SERVICE MANUAL

KOLDPIA

COMMERCIAL REFRIGERATORS AND FREEZERS

Rev. APRIL 2008

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KP SUR2
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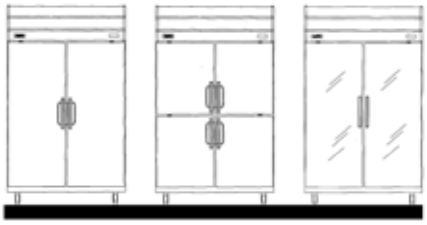

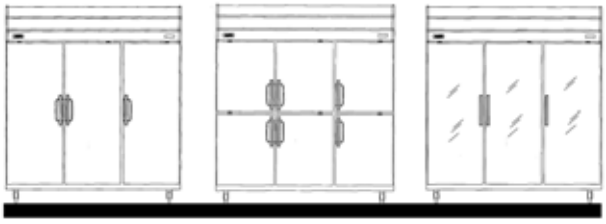

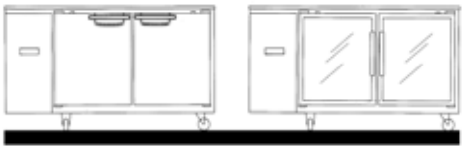

KOLDPIA

BLUE AIR Commercial Refrigeraton

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Safety Precautions for Customer Services

Important!

Please Read Before Starting

This Reach-in refrigerator 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.

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

If Necessary, Get Help

These instructions are all you need for most installstion sites and maintenance conditions.
If you require help for a special problem, contact out 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 WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electeical voltages are used in this system. Carefully refer to the wiringdiagram and these instructions when wiring. Improper connections and indequate grounding can cause accidental iniurv or death.
- Ground unit follwing local electrical codes.
- Connect all wiring tightly. Loose wiring may cause ovetheating connection points and a possible fire hazaed.

When Transporting

Be careful when picking up and moving the 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 Reach-in refrigerato can cut your fingers.

When Installing...

The following conditions should be considered when installing the refrigerator.

- **Electric Supply**

Supply voltage requirement is on the cabinet serial plate. Low or high voltage can detrimentally affect the refrigeratio unit and it is recommended to use the electric socket only for the refrigerator.

- **Grounding**

To prevent shock and fire hazards, be suretherefrigerator is properled.

- **Clearance**

Refrigerators require a minimum clearance of 7 inches between the back of the cabinet and the wall

- **Ventilation**

Refrigerators demand a sufficient amount of cool clean air. Keep the refrigerator away from sunlight and other hert anc moisture generating equipment such as stoves, oven, dishwashers, etc.

- **Floor**

Be sure the floor where you intend to install the refrigerator is strong enough to support the total weight of the refrigreator and its contenes.

- **Level**

To provide adequate drainage and proper door operation, is necessary that the refrigerator be level. this xhould be done after the refrigerator is set in its final operation positio

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 sfter you finsh, remembering to check that no metal scraps or bits of wiring have been left insic the unit being serviced.

OTHERS

- Ventilate any enclosed areas when installing or testing the refrigeration system. Escaped refrigerant gas, on contact with or heat, can produce dangerously toxic gas
- Confirm upon completing installstion that no refrigerant gas is leaking. If escaped gas comes in contact with a stove, gas water heater, electric room hester or other heat source, it can produce dangerously toxic gas.

Wash hands after handing

Handling the cord on this product or cords associated with aaccessories sold with this product, will expose you to lead a chemical known to the State of Dalifornia to caner, and birth defects or other repoductive harm.

Electric Parts Standards

Reach-in Refrigerator 1 Full Door

Division		Air-Cooled Freezer and Regrigerator	
Item		**Standards**	
Model name		**KPSR1**	**KPSF1**
Compressor	Type	AE4430Y-1SR	CAE2420Z
Evaporator		3/8" 3R × 10S × 310L	3/8" 3R × 12S × 310L
Condenser		3/8" 3R × 8S × 280L	3/8" 4R × 8S × 280L
Capillary Tube	Freezer	-	Φ1.2 × 4600L
	Refrigerator	Φ1.2 × 1800L	-
Refrigerant		R-134a	R-404a
Refrigerant Volume	Freezer	-	320g
	Refrigerator	240g	-
Defrost Heater		280W	280W
Relay Operation		KEM 682	3ARR13KP*483
Overlord Relay	Type	KEM 664-12C	MST16AHN
	ON Temperature	61℃	69℃
	OFF Temperature	105℃	120℃
Condenser Fan Moter		43W	43W
Evporator Fan Moter		9W	9W
Power Code		Φ1.2㎟ × 3C	Φ1.2㎟ × 3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e
Running Capacitor		30㎌ ~ 440 Vac	NONE

Electric Parts Standards

Reach-in Refrigerator 1 Full Door

Division		Air-Cooled Freezer and Regrigerator	
Item		**Standards**	
Model name		**KPGR1**	**KPGF1**
Compressor	Type	AE4430Y-1SR	CAE2424Z / CAE2420Z
Evaporator		3/8" 3R × 10S × 310L	3/8" 3R × 12S × 310L
Condenser		3/8" 3R × 8S × 280L	3/8" 4R × 8S × 280L
Capillary Tube	Freezer	-	Φ1.2 × 4600L
	Refrigerator	Φ1.2 × 1800L	-
Refrigerant		R-134a	R-404a
Refrigerant Volume	Freezer	-	320g
	Refrigerator	240g	-
Defrost Heater		280W	280W
Relay Operation		KEM 682-13NT	3ARR13KP*483
Overlord Relay	Type	KEM 664-12/C	MST16AHN
	ON Temperature	61℃	69℃
	OFF Temperature	105℃	120℃
Condenser Fan Moter		43W	43W
Evporator Fan Moter		9W	9W
Power Code		Φ2.0㎟ × 3C	Φ2.0㎟ × 3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e
Running Capacitor		30㎌ ~ 440 Vac	NO

Electric Parts Standards

Reach-in Refrigerator 2 Half Door

Division		Air-Cooled Freezer and Refrigerator		
Item		**Standards**		
Model name		**KPSR1H**	**KPSF1H**	**KPSRF1H**
Compressor	Type	AE4430Y-1SR	CAE2420Z	CAE2420Z
Evaporator		3/8" 3R × 10S × 310L	3/8" 3R × 12S × 310L	3/8" 3R × 10S × 310L 2EA
Condenser		3/8" 3R × 8S × 280L	3/8" 4R × 8S × 280L	3/8" 4R × 8S × 280L
Capillary Tube	Freezer		Φ1.2 × 4600L	Φ1.2 × 4600L
	Refrigerator	Φ1.2 × 1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404a	R-404a
Refrigerant Volume	Freezer	-	320g	350g
	Refrigerator	240g	-	-
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-13NT	3ARR13KP*483	3ARR13KP*483
Overlord Relay	Type	KEM 664-12/C	MST16AHN	MST16AHN
	ON Temperature	61℃	69℃	69℃
	OFF Temperature	105℃	120℃	120℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟ × 3C	Φ2.0㎟ × 3C	Φ2.0㎟ × 3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
Running Capacitor		30㎌ ~ 440 Vac	NO	NO

Electric Parts Standards

Reach-in Refrigerator 4 Half Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPSR2H**	**KPSF2H**	**KPSRF2H**
Compressor	Type	AE4440Y-1SR	CAE2420ZA × 2EA	CAE2420ZA AE4430Y-1SR
Evaporator		3/8" 3R×12S×310L	3/8"3R×12S×310L×2EA	3/8"3R×12S×310L 3/8"3R×10S×310L
Condenser		3/8" 3R×8S×280L	3/8"4R×8S×280L×2EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer	-	Φ1.2 × 4600L×2EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2 × 1800L	-	Φ1.2 × 1800L
Refrigerant		R-134a	R-404a	R-404a / R-134a
Refrigerant Volume	Freezer	-	320g×2EA	320g
	Refrigerator	260g	-	240g
Defrost Heater		280W	280W×2EA	280W×2EA
Relay Operation		KEM 682-19NT	3ARR13KP*483	3ARR13KP*483 KEM 682-19NT
Overlord Relay	Type	KEM 660-42/C	MST16AHN	MST16AHN KEM 664-12/C
	ON Temperature	61℃	69℃	69℃
	OFF Temperature	105℃	120℃	120℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟×3C	Φ2.0㎟×3C	Φ2.0㎟×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
				120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac	NO	30㎌ ~ 440 Vac
				NO

Electric Parts Standards

Reach-in Refrigerator 2 Glass Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPGR2**	**KPGF2**	**KPGRF2**
Compressor	Type	AE4440Y-1SR	CAE2420ZA × 2EA	CAE2420ZA AE4430Y-1SR
Evaporator		3/8"3R×12S×310L	3/8"3R×12S×310L×2EA	3/8"3R×12S×310L 3/8"3R×10S×310L
Condenser		3/8"3R×8S×280L	3/8"4R×8S×280L×2EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer		Φ1.2 × 4600L×2EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404A	R-404A/R-134a
Refrigerant Volume	Freezer		320g×2EA	320g
	Refrigerator	260g		240g
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-19NT	3ARR13KP*483	3ARR13KP*483 KEM 682-13NT
Overlord Relay	Type	KEM 660-42/C	MST16AHN	MST16AHN KEM 664-12/C
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟×3C	Φ2.0㎟×3C	Φ2.0㎟×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
				120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac	NO	NO
				30㎌ ~ 440 Vac

Electric Parts Standards

Reach-in Refrigerator 4 Half Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPSR2H**	**KPSF2H**	**KPSRF2H**
Compressor	Type	AE4440Y-1SR	CAE2420ZA × 2EA	CAE2420ZA AE4430Y-1SR
Evaporator		3/8"3R×12S×310L	3/8"3R×12S×310L×2EA	3/8"3R×12S×310L 3/8"3R×10S×310L
Condenser		3/8"3R×8S×280L	3/8"4R×8S×280L×2EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer		Φ1.2 × 4600L×2EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404A	R-404A/R-134a
Refrigerant Volume	Freezer		320g×2EA	320g
	Refrigerator	260g		240g
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-19NT	3ARR13KP*483	3ARR13KP*483 KEM 682-13NT
Overlord Relay	Type	KEM 660-42/C	MST16AHN	MST16AHN KEM 664-12/C
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎜²×3C	Φ2.0㎜²×3C	Φ2.0㎜²×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
				120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac	NO	NO
				30㎌ ~ 440 Vac

Electric Parts Standards

Reach-in Refrigerator 3 Full Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPSR3**	**KPSF3**	**KPSRF3**
Compressor	Type	AE4440Y-1SR AE4430Y-1SR	CAE2420ZA × 3EA	CAE2420ZA AE4440Y-1SR
Evaporator		3/8"3R×12S×310L 3/8"3R×10S×310L	3/8"4R×12S×310L×3EA	3/8"3R×12S×310L 3/8"3R×12S×310L
Condenser		3/8"3R×8S×280L 3/8"3R×8S×280L	3/8"4R×8S×280L×3EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer		Φ1.2 × 4600L×3EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L Φ1.2×1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404A	R-404A/R-134a
Refrigerant Volume	Freezer		320g×3EA	320g
	Refrigerator	260g 240g		260g
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-19NT KEM 682-13NT	3ARR13KP*483	3ARR13KP*483 KEM 682-19NT
Overlord Relay	Type	KEM 660-42/C KEM 664-12/C	MST16AHN	MST16AHN KEM 664-42C
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟×3C	Φ2.0㎟×3C	Φ2.0㎟×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac 120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e 120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac 30㎌ ~ 440 Vac	NO	NO 20㎌ ~ 440 Vac

Electric Parts Standards

Reach-in Refrigerator 3 Glass Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPGR3**	**KPGF3**	**KPGRF3**
Compressor	Type	AE4440Y-1SR AE4430Y-1SR	CAE2420ZA × 3EA	CAE2420ZA AE4440Y-1SR
Evaporator		3/8"3R×12S×310L 3/8"3R×10S×310L	3/8"3R×12S×310L×3EA	3/8"3R×12S×310L 3/8"3R×12S×310L
Condenser		3/8"3R×8S×280L 3/8"3R×8S×280L	3/8"4R×8S×280L×3EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer		Φ1.2 × 4600L×3EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L Φ1.2×1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404A	R-404A/R-134a
Refrigerant Volume	Freezer		320g×3EA	320g
	Refrigerator	260g 240g		260g
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-19NT KEM 682-13NT	3ARR13KP*483	3ARR13KP*483 KEM 682-19NT
Overlord Relay	Type	KEM 660-42/C KEM 664-12C	MST16AHN	MST16AHN KEM 664-42C
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟×3C	Φ2.0㎟×3C	Φ2.0㎟×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac 120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e 120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac 30㎌ ~ 440 Vac	NO	NO 20㎌ ~ 440 Vac

Electric Parts Standards

Reach-in Refrigerator 6 Half Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPSR3H**	**SRF-72HD**	**SRD-72HD**
Compressor	Type	AE4440Y-1SR AE4430Y-1SR	CAE2420ZA × 3EA	CAE2420ZA AE4440Y-1SR
Evaporator		3/8"3R×12S×310L 3/8"3R×10S×310L	3/8"3R×12S×310L×3EA	3/8"3R×12S×310L 3/8"3R×12S×310L
Condenser		3/8"3R×8S×280L 3/8"3R×8S×280L	3/8"4R×8S×280L×3EA	3/8"4R×8S×280L 3/8"3R×8S×280L
Capillary Tube	Freezer		Φ1.2 × 4600L×3EA	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L Φ1.2×1800L		Φ1.2 × 1800L
Refrigerant		R-134a	R-404A	R-404A/R-134a
Refrigerant Volume	Freezer		320g×3EA	320g
	Refrigerator	260g 240g		260g
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-19NT KEM 682-13NT	3ARR13KP*483	3ARR13KP*483 KEM 682-19NT
Overlord Relay	Type	KEM 660-42/C KEM 664-12/C	MST16AHN	MST16AHN KEM 664-12/C
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎟×3C	Φ2.0㎟×3C	Φ2.0㎟×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
		120㎌ ~ 250 Vac		120㎌ ~250 Vac
Running Capacitor		20㎌ ~ 440 Vac	NO	NO
		30㎌ ~ 440 Vac		20㎌ ~ 440 Vac

Electric Parts Standards

Reach-in Refrigerator Undercounter Glass Door

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**KPSUR2**	**KPSUF2**	**KPSURF2**
Compressor	Type	AE4430Y-1SR	CAE2420ZA	CAE2420ZA
Evaporator		3/8"3R×10S×310L	3/8"3R×12S×310L	3/8"3R×10S×310L
Condenser		3/8"2R×11S×180L	3/8"3R×11S×180L	3/8"3R×11S×180L
Capillary Tube	Freezer	-	Φ1.2 × 4600L	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L	-	Φ1.2×1800L
Refrigerant		R-134a	R-404a	R-404a
Refrigerant Volume	Freezer	-	320g	350g
	Refrigerator	240g	-	-
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-13NT	3ARR13KP*483	3ARR13KP*483
Overlord Relay	Type	KEM 664-12/C	MST16AHN	MST16AHN
	ON Temperature	61℃	69℃	69℃ / 61℃
	OFF Temperature	105℃	120℃	120℃ / 105℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎜²×3C	Φ2.0㎜²×3C	Φ2.0㎜²×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
Running Capacitor		20㎌ ~ 440 Vac	NO	NO

Electric Parts Standards

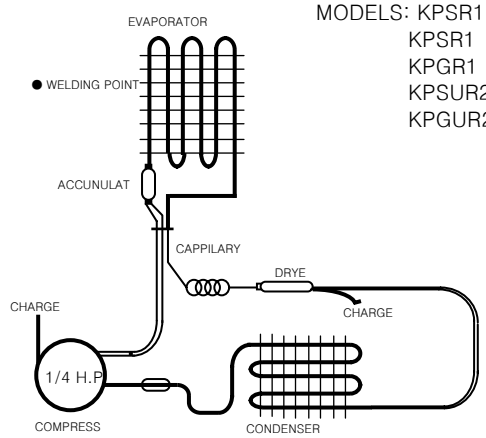
Reach-in Refrigerator Undercounter

Division		Air-Cooled Freezer and Regrigerator		
Item		**Standards**		
Model name		**SRR-16GD**	**SRF-16GD**	**SRD-16GD**
Compressor	Type	AE4430Y-1SR	CAE2420ZA	CAE2420ZA
Evaporator		3/8"3R×10S×310L	3/8"3R×12S×310L	3/8"3R×10S×310L
Condenser		3/8"2R×11S×180L	3/8"3R×11S×180L	3/8"3R×11S×180L
Capillary Tube	Freezer	-	Φ1.2 × 4600L	Φ1.2 × 4600L
	Refrigerator	Φ1.2×1800L	-	Φ1.2×1800L
Refrigerant		R-134a	R-404A	R-404A
Refrigerant Volume	Freezer	-	320g	350g
	Refrigerator	240g	-	-
Defrost Heater		280W	280W	280W
Relay Operation		KEM 682-13NT	3ARR13KP*483	3ARR13KP*483
Overlord Relay	Type	KEM 664-12/C	MST16AHN	MST16AHN
	ON Temperature	61℃	69℃	69℃
	OFF Temperature	105℃	120℃	120℃
Condenser Fan Moter		43W	43W	43W
Evporator Fan Moter		9W	9W	9W
Power Code		Φ2.0㎜²×3C	Φ2.0㎜²×3C	Φ2.0㎜²×3C
Ground Screw		Brass Bolt / Nut	Brass Bolt / Nut	Brass Bolt / Nut
Starting Capacitor		120㎌ ~ 250 Vac	160V~40 ÷ 60HZ 315㎌-0+20%e	160V~40 ÷ 60HZ 315㎌-0+20%e
Running Capacitor		30㎌ ~ 440 Vac	NO	NO

System Diagram pf Refigeration Cycle

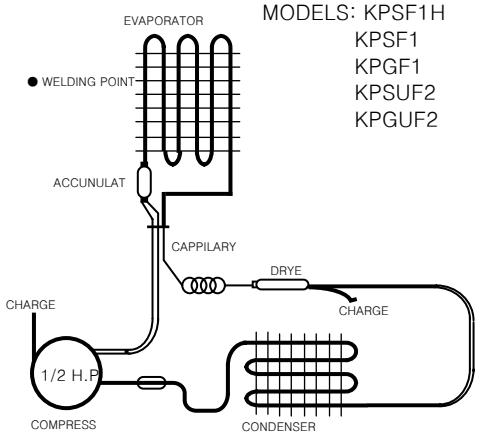
Refregeration

MODELS: KPSR1H
KPSR1
KPGR1
KPSUR2
KPGUR2



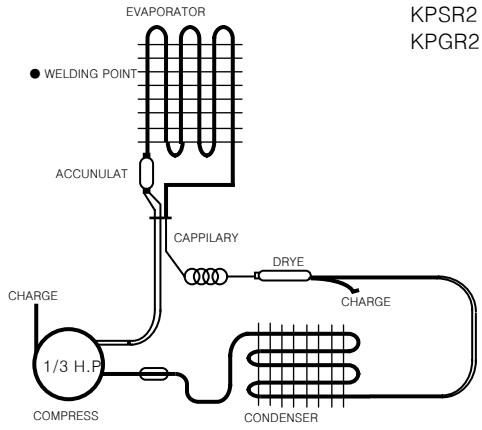
Freezer

MODELS: KPSF1H
KPSF1
KPGF1
KPSUF2
KPGUF2



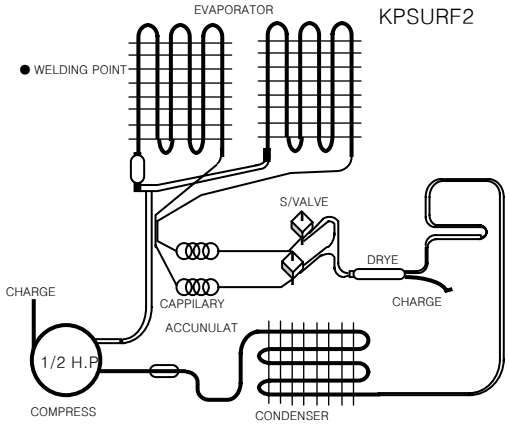
Refregeration

MODELS: KPSR2H
KPSR2
KPGR2



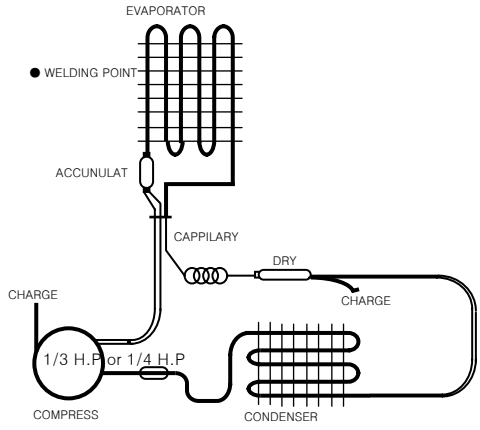
Refregeration/Fre

MODELS: KPSRF1H
KPSURF2

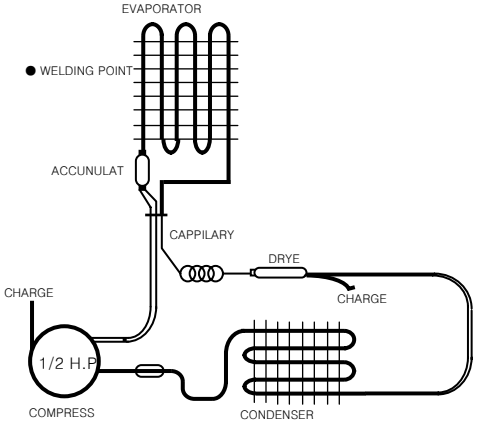


Refregeration

MODESL: KPSRF2H
KPSRF2
KPGRF2
KPSRF3H
KPSRF3
KPGRF3

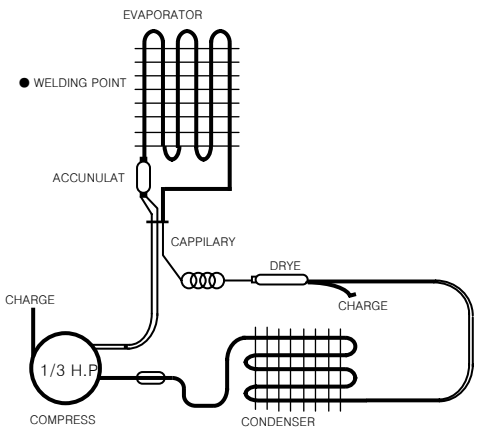


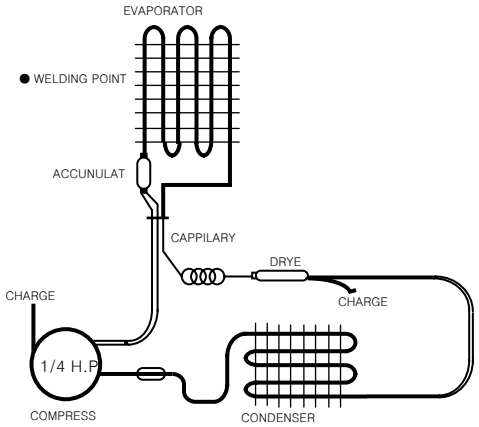
Freezer



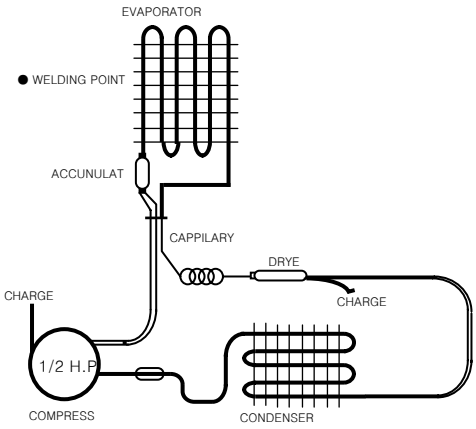
System Diagram pf Refigeration Cycle

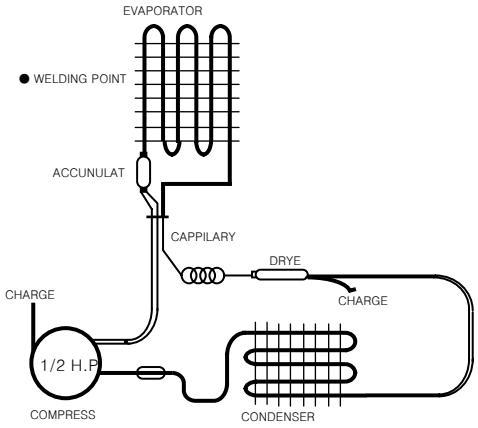
Refregeration MODEL: KPSR3H KPSR3 KPGR3



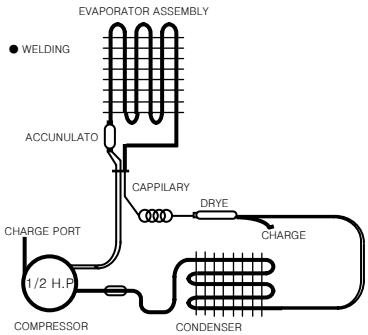


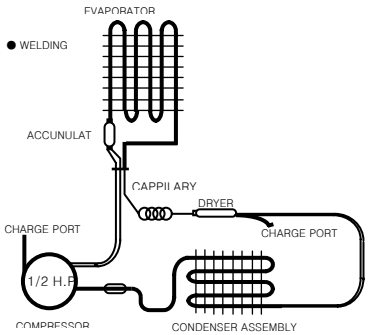
Freezer MODEL: KPSF2H KPSF2 KPGF2

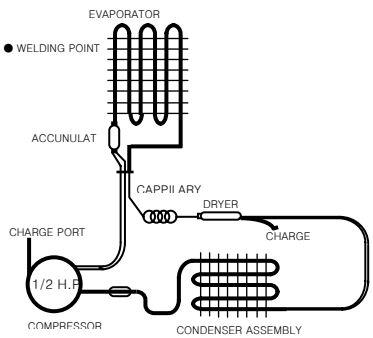




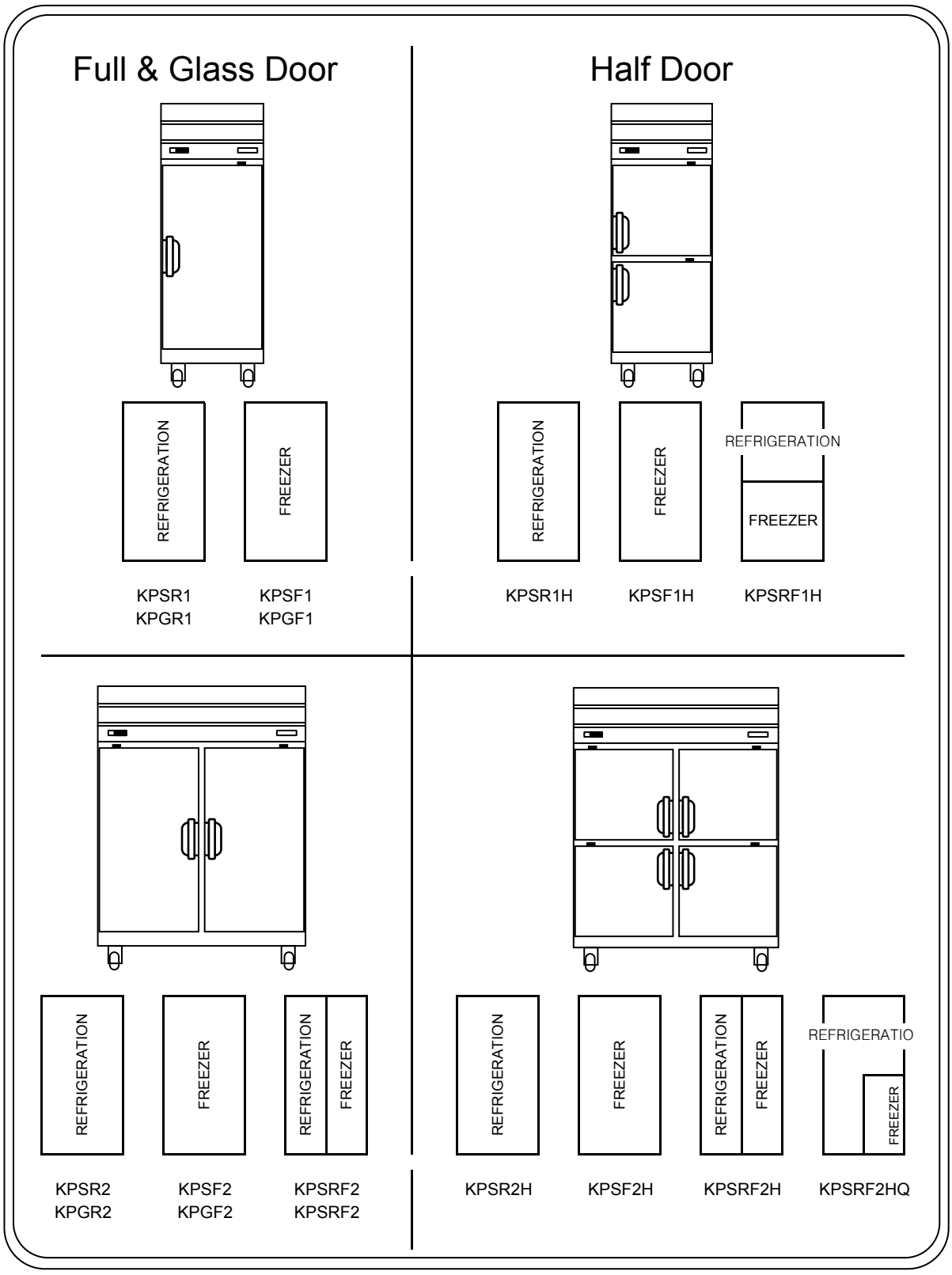
Freezer MODEL: KPSF3H KPSF3 KPGF3





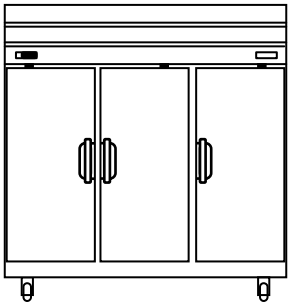


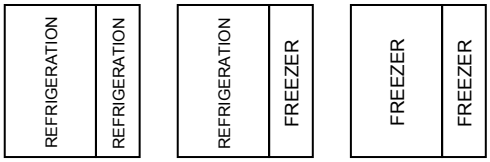
Functional Structure for Each Model



Functional Structure for Each Model

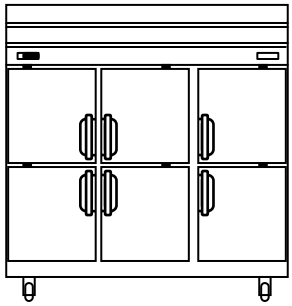
Full & Glass Door

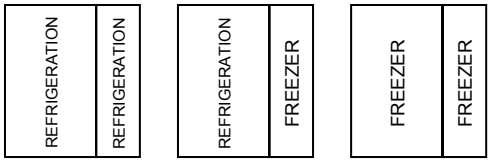




KPSR3 KPGR3 | KPSRF3 KPGRF3 | KPSF3 KPGF3

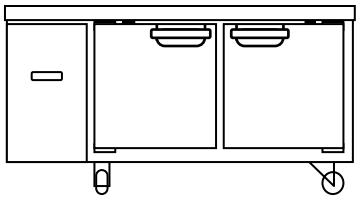
Half Door

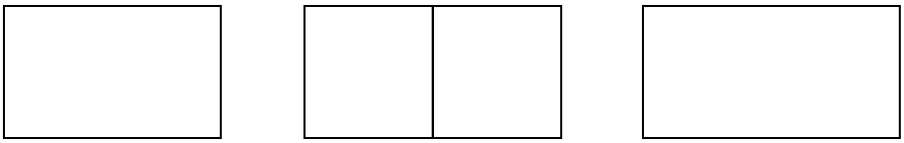




KPSR3H | KPSRF3H | KPSF3H

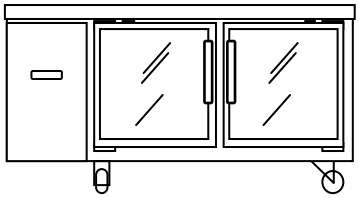
Under Counter Half Door

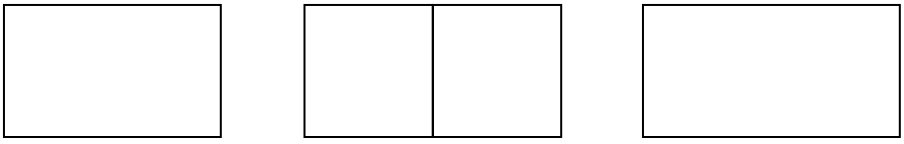




KPSUR2 | KPSURF2 | KPSUF2

Under Counter Glass Door

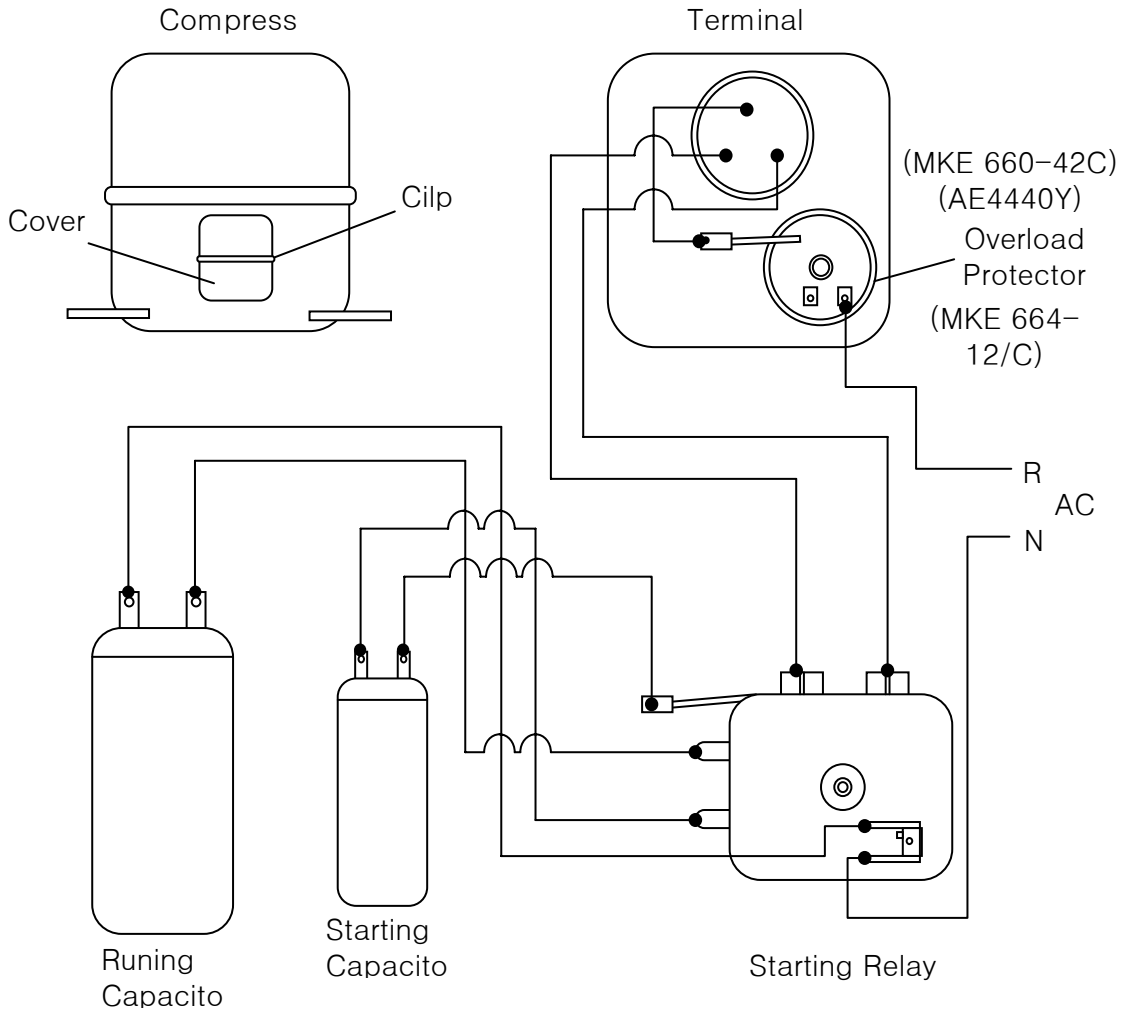




KPGUR2 | KPGURF2 | KPGUF2

Compressor Wiring Diagram

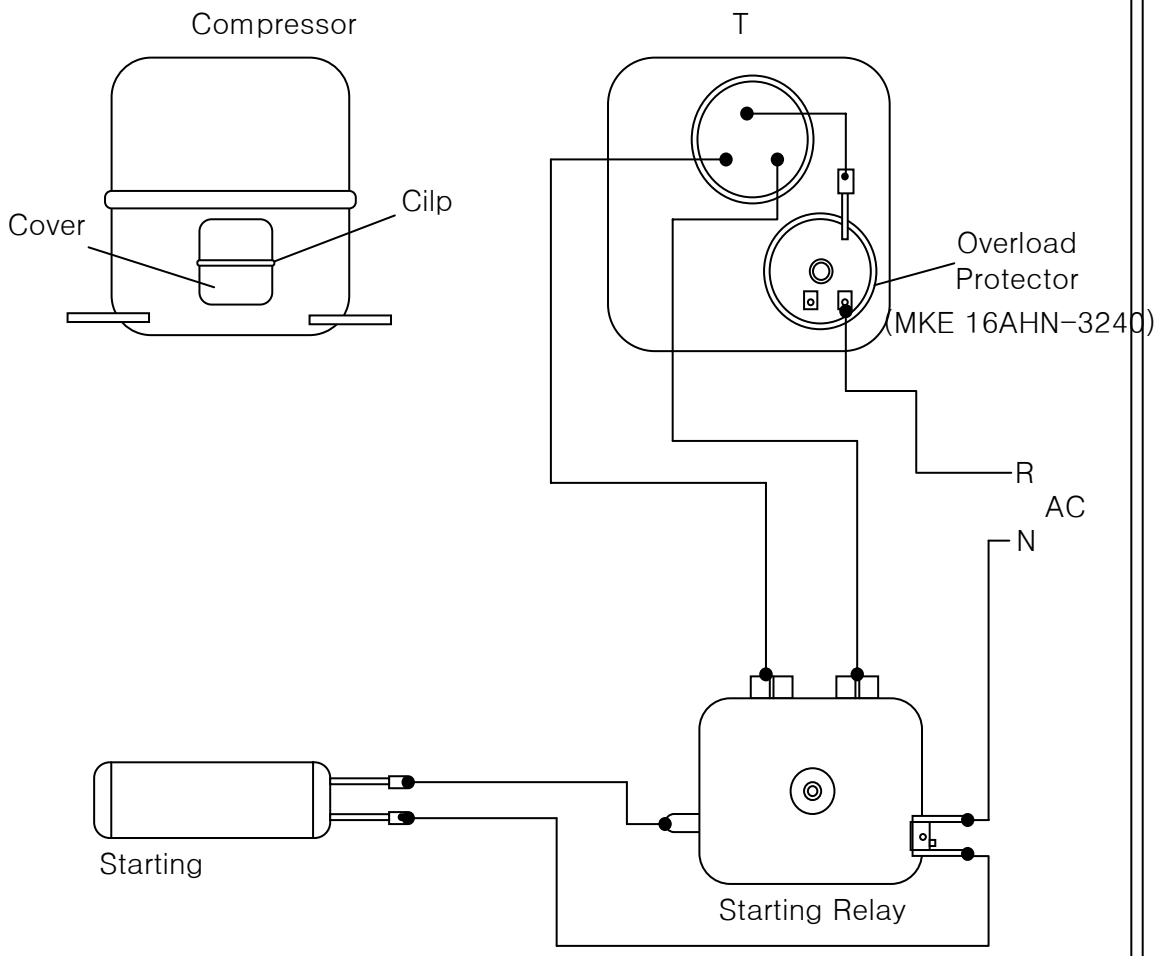
Models : AE4430-1SR, AE4440Y-1SR



Model	Starting Capacitor	Running Capacitor	Starting Relay
AE4430Y-1SY	120㎌ 250Vac	30㎌ 440Vac	KME 682-13NT
AE4440Y-1SY	120㎌ 250Vac	20㎌ 440Vac	KME 682-19NT

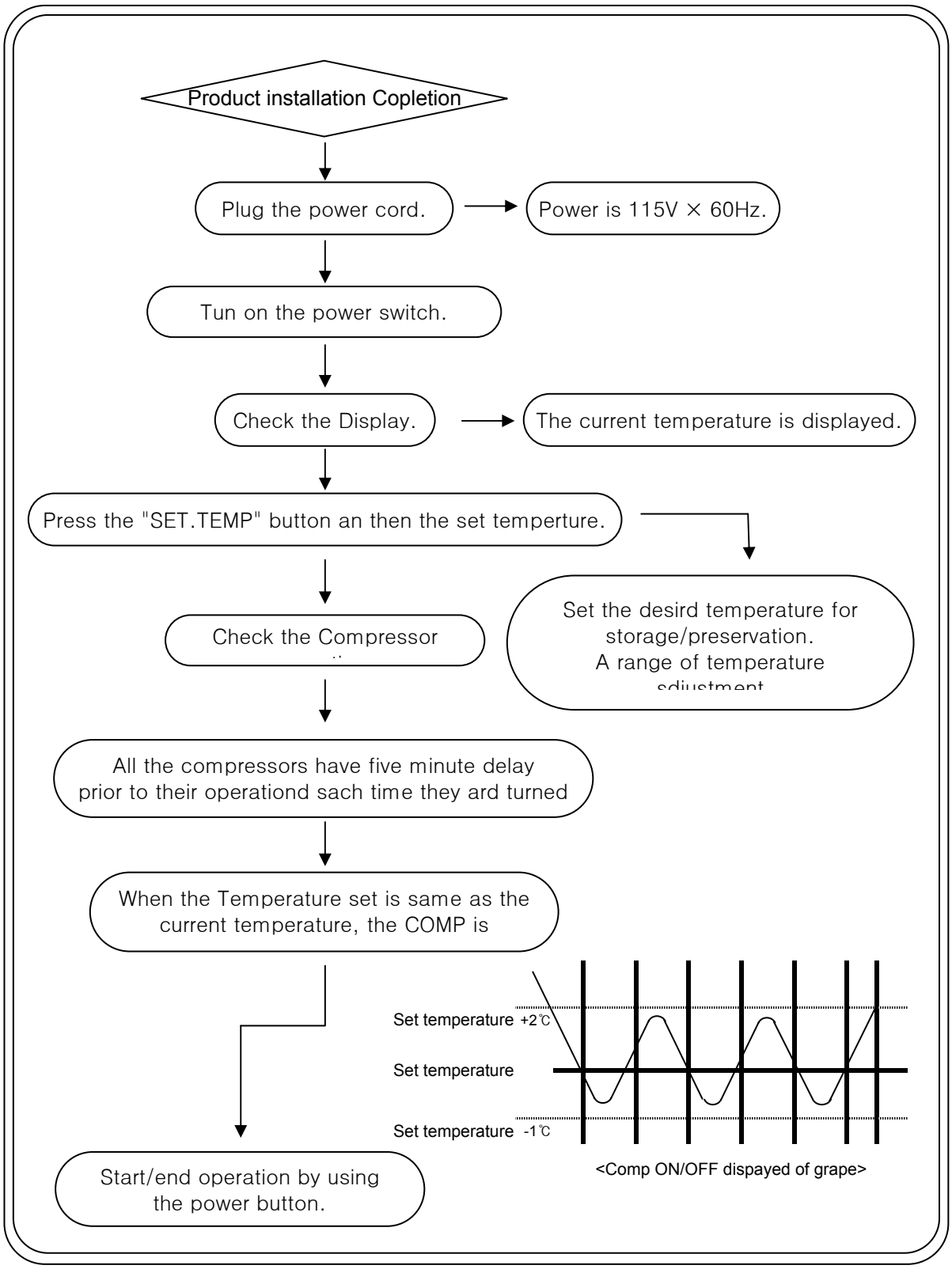
Compressor Wiring Diagram

Models : CAE2420Z



Model	Starting Capacitor	Starting Relay
CAE2420Z	315㎌	3ARR13KP * 483

Circuit Operation



Operation Time Flow

※ Cooling Cycle

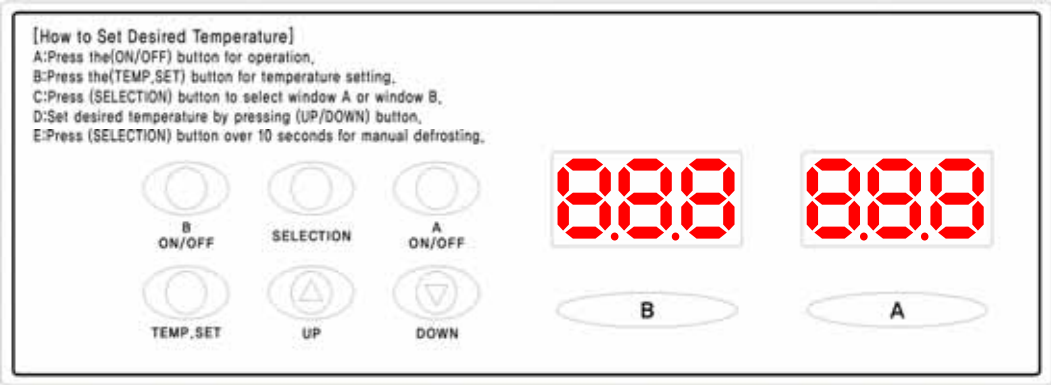
	Cooling
LAMP	Lighted on when the door is opened by the door switch. (Lighted on by switch in glass door unit.)
COMPRESSOR	Set value "o". Running off at set temperature value.running on at set value "o".
COND FAN MOTOR	Run with compressor. Running off at set temperature value. Runing on at set value "o".
DOOR HEATER	Keep running
EVAPORATOR HEATER (Drain box heater)	Keep running. It's controled by thermal protector.
DEFROST HEATER	Running off
DRAIN HEATER	Running off
EVAP. FAN MOTOR	Keep running, Running off when the door is opened.

※ Defrosting Cycle

	Defrosting	Cooling
LAMP	Lighted on when the door is opened by the door switch. (Lighted on by switch in glass door unit.)	
COMPRESSOR	Running off during defrosting time, Running 3 min. later again after defrosting.	
COND FAN MOTOR	Running off during defrosting time, Running 3 min. later again after defrosting.	
DOOR HEATER	Keep running	
EVAPORATOR HEATER (Drain box heater)	Keep running. It's controled by thermal protector.	
DEFROST HEATER	Running off when EVAP. coil temperature goes up being set value "t"	
DRAIN HEATER	Running with defrosting, 3 min. more after defrosting.	
EVAP FAN MOTOR	Running off during defrosting time, Running 1 min. later again after compressor runing.	

※ Initiall set value : FFF, H04, t56, C03, O6, D30, P06

PCB Operation Method Each Mode



1. The common value setting method

1) "A ON/OFF & B ON/OFF" are power switch for each cabinet.

2) "TEMP.SET" makes you to set the temperature value in all cabinet.

3) "SELETION" makes you to choose the cabinet that you want when you set a value.

4) "UP&DOWN" makes you to adjust every commom value.

5) Hold pushing the "TEMP.SET" button for five seconds, it can be available to set the common value of control.

2. Common value of Control

- Temperature deviation adjustment(0°~9°F) value "H".
  - To adjust different measurement between on PCB and thermo sensor due to wire length.
- Defrosting time setting (1~60 minutes) value "d".
- Defrost heater turn off setting (37°F~90°F) value "t".
- Compressor delay time setting (1~15 minutes) value "C".
- Automatic defrosting period setting (every1~24 hours) value "P".
- Compressor turn on deviation adjustment(1~20°F) value "o".
- Each value can be adjust ed by UP & DOWN button.

3. PCB Mode

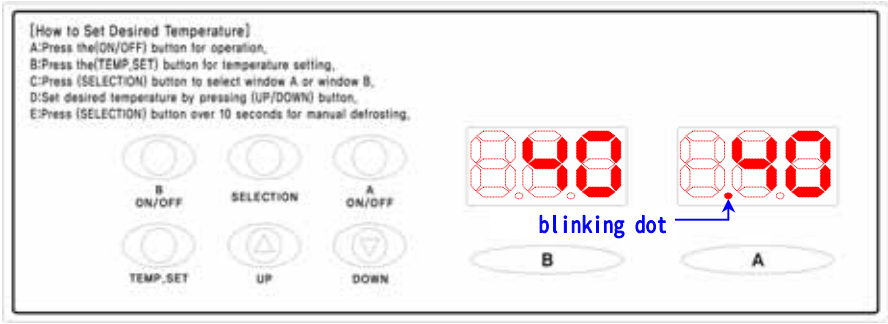
PCB Mode	Appliation For Model	
A-1, A-1 Mode	KPSRF2H	KPSRF2, KPGRF2
	KPSRF3H	KPSRF3, KPGRF3
	KPSR3H	KPSR3, KPGR3
A-1 Mode	KPSUF2	KPGUF2
	KPSUR2	KPGUR2
	KPSR1H	KPSR1, KPGR1
	KPSF1H	KPSR2, KPGR2
A-2 Mode	KPSF2H	KPSF2, KPGF2
b-1, b-1 Mode	KPSRF1H	KPSURF2, KPGURF2
C-1 & C-1 Mode	KPSF3H	KPSF3, KPGF3

Details of PCB(Controller) setting

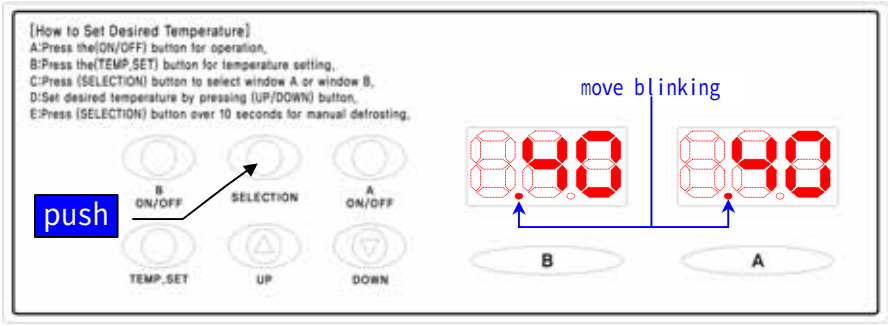
1. Common value of control select

1) Temperature setting

- Push the "TEMP.SET" button and you can see the current set value with blinking red dot .



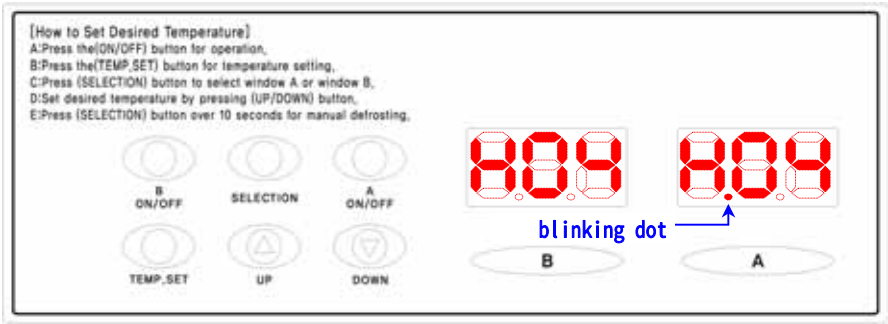
- You can set the temperature value by "UP & DOWN" button.
- Finally you must to push "TEMP.SET" button one more time and the inside cabinet temperature is set.
- When the cabinet are two, you can select the cabinet by "SELECTION" button below picture.



2. Common value of Control setting

1) Value "H" setting

- Hold pushing the "TEMP.SET" button for five seconds and the windows will be changed.



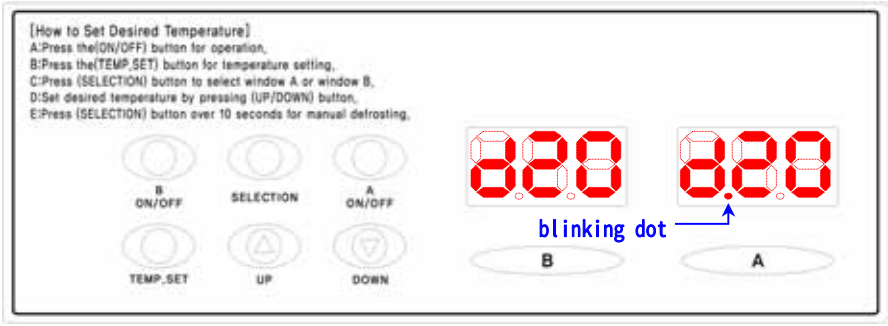
*Blinking dot shows window that can be changed.

- The "H" value is not necessary to change. Because "H" is fixed value at the factory.

Details of PCB(Controller) setting

2) Value "d" setting

- Push the "TEMP.SET" button one more time after "H" value.
- Then "d" value can be shown.



*Blinking dot shows window that can be changed.

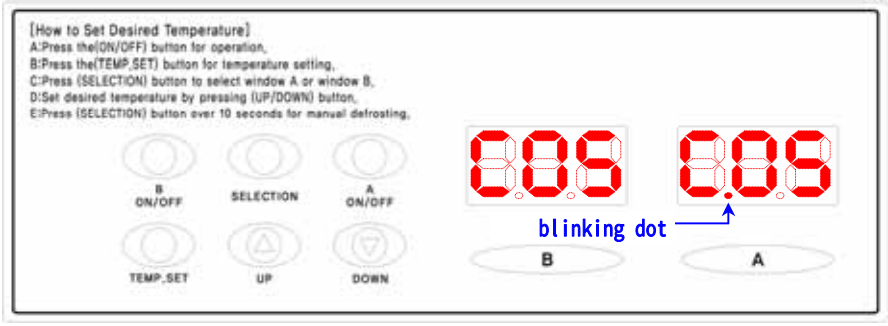
2) Value "t" setting

- Push the "TEMP.SET" button one more time after "d" value.
- Then "t" value can be shown.

*Blinking dot shows window that can be changed.

2) Value "C" setting

- Push the "TEMP.SET" button one more time after "t" value.
- Then "C" value can be shown.

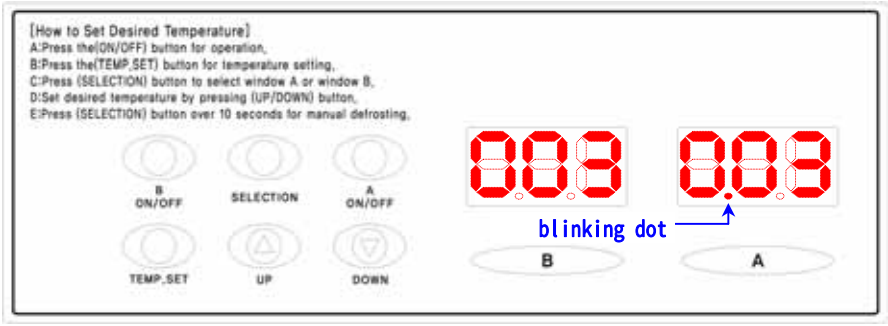


*Blinking dot shows window that can be changed.

Details of PCB(Controller) setting

2) Value "o" setting

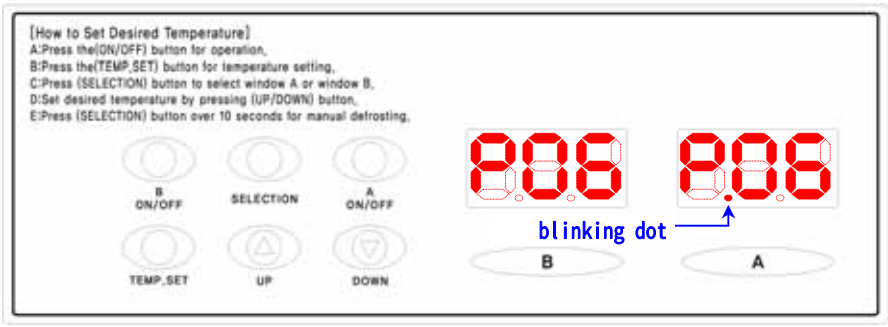
- Push the "TEMP.SET" button one more time after "C" value.
- Then "o" value can be shown.



*Blinking dot shows window that can be changed.

2) Value "p" setting

- Push the "TEMP.SET" button one more time after "o" value.
- Then "p" value can be shown.



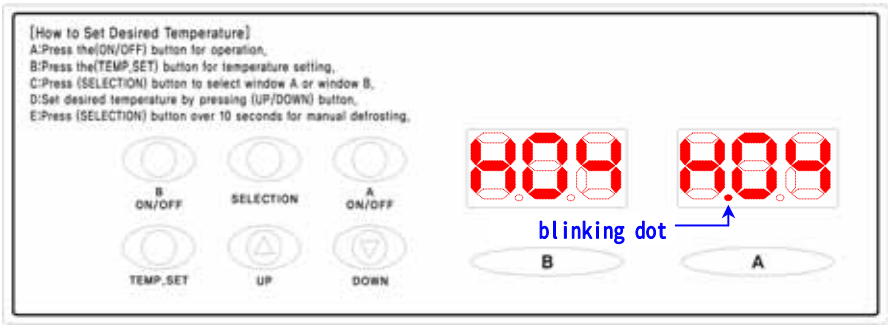
*Blinking dot shows window that can be changed.

♠ Every each value can be changed by "UP & DOWN"
and it's finished to push "TEMP.SET" button after changing a value.

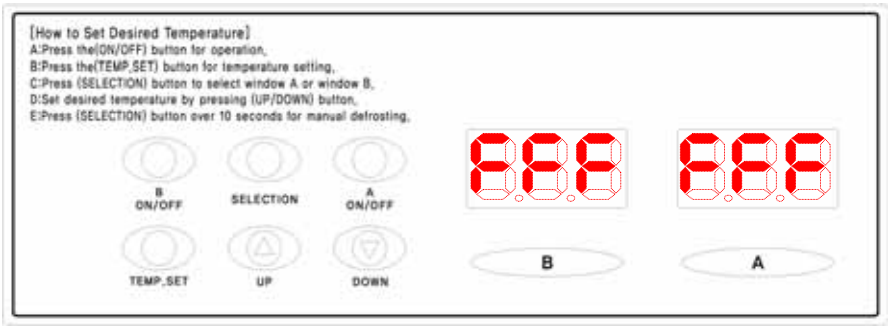
Details of PCB(Controller) setting

3. Temperature "Mode" select

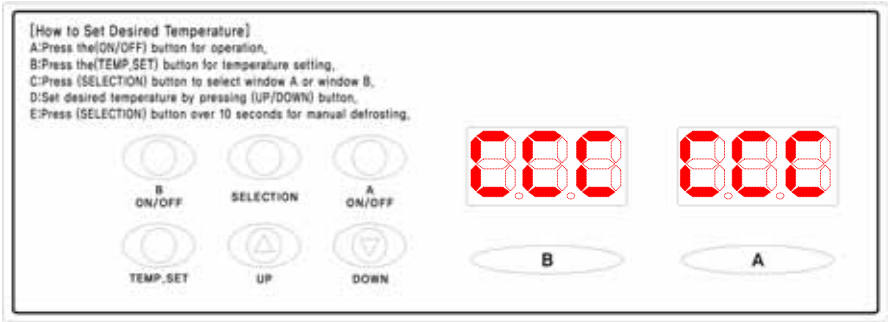
- Hold pushing the "TEMP.SET" button for five seconds and the windows will be changed.



- Hold pushing the "TEMP.SET" button more five seconds and the windows will be changed.



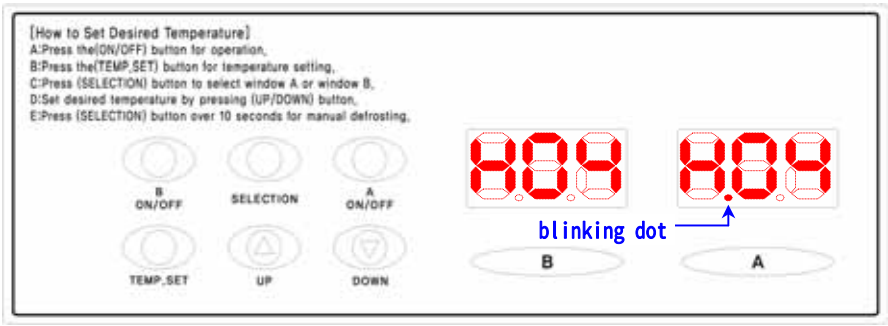
- "FFF"or"CCC" can be shown and you can change that by "UP & DOWN"button.
- Finally you must to push "TEMP.SET" button one more time and the temperature mode is set with rebooting controller(It wouldn't be rebooted when the"Mode" isn't changed.).



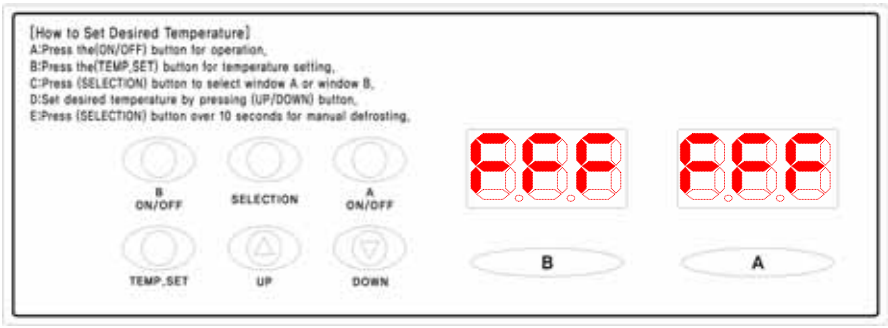
Details of PCB(Controller) setting

3. Controller "Mode" select

- Hold pushing the "TEMP.SET" button for five seconds and the windows will be changed.

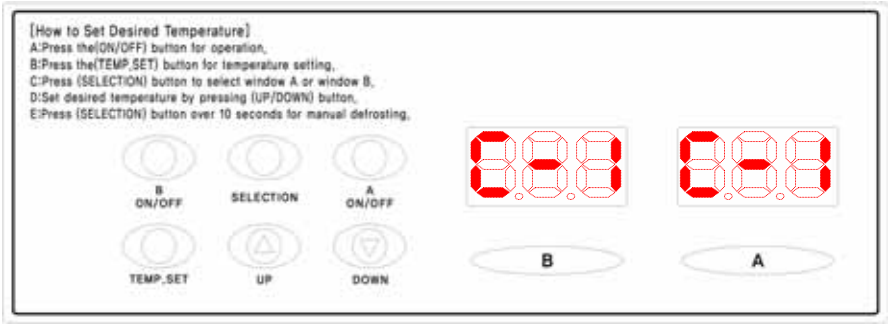


- Hold pushing the "TEMP.SET" button more five seconds and the windows will be changed.



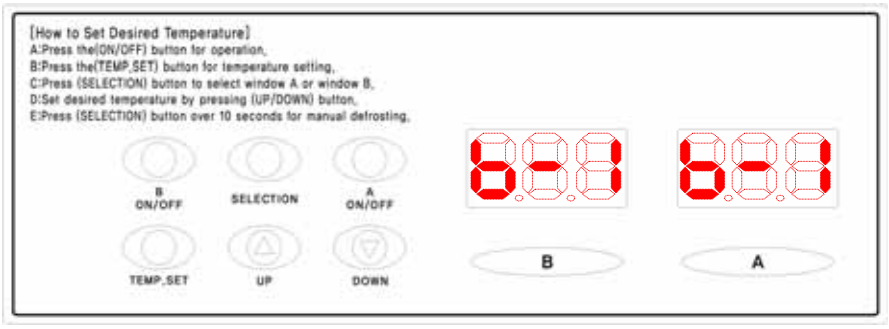
- After "FFF"or"CCC" being shown, Push the "TEMP.SET" button one more.
- One of the "Mode" can be shown.
- You can change the "Mode" by "UP & DOWN" button
- Finally you must to push "TEMP.SET" button one more time and the mode is set with rebooting controller(It wouldn't be rebooted when the"Mode" isn't changed.).

♠ Every type of the "Mode" is shown below.

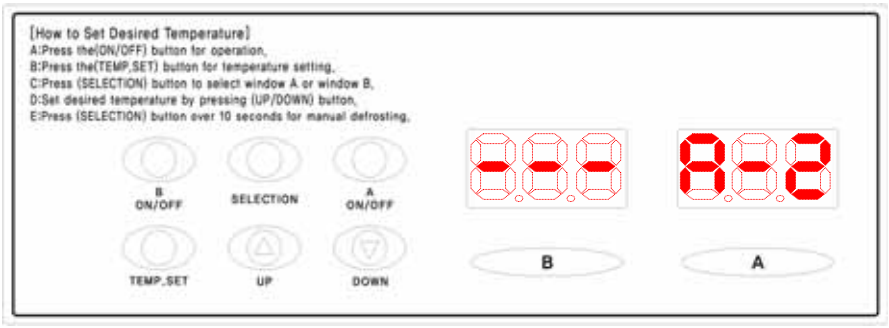


<C-1,C-1>

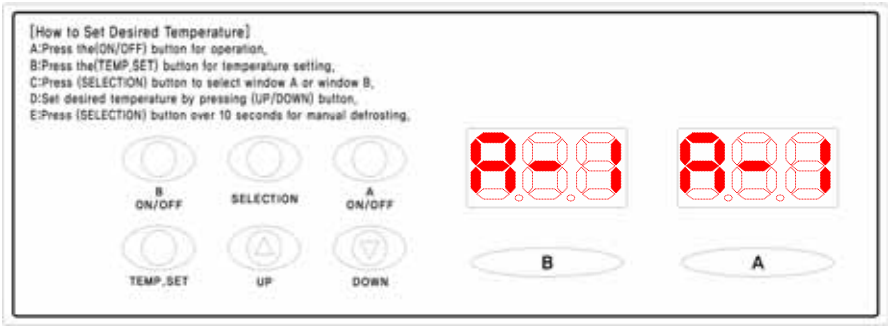
Details of PCB(Controller) setting



<b-1,b-1>



<A-2>



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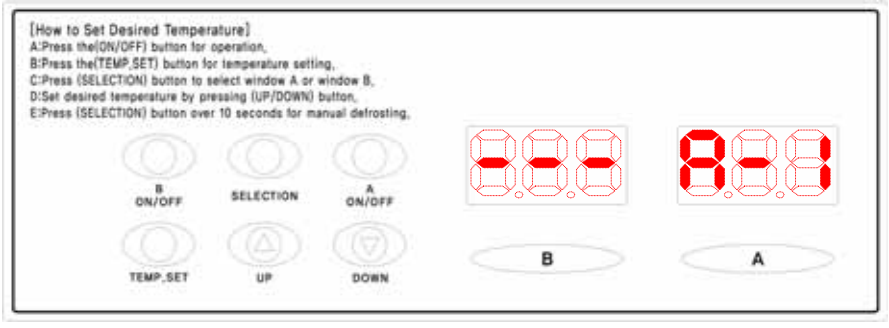


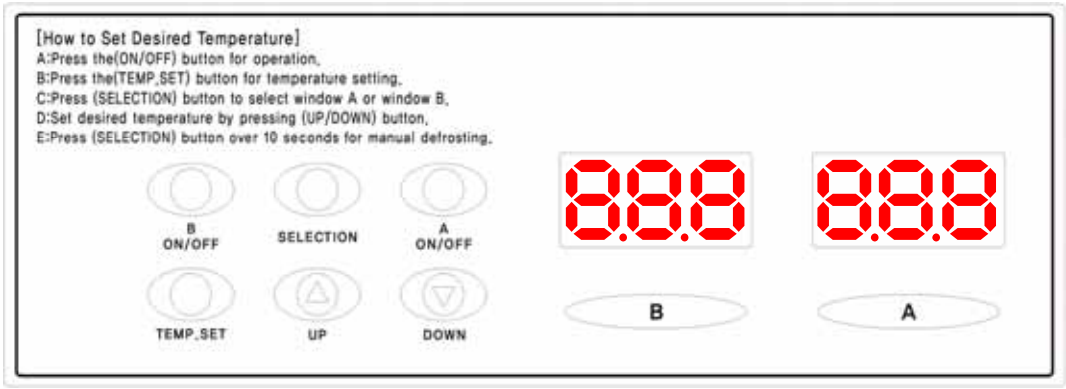
<A-1>

Standard PCB(Controller) Setting

Reach-in Product

Direction	Range	Refrigerator	Freezer
H	00 degree ~ 09 degrees	4	4
● Temperature Deviation Adjustment(0°~9°F) -To adjust different measurement between on PCB and thermo sensor due to wire length.			
d	1min ~ 60min	30	20
● Defrosting Time setting			
t	37°F ~ 90°F	50	57
	3°C ~ 32°C	13	14
● Maximum EVAP. Coil temperature setting for defrosting.			
C	01min ~ 15min	5	5
● Force the compressor delay time setting			
o	1 degree ~ 20 degrees	3	3
● Compressor Turn ON Deviation Adjustmen -The Cooling system will be operated when the inside cabinet temperature goes up set temperature to "o" value.			
p	01hour ~ 24hours	12	3
● Automatic Defrosting Period Setting			

PCB Operation Method Each Mode



Turn on the power switch

Press adjustment switch(Temp.set) for five seconds.

Will be displayed "FFF" on PCB controller.

Press adjustment switch(Temo.set) for one time.

Press "UP" or "DOWN" button decrease time or increase time.

Will be displayed "CCC" on PCB controller.

Press adjustment switch(Temo.set) for one time.

Press "UP" or "DOWN" button decrease temperature or increase temperature.

Will be displayed "H00" on PCB controller.

Press adjustment switch(Temp.set) for one time.

Press "UP" or "DOWN" button decrease time or increase time.

Will be displayed "d00" on PCB controller.

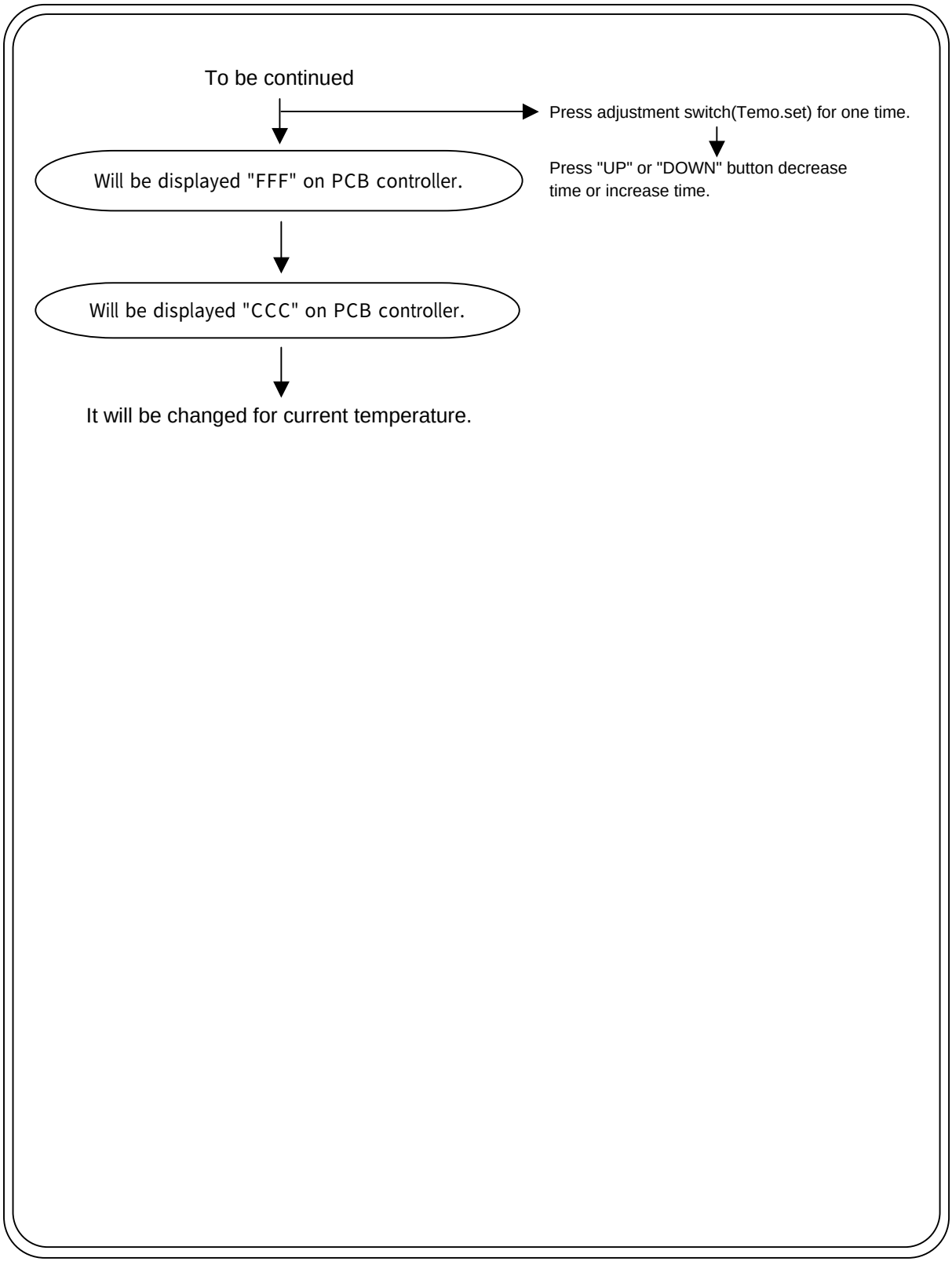
Press adjustment switch(Temp.set) for one time.

Press "UP" or "DOWN" button decrease temperature or increase temperature.

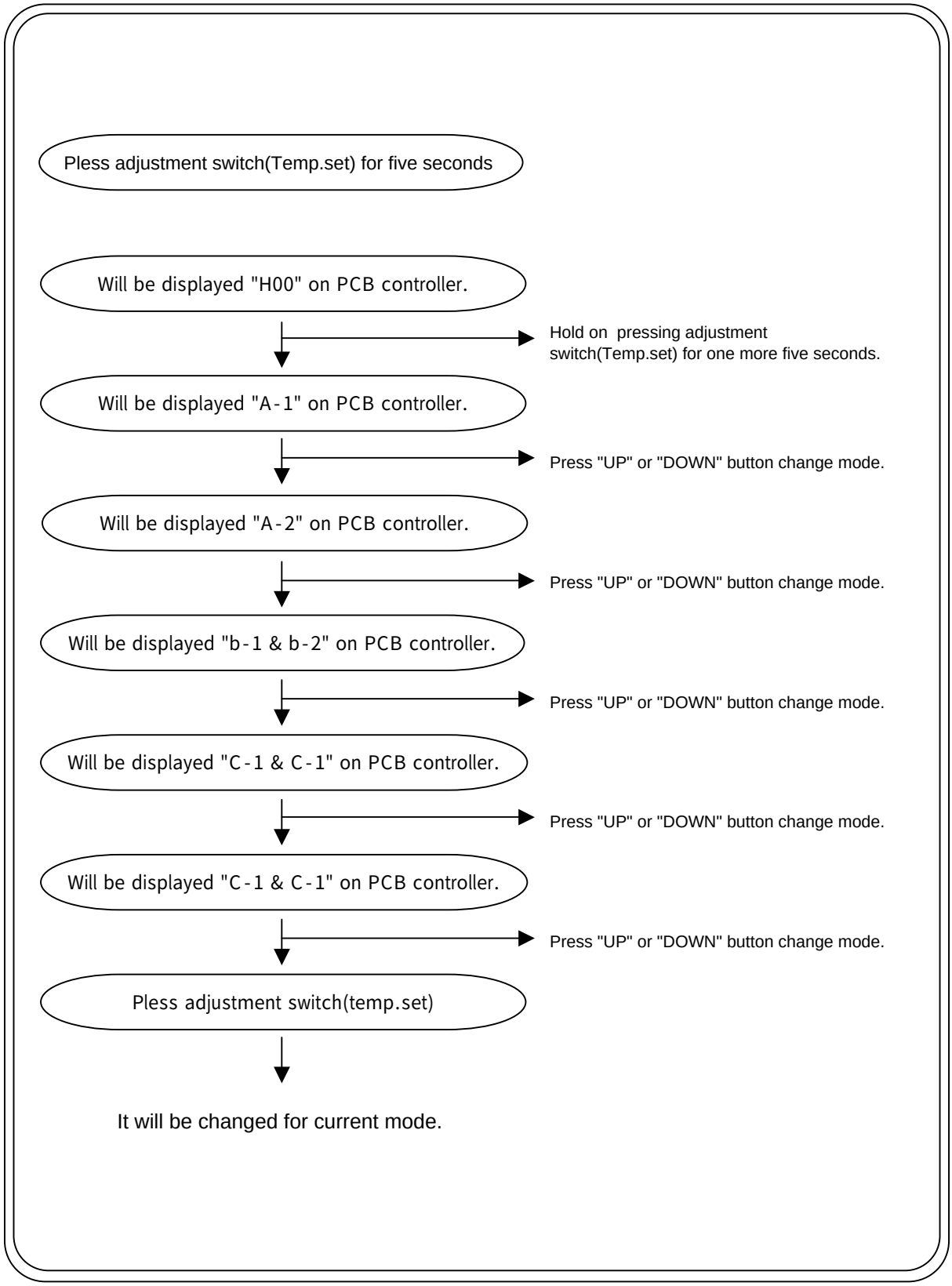
Will be displayed "t00" on PCB controller.

To be continued

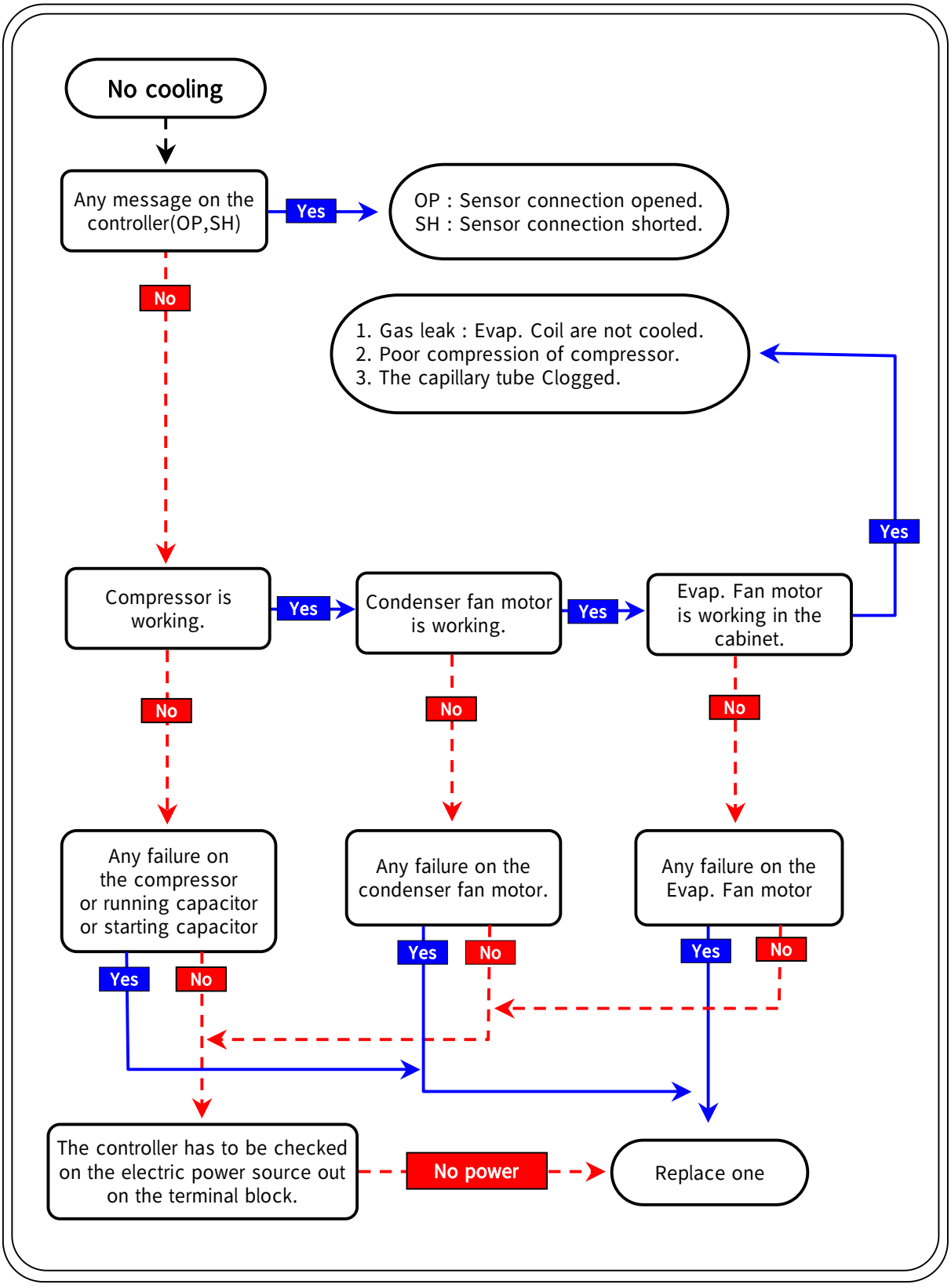
PCB Operation Method Each Mode



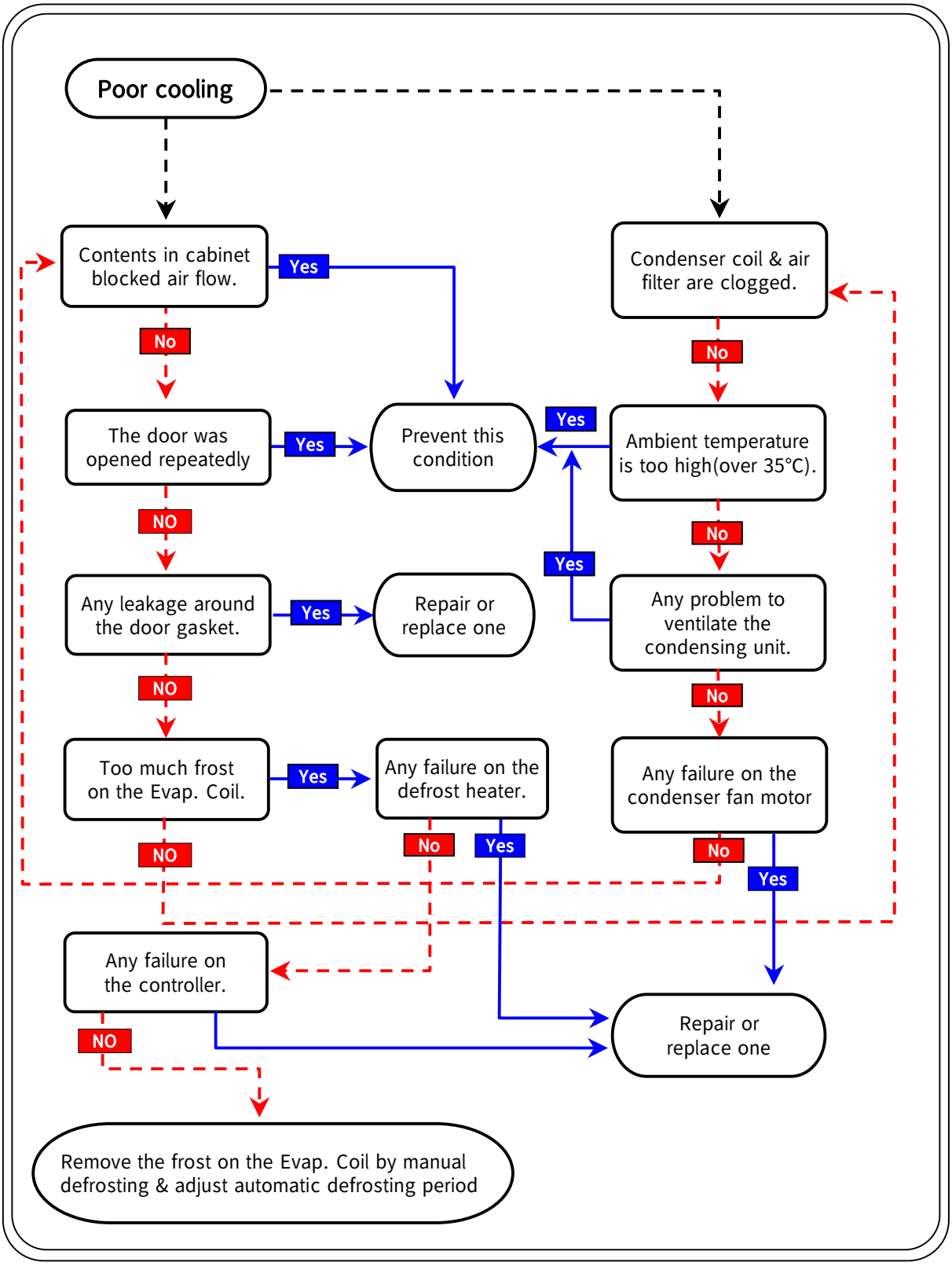
PCB Operation Method Each Mode



Trouble shooting



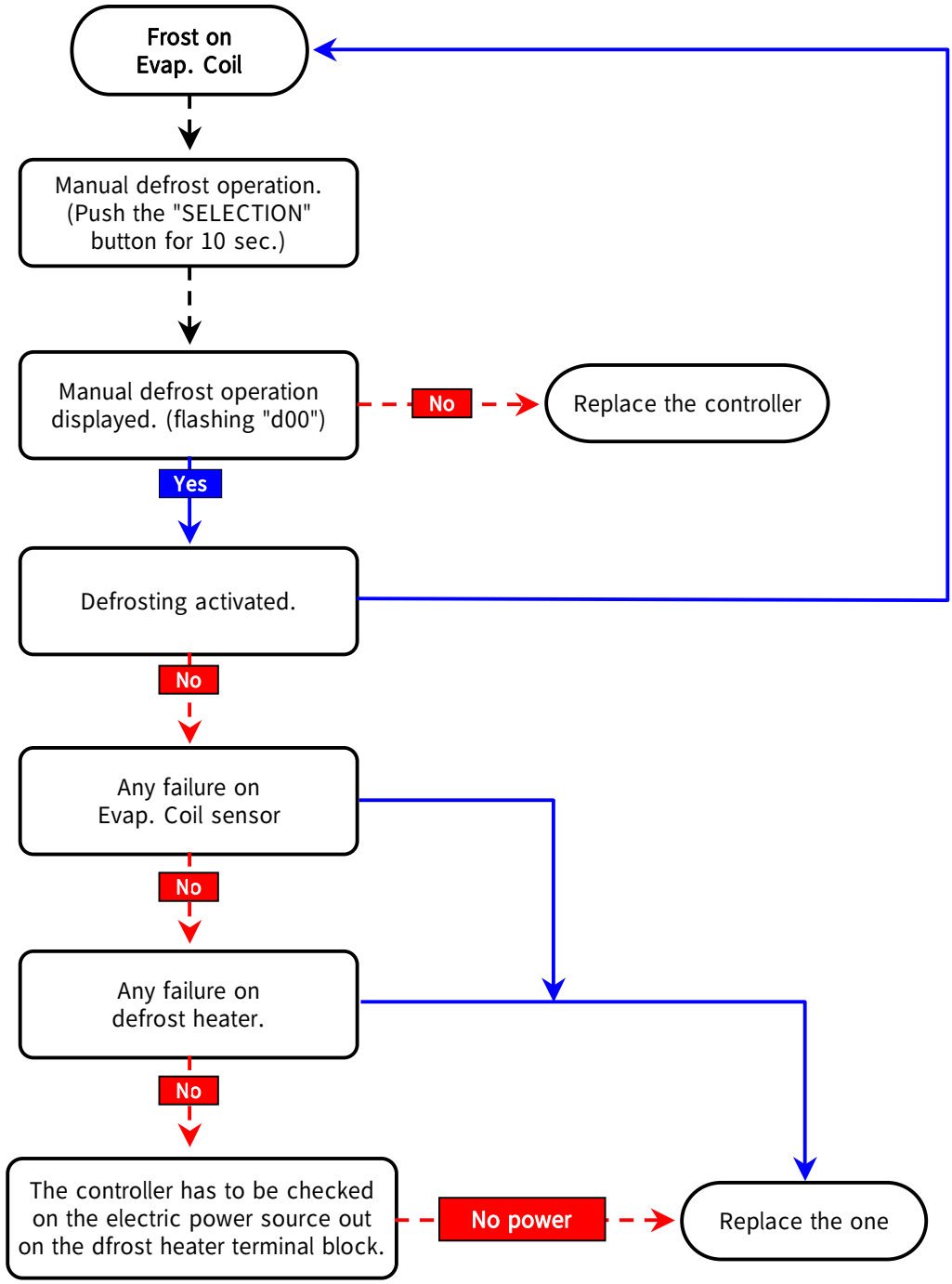
Trouble shooting



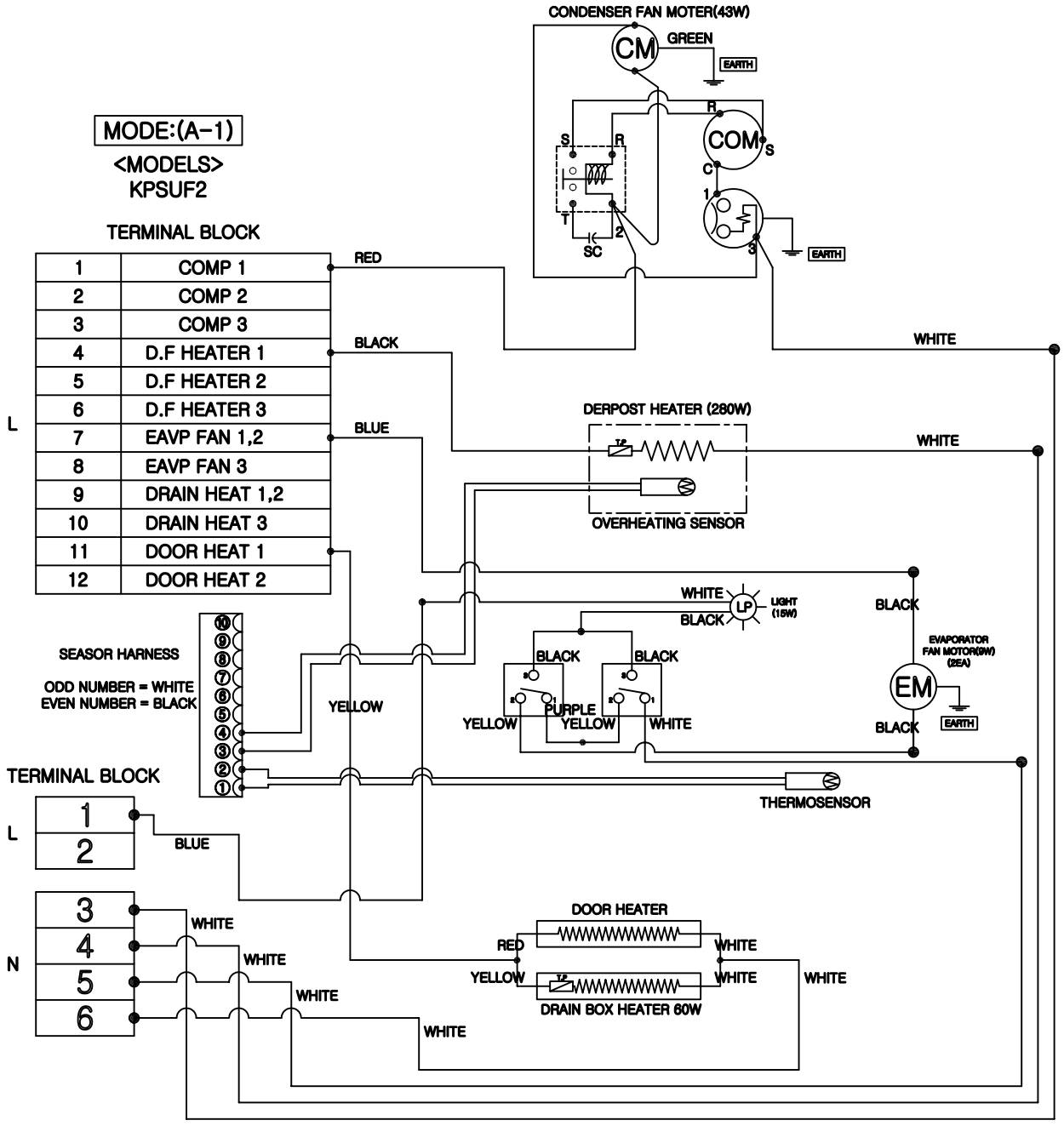
Trouble shooting

There is any frost remaining on the evaporator coil.

● The defrost function is maintained by the common value "t", "d" & "p" on PCB.



CONTROL WIRING DIAGRAM



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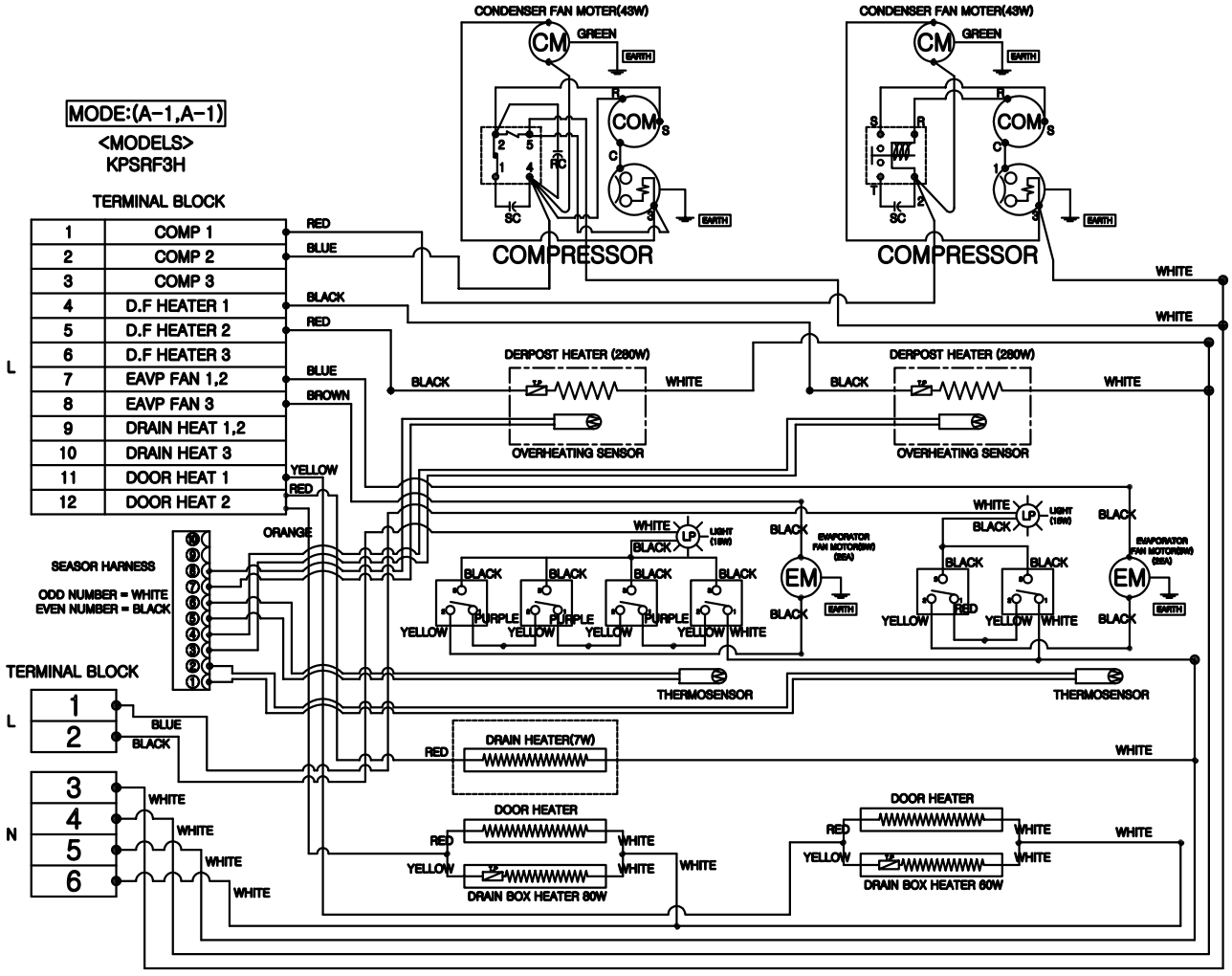

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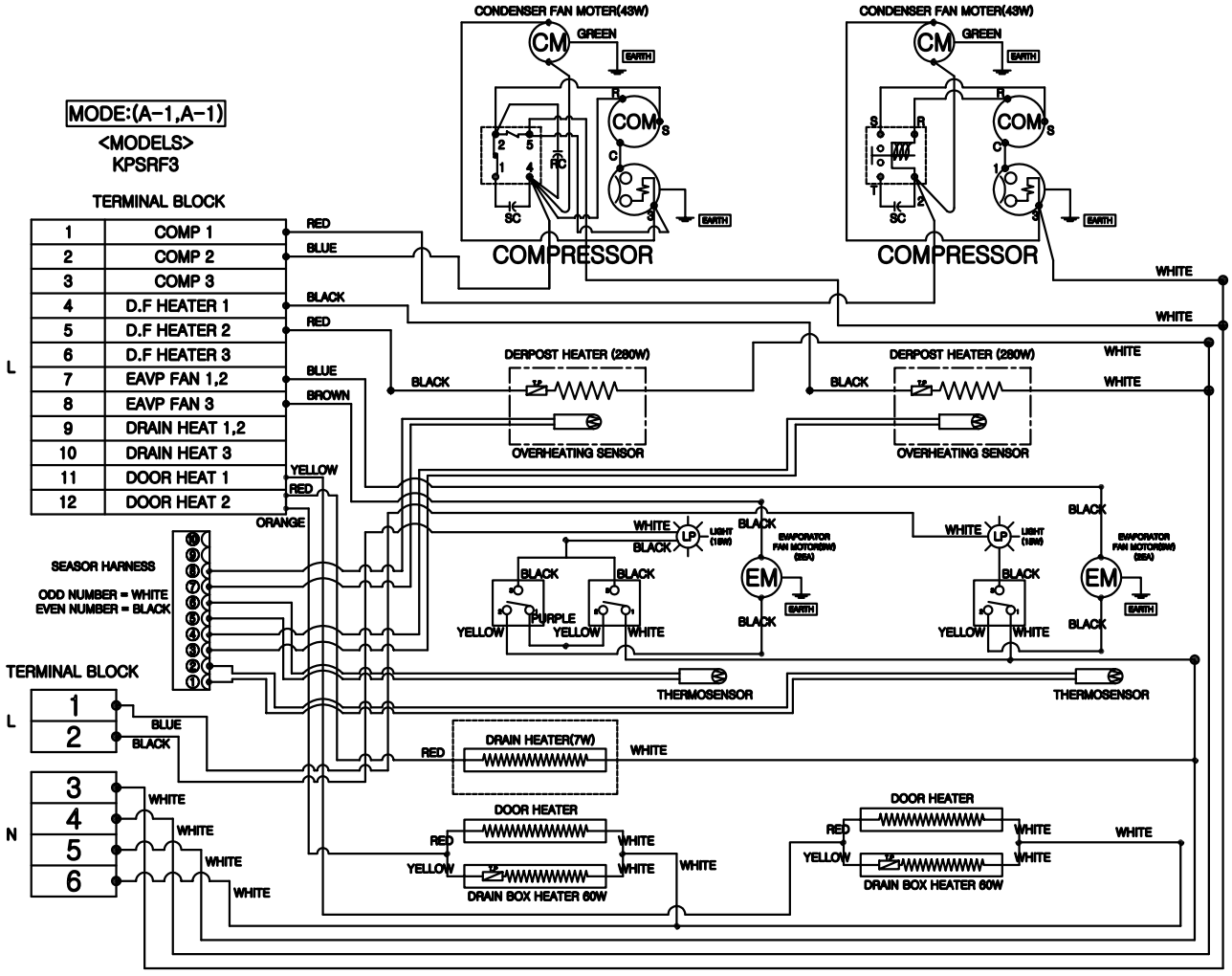

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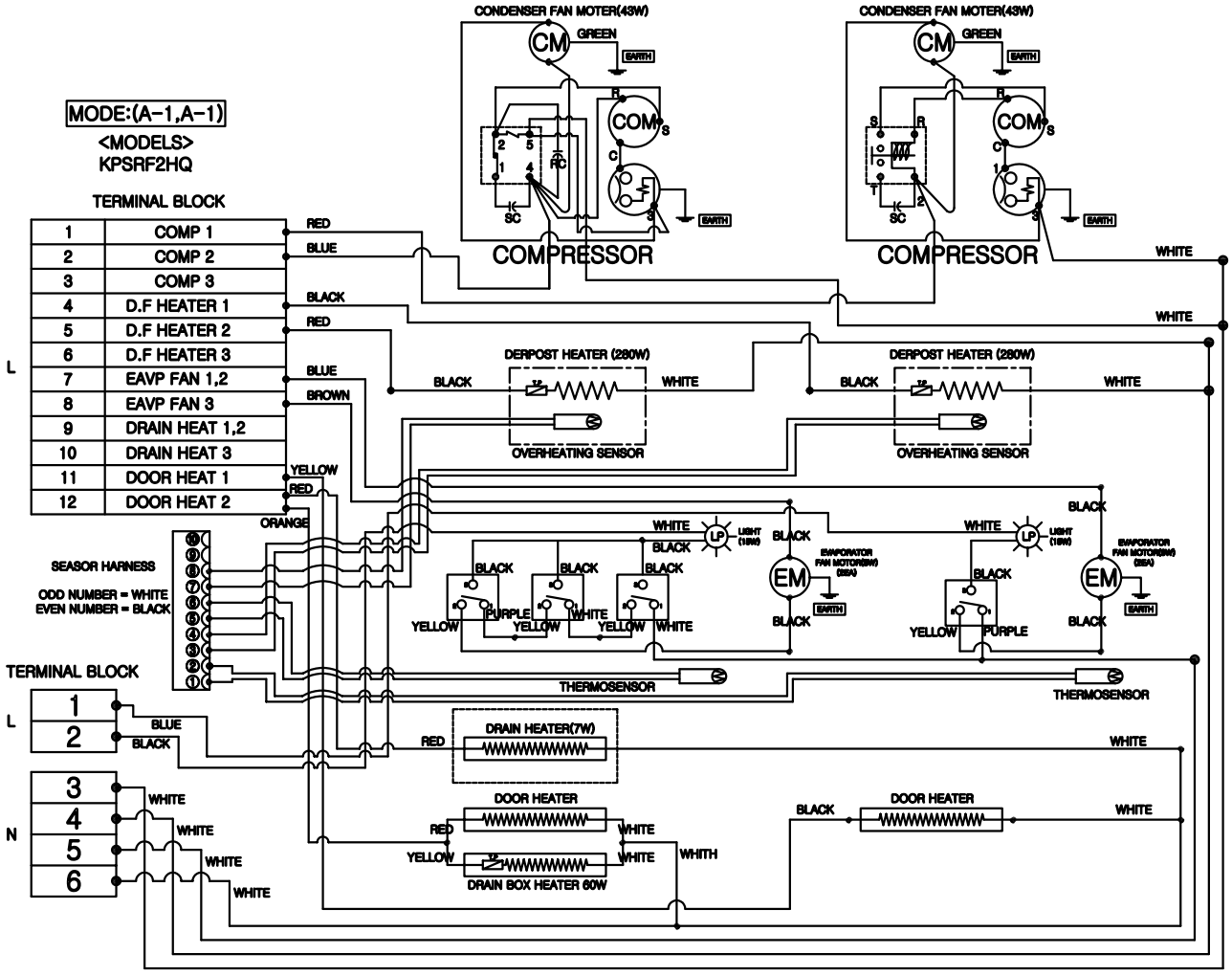

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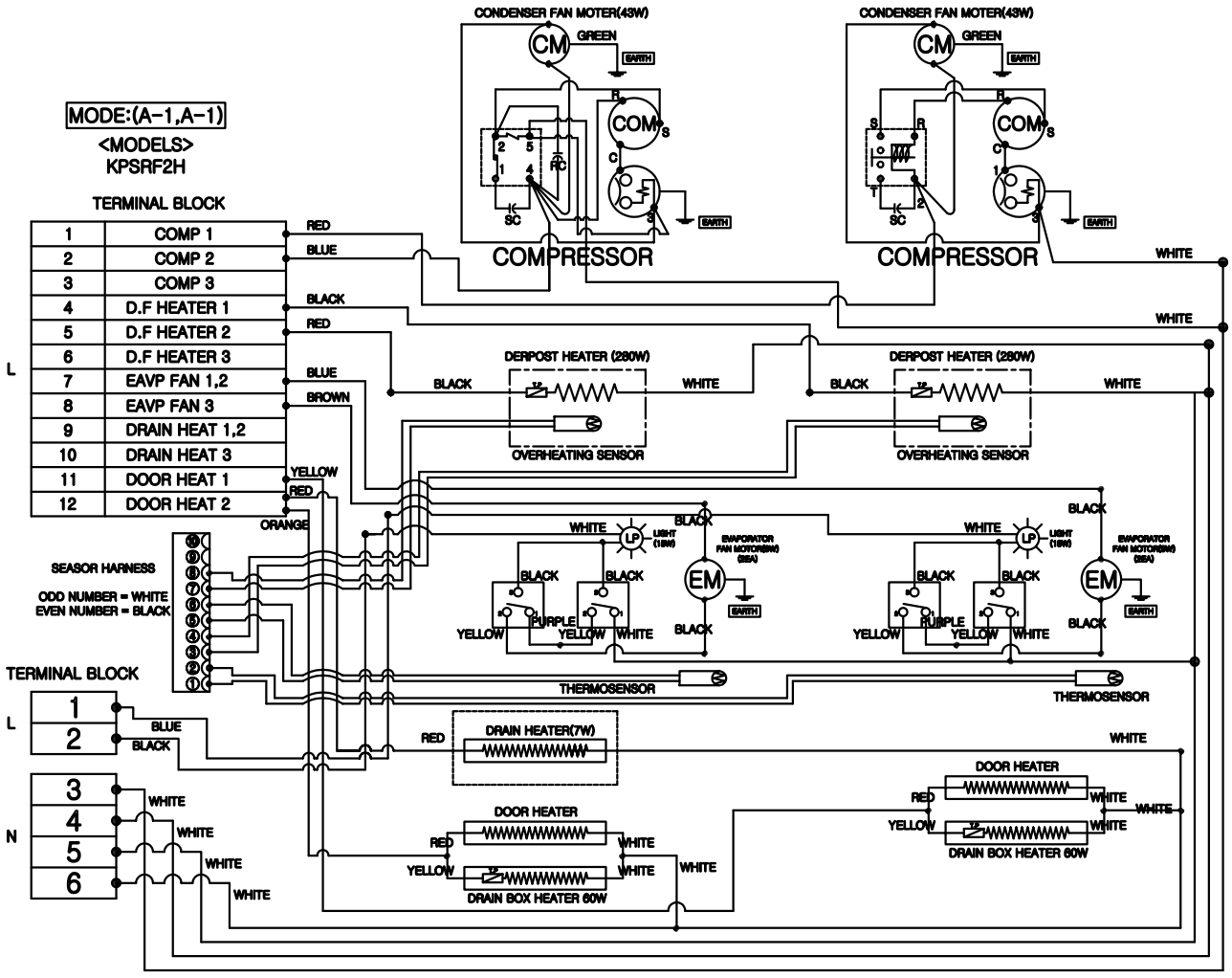

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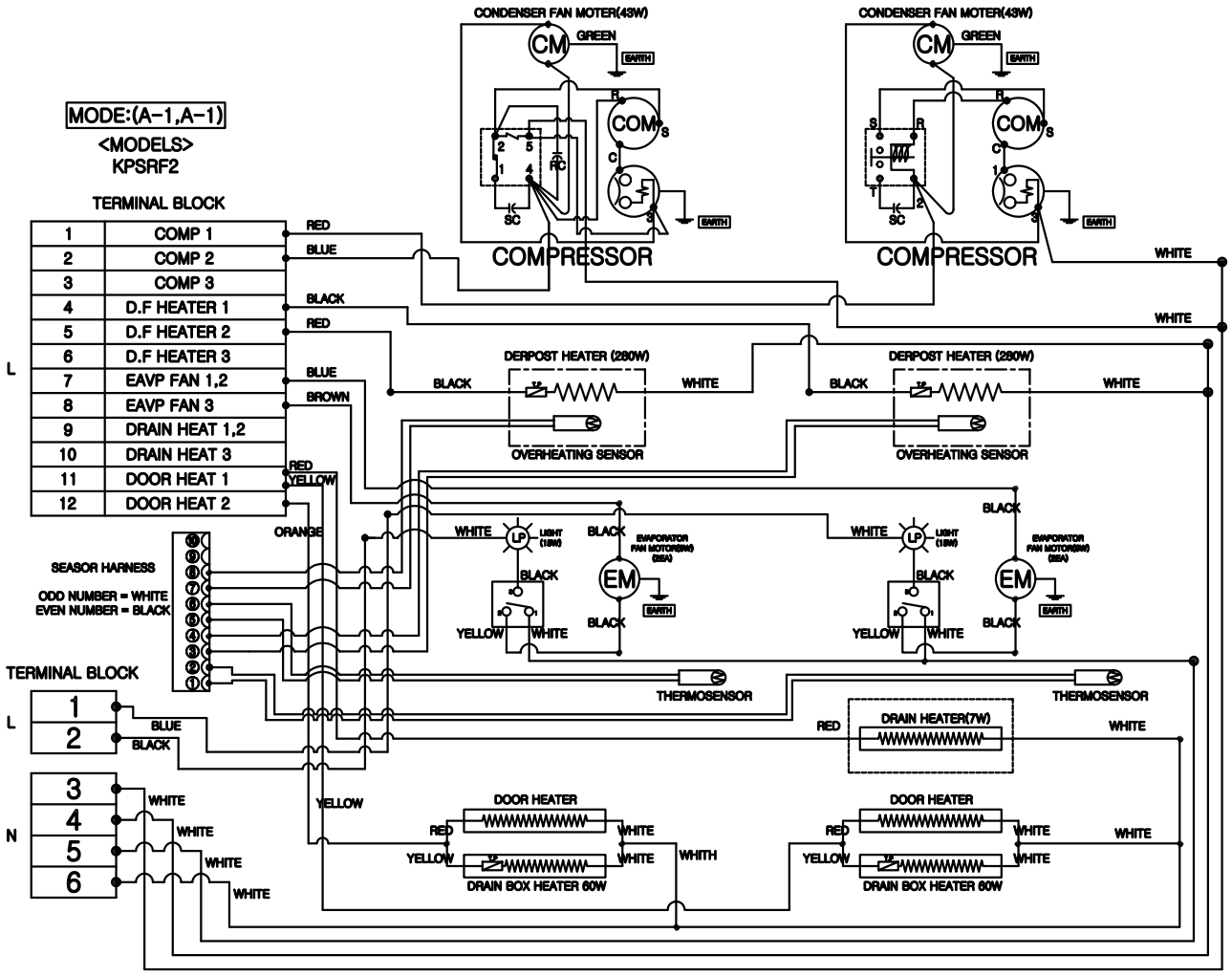

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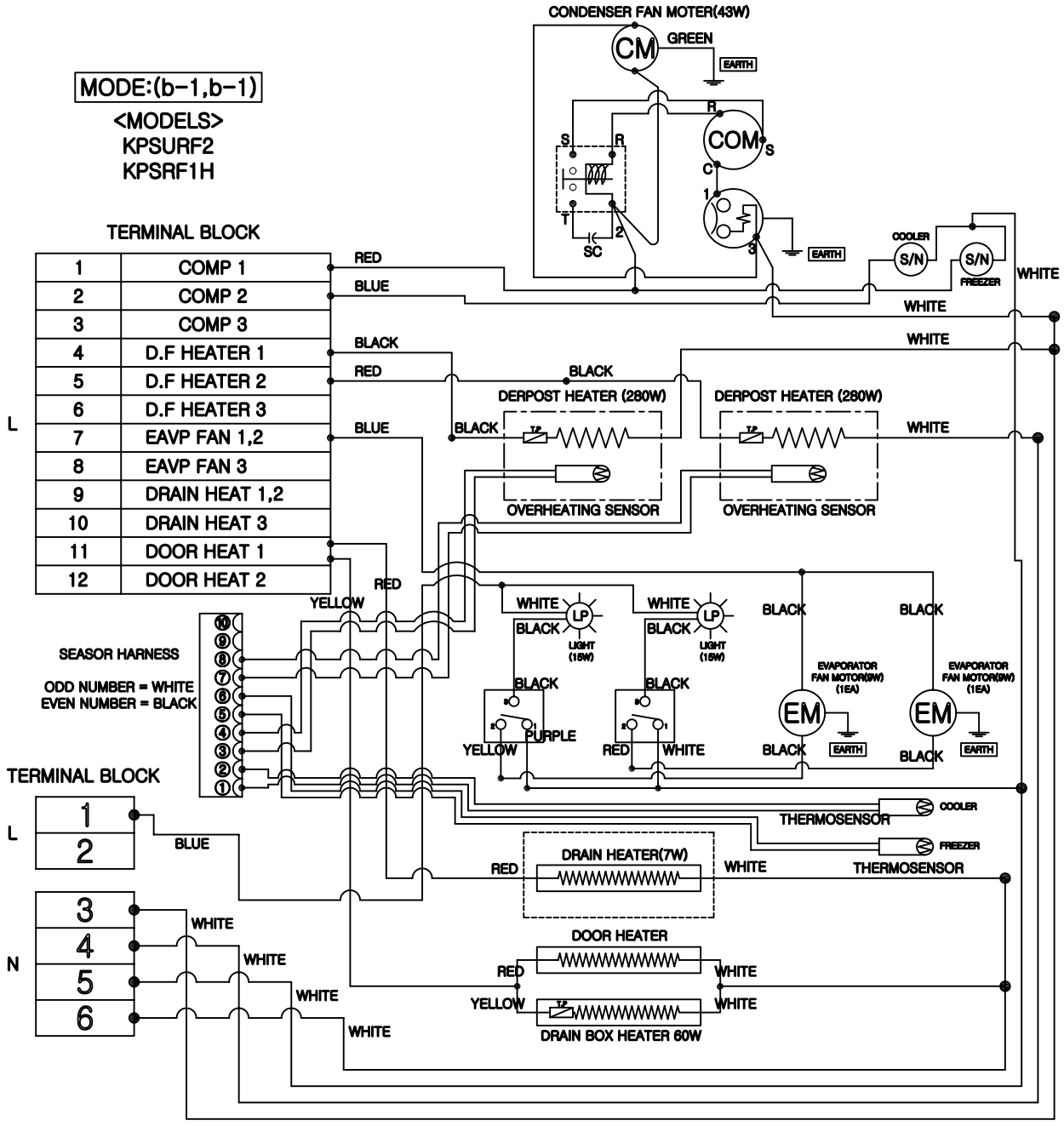

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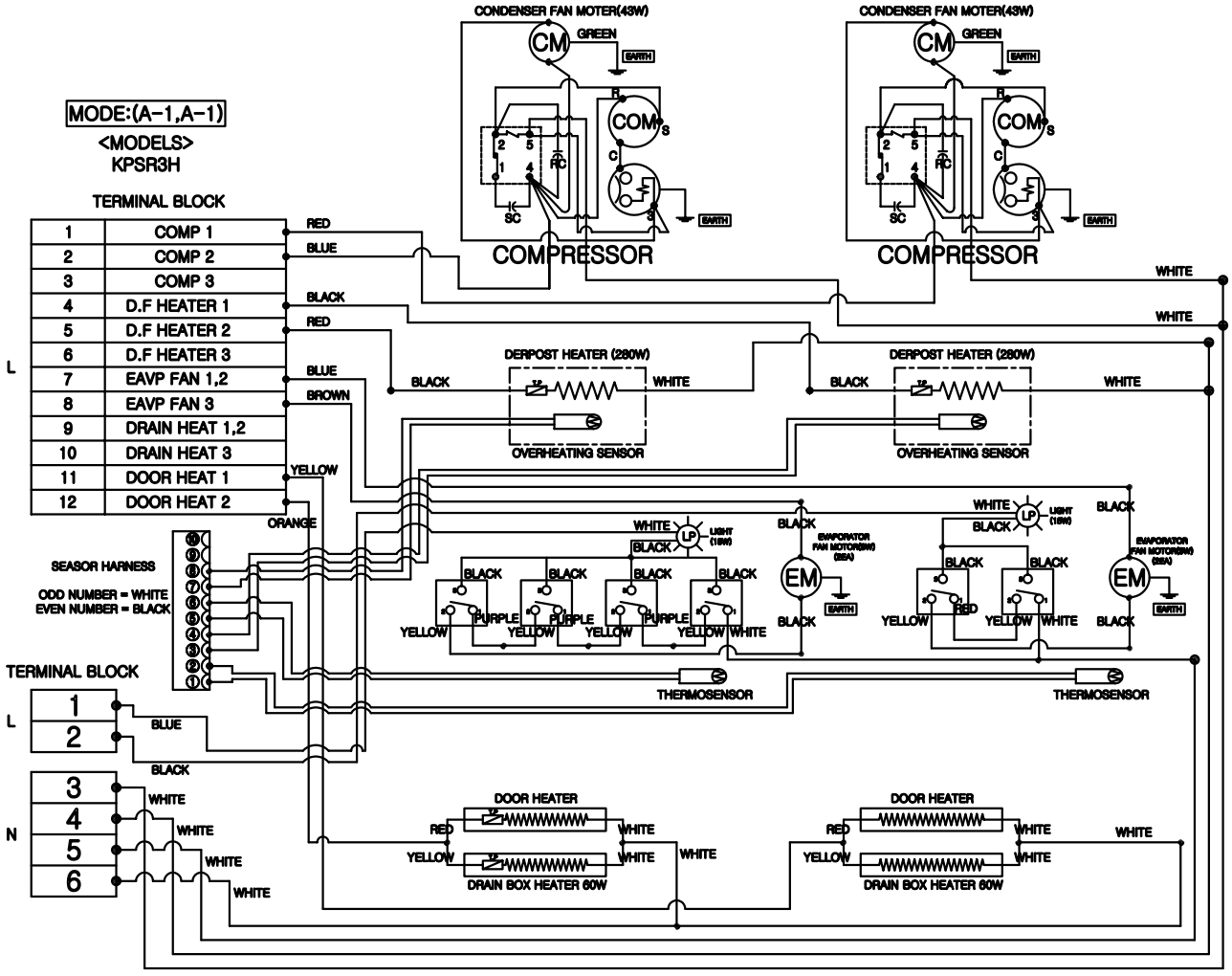
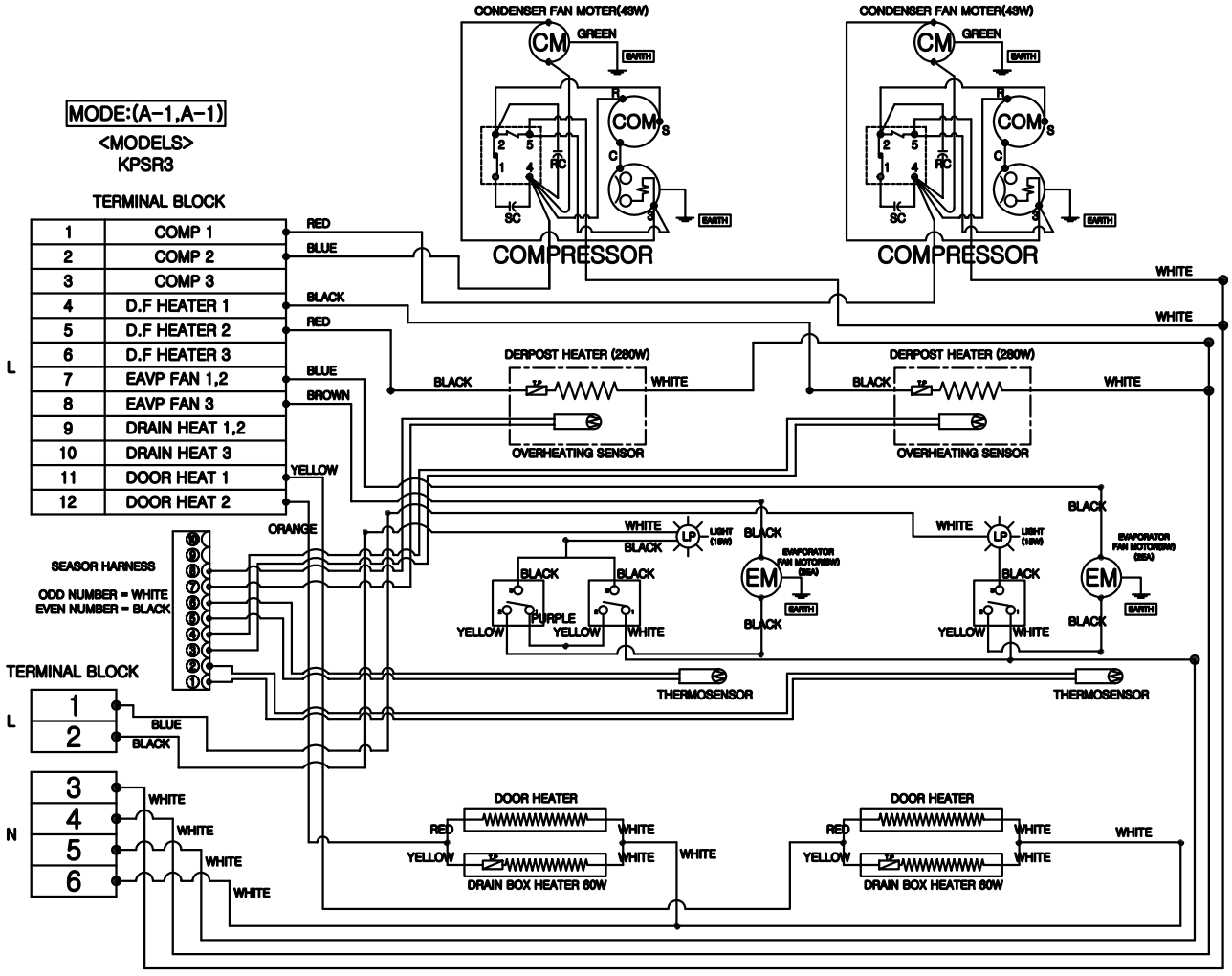
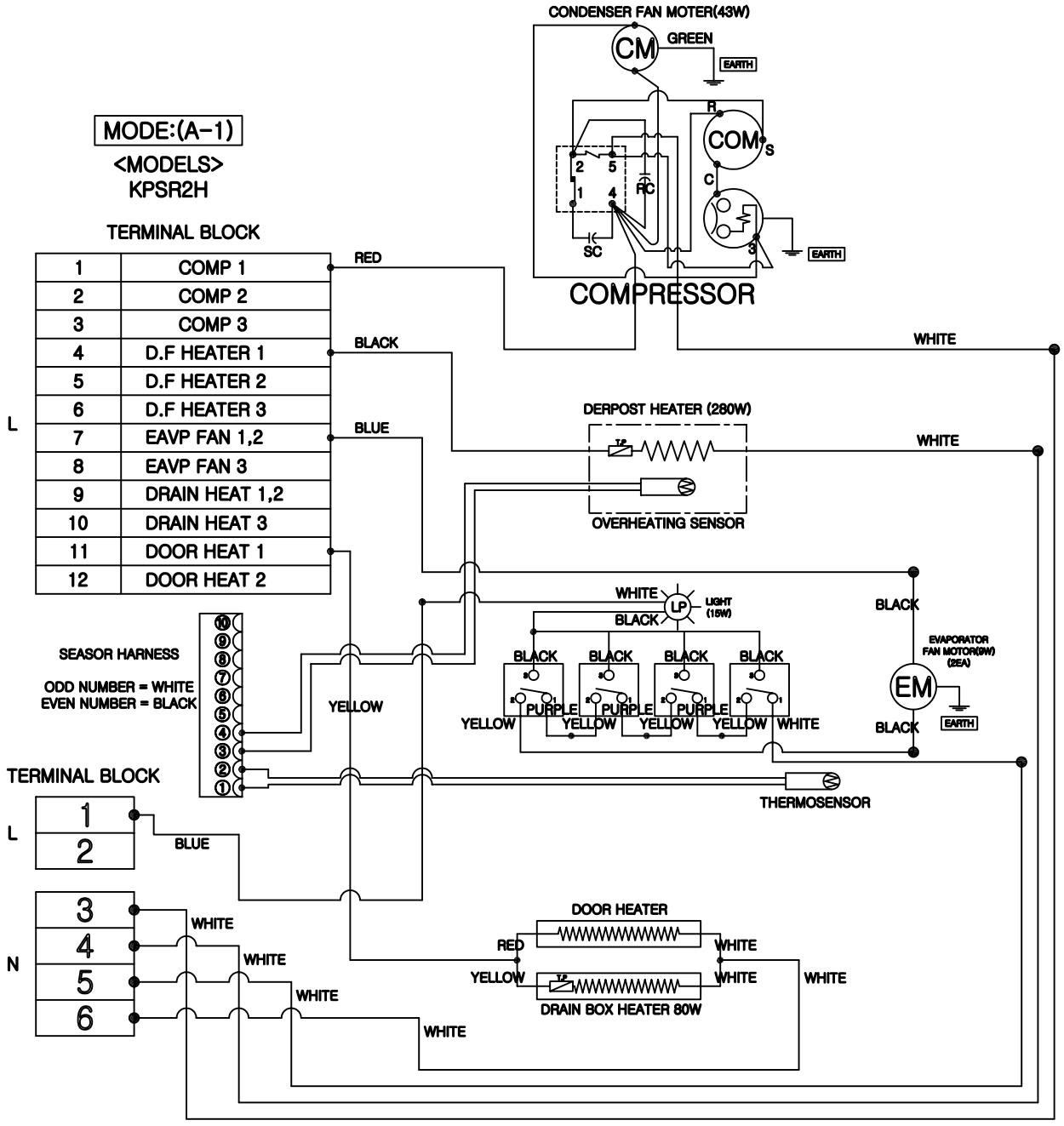


CONTROL WIRING DIAGRAM

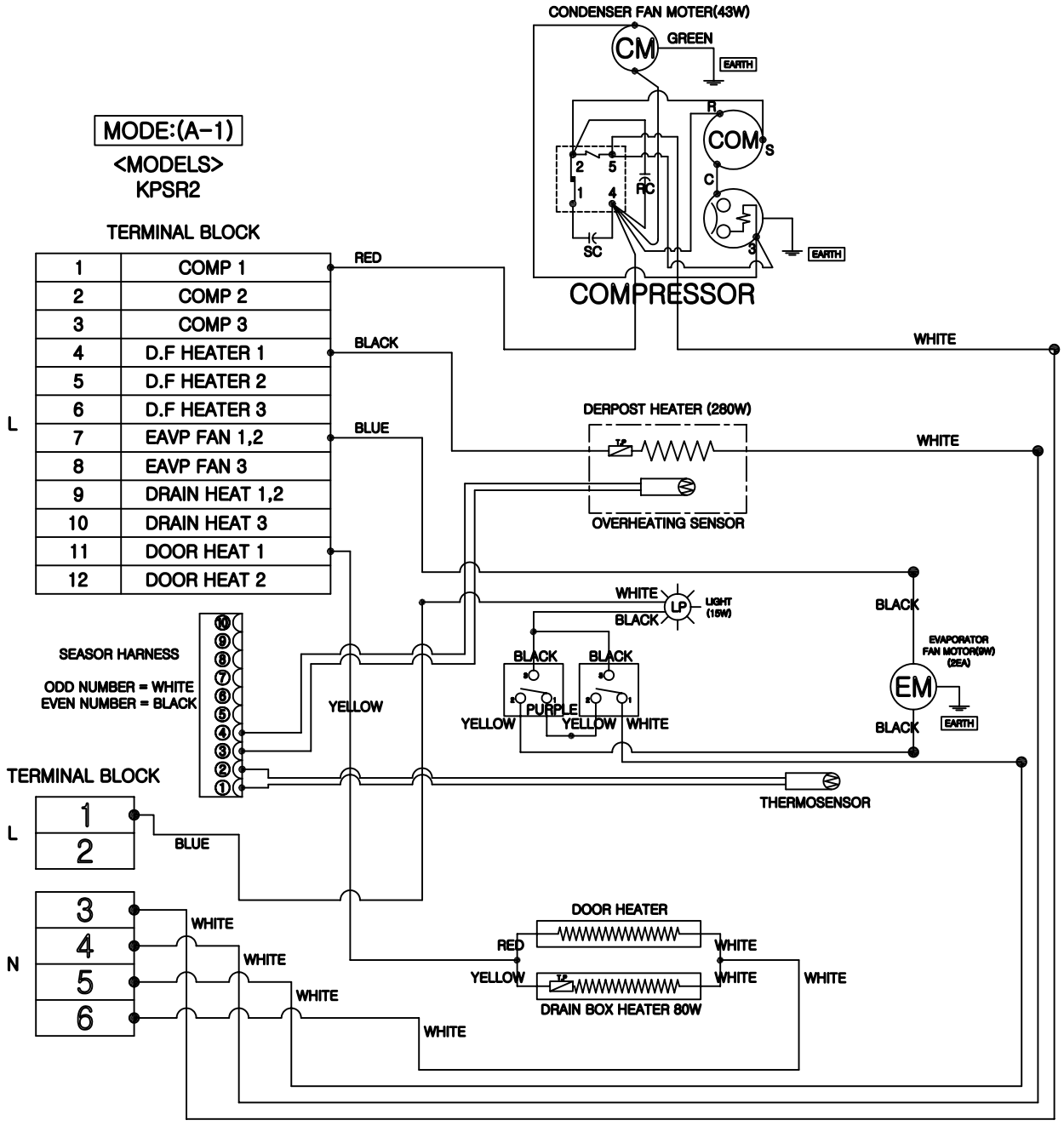
(POWER:115V X 60Hz X 1Ph)



CONTROL WIRING DIAGRAM



CONTROL WIRING DIAGRAM



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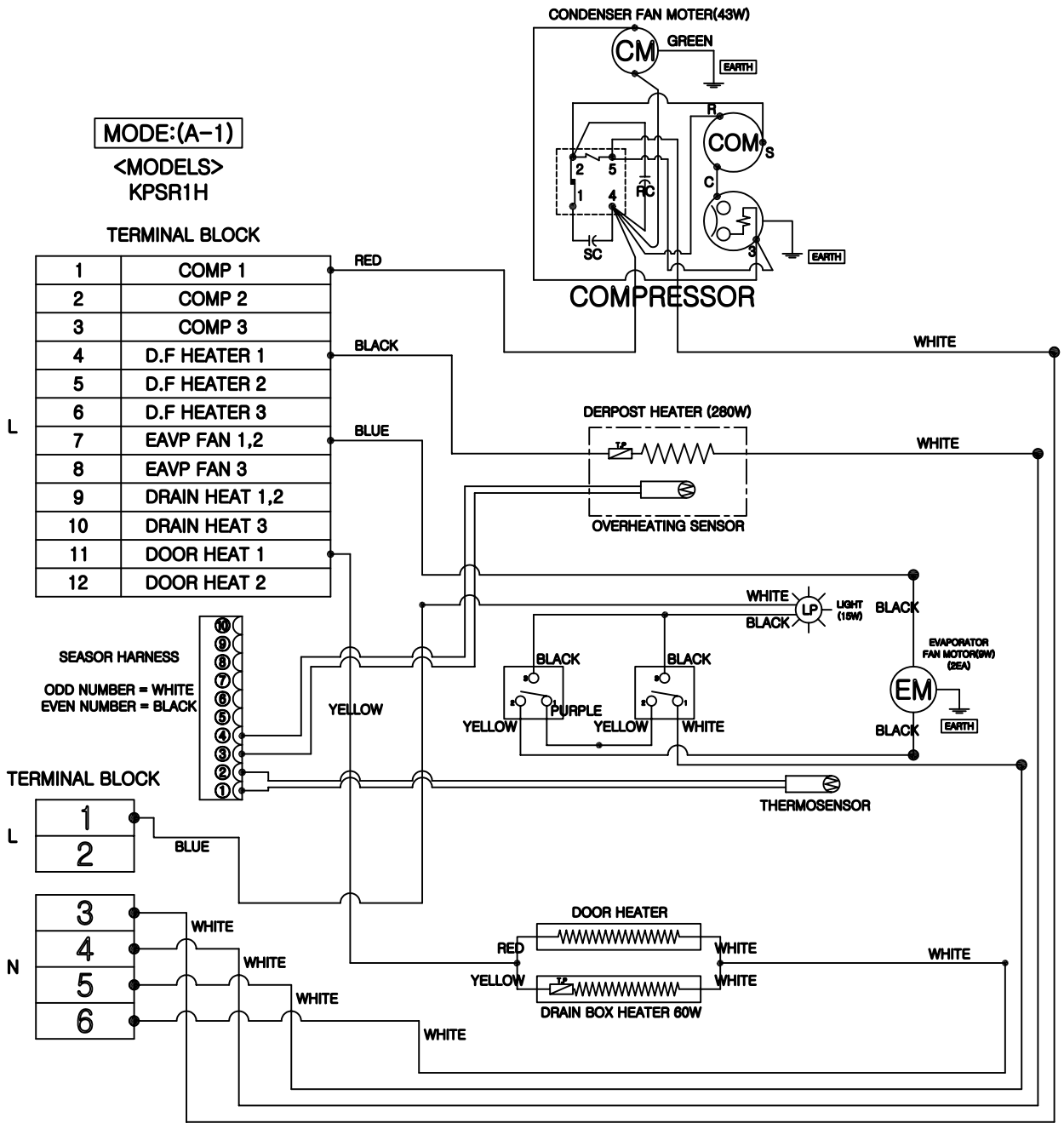

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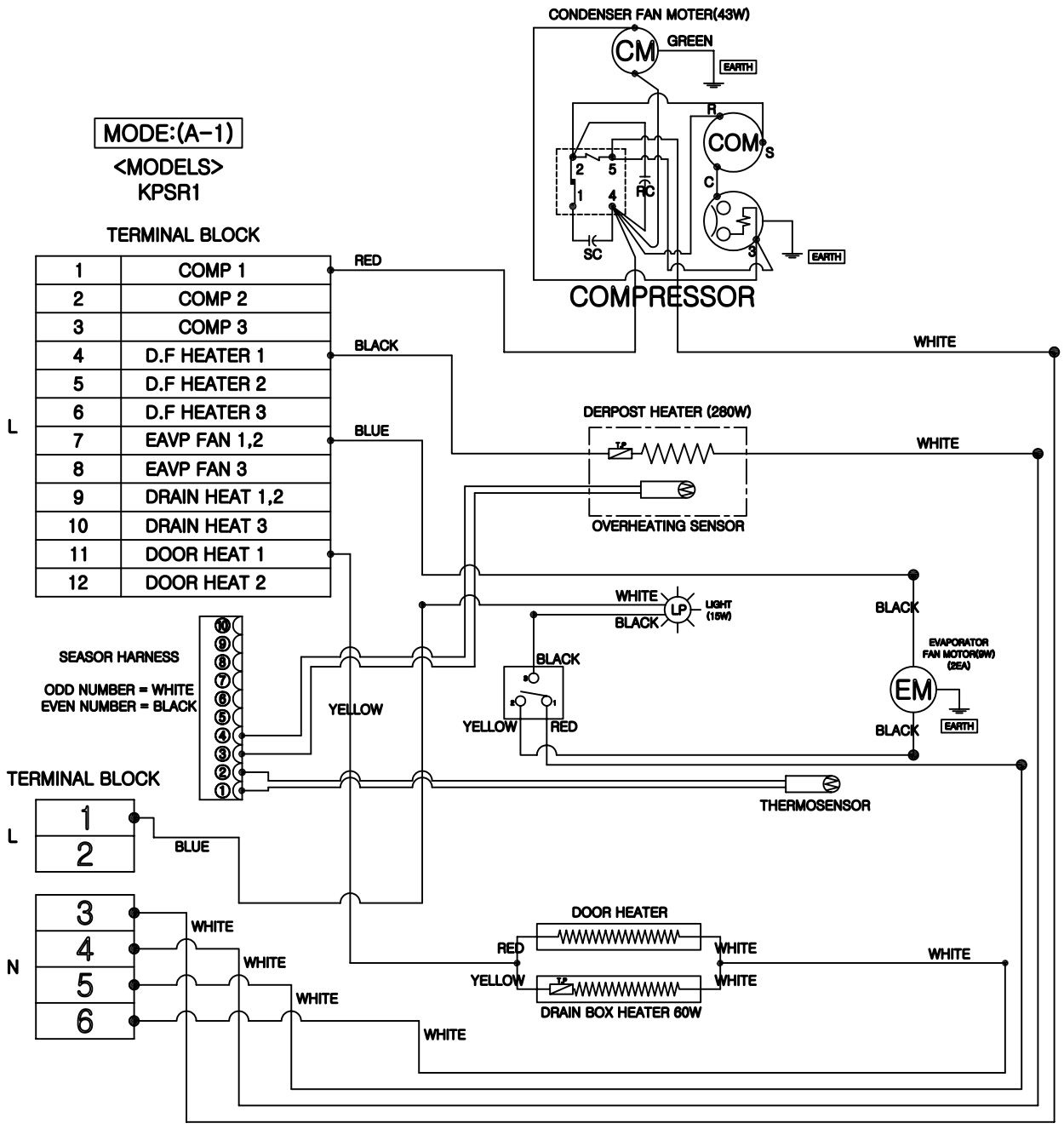

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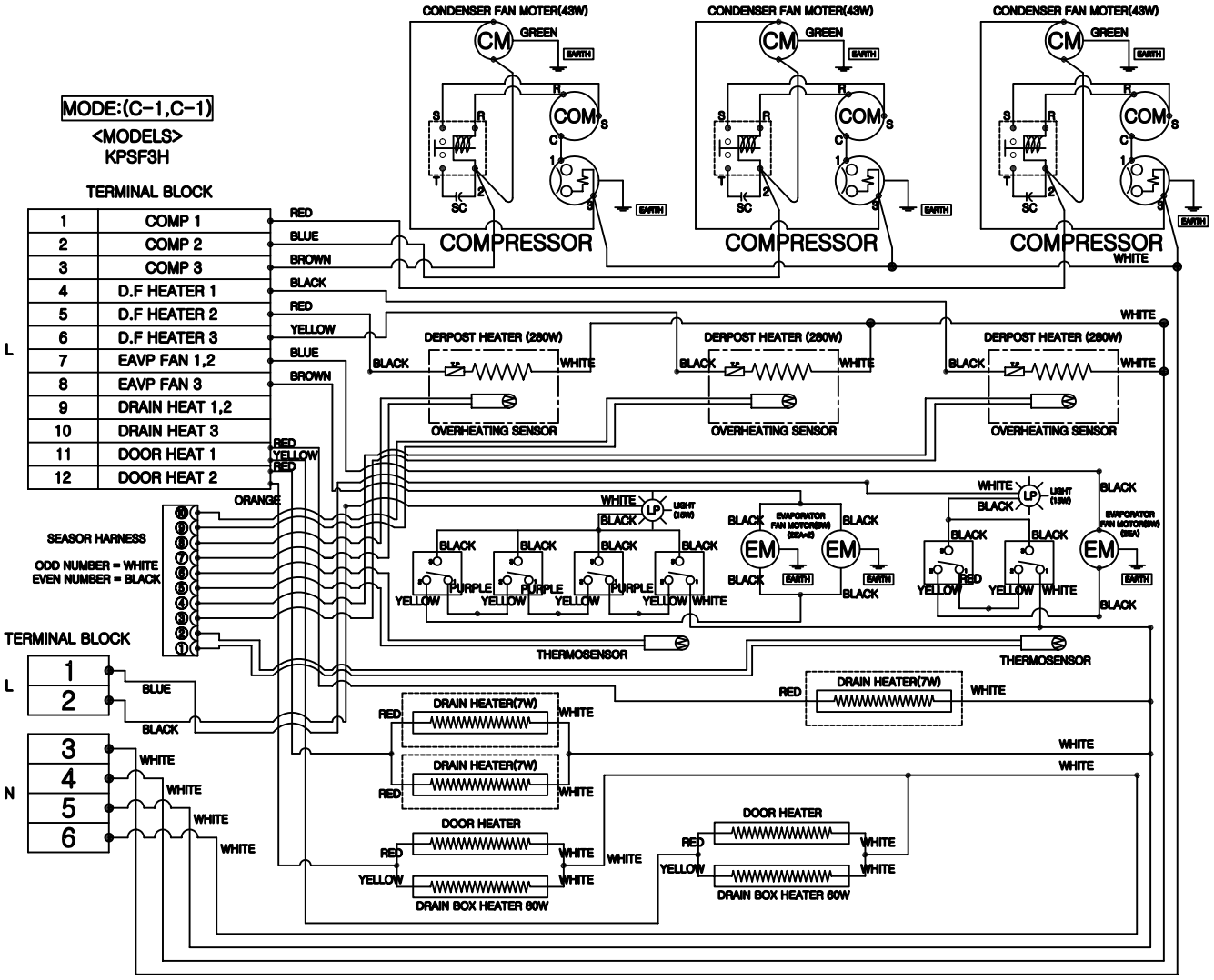

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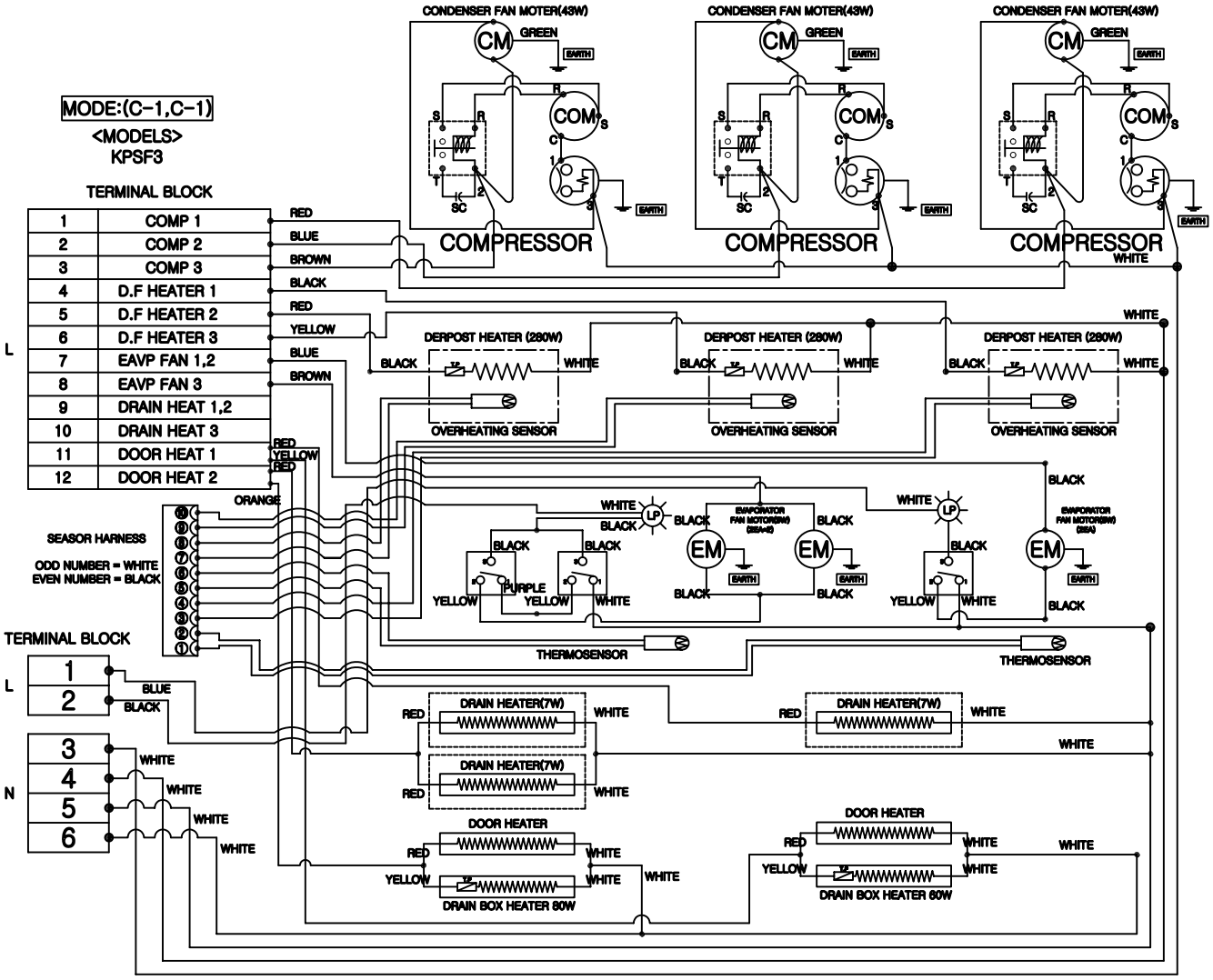

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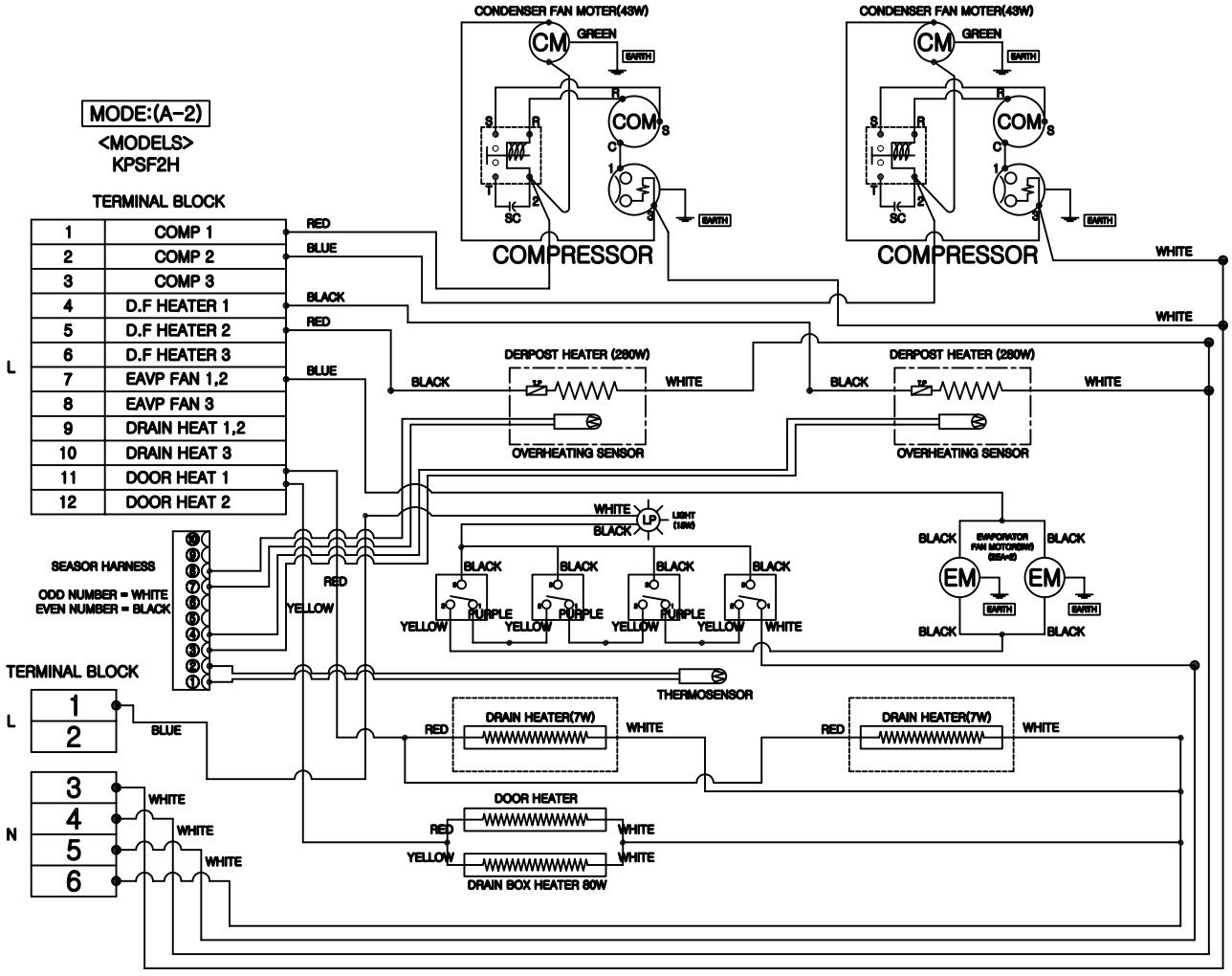

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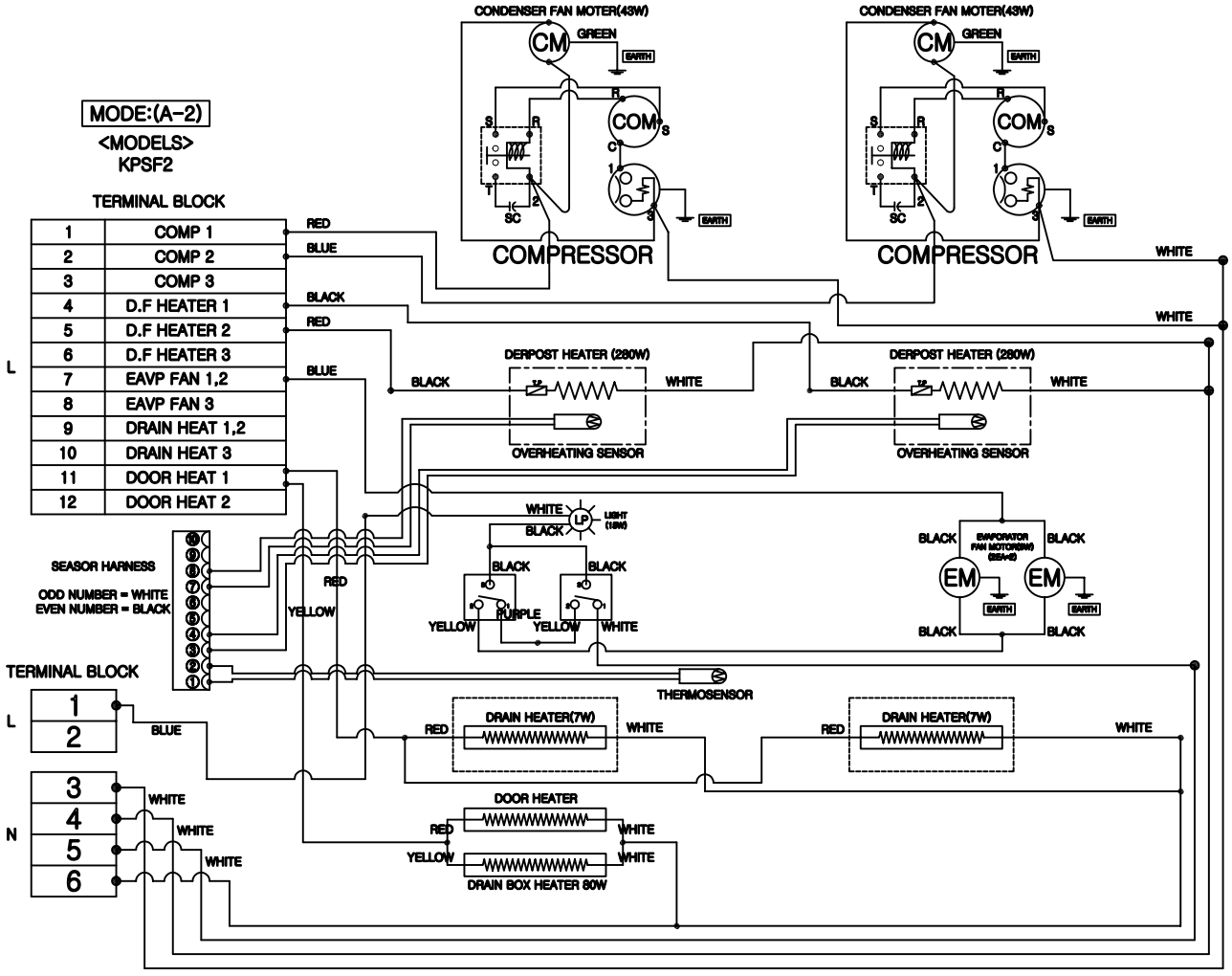

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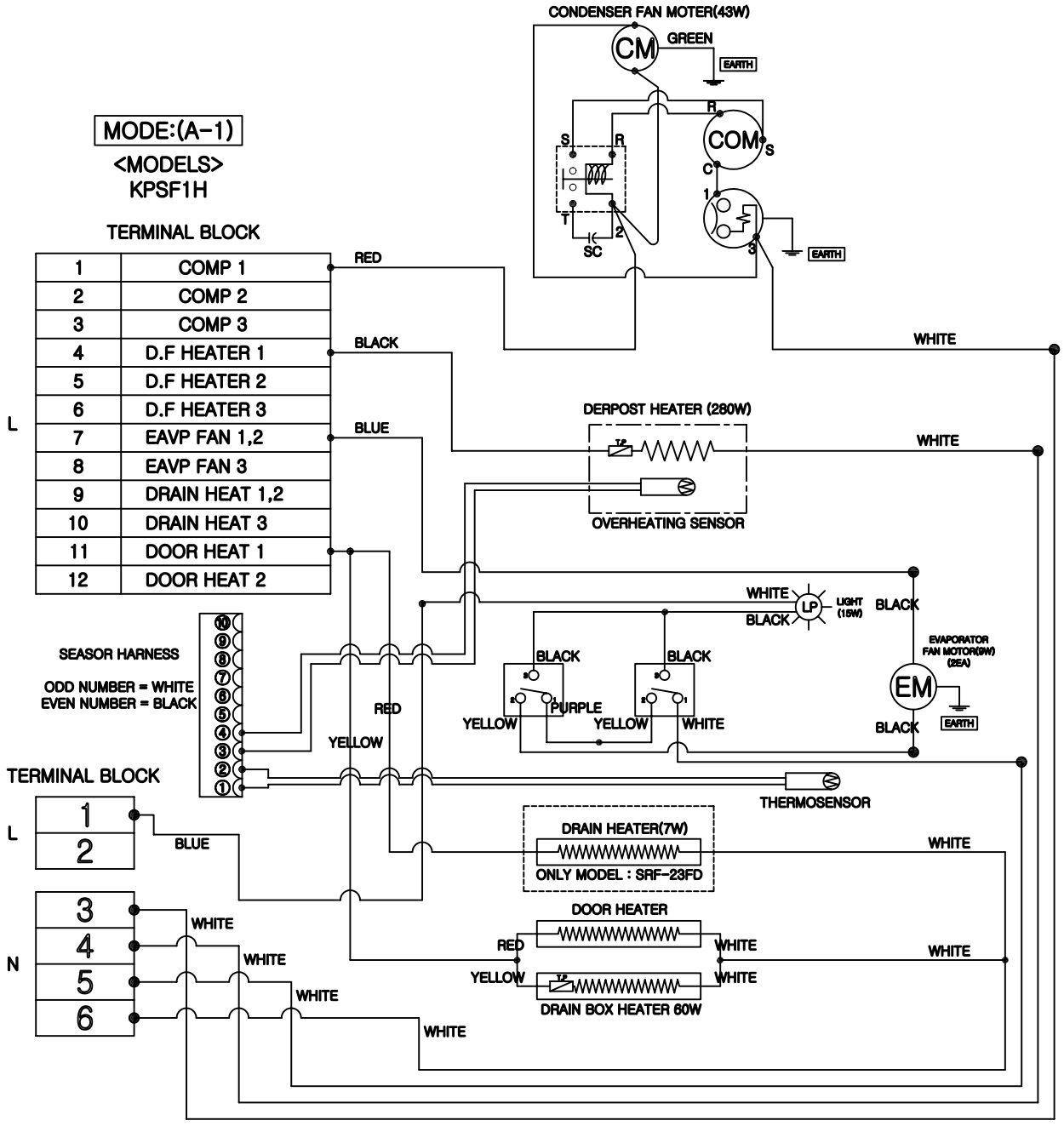

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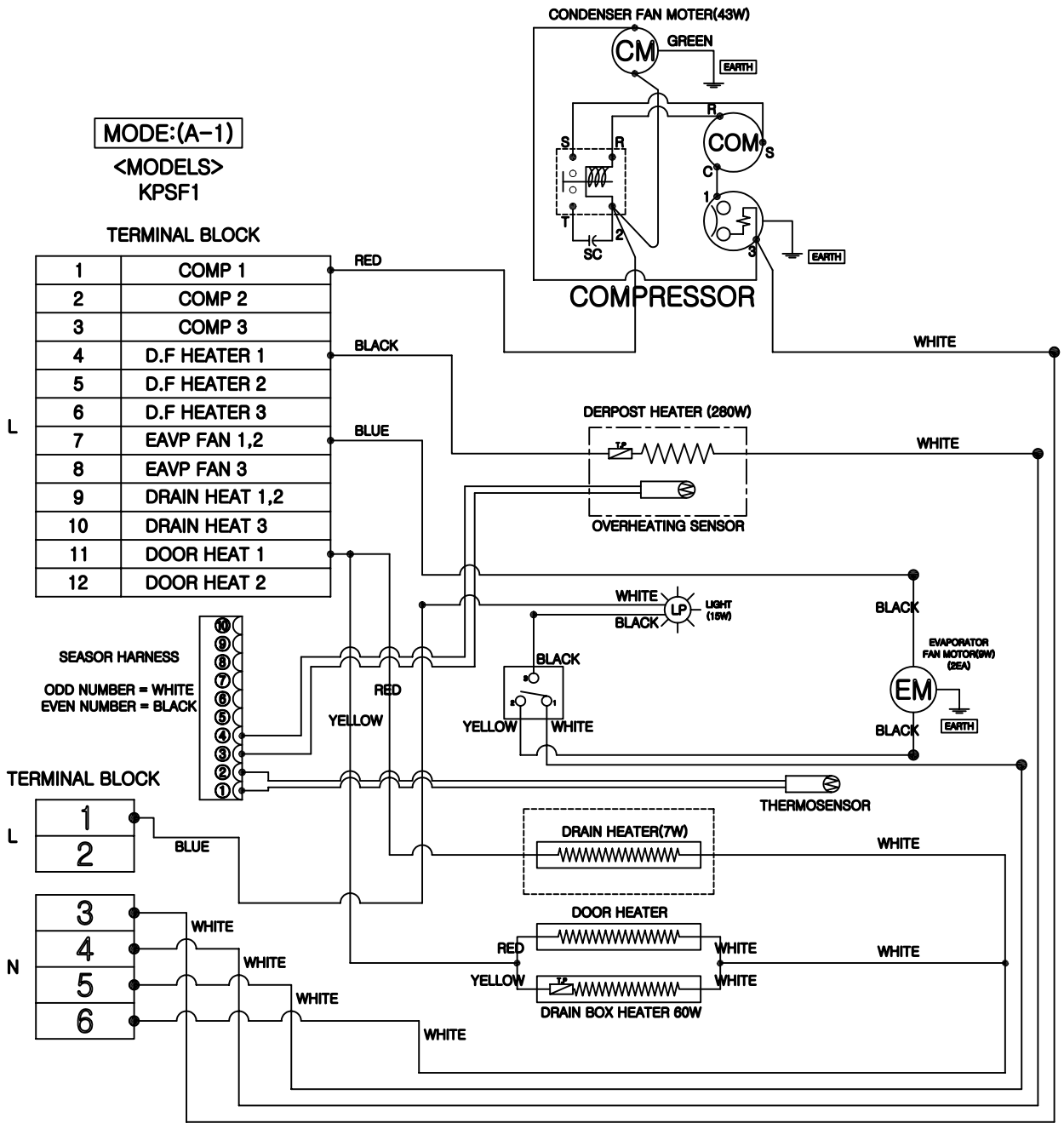

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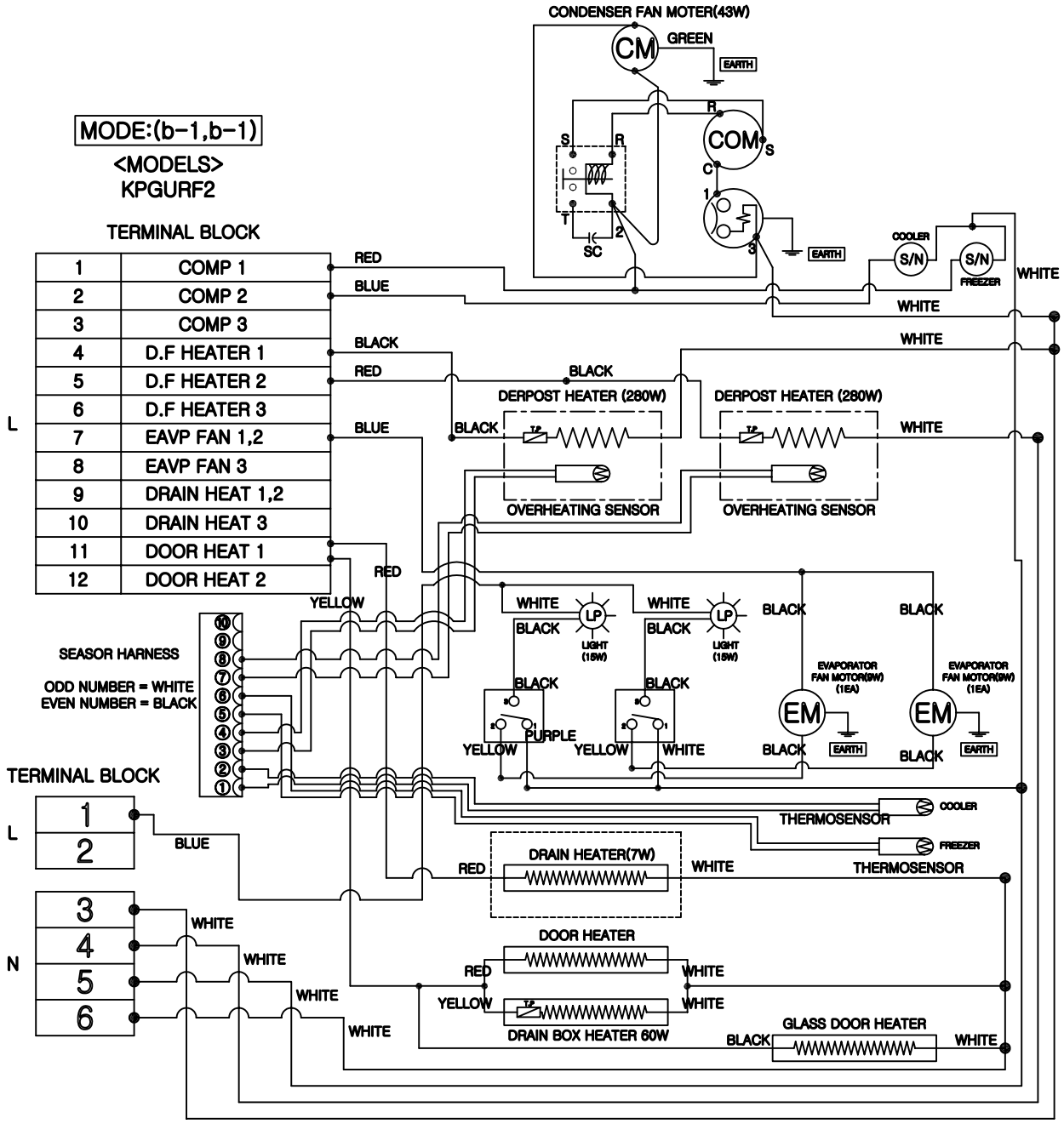

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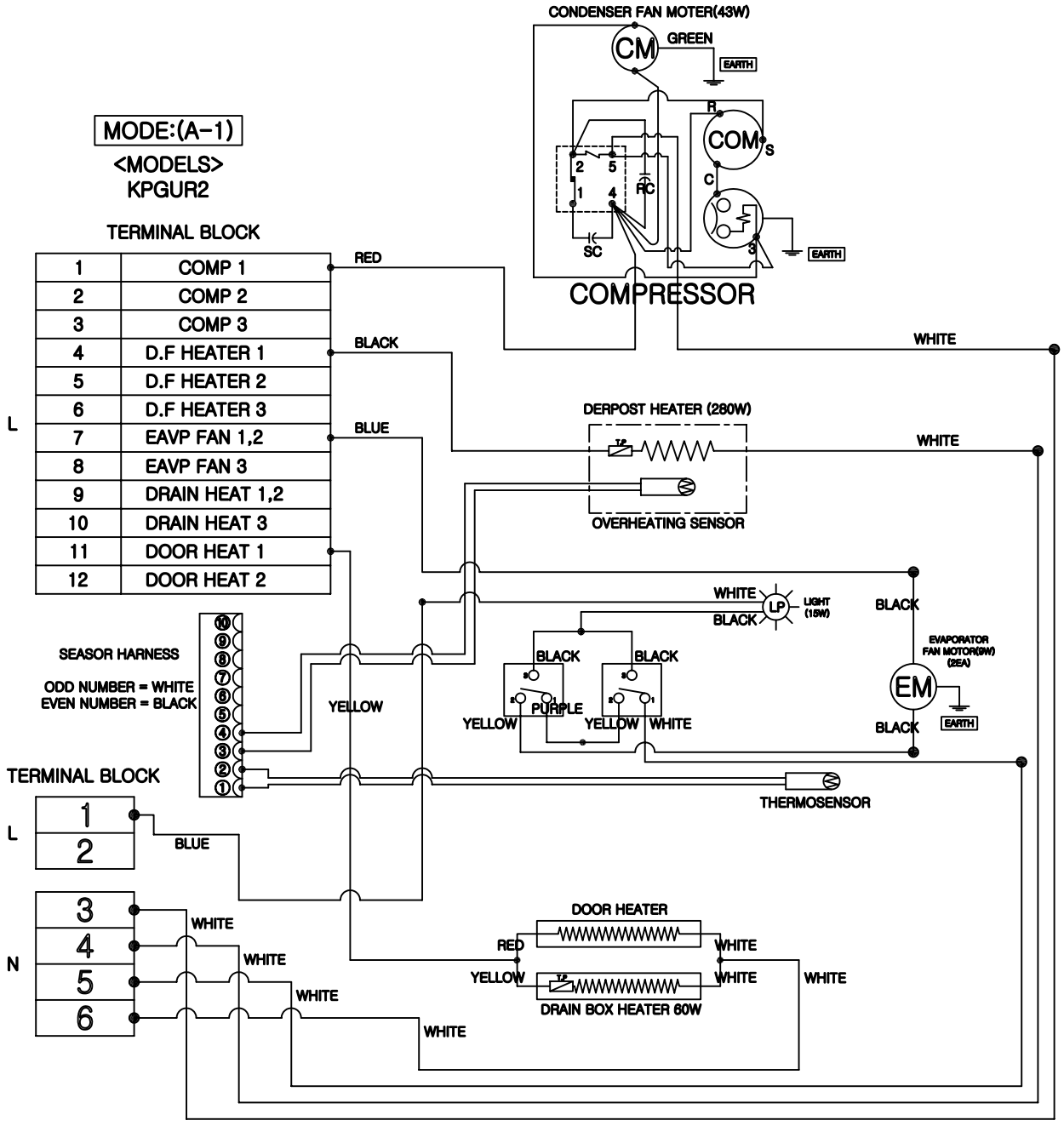

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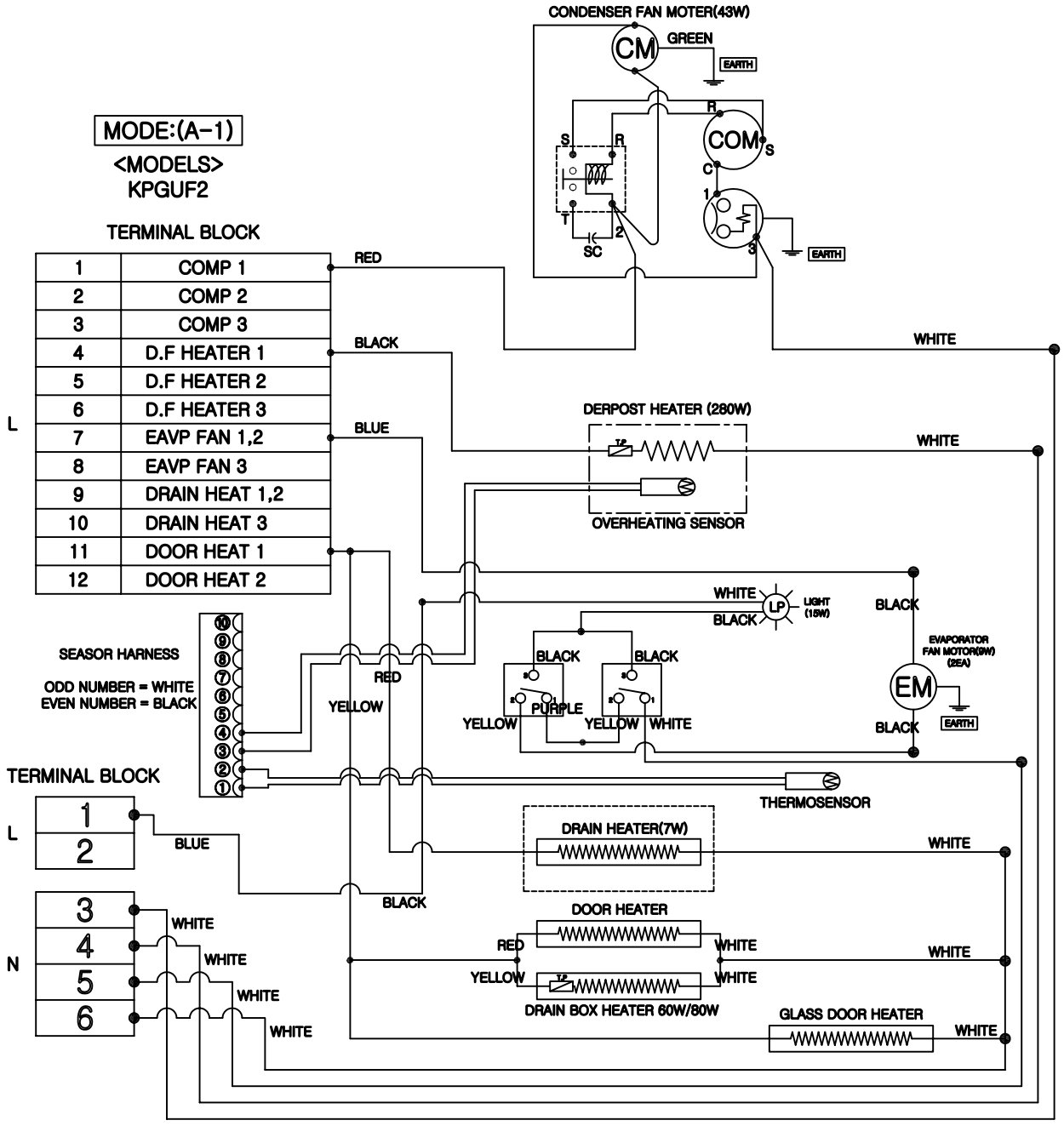

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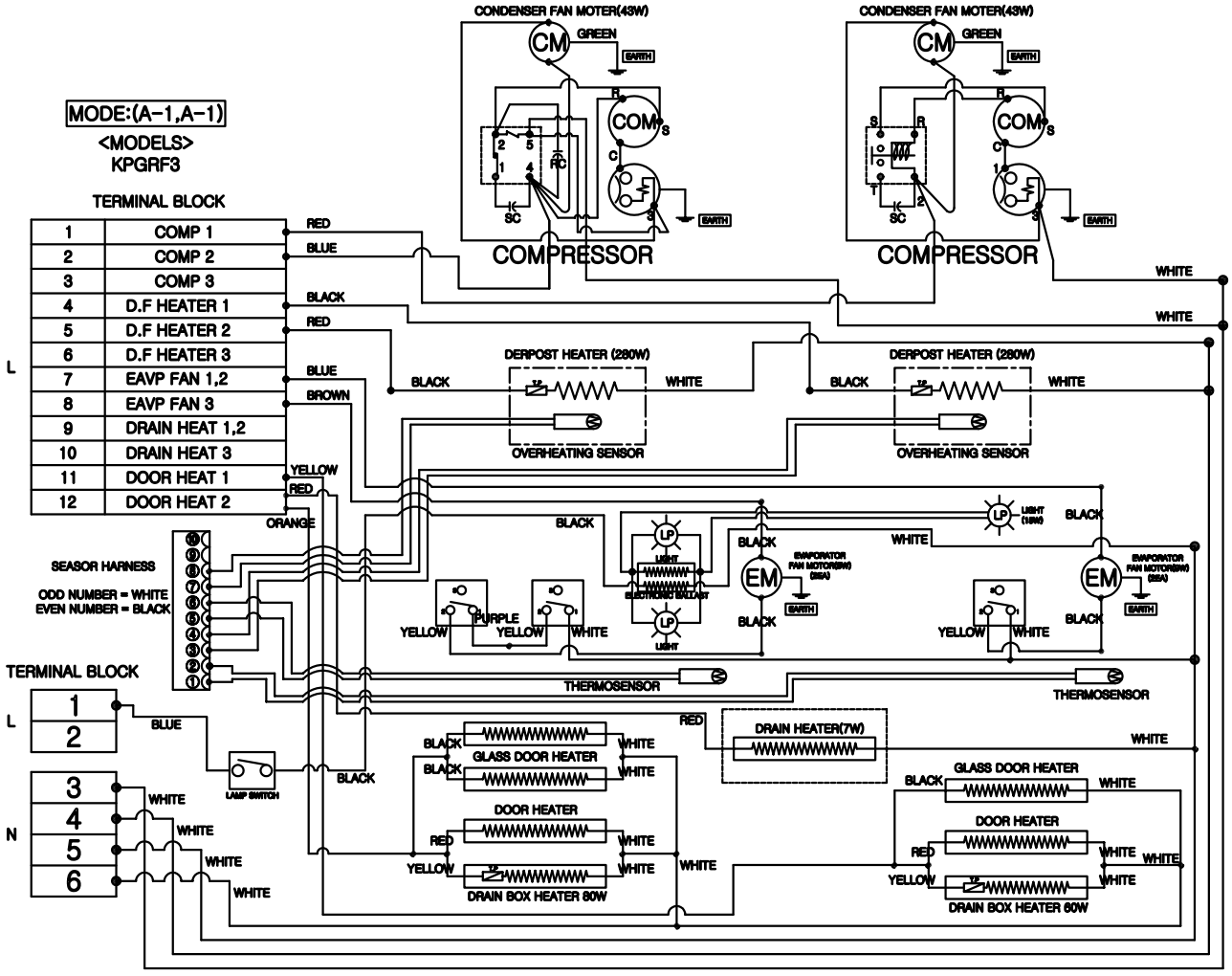

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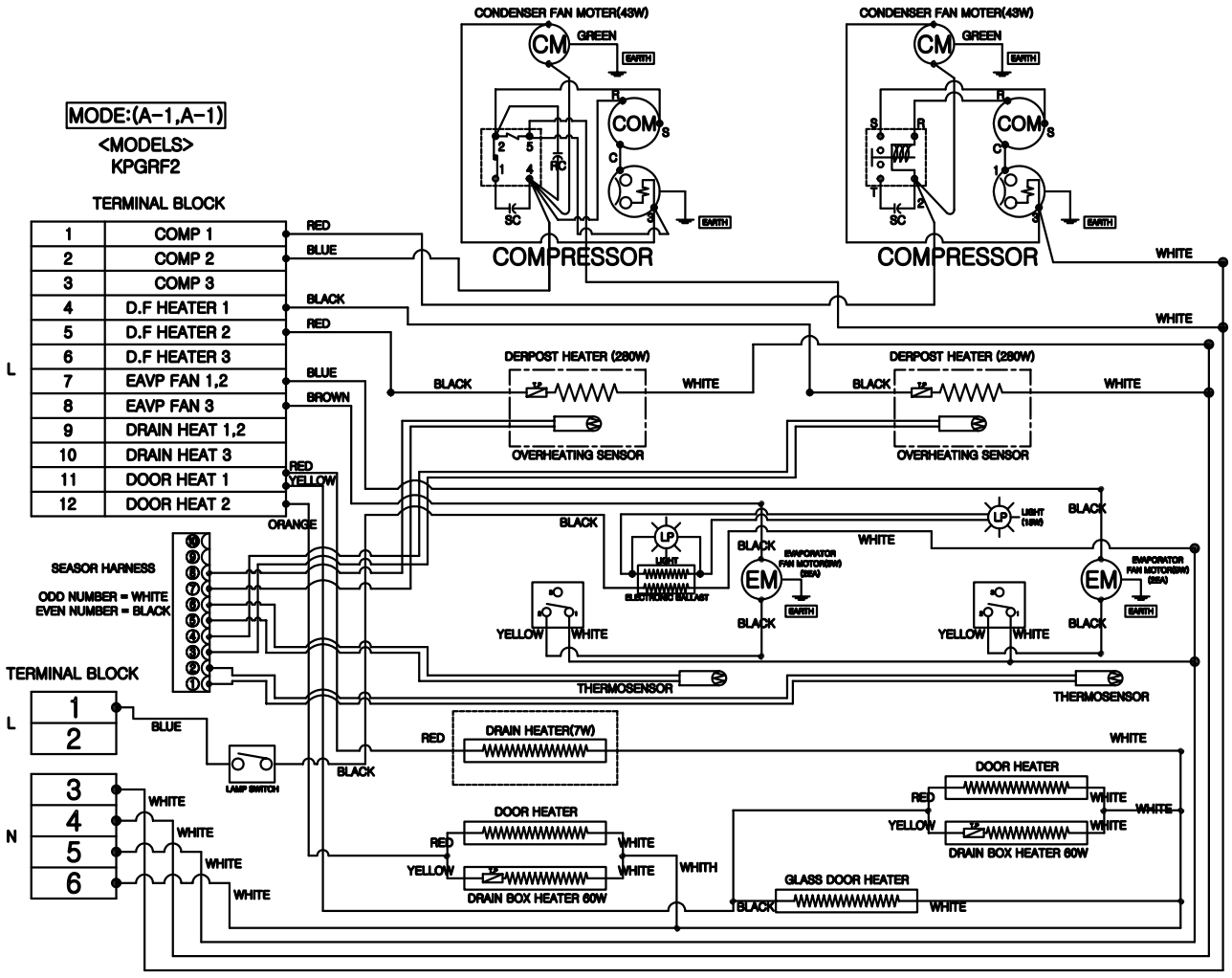

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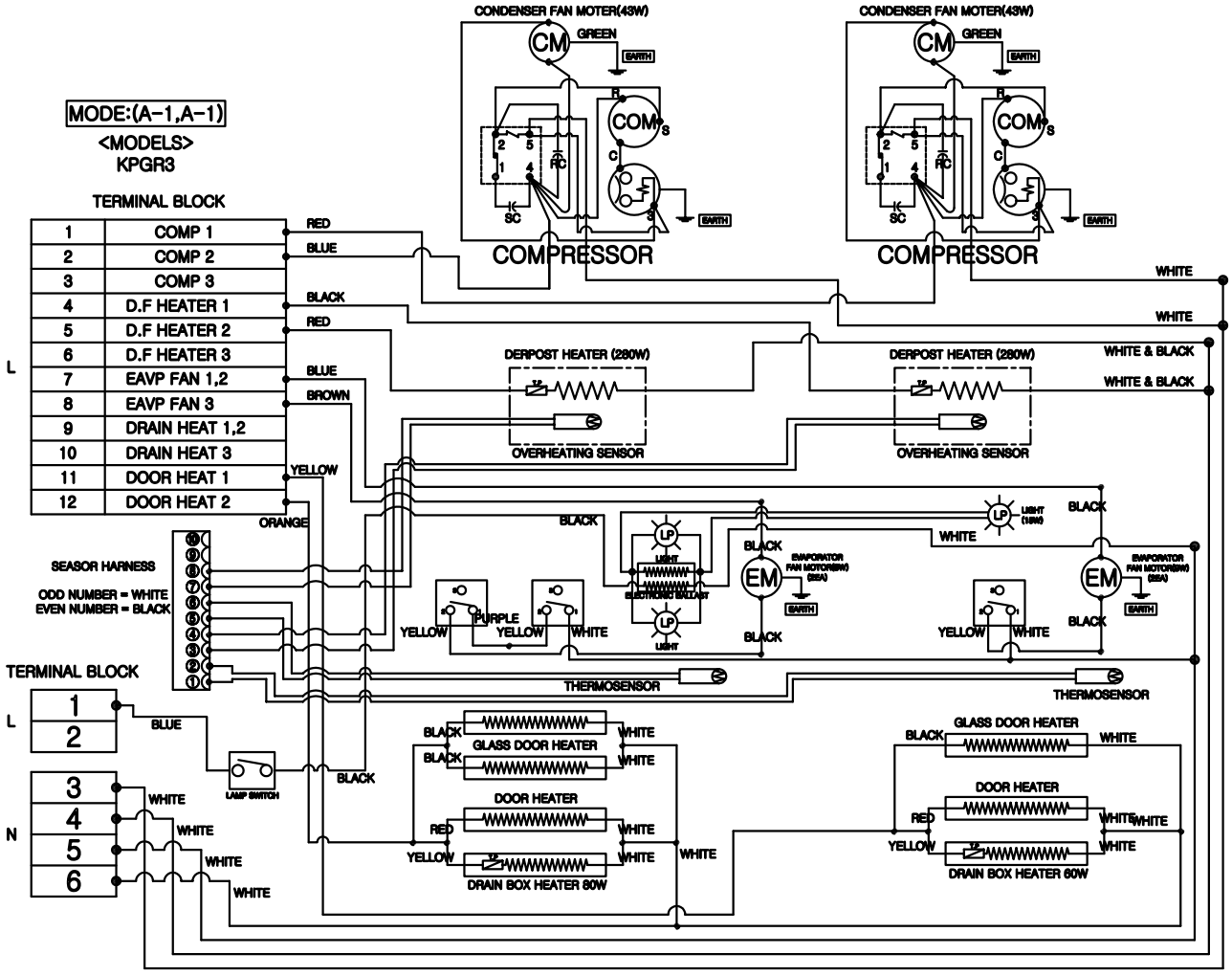

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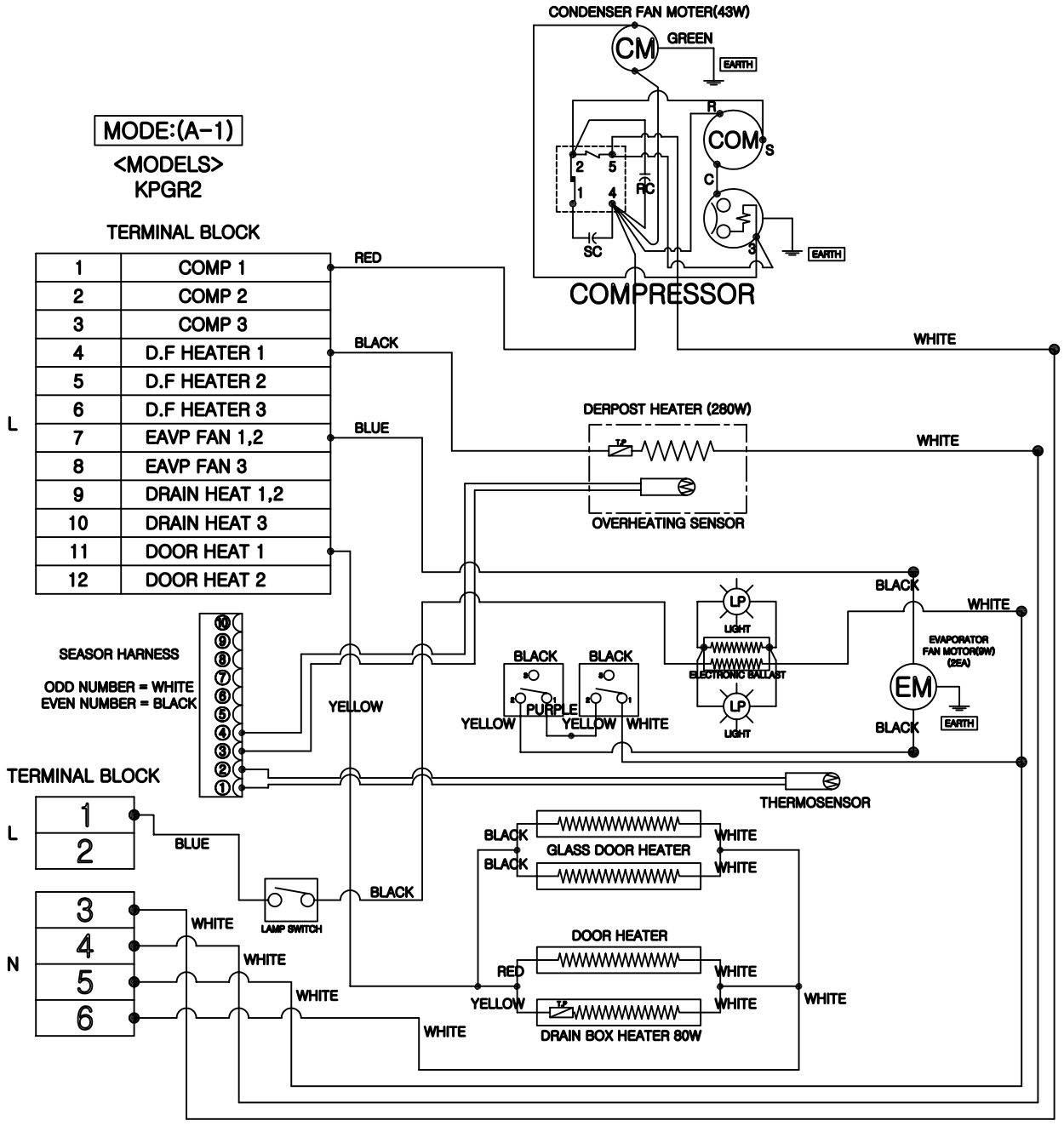

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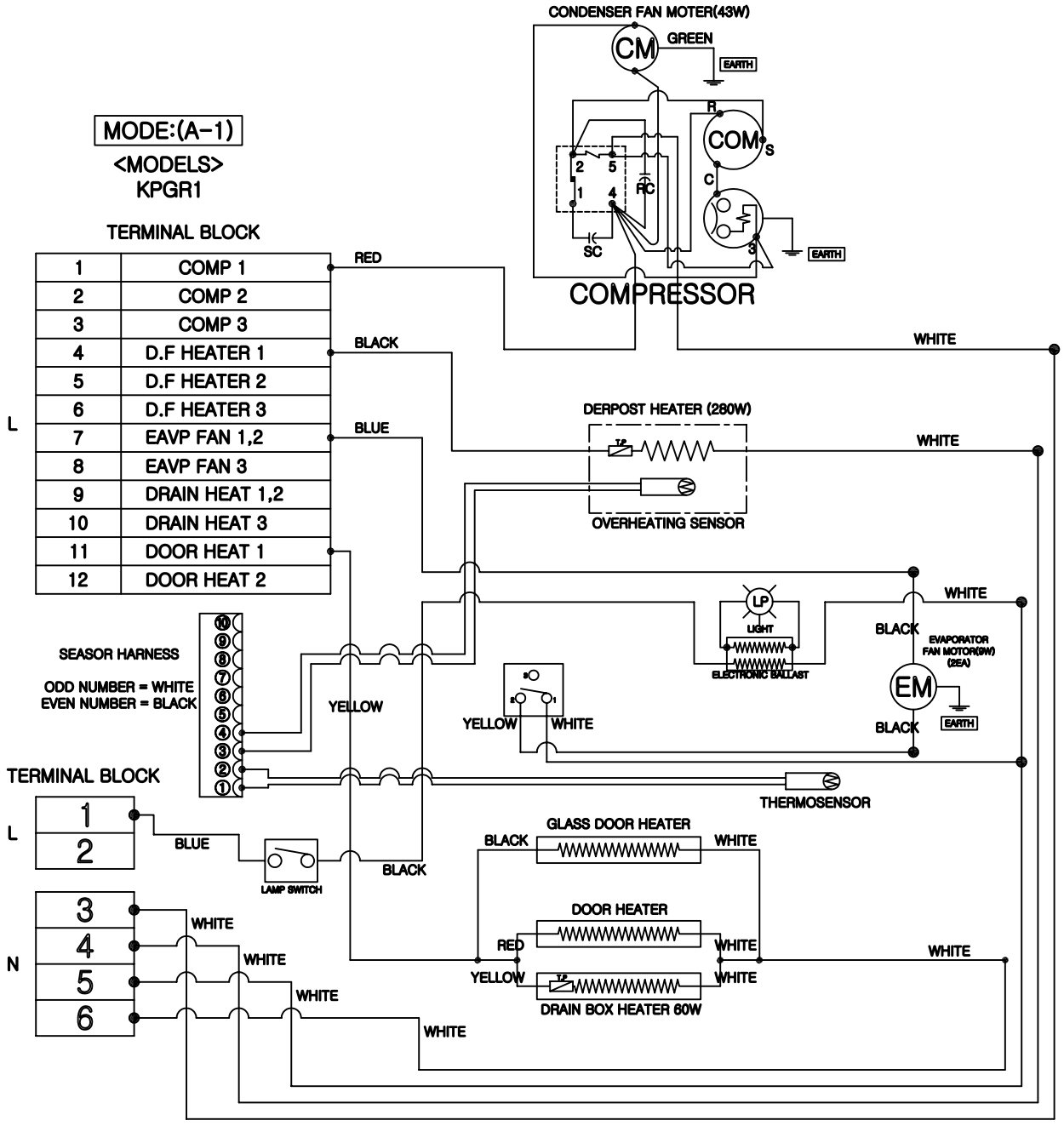

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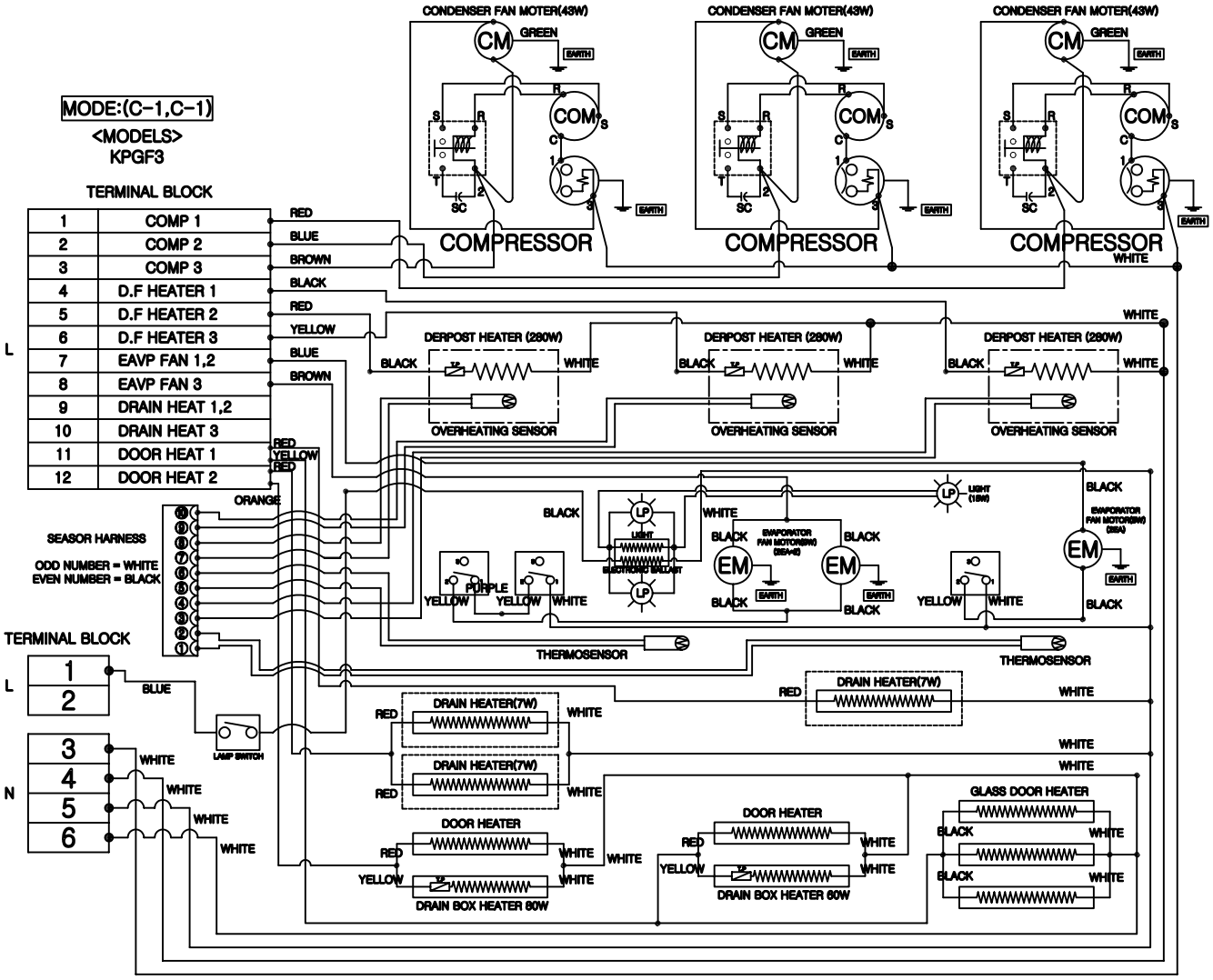

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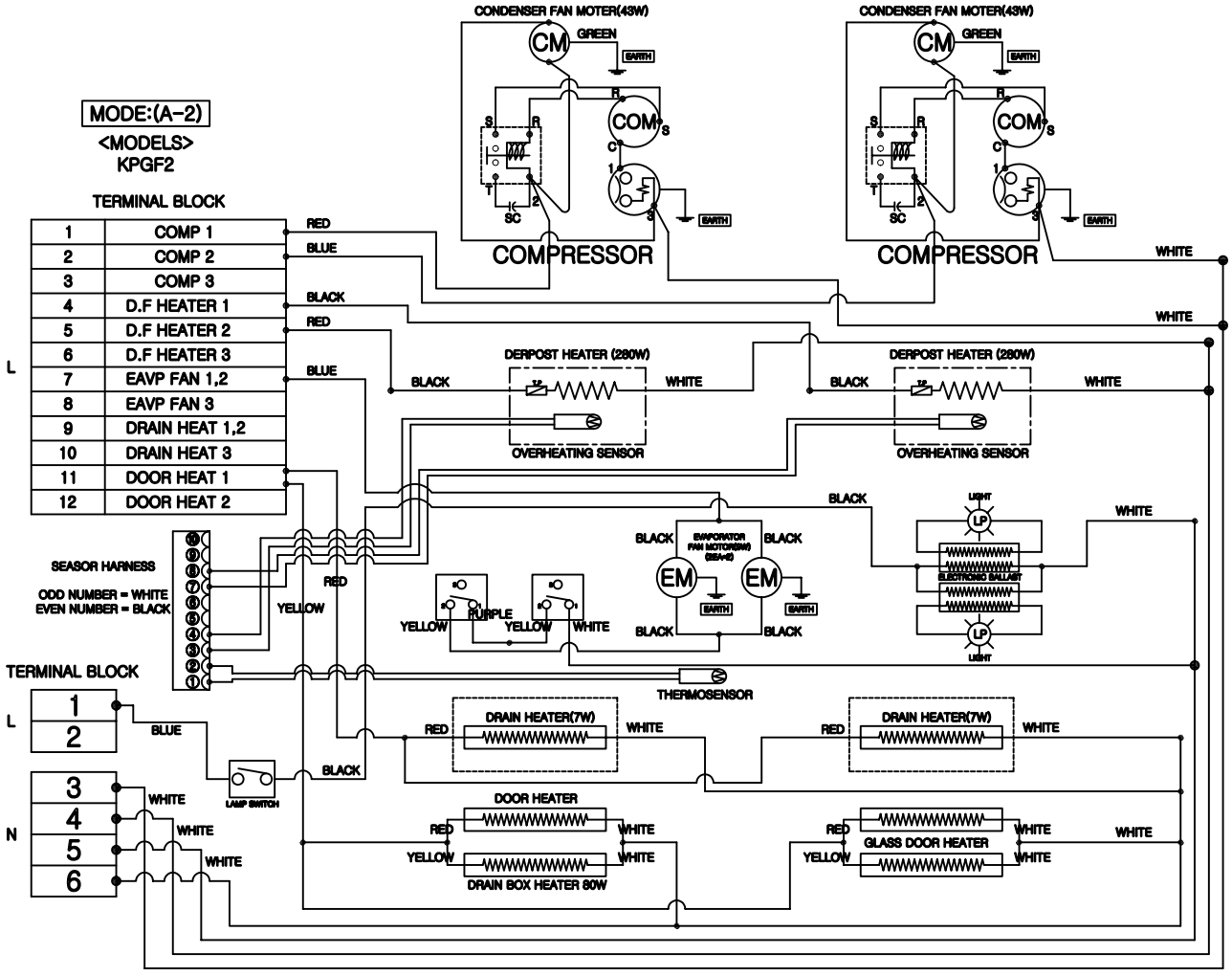

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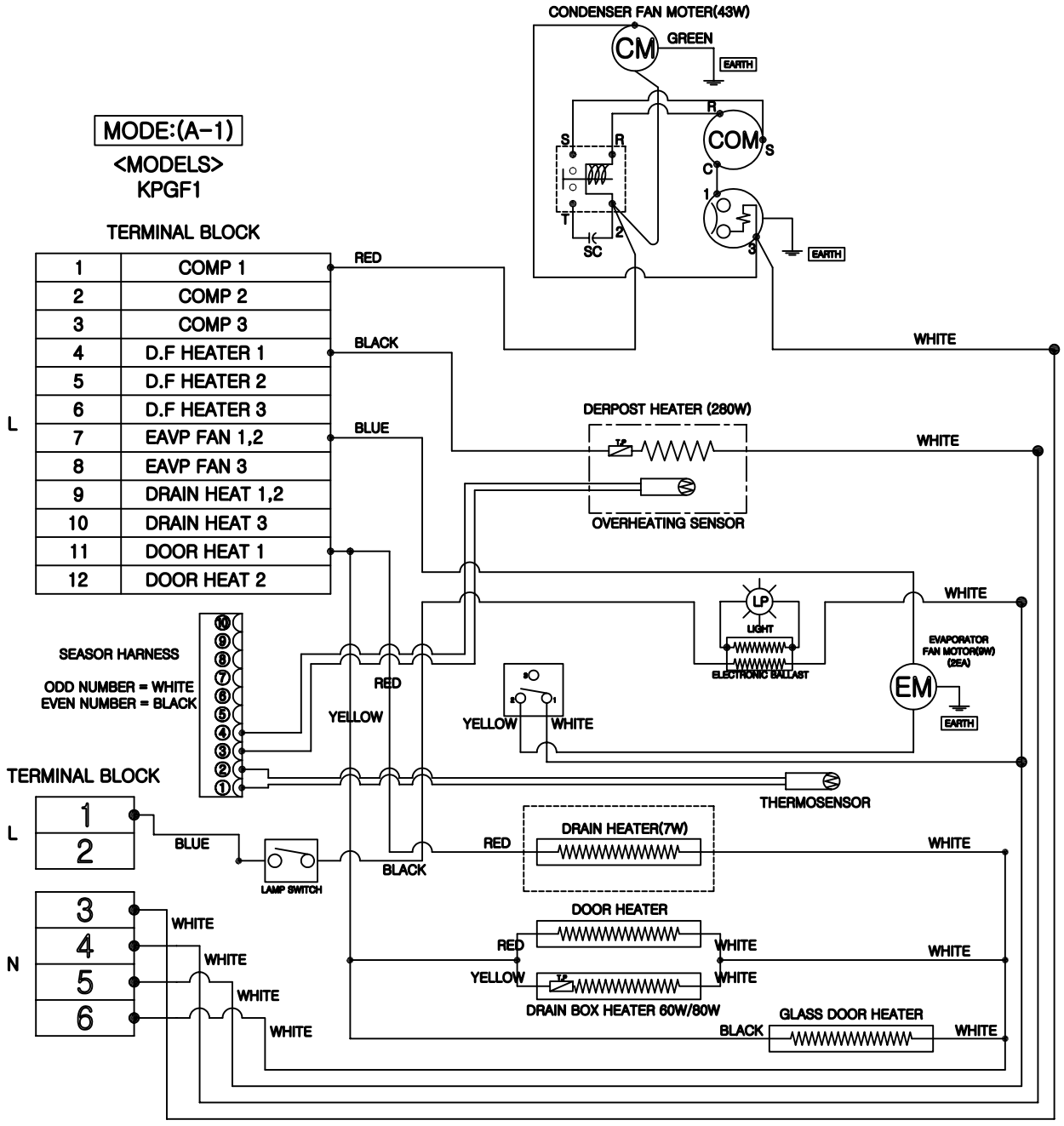
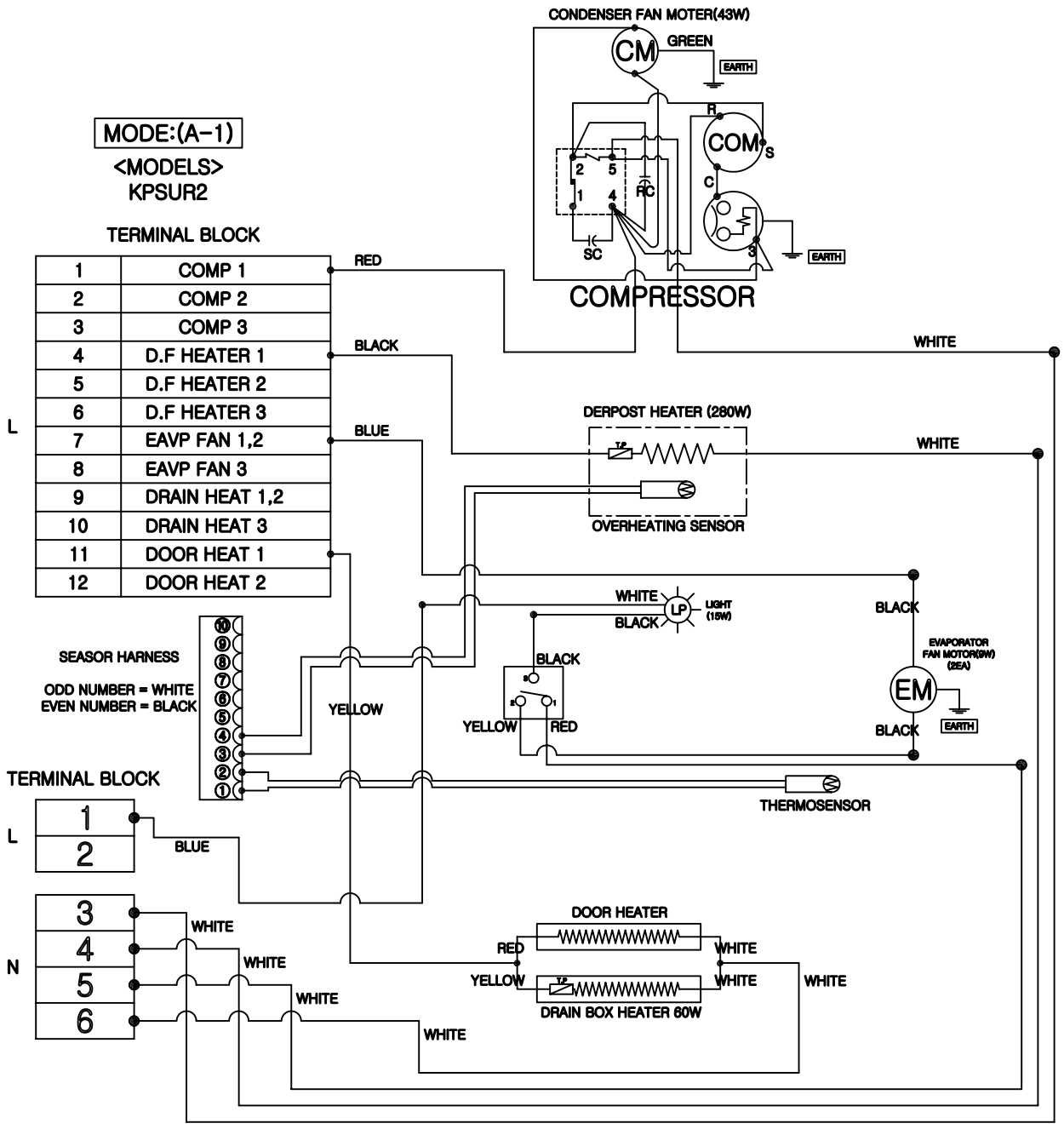
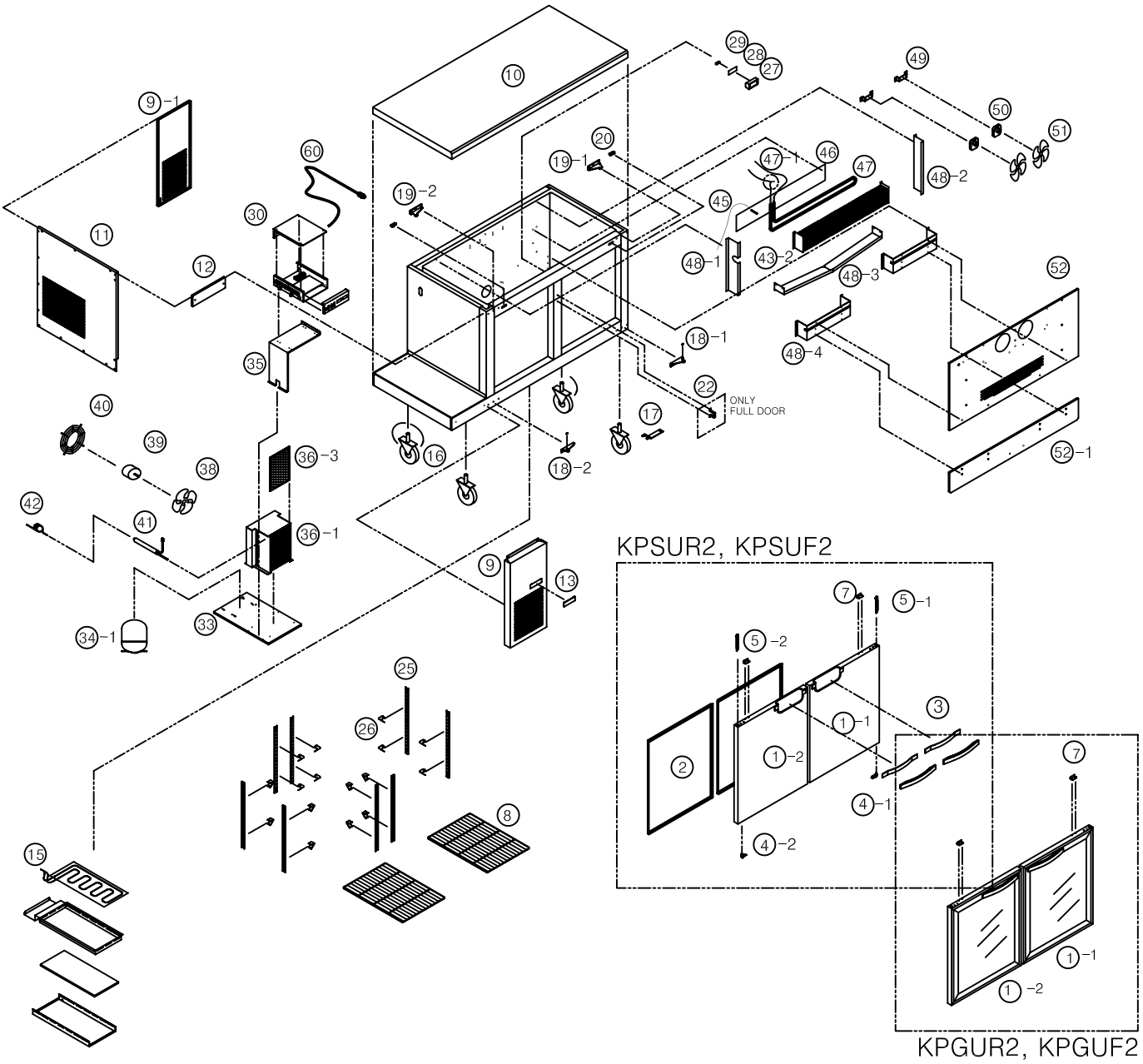
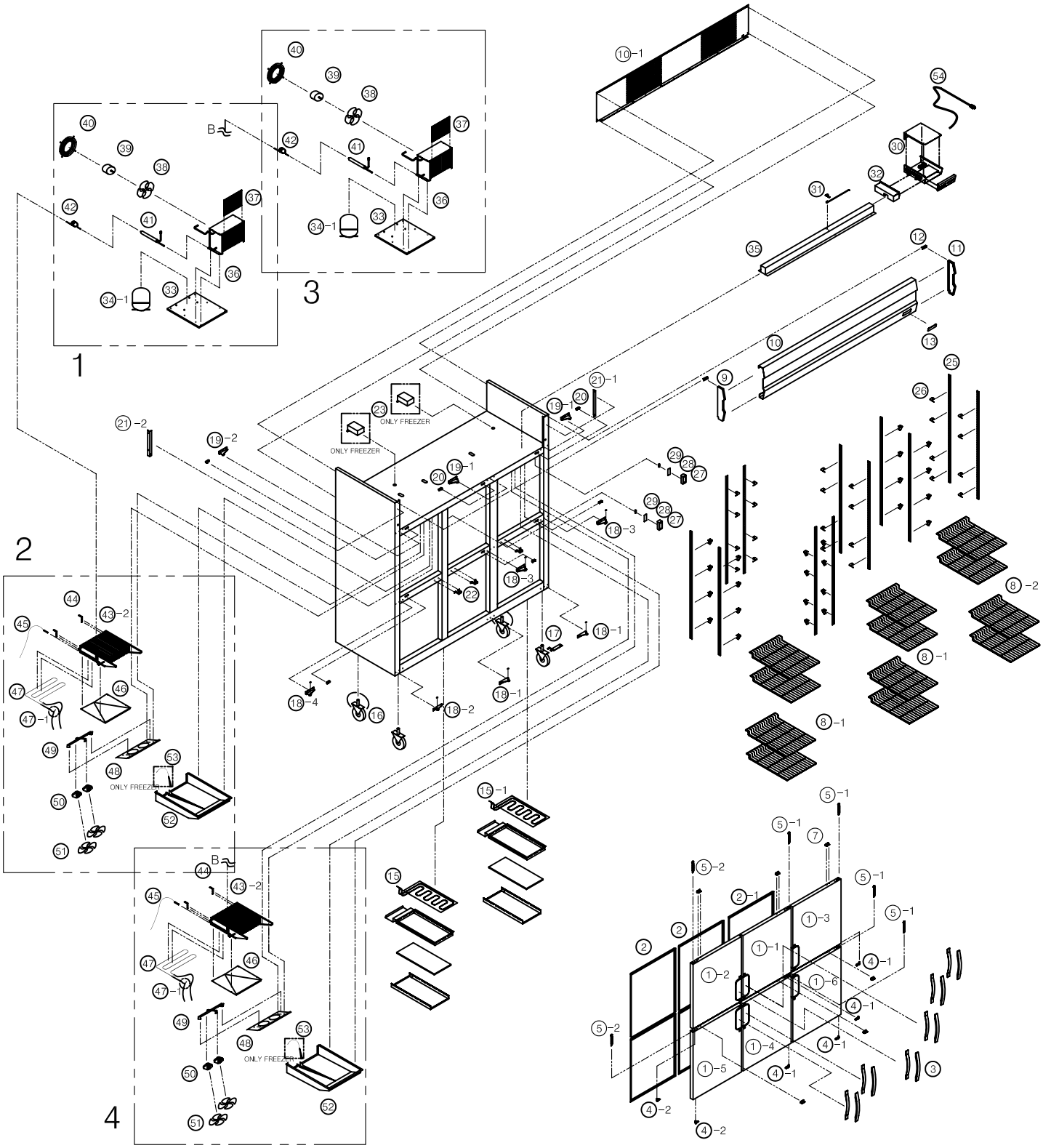


CONTROL WIRING DIAGRAM

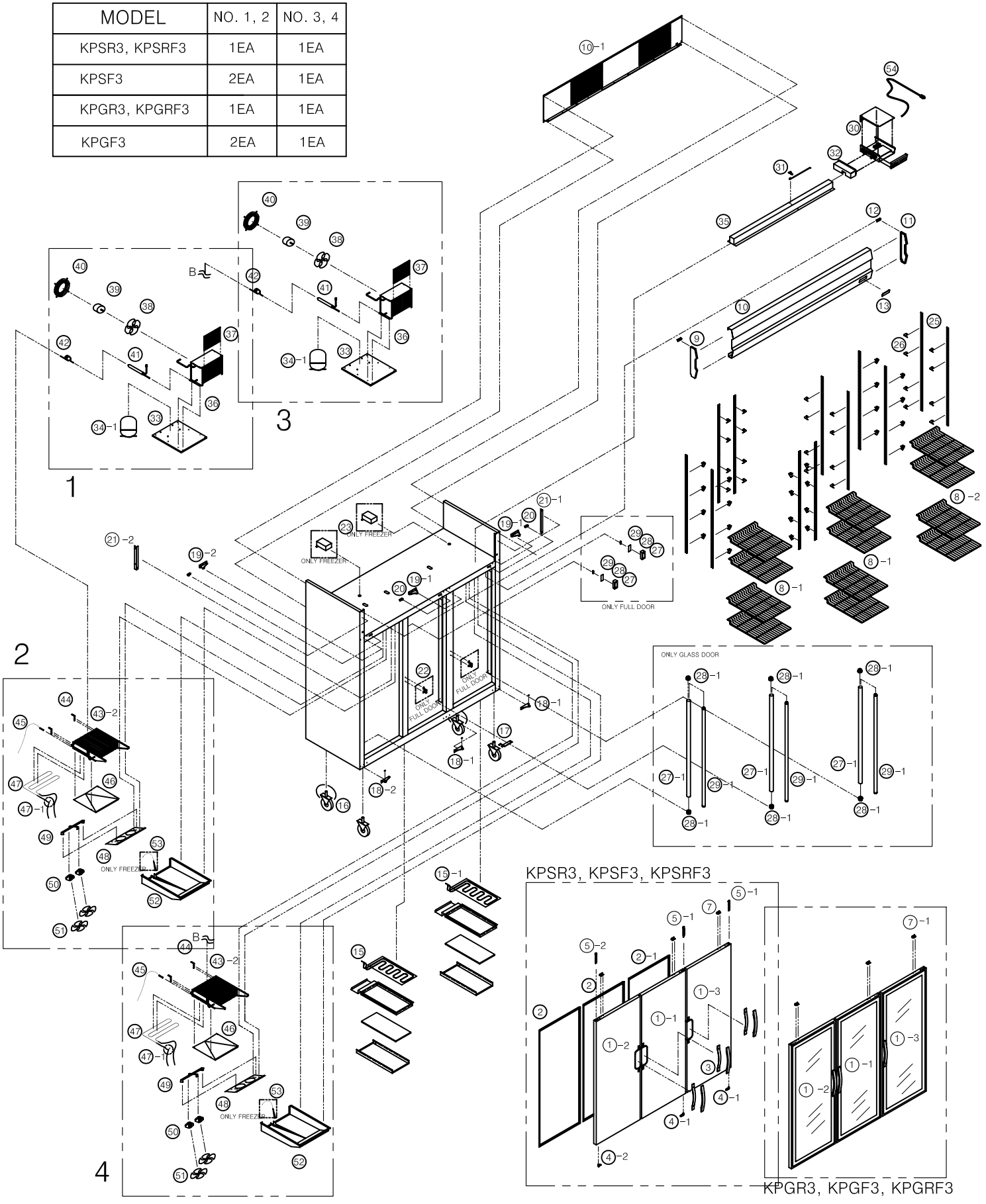



KPSUR2, KPSUF2
KPGUR2, KPGUF2
ONLY
FULL DOOR

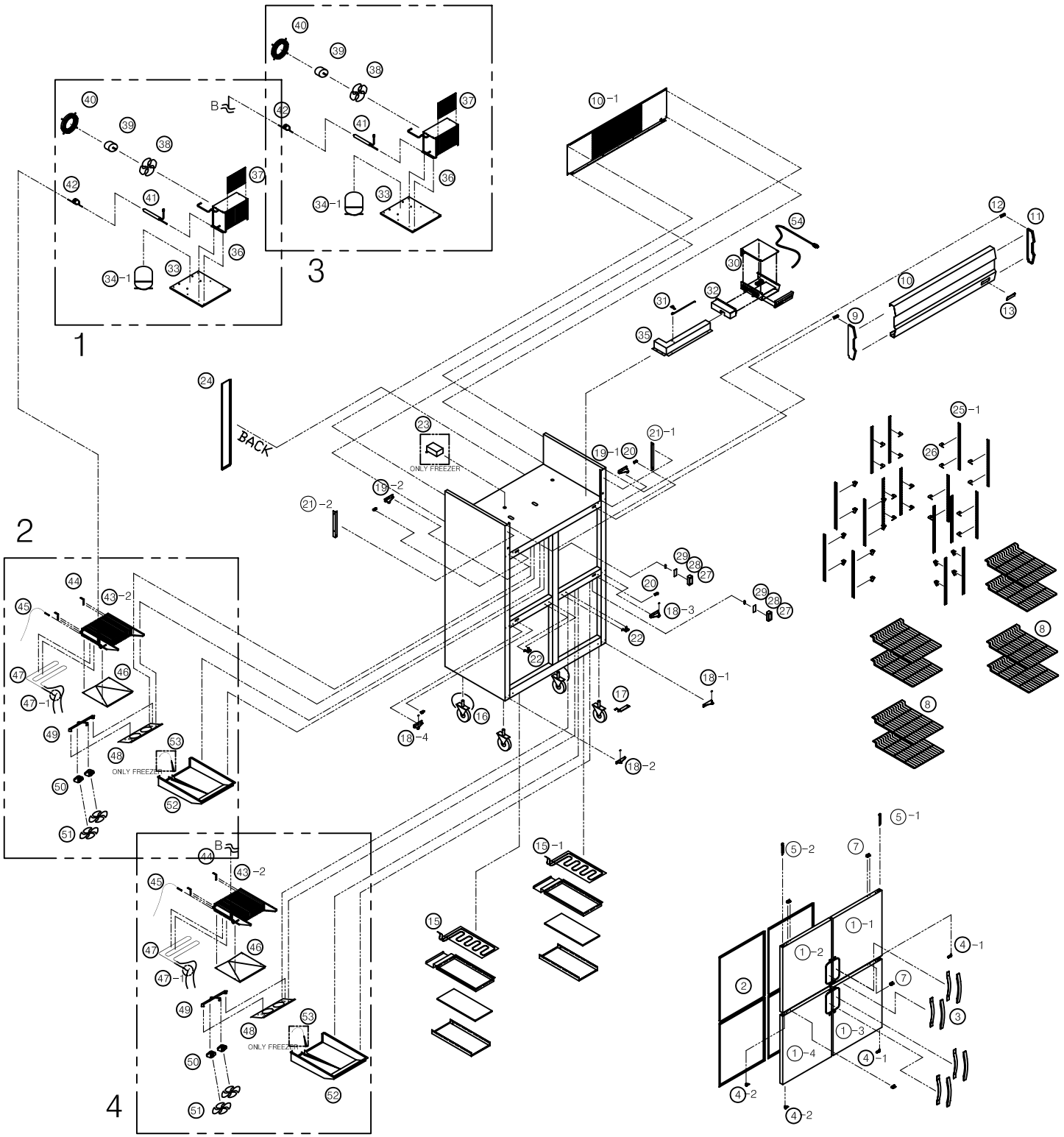
MODEL	NO. 1, 2	NO. 3, 4
KPSR3H, KPSRF3H	1EA	1EA
KPSF3H	2EA	1EA



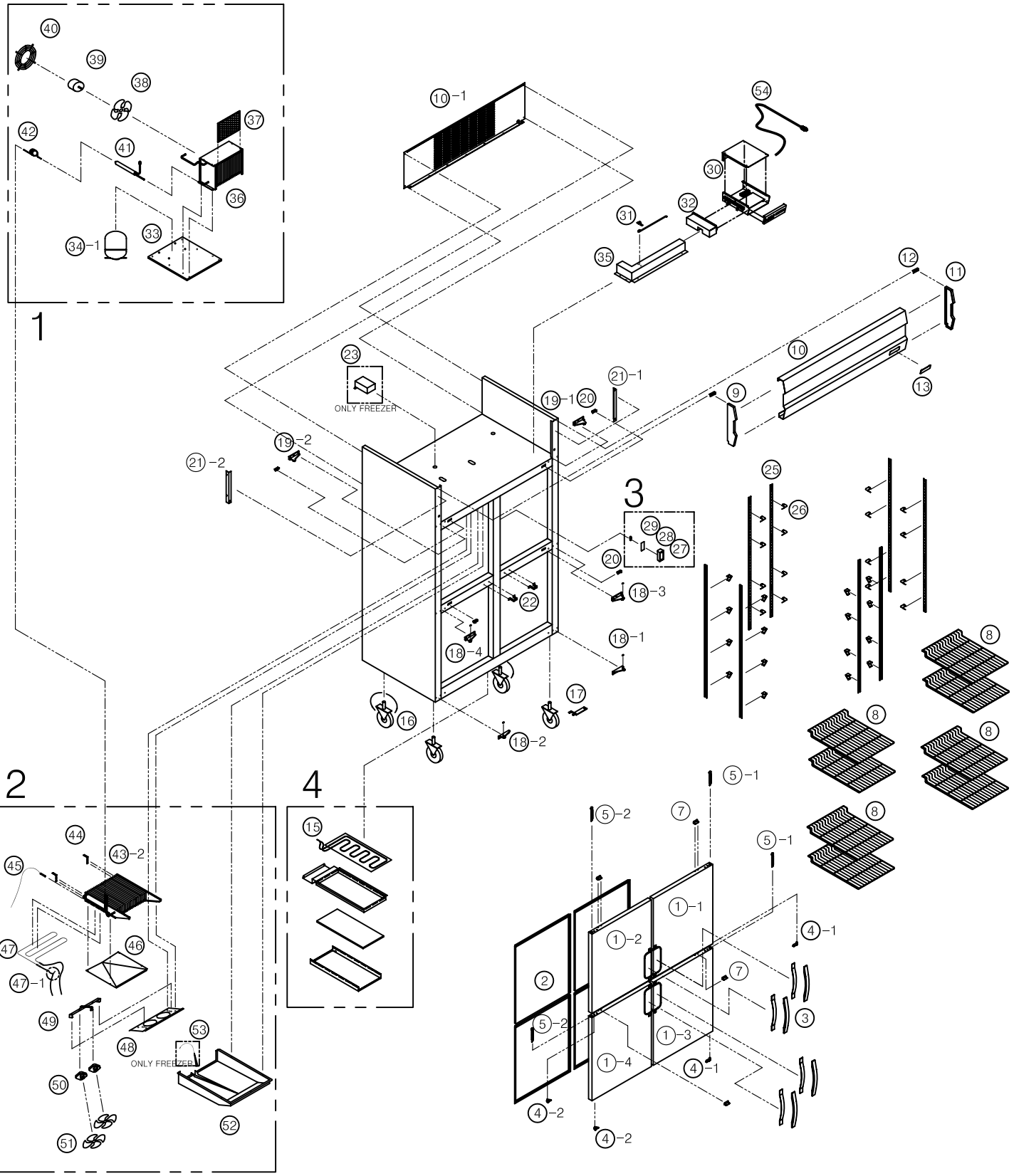
MODEL	NO. 1, 2	NO. 3, 4
KPSR3, KPSRF3	1EA	1EA
KPSF3	2EA	1EA
KPGR3, KPGRF3	1EA	1EA
KPGF3	2EA	1EA



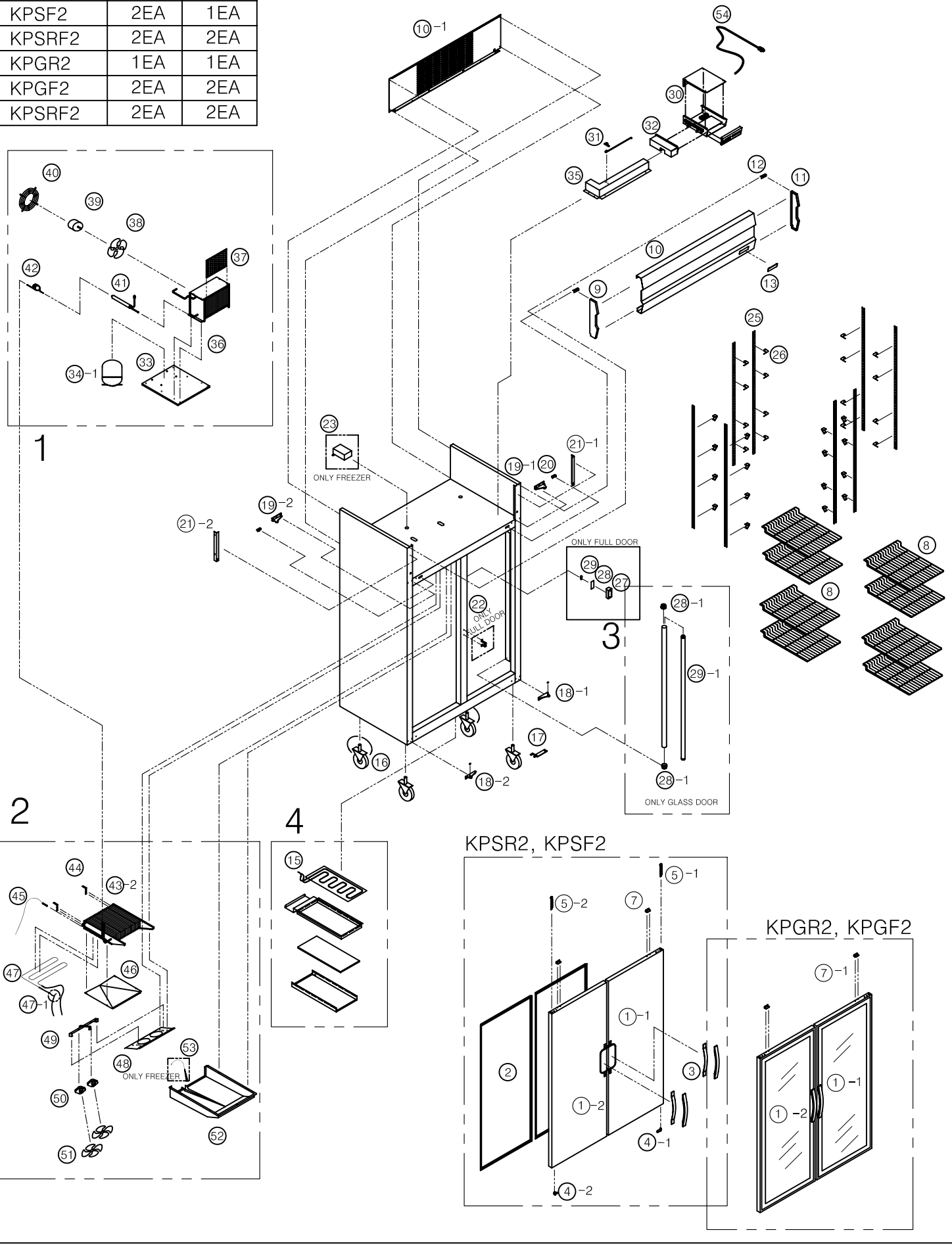
MODEL	NO. 1, 2	NO. 3, 4
KPSRF2HQ	1EA	1EA



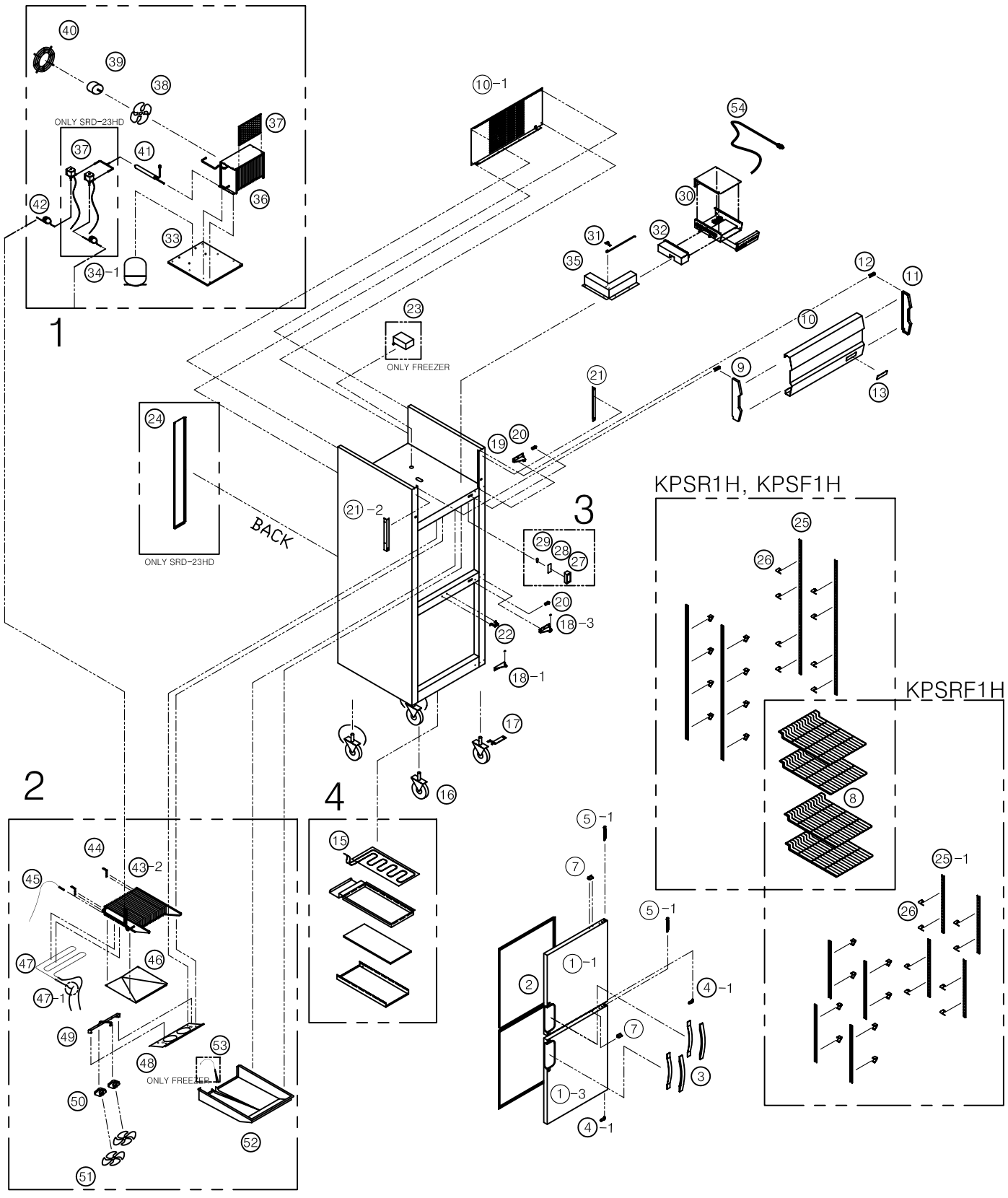
MODEL	NO. 1,2	NO. 3, 4
KPSR2H	1EA	1EA
KPSF2H	2EA	1EA
KPSRF2H	2EA	2EA



MODEL	NO. 1,2	NO. 3, 4
KPSR2	1EA	1EA
KPSF2	2EA	1EA
KPSRF2	2EA	2EA
KPGR2	1EA	1EA
KPGF2	2EA	2EA
KPSRF2	2EA	2EA



MODEL	NO. 1	NO. 2, 3, 4
KPSR1H	1EA	1EA
KPSF1H	1EA	1EA
KPSRF1H	1EA	2EA



MODEL	NO. 1,2
KPSR1	1EA
KPSF1	1EA
KPGR1	1EA
KPGF1	1EA