

TECHNICAL DATA & SERVICE MANUAL

SANYO

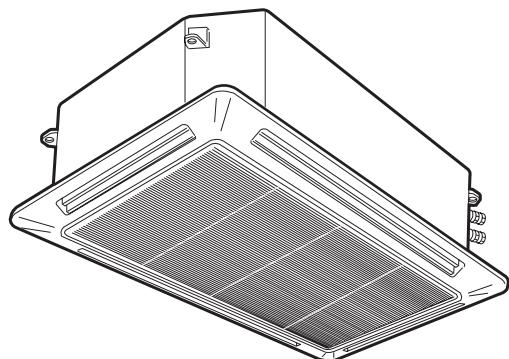
FILE NO.

**XS4232 / C4232, CL4232
TS4232 / C4232, CL4232**

SPLIT SYSTEM AIR CONDITIONER

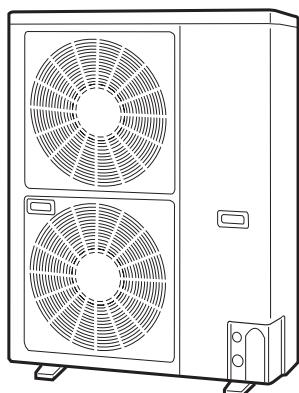
INDOOR MODEL No.	PRODUCT CODE No.	OUTDOOR MODEL No.	PRODUCT CODE No.
XS4232	854 016 10	C4232	854 016 12
		CL4232	854 016 11
TS4232	854 016 09	C4232	854 016 12
		CL4232	854 016 11

Indoor Unit

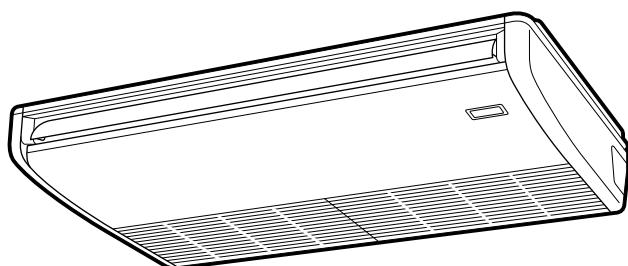


XS4232

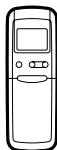
Outdoor Unit



C4232
CL4232



TS4232



Important

Please Read Before Starting

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

For safe installation and trouble-free operation, you must :

- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.



WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If Necessary, Get Help

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

In Case of Improper Installation

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

When Wiring



ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- **Ground the unit** following local electrical codes.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

When Transporting

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

When Installing

...In a Room

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

...In Moist or Uneven Locations

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

...In an area with High Winds

Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

...In a Snowy Area (for Heat Pump-type Systems)

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When Connecting Refrigerant Tubing

- Ventilate the room well, in the event that refrigerant gas leaks during the installation. Be careful not to allow contact of the refrigerant gas with a flame as this will cause the generation of poisonous gas.
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion the refrigerant tubing for your particular model is specified as either "narrow" or "wide" rather than as "liquid" or "gas".

When Servicing

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site when installation is finished. Check that no metal scraps or bits of wiring have been left inside the unit.



CAUTION

- Ventilate any enclosed areas when installing or testing the refrigeration system. Contact of refrigerant gas with fire or heat can produce poisonous gas.
- Confirm after installation that no refrigerant gas is leaking. If the gas comes in contact with a burning stove, gas water heater, electric room heater or other heat source, it can cause the generation of poisonous gas.

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Introduction: Read Me First!

This manual will help you understand and service the air conditioner. To help you find the information you need, we have divided it into 5 main sections. Each section is divided into chapters with charts, tables and explanations to help you find and repair problems.

- **Section 1: Specifications**, tells you about the physical and electrical make up of the unit, as well as its heating and cooling capacities. Look in this section to find the correct values for components and functions.
- **Section 2: Processes and Functions**, explains each different part of the cooling and heating cycle, and how each control function reacts to changing conditions to keep the room at the set temperature range.
- **Section 3: Electrical Data**, which has fold-out schematic and wiring diagrams so you can find the parts you need to check when something is wrong, and see how they should be connected.
- **Section 4: Service Procedures**, has two main parts, a *diagnostic* chapter to help you find the specific component to replace or adjust, and a chapter with specific procedures and values to guide you in checking the electrical components in the unit.

HOW TO USE THIS MANUAL

You can use this manual both as a *reference* to find specific information about the capacity, functions and construction of this unit, and as a source of information to help you set up and maintain the unit.

When this unit is not working properly, and the cause is not known, you can use the procedures in **Section 3: Servicing Procedures** to find the problem, fix it, and restore the unit to its proper functioning.

This air conditioner has many helpful self diagnostic features to help you identify problem areas quickly.

So you will be ready when a problem happens, we suggest you look this manual over and become familiar with it by following these steps:

1. **Look at the TABLE OF CONTENTS** to get an idea of what is in this manual and where to find it.
2. **Look at the chapter about TROUBLE SHOOTING**, so you are familiar with the way the flow charts work. They are designed to guide you quickly through the possible causes for each kind of problem that is likely to happen to the Unit. Particularly read the introduction to this section, and the parts about the self-diagnosis and error codes which show on the display.
3. **Look at the chapter about CHECKING ELECTRICAL COMPONENTS**. You already know about most of these procedures. This chapter gives you the specific values and methods for these components. If you don't know some of these procedures, you can easily learn them here.
4. **Read the Instruction Manual!** The Instruction Manual is included here because it helps you help the user to set the temperature controls properly and know how to take care of any simple problems that may happen, as well as know when to call for service. The Instruction Manual also has illustrations, care, and installation information not found in the rest of the service manual. It is short, and if you read it carefully, you will be able to answer the customers questions easily, and also know the most efficient ways for setting times and temperatures.

Please use this manual to make your work easier, keep the air conditioner functioning well, and keep your customers satisfied.

1. OPERATING RANGE

XS4232, TS4232 / C4232

Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Maximum	95 °F DB / 71 °F WB	115 °F DB
Minimum	67 °F DB / 57 °F WB	67 °F DB

XS4232, TS4232 / CL4232

Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Maximum	95 °F DB / 71 °F WB	115 °F DB
Minimum	67 °F DB / 57 °F WB	0 °F DB

2. SPECIFICATIONS

(1) Unit Specifications

MODEL No.	Indoor Unit		XS4232 C4232				
	Outdoor Unit						
POWER SOURCE	230 - 208 V / 1 Phase / 60 Hz						
PERFORMANCE	Cooling						
Capacity	BTU / h	42,000	40,500				
	kW	12.32	11.88				
Air circulation (Hi)	cu.ft. / min.	980	880				
Moisture removal (High)	Pints / h	14.6	14.8				
ELECTRICAL RATINGS							
Voltage rating	VAC	230	208				
Available voltage range	VAC	187 - 253					
Running amperes*	A	20.8	21.1				
Max. running amperes**	A	24.1	25.3				
Power input	W	4,230	4,120				
Power factor	%	88	94				
S.E.E.R	BTU / Wh	10.2	10.3				
Max. starting amperes	A	134	134				
Maximum fuse size	A	50					
FEATURES							
Controls	Microprocessor						
Timer	ON / OFF 24-hours & Program						
Fan speed Indoor / Outdoor	3 and Automatic control / 2 (Auto)						
Air deflection	Horizontal / Vertical						
Air filter	Washable, easy access, long life (2,500 hr)						
Remote controller (Accessory)	RCS - 5PS4U						
Refrigerant control	Capillary tube						
Refrigerant tubing connections	Flare type						
Drain pump / Drain pipe trade size	Max. head 9-27/32 in. above drain connection / 3/4 in. (26.7 mm)						
Compressor	Scroll						
Operation sound	Indoor - Hi / Me / Lo Outdoor - Hi	dB - A dB - A	43 / 40 / 36 56				
REFRIGERANT TUBING							
Limit of tubing length	ft. (m)	165 (50)					
Limit of tubing length at shipment	ft. (m)	50 (15)					
Limit of elevation difference between the two units	ft. (m)	Outdoor unit is higher than indoor unit: 165 (50) Outdoor unit is lower than indoor unit: 100 (30)					
Refrigerant tube outer diameter	Narrow tube Wide tube	in. (mm) in. (mm)	3 / 8 (9.52) 3 / 4 (19.05)				
Refrigerant amount at shipment		lbs. (kg)	R22 : 9.7 (4.4)				
DIMENSIONS & WEIGHT							
		Indoor unit		Outdoor unit			
Unit dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	11-1/32 (280) 41-11/32 (1,050) 29-29/32 (760)	48-5/8 (1,235) 37 (940) 13-3/8 (340)			
Net weight		lbs. (kg)	60 (27)	205 (93)			
Indoor grille dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	3-1/16 (78) 45-9/32 (1,150) 33-27/32 (860)	— — —			
Net weight		lbs. (kg)	15 (7)	—			
Indoor Unit	Height	in. (mm)	12-7/16 (316)	52-7/32 (1,326)			
Package dimensions	Width Depth	in. (mm) in. (mm)	43-27/32 (1,114) 32-25/32 (833)	40 (1,016) 16-3/8 (416)			
Shipping weight	lbs. (kg)		71 (32)	229 (104)			
Shipping volume	cu. ft. (m ³)		10.3 (0.293)	19.8 (0.56)			
Indoor grille	Height	in. (mm)	4-3/32 (104)	—			
Package dimensions	Width Depth	in. (mm) in. (mm)	49-1/2 (1,257) 39-11/32 (999)	— —			
Shipping weight	lbs. (kg)		29 (10)	—			
Shipping volume	cu. ft. (m ³)		4.6 (0.131)	—			

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

- Rating conditions (*) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 95 °F DB / 75 °F WB
- Full load conditions (**) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 115 °F DB

2. SPECIFICATIONS

(1) Unit Specifications

MODEL No.	Indoor Unit		XS4232 CL4232	
	Outdoor Unit			
POWER SOURCE	230 - 208 V / 1 Phase / 60 Hz			
PERFORMANCE	Cooling			
Capacity	BTU / h	42,000	40,500	
	kW	12.32	11.88	
Air circulation (Hi)	cu.ft. / min.	980	880	
Moisture removal (High)	Pints / h	14.6	14.8	
ELECTRICAL RATINGS				
Voltage rating	VAC	230	208	
Available voltage range	VAC	187 - 253		
Running amperes*	A	20.8	21.1	
Max. running amperes**	A	24.1	25.3	
Power input	W	4,230	4,120	
Power factor	%	88	94	
S.E.E.R	BTU / Wh	10.2	10.3	
Max. starting amperes	A	134	134	
Maximum fuse size	A	50		
FEATURES				
Controls	Microprocessor			
Low ambient control	Built-in 0 °F			
Timer	ON / OFF 24-hours & Program			
Fan speed Indoor / Outdoor	3 and Automatic control / 3 (Auto)			
Air deflection	Horizontal / Vertical			- / Automatic
Air filter	Washable, easy access, long life (2,500 hr)			
Remote controller (Accessory)	RCS - 5PS4U			
Refrigerant control	Capillary tube			
Refrigerant tubing connections	Flare type			
Drain pump / Drain pipe trade size	Max. head 9-27/32 in. above drain connection / 3/4 in. (26.7 mm)			
Compressor	Scroll			
Operation sound	Indoor - Hi / Me / Lo Outdoor - Hi	dB - A dB - A	43 / 40 / 36 56	
REFRIGERANT TUBING				
Limit of tubing length	ft. (m)			165 (50)
Limit of tubing length at shipment	ft. (m)			50 (15)
Limit of elevation difference between the two units	ft. (m)			Outdoor unit is higher than indoor unit: 165 (50) Outdoor unit is lower than indoor unit: 100 (30)
Refrigerant tube outer diameter	Narrow tube Wide tube	in. (mm) in. (mm)	3 / 8 (9.52) 3 / 4 (19.05)	
Refrigerant amount at shipment	lbs. (kg)			R22 : 9.7 (4.4)
DIMENSIONS & WEIGHT				
		Indoor unit		Outdoor unit
Unit dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	11-1/32 (280) 41-11/32 (1,050) 29-29/32 (760)	48-5/8 (1,235) 37 (940) 13-3/8 (340)
Net weight		lbs. (kg)	60 (27)	205 (93)
Indoor grille dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	3-1/16 (78) 45-9/32 (1,150) 33-27/32 (860)	- - -
Net weight		lbs. (kg)	15 (7)	-
Indoor Unit Package dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	12-7/16 (316) 43-27/32 (1,114) 32-25/32 (833)	52-7/32 (1,326) 40 (1,016) 16-3/8 (416)
Shipping weight Shipping volume		lbs. (kg) cu. ft. (m³)	71 (32) 10.3 (0.293)	229 (104) 19.8 (0.56)
Indoor grille Package dimensions	Height Width Depth	in. (mm) in. (mm) in. (mm)	4-3/32 (104) 49-1/2 (1,257) 39-11/32 (999)	- - -
Shipping weight Shipping volume		lbs. (kg) cu. ft. (m³)	29 (10) 4.6 (0.131)	- -

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Cooling :

- Rating conditions (*) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 95 °F DB / 75 °F WB
- Full load conditions (**) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 115 °F DB

2. SPECIFICATIONS

(1) Unit Specifications

MODEL No.	Indoor Unit		TS4232			
	Outdoor Unit		C4232			
POWER SOURCE			230 - 208 V / 1 Phase / 60 Hz			
PERFORMANCE			Cooling			
Capacity	BTU / h	42,000	40,500			
	kW	12.32	11.88			
Air circulation (Hi)	cu.ft. / min.	900	800			
Moisture removal (High)	Pints / h	14.8	14.6			
ELECTRICAL RATINGS						
Voltage rating	VAC	230	208			
Available voltage range	VAC	187 - 253				
Running amperes*	A	20.6	21.0			
Max. running amperes**	A	21.4	22.7			
Power input	W	4,190	4,100			
Power factor	%	88	94			
S.E.E.R	BTU / Wh	10.2	10.3			
Max. starting amperes	A	134	134			
Maximum fuse size	A	50				
FEATURES						
Controls	Microprocessor					
Timer	ON / OFF 24-hours & Program					
Fan speed Indoor / Outdoor	3 and Automatic control / 2 (Auto)					
Air deflection	Horizontal / Vertical		Manual / Automatic			
Air filter	Washable, easy access, long life (2,500 hr)					
Remote controller (Accessory)	RCS - 5PS4U					
Refrigerant control	Capillary tube					
Refrigerant tubing connections	Flare type					
Drain pipe trade size	3 / 4 in. (26.7 mm)					
Compressor	Scroll					
Operation sound	Indoor - Hi / Me / Lo Outdoor - Hi	dB - A dB - A	42 / 40 / 35 56			
REFRIGERANT TUBING						
Limit of tubing length	ft. (m)	165 (50)				
Limit of tubing length at shipment	ft. (m)	50 (15)				
Limit of elevation difference between the two units	ft. (m)	Outdoor unit is higher than indoor unit: 165 (50) Outdoor unit is lower than indoor unit: 100 (30)				
Refrigerant tube outer diameter	Narrow tube Wide tube	in. (mm) in. (mm)	3 / 8 (9.52) 3 / 4 (19.05)			
Refrigerant amount at shipment		lbs. (kg)	R22 : 9.7 (4.4)			
DIMENSIONS & WEIGHT			Indoor unit	Outdoor unit		
Unit dimensions	Height	in. (mm)	9-7/16 (240)	48-5/8 (1,235)		
	Width	in. (mm)	62 (1,575)	37 (940)		
	Depth	in. (mm)	26-3/8 (670)	13-3/8 (340)		
Package dimensions	Height	in. (mm)	12-15/32 (317)	52-7/32 (1,326)		
	Width	in. (mm)	66-1/16 (1,678)	40 (1,016)		
	Depth	in. (mm)	31-1/16 (789)	16-3/8 (416)		
Net weight	lbs. (kg)	84 (38)	205 (93)			
Shipping weight	lbs. (kg)	97 (44)	229 (104)			
Shipping volume	cu.ft. (m ³)	14.8 (0.42)	19.8 (0.56)			

Cooling :

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Rating conditions (*) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 95 °F DB / 75 °F WB
 Full load conditions (**) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 115 °F DB

2. SPECIFICATIONS

(1) Unit Specifications

MODEL No.	Indoor Unit		TS4232			
	Outdoor Unit		CL4232			
POWER SOURCE			230 - 208 V / 1 Phase / 60 Hz			
PERFORMANCE			Cooling			
Capacity	BTU / h	42,000	40,500			
	kW	12.32	11.88			
Air circulation (Hi)	cu.ft. / min.	900	800			
Moisture removal (High)	Pints / h	14.8	14.6			
ELECTRICAL RATINGS						
Voltage rating	VAC	230	208			
Available voltage range	VAC	187 - 253				
Running amperes*	A	20.6	21.0			
Max. running amperes**	A	21.4	22.7			
Power input	W	4,190	4,100			
Power factor	%	88	94			
S.E.E.R	BTU / Wh	10.2	10.3			
Max. starting amperes	A	134	134			
Maximum fuse size	A	50				
FEATURES						
Controls	Microprocessor					
Low ambient control	Built-in 0 °F					
Timer	ON / OFF 24-hours & Program					
Fan speed Indoor / Outdoor	3 and Automatic control / 3 (Auto)					
Air deflection	Horizontal / Vertical					
Air filter	Washable, easy access, long life (2,500 hr)					
Remote controller (Accessory)	RCS - 5PS4U					
Refrigerant control	Capillary tube					
Refrigerant tubing connections	Flare type					
Drain pipe trade size	3 / 4 in. (26.7 mm)					
Compressor	Scroll					
Operation sound	Indoor - Hi / Me / Lo Outdoor - Hi	dB - A dB - A	42 / 40 / 35 56			
REFRIGERANT TUBING						
Limit of tubing length	ft. (m)	165 (50)				
Limit of tubing length at shipment	ft. (m)	50 (15)				
Limit of elevation difference between the two units	ft. (m)	Outdoor unit is higher than indoor unit: 165 (50) Outdoor unit is lower than indoor unit: 100 (30)				
Refrigerant tube outer diameter	Narrow tube Wide tube	in. (mm) in. (mm)	3 / 8 (9.52) 3 / 4 (19.05)			
Refrigerant amount at shipment	lbs. (kg)	R22 : 9.7 (4.4)				
DIMENSIONS & WEIGHT			Indoor unit	Outdoor unit		
Unit dimensions	Height	in. (mm)	9-7/16 (240)	48-5/8 (1,235)		
	Width	in. (mm)	62 (1,575)	37 (940)		
	Depth	in. (mm)	26-3/8 (670)	13-3/8 (340)		
Package dimensions	Height	in. (mm)	12-15/32 (317)	52-7/32 (1,326)		
	Width	in. (mm)	66-1/16 (1,678)	40 (1,016)		
	Depth	in. (mm)	31-1/16 (789)	16-3/8 (416)		
Net weight	lbs. (kg)	84 (38)	205 (93)			
Shipping weight	lbs. (kg)	97 (44)	229 (104)			
Shipping volume	cu.ft. (m³)	14.8 (0.42)	19.8 (0.56)			

Cooling :

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Rating conditions (*) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 95 °F DB / 75 °F WB
 Full load conditions (**) : Indoor air temperature 80 °F DB / 67 °F WB, Outdoor air temperature 115 °F DB

2. SPECIFICATIONS

(2) Major Component Specifications

(A) Indoor Unit

MODEL No.		XS4232	
Source		230 - 208 V / 1 phase / 60 Hz	
Remote controller (Accessory)		RCS - 5PS4U	
Controller P. C. B Ass'y		CR - TS2432	
Control circuit fuse		250 V, 3 A	
Switch Ass'y		SW - X363GS	
Fan (Number ... diameter)	in. (mm)	Turbo (1...19-9/32 (490))	
Fan motor			
Model		SFG6X - 61A3P	
Source		230 - 208 V / 1 phase / 60 Hz	
No. of pole ... r.p.m. (230 V, High)	rpm	6 ... 560	
Nominal output	W	60	
Coil resistance (Ambient temperature 68 °F)	Ω	BRW - WHT : 71.1 , ORG - YEL : 22.7 WHT - VLT : 8.7 , VLT - PNK : 43.2 VLT - ORG : 13.3 , YEL - BLK : 54.32	
Safety device			
Operating temperature	Open °F	266 ± 14.4	
	Close °F	174.2 ± 27	
Run capacitor	VAC, µF	440 V, 6 µF	
Heat exchanger			
Coil		Aluminum plate fin / Copper tube	
Rows ... Fins per inch		2 ... 14.9	
Face area	ft. ² (m ²)	5.17 (0.48)	
Panel			
Model No.		PNR - XS3632	
Indicator Lamp Ass'y		IND - XS3632	
Auto louver motor		MT8 - 3C	
Auto louver motor ... Rated	V, W, rpm	240 VAC, 3 W, 3 rpm	
Coil resistance (Ambient temperature 77 °F)	Ω	16,430 Ω ± 8 %	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(2) Major Component Specifications

(A) Indoor Unit

MODEL No.		TS4232	
Source		230 - 208 V / 1 phase / 60 Hz	
Remote controller (Accessory)		RCS - 5PS4U	
Controller P. C. B Ass'y		CR - TS2432	
Control circuit fuse		250 V, 3 A	
Switch Ass'y		SW - X363GS	
Fan (Number ... diameter)	in. (mm)	Centrifugal (4 ... 5-29/32(150))	
Fan motor			
Model		KFG4X - 101C6P	
Source		230 - 208 V / 1 phase / 60 Hz	
No. of pole ... r.p.m. (230 V, High)	rpm	1,015	
Nominal output	W	100	
Coil resistance (Ambient temperature 68 °F)	Ω	BRW - WHT : 61.05 , ORG - YEL : 13.23 WHT - VLT : 9.955 , YEL - BLK : 19.25 VLT - ORG : 9.576 , BLK - PNK : 10.81	
Safety device			
Operating temperature	Open °F	266 ± 14.4	
	Close °F	174.2 ± 27	
Run capacitor	VAC, µF	440 V, 4 µF	
Heat exchanger			
Coil		Aluminum plate fin / Copper tube	
Rows ... Fins per inch		3 ... 14.9	
Face area	ft. ² (m ²)	3.51 (0.326)	
Auto louver motor			
Model No.		MT8 - 3C	
Auto louver motor ... Rated	V, W, rpm	240 VAC, 3 W, 3 rpm	
Coil resistance (Ambient temperature 77 °F)	Ω	16,430 Ω ± 8 %	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(2) Major Component Specifications

(B) Outdoor Unit

MODEL No.		C4232	
Source		230 - 208 V / 1 phase / 60 Hz	
Compressor		Scroll (Hermetic)	
Model		ZR47KC - PFV	
Source		230 - 208 V / 1 phase / 60 Hz	
Nominal output	W	4,270	
Compressor oil	cc	1,240	
Coil resistance (Ambient temperature 77 °F)	Ω	R - W : 0.475 , S - W : 1.850	
Safety device		Internal type	
Overload relay models		—	
Operating temperature	Open °F	320 ± 9	
	Close °F	189 ± 20	
Operating ampere (at 77 °F)	A	—	
Run capacitor	VAC, µF	400 V, 50 µF	
Refrigerant amount charged at shipment	lbs. (kg)	R22 : 9.7 (4.4)	
High pressure switch		ACB - 1UB11	
Set pressure	OFF kg/cm²	30 ± 2.0	
	ON kg/cm²	24 ± 2.0	
Fan		Propeller	
Number...diameter	in. (mm)	1 ... 18-3/32 (460)	
Fan speeds		2 (AUTO)	
Fan motor			
Model		KFC6T - 91D6P × 2	
Source		230 - 208 V / 1 phase / 60 Hz	
No. of pole ... rpm (230 V, High)	rpm	6 ... 879	
Nominal output	W	110 × 2	
Coil resistance (Ambient temperature 68 °F)	Ω	BRW - WHT : 67.14 , VLT - YEL : 11.42	
		WHT - VLT : 64.85 , YEL - PNK : 10.60	
Safety device			
Operating temperature	Open °F	248 ± 9	
	Close °F	171 ± 27	
Run capacitor	VAC, µF	440 V, 4 µF × 2	
Heat exchanger			
Coil		Aluminum plate fin / Copper tube	
Rows ... Fins per inch		2 ... 12.7	
Face area	ft. ² (m ²)	11.63 (1.08)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(2) Major Component Specifications

(B) Outdoor Unit

MODEL No.		CL4232	
Source		230 - 208 V / 1 phase / 60 Hz	
Controller P.C.B. Ass'y		CR - CL2432 (Microprocessor)	
Control circuit fuse		250 V, 3 A	
Compressor		Scroll (Hermetic)	
Model		ZR47KC - PFV	
Source		230 - 208 V / 1 phase / 60 Hz	
Nominal output	W	2,200	
Compressor oil	cc	1,240	
Coil resistance (Ambient temperature 77 °F)	Ω	R - W : 0.475 , S - W : 1.850	
Safety device		Internal type	
Overload relay models		—	
Operating temperature	Open °F	320 ± 9	
	Close °F	189 ± 20	
Operating ampere (at 77 °F)	A	—	
Run capacitor	VAC, µF	400 V, 50 µF	
Crank case heater	V, W	230 V, 30 W	
Refrigerant amount charged at shipment	lbs. (kg)	R22 : 9.7 (4.4)	
High pressure switch		ACB - 1UB11	
Set pressure	OFF kg/cm²	30 + 2.0 + 0.5	
	ON kg/cm²	24 ± 2.0	
Fan		Propeller	
Number...diameter	in. (mm)	1 ... 18 - 3/32 (460)	
Fan speeds		3 (AUTO)	
Fan motor			
Model		KFC6T - 91D6P × 2	
Source		230 - 208 V / 1 phase / 60 Hz	
No. of pole rpm (230 V, High)		6 ... 879	
Nominal output	W	110 × 2	
Coil resistance (Ambient temperature 68 °F)	Ω	BRN - WHT : 67.14 , VLT - YEL : 11.42 WHT - VLT : 64.85 , YEL - PNK : 10.60	
Safety device		Internal type	
Operating temperature	Open °F	248 ± 9	
	Close °F	171 ± 27	
Run capacitor	VAC, µF	440 V, 4 µF × 2	
Heat exchange			
Coil		Aluminum plate fin / Copper tube	
Rows Fins per inch		2 ... 12.7	
Face area	ft.² (m²)	11.63 (1.08)	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(3) Other Component Specifications

(A) Indoor Unit

MODEL No.		XS4232		
Power Transformer		ATR - I104A		
Rated	Primary	AC 220 V, 60 Hz		
	Secondary	10.6 V, 0.93 A		
	Capacity	9.85 VAC		
Coil resistance (Ambient temperature 77 °F)	Ω	WHT - WHT : 101	, BRN - BRN : 0.42	
Thermistor cut off temperature	°F	266		
Thermistor (Coil sensor)		PBC - 41E - S36		
Coil resistance	kΩ	14 °F : 23.7	, 41 °F : 12.1	
		23 °F : 18.8	, 50 °F : 9.7	
Thermistor (Room or coil sensor)	kΩ	32 °F : 16.5	, 104 °F : 2.7	
		41 °F : 12.8	, 113 °F : 2.2	
		50 °F : 10.0	, 122 °F : 1.8	
		68 °F : 6.3	, 131 °F : 1.5	
		86 °F : 4.0	,	
Drain pump		WP20SL - 21		
Rated		AC 200 V, 14.7 W		
Float switch		FS - 0218 - 103		
MAX Rated (Contact rated)		AC 200 V, 50 W		
Switch Ass'y		SW - X363GS		
Indicator Lamp Ass'y		IND - XS3632		
Synchronized Motor		MT8 - 3C		

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(3) Other Component Specifications

(A) Indoor Unit

MODEL No.		TS4232	
Power Transformer		ATR - I104A	
Rated	Primary	AC 220 V, 60 Hz	
	Secondary	10.6 V, 0.93 A	
	Capacity	9.85 VAC	
Coil resistance (Ambient temperature 77 °F)	Ω	WHT - WHT : 101 , BRN - BRN : 0.42	
Thermistor cut off temperature	°F	266	
Thermistor (Coil sensor)		PBC - 41E - S36	
Coil resistance		14 °F : 23.7 , 41 °F : 12.1	23 °F : 18.8 , 50 °F : 9.7
		32 °F : 15.0 , 59 °F : 8.0	
Thermistor (Room or coil sensor)		KTEC - 35 - S6	
Coil resistance		32 °F : 16.5 , 104 °F : 2.7	41 °F : 12.8 , 113 °F : 2.2
		50 °F : 10.0 , 122 °F : 1.8	68 °F : 6.3 , 131 °F : 1.5
		86 °F : 4.0 ,	
Switch Ass'y		SW - X363GS	
Indicator Lamp Ass'y		IND - TS2432	
Synchronized Motor		MT8 - 3C	

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(3) Other Component Specifications

(B) Outdoor Unit

MODEL No.	C4232	
Compressor Motor Magnetic Contactor		FC - 2SUL
Coil rated		AC 240 V, 60 Hz
Coil resistance (at 68 °F)	Ω	350 ± 10 %
Contact rated (Main)		AC 240 V, 35 A
Contact rated (Auxiliary)		AC 240 V, 3 A
Power Relay		HH62S
Coil rated		AC 240 V, 60 Hz
Coil resistance (at 77 °F)	kΩ	17.2
Contact rated		AC 220 V, 5 A
Thermostat (Coil sensor)		YTB - 4U305F
Operating Temperature	°F	79 ± 3 OFF 75 ± 3 ON
Contact rated		200 to 240 V, 1 A

DATA SUBJECT TO CHANGE WITHOUT NOTICE

2. SPECIFICATIONS

(3) Other Component Specifications

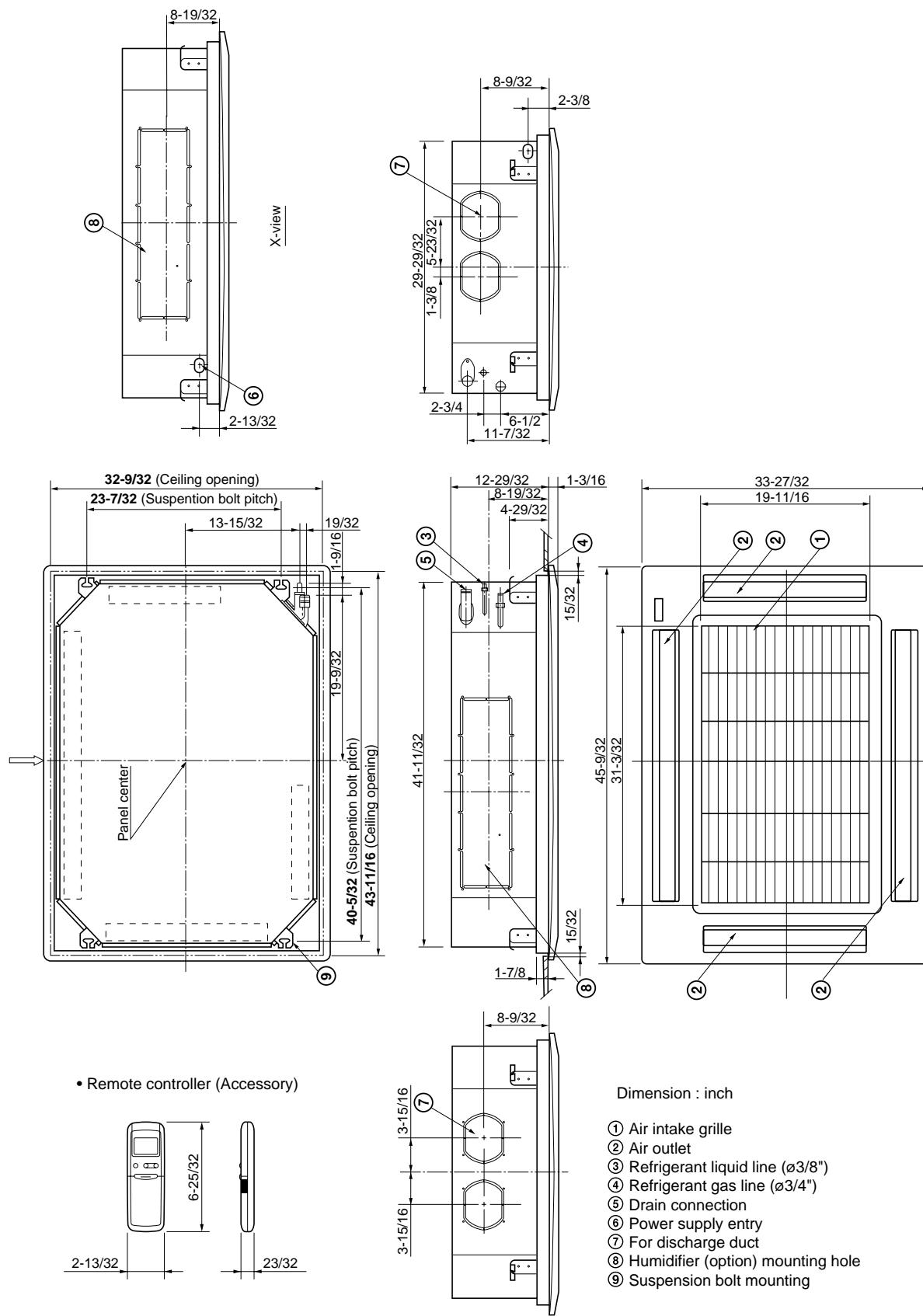
(B) Outdoor Unit

MODEL No.		CL4232	
Compressor Motor Magnetic Contactor		FC - 2SUL	
Coil rated		AC 240 V, 60 Hz	
Coil resistance (at 68 °F)	Ω	350 ± 10 %	
Contact rated (Main)		AC 240 V, 35 A	
Contact rated (Auxiliary)		AC 240 V, 3 A	
Power Relay		HH62S	
Coil rated		AC 240 V, 60 Hz	
Coil resistance (at 77 °F)	kΩ	17.2	
Contact rated		AC 220 V, 5 A	
Power Transformer		ATR - I35B	
Rated			
Primary		AC 220 V, 60 Hz	
Secondary		14 V, 0.2 A	
Capacity		2.8 VAC	
Coil resistance (at 78 °F)	Ω	WHT – WHT : 482.5 , BRN – BRN : 3.95	
Thermal cut off temperature	°F	266	
Thermistor (Outdoor Temp. sensor)		PBC - 41E - S4	
Coil resistance	kΩ	14 °F : 23.7 , 23 °F : 18.8 , 32 °F : 15.0 , 41 °F : 12.1	50 °F : 9.7 , 68 °F : 6.5 , 86 °F : 4.4 , 104 °F : 3.1 , 113 °F : 2.6

DATA SUBJECT TO CHANGE WITHOUT NOTICE

3. DIMENSIONAL DATA

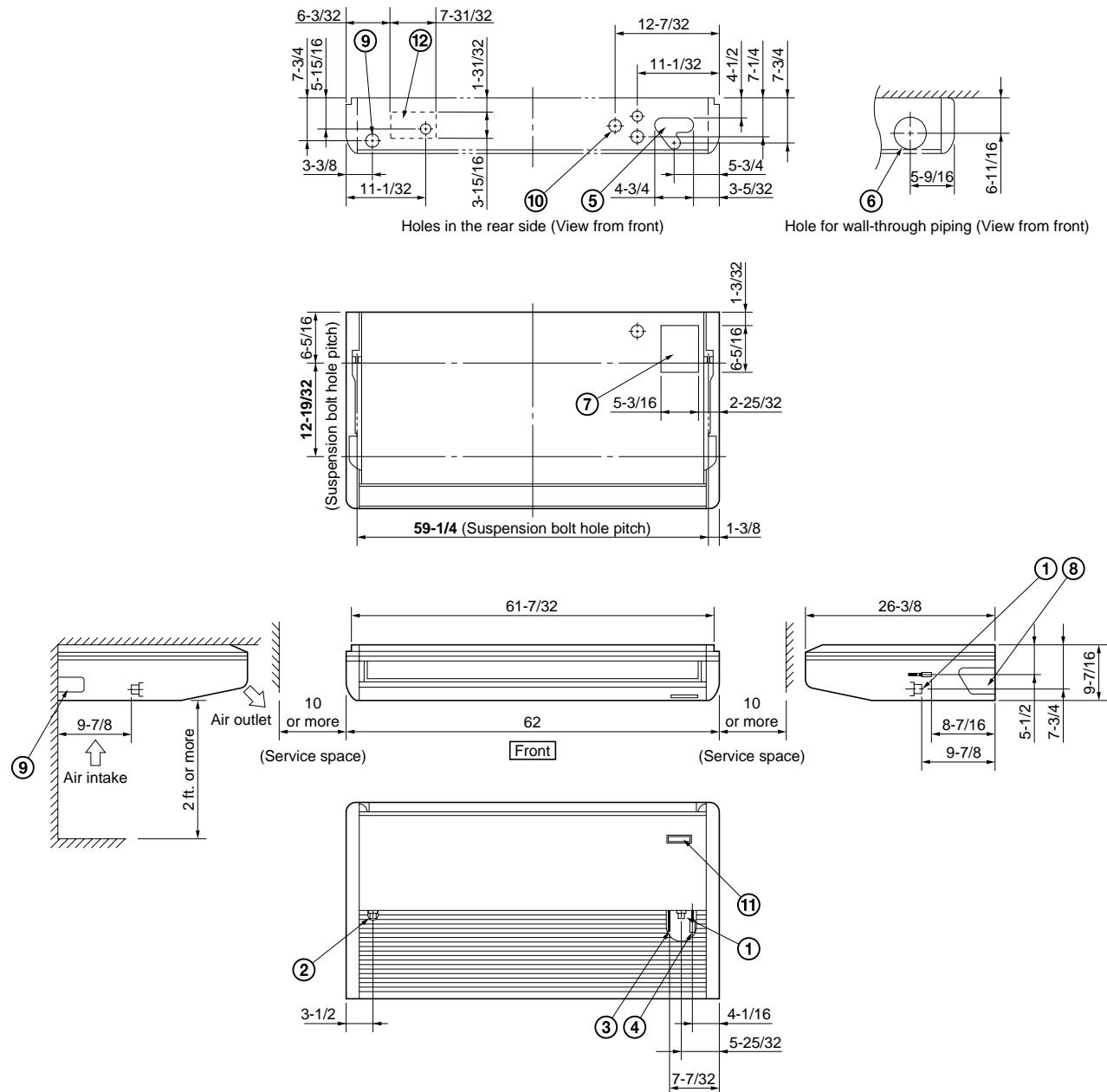
(1) Indoor Unit: XS4232



1813_X_S

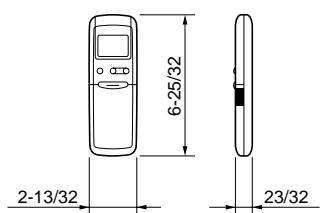
3. DIMENSIONAL DATA

(1) Indoor Unit: TS4232



Dimension : inch

- Remote controller (Accessory)

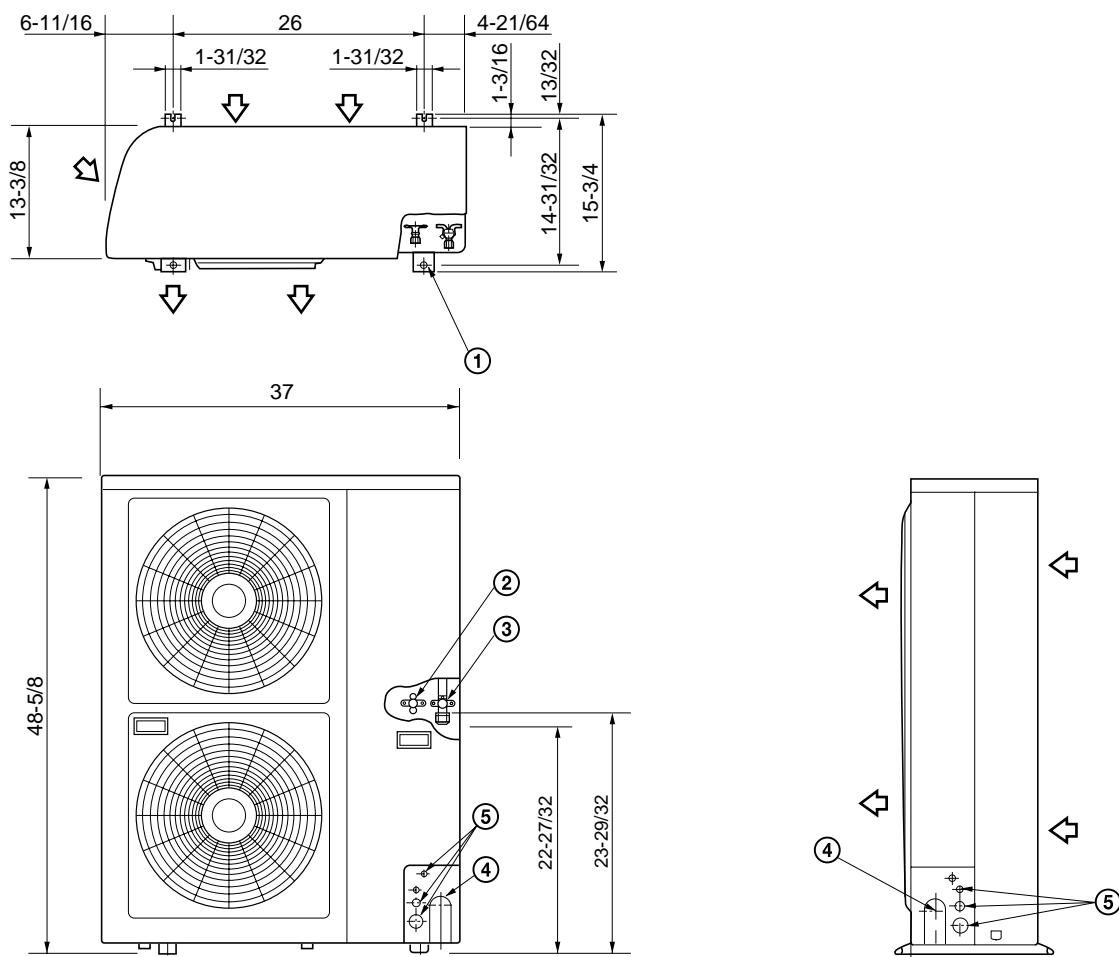


- ① Drain connection
- ② Drain connection for left side
- ③ Refrigerant liquid line (3/8") Flare connection
- ④ Refrigerant gas line (3/4") Flare connection
- ⑤ Hole for rear side refrigerant tubing
- ⑥ Hole for through-the-wall refrigerant tubing ($\varnothing 3\text{-}15/16"$ hole)
- ⑦ Hole for fresh air intake (Knockout hole)
- ⑧ Hole for right side refrigerant tubing (Knockout hole)
- ⑨ Hole for left side drain connection (Knockout hole)
- ⑩ Hole for power supply (Conduit size 1/2")
- ⑪ Infrared rays receiver for wireless remote controller
- ⑫ Cutting position for fresh air intake

134I_TS_I

3. DIMENSIONAL DATA

(2) Outdoor Unit: C4232, CL4232



Dimension : inch

- ① Hole for anchor bolt (4-ø13)
- ② Refrigerant tube joint (narrow tube)
Flare connection 3/8 in (9.52 mm)
- ③ Refrigerant tube joint (wide tube)
Flare connection 3/4 in (19.05 mm)
- ④ Refrigerant tubing inlet
- ⑤ Power supply inlet

1342_C_S

4. COOLING CAPACITY

① Indoor Unit: XS4232 Outdoor Unit: C4232, CL4232

- 230V / 1 phase / 60Hz

RATING CAPACITY :		42,000 BTU / h		AIR FLOW RATE :		980 CFM					
EVAPORATOR		CONDENSER									
ENT. TEMP. °F (°C)		AMBIENT TEMP. °F (°C)									
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)				
59 (15.0)		TC	42,550	40,490	38,140	35,490	32,550				
			CI	3.01	3.28	3.58	3.98	4.38			
	72(22.2)	SHC	29,220	28,050	26,750	25,330	23,810				
	76(24.4)		32,330	31,160	29,860	28,440	26,920				
	80(26.7)		35,580	34,410	33,110	31,690	30,170				
	84(28.9)		38,690	37,520	36,220	34,800	32,550				
	88(31.1)		41,800	40,490	38,140	35,490	32,550				
	63 (17.2)	TC	44,140	42,170	40,070	37,670	35,070				
			CI	3.04	3.33	3.63	4.04	4.45			
	72(22.2)	SHC	25,140	24,120	23,050	21,870	20,610				
	76(24.4)		28,250	27,230	26,160	24,970	23,720				
	80(26.7)		31,500	30,480	29,410	28,220	26,970				
	84(28.9)		34,610	33,590	32,520	31,330	30,080				
	88(31.1)		37,720	36,700	35,630	34,440	33,190				
67 (19.4)		TC	45,820	44,020	# 42,000	39,770	37,340				
			CI	3.06	3.36	3.67	4.08	4.49			
	72(22.2)	SHC	21,050	20,190	19,250	18,240	17,160				
	76(24.4)		24,160	23,300	22,360	21,350	20,270				
	80(26.7)		27,410	26,550	25,610	24,600	23,520				
	84(28.9)		30,520	29,660	28,720	27,710	26,630				
	88(31.1)		33,630	32,770	31,830	30,820	29,740				
71 (21.7)		TC	48,260	46,580	44,770	42,800	40,610				
			CI	3.1	3.39	3.73	4.14	4.56			
	72(22.2)	SHC	17,040	16,320	15,550	14,720	13,830				
	76(24.4)		20,150	19,420	18,650	17,830	16,940				
	80(26.7)		23,400	22,680	21,910	21,080	20,190				
	84(28.9)		26,510	25,780	25,010	24,190	23,300				
	88(31.1)		29,620	28,890	28,120	27,300	26,410				
75 (23.9)		TC	49,220	47,630	45,950	44,020	41,960				
			CI	3.16	3.45	3.78	4.2	4.62			
	76(24.4)	SHC	15,650	15,040	14,400	13,670	12,910				
	80(26.7)		18,910	18,290	17,650	16,920	16,160				
	84(28.9)		22,010	21,400	20,750	20,030	19,270				
	88(31.1)		25,120	24,510	23,860	23,140	22,380				

TC : Total Cooling Capacity (BTU / h)

SHC : Sensible Heat Capacity (BTU / h)

CI : Compressor Input (kW)

Rating conditions are

: Outdoor Ambient Temp. 95 °F DB

: Indoor Unit Entering Air Temp. 80 °F DB / 67°F WB

4. COOLING CAPACITY

① Indoor Unit: XS4232 Outdoor Unit: C4232, CL4232

- 208V / 1 phase / 60Hz

RATING CAPACITY :		40,500 BTU / h		AIR FLOW RATE :		880 CFM					
EVAPORATOR		CONDENSER									
ENT. TEMP. °F (°C)		AMBIENT TEMP. °F (°C)									
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)				
59 (15.0)		TC	41,030	39,040	36,770	34,220	31,390				
			2.97	3.24	3.53	3.95	4.37				
	72(22.2)	SHC	27,990	26,830	25,550	24,150	22,650				
	76(24.4)		30,830	29,680	28,400	27,000	25,500				
	80(26.7)		33,810	32,650	31,370	29,980	28,480				
	84(28.9)		36,660	35,500	34,220	32,820	31,320				
	88(31.1)		39,500	38,350	36,770	34,220	31,390				
	63 (17.2)	TC	42,570	40,660	38,640	36,330	33,820				
			3	3.29	3.58	4.01	4.44				
	72(22.2)	SHC	24,210	23,190	22,140	20,970	19,730				
	76(24.4)		27,050	26,030	24,980	23,810	22,580				
	80(26.7)		30,030	29,010	27,960	26,790	25,560				
	84(28.9)		32,880	31,860	30,810	29,640	28,400				
	88(31.1)		35,720	34,710	33,650	32,480	31,250				
67 (19.4)		TC	44,190	42,440	# 40,500	38,350	36,000				
			3.02	3.31	3.62	4.05	4.48				
	72(22.2)	SHC	20,400	19,550	18,620	17,620	16,560				
	76(24.4)		23,250	22,390	21,470	20,470	19,400				
	80(26.7)		26,220	25,370	24,450	23,450	22,380				
	84(28.9)		29,070	28,220	27,290	26,290	25,230				
	88(31.1)		31,920	31,060	30,140	29,140	28,070				
71 (21.7)		TC	46,530	44,910	43,170	41,270	39,160				
			3.06	3.35	3.67	4.11	4.55				
	72(22.2)	SHC	16,690	15,970	15,210	14,400	13,510				
	76(24.4)		19,530	18,810	18,050	17,240	16,360				
	80(26.7)		22,510	21,790	21,030	20,220	19,340				
	84(28.9)		25,360	24,640	23,880	23,070	22,180				
	88(31.1)		28,200	27,480	26,720	25,910	25,030				
75 (23.9)		TC	47,470	45,930	44,310	42,440	40,460				
			3.11	3.4	3.73	4.17	4.61				
	76(24.4)	SHC	15,330	14,720	14,090	13,370	12,620				
	80(26.7)		18,310	17,700	17,060	16,340	15,600				
	84(28.9)		21,160	20,540	19,910	19,190	18,450				
	88(31.1)		24,000	23,390	22,760	22,040	21,290				

TC : Total Cooling Capacity (BTU / h)

SHC : Sensible Heat Capacity (BTU / h)

CI : Compressor Input (kW)

Rating conditions are

: Outdoor Ambient Temp. 95 °F DB

: Indoor Unit Entering Air Temp. 80 °F DB / 67°F WB

4. COOLING CAPACITY

② Indoor Unit: TS4232 Outdoor Unit: C4232, CL4232

- 230V / 1 phase / 60Hz

RATING CAPACITY :		42,000 BTU / h		AIR FLOW RATE :		900 CFM					
EVAPORATOR		CONDENSER									
ENT. TEMP. °F (°C)		AMBIENT TEMP. °F (°C)									
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)				
59 (15.0)		TC	42,550	40,490	38,140	35,490	32,550				
			CI	3.01	3.28	3.58	3.98	4.38			
	72(22.2)	SHC	29,380	28,220	26,940	25,530	24,020				
	76(24.4)		32,550	31,390	30,110	28,700	27,190				
	80(26.7)		35,860	34,710	33,420	32,020	30,500				
	84(28.9)		39,030	37,880	36,590	35,190	32,550				
	88(31.1)		42,200	40,490	38,140	35,490	32,550				
	63 (17.2)	TC	44,140	42,170	40,070	37,670	35,070				
			CI	3.04	3.33	3.63	4.04	4.45			
	72(22.2)	SHC	25,250	24,240	23,190	22,010	20,770				
	76(24.4)		28,420	27,410	26,360	25,180	23,940				
	80(26.7)		31,740	30,720	29,670	28,490	27,250				
	84(28.9)		34,910	33,890	32,840	31,660	30,420				
	88(31.1)		38,080	37,060	36,010	34,830	33,590				
	67 (19.4)	TC	45,820	44,020	# 42,000	39,770	37,340				
			CI	3.06	3.36	3.67	4.08	4.49			
	72(22.2)	SHC	21,110	20,260	19,330	18,330	17,260				
	76(24.4)		24,280	23,430	22,500	21,500	20,430				
	80(26.7)		27,590	26,750	25,820	24,810	23,740				
	84(28.9)		30,760	29,920	28,990	27,980	26,910				
	88(31.1)		33,930	33,090	32,160	31,150	30,080				
	71 (21.7)	TC	48,260	46,580	44,770	42,800	40,610				
			CI	3.1	3.39	3.73	4.14	4.56			
	72(22.2)	SHC	17,050	16,330	15,570	14,750	13,870				
	76(24.4)		20,220	19,500	18,740	17,920	17,040				
	80(26.7)		23,530	22,810	22,050	21,240	20,350				
	84(28.9)		26,700	25,980	25,220	24,410	23,520				
	88(31.1)		29,870	29,150	28,390	27,580	26,690				
	75 (23.9)	TC	49,220	47,630	45,950	44,020	41,960				
			CI	3.16	3.45	3.78	4.2	4.62			
	76(24.4)	SHC	15,680	15,070	14,430	13,710	12,960				
	80(26.7)		18,990	18,380	17,740	17,030	16,270				
	84(28.9)		22,160	21,550	20,910	20,200	19,440				
	88(31.1)		25,330	24,720	24,080	23,360	22,610				

TC : Total Cooling Capacity (BTU / h)

SHC : Sensible Heat Capacity (BTU / h)

CI : Compressor Input (kW)

Rating conditions are

: Outdoor Ambient Temp. 95 °F DB

: Indoor Unit Entering Air Temp. 80 °F DB / 67°F WB

4. COOLING CAPACITY

② Indoor Unit: TS4232 Outdoor Unit: C4232, CL4232

- 208V / 1 phase / 60Hz

RATING CAPACITY :		40,500 BTU / h		AIR FLOW RATE :		800 CFM					
EVAPORATOR		CONDENSER									
ENT. TEMP. °F (°C)		AMBIENT TEMP. °F (°C)									
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)				
59 (15.0)		TC	41,030	39,040	36,770	34,220	31,390				
			2.97	3.24	3.53	3.95	4.37				
	72(22.2)	SHC	28,050	26,900	25,620	24,230	22,740				
	76(24.4)		30,910	29,760	28,490	27,100	25,610				
	80(26.7)		33,910	32,760	31,490	30,100	28,600				
	84(28.9)		36,780	35,630	34,360	32,970	31,390				
	88(31.1)		39,650	38,500	36,770	34,220	31,390				
	63 (17.2)	TC	42,570	40,660	38,640	36,330	33,820				
			3	3.29	3.58	4.01	4.44				
	72(22.2)	SHC	24,250	23,240	22,190	21,020	19,800				
	76(24.4)		27,120	26,100	25,060	23,890	22,660				
	80(26.7)		30,120	29,100	28,060	26,890	25,660				
	84(28.9)		32,990	31,970	30,930	29,760	28,530				
	88(31.1)		35,850	34,840	33,790	32,630	31,400				
67 (19.4)		TC	44,190	42,440	# 40,500	38,350	36,000				
			3.02	3.31	3.62	4.05	4.48				
	72(22.2)	SHC	20,430	19,580	18,660	17,660	16,600				
	76(24.4)		23,290	22,450	21,530	20,530	19,470				
	80(26.7)		26,290	25,450	24,520	23,530	22,470				
	84(28.9)		29,160	28,310	27,390	26,400	25,340				
	88(31.1)		32,030	31,180	30,260	29,270	28,210				
71 (21.7)		TC	46,530	44,910	43,170	41,270	39,160				
			3.06	3.35	3.67	4.11	4.55				
	72(22.2)	SHC	16,690	15,980	15,220	14,410	13,540				
	76(24.4)		19,560	18,850	18,090	17,280	16,410				
	80(26.7)		22,560	21,840	21,090	20,280	19,400				
	84(28.9)		25,430	24,710	23,960	23,150	22,270				
	88(31.1)		28,300	27,580	26,830	26,020	25,140				
75 (23.9)		TC	47,470	45,930	44,310	42,440	40,460				
			3.11	3.4	3.73	4.17	4.61				
	76(24.4)	SHC	15,350	14,740	14,110	13,390	12,650				
	80(26.7)		18,350	17,740	17,110	16,390	15,650				
	84(28.9)		21,220	20,600	19,970	19,260	18,520				
	88(31.1)		24,080	23,470	22,840	22,130	21,390				

TC : Total Cooling Capacity (BTU / h)

SHC : Sensible Heat Capacity (BTU / h)

CI : Compressor Input (kW)

Rating conditions are

: Outdoor Ambient Temp. 95 °F DB

: Indoor Unit Entering Air Temp. 80 °F DB / 67°F WB

5. PERFORMANCE CHARTS

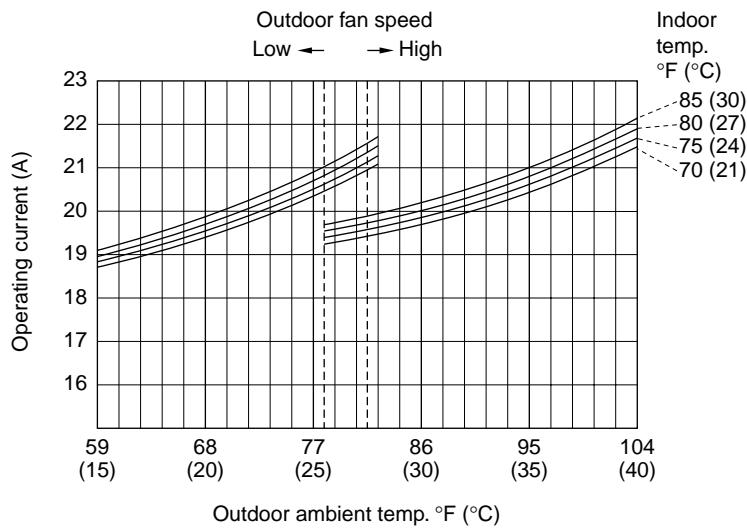
(1) Operating Current

① Indoor Unit: XS4232

Outdoor Unit: C4232

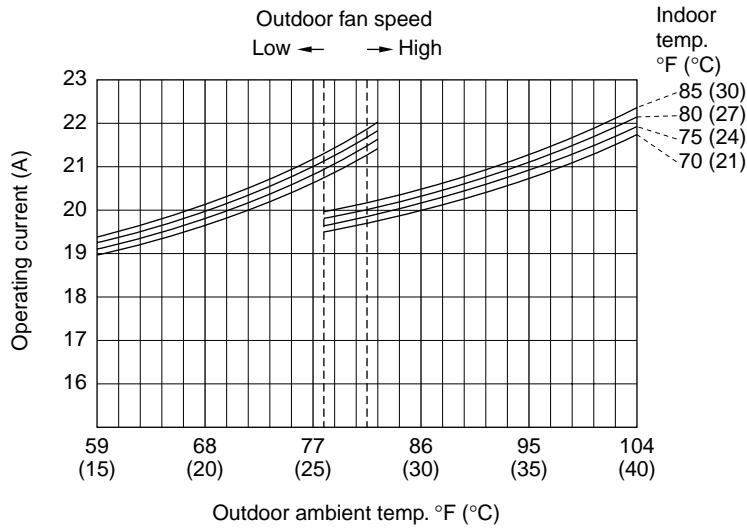
Operating current characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V



I792_X_S

208V



I793_X_S

5. PERFORMANCE CHARTS

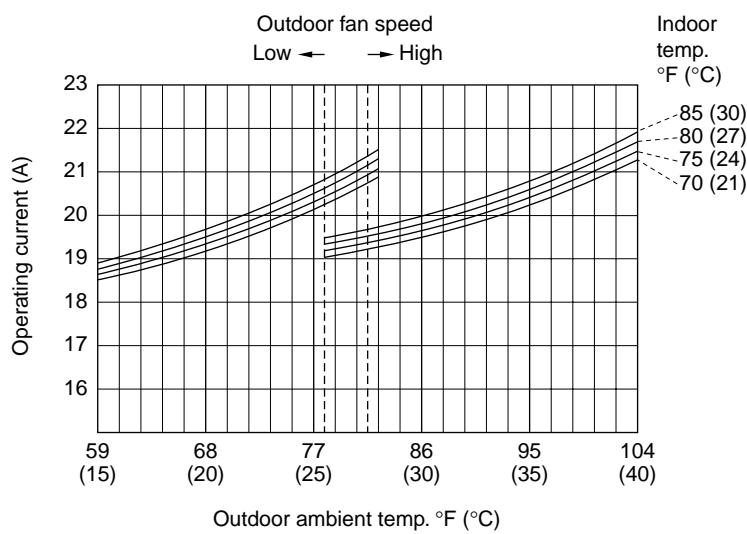
(1) Operating Current

② Indoor Unit: TS4232

Outdoor Unit: C4232

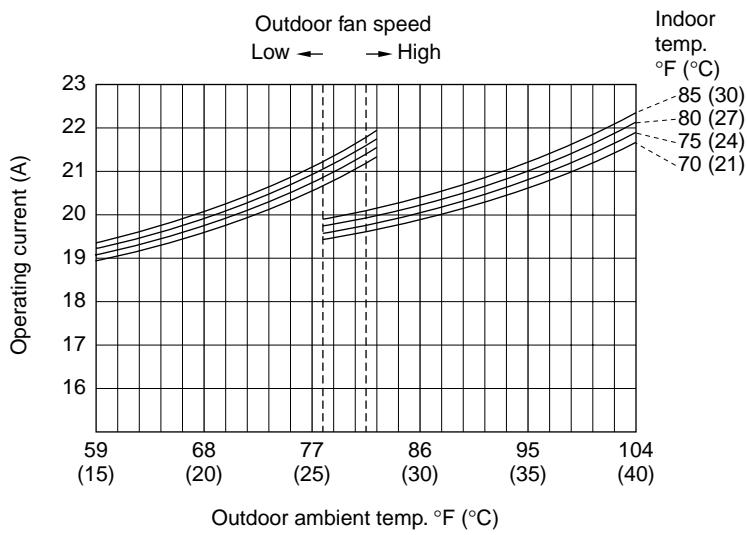
Operating current characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V



I794_X_S

208V



I795_X_S

5. PERFORMANCE CHARTS

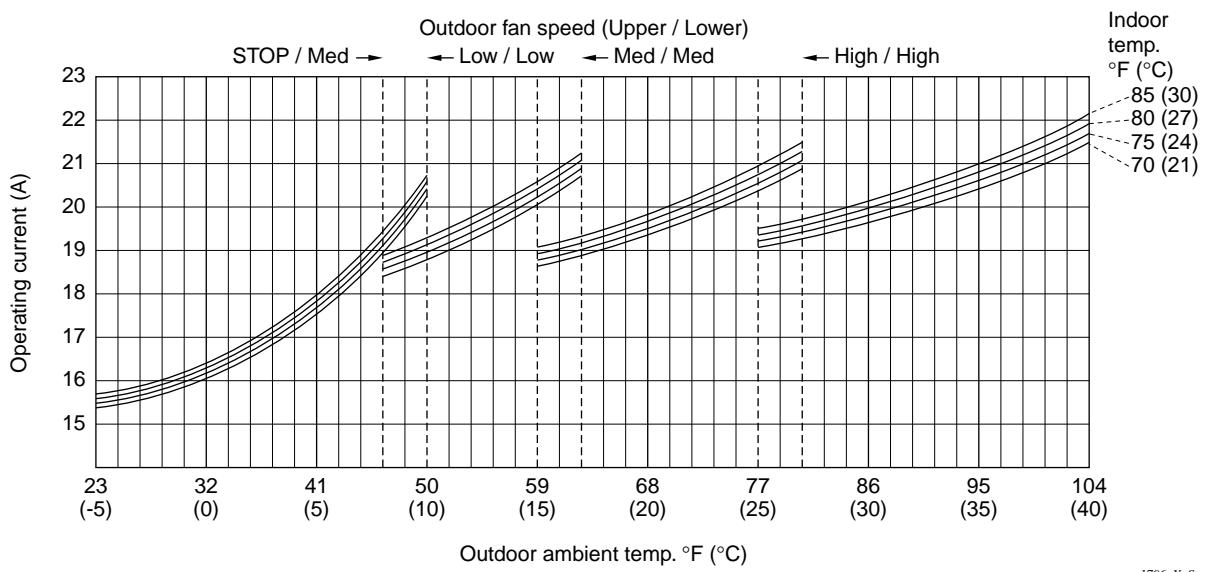
(1) Operating Current

③ Indoor Unit: XS4232

Outdoor Unit: CL4232

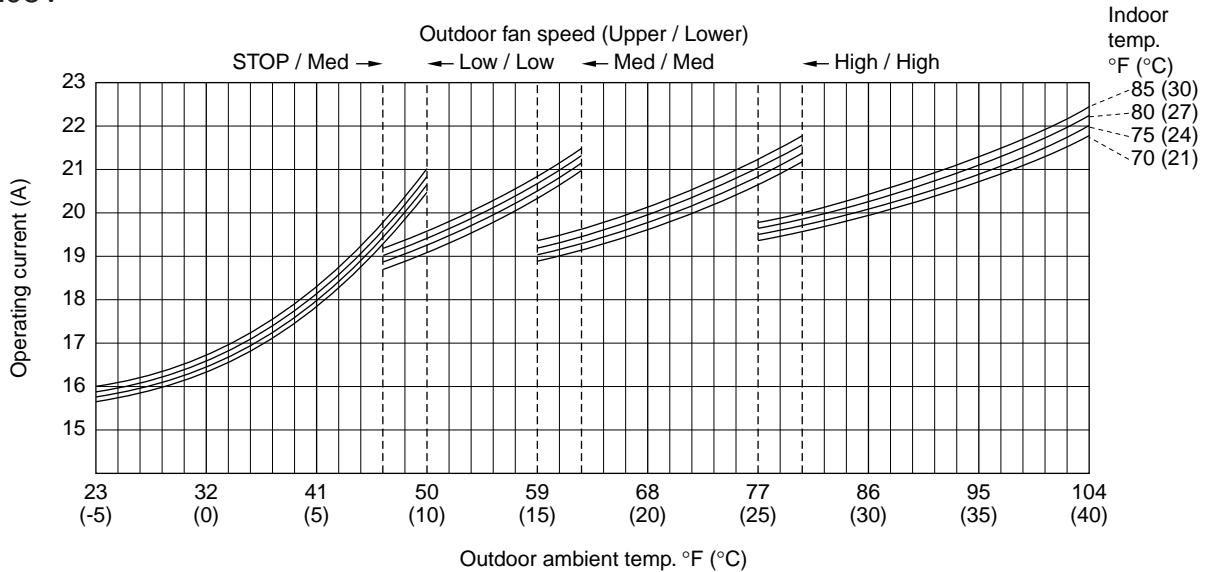
Operating current characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V



1796_X_S

208V



1797_X_S

5. PERFORMANCE CHARTS

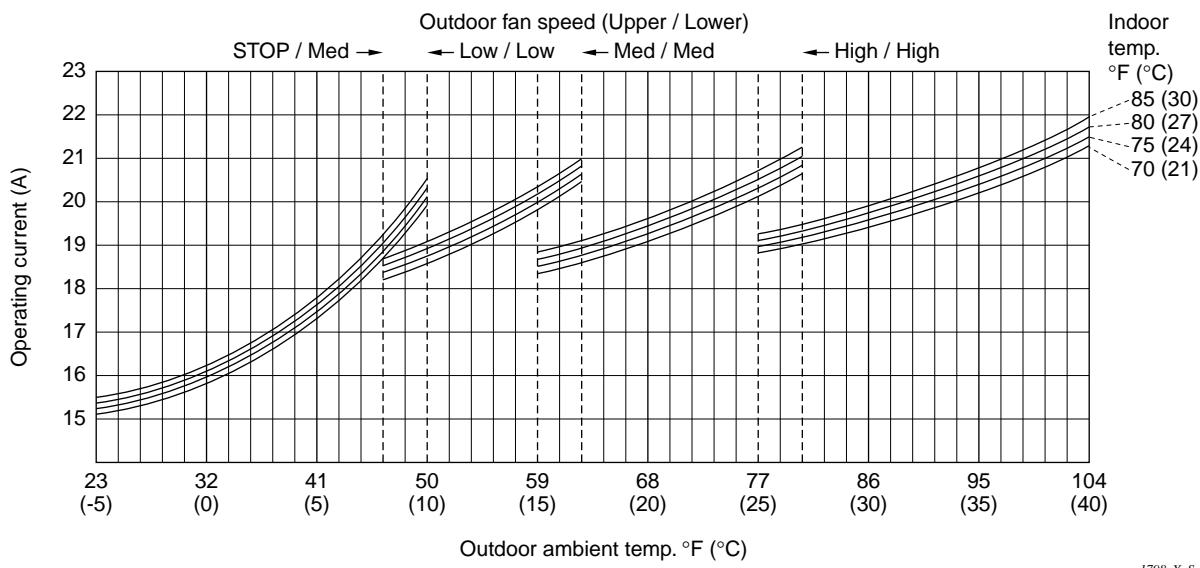
(1) Operating Current

④ Indoor Unit: TS4232

Outdoor Unit: CL4232

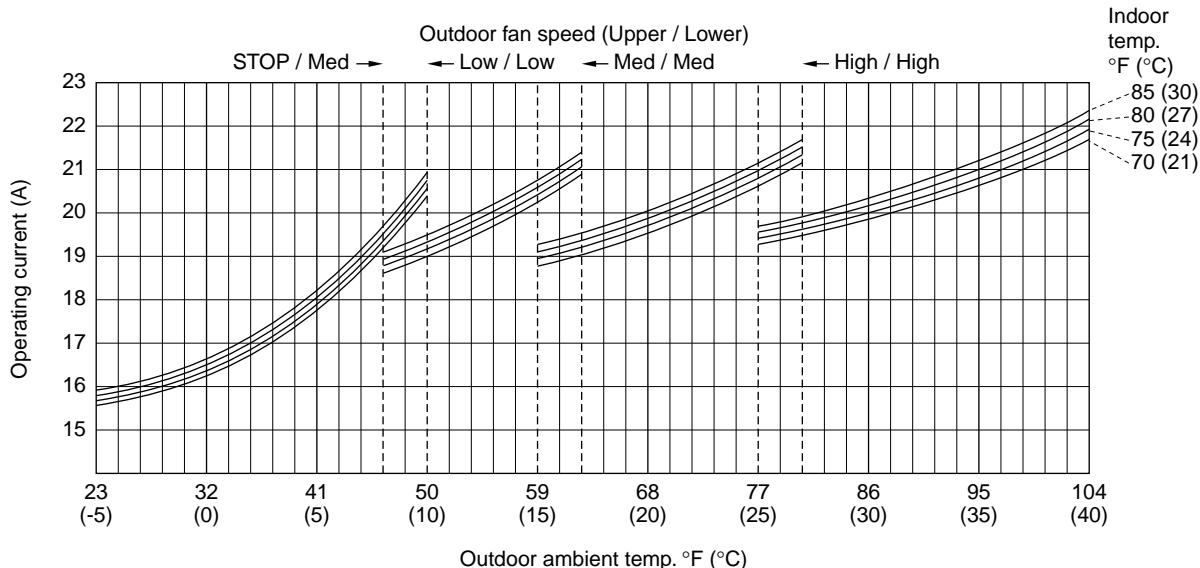
Operating current characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V



1798_X_S

208V



1799_X_S

5. PERFORMANCE CHARTS

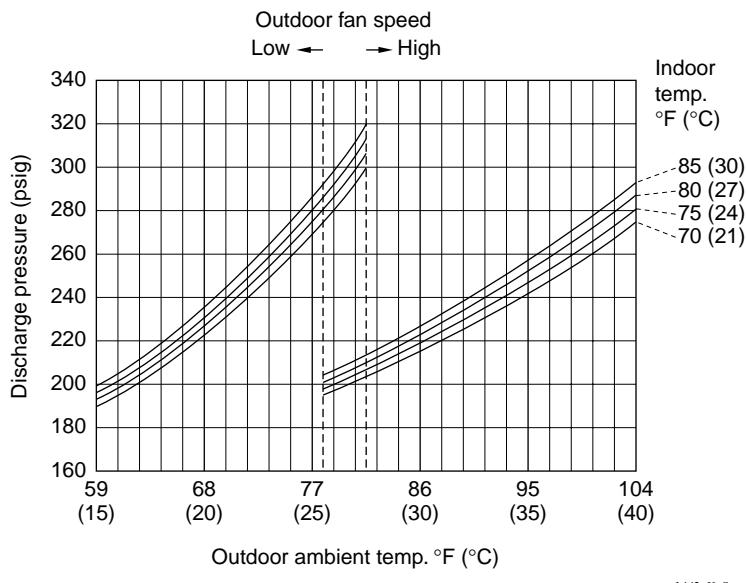
(2) High and Low Pressure

① Indoor Unit: XS4232, TS4232 Outdoor Unit: C4232

• High Pressure

High pressure characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V / 208V

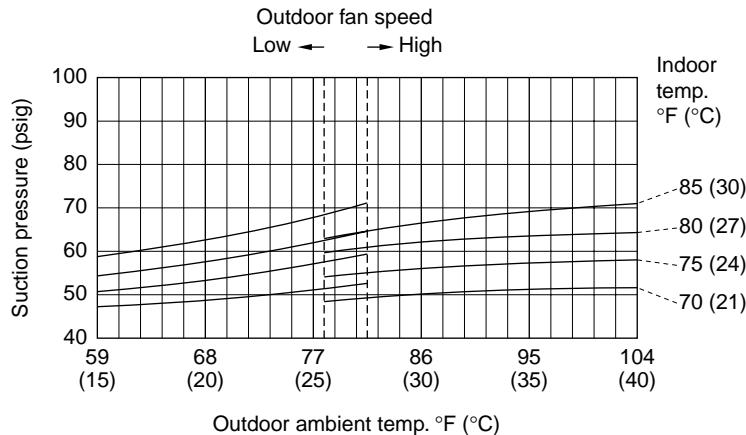


1442_X_S

• Low Pressure

Low pressure characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V / 208V



1800_X_S

5. PERFORMANCE CHARTS

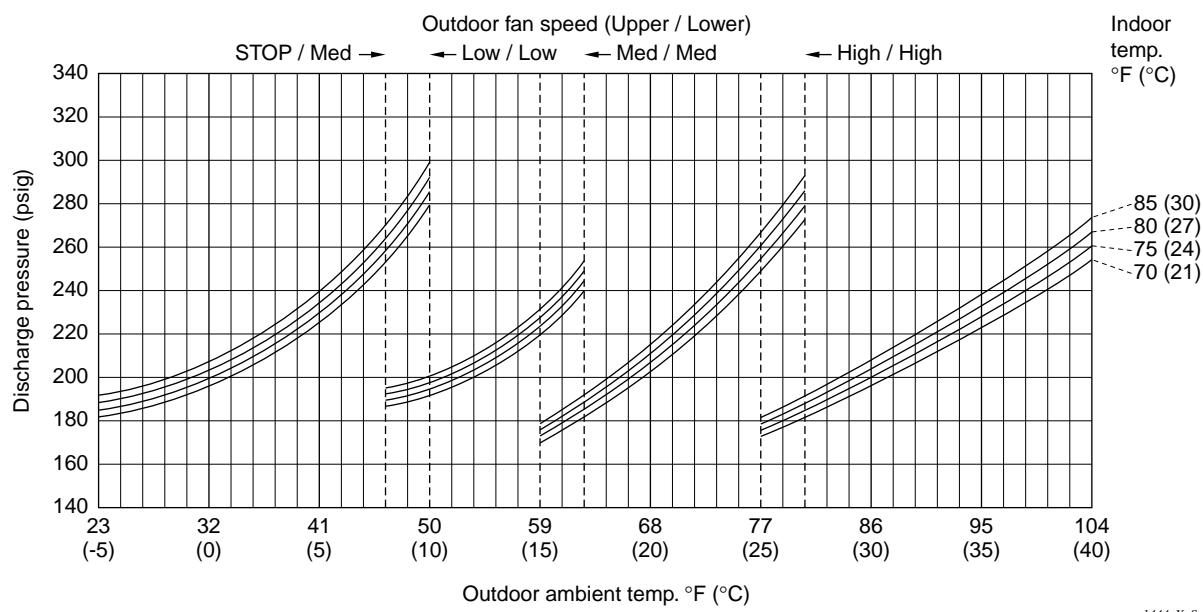
(2) High and Low Pressure

② Indoor Unit: XS4232, TS4232 Outdoor Unit: CL4232

- **High Pressure**

High pressure characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

230V / 208V

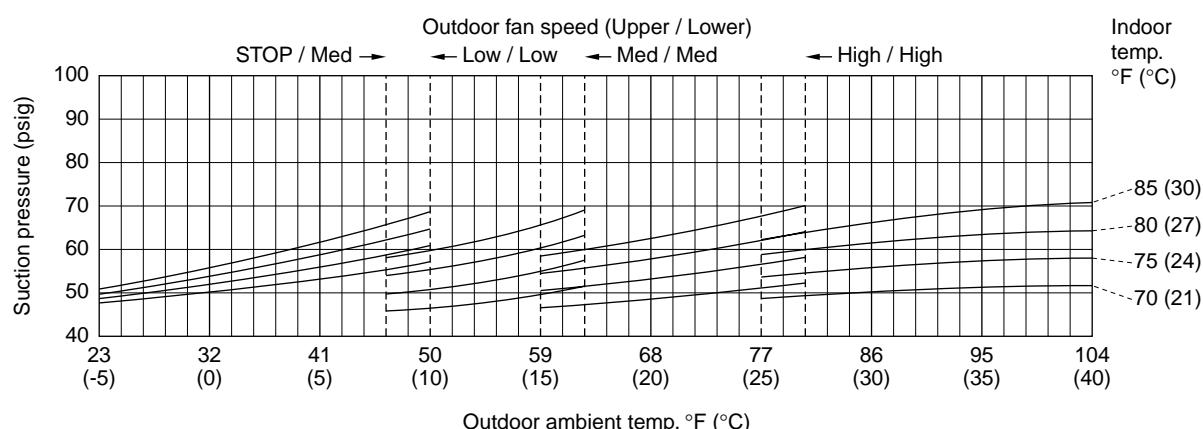


1444_X_S

- **Low Pressure**

Low pressure characteristics versus outdoor ambient temperature and indoor temperature.
(Indoor relative humidity: 50%, Indoor fan speed: High)

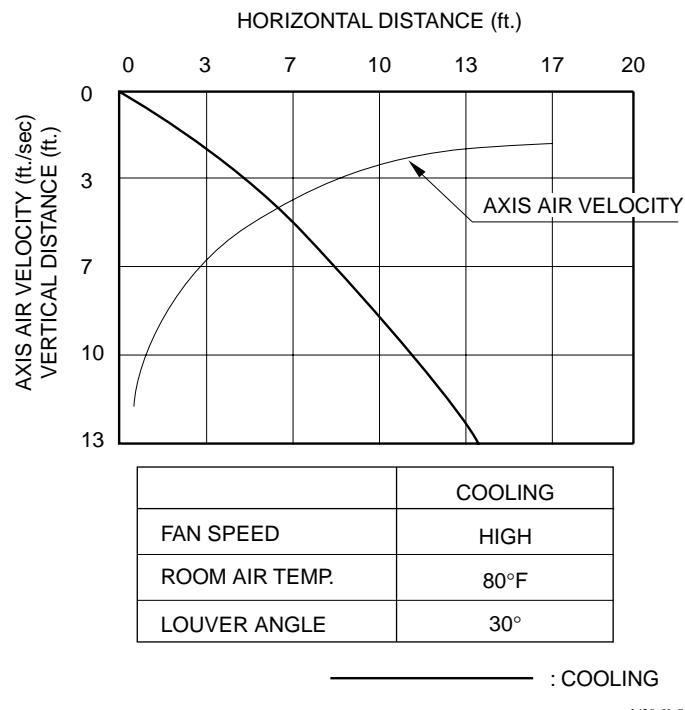
230V / 208V



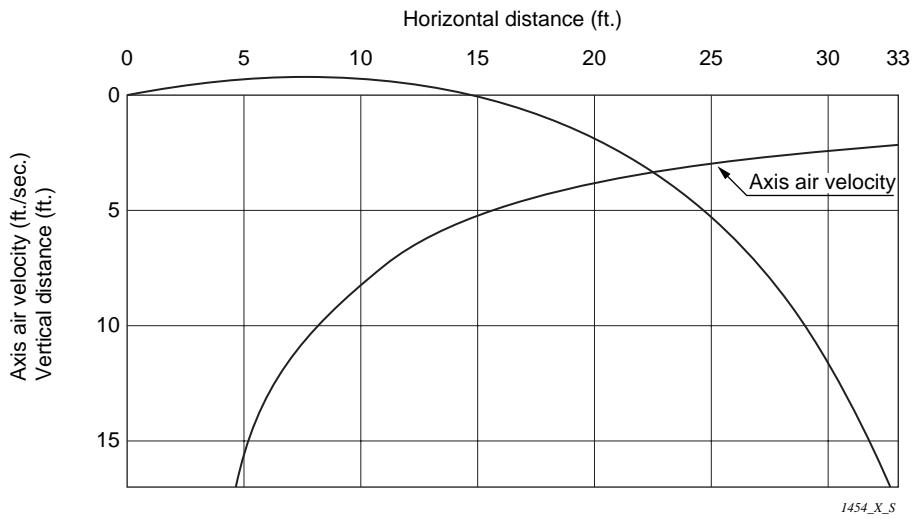
1801_X_S

6. AIR THROW DISTANCE CHART

MODEL: XS4232



MODEL: TS4232

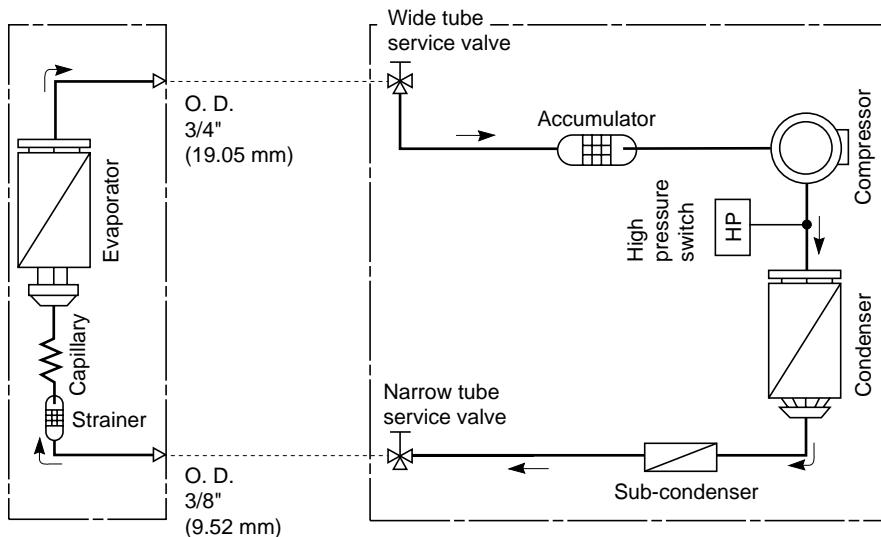


	COOLING
FAN SPEED	HIGH
ROOM AIR TEMP.	80°F
LOUVER ANGLE	- 7°

7. REFRIGERANT FLOW DIAGRAM

Indoor Unit: 4232 Type

Outdoor Unit: C4232, CL4232



I802_X_S

Insulation of Refrigerant Tubing

IMPORTANT



CAUTION

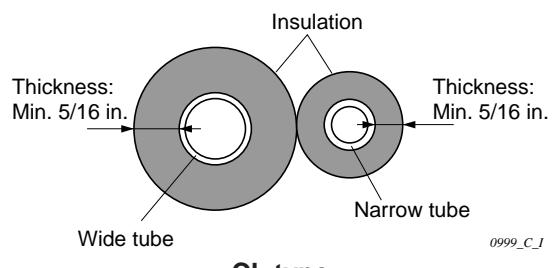
**When installing “CL” models,
insulate both wide and narrow
tube.**

When outdoor temperature is low, condensation can also form on a narrow tube. So always insulate both wide and narrow tubes.



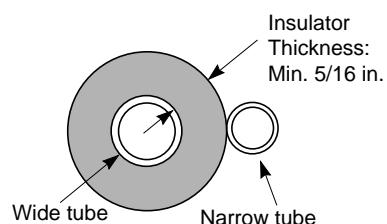
CAUTION

**After a tube has been insulated,
never try to bend it into a narrow
curve because it can cause the
tube to break or crack.**



CL type

0999_C_I



C type

1005_C_I

8. INSTALLATION INSTRUCTIONS

1) Tubing Length

- Refrigerant tubing between the indoor and outdoor units should be kept as short as possible.
- Select and decide the installation location so that the length of the refrigerant tubing will be within the limits given in Table 1.

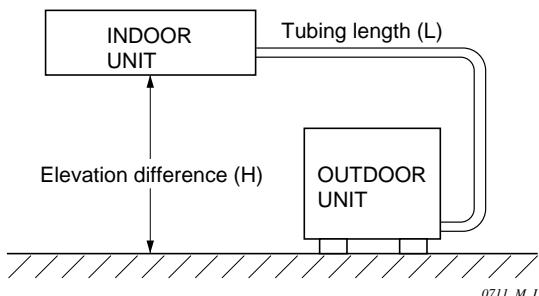


Fig. 1

Table 1

Tubing Data	Model	C4232 CL4232
Tubing size outer dia.	Narrow tube in. (mm)	3/8 (9.52)
	Wide tube in. (mm)	3/4 (19.05)
Limit of tubing length	(ft.)	165
Limit of elevation difference between the 2 units	Outdoor unit is higher than indoor unit (ft.)	165
	Outdoor unit is lower than indoor unit (ft.)	100
Max. allowable tubing length at shipment	(ft.)	50
Required additional refrigerant* ¹	(oz./ft.)	0.86
Refrigerant charged at shipment	(lbs.)	9.7

No additional charge of compressor oil is necessary.

*¹ If total tubing length becomes 50 to 165 ft., charge additional refrigerant (R22) by 0.86 oz./ft..

8. INSTALLATION INSTRUCTIONS

2) Selecting the Installation Site

Indoor Unit

AVOID:

- areas where leakage of flammable gas may be expected.
- places where large amounts of oil mist exist.
- direct sunlight.
- locations near heat sources which may affect performance of the unit.
- locations where external air may enter the room directly. This may cause "sweating" on the air discharge ports, causing them to spray or drip.
- locations where the remote control unit will be splashed with water or affected by dampness or humidity.
- installing the remote control unit behind curtains or furniture.
- locations where the receiver in the indoor unit is exposed to the inverter lamp light. Faulty operation of the unit occurs.

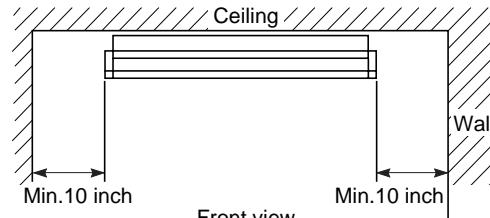
DO:

- select an appropriate position from which every corner of the room can be uniformly cooled.
- select a location where the ceiling is strong enough to support the weight of the unit.
- select a location where tubing and drain pipe have the shortest run to the outdoor unit.
- allow room for operation and maintenance as well as unrestricted air flow around the unit.
- install the unit within the maximum elevation difference above or below the outdoor unit and within a total tubing length from the outdoor unit as detailed in Table 1.
- allow room for mounting the remote control unit about 3 ft. off the floor, in an area that is not in direct sunlight nor in the flow of cool air from the indoor unit.

NOTE

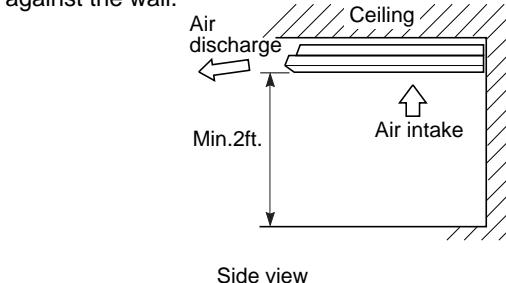
Air delivery will be degraded if the distance from the floor to the ceiling is greater than 10 ft..

Ceiling-Mounted Type



NOTE

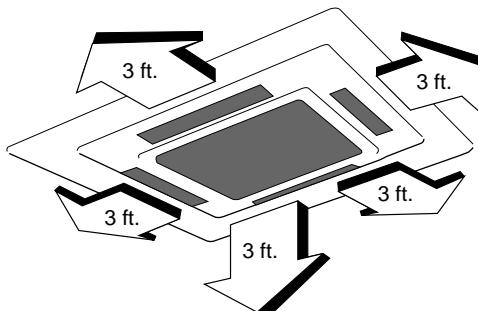
The rear of the indoor unit can be installed flush against the wall.



Side view

I379_T_I

Recessed Type



I330_X_S

8. INSTALLATION INSTRUCTIONS

Outdoor Unit

AVOID:

- heat sources, exhaust fans, etc. (Fig. 2)
- damp, humid or uneven locations.

DO:

- choose a place as cool as possible.
- choose a place that is well ventilated and outside air temperature does not exceed maximum 115°F constantly.
- allow enough room around the unit for air intake/ exhaust and possible maintenance. (Fig. 3)
- provide a solid base; about 6 inch above ground level to reduce humidity and possible water damage in the unit and decreased service life. (Fig. 4)
- use lug bolts or equivalent to bolt down unit, reducing vibration and noise.

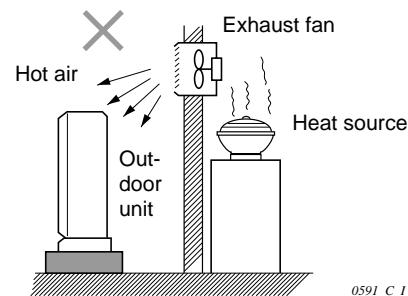


Fig. 2

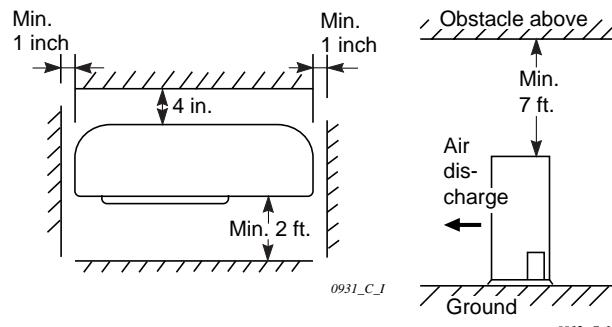
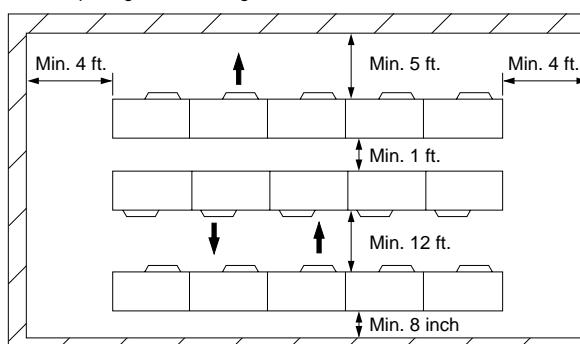


Fig. 3

In case of multiple installations

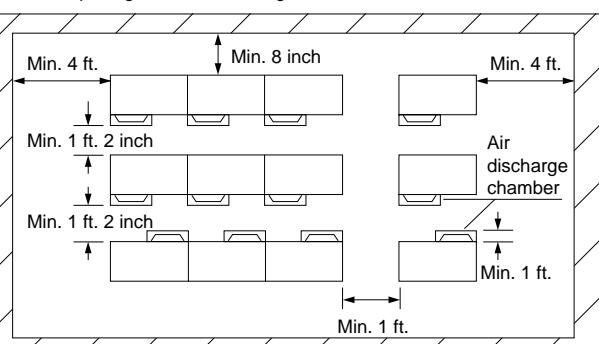
■ Unit spacing if air discharge chamber is not used.



* If you would like to make the separation smaller on the air discharge side, use an air discharge chamber.

* You can install any number of units side-by-side.

■ Unit spacing when air discharge chamber is used.



* Only up to 3 units can be installed side-by-side under the above conditions. The next group must be spaced at least 1 ft. away from the first group.

0933_C_S

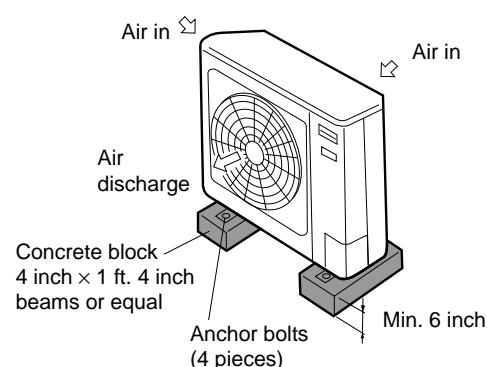


Fig. 4

0934_C_I

8. INSTALLATION INSTRUCTIONS

Air Discharge Chamber for Top Discharge

Install the air-discharge chamber in the field when:

- it is difficult to keep a space of minimum 2 ft. between the air-discharge outlet and the obstacle.
- the air-discharge outlet is facing the sidewalk and discharged hot air can annoy the passers-by. Refer to Fig. 5.

Wind Shield for "CL" Model

IMPORTANT

It is recommended to use wind shields for "CL" model (Fig. 6). "CL" model is designed to use in low outdoor temperature conditions.

General

When the outdoor unit is installed in a position exposed to strong wind (like seasonal winds with low air temperature in winter), wind shield must be installed on the outdoor unit.

This unit is designed so that the fan of the outdoor unit runs at low speed when the air conditioner is operated at low outdoor air temperatures. When the outdoor unit is exposed to strong wind, the system pressure drops because of the freeze protector.

For outer dimensions of wind shield, please see Fig. 7.

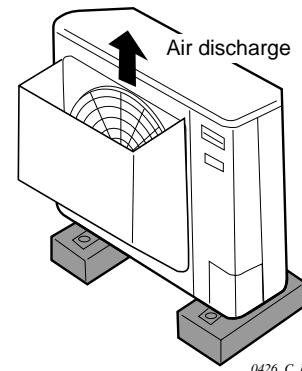


Fig. 5

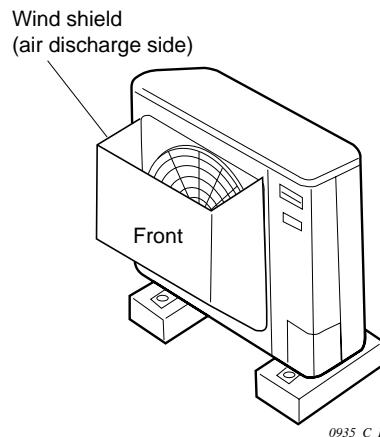
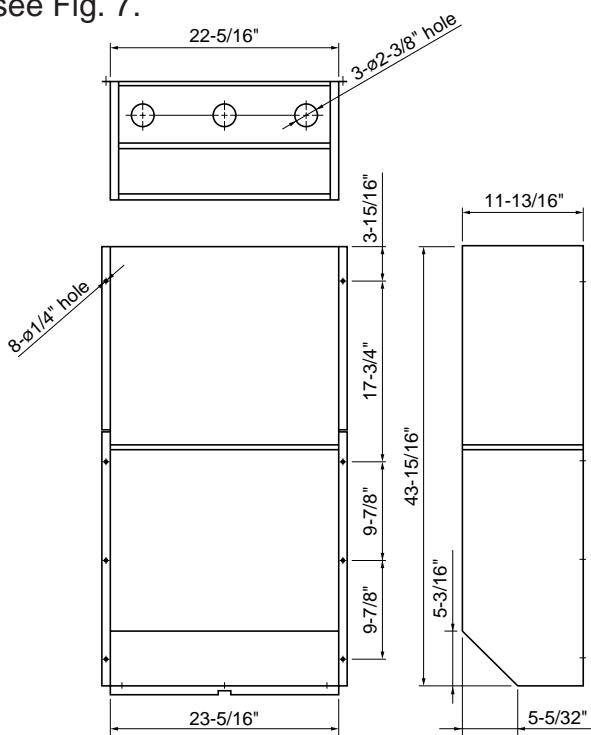


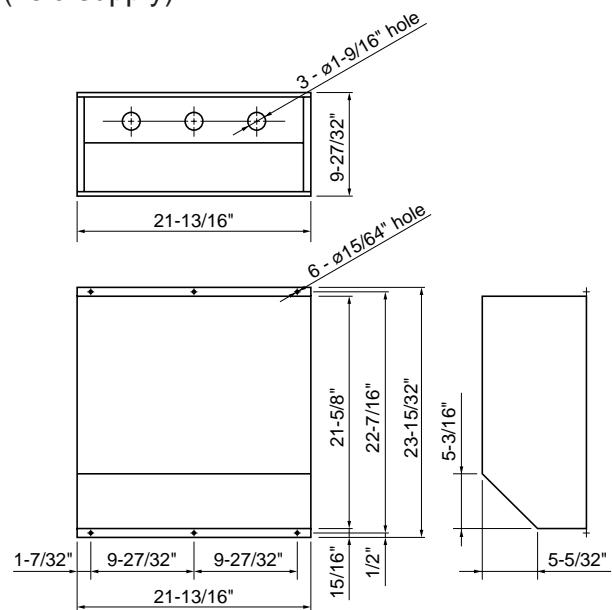
Fig. 6

Recommended outer dimensions of wind shield (field supply)



CL3032, 3632
CL4232

1352_C_I



CL2432

0936_C_I

Fig. 7

8. INSTALLATION INSTRUCTIONS

3) Electrical Wiring

General Precautions on Wiring

- (1) Before wiring, confirm the rated voltage of the unit as shown on its nameplate, then carry out the wiring closely following the wiring diagram.
- (2) Provide a power outlet to be used exclusively for each unit, and a power supply disconnect and circuit breaker for overcurrent protection should be provided in the exclusive line.
- (3) To prevent possible hazards from insulation failure, the unit must be grounded.
- (4) Each wiring connection must be done in accordance with the wiring system diagram. Wrong wiring may cause the unit to misoperate or become damaged.
- (5) Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- (6) Unauthorized changes in the internal wiring can be very dangerous. The manufacturer will accept no responsibility for any damage or misoperation that occurs as a result of such unauthorized changes.

- (7) Regulations on wire diameters differ from locality to locality. For field wiring rules, please refer to your LOCAL ELECTRICAL CODES before beginning. You must ensure that installation complies with all relevant rules and regulations.
- (8) To prevent malfunction of the air conditioner caused by electrical noise, care must be taken when wiring as follows:
 - The inter-unit control wiring and the remote control wiring (option) should be wired apart from the inter-unit power wiring.
 - It is recommended that shielding wires or twisted pair wires be used for the remote control and the inter-unit control wiring if the air conditioner is installed where it is exposed to the influence of electrical and/or electro-magnetic noise.

Recommended Wire Length and Wire Diameter for Power Supply System

Models	(A) ^{*1} Power Supply AGW #14	(B) ^{*1} Inter-unit Wiring AGW #14	Time Delay Fuse or Circuit Capacity	Power Supply Terminal Base (Outdoor Unit)	
				Capacity	Max. Wire Diameter
C4232, CL4232	65 ft. (AGW #10)	164 ft.	50 A	50 A	AWG #6

*1 Refer to the Wiring System Diagrams (See below diagram) for the meaning of "A", "B".

AWG = American Wire Gauge

NOTE

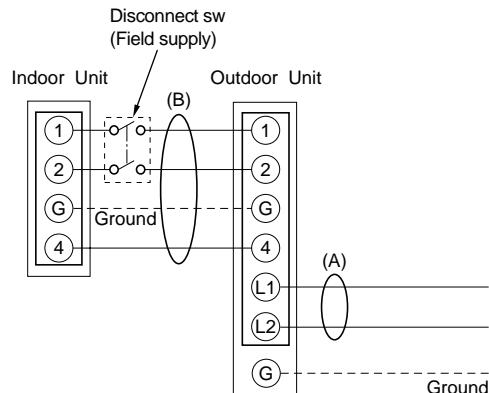
To access the electrical component box, open the air intake grille and remove the electrical component box cover.

Wiring System Diagram

Outdoor Unit : "C", "CL" models

Single-phase

60 Hz, 208 / 230 V



1368_M_I

9. ELECTRICAL DATA

● Electrical characteristics

Indoor model: XS4232 / Outdoor model: C4232, CL4232

		Indoor Unit	Outdoor Unit		Complete Unit
		Fan Motor	Fan Motor	Compressor	
Performance at		230 - 208 V / 1 phase / 60 Hz		230 - 208 V / 1 phase / 60 Hz	
Rating conditions	A	0.9 - 0.8	1.8 - 1.8	18.1 - 18.5	20.8 - 21.1
	kW	0.2 - 0.16	0.36 - 0.34	3.67 - 3.62	4.23 - 4.12
Full load conditions	A	0.9 - 0.8	1.8 - 1.8	21.44 - 22.7	24.1 - 25.3
	kW	0.2 - 0.16	0.36 - 0.34	4.49 - 4.48	5.05 - 4.98
Starting amperes	A	1 - 1	2 - 2	131 - 131	134 - 134

Indoor model: TS4232 / Outdoor model: C4232, CL4232

		Indoor Unit	Outdoor Unit		Complete Unit
		Fan Motor	Fan Motor	Compressor	
Performance at		230 - 208 V / 1 phase / 60 Hz		230 - 208 V / 1 phase / 60 Hz	
Rating conditions	A	0.7 - 0.7	1.8 - 1.8	18.1 - 18.5	20.6 - 21.0
	kW	0.16 - 0.14	0.36 - 0.34	3.67 - 3.62	4.19 - 4.10
Full load conditions	A	0.7 - 0.7	1.8 - 1.8	21.44 - 22.7	23.9 - 25.2
	kW	0.16 - 0.16	0.36 - 0.34	4.49 - 4.48	5.01 - 4.96
Starting amperes	A	1 - 1	2 - 2	131 - 131	134 - 134

Rating Conditions : Indoor Air Temperature 80 °F DB / 67 °F WB
 Outdoor Air Temperature 95 °F DB

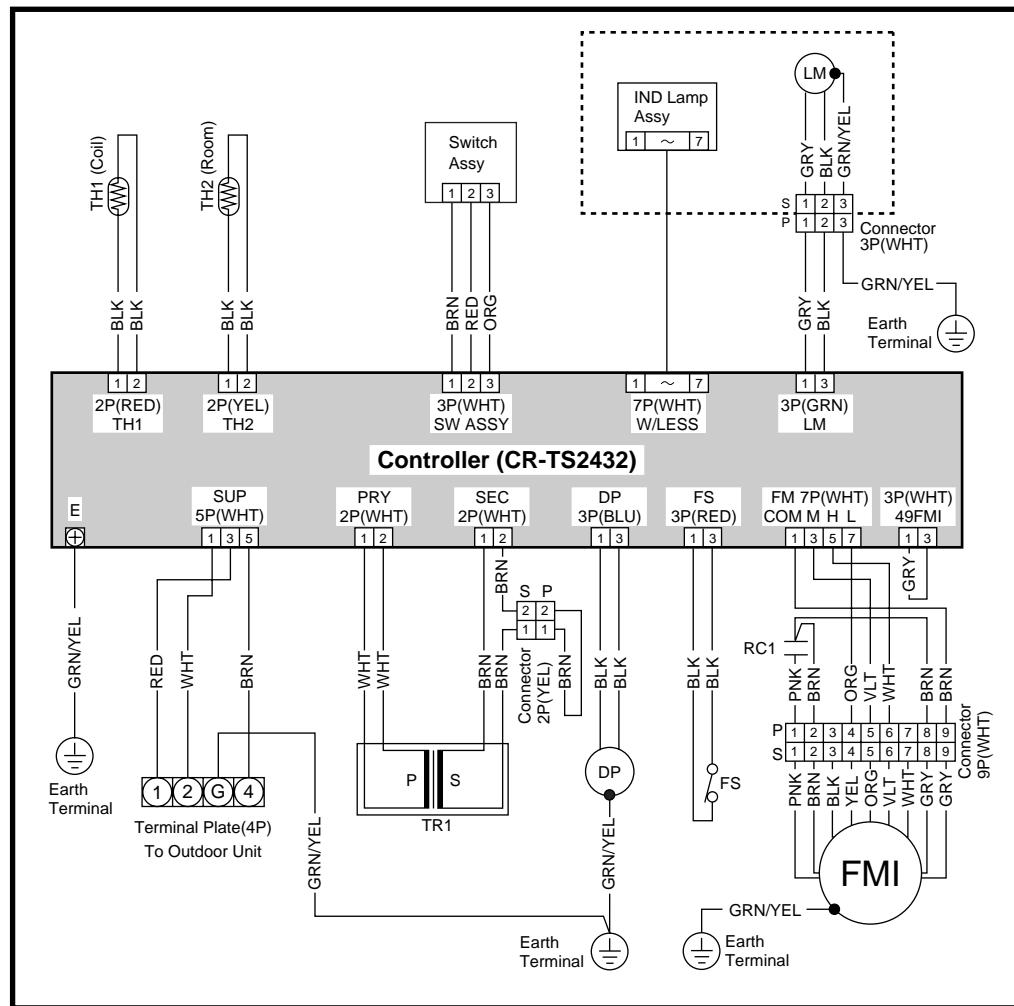
Full Load Conditions : Indoor Air Temperature 80 °F DB / 67 °F WB
 Outdoor Air Temperature 115 °F DB

10. ELECTRICAL WIRING DIAGRAMS

(1) Indoor Unit

① XS4232

• Electric Wiring Diagram

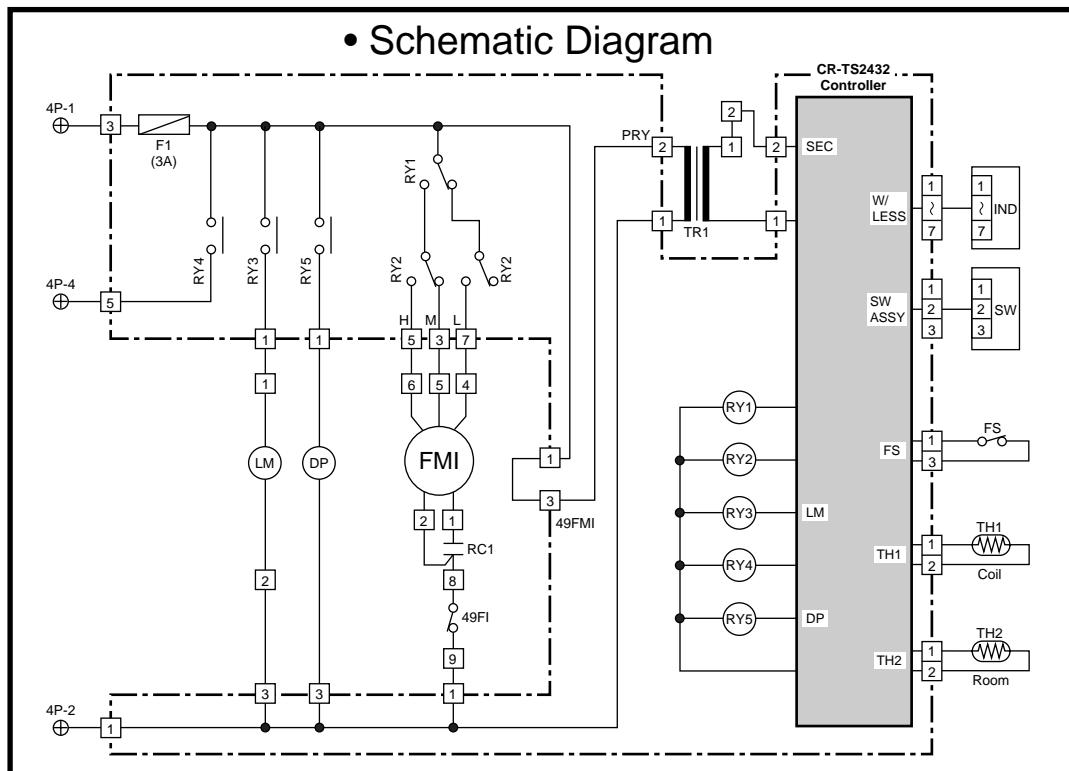


© 854-2-5268-578-00-0 (XS3632)

10. ELECTRICAL WIRING DIAGRAMS

(1) Indoor Unit

① XS4232



Symbols	Description	Symbols	Description
FMI	Indoor Fan Motor	TH1	Thermistor (Indoor Coil)
49FI	Indoor Motor Thermal Protector	TH2	Room Thermistor
RC1	Running Capacitor	CR-TS2432	Indoor Controller
F1	Fuse	IND	Indicator Lamp Assy
DP	Drain Pump	SW	Switch Assy
LM	Auto Louver Motor	⊕	Terminal Plate
TR1	Power Transformer	□	Connector
RY1-RY5	Auxiliary Relay	⊕	Terminal
FS	Float Switch		

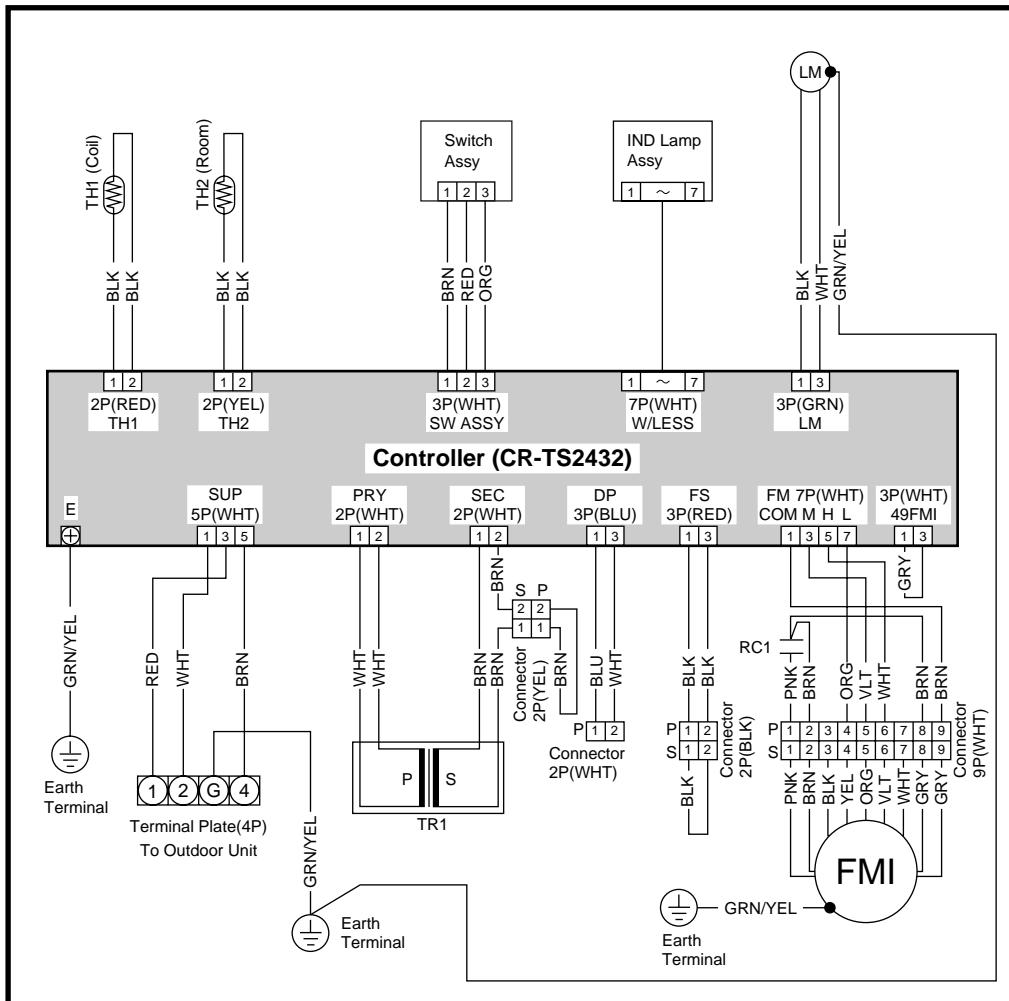
(S) 854-2-5268-578-00-0 (XS3632)

10. ELECTRICAL WIRING DIAGRAMS

(1) Indoor Unit

② TS4232

• Electric Wiring Diagram

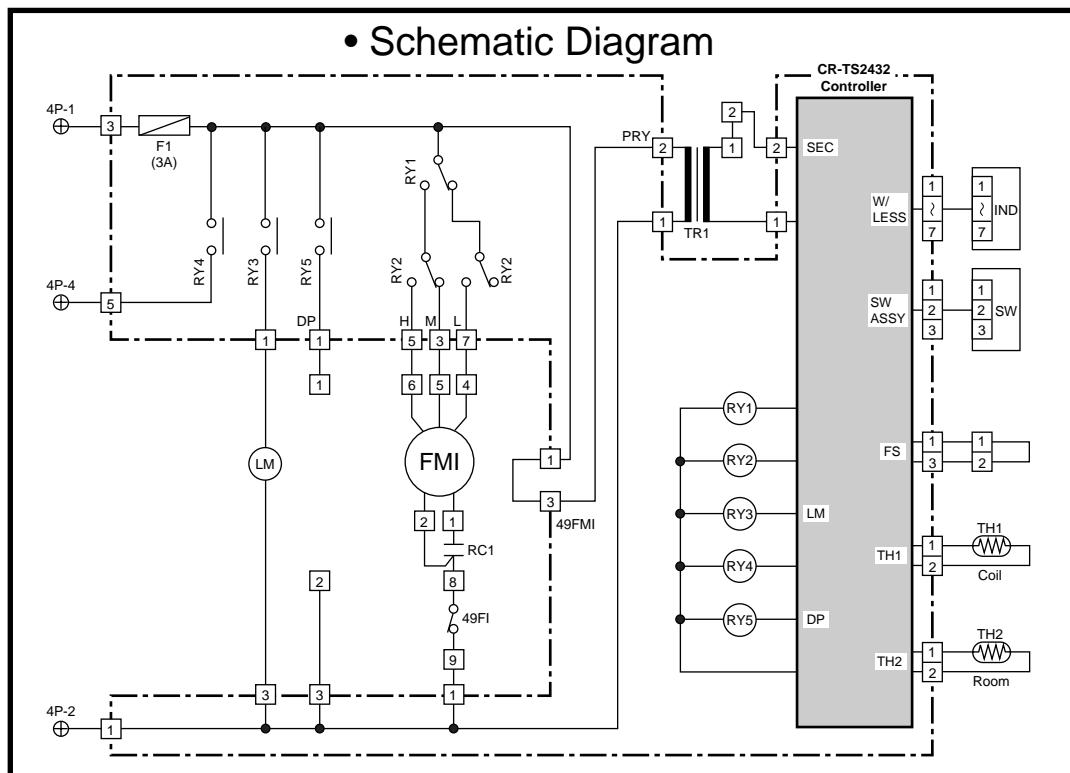


© 854-2-5268-593-00-0 (TS3632)

10. ELECTRICAL WIRING DIAGRAMS

(1) Indoor Unit

② TS4232



Symbols	Description	Symbols	Description
FMI	Indoor Fan Motor	TH1	Thermistor (Indoor Coil)
49FI	Indoor Motor Thermal Protector	TH2	Room Thermistor
RC1	Running Capacitor	CR-TS2432	Indoor Controller
F1	Fuse	IND	Indicator Lamp Assy
DP	Drain Pump	SW	Switch Assy
LM	Auto Louver Motor	⊕	Terminal Plate
TR1	Power Transformer	□	Connector
RY1~RY5	Auxiliary Relay	⊕	Terminal
FS	Float Switch		

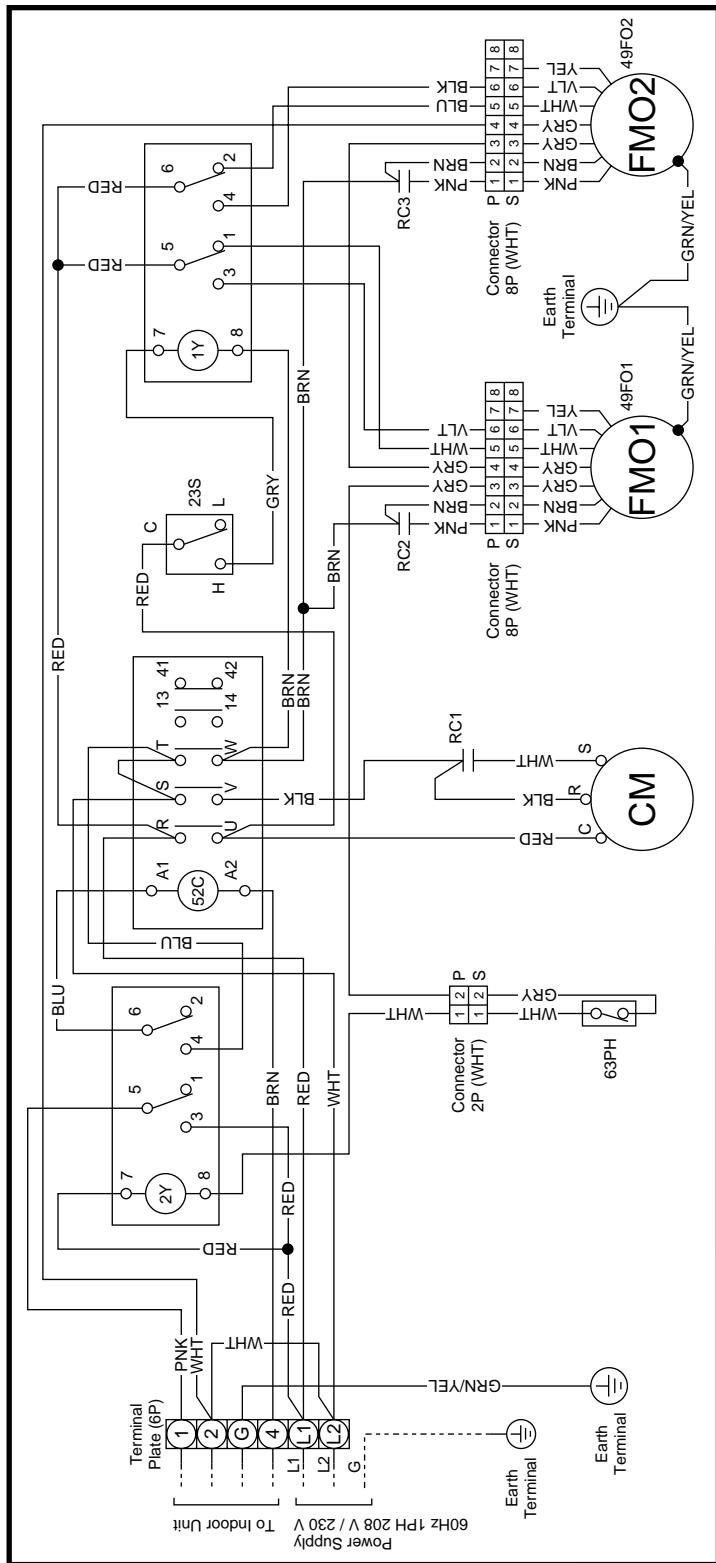
© 854-2-5268-593-00-0 (TS3632)

10. ELECTRICAL WIRING DIAGRAMS

(2) Outdoor Unit

① C4232

- Electric Wiring Diagram

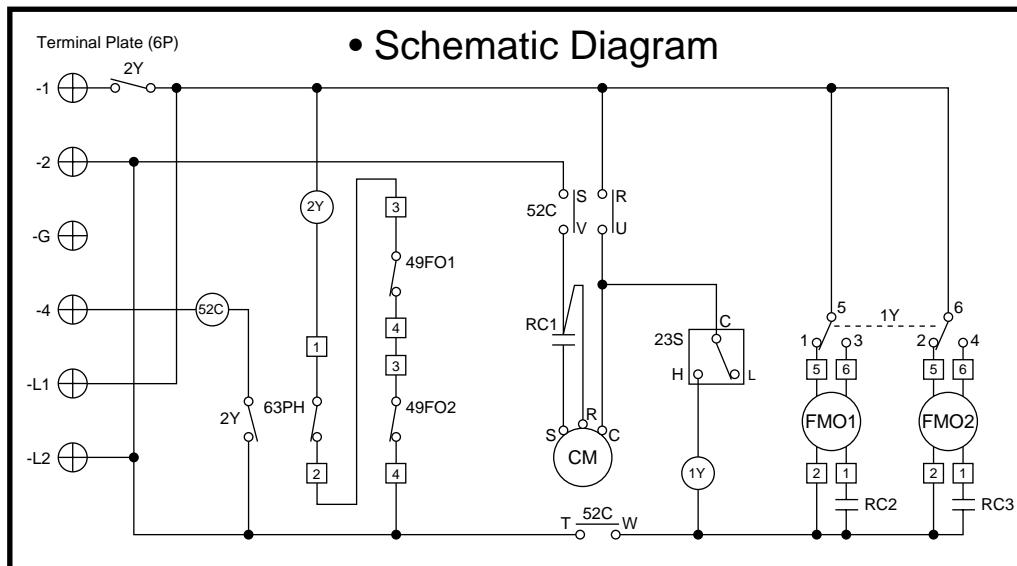


W 854-2-5268-896-00-0 (C4232)

10. ELECTRICAL WIRING DIAGRAMS

(2) Outdoor Unit

① C4232



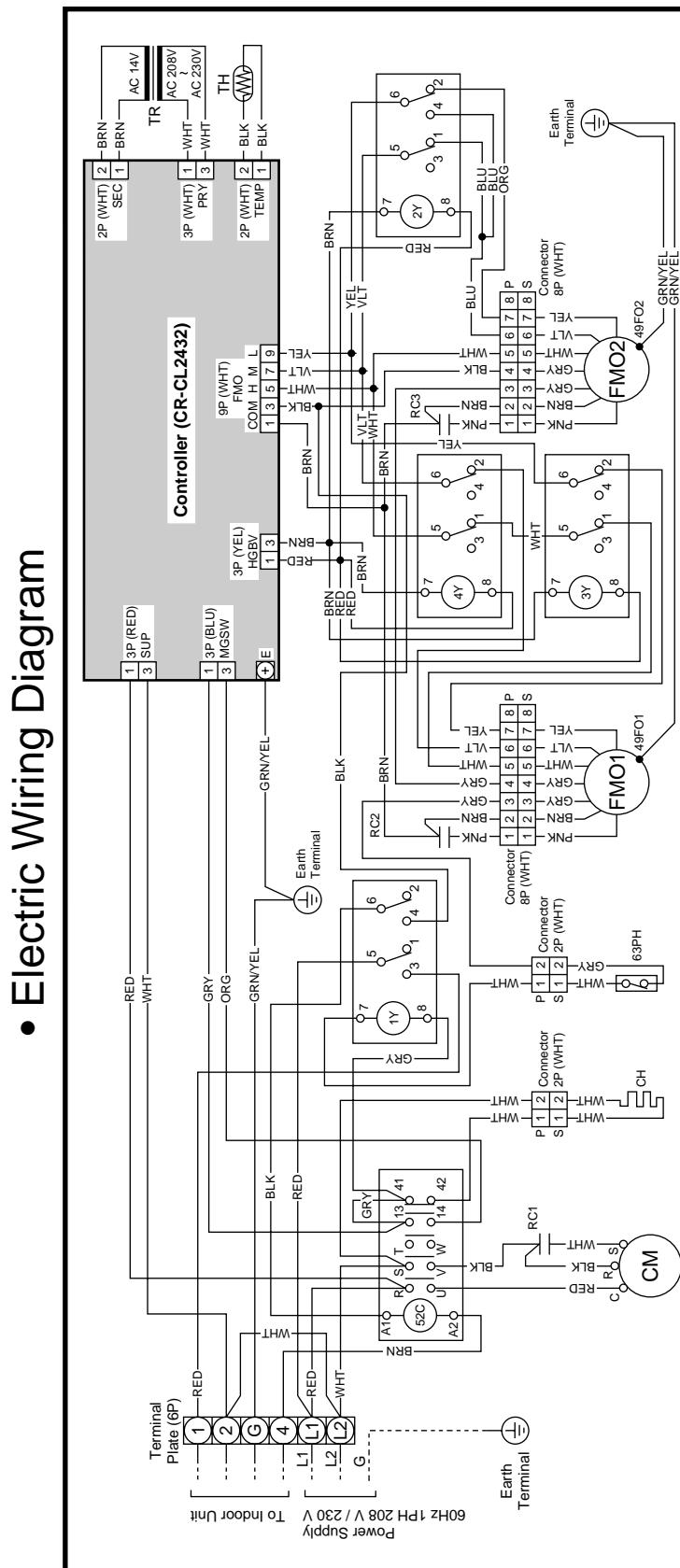
Symbols	Description
CM	Compressor Motor
FMO1, 2	Outdoor Fan Motor
49FO1, 2	Outdoor Fan Motor Thermal Protector
52C	Compressor Motor Magnetic Contactor
63PH	High Pressure Switch
23S	Fan Speedcontrol Thermostat
RC1, 2, 3	Running Capacitor
1Y, 2Y	Auxiliary Relay
□	Connector
⊕	Terminal Plate

© 854-2-5268-896-00-0 (C4232)

10. ELECTRICAL WIRING DIAGRAMS

(2) Outdoor Unit

② CL4232



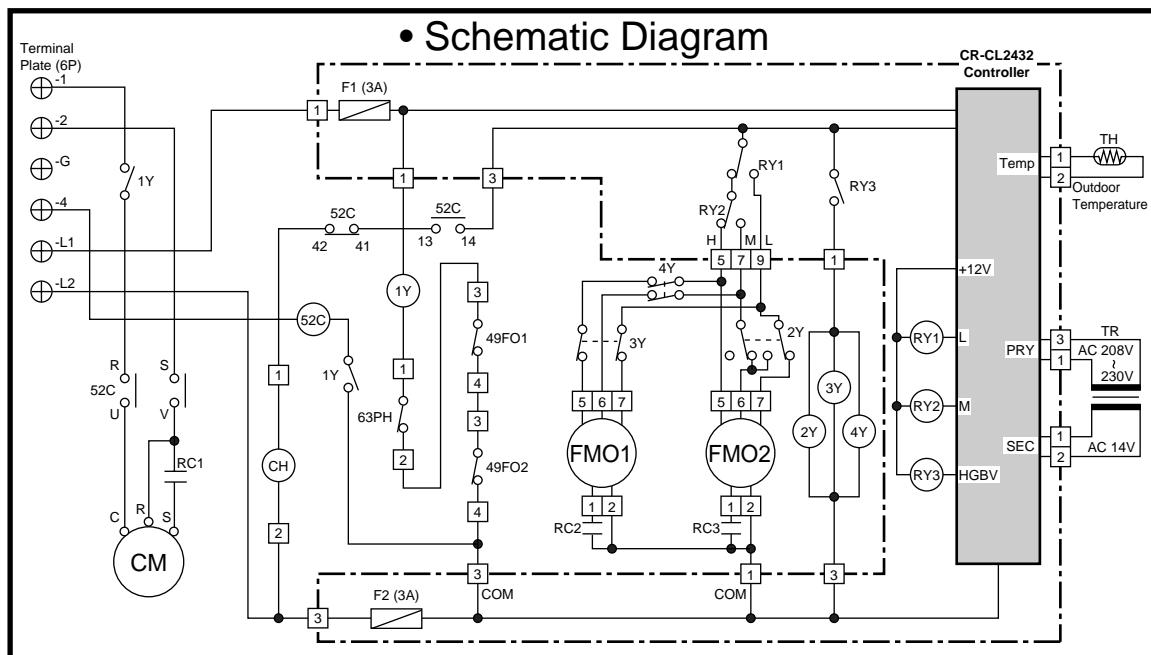
W 854-2-5268-897-00-0 (CL4232)

• Electric Wiring Diagram

10. ELECTRICAL WIRING DIAGRAMS

(2) Outdoor Unit

② CL4232



Symbols	Description	Symbols	Description
CM	Compressor Motor	F1, 2	Fuse
CH	Crankcase Heater	63PH	High Pressure Switch
FMO1, 2	Outdoor Fan Motor	⊕	Terminal Plate
49FO1, 2	Outdoor Fan Motor Thermal Protector	□	Connector
52C	Compressor Motor Magnetic Contactor	⊕	Terminal
TR	Power Transformer		
TH	Thermistor (Outdoor Temperature)		
RC1, 2, 3	Running Capacitor		
RY1, 2, 3	Auxiliary Relay		
1Y~4Y	Auxiliary Relay		
CR-CL2432	Outdoor Controller		

© 854-2-5268-897-00-0 (CL4232)

11. PROCESSES AND FUNCTIONS

(1) Room Temperature Control

The Unit adjusts room temperature by turning the outdoor unit's compressor ON and OFF.

This process is controlled by the **thermostat** located in the remote control unit.

The figures on this and the next pages show how each part of the system performs when the room temperature changes and the thermostat activates the compressor to start (**thermo ON**) or stop (**thermo OFF**). Fig. 8 shows about the cooling cycle.

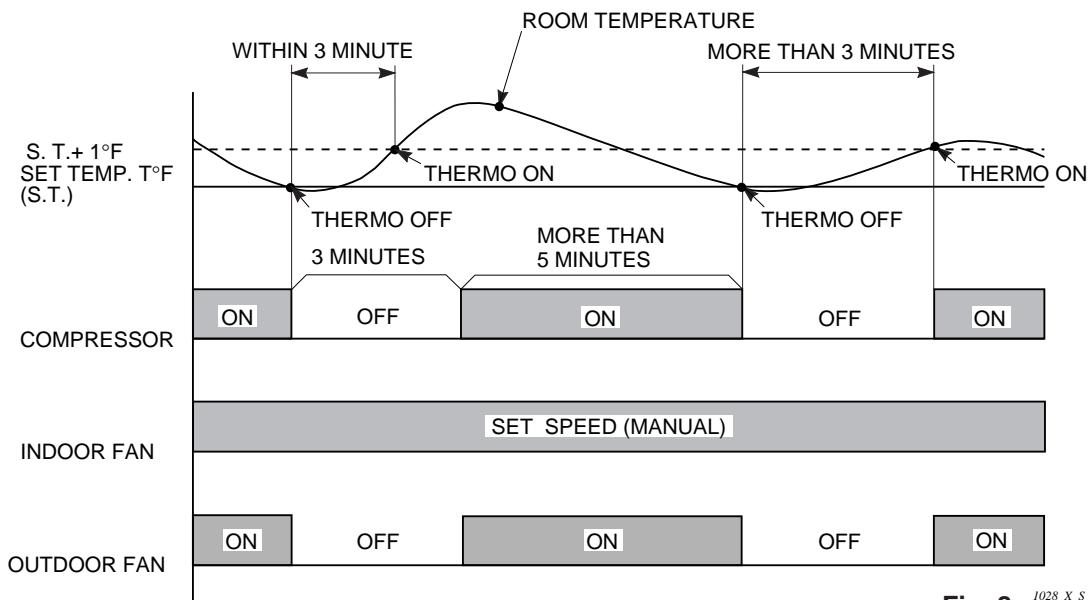


Fig. 8 1028_X_S

Chart Summary and Explanations

- Once the compressor **starts**, it keeps running for 5 minutes.
- Once the compressor **stops**, it will not start running again for 3 minutes.
- If you **change** the operation mode during the cooling cycle, the control circuit **stops** the compressor for 3 minutes.
- For 5 minutes after the compressor is first turned on, and for 3 minutes after it is turned off, the compressor is not controlled by the room sensor.
- Thermo ON:** When room temperature rises 1°F above the set temperature T° , ($T^{\circ} + 1^{\circ}\text{F}$):
Compressor → **ON**
- Thermo OFF:** When the room temperature is equal to or below the set temperature T° :
Compressor → **OFF**

11. PROCESSES AND FUNCTIONS

(2) Freeze Prevention

Freeze Prevention keeps the indoor heat exchange coil from freezing. Freezing reduces the efficiency of the unit, and frost buildup on the coil blocks cool air circulation from the indoor unit's fan.

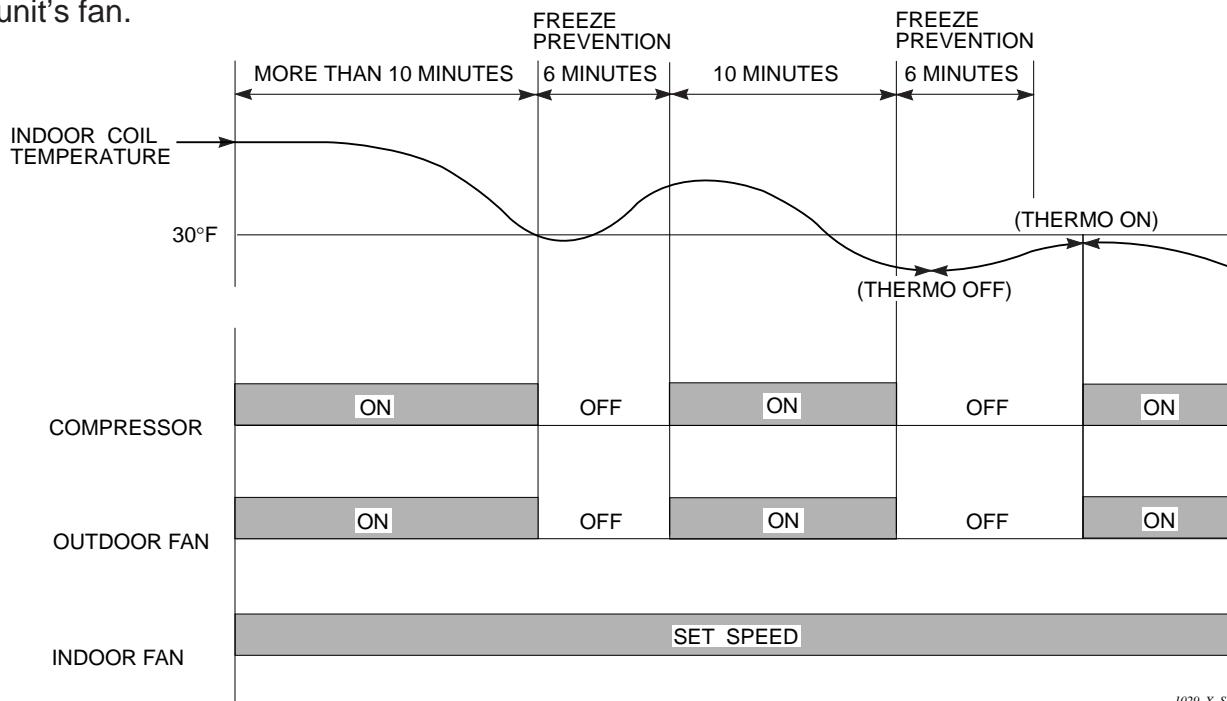


Fig. 9

(3) Drain Pump Control

Drain pump operates when compressor starts to operate or when Float Switch turns off.

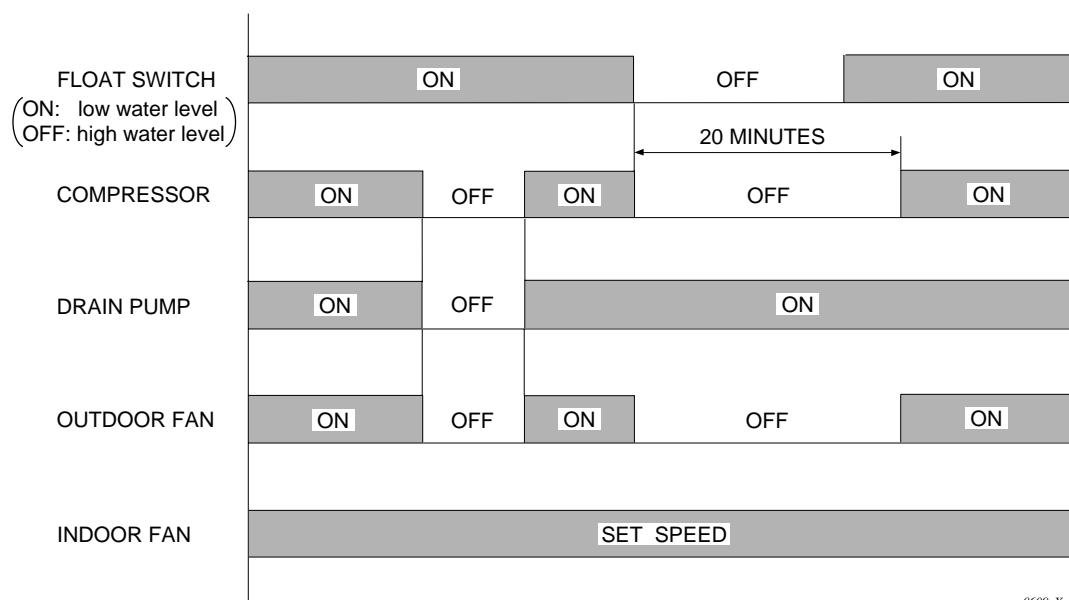


Fig. 10

11. PROCESSES AND FUNCTIONS

(4) Outdoor Fan Speed Control

1) C4232 Type

- In low outdoor temperature, the outdoor fan is set automatically from HIGH to LOW to prevent the indoor heat exchanger from freezing.
- When the outdoor temperature falls below 78 °F, the outdoor fan is set from HIGH to LOW automatically. When the outdoor temperature rises to 82 °F, the outdoor fan is set from LOW to HIGH automatically.

2) CL4232 Type

- In low outdoor temperature, the outdoor fan is set automatically from HIGH to MED, LOW to prevent the indoor heat exchanger from freezing.
- When the outdoor temperature falls below 77 °F, the outdoor fan is set from HIGH to MED automatically. When the outdoor temperature rises to 81 °F, the outdoor fan is set from MED to HIGH automatically.
- When the outdoor temperature falls below 59 °F, the outdoor fan is set from MED to LOW automatically. When the outdoor temperature rises to 63 °F, the outdoor fan is set from LOW to MED automatically.
- When the outdoor temperature falls below 47 °F, the outdoor upper fan is set from LOW to OFF and Lower fan is set from LOW to MED automatically. When the outdoor temperature rises to 50 °F, the outdoor upper fan is set from OFF to LOW and Lower fan is set from MED to LOW automatically.

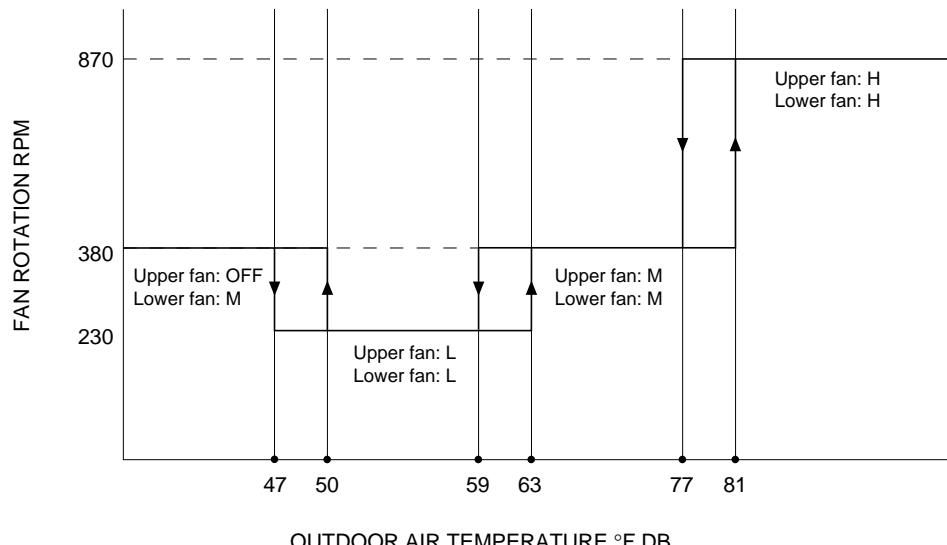


Fig. 11

12. SERVICE PROCEDURES

(1) Troubleshooting

1) Check before and after Troubleshooting

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

① Check power supply wiring

(a) Single-phase

- Check that power supply wires are correctly connected to terminal No. 1 through No. 4 on the 4P terminal plate in the indoor unit and L1 and L2 on the 6P terminal in the outdoor unit.

② Check inter-unit wiring

- Check that inter-unit control wiring (AC 230 - 208 V Line voltage) is correctly connected between the indoor unit and outdoor unit.

Single-phase outdoor unit

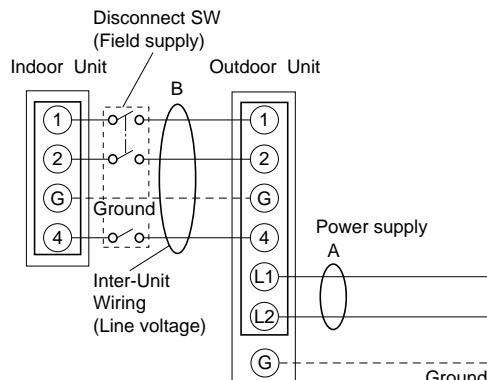


Fig. 12

I089_M_I

③ Check power supply

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



WARNING

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

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

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

⑤ Reference

- Condition of general cooling operation (Thermo. ON)
SWEEP ON
Indoor fan speed HIGH

12. SERVICE PROCEDURES

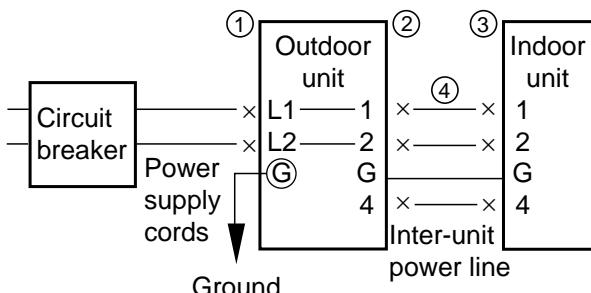
2) Air Conditioner does not Operate

① Circuit breaker trips (or fuse blows).

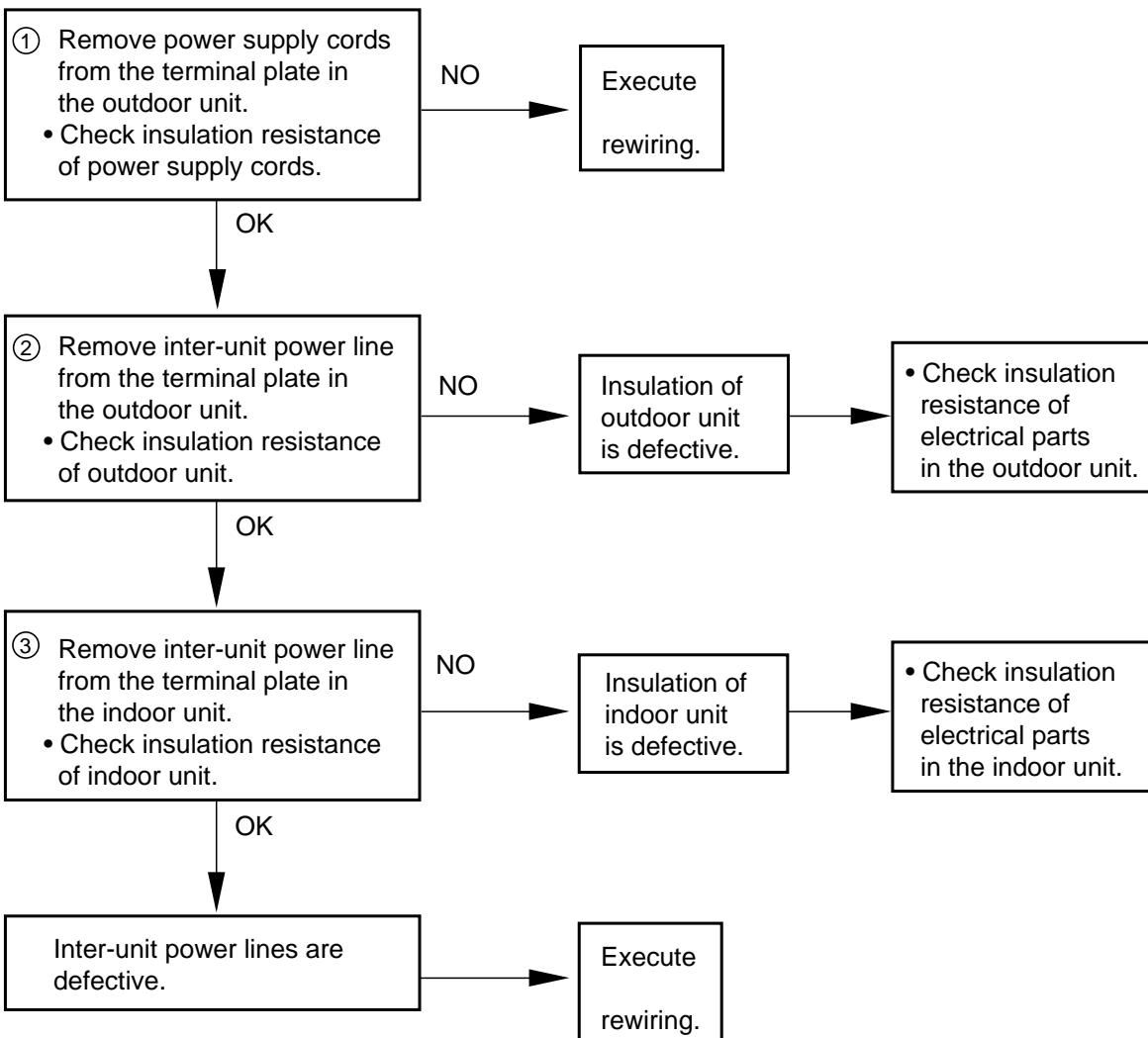
(a) When the circuit breaker is set to ON, it is tripped soon.

- There is a possibility of ground fault.
- Check insulation resistance.
If resistance value is 1 MΩ or less, it is a defect of insulation.

(Example)



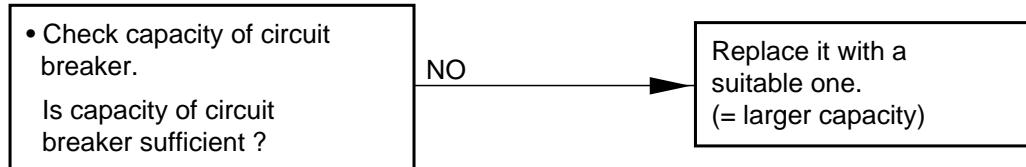
*Set the circuit breaker to OFF.



12. SERVICE PROCEDURES

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

- There is a possibility of short circuit.



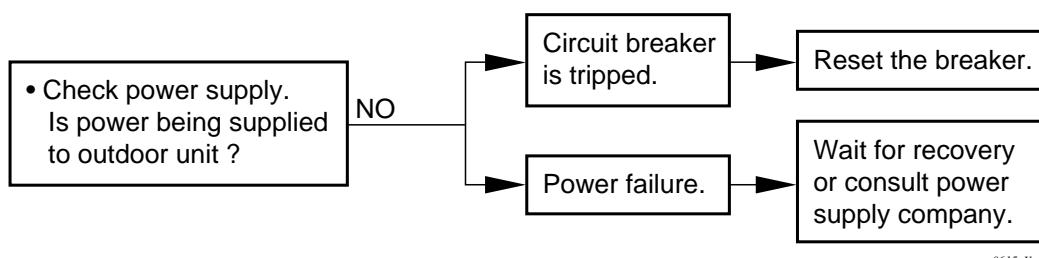
• Check resistance of outdoor fan motor winding.

• Check resistance of compressor motor winding.

0614_X_S

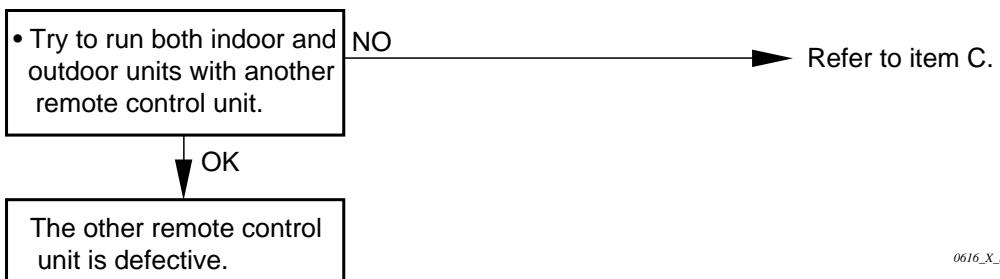
② Neither indoor unit nor outdoor unit runs.

A. Power is not supplied



0615_X_S

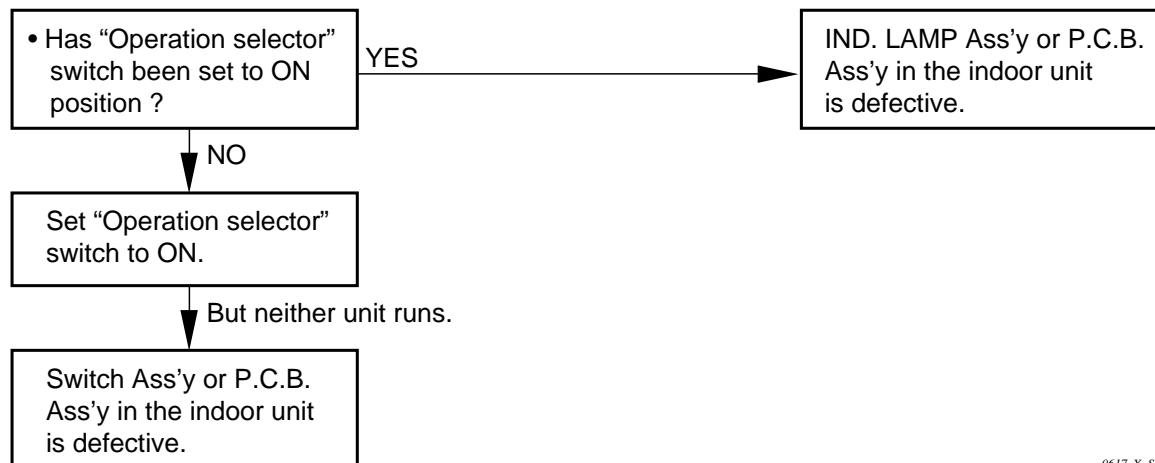
B. Check remote control unit.



0616_X_S

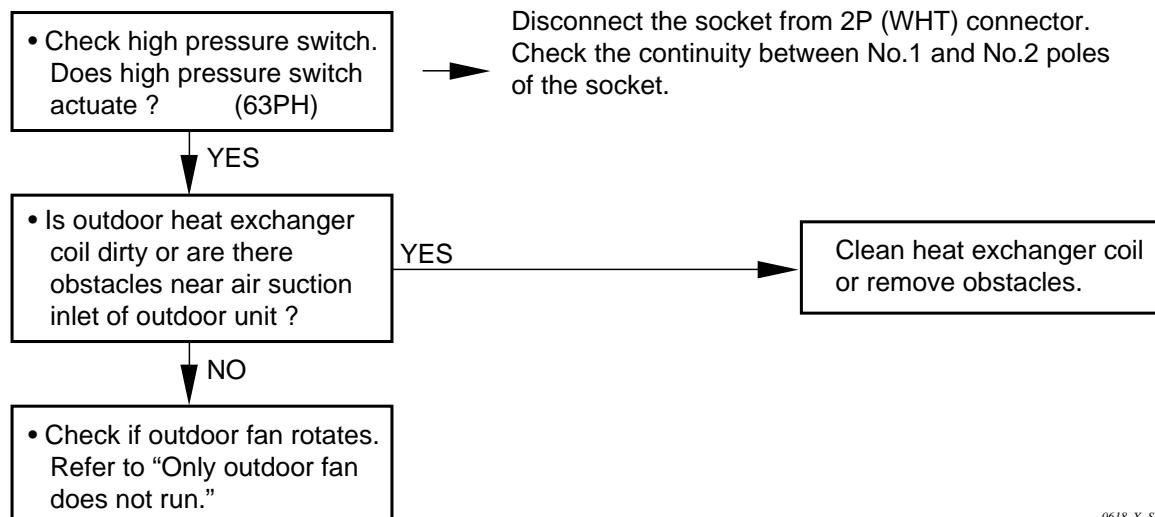
12. SERVICE PROCEDURES

C. Check "Operation selector" switch in the indoor unit.



D. Check compressor motor protectors.

(a) High pressure switch (63PH)



E. Transformer in indoor unit.

- Check resistance of transformer winding. (TR1)

1033_X_S

12. SERVICE PROCEDURES

F. Check auxiliary relay. (1Y or 2Y)

- Check coil resistance of auxiliary relay.
(1Y or 2Y)

0620_X_S

G. Check indoor fan motor thermal protector (49FMI)

- Disconnect the socket from 9P (WHT) connector.

- Check the continuity between No. 8 and No.9 poles of the 9P socket.

↓ No continuity.

The thermal protector (49FMI) is operated.

- Check fan rotation. Rotate the fan gently once or twice by hand.

↓ OK

- Check fan motor capacitor.

Fan cannot be rotated.

Check fan casing for foreign matter on the inside.

Remove foreign matter or repair.

Fan motor burnout or foreign matter in bearing.

Repair or replace.

0621_X_S

H. Check fuse on the P.C.B. Ass'y in the indoor unit.

- Check fuse on the P.C.B. Ass'y in the indoor unit for continuity.

When the fuse blows.

- Check transformer. (TR1)

OK

- Check resistance of indoor fan motor winding.
(FMI)

OK

- Check resistance of louver motor winding.
(LM)

OK

- Check resistance of drain pump winding. (DP)

OK

- Check coil of compressor motor magnetic contactor.
(52C)

OK

- P.C.B. Ass'y is defective.

(XS Type only)

1034_X_S

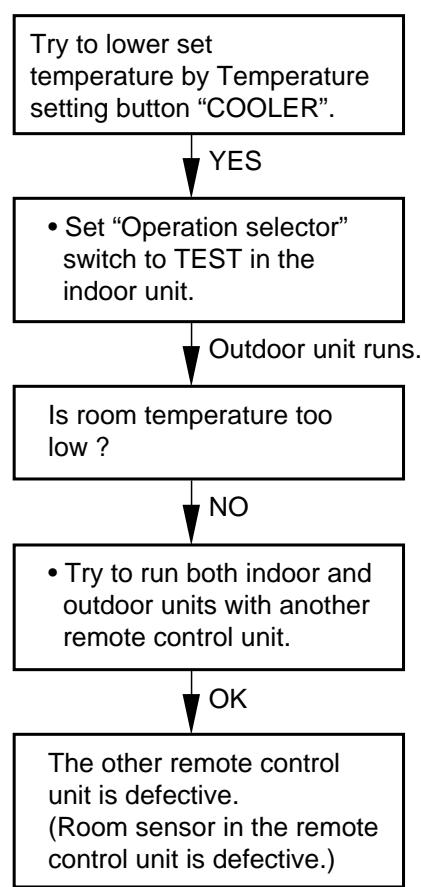
12. SERVICE PROCEDURES

3) Outdoor Unit does not Run.

A. Check COOL / FAN selector switch in the remote control unit.



B. Check set temperature.



0624_X_S

12. SERVICE PROCEDURES

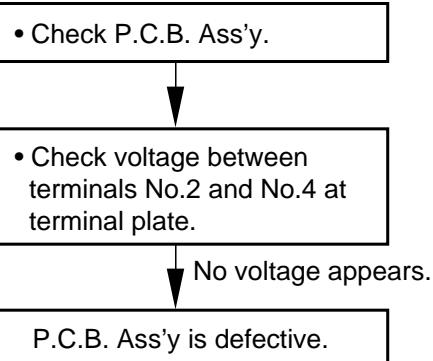
C. Check compressor motor magnetic contactor.

- Check coil resistance of compressor motor magnetic contactor. (52C)

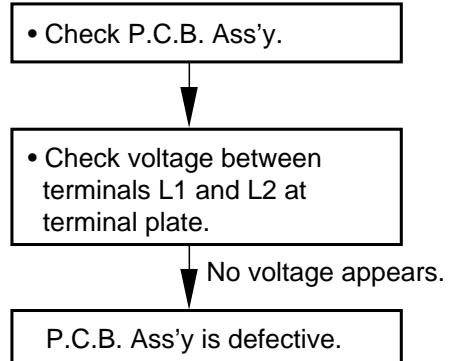
1035_X_S

D. Check indoor unit P.C.B.

E. Check outdoor unit P.C.B. (CL3632 Type)



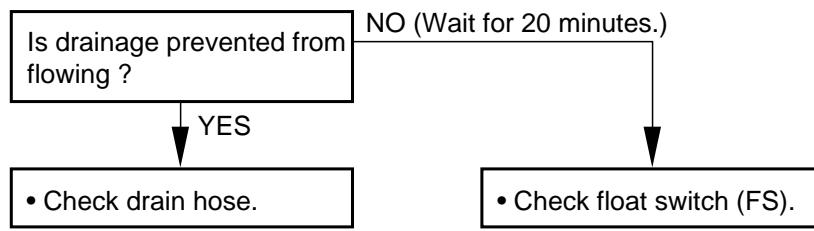
0628_X_S



1036_X_S

F. Check float switch. (XS Type only)

- Refer to “2-3 Drain Pump Control”



0629_X_S

12. SERVICE PROCEDURES

4) Indoor Unit does not Run.

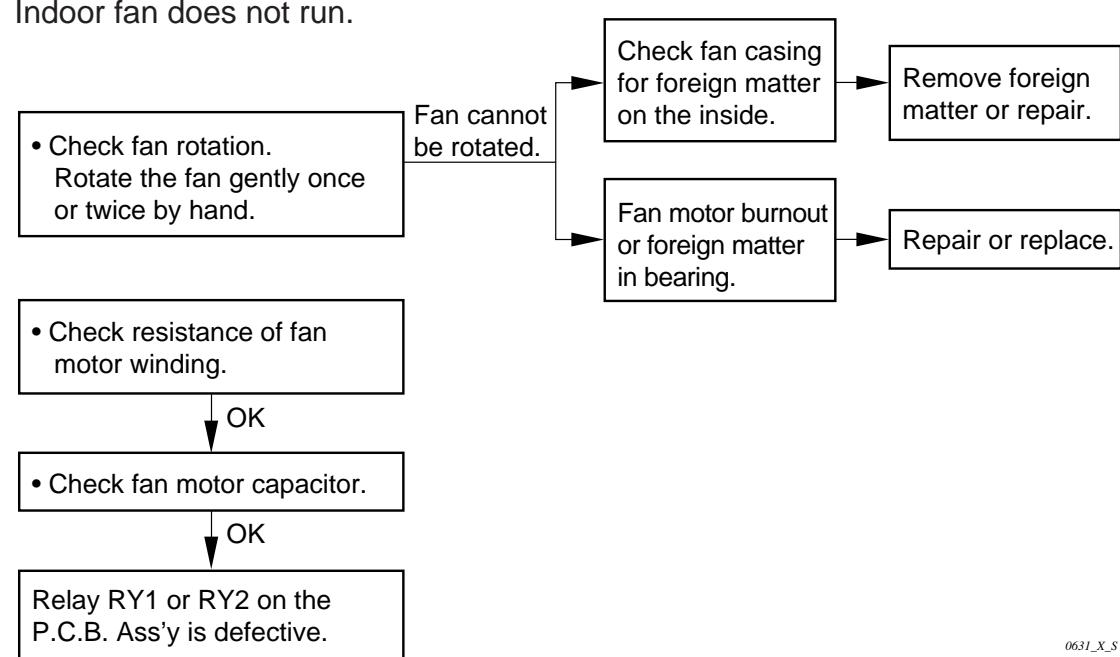
(Indoor fan and louver motor do not run.)

P.C.B. Ass'y is defective.

0630_X_S

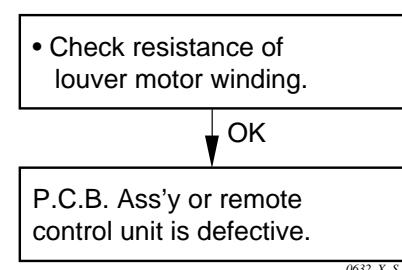
5) Some Part does not Operate.

A. Indoor fan does not run.



0631_X_S

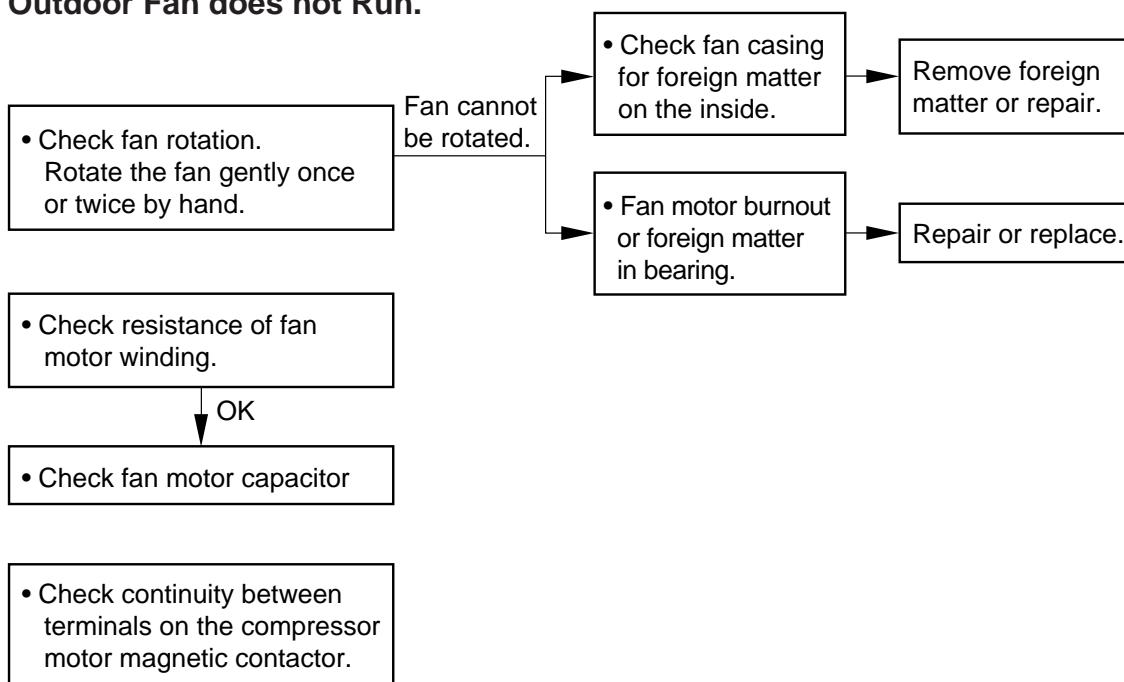
B. Louver motor does not run.



0632_X_S

12. SERVICE PROCEDURES

6) Outdoor Fan does not Run.



0633_X_S

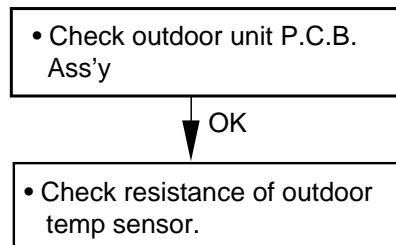
7) Outdoor Fan Speed is not Switched from High to Low even when the Outdoor Temperature Falls below 78 °F. (C4232 Type)

- Check the thermostat (23S).

1037_X_S

8) Outdoor Fan Speed is not Switched from High to Med even when the Outdoor Temperature Falls below 77 °F.

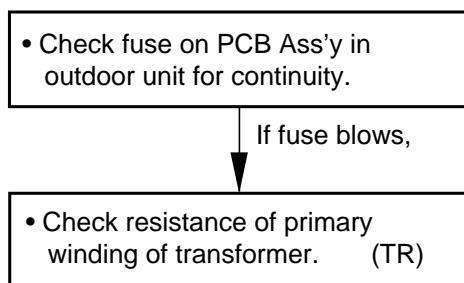
Outdoor Fan Speed is not Switched from Med to Low even when the Outdoor Temperature Falls below 59 °F. (CL4232 Type)



0722_X_S

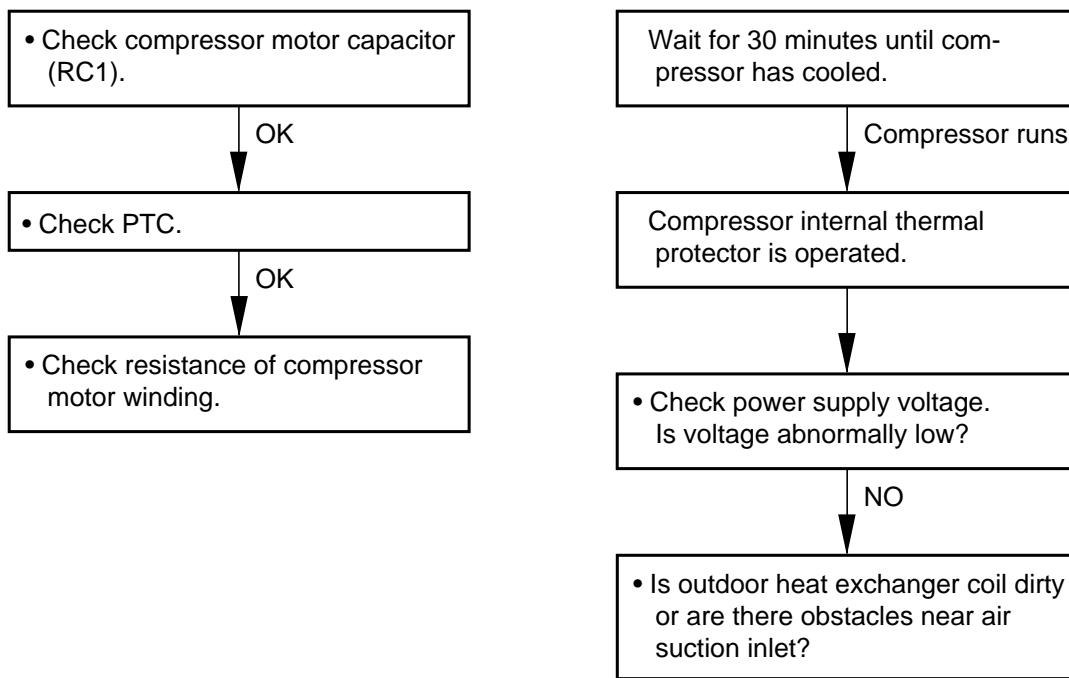
12. SERVICE PROCEDURES

9) Outdoor Fan does not Run for CL4232.



I038_X_S

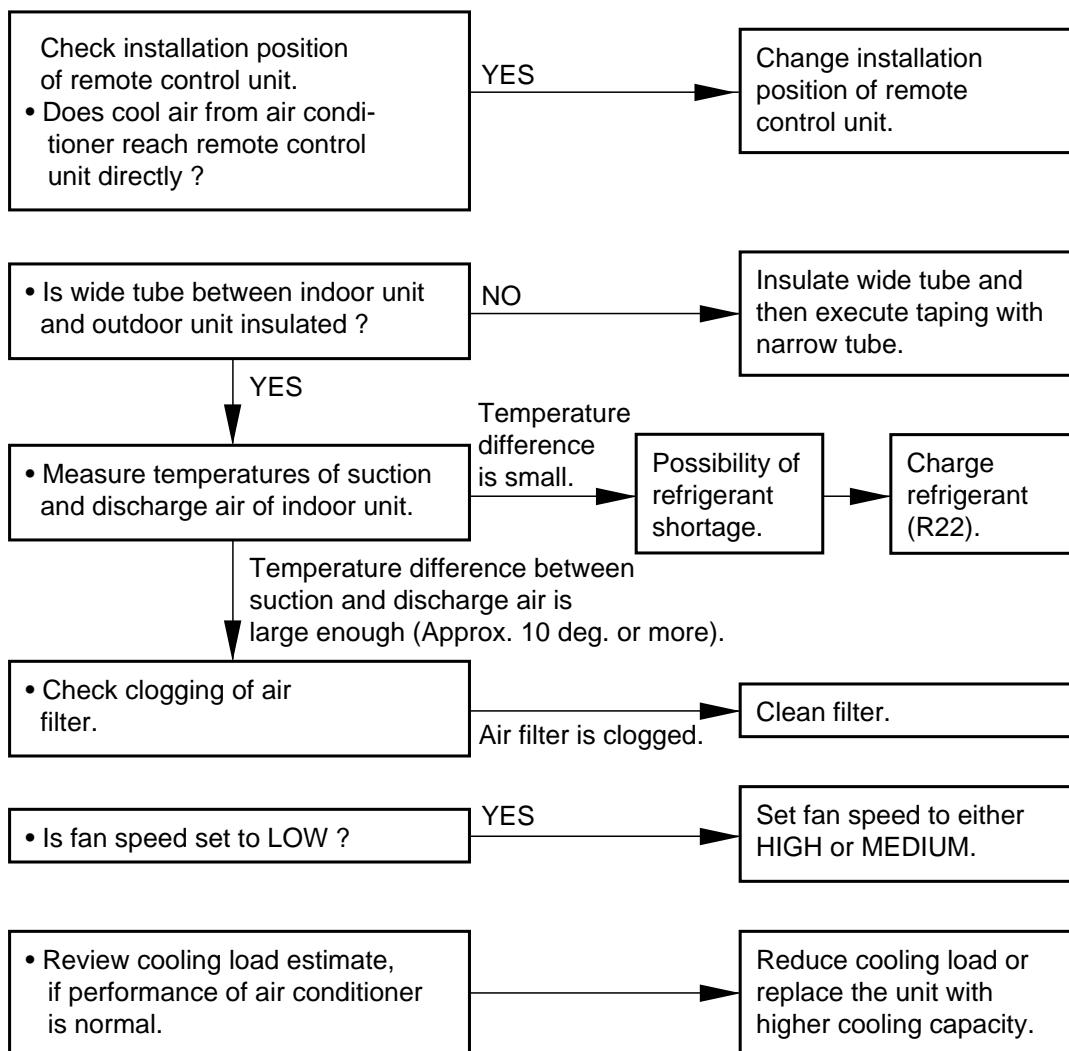
10) Compressor does not Run.



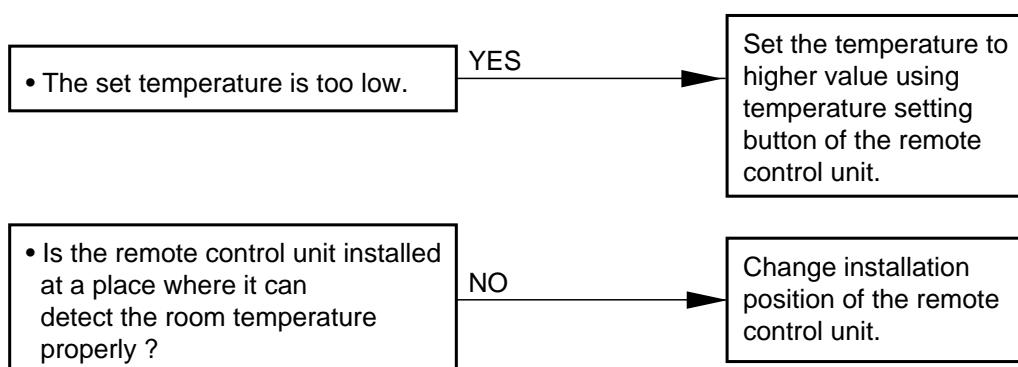
I039_X_S

12. SERVICE PROCEDURES

11) Poor Cooling



12) Excessive Cooling.



12. SERVICE PROCEDURES

(2) A Sensor is Defective

① Indoor (heat exchanger) coil temp. Sensor is defective.

(a) Open (=No continuity in sensor)

Compressor and outdoor fan repeat ON for 10 minutes and OFF for 6 minutes when sensor opens.

(b) Short

"Freeze Prevention" does not operate when dehumidified water is frozen on the indoor coil.

② Room temp. Sensor (in the remote control unit) is defective.

(a) Open (=No continuity in sensor)

Neither outdoor fan nor compressor runs.

(b) Short

Outdoor fan and compressor do not stop. — Excessive cooling.

(3) Operation of Major Electrical Parts

Operation Mode (Function)		Operation	Indoor unit and Remote Control unit					Oudoor unit		
			Indicator lamps					Fan	Fan	Compressor
			Room Temp.	Cool	Timer	Night setback Energy saver	Sweep			
Cool -ing	Manual	Thermo.ON	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Thermo.OFF	<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		
	Night setback	Thermo.ON	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
		Thermo.OFF	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>				
	Timaer (set)	ON Timer			<input type="radio"/>					
		OFF Timer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Freeze prevention		<input type="radio"/>	<input type="radio"/>				<input type="radio"/>		
Fan			<input type="radio"/>					<input type="radio"/>		
Flap	Sweep	Cool	<input type="radio"/>	<input type="radio"/> *		<input type="radio"/> *		<input type="radio"/>	<input type="radio"/> *	<input type="radio"/> *
		Fan	<input type="radio"/>					<input type="radio"/>		
	Stop	Cool	<input type="radio"/>	<input type="radio"/> *		<input type="radio"/> *		<input type="radio"/>	<input type="radio"/> *	<input type="radio"/> *
		Fan	<input type="radio"/>					<input type="radio"/>		

NOTE * Refer to Cooling Mode.

12. SERVICE PROCEDURES

(4) Checking the Electrical Components

1) Measurement of Insulation Resistance

- The electrical insulation is acceptable when the resistance exceeds $1 \text{ M}\Omega$.

① Power Supply Wires

Clamp the earthed wire of the Power Supply wires with a lead clip of the insulation resistance tester and measure the resistance by placing a probe on either of the power wires. (Fig. 13)

Then measure the resistance between the earthed wire and the other power wires. (Fig. 13)

② Indoor Unit

Clamp an aluminum plate fin or copper tube with the lead clip of the insulation resistance tester and measure the resistance by placing a probe on the terminal plate (Fig. 14)

③ Outdoor Unit

Measure the resistance by placing a probe on the terminal plate in the same manner as explained above ②. (Fig. 14)

④ Measurement of Insulation Resistance for Electrical parts

- Disconnect the connector of the desired electric part from terminal plate, P.C.B. Ass'y, etc. (Fig. 15)
- Similarly, disconnect the lead wires from compressor, capacitor, etc. (Fig. 16)
- Measure the resistance in the same manner as illustrated on the right.

Refer to Electrical Wiring Diagram.

NOTE

If the probe does not enter the hole because the hole is too narrow, use a probe with a thinner pin.

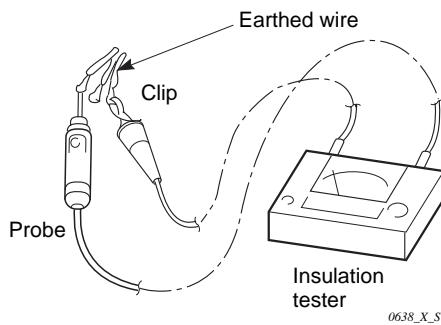


Fig. 13

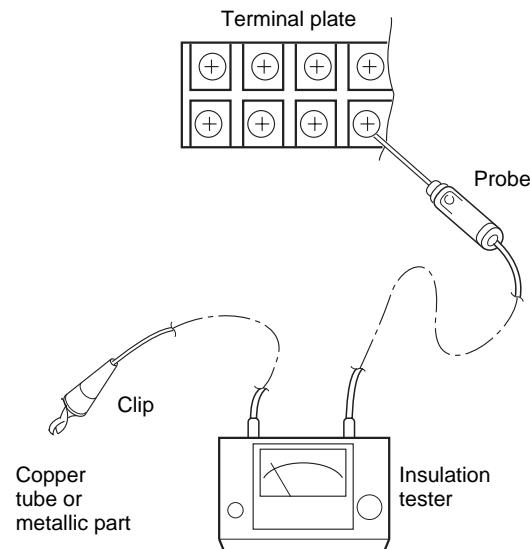


Fig. 14

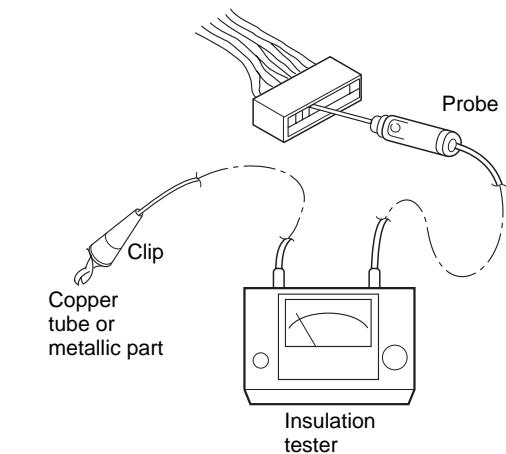


Fig. 15

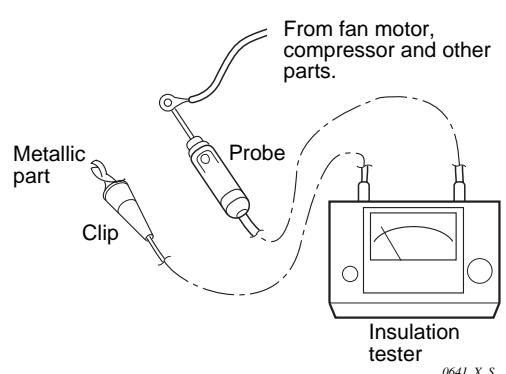


Fig. 16

12. SERVICE PROCEDURES

2) Checking the Protective Devices

- Disconnect the connector, which consists of P (plug) and S (socket) when you want to check the protective device.
- Then check continuity among plug's (and/or socket's) terminal as in **Fig. 17**.
- Normality of the protective device can be judged by the following table.
The Protective Device is proved normal if there is a continuity between terminals.

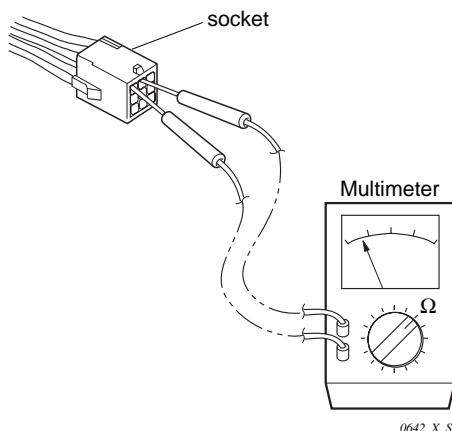


Fig. 17

① Indoor fan motor thermal protector (49FI) Indoor unit

- Disconnect the connector which leads to the indoor fan motor (FMI).
- Check the socket's terminals.

② Compressor motor thermal protector Outdoor unit

- Disconnect the wires from terminals of compressor.
- Check the terminals of compressor.

③ Outdoor fan motor thermal protector (49FO) Outdoor unit

- Disconnect both the connector which leads to the outdoor fan motor (FMO).
- Check socket's terminal.

12. SERVICE PROCEDURES

3) Checking the Electrical Parts

① Power transformer (TR1) Indoor unit *Measure the coil resistance.

- Primary 230-208 V ; Measure the resistance between two WHT lead wire terminals of socket connected to power transformer.
- Secondary 10.6 V ; Measure the resistance between two BRN lead wires.
Refer to “1-3-(A) Other component specifications”.

② Power transformer (TR) Outdoor unit *Measure the coil resistance.

- Primary 230-208 V ; Measure the resistance between two WHT lead wire terminals of socket jointed to power transformer.
- Secondary 14 V ; Measure the resistance between two BRN lead wires.
Refer to “1-3-(B) Other component specifications”.

③ Indoor fan motor (FMI) Indoor unit *Measure the coil resistance.

- Measure the resistance between each terminal of the socket connected to the indoor fan motor.
Refer to “1-2-(A) Major component specifications”.

④ Outdoor fan motor (FMO) Outdoor unit *Measure the coil resistance.

- Measure the resistance in the same manner as explained above ③.
Refer to “1-2-(B) Major component specifications”.

⑤ Motor capacitor Both in indoor and outdoor unit

- Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in **Fig. 18**. 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.

NOTE

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

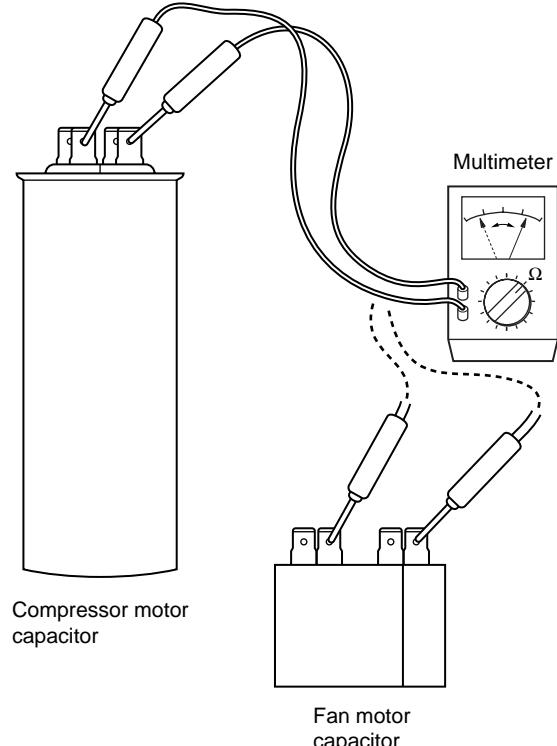


Fig. 18

1041_X_S

12. SERVICE PROCEDURES

⑥ Continuity of fuse on P.C.B. Ass'y

- Check for continuity using a multimeter as shown in Fig. 19.

NOTE

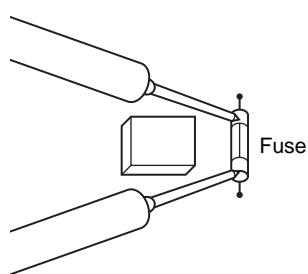
Method Used to Replace Fuse on PCB Ass'y

- Remove the PCB Ass'y from the electrical component box.
- Remove the fuse from PCB Ass'y using pliers while heating the soldered leads on the back side of the PCB Ass'y with a soldering iron (30W or 60W). (Fig. 20)
- For replacement, insert a fuse of the same rating to the intended position and solder it.
(Allow time to radiate heat during soldering so that the fuse does not melt.)



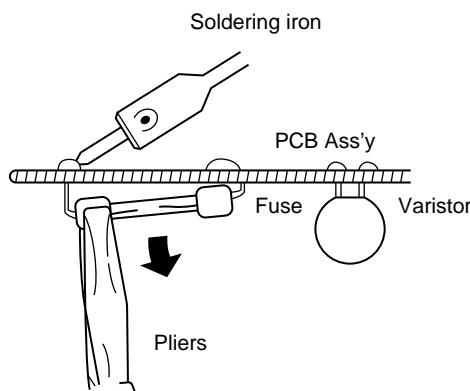
CAUTION

When replacing the fuse, be sure not to break down the varistor.



J042_X_S

Fig. 19



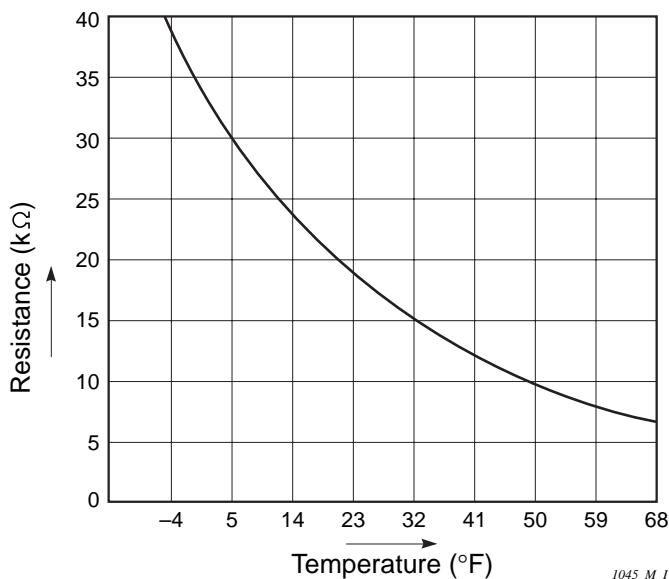
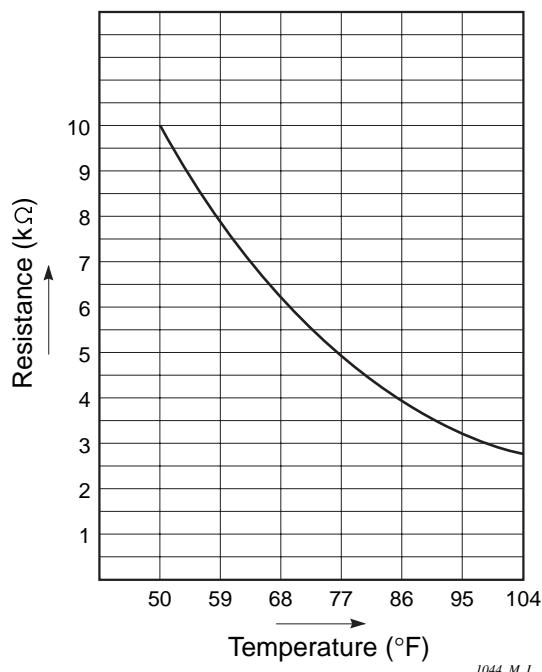
J043_X_S

Fig. 20

4) Thermistor Characteristic Curve

- ① Room temp. sensor
(KTEC-35)

- ① Coil sensor
(PBC-41E)



J045_M_I

- The specifications, designs, and information in this brochure are subject to change without notice.

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