

Carrier

A United Technologies Company

SERVICE BULLETIN

Title: IQ-1000 II/SMM COMPATIBILITY

Number: C9707

Date: 3/7/97

Supersedes: NEW

Date:

Models Affected: ALL WITH UNIT-MOUNTED CUTLER-HAMMER STARTER

PURPOSE:

To provide information regarding a wiring change for Cutler-Hammer starters with IQ-1000 II Motor Protection Systems to prevent a shunt trip of the main circuit breaker during restart after power failure.

BACKGROUND:

The IQ-1000 II is a motor protection device mounted on the door of all Cutler-Hammer unit-mounted starters produced after the middle of 1996. This includes 19XR/XRT, 19XL/XT and 23XL chillers. Along with providing motor protection, PIC controls also use this device as a source for the motor current signal. Terminals 24 (-) and 25 (+) provide a 4-20 mA output signal. A 25 ohm signal resistor wired across these two terminals provides the required .5 AC signal at full load amps (FLA).

PROBLEM:

When the IQ-1000 II first receives power, the 4-20 mA output momentarily pulses to as much as 18 mA before dropping to the zero amps signal of 4 mA. The SMM reads this signal on terminals 21 and 22 on plug J3. The PIC controls will interpret this motor current signal as abnormal operation. If the AUTO RESTART option is enabled in the CONFIG menu under EQUIPMENT SERVICE the response from the PIC controls will be a shunt trip.

SOLUTION:

A rework kit was provided by Cutler-Hammer for those starters built prior to production week 52, 1996 (December 23, 1996). Starters built after this date have the necessary modifications. Included in this kit was a wire harness, wiring diagram, and installation instructions to remove the milliamp pulse generated on power-up. The wiring harness was used to ground the signal from terminal 24 (-) through the existing timed open ground fault timer relay (GFTR). Figures 1 and 2 show the required wiring to the ground fault timer relay. The wiring diagrams for all Cutler-Hammer unit mounted starters are also included (260980 D1, 261017 D1 and 261014 D1).

FILE: Controls - Wiring

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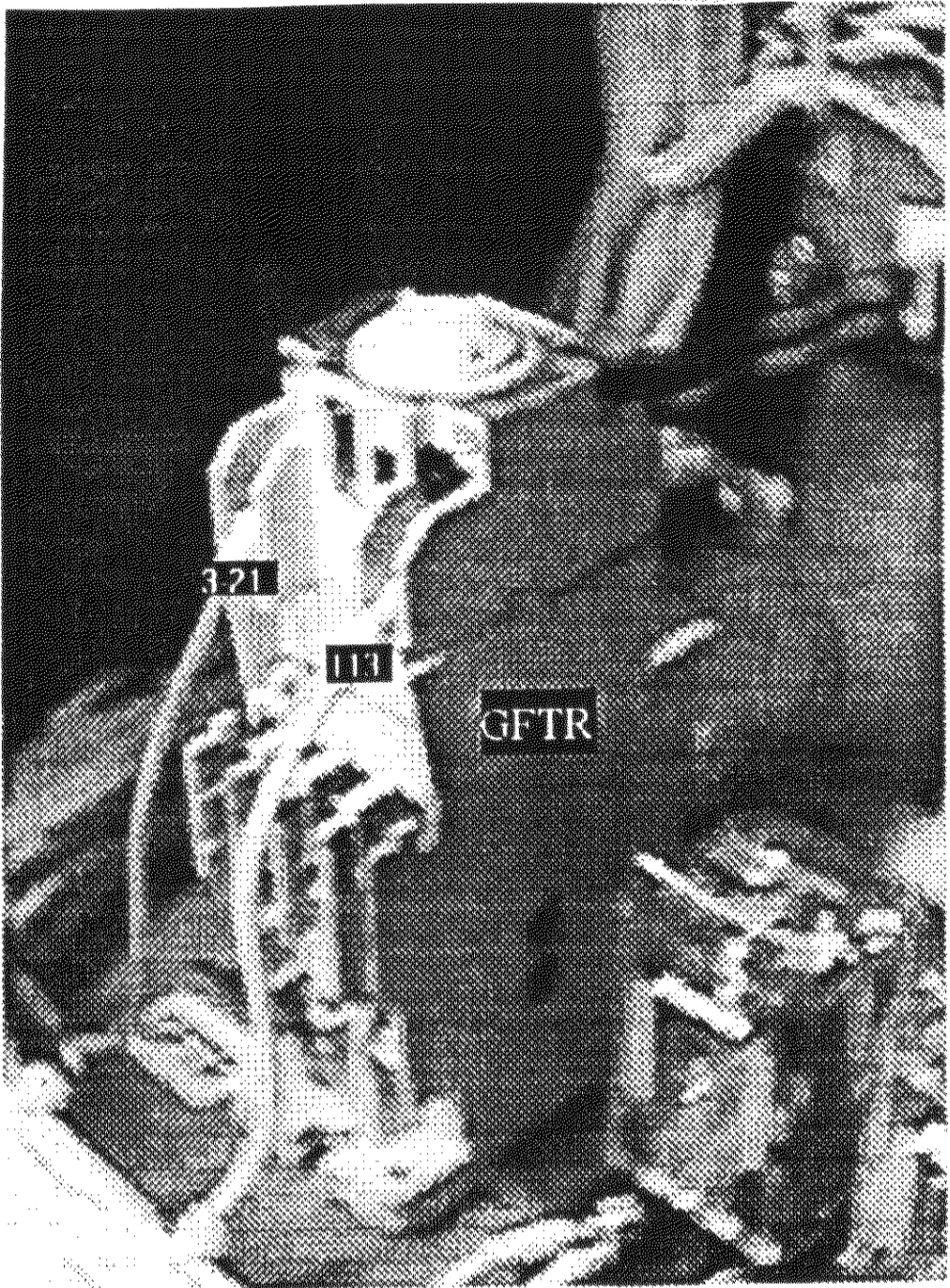


Figure 1

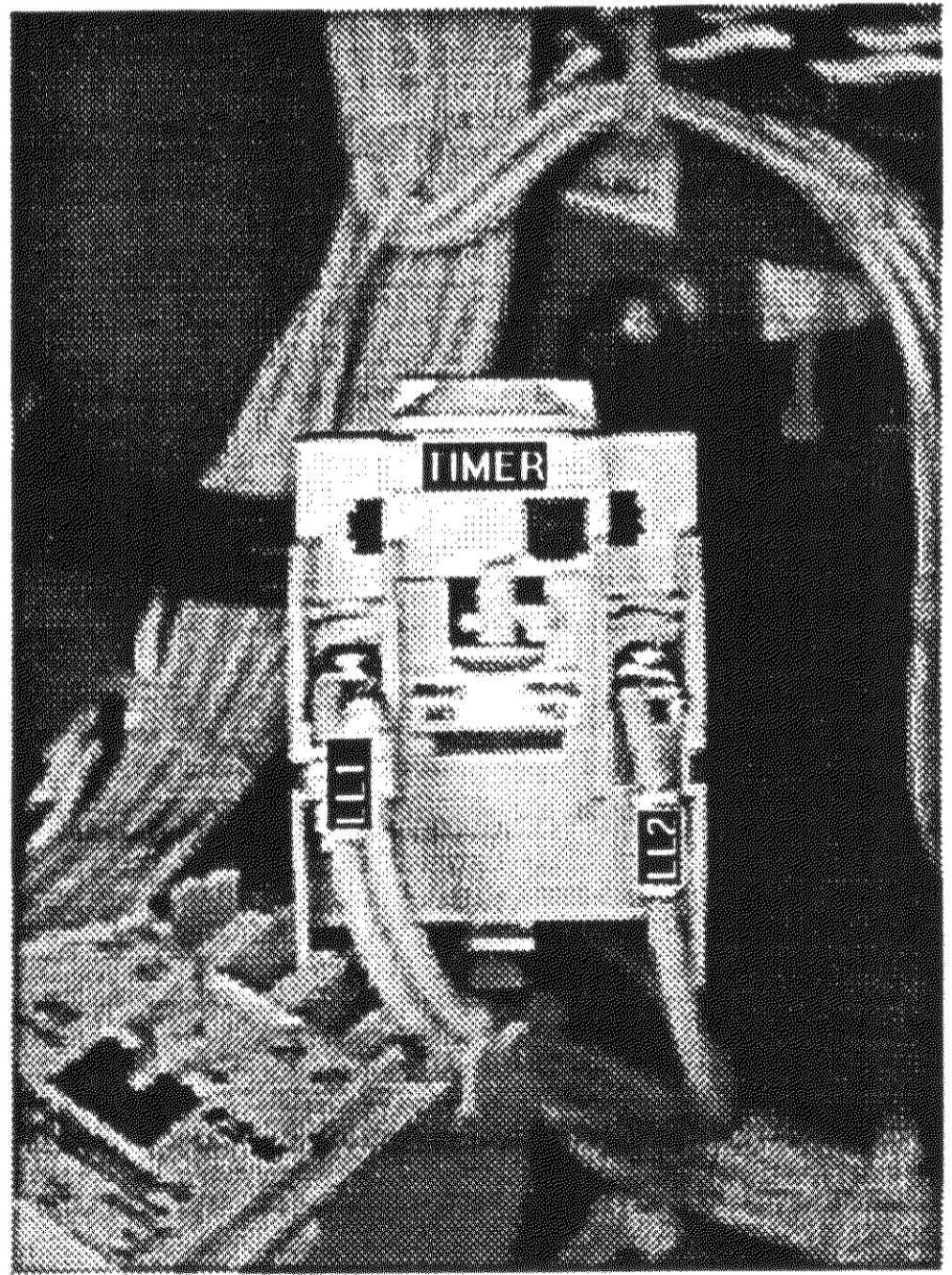
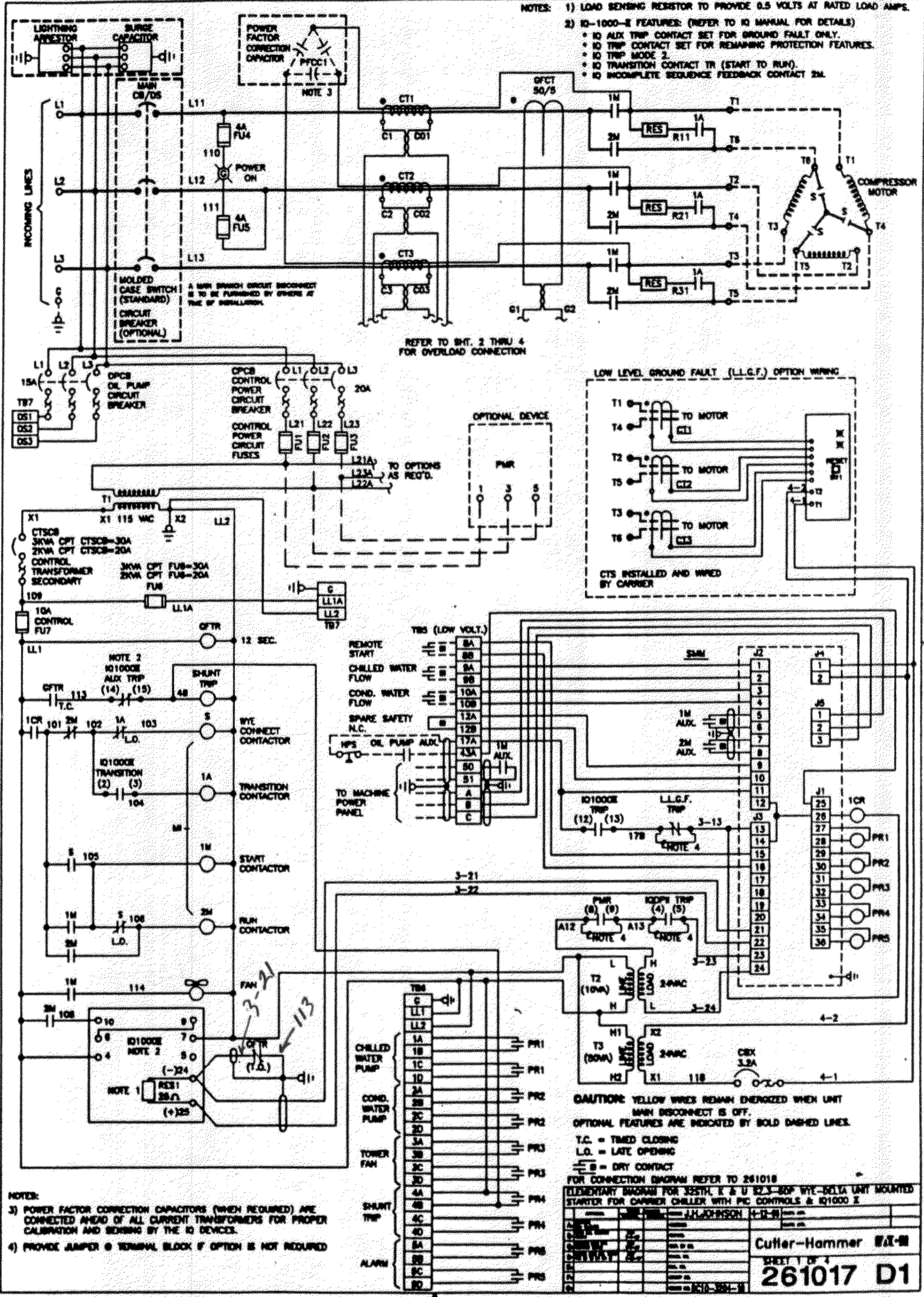


Figure 2
REAR OF TIMER

- NOTES:
- 1) LOAD SENSING RESISTOR TO PROVIDE 0.5 VOLTS AT RATED LOAD AMPS.
 - 2) IO-1000-E FEATURES: (REFER TO IO MANUAL FOR DETAILS)
 - IO AUX TRIP CONTACT SET FOR GROUND FAULT ONLY.
 - IO TRIP CONTACT SET FOR REMAINING PROTECTION FEATURES.
 - IO TRIP MODE 2.
 - IO TRANSITION CONTACT TR (START TO RUN).
 - IO INCOMPLETE SEQUENCE FEEDBACK CONTACT 2M.



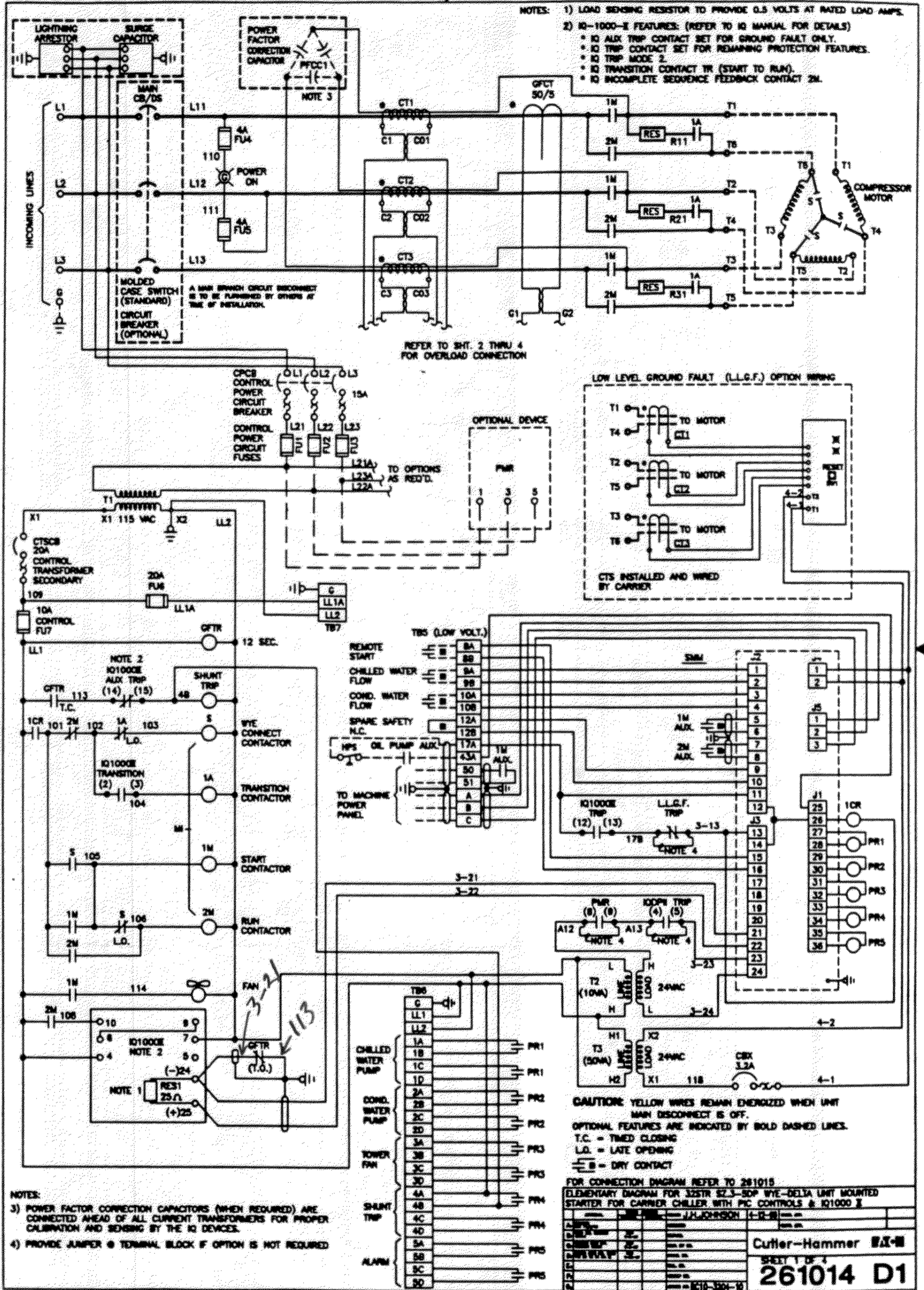
- NOTES:
- 3) POWER FACTOR CORRECTION CAPACITORS (WHICH REQUIRED) ARE CONNECTED AHEAD OF ALL CURRENT TRANSFORMERS FOR PROPER CALIBRATION AND WIRING BY THE IO DEVICE.
 - 4) PROVIDE JAMPER @ TERMINAL BLOCK IF OPTION IS NOT REQUIRED

CAUTION: YELLOW WIRES REMAIN ENERGIZED WHEN UNIT MAIN DISCONNECT IS OFF.
 OPTIONAL FEATURES ARE INDICATED BY BOLD DASHED LINES.
 T.C. = TIMED CLOSING
 L.O. = LATE OPENING
 ☐ = DRY CONTACT

FOR CONNECTION DIAGRAM REFER TO 261018
 ELEMENTARY DIAGRAM FOR 325TH, K & U 27.3-SDP WYE-DELTA UNIT MOUNTED STARTER FOR CARRIER CHILLER WITH PIC CONTROLS & IO1000 E

IO-1000-E	IO-1000-E	IO-1000-E	IO-1000-E
IO-1000-E	IO-1000-E	IO-1000-E	IO-1000-E
IO-1000-E	IO-1000-E	IO-1000-E	IO-1000-E
IO-1000-E	IO-1000-E	IO-1000-E	IO-1000-E

Cutler-Hammer #1-11
 SHEET 1 OF 4
261017 D1



- NOTES:
- 1) LOAD SENSING RESISTOR TO PROVIDE 0.5 VOLTS AT RATED LOAD AMPS.
 - 2) IQ-1000-E FEATURES: (REFER TO IQ MANUAL FOR DETAILS)
 - IQ ALX TRIP CONTACT SET FOR GROUND FAULT ONLY.
 - IQ TRIP CONTACT SET FOR REMAINING PROTECTION FEATURES.
 - IQ TRIP MODE 2.
 - IQ TRANSITION CONTACT TR (START TO RUN).
 - IQ INCOMPLETE SEQUENCE FEEDBACK CONTACT 2M.

- NOTES:
- 3) POWER FACTOR CORRECTION CAPACITORS (WHEN REQUIRED) ARE CONNECTED AHEAD OF ALL CURRENT TRANSFORMERS FOR PROPER CALIBRATION AND SENSING BY THE IQ DEVICES.
 - 4) PROVIDE JUMPER @ TERMINAL BLOCK IF OPTION IS NOT REQUIRED

CAUTION: YELLOW WIRES REMAIN ENERGIZED WHEN UNIT MAIN DISCONNECT IS OFF.
 OPTIONAL FEATURES ARE INDICATED BY BOLD DASHED LINES.
 T.C. = TIMED CLOSING
 L.O. = LATE OPENING
 B = DRY CONTACT

FOR CONNECTION DIAGRAM REFER TO 261015
 ELEMENTARY DIAGRAM FOR 325TR S2.3-SDP WYE-DELTA UNIT MOUNTED STARTER FOR CARRIER CHILLER WITH PIC CONTROLS & IQ1000 E

ALX	2M	TR	2M
CHILLED WATER FLOW	2M	COND. WATER FLOW	2M
SPARE SAFETY N.C.	2M	SPARE SAFETY N.C.	2M
TO MACHINE POWER PANEL	2M	TO MACHINE POWER PANEL	2M

Cutter-Hammer **IX-III**
 SHEET 1 OF 4
261014 D1
 REV. 10-19-10