

AN EXCHANGE OF TECHNICAL INFORMATION

VOLUME 22 NUMBER 1 ABOUT CARRIER TRANSCOLD CONTAINER PRODUCTS

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TechFact – Micro-LINK® 2i / 3 Analyzer



As a means of continual improvement, Carrier Transicold analyzes returned controllers in order to identify and act on opportunities for improvement. One of the leading classifications of controller failure is No Fault Found (NFF).

As part of Carrier's NFF controller investigation process, a download analysis is performed. Upon evaluating the data, we can see that the controller was not run on the controller analyzer (an event is recorded in the datacorder documenting the use of the analyzer).

The Micro-LINK® 2i / 3 Controller Analyzer, part number 07-00428-00SV is an essential tool to eliminate these NFF failures. The analyzer is a standalone tool that operates at 115 VAC / 60 Hz or 220 VAC / 50Hz. As a standalone device, it is not impacted by the dynamic operating inputs that can make controller diagnosis in the unit difficult.

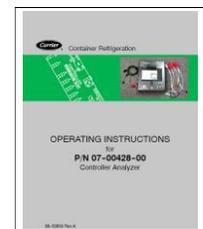
The operation of the analyzer is simple following the instructions (98-50600 Rev A) supplied. It uses LED status indicators on the analyzer to guide you through the complete I/O functionality check of the controller.

The controller does require software to be loaded on the PCMCIA card that's provided with the tester. This software takes control of the controller and runs it through a complete group of tests. The latest software version can be downloaded from the Carrier Transicold Transcentral™ portal at:

<http://www.carrier.com/container>

While connected to the analyzer, the controller datacorder can be downloaded for additional evaluation, if required.

The Micro-LINK Controller Analyzer can be purchased by contacting an authorized Carrier Transicold Service Provider.



FAQ: When does an O2 sensor on XtendFRESH™ system need to be changed?

There have been customer inquiries asking if the O2 sensor should be changed if it does not read 20.8% when exposed to normal ambient air. The response is no. Based on the manufactures specification and Carrier lab testing, a good sensor can read as low as 14.1% when exposed to normal ambient air and still perform properly in the 3% to 5% O2 control levels.

During “tEst” mode, the O2 sensor is checked to verify it is within an acceptable operating range. While performing the CO2 zero calibration, the software will perform an O2 sensor check to verify the sensor is capable of operating properly over the next voyage. If the sensor check reads the O2 sensor below 14.1%, it will post an “O2 Fail” message and the sensor will need to be changed.

The voltage range on the KD04 pin in open atmosphere will be between 2.00 and 3.6 VDC on a good sensor.

To determine if the O2 sensor needs to be changed, step 1 is to run test mode with the box exposed to normal atmospheric air, no cargo. If the O2 sensor passes, the sensor is acceptable for the next voyage. If the test posts “O2 Fail”, the sensor needs to be replaced.

O2 Sensor Removal:

The O2 sensor can be removed from the fresh air panel by disconnecting the connector and removing the cushion clamp. Pull gently from brass holder.



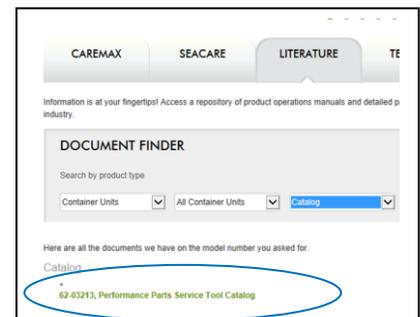
TechTip: Updated Recommendations for XtendFRESH System Curtain Installation

A key component to successful XtendFRESH system shipments is a sealed box. A major contributor to ensuring a box is sealed is proper installation of the curtain. The XtendFRESH option has been installed on container boxes with and without the CA track. Monitoring units over time has shown several effective methods for installing the curtain. These methods include closing the door over the curtain with the curtain showing around all four sides of the door, utilizing an existing CA track, or a combination of taping the curtain in place using double sided tape and closing the door around it.

Using magnets at the top of the container to hold the curtain will assist in alignment during installation.

Whichever method is selected by the customer, some basic practices need to be followed.

- Verify the door seals are in good condition.
- Ensure the door opening is free of debris, does not have sharp edges and is not rusted.
- Ensure the curtain does not have any holes.
- Ensure the cargo does not extend past the end of the T-Bars.
- When closing the door, ensure the curtain is not pulled by the door keepers.
- If CA track is used, inspect for sharp edges that may cut the curtain and verify that the track is correctly installed and mating edges are caulked.



TechFact – Tools Catalog

Carrier is pleased to announce that the Performance Parts Service Tool Catalog (62-03213) has been updated.

To download the PDF catalog file, click on the link below, select service and support literature.

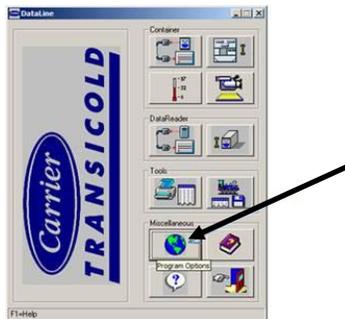
<http://www.carrier.com/container>

TechFact – DataLINE™ / USB / COM PORT

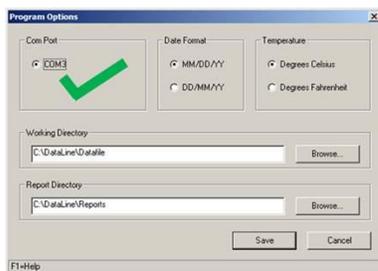
Since the release in 2009 of the DataLINE™ diagnostic software version 1.9.1 (Service Pack 9), Carrier has introduced the Keyspan USB - RS232 adaptor (CTD# 07-00503-00) for personal computers and laptops that do not have an RS-232 serial communication (or com) port, which is typically used to communicate with any Micro-LINK controller. With the appropriate driver of Keyspan USB - RS232 adaptor installed, personal computers and laptops that do not have an RS-232 serial com port can continue to communicate with any Micro-LINK controller by using the USB port via the Keyspan USB - RS232 adaptor.

As part of our ongoing review of procedures, we are issuing this procedure (in addition to the existing DataLINE Installation Instructions) to check and ensure that the Keyspan USB - RS232 adaptor is properly installed and to perform a simple test (within office premises) before going out into the field for actual work.

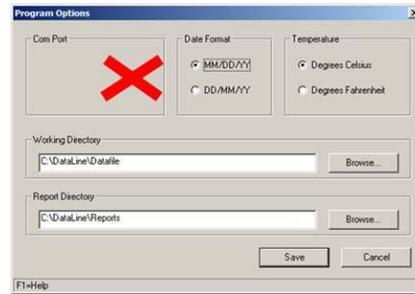
1. With Keyspan USB - RS232 adaptor connected to the USB Port, launch the DataLINE Launch Pad Software and click on the Miscellaneous tab for “Program Options.”



2. There should be a “Com Port” shown in the “Program Options” pop-up window indicating that DataLINE software has detected the Keyspan USB - RS232 adaptor and it is properly installed and connected. Proceed to step #9



3. If the driver of Keyspan USB - RS232 adaptor is not properly installed, or Keyspan USB - RS232 adaptor is NOT connected, then no COM port will be shown. Continue with Step 4 to rectify the problem.



4. Verify the CCN Driver is not installed.
 - a) From Control Panel select either “Add/Remove Programs” or “Programs and Features,” so all programs installed are listed in alphabetical order.
 - b) Scroll down the list to look for “CCN Driver.”
 - c) Click “Remove” or “Uninstall,” to be guided through the uninstallation of CCN Driver.
 - d) After the uninstallation, select “No” when asked to restart the computer. Restart can be done when the last program is uninstalled.
5. Verify the USB-RS232 Driver is not installed.
 - a) From Control Panel select either “Add/Remove Programs” or “Programs and Features,” so all programs installed are listed in alphabetical order.
 - b) Scroll down the list to look for “USB-RS232 Driver”
 - c) Click “Remove” or “Uninstall”, to be guided throughout the uninstallation of USB-RS232 Driver.
 - d) After the uninstallation is completed, select “No” when asked to restart the computer. Restart can be done when the last program is uninstalled.

Note: If you have a Prolific USB driver in your list, this should be left installed as you have another program that requires this driver.

6. Verify the Keyspan USB - RS232 adaptor Driver is properly installed.
 - a) From the Control Panel, select either “Add/Remove Programs” or “Programs and Features,” so all programs installed are listed in alphabetical order.

- b) Scroll down the list to look for “Keyspan USB Serial Adaptor.”
- c) If it is installed take no action, otherwise install it from the CD supplied with the Keyspan USB/RS232 adaptor or download it from the internet at :
<https://www.tripplite.com/support/USA-19HS>

- 7. Restart the personal computer or laptop to ensure that the changes have taken place.
- 8. Repeat steps 1 and 2 to verify COM port is now installed.
- 9. The setup is complete and DataLINE software is ready for use.

TechFact – Tier 4 Genset Troubleshooting

On analysis of returned generator, significant portions were identified as No Fault Found (NFF) which would indicate a misdiagnosis of a failure.

To reduce the number of these NFF Tier 4 generators, the following procedures have been identified and are intended to assist the technician in troubleshooting Tier 4 genset unit generators. **WARNING:** Before proceeding with the troubleshooting, make sure to follow your company’s standard safety procedures for working with electrical components.

Circled in yellow, red, orange and blue are reference points called out in the troubleshooting procedures.

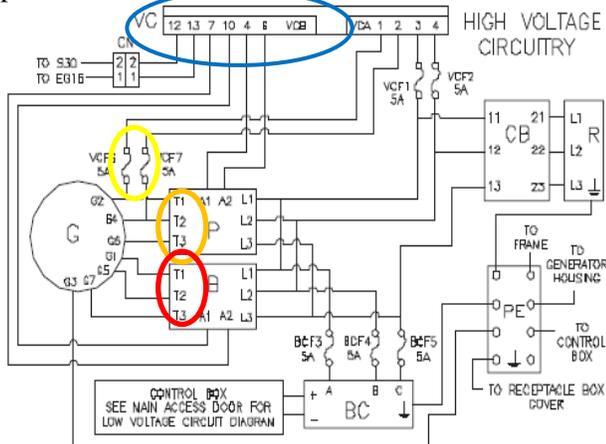


Figure 1

To troubleshoot a generator with a suspected electrical issue in the field, we recommend the following:

D) Output Voltage:

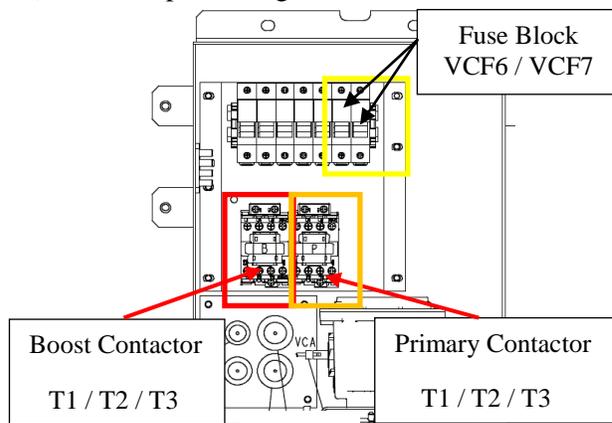


Figure 2

Measuring the output voltage ensures that there is no issue with the rotor, the magnets, or the winding:

1. Disconnect the output plug on the voltage controller (identified in blue, Figure 1).
2. Power up the genset unit without a cargo load. The system should be running at 1500 rpm with the output plug of the voltage controller disconnected.
3. For the primary winding, measure primary phase voltages between the generator wires at the primary contactor (identified in orange, Figures 1 & 2):
 - a. T3-T2 (Generator leads: G6 – G4)
 - b. T2-T1 (Generator leads: G4 – G2)
 - c. T1-T3 (Generator leads: G2 – G6)

The three voltages that you measure should be within +/-10% of each other, and between 385 VAC and 460 VAC at generator temperatures between 20°F and 115°F (-7°C to 46°C) on the O.D. of the generator using an infra-red thermometer in the area identified (Figure 3). To verify you are within the 10%, take the maximum reading minus the minimum reading and divide by the average of the max and the min. Results need to be less than 20%. (I.e. high 460, low 385 = (75 / 422 = 17%), good).

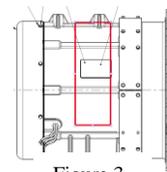


Figure 3

4. For the boost winding, measure boost phase voltages between the generator wires at the boost contactor (identified in red, Figures 1 & 2):
 - a. T3-T2 (Generator leads: G7 – G5)
 - b. T2-T1 (Generator leads: G5 – G1)
 - c. T1-T3 (Generator leads: G1 – G7)

The three voltages should each be within +/-10% of each other, and between 425 VAC and 508 VAC at generator temperatures between 20°F and 115°F (-7°C to 46°C) using procedure noted above.

II) Resistance:



The resistance test checks if there are any shorts or opens in the winding:

Before measuring resistance connect the leads to ensure the meter reads zero and is stable.

1. Power off the genset unit.
2. Open the fuses VCF6 and VCF7 at the fuse block (circled in yellow, Figures 1 & 2).
3. For the primary winding, check the resistances between the generator wires (listed below) at the primary contactor (identified in orange, Figures 1 & 2):
 - a. T3-T2 (Generator leads: G6 – G4)
 - b. T2-T1 (Generator leads: G4 – G2)
 - c. T1-T3 (Generator leads: G2 – G6)

The three resistances that you measure should each be within +/-10% ohm of each other.

4. For the boost winding, check the resistances between the generator wires at the boost contactor (identified in red, figures 1 & 2):
 - a. T3-T2 (Generator leads: G7 – G5)
 - b. T2-T1 (Generator leads: G5 – G1)
 - c. T1-T3 (Generator leads: G1 – G7)

The three resistances that you measure should each be within +/-10% ohm of each other.

Note: For field purposes you should be able to measure this resistance using a quality multimeter that is in good condition, though a four wire resistance meter would be better. The actual value, which is affected by temperature and hard to measure accurately, is less important than having a balanced reading across all three phases.

III) Megger Test:



If it is necessary to check the winding insulation resistances between the ground and each lead of the generator to ensure the insulation system of the generator is in good shape. A megger (or meg) test can catch an electrical short to ground where a standard ohm meter would not.

1. Power off the genset unit.
2. Open up all fuses (VCF1, VCF2, BCF3, BCF4, BCF5, VCF6 and VCF7) at the fuse block (identified in yellow, Figures 1 & 2).
3. Disconnect the generator ground wire G3 from the ground plate inside the receptacle box.
4. To perform this test, connect the first lead of the megger meter to the ground plate and attach, distinctly every time, the second lead of the megger meter to each lead of the generator at the primary and boost contactors T1, T2, and T3 (identified in yellow and orange, Figures 1 & 2).



5. Meg at 500 VDC (Note: A megger setting that is higher than 500 VDC may damage the generator windings). A high megger reading (min of 10 megaohms) would indicate a good insulation system.

DEALER NAME/ADDRESS ABC
WARRANTY REQUEST # XXXX1234
FAILURE DESCRIPTION Generator output low at Primary Contactor 285 v 1500RPM
Carrier TRANSICOLD

Corrected from 10K to 10 megaohms on an earlier release.

If a generator is found to have failed one of the tests and is still under warranty, it is required that the results of the tests are on both the warranty claim description and the MPR (Mandatory Parts Return) tag attached to the generator.

Properly tagging the generator will help in identifying the root cause failure.

TechFact – 2016 Global Training Schedule

Listed are the instructor-led training courses scheduled for 2016. Classes are subject to a minimum requirement of 12 students. Approximately 30 days prior to the class start date, registered students will receive an email confirming the class is being conducted along with logistical information. You should not make travel arrangements to attend the class until after you have received a confirmation email.

To register, go to: <http://www.carrier.com> and select the service & support tab followed by training.

	Start Date	Course Description	Location
APO	8/8/2016	3-Day Basic Container Update	Melbourne, Australia
	8/11/2016	2-Day Container Product Update	Melbourne, Australia
	09/12/2016	1-Week Container	Cochin, India
	09/14/2016	Basic 2-Day Gen Set	Melbourne, Australia
	10/18/2016	3-Day Basic Container Update	Bangkok, Thailand
	10/19/2016	2-Day Container Product Update	Busan, Korea
	10/26/2016	2-Day Container Product Update	Yokohama, Japan
	11/16/2016	2-Day Container Product Update	Brisbane, Australia
LAO	7/4/2016	1-Week Container Basic	Valparaiso, Chile
	7/11/2016	1-Week Container Basic	Puerto Cortes, Honduras
	7/28/2016	2-Day Controlled Atmosphere	Valparaiso, Chile
	8/8/2016	1-Week Container Basic	San Juan, Puerto Rico
	8/29/2016	3-Day Advanced Container Update	Salvador, Brazil
	9/1/2016	2-Day Gen Set	Salvador, Brazil
	10/03/2016	1-Week Container Basic	Rio Grande, Brazil
10/17/2016	1-Week Container Basic	Costa Rica	
NAO	8/16/2016	2-Day Container Product Update	Vancouver, Canada
	8/18/2016	2-Day Gen Set	Vancouver, Canada
	8/22/2016	3-Day Advanced Container Update	Oakland, CA
	8/25/2016	2-Day Gen Set	Oakland, CA
	9/12/2016	1-Week Container Basic	Miami, FL
	9/19/2016	1 Week Container Basic	Norfolk, VA
	10/24/2016	3-Day Advanced Container Update	Seattle, WA
	10/27/2016	2-Day Gen Set	Seattle, WA
10/31/2016	3-Day Advanced Container Update	Long Beach, CA	

11/03/2016	2-Day Gen Set	Long Beach, CA
11/7/2016	1-Week Container Basic	Jacksonville, FL

APO – Asia Pacific Operations, EMEA- Europe Middle East Africa,
 LAO – Latin America Operations, NAO – North America Operations
 * For EMEA locations contact your regional FSM

Tech Fact – Warranty documents

Revised Warranty Policy 62-02489 RevE

In December 2015 an update to the Warranty Policy manual was released. This can be downloaded from the Literature center on the Container Home page.

Important points to remember when filing claims:

- Fully complete the description of failure and troubleshooting carried out. Using single words such as ‘Broken’ or ‘Failed’ as a description is not acceptable.
- Warranty claims submitted within 30 days of repair.
- Mandatory Part Return (MPR) return within 90 days of repair.

Flat Rate Labor Manual 62-03212, 06/2016

An updated Flat Rate Labor Schedule was released mid-June. It contains a number of updated labor codes including XtendFRESH and NaturaLINE.

When new codes become available you will initially be notified in the monthly update email and the manual will be updated quarterly if required.

TechFact – Software Release Update

Listed below are the software release versions for operating and working with Carrier Transicold units. Prior to upgrading software on units, you should seek agreement from the equipment owners.

Recip (ML2i / 5159, ML3, 5165), Scroll (ML2i, 5360 /ML3, 5365)
 Reciprocating Unit (ML2) – 1207
 Controlled Atmosphere – 3115
 DataLINE 2.2 (Windows 8 compatible), DataBANK 0513.
 Menu – 0116, Software cards with revision greater than 5159 or 5361 must have menu 116 or an error could occur.

After completing a software upgrade, it is important for the user to verify the user selections (i.e. defrost setting, set point, etc.).



TechLINE is a publication of Carrier Transicold
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