TOSHIBA

A17-1401

TROUBLESHOOTING GUIDE

PART 1

DIGITAL INVERTER (DI)
SUPER DIGITAL INVERTER (SDI)

PART 2

MiNi-Super Modular Multi (MiNi-SMMS)
Super Modular Multi (SMMS)
Super Heat Recovery Multi (SHRM)
Super Modular Multi-i (SMMS-i)
Super Heat Recovery Multi-i (SHRM-i)

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PART 1

DIGITAL INVERTER (DI)

SUPER DIGITAL INVERTER (SDI)

Indoor Unit

Outdoor Unit(DI), (SDI)

1.5 to 2HP **3.0 to 10HP**

Example

SM	SM40	SM45	SM56	SM80	SM110	SM140	SM160	SM240	SM280
HP	1.5HP	1.75HP	2.0HP	3.0HP	4.0HP	5.0HP	6.0HP	8.0HP	10HP

Summary of Troubleshooting

<Wired remote controller type>

1. Before troubleshooting

1) Required tools/instruments
   - ⊕ and ⊖ screwdrivers, spanners, radio cutting pliers, nippers, push pins for reset switch
   - Tester, thermometer, pressure gauge, etc.
2) Confirmation points before check
   a) The following operations are normal.
      1. Compressor does not operate.
         - Is not 3-minutes delay (3 minutes after compressor OFF)?
         - Is not the outdoor unit in standby status though the remote controller reached the setup temperature?
         - Does not timer operate during fan operation?
         - Is not an overflow error detected on the indoor unit?
         - Is not outside high-temperature operation controlled in heating operation?
      2. Indoor fan does not rotate.
         - Does not cool air discharge preventive control work in heating operation?
      3. Outdoor fan does not rotate or air volume changes.
         - Does not high-temperature release operation control work in heating operation?
         - Does not outside low-temperature operation control work in cooling operation?
         - Is not defrost operation performed?
      4. ON/OFF operation cannot be performed from remote controller.
         - Is not the control operation performed from outside/remote side?
         - Is not automatic address being set up?
           (When the power is turned on at the first time or when indoor unit address setting is changed, the operation cannot be performed for maximum approx. 5 minutes after power-ON.)
         - Is not being carried out a test run by operation of the outdoor controller?
   b) Did you return the cabling to the initial positions?
   c) Are connecting cables of indoor unit and remote controller correct?

2. Troubleshooting procedure

When a trouble occurred, check the parts along with the following procedure.

Trouble → **Confirmation of check code display** → **Check defective position and parts.**

NOTE

For cause of a trouble, power conditions or malfunction/erroneous diagnosis of microcomputer due to outer noise is considered except the items to be checked.

If there is any noise source, change the cables of the remote controller to shield cables.

<Wireless remote controller type>

1. Before troubleshooting

1) Required tools/instruments
   - ⊕ and ⊖ screwdrivers, spanners, radio cutting pliers, nippers, etc.
   - Tester, thermometer, pressure gauge, etc.
2) Confirmation points before check
   a) The following operations are normal.
      1. Compressor does not operate.
         - Is not 3-minutes delay (3 minutes after compressor OFF)?
         - Is not the outdoor unit in standby status though the remote controller reached the setup temperature?
         - Does not timer operate during fan operation?
         - Is not an overflow error detected on the indoor unit?
         - Is not outside high-temperature operation controlled in heating operation?
      2. Indoor fan does not rotate.
         - Does not cool air discharge preventive control work in heating operation?
3) Outdoor fan does not rotate or air volume changes.
   - Does not high-temperature release operation control work in heating operation?
   - Does not outside low-temperature operation control work in cooling operation?
   - Is not defrost operation performed?
4) ON/OFF operation cannot be performed from remote controller.
   - Is not forced operation performed?
   - Is not the control operation performed from outside/remote side?
   - Is not automatic address being set up?
   - Is not being carried out a test run by operation of the outdoor controller?

   a) Did you return the cabling to the initial positions?

   b) Are connecting cables between indoor unit and receiving unit correct?

2. Troubleshooting procedure

(When the power is turned on at the first time or when indoor unit address setting is changed, the operation cannot be performed for maximum approx. 5 minutes after power-ON.)

When a trouble occurred, check the parts along with the following procedure.

Trouble → **Confirmation of lamp display** → **Check defective position and parts.**

1) Outline of judgment

The primary judgment to check where a trouble occurred in indoor unit or outdoor unit is performed with the following method.

Method to judge the erroneous position by flashing indication on the display part of indoor unit (sensors of the receiving unit)

The indoor unit monitors operating status of the air conditioner, and the blocked contents of self-diagnosis are displayed restricted to the following cases if a protective circuit works.

Outline of judgment

The primary judgment to check whether a trouble occurred in the indoor unit or outdoor unit is carried out with the following method.

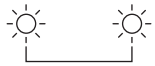
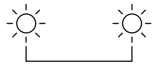
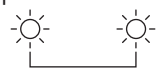
Method to judge the erroneous position by flashing indication on the display part of the indoor unit (sensors of the receiving part)

The indoor unit monitors the operating status of the air conditioner, and the blocked contents of self-diagnosis are displayed restricted to the following cases if a protective circuit works.

● : Go off, ○ : Go on, ☼ : Flash (0.5 sec.)

Lamp indication	Check code	Cause of trouble occurrence
Operation ● Timer ● Ready ● No indication at all	—	Power supply OFF or miswiring between receiving unit and indoor unit
Operation ☼ Flash Timer ● Ready ●	E01	Receiving error / Sending error } Receiving unit / Communication stop } Miswiring or wire connection error between receiving unit and indoor unit
	E02	
	E03	
	E08	Duplicated indoor unit No. / Duplicated master units of remote controller } Setup error
	E09	
	E10	Communication error between CPUs on indoor unit P.C. board
	E18	Wire connection error between indoor units, Indoor power OFF (Communication stop between indoor master and follower or between main and sub indoor twin)
Operation ● Timer ● Ready ☼ Flash	E04	Miswiring between indoor unit and outdoor unit or connection erorr (Communication stop between indoor and outdoor units)
Operation ● Timer ☼ Ready ☼ Alternate flash	P10	Overflow was detected. / Indoor DC fan error } Protective device of indoor unit worked.
	P12	
Operation ☼ Alternate flash Timer ● Ready ☼ Alternate flash	P03	Outdoor unit discharge temp. error / Outdoor high pressure system error } Protective device of outdoor unit worked. ∗1
	P04	
	P05	Negative phase detection error / Heat sink overheat error / Gas leak detection error } Outdoor unit error
	P07	
	P15	
	P19	4-way valve system error (Indoor or outdoor unit judged.)
	P20	Outdoor unit high pressure protection
	P22	Outdoor unit: Outdoor unit error / Outdoor unit: Inverter Idc operation / Outdoor unit: Position detection error } Protective device of outdoor unit worked. ∗1
	P26	
	P29	
	P31	Stopped because of error of other indoor unit in a group (Check codes of E03/L03/L07/L08)

∗1: These are representative examples and the check code differs according to the outdoor unit to be combined.

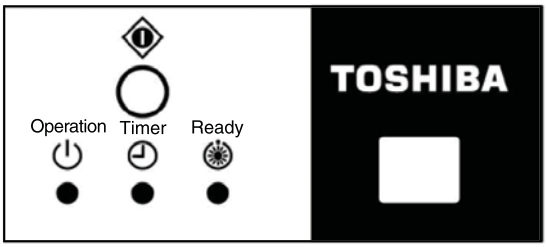
Lamp indication	Check code	Cause of trouble occurrence
Operation Timer Ready  Alternate flash	F01 F02 P10	Heat exchanger sensor (TCJ) error Heat exchanger sensor (TC) error Heat exchanger sensor (TA) error } Indoor unit sensor error
Operation Timer Ready  Alternate flash	F04 F06 F07 F08 F12 F13 F15	Discharge temp. sensor (TD) error Temp. sensor (TE) error Temp. sensor (TL) error Temp. sensor (TO) error Temp. sensor (TS) error Temp. sensor (TH) error Temp. Sensor miswiring (TE, TS) } Sensor error of outdoor unit ∗1
Operation Timer Ready Simultaneous flash	F29	Indoor EEPROM error
Operation Timer Ready  Simultaneous flash	F31	Outdoor EEPROM error
Operation Timer Ready  Flash	H01 H02 H03 H04 H06	Compressor break down Compressor lock Current detection circuit error Case thermostat worked. } Outdoor compressor system error ∗1 Outdoor unit low pressure system error
Operation Timer Ready  Simultaneous flash	L03 L07 L08 L09	Duplicated master indoor units There is indoor unit of group connection in individual indoor unit. } → AUTO address Unsetting of group address Missed setting (Unset indoor capacity) * If group construction and address are not normal when power supply turned on, automatically goes to address setup mode.
Operation Timer Ready  Simultaneous flash	L10 L20 L29 L30 L31	Unset model type (Service board) Duplicated indoor central addresses Outdoor unit and other error Outside interlock error Negative phase error } Others

∗1: These are representative examples and the check code differs according to the outdoor unit to be combined.

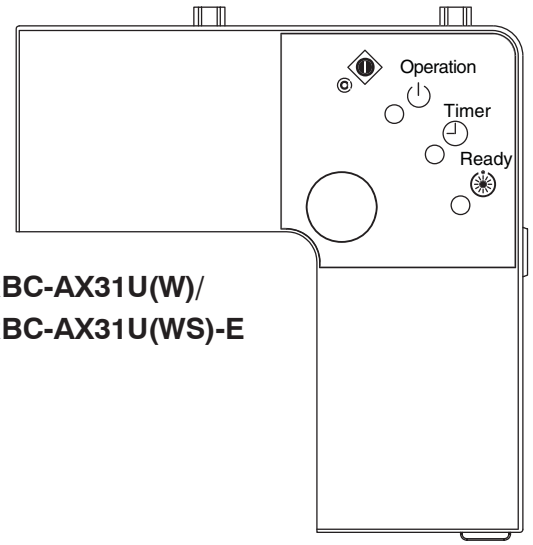
Others (Other than Check Code)

Lamp indication	Check code	Cause of trouble occurrence
Operation Timer Ready Simultaneous flash	—	During test run
Operation Timer Ready Alternate flash	—	Disagreement of cool/heat (Automatic cool/heat setting to automatic cool/heat prohibited model, or setting of heating to cooling-only model)

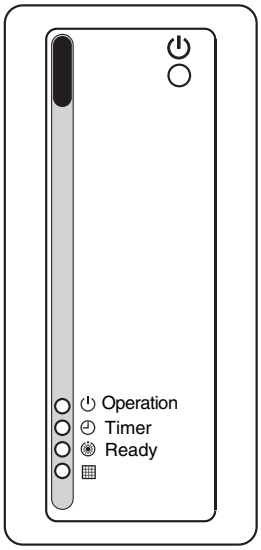
Signal Receiving Part



RBC-AX22CE2



RBC-AX31U(W)/
RBC-AX31U(WS)-E



TCB-AX2E

Phenomenon		Cause
Contact thedealer who youpurchased the airconditioner from.	Display lamp flashes. Operation Timer Ready	• A communication error between the sensor and the indoor unit, or a setup error of the units address when the wired remote controller is used.
		• A communication error between the indoor unit and the outdoor unit has occurred.
		• A protective device of the indoor unit has operated.
		• A protective device on the outdoor unit has operated.
		• A fault has occurred on the temperature sensor.
		• The compressor of the outdoor unit is protected.
		• The test run is performed. Turn off the Trial ON switch.

Please check the above items. If the fault remains, stop the unit operation and turn off the power supply. Then contact the dealer from who you purchased the air conditioner from, stating the unit model and the fault code or problem. Never attempt to repair any part of the air conditioner yourself as it can be very dangerous.

Outdoor LED Display, Switch Operation

1. Outline

A various setup and operation check can be performed by DIP switches at 3 positions (SW802, SW803, SW804) and the pushdown button switches (SW800, SW801) at 2 positions.

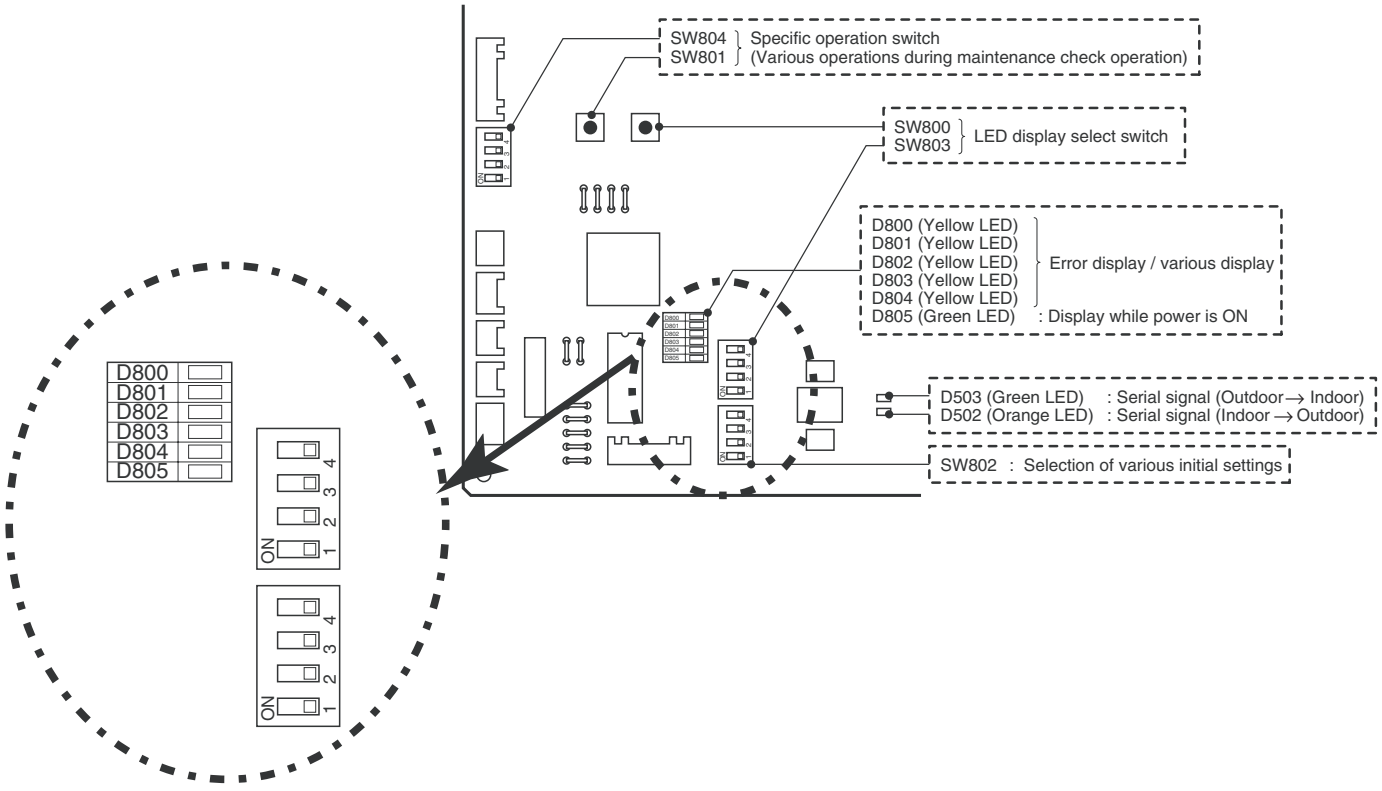
Operation part

Part No.	Specifications	Operation contents
SW800	Pushdown button switch	Exchanges the displayed contents of LED (D800 to D804) on the outdoor control P.C. board.
SW803	DIP switch	
SW801	Pushdown button switch	Performs the specific operation to check maintenance.
SW804	DIP switch	
SW802	DIP switch	Performs various initial settings.

Display part

Part No.	Specifications	Operation contents
D502	Orange LED	Indoor/Outdoor communication (Serial communication) signal display (Receive signal from indoor signal)
D503	Green LED	Indoor/Outdoor communication (Serial communication) signal display (Send signal from outdoor signal)
D800 to D804	Yellow LED	Error display When all SW803 are OFF, or when any of D800 to D804 goes on, LED displays that the outdoor controller detects an error. When status of SW803 is other than OFF, various indications are displayed.
D805	Green LED	Power-ON display When the power of the outdoor unit is turned on, LED goes on. When SW801 and SW804 operate the specific operation, LED flashes.

*All LED are colorless when it goes off.



Check Code List Indoor Unit

Error mode detected

◎ : Flash, ○ : Go on, ● : Go off

Wired remote controller	Wireless sensor lamp display			Diagnostic function			Refer to page No.
Check code	Operation	Timer	Ready	Cause of operation	Status of air conditioner	Condition	
E03	◎	●	●	No communication from remote controller (including wireless) and communication adapters	Stot (Autmatic reset)	Displayed when error is detected	10
E04	●	●	◎	The serial signal is not output from outdoor unit to indoor unit. • Miswiring of inter-unit wires • Defective serial sensing circuit on outdoor P.C. board • Defective serial receiving circuit on indoor P.C. board	Stot (Autmatic reset)	Displayed when error is detected	11
E08	◎	●	●	Duplicated indoor unit addresses	Stot	Displayed when error is detected	12
L03	◎	●	◎	Duplicated indoor master units			
L07	◎	●	◎	There is group line in individual indoor units.			
L08	◎	●	◎	Unsetting of indoor group address			
L09	◎	●	◎	Unset indoor capacity	Stot	Displayed when error is detected	12
L30	◎	○	◎	Abnormal outside interlock input	Stot	Displayed when error is detected	12
P01	●	◎	◎	Fan motor thermal protection	Stot		13
P10	●	◎	◎	Float switch operation • Disconnection, coming-off, defective float switch contactor of float circuit	Stot	Displayed when error is detected	13
P12	●	◎	◎	Indoor DC fan error	Stot	Displayed when error is detected	14
P19	◎	●	◎	Error in 4-way valve system • Indoor heat exchanger temperature lowered after start of heating operation.	Stot (Autmatic reset)	Displayed when error is detected	15,16
P31	◎	●	◎	Own unit stops while warning is output to other indoor units.	Stot (Autmatic reset)	Displayed when error is detected	17
F01	◎	◎	●	Coming-off, disconnection or short of indoor heat exchanger sensor (TCJ)	Stot (Autmatic reset)	Displayed when error is detected	17
F02	◎	◎	●	Coming-off, disconnection or short of indoor heat exchanger sensor (TC)	Stot (Autmatic reset)	Displayed when error is detected	18
F10	◎	◎	●	Coming-off, disconnection or short of indoor heat exchanger sensor (TA)	Stot (Autmatic reset)	Displayed when error is detected	18
F29	◎	◎	●	Indoor EEPROM error • EEPROM access error	Stot (Autmatic reset)	Displayed when error is detected	19
E10	◎	●	●	Communication error between indoor MCU • Communication error between fan driving MCU and main MCU	Stot (Autmatic reset)	Displayed when error is detected	19
E18	◎	●	●	Regular communication error between master and sub indoor units or between main and sub indoor units	Stot (Autmatic reset)	Displayed when error is detected	20

Wired remote controller	Wireless sensor lamp display			Diagnostic function			Refer to page No.
Check code	Operation	Timer	Ready	Cause of operation	Status of air conditioner	Condition	
H01	●	◎	●	Breakdown of compressor • Displayed when error is detected	Stop	Displayed when error is detected	21
H02	●	◎	●	Compressor does not rotate. • Over-current protective circuit operates after specified time passed when compressor had been activated.	Stop	Displayed when error is detected	21
H03	●	◎	●	Current detection circuit error • Current value at AC side is high even during compressor-OFF. • Phase of power supply is missed.	Stop	Displayed when error is detected	21
L29	◎	○	◎	Outdoor unit and other errors • Communication error between CDB and IPDU (Coming-off of connector) • Heat sink temperature error (Detection of temperature over specified value)	Stop	Displayed when error is detected	22
L31	◎	○	◎	Phase detection protective circuit operates. (Normal models)	Operation continues. (Compressor stops.)	Displayed when error is detected	22
P03	◎	●	◎	Discharge temperature error • Discharge temperature over specified value was detected.	Stop	Displayed when error is detected	23
P04	◎	●	◎	High-pressure protection error by TE sensor (Temperature over specified value was detected.)	Stop	Displayed when error is detected	24
P22	◎	●	◎	Outdoor DC fan error	Stop	Displayed when error is detected	25
P26	◎	●	◎	Inverter over-current protective circuit operates. (For a short time) Short voltage of main circuit operates.	Stop	Displayed when error is detected	26
P29	◎	●	◎	IPDU position detection circuit error	Stop	Displayed when error is detected	27
F04	◎	◎	○	Coming-off, disconnection or short of outdoor temperature sensor (TD)	Stop	Displayed when error is detected	27
F06	◎	◎	○	Coming-off, disconnection or short of outdoor temperature sensor (TE/TS)	Stop	Displayed when error is detected	28
F08	◎	◎	○	Coming-off, disconnection or short of outdoor temperature sensor (TO)	Operation continues.	Displayed when error is detected	28

Error mode detected

◎ : Flash, ○ : Go on, ● : Go off

Wired remote controller / Check code	Wireless sensor lamp display			Diagnostic function: Cause of operation	Diagnostic function: Status of air conditioner	Diagnostic function: Condition	Refer to page No.
No check code is displayed. (Remote controller does not operate.)	—		—	No communication with master indoor unit • Remote controller wire is not correctly connected. • Power of indoor unit is not turned on. • Automatic address cannot be completed.	Stop	—	—
E01*2	◎	●	●	No communication with indoor master unit • Disconnection of inter-unit wire between remote controller and master indoor unit (Detected at remote controller side)	Stop (Automatic restart) • When there is centre, operation continues.	Displayed when error is detected	29
E02	◎	●	●	Signal sending error to indoor unit (Detected at remote controller side)	Stop (Automatic restart) • When there is centre, operation continues.	Displayed when error is detected	29
E09	◎	●	●	Multiple master remote controllers are recognized. (Detected at remote controller side)	Stop (Sub unit continues operation.)	Displayed when error is detected	29
L20 Central remote controller 98	◎	○	◎	Duplicated indoor central addresses on communication of central control system (AI-NET) (Detected by central controller side)	Stop (Automatic restart)	Displayed when error is detected	30
— *3 Central remote controller 99	—	—	—	Multiple network adapters on remote controller communication line (Detected by central controller side)	Operation continues.	Displayed when error is detected	30
— *3 Central remote controller 97	—	—	—	Interruption of central control system (AI-NET) communication circuit (Detected by central controller side)	Operation continues. (According to handy remote controller)	Displayed when error is detected	31
— Central remote controller b7	—	—	—	Indoor Gr sub unit error (Detected by central controller side)	Continuation/stop (Based on a case)	Displayed when error is detected	32

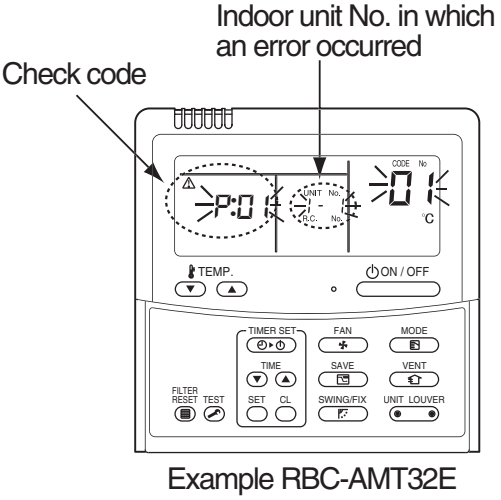
*2 Check code is not displayed by wired remote controller. (Usual operation of air conditioner is disabled.)
For wireless type models, E01 is notified by the display lamp.

*3 These errors are related to communication of remote controllers (A, B) and central system (AI-NET, X, Y), and [E01], [E02], [E03], [E09], or [E18] is displayed or no check code is displayed on the remote controller according to the error contents.

AI-NET Model Only

1. Confirmation and check

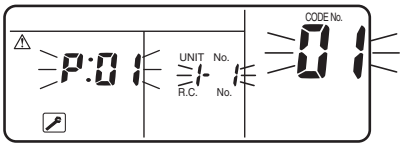
When a trouble occurs in the air conditioner, the check code and the indoor unit No. are displayed on the remote controller.
The check code is displayed while the air conditioner operates.
If the display has disappeared, operate the air conditioner and check the error based upon the following "Confirmation of error history".



Example RBC-AMT32E

2. Confirmation of error history

If a trouble occurs in the air conditioner, the error history can be found with the following procedure. (Up to 4 error histories are stored in the memory.) This history can be confirmed from either operating status or stop status.

Procedure	Description
1	When pushing SET and TEST buttons simultaneously for 4 seconds or more, the below display appears. If [Service Check] is displayed, the mode enters the error history mode. • [01: Error history order] is displayed in code number window. • [Check Code] is displayed in code number window. • [Indoor unit address with error] is displayed in UNIT No. 
2	Each successive push of the temp. set ▼ / ▲ buttons, the error histories stored in the memory are displayed in order. The numbers in item code indicates item code [01] (most recent) to [04] (Oldest). **CAUTION** If [CL] button is pushed all of the error histories of the indoor unit will be deleted.
3	After confirmation, push TEST button to return to the usual display.

Procedure for Each Check Code

EXAMPLE

[E error]** **/ *[** error]**

Central Control Side(AI-NET/TCC-LINK code)

Remoyte controller side (DN code)

[E03 error]

[E03 error]/*[99 error]

* : When central controller **[99]** is displayed, there are other causes of error.

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	●

1. Check cables of remote controller and communication adapters.
•Handy remote controller LCD display OFF (Disconnection)
•Central remote controller [97] check code

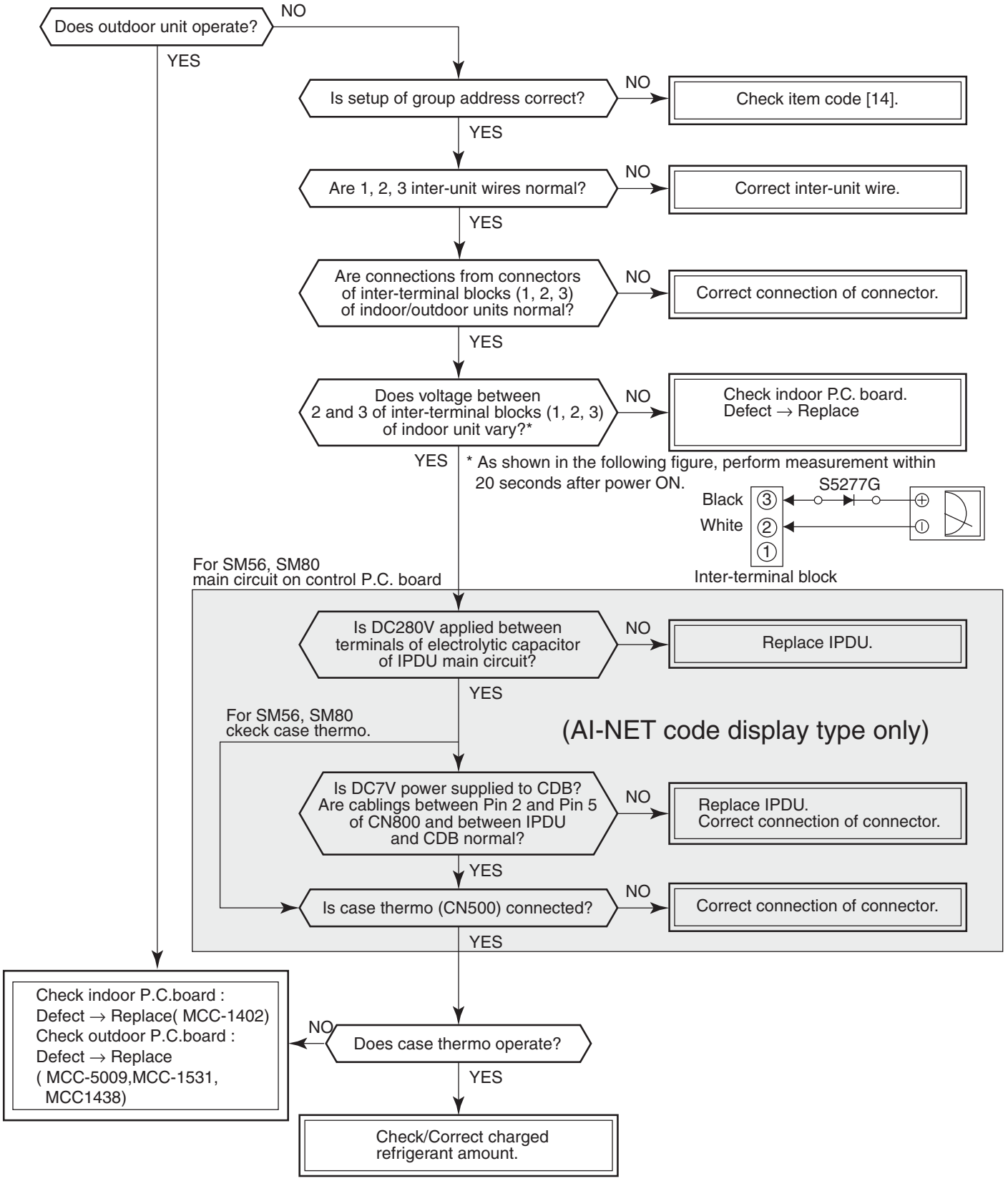
[E03 error] is detected when the indoor unit cannot receive a signal from the remote controller. Check A and B remote controllers.
As communication is impossible, this check code **[E03]** is not displayed on the remote controller and the central controller. **[E01]** is displayed on the remote controller.
If these check codes generate during operation, the air conditioner stops.

[E04 error]

[E04 error]/[04 error]

Wireless sensor lamp display		
Operation	Timer	Ready
●	●	◎

1. Outdoor unit does not completely operate.
   • Inter-unit wire check, correction of miswiring, case thermo operation
   • Outdoor P.C. board check, P.C. board wires check
2. In normal operation
   P.C. board (Indoor receiving/Outdoor sending) check



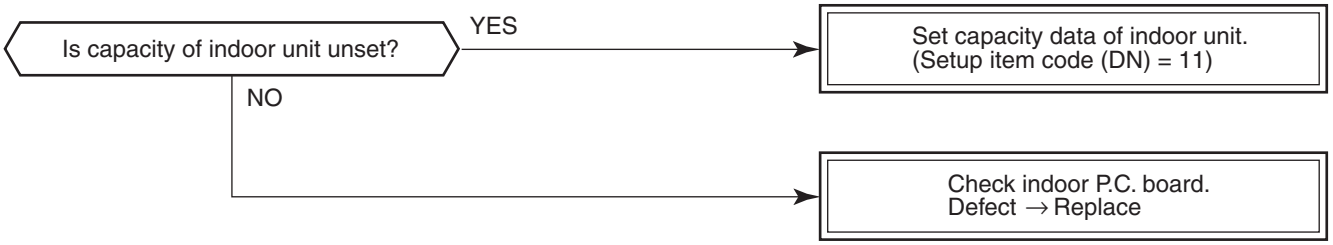
[E08, L03, L07, L08 error]/ *[96 error] [99 error]

* : When central controller [99] is displayed, there are other causes of trouble.
E08 : Duplicated indoor unit numbers
L03 : Two or more header units in a group control
L07 : One or more group addresses of [Individual] in a group control
L08 : Unset indoor group address (99)
If the above is detected when power has been turned on, the mode automatically enters in automatic address setup mode. (Check code is not displayed.)
However, if the above is detected during automatic address setup mode, the check code may be displayed.

Wireless sensor lamp display			
Operation	Timer	Ready	
◎	● (E08)	●	1. Check whether there is modification of remote controller connection (Group/Individual) or not after power has been turned on (finish of group configuration/ address check). *If group configuration and address are not normal when the power has been turned on, the mode automatically shifts to address setup mode. (Resetting of address)
◎	● (L03,L07, L08)	◎	

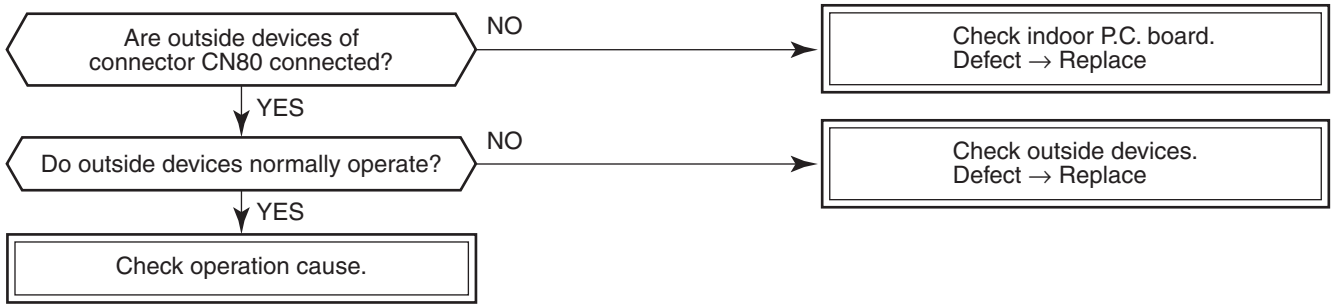
[L09 error]/[46 error]

Wireless sensor lamp display			
Operation	Timer	Ready	
◎	●	◎	1. Set the indoor capacity. (DN=I1)



[L30 error]
[L30 error]/[B6 error]
* : When central controller [99] is displayed, there are other causes of trouble.

Wireless sensor lamp display			
Operation	Timer	Ready	
◎	○	◎	1. Check outside devices. 2. Check indoor P.C. board.

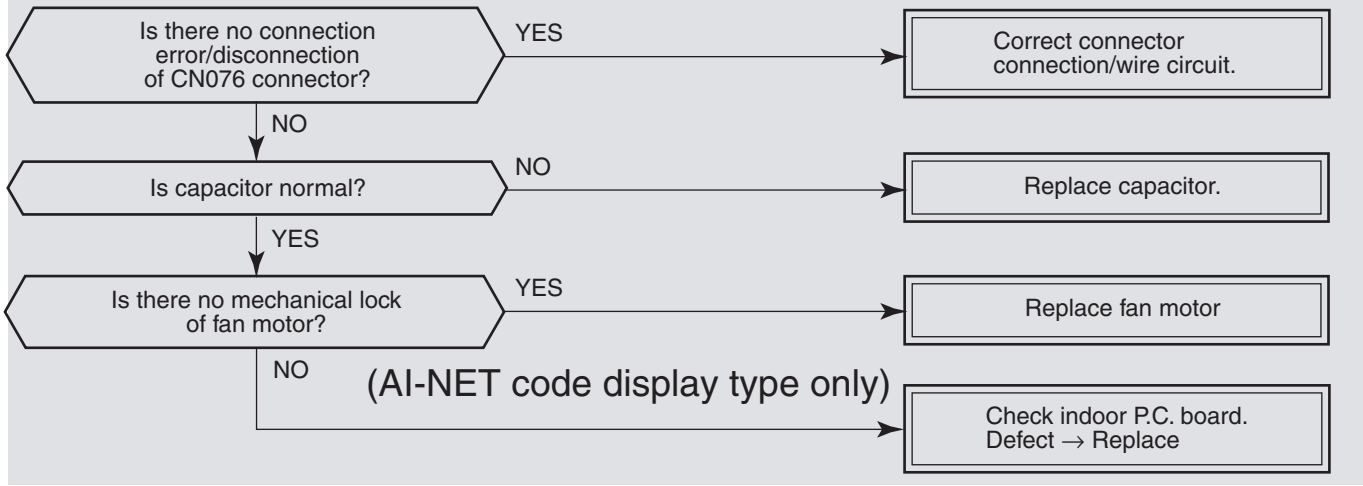


[P01 error]/[11 error] (AI-NET code display type)
[P01 error] (TCC-LINK code display type)
[ ] No check code display
[P01error]/[11error](No lamp display)

* : When central controller [99] is displayed, there are other causes of trouble.

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	◎

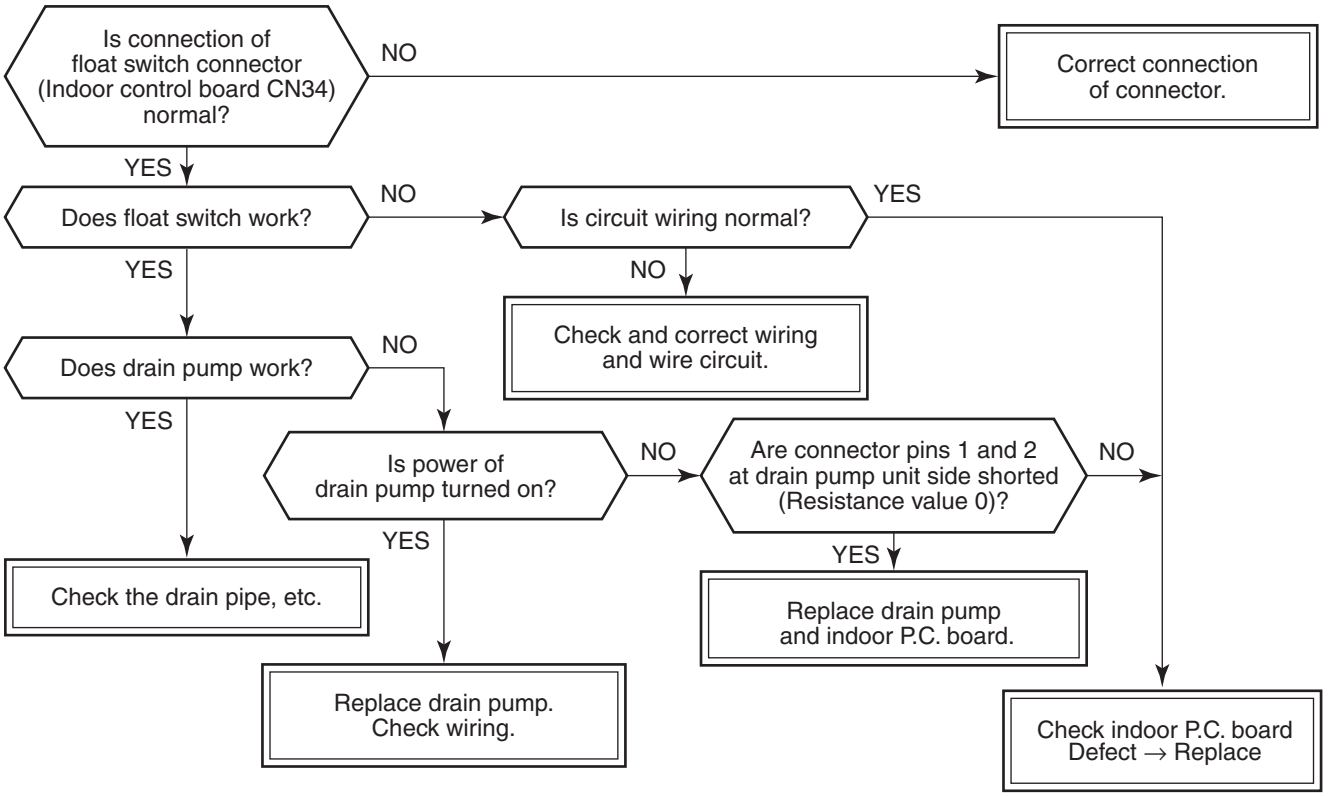
1. Check thermal relay of fan motor.
2. Check indoor P.C. board.



[P10 error]
[P10 error]/[Ob error]

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	◎

1. Defect of drain pump
2. Clogging of drain pump
3. Check float switch.
4. Check indoor P.C. board.



. Check that voltage of 1-2 pin of CN504 on the indoor P.C. board is +12V. (1 pin is plus (+).)

[P12 error]
[P12 error]/[11 error]

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	◎

1. Defective detection of position
2. Over-current protective circuit of indoor fan driving unit operates.
3. Lock of indoor fan
4. Check indoor P.C. board.

Turn off the power.

Are not there connections errors or disconnection on connectors CN333 and CN334 of indoor unit P.C. board?

YES → Correct connection of connector.

NO

Remove connectors CN333 and CN334 of indoor unit P.C. board.

Does the fan rotate without trouble when handling the fan with hands?

NO → Replace indoor fan motor.

YES

Are resistance values between phases at fan motor connector CN333 motor side of indoor P.C. board correct? *1

NO → Replace indoor fan motor.

YES

*1
- Are not coil windings between ① (Red lead) and ③ (White lead), between ③ (White lead) and ⑤ (Black lead), between ⑤ (Black lead) and ① (Red lead) opened or shorted?
  For resistance, see the following values.
- Is not earthed between cabinet and 1, 3, 5 → 10MΩ or more

Is resistance value of fan motor connector CN333 at motor side of indoor P.C. board correct? *2

NO → Replace indoor fan motor.

YES

*2
Check resistance of fan motor position detection circuit.
Is not coil winding between ① (Yellow lead) and ④ (Pink lead) opened or shorted?→ Resistance: Approx. 5 to 20kΩ

Is signal output of indoor fan motor position detection correct? *3

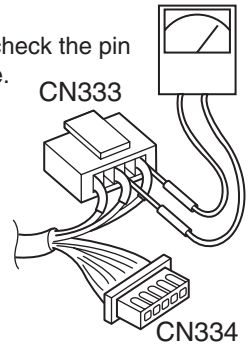
NO → Replace indoor fan motor.

YES

*3
Check fan motor position detection signal.
- Using a tester, measure the voltage between CN334 ① and ⑤ / ① and ③ (MCC-1570) of indoor P.C. board (MCC-1402) under condition that CN333 and CN334 are mounted and the power is turned on.

→ Rotate the fan slowly with hands, and check the pin voltage swings between 0 to 5V voltage.

- Between ④ and ⑤ (MCC-1420)/ ② and ③ (MCC-1570): 5V

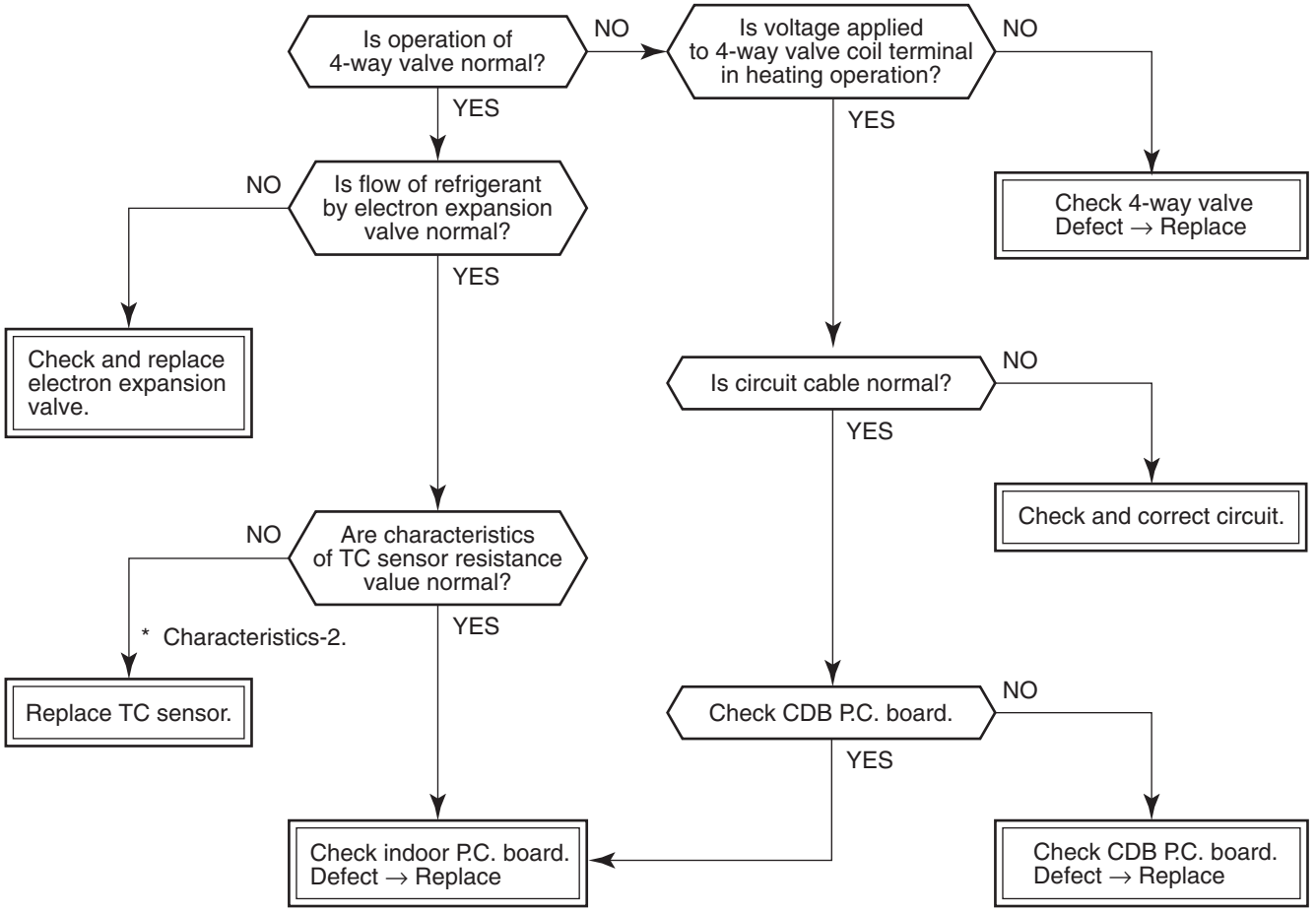


Check indoor P.C. board.
Defect → Replace

[P19 error]

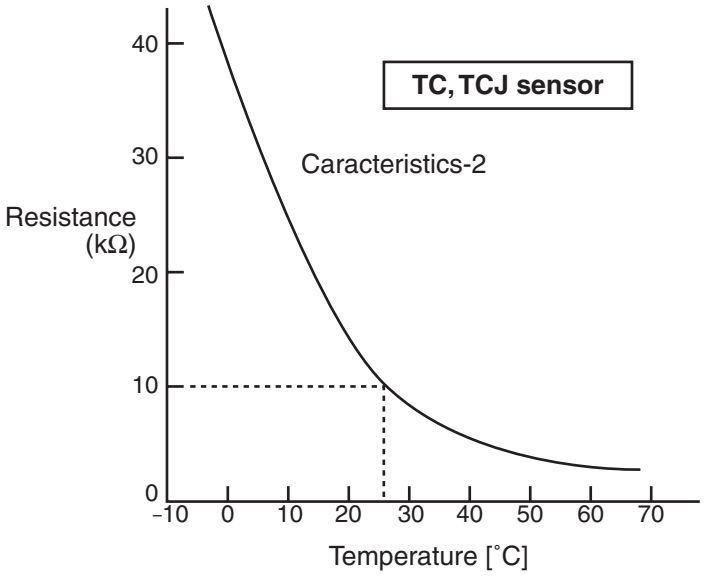
Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Check 4-way valve.
2. Check indoor heat exchanger (TC/TCJ) sensor.
3. Check indoor P.C. board.



* For SM56, SM80 check control P.C. board.

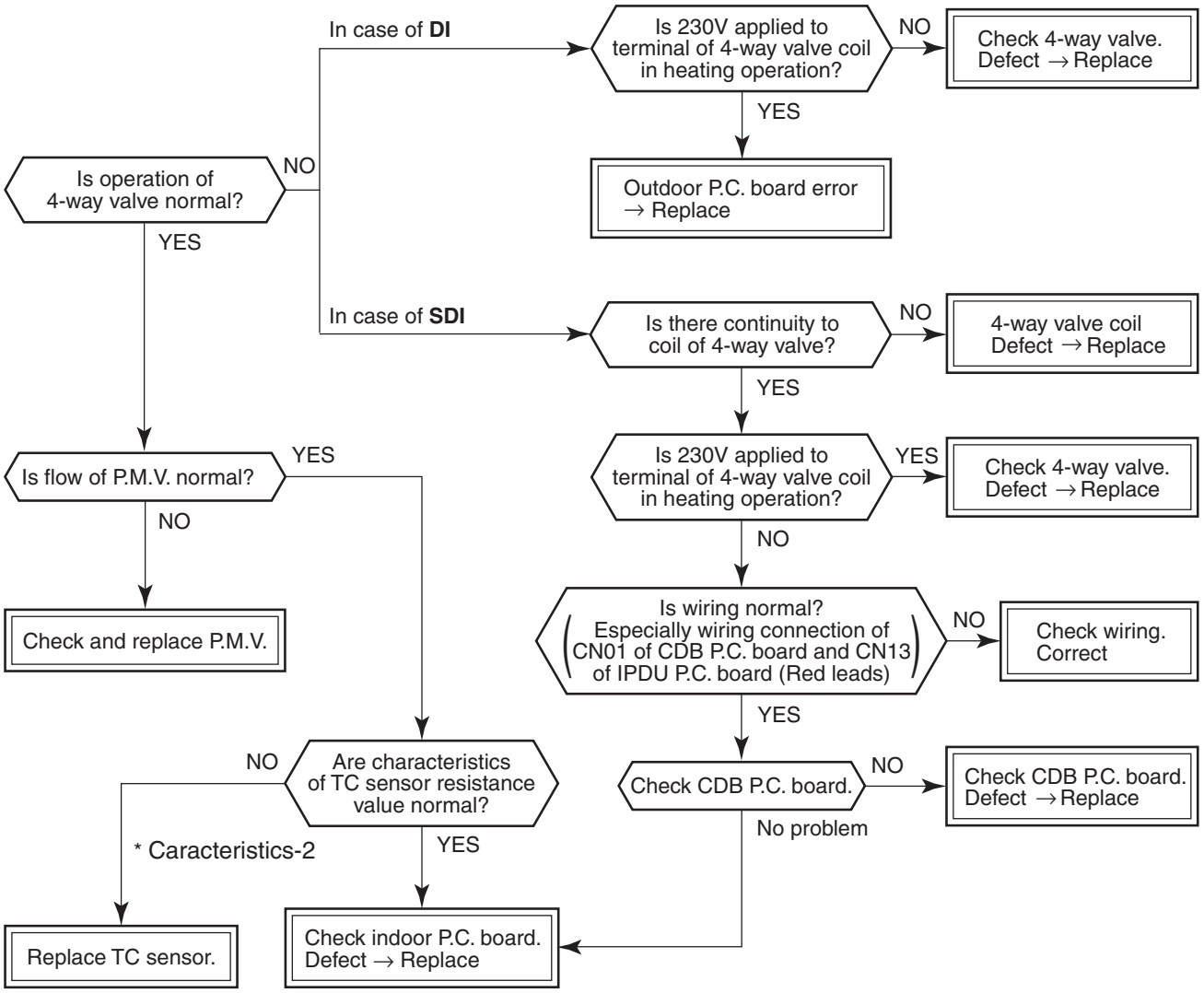
- In cooling operation, if high pressure is abnormally raised, **[P19 error] / [08 error]** may be displayed.
- In this case, remove cause of pressure up and then check again referring to the item **[P04 error] / [21 error]**.



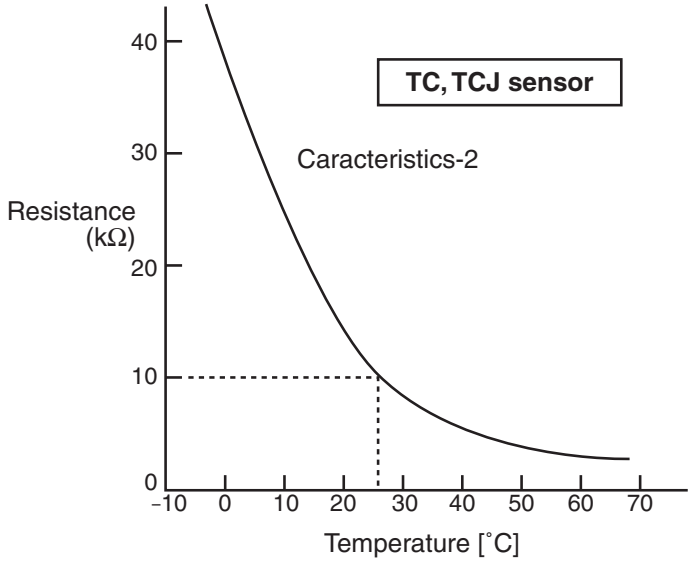
[P19 error]/[08 error] (AI-NET code display type only)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Check 4-way valve.
2. Check indoor heat exchanger (TC/TCJ) sensor.
3. Check indoor P.C. board.



- In cooling operation, if high pressure is abnormally raised, **[P19 error]/[08 error]** may be displayed.
- In this case, remove cause of pressure up and then check again referring to the item **[P04 error]/[21 error]**.



[P31 error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Judge follower unit while heder unit [E03], [L03], [L07], or[L08].
2. Check indoor P.C. board.

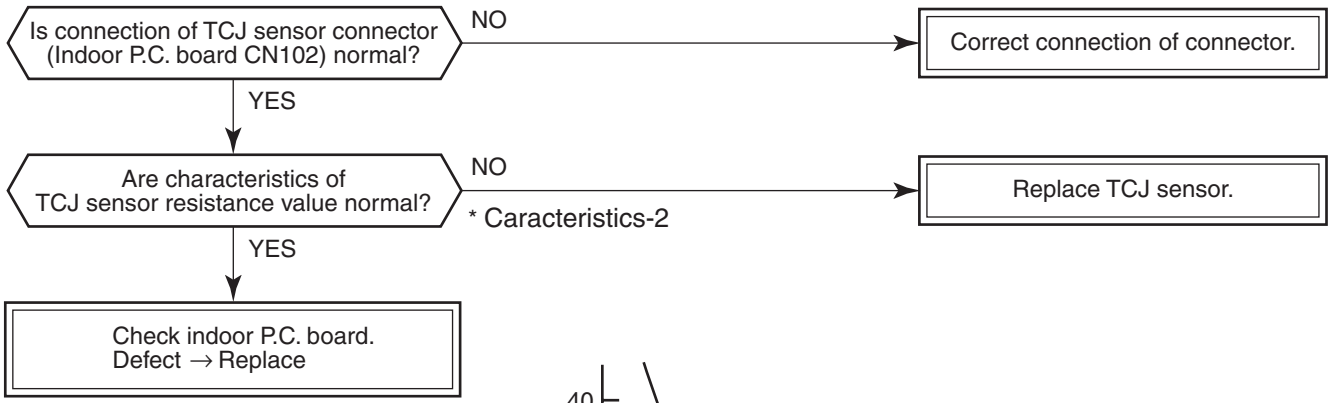
(Follower indoor unit)

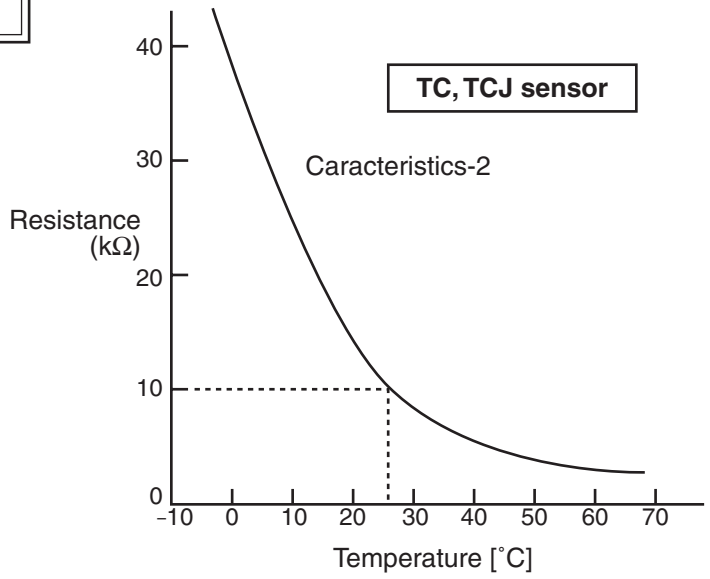
When the header unit of a group operation detected [E03], [L03], [L07] or [L08] error, the follower unit of the group operation detects [P31 error] and then the unit stops.
There is no display of the check code or alarm history of the remote controller. (In this model, the mode enters in automatic address set mode when the header unit detected [L03], [L07] or [L08] error.)

[F01 error]
[F01 error]/[0F error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	●

1. Check indoor heat exchanger temperature sensor (TCJ).
2. Check indoor P.C. board.

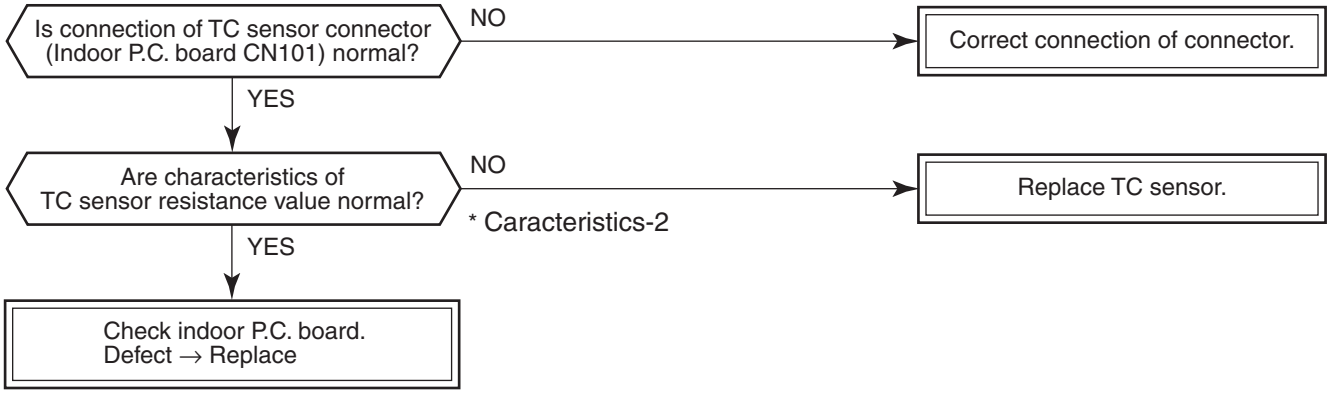




[F02 error]
[F02 error]/[0d error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	●

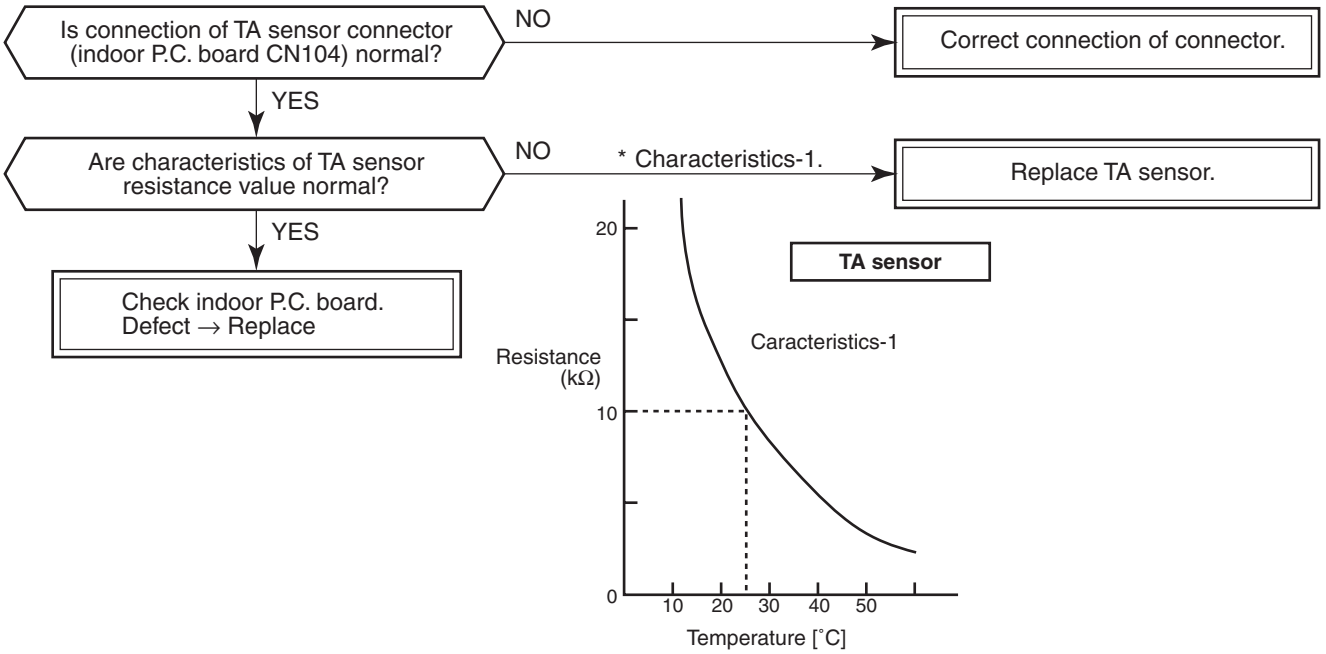
1. Check indoor heat exchanger temperature sensor (TC).
2. Check indoor P.C. board.



[F10 error]
[F10 error] [0C error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	●

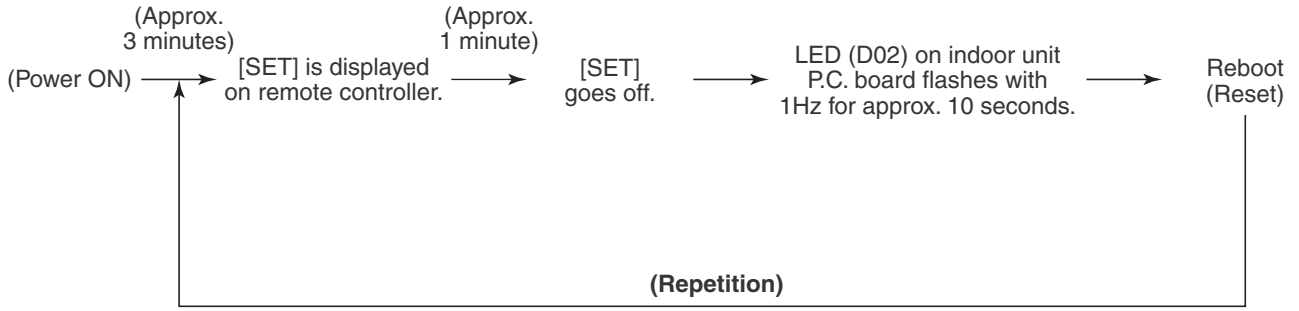
1. Check indoor heat exchanger temperature sensor (TA).
2. Check indoor P.C. board.



[P29 error]

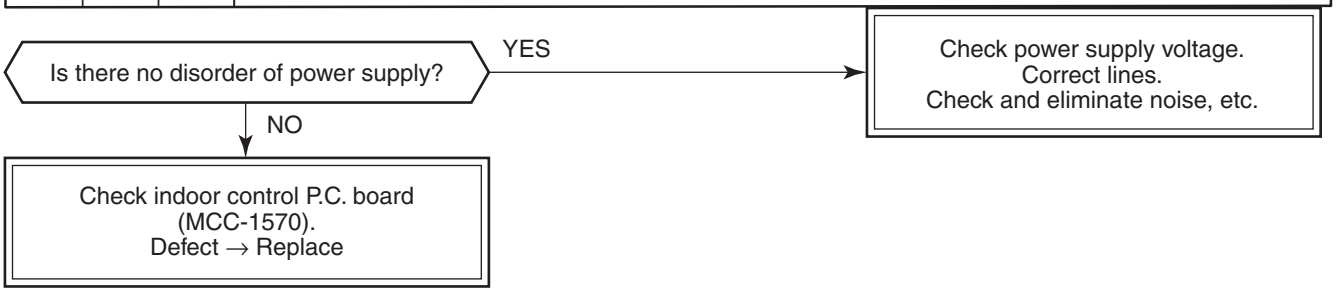
Wireless sensor lamp display			
Operation	Timer	Ready	
◎	●	◎	1. Position detection circuit operates even if operating compressor by removing 3P connector. : Replace IPDU.

This check code indicates a detection error of 4-Way: IC503, Under Ceiling: IC10 non-volatile memory (EEPROM) on the indoor unit P.C. board, which generated during operation of the air conditioner.
Replace the service P.C. board.
• When EEPROM was not inserted when power supply turned on or when the EEPROM data read/write operation is impossible at all, the automatic address mode is repeated. In this time, **[97 error]** is displayed on the central controller.



[E10 error]
[E10 error]/[CF error]

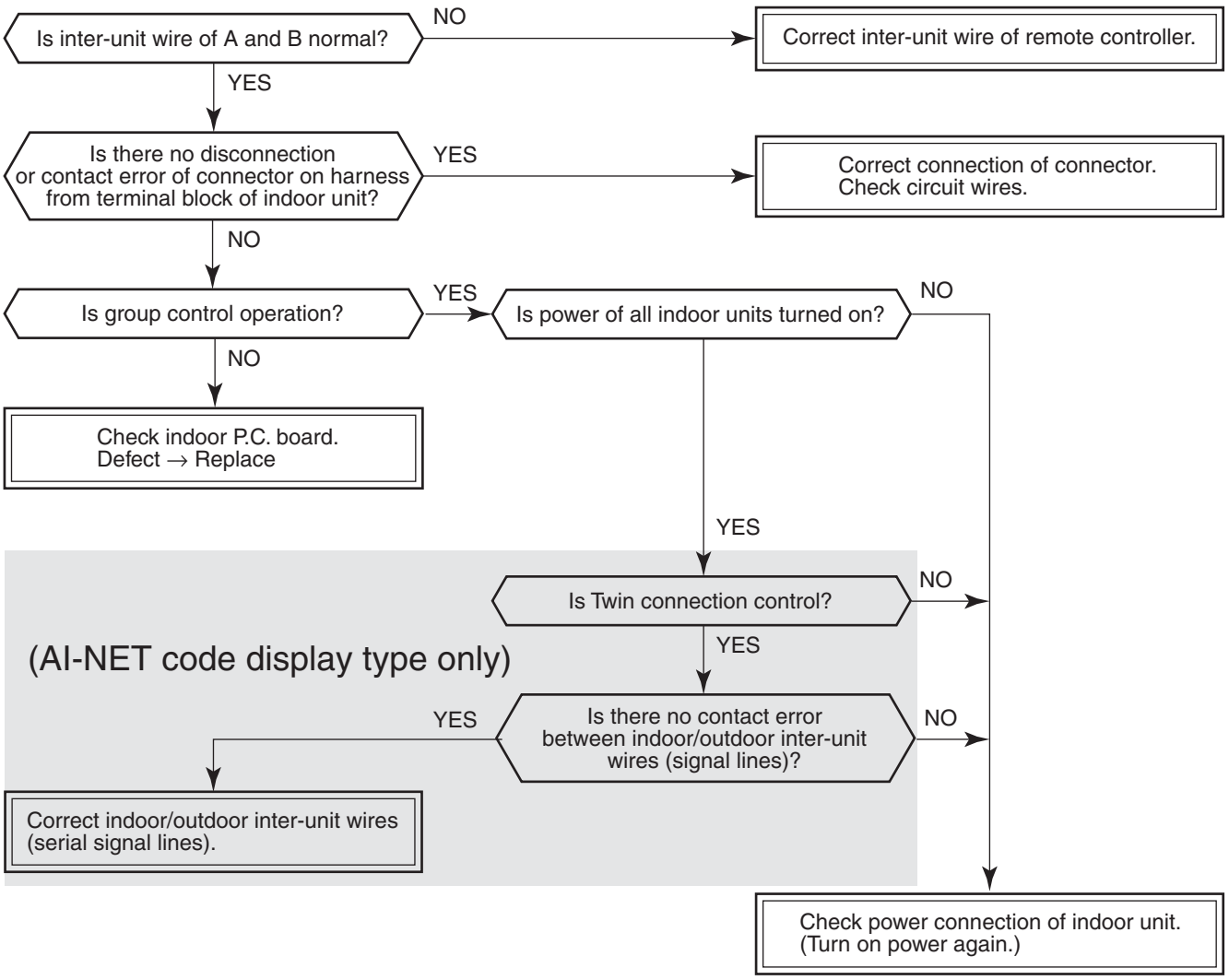
Wireless sensor lamp display			
Operation	Timer	Ready	
◎	●	●	1. Check wires of remote controller. 2. Check power wires of indoor unit. 3. Check indoor P.C. board.



[E18 error]
[E18 error]/[99 error] *[99 error]
* : When central controller [99] is displayed, there are other causes of trouble.

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	●

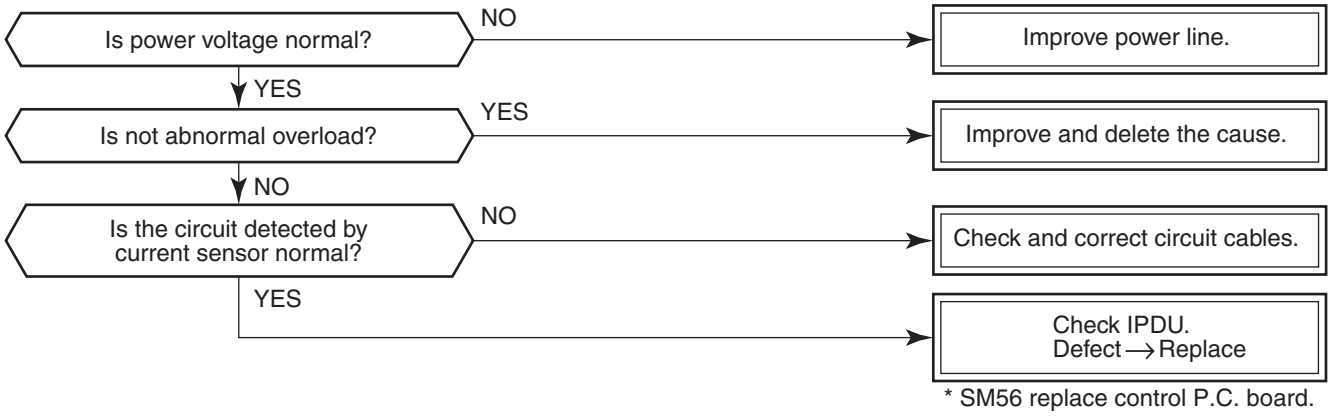
1. Check wires of remote controller.
2. Check indoor power wire.
3. Check indoor P.C. board.



[H01 error]/[1F error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	●
◎	● (DI/SDI)	●

1. Check power voltage.
   (AC198 to 264V: -E2, AC208 to 230V: -UL, 342 to457V: -A type).
2. Overload operation of refrigerating cycle
3. Check current detection circuit at AC side.

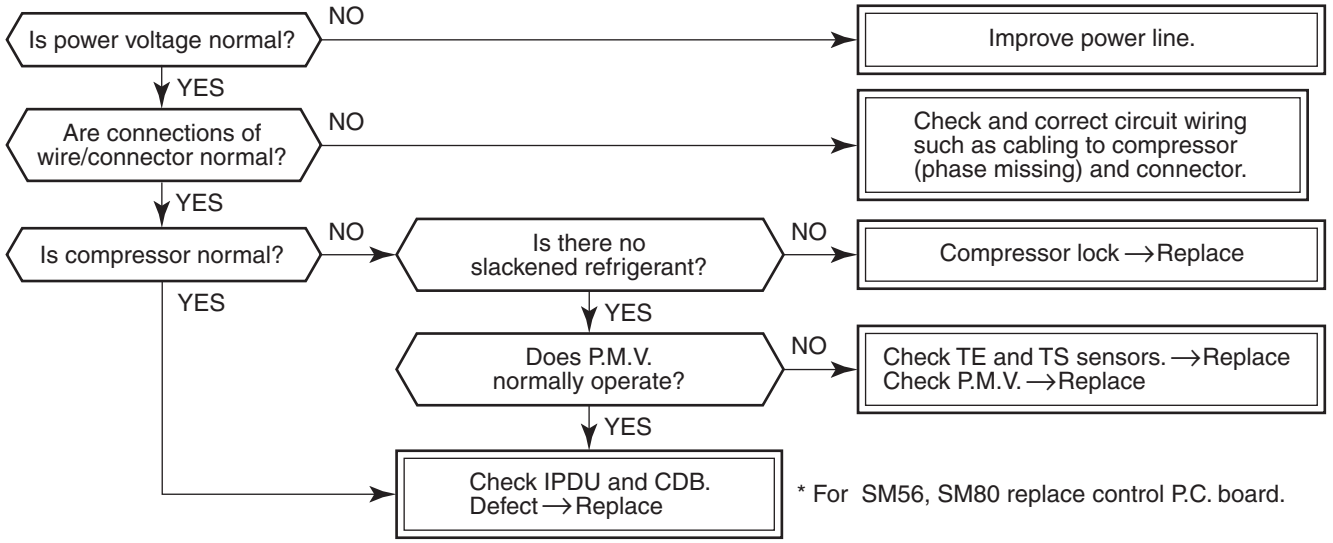


* SM56 replace control P.C. board.

[H02 error]
[H02 error]/[1d error]

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	●

1. Trouble of compressor (Compressor lock, etc.) : Replace compressor.
2. Defective wiring of compressor (Phase missing)
3. Phase-missing operation of power supply (3-phase model)

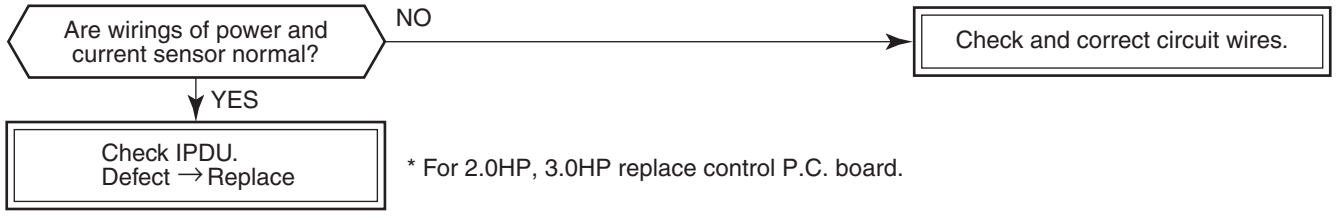


* For SM56, SM80 replace control P.C. board.

[H03 error]/[17 error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
●	◎	●

1. Compressor immediately stops even if restarted. : Check IPDU.
2. Phase-missing operation of power supply
   Check 3-phase power voltage and wires.



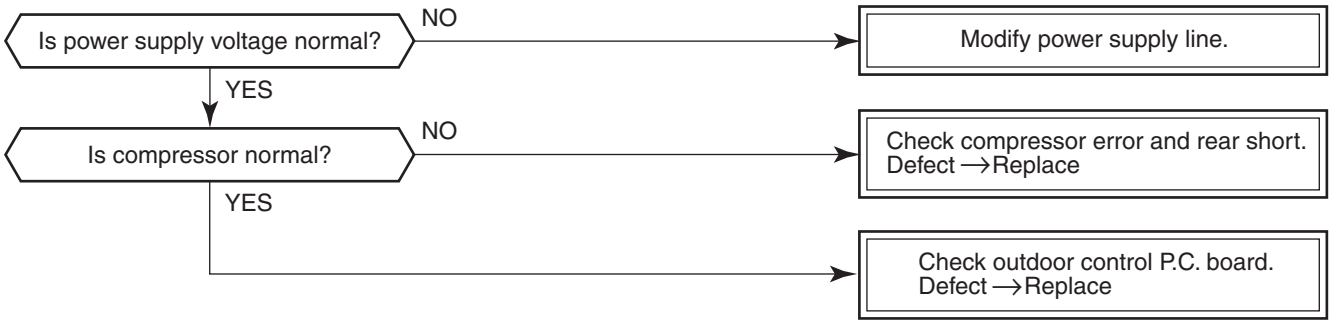
* For 2.0HP, 3.0HP replace control P.C. board.

[L29 error]
[L29 error]/[1C error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	○	◎
●	◎ (DI/SDI)	●

1. Check wires of CDB and IPDU.
2. Abnormal overload operation of refrigerating cycle

In case of Digital Inverter.



[L31 error]

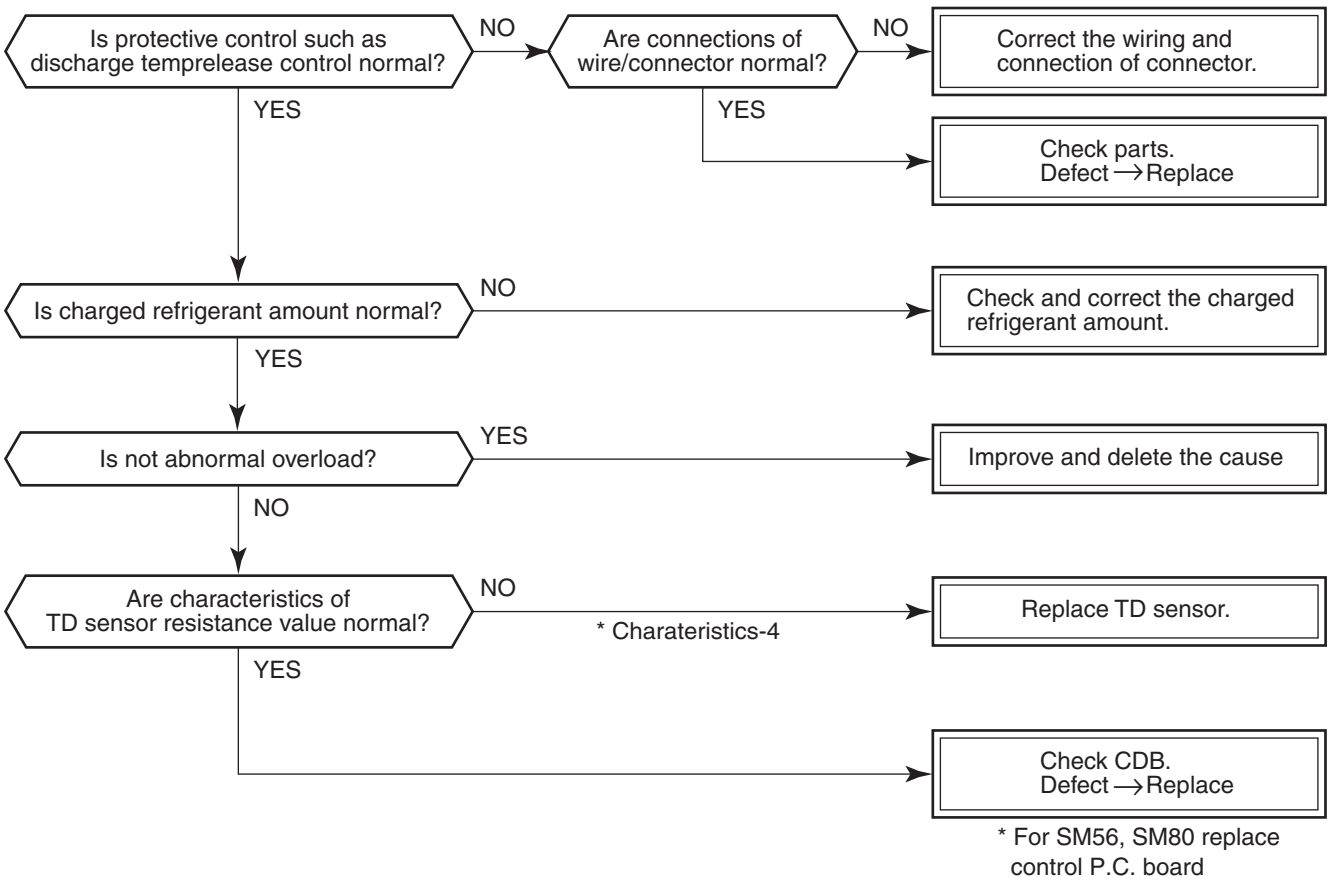
Wireless sensor lamp display		
Operation	Timer	Ready
◎	○	◎

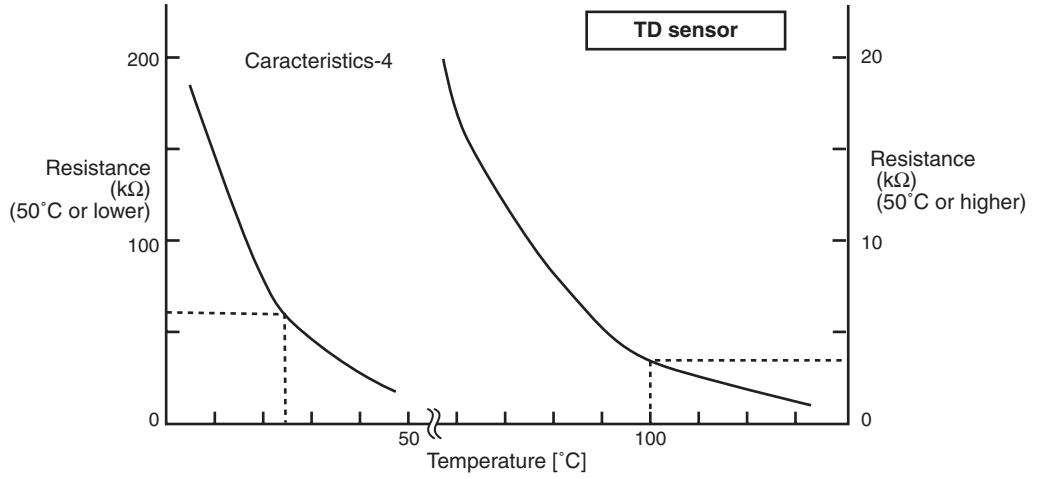
1. Check power phase order (Reversed phase)/phase missing.
2. Check outdoor P.C. board.

[P03 error]/[1E error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Check refrigerating cycle. (Gas leak)
2. Trouble of PMV
3. Check TD sensor.

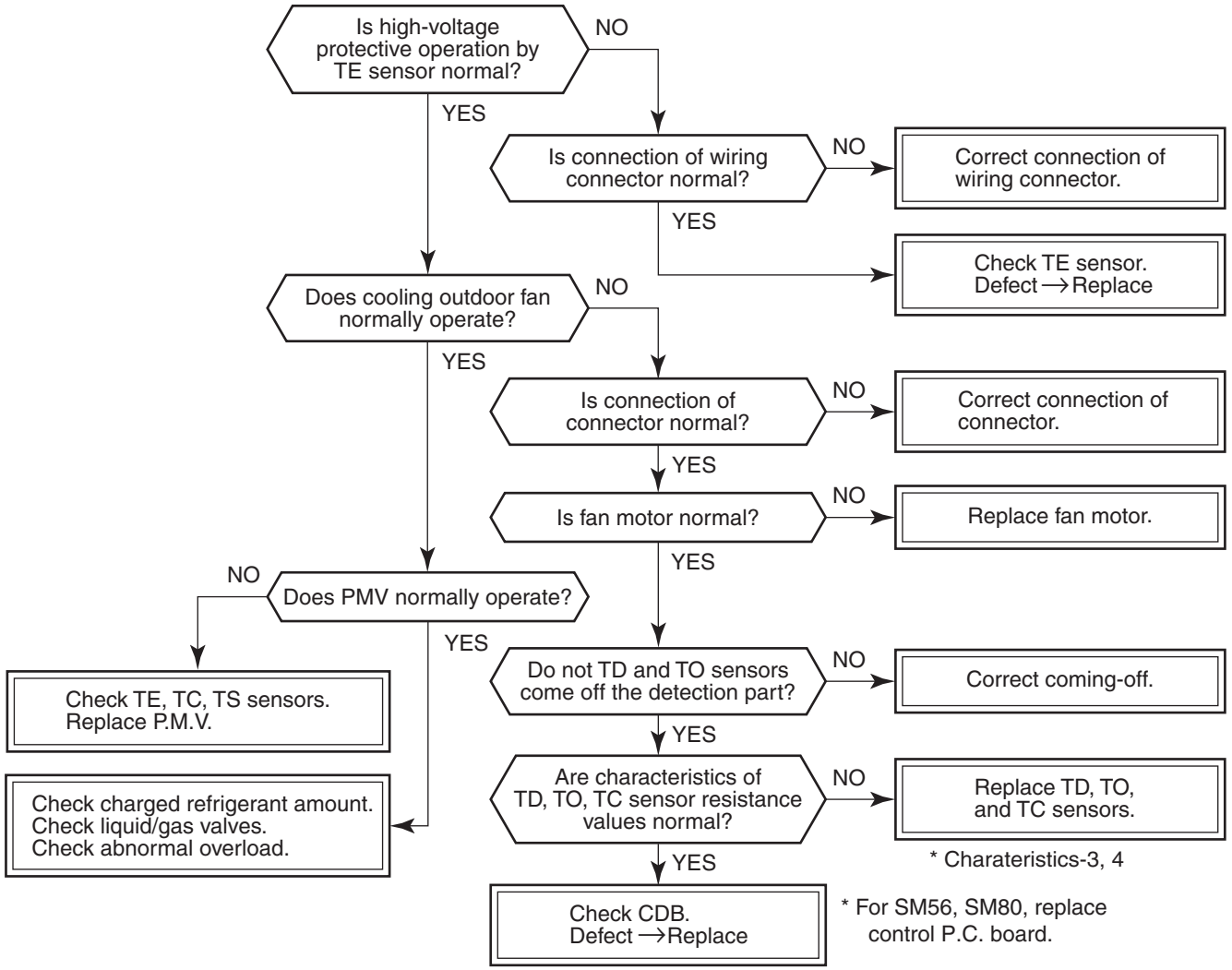


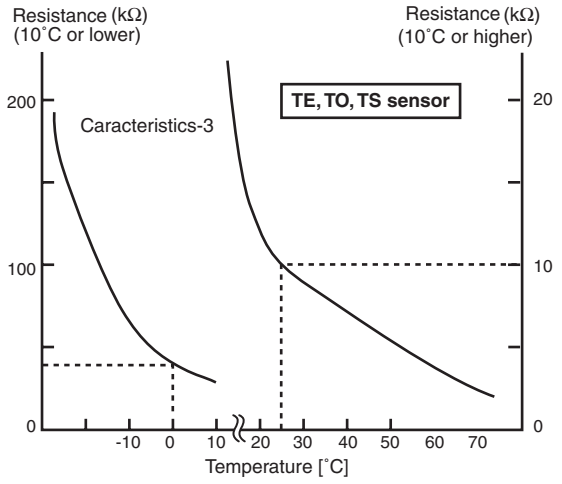


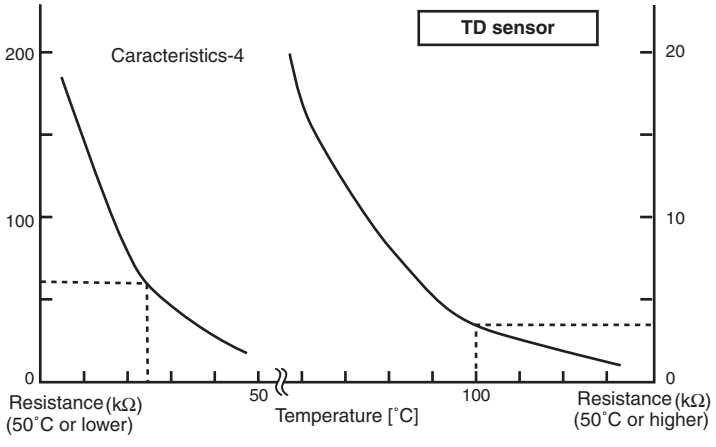
[P04 error]/[21 error] (DI/SDI type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Overload operation of refrigerating cycle
2. Check outdoor temperature sensor (TE).
3. Check outdoor CDB P.C. board.







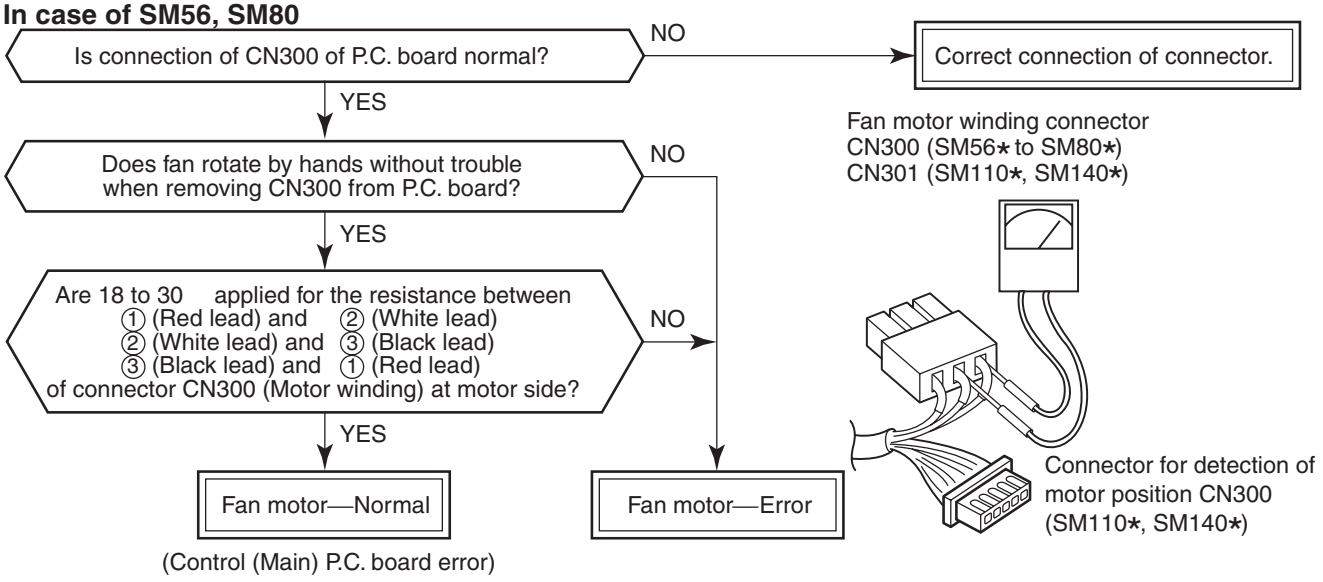
[P22 error]

[P22 error]/[1A error] (AI-NET code display type only)

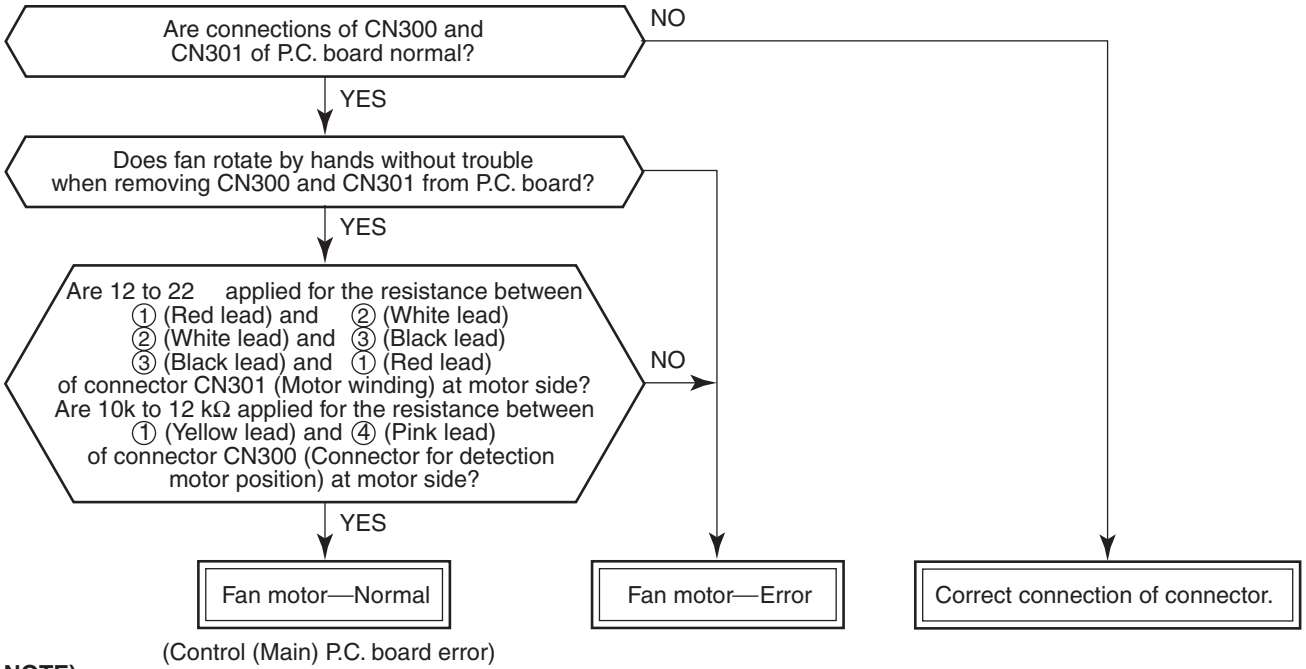
Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Defective detection of position
2. Over-current protective circuit of outdoor fan driving unit operates.
3. Lock of outdoor fan
4. Check outdoor CDB P.C. board.

In case of SM56, SM80



In case of SM110, SM140



NOTE)

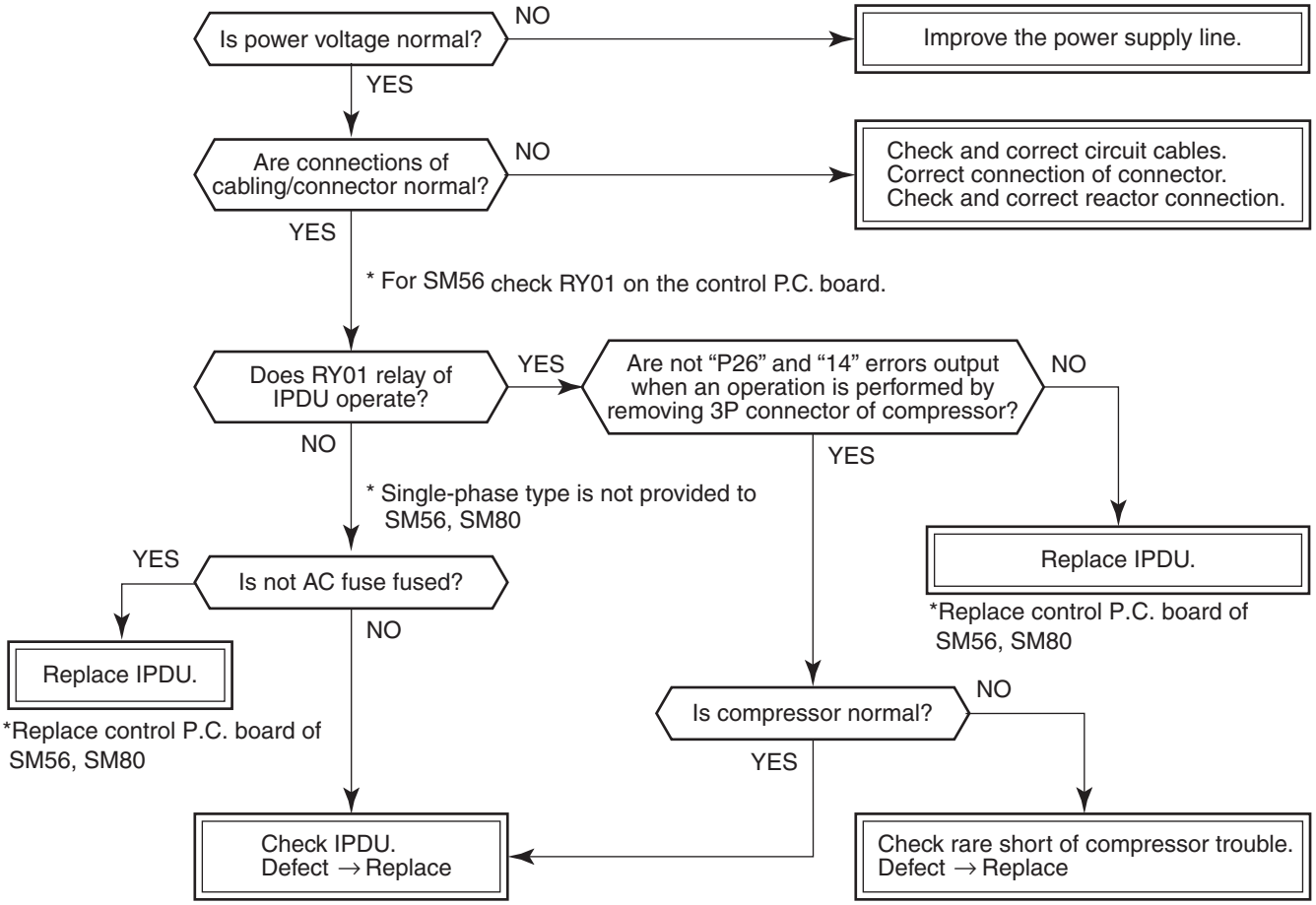
However, GND circuit error inside of the motor is rarely detected as OK by the above check.
When GND circuit does nor become normal even if P.C. board has been replaced, replace the outdoor fan motor.

	SM56	SM80	SM110, SM140
Objective P.C. board	Control P.C. board MCC-5009	Control P.C. board MCC-1513	CDB P.C. board MCC-1531
Fan motor winding connector	CN300		CN301
Motor position detection connector	No connector for position detection		CN300
Fan motor name	ICF-140-43		ICF-280-100
Fan motor winding resistance value	18 to 30 Ω		12 to 22 Ω

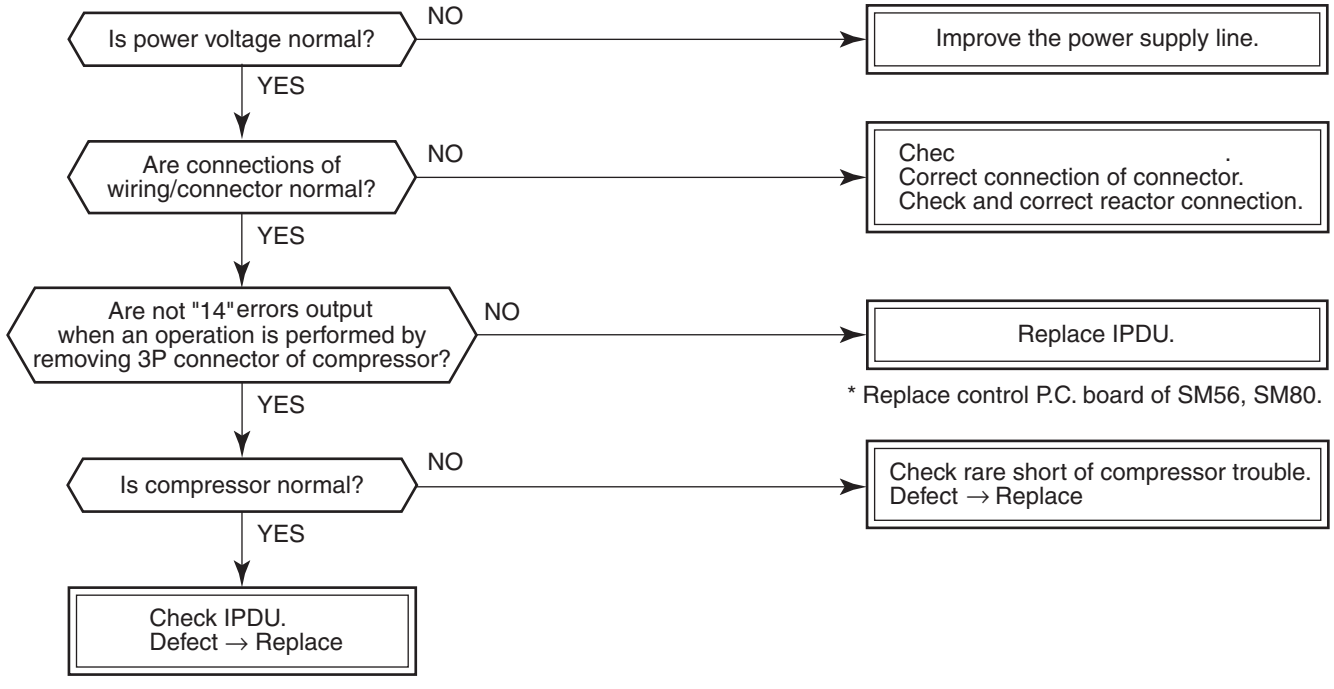
[P26 error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Inverter immediately stops even if restarted. : Compressor motor rare short
2. Check IPDU. : Cabling error



[P26 error]/[14 error] (AI-NET code display type only)



* Replace control P.C. board of SM56, SM80.

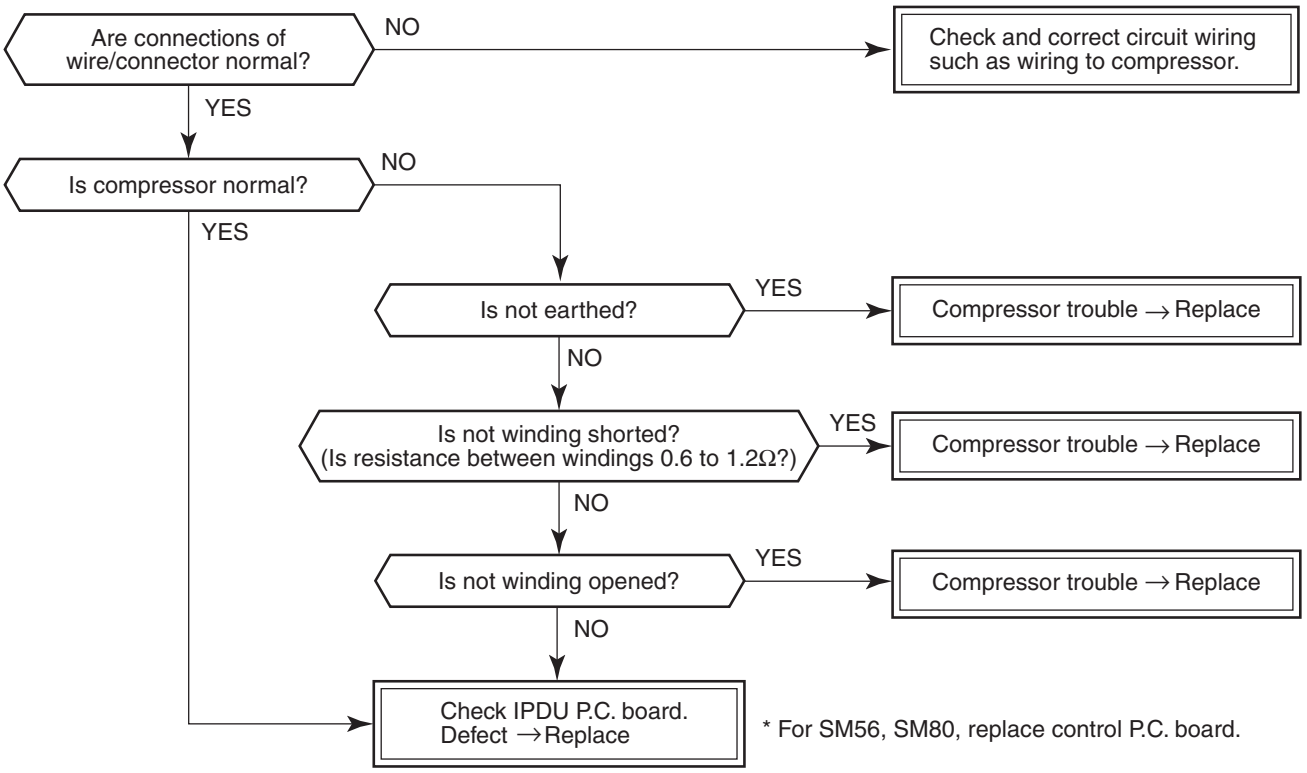
[P29 error]

[P29 error]/[16 error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	◎

1. Check indoor EEPROM. (including socket insertion)
2. Check indoor P.C. board.

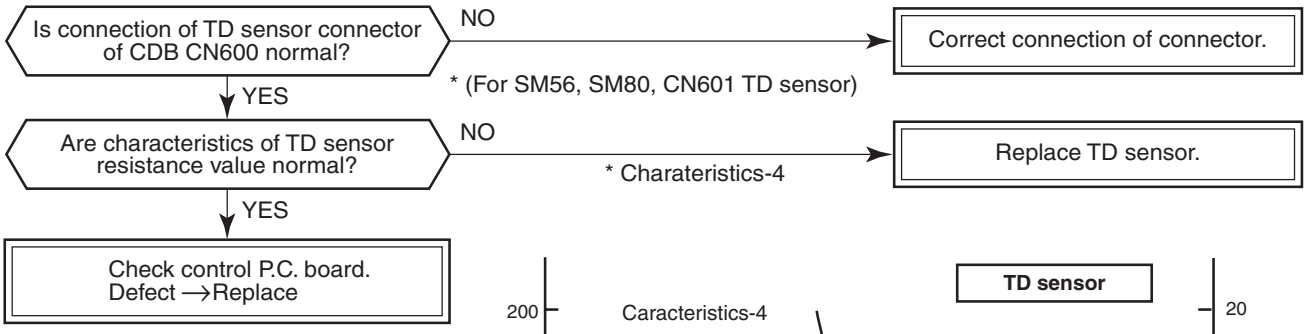
(EEPROM error (Other error may be detected. If no error, automatic address is repeated.)

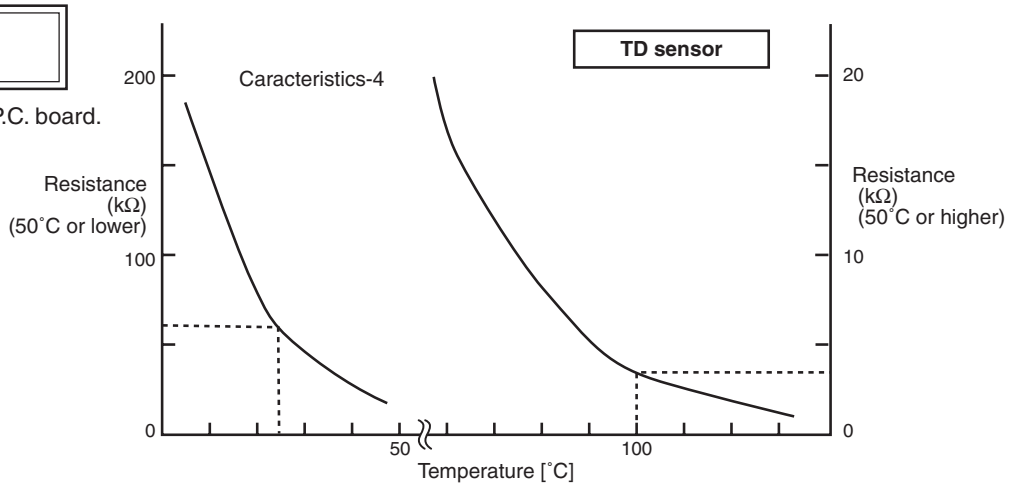


[F04 error]/[19 error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	○

1. Check outdoor temperature sensor (TD).
2. Check outdoor CDB P.C. board.





[F06 error]/[18 error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	○

1. Check outdoor temperature sensor (TE/TS).
2. Check outdoor CDB P.C. board.

Are connections of TE/TS sensor connectors of CDB CN604/CN605 normal?

NO → Correct connection of connector.

YES

* (For SM56, SM80, CN600 TE sensor and CN603 TS sensor)

Are characteristics of TE/TS sensor resistance values normal?

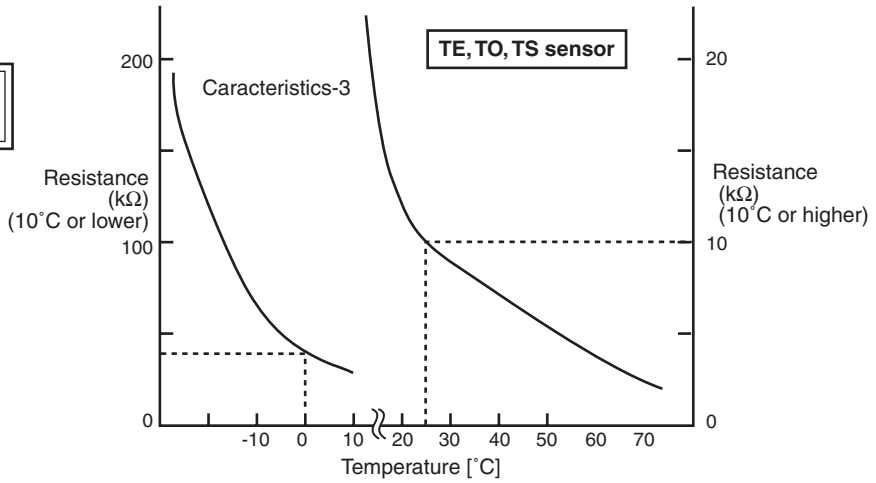
NO → Replace TE and TS sensors.

* Charateristics-3

YES

Check CDB.
Defect → Replace

* For SM56, SM80, replace control P.C. board



[F08 error]/[1b error] (TCC-LINK display type Not used)

Wireless sensor lamp display		
Operation	Timer	Ready
◎	◎	○

1. Check outdoor temperature sensor (TO).
2. Check outdoor CDB P.C. board.

Is connection of TO sensor connector of CDB CN601 normal?

NO → Correct connection of connector.

YES

* (For SM56, SM80, CN602 TO sensor)

Are characteristics of TO sensor resistance value normal?

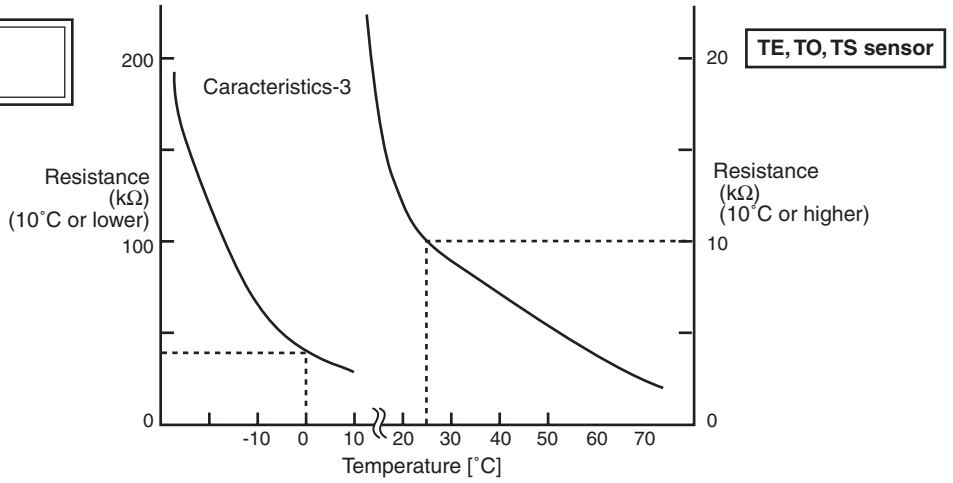
NO → Replace TO sensor.

* Charateristics-3

YES

Check CDB.
Defect → Replace

* For SM56, SM80 replace control P.C. board.

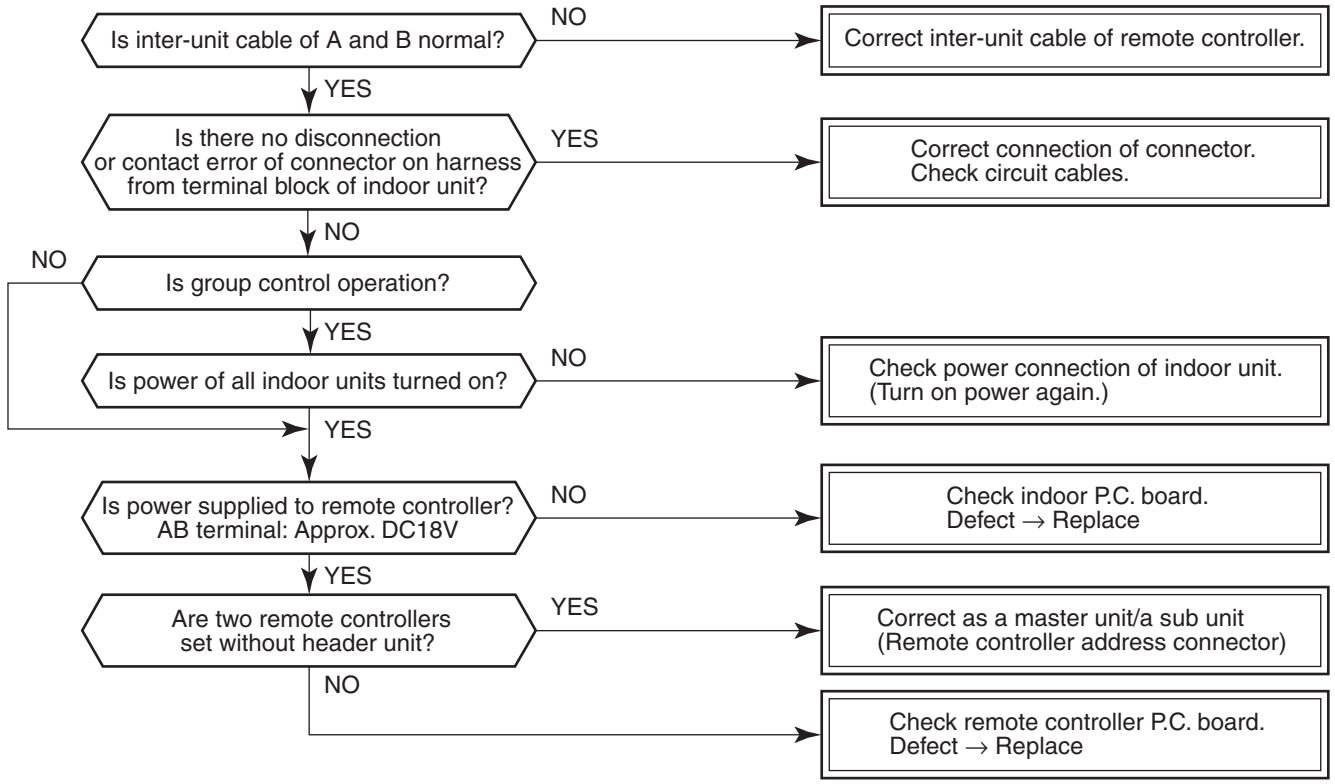


[E01,E02 error]
[E01,E02 error]/*[99 error]

* : When central controller **[99]** is displayed, there are other causes of error.

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	●

Signal receiving of remote controller is defective.
1. Check remote controller inter-unit wires.
2. Check remote controller.
3. Check indoor power wires.
4. Check indoor P.C. board.



[E02 error]

Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	●

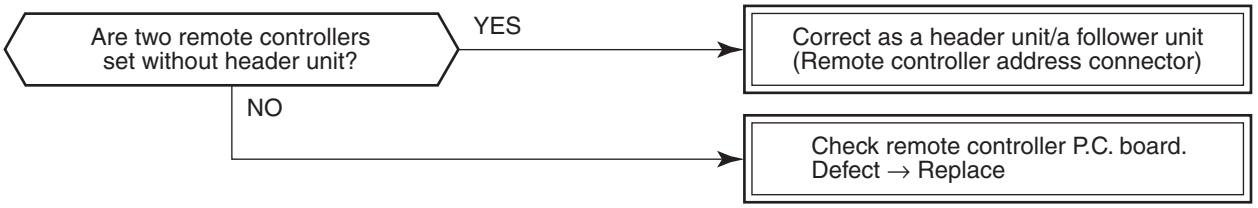
Signal sending of remote controlleris defective.
1. Check sending cicuit inside of remote controller.
: Replace remote controller.

[E09 error]
[E09 error]/*[99 error]

* : When central controller [99] is displayed, there are other causes of error.

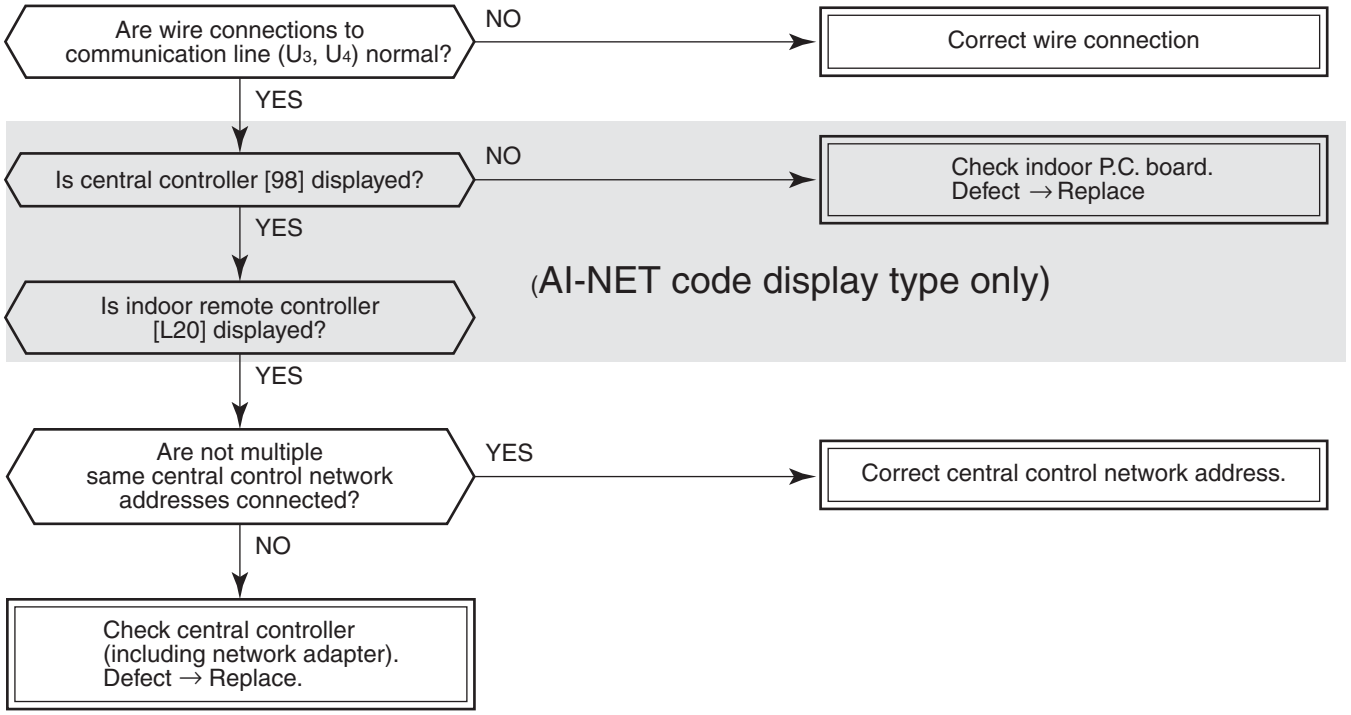
Wireless sensor lamp display		
Operation	Timer	Ready
◎	●	●

1. Check there are multiple master units for 2 remote controllers (including wireless).
: Master unit is one and others are sub units.



[L20 error]/[98 error]

Wireless sensor lamp display			
Operation	Timer	Ready	
◎	○	◎	1. Check address setup of central control system network.(DN=03) (Network adapter SW01) 2. Check network adapter P.C. board.



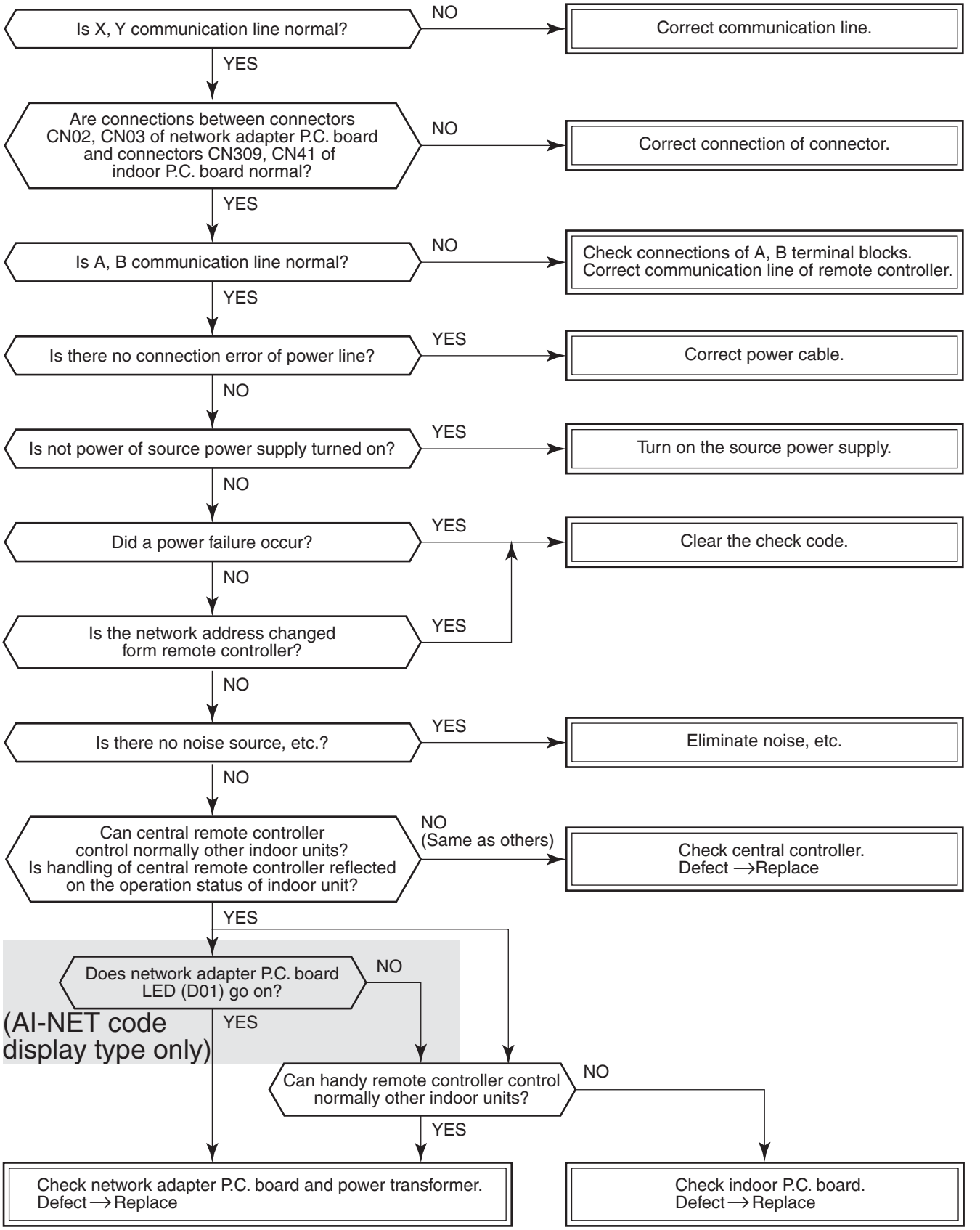
[99 error] (AI-NET code display type)

Wireless sensor lamp display			
Operation	Timer	Ready	
—	—	—	1.Check address setup of central control system network. (Network adapter SW01 2.Check network adapter P.C. board.

[97 error] (AI-NET code display type only)
[C06 error](Not AI-NET code display type only)(TCC-LINK display type)

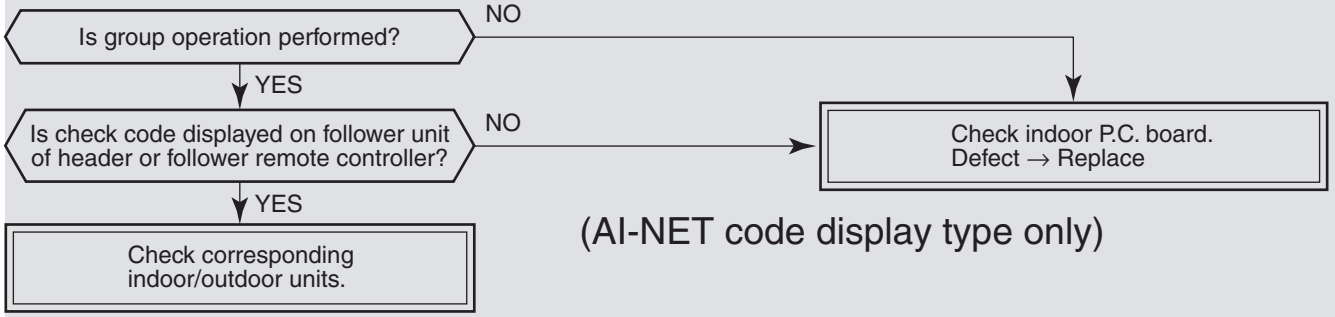
Wireless sensor lamp display		
Operation	Timer	Ready
—	—	—

1. Check communication line/miswiring. Check power of indoor unit.
2. Check communication. (XY terminals)
3. Check network adapter P.C. board. Check terminal resistance.
4. Check central controller (such as central control remote controller, etc.).



[P30 error] (TCC-LINK code display type)
[b7 error] (AI-NET code display type)

Wireless sensor lamp display			Check the check code of corresponding unit by handy remote controller.
Operation	Timer	Ready	
—	—	—	



(AI-NET code display type only)

Error mode detected by Outdoor Unit (In case of 1.5HP to 2.0HP)

○ : Go on, ◎ : Flash, ● : Go off

Operation of diagnostic function					Judgment and measures	Page No.
Indoor unit side / Remote controller Indication	Cause of operation	Sensor lamp part Block indecation				
		Operation	Timer	Ready		
E04	Indoor / Outdoor commuication error	—	—	—	1. Check group address setting on the remote controller. 1. Check innner wiring of indoor unit inter-unit wires.	34
F04	Disconnection, short of discharge temp. sensor (TD)	◎	◎	○	1. Check discharge temp. sensor (TD). 2. Check outdoor P.C. board.	34
F06	Disconnection, short of outdoor temp. sensor (TE)	◎	◎	○	1. Check temp. sensor (TE). 2. Check outdoor P.C. board.	34
F08	Disconnection, short of outside temp. sensor (TO)	◎	◎	○	1. Check outside temp. sensor (TO). 2. Check outdoor P.C. board.	35
F12	Disconnection, short of suction temp. sensor (TS)	◎	◎	○	1. Check suction temp. sensor (TS). 2. Check outdoor P.C. board.	35
H01	Compressor break down * Although operation has started, operation frequency decreases and operation stops.	●	◎	●	1. Check power supply voltage. (A342 to 457V : -A type)/ (208 to230V : -UL type)/ (198 to264V : -E type) 2. Overload operation of refrigerating cycle. 3. Wiring error of compressor (Open phase)	35
H02	Compressor lock * Over-current detection after compressor start-up	●	◎	●	1. Trouble of compressor (Lock, etc.): Replace compressor 2. Wiring error of compressor (Open phase)	35
H03	Current detection circuit error	●	◎	●	1. Check outdoor P.C. board. (AC current detection circuit)	36
L29	Communication error between outdoor P.C. board MCU	◎	○	◎	1. Check outdoor P.C. board.	36
P03	Discharge temp. error * Discharge temp. (TD) over specified value was detected.	◎	●	◎	1. Check refrigerating cycle (Gas leak) 2. Trouble of electronic expansion valve 3. Check discharge temp. sensor (TD).	36
P04	High-pressure SW error	◎	●	◎	• Check full-open of service valve. • Check outdoor fan error. • Check outdoor fan motor error. • Check clogging of outdoor PMV. • Check loading of indoor/outdoor heat exchangers. • Short-circuit of outdoor discharge/suction air. • Check outdoor P.C. board (I/F) error. • Check error of fan system (air volume drop) at indoor side. • Check miswiring of communication line between indoor and outdoor. • Check overcharge of refrigerant.	36,37
P05	Power supply voltage error	◎	●	◎	1. Check power supply voltage. (A342 to 457V : -A type)/ (208 to230V : -UL type)/ (198 to264V : -E type)	37
P19	4-way valve inverse error * After heating operation has started, indoor heat exchanger temp. lowers under the specified temp. * After heating operation has started, outdoor heat exchanger / suction temp. rises over the specified temp.	◎	●	◎	1. Check operation of 4-way valve. 2. Check outdoor heat exchanger (TE), suction temp. sensor (TS). 3. Check indoor heat exchanger sensor (TC). 4. Check 4-way valve coil. 5. Check PMV (Pulse Motor Valve).	38
P22	Outdoor fan system error	◎	●	◎	1. Check lock of fan motor. 2. Check power supply voltage. (A342 to 457V : -A type)/ (208 to230V : -UL type)/ (198 to264V : -E type) 3. Check outdoor P.C. board.	38
P26	Short-circuit error of compressor driving element	◎	●	◎	1. When performing operation while taking-off compressor wire, P26 error occurs. Check control P.C. board. 2. When performing operation while taking-off compressor wire, an error does not occur. (Compressor rare short)	38
P29	Position detection circuit error	◎	●	◎	1. Check control P.C. board.	38

Diagnostic Procedure for Each Check Code (Outdoor Unit)
In cace of 1.5HP to 2.0HP

1) This section describes the diagnostic method for each check code displayed on the wired remote controller.
2) When "APPLICATION CONTROL KIT"(TCB-PCOS1UL) sold separately is connected, the error contents can be judged by LED on the APPLICATION CONTROL KIT. In this case, turn off both bit 1 and 2 of DIP switch 01 on the All-purpose control kit.

CODE No.	APPLICATION CONTROL KIT LED display	Check / Countermeasures (part without special mention indicates a part of the outdoor unit.)
[E04]	—	**[Indoor / Outdoor commuication error]** Is setting of group address on the remote controller correct? NO → Check CODE No. [14]. YES Are inner wiring of the indoor unit and inter-unit wires (1, 2, 3) correct? NO → Correct wiring and inter-unit wires. YES Is wiring of the outdoor terminal block correct? NO → Correct wiring of terminal block. YES Is connection of case thermo (CN500) correct? NO → Correct connection of connector. YES Does the case thermo operate? Is the compressor abnormally heated? YES → Check and correct charged refrigerant amount. NO Check outdoor P.C. board. Defect → Replace
[F04]	D01 (Red) ○ D02 (Yellow) ○ D03 (Yellow) ● D04 (Yellow) ●	**[Discharge temp. sensor (TD) error]** Is connection of CN601 correct? Is resistance value of TD sensor correct? NO → Correct connector. Sensor error → Replace YES Check outdoor P.C. board. Defect → Replace
[F06]	∗ There is a possibility that any of the following items is not correct. Checking LED on the APPLICATION CONTROL KIT enables you to judge what is incorrect.	
	D01 (Red) ○ D02 (Yellow) ● D03 (Yellow) ● D04 (Yellow) ●	**[Heat exchanger temp. sensor (TE) error]** Is connection of CN600 correct? Is resistance value of TE sensor correct? NO → Correct connector. Sensor error → Replace YES Check outdoor P.C. board. Defect → Replace
	D01 (Red) ● D02 (Yellow) ● D03 (Yellow) ○ D04 (Yellow) ●	**[Suction temp. sensor (TS) error] ⟶ Refer to column of [F12].**

LED display legend: ● Go off, ○ Go on, ◎ Flash (5Hz)

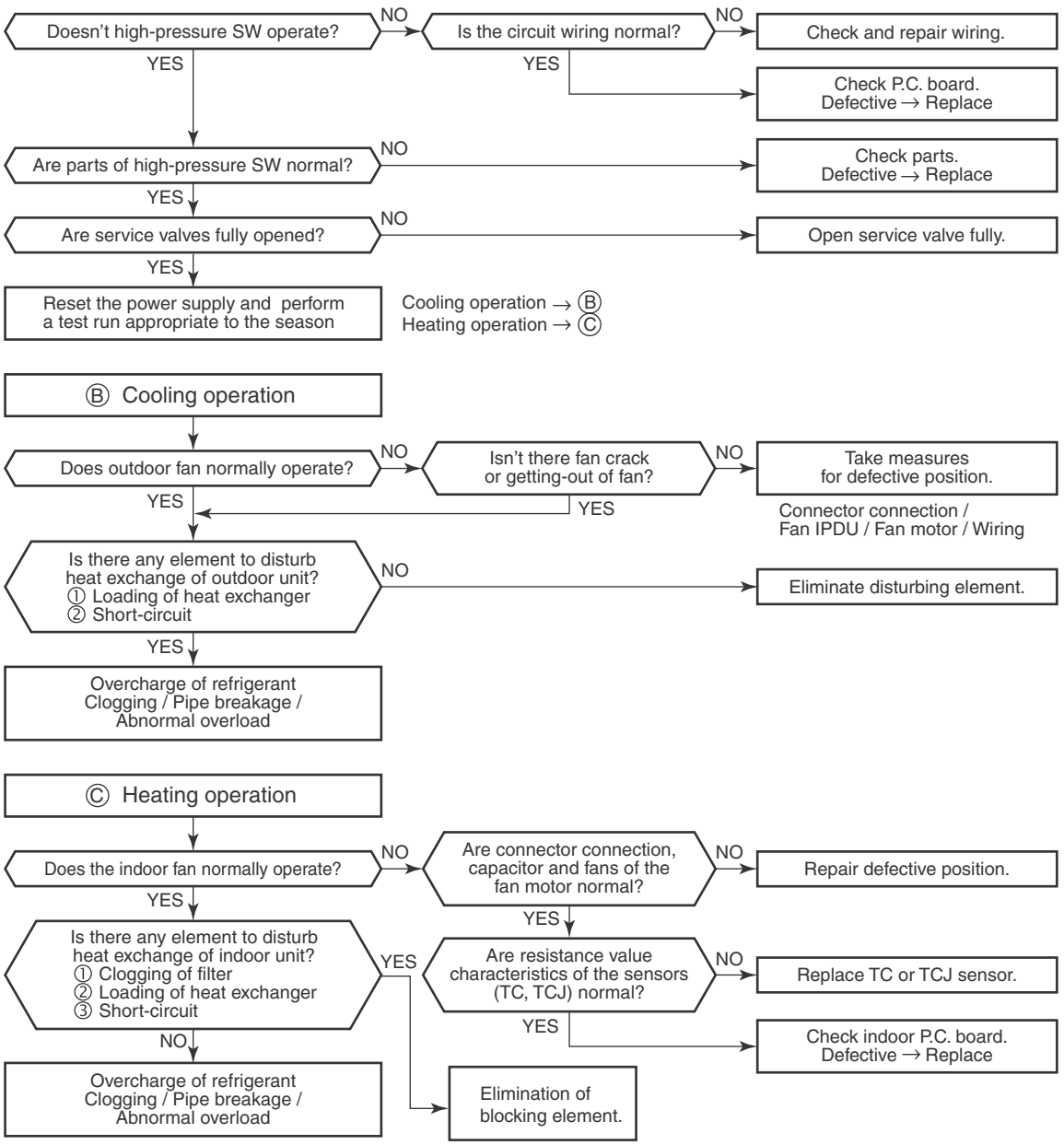
CODE No.	APPLICATION CONTROL KIT LED display	Check / Countermeasures (part without special mention indicates a part of the outdoor unit.)
[F08]	D01 (Red) ● D02 (Yellow) ○ D03 (Yellow) ● D04 (Yellow) ●	[Outside temp. sensor (TO) error] Is connection of CN602 correct? Is resistance value of TO sensor correct? → NO → Correct connector. Sensor error → Replace YES → Check outdoor P.C. board. Defect → Replace
[F12]	D01 (Red) ● D02 (Yellow) ● D03 (Yellow) ○ D04 (Yellow) ●	[Suction temp. sensor (TS) error] Is connection of CN603 correct? Is resistance value of TS sensor correct? → NO → Correct connector. Sensor error → Replace YES → Check outdoor P.C. board. Defect → Replace
[H01]	D01 (Red) ◎ D02 (Yellow) ● D03 (Yellow) ◎ D04 (Yellow) ●	[Compressor break down] Is AC mains voltege correct?(A342/457V±10% : -A type)/ (208/230V ±10%: -UL type)/ (198/264V ±10%: -E type) → NO → Correct power supply line. YES → Is wiring connection correct? Compressor lead (P.C. board side, Compressor side) Reactor cord, Power supply lead → NO → Check and correct wiring connection. YES → Does abnormal overload happen? → YES → Remove and improve the cause of overload. NO → Check outdoor P.C. board. Defect → Replace
[H02]	D01 (Red) ● D02 (Yellow) ● D03 (Yellow) ◎ D04 (Yellow) ●	[Compressor lock] Is AC mains voltege correct?(A342/457V±10% : -A type)/ (208/230V ±10%: -UL type)/ (198/264V ±10%: -E type) → NO → Correct power supply line. YES → Is wiring connection correct? Compressor lead (P.C. board side, Compressor side) Reactor cord, Power supply lead → NO → Check and correct connection of wires. YES → Is compressor under correct conditions? → NO → Is there stagnation of refrigerant? → NO → Compressor lock → Replace YES → Does PMV operate correctly? → NO → TE, TS sensor, Check PMV. Defective → Replace YES → Check outdoor P.C. board. Defect → Replace

LED display legend: ● Go off, ○ Go on, ◎ Flash (5Hz)

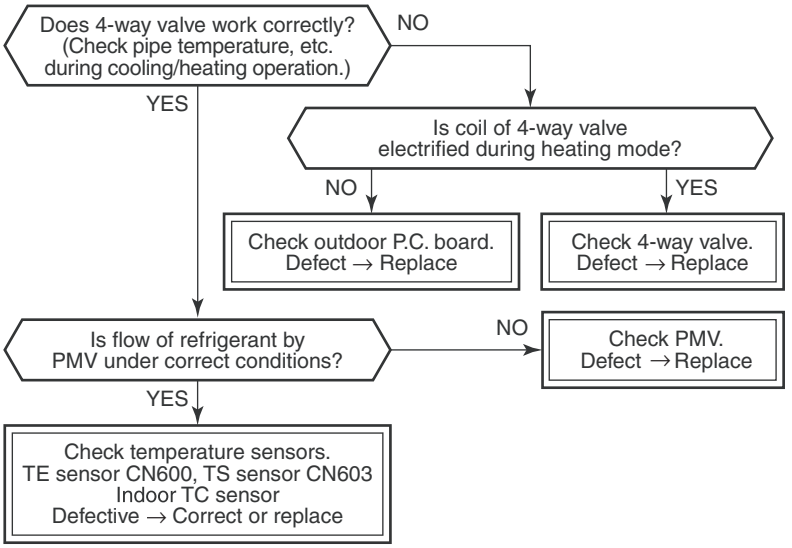
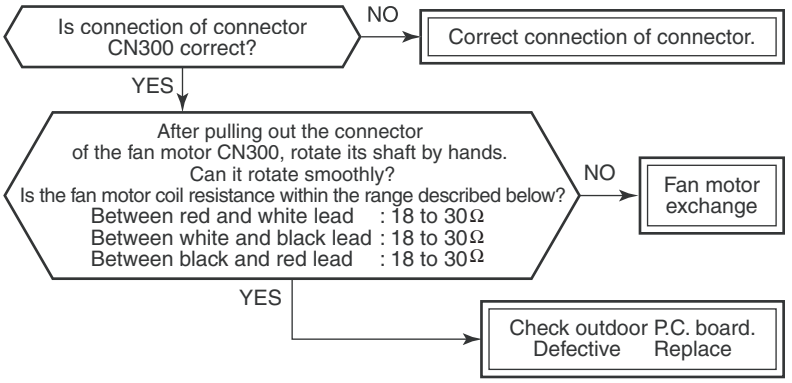
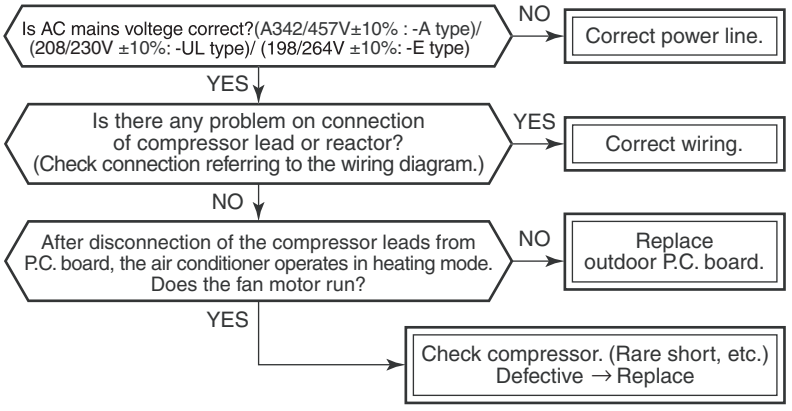
CODE No.	APPLICATION CONTROL KIT LED display	Check / Countermeasures (part without special mention indicates a part of the outdoor unit.)
[H03]	D01 (Red) ◎ D02 (Yellow) ◎ D03 (Yellow) ● D04 (Yellow) ●	**[Power supply error, Currentdetection circuit error]** Are connections of wires correct? Between power cable and terminal block Between outdoor P.C. board and terminal block → NO → Correct wires YES → Check outdoor P.C. board. Defect → Replace
[L29]	D01 (Red) ○ D02 (Yellow) ● D03 (Yellow) ● D04 (Yellow) ○ or ● ◎ ◎ ●	**[Power supply error, Currentdetection circuit error]** Is AC mains voltege correct?(A342/457V±10% : -A type)/ (208/230V ±10%: -UL type)/ (198/264V ±10%: -E type) → NO → Correct power supply line. YES → Is compressor under correct conditions? → NO → Compressor trouble Rare short check Defective → Replace YES → Check outdoor P.C. board. Defect → Replace
[P03]	D01 (Red) ● D02 (Yellow) ○ D03 (Yellow) ○ D04 (Yellow) ●	**[Discharge temp. error]** Is there gas leak? Is there refrigerant shortage? → YES → Repair defective position. Recharge refrigerant. NO → Is PMV under correct conditions? → NO → Repair defective position. Replace defective part. YES → Does an abnormal overload happen? → YES → Remove and improve the cause of overload. NO → Is connection of CN601 correct? Is resistance value of TD sensor correct? → NO → Correct connector. Sensor error → Replace YES → Check outdoor P.C. board. Defect → Replace
[P04]	D01 (Red) ○ D02 (Yellow) ● D03 (Yellow) ● D04 (Yellow) ○	**[Power supply error (Voltage error)]** Is AC mains voltege correct?(A342/457V±10% : -A type)/ (208/230V ±10%: -UL type)/ (198/264V ±10%: -E type) → NO → Confirm power supply construction, etc. YES → Check outdoor P.C. board. Defect → Replace

LED display legend: ● Go off, ○ Go on, ◎ Flash (5Hz)

CODE No.	APPLICATION CONTROL KIT LED display	Check / Countermeasures (part without special mention indicates a part of the outdoor unit.)
[P04]	D01 (Red) D02 (Yellow) D03 (Yellow) D04 (Yellow) ○ ● ● ○ or ● ○ ● ○	**[High-pressure SW error] (-UL type only)** 1. High-pressure SW error 2. Service valve closed. 3. Indoor/Outdoor fan error 4. Clogging of indoor/outdoor PMV 5. Loading of indoor/outdoor heat exchangers or short-circuit 6. Overcharge of refrigerant
[P05]	D01 (Red) D02 (Yellow) D03 (Yellow) D04 (Yellow) ◎ ◎ ● ● or ○ ● ● ○	**[Power supply error (Voltage error)]** → Refer to columns **[H03]** and **[P04]** and then check power supply and voltage erro



LED display legend: ● Go off, ○ Go on, ◎ Flash (5Hz)

CODE No.	APPLICATION CONTROL KIT LED display	Check / Countermeasures (part without special mention indicates a part of the outdoor unit.)
[P19]	—	**[4-way reversal error]**  ∗In case of RAV-SP180AT2-UL, the coil of 4-way valve is electrified during cooling cycling. ∗In cooling operation, [P19] error may be displayed when the refrigerant pressure rises high abnormally. In this case, remove the cause of pressure rising and then diagnose it again.
[P22]	D01 (Red) ○ D02 (Yellow) ○ D03 (Yellow) ○ D04 (Yellow) ●	**[Outdoor fan system error]** 
[P26]	D01 (Red) ◎ D02 (Yellow) ● D03 (Yellow) ● D04 (Yellow) ●	**[Short-cicuit of compressor driving device]** 
[P29]	D01 (Red) ● D02 (Yellow) ◎ D03 (Yellow) ● D04 (Yellow) ●	**[Position detection cicuit error]** 

LED display legend: ● Go off, ○ Go on, ◎ Flash (5Hz)

Error mode detected by outdoor unit(In case of 3.0HP to 10HP)

○ : Go on, ◎ : Flash, ● : Go off

Operation of diagnostic function		Sensor lamp part			Judgment and measures	Refer to page No.
Check code	Cause of operation	Block indication				
		Operation	Timer	Ready		
E04	Indoor/Outdoor communication Case thermostat operation(AT-E1 Only)	—	—	—	1.Indoor/Outdoor communication error	43
F04	Disconnection, short of discharge temp. sensor (TD)	◎	◎	○	1. Check discharge temp. sensor (TD). 2. Check outdoor P.C. board.	44
F06	Disconnection, short of outdoor temp. sensor (TE)	◎	◎	○	1. Check temp. sensor (TE). 2. Check outdoor P.C. board.	44,45
F07	Disconnection, short of outdoor temp. sensor (TL)	◎	◎	○	1. Check temp. sensor (TL). 2. Check outdoor P.C. board.	45
F08	Disconnection, short of outside temp. sensor (TO)	◎	◎	○	1. Check outside temp. sensor (TO). 2. Check outdoor P.C. board.	45
F12	Disconnection, short of suction temp. sensor (TS)	◎	◎	○	1. Check suction temp. sensor (TS). 2. Check outdoor P.C. board.	45
F13	Disconnection, short of heat sink temp. sensor (TH)	◎	◎	○	1. Check outdoor P.C. board. (Q201 is incorporated in TH sensor.)	46
F15	Miss-mounting of outdoor temp. sensor (TE, TS)	◎	◎	○	1. Check temp. sensor (TE, TS). 2. Check outdoor P.C. board.	46
F23	Ps sensor error (-UL / AT-E1 not used)				1. Check connection of Ps sensor connector. 2. Check failure of Ps sensor. 3. Check compressing power error of compressor. 4. Check 4-way valve error. 5. Check outdoor P.C. board error.	46
F31	Outdoor P.C. EEPROM error	◎	◎	○	1. Check outdoor P.C. board.	47
H01	Compressor break down * Although operation has started, operation frequency decreases and operation stops.	●	◎	●	1. Check power supply voltage.(347/457V :-A type)/ (208/264V :-E type)/(208/230V :-UL type) 2. Overload operation of refrigerating cycle	47
H02	Compressor lock * Over-current detection after compressor start-up	●	◎	●	1. Trouble of compressor (Lock, etc.): Replace compressor. 2. Wiring error of compressor (Open phase)	47
H03	Current detection circuit error	●	◎	●	1. Check outdoor P.C. board. (AC current detection circuit)	48
H04	Case thermostat operation * Abnormal overheat of compressor	◎	●	◎	1. Check case thermostat and connector. 2. Check gas leak, recharge 3. Check full open of service valve. 4. Check PMV (Pulse Motor Valve). 5. Check broken pipe.	48
H06	Low pressure protective operation (-A type only)	●	◎	●	1. Check service valves are fully opened. (Gas side, Liquid side) 2. Check clogging of outdoor PMV. (PMV1, 2) 3. Check SV2 circuit. 4. Check Ps sensor error. 5. Check clogging of indoor filter. 6. Check clogging of refrigerant pipe. 7. Check of outdoor fan operation. (In heating mode) 8. Check short of refrigerant.	49
L10	Unset jumper of service P.C. board	◎	○	◎	1. Outdoor service P.C. board Check model type setting jumper wire.	49

○ : Go on, ◎ : Flash, ● : Go off

Operation of diagnostic function		Sensor lamp part			Judgment and measures	Refer to page No.
Check code	Cause of operation	Block indication				
		Operation	Timer	Ready		
L29	Communication error between outdoor P.C. board MCU (AT-E1 not used)	◎	○	◎	1. Check outdoor P.C. board (MCC-1596, MCC-1597, MCC-1599). 2. Connection check between CN802 of MCC-1599 and CN504 of MCC-1597, and also connection check between CN505 of MCC-1597 and CN851 of MCC-1596.	50,51
P03	Discharge temp. error * Discharge temp. (TD) over specified value was detected.	◎	●	◎	1. Check refrigerating cycle (Gas leak) 2. Trouble of electronic expansion valve 3. Check discharge temp. sensor (TD).	52
P04	High pressure SW system error	◎	●	◎	1. Check service valves are fully opened. (Gas side, Liquid side) 2. Check of outdoor fan operation. 3. Check motor error of outdoor fan. 4. Check clogging of outdoor PMV. (PMV1, 2) 5. Check clogging of heat exchanger in indoor/outdoor units. 6. Short-circuit status of suction/discharge air in outdoor unit. 7. Check outdoor P.C. board error. 8. Check fan system error (Cause of air volume drop) at indoor side. 9. Check PMV opening status in indoor unit.	53,54, 55
P05	Power supply voltage error	◎	●	◎	1. Check power supply voltage. (AC198/264V :-E type)/ (208/230V :-UL type)/(342/457V :-A type)	55
	Open phase of 3-phase power supply (-A type only)	◎	●	◎	1. Check open phase of 3-phase power supply. 2. Black lead wire to be connected to CN03 does	
P07	Heat sink overheat error * Heat sink temp. sensor detected over specified temperature.	◎	●	◎	1. Check screw tightening between PC. Board and heat sink and check radiator grease. 2. Check heat sink blast path.	55
P15	Detection of gas leak * Discharge temp. sensor (TD), Suction temp. sensor (TS) detected temperature over specified temp.	◎	●	◎	1. Check gas leak, recharge 2. Check full open of service valve. 3. Check PMV (Pulse Motor Valve). 4. Check broken pipe. 5. Check discharge temp. sensor (TD), suction temp. sensor (TS).	55
P19	4-way valve inverse error * After heating operation has started, indoor heat exchanger temp. lowers under the specified temp. * After heating operation has started, outdoor heat exchanger / suction temp. rises over the specified temp.	◎	●	◎	1. Check operation of 4-way valve. 2. Check outdoor heat exchanger (TE), suction temp. sensor (TS). 3. Check indoor heat exchanger sensor (TC). 4. Check 4-way valve coil. 5. Check PMV (Pulse Motor Valve).	56,57
P20	High pressure protective operation • During cooling operation, outdoor temp. sensor (TL) detected temperature over specified temp. • During heating operation, indoor temp. sensor (TC, TCJ) detected temperature over specified temp.	◎	●	◎	1. Check outdoor heat exchanger sensor (TL). 2. Check indoor heat exchanger sensor (TC, TCJ). 3. Check full open of service valve. 4. Check indoor/outdoor fan. 5. Check PMV (Pulse Motor Valve). 6. Check clogging and short circuit of indoor/outdoor heat exchanger. 7. Overcharge of refrigerant. Recharge	58
P22	Outdoor fan system error	◎	●	◎	1. Check lock of fan motor. 2. Check power supply voltage between L2 and N. (AC198/264V :-E type)/(208/230V :-UL type)/ (342/457V :-A type) 3. Check outdoor P.C. board.	59
P26	Short-circuit error of compressor driving element	◎	●	◎	1. When performing operation while taking-off compressor wire, P26 error occurs. Check control P.C. board. 2. When performing operation while taking-off compressor wire, an error does not occur. (Compressor rare short)	60
P29	Position detection circuit error	◎	●	◎	1. Check control P.C. board.	60
No code	Other error	—	—	—	Compressor disorder due to sudden change of load, etc.	60

In case of 8HP to 42HP

1) This section describes the diagnostic method for each check code displayed on the remote controller.
2) In some cases, a check code indicates multiple symptoms.
   In this case, confirm LED display on the outdoor P.C. board to narrow the contents to be confirmed.
3) The check code on the remote controller is displayed only when the same error occurred continuously by multiple times while LED of the outdoor P.C. board displays even an error which occurred once.
   Therefore the display on the remote controller may differ from that of LED.

LED display on outdoor P.C. board(AT-E1 only)

Operation method of the service SW
[Display of error which is generating]

When even one of D800 to D804 rapid flashing, it indicates that an error occurred. When D800 to D801 indicate slow flashing or when D805 flashes, push and hold SW800 and SW801 for 5 seconds or more simultaneously. The error display exchanges to display of the error under occurrence at present.

	(No error)	(Error occurred)
D800 (Yellow)	●	◎
D801 (Yellow)	●	●
D802 (Yellow)	●	●
D803 (Yellow)	●	●
D804(Yellow)	●	●
D805 (Green)	○	○

(Example of discharge temp. sensor error)

● : ON, ○ : OFF, ◎ :Rapid flashing (5 times /second)

Display of the latest error

The latest error is displayed by the following action.
As the memory is kept, it is confirmed even after the power supply was turned off once. (Except outside air temp. sensor (TO) error)

1) Check D800 to D804 are turned off (or rapid flashing) and D805 is turned on. When D800 to D804 are slowly flashing or D805 flashes, push and hold SW800 and SW801 for 5 seconds or more simultaneously. D800 to D804 will be turned off (or rapid flashing) and D805 flashes.
2) Push and hold SW800 for 5 seconds or more. D804 changes to slow flashing.
3) Push SW800 several times and change LED display (D800 to D804) to [Display of latest error (Including the present error)].
4) Push SW801. The latest error is displayed.
5) When finishing the work, be sure to execute item 1) to return LED to the initial status (Display of error under occurrence).

	Display of latest error (Including the present error)
D800 (Yellow)	○
D801 (Yellow)	●
D802 (Yellow)	●
D803 (Yellow)	●
D804(Yellow)	●
D805 (Green)	◎

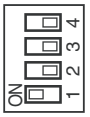
● : ON, ○ : OFF, ◎ :Rapid flashing (5 times / second)

LED display on outdoor P.C. board (Other AT-E1 type)

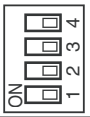
Dip switch setup

When turning on 1) only of SW803, the latest error is displayed. As the memory is stored, it can be confirmed even if the power supply is turned off once. (excluding outside temp. sensor (TO) error)
When the work finished or the outdoor temp. sensor (TO) error was found, turn off all of SW803. (The error which occurs at present is displayed.)

<Latest error display>
Only 1) of SW803 is ON.



<Error display, which occurs at present>
All SW803 are OFF. (Initial status)



Display selection

When even a LED of D800 to D804 (Yellow) goes on, error occurrence is indicated. **<Display 1>**
If pushing the button switch SW800 for 1 second under the above condition, the yellow LED is displayed with flashing. **<Display 2>**
When pushing SW800 for 1 second again, the status returns to **<Display 1>.**
The error contents can be confirmed by combining **<Display 1> and <Display 2>.**

	<Display 1> ⇔ **<Display 2>**		
	(No error)	(Error occurred)	(Push SW800)
D800 (Yellow)	●	○	●
D801 (Yellow)	●	○	●
D802 (Yellow)	●	●	◎
D803 (Yellow)	●	●	●
D804 (Yellow)	●	○	●
D805 (Green)	○	○	○

(Example of discharge temp. sensor error)
●: Go off, ○: Go on, ◎: Flash

Outdoor LED Display, Switch Operation

1. Outline

A various setup and operation check can be performed by DIP switches at 3 positions (SW802, SW803, SW804) and the pushdown button switches (SW800, SW801) at 2 positions.

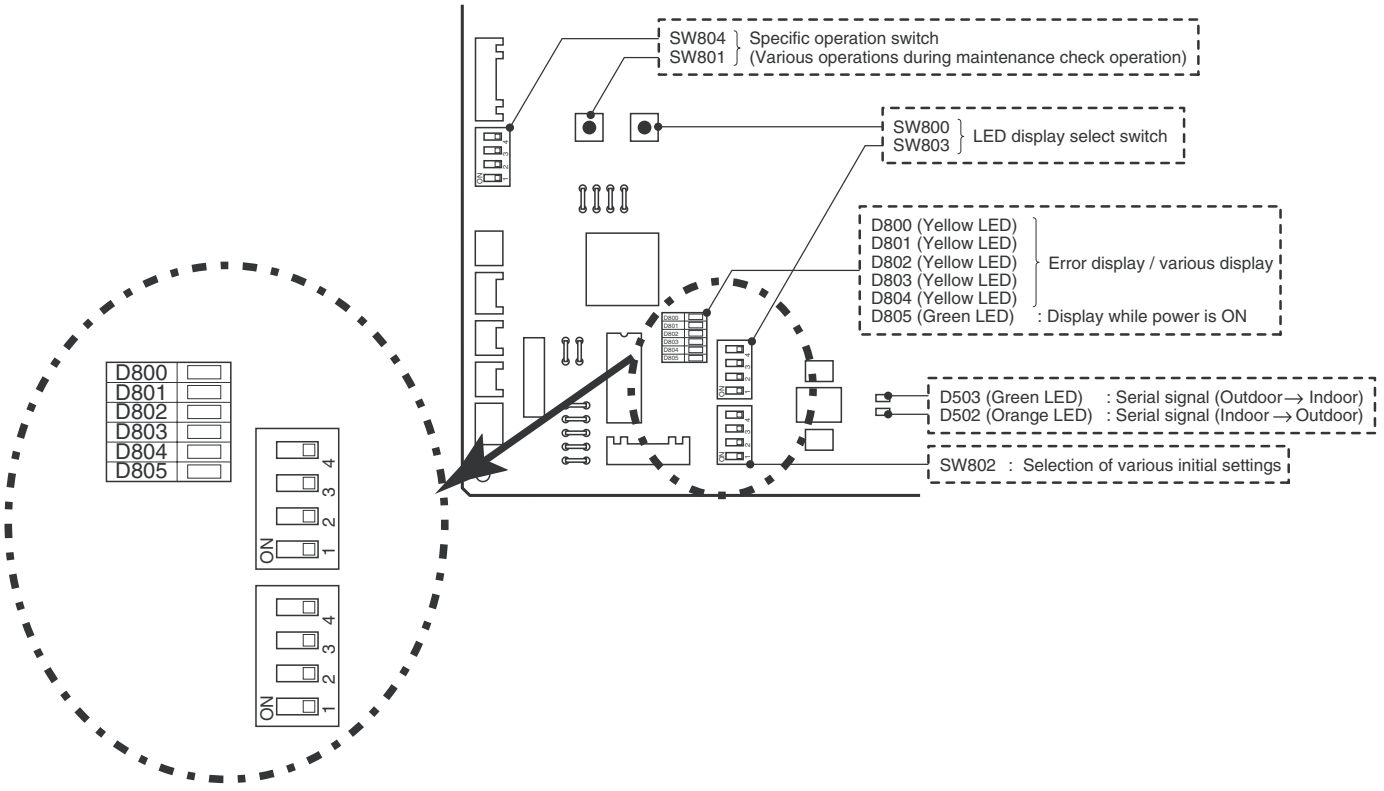
Operation part

Part No.	Specifications	Operation contents
SW800	Pushdown button switch	Exchanges the displayed contents of LED (D800 to D804) on the outdoor control P.C. board.
SW803	DIP switch	
SW801	Pushdown button switch	Performs the specific operation to check maintenance.
SW804	DIP switch	
SW802	DIP switch	Performs various initial settings.

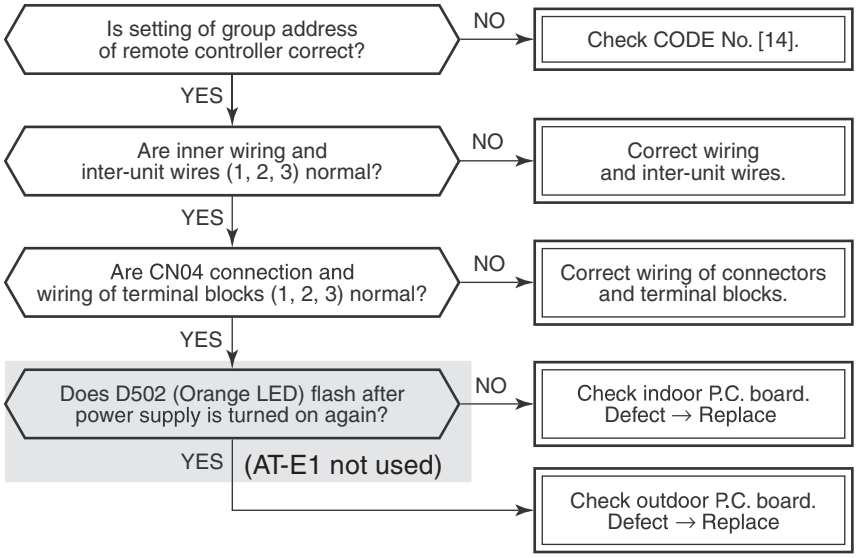
Display part

Part No.	Specifications	Operation contents
D502	Orange LED	Indoor/Outdoor communication (Serial communication) signal display (Receive signal from indoor signal)
D503	Green LED	Indoor/Outdoor communication (Serial communication) signal display (Send signal from outdoor signal)
D800 to D804	Yellow LED	Error display When all SW803 are OFF, or when any of D800 to D804 goes on, LED displays that the outdoor controller detects an error. When status of SW803 is other than OFF, various indications are displayed.
D805	Green LED	Power-ON display When the power of the outdoor unit is turned on, LED goes on. When SW801 and SW804 operate the specific operation, LED flashes.

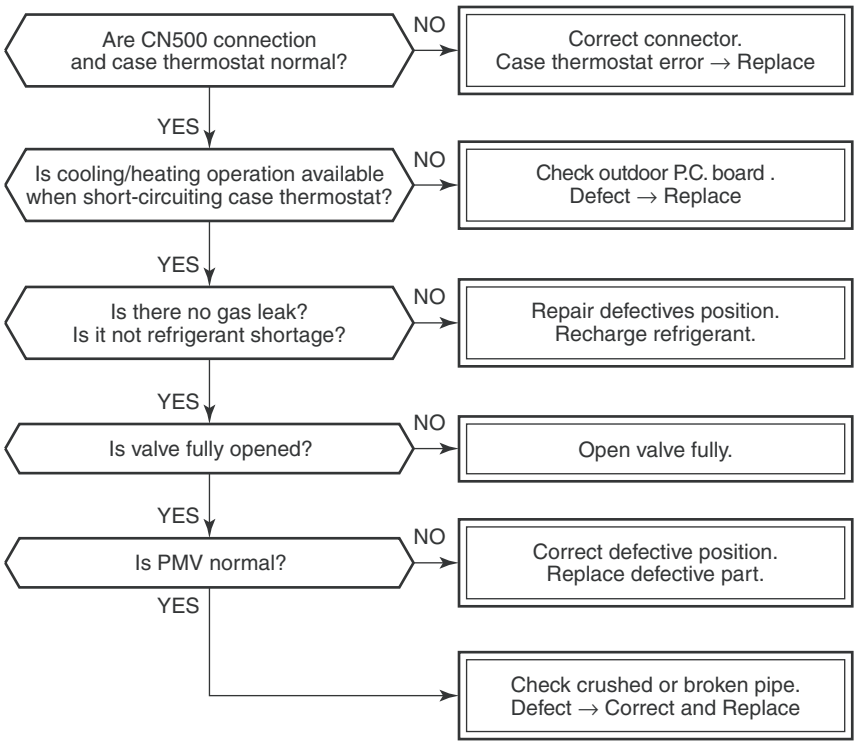
*All LED are colorless when it goes off.

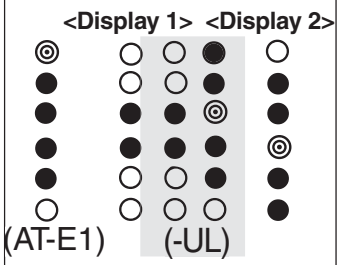
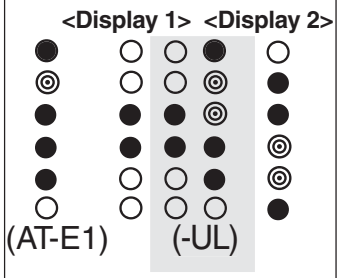
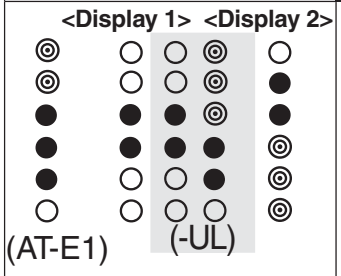
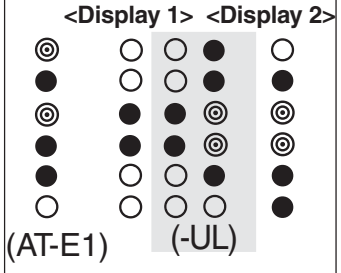


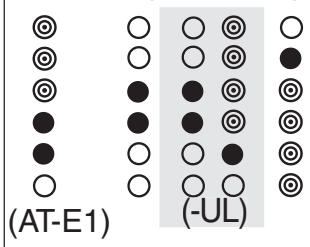
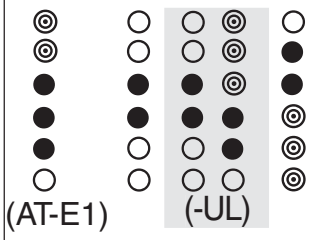
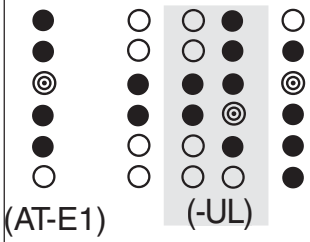
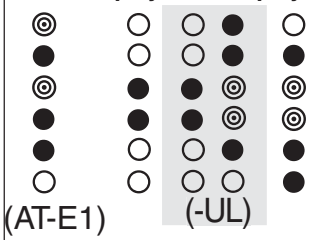
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[E04]	—	**[Indoor/Outdoor communication error]**

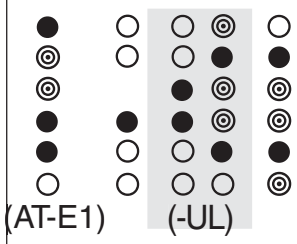
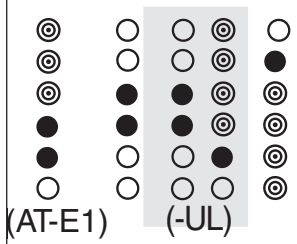
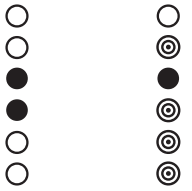


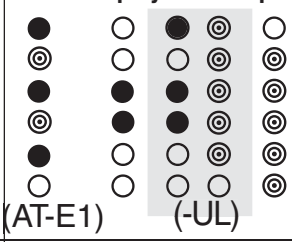
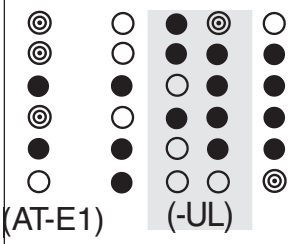
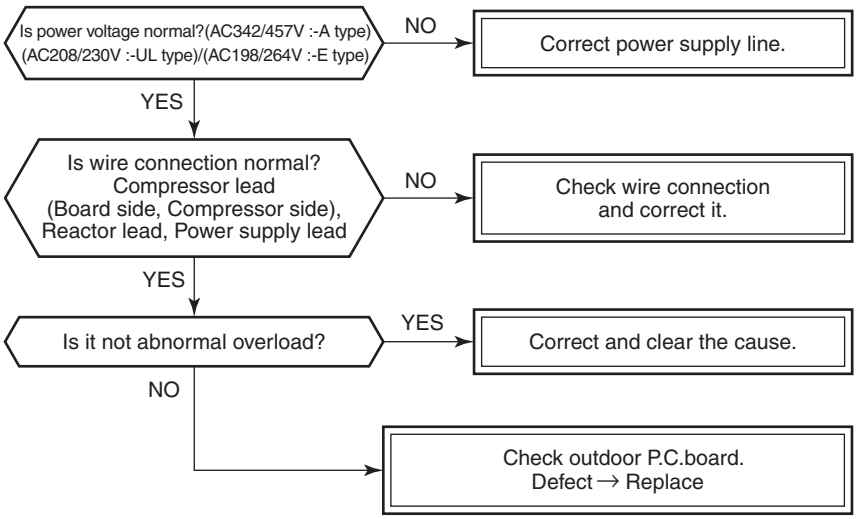
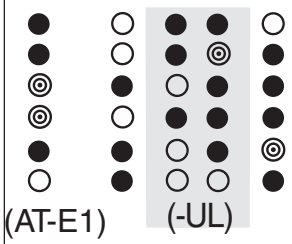
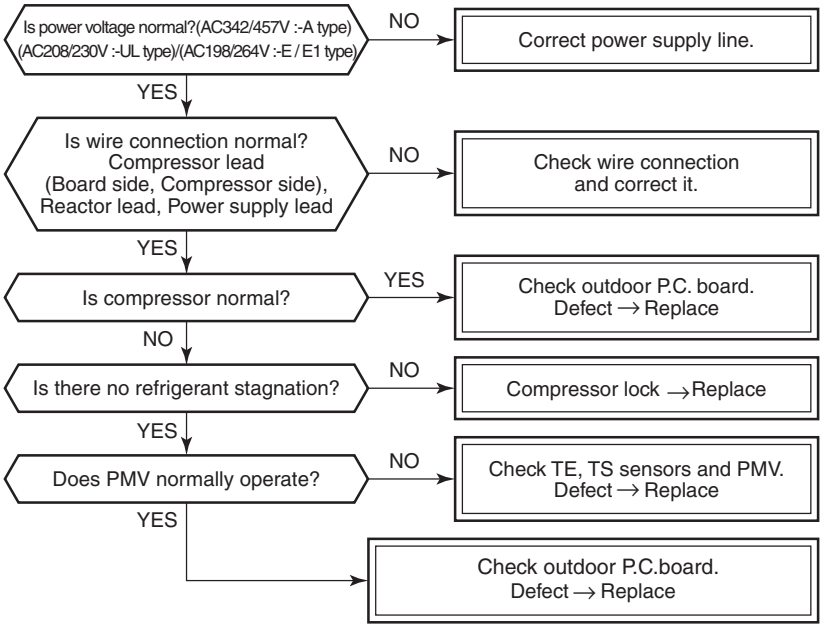
	—	**[Case thermostat operation] (AT-E1 only)**

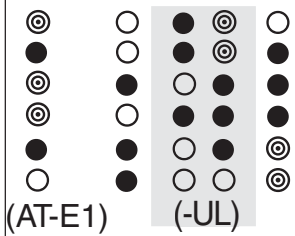
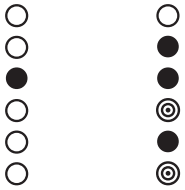
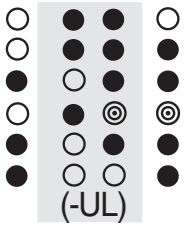


CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[F04]		**[Dischage temp. sensor (TD) error]** Is CN603 connection normal? Is resistance value of TD sensor normal? — NO → Correct connector. Sensor error → Replace YES → Check outdoor P.C. board. Defect → Replace
[F06]		• There is a possibility that it is one of the following errors. Confirm LED on outdoor P.C. board to judge which error it is. Heat exchanger temp. sensor (TE) error, Heat exchanger temp. sensor (TL) error, Suction temp. sensor (TS) error, Miswiring of heat exchanger sensor (TE, TS)
		**[Heat exchanger temp. sensor (TE) error]** Is CN601 connection normal? Is resistance value of TE sensor normal? — NO → Correct connector. Sensor error → Replace (AT-E1:CN603) YES → Check outdoor P.C. board. Defect → Replace
		**[Heat exchanger temp. sensor (TL) error] → Refer to [F07] column** **[F07]** Is CN604 connection normal? Is resistance value of TL sensor normal? — NO → Correct connector. Sensor error → Replace (AT-E1:CN605) YES → Check outdoor P.C. board. Defect → Replace
		**[Suction temp. sensor (TS) → Refer to [F12] column** **[F12]** Is CN600 connection normal? Is resistance value of TS sensor normal? — NO → Correct connector. Sensor error → Replace (AT-E1:CN602) YES → Check outdoor P.C.board. Defect → Replace

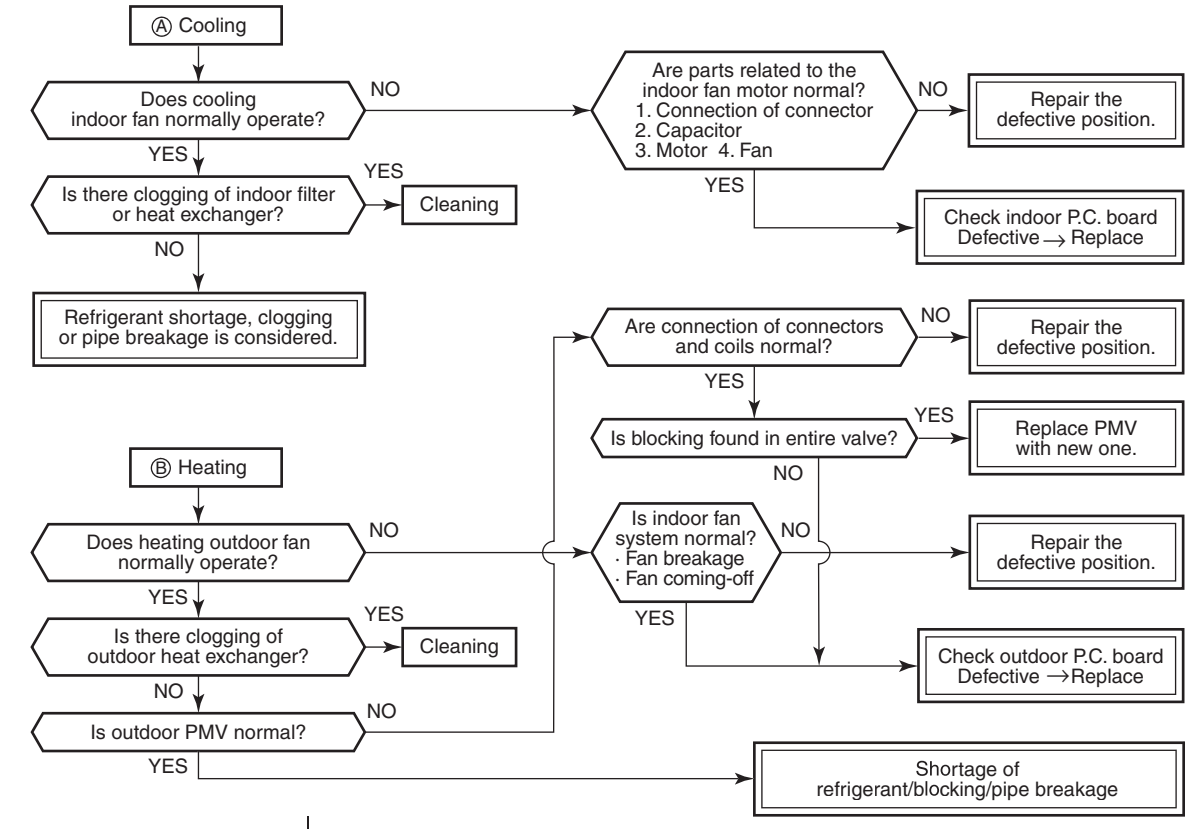
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[F06]	<Display 1> <Display 2>  	[Miswiring of heat exchanger sensor (TE, TS)] → Refer to [F15] column [F15] Is mounting status of TE and TS sensors normal? NO → Correct sensor mounting. YES Is CN600 connection normal? Is resistance value of TS sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN604) YES Is CN601 connection normal? Is resistance value of TE sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN603) YES Check outdoor P.C. board Defect → Replace
[F07]	<Display 1> <Display 2>  	[Heat exchanger temp. sensor (TL) error] Is CN604 connection normal? Is resistance value of TL sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN605) YES Check outdoor P.C. board. Defect → Replace
[F08]	<Display 1> <Display 2>  	[Outside air temp. sensor (TO) error] Is CN602 connection normal? Is resistance value of TO sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN602) YES Check outdoor P.C.board. Defect → Replace
[F12]	<Display 1> <Display 2>  	[Suction temp. sensor (TS) error] Is CN600 connection normal? Is resistance value of TS sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN604) YES Check outdoor P.C.board. Defect → Replace

CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[F13]	<Display 1> <Display 2>  	[Heasink temp. sensor (TH) error] Check outdoor P.C.board. Defect → Replace
[F15]	<Display 1> <Display 2>  	[Miswiring of heat exchangersensor (TE, TS)] Is mounting status of TE and TS sensors normal? NO → Correct sensor mounting. YES Is CN600 connection normal? Is resistance value of TS sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN604) YES Is CN601 connection normal? Is resistance value of TE sensor normal? NO → Correct connector. Sensor error → Replace (AT-E1:CN603) YES Check outdoor P.C. board Defect → Replace
[F23]	<Display 1> <Display 2> 	[PS sensor error] **(-UL / AT-E1 not used) (8.0HP to 10HP only)** Is connector of Ps sensor correctly connected? NO → Correct connection of connector. YES Connector: CN606, White Are the output current characteristics of Ps sensor normal? NO → Sensor error YES ? ① Pressure by pressure gauge (Check joint) ② Pressure display on LED display ③ Output power of I/F (CDB) P.C. board If ① and ②, ① and ③ are different, an error of the pressure sensor is considered. If ② and ③ are different, check I/F P.C. board. Does not refrigerant bypass from discharge port to suction port of 4-way valve? NO → Check compressor. YES Check 4-way valve.

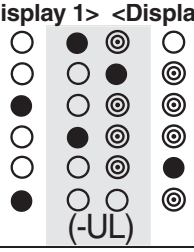
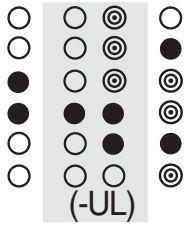
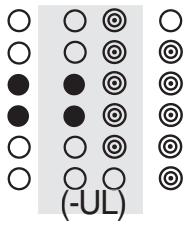
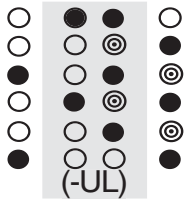
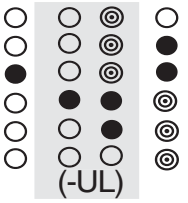
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[F31]	<Display 1> <Display 2>  	[EEPROM error] 
[H01]	<Display 1> <Display 2>  	[Compressor break down] 
[H02]	<Display 1> <Display 2>  	[Compressor lock] 

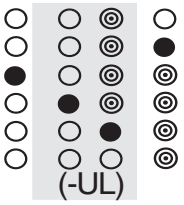
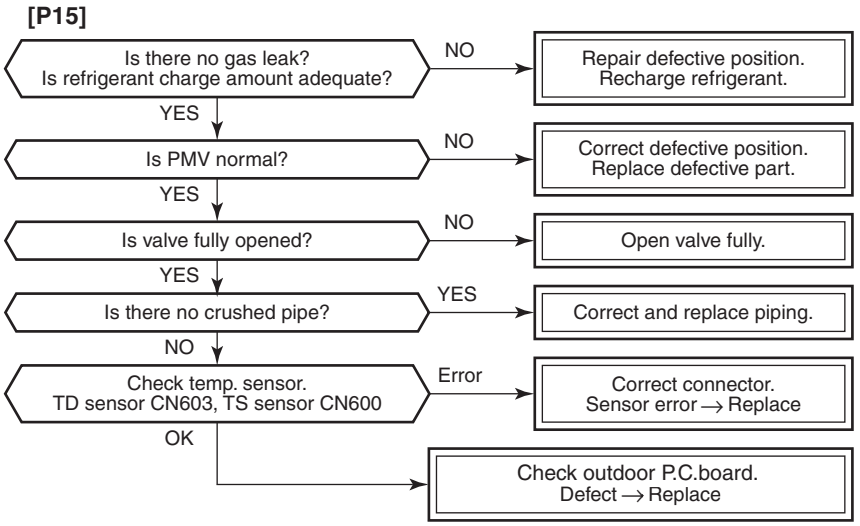
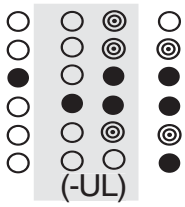
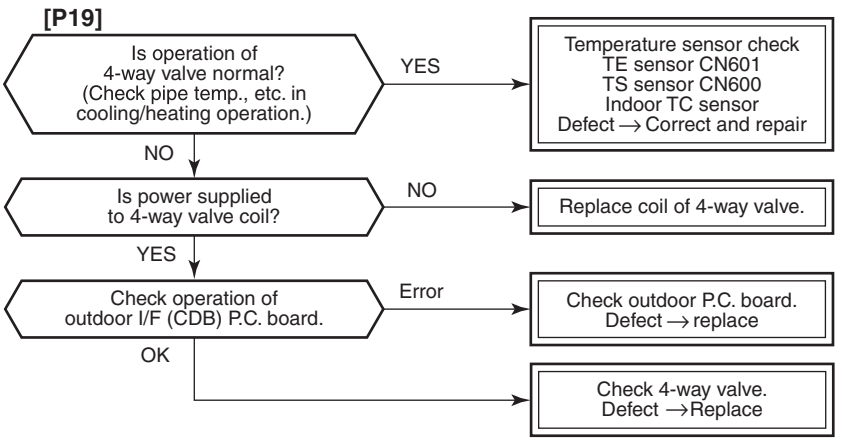
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[H03]	<Display 1> <Display 2>  	[Current detection circuit error] Check outdoor P.C.board. Defect → Replace
	<Display 1> <Display 2> 	[Power supply error (Vdc)] →Refer to [P05] column. **(-UL / AT-E1 not used)** [P05] Is there no open phase of the power supply? YES → Correct wiring. NO Is there no down or up of power supply voltage?(AC342/457V :-A type) /(AC198/264V :-E type) YES → Confirm electric construction, etc. Check outdoor P.C.board. Defect → Replace
[H04]	<Display 1> <Display 2>  	[Case thermostatoperation] **(AT-E1 not used)** Are CN609 connection and case thermostat normal? NO → Correct connector. Case thermostat error →Replace YES Is cooling/heating operation available when short-circuiting case thermostat? NO → Check outdoor P.C.board. Defect → Replace YES Is there no gas leak? Is it not refrigerant shortage? NO → Repair defectives position. Recharge refrigerant. YES Is valve fully opened? NO → Open valve fully. YES Is PMV normal? NO → Correct defective position. Replace defective part. YES Check crushed or broken pipe. Defect →Correct and Replace

CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[H06]	<Display 1> <Display 2>	[Low pressure protective operation] (-A type only)



[L10]	<Display 1> <Display 2> (AT-E1) (-UL)	[Unset model type]: Only when service P.C. board is used Cut jumper line according to the explanation sheet packaged with the service P.C. board.

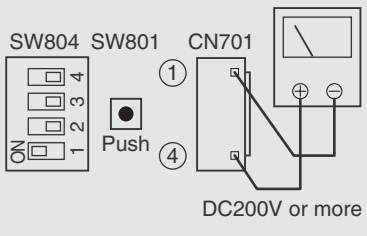
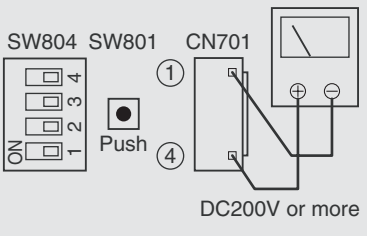
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[L29] **(AT-E1 not used)**		＊There is a possibility that it is one of the following errors. Confirm LED on outdoor P.C. board to judge which error it is. Communication error between MCU, Heat sing temp. sensor (TH) error, EEPROM error, Unset model type, Heat sink overheat error, Gas leak detection, 4-way valve inverse error
	<Display 1> <Display 2> 	**[Communication error between MCU]** 1. Connection check between CN802, CN504 and also connection check between CN505, CN851. Check outdoor P.C.board. Defect → Replace
	<Display 1> <Display 2> 	**[Heat sink temp. sensor (TH) error] → Refer to [F13] column.** **[F13]** Check outdoor P.C.board. Defect → Replace
	<Display 1> <Display 2> 	**[EEPROM error] → Refer to [F31] column.** **[F31]** Check outdoor P.C.board. Defect → Replace
	<Display 1> <Display 2> 	**[Unset model type] → Refer to [L10] column.** **[L10]** **[Unset model type]:** Only when service P.C. board is used Cut jumper line according to the explanation sheet packaged with the service P.C. board.
	<Display 1> <Display 2> 	**[Heat sink overheat error] → Refer to [P07] colymn.** **[P07]** Is there no loosening of screws of motor drive element of outdoor P.C. board Q201? Did not forget to apply radiation grease to rear side of Q201? YES → Apply radiation grease to objective part. Retightening of screws. NO Is not the ventilation flue of the heat sink blocked? Is not the fan blocked? (Short-circuit, etc.) NO → Remove blocking matter. Correct short-circuit. YES Check outdoor P.C.board. Defect → Replace

Check code	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[L29]	<Display 1> <Display 2> 	[Gas leak detection] → Refer to [P15] column. **(AT-E1 not used)** 
	<Display 1> <Display 2> 	[4-way valve inverse error] → Refer to [P19] column. **(AT-E1 not used)** 

(-UL type only)

Check method of outdoor P.C. board operation (Self-hold valve type)

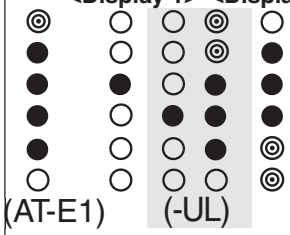
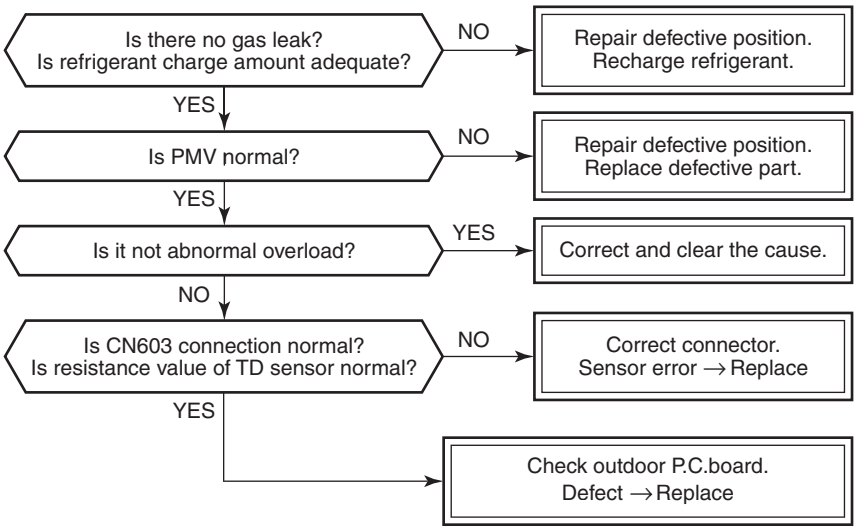
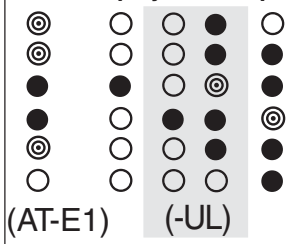
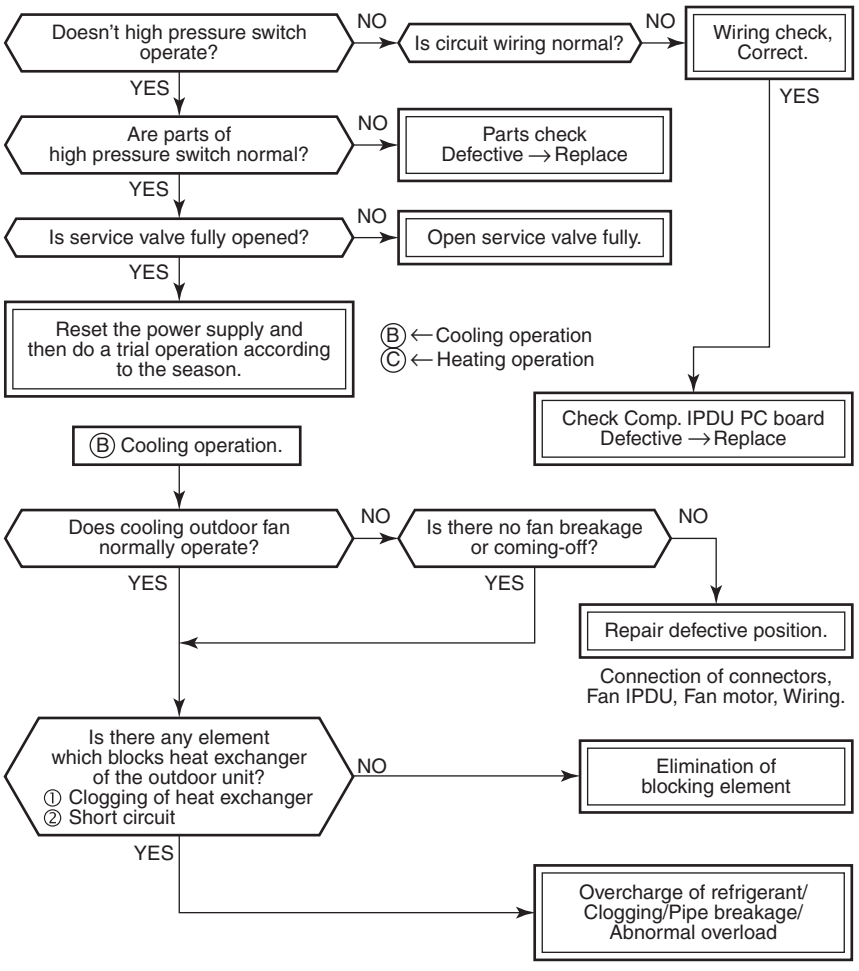
1) Set SW804 of Dip switch as the following figure and then push SW801 for approx. 1 second to check exchange operation to cooling cycle/heating cycle.
   - Power is turned on for approx. 10 seconds.
   - When checking again, check operation 1 minute or more after the first check because exothermic of part (Coil, resistance R700) is large. (There is no problem when coil is not connected.)
2) After check, turn off all the Dip switch SW804.

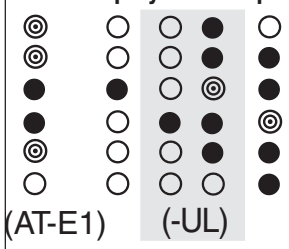
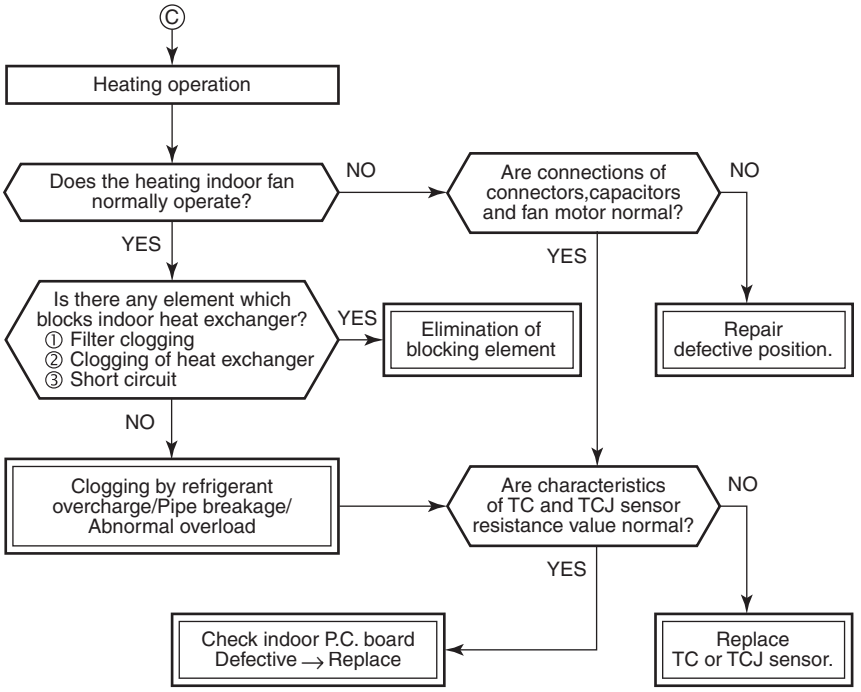
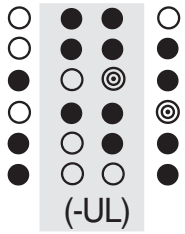
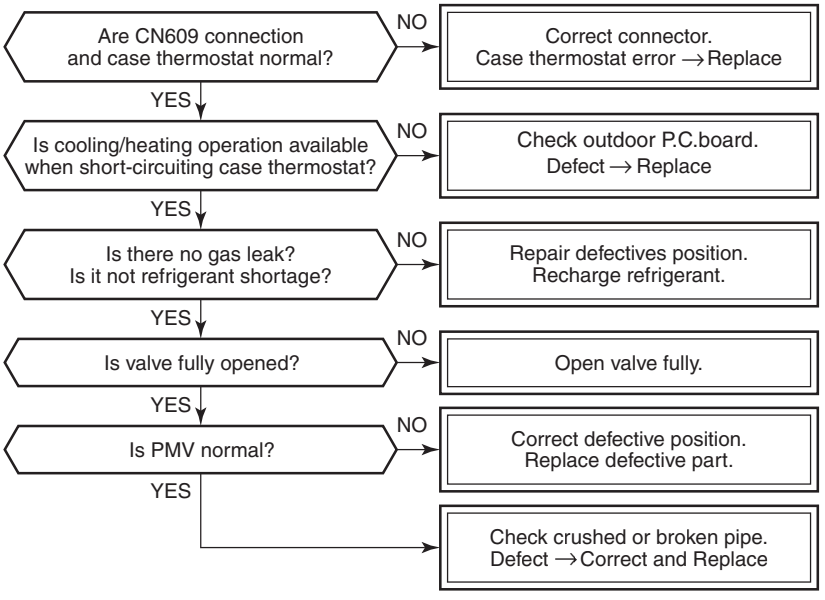
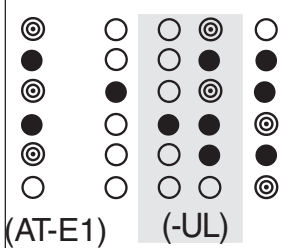
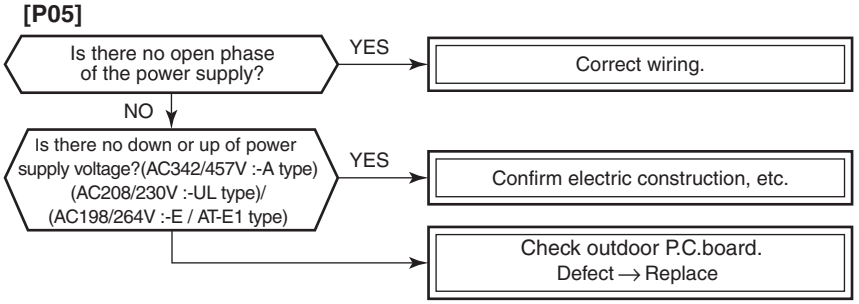
Exchange to cooling cycle	Exchange to heating cycle
	

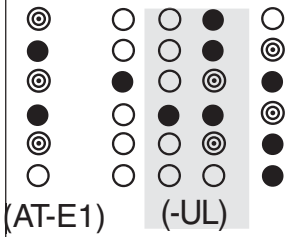
Note) Check by tester

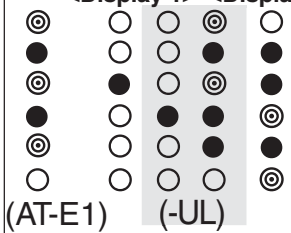
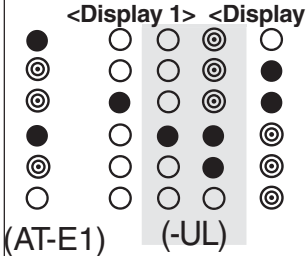
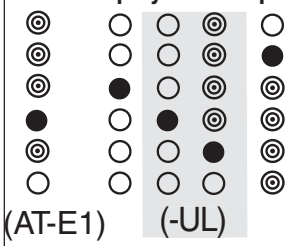
Analog tester : Good if over DC200V

Digital tester : Good if Max. value is over DC200V though the varied value may be displayed.

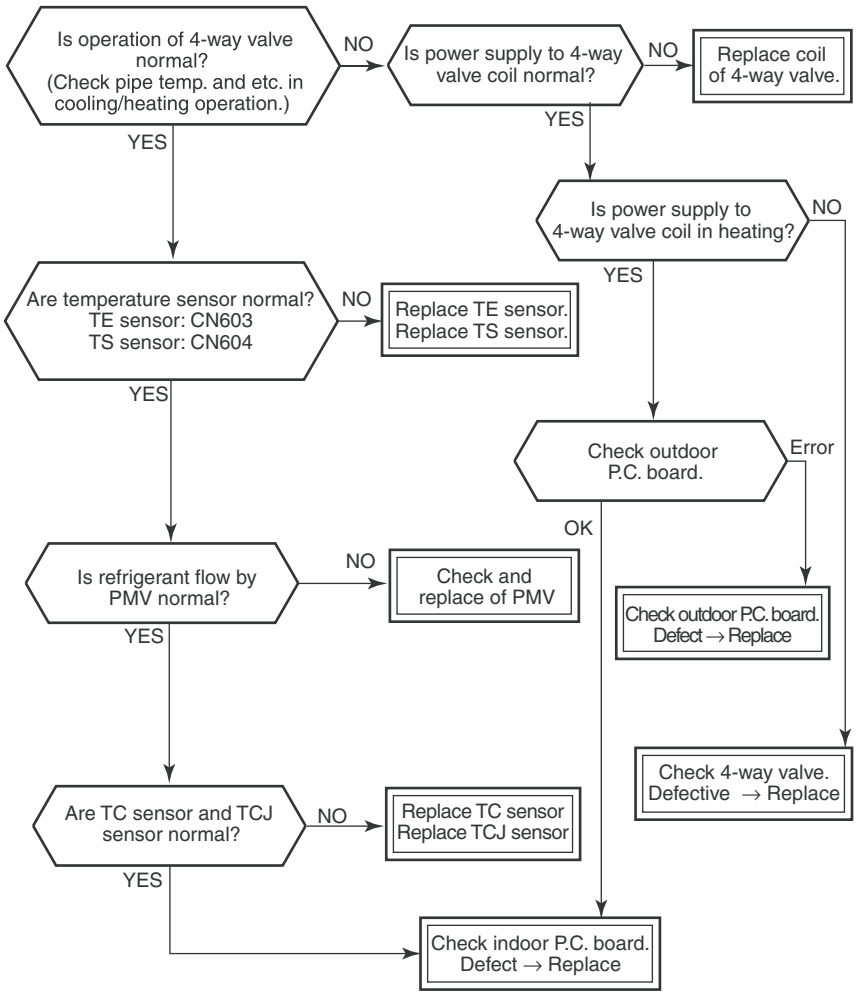
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P03]	<Display 1> <Display 2>  (AT-E1) (-UL)	**[Discharge temp. erroe]** 
[P04]	∗ There is a possibility that it is one of the following errors. Confirm LED on outdoor P.C. board to judge which error it is. (1) high-pressure SW system error, (2) power supply error (Vdc), (3) high-pressure protective operation, (4) case thermo operation.	
	<Display 1> <Display 2>  (AT-E1) (-UL)	**[High pressure SW system erroe]** Power supply error (Vdc), High pressure protective operation, Case thermostat operation. **RAV-SM/SP∗∗∗∗AT7,8/AT7,8Z/AT7,8ZG-E,TR and RAV-SM∗∗∗∗AT-E1 only** 

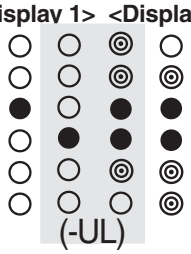
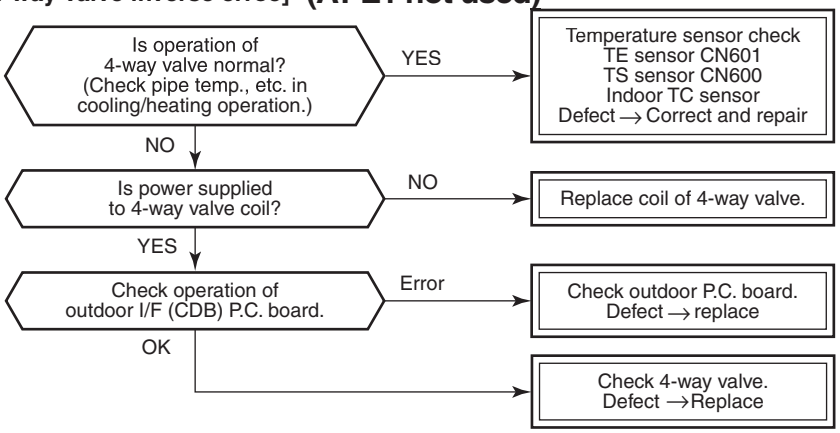
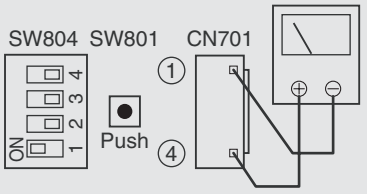
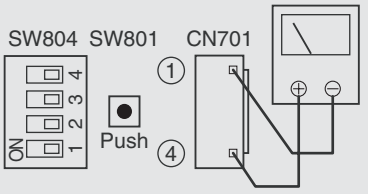
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P04]	<Display 1> <Display 2>  	**RAV-SM/SP∗∗∗∗AT7,8/AT7,8Z/AT7,8ZG-E,TR and RAV-SM∗∗∗∗AT-E1 only** 
	<Display 1> <Display 2>  	**[Case thermostat operation] → Refer to [H04] column. (AT-E1 not used)** **[H04]** 
	<Display 1> <Display 2>  	**[Power supply erroe(Vdc)] → Refer to [P05] column.** **[P05]** 

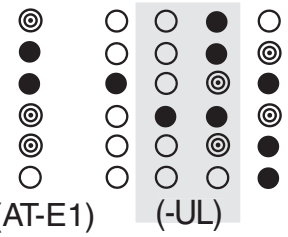
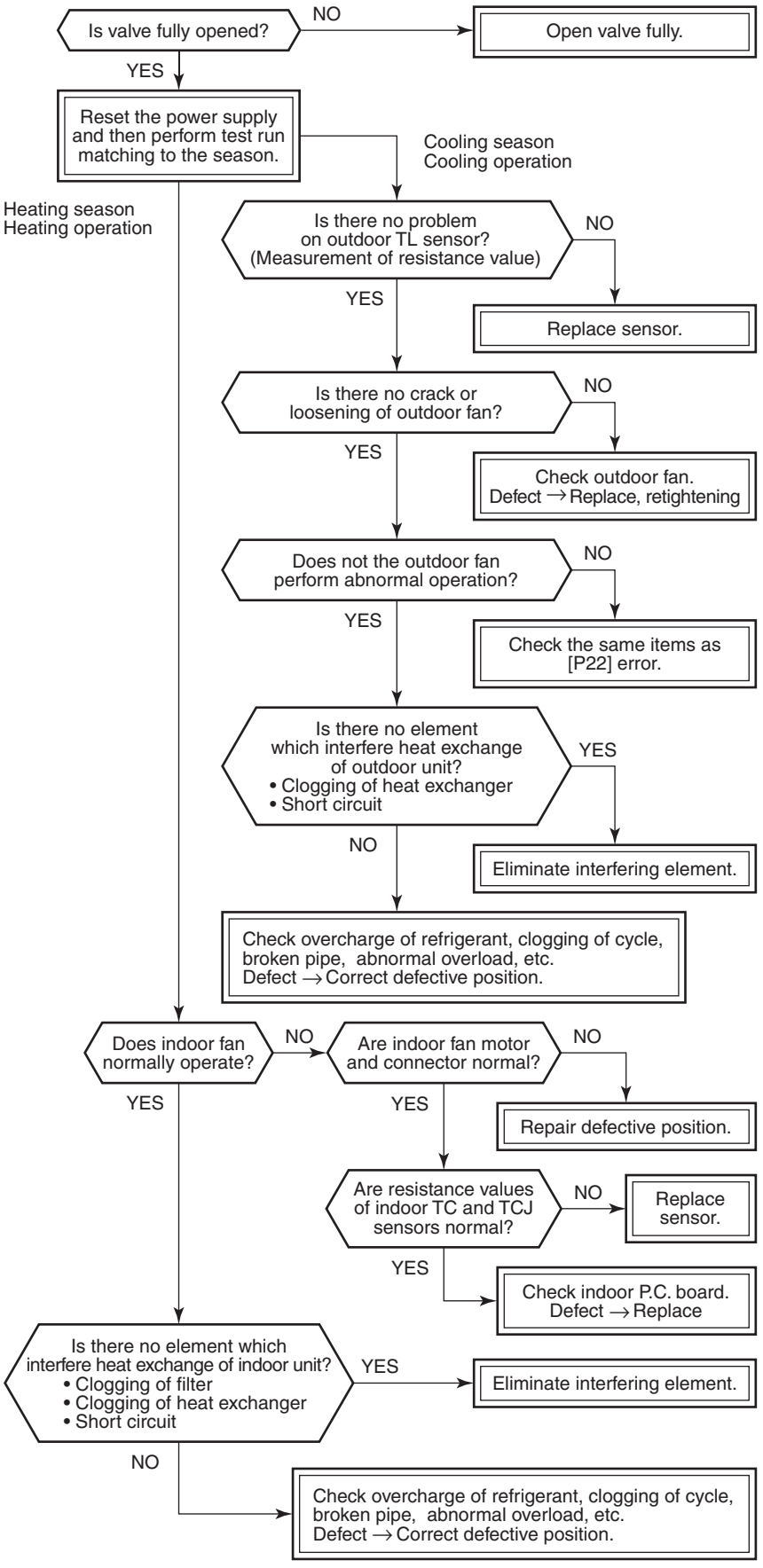
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P04]	<Display 1> <Display 2> 	[High pressure protective operation] → Refer to [P20] column.

CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P05]	<Display 1> <Display 2>  	**[Power supply error (Voltage erroe)]** Is there no open phase of the power supply? YES → Correct wiring. NO Is there no down or up of power supply voltage?(AC342/457V :-A type) (AC208/230V :-UL type)/ (AC198/264V :-E / AT-E1 type) YES → Confirm electric construction, etc. Check outdoor P.C.board. Defect → Replace
[P07]	<Display 1> <Display 2>  	**[Heat sink overheat erroe]** Is there no loosening of screws of motor drive element of outdoor P.C. board Q201? Did not forget to apply radiation grease to rear side of Q201? YES → Apply radiation grease to objective part. Retightening of screws. NO (AT-E1:OIC201) Is not the ventilation flue of the heat sink blocked? Is not the fan blocked? (Short-circuit, etc.) NO → Remove blocking matter. Correct short-circuit. YES Check outdoor P.C.board. Defect → Replace
[P15]	<Display 1> <Display 2>  	**[Gas leak detection]** Is there no gas leak? Is refrigerant charge amount adequate? NO → Repair defective position. Recharge refrigerant. YES Is PMV normal? NO → Correct defective position. Replace defective part. YES Is valve fully opened? NO → Open valve fully. YES Is there no crushed pipe? YES → Correct and replace piping. NO Check temp. sensor. TD sensor CN603, TS sensor CN600 Error → Correct connector. Sensor error → Replace OK (AT-E1:TD=CN601, TS=CN604) Check outdoor P.C.board. Defect → Replace

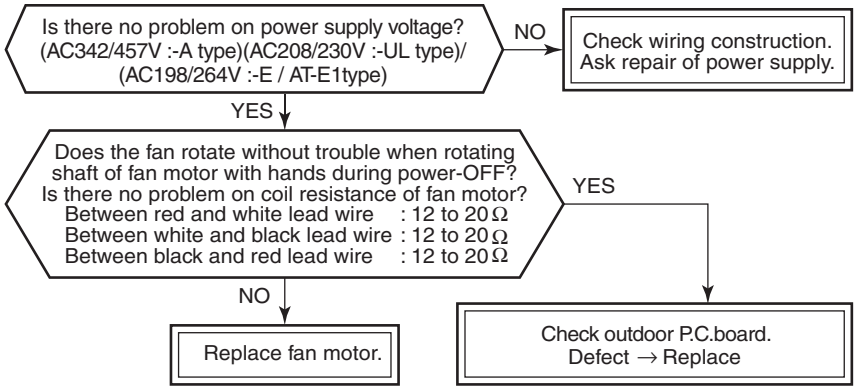
Check code	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P19]	● ● ● ◎ ◎ ○	[4-way valve reversal error] **(AT-E1 only)**



CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P19]	<Display 1> <Display 2>  (-UL)	[4-way valve inverse erroe] **(AT-E1 not used)**  **(-UL type only)** **Check method of outdoor P.C. board operation (Self-hold valve type)** 1) Set SW804 of Dip switch as the following figure and then push SW801 for approx. 1 second to check exchange operation to cooling cycle/heating cycle. • Power is turned on for approx. 10 seconds. • When checking again, check operation 1 minute or more after the first check because exothermic of part (Coil, resistance R700) is large. (There is no problem when coil is not connected.) 2) After check, turn off all the Dip switch SW804. **Exchange to cooling cycle**  **Exchange to heating cycle**  **Note) Check by tester** Analog tester : Good if over DC200V Digital tester : Good if Max. value is over DC200V though the varied value may be displayed.

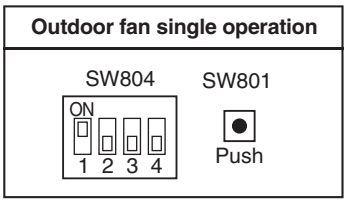
CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P20]	<Display 1> <Display 2> 	[High pressure protective operation] 

CODE No.	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P22]	<Display 1> <Display 2> (AT-E1) (-UL)	**[Fan system error]**



Single operation check for outdoor fan

1) Set SW804 of Dip switch as the following figure and then push SW801 for approx. 1 second to check single operation of outdoor fan. Use this method to check which fan, upper or lower fan, has a trouble.
   • When pushing SW801 for 1 second again or 2 minutes passed, the fan stops.
2) After check, turn off all Dip switch SW804.



(AT-E1 only)

Single operation check for outdoor fan

A single operation of the outdoor fan can be confirmed by handling the service switch SW800, SW801. Use this method to check whether there is trouble or not on the fan.

[Method]

(1) Check D800 to D804 are turned off (or rapid flashing) and D805 is turned on.
When D800 to D801 flash slowly or D805 flashes, push and hold SW800 and SW801 for 5 seconds or more simultaneously.
In the result, D800 to D804 are turned off (or rapid flashing) and D805 changes from flashing to lighting.

(2) Push and hold SW800 for 5 seconds or more. D804 changes to slow flashing.

(3) Push SW800 and stop it at LED display of the following "Outdoor fan single operation ".

Outdoor fan single operation	D800	D801	D802	D803	D804
	○	○	●	○	◎

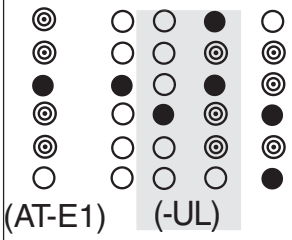
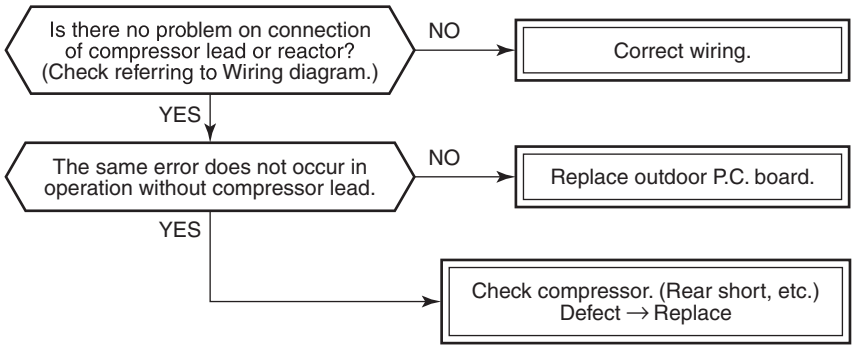
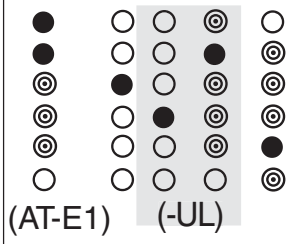
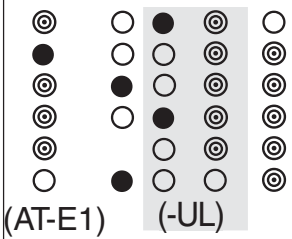
○: ON, ●: OFF ◎: Rapid flashing

(4) Push SW801 and then stop it at the position where D805 flashes rapidly.

(5) Push and hold SW801 for 5 seconds or more. In the result, D804 changes to slow flashing, D805 changes to lighting and the fan rotates.

(6) The fan stops when pushing long SW800 and SW801 for 5 seconds or more simultaneously or when 2 minutes passed.

* If an unknown point generated on the way of the operation, push and hold SW800 and SW801 for 5 seconds or more simultaneously. You can return to the item (1).

Check code	Outdoor LED display	Check and troubleshooting (Item without special mention Indicates part of outdoor unit.)
[P26]	<Display 1> <Display 2> 	**[Short-circuit of compressor drive element]** 
[P29]	<Display 1> <Display 2> 	**[Position detection circuit error]** 
— No code	<Display 1> <Display 2> 	**[Other error]** Compressor disorder due to sudden change of load, etc. Compressor disorder due to sudden change of load, etc. * Although the display of outdoor LED outputs, the unit automatically restarts and error is not determined. * LED display also may output due to negative phase of compressor or wire coming-off.

Temperature sensor Temperature – Resistance value characteristic table

TA, TC, TCJ, TE, TS, TO sensors

Representative value

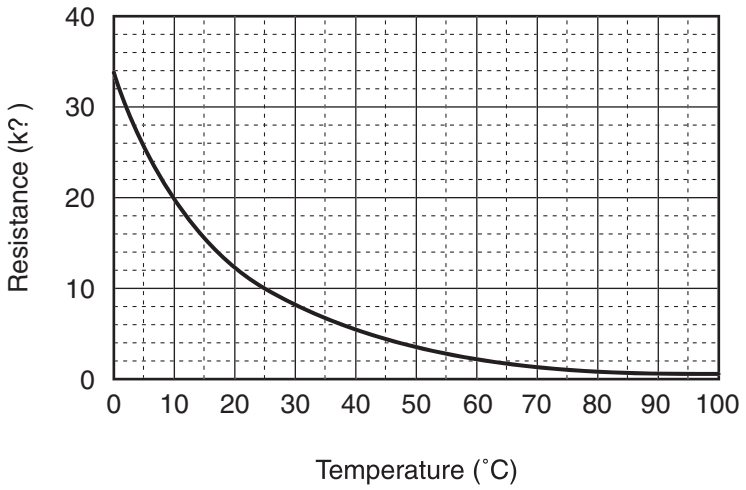
Temperature (˚C)	Resistance value(kΩ)		
	(Minimum value)	(Standard value)	(Maximum value)
0	32.33	33.80	35.30
10	19.63	20.35	21.09
20	12.23	12.59	12.95
25	9.75	10.00	10.25
30	7.764	7.990	8.218
40	5.013	5.192	5.375
50	3.312	3.451	3.594
60	2.236	2.343	2.454
70	1.540	1.623	1.709
80	1.082	1.146	1.213
90	0.7740	0.8237	0.8761
100	0.5634	0.6023	0.6434

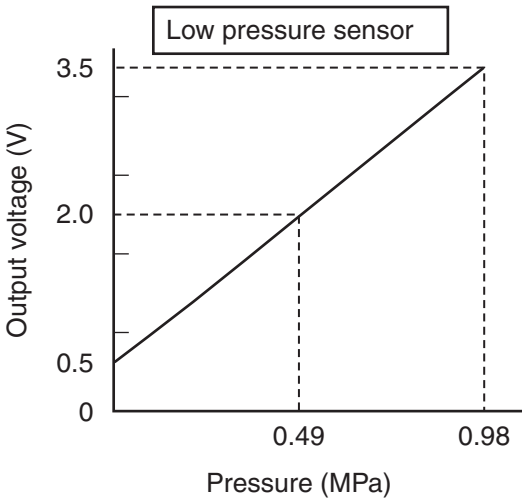
TD, TL sensors

Representative value

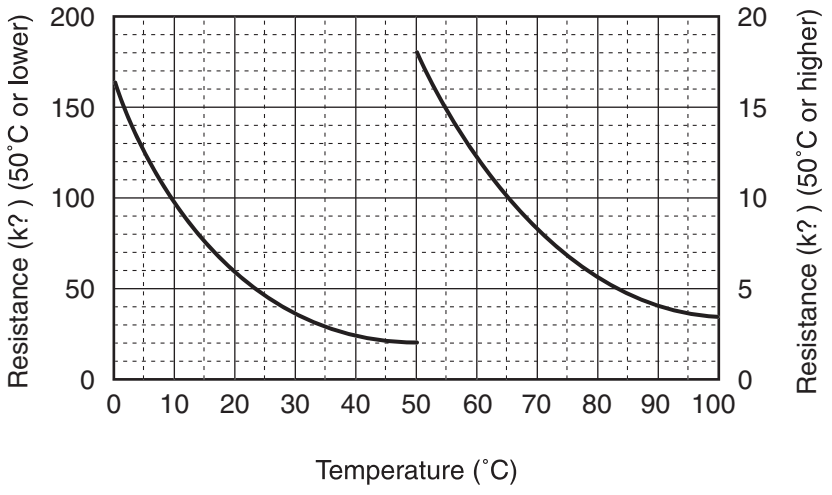
Temperature (˚C)	Resistance value(kΩ)		
	(Minimum value)	(Standard value)	(Maximum value)
0	150.5	161.3	172.7
10	92.76	99.05	105.6
20	58.61	62.36	66.26
25	47.01	49.93	52.97
30	37.93	40.22	42.59
40	25.12	26.55	28.03
50	17.00	17.92	18.86
60	11.74	12.34	12.95
70	8.269	8.668	9.074
80	5.925	6.195	6.470
90	4.321	4.507	4.696
100	3.205	3.336	3.468

TA, TC, TCJ, TE, TS, TO sensors





TD, TL sensors



Pressure sensor I/O wire connecting table

Pin No.	Input/output name	Lead wire
1	—	—
2	OUTPUT	White
3	GND	Black
4	DC5V	Red

* As TH sensor (Outdoor unit heat sink temp. sensor) is incorporated in the outdoor control P.C. board, the resistance value cannot be measured.

PART 2

Outdoor Unit

MiNi-Super Modular Multi (MiNi-SMMS)
Super Modular Multi (SMMS)
Super Heat Recovery Multi (SHRM)
Super Modular Multi-i (SMMS-i)
Super Heat Recovery Multi-i (SHRM-i)

Check Code Table

New check code

1. Difference between the TCC LINK and AI-NET check code

The displaying method of the check code changes in this model and onwards.

	AI-NET check code	TCC-LINK
Used characters	Hexadecimal notation, 2 digits	Alphabet + Decimal notation, 2 digits
Characteristics of code classification	Few classification of communication/ incorrect setup system	Many classification of communication/incorrect setup system
Block display	Indoor P.C. board, Outdoor P.C. board, Cycle, Communication	Communication/Incorrect setup (4 ways), Indoor protection, Outdoor protection, Sensor, Compressor protection, etc.

Display	Classification
A	Unused
C	Central control system error
E	Communication system error
F	Each sensor error (Failure)
H	Compressor protective system error
J	Unused
L	Setup error, Other errors
P	Protective device operation

Display in wired remote controller

[⚠] is displayed.

[UNIT No.] + Check code + Operation lamp (Green) flash

Display on sensor part in wireless remote controller

Block display of combination of [⏻] [🕘] [✱]

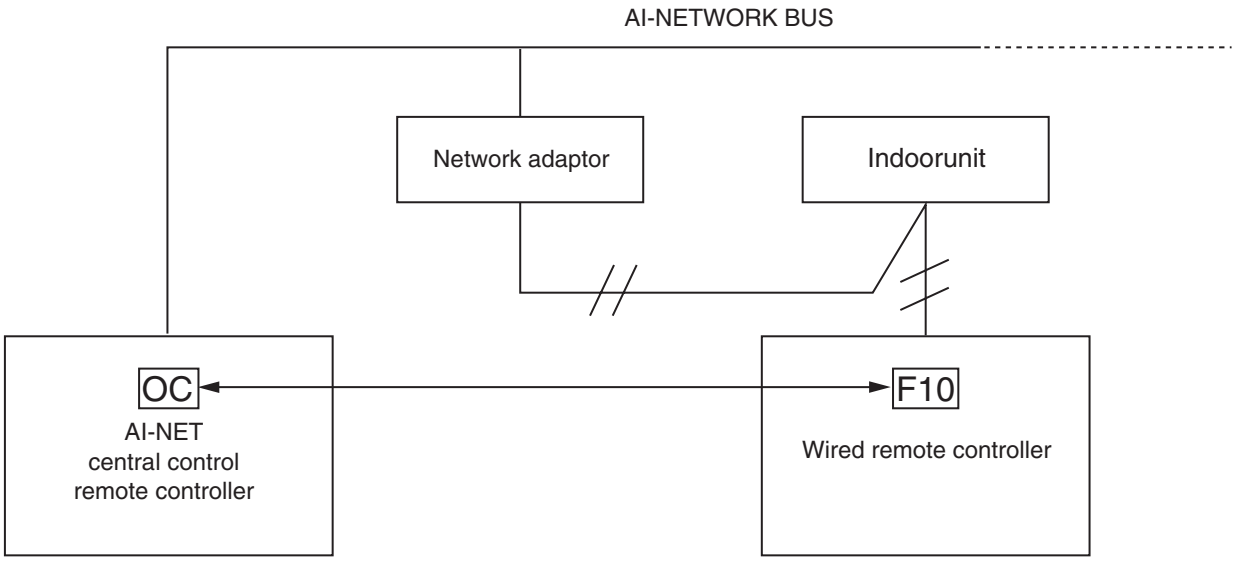
Display on 7-segment in outdoor unit

Unit No. and check code are displayed.

In a case of error with auxiliary code, the check code and the auxiliary code are displayed alternately.

2. Special mention

1) If this model is connected to AI-NET by network adaptor, the different check codes are displayed on the main remote controller and AI-NET central control remote controller.
Example) Indoor TA sensor error



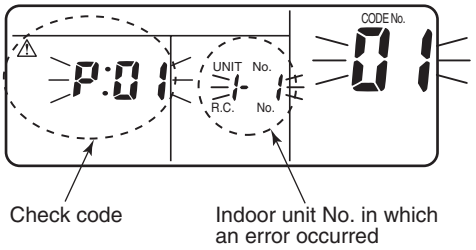
2) The check code of the remote controller is displayed only while the air conditioner is operating (remote controller start button ON).
When the air conditioner has stopped and the error has been cleared, the check code display on the remote controller also disappears.
However, if the error continues after the unit has stopped, the check code is immediately displayed when the unit is restarted.

Troubleshooting by Check Display on Remote Controller

In case of wired remote controller (RBC-AMT31E, RBC-AMT32E)

1. Confirmation and check

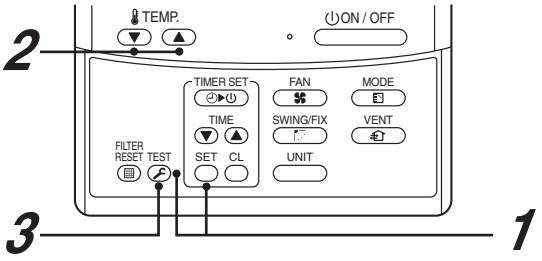
When a trouble occurs in the air conditioner, the check code and the indoor unit No. are displayed on the remote controller.
The check code is displayed while the air conditioner operates.
If the display has disappeared, operate the air conditioner and check the error based upon the following "Confirmation of error history".



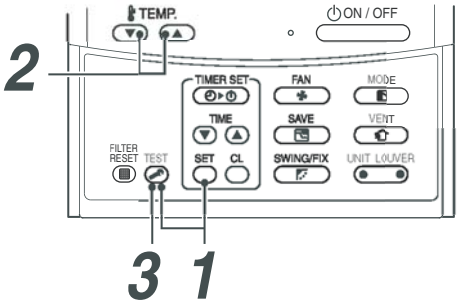
2. Confirmation of error history

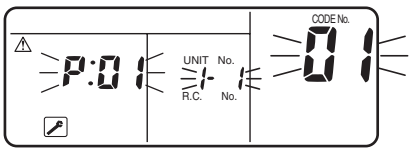
If a trouble occurs in the air conditioner, the error history can be found with the following procedure. (Up to 4 error histories are stored in the memory.)
This history can be confirmed from either operating status or stop status.

RBC-AMT31E

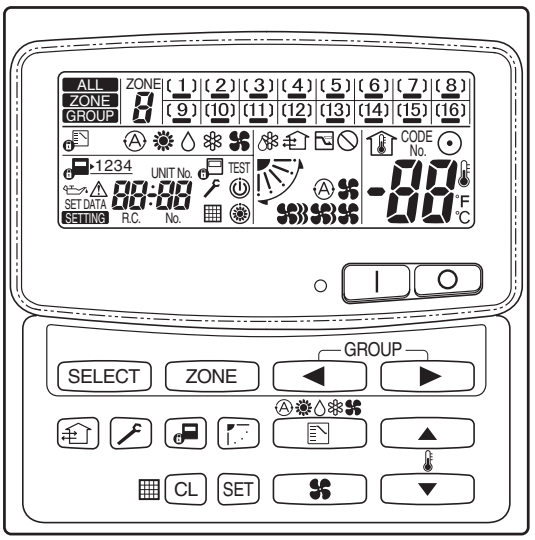


RBC-AMT32E



Procedure	Description
1	When pushing SET and TEST buttons simultaneously for 4 seconds or more, the below display appears. If [Service Check] is displayed, the mode enters the error history mode. [01: Error history order] is displayed in code number window. [Check Code] is displayed in code number window. [Indoor unit address with error] is displayed in UNIT No. 
2	Each successive push of the temp. set (▼) / (▲) buttons, the error histories stored in the memory are displayed in order. The numbers in item code indicates item code [01] (most recent) to [04] (Oldest). **CAUTION** If [CL] button is pushed all of the error histories of the indoor unit will be deleted.
3	After confirmation, push TEST button to return to the usual display.

In case of central remote controller (TCB-SC642TLE)

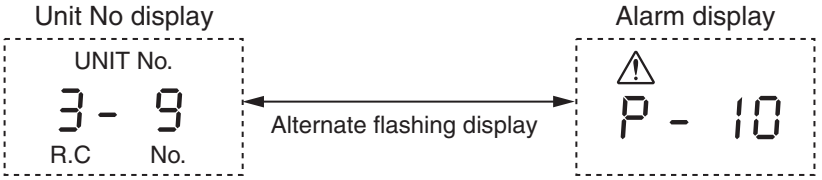


1. Confirmation and check

When a trouble occurred on the air conditioner, the check code and the indoor unit No. are displayed on the display section of the remote controller.

The check code is displayed while the air conditioner operates.

If the display disappeared, operate the air conditioner and check the error based upon the following "Confirmation of error history ".



2. Confirmation of error history

When a trouble occurred on the air conditioner, the error history can be confirmed with the following procedure. (Up to 4 error histories are stored in memory.)

This history can be confirmed from either operating or stop.

1) Push [🔧] and [SET] buttons in succession for 4 seconds or more.

2) SERVICE CHECK [🔧] goes on and Item code 01 goes on.

3) When selecting (flash) the group number if there is the alarm history, the UNIT number and the latest alarm history are displayed alternately.

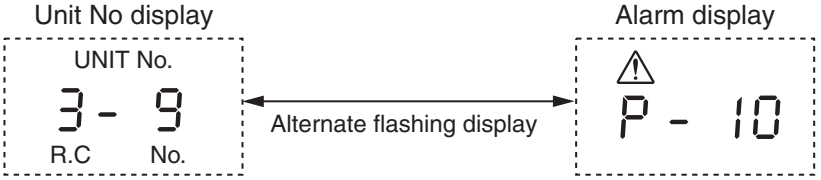
* In this time, the temperature cannot be set up.

4) To confirm the alarm history other than the latest one, push temp. set [▲] / [▼] to select Item code (01 to 04).

5) To confirm the alarm in the other group, push [ZONE] and [GROUP ◀] [GROUP ▶] to select the group number

Do not push [CL] button because all the alarm histories of the currently selected group are deleted.

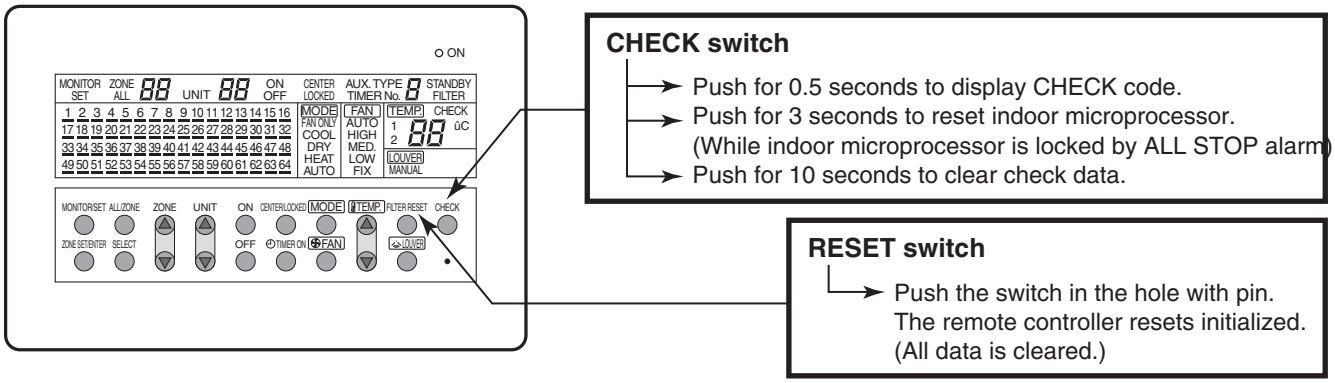
6) To finish the service check, push [🔧] button.



In case of AI-NET central remote controller

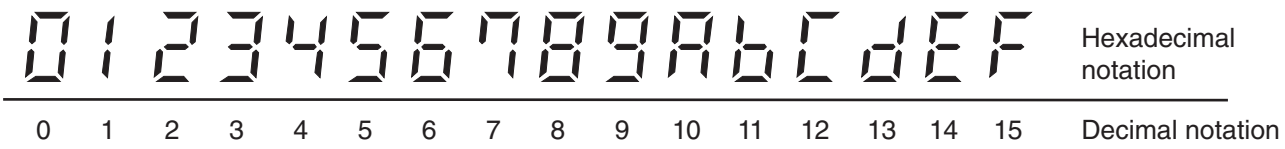
1. Operation for CHECK display

When pushing the CHECK switch, the indoor unit No. (Network address No.) including the check data is displayed in the UNIT No. display section, and the check code is displayed in the set up temp. display section.

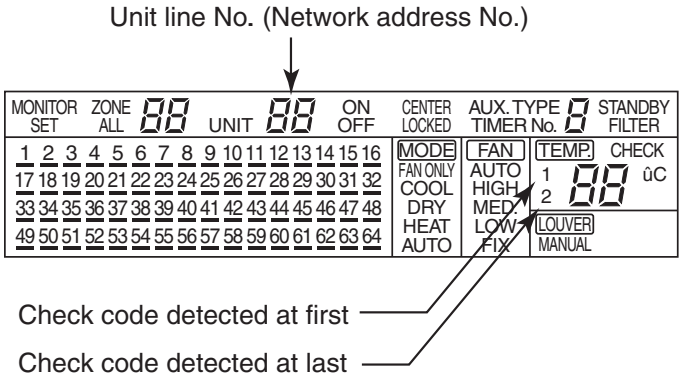


2. Reading of CHECK monitor display

7-segment display

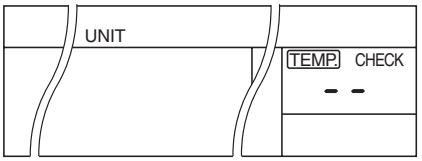


Display on CHECK monitor

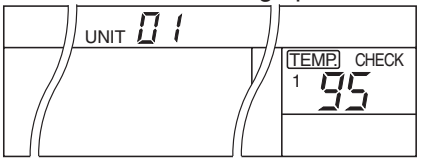


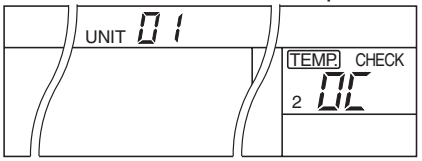
CHECK data

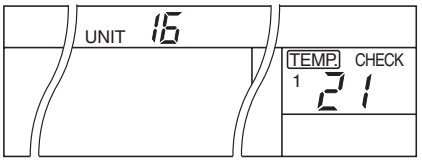
(Example)
There is no check data.



(Example)
In No.1 unit, first the interconnection wire (bus communication line) of indoor/outdoor has failed.
Next, the room temp. sensor is defective.
For No.16 unit, the high pressure switch at the inverter unit side operates.



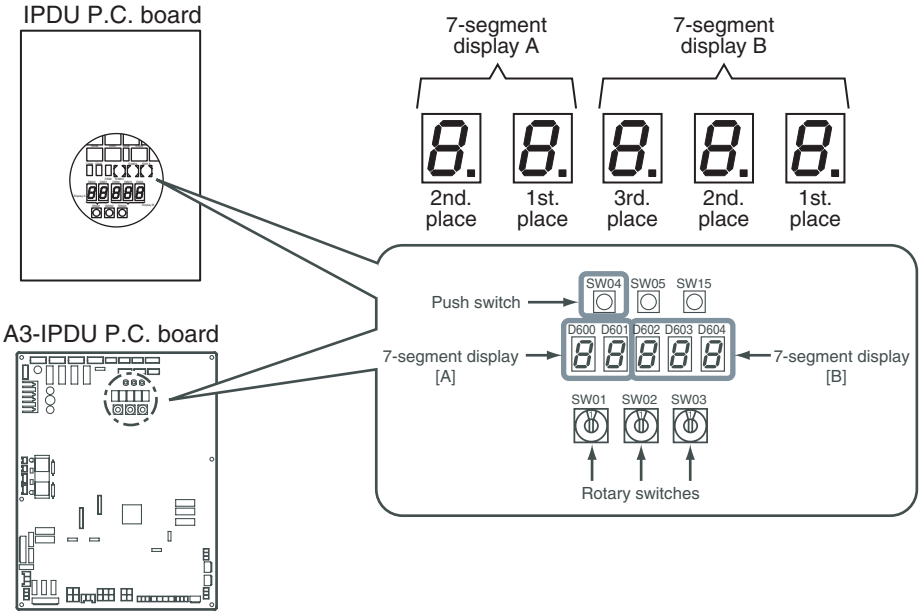




7-Segment Display Function

■ 7-segmentdisplayontheoutdoorunit(InterfaceP.C.board)

The interface control P.C. board features a 7-segment LED display designed to check operational status. Display items can be changed by changing the combination of the number settings of rotary switches provided on the P.C. board (SW01, SW02 and SW03).



■ Checking Procedure to Be Followed in Event of Abnormal Shutdown

If the system is shut down due to an error in the outdoor unit, perform checks in the following steps:

1 **Open the panel of the outdoor unit and inspection window of the electric parts box, and check the 7-segment display.**
The check code is displayed in the right-hand section of the 7-segment display [B].
[U1] [OOO] ([OOO]: Check code)
* To check the check code, set the rotary switches SW01/SW02/SW03 to [1/1/1].
If there is a sub-code, the display alternates between the check code [OOO] (3 seconds) and the subcode [OOO] (1 second).

2 **Check the check code and follow the applicable diagnostic procedure.**

3 **If the 7-segment display shows [U1] [E28], there is an error in a follower unit.**
Push the push switch SW04 on the header unit and hold for several seconds.
As the fan of the outdoor unit in which the error has occurred comes on, open the panel of the unit, and check the check code shown on the 7-segment display.

4 **Perform checks in accordance with the diagnostic procedure applicable to the check code.**

How to read the check display

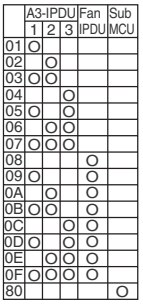
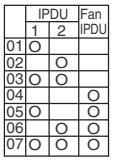
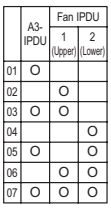
7-segment displa

Check Codes Displayed on Remote Controller

Outdoor Unit (7-Segment Display on I/F Board) and Locations to Be Checked

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display							
	Check code	Sub-code						
E01	—	—	—	Indoor-remote controller communication error (detected at remote controller end) **(Remot controller)**	Stop of corres-ponding unit	Communication between indoor P.C. board and remote controller is disrupted.	• Check remote controller inter-unit tie cable (A/B). • Check for broken wire or connector bad contact. • Check indoor power supply. • Check for defect in indoor P.C. board. • Check remote controller address settings (when two remote controllers are in use). • Check remote controller P.C. board.	84
E02	—	—	—	Remote controller transmission error **(Remot controller)**	Stop of corres-ponding unit	Signal cannot be transmitted from remote controller to indoor unit.	• Check internal transmission circuit of remote controller. --- Replace remote controller as necessary.	84
E03	—	—	**97**	Indoor-remote controller communication error (detected at indoor end) **(Indoor unit)**	Stop of corres-ponding unit	There is no communication from remote controller (including wireless) or network adaptor. There is no communication from remote control (including wireless) or "1:1 Model " Connection Interface.	• Check remote controller and network adaptor wiring. • Check remote control and "1:1 Model " Connection Interface wiring.(**SMMS-i only**)	84
E04	—	—	**04**	Indoor-remote controller communication error (detected at indoor end) **(Indoor unit)**	Stop of corres-ponding unit	Indoor unit is not receiving signal from outdoor unit.	• Check order in which power was turned on for indoor and outdoor units. • Check indoor address setting. • Check indoor-outdoor tie cable. • Check outdoor termination resistance setting (SW30,Bit 2).	85
E06	**E06**	No. of indoor units from which signal is received normally	**04**	Dropping out of indoor unit **(I/F)**	All stop	Indoor unit initially communicating normally fails to return signal for specified length of time. When signal is not sent for a certain period from the indoor unit which has been used to send signals, [E06] is normally displayed.(**SHRM only**)	• Check power supply to indoor unit. (Is power turned on?) • Check connection of indoor-outdoor communication cable. • Check connection of communication connectors on indoor P.C. board. • Check connection of communication connectors on outdoor P.C. board. • Check for defect in indoor P.C. board. • Check for defect in outdoor P.C. board (I/F).	86
—	**E07**	—	—	Indoor-outdoor communication circuit error (detected at outdoor end) **(I/F)**	All stop	Signal cannot be transmitted from outdoor to indoor units for 30 seconds continuously.	• Check outdoor termination resistance setting (SW30, Bit 2). • Check connection of indoor-outdoor communication circuit.	87
E08	**E08**	Duplicated indoor address	**96**	Dropping out of indoor unit **(Indoor unit)** **(I/F)**	All stop	More than one indoor unit is assigned same address.	• Check indoor addresses. • Check for any change made to remote controller connection (group/individual) since indoor address setting.	88
E09	—	—	**99**	Duplicated master remote controller **(Remote controller)**	Stop of corres-ponding unit	In two remote controller configuration (including wireless), both controllers are set up as master. (Header indoor unit is shut down with alarm, while follower indoor units continue operating.)	• Check remote controller settings. • Check remote controller P.C. boards.	88
E10	—	—	CF	Indoor inter-MCU communication error **(Indoor unit)**	Stop of corres-ponding unit	Communication cannot be established/maintained upon turning on of power or during communication.	• Check remote controller P.C. boards.	88
E12	**E12**	01: Indoor-outdoor communication 02: Outdooroutdoor communication (—): MiNi-SMMS	**42**	Automatic address starting error **(I/F)**	All stop	• Indoor automatic address setting is started while automatic address setting for equipment in other refrigerant line is in progress. • Outdoor automatic address setting is started while automatic address setting for indoor units is in progress.	• Perform automatic address setting again after disconnecting communication cable to that refrigerant line.	89

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
E15	**E15**	—	**42**	Indoor unit not found during automatic address setting **(I/F)**	All stop	Indoor unit cannot be detected after indoor automatic address setting is started.	Check connection of indoor-outdoor communication line. Check for error in indoor power supply system. Check for noise from other devices. Check for power failure. Check for defect in indoor P.C. board.	89
E16	**E16**	00: Overloading 01-: No. of units connected	**89**	Too many indoor units connected **(I/F)**	All stop	Combined capacity of indoor units exceeds 135% of combined capacity of outdoor units. **Note:** **If this code comes up after backup setting for outdoor unit failure is performed, perform "No overloading detected" setting.** <"No overloading detected" setting method> Turn on SW09/Bit 2 on I/F P.C. board of outdoor header unit. More than 48 indoor units are connected.	Check capacities of indoor units connected. Check combined HP capacities of indoor units. Check HP capacity settings of outdoor units. Check No. of indoor units connected. Check for defect in outdoor P.C. board (I/F).	90
E18	—	—	**97, 99**	Error in communication between indoor header and follower units **(Indoor unit)**	Stop of corresponding unit	Periodic communication between indoor header and follower units cannot be maintained.	Check remote controller wiring. Check indoor power supply wiring. Check P.C. boards of indoor units.	91
E19	**E19**	00: No header unit 02: Two or more header units	**96**	Error in number of outdoor header units **(I/F)**	All stop	There is more than one outdoor header unit in one line. There is no outdoor header unit in one line.	Outdoor header unit is outdoor unit to which indoor-outdoor tie cable (U1,U2) is connected. Check connection of indoor outdoor communication line. Check for defect in outdoor P.C. board (I/F).	91
				(MiNi-SMMS not use)				
E20	**E20**	01: Connection of outdoor unit from other line 02: Connection of indoor unit from other line	**42**	Connection to other line found during automatic address setting **(I/F)**	All stop	Equipment from other line is found to have been connected when indoor automatic address setting is in progress.	Disconnect inter-line tie cable in accordance with automatic address setting method explained in "Address setting" section.	92
E23	**E23**	—	**15**	Communication sending error between outdoor units **(I/F)**	All stop	Signal cannot be transmitted to other outdoor units for at least 30 seconds continuously.	Check power supply to outdoor units. (Is power turned on?) Check connection of tie cables between outdoor units for bad contact or broken wire. Check communication connectors on outdoor P.C. boards. Check for defect in outdoor P.C. board (I/F). Check termination resistance setting for communication between outdoor units. In this model, only one outdoor unit is provided to one refrigerant line. Be sure to check there is no communication connection with outdoor unit in the other refrigerant line.(**SHRM only**)	92
				(MiNi-SMMS not use)				
E25	**E25**	—	**15**	Duplicated follower outdoor address **(I/F)**	All stop	There is duplication in outdoor addresses set manually.	**Note:** **Do not set outdoor addresses manually.**	93
				(MiNi-SMMS not use)				

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
E26	E26	Address of outdoor unit from which signal is not received normally	15	Dropping out of outdoor unit (I/F)	All stop	Outdoor unit initially communicating normally fails to return signal for specified length of time.	Backup setting is being used for outdoor units. Check power supply to outdoor unit. (Is power turned on?) Check connection of tie cables between outdoor units for bad contact or broken wire. Check communication connectors on outdoor P.C. boards. Check for defect in outdoor P.C. board (I/F). Check termination resistance setting for communication between outdoor units. (**SHRM-i only**) In this model, only one outdoor unit is provided to one refrigerant line. Be sure to check there is no communication connection with outdoor unit in the other refrigerant line. (**SHRM only**)	93
				(MiNi-SMMS not use)				
E28	E28	Detected outdoor unit No.	d2	Outdoor follower unit error (I/F)	All stop	Outdoor header unit receives error code from outdoor follower unit.	Check check code displayed on outdoor follower unit. <Convenient functions> If SW04 is pushed and held for at least 1 second while [E28] is displayed on the 7-segment display of outdoor header unit, the fan of the outdoor unit that has been shut down due to an error comes on. If SW04 and SW05 are pushd simultaneously, the fans of normal outdoor units come on. To stop the fan or fans, push SW05 on its own.	93
				(MiNI-SMMS not use)				
E31	E31	 (SMMS-i, SHRM-i only)  (SMMS,SHRM only)  (MiNi-SMMS only) Symbol O IPDU error.	CF	IPDU communication error Sub MCU communication error (I/F)	All stop	Communication is disrupted between IPDUs (P.C. boards) in inverter box.	Check wiring and connectors involved in communication between IPDU-I/F P.C. board for bad contact or broken wire. Check for defect in outdoor P.C. board (I/F, A3-IPDU or Fan IPDU). Check for external noise. **NOTE** PDU: SMMS, SHRM A3-IPDU:MiNI-SMMS, SMMS-i, SHRM-i	94,95
		80		Communication error between MCU and Sub MCU	All stop	Communication between MCU and Sub MCU stopped.	Operation of power supply reset (OFF for 60 seconds or more) Outdoor I/F PC board error check	95
				(SMMS-i only)				

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
F01	—	—	**0F**	Indoor TCJ sensor error **(Indoor unit)**	Stop of corres-ponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TCJ sensor connector and wiring. • Check resistance characteristics of TCJ sensor. • Check for defect in indoor P.C. board.	96
F02	—	—	**0d**	Indoor TC2 sensor error **(Indoor unit)**	Stop of corres-ponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC2 sensor connector and wiring. • Check resistance characteristics of TC2 sensor. • Check for defect in indoor P.C. board.	96
F03	—	—	**93**	Indoor TC1 sensor error **(Indoor unit)**	Stop of corres-ponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TC1 sensor connector and wiring. • Check resistance characteristics of TC1 sensor. • Check for defect in indoor P.C. board.	96
F04	**F04**	—	**19**	TD1 sensor error **(I/F)** **MiNi-SMMS:** TD only	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD1 sensor connector. • Check resistance characteristics of TD1 sensor. • Check for defect in outdoor P.C. board (I/F).	97
F05	**F05**	—	**1A**	TD2 sensor error **(I/F)** **(MiNi-SMMS not use)**	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TD2 sensor connector. • Check resistance characteristics of TD2 sensor. • Check for defect in outdoor P.C. board (I/F).	97
F06	**F06**	01: TE1 sensor error 02: TE2 sensor error	**18**	TE1/TE2 sensor error **(I/F)** (TE: **MiNI-SMMS**) (TE2: **SHRM-i only**) (TE1: **SMMS, SHRM only**)	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TE1/TE2 sensor connectors. • Check resistance characteristics of TE1/TE2 sensors. • Check for defect in outdoor P.C. board (I/F).	97
F07	**F07**	—	**18**	TL sensor error **(I/F)**	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TL sensor connector. • Check resistance characteristics of TL sensor. • Check for defect in outdoor P.C. board (I/F).	98
F08	**F08**	—	**1b**	TO sensor error **(I/F)**	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TO sensor connector. • Check resistance characteristics of TO sensor. • Check for defect in outdoor P.C. board (I/F).	98
F10	—	—	**0C**	Indoor TA, TSA sensor error **(Indoor unit)** (TSA: **SHRM-i only**)	Stop of corres-ponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TA, TSA sensor connector and wiring. • Check resistance characteristics of TA, TSA sensor. • Check for defect in indoor P.C. board.	98
F11	—	—	—	Indoor TF sensor error **(Indoor unit)**	Stop of corres-ponding unit	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TF sensor connector and wiring. • Check resistance characteristics of TF sensor. • Check for defect in indoor P.C. board.	99
F12	**F12**	—	**A2**	01: TS1, 02: TS2 **SHRM,SHRM-i** 01 TS1: **SMMS-i** TS: **MiNI-SMMS** (—): **SMMS** **(I/F)**	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Check connection of TS1, TS2 sensor connector. • Check resistance characteristics of TS1, TS2 sensor. • Check for defect in outdoor P.C. board (I/F).	99
F13	**F13**	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(SMMS-i, SHRM-i)** 01: Compressor 1 side 02: Compressor 2 side **(SMMS, SHRM)** —:**(MiNi-SMMS)**	**43**	TH sensor error **(IPDU)** (IPDU P.C. board: **SMMS, SHRM** only) (A3-IPDU P.C. board: **MiNi-SMMS, SMMS-i, SHRM-i** only)	All stop	Sensor resistance is infinity or zero (open/short circuit).	• Defect in IGBT built-in temperature sensor → Replace A3-IPDU P.C. board.	99
F15	**F15**	—	**18**	Outdoor temperature sensor wiring error (TE1, TL) **(I/F)** (TE, TL: **MiNi-SMMS** only)	All stop	During compressor operation in HEAT mode, TE1 continuously provides temperature reading higher than indicated by TL by at least specified margin for 3 minutes or more.	• Check installation of TE1 and TL sensors. • Check resistance characteristics of TE1 and TL sensors. • Check for outdoor P.C. board (I/F) error.	100

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
F16	**F16**	—	**43**	Outdoor pressure sensor wiring error (Pd, Ps) **(I/F)**	All stop	Readings of high-pressure Pd sensor and lowpressure Ps sensor are switched. Output voltages of both sensors are zero.	Check connection of highpressure Pd sensor connector. Check connection of lowpressure Ps sensor connector. Check for defect in pressure sensors Pd and Ps. Check for error in outdoor P.C. board (I/F). Check for deficiency in compressive output of compressor.	100
F17	**F17**	—	—	TOA sensor error **(Indoor unit)** **(SHRM only)**	Stop of corres-ponding unit	Sensor resistance is infinity or zero. (open/short circuit)	Check connection of TOA sensor connector. Check resistance characteristics of TOA sensor. Check for defect in outdoor I/F P.C. board	101
F18	**F18**	—	—	TRA sensor error **(Indoor unit)** **(SHRM only)**		Sensor resistance is infinity or zero. (open/short circuit)	Check connection of TRA sensor connector. Check resistance characteristics of TRA sensor. Check for defect in indoor P.C. board	101
F22	**F22**	—	—	TD3 sensor error **(I/F)** **(SMMS-i, SHRM-i only)**	All stop	Sensor resistance is infinity or zero. (open/short circuit)	Check connection of TD3 sensor connector. Check resistance characteristics of TD3 sensor. Check for defect in outdoor P.C. board (I/F).	102
F23	**F23**	—	**43**	Ps sensor error **(I/F)**	All stop	Output voltage of Ps sensor is zero.	Check for connection error involving Ps sensor and Pd sensor connectors. Check connection of Ps sensor connector. Check for defect in Ps sensor. Check for deficiency in compressive output of compressor. Check for defect in 4-way valve. Check for defect in outdoor P.C. board (I/F). Check for defect in SV4, SV5 circuit.	103
F24	**F24**	—	**43**	Pd sensor error **(I/F)**	All stop	Output voltage of Pd sensor is zero (sensor open-circuited). Pd > 4.15MPa despite compressor having been turned off.	Check connection of Pd sensor connector. Check for defect in Pd sensor. Check for defect in outdoor P.C. board (I/F).	103
F29	—	—	**12**	Other indoor error **(Indoor unit)**	Stop of corres-ponding unit	Indoor P.C. board does not operate normally.	Check for defect in indoor P.C. board (faulty EEPROM)	103
F31	**F31**	—	**1C**	Outdoor EEPROM error **(I/F)**	All stop *1	Outdoor P.C. board (I/F) does not operate normally.	Check power supply voltage. Check power supply noise. Check for defect in outdoor P.C. board (I/F).	104
H01	**H01**	01:Compressor 1 side 02:Compressor 2 side 03:Compressor 3 side 03: **SMMS-i, SHRM-i**	**1F**	Compressor breakdown **(IPDU)** **Power supply voltage.** ***(A342/457 V±10% : -A type)/(208/230 V ±10%: -UL type)/ (220/240 V ±10%: -E type)**	All stop	Inverter current detection circuit detects overcurrent and shuts system down.	Check power supply voltage. Check for defect in compressor. Check for possible cause of abnormal overloading. Check for defect in outdoor P.C. board.	104
H02	**H02**	01:Compressor 1 side 02:Compressor 2 side 03:Compressor 3 side 03: **SMMS-i, SHRM-i**	**1d**	Compressor error (lockup) MG-CTT error **(IPDU)** **Power supply voltage.** ***(A342/457 V±10% : -A type)/(208/230 V ±10%: -UL type)/ (220/240 V ±10%: -E type)**	All stop	Overcurrent is detected several seconds after startup of inverter compressor.	Check for defect in compressor. Check power supply voltage. Check compressor system wiring, particularly for open phase. Check connection of connectors/ terminals on A3-IPDU P.C. board. Check conductivity of case heater. (Check for refrigerant entrapment inside compressor.) Check for defect in outdoor P.C. board. Check outdoor MG-CTT.	105,106
H03	**H03**	01:Compressor 1 side 02:Compressor 2 side 03:Compressor 3 side 03: **SMMS-i, SHRM-i**	**17**	Current detection circuit error **(IPDU)**	All stop	Current flow of at least specified magnitude is detected despite inverter compressor having been shut turned off.	Check current detection circuit wiring. Check defect in outdoor P.C. board	106

*1 Total shutdown in case of header unit
Continued operation in case of follower unit **(SHRM-i only)**

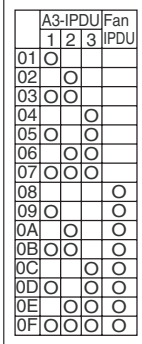
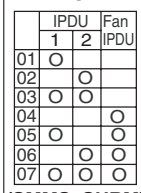
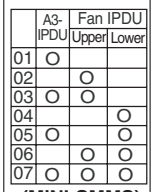
MG-CTT: Magnet contactor

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
H04	**H04**	—	**44**	Compressor 1 case thermo operation **(I/F)** **(MiNi-SMMS, SMMS, SHRM only)**	All stop	Compressor 1 case thermo operation performed protective operation.	Check compressor 1 case thermo circuit. (Connector, cable, P.C. board) Check full opening of service valve. (Gas and liquid side) Check outdoor PMV clogging. (PMV1, 2, 3) Check SV41 circuit leakage. Check miscabling/misinstallation of SV41 and SV42. Check valve open status of indoor PMV. Check 4-way valve error. Check refrigerant shortage. Check SV5 leak. Check SV11 circuit. (Wiring, OFF at one side only) Check mispiping of discharge gas/suction gas main pipe. Check Flow selector unit. Check leakage of SVD valve and SVS valve. (Check leakage of SVDD valve and SVSS.) Check mispiping of FS unit connecting pipe (Suction gas/Discharge gas), wiring between FS unit and indoor unit, and connection of connectors. Check miswiring of SVS/SVD valves. **(SHRM only)**	107
H05	**H05**	—		TD1 sensor miswiring (incomplete insertion) **(I/F)** **(MiNi-SMMS, SMMS-i, SHRM-i only)**	All stop	Discharge temperature of compressor 1 (TD1) does not increase despite compressor being in operation.	Check installation of TD1, TK1, TK2, TK3, TK4, TK5 sensor. Check connection of TD1, TK1, TK2, TK3, TK4, TK5 sensor connector and wiring. Check resistance characteristics of TD1 sensor. Check for defect in outdoor P.C. board (I/F).	108
H06	**H06**	—	**20**	Activation of low-pressure protection **(I/F)** (SV4: **MiNi-SMMS** only) (PMV41,PMV42: **SMMS, SHRM** only)	All stop	Low-pressure Ps sensor detects operating pressure lower than 0.02MPa.	Check service valves to confirm full opening (both discharge gas side, suction gas side and liquid sides). Check outdoor PMVs for clogging (PMV1, 2). Check for defect in SV2 or SV4 circuits. Check for defect in lowpressure Ps sensor. Check indoor filter for clogging. Check valve opening status of indoor PMV. Check refrigerant piping for clogging. Check operation of outdoor fan (during In single heating, collective operation). Check for insufficiency in refrigerant quantity. Check clogging in circuit at auxiliary heat exchanger liquid side . (PMV4,(PMV3, SV12) Checked valve) **(PMV3, SV12: SHRM only)** Check 4-way valve error (Reversal error) Check miswiring of discharge/suction gas main piping. Check Cool/Heat FS unit. Check mispiping of discharge/suction gas piping to Cool/Heat FS unit. Check piping between Cool/Heat FS unit and room. Check miswiring of SVD/SVS valve, and mis mounting of coil. Check opened status of SVS valve. Check SV14 circuit error (**SMMS, SHRM not use**) **(SHRM, SHRM-i only)**	109
H07	**H07**	Detected outdoor unit No. Display of center unit only 0*: **SMMS-i** —: **SMMS,SHRM**	**d7**	Low oil level protection **(I/F)** **(SMMS, SMMS-i, SHRM-i only)**	All stop	Operating compressor detects continuous state of low oil level for about 2 hours.	<All outdoor units in corresponding line to be checked> Check balance pipe service valve to confirm full opening. Check connection and installation of TK1, TK2, TK3, TK4, and TK5 sensors. Check resistance characteristics of TK1, TK2, TK3, TK4, and TK5 sensors. Check for gas or oil leak in same line. Check for refrigerant entrapment inside compressor casing and check for liquid back. Check SV3A, SV3B, SV3C, SV3D, SV3E, and SV3F valves for defect. Check oil return circuit of oil separator for clogging. Check oil equalizing circuit for clogging. Check SV6 circuit leakage.	110

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
H07	**H07**	—	**d7**	**Protection for oil level drop detection** **(I/F)** **(SMMS,SHRM only)**	All stop	The operating compressor detected oil shortage continuously for 2 hours.	**Check all the outdoor units in the corresponding line.** • Check full opening of service valve of balance pipe. • Check connection and installation of TK1, TK2, TK3, and TK4 sensors. • Check characteristics of TK1, TK2, TK3, and TK4 resistance values. • Check gas leak and oil leak in the same line. • Check refrigerant stagnation in compressor. • Check error of SV3A, SV3B, SV3C, SV3D, and SV3E valves. • Check clogging of oil separator oil return circuit. • Check clogging of oil-equation circuit. **<Check clogging of oil equation pipe between compressors.>** • Check TS1, TS2 sensors (Miswiring and misinstallation of TS1 and TS2) • Check leakage of SV6 circuit. • Check FS unit. Leakage of check valve of bypass between liquid pipe and discharge gas pipe Mispiping of discharge/suction gas connection Miswiring of SVD/SVS valve/Misinstallation of coil • Check whether there is no setup missing of indoor unit in all cooling operation mode	116
H08	**H08**	01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error **(SMMS-i, SHRM-i)** 01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error **(SMMS,SHRM)**	**d4**	Error in temperature sensor for oil level detection **(I/F)** **(MiNi-SMMS not use)**	All stop	Sensor resistance is infinity or zero (open/ short circuit).	• Check connection of TK1 sensor connector. • Check resistance characteristics of TK1 sensor. • Check for defect in outdoor P.C. board (I/F).	117
					All stop	Sensor resistance is infinity or zero (open/ short circuit).	• Check connection of TK2 sensor connector. • Check resistance characteristics of TK2 sensor. • Check for defect in outdoor P.C. board (I/F).	
					All stop	Sensor resistance is infinity or zero (open/ short circuit).	• Check connection of TK3 sensor connector. • Check resistance characteristics of TK3 sensor. • Check for defect in outdoor P.C. board (I/F).	
					All stop	Sensor resistance is infinity or zero (open/ short circuit).	• Check connection of TK4 sensor connector. • Check resistance characteristics of TK4 sensor. • Check for defect in outdoor P.C. board (I/F).	
					All stop **(SMMS, SHRM not use)**	Sensor resistance is infinity or zero (open/ short circuit).	• Check connection of TK5 sensor connector. • Check resistance characteristics of TK5 sensor. • Check for defect in outdoor P.C. board (I/F).	
H14	**H14**		**44**	Compressor 2 case thermo operation **(I/F)** **(SMMS, SHRM only)**	All stop	Compressor 2 case thermostat operation	All stop Compressor 2 case thermostat operated. • Check compressor 2 case thermo circuit. (Connector, cable, P.C. board) • Check full opening of service valve. (Gas and liquid side) • Check outdoor PMV clogging. (PMV1, 2) • Check SV42 valve leak. • Check miscabling/misinstallation of SV41 and SV42. • Check valve opening of indoor PMV. • Check 4-way valve error. • Check refrigerant shortage. • Check compressor error**(SMMS only)** • Check SV11 circuit. (Wiring, OFF at one side only) • Check mispiping of discharge gas/suction gas main pipe. • Check Flow selector unit. Check leakage of SVD valve and SVS valve. (Check leakage of SVDD valve and SVSS.) Check mispiping of FS unit connecting pipe (Suction gas/Discharge gas), wiring between FS unit and indoor unit, and connection of connectors. Check miswiring of SVS/SVD valves. **(SHRM only)**	118

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
H15	**H15**	—	—	TD2 sensor miswiring (incomplete insertion) **(I/F)** **(SMMS-i, SHRM-i only)**	All stop	Discharge temperature of (TD2) does not increase despite compressor 2 being in operation.	Check installation of TD2, TK1, TK2, TK3 sensor. Check connection of TD2, TK4, TK5 sensor connector and wiring. Check resistance characteristics of TD2 sensor. Check for defect in outdoor P.C. board (I/F).	119
H16	**H16**	01: TK1 oil circuit error 02: TK2 oil circuit error 03: TK3 oil circuit error 04: TK4 oil circuit error 05: TK5 oil circuit error (05: **SMMS, SHRM** not use) Error involving TD1, TD2, TD3 and TK5 sensors **(SMMS-i,SHRM-i only)**	**d7**	Oil level detection circuit error **(I/F)**	All stop	No temperature change is detected by TK1 despite compressor 1 having been started.	Check for disconnection of TK1 sensor. Check resistance characteristics of TK1 sensor. Check for connection error involving TD1, TD2, TD3, TK1, TK2, TK3, TK4, and TK5 sensors Check for faulty operation in SV3E or SV3F valve. Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. Check for refrigerant entrapment inside compressor.	119 to 123
						No temperature change is detected by TK2 despite compressor 1 having been started.	Check for disconnection of TK2 sensor. Check resistance characteristics of TK2 sensor. Check for connection error involving TD1, TD2, TD3, TK1, TK2, TK3, TK4, and TK5 sensors Check for faulty operation in SV3E or SV3F valve. Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. Check for refrigerant entrapment inside compressor.	
						No temperature change is detected by TK3 despite compressor 1 having been started.	Check for disconnection of TK3 sensor. Check resistance characteristics of TK3 sensor. Check for connection error involving TD1, TD2, TD3, TK1, TK2, TK3, TK4, and TK5 sensors Check for faulty operation in SV3E or SV3F valve. Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. Check for refrigerant entrapment inside compressor.	
						No temperature change is detected by TK4 despite compressor 1 having been started.	Check for disconnection of TK4 sensor. Check resistance characteristics of TK4 sensor. Check for connection error involving TD1, TD2, TD3,TK1, TK2, TK3, TK4, and TK5 sensors Check for faulty operation in SV3E or SV3F valve. Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. Check for refrigerant entrapment inside compressor.	
						No temperature change is detected by TK5 despite compressor having been started. Or difference from other TK sensor changes within specified range only for over the specified period. **(SMMS-i,SHRM-i only)**	Check for disconnection of TK5 sensor. Check resistance characteristics of TK5 sensor. Check for connection error involving TD1, TD2, TD3, TK1, TK2, TK3, TK4, and TK5 sensors Check for faulty operation in SV3E valve. Check for clogging in oil equalizing circuit capillary and faulty operation in check valve. Check for refrigerant entrapment inside compressor.	
H25	**H25**	—		TD3 sensor miswiring (incomplete insertion) **(I/F)** **(SMMS-i, SHRM-i only)**	All stop	Discharge temperature (TD3) does not increase despite compressor 3 being in operation.	Check installation of TD3, TK1, TK2, TK3 , TK4, TK5 sensor. Check connection of TD3, TK1, TK2, TK3 , TK4, TK5 sensor connector and wiring. Check resistance characteristics of TD3 sensor. Check for defect in outdoor P.C. board (I/F). **(TD3: SMMS-i only)**	123

Check code			AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
Main remote controller	Outdoor 7-segment display: Check code	Outdoor 7-segment display: Sub-code						
L02	**L02**	—		Outdoor units model disagreement error **(Indoor unit)**	Stop of corres-ponding unit	In case of different outdoor unit (Not corresponded to Air to Air Heat Exchanger type)	Check outdoor unit model. (Check whether the outdoor unit corresponds to Air to Air Heat Exchanger type or not.)	124
				(SHRM-i only)				
L03	—	—	**96**	Duplicated indoor header unit **(Indoor unit)**	Stop of corres-ponding unit	There is more than one header unit in group.	Check indoor addresses. Check for any change made to remote controller connection (group/individual) since indoor address setting.	124
L04	**L04**	—	**96**	Duplicated outdoor line address **(I/F)**	All stop	There is duplication in line address setting for outdoor units belonging to different refrigerant piping systems.	Check line addresses.	124
L05	—	—	**96**	Duplicated priority indoor unit (as displayed on priority indoor unit) **(I/F)**	All stop	More than one indoor unit has been set up as priority indoor unit.	Check display on priority indoor unit.	124
L06	**L06**	No. of priority indoor units	**96**	Duplicated priority indoor unit (as displayed on indoor unit other than priority indoor unit) **(I/F)**	All stop	More than one indoor unit has been set up as priority indoor unit.	Check displays on priority indoor unit and outdoor unit.	124
L07	—	—	**99**	Connection of group control cable to standalone indoor unit **(Indoor unit)**	Stop of corres-ponding unit	There is at least one standalone indoor unit to which group control cable is connected.	Check indoor addresses.	125
L08	**L08**	—	**99**	Indoor group / addresses not set **(Indoor unit)**	Stop of corres-ponding unit	Address setting has not been performed for indoor units.	Check indoor addresses. **Note: This code is displayed when power is turned on for the first time after installation.**	125
L09	—	—	46	Indoor capacity not set **(Indoor unit)**	Stop of corres-ponding unit	Capacity setting has not been performed for indoor unit.	Set indoor capacity. (DN = 11)	125
L10	**L10**	—	**88**	Outdoor capacity not set **(I/F)**	All stop	Jumper wire provided on P.C. board for servicing I/F P.C. board has not been removed as required for given model.	Check model setting of P.C. board for servicing outdoor I/F P.C. board.	126
L17	—	—		Inconsistent models of outdoor units **(IF)**		1 and 2 series outdoor units have been mixed.	Check outdoor units.	126
				(SHRM, SMMS-i only)				
L18	**L18**	Corresponding indoor address	**8A**	FS unit system error **(I/F)**	Corres-ponding unit only stops.	An indoor unit which is not connected with a FS unit is operating without setup of cooling only mode.	Check setup of remote controller (DN=[OFF]). Check FS unit. Check pipe connection to FS unit. (Mispiping between discharge gas and suction gas) Check miswiring/misinstallation of SVS/SVD valves.	127
				(SHRM only)				
L20	—	—	**98**	Duplicated central control address **(Indoor unit)**	All stop	There is duplication in central control address setting.	Check central control addresses. Check network adaptor P.C. board (**MiNi-SMMS only**)	127
L28	**L28**	—	**46**	Too many outdoor units connected **(I/F)**	All stop	There are more than 3 outdoor units.	Check No. of outdoor units connected (Only up to 3 units per system allowed). Check communication lines between outdoor units. Check for defect in outdoor P.C. board (I/F).	127
				(MiNI-SMMS not use)				

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
L29	L29	 (SMMS-i, SHRM-i)  (SMMS, SHRM)  (MiNI-SMMS) Symbol O IPDU error.	CF	Error in No. of IPDUs (I/F)	All stop	Insufficient number of IPDUs are detected when power is turned on.	Check model setting of P.C. board for servicing outdoor I/F P.C. board. Check connection of UART communication connector. Check outdoor P.C. board, fan IPDU, and I/F P.C. board for defect. **NOTE** UART: Universal Asynchronous Receiver Transmitter	128, 129
L30	L30	Detected indoor address	b6	External interlock of indoor unit (Indoor unit)	Stop of corresponding unit	Signal is present at external error input terminal (CN80) for 1 minute.	**Outside device is connected to connector (CN80):** 1) Check outside device error. 2) Check indoor P.C. board error. **Outside device is not connected to connector (CN80):** 1) Check indoor P.C. board error.	130
—	L31	—	—	Extended IC error (I/F)	Continued operation	There is part failure in P.C. board (I/F).	Check outdoor P.C. board (I/F).	130
P01	—	—	11	Indoor fan motor error (Indoor unit)	Stop of corresponding unit		Check the lock of fan motor (AC fan). Check wiring.	130
P03	P03	—	1E	Discharge temperature TD1 error (I/F)	All stop	Discharge temperature (TD1) exceeds 115˚C.	Check full opening of outdoor service valves (Gas side, Liquid side). Check clogging of outdoor PMV. (PMV1,2) Check characteristics of TD1 sensor resistance value. Check refrigerant shortage. Check 4-way valve error. Check leakage of SV41 circuit. Check SV4 circuit. (Miswiring and misinstallation of SV41 and SV42) Check leakage of SV5 circuit. Check leakage of SV6 circuit. (Capillary clogging, valve operation error) Check mispiping of discharge gas/suction gas main pipe. Check Flow selector unit. Check leakage of SVD valve and SVS valve. (Check leakage of SVDD valve and SVSS.) Check mispiping of FS unit connecting pipe (Suction gas/ Discharge gas), wiring between FS unit and indoor unit, and connection of connectors. Check miswiring of SVS / SVD valves. **(SMMS not use)**	131

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
P04	**P04**	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side	**21**	Activation of highpressure SW **(IPDU)**	All stop	High-pressure SW is activated.	Check connection of highpressure SW connector. Check for defect in Pd pressure sensor. Check outdoor service valves (discharge gas side, suction gas side, liquid side) to confirm full opening. Check for defect in outdoor fan. Check for defect in outdoor fan motor. Check outdoor PMVs (PMV1, 2, 4) for clogging. Check indoor/outdoor heat exchangers for clogging. Check for short-circuiting of outdoor suction/discharge air flows. Check checked valve of discharge gas pipe for error. Check SV2 circuit for clogging. Check for defect in outdoor P.C. board (I/F). Check for error in indoor fan system (possible cause of air flow reduction). Check opening status of indoor PMV. Check indoor-outdoor communication line for wiring error. Check for faulty operation of check valve in discharge pipe convergent section. Check gas balancing SV4 valve circuit. Check SV5 valve circuit. Check for refrigerant overcharging. Check mispiping of discharging gas/ suction gas main pipes. Check circuit clogging at liquid side of auxiliary heat exchanger. (PMV4, checked valve) Check FS unit. Check SVD valve clogging and operation error. Check wiring inside of FS unit. (SVD/SVS coil miswiring, etc.) Check wiring between FS unit and indoor unit. (Mistaken wiring, wire disconnection, wiring forgotten) Check 4-way valve error. Check SV11 circuit. (Valve operation error) **(SMMS not use)**	132 to 135
				(MiNi-SMMS not use)				
P05	**P05**	01: Power supply missing phase 02: Power supply phase order (reversed phase)	**AF**	Phase missing or reversed phase order **(I/F)**	All stop	Missing phase was detected when the power turned on. Reversed phase was detected when the power turned on.	Check outdoor power line. Check outdoor P.C. board (I/F) error.	135
				(SMMS, SHRM only)				
P05	**P05**	00:	**AF**	Detection of open phase/phase sequence **(I/F)**		Open phase is detected when power is turned on. Inverter DC voltage is too high (overvoltage) or too low (undervoltage).	Check for defect in outdoor P.C. board (I/F). Check wiring of outdoor power supply.	135
		01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side		Inverter DC voltage (Vdc) error (compressor) MG-CTT error **(I/F)**			Check for defect in wiring of CN400 and CN530 on interface P.C. board.**(SHRM-i only)**	
				(SMMS-i, SHRM-i only)				
P07	**P07**	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(SMMS-i, SHRM-i only)** **(MiNI-SMMS not use)**	**1C**	Heat sink overheating error **(IPDU, I/F)**	All stop	Temperature sensor built into IGBT (TH) is overheated.	Check power supply voltage. Check outdoor fan system error. Check heat sink cooling duct for clogging. Check IGBT and heat sink for thermal performance for faulty installation.(e.g. mounting screws and thermal conductivity) Check for defect in outoddr] P.C. board. (faulty IGBT built-in temperature sensor (TH))	136
				(MiNi-SMMS not use)				

MG-CTT: Magnet contactor

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
P10	P10	Detected indoor address	Ob	Indoor overflow error **(Indoor unit)**	All stop	Float switch operates. Float switch circuit is opencircuited or disconnected at connector.	Check float switch connector. Check operation of drain pump. Check drain pump circuit. Check drain pipe for clogging. Check for defect in indoor P.C. board.	136
				(MiNi-SMMS not use)				
P12	—	—	11	Indoor fan motor error **(Indoor unit)**	Stop of corres-ponding unit	Motor speed measurements continuously deviate from target value. Overcurrent protection is activated.	Check connection of fan connector and wiring. Check for defect in fan motor. Check for defect in indoor P.C. board. Check impact of outside air treatment (OA). Check influence of outside air control. Check indoor type code (DN=10) and the capacity code (DN=11). **(SMMS only)**	137
The standard ducted unit air conditioner utilizes a direct current (DC) indoor fan motor that features current limiting protection. In the event power is not isolated prior to service, the protective control circuit will activate and stop the unit operating. The check code gP12 hwill be displayed on the remote controller-once service work has been completed, this code can be cleared by switching off then on the electrical isolation device of the indoor unit and pressing the operation stop button on the remote controller to reset the system **(SHRM only)**						The value of motor speed deviated from target value was detected for certain time. Over-current protection operated.	Check connection of fan connector and wiring. Check fan motor error. Check indoor P.C. board error. Check influence of outside air control. Check indoor type code (DN=10) and the capacity code (DN=11).	
P13	P13	—	47	Outdoor liquid backflow detection error **(I/F)**	All stop	**<During cooling operation>** When system is in cooling operation, high pressure is detected in follower unit that has been turned off. **<During heating operation>** When system is in heating operation, outdoor PMV 1 or 2 continuously registers opening of 100p or less while under SH control. **(PMV 4: SHRM -i only)**	Check full-close operation of outdoor PMV (1, 2, 4). Check for defect in Pd or Ps sensor. Check gas balancing circuit (SV2) for clogging. Check balance pipe. Check SV3B circuit for clogging. Check defect in outdoor P.C. board (I/F). Check capillary of oil separator oil return circuit for clogging. Check for leakage of check valve in discharge pipe convergent section. Check 4-way valve error. Check TS1, TS2 sensors. (TS1, TS2 miswiring and mismounting) **(SHRM-i only)**	138, 139
				(MiNI-SMMS not use)				
P15	P15	01: TS condition		Gas leakdetection (TS1 condition) (TS: **MiNi-SMMS**) **(I/F)**	All stop	Protective shutdown due to sustained suction temperature at or above judgment criterion for at least 10 minutes is repeated four times or more. <TS error judgment criterion> In cooling operation: 60˚C In heating operation: 40˚C **(PMV 4: SHRM -i only)** **(TD3 : SHRM -i only)**	Check for insufficiency in refrigerant quantity. Check outdoor service valves (discharge gas side, suction gas side, liquid side) to confirm full opening. Check PMVs (PMV1, 2, 4) for clogging. Check resistance characteristics of TS1 sensor. Check for defect in 4-way valve. Check SV4 circuit for leakage Check SV5 circuit leakage. Check mispiping of discharge gas/suction gas main pipes. Check Cool/Heat FS unit. Check SVD valve, SVS valve leakage. (Check SVDD valve, SVSS valve leakage.) Connecting piping to FS unit Mispiping of (discharge gas/ suction gas) **(SHRM, SHRM-i only)**	140, 141
		02: TD condition		Gas leak detection (TD condition) **(I/F)**	All stop	Protective shutdown due to sustained discharge temperature (TD1, TD2 or TD3) at or above 108˚C for at least 10 minutes is repeated four times or more. **(MiNi-SMMS : TD only)** **(PMV 4: SHRM -i only)** **(SHRM -i: TD only)**	Check for insufficiency in refrigerant quantity. Check PMVs (PMV 1, 2, 4) for clogging. Check resistance characteristics of TD1, TD2 and TD3 sensors. Check indoor filter for clogging. Check piping for clogging. Check SV4 circuit (for leakage or coil installation error). Check mispiping of discharge gas/suction gas main pipes. Check Cool/Heat FS unit. Check SVD valve, SVS valve leakage. (Check SVDD valve, SVSS valve leakage.) Connecting piping to FS unit Mispiping of (discharge gas/ suction gas) Check wiring and connection of connectors between FS unit and indoor unit. Check miswiring of SVS/SVD valves. **(SHRM, SHRM-i only)**	

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
P17	P17	—	bb	Discharge temperature TD2 error (I/F) **(MiNi-SMMS noy use)**	All stop	Discharge temperature (TD2) exceeds 115˚C. **(PMV 4: SHRM -i only)** **(SHRM -i: TD only)**	Check outdoor service valves (discharge gas side, suction gas side, liquid side) to confirm full opening. Check outdoor PMVs (PMV1, 2, 4) for clogging. Check resistance characteristics of TD2 sensor. Check for defect in 4-way valve. Check SV4 circuit for leakage. Check SV4 circuit (for wiring or installation error involving SV41, SV42 and SV43). Check SV5 valve circuit leakage. Check SV6 circuit (Clogging, valve operation error) Check mispiping of discharge gas/suction gas main pipes. Check Cool/Heat FS unit. Check SVD valve, SVS valve leakage. (Check SVDD valve, SVSS valve leakage.) Connecting piping to FS unit Mispiping of (discharge gas/ suction gas) Check wiring between FS unit and indoor unit, connection of connectors Check miswiring of SVS/SVD valve. **(SHRM, SHRM-i only)**	142, 143
P18	P18	—	—	Discharge temperature TD3 error (I/F) **(SMMS-i, SHRM-i only)**	All stop	Discharge temperature (TD3) exceeds 115˚C.	Check outdoor service valves (discharge gas side, suction gas side, liquid side) to confirm full opening. Check outdoor PMVs (PMV1, 2, 4) for clogging. Check resistance characteristics of TD3 sensor. Check for defect in 4-way valve. Check SV4 (SV43) circuit for leakage. **(SMMS-i: SV43only)** Check SV4 circuit (for wiring or installation error involving SV41, SV42 and SV43). Check SV5 valve circuit leakage. Check SV6 circuit. (Clogging, valve operation error) Check mispiping of discharge gas/suction gas main pipes. Check Cool/Heat FS unit. Check SVD valve, SVS valve leakage. (Check SVDD valve, SVSS valve leakage.) Connecting piping to FS unit Mispiping of (discharge gas/ suction gas) Check wiring between FS unit and indoor unit, connection of connectors. Check miswiring of SVS/SVD valve. **(SHRM-i only)**	143

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
P19	**P19**	Detected outdoor unit No. * Display of center unit only	**08**	4-way valve reversing error **(I/F)**	All stop	Abnormal refrigerating cycle data is collected during single heating operation.	It is necessary to check all the outdoor units in the identical refrigerant line. Check for defect in main body of 4-way valve. Check for coil defect in 4-way valve and loose connection of its connector. Check clogging in 4-way valve capillary Check resistance characteristics of TS1 and TE1 sensors. Check output voltage characteristics of Pd and Ps pressure sensors. Check for wiring error involving TE1 and TL sensors. Check Cool/Heat FS unit. Check SVD valve, SVS valve leakage. (Check SVDD valve, AVSS valve leakage.) Connecting piping of FS unit Mispiping of (Discharge gas/ suction gas) SV14 valve body error (in heating operation) SV 14valve coil error, Connector connection check (in heating operation) **(SHRM, SHRM-i only)**	144, 145
P20	**P20**	—	**22**	Activation of high-pressure protection **(I/F)**	All stop	Pd sensor detects pressure equal to or greater than 3.6MPa(3.7MPa:**MiNi-SMMS**).	Check for defect in Pd pressure sensor. Check service valves (discharge gas side, suction gas side, liquid side) to confirm full opening. Check for defect in outdoor fan. Check for defect in outdoor fan motor. Check outdoor PMVs (PMV1, 2, 4) for clogging. Check indoor/outdoor heat exchangers for clogging. Check for short-circuiting of outdoor suction/discharge air flows. Check SV2 circuit for clogging. Check for defect in outdoor P.C. board (I/F). Check for defect in indoor fan system (possible cause of air flow reduction). Check opening status of indoor PMV. Check indoor-outdoor communication line for wiring error. Check for faulty operation of check valve in discharge pipe convergent section. Check gas balancing SV4 valve circuit. Check mispiping of suction gas/ discharge gas main pipes. Check for refrigerant overcharging. Check discharge gas pipe checked valve operation error. Check SV11 valve circuit. (Clogging, OFF at one side only) Check clogging of circuit at auxiliary heat exchanger liquid side. (Miswiring, disconnection, wiring forgotten) Check Cool/Heat FS unit. Clogging of SVD valve, operation error check Wiring check in FS unit (SVD/SVS coil miswiring, etc.) Wiring check between FS unit and inside of room (Miswiring, disconnection, wiring forgotten) Check SV5 valve circuit. Check 4-way valve operation error. **(SHRM, SHRM-i only)**	146 to 149

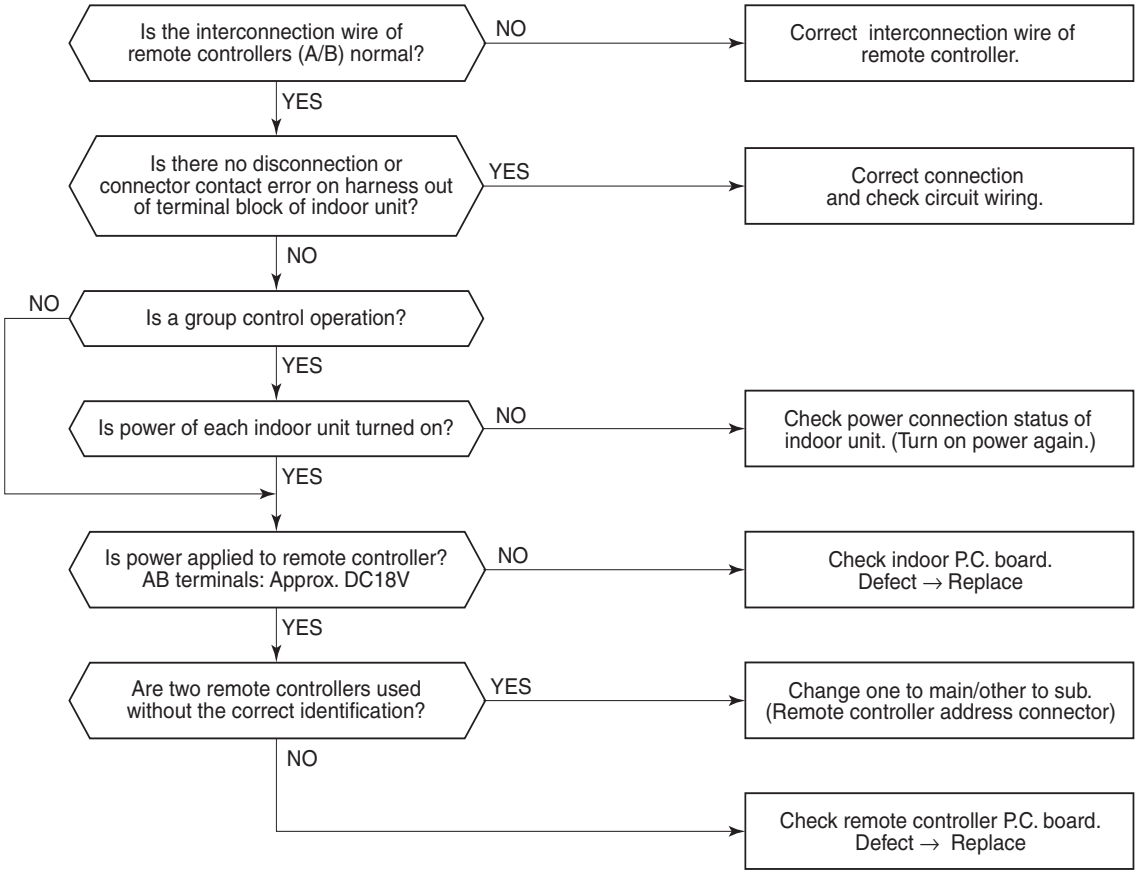
Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
P22	P22	0∗: IGBT circuit 1∗: Position detection circuit error 3∗: Motor lockup error 4∗: Motor current detection C∗: TH sensor temperature error D∗: TH sensor error E∗: Inverter DC voltage error (outdoor fan) E∗: Vdc derror (SMMS, SHRM only) **(4*, C* D* : MiNi-SMMS not use)** **Note: Although letters 0 to F appear at locations indicated by "∗", please ignore them.**	1A	Outdoor fan IPDU error **(IPDU)**	All stop	**(Sub-code: 0∗)** Fan IPDU overcurrent protective circuit A status that the current flows over the fixed amount when the fan was activated was detected.	• Check fan motor. • Check for defect in fan IPDU P.C. board.	150
					All stop	**(Sub-code: 1∗)** Fan IPDU position detective circuit The position detection was not normally performed.	• Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.	
					All stop	**(Sub-code: 3∗)** External elements by gust, obstacles, etc. Velocity estimate was not correctly performed.	• Check fan motor. • Check for defect in fan IPDU P.C. board.	
					All stop	**(Sub-code: 4∗)** Fan IPDU over current protection circuit Flow of current equal to or greater than the specified value is detected during operation of the fan. **(MiNI-SMMS not use)**	• Check fan motor. • Check connection of fan motor connector. • Check for defect in fan IPDU P.C. board.	
					All stop	**(Sub-code: C∗)** Temperature of TH sensor over the fixed value was detected during operation of the fan. **(MiNI-SMMS not use)**	• Check fan motor. • Check for defect in fan IPDU P.C. board.	
					All stop	**(Sub-code: D∗)** The resistance value of the sensor is infinite or zero (open or short circuit). **(MiNI-SMMS not use)**	• Check for defect in fan IPDU P.C. board.	
					All stop	**(Sub-code: E∗)** Fan IPDU DC voltage protection circuit The DC voltage higher or lower than the specified value is detected. **(MiNI-SMMS not use)**	• Check power voltage of the main power supply. • Check for defect in fan IPDU P.C. board. • Check connection of fan IPDU P.C. board.	
P26	P26	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(03 : SMMS-i,SHRM-i only)** **(— : MiNi-SMMS not use)**	14	G-TR short-circuit protection error **(IPDU)**	All stop	Overcurrent is momentarily detected during startup of compressor.	• Check connector connection and wiring on A3-IPDU P.C. board. • Check for defect in compressor (layer shortcircuit). • Check for defect in outdoor P.C. board .	151
P29	P29	01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(03 : SMMS-i,SHRM-i only)** **(— : MiNi-SMMS not use)**	16	Compressor position detection circuit error **(IPDU)**	All stop	Position detection is not going on normally	• Check wiring and connector connection. • Check for compressor layer short-circuit. • Check for defect in outdoor P.C. board.	152
P31			47	Other indoor error (group follower unit error) **(Indoor unit)**	Stop of corres-ponding unit	There is error in other indoor unit in group, resulting in detection of E07/L07/L03/L08.	• Check indoor P.C. board.	152
—	[97]	—	AI-NET communi cation error **(SMMS, SHRM only)**					153

Errors Detected by TCC-LINK Central Control Device (MiNi-SMMS, SMMS-i, SHRM-i)

Main remote controller	Outdoor 7-segment display		AI-NET code	Description (Location of detection)	System status	Error detection condition(s)	Check items (locations)	Page No.
	Check code	Sub-code						
C05	—			TCC-LINK central control device transmission error (TCC-LINK)	Continued operation	Central control device is unable to transmit signal.	Check for defect in central control device. Check for defect in central control communication line. Check termination resistance setting.	
C06	—			TCC-LINK central control device reception error	Continued operation	Central control device is unable to receive signal.	Check for defect in central control device. Check for defect in central control communication line. Check termination resistance setting. Check power supply for devices at other end of central control communication line. Check defect in P.C. boards of devices at other end of central control communication line.	
C12	—			Blanket alarm for generalpurpose device control interface (General-purpose device I/F)	Continued operation	Error signal is input to control interface for general-purpose devices.	Check error input.	
P30	Differs according to nature of alarm-causing error			Group control follower unit error (TCC-LINK)	Continued operation	Error occurs in follower unit under group control. ([P30] is displayed on central control remote controller.)	Check check code of unit that has generated alarm.	
	(L20 displayed.)			Duplicated central control address	Continued operation	There is duplication in central control addresses.	Check address settings.	

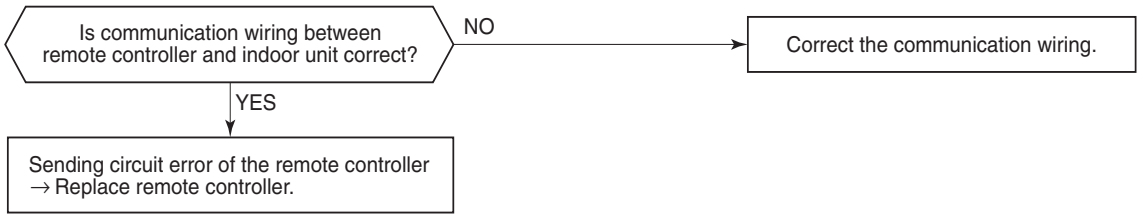
Procedure for Each Check Code

Check Code	Check Code Name	Cause of Operation
[E01] / [–] (TCC-L / AI-NET)	**Communication error between indoor and remote controller (Detected at remote controller side)**	1. Remote controller interconnecting cable error 2. Indoor power supply error 3. Indoor P.C. board error 4. Remote controller address setup error 5. Remote controller P.C. board error



Check Code	Check Code Name	Cause of Operation
[E02] / [–] (TCC-L / AI-NET)	**Remote controller sending error**	Signal could not be sent to indoor unit. Check the communication wire of the remote controller.

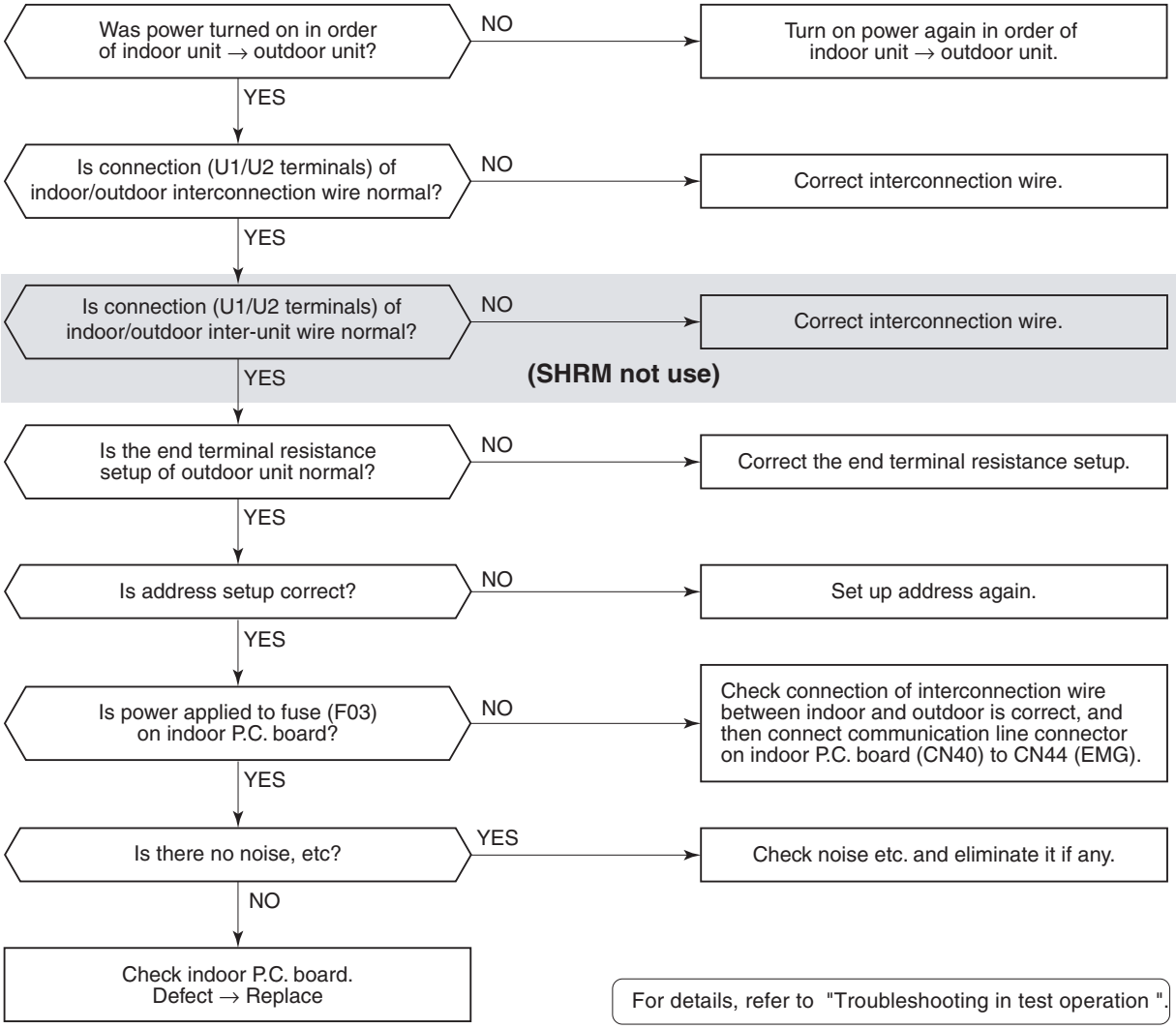
* It is not displayed on 7-segment display of the central control controller.



Check Code	Check Code Name	Cause of Operation
[E03] / [97] (TCC-L / AI-NET)	**Communication error between indoor and remote controller (Detected at indoor side)**	No communication from remote controller and communication adaptor

This error is detected when the indoor unit cannot receive a signal from the remote controller.
Check communication wiring of the remote controllers A and B.
As communication is impossible, this fault code [E03] is not displayed on the main remote controller.
It is displayed on TCC-LINK central controller.

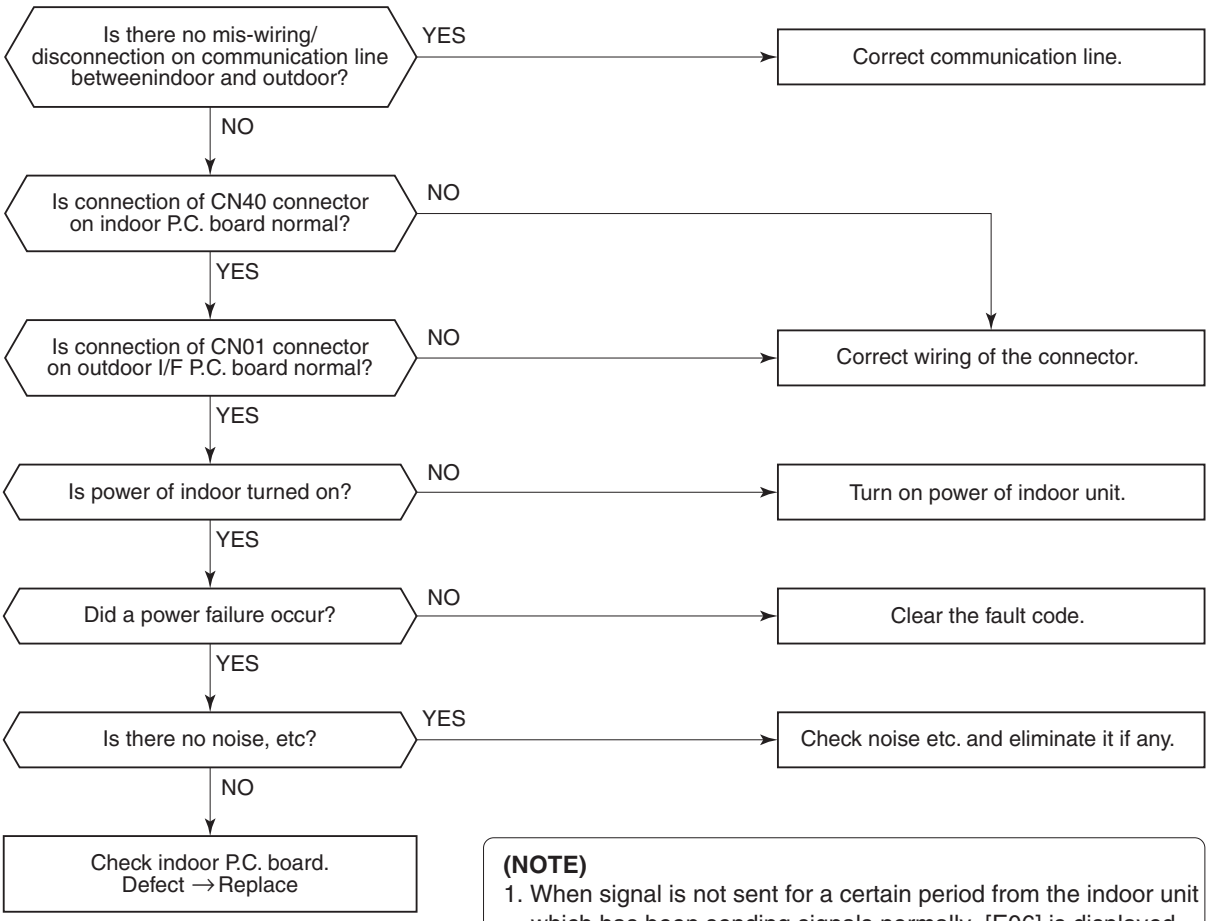
Check Code	Check Code Name	Cause of Operation
[E04] / [04] (TCC-L / AI-NET)	**Indoor/Outdoor communication circuit error (Detected at indoor side)**	1. Power of outdoor unit was firstly turned on. 2. Connection error of communication line between indoor and outdoor 3. Terminal resistance setup error on outdoor header unit. 4. Address setup error



For details, refer to "Troubleshooting in test operation ".

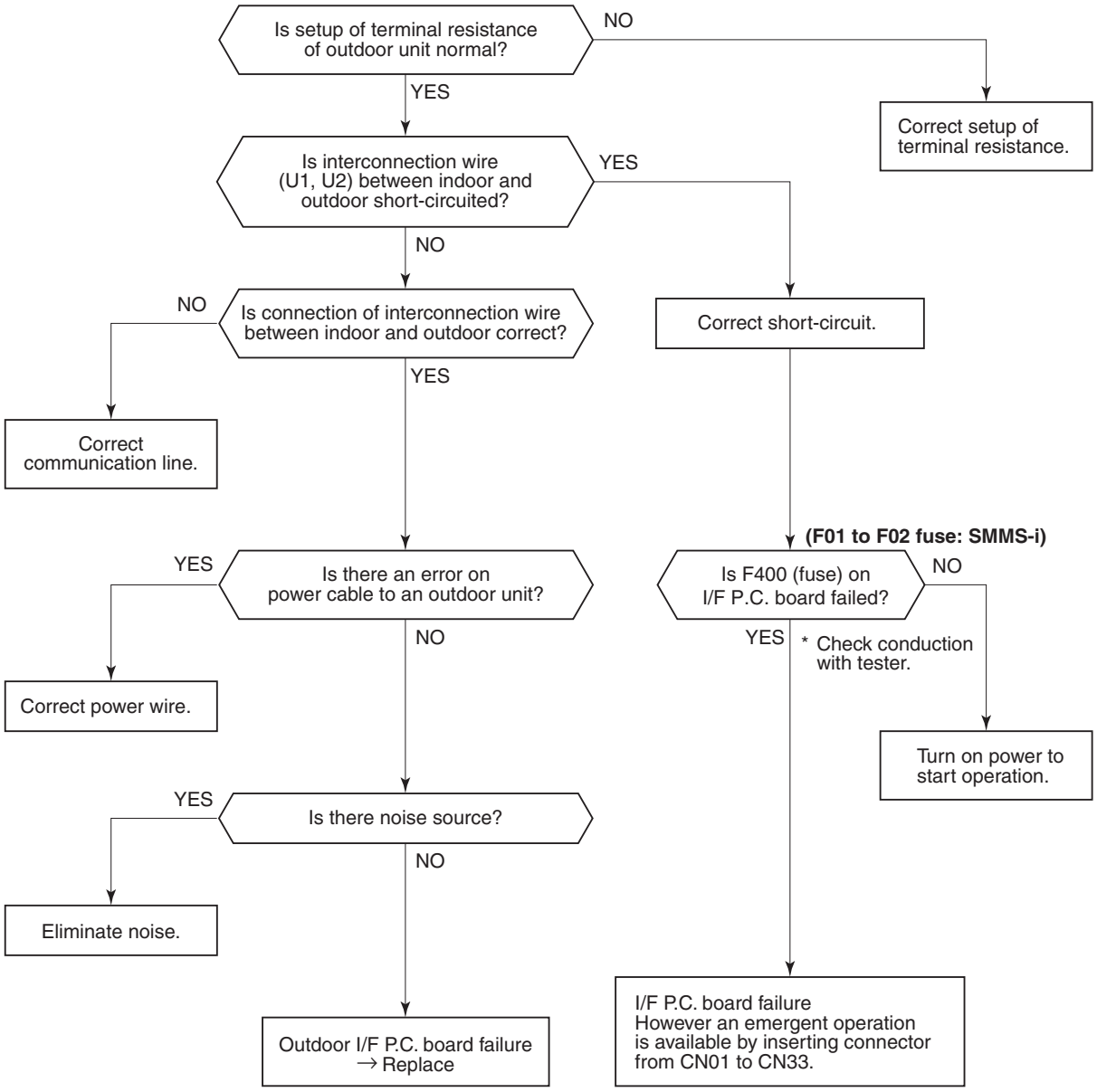
Check Code	Check Code Name	Cause of Operation
[E06] / [04] (TCC-L / AI-NET)	**Decreased number of indoor units**	1. Communication lines (U1, U2) connection error between indoor and outdoor 2. Connector connection error of communication for indoor P.C. board 3. Connector connection error of communication for outdoor I/F P.C. board 4. Power supply of indoor unit (Is power turned on?)

Sub-code: No. of indoor units which received signals normally



(NOTE)
1. When signal is not sent for a certain period from the indoor unit which has been sending signals normally, [E06] is displayed.

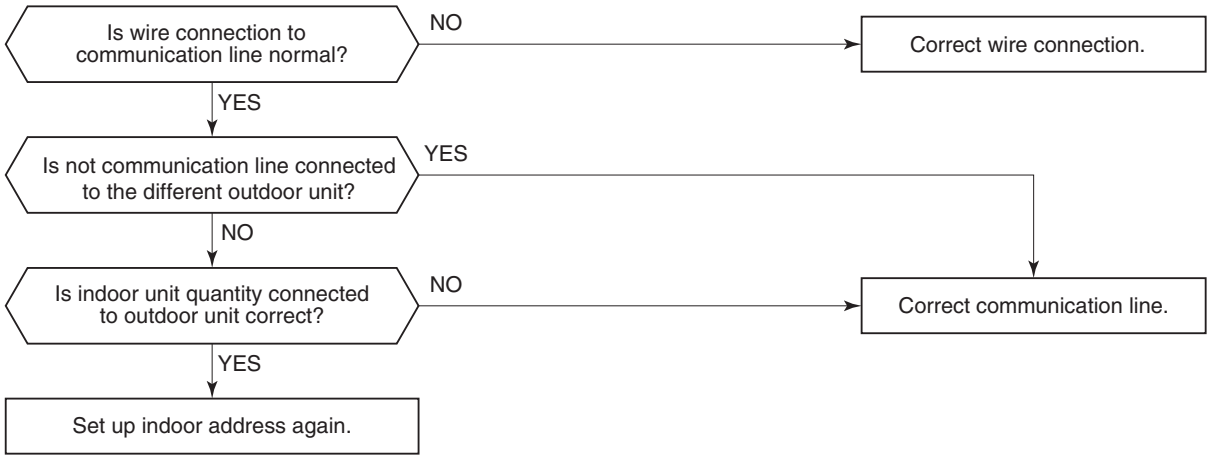
Check Code	Check Code Name	Cause of Operation
[E07] / [–] (TCC-L / AI-NET)	**Indoor/Outdoor communication circuit error (Detected at outdoor side)**	1. Outdoor communication terminal resistance setup error 2. Indoor/outdoor communication connection error



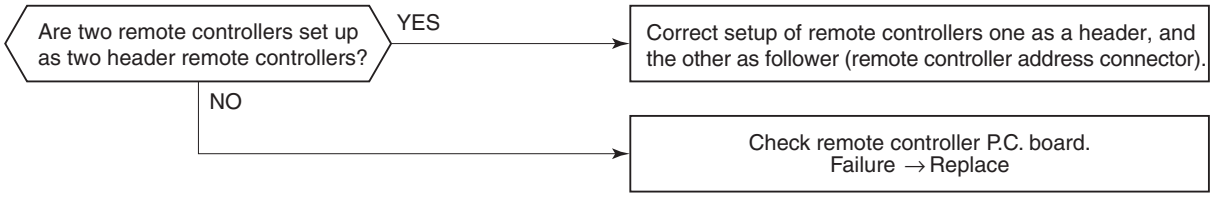
Check Code	Check Code Name	Cause of Operation
[E08] / [96] (TCC-L / AI-NET)	**Duplicated indoor addresses**	Indoor addresses are duplicated.

Sub-code: Duplicated indoor address

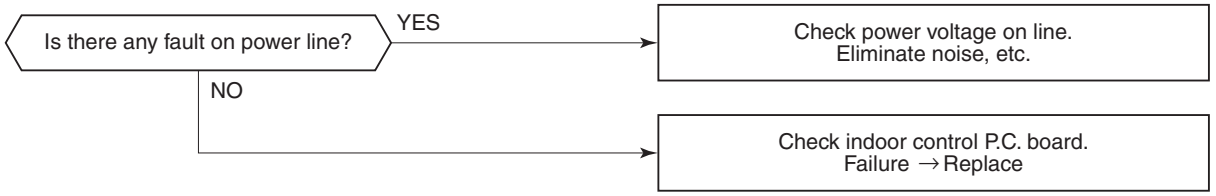
Using a main remote controller, check the setup check codes (DN code) 12, 13, and 14.
When there is no address duplication, check to the following flowchart.



Check Code	Check Code Name	Cause of Operation
[E09] / [99] (TCC-L / AI-NET)	**Duplicated master remote controller**	Setup of master remote controller is duplicated.

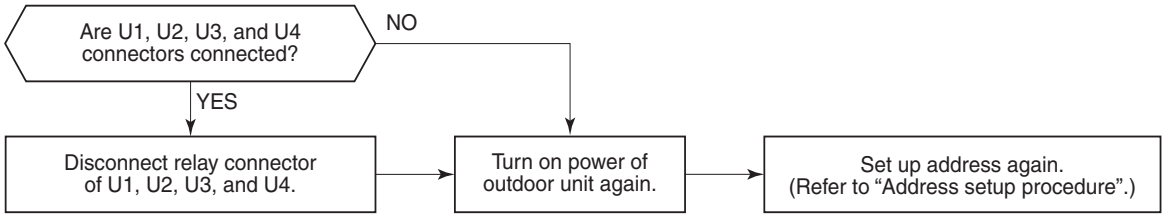


Check Code	Check Code Name	Cause of Operation
[E10] / [CF] (TCC-L / AI-NET)	**Communication error in indoor P.C. board assembly**	Indoor P.C. board error failure

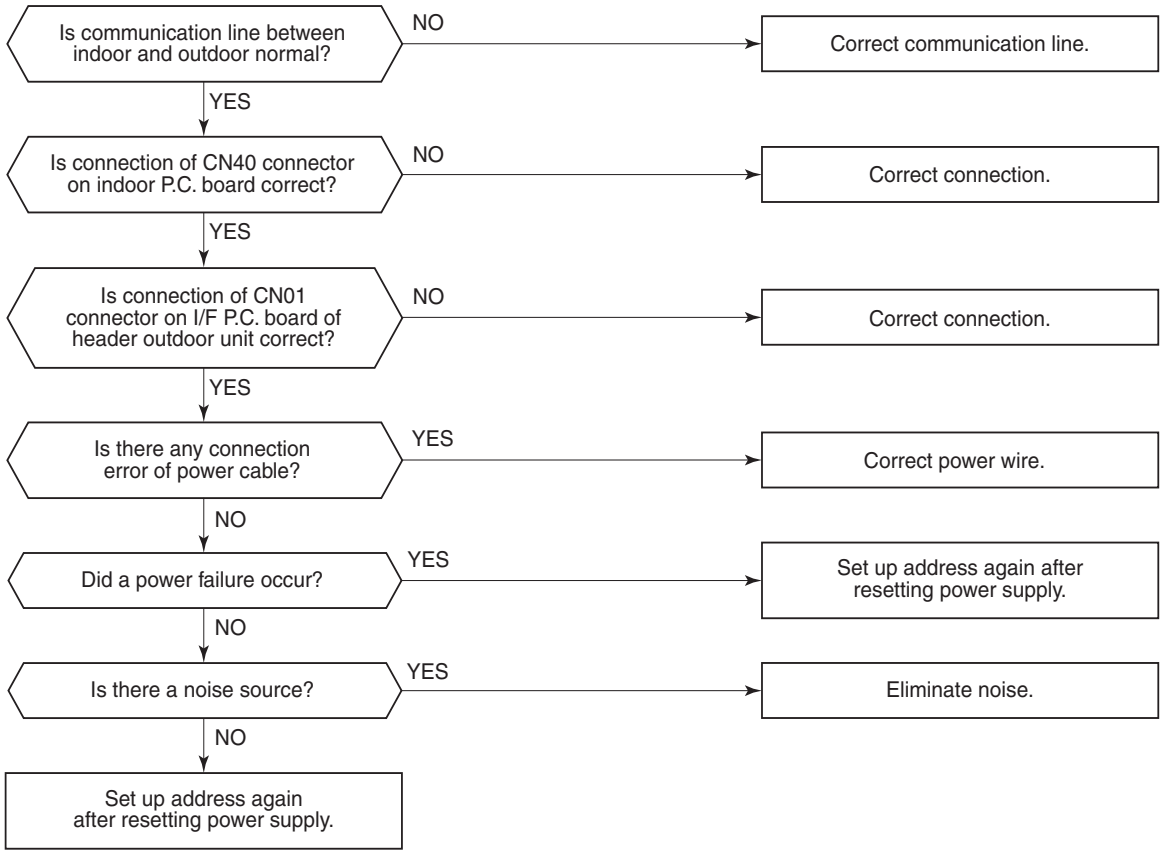


Check Code	Check Code Name	Cause of Operation
[E12] / [42] (TCC-L / AI-NET)	**Automatic address start error**	1. When indoor automatic address started, other refrigerant circuit system was setting automatic address. (Sub code : 01) 2. When outdoor automatic address started, the indoor automatic address was being set. (Sub-code: 02)

Sub-code: 01: Communication between indoor and outdoor 02: Communication between outdoor units (**MiNi-SMMS not use**)

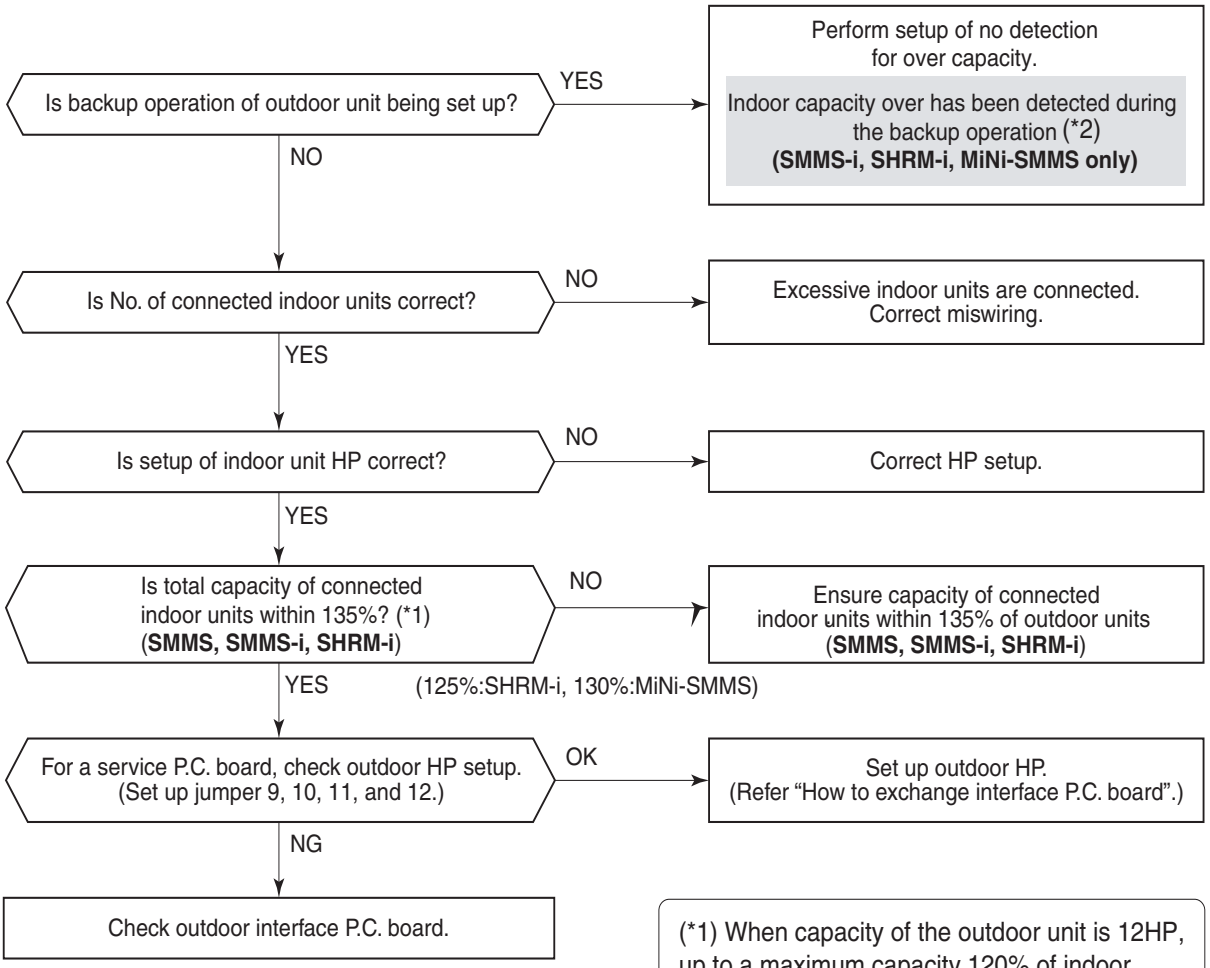


Check Code	Check Code Name	Cause of Operation
[E15] / [42] (TCC-L / AI-NET)	**No corresponding indoor unit during automatic address**	



Check Code	Check Code Name	Cause of Operation
[E16] / [89] (TCC-L / AI-NET)	**Connected indoor units**	1. There are 48 or more connected indoor units. 2. Capacity over of total connected indoor units. 3. Incorrect setup of indoor/outdoor capacity

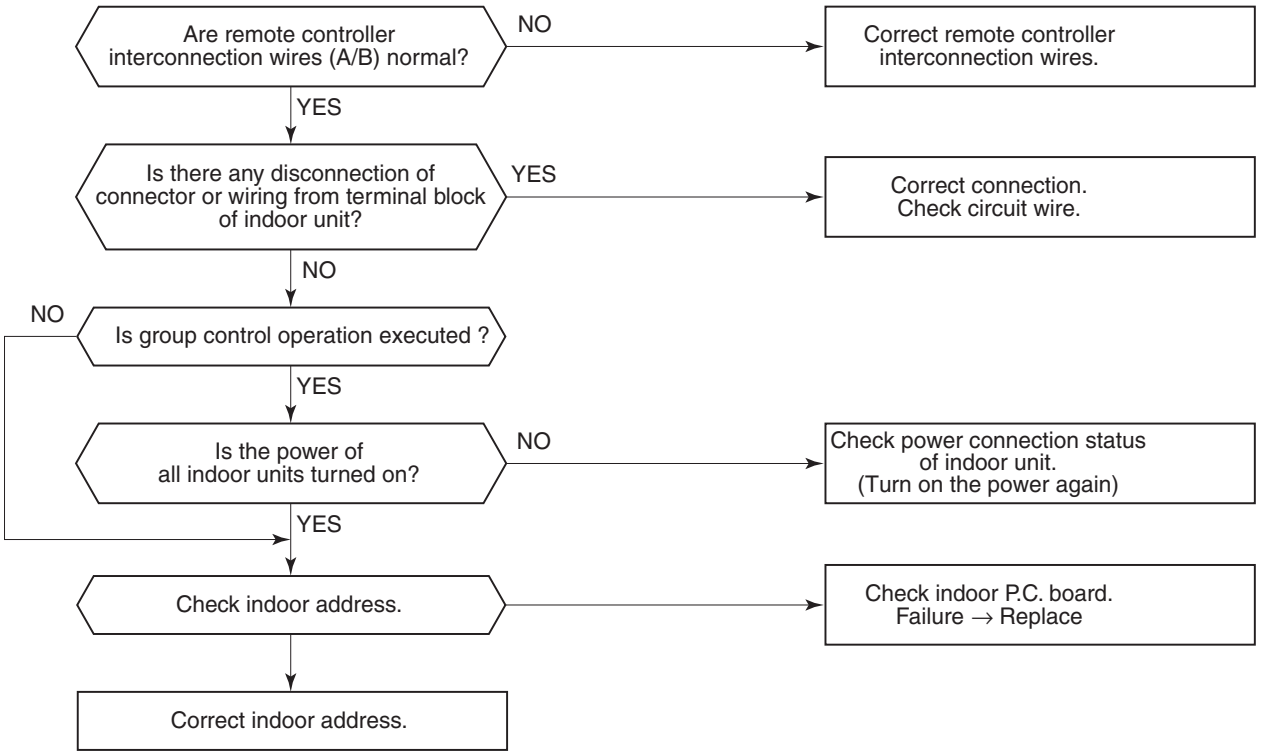
Sub-code: 00 : Capacity over 01 : ~ : Number of connected indoor units



(*1) When capacity of the outdoor unit is 12HP, up to a maximum capacity 120% of indoor units can be connected.

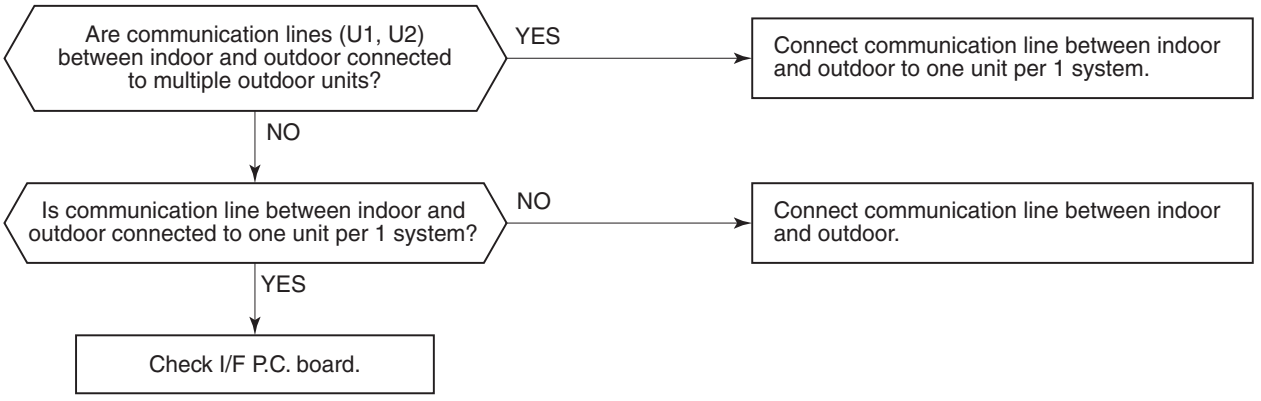
(*2) To deactivate the capacity-over detection Turn SW09 Bit 2 on I/F P.C. board of header outdoor unit to ON. (Usually OFF)

Check Code	Check Code Name	Cause of Operation
[E18] / [97/99] (TCC-L / AI-NET)	**Communication error between indoor header and follower**	Regular communication between indoor header and follower is unavailable.



Check Code	Check Code Name	Cause of Operation
[E19] / [96] (TCC-L / AI-NET)	**Header outdoor units quantity error (MiNi-SMMS not use)**	1. Misconnection of interconnection cable between indoor and outdoor 2. Outdoor I/F P.C. board error

Sub-code: 00: No header unit 02: Two or more header units



Reference) (SMMS-i, SHRM-i only)
The outdoor unit connected with communication wires (U1,U2) between indoor and outdoor is automatically recognized as the header unit

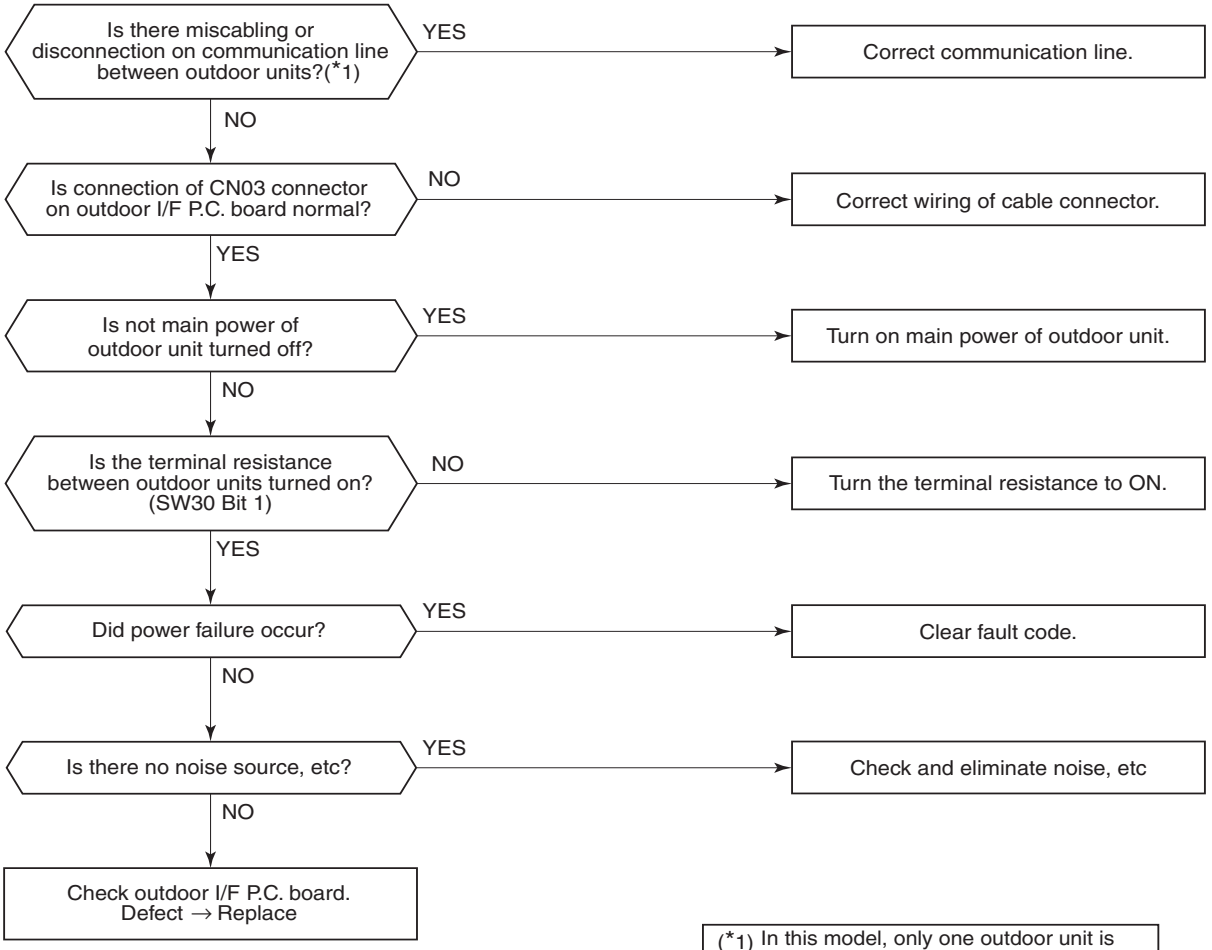
Reference) (SMMS, SHRM only)
When the power supply of the outdoor unit is first turned on, the check code [E19 00] is displayed until the power supply of the indoor units are turned on. However is not an error. When the power supply of the indoor units are this turned on, the check code is automatically reset.

Check Code	Check Code Name	Cause of Operation
[E20] / [42] (TCC-L / AI-NET)	**Unit connected to other line during automatic address** **(MiNi-SMMS not use)**	When starting automatic indoor address, a device in another refrigerant system is connected.

Sub-code: 01: Connection of outdoor of another system 02: Connection of indoor unit of another system

Separate the wire between systems according to address setup method.

Check Code	Check Code Name	Cause of Operation
[E23] / [15] (TCC-L / AI-NET)	**Communication sending error between outdoor units** **(MiNi-SMMS not use)**	1. Interconnection cable error between outdoor unit 2. Communication error between outdoor units, I/F P.C. board error 3. Terminal resistance setup error between outdoor units



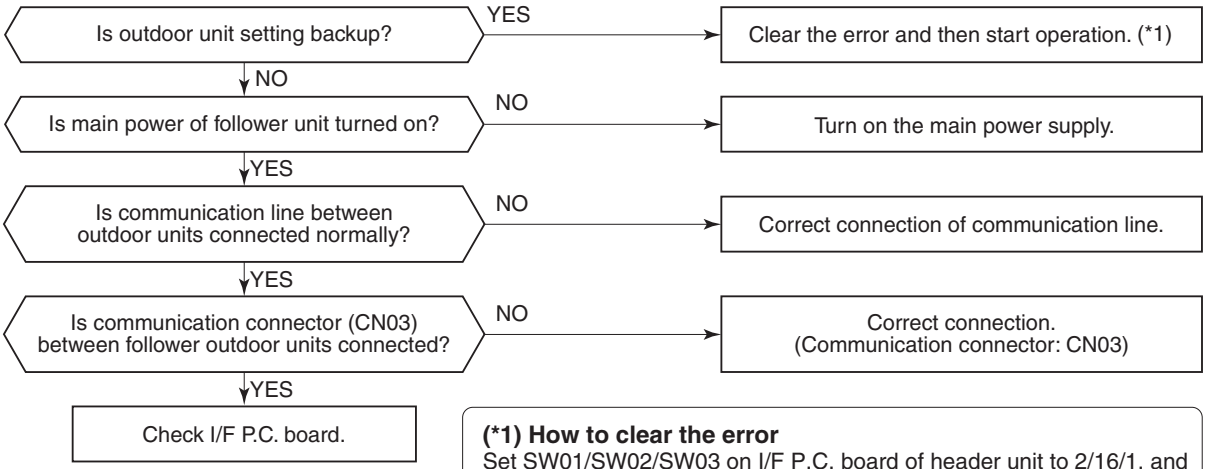
(*1) In this model, only one outdoor unit is provided toone refrigerant line. Be sure to check there is no communication connection with outdoor unit in the other refrigerant line.(**SMMS only**)

Check Code	Check Code Name	Cause of Operation
[E25] / [15] (TCC-L / AI-NET)	**Duplicated address setup of terminal outdoor units** **(MiNi-SNNS not use)**	Addresses are duplicated by manual setting of outdoor address

Never set up the outdoor address manually.

Check Code	Check Code Name	Cause of Operation
[E26] / [15] (TCC-L / AI-NET)	**Decrease of connected outdoor units** **(MiNi-SNNS not use)**	1. Outdoor unit backup setup 2. Outdoor power error 3. Communication line connection error between outdoor units 4. Connector error for communication 5. Outdoor I/F P.C. board error

Sub-code: No. of outdoor units which received signals normally



(*1) How to clear the error
Set SW01/SW02/SW03 on I/F P.C. board of header unit to 2/16/1, and push SW04 for 5 seconds or more. (7-segment display: [Er.] [CL])

(*) In this model, only one outdoor unit is provided toone refrigerant line. Be sure to check there is no communication connection with outdoor unit in the other refrigerant line.(**SMMS only**)

Check Code	Check Code Name	Cause of Operation
[E28] / [d2] (TCC-L / AI-NET)	**Terminal outdoor unit error** **(MiNi-SNNS not use)**	Terminal unit error

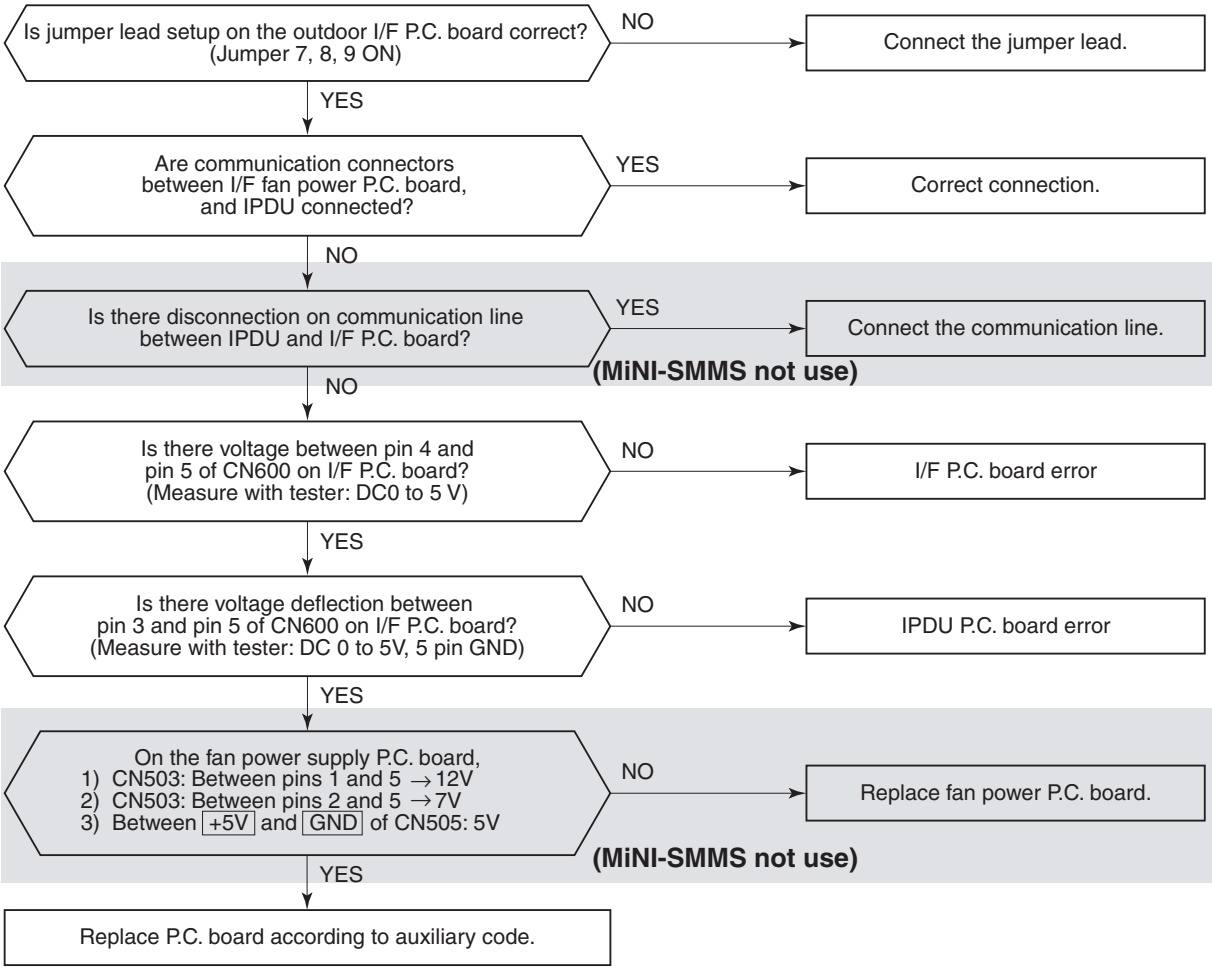
Sub-code: Detected outdoor unit number

An error occurred on the terminal unit. Confirm the check code of the terminal unit using 7-segment display on the I/F P.C. board of the terminal unit and check it according to the diagnostic procedure for each fault code.
How to identify the terminal outdoor unit on which error occurred
Under condition that [E28] is displayed on the 7-segment display on the header unit, when pushing SW04 for 1 second or more, the fan on the faulty outdoor unit will rotate. Pushing SW05 alone, stops the fan rotation.

Check Code	Check Code Name	Cause of Operation
[E31] / [CF] (TCC-L / AI-NET)	**IPDU communication error** **(SMMS, SHRM, MiNi-SMMS only)**	1. Connection error of communication line between IPDU and I/F P.C. board 2. I/F P.C. board error 3. IPDU P.C. board error 4. External noise

Sub-code: (SHRM only)
01: IPDU1 error 02: IPDU2 error
03: IPDU1, 2 error 04: Fan IPDU error
05: IPDU1, fan IPDU error 06: IPDU2, fan IPDU error
07: All IPDU error or communication line error between IPDU-I/F P.C. boards, or outdoor I/F P.C. board error

* If the fan IPDU is abnormal, be sure to check the voltage output on the fan power P.C. board.



Sub-code:

	A3-IPDU	Fan IPDU	
		1(Upper)	2(Lower)
01	O		
02		O	
03	O	O	
04			O
05	O		O
06		O	O
07	O	O	O

O: Part where IPDU error has occurred.

(MiNi-SMMS only)

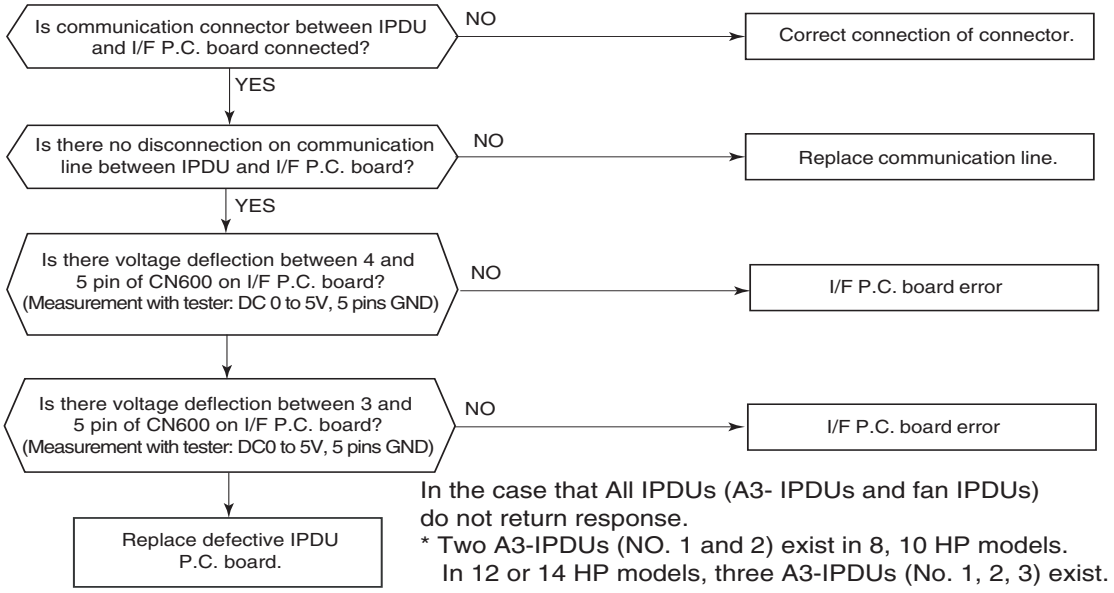
Auxiliary code	P.C. board to be replaced
01	IPDU1
02	IPDU2
03	IPDU1, 2
04	Fan IPDU
05	IPDU1, fan IPDU
06	IPDU2, fan IPDU
07	IPDU1, 2, fan IPDU, I/F

(SHRM only)

Check Code	Check Code Name	Cause of Operation
[E31]	IPDU communication error (SMMS-i, SHRM-i only)	1. Connection error of communication line between IPDU and I/F P.C. board. 2. I/F P.C. board error 3. IPDU P.C. board erroe 4. External noise

Sub-code:

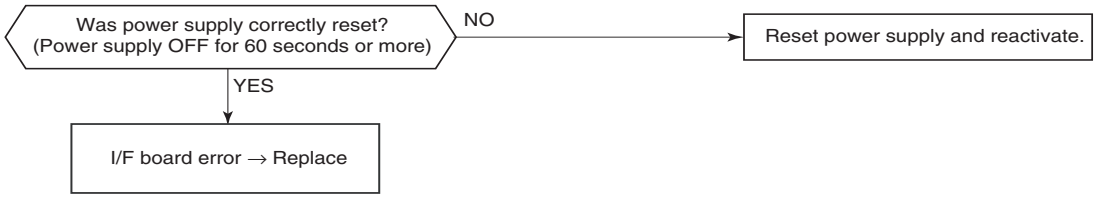
	A3-IPDU			Fan IPDU		A3-IPDU			Fan IPDU	Sub MCU
	1	2	3			1	2	3		
01	O				0A		O		O	
02		O			0B	O	O		O	
03	O	O			0C			O	O	
04			O		0D	O		O	O	
05	O		O		0E		O	O	O	
06		O	O		0F	O	O	O	O	
07	O	O	O		80					O
08				O	O: Part where IPDU error has occurred.					
09	O			O						



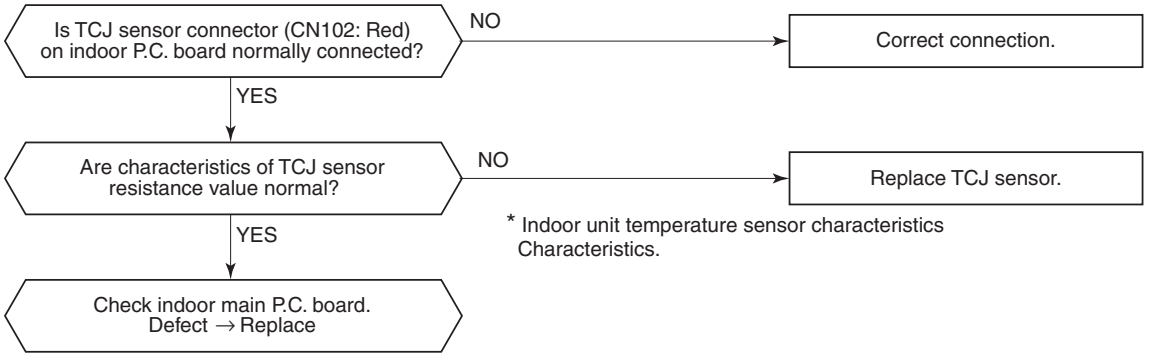
In the case that All IPDUs (A3- IPDUs and fan IPDUs) do not return response.

* Two A3-IPDUs (NO. 1 and 2) exist in 8, 10 HP models.
In 12 or 14 HP models, three A3-IPDUs (No. 1, 2, 3) exist.

Sub-code: 80

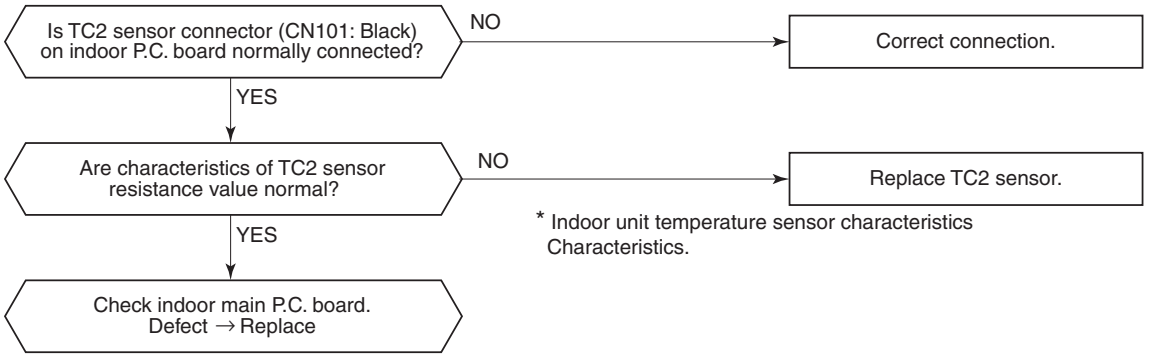


Check Code	Check Code Name	Cause of Operation
[F01] / [0F] (TCC-L / AI-NET)	**Indoor TCJ sensor error**	TCJ sensor Open/Short



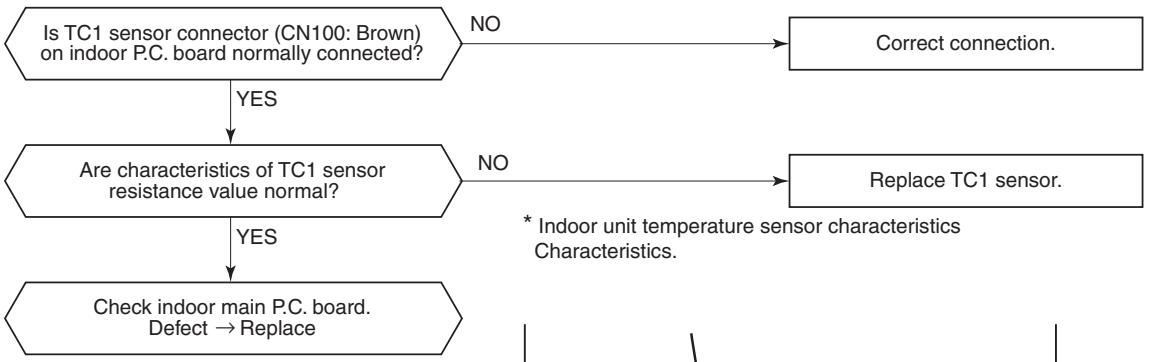
* Indoor unit temperature sensor characteristics Characteristics.

Check Code	Check Code Name	Cause of Operation
[F02] / [0d] (TCC-L / AI-NET)	**Indoor TC2 sensor error**	TC2 sensor Open/Short

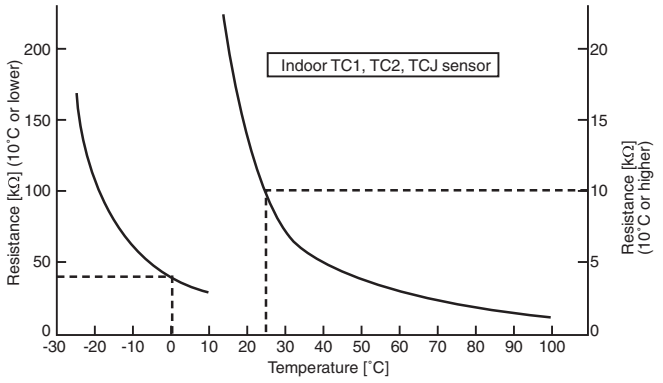


* Indoor unit temperature sensor characteristics Characteristics.

Check Code	Check Code Name	Cause of Operation
[F03] / [93] (TCC-L / AI-NET)	**Indoor TC1 sensor error**	TC1 sensor Open/Short



* Indoor unit temperature sensor characteristics Characteristics.

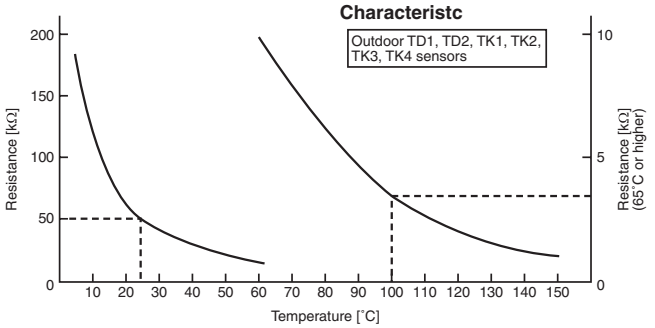


Check Code	Check Code Name	Cause of Operation
[F04] / [19] (TCC-L / AI-NET)	**TD1 sensor error**	TD1 sensor Open/Short

This check code means detection of Open/Short of TD1 sensor.
Check disconnection of connector (TD1 sensor: CN502, White) and characteristics of sensor resistance value.
(Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

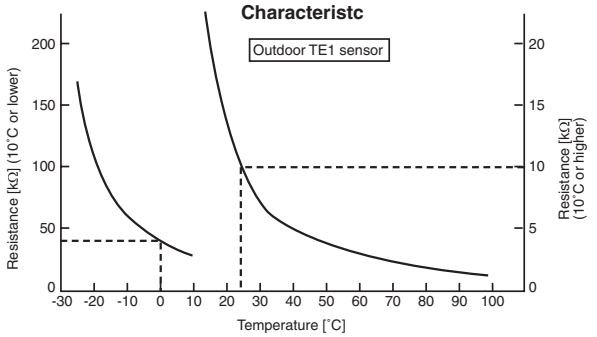
Check Code	Check Code Name	Cause of Operation
[F05] / [A1] (TCC-L / AI-NET)	**TD2 sensor error (MiNi-SMMS not use)**	TD2 sensor Open/Short

This check code means detection of Open/Short of TD2 sensor.
Check disconnection of connector (TD2 sensor: CN503, Pink) and characteristics of sensor resistance value.
(Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.



Check Code	Check Code Name	Cause of Operation
[F06] / [18] (TCC-L / AI-NET)	**TE1 sensor error**	TE1 sensor Open/Short

This check code means detection of Open/Short of TE1 sensor.
Check disconnection of connector (TE1 sensor: CN505, Green)/(TE1sensor: CN520 Green, TE2 sensor: CN521 Red **SHRM-i only**)and characteristics of sensor resistance value.
(Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

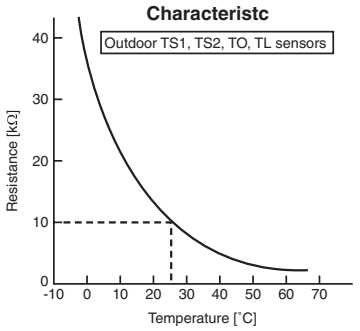


Check Code	Check Code Name	Cause of Operation
[F07] / [18] (TCC-L / AI-NET)	**TL sensor error**	TL sensor Open/Short

This check code means detection of Open/Short of TL sensor.
Check disconnection of connector (TL sensor: CN521, White)/(TL sensor: CN523, White **SMMS-i, SHRM-I, MiNi-SMMS**) and characteristics of sensor resistance value.
(Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

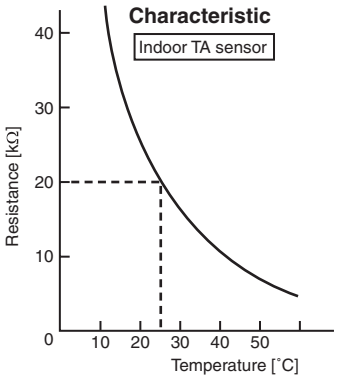
Check Code	Check Code Name	Cause of Operation
[F08] / [1b] (TCC-L / AI-NET)	**TO sensor error**	TO sensor Open/Short

This check code means detection of Open/Short of TO sensor.
Check disconnection of connector (TO sensor: CN507, Yellow) and characteristics of sensor resistance value.
(Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.



Check Code	Check Code Name	Cause of Operation
[F10] / [0C] (TCC-L / AI-NET)	**Indoor TA sensor error**	TA sensor Open/Short

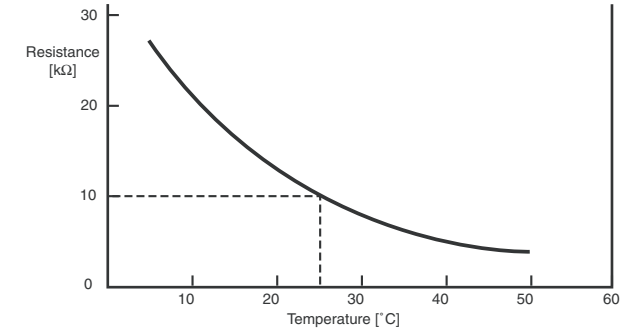
This check code means detection of Open/Short of TA sensor.
Check disconnection of connector (TA sensor: CN104, Yellow) and characteristics of sensor resistance value. (Refer to Indoor unit temperature sensor characteristics.)
If sensor is normal, replace indoor P.C. board.



Check Code	Check Code Name	Cause of Operation
[F11]	**Indoor TF/TFA sensor erroe** (**SHRM-i only**)	Indoor TF/TFA sensor Open/Short

Open/short of TF / TFA sensor was detected. Check disconnection of connector connection (TFA sensor: CN103 yellowish green) circuit and resistance value characteristics of the sensor. (Refer to "Sensor Characteristics Indoor Unit Temperature Sensor Characteristics".) When the sensor is normal, replace the indoor P.C. board.

Indoor TA(TSA), TRA,TF(TFA) sensor



Temperature [˚C]	Resistance [kΩ]
0	33.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3

Check Code	Check Code Name	Cause of Operation
[F12] / [A2] (TCC-L / AI-NET)	**TS sensor error (SMMS, SHRM, MiNi-SMMS)**	TS1, TS2 sensor Open/Short (**SMMS,MiNi-SMMS, SHRM**)
	TS1 sensor error(SMMS-i, SHRM-i)	TS1 sensor Open/Short (**SMMS-i,SHRM-i**)

Sub-code: 01: TS1 sensor 02 : TS2 sensor
(SMMS, SHRM only)

This check code means detection of Open/Short of TS sensor.
Check disconnection of connector (TS1 sensor: CN504, White TS2 sensor: CN522, Black)/(TS sensor: CN505,White **MiNi-SMMS**) and characteristics of sensor resistance value. (Refer to Outdoor unit temperature sensor characteristics.)
If sensor is normal, replace outdoor I/F P.C. board.

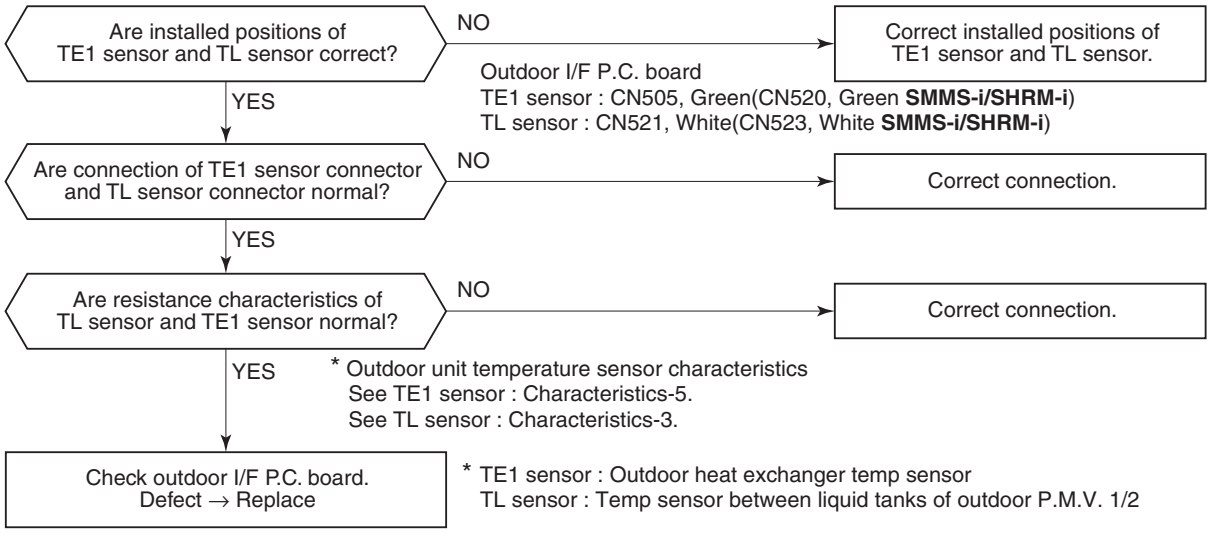
Check code	Check code name	Cause of operation
[F13] / [43] (TCC-L / AI-NET)	**TH sensor error**	IGBT built-in sensor error in A3-IPDU

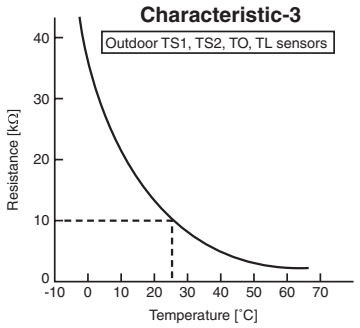
Sub-code: 01: Compressor 1 side 02: Compressor 2 side (**SMMS, SHRM**)

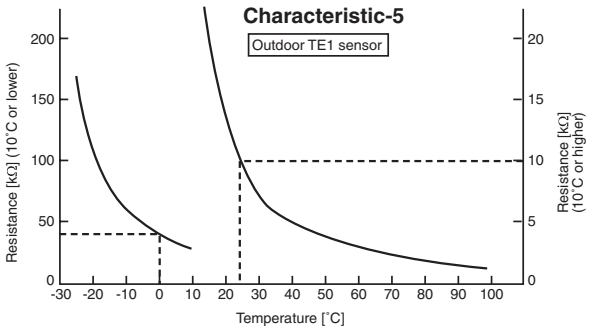
Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side (**SMMS-i, SHRM-i**)

This check code means IGBT built-in temperature sensor error.
Check connection of connectors CN06 on IPDU P.C. board and CN600 on I/F P.C. board.
If sensor is normal, replace IPDU P.C. board.

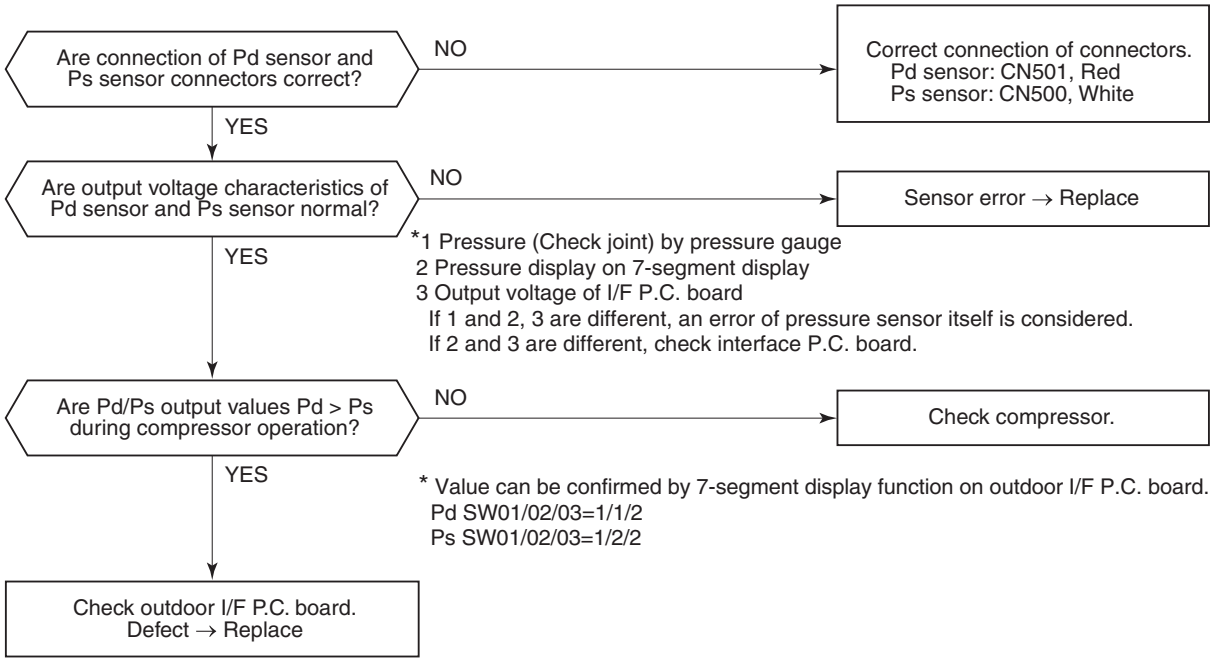
Check Code	Check Code Name	Cause of Operation
[F15] / [18] (TCC-L / AI-NET)	**Outdoor temp sensor miscabling (TE1, TL)**	1. Misinstallation and misconnection of TE1 sensor and TL sensor 2. Resistance characteristics error of TE1 sensor and TL sensor 3. Outdoor P.C. board (I/F) error







Check Code	Check Code Name	Cause of Operation
[F16] / [43] (TCC-L / AI-NET)	**Outdoor pressure sensor miscabling (Pd, Ps)**	1. High-pressure Pd sensor and lowpressure sensor Ps are exchanged. 2. Output voltage of each sensor is zero.



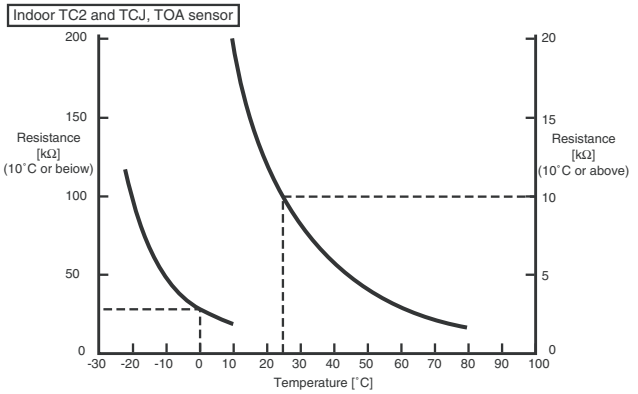
Check Code	Check Code Name	Cause of Operation
[F17]	**Indoor TOA sensor erroe (SHRM-i only)**	1. TOA sensor Open/Short

Is TOA sensor connector on indoor P.C. board normally connected?
NO → Correct connection of connector.
YES

Are characteristics of TOA sensor resistance value normal?
NO → Replace TOA sensor.
YES

* See "Indoor unit temperature sensor characteristics".

Check indoor P.C. board.
Defect → Replace



Temperature [˚C]	Resistance [kΩ]
-20	102.9
-15	76.6
-10	57.7
-5	44.0
0	38.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.2

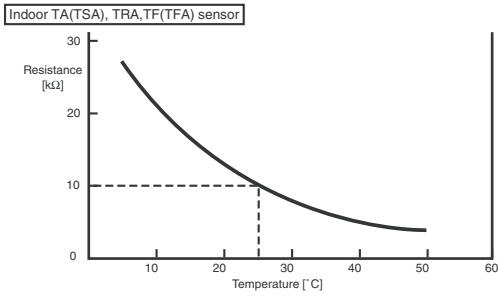
Check Code	Check Code Name	Cause of Operation
[F18]	**Indoor TRA sensor error (SHRM-i only)**	1. TRA sensor Open/Short

Is TRA sensor connector on indoor P.C. board normally connected?
NO → Correct connection of connector.
YES

Are characteristics of TRA sensor resistance value normal?
NO → Replace TRA sensor.
YES

* See "Indoor unit temperature sensor characteristics".

Check indoor P.C. board.
Defect → Replace

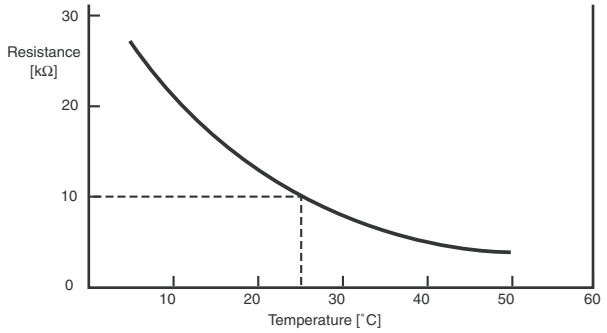


Temperature [˚C]	Resistance [kΩ]
0	33.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3

Check Code	Check Code Name	Cause of Operation
[F22]	TD3 sensor error (SMMS-i, SHRM-i only)	1.TD3 sensor Open/Short

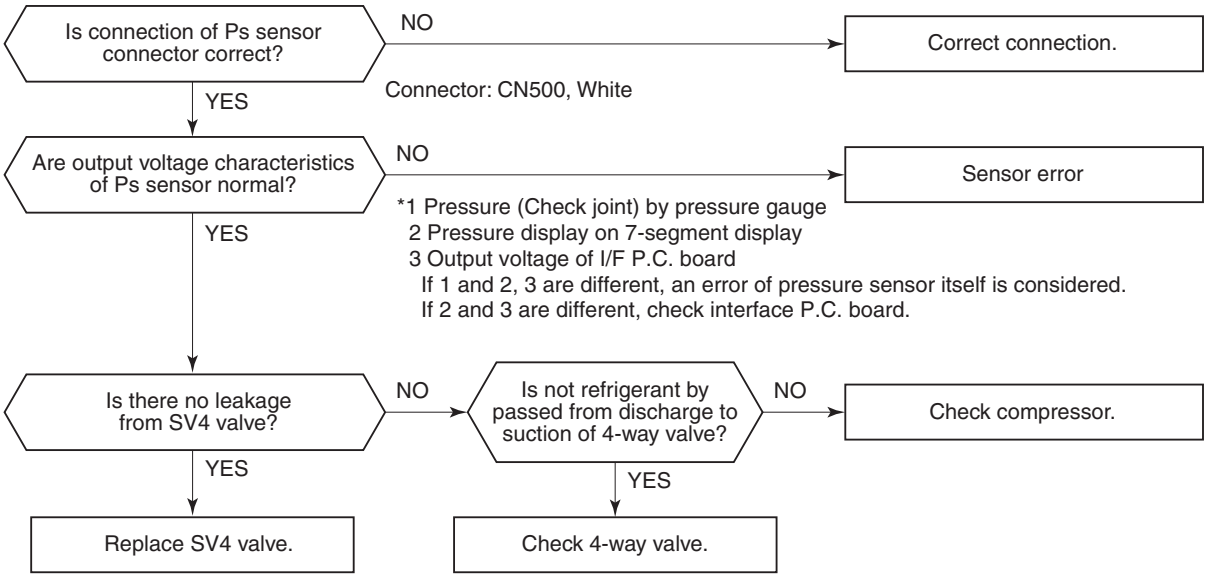
This error code means detection of Open/Short of TD3 sensor. Check disconnection of circuit for connection of connector (TD3 sensor: CN504, blue) and characteristics of sensor resistance value. (See "Outdoor unit temperature sensor characteristics".)
If sensor is normal, replace outdoor I/F P.C. board.

Indoor TA(TSA), TRA,TF(TFA) sensor



Temperature [˚C]	Resistance [kΩ]
0	33.8
5	26.1
10	20.4
15	16.0
20	12.6
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3

Check Code	Check Code Name	Cause of Operation
[F23] / [43] (TCC-L / AI-NET)	**Ps sensor error**	Output voltage error of Ps sensor



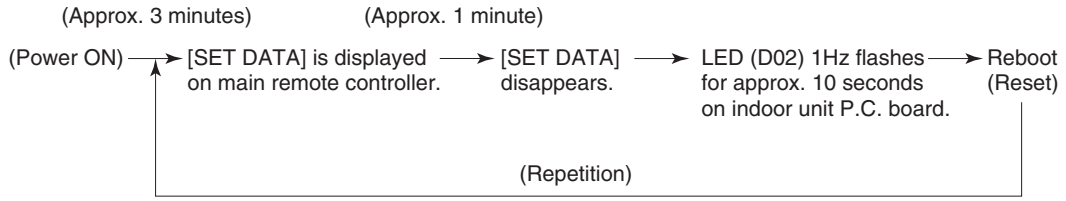
Check Code	Check Code Name	Cause of Operation
[F24] / [43] (TCC-L / AI-NET)	**Pd sensor error**	Output voltage error of Pd sensor

It is output voltage error of Pd sensor. Check disconnection of connection of connector (Pd sensor: CN501) circuit and output voltage of sensor.
If the sensor is normal, replace outdoor I/F P.C. board.

Check Code	Check Code Name	Cause of Operation
[F29] / [12] (TCC-L / AI-NET)	**Indoor other error**	Indoor P.C. board error EEROM error

This error is detected during operation of air conditioner of IC10 non-volatile memory (EEPROM) on indoor unit P.C. board. Replace service P.C. board.

* If EEPROM was not inserted when power was turned on or it is absolutely impossible to read/write EEPROM data, the automatic address mode is repeated.
  In this case, [97 error] is displayed on AI-NET central controller.

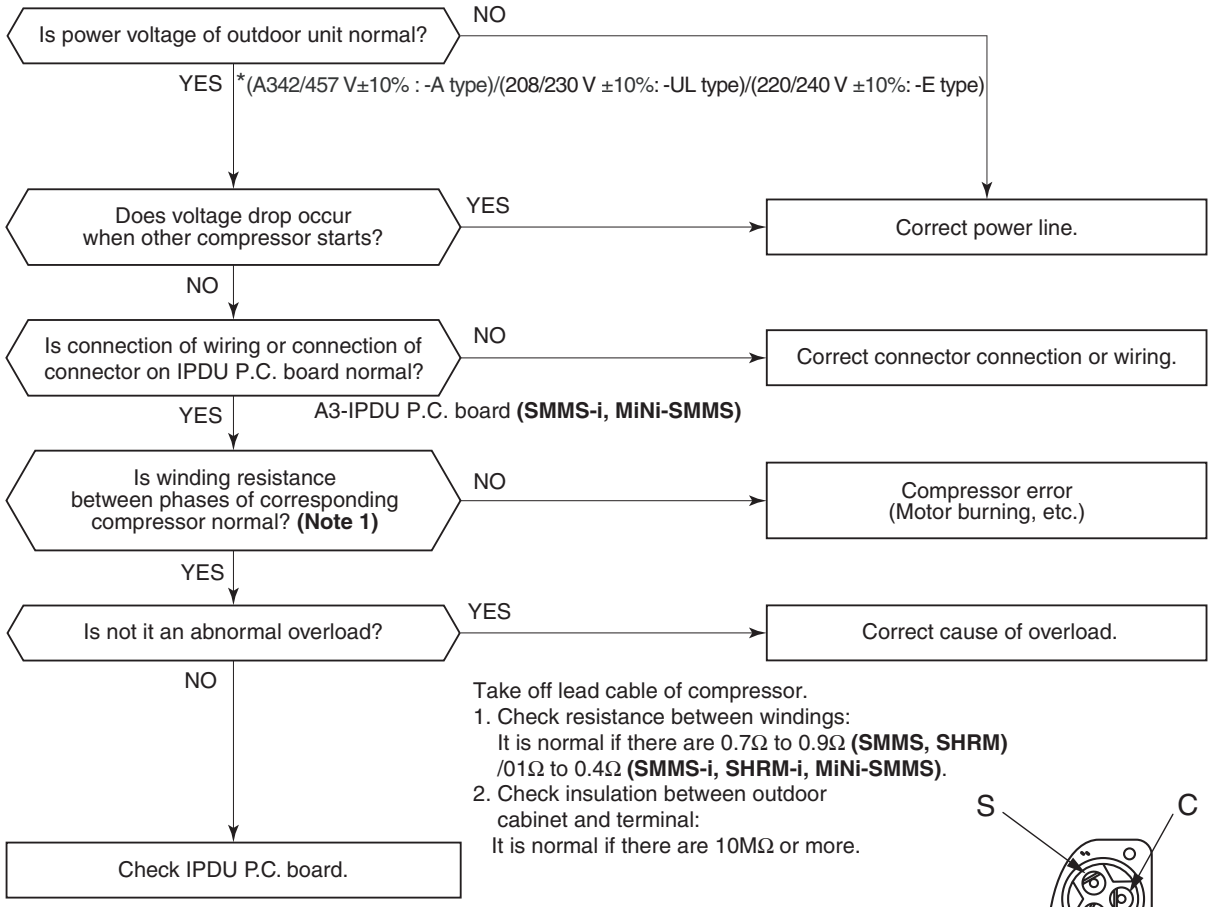


Check Code	Check Code Name	Cause of Operation
[F31] / [1C] (TCC-L / AI-NET)	**Outdoor EEPROM error**	1. Outdoor unit power error (Voltage, noise, etc.) 2. Outdoor I/F P.C. board error

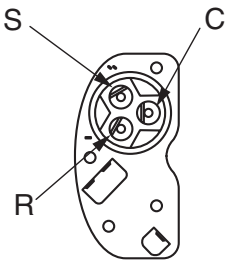
Check Code	Check Code Name	Cause of Operation
[H01] / [1F] (TCC-L / AI-NET)	**Compressor breakdown**	1. Outdoor unit power line error 2. Compressor circuit system error 3. Compressor error 4. Cause of abnormal overload operation 5. IPDU P.C. board error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side **(SMMS, SHRM)**

Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(SMMS-i, SHRM-i)**



Take off lead cable of compressor.
1. Check resistance between windings:
   It is normal if there are 0.7Ω to 0.9Ω **(SMMS, SHRM)**
   /01Ω to 0.4Ω **(SMMS-i, SHRM-i, MiNi-SMMS)**.
2. Check insulation between outdoor cabinet and terminal:
   It is normal if there are 10MΩ or more.



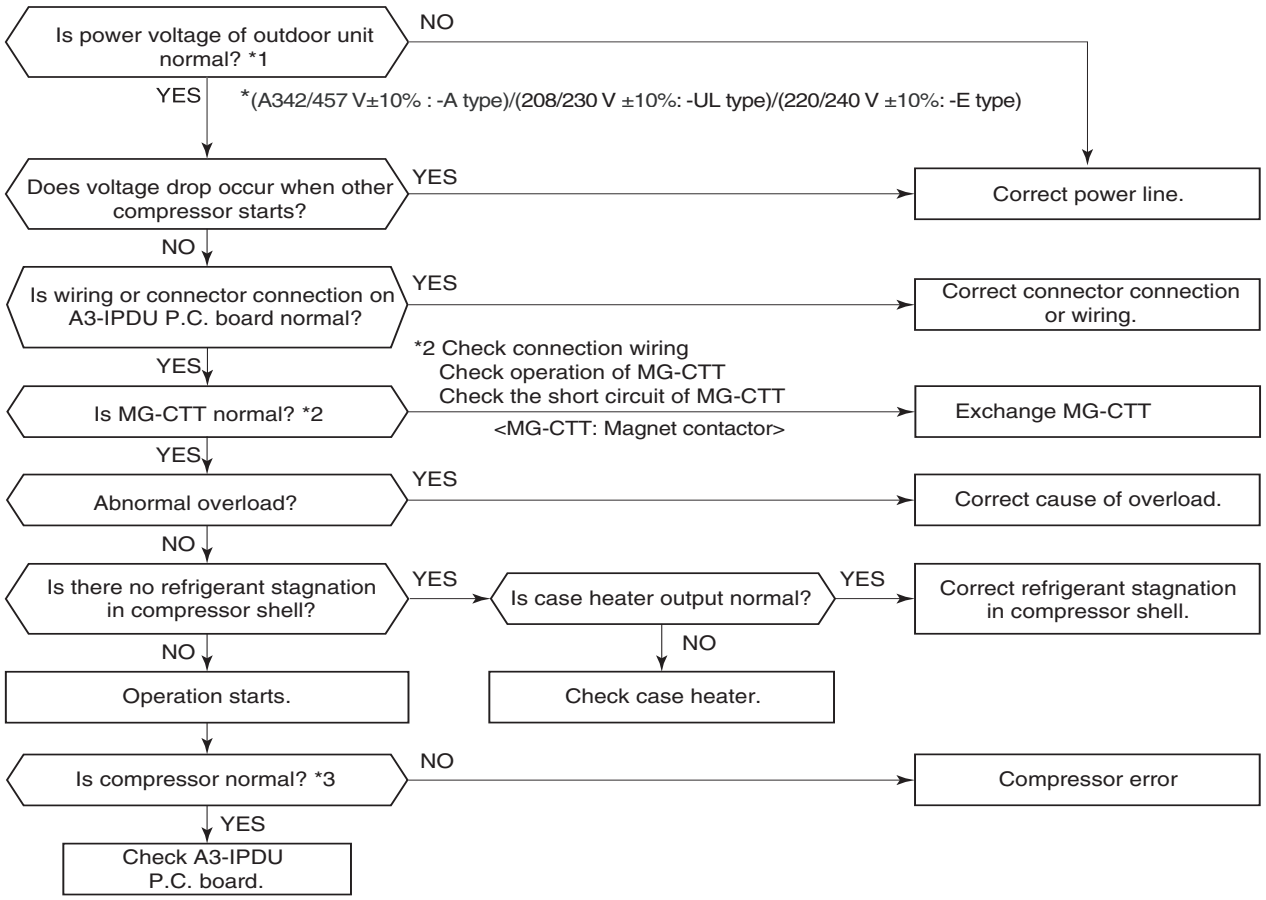
Details of compressor power connecting section

Note 1

* After checking the output, when connecting the compressor lead again to the compressor terminal, check surely there is no distortion on the Fasten receptacle terminal.
  If it is loosened, caulk it with pinchers, etc and then connect lead to the terminal firmly.

Check Code	Check Code Name	Cause of Operation
[H02]	Compressor error (Lock) (SMMS-i, SHRM-i only)	1. Outdoor unit power line error 2. Compressor circuit system error 3. Compressor error 4. Refrigerant stagnation in compressor shell 5. A3-IPDU P.C. board error 6. MG-CTT error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side

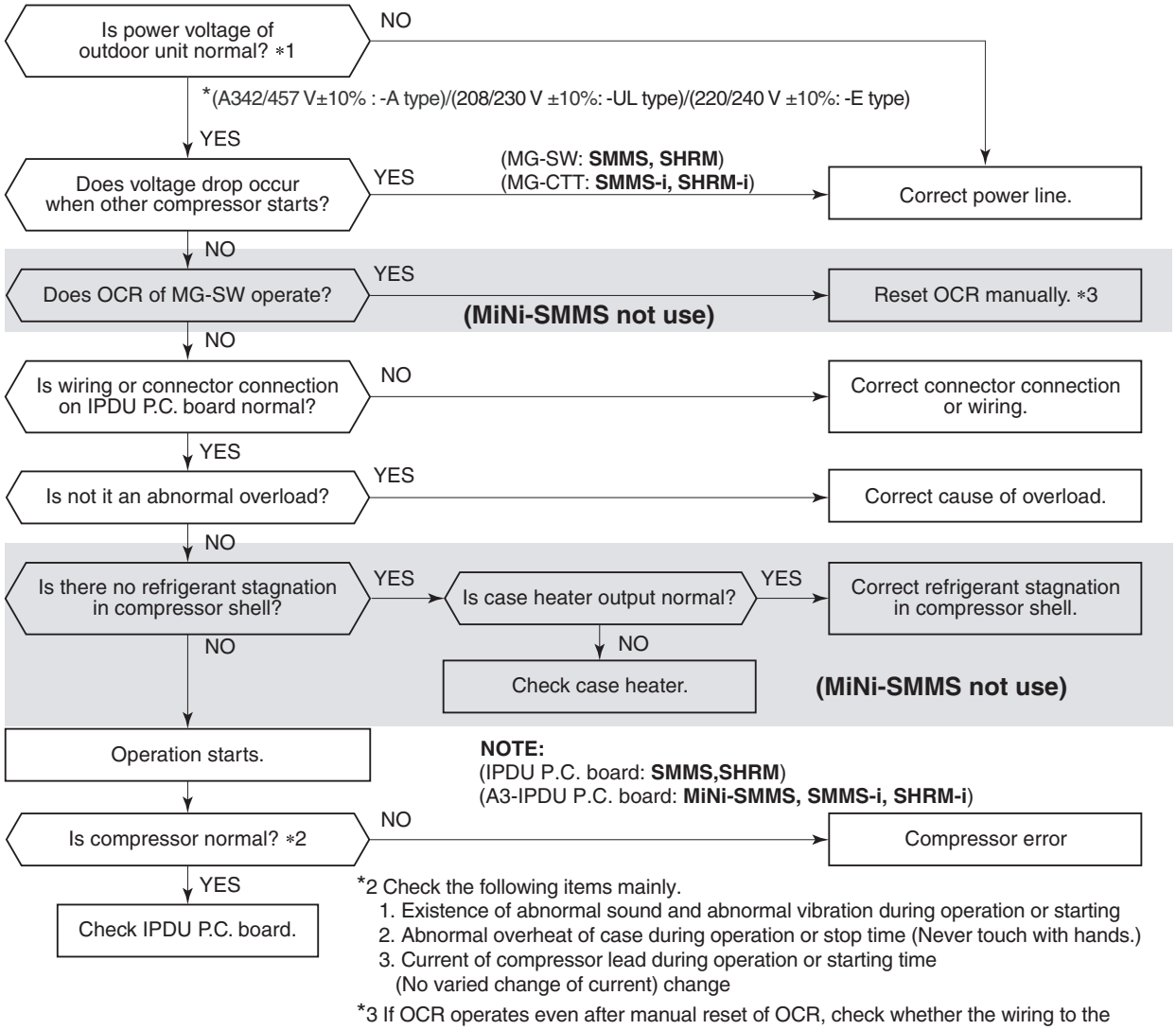


*3 Check the following items mainly.
1. Existence of abnormal sound and abnormal vibration during operation or starting.
2. Abnormal overheat of case during operation or stop time (Never touch with hands.)
3. Current of compressor lead during operation or starting time (No sudden change of current?)

Check Code	Check Code Name	Cause of Operation
[H02] / [1d] (TCC-L / AI-NET)	**Compressor error (Lock)**	1. Outdoor unit power line error 2. Compressor circuit system error 3. Compressor error 4. Refrigerant stagnation in compressor shell 5. IPDU P.C. board error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side **(SMMS)**

Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(SMMS-i, SHRM-i)**



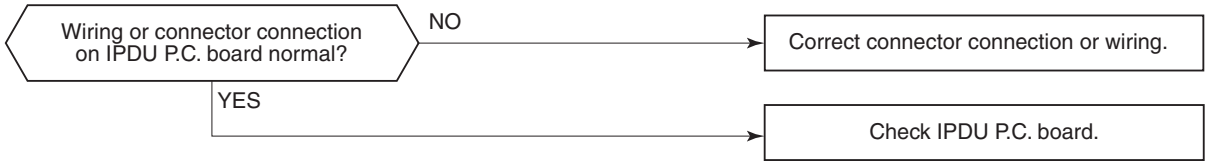
*2 Check the following items mainly.
1. Existence of abnormal sound and abnormal vibration during operation or starting
2. Abnormal overheat of case during operation or stop time (Never touch with hands.)
3. Current of compressor lead during operation or starting time
(No varied change of current) change

*3 If OCR operates even after manual reset of OCR, check whether the wiring to the 0current sensor (T02) of Comp-IPDU is correct or not.

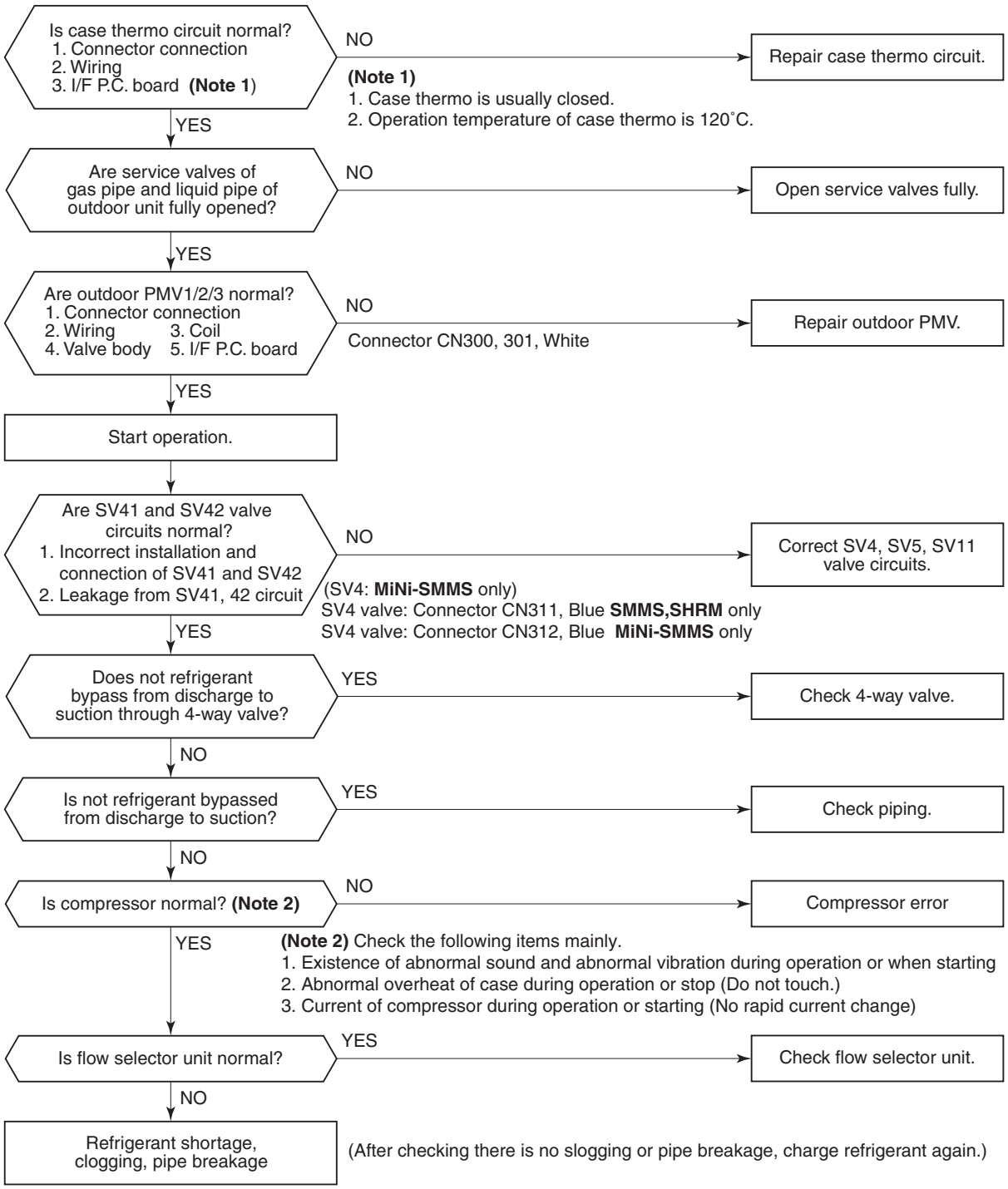
Check Code	Check Code Name	Cause of Operation
[H03] / [17] (TCC-L / AI-NET)	**Current detective circuit system error**	1. Cabling or connector connection error on IPDU P.C. board 2. IPDU P.C. board error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side **(SMMS, SHRM)**

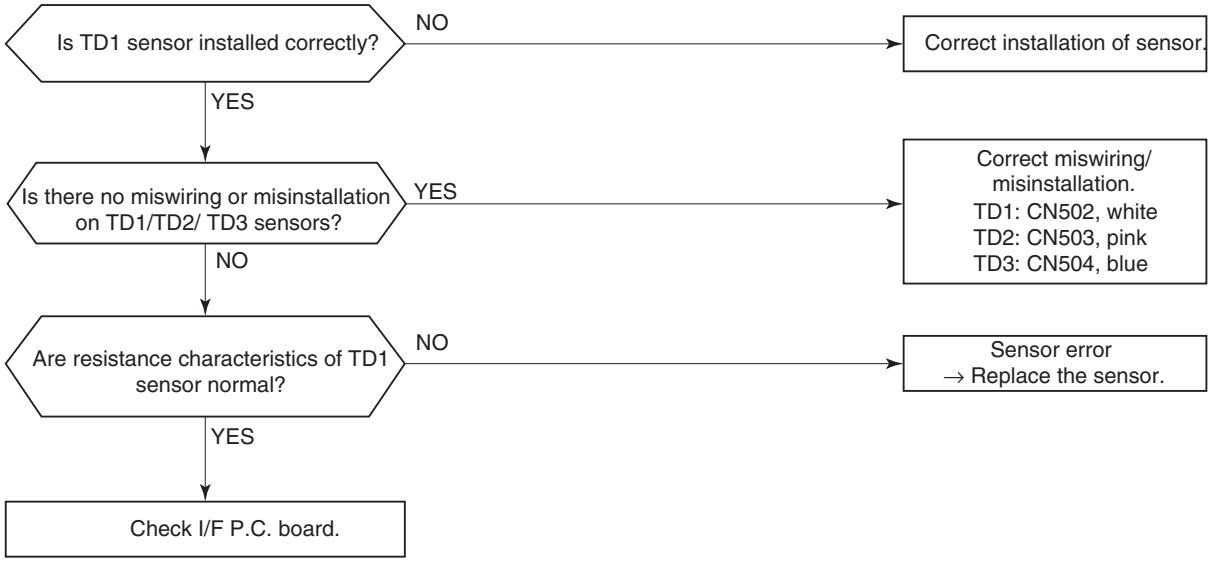
Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side **(SMMS-i, SHRM-i)**



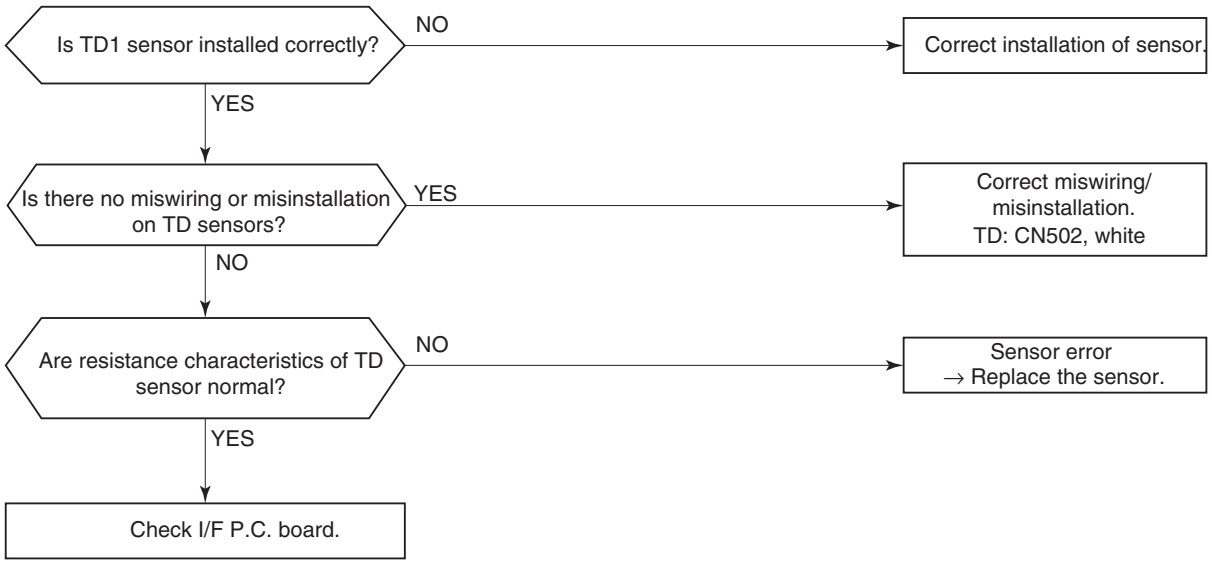
Check Code	Check Code Name	Cause of Operation
[H04] / [44] (TCC-L / AI-NET) **[H14] / [44]** (TCC-L / AI-NET) **[H04]**	**Compressor 1 case thermo operation** **Compressor 2 case thermo operation (SMMS, SHRM only)** **Compressor case thermo operation (MiNi-SMMS only)**	1. Case thermo circuit error 2. I/F P.C. board error 3. Service valve closed 4. Outdoor PMV clogging 5. SV4 valve leak, Coil misinstallation 6. 4-way valve error 7. Compressor error 8. Refrigerant shortage



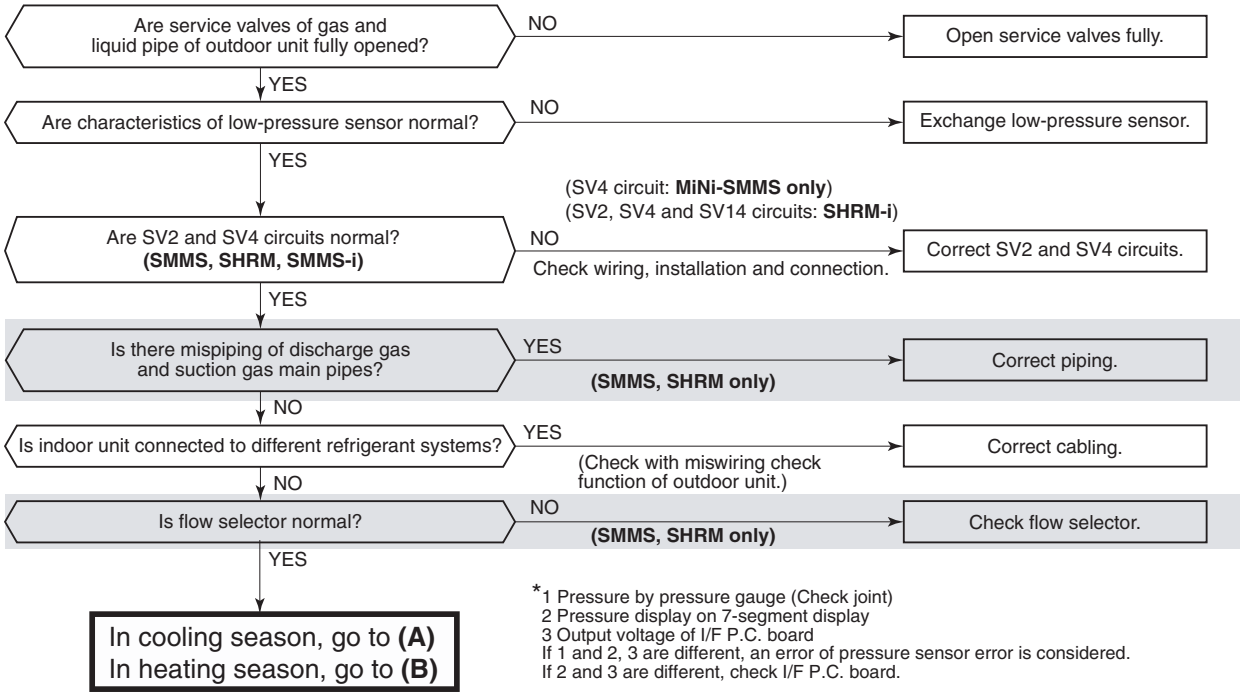
Check Code	Check Code Name	Cause of Operation
[H05]	**Outdoor discharge temperature sensor (TD1) misconnection** **(SMMS-i only)**	1. Coming-off of TD1 sensor 2. Misinstallation of TD1, TD2, or TD3 sensor, miswiring, characteristics error of resistance value

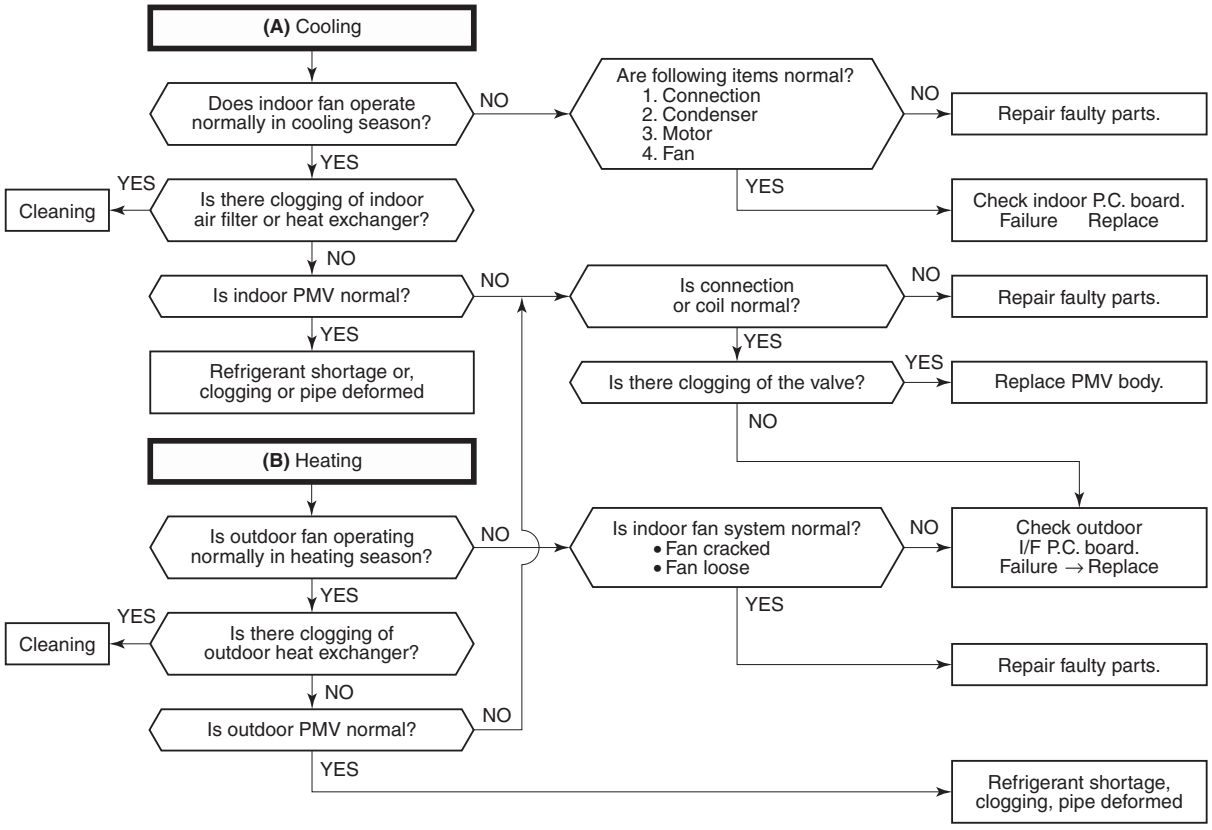


Check Code	Check Code Name	Cause of Operation
[H05]	**Outdoor discharge temperature sensor (TD) misconnection** **(MiNi-SMMS only)**	1. Coming-off of TD sensor 2. Misinstallation of TD sensor, miswiring, characteristics error of resistance value

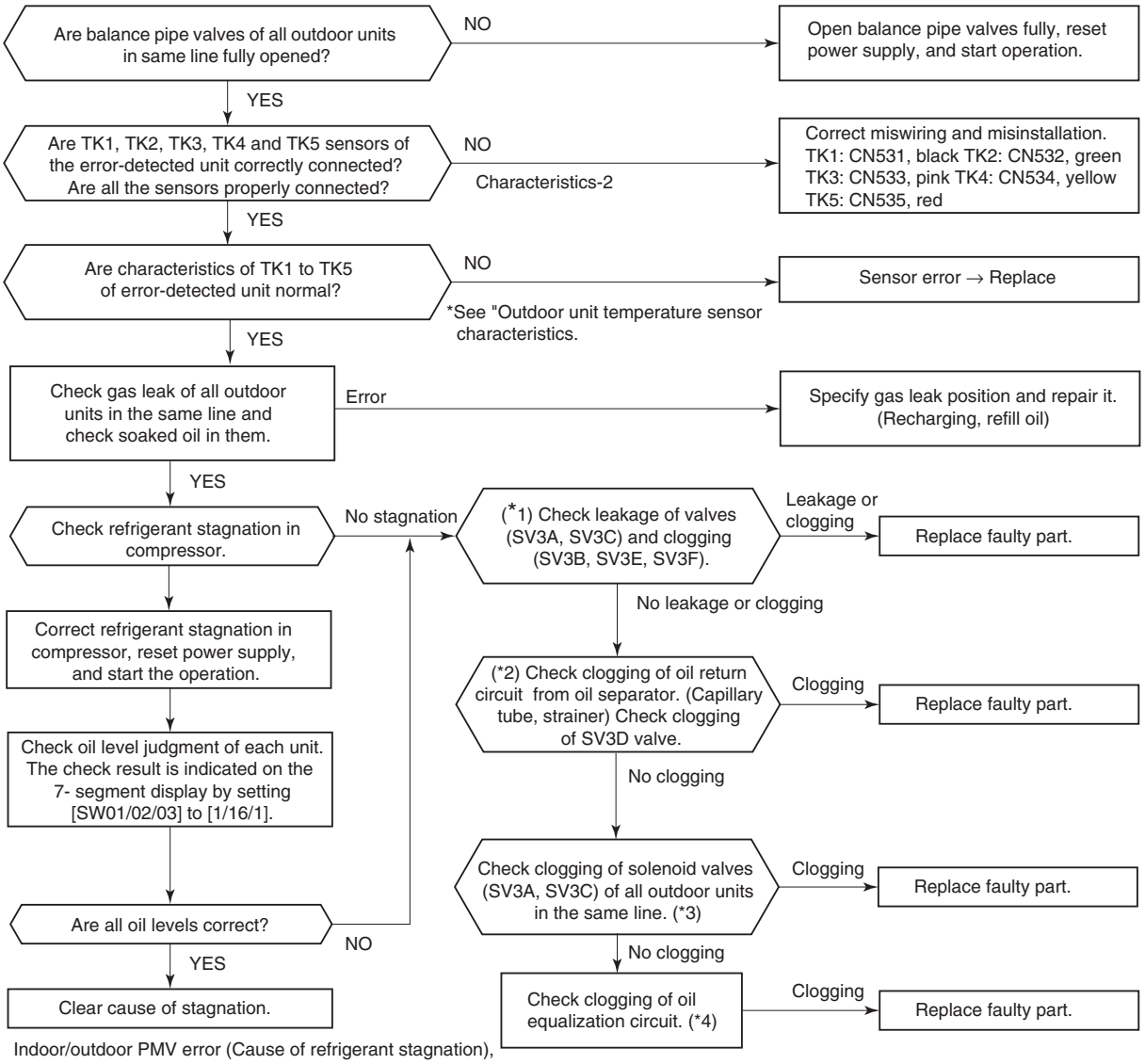


Check Code	Check Code Name	Cause of Operation
[H06] / [20] (TCC-L / AI-NET)	**Low-pressure protective operation**	1. Service valve close 2. Ps sensor error 3. SV2, SV4 circuit error 4. Miscabling of communication between indoor and outdoor 5. Indoor/outdoor fan and condenser error 6. Indoor/outdoor PMV clogging 7. Indoor/outdoor heat exchanger clogging 8. Refrigerant shortage



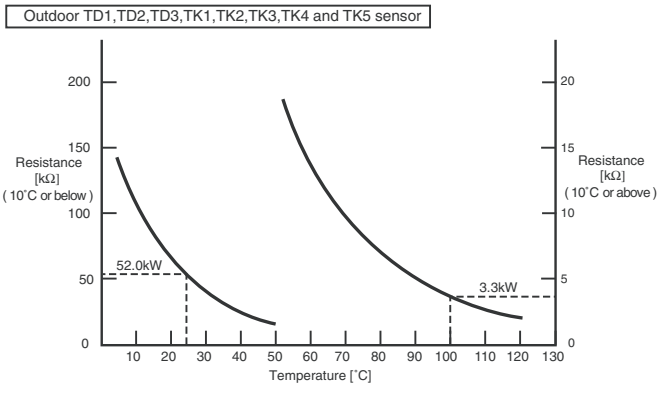


Check code	Check code name	Cause of operation
[H07]	**Oil level down detection protection** **(SMMS-i, SHRM-i only)** **(MiNi-SMMS not use)**	1. Valves of balance pipes closed. (On all outdoor units in a line) 2. Miswiring or misinstallation of TK1 to TK5 sensors 3. TK1 to TK5 sensor error 4. Gas leak or oil leak in a line 5. Refrigerant stagnation of compressor case 6. SV3A, 3B, 3C, 3D, 3E, 3F valve error 7. Clogging of oil return circuit from oil separator 8. Clogging of oil-equation circuit system



Indoor/outdoor PMV error (Cause of refrigerant stagnation), discharge check valve error, etc.

(Oote) When refrigerant stagnates in compressor shell, the oil level shortage may be



Temperature [˚C]	Resistance [kΩ]
0	159.2
5	124.5
10	98.1
15	77.8
20	62.1
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

(MiNi-SMMS not use)

In some cases, it may be difficult to check the leakage of clogging in the following condition of refrigerant stagnation in low ambient temperature condition.
In this case, take a longer operating time prior to check.
(Criterion: Discharge temperature of TD1, TD2 and TD3 are 60 ‹C or higher)

(*1) Checking leakage and clogging on solenoid valves

a) Leakage check for SV3A valve (For multiple outdoor unit system)

- Turn off the power supply, take off connector of SV3A valve, and then start a test operation after power-ON.
- Check the temperature change at secondary side of SV3A valve during operation . ((1) in the figure.)

→ If temperature is raised, leakage occurs in the SV3A valve. Replace SV3A valve.

b) Leakage check for SV3C valve

- Turn off the power supply, take off connector of SV3C valve, and then start a test operation after power-ON.
- After operation for several minutes, check temperature at secondary side of SV3C valve. ((2) in the figure.)

→ If temperature is high (equivalent to discharge temperature TD), leakage occurs in the SV3C valve. Replace SV3C valve.
(Even if leakage does not occur in the SV3C valve, temperature of SV3C valve at secondary side rises during operation. But the temperature is lower than TD when there is no leakage.)

c) Leakage check for SV3F valve (For multiple outdoor unit system)

- Turn off the power supply, take off connector of SV3F valve, and then start a test operation after power-ON.
- Check the temperature change at secondary side of SV3F valve during operation . ((3) in the figure.)
- If temperature is raised, leakage occurs in the SV3A valve. Replace SV3A valve.

→ If temperature is raised, leakage occurs in the SV3A valve. Replace SV3A valve.

d) Clogging check for SV3B valve (For multiple outdoor unit system)

- While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
- Set up SW02 = [10], and turn on SV3A, SV3B, SV3C valves. (7-segment display [Hr] [... 3 -])
- While outdoor units are operating, check temperature change at secondary side of SV3B valve. ((4) in the figure.)
- If temperature does not rise (equivalent to suction temperature), it is a clogging of SV3B valve.

→ Replace SV3B valve.

e) Clogging for SV3E valve

Reset the power supply.
↓
Using "Valve forced open/close function" of the outdoor unit, check ON/OFF operation (Sound, coil surface temp up) of SV3E valve is performed.
↓
Start test operation in COOL or HEAT mode.
↓
After operation for several minutes, check the pipe temperature at the secondary side of SV3E valve whether temperature changes or not. If it is equivalent to outside temperature, clogging of SV3E is considered. ((5) in the figure.)

(Reference)

If SV3E valve is clogged, temperature does not change at all sensors (TK1, TK2, TK3, TK4 and TK5).

f) Clogging check for SV3F valve

- While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
- Set up SW02 = [8], and turn on SV3C, SV3E, SV3F valves. (7-segment display [Hr] [... 3 C])
- While outdoor units are operating, check temperature change at secondary side of SV3F valve. ((3) in the figure.)
- If temperature does not rise (equivalent to suction temperature), it is a clogging of SV3F valve. Replace SV3F valve.

(MiNi-SMMS not use)

(*2) Checking the oil return circuit from oil separator and clogging in SV3D valve

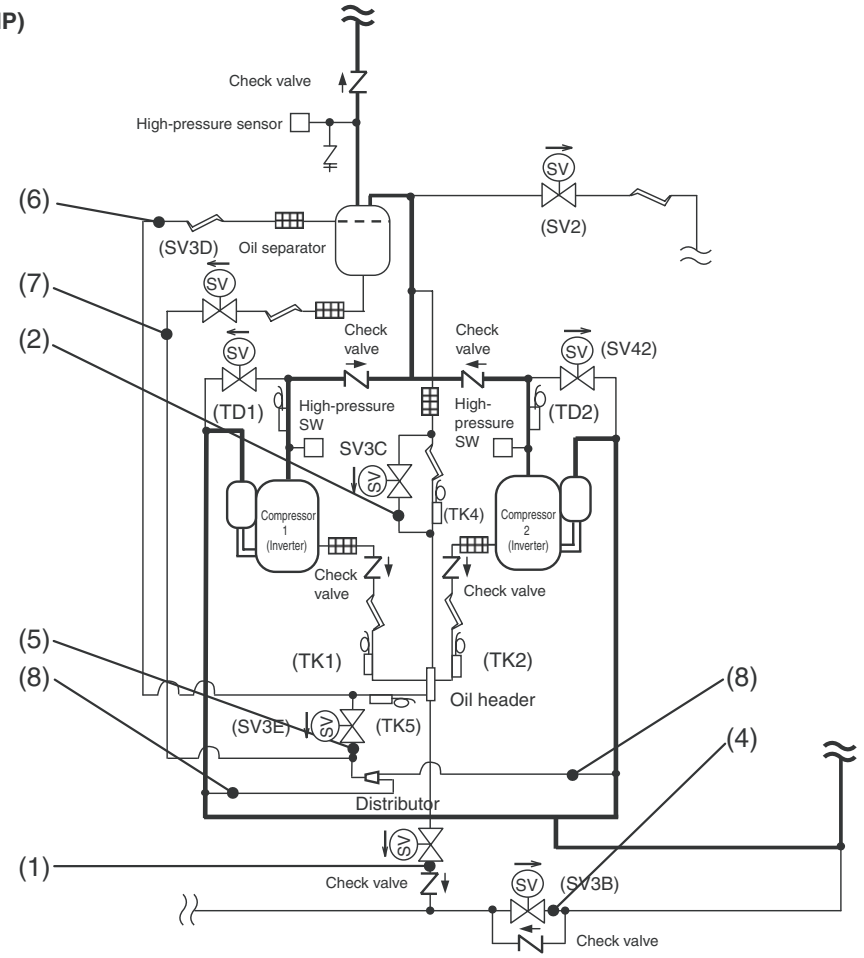
a) Oil return circuit

- While outdoor unit is operating, check temperature (secondary side of capillary) on oil return circuit. ((6) in the figure.)
- If temperature is low equivalent to suction temperature), a clogging of strainer of oil return circuit or → capillary is considered. Replace the clogged part.

b) Clogging check for SV3D valve

- While outdoor unit is operated, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
- Set up SW02 = [9], and turn on SV3D valve. (7-segment display [Hr] [... 3 d])
- If temperature is low at secondary side of the valve or it does not change, clogging of valve, capillary, or strainer is considered. ((7) in the figure.) Replace the clogged part.

(8HP to 10HP)



(MiNi-SMMS not use)

(*3) Check for solenoid valve of all outdoor units in a line (For multiple outdoor unit system)

a) Clogging check for SV3A valve

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
Set up SW02 = [6], and turn on SV3A valve. (7-segment display [Hr] [... 3 A])
If temperature is low at secondary side of the valve or it does not change, clogging of valve or check valve is considered. ((1) in the figure.)

b) Leakage check for SV3C valve

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] (7-segment display [Hr] [... ... ...]), and push SW04 for 2 seconds or more.
Set up SW02 = [8], and turn on SV3C valve. (7-segment display [Hr] [... 3 C])
If temperature does not change (up), clogging of valve or strainer is considered. ((2) in the figure.)

(*4)

a) Clogging check for oil-equalization circuit

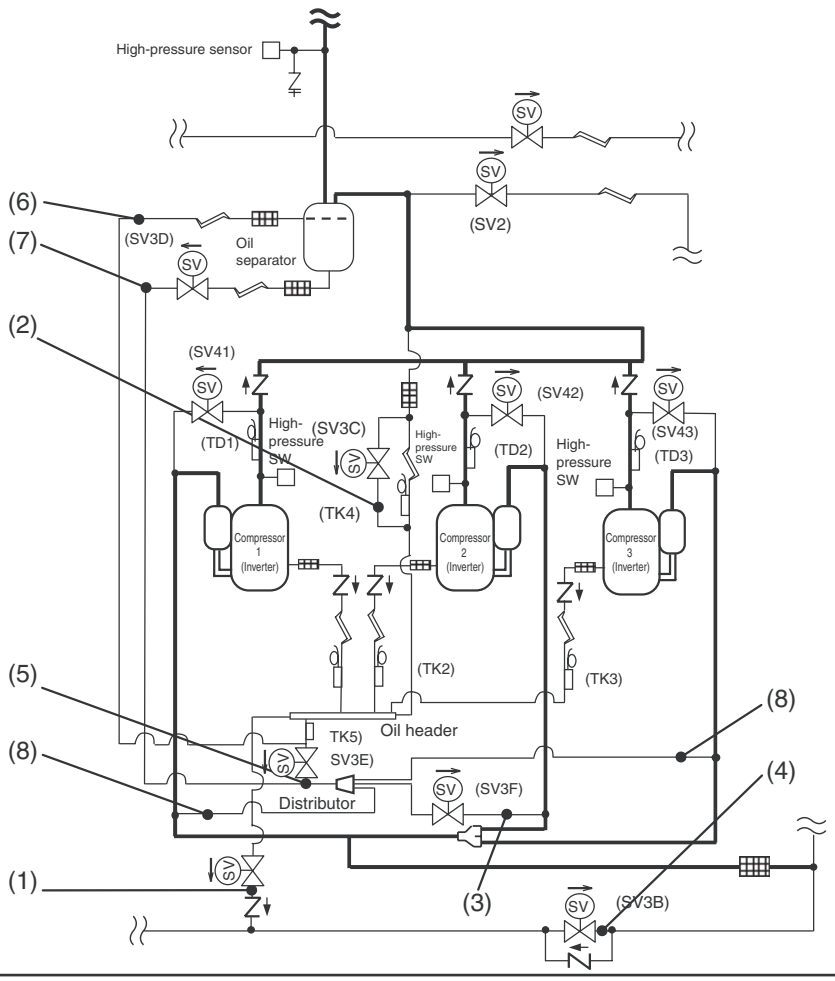
Drive the outdoor unit. (Drive all compressors in the unit.)
After driving for 10 minutes or more, check whether temperature of TK1, TK2 and TK3 sensors and temperature of oil-equalization circuit capillary ((8) in the figure) has increased.

(Criterion)

TK1, TK2, TK3=Td1, Td2, Td3 temperature - Approx. 10 to 30 ˚C
Oil-equalization capillary tubes should be higher sufficiently than outside air temperature and suction temperature.

If temperature is low, a malfunction on check valves or clogging of capillary, strainer or distributor is considered. Repair the defective parts.

HP10,12



(SMMS, SHRM only)

(MiNi-SMMS not use)

In some cases, it may be difficult to check for leakage or clogging of refrigerant in low ambient temperature condition.
In this case, it may take longer for the system to warm up before commencing checks.
(Criteria: Discharge temperature of TD1 and TD2 are 60 ‹C or higher)

(*1)

a) Leakage check for SV3A valve (for multiple outdoor unit system)

Turn off the power supply, take off connector of SV3A valve, and then start a test operation after power-ON.
Check the temperature change at secondary side of SV3A valve during operation
(1 in the figure on the next page).
If temperature is increased, it is a leakage of SV3A valve.
Replace SV3A valve.

b) Leakage check for SV3C valve

Turn off the power supply, take off connector of SV3C valve, and then start a test operation after power-ON.
After operation for several minutes, check temperature at secondary side of SV3C valve
(2 in the figure on the next page).
If temperature is high (equivalent to discharge temperature TD), it is a leakage of SV3C valve.
Replace SV3C valve.
(Even if there is leakage from SV3C valve does not occur, temperature of SV3C valve at secondary side rises during operation. When the checked temperature is equivalent to TD temperature, it is a leakage of SV3C valve. Replace SV3C valve.)

c) Clogging check for SV3B valve (for multiple outdoor unit system)

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr], and push SW04 for 2 seconds or more, [Hr] [2] is displayed.
Set up SW02 = [9], and turn on SV3A, SV3B, SV3C valves (7-segment display [Hr] [3-]).
While outdoor unit is operating, check temperature change at secondary side of SV3B valve
(3 in the figure on the next page).
If temperature does not rise (equivalent to suction temperature), it is a clogging of SV3B valve.
Replace SV3B valve.

d) Clogging check for SV3E valve

While the outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] the 7-segment display A displays [Hr], and push SW04 for 2 seconds or more, [Hr] [2] is displayed.
Set up SW02 = [10], and turn on SV3E valve (7-segment displays [Hr] [ ]).
After operating for several minutes, check the pipe temperature at the secondary side of the SV3E valve.
If it is the equivalent to the outside temperature, SV3E valve may be clogged.
Replace SV3E valve.
Note: If SV3E valve is clogged, the temperature of all TK1 to TK4 sensors do not change.

(*2) Clogging check for SV3D valve of oil return circuit from oil separator

a) Oil return circuit

While outdoor unit is operating, check temperature (secondary side of capillary) on oil return circuit
(5 in the figure on the next page).
If temperature is equivalent to suction temperature, a clogging of strainer of oil return circuit or capillary is considered.
Repair the clogged part.

b) Clogging check for SV3D valve

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr], and push SW04 for 2 seconds or more, [Hr] [2] is displayed.
Set up SW02 = [7], and turn on SV3D valve (7-segment display [Hr] [3d]).
If temperature is low at secondary side of the valve or it does not change, clogging of valve, capillary, or strainer is considered (6 in the figure on the next page).

(SMMS, SHRM only)

(MiNi-SMMS not use)

(*3) Check for solenoid valve of outdoor unit (for multiple outdoor unit system)

a) Clogging check for SV3A valve

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr], and push SW04 for 2 seconds or more, [Hr] [2] is displayed.
Set up SW02 = [4], and turn on SV3A valve (7-segment display [Hr] [3A]).
If temperature is low at secondary side of the valve or it does not change, clogging of valve or check valve is considered (1 in the figure).

b) Clogging check for SV3C valve

While outdoor unit is operating, set up SW01/02/03 = [2] [1] [3] to 7-segment display [Hr], and push SW04 for 2 seconds or more, [Hr] [2] is displayed.
Set up SW02 = [6], and turn on SV3C valve (7-segment display [Hr] [3C]).
If temperature does not increase, clogging of valve or strainer is considered (2 in the figure).

(*4)

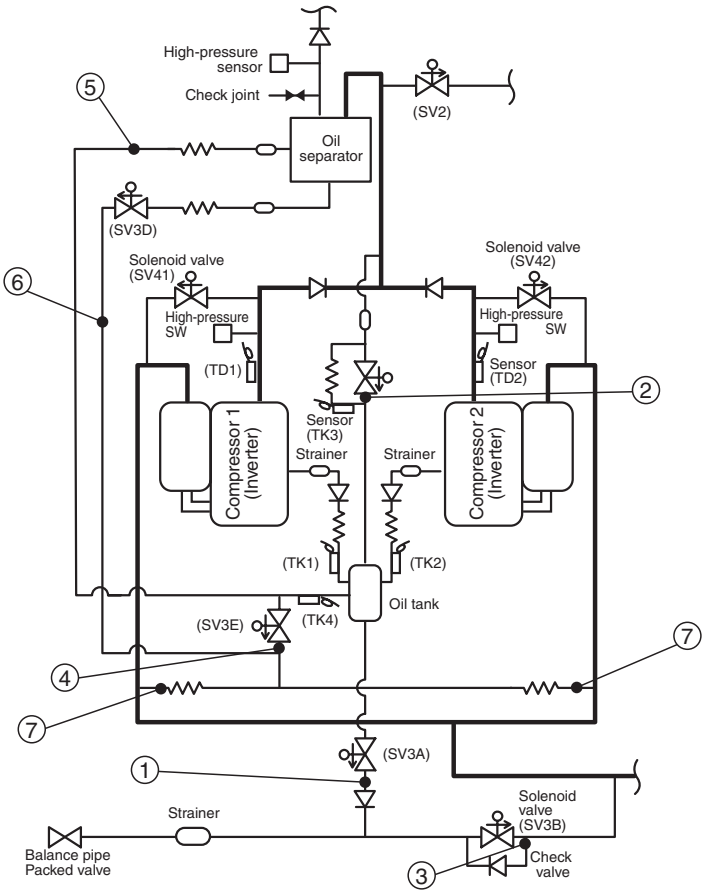
a) Clogging check for oil-equalization circuit

Operate the outdoor unit (drive both compressors in the unit).
After operating for 10 minutes, check temperature of TK1 and TK2 sensors and temperature of oil equalization circuit capillary (7 in the figure) have increased.

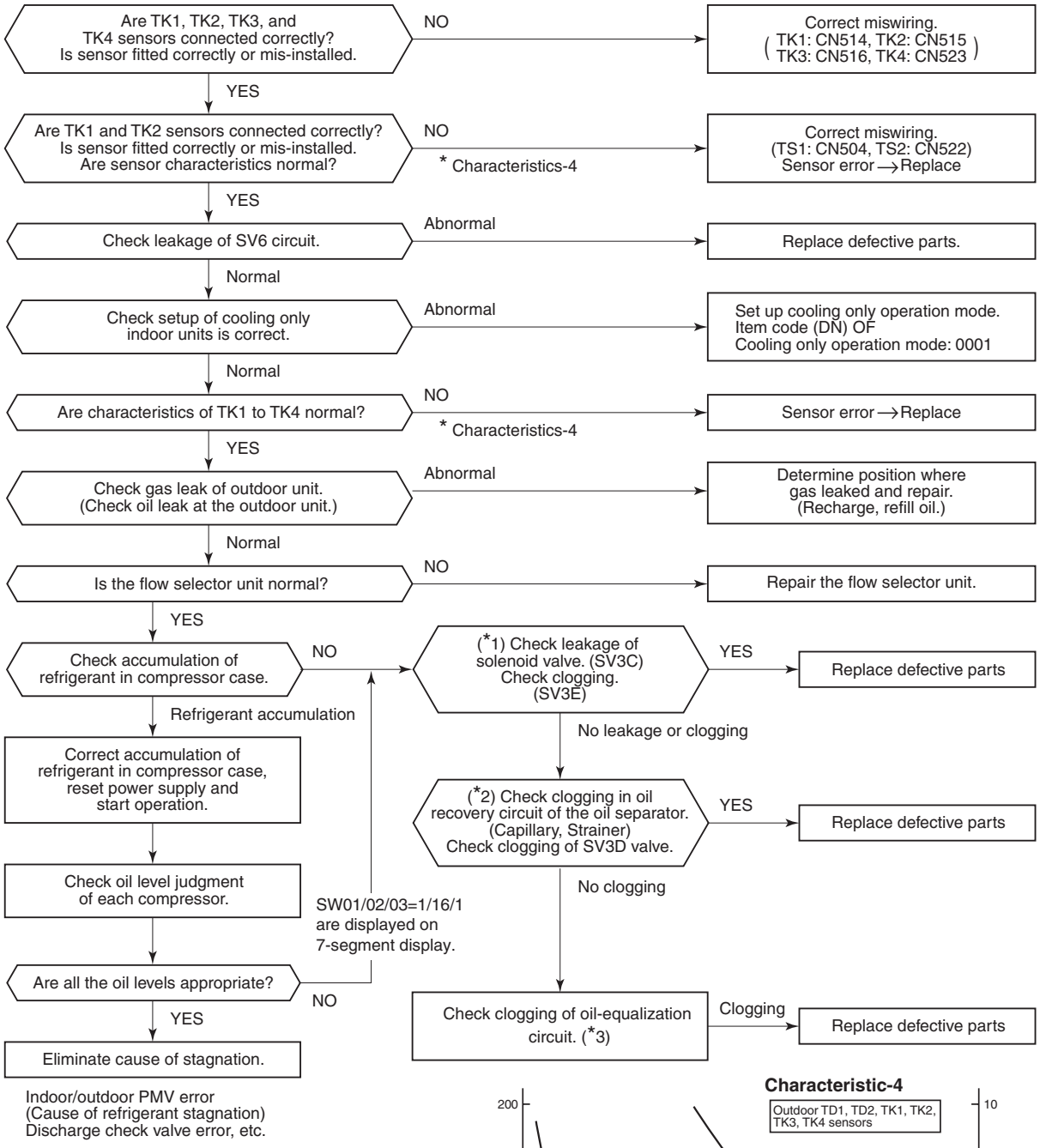
(Criteria)

TK1, TK2=Td1, Td2 temperature - Approx. 10 to 30˚C
Oil-equalization capillary tubes should be significantly higher than outside air temperature and suction temperature.

If temperature is low, a malfunction of capillary, strainer, or check valve is to be considered.
Repair the defective parts.

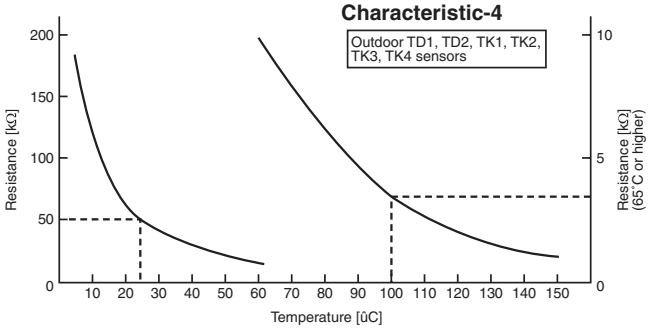


Check Code	Check Code Name	Cause of Operation
[H07] / [d7] (TCC-L / AI-NET)	**Low oil level protection** **(SMMS, SHRM only)**	1. Valves of balance pipes closed. 2. Miscabling or misinstallation of TK1 to TK4 sensors 3. TK1 to TK4 sensor error 4. Gas leak or oil leak of all outdoor units 5. Refrigerant stagnation of compressor case 6. SV3A, 3B, 3D, 3C, 3E valve error 7. Clogging of oil return circuit from oil separator 8. Clogging of oil-equation circuit system



(Note) When refrigerant stagnates in compressor shell, there may appear to be a low oil level.

Characteristic-4



Check Code	Check Code Name	Cause of Operation
[H08] / [d4] (TCC-L / AI-NET)	**Oil level detective temperature sensor error** **(MiNi-SMMS not use)**	TK1 to TK4 sensor Open/Short **(SMMS, SHRM)** TK1 to TK5 sensor Open/Short **(SMMS-i, SHRM-i)**

Sub-code: 01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error **(SMMS, SHRM)**

Sub-code: 01: TK1 sensor error 02: TK2 sensor error 03: TK3 sensor error 04: TK4 sensor error 05: TK5 sensor error **(SMMS-i, SHRM-i)**

This error is an oil level temperature sensor error. Check for disconnection of the wiring and resistance value of the sensor. If the sensors are normal, replace the outdoor I/F P.C. board.

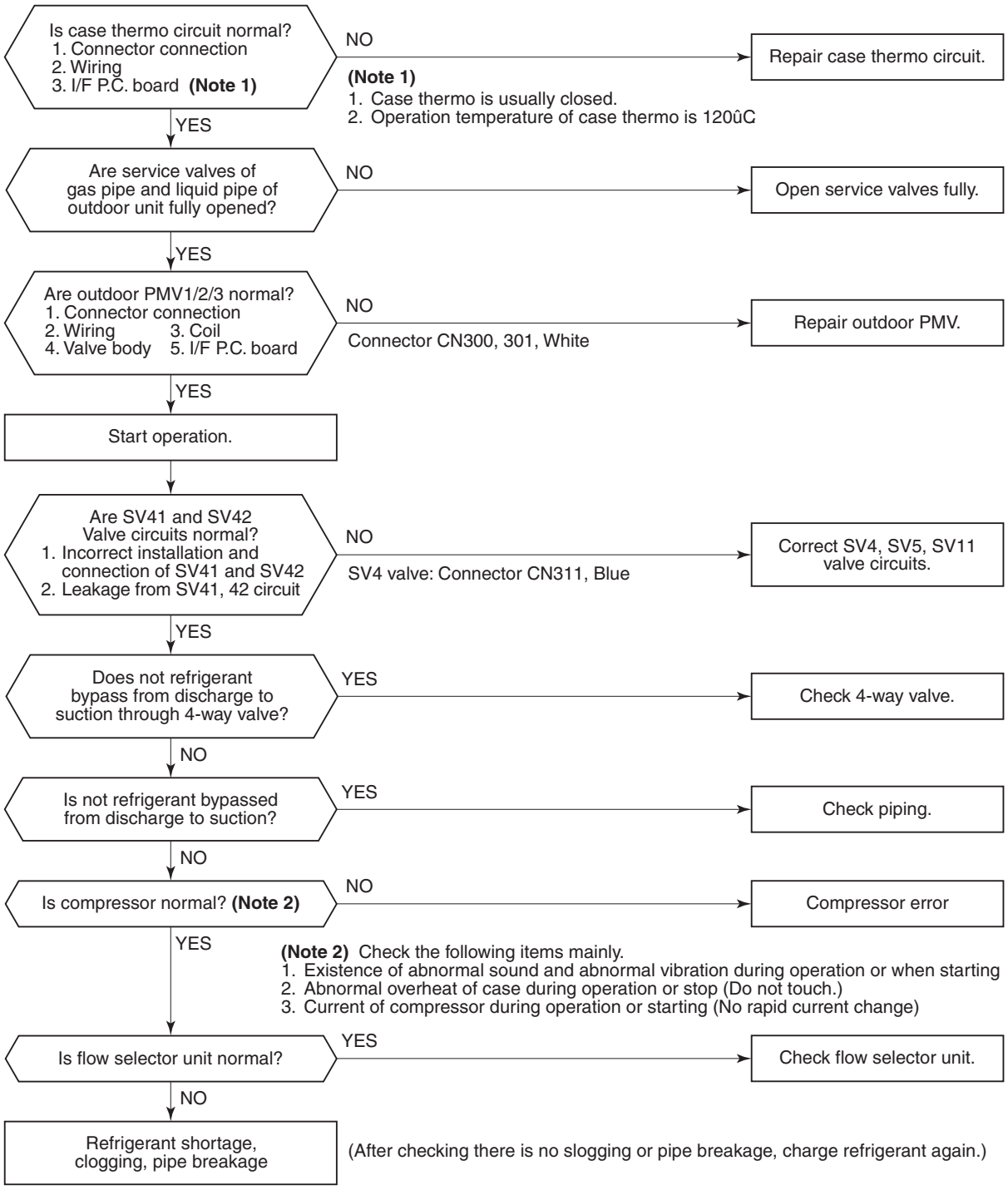
Circuit	Connector
TK1	CN531 (Black)
TK2	CN532 (Green)
TK3	CN533 (Pink)
TK4	CN534 (Yellow)
TK5	CN535 (Red)

(SMMS-i, SHRM-i)

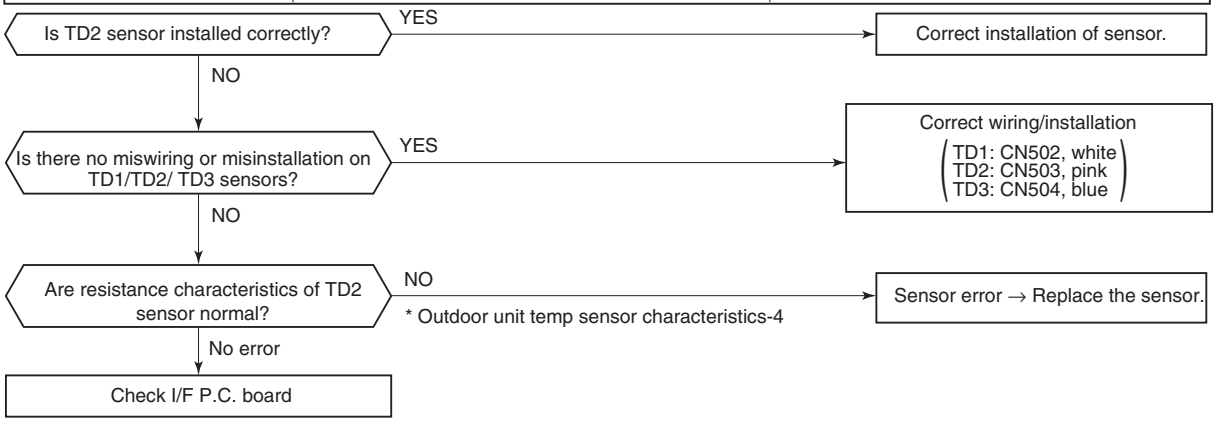
Circuit	Connector
TK1	CN514 (Black)
TK2	CN515 (Green)
TK3	CN516 (Red)
TK4	CN523 (Yellow)

(SMMS, SHRM)

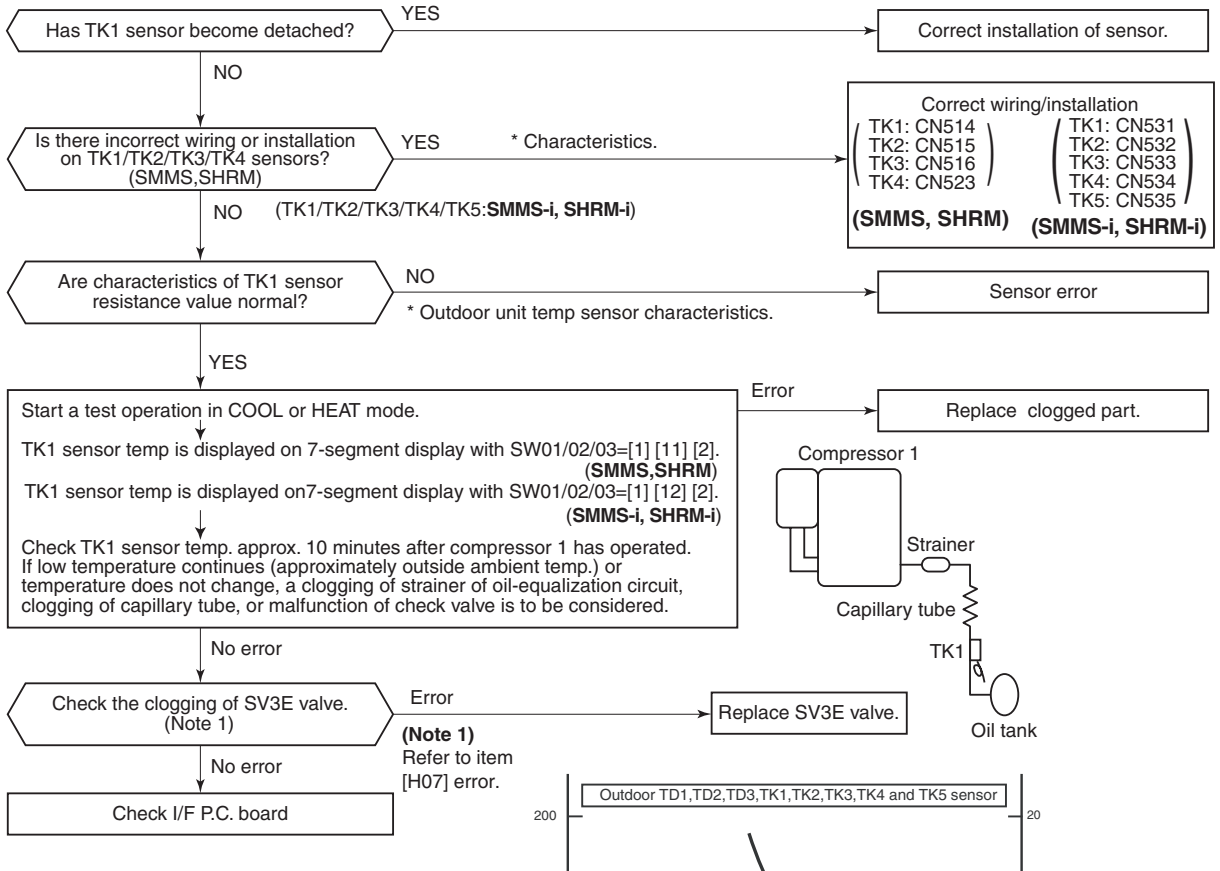
Check code	Check code name	Cause of operation
[H04] / [44] (TCC-L / AI-NET)	**Compressor 1 case thermo operation**	1. Case thermo circuit error 2. I/F P.C. board error 3. Service valve closed 4. Outdoor PMV clogging 5. SV4 valve leak, Coil misinstallation 6. 4-way valve error 7. Compressor error 8. Refrigerant shortage
[H14] / [44] (TCC-L / AI-NET)	**Compressor 2 case thermo operation**	

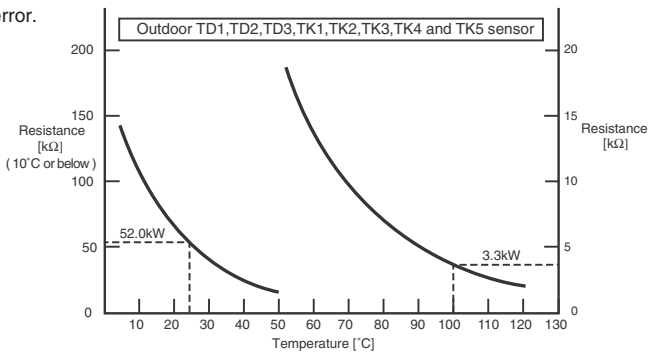


Check Code	Check Code Name	Cause of Operation
[H15]	**Outdoor temperature sensor (TD2) misconnection** **(SMMS-i only)**	1. Coming-off TD2 sensor 2. Misinstallation of TD1, TD2, or TD3 sensor, miswiring, charateristucs error of resistance value.

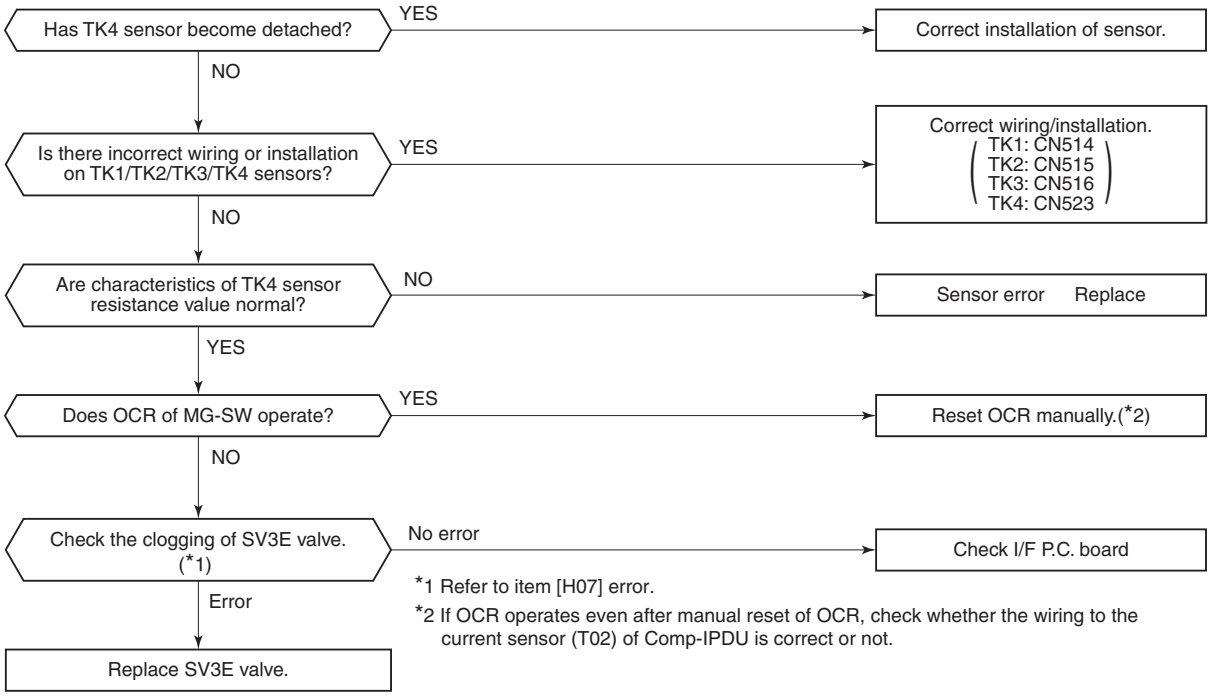


Check Code	Check Code Name	Cause of Operation
[H16] / [d7] (TCC-L / AI-NET)	**TK1 temperature detective circuit error (Sub-code: 01)** **(MiNi-SMMS not use)**	1. Connection of TK1 sensor. Error in resistance value of TK1 sensor 2. Oil-equalization circuit error (Check valve, capillary clogging, strainer clogging) 3. Refrigerant stagnation in case of compressor shell





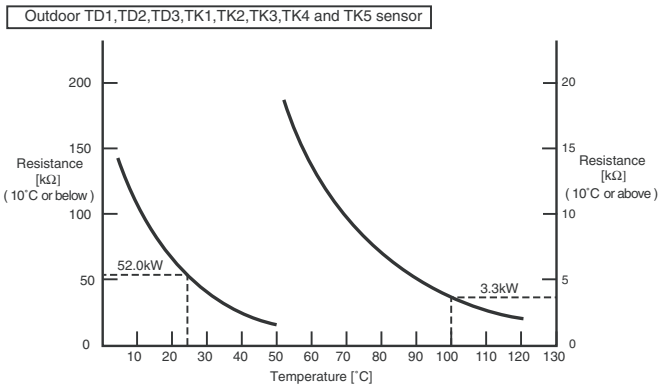
Check Code	Check Code Neme	Cause of Operation
[H16] / [d7] (TCC-L / AI-NET)	**TK4 temperature detective circuit error (Sub-code: 04)** **(SMMS,SHRM only)**	1. Connection of TK4 sensor. 2. Error in resistance value of TK4 sensor (see Sensor characteristics). 3. Check clogging and malfunction of SV3E valve circuit. 4. Oil-equalization circuit error (check capillary clogging, strainer clogging). 5. Refrigerant stagnation in case of compressor shell.



*1 Refer to item [H07] error.

*2 If OCR operates even after manual reset of OCR, check whether the wiring to the current sensor (T02) of Comp-IPDU is correct or not.

Check the clogging of SV3E valve.



Temperature [˚C]	Resistance [kΩ]
0	159.2
5	124.5
10	98.1
15	77.8
20	62.1
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

Check Code	Check Code Name	Cause of Operation
[H16] / [d7] (TCC-L / AI-NET)	**TK2 detective circuit system error (Sub-code: 02)(SMMS, SHRM)** **TK3 detective circuit system error (Sub-code: 03)(SMMS-i,SHRM-i)** **(MiNi-SMMS not use)**	1. Connection of TK2(TK3) sensor. 2. Error in resistance value of TK2(TK3) sensor (see Sensor characteristics). 3. Oil-equalization circuit error (check valve, capillary clogging, strainer clogging). 4. Refrigerant stagnation in case of compressor shell.

NOTE
TK2:(SMMS, SHRM) TK3: (SMMS-i,SHRM-i)

Has TK2 sensor become detached? — YES → Correct installation of sensor.

NO

Is there incorrect wiring or installation on TK1/TK2/TK3/TK4 sensors? (**SMMS,SHRM**) — YES → Correct wiring/installation
- (TK1: CN514, TK2: CN515, TK3: CN516, TK4: CN523) **(SMMS, SHRM)**
- (TD1: CN502, TD2: CN503, TD3: CN504, TK1: CN531, TK2: CN532, TK3: CN533, TK4: CN534, TK4: CN535) **(SMMS-i, SHRM-i)**

NO (TD1/TD2/TD3/TK1/TK2/TK3/TK4/TK5:**SMMS-i, SHRM-i**)

Are characteristics of TK2 sensor resistance value normal? — NO → Sensor error
* Outdoor unit temp sensor characteristics

YES

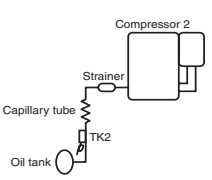
Does OCR of MG-SW operate? — YES → Reset OCR manually.(*2) **(SMMS, SHRM only)**

NO

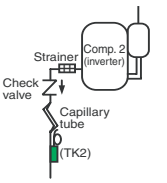
After power reset

Start a test operation in COOL or HEAT mode.
↓
TK2 sensor temp is displayed on 7-segment display with SW01/02/03=[1] [12] [2]. **(SMMS,SHRM)**
TK2 sensor temp is displayed on7-segment display with SW01/02/03=[1] [13] [2]. **(SMMS-i,SHRM-i)**
↓
Check TK2 sensor temp approx. 10 minutes after compressor 2 has operated.
If low temperature continues (approximately outside temp) or temperature does not change, a clogging of strainer of oil-equalization circuit, clogging of capillary or malfunction of check valve is considered.

Error → Replace clogging part.



(SMMS,SHRM)



(SMMS-i,SHRM-i)

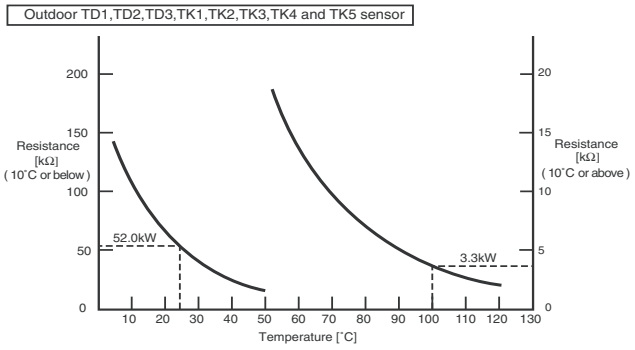
No error

Check the clogging of SV3E valve. (*1) — Error → **(Note 1)** Refer to item [H07] error. → Replace SV3E valve.

No error

Check I/F P.C. board

* 2 If OCR operates even after manual reset of OCR, check whether the wiring to the current sensor (T02) of Comp-IPDU is correct or not.**(SMMS, SHRM only)**



Temperature [˚C]	Resistance [kΩ]
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10	98.1
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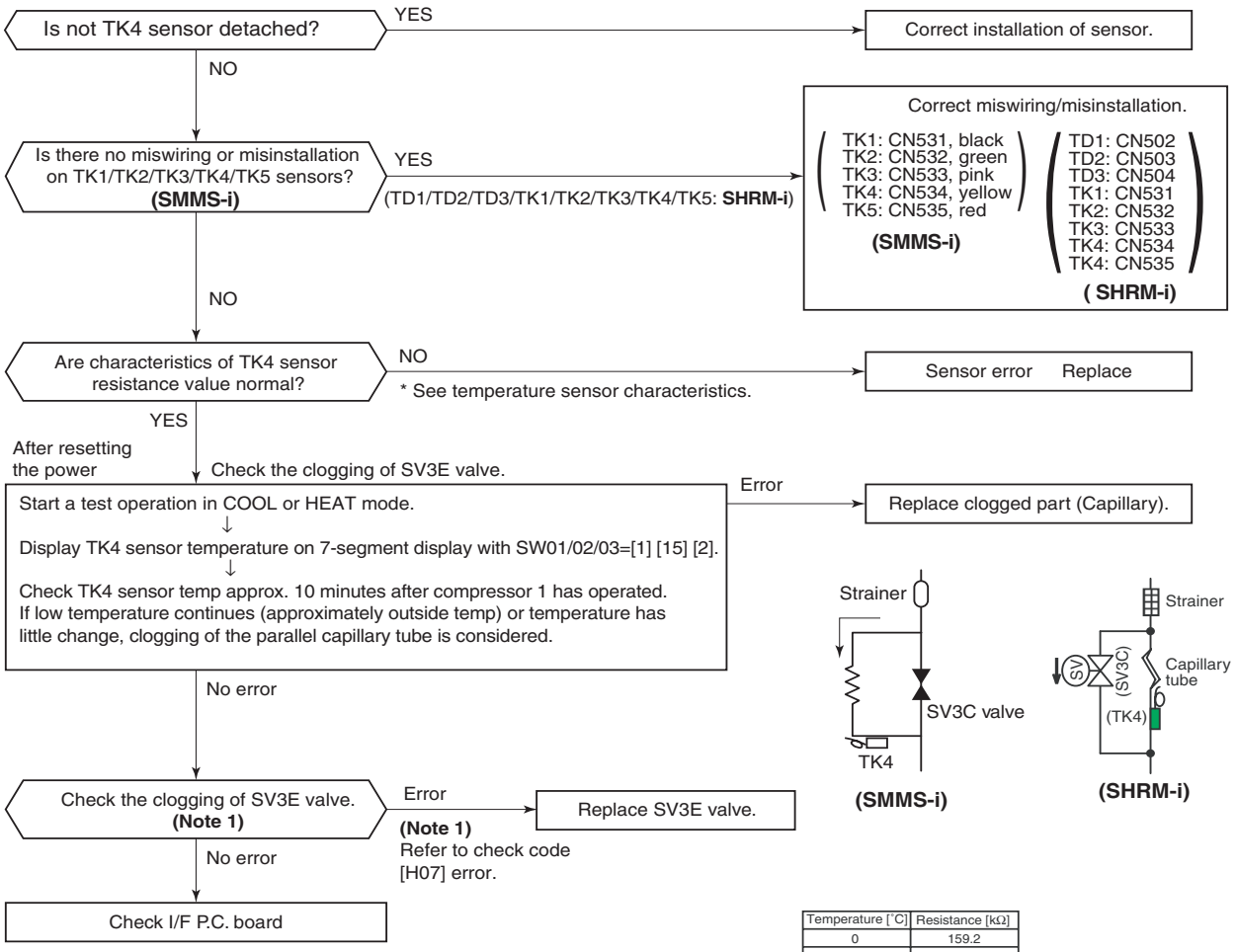
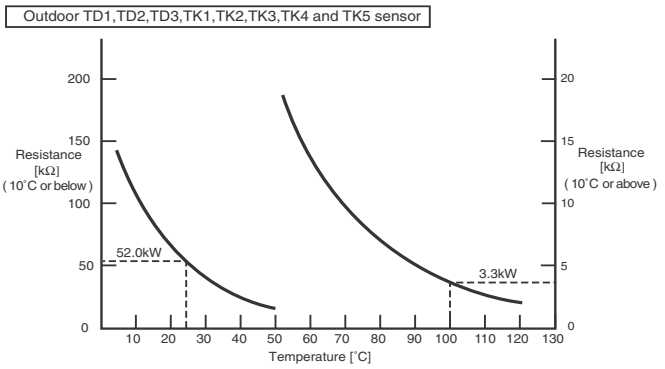
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

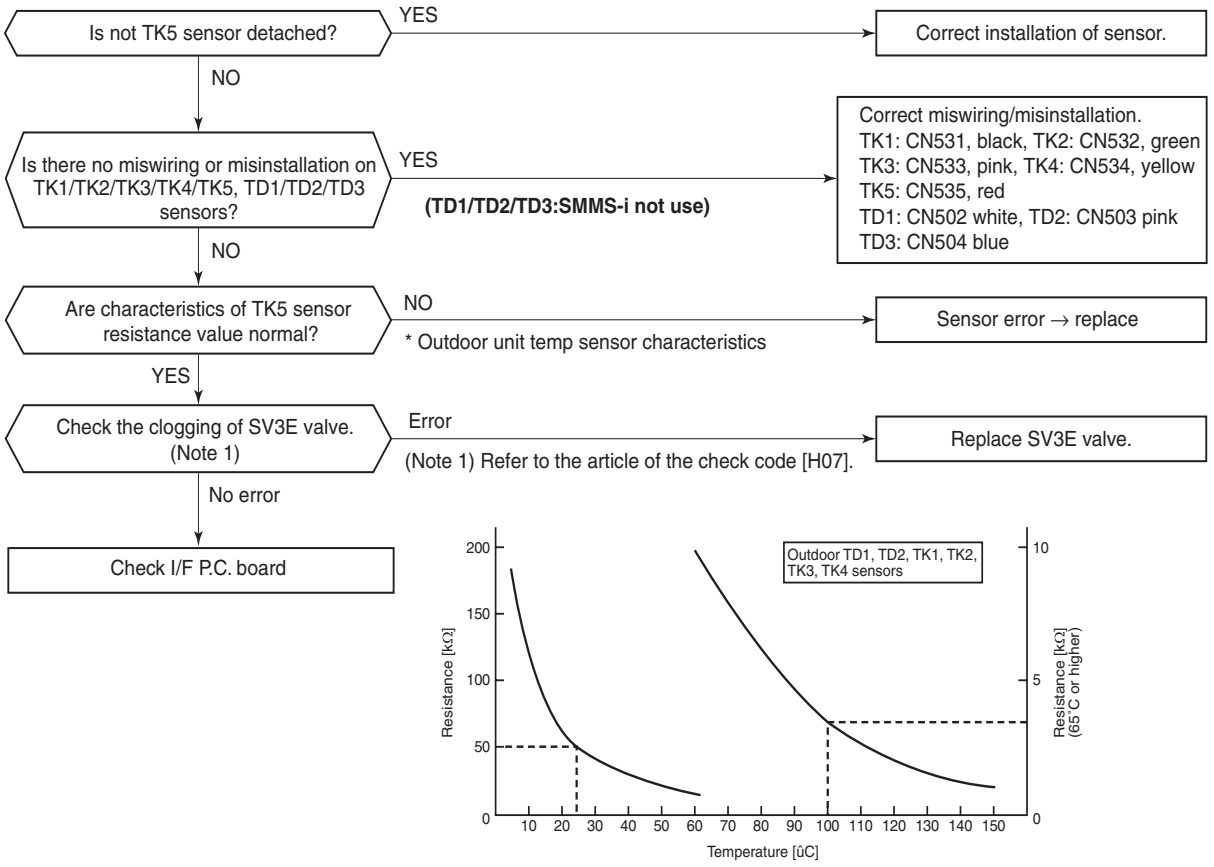
Check Code	Check Code Name	Cause of Operation
[H16]	**TK4 temperature detective circuit error (Sub-code: 04)** **(SMMS-i, SHRM-i only)**	1. Coming-off of TK4 sensor, miswiring, characteristics error of resistance value 2. Malfunction of SV3E valve circuit (Check valve, capillary clogging, strainer clogging) 3. Refrigerant stagnation in the compressor shell



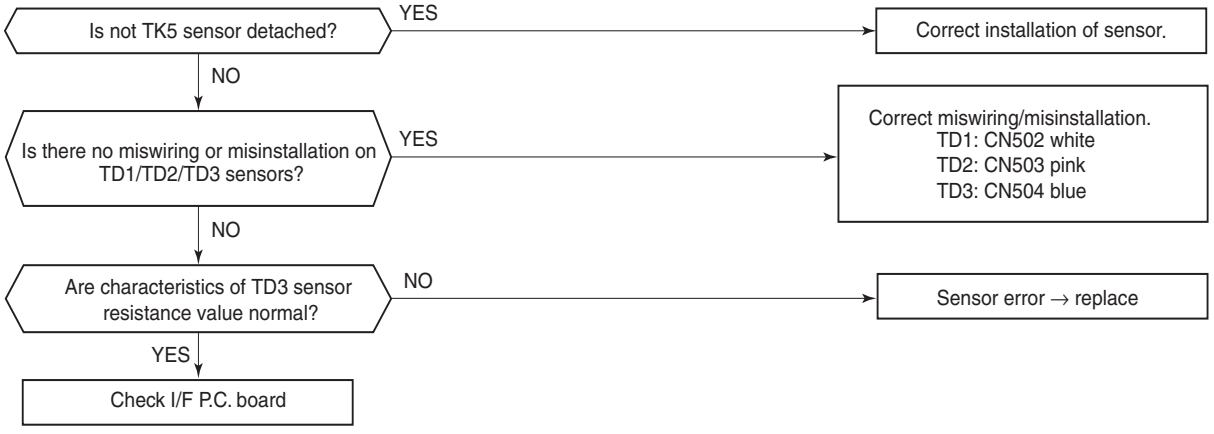


Temperature [˚C]	Resistance [kΩ]
0	159.2
5	124.5
10	98.1
15	77.8
20	62.1
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

Check Code	Check Code Name	Cause of Operation
[H16]	**TK5 temperature detective circuit error (Sub-code: 05)** **(SMMS-i, SHRM-i only)**	1. Coming-off of TK5 sensor, miswiring, characteristics error of resistance value 2. Malfunction or clogging of SV3E valve 3. Oil-equalization circuit error (Capillary or strainer clogging) 4. Refrigerant stagnation in the compressor shell



Check Code	Check Code Name	Cause of Operation
[H25]	**Outdoor discharge temperature sensor (TD3) misconnection** **(SMMS-i only)**	1. Coming-off of TD3 sensor 2. Misinstallation of TD1, TD2, or TD3 sensor, miswiring, characteristics error of resistance value

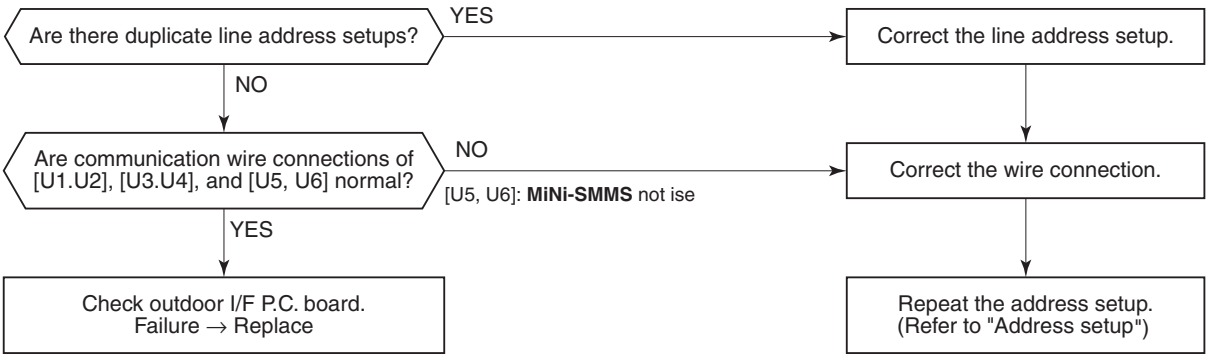


Check Code	Check Code Name	Cause of Operation
[L02]	**Outdoor units model disagreed error (SHRM-i only)**	1. Not corresponds to Air to Air Heat Exchanger type. 2. When outdoor unit is connected

Check Code	Check Code Name	Cause of Operation
[L03] / [96] (TCC-L / AI-NET)	**Duplicated indoor header units**	There were two or more indoor header units within the same remote controller group.

1) Check whether the connection on remote controllers (group and/or individual) has been changed since the group configuration and address checking on the remote controllers finished.
2) If the group configuration and address are normal when power has been turned on, the mode automatically shifts to address setup mode. For setting up addresses again, refer to "Address setup".

Check Code	Check Code Name	Cause of Operation
[L04] / [96] (TCC-L / AI-NET)	**Duplicated setup of outdoor line address**	Outdoor line addresses are duplicated.



Check Code	Check Code Name	Cause of Operation
[L05] / [96] (TCC-L / AI-NET)	**Duplicated indoor units with priority (Displayed on indoor unit with priority)**	1.Two or more prior indoor units exist.

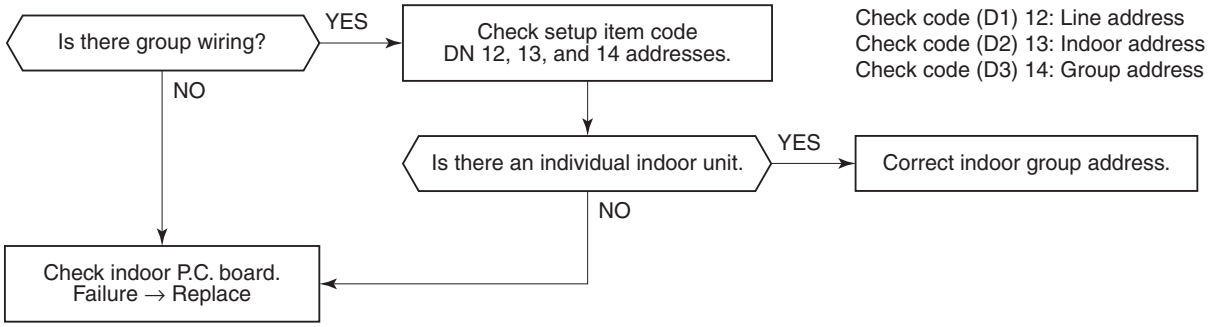
This check code is displayed on the indoor unit set as a prior one when two or more prior indoor units are detected.
• Priority setup with two or more units is not available. As only one indoor unit with priority is valid, change the setup.

Check Code	Check Code Name	Cause of Operation
[L06] / [96] (TCC-L / AI-NET)	**Duplicated indoor units with priority (Displayed on the indoor units other than ones with priority and on the outdoor unit)**	1.Two or more indoor units with priority are duplicated.

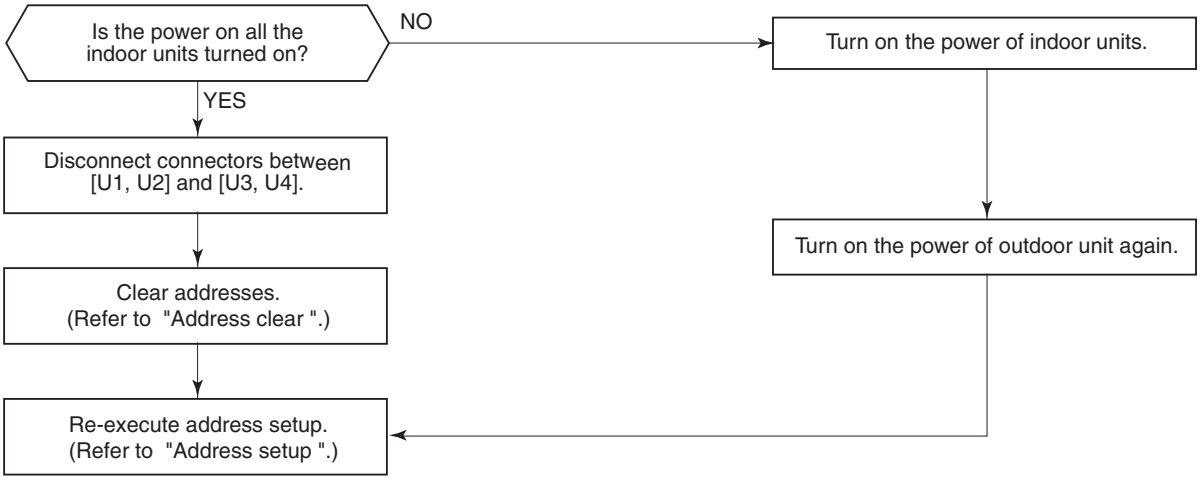
Sub-code: ammount of indoor units with priority

When priority is given to two or more indoor units, this check code is displayed on indoor units other than the units set as prior ones and the outdoor unit.
• As only one indoor unit with priority is valid, change the setup.

Check Code	Check Code Name	Cause of Operation
[L07] / [99] (TCC-L / AI-NET)	**Group line in individual indoor unit**	1.The group line is connected in the individual indoor unit.

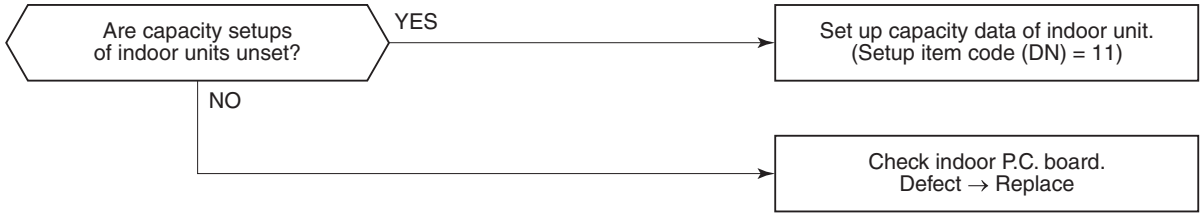


Check Code	Check Code Name	Cause of Operation
[L08] / [99]* (TCC-L / AI-NET)	**Indoor group / address unset**	1.Indoor address unset



Note) This code is displayed when the power is turned on at the first time after installation. (Because the address is not yet set up)

Check Code	Check Code Name	Cause of Operation
[L09] / [46] (TCC-L / AI-NET)	**Indoor capacity unset**	Indoor capacity unset

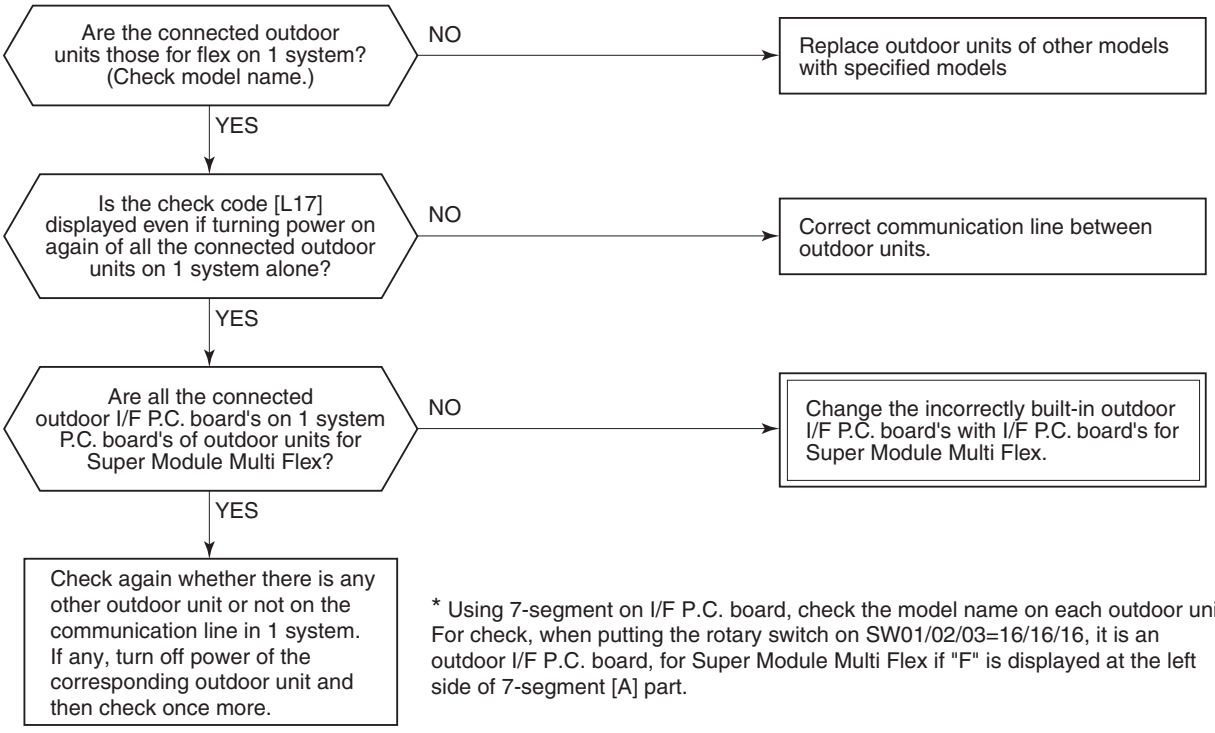


Check Code	Check Code Name	Cause of Operation
[L10] / [88] (TCC-L / AI-NET)	**Outdoor capacity unset**	The model selection jumper of the outdoor I/F P.C. board does not match the model.

Service I/F P.C. board for the outdoor unit is common to all outdoor units.
The service I/F P.C. board will need to be set up for the correct model based upon the faulty I/F P.C. board, which it is replacing. Set up the model based upon the I/F P.C. board assembly change procedure.

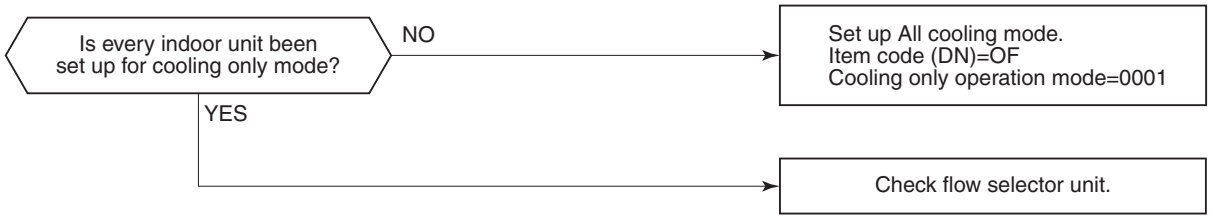
Check Code	Check Code Name	Cause of Operation
[L17]	**Inconsistent models of outdoor units** **(SMMS-i, SHRM-i only)**	1. An SMMS-i outdoor unit (SMMS 4 series unit) and an outdoor unit of are connected.**(SMMS-i)** 1. An SHRM-i outdoor unit (SMMS 4 series unit) and an outdoor unit of SMMS 2 series or older are connected.**(SHRM-i)**

Check Code	Check Code Name	Cause of Operation
[L17] / [46] (TCC-L / AI-NET)	**Inconsistent models of outdoor units** **(SMMS, SHRM only)**	There are outdoor units on the communication line other than Super Module Multi Flex type such as Super Module Multi or Super Module Multi ice regenerative type

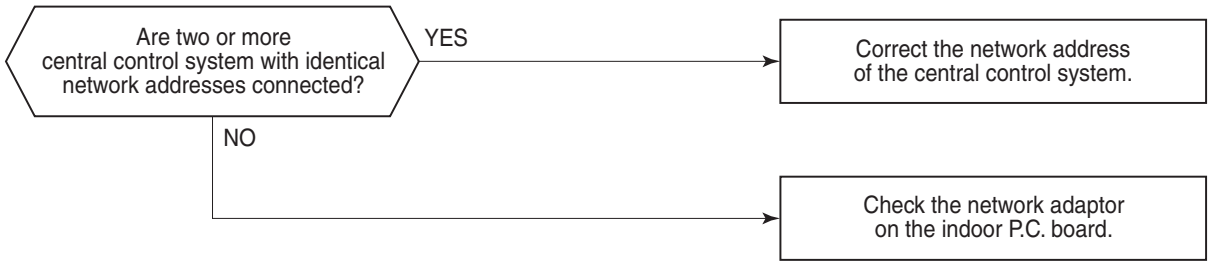


* Using 7-segment on I/F P.C. board, check the model name on each outdoor unit. For check, when putting the rotary switch on SW01/02/03=16/16/16, it is an outdoor I/F P.C. board, for Super Module Multi Flex if "F" is displayed at the left side of 7-segment [A] part.

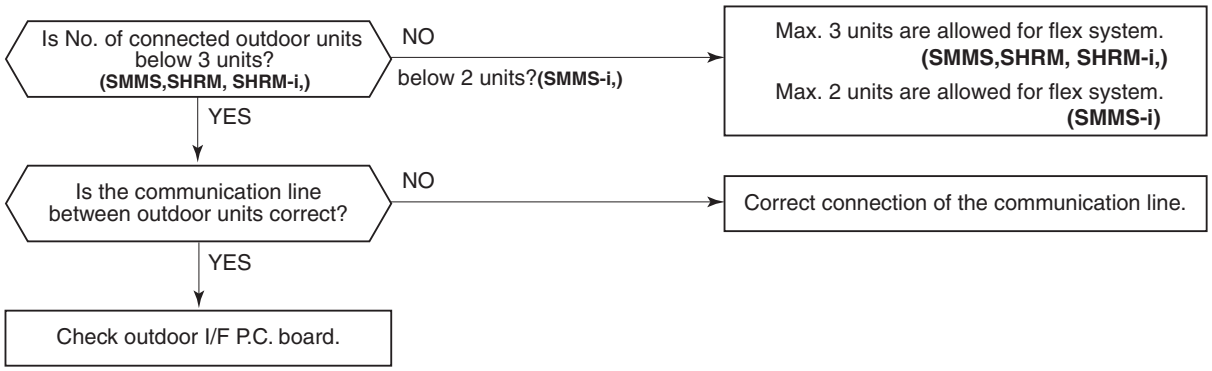
Check Code	Check Code Name	Cause of Operation
[L18] / [8A] (TCC-L / AI-NET)	**Flow selector unit system error** **(SMMS, SHRM, SHRM-i only)**	An indoor unit which has been operated in cooling only mode is operated in heating mode without setup for cooling only mode.



Check Code	Check Code Name	Cause of Operation
[L20] / [98] (TCC-L / AI-NET)	**Duplicated central control addresses**	Central control addresses are duplicated.

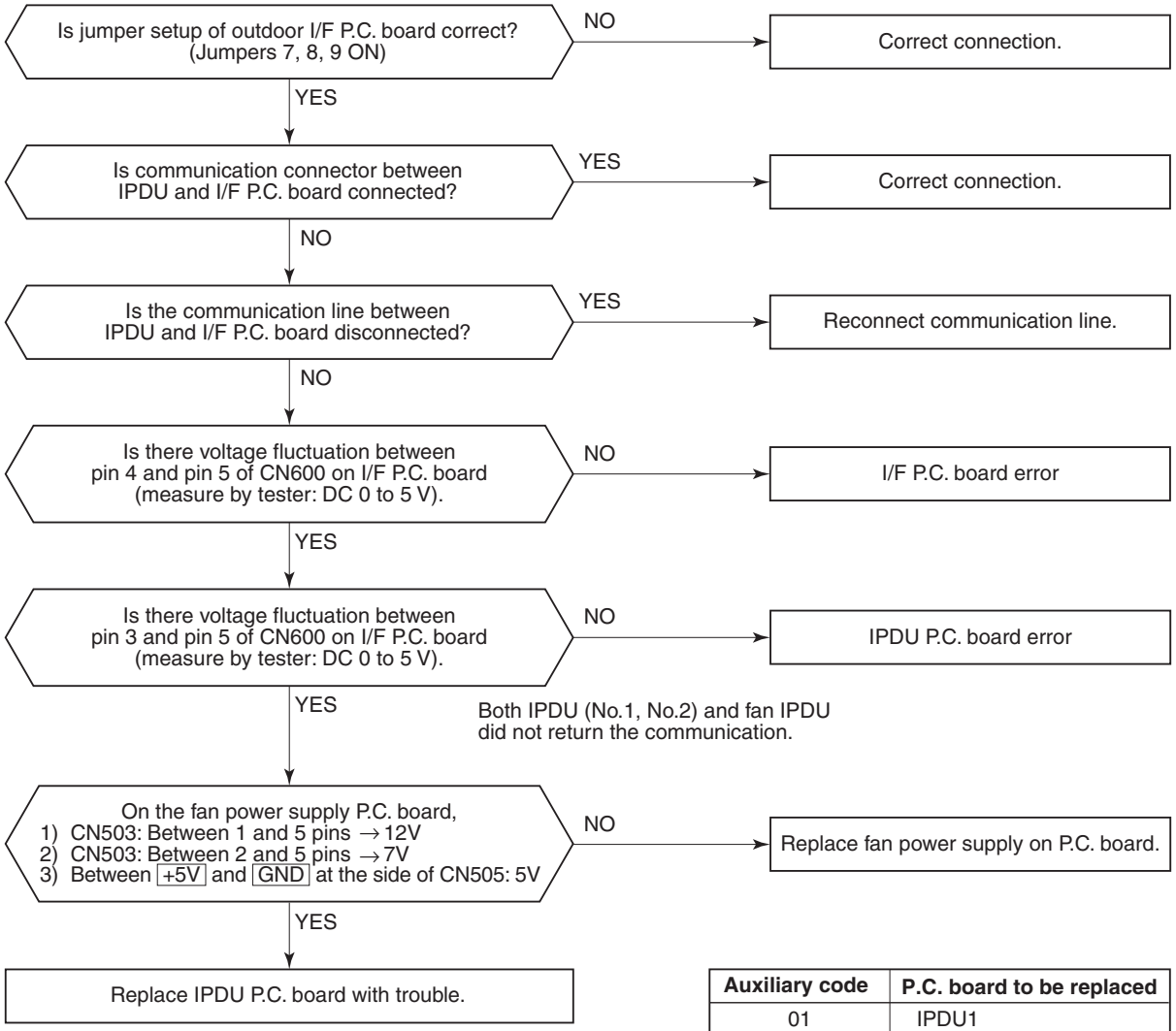


Check Code	Check Code Name	Cause of Operation
[L28] / [46] (TCC-L / AI-NET)	**Quantity over of connected outdoor units** **(MiNi-SMMS not use)**	1. Quantity over of connected outdoor units 2. Connection error of communication line between outdoor units 3. Outdoor I/F P.C. board error



Check Code	Check Code Name	Cause of Operation
[L29] / [CF] (TCC-L / AI-NET)	**IPDU quantity error** **(SMMS, SHRM only)**	1. Incorrect model setup in service for I/F P.C. board 2. Communication error between IPDU, fan IPDU and I/F 3. IPDU, fan IPDU, I/F P.C. board error

Sub-code:
01: IPDU1 error 02: IPDU2 error
03: IPDU1, 2 error 04: Fan IPDU error
05: IPDU1, fan IPDU error 06: IPDU2, fan IPDU error
07: All IPDU error or disconnection of communication line between IPDU-I/F P.C. board or outdoor I/F P.C. board error



Auxiliary code	P.C. board to be replaced
01	IPDU1
02	IPDU2
03	IPDU1, 2
04	Fan IPDU
05	IPDU1, fan IPDU
06	IPDU2, fan IPDU
07	IPDU1, 2, fan IPDU, I/F

Check Code	Check Code Name	Cause of Operation
[L29] / [CF] (TCC-L / AI-NET)	**IPDU quantity error** **(MiNI-SMMS, SMMS-i, SHRM-i)**	1. Incorrect model setup in service for I/F P.C. board 2. Communication error between A3-IPDU, fan IPDU and I/F 3. A3-IPDU, fan IPDU, I/F P.C. board error

Sub-code

	A3-IPDU			Fan IPDU		A3-IPDU			Fan IPDU
	1	2	3			1	2	3	
01	O				0A		O		O
02		O			0B	O	O		O
03	O	O			0C			O	O
04			O		0D	O		O	O
05	O		O		0E		O	O	O
06		O	O		0F	O	O	O	O
07	O	O	O		O: IPDU error part				
08				O					
09	O			O					

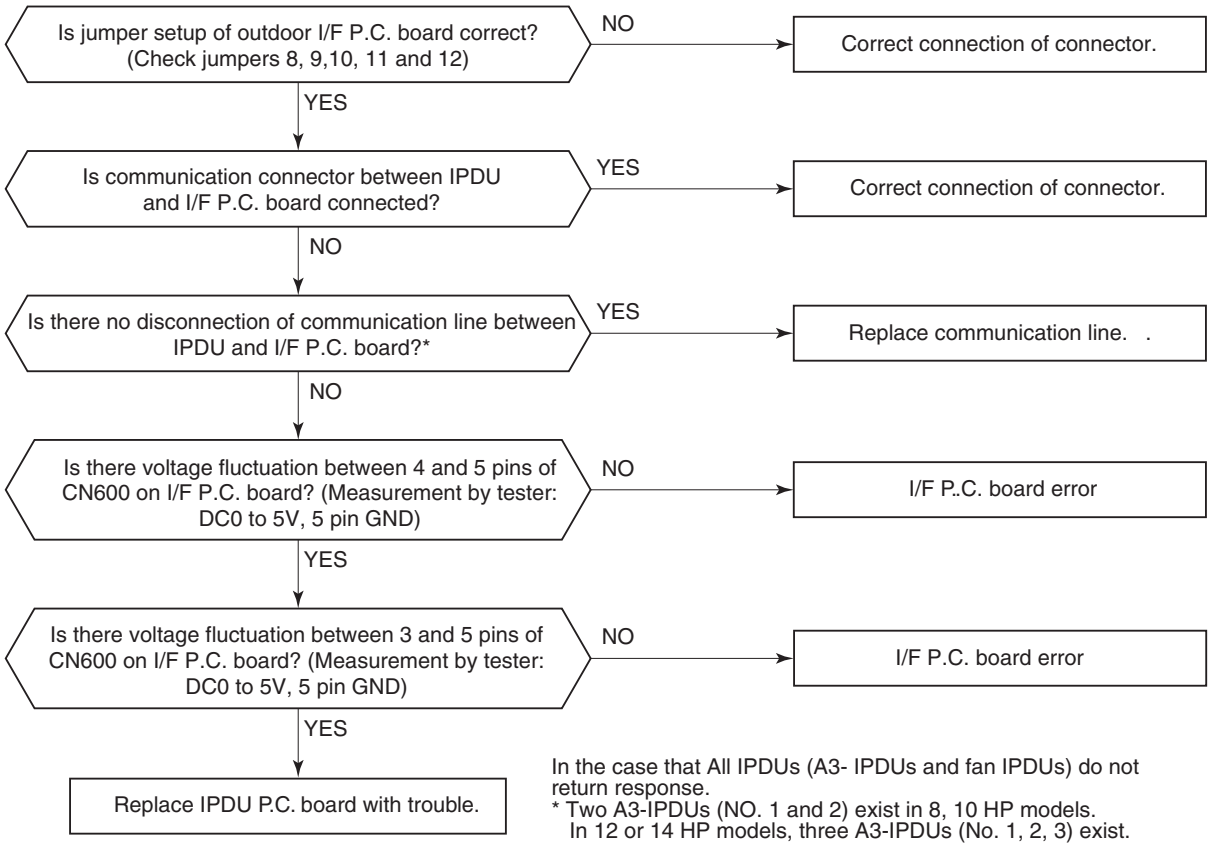
(SMMS-i, SHRM-i only)

Sub-code

	A3-IPDU	Fan IPDU	
		1(Upper)	2(Lower)
01	O		
02		O	
03	O	O	
04			O
05	O		O
06			O
07	O		O

Circle O: Faulty IPDU

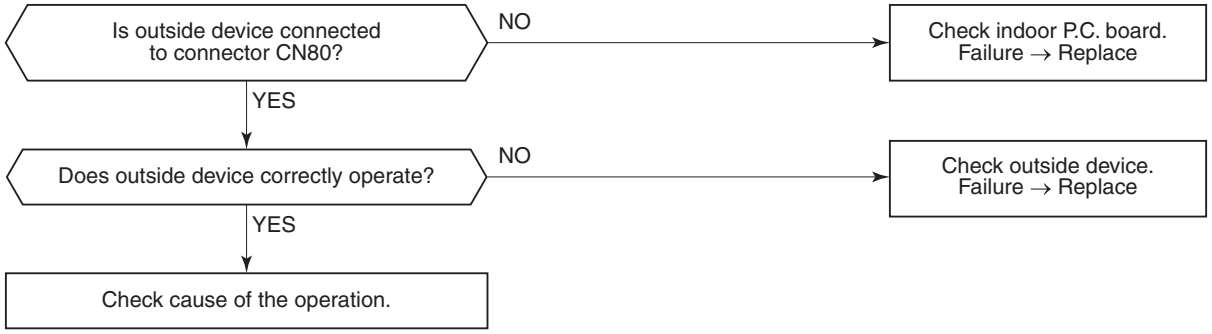
(MiNi-SMMS)



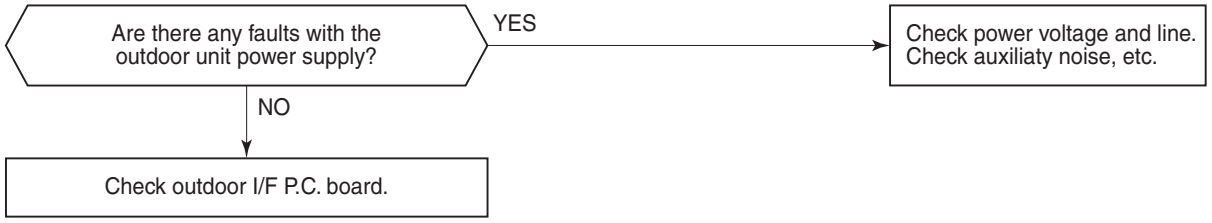
In the case that All IPDUs (A3- IPDUs and fan IPDUs) do not return response.

* Two A3-IPDUs (NO. 1 and 2) exist in 8, 10 HP models.
In 12 or 14 HP models, three A3-IPDUs (No. 1, 2, 3) exist.

Check Code	Check Code Name	Cause of Operation
[L30] / [b6] (TCC-L / AI-NET)	**Interlock in indoor unit from outside**	Outside error was input.

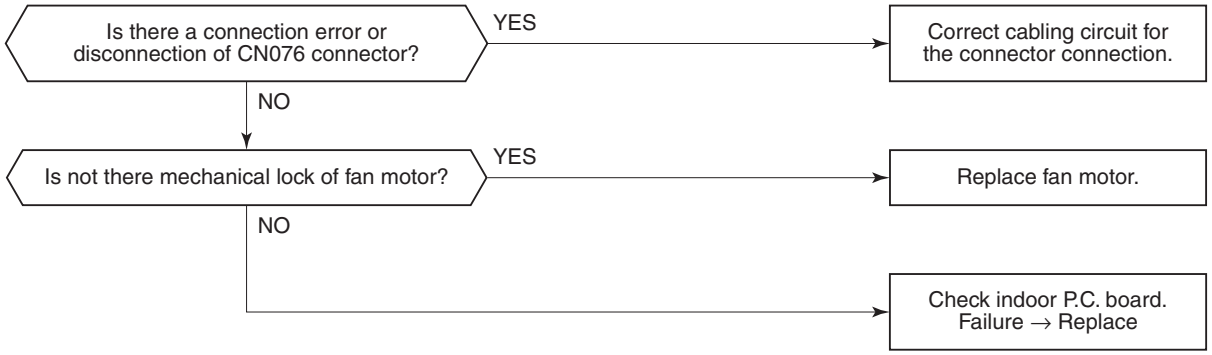


Check Code	Check Code Name	Cause of Operation
[L31] / [–] (TCC-L / AI-NET)	**Extended IC error**	1. Outdoor unit power error 2. Outdoor I/F P.C. board error



Check Code	Check Code Name	Cause of Operation
[P01] / [11] (TCC-L / AI-NET)	**Indoor fan motor error**	1. Cabling error 2. Check fan motor.

* For the models installed with AC fan motor only



Check Code	Check Code Name	Cause of Operation
[P03] / [1E] (TCC-L / AI-NET)	**Discharge temp TD1 error**	1. Service valve of outdoor unit closed. 2. Outdoor PMV(PMV1, 2) error 3. TD sensor error 4. Refrigerant short, clogging in pipe 5. 4-way valve error 6. SV4 circuit leakage, misinstallation 7. SV5 circuit leakage 8. SV6 circuit clogging 9. Discharge gas/Suction gas pipes mispiping 10. Flow selector unit error **MiNi-SMMS, SMMS-i not use**

Are service valves of outdoor discharge gas, suction gas, and liquid pipe fully opened?
- NO → Open service valves fully.
- YES ↓

Are outdoor PMV(PMV1 and PMV2) normal?
1. Connector connection
2. Wiring
3. Coil
4. Valve itself
5. Outdoor P.C. board

PMV1, 2 error **(SHRM, SMMS only)**
- NO → Repair outdoor PMV.

* Connector: CN300, 301 White **(SMMS,SHRM)**
* Connector: PMV1 CN300, PMV2 CN301 **(MiNI-SMMS)**
* Connector: PMV1 CN300, PMV2 CN301, PMV4, CN303 (**SMMS-i, SHRM-i)**

- YES ↓

Is resistance characteristic of TD1 sensor normal?
- NO → Replace TD1.

Refer to Outdoor unit temperature sensor characteristics.
- YES ↓

Is there any refrigerant leakage on discharge gas to suction side on the 4-way valve?
- NO → Check 4-way valve.
- YES ↓

SV4 circuit
1. Are not coils of SV41 and SV42 valves mounted reversely?
2. Is no leakage from SV41? **(SMMS,SHRM)**

- NO → Correct mounting of valve coils or replace SV41 valve. **(SMMS,SHRM)**

(SV4**: MiNi-SMMS)**
(SV41,42,43**: SMMS-i, SHRM-i)**
- YES ↓

Check leakage of SV5 circuit.
- Abnormal → Replace defective parts.
- Normal ↓

Check clogging of SV6 circuit.
- Abnormal → Replace defective parts.
- Normal ↓

(MiNI-SMMS, SMMS-i not use)

Check mispiping of discharge gas / suction gas main pipes.
- Abnormal → Correct piping.
- Normal ↓

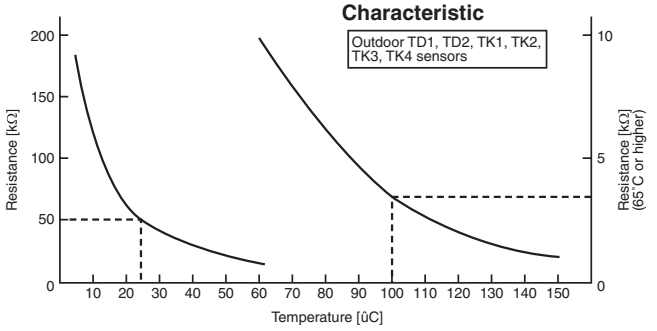
Is the flow selector unit normal?
- NO → Repair flow selector unit.
- YES ↓

Is not indoor unit in other refrigerant line connected?
- NO → Correct wiring.
- YES ↓

Refrigerant short, clogging, pipe breakage

(Check there is no pipe breakage, and then recharge refrigerant.)

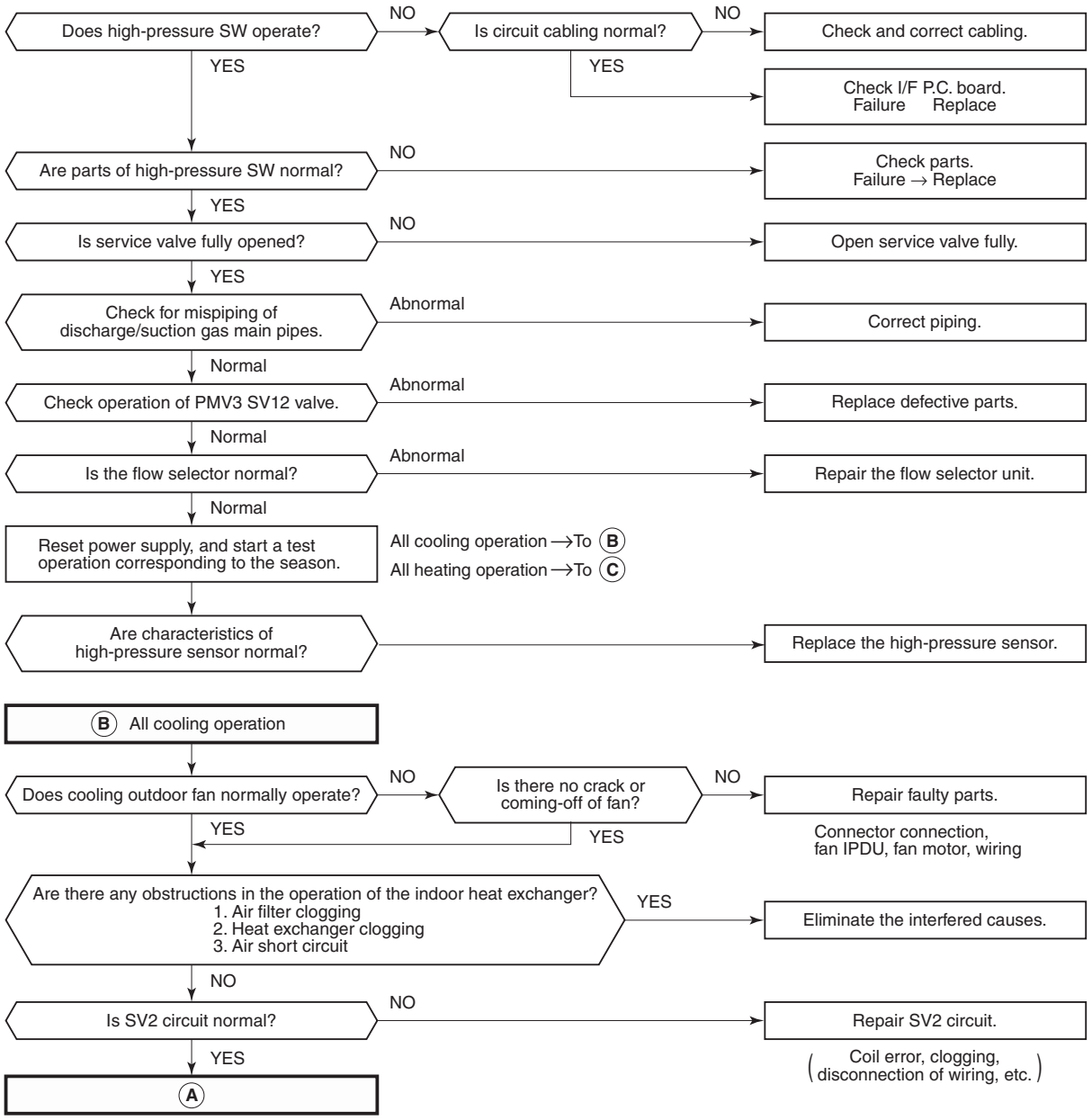
Characteristic



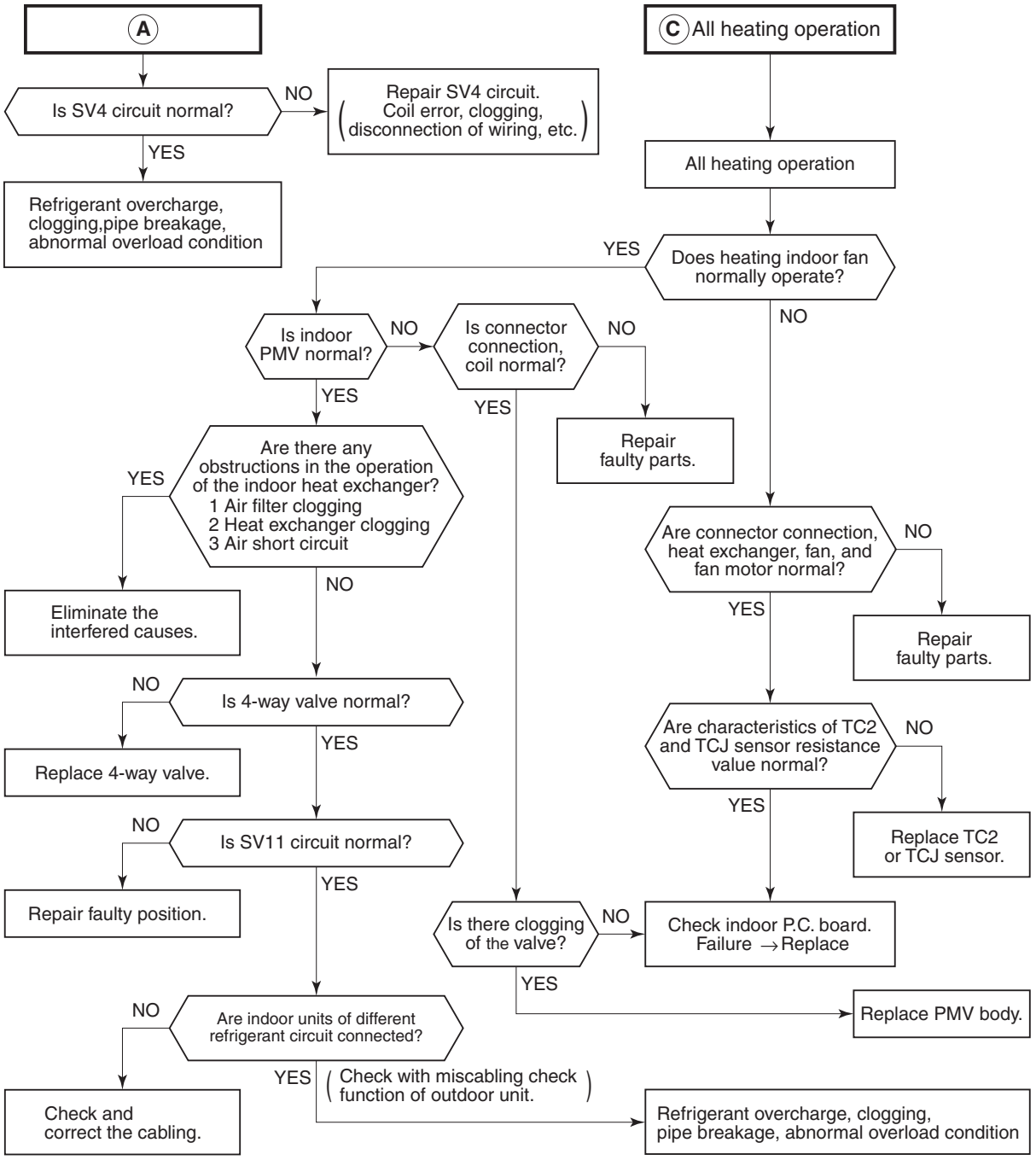
Check Code	Check Code Name	Cause of Operation
[P04] / [21] (TCC-L / AI-NET)	**Actuation of high-pressure SW** **(SMMS,SHRH only)**	1. High-pressure SW error 2. Service valve closed 3. Pd sensor error 4. Indoor/outdoor fan error 5. Indoor/outdoor PMV choke 6. Indoor/outdoor heat exchanger clogging, air short circuit 7. SV2 circuit error 8. SV4 circuit error 9. SV5 circuit error 10. Discharge line check valve malfunction 11. Refrigerant overcharge

Sub-code: 01: Compressor 1 side 02: Compressor 2 side

Note) High-pressure SW is normally closed. (B contact)



(SMMS,SHRH only)



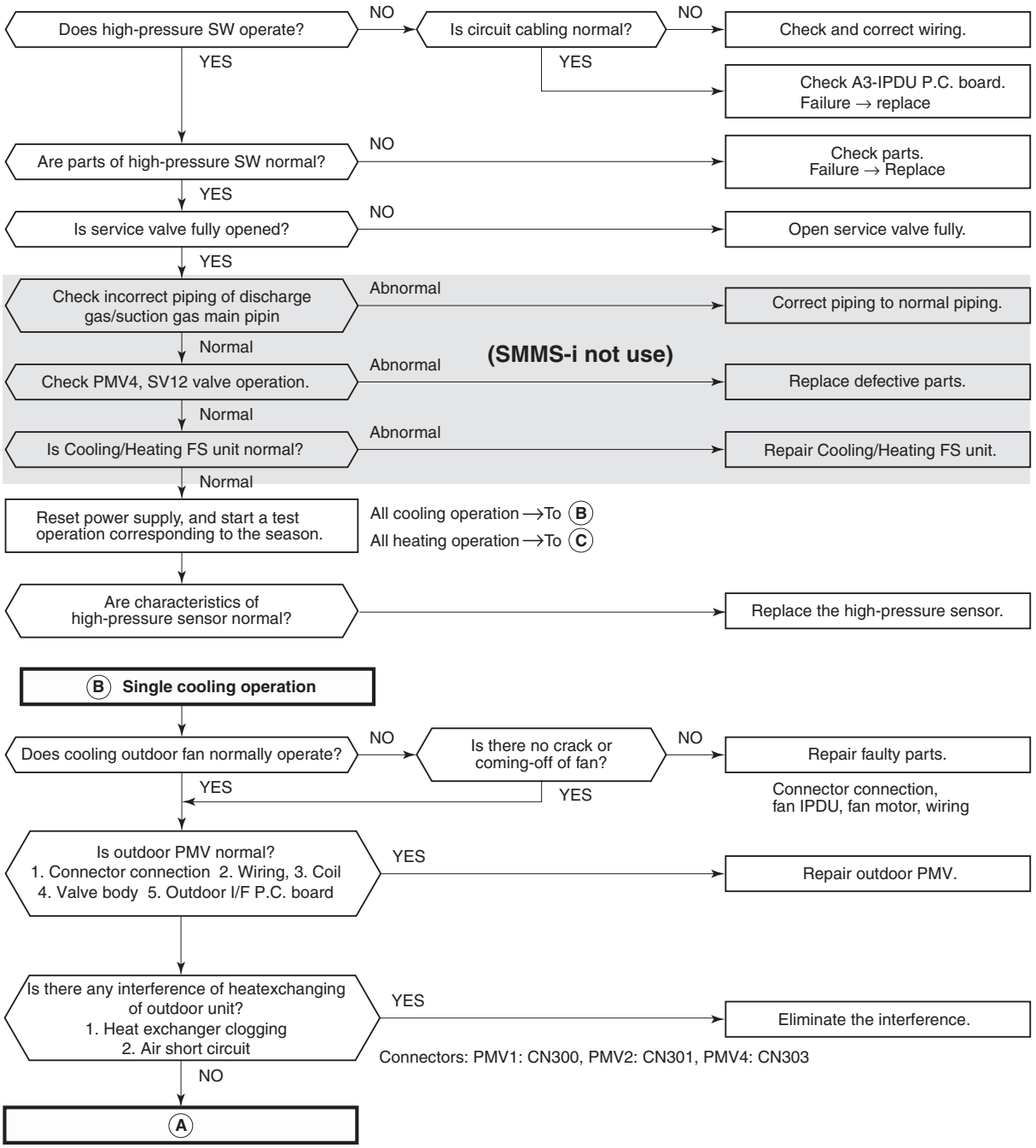
Check Code	Check Code Name	Cause of Operation
[P05] / [AF] (TCC-L / AI-NET)	**Open phase, negative phase**	1. Power supply open phase 2. Power supply negative phase

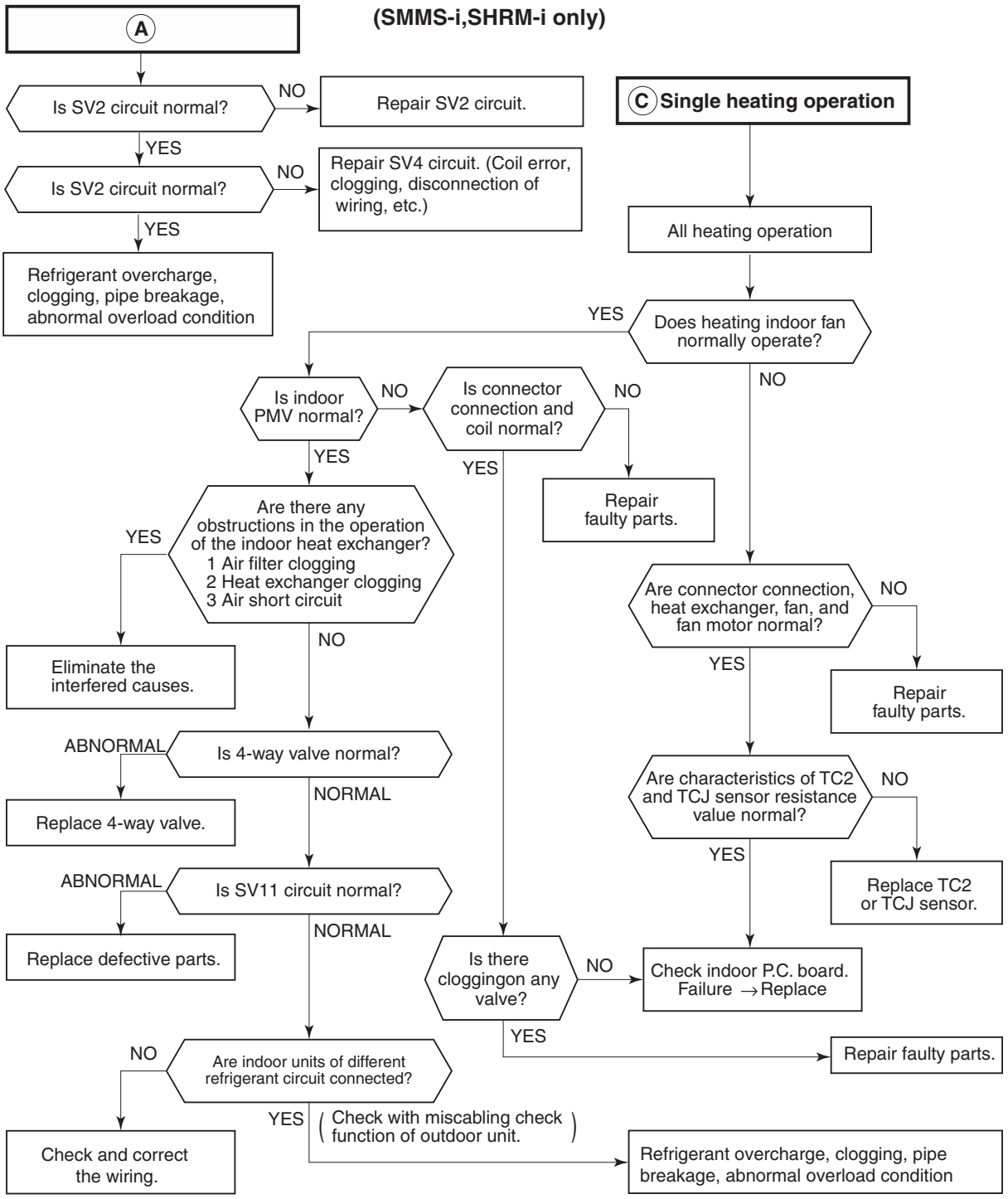
- Check the phase power line of outdoor unit.
- Check error of outdoor I/F P.C. board.
- Check there is no looseness, etc of terminal.

Check Code	Check Code Name	Cause of Operation
[P04]	**Actuation of high-pressure SW** **(SMMS-i,SHRM-i only)**	1. High-pressure SW error 2. Service valve closed 3. Pd sensor error 4. Indoor/outdoor fan error 5. Indoor/outdoor PMV choke 6. Indoor/outdoor heat exchanger clogging, air short circuit 7. SV2 circuit error 8. SV4 circuit error 9. SV5 circuit error 10. Discharge line check valve malfunction 11. Refrigerant overcharge

Sub-code:01: Compressor 1, 02: Compressor 2, 03: Compressor 3

Note) High-pressure SW is normally closed.
(B contact)





Check Code	Check Code Name	Cause of Operation
[P05]	**Phase error detected, power failure detected, abnormal inverter DC voltage (on compressor)**	1.Phase error or power failure of the power supply to the outdoor unit

Sub-code: 00: Phase error/power failure is detected. 01: Abnormal inverter DC voltage on Compressor 1,
02: Abnormal inverter DC voltage on Compressor 2, 03: Abnormal inverter DC voltage on Compressor 3

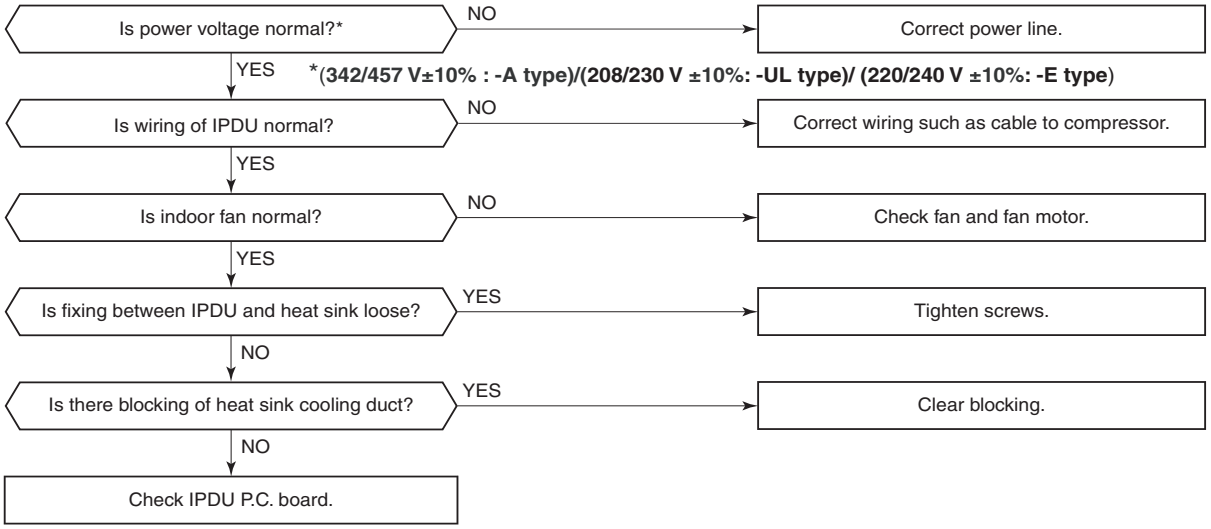
- Check the phase of the power line to the outdoor unit.
- Check error of outdoor I/F P.C. board.
- Check there are no loosened connectors, etc.
- Check connection wiring of MG-CTT.
- Check operation of MG-CTT.

Check Code	Check Code Name	Cause of Operation
[P07] / [1C] (TCC-L / AI-NET)	**Heat sink overheat error**	1. Power voltage error 2. Outdoor fan system error 3. Heat sink installation error 4. Clogging of hear sink cooling duct 5. A3-IPDU P.C. board(IPDU P.C. board) error (TH sensor error)

NOTE
(A3-IPDU: **MiNi-SMMS, SMMS-i, SHRM-i**) / (IPDU P.C. board: **SMMS, SHRM**)

Sub-code: 01: Compressor 1 side 02: Compressor 2 side (**SMMS, SHRM**)

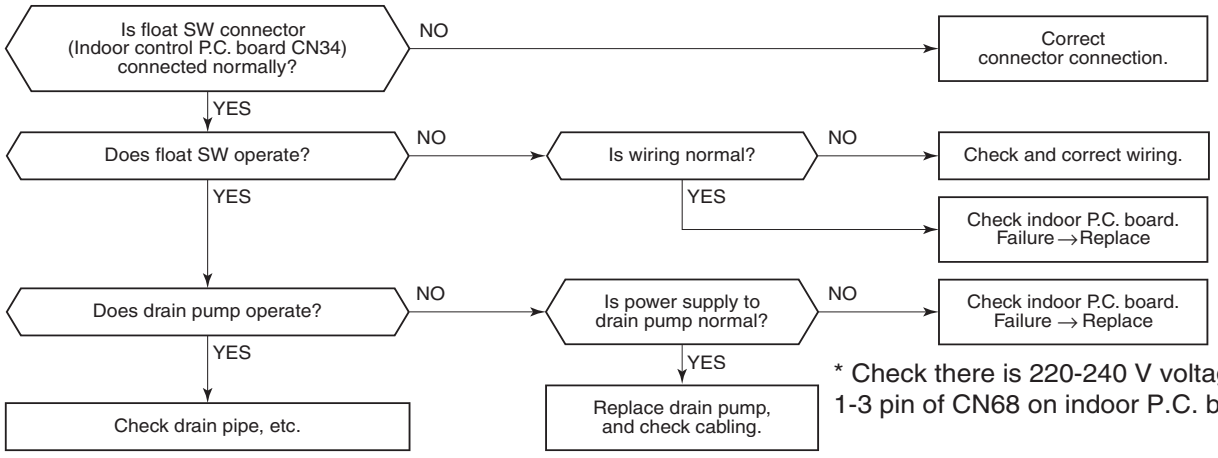
Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side (**SMMS-i, SHRM-i**)



(IPDU: **SMMS, SHRM)**/(A3-IPDU: **MiNi-SMMS, SMMS-i, SHRM-i**)

Check Code	Check Code Name	Cause of Operation
[P10] / [0b] (TCC-L / AI-NET)	**Indoor overflow error**	1. Float SW operation error 2. Drain pump operation error 3. Clogging of drain pipe 4. Indoor P.C. board error

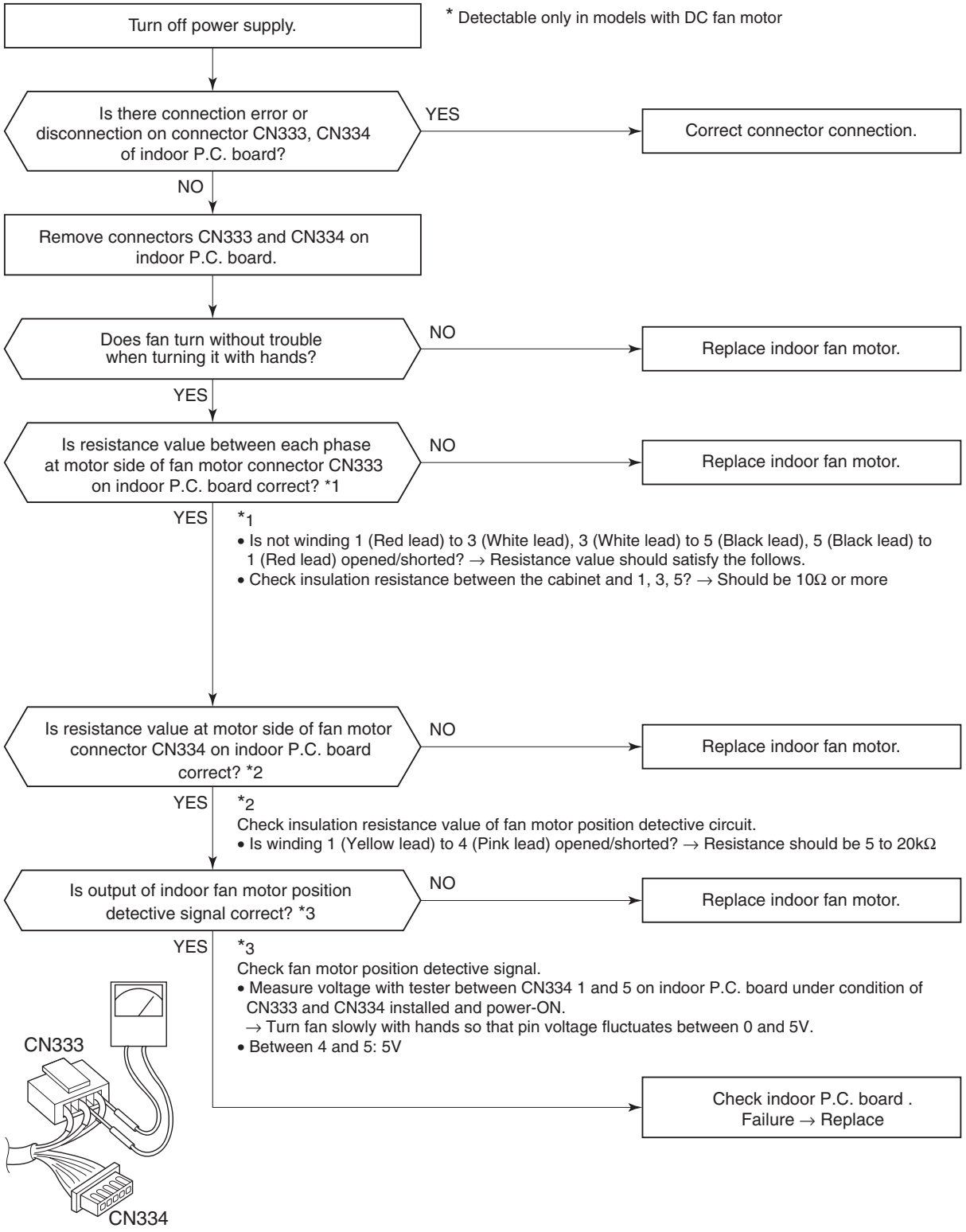
Sub-code: Indoor address with trouble



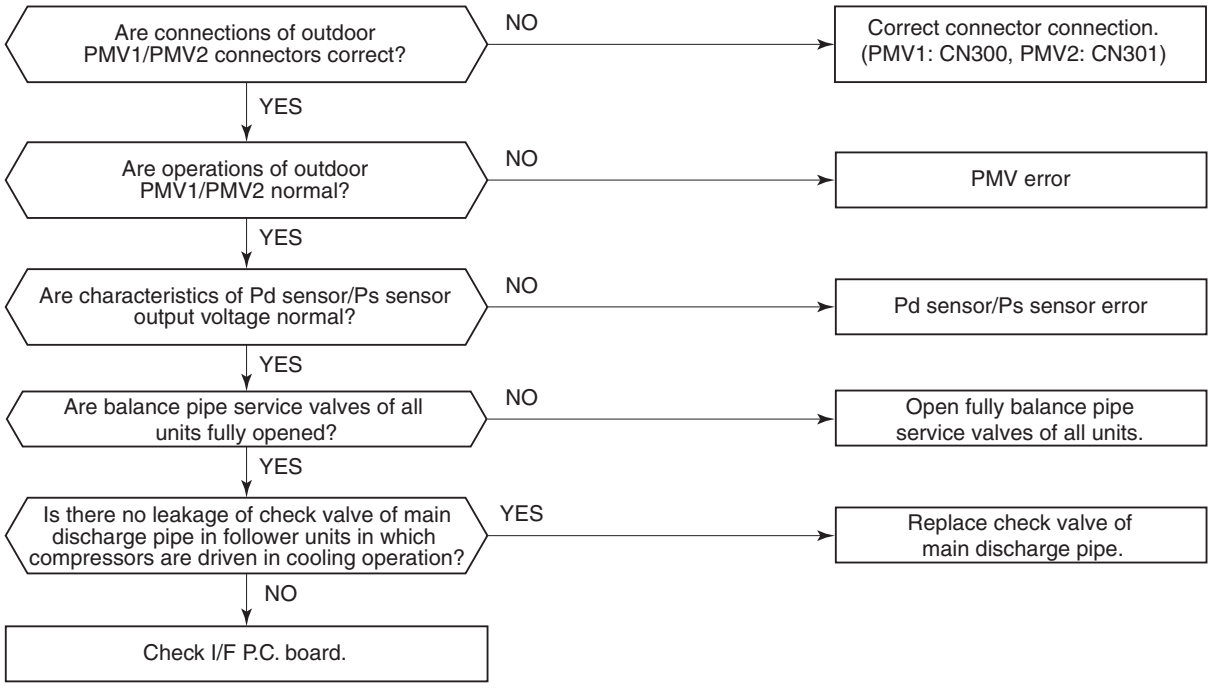
* Check there is 220-240 V voltage of 1-3 pin of CN68 on indoor P.C. board.

***(342/457 V : -A type)/(208/230 V : -UL type)/ (220/240 V : -E type)**

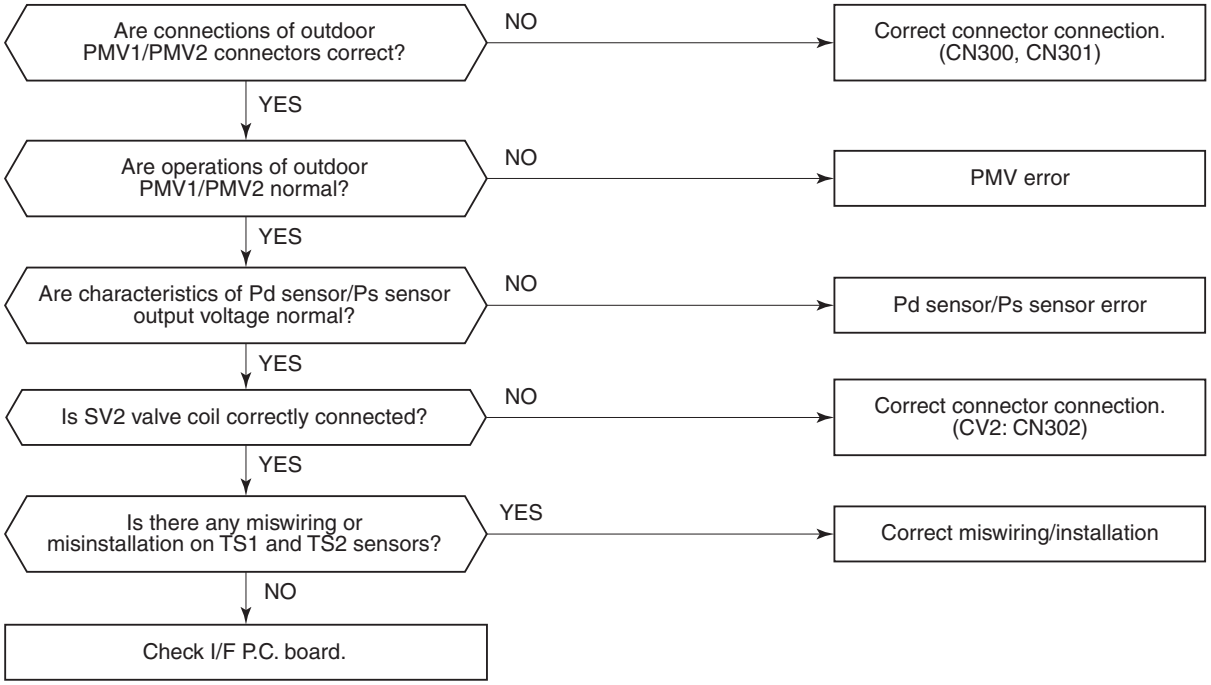
Check Code	Check Code Name	Cause of Operation
[P12] / [11] (TCC-L / AI-NET)		1. Cabling error of fan motor connector 2. Fan motor error 3. Indoor P.C. board error



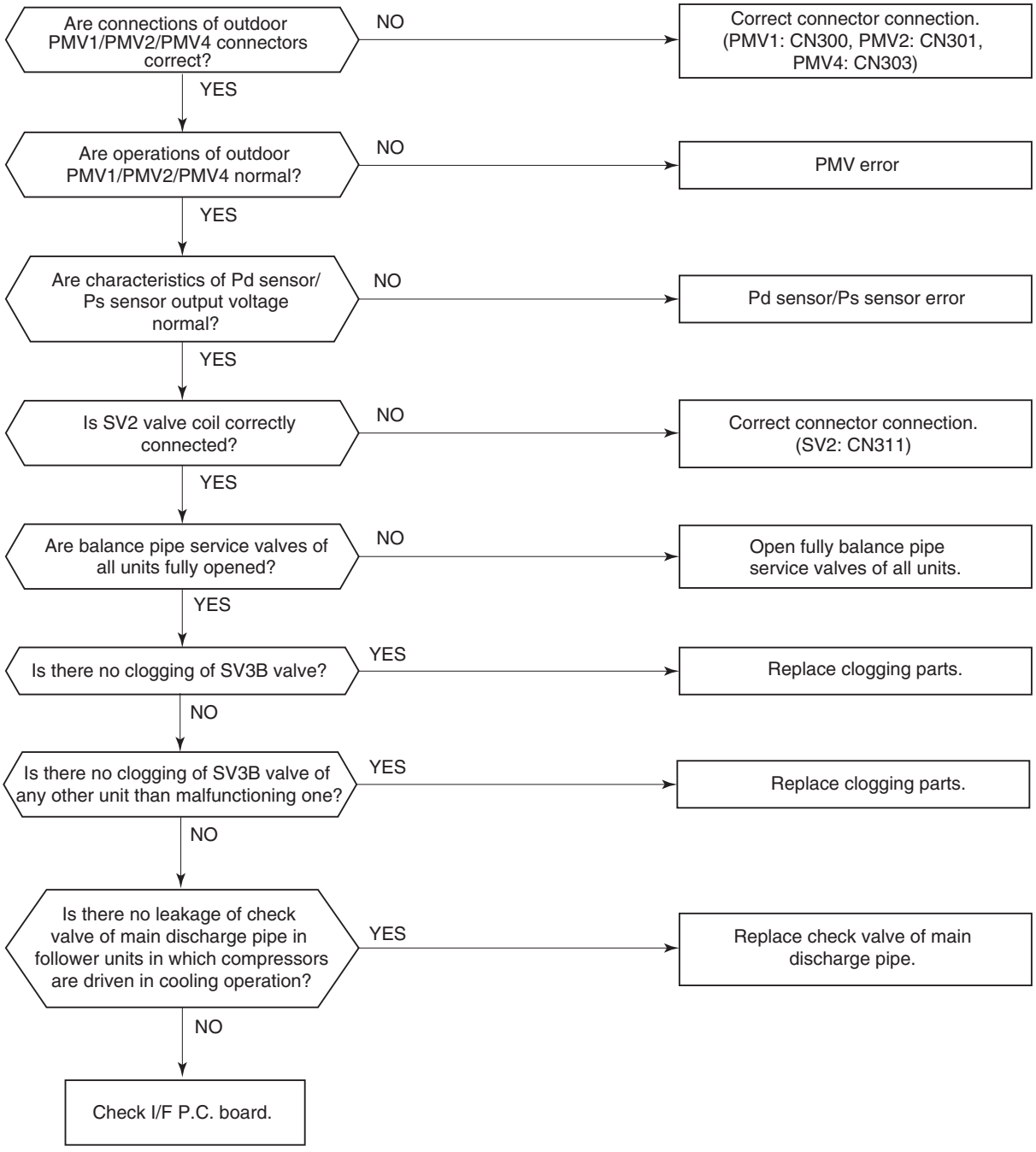
Check Code	Check Code Name	Cause of Operation
[P13]	**Outdoor liquid back detection error** **(MiNi-SMMS only)**	1. PMV1 / PMV2 error 2. Pd sensor, Ps sensor error 3. Leakage at a check valve on a main discharge pipe 4. Outdoor I/F P.C. board error



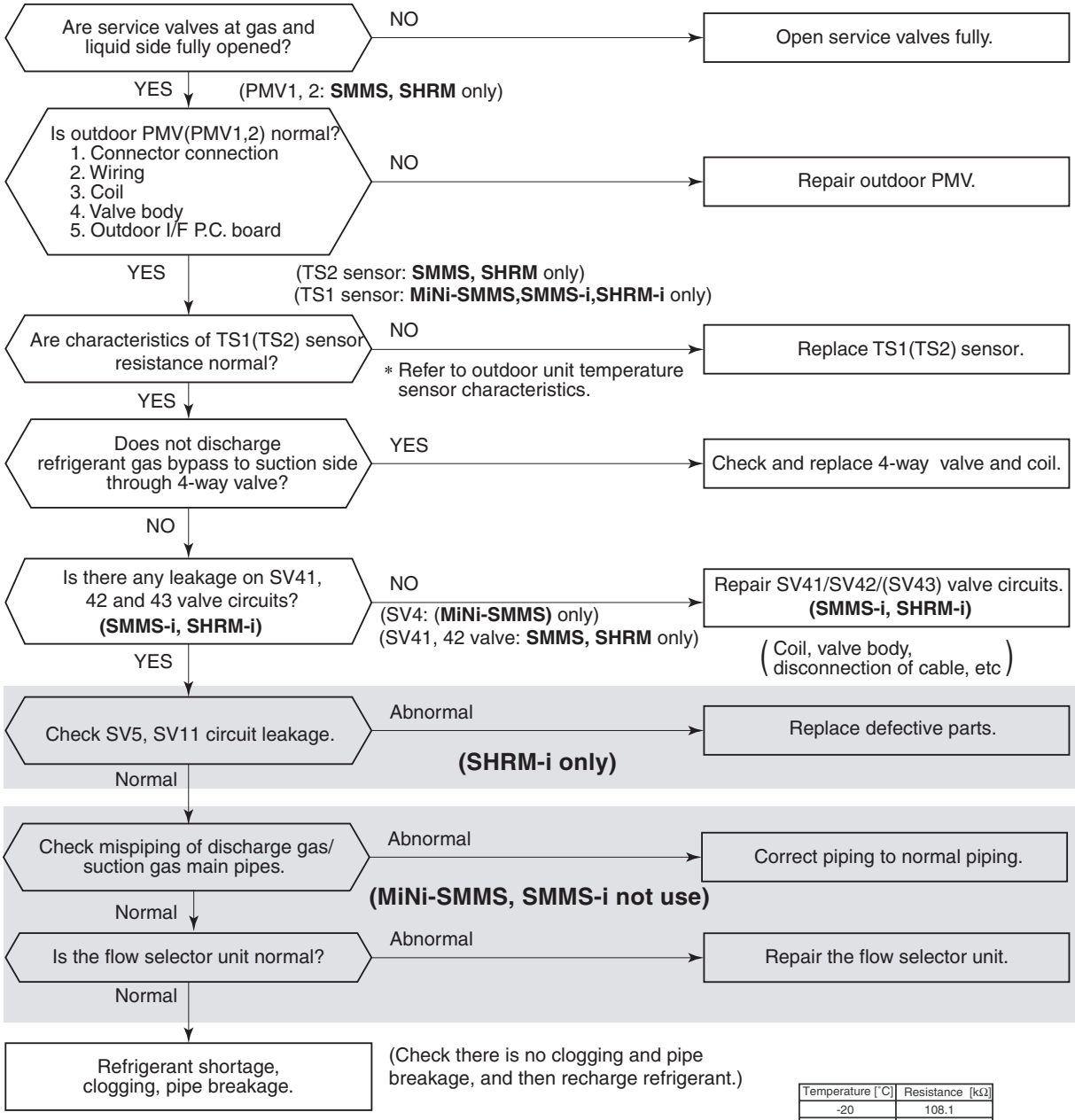
Check Code	Check Code Name	Cause of Operation
[P13] / [47] (TCC-L / AI-NET)	**(SMMS, SHRM only)**	1. PMV1/PMV2 error 2. Pd sensor, Ps sensor error 3. Clogging of SV2 circuit 4. Clogging of SV3B circuit, balance pipe 5. Leakage on main discharge pipe 6. Outdoor I/F P.C. board error

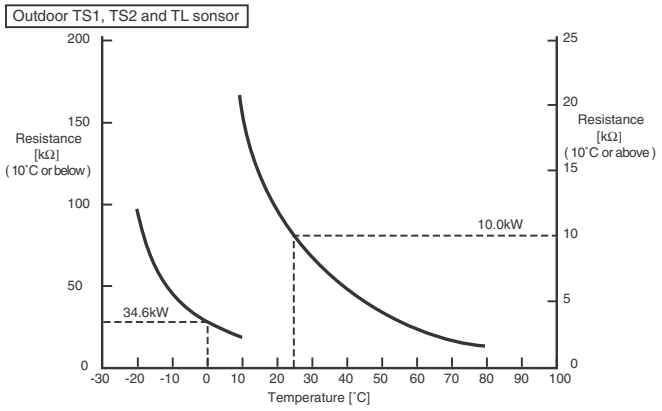


Check Code	Check Code Name	Cause of Operation
[P13]	Outdoor liquid back detection error (SMMS-i, SHRM-i only)	1. PMV1/PMV2 error 2. Pd sensor, Ps sensor error 3. Clogging of SV2 circuit 4. Clogging of SV3B circuit and/or balance pipe 5. Leakage at a check valve on a main discharge pipe 6. Outdoor I/F P.C. board error



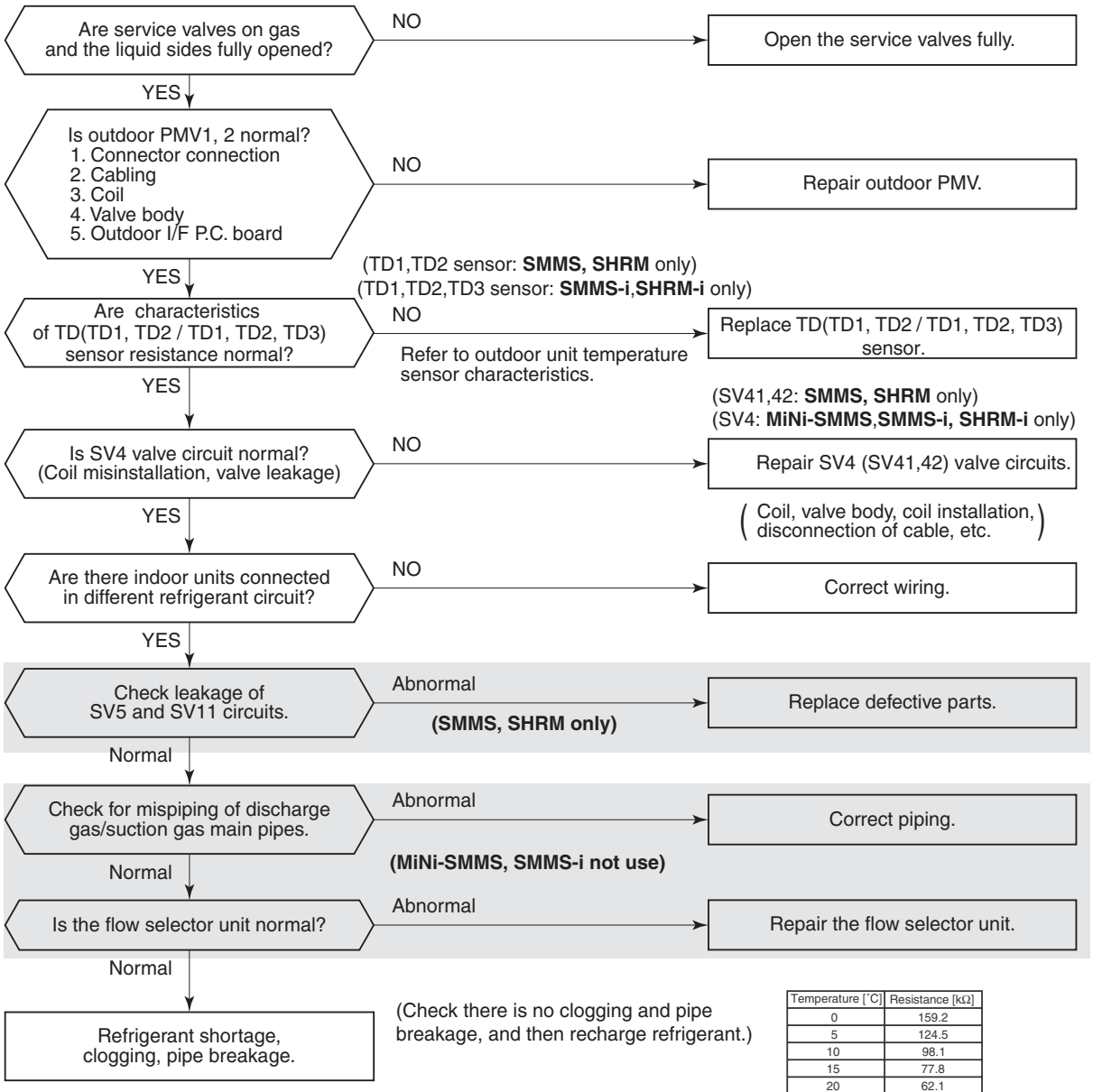
Check Code	Check Code Name	Cause of Operation
[P15] / [AE] (TCC-L / AI-NET)	**Gas leak detection** **TS condition (Sub-code: 01)**	1. Outdoor unit service valve closed 2. Outdoor PMV error 3. TS1 sensor error 4. Refrigerant shortage, clogging refrigerant circuit 5. 4-way valve error 6. SV4 circuit error

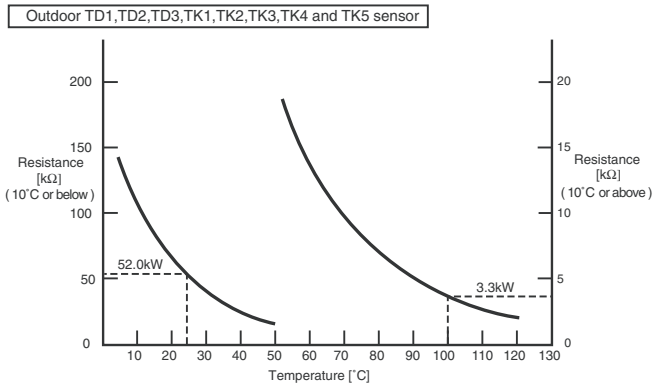




Temperature [˚C]	Resistance [kΩ]
-20	108.1
-15	80.0
-10	59.8
-5	45.3
0	34.6
5	26.6
10	20.6
15	16.1
20	12.7
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.4
55	2.8
60	2.3
65	1.9
70	1.6
75	1.3
80	1.1

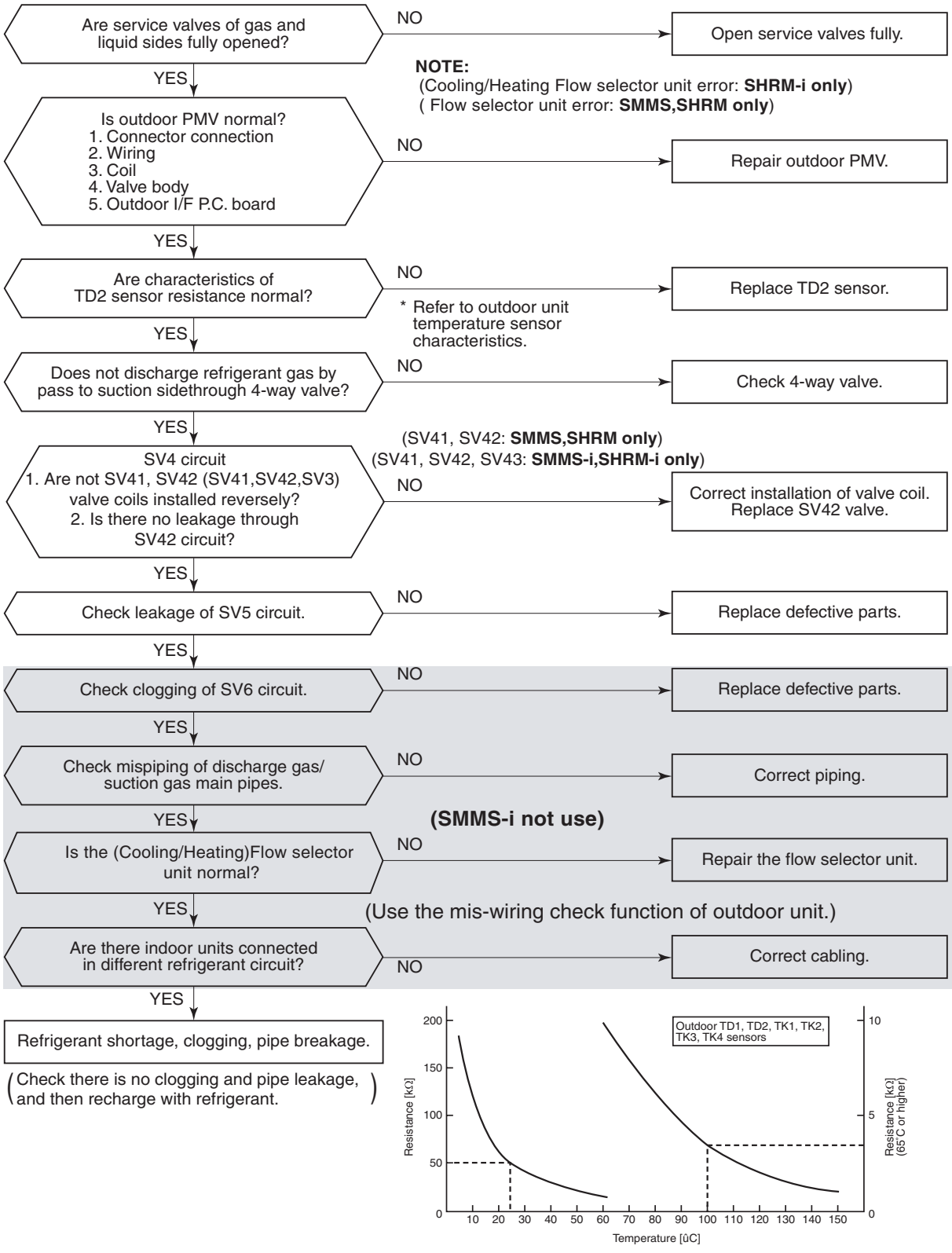
Check Code	Check Code Name	Cause of Operation
[P15] / [AE] (TCC-L / AI-NET)	**Gas leak detection** **TD condition (Sub-code: 02)**	1. Outdoor unit service valve closed 2. Outdoor PMV error 3. TD sensor error 4. SV4 circuit error 5. Refrigerant shortage, clogging refrigerant circuit





Temperature [˚C]	Resistance [kΩ]
0	159.2
5	124.5
10	98.1
15	77.8
20	62.1
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

Check Code	Check Code Name	Cause of Operation
[P17] / [bb] (TCC-L / AI-NET)	**Discharge temp TD2 error** **(MiNi-SMMS not use)**	1. Outdoor unit service valve closed 2. Outdoor PMV error 3. TD sensor error 4. Refrigerant shortage, clogging of refrigerant circuit 5. 4-way valve error 6. SV4 circuit leakage, misinstallation 7. SV5 circuit leakage 8. SV6 circuit clogging 9. Mispiping of discharge gas/suction gas pipes 10. (Cooling/Heating) Flow selector unit error



Check Code	Check Code Name	Cause of Operation
[P17] (SHRM-i only) **[P18] (SMMS-i opnly)**	**Discharge tempe rature TD3 error** **(SMMS-i, SHRM-i only)**	1. Outdoor unit service valve closed 2. Outdoor PMV1, 2 error 3. TD sensor error 4. Refrigerant shortage, clogging inside of pipe 5. 4-way valve error 6. SV4 circuit leakage, misinstallation 7. SV5 circuit clogging 8. SV6 circuit clogging **(SHRM-i only)** 9. Incorrect piping of discharge gas/suction gas pipe 10. Cooling/Heating FS unit error

Are service valves of outdoor unit discharge gas pipe, suction gas pipe, liquid pipe fully opened?
NO → Open service valves fully.
YES

*Connectors:
PMV1: CN300
PMV2: CN301
PMV4: CN303

Are outdoor PMV,
1. Connector connection
2. Wiring, 3. Coil, 4. Valve body,
5. Outdoor P.C. board normal?
NO → Repair outdoor PMV.
YES

Is resistance characteristics of TD3 sensor normal?
NO → Replace TD3 sensor.
YES

* Refer to outdoor unit temperature sensor characteristics.

Wasn't discharge gas bypass to suction side by 4-way valve?
NO → Check 4-way valve.
YES

SV4 circuit
1. Are SV41, SV42 and SV43 valve coils installed correctly?
2. Is SV42 circuit sealed correctly (no leakage)?
NO → Correct instllation of valve coil. Replace SV43 valve.
YES

Check leakage of SV5 circuit.
NO → Replace defective parts.
YES

Check clogging of SV6 circuit.
NO → Replace defective parts.
YES

(SHRM-i only)

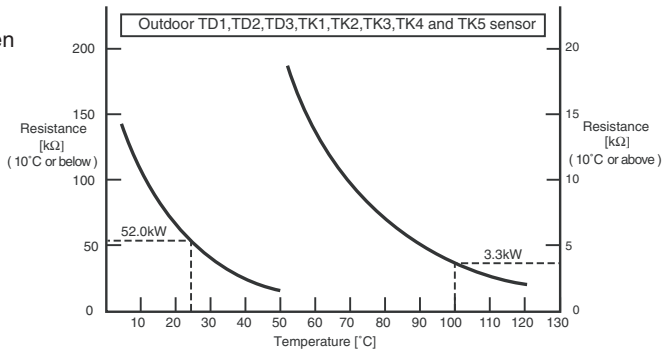
Check incorrect piping of discharge gas/ suction gas main pipes.
NO → Correct piping as standard.
YES

Is the flow selector unit normal?
NO → Repair Cooling/Heating FS unit
YES

Isn't an indoor unit of different refrigerant line connected?
NO → Correct wiring as standard.
YES

They are refrigerant shortage, clogging and pipe breakage.

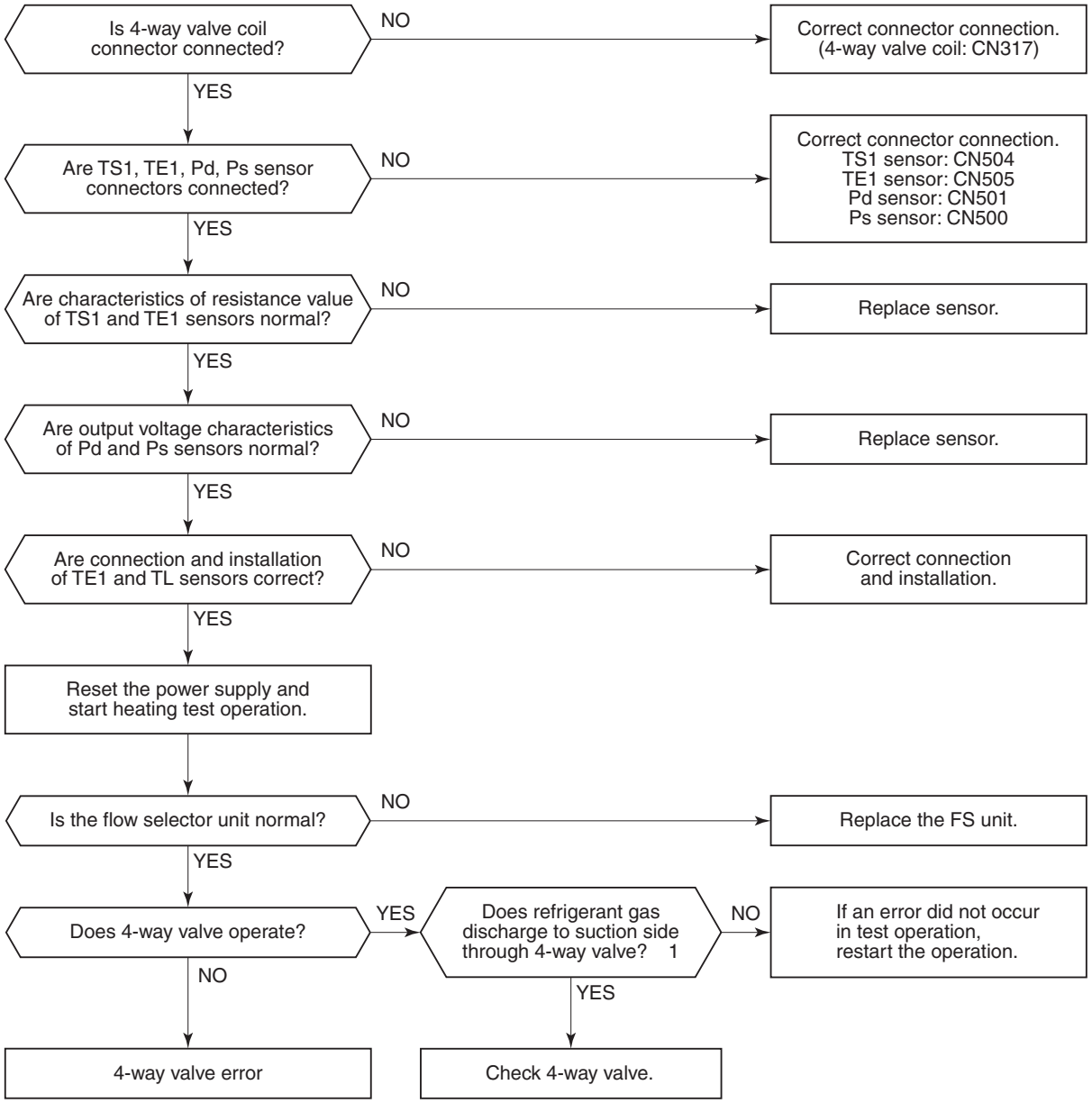
(That is, confirm there is no pipe breakage and then recharge refrigerant.)



Temperature [˚C]	Resistance [kΩ]
0	159.2
5	124.5
10	98.1
15	77.8
20	62.1
25	49.9
30	40.3
35	32.7
40	26.7
45	21.9
50	18.1
55	15.0
60	12.5
65	10.4
70	8.8
75	7.4
80	6.3
85	5.3
90	4.5
95	3.9
100	3.4
105	2.9
110	2.5
115	2.2
120	1.9

Check Code	Check Code Name	Cause of Operation
[P19] / [08] (TCC-L / AI-NET)	**4-way valve operation error** **(SMMS, SHRM only)**	1. 4-way valve error 2. TS1 sensor/TE1 sensor error 3. Pd sensor/Ps sensor error 4. TE sensor/TL sensor misconnection

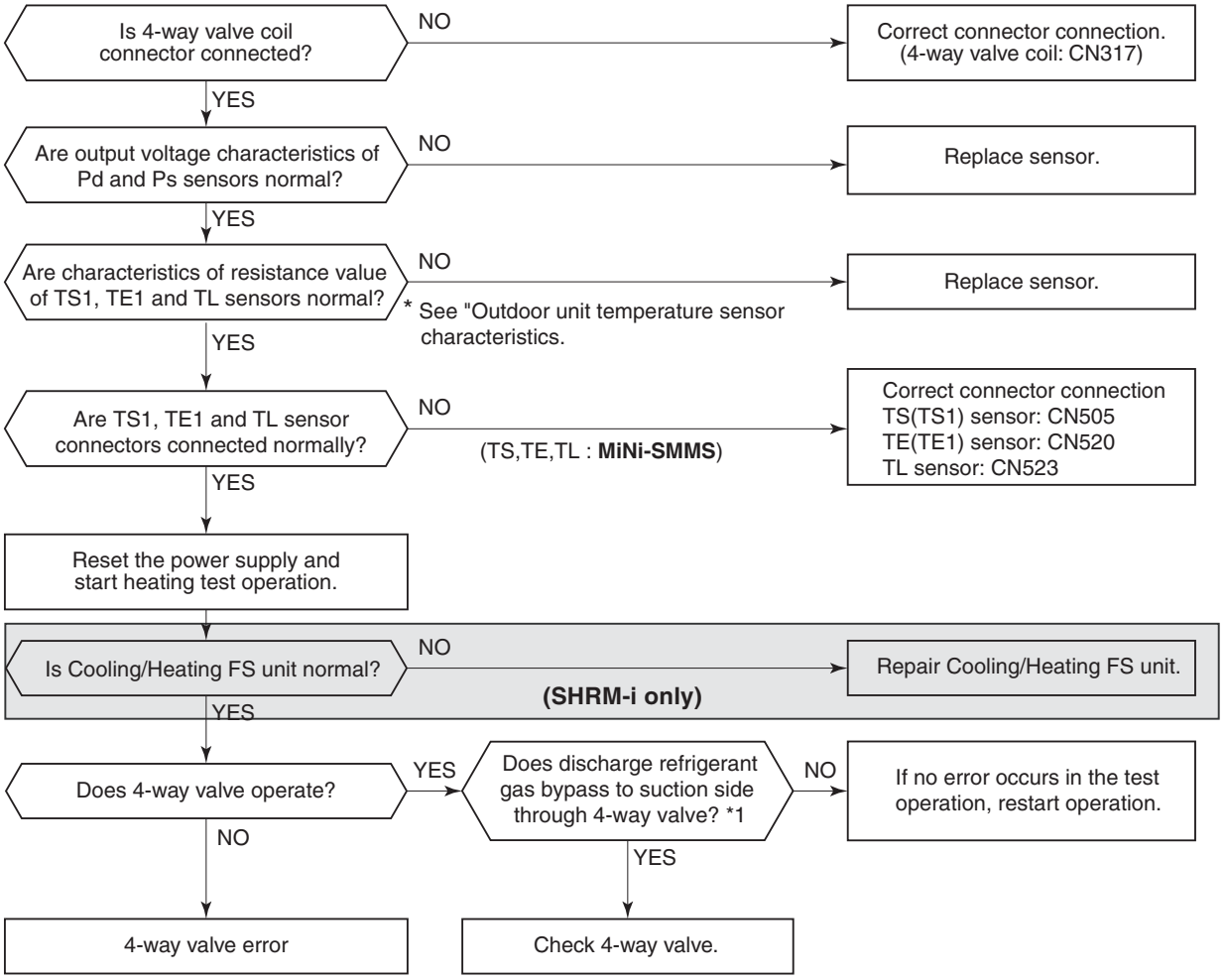
Sub-code: Detected outdoor unit No.



*1 Check TS and TE temperature of the outdoor unit which compressors is operated.
(I/F) SW01=[1], SW02=[6], SW03=[2] → TS sensor temperature
SW01=[1], SW02=[7], SW03=[2] → TE sensor temperature
Judgment criteria
TE sensor: Normal if TE ≤ 20 ˚C except summer season (Outside temp 20 ˚C or lower)
TS sensor: Normal if TS ≤ 40 ˚C except summer season (Outside temp 20 ˚C or lower)

Check Code	Check Code Name	Cause of Operation
[P19]	4-way valve operation error (SMMS, SHRM not use)	1. 4-way valve error 2. TS1 sensor/TE1 sensor error 3. Pd sensor/Ps sensor error 4. TE sensor/TL sensor misconnection 5. SV14 valve circuit operation error (Coil wiring falls out)

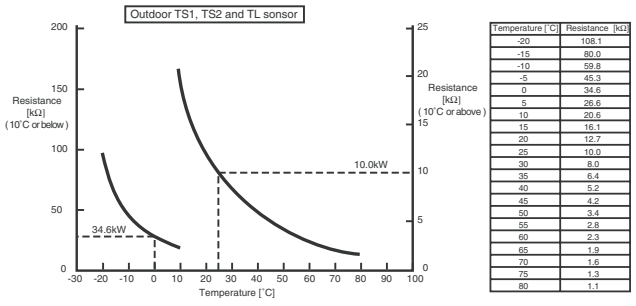
Sub-code: Detected outdoor unit No.



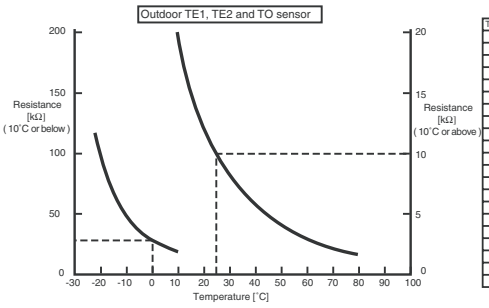
*1 Check TS1 and TE1 temperature of the outdoor unit which is running.
(I/F) SW01=[1], SW02=[7], SW03=[2] → TS sensor temperature
SW01=[1], SW02=[9], SW03=[2] → TE sensor temperature

<Judgment criteria>

TE1 sensor: Normal if TE1 is 30˚C or less in the seasons except summer (Outside temp 20˚C or lower)
TS1 sensor: Normal if TS is 50˚C or less in the seasons except summer (Outside temp 20˚C or lower)

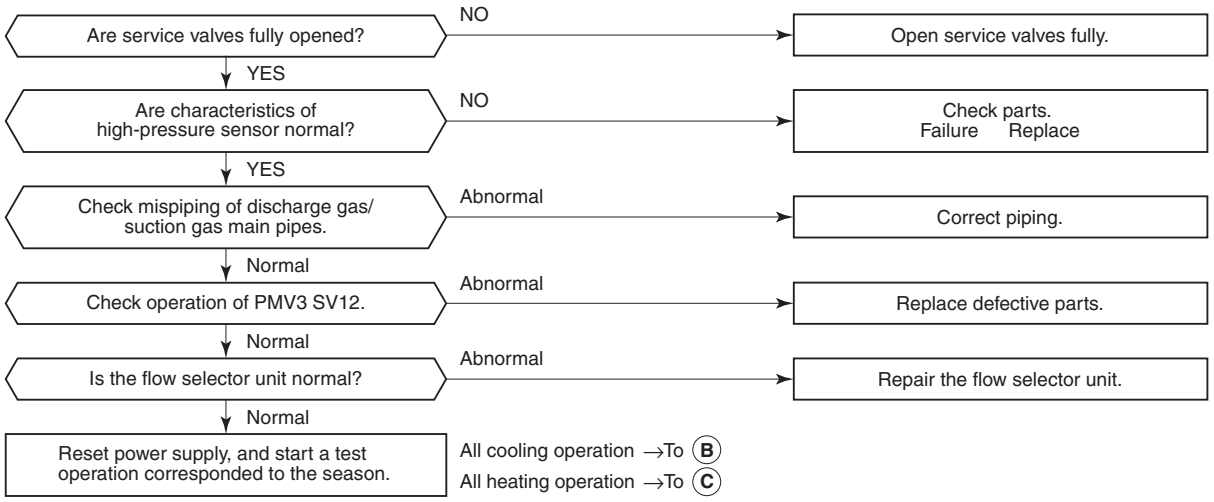


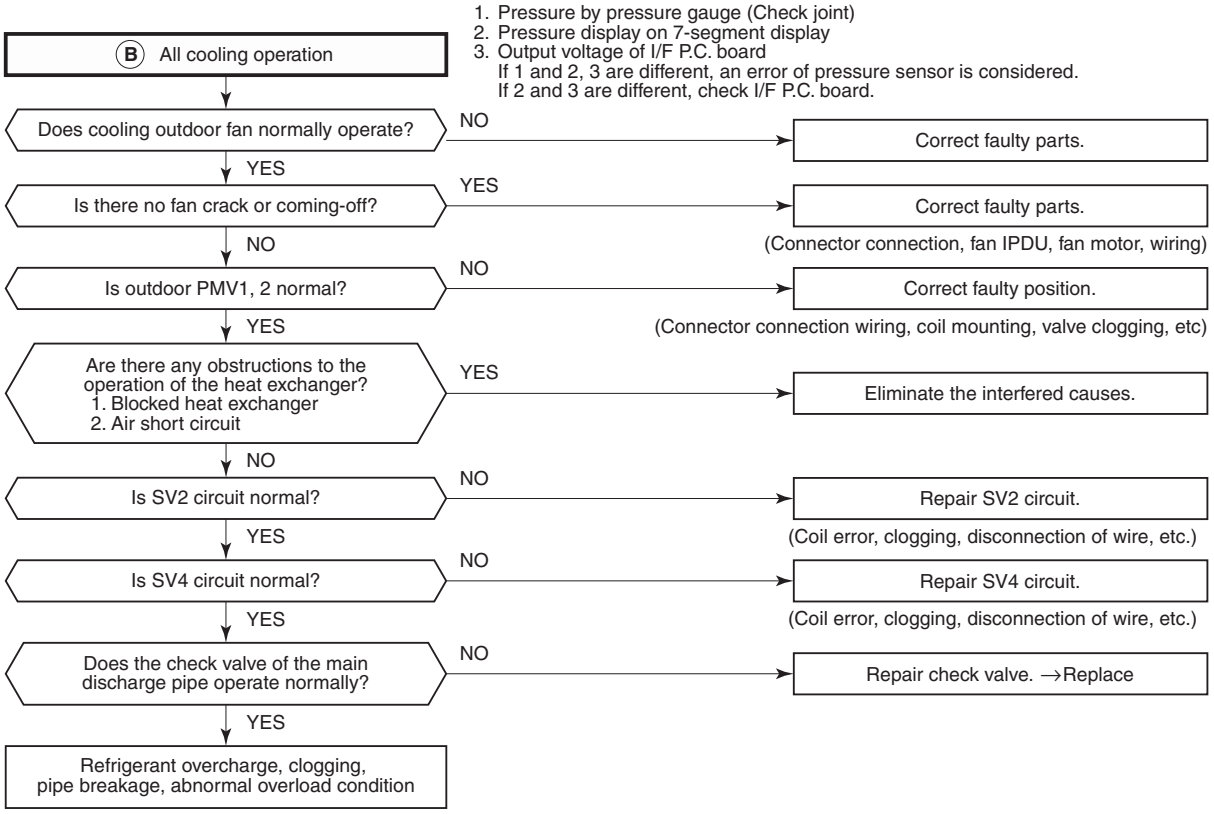
Temperature [˚C]	Resistance [kΩ]
-20	108.1
-15	80.0
-10	59.8
-5	45.3
0	34.6
5	26.6
10	20.6
15	16.1
20	12.7
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.4
55	2.8
60	2.3
65	1.9
70	1.6
75	1.3
80	1.1

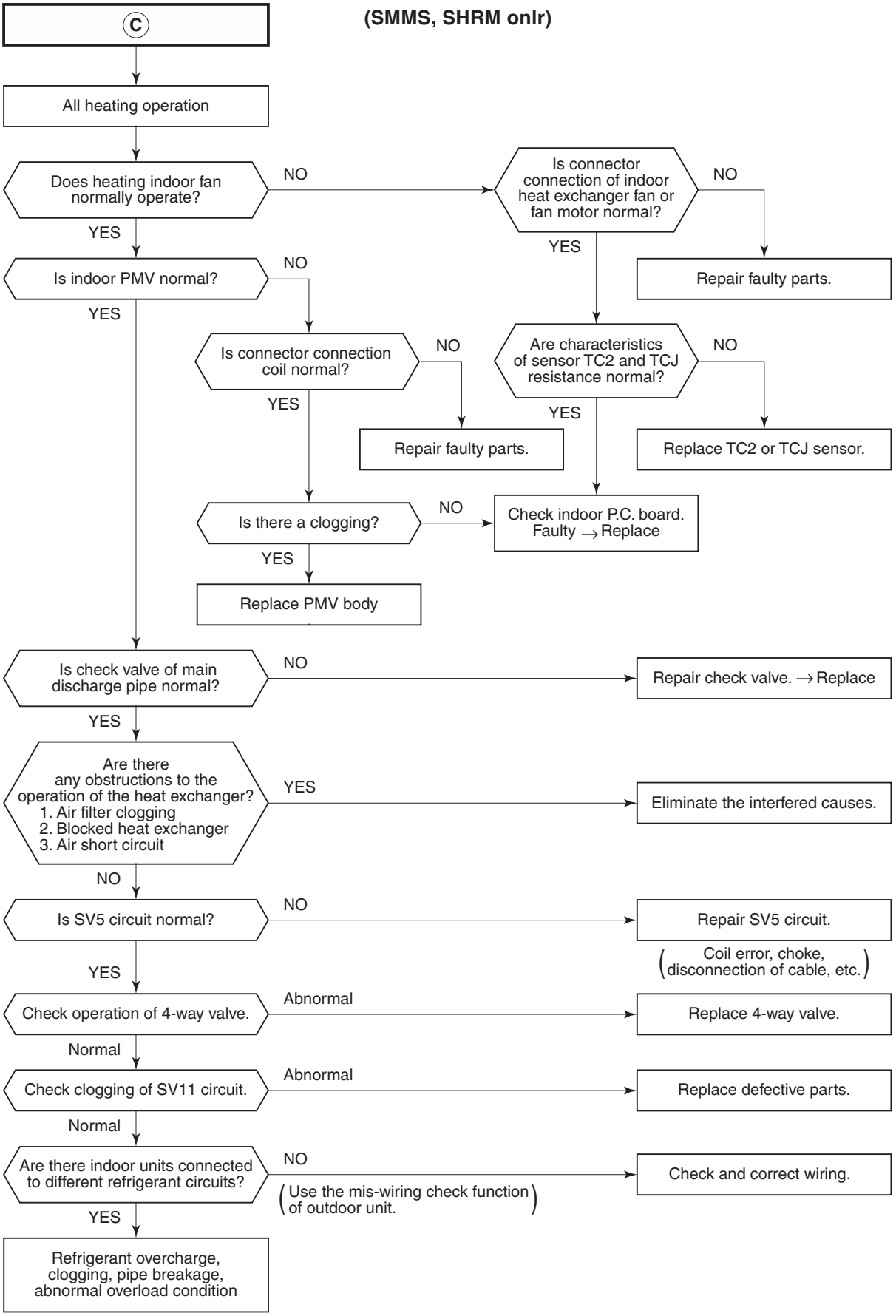


Temperature [˚C]	Resistance [kΩ]
-20	102.9
-15	76.6
-10	57.8
-5	44.0
0	33.8
5	26.1
10	20.4
15	16.0
20	13.0
25	10.0
30	8.0
35	6.4
40	5.2
45	4.2
50	3.5
55	2.8
60	2.3
65	1.9
70	1.6
75	1.4
80	1.1

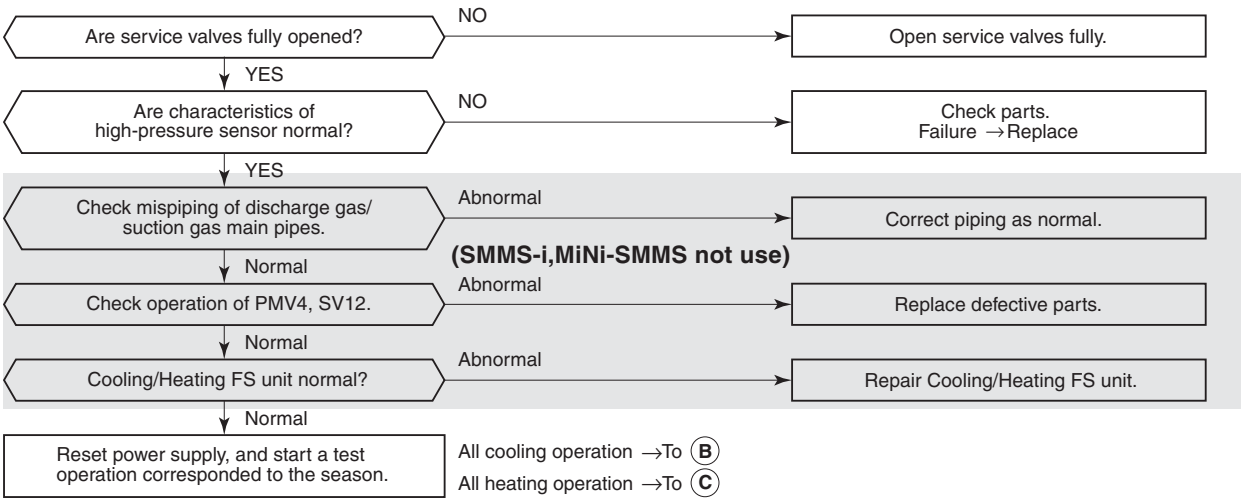
Check Code	Check Code Name	Cause of Operation
[P20] / [22] (TCC-L / AI-NET)	**High-pressure protective operation** **(SMMS, SHRM only)**	1. Pd sensor error 2. Service valve closed. 3. Indoor/outdoor fan error 4. Indoor/outdoor PMV clogging 5. Indoor/outdoor heat exchanger clogging 6. SV2 circuit error 7. SV4 circuit error 8. SV5 circuit error 9. Outdoor I/F P.C. board error 10. Operation error of check valve of main discharge pipe 11. Refrigerant overcharge

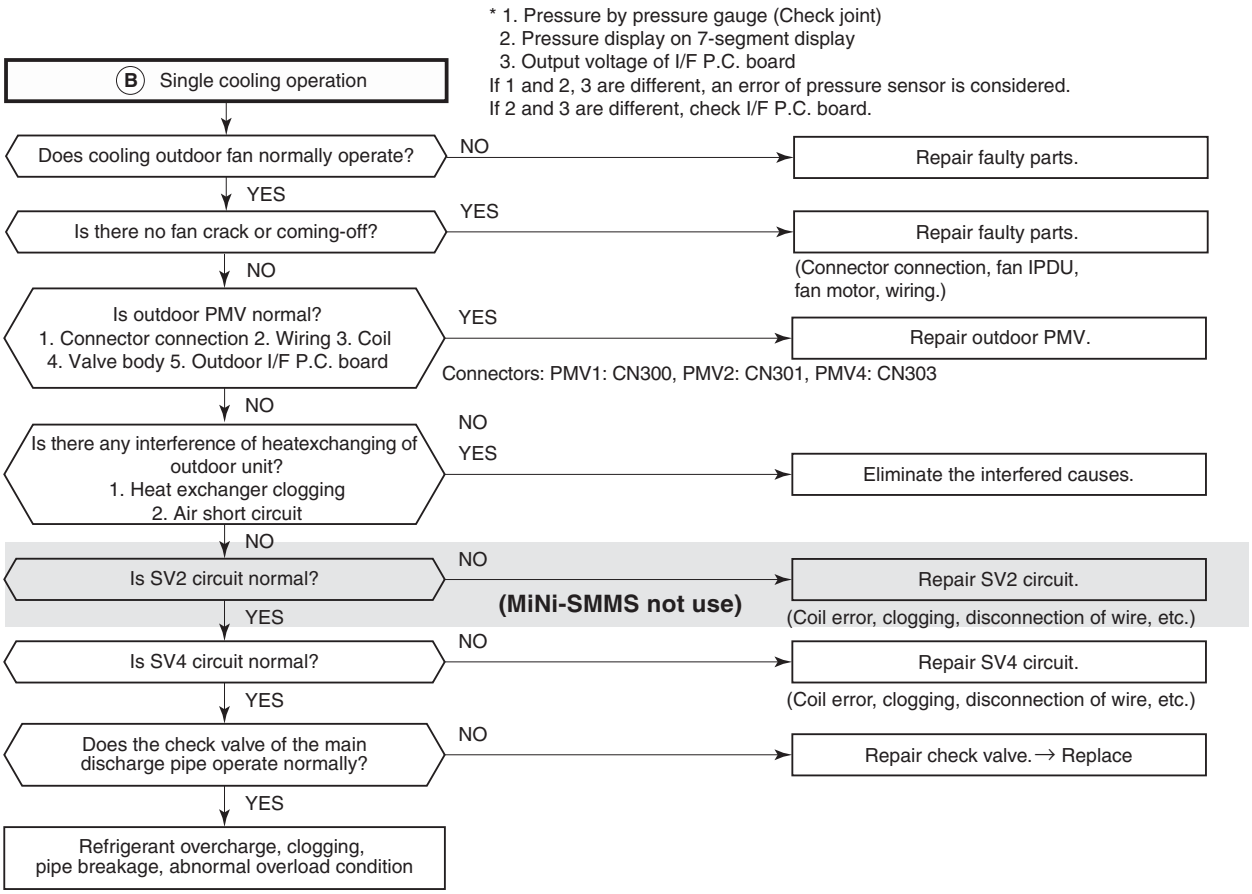


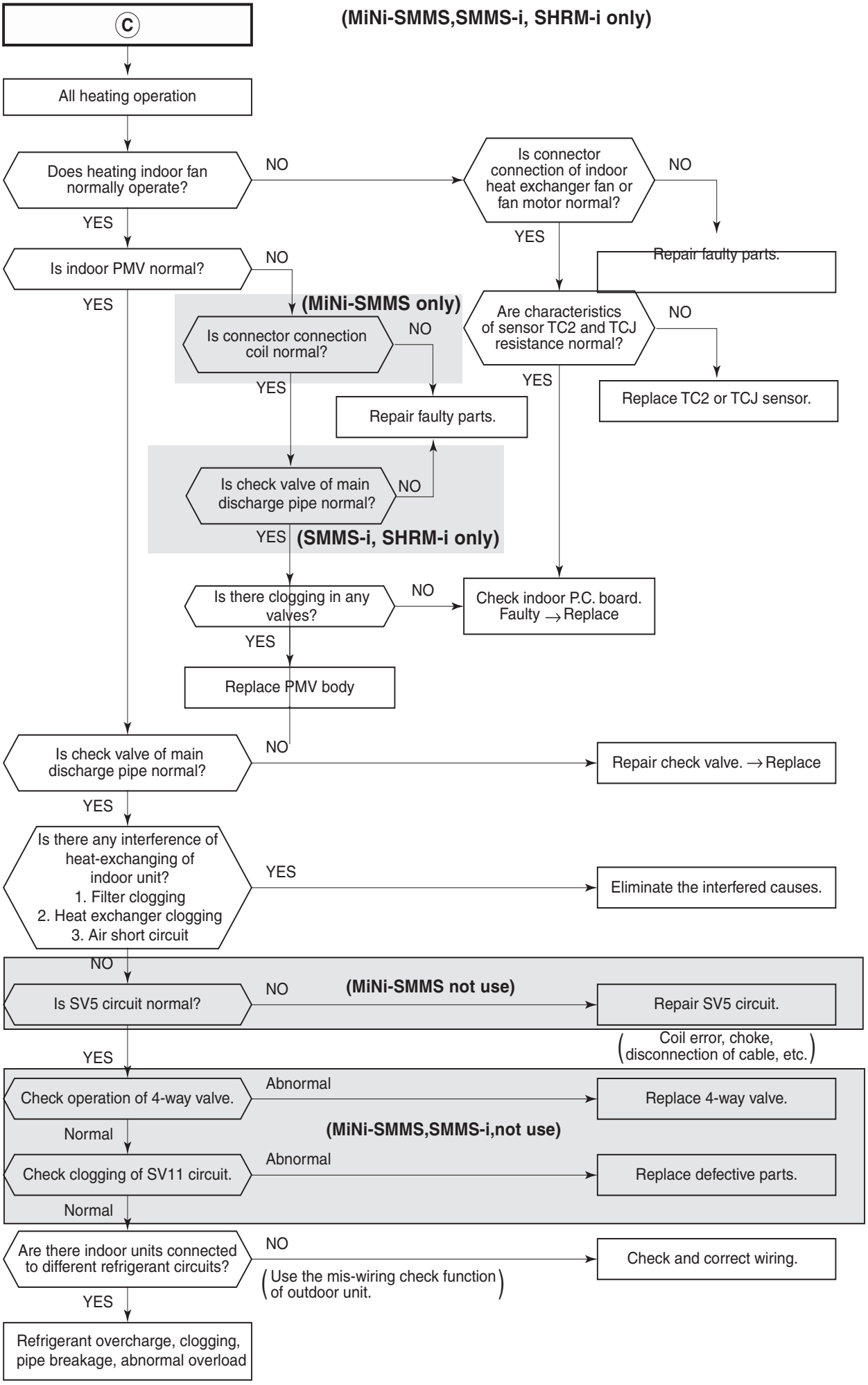



C
(SMMS, SHRM onIr)
All heating operation
Does heating indoor fan normally operate?
NO
Is connector connection of indoor heat exchanger fan or fan motor normal?
NO
YES
Repair faulty parts.
Is indoor PMV normal?
NO
YES
Is connector connection coil normal?
NO
YES
Repair faulty parts.
Are characteristics of sensor TC2 and TCJ resistance normal?
NO
YES
Replace TC2 or TCJ sensor.
Is there a clogging?
NO
Check indoor P.C. board. Faulty → Replace
YES
Replace PMV body
Is check valve of main discharge pipe normal?
NO
Repair check valve. → Replace
YES
Are there any obstructions to the operation of the heat exchanger?
1. Air filter clogging
2. Blocked heat exchanger
3. Air short circuit
YES
Eliminate the interfered causes.
NO
Is SV5 circuit normal?
NO
Repair SV5 circuit.
(Coil error, choke, disconnection of cable, etc.)
YES
Check operation of 4-way valve.
Abnormal
Replace 4-way valve.
Normal
Check clogging of SV11 circuit.
Abnormal
Replace defective parts.
Normal
Are there indoor units connected to different refrigerant circuits?
NO
(Use the mis-wiring check function of outdoor unit.)
Check and correct wiring.
YES
Refrigerant overcharge, clogging, pipe breakage, abnormal overload condition

Check Code	Check Code Name	Cause of Operation
[P20] / [22] (TCC-L / AI-NET)	**High-pressure protective operation** **(SMMS-i, SHRM-i, MiNi-SMMS only)**	1. Pd sensor error 2. Service valve closed. 3. Indoor/outdoor fan error 4. Indoor/outdoor PMV clogging 5. Indoor/outdoor heat exchanger clogging 6. SV2 circuit error 7. SV4 circuit error 8. SV5 circuit error 9. Outdoor I/F P.C. board error 10. Operation error of check valve of main discharge pipe 11. Refrigerant overcharge



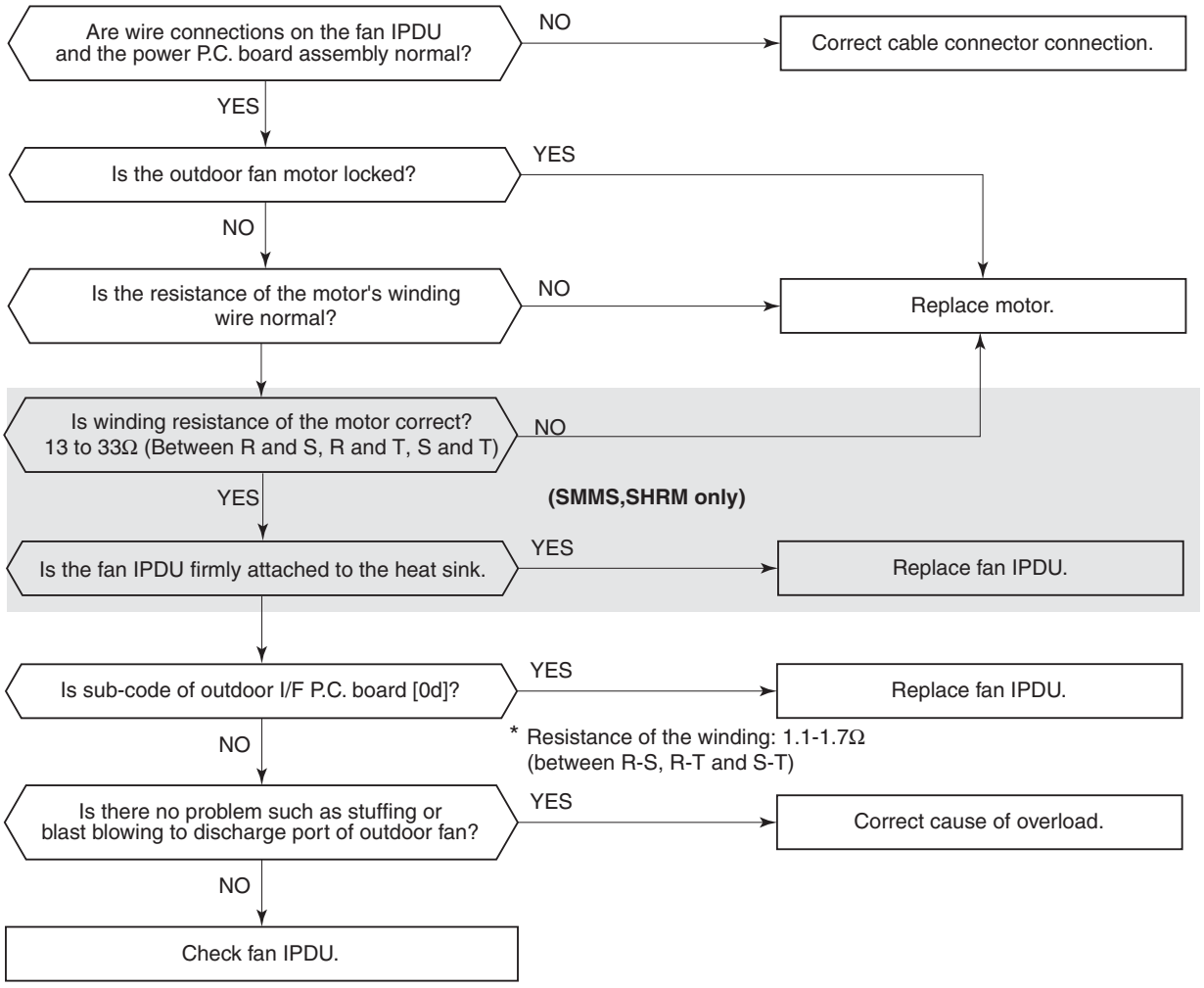



C
(MiNi-SMMS,SMMS-i, SHRM-i only)
All heating operation
Does heating indoor fan normally operate?
NO
Is connector connection of indoor heat exchanger fan or fan motor normal?
NO
YES
Repair faulty parts.
Is indoor PMV normal?
NO
YES
(MiNi-SMMS only)
Are characteristics of sensor TC2 and TCJ resistance normal?
NO
Is connector connection coil normal?
NO
YES
YES
Replace TC2 or TCJ sensor.
Repair faulty parts.
Is check valve of main discharge pipe normal?
NO
YES (SMMS-i, SHRM-i only)
Is there clogging in any valves?
NO
Check indoor P.C. board. Faulty → Replace
YES
Replace PMV body
Is check valve of main discharge pipe normal?
NO
Repair check valve. → Replace
YES
Is there any interference of heat-exchanging of indoor unit?
1. Filter clogging
2. Heat exchanger clogging
3. Air short circuit
YES
Eliminate the interfered causes.
NO
Is SV5 circuit normal?
NO
(MiNi-SMMS not use)
Repair SV5 circuit.
(Coil error, choke, disconnection of cable, etc.)
YES
Check operation of 4-way valve.
Abnormal
Replace 4-way valve.
Normal
(MiNi-SMMS,SMMS-i,not use)
Check clogging of SV11 circuit.
Abnormal
Replace defective parts.
Normal
Are there indoor units connected to different refrigerant circuits?
NO
(Use the mis-wiring check function of outdoor unit.)
Check and correct wiring.
YES
Refrigerant overcharge, clogging, pipe breakage, abnormal overload

Check Code	Check Code Name	Cause of Operation
[P22] / [1A] (TCC-L / AI-NET)	**Outdoor fan IPDU error**	1. Fan lock 2. Fan IPDU P.C. board error 3. Overload 4. External cause such as blast

Sub-code:
0 ∗ : IGBT short circuit
1 ∗ : Position detect circuit error
3 ∗ : Motor lock error
4 ∗ : Motor current error detected
C∗ : TH sensor error (Heat sink overheat)
D∗ : TH sensor error
E∗ : Vdc error

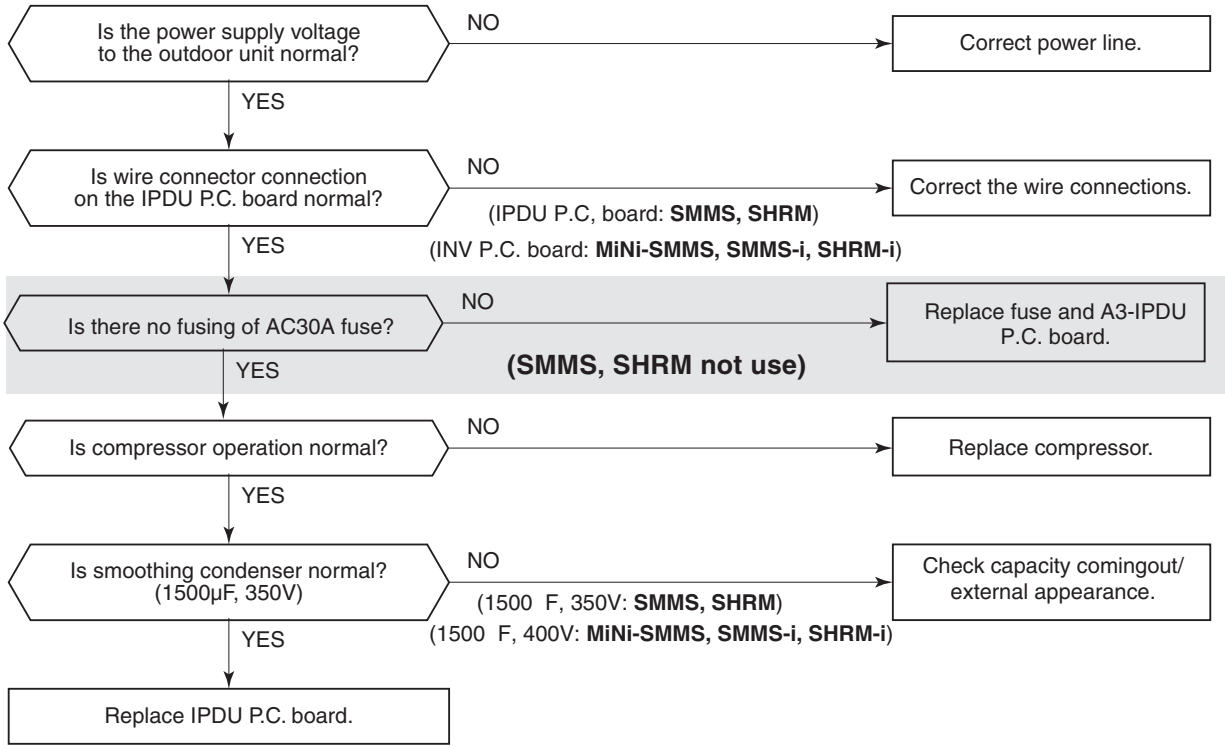
(Ignore the indication (0-F) on "∗" digit.): **MiNi-SMMS, SMMS-i, SHRM-i only**



Check Code	Check Code Name	Cause of Operation
[P26] / [14] (TCC-L / AI-NET)	**G-Tr short-circuit protection error**	1. Outdoor unit power error 2. IPDU error/Wire connection error 3. Compressor error 4. IPDU P.C. board error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side **(SMMS,SHRM)**

Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side (**SMMS-i, SHRM-i**)

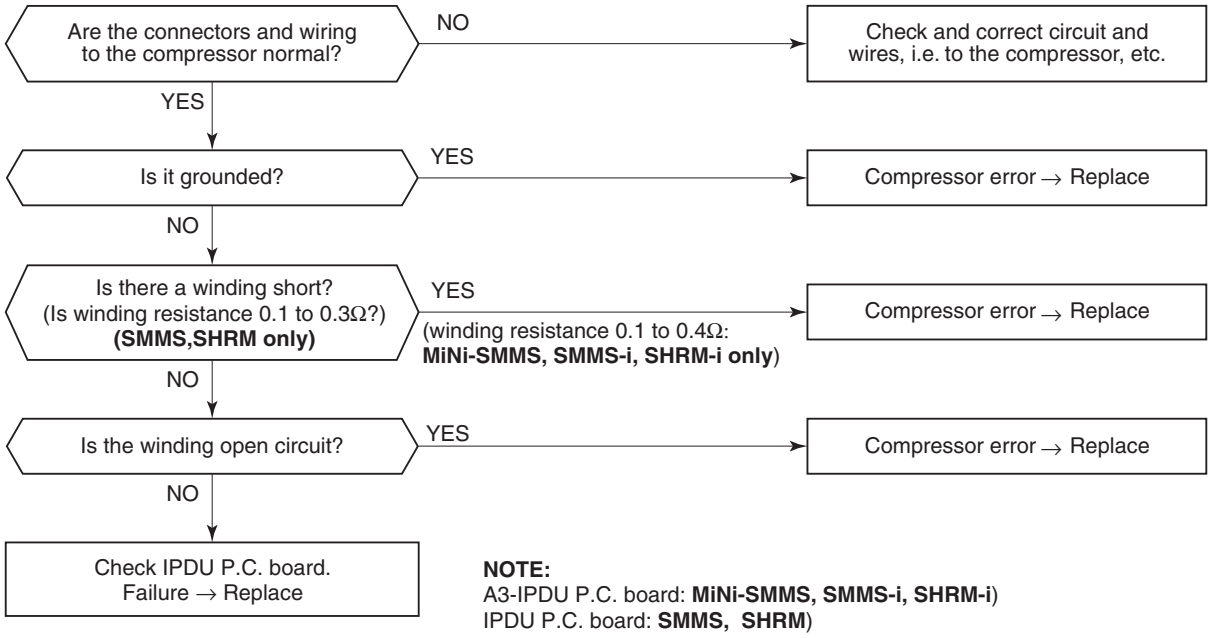


NOTE:
A3-IPDU P.C. board: **MiNi-SMMS, SMMS-i, SHRM-i**)
IPDU P.C. board: **SMMS, SHRM**)

Check Code	Check Code Name	Cause of Operation
[P29] / [16] (TCC-L / AI-NET)	**Compressor position detective circuit error**	1. Wire connection error. 2. Compressor error 3. IPDU P.C. board error

Sub-code: 01: Compressor 1 side 02: Compressor 2 side (**SMMS,SHRM only**)

Sub-code: 01: Compressor 1 side 02: Compressor 2 side 03: Compressor 3 side (**MiNi-SMMS,SMMS-i, SHRM-i only**)

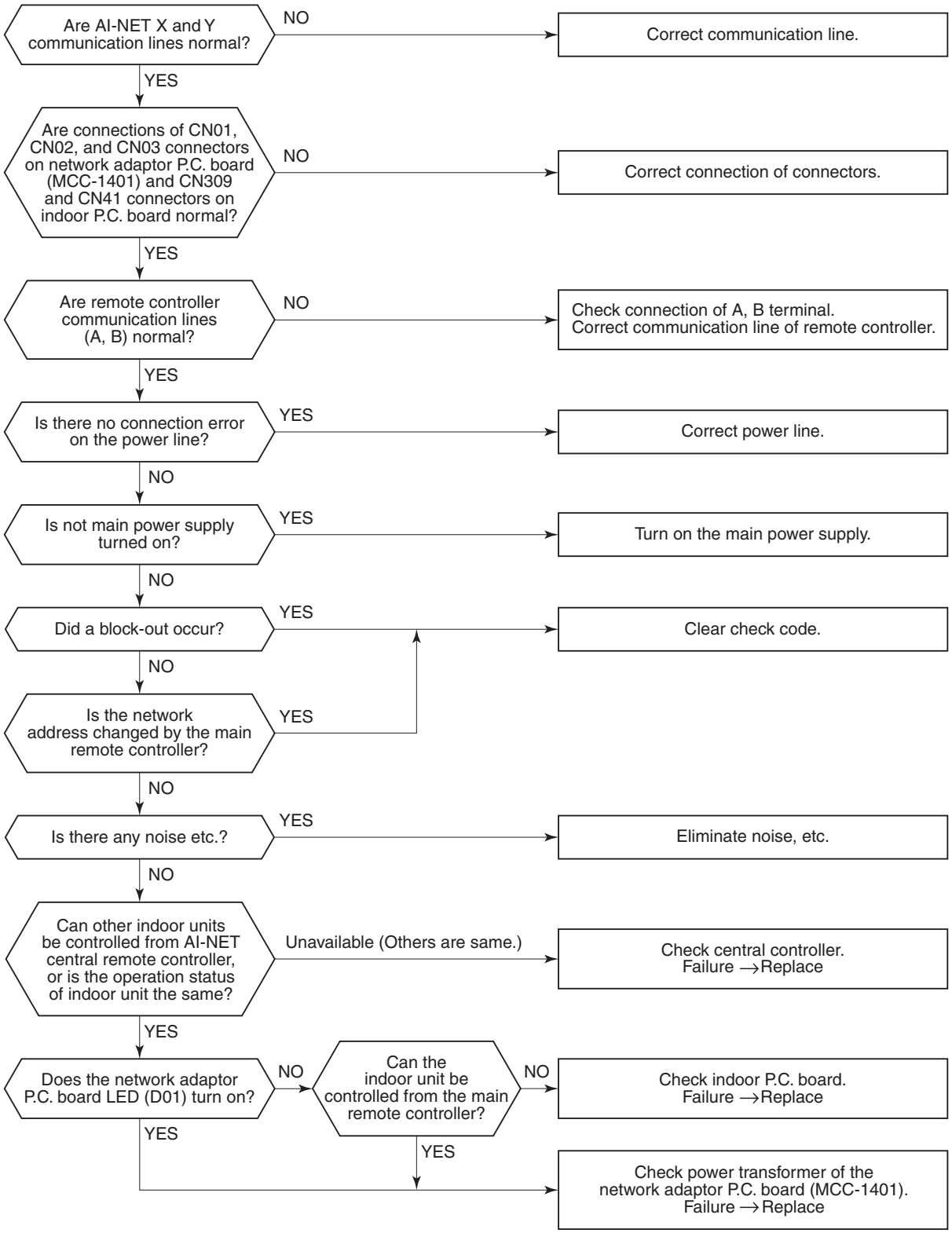


NOTE:
A3-IPDU P.C. board: **MiNi-SMMS, SMMS-i, SHRM-i**)
IPDU P.C. board: **SMMS, SHRM**)

Check Code	Check Code Name	Cause of Operation
[P31] / [47] (TCC-L / AI-NET)	**Other indoor error (Group follower unit error)**	Other indoor unit in the group has a error.

When the header unit of the group detects [E03, L03, L07, L08 error], the follower unit(s) in the group display [P31] error and stop. There are no check code displays or alarm record on the main remote controller.

Check Code	Check Code Name	Cause of Operation
[–] / [97] (TCC-L / AI-NET)	**AI-NET communication line error** **(SMMS, SHRM only)**	AI-NET communication line error



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