

Troubleshooting and maintenance for Danhard 125 volt systems

Description of controller parts 50-2000

Operation

Common troubleshooting issues

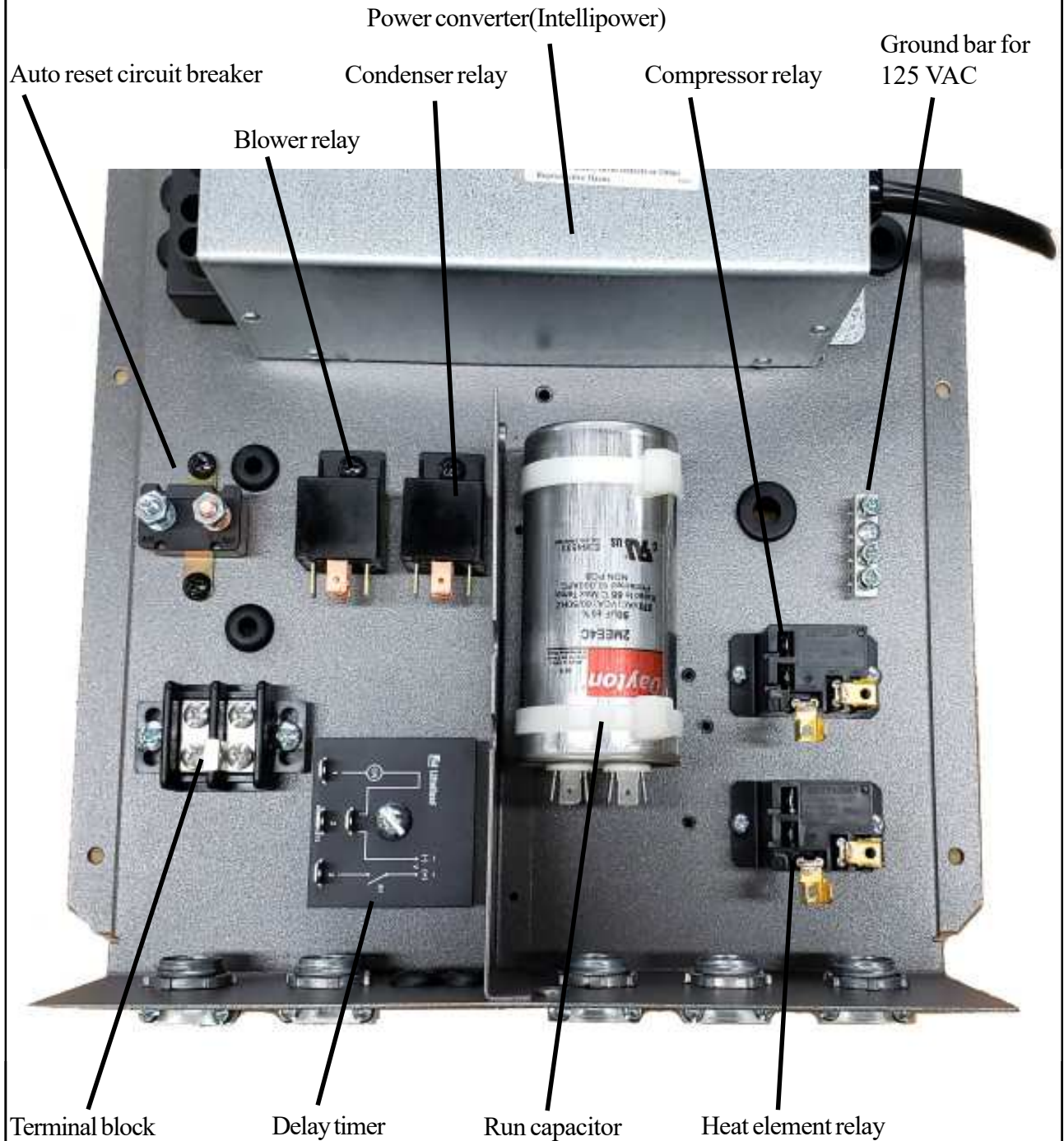
Test diagrams

Thermostat bypass

Maintenance and parts list

Schematics

Description of parts- 50-2000 Controller



Common Operational Notes

DO NOT OPERATE this system from any small gauge extension cord, compressor failure may result.

If system will not turn on, always check batteries in the thermostat first.

If system fails to cool properly, disconnect power to PREVENT damage to components.

If tripping a GFCI circuit breaker is occurring, try removing the ground wire from the compressor.

If FLTR is displayed, push the temp "up" and "down" at the same time to clear. A filter reminder.

Operation...

The 50-2000 and 50-3000 operate from a central "controller" that provides power to all components.

The controller needs 125 volts A.C. to supply the compressor, converter, and heat element.

The converter steps power down to 13.5 volts to operate the blower, condenser fans underbody and provide a signal to the thermostat.

In the cooling mode...

The converter converts power down to 13.6 volts D.C. and is connected to an automatic reset circuit breaker that distributes the power and provides the signal power for the thermostat.

The thermostat then passes signals back to the controller for the blower, condenser fans, and the compressor.

In the heat mode...

The thermostat sends a signal back to the heat relay by way of an 18 ga. White wire.

blower relay is also triggered

Testing...

If testing is necessary, start at the converter to ensure 13.5 volts is present. The converter is equipped with 3 ATC type fuses located near the 13.5 volt output. Use a multi meter and use both leads.

Do not use chassis for testing purposes. Terminal block located under the auto reset circuit breaker can be used for all "negative" test connections.

DO NOT use any single contact test device when testing...always use both test leads.

Troubleshooting

1.NO OPERATION OF ANY COMPONENT SEE DIAGRAM 1A	Check to see if shorepower is plugged in. Check breaker box for tripped breaker. Make certain thermostat is set correctly. Check batteries in thermostat. Test converter (Intellipower) for 13.5 volts
2.NO BLOWER SEE DIAGRAM 2A SEE DIAGRAM 4A for model 50-3000	To test, move thermostat fan control to "manual" Motor brush end of life, replace blower assembly Test for blower signal in controller
3.NO COOLING COMPRESSOR RELATED SEE DIAGRAM 3A SEE DIAGRAM 4A for model 50-3000	Make certain thermostat is set correctly. Listen for condenser fan operation Determine if cooling signal is present Inspect cool relay terminals. Test anti-freeze thermostat in 50-3000. Test controller for cooling signal at delay timer Check breaker box for loose wires.
4.NO COOLING CONDENSER RELATED SEE DIAGRAM 4A	Operate briefly when testing ! Check for condenser fan operation Test for 12 volt DC at fans Fan end of life, replace in pairs
5.THERMOSTAT NOT ACTIVATING SYSTEM SEE DIAGRAM 5A SEE DIAGRAM 4A for model 50-3000	Check batteries in thermostat or replace Thermostat has 5 minute delay Controller has 2 minute delay on power removal Test anti-freeze thermostat in 50-3000.

6. SYSTEM SURGING
FANS SPEED UP
OR SLOW DOWN

Test voltage at converter

Perform test several times

Converter intermittent, replace

Diagram 1A

13.5 volts DC power test

Test for 13.5 volts at converter

+

-

12 volt section



+

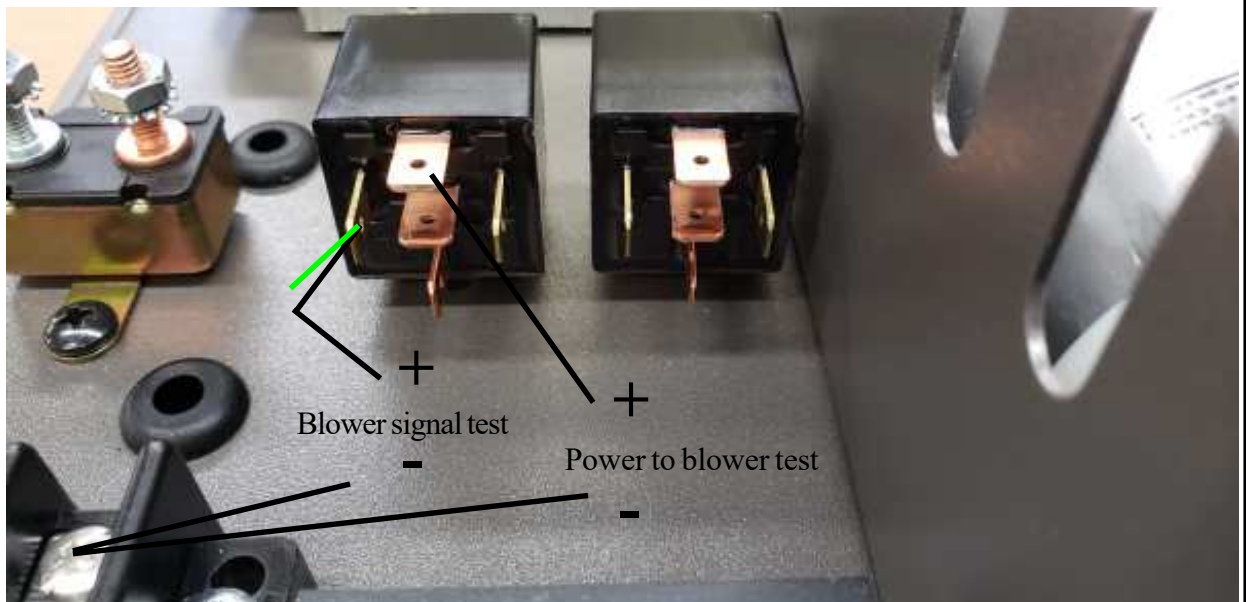
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Test for 13.5 volts at circuit breaker

Diagram 2A

Blower relay test

12 volt section



+

-

Blower signal test

+

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Power to blower test

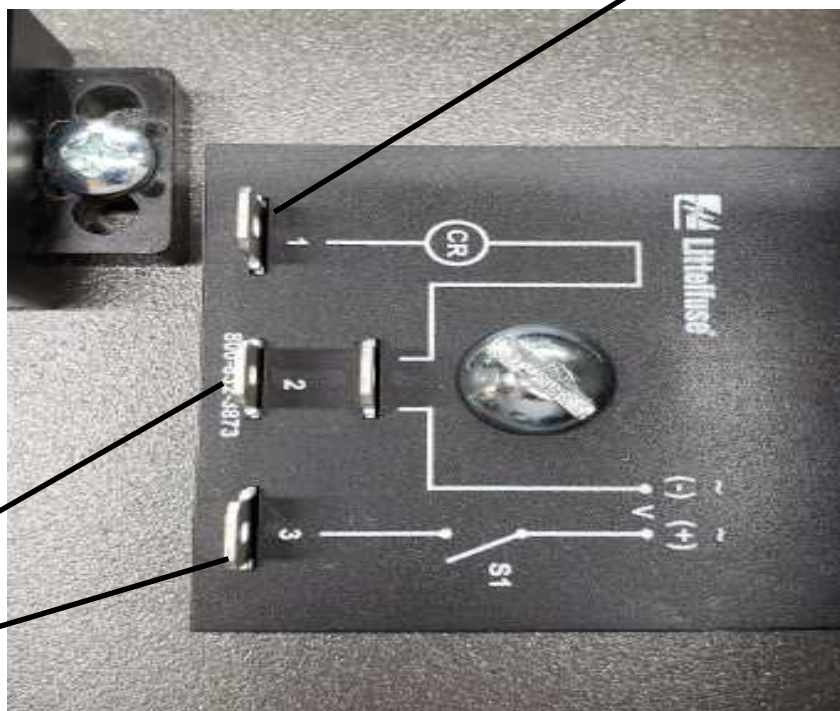
Diagram 3A

Timer output to cool relay
2 min. delay before active.

12 volt section

Cool signal test
and condenser
trigger signal

-
+



125 volt section

Remove Shorepower first !

Visual inspect for loose connections

ALL NEUTRALS

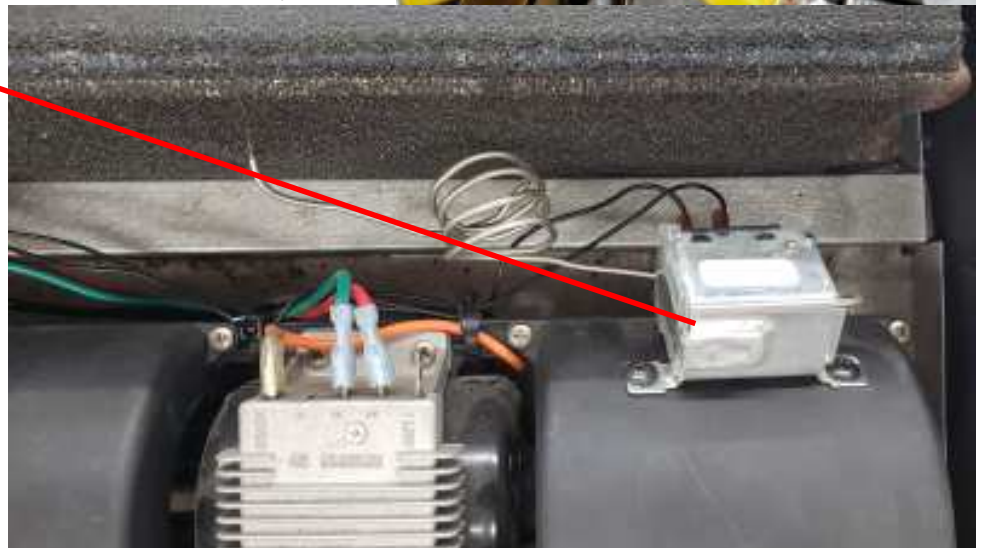
CONVERTER CABLE



CONVERTER POWER

HEATER

125 VOLT POWER IN



Thermostat bypass test

If your system has a blower signal, and no cooling signal, sometimes it's necessary to bypass the thermostat to determine if the thermostat is at fault. This is a very simple process.

DISCONNECT SHOREPOWER BEFORE PROCEEDING !!!

Remove the wires from inside of the digital thermostat.

To test the blower signal

Twist the RED and GREEN together.

Plug in the shore power.

This should activate the blower.

If not, perform test on diagram 2A

If 2A test is ok, the blower needs to be replaced



To test the compressor and condenser

Twist the RED and BLACK together.

Plug in the shore power.

This should activate the compressor and Condenser fans.

If not, perform test on diagram 3A

Cooling test (compressor , condenser, blower)

Twist the RED , GREEN and BLACK together.

Plug in the shore power.

This will put the system in the cooling mode.

NOTE;Remember the system has a built in delay.

Wait 2 minutes if system does not come on when shore power is applied.

If you hear the compressor “HUM” for 2-3 seconds , it may be in a locked condition.

A clamp on amp meter can verify this condition. **DISCONNECT SHOREPOWER.**

Separate the black wire from the compressor pigtail near the junction box underbody.

Place the clamp on amp meter around this wire and have another person activate the thermostat to try to start the compressor. If the amp reading is excessive, compressor needs to be replaced. Verify both Condenser fans are running.

If compressor runs for 5-10 minutes and shuts off, this would be due to refrigerant levels being too low, or clogged orifice tube.

Heat test

Twist the RED , GREEN and WHITE together.

Plug in the shore power.

Allow time for the element to come up to temperature. Do not operate this test without the blower operational.

It is normal for one side of the heater to be hotter than the opposite side due to electrical properties of the element.

Maintenance

Thermostat

**Check battery indicator on digital thermostat for battery condition
Replace as necessary**

Condenser

**Fan assembly can be removed for easy coil cleaning. 7/16 socket
Wash coil from underside with water as needed. Replace fan assembly.**

Evaporator and Blower

**Check evaporator every 6 months for accumulated dirt.
Wash with Simple Green or similar.
Inspect blower wheels for any debris.**

PARTS

COMMON PARTS, **BOLD** INDICATES DANHARD PART #

COMPRESSOR, USE **50-2116** **RETROFIT** FOR SYSTEMS BUILT BEFORE
OCT-2018

ORIFICE TUBE, **14-2335**

ACCUMULATOR, **23-5094**

BLOWER ASSEMBLY FOR MODEL 50-2000, **29-6359**

BLOWER ASSEMBLY FOR MODEL 50-3000, **29-6351** OR **29-6370**

CONDENSER ASSEMBLY **50-2203**

POWER FAN ASSEMBLY **50-2204** (INCLUDES SHEETMETAL AND FANS)

POWER FANS FOR CONDENSER, **00830M-P** (ORDER 2)

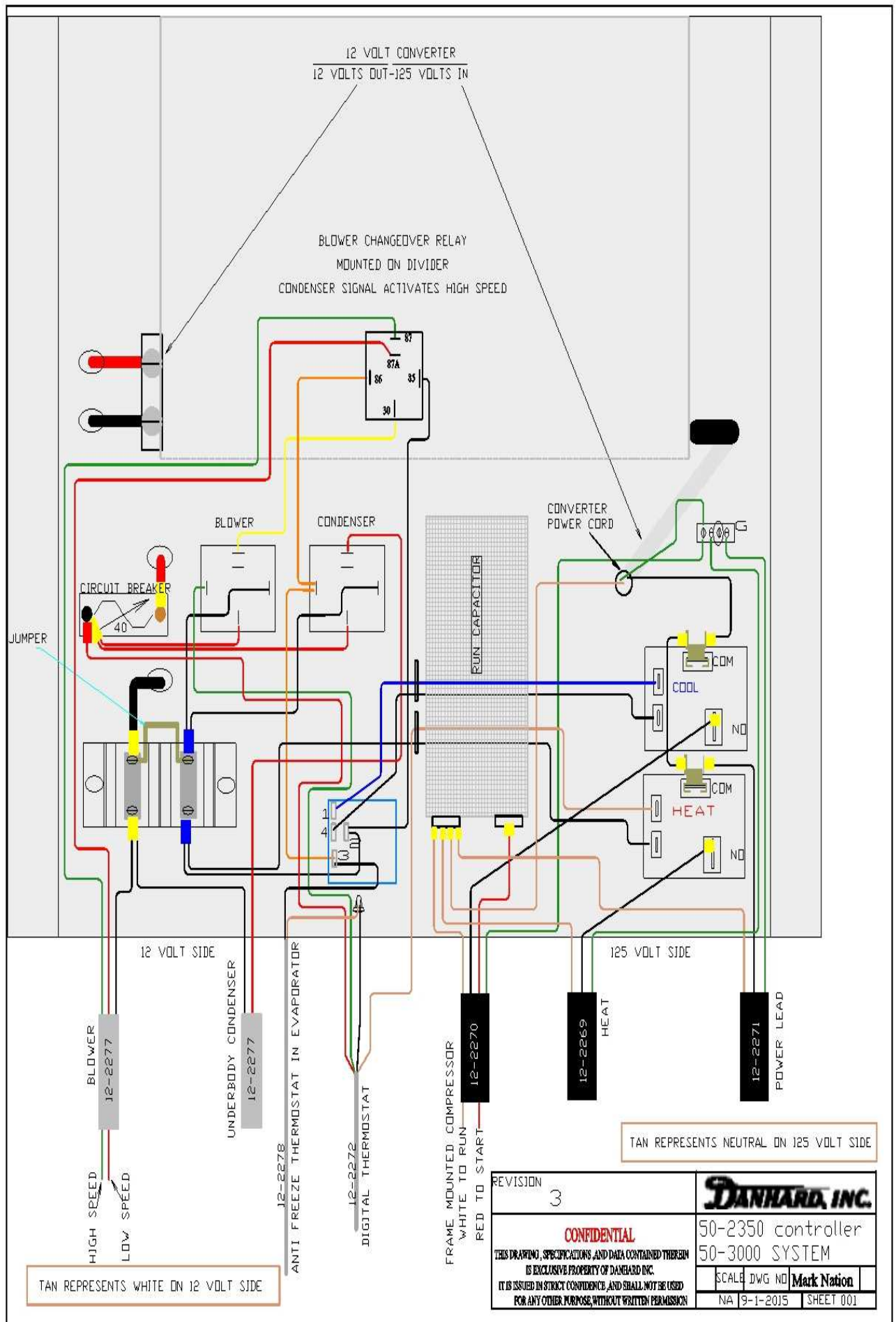
THERMOSTAT, **50-2310**

COOLING RELAY, **30-1300**

POWER CONVERTER INTELLIPOWER **90-9117**

CONDENSER RELAY **12-2117A**

BLOWER RELAY **12-2117A**



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SCALE DWG NO	Mark Nation
NA 9-1-2015	SHEET 001

