

DEALER SERVICE BULLETIN

Number: DSB 11-0025A-

Date: 9/17/12

Supersedes: DSB 11-0025

Title: Bristol Two Stage Compressor or Unit Replacement Program

PRODUCT CATEGORY:

Heat Pumps and Split System AC

MODELS AFFECTED:

Bryant: 698B, 598B, 286A, 187A
Carrier: 38YDB, 38TDB, 25HNA6, 24ANA7

Serial Number(s): 3101xxxxxx and newer

Only units with existing (non-expired) standard limited warranty coverage installed in a residential application. Commercial installations are not eligible for the program.

SITUATION:

This bulletin sets forth the modified replacement program for Bristol 2 stage compressors or complete outdoor units due to an in-warranty compressor failure. This program applies to compressors that fail on or after September 17, 2012 while still under standard limited warranty coverage and can be utilized only one time per unit. The Bristol 2 stage reciprocating compressor has undergone continuous improvements to extend its long term reliability, but is more sensitive to certain operating conditions than a scroll compressor. Oversized equipment, improper airflow and charging issues are a few examples of applications and operating conditions that can cause additional stress on the system's components, including the compressor.

SOLUTION:

All claims will be submitted directly into the Service Bench Warranty System by the distributor, including the Bristol Audit Form that is signed by the customer/homeowner and required to be attached to the claim electronically.

The customer has a choice among 2 options:

Option 1:

Compressor replacement **without** optional labor contract

- Carrier provides the replacement compressor and associated parts and pays a \$450 dealer allowance for labor cost.
- The replacement compressor and associated parts assume the remainder of the standard limited warranty from the original unit installation date.

Compressor replacement **with** optional labor contract

- Carrier pays a "tiered" optional contract labor and materials allowance for labor and miscellaneous parts in addition to providing the replacement compressor.
- The replacement compressor assumes the remainder of the standard limited warranty and the optional labor contract from the original unit installation date.

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The following Bristol TS Compressor Part Numbers are covered under this bulletin.

Prior to 2006		
RCD part number	Bristol model	Mfg part number
P032-2722	T89B284CBCA	GB20PF007
P032-1926	T89B194CBCA	GB20PF008
P032-3722	T89B385CBCA	GB20TF004
P032-5121	T89A514BBCA	GB20JF006
P032-5122	T89A514BBCA	GB20JF008
2006 & After		
RCD part number	Bristol model	Mfg part number
P032-1829	T81J195CBCA	757006-1000-00
P032-2723	T81J285CBCA	757007-1000-00
P032-3525	T81J384CBCA	757008-1000-00
P032-5221	T89A515BBCA	757009-1000-00

Option 2:

Unit replacement **without** optional labor contract

- Customer pays a “tiered” unit replacement “buy-in” (see Table #1 below). The customer is responsible for dealer labor cost and misc parts related to installation of the new unit if the original unit has been in service for 3 or more years (Carrier pays capped labor costs of \$350 if original unit has been in service for less than 3 years).
- New equivalent unit with a scroll compressor
- New standard limited warranty coverage on the new unit.
- Distributor is invoiced for customer pay in funds and \$0.01 for new unit.

Unit replacement **with** optional labor contract

- Customer pays a “tiered” unit replacement “buy-in” (see Table #1 below). Carrier pays a “tiered” optional contract labor and materials allowance for labor and miscellaneous parts
- New equivalent unit with a scroll compressor
- New standard limited warranty coverage on the new unit.
- Optional labor contract for the old unit is cancelled
- Distributor is invoiced for customer pay in funds and \$0.01 for new unit.

TABLE #1

	Tiered buy-in for unit based on TIS (Time In Service)		
	Less than 3 years TIS	> 3 years to 6 years TIS	> 6 years to 10 years TIS
Consumer Brochure Reference	Less than 3 years TIS	4 – 6 years old	7-10 years old
Unit Replacement Buy-In (With Optional Labor Contract)	\$0.00, Labor rate per Table # 2 in Policy Section	\$695.00, Labor rate per Table # 2 in Policy Section	\$1695.00, Labor rate per Table # 2 in Policy Section
Unit Replacement Buy-In (Without Optional Labor Contract)	\$0.00, Carrier pays labor capped at \$350	\$995.00, Customer pays labor costs	\$1995.00, Customer pays labor costs

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The following table identifies indoor coil models that have an approved outdoor unit match and are therefore covered under this bulletin.

Approved Match: Yes/No

	Bristol	Approved Replacement
40FK (w/Puron TXV)	Yes	Yes *
FK4 (w/Puron TXV)	Yes	Yes *
FV4A, B	Yes	Yes *
FV4C	No	Yes
FE4A	Yes	Yes

** Requires replacement of the indoor motor module for correct air flow when replacing the outdoor Bristol unit with the approved replacement model. Reference SMB 11-0024.*

The following table identifies approved outdoor models that have an approved outdoor unit match and are therefore covered under this bulletin.

Only the equivalent replacement to the failed unit as identified in the below chart is approved under this bulletin. No upgrades are allowed.

Approved outdoor replacement units listed below:

Carrier		
Bristol AC	Approved A/C Replacement Model	Approved A/C Replacement Model (Coastal)
38TDB024	24APA724A or 24ANB724A	24ANB724C
38TDB036	24APA736A or 24ANB736A	24ANB736C
38TDB037	24APA736A or 24ANB736A	24ANB736C
38TDB048	24APA748A or 24ANB748A	24ANB748C
38TDB060	24APA760A or 24ANB760A	24ANB760C
24ANA724	24APA724A or 24ANB724A	24ANB724C
24ANA736	24APA736A or 24ANB736A	24ANB736C
24ANA748	24APA748A or 24ANB748A	24ANB748C
24ANA760	24APA760A or 24ANB760A	24ANB760C
Bristol HP	Approved HP Replacement Model	Approved HP Replacement Model (Coastal)
38YDB024	25HPA624A or 25HNB624A	25HNB624C
38YDB036	25HPA636A or 25HNB636A	25HNB636C
38YDB037	25HPA636A or 25HNB636A	25HNB636C
38YDB048	25HPA648A or 25HNB648A	25HNB648C
38YDB060	25HPA660A or 25HNB660A	25HNB660C
25HNA624	25HPA624A or 25HNB624A	25HNB624C
25HNA636	25HPA636A or 25HNB636A	25HNB636C
25HNA648	25HPA648A or 25HNB648A	25HNB648C
25HNA660	25HPA660A or 25HNB660A	25HNB660C

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<u>Bryant</u>		
Bristol AC	Approved A/C Replacement Model	Approved A/C Replacement Model (Coastal)
598BNX024	187BNA024	187BNC024
598BNX036	187BNA036	187BNC036
598BNX048	187BNA048	187BNC048
598BNX060	187BNA060	187BNC060
187ANA024	187BNA024	187BNC024
187ANA036	187BNA036	187BNC036
187ANA048	187BNA048	187BNC048
187ANA060	187BNA060	187BNC060
Bristol HP	Approved HP Replacement Model	Approved HP Replacement Model (Coastal)
698BNX024	286BNA024	286BNC024
698BNX036	286BNA036	286BNC036
698BNX048	286BNA048	286BNC048
698BNX060	286BNA060	286BNC060
286ANA024	286BNA024	286BNC024
286ANA036	286BNA036	286BNC036
286ANA048	286BNA048	286BNC048
286ANA060	286BNA060	286BNC060

* Replacement models listed are valid at time of original bulletin publishing. As models are replaced over time, the replacement model may be the listed model in this bulletin OR the equivalent newer model.

** Call Customer Service for pre-approval on any "Coastal" replacement models.

Field Action:

Diagnose the failed unit using the attached procedure and Bristol Program Audit Form. Determine customer choice for unit replacement or compressor replacement. Provide the completed Bristol Program Audit Form with the customer's signature to your distributor service manager to obtain pre-approval for replacement under this program.

For additional questions:

Carrier Expert Central:

800-946-2930

Bristolcompressorprog@carrier.utc.com

Bryant Solution Center:

888-994-7237

Bristolcompressorprog@carrier.utc.com

Customer brochures are available to help explain the program and choices to the customer. They can be ordered under the following part numbers:

Carrier: **01-811-20370-50**Bryant: **01-8110-1102-50**

Warning: Do not perform any of the servicing instructions provided in this Service Bulletin unless you are a trained and qualified technician. Observe all precautions in the instructions, equipment tags, labels, and observe all other safety precautions that may apply. Failure to follow this warning could result in property damage, personal injury or death.

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Bristol Program Audit Form**

This form needs to be completed and submitted to your Distributor Service Manager for pre-authorization to replace the compressor or unit under **SMB 11-0025A-**. * Shaded area information not required if compressor is not operating.

System Information:	Date:
Outdoor Unit Model / Serial Number:	
Indoor Fan Coil or Evaporator Model / Serial Number:	
Gas Furnace Model/Serial Number:	
Compressor Model/Serial Number:	
Date Installed:	
Date Failed:	
Customers Name:	
Dealers Name:	
Distributors Name:	

Customer Complaint:	
Compressor Capacity Loss	Yes / No
Compressor Failed	Yes / No

Airflow:	
Static (Measured or from UI)?	In WC
CFM?	CFM
RPM (UI value)?	RPM
Temperature Difference across Indoor Coil?	Deg F/C

System Charge:	
Refrigerant pulled from system?	lbs
Line set sizes and length?	Feet
Outdoor Ambient?	Deg F/C
*Pressure at Liquid Service Valve?	PSIG
*Pressure at Suction Service Valve?	PSIG
*Superheat value?	Deg F/C
*Subcooling value?	Deg F/C
Buried Refrigerant Lines?	Yes / No

Failed Compressor:	
Voltage L1 and L2	Volts 60Hz
*High Stage - Amps : Run winding	Ohms
*Low Stage - Amps : Run winding	Ohms
Resistance - R to C?	Yes / No
Resistance - S to C?	Yes / No
Resistance - R to S?	Yes / No
Ohm - C to Ground?	Ohms
Ohm - R to Ground?	Ohms
Ohm - S to Ground?	Ohms

Required: Customer was presented with all options under flyer 01-811-20370-50 or 01-8110-1102-50. For compressor replacement option, customer has received a \$450 dealer allowance for labor costs. For unit replacement option, customer was NOT charged labor if original unit had been in service for less than 3 years.

Customer signature: _____

Distributor Name & Service Manager _____ Service Managers Signature _____

Is the failed unit covered with an optional labor contract? no yes → Contract #: _____

Was a replacement unit supplied per this bulletin from existing Distributor inventory? yes no

If yes: Replacement Unit Model: _____ Serial Number: _____

Please provide the SAP ship to location number for shipment of the replacement unit: _____

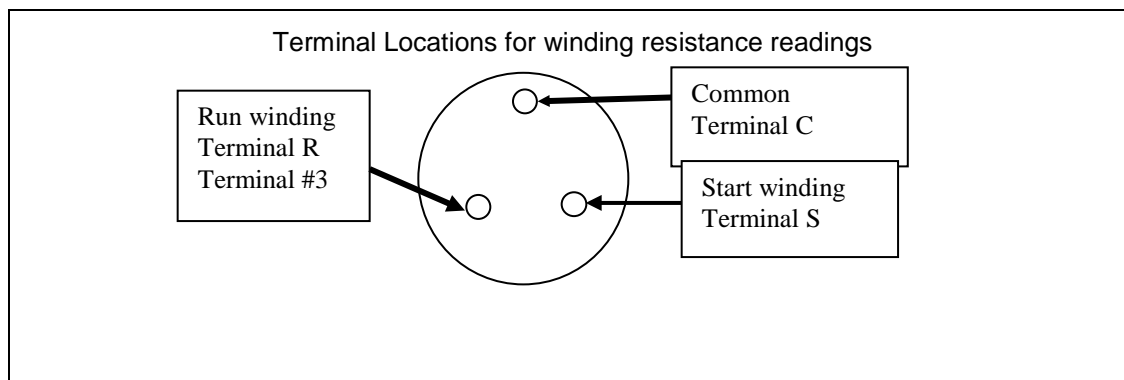
Bristol Compressor Program Diagnostic Reference

These procedures outline the steps associated with diagnosing the compressor and filling out the program claim form. Please use this section as a reference when filling out the required claim form for the program. After review of this completed Bristol Compressor Evaluation Form the Distributor Service Manager is authorized to sign and approve a replacement outdoor unit or compressor replacement under the terms of this SMB.

Proof of Compressor Electrical Failure

(Defined as Compressor windings electrically open, shorted or winding resistance measurements not correct. If electrically open, the internal overload may be open and steps must be taken to determine if a problem external to the compressor is the cause of the overload trip.)

Important Note: Prior to testing the compressor, disconnect and lockout/tagout all electrical power to system, including indoor and outdoor power sources.

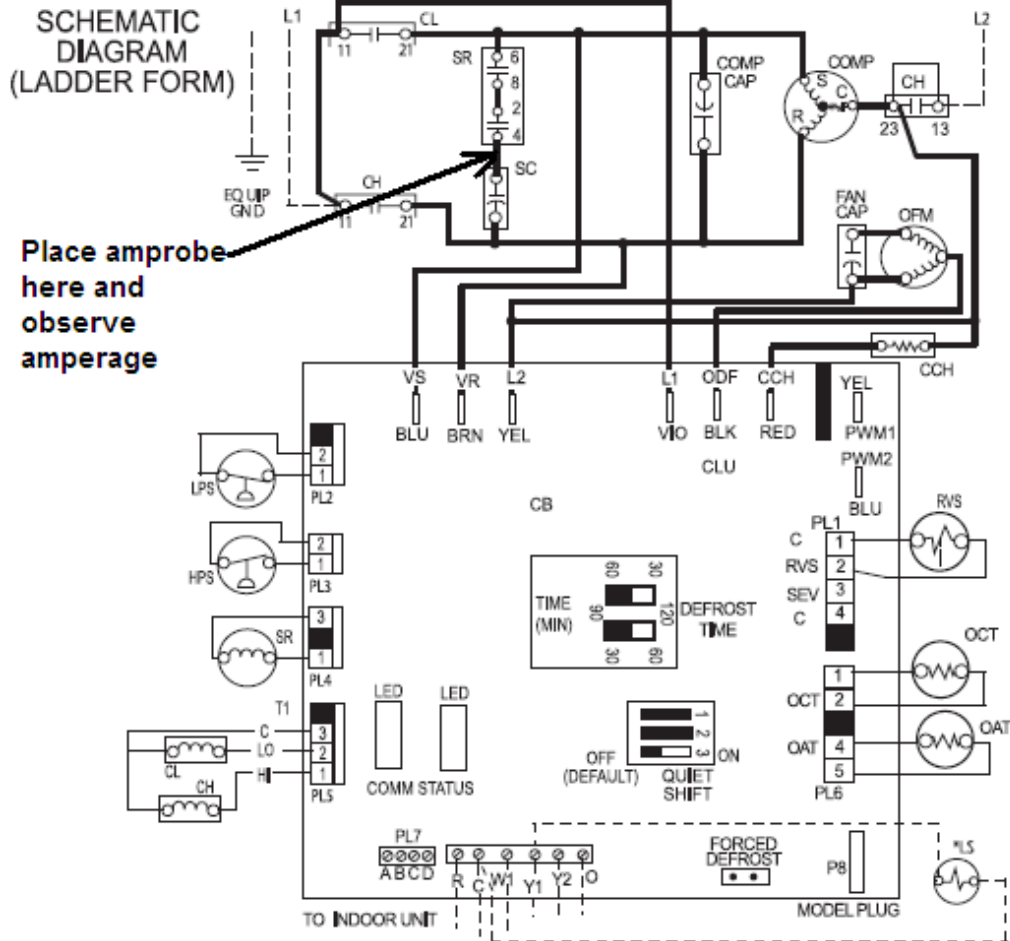


Checking Compressor Winding Resistance

Use the ∞ symbol for Open circuit

The sum of the start and run winding resistances should be equal to the value measured between "R" and "S". Resistance reading (R to C) + (S to C) = (R to S) **if not, compressor winding is damaged** If R to C and S to C are open circuit and R to S has resistance, the internal overload is open. The compressor needs time to cool to allow the internal overload to close. If the overload has opened, then other problems may be present in the refrigerant system that needs to be evaluated. Some possible causes of an open internal overload include insufficient refrigerant charge, restriction in the refrigerant circuit, and power supply problems. Replacing the unit may not solve these problems.

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Checking the start Components

Place a clamp amp meter between the start relay terminal 4 and the start capacitor. With the relay closed, you should observe amperage if the relay opens amperage should disappear.

Measuring the voltage across the open relay terminals (SR 6 to SR4) if the relay terminals are closed voltage should be zero (0). When the relays open a voltages should be measured at a minimum the voltage should be line voltage.

How the relay works

PI4 is a three (3) pin locking header with pin 2 removed. Header is labeled sr.

The connections are:

pl4-1	sr	connection for the start relay
pl4-2		not used
pl4-3	sr	ground return for the start relay
Start relay output	sr	85ma 22vdc

On Bristol compressor models, when a command for compressor run occurs, the control will energize the start relay output, energizing the start relay (external to the board) that will add a start capacitor across the run capacitor of the compressor. When a predetermined voltage level at the appropriate terminal (vs. in high capacity and vr in low capacity) has been reached the relay removes the capacitor from the circuit.

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On all models, the presence of voltage at both vr and vs is an indication that a contactor has closed and the compressor is starting or running. When starting or running, a phase difference of the voltages on the inputs will indicate the compressor internal thermal cutout is closed. If the phase difference is ≤ 5 degrees for 10 seconds, the internal cutout has opened and the compressor is no longer running. If an open thermal cutout has been detected, the control will de-energize the low or hi compressor outputs, but continue to energize the odf/pwm output for 15 minutes. The status (yellow) led will flash the appropriate code.

If the control does not detect a model plug or detects an invalid model plug it will not allow the unit to operate. The status (yellow) led will flash the appropriate code.

Compressor start detection on Bristol models only:

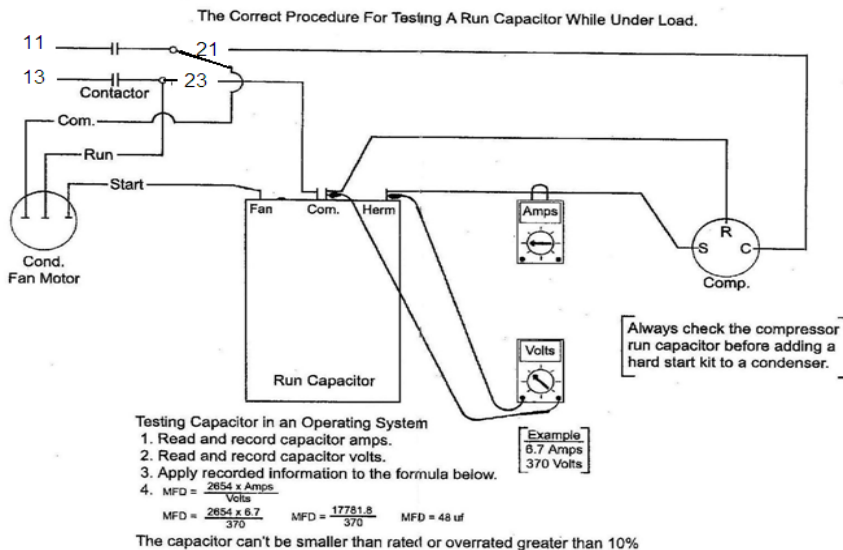
In low stage, if the specified start voltage at vr terminal is not achieved, the start relay is de-energized after 1 second and the control will flash the appropriate fault code. In high stage, if the specified start voltage at vs terminal is not achieved, the start relay is de-energized after 1 second and the control will flash the appropriate fault code. If the specified start voltage is not achieved for 3 consecutive low stage starts, low stage operation is locked out for 30 minutes. If the specified start voltage is not achieved for 3 consecutive high stage starts, high stage operation is locked out for 30 minutes. The control will flash the appropriate fault code.

Proof of Compressor Mechanical Failure

(Defined as Compressor electrically correct, but either will not operate or will operate but not pump refrigerant or will only pump at low stage capacity when the high stage control and high stage contactor are calling for high stage) **Noisy units DO NOT QUALIFY for Replacement unit coverage.**)

WARNING: this portion of the test procedure requires electrical power be supplied to the unit. Caution should be used to prevent personal injury due to electrical shock.

Testing the Capacitor



Capacitor MFD = 2654 X Amps / Volts