.
7. Reassemble in reverse order.

NOTE

Tighten base nut 18 to 24 inch pounds.

Field replacement parts and instructions are included in available kits. Order these parts kits from Form No. SDPS30-1.

COIL REPLACEMENT

Turn off electric power to solenoid. Disconnect solenoid leads. It is not necessary to remove valve from pipeline.

Follow steps 1 and 2 under VALVE DISASSEMBLY.

When disassembling solenoid take care to note exact order of placement and quantity of parts. Incorrect reassembly can cause coil burnout. Be careful, do not nick, dent or damage plunger tube.

DIRECTORY

Manufacturers/Suppliers for Component Parts

Mfg. Code	
23826	Furnas Electric 6 1000 McKee St. Batavia, IL 60510
20011	General Bog Co. 3368 W. 137th St. Cleveland, Ohio 44111
60219	ITT/General Controls 801 Allen Ave. Glendale, CA 91201

Manufacturers/Suppliers for Component Parts - Continued

Mfg. Code	
95263	Leecraft 21-37-44th Rd. Long Island City, NY 11101
28081	National Controls Corp. 9311 N. DuPage Ave. Lombard, IL 60148
77857	Robertshaw Controls New Stanton Division Youngwood, PA

Recommended Coffee Urn Cleaners

″DIP-IT″	Economics Laboratories Inc. 4 Corporate Park Drive White Plains, NY 10604
″OXYLITE″	Avril, Inc. Syndet Division 601 N. Third St. Reading, PA 19601