TRUST
Air Conditioners

TROPICAL ROOFTOP PACKAGE C & D SERIES

TRUST AIR CONDITIONING EQUIPMENT CO.
Prepared By: Engineering & R & D Department.

Shiraz- May 2017

Content

توجه:

شرکت تراست حق تغییر مشخصات دستگاه ها را در جهت بهبود و ارتقای کیفیت برای خود محفوظ می دارد.

2016

9. Safety control

Functions

- ✧ Minutes delay for the compressor start-up:

  At the beginning of energizing, 3-minutes delay should be taken to start the compressor. While after the stop of the compressor, 7-minutes delay should be taken to restart the compressor.

- ✧ Compressor discharge temperature protection:

  When the temperature of compressor discharge is higher than 125°C (257°F), the compressor will stop. Once the temperature is lower than 90°C (194°F), the compressor can be started again.

- ✧ Reverse phase protection relay:

  The reverse phase protection relay will make the unit not start, when the power supply source is in correctly conneted.

  The checking of phase order is just carried out at the first time of electrifying. If malfunction happens then the checking will be going on until the order of phase is right, and the error code will be displayed on the board. If there is no problem in the first checking, then it will be omitted.

- ✧ High pressure and low pressure protection :

  When high pressure is equal or higher than 638 Psi, and lower pressure is equal or lower than 21Psi, the unit will stop.

Error & protection code

✧ **TMC14T3/1T4A00NO0C , TMC18T3/1T4A00NO0C, TMC30T3/1T4A00NO0C, TMC35T3/1T4A00NO0C, TMC44T3/1T4A00NO0C , TMC53T3/1T4A00NO0C , TMC62T3/1T4A00NO0C , TMC70T3/1T4A00NO0C , TMC88T3/1T4A00NO0C , TMC105T3/1T4A00NO0C ,**

Type	Content	Code	Remarks
Normal	Standby	------	
Normal	Constraint cool	ON	
Normal	Run	10.	
Error	Compressor phase sequence error or phase lack	E0	
Error	Condenser pipe temperature sensor (T3) in system A error	E1	
Error	Condenser pipe temperature sensor (T3) in system B error	E2	
Error	Over current protection of system A's compressor is active 3 times within 1 hour	E3	Unit shall be power-off to recovery
Error	Over current protection of system B's compressor is active 3 times within 1 hour	E4	Unit shall be power-off to recovery
Error	Evaporator pipe temperature sensor (T2) in system A error	E5	
Error	Evaporator pipe temperature sensor (T2) in system B error	E6	
Error	High & low pressure protection, or high discharge temperature protection of system A reached 3 times within 1 hour.	E7	
Error	High & low pressure protection, or high discharge temperature protection of system B reached 3 times within 1 hour.	E8	
Error	Indoor side room temperature sensor (T1) error	E9	
Error	Ambient temperature sensor (T4) error	EA	
Error	Wired controller communication error	Eb	
Error	Eeprom error	EE	
Protection	Over-current protection of compressor in system A	P0	
Protection	Over-current protection of compressor in system B	P1	
Protection	Over-current protection of indoor side fan motor	P2	

Continued :

Type	Content	Code	Remarks
Protection	Comprehensive protection of outdoor side fan motor	P3	
Protection	Protection of high/low pressure or high temperarture protection of discharge sensor in system A	P4	Comprehensive protection of system A
Protection	Protection of high/low pressure or high temperarture protection of discharge sensor in system B	P5	Comprehensive protection of system B
Protection	High temperature protection of condenser in system A	P8	Power off to recovery.
Protection	High temperature protection of condenser in system B	P9	Power off to recovery.
Protection	Anti-freezing protection of evaporator in system A	Pc	
Protection	Anti-freezing protection of evaporator in system B	Pd	
Protection	Protection of outdoor ambient temperature	PA	

Notes: If same protection which includes all system for 2-stage products is triggered 3 times within 1 hour, the unit should be power-off to recovery.

✧ **TMC22T3/1T4A00NO0C , TMC26T3/1T4A00NO0C**

✧ **TMC30T3/1T4A00NO0D , TMC35T3/1T4A00NO0D**

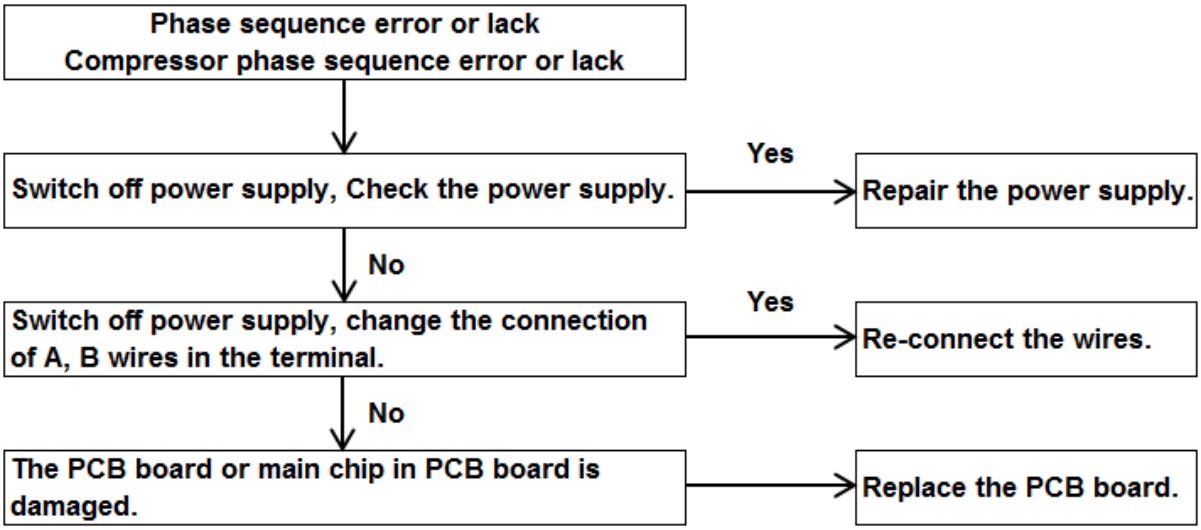
Content	LED1	LED2	LED3
	(Red)	(Yellow)	(Green)
Standby	OFF	OFF	ON
Normal operation	ON	ON	ON
Phase sequence error or phase lack	FLASH	FLASH	FLASH
Indoor side room temperature (T1) error, or high pressure protection, or high temperature protection of discharge sensor	FLASH	FLASH	OFF
Evaporator pipe temperature sensor (T2) error	FLASH	OFF	FLASH
Condenser pipe temperature sensor (T3) error	OFF	FLASH	FLASH
Ambient temperature sensor (T4) error	ON	FLASH	FLASH
Over-current protection of compressor	OFF	OFF	FLASH
Low temperature protection of evaporator	OFF	FLASH	OFF

Continued:

Content	LED1	LED2	LED3
	(Red)	(Yellow)	(Green)
Low temperature protection of evaporator	OFF	FLASH	OFF
High temperature protection of condenser	FLASH	OFF	OFF
Wired controller communication error	FLASH	FLASH	ON
Low pressure protection	FLASH	ON	FLASH

Phase sequence error or phase default:

Compressor sequence error or phase default:

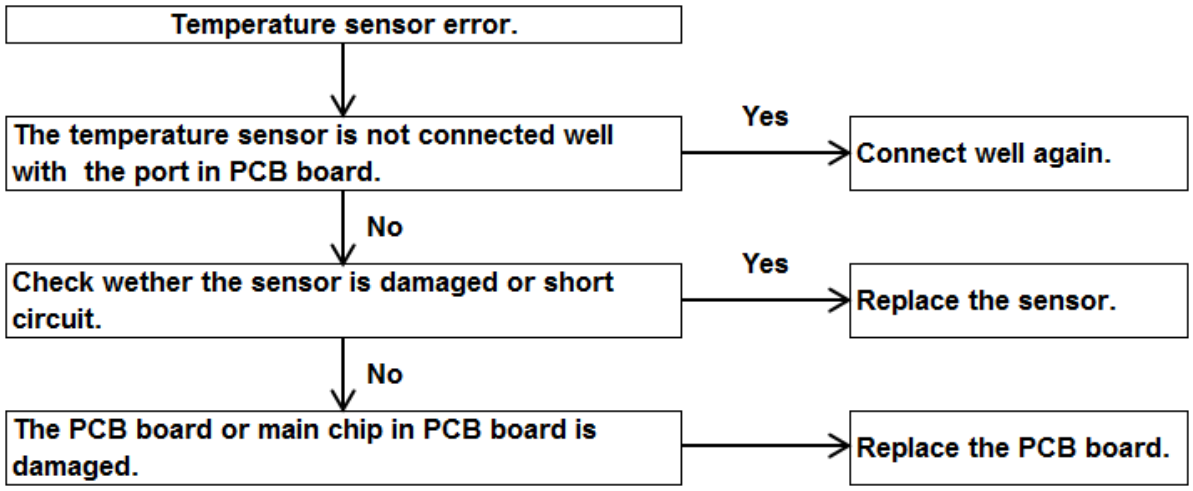


Evaporator pipe temperature sensor (T2) error:

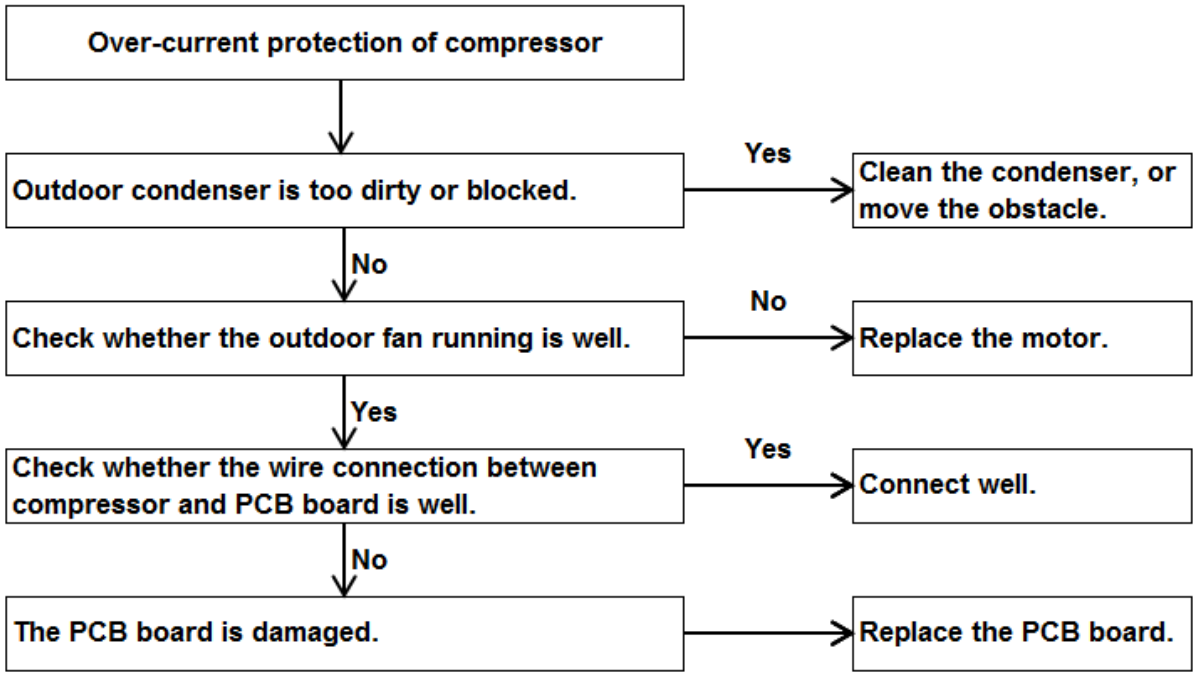
Condenser pipe temperature sensor (T3) error :

Ambient temperature sensor (T4) error:

Indoor side room temperature sensor (T1) error :

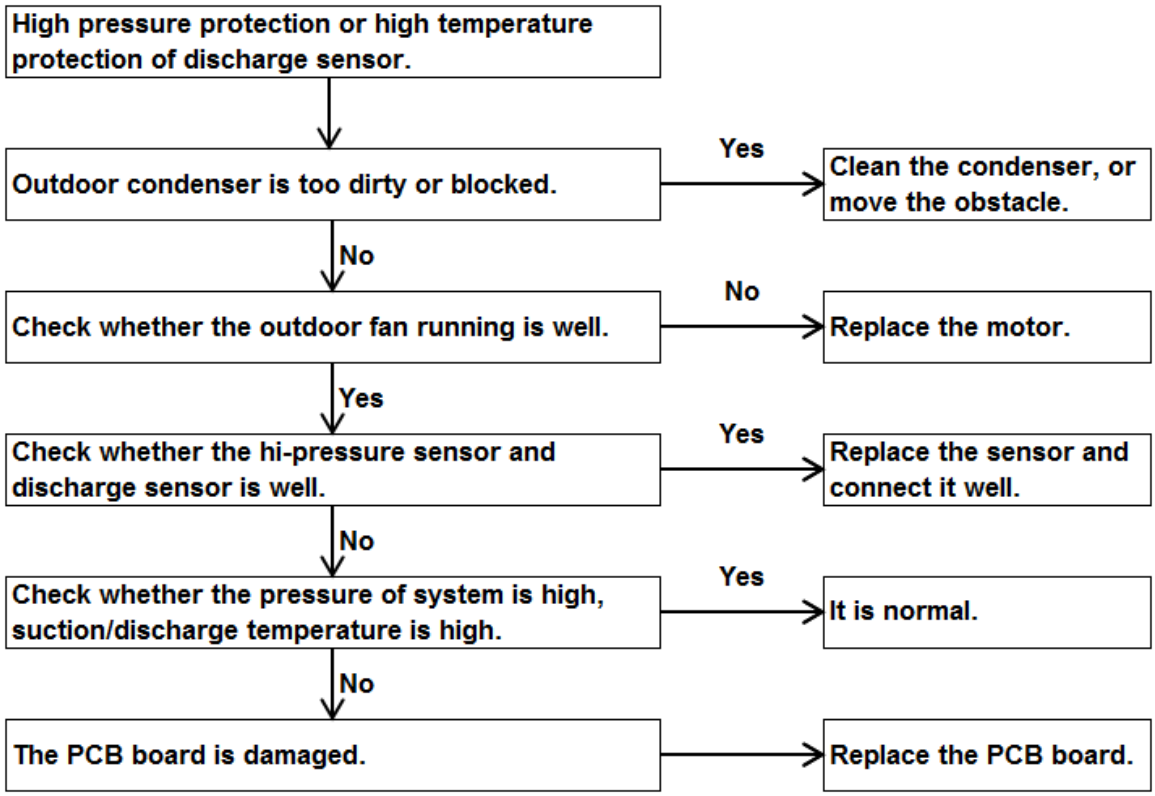


Over-current protection of compressor:

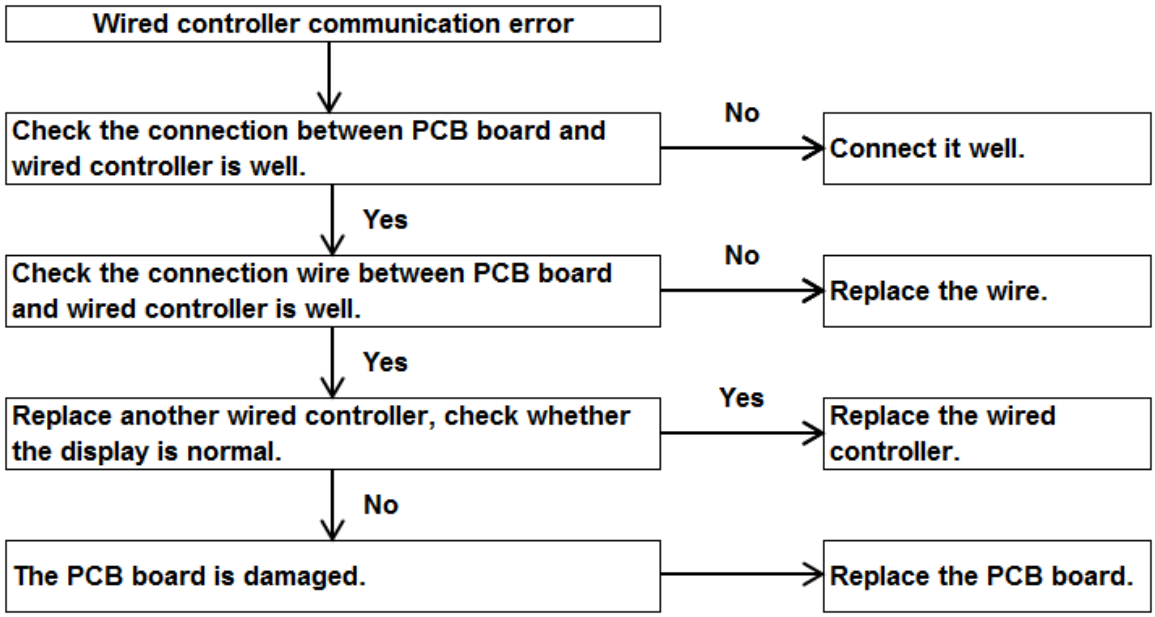


High pressure protection:

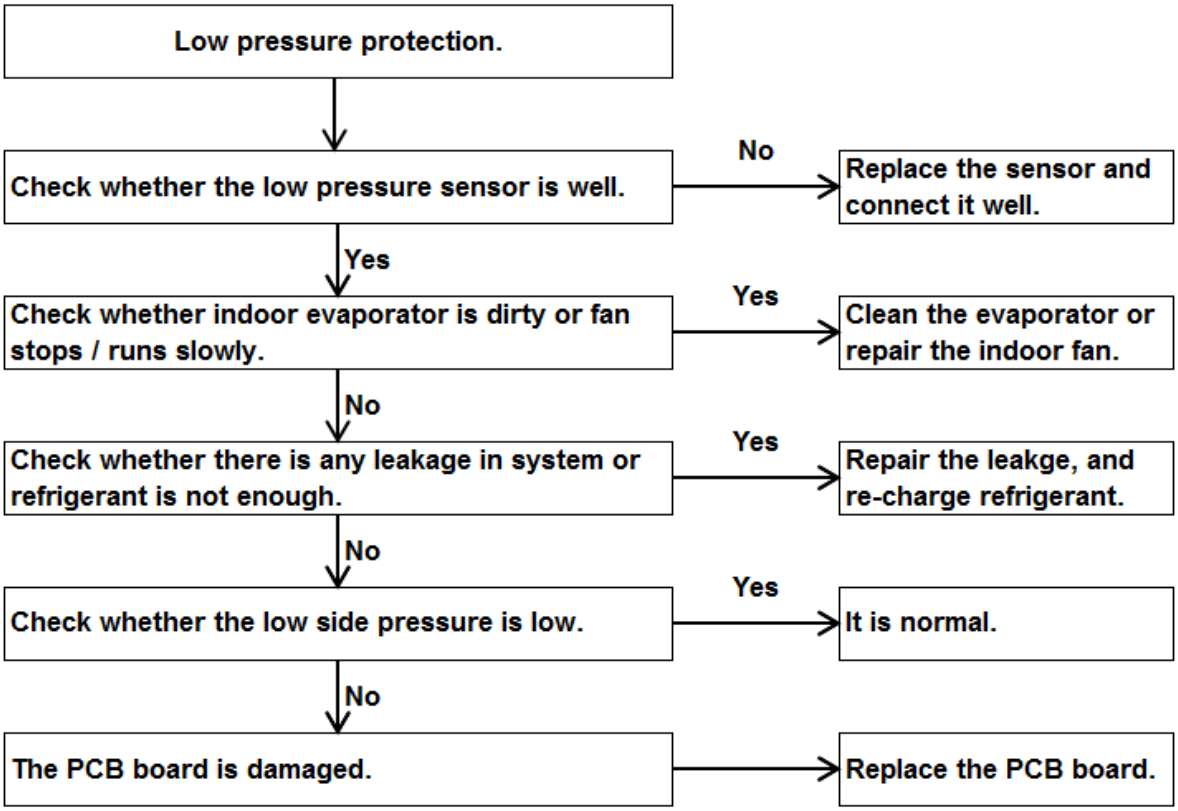
High discharge temperature protection :



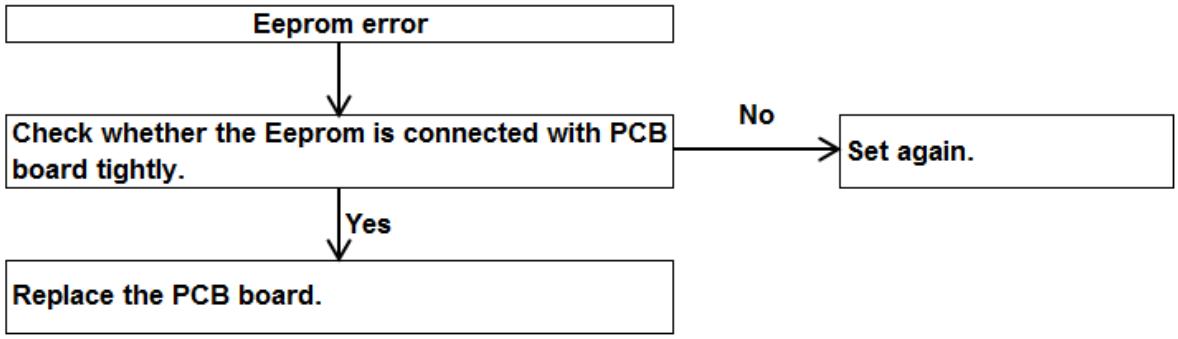
Wired controller communication error :



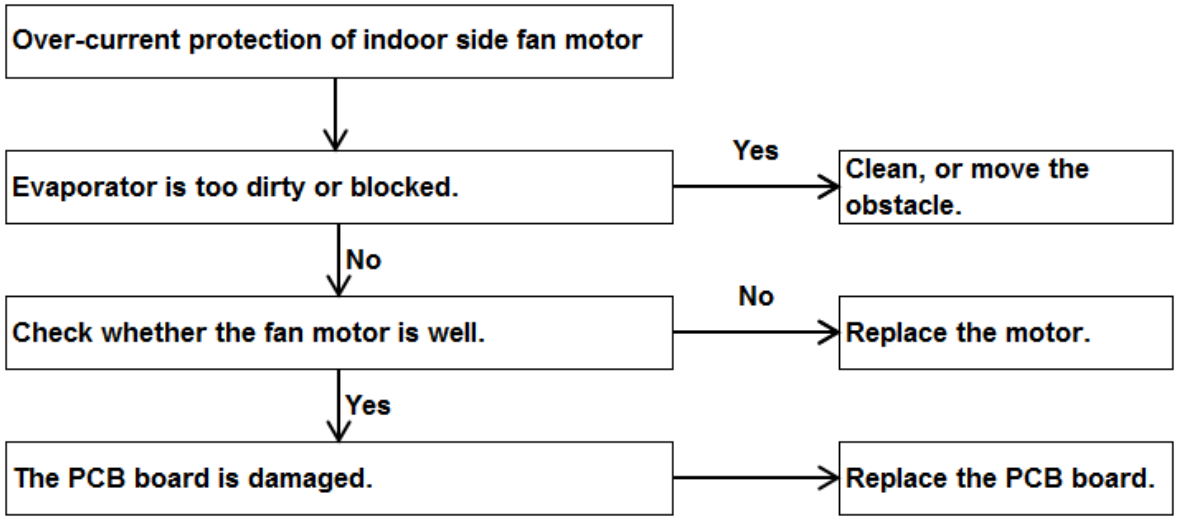
Low pressure protection :



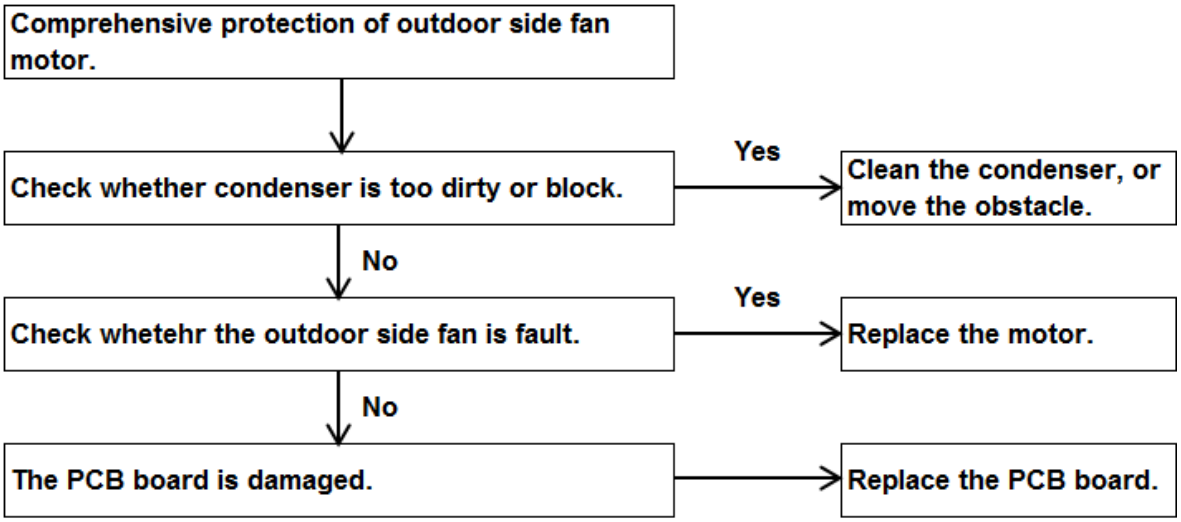
Eeprom error :



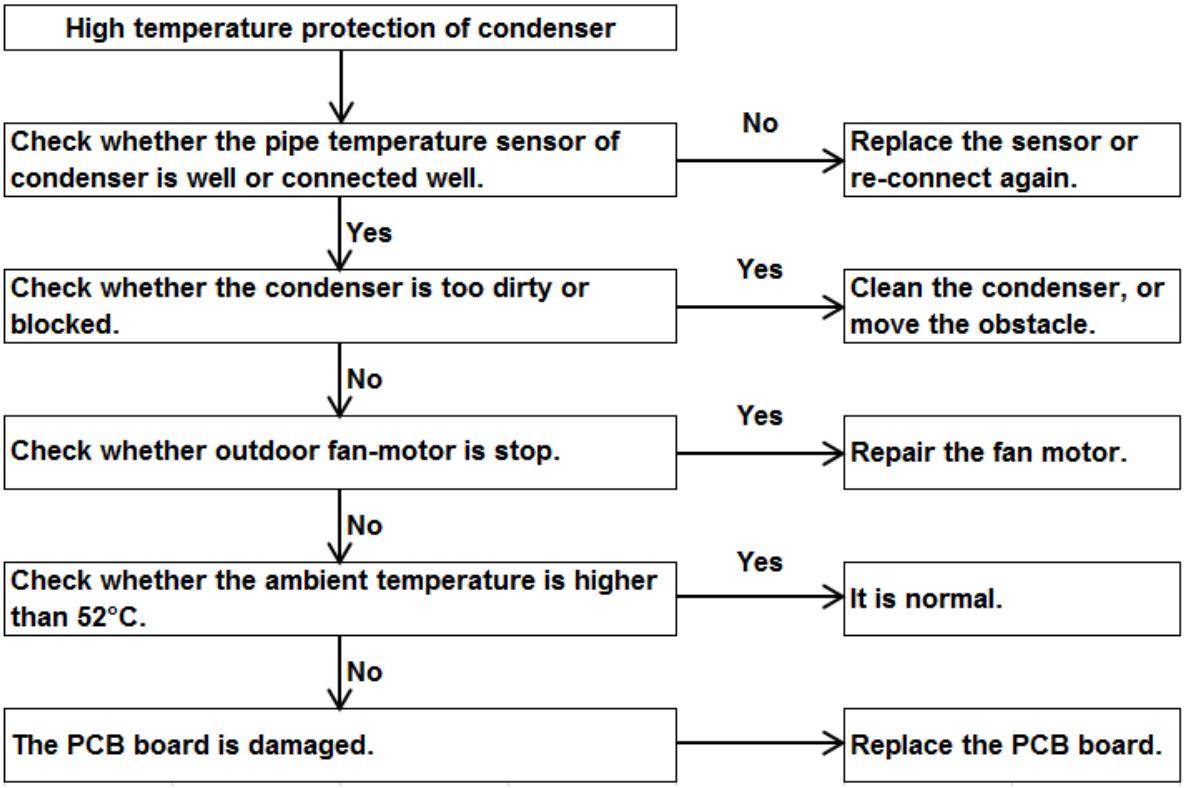
Over-current protection of indoor side fan motor :



Comprehensive protection of outdoor side fan motor :

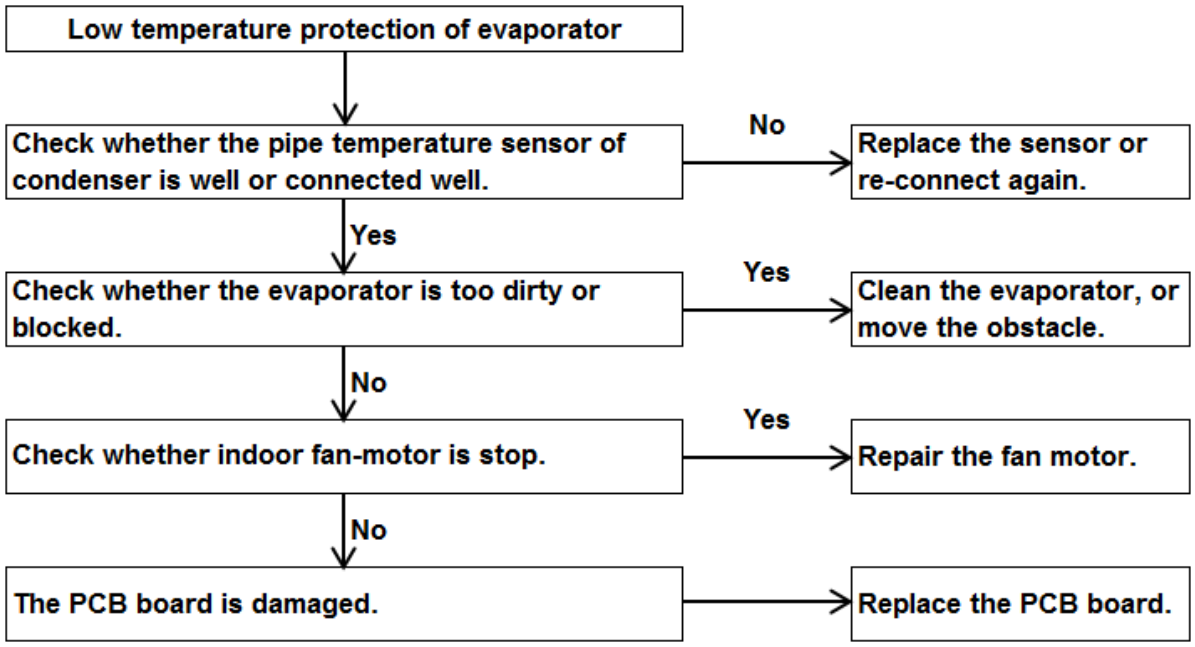


High temperature protection of condenser :

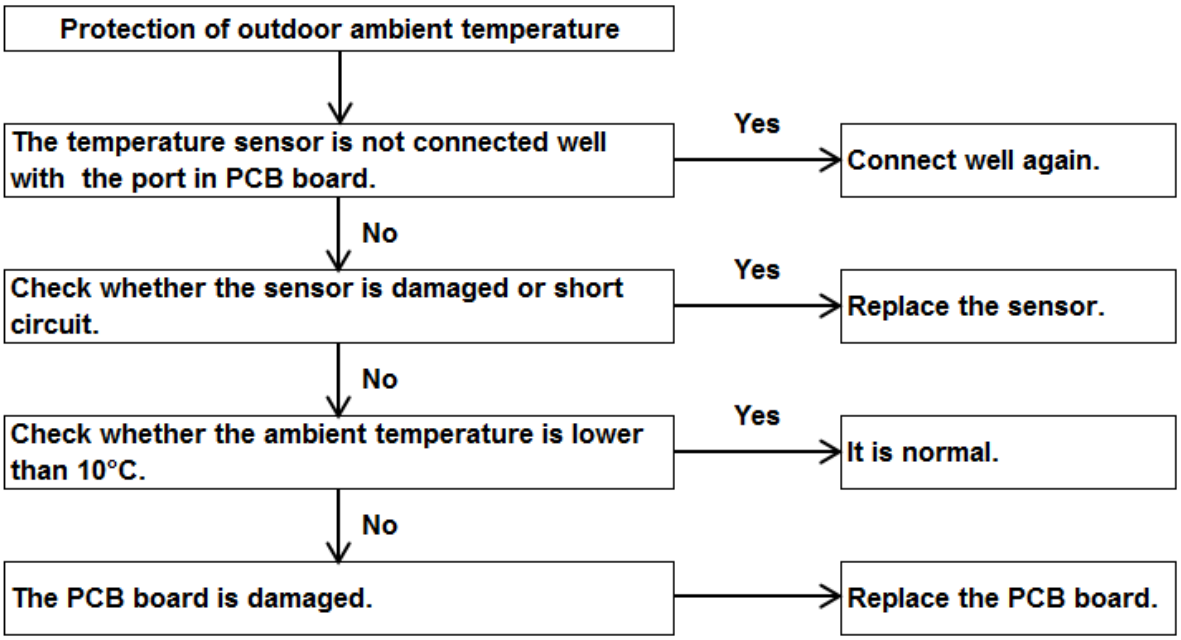


Low temperature protection of evaporator:

Anti-freezing protection of evaporator :



Protection of outdoor ambient temperature :



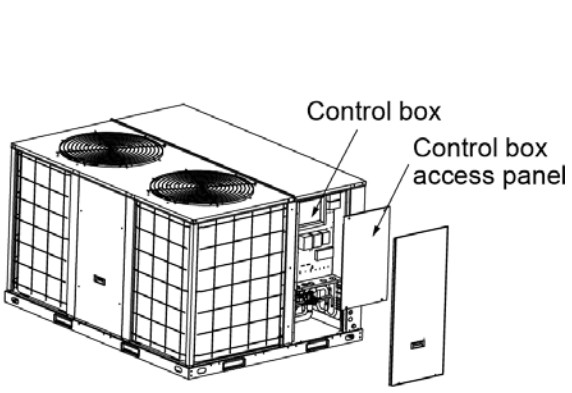
10. Maintenance

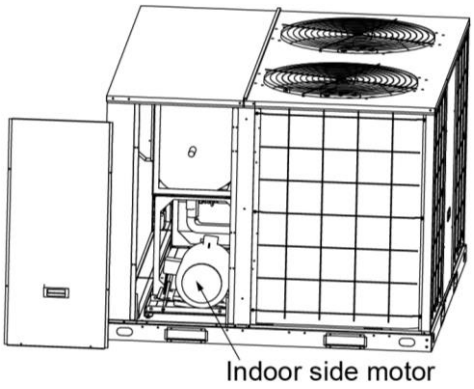
Caution

- ✧ Do not operate the unit without the evaporator fan access panel in place. Reinstall the access panel after performing any maintenance. Operating the unit without the access panel may result in severe personal injury.
- ✧ Disconnect the power supply before cleaning and maintenance.

Regular maintenance

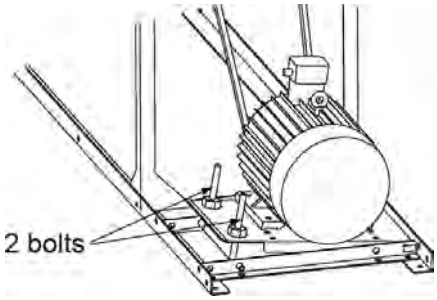
Some regular maintenance has been carry on by user. It includes: change the one-time dust filter, clean casing, wash condenser and replace a new belt, as well as do some test for the equipment.





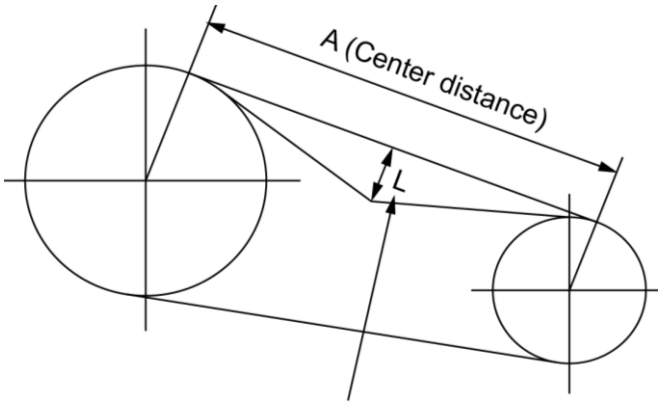
Regulating belt of tension

Refer to the following figure, loose 2 bolts, and move the electric motor to adjust belt tension. These two bolts are used for precision adjustment.



Belt tension is measured by belt tension indicator

✧ Calculate the deflection, deflection (L) = A/64.



Belt tension indicator applied to middle center distance

Notes: L=A/64

Model	A (mm)
TMC30T3/1T4A00NO0C	380
TMC30T3/1T4A00NO0D	380
TMC35T3/1T4A00NO0C	380
TMC35T3/1T4A00NO0D	380
TMC44T3/1T4A00NO0C	560
TMC53T3/1T4A00NO0C	560
TMC62T3/1T4A00NO0C	580
TMC70T3/1T4A00NO0C	580
TMC88T3/1T4A00NO0C	480
TMC105T3/1T4A00NO0C	480

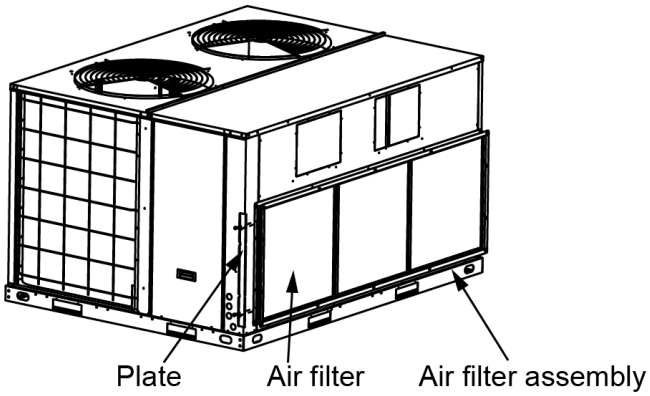
- ✧ Measure the belt deflection force, the force should be between the values shown in the following lists.
- ✧ The belt which is too tight or too loose may generate noise and be harmful to the unit.

Belt section	For required to deflection		
	Small pulley diameter	Newton	Kilogram-force
SPA	80mm~132mm	25N~35N	2.5kg.f~3.6kg.f

Air intake filter clean (The filter should be customized).

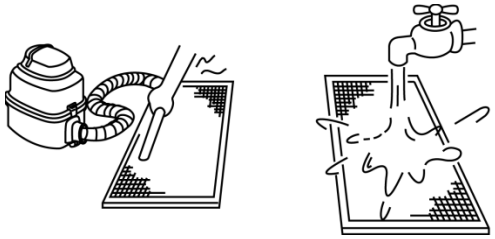
Step 1: Dismantle the air filter.

- ✧ Twist of screws and get out the plate.
- ✧ Pull out the filter along the supporting slot.



Step 2: Clean the air filter.

- ✧ Vacuum cleaner or fresh water may be used to clean the air filter. If the dust accumulated too much, please use soft brush and mild detergent to clean.
- ✧ The air-in side should face up when using vacuum cleaner.
- ✧ The air-in side should face down when using water.



- ✧ After cleaning, please dry out in cool place. Do not dry out the air filter under direct sunshine or heat.

Step 3: Re-install the air filter.

Condenser coil

Unfiltered air circulates through the unit's condenser coil can cause the coil's surface to become clogged with dust. Clean the coil, vertically (i.e., with the fins), and stroke the coil surface with a soft brush. Be sure to keep all vegetation away from the condenser coil area.

Periodic maintenance

To keep the unit operating safety and efficiently, the entire system should be checked at least once each year. The examining the areas include:

- ✓ Filter;
- ✓ Motors and drive system components;
- ✓ Economizer gaskets (Reserved);
- ✓ Safety controls;
- ✓ Electrical components and wiring (For possible replacement and connection tightness);
- ✓ Condenser drainage (For cleaning);
- ✓ Unit duct connections (To check that they are physically sound and sealed to the unit casing);
- ✓ Unit mounting support (For structural integrity);
- ✓ The unit (For obvious unit deterioration).