

SECTION 5

TESTING

DIAGNOSTIC SOFTWARE – YORK MICRO-COMPUTER CONTROL CENTER

The diagnostic software consists of six tests. These tests are Ram test, A/D test, display test, keyboard test, digital input test, and digital output test. The diagnostic software is stored in the same memory as the operating program. To enable the diagnostic, enter **SERVICE** mode and place the enable/disable jumper plug (on Micro Board) in the **ENABLE** position. To disable the diagnostic, leave **SERVICE** mode and place the enable/disable jumper plug in the **DISABLE** position. After the diagnostic is enabled, all further service technician interaction is done on the front panel keypad. When the diagnostic is enabled, the service technician is presented with a menu from which he can choose the test to be performed. The menu and six tests are described as follows:

CAUTION: Before performing this test, remove the jumper between terminals 24 and 25 on TB5 and press the manual trip button on 1M oil pump starter mounted on the condenser shell. This disables both the compressor motor and the oil pump starters. Upon completion of the test, replace the jumper between terms 24 and 25 on TB5 and reset the 1M oil pump starter.

MENU

Upon entering the diagnostic software the technician will observe a menu from which one of the six tests may be chosen. Press **9** key to view all five tests. The tests may be chosen by selecting the numeric key listed with the test. The keys and tests are as follows:

- | | |
|----------------|-----------------------|
| 0—Ram test | 3—Keyboard test |
| 1—A/D test | 4—Digital input test |
| 2—Display test | 5—Digital output test |

The numeric keys are located under “Entry” on the front of the control center.

RAM TEST

This test will check all Ram locations in the system. The ram consists of two areas:

- EXT—external Ram
- RTC—Ram internal to the clock

After the test is completed the display will show the two areas with either a pass or fail. A failed condition would indicate that the Micro Board should be replaced. Press any key after the test is over to return to the main menu.

A/D TEST

This test will allow the technician to select any of the analog input channels and display the voltage on that channel on the display. The display will show the voltage found on that channel in volts (0-5.000V). Upon entering this test the technician will be asked to push one of the display function keys to select a group of analog channels; from here an individual channel may be selected. The analog channels associated with the display keys are as follows:

CHILLED LIQUID TEMPS

- ECWT—entering chilled water temp
- LCWT—leaving chilled water temp

(The analog voltage displayed for LCWT is that which is measured at IC U53 pin #7, not Micro Board input J19-10)

REFRIGERANT PRESSURES

- PURG—purge pressure
- COND—condenser pressure
- EVAP—evaporator pressure

OIL PRESSURE

- LOP—low oil pressure
- HOP—high oil pressure

OPTIONS

Not Used

SSS MOTOR CURRENT/VOLTS

- 0 = line voltage range and starter size (ammeter scale) analog voltage
- 1 = 100% and 104% current limit command analog voltage
- 2 = ØC line voltage (C-A) analog voltage
- 3 = ØB line voltage (B-C) analog voltage
- 4 = ØA line voltage (A-B) analog voltage
- 5 = ØA motor current analog voltage
- 6 = ØB motor current analog voltage
- 7 = ØC motor current analog voltage

CONDENSER LIQUID TEMPS

- ECNWT—Entering condenser water temp
- LCNWT—Leaving condenser water temp

PRINT

- DISCGT—Discharge Temp
- OT—Oil Temp

% MOTOR CURRENT

NOTE: After pressing this key, press **SSS MOTOR CURRENT/VOLTS** key, then press **#7 ENTRY** key.

% FLA—Motor Current

OPERATING HOURS

Not Used

After tests are completed, press “*” key to return to main menu.

DISPLAY TEST

This test will make sure the display is functioning. Upon entering this test the technician will be instructed to push a key to start the test. Once the test has started the technician will see different characters scroll past on the display. Any key may be pushed after the test has started to return to the main menu.

KEYPAD TEST

This test allows the service technician to make sure that all of the keys on the keypad are functioning. Upon entering this test the technician will be instructed to press any of the keys. Upon pressing any of the keys a description of that key will be displayed on the display to determine if the keypad is working correctly. To exit this routine and return to the main menu the “*” key must be pushed.

DIGITAL INPUT TEST

This test will monitor the digital input lines to the system and determine if the lines and their associated devices are functioning properly. A mnemonic for each line will be displayed with its associated state (1 if the line is high or 0 if the line is low). The lines monitored and their associated mnemonics are:

STOP—stop line

MOCON—motor controller

AUX—auxilliary digital input

START—start line

TFS—top float switch

BFS—bottom float switch

HP—high pressure

VMS—vane motor switch

FLS—flow switch

BAT—battery back-up

SYSCY—remote/local cycling

MULCY—multi unit cycling

LEP—low evaporator pressure

LWT—low water temp

J54—chilled water pump program jumper

JP5—current unbalance program jumper

JP6—prerun program jumper

RSTRT—remote start switch

UV—untervoltage

RSTOP—remote stop switch

RLCWT—remote LCWT setpoint

RCURR—remote current setpoint

After tests are completed, press “*” key to return to main menu.

DIGITAL OUTPUT TEST

This routine allows the technician to monitor and change the state of the digital output lines. The technician will see an output line listed along with its present state (1 if the line is high or 0 if the line is low). At this time if the technician wishes to change the state of the line, press 1 to make the line high or 0 to make the line low. To leave this routine to return to the main menu press “*”. The digital output lines monitored are:

MOTOR STOP

VENT/LIQUID LINE

OIL RETURN

HIGH SPEED THRUST

OIL PUMP

CHILLED WATER PUMP

SAFETY SD

CYCLING SD

MOTOR START

PRV OPEN

PRV CLOSE

EMS (REMOTE MODE

READY TO START)