TRANE®

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Application Guide

Retrofit Guidelines

APP-APG011-EN

Replacing systems that use HCFC-22
Reusing existing refrigerant lines
Converting HCFC-22 systems to HFC410A
Converting HFC410A indoor units to HCFC-22 for replacement systems

The purpose of this bulletin is to convey procedures when replacing an existing system that utilized HCFC-22 refrigerant with an HFC410A refrigerant bearing system.
For convenience, section V includes information for applying a new HFC410A indoor product with an existing HCFC-22 outdoor unit.

This bulletin discusses:

I. Basic practices for HVAC systems
II. Refrigeration Lines
III. Existing indoor equipment
IV. Reusing existing lines and indoor equipment
V. Reusing existing HCFC-22 outdoor units

POSITION STATEMENT:
Trane has always recommended installing approved, matched indoor and outdoor systems. The benefits of installing approved matched sytems are maximum efficiency, optimum performance, and best overall system reliability

Warnings and Cautions appear at appropriate sections throughout this manual. Read these carefully.

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 may also be used to alert against unsafe practices.

CAUTION – Indicates a situation that may result in equipment or property-damage-only accidents.

ISSUED BY:
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I. Basic practices for HVAC systems

The following guidelines should be observed when installing any refrigerant bearing system in order to assure reliable and efficient operation.

These practices apply regardless of refrigerant type.

1. Use only compatible indoor and outdoor coil combinations.
   a) Retrofitted systems in most cases, will not be rated in the AHRI directory.
      1) There is no plan to supply ratings to AHRI for retrofitted systems.
   b) Sources for rated system combinatons:
      1. www.ahrinet.org
      2. www.comfortsite.com
      3. Electronic Performance Data
      4. Local distributor or sales office
2. Refrigerant line sets must be sized properly.
   a) Refer to the current refrigerant piping publications:
      1) SS-APG006-EN for 1.5 through 5.0 ton split systems.
      2) SS-APG008-EN for 6 through 20 ton split systems.
   b) Table 1 and Table 2 in this document indicate compatible line diameters for single speed systems.
3. Sealed refrigerant systems must be kept clean!
   a) De-burr all ends of copper tubing to assure free flow of refrigerant.
   b) Use emery cloth or scuff pad to clean the ends of the copper tube to assure good braze joints. Special care should be taken to eliminate any shavings from entering the tubing.
   c) Always allow dry nitrogen to flow through the refrigerant lines to prohibit oxidation while brazing.
   d) Refer to Service Procedures Publication 34-1005 (latest Version) for proper brazing techniques.
4. Moisture compromises performance and operation of all HCFC / HFC refrigerant systems.
   a) Keep all oil bearing containers sealed tight until ready to use.
   b) Do not open system service valves until ready to start up.
      1) Leak check system as soon as possible after brazing joints.

⚠ WARNING

Explosion Hazard!

NEVER leak test with air and R410A. At pressures above 1 atmosphere, just like R-22, mixtureof R-410A and air can be combustible! Failure to follow this warning could result in property damage, personal injury or death.

      2) Begin evacuation process immediately after leak check process is completed.
         a) Do not leave service valves open longer than four hours. Moisture absorbed into the system is removable only by driers.
         a) Evacuate to 300 microns, then close all service gauge valves. After one minute, if the reading on the micron gauge rises above 500 microns, leak check and evacuate the system again. *(Please note that a micron gauge must be used, dial gauges cannot read microns.)*
5. Proper refrigerant handling is a must.
   a) Service personnel must be properly certified in order to handle refrigerant!
   b) Refrigerant in existing system must be recovered in accordance with all applicable federal, state and local standards.
      1) New or recycled refrigerant must be used when charging a system
      2) Recovered refrigerant must be recycled at an approved recycling facility or disposed of in accor dance with national, state, and local standards.
      3) Recovered refrigerant, that is free from non-condensables and acid, may be used for charging purposes only in the system in which it was recovered from.

Section II - Refrigerant Lines

A. Compatible line diameters and lengths:
   When replacing any HVAC system, the existing refrigerant lines must be evaluated to determine if they are properly sized for the new system. Refer to Table 1 for compatible vapor line and maximum lengths and Table 2 for approved liquid line sizes, length and vertical change.
B. Preparation for re-use:
   After verifying the line diameters and length are compatible, the existing line set must be cleared of as much existing mineral oil and contaminants as possible. The lines should be cleared prior to installing new outdoor and / or indoor units.

Section III - Existing indoor equipment:

In January 2001, the Department of Energy published a rule under NAECA (National Appliance Energy Conservation Act of 1987) to advance the minimum SEER to 13 effective January 23rd, 2006 for single phase HVAC systems. (three phase systems with capacity ratings under 65,000 BTUH followed at a later date). In 1992, the minimum SEER was increased to 10.0. Prior to 1992, SEER ratings were as low as 7.0. In addition, in 2006, HSPF was required to be 7.7. Before 2006 HSPF's were as low as 6.8.

Some of the ways in which the HVAC industry achieved the higher efficiencies include:

A. Increased air to coil surface contact.
   1) Normally, increasing the air to coil surface contact meant the refrigeration coils increased in both physical size as well as refrigerant volume size.
B. Compressor motor, blower motor, and fan motor efficiencies increased.
C. Improved heat transfer technologies
D. Combination of the above.

Regardless of the method, HVAC systems manufacturers typically offer their brand of furnace coils and fan coil units that are specifically designed and tested to operate with compatible outdoor air conditioning units and heat pump units. For the reasons listed, when replacing an outdoor unit, it is in the customer's best interest to replace the indoor furnace coil or fan coil unit. In the case of a heat pump system, the above cannot be overstated since refrigerant flows in both directions, thus requiring the indoor coil and outdoor coil be volumetrically balanced. In order to locate a list of rated HVAC system combinations, the AHRI Directory of Certified Systems should be utilized, or the manufacturer's data be obtained.

Other reasons complete system change-out is preferred over replacing only the indoor or only the outoor unit include:

A. There is a possibility the aged component may fail prior to the replaced component. In addition, if a refrigerant leak occurs and moisture is introduced into the system, the system oil will be contaminated. It must be understood that Trane systems which use R410A as a refrigerant utilize Polyolester Oil (POE) This oil is hygroscopic, meaning it absorbs moisture quickly. Leaks in the refrigeration system (which is intended to be sealed from atmosphere) can actually allow atmospheric moisture to enter the otherwise sealed system. When this occurs, POE oil breaks down acid forms. Acid is harmful to the compressor motor windings as well as the refrigerant flow control devices, reversing valves, etc. Once any damage occurs, it is very difficult and costly to clean the system to a point in which the refrigeration system will be reliable.
B. Be familiar with the local energy, mechanical, and building codes.

Section III - continued:

However, if, on a retrofit, the building owner determines it is not feasible to replace the indoor section (air handler and coil), **some** of the previously installed indoor sections may be modified to be compatible with R410A. Refer to Tables 3 and 4 for compatible air handlers and coils, and Table 5 for TXV kits. Please understand, a retrofitted system may not be listed in the AHRI directory. In addition, the manufacturer will not be able to provide any type of performance data. If the component has surpassed the OEM or extended warranty period, it is recommended to replace the indoor and outdoor unit with an AHRI listed system. If the customer requests an outdoor unit with a nominal rating above 13 SEER, the indoor and outdoor unit shall be replaced. *System matches may be located in the Certified HVACR Equipment directories @ www.ahrinet.org*

Section IV - Reusing existing lines and indoor equipment:

⚠ CAUTION

Wear required personal protective equipment to minimize the risk of oil and debris coming in contact with eyes and skin.

A - Reusing existing refrigeration line and indoor coils.

1. Drain as much oil as possible from line set and / or indoor coil.
2. Purging the line set and coil with dry nitrogen may be required to recover oil from the horizontal refrigerant piping and coil circuitry. The indoor coil may require removal in order to purge all existing oil from the coil.
3. All oil must be captured and recycled or disposed of in accordance with national, state, and local standards.Such a standard is the EPA Clean Air Act. *Reference www.epa.gov*
4. Conduct an acid test using the appropriate test kit for R-22 / Mineral oil systems.
   a) If the acid test shows negative, then proceed with installing the new OD unit.
   b) If the acid test indicates acid, then treat this system as a burnout.
      1. **If at all possible, replace the refrigerant lines.**
   c) If acid test returns positive and the lines are inaccessible or if there is a concern of debris in the lines, a flush agent may be used.
   d) If the previous system failed as a result of compressor burnout, it is recommended to replace the indoor coil.
   e) It is not necessary to measure the amount of residual mineral oil left in the system. Clearing the indoor coil and or refrigeration lines as detailed in this document is adequate. However, suction line riser traps may pose an issue with mineral oil and debris removal. If the exising vapor line includes suction riser traps, line replacement is recommended if the traps are unable to be eliminated.
   d) The new refrigerant flow control device should be installed after clearing the existing mineral oil from the system. Please reference Tables 5 and 6 for the appropriate TXV / OD unit match.

CAUTION

There are multiple HVAC flush agents available to our industry. Prior to using any flush agent, please read and understand all directions printed by the manufacturer as there may be differences from one manufacturer to another. Flush agents should be used for line cleaning only. ***Do not flush an indoor or outdoor coil for re-use with Trane HVAC split systems.*** *The coil may trap residue and promote premature compressor and flow control failure. If using a flush product in lines where POE oil will be the system lubricant, such as in R410A systems, it is recommended to use an HFC flush product. In all cases, the system must be evacuated below 300 microns in order to remove residual flush fluid that may contain unstable chlorinated hydrocarbon solvent. At compressor discharge temperatures this solvent will breakdown and form strong acids.*

Table 1 - Allowable Suction Line Length (equivalent feet) Versus Nominal Capacity for single speed R410A split systems only							
Outside Diameter	**Capacity in Tons**						
	1.5 ton	**2.0 ton**	**2.5 ton**	**3.0 ton**	**3.5 ton**	**4.0 ton**	**5.0 ton**
1/2"	90	**Not Approved**					
5/8"	150	150	120	80	**Not Approved**		
3/4"	150	150	150	150	150	130	80
7/8"	**Not Approved**	150	150	150	150	150	150
1 1/8"	**Not Approved**					150	150

Table 2 - Vertical Change (feet) Versus Equivalent Length (feet) For Single Speed Heat Pumps and Condensing Units (R410A)																
Refrigerant Line OD	**Nominal Capacity in Tons**	**Orientation (above or below Indoor unit)**	**Equivalent Length (feet)**													
			10	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**
1/4"	**1.5 ton**	HP or CU Below	10	20	30	40	50	60	60	57	50	43	35	28	20	14	6
		CU Above	10	20	30	40	50	60	60	60	90	100	110	120	130	140	150
	2.0 ton	HP or CU Below	10	20	30	40	26	8	Not approved								
		CU Above	10	20	30	40	50	60	Not approved								
5/16"	**1.5 ton**	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	2.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	2.5 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	58	53	48	44
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	3.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	55	49	42	35	28	22	15
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	3.5 ton	HP or CU Below	10	20	30	40	50	60	53	44	35	26	17	9	Not Approved		
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	Not Approved		
3/8"	**1.5 ton**	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	2.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	2.5 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	3.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	3.5 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	60
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	4.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	60	60	60	60	60	56
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
	5.0 ton	HP or CU Below	10	20	30	40	50	60	60	60	60	56	50	44	38	32	26
		CU Above	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

Table 1 and Table 2 are intended to be used as a quick check to determine if existing refrigerant lines are the correct size for a replacement R410A system. For new installations, high rise applications as well as complete details regarding refrigeration line sizing, please consult SS-APG006-EN or Publication 32-3312-03 version 3.3.3 or later version.

Table 3 - Fan Coil Compatibility Matrix
Applies to 4TTA3, 4TTB3, 4TTR3, 4TWA3, 4TWB3, and 4TWR3 condensing units and heat pump units only

Indoor Unit Model	CLG	HP	Indoor Unit Model	CLG	HP	Indoor Unit Model	CLG	HP
TWE018C	X		2TEC3F18A/B	X	X	2TGB3F18A1	X	
TWE024C	X		2TEC3F24A/B	X	X	2TGB3F25A1	X	
TWE030C	X		2TEC3F30A/B	X	X	2TGB3F30A1	X	024, 030
TWE036C	X		2TEC3F36A/B	X	X	2TGB3F36A1	X	030
TWE042C	X		2TEC3F42A/B	X	X	2TGB3F42A1	X	036, 042
TWE048C	X		2TEC3F48A/B	X	X	2TGB3F48A1	X	042, 048
TWE060C/D	X	X	2TEC3F55A/B	X		2TFB4018A1	X	
TWE018P	X	X	2TEC3F60A/B	X	X	2TFB4024A1	X	
TWE024P	X	X	2TEH3F18A/B	X	X	2TFB4030A1	X	
TWE030P	X	X	2TEH3F24A/B	X	X	2TFB4036A1	X	
TWE036P	X	X	2TEH3F30A/B	X	X	2TFB3F18B1	X	
TWE042P	X	X	2TEH3F36A/B	X	X	2TFB3F24B1	X	X
TWE048P	X		2TEH3F42A/B	X	X	2TFB3F30B1	X	
TWE060P	X		2TEH3F48A/B	X	X	2TFB3F36B1	X	
TWE063P	X		2TEH3F60A/B	X	X	2TFE3025A1	X	
TWE031E	X	018, 024, 030	2TEE3F31A/B	X	018, 025, 030	2TFE3F25B1	X	018, 024, 030,
TWE037E	X	030, 036	2TEE3F37A/B	X	030, 036	TWG018A	X	
TWE040E	X	042	2TEE3F39A/B	X	024, 036, 042	TWG024A	X	
TWE049E	X		2TEE3F40A/B	X	042	TWG025A	X	
TWE065E	X		2TEE3F48A/B	X	042, 048	TWG030A	X	
			2TEE3F49A/B	X		TWG036A	X	
			2TEE3F64A/B	X	048, 060	TWG042A	X	
			2TEE3F65A/B	X		TWG048A	X	
						TWG060A	X	

Notes:
1. X in the block indicates compatibility size per size
2. Numbers indicate size of units that are compatible with the particular indoor unit.
   (Example - TWE031E has 024 in the block, this indicates that a 2TWB3024 and the 2TWR3024 are compatible with the TWE031E.
3. Please reference Table 5 for the appropriate expansion device.
4. Unless the system is listed in the AHRI directory, system efficiency ratings are unavailable for retrofitted systems.

Table 4 - Furnace Coil Compatibility Matrix
Applies to 4TTA3, 4TTB3, 4TTR3, 4TWA3, 4TWB3, and 4TWR3 condensing units and heat pump units only

Indoor Unit Model	CLG	HP	Indoor Unit Model	CLG	HP	Indoor Unit Model	CLG	HP
TX*018C4/D4HPC	X		2TXCA018AC	X		2TXFH018AS	X	018, 024
TX*024C4/D4HPC	X		2TXCA024AC	X		2TXFH033AS	X	024, 030, 036
TX*025C4/D4HPC	X		2TXCB025AC	X	018, 024	2TXFH041AS	X	036, 042
TX*030C4/D4HPC	X		2TXCB031AC	X	025	2TXFH054AS	X	048
TX*031C4/D4HPC	X	024	2TXCB036AC	X	030, 036			
TX*035C4HPC	X		2TXCC037AC	X	030, 036			
TX*036C4HPC	X	030	2TXCB042AC	X	036, 042			
TX*037C4HPC	X	030	2TXCC043AC	X	042			
TX*042C4HPC	X		2TXCC049AC	X	042, 048			
TX*043C4HPC	X		2TXCD050AC	X	048, 060			
TX*048C4HPC	X	036, 042, 048	2TXCC060AC	X	048. 060			
TX*049C4HPC	X	036, 042, 048	2TXCD061AC	X	048, 060			
TX*050C4HPC	X	042, 048	2TXCA018BC	X	018			
TX*060C5HPC	X	048, 060	2TXCA024BC	X	024			
TX*061C5HPC	X	048, 060	2TXCB025BC	X	024			
TXC031E5/S3HP	X	018, 024, 030	2TXCB031BC	X	018, 024, 030			
TXC036E5/S3HP	X	036, 042	2TXCB036BC	X	036			
TXC037E5/S3HP	X	036, 042	2TXCC037BC	X	036			
TXC054E5/S3HP	X	042, 048	2TXCB042BC	X	036, 042			
TXC065E5/S3	X	048, 060	2TXCC043BC	X	036, 042			
TXH025A4HP	X		2TXCB048BC	X	048			
TXH033A4HP	X	018, 024	2TXCC049BC	X	048,			
TXH041A4HP	X	030	2TXCD050BC	X	048			
TXH054A4HP	X	036, 042, 048	2TXCC060BC	X	048			
TXH063HP	X	060	2TXCD061BC	X	048			

Notes:
1. Asteriks indicates A or C
2. X in the block indicates compatibility size per size
3. Numbers indicate size of units that are compatible with the particular indoor unit.
   (Example - TX*024C4/D4HPC has 024 in the block, this indicates that a 2TWB3024 and the 2TWR3024 are compatible with the TX*024C4/D4HPC coil.
4. Please reference Table 6 for the appropriate expansion device.
5. Unless the system is listed in the AHRI directory, system efficiency ratings are unavailable for retrofitted systems.

Table 5 - TXV / Fan Coil Unit Matrix								
Fan Coil Prefix	Fan Coil Unit	TTA, 4TTB, 4TTR, 4TWA, 4TWB, 4TWR						
		3018	3024	3030	3036	3042	3048	3060
Variable Speed Models 2TEE3F TWE0**E	31	4AYTXVH3J3131A	4AYTXVH3J3131A	4AYTXVH3J3131A				
	37		4AYTXVH3J3737A	4AYTXVH3J3737A	4AYTXVH3J3737A	4AYTXVH3J3737A		
	39			4AYTXVH3D3642A	4AYTXVH3D3642A	4AYTXVH3D3642A		
	40			4AYTXVH3J4040A	4AYTXVH3J4040A	4AYTXVH3J4040A		
	48				4AYTXVH3D4863A	4AYTXVH3D4863A	4AYTXVH3D4863A	
	49				4AYTXVH3J4949A	4AYTXVH3J4949A	4AYTXVH3J4949A	4AYTXVH3J4949A
	64				4AYTXVH3D4863A	4AYTXVH3D4863A	4AYTXVH3D4863A	4AYTXVH3D4863A
	65				4AYTXVH3J6565A	4AYTXVH3J6565A	4AYTXVH3J6565A	4AYTXVH3J6565A
Non Variable Speed Models TWE-C and TWG-	018	4AYTXVH3A1830A						
	024		4AYTXVH3A1830A					
	030			4AYTXVH3A1830A				
	036				4AYTXVH3A3654A			
	042					4AYTXVH3A3654A		
	048						4AYTXVH3A3654A	
	060 or 060							4AYTXVH3J6565A
Non Variable Speed Models TWE-P	018P	4AYTXVH3J3131A						
	024P		4AYTXVH3J3131A					
	030P			4AYTXVH3J3131A				
	036P				4AYTXVH3J4040A			
	042P					4AYTXVH3J4040A		
	048P						4AYTXVH3J4949A	
	060P						4AYTXVH3J4949A	4AYTXVH3J6565A
	063P							4AYTXVH3J6565A
2TEC3F and 2TEH3F	18	4AYTXVH3D1831A						
	24		4AYTXVH3D1831A					
	30			4AYTXVH3D1831A				
	36				4AYTXVH3D3642A			
	42					4AYTXVH3D3642A		
	48						4AYTXVHD4863A	
	60							4AYTXVHD4863A
2TGB3F 2TFB3F	18	4AYTXVH3D1830A						
	24		4AYTXVH3D1830A					
	25		4AYTXVH3D1831A					
	30			4AYTXVH3D1831				
	36				4AYTXVH3D3642A			
	42					4AYTXVH3D3343A		
	48						4AYTXVH3D4863A	
2TFE3F	25	4AYTXVH3D1831A	4AYTXVH3D1831A	4AYTXVH3D1831A				

Table 5 references the appropriate TXV device for each capacity range Reference Table 3 for compatible combinations of existing fan coil units and replacement 13 SEER outdoor units.
Unless the system is listed in the AHRI directory, system efficiency ratings are unavailable for retrofitted systems.

Table 6 - TXV / Furnace Coil Unit Matrix								
Furnace Coil Prefix	**Coil Unit**	**4TTA, 4TTB, 4TTR, 4TWA, 4TWB, 4TWR**						
		3018	**3024**	**3030**	**3036**	**3042**	**3048**	**3060**
TXA-C, TXC-C, TXC-D TXH	**018**	4AYTXVH3A1830A						
	024		4AYTXVH3A1830A					
	025	4AYTXVH3A1830A	4AYTXVH3A1830A					
	030			4AYTXVH3A1830A				
	031			4AYTXVH3A1830A				
	033		4AYTXVH3A1830A	4AYTXVH3A1830A	4AYTXVH3A3654A			
	035			4AYTXVH3A1830A	4AYTXVH3A3654A			
	036				4AYTXVH3A3654A			
	037				4AYTXVH3A3654A	4AYTXVH3A3654A		
	041				4AYTXVH3A3654A	4AYTXVH3A3654A		
	042					4AYTXVH3A3654A		
	043					4AYTXVH3A3654A		
	048						4AYTXVH3A3654A	
	049						4AYTXVH3A3654A	
	050						4AYTXVH3A3654A	4AYTXVH3A6060A
	054						4AYTXVH3A3654A	4AYTXVH3A3654A
	060							VAL06930
	061							VAL06930
	063							VAL06930
High Efficiency Models TXC-E, TXC-S	**31**	VAL07360	VAL07360	VAL07360				
	37			VAL06929	VAL06929			
	54					VAL06929	VAL06929	
	65					VAL06930	VAL06930	VAL06930
2TXA* 2TXC* Copper and Aluminum	**018AC**	4AYTXVH3D1831A						
	024*C		4AYTXVH3D1831A					
	025*C		4AYTXVH3D1831A					
	031*C			4AYTXVH3D3343A				
	036*C			4AYTXVH3D3343A	4AYTXVH3D3343A			
	037*C				4AYTXVH3D3343A			
	042*C				4AYTXVH3D3343A	4AYTXVH3D3343A		
	043*C					4AYTXVH3D3343A		
	048*C						4AYTXVH3D4863A	
	049*C						4AYTXVH3D4863A	
	050*C						4AYTXVH3D4863A	
	060*C						4AYTXVH3D4863A	4AYTXVH3D4863A
	061*C						4AYTXVH3D4863A	4AYTXVH3D4863A
2TXC* high efficiency aluminum	**025AS**	4AYTXVH3B2531A	4AYTXVH3B2531A					
	031AS		4AYTXVH3B2531A	4AYTXVH3B2531A				
	037AS			4AYTXVH3B3654A	4AYTXVH3B3654A			
	054AS					4AYTXVH3B3654A	4AYTXVH3B3654A	
	065AS							4AYTXVH3B6165A
2TXFH Copper	**018AS**	4AYTXVH3B2531A	4AYTXVH3B2531A					
	033AS		4AYTXVH3B3343A	4AYTXVH3B3343A	4AYTXVH3B3343A			
	041AS		4AYTXVH3B3343A	4AYTXVH3B3343A	4AYTXVH3B3343A	4AYTXVH3B3343A		
	054AS					4AYTXVH3B3343A	4AYTXVH3B4863A	4AYTXVH3B4863A
	063AS						4AYTXVH3B4863A	4AYTXVH3B4863A

Table 6 provides the appropriate TXV device for each capacity range. Reference Table 4 for compatible combinations of furnace coil units and replacement 13 SEER outdoor units. Unless the system is listed in the AHRI directory, system efficiency ratings are unavailable for retrofitted systems.

Table 7 - Fan Coil HFC-410A TXV to Part Matrix							
Accessory Number	**Service First Kit Number**	**TXV Valve Only Part Number**	**Internally Checked**	**Accessory / Kit Inlet Connection**	**Accessory / Kit Outlet Connection**	**Valve Only Inlet Connection**	**Valve Only Outlet Connection**
4AYTXVH3A1830A	KIT07632	VAL07360	yes	braze	mechanical	braze	braze
4AYTXVH3A3654A	KIT07633	VAL06929	yes	braze	mechanical	braze	braze
4AYTXVH3A6060A	KIT07634	VAL06930	yes	braze	mechanical	braze	braze
4AYTXVH3D1830A	KIT13487	VAL08632	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D1831A	KIT13487	VAL08632	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D3343A	KIT13633	VAL08678	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D3642A	KIT13488	VAL08633	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D4863A	KIT13489	VAL08634	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3J3131A	n/a	VAL08721	no	braze	braze	braze	braze
4AYTXVH3J3737A	n/a	VAL08719	no	braze	braze	braze	braze
4AYTXVH3J4040A	n/a	VAL08719	no	braze	braze	braze	braze
4AYTXVH3J4949A	n/a	VAL09184	no	braze	braze	braze	braze
4AYTXVH3J6565A	n/a	VAL09185	no	braze	braze	braze	braze

Table 8 - Furnace Coil HFC-410A TXV to Part Matrix							
Accessory Number	**Service First Kit Number**	**TXV Valve Only Part Number**	**Internally Checked**	**Accessory / Kit Inlet Connection**	**Accessory / Kit Outlet Connection**	**Valve Only inlet connection**	**Valve Only Outlet connection**
4AYTXVH3A1830A	KIT07632	VAL07360	yes	braze	mechanical	braze	braze
4AYTXVH3A3654A	KIT07633	VAL06929	yes	braze	mechanical	braze	braze
4AYTXVH3A6060A	KIT07634	VAL06930	yes	braze	mechanical	braze	braze
4AYTXVH3B2531A	KIT13595	VAL08320	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3B3654A	KIT13596	VAL08318	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3B6165A	KIT13597	VAL08319	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D1831A	KIT13487	VAL08632	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D3343A	KIT13633	VAL08678	yes	mechanical	mechanical	mechanical	mechanical
4AYTXVH3D4863A	KIT13489	VAL08634	yes	mechanical	mechanical	mechanical	mechanical
n/a	n/a	VAL07360	yes	braze	braze	braze	braze
n/a	n/a	VAL06929	yes	braze	braze	braze	braze
n/a	n/a	VAL06930	yes	braze	braze	braze	braze

V. Reusing existing HCFC-22 outdoor units:

Please reference the following tables to determine if an existing HCFC-22 outdoor unit may be used with a new HFC-410A indoor product. Tables 12, 14 and 16 includes TXV information

Table 9 - Single Speed Cooling Units with R410A Indoor Fan Coil and Furnace Coil Units

Indoor Prefix	Unit	TTA, TTB, TTP, TTR, TTX, TTY, 2TTA, 2TTB, 2TTR, 2TTX							
		012	018	024	030	036	042	048	060
4TEC3F 4TEH3F 4TGB3F 4TFB3F	18	X, TEC / TEH	X						
	24			X					
	25			X					
	30			X	X				
	36				X	X			
	42					X	X		
	48							X	
	55							X	
	60								X
4TEE3D 4TEE3F	31		X	X	X	X			
	37			X	X	X			
	39			X	X	X	X		
	40			X	X	X	X		
	48					X	X	X	
	49					X	X	X	
	64						X	X	X
	65					X	X	X	X
4TEE3C	01	X	X	X	X	X			
	02		X	X	X	X			
	03		X	X	X	X	X		
	04		X	X	X	X	X		
	05			X	X	X	X		
	06				X	X	X	X	X
	07				X	X	X	X	
	08				X	X	X	X	X
	09			X	X	X	X	X	X
	10			X	X	X	X	X	X
4TXA* 4TXC* Copper and Aluminum	018	X	X	X					
	024		X	X	X				
	025			X	X				
	031				X				
	032				X	X			
	036				X	X			
	037					X	X		
	042					X	X		
	043						X		
	048							X	
	049							X	
	050							X	X
	060								X
	061								X
4TXFH Copper	001BS		X	X	X	X			
	002BS			X	X	X	X		
	004BS					X	X	X	X
	018AS	X	X	X					
	033AS		X	X	X				
	041AS			X	X	X	X	X	
	054AS					X	X	X	
	063AS						X	X	X

Outdoor Unit		Table 10- HCFC22 heat pump units with HFC410A fan coil units																									
		4TEE3F-A/B, 4TEE3D-A/B								4TEC3F-A/B, TEH3F-A/B								4TGB3F-A						4TFB3F-A, 4TFE3F-A				
		31	37	39	40	48	49	64	65	18	24	30	36	42	48	55	60	18	25	30	36	42	48	18	24	30	36	25
2TWA0 2TWB0 2TWR1	012									X								X						X				
	018									X								X						X				
	024	X	X								X								X						X			X
	030	X	X									X								X						X		X
	036	X	X										X								X						X	
	042		X	X		X								X								X						
	048					X									X								X						
	060							X									X												
	072																												
2TWA2 2TWB2 2TWR2	018	X								X								X						X				X
	024	X	X							X	X	X							X						X			X
	030A	X	X									X	X							X						X		X
	030B	X	X	X								X	X							X						X		X
	036	X	X	X	X	X		X					X	X							X						X	
	042		X	X										X								X						
	048					X		X							X								X						
	060							X								X	X												
2TWA3 2TWB3 2TWR3	018	X								X								X						X				X
	024	X	X							X	X	X							X						X			X
	030	X	X	X								X	X							X						X		X
	036		X	X	X	X							X	X							X							
	042			X	X	X	X	X						X								X						
	048					X	X	X							X	X							X						
	060							X								X	X												
2TWX4 2TWR4	018A/B	X								X																		X
	024A/B	X	X	X	X					X	X	X								X					X			X
	030A/B	X	X	X	X							X	X							X	X					X		X
	036A/B		X	X	X	X	X							X								X						
	042A/B			X	X	X	X	X						X								X	X					
	048A/B			X	X	X	X	X							X	X							X						
	060A/B							X								X	X												
2TWX5	024A		X	X								X								X								X
	030A			X	X																							
	036A			X	X	X	X							X								X						
	042A			X	X	X	X	X						X		X						X	X					
	048A						X		X						X	X							X					
2TWZ9	030A/B				X		X																					
	036A/B				X		X																					
	048A/B						X		X																			
	060A/B								X																			
2TWZ9	030C				X		X																					
	036C				X		X																					
	048C						X		X																			
	060C								X																			
TWX	018C	X								X																		X
	024C	X	X								X														X			X
	030C	X	X									X														X		X
	036C/D			X	X	X	X							X														
	042C/D			X	X	X	X	X						X														
	048C/D					X	X	X							X													
	060C								X																			
	060d								X							X												

Table 11 - HCFC22 heat pump units with HFC410A tan coil units

Outdoor Unit		4TEE3F-A/B, 4TEE3D-A/B								4TEC3F-A/B, TEH3F-A/B								4TGB3F-A						4TFB3F-A, 4TFE3F-A				
		31	37	39	40	48	49	64	65	18	24	30	36	42	48	55	60	18	25	30	36	42	48	18	24	30	36	25
TWR	012C									X								X						X				
	018C	X								X								X	X					X				
	024C	X	X								X	X							X	X					X			X
	030C	X	X	X								X	X							X	X					X		X
	036C/D	X	X	X									X	X							X	X					X	
	042C			X	X	X								X								X	X					
	048C					X		X							X								X					
	060C							X									X											
	060D							X									X											
TWP	018C	X								X								X	X					X				X
	024C	X	X	X						X	X	X								X					X			X
	030C/D	X	X	X								X	X							X	X					X		X
	036C			X	X	X	X							X								X						
	042C			X	X	X	X	X						X								X	X					
	048C					X	X	X							X	X							X					
	060C-A								X																			
	060C-B								X																			
	060D-A								X																			
TWY	018B	X								X																		X
	024B		X	X	X							X							X									
	030B			X	X																							
	036B				X		X							X														
	042B				X		X	X	X					X									X					
	048B					X	X	X	X						X	X							X					
	060B								X																			
TWZ	036A						X																					
	048A						X		X																			
	060A								X																			

Table 12 - HCFC-22 Two Stage / Two Compressor Compatibility Matrix with TXV

Fan Coil / Indoor Coil	2TTZ9030	2TTZ9036	2TTZ9048	2TTZ9060	2TWZ9030	2TWZ9036	2TWZ9048	2TWZ9060
4TFE3F25	2AYTXVH3D1830A	2AYTXVH3D1830A						
4TEE3C / 4TEE3F31	VAL04471	VAL04471						
4TEE3C / 4TEE3F37	VAL04827	VAL04827						
4TEE3F39	2AYTXVH3D4260A	2AYTXVH3D4260A						
4TEE3C / 4TEE3F40	VAL4827	VAL4827	VAL4827		VAL4827	VAL4827	VAL4827	
4TEE3F48			2AYTXVH3D4260A					
4TEE3C / 4TEE3F49			VAL07747	VAL07747		VAL07747	VAL07747	VAL07747
4TEE3F64			2AYTXVH3D4260A	2AYTXVH3D4260A				
4TEE3C / 4TEE3F65			VAL04416	VAL04416			VAL04416	VAL04416
4TEE3C001 - 010	Not approved for two stage HCFC-22 condensing units or heat pumps							
4TXA / 4TXCB025	2AYTXVH3C2425AA							
4TXA / 4TXCB031	2AYTXVH3C3031AA	2AYTXVH3C3031AA						
4TXA / 4TXCB036	2AYTXVH3C3337AA	2AYTXVH3C3337AA						
4TXA / 4TXCB048	2AYTXVH3C4850AA	2AYTXVH3C4850AA						
4TXA / 4TXCC037	2AYTXVH3C3337AA	2AYTXVH3C3337AA						
4TXA / 4TXCC049	2AYTXVH3C4850AA	2AYTXVH3C4850AA	2AYTXVH3C4850AA	2AYTXVH3C4850AA				
4TXA / 4TXCC054	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA				
4TXA / 4TXCC060		2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA
4TXA / 4TXCD050								
4TXA / 4TXCD061			2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA
4TXA / 4TXCD064			2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA
4TXA / 4TXCD065			2AYTXVH3B6565AA	2AYTXVH3B6565AA	2AYTXVH3B6565AA	2AYTXVH3B6565AA	2AYTXVH3B6565AA	2AYTXVH3B6565AA
4TXFH033	2AYTXVH3C3031AA	2AYTXVH3C3031AA						
4TXFH041	2AYTXVH3C4243AA	2AYTXVH3C4243AA	2AYTXVH3C4243AA					
4TXFH054			2AYTXVH3C5463AA	2AYTXVH3C5463AA				
4TXFH063			2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA	2AYTXVH3C5463AA

Table 12 indicates the fan coil / furnace coil and outdoor unit is compatible if TXV is listed in the cell. Only variable speed indoor units shall be used with the 2TTZ9 / 2TWZ9 series outdoor units.

Table 13 - HCFC-22 TXV To Part Matrix								
Accessory Number	**Service First Kit Number**	**TXV Valve Only Part Number**	**Internally Checked**	**Valve Type**	**Accessory / Kit Inlet Connection**	**Accessory / Kit Outlet Connection**	**Valve Only Inlet Connection**	**Valve Only Outlet Connection**
TAYTXVH0B3C	KIT03966	VAL05102	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVH0C3C	KIT03908	VAL05103	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVH0E3C	KIT03962	VAL05104	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVH0D3C	KIT06514	VAL07111	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVH0G3C	KIT04126	VAL05051	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVH0H3C	KIT04127	VAL05023	Yes	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0B5C	KIT04122	VAL05106	No	Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0C5C	KIT04123	VAL05053	No	Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0E5C	KIT04098	VAL05107	No	Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0G5C	KIT04124	VAL05034	No	Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0H5C	KIT04125	VAL04467	No	Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0B3C	KIT04117	VAL05105	No	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0C3C	KIT04118	VAL04901	No	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0E3C	KIT04119	VAL04468	No	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0G3C	KIT04120	VAL04469	No	Non Bleed	Braze	Mechanical	Braze	Braze
TAYTXVA0H3C	KIT04121	VAL04470	No	Non Bleed	Braze	Mechanical	Braze	Braze
2AYTXVH3C1818AA	KIT13583	VAL08607	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C2425AA	KIT13584	VAL08608	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C3031AA	KIT13585	VAL08609	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C3337AA	KIT13586	VAL08610	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C4243AA	KIT13587	VAL08611	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C4850AA	KIT13588	VAL08612	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3C5463AA	KIT13589	VAL08613	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3B2531AA	KIT13590	VAL08322	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3B3637AA	KIT13591	VAL08323	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3B5454AA	KIT13592	VAL08324	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3B6565AA	KIT13594	VAL08325	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3D1830A	KIT13484	VAL08576	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3D3636A	KIT13485	VAL08579	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3D4260A	KIT13486	VAL08580	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
N/A	N/A	VAL04471	No	Non Bleed	Braze	Braze	Braze	Braze
N/A	N/A	VAL04827	No	Non-Bleed	Braze	Braze	Braze	Braze
2AYTXVH3D4260A	KIT13486	VAL08580	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
2AYTXVH3D4260A	KIT13486	VAL08580	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
N/A	N/A	VAL07747	No	Non-Bleed	Braze	Braze	Braze	Braze
2AYTXVH3D4260A	KIT13486	VAL08580	Yes	Non Bleed	Mechanical	Mechanical	Mechanical	Mechanical
N/A	N/A	VAL04416	No	Non-Bleed	Braze	Braze	Braze	Braze

Table 14 - Single Speed HCFC-22 OD unit TXV Matrix						
OD Unit	Mechanical Coil Connection / brazed liquid line			Braze TXV	Mechanical Connections	
	Heat Pump Non Bleed	Cooling Only Bleed Port	Cooling Only Non Bleed	Heat Pump Compatible	Coil	Fan Coil Unit
1.0 ton single speed	TAYTXVH0B3C	TAYTXVA0B5C	TAYTXVA0B3C	VAL05102	2AYTXVH3C1818A	2AYTXVH3D1830A
1.5 ton single speed	TAYTXVH0B3C	TAYTXVA0B5C	TAYTXVA0B3C	VAL05102	2AYTXVH3C1818A	2AYTXVH3D1830A
2.0 ton single speed	TAYTXVH0C3C	TAYTXVA0C5C	TAYTXVA0C3C	VAL05103	2AYTXVH3C2425A	2AYTXVH3D1830A
2.5 ton single speed	TAYTXVH0C3C	TAYTXVA0C5C	TAYTXVA0C3C	VAL05103	2AYTXVH3C3031A	2AYTXVH3D1830A
3.0 ton single speed	TAYTXVH0E3C	TAYTXVA0E5C	TAYTXVA0E3C	VAL05104	2AYTXVH3C3337A	2AYTXVH3D3636A
3.5 ton single speed	TAYTXVH0E3C	TAYTXVA0E5C	TAYTXVA0E3C	VAL05104	2AYTXVH3C4243A	2AYTXVH3D4260A
4.0 ton single speed	TAYTXVH0G3C	TAYTXVA0G5C	TAYTXVA0G3C	VAL05051	2AYTXVH3C4850A	2AYTXVH3D4260A
5.0 ton single speed	TAYTXVH0H3C	TAYTXVA0H5C	TAYTXVA0H3C	VAL05023	2AYTXVH3C5463A	2AYTXVH3D4260A

Table 15 - Variable Speed Fan Coil TXV Matrix					
Fan Coil Unit	Brazed	Inlet and Outlet Mechanically Connected	Fan Coil Unit	Brazed	Inlet and Outlet Mechanically Connected
RWE, 4TEE3F31	VAL04471	N/A	**4TEE3F48**	N/A	2TAYTXVH3D4260A
RWE, 4TEE3F37	VAL04827	N/A	**RWE, 4TEE3F49**	VAL07747	N/A
4TEE3F39	N/A	2TAYTXVH3D4260A	**4TEE3F64**	N/A	2TAYTXVH3D4260A
RWE, 4TEE3F40	VAL04827	N/A	**RWE, 4TEE3F65**	VAL04416	N/A

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