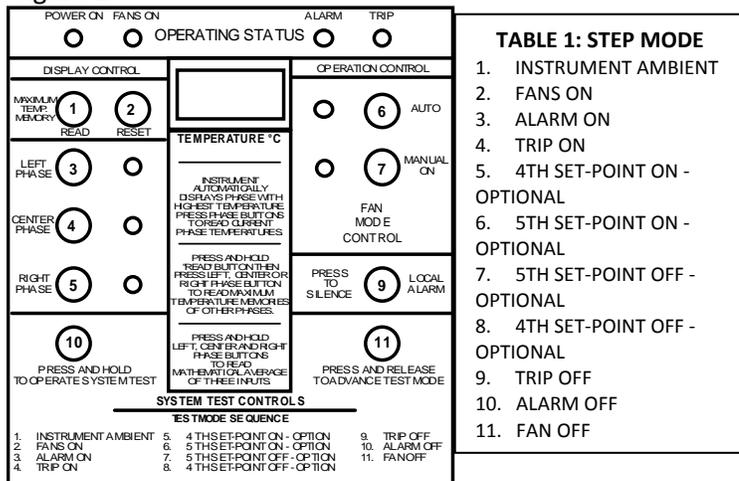


## Operating Instructions for Monitoring Features (Drawing 10-21-96-A)

Figure 1



- First time (as shipped) start-up status
  - Fan mode is automatic.
  - Fan exerciser is off.
- Future "start-up's" use customer's choice of programmed operations.
  - Reference Drawing 10-21-96-B.
  - Access code is required for all programmable features.
  - DEFAULT CODE IS **6777621**.
- Reset or restart software (if instrument does not respond to commands)
  - Press and hold buttons 1, 6, & 9 in 1-6-9 simultaneously.
  - All lights except for "POWER ON" will turn off.
  - Release the three buttons.
  - Instrument software will reset to normal start-up mode.
  - Check instrument fuse if Power On status light is "OFF".
- Display maximum temperature memory.
  - Press button 1.
  - Display will indicate highest temperature in memory.
  - Phase LED's will indicate which phase temperature is displayed.
- Display maximum temperature memory (MTM) of other phases
  - Press and hold button 1. Then press
  - Button 3 to display MTM of left phase or
  - Button 4 to display MTM of center phase or
  - Button 5 to display MTM of right phase.
  - Buttons 4 and 5 to display MTM of optional 4th input.
  - Release button 1.
- Erase maximum temperature memories.
  - Press button 2 to reset all MTM's to zero.
  - Maximum temperature memories include
    - All three phases and
    - Optional fourth temperature sensor.
- Display current operating temperatures
  - Press button 3 or 4 or 5 to display current phase temperatures.
  - Press buttons 4 & 5 to display optional 4th input temperature.
  - Press and hold buttons 3, 4, & 5 to display mathematical average of the three phase temperatures.
- Operation controls
  - Fan mode
    - Start-up is always in automatic mode.
    - Press button 7 for manual-on mode.
    - Press button 6 for automatic mode.
  - Alarm control
    - Press button 9 to silence local alarm.
    - Remote alarm relay remains "on" until alarm condition clears.
- SYSTEM TEST (general description)
 

(for start-up test or check set-points and relays)

  - Reference Table 1 for test mode sequence
  - Press and hold button 10 then
 

(NOTE: User must hold button 10 until desired steps in TABLE 1 are complete.)
  - Press and release button 11 to advance TEST MODE one step.
- SYSTEM TEST sequential actions of test mode are:
  - Instrument ambient temperature is displayed and all other LED's turn on.
  - Fans-on set-point temperature is displayed.
    - Fans-on LED is turned on.
    - Fans relays are turned on.
  - Alarm-on set-point temperature is displayed.
    - Alarm-on LED is turned on.
    - Alarm relay is turned on.
    - Local alarm is turned on.
    - Local alarm can be silenced if desired.
  - Trip-on set-point temperature is displayed.
    - Trip-on LED is turned on.
    - Trip relay will not turn on.
    - Trip relay turns on only with input signal.
  - Fourth set-point on-temperature is displayed.
 

(Display will indicate 180 if set-point is not activated.)

    - 100's decimal point is turned on.
    - Fourth set-point relay is turned on.
  - Fifth set-point on-temperature is displayed.
 

(Display will indicate 180 if set-point is not activated.)

    - 10's decimal point is turned on.
    - Fifth set-point relay is turned on.
  - Fifth set-point off temperature is displayed.
 

(Display will indicate 166 if set-point is not activated.)

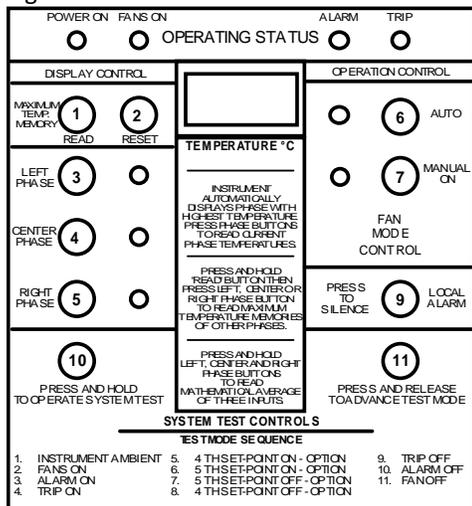
    - 10's decimal point will blink.
    - Fifth set-point relay will turn off.
  - Fourth set-point off temperature is displayed.
 

(Display will indicate 175 if set-point is not activated.)

    - 100's decimal point will blink.
    - Fourth set-point relay will turn off.
  - Trip-off set-point temperature is displayed and trip-on LED will blink.
  - Alarm-off set-point temperature is displayed.
    - Alarm-on LED will blink.
    - Alarm relay will turn off or
    - Local alarm will turn off if not previously silenced.
  - Fans-off set-point temperature is displayed.
    - Fans-on LED will blink.
    - Fan relays will turn off.

Operating Instructions for Programmable Features  
(Drawing 10-21-96-B)  
Reference Table 1 and Table 2 on this drawing  
Reference drawing 10-21-96-A

Figure 1



- ACCESS CODE is required for all programmable features.
  - Transformer manufacturer maintains control of "CODE".  
Cimco supplies standard code. **DEFAULT CODE IS 6777621.**  
Customer may select code.
  - Instructions for each programmable feature are described in Items 2, 3, 4, 5, or 6 on this page.
  - Access will be turned-on with the following steps.
    - Press and hold button 10 until programmable selections are completed.
    - Enter seven digit access code.
    - A "beep" will indicate acceptance of "code".
  - Continue to hold button 10 until changes are complete.
    - Steps 2, 3, 4, 5, and 6 can be executed as single actions or
    - Steps 2, 3, 4, 5, and 6 software selections can be completed with one ACCESS CODE input.
  - Repeat ACCESS CODE procedures if button 10 is release before all software selections are completed.
- Change "ON SET-POINTS" (reference table 1 & 2)
  - Press and release button 11 to select set-point requiring change.
  - Press button 6 once to increase "TEMPERATURE ON" one increment.
  - Press button 7 once to decrease "TEMPERATURE ON" one increment.
- Change "DEAD-BAND" (reference tables 1 & 2)
  - DEAD-BAND is defined as the difference between set-point on and set-point off.
  - Press and release button 11 to select dead-band require change.
  - Press button 6 once to increase "DEAD-BAND" one increment.
  - Press button 7 once to decrease "DEAD-BAND" one increment.

- Turn FAN EXERCISER on
  - Repeat ACCESS CODE procedures if button 10 has been released.
  - Press and release button 9 then
  - Press and release button 1.
  - Release button 10 to turn fan exerciser on.
  - Clock starts in AUTO ON running mode.
  - FANS OFF MODE status during fan exerciser "on-time";
    - Clock continues to run during FANS OFF mode.
    - Fan power is turned off during FANS OFF mode
- Select FAN EXERCISER "on-time"
  - ENTER ACCESS CODE
  - Select "on-time" with one of the following choices.
    - Press and release button 3 for two hours or
    - Press and release button 4 for one hour or
    - Press and release button 5 for one minute or
    - Press and release button 6 to add one minute or
    - Press and release button 7 to subtract one minute.
  - Release button 10 and the "on-time" is selected.
- Turn FAN EXERCISER off
  - ENTER ACCESS CODE
  - Press and hold button 10 then
  - Press and release button 9 then
  - Press and release button 2.
  - Release button 10 to turn fan exerciser off.
- ACCESS CODE IS TURNED OFF when button 10 is released.
- See Drawing 10-21-96-C for RELAY ON elapsed time-monitoring instructions.

Table 2

- Operating status LED's indicated which set-point is available for change.
  - For "on" set-points LED's do not blink.
  - For "dead-band" LED's blink.
  - Fourth set-point (optional) is associated with 100's decimal point.
  - Fifth set-point (optional) is associated with 10's decimal point.
- Fans-on set-point changes in five degree increments.
- All set-point and dead-bands except fans-on change in one degree increments.
- Dead-band limits are fixed to help prevent mistakes.
  - Fan relay dead-band maximum is 50 C.
  - Fan relay dead-band minimum is 10 C.
  - All other dead-band maximums are 10 C.
  - All other dead-band minimums are 3 C.
- Fan exerciser
  - Minimum on time is one minute.
  - Maximum on time is two hours.
  - Off time is one week only.
- Fourth set-point relay is optional.
- Fifth set-point relay is optional.
- Fourth input sensors are optional.
- Set-point monitoring "on" times are in 100's of hours.

Operating Instructions for Monitoring Temperature Trends  
(Drawing 10-21-96-C)  
Reference Drawings 10-21-96-A & 10-21-96-B

Figure 1

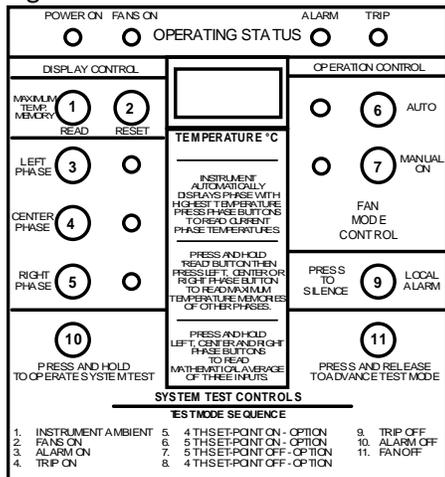


TABLE 1: STEP MODE

1. INSTRUMENT AMBIENT
2. FANS ON
3. ALARM ON
4. TRIP ON
5. 4TH SET-POINT ON - OPTIONAL
6. 5TH SET-POINT ON - OPTIONAL
7. 5TH SET-POINT OFF - OPTIONAL
8. 4TH SET-POINT OFF - OPTIONAL
9. TRIP OFF
10. ALARM OFF
11. FAN OFF

SPECIAL NOTES FOR TEMPERATURE TREND DATA

1. Schedule fan motor maintenance.
2. Monitor fans-on time.
3. Monitor alarm-on time.
4. Monitor trip-on time.
5. Data for calculating consumed life of transformer insulation.
6. Time is displayed in 100's of hours.
  1. Accuracy is plus 0 and minus 1 hour.
  2. Maximum reading is 25,500 hours.
  3. Automatic reset to zero after 25,500 hours.

1. ACCESS CODE is required for all programmable features.
  1. Transformer manufacturer maintains control of "CODE".  
DEFAULT CODE IS **6777621**.
  2. Access will be turned on with the following steps.
    1. Press and hold button 10 until desired operations are completed. Enter access code again if required.
    2. Enter seven digit access code.
    3. A "beep" will indicate acceptance of "code".
    4. Follow instructions in items 2, 3, or 4 on this page.
  3. Continue to hold button 10 until all changes are completed.
    1. Start Step 2 and continue through Steps 3 and 4 or
    2. Perform Step 1 or Step 2 or Step 3
2. Monitor fans-on elapsed time
  1. To read
    1. Press and release button 3.
    2. Display will indicate elapsed time in hundreds of hours.
    3. Press and release button 3 then continue to Step 3. 1. 2.
  2. To erase or reset time to zero
    1. Press and hold button 10 then
    2. Press and release button 4 then
    3. Press and release button 2.
    4. Display will indicate three zeroes.
4. Monitor trip-on elapsed time
  1. To read
    1. Press and release button 5.
    2. Display will indicate elapsed time in hundreds of hours.
  2. To erase or reset time to zero
    1. Press and release button 5 then
    2. Press and release button 2.
    3. Display will indicate three zeroes.
5. ACCESS CODE IS TURNED OFF when button 10 is released.