INSTALLER'S GUIDE

PLUS-IN-1H
18-BH15D7-9A-EN

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

Model
TAYPLUS103A

Hybrid Confort™ System

IMPORTANT - This Document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

GENERAL

The Plus One system was designed to combine warm air furnaces (indoor units) with heat pumps for maximum comfort and energy efficiency during the entire year. This is compatible only with furnaces having 24V transformers at least 35 VA.

The control center enclosure is made of galvanized steel, with an attractive decorative logo on the front panel.
This enclosure is 9-3/16" x 7-1/8" x 2-1/2" in size. When the cover is removed, the components are readily accessible for field hook-up or service. All field electrical connections are to terminal board, or wire nuts (field supplied). This assembly can be mounted in any position.

INSPECTION

1. Unpack the Plus One Control Center and remove cover Included inside are:

   Control Box Assembly

   Installer's Guide
2. Check for any shipping damage. If there is any, report it to the carrier immediately.
3. The field electrical connections and wiring must be done in accordance with the "National Electrical Code" and must comply with local electrical codes.
4. Minimum gauge 18 AWG thermostat wire.

SYSTEM USAGE AND INSTALLATION

This system uses a heat pump outdoor section with an indoor heat pump coil, a Plus One Control Center and a warm air furnace.

The Plus One Control Center as shipped from the factory is for operation in the "non-restricted" mode. For "restricted" operation, field wire in accordance with appropriate diagram (included in these instructions). TAYSTAT250B is required.

1. The indoor coil must be installed on the supply side of the furnace.
2. The Plus One Control Center is installed in close proximity to the furnace.
3. The outdoor thermostat (when used in restricted operation only) is installed in the outdoor section in accordance with TAYSTAT250B installation requirements.

NOTE: For Load Shedding in the heating cycle, use the restricted hook up diagram. The utility company's load shedding relay will be wired in place of the ODT as shown. The utility company's relay must be a SPDT switch type.

NOTE: Do NOT connect wires to the W terminal at the Comfort Control terminal #1 at ODT if utility company requires lockout (restriction) of gas furnace at an outdoor temperature above the setting on the ODT. Emergency heat cycle and furnace blower will come on if the comfort control is in Emergency Heat mode.

INSTALLATION OF BONNET THERMOSTAT THT01248 (BAYSEN03ATEMPAA) ON ALL OIL FURNACES

"A" COIL APPLICATION (UPFLOW)

1. Remove the front cover panel from the "A" coil enclosure.
2. Select a location to make a 1-1/2" hole for the bonnet thermostat to pass through (see figure 2) in front of the coil baffle of "A" coil.
3. The location of the 1-1/2" hole should be on a vertical line (plane) to the top of the "A" coil and approximately 4"- 6" down from the front end of the coil.
4. With the template provided make the 1-1/2" hole in the coil baffle and install the bonnet thermostat with the screws provided in the kit.
5. Drill a 3/8" hole in the front cover panel for field wiring and install the grommet provided with this kit.
6. Connect the bonnet thermostat leads in the Plus One Control Center through the grommet. (See hookup diagram).
7. Replace the front cover panel on "A" coil enclosure and secure.

"A" COIL APPLICATION (DOWNFLOW)

1. Select a location on the air entering side of the coil enclosure to make a 1-1/2" hole for the bonnet thermostat to pass through (see Figure 1, page 2).
2. The location of the 1-1/2" hole should be on a horizontal line (plane) to the top of the "A" coil. The bonnet thermostat cannot be in contact (touching) the coil.
3. With the template provided, make the 1-1/2" hole in the coil enclosure and install the bonnet thermostat with the screws provided.

FLAT COIL APPLICATION (HORIZONTAL)

1. Select a location to make a 1-1/2" hole for the bonnet thermostat to pass through (see Figure 1).
2. The location of the 1-1/2" hole should be between the indoor unit (furnace) and the flat coil and approximately 6" in from the side of the duct.
3. With the template provided make a 1-1/2" hole in duct, then install the bonnet thermostat with the screws provided.

IMPORTANT: After making the 1 1/2" hole with the template provided, duct, liner and foil materials MUST be removed so that air flow restriction does not occur.

INSTALLATION OF CONTROL WIRING

The control wiring is connected to the Plus One Control Center per the field wiring diagrams and figures. If the gas furnace has an integrated control, the Y terminal from Comfort Control must be connected per field wiring diagram note 4.

NOTE: The installer must use class 1 wiring when installing the bonnet thermostat.

SEQUENCE OF HEATING OPERATION
UN-RESTRICTED MODE - (As shipped)

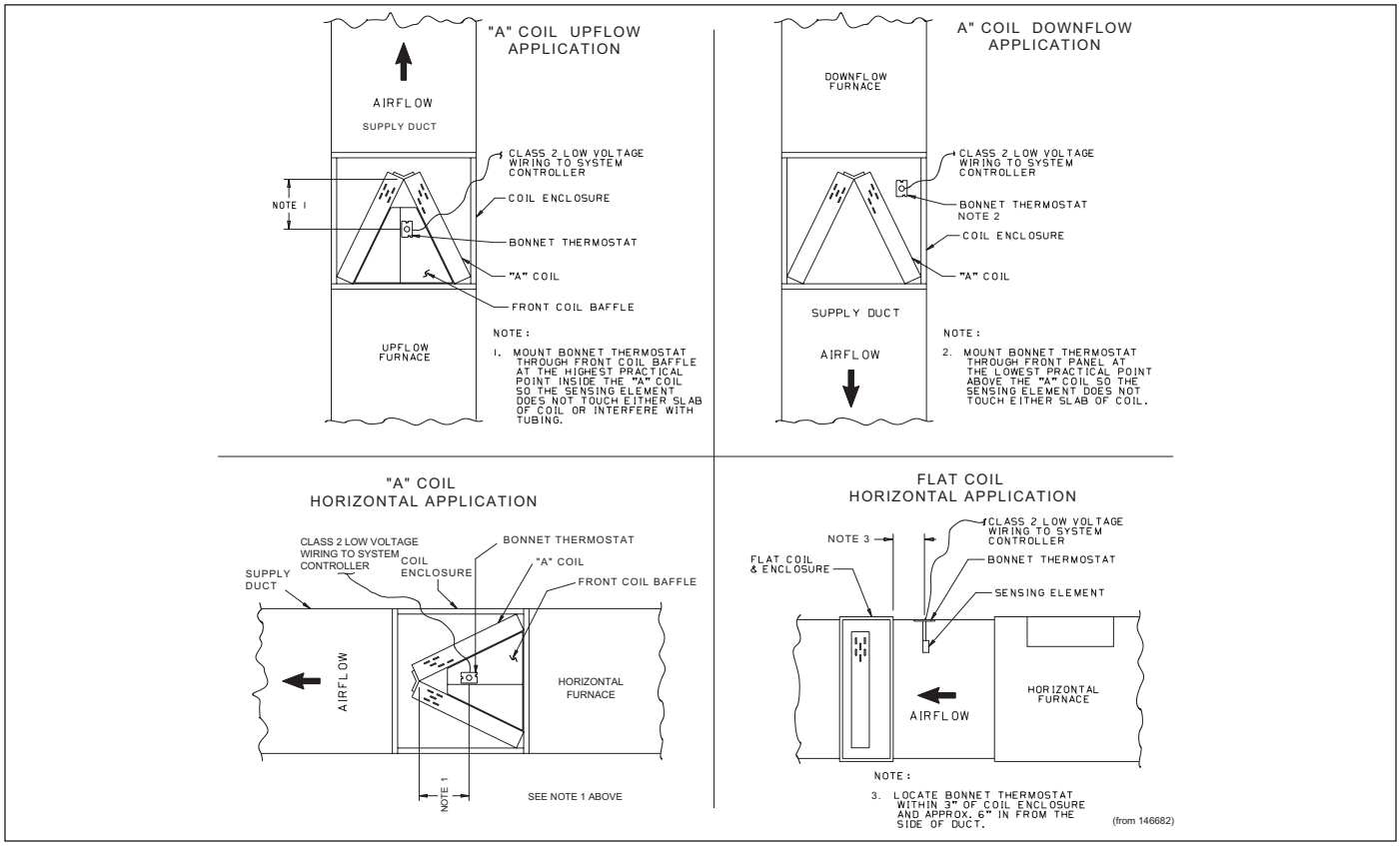
Upon a call for first stage heat, the heat pump (only) operates in heating mode. If the outdoor temperature is high enough that the heat pump can handle the load, first stage will be satisfied after the required run time and the system shuts off until the next (first stage) call for heat. If the outdoor temperature is below the balance point of the system, and the heat pump cannot handle the load, when the temperature in the room drops approximately 1-1/2 degrees further, second stage heat is called for. Second stage turns the heat pump off and simultaneously brings the furnace on. The furnace will now satisfy the second stage only. The first stage of the comfort control is still calling. After a minimum delay of 45 seconds, the heat pump will resume operation. If the indoor temperature continues to rise, the comfort control will be satisfied. If indoor temperature does not continue to rise but falls, the second stage will call and bring on the gas furnace again. Changing the comfort control to the Emergency Heat Mode converts the system to "furnace only" operation.

RESTRICTED MODE - (Requires TAYSTAT250B)

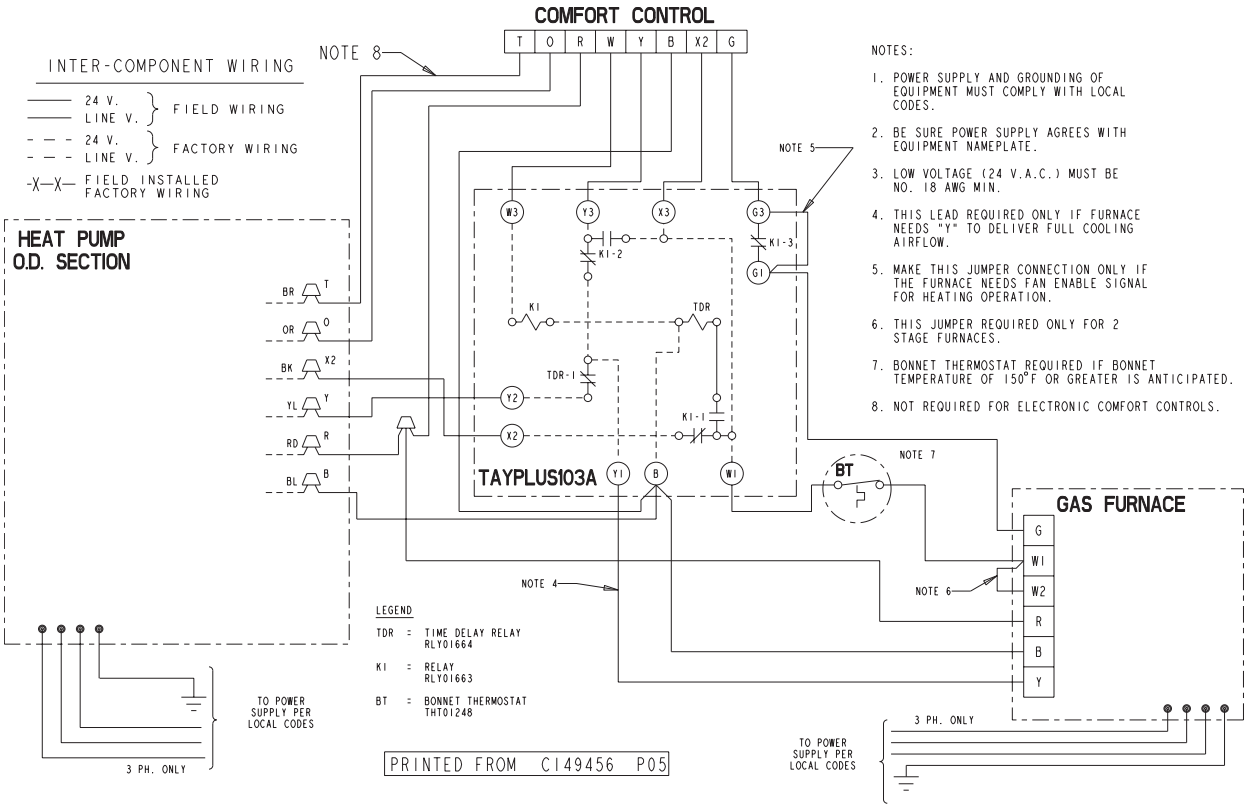
The ODT change over must be at or above the application balance point of the system. The heat pump alone cannot handle the load at outdoor temperatures below the application balance point.

At any temperature above the setting of the ODT, the heat pump only will operate when called for by the first stage of the comfort control. When the outdoor temperature drops below the setting of the outdoor thermostat, the call for heat goes to the furnace and the heat pump is cut off. When the outdoor temperature rises above the setting of the outdoor thermostat, the system returns to heat pump (only) operation.

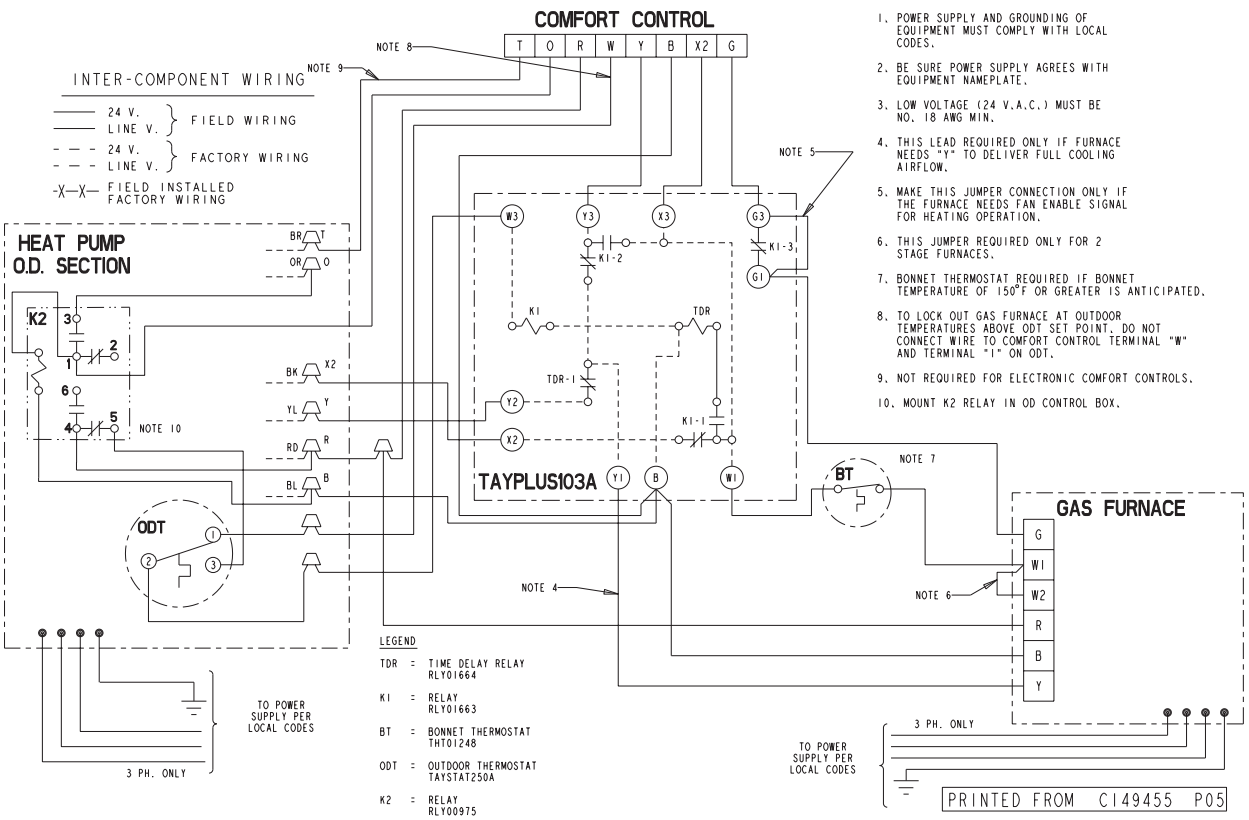
Changing the comfort control to the Emergency Heat Mode converts the system to "furnace only" operation.



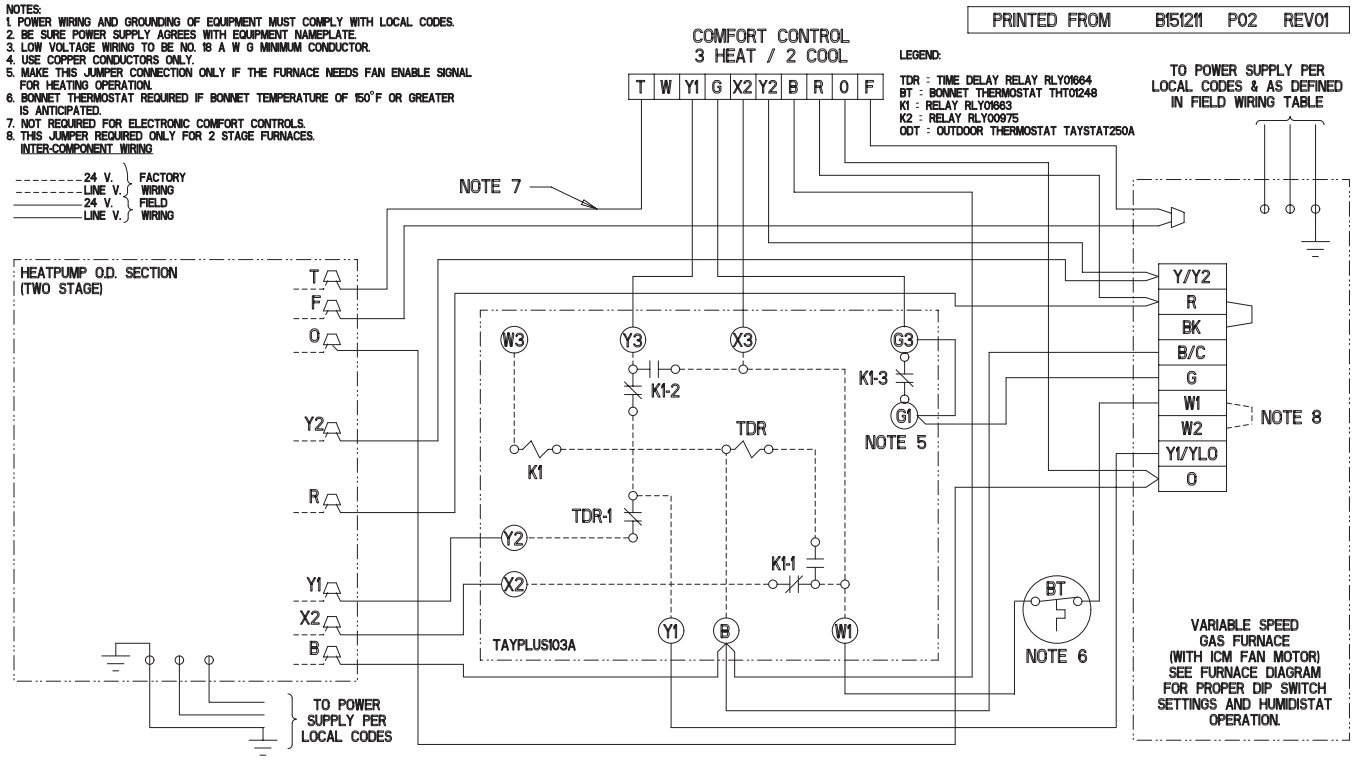
SINGLE STAGE HEAT PUMP / NON-VARIABLE SPEED GAS FURNACE
UN-RESTRICTED MODE OF OPERATION



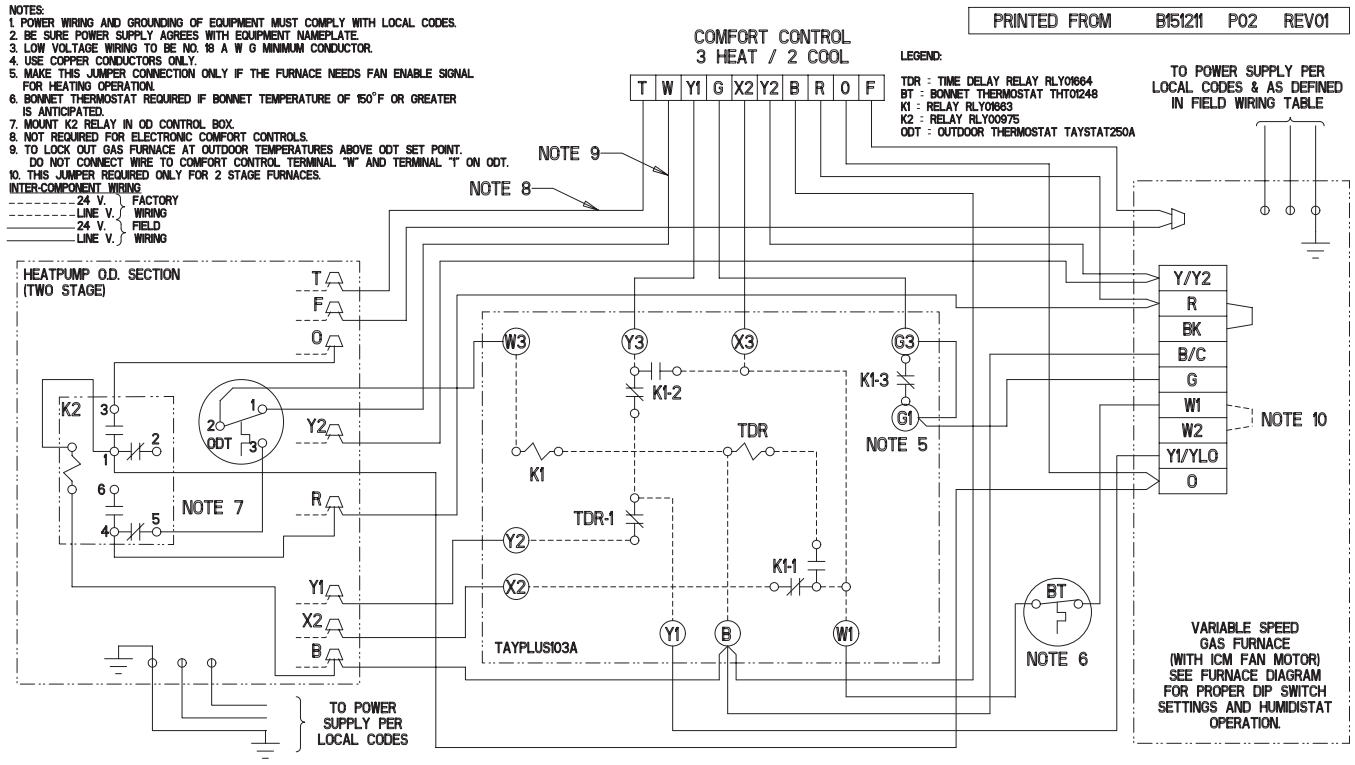
SINGLE STAGE HEAT PUMP / NON-VARIABLE SPEED GAS FURNACE
RESTRICTED MODE OF OPERATION



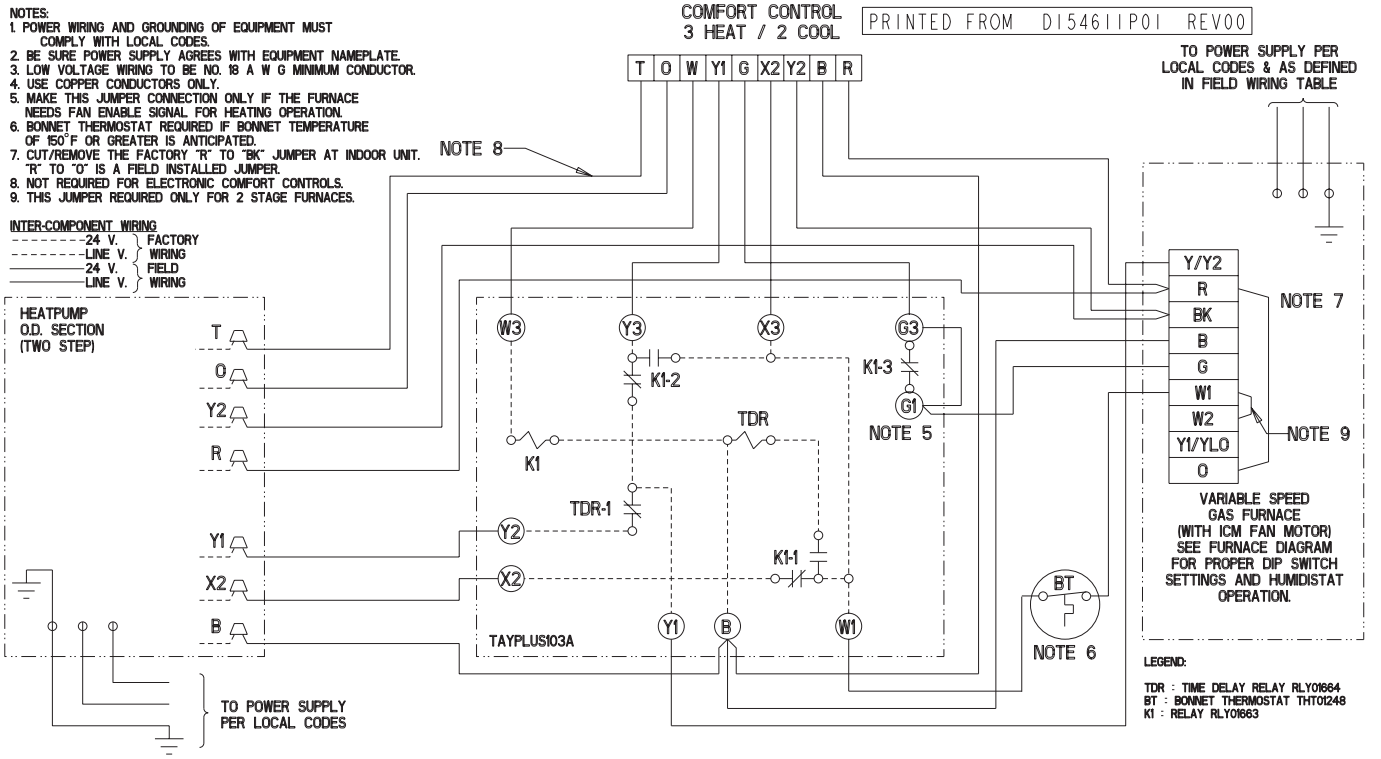
TWO STAGE HEAT PUMP / VARIABLE SPEED GAS FURNACE
UN-RESTRICTED MODE OF OPERATION



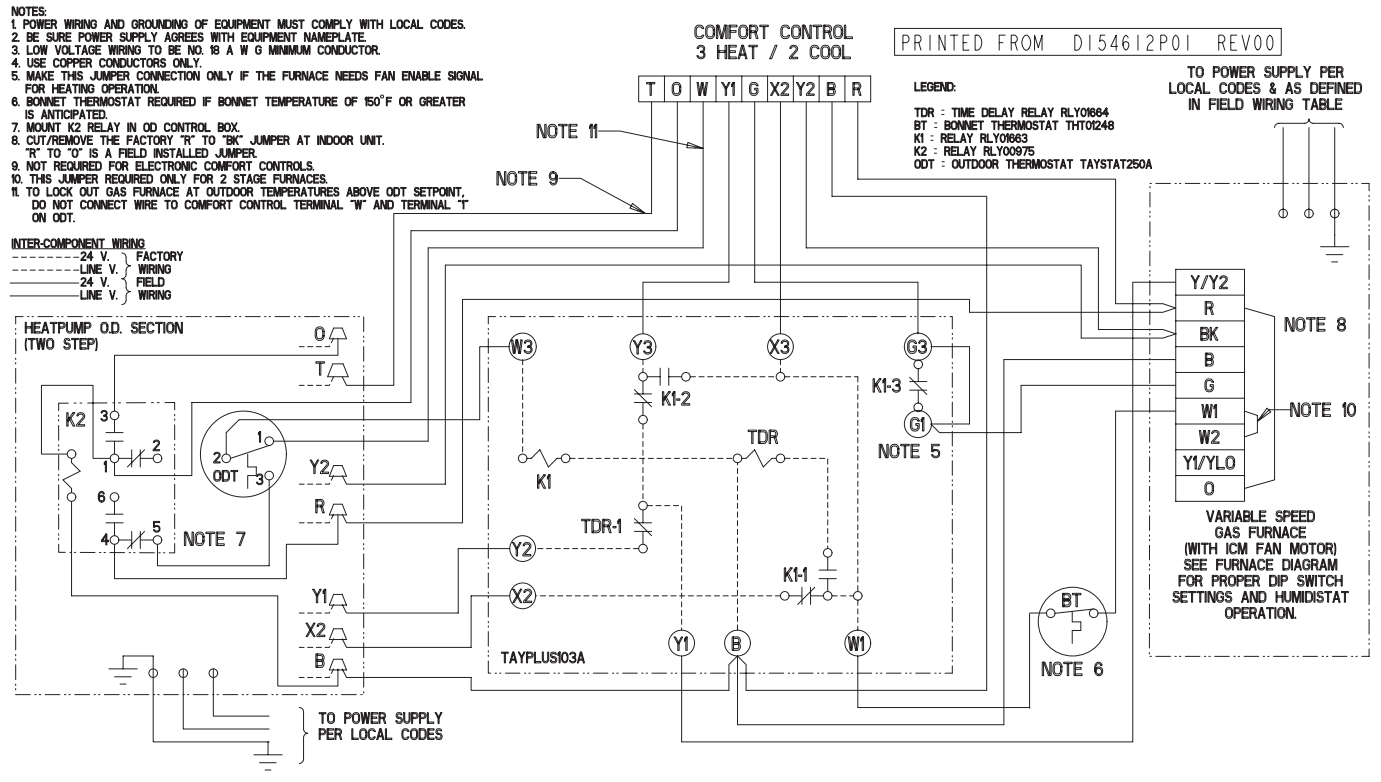
TWO STAGE HEAT PUMP / VARIABLE SPEED GAS FURNACE
RESTRICTED MODE OF OPERATION



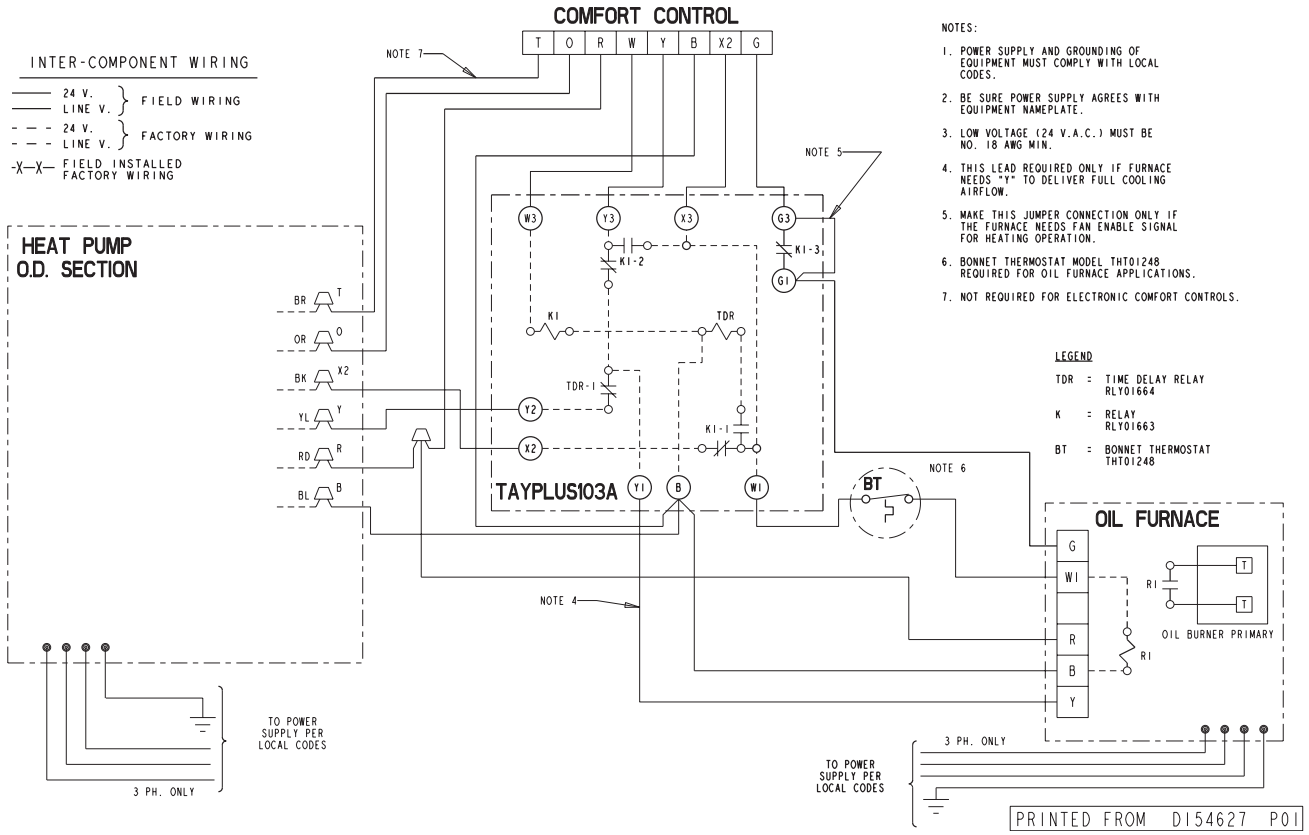
TWO STEP HEAT PUMP / VARIABLE SPEED GAS FURNACE
UN-RESTRICTED MODE OF OPERATION



TWO STEP HEAT PUMP / VARIABLE SPEED GAS FURNACE
RESTRICTED MODE OF OPERATION



SINGLE STAGE HEAT PUMP / SINGLE STAGE OIL FURNACE
UN-RESTRICTED MODE OF OPERATION



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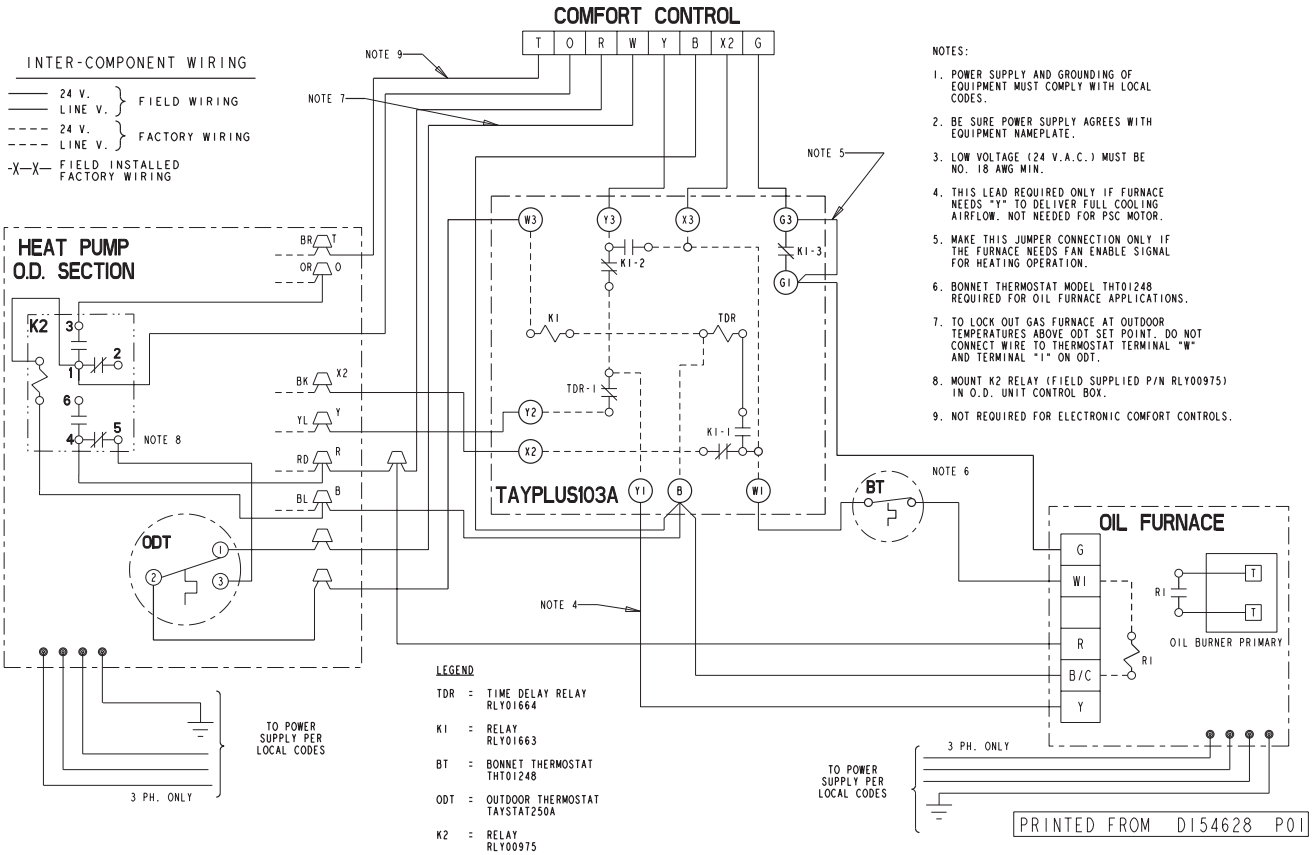
SINGLE STAGE HEAT PUMP / SINGLE STAGE OIL FURNACE
RESTRICTED MODE OF OPERATION



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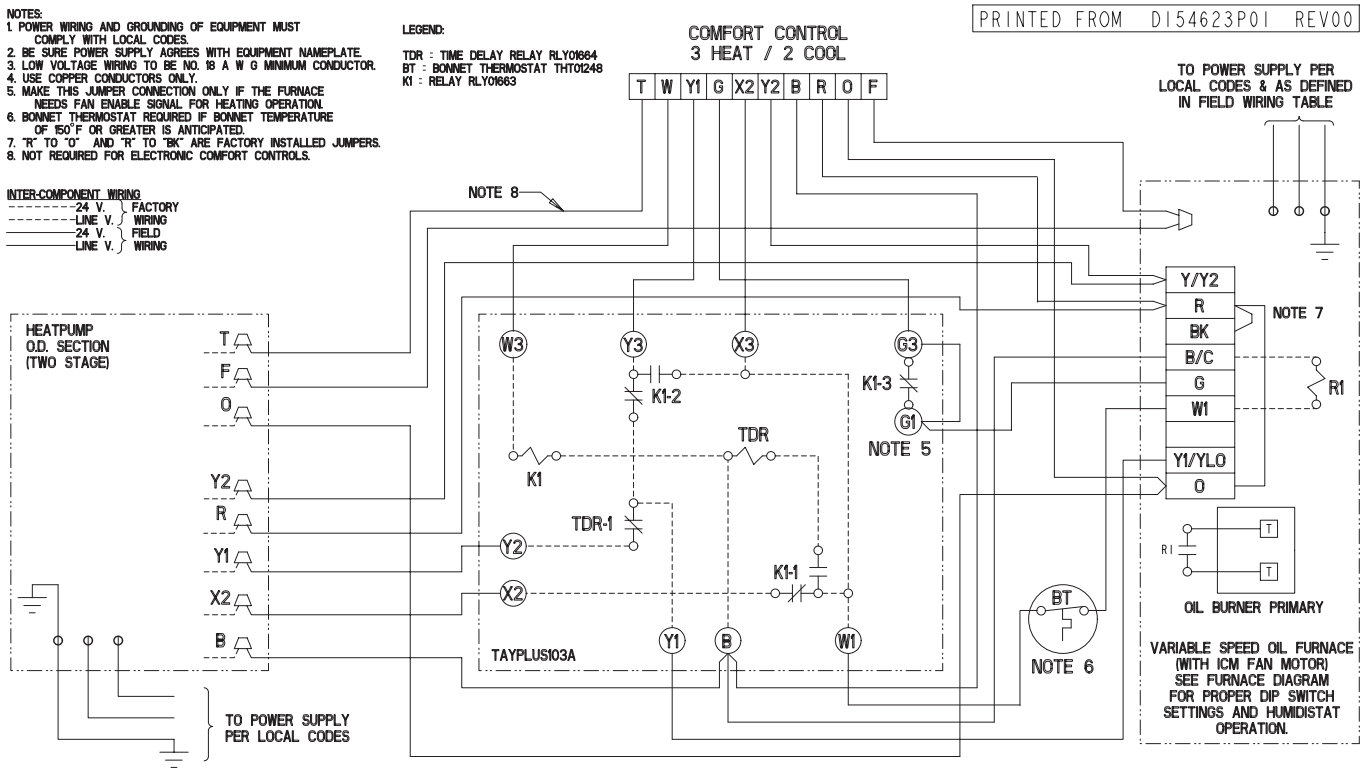
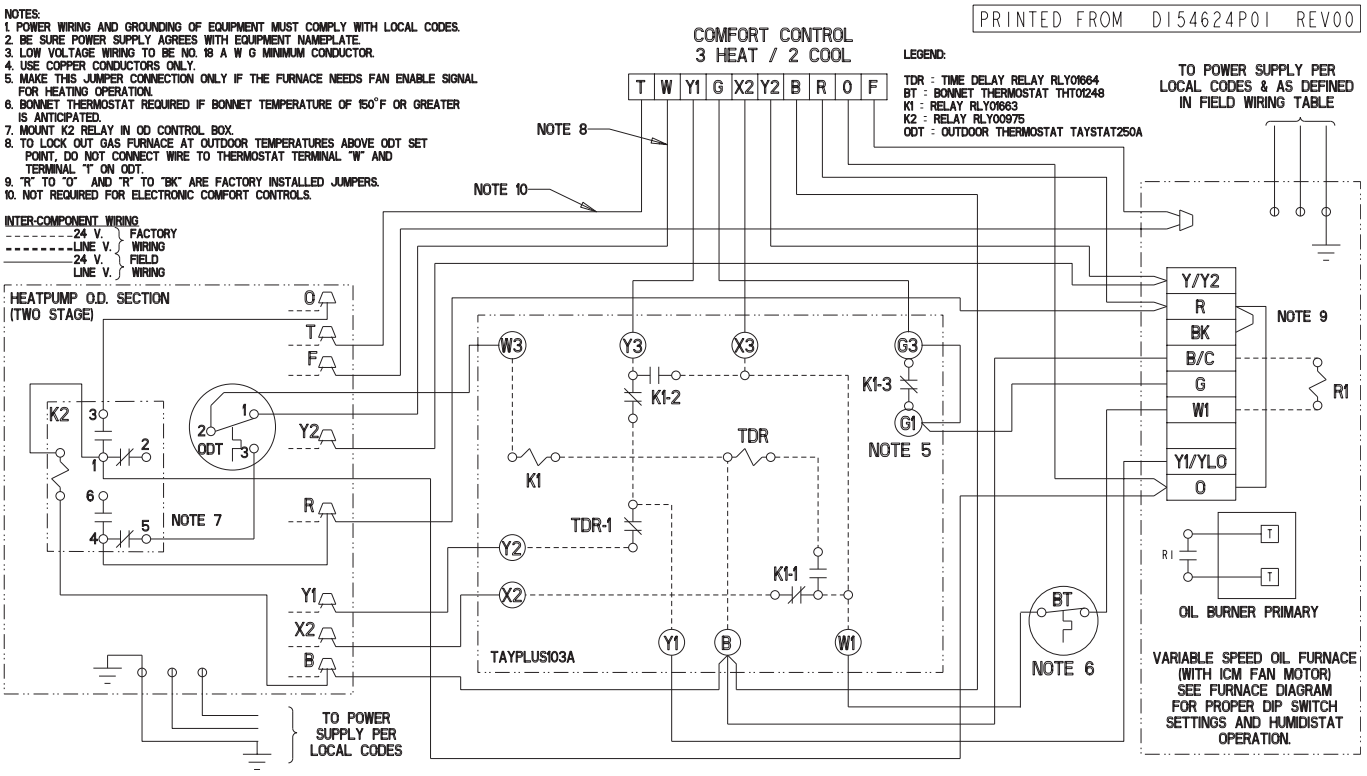
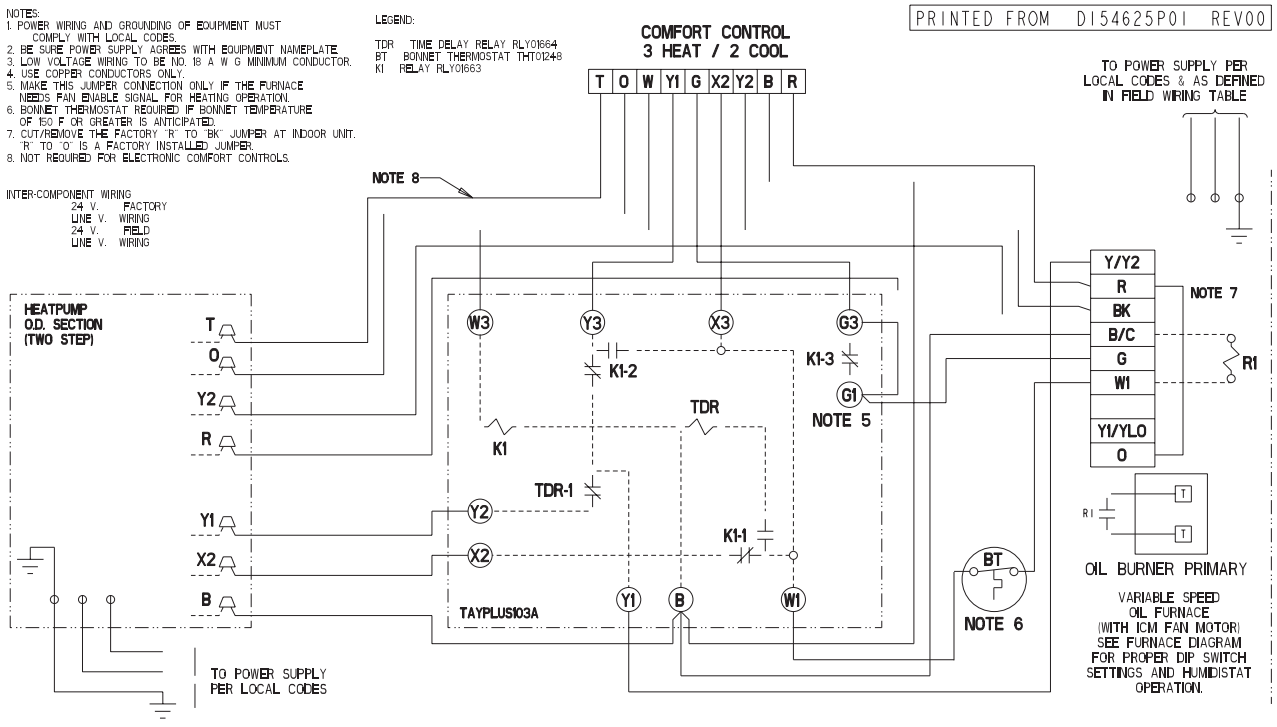
TWO STAGE HEAT PUMP / VARIABLE SPEED OIL FURNACE
UN-RESTRICTED MODE OF OPERATION



TWO STAGE HEAT PUMP / VARIABLE SPEED OIL FURNACE
RESTRICTED MODE OF OPERATION



TWO STEP HEAT PUMP / VARIABLE SPEED OIL FURNACE
UNRESTRICTED MODE OF OPERATION



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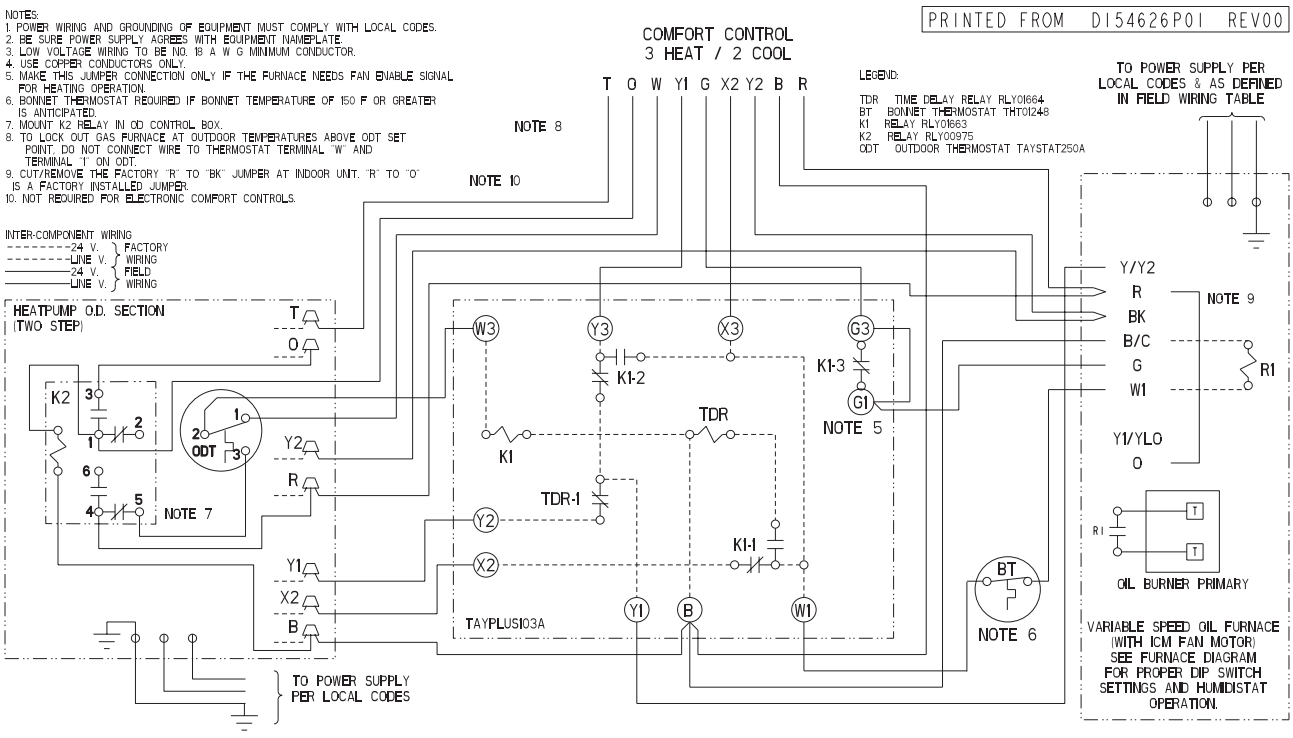
RESTRICTED MODE OF OPERATION



About Trane and American Standard Heating and Air Conditioning

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