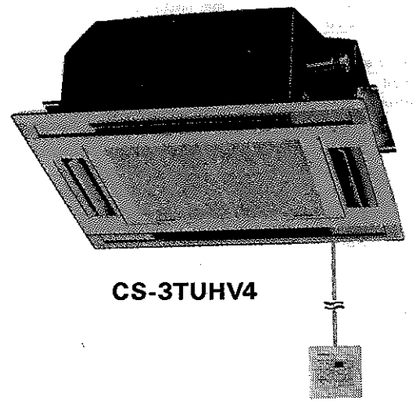
ORDER NO. MARCO 90-02

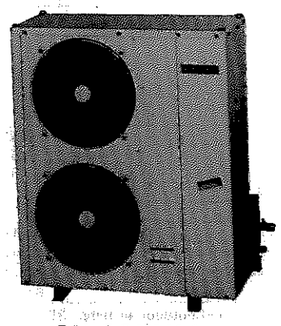
Service Manual

PACKAGED AIR CONDITIONER
AIR-COOLED TYPE

Models: CS-1.5TUHV4SA·P (CU-1.5CHV3S·P)
CS-2TUHV4S·P (CU-2CHV3S·P)
CS-2.5TUHV4·P (CU-2.5CHV3·P)
CS-3TUHV4·P (CU-3CHV11·P)
CS-4TUHV4·P (CU-4CHV11·P)
CS-5TUHV4·P (CU-5CHV11·P)



CS-3TUHV4



CU-3CHV11

National / Panasonic

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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ITEM			MODEL	CS-1.5TUHV4SA (Indoor Unit)	CU-1.5CHV3S (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	3,100 12,400 3,600	
(2) Cooling Capacity			kcal/h BTU/h W	3,220 12,880 3,740	
(3) Heating Capacity			kcal/h BTU/h W	3,500 14,000 4,070	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi_{424}^{12} Me_{388}^{11} Lo_{353}^{10}	28 988
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(240+15)×850×1,000 (9-7/16+19/32)×33-15/32×39-3/8	660×790×(320+34) 25-31/32×31-3/32×(12-19/32+1-11/32)
Net Weight			kg lbs	30 66	45 99
Piping connection	Refrigerant	Gas Liquid	mm (inch) mm (inch)	O.D. ϕ12.7 (1/2) Flared type O.D. ϕ 6.35 (1/4) Flared type	
	Drain		mm	O.D.ϕ32	—
Compressor	Type, number of set			—	Hermetic-1(Rotary)
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole Single phase induction motor
		Input	kW	—	Cool/Heat, 1.17/1.12
		Rated Output	kW	—	1.1
Fan	Type, number of set		unit	Turbo fan-1	Axial-flow fan-1
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	
		Input	kW	0.06	0.07
		Rated Output	kW	0.02	0.03
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ	—	SUNISO 4GDID (0.41)
Refrigerant (Charged)			kg lbs	R-22	$R\text{-}22_{(3.3)}^{(1.5)}$
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration spring)
Safety Devices				High-pressure switch, Internal thermostat, Drainover-flow switch	
Finish				Steel plate, Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi40, Me36, Lo33	51

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B. (95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-1.5TUHV4SA, CU-1.5CHV3S		
Volts	V			220	230	240
Phase				Single	Single	Single
Power Consumption	kw	Cool		1.30	1.30	1.30
		Heat		1.25	1.25	1.25
Running Current	A	Cool		6.61	6.58	6.51
		Heat		6.29	6.26	6.21
Starting Current	A			22.9	23.9	24.8
Power Factor	%	Cool		89.4	85.9	83.2
		Heat		90.3	86.8	83.9

National	Power source 220V, 230V, 240V 50Hz
Panasonic	Power source 220V, 240V 50Hz

ITEM			MODEL	CS-2TUHV4S (Indoor Unit)	CU-2CHV3S (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	4,500 18,000 5,230	
(2) Cooling Capacity			kcal/h BTU/h W	4,620 18,480 5,370	
(3) Heating Capacity			kcal/h BTU/h W	4,800 19,200 5,580	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi_{530}^{15} Me_{424}^{12} Lo_{353}^{10}	28 988
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(240+15)×850×1,000 (9-7/16+19/32)×33-15/32×39-3/8	660×790×(320+34) 25-31/32×31-3/32×(12-19/32+1-11/32)
Net Weight			kg lbs	30 66	59 130
Piping connection	Refrigerant	Gas Liquid	mm (inch) mm (inch)	O.D. ϕ12.7 (1/2) Flared type O.D. ϕ 6.35 (1/4) Flared type	
	Drain		mm	O.D.ϕ32	—
Compressor	Type, number of set			—	Hermetic-1(Rotary)
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole Single phase induction motor
		Input	kW	—	Cool/Heat, 1.86/1.79
		Rated Output	kW	—	1.7
Fan	Type, number of set		unit	Turbo fan-1	Axial-flow fan-1
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	
		Input	kW	0.06	0.07
		Rated Output	kW	0.02	0.03
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ	—	SUNISO 4GSD (0.81)
Refrigerant (Charged)			kg lbs	R-22	$R\text{-}22_{(4.0)}^{(1.8)}$
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration spring)
Safety Devices				High-pressure switch, Internal thermostat, Drainover-flow switch	
Finish				Steel plate, Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi41, Me38, Lo35	52

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B. (95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-2TUHV4S, CU-2CHV3S		
Volts	V			220	230	240
Phase				Single	Single	Single
Power Consumption	kw	Cool		1.99	1.99	1.99
		Heat		1.92	1.92	1.92
Running Current	A	Cool		10.10	10.00	9.80
		Heat		9.72	9.69	9.63
Starting Current	A			45.5	47.6	49.5
Power Factor	%	Cool		89.6	86.5	84.6
		Heat		89.8	86.1	83.1

National	Power source 220V, 230V, 240V 50Hz
Panasonic	Power source 220V, 240V 50Hz

ITEM			MODEL	CS-2.5TUHV4 (Indoor Unit)	CU-2.5CHV3 (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	6,000 24,000 6,980	
(2) Cooling Capacity			kcal/h BTU/h W	6,180 24,720 7,190	
(3) Heating Capacity			kcal/h BTU/h W	6,400 25,600 7,440	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi_{706}^{20} Me_{600}^{17} Lo_{530}^{15}	55 1,942
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(290+15)×850×1,000 (11-13/32+19/32)×33-15/32×39-3/8	965×790×(320+34) 38×31-3/32×(12-19/32+1-11/32)
Net Weight			kg lbs	33 73	72 158
Piping connection	Refrigerant	Gas Liquid	mm (inch) mm (inch)	O.D. ϕ 15.88 (5/8) Flared type O.D. ϕ 9.52 (3/8) Flared type	
	Drain		mm	O.D.ϕ32	—
Compressor	Type, number of set			—	Hermetic-1 (Rotary)
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole-3phase induction motor
		Input	kW	—	Cool/Heat, 1.95/1.90
		Rated Output	kW	—	1.9
Fan	Type, number of set		unit	Turbo fan-1	Axial-flow fan-2
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	
		Input	kW	0.14	0.16
		Rated Output	kW	0.035	0.03×2
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ		DIAMOND MS-32(N-1)(1.3)
Refrigerant (Charged)			kg lbs	R-22	$R\text{-}22\frac{(2.3)}{(5.1)}$
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration rubber)
Safety Devices				High-pressure switch,Overcurrent relay,Internal thermostat,Drainover-flow switch,Bimetal thermostat,Phase protector	
Finish				Steel plate, Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi43, Me39, Lo35	54

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B. (95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-2.5TUHV4, CU-2.5CHV3			
Volts	V			220	380	400	415
Phase				3	3N	3N	3N
Power Consumption	kw	Cool		2.25	2.25	2.25	2.25
		Heat		2.20	2.20	2.20	2.20
Running Current	A	Cool		6.79	3.80	3.60	3.50
		Heat		6.59	3.70	3.50	3.40
Starting Current	A			49	27	27	27
*Power Factor	%	Cool		88.1	89.5	89.9	88.9
		Heat		88.9	89.9	90.5	89.6

*Power Factor means only compressor.

National	Power source 220V, 380V, 400V, 415V 50Hz
Panasonic	Power source 220V, 380V, 415V 50Hz

ITEM			MODEL	CS-3TUHV4 (Indoor Unit)	CU-3CHV11 (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	6,700 26,800 7,790	
(2) Cooling Capacity			kcal/h BTU/h W	7,000 28,000 8,140	
(3) Heating Capacity			kcal/h BTU/h W	7,100 28,400 8,260	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi_{706}^{20} Me_{600}^{17} Lo_{530}^{15}	55 1,941
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(290+15)×850×1,000 (11-13/32+19/32)×33-15/32×39-3/8	965×790×(320+34) 38×31-3/32×(12-19/32+1-11/32)
Net Weight			kg lbs	33 73	79 174
Piping connection	Refrigerant	Gas Liquid	mm (inch) mm (inch)	O.D. ϕ 15.88 (5/8) Flared type O.D. ϕ 9.52 (3/8) Flared type	
	Drain		mm	O.D.ϕ32	—
Compressor	Type, number of set			—	Hermetic-1
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole-3phase induction motor
		Input	kW	—	Coo/Heat, 2.41/2.03
		Rated Output	kW	—	2.2
Fan	Type, number of set		unit	Turbo-fan-1	Axial-flow fan-2
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	
		Input	kW	0.12	0.16
		Rated Output	kW	0.035	0.03×2
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ		SUNISO 3GSD (1.8)
Refrigerant (Charged)			kg lbs	R-22	$R\text{-}22\frac{(2.5)}{(5.5)}$
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration rubber)
Safety Devices				High-pressure switch,Overcurrent relay,Internal thermostat,Drainover-flow switch,Bimetal thermostat,Phase protector	
Finish				Steel plate, Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi43, Me39, Lo35	54

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B. (95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-3TUHV4, CU-3CHV11			
Volts	V			220	380	400	415
Phase				3	3N	3N	3N
Power Consumption	kw	Cool		2.69	2.69	2.69	2.69
		Heat		2.31	2.31	2.31	2.31
Running Current	A	Cool		9.19	5.20	4.90	4.80
		Heat		7.88	4.49	4.27	4.11
Starting Current	A			61.5	31.6	31.6	29.6
*Power Factor	%	Cool		83.1	82.3	82.0	82.2
		Heat		83.0	83.1	83.0	83.1

*Power Factor means only compressor.

National	Power source 220V, 380V, 400V, 415V 50Hz
Panasonic	Power source 220V, 380V, 415V 50Hz

ITEM			MODEL	CS-4TUHV4 (Indoor Unit)	CU-4CHV11 (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	9,000 36,000 10,470	
(2) Cooling Capacity			kcal/h BTU/h W	9,400 37,600 10,930	
(3) Heating Capacity			kcal/h BTU/h W	9,600 38,400 11,160	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi 28 (988) Me 23 (812) Lo 18 (635)	75 2,647
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(290+15)×950×1,350 (11-13/32+19/32)×37-13/32×53-5/32	1,065×880×(370+32) 41-15/16×32-21/32×(14-9/16+1-1/4)
Net Weight			kg lbs	49 108	96 211
Piping connection	Refrigerant	Gas	mm (inch)	O.D. φ 19.05 (3/4) Flared type	
		Liquid	mm (inch)	O.D. φ 9.52 (3/8) Flared type	
	Drain		mm	O.D.φ32	—
Compressor	Type, number of set			—	Hermetic-1
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole-3phase induction motor
		Input	kW	—	Cool/Heat, 3.35/3.02
		Rated Output	kW	—	2.5
Fan	Type, number of set		unit	Turbo fan-1	Axial-flow fan-2
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	6-pole Single phase induction motor
		Input	kW	0.20	0.22
		Rated Output	kW	0.1	0.07×2
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ		SUNISO 3GSD (1.8)
Refrigerant (Charged)			kg lbs	R-22	R-22 (3.2) (7.0)
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration rubber)
Safety Devices				High-pressure switch, Overcurrent relay, Internal thermostat, Drainover-flow switch, Bimetal thermostat, Phase protector	
Finish				Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi46, Me42, Lo39	56

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B. (95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-4TUHV4, CU-4CHV11			
Volts	V			220	380	400	415
Phase				3	3N	3N	3N
Power Consumption	kw	Cool		3.55	3.55	3.55	3.55
		Heat		3.22	3.22	3.22	3.22
Running Current	A	Cool		10.92	6.88	6.61	6.31
		Heat		9.92	6.30	6.06	5.78
Starting Current	A			74.4	40.4	40.4	39.3
*Power Factor	%	Cool		80.5	74.0	73.2	73.9
		Heat		79.9	72.8	71.9	72.7

*Power Factor means only compressor.

National	Power source 220V, 380V, 400V, 415V 50Hz
Panasonic	Power source 220V, 380V, 415V 50Hz

ITEM			MODEL	CS-5TUHV4 (Indoor Unit)	CU-5CHV11 (Outdoor Unit)
(1) Cooling Capacity			kcal/h BTU/h W	11,200 44,800 13,020	
(2) Cooling Capacity			kcal/h BTU/h W	11,650 46,600 13,550	
(3) Heating Capacity			kcal/h BTU/h W	12,200 48,800 14,190	
Standard Air Volume for High, Medium and Low speed			m³/min cfm	Hi 33 (1,165) Me 26 (918) Lo 20 (706)	85 3,001
External Static Pressure			mmAq in W.G.	0	—
Air Inlet				Lower sided Suction	Back sided Suction
Air Outlet				Lower sided blow-out	Front blow-out
Duct Connection				*1 Available	—
Outside Dimension (H×W×D)			mm inch	(290+15)×950×1,350 (11-13/32+19/32)×37-13/32×53-5/32	1,065×1,000×(370+32) 41-15/16×39-3/8×(14-9/16+1-1/4)
Net Weight			kg lbs	50 110	110 242
Piping connection	Refrigerant	Gas	mm (inch)	O.D. φ 19.05 (3/4) Flared type	
		Liquid	mm (inch)	O.D. φ 12.7 (1/2) Flared type	
	Drain		mm	O.D.φ32	—
Compressor	Type, number of set			—	Hermetic-1
	Starting Method			—	Direct on-line starting
	Capacity Control		%	—	0, 100
	Motor	Type		—	2-pole-3phase induction motor
		Input	kW	—	Cool/Heat, 4.58/4.39
		Rated Output	kW	—	3.75
Fan	Type, number of set		unit	Turbo fan-1	Axial-flow fan-2
	Air Volume Control			3-selective switch type	—
	Motor	Type		6-pole Single phase induction motor	6-pole Single phase induction motor
		Input	kW	0.20	0.22
		Rated Output	kW	0.1	0.07×2
Air-heat exchanger				Louver-fin type	
Refrigerant Control				Capillary tube	—
Refrigeration Oil (Charged)			ℓ		SUNISO 3GSD (2.3)
Refrigerant (Charged)			kg lbs	R-22	R-22 (4.3) (9.5)
Running Adjustment	Control Switch			Selective switch (Remote Control)	—
	Room Temperature Control			Thermostat	—
Anti-vibration and Anti-sound Materials				Cabinet (urethane foam attached)	Compressor (Anti-vibration rubber)
Safety Devices				High-pressure switch, Overcurrent relay, Internal thermostat, Drainover-flow switch	
Finish				Steel plate, Galvanized steel plate finished with baked acrylic-resin	
Noise	High, Medium, Low		dB(A)	Hi48, Me43, Lo40	56

(1) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B. (67.1° F.W.B.) and outdoor air temp. 35° C.D.B.(95° F.D.B.), 24° C.W.B. (75.2° F.W.B.).
(2) Cooling capacities are based on indoor temp. 27° C.D.B. (80.6° F.D.B.), 19.5° C.W.B.) and outdoor air temp. 32° C.D.B. (89.5° F.D.B.), 24°C.W.B. (75.2°F.W.B.).
(3) Heating capacities are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (42.8°F.W.B.).
(4) *1 Supply duct and fresh air duct are available. Suppy duct requires the special parts.

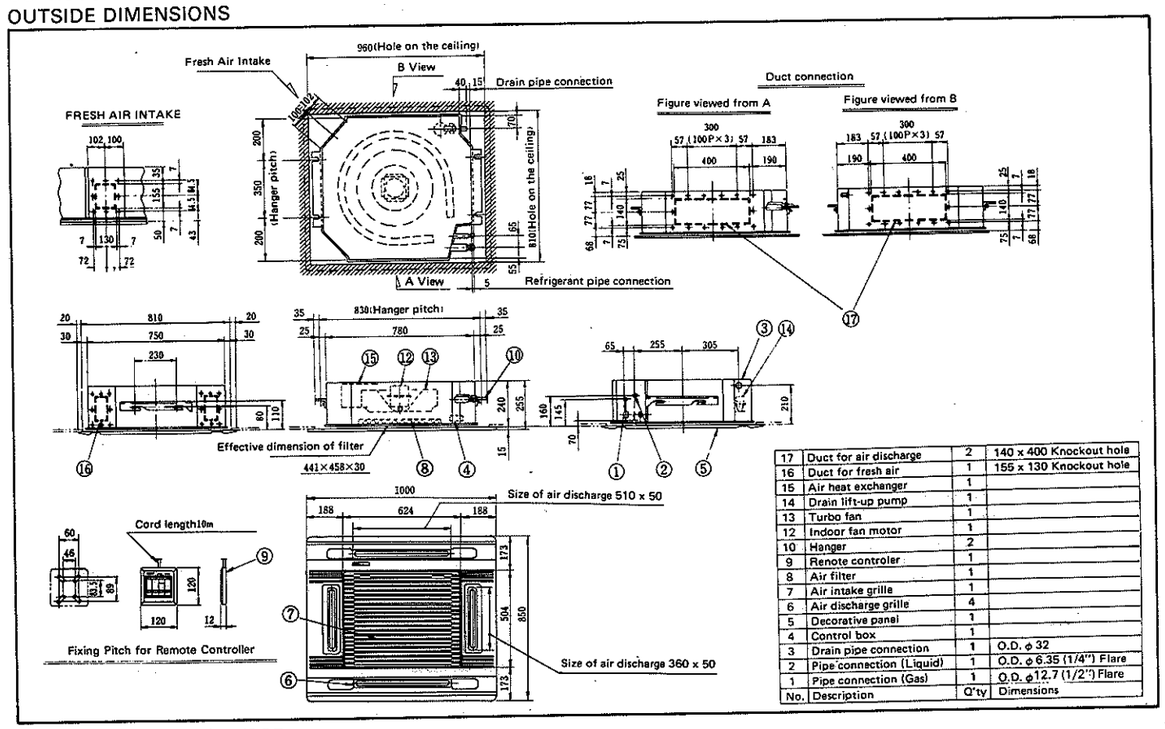
ELECTRICAL DATA (50Hz)

ITEM			MODEL	CS-5TUHV4, CU-5CHV11			
Volts	V			220	380	400	415
Phase				3	3N	3N	3N
Power Consumption	kw	Cool		4.78	4.78	4.78	4.78
		Heat		4.39	4.39	4.39	4.39
Running Current	A	Cool		14.56	9.00	8.62	8.25
		Heat		13.46	8.36	8.01	7.66
Starting Current	A			105.7	60.4	60.4	55.2
*Power Factor	%	Cool		82.6	77.3	76.7	77.2
		Heat		85.6	79.8	79.1	79.7

*Power Factor means only compressor.

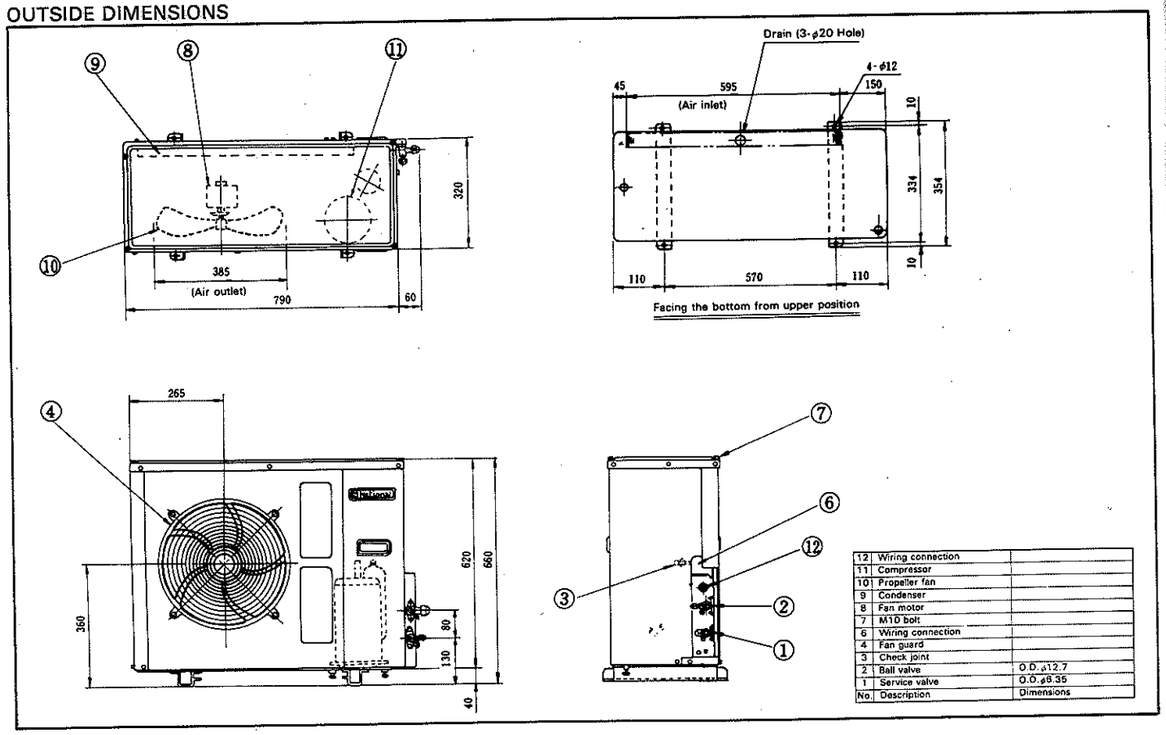
National	Power source 220V, 380V, 400V, 415V 50Hz
Panasonic	Power source 220V, 380V, 415V 50Hz

CS-1.5TUHV4SA, 1.5TUHV4SAP
OUTSIDE DIMENSIONS



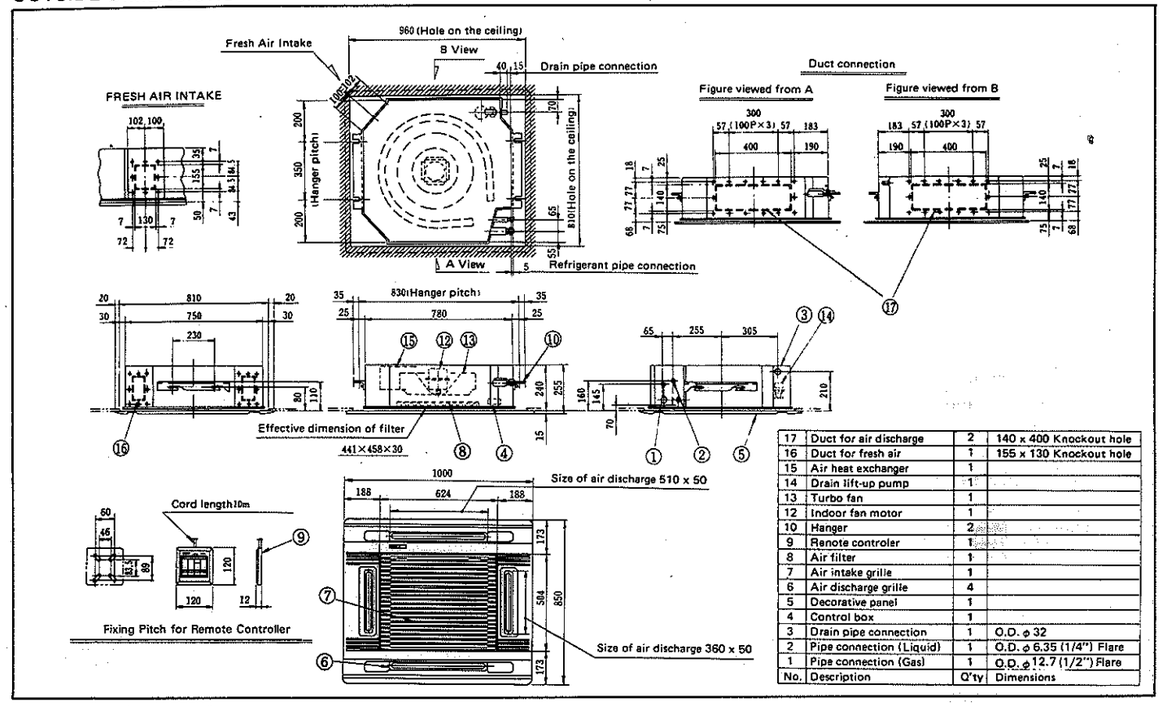
No.	Description	Q'ty	Dimensions
17	Duct for air discharge	2	140 x 400 Knockout hole
16	Duct for fresh air	1	155 x 130 Knockout hole
15	Air heat exchanger	1	
14	Drain lift-up pump	1	
13	Turbo fan	1	
12	Indoor fan motor	1	
10	Hanger	2	
9	Remote controler	1	
8	Air filter	1	
7	Air intake grille	1	
6	Air discharge grille	4	
5	Decorative panel	1	
4	Control box	1	
3	Drain pipe connection	1	O.D. ϕ 32
2	Pipe connection (Liquid)	1	O.D. ϕ 6.35 (1/4") Flare
1	Pipe connection (Gas)	1	O.D. ϕ12.7 (1/2") Flare

CU-1.5CHV3S, 1.5CHV3SP
OUTSIDE DIMENSIONS



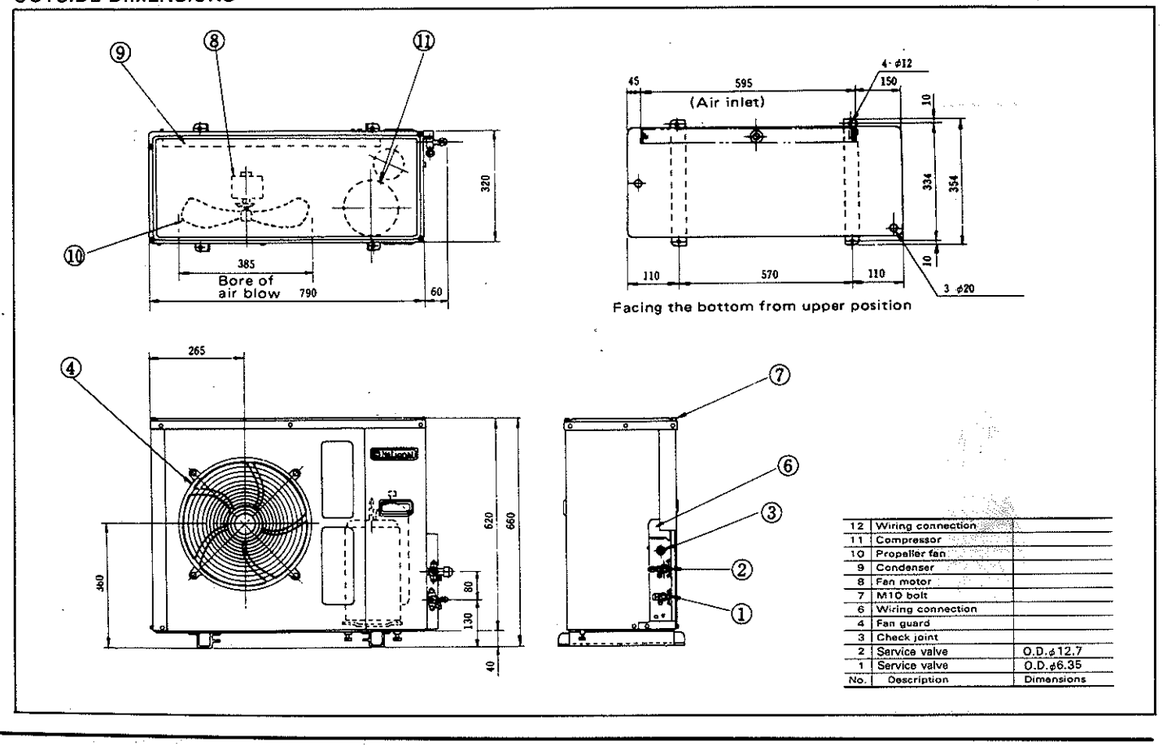
No.	Description	Dimensions
12	Wiring connection	
11	Compressor	
10	Propeller fan	
9	Condenser	
8	Fan motor	
7	M10 bolt	
6	Wiring connection	
4	Fan guard	
3	Check joint	
2	Ball valve	O.D.ϕ12.7
1	Service valve	O.D.ϕ6.35

CS-2TUHV4S, 2TUHV4SP
OUTSIDE DIMENSIONS



No.	Description	Q'ty	Dimensions
17	Duct for air discharge	2	140 x 400 Knockout hole
16	Duct for fresh air	1	155 x 130 Knockout hole
15	Air heat exchanger	1	
14	Drain lift-up pump	1	
13	Turbo fan	1	
12	Indoor fan motor	1	
10	Hanger	2	
9	Remote controler	1	
8	Air filter	1	
7	Air intake grille	1	
6	Air discharge grille	4	
5	Decorative panel	1	
4	Control box	1	
3	Drain pipe connection	1	O.D. ϕ 32
2	Pipe connection (Liquid)	1	O.D. ϕ 6.35 (1/4") Flare
1	Pipe connection (Gas)	1	O.D. ϕ12.7 (1/2") Flare

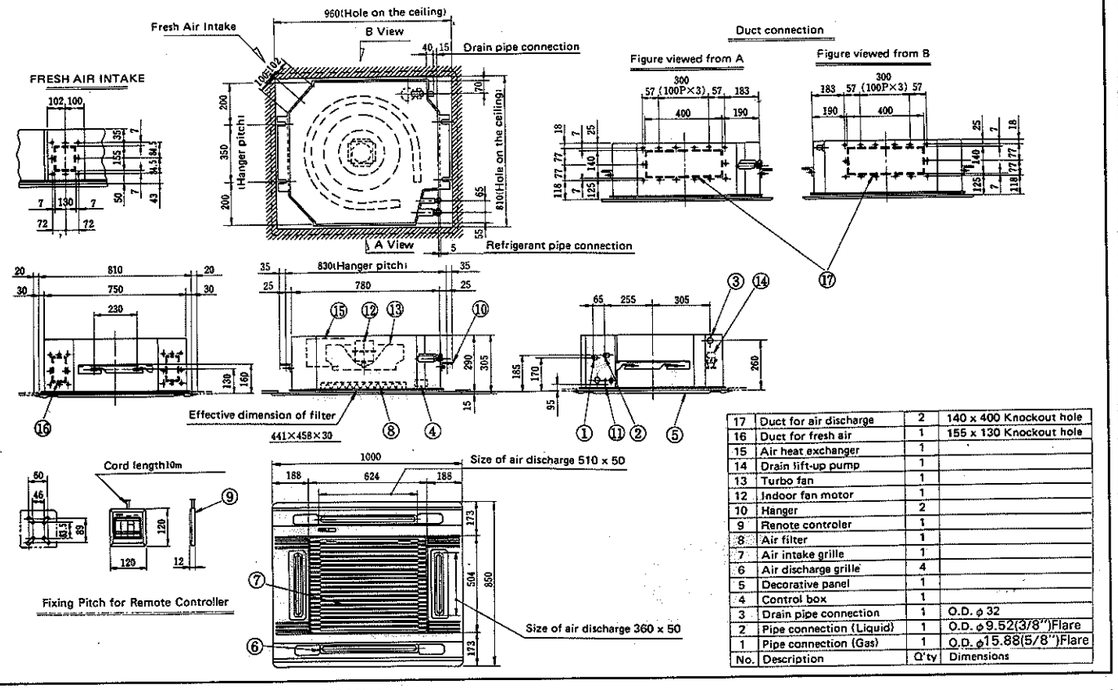
CU-2CHV3S, 2CHV3SP
OUTSIDE DIMENSIONS



No.	Description	Dimensions
12	Wiring connection	
11	Compressor	
10	Propeller fan	
9	Condenser	
8	Fan motor	
7	M10 bolt	
6	Wiring connection	
4	Fan guard	
3	Check joint	
2	Service valve	O.D.ϕ12.7
1	Service valve	O.D.ϕ6.35

CS-2.5TUHV4, 2.5TUHV4P, 3TUHV4, 3TUHV4P

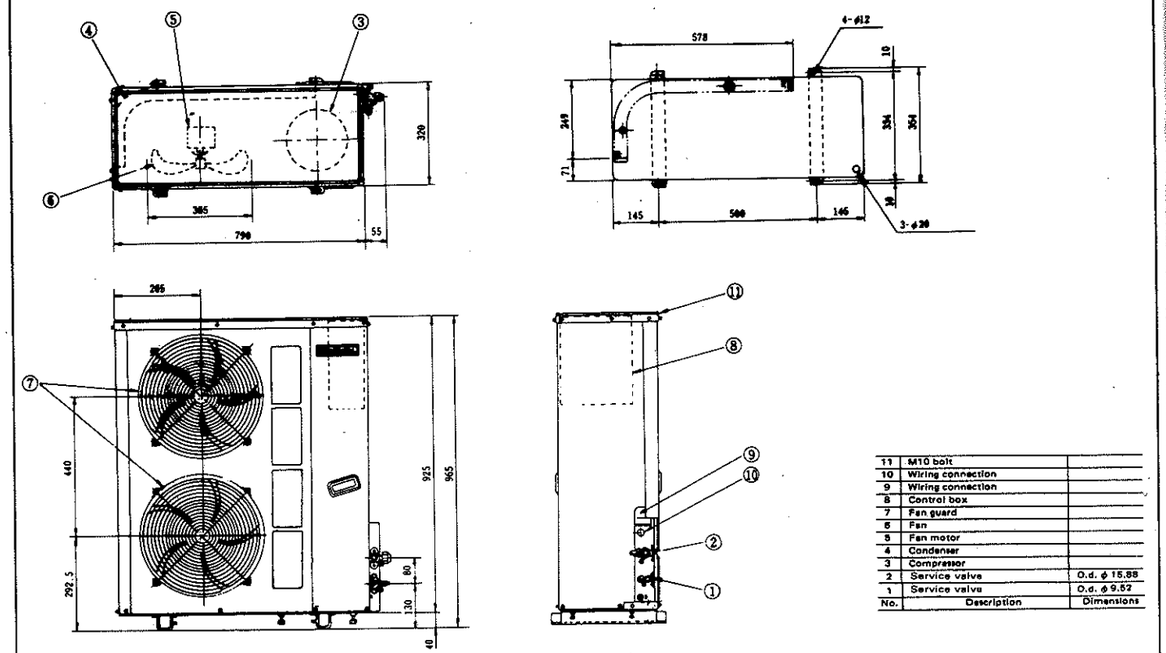
OUTSIDE DIMENSIONS



No.	Description	Q'ty	Dimensions
17	Duct for air discharge	2	140 x 400 Knockout hole
16	Duct for fresh air	1	155 x 130 Knockout hole
15	Air heat exchanger	1	
14	Drain lift-up pump	1	
13	Turbo fan	1	
12	Indoor fan motor	1	
10	Hanger	2	
9	Remote controler	1	
8	Air filter	1	
7	Air intake grille	1	
6	Air discharge grille	4	
5	Decorative panel	1	
4	Control box	1	
3	Drain pipe connection	1	O.D. ϕ 32
2	Pipe connection (Liquid)	1	O.D. ϕ9.52(3/8")Flare
1	Pipe connection (Gas)	1	O.D. ϕ15.88(5/8")Flare

CU-2.5CHV3, 2.5CHV3P, 3CHV11, 3CHV11P

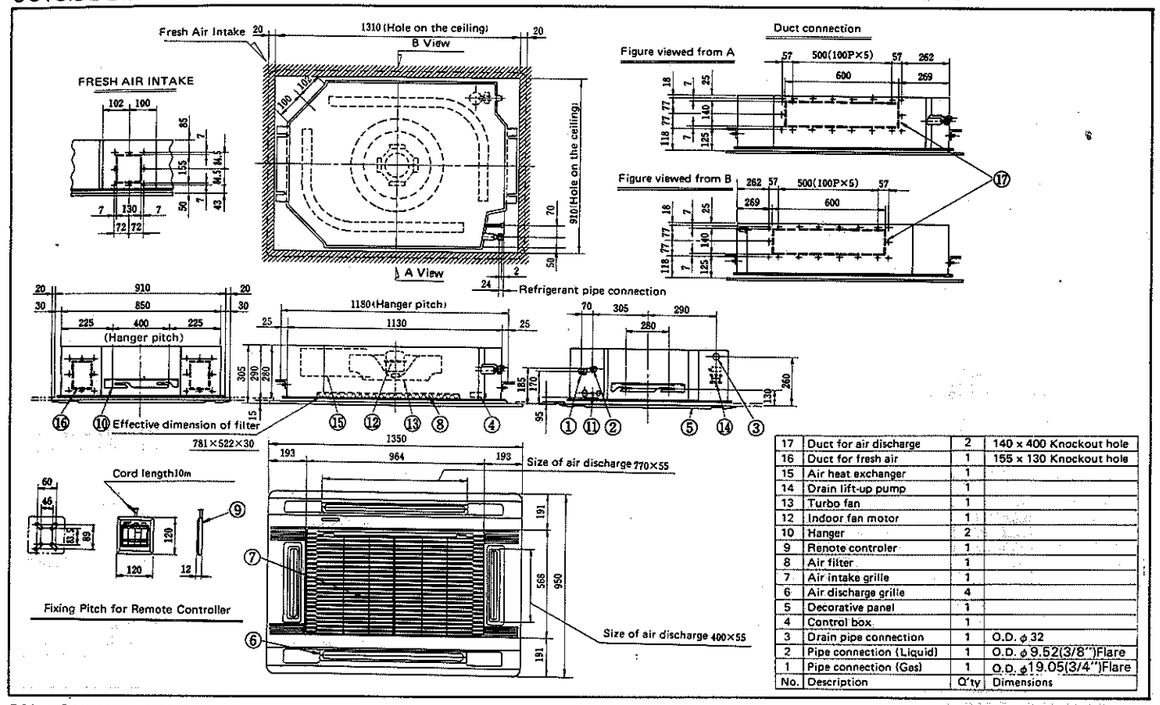
OUTSIDE DIMENSIONS



No.	Description	Dimensions
11	M10 bolt	
10	Wiring connection	
9	Wiring connection	
8	Control box	
7	Fan guard	
6	Fan	
5	Fan motor	
4	Condenser	
3	Compressor	
2	Service valve	O.d. ϕ 15.88
1	Service valve	O.d. ϕ 9.52

CS-4TUHV4, 4TUHV4P

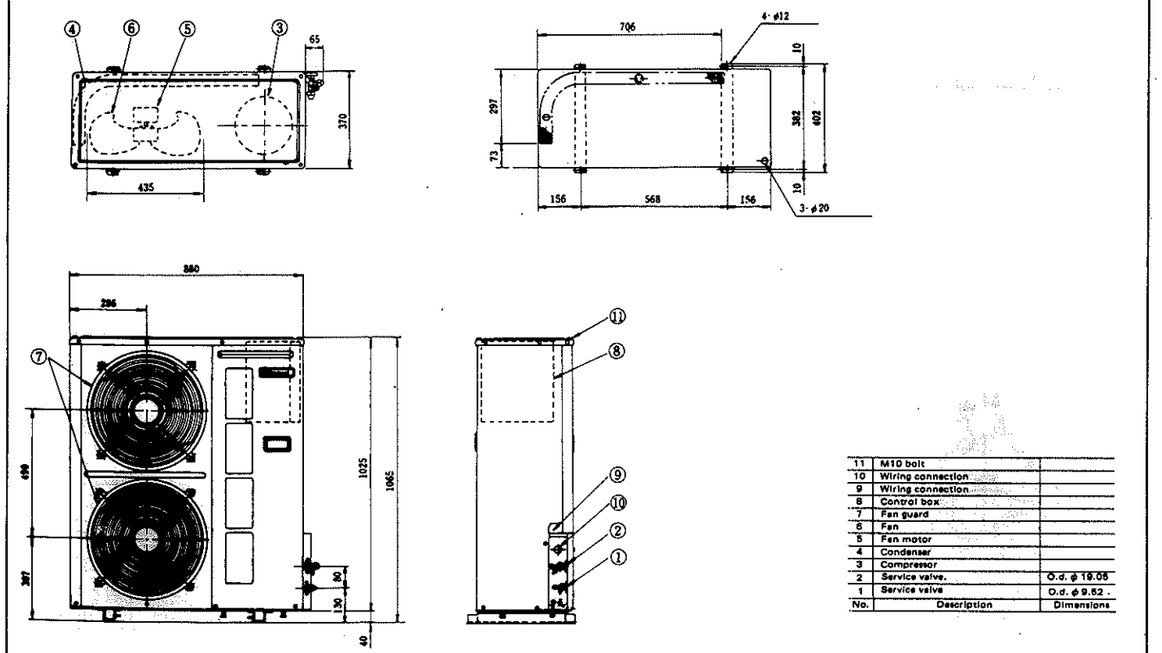
OUTSIDE DIMENSIONS



No.	Description	Q'ty	Dimensions
17	Duct for air discharge	2	140 x 400 Knockout hole
16	Duct for fresh air	1	155 x 130 Knockout hole
15	Air heat exchanger	1	
14	Drain lift-up pump	1	
13	Turbo fan	1	
12	Indoor fan motor	1	
10	Hanger	2	
9	Remote controler	1	
8	Air filter	1	
7	Air intake grille	1	
6	Air discharge grille	4	
5	Decorative panel	1	
4	Control box	1	
3	Drain pipe connection	1	O.D. ϕ 32
2	Pipe connection (Liquid)	1	O.D. ϕ 9.52(3/8")Flare
1	Pipe connection (Gas)	1	O.D. ϕ19.05(3/4")Flare

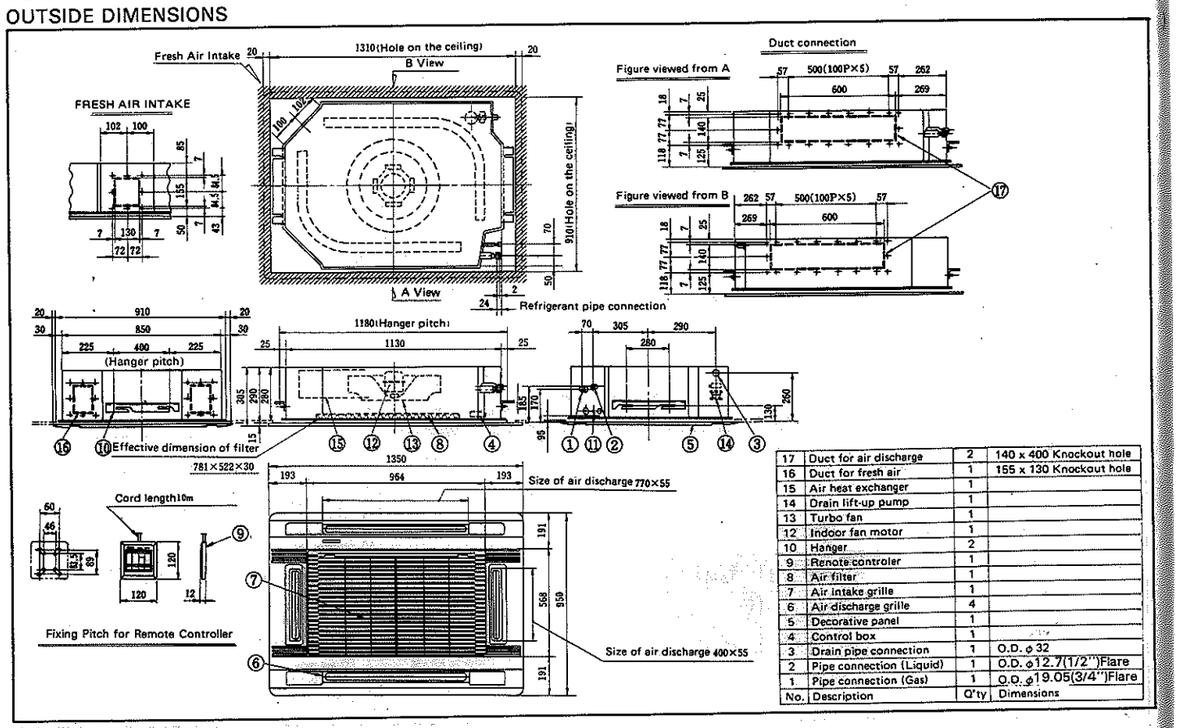
CU-4CHV11, 4CHV11P

OUTSIDE DIMENSIONS



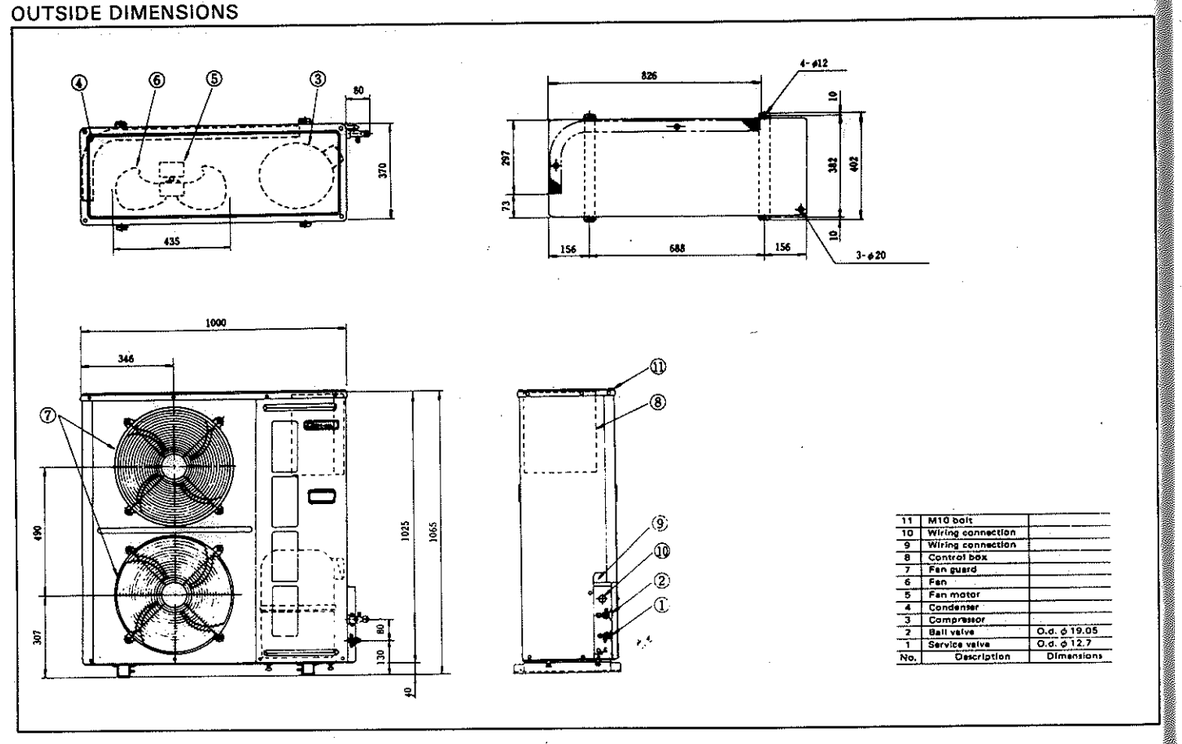
No.	Description	Dimensions
11	M10 bolt	
10	Wiring connection	
9	Wiring connection	
8	Control box	
7	Fan guard	
6	Fan	
5	Fan motor	
4	Condenser	
3	Compressor	
2	Service valve.	O.d. ϕ 19.05
1	Service valve	O.d. ϕ 9.52 .

CS-5TUHV4, 5TUHV4P
OUTSIDE DIMENSIONS



No.	Description	Q'ty	Dimensions
17	Duct for air discharge	2	140 x 400 Knockout hole
16	Duct for fresh air	1	155 x 130 Knockout hole
15	Air heat exchanger	1	
14	Drain lift-up pump	1	
13	Turbo fan	1	
12	Indoor fan motor	1	
10	Hanger	2	
9	Remote controler	1	
8	Air filter	1	
7	Air intake grille	1	
6	Air discharge grille	4	
5	Decorative panel	1	
4	Control box	1	
3	Drain pipe connection	1	O.D. φ32
2	Pipe connection (Liquid)	1	O.D. φ12.7(1/2")Flare
1	Pipe connection (Gas)	1	O.D. φ19.05(3/4")Flare

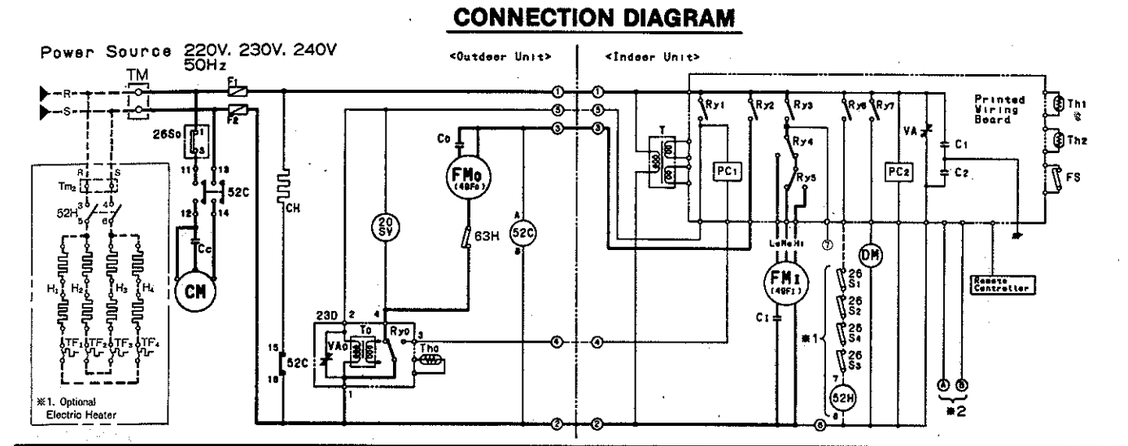
CU-5CHV11, 5CHV11P
OUTSIDE DIMENSIONS



No.	Description	Dimensions
11	M10 bolt	
10	Wiring connection	
9	Wiring connection	
8	Control box	
7	Fan guard	
6	Fan	
5	Fan motor	
4	Condenser	
3	Compressor	
2	Ball valve	O.d. φ19.05
1	Service valve	O.d. φ12.7

CS-1.5TUHV4SA, 1.5TUHV4SAP

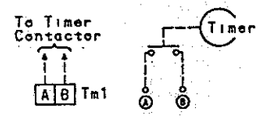
CONNECTION DIAGRAM



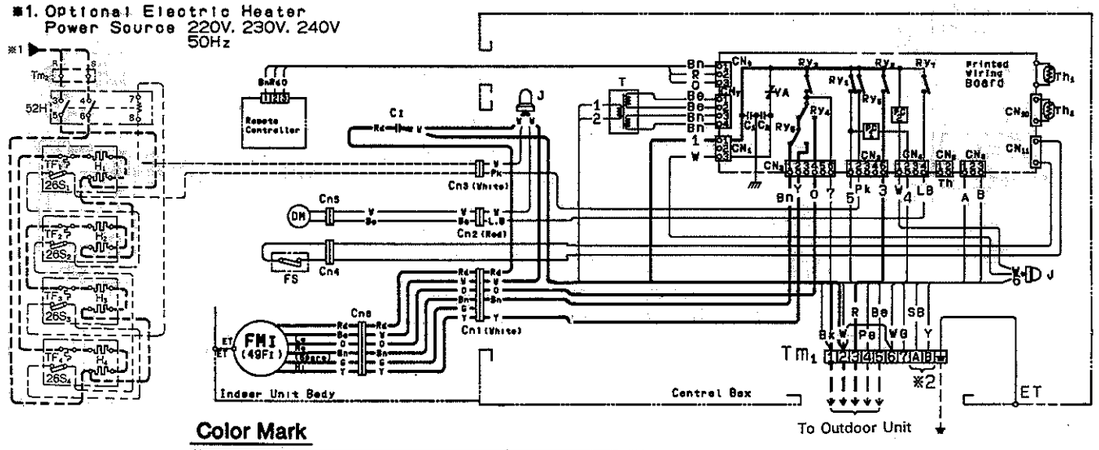
Relay / Operation	Ryo	Ry1	Ry2	Ry3	Ry4	Ry5	Ry6	Ry7
Relay-on	Defrost Mode (Outdoor Fan-OFF)	Heat Mode (Including Defrost)	Compressor, Outdoor Fan Motor-ON	Indoor Fan Motor-ON	Indoor Fan Motor-Low Speed	Indoor Fan Motor-High Speed	Heater (Option)-ON	Drain up Motor-ON

(Note) ※1. For use of an electric heater (option)
1-1. Connect the contactor of "52H" and power source to "Tm_2" R and S.
1-2. Connect the coil of "52H" and the protector "$26S_1$, $26S_2$, $26S_4$, $26S_3$" to the connector in the control box.

※2. For use of a timer (locally supplied)
2-1. Connect the contactor of the timer to "Tm_1" A and B.



WIRING CONNECTION



Color Mark

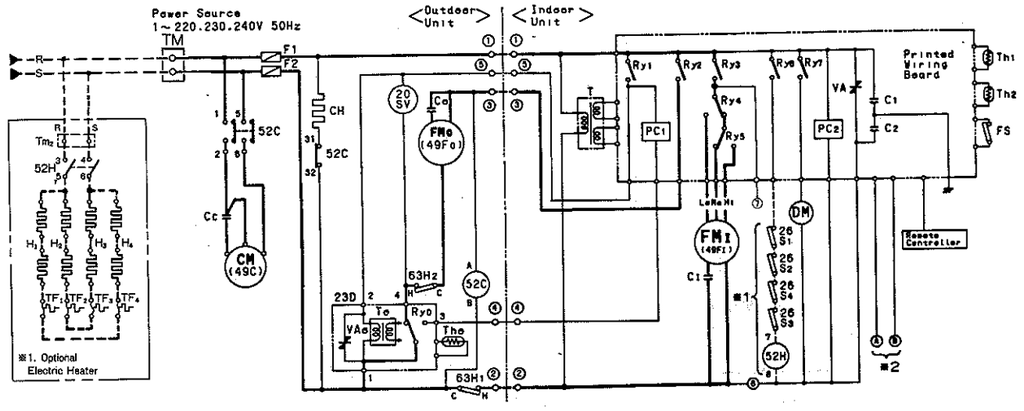
Be	Blue	G	Gray	Pe	Purple	S•B	Sky Blue
Bk	Black	L•B	Light Blue	Pk	Pink	W	White
Bn	Brown	O	Orange	Rd	Red	Y	Yellow

LEGEND

Indoor Unit				Outdoor Unit			
$49F_1$	Internal Thermostat for FM_1	$CN_{1\sim11}$	Connector	20SV	Reversing Valve	CH	Crankcase Heater for CM
C_1	Capacitor for FM_1	$PC_{1,2}$	Photo Coupler	23D	Defrost Thermostat	CM	Compressor Motor
$CN_{1\sim6}$	Connector	$Ry_{1\sim7}$	Relay for IC Control		Ryo Relay	Co	Capacitor for FMo
DM	Drain up Motor	Th_1	Thermistor (Indoor Temperature)		To Transformer	$F_{1,2}$	Fuse (5A)
ET	Earth Terminal	Th_2	Thermistor (Indoor Heat Exchanger)		Tho Thermistor	FMo	Fan Motor (Outdoor Unit)
FM_1	Fan Motor (Indoor Unit)	VA	Varistor		VAo Varistor		
FS	Float Switch (Line Cut)		※1 Heater (Option)	26So	Bimetal Thermostat for CM		
J	Junction	$26S_{1\sim4}$	Bimetal Thermostat for H	49Fo	Internal Thermostat for FMo		
T	Transformer	52H	Magnetic Contactor for H	52C	Magnetic Contactor for CM		
Tm_1	Terminal Board for Control Circuit	$H_{1\sim4}$	Electric Heater	63H	Pressure Switch (High Pressure on Heat-pump)		
	Printed Wiring Board	$TF_{1\sim4}$	Thermometric Fuse for H				
$C_{1,2}$	Capacitor	Tm_2	Terminal Board for H	Cc	Capacitor for CM		

CS-2TUHV4S, 2TUHV4SP

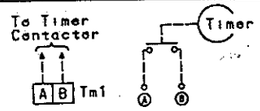
CONNECTION DIAGRAM



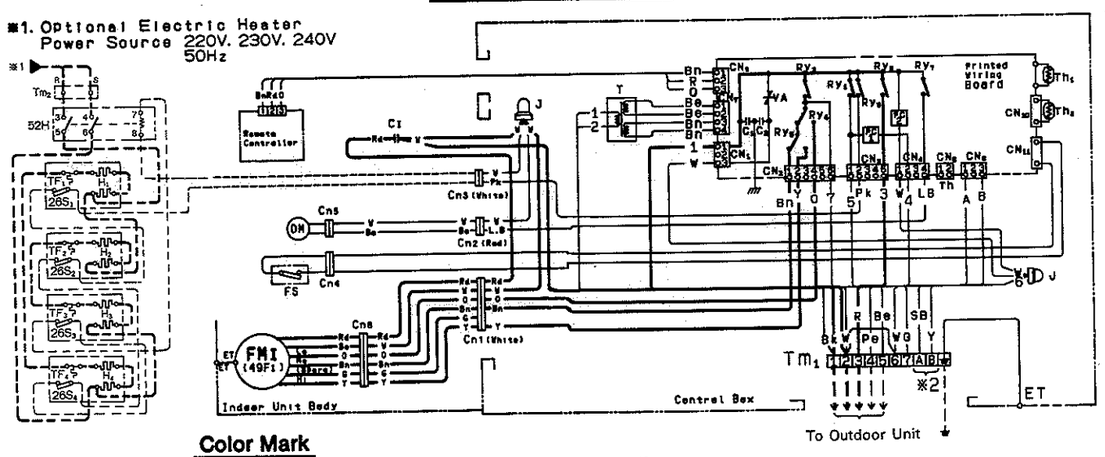
Relay	Ryo	Ry1	Ry2	Ry3	Ry4	Ry5	Ry6	Ry7
Operation / Relay-on	Defrost Mode (Outdoor Fan-OFF)	Heat Mode (Including Defrost)	Compressor, Outdoor Fan Motor-ON	Indoor Fan Motor-ON	Indoor Fan Motor-Low Speed	Indoor Fan Motor-High Speed	Heater (Option)-ON	Drain up Motor-ON

(Note) ※1. For use of an electric heater (option)
1-1. Connect the contactor of "52H" and power source to "Tm_2" R and S.
1-2. Connect the coil of "52H" and the protector "$26S_1$, $26S_2$, $26S_4$, $26S_3$" to the connector in the control box.

※2. For use of a timer (locally supplied)
2-1. Connect the contactor of the timer to "Tm_1" A and B.



WIRING CONNECTION



Color Mark

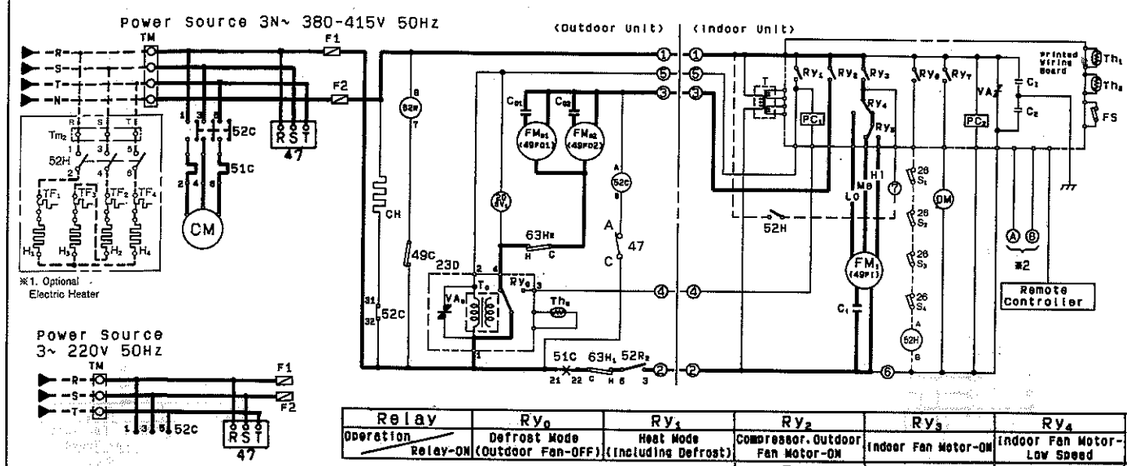
Be	Blue	G	Gray	Pe	Purple	S·B	Sky Blue
Bk	Black	L·B	Light Blue	Pk	Pink	W	White
Bn	Brown	O	Orange	Rd	Red	Y	Yellow

LEGEND

Indoor Unit				Outdoor Unit			
$49F_1$	Internal Thermostat for FM_1	$CN_{1\sim11}$	Connector	20SV	Reversing Valve	CH	Crankcase Heater for CM
C_1	Capacitor for FM_1	$PC_{1,2}$	Photo Coupler	23D	Defrost Thermostat	CM	Compressor Motor
$Cn_{1\sim6}$	Connector	$Ry_{1\sim7}$	Relay for IC Control		Ryo Relay	Co	Capacitor for FMo
DM	Drain up Motor	Th_1	Thermistor (Indoor Temperature)		To Transformer	$F_{1,2}$	Fuse (5A)
ET	Earth Terminal	Th_2	Thermistor (Indoor Heat Exchanger)		Tho Thermistor	FMo	Fan Motor (Outdoor Unit)
FM_1	Fan Motor (Indoor Unit)	VA	Varistor		VAo Varistor	$63H_1$	High Pressur Switch
FS	Float Switch (Line Cut)		※1 Heater (Option)	26So	Bimetal Thermostat for CM		
J	Junction	$26S_{1\sim4}$	Bimetal Thermostat for H	49Fo	Internal Thermostat for FMo		
T	Transformer	52H	Magnetic Contactor for H	52C	Magnetic Contactor for CM		
Tm_1	Terminal Board for Control Circuit	$H_{1\sim4}$	Electric Heater	$63H_2$	Pressure Switch (High Pressure on Heat-pump)		
	Printed Wiring Board	$TF_{1\sim4}$	Thermometric Fuse for H				
$C_{1,2}$	Capacitor	Tm_2	Terminal Board for H	Cc	Capacitor for CM		

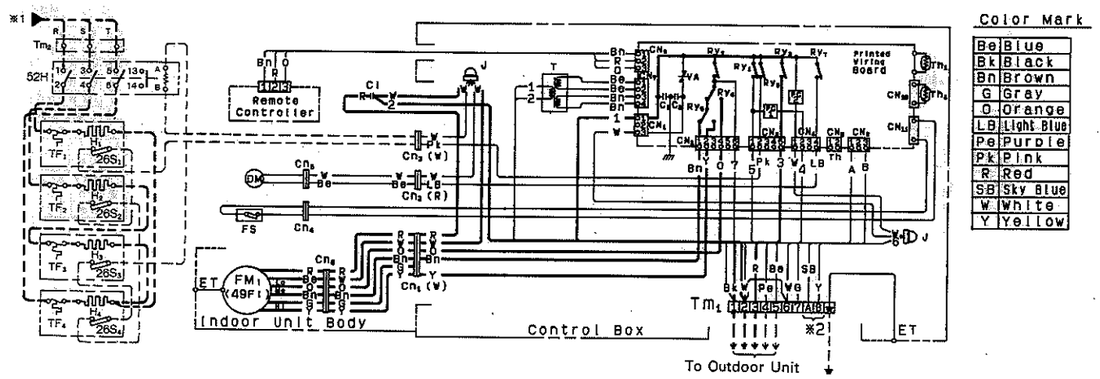
CS-2.5TUHV4, 2.5TUHV4P

CONNECTION DIAGRAM



Relay	Ry_0	Ry_1	Ry_2	Ry_3	Ry_4
Operation / Relay-ON	Defrost Mode (Outdoor Fan-OFF)	Heat Mode (Including Defrost)	Compressor, Outdoor Fan Motor-ON	Indoor Fan Motor-ON	Indoor Fan Motor-Low Speed
			Ry_5	Ry_6	Ry_7
			Indoor Fan Motor-High Speed	Heater (Option)-ON	Drain up Motor-ON

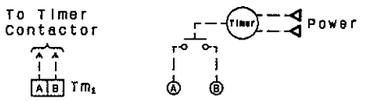
WIRING CONNECTION



Color Mark	
Be	Blue
Bk	Black
Bn	Brown
G	Gray
O	Orange
LB	Light Blue
Pe	Purple
Pk	Pink
R	Red
SB	Sky Blue
W	White
Y	Yellow

<Note> ※1. For use of an electric heater (option)
1-1. Connect the contactor of "52H" and power source to "Tm_2".
1-2. Connect the coil of "52H" and the protector to the connector in the control box.

※2. For use of a timer (locally supplid)
2-1. Conncet the contactor of the timer to "Tm_1" A and B.

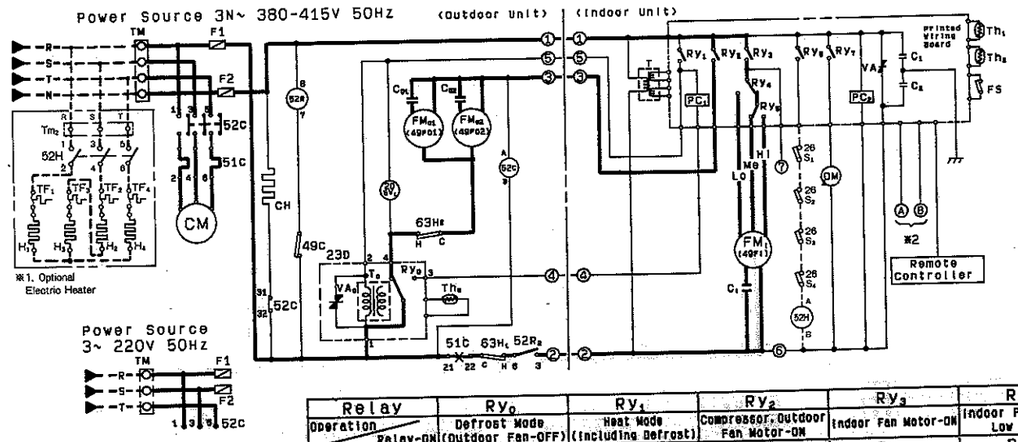


LEGEND

Indoor Unit				Outdoor Unit			
$49F_1$	Internal Thermostat for FM_1	$CN_{1\sim11}$	Connector	20SV	Reversing Valve	CH	Crankcase Heater for CM
C_1	Capacitor for FM_1	$PC_{1,2}$	Photo Coupler	23D	Defrost Thermostat	CM	Compressor Motor
$Cn_{1\sim6}$	Connector	$Ry_{1\sim7}$	Relay for IC Control		Ryo Relay	Co	Capacitor for FMo
DM	Drain up Motor	Th_1	Thermistor (Indoor Temperature)		To Transformer	$F_{1,2}$	Fuse (5A)
ET	Earth Terminal	Th_2	Thermistor (Indoor Heat Exchanger)		Tho Thermistor	FMo	Fan Motor (Outdoor Unit)
FM_1	Fan Motor (Indoor Unit)	VA	Varistor		VAo Varistor	47	Phase Protector
FS	Float Switch (Line Cut)		※1 Heater (Option)	26So	Bimetal Thermostat for CM	51C	Overcurrent Relay for CM
J	Junction	$26S_{1\sim4}$	Bimetal Thermostat for H	49Fo	Internal Thermostat for FMo		
T	Transformer	52H	Magnetic Contactor for H	52C	Magnetic Contactor for CM		
Tm_1	Terminal Board for Control Circuit	$H_{1\sim4}$	Electric Heater	63H	Pressure Switch (High Pressure on Heat-pump)		
	Printed Wiring Board	$TF_{1\sim4}$	Thermometric Fuse for H				
$C_{1,2}$	Capacitor	Tm_2	Terminal Board for H	Cc	Capacitor for CM		

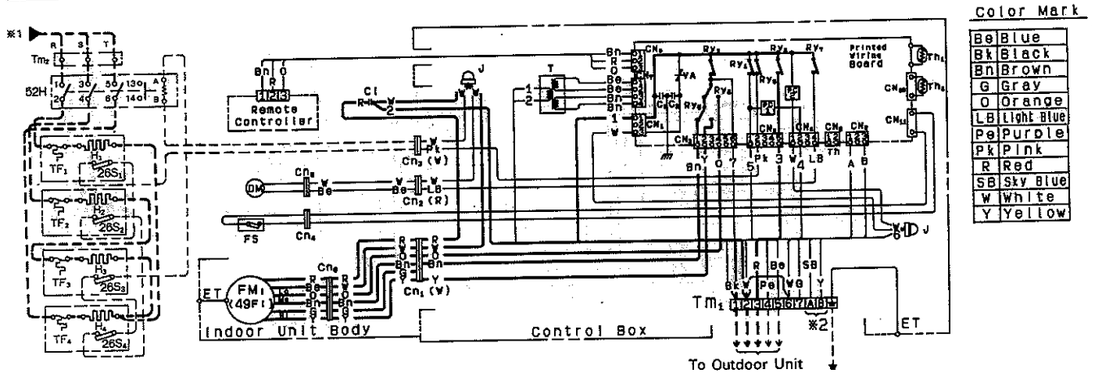
CS-3TUHV4, 3TUHV4P

CONNECTION DIAGRAM



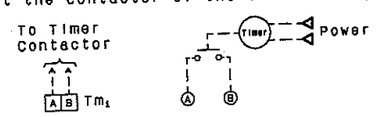
Relay / Operation	Ry_0	Ry_1	Ry_2	Ry_3	Ry_4
Relay-ON	Defrost Mode (Outdoor Fan-OFF)	Heat Mode (Including Defrost)	Compressor, Outdoor Fan Motor-ON	Indoor Fan Motor-ON	Indoor Fan Motor-Low Speed
			Ry_5	Ry_6	Ry_7
			Indoor Fan Motor-High Speed	Heater(Option)-ON	Drain up Motor-ON

WIRING CONNECTION



<Note> ※1. For use of an electric heater(option)
1-1. Connect the contactor of "52H" and power source to "Tm_2".
1-2. Connect the coil of "52H" and the protector to the connector in the control box.

※2. For use of a timer(locally supplid)
2-1. Conncet the contactor of the timer to "Tm_1" A and B.

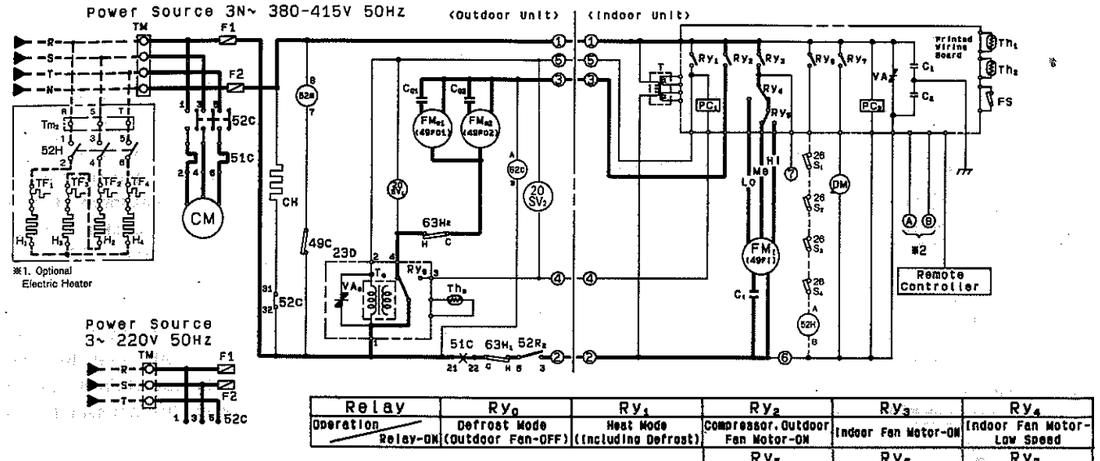


LEGEND

Indoor Unit				Outdoor Unit			
$49F_1$	Internal Thermostat for FM_1	$CN_{1\sim11}$	Connector	20SV	Reversing Valve	CH	Crankcase Heater for CM
C_1	Capacitor for FM_1	$PC_{1,2}$	Photo Coupler	23D	Defrost Thermostat	CM	Compressor Motor
$CN_{1\sim6}$	Connector	$Ry_{1\sim7}$	Relay for IC Control		Ryo Relay	Co	Capacitor for FMo
DM	Drain up Motor	Th_1	Thermistor (Indoor Temperature)		To Transformer	$F_{1,2}$	Fuse (5A)
ET	Earth Terminal	Th_2	Thermistor (Indoor Heat Exchanger)		Tho Thermistor	FMo	Fan Motor (Outdoor Unit)
FM_1	Fan Motor (Indoor Unit)	VA	Varistor		VAo Varistor	51C	Overcurrent Relay for CM
FS	Float Switch (Line Cut)		※1 Heater (Option)	26So	Bimetal Thermostat for CM		
J	Junction	$26S_{1\sim4}$	Bimetal Thermostat for H	49Fo	Internal Thermostat for FMo		
T	Transformer	52H	Magnetic Contactor for H	52C	Magnetic Contactor for CM		
Tm_1	Terminal Board for Control Circuit	$H_{1\sim4}$	Electric Heater	63H	Pressure Switch (High Pressure on Heat-pump)		
	Printed Wiring Board	$TF_{1\sim4}$	Thermometric Fuse for H	Cc	Capacitor for CM		
$C_{1,2}$	Capacitor	Tm_2	Terminal Board for H				

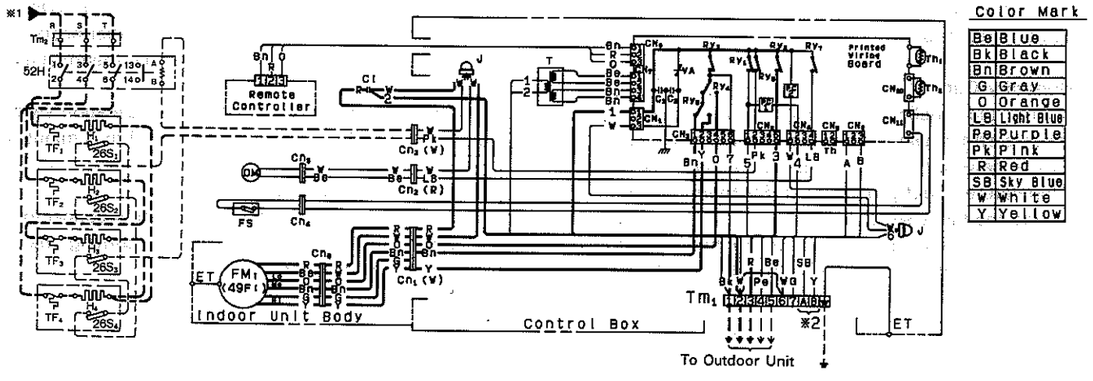
CS-4TUHV4, 4TUHV4P, 5TUHV4, 5TUHV4P

CONNECTION DIAGRAM



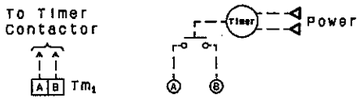
Relay / Operation	Ry_0	Ry_1	Ry_2	Ry_3	Ry_4
Relay-ON	Defrost Mode (Outdoor Fan-OFF)	Heat Mode (Including Defrost)	Compressor, Outdoor Fan Motor-ON	Indoor Fan Motor-ON	Indoor Fan Motor-Low Speed
			Ry_5	Ry_6	Ry_7
			Indoor Fan Motor-High Speed	Heater(Option)-ON	Drain up Motor-ON

WIRING CONNECTION



<Note> ※1. For use of an electric heater(option)
1-1. Connect the contactor of "52H" and power source to "Tm_2".
1-2. Connect the coil of "52H" and the protector to the connector in the control box.

※2. For use of a timer(locally supplid)
2-1. Conncet the contactor of the timer to "Tm_1" A and B.



LEGEND

Indoor Unit				Outdoor Unit			
$49F_1$	Internal Thermostat for FM_1	$CN_{1\sim11}$	Connector	$20SV_1$	Reversing Valve	CH	Crankcase Heater for CM
C_1	Capacitor for FM_1	$PC_{1,2}$	Photo Coupler	23D	Defrost Thermostat	CM	Compressor Motor
$CN_{1\sim6}$	Connector	$Ry_{1\sim7}$	Relay for IC Control		Ryo Relay	Co	Capacitor for FMo
DM	Drain up Motor	Th_1	Thermistor (Indoor Temperature)		To Transformer	$F_{1,2}$	Fuse (10A)
ET	Earth Terminal	Th_2	Thermistor (Indoor Heat Exchanger)		Tho Thermistor	FMo	Fan Motor (Outdoor Unit)
FM_1	Fan Motor (Indoor Unit)	VA	Varistor		VAo Varistor	49C	Internal Thermostat for CM
FS	Float Switch (Line Cut)		※1 Heater (Option)	26So	Bimetal Thermostat for CM	$63H_1$	High Pressure Switch
J	Junction	$26S_{1\sim4}$	Bimetal Thermostat for H	49Fo	Internal Thermostat for FMo	$20SV_2$	Bypass Magnetic Valve
T	Transformer	52H	Magnetic Contactor for H	52C	Magnetic Contactor for CM	51C	Overcurrent Relay for CM
Tm_1	Terminal Board for Control Circuit	$H_{1\sim4}$	Electric Heater	$63H_2$	Pressure Switch (High Pressure on Heat-pump)		
	Printed Wiring Board	$TF_{1\sim4}$	Thermometric Fuse for H				
$C_{1,2}$	Capacitor	Tm_2	Terminal Board for H	Cc	Capacitor for CM		

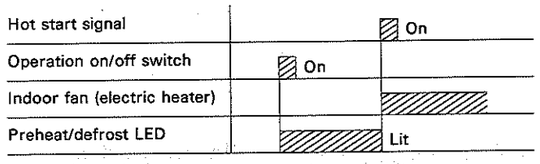
90-02

Microprocessor Control

① **Hot start**

When operation starts or defrosting is completed, the indoor fan and separately sold electric heater turn off until the conditions shown below are met.
The preheat/defrost LED lights during hot starting.
Once hot starting after defrosting is completed, the indoor fan is forced to run on low for two minutes.

Conditions		When operation starts	After defrosting
Thermal exchanger thermistor or time safe	Thermistor	18°C or greater	
	Time safe	30 seconds	3 minutes



② **Freezing Prevention**

During the cooling operation, if the thermal exchanger thermistor temperature is 2°C or below after the thermostat has been on for over 9 minutes, the thermostat is automatically turned off for 3 minutes. After this, it stays off until the thermal exchanger thermistor temperature reaches 15°C or greater.

③ **Humidity Cut**

During the cooling operation, if the thermostat remains off for over 9 minutes and the room temperature is between the set temperature and the reset temperature, the dry mode is set, the thermostat turns on and the fan is set to low.
Normal operation resumes once the room temperature reaches the set temperature. Also, the thermostat is turned off and normal operation resumes 3 minutes after the room temperature drops below the reset temperature.

④ **Restart prevention**

The thermostat does not turn on for 3 minutes after it turned off. (3-minutes lock)

⑤ **Test operation**

In the cooling and heating modes, the thermostat circuit automatically turns on if the test operation switch is turned on within 1 minute after the operation on/off switch is turned on. The test operation LED lights at this time.
The test operation is turned off by pressing the test operation switch once again, setting the unit back to the normal operating mode. It is also turned off when the operation on/off switch is turned back on. The test operation is possible for a maximum of 20 minutes, at which time the unit is set back to the normal operating mode and the test operation LED turns off.

⑥ **Timer**

The timer operates when the timer pins (Ⓐ and Ⓑ) are short-circuited, and is turned off when the pins are opened. When used with the operation switch on the remote control unit, however, the last switch pressed is given priority.

⑦ **Time Reduction**

All time elements can be cut by short-circuiting the time reduction pins.

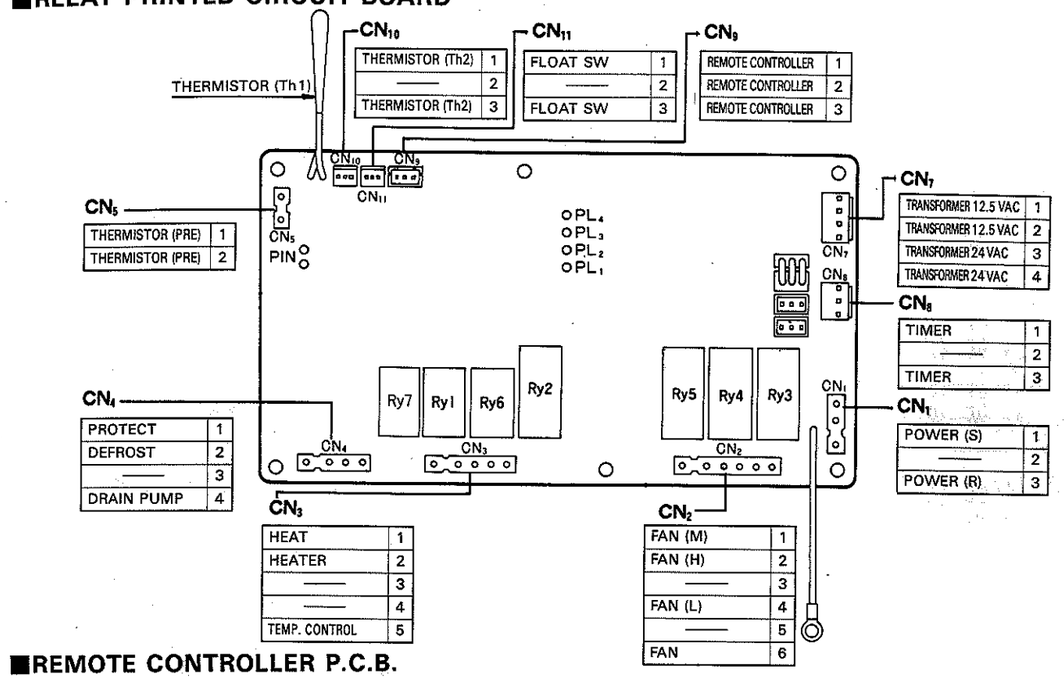
⑧ **Drain Pump Control**

The drain pump turns on when the thermostat turns on, and turns off 6 minutes after the thermostat turns off.
If the thermostat is off when the operation switch is turned off, the drain pump turns off in 3 minutes.

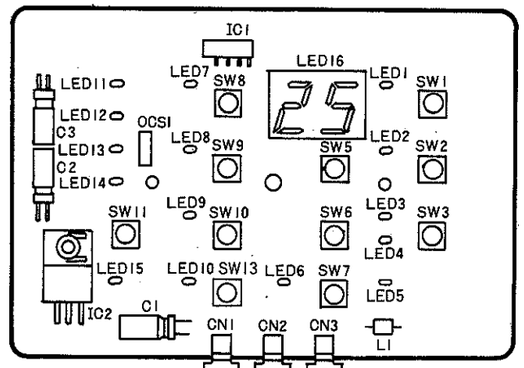
⑨ **Emergency Operation**

By changing the emergency operation connector, the unit can be operated forcibly by turning the main power supply on and off.

■RELAY PRINTED CIRCUIT BOARD

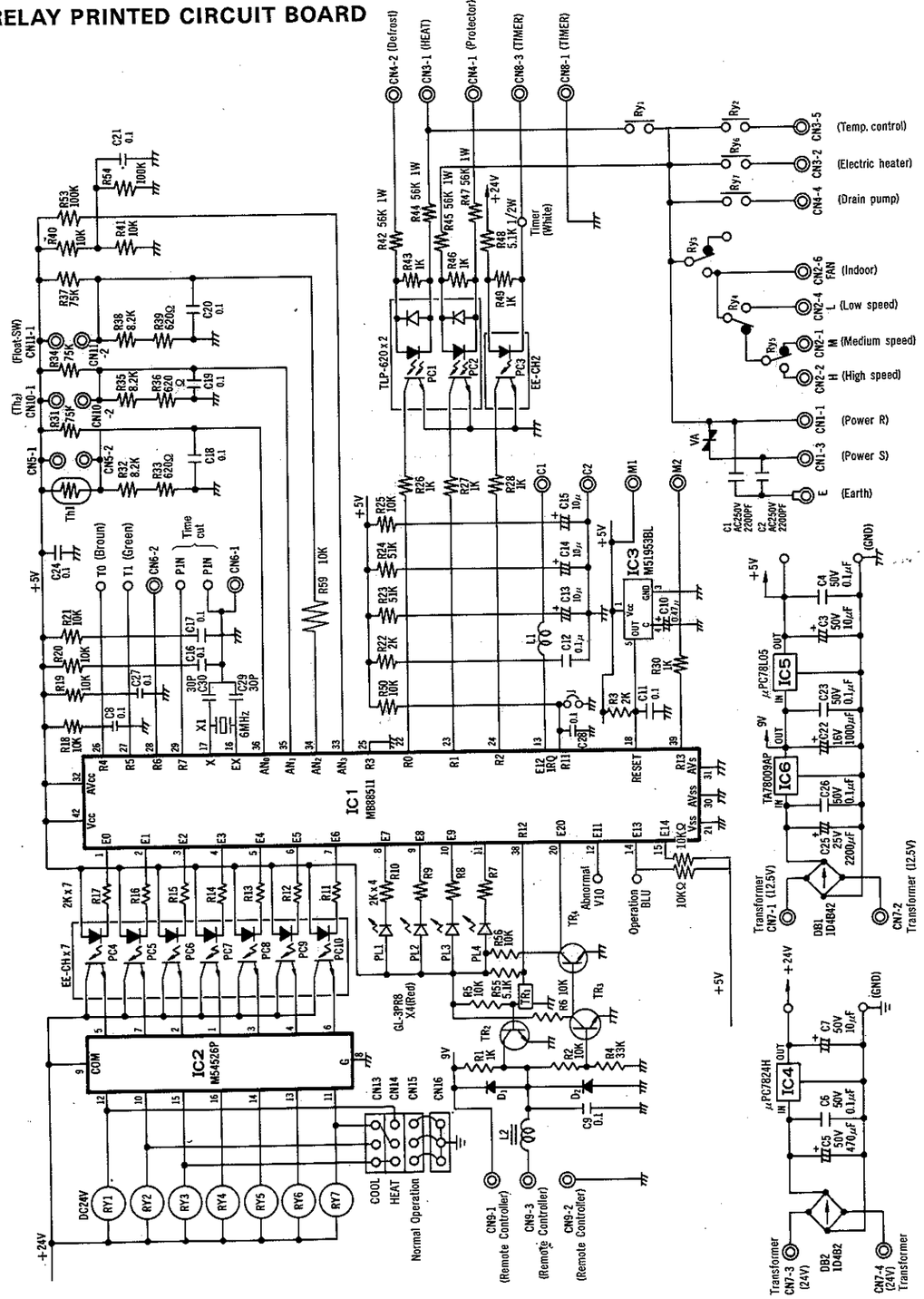


■REMOTE CONTROLLER P.C.B.

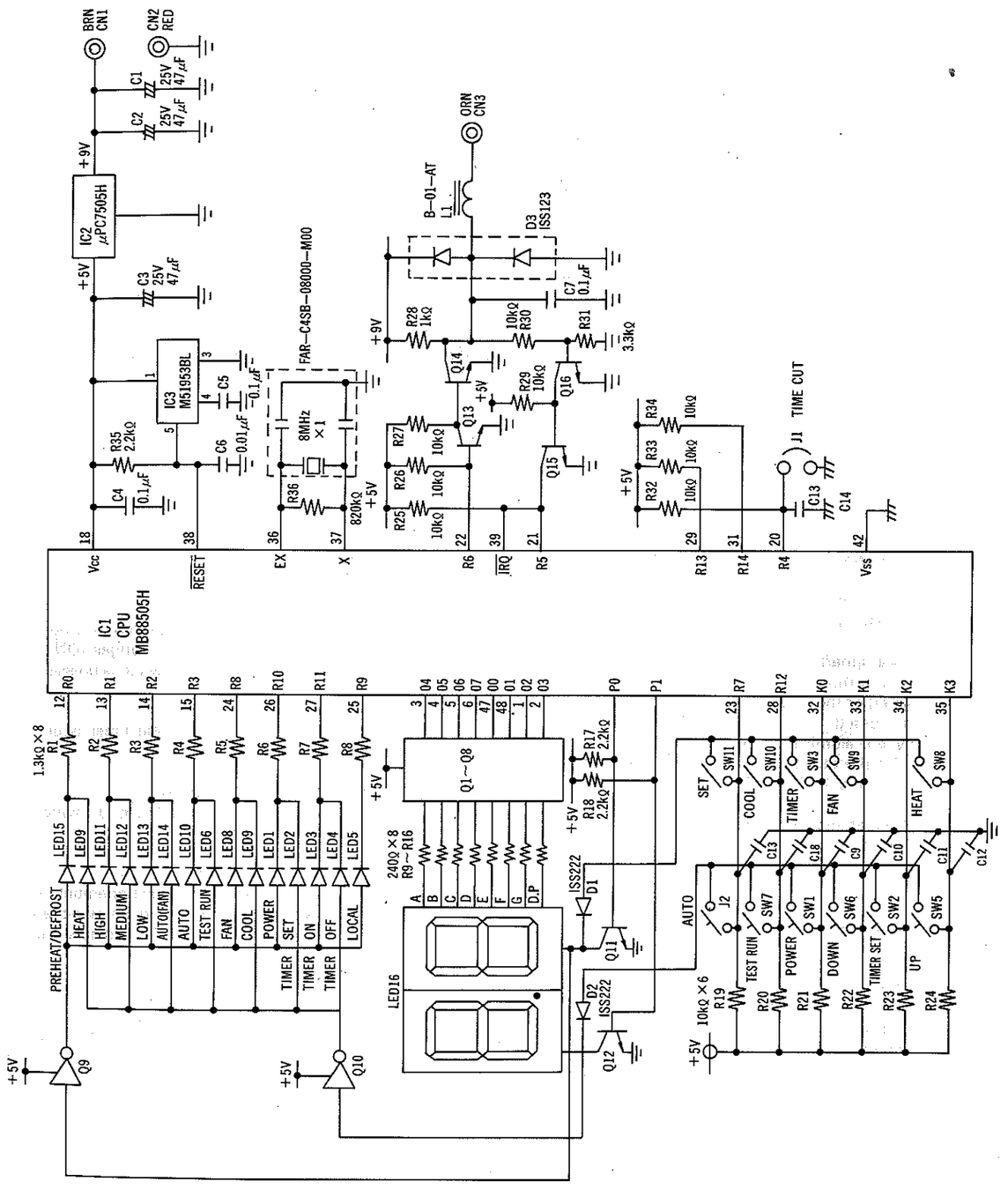


CN1	REMOTE CONTROLLER (VDD9V)	LED1	POWER 「ON/OFF」
CN2	REMOTE CONTROLLER (GND)	LED2	POWER 「TIME UP SERECT」
CN3	REMOTE CONTROLLER (CORESPONDENCE)	LED3	POWER (TIMER) 「ON」
SW1	POWER 「ON/OFF」	LED4	POWER (TIMER) 「OFF」
SW2	POWER 「SET」	LED5	LOCAL/REMOTE
SW3	POWER 「TIME UP SELECT」	LED6	TEST RUN
		LED7	OPRATION 「HEAT」
SW5	TEMP. TIME SETTING 「▲」	LED8	OPRATION 「FAN」
SW6	TEMP. TIME SETTING 「▼」	LED9	OPRATION 「COOL」
SW7	TEST RUN 「ON/OFF」	LED10	OPRATION 「AUTO」
SW8	OPERATION 「HEAT」	LED11	FAN SPEED 「」
SW9	OPERATION 「FAN」	LED12	FAN SPEED 「」
SW10	OPERATION 「COOL」	LED13	FAN SPEED 「」
SW11	FAN SPEED (CHANGE)	LED14	FAN SPEED 「AUTO」
SW13	OPERATION 「AUTO」	LED15	PREHEAT·DEFROST

■RELAY PRINTED CIRCUIT BOARD

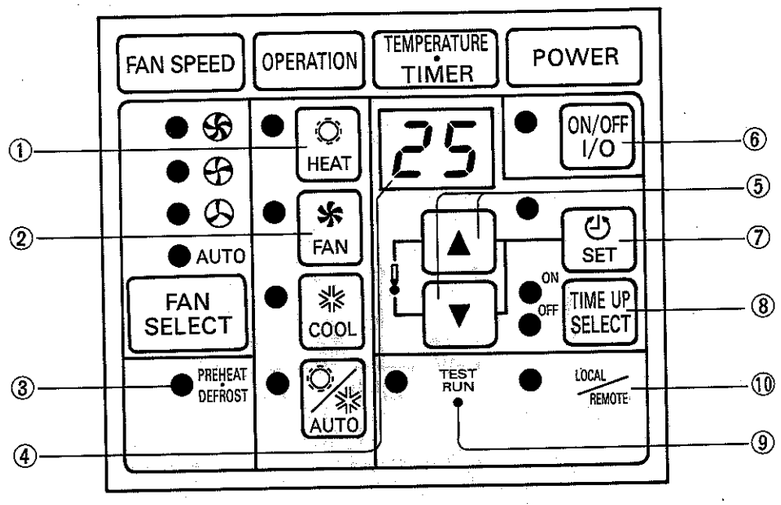


■REMOTE CONTROLLER P.C.B.



Rp-02

Remote Controller



① **Operation-mode buttons**
These buttons can be used to select the operation mode: "HEAT", "FAN" or "COOL" and "AUTO".

② **FAN-speed button**
This button can be used to select the fan speed of the indoor unit. When this button is pressed, the selection change (as shown by the illumination of the four indicators, from the top) as follows: HIGH, MEDIUM, LOW and AUTOMATIC.

③ **Preheat/defrost lamp (red)**
This lamp will illuminate when the unit is in either the preheat or defrost operation mode.

④ **Temperature/timer display (green)**
This display shows the temperature setting made for the room, or the timer setting time.

⑤ **Temperature-set/time-set buttons**
The room temperature setting can be made in 1°C units within the range of from 16°C to 31°C, as follows: for cooling the setting range is from 21°C to 31°C, and for heating the range is from 16°C to 28°C.

⑥ **Power switch**
This switch can be used to switch the power ON and OFF. The setting changes (ON → OFF → ON) each time the switch is pressed.

⑦ **Timer-set button**
This button is used when the timer operation time is to be set.

⑧ **Timer mode-select button**
This button is used to activate or switch OFF timer operation.

⑨ **Test-operation switch**
This switch is used only for test operation of the unit. This switch should be switched OFF (lamp not illuminated) for ordinary use of the unit.

⑩ **Local/Remote switch**

This switch should be switched ON (lamp illuminated) for ordinary use (Local) of this Remote controller.

COOLING CAPACITY

Model CS-	Power Frequency (Hz)	EVAP. AIR Air Volume (m³/min) Bf	EVAP. AIR Entering Wet-Bulb Temp (°C)	Temperature Air Entering Condenser (°CDB) 25 TC (×10³ kcal/h)	25 SHC (×10³ kcal/h)	25 Input (kW)	30 TC (×10³ kcal/h)	30 SHC (×10³ kcal/h)	30 Input (kW)	35 TC (×10³ kcal/h)	35 SHC (×10³ kcal/h)	35 Input (kW)	40 TC (×10³ kcal/h)	40 SHC (×10³ kcal/h)	40 Input (kW)	46 TC (×10³ kcal/h)	46 SHC (×10³ kcal/h)	46 Input (kW)
1.5TUHV4SA	50	10	17.0	2.8	2.3	1.04	2.7	2.3	1.09	2.6	2.2	1.20	2.3	2.0	1.32	2.1	1.9	1.44
		(L)	19.5	3.2	2.0	1.10	3.1	2.0	1.15	2.9	1.9	1.26	2.6	1.8	1.39	2.3	1.6	1.51
		0.21	22.0	3.5	1.5	1.15	3.4	1.5	1.21	3.2	1.5	1.32	2.9	1.4	1.48	2.6	1.3	1.58
		11	17.0	2.9	2.4	1.05	2.8	2.4	1.10	2.7	2.3	1.22	2.4	2.2	1.34	2.2	2.0	1.47
		(M)	19.5	3.3	2.1	1.11	3.2	2.1	1.16	3.0	2.0	1.28	2.7	1.9	1.41	2.4	1.7	1.54
		0.23	22.0	3.6	1.6	1.17	3.5	1.6	1.23	3.3	1.6	1.34	3.0	1.5	1.50	2.7	1.4	1.60
		12	17.0	3.0	2.5	1.07	2.9	2.5	1.12	2.8	2.5	1.24	2.5	2.3	1.36	2.3	2.2	1.49
		(H)	19.5	3.4	2.2	1.13	3.3	2.2	1.18	3.1	2.1	1.30	2.8	2.0	1.43	2.5	1.8	1.56
		0.25	22.0	3.7	1.7	1.19	3.6	1.7	1.25	3.4	1.7	1.36	3.1	1.6	1.52	2.8	1.5	1.63
2TUHV4S	50	10	17.0	3.8	3.0	1.53	3.7	3.0	1.60	3.6	3.0	1.77	3.3	2.9	1.95	3.3	2.8	2.13
		(L)	19.5	4.3	2.5	1.62	4.1	2.5	1.69	3.9	2.4	1.86	3.7	2.3	2.05	3.5	2.3	2.23
		0.09	22.0	4.8	2.0	1.70	4.6	2.0	1.78	4.3	1.9	1.95	4.1	1.8	2.18	3.8	1.7	2.33
		12	17.0	4.0	3.2	1.57	3.9	3.2	1.65	3.8	3.2	1.81	3.5	3.1	2.00	3.4	3.0	2.19
		(M)	19.5	4.6	2.8	1.66	4.3	2.7	1.74	4.1	2.7	1.91	4.0	2.6	2.10	3.7	2.5	2.29
		0.13	22.0	5.1	2.2	1.75	4.9	2.2	1.83	4.6	2.2	2.01	4.3	2.1	2.24	4.0	2.0	2.39
		15	17.0	4.4	3.8	1.64	4.3	3.7	1.72	4.1	3.6	1.89	3.8	3.5	2.09	3.8	3.3	2.28
		(H)	19.5	5.0	3.2	1.73	4.7	3.2	1.81	4.5	3.0	1.99	4.3	3.0	2.19	4.0	2.7	2.55
		0.18	22.0	5.5	2.5	1.82	5.3	2.5	1.91	5.0	2.4	2.09	4.7	2.3	2.33	4.4	2.2	2.65
2.5TUHV4	50	15	17.0	5.3	4.2	1.77	5.1	4.1	1.84	4.9	4.1	2.03	4.4	3.8	2.24	4.0	3.5	2.45
		(L)	19.5	5.9	3.5	1.86	5.7	3.5	1.95	5.4	3.4	2.14	5.0	3.3	2.35	4.4	3.0	2.57
		0.11	22.0	6.6	2.8	1.96	6.3	2.8	2.05	5.9	2.7	2.25	5.4	2.6	2.51	4.9	2.5	2.68
		17	17.0	5.5	4.5	1.80	5.4	4.5	1.88	5.1	4.4	2.07	4.6	4.1	2.28	4.1	3.7	2.50
		(M)	19.5	6.2	3.8	1.90	5.9	3.8	1.98	5.6	3.7	2.18	5.2	3.5	2.40	4.6	3.2	2.62
		0.13	22.0	6.9	3.0	2.00	6.6	3.0	4.71	6.2	2.9	2.29	5.6	2.8	2.55	5.1	2.7	2.73
		20	17.0	5.9	5.0	1.85	5.7	4.9	1.94	5.4	4.8	2.14	4.9	4.5	2.36	4.4	4.1	2.58
		(H)	19.5	6.6	4.2	1.96	6.3	4.2	2.05	6.0	4.1	2.25	5.5	3.9	2.48	4.9	3.6	2.70
		0.16	22.0	7.3	3.4	2.06	7.0	3.4	2.16	6.6	3.4	2.36	6.0	3.2	2.64	5.4	3.0	2.81
3TUHV4	50	15	17.0	6.0	4.8	2.11	5.8	4.7	2.21	5.3	4.5	2.43	5.1	4.4	2.68	4.7	4.2	2.93
		(L)	19.5	6.7	4.0	2.23	6.3	3.9	2.33	6.0	3.8	2.56	5.6	3.7	2.82	5.2	3.5	3.07
		0.14	22.0	7.3	3.1	2.34	6.8	3.0	2.45	6.7	3.1	2.69	6.2	3.0	3.00	5.8	2.9	3.20
		17	17.0	6.3	5.1	2.15	6.0	5.0	2.25	5.5	4.8	2.48	5.4	4.6	2.73	4.9	4.4	2.99
		(M)	19.5	7.0	4.3	2.27	6.6	4.2	2.38	6.3	4.1	2.61	5.8	4.0	2.87	5.5	3.9	3.13
		0.16	22.0	7.6	3.3	2.39	7.1	3.3	2.50	7.0	3.3	2.74	6.5	3.2	3.06	6.0	3.1	3.26
		20	17.0	6.7	5.7	2.22	6.4	5.5	2.32	5.9	5.4	2.56	5.7	5.2	2.82	5.2	4.8	3.08
		(H)	19.5	7.4	4.7	2.34	7.0	4.6	2.45	6.7	4.5	2.69	6.2	4.4	2.96	5.8	4.1	3.23
		0.19	22.0	8.1	3.8	2.46	7.6	3.7	2.58	7.4	3.6	2.82	6.9	3.5	3.15	6.4	3.4	3.36
4TUHV4	50	18	17.0	7.5	5.9	2.72	7.3	5.9	2.84	6.9	5.8	3.14	6.3	5.4	3.46	5.7	5.0	3.78
		(L)	19.5	8.4	5.0	2.87	8.1	4.9	3.00	7.7	4.8	3.30	7.0	4.6	3.63	6.3	4.3	3.96
		0.12	22.0	9.3	3.8	3.02	8.9	3.8	3.16	8.5	3.7	3.47	7.7	3.6	3.87	6.9	3.4	4.13
		23	17.0	8.2	6.7	2.82	7.9	6.6	2.95	7.5	6.5	3.25	6.8	6.0	3.58	6.1	5.5	3.92
		(M)	19.5	9.1	5.6	2.98	8.8	5.5	3.11	8.4	5.4	3.42	7.6	5.1	3.76	6.9	4.8	4.10
		0.17	22.0	10.0	4.4	3.13	9.7	4.3	3.28	9.2	4.3	3.59	8.4	4.1	4.01	7.5	3.9	4.28
		28	17.0	8.8	7.5	2.93	8.5	7.4	3.06	8.1	7.3	3.37	7.3	6.7	3.72	6.6	6.2	4.06
		(H)	19.5	9.8	6.4	3.09	9.5	6.4	3.23	9.0	6.2	3.55	8.2	5.8	3.91	7.4	5.4	4.26
		0.21	22.0	10.8	5.1	3.25	10.4	5.1	3.40	9.9	5.0	3.73	9.0	4.8	4.16	8.1	4.5	4.44
5TUHV4	50	20	17.0	9.3	7.3	3.63	8.9	7.2	3.79	8.4	7.0	4.18	7.8	6.7	4.61	7.2	6.3	5.04
		(L)	19.5	10.4	6.1	3.83	10.0	6.0	4.00	9.4	5.9	4.40	8.8	5.7	4.84	8.1	5.4	5.28
		0.15	22.0	11.4	4.7	4.03	10.9	4.6	4.22	10.2	4.5	4.62	9.6	4.4	5.16	8.8	4.3	5.50
		26	17.0	10.1	8.1	3.77	9.7	8.0	3.95	9.2	7.9	4.35	8.5	7.4	4.80	7.9	7.1	5.24
		(M)	19.5	11.3	7.0	3.98	10.9	6.8	4.17	10.2	6.6	4.58	9.5	6.3	5.04	8.8	6.1	5.50
		0.18	22.0	12.4	5.3	4.20	11.9	5.2	4.39	11.2	5.1	4.81	10.4	5.1	5.37	9.5	4.8	5.73
		33	17.0	11.0	9.3	3.94	10.6	9.2	4.12	10.0	9.0	4.54	9.3	8.5	5.01	8.6	8.1	5.47
		(H)	19.5	12.4	8.1	4.16	11.9	8.1	4.35	11.2	7.7	4.78	10.4	7.4	5.26	9.6	7.0	5.74
		0.22	22.0	13.5	6.3	4.38	13.0	6.3	4.58	12.2	6.2	5.02	11.4	6.0	5.60	10.4	5.7	5.98

HEATING CAPACITY

Model CS-	Frequency (Hz)	Inlet Air: Air Volume (m³/min)	Inlet Air: Entering Air Dry Bulb (°C)	Outdoor Temperature (°CWB): −6 H.C.	−6 IPT	0 H.C.	0 IPT	6 H.C.	6 IPT	12 H.C.	12 IPT
1.5TUHV4SA	50	10 (Low)	16	2.39	0.81	2.91	1.02	3.40	1.26	4.00	1.58
			21	2.30	0.85	2.81	1.07	3.31	1.33	3.91	1.66
			26	2.21	0.91	2.72	1.13	3.22	1.41	3.72	1.77
		11 (Medium)	16	2.49	0.79	3.00	0.99	3.5	1.22	4.10	1.53
			21	2.40	0.83	2.91	1.03	3.4	1.29	4.01	1.61
			26	2.28	0.88	2.79	1.10	3.3	1.36	3.82	1.72
		12 (High)	16	2.60	0.79	3.09	0.96	3.60	1.18	4.20	1.48
			21	2.51	0.80	3.00	1.00	3.50	1.25	4.11	1.56
			26	2.39	0.85	2.88	1.06	3.42	1.32	3.93	1.66
2TUHV4S	50	10 (Low)	16	3.15	1.59	3.83	1.81	4.50	2.11	5.18	2.41
			21	3.06	1.64	3.69	1.88	4.32	2.18	4.95	2.52
			26	2.93	1.69	3.54	1.95	4.14	2.26	4.75	2.60
		11 (Medium)	16	3.29	1.51	4.00	1.73	4.70	2.01	5.41	2.30
			21	3.20	1.57	3.85	1.79	4.51	2.07	5.17	2.40
			26	3.06	1.61	3.69	1.86	4.32	2.15	4.96	2.47
		12 (High)	16	3.50	1.40	4.26	1.60	5.00	1.86	5.76	2.13
			21	3.40	1.45	4.10	1.66	4.80	1.92	5.50	2.22
			26	3.25	1.49	3.93	1.72	4.60	1.99	5.28	2.29
2.5TUHV4	50	15 (Low)	16	4.22	1.60	5.07	1.97	6.15	2.35	7.44	2.76
			21	4.00	1.67	4.84	2.06	6.00	2.42	7.16	2.90
			26	3.86	1.75	4.70	2.13	5.76	2.61	6.88	3.05
		17 (Medium)	16	4.36	1.54	5.23	1.90	6.35	2.27	7.68	2.66
			21	4.14	1.61	4.99	1.98	6.14	2.33	7.39	2.80
			26	3.98	1.69	4.85	2.06	5.94	2.51	7.10	2.94
		20 (High)	16	4.54	1.45	5.45	1.79	6.61	2.14	8.00	2.51
			21	4.31	1.52	5.20	1.87	6.40	2.20	7.70	2.64
			26	4.15	1.59	5.05	1.94	6.19	2.37	7.40	2.77
3TUHV4	50	15 (Low)	16	4.98	1.72	5.81	2.02	7.07	2.42	8.09	2.81
			21	4.79	1.75	5.63	2.10	6.60	2.54	7.81	2.95
			26	4.60	1.82	5.44	2.20	6.28	2.65	7.53	3.09
		17 (Medium)	16	5.14	1.65	6.00	1.95	7.30	2.33	8.35	2.70
			21	4.94	1.69	5.81	2.02	6.82	2.45	8.06	2.84
			26	4.75	1.75	5.62	2.12	6.48	2.55	7.78	2.98
		20 (High)	16	5.35	1.56	6.25	1.84	7.60	2.20	8.70	2.55
			21	5.15	1.59	6.05	1.91	7.10	2.31	8.40	2.68
			26	4.95	1.65	5.85	2.00	6.75	2.41	8.10	2.81
4TUHV4	50	18 (Low)	16	6.55	2.69	7.68	3.13	9.11	3.58	11.10	3.95
			21	6.34	2.74	7.40	3.21	8.88	3.68	10.64	4.08
			26	6.01	2.81	7.22	3.28	8.56	3.79	10.18	4.23
		23 (Medium)	16	6.80	2.52	7.97	2.94	9.46	3.35	11.52	3.71
			21	6.58	2.57	7.68	3.01	9.22	3.45	11.04	3.83
			26	6.24	2.64	7.49	3.08	8.88	3.56	10.56	3.96
		28 (High)	16	7.08	2.35	8.30	2.74	9.85	3.13	12.00	3.46
			21	6.85	2.40	8.00	2.81	9.60	3.22	11.50	3.57
			26	6.50	2.46	7.80	2.87	9.25	3.32	11.00	3.70
5TUHV4	50	20 (Low)	16	7.86	3.14	9.57	3.84	11.66	4.73	13.69	5.60
			21	7.59	3.29	8.97	4.03	11.29	5.08	13.27	6.15
			26	7.22	3.40	8.88	4.25	10.82	5.46	12.90	6.35
		26 (Medium)	16	8.25	2.94	10.04	3.60	12.22	4.44	14.36	5.25
			21	7.95	3.08	9.70	3.78	11.83	4.76	13.92	5.76
			26	7.57	3.19	9.31	3.98	11.35	5.12	13.53	6.12
		33 (High)	16	8.50	2.71	10.35	3.32	12.60	4.09	14.80	4.84
			21	8.20	2.84	10.00	3.48	12.20	4.39	14.35	5.31
			26	7.80	2.94	9.60	3.67	11.70	4.72	13.95	5.64

Legend : HC : Heating Capacity (×10³kcal/h)
IPT : Input (kw)

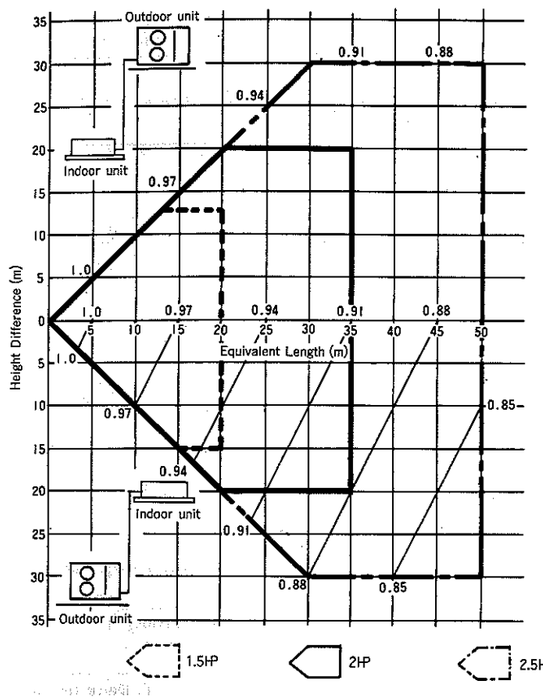
CORRECTION OF COOLING AND HEATING CAPACITIES

Correction of cooling and heating capacities according to the connecting pipe length.

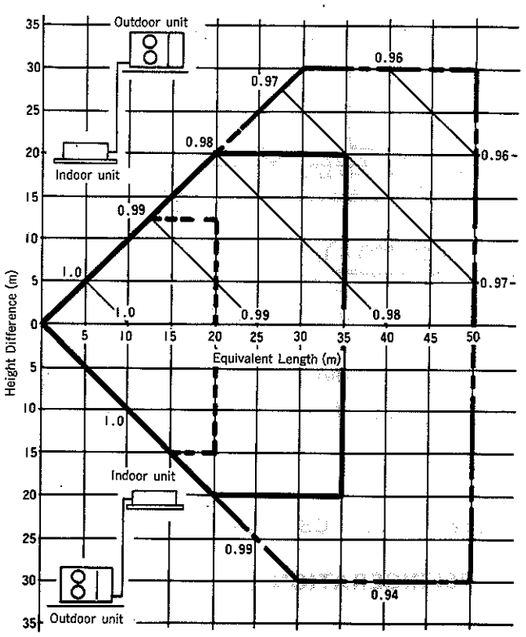
The data of cooling capacities (marked on the name plate) are based on 5 meters connecting pipe and horizontal installation.

For other pipe length of other installation multiply by the following correction factor to determine the revised cooling capacity.

〔Cooling〕



〔Heating〕



Equivalent Length = actual pipe length + number of elbow x **ELE** + number of oil trap x **ELO**

ELE: equivalent length of elbow.
ELO: equivalent length of oil trap.

Outer diameter of gas side pipe mm (inch)	ELE	ELO
12.7 (1/2)	0.20	1.5
15.88 (5/8)	0.25	2.0
19.05 (3/4)	0.35	2.4

REFRIGERANT ADDITIONAL CHARGE

Before shipment, this air conditioner is filled with the rated amount of refrigerant including additional amount required for air-purging, subject to 5 m piping length. (The rated amount of refrigerant is indicated on the name plate.) But when the piping length exceeds 5 meters, additional charge is required according to the following table.

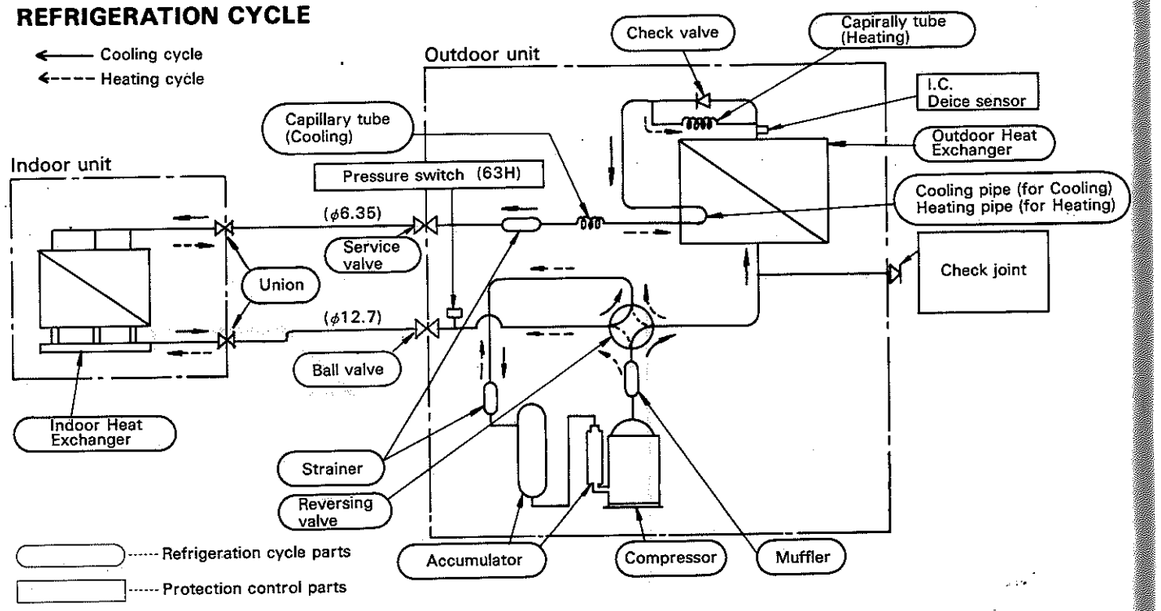
Model	Ref. Charge
1.5HP	40g per 1m
2~4HP	70g per 1m
5HP	100g per 1m

Example: CS-3TUHV4

In case of 10 m long pipe (one-way), the amount of refrigerant to be replenished is; (10 − 5) x 70 = 350 g.

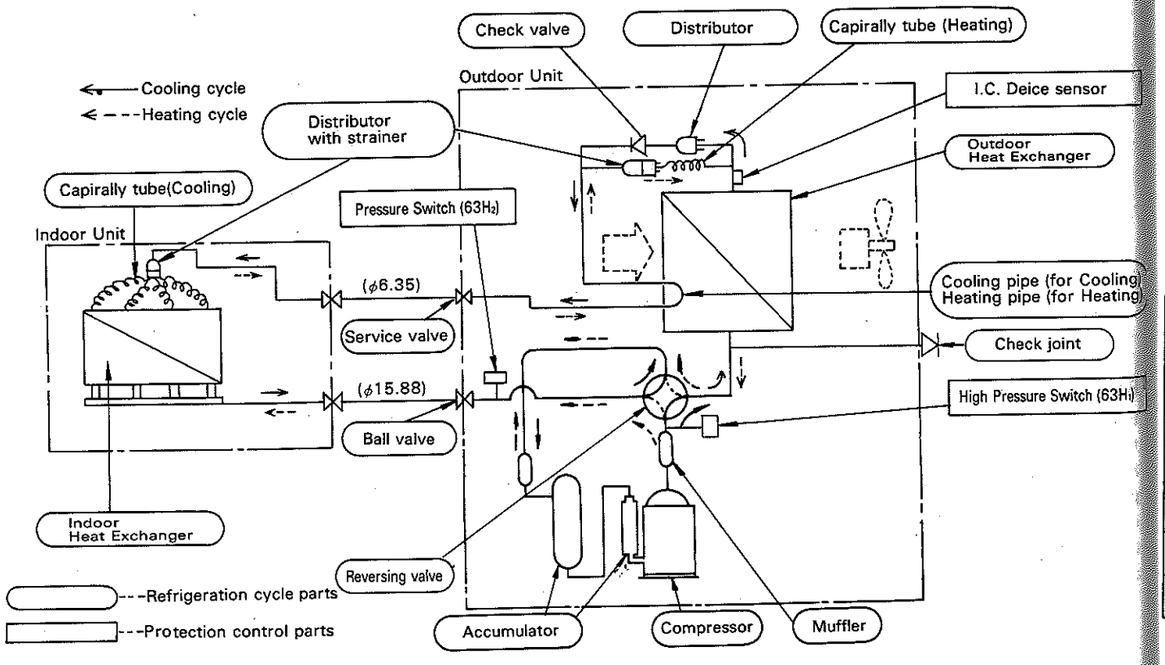
Model. CS-1.5TUHV4SA

REFRIGERATION CYCLE



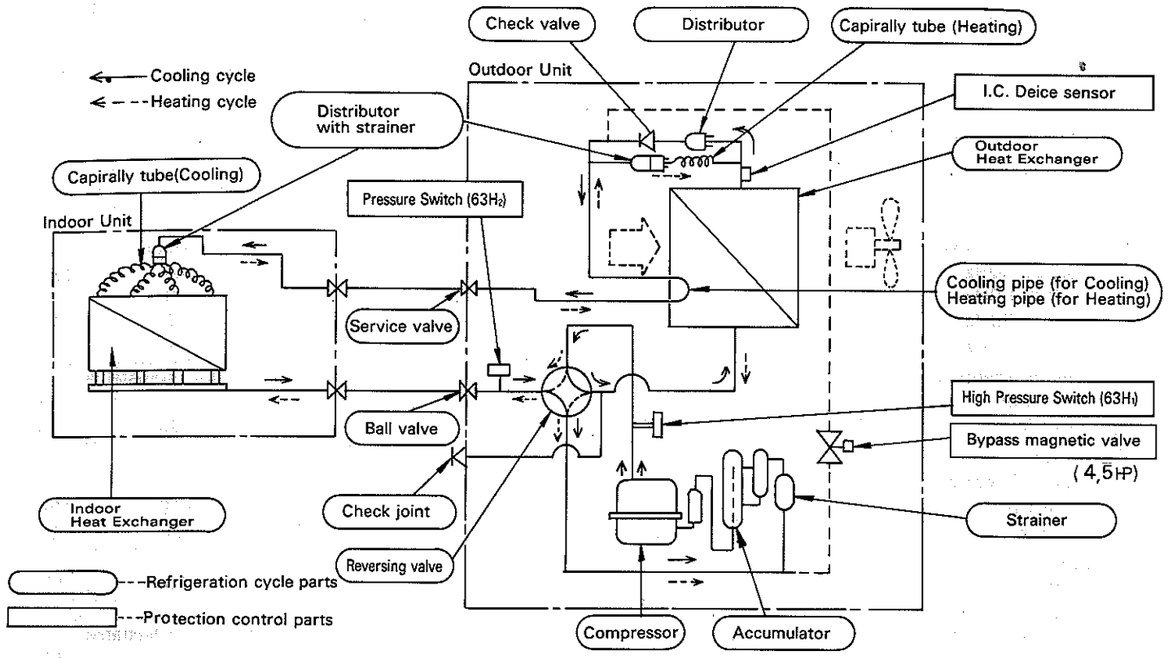
Model. CS-2TUHV4S, 2.5TUHV4

REFRIGERATION CYCLE



Model. CS-3TUHV4, 4TUHV4, 5TUHV4

REFRIGERATION CYCLE



Normal Operating Pressures

Refrigeration cycle	Discharge Pressure kg/cm² (High) (psig)	Suction Pressure kg/cm² (Low) (psig)	*Super Heat
Cooling	19~21 (270~298)	4.6~5.0 (65~71)	2~5
Heating	18~19 (256~270)	3.7~4.1 (53~58)	

(1) Cooling standard working conditions are based on indoor temp. 27°C.D.B. (80.6°F.D.B.), 19.5°C.W.B. (67.1°F.W.B.) and outdoor air temp. 35°C.D.B. (95°F.D.B.), 24°C.W.B.).
(2) Heating standard working conditions are based on indoor temp. 21°C.D.B. (69.8°F.D.B.), and outdoor air temp. 7°C.D.B. (44.6°F.D.B.), 6°C.W.B. (52.8°F.W.B.).
(3) *Super Heat = Suction Temperature − Evaporating Temperature.

Relation of Low Pressure-to-Evaporating Temperature

Temperature °C(°F)	Pressure kg/cm²G(PSI)	Temperature °C(°F)	Pressure kg/cm²G(PSI)	Temperature °C(°F)	Pressure kg/cm²G(PSI)	Temperature °C(°F)	Pressure kg/cm²G(PSI)	Temperature °C(°F)	Pressure kg/cm²G(PSI)
−15 (5.0)	1.98(28.25)	−9(15.8)	2.71(38.58)	−3(26.6)	3.56(50.62)	3(37.4)	4.55(64.82)	9(48.2)	5.70(81.10)
−14 (6.8)	2.09(29.85)	−8(17.6)	2.84(40.48)	−2(28.8)	3.72(52.92)	4(39.2)	4.73(67.37)	10(50.0)	5.91(84.04)
−13 (8.6)	2.21(31.51)	−7(19.4)	2.98(42.42)	−1(30.2)	3.88(55.18)	5(41.0)	4.92(69.99)	11(51.8)	6.12(87.04)
−12(10.4)	2.33(33.20)	−6(21.2)	3.12(44.41)	0(32)	4.04(57.50)	6(42.8)	5.11(72.67)	12(53.6)	6.33(90.12)
−11(12.2)	2.45(34.95)	−5(23.0)	3.26(46.46)	1(33.8)	4.21(59.88)	7(44.6)	5.30(75.42)	13(55.4)	6.55(93.26)
−10 (14)	2.58(36.74)	−4(24.8)	3.41(48.56)	2(35.6)	4.38(62.32)	8(46.4)	5.50(78.22)	14(57.2)	6.78(96.47)

Model CS-		1.5TUHV4SA	2TUHV4S	2.5TUHV4	3TUHV4	4TUHV4	5TUHV4
For Compressor High Pressure Switch ($63H_1$)				Automatic Reset. Non-Adjustable			
Cut-Out	kg/cm²G	—	28	28	28	28	28
Cut-In	kg/cm²G	—	23	23	23	23	23
Bimetal thermostat (26S)							
Cut-Out	kg/cm²G	148	—	—	—	—	—
Cut-In	kg/cm²G	78	—	—	—	—	—
Internal Protector		—	Automatic Line-Break	—	—	—	—
Overcurrent Relay (51C)				Manual Reset. Non-Adjustable			
220V 50Hz	A	—	—	11.5	13	18	22.5
380V 50Hz	A	—	—	7.5	7.5	10	13
400V 50Hz	A	—	—	7.5	7.5	10	13
415V 50Hz	A	—	—	6.8	6.8	9	12
Internal Thermostat (49C)				Automatic Reset. Non-Adjustable			
Cut-Out	°C	—	—	—	115	115	115
Cut-In	°C	—	—	—	93	93	93
Fan Motor Internal Thermostat (49F)				Automatic Reset. Non-Adjustable			
Cut-Out	°C	135	135	135	135	135	135
Cut-In	°C	88	88	88	88	88	88
For Control Fuse Capacity	A	5	5	5	5	10	10
For Outdoor Fan Motor Pressure Switch ($63H_2$)				Automatic Reset. Non-Adjustable			
Cut-Out	kg/cm²G	25	24	24	24	24	24
Cut-In	kg/cm²G	21	20	20	20	20	20

Specification of Power Source

Item \ Model			CS-1.5TUHV4SA	CS-2TUHV4S	CS-2.5TUHV4	
Power Source			Single~ 220V~240V	Single~ 220V~240V	3~ 220V 50Hz	3N~ 380V~415V 50Hz
Power Capacity		kVA	5	5	7.5	7.5
Running Current		A	6.61~6.90	10.10~10.50	6.79	3.50~3.80
Wire Size Up to 10m (33 ft)	Single wire	(mm)	1.6	2	1.6	1.6
	Twisted wire	(mm²)	2	3.5	2	2
Up to 30m (98 ft)	Single wire	(mm)	2.6	3.2	2.6	2
	Twisted wire	(mm²)	5.5	8	5.5	3.5
Up to 50m (160 ft)	Single wire	(mm)	—	—	—	2.6
	Twisted wire	(mm²)	8.0	14	14	5.5
Knife switch rating		A	30	40	30	20
Element fuse size		A	20	30	20	15

Item \ Model			CS-3TUHV4		CS-4TUHV4		CS-5TUHV4	
Power Source			3~220V 50Hz	3N~ 380~415V 50Hz	3N 220V 50Hz	3N~ 380V~415V 50Hz	3N 220V 50Hz	3N~380V ~415V 50Hz
Power Capacity		kVA	7.5	7.5	10	10	15	15
Running Current		A	9.19	4.8~5.2	10.92	6.31~6.88	14.56	8.25~9.00
Wire Size Up to 10m (33 ft)	Single wire	(mm)	2.0	1.6	2.0	1.6	2.6	2
	Twisted wire	(mm²)	3.5	2.0	3.5	2.0	5.5	3.5
Up to 30m (98 ft)	Single wire	(mm)	3.2	2.6	3.2	2.6	—	3.2
	Twisted wire	(mm²)	8.0	5.5	8.0	5.5	14	8
Up to 50m (160 ft)	Single wire	(mm)	—	3.2	—	—	—	—
	Twisted wire	(mm²)	14	8.0	14	14	22	14
Knife switch rating		A	30	30	40	30	60	60
Element fuse size		A	20	15	30	20	40	30

■TROUBLESHOOTING GUIDE

The location of the malfunction differs as indicated by the LEDs (for indication) in the remote-control unit and as indicated by the LEDs (for self-diagnosis) in the relay printed-circuit board.

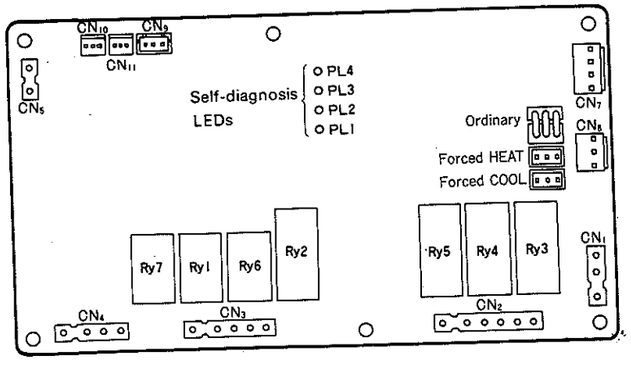
After using the table below to resolve the cause(s) of the malfunction, try operation again.
(The indoor relay printed-circuit board is located inside the printed-circuit board case at the rear of the air inlet.)

Remote controller		P.C.B. Self-diagnosis LED				Location of malfunction	Check locations
Temperature display	LED	PL_1	PL_2	PL_3	PL_4		
E 0	☼ Flashing	☼	☼	☼	☼	Transmission error	Remote-control cord and connector
E 2	☼		○ Steady illumination			Malfunction of drain water float switch (FS).	Drain pump. wiring and drain piping slope.
E 3	☼			○		Malfunction of thermistor (Th1) for room temperature.	Thermistor (Th1) lead wiring.
E 4	☼				○	Malfunction of thermistor (Th2) for indoor heatexchange unit.	Thermistor (Th2) lead wiring.
OFF	OFF	☼ → ☼ → ☼ → ☼ Repeated alternating				Malfunction of the remote-controller cord circuit.	Remote-controller cord and connector.
OFF	OFF	☼	☼	☼	☼		

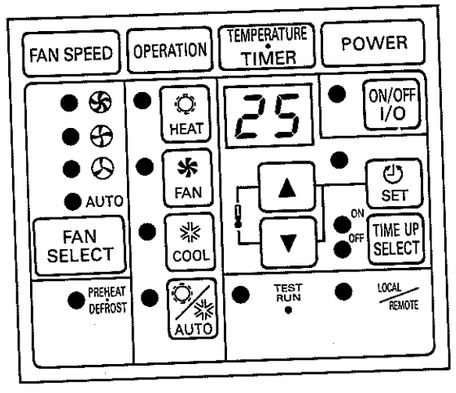
How to after a malfunction

After making the necessary, etc. based upon the indications of the self-diagnosis LEDs as described above, press the operation switch.
The flashing and/or steady illumination of LEDs will then be switched OFF.

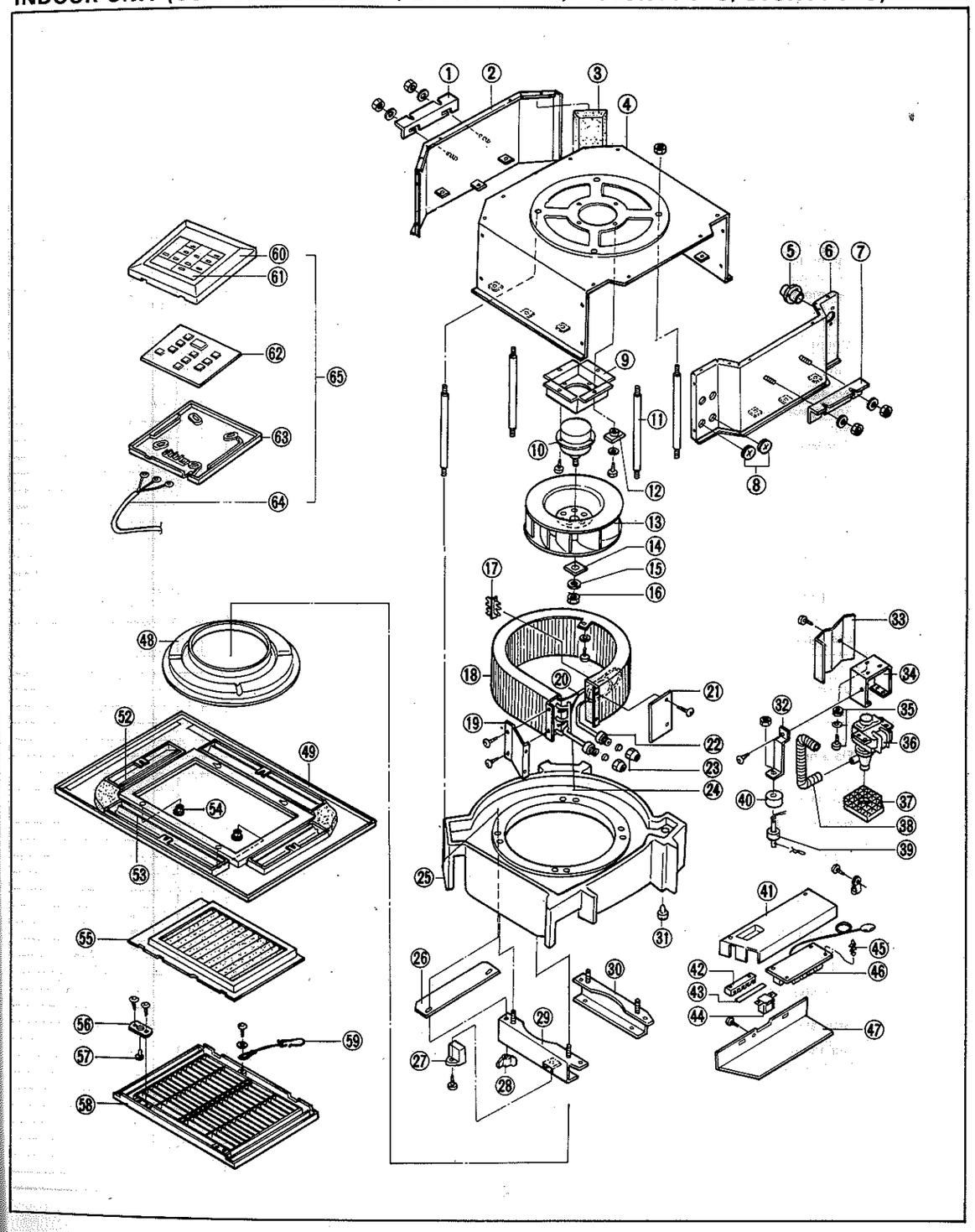
Indoor unit relay printed-circuit board



Remote-controller



INDOOR UNIT (CS-1.5TUHV4SA·P·C, 2TUHV4S·P·C, 2.5TUHV4·P·C, 3TUHV4·P·C)

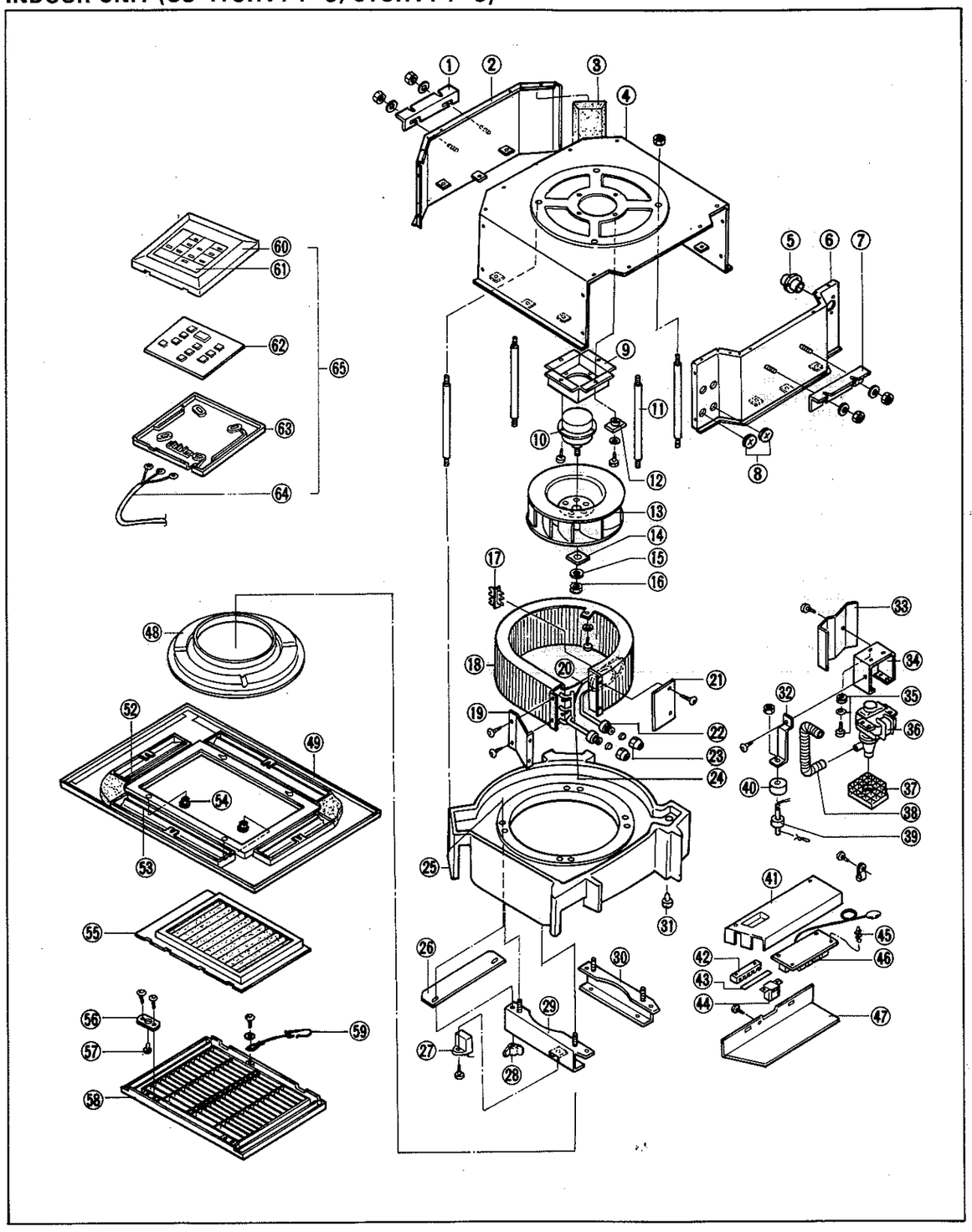


INDOOR UNIT (CS-1.5TUHV4SA · P · C, 2TUHV4S · P · C / CS-2.5TUHV4 · P · C, 3TUHV4 · P · C)

REF. NO.	PARTS NAME		PARTS NUMBER CNR	QUANTITY PER 1 UNIT 1.5HP	2HP	2.5HP	3HP	
1	Hanger bracket (R)		02-812080	1	1	1	1	
2	Cabinet side (R)		42-542000	1	1	—	—	
			42-541800	—	—	1	1	
3	Duct cover		05-800790	1	1	1	1	
4	Cabinet As		42-541980	1	1	—	—	
			42-541780	—	—	1	1	
5	Drain read pipe		02-498640	1	1	1	1	
6	Cabinet side (L)		42-542020	1	—	—	—	
			42-541790	—	1	1	1	
7	Hanger bracket (L)		02-812070	1	1	1	1	
8	Rubber bush (29)		39-251070	1	1	1	1	
	Rubber bush (45)		39-251090	1	1	1	1	
9	Fan motor base		06-816310	1	1	—	—	*
	Fan motor (AC 20W)		06-820150	1	1	—	—	*
10	Fan motor (AC 35W)		06-827960	—	—	1	1	
			05-801000	4	4	—	—	
11	Bolt		05-880510	—	—	4	4	
			06-817950	4	4	4	4	
12	Mount		05-800440	1	1	—	—	
13	Fan		05-800430	—	—	1	1	
			05-803630	1	1	1	1	
14	Washer		38-427080	1	1	1	1	
15	Spring washer		38-817010	1	1	1	1	
16	Nut		05-981550	2	2	1	1	
17	Capillary holder		05-801730	1	—	—	—	
			05-800950	—	1	—	—	
18	Evaporator		05-800460	—	—	1	1	
			05-800990	1	1	—	—	
19	Eva. panel (L)		05-800530	—	—	1	1	
			45-564240	—	1	—	—	
20	Distributor As		45-563430	—	—	1	1	
	Capillary tube		05-801810	—	3	—	—	
			05-800580	—	—	1	1	
21	Eva. panel (R)		05-982990	—	—	2	2	
			05-800980	1	1	—	—	
22	Union	1/4	05-800520	—	—	1	1	
		3/8	05-974740	1	1	—	—	
		1/2	05-399710	—	—	1	1	
		5/8	05-962170	1	1	—	—	
23	Flare nut	1/4	05-399720	—	—	1	1	
		3/8	38-890070	1	1	—	—	
		1/2	38-890080	—	—	1	1	
		5/8	38-890090	1	1	—	—	
24	Coil sensor		38-890100	—	—	1	1	
	sensor band		06-817100	1	1	1	1	
25	Drain pan		05-977160	1	1	—	—	
26	Drain pan stay		05-977170	—	—	1	1	
			45-563630	1	1	—	—	
27	Electric condenser for FM	1.8MF	45-563420	—	—	1	1	
		2MF	02-817420	1	1	—	—	
		2.5MF	02-817340	—	—	1	1	
28	Nut		06-497050	1	1	1	1	*
29	Grille stay (L)		06-805530	1	1	—	—	*
30	Grille stay (R)		06-496220	—	—	1	1	*
31	Drain seal cap		38-890590	4	4	4	4	
32	Float switch plate		42-542040	1	1	—	—	
33	Drain pump cover		42-541660	—	—	1	1	
34	Drain pump holder		42-542050	1	1	—	—	
35	Mount		42-541670	—	—	1	1	
	Washer		05-974480	1	1	1	1	
	5 Tap screw		06-816430	1	1	1	1	
			02-812670	1	1	—	—	
			02-811770	—	—	1	1	
			06-816880	1	1	—	—	
			06-816690	—	—	1	1	
			06-847720	3	3	3	3	
			38-490120	3	3	3	3	
			38-193610	3	3	3	3	

REF. NO.	PARTS NAME		PARTS NUMBER CNR	QUANTITY PER 1 UNIT 1.5HP	2HP	2.5HP	3HP	
36	Drain pump		06-814510	1	1	1	1	*
37	Drain filter		02-498620	1	1	1	1	
38	Drain tube		02-498650	1	1	1	1	
39	Float switch As		46-813930	1	1	1	1	*
40	Float switch cover		06-813380	1	1	1	1	
41	Control box		06-816380	1	1	1	1	
42	Terminal board (10P)		06-444320	1	1	1	1	
43	Terminal number		07-466330	1	1	1	1	
44	Transformer	220, 230V	06-820810	1	1	1	1	*
		240V	06-820820	1	1	1	1	*
45	Locking support		06-496230	5	5	5	5	
46	Printed circuit board		06-827970	1	1	1	1	*
47	Control box cover		06-817280	1	1	—	—	
			06-816390	—	—	1	1	
48	Orifice ring		05-801710	1	1	—	—	
			05-800570	—	—	1	1	
49	Outlet grille As	National	43-512260	1	1	1	1	
		Panasonic	43-512310	1	1	1	1	
		C	43-513210	1	1	1	1	
52	Wing As (short)		43-510950	2	2	2	2	
53	Wing As (Long)		43-510940	2	2	2	2	
54	Latch		03-408920	2	2	2	2	
55	Air filter		03-412160	1	1	1	1	*
56	Sheet		03-406440	2	2	2	2	
57	Pin		03-406430	2	2	2	2	
58	Inlet grille		03-412090	1	1	1	1	
59	Wire		47-512890	1	1	1	1	
60	Cover		06-816720	1	1	1	1	
61	Escutcheon	National	07-824850	1	1	1	1	
		Panasonic	07-825150	1	1	1	1	
		C	07-825160	1	1	1	1	
62	Printed circuit board		06-827800	1	1	1	1	*
	Insulation sheet		06-817620	1	1	1	1	
63	Base		06-816710	1	1	1	1	
65	Remote controller	National	46-828550	①	1	1	1	*
		Panasonic	46-828780	①	1	1	1	*
		C	46-828790	①	1	1	1	*

INDOOR UNIT (CS-4TUHV4·P·C, 5TUHV4·P·C)

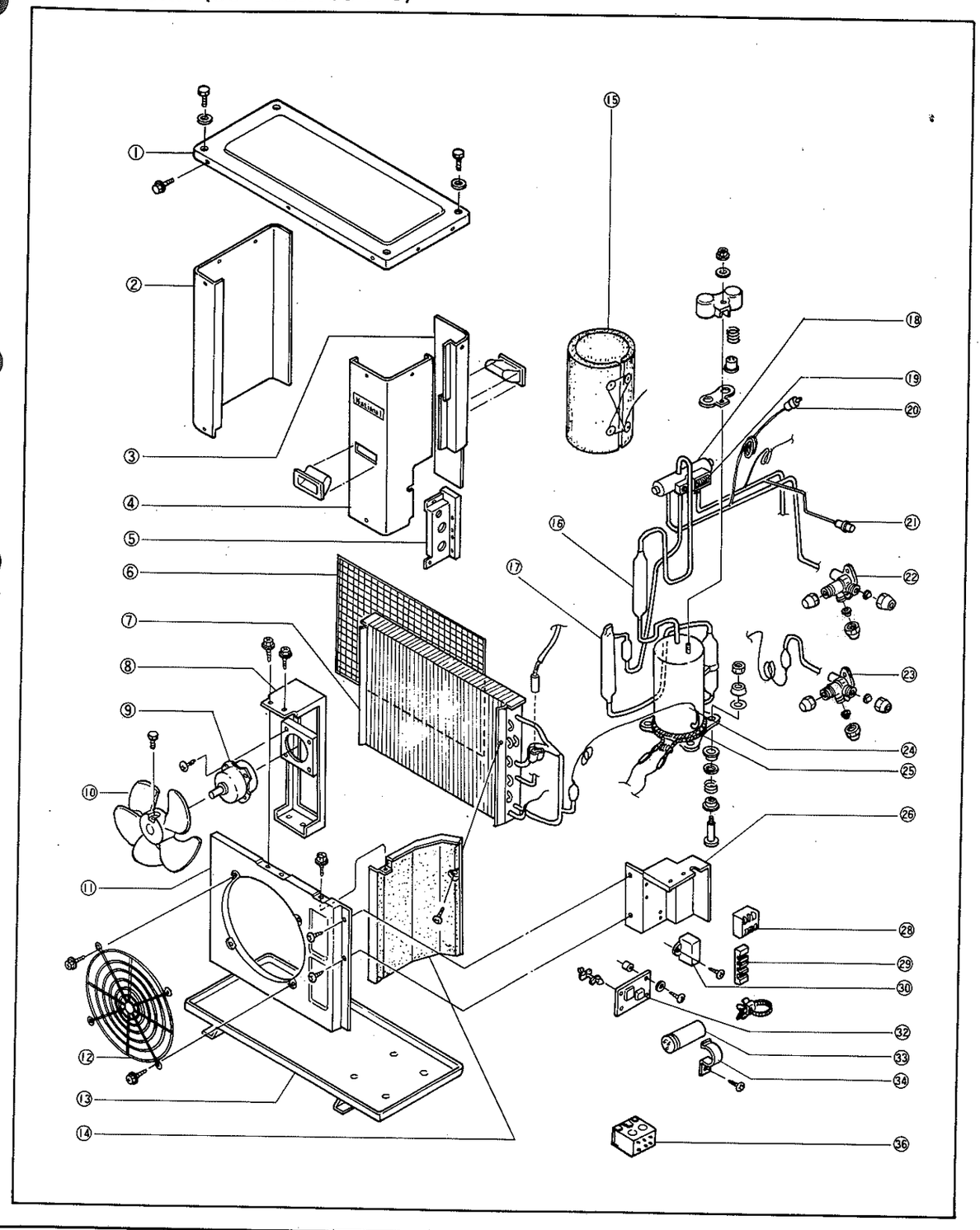


INDOOR UNIT (CS-4TUHV4 · P · C, 5TUHV4 · P · C)

REF. NO.	PARTS NAME		PARTS NUMBER CNR	QUANTITY PER 1 UNIT 4HP	QUANTITY PER 1 UNIT 5HP	
1	Hanger bracket (R)		02-815490	1	1	
2	Cabinet side (R)		42-542930	1	1	
3	Duct cover		05-800790	1	1	
4	Cabinet As		42-542850	1	1	
5	Drain read pipe		02-498640	1	1	
6	Cabinet side (L)		42-542950	1	1	
7	Hanger bracket (L)		02-815480	1	1	
8	Rubber bush (29)		39-251070	1	1	
	Rubber bush (45)		39-251090	1	1	
9	Fan motor base		06-817660	1	1	
10	Fan motor (AC 100W)	220, 380V	06-827750	1	1	*
		415V	06-827760	1	1	*
11	Bolt		05-800510	4	4	
12	Mount		06-817950	4	4	
13	Fan		05-803160	1	1	
14	Washer		05-803700	1	1	
15	Spring washer		38-427080	1	1	
16	Nut		38-817010	1	1	
17	Capillary holder		05-981550	4	4	
18	Evaporator (A)		05-803020	1	—	
	Evaporator (B)		05-803030	1	—	
	Evaporator (A)		05-803040	—	1	
	Evaporator (B)		05-803050	—	1	
19	Eva. panel (L)		05-802970	1	1	
20	Distributor As		45-564730	1	—	
			45-564740	—	1	
	Capillary tube		05-803110	4	—	
			05-801570	—	6	
21	Eva. panel (R)		05-803290	1	—	
			05-802960	—	1	
22	Union	3/8	05-399710	1	—	
		1/2	05-962170	—	1	
		3/4	05-950050	1	1	
23	Flare nut	3/8	38-890080	1	—	
		1/2	38-890090	—	1	
		3/4	38-890110	1	1	
24	Coil sensor		06-817100	1	1	
	sensor band		05-984730	1	1	
25	Drain pan		45-564770	1	1	
26	Drain pan stay		02-544150	1	1	
27	Electric condenser for FM	2MF	06-456920	1	—	*
		2.5MF	06-440300	1	—	*
		3MF	06-448790	—	1	*
28	Nut		38-890590	4	4	
29	Grille stay (L)		42-542980	1	1	
30	Grille stay (R)		42-542970	1	1	
31	Drain seal cap		05-974480	1	1	
32	Float switch plate		06-816430	1	1	
33	Drain pump cover		02-811770	1	1	
34	Drain pump holder		06-816690	1	1	
35	Mount		06-847720	3	3	
	Washer		38-490120	3	3	
	5 Tap screw		38-193610	3	3	
36	Drain pump		06-814510	1	1	*
37	Drain filter		02-498620	1	1	
38	Drain tube		02-498650	1	1	
39	Float switch As		46-813930	1	1	*
40	Float switch cover		06-813380	1	1	
41	Control box		06-816380	1	1	
42	Terminal board (10P)		06-444320	1	1	
43	Terminal number		07-466330	1	1	
44	Transformer	220, 230V	06-820810	1	1	*
		240V	06-820820	1	1	*
45	Locking support		06-496230	5	5	
46	Printed circuit board		06-827790	1	1	*
47	Control box cover		06-816390	1	1	
48	Orifice ring		05-803180	1	1	

REF. NO.	PARTS NAME		PARTS NUMBER CNR	QUANTITY PER 1 UNIT 4HP	QUANTITY PER 1 UNIT 5HP	
49	Outlet grille As	National	43-513270	1	1	
		Panasonic	43-513320	1	1	
		C	43-513370	1	1	
52	Wing As (S)		43-511220	2	2	
53	Wing As (L)		43-511200	2	2	
54	Latch		03-408920	3	3	
55	Air filter		03-412850	1	1	*
56	Sheet		03-406440	3	3	
57	Pin		03-406430	3	3	
58	Inlet grille		03-412800	1	1	
59	Wire		47-512890	1	1	
60	Cover		06-816720	1	1	
61	Escutcheon	National	07-824850	1	1	
		Panasonic	07-825150	1	1	
		C	07-825160	1	1	
62	Printed circuit board		06-827800	1	1	*
	Insulation sheet		06-817620	1	1	
63	Base		06-816710	1	1	
64	Cord		46-814320	1	1	
65	Remote controller	National	46-828550	1	1	*
		Panasonic	46-828780	1	1	*
		C	46-828790	1	1	*

OUTDOOR UNIT (CU-1.5CHV3S·P·C)

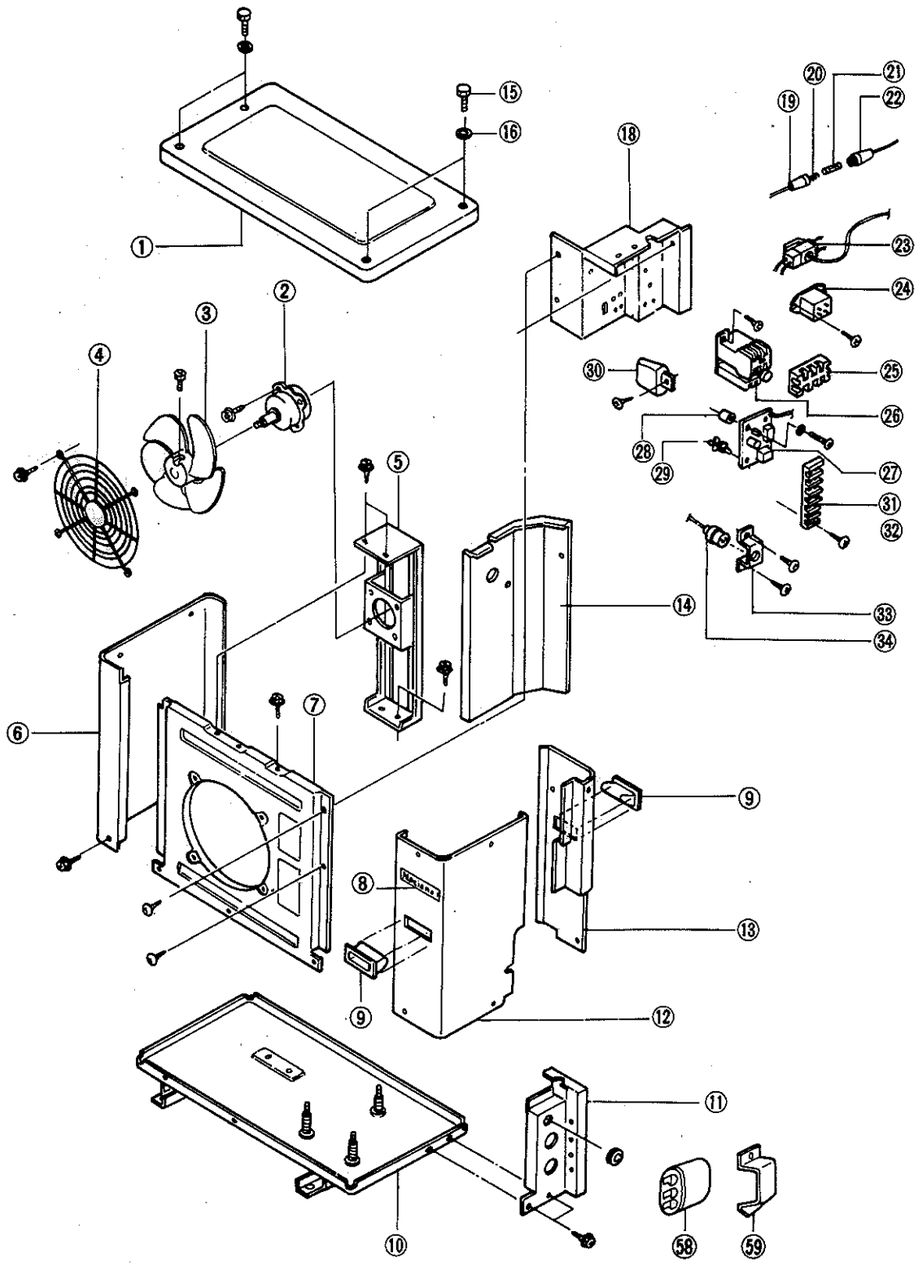


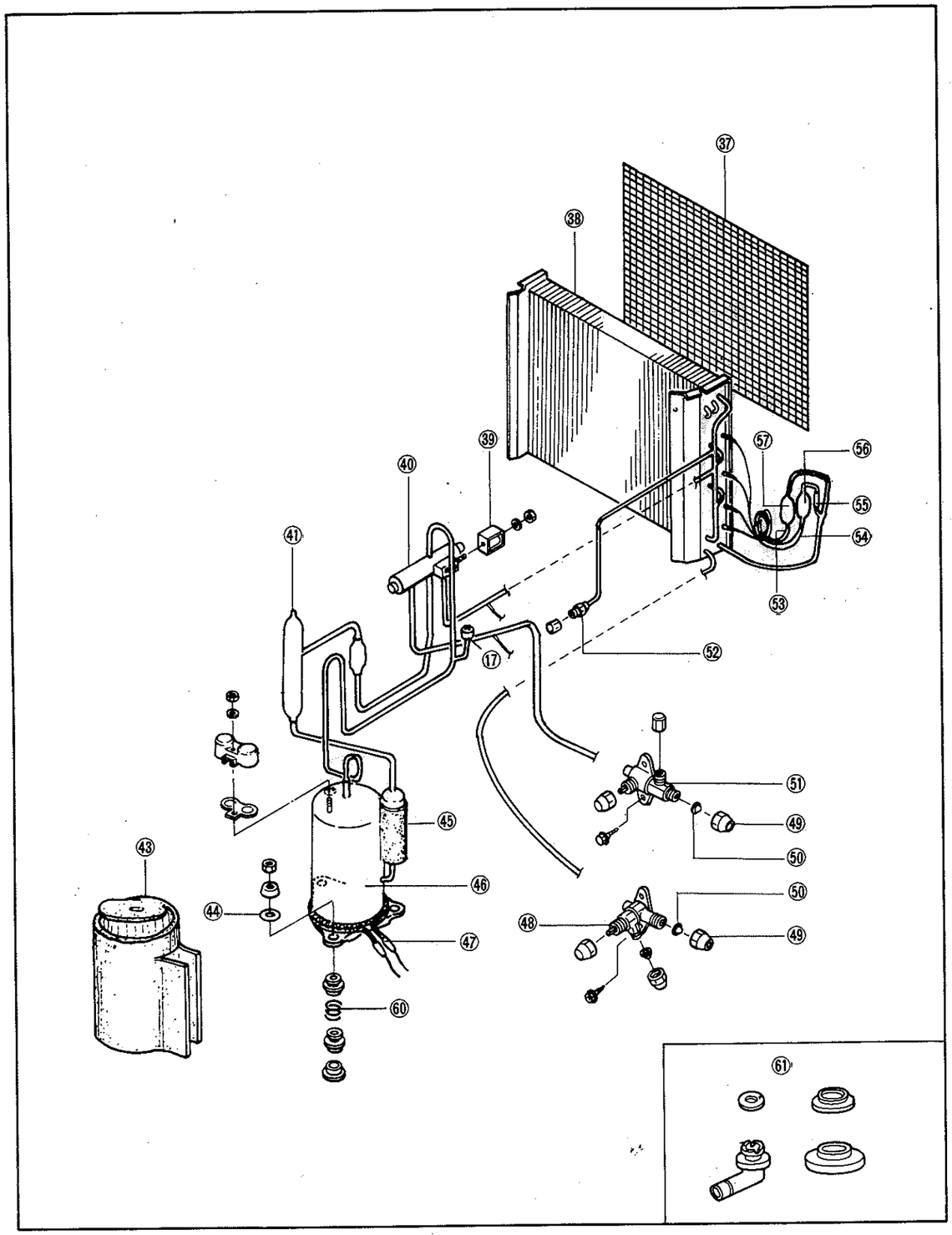
OUTDOOR UNIT (CU-1.5CHV3S·P·C)

Panasonic (220,240V)

REF. NO.	PARTS NAME		PARTS NUMBER CNR	PARTS CODE	CU-1.5CHV3S
1	Shell top		42-532450	057 800 0424 3	1
2	Side panel (L)		02-486930	057 650 2130 0	1
3	Back panel (R)		42-532480	057 802 1284 3	1
4	Front panel (R)		42-532470	057 800 0426 1	1
5	Ball valve stay		05-801680		1
6	Condenser guard		05-957820	057 802 1286 1	1
7	Condenser		05-804670		1
8	Motor stay		42-532490	057 650 2191 7	1
9	Fan motor (AC30W)	220,230V	06-494740		1
		240V	06-494750		1
10	Propeller fan		45-549020	057 650 2080 3	1
11	Front panel		02-487020	057 800 0425 2	1
12	Fan guard		42-529710	057 802 1280 7	1
13	Unit base		42-534690	057 802 1313 5	1
14	Seal plate		42-532500	057 802 1371 5	1
15	Compressor cover		05-964690	057 655 0001 1	1
16	Muffler		05-394400	007 560 0055 8	1
17	Accumulator		05-964740	007 581 0176 3	1
18	Reversing valve		05-401290	057 650 0615 2	1
19	Reversing valve coil		06-817750		1
20	Pressure switch (63H)		06-498600	003 461 0389 3	1
21	Check joint		05-391120	007 593 0501 4	1
22	Service valve (¼)		05-467920	007 579 0135 8	1
23	Ball valve (½)		05-975010	007 579 1337 6	1
24	Compressor		05-981540		1
25	Crank-case heater		46-809950		1
26	Control box		46-809910		1
28	Terminal board (2p)		06-447580	003 411 0002 5	1
29	Terminal board (5p)		06-455360	003 410 3898 0	1
30	Electric condenser for FM	220,230V	06-812750		1
		240V	06-494710		1
32	Deicer	220,230V	06-813500		1
		240V	06-813510		1
33	Electric capacitor for CM		06-496320		1
34	Capacitor band		06-238160		1
36	Compressor relay		06-812740		1
	Bimetal thermostat		06-812910		1
	Capillary tube (Heating)		05-959810		2
	Capillary tube (Cooling)		05-964850		1
	Check valve (¼)		05-953450		1
	Fuse (5A)		06-460290		2

OUTDOOR UNIT (CU-2CHV3S·P·C)



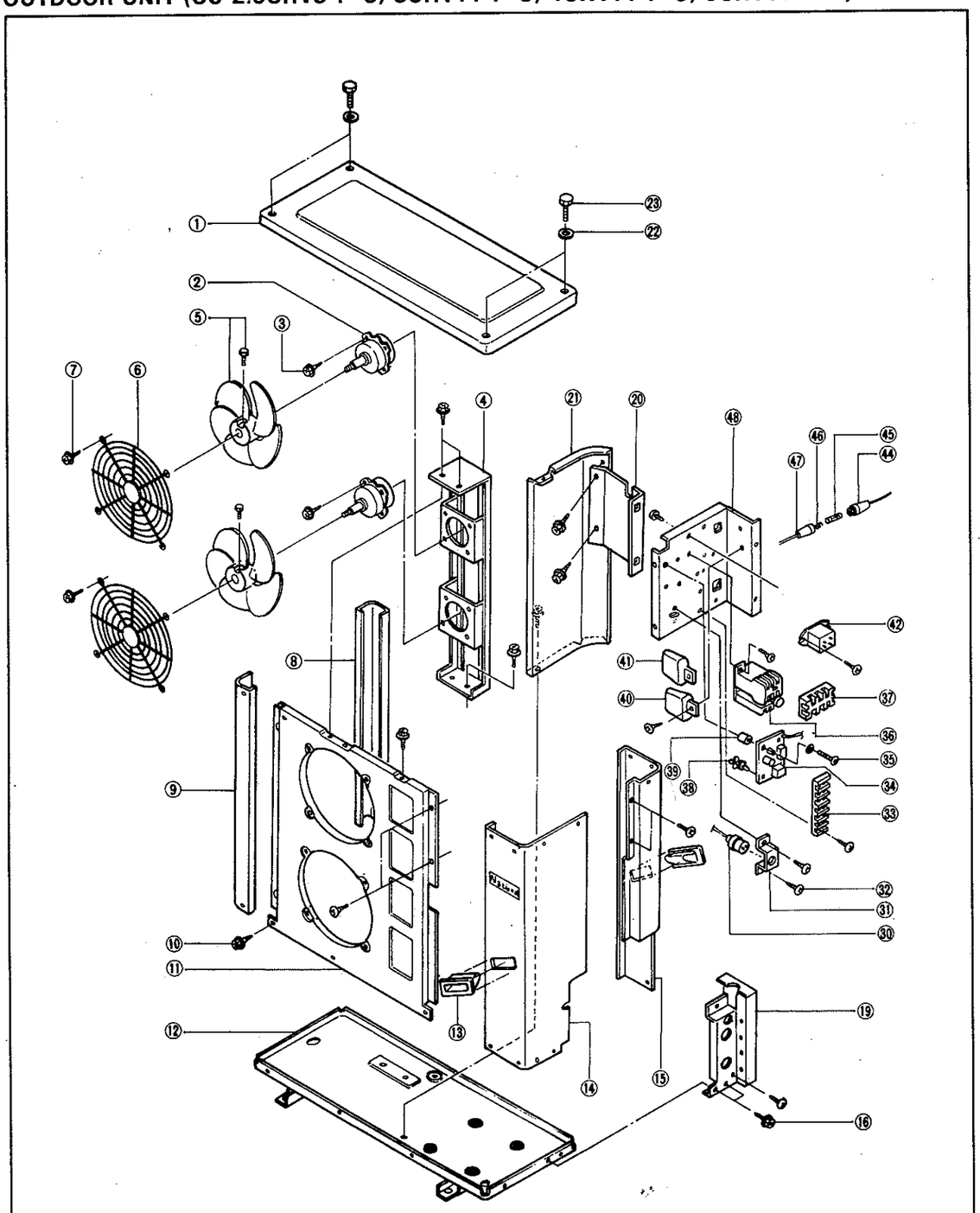


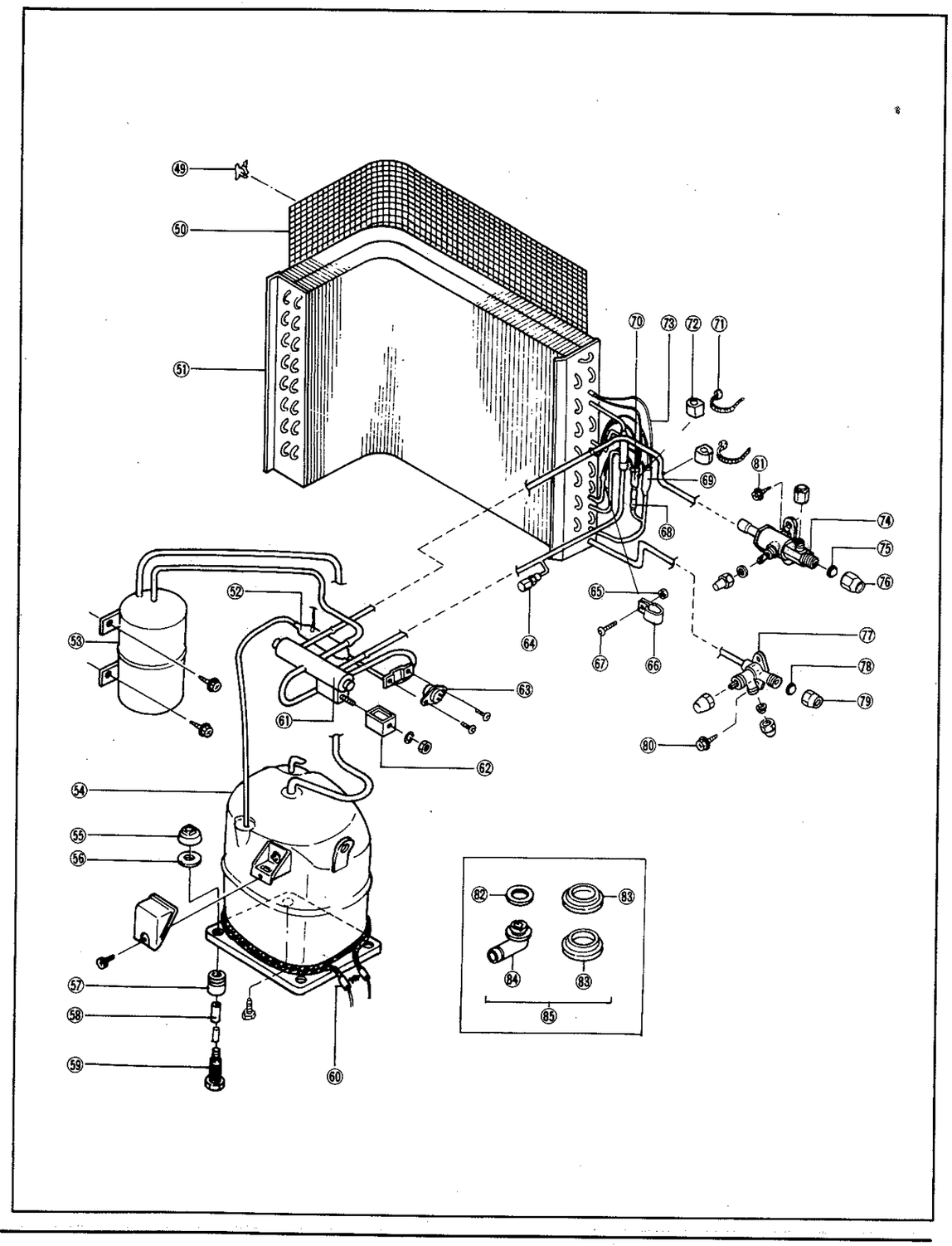
OUTDOOR UNIT (CU-2CHV3S·P·C)

Panasonic (220V,240V)

REF. NO.	PARTS NAME		PARTS NUMBER CNR	PARTS CODE	CU-2CHV3S
1	Shell top		42-532450	057 800 0424 3	1
2	Fan motor (AC30W)	220V	06-494740		1
		240V	06-494750		1
3	Propeller fan		45-549020	007 570 1678 3	1
4	Fan guard		42-529710	057 802 1280 7	1
5	Motor Stay		42-532490	057 650 2191 7	1
6	Side panel (Left)		02-486930	057 650 2130 0	1
7	Front panel		02-487020	057 800 0425 2	1
9	Shell hanger		04-400170	057 650 1180 4	2
10	Unit base		42-532390	057 802 1281 6	1
11	Ball valve stay		05-953380	057 630 0054 5	1
12	Side panel (Right)		42-532470	057 800 0426 1	1
13	Back panel (Right)		42-532480	057 802 1284 3	1
14	Seal plate		42-537790	057 802 1371 5	1
15	Bolt		38-980410	005 506 0731 7	4
16	Washer		38-418010	005 513 2821 7	4
17	Pressure switch ($63H_1$)		06-492460	003 461 0338 4	1
18	Control box		46-809910		1
19	Fuse holder (Bottom)		06-478400	003 400 4225 7	2
20	Fuse holder (Spring)		06-478390	057 726 0002 6	2
21	Fuse (5A)		06-460290	002 380 0919 7	2
22	Fuse holder (Top)		06-478380	003 400 4224 8	2
24					
25	Terminal board (TM)		06-447580	003 411 0002 5	1
26	Compressor relay	220V	06-805840		1
		240V	06-805850		1
27	Deicer	220V	06-813500		1
		240V	06-813510		1
28	Collar		06-493030	057 652 1231 0	2
29	Supporter		06-449950	057 650 1541 9	2
30	Electric condenser for FM	220V	06-494700		1
		240V	06-494710		1
31	Terminal board (5P)		06-455360	003 410 3898 0	1
33	Stay		06-486700	057 650 2667 2	1
34	Pressure switch		06-486690	003 461 0332 0	1
37	Condenser guard		05-927820	057 802 1286 1	1
38	Condenser		05-957830	006 543 0433 7	1
39	Reversing valve coil	220V 230V	06-466910		1
		240V	06-465300		1
40	Reversing valve		05-401290	057 650 0615 2	1
41	Accumulator		45-557610	007 565 6166 3	1
43	Compressor cover		05-957620	057 650 2132 8	1
44	Ring sheet		08-403980	057 650 1709 3	3
45	Insulation		02-487000	057 938 0013 3	1
46	Compressor		05-973570		1
47	Crank-case heater		06-815710		1
48	Service valve	1/4	05-467920	007 579 0135 8	1
49	Flare nut	1/4	38-890070	007 593 0507 8	1
		1/2	38-890090	007 593 0509 6	1
50	Bonnet	1/4	05-464010	057 650 1342 4	1
		1/2	05-961750	057 650 2163 1	1
51	Ball valve	1/2	05-975010	007 579 1337 6	1
52	Check joint		05-391120	007 593 0501 4	1
53	Capillary tube (Heating)		05-957860	007 565 5459 7	4
54	Capillary tube (Cooling)		05-976860	007 565 6142 1	4
55	Check valve (1/4)		05-478500	007 579 0142 9	1
56	Distributor As (Cooling)		45-551140	007 580 0241 6	1
57	Distributor As (Heating)		45-558660	007 580 0300 2	1
58	Electric condenser for CM		06-812950		1
59	Band		06-812930		1
60	Spring		05-957580	057 726 0058 4	3
61	Drain elbow		47-511120	007 566 0855 4	1

OUTDOOR UNIT (CU-2.5CHV3·P·C, 3CHV11·P·C, 4CHV11·P·C, 5CHV11·P·C)





OUTDOOR UNIT (CU-2.5CHV3·P·C, 3CHV11·P·C / CU-4CHV11·P·C, 5CHV11·P·C)

Panasonic (220,380,415V)

REF. NO.	PARTS NAME			PARTS NUMBER CNR	PARTS CODE	QUANTITY PER 1 UNIT 2.5HP	3HP	4HP	5HP
1	Shell top			42-533050	057 800 0439 6	1	1	—	—
				42-533910	057 800 0372 8	—	—	1	—
				42-533600	057 800 0433 2	—	—	—	1
2	Fan motor (AC30W)	Upper	220V 380V 400V	06-494720		1	1	—	—
		Lower		06-494740		1	1	—	—
		Upper	415V	06-494730		1	1	—	—
		Lower		06-494750		1	1	—	—
	Fan motor (AC70W)		220V 380V 400V	06-495260		—	—	2	2
			415V	06-495270		—	—	2	2
3	4 Tap screw			38-174310		8	8	—	—
	5 Tap screw			38-190190		—	—	8	8
4	Motor stay			42-530530	057 650 2134 6	1	1	—	—
				42-533550	057 650 2164 0	—	—	1	1
5	Propeller fan			45-549020	007 570 1678 3	2	2	—	—
				05-962060	007 570 1530 2	—	—	2	2
6	Fan guard			42-529710	057 802 1280 7	2	2	—	—
				42-533560	057 802 1301 9	—	—	2	2
7	5 Tap screw			38-190940	005 506 0698 1	8	8	8	8
8	Corner post			02-475060	057 800 0038 9	1	1	—	—
				02-476870	057 800 0039 8	—	—	1	1
9	Side panel (Left)			02-481670	057 650 2133 7	1	1	—	—
				02-488890	057 800 0368 4	—	—	1	1
10	5 Tap screw			38-190190	005 503 0521 0	4	4	3	3
11	Front panel			02-480930	057 800 0428 9	1	1	—	—
				02-489740	057 800 0366 6	—	—	1	—
				02-488760	057 800 0367 5	—	—	—	1
12	Unit base			42-530800	057 302 1292 3	1	—	—	—
				42-529670	057 802 1282 5	—	1	—	—
				42-534340	057 650 2030 3	—	—	1	—
				42-533520	057 650 2031 2	—	—	—	1
13	Shell hanger			04-400170	057 650 1180 4	2	2	2	2
14	Side panel (Right)			42-538680	057 800	1	1	—	—
				42-533570	057 800 0369 3	—	—	1	1
15	Back panel			42-530070	057 802 1285 2	1	1	—	—
				42-533580	057 800 0370 0	—	—	1	1
16	5 Tap screw			38-190190	005 503 0521 0	4	3	2	2
19	Service valve stay			05-953380	057 630 0054 5	1	1	1	1
21	Seal plate			42-533040	057 821 0020 2	1	1	1	1
				42-533530	057 650 2032 1	—	—	1	1
22	10 Washer			38-490450	005 513 2351 6	4	4	4	4
23	10 Bolt			38-980410	005 506 0731 7	4	4	4	4
30	High pressure switch ($63H_1$)			06-492460		1	1	1	1
	Pressure switch for heating ($63H_2$)			06-811250		1	—	—	—
				06-486690	003 461 0332 0	—	1	1	1
31	Switch bracket			06-493060	057 650 2165 9	—	1	1	1
32	4 Tap screw			38-114110	005 506 0696 3	—	2	2	2
33	Terminal board (6P)			06-444590		1	1	1	1
34	Deicer		220V 380V 400V	06-813500		1	1	1	1
			415V	06-813510		1	1	1	1
35	3 Tap screw			38-152810	005 500 4194 4	2	2	2	2
36	Compressor relay			06-486250		1	—	—	—
		220V		06-487190		—	1	—	—
				06-813340		—	—	1	—
				06-487180		—	—	—	1
		380V		06-486420		1	1	—	—
				06-487160		—	—	1	—
				06-487190		—	—	—	1
		400V		06-486420		1	1	—	—
				06-487160		—	—	1	—
				06-487190		—	—	—	1
		415V		06-486400		1	1	—	—
				06-487170		—	—	1	—
				06-487200		—	—	—	1

REF. NO.	PARTS NAME			PARTS NUMBER CNR	PARTS CODE	QUANTITY PER 1 UNIT 2.5HP	3HP	4HP	5HP
37	Terminal board	220V		06-498290		1	1	1	1
		380V 400V 415V		06-468400		1	1	1	1
38	Supporter			06-449950	057 650 1541 9	2	2	2	2
39	Collar			06-493030	057 652 1231 0	2	2	2	2
41	Electric condenser for FM	220V 380V 400V	1.6μF	06-494690		1	1	—	—
			1.4μF	06-494700		1	1	—	—
		415V	1.4μF	06-494700		1	1	—	—
			1.2μF	06-494710		1	1	—	—
		220V 380V 400V	2.5μF	06-496220		—	—	2	—
		415V	2μF	06-805530		—	—	2	—
		220V 380V 400V	3μF	06-496000		—	—	—	2
		415V	2.5μF	06-496220		—	—	—	2
42	Power relay (1P)			06-486360		—	1	1	1
44	Fuse holder (Top)			06-478380	003 400 4224 8	2	2	2	2
45	Fuse (5A)			06-460290	002 380 0919 7	2	2	—	—
	Fuse (10A)			06-462350	002 380 0921 3	—	—	2	2
46	Spring			06-478390	057 726 0002 6	2	2	2	2
47	Fuse holder (Bottom)			06-478400	003 400 4225 7	2	2	2	2
48	Control box			46-807460		1	1	—	—
				46-802220	057 650 2166 8	—	—	1	1
49	Guard Spring			02-446090	057 727 0001 2	4	4	4	4
50	Condenser guard			05-398900	057 802 1135 5	1	1	—	—
				05-963760	057 802 1305 5	—	—	1	—
				05-958290	057 802 1137 3	—	—	—	1
51	Condenser			05-976590	006 541 1138 7	1	—	—	—
				05-961010	006 541 1017 5	—	1	—	—
				05-964080	006 543 0435 5	—	—	1	—
				05-962050	006 541 1018 4	—	—	—	1
52	Muffler			05-950750		—	1	1	1
53	Accumulator			45-559540	007 581 0207 3	1	—	—	—
				45-551630	007 581 0174 5	—	1	—	—
				45-553260	007 581 0171 8	—	—	1	—
				45-551950	007 581 0170 9	—	—	—	1
54	Compressor (2.5HP)	220V50Hz		05-983780		1	—	—	—
		380V50Hz 400V50Hz 415V50Hz		05-983790		1	—	—	—
	Compressor (3HP)	220V50Hz		91-930100		—	1	—	—
		380V50Hz 400V50Hz		91-939140		—	1	—	—
		415V50Hz		91-939150		—	1	—	—
	Compressor (4HP)	220V		91-944490		—	—	1	—
		380V 400V		91-949470		—	—	1	—
		415V		91-947480		—	—	1	—
	Compressor (5HP)	220V		91-950710		—	—	—	1
		380V 400V		91-959710		—	—	—	1
		415V		91-957710		—	—	—	1
60	Crank-case heater			06-814460		1	—	—	—
				06-494670		—	1	1	—
				06-495220		—	—	—	1
61	Reversing valve			05-401290	007 579 1039 3	1	1	—	—
				05-495730	007 579 0872 2	—	—	1	—
				06-409790	007 579 0153 6	—	—	—	1
62	Reversing valve coil	220V 380V 400V		06-466910		1	1	1	1
		415V		06-465300		1	1	1	1
63	Bimetal thermostat			06-489700	003 465 1508 0	1	—	—	—
64	Check joint			05-953370	007 593 0762 6	1	1	1	1
65	Check valve	3/8		05-478500	007 579 0142 9	1	1	1	—
		5/8		05-465490	007 579 0130 3	—	—	—	1

REF. NO.	PARTS NAME		PARTS NUMBER CNR	PARTS CODE	QUANTITY PER 1 UNIT			
					2.5HP	3HP	4HP	5HP
69	Distributor & capillary tube	Heat	45-560330		1	—	—	—
		Heat	45-551570	007 580 0263 0	—	1	—	—
		Heat	45-553220	007 580 0249 8	—	—	1	—
		Heat	45-551910	007 580 0247 0	—	—	—	1
73	Capillary tube	Heat	05-492860		4	—	—	—
		Heat	05-960960	007 565 5486 4	—	3	—	—
		Heat	05-963890	007 565 5436 4	—	—	5	—
		Heat	05-951720	007 565 3740 7	—	—	—	6
74	Ball valve	5/8	05-953350	007 579 1212 8	1	1	—	—
		3/4	05-958140	007 579 0874 0	—	—	1	1
75	Bonnet	5/8	05-403040	057 650 0197 9	1	1	—	—
		3/4	05-412690	057 650 0236 9	—	—	1	1
76	Flare nut	5/8	38-890100	007 593 0510 3	1	1	—	—
		3/4	38-890110	007 593 0511 2	—	—	1	1
77	Service valve	3/8	05-391100	007 579 0847 3	1	1	1	—
		1/2	05-961740	007 579 1233 3	—	—	—	—
78	Bonnet	3/8	05-403050	057 650 0198 8	1	1	1	—
		1/2	05-961750	057 650 2163 1	—	—	—	1
79	Flare nut	3/8	38-890080	007 593 0508 7	1	1	1	—
		1/2	38-890090	007 593 0509 6	—	—	—	1
	Compressor cover		05-954830	057 650 2137 3	1	—	—	—
			05-977490		—	1	—	—
			05-398490	057 640 0299 0	—	—	1	—
			05-398500	057 640 0300 4	—	—	—	1
	Phase protector (47)	220V	06-811200		1	—	—	—
		380V 400V 415V	06-811210		1	—	—	—
	Bypass magnetic valve (20SV$_2$)	220V 380V 400V	06-466920		—	—	1	1
		415V	06-465320		—	—	1	1
	Compressor cord	—	46-811620		1	—	—	—
		220V	46-574050		—	1	—	—
		380V 400V 415V	46-810920		—	1	—	—
		—	46-810630		—	—	1	—
		220V	46-578570		—	—	—	1
		380V 400V 415V	46-810630		—	—	—	1