

# SERVICE INSTRUCTIONS

SPLIT TYPE ROOM AIR CONDITIONER  
CASSETTE type  
18000 & 24000 BTU/H



## CONTENTS

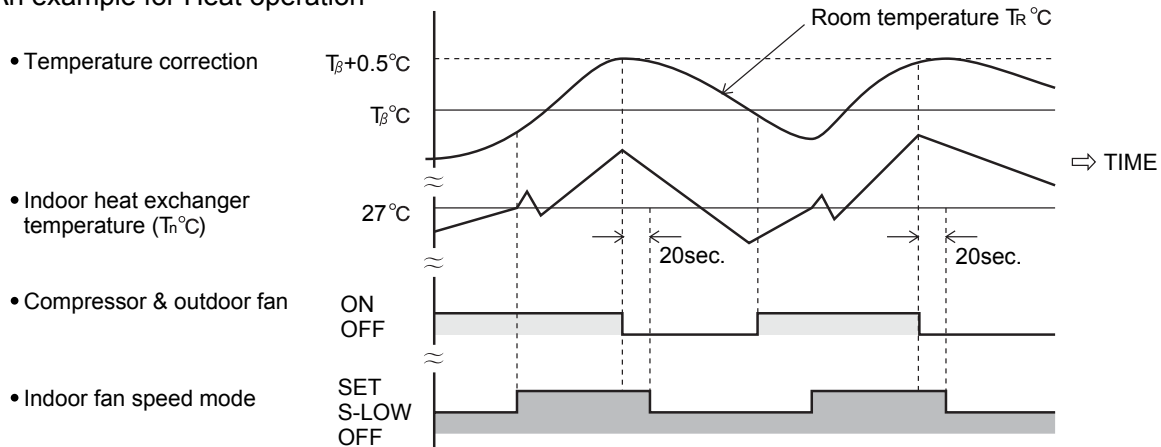
DESCRIPTION OF FUNCTIONS .....	1
TROUBLESHOOTING .....	13

# DESCRIPTION OF FUNCTIONS

## 1. COLD AIR DISCHARGE PREVENTION FUNCTION (COOL & HEAT MODEL)

- (1) When the heating operation starts, the indoor unit fan operates in the S-LOW\* (Super-Low) mode.  
After the temperature of the indoor heat exchanger rises above 27°C, operation enters to the specified flow mode.
- (2) When the compressor is stopped by the thermostat, the indoor fan starts the operation in 20 seconds as described above.
- (3) While the compressor is stopped, the indoor unit fan operates in the S-LOW mode.

Fig. 19 An example for Heat operation



- \* Temperature correction  $T_{\beta}=T_s$  (Indoor setting temperature) +  $T_a$  (+4)°C
- \* S-LOW : The indoor fan motor is not running intermittently (Approx. 100~200 rpm)

## 2. THREE MINUTES DELAY FUNCTION

- 1) The outdoor unit is not operated for three minutes after the power plug is inserted into the socket. (Compressor protection, breaker off prevention, etc.)
- 2) When test operation was performed at heating, it takes some time until an air necessary to operate "Three minutes delay" and "Cold air prevention" continuously starts to blow out.

### 3. TEST KNOB (Remote control bottom side)

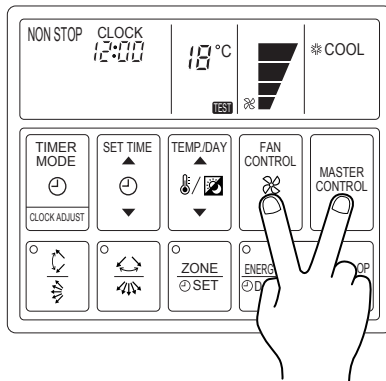
(Refer to Fig.48 for the setting method of the test operation by wired remote control )

- 1) Operates continuously without the thermostat operating.
- 2) If the air conditioner is used in the "TEST" state, since the compressor, heat exchanger, etc. will be damaged because temperature control cannot be performed, always switch to "NORMAL" operation.  
The condition for cancelling the test operation is either 1 hour after the setting or stopping operation.
- 3) If the microcomputer or other electronic circuit is faulty, the air conditioner cannot be operated even by test run.

#### REMOTE CONTROLLER

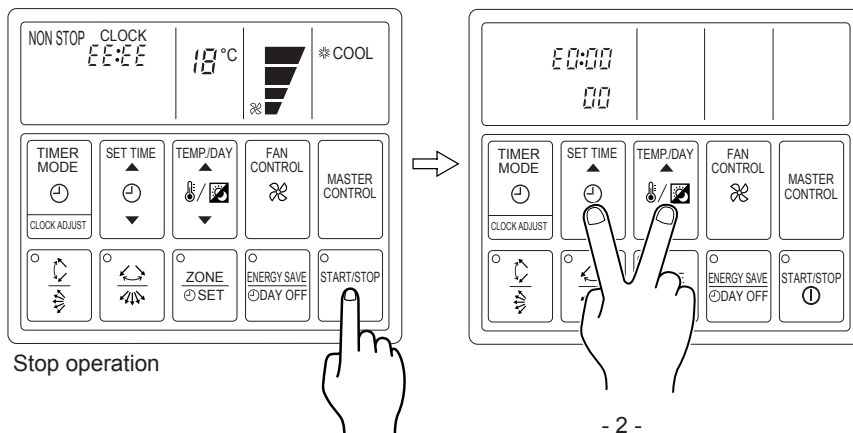
- Supply power to the crankcase heater 12 hours before the start of operation in the winter.
- For test running, when the remote controller FAN CONTROL button and MASTER CONTROL button are pressed simultaneously for more than three seconds when the air conditioner is not running, the air conditioner starts and TEST is displayed on the remote controller display.  
However, the SET TEMP. setting button does not function, but all other buttons, displays, and protection functions operate (Fig. 48).

Fig. 48



- When EE : EE blinks at the current time display, there is an error inside the air conditioner. If the SET TIME button (▼) and SET TEMP./DAY button (▼) are pressed simultaneously for more than three seconds, the self diagnosis check will start and the error contents will be displayed at the current time display. (Fig. 49) When the operation lamp lights, press the START/STOP button and after operation lamp goes off, perform the same operation. (Fig. 49) Process the error contents by referring to (Table 6).

Fig. 49



Stop operation

Table 6

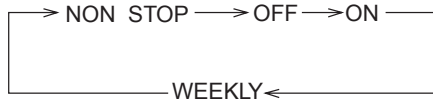
Error Code	Error contents
E:00	Communication error (indoor unit ↔ remote controller)
E:01	Communication error (indoor unit ↔ outdoor unit)
E:02	Room temperature sensor open
E:03	Room temperature sensor shorted
E:04	Indoor heat exchanger temperature sensor open
E:05	Indoor heat exchanger temperature sensor shorted
E:06	Outdoor heat exchanger temperature sensor open
E:07	Outdoor heat exchanger temperature sensor shorted
E:08	Power source connection error
E:09	Float switch operated
E:0A	Outdoor temperature sensor open
E:0B	Outdoor temperature sensor shorted
E:0C	Discharge pipe temperature sensor open
E:0D	Discharge pipe temperature sensor shorted
E:0E	Outdoor low pressure abnormal
E:0F	Discharge pipe temperature abnormal
E:11	Model abnormal
E:12	Indoor fan abnormal
E:13	Outdoor signal abnormal
E:14	Outdoor EEPROM abnormal

- To stop test running, press the START/STOP button.
- For the operation method, refer to the operating manual and perform operation check.
- Check that there are no abnormal sounds or vibration sounds during test running.

## 4. TIMER

There are three timer modes: "OFF TIMER", "ON TIMER" and "WEEKLY TIMER".

- (1) Set the clock time when the unit is in the stop mode (only the current time will be shown on the remote control unit display).
- (2) While adjusting the current clock time, do not use other remote control functions.
- (3) Each time the TIMER button is pressed, the remote control unit display will change in the order shown below:



### 1) OFF timer

Use when going to bed or otherwise to stop operation. When the clock reaches the set time, the air conditioner will be turned off.

### 2) ON timer

When the timer mode is set to "ON TIMER", operation automatically starts when the set time has elapsed.

### 3) WEEKLY timer

Use the weekly timer to set operating times for each day of the week.

#### Weekly Timer Features

- Set different operating times for each day of the week.
- Set one or two operating spans (one or two ON times and one or two OFF times) per day.
- Set time to a resolution of 5 minutes.
- OFF time can be carried over to the subsequent day.
- Use the "DAY OFF" setting to cancel operation for any day of the coming week (one-time cancellation).

### Setting Up the Weekly Timer Operation

Press the START/STOP button to stop the air conditioner, and then proceed as follows.

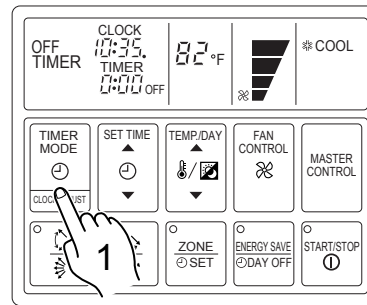
1. Press the **TIMER MODE** button so that **"WEEKLY"** appears on the display.

The display now shows the current day (by DAY CODE), the first ON and OFF times for the day (the "WEEKLY 1" times), the fan speed, and the operating mode.

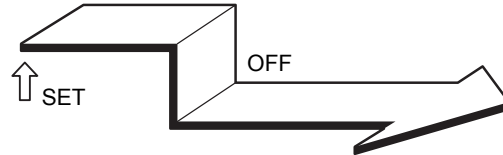
The top time value gives the ON time, and the bottom value gives the OFF time.

If either time is not set, the corresponding time display is blank "----".

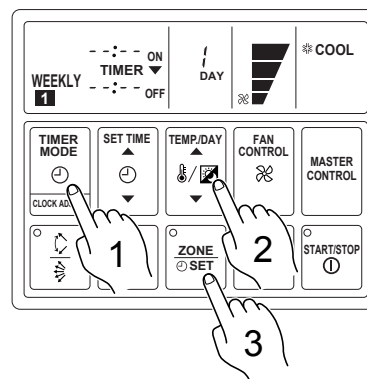
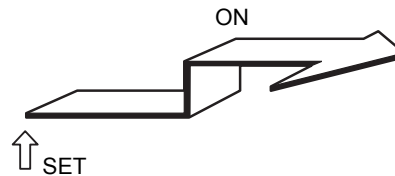
Remote control button selected



OFF timer setting



ON timer setting

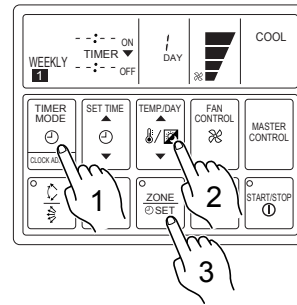


2. Press the SET TEMP./DAY button to select the day that you want to set up.

▲ : Use to advance the day forward.

▼ : Use to turn the day back.

DAY CODE	1	2	3	4	5	6	7
DAY OF THE WEEK	MON	TUE	WED	THU	FRI	SAT	SUN



3. Hold the SET button down for 3 seconds.

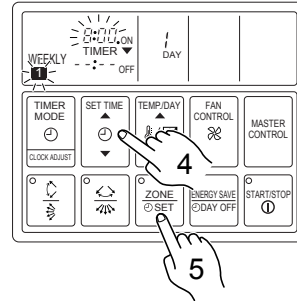
The "WEEKLY 1" ON time starts flashing, and the fan speed and operating mode displays go off.

4. Press the SET TIME button to set the day's first ON time.

▲ : Use to advance the day forward.

▼ : Use to turn the day back.

(Press once to move the time 5 minutes; hold down and the time will move 10 minutes at a time.)



5. Press the SET button.

This registers the first ON time setting for the selected day.

The ON time display stops flashing, and the "WEEKLY 1" OFF time starts flashing.

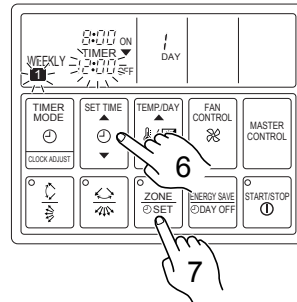
6. Press the SET TIME button to set the day's first OFF time.

The earliest OFF time you can set is 5 minutes after the ON time. The latest OFF time is 23:55 on the subsequent day.

7. Press the SET button.

This registers the first OFF time for the day, completing the "WEEKLY 1" settings for that day.

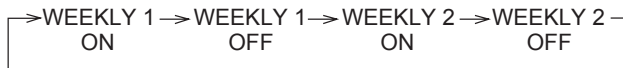
The display switches to "WEEKLY 2", and the day's second ON time begins flashing.



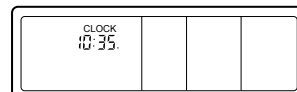
8. Repeat the operations described in Steps 4 to 7 to set the second ON and OFF times for the day (the "WEEKLY 2" times).

When you press the SET button after setting the "WEEKLY 2" OFF time, the system registers the "WEEKLY 2" settings for the day and returns you to the "WEEKLY 1" ON time setup process. (The first ON setting reappears and begins flashing.)

You can review your settings by pressing the SET button. Each press moves you to the next setting, as follows.



If the timer is not set, press the SET button with the time display blank " - - : - - ", and perform next operation.



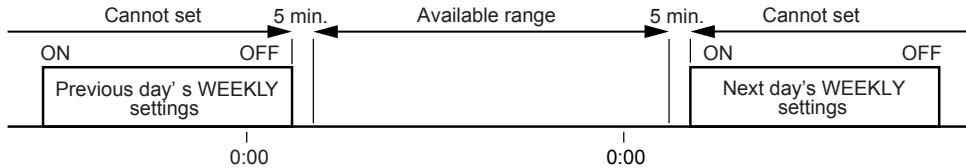
9. Press the SET TEMP./DAY button to select another day for setup. The repeat steps 4 to 8 above to set the ON and OFF times for that day.

10. When you have finished setting all of the times, hold down the SET button for 3 seconds.

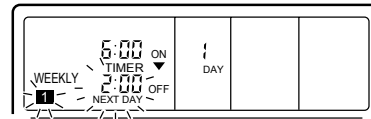
The WEEKLY display flashes for 3 seconds while the new WEEKLY TIMER settings are registered, and then the clock display reappears.

**NOTES:**

- (1) If no time values are flashing, the clock display will automatically reappear after 15 seconds if no buttons are pressed.
- (2) A flashing time value indicates that the system is in time-setting mode. To return to the clock display you must hold down the SET button for 3 seconds.
- (3) You do not need to set values for both WEEKLY 1 and WEEKLY 2. If you wish, you can set values only for WEEKLY 1 or only for WEEKLY 2.
- (4) The allowable range for the day's time settings is shown below.



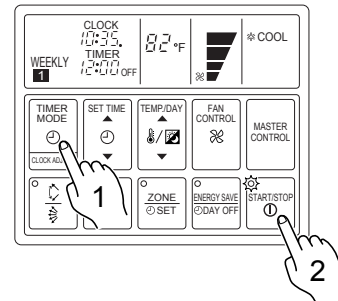
- (5) If you set the OFF time to occur on the day following the ON time, the NEXT DAY caption appears on the display.



**Starting Weekly Timer Operation**

1. Press the **TIMER MODE** button so that "WEEKLY" appears on the display.
2. Press the **START/STOP** button to start operation.  
(This step is not necessary if the air conditioner is already running.)

Weekly timer operation starts, and the operation lamp comes on.  
(If the current time is between the first or second ON and OFF time settings for the current day, the air conditioner will start. Otherwise the air conditioner will remain off.)



The day display is replaced by the temperature display.  
The upper time display now shows the current time, and the lower time display shows the next scheduled ON or OFF time.

**To Stop Weekly Timer Operation**

- To stop weekly timer while leaving the air conditioner running:  
Press the **TIMER MODE** button to select **NONSTOP**, **OFF TIMER**, or **ON TIMER**.
- To stop weekly timer operation and the air conditioner also:  
Press the **START/STOP** button.

**Reviewing the Time Settings**

Press the **START/STOP** button to stop the air conditioner, and then proceed as follows.

- 1 Press the **TIMER MODE** button so that "WEEKLY" appears on the display.
- 2 Press the **SET TEMP./DAY** button to select the day that you want check.
- 3 Press the **SET TIME** button (▲ or ▼) to switch between the "WEEKLY 1" or "WEEKLY 2" time displays.

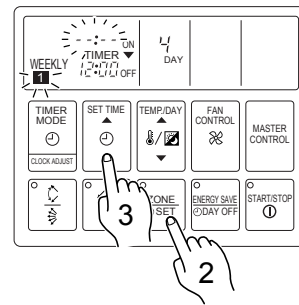
## Cancelling Selected Time Settings

Press the START/STOP button to stop the air conditioner, and then proceed as follows.

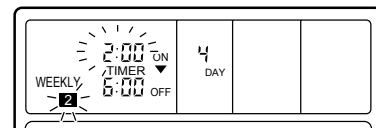
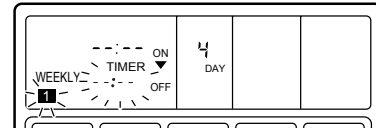
1. Carry out steps 1 to 3 of the "Setting Up the Weekly Timer Operation" procedure to select the day you want to edit.
2. Press the SET button to select the ON time that you want to cancel.

Be sure to select an ON time (the upper time display).

3. Hold down the ▼ side of the SET TIME button until the time display becomes blank "----".
  4. Press the SET button.
- The first OFF time setting ("WEEKLY 1" OFF time) is deleted and replaced by a flashing blank pattern "----".
5. Press the SET button again.
- This completes deletion of the "WEEKLY 1" ON/OFF settings. The second ON time setting ("WEEKLY 2" ON time) appears and flashes.
- If you wish to delete other time settings, repeat steps 2 through 5.
6. Once the setting has been canceled, hold down the SET button for 3 seconds.
- The WEEKLY display flashes briefly, and then the clock display appears.



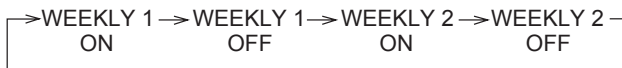
Example : Clearing the "WEEKLY 1" ON/OFF times for day 4 (Thursday).



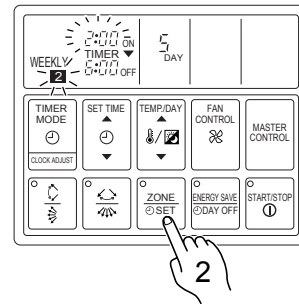
## To Change Selected Time Settings

Press the START/STOP button to stop the air conditioner, and then proceed as follows.

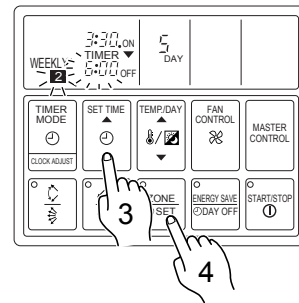
1. Carry out steps 1 to 3 of the "Setting Up the Weekly Timer Operation" procedure to select the day you want to edit.
  2. Press the SET button to select the time that you want to change.
- The selected setting flashes on the display. Each press moves you to the next setting for the selected day, as follows.



3. Press the SET TIME button to change the time setting.
  4. Press the SET button.
- The new setting overwrites the previous setting.
5. Once the setting has been canceled, hold down the SET button for 3 seconds.
- The WEEKLY display flashes briefly, and then the clock display appears.



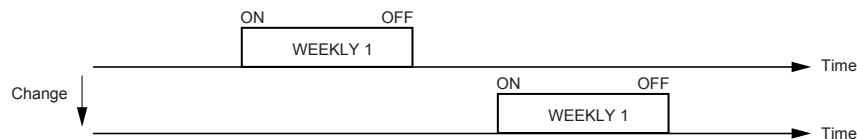
Example : Changing the "WEEKLY 2" ON setting for day 5 (Friday) from 14:00 to 15:30.



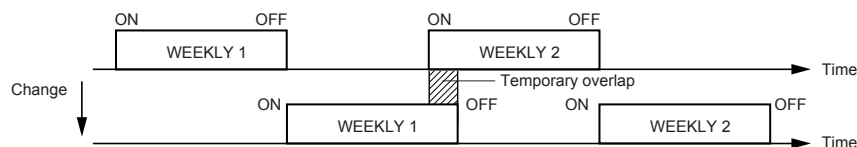
### NOTES:

In the following cases, cancel the set time prior to making the required amendments.

- (1) If you want to change the ON time to a time that is later than the currently set OFF time.



- (2) If the change would cause a temporary overlap between the first and second ON/OFF time spans.



### About the DAY OFF

- Use the DAY OFF setting to switch off timed operation for a selected day in the coming week.
- This is a temporary, one-time setting. The DAY OFF setting is automatically cleared as soon as the specified day passes.

### Using the DAY OFF Setting

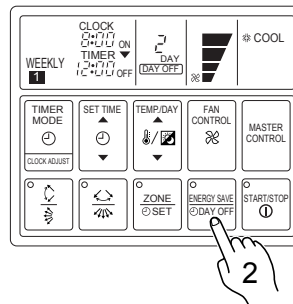
Press the START/STOP button to stop the air conditioner, and then proceed as follows.

1. Carry out steps 1 to 2 of the "Setting Up the Weekly Timer Operation" procedure to select the day that you want to set as the DAY OFF.

2. Press the DAY OFF button.

The DAY OFF setting is registered, and the DAY OFF caption appears on the display.

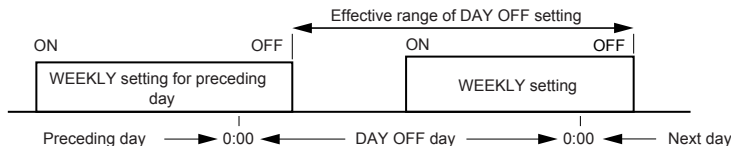
- To cancel the DAY OFF setting:  
You can cancel the setting by pressing the DAY OFF button again.



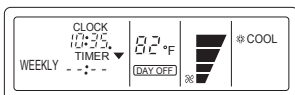
**Example :** To switch off timed operation for day 2 (Tuesday).

### NOTES:

- (1) The DAY OFF setting is only available for days for which weekly time settings already exist.
- (2) You can make this setting for any of the next seven days (counting from the current day).
- (3) The DAY OFF setting is effective over the range illustrated below. The Weekly setting for which an ON time has been set is eligible for the day in which the DAY OFF has been set.



(4) The display on the clock's lower line will usually be " - - - - " for the DAY OFF set day during Weekly operations.



### Precautions during setup

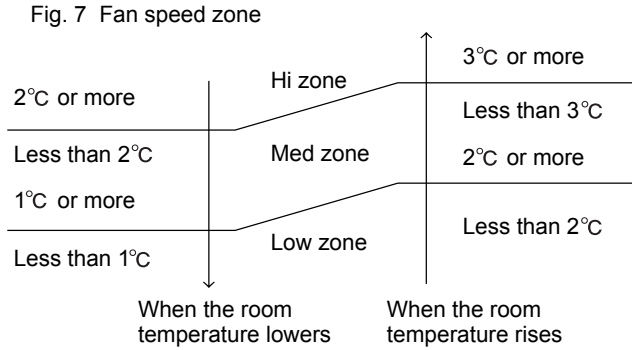
Setup is not possible in the following cases, so amend the time.

- If you set an ON time while leaving the OFF time setting blank:  
Nothing will happen when you press the SET button.  
To proceed, press the SET TIME button and enter an appropriate setting.
- When an attempt is made to set only the OFF time.  
Nothing will happen when you press the SET TIME button.  
Press the SET button and amend the entry for the ON time.
- ON and OFF times cannot be set to the same value.
- The OFF time cannot be set earlier than the ON time.
- The WEEKLY 2 settings cannot be set earlier than the WEEKLY 1 settings.
- The WEEKLY 1 and WEEKLY 2 time spans cannot overlap.

## 5. FAN CONTROL, "AUTO" position

### 1) COOLING OPERATION

Air flow mode is set automatically in accordance with the condition "(Room temp. - Set temp.)" as shown at the right.

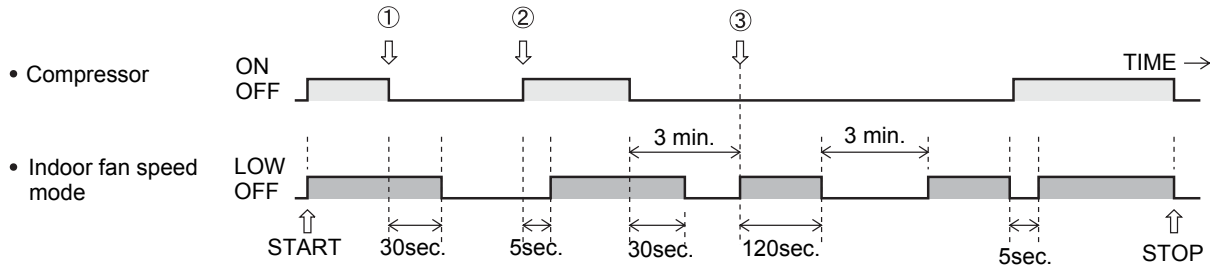


### 2) DRY OPERATION

Preference will be given to remove humidity, the indoor fan motor operates at LOW speed.

- ① The unit starts, and the indoor fan motor stops after 30 seconds passed, since the compressor has stopped.
- ② The indoor fan motor starts after 5 seconds passed, since the compressor has started.
- ③ When the compressor continues stopping for 3 minutes, the indoor fan motor operates for 120 seconds from that point.

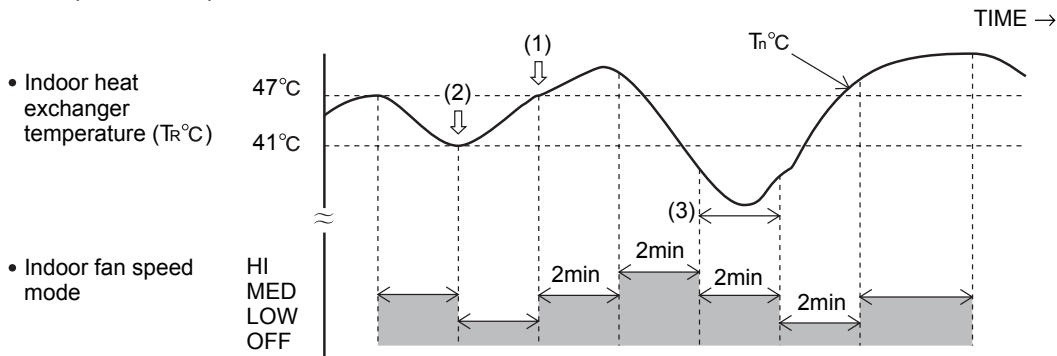
Fig. 8 Fan mode time chart



### 3) HEATING OPERATION

- (1) When the indoor heat exchanger temperature reaches 47°C or more, the fan mode switches to the next higher position ("LOW" → "MED", "MED" → "HIGH").
- (2) When the indoor heat exchanger temperature drops below 41°C while the compressor operates, the fan mode switches to the next lower position ("HIGH" → "MED", "MED" → "LOW").
- (3) After switching the fan mode, it does not switch again within 2 minutes.
- (4) When "FAN CONTROL" is switched to "AUTO" while the unit is operated at the "FAN CONTROL" position of "HIGH", "MED" or "LOW", the unit operation is performed in the "MED" fan mode.

Fig. 9 An example for heat operation



### B) "LOW", "MED" and "HIGH" position

The indoor fan operates at the air flow set in the FAN CONTROL mode.

## 6. DRAIN PUMP OPERATION

- 1) When a compressor starts, the drain pump starts simultaneously.
- 2) The drain pump operates continuously for 3 minutes after the compressor is turned off.
- 3) When the compressor stops by the "Indoor heat exchanger de-icing function", the drain pump is turned off in 1 hour after the compressor stops.
- 4) When the water level in the drain pan rises up and then the float switch functions:
  - ① Microcomputer stops the compressor and indoor and outdoor fan motor operation.
  - ② Drain pump operates continuously for 3 minutes after the float switch is turned off.  
(Almost condensing water may be drained)
- 5) When the float switch turns ON continuously for 3 min., "FAILURE INDICATION" operates.
- 6) When the float switch turns OFF within 3 min., the unit starts cooling operation.

## 7. DEFROSTING OPERATION (COOL & HEAT MODEL)

(See defrosting operation flow chart on page 10, 11 )

### 1. Starting the Defrosting Operation

The defrosting operation starts when following all 3 conditions are met together.

- (1) 10 min. Timer is time up. (Continuous operation time of the compressor during Heating operation)
- (2) 40 min. Timer is time up. (Accumulated Timer for the compressor operating time during Heating operation)
- (3) Outdoor Heat Exchanger Temperature reaches to the defrosting start temperature. The defrosting start temperature is shown in the following table.

Temp. \ Type	A	B	C
Defrosting Start Temperature	-5°C	-10°C	-15°C
Defrosting Reset Temperature	10°C		

### 2. Defrosting Operation

- (1) [Defrosting Signal] is output by the serial reverse transfer signal.
- (2) The operational function is explained in the next item Fig. 1.
- (3) The following protection functions have priority even during the defrosting operation.  
(During the mask operation, the protection is not accepted, but the counting of the protection function is performed.) [Priority Protection Feature]

- Exhaust Temperature Protection
- High Pressure Protection

If any of above protection function is operated during the defrosting operation, the defrosting operation is interrupted. And it re-starts the defrosting operation when the protection function is released. If the protection function is operated 2 times within 15 minutes, the defrosting operation is suspended.

- (4) If [Outdoor Fan Motor] is stopped due to [Heating Overload Protection] function, the defrosting operation does not kick on.
- (5) During the defrosting operation, the it keeps continuing even when [Compressor Control Signal] becomes OFF.  
However, the defrosting operation is suspended if the operation mode has been changed over to other than heating (including the stop operation).

### 3. Completion of Defrosting Operation

The defrosting operation is completed when the following all 3 conditions are met.

- (1) 1 min. masking after the compressor ON is applied.
- (2) The detection temperature of Outdoor Heat Exchanger Thermistor is higher than 10°C.
- (3) 15 min. Timer is time up.

Fig. 1 Defrosting Detection

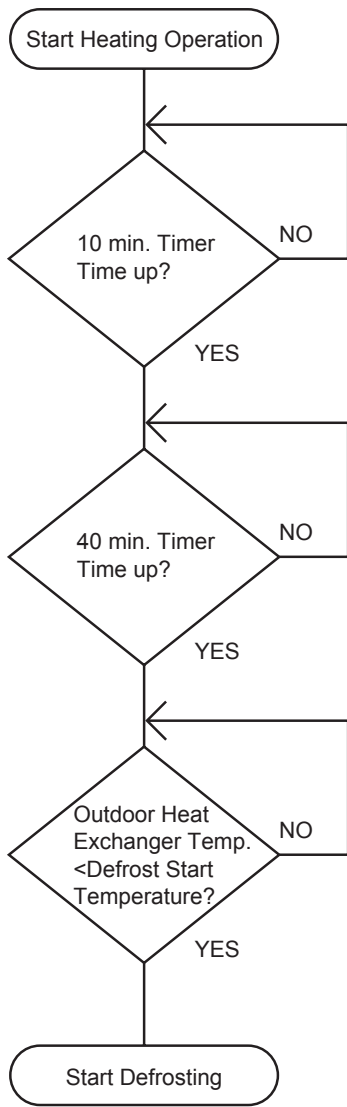


Fig. 2 Operational Functions

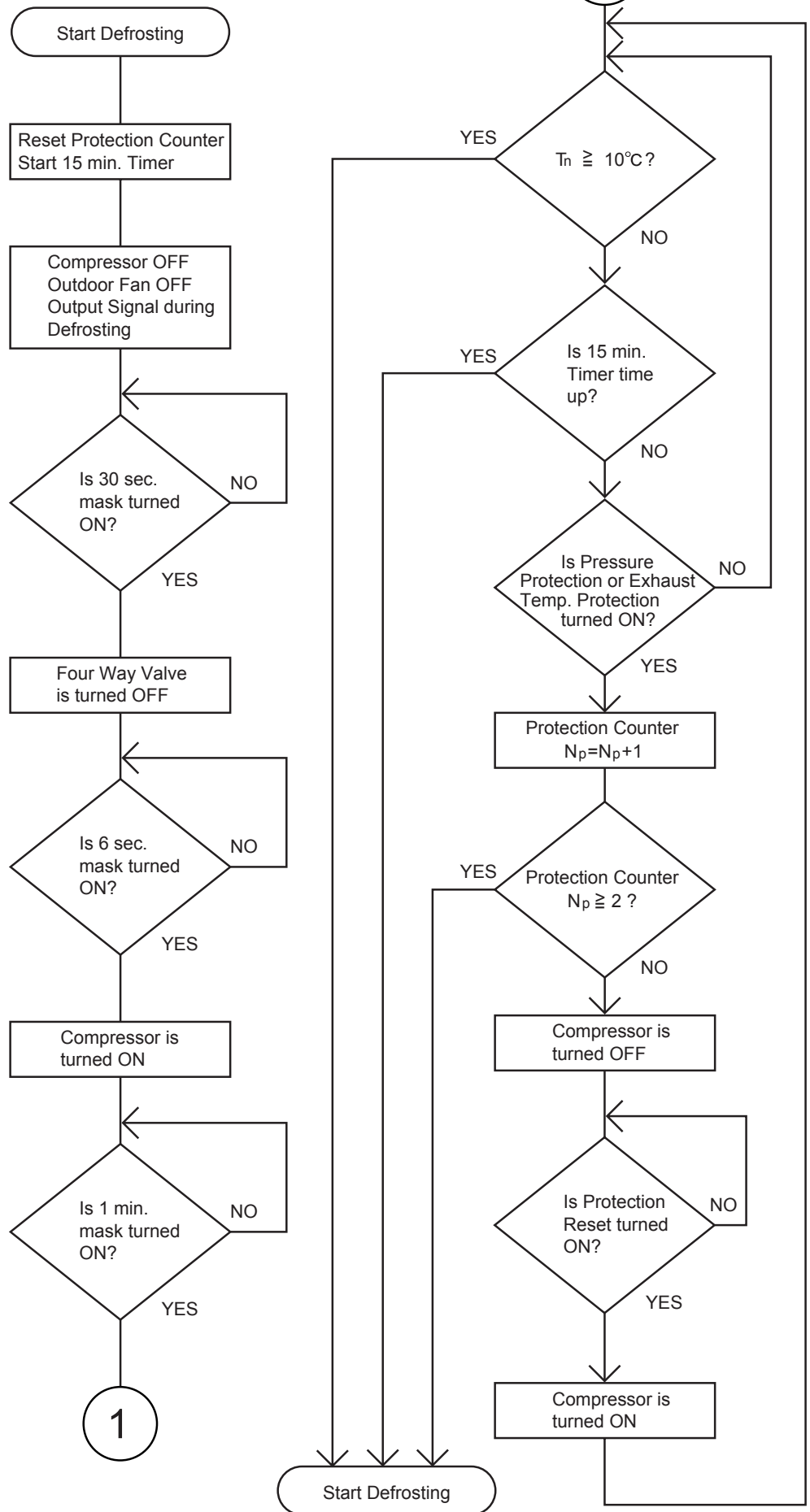
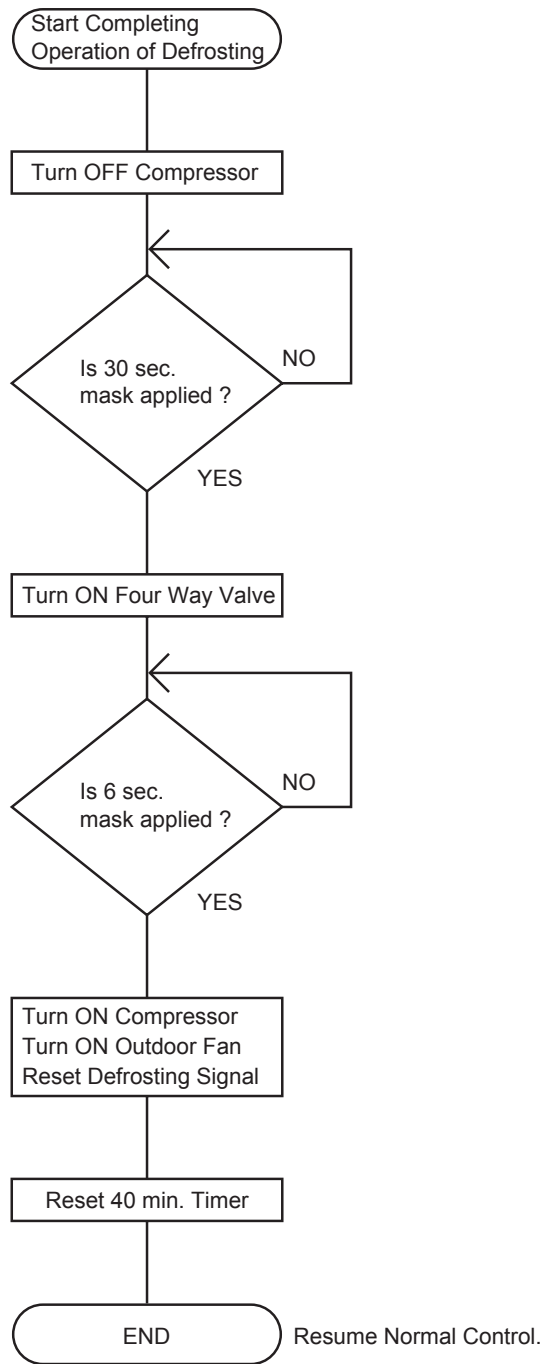


Fig. 3 Completing Defrosting Operation



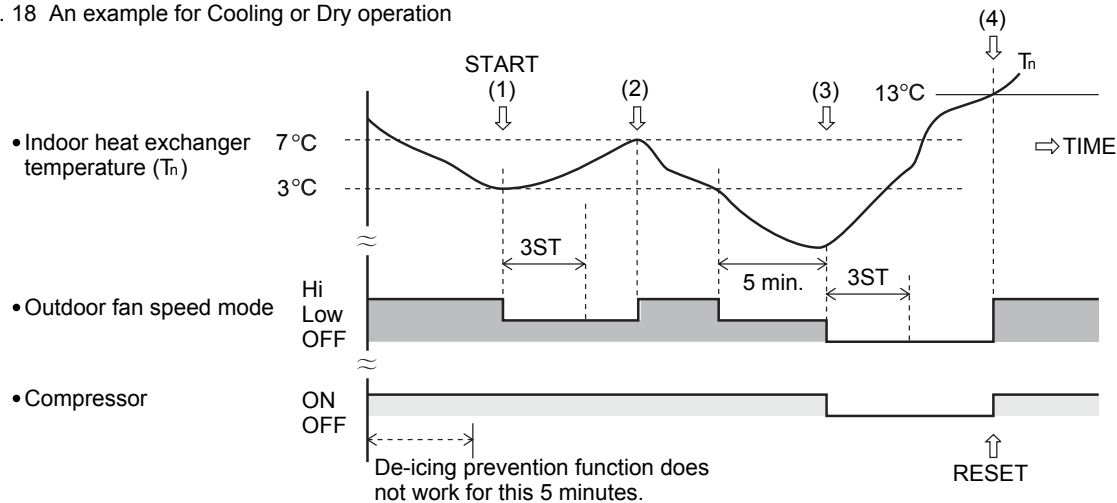
## 8. INDOOR HEAT EXCHANGER DE-ICING FUNCTION

- (1) When the temperature of the heat exchanger at the indoor side drops below 3°C during cooling operation, the outdoor fan control is switched to LOW automatically.
- (2) After that, when the temperature of the indoor heat exchanger reaches 7°C or more, the outdoor fan control returns to HIGH.
- (3) When the temperature of the indoor heat exchanger remains less than 3°C for 5 minutes at LOW of the outdoor fan control, operation of the compressor stops.
- (4) After that, when the temperature of the indoor heat exchanger rises above 13°C, the outdoor fan control returns to HIGH and the compressor starts.

Note :

However, when the outdoor unit fan is a single speed fan, it operates at HIGH even though it is set to LOW in the software.

Fig. 18 An example for Cooling or Dry operation



## 9. 3-MIN. CONTINUOUS OPERATION TIMER

For 3-min. after the compressor is started, operation continues without halting.

## 10. 4-WAY VALVE DELAY SWITCHING FUNCTION (COOL & HEAT MODEL)

When heat operation is stopped, 4-way valve is stopped 3 minutes later.

# TROUBLESHOOTING

## 1. WORKING INSPECTION (When cooling)

Symptom	Possible cause	Remedy
(1) Indoor unit evaporator is coated with frost.  a. Frost near inlet. b. Frost all over.	Gas leakage.  Clogged filter. Low ambient temperature.	Check the leaking part and charge gas.  Clean the filter. Check the ambient temperature
(2) Compressor operates, but it does not cool.	Stained condenser.	Clean.
(3) Water does not come out from the drain hose.	When the compressor operates normally, the gas leaks.	Charge gas and replace the parts.
(4) Return pipe (low pressure) of the compressor is not cold.	Gas leakage.	Charge gas. Replace parts.
(5) Outlet pipe (high pressure) of the compressor is not hot.	Gas leakage.	Charge gas.
(6) Compressor operates, but does not cool.  a. Indoor unit evaporator is cold. b. Outdoor unit condenser is hot, but it does not cool.	Overload operation.  Stained condenser.	Eliminate overload.  Clean.
(7) Indoor unit air outlet temperature is low, but it does not cool.	Clogged filter. The cooled air is short-circuited. Overload operation.	Clean. Isolate the problem and correct. Eliminate the overload.

## 2. SYMPTOMS AND CHECK ITEMS

Symptom	Cause	Check item	Check point
No operation	Power supply section	Check 1	Microcomputer input signals DC output voltage Power transformer
Erroneous operation	Reset section	Check 2	Reset circuit
Indication faulty	LED display controller	Check 3	Microcomputer output signal
	Remote control LED display	Check 4	LED control IC
		Check 5	Remote control

Symptom	Cause	Check item	Check point
Temperature control faulty	Room temperature thermistor A / D converter Indoor pipe temperature thermistor	Check 6	Room temperature thermistor A / D converter Indoor pipe temperature thermistor
Remote control input faulty	Input / output section	Check 5 Check 7	Remote control Microcomputer input / output section
Fan motor control faulty	Fan motor control output section	Check 6 Check 8	Fan motor control circuit
Indoor unit to outdoor unit control faulty	Output to outdoor unit	Check 9	Output circuit to outdoor unit

#### CHECK 1

Symptom..... No operation.  
(Machine does not run when the power cord is plugged into an AC outlet and the switch is turned on.)

##### 1) Power transformer check

Primary side..... 240V impressed ?  
(Primary side 3A fuse blown ?)

Secondary side.. Output voltage about 15 to 20V ?

##### 2) DC output voltage check

① 12V line  
12V output ?  
0V..... D6 faulty, TR1 faulty  
ZD1 shorted, C1, C2 shorted, R1 open (Other parts may be shorted also.)

② 5V line  
5V output ?  
0V..... D7 open, IC6 faulty  
(Other parts may be shorted also.)

5V or more.. IC6 faulty

##### 3) Interrupt signal faulty (INT input)

TR3 faulty, R44, R45 open  
R46, R47, C24 shorted

##### 4) Microcomputer faulty

No output from each output port.

##### 5) Remote control input / output faulty

IC3 faulty, IC10 faulty, R31 to R34 open, ZD5 to ZD8 open, RA1, RA2 shorted, C14 to C17 shorted

##### 6) Microcomputer input (oscillator) faulty

CL1, CL2, X1, X2 input signal faulty

##### 7) Remote control faulty (CHECK 5)

#### CHECK 2

Symptom..... Erroneous operation.  
(Operating state changes when the plug is reinserted into the outlet)

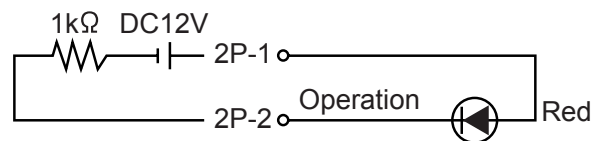
##### 1) Reset circuit faulty

TR2 faulty, C7 shorted, R4 shorted  
R5, C6 open, ZD2 open, R2 open

#### CHECK 3

Symptom..... Display faulty.

1) Check lighting of the LEDs by using a 12VDC power source and 1k $\Omega$  resistor as shown below.



#### CHECK 4

LED display control section check

##### 1) IC5 check

0V between pin connected to LED to be displayed and ground (pin 8) ?

If the voltage between the pins is not in 0 to 1.6V range, IC5 is faulty.

##### 2) Microcomputer output port connected to LED to be displayed "H" (5V) level ?

If not "H" level, the microcomputer is faulty. For the IC5 and microcomputer pin numbers refer to the circuit diagram.

#### CHECK 5

Remote control check (check with remote control unit alone)

- 1) Remote control LED check  
 Connect the (-) side of a tester to pin 4 of the 13P remote control connector and the (+) side to pin 3 (operation lamp) and pin 2 (timer lamp) and check the conduction.  
 (LED forward side conduction)  
 Check that the connector does not conduct in the reverse direction.

2) Remote switch conduction check

- ① Operate / Stop button  
 Conduction when the (-) side of a tester is connected to pin 13 of the 13P remote control connector, the (+) side is connected to pin 6, and the operate / stop button is pressed.
- ② Air flow switching  
 Connect the (-) side of a tester to pin 13 and the (+) side to pin 7 and pin 8 and check if the switch conducts at each setting.  
 (For the pin numbers that conduct, refer to the circuit diagram.)
- ③ Other switches  
 Connect the (-) side of a tester to pin 9, 10, 11 or 12 and the (+) side to pin 5, 6, 7 or 8 and check if the switch conducts at each setting.  
 (For the pin numbers that conduct, refer to the circuit diagram.)

CHECK 6  
 Symptom..... Temperature control faulty

1) A / D converter check

- ① Room temperature sensor
- \*Room temperature thermistor check.  
 Connect a multimeter between pins 1-2 of the 2P connector of the room thermistor.  
 The resistance must be  $10k\Omega \pm 3\%$  at 25°C.
  - \*Cooling → Compressor not turned off.  
 R14 open, R17, R20 shorted, IC2 faulty.
  - \*Cooling → Compressor not turned on.  
 R14, C8 shorted, R17, R20 open, IC2 faulty.

CHECK 7  
 Symptom..... Remote control setting faulty

- 1) Operate / Stop cannot be performed.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2, C15 shorted,  
 R33, ZD7 open.
- 2) Air flow cannot be switched.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2, C16, C17 shorted,  
 R31, R32, ZD5, ZD6 open.

- 3) Test operation cannot be performed.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2, C14 shorted,  
 R34, ZD8 open.
- 4) Timer switching cannot be performed.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2, C16, C17 shorted,  
 ZD5, ZD6, R31, R32 open.
- 5) Temperature cannot be set.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2 shorted, R31 to R34 open  
 C14 to C17 shorted, ZD5 to ZD8 open
- 6) Timer cannot be set.  
 IC3, IC10 faulty,  
 Microcomputer faulty,  
 RA1, RA2 shorted, C14 to C17 shorted  
 R31 to R34 open, ZD5, ZD6 open

CHECK 8  
 Symptom..... Indoor fan motor control faulty

- 1) Fan rotates while machine is stopped.  
 SSR1 faulty, IC4 faulty,  
 Microcomputer faulty (P40 remains "H")
- 2) Fan motor does not rotate.  
 SSR faulty, IC4 faulty,  
 Microcomputer faulty (P40 remains "L")
- 3) Only LOW operation is possible.  
 Microcomputer faulty (P41, P42 output faulty),  
 IC4 faulty, RY1 and RY3 faulty
- 4) MED operation and LOW operation cannot be performed.  
 Microcomputer faulty (P41 output faulty)  
 IC4 faulty, RY1 faulty

CHECK 9  
 Symptom..... Control to outdoor unit faulty

- 1) Compressor and outdoor fan not operated.  
 12VDC not output between signal line connector pins 1-2 and 1-4.  
 Microcomputer faulty (P51, P52 output faulty)  
 IC4 faulty
- 2) Compressor and outdoor fan not stopped.  
 12VDC output between signal line connector pins 1-2 and 1-4.  
 Microcomputer faulty (P51, P52 output faulty)  
 IC4 faulty

CHECK 10  
 Drain pump does not operate....  
 IC4 faulty, RY4 faulty, IC1 faulty

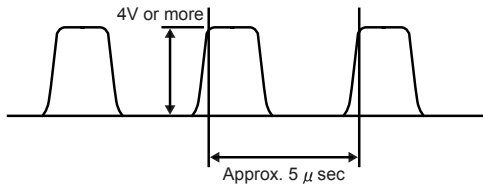
Air conditioner does not operate....  
 short between connector (CN17) pins 1 and 3.  
 Float switch faulty.

## WAVEFORMS CHECK

The waveform at each pin of the micro-computer is shown below.

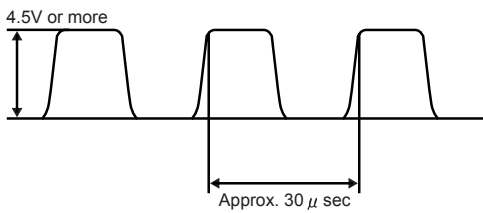
### 1) Waveform 1 (CL2 pin 21)

System clock waveform (frequency 120 to 280KHz)



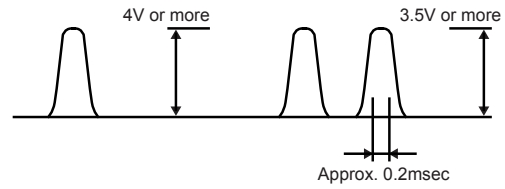
### 2) Waveform 2 (x2 pin 1)

Count clock waveform (frequency 32.7KHz)



### 3) Waveform 3 (P10 to P13 pins 6 to 9)

Microcomputer input waveform (Changes with the setting)



## 3. Thermistor resistance values.

### 1) Room temperature thermistor

Room temperature (°C)	3	5	8	10	15	20	25	29	31	33	36	40	44
Resistance value (KΩ)	28.7	25.9	22.3	20.1	15.8	12.5	10.0	8.4	7.7	7.0	6.2	5.3	4.5

### 2) Indoor unit pipe temperature thermistor

Room temperature (°C)	0	2	6	10	14	18	22	26	30
Resistance value (KΩ)	176.0	157.8	127.3	103.3	84.4	69.3	57.2	47.5	39.6

34	38	44	50	56	60
33.2	27.9	21.7	17.0	13.5	11.6

### 3) Discharge pipe temperature thermistor

Room temperature (°C)	-8	-4	0	4	8	12	16	20	24	28	32	36	40
Resistance value (KΩ)	273.7	218.6	175.7	142.1	115.7	94.7	77.9	64.5	53.6	44.8	37.7	31.8	26.9

### 4) Outdoor heat exchanger temperature thermistor, Outdoor temperature thermistor

Room temperature (°C)	-8	-4	0	4	8	12	16	20	24	28	32	36	40
Resistance value (KΩ)	24.6	19.8	16.1	13.1	10.7	8.8	7.3	6.1	5.1	4.3	3.6	3.1	2.6

