

# Installation

# Variable Frequency Drive Conversion to TR200

IntelliPak™ and Voyager™ III only



**Models:** Only Clarksville built units with factory installed VFDs. This includes the following Voyager III commercial units with the VAV option and IntelliPak units with the VAV and/or Statitrac<sup>™</sup> option built prior to Trane TR200 drive units.

S\*HF 20 through 75 ton

S\*HG 90 through 130 ton

TC\*, YC\* and TE\* 27.5 through 50 ton



# Warnings, Cautions and Notices

**Warnings, Cautions and Notices.** Note that warnings, cautions and notices appear at appropriate intervals throughout this manual. Warnings are provide to alert installing contractors to potential hazards that could result in personal injury or death. Cautions are designed to alert personnel to hazardous situations that could result in personal injury, while notices indicate a situation that could result in equipment or property-damage-only accidents.

Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

**ATTENTION**: Warnings, Cautions and Notices appear at appropriate sections throughout this literature. Read these carefully.

WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

NOTICE: Indicates a situation that could result in equipment or property-damage only accidents.

#### **Important**

#### **Environmental Concerns!**

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants-including industry replacements for CFCs such as HCFCs and HFCs.

#### Responsible Refrigerant Practices!

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified. The Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

## **⚠** WARNING

#### **Contains Refrigerant!**

System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives.

Failure to follow proper procedures or the use of non-approved refrigerants, refrigerant substitutes, or refrigerant additives could result in death or serious injury or equipment damage.



### **⚠** WARNING

#### **Hazard of Explosion!**

Use only dry nitrogen with a pressure regulator for pressurizing unit. Do not use acetylene, oxygen or compressed air or mixtures containing them for pressure testing. Do not use mixtures of a hydrogen containing refrigerant and air above atmospheric pressure for pressure testing as they may become flammable and could result in an explosion. Refrigerant, when used as a trace gas should only be mixed with dry nitrogen for pressurizing units. Failure to follow these recommendations could result in death or serious injury or equipment or property-only damage.

# **⚠** WARNING

#### Personal Protective Equipment (PPE) Required!

Installing/servicing this unit could result in exposure to electrical, mechanical and chemical hazards.

- Before installing/servicing this unit, technicians MUST put on all Personal Protective Equipment (PPE) recommended for the work being undertaken. ALWAYS refer to appropriate MSDS sheets and OSHA guidelines for proper PPE.
- When working with or around hazardous chemicals, ALWAYS refer to the appropriate MSDS sheets and OSHA guidelines for information on allowable personal exposure levels, proper respiratory protection and handling recommendations.
- If there is a risk of arc or flash, technicians MUST put on all necessary Personal Protective Equipment (PPE) in accordance with NFPA70E for arc/flash protection PRIOR to servicing the unit.

Failure to follow recommendations could result in death or serious injury.

# Introduction

This manual describes the installation procedures required to retrofit ATV66 and ATV58 Variable Frequency Drives (VFD).

#### **Trademarks**

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### **General Information**

#### **About This Manual**

The step-by-step instructions outlined in this manual describe the procedures required to successfully retrofit an ATV66 or ATV58 VFD 20 ton through 130 ton Intellipak™ rooftop air conditioning and 27.5 ton through 50 ton Voyager™ III rooftop air conditioning units to a Trane TR200 VFD drive. For help selecting the proper parts for this work, refer to general service bulletin PART-SVB21A-EN or the most current version of that same literature.

**Note:** It is recommended that technicians obtain 11" x 17" print outs of wiring diagrams for each specific project; see "Wiring Diagram Matrix," p. 22.

The installation instructions in this manual are divided into three general topic areas:

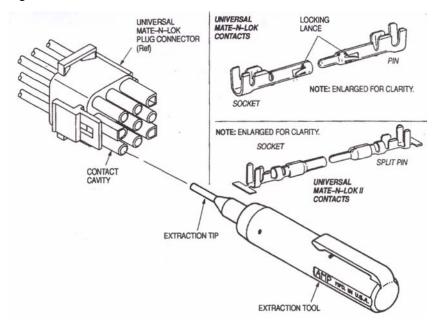
- · Removal of existing VFD (ATV66 or ATV58) and components.
- Installation of replacement VFD (TR200) and components.
- TR200 programming of parameters.

Follow start-up and trouble shooting procedures outlined in the service manuals of the unit and/or the literature that is included with this TR200 control.

### **Tools Required**

Very few tools are required to perform this installation. A service technician with a well-stocked tool chest should have the right tools to perform the job. The only special tool that is required is for the installation in a Voyager III type of unit (TC\*, YC\*, TE\*). You will need an AMP Extraction Tool 458994-2 or an equivalent pin extraction tool (see Figure 1). It is also important to know the weight of the VFD Control Panel being replaced in case additional manpower or rigging apparatus is necessary to safely handle the VFD control panels.

Figure 1. AMP Pin extraction tool





# Removing the Existing VFD and Components

The section that follows will give the procedure to replace an existing ATV66 or ATV58 VFD back panel assembly and remote keypad, cable and mounting bracket in the IntelliPak™ and Voyager™ III main control panels.

There are three communication cables to unhook from the unit VFD back panel assembly adjacent the power supply wiring. A new keypad is supplied with each VFD and must be used along with the given cable. Programming parameters are supplied and a minimum five must be set based on specific unit specifications.

#### VFD and Back Panel Assembly Removal

Locate existing VFD (ATV66 or ATV58) unit enclosure near the return and exhaust section as shown in Figure 2 and Figure 3, p. 7 for IntelliPak units and opposite supply fans on the Voyager III units as shown in Figure 4, p. 7.

Identify the correct VFD for replacement. The IntelliPak rooftop can have both supply (1 or 2) and exhaust (1) VFDs.

The supply VFD is located on the back panel of the unit enclosure and the exhaust VFD is located on the inner door of the unit enclosure and must be turned to the open position for the VFD to be removed. Voyager III units only have supply VFDs and are located by the supply fan on the opposite side of the unit from the control panel.

Disconnect the following power supply and control wires from each VFD. Based on the unit options and features use the appropriate paragraph and wiring diagrams.

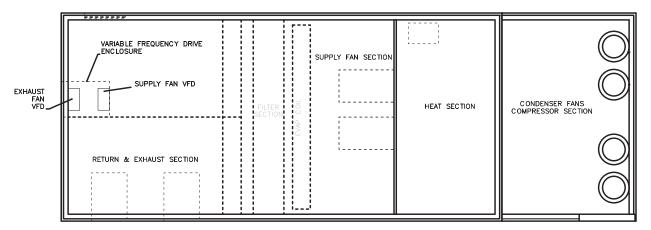
# **⚠** WARNING

#### **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Figure 2. Typical IntelliPak 20 through 75 ton configuration





EXHAUST FAN VFD

SUPPLY FAN VFD

SUPPLY FAN SECTION

FILTER
SECTION

RETURN & EXHAUST

RETURN & EXHAUST

SUPPLY FAN VFD

SUPPLY FAN SECTION

FILTER
SECTION

FILTER
SECTION

FILTER
SECTION

FILTER
SECTION

ELEC CONTROL
PANEL

FILTER
SECTION

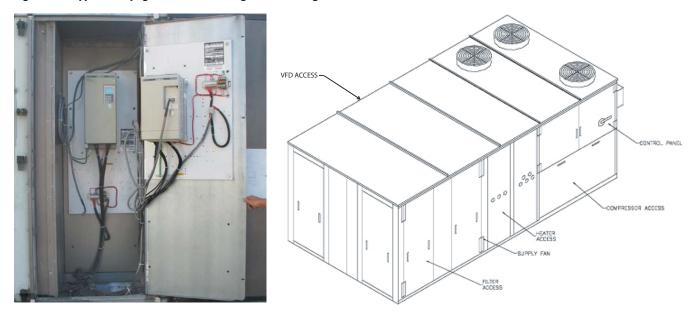
FILTER
SECTION

FILTER
SECTION

CONDENSER FANS
COMPRESSOR SECTION

Figure 3. Typical IntelliPak 90 through 130 Ton configuration

Figure 4. Typical Voyager III 27.5T through 50T Configuration





#### Removing the Existing VFD and Components

#### **Power Supply Wiring Removal**

# **⚠** WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

References to specific wiring schematics can be found in "Wiring Diagram Matrix," p. 22. Browse through the wiring diagram specifics to identify the one that best represents the options installed on the unit you are working on. The following instructions relate to either the IntelliPak or Voyager III; follow the appropriate instructions.

#### **IntelliPak Units Power Supply Wiring Removal**

VFD supply fan with bypass, with and without line reactors.

Disconnect power supply wires, 306A, 307A, 308A on Power Block (PB) terminals L1, L2, L3 and wires 315A, 316A, 317A on Overload (OL) terminals T1, T2, T3 located on back panel Figure 5, p. 9.

VFD supply fan without bypass, with and without line reactors.

- Disconnect power supply wires, 306A, 307A, 308A without line reactors and power supply wires 377A, 378A, 379A with line reactors on VFD control module terminals L1, L2, L3
   Figure 6, p. 9.
- Disconnect wires 315A, 316A, 317A on VFD control module terminals T1, T2, T3.

VFD exhaust fan with bypass, with and without line reactors.

Disconnect power supply wires, 312A, 313A, 314A on Power Block (PB) terminals L1, L2, L3 and wires 321A, 322A, 323A on Overload (OL) terminals T1, T2, T3 located on back panel Figure 5, p. 9.

VFD exhaust fan without bypass, with and without line reactors.

- Disconnect power supply wires, 312A, 313A, 314A without line reactors and power supply wires 383A, 384A, 385A with line reactors on VFD control module terminals L1, L2, L3 Figure 6, p. 9.
- Disconnect wires 321A, 322A, 323A on VFD control module terminals T1, T2, T3.



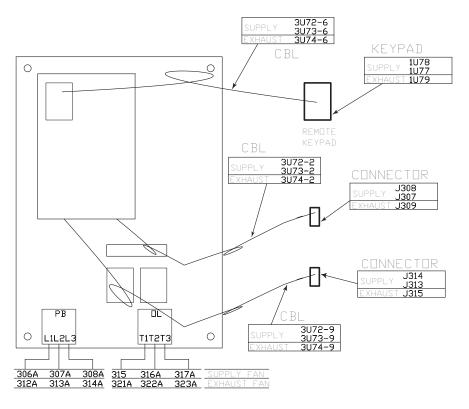
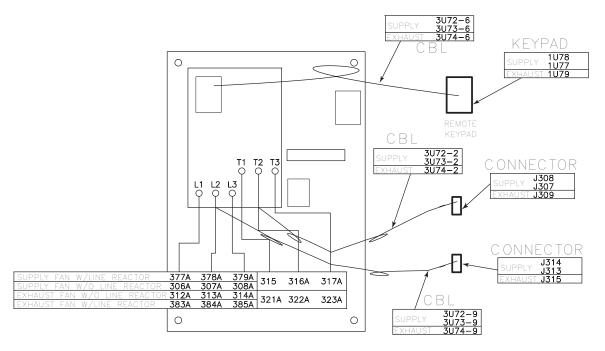


Figure 5. Typical IntelliPak VFD (ATV58 or 66) control panel with bypass option

Figure 6. Typical IntelliPak VFD (ATV58 or 66) control panel without bypass option





#### **Voyager III Units Power Supply Wiring Removal**

## **⚠** WARNING

#### Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

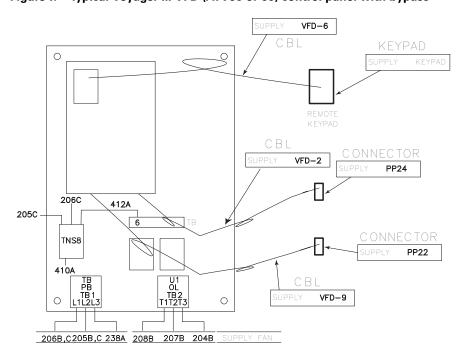
VFD supply fan with bypass.

 Disconnect power supply wires, 206B,C, 205B,C, 238A on Power Block (PB) terminals L1, L2, L3 and wires 208B, 207B, 3204B on Overload (OL) terminals T1, T2, T3 located on back panel Figure 7, p. 10.

VFD supply fan without bypass.

- Disconnect power supply wires, 206B,C, 205B,C, 238A on VFD control module terminals L1, L2, L3 Figure 8, p. 12.
- Disconnect wires 208B, 207B, 204B on VFD control module terminals T1, T2, T3.

Figure 7. Typical Voyager III VFD (ATV58 or 66) control panel with bypass





#### **Control Wiring Removal**

# ⚠ WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

References to specific wiring schematics can be found in "Wiring Diagram Matrix," p. 22. Browse through the wiring diagram descriptions to identify the one that best represents the options installed on the unit you are working on.

#### IntelliPak

Disconnect remote keypad cable found connected on VFD front panel labeled CBL3U72-6, CBL3U73-6 for supply VFD and/or CBL3U74-6 for exhaust VFD with 6 pin Sub D connector. The other end of the cable is plugged into the VFD supply keypad (1U77, IU78) or exhaust keypad (IU79) located in the main unit control panel Figure 5, p. 9 and Figure 6, p. 9.

Disconnect the high voltage control wiring cable on supply fan VFD labeled CBL3U72-9, CBL3U73-9 and/or exhaust fan VFD labeled CBL3U74-9 that uses a 9-pin connector labeled J313, J314 and/or

Disconnect the low voltage control wiring cable on supply fan VFD labeled CBL3U72-2, CBL3U73-2 and/or exhaust fan VFD labeled CBL3U74-2 that uses a 2-pin connector labeled J308, J307 and/or I309

For units (90T-130T) that contain two supply VFDs, disconnect the fault interlock cable that uses the male and female 4-pin connector.

#### Removing the Existing VFD and Components

VFD-6 0 Q KEYPAD 2050 TNS8 410A -206C 412A 6 T2 T3 VFD-2 PP24 L2 L3 PP22 206B,C205B,C238A 208B 207B 204B VFD-9 0 0

Figure 8. Typical Voyager III VFD (ATV58 or 66) control panel without bypass

#### Voyager III

# **⚠** WARNING

#### **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Disconnect remote keypad cable found connected on VFD front panel labeled VFD-6 for supply VFD with 6 pin Sub D connector. The other end of the cable is plugged into the VFD supply keypad located in the main unit control panel Figure 7, p. 10 and Figure 8, p. 12.

Disconnect the high voltage control wiring cable on supply fan VFD labeled VFD-9 that uses a 9-pin connector labeled PP22.

Disconnect the low voltage control wiring cable on supply fan VFD labeled VFD-2 that uses a 2-pin connector labeled PP2.

Disconnect the transformer/fuse (TNS8) wiring 205C, 206C from power block (PB) and 412A from terminal 6 on terminal block (TB).

Remove pin #9 with wire 410A from connector PP22 and cable VFD-9 with special extraction tool (see "Tools Required," p. 5) field supplied.

Remove transformer/fuse (TNS8) from back panel and set aside for installation to new VFD back panel.



# ⚠ WARNING Heavy Objects!

Each of the cables (chains or slings) used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift. Other lifting arrangements may cause equipment or property-only damage. Failure to properly lift unit could result in death or serious injury. See details below.

After all cables and power supply wiring have been disconnected, locate back panel screws and remove the nuts and washers from each corner. The two welded studs on the top two corners can support the panel. Keyhole slots in each back panel are provided as lifting holes to attach overhead lifting devices if necessary. The weight of these panels can vary from 50 lb to 190 lb (see Table 1, p. 13 for estimates). Verify actual weights before lifting. Follow safe procedures for lifting and removing the supply fan VFD drive and back panel assembly from the compartment and/or inner enclosure door if exhaust fan VFD is being removed.

#### TR200 Repacement Panels for Clarksville Square D Panels

Table 1. Estimated drive and back panel assembly weights

Motor Voltage	Motor Horsepower	Estimated Weight	
VAC	Нр	lb	kg
200 or 230	1.5	50	23
200 or 230	3.0	50	23
200 or 230	5.0	50	23
200 or 230	7.5	65	30
200 or 230	10	65	30
200 or 230	15	65	30
200 or 230	20	85	40
200 or 230	25	120	56
200 or 230	30	165	76
200 or 230	40	190	88

Motor Voltage	Motor Horsepower	Estimated Weight	
VAC	Нр	lb	kg
460 or 575	1.5	50	23
460 or 575	3.0	50	23
460 or 575	5.0	50	23
460 or 575	7.5	50	23
460 or 575	10	50	23
460 or 575	15	65	30
460 or 575	20	65	30
460 or 575	25	85	40
460 or 575	30	120	56
460 or 575	40	165	76

#### **Keypad and Cable Assembly Removal**

# ⚠ WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

References to specific wiring schematics can be found in "Wiring Diagram Matrix," p. 22.

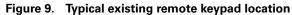
Locate the existing VFD keypad display (supply fan - IU77 and/or IU78, exhaust fan - IU79) in the main control box as shown in Figure 2, p. 6 and Figure 3, p. 7 for IntelliPak units and Voyager III units as shown in Figure 4, p. 7.

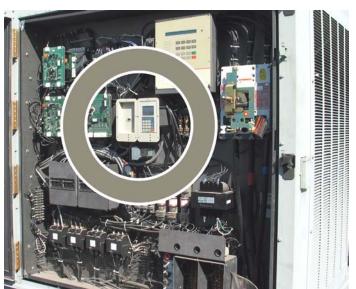


#### **Removing the Existing VFD and Components**

Remove the keypad (IU77, IU78 and/or IU79), keypad mounting screws, bracket, and cable (CBL3U72-6, CBL3U73-6, VFD-6 and/or CBL3U74-6) completely from the unit.

On Voyager III units, the bypass switch must also be removed from the keypad mounting bracket to be mounted in the new keypad mounting bracket for the TR200 VFD.







### VFD and Back Panel Assembly for TR200

# ⚠ WARNING Heavy Objects!

Each of the cables (chains or slings) used to lift the unit must be capable of supporting the entire weight of the unit. Lifting cables (chains or slings) may not be of the same length. Adjust as necessary for even unit lift. Other lifting arrangements may cause equipment or property-only damage. Failure to properly lift unit could result in death or serious injury. See details below.

Remove VFD and back panel assembly from the box and find the location (supply fan VFD mounted on back panel of VFD compartment and exhaust fan VFD mounted on inner door of VFD compartment) of the assembly in the VFD drive compartment in the IntelliPak™ and Voyager™ III units. Keyhole slots in each back panel are provided as lifting holes to attach overhead lifting devices if necessary. The weight of these panels can vary from 50 lb to 190 lb (see Table 1, p. 13). Follow safe procedures for lifting and removing the supply fan VFD drive and back panel assembly from the box.

Once the location has been determined position the VFD back panel top two corner holes on the two weld studs provided on compartment back wall for supply fan VFD or inner door panel for exhaust fan VFD (see Figure 10, p. 16).

Secure the VFD back panel assembly with nuts, washers, and lock washers in each corner of the back panel and tighten to secure to back wall of compartment for supply fan VFD or inner door for exhaust fan VFD.

Connect the three following cables: power supply, control wiring, and remote keypad.

#### **Power Supply Wiring to TR200**

References to specific wiring schematics can be found in "Wiring Diagram Matrix," p. 22.

IntelliPak (Figure 10, p. 16)

# ⚠ WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

VFD supply fan with bypass, with and without line reactors.

Connect power supply wires, 306A, 307A, 308A on Terminal Block (TB) terminals L1, L2, L3 and wires 315A, 316A, 317A on Overload (U1) terminals T1, T2, T3 located on back panel.

VFD supply fan without bypass, with and without line reactors.

- Connect power supply wires, 306A, 307A, 308A without line reactors and power supply wires 377A, 378A, 379A with line reactors on Terminal Block (TB1) terminals L1, L2, L3.
- Connect wires 315A, 316A, 317A on Terminal Block (TB2) terminals T1, T2, T3

VFD exhaust fan with bypass, with and without line reactors.



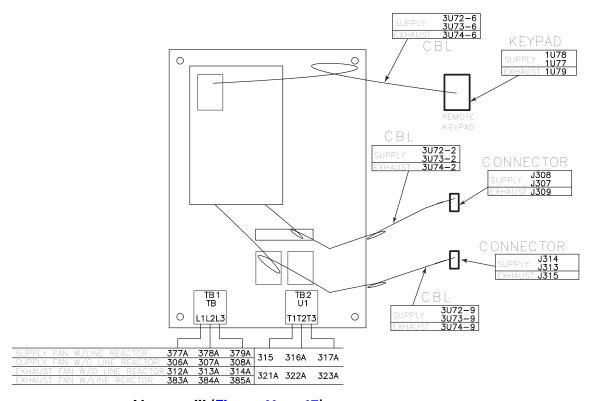
 Connect power supply wires, 312A, 313A, 314A on Terminal Block (TB) terminals L1, L2, L3 and wires 321A, 322A, 323A on Overload (U1) terminals T1, T2, T3 located on back panel.

VFD exhaust fan without bypass, with and without line reactors.

- Connect power supply wires, 312A, 313A, 314A without line reactors and power supply wires 383A, 384A, 385A with line reactors on Terminal Block (TB1) terminals L1, L2, L3.
- Connect wires 321A, 322A, 323A on Terminal Block (TB2) terminals T1, T2, T3.

Ensure ground wires are properly secured per appropriate wiring schematics referenced in "Wiring Diagram Matrix," p. 22.

Figure 10. Typical IntelliPak VFD (TR200) control panel with or without bypass option



Voyager III (Figure 11, p. 17)

# **⚠** WARNING Hazardous Voltage!

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

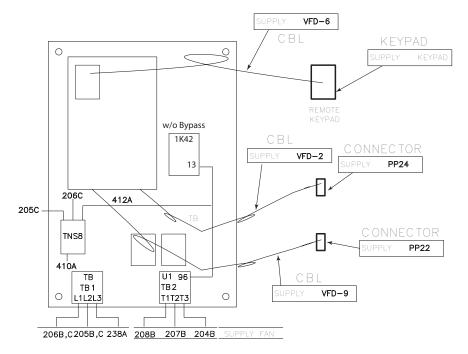
VFD supply fan with and without bypass.



 Connect power supply wires, 206B,C, 205B,C, 238A on Terminal Block (TB or TB1) terminals L1, L2, L3 and wires 208B, 207B, 204B on Overload (U1 or TB2) terminals T1, T2, T3 located on back panel.

Ensure ground wires are properly secured per appropriate wiring schematics referenced in "Wiring Diagram Matrix," p. 22.

Figure 11. Typical Voyager III VFD (TR200) control panel with or without bypass option



#### **Control Wiring to TR200**

References to specific wiring schematics can be found in "Wiring Diagram Matrix," p. 22.

#### IntelliPak

# **△** WARNING

#### **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Remove keypad insert from front of VFD control. Connect remote keypad cable (supply fan CBL3U72-6, CBL3U73-6 and/or exhaust fan CBL3U74-6) provided with KIT to 6-pin Sub D connector on front of VFD control panel where keypad was mounted (see Figure 12, p. 18).

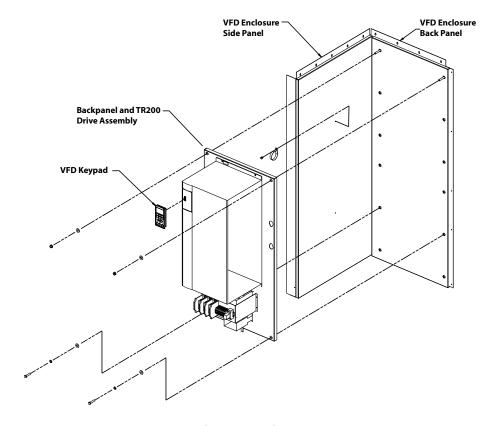
On units (90T-130T) that have two supply fan VFDs, connect the fault interlock cable that uses the 4-pin male and female connectors, P-F1.



Connect the high voltage control wiring cable on supply fan VFD labeled CBL3U72-9, CBL3U73-9 and/or exhaust fan VFD labeled CBL3U74-9 that uses a 9-pin connector labeled J314 and/or J315.

Connect the low voltage control wiring cable on supply fan VFD labeled CBL3U72-2, CBL3U73-2 and/or exhaust fan VFD labeled 3U74-2 that uses a 2-pin connector labeled J308 and/or J309.

Figure 12. Typical TR200 VFD installation



Voyager III (Figure 12)

# **A** WARNING

#### **Hazardous Voltage!**

Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Remove keypad insert from front of VFD control. Connect remote keypad cable (CBLVFD-6) provided with KIT to 6-pin Sub D connector on front of VFD control panel where keypad was mounted (see Figure 12).

Connect the high voltage control wiring cable on supply fan VFD labeled VFD-9 that uses a 9-pin connector labeled PP22 to the unit PP22 connector.



Connect the low voltage control wiring cable on supply fan VFD labeled VFD-2 that uses a 2-pin connector labeled PP24 to the unit PP24 connector.

Position transformer/fuse (TNS8) onto back panel of VFD where holes are provided and fasten with field provided fasteners.

Connect the transformer/fuse (TNS8) wiring 205C, 206C on terminal block (TB or TB1) and 412A on terminal 96 on overload (U1) for units with bypass option and on terminal 13 of K42 for units without bypass option.

Attach pin #9 with wire 410A to connector PP22 and cable VFD-9 with special extraction tool (see "Tools Required," p. 5) field supplied.

#### **Keypad and Cable Assembly for TR200**

# **⚠** WARNING

#### **Hazardous Voltage!**

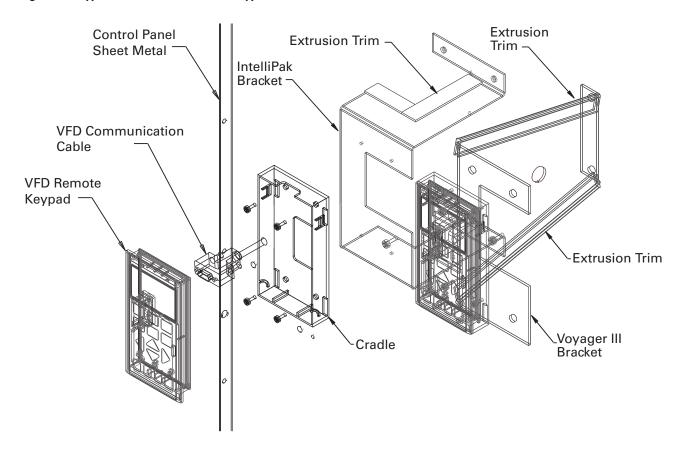
Disconnect all electric power, including remote disconnects and discharge all motor start/run capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized. For variable frequency drives or other energy storing components provided by Trane or others, refer to the appropriate manufacturer's literature for allowable waiting periods for discharge of capacitors. Verify with an appropriate voltmeter that all capacitors have discharged. Failure to disconnect power and discharge capacitors before servicing could result in death or serious injury.

Note: For additional information regarding the safe discharge of capacitors, see PROD-SVB06A-EN or PROD-SVB06A-FR

Remove the keypad mounting bracket from supplied parts kit.

Mount the keypad from VFD control panel to mounting bracket with field-supplied screws.

Figure 13. Typical TR200 VFD remote keypad installation



Thread keypad cable from VFD compartment through unit in the low electrical noise area (near roof of unit), supporting cable appropriately, to the main control panel where keypad is to be located.

Locate position for keypad mounting bracket in the main control panel on side of unit (see Figure 2, p. 6, Figure 3, p. 7, or Figure 4, p. 7).

Attach mounting bracket with field-supplied fasteners.

Apply flexible extrusion trim to all edges of bracket that come into contact with electrical wires and cables.

Route cable through back of mounting bracket and insert through hole where keypad is to mount.

Attach cable connector to back of keypad connection point.

Mount keypad in mounting bracket.

Secure cable appropriately in the main control panel where necessary.

On Voyager III units, mount bypass switch removed from the previous mounting bracket and install in hole provided in the new keypad mounting bracket.

#### Miscellaneous

Find the appropriate wiring schematic and connection drawing referenced in "Wiring Diagram Matrix," p. 22, and print a copy from e-Library. Tape or glue the the printout over the wiring schematic and connection drawing found on the VFD unit enclosure door.



# **TR200 VFD Programming Information**

Please refer to BAS-SVX19A-EN (*Operating Instructions: TR200*), or the most recent version, for complete programming information.



# Wiring Diagram Matrix

Select wiring diagrams for Variable Frequency Drives based on model number:

- IntelliPak (Digit 17)
  - 5 = Space Pressure Control with Exhaust/Return Variable Frequency Drive and Bypass
  - 6 = VAV Supply Air Temperature Control with Variable Frequency Drive without Bypass
  - 7 = VAV Supply Air Temperature Control with Variable Frequency Drive and Bypass
  - 8 = Supply and Exhaust/Return Fan with Variable Frequency Drive without Bypass
  - 9 = Supply and Exhaust/Return Fan with Variable Frequency Drive and Bypass

**Note:** Refer to RT-PRC010-EN, *Product Catalog: Packaged Rooftop Air Conditioners, IntelliPak Rooftops*, for complete model number descriptions.

- Voyager 3 (Digit 16)
  - 4 = VAV Supply Air Temperature Control with Variable Frequency Drive without Bypass
  - 5 = VAV Supply Air Temperature Control with Variable Frequency Drive and Bypass

**Note:** Refer to RT-PRC007-EN, *Product Catalog: Packaged Rooftop Air Conditioners, Voyager Commercial with ReliaTel Controls*, for complete model number descriptions.

Table 2, p. 23 through Table 7, p. 24 provide descriptions and Wiring Diagram Numbers for wiring schematics and connection diagrams; some complete wiring diagrams are also included (see Figure 15, p. 26 through Figure 21, p. 32).

All wiring diagrams described in Table 2 through Table 7 are also included in e-Library. To locate wiring diagrams in e-Library, enter the eight-digit "Wiring Diagram Number", including the dash, in the **Literature Order Number** field on the left side of the e-Library window and click **Search Now**. Please check the **Current** box in the middle section of the e-Library window to make sure that the most recent version of the wiring diagram is located.



Table 2. TR200 VFD IntelliPak™ wiring schematics and connection diagrams

Wiring Diagram Number	Description
2309-3576 (see Figure 14, p. 25)	020 through 075 ton, Supply fan VFD with bypass control, rooftop single motor application
2309-3577 (see Figure 15, p. 26)	090 through 130 ton, Supply fan VFD 1 with bypass control, dual motor application
2309-3578 (see Figure 16, p. 27)	020 through 130 ton, Exhaust/return fan VFD with bypass control, rooftop
2309-3579	090 through 130 ton, Supply fan VFD 2 with bypass control, dual motor application
2309-3580 (see Figure 17, p. 28)	020 through 075 ton, Supply fan VFD without bypass control, single motor application
2309-3581 (see Figure 18, p. 29)	090 through 130 ton, Supply fan VFD 1 without bypass control, dual motor application
2309-3582 (see Figure 19, p. 30)	020 through 130 ton, Exhaust/return fan VFD without bypass control
2309-3583	090 through 130 ton, Supply fan VFD 2 without bypass control, dual motor application
2309-3587	020 through 130 ton, Constant volume, costumer connection diagram
2309-3588	020 through 130 ton, Variable air volume, costumer connection diagram

Table 3. ATV58 VFD IntelliPak wiring schematics and connection diagrams

Wiring Diagram Number	Description
2307-4569	020 through 075 ton, Supply fan with bypass, without line reactor
2307-4570	090 through 130 ton, Supply fan 1 with bypass, without line reactor
2307-4572	090 through 130 ton, Supply fan 2 with bypass, without line reactor
2307-4573	020 through 075 ton, Supply fan without bypass
2307-4574	090 through 130 ton, Supply fan 1 without bypass
2307-4576	090 through 130 ton, Supply fan 2 without bypass
2307-4579	090 through 075 ton, Supply fan with bypass, with line reactor
2307-4580	090 through 130 ton, Supply fan 1 with bypass, with line reactor
2307-4582	090 through 130 ton, Supply fan 2 with bypass, with line reactor
2307-4571	020 through 130 ton, Supply fan with bypass, without line reactor
2307-4575	020 through 130 ton, Exhaust fan without bypass and with or without line reactor
2307-4581	020 through 130 ton, Exhaust fan with, bypass with line reactor



#### **Wiring Diagram Matrix**

Table 4. ATV66 VFD IntelliPak wiring schematics and conection diagrams

Wiring Diagram Number	Description
2307-4311	020 through 075 ton, Supply fan with bypass, without line reactor
2307-4312	090 through 130 ton, Supply fan 1 with bypass, without line reactor
2307-4314	090 through 130 ton, Supply fan 2 with bypass, without line reactor
2307-4315	020 through 075 ton, Supply fan without bypass, 380/415/460 Vac
2307-4321	020 through 075 ton, Supply fan without bypass, 208/230 Vac
2307-4316	090 through 130 ton, Supply fan 1 without bypass
2307-4322	090 through 130 ton, Supply fan 1 without bypass, 208/230 Vac
2307-4318	090 through 130 ton, Supply fan 2 without bypass
2307-4324	090 through 130 ton, Supply fan 2 without bypass, 208/230 Vac
2307-4329	020 through 075 ton, Supply fan with bypass, with line reactor
2307-4330	090 through 130 ton, Supply fan 1 with bypass, with line reactor
2307-4332	090 through 130 ton, Supply fan 2 with bypass, with line reactor
2307-4313	020 through 130 ton, Exhaust fan with bypass, without line reactor, 380/415/460 Vac
2307-4317	020 through 130 ton, Exhaust fan without bypass and with or without line reactor, 208/230 Vac
2307-4323	020 through 130 ton, Exhaust fan without bypass, 208/230 Vac
2307-4331	020 through 130 ton, Exhaust fan without bypass, with line reactor

#### Table 5. TR200 VFD Voyager™ III wiring schematics and connection diagram

Wiring Diagram Number	Description
2309-3584 (see Figure 20, p. 31)	Voyager III fan VFD with bypass control
2309-3585 (see Figure 21, p. 32)	Voyager III fan VFD without bypass control
Note: Wiring diagrams are available via e-Library.	

#### Table 6. ATV58 VFD Voyager III wiring schematics and connection diagrams

Wiring Diagram Number	Description
2307-4577	027 through 050 ton, Supply fan with bypass
2307-4578	027 through 050 ton, Supply fan without bypass
Note: Wiring diagrams are available	e via e-Library.

#### Table 7. ATV66 VFD Voyager III wiring schematics and connection diagrams

Wiring Diagram Number	Description
2307-4319	027 through 050 ton, Supply fan with bypass
2307-4320	027 through 050 ton, Supply fan without bypass
2307-4325	027 through 050 ton, Supply fan without bypass, 208/230 Vac
Note: Wiring diagrams are available	e via e-Library.



DEVICE PREFIX LOCATION GUIDE 1S72 SUP BYPASS SWITCH 6 AREA LOCATION

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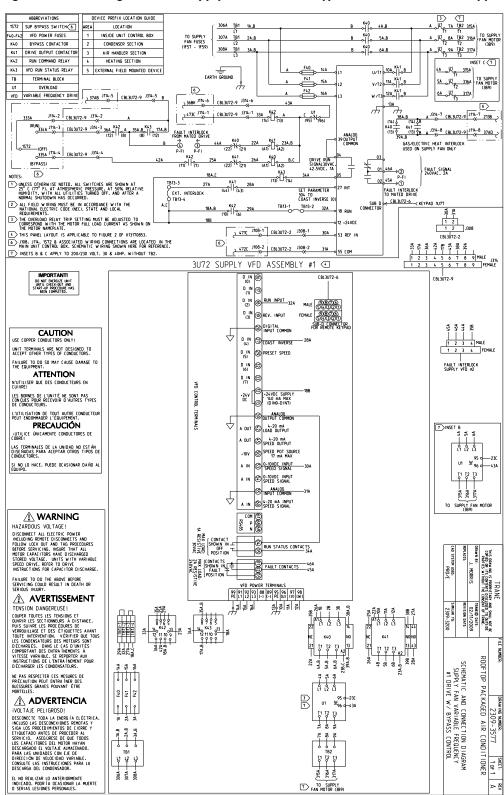
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Figure 14. 020 through 075 ton, Supply fan VFD with bypass control, rooftop single motor application (2309-3576)



Figure 15. 090 through 130 ton, Supply fan VFD 1 with bypass control, dual motor application (2309-3577)





DEVICE PREFIX LOCATION GUIDE 3 7 VI 7a TB2 321a 1572 EXHARTN BYPASS SWITCH 6 AREA 312A TB1 1A. LOCATION F40-F42 VFD POWER FUSES INSIDE UNIT CONTROL BOX 313A TB1 2A.B 5A.B A U1 8A TB2 322A TO EXH./RTN FAN MOTOR 12 T2 (3810) CONDENSER SECTION K40 BYPASS CONTACTOR A JUL 9A TB2 323A K41 DRIVE OUTPUT CONTACTOR 3 AIR HANDLER SECTION HEATING SECTION K43 VFD RUN STATUS RELAY 5 EXTERNAL FIELD MOUNTED DEVICE INSET ( 7 TB 4A JA 321A V/T2 11A K41 F41 15A EARTH GROUND 5A U1 322A TO EXHARTN MOTOR (3810) OVERLOAD W/T30-12A 0 0 0 B VFD VARIABLE FREQUENCY DRIVE 6 6A H 323A 36BL J115-6 | CBL3U74-9 J315-6 Æ 37AA J115-5 | CBL3U74-9 J315-5 B 38A,B A J315-7 (BL3U74-9 J115-7 ≪ J115-2 CBL3U74-9 J315-2 332A J115-1 \$73 (BF) 175-4 (BU3074-9 J375-3 (BF) 175-4 (BV3074-9 J375-4 (BF) 175-4 (BV3074-9 J375-4 (BV3074-9 (BV307 (13) V K41 V (RUNI) 0340A J115-3 | CBL3U74-9 J315-3 36A K42 | 0 A 35A.B K43 17A.B | 0 17A.B (12) GAS/ELECTRIC HEAT INTERLOCK USED ON SUPPLY FAN ONLY (22) (21) (A1) (A2) (A2) FAULT SIGNAL 240VAC, 2A K42 25A K41 26A K40 B IMPORTANTI

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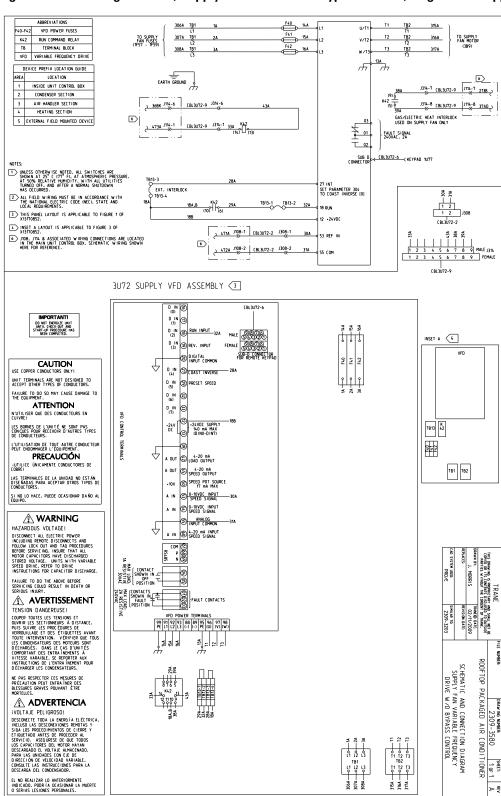
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Figure 16. 020 through 130 ton, Exhaust/return fan VFD with bypass control, rooftop (2309-3578)



Figure 17. 020 through 075 ton, Supply fan VFD without bypass control, single motor application (2309-3580)





ABBREVIATIONS

VFD POWER FUSES F40 14A 306A TB1 315A F41 15A 307A TO SUPPLY FAN MOTOR (3B9) TO SUPPLY FAN FUSES (1F57 - 1F59) V/T2 RUN COMMAND RELAY TERMINAL BLOCK 308A TB1 T3 317A VFD VARIABLE FREQUENCY DRIVE 6 Æ DEVICE PREFIX LOCATION GUIDE J314-7 (BL3U72-9 J114-7 213B EARTH GROUND LOCATION INSIDE UNIT CONTROL BOX J314-8 (BL3U72-9 J114-8 37AD CONDENSER SECTION 36BK J114-6 (BL3U72-9 J314-GAS/ELECTRIC HEAT INTERLOCK USED ON SUPPLY FAN ONLY FAULT INTERLOCK FROM MATED DRIVE 01 46A 2 P-F1 FAULT SIGNAL 240VAC. 2A FAULT INTERLOCK TO MATED DRIVE CBL3U72-6 KEYPAD 1U77 27 INT SET PARAMETER 304 TO COAST INVERSE [0] EXT. INTERLOCK TB13-1 TB13-2 UNLESS OTHERWISE NOTED. ALL SWITCHES ARE SHOWN AT 25°C (77°F). AT ATMOSPHERIC PRESSURE, AT 50% RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OFCIRERO. 2 ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC). STATE AND LOCAL REQUIREMENTS. 271€ J108-1 CBL3U72-2 J308-1 3 THIS PANEL LAYOUT IS APPLICABLE TO FIGURE 2 OF X13170852. 6 472C J108-2 | CBL3U72-2 J308-2 6 J108, J114 & ASSOCIATED WIRING CONNECTIONS ARE LOCATED IN THE MAIN UNIT CONTROL BOX. SCHEMATIC WIRING SHOWN HERE FOR REFERENCE 3U72 SUPPLY VFD ASSEMBLY #1 ③ D IN (3) D IN B RUN INPUT 32A MALE (500020 - 45A - 45A - 43A - 23A D IN REV. INPUT MPORTANTI © DIGITAL INPUT COMMON D IN COAST INVERSE FAULT INTERLOCK SUPPLY VFD #2 PRESET SPEED CAUTION USE COPPER CONDUCTORS ONLY D IN (8) D IN (7) UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT. •24 V DC ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE! LES BORNES DE L'UNITÉ NE SONT PAS CONQUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS. OUT COAD OUTPUT A OUT SPEED OUTPUT L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPPMENT -10V SPEED POT SOURCE PRECAUCIÓN © 0-10VDC INPUT SPEED SIGNAL A IN O-10VDC INPUT SPEED SIGNAL LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTODES S INPUT COMMON SI NO LO HACE, PUEDE OCASIONAR DAÑO AL A IN SPEED SIGNAL **⚠ WARNING** A RESISTION TO THE POSITION TO HAZARDOUS VOLTAGE! THAZAKUJUS VULL AND: DUSCOMECT ALL ELECTRIC POWER 
INCLUDING REMOTE DISCOMECTS AND 
FOLLOW LICK OUT AND TAG PROCEDURES 
BEFORE SERVICINS. INSURE THAT ALL 
MOTOR CAPACITORS HAVE DISCAMSED 
STORED VOLTAGE. LINITS WITH VARIABLE 
SPEED DRIVE. EFEET TO DRIVE. 
INSTRUCTIONS FOR CAPACITOR DISCHARGE. TRANE
THIS DRAW ING. IS PROPRIETARY AND SHALL NOT BE
COPIED OR ITS CONTENTS DISCLOSED TO DUTSIDE
PARTIES WITHOUT THE CONSENT OF TRAME. VFD POWER TERMINALS

99 91 92 93 88 89 95 96 97 98
PE L1 L2 L3 (-) (-) PE (U) (V) (W) . MORRIS FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY. \$ \$ \$ AVERTISSEMENT 2309-3204 TENSION DANGEREUSE:

COMPRE TOUTSE EST THISIONS ET
OUVRE ILES SET THISIONS ET
OUVRE ILES SET INOMEIRES A DISTANCE.

PURS SUWIEL ELES SET INOMEIRES A DISTANCE.

PURS SUWIEL ELES SET INOMEIRES OLES

VERROULLAGE ET DES ÉTIDUETTES AVANT

OUTE INTERVENTION. VERHIFE OUT TOUS

CHEMARISS. DANS ILEAS DONTIELS

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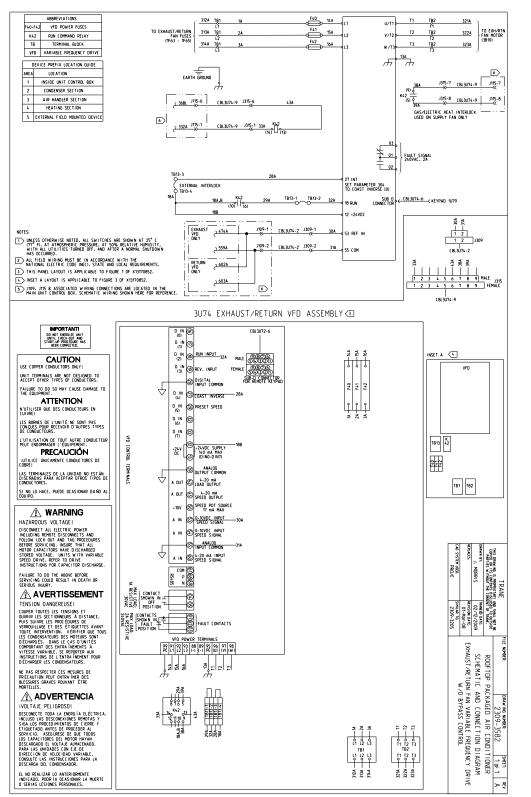
MISTOLICIONS DE L'ENTRA ÎNERNEN POUR

DÉCHARGER LES CONCENSATURES. TENSION DANGEREUSE! 29A 1813-2 32A 1813-2 28A 1813-3 16A 1813-4 R00FT0P SCHEMATIC AND CONNECTION
SUPPLY FAN VARIABLE F
DRIVE #1 W /0 BYPASS F42 **⚠** ADVERTENCIA IVOLTAJE PELIGROSO! ΑIR CTION DIAGRAM E FREQUENCY SS CONTROL 3581 COND (1 (2 (3 TB1 (1 (2 (3 IT I ONER \$ 40 5 > ₹

Figure 18. 090 through 130 ton, Supply fan VFD 1 without bypass control, dual motor application (2309-3581)



Figure 19. 020 through 130 ton, Exhaust/return fan VFD without bypass control (2309-3582)





3 A W 7A 182 208A 71 71 2074 PROGRAMING PARAMETERS DESCRIPTION HENU LOAD/HOTOF PARAMETER SETTING B K40 4A.B 2068.C [81 14.8 SET ONLY FOR 200/230V 60Hz APPLICATIONS SET BASED ON MOTOR NAMEPLATE SET BASED ON MOTOR NAMEPLATE 1-22 MOTOR VOLTAGE
1-24 MOTOR CURRENT
1-25 MOTOR NOMINAL SPEED TO VFD CIRCUIT FUSES FU7-FU9 2058.C TB1 2A.B K40 SA.B A U BA TB2 207A TO INDOOR 4-12 MOTOR SPEED LOW LIMIT
4-18 CURRENT LIMIT
6-14 TERMINAL 53 LOW REF FISS REPALICIANT TABLE

THE WINDS THE CHIEF THE CONTROL OF THE CON V/12 114 K41 B ₩/13 12A K41 | 10B PPZ5-9 (8LVF0-9 PPZ2-9 4 10A TISYAL TUSE 5 /T 134 7 4108.C | | 411A PP25-1 (BLVFD-9 PP22-1 K62 (16) ⊕(13) 110€PP25-5 (BLVFD-9 PP22-5 B ABBREVIATIONS 413A PP25-2 CBLVFD-9 PP22-2 A BPS 6 BYPASS SWITCH
F 6 IDM FAN RELAY (RUN) 414A PP25-3 (BLVFD-9 PP22-3 36A K42 A 35A.B K43 T7A.B VFD POWER FUSES BYPASS CONTACTOR (BYPASS) 4-15A PP25-4 (BLVFD-9 PP22-4 42A KL2 (110) | 127 (22) N (21) DRIVE OUTPUT CONTACTO 丰 DRIVE RUN SIGNAL 30VAC. 42.5VDC. 1A K42 RUN COMMAND RELAY VFD RUN STATUS RELAY 27 INT SET PARAMETER 304 TO COAST INVERSE I OVERLOAD TB13-1 TB13-2 32A 18 RUN VFD VARIABLE FREQUENCY DRIVE 6 NOTES:

1 DIRESS OTHERWISE MOTED. ALL SWITCHES ARE SHOWN AT 25°C (177°F), AT ATMOSPHERIC PRESSURE, AT 50% RELATIVE HAMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A MORRAL SHUTDOWN HAS OCCURRED.

2 ALL FIELD WIRNING MUST BE IN ACCORDANCE WITH THE ALL FIELD WIRNING MEDICAL REQUIREMENTS. CBLVFD-6 WEYDAR A PP22-7 (BLVFD-9 PP25-7 w25) (%) 38A.8 A PP22-7 (BLVF0-9 PP25-7 W25)

K4.0 K41 58 PP22-8 (BLVF0-9 PP25-8 W26)

39A.8 A S (BLVF0-9 PP25-8 W26) 6 1558 PP23-2 CBLVFD-2 PP24-2 31A MATIONAL ELECTRIC CODE ORCE, STATE AND LOCAL PROUBERMINS.

3 THE OVERLADA RELAY TIRE PETITION BUTS ET AU DISTOLE TO CORRESPOND
WITH THE MOTOR PAUL LOAD CURRENT AS SHOWN ON THE MOTOR MAMERIATE.

4 THIS PANEL LAYOUT IS APPLICABLE TO FIGURE 1 OF X33T70653.

5 SEE INSET B FOR PROPER JUMPER COMFIGURATION OF TIMES. PP23. PP25. BPS, F 8 ASSOCIATED WIRING CONNECTIONS ARE LOCATED IN THE MAIN UNIT CONTROL BOX. SCHEMATIC WIRING SHOWN HERE FOR REFERENCE.

 SEE FUSE REPLACEMENT TABLE ON UPD PANEL FOR UPD POWER FUSES (FAO. F41. F42). 8 SWITCH ASS, LOCATED ON THE VFD, MUST BE SET TO "U" (OFF). VFD ASSEMBLY @ D IN (6) (3) INSET B 5 208V 0 IN B RUN INPUT

0 IN REV. INPUT

0 IN B REV. INPUT

0 IN B REV. INPUT

0 INPUT COMM OR NOT EMERGIZE UNIT UNTIL CHECK-OUT AND START-UP PROCEDURE HAS BEEN COMPLETED. 0000 00000 DIGITAL INPUT COMMON 5 5 5 0000 00000 D IN (S) PRESET SPEED

D IN (S)

D IN (S)

D IN (S)

D IN (S) CAUTION
USE COPPER CONDUCTORS ONLY SUB-D CONNECTOR UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS. FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT. -24V (3) -24VDC SUPPLY 160 MA MAX (0) INO-0 INT) ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN MALOG OUTPUT COMMO LES BORNES DE L'UNITÉ NE SONT PAS CONQUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS. A OUT (S) 4-20 MA LOAD OUTPUT L'UTILISATION DE TOUT AUTRE CO PEUT ENDOMMAGER L'ÉQUIPEMENT. A OUT SPEED OUTPUT

-10V S SPEED POT SOURCE

17 mA MAX A IN 🕾 O-10VDC INPUT SPEED SIGNAL LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS D COMDUCTORES. A IN © 0-10VDC INPUT SPEED SIGNAL SI NO LO HACE. PUEDE OCASIONAR DAÑO A (S) ANALOG A IN S 4-20 MA INPUT SPEED SIGNAL 85792 8 % w **⚠ WARNING** HAZARIJUS YULABE!
DISCONRECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS AND
FOLIOW LOCK OUT AND THE PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
WORLD CAPACITION ANY DISCHARRED
STORED VOLTAGE. UNITS WITH VARIABLE
SPEED ORIVE, REFE TO DRIVE
INSTRUCTIONS FOR CAPACITION DISCHARGE. **®** RUN STATUS CONTACTS 34A S FAULT CONTACTS FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY. AVERTISSEMENT
TENSION DANGEREUSF! TENSION DANGEFUSE!

CHURE DUITS LES TRISIONS ET

QUIVER LES SETLOMENUS A DISTANCE.

PUIS SUIVER LES PROCEDURES DE

VERROULLAGE IT ELS ÉTIDUETES AVANT

TOUT L'INTÉVATION. L'INTÉVATION. L'INTÉVATION.

DÉCHANGES. DONS LE CAS D'UNITÉS

COMPORTANT DES DITRA ÎNEMATS À

UNITSEC L'ADRIEL SE REPORTED AUX

INSTINCTIONS DE L'ENTRA ÎNEMATS POUR

DÉCHANGES. LE CAS DOMINES

COURTES L'ADRIEL SE REPORTED AUX

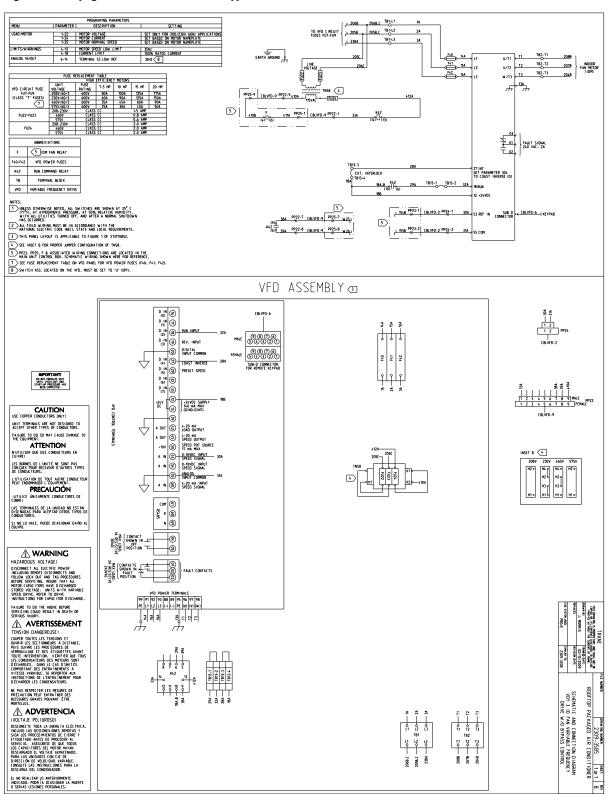
INSTINCTIONS DE L'ENTRA ÎNEMATS POUR

DÉCHANGES. LES COMPORTANTES. 99 91 92 93 88 89 95 96 97 98 PE L1 L2 L3 (-) (-) PE (U) (V) (W) A1 L1 L2 L3 2 2 2 2 8 7 6 5 14 K43 13 NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES. ROOF TOP ADVERTENCIA 7 7 7 8 PACKAGED AIR CONDITI VIOLTALE PELIFORDOI DESCONCITE TODA LA EMERGIA LE CETRICA MICHIGO LA CONSCIONATIONA SOMPOTAS Y SIGNA LOS PROCEDIMINATIS DE CIERRE L'INDICATOR DE CONTROL PROCEDITA LA CONTROL POR L'INDICATOR L'INDICA V FAN D CONNECTION DIAGRAM N VARIABLE FREQUENCY N BYPASS CONTROL 3 11 12 13 P P P

Figure 20. Voyager III fan VFD with bypass control (2309-3584)



Figure 21. Voyager III fan VFD without bypass control (2309-3585)





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