Case Study

Air Conditioning System Refrigerant Retrofit
R-22 to Summit Plus R-407c with Super Change

Location

St. Jerome Catholic Church
10895 Hamlin Blvd, Largo, FL 33774

Performed by: Rick Roland, Engineer

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Project Objective:
To determine the relative performance comparing the data collected from the air conditioning system operating with the two different types of refrigerant.
Collect pre retrofit operating data for analysis and evaluation while the system is running with refrigerant R-22. Collect post retro fit operational data for evaluation and comparison after replacing the refrigerant in the system with Summit Plus R-407c with Super Change.
Measure and calculate the capacity comparison between the two refrigerants and demonstrate the ease of usage as a direct replacement refrigerant.

Test Subject: Trane Split System – Model RAUCC25EBY0300

Location: St. Jerome Catholic Church
10895 Hamlin Blvd, Largo, FL 33774

Project Date: November 26th / 27th 2016

Project Outline:

- Measure and document the "base line" performance of the air conditioning system while operating under the existing charge of refrigerant R-22
- Remove the refrigerant R-22 following all proper procedures
- Charge the air conditioning system with Summit Plus R-407c with Super Change.
- Measure and document the post retrofit "base line" performance of the air conditioning system while operating with Summit Plus R-407c with Super Change.
- Document the conclusion as to the effectiveness of the air conditioning system changes with the different refrigerants.

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Field Data Collection

Pre-Retrofit Date: ____ November 18th 2016_____

Post-Retrofit Date: _____ November 20th 2016_____

St Jerome Catholic Church Largo Florida											
Trane split system RAUCC25EBY0300				ConServ, Jerry Yetman							
R-22 operation			Ambient temp 80F								
Condensing coil condition 7			coils need cleaning			**Note: Pre Data Collected by Pedro Serrano - Conserv**					
Date	**11/18/2016**		**80F**								
Suction pressure		65									
Discharge pressure		220									
Super Heat		20									
Sub cooling		2.5									
	Amperage	L1	L2	L3							
					208 volts						
Retro-fit to R-407c with SuperChange				**11/20/2016**							
Recovered 46lbs of R-22											
Initial charge of Summit Plus R-407c with Super Change was 16 lbs, final charge was 18.5 lbs											
Date		**11/20/2016**	**60F**	**1:00 PM**		62F	cover	cover	cover		
Charge of SP407SC		40 lbs	41 lbs	42 lbs		43 lbs	10 ft sq	5 sq ft	0		
Suction pressure		44.7	46	46			46.4	44	40.7		
Discharge pressure		217	234	239			241	216	205		
Super Heat		18.6	16	16			12.7	18.8	24.9		
Sub cooling		1.1	1.2	1.5			1.5	0.7	0.4		
						Amperage	L1	L2	L3		FLA
Operation was steady and the cycle was continuous.						208 volts	45.6	53.8	50.9	comp #1	60.5
Oil level was missing at the start and returned to perfect 1/2 sight glass at the end.							33	33.2	31.6	comp #2	41.4
Capacity calculation											F
Return air temp											%
return air RH											F
Supply air temp											%
Supply air RH											
Temp drop										18.7	F

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System Analysis Tools
Yellow Jacket System Analyzer

Conclusion:

No oil change or modifications were done to this system.

Based on the testing results, we have concluded that the air conditioning system ran with similar R-22 performance pressures, temperatures, and amperages based on the concluding ambient conditions.

The operation of the system achieved an 18.7-degree F. temperature differential.

Certified by:

___*Rick Roland*_____

Rick Roland, Engineer
Roland Engineering Services, LLC

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