

4. SERVICE PROCEDURES

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4-1 Troubleshooting

This section explains:

- ☐ What the LED codes mean
- ☐ What the remote control unit display screen messages mean
- ☐ How to use the flow charts to find and solve problems
- ☐ How to use the self-diagnostic tests to find parts that aren't working right

This unit is made to be trouble free, and not need much service. However, with time, moving parts wear out, electronic components break down, and sometimes misuse damages the unit.

The purpose of this section is to help you when the unit is not working properly.

Sometimes your experience will tell you right away where to look for a problem, and when you find it you will know how to fix it at once.

Often, however, all you have is a *symptom* like "poor cooling" or "outside fan doesn't come on." Now you must find out the cause of the problem, and then how to fix it. This section provides several ways to help you go from the symptom to the cause and then the solution.

The first chart, **General Troubleshooting Flow Chart** is divided into two sections: Poor heating and Poor Cooling. Under each heading you will find the main things that can go wrong and cause either of these problems. Sometimes you can start with this chart and find the problem right away, but often you will come here for more suggestions after you have looked at the error code on the remote control unit display. This chart gives you the "big picture" of problems and solutions.

The other main tool we explain here is the use of the **Alarm Messages**. When a certain part fails or a safety device has shut the unit down, any alpha-numeric codes appears on the display to guide you to the problem.

By understanding the code you can often go right to the problem area and then, with this manual and your knowledge of air conditioning, find the solution.

(1)-1 Check before and after Troubleshooting (SPW-C253GH5)

Many problems may happen because of wiring or power supply problems, so you should check these areas first. Problems here can cause false results in some of the other tests, and so should be corrected first.

①. Check power supply wiring

- ☐ Check the power supply wires are correctly connected between terminal No. 1 & 2 on the 3P terminal plates in the indoor unit and the outdoor unit.

②. Check inter-unit wiring

- ☐ Check that inter-unit control wiring (DC low voltage) is correctly connected between the indoor unit and outdoor unit.

Power Supply: 50 Hz, single-phase, 220-230-240 V

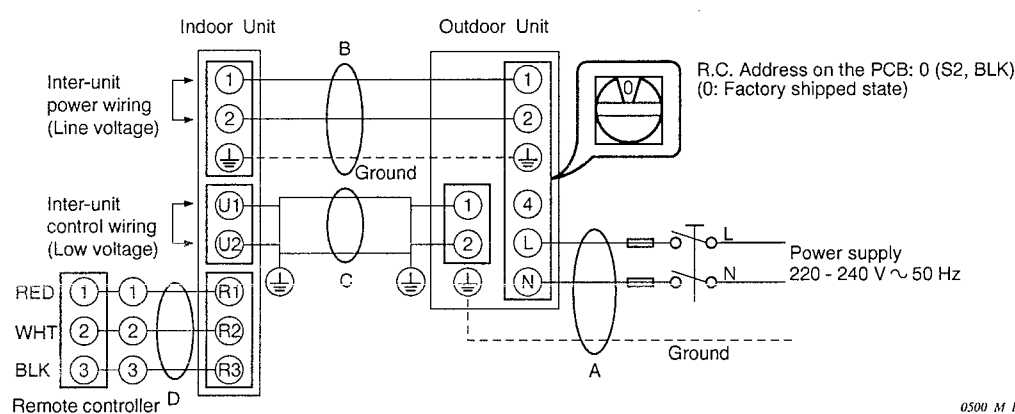


Fig. 28

③. Check power supply

- ☐ Check that voltage is within the specified range ($\pm 10\%$ of the rating).
- ☐ Check that power is being supplied.



WARNING

If the following troubleshooting must be done with power being supplied, be careful not to touch any uninsulated live part that can cause **ELECTRIC SHOCK**.

④. Check the lead wires and connectors in indoor and outdoor units.

- ☐ Check that the sheath of lead wires is not damaged.
- ☐ Check that the lead wires are firmly connected at the terminal plate.
- ☐ Check that the wiring is correct.

(1)-2 Check before and after Troubleshooting (SPW-C253GH8, C363GH8, C483GH8)

Many problems may happen because of wiring or power supply problems, so you should check these areas first. Problems here can cause false results in some of the other tests, and so should be corrected first.

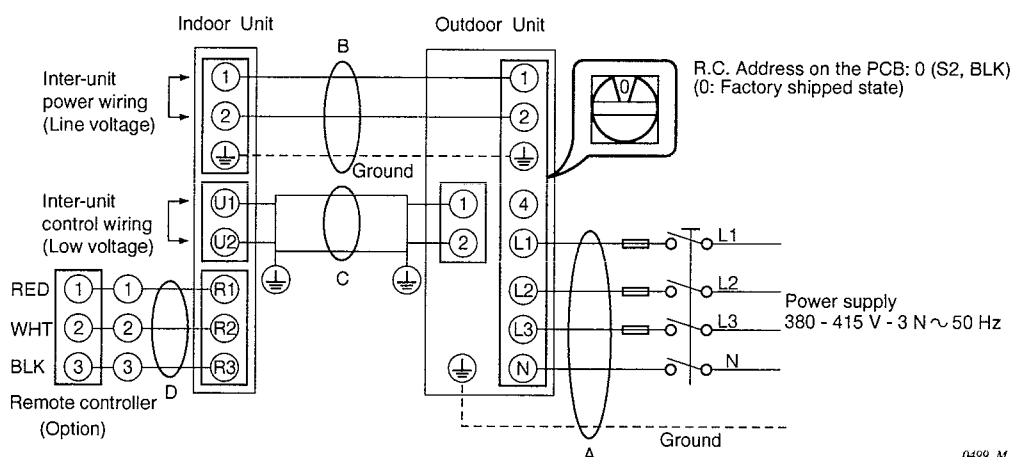
①. Check power supply wiring

- ☐ Check that power supply wires are correctly connected to terminal No.5 through No.8 on the 8P terminal plate in the outdoor unit.
- ☐ Check the power supply wires are correctly connected between terminal No.1 and 2 on the 3P terminal plate in the indoor unit and terminal No.1 and 2 on the 8P terminal plate in the outdoor unit.

②. Check inter-unit wiring

- ☐ Check that inter-unit control wiring (DC low voltage) is correctly connected between the indoor unit and outdoor unit.

Power Supply: 50 Hz, 3-phase, 380-400-415 V



0499_M_1

Fig. 29

③. Check power supply

- ☐ Check that voltage is within the specified range ($\pm 10\%$ of the rating).
- ☐ Check that power is being supplied.



WARNING

If the following troubleshooting must be done with power being supplied, be careful not to touch any uninsulated live part that can cause ELECTRIC SHOCK.

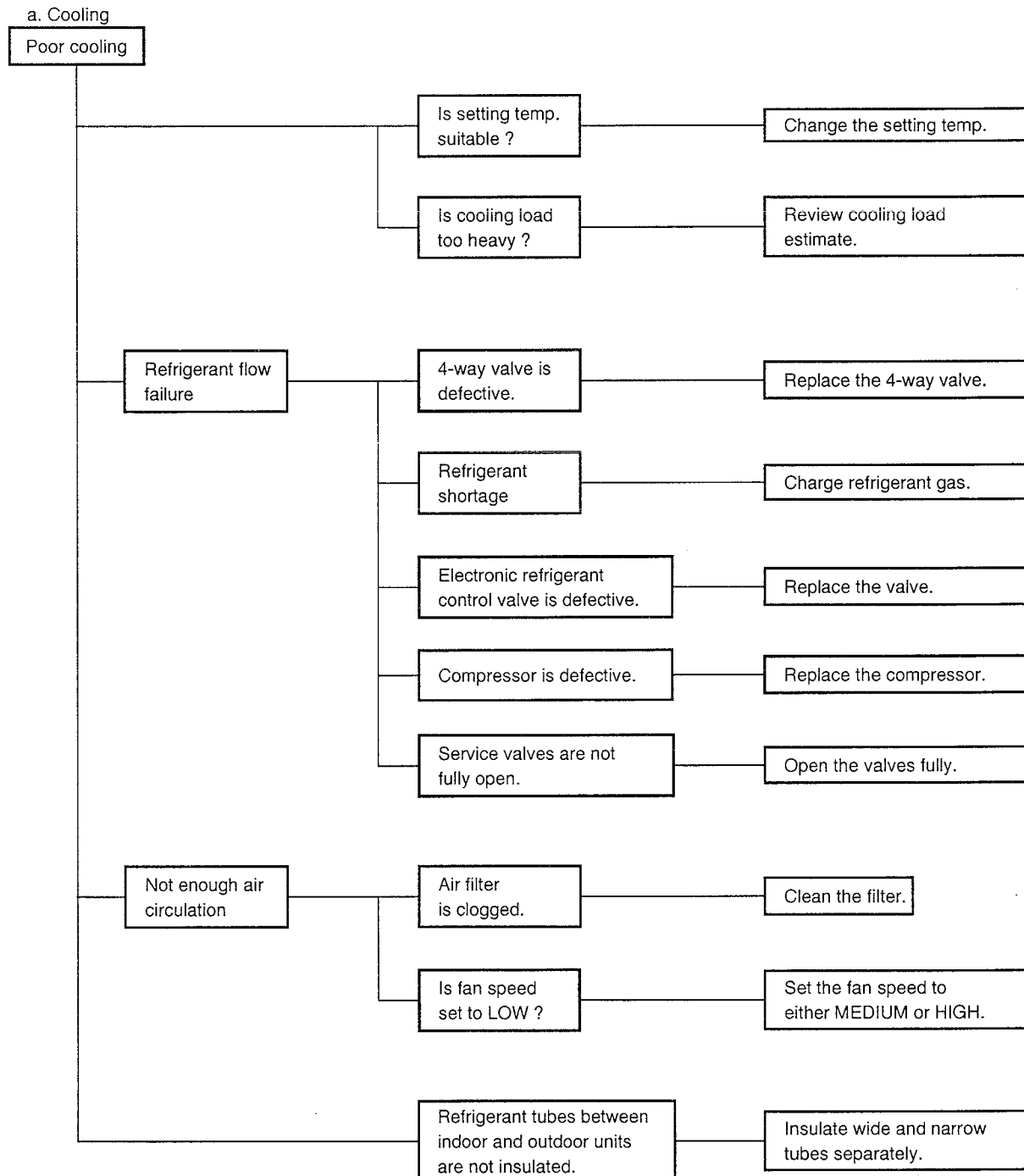
④. Check the lead wires and connectors in indoor and outdoor units.

- ☐ Check that the sheath of lead wires is not damaged.
- ☐ Check that the lead wires are firmly connected at the terminal plate.
- ☐ Check that the wiring is correct.

(2) General Troubleshooting Flow Chart: Diagnosis and Remedy

When you have found a major problem, such as refrigerant not flowing in the system or reduced air circulation, come to this section and find the box listing the problem. Connected to the box are the main causes of the problem and their remedies. To find out which malfunction is happening in your case, check the remote controller for an Alarm Message, and follow the steps in section 3).

(A) Cooling

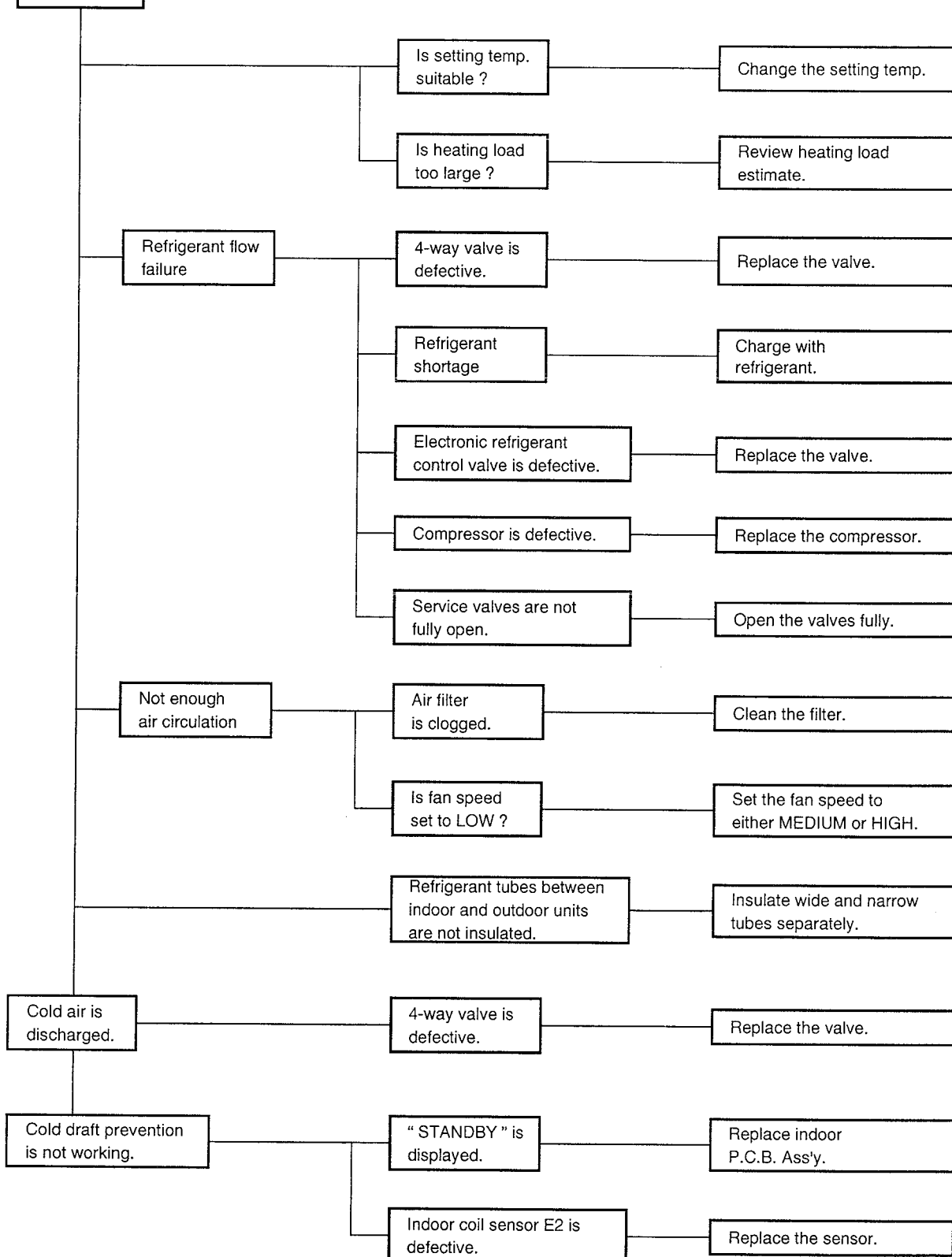


0458_M_I

(B) Heating

b. Heating

Poor heating



0459_M 1

(3) Meanings of alarm messages

If an error occurred in the air conditioner, the error condition is presented by indicating the error code in the wired remote controller display or by the combination of lamp statuses for operation, timer and heat stand-by (OFF status and flashing status).

Possible causes of troubles			Wired remote controller display	Wireless remote controller display
Serial communication errors • Mis-setting	Remote controller is detecting unusual signal from indoor unit.	Error receiving of serial communications signal.	E01	Operation lamp flashes
		Error transmitting of serial communications signal.	E02	
	Indoor unit is detecting unusual signal from the remote controller or group control. (No serial communications signal)		E03	✱: Operation lamp
	Improper setting of indoor unit or remote controller.	Indoor unit address setting is duplicated.	E08	●: Timer lamp ●: Heat stand-by lamp
		Remote controller address (RCU.ADR) is duplicated.	E09	
	Indoor unit is detecting unusual signal from signal option.	Error transmitting of serial communications signal	E10	
		Error receiving of serial communications signal.	E11	
	Improper setting of indoor unit or remote controller.	When using flexible combination control, main indoor unit address setting is duplicated. (judged by outdoor unit.)	E14	
	Indoor unit is detecting unusual signal from outdoor unit.	Error receiving of serial communications signal.	E04	Heat stand-by lamp flashes
		Error transmitting of serial communications signal	E05	
	Outdoor unit is detecting unusual signal from indoor unit.	Error receiving of serial communications signal. (Confirmation error of unit numbers included)	E06	●: Operation lamp ●: Timer lamp ✱: Heat stand-by lamp
		Error transmitting of serial communications signal.	E07	
	Auto. address setting is not correct.	No. of judged indoor units or total capacity of indoor units is small.	E15	
		No. of judged indoor units or total capacity of indoor units is large.	E16	
	Indoor unit is detecting unusual signal from another indoor unit.	Error transmitting of serial communications signal	E17	
		Error receiving of serial communications signal.	E18	
Mis-setting	Improper setting of indoor unit or remote controller.	Indoor unit group address is not correct.	L01	Operation lamp and heat stand-by lamp flash at the same time. ✱: Operation lamp ●: Timer lamp ✱: Heat stand-by lamp
		Model setting of indoor unit is not matching the outdoor unit.	L02	
		When using group control, main indoor unit address setting is duplicated. (judged by indoor unit.)	L03	
		Outdoor unit address is duplicated.	L04	
		Improper wiring between indoor units. (There is a group connection wiring in case of individual control.)	L07	
		Indoor unit address (or group address) is not set.	L08	
		Capacity code of indoor unit is not set.	L09	
		Improper wiring of group control wiring.	L11	
		Indoor unit model setting is improper (capacity)	L13	
Improper wiring connections of ceiling panel.			P09	●: Operation lamp
Activation of protective device	Protective device in indoor unit is activated.	Thermal protector in indoor fan motor is activated.	P01	✱: Timer lamp ✱: Heat stand-by lamp
		Float switch is activated.	P10	
	Protective device in outdoor unit is activated.	Thermal protector in outdoor fan motor is activated. PC or AC Compressor thermal protector is activated. Power supply voltage is unusual. (The voltage is more than 260 V or less than 160 V between L and N phase.)	P02	Operation lamp and heat stand-by lamp flash alternately. ✱: Operation lamp ●: Timer lamp ✱: Heat stand-by lamp
		Discharge gas temperature of PC comp. is unusual.	P03	
		High pressure switch is activated.	P04	
		Negative phase or voltage drops.	P05	
		Other indoor unit is warning.	P31	

Possible causes of troubles			Wired remote controller display	Wireless remote controller display
• Thermistor failure	Indoor thermistor is either open or short.	Indoor coil temp. (E1 = TH2) cannot be detected.	F01	Operation lamp and heat stand-by lamp flash alternately.
		Indoor coil temp. (E2 = TH3) cannot be detected.	F02	
		Indoor room temperature cannot be detected.	F10	
	Outdoor thermistor is either open or short.	Discharge gas temp.A (PC compressor=TH0A) cannot be detected.	F04	✧: Operation lamp ✧: Timer lamp ●:Heat stand-by lamp
		Outdoor coil liquid temp. (C1 = TH0E) cannot be detected.	F06	
		Outdoor coil gas temp. (C2 = TH0C) cannot be detected.	F07	
		Scroll protection thermostat	F09	
• Non volatile memory IC (EEPROM) is abnormal (Indoor control panel)			F29	
• Fault with compressor and its circuit	Protective device for compressor is activated.	PC compressor motor is overloaded.	H01	●:Operation lamp ✧: Timer lamp ●:Heat stand-by lamp
		PC compressor motor is locked.	H02	
		Compressor current detection circuit is defective.	H03	
		Scroll proteiton thermostat	H04	
		No detection of scroll protection thermostat	H05	
		Low-pressure switch	H06	
		Power supply voltage between phases is unbalanced.	H17	
		Standard comp. contactor (Mg SW)is chattering.	H18	

☆: flashes

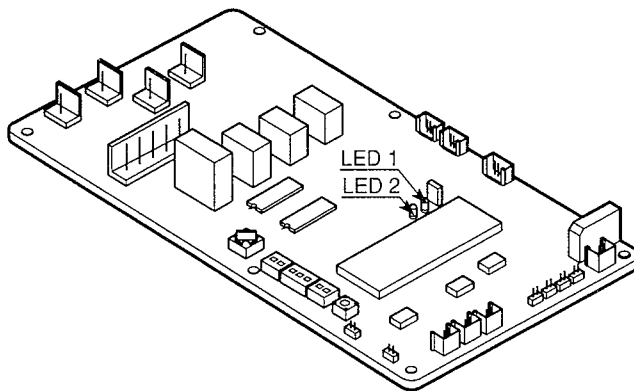
●: OFF

(4) LED Indication on the Outdoor Unit's P.C.B. Ass'y

If something goes wrong with the outdoor unit, **LED** lamps on the **outdoor P.C.B. Ass'y** light up to show the cause of the trouble, in addition to the Alarm message on the remote controller.

LED 2 on P.C. board	LED 1 on P.C. board	Remote controller	Possible cause of trouble
●	●	No message	Normal
●	○	E06, E07, L04	Outdoor unit serial communication signal is abnormal. Outdoor unit address is duplicated.
●	*	No message	Other outdoor units are performing auto address and detecting refrigerant shortage.
○	●	P02	FMo • CM thermal protection is in operation. Power supply voltage is abnormal.
○	○	P04, P05	High voltage SW activates Negative phase protector activates.
○	*	F04~F09	Sensor is abnormal. (Open or short)
*	●	H01, H02	Abnormal compressor current value is detected.
*	○	H04, H05	Scroll thermal protection failure is detected.
* Flash at the same time	*	E15, E16	Auto address failure
* Flash alternately	*	"SETTING" flashes.	Auto address is in operation.

NOTE ●: LED lamps OFF ○: LED lamps ON (lights up) *: LED lamps ON (flashes)



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Fig. 30

4



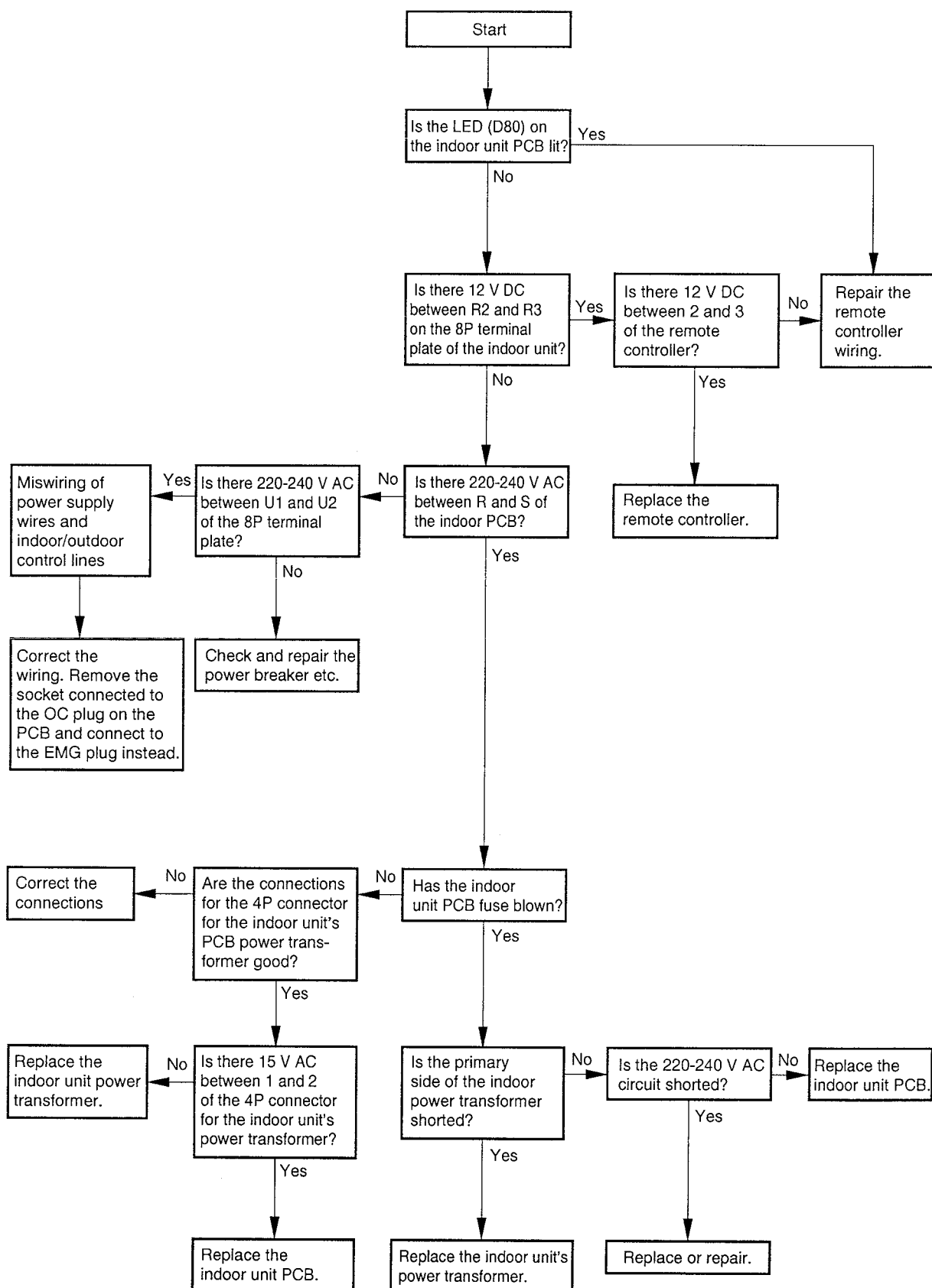
CAUTION

* REFRIGERANT SHORTAGE

Note particularly that a **shortage of refrigerant** is only shown by the **outdoor P.C.B. Ass'y LEDs** and the Alarm Message does not appear on the Indoor Remote Controller . The compressor keeps running even when the refrigerant is less, so when you find the LED indication on the **outdoor P.C.B. Ass'y**, stop the air conditioner immediately to avoid the compressor damage.

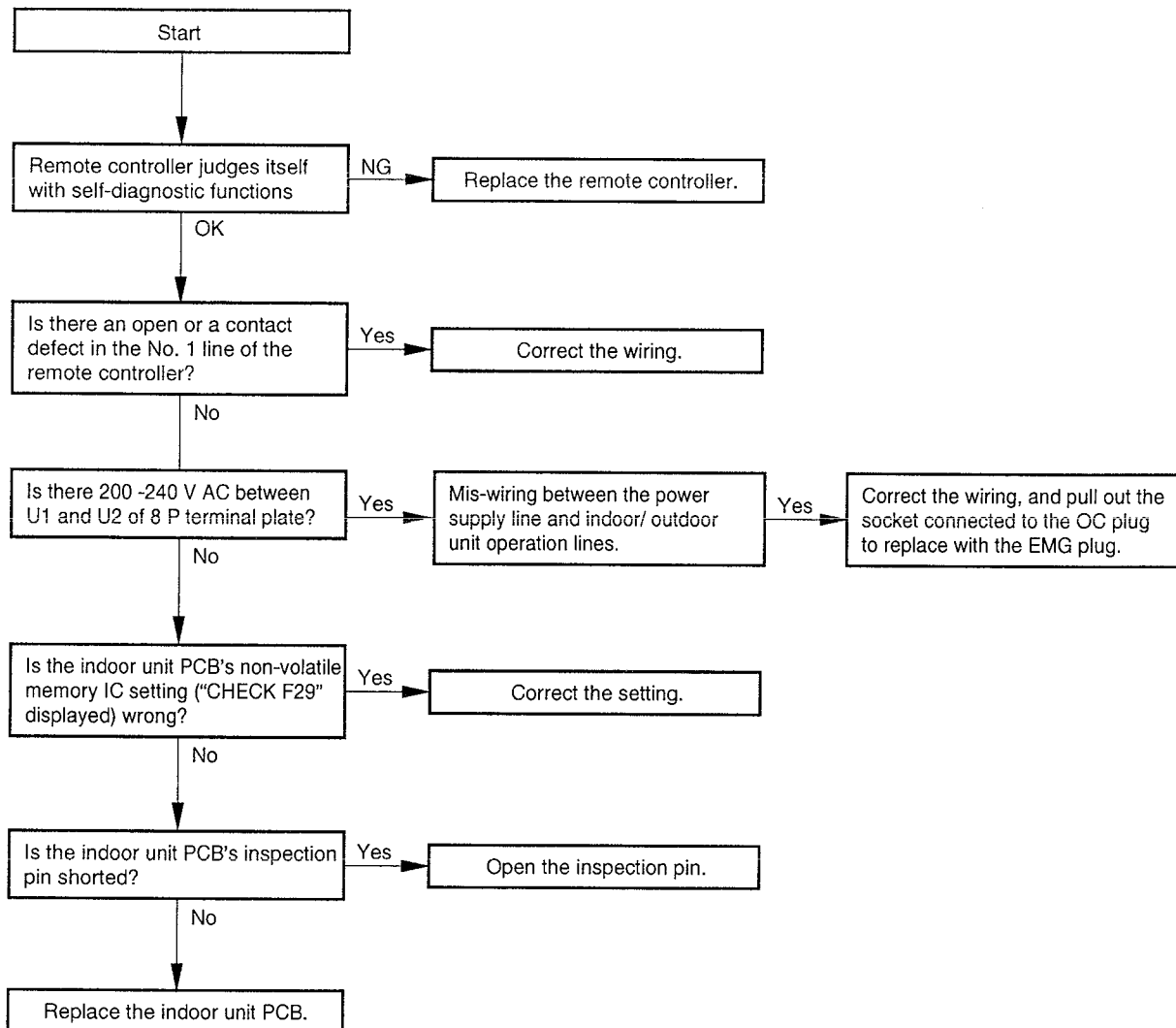
(5) Symptoms and parts to inspect

- 1) Symptom: LCD on the remote controller does not display and remote controller does not operate.



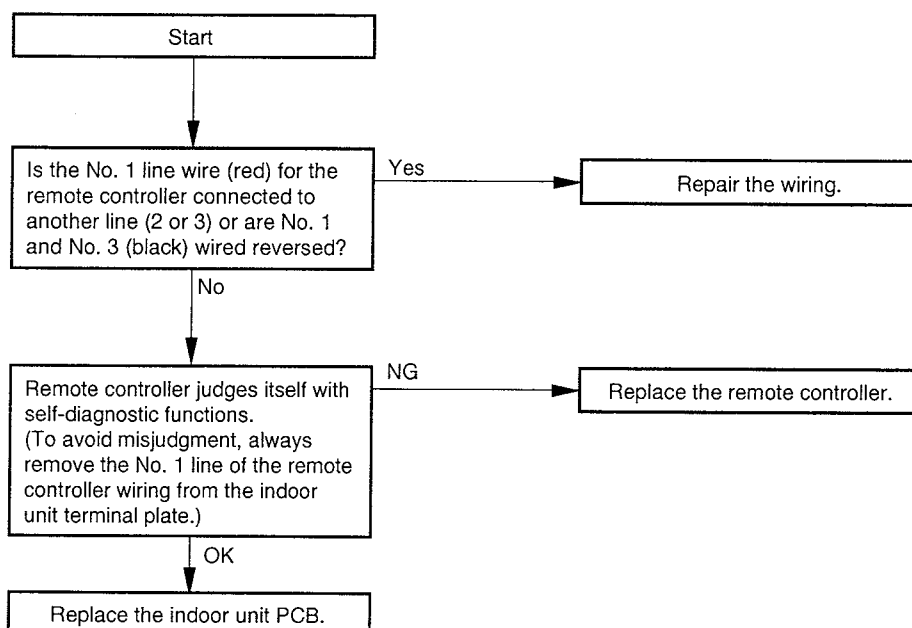
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- 2) Symptom: LCD on the remote controller displays "CHECK E01". (Unusual communication between remote controller and indoor unit.)



0655_M_1

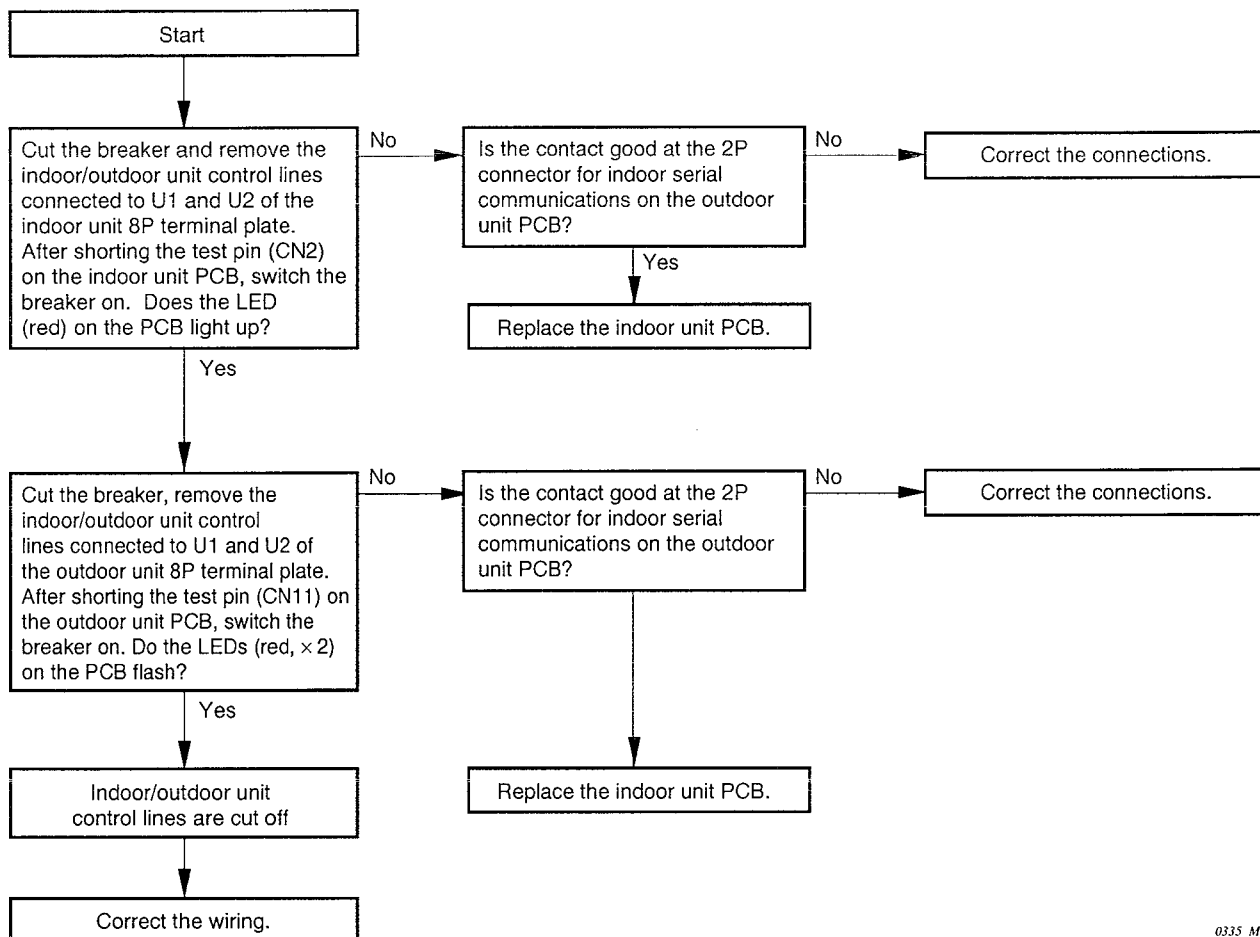
- 3) Symptom: LCD on the remote controller displays "CHECK E02". (Unusual communication between remote controller and indoor unit)



0334_M_1

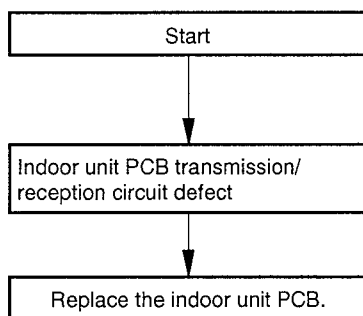
SM830036

- 4) Symptom: LCD on the remote controller is displaying "CHECK E04". (Unusual communication between the indoor and outdoor units.)



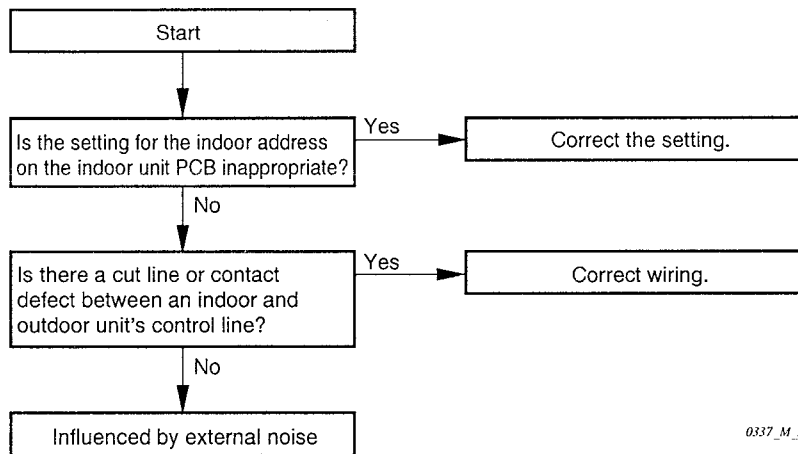
0335_M_1

- 5) Symptom: LCD on the remote controller is displaying "CHECK E05". (Unusual communication between the indoor and outdoor units)



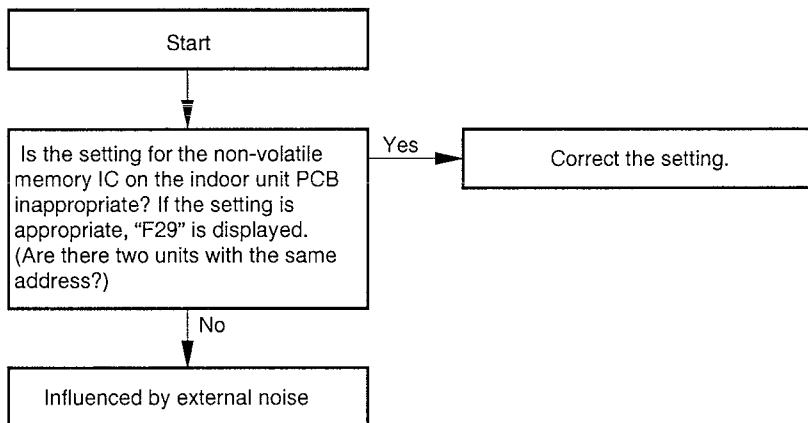
0336_M_1

- 6) Symptom: LCD on the remote controller is displaying "CHECK E06". (Unusual communication between the indoor and outdoor units)



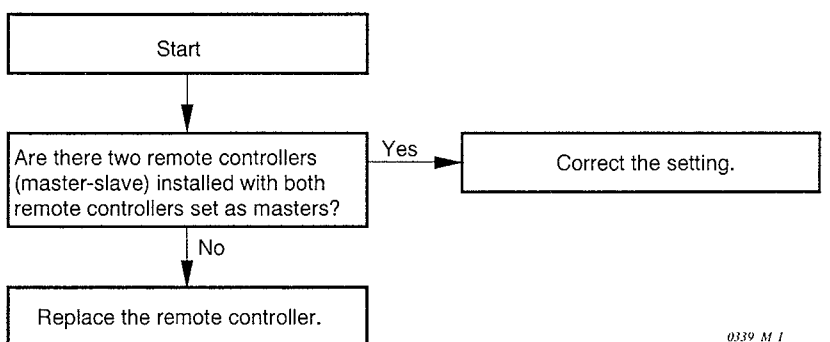
* See the section of INSTALLATION INSTRUCTION concerning with flexible combination system.

- 7) Symptom: LCD on the remote controller is displaying "CHECK E08". (Duplicate indoor unit address setting)



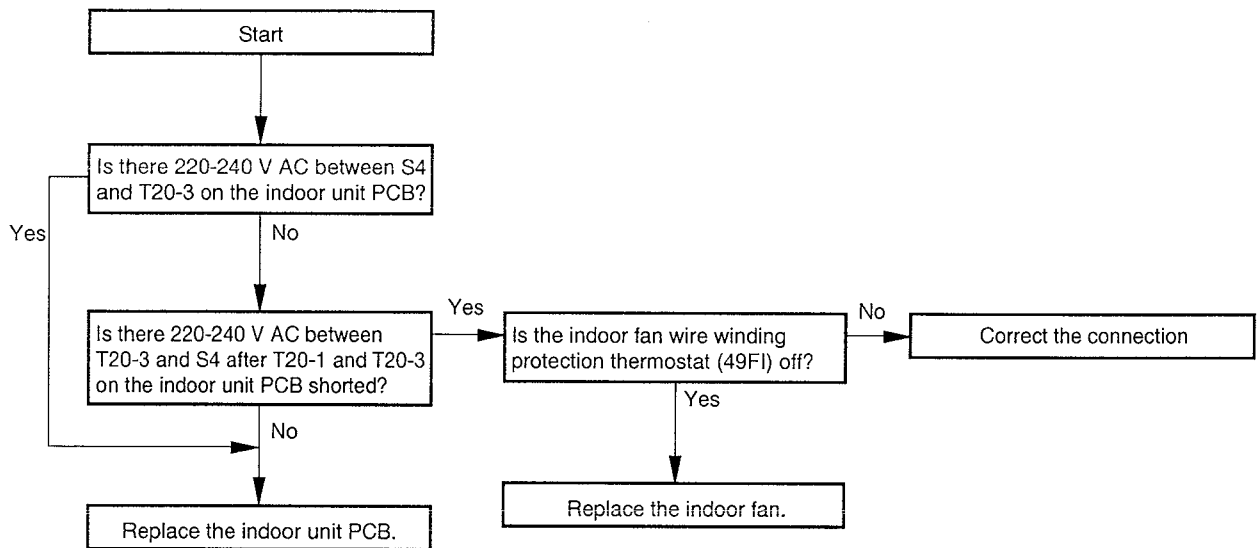
* See the section of INSTALLATION INSTRUCTION concerning with flexible combination system.

- 8) Symptom: LCD on the remote controller is displaying "CHECK E09". (Duplicate setting of RCU address switch of remote controllers)



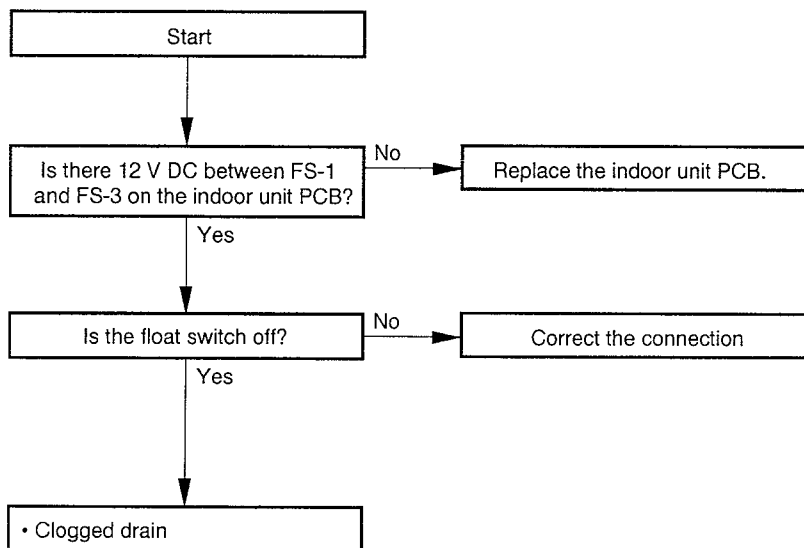
* See the section of INSTALLATION INSTRUCTION concerning with controlling remote controller switches when there are two remote controllers.

- 9) Symptom: LCD on the remote controller displays "CHECK P01". (Indoor fan protection thermostat operation warning)



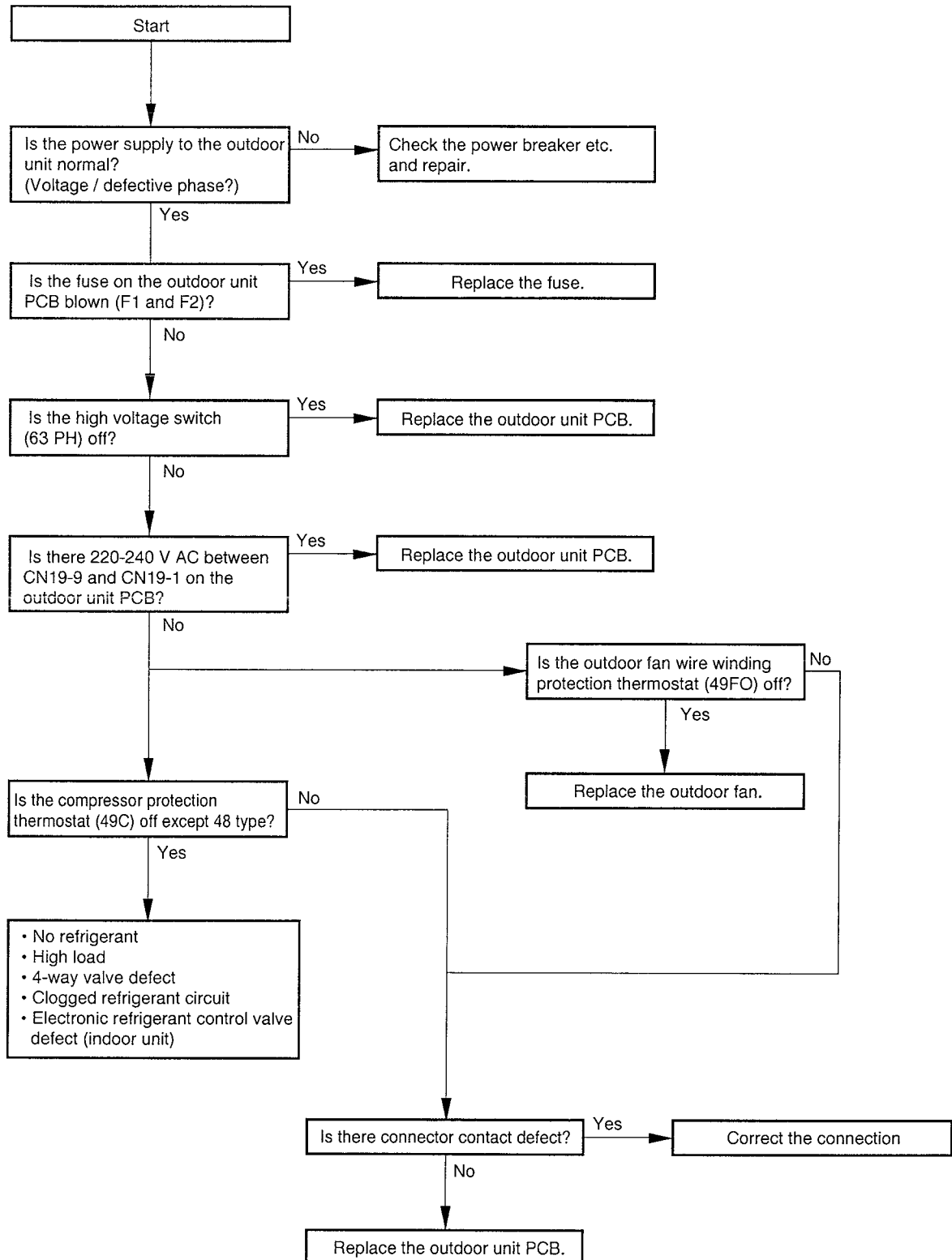
0340_M_I

- 10) Symptom: LCD on the remote controller displays "CHECK P10". (Indoor float switch operation warning)



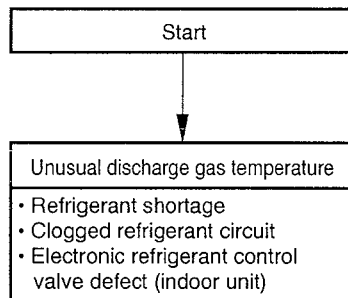
0703_M_I

- 11) Symptom: LCD on the remote controller displays "CHECK P02". (Compressor / outdoor fan protection thermostat operation warning / power supply voltage abnormality)



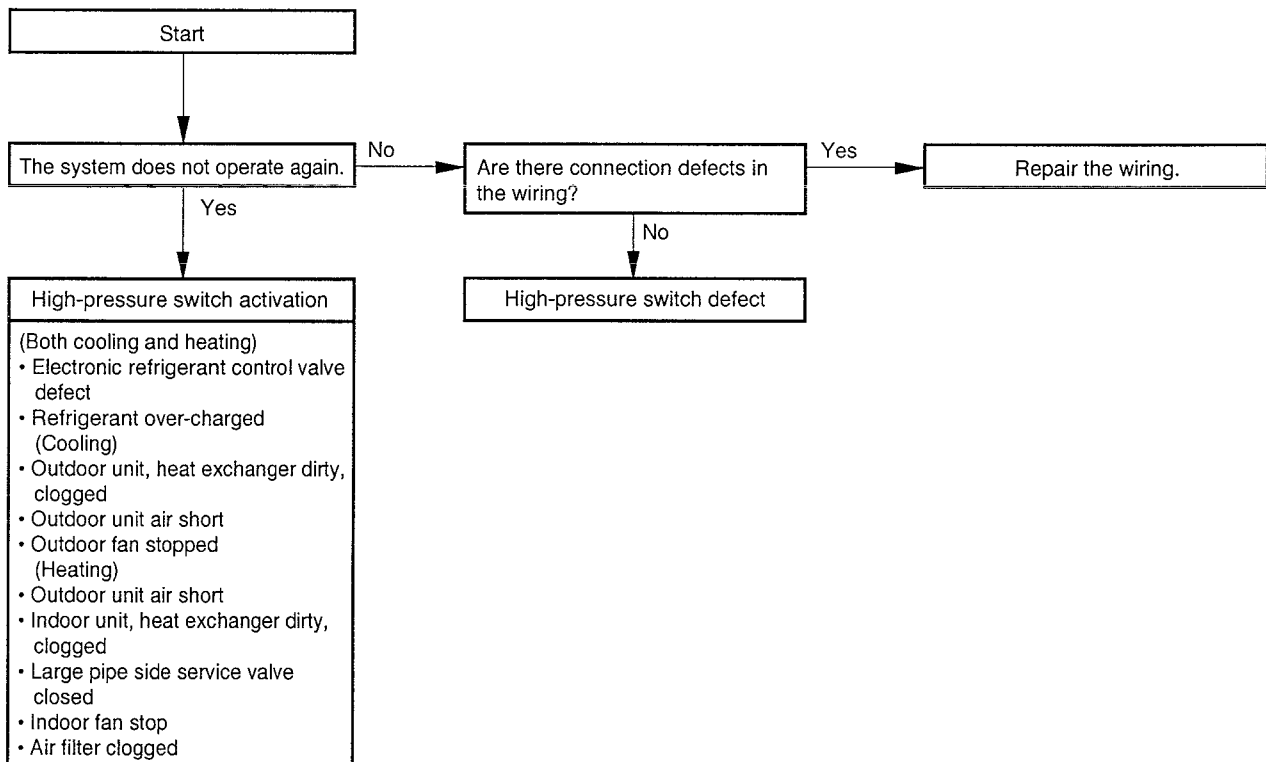
0342_M_1

- 12) Symptoms: LCD on the remote controller displays "CHECK P03".
(Alarm for unusual discharge temp. of compressor)



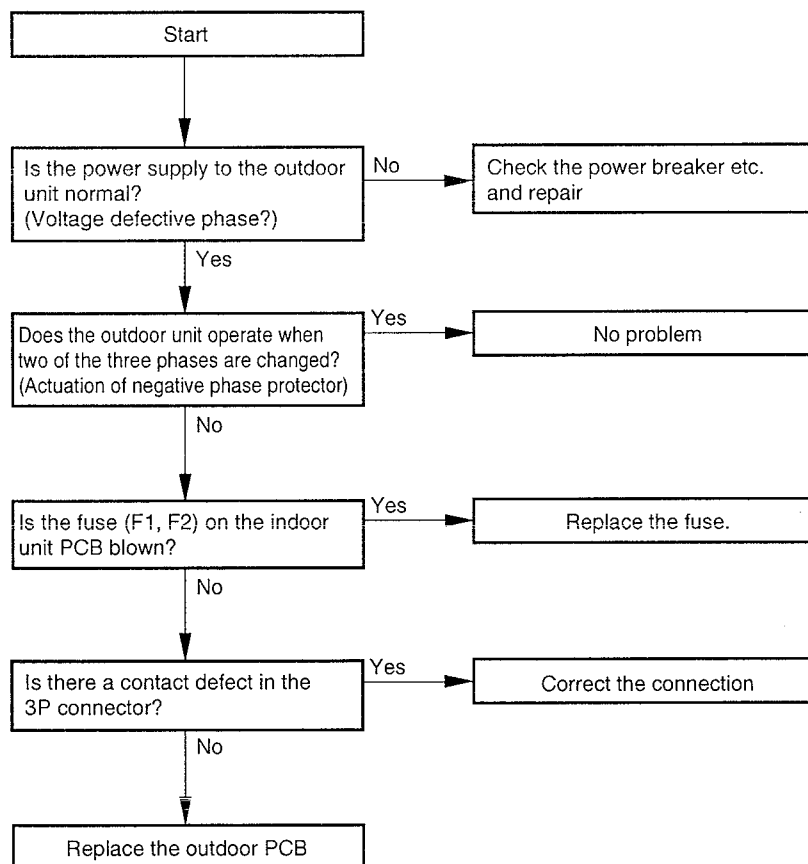
0343_M_1

- 13) Symptom: LCD on the remote controller displays "CHECK P04". (High-pressure switch activation warning)



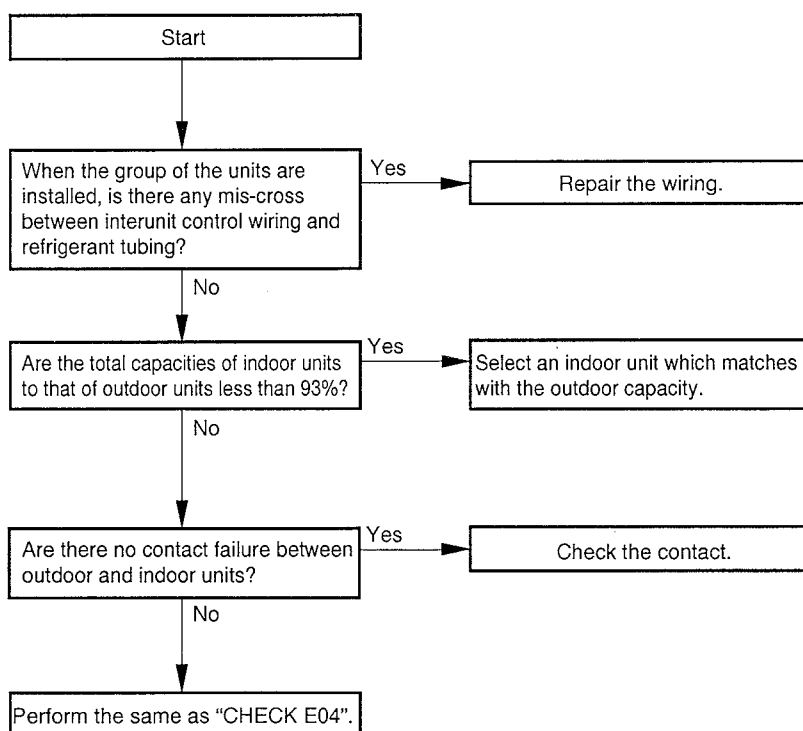
0344_M_1

- 14) Symptom: LCD on the remote controller displays "CHECK P05". (Negative phase detection operation warning)



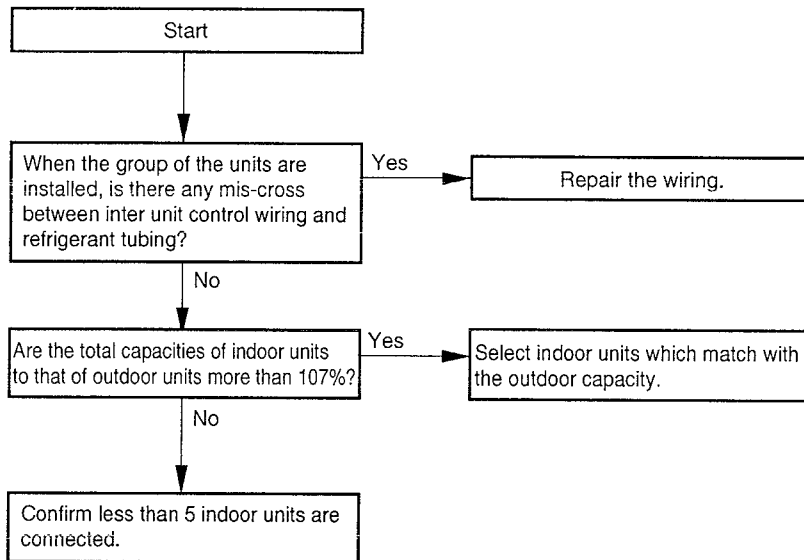
0345_M_1

- 15) Symptom: LCD on the remote controller displays "CHECK E15".



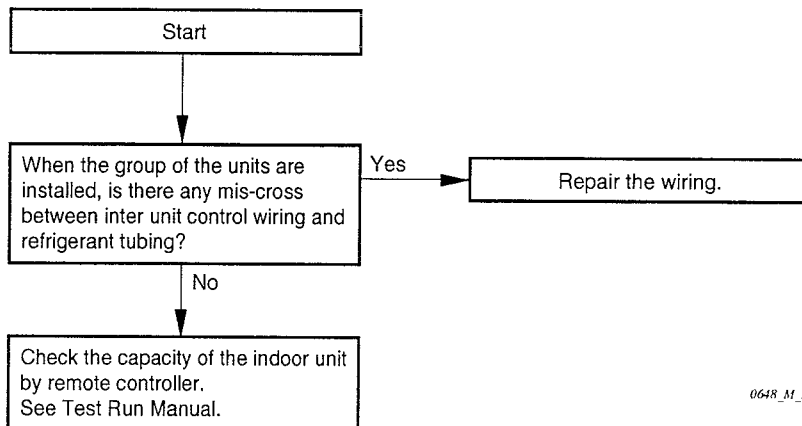
0646_M_S

16) Symptom: LCD on the remote controller displays "CHECK E16".



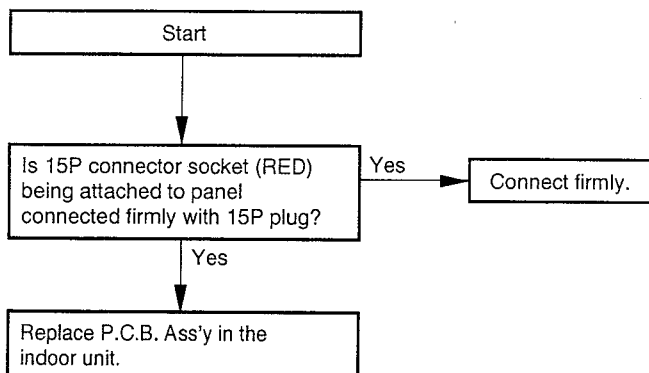
0647_M_S

17) Symptom: LCD on the remote controller displays "CHECK L13".



0648_M_S

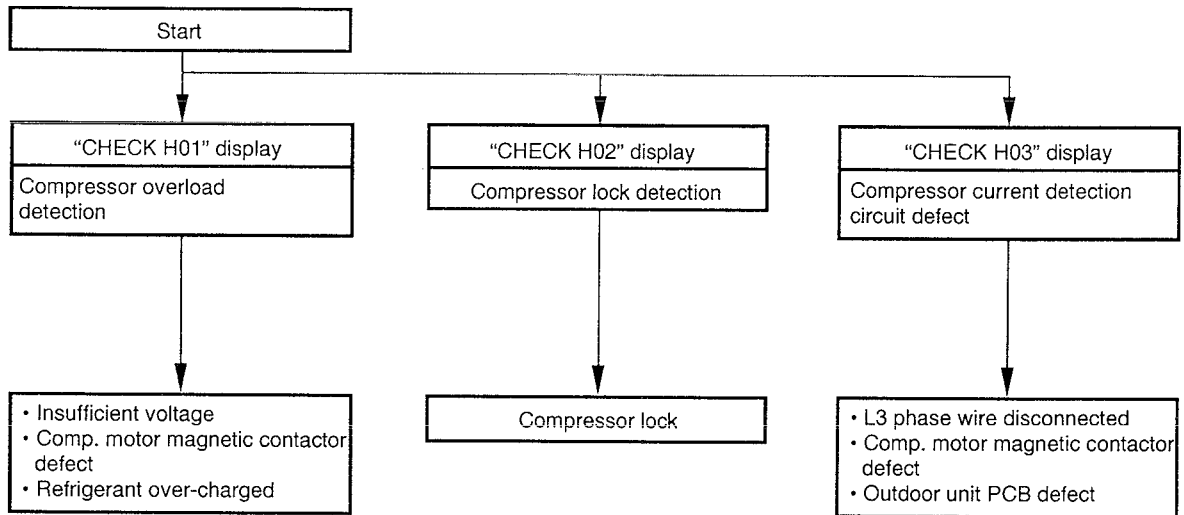
18) "Check P9" is displayed on the remote control unit.



0649_M_S

19) Symptom: LCD on the remote controller displays "CHECK H01, H02, H03". (PC compressor current detection)

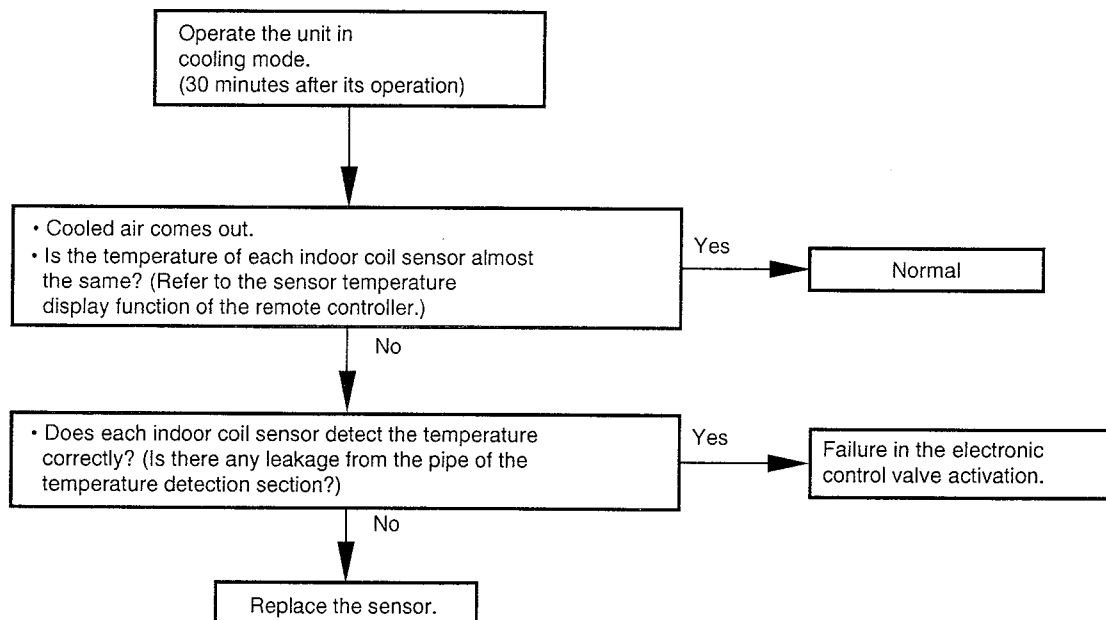
* Please check the related part described in the following chart after confirming the code setting (S4) of the outdoor unit's capacity on the PCB in the outdoor unit.



0346_M_1

20) Check the indoor unit (When the alarm of communication failure is not activated)

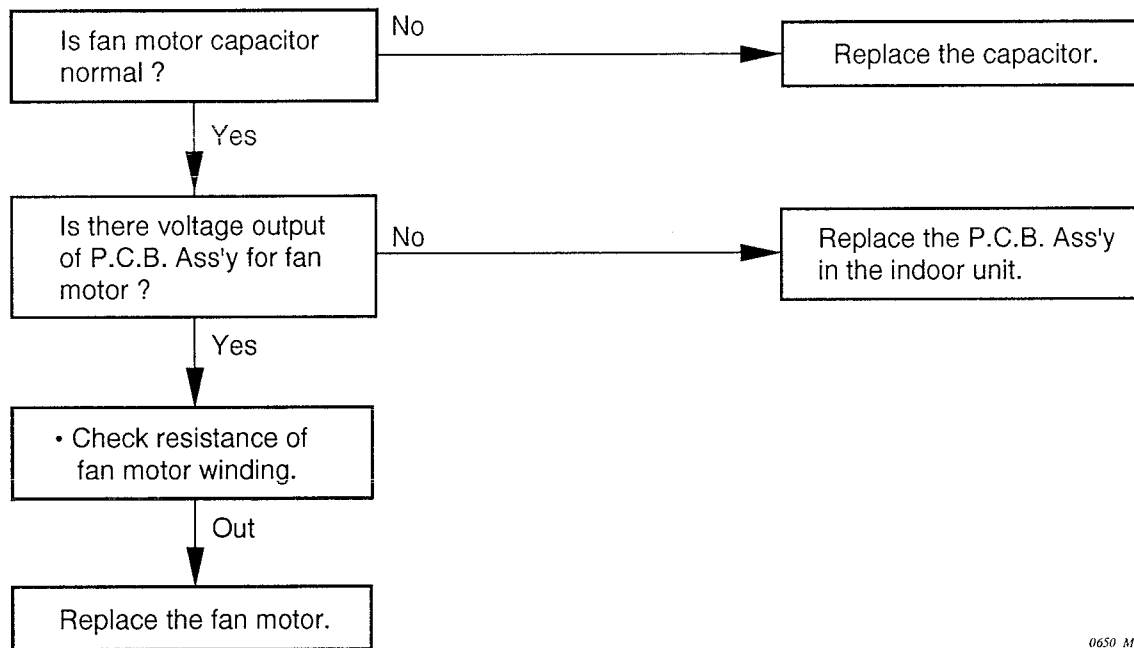
- If the electronic control valve failure occurred in Flexible Combination system (simultaneous operation system), one indoor unit would not be operated normally, then the other units won't be operated either. Due to this, try to detect the troubled unit and correct it.



0460_M_1

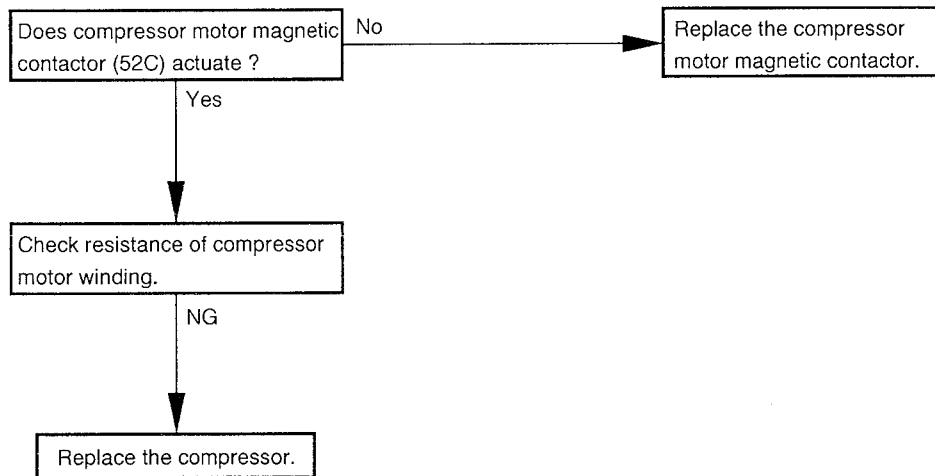
(6) Procedures When a Specific Component Does Not Work

1) Indoor fan does not operate.

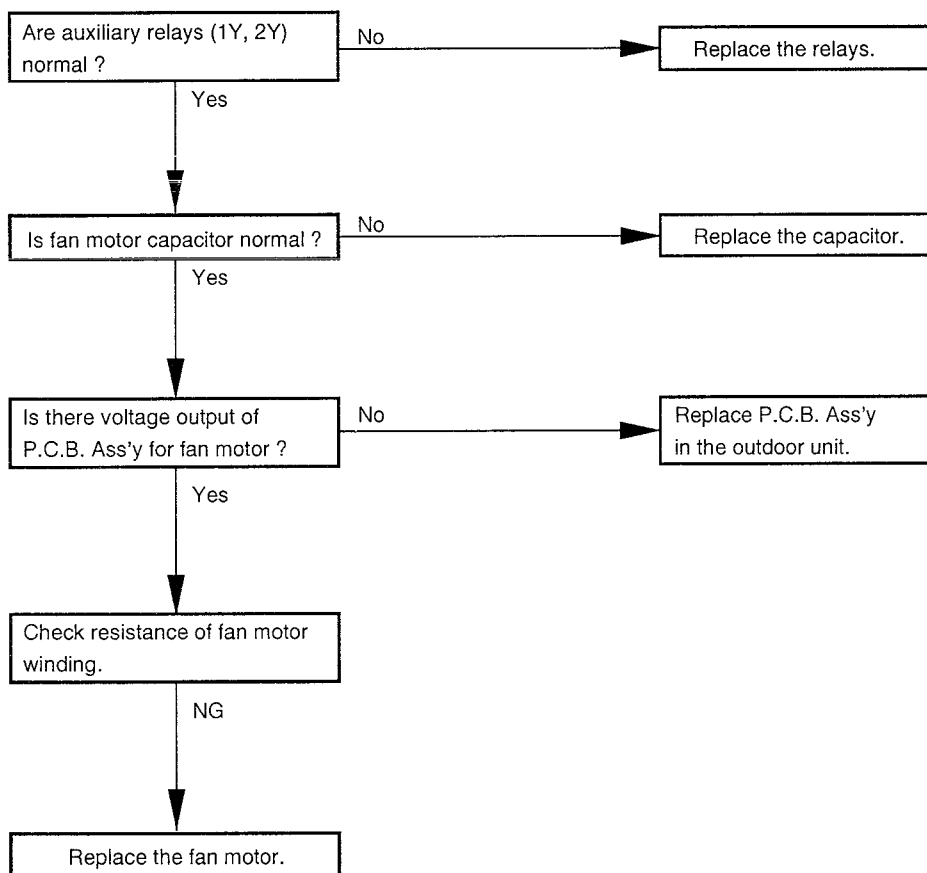


0650_M_S

2) Compressor motor does not operate.



3) Outdoor fan does not operate.



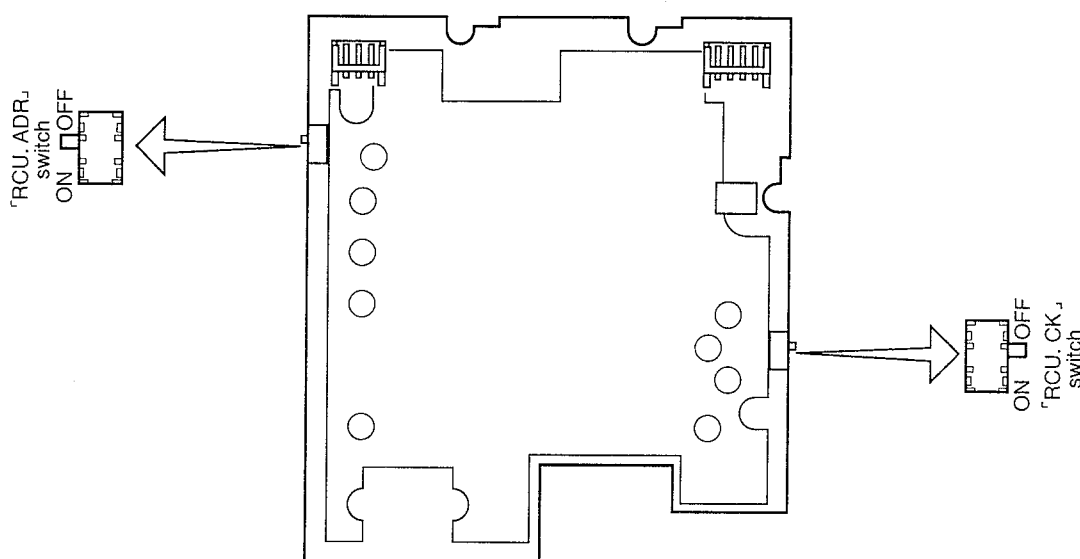
(7) Service Functions of Remote Controller

From the remote controller you can control both the operation and settings of the unit as well as perform several useful service checks. This section explains how to use the remote controller on the following items from (A) to (J).

- (A) Set service check switches.
- (B) Use the test run procedure.
- (C) Check the sensor temperature readings.
- (D) Find out about past service problems.
- (E) Check the remote controller itself for correct operation.
- (F) Excute the auto. address operation.
- (G) Confirm and change the indoor unit address.
- (H) Change the shift temperature in heating mode
- (I) Set the indoor unit address.

(A) Set service check switches

The service check switch (RCU.CK) is located on the back of the remote controller's P.C.B. Ass'y as follows :



The followings are the correct switch settings for ordinary use of the unit. Only change the settings temporarily for making service checks. When you finish the settings, **be sure to return them to the standard settings** shown here.

- ☐ **RCU.CK** switch - Refer to section (E) "**Checking the remote controller for correct operation**"
(Remote Control Unit, Check)
- ☐ **RCU.ADR** switch - Keep the switch **OFF** all the time except in case of sub remote controller
(Remote Control Unit, Address)