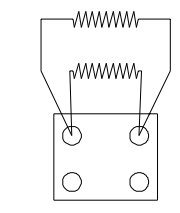
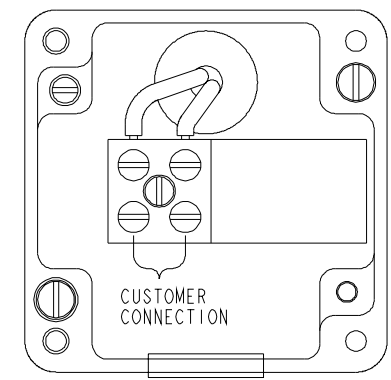


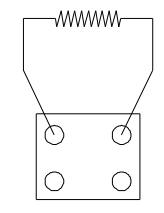
| REL NO | LTR | NO | REVISION | ZONE | DR | CHKR | APPROVED | DATE |
|----------|-----|----|-------------------------------------|------|-----|------|----------|----------|
| FRD11317 | A | 1 | PRODUCTION RELEASE | - | MTA | PL | LARSON | 04-16-02 |
| FRD19709 | B | 1 | ADD SURGE SUPPRESSOR TO CUST RELAYS | 3B | WP | PL | LLARSON | 03-10-04 |
| FRD20641 | C | 1 | ADD SHEET 2 | -- | GWH | EC | EC | 06-14-04 |
| | | 2 | SEE SHEET 2 | -- | GWH | EC | EC | 06-14-04 |

ALTERNATOR HEATER

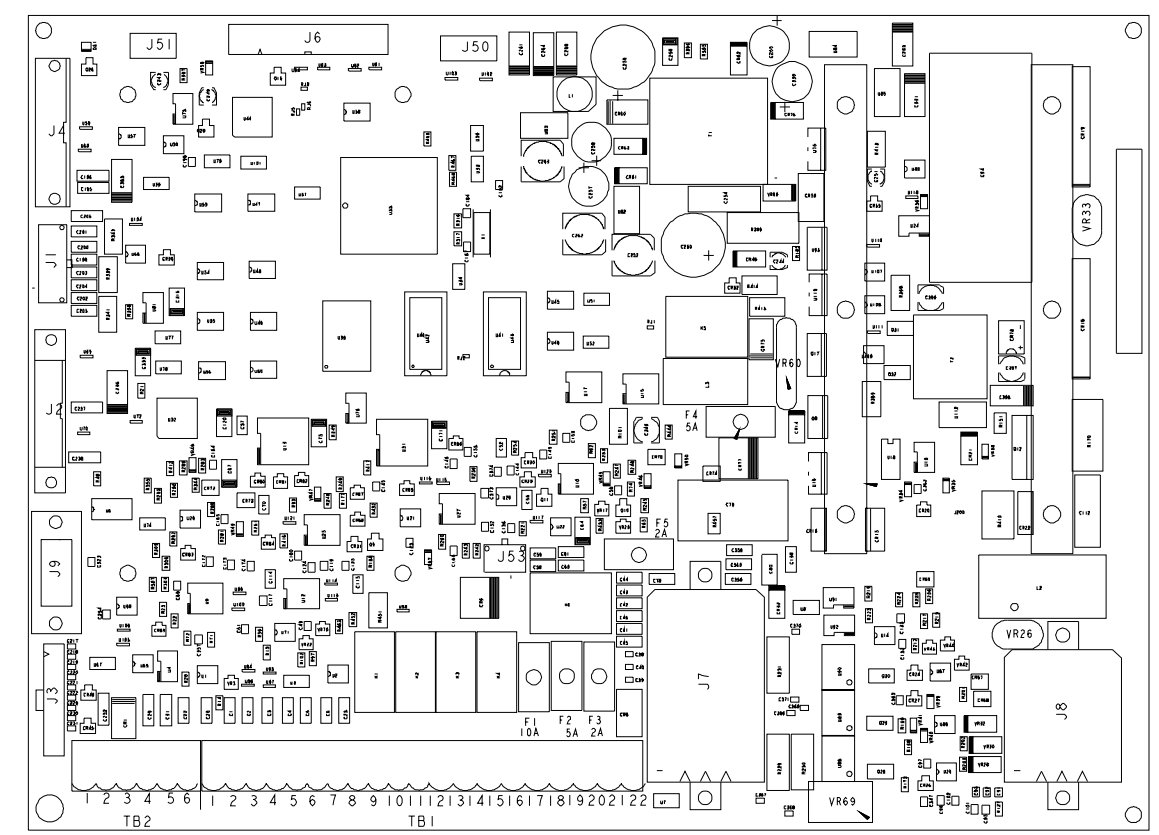
- TERMINAL/WIRE SPECIFICATION**
- 1) TORQUE TERMINALS TO 4.4 IN/LBS (0.5 Nm)
 - 2) WIRE SIZE, 30-12 AWG (0.14-2.5MM) (TBI)
 - 3) WIRE TYPE, USE 60°C RATED MINIMUM, COPPER WIRE (TBI)
 - 4) TERMINAL SCREWS ARE SLOTTED (0.6MM)
 - 5) USE FLAT-BLADED SCREWDRIVER WITH 2.5MM BLADE
 - 6) STRIP WIRE LENGTH TO 6.0MM



DUAL HEATER



SINGLE HEATER



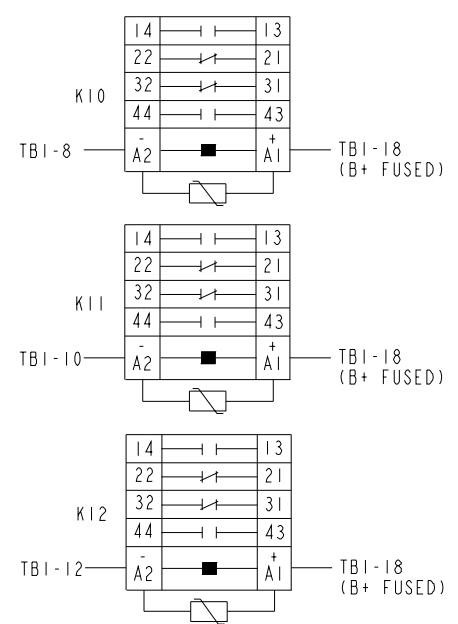
- TB2**
- | | |
|---|------------|
| 1 | RS485+ |
| 2 | RS485- |
| 3 | PTC B+ |
| 4 | PTC GND |
| 5 | PTC STATUS |
| 6 | COM |
- TO REMOTE UTILITY VOLTAGE SENSING MODULE. SEE OPERATOR'S MANUAL FOR CABLE TYPE.

- TERMINAL/WIRE SPECIFICATIONS**
1. USE 60°C RATED MINIMUM COPPER WIRE.
 2. WIRE SIZE: #12 - 18 AWG .
 3. TORQUE TO 7.7 IN-Lb (0.9 Nm)
 4. STRIP WIRE TO 0.32 INCHES (8.0 mm).
 5. USE SLOTTED SCREWDRIVER WITH 3.0 mm BLADE
 6. TERMINALS RATED AT 150V/20A AND 300V/10A.

| HEATER RATING | |
|---------------|------------------------------|
| 100 WATT | 110 - 125VAC 220 - 260VAC |
| 150 WATT | 110 - 125VAC 220 - 260VAC |
| 300 WATT | 110 - 125VAC 220 - 260VAC |

- ENLARGED REF VIEW**
- TB1**
- | | |
|----|------------------|
| 1 | REMOTE START |
| 2 | REMOTE E-STOP |
| 3 | REMOTE RESET |
| 4 | CUSTOMER FAULT 1 |
| 5 | CUSTOMER FAULT 2 |
| 6 | CUSTOMER FAULT 3 |
| 7 | CUSTOMER FAULT 4 |
| 8 | CUSTOMER RELAY 1 |
| 9 | COM |
| 10 | CUSTOMER RELAY 2 |
| 11 | COM |
| 12 | CUSTOMER RELAY 3 |
| 13 | COM |
| 14 | CUSTOMER RELAY 4 |
| 15 | COM |
| 16 | (NOT USED) |
| 17 | B+ FUSED OUT |
| 18 | B+ FUSED OUT |
| 19 | SWITCHED B+ |
| 20 | GND |
| 21 | GND |
| 22 | GND |
- APPLY GROUND TO ACTIVATE
- RATED 2A @ 30VDC (MAX)
- 10A FUSED 5A FUSED

CUSTOMER RELAYS



- TERMINAL/WIRE SPECIFICATIONS**
- 1) NORMALLY OPEN (NO) TERMINALS: 13, 14 43, 44
NORMALLY CLOSED (NC) TERMINALS: 21, 22 31, 32
 - 2) TORQUE TERMINALS TO 7 INCH LBS (0.8Nm)
 - 3) WIRE SIZE 1-18 AWG MIN (0.75MM²)
2-14 AWG MAX (2.5MM²)
1-12 AWG MAX (4.0MM²)
 - 4) USE 60°C RATED MINIMUM, COPPER WIRE, 600VAC
 - 5) TERMINAL SCREWS ARE PHIL SLOT
 - 6) USE SLOTTED SCREWDRIVER WITH 5.0 MM BLADE OR NO. 2 PHILIPS
 - 7) CONTACT RATINGS: 600VAC, 10 AMPS MAX
 - 8) STRIP WIRE LENGTH TO 7.0 MM

-THIS IS A CONTROLLED PRODUCT-
PER OMAN PROCEDURE FRE-1002

TO MAINTAIN COMPLIANCE WITH REQUIREMENTS OF THE CODES, STANDARDS, OR AGENCIES LISTED BELOW

CSA UL EC RVIA ABYC

OTHER _____

AND/OR ASSIGN INTERNAL OMAN DESIGN CONTROL FACILITIES

CHANGES, DEVIATIONS, OR SUBSTITUTIONS OF MATERIAL, PROCESS, OR PERFORMANCE FOR THIS PRODUCT MUST BE APPROVED BY THE FOLLOWING DESIGN CONTROL FACILITIES

DESIGN CONTROL FACILITY: FRIDLEY

DESIGN CONTROL FACILITY: _____

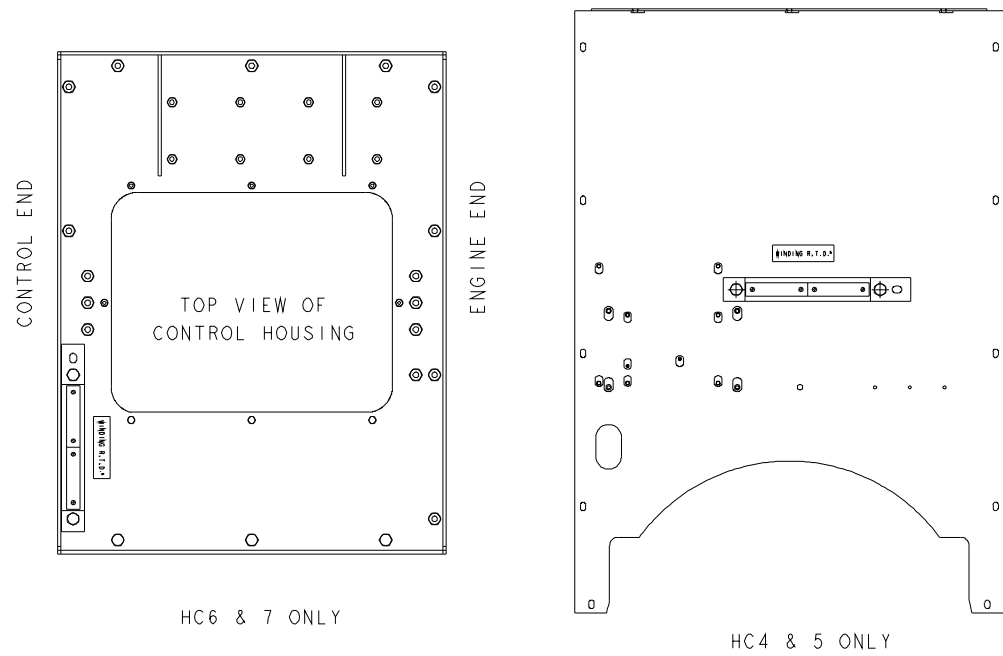
| DO NOT SCALE PRINT | TOLERANCE UNLESS OTHERWISE SPECIFIED | QTY | ITEM | PART NO | DR | DATE | DESCRIPTION OR MATERIAL | REF DIS |
|--------------------|--|-----|------|---------|----|------|-------------------------|---------|
| ANG TOL ± 1.0 | 0.00-4.99 ±0.15/0.00 5.00-9.99 ±0.20/0.10 10.00-17.99 ±0.25/0.13 17.50-24.99 ±0.30/0.13 | | | | | | | |
| SCALE OF | 1/1 | | | | | | | |

| NAME | DATE | APPROVED | MODEL FIRST USED ON |
|-----------|----------|-----------|---------------------|
| T. ABEL | 04-16-02 | P. LARSON | PCC 2100 |
| P. LARSON | 04-16-02 | | |
| | 04-16-02 | | |

| CUMMINS POWER GENERATION | |
|--|---------------------------|
| 1400 75RD AVE NE MINNEAPOLIS, MINNESOTA 55432 | |
| TITLE | CONNECTION DIAGRAM (CUST) |
| DRG NO | 0620_0247 |
| SHEET | 1 of 2 |
| DRG SITE | D |

| REL NO | LTR NO | REVISION | ZONE | DR | CHKR | APPROVED | DATE |
|----------|--------|----------|-------------------------------|----|------|----------|----------|
| FRD20641 | C | 2 | UPDATE RTD CONNECTION DIAGRAM | 6A | GWH | EC | 06-14-04 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

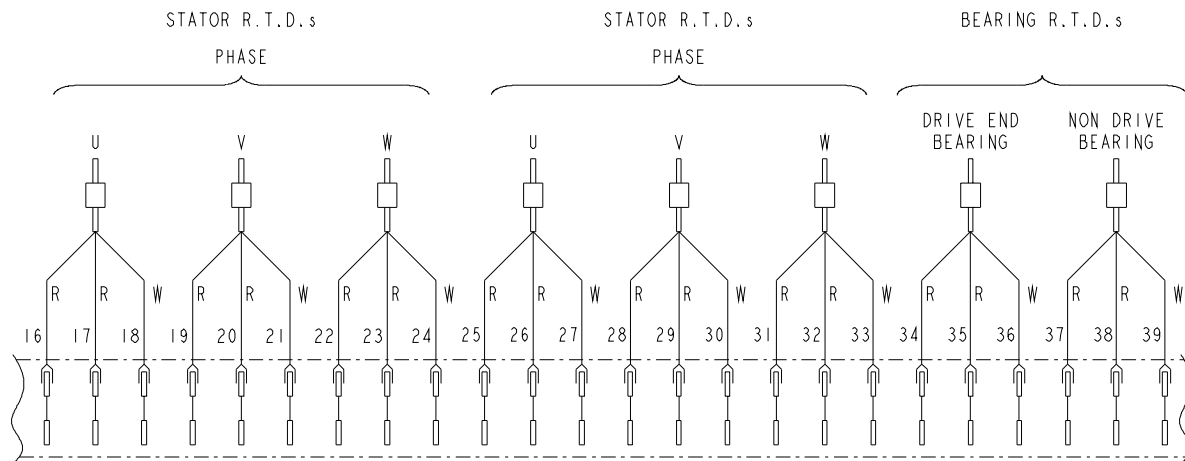
RTD CUSTOMER CONNECTIONS



RTD TERMINAL BLOCK CONNECTIONS:

1. USE 60°C RATED MINIMUM COPPER WIRE.
2. USE WIRE SIZES 22 TO 12 AWG.
3. TORQUE TO 7.7 LBS-IN (0.9 N-M)
4. STRIP WIRE TO 0.32 INCHES (8.0 MM).
5. USE SLOTTED SCREWDRIVER WITH A 3.0 MM BLADE.
6. TERMINALS RATED AT 150V/20A AND 300V/10A.

R.T.D. (Resistance Temperature Detector)



NOTES:
(1) R = RED W = WHITE

| TOLERANCE UNLESS OTHERWISE SPECIFIED | | DIM | | FINISH | | ITEM | | DESCRIPTION OR MATERIAL | | REF | |
|--------------------------------------|-------------|-----------|---------------|----------|--|---------|--|-------------------------|--|-----|--|
| mm | | INCH | | MATERIAL | | PART NO | | DATE | | DIS | |
| 0.00-4.99 | +0.15/-0.00 | .004-.200 | +0.001/-0.003 | | | | | | | | |
| 5.00-9.99 | +0.20/-0.10 | .201-.501 | +0.001/-0.004 | | | | | | | | |
| 10.00-17.99 | +0.25/-0.13 | .502-.100 | +0.001/-0.005 | | | | | | | | |
| 17.50-24.99 | +0.30/-0.13 | .104-.300 | +0.001/-0.005 | | | | | | | | |

| | | | |
|----------|--------------|------|----------|
| DR | G W HUEBNER | DATE | 06-14-04 |
| CHKR | E CZECHOWSKI | DATE | 06-14-04 |
| APPROVED | E CZECHOWSKI | DATE | 06-14-04 |

| | | | | | |
|--------------------------|--|---------------------------|--|------------------------------|--|
| CUMMINS POWER GENERATION | | MOO 7500 AVE NE | | MINNEAPOLIS, MINNESOTA 55432 | |
| TITLE | | CONNECTION DIAGRAM (CUST) | | SHEET | |
| DRAWN TO 1/1 | | SCALE OF | | 2 of 2 | |
| Dwg No | | 0620_0247 | | Dwg Title | |
| Model First Used On | | PCC 2100 | | Dwg Size | |
| Site Code | | PGA | | Dwg Date | |