

**WHEATON**  
**SPLIT-STREAM AUTOSTILL 5**  
**CATALOG NUMBER 901850**  
**INSTRUCTION MANUAL**

## WARRANTY

WHEATON INSTRUMENTS WARRANTS THIS PRODUCT TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SHIPMENT. IF REPAIR OR ADJUSTMENT IS NECESSARY WITHIN THE WARRANTY PERIOD AND HAS NOT BEEN THE RESULT OF MISHANDLING OR ABUSE, YOU MAY RETURN THE UNIT FREIGHT PREPAID, PROVIDED THAT RETURN AUTHORIZATION HAS BEEN OBTAINED. WHEATON INSTRUMENTS WILL CORRECT THE DEFECT OR ADJUST THE UNIT AT NO CHARGE.

ITEMS RETURNED FOR REPAIR OR ADJUSTMENT SHOULD BE PACKED VERY CAREFULLY TO PREVENT DAMAGE IN TRANSIT AND ALSO SHOULD BE INSURED FOR YOUR PROTECTION. SHOULD YOUR UNIT ARRIVE DAMAGED AS A RESULT OF TRANSIT, YOU WILL NEED TO ENTER A CLAIM AGAINST THE CARRIER. THE SHIPPING CARTON SHOULD NOT BE DISCARDED BUT RETAINED UNTIL INSPECTION BY A REPRESENTATIVE OF THE CARRIER IS MADE.

WHEATON INSTRUMENTS WILL REPAIR OR ADJUST OUT OF WARRANTY PRODUCTS AT A NOMINAL CHARGE.

## GENERAL SAFETY INSTRUCTIONS

**NOTE: EVEN THE SAFEST EQUIPMENT CAN CAUSE INJURY IF THE USER IS CARELESS.**

1. **KNOW YOUR INSTRUMENT**  
Read the operating manual carefully. Learn the equipment's application and limitations as well as the specific potential hazards peculiar to this instrument.
2. **GROUND ALL EQUIPMENT**  
If electrical, this instrument is equipped with an approved 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding type receptacle. The green conductor in the cord is the grounding wire, and should never be connected to a live terminal.
3. **AVOID DANGEROUS ENVIRONMENT**  
Electrical instruments designed to process liquids must be operated with extreme caution. If liquid comes in contact with internal electrical components or wires, fire or electric shock may occur. Adequate surrounding work space should be provided during use. Do not operate electrical instrumentation in a combustible atmosphere.
4. **WORK SURFACE**  
Keep area well lighted. Be certain the work surface is clean, level, and sturdy enough to support the weight of the unit, particularly if it is to be filled with liquid.
5. **WEAR PROPER APPAREL**  
Do not wear loose clothing, neckties, or jewelry that might get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair
6. **WEAR SAFETY GOGGLES**  
Wear safety goggles at all times. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
7. **DON'T OVERREACH**  
Keep proper footing and balance at all times.
8. **MAINTAIN INSTRUMENT WITH CARE**  
Keep screws tight and unit clean. Check periodically for worn or damaged parts. Inspect the plug and cord before each use. Do not operate this instrument if there are signs of damage.
9. **AVOID ACCIDENTAL START UP**  
If electrical, always make sure switch is in the "OFF" position before plugging instrument into outlet.
10. **DISCONNECT INSTRUMENT**  
Always disconnect the instrument from the power source before servicing.

Please familiarize yourself with the following safety notes which will appear throughout the operating manual:

**DANGER!** - Failure to follow these instructions could result in personal injury or death.

**WARNING!** - Failure to follow these instructions could result in personal injury.

**IMPORTANT!** - Failure to follow these instructions could result in damage to the equipment.

## SPECIFICATIONS

POWER REQUIREMENTS:	208-240 VAC, 50/60 HZ, 3600 WATTS
CURRENT DRAIN:	17.3 AMPS AT 208V 16.4 AMPS AT 220V 15.0 AMPS AT 240V
DIMENSIONS:	28" H x 17 3/8" W x 10" D (71 x 44.4 x 25.4 CM)
WEIGHT:	45 LBS. (20.4 KG)
WATER SUPPLY PRESSURE:	5 PSI MINIMUM
HEATING ELEMENTS:	THREE 1200 WATT QUARTZ SHEATHED HEATERS
CONTROLS:	TWO FLOWMETERS TWO SWITCH/CIRCUIT BREAKERS
SAFETY FEATURES:	BUILT IN CIRCUIT BREAKERS AUTOMATIC "FULL DISTILLATE" CUT OFF AUTOMATIC LOW WATER LEVEL CUT OFF AUTOMATIC LOW WATER PRESSURE CUT OFF AUTOMATIC POWER FAILURE WATER CUT OFF AUTOMATIC OVER TEMPERATURE CUT OFF
TYPICAL COOLING WATER INPUT:	56 LITERS PER HOUR *
TYPICAL BOILER WATER INPUT:	5.35 LITERS PER HOUR *
TYPICAL DISTILLATE OUTPUT:	5.00 LITERS PER HOUR *
TYPICAL DISTILLATE TEMPERATURE:	185 DEG. F (85 DEG. C) *
TYPICAL WATER RESISTIVITY:	3.5 MEGOHMS/CM *

\* All tests based on local municipal water supply of 35 psi, and operation at 220 VAC, 16.4 amps. Analysis available upon request.

## INTRODUCTION

The Wheaton Split Stream Autostill 5 is a fully automatic water still capable of producing over five liters of high resistivity, high purity, pyrogen free distillate per hour. It may be bench-top operated utilizing the four adjustable feet, or wall mounted by employing an optional wall mounting bracket, cat. #901801. A full array of safety features are incorporated into the Autostill 5. These include automatic power cut off to the heaters in the event of low cooling water pressure, insufficient boiler water level, or excessive boiler temperature. Additionally, two water inlet solenoids automatically shut off water to the condenser and boiler in the event of power failure. An included pressure sensing device automatically shuts off water and power when the distillate reservoir (not included) becomes full.

## GROUNDING INSTRUCTIONS

**WARNING! IMPROPER GROUNDING CAN RESULT IN ELECTRICAL SHOCK. IN THE EVENT OF A SHORT CIRCUIT, GROUNDING REDUCES THE RISK OF SHOCK BY PROVIDING AN ESCAPE PATH FOR THE ELECTRIC CURRENT. THIS INSTRUMENT MUST BE GROUNDED.**

1. Due to the wide variety of 220 vac outlet configurations, a plug is not supplied with this instrument. The proper plug must be obtained locally and connected to the line cord.
2. If desired, the still may be wired directly into an approved junction box with a supply line capable of handling a 20 amp load. The black and the white wire in the six foot line cord are the "hot" wires, and the green wire is the ground.
3. Inspect the plug and cord before each use. Do not operate this instrument if there are signs of damage.

**DANGER! ELECTRICAL SHOCK HAZARD. WHEN REPAIRING OR REPLACING THE CORD OR PLUG, KEEP THE GROUNDING WIRE SEPARATE FROM THE CURRENT CARRYING WIRES. NEVER CONNECT THE GROUNDING WIRE TO ONE OF THE FLAT BLADE PLUG TERMINALS. THE GROUNDING WIRE HAS GREEN INSULATION AROUND IT.**

If these grounding instructions are not completely understood, or if you are not sure your instrument is properly grounded, have the installation checked by a qualified electrician.

## INSTRUMENT SET-UP (refer to figs. A & C)

**NOTE! EACH STILL IS TESTED AND ADJUSTED AT THE FACTORY BEFORE SHIPMENT, WHICH MAY CAUSE A SLIGHT DISCOLORATION OF THE GLASSWARE AND HEATERS.**

1. Carefully unpack unit, being sure to save the box and packing materials to facilitate returning the unit in the event it should require servicing.

## **INSTRUMENT SET-UP (continued)**

2. Remove the heating elements (16), packed inside the cabinet, and carefully set aside in a safe place.
3. Loosen, but do not remove the two screws holding the condenser (13) and rotate the condenser toward the boiler (27). Remove the foam condenser packing block from the cabinet, and save it with the other packing materials.
4. Lower the condenser until the male ball joint fits into the female ball joint of the boiler. Tighten the condenser bracket (11).

**IMPORTANT! CARE MUST BE TAKEN NOT TO OVERTIGHTEN THE CONDENSER CLAMP, AS THE CONDENSER IS DELICATE AND EASILY BROKEN.**

5. Install the heating elements by lowering them, one at a time, through the three large holes in the top of the cabinet, and into the boiler. It is recommended to install the rear element first. Secure the heaters to the boiler by screwing the plastic male connectors (17) on the boiler into the female connectors located on the heaters. It is only necessary to hand tighten the black plastic fittings.
6. Insert the three heater plugs (15) into the three receptacles on the inside of the cabinet. The plugs are keyed and must be properly aligned with the receptacle before they can be inserted. After each plug is inserted, it should be turned clockwise to lock it in place. You may insert any plug into any receptacle.

## **WATER CONNECTIONS (refer to figs. A, B & G)**

**DANGER! DUE TO THE POTENTIALLY HAZARDOUS COMBINATION OF WATER AND ELECTRICITY, EXTREME CARE MUST BE TAKEN WHEN CONNECTING WATER LINES TO THE STILL. NEVER ALLOW WATER TO ENTER THE STILL CABINET, OR POOL UNDER THE STILL. ALL WATER CONNECTIONS MUST BE SECURELY CLAMPED WITH SUITABLE HOSE CLAMPS.**

1. Due to the unique design of the Wheaton Split Stream Autostill 5, two separate input water supplies may be used, one for cooling and one for boiler feed.
2. It is highly recommended that pre-treated water be utilized for the boiler feed water. In addition to providing higher distillate quality, the accumulation of plaque within the boiler will be greatly reduced or eliminated. An excellent choice for this purpose is the Wheaton Ion-Exchange System, catalog #901950.
3. For split stream operation, (separate cooling water and boiler water inputs) connect the cooling water line (tap water) to the brass hose connector on the cooling water solenoid as shown in figure A. Connect the boiler feed water line (pre-treated) to the brass hose connector on the boiler water solenoid as shown in figure A.

## WATER CONNECTIONS (continued)

4. Water connections should be made using 1/4" I.D. high pressure hose. Make certain the connections are secured with suitable hose clamps (not supplied) at both ends.
5. If only one water supply is used for both cooling and boiler water feed, connect the water supply as shown in figure B using a "Y" connector (not supplied).
6. The distillate line and the pressure sensor line should be connected to the reservoir level sensor as shown in figure G. The reservoir level sensor detects a full reservoir condition, and shuts the still down automatically. This should be placed into a reservoir with a neck opening of at least 1 1/2" and not more than 2 1/4", such as the Wheaton 5 gallon collection bottle #901860.
7. The external drain line (not supplied) should be attached to drain connection, and routed to a suitable sink drain. Make certain it is not kinked, or higher at any point than the bottom of the boiler.

## ELECTRICAL CONNECTIONS

**WARNING! EXTREME CARE MUST BE TAKEN WHEN PLUGGING EQUIPMENT INTO LIVE AC POWER OUTLETS. NEVER TOUCH BARE, EXPOSED PLUG BLADES AS THEY ARE BEING INSERTED INTO THE OUTLET, AS SEVERE ELECTRIC SHOCK WILL RESULT.**

**DANGER! GROUNDING INSTRUCTIONS AT THE BEGINNING OF THIS MANUAL MUST BE FOLLOWED EXPLICITLY. FAILURE TO DO SO MAY RESULT IN SEVERE ELECTRIC SHOCK OR ELECTROCUTION.**

1. Due to the wide variety of 220 vac outlet configurations, a plug is not supplied with this instrument. The proper plug must be obtained locally and connected to the line cord.
2. If desired, the still may be wired directly into an approved junction box with a supply line capable of handling a 20 amp load. The black and the white wire in the six foot line cord are the "hot" wires, and the green wire is the ground.

**DANGER! DIRECT WIRING OF THE STILL SHOULD ONLY BE PERFORMED BY A QUALIFIED, LICENSED ELECTRICIAN. THE 220 VOLT POWER THIS INSTRUMENT REQUIRES IS EXTREMELY DANGEROUS, AND CAPABLE OF DELIVERING A LETHAL ELECTRIC SHOCK.**

3. The still should be connected to the source of AC power at this time, but the power and fill switches should remain in their off position.

## CONTROLS AND THEIR FUNCTIONS (refer to fig. A)

### FILL SWITCH

The fill switch is used to apply power to the water input solenoids during the initial start up procedure.

### POWER SWITCH

The power switch is used to apply power to the heaters. With the power switch in the ON position, power will only be applied to the heaters if there is adequate water being supplied to both the boiler and the condenser.

### FILL LIGHT

The fill light indicates that power is being applied to the solenoids. The fill light is only activated when the fill switch is in the ON position.

### POWER LIGHT

The power light indicates that power is being applied to the heaters. The power light is only activated when the power switch is in the ON position.

### BOILER WATER FLOWMETER

The boiler water flowmeter (CC/MIN) is used to control the volume of water being supplied to the boiler.

### COOLING WATER FLOWMETER

The cooling water flowmeter (GPH) is used to control the volume of water being supplied to the condenser.

## OPERATION (refer to figs. A, C & E)

**DANGER! GROUNDING INSTRUCTIONS AT THE BEGINNING OF THIS MANUAL MUST BE FOLLOWED EXPLICITLY. FAILURE TO DO SO MAY RESULT IN SEVERE ELECTRIC SHOCK OR ELECTROCUTION.**

1. Be certain the boiler drain clamp (24) at the bottom of the boiler (27) is closed.
2. The fill switch should be turned on at this time; if the unit is connected and operating properly, the fill light will illuminate.
3. Slowly and carefully turn on the water line or lines leading to the still.

**DANGER! THE WATER LINES MUST BE SECURELY CLAMPED AT BOTH ENDS BEFORE THE STILL CAN BE SAFELY OPERATED.**



## OPERATION (continued)

4. Adjust the flowmeters (20 & 21) for approximately 50% of full volume. If necessary, adjust the water supply faucet(s) as well, until a stable reading is achieved.
5. The power switch may be turned on at this time; the power light will not illuminate until the water in the boiler reaches a safe operating level.
6. Once the water has achieved constant level in the boiler and water is flowing through the side port in the constant level device (8), the power light will come on, and power will be applied to the heaters.

**NOTE! DURING OPERATION, THE HEATERS WILL GLOW DULL RED OR ORANGE. SOME HEATERS MAY NOT GLOW AS BRIGHTLY AS OTHERS. THIS IS NORMAL AND IS NOT AN INDICATION OF A MALFUNCTION.**

7. After the heaters begin glowing, the fill switch should be turned off.

**IMPORTANT! ALWAYS TURN THE FILL SWITCH OFF AFTER THE STILL IS OPERATIONAL TO ENSURE PROPER OPERATION OF THE SAFETY FEATURES.**

8. After the still has been operating for approximately 15 minutes, the flow rates should be adjusted. The boiler water flowmeter should be adjusted for minimum water discharge to drain. The cooling water flowmeter should be adjusted for minimum steam discharge from the condenser steam vent (shown in figure E).
9. Once the flow rate is set, the still should continue to operate until the reservoir becomes full, and automatically shut off. Extreme water pressure fluctuations may cause premature shut down. If this occurs, turn the fill switch back to the ON position, and the heaters will shortly return to the "power on" condition. Once again, at this point be certain to place the fill switch in the OFF position. If there does tend to be a wide fluctuation in your water pressure, the flow rate should be increased or water pressure regulator(s) should be purchased, and installed in the water supply line(s) ahead of the still.
10. When changing or removing the reservoir, both the power and fill switches should be in the OFF position. Once the reservoir level sensor is replaced in your reservoir, the fill and power switches should be returned to the ON position. After the water flow is regained, and the heaters are activated, the fill switch should again be returned to the OFF position.
11. In the event a primary safety feature should fail to shut the still down during a period of insufficient water flow, a thermal switch (26) located behind the boiler will activate, and shut the power to the still off. If this should occur, the thermal switch can be reset by depressing the small stud on the back of switch until a slight click is felt.

**DANGER! NEVER ATTEMPT TO SERVICE THE STILL WHEN IT IS HOT OR CONNECTED TO THE POWER SOURCE. SEVERE BURNS, ELECTRIC SHOCK, OR ELECTROCUTION CAN OCCUR.**

## **MAINTENANCE**

Routine user maintenance should include a regular inspection of the tubing and glassware for leaks or cracks. Many service problems can often be cured by simply replacing a defective piece of tubing. If hairline cracks or chips are present in the glass components, they should be promptly replaced. Tubing connectors and fittings should be checked for leaks, and tightened or replaced if necessary. Heaters should be inspected on a regular basis, and replaced if found defective. The boiler and condenser should be cleaned periodically as scale and plaque deposits build up on their inner surfaces.

### **CLEANING THE BOILER (refer to fig. C)**

**DANGER! NEVER ATTEMPT TO SERVICE THE STILL WHEN IT IS HOT OR CONNECTED TO THE AC POWER SOURCE. SEVERE BURNS, ELECTRIC SHOCK, OR ELECTROCUTION CAN OCCUR.**

**WARNING! EXTREME CAUTION MUST BE EXERCISED WHEN HANDLING STRONG ACIDS. PROTECTIVE CLOTHING AND GOGGLES MUST BE WORN WHEN CLEANING GLASSWARE WITH ACID.**

1. Disconnect the still from the source of AC power, and shut off the water supply at the source. Be certain the boiler is completely drained.
2. Loosen the condenser clamp (11) and raise the condenser (13) up, and swing it away from the boiler (27). Carefully remove the heaters (16) from the still and put them in a safe place.
3. Loosen the plastic fitting (22) securing the constant level device (8) to the boiler, and remove it from the boiler.
4. Loosen the plastic fitting (23) securing the drain hose to the bottom of the boiler, and remove it from the boiler.
5. While supporting the boiler, remove the two wing-nuts on the boiler support bracket (18) and remove it. Carefully remove the boiler from the still and place it on a clean, level work surface.

**IMPORTANT! MOST ACCIDENTS RESULTING IN BROKEN GLASSWARE OCCUR DURING THE REMOVAL/CLEANING/INSTALLATION PROCESS. IT CANNOT BE OVER-STRESSED THAT EXTREME CARE MUST BE TAKEN AT ALL TIMES WHEN HANDLING GLASS COMPONENTS.**

6. Plug the drain at the bottom of the boiler with a small stopper, and pour in 2 1/2 liters of 10% HCL through the steam outlet ball joint.
7. After the acid has cleaned the boiler, drain and flush several times.
8. Reinstall the boiler, and re-connect the still to the AC power source.

**NOTE! WHEN STILL IS REACTIVATED, DISTILLATE SHOULD BE DRAINED OFF UNTIL ACID AND CONDUCTIVITY LEVELS RETURN TO NORMAL.**

## **CLEANING THE CONDENSER (refer to fig. C)**

1. Disconnect the still from the AC power source, and shut off the water supply at the source.
2. Remove the cooling water lines from the condenser (13), and replace with enough tubing to extend outside the cabinet.
3. If a pump is available, pump 10% HCL solution through the condenser until clean. If a pump is not available, carefully pour solution into the top hose using a polypropylene funnel. Be sure and route the lower hose to a suitable container.
4. Repeat step #2 until the condenser is clean. Flush, remove cleaning lines, and re-connect inlet and outlet water lines.

## **ELECTRICAL COMPONENTS AND THEIR FUNCTIONS (refer to figs. D & F)**

### **RELAY #1**

Relay #1 is only activated when the fill switch is in the ON position. When the fill switch is turned on, the normally open contacts, 2 and 4, close and apply power to the water input solenoids.

### **RELAY #2**

Relay #2 is used to apply power to the heaters. When there is adequate water flow to activate the flow sensor circuit, the coil of relay #2 is pulled in, allowing power to be applied to the heaters.

### **CONSTANT LEVEL FLOAT SWITCH (input water sensor)**

The constant level float switch is used as part of a series circuit to activate the relay control circuit board. The switch is activated when adequate boiler input water is present.

### **COOLING WATER SENSOR**

The cooling water sensor is used as part of a series circuit to activate the relay control circuit board. This switch is activated when adequate cooling water is being discharged from the condenser.

### **RELAY CONTROL CIRCUIT BOARD**

The relay control circuit board consists of an electronic circuit which uses the cooling water sensor and the constant level float switch to activate relay #2.

### **THERMAL SWITCH**

The thermal switch is a heat sensitive device which guards against an over temperature condition within the still. Once activated, the thermal switch must be manually reset.

## TROUBLE SHOOTING

**DANGER! NEVER ATTEMPT TO PERFORM REPAIRS IF THIS INSTRUMENT IS PLUGGED IN! IN ORDER TO AVOID SERIOUS ELECTRIC SHOCK OR ELECTROCUTION, THIS INSTRUMENT MUST BE DISCONNECTED FROM THE SOURCE OF AC POWER BEFORE IT IS WORKED ON.**

### **Water found inside cabinet;**

Cause: Water leak.

Remedy: Check all lines and hose connections.

Cause: Excessive condenser vent steam.

Remedy: Increase cooling water flow.

Cause: Distillate line restricted or routed too high.

Remedy: Distillate line must be unrestricted and routed lower than the bottom of the condenser.

Cause: Drain line restricted or routed too high.

Remedy: Drain line must be unrestricted and routed lower than the bottom of the boiler.

### **Still shuts off before the distillate reservoir is full;**

Cause: Supply voltage lost.

Remedy: Restart still.

Cause: Water pressure drop.

Remedy: Restart still.

Cause: Reservoir pressure switch out of adjustment.

Remedy: See "Reservoir Pressure Switch Adjustment".

### **Fill light out, no water flow;**

Cause: Power failure.

Remedy: Check house circuit breakers.

Cause: Relay #1 defective.

Remedy: Replace.

### **Fill light on, only one flow meter shows water flow;**

Cause: One water supply shut off at source.

Remedy: Check house water supply.

Cause: One solenoid defective.

Remedy: Replace.

## **TROUBLE SHOOTING (continued)**

### **Power switch fails to activate the heaters;**

Cause: Cooling water sensor defective.

Remedy: Replace.

Cause: Float switch defective.

Remedy: Replace.

Cause: Relay #2 defective.

Remedy: Replace.

Cause: Thermal switch tripped.

Remedy: See "Resetting Thermal Switch".

Cause: Flow sensor circuit defective.

Remedy: Replace.

Cause: Inadequate water flow to activate cooling water sensor.

Remedy: Increase water flow.

### **Fill switch trips out on overload;**

Cause: Solenoid defective.

Remedy: Replace.

Cause: Relay #1 defective.

Remedy: Replace.

Cause: Fill switch defective.

Remedy: Replace.

### **Power switch trips out on overload;**

Cause: Heater shorted.

Remedy: Replace.

Cause: Power switch defective.

Remedy: Replace.

### **Lower than normal distillate output;**

Cause: Defective heater(s).

Remedy: Replace defective heater(s).

Cause: Supply voltage low.

Remedy: Check house supply voltage. Normal operating voltage for the Autostill 5 is 220-240 VAC, 50/60 Hz.

**NOTE! LOWER VOLTAGES WILL RESULT IN SLIGHTLY LOWER DISTILLATE OUTPUT.**

#### RESERVOIR PRESSURE SWITCH ADJUSTMENT (refer to fig. D)

**DANGER! NEVER ATTEMPT TO PERFORM REPAIRS IF THIS INSTRUMENT IS PLUGGED IN! IN ORDER TO AVOID SERIOUS ELECTRIC SHOCK OR ELECTROCUTION, THIS INSTRUMENT MUST BE DISCONNECTED FROM THE SOURCE OF AC POWER BEFORE IT IS WORKED ON.**

1. Disconnect the still from the AC power source.
2. Remove the rear panel.
3. If the still is shutting off before the reservoir is full, turn the adjustment screw located on the front of the pressure switch clockwise, approximately two turns.
4. If the still is not shutting off when the reservoir is full, turn the adjustment screw counter-clockwise approximately two turns.
5. The still can now be re-connected to the AC power and operated in the normal manner.
6. If additional adjustment is necessary, repeat steps 3 or 4.

#### RESETTING THE THERMAL SWITCH (refer to fig. C)

**WARNING! NEVER ATTEMPT TO RESET THE THERMAL SWITCH IF THE BOILER IS HOT.**

1. Disconnect the still from the AC power source.
2. Allow the boiler to cool so it can be safely touched.
3. The thermal switch (26) is located directly behind the boiler (27), and shuts the still down when boiler temperature exceeds a safe limit due to a malfunction in the boiler or water supply.
4. Reach behind the back of the thermal switch and feel for a small protruding stud, surrounded by a plastic collar. If this stud protrudes slightly beyond the collar, the thermal switch has tripped. To reset the thermal switch, depress the stud until a slight click is felt.
5. The still can now be re-connected to the AC power and operated in the normal manner.

#### REPLACING ELECTRICAL COMPONENTS (refer to figs. D and F)

1. Disconnect the still from the AC power source. Remove the rear panel.
2. Disconnect the three white and three red wires leading from TS-2 on the electrical control panel, to the heater sockets.
3. Disconnect the Tygon tubing connected to the pressure switch.
4. Remove the four wing-nuts which hold the panel in place. The panel may now be removed for service or component replacement.

## HEATER REPLACEMENT (refer to figs. A & C)

**DANGER! NEVER ATTEMPT TO PERFORM REPAIRS IF THIS INSTRUMENT IS PLUGGED IN! IN ORDER TO AVOID SERIOUS ELECTRIC SHOCK OR ELECTROCUTION, THIS INSTRUMENT MUST BE DISCONNECTED FROM THE SOURCE OF AC POWER BEFORE IT IS WORKED ON.**

**WARNING! NEVER ATTEMPT TO REPLACE A HEATER IF THE BOILER IS HOT. ALLOW THE BOILER TO COOL SUFFICIENTLY BEFORE SERVICING.**

1. Disconnect the still from the AC power source.
2. Unplug the defective heater (16) from its receptacle by turning the power plug (15) counter-clockwise.
3. While grasping the black plastic female connector on the heater (17), unscrew the black plastic male connector on the boiler from the female connector.
4. Feed the heater plug and cord up through the large hole in the top of the cabinet, directly above the defective heater. Remove the heater from the still.

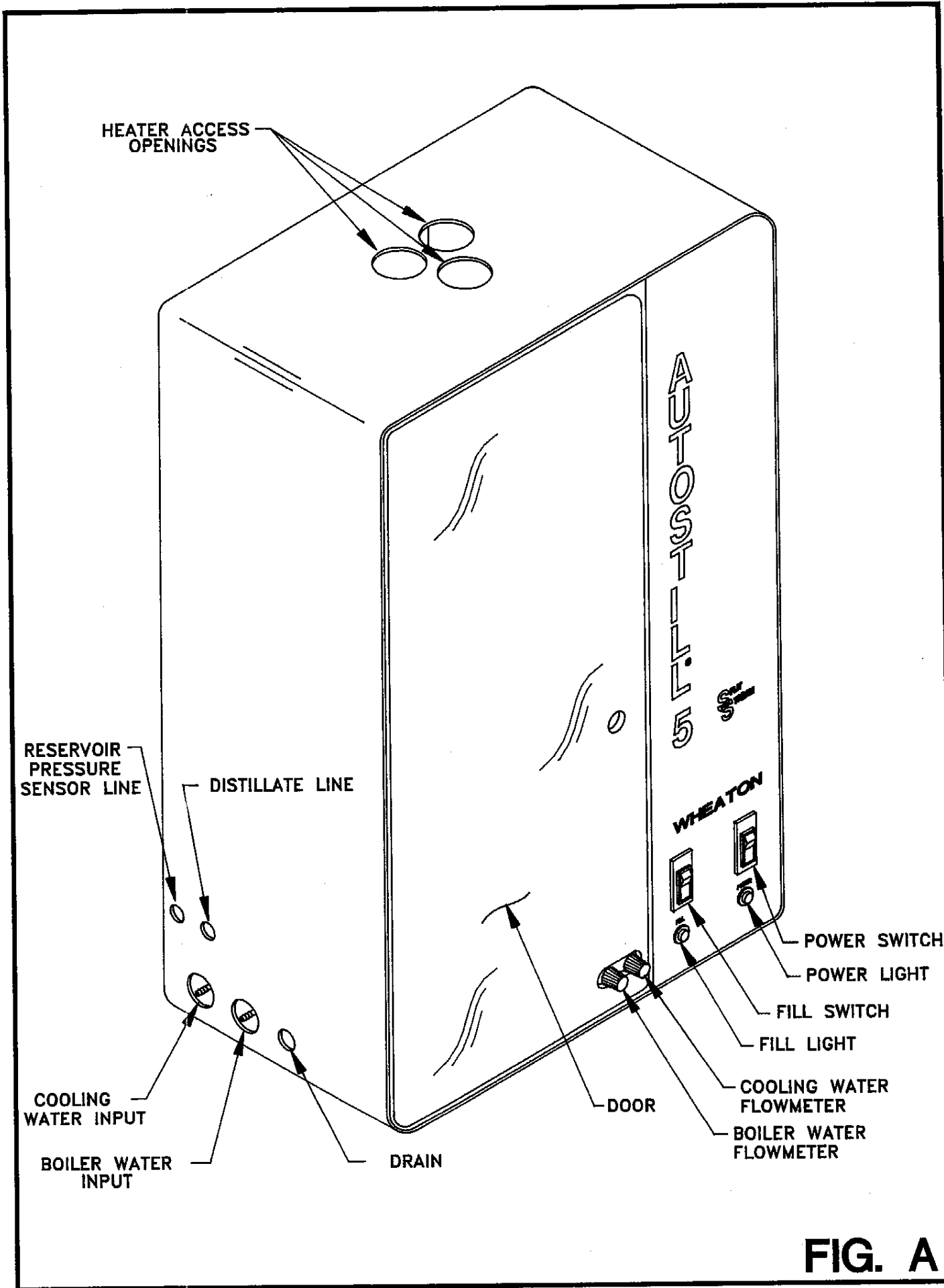
**IMPORTANT! DO NOT DISCARD THE DEFECTIVE HEATER AT THIS TIME! THE BLACK PLASTIC FEMALE CONNECTOR AND THE RUBBER HEATER GASKET MUST BE RETAINED IN ORDER TO INSTALL THE NEW HEATING ELEMENT.**

5. Remove the rubber gasket and the black plastic female connector from the defective heater and install them on the new heater.

**NOTE! IT IS RECOMMENDED TO WET THE ENTIRE HEATER TO FACILITATE REMOVAL AND INSTALLATION OF THE RUBBER HEATER GASKET.**

6. Reverse steps 1 through 4 for new heater installation.
7. The still can be re-connected and operated in the normal manner.

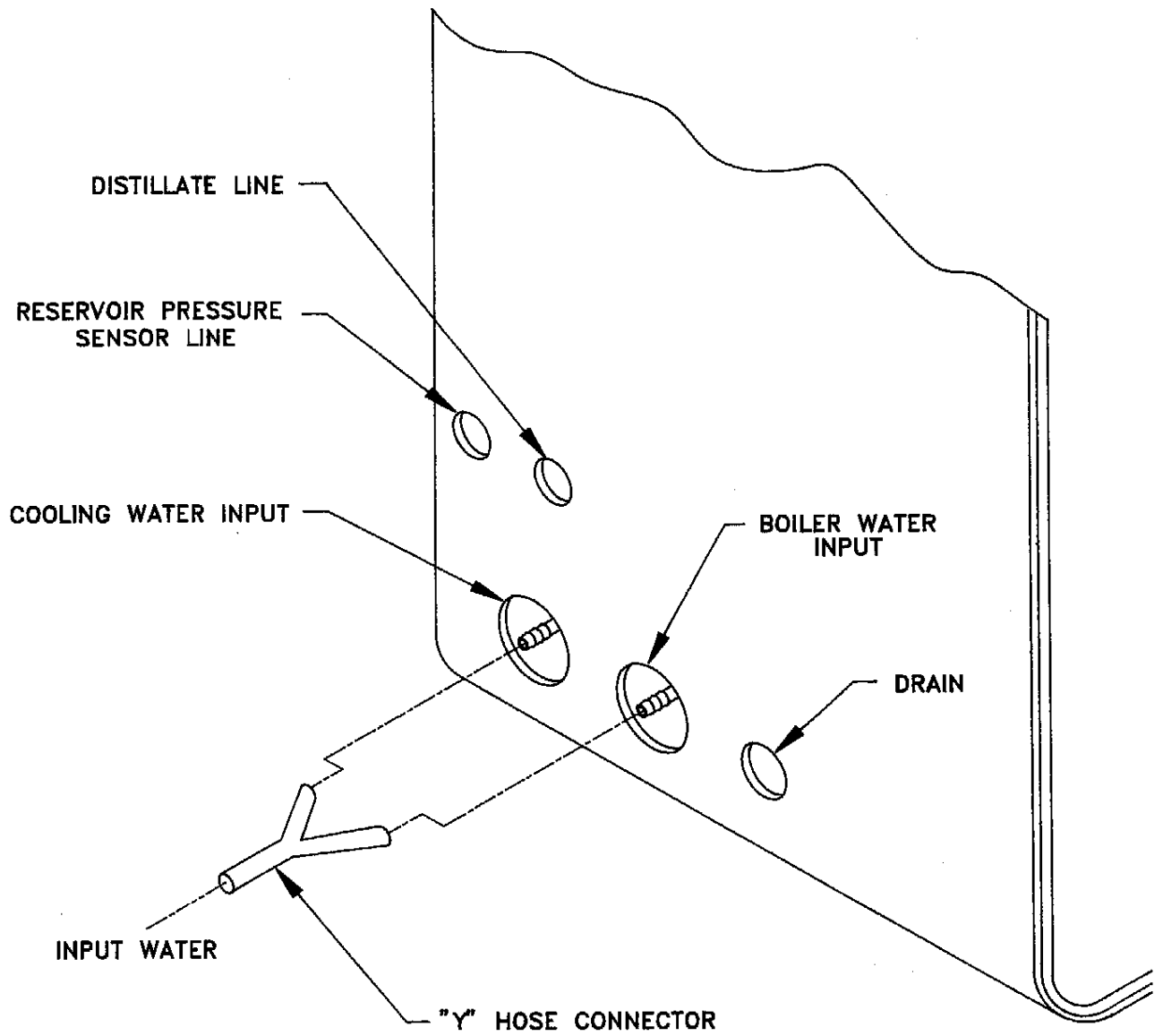
**IMPORTANT! WHEN REPLACING HEATERS OR GLASSWARE, IT IS ONLY NECESSARY TO HAND TIGHTEN THE PLASTIC CONNECTORS. OVER TIGHTENING MAY CAUSE BREAKAGE.**



**FIG. A**



OPTIONAL WATER SUPPLY HOOK-UP

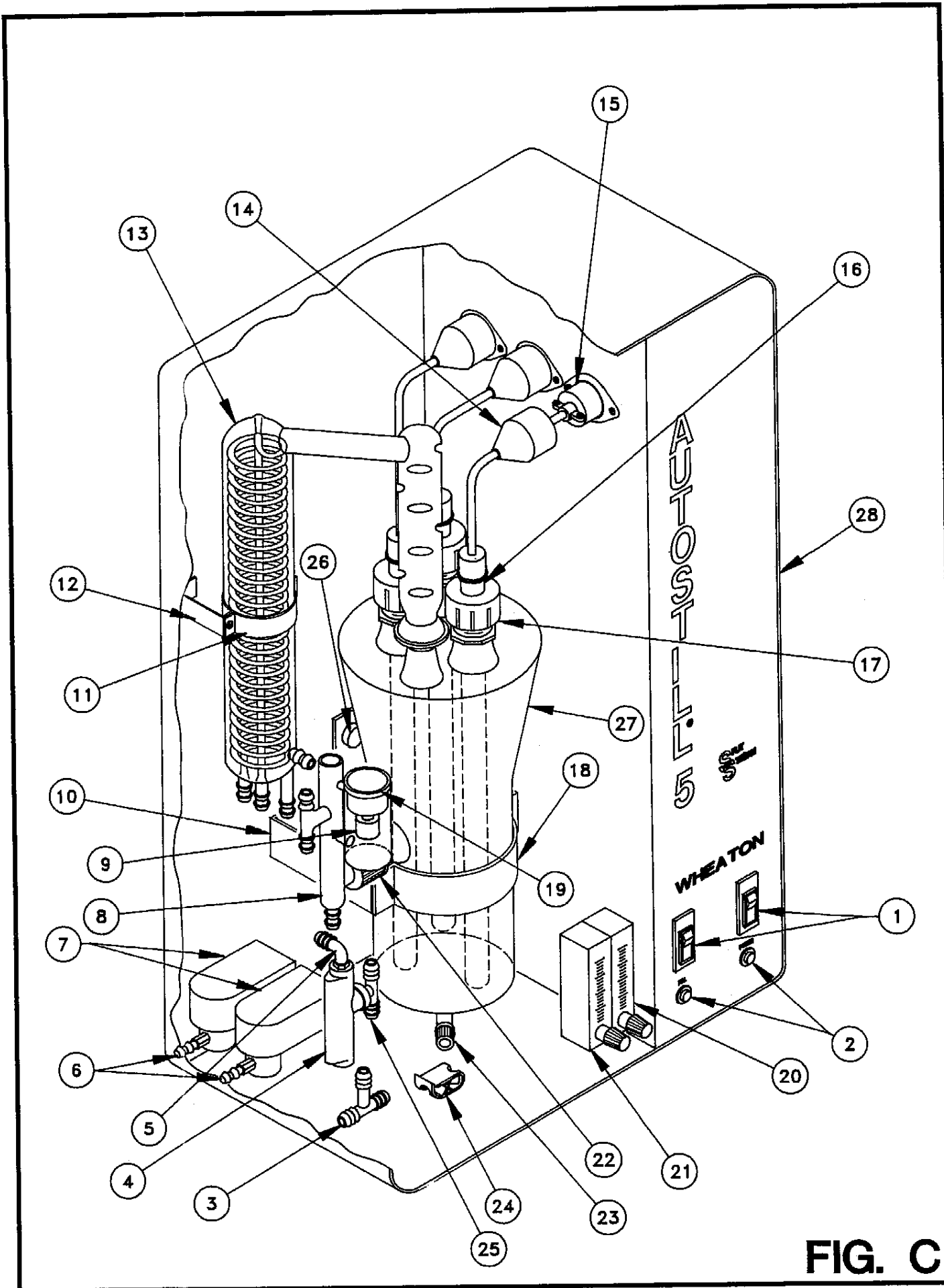


**FIG. B**

WHEATON SPLIT-STREAM AUTOSTILL 5 - CAT. #901850 - PARTS LIST (FIG. C)

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>USE QTY.</u>	<u>WHEATON NO.</u>
1	POWER & FILL SWITCH	2	051866
2	POWER & FILL LIGHT	2	051886
3	DRAIN "T"	1	051302
4	FLOW SWITCH	1	051873
5	PLASTIC 90 DEG. HOSE CONNECTOR	1	051375
6	BRASS HOSE CONNECTOR	2	054494
7	SOLENOID	2	051876
8	CONSTANT LEVEL DEVICE	1	051854
9	FLOAT SWITCH	1	051871
10	BOILER BRACKET	1	051855
11	CONDENSER BRACKET CLAMP	1	051882
12	CONDENSER BRACKET	1	051856
13	CONDENSER	1	051852
14	RUBBER BOOT	3	051885
15	HEATER PLUG	3	051864
16	HEATER W/BOOT & PLUG ATTACHED	3	901855
17	HEATER CONNECTOR SET	3	051760
18	BOILER BRACKET CLAMP	1	051881
19	FLOAT SWITCH RETAINER	1	051273
20	COOLING WATER FLOWMETER	1	051870
21	BOILER WATER FLOWMETER	1	051869
22	LARGE QC FITTING	1	051299
23	SMALL QC FITTING	1	051300
24	TUBING PINCH CLAMP	1	051301
25	PLASTIC "T" HOSE CONNECTOR	1	051021
26	THERMAL SWITCH	1	051867
27	GLASS BOILER	1	051851
28	CABINET	1	051859
*	GLASS RESERVOIR LEVEL SENSOR	1	051853
*	ADJUSTABLE FOOT	4	051297
*	HEATER SOCKET	3	051877
*	FLOWMETER BRACKET	1	051883
*	SOLENOID BRACKET	1	051884
*	THERMAL SWITCH BRACKET	1	051880
*	PLEXIGLAS DOOR	1	051861
*	1/4" I.D. TYGON TUBING	FT.	051009
*	3/8" I.D. TYGON TUBING	FT.	051010
*	1/4" O.D. NYLON TUBING	FT.	052142

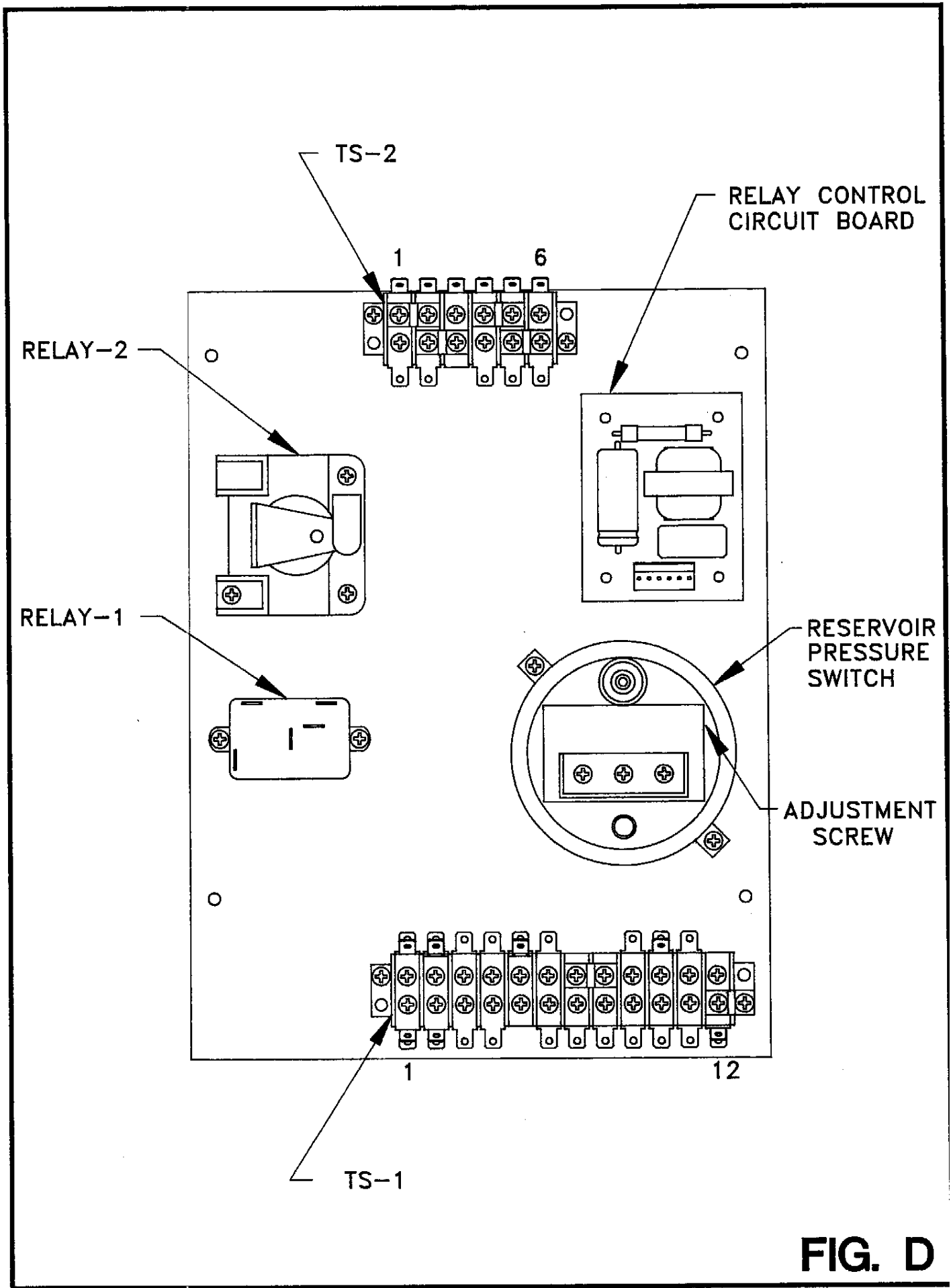
\* NOT REFERRED TO IN ILLUSTRATION



**FIG. C**

WHEATON SPLIT-STREAM AUTOSTILL 5 - CAT. #901850 - ELECTRICAL COMPONENTS (FIG. D)

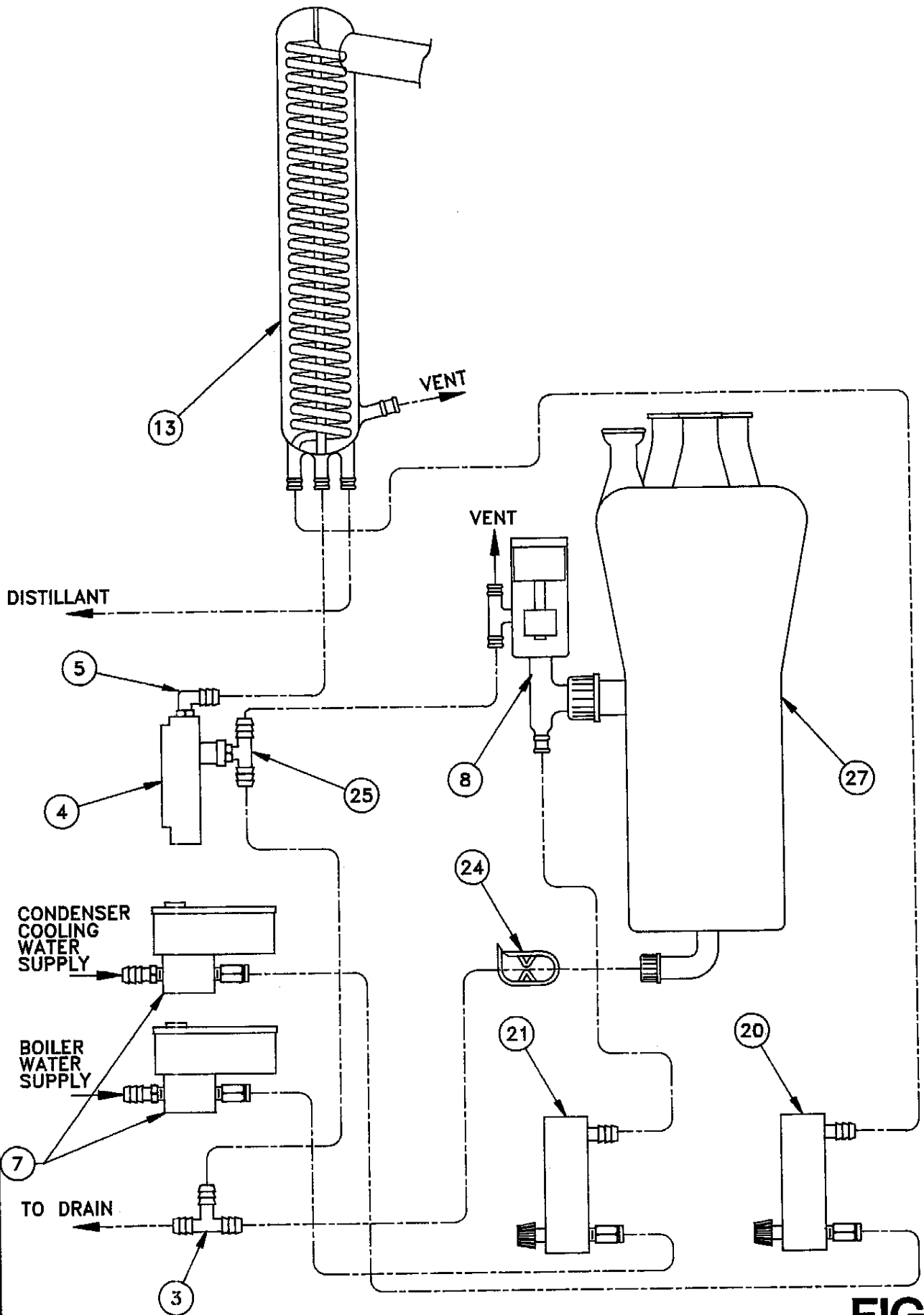
<u>DESCRIPTION</u>	<u>USE QTY.</u>	<u>WHEATON NO.</u>
SOLENOID CONTROL RELAY (RELAY 1)	1	051868
POWER RELAY (RELAY 2)	1	051863
RELAY CONTROL CIRCUIT BOARD	1	051878
RESERVOIR PRESSURE SWITCH	1	051865



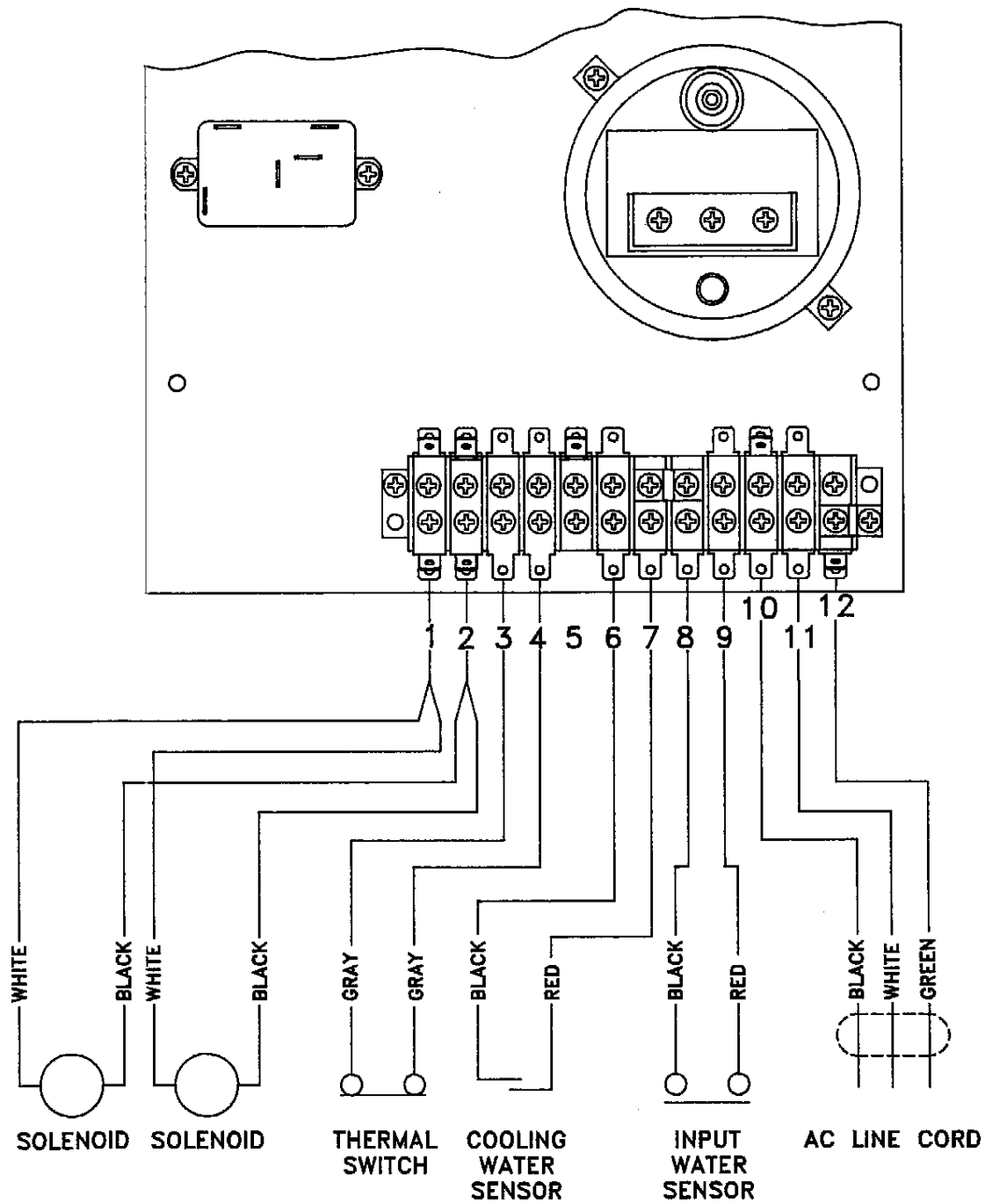
**FIG. D**

WHEATON SPLIT-STREAM AUTOSTILL 5 - CAT. #901850 - FLOW DIAGRAM (FIG. E)

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>USE QTY.</u>	<u>WHEATON NO.</u>
3	DRAIN "T"	1	051302
4	FLOW SWITCH	1	051873
5	PLASTIC 90 DEG. HOSE CONNECTOR	1	051375
7	SOLENOID	2	051876
8	CONSTANT LEVEL DEVICE	1	051854
13	CONDENSER	1	051852
20	COOLING WATER FLOWMETER	1	051870
21	BOILER WATER FLOWMETER	1	051869
25	PLASTIC "T" HOSE CONNECTOR	1	051021
27	GLASS BOILER	1	051851



**FIG. E**



**FIG. F**



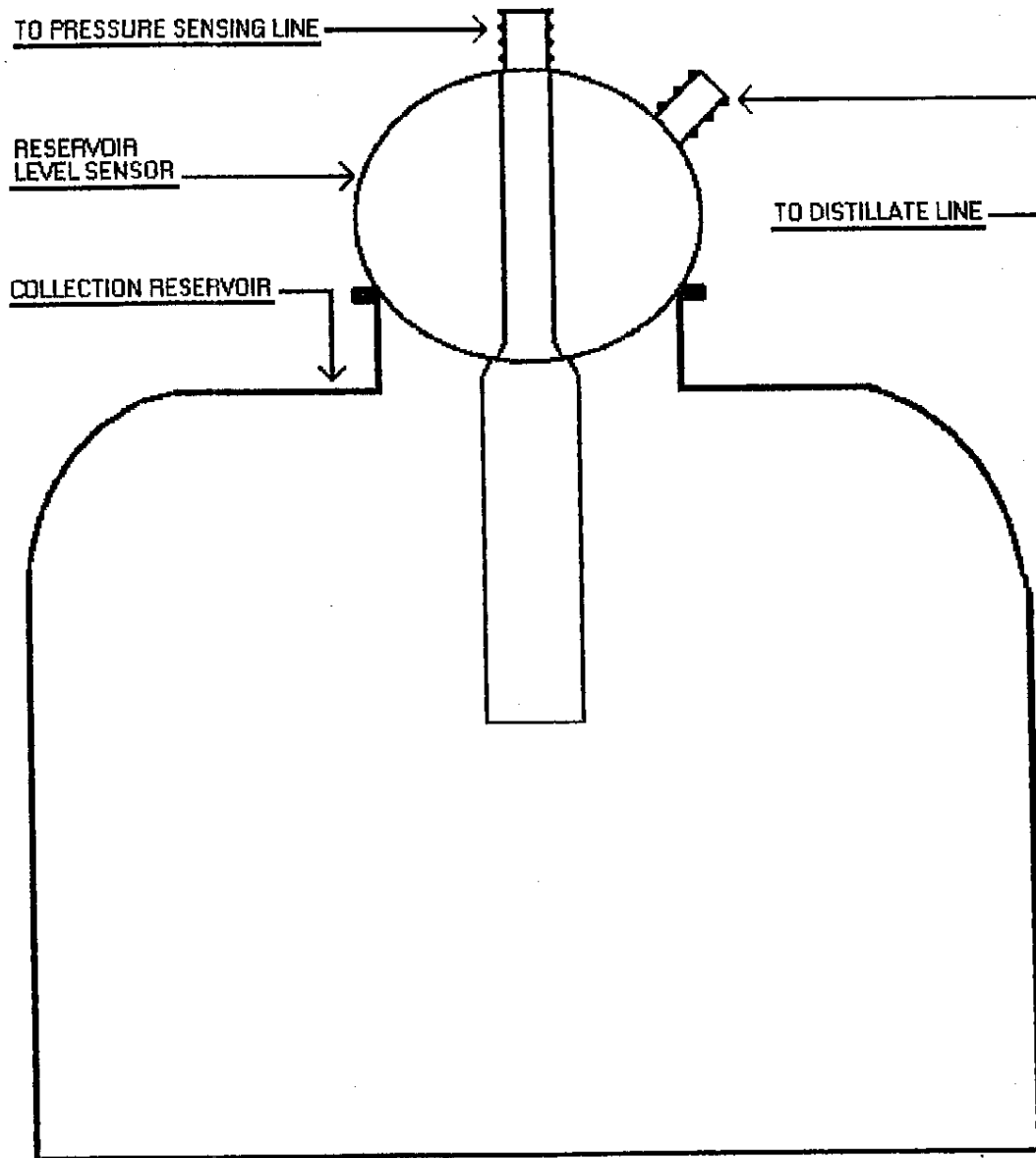


FIG. G