

CARRIER 23 XRV SCREW CHILLER HEAD PRESSURE 2-WAY VALVE CONTROL WIRING

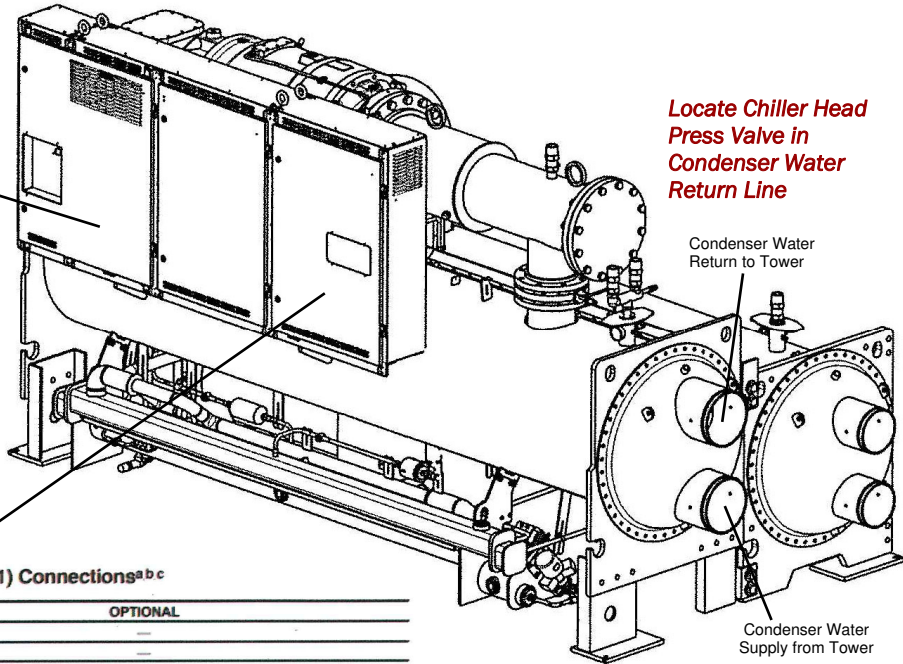


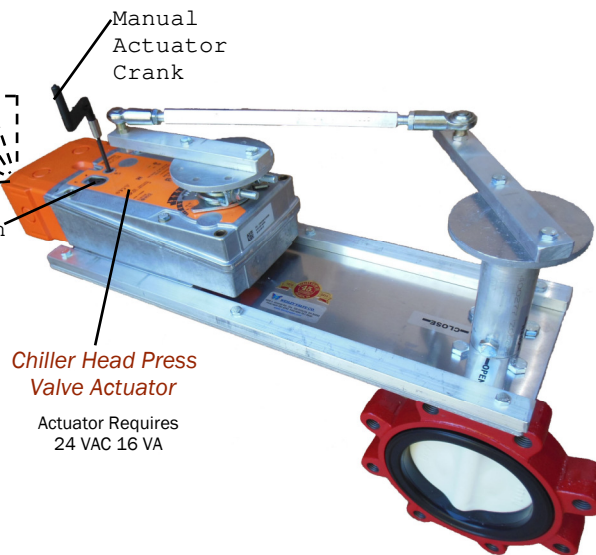
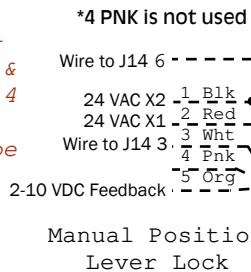
Table 2 – 23XRV Input/Output Board 1 (IOB1) Connections^{a b c}

DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Compressor Discharge Temperature	AI1	J16-1,5	5K Ohm	—
Motor Winding Temperature	AI2	J16-2,6	5K Ohm	—
Oil Vaporizer Temperature	AI3	J16-3,7	5K Ohm	—
Oil Sump Temperature	AI4	J16-4,8	5K Ohm	—
Remote Reset Sensor	AI5	J15-6,12	5K Ohm	Optional Field Connection 7TB-17, 18
Economizer Gas Temperature	AI6	J15-5,11	5K Ohm	—
Oil Pump Discharge Pressure	AI7	J15-4,10	5V	—
Oil Sump Pressure	AI8	J15-3,9	5V	—
Refrigerant Leak Sensor	AI9	J15-2,8	4-20mA	Optional Field Connection 7TB-19, 20 (Ensure channel 5 on SW2 dip switch is ON)
Auto Chilled Liquid Reset	AI10	J15-1,7	4-20mA	Optional Field Connection 7TB-21, 22 (Ensure channel 9 on SW2 dip switch is ON)
Head Pressure Output	AO3	J14-3,6	4-20mA	Optional Field Connection 7TB-34, 35
Remote Contact Input	DI1	J13-1,5	24 VAC	Optional Field Connection 7TB-9,10, Dry contact. Must be configured in "Configure Startup Options" in Chiller Start/Stop Menu.
Emergency Stop	DI2	J13-2,6	24 VAC	Optional Field Connection 7TB-11,12, Dry contact
Evaporator Flow Switch	DI3	J13-4,7	24 VAC	Optional Field Connection 7TB-13,14; Closed indicates flow
Condenser Flow Switch	DI4	J13-4,8	24 VAC	Optional Field Connection 7TB-15,16; Closed indicates flow
Chiller Alert	DO1	J12-6,7	24 VAC	Optional Field Connection 7TB-24V, 27
Chiller Alarm	DO2	J12-9,10	24 VAC	Optional Field Connection 7TB-24V, 29
Discrete Chiller Run Status Output (OFF=0V, ON=24VAC)	DO3	J12-1,2	24 VAC	Optional Field Connection 7TB-24V, 31
VFD Run Permissive	DO4	J12-4,5	24 VAC	—
Condenser Liquid Level Sensor	AI11	J10-1,7	0-5V	NOTE: For TP compressors only.

NOTE(S):

- a. See Fig. 5 for IOB1 wiring diagram.
- b. For pressure readings, only Vout (output) terminal is indicated. See Fig. 5 for Vin (+) and ground (-).
- c. Defaults are shown. In some cases the IOB can be configured differently depending on job requirements.

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4-20 mA Signal or the Resistor may be located at the Chiller Terminal Strip



Actuator Requires 24 VAC 16 VA

ACTUATOR HAS 4 TO 1 LEVER

90 DEG ACTUATOR TO 60 DEG VALVE ROTATION OR A 1.5 TO 1 RATIO INCREASES THROTTLING DISC REPOSITIONS



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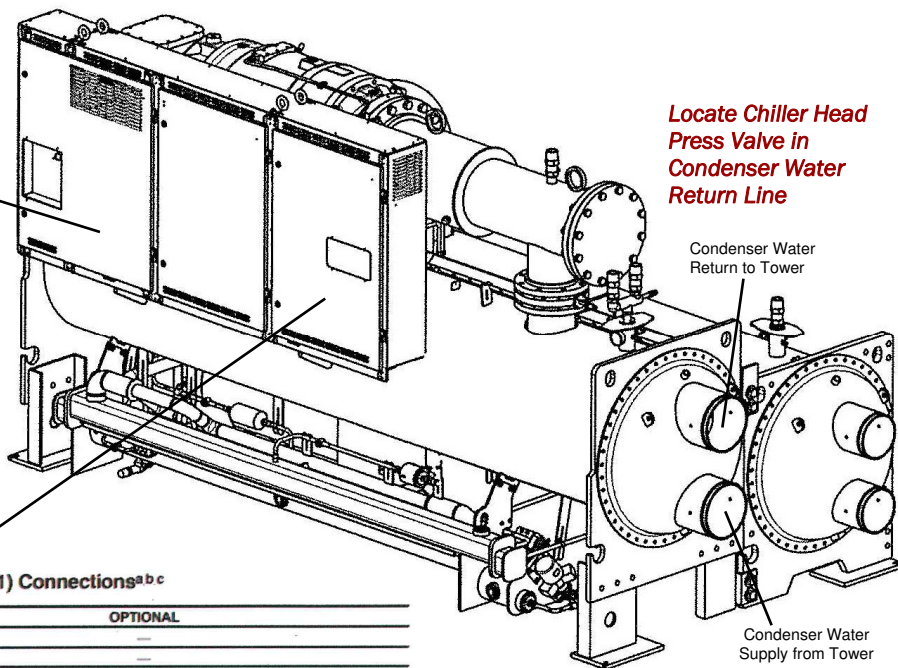


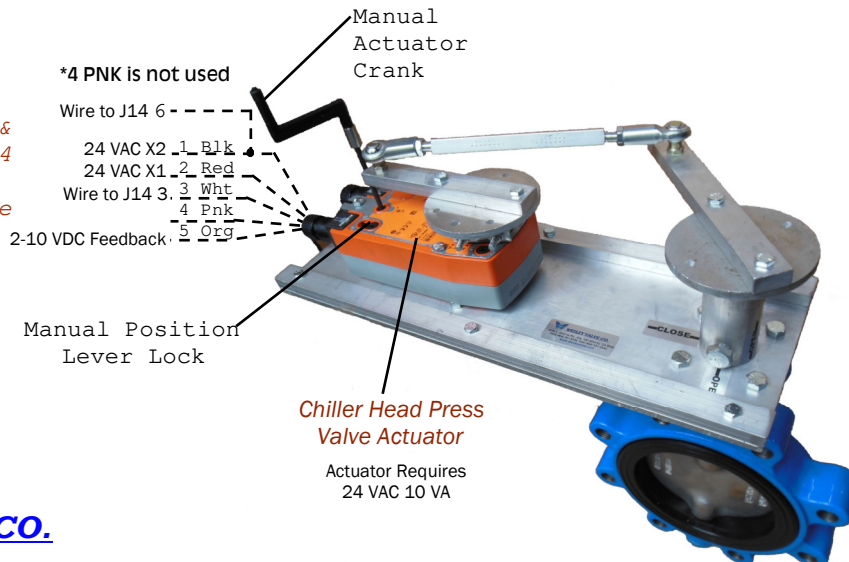
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Remote Reset Sensor	AI5	J15-6,12	5K Ohm	Optional Field Connection 7TB-17, 18
Economizer Gas Temperature	AI6	J15-5,11	5K Ohm	—
Oil Pump Discharge Pressure	AI7	J15-4,10	5V	—
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Chiller Alert	DO1	J12-6,7	24 VAC	Optional Field Connection 7TB-24V, 27
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VFD Run Permissive	DO4	J12-4,5	24 VAC	—
Condenser Liquid Level Sensor	AI11	J10-1,7	0-5V	NOTE: For TP compressors only.

NOTE(S):

- a. See Fig. 5 for IOB1 wiring diagram.
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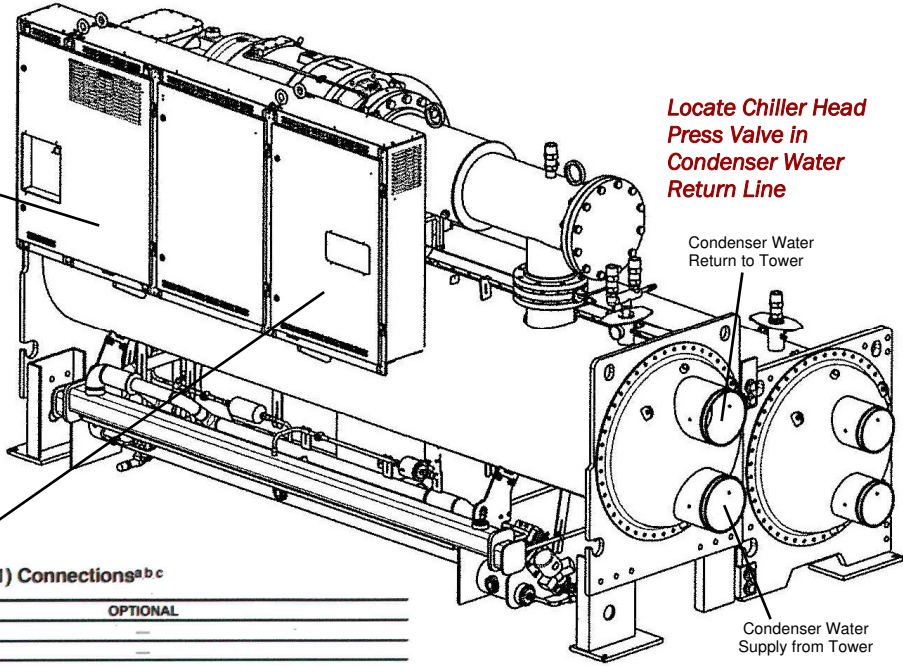
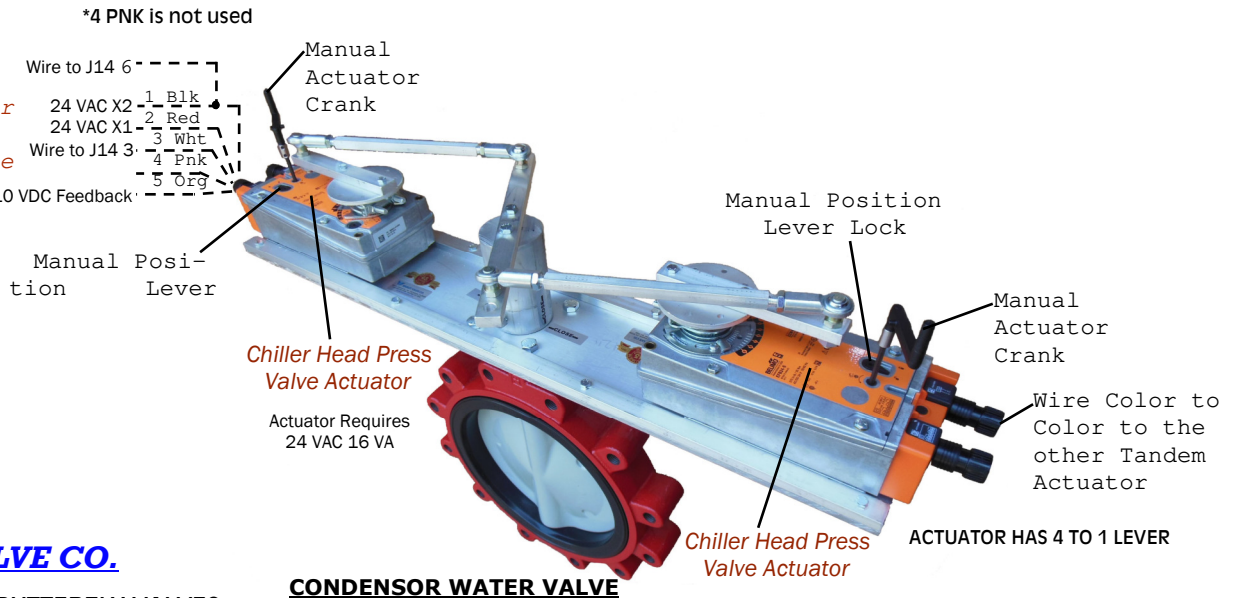


Table 2 – 23XRV Input/Output Board 1 (IOB1) Connections^{a,b,c}

DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Compressor Discharge Temperature	AI1	J16-1.5	5K Ohm	—
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Remote Reset Sensor	AI5	J15-6.12	5K Ohm	Optional Field Connection 7TB-17, 18
Economizer Gas Temperature	AI6	J15-5.11	5K Ohm	—
Oil Pump Discharge Pressure	AI7	J15-4.10	5V	—
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Remote Contact Input	DI1	J13-1.5	24 VAC	Optional Field Connection 7TB-9, 10, Dry contact. Must be configured in "Configure Startup Options" in Chiller Start/Stop Menu.
Emergency Stop	DI2	J13-2.6	24 VAC	Optional Field Connection 7TB-11, 12, Dry contact
Evaporator Flow Switch	DI3	J13-4.7	24 VAC	Optional Field Connection 7TB-13, 14; Closed indicates flow
Condenser Flow Switch	DI4	J13-4.8	24 VAC	Optional Field Connection 7TB-15, 16; Closed indicates flow
Chiller Alert	DO1	J12-6.7	24 VAC	Optional Field Connection 7TB-24V, 27
Chiller Alarm	DO2	J12-9, 10	24 VAC	Optional Field Connection 7TB-24V, 29
Discrete Chiller Run Status Output (OFF=0V, ON=24VAC)	DO3	J12-1.2	24 VAC	Optional Field Connection 7TB-24V, 31
VFD Run Permissive	DO4	J12-4.5	24 VAC	—
Condenser Liquid Level Sensor	AI11	J10-1.7	0-5V	NOTE: For TP compressors only.

NOTE(S):
 a. See Fig. 5 for IOB1 wiring diagram.
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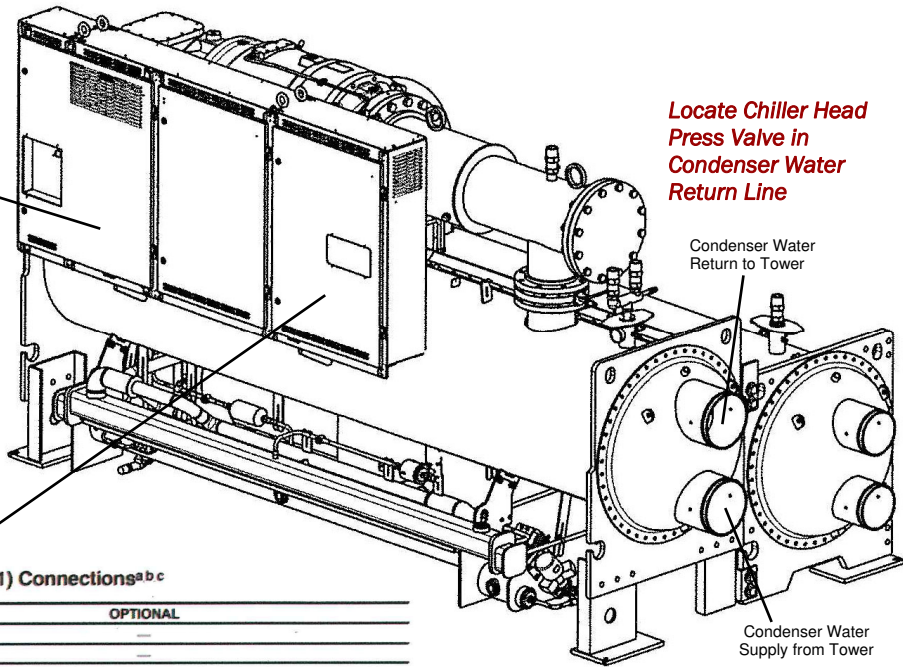


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CARRIER 23 XRV SCREW CHILLER HEAD PRESSURE 3-WAY VALVE CONTROL WIRING



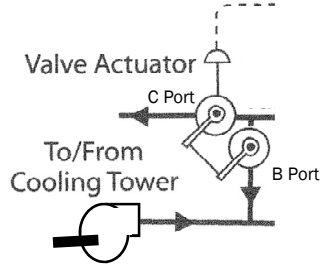
Locate Chiller Head Press Valve in Condenser Water Return Line

Table 2 – 23XRV Input/Output Board 1 (IOB1) Connections^{a,b,c}

DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Compressor Discharge Temperature	AI1	J16-1.5	5K Ohm	---
Motor Winding Temperature	AI2	J16-2.6	5K Ohm	---
Oil Vaporizer Temperature	AI3	J16-3.7	5K Ohm	---
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Remote Reset Sensor	AI5	J15-6,12	5K Ohm	Optional Field Connection 7TB-17, 18
Economizer Gas Temperature	AI6	J15-5,11	5K Ohm	---
Oil Pump Discharge Pressure	AI7	J15-4,10	5V	---
Oil Sump Pressure	AI8	J15-3,9	5V	---
Refrigerant Leak Sensor	AI9	J15-2,8	4-20mA	Optional Field Connection 7TB-19, 20 (Ensure channel 5 on SW2 dip switch is ON)
Auto Chilled Liquid Reset	AI10	J15-1,7	4-20mA	Optional Field Connection 7TB-21, 22 (Ensure channel 9 on SW2 dip switch is ON)
Head Pressure Output	AO3	J14-3,6	4-20mA	Optional Field Connection 7TB-34, 35
Remote Contact Input	DI1	J13-1,5	24 VAC	Optional Field Connection 7TB-9,10, Dry contact. Must be configured in "Configure Startup Options" in Chiller Start/Stop Menu.
Emergency Stop	DI2	J13-2,6	24 VAC	Optional Field Connection 7TB-11,12, Dry contact
Evaporator Flow Switch	DI3	J13-4,7	24 VAC	Optional Field Connection 7TB-13,14, Closed indicates flow
Condenser Flow Switch	DI4	J13-4,8	24 VAC	Optional Field Connection 7TB-15,16, Closed indicates flow
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Chiller Alarm	DO2	J12-9,10	24 VAC	Optional Field Connection 7TB-24V, 29
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VFD Run Permissive	DO4	J12-4,5	24 VAC	---
Condenser Liquid Level Sensor	AI11	J10-1,7	0-5V	NOTE: For TP compressors only.

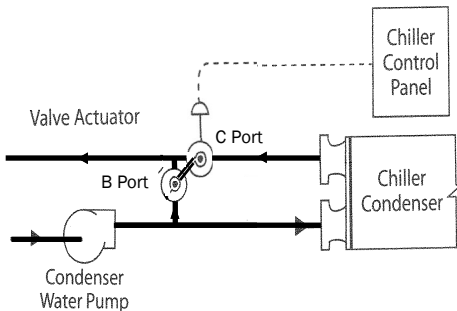
NOTE(S):
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 b. For pressure readings, only Vout (output) terminal is indicated. See Fig. 5 for Vin (+) and ground (-).
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During Pipe Installation, DO NOT Spin the Valve on it's B Port Axis so that it ends up as Shown

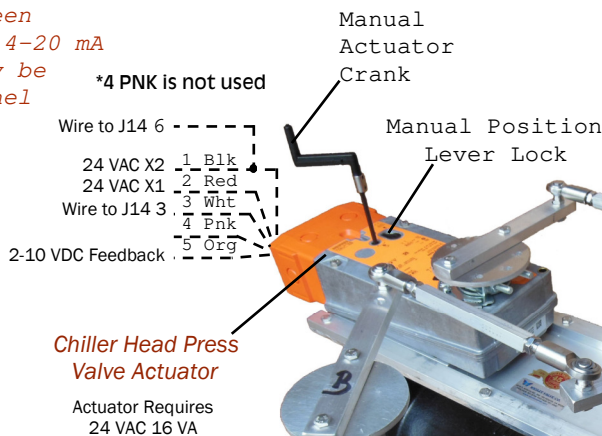


INCORRECT 3-WAY VALVE PIPING

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4-20 mA Signal or the Resistor may be located at the Chiller Panel Terminal Strip

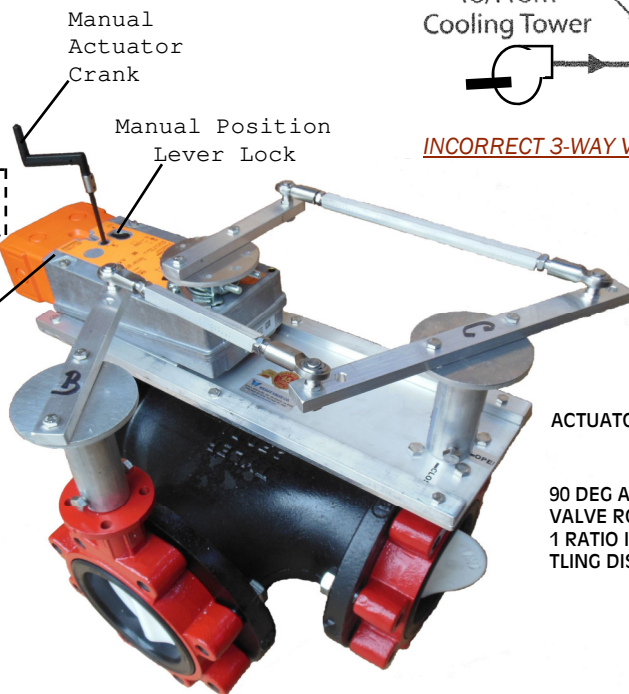


CORRECT 3-WAY VALVE PIPING



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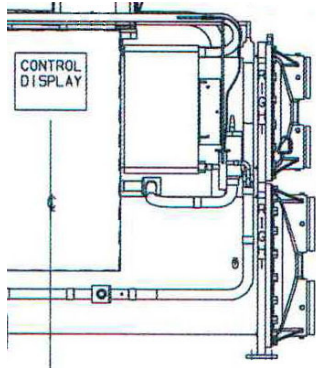
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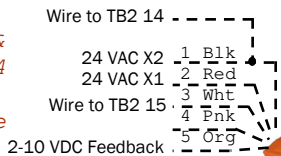
CARRIER 30 HXC SCREW CHILLER UNITS HEAD PRESSURE VALVE CONTROL WIRING



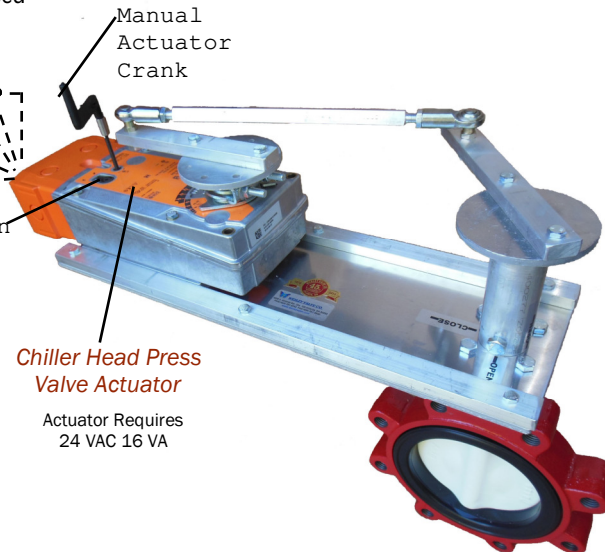
Locate Chiller Head Press Valve in Condenser Water Return Line

*4 Pnk is not used

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller -20 mA Signal or the Resistor may be located at the Chiller Terminal Strip



Manual Position Lever Lock

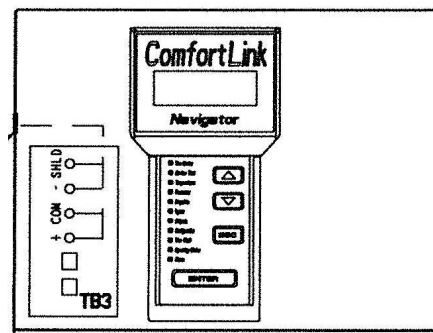


Chiller Head Press Valve Actuator

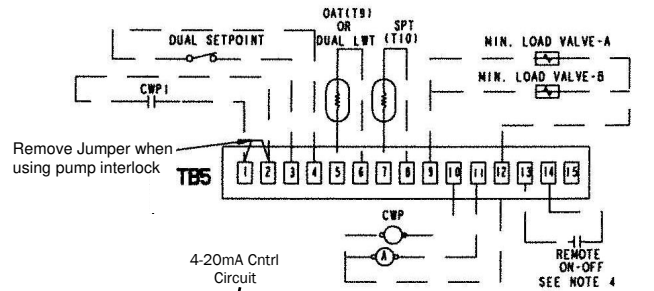
Actuator Requires 24 VAC 16 VA

DATA COMM. POR

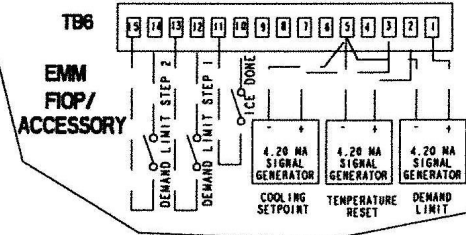
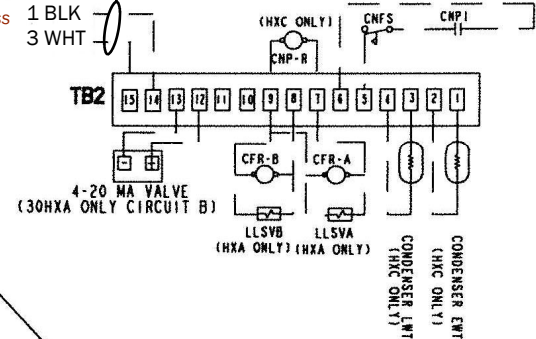
EQUIPMENT GROUND



(SEE NOTE #3)
TB4



To Chiller Head Press Valve Actuator
1 BLK
3 WHT



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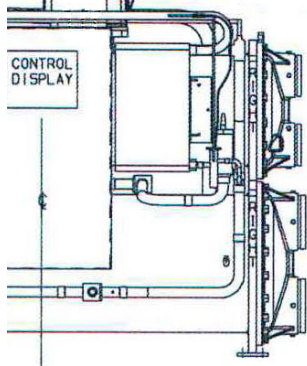
CONDENSOR WATER VALVE



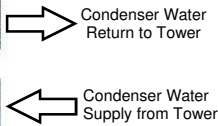
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CARRIER 30 HXC SCREW CHILLER UNITS HEAD PRESSURE VALVE CONTROL WIRING



Locate Chiller Head Press Valve in Condenser Water Return Line



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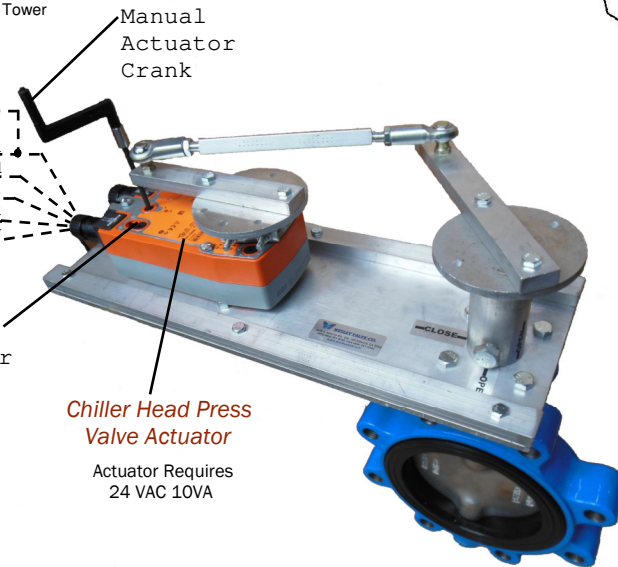
- Wire to TB2 14 - 24 VAC X2 1 Blk
- 24 VAC X1 2 Red
- Wire to TB2 15 - 3 Wht
- 4 Pnk
- 2-10 VDC Feedback 5 Org

Manual Position Lever

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4 -20 mA Signal or the Resistor may be located at the Chiller Terminal Strip

Chiller Head Press Valve Actuator

Actuator Requires 24 VAC 10VA

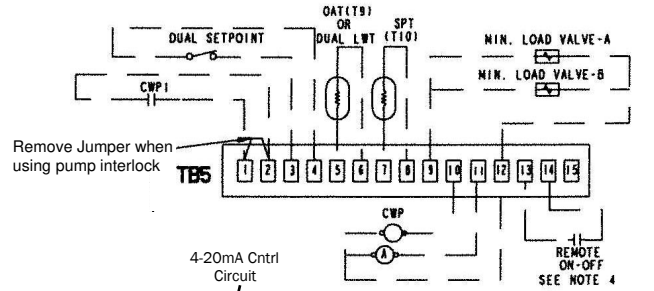
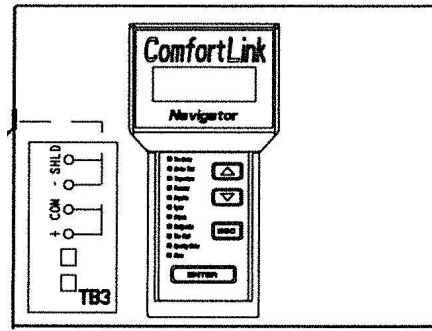


DATA COMM. POR

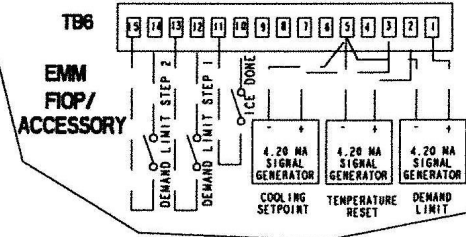
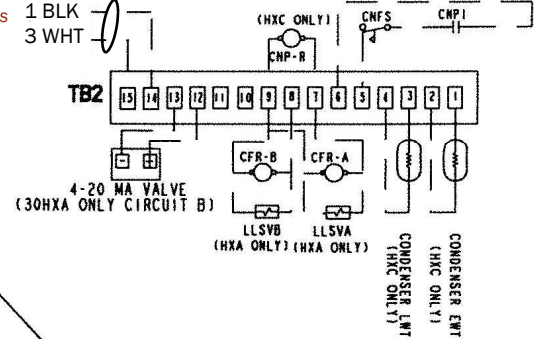
EQUIPMENT GROUND

(SEE NOTE #3)

TB4



To Chiller Head Press Valve Actuator



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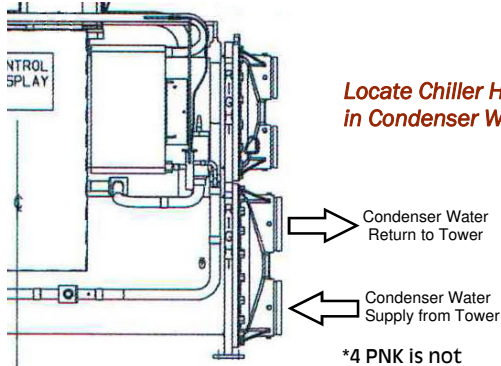


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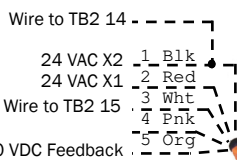
CONDENSER WATER VALVE

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Locate Chiller Head Press Valve in Condenser Water Return Line

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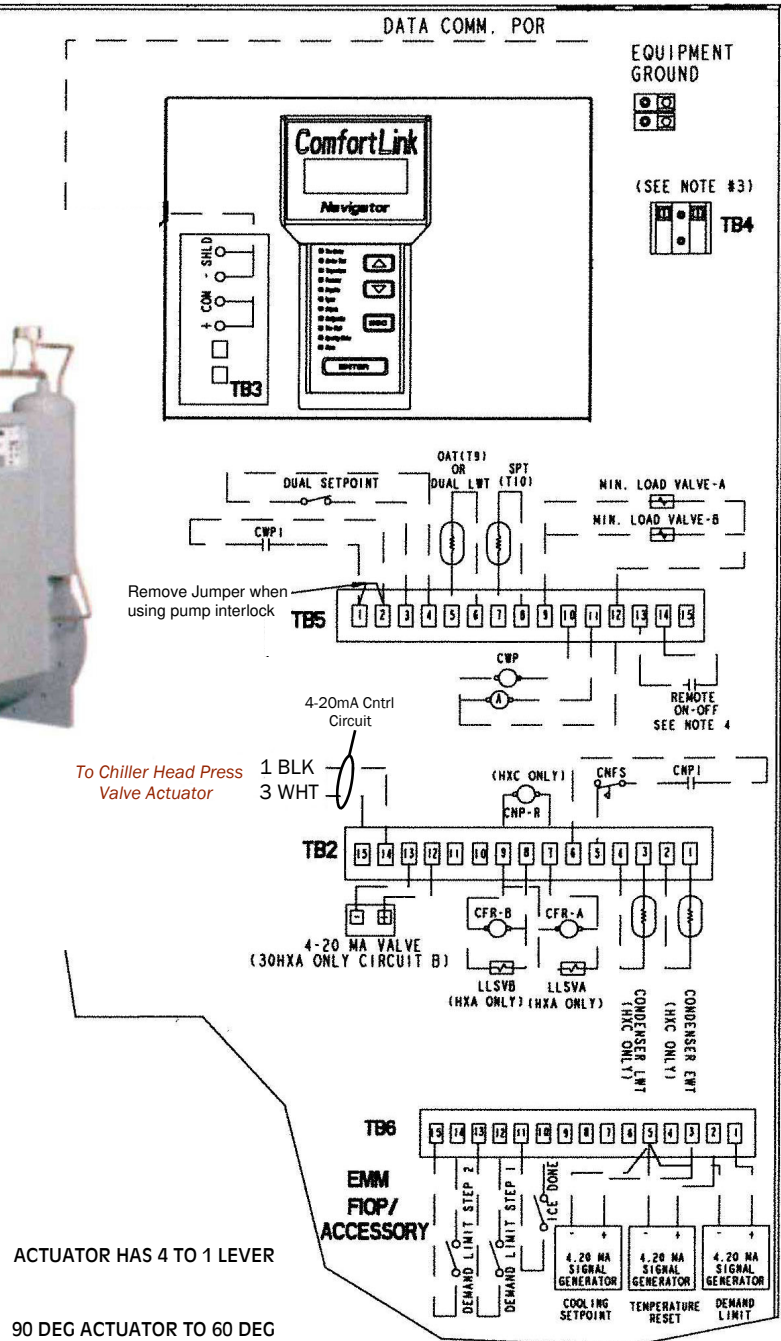


Manual Position Lever Lock

Manual Actuator

Chiller Head Press Valve Actuator

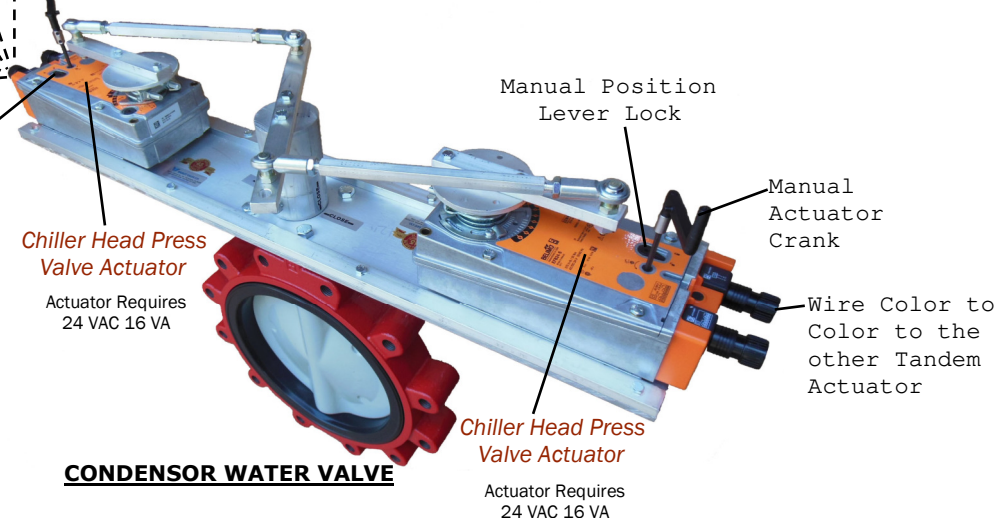
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To Chiller Head Press Valve Actuator

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CONDENSER WATER VALVE

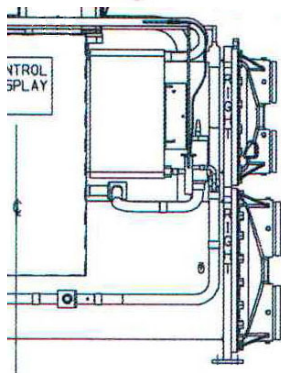
Actuator Requires 24 VAC 16 VA



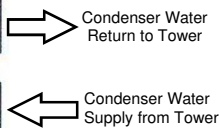
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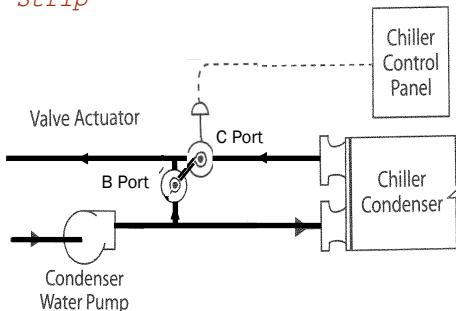


Locate Chiller Head Press Valve in Condenser Water Return Line



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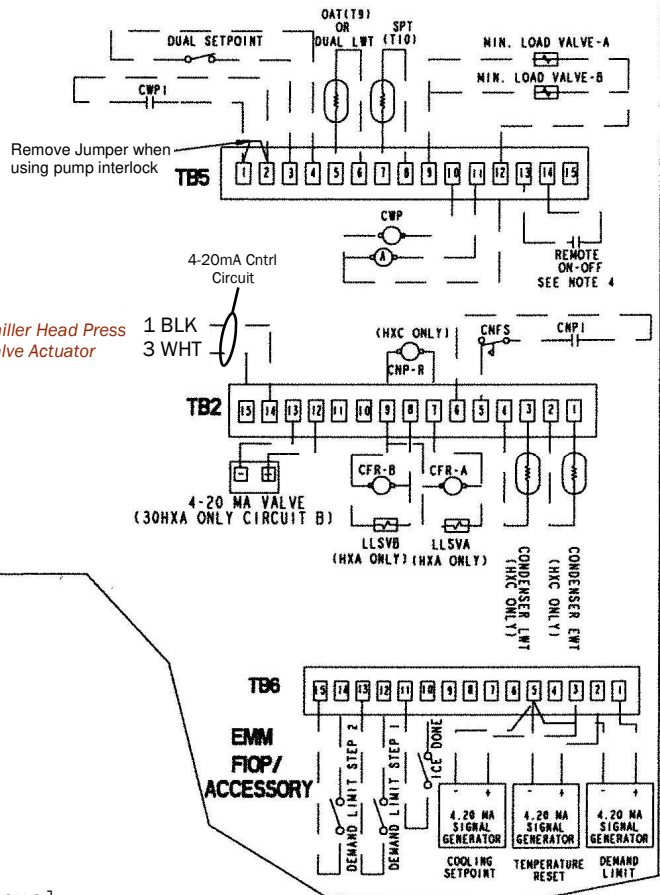
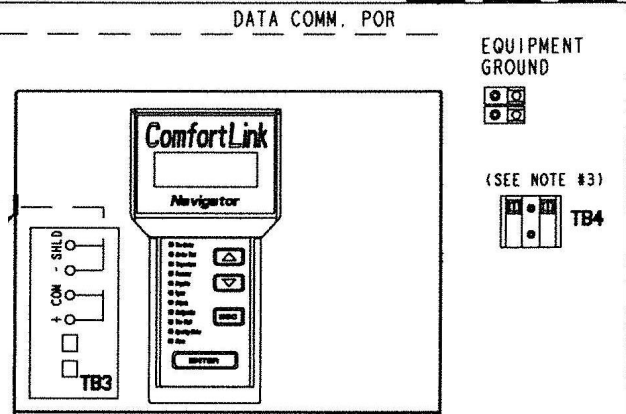
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CORRECT 3-WAY VALVE PIPING

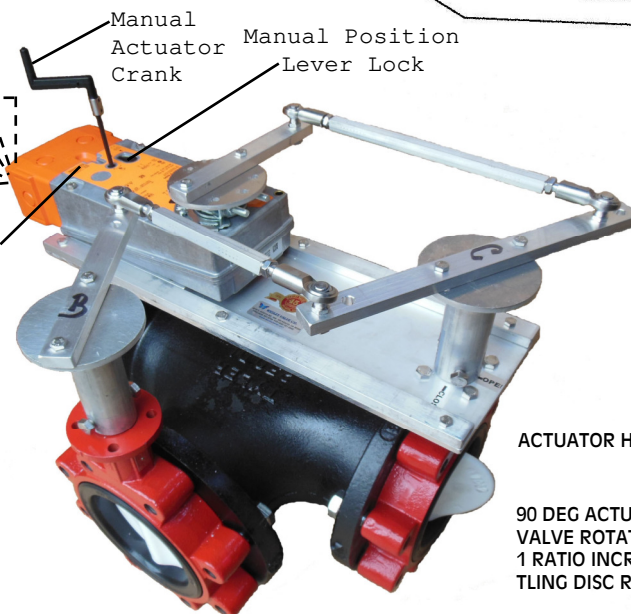
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- Wire to TB2 14 - 1 Blk
- 24 VAC X2 - 2 Red
- 24 VAC X1 - 3 Wht
- Wire to TB2 15 - 4 Pnk
- 2-10 VDC Feedback - 5 Org

Chiller Head Press Valve Actuator
Actuator Requires 24 VAC 16 VA



CONDENSOR WATER VALVE

ACTUATOR HAS 4 TO 1 LEVER

90 DEG ACTUATOR TO 60 DEG VALVE ROTATION OR A 1.5 TO 1 RATIO INCREASES THROTTLING DISC REPOSITIONS

CARRIER 19 XR CENTRIFUGAL CHILLER HEAD PRESSURE 2-WAY VALVE CONTROL WIRING

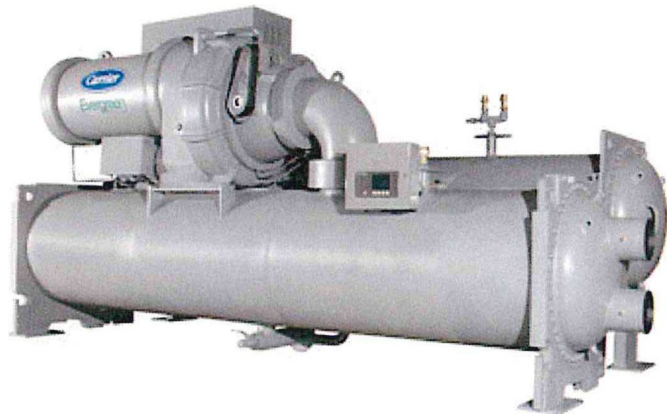
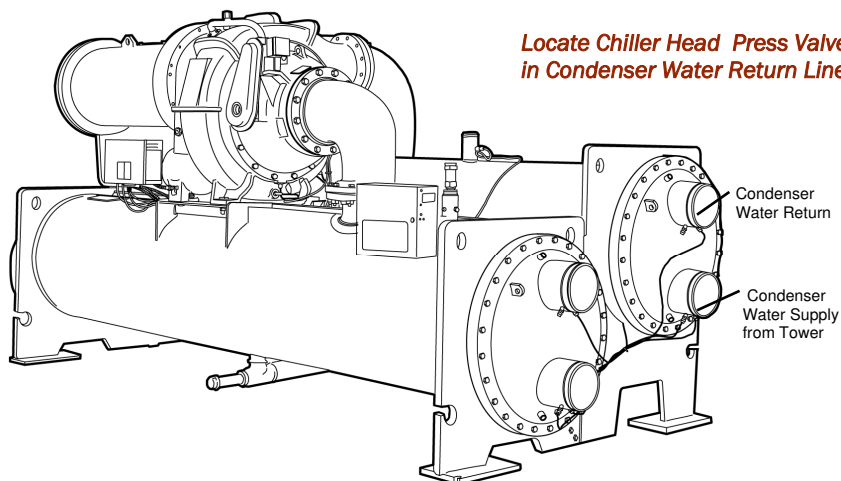


Table 4 – 19XR3-E IOB2 Connections a,b,c

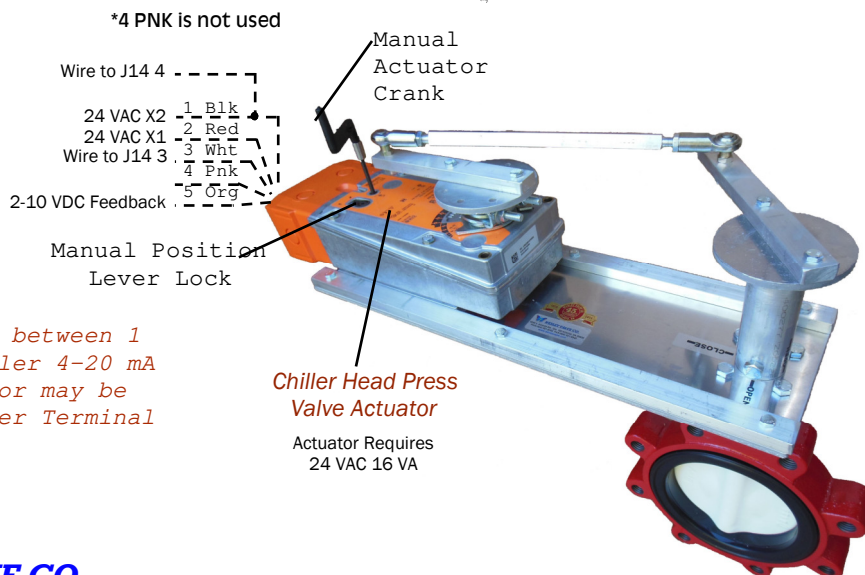
DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Motor Winding Temperature 1	AI1	J16-1,5	5 kΩ	—
Thrust Bearing Oil Temperature	AI2	J16-2,6	5 kΩ	—
Oil Sump Temperature	AI3	J16-3,7	5 kΩ	—
Oil Supply Temperature	AI4	J16-4, 8	5 kΩ	Yes
Guide Vane Actual Position	AI5	J15-6,12	4 to 20 mA	Yes, standard for 19XRC
Oil Supply Pressure	AI6	J15-5	5 VDC	—
Oil Sump Pressure	AI7	J15-4	5 VDC	—
EC (HGBP) Valve Feedback	AI8	J15-3,9	4 to 20 mA	Yes, standard for 19XRC
Motor Winding Temperature 2	AI9	J15-2,8	5 kΩ	Yes
Motor Winding Temperature 3	AI10	J15-7	5 kΩ	—
Diffuser Pressure	AI11	J10-8	5 VDC	—
Guide Vane 1 Output	AO1	J14-1,4	4 to 20 mA	—
Diffuser Output (Option Enabled)	AO2	J14-2,5	4 to 20 mA	Yes
Liquid Bypass Valve (Option Enabled)	AO2	J14-2-5	4 to 20 mA	Yes
Head Pressure Output	AO3	J14-3 (2TB-3,4)	4 to 20 mA	Yes, NO (dry contact)
Evap Water Flow Switch	DI1	J13-5 (2TB-5,6)	24 VAC	Yes, NO (dry contact)
Cond Water Flow Switch	DI2	J13-6 (2TB-7,8)	24 VAC	Yes, NO (dry contact)
High Pressure Switch	DI3	J13-7,3	24 VAC	—
Ice Build Contact	DI4	J13-8,4 (2TB-11,12)	24 VAC	Yes, NO (dry contact)
Oil Heater Relay	DO1	J12-7	24 VAC	—
Oil Pump Relay	DO2	J12-10	24 VAC	—
EC (HGBP) Solenoid Valve / Open	DO3	J12-2	24 VAC	Yes
Vapor Source SV (19XRC Only)	DO4	J12-5	24 VAC	XRC Only

NOTE(S):

- a. See Fig. 5 for IOB2 wiring diagram.
- b. For pressure readings, only Vout (output) terminal is indicated. See Fig. 5 for Vin (+) and ground (-).
- c. Defaults are shown. In some cases the IOB can be configured differently depending on job requirements.

LEGEND

- IOB — Input/Output Board
- NO — Normally Open



Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4-20 mA Signal or the Resistor may be located at the Chiller Terminal Strip

ACTUATOR HAS 4 TO 1 LEVER

90 DEG ACTUATOR TO 60 DEG VALVE ROTATION OR A 1.5 TO 1 RATIO INCREASES THROTTLING DISC REPOSITIONS



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CONDENSOR WATER VALVE

CARRIER 19 XR CENTRIFUGAL CHILLER HEAD PRESSURE 2-WAY VALVE CONTROL WIRING

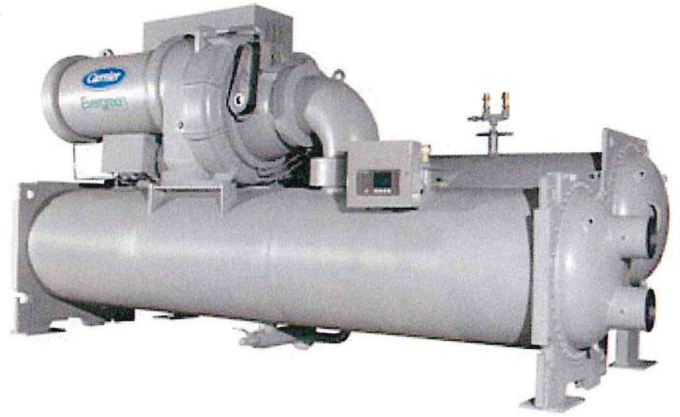
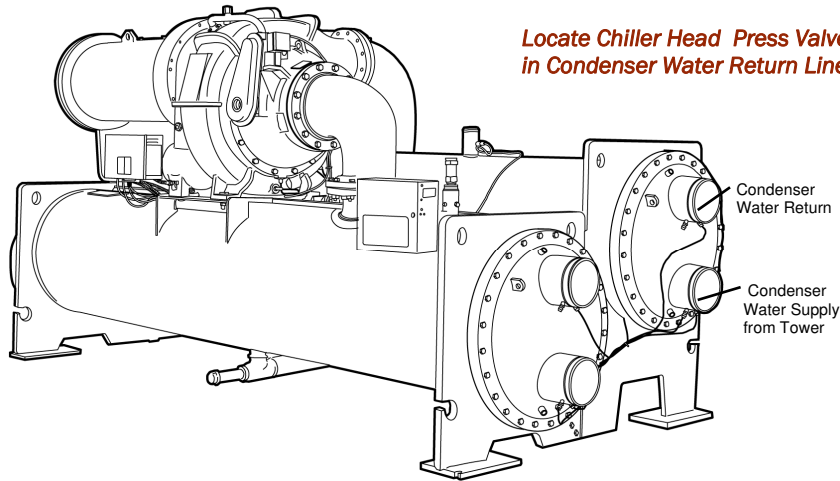


Table 4 — 19XR3-E IOB2 Connections a,b,c

DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Motor Winding Temperature 1	AI1	J16-1,5	5 kΩ	—
Thrust Bearing Oil Temperature	AI2	J16-2,6	5 kΩ	—
Oil Sump Temperature	AI3	J16-3,7	5 kΩ	—
Oil Supply Temperature	AI4	J16-4, 8	5 kΩ	Yes
Guide Vane Actual Position	AI5	J15-6,12	4 to 20 mA	Yes, standard for 19XRC
Oil Supply Pressure	AI6	J15-5	5 VDC	—
Oil Sump Pressure	AI7	J15-4	5 VDC	—
EC (HGBP) Valve Feedback	AI8	J15-3,9	4 to 20 mA	Yes, standard for 19XRC
Motor Winding Temperature 2	AI9	J15-2,8	5 kΩ	Yes
Motor Winding Temperature 3	AI10	J15-7	5 kΩ	—
Diffuser Pressure	AI11	J10-8	5 VDC	—
Guide Vane 1 Output	AO1	J14-1,4	4 to 20 mA	—
Diffuser Output (Option Enabled)	AO2	J14-2,5	4 to 20 mA	Yes
Liquid Bypass Valve (Option Enabled)	AO2	J14-2-5	4 to 20 mA	Yes
Head Pressure Output	AO3	J14-3 (2TB-3,4)	4 to 20 mA	Yes, NO (dry contact)
Evap Water Flow Switch	DI1	J13-5 (2TB-5,6)	24 VAC	Yes, NO (dry contact)
Cond Water Flow Switch	DI2	J13-6 (2TB-7,8)	24 VAC	Yes, NO (dry contact)
High Pressure Switch	DI3	J13-7,3	24 VAC	—
Ice Build Contact	DI4	J13-8,4 (2TB-11,12)	24 VAC	Yes, NO (dry contact)
Oil Heater Relay	DO1	J12-7	24 VAC	—
Oil Pump Relay	DO2	J12-10	24 VAC	—
EC (HGBP) Solenoid Valve / Open	DO3	J12-2	24 VAC	Yes
Vapor Source SV (19XRC Only)	DO4	J12-5	24 VAC	XRC Only

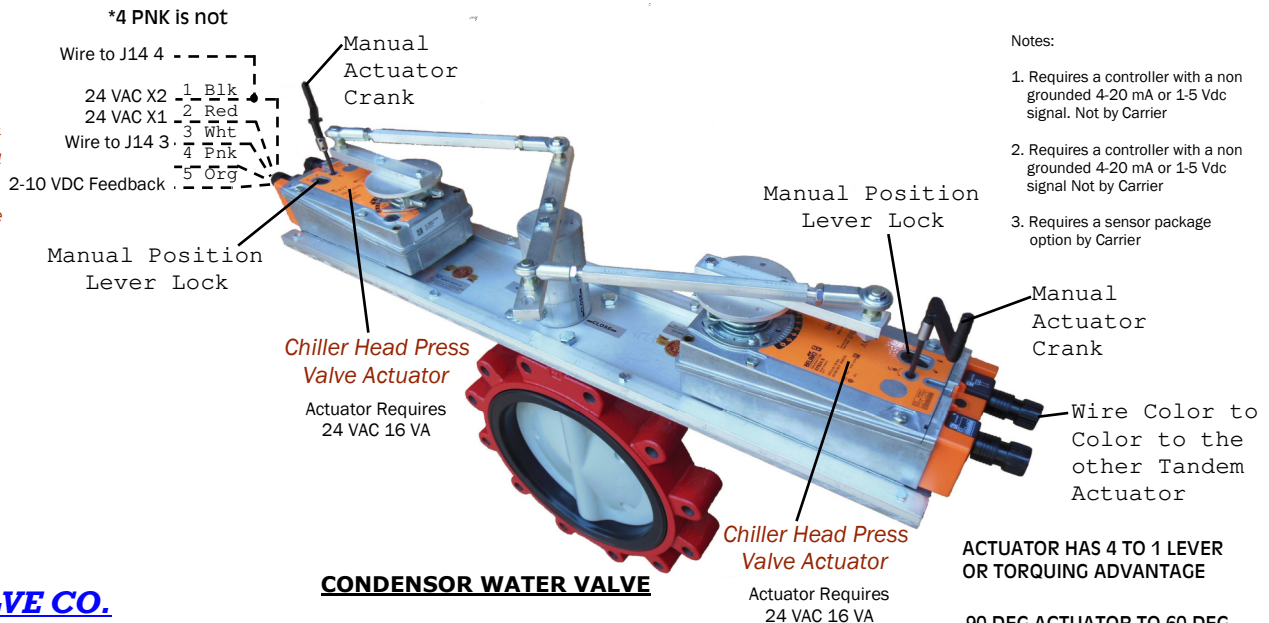
NOTE(S):

- a. See Fig. 5 for IOB2 wiring diagram.
- b. For pressure readings, only Vout (output) terminal is indicated. See Fig. 5 for Vin (+) and ground (-).
- c. Defaults are shown. In some cases the IOB can be configured differently depending on job requirements.

LEGEND

- IOB — Input/Output Board
- NO — Normally Open

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4-20 mA Signal or the Resistor may be located at the Chiller Terminal Strip



Notes:

- 1. Requires a controller with a non grounded 4-20 mA or 1-5 Vdc signal. Not by Carrier
- 2. Requires a controller with a non grounded 4-20 mA or 1-5 Vdc signal Not by Carrier
- 3. Requires a sensor package option by Carrier



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CARRIER 19 XR CENTRIFUGAL CHILLER HEAD PRESSURE 3-WAY VALVE CONTROL WIRING

**Locate Chiller Head Press Valve
in Condenser Water Return Line**

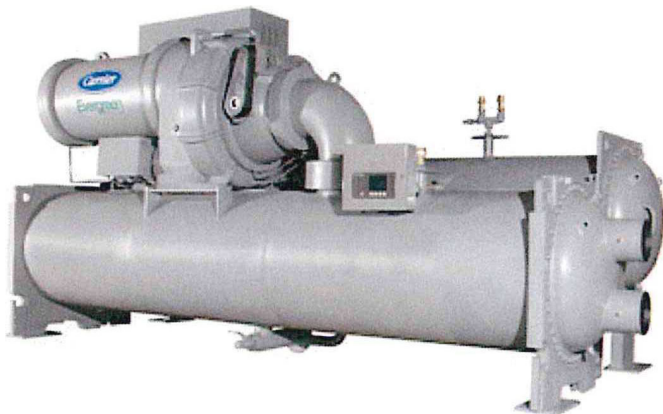
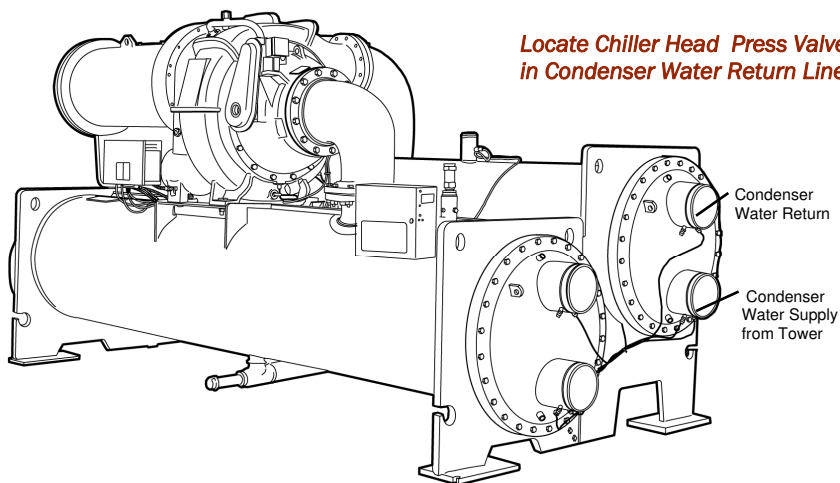


Table 4 — 19XR3-E IOB2 Connections a,b,c

DESCRIPTION	CHANNEL	TERMINAL	TYPE	OPTIONAL
Motor Winding Temperature 1	AI1	J16-1,5	5 kΩ	—
Thrust Bearing Oil Temperature	AI2	J16-2,6	5 kΩ	—
Oil Sump Temperature	AI3	J16-3,7	5 kΩ	—
Oil Supply Temperature	AI4	J16-4, 8	5 kΩ	Yes
Guide Vane Actual Position	AI5	J15-6,12	4 to 20 mA	Yes, standard for 19XRC
Oil Supply Pressure	AI6	J15-5	5 VDC	—
Oil Sump Pressure	AI7	J15-4	5 VDC	—
EC (HGBP) Valve Feedback	AI8	J15-3,9	4 to 20 mA	Yes, standard for 19XRC
Motor Winding Temperature 2	AI9	J15-2,8	5 kΩ	Yes
Motor Winding Temperature 3	AI10	J15-7	5 kΩ	—
Diffuser Pressure	AI11	J10-8	5 VDC	—
Guide Vane 1 Output	AO1	J14-1,4	4 to 20 mA	—
Diffuser Output (Option Enabled)	AO2	J14-2,5	4 to 20 mA	Yes
Liquid Bypass Valve (Option Enabled)	AO2	J14-2-5	4 to 20 mA	Yes
Head Pressure Output	AO3	J14-3 (2TB-3,4)	4 to 20 mA	Yes, NO (dry contact)
Evap Water Flow Switch	DI1	J13-5 (2TB-5,6)	24 VAC	Yes, NO (dry contact)
Cond Water Flow Switch	DI2	J13-6 (2TB-7,8)	24 VAC	Yes, NO (dry contact)
High Pressure Switch	DI3	J13-7,3	24 VAC	—
Ice Build Contact	DI4	J13-8,4 (2TB-11,12)	24 VAC	Yes, NO (dry contact)
Oil Heater Relay	DO1	J12-7	24 VAC	—
Oil Pump Relay	DO2	J12-10	24 VAC	—
EC (HGBP) Solenoid Valve / Open	DO3	J12-2	24 VAC	Yes
Vapor Source SV (19XRC Only)	DO4	J12-5	24 VAC	XRC Only

NOTE(S):

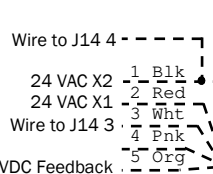
- a. See Fig. 5 for IOB2 wiring diagram.
- b. For pressure readings, only Vout (output) terminal is indicated. See Fig. 5 for Vin (+) and ground (-).
- c. Defaults are shown. In some cases the IOB can be configured differently depending on job requirements.

LEGEND

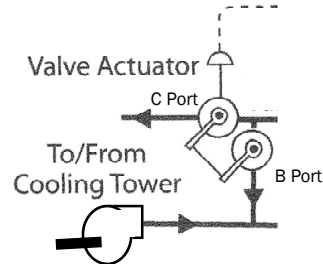
- IOB — Input/Output Board
- NO — Normally Open

Add 500 Ohm Resistor between 1 Blk & 3 Wht for Chiller 4-20 mA Signal or the Resistor may be located at the Chiller Terminal Strip

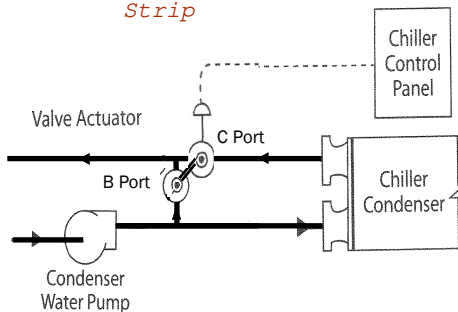
*4 Pnk is not used



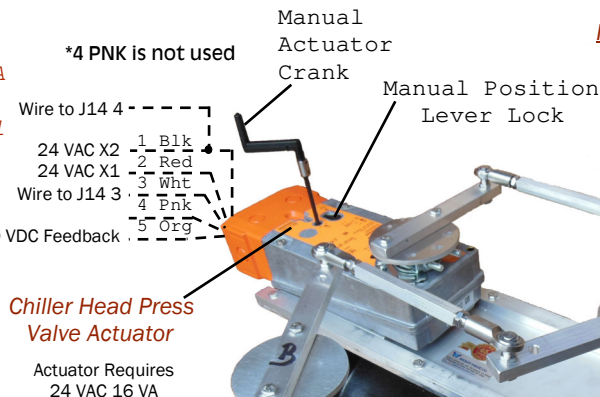
During Pipe Installation, DO NOT Spin the Valve on it's B Port Axis so that it ends up as Shown



INCORRECT 3-WAY VALVE PIPING



CORRECT 3-WAY VALVE PIPING



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