



MULTISTACK
WATER COOLED CONDENSING UNIT
INSTALLATION and USER MANUAL



Multistack
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For Models:
MS20C, MS30C,
MS50Z

MULTISTACK Water Cooled Condensing Unit
Installation Manual Supplement

**Models: MS20C, MS30C (shown)
MS50Z, MS50B**

Note: This document is to be used as a supplement to the Water Cooled Chiller Installation Manual. All installation details including placement of the modules, clearance recommendations, Victaulic connections, and condenser side care should be followed from that manual.

The Multistack Water Cooled Condensing Unit is a 2 circuit module used in conjunction with a remote DX coil to provide cooling to an external source. Unlike Multistack Water Cooled Chillers, the Condensing Unit is not controlled by one central master control. Each module is controlled by it's module sensor board which uses a customer supplied input to stage each compressor.

ADDITIONAL MODULE COMPONENTS (1 per circuit):

- Suction Accumulators
- Suction Filter Drier with Shut off Valves
- Liquid Shut off Valves
- Discharge Check Valves



MODEL NUMBER:

MS30C5H2D

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The following information details what is supplied with the Condensing Unit and what is not. Any shortages of supplied components should be noted with the freight company at delivery and reported to Multistack at that time.

EXTERNAL COMPONENTS SUPPLIED WITH UNIT:

- Liquid Line Solenoid Valves: Qty 1 per circuit
- Liquid Line Filter Driers: Qty 1 per circuit
- Liquid Receiver Tank: Qty 1 per circuit
- Pressure Relief Valves: Qty 1 per circuit
- Receiver King Valves: Qty 2 per circuit



**COMPONENTS SUPPLIED
WITH UNIT**

REQUIRED COMPONENTS NOT SUPPLIED WITH UNIT:

- Metering Device (Thermal Expansion Valve)
- Liquid Line Sight Glass
- DX Coil

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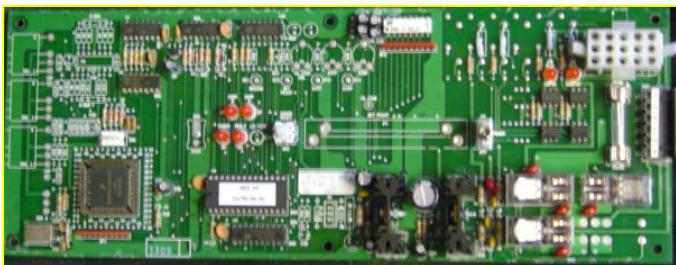
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ELECTRICAL CONNECTIONS:

Please see the *Water Cooled Chiller Installation Manual* for the bussbar high voltage connections.

The *control contractor* must run connections to each modules module sensor board (see adjacent). Connections for the “A” compressor should be made at TB-8 #1-2. For the “B” compressor TB8 # 1-3. Use 16 AWG wire as minimum.

The liquid line solenoid valves which are supplied by Multistack and installed external to the condensing unit must be connected to each condensing unit’s electrical back-plate. This is a 24V connection and should be wired by the *control contractor* with 16 AWG minimum (please see adjacent, also the electrical drawings for more detail).



SINGLE MOD. CTRL. BOARD



CONTROL PANEL BACKPLATE

SAFETIES:

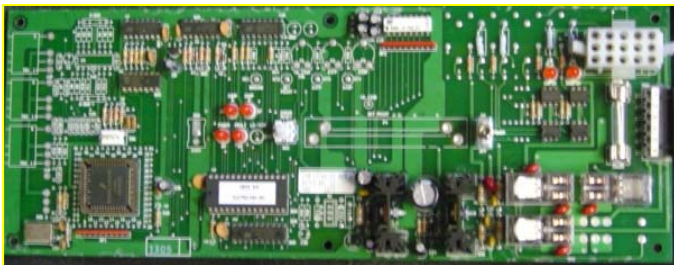
High Pressure Switch: Cuts out at 300 psig for R22 and 320 psig for R-407C. Requires manual reset on switch. D9 indicator light on *Single Module Control Board* will be lit when in fault.

Low Pressure Switch: Cuts out at 10 psig. Requires manual reset on switch. D9 indicator light on *Single Module Control Board* will be lit when in fault.

PUMPDOWN:

Each Circuit is equipped with refrigerant pump down during the off cycle. If the pressure in the compressor gets above 65 psig, the compressor turns on and pumps refrigerant through the condenser and into the receiver until the pressure drops to 35 psig and cuts out. The liquid line solenoid will remain closed during this process.

SINGLE MODULE CONTROL BOARD:

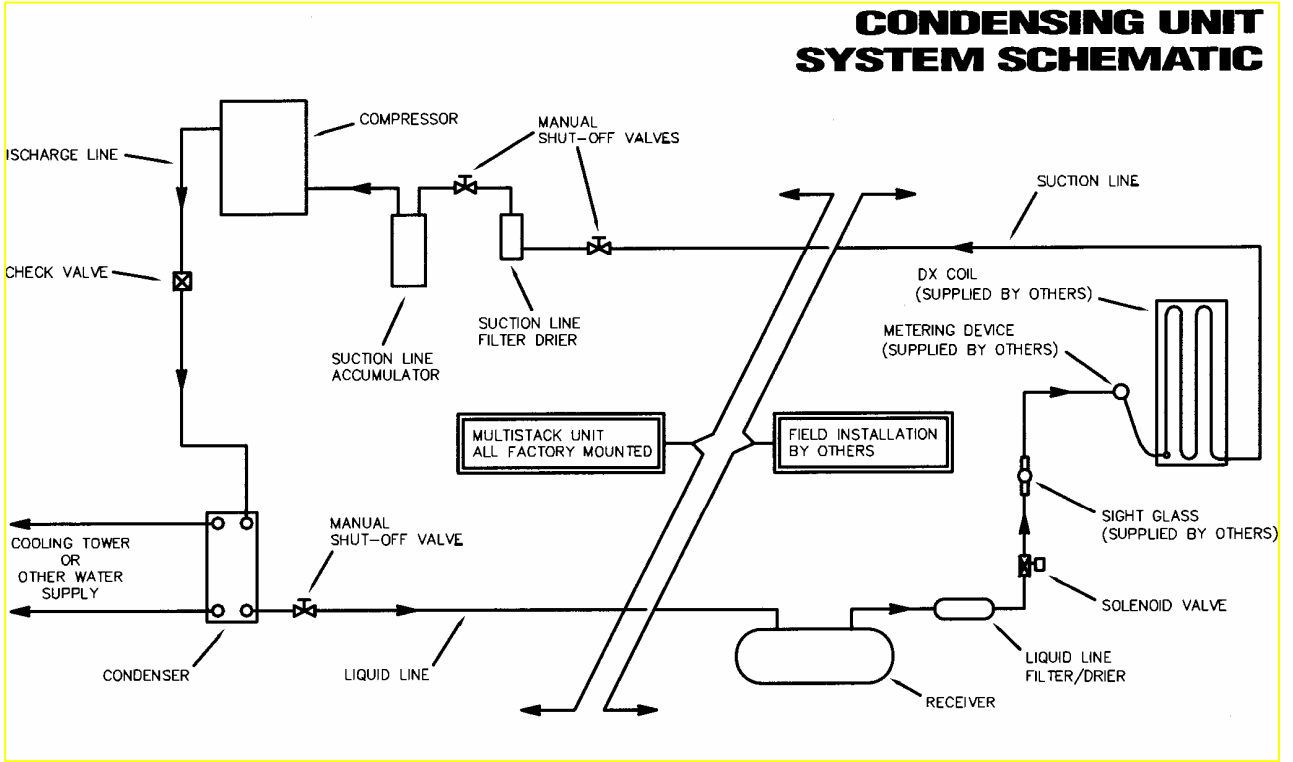


The *Control Board* contains the TB8 terminal strip for termination of the compressor start controls as well as the *Condenser Pump Relay* and *Cooling Alarm Relay*. In addition the board has an *ON/OFF switch* that will disable the module, and a *Manual Reset Button* that must be cleared for operation. The board is protected by a .5 amp fuse and also contains 6 LED's. The LED functions are explained below.

<u>LED</u>	<u>Identifies</u>	<u>Description</u>
D6	Compressor "A" status	Lit when compressor is on
D7	Compressor "B" status	Lit when compressor is on
D8	Power	Lit when board is powered
D9	Fault	Lit when a fault is present
D20	Condenser Water	not used on DX modules
D21	Chilled Water	not used on DX modules

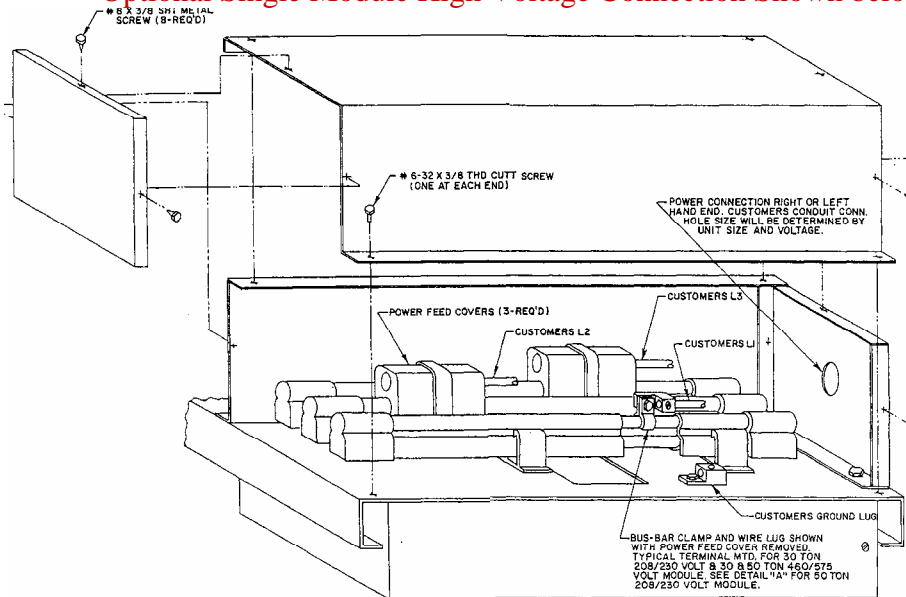
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PLEASE SEE PAGE 13 OF THE *WATER COOLED CHILLER INSTALL MANUAL*
FOR BUSSBAR INSTALLATION

- Optional Single Module High Voltage Connection Shown below.



DX Installation Checklist and Request for Authorized Start-Up Engineer

Customer: _____
 Job Name: _____
 Job Location: _____
 Job Number: _____

The work (as checked below) is in process and will be completed by: Date_____. The service of a Multistack Authorized Start-up Engineer is requested on this date and it is understood that if the work checked below is not completed, the engineer's time and expense will be billed to us by Multistack. Terms Net 30 days. **Multistack is to be notified at least ten (10) working days in advance of the start-up date.**

CONDENSER WATER

Piping complete and connected to Multistack Units.	Yes	No	N/A
Water system filled and vented	Yes	No	N/A
Pumps installed (rotation checked)	Yes	No	N/A
Recommended strainers installed	Yes	No	N/A
Water system operated and flow meets design	Yes	No	N/A
Strainers checked for debris	Yes	No	N/A
Flow or differential pressure switch installed	Yes	No	N/A
Condenser Water sensor wells installed	Yes	No	N/A

DX COIL

Refrigerant Piping complete and connected to modules	Yes	No	N/A
Piping in accordance with good engineering practice	Yes	No	N/A
Receiver, Liquid line filter drier, & sight glass installed	Yes	No	N/A
Metering device, & Liquid line solenoid valve installed	Yes	No	N/A
System evacuated to 500 microns or less	Yes	No	N/A
System charged with refrigerant	Yes	No	N/A

ELECTRICAL

Power wiring complete and in accordance with nameplate rating on unit and prepared for connection in accordance with installation manual	Yes	No	N/A
Note: No power is to be applied prior to inspection by start-up engineer			
Interlock wiring complete between control panel	Yes	No	N/A

MISCELLANEOUS

Thermometers, gauges, controls installed	Yes	No	N/A
A minimum system load of 50% is available for testing	Yes	No	N/A

We understand that authorized representatives of the installing electrical and piping contractor must be available during the start up period and that coordination is our responsibility.

We understand that the services of the Start-up Engineer will be furnished for a period of not more than sixteen (16) consecutive normal working hours and we agree that a charge for time and expenses will be made by Multistack if services are required longer.

Signed _____

Company _____

Phone number _____

DX START-UP DATA LOG

START-UP DATE: _____ SHIP DATE: _____

JOB NAME: _____ JOB NUMBER: _____

ADDRESS: _____

MULTISTACK REPRESENTATIVE: _____

MODEL NUMBER: _____

*** MODULE SERIAL NUMBERS ***

1. _____	4. _____
2. _____	5. _____
3. _____	6. _____

WATER SIDE AND MODULE CHECKLIST CIRCLE CORRECT RESPONSE

1. Condensing Unit mounted on rails and isolators?

YES NO

2. Any visible damage?

YES NO

If yes, detail: _____

3. Any obvious oil and/or refrigerant leaks?

YES NO

If yes, detail: _____

4. All pipe work independently supported from Unit?

YES NO

5. System CW strainer installed?

YES NO

EXTERNAL AND DX CHECKLIST (Check if Applicable)

1. Components Installed: Receivers _____ LL Solenoid Valves _____ Metering Devices
Liquid Line Filter Drier _____ Pressure Relief Valves _____ Liquid Sight Glasses

2. Liquid Line size _____ Suction Line size _____

3. Refrigerant charge per circuit _____ Refrigerant type _____

ELECTRICAL AND CONTROLS CHECKLIST

1. All electrical connections tight and correct?

YES NO

2. Power wiring sufficient to carry F.L.A.?

YES NO

3. Voltage levels: **PHASES** 1 + 2 _____ 2 + 3 _____ 1 + G _____ 2 + G _____
3 + G _____

4. Total AMP draw at 100% capacity: _____ **AMPS**

5. Leave system in full operation?

YES NO

6. Notify contractor of any problems?

YES NO

Start-up Service Technician

Owner or Contractor
Acceptance

