



**MODEL – YK**

**START-UP CHECKLIST**

CUSTOMER: \_\_\_\_\_ JOB NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 PHONE: \_\_\_\_\_ CUSTOMER ORDER NO: \_\_\_\_\_  
 JCI TEL NO: \_\_\_\_\_ JCI ORDER NO: \_\_\_\_\_ JCI CONTRACT NO: \_\_\_\_\_

**CHILLER MODEL NO:** \_\_\_\_\_ **UNIT SERIAL NO:** \_\_\_\_\_

The work (as checked below) is in process and will be completed by: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Month Day Year

The following work must be completed in accordance with installation instructions:

**A. GENERAL**

1. Review the installation checklist (Form 160.75-CL1) .....
2. Chiller is properly installed and leveled.....
3. Vibration Isolators or Pads properly installed ....
4. Evaporator and Condenser water piping is complete .....
5. Water piping is supported properly and there is NO strain on the waterboxes .....
6. Strainers are clean and installed in both evaporator and condenser water circuits prior to water supply chiller .....
7. Water connections arranged to match design specifications .....
8. Relief piping is complete and meets local building codes.....
9. Wiring is complete per field wiring specifications (Form 160.75-PW1 EM-SSS, Form 160.75-PW2 MV-SSS, Form 160.75-PW3 MV-VSD) .....
10. Confirm any field control wiring modifications are done per Form 160.75-PW4 .....
11. Verify chiller is charged with refrigerant .....
12. Verify all operating valves are open and service valves to atmosphere are closed .....
13. Lubricate motor per motor manufacture specifications.....
14. Verify all operating valves are open and service valves to atmosphere are closed .....
15. Check compressor coupling to insure all bolts and setscrews are tight .....
16. Leak check the chiller .....

**B. MICROPANEL COMMISSIONING CHECKLIST (Refer to Form 160.54-O1)**

Use the following checklist during commissioning to assure all Setpoints have been programmed to the desired value and all calibrations have been performed. The programming of some of the Setpoints require a SERVICE access level before beginning.

The Setpoints are grouped under the Display Screen in which they appear. The indented screens are subscreens of the numbered screens and are accessed from the numbered screens. An explanation of each setpoint or Calibration Procedure below is contained in the reference document listed in parenthesis adjacent to each item. If any of the Setpoints have to be changed, use the standard programming procedures found in the Operation Manual (Form 160.54-O1). Thresholds, values and calibrations of items marked with an asterisk "\*" have been determined and entered/set at the factory at the time of manufacture.

**1. PROGRAM JUMPERS/SWITCHES: (160.54-M1)**

- a. Verify Microboard program jumpers and program switches are configured appropriately ..
- b. Determine if equipped with Microboard 031-01730-000 or Microboard 031-02430-000/001 .....
- c. Verify Stall Detector Board program jumper (JP1) is in the ENH position (for units equipped with VGD only) .....

**2. EVAPORATOR SCREEN: (160.54-O1)**

Record the following Setpoints:

- a. Leaving Chilled Liquid Temp. (Except ISN Remote Mode).....
- b. Remote Leaving Chilled Liquid Temp. Setpoint Range (Except ISN Remote Mode)..

- c. Low Chilled Liquid Temp. cycling shutdown offset.....
- d. Low Chilled Liquid Temp. cycling shutdown re-start offset .....
- e. Leaving Chilled Liquid Temp. control Sensitivity (160.54-M1).....
- f. Brine low evvaporator pressure cutout threshold\* (160.54-M1).....
- g. Smart Freeze Protection ON/OFF .....
- h. Refrigerant Temp. Sensor Enable/Disable .....

**3. CONDENSER: (160.54-M1)**

Record the following Setpoints:

- a. High Pressure Limit/Warning Threshold Setpoint .....
- b. Drop Leg Refrigerant Temp. Sensor Enable/Disable .....

**4. REFRIGERANT LEVEL CONTROL/TUNING SCREEN:**

Record the following Setpoints:

- a. Level Setpoint .....
- b. Control Period (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- c. Proportional Limit Open (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- d. Proportional Limit Close (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier) .....
- e. Rate Limit Open (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- f. Rate Limit Closed (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- g. Zone 1 Period (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- h. Zone 1 Rate (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- i. Zone 2 Period (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- j. Zone 2 Rate (C.MLM.01.11.xxx or C.OPT.01.11.xxx and earlier).....
- k. Manual or Auto Control (as desired).....
- l. Verify Refrigerant Level Sensor Calibration...
- m. Valve Preset Time.....
- n. Ramp-up Time .....
- o. Rate Limit .....

**5. COMPRESSOR SCREEN:**

Select Pre-rotation Vanes Manual or Auto Control ..

**6. PROXIMITY PROBE VANES CALIBRATE SCREEN:**

Verify Proximity Probe Reference Position has been entered (If applicable).....

**7. PRE-ROTATION VANES CALIBRATE SCREEN:**

Perform Pre-rotation Vanes Calibration (If applicable).....

**8. VSD TUNING SCREEN**

Select Auto or Manual Compressor motor frequency control (If applicable).....

**9. HOT GAS BYPASS SCREEN: (160.54-M1)**

If chiller is equipped with optional Hot Gas Bypass, enable operation on the OPERATIONS Screen and enter the following setpoints:

- a. Maximum Open (Flash Memory Card version C.MLM.01.05.xxx and later).....
- b. Surge Sensitivity (moved to Surge Protection Screen in Flash Memory Card version C.MLM.01.05.xxx and later) .....
- c. Hold Period.....
- d. Close Percentage .....
- e. Minimum Load .....
- f. Manual or Auto Control (as desired).....

**10. SURGE PROTECTION SCREEN: (160.54-M1)**

(Flash Memory Card Version C.MLM.01.05.xxx and later)

- a. Enable/Disable Excess Surge Shutdown Feature .....
- b. Enable/Disable Extended Run Feature .....
- c. Count Window .....
- d. Count Limit .....
- e. Surge Sensitivity.....

**11. Variable Geometry Screen: (160.54-M1)**

If compressor is equipped with Variable Geometry Diffuser, enable operation on the OPERATIONS Screen and enter the following setpoints:

- a. Surge Reaction Time .....
- b. PRV Offset.....
- c. Probe Wait Time .....
- d. Open Pulse:
  - 1. High Limit.....
  - 2. Low Limit.....
- e. Extreme Stall Duration (software version C.MLM.01.14.xxx and later or C.OPT.01.14.306 and later).....

- f. PRV VGD inhibit (software version C.MLM.01.14.xxx and later or C.OPT.01.14.306 and later).....
- g. Manual or Auto Control (as desired).....

**12. Oil Sump Screen (160.54-M1)**

Standby Lubrication Enable/Disable if chiller is equipped with the Oil Pump Variable Speed Drive, verify the following setpoints have been entered:

- a. Oil Pressure Setpoint\* .....
- b. Control Period\* .....
- c. Manual or Auto Control (as desired).....

**13. MOTOR SCREEN:**

- a. Enter the desired Current Limit Setpoint (160.54-O1) .....
- b. Enter the desired Pulldown Demand Limit and Time Setpoint (160.54-O1) .....

**C. SOLID STATE STARTER APPLICATIONS: (160.54-M1)**

**1. Mod "B" Solid State Starter:**

Verify the following setpoints have been programmed:

- a. Full Load Amps\* .....
- b. Start Current\*.....
- c. Supply Voltage Range\* .....
- d. Enable Open SCR Detection.....
- e. Enable Shorted SCR Detection (Flash Memory Card version C.MLM.01.04.xxx and later) .....
- f. KWH Reset.....

**2. Mod "A" Solid State Starter:**

Verify the following setpoints have been programmed:

- a. Full Load Amps\* .....
- b. Supply Voltage Range\* .....
- c. Current Unbalance Check - Enable or Disable\* .....

**3. Logic Board:**

- a. Verify Location of 300V/600V Jumper\* .....
- b. Verify Start Current Calibration\* .....
- c. Verify 105% FLA Calibration.....
- d. Verify 100% FLA Display .....

**4. Electro-Mechanical Starter Applications: (160.54-M1)**

Current Module:

- a. Verify Switch S1 (Ydelta/57% or all others) setting\* .....
- b. Verify POT R16 (LRA/FLA Ratio) setting\* .....
- c. Verify Slide Bar Resistor .RES setting\* .....
- d. Verify 105% FLA Calibration\* .....

- e. Verify 100% FLA Display\* .....

**5. Variable Speed Drive Applications: (160.54-M1 and 160.00-M1)**

- KWH Reset.....

**14. VSD DETAILS SCREEN:**

- Set Chiller Full Load Amps (FLA) value by adjusting Potentiometer on VSD logic Board .....

**15. ADAPTIVE CAPACITY CONTROL (ACC) DETAILS SCREEN:**

- a. Surge Map Auto Print Enable/Disable .....
- b. The following setpoints should NOT be changed unless instructed by the factory
  - 1. Surge Margin Adjust\* .....
  - 2. Stability Limit\* .....

**16. SETPOINTS SCREEN: (160.54-O1)**

With the exception of the Remote Analog Input Range the setpoints listed on the SETPOINTS Screen have already been programmed above on Previous Screens. the values shown reflect the previously programmed values. However, the setpoints can be programmed. If it is not desired to change any of the listed setpoints, proceed to the SETUP Screen below.

- Remove Analog Input Range.....

**17. SETUP SCREEN:**

- a. Enable Clock .....
- b. Enter Clock Time and Date.....
- c. Select 12 or 24 hour display mode .....

**Microboard 031-01730-000:**

The state of Program Jumpers/Switches that affect chiller operation are displayed. These were configured in Step 1 above. confirm they are correct (160.54-M1 Section 3) .....

**Microboard 031-02430-000:**

- a. The state of program switches SW1-1 (Refrigerant Selection) and SW1-2 (Liquid Type) is displayed. These were configured in step 1 above. confirm they are correct .....
- b. Recorded the following setpoints: (160.54-M1)
  - 1. Chilled Liquid Pump Operation .....
  - 2. Motor Drive Type.....
  - 3. Anti-Recycle.....
  - 4. Power Failure Restart .....
  - 5. Coastdown .....
  - 6. Pre-Run.....
  - 7. Oil Pump Package .....
  - 8. Motor Communication Protocol.....
  - 9. Motor Node ID.....
  - 10. Coastdown Time .....
  - 11. Condenser Temperature Range.....

**18. SCHEDULE SCREEN:**

- a. Enable or Disable Daily Start/Stop schedule as required.....
- b. Enter Chiller Start/Stop Schedule if required..

**19. USER SCREEN:**

- a. Select desired Display language .....
- b. Select desired Display units; English or Metric.....
- c. If desired, establish custom USER ID's and PASSWORDS (160.564-M1).....

**20. COMMS SCREEN:**

If Modem and or Printer is connected to the Microboard Serial data ports, enter the following parameters as required for each device connected:

- a. Baud Rate.....
- b. Number of data bits .....
- c. Number of stop bits .....
- d. Parity .....
- e. Enter appropriate number for Modem, Printer or ISN remote Application: .....

1. Chiller ID (Identification)

**21. PRINTER SCREEN:**

- a. If Printer is connected to Microboard serial ports, enter the following:
  - 1. Automatic print logging Enable/Disable .....
  - 2. Automatic printer logging start time .....
  - 3. Automatic print logging interval.....
  - 4. Printer Type.....
  - 5. Report type; STATUS, SETPOINTS, SCHEDULE, or SALES ORDER.....

**22. SALES ORDER SCREEN:**

- a. Enter system commissioning date.....
- b. Acquire a printout of the Sales Order screen .

**23. OPERATIONS SCREEN: (160.54-M1)**

- a. Select desired Control Source (operating mode); LOCAL, ISN Remote, DIGITAL Remote or ANALOG Remote .....
- b. Refrigerant Level Control operation Enable/Disable.....
- c. Hot Gas Bypass Control (optional) Enable/Disable.....
- d. Variable Geometry Diffuser (Enable/Disable) (Chillers equipped with Variable geometry

Diffuser (Software version C.MLM.01.10.xxx and later or C.OPT.01.10.302 and later).....

- e. Edit Regional phone number if necessary (Flash Memory Card version C.MLM.01.05.xxx and later) .....
- f. Enter Local phone number (Flash Memory Card version C.MLM.01.07.xxx and later) .....
- g. Enter Flow Sensor type (Flash Memory card version C.MLM.01.08.xxx and later).....

**D. OPERATION**

- 1. Check cooler and condenser water flows are reasonably close to design (+/-10%).....
- 2. Confirm oil temperature is in stand-by range (at least 40°F or 22.2°C above saturated condensing temperature).....
- 3. Manually run the oil pump & check oil pressure .
- 4. Jog compressor and check correct rotation (CAUTION-insure compressor has good oil pressure prior to jogging and Pre-rotation Vanes are closed as indicated by position of the control arm).....
- 5. Start Chiller .....
- 6. After the chiller has come up to full load at design leaving chilled water, log chiller operation.....
- 7. Verify refrigerant level sensor tracks level from empty condenser to fully flooded probe over the range <10% to nearly 100% (160.54-M1, SI0187) .....
- 8. Adjust Condenser refrigerant liquid level setpoint to a value that covers the subcooler and provides proper Evaporator performance ....

**Owner's operating personnel:**

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

