ECO #	NO.	REVISION	DATE	BY

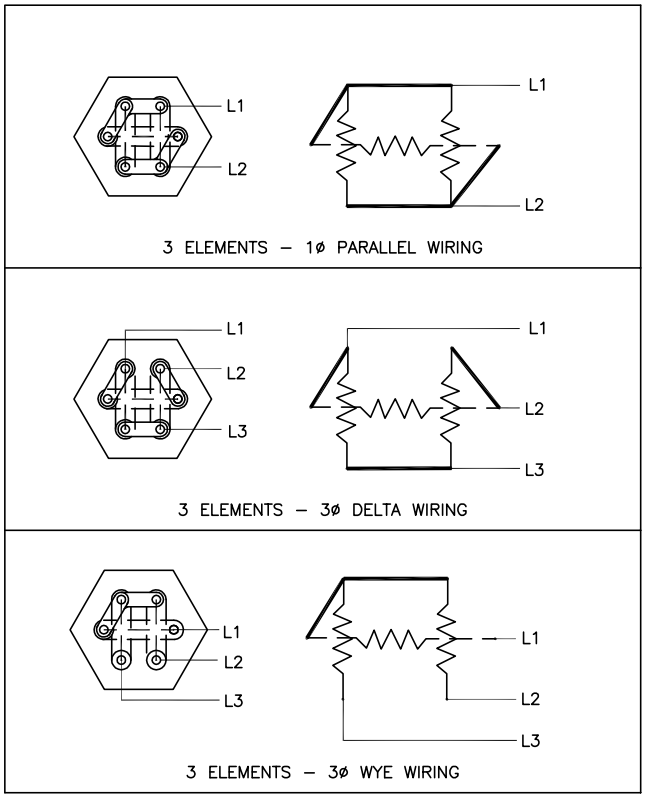
WIRING & INSTALLATION

1. ELECTRICAL WIRING TO HEATER MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), NFPA 70/79, AND LOCAL CODES.
2. IF IN DOUBT, CONSULT A QUALIFIED ELECTRICIAN BEFORE WIRING OR FOR ASSISTANCE CALL TEMPCO AT 800-323-6859.
3. WHEN ELEMENT WATTAGES ARE NOT EQUAL, HEATERS MUST NOT BE CONNECTED IN SERIES.
4. ELECTRICAL WIRING TO HEATER SHOULD BE CONTAINED IN RIGID CONDUIT OR IN SEALED FLEXIBLE HOSE TO KEEP CORROSIVE VAPORS AND LIQUIDS OUT OF THE TERMINAL HOUSING. IF HIGH HUMIDITY IS ENCOUNTERED, THE CONDUIT SHOULD SLOPE DOWN AND AWAY FROM THE HEATER.
5. IF FLEXIBLE CORD IS EMPLOYED, A WATERTIGHT CONNECTOR SHOULD BE USED FOR ENTRY OF THE CORD INTO THE TERMINAL BOX. OUTDOOR APPLICATIONS REQUIRE LIQUID-TIGHT CONDUIT AND CONNECTORS.
6. BRING THE POWER LINE WIRES THROUGH THE OPENING IN THE TERMINAL BOX. CONNECT LINE WIRES AS SHOWN IN THE WIRING DIAGRAM.

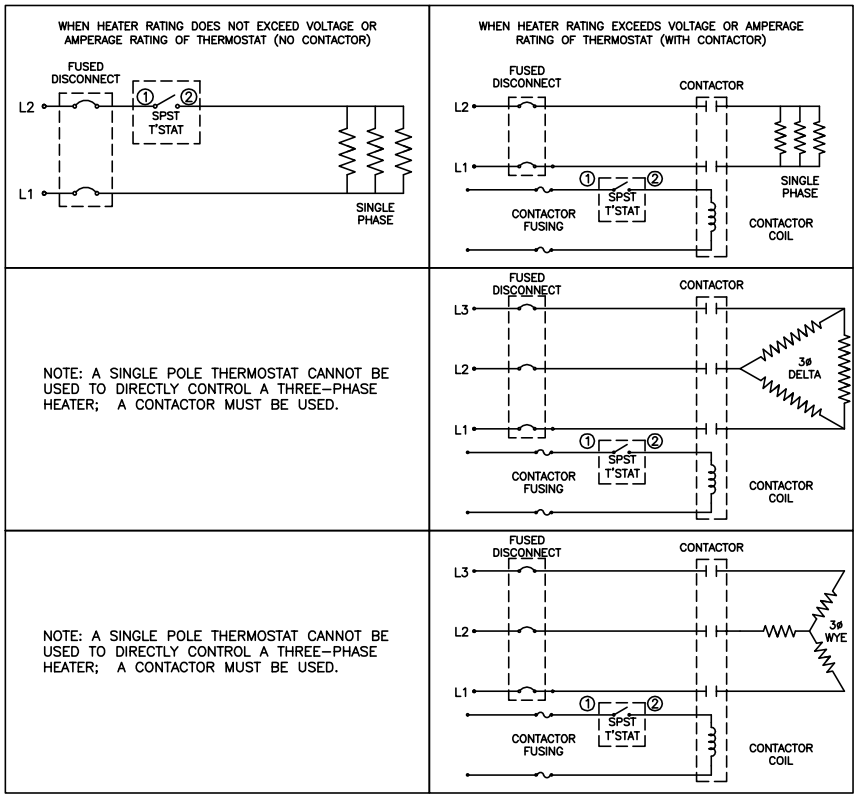
OPERATION & MAINTENANCE

1. DO NOT OPERATE HEATERS AT VOLTAGES IN EXCESS OF THAT STAMPED ON THE HEATER SINCE EXCESS VOLTAGE WILL SHORTEN HEATER LIFE.
2. ALWAYS MAINTAIN A MINIMUM OF 2" OF WATER OR LIQUID ABOVE THE HEATED PORTION OF THE ELEMENT TO PREVENT EXPOSURE OF THE EFFECTIVE HEATED LENGTH. IF THE HEATER IS NOT PROPERLY SUBMERGED, IT MAY OVERHEAT AND SHORTEN HEATER LIFE. DO NOT OPERATE HEATER IF DRY.
3. BE SURE ALL TRAPPED AIR IS REMOVED FROM A CLOSED TANK. BLEED THE AIR OUT OF THE LIQUID PIPING SYSTEM AND HEATER CHAMBER PRIOR TO ENERGIZING. NOTE: THE TANK OR HEATING CHAMBER IN CLOSED TANK SYSTEMS MUST BE KEPT FILLED WITH LIQUID AT ALL TIMES.
4. KEEP HEATING ELEMENTS ABOVE SEDIMENT DEPOSITS.

TYPICAL ELEMENT WIRING CONFIGURATIONS



TYPICAL WIRING USING A SINGLE POLE THERMOSTAT



OPERATION USING A THERMOSTAT

1. DO NOT USE A THERMOSTAT AS A POWER SWITCH. USE SOME OTHER MEANS OF DISCONNECTING POWER TO THE HEATER FOR SERVICING.
2. THERMOSTATS ARE NOT A FAIL-SAFE DEVICE. USE AN APPROVED HIGH TEMPERATURE LIMIT CONTROL AND/OR PRESSURE LIMIT CONTROL FOR SAFE OPERATION.
3. AVOID KINKING OR BENDING THE CAPILLARY TUBE TOO SHARPLY AS THIS WILL ALTER THE CALIBRATION AND/OR RENDER THE THERMOSTAT INOPERABLE. EXCESS CAPILLARY TUBE SHOULD BE COILED NEATLY IN JUNCTION BOX.
4. THE CAPILLARY TUBE MUST NEVER TOUCH THE THERMOSTAT CONTACTS AS THIS WILL CAUSE AN ELECTRICAL SHORT CAPABLE OF HARMING PERSONNEL AND/OR EQUIPMENT.
5. SEE SPECIFIC INSTRUCTION SHEET FOR SPST OR DPST THERMOSTAT MODEL.

CAUTION! HEATERS PRE-WIRED FOR THREE-PHASE WYE CAN NOT BE CHANGED TO SINGLE-PHASE OR THREE-PHASE DELTA WITHOUT CAUSING PREMATURE HEATER FAILURE.

LOW MEGOHM CONDITION

THE REFRACTORY MATERIAL USED IN ELECTRIC HEATERS MAY ABSORB MOISTURE DURING TRANSIT OR WHEN SUBJECT TO A HUMID ENVIRONMENT. THIS MOISTURE ABSORPTION RESULTS IN A COLD INSULATION RESISTANCE OF LESS THAN TWENTY MEGOHMS. NORMALLY, THIS MEGOHM VALUE CORRECTS ITSELF AFTER HEATUP AND DOES NOT AFFECT HEATER EFFICIENCY OR LIFE. A LOW MEGOHM CONDITION CAN EASILY BE CORRECTED BY REMOVING THE TERMINAL ENCLOSURE, THERMOSTAT AND TERMINAL HARDWARE AND BAKING THE HEATER IN AN OVEN AT 250° TO 300°F FOR SEVERAL HOURS, PREFERABLY OVERNIGHT. AN ALTERNATIVE PROCEDURE IS TO REMOVE THE THERMOSTAT AND ENERGIZE THE HEATERS AT LOW VOLTAGE UNTIL THE MEGOHM READING RETURNS TO NORMAL. WHEN ENERGIZING HEATERS IN AIR, THE SHEATH TEMPERATURES SHOULD NOT EXCEED 400°F FOR COPPER AND 750°F FOR STEEL OR INCOLOY ELEMENTS.

WARNING! HAZARD OF ELECTRIC SHOCK. ANY INSTALLATION INVOLVING ELECTRIC HEATERS MUST BE GROUNDED TO EARTH TO ELIMINATE SHOCK HAZARD.

TITLE:
SCREW PLUG WIRING INSTRUCTIONS
3 ELEMENTS, CRISS-CROSS CONFIG
WITH SINGLE POLE THERMOSTAT

DRAWN BY:	APPROVED:	REV.	DATE:	DRAWING NUMBER:
JWG	GDS	2	10/2/07	IDP-127-105

TEMPCO
ISO 9001:2008 WWW.TEMPCO.COM
TEMPCO Electric Heater Corporation
607 N. Central Ave.
Wood Dale, IL 60191-1452 U.S.A.
Email: info@tempco.com