30GXN,R080-528
30HX076-271
Control Transformer Accessory

Installation Instructions

Part Nos. 30GX900050,051,052,055,056,057
30HX900033, 30HX900034

SAFETY CONSIDERATIONS

Installation of this accessory can be hazardous due to system pressures, electrical components, and equipment locations (such as a roof or elevated structure).

Only trained, qualified installers and service technicians should install, start up, and service this equipment.

When installing this accessory, observe precautions in the literature, labels attached to the equipment, and any other safety precautions that apply.

- Follow all safety codes
- Wear safety glasses and work gloves
- Use care when handling and installing the accessory.

ELECTRIC SHOCK HAZARD

To avoid the possibility of electrical shock, open and tag all disconnects before installing this equipment.

INTRODUCTION

The control transformer accessory reduces the voltage of the primary power supply for a 30GXN,R or 30HX chiller to the level required for the control circuit. The control transformer also enables each chiller to use a single point power connection.

Inspect the package contents for missing or damaged parts. File a claim with the shipping agency if any parts are damaged. Notify your Carrier representative if any parts are missing.

Table 1 shows the accessory application information and the contents of the kit.

NOTE: Unit sizes larger than 350 are considered modular units that consist of combinations of smaller units.

INSTALLATION FOR 30GXN,R APPLICATIONS

1. Open and tag all electrical disconnects.
2. Open the chiller control box doors to access the power and control wiring. See Fig. 1-5.
3. Remove the control transformer from the accessory carton. Remove a 1-in. knockout from each side of the transformer (Fig. 6).
4. Mount the transformer to the sheet metal bracket (Fig. 7) through the pre-drilled holes. Use the four $^3/_8$-in.-16 x 1-in. long hex head bolts, $^3/_8$-in. plate washers, and $^3/_8$-in.-16 nuts.
5. Mount the fuse block (Part No. HY11BM630) to the bottom of the control box (Fig. 1) using the two 10B-16 x $^3/_4$-in. screws for 30GXN,R080-178 units. For 30GXN,R204-350 units, mount the fuse block to the back of the control box (Fig. 2).

Table 1 — Control Transformer Accessory Kits: Application and Contents

CHILLER APPLICATION	ACCESSORY PART NO.	POWER SUPPLY		TRANSFORMER		FUSE (2 Each)	FUSE BLOCK	HARDWARE	
		Volts	Hz	kva	Part No.	Part No.	Part No.	Qty	Description
30GXN,R 080-178*	30GX900050	230, 460	60	5	HT01AH868	HY10NJ020 (230), HY10NJ100 (460)	HY11BM630	1 1 1 2 Bag	36-in. (914) Conduit Assembly 50-in. (1270) Conduit Assembly Sheet Metal Bracket 35-in. (889) 14 Gage Wires Mounting/Wiring Hardware
	30GX900051	575	60	5	HT01AH869	HY10NJ100			
	30GX900052	208	60	5	HT01AH867	HY10NJ020			
30GXN,R 204-350*	30GX900055	230,460	60	5	HT01AH868	HY10NJ020 (230), HY10NJ100 (460)		1 1 1 2 Bag	400-in. (10160) Conduit Assembly 394-in. (10008) Conduit Assembly Sheet Metal Bracket 12-in. (305) 14 Gage Wires Mounting/Wiring Hardware
	30GX900056	575	60	5	HT01AH869	HY10NJ100			
	30GX900057	208	60	5	HY01AH867	HY10NJ020			
30HX 076-271	30HX900033	200, 230, 460	60	1.5	HT01BE202	HY10NJ100		4 8 4	1/4-in.-20 Hex Nuts 1/4-in.-2 Self Tapping Screws 1/4-in. Flat Washers
	30HX900034	575	60	1.5	HT01BE203	NY10NJ100			

LEGEND

kva — Kilovolt-Ampere

*And associated modular sizes.

NOTES:
1. Dimensions in ( ) are in mm.
2. 30GXN,R281-350 are available in 460 v and 575 v power supply only.

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

6. Install the 2 fuses (Part No. HY10NJ100 for 460 or 575 volt units or HY10NJ020 for 208/230 volt 30GXN,R units) into the fuse block. Since the fuse block is a 3-pole block, the fuses can be installed in any 2 clips.
7. Mount the control transformer assembly to the chiller. Both the chiller and the accessory sheet metal bracket have pre-drilled holes for this purpose. Using the four $^3/_8$-in.-16 x $1^1/_4$-in. hex head screws, screw the bottom of the transformer assembly to the chiller base rail (see Fig. 1 for 30GXN,R080-178 and Fig. 3 for 30GXN,R204-225, Fig. 4 for 30GXN,R208, 228, 249-264, or Fig. 5 for 30GXN,R253, 268-350), screw the top of the transformer assembly to the control box support channel or coil support channel for 204-350 sizes.
8. Connect the 14 gage wires (supplied in the accessory kit) from any 2 terminals of the field power supply terminal block (TB1A) to 2 terminals on one side of the fuse block. The kits for 30GXN,R080-178 models have 35-in. (889-mm) long wires, kits for 30GXN,R204-350 have 12-in. (305-mm) long wires. Be sure connections are made to 2 terminals that have the fuses installed. Trim the wires to the required lengths, if desired.
9. For 30GXN,R080-178 models, connect the 36-in. (914-mm) conduit assembly between the transformer enclosure and the bottom of the 30GXN,R control box using the $^1/_2$-in. electrical reducing washers supplied (see Fig. 1). Connect one end of the wires to the terminals on the fuse block opposite where the 14-gage wires were installed. Connect the other ends of the wires to the primary side of the transformer according to the connection diagram for the correct voltage as shown in Fig. 8.
10. For 30GXN,R204-350 models, connect the 400-in. (10160-mm) conduit assembly ($^1/_2$-in.) between the transformer enclosure and the bottom right side of the 30GXN,R control box (left box) using the $^1/_2$-in. electrical reducing washers supplied (see Fig. 2). Connect one end of the wires to the terminals on the fuse block opposite where the 14-gage wires were installed. Connect the other ends of the wires to the primary side of the transformer according to the connection diagram for the correct voltage as shown in Fig. 8.
11. For 30GXN,R080-178 models, use the 50-in. (1270-mm) conduit assembly to connect the terminals on the secondary side of the transformer to the chiller control block, TB4. See Fig. 1 and Fig. 8.
12. For 30GXN,R204-350 models, use the 394-in. (10008-mm) conduit assembly ($^3/_4$-in.) to connect the terminals on the secondary side of the transformer to the chiller control block, TB4. See Fig. 2 and Fig. 8.
13. For all models, connect the stripped end of the transformer ground wire to the ground screw adjacent to the chiller control terminal block, TB4. Connect the ring end of the same wire to the ground lug in the transformer box. See Fig. 1 and Fig. 2.
14. Conduit should be routed in trays when possible and secured to cross rails with wire ties. Make sure that all connections are correct and tight. Close and secure the chiller control box doors.
15. Restore power to the chiller and verify its correct operation as described in the base unit Start-Up and Service Instructions.

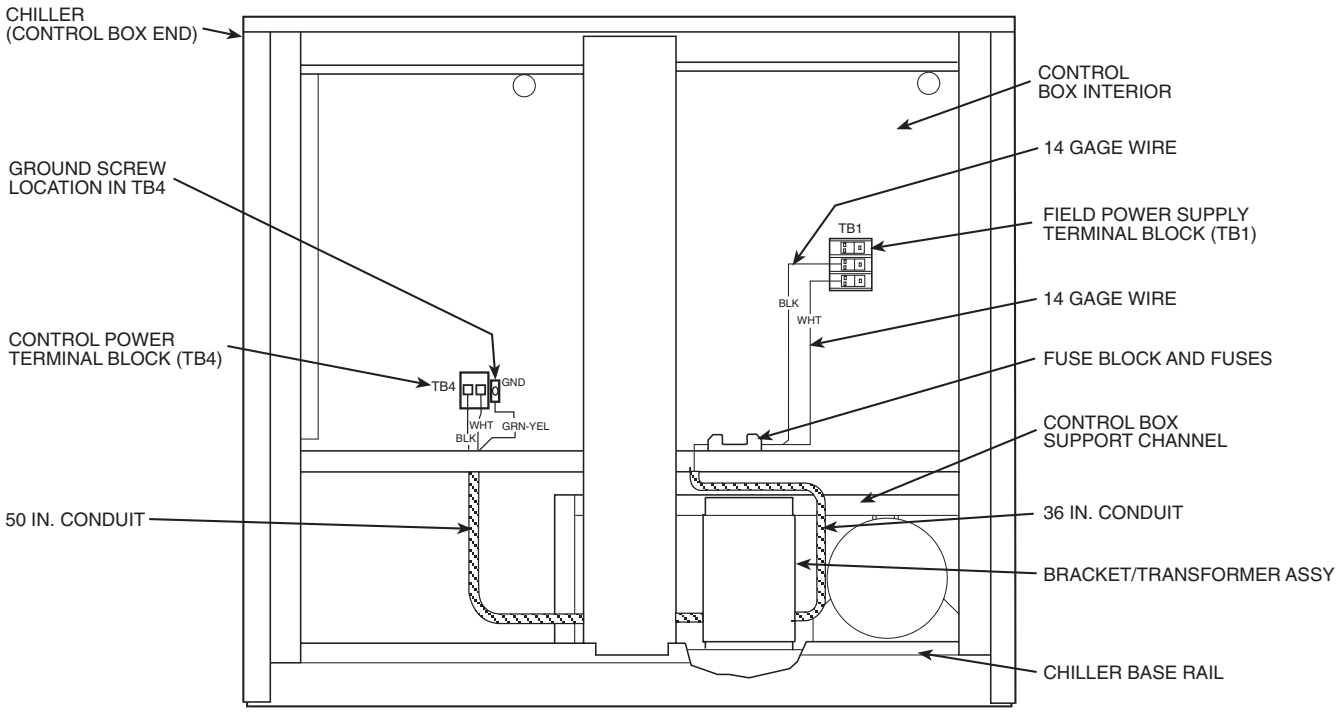


Fig. 1 — Transformer Mounting Location and Wiring — 30GXN,R080-178 (and Associated Modular Units)

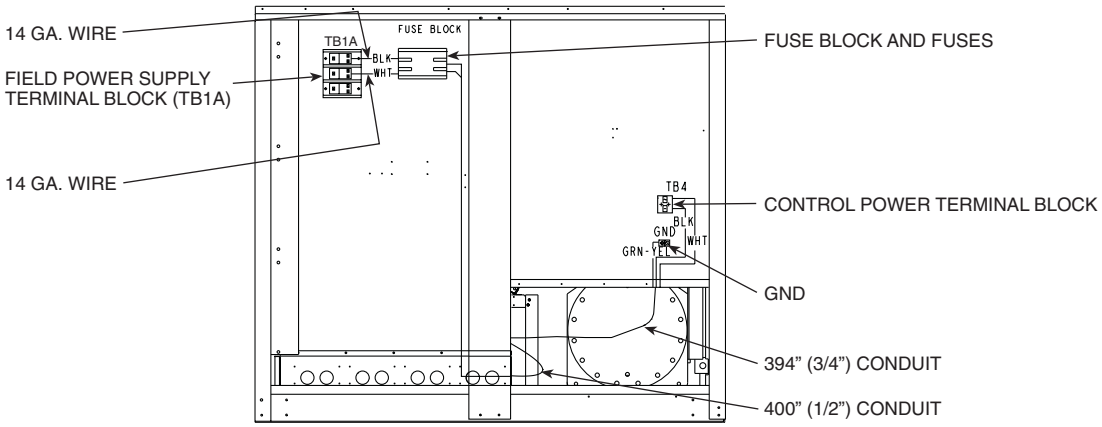


Fig. 2 — Fuse Block Mounting Location and Wiring — 30GXN,R204-350 and Associated Modular Units

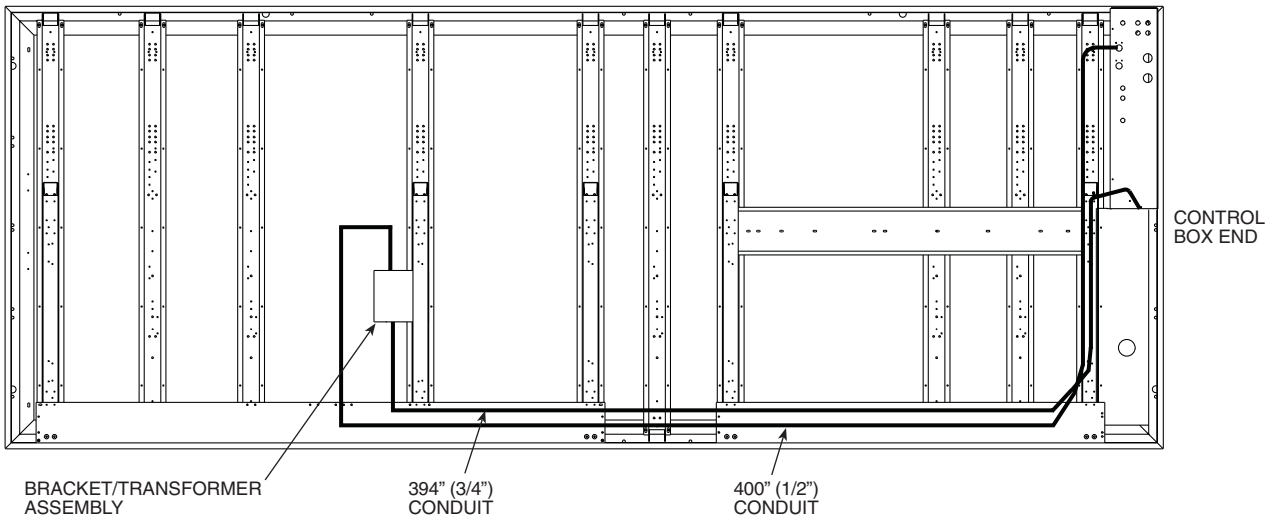


Fig. 3 — Transformer Mounting Location — 30GXN,R204-225 and Associated Modular Units

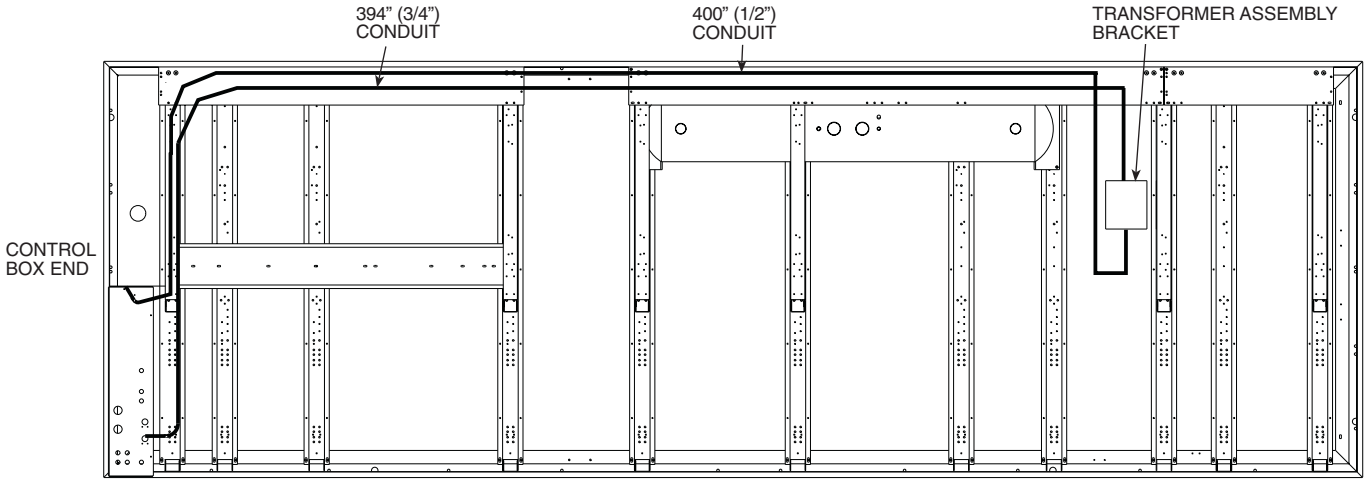


Fig. 4 — Transformer Mounting Location — 30GXN,R249-264 and Associated Modular Units

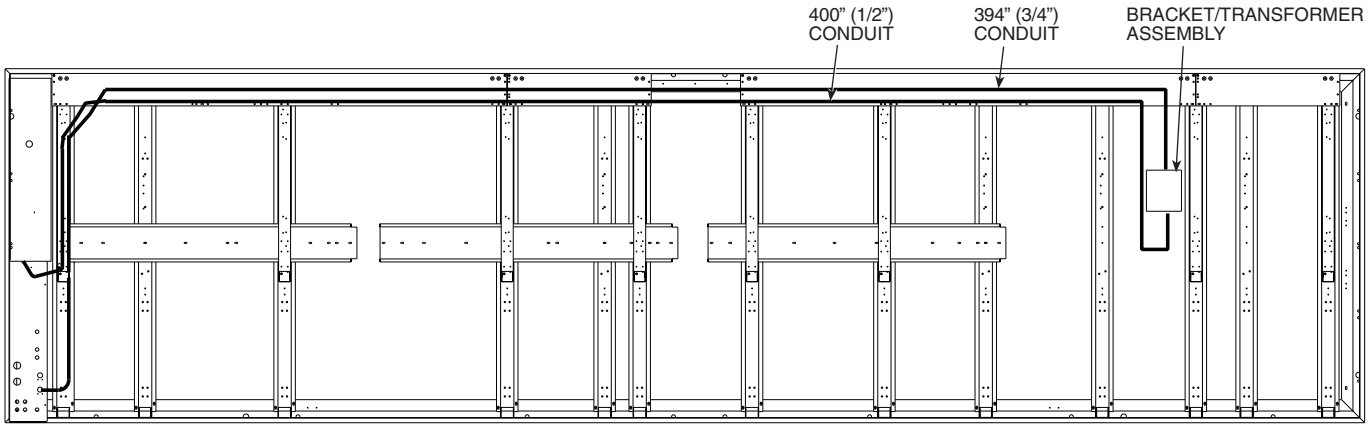
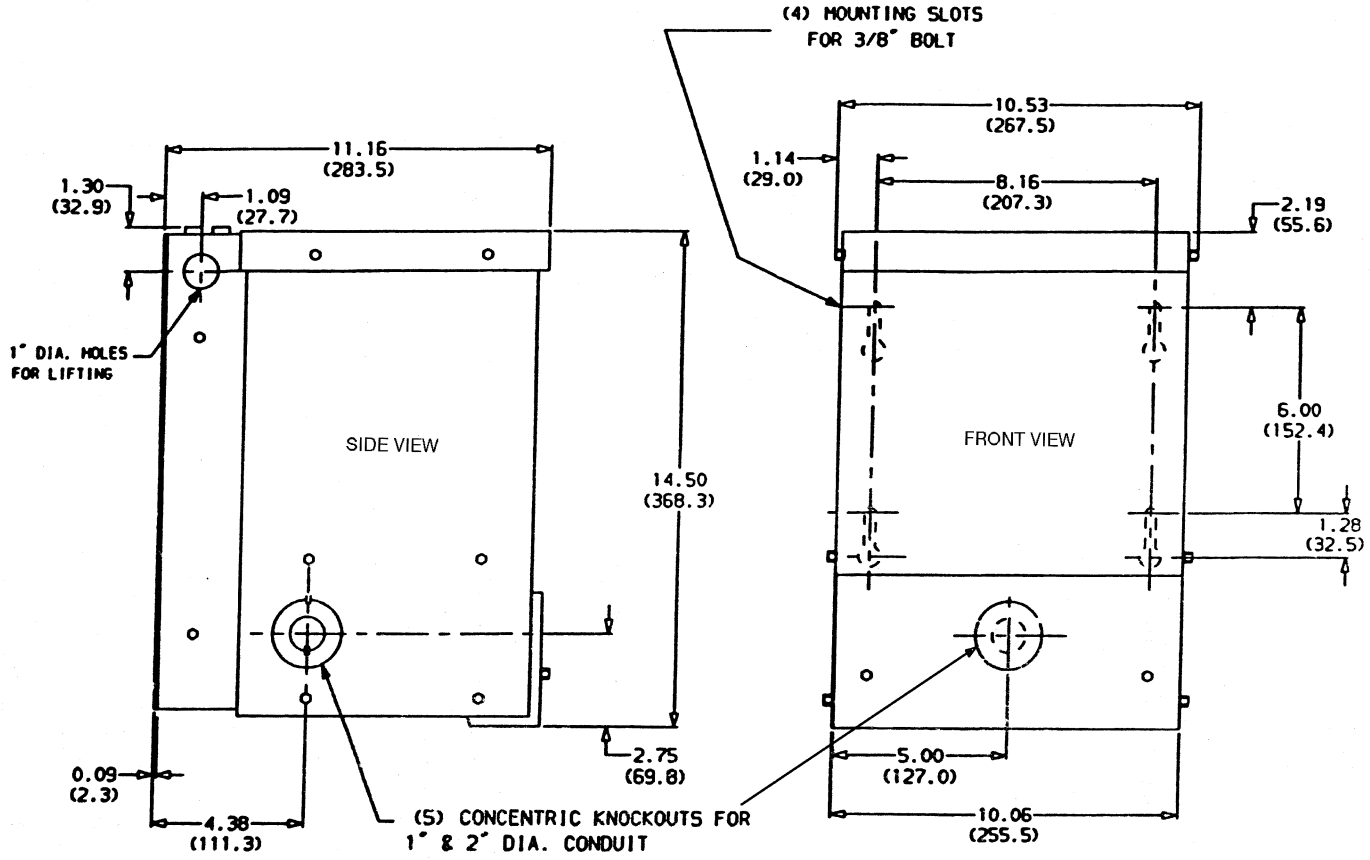
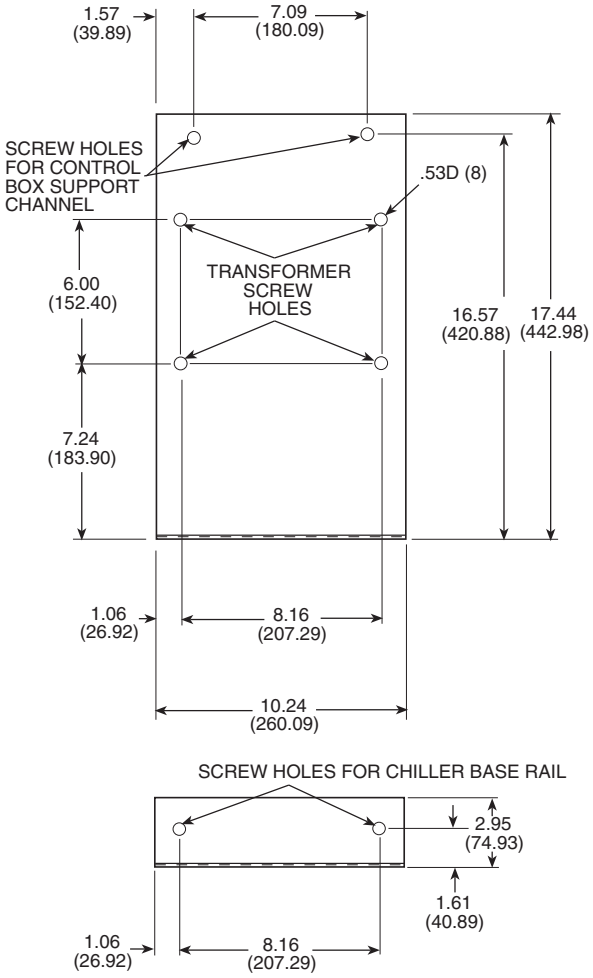


Fig. 5 — Transformer Mounting Location — 30GXN,R281-350 and Associated Modular Units



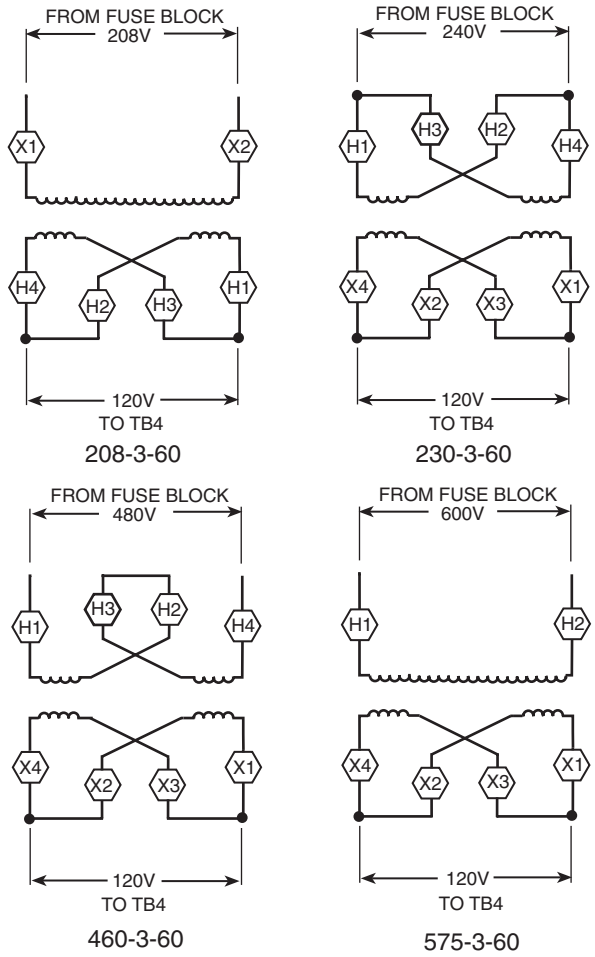
NOTE: Dimensions are in inches. Dimensions in ( ) are in mm.

Fig. 6 — Accessory Control Transformer for Chiller Models 30GXN,R080-350



NOTE: Dimensions are in inches. Dimensions in ( ) are in mm.

Fig. 7 — Sheet Metal Bracket for 30GXN,R Accessory Control Transformer Kits



LEGEND

H1-H4 — Primary Side Connectors
TB — Terminal Block
X1-X4 — Secondary Side Connectors

Fig. 8 — Electrical Connection Diagrams for 30GXN,R Accessory Control Transformer

INSTALLATION FOR 30HX APPLICATIONS

Refer to Fig. 9-12 for control panel details and electrical connections.

1. Open and tag all electrical disconnects.
2. Open the control box doors and remove the center panel. If necessary, remove outer doors by pulling the door hinge pins.
3. Remove the accessory control transformer from the carton.
4. On units with single point power connections (that is, a single power terminal block or disconnect), install the accessory fuse block and control transformer to the right of the disconnect or the power terminal block (TB1A). See Fig. 9. Since there are no pre-drilled holes in the terminal block/disconnect mounting plate, see Fig. 11 for fuse block and transformer hole patterns. Screws, washers, and nuts are provided in the accessory kit.
5. On units with dual power supplies, install the accessory fuse block at the bottom left corner of the control box. See Fig. 10. Since there are no pre-drilled holes in the chiller control box, see Fig. 12 for fuse block and transformer hole patterns. Screws, washers, and nuts are provided in the accessory kit.
6. Install the 2 fuses (Part No. HY10NJ100) into the fuse block. Since the fuse block is a 3-pole block, the fuses can be installed in any 2 clips.
7. Run 14 gage wire (12-in. [305-mm] supplied with accessory) from any 2 terminals of the field power supply terminal block (TB1A) to 2 terminals on one side of the fuse block. Run additional 14 gage wires (42-in. [1067-mm] supplied with accessory) to 2 terminals on the opposite side of the fuse block. See Fig. 11. Be sure connections are made to 2 terminals that have the fuses installed. Connect the other ends of the wires to the primary side of the transformer according to the connection diagram for the correct voltage as shown in Fig. 12.
8. Run 14 gage wire (120-in. [3048-mm] supplied with accessory) from the secondary side of the transformer (contact points X1 and X2) to terminals 1 and 2 of terminal block TB4 in the chiller control box. Connect the supplied ground wire to the white wire and attach to the X2 point on the transformer. Connect the other end of the ground wire to the ground lug located next to TB4.
9. Make sure that all connections are correct and tight. Reinstall the 3 chiller control panel covers.
10. Restore power to the chiller and verify its correct operation as described in the base unit Start-Up and Service Instructions.

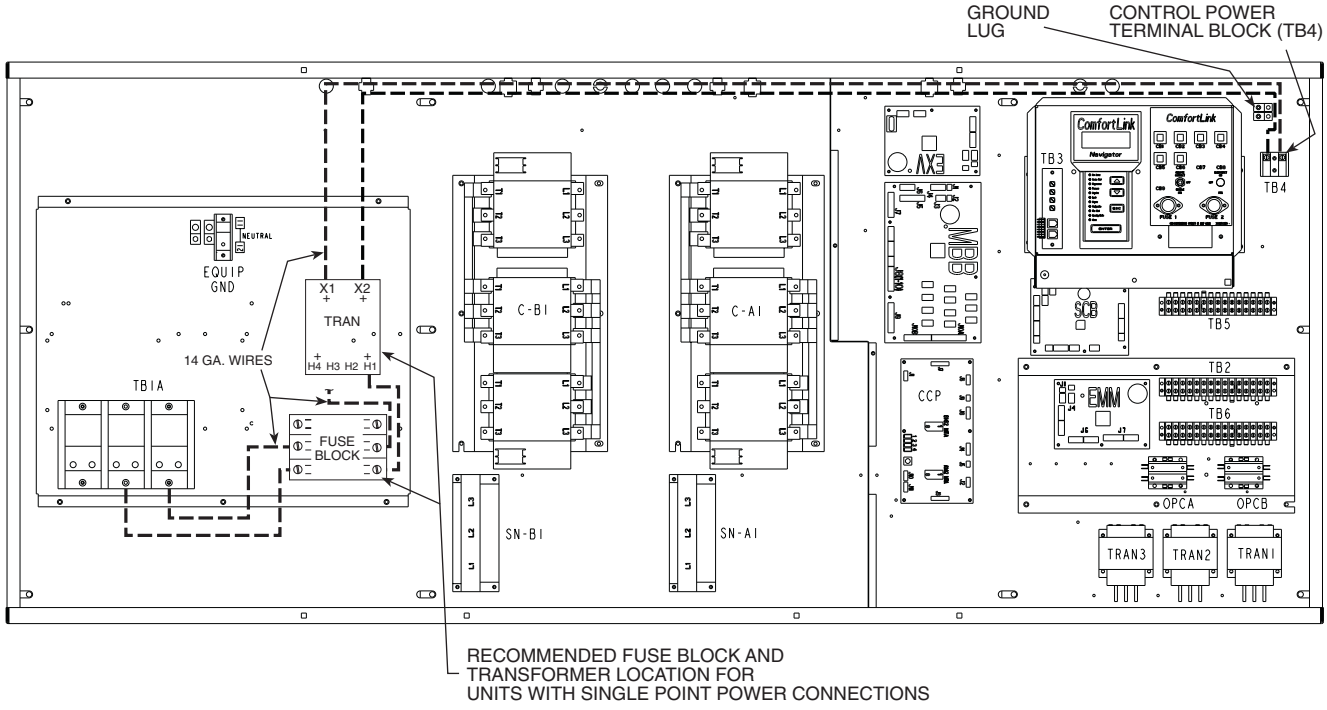


Fig. 9 — 30HX Chiller Control Panel Single Point Power Connection (Interior, Sizes 076-186 Shown)

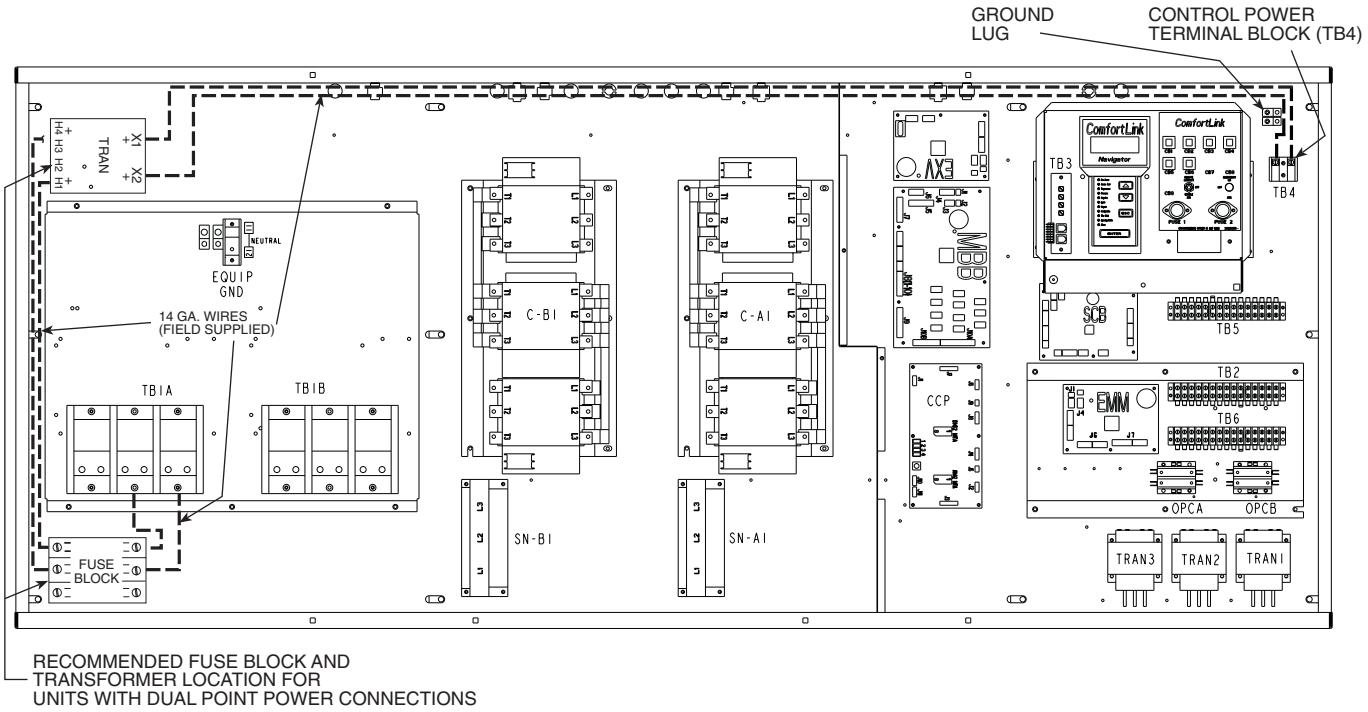


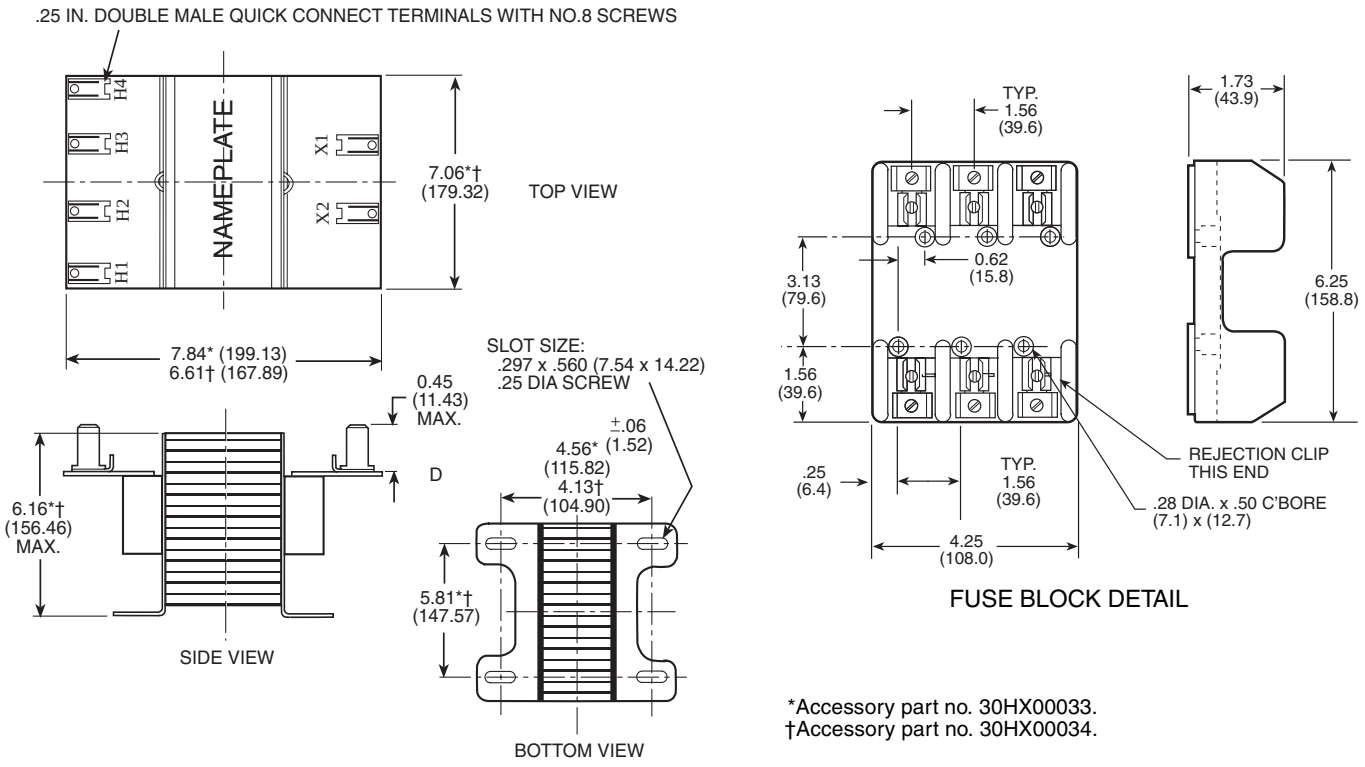
Fig. 10 — 30HX Chiller Control Panel Dual Point Power Connections (Interior, Sizes 076-186 Shown)

LEGEND AND NOTES FOR FIG. 9 AND 10

LEGEND

C	— Contactor Compressor	**SCB**	— Screw Compressor Board
CCP	— *Comfort*Link™ Compressor Protection	**SN**	— Sensor (Toroid)
CNFS	— Condenser Flow Switch	**TB**	— Terminal Block
CNP	— Condenser Pump	**TRAN**	— Transformer
CWP	— Chilled Water Pump	———	Factory Wiring
EMM	— Energy Management Module	- - - -	Field Control Wiring
EQUIP	— Equipment	▬ ▬ ▬	Field Power Wiring
EXV	— Electronic Expansion Valve		
GND	— Ground		
MBB	— Main Base Board		
OPC	— Oil Pump Contactor		

NOTES:
1. Three-phase motors protected against primary single-phasing conditions.
2. Replacement of original wires must be with Type 105° C wire or its equivalent.
3. Numbers on the right side of label diagrams indicate the line location of applicable contacts. An underlined number signifies normally closed contacts. A plain number denotes normally open contacts. Line numbers are shown on the left side of the diagrams.
4. Factory wiring is in accordance with National Electrical Code (NEC) U.S.A. Field modifications or additions must be in compliance with all applicable codes.
5. Wiring for main field power supply must be rated 75° C minimum. Use copper for all units. Maximum incoming wire size for each terminal block is 500 kcmil.
6. Terminals 13 and 14 of TB5 are for field external interlock connection for remote on-off and terminals 1 and 2 of TB5 for CWP interlock. Terminals 5 and 6 of TB2 are for CNP interlock and CNFS. The contacts must be rated for dry circuit application capable of handling a 24-vac to 50 mA load.
7. Terminals 10 and 12 of TB5 are for control of chilled water pump starter. Terminals 11 and 12 of TB5 are for alarm. The maximum allowable load for each of these circuits is 75 va sealed.
8. Terminals 7 and 9 of TB2 are for condenser fan contactor A (HXA) or condenser water pump (HXC). Terminals 8 and 9 of TB2 are for condenser fan contactor B (HXA). The maximum allowable load for each of these circuits is 360 va inrush, 75 va sealed. Separate field power supply is not required.



*Accessory part no. 30HX00033.
†Accessory part no. 30HX00034.

NOTE: Dimensions are in inches. Dimensions in ( ) are in mm.

Fig. 11 — Accessory Control Transformer for Chiller Models 30HX076-271

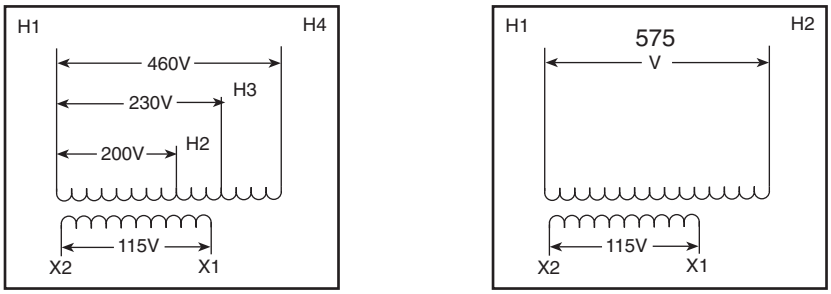


Fig. 12 — Electrical Connection Diagrams for 30HX Accessory Control Transformer

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