REPAIR PART INSTALLATION INSTRUCTIONS

CONTROL REPAIR KIT FOR (S1-37323866001)
MODELS H*TCS24S06 THRU 060

GENERAL

This repair kit is a replacement for the controls used in the H*TC air conditioners. This kit replaces the TS control (part number 18386 / 031-01913-000) used in the H*TC models.

INSTALLATION PROCEDURE

1. Disconnect electrical power from unit.
2. Remove control panel access cover.
3. Disconnect thermostat wires.
4. Cut wire ties as necessary to gain access to wire harnesses.
5. Disconnect L1 and L2 power leads from contactor.
6. Disconnect the red and black outdoor fan wires from the contactor.
7. Disconnect the black crankcase heater wires from the contactor.
8. Disconnect the black compressor wire from the contactor.
9. Disconnect the red (run winding) and brown (start winding) compressor wires from the control board.
10. Cut the red (run winding) and brown (start winding) compressor wires to remove the terminals and strip 1/2”.
11. Disconnect the two brown wires from the HERM terminal of the run capacitor.
12. Disconnect the red wire from the C terminal of the run capacitor.
13. Disconnect the two blue start relay wires from the HERM and C terminals of the run capacitor.
14. Remove the control board, contactor, and any connected wires from the control box and discard.
15. Remove the run capacitor and the start capacitor and re-install so that the run capacitor with the metallic case is to the left of the control box under the start relay. This arrangement will provide better electrical spacing between components to be installed in the control box.

IMPORTANT - Make sure to rearrange capacitors to prevent electrical shorts between contactor terminals and metallic case of capacitor.

16. Using the supplied template, drill new mounting holes according to the information printed on the template.
17. Mount the time delay relay to the control box. The relay should be mounted so the terminals are down.

⚠ CAUTION

Take care not to overtighten the mounting screw for the time delay relay.

18. Partially install the lower mounting screws for the outdoor fan relay and the compressor switching relay. These screws should be inserted only partially before the relay is put in place for ease of installation.
19. Connect the black wire from the outdoor fan connector to terminal 5 (normally open position) of the outdoor fan relay. The outdoor fan relay should be mounted on the right and comes with factory installed black, yellow, and red wires. Refer to Figure 1 for relay terminal information.

FIGURE 1: Relay Terminal

20. Connect the black crankcase heater wire to terminal 2 (normally closed position) of the outdoor fan relay.
21. Route the yellow, black, and brown stripped thermostat wires through the strain relief grommet and into the low voltage thermostat wiring box.
22. Mount the outdoor fan relay and the compressor switching relay in the control box and secure mounting screws. The outdoor fan relay should be on the right and the compressor switching relay on the left.
23. Connect the brown wire from the compressor switching relay to the CONTROL terminal of the time delay relay.

NOTE: The wiring connections to the terminal block may be easier to complete before the terminal block is installed in the control box.

24. Attach terminal block to control box using supplied screws. The factory installed red 12 AWG wire connecting the terminal block to the L2 terminal of contactor B should be in the upper left position.
25. Connect L1 and L2 power leads to the terminal block. The L2 wire should be connected to the side of the terminal block with the 12 AWG red wire factory installed.
26. Connect the black compressor common wire to the L1 side of the terminal block.
27. Connect the red wire from terminal 7 of the outdoor fan relay (common position) to the L1 side of the terminal block.
28. Connect one of the black crankcase heater wires to the L2 side of the terminal block.
29. Connect the two blue wires from the hard start relay to the T1 and T2 terminals of Contactor B.

NOTE: The hard start relay must be rewired as shown. The blue wires should NOT be connected to the C and HERM terminals of the run capacitor as in the original wiring scheme.

30. Attach Contactor B to the control panel in the left position.
31. Connect the black wire from the common coil terminal of the compressor switching relay to the common coil terminal of Contactor B. This terminal has a factory installed blue wire connected to it and the common coil terminal of Contactor A.
32. Connect the gray wire from the LOAD terminal of the time delay relay to the coil terminal of Contactor B.
33. Attach Contactor A to the control panel in the right position. The contactors should be installed so the L1 and L2 terminals are toward the bottom.
34. Connect the white wire from terminal 2 (normally closed position) to the coil terminal of Contactor A.
35. Attach the yellow wire from the L2 terminal of Contactor A to the HERM terminal of the run capacitor.
36. Attach the red wire from the L1 terminal of Contactor A to the C terminal of the run capacitor.
37. Route and bundle wires neatly.
38. Replace the wiring diagram with the new diagram supplied with the repair kit.
39. Reconnect thermostat wires.

NOTE: The Y2 OUT thermostat wire should be connected to the Y2 wire using a wirenut.

40. Reapply power to indoor and outdoor unit.
41. Test operation of unit and verify that the system is operating properly.
42. Install control panel access cover.

SYSTEM OPERATION

First Stage Cooling

When a call for first stage cooling (Y1) is received, the coil of Contactor A will be energized and the compressor will be energized in first (low) stage immediately. The outdoor fan relay coil will also be energized by the Y1 signal causing the outdoor fan to operate.

Second Stage Cooling

When a call for second stage cooling (Y2) is received with the Y1 signal, the outdoor fan relay coil will remain energized by the Y1 signal. Therefore, the outdoor fan will continue to operate. The Y2 signal will energize the compressor switching relay coil de-energizing the coil of Contactor A and causing the compressor to stop operation. After a 30 second delay, the TDR contacts will close allowing the coil of Contactor B to be energized. The compressor will then be energized in second (high) stage.

When the compressor switching relay is energized, the Y1 signal is also connected to the coil of the compressor switching relay through the normally open contacts. Therefore, if the Y2 signal is removed, the compressor will continue to operate in second (high) stage.

The Y2 Out output signal, if present, should be connected directly to the Y2 thermostat signal input. This connection can be made at the outdoor unit or the indoor unit. This connection will cause the indoor blower to operate at high cooling speed (Y2 Out energized) whenever there is a call for second (high) stage compressor operation.

CRANKCASE HEATER

The crankcase heater will be energized through the normally closed contacts of the outdoor fan relay whenever power is connected to the unit and the Y1 or Y2 thermostat inputs are not energized. When the outdoor fan is energized, the crankcase heater is de-energized.

WIRING DIAGRAM

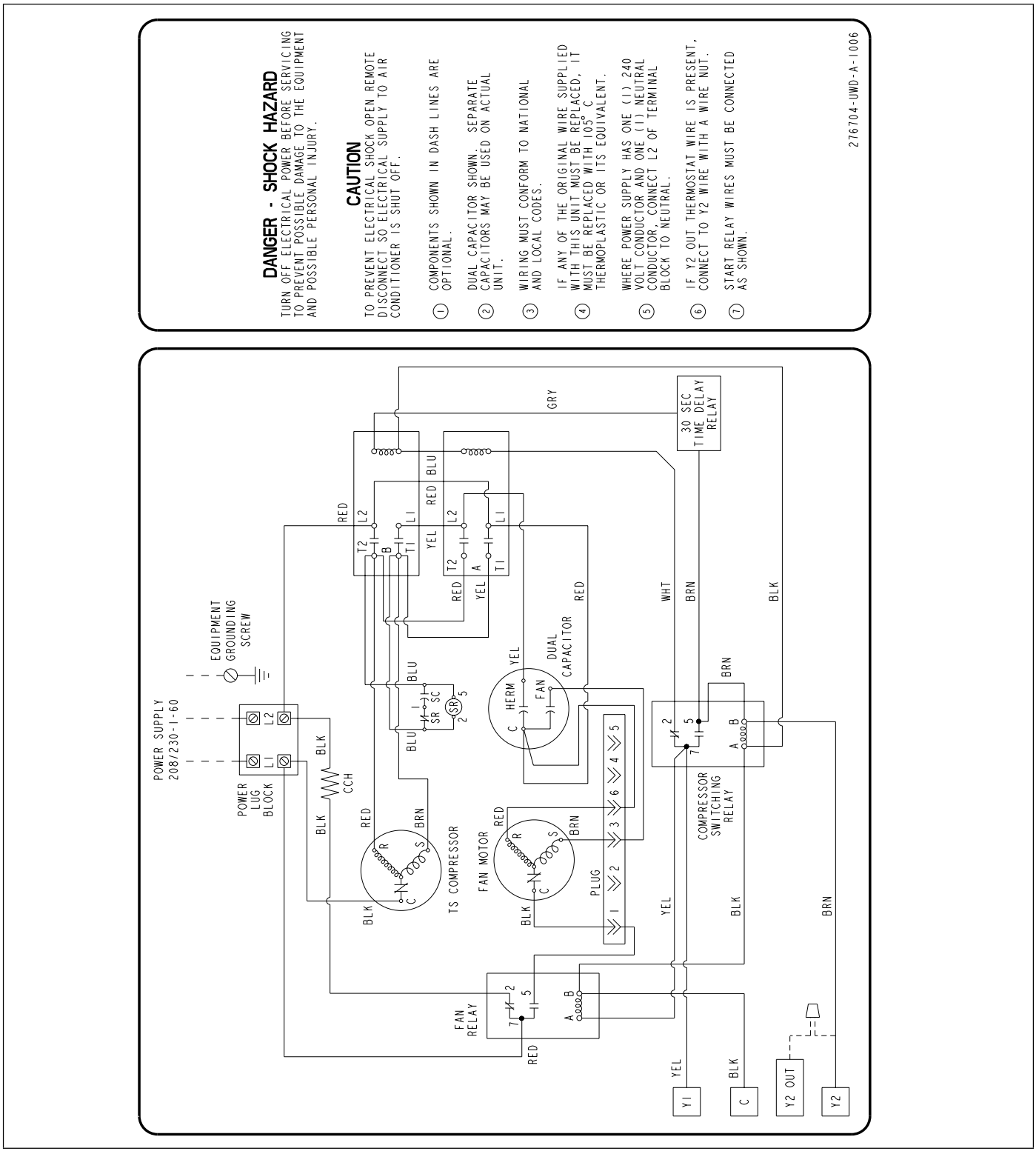

FIGURE 2: Wiring Diagram

NOTES

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Supersedes: Nothing