

**THERMOBANK SYSTEM
CONTROL FUNCTIONS
AND SETTINGS
REFRIGERANT R-404A
(SUPPLEMENTAL)**

- **HIGH PRESSURE CUT-OUT CONTROL; 395 P.S.I.G. CUT-OUT;** SHUTS UNIT OFF IN THE EVENT OF ABNORMALLY HIGH DISCHARGE PRESSURE. REQUIRES MANUAL RESET IF CONTROL TRIPS OUT.

- **LOW PRESSURE CUT-OUT CONTROL; 2 P.S.I.G. CUT-OUT; 12 P.S.I.G. CUT-IN; (LOW TEMP);** PROVIDES FOR AUTOMATIC RECYCLING PUMPDOWN CONTROL TO PREVENT REFRIGERANT MIGRATION DURING COMPRESSOR OFF CYCLES AND PROTECTS SYSTEM FROM DAMAGE IN THE EVENT OF A REFRIGERANT LEAK RESULTING IN LOW SYSTEM PRESSURE. THE CONTROL IS AUTOMATIC RESETTING.

- **DEFROST TIME CLOCK;** INSERT TRIPPER PINS IN FACE OF THE 24 HOUR CLOCK AT TIME OF DAY DEFROST IS DESIRED AND FREQUENCY REQUIRED TO KEEP UNIT COOLER COIL CLEAR OF HEAVY FROST ACCUMULATION. TYPICAL SETTING; (2) DEFROST PERIODS PER DAY AT (12) HOUR INTERVALS. SET INNER DIAL FAIL SAFE TIME AT MAXIMUM OF 15 MINUTES.

- **DEFROST TERMINATION PRESSURE CONTROL; 200 P.S.I.G. CUT-IN; 175 P.S.I.G. CUT-OUT;** SENSES EVAPORATOR PRESSURE DURING THE DEFROST CYCLE AND FUNCTIONS AS THE PRIMARY MEANS OF DEFROST TERMINATION. **CAUTION! TO AVOID SYSTEM FAILURE DUE TO EXCESSIVE LENGTH OF DEFROST, ADJUST THE SETTING OF THIS CONTROL IN 10 P.S.I.G. INCREMENTS ONLY TO INCREASE THE LENGTH OF DEFROST CYCLE. DO NOT ATTEMPT TO RUN CONSECUTIVE OR CONTINUOUS DEFROST CYCLES IN AN ATTEMPT TO CLEAR AN ICED UP COIL! PUMP SYSTEM DOWN AND MANUALLY CLEAR ICE ACCUMULATION FROM EVAPORATOR COIL / DRAIN PAN WITH HOT WATER.**

- **POST DEFROST PRESSURE CONTROL; 25 P.S.I.G. CUT-IN; 40 P.S.I.G. CUT-OUT; (LOW TEMP); 35 P.S.I.G. CUT-IN; 75 P.S.I.G. CUT-OUT; (MED TEMP);** SENSES EVAPORATOR PRESSURE IMMEDIATELY FOLLOWING TERMINATION OF THE DEFROST CYCLE. PROVIDES FOR EVAPORATOR FAN DELAY AND EVAPORATOR PRESSURE REDUCTION BY DE-ENERGIZING, (CLOSING) BOTH THE LIQUID LINE SOLENOID AND SUCTION SOLENOID.

- **DEFROST DISCHARGE PRESSURE CONTROL; 300 P.S.I.G. CUT-OUT; 250 P.S.I.G. CUT-IN;** FUNCTIONS AS A SAFETY CONTROL TO MOMENTARILY OPEN THE DISCHARGE SOLENOID VALVE DURING THE DEFROST CYCLE IF DISCHARGE PRESSURE SHOULD RISE TO THE CUT-OUT SETTING.

- **THERMOBANK HOLDBACK VALVE; 20 TO 25 P.S.I.G. MAXIMUM;** CONTROLS THE MAXIMUM SUCTION PRESSURE AT THE COMPRESSOR SUCTION SERVICE VALVE DURING THE DEFROST CYCLE. IF FLOODBACK THROUGH THE THERMOBANK AND TO THE COMPRESSOR IS OBSERVED DURING THE

- DEFROST CYCLE, REDUCE THE VALVE SETTING BY REMOVING THE PROTECTIVE CAP AND TURNING THE VALVE ADJUSTING STEM OUT; (COUNTERCLOCKWISE). IF LENGTH OF DEFROST IS EXCESSIVE AND BANK
- OUTLET REMAINS HOT DURING DEFROST OR SYSTEM FAILS TO ACHIEVE PROPER DEFROST TERMINATION PRESSURE, IT MAY BE NECESSARY TO INCREASE THE VALVE SETTING BY TURNING THE VALVE ADJUSTING STEM IN, (CLOCKWISE), OPENING THE VALVE. **(NOTE! IF REFRIGERANT PRESSURE CAN BE HEARD ESCAPING FROM THE VALVE WHEN THE ADJUSTMENT CAP IS REMOVED THEN THE VALVE BELLOWS HAS RUPTURED INTERNALLY AND THE VALVE MUST BE REPLACED AS IT WILL NOT REGULATE WITH THE ADJUSTMENT CAP IN PLACE).**
- **OIL SAFETY CONTROL; FIXED;** REQUIRES MANUAL RESET IF COMPRESSOR LUBE OIL PRESSURE DIFFERENTIAL FALLS BELOW 9 P.S.I.G. DURING NORMAL OPERATION FOR A PERIOD OF AT LEAST 120 SECONDS; (2) MINUTES. IF OIL SAFETY TRIP OUTS OCCUR, REFER TO OIL SAFETY TRIP OUT TROUBLESHOOTING GUIDE.
- **LOW AMBIENT HEAD PRESSURE CONTROL VALVE(S); (WHEN EQUIPPED);** ADJUSTABLE REGULATING VALVES MUST BE SET TO MAINTAIN A MINIMUM OF 200 P.S.I.G. DISCHARGE PRESSURE DURING ALL LOW AMBIENT TEMPERATURE CONDITIONS. (NON-ADJUSTABLE VALVES ARE FACTORY PRE-SET TO THIS VALUE). THESE VALVES FUNCTION BY HAVING AN ADDITIONAL AMOUNT OF LIQUID REFRIGERANT CHARGED INTO THE SYSTEM TO “BACK-FLOOD” THE CONDENSER TO REDUCE IT’S CAPACITY (THEREBY INCREASING HEAD PRESSURE), WHENEVER THE OUTDOOR AMBIENT TEMPERATURE DROPS BELOW APPROX. +70 DEGREES. (REFER TO SYSTEM CHARGING DATA FOR CORRECT REFRIGERANT CHARGE).
- **CONDENSER FAN CYCLING CONTROLS; TEMPERATURE CONTROL(S);** (FAN # 2 THROUGH # 5); SET LAST FAN ON, (FURTHEST FROM COMPRESSOR END), TO CUT-OFF AT 70 DEGREES, STAGE SUBSEQUENT FANS TO CYCLE OFF AT 10 DEGREE INTERVALS, (EX. 60, 50, 40, 30). SET ALL THERMOSTAT DIFFERENTIALS TO 5 DEGREES. **PRESSURE CONTROL;** FAN # 1; (COMPRESSOR END FAN); CUT-OFF @ 210 P.S.I.G.; CUT-IN AT 260 P.S.I.G.. MAKE SURE THAT THIS FAN CYCLES OFF JUST ABOVE THE POINT WHERE THE HEAD PRESSURE CONTROL VALVE BEGINS TO BYPASS HOT GAS TO THE RECEIVER INLET; (TYPICALLY 200 POUNDS ON R-404A.)

NOTE: IF HIGH INTERNAL ROOM LOAD CONDITIONS ARE FREQUENTLY EXPERIENCED DURING PERIODS OF MILD OR LOW OUTDOOR AMBIENT TEMPERATURES, IT MAY BE NECESSARY TO RELOCATE CONDENSER FAN TEMPERATURE CONTROL SENSING BULBS TO LIQUID LINE LEAVING CONDENSER AND INCREASE INCREMENTAL TEMPERATURE SETTINGS OF THESE CONTROLS BY APPROX. (10) DEGREES.