

TECHNICAL & SERVICE MANUAL

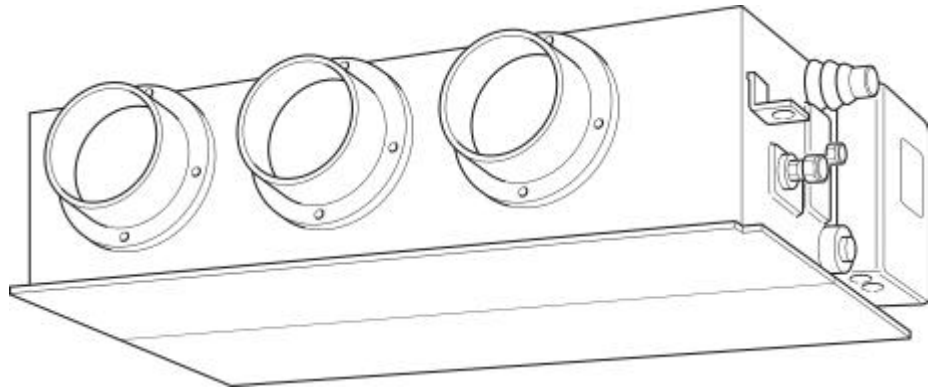
Euro-Line®

ADR522CW — AE522SC
 — AE522SC3 / AER522SCL3

ADR522HW — AE522HS
 — AE522HS3 / AER522HS3

SPLIT SYSTEM AIR CONDITIONER

INDOOR UNIT



OUTDOOR UNIT

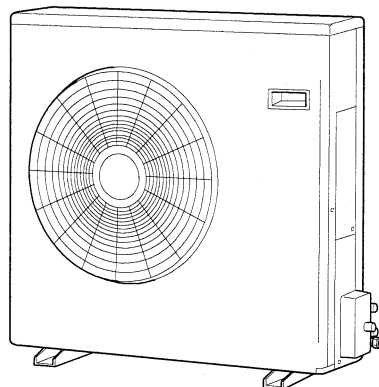


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A**OPERATING RANGE**

Function	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	35°C DB / 22°C WB	46°C DB
	Minimum	19°C DB / 14°C WB	19°C DB
Heating	Maximum	27°C DB / 19°C WB	24°C DB / 18°C WB
	Minimum	- DB / - WB	-8°C DB / -9°C WB

Referred to the systems - ADR522CW - AER522SCL3 only (3 phase and low ambient version)

		INDOOR UNIT	OUTDOOR UNIT
Function	Temperature	Indoor air intake temp.	Outdoor air intake temp.
Cooling	Maximum	35°C BS / 22°C BU	50°C BS
	Minimum	19°C BS / 14°C BU	-15°C BS

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522CW	
	OUTDOOR UNIT		AE522SC	
Power source	220 / 230 / 240V - 1 - 50 Hz			
PERFORMANCES			COOLING	
Capacity	BTU/h		21.500	
	W (Kcal/h)		6.300 (5.418)	
Air circulation (high - med - low)	m ³ /h		1200	
External static pressure (high speed)	mm w.g. (Pa)		5 (49) at shipment - 10 (98) using the Booster cable	
Moisture removal	l/h		2.8	
ELECTRICAL RATINGS				
Voltage rating	V		230	
Available voltage range	V		198 ÷ 264	
Running ampere	A		12.5	
Power input	W		2.600	
Power factor	%		90	
Compressor locked rotor amperes	A		70	
C.O.P.	W/W		2,42	
FEATURES				
Controls	Microprocessor			
Control unit	Remote control			
Temperature control	I.C. thermostat			
Timer	ON/OFF 12 hours			
Fan speed indoor / outdoor	3 and auto / 2 auto			
Air filter	Washable, easy access			
Compressor	Rotary (hermetic)			
Refrigerant / ref. control / amount charged at ship	g R22 / capillary tube / 2,5 g			
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		38 / 33 / 29	
	Outdoor Hi / Lo (3 m) dB-A		55 / 52	
Max. tubing length	m		(with factory R22 charge) 10	
Max. allowable tubing length	m		(with R22 addition) 20	
Required amount of additional refrigerant	g/m		25	
Limit of elevation difference between the two units	m		7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")	
	Wide tube mm (in.)		15.88 (5/8")	
Accessory	Booster cable			
DIMENSIONS AND WEIGHT			INDOOR UNIT	OUTDOOR UNIT
High	mm		316	835
Width	mm		1050	850
Depth	mm		665	305
Net weight	kg		51	70
Shipping volume	m ³		0.44	0.37
Shipping weight (approx.)	kg		53	79

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522CW		
	OUTDOOR UNIT		AE522SC3		
Power source		400V - 3N - 50 Hz (4 wires)			
PERFORMANCES		COOLING			
Capacity	BTU/h		20.400		
	W (Kcal/h)		6.000 (5.160)		
Air circulation (high - med - low)		m ³ /h		1200	
External static pressure (high speed)		mm w.g. (Pa)			5 (49) at shipment - 10 (98) using the Booster cable
Moisture removal		l/h		2.8	
ELECTRICAL RATINGS					
Voltage rating		V		400	
Available voltage range		V		342 ÷ 440	
Running ampere		A		4.6	
Power input		W		2.500	
Power factor		%		80	
Compressor locked rotor amperes		A		28	
C.O.P.		W/W		2.4	
FEATURES					
Controls		Microprocessor			
Control unit		Remote control			
Temperature control		I.C. thermostat			
Timer		ON/OFF 12 hours			
Fan speed indoor / outdoor		3 and auto / 2 auto			
Air filter		Washable, easy access			
Compressor		Rotary (hermetic)			
Refrigerant / ref. control / amount charged at ship		g R407c / capillary tube / 2.38 g			
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		38 / 33 / 29		
	Outdoor Hi / Lo (3 m) dB-A		51 / 44		
Max. tubing length		m		(with factory R22 charge) 10	
Max. allowable tubing length		m		(with R22 addition) 20	
Required amount of additional refrigerant		g/m		25	
Limit of elevation difference between the two units		m		7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")		
	Wide tube mm (in.)		15.88 (5/8")		
Accessory		Booster cable			
DIMENSIONS AND WEIGHTH		INDOOR UNIT		OUTDOOR UNIT	
High		mm		316	
Width		mm		1050	
Depth		mm		665	
Net weighth		kg		51	
Shipping volume		m ³		0.44	
Shipping weight (approx.)		kg		53	
				79	

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522CW	
	OUTDOOR UNIT		AER522SCL3	
Power source	400V - 3N - 50 Hz (4 wires)			
PERFORMANCES			COOLING	
Capacity	BTU/h		21.000	
	W (Kcal/h)		6.150 (5,335)	
Air circulation (high - med - low)	m ³ /h		1200	
External static pressure (high speed)	mm w.g. (Pa)		5 (49) at shipment - 10 (98) using the Booster cable	
Moisture removal	l/h		2,8	
ELECTRICAL RATINGS				
Voltage rating	V		400	
Available voltage range	V		342 ÷ 440	
Running ampere	A		4.8	
Power input	W		2.800	
Power factor	%		85	
Compressor locked rotor amperes	A		28	
C.O.P.	W/W		2,2	
FEATURES				
Controls	Microprocessor			
Control unit	Remote control			
Temperature control	I.C. thermostat			
Timer	ON/OFF 12 hours			
Fan speed indoor / outdoor	3 and auto / 2 auto			
Air filter	Washable, easy access			
Compressor	Rotary (hermetic)			
Refrigerant / ref. control / amount charged at ship	g R407c / capillary tube / 2.410 g			
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		38 / 33 / 29	
	Outdoor Hi / Lo (3 m) dB-A		55 / 52	
Max. tubing length	m		(with factory R407c charge) 10	
Max. allowable tubing length	m		(with R407c addition) 30	
Required amount of additional refrigerant	g/m		25	
Limit of elevation difference between the two units	m		7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")	
	Wide tube mm (in.)		15,88 (5/8")	
Accessory	Booster cable			
DIMENSIONS AND WEIGHT			INDOOR UNIT	OUTDOOR UNIT
High	mm		316	835
Width	mm		1.050	850
Depth	mm		665	305
Net weight	kg		51	70
Shipping volume	m ³		0,44	0,37
Shipping weight (approx.)	kg		53	79

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522HW	
	OUTDOOR UNIT		AE522SH	
Power source		220 / 230 / 240V - 1 - 50 Hz		
PERFORMANCES		COOLING		HEATING
Capacity	BTU/h		20.800	25400
	W (Kcal/h)		6.100 (5246)	7.450 (6.407)
Air circulation (high - med - low)		m ³ /h	1200	
External static pressure (high speed)		mm w.g. (Pa)	5 (49) at shipment - 10 (98) using the Booster cable	
Moisture removal		l/h	2,8	
ELECTRICAL RATINGS				
Voltage rating		V	264	
Available voltage range		V	198 ÷ 264	
Running ampere		A	12	13.6
Power input		W	2.650	2.970
Power factor		%	96	95
Compressor locked rotor amperes		A	70	
C.O.P.		W/W	2.3	2.5
FEATURES				
Controls		Microprocessor		
Control unit		Remote control		
Temperature control		I.C. thermostat		
Timer		ON/OFF 12 hours		
Fan speed indoor / outdoor		3 and auto / 2 auto		
Air filter		Washable, easy access		
Compressor		Rotary (hermetic)		
Refrigerant / ref. control / amount charged at ship		g R22 / capillary tube / 2.28 g		
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		38 / 33 / 29	
	Outdoor Hi / Lo (3 m) dB-A		55 / 52	
Max. tubing length		m	(with factory R22 charge)	10
Max. allowable tubing length		m	with R22 addition)	30
Required amount of additional refrigerant		g/m	25	
Limit of elevation difference between the two units		m	7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")	
	Wide tube mm (in.)		15,88 (5/8")	
Accessory		Booster cable		
DIMENSIONS AND WEIGHT		INDOOR UNIT		OUTDOOR UNIT
High		mm	316	835
Width		mm	1.050	850
Depth		mm	665	305
Net weight		kg	51	70
Shipping volume		m ³	0,44	0,37
Shipping weight (approx.)		kg	53	79

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522HW	
	OUTDOOR UNIT		AE522SH3	
Power source		400V - 3N - 50 Hz (4 wires)		
PERFORMANCES		COOLING		HEATING
Capacity	BTU/h		20.000	25.000
	W (Kcal/h)		5.800 (4.988)	7.300 (6.278)
Air circulation (high - med - low)		m ³ /h	1200	
External static pressure (high speed)		mm w.g. (Pa)	5 (49) at shipment - 10 (98) using the Booster cable	
Moisture removal		l/h	2.8	----
ELECTRICAL RATINGS				
Voltage rating		V	400	
Available voltage range		V	342 ÷ 440	
Running ampere		A	4.5	4.8
Power input		W	2.650	2.900
Power factor		%	93	94
Compressor locked rotor amperes		A	28	
C.O.P.		W/W	2,36	2,73
FEATURES				
Controls		Microprocessor		
Control unit		Remote control		
Temperature control		I.C. thermostat		
Timer		ON/OFF 12 hours		
Fan speed indoor / outdoor		3 and auto / 2 auto		
Air filter		Washable, easy access		
Compressor		Rotary (hermetic)		
Refrigerant / ref. control / amount charged at ship		g R22 / capillary tube / 2,46 g		
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		38 / 33 / 29	
	Outdoor Hi / Lo (3 m) dB-A		55 / 52	
Max. tubing length		m	(with factory R22 charge)	10
Max. allowable tubing length		m	(with R22 addition)	20
Required amount of additional refrigerant		g/m	25	
Limit of elevation difference between the two units		m	7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")	
	Wide tube mm (in.)		15.88 (5/8")	
Accessory		Booster cable		
DIMENSIONS AND WEIGHT		INDOOR UNIT		OUTDOOR UNIT
High		mm	316	835
Width		mm	1050	850
Depth		mm	665	305
Net weight		kg	51	70
Shipping volume		m ³	0.44	0.37
Shipping weight (approx.)		kg	53	79

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

1) UNIT SPECIFICATIONS

UNIT MODEL	INDOOR UNIT		ADR522HW	
	OUTDOOR UNIT		AER522SH3	
Power source		400V - 3N - 50 Hz (4 wires)		
PERFORMANCES		COOLING		HEATING
Capacity	BTU/h		19.500	26.000
	W (Kcal/h)		5.700 (4.902)	7.400 (6.364)
Air circulation (high - med - low)		m ³ /h	1200	
External static pressure (high speed)		mm w.g. (Pa)	5 (49) at shipment - 10 (98) using the Booster cable	
Moisture removal		l/h	2.8	-----
ELECTRICAL RATINGS				
Voltage rating		V	400	
Available voltage range		V	342 ÷ 440	
Running ampere		A	4.8	5
Power input		W	2.750	3.000
Power factor		%	83	86
Compressor locked rotor amperes		A	28	
C.O.P.		W/W	2.1	2.5
FEATURES				
Controls		Microprocessor		
Control unit		Remote control		
Temperature control		I.C. thermostat		
Timer		ON/OFF 12 hours		
Fan speed indoor / outdoor		3 and auto / 2 auto		
Air filter		Washable, easy access		
Compressor		Rotary (hermetic)		
Refrigerant / ref. control / amount charged at ship		g R407c / capillary tube / 2,40 g		
Operation sound	Indoor Hi / Me / Lo (1 m) dB-A		39/ 33 / 29	
	Outdoor Hi / Lo (3 m) dB-A		55/ 52	
Max. tubing length		m	(with factory R407c charge)	10
Max. allowable tubing length		m	(with R407c addition)	20
Required amount of additional refrigerant		g/m	25	
Limit of elevation difference between the two units		m	7	
Refrigerant tube diameter	Narrow tube mm (in.)		6,35 (1/4")	
	Wide tube mm (in.)		15.88 (5/8")	
Accessory		Booster cable		
DIMENSIONS AND WEIGHT		INDOOR UNIT		OUTDOOR UNIT
High		mm	316	835
Width		mm	1050	850
Depth		mm	665	305
Net weight		kg	51	70
Shipping volume		m ³	0.44	0.37
Shipping weight (approx.)		kg	53	79

Data subject to change without notice.

NOTA. Rating conditions:

Cooling: Outside air temp.: 35°C DB, indoor unit entering air temp.: 27°C DB / 19°C WB

Heating: Outside air temp.: 7°C DB / 6°C WB, indoor unit entering air temp.: 20°C DB

d) INDOOR UNIT

UNIT MODEL		ADR522CW/ADR522HW	
Power source		220 / 230 / 240V -1 - 50 Hz	
REMOTE CONTROL UNIT		RCS-U186QH	
CONTROLLER P.C.B.		POW-U226QH	
Controls		Microprocessor	
Control circuit fuse		250V - 3A	
FAN		Centrifugal	
Number ... dia. / length	mm	2 ... \varnothing 200 / L 230	
FAN MOTOR			
Model ... Number		K48415M01535 ... 1	
Power source	V	220 / 230 / 240-1-50 Hz	
No. di poli ... giri/min (230V-max)		4 ... 800	
Nominal output	W	65	
Coil resistance (Ambient temp. 20°C)	Ω	WHT - BRN : 81,1 ORG - VLT : 36,8 YEL - ORG : 51,4 BLK - YEL : 20,6 WHT - VLT : 12,7 VLT - PNK : 44,2	
SAFETY DEVICES		Internal type	
Operating temp.	Open	°C	130 \pm 8
	Close	°C	79 \pm 15
Run capacitor		μ F	5
		VAC	440
DRAIN PUMP			
Model		PC	
Rated	Voltage	AC 230V - 50 Hz	
	Input	14.7 W	
Total head capacity		0.4 m / 0.6 l/m	
HEAT EXCHANGER			
Coil		Aluminum plate fin / Copper tube	
Rows		2	
Fin pitch	mm	1.8	
Fase area	m ²	0.125	
EXTERNAL FINISH		Insulated galvanized metal sheet	

Outdoor Unit **AE522SH**

Controller PCB				POW-C226GH		
Compressor	Type			Rotary (Hermetic)		
	Compressor model			C-R221H5S 80687145B		
	Nominal output			W	2,200	
	Compressor oil ... Amount			cc	4GSD-T or SAY-56T ... 1,350	
	Coil resistance (Ambient temp. 25°C)			Ω	C - R : 0.78 C - S : 2.41	
	Safety devices	Type			Internal protector	External protector (OLR)
		Overload relay			—	OL-D24
		Operating temp.	Open	°C	Automatic opening	150 ± 5
			Close	°C	Automatic reclosing	63 ± 11
	Operating amp. (Ambient temp. 25°C)			—	Trip in 6 to 16 sec. at 59 A	
	Run capacitor			μF	40.0	
			VAC	450		
Crank case heater			240V 30W			
Fan & Fan Motor	Type			Propeller		
	Number ... Dia.			mm	1 ... ø 460	
	Fan motor model ... Number			Smen 19TFB6064 ... 1		
	No. of poles ... rpm (230 V, High)			6 ... 836		
	Nominal output			W	50	
	Coil resistance (Ambient temp. 20°C)			Ω	WHT - BRN : 99.5 ± 7% WHT - YEL : 252.0 ± 7% WHT - PNK : 63.2 ± 7%	
	Safety devices	Type			Thermal protector	
		Operating temp.	Open	°C	130 ± 5	
			Close		Automatic reclosing	
	Run capacitor			μF	5.0	
			VAC	440		
Heat Exch. Coil	Coil			Aluminum plate fin / Copper tube		
	Rows			2		
	Fin pitch			mm	2.0	
	Face area			m ²	0.610	
External Finish				Acrylic baked-on enamel finish		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Power source	380 - 400 V - 3N ~ 50 Hz			
Control circuit	220 - 240 V ~ 50 Hz			
CONTROLLER PCB	POW-C226GH			
COMPRESSOR				
Type	Rotary (Hermetic)			
Compressor model	C-R223H8S-806-871-88B			
Source	380 - 400 V - 3N ~ 50 Hz			
Nominal output	W	2200		
Compressor oil ... Amount	cc	SUNISO4CS ... 1350		
Coil resistance (Ambient temp. 25°C)	C - R	Ω	4,97	
	C - S	Ω	4,64	
	R - S	Ω	4,88	
Safety devices: Type		Internal protector	External protector	
Overload relay		//	HOE-10TB TH-7A	
Operating temp.	Open	°C	Automatic opening	//
	Close	°C	Automatic reclosing	//
Operating amp. (Ambient temp. 25°C)			//	7A
Run capacitor		μF	//	
		VAC	//	
Crank case heater	240 V - 30 W			
FAN AND FAN MOTOR				
Type	Propeller			
Number ... Dia.	mm	1 ... Ø460		
Fan motor model ... Number	Smen 19TFB6064 ... 1			
Source	220 - 240 V ~ 50 Hz			
No. of poles ... rpm (220 V)	6 ... 840			
Nominal output	W	50		
Coil resistance (Ambient temp. 20°C)	WHT - BRN	Ω	99,5	
	WHT - YEL	Ω	252,0	
	WHT - PNK	Ω	63,2	
Safety devices: Type		Internal protector		
Operating temp.	Open	°C	130 ± 8	
	Close		Automatic reclosing	
Run capacitor		μF	5	
		VAC	440	
HEAT EXCH. COIL				
Coil	Aluminum plate fin / Copper tube			
Rows	2			
Fin pitch	mm	2		
Face area	m ²	0,61		
EXTERNAL FINISH	Acrylic baked-on enamel finish			

Data subject to change without notice.

Power source	380 - 400 V - 3N ~ 50 Hz			
Control circuit	220 - 240 V ~ 50 Hz			
CONTROLLER PCB	POW-C226GH			
COMPRESSOR				
Type	Rotary (Hermetic)			
Compressor model	C-RN223H8A 80244088B			
Source	380 - 400 V - 3N ~ 50 Hz			
Nominal output	W	2200		
Compressor oil ... Amount	cc	FV68S ... 1350		
Coil resistance (Ambient temp. 25°C)	C - R	Ω	4,97	
	C - S	Ω	4,64	
	R - S	Ω	4,88	
Safety devices: Type		Internal protector	External protector	
Overload relay		//	HOE-10TB TH-7A	
Operating temp.	Open	°C	Automatic opening	//
	Close	°C	Automatic reclosing	//
Operating amp. (Ambient temp. 25°C)			//	7A
Run capacitor		μF	//	
		VAC	//	
Crank case heater		240 V - 30 W		
FAN AND FAN MOTOR				
Type	Propeller			
Number ... Dia.	mm	1 ... Ø460		
Fan motor model ... Number	Smen 19TFB6064 ... 1			
Source	220 - 240 V ~ 50 Hz			
No. of poles ... rpm (220 V)	6 ... 840			
Nominal output	W	50		
Coil resistance (Ambient temp. 20°C)	WHT - BRN	Ω	99,5	
	WHT - YEL	Ω	252,0	
	WHT - PNK	Ω	63,2	
Safety devices: Type		Internal protector		
Operating temp.	Open	°C	130 ± 8	
	Close		Automatic reclosing	
Run capacitor		μF	5	
		VAC	440	
HEAT EXCH. COIL				
Coil	Aluminum plate fin / Copper tube			
Rows	2			
Fin pitch	mm	2		
Face area	m ²	0,61		
EXTERNAL FINISH	Acrylic baked-on enamel finish			

Data subject to change without notice.

Outdoor Unit **AE522SC**

Controller PCB				—		
Compressor	Type			Rotary (Hermetic)		
	Compressor model			C-R221H5S 80687145B		
	Nominal output			W	2,200	
	Compressor oil ... Amount			cc	4GSD-T or SAY-56T ... 1,350	
	Coil resistance (Ambient temp. 25°C)			Ω	C - R : 0.78 C - S : 2.41	
	Safety devices	Type			Internal protector	External protector (OLR)
		Overload relay			—	OL-D24
		Operating temp.	Open	°C	Automatic opening	150 ± 5
			Close	°C	Automatic reclosing	63 ± 10
	Operating amp. (Ambient temp. 25°C)			—	Trip in 6 to 16 sec. at 57 A	
	Run capacitor			μF	40.0	
			VAC	400		
Crank case heater			240V 30W			
Fan & Fan Motor	Type			Propeller		
	Number ... Dia.			mm	1 ... ø 460	
	Fan motor model ... Number			Smen 19TFB6064 ... 1		
	No. of poles ... rpm (230 V, High)			6 ... 840		
	Nominal output			W	63	
	Coil resistance (Ambient temp. 20°C)			Ω	WHT - BRN : 99.5 ± 7% WHT - YEL : 252.0 ± 7% WHT - PNK : 63.2 ± 7%	
	Safety devices	Type			Thermal protector	
		Operating temp.	Open	°C	130 ± 5	
			Close		Automatic reclosing	
	Run capacitor			μF	5.0	
			VAC	440		
Heat Exch. Coil	Coil			Aluminum plate fin / Copper tube		
	Rows			2		
	Fin pitch			mm	2.0	
	Face area			m ²	0.610	
External Finish				Acrylic baked-on enamel finish		

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **AE522SC3**

Controller PCB		Part No.		Johnson Control			
Compressor	Type		Rotary (Hermetic)				
	Compressor model		C-R223H8S - 806187188B				
	Source		380 – 400 V – 3N ~ 50 Hz				
	Nominal output		W	2200			
	Compressor oil ... Amount		cc	SUNISO 4GSD-T ... 1350			
	Coil resistance (Ambient temp. 25°C)		Ω	C – R : 4.97 C – S : 4.64 R – S : 4.88			
	Safety devices	Type		Internal protector	External protector		
		Overload relay		-	HOE-10TB TH-7A		
		Operating temp.	Open	°C	125 ± 5	—	
			Close	°C	Automatic reclosing	—	
	Operating amp. (Ambient temp. 25°C)			-	7A		
	Run capacitor		μF	—			
		VAC	—				
Crank case heater			240V 30W				
Fan & Fan Motor	Type		Propeller				
	Q'ty ... Dia.		mm	1 ... ø460			
	Fan motor model ... Q'ty			SMEN 19TFB6064 ... 1			
	Source		220 – 230 V ~ 50 Hz				
	No. of poles ... rpm (220 V, High)		6 ... 840				
	Nominal output		W	50			
	Coil resistance (Ambient temp. 20°C)		Ω	WHT – BRN : 99.5 / WHT - YEL : 252 WHT – PNK : 63.2			
	Safety devices	Type		Internal type			
		Operating temp.	Open	°C	130 ± 5		
			Close	Automatic reclosing			
Run capacitor		μF	5.0				
		VAC	400				
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube				
	Rows		2				
	Fin pitch		mm	2.0			
	Face area		m ²	0.610			
External Finish				Acrylic baked-on enamel finish			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

Outdoor Unit **AER522SCL3**

Controller PCB		Part No.		Johnson Control			
Compressor	Type		Rotary (Hermetic)				
	Compressor model		C-RN223H8A 80244088B				
	Source		380 – 400 V – 3N ~ 50 Hz				
	Nominal output		W	2200			
	Compressor oil ... Amount		cc	FV68S ... 1350			
	Coil resistance (Ambient temp. 25°C)		Ω	C – R : 4.97 C – S : 4.64 R – S : 4.88			
	Safety devices	Type		Internal protector	External protector		
		Overload relay		HOE-10TB TH-7A	—		
		Operating temp.	Open	°C	Automatic opening	—	
			Close	°C	Automatic reclosing	—	
	Operating amp. (Ambient temp. 25°C)			7A	—		
	Run capacitor		μF	—			
		VAC	—				
Crank case heater			240V 30W				
Fan & Fan Motor	Type		Propeller				
	Q'ty ... Dia.		mm	1 ... ø460			
	Fan motor model ... Q'ty			SMEN 1STFB6064 ... 1			
	Source		220 – 230 V ~ 50 Hz				
	No. of poles ... rpm (220 V, High)		6 ... 840				
	Nominal output		W	50			
	Coil resistance (Ambient temp. 20°C)		Ω	WHT – BRN : 99.5 / WHT - YEL : 252 WHT – PNK : 63.2			
	Safety devices	Type		Internal type			
		Operating temp.	Open	°C	130 ± 5		
			Close	Automatic reclosing			
Run capacitor		μF	5.0				
		VAC	440				
Heat Exch. Coil	Coil		Aluminum plate fin / Copper tube				
	Rows		2				
	Fin pitch		mm	2.0			
	Face area		m ²	0.610			
External Finish				Acrylic baked-on enamel finish			

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

D**OTHER COMPONENT SPECIFICATIONS**Outdoor Unit **AE522SC**

Power Relay		G7L-2A-TUB	
Coil rating		AC 200–240V, 50/60Hz	
Coil resistance	k Ω (at 23°C)	(21 \pm 15%)	
Contact rating		AC 220V, 25A	
Thermostat (Fan Speed Control 23S)		MQT5S-27YZJ	
Switching temp.	°C	high \rightarrow LOW	23.5°C $\begin{smallmatrix} +0 \\ -2.5 \end{smallmatrix}$
		low \rightarrow HIGH	27.0°C $\begin{smallmatrix} +0 \\ -3 \end{smallmatrix}$
Contact rating		AC 220V, 3A	

Outdoor Unit **AE522SC**

Thermostat (Fan Speed Control 23S)		YTB-S383	
Switching temp.	°C	high \rightarrow LOW	28.5°C \pm 1
		low \rightarrow HIGH	31°C \pm 1
Magnetic Contactor (MG)		HE-20FT31B	
Coil rating		AC 220/240V, 50Hz	
Coil resistance	Ω (at 25°C)	1,050 \pm 15%	
Contact rating (Main)		AC 220-240V, 20A	

Electro Magnetic Contactor (MG)	HOE-10TB TH-7A
Coil rating	AC 220–240V, 50Hz / AC 240–260V, 60Hz
Coil resistance Ω (at 25°C)	1,260 ± 10%
Contact rating (Main)	AC 440V, 8A
Thermal relay (Overcurrent relay)	
Operating amperes	7A

Negative Phase Relay (47C)	RDR-S400
Rating	AC 415V, 3-phase 50Hz
Contact rating	AC 400V, 1A
Operation	Positive phase: ON Negative phase: OFF

Thermostat (Fan Speed Control 23S)	YTB-S383
Switching temp. °C	high LOW 28.5°C ± 1
	low HIGH 31°C ± 1

Electro Magnetic Contactor (MG)	HOE-10TB TH-7A
Coil rating	AC 220–240V, 50Hz / AC 240–260V, 60Hz
Coil resistance Ω (at 25°C)	1,260 ± 10%
Contact rating (Main)	AC 440V, 8A
Thermal relay (Overcurrent relay)	
Operating amperes	7A

Negative Phase Relay (47C)	RDR-S400
Rating	AC 415V, 3-phase 50Hz
Contact rating	AC 400V, 1A
Operation	Positive phase: ON Negative phase: OFF

Thermostat (Fan Speed Control 23S)	YTB-S383
Switching temp. °C	high LOW 28.5°C ± 1
	low HIGH 31°C ± 1

Pressure Trasducer (Johnson C.)	P35 AC
Range Bar	14 to 24
Factory Setting Bar	16 ± 0.5

Outdoor Unit **AE522SH**

Magnetic Contactor (MG)	HE-20FT31B
Coil rating	AC 220/240 V, 50Hz
Coil resistance Ω (at 25°C)	1.050 \pm 15%
Contact rating (Main)	AC 220V, 20A

Thermostat (Defrost thermo. 23D)	TRS02-12MSR316
Operating temp. °C	ON 12 \pm 2
	Diff. 8 deg. below

Thermostat (Fan Speed Control 23S)	YTB-S383
Switching temp. °C	high \rightarrow LOW 28.5°C \pm 1
	low \rightarrow HIGH 31°C \pm 1

4-way Valve (20S)	LB64012 (Coil), V26-110B (Valve)
Coil rating	AC 220-240V, 50Hz, 6W
Coil resistance Ω (at 20°C)	1.640 \pm 7%

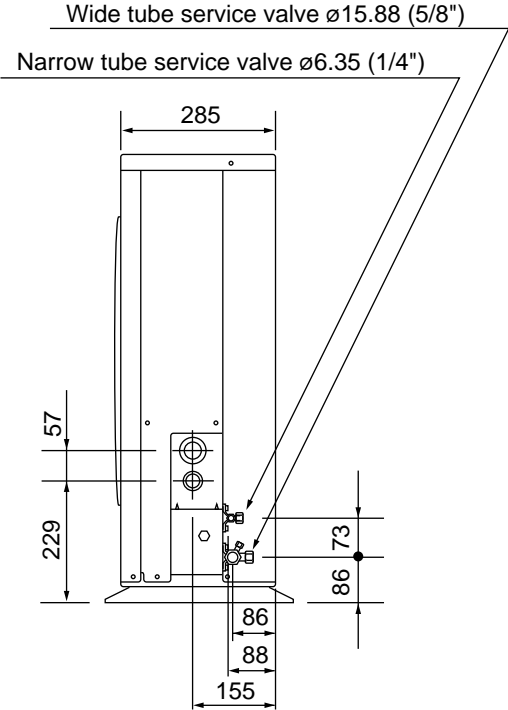
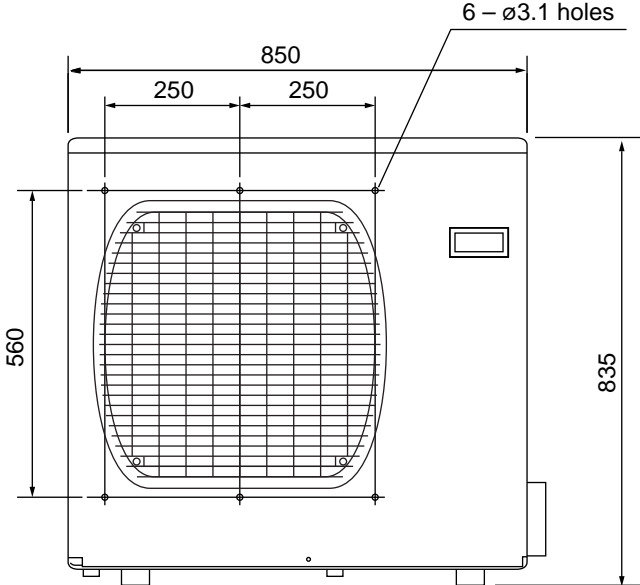
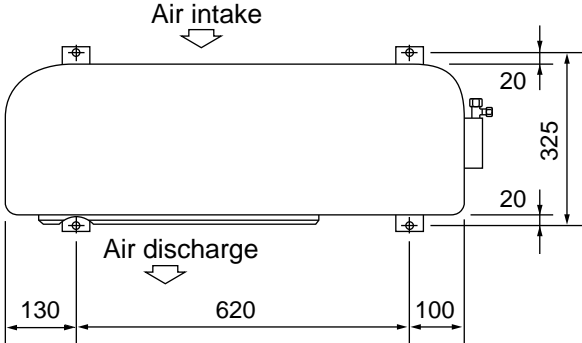
Outdoor Unit **AE522SH3**

Electro Magnetic Contactor (MG) Magnetic Contactor Coil rating Coil resistance Ω (at 25°C) Contact rating (Main) Thermal relay (Overcurrent relay) Operating amperes	HOE-10TB TH-7A AC 220–240V, 50Hz / AC 240–260V, 60Hz 1,260 ± 10% AC 440V, 8A 7A
Negative Phase Relay (47C) Rating Contact rating Operation	RDR-S400 AC 415V, 3-phase 50Hz AC 400V, 1A Positive phase: ON Negative phase: OFF
4-way Valve (20S) Coil rating Coil resistance Ω (at 20°C)	LB64012 (Coil), V26-110D (Valve) AC 220/240V, 50Hz, 6W 1,740 ± 7%
High pressure switch (HPS) Operating press. setting	ACB - IB29 OFF 25 ± 1 ON 20 ± 1.5
Thermostat (Defrost thermo. 23D) Operating temp. °C	TRS02-12MSR316 ON 12 ± 2 Diff. 8 deg. below
Thermostat (Fan Speed Control 23S) Switching temp. °C	YTB-S383 high LOW 28.5°C ± 1 low HIGH 31°C ± 1

Outdoor Unit **AER522SH3**

Electro Magnetic Contactor (MG) Magnetic Contactor Coil rating Coil resistance Ω (at 25°C) Contact rating (Main) Thermal relay (Overcurrent relay) Operating amperes	HOE-10TB TH-7A AC 220–240V, 50Hz / AC 240–260V, 60Hz 1,260 ± 10% AC 440V, 8A 7A
Negative Phase Relay (47C) Rating Contact rating Operation	RDR-S400 AC 415V, 3-phase 50Hz AC 400V, 1A Positive phase: ON Negative phase: OFF
4-way Valve (20S) Coil rating Coil resistance Ω (at 20°C)	LB64012 (Coil), V26-110D (Valve) AC 220/240V, 50Hz, 6W 1,740 ± 7%
High pressure switch (HPS) Operating press. setting	ACB - IB29 OFF 25 ± 1 ON 20 ± 1.5
Thermostat (Defrost thermo. 23D) Operating temp. °C	TRS02-12MSR316 ON 12 ± 2 Diff. 8 deg. below
Thermostat (Fan Speed Control 23S) Switching temp. °C	YTB-S383 high LOW 28.5°C ± 1 low HIGH 31°C ± 1

Outdoor Unit

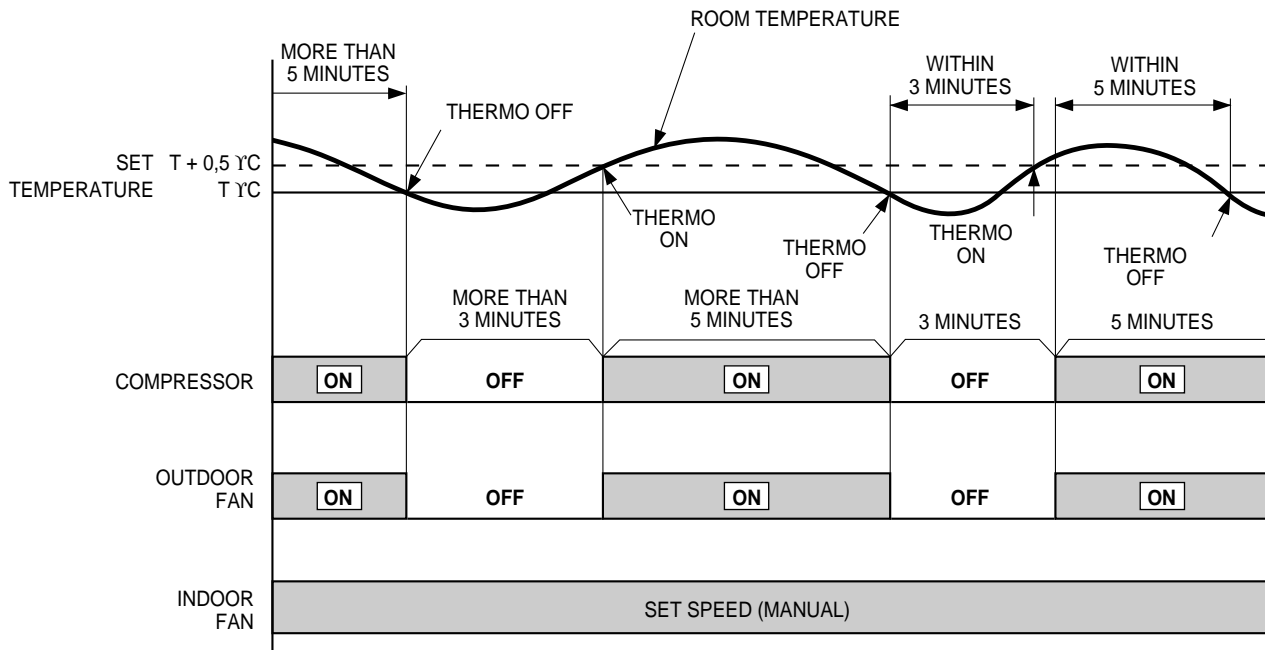


Unit : mm

1) ROOM TEMPERATURE CONTROL

Cooling

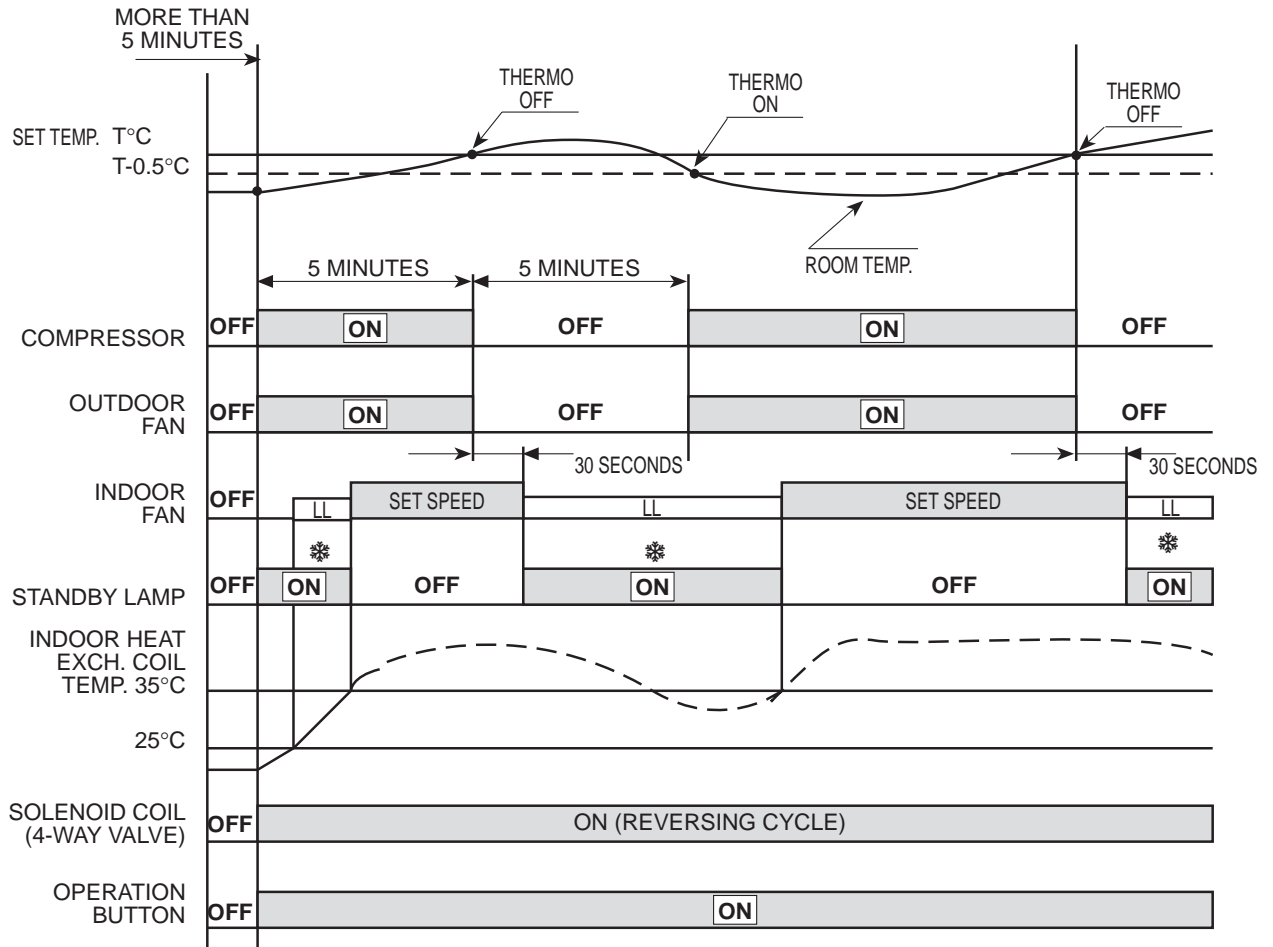
- Room temperature control is obtained by cycling the compressor ON and OFF under control of the room temperature sensor in the remote control unit.



NOTA

- The control circuit will not attempt to turn the compressor ON until the compressor has been OFF for at least 3 minutes. To protect the compressor from stalling out when trying to start against the high side refrigerant pressure, the control circuit has a built-in automatic time delay to allow the internal pressure to equalize.
- As a protective measure, the control circuit switches the compressor OFF after 5 minutes or more of compressor operation.
- Thermo ON: When the room temperature is above $T + 1^\circ\text{C}$ ($T^\circ\text{C}$ is set temperature). Compressor \rightarrow ON.
- Thermo OFF: When the room temperature is equal to or below set temperature $T^\circ\text{C}$. Compressor \rightarrow OFF.

Heating



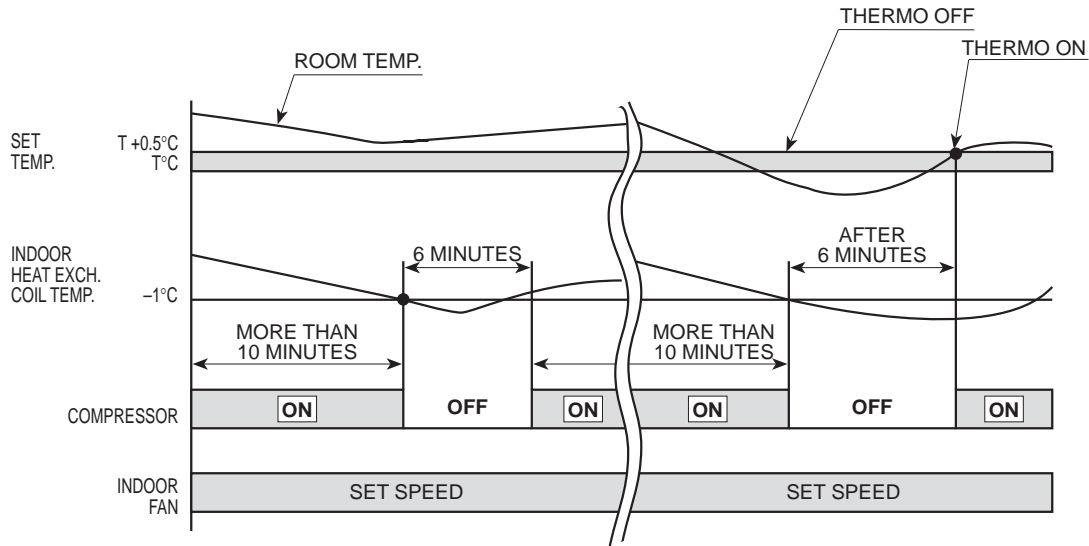
L L = Low low speed

❄ COLD DRAFT PREVENTION

- The control circuit will not attempt to turn the compressor ON until the compressor has been OFF for at least 5 minutes. To protect the compressor from stalling out when trying to start against the high side refrigerant pressure, the control circuit has a built-in automatic time delay to allow the internal pressure to equalize.
- As a protective measure, the control circuit switches the compressor OFF after 5 minutes or more of compressor operation.
- Thermo ON: when the room temperature is below $T - 1^{\circ}\text{C}$ ($T^{\circ}\text{C}$ is set temperature).
Compressor → ON.
- Thermo OFF: when the room temperature is equal to or above set temperature $T^{\circ}\text{C}$.
Compressor → OFF.

2) FREEZE PREVENTION (COOLING)

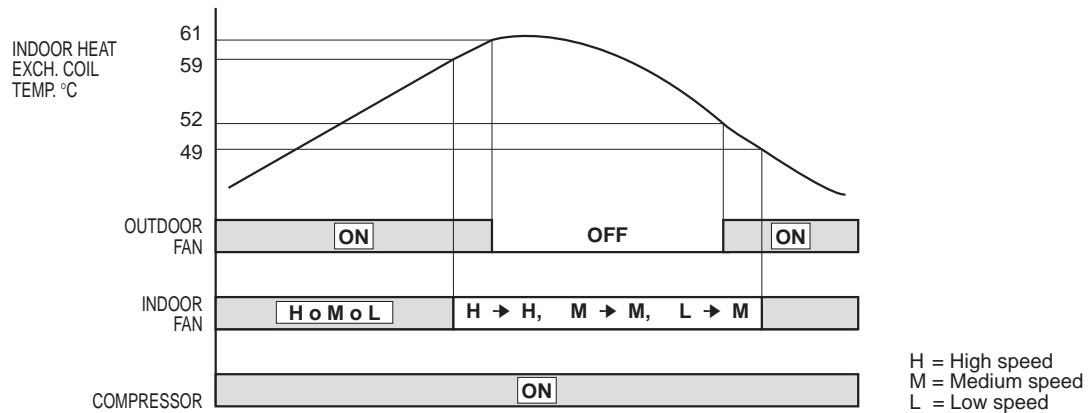
- This function prevents freezing of the indoor heat exchange coil.
- When the compressor has been running for 10 minutes or more and the temperature of the indoor heat exchange coil falls below -1°C , the control circuit stops the compressor for at least 6 minutes.



3) OVERLOAD PREVENTION (HEATING)

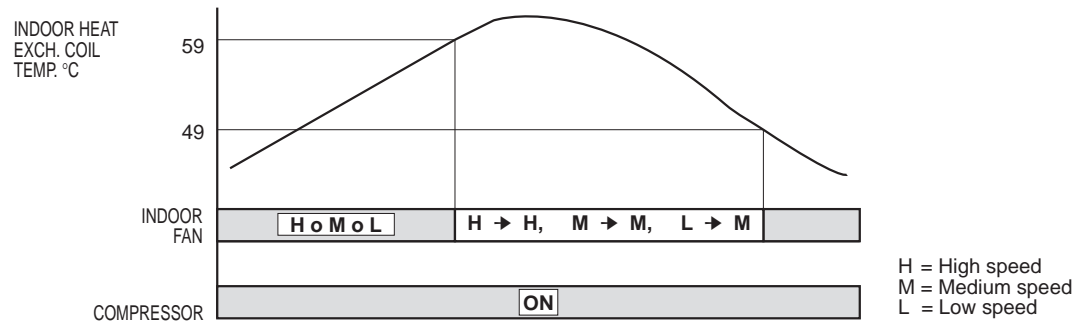
- This function prevents overheating of the indoor heat exchange coil.

For indoor units SAP-UR228EH only



- When the temperature of the indoor heat exchange coil rises above 59°C , and if the indoor fan is L (low speed), then the fan speed changes from L (low speed) to M (medium speed).
- When the temperature of the indoor heat exchange coil rises above 61°C , the outdoor fan stops.

For indoor units ADR522HW only

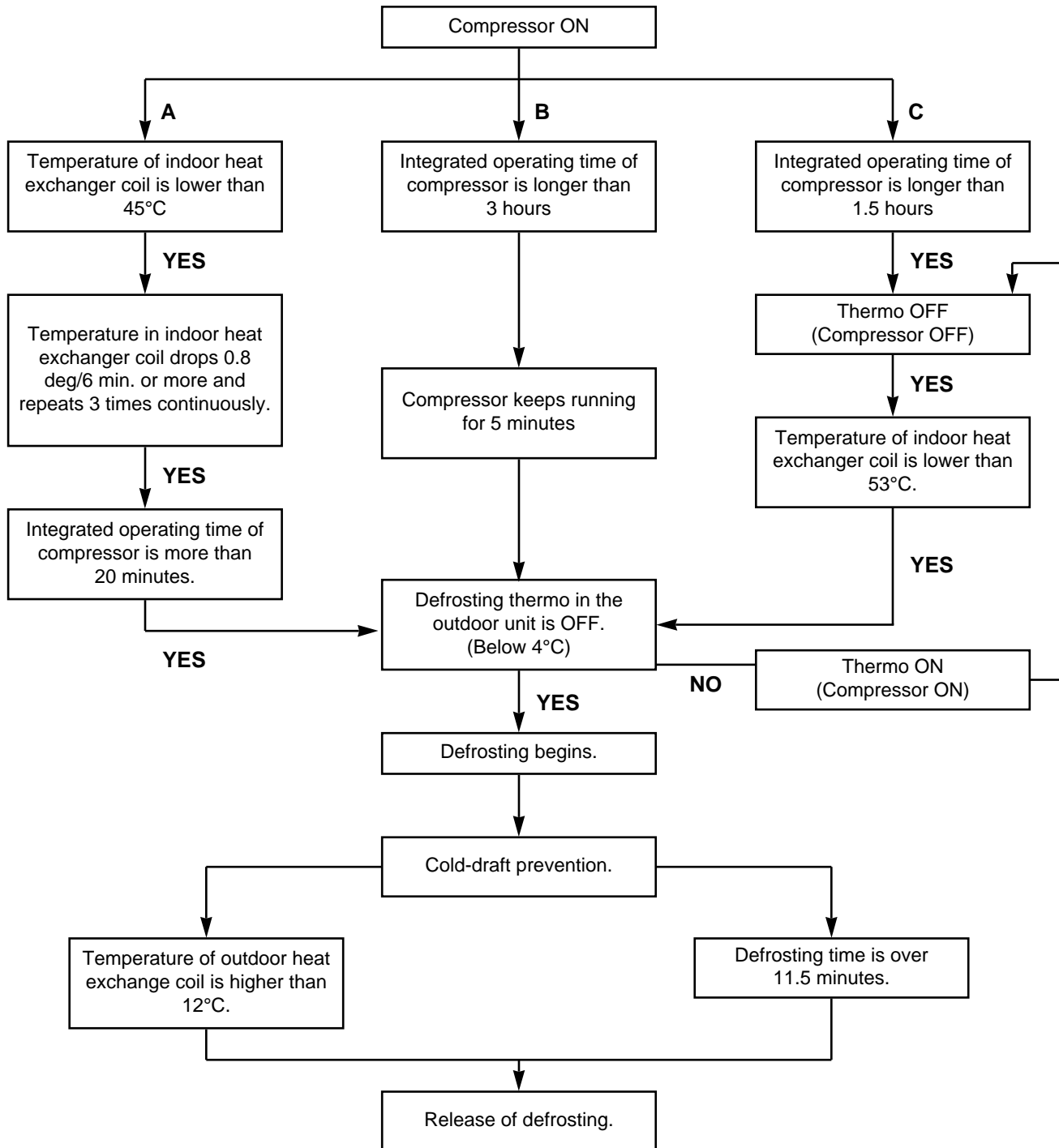


- When the temperature of the indoor heat exchange coil rises above 59°C, and if the indoor fan is L (low speed), then the fan speed changes from L (low speed) to M (medium speed).

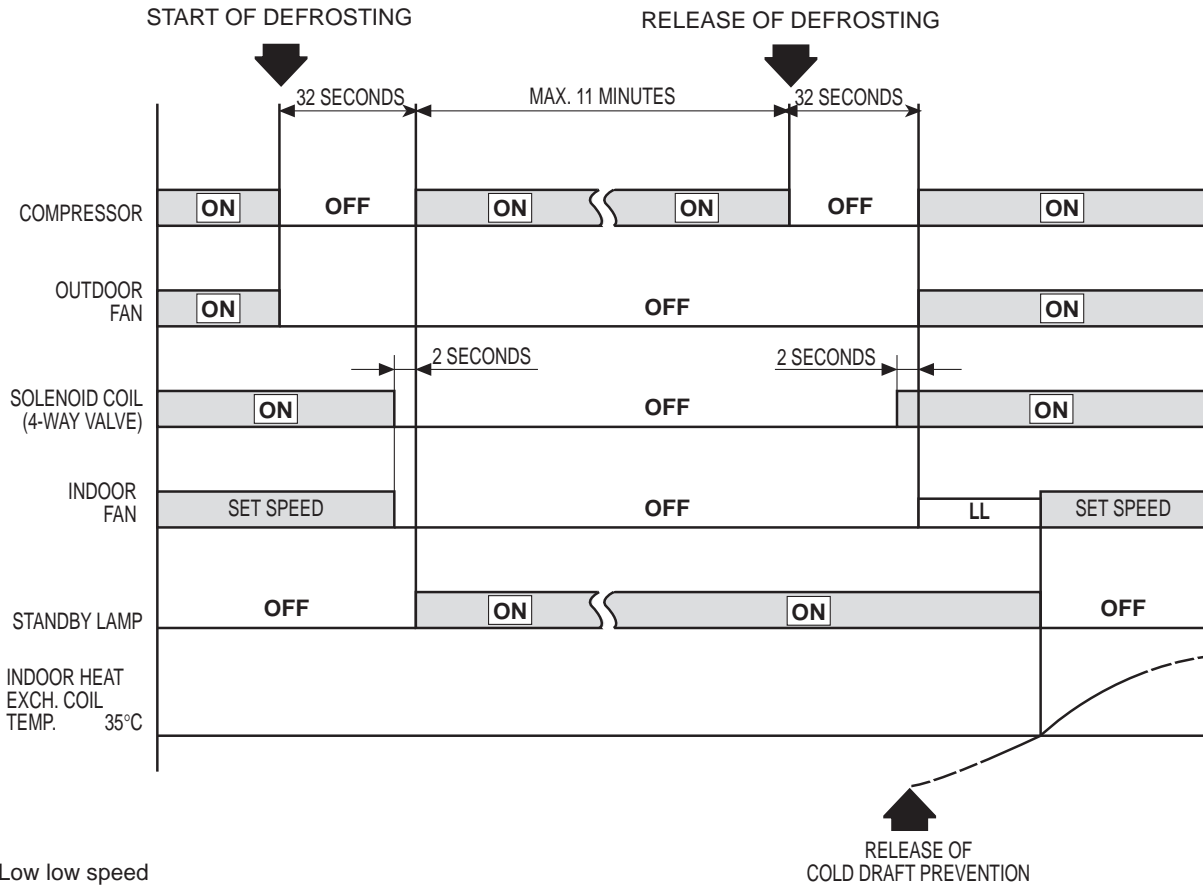
4) DEFROSTING OPERATION (Heating)

- When the capacity of the unit has been decreased due to frosting up of the outdoor heat exchanger during heating, the temperature drop gradient is detected by the microcomputer-controlled temperature sensing system, and defrosting operation is started.

DEFROSTING FLOWCHART

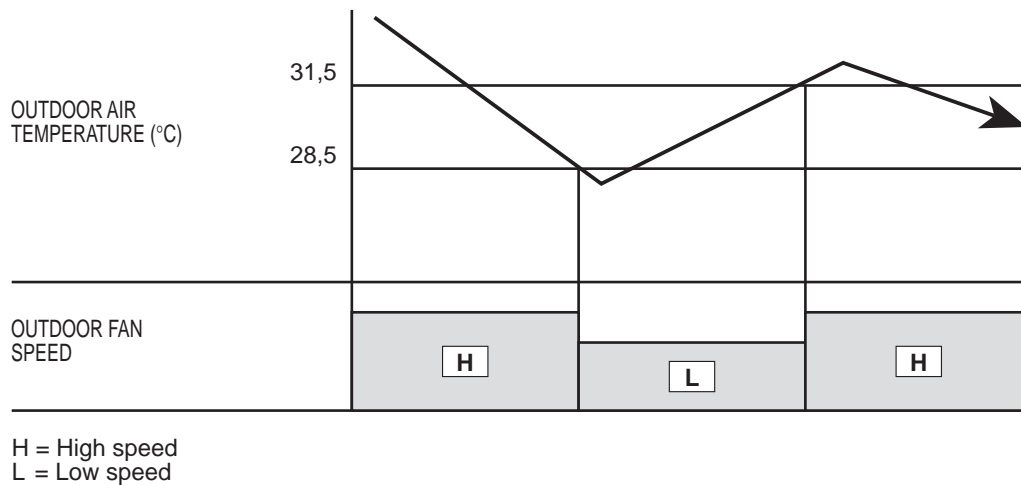


5) DEFROSTING MODE TIMING CHART



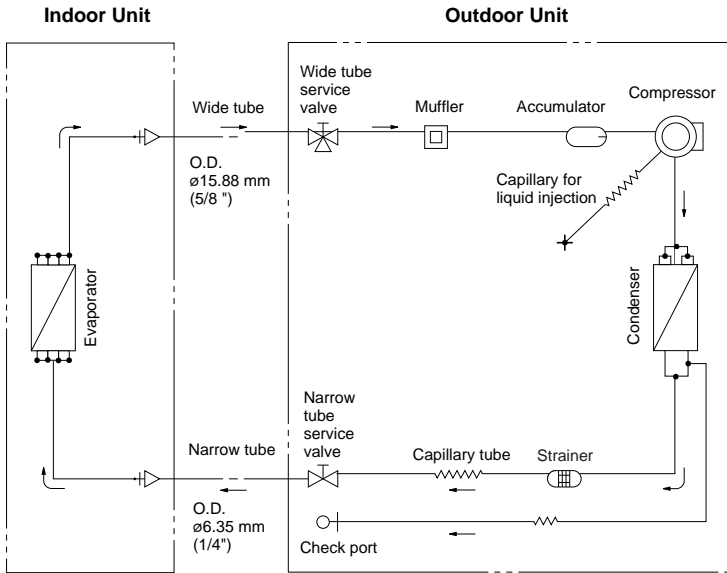
6) OUTDOOR FAN SPEED CONTROL (COOLING)

- To optimize performance of the air conditioner, the outdoor fan speed is switched automatically according to the outdoor temperature.
- If the outdoor air temperature falls below 28.5°C, the fan speed switches to LOW.
- If the outdoor air temperature rises above 31.5°C for 5 minutes or longer, the fan speed switches to HIGH.
- This function does not become active in heating operation.



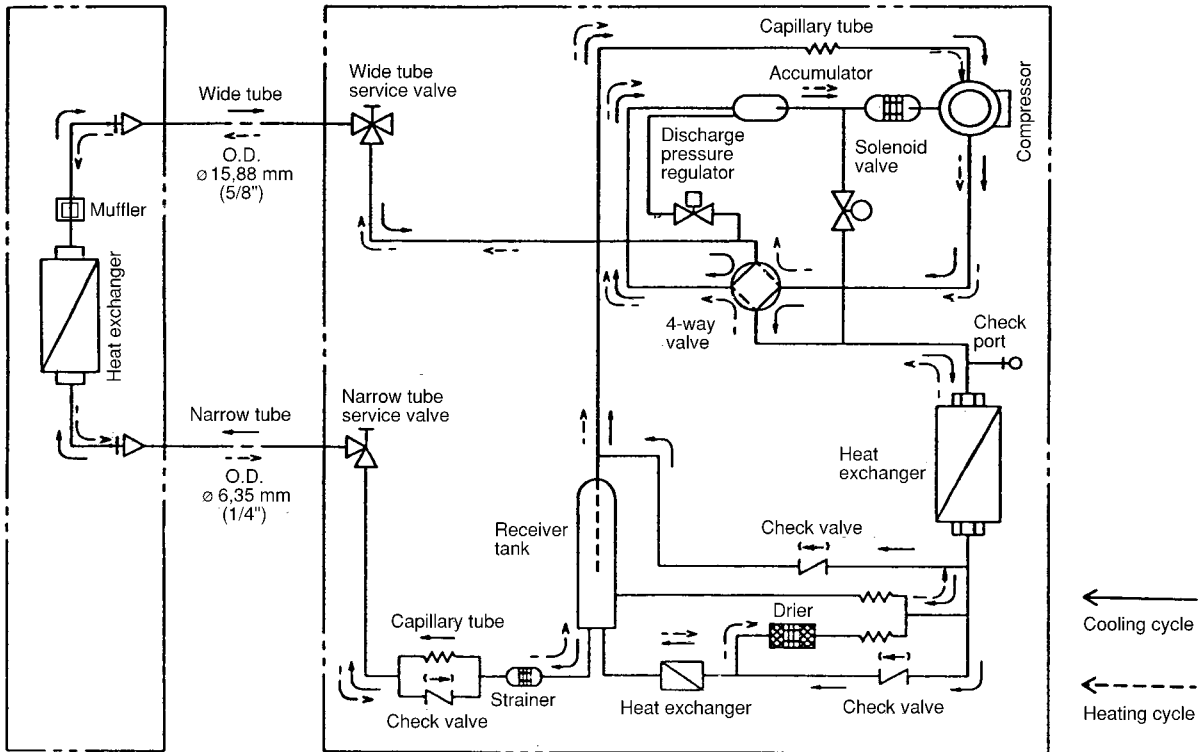
Indoor Unit **ADR522CW**

Outdoor Unit **AE522SC**
AE522SC3/AER522SCL3



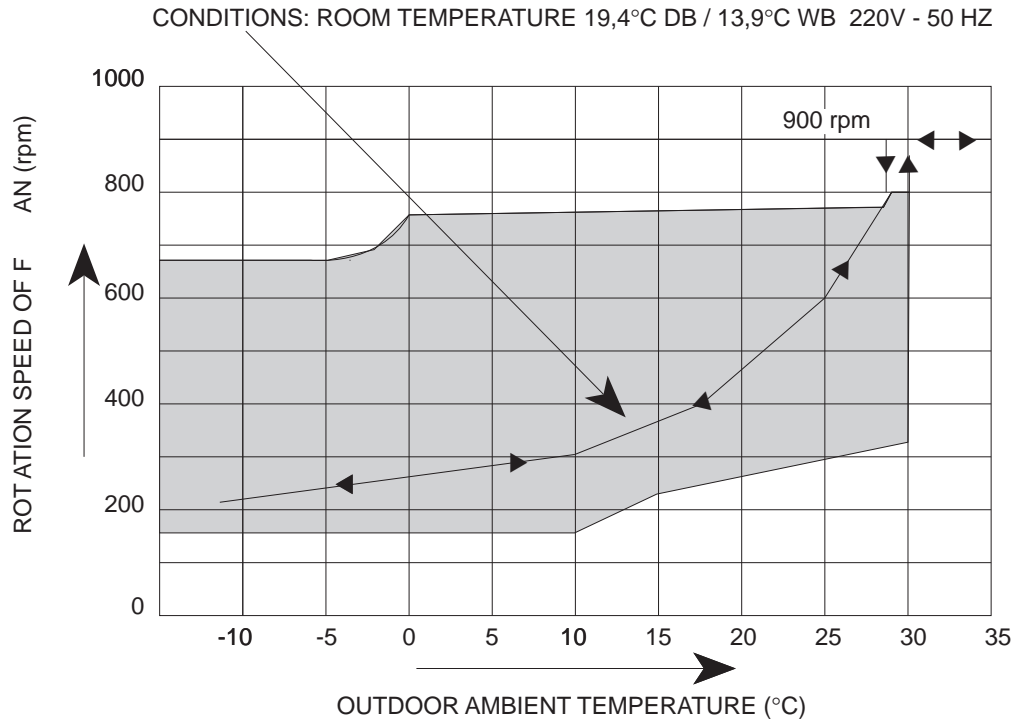
Indoor Unit **ADR522HW**

Outdoor Unit **AE522SH**
AE522SH3/AER522SH3

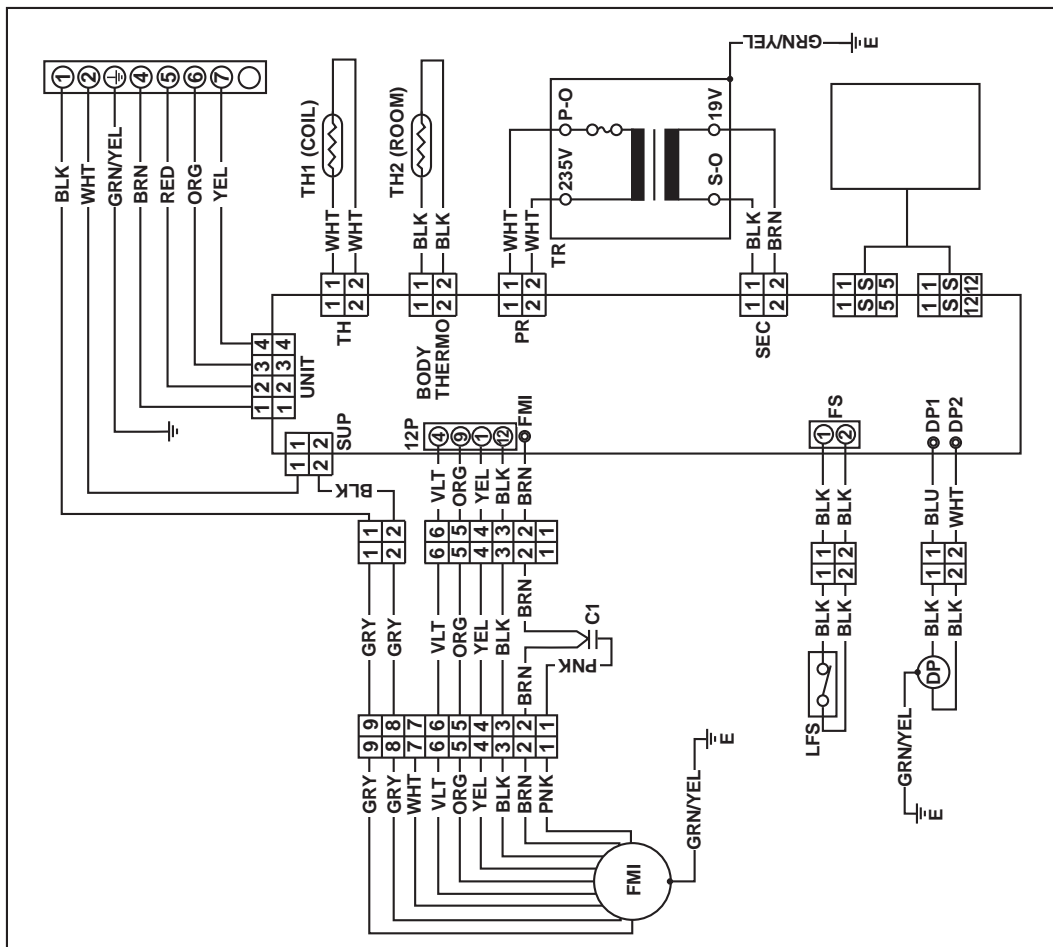
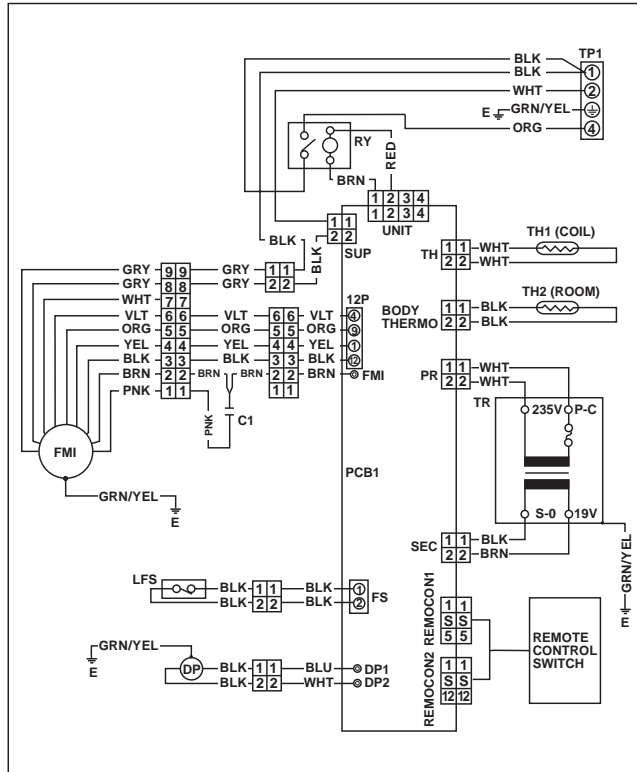


3) For AER522SCL3 only (3 phase and low ambient version)

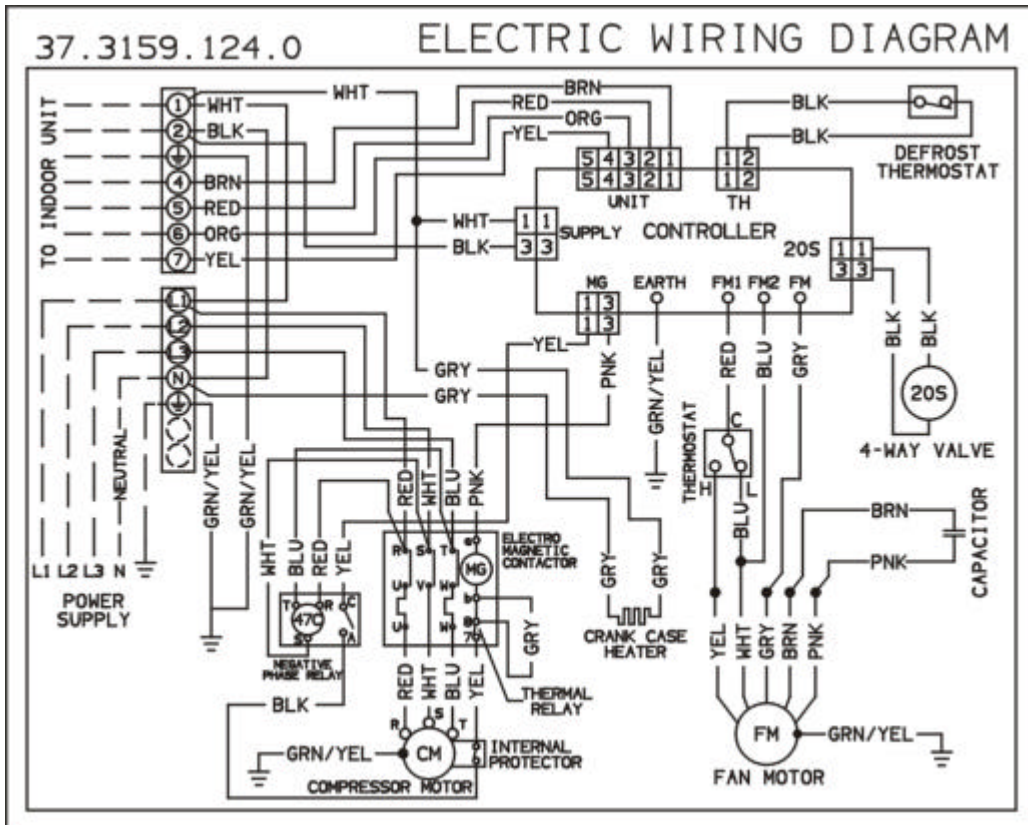
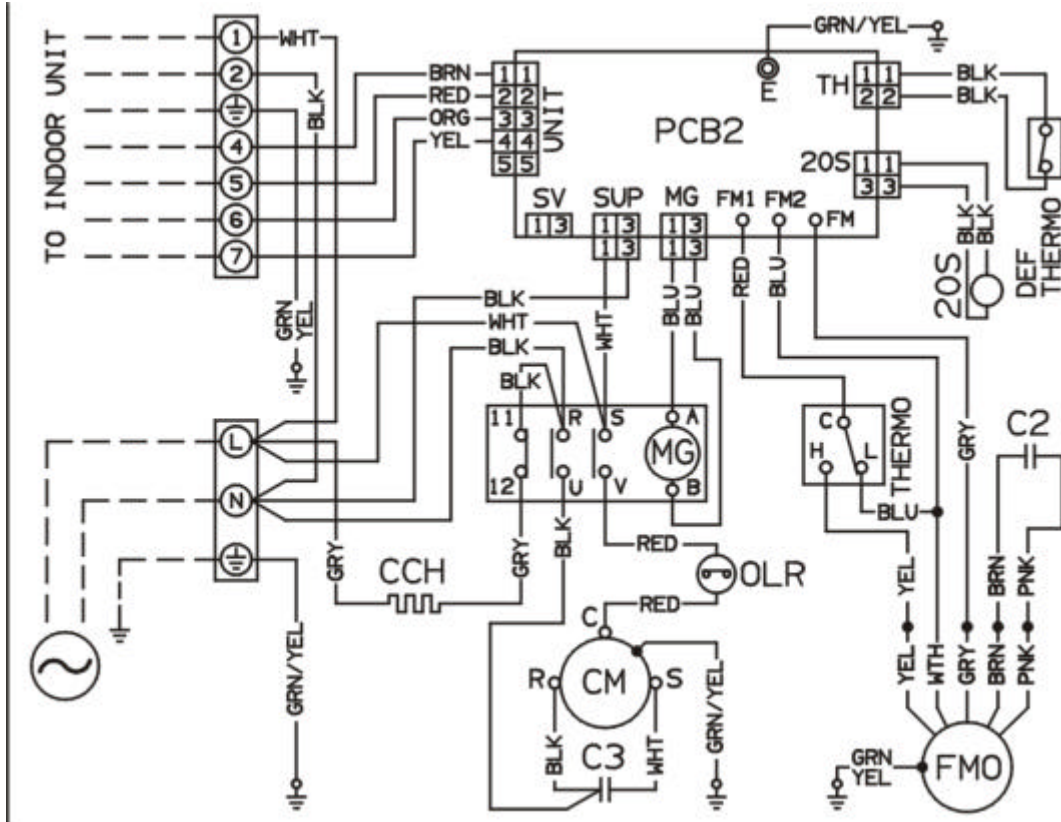
- When the outside ambient temperature decreases, the rotation speed of the outdoor fan is regulated by means of the outdoor heat-exchanger sensor to prevent liquid back.
- The rotation speed varies with indoor temperature conditions (Hatching area).
- The unit is protected against high pressure by means of the outside temperature sensor, and thus when the outside ambient temperature reaches 30 ° C respectively, the fan speed is forced to high.



Outdoor Unit **ADR522CW**
ADR522HW



Outdoor Unit AE522SH
 AE522SH3 AER522SH3



1) CHECK BEFORE AND AFTER “TROUBLESHOOTING”

a) Check power supply wiring.

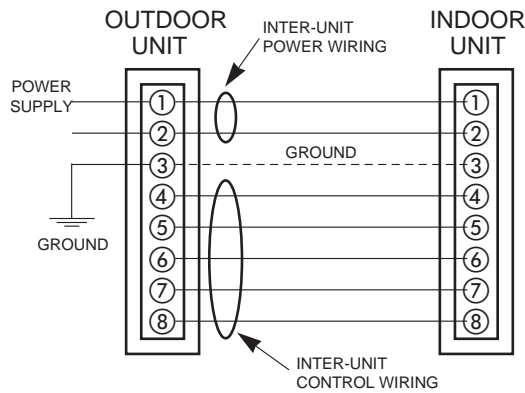
- **WARNING:**
If the following troubleshooting must be done with power being supplied, be careful about any uninsulated live part that can cause **ELECTRIC SHOCK**.
- Check that power supply wires are correctly connected to terminals:
Single-phase system – No. 1 and No. 2 on the terminal plate in the outdoor unit.
Three-phase system – A D R 5 2 2 H W / A E 5 2 2 S H 3 - A E R 5 2 2 S H 3
No. 8,9,10 and No. 11 on the terminal plate in the outdoor unit.

b) Check inter-unit wiring.

- Check that inter-unit wiring (both the power wiring and control wiring) is correctly connected to the indoor unit from the outdoor unit.

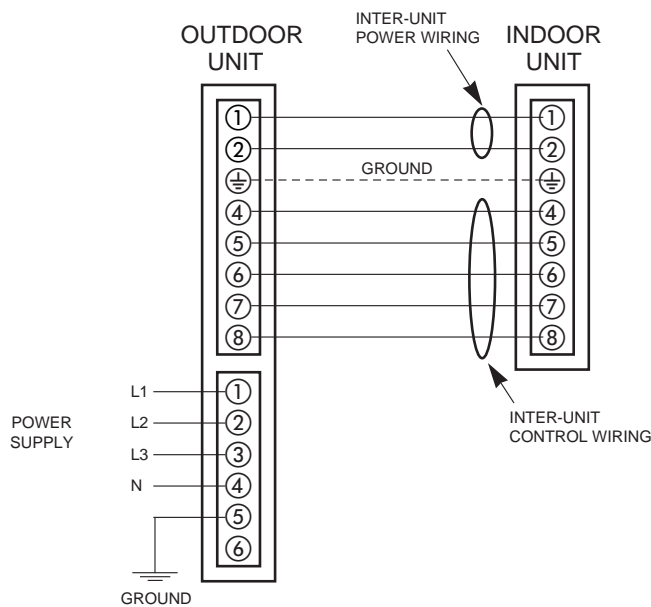
ADR522HW / AE522SH

POWER SUPPLY
50 Hz - Single-phase
220/230/240 V



ADR522HW / AE522SH3-AER522SH3

POWER SUPPLY
50 Hz - 3-phase 400V
4 Wires



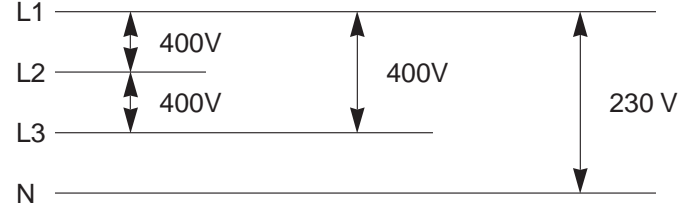
(c) Check power supply

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

Single-phase systems



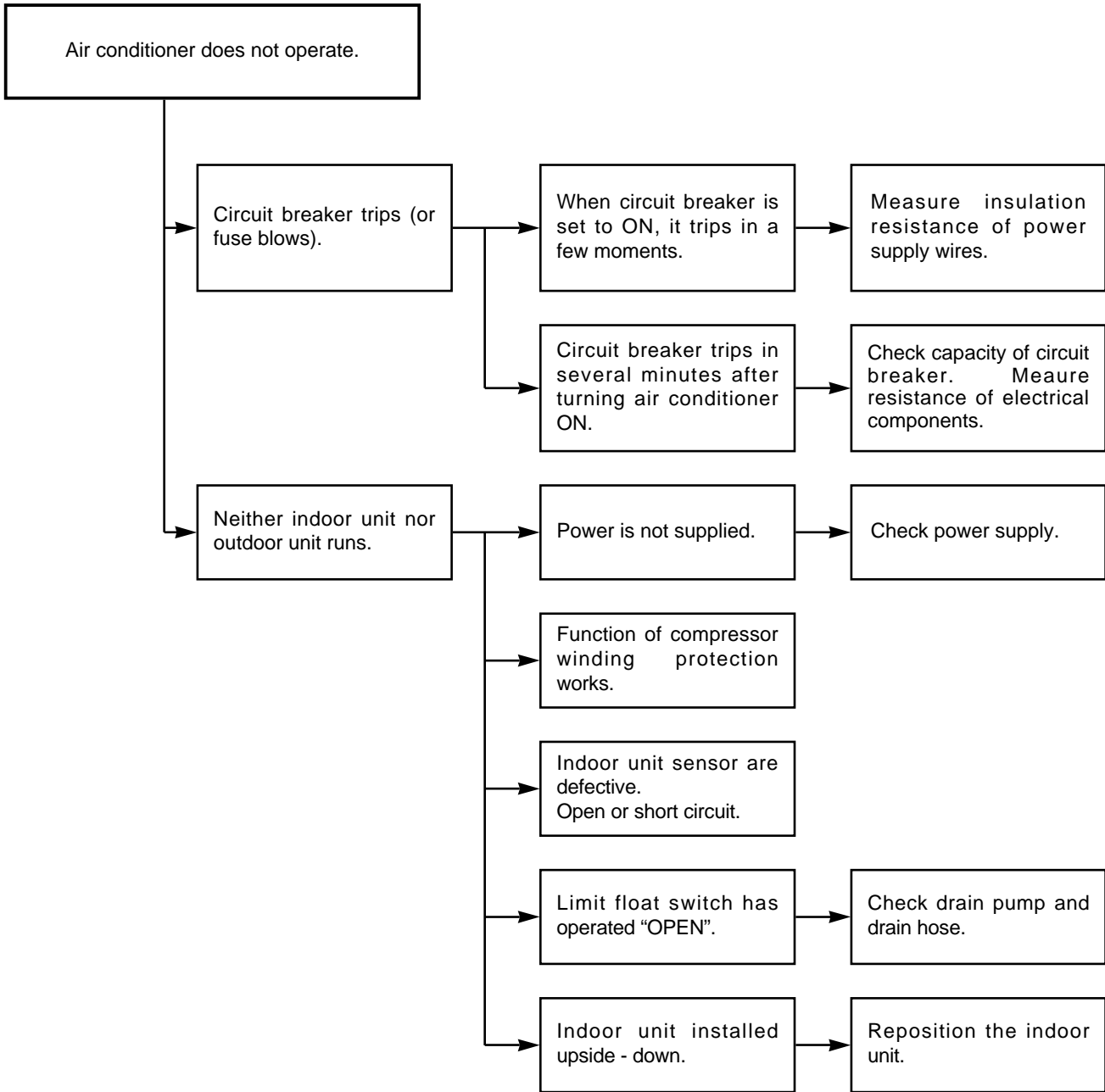
Three-phase systems



(d) Check lead wires and connectors in indoor and outdoor units.

- Check that coating of lead wires is not damaged.
- Check that lead wires and connectors are connected firmly.
- Check that wiring is correct.

2) SYSTEMATIC CHART OF "TROUBLESHOOTING"

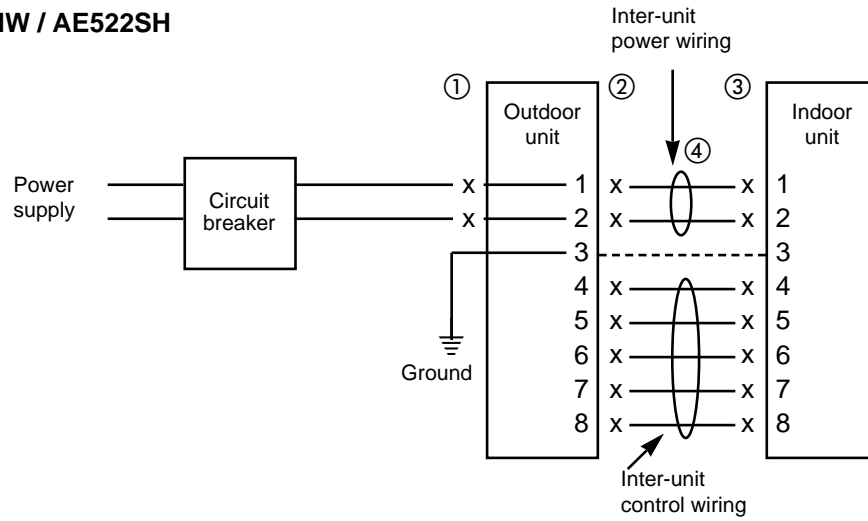


3) AIR CONDITIONER DOES NOT OPERATE

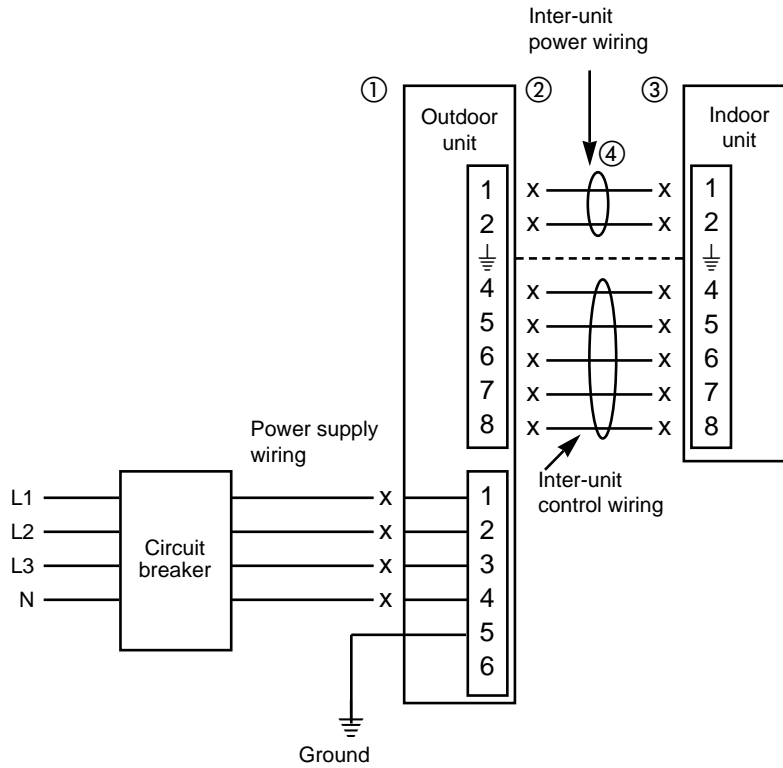
(a) Circuit breaker trips (or fuse blows)

- When circuit breaker is set to ON, it trips in a few moments. (Resetting is not possible).
- Measure insulation resistance there is a possibility of ground fault. If resistance value is $1M\Omega$ or less, insulation is defective.

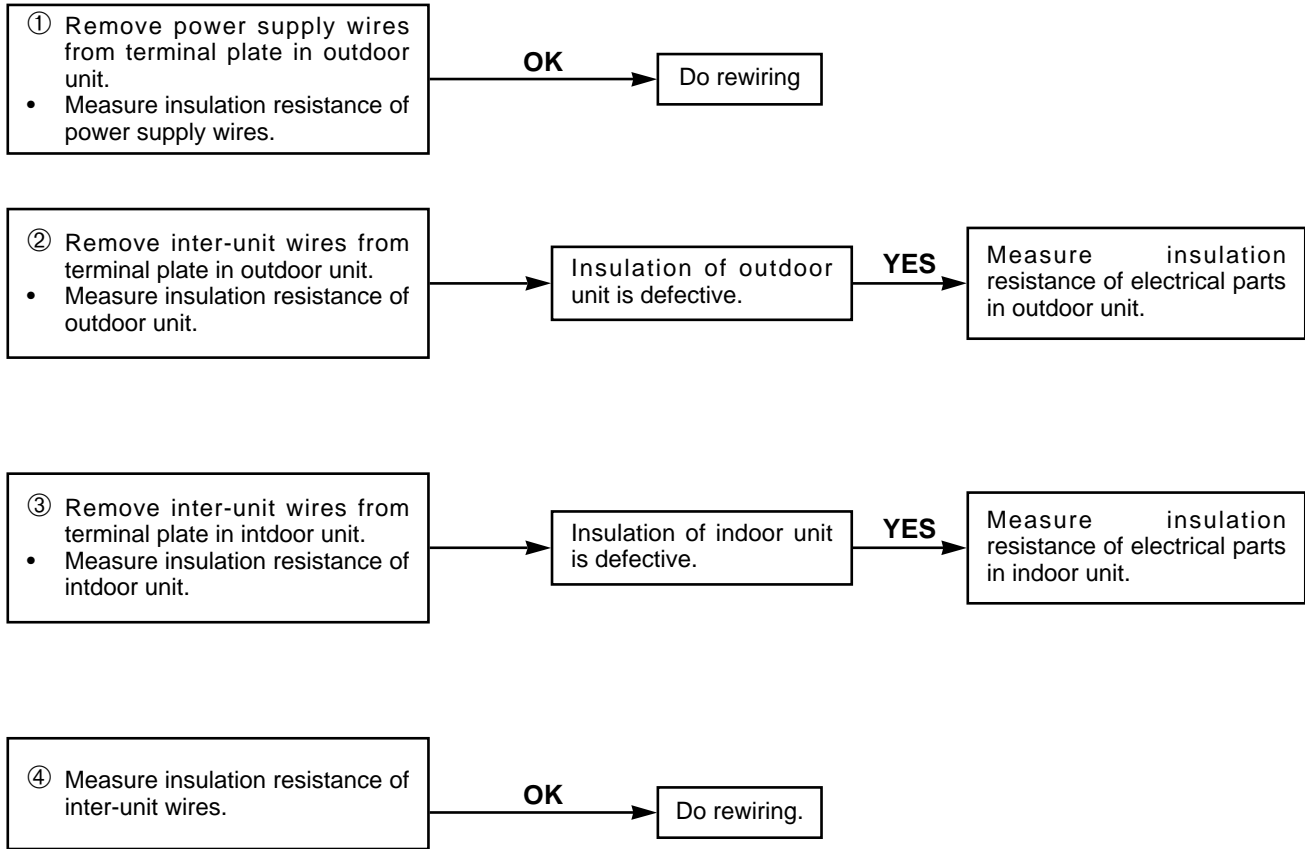
ADR522HW / AE522SH



ADR522HW - AE522SH3-AER522SH3

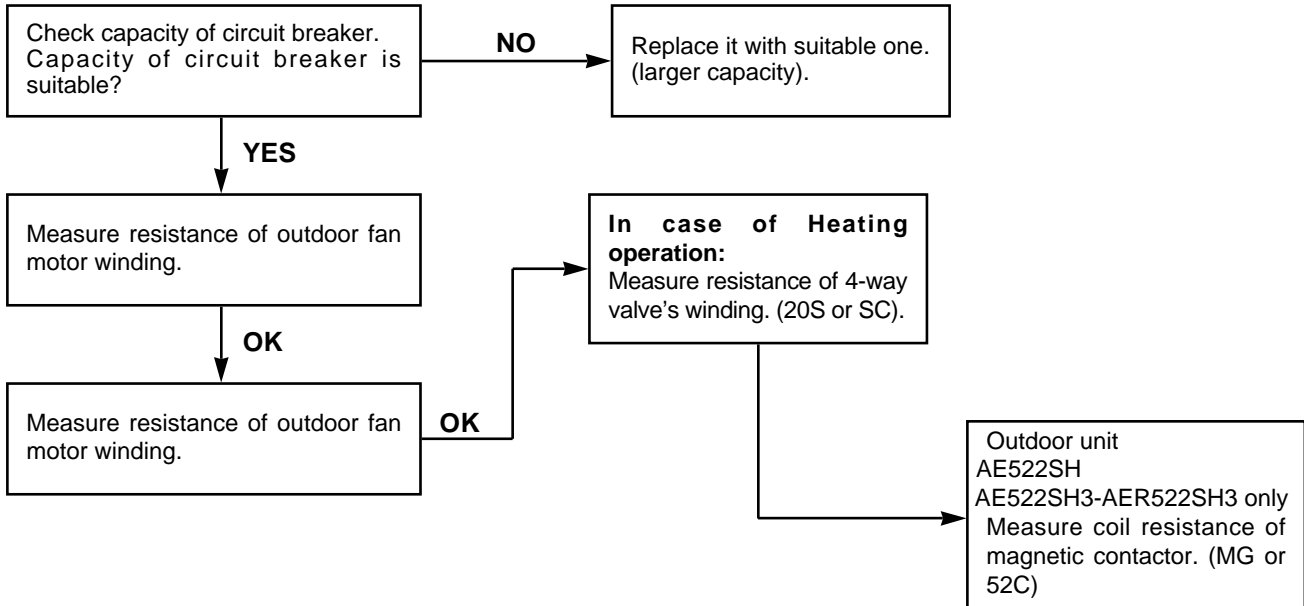


- Set circuit breaker to OFF.

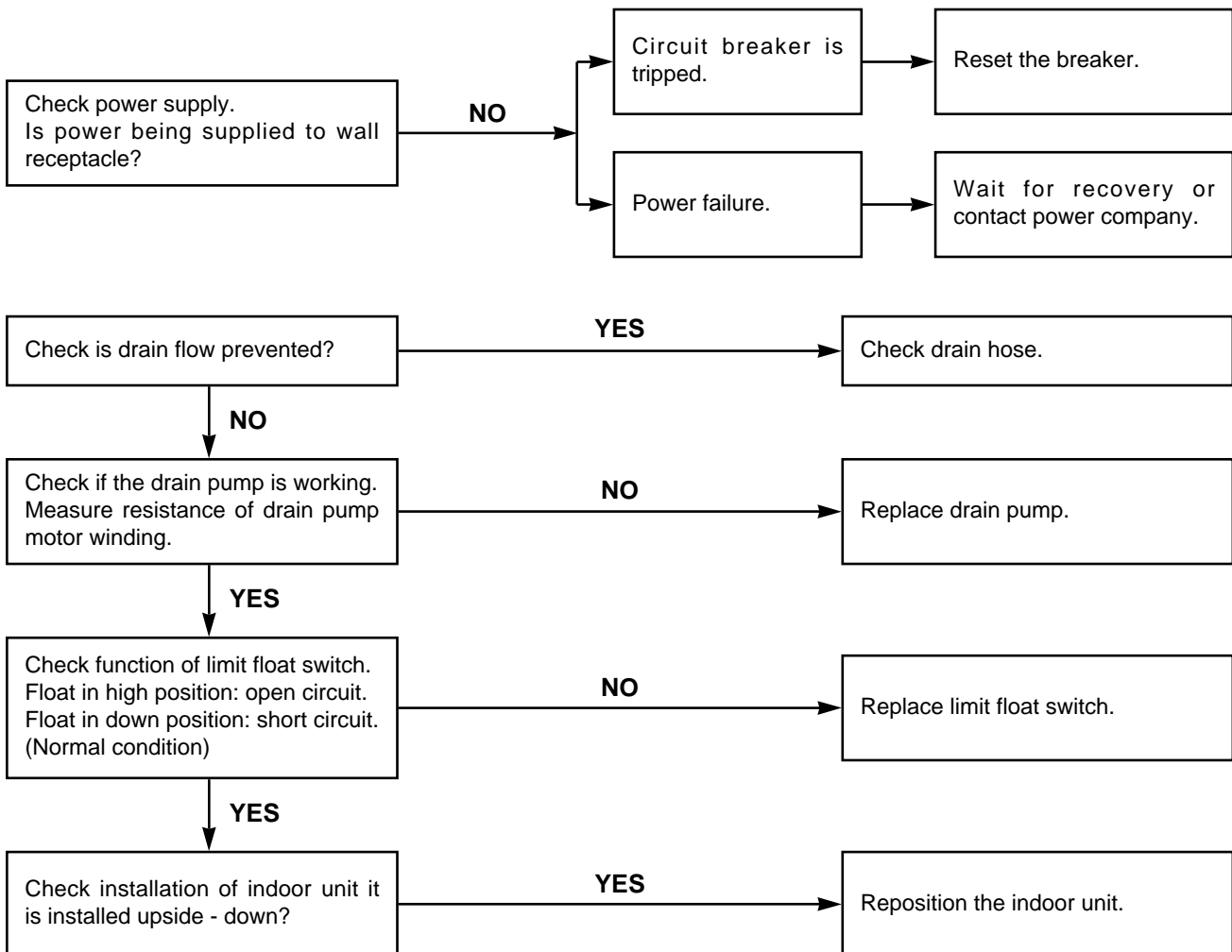


(b) Circuit breaker trips in several minutes after turning air conditioner ON.

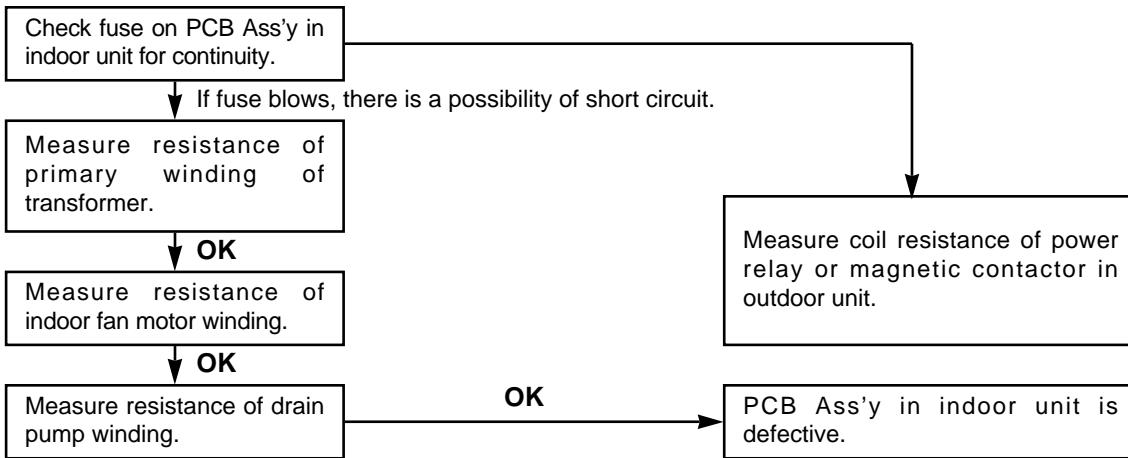
- There is a possibility of short circuit.



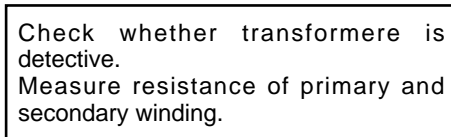
(c) Neither indoor unit nor outdoor unit runs (leds of remote control unit are light)



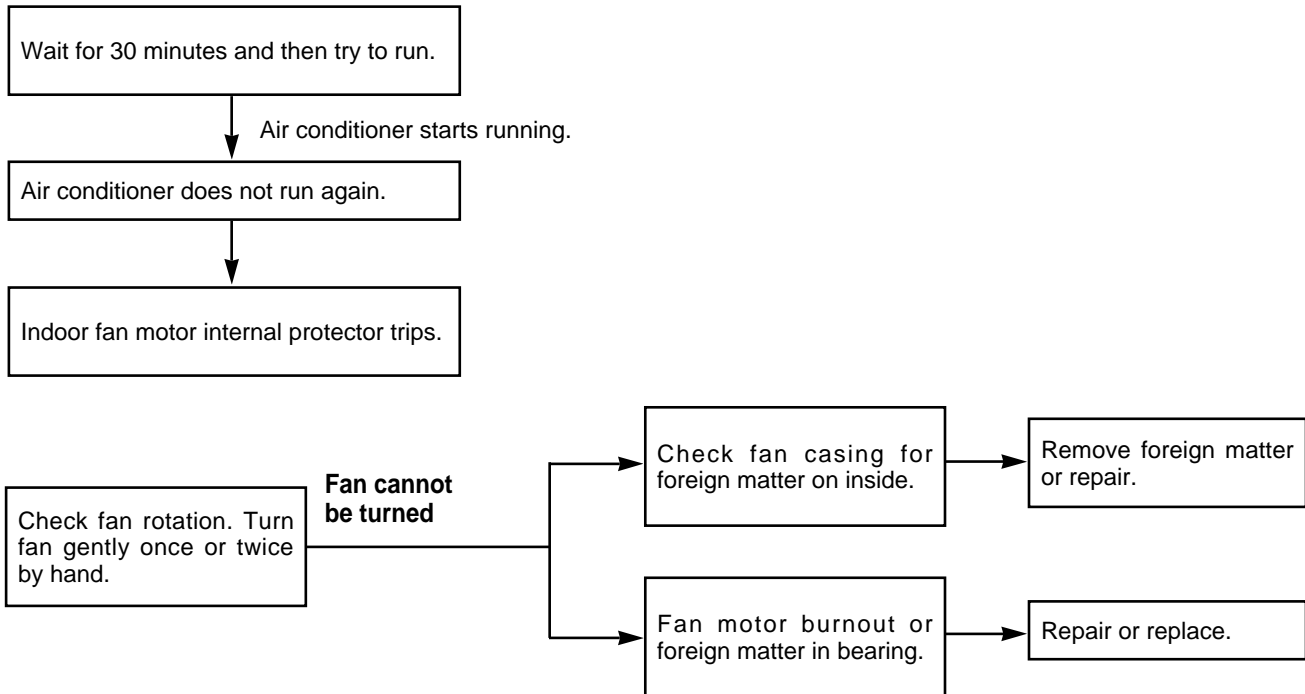
(d) Check fuse on PCB Ass'y in indoor unit



e) Check transformer in indoor unit



f) Check indoor fan motor protector



4) ONLY OUTDOOR UNIT DOES NOT RUN

a) Outdoor unit does not run when air conditioner is in following conditions.

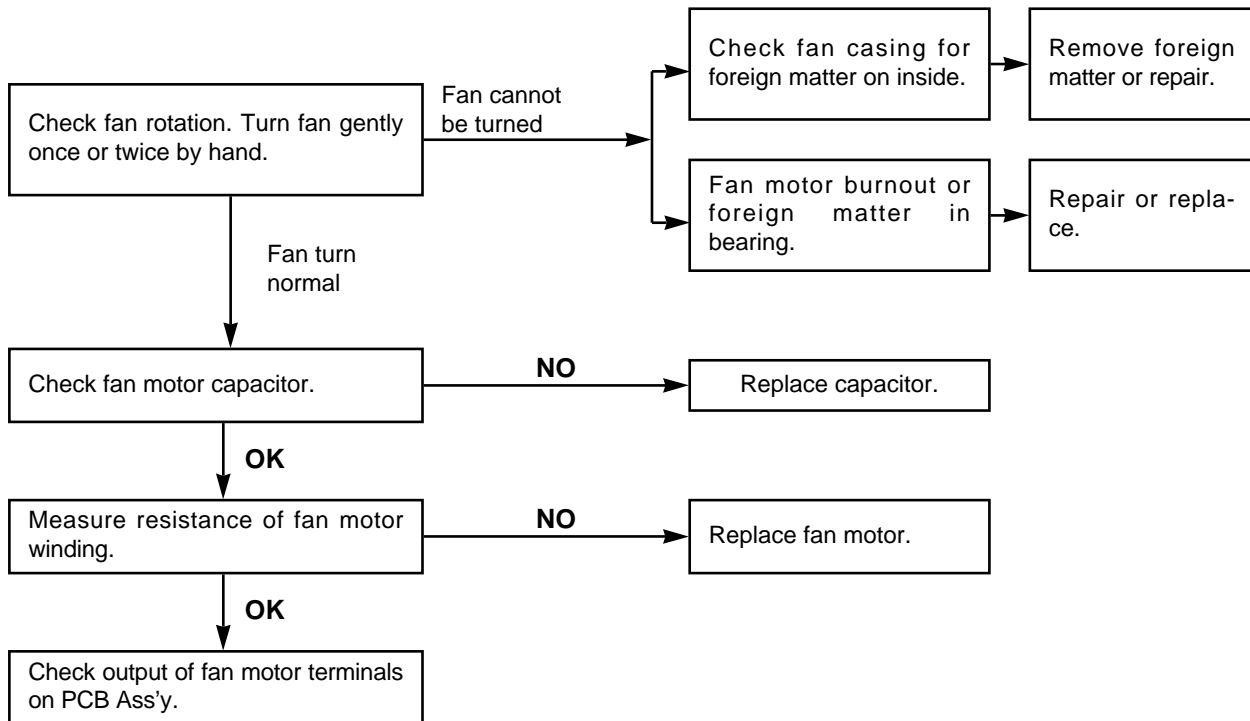
- During thermo OFF.
- During freeze prevention (for at least 6 minutes).
- During drain pump works (for at least 12 minutes).

b) PCB Ass'y in indoor unit is defective.

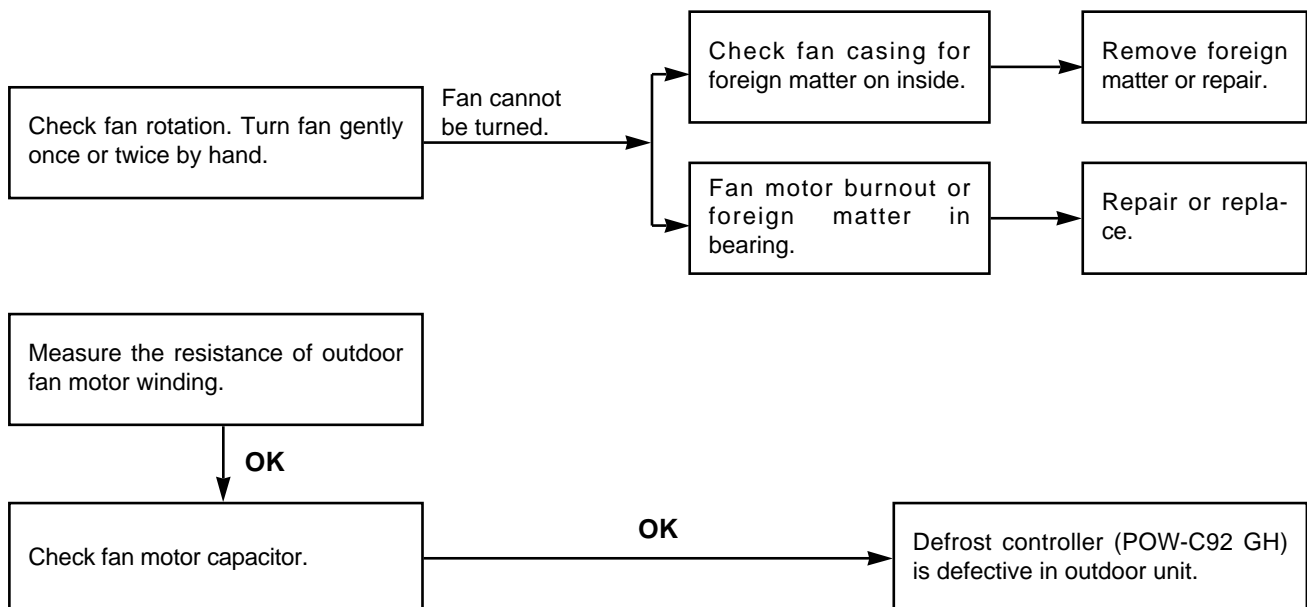


SOME PARTS OF AIR CONDITIONER DO NOT OPERATE

1) ONLY INDOOR FAN DOES NOT RUN

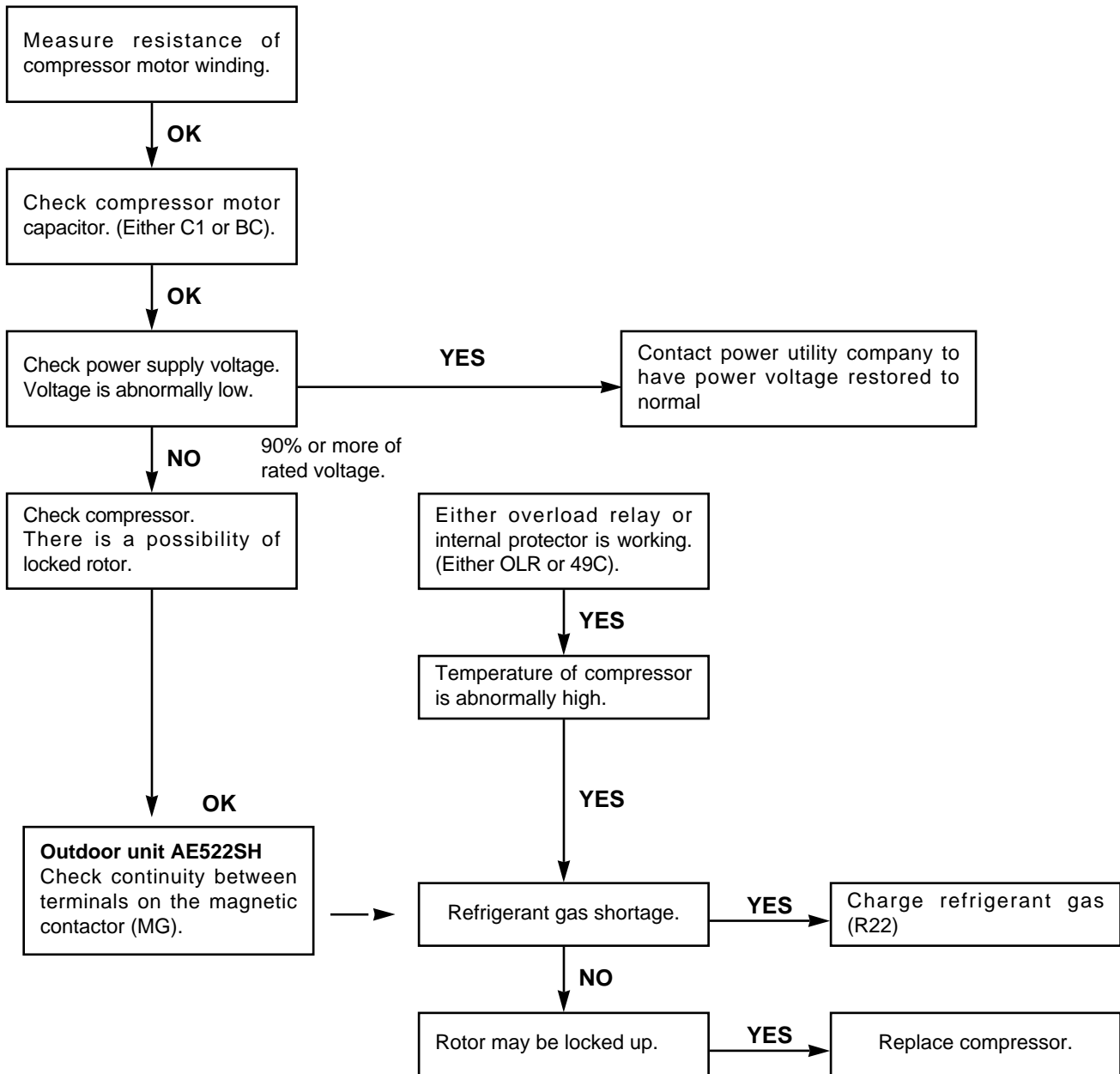


2) ONLY OUTDOOR FAN DOES NOT RUN

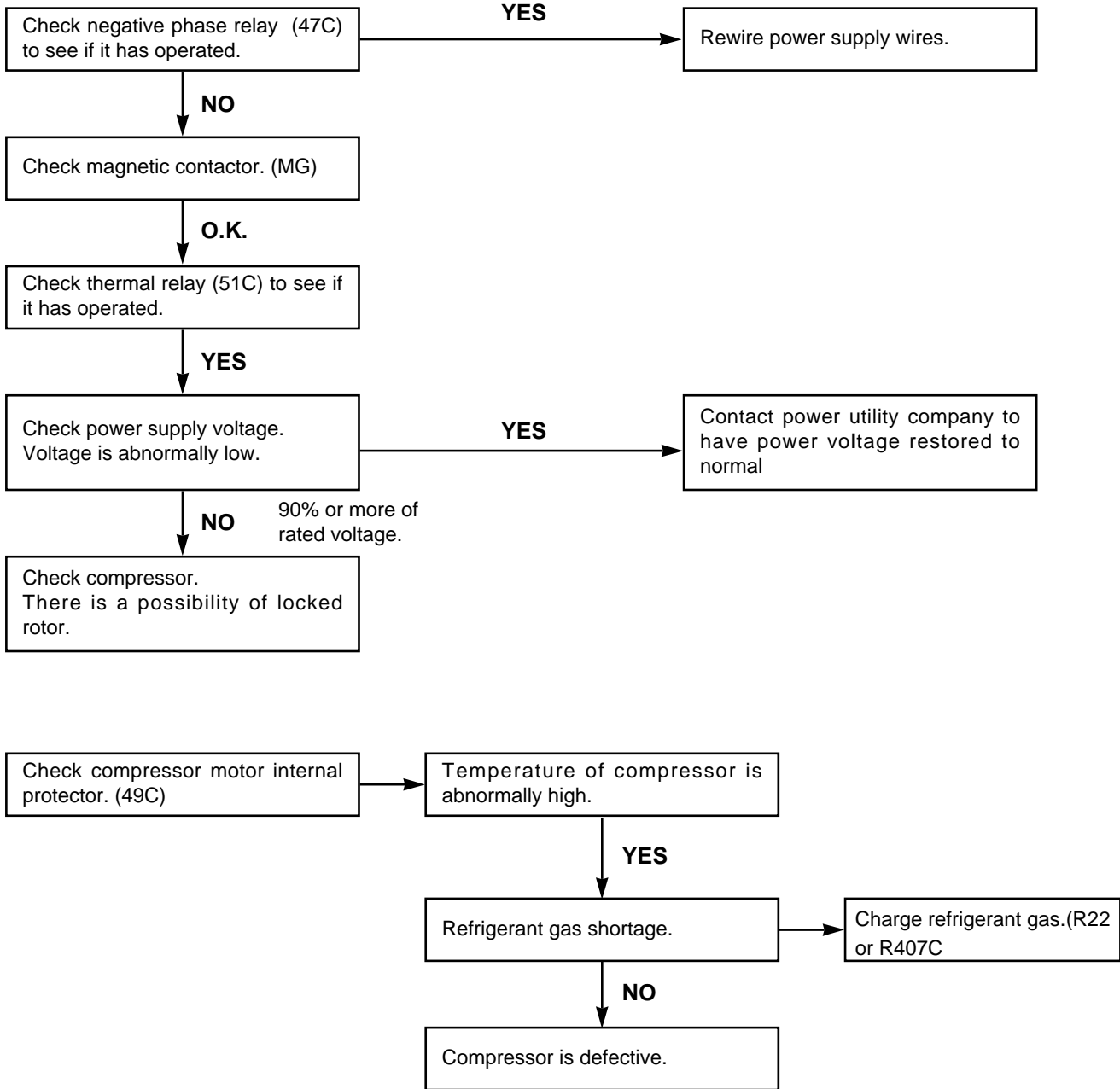


3) ONLY COMPRESSOR DOES NOT RUN

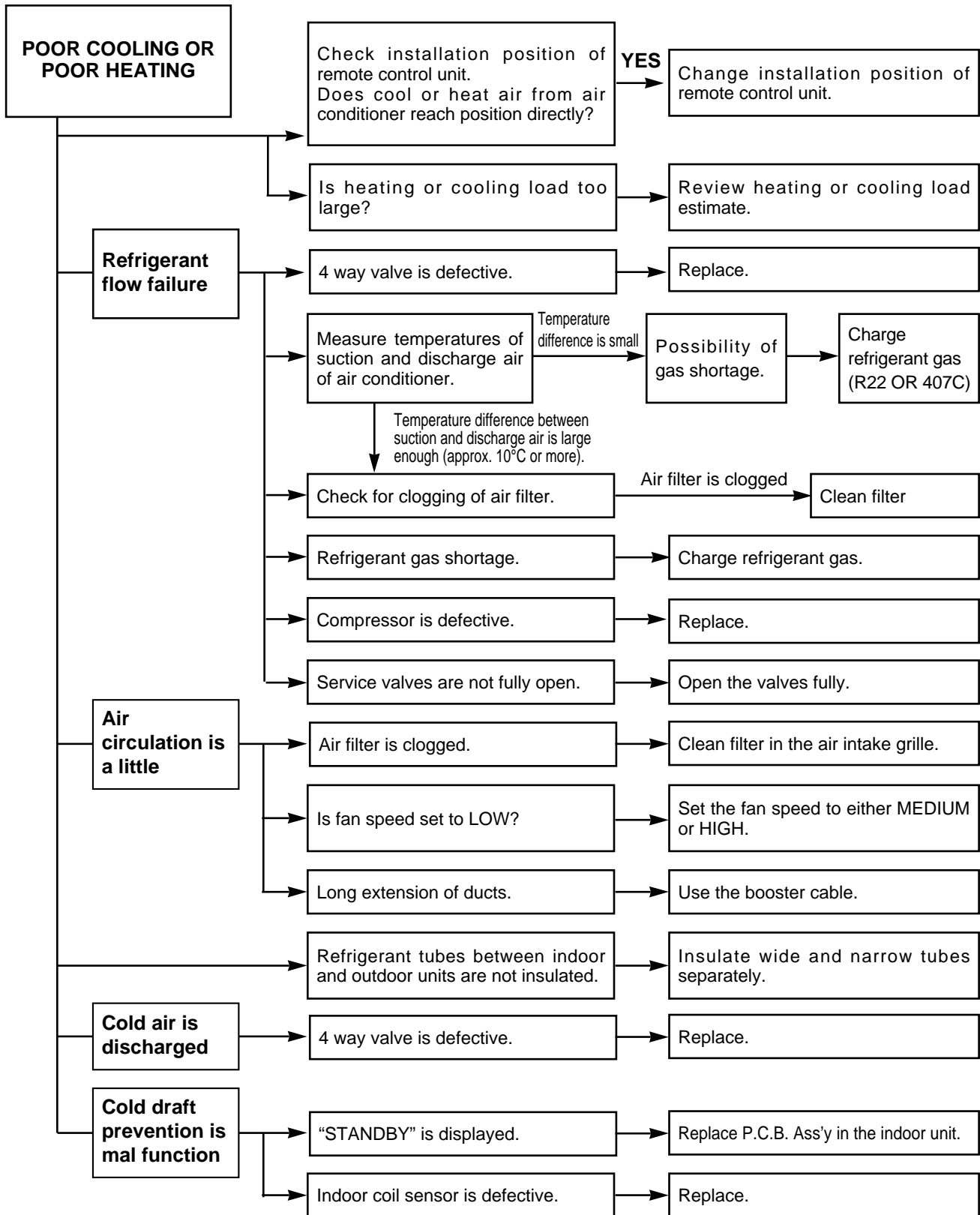
a) Single phase systems 230V - 1 - 50 Hz



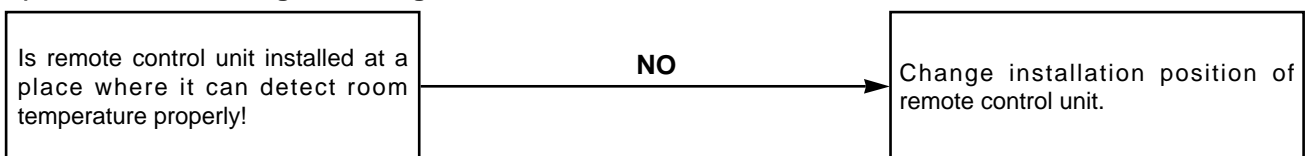
b) Three-phase systems 400V - 3N - 50 Hz



a)



b) Excessive cooling or heating



1) CHECK BEFORE AND AFTER “TROUBLESHOOTING”

a) Check power supply wiring.

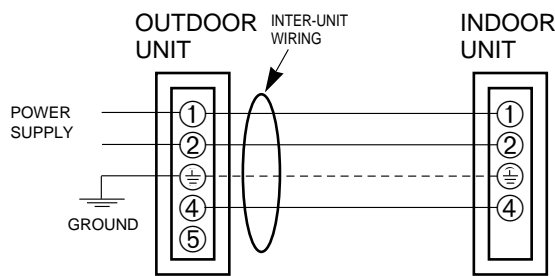
- **WARNING:**
If the following troubleshooting must be done with power being supplied, be careful about any uninsulated live part that can cause **ELECTRIC SHOCK**.

b) Check inter-unit wiring.

- Check that inter-unit wiring (both the power wiring and control wiring) is correctly connected to the indoor unit from the outdoor unit.

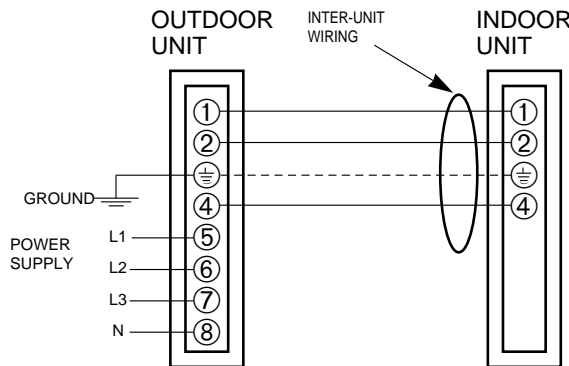
ADR522CW - AE522SC

POWER SUPPLY
50 Hz - Single-phase
220/230/240 V



**ADR522CW - AE522SC3
ADR522CW - AER522SCL3**

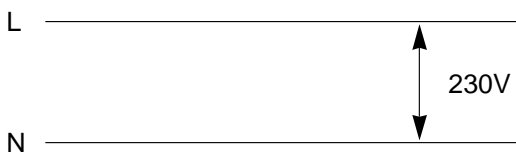
POWER SUPPLY
50 Hz - 3-phase 400V
4 Wires



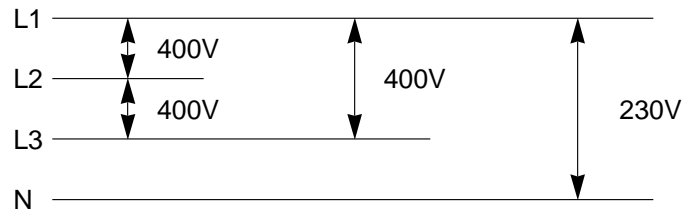
(c) Check power supply

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

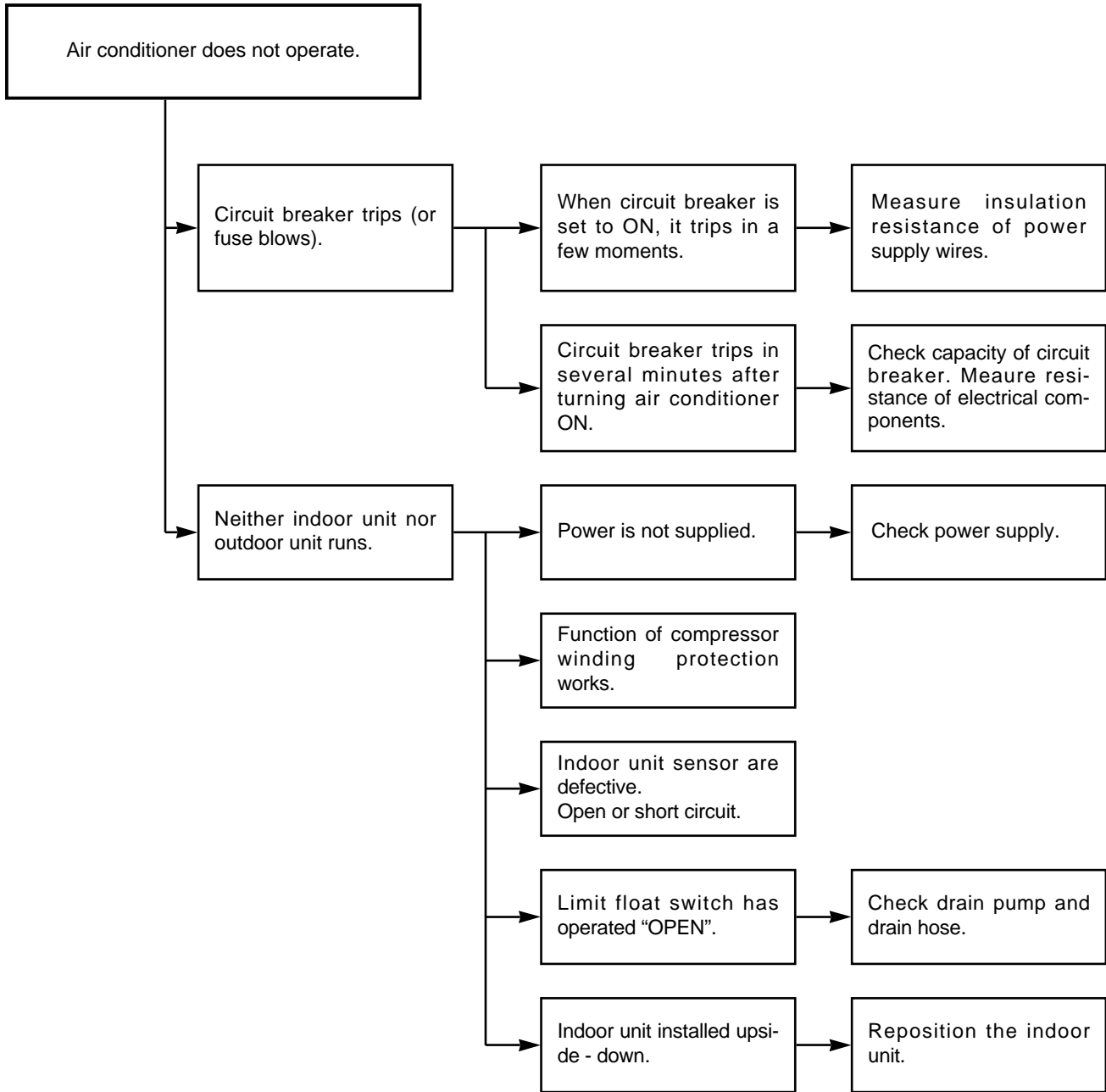
Single-phase systems



Three-phase systems



2) SYSTEMATIC CHART OF "TROUBLESHOOTING"

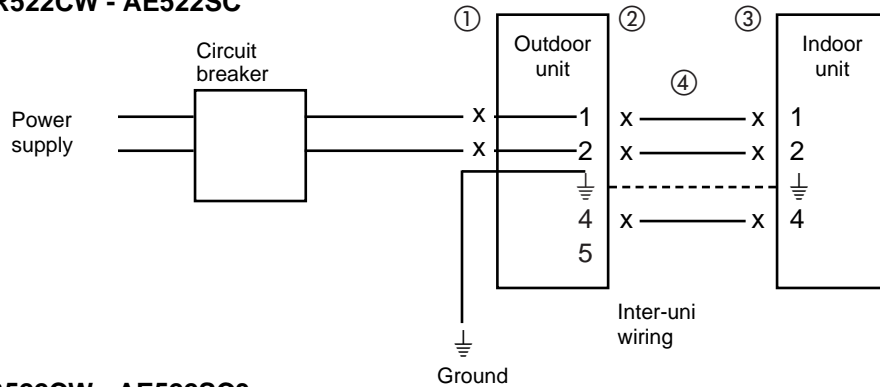


3) AIR CONDITIONER DOES NOT OPERATE

(a) Circuit breaker trips (or fuse blows)

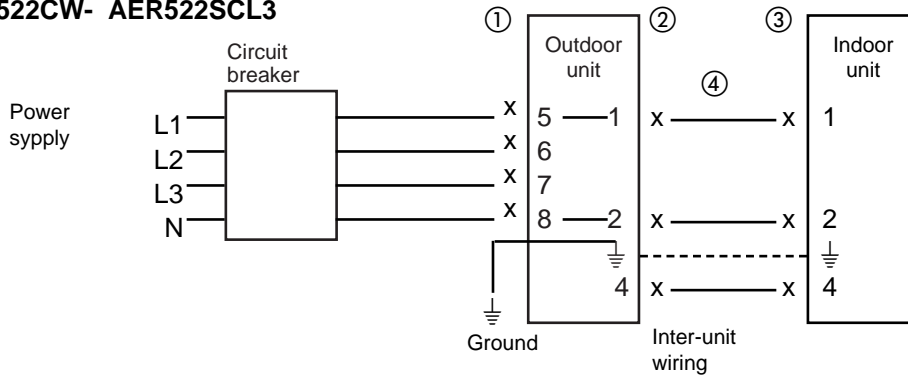
- When circuit breaker is set to ON, it trips in a few moments. (Resetting is not possible).
- Measure insulation resistance there is a possibility of ground fault. If resistance value is $1M\Omega$ or less, insulation is defective.

ADR522CW - AE522SC

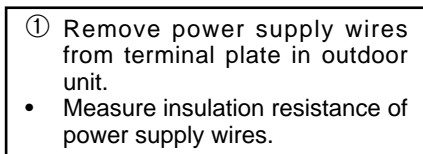


ADR522CW - AE522SC3

ADR522CW- AER522SCL3

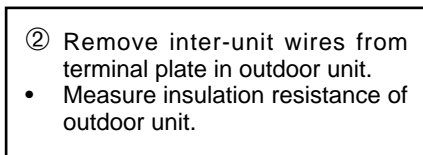


- Set circuit breaker to OFF.



OK

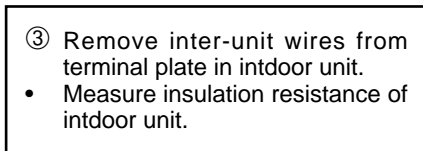
Do rewiring



Insulation of outdoor unit is defective.

YES

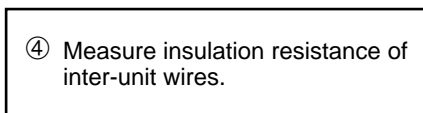
Measure insulation resistance of electrical parts in outdoor unit.



Insulation of indoor unit is defective.

YES

Measure insulation resistance of electrical parts in indoor unit.

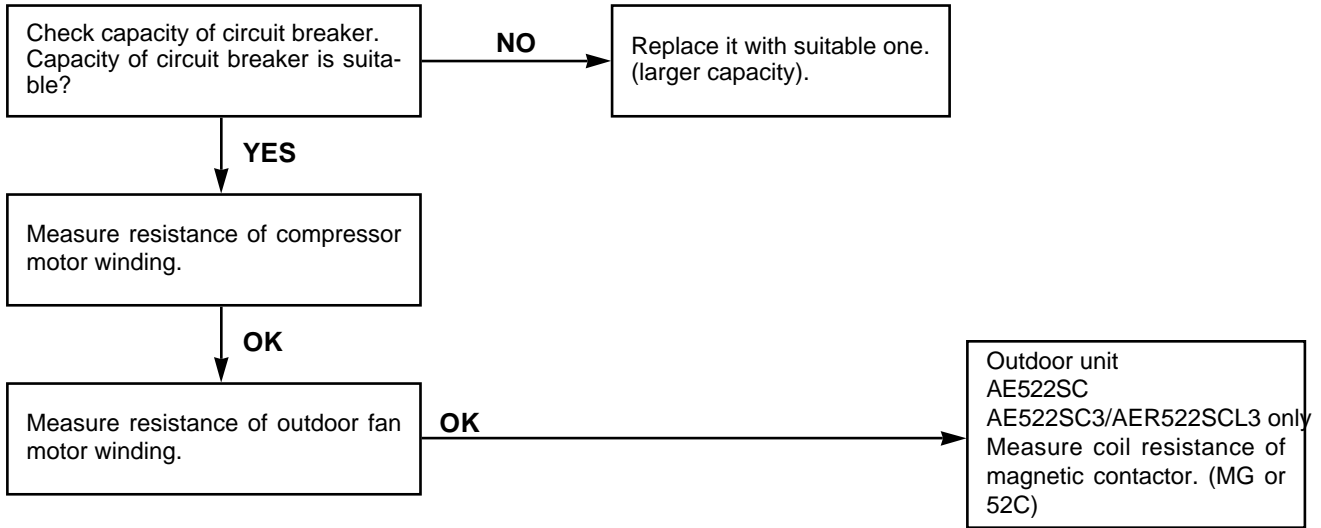


OK

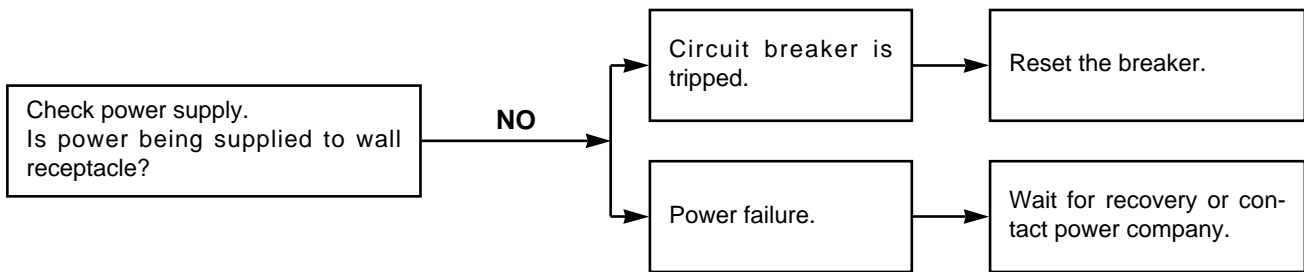
Do rewiring.

(b) Circuit breaker trips in several minutes after turning air conditioner ON.

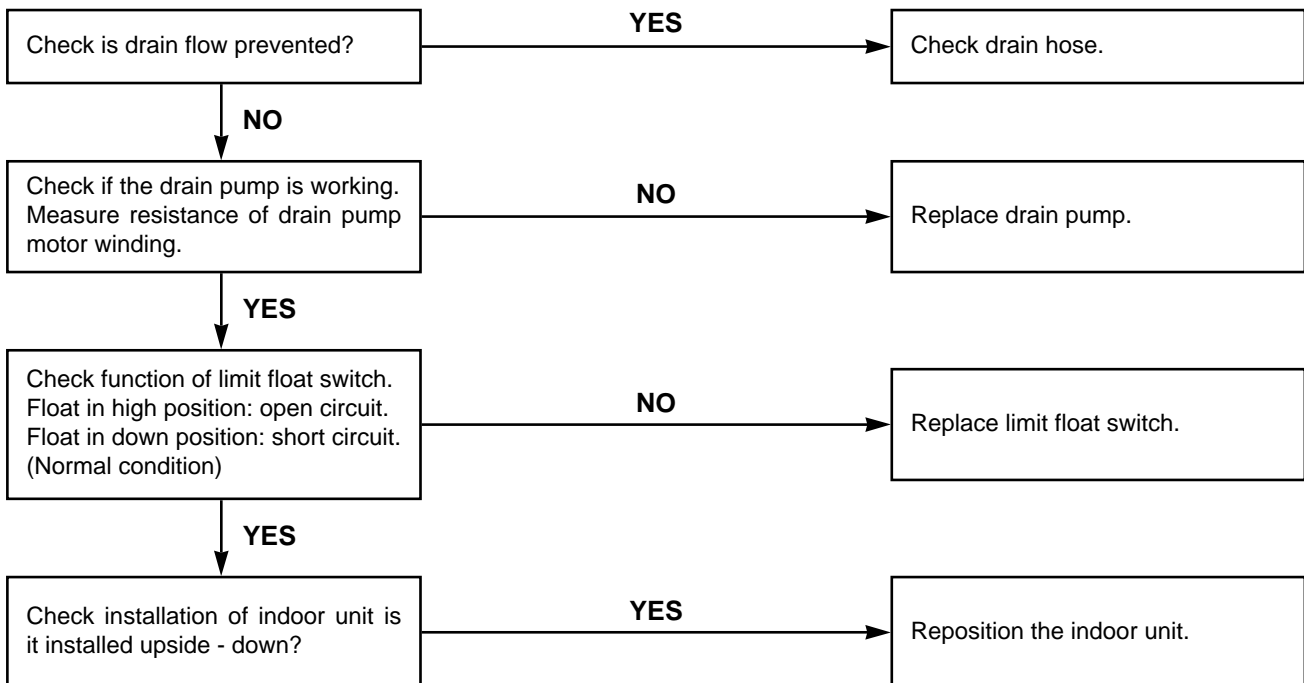
- There is a possibility of short circuit.



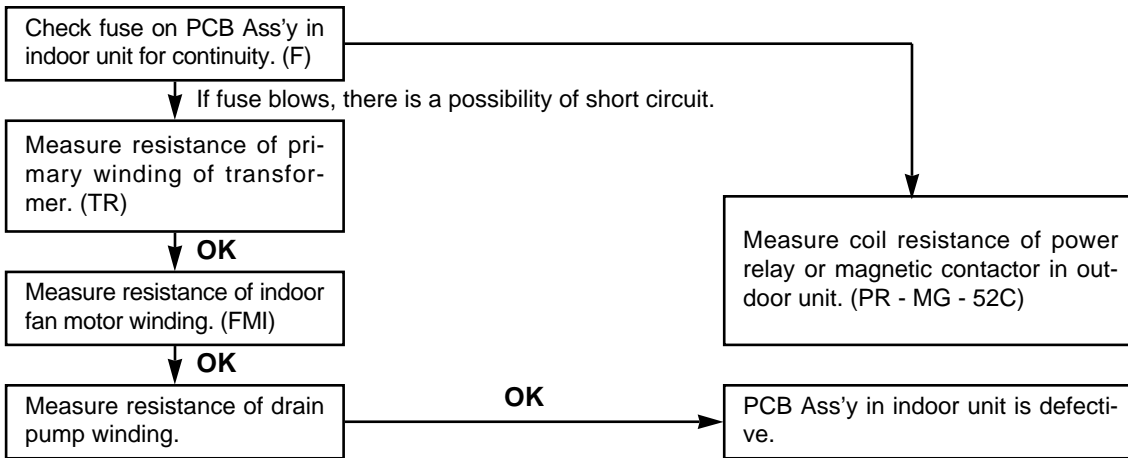
(c) Neither indoor unit nor outdoor unit runs



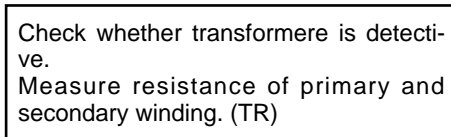
Leds of remote control unit are light



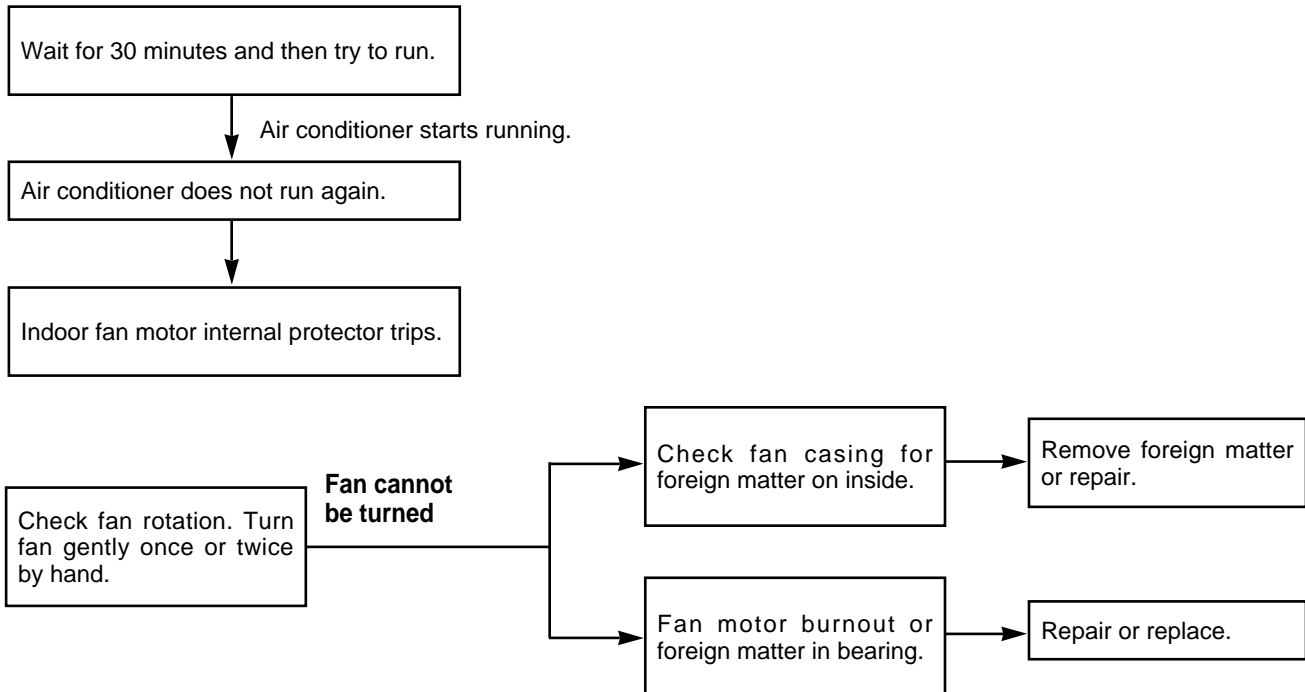
(d) Check fuse on PCB Ass'y in indoor unit



e) Check transformer in indoor unit



f) Check indoor fan motor protector



4) ONLY OUTDOOR UNIT DOES NOT RUN

a) Outdoor unit does not run when air conditioner is in following conditions.

- During thermo OFF.
- During freeze prevention (for at least 6 minutes).
- During drain pump works (for at least 12 minutes).

b) PCB Ass'y in indoor unit is defective.

• **Check magnetic contactor (only for AE522SC - AE522SC3)**

- Check coil resistance of magnetic contactor. (52C or MG)

• **Check negative phase relay (only for AER522SCL3 - AE522SC3)**

- Check negative phase relay to see if it has operated. (47C)

YES

- Rewire power supply wires.

5) COMPRESSOR MOTOR DOES NOT RUN (only for SAP AE522SC)

a) Single phase systems 230V - 1 - 50 Hz

- Check compressor motor capacitor. (C1)

OK

- Measure resistance of compressor motor winding.

- Check overload relay and/or compressor motor internal protector. (OLR - 49C)

It has tripped

- Is outdoor heat exchanger coil dirty or are there obstacles near air suction inlet of outdoor unit?

NO

- Check power supply voltage. Is voltage abnormally low?

NO

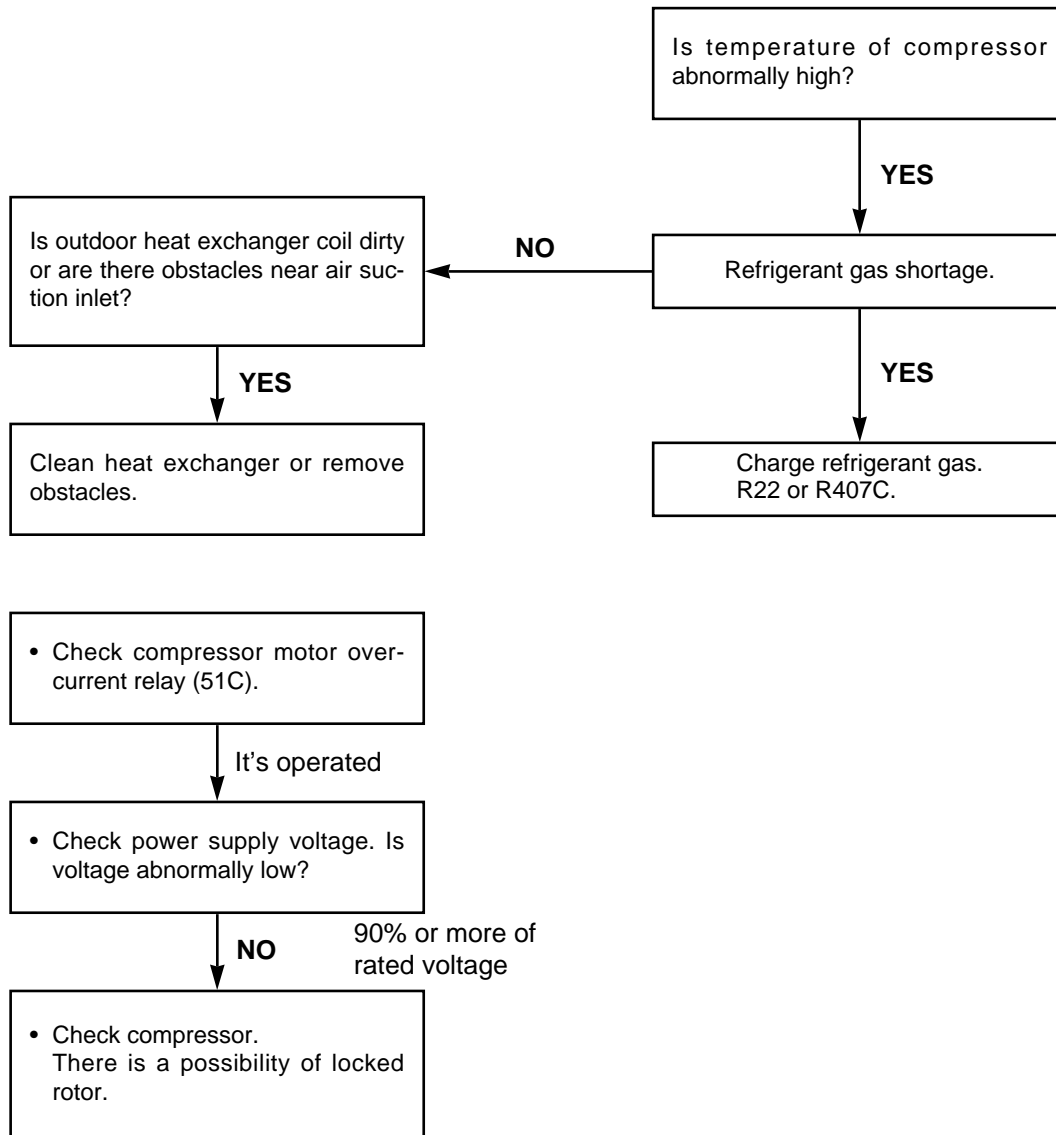
- Is temperature of compressor abnormally high?

YES

- Refrigerant gas shortage.

b) Three - phase systems 400V - 3N - 50 Hz

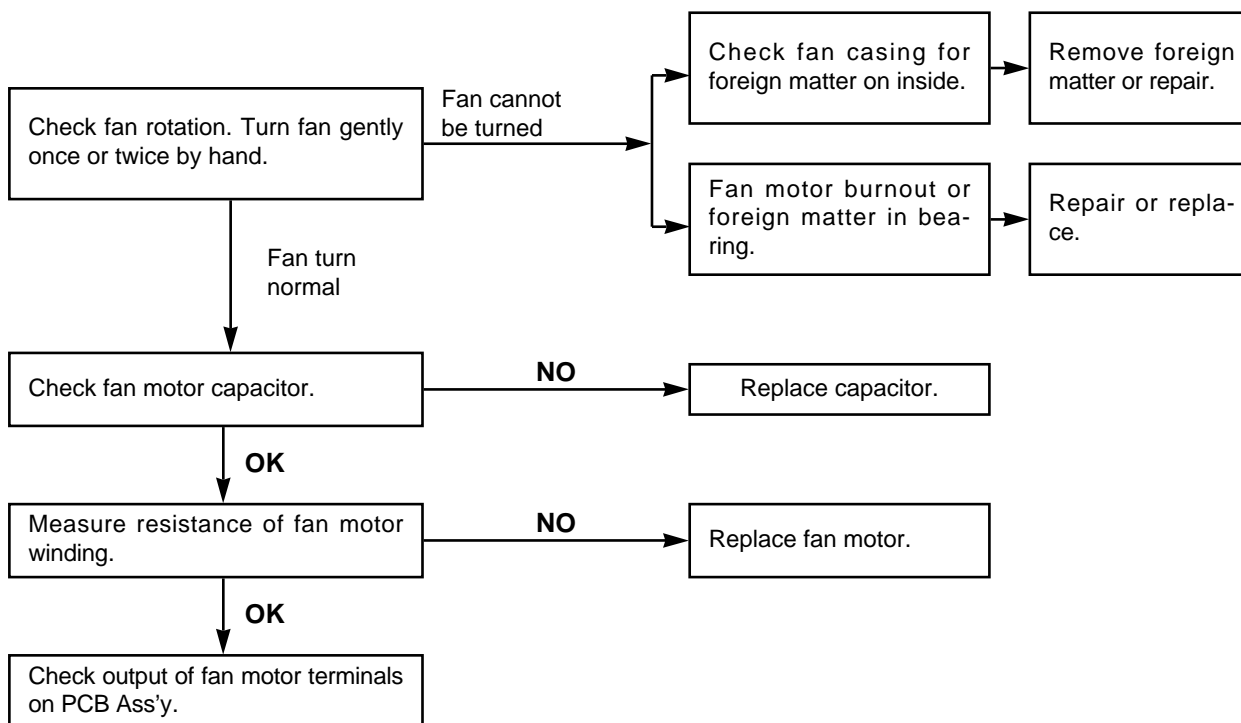
• Measure resistance of compressor motor winding.



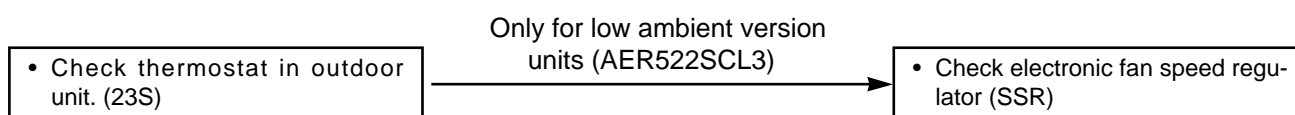


SOME PARTS OF AIR CONDITIONER DO NOT OPERATE

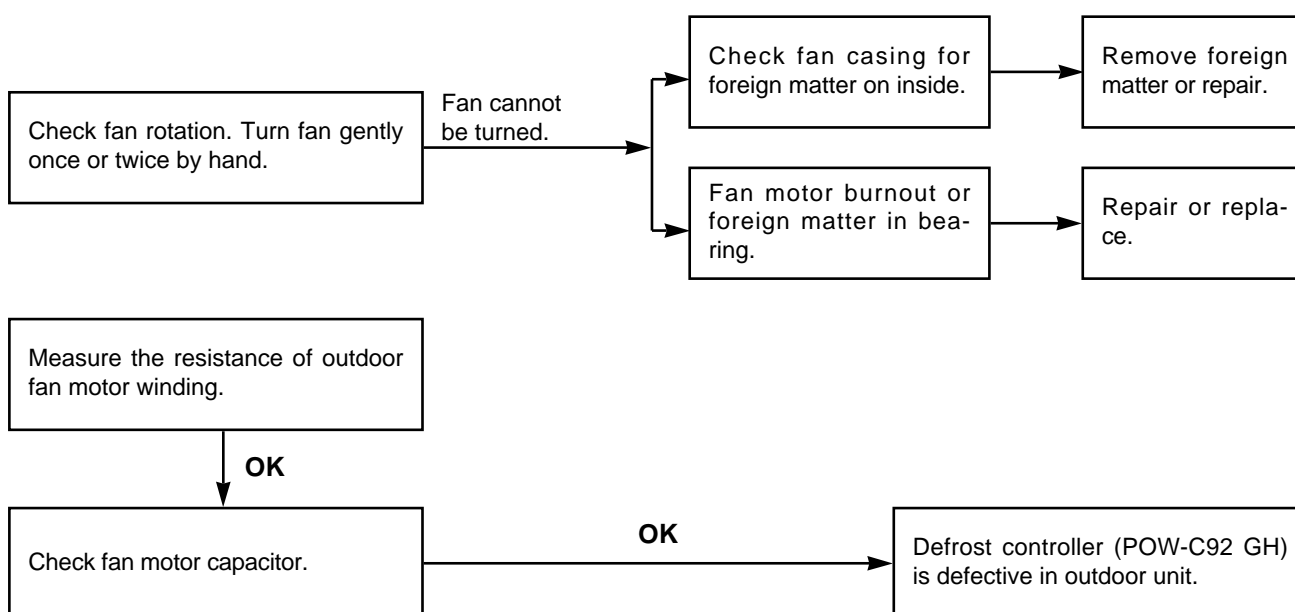
1) ONLY INDOOR FAN DOES NOT RUN



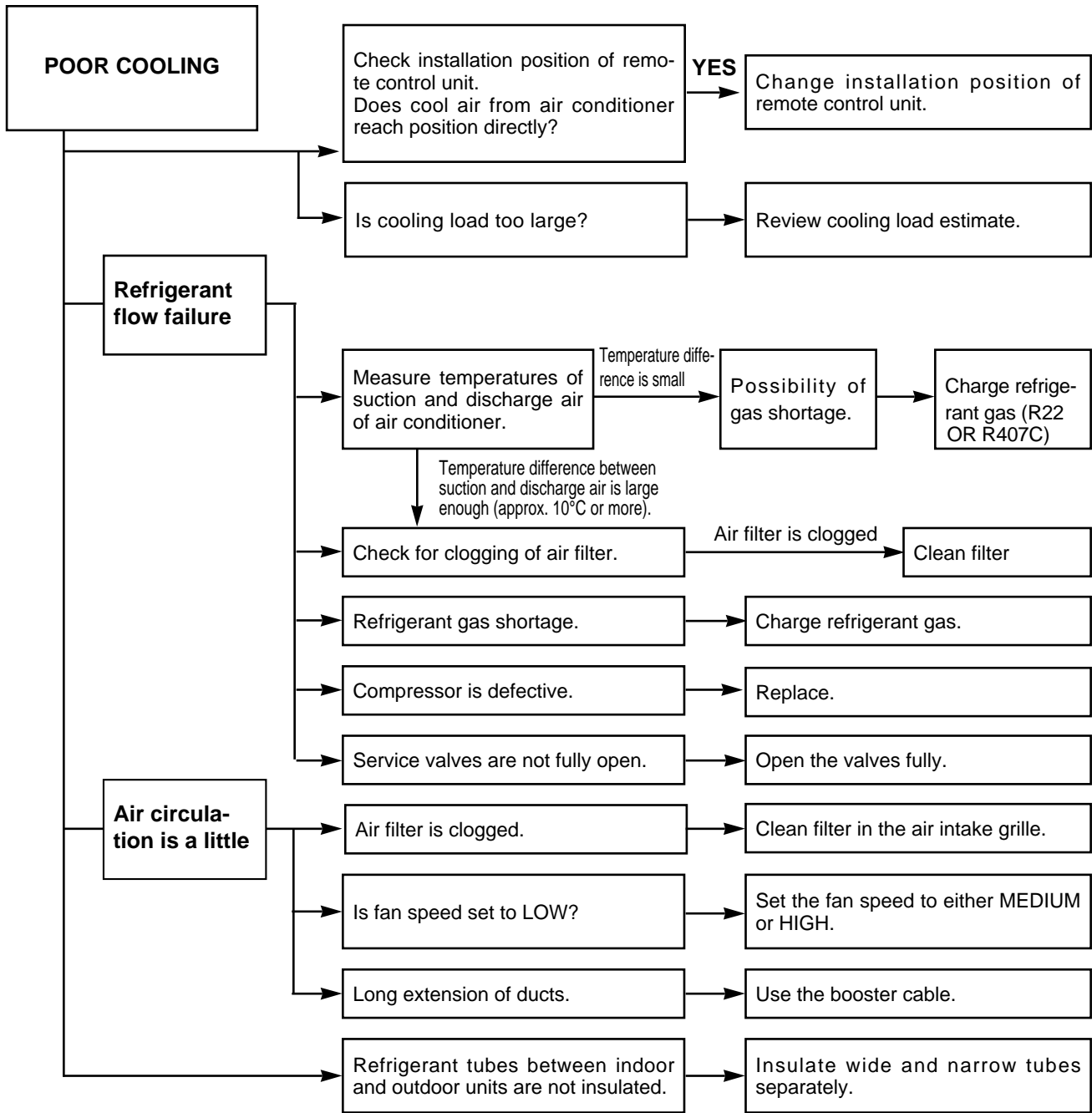
2) FUNCTION OF OUTDOOR FAN SPEED CONTROL DOES NOT WORK PROPERLY (only for SAP-C228E5 / SAP-C228E38)



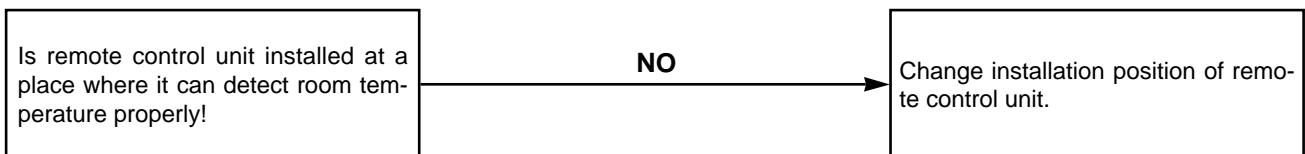
3) ONLY OUTDOOR FAN DOES NOT RUN



a)



b) Excessive cooling



1) Measurement of Insulation Resistance

- The insulation is in good condition if the resistance exceeds 1 MΩ.

(a) Power Supply Wires

Clamp the earthed wire of the power supply wires with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires (Fig. 1). Then measure the resistance between the earthed wire and the other power wires (Fig. 1).

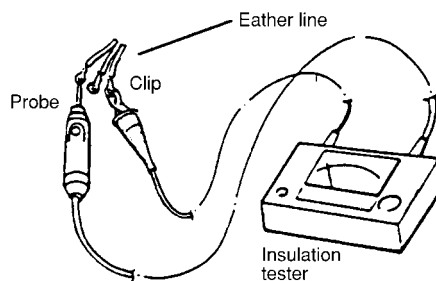


Fig. 1

(b) Indoor Unit

Clamp an aluminium plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on ①, and then ② on the terminal plate (Fig. 2).

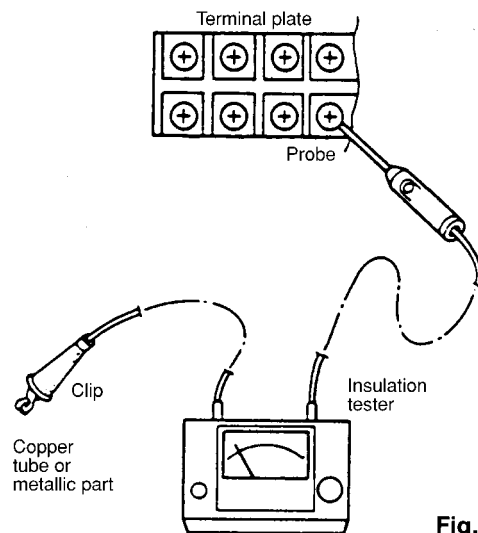


Fig. 2

(c) Outdoor Unit

Clamp a metallic part of the unit with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on ①, and then ② on the terminal plate (Fig. 2).

(d) Measurement of Insulation Resistance for Electrical Parts

Disconnect the lead wires of the disired electric part from terminal plate, PCB Ass'y, capacitor, etc. Similarly disconnect the connector. Then measure the insuration resistance. (Fig. 1 to 4). Refer to Electric Wiring Diagram.

NOTE

If the probe cannot enter the poles because the hole is too narrow then use a probe with a thinner pin.

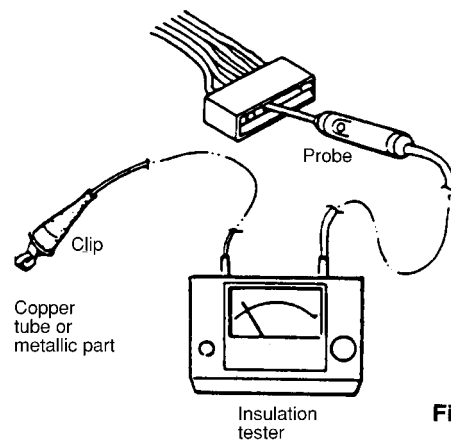


Fig. 3

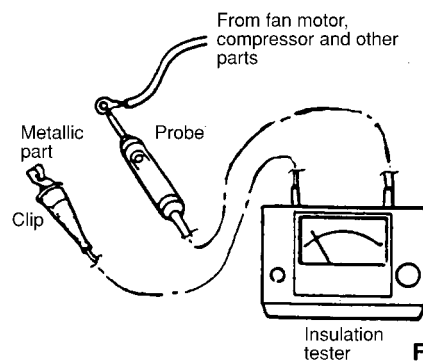


Fig. 4

2) Checking Continuity of Fuse on PCB Ass'y

- Remove PCB Ass'y from electrical component box. Then pull out the fuse from PCB Ass'y (Fig. 5).

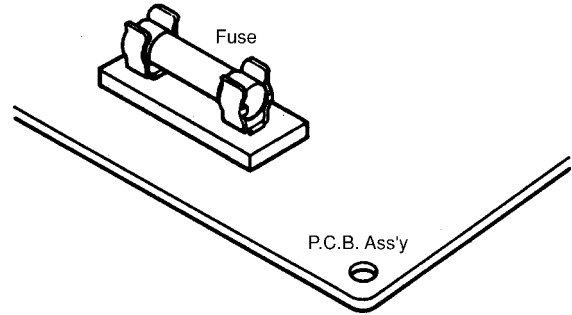


Fig. 5

- Check continuity of fuse by the multimeter (Fig. 6).

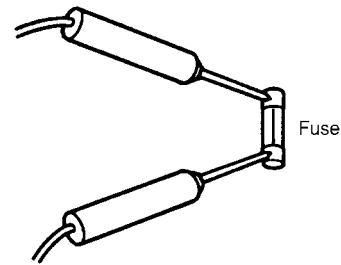


Fig. 6

3) Checking Motor Capacitor

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig. 7. Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.

The range of deflection and deflection time differ according to capacity of the capacitor.

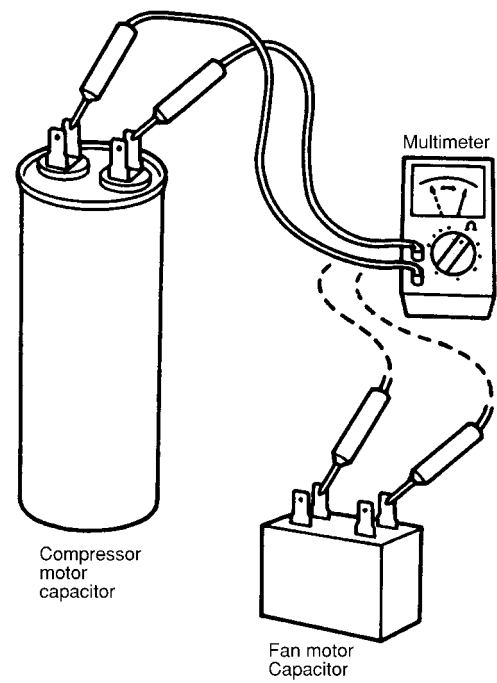


Fig. 7

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