

TXV REPLACEMENT - PACKAGE UNIT

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01. Information

To replace the Thermal Expansion Valve (TXV) of the unit, it is necessary to first reclaim the R-410A refrigerant from the system before proceeding with the required task. To do this, it is important that refrigerant reclaim procedures to be carried out in accordance with Australia and New Zealand refrigerant handling code of practice. Particularly observe the notes and important information described below to safely replace the affected TXV:

NOTES

- The units covered in this manual have two independent circuits, i.e. Circuit # 1 (small comp) and Circuit # 2 (large comp). Working on one of the circuits will not affect the other.
- When performing TXV replacement process, ensure to correctly identify and work only in the components of the affected Circuit.

CAUTION

- Never allow R-410A refrigerant to vent into the atmosphere. It is an offence to do so here in Australia. Always reclaim refrigerant using equipment and container dedicated for R-410A system use only.
- Only licensed trades personnel must perform any work related to addition or removal of refrigerant.
- R-410A refrigerant has POE oil that rapidly absorbs moisture.
The maximum time any system can be opened to atmosphere is 15 minutes.

02. R-410A Refrigerant Reclaim Procedure

1. Connect gauges as per procedure in fitting of refrigerant gauges.
2. Remove caps off from reclaim fittings.
3. Connect reclaim unit to gauge manifold charging port on inside of unit.
4. Connect container cylinder to reclaim unit outside.
5. Open gauge ports and hose ball valve.
6. Open refrigerant cylinder and start the unit.
7. Observe gauge readings until they hold at zero pressure or below.

NOTE

To keep R-410A bottle cool, place the bottle in a bin of water and replace water as necessary.

8. Switch off the unit and close off cylinder valve, unit valve hose ball valve and manifold valves.
9. Disconnect the manifold hoses.
10. Isolate the power to the unit.

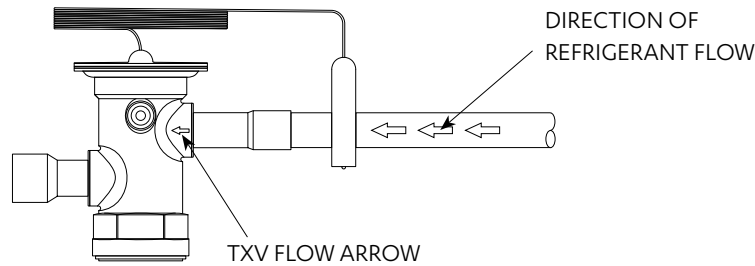
03. Installing The New Thermal Expansion Valve

1. Always replace TXV with the same valve.
Below is the list of thermal expansion valve part number specific to corresponding unit model and circuit:

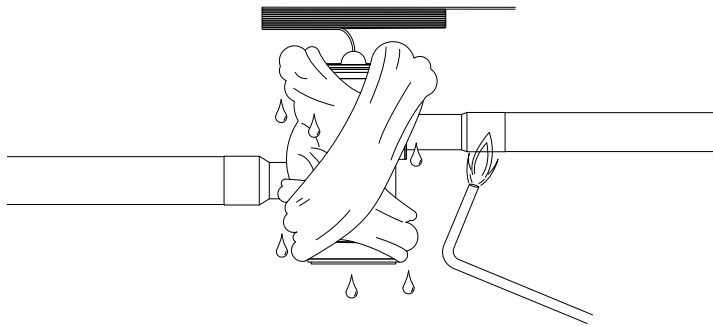
Model	Thermal Expansion Valve (TXV) Part Number	
	Circuit #1 (Small Compressor)	Circuit #2 (Large Compressor)
PKY470T	4570-122	4570-126
PKY500T	4570-123	4570-128
PKY540T	4570-123	4570-128
PKY620T	4570-123	4570-128
PKY700T	4570-126	4570-128

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2. Ensure TXV is installed with its flow arrow to follow the direction of flow of the refrigeration system. As reference, take note of the direction of flow of the old TXV and fit the new one with the same orientation as the old valve.



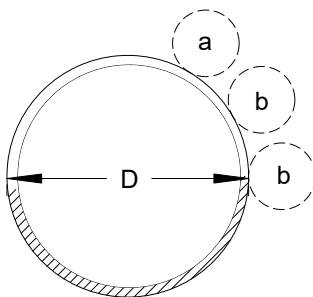
3. Always use wet rags when brazing the valves. They are heat sensitive and can be easily damaged when brazing.



NOTES

- Always face the flame away from TXV when brazing.
- Cool down the expansion valve immediately after brazing.

4. Braze the equalizer tube in the new TXV.
5. When installing the TXV bulb sensor, ensure to clean the surface of the suction line where the previous one was installed.
6. Make sure that the location of new bulb sensor will be in the exact location as the old bulb sensor. As a reference, location of sensor bulb will be as follows:

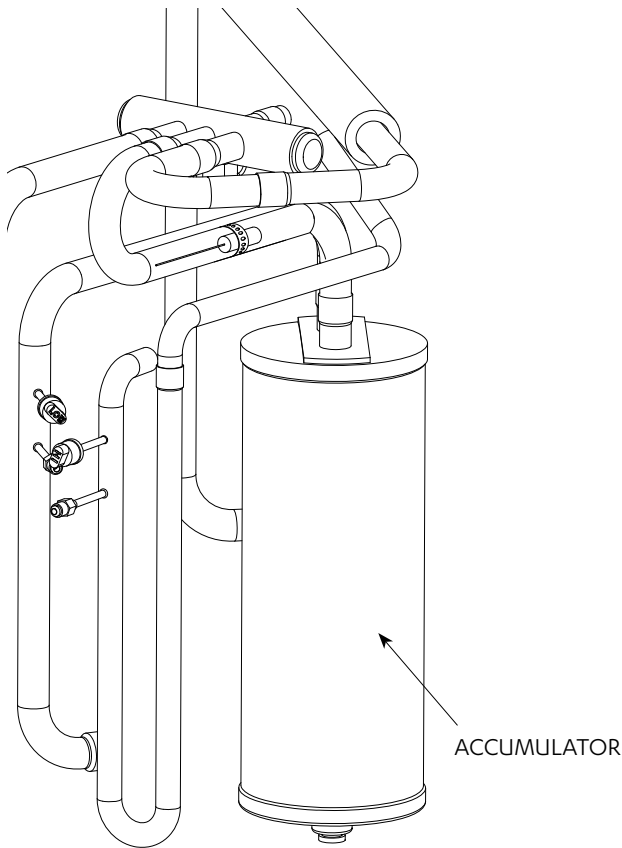


Item	Suction Pipe Outside Diameter (D)	Bulb Location
a	1/2" to 5/8"	1 o'clock
b	3/4" to 1-1/4"	2-3 o'clock

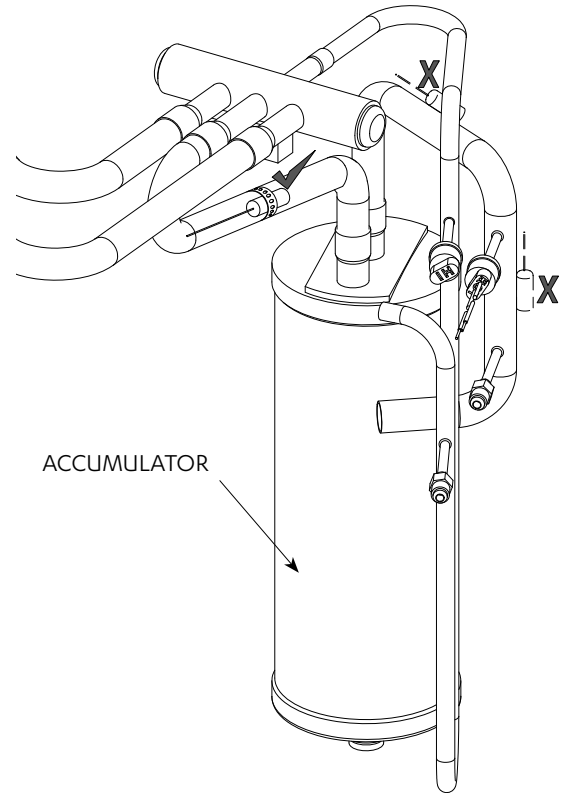
7. Form the strap to shape and radius of the valve.
8. Leaving the bulb in formed strap, wrap the remaining end of the strap around the suction line.
9. Insert the end of the strap through the fastening clip (make sure the fastening screw is almost fully backed off), pull tight then bend over the clip.

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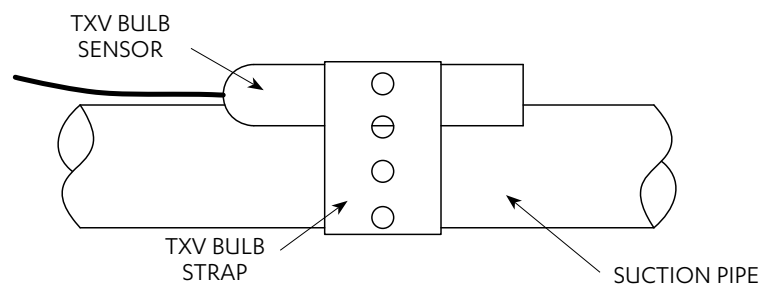
10. Securely tighten bolt ensuring the correct positioning as the previous one installed or as per above table in item 6.



BIG COMPRESSOR PIPING



SMALL COMPRESSOR PIPING



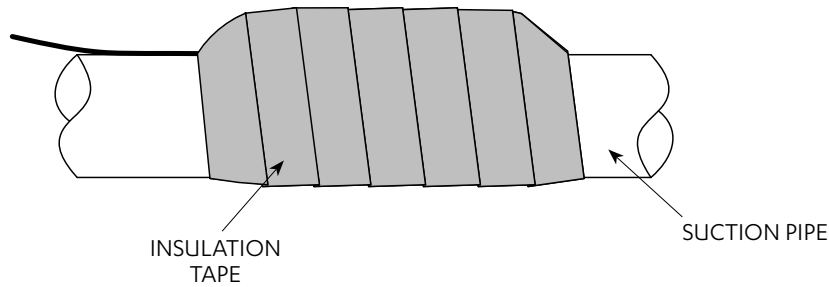
DETAIL A

NOTES

- Make sure that the total length of the bulb is in good contact with suction line pipe.
- Check that equal lengths of the bulb are protruding from each side of the strap.
- Securely fastened bulb unto suction line.
- Always install bulb on the horizontal part of the suction line where the previous one was installed.

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11. Wrap the whole bulb sensor area with insulation tape. See figure below.



12. Adjust TXV spindle to match ActronAir default settings.

Model	TXV Location	Adjustment Settings	Direction
PKY470T	Large Compressor	Open 2 turns.	↻ 2
	Small Compressor	none	---
PKY500T	Large Compressor	Close 3 turns.	↻ 3
	Small Compressor	Close 3-1/2 turns.	↻ 3 1/2
PKY540T	Large Compressor	Open 2 turns.	↻ 2
	Small Compressor	Open 2 turns.	↻ 2
PKY620T	Large Compressor	Open 2 turns.	↻ 2
	Small Compressor	Open 2 turns.	↻ 2
PKY700T	Large Compressor	Open 2-1/2 turns.	↻ 2 1/2
	Small Compressor	Open 2 turns.	↻ 2

04. Recharging the System / Operation Preparation for Unit Start-Up

1. Start evacuation process as per ActronAir evacuation procedure.
2. Re-connect gauges and the cylinder of reclaimed R410a refrigerant as per refrigerant reclaim procedures above.
3. Recharge the system as per Refrigerant Charging procedures in the Installation and Commissioning Guide.

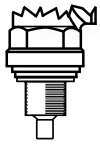
NOTE

A fresh R-410A refrigerant may be required as a replacement, particularly where there is contamination in the old reclaimed refrigerant.

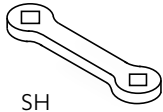
4. Switch back on the power to the unit.
5. Operate the system and check for system subcooling and superheat. If necessary, add refrigerant charge as per procedure detailed in the Refrigerant Charging section of the Installation and Commissioning Guide.

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TXV Supplier Default Setting and Specifications



$\varnothing = 19\text{mm (3/4")}$
 $T = 10\text{Nm (7 ft-lbf)}$



Superheat Adjustment Parameter



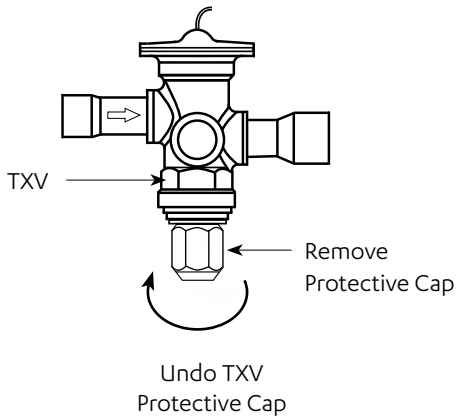
Change in Superheat per 360° $\approx 2^{\circ}\text{C}$

TXV Supplier Default Superheat Setting (SS):

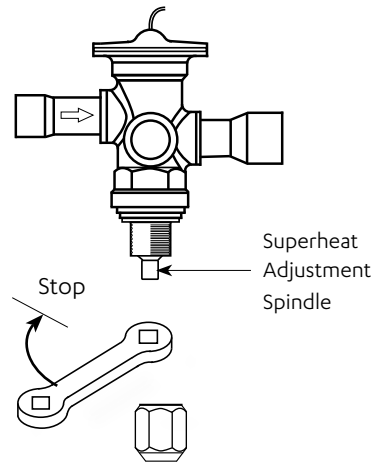
TGE 10 (2 Full Turns*): SS = 4K (-13.8°C)

TR 6 (3 1/3 Turns*): SS = 2K (-15.8°C)

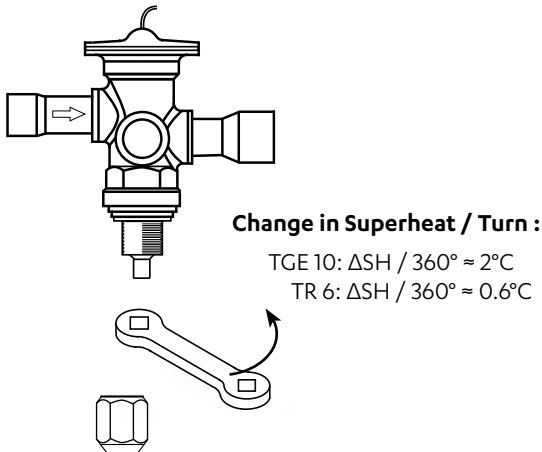
* No. of Turns required from spring stop point



1. Remove Protective Cap from the TXV Valve Body.



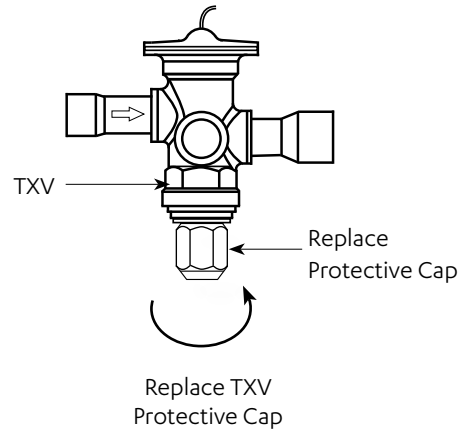
2. Turn Superheat Adjustment Spindle until it reach the stop point, as shown above.



Change in Superheat / Turn :

TGE 10: $\Delta\text{SH} / 360^{\circ} \approx 2^{\circ}\text{C}$
 TR 6: $\Delta\text{SH} / 360^{\circ} \approx 0.6^{\circ}\text{C}$

3. To get into TXV supplier default setting, turn Superheat Adjustment Spindle in the direction as shown. Refer to TXV specifications above for the number of turns required for particular TXV model.



4. Replace TXV Protective Cap onto Valve Body.

NOTES

Using the above set point as reference, further adjust the TXV as per instructions in the TXV Replacement section of this manual in order to finally set the TXV into ActronAir default settings.