



MODEL – YVWA

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 start-up instructions contained in the Installation, Operation, and Maintenance Manual (Form 201.30-ICOM2):

A. GENERAL:

The following basic checks should be made with the customer power to the unit switched off.

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Review the Installation Checklist (Form 201.30-CL1). <input type="checkbox"/> 2. Inspect the unit for installation damage that may have occurred. If damage is found, take action and/or repair as appropriate. <input type="checkbox"/> 3. Water connection inlet and outlet are at proper locations, have hangers nearby that would support their weight and show no visible strain on chiller nozzles. <input type="checkbox"/> 4. Wiring is complete (power feed terminations in the VSD), and all sources of electrical supply to the unit are taken from a single point of isolation per 201.30-PW2. <input type="checkbox"/> 5. Confirm any field control wiring modifications are in accordance with Form 201.30-PW2 <input type="checkbox"/> 6. Verify the chiller is charged with refrigerant (pressures match R-134a saturation for ambient temp). <input type="checkbox"/> 7. Verify that the unit's protective ground terminal(s) are properly connected to a suitable grounding point. Ensure that all unit internal ground connections are tight. <input type="checkbox"/> 8. Verify the following isolation valves are open. <ol style="list-style-type: none"> a. Compressor 1 discharge (optional) <input type="checkbox"/> b. System 1 condenser subcooler outlet (optional) <input type="checkbox"/> c. System 1 condenser pressure transducer <input type="checkbox"/> d. System 1 condenser gas to oil eductor <input type="checkbox"/> e. System 1 evaporator pressure transducer <input type="checkbox"/> f. System 1 evaporator oil return to eductor <input type="checkbox"/> g. System 1 oil return eductor to compressor <input type="checkbox"/> | <ol style="list-style-type: none"> h. System 1 liquid injection to compressor (optional) <input type="checkbox"/> i. System 1 economizer pressure transducer <input type="checkbox"/> j. Compressor 2 discharge (optional) <input type="checkbox"/> k. System 1 condenser subcooler outlet (optional) <input type="checkbox"/> l. System 2 condenser pressure transducer <input type="checkbox"/> m. System 2 condenser gas to oil eductor <input type="checkbox"/> n. System 2 evaporator pressure transducer <input type="checkbox"/> o. System 2 evaporator oil return to eductor <input type="checkbox"/> p. System 2 oil return eductor to compressor <input type="checkbox"/> q. System 2 liquid injection to compressor (optional) <input type="checkbox"/> r. System 2 economizer pressure transducer <input type="checkbox"/> 9. Verify the shipping anti-freeze solution has been drained from the VSD, and replaced with the proper amount of inhibited water coolant that shipped loose with the chiller. Refer to SECTION 7 - MAINTENANCE in the 201.30-ICOM2 for filling process. <input type="checkbox"/> 10. Verify electrical connections in the VSD are tight, especially motor leads to terminals. <input type="checkbox"/> 11. If the VSD provides an optional circuit breaker at the incoming power connection to the VSD, make sure the settings are properly set per the information on the next page. <input type="checkbox"/> |
|---|--|

Find your VSD model from the list on the next page, and set the adjustments to the setting values in the following table. If your model is not listed below, look for it in the table of drive model numbers in the table with the ratings plug value.

(Continued on following page)

- a. TV2CMPRBW-40A
- b. TV2CMPRBW-65A
- c. TV2CMPRBW-50C
- d. TV2CMPRBW-68A
- e. TV2CMPRBW-46A

ADJUSTMENT	SETTING VALUE
Long Time Pickup IR~	G
Long Time Delay TLD(S) LONG	2
Short Time Delay ISD(XIR) SHORT	2
Ground Fault Pickup IG(XIN) GND	0.2
Ground Fault Delay TSD/ TG(MS) SHORT/GND	J

Find your model from the list below, check the ratings plug values in the first table, and set the setting values for the adjustments listed in the second table:

DRIVE MODEL NO.	RATINGS PLUG VALUE
TV2CMPRBW-40B	600
TV2CMPRBW-40C	800
TV2CMPRBW-65B	600
TV2CMPRBW-65C	800
TV2CMPRBW-50B	600
TV2CMPRBW-50C	800
TV2CMPRBW-68B	600
TV2CMPRBW-68C	800
TV2CMPRBW-46B	600
TV2CMPRBW-58B	600

ADJUSTMENT	SETTING VALUES
Short Delay Pick-up	2
Short Delay Time	INST
Ground Fault Pick-up	1
Ground Fault Time	150



The settings for the circuit breaker should not be changed from the settings. The warranty will be voided if the breaker settings are changed.

- 12. Check the chiller for refrigerant leaks at joints or water piping leaks.
- 13. Make sure 9 liters (2.38 gallons) of compressor oil were added to both circuits.
- 14. Make sure the control panel is free of foreign material (wires, metal chips, tools, documents, etc.). Check for signs of water or moisture.

- 15. Make sure the leaving liquid temperature sensor is coated with the heat conductive compound (P/N 013-00890-000), and is inserted to the bottom of the water outlet sensor well in the cooler. This sensor must always be fully inserted in the water outlet sensor well.
- 16. Make sure the flow switches are connected between Terminals 2 and 12 and 2 and 13 on Terminal Block 1TB in the control panel.
- 17. Check whenever the pump contacts are used, the coil of the pump starter should be suppressed with an RC suppressor (P/N 031-00808-000).

B. START-UP

Panel Check



Only qualified individuals are permitted to service this product, and are to be knowledgeable of, and adhere to, all safe work practices as required by local codes. Use proper personal protection where and when required.

- 1. Verify that the voltage supply corresponds to the unit requirement, and is within the limits as specified in SECTION 4 - TECHNICAL DATA in Form 201.30-ICOM2.
- 2. Make sure the unit switch at the bottom of the keypad is in the OFF (O) position.
- 3. Apply 3-phase power to the chiller. Turn on the optional panel circuit breaker, if supplied.
- 4. Verify the control panel display is illuminated. To prevent the compressors from starting, make sure that the SYSTEM SWITCHES key is off for both systems.
- 5. Use a clamp-on ammeter to make sure the both compressor heaters are turned on. Heater current draw is approximately 3A.
- 6. Confirm that the compressor overload current settings have been correctly adjusted by the factory. These are not normally required to be reset. Use the VSD DATA key on the control panel, navigate to the COMP1 MOTOR OVERLOAD = ### AMPS and COMP2 MOTOR OVERLOAD = ### AMPS screens. The values should show 1.05 x the running current, which is on the chiller dataplate. For UL, the running current is designated as RLA. For CE, it is designated as Compressor Nominal Amps. If the values shown under VSD DATA key are not 1.05 x the nameplate current, an adjustment is required inside the VSD cabinet by qualified service personnel.
- 7. Record the overload settings below:
 System 1: _____ Amps
 System 2: _____ Amps

(Continued on following page)



Setting the potentiometers incorrectly may cause damage to the equipment.

- Press the STATUS key. If the following UNIT WARNING message appears, immediately contact Johnson Controls Product Technical Support to request the password to reprogram the serial number, and any other important factory programmed information that was lost.

**UNIT WARNING: INVALID SERIAL NUMBER
ENTER UNIT SERIAL NUMBER**

Programmed Options

Program the required options in the control panel for the desired operating requirements, then record the values below. Refer to the PROGRAM key in SECTION 6 - OPERATION in Form 201.30-ICOM2 for more information:

- Display Language = _____
- Chilled Liquid Mode = _____
- Local/Remote Mode = _____
- Display Units = _____
- Lead/Lag Control = _____
- Remote Temp Reset = _____
- Remote Current Reset = _____
- Compressor Selection = _____
- Operating Mode (Heat Pump) = _____

Programmed Operating Values

Program the required operating values into the microprocessor. then record them below. Refer to the PROGRAM key in SECTION 6 - OPERATION in 201.30-ICOM2 for low and high limits, and default values.

- Chilled Liquid Leaving Temperature Cutout = _____ °F (°C)
- Motor Current Limit = _____ % FLA
- Pulldown Motor Current Limit = _____ % FLA
- Pulldown Motor Current Limit Time = _____ MIN
- Motor Temp Unload = _____ °F (°C)
- Unit ID Number = _____
- Sys 1 Condenser Liquid Ref Level = _____
- Sys 2 Condenser Liquid Ref Level = _____

Liquid Control Setpoint

Program the chilled and condenser liquid (optional heat pump) setpoints and ranges, then record them below:

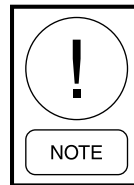
- Leaving Chilled Liquid Temp Setpoint = _____ °F (°C)

- Leaving Chilled Liquid Temp Control Range = _____ °F (°C)
- Maximum Leaving Chilled Liquid Remote Temp Reset = _____ °F (°C)
- Leaving Condenser Liquid Temp Setpoint = _____ °F (°C)
- Leaving Condenser Liquid Temp Control Range = _____ °F (°C)
- Maximum Leaving Condenser Liquid Remote Temp Reset = _____ °F (°C)

Date/Time and Daily Schedule

- Program the date and time by making sure that the CLK Jumper JP2 on the control board is in the ON position. Press the DATE/TIME key to set the date and time.
- Program the daily and holiday start/stop by pressing the SCHEDULE key.

C. CHILLER SYSTEM



After completion of the following checks for System 1, switch off the System 1 switch on the keypad and repeat the process for System 2. When both systems are running correctly, stop the unit, switch all applicable switches ON, and restart the unit.

- Ensure power is on the chiller to energize the compressor heaters 24 hours prior to start-up.
- Ensure the SYSTEM SWITCHES key is OFF for both systems.
- Turn the unit switch to the ON position.
- If the chilled and condenser liquid pumps are manually operated, start the pumps. The control center will not allow the chiller to start unless flow is established through the unit. If the pumps are wired to the control center, override the contact to start the pumps to verify the flow.
- Throttle back flow to make sure the flow switch opens with a loss of flow. If the pump is turned off during chiller operation, it is recommended that auxiliary pump contacts be placed in series with the flow switch for additional protection.
- Evaluate cooler and condenser water flow indication compared to design information found on the sales order. If shell pressure drop is used, it should be within +/- 15% of the rating information.

(Continued on following page)

7. If the chilled water and condenser pump run contacts on the chiller were overridden to check flow, remove overrides. Pumps will get start command when chiller initiates run.
8. Press the SYSTEM SWITCHES key, and turn on System 1 or 2 SWITCH. There may be a few seconds delay before the compressor starts because of the anti-recycle timer. Be ready, when each compressor starts, to switch the UNIT switch to the OFF position immediately, if any unusual noises or other adverse conditions develop.
9. When the compressor starts, press the relevant SYSTEM PRESSURES key to verify that oil differential pressure develops immediately. If oil pressure does not develop, the automatic controls will shut down the compressor. Under no circumstances should a restart attempt be made on a compressor, which does not develop oil pressure immediately. Switch the UNIT switch to the OFF position.
10. As the chiller is started, verify the refrigerant level sensor tracks level from empty condenser to fully flooded level sensor probe over the range of less than 10% to almost 100%.
11. Adjust condenser refrigerant liquid level setpoint to a value that covers the subcooler top and provides proper evaporator performance with the chiller running steady.
12. After the chiller is at full load at design Leaving Chilled Liquid Temperature, capture the operating data to print or save to text file.

