



Johnson Controls Unitary Products  
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1/877-874-7378

**Date:** March 27, 2015

**YS-033-15**  
**Supersedes YS-033-14**

**To:** All York Branch Service Managers  
All York Distribution Service Managers  
All Regional Managers

**Subject:** Updated **Information** and Service Guidance - Refrigerant System TEV Performance Issues. -Residential and Commercial Products

**Units affected: See attachment 1 with model family listings, residential and commercial**

The purpose of this bulletin is to provide updated service guidance to address erratic thermal expansion valve performance which results in observed high superheat conditions, at times coincidental with compressor failure. This updated service letter supersedes the prior service letter on the same topic, YS-033-14.

This bulletin includes the following updated information:

- 1) Distributors are encouraged to place orders in advance of the 2015 cooling season for the Nu-Calgon additive and application tool.
- 2) This bulletin only authorizes the “fix on fail” use of the specified additive, any additional related repair activities must be pre-approved. Contact UPG Technical Services.
- 3) Suspect affected product model family references have been expanded and suspect serial ranges have been expanded by 1 month.
- 4) Minor changes in the technical procedural detail have been included.
- 5) Reported use of the Nu-Calgon additive continues to be very successful.
- 6) Reference to Nu-Calgon MSDS safety data publication link provided.

**PLEASE READ THIS BULLETIN IN ITS ENTIRETY, A DEALER VERSION OF THIS BULLETIN (SUFFIX D) HAS BEEN PROVIDED TO ASSIST IN DISTRIBUTOR COMMUNICATION TO ALL AFFECTED DEALER/ CONTRACTORS.**

These incidents occur across residential and commercial split and package A/C & HP systems. Reports of failures of this type have been widely reported industry-wide in recent months, but remain **very isolated** among JCI Unitary Products equipment. When experienced, proper practices must be followed to accurately diagnose the problem and restore system performance.

It is important that all JCI/UPG Distributors prepare to support qualified service providers by stocking the Nu-Calgon products identified in this document. As this investigation evolved, we confirmed that a rust

inhibitor within the compressor, possibly coupled with other suspect contaminants is the primary cause of the experienced failure mode. Our internal investigation ***has not*** confirmed the presence of other suspect contaminants that may contribute to the issue. This followed extensive evaluation of chemicals used within our production facilities in Norman and Wichita.

In addition, variation in refrigerant system designs (refrigerant charge amount, restriction device type, actual field application and operating conditions) contribute to the randomness of the problem occurring in the field.

In conjunction with our compressor supplier, we confirmed and are authorizing the use of the following chemical additive to restore system performance. This additive effectively dissolves the contaminant debris on the TEV/orifice components and restores system operating performance. Use of the additive offers a more cost and time effective approach, in lieu of replacing the TEV/orifice or opening the system.

As this problem remains very ***isolated*** among JCI Unitary Products equipment, we are authorizing “fix on fail” use of the Nu-Calgon A/C – Renew additive to restore system performance. A fixed labor allowance of 2 hours at the registered dealer rate will be provided in addition to an allowance for the additive. Please reference the supplemental service instructions in attachment 2 for detail information. The Nu-Calgon A/C Renew additive and application tools are available thru Source 1.

Nu-Calgon Brand	Product identified as “A/C Re-New”	4oz. Source 1 part # S1-405755
		32oz. Source 1 part # S1-405754
	Nu-Calgon Brand Injector Tool	Source 1 part # S1-405799

Further, it is requested distributors continue to seek factory guidance in each instance where compressor failure or problems with the additive use occurs. In those cases, prior to executing repairs, distributors are requested to contact UPG Technical Services via phone or Service Cloud case. The following information is required to initiate the process:

- **Model and serial number of the equipment**
- **Date installed and date of reported failure**
- **Address of installation**
- **Dealer name and contact information**
- **Equipment diagnostic and repair information**

Where this additive application procedure is not successful, special repair instructions and labor repair authorizations will be provided on a case-by-case basis by UPG Technical Services. Labor allowances and technical guidance will be documented in the Service Cloud Case including applicable SI number issue for labor authorization. **IN ALL INSTANCES PRE APPROVAL IS REQUIRED.**

If you have any questions, please contact any member of the Unitary Products Technical Services Team at (877) 874-7378.

David L. Negrey, Director  
Technical Services and Application Engineering  
Johnson Controls Unitary Products

**Attachment 1: AFFECTED MODELS**

**Compressor Serial range:** 13KxxxxxL thru 14HxxxxxL  
**found on the compressor data tag.**

**NOTE: Serial number**

**Residential Unit Serial range: W1M3 – W1M4**

<b>York Residential Package and Split units / Inc. 3-phase</b>		
Air Conditioning		Heat Pumps
D1HQ		B1HQ
D1NQ		B1HX
D2NX		B2HQ
D2NY		B2HZ
D3EZ		B3HZ
D5NZ		B6HQ
D6EQ		B6HX
D6EX		B6HZ
D6EZ		BAUQ
D6HQ		BAUX
D6NQ		BBUZ
D6NX		BCUZ
D6NZ		UB0
DAYQ		UQ0
DCPZ		RAHP1
NL06		THGD
NM06		THGF 5 TON ONLY
GCGD		THJD
RAC1		THJF
TCGD		YZH
TCGF		YZF
TCHD		YHJD
TCJD		YHJF
TCJF		
CZH		
CZF		
YCJD 5 TON ONLY		
YCJF		

**Commercial Unit Serial range: N1M3 – N1M4**

<b>York Commercial Package Units</b>		
Air Conditioners		Heat Pumps
ZF072		XP048,060
ZT037,049,061		XP090,120 GEN 6
ZR078.090,102,120		T04,05XP
ZJ120,180,210,240		
ZH120		
ZXE,ZXG,ZYE,ZYG		
T-A6ZF		
T-12ZH		
S-10ZJ		
S-15,18,20ZJ		

## **YS 033-14      Attachment 2**

### **Supplemental Instructions for adding Nu-Calgon A/C Re-New Additive**

TXV /Metering device fouling in JCI/Unitary Product Split system and Packaged Air conditioning and Heat Pump systems SPECIFICALLY identified in attachment 1 of this letter.

**Summary:**      An unknown chemical reaction or separation of chemicals causes the partial blockage or malfunctioning of the metering device or TEV. The compressor manufacture has identified that by injecting an enhanced oil additive into the system the blockage is progressively removed with runtime.

**Unit qualification for treatment: Unit must fall within the suspect pool as described in attachment 1.**

Units exhibiting loss of capacity, very high superheat, high sub-cooling, low suction pressure with possible low pressure switch trips, possible head pressure trips, and very little temperature difference across evaporator coil. **Units experiencing severe symptoms where the compressor will not remain running, will follow a separate instruction with additional actions required. Contact your distributor technical service manager or JCI/UPG Technical Support at 1-877-874-7378.**

**Corrective Action:** Injection of an oil additive by **Nu-Calgon** known as **A/C Re-New**  
Use the **NON-PRESSURIZED** form of the additive. (See part numbers below)

**Additive:** Nu-Calgon A/C Re-New.  
4 oz. non-pressurized Source 1 Part# S1-405755  
32 oz. non-pressurized Source 1 Part# S1-405754

**Injector Tool:** Nu-Calgon Re-New Injector Tool Source 1 Part# S1-405799  
Other application methods and tools, if used, must follow that manufacture's user instructions.

**Technician:**

\*Only qualified, HVAC trained and certified personnel should perform this task. All safety measures as provided in the equipment installation and operator's manual, as well as the additive instructions should be observed.

**Safety:** **Nu-Calgon** **A/C Re-New MSDS**  
<http://www.nucalgon.com/assets/MSDS/English/4057-55.pdf>



This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

**DANGER** indicates an **imminently** hazardous situation, which, if not avoided, **will result in death or serious injury**.

**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 **may result in minor or moderate injury**. It is also used to alert against unsafe practices and hazards involving only property damage.

**▲ WARNING**

*Improper installation may create a condition where the operation of the product could cause personal injury or property damage. Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer, or service agency.*

**▲ CAUTION**

*This product must be installed in strict compliance with the enclosed installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.*

**▲ CAUTION**

*R-410A systems operate at higher pressures than R-22 systems. Do not use R-22 service equipment or components on R-410A equipment. Service equipment **Must Be Rated** for R-410A.*

# Applications of Instructions:

The instructions below from Nu-Calgon have been written for use on residential style systems. The instructions can be adapted for use on both residential and commercial equipment. The experienced technician should be aware that there are differences between equipment related to operational sequences and service valves. Commercial split system equipment utilizing service valves may not have Schrader valve stems in the actual ports. Most residential and packaged commercial equipment models do have these Schrader valve stems. An examination of the equipment affected prior to connecting any hoses or devices must be conducted by the qualified and certified HVAC technician. Use of the injector tool must be assessed for appropriate use on that specific unit. An understanding of how the injector apparatus and hoses must be purged and prepared on that specific unit must be determined prior to connecting the device. Thoroughly reading the instructions below provides a good understanding of the general function of the injector tool listed in this document.

JCI understands that other devices may be available to deliver the additive to the affected system, such as the traditional refrigeration oil pump. The experienced technician will be required to follow that manufacturer instructions of the chosen delivery device for this task. It is strongly recommended that the technician use a modern manifold gauge set with the environmental hose check valves to minimized refrigerant loss. An assessment of how the manifold set and hoses will perform on the affected unit will also be required prior to starting this procedure. If an affected unit is experiencing low pressure switch trips (if so equipped), the low pressure switch must be jumped and the unit performance evaluated prior to injecting the additive. The low side pressure must remain above 25 psi to begin the following treatment procedure. If not, contact your local distributor Technical Service Manager, or JCI Technical Services at 877-874-7378 for additional instruction.

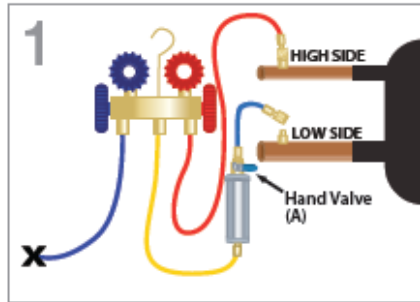
# INSTRUCTIONS:

## Nu-Calgon Service Tips

### A/C Re~New Injector Tool

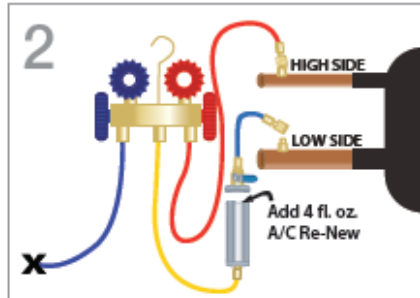
The A/C Re-New Injector was designed to inject A/C Re-New into air conditioning systems. It has a capacity of 4 fl. oz. and can be used for other injectable products as well, including amounts less than the 4 fl. oz. capacity. It is constructed of rugged aluminum and has a maximum working pressure of 600 psi. It has a Schrader fitting at one end and a short length of hose with a hand valve on the other end.

#### Directions for Use



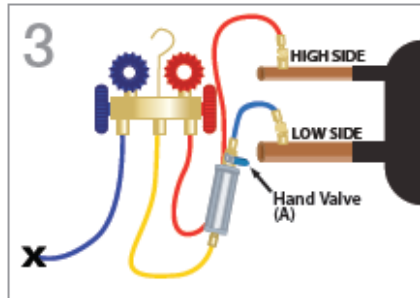
##### STEP 1:

- Make sure system is running and low side and high side service ports are properly identified.
- Connect high side (red) line of manifold gauge set to the discharge (or high side) service port. Make sure both valves on gauge set are closed.
- Connect the middle manifold hose (yellow) to the inlet of the A/C Re-New Injector tool (side opposite of the valve/blue hose).
- With the Injector Tool upright (valve on top), unscrew the aluminum injector cap that connects the valve with the short blue hose.
- Briefly crack open high side manifold valve to purge manifold hoses up to the injector and then close off manifold valve.



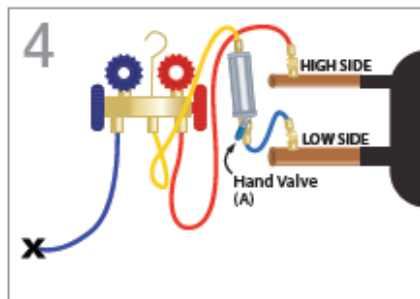
##### STEP 2:

- Pour in 4 fl. oz. of Nu-Calgon A/C Re-New.
- Recap the A/C Injector cap that connects the valve/blue hose assembly. Make sure the cap is hand tight to ensure a good seal is made at the cap. Ensure A/C Re-New Injector remains upright.



##### STEP 3:

- Make sure hand valve (A) is closed. While keeping the injector upright, briefly open high side manifold valve and then immediately close off. This will pressurize the yellow hose and injector.
- While keeping the injector upright, barely thread on 1/4" SAE fitting of blue hose to suction service port of system. Do not thread to the point of engaging Schrader Valve.
- Crack open hand valve (A) on injector to pressurize small blue hose and to chase the remaining air out of the blue hose/injector assembly at the suction access port.
- Briefly allow gas to chase air out of the blue hose/injector assembly, then fully tighten injector fitting onto suction service port so as the injector tool is pressurized with suction pressure.



##### STEP 4:

- Make sure injector hand valve (A) is fully opened so A/C Re-New will be allowed to flow from injector into the low side of the system.
- Turn the A/C Re-New Injector upside down so that the hand valve/blue hose on the injector is at the bottom.
- Briefly open high side valve of the manifold gauge set to allow a little high side liquid to flow through the yellow hose/injector. Close high side manifold valve. Repeat process as necessary for a one minute duration for A/C Re-New to be fully injected into the low side of the system.
- Close high side valve of the manifold gauge set and wait an additional one minute for the injector assembly to equalize to suction pressure.
- Fully close hand valve (A) on A/C Re-New Injector and remove blue hose from suction service port.
- Once disconnected from system, slowly open hand valve (A) on injector so it equalizes the assembly to atmospheric pressure - ensure outlet fitting is pointed toward the ground.
- Ensure injector remains capped to prevent contamination on its next use.



Part Number:  
4057-99

**NOTE: FOR REFRIGERATION CIRCUITS LARGER THAN 4 TONS ADD 1.25 OZ PER TON.**

## **Post Additive Actions:**

The additive should be installed with the system running. After the procedure is completed, connect the manifold gauge set for typical service use.

Run the systems for approximately 1-hour after injecting the additive (space conditions permitting) Then cycle the compressor off while leaving the indoor blower run continuously for the next 15 minutes. After the 15 minute idle period, cycle the compressor back on in its normal mode of operation for the season, and monitor the refrigeration system for signs of improvement. An affected heat pump during the heating season should follow a different procedure. During the 1 -hour run period, force a reverse cycle operation every 10 minutes for a 10 minute duration. The low side pressure should begin to steadily climb towards normal pressure for the conditions. Make sure there are clean filters in the system during this procedure. If the suction pressure does not improve or the unit trips the low pressure switch, it may be necessary to jump the low pressure switch to force operation of the compressor. **DO NOT JUMP THE HIGH PRESSURE SWITCH.** Should placing a jumper on the Low pressure switch be required, a longer post treatment run period may be necessary for signs of improvement. If after the initial 1 hour of operation with the low pressure switch jumped, remove the jumper and observe the low side pressure for switch trips. The unit may be required to operate for up to 72 hours of cycling on the thermostat or the Low Pressure Switch before significant improvement is observed. The corrective time will vary depending on the degree of fouling within the system. Opening a refrigeration system should be a LAST OPTION repair. If after 72 hours of run/cycling time normal operation has NOT been restored, contact your local distributor Technical Service Manager or contact JCI Technical Support at 1-877-874-7378. For further direction. All labor in excess of the allowances provided by this bulletin must be pre-approved by UPG Technical Services.