

HITACHI

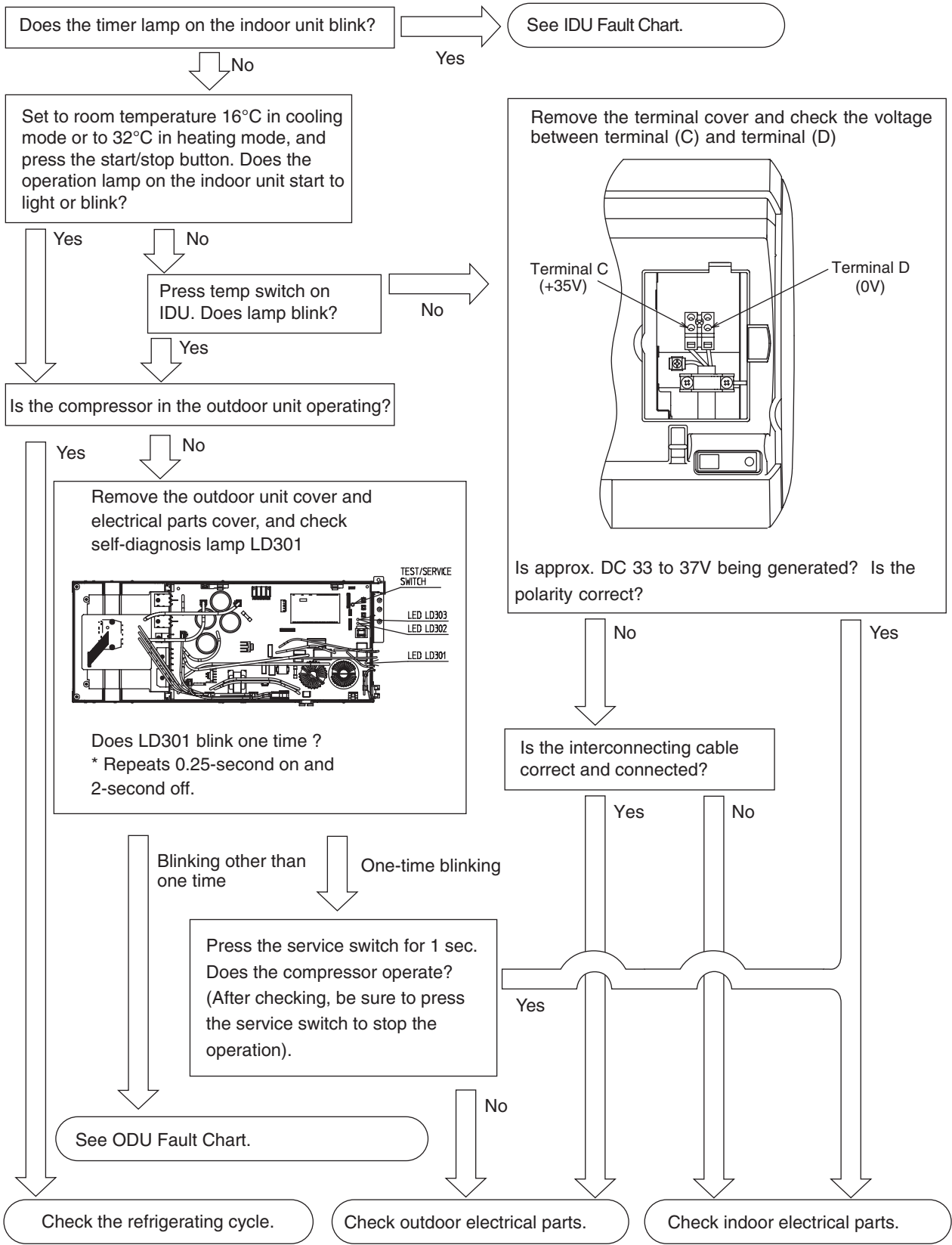
HEAT PUMPS

Troubleshooting Guide








Single & Multizone Wall Mount Systems

May 2011

INITIAL TROUBLESHOOTING FLOW CHART






IDU FAULT CHART








TIMER LAMP	DETAILS	MAIN CHECK POINT
 1 time	Reversing valve defective	1. Heat exchanger thermistor disconnected. (Heating Mode only) 2. Reversing valve coil defective 3. Reversing valve jammed (Read every 3 mins - requires 3 consecutive trips)
 2 times	Outdoor unit forced operation	Activation of service / Test run switch on ODU
 3 times	Communication Error	1. Communication Wire 2. Outdoor PCB 3. Indoor PCB
 4 times	Outdoor Unit fault	Refer Outdoor Unit fault chart.
 9 times	Thermistor fault	1. IDU Room temperature thermistor 2. IDU Heat exchanger thermistor
 10 times	Indoor fan fault	When over current is detected at the DC fan motor of the indoor unit 1. Fan motor locked / faulty 2. Indoor PCB faulty
 13 times	Data reading error	Program data corrupted or lost (possible power spike) 1. Power reset 2. Change main PCB

NOTE:









If the communication circuit is faulty when power is supplied, the self-diagnosis will not display.
 If the indoor unit does not operate at all check the connecting cable to the outdoor unit.

LEGEND		
		
OFF	ON	FLASHING

ODU FAULT CHART

LD301	LD302	LD303	SELF DIAGNOSIS NAME	DETAIL	MAIN CHECK POINT
DURING OPERATION					
○	○	●	Normal operation	Compressor operation	No malfunction
●	○	●	Overload(1)	(1) Warning state only	The rotation speed is automatically controlled to protect the compressor in the overload condition. This is a protection state, not a malfunction. (protecting compressor and other components)
○	●	●	Overload(2)	(2) No RPM increase	
●	●	●	Overload(3)	(3) Reduce RPM	
DURING STOP					
○	○	○	Normal Stop	Stopped by thermistor or controller.	No malfunction
 1 time	○	○	Reset stop	Microprocessor rebooted (Normal after power reset)	<ol style="list-style-type: none"> 1. Re-try operation 2. Power P.W.B 3. Main P.W.B.
 2 times	○	○	Peak current cut	Compressor current draw beyond maximum limit.	<ol style="list-style-type: none"> 1. Power P.C.B. 2. Main P.W.B. 3. Compressor
 3 times	○	○	Abnormal low speed rotation	Compressor motor position not detected.	<ol style="list-style-type: none"> 1. System power module 2. Main P.W.B. 3. Compressor
 4 times	○	○	Switching failure	Failure to switch from low speed start up mode to compressor rotor detection mode.	<ol style="list-style-type: none"> 1. System power module 2. Main P.W.B. 3. Compressor
 5 times	○	○	Overload at lower limit	Overload condition persists even when compressor at min speed.	<ol style="list-style-type: none"> 1. Outdoor airflow is blocked or is exposed to direct sunlight. 2. Voltage supply is abnormally low 3. Fan motor/fan motor circuit is faulty
 6 times	○	○	Compressor Overheat	Compressor thermistor detects temp. over max limit.	<ol style="list-style-type: none"> 1. Leak of refrigerant 2. OH thermistor/ OH thermistor circuit 3. Fan motor/fan motor circuit 4. Compressor
 7 times	○	○	Abnormal Thermistor	Thermistor is opened or shorted.	<ol style="list-style-type: none"> 1. Bad connection of thermistor 2. Thermistor Faulty 3. Thermistor circuit faulty

Perform Self Check (p.6)

 8 times	<input type="radio"/>	<input type="radio"/>	Compressor Acceleration failure	Compressor not accelerating more than min. speed.	<ol style="list-style-type: none"> 1. Leak of refrigerant 2. Power P.C.B. fault 3. Compressor fault
 9 times	<input type="radio"/>	<input type="radio"/>	Communication Error	No communication between indoor and outdoor units	<ol style="list-style-type: none"> 1. C, D cable reversed installation 2. Cable disconnected 3. Outdoor P.C.B. 4. Indoor P.C.B.
 10 times	<input type="radio"/>	<input type="radio"/>	Power supply error	Power supply is abnormal (low)	<ol style="list-style-type: none"> 1. Check power supply voltage = 204–264 V 2. Reactor connection 3. Power P.C.B.
 11 times	<input type="radio"/>	<input type="radio"/>	Fan motor overload	Fan Motor Load too heavy or rotation disturbed by windblow.	<ol style="list-style-type: none"> 1. Outdoor Wind Condition (Install barrier/ Deflector) 2. Fan Motor
 12 times	<input type="radio"/>	<input type="radio"/>	Fan fault	Outdoor fan rotation is abnormal	<ol style="list-style-type: none"> 1. Outdoor fan Motor 2. Fan Motor circuit 3. P.W.B. (fuse)
 13 times	<input type="radio"/>	<input type="radio"/>	Data read error	EEPROM program data corrupted or lost (possible power surge)	Main P.C.B.
 14 times	<input type="radio"/>	<input type="radio"/>	PAM active converter defective	Over voltage is detected. System power module detects over-voltage by power P.C.B.. Compressor load abnormal.	<ol style="list-style-type: none"> 1. Reactor 2. Power P.C.B. 3. Compressor
 15 times	<input type="radio"/>	<input type="radio"/>	PAM active converter defective	Inverter active circuit abnormal	<ol style="list-style-type: none"> 1. Reactor 2. Power P.C.B. 3. Main P.W.B

Perform Self Check (p.6)

NOTE:

Do not disconnect anything until smoothing capacitors discharged.

ODU SELF CHECK MODE

When ODU fault lamp blinks 2,3,4,5,14 and 15 times, follow the below to determine whether the PCB's or compressor are faulty.

* SELF CHECK diagnosis method

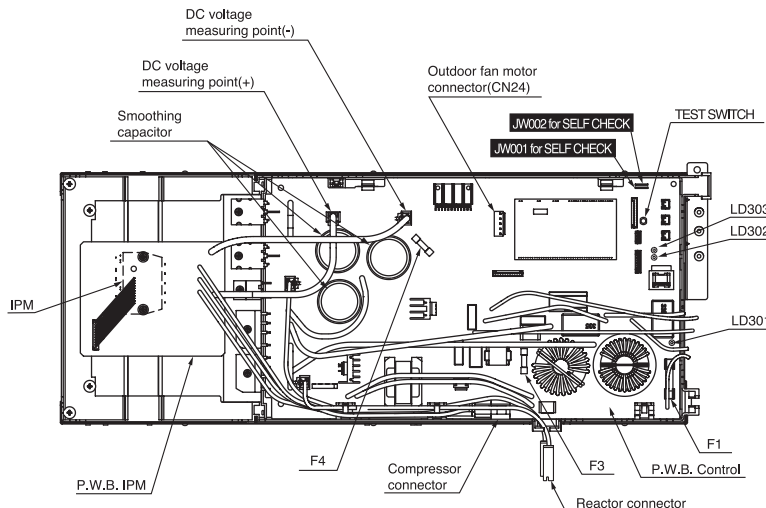
1. Switch OFF main power supply.
 2. Cut JW001 (if complete) or short circuit between JW001 and JW002. For YHA3 models remove CN30 connector.
 3. Switch ON main power supply (LD302 will blink 1 time).
 4. Press Test/Service Switch for 1 second or more.
 5. Self-diagnosis result will be shown (LD303 light on and LD301 will blinking), refer diagnosis table below.
 6. Switch OFF main power supply.
- If JW001 cut : solder it to join back
 If JW001 and JW002 shorted : release back to original condition (No short circuit condition)
 If CN30 removed – replace.

* SELF CHECK diagnosis result

SELF-DIAGNOSIS LIGHTING MODE			■ LIT	▣ BLINKING	□ OFF	SELF-DIAGNOSIS RESULT	REPAIR METHOD
LD301	LD302	LD303					
RED	RED	RED	▣	▣	□	ELECTRICAL OK	① CHANGE COMPRESSOR
1 TIME			▣	▣	■	PEAK CURRENT CUT OFF	① CHANGE P.W.B.s
2 TIMES			▣	▣	■	COMPRESSOR CURRENT ABNORMAL	① IF COMPRESSOR CONNECTOR LOOSE OR NG - CHECK CONNECTOR CONDITION ② IF COMPRESSOR CONNECTOR OK, - CHECK COMPRESSOR, CHANGE P.W.B.s
7 TIMES			▣	▣	■	DC VOLTAGE ABNORMAL	① AC VOLTAGE INPUT ABNORMAL (OVER STANDARD VOLTAGE ±10%), ② IF AC VOLTAGE INPUT IS NORMAL (WITHIN ±10%), - CHANGE P.W.B.s
10 TIMES			▣	▣	■	EEPROM READING ERROR	① CHANGE P.W.B. MAIN
13 TIMES							

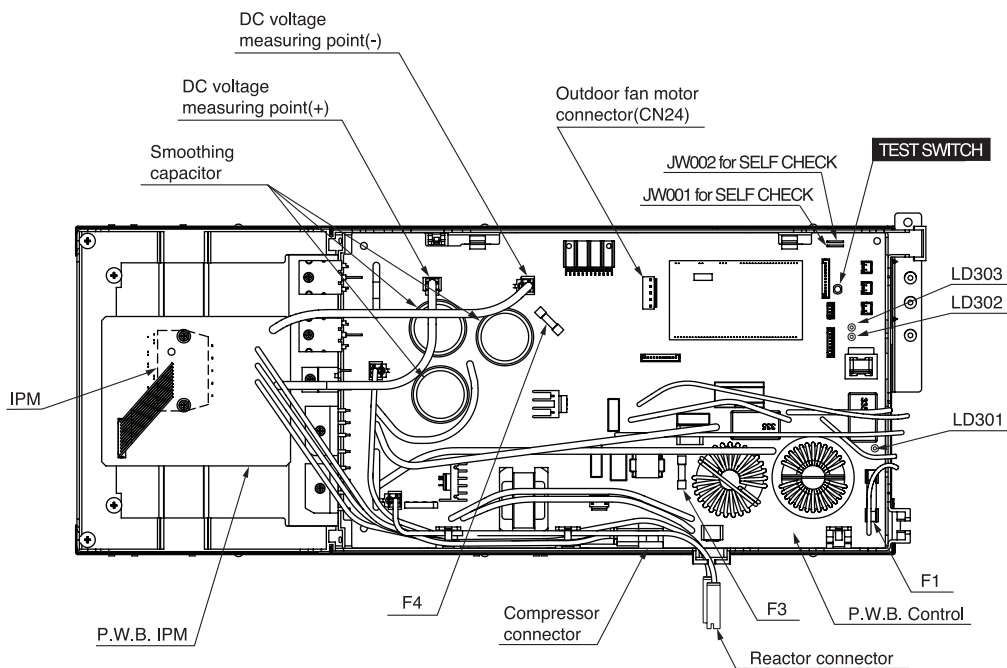
In case abnormalities found in measurement result, change the defective part. Before reuse, re-new.

JW001 and JW002 to normal condition.



TEST RUN MODE

1. Disconnect power supply and wait for 1 minute before reconnecting.
2. Remove outdoor electrical cover and confirm that LD301 will blink 1 time.
3. **Forced cooling operation is started when TEST SWITCH is pressed for 1 second or more.**
 - ※ (In some cases operation will only start after 1 minute after pressing the TEST SWITCH due to initializing of the expansion valve.)
5. Press the test switch again for about 1 second or more to stop the test run operation.



※ Caution

1. Turn OFF the breaker first before starting servicing.
2. Never operate the unit in this condition for more than 5 minutes.
3. If the test run is done with the compressor connector disconnected, the unit will continue normal operation when electrical parts are normal, or if not it will operate for approximately 1 minute and stop due to overload power limit cut.
4. If interface signal (DC35V) terminal C and D are not connected when the outdoor unit TEST SWITCH is used for checking, LD301 will blink 9 times after operation to indicate a communication error.
5. To proceed with TEST SWITCH operation again, breaker must be turned OFF and ON again. (TEST SWITCH will operate 1 time only once power is supplied)
6. When service operation is completed, restore all connections as original condition.

NB: Can also be used to pump unit down if appropriate valves are closed.

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