

SERVICE PARTS/OPERATION
for
MCC Heater Units 12-XXXX Series

T-357

REV. 05/2015



Table of Contents

SAFETY SUMMARY	Safety-1
UNIT SPECIFICATIONS	Spec-1
MAINTENANCE	Service-1
SERVICE PARTS	1
INTRODUCTION	1
CONFIGURATION IDENTIFICATION	1
GENERAL NOTES	1
1.1 MCC Heater Unit 12-11632	2
1.2 MCC Heater 12-11634	3
1.3 MCC Front Defroster 12-60046	4
1.4 MCC Front Defroster 12-60056	6
1.5 MCC Front Defroster 12-60058	8
1.6 MCC Front Defroster 12-60060	10
1.7 MCC Front Defroster 12-60064	12
1.8 MCC Front Defroster 12-60070	14
1.9 MCC Front Defroster 12-60076	16
1.10 MCC Front Defroster 12-60078	18
1.11 MCC Heater Unit 12-70276	20
1.12 MCC Heater Unit 12-70278	22
1.13 MCC Heater Unit 12-70282	24
1.14 MCC Heater Unit 12-70284	26
1.15 MCC Heater Unit 12-70286	28
1.16 MCC Heater Unit 12-70288	30
1.17 MCC Heater Unit 12-70292	32
1.18 MCC Heater Unit 12-70294	34
1.19 MCC Heater Unit 12-7558	36
1.20 MCC Heater Unit 12-8340	37
1.21 MCC Heater Unit 12-8364	39
1.22 MCC Heater Unit 12-8370 & T12-8372	41
1.23 MCC Heater Unit T12-8374	43

List of Figures

Figure 1-1 Schematic for Models 12-11632 & 12-11634	45
Figure 1-2 Schematic for Models 12-60046	46
Figure 1-3 Schematic for Models 12-60056	47
Figure 1-4 Schematic for Models 12-60058	48
Figure 1-5 Schematic for Models 12-60060	49
Figure 1-6 Schematic for Models 12-60064	50
Figure 1-7 Schematic for Models 12-60070	51
Figure 1-8 Schematic for Models 12-60076	52



List of Figures (Continued)

Figure 1-9 Schematic for Models 12-60078	53
Figure 1-10 Schematic for Models 12-70276	54
Figure 1-11 Schematic for Models 12-70278	55
Figure 1-12 Schematic for Models 12-70282 & 12-70284	56
Figure 1-13 Schematic for Models 12-70286,12-70288, 12-70292 &12-70294	57
Figure 1-14 Schematic for Models 12-7558	58
Figure 1-15 Schematic for Models 12-8340	59
Figure 1-16 Schematic for Models 12-8364	60
Figure 1-17 Schematic for Models 12-8370, T12-8372 & T12-8374	61



SAFETY SUMMARY

GENERAL SAFETY NOTICES

The following general safety notices supplement the specific warnings and cautions appearing elsewhere in this manual. They are recommended precautions that must be understood and applied during operation and maintenance of the equipment covered herein. A listing of the specific warnings and cautions appearing elsewhere in the manual follows the general safety notices.

FIRST AID

An injury, no matter how slight, should never go unattended. Always obtain first aid or medical attention immediately.

OPERATING PRECAUTIONS

Always wear safety glasses.

Keep hands, clothing and tools clear of the evaporator and condenser fans.

No work should be performed on the unit until all circuit breakers and start-stop switches are placed in the OFF position, and power supply is disconnected.

Always work in pairs. Never work on the equipment alone.

In case of severe vibration or unusual noise, stop the unit and investigate.

MAINTENANCE PRECAUTIONS

Beware of unannounced starting of the evaporator and condenser fans. Do not open the unit cover before turning power off.

Be sure power is turned off before working on motors, controllers, solenoid valves and electrical controls. Tag circuit breaker and power supply to prevent accidental energizing of circuit.

Do not bypass any electrical safety devices, e.g. bridging an overload, or using any sort of jumper wires. Problems with the system should be diagnosed, and any necessary repairs performed, by qualified service personnel.

When performing any arc welding on the unit, disconnect all wire harness connectors from the modules in the control box. Do not remove wire harness from the modules unless you are grounded to the unit frame with a static-safe wrist strap.

In case of electrical fire, open circuit switch and extinguish with CO₂ (never use water).

SPECIFIC WARNINGS AND CAUTIONS



WARNING

Be sure to observe warnings listed in the safety summary in the front of this manual before performing maintenance on the hvac system



WARNING

Read the entire procedure before beginning work. Park the coach on a level surface, with parking brake applied. Turn main electrical disconnect switch to the off position.



SPECIFIC WARNINGS AND CAUTIONS - Continued:



WARNING

Units must never be operated without an air filter present. Doing so will result in accumulation of dirt and debris in heater coil, blower, and electrical components. This will require more effort to remove and restore proper system operation, as well as increase potential for higher resistance at electrical components and connections. Higher resistance will result in higher thermal potential.



WARNING

Battery disconnect should be off.



WARNING

Extreme care must be taken when opening the coolant system. Coolant may be hot, and exposure to the skin and eyes could result in injury.



CAUTION

Use care when checking/manipulating wires/plugs attached to electrical components. Damage to the component or wiring harness can occur.



UNIT SPECIFICATIONS

Model	Heating Capacity BTU/H	Airflow CFM	Volts	Amps @27 vdc Low Speed	Amps @ 27 vdc Medium Speed	Amps @ 27 vdc High Speed	Motor Type	Weight lbs.
12-11632	25,828	215	24	3.4	5.0	6.2	Brushless	11.5
12-11634	25,828	215	24	3.4	5.0	6.2	Brushless	11.5
12-60046	53,810	520	24	Variable	Variable	13.8	Brushless	52
12-60056	50,500	467	24	N/A	N/A	7.8	Brushless	52
12-60058	59,000	571	24	6.1	8.3	13	Brushless	52.3
12-60060	62,776	549	24	5.8	7.3	11.2	Brushless	46
12-60064	63,477	553	24	5.7	7.3	11.2	Brushless	38
12-60070	56,880	462	24	5.4	7.0	8.5	Brushless	42
12-60076	56,854	462	24	5.5	7.3	8.5	Brushless	38
12-60078	59,747	500	24	N/A	N/A	8.2	Brushless	37
12-70276	38,080	327	24	5.9	7.6	N/A	Brushless	35.5
12-70278	38,080	327	24	5.9	7.6	N/A	Brushless	35.5
12-70282	43,000	389	24	3.8	N/A	10.3	Perm. Magnet	35
12-70284	43,000	389	24	3.8	N/A	10.3	Perm. Magnet	35
12-70286	44,860	420	24	5.7	N/A	11.6	Brushless	35
12-70288	44,860	420	24	5.7	N/A	11.6	Brushless	35
12-70292	41,380	388	24	5.6	N/A	11	Brushless	35
12-70294	41,380	388	24	5.6	N/A	11	Brushless	35
12-7558	66,000	500	24	4.5	7.2	10.5	Brushless	48.5
12-8340	33600	260	24	1.9	N/A	4.9	Brushless	N/A
12-8364	33600	260	24	1.9	N/A	4.9	Brushless	N/A
12-8370	42,000	362	24	2.5	N/A	6.3	Brushless	30
T12-8372	37,420	303.5	24	2.1	N/A	5.4	Brushless	30
T12-8374	35,053	276	24	1.9	N/A	5.0	Brushless	30

Note:

Heating Capacity rated at 3.6 GPM @ 150°FΔ

Airflow Rated at 27 VDC/ 0” Static Pressure (Bench Test).



MAINTENANCE

GENERAL NOTICES

The MCC Heater units are virtually maintenance free. However, the following items should be followed to help ensure maximum efficiency of system, as well as avoid potential system related problems.

NOTE:

Frequency associated with maintenance intervals will vary according to operational conditions and geographic regions. Inspection frequency should be scheduled accordingly.

Air Filters

All units are equipped with air filters to prevent foreign materials from entering system components. Filters should be cleaned or replaced as part of a regular scheduled maintenance program. Failure to maintain air filters will result in diminished system capacity related to lack of airflow.



WARNING

Units must never be operated without an air filter present. Doing so will result in accumulation of dirt and debris in heater coil, blower, and electrical components. This will require more effort to remove and restore proper system operation, as well as increase potential for higher resistance at electrical components and connections. Higher resistance will result in higher thermal potential.

Heater Coils

Proper maintenance of air filters will reduce the potential of dirt and debris entering the heater coils. Heater coils are of a tube and fin design. If the coils are determined to require cleaning, only low pressure air, or vacuuming should be used as a method of cleaning. Care should be taken not to bend the fins of heater coil in the process. If this occurs, the coil will have diminished airflow and capacity, and will require the fins to be “combed” to restore to designed requirements.

Blower/Fan

Blowers/Fans should be inspected during routine maintenance for abnormal vibration and smooth rotation. Proper blower speed operation should be part of this inspection. If dirt and debris build up is found, the motor and blower should be wiped clean.

Blowers are supplied as an assembly, and if improper operation is determined, they should be replaced as an assembly. Please refer to the parts section of this manual to determine proper replacement part number.

Electrical Wiring and Connections



WARNING

Be sure power is turned off before working on motors, controllers, solenoid valves and electrical controls. Tag circuit breaker and power supply to prevent accidental energizing of circuit.

Electrical

Inspection of all electrical connections and harnesses should be part of the routine maintenance procedures. Wiring should be inspected for any signs of chafing and/or dirt and corrosion. If any occurrences of these conditions are observed, the deficiencies must be corrected to reduce potential related risks that may occur.

Actuator Motors

If equipped, Actuator motors and associated linkages should be checked for proper operation to avoid potential problems or failures.



SECTION 1

SERVICE PARTS

INTRODUCTION

This section provides identification of service replacement parts for the Mobile Climate Control Heater/Defrosters with part numbers beginning with 12.

CONFIGURATION IDENTIFICATION

Unit identification information is provided on a plate (decals) located on the unit assembly. This plate provides the unit model number and the unit serial number. The model number identifies the unit configuration and differences in detailed parts.

GENERAL NOTES

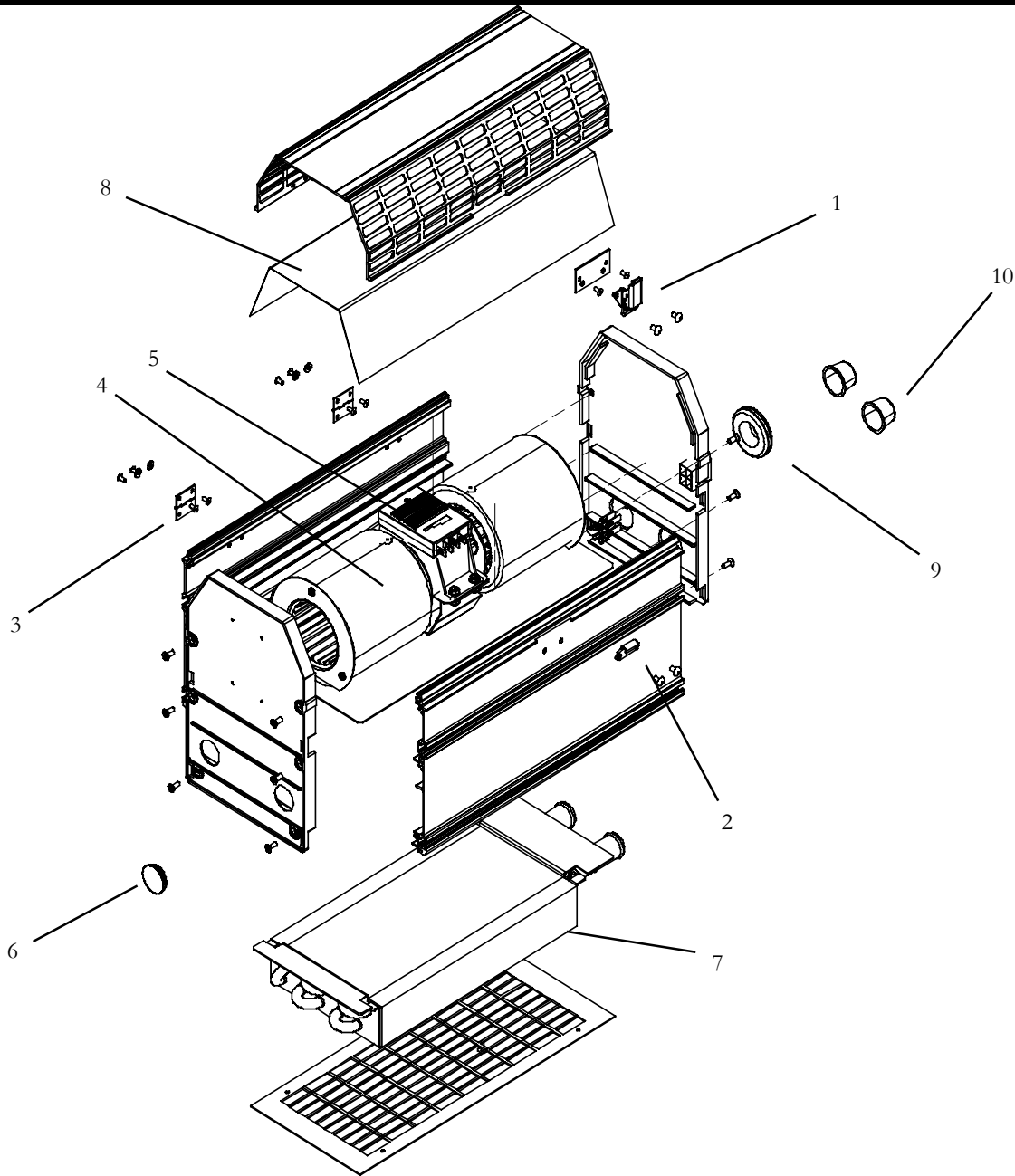
To find replacement parts, determine major group in which replacement parts are located and turn to the appropriate page for the illustrated breakdown of the replacement parts. The following letter designations are used to classify parts throughout this list. Parts can be obtained by ordering from the following website:

www.mcc-hvac.com

- A/R As Required
- N.S. Not Shown on Illustration
- NSI Non-Stock Item (Items **may not be available** for purchase, or **may require extended lead times**)
- NSS Not Sold Separately - Order next higher assembly or kit.
- P-- Suffix P-- added to part number means part is available in packaged quantity only.
- PL Purchase Locally
- SS Stainless Steel
- SV Suffix SV added to part number designates service replacement part.



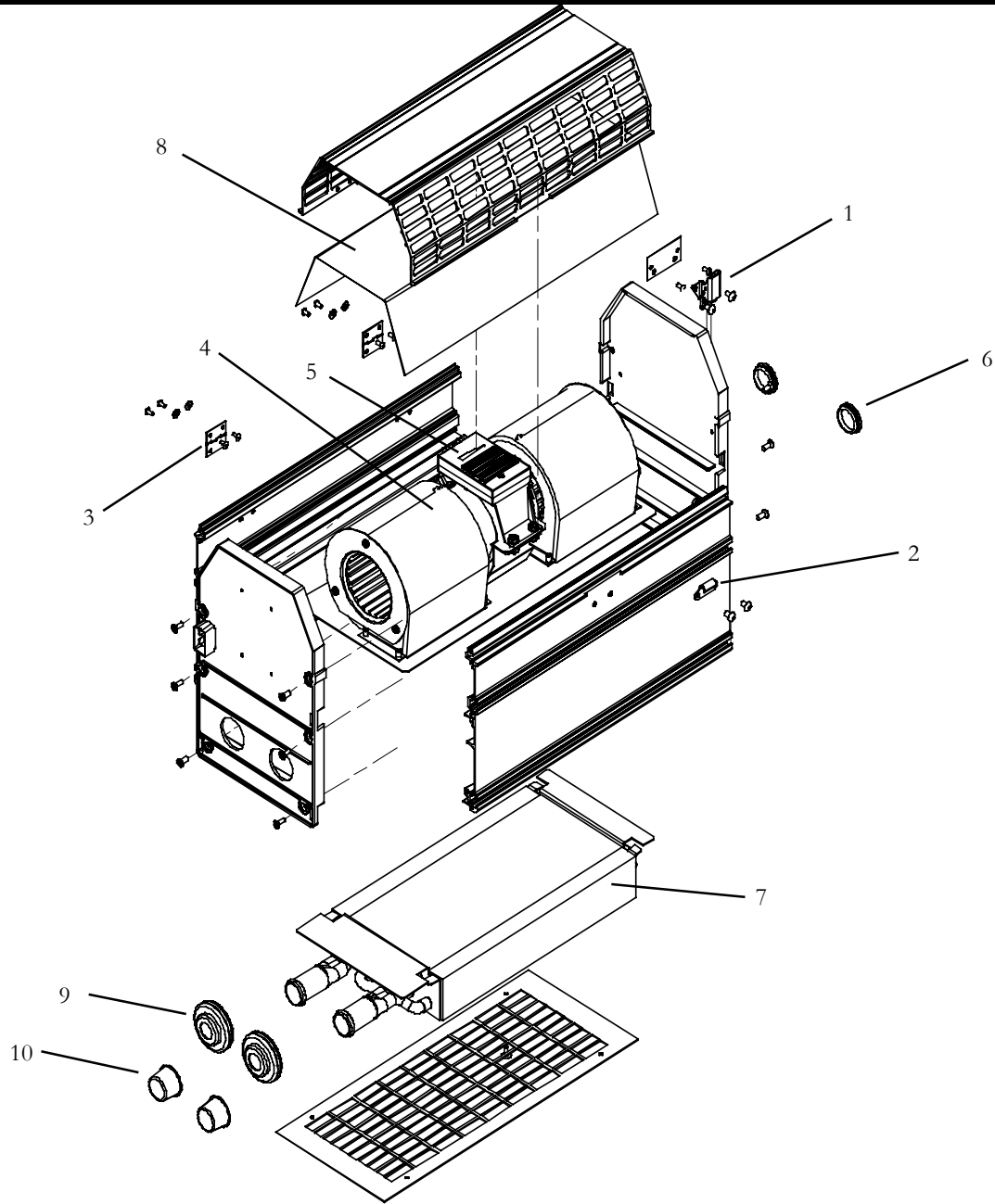
1.1 MCC Heater Unit 12-11632



1	13430	Latch	1
2	13431	Latch Hook	1
3	14524	Hinge	2
4	15-0484	Blower Assembly	1
5	25-2530	Al. Housed Resistor	1
6	16534	Cover Plug	2
7	22-1222	Coil Assembly	1
8	26-1619	Permatron Filter	1
9	28-0007	Grommet 1-3/8" (34.92mm)	2
10	28-0404	Protective Cap, 7/8" (22.22mm)	2
N.S.	25-3345	Wire Harness	NSI



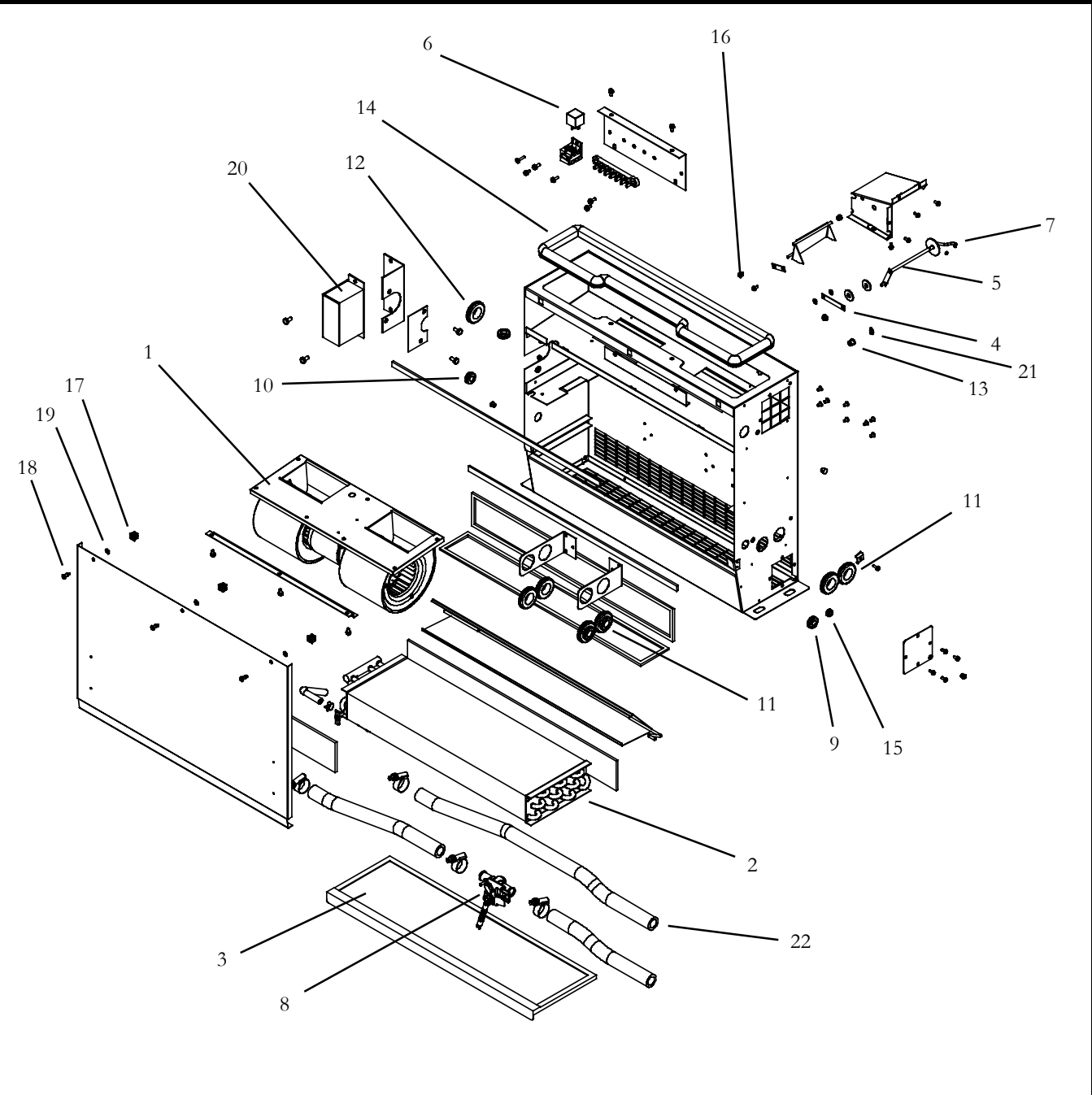
1.2 MCC Heater 12-11634



1	13430	Latch	1
2	13431	Latch Hook	1
3	14524	Hinge	2
4	15-0484	Blower Assembly	1
5	25-2530	Al. Housed Resistor	1
6	16534	Cover Plug	2
7	22-1222	Coil Assembly	1
8	26-1619	Permatron Filter	1
9	28-0007	Grommet 1-3/8" (34.92mm)	2
10	28-0404	Protective Cap, 7/8" (22.22mm)	2
N.S.	25-3345	Wire Harness	NSI



1.3 MCC Front Defroster 12-60046



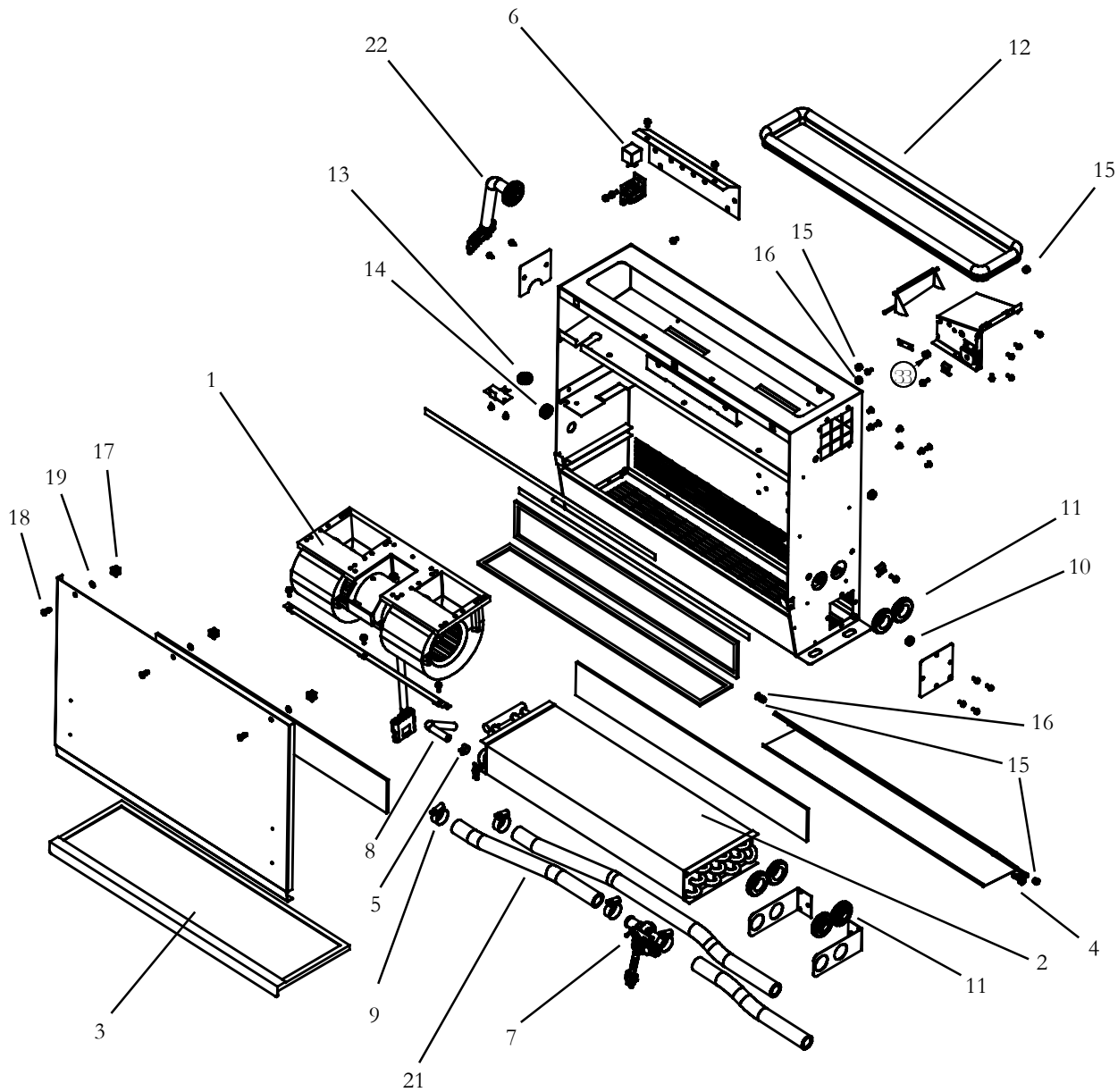
Item	Part Number	Description	Qty
1	15-1982	Blower Assembly, 24V Includes:	1
2	22-0226	Heater Coil	1
3	26-0265	Air Filter Assembly	1
4	24-1257	Link Arm	1
5	24-1258	Flapper Arm	1
6	25-1124	Relay 24V	1
7	25-0623	Lever	1
8	26-1714	Valve Assembly	1
9	28-0293	Grommet	2



1.3 Front Defroster 12-60046 (Parts List) Continued:			
Item	Part Number	Description	Qty
10	28-0045	Grommet	1
11	28-0007	Grommet 1 3/8" (34.9 mm)	6
12	28-0005	Grommet 5/8" (15.9mm)	1
13	28-0029	Bushing, 1/4" (6.4mm)	1
14	28-0079	Rubber Seal, 56.7 in. (1440 mm)	1
15	28-0014	Grommet 3/8" (9.5 mm)	1
16	28-0326	Snap Bushing, 3/16"	4
17	29-0075	Receptacle	3
18	29-0120	Stud Oval Slotted, SS	3
19	29-0077	Retainer	3
20	35-0437	24V Controller Assembly	1
21	29-0443	Retaining Ring	1
22	27-2660	Silicone Hose (All)	A/R
N.S.	25-3056	Wire Harness	NSI



1.4 MCC Front Defroster 12-60056



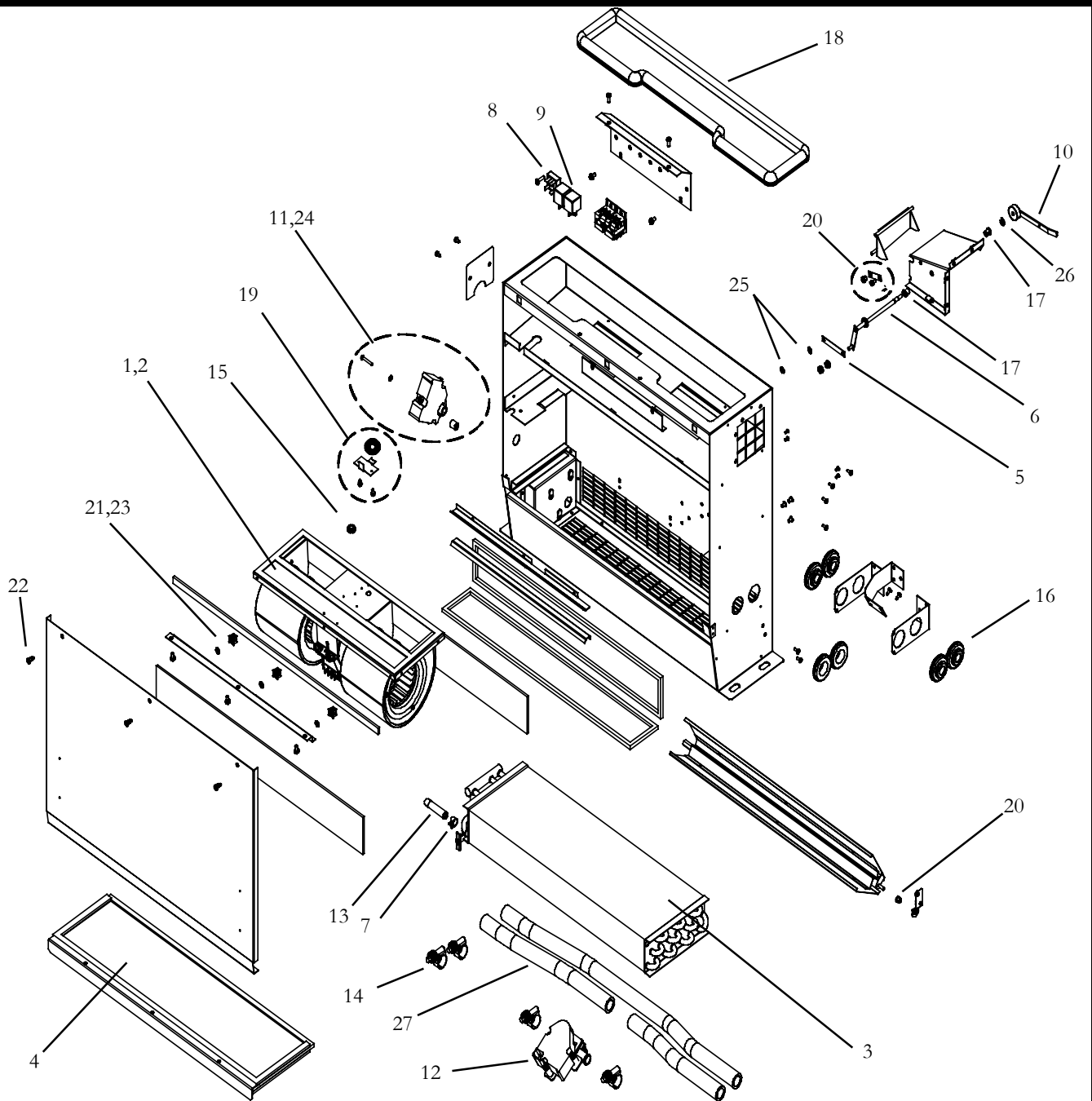
Item	Part Number	Description	Qty
1	15-15078	Blower Assembly, 24V Includes:	1
2	22-0226	Heater Coil	1
3	26-0265	Air Filter Assembly	1
4	26-0277	Bushing	1
5	25-0022	Clip	1
6	25-1124	Relay 24V	1
7	26-1714	Bowden Cable Valve Assembly	1
8	27-0911	Drain Hose 12 in. (304.8mm)	1
9	27-0910	Gear Clamp 3/4 in. (19.05 mm)	4



1.4 Front Defroster 12-60056 (Parts List) Continued:			
Item	Part Number	Description	Qty
10	28-0004	Grommet 3/8" (9.53 mm)	2
11	28-0005	Grommet 5/8" (15.9mm)	6
12	28-0079	Rubber Seal, 2.23 in. (56.7mm)	1
13	28-0293	Grommet	1
14	28-0045	Grommet	1
15	28-0326	Snap Bushing, 3/16"	4
16	29-0424	Pushnut, 3/16"	3
17	29-0075	Receptacle	3
18	29-0120	Stud Oval Slotted, SS	3
19	29-0077	Retainer	3
20	29-0424	Hole Plug 3/8"	1
21	27-0238	Silicone Hose	A/R
22	25-3354	Wire Harness	NSI



1.5 MCC Front Defroster 12-60058



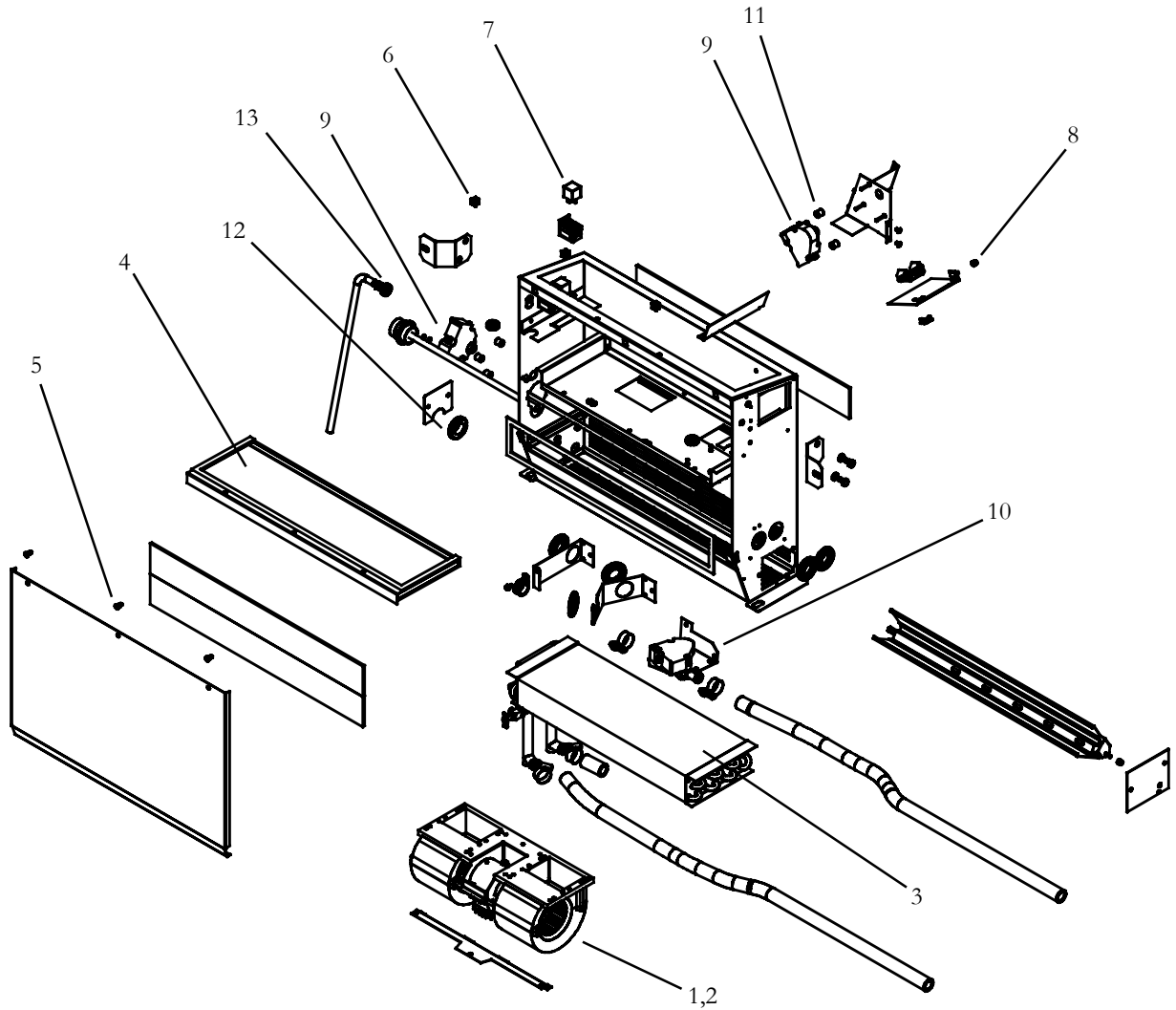
Item	Part Number	Description	Qty
1	15-19176	Blower Assembly, 24V Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-1266	Heater Coil	1
4	23-0611	Air Filter Assembly	1
5	24-1257	Link Arm	1
6	24-1258	Flapper Arm	1
7	25-0022	Clip	1
8	25-0232	Rectifier	1
9	25-1124	Relay 24V	2



1.5 Front Defroster 12-60058 (Parts List) Continued:			
Item	Part Number	Description	Qty
10	25-1309	Lever Assembly	1
11	25-2660	Motor Actuator 24V	1
12	26-1843	Motorized Valve Assembly	1
13	27-0911	Drain Hose 12 in. (304.8mm)	1
14	27-3176	Constant Torque Clamp .5-1.0 in. (14-27mm)	4
15	28-0004	Grommet	1
16	28-0005	Grommet 5/8" (15.9mm)	6
17	28-0029	Bushing, 1/4" (6.4mm)	2
18	28-0079	Rubber Seal, 2.23 in. (56.7mm)	1
19	28-0293	Grommet	1
20	28-0326	Snap Bushing, 3/16"	3
21	29-0075	Receptacle	3
22	29-0076	Stud Oval Slotted, SS	3
23	29-0077	Retainer	3
24	29-0124	Nylon Spacer 1/2"	3
25	29-0424	Pushnut 3/16"	2
26	29-0443	Retaining Ring	1
27	37-0035	4 Ply Silicone Hose	A/R
N.S.	25-3347	Wire Harness	NSI



1.6 MCC Front Defroster 12-60060



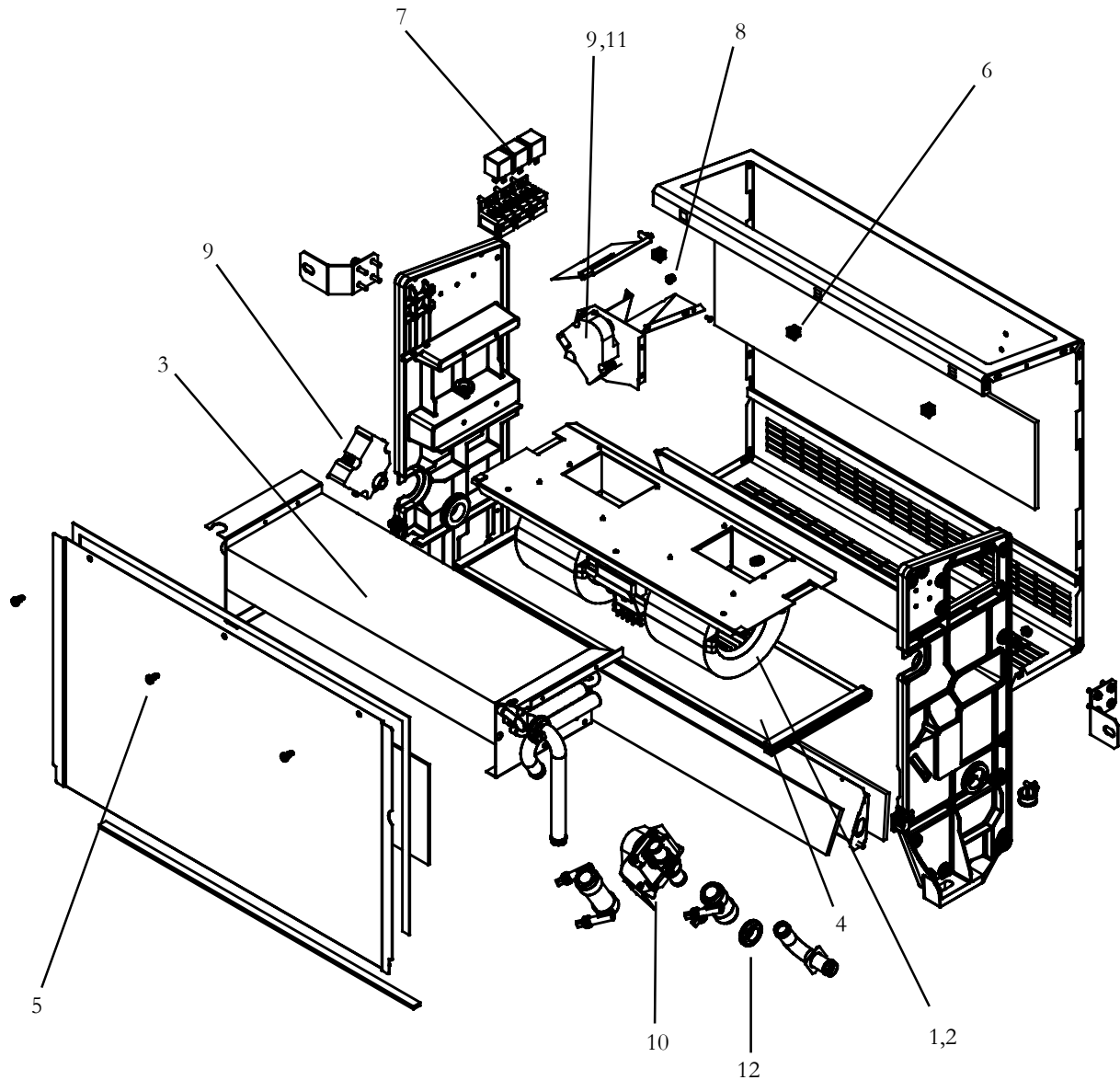
Item	Part Number	Description	Qty
1	15-15064	Blower Assembly, 24V Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-1329	Heater Coil	1
4	23-0657	Air Filter Assembly	1
5	29-0076	Stud, Oval Slotted (SS)	3
6	29-0075	Receptacle	3
7	25-1124	Relay 24V	2
N.S.	25-3414	Wiring Harness	NSI



1.6 MCC Front Defroster 12-60060: Continued			
Item	Part Number	Description	Qty
8	28-0326	Snap Bushing, 3/16"	2
9	25-2660	Motor Actuator 24V	2
10	46-0025	Motorized Valve Assembly	1
11	29-0124	Nylon Spacer, 1/2" (13mm)	6
12	28-0007	Grommet 1 3/8" (34.9 mm)	5
13	28-0045	Grommet	1



1.7 MCC Front Defroster 12-60064



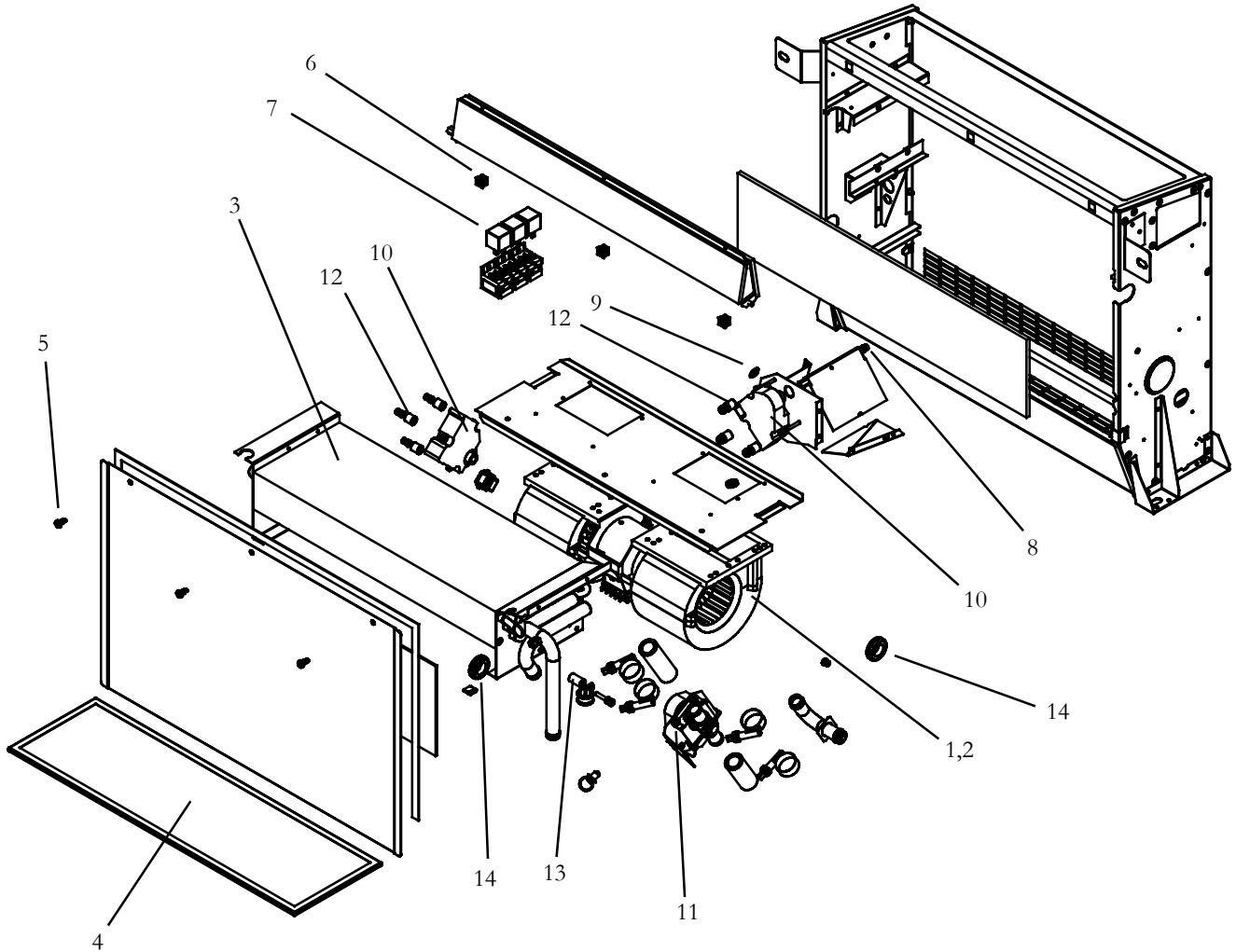
Item	Part Number	Description	Qty
1	15-15064	Blower Assembly, 24V Includes:	1
2	25-3191	Al. Housed Resistor	1
3	22-1355	Heater Coil	1
4	23-0707	Air Filter	1
5	29-1110	Stud, Oval Slotted (SS)	3
6	29-0075	Receptacle	3
7	25-1124	Relay 24V	3
N.S.	25-3513	Wiring Harness	NSI



1.7 MCC Front Defroster 12-60064: Continued			
Item	Part Number	Description	Qty
8	28-0326	Snap Bushing, 3/16"	2
9	25-2660	Motor Actuator 24V	2
10	46-0047	Heater Control Valve Assembly	1
11	29-0124	Nylon Spacer, 1/2"	6
12	28-0008	Grommet	2



1.8 MCC Front Defroster 12-60070



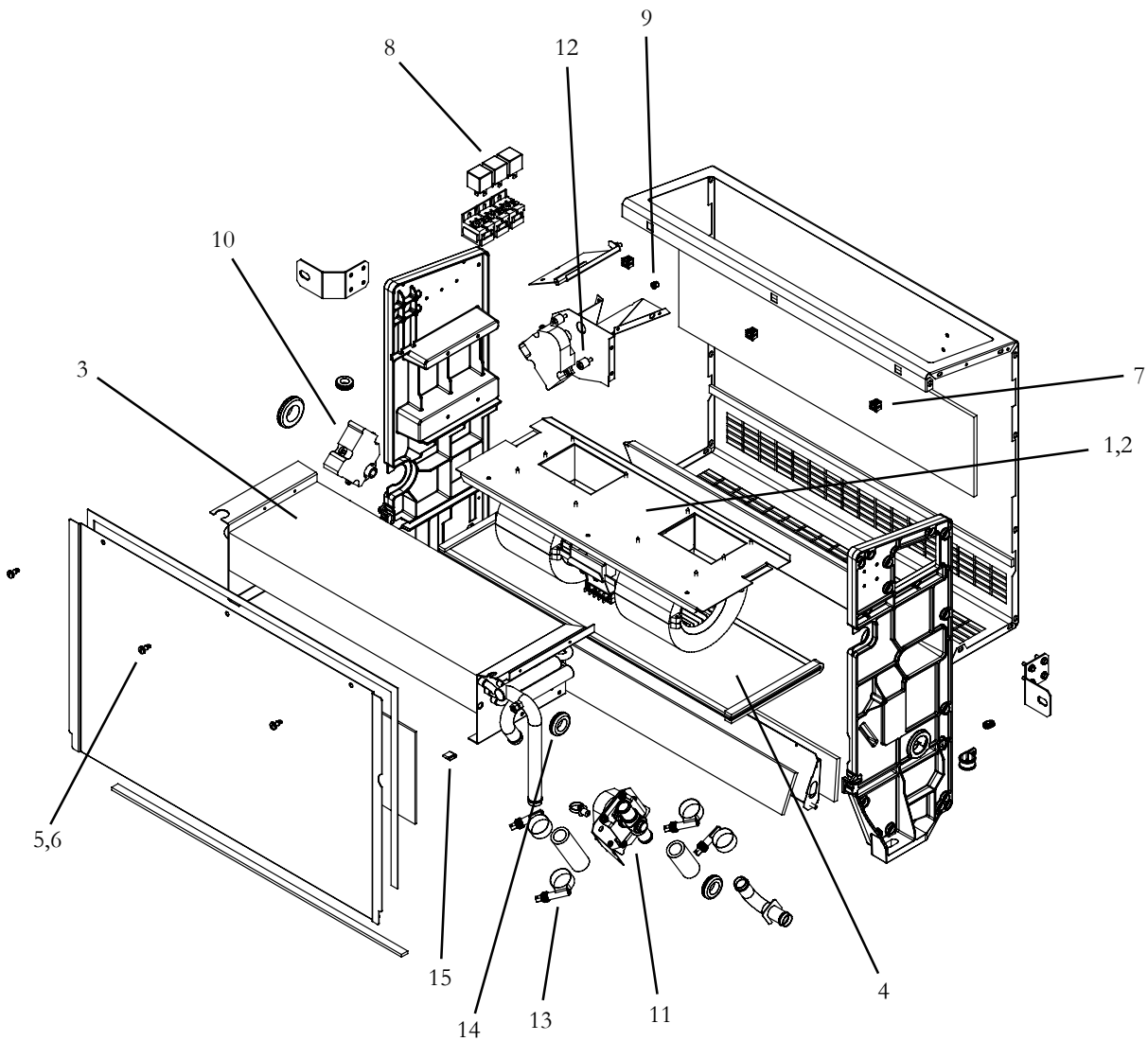
Item	Part Number	Description	Qty
1	15-15082	Blower Assembly, 24V Includes:	1
2	25-3191	Al. Housed Resistor	1
3	22-1355	Heater Coil	1
4	23-0707	Air Filter (Permatron)	1
5	29-1110	Stud, Oval Slotted (SS)	3
6	29-0075	Receptacle	3
7	25-1124	Relay 24V	3
N.S.	25-3513	Wiring Harness	NSI



1.8 MCC Front Defroster 12-60070: Continued			
Item	Part Number	Description	Qty
8	28-0326	Snap Bushing, 3/16"	2
9	28-0011	Snap In Plug, 1/2"	1
10	25-2660	Motor Actuator 24V	2
11	46-0047	Heater Control Valve Assembly	1
12	29-0124	Nylon Spacer, 1/2"	6
13	29-0558	Nylon Spacer, 7/8"	1
14	28-0008	Grommet	2



1.9 MCC Front Defroster 12-60076



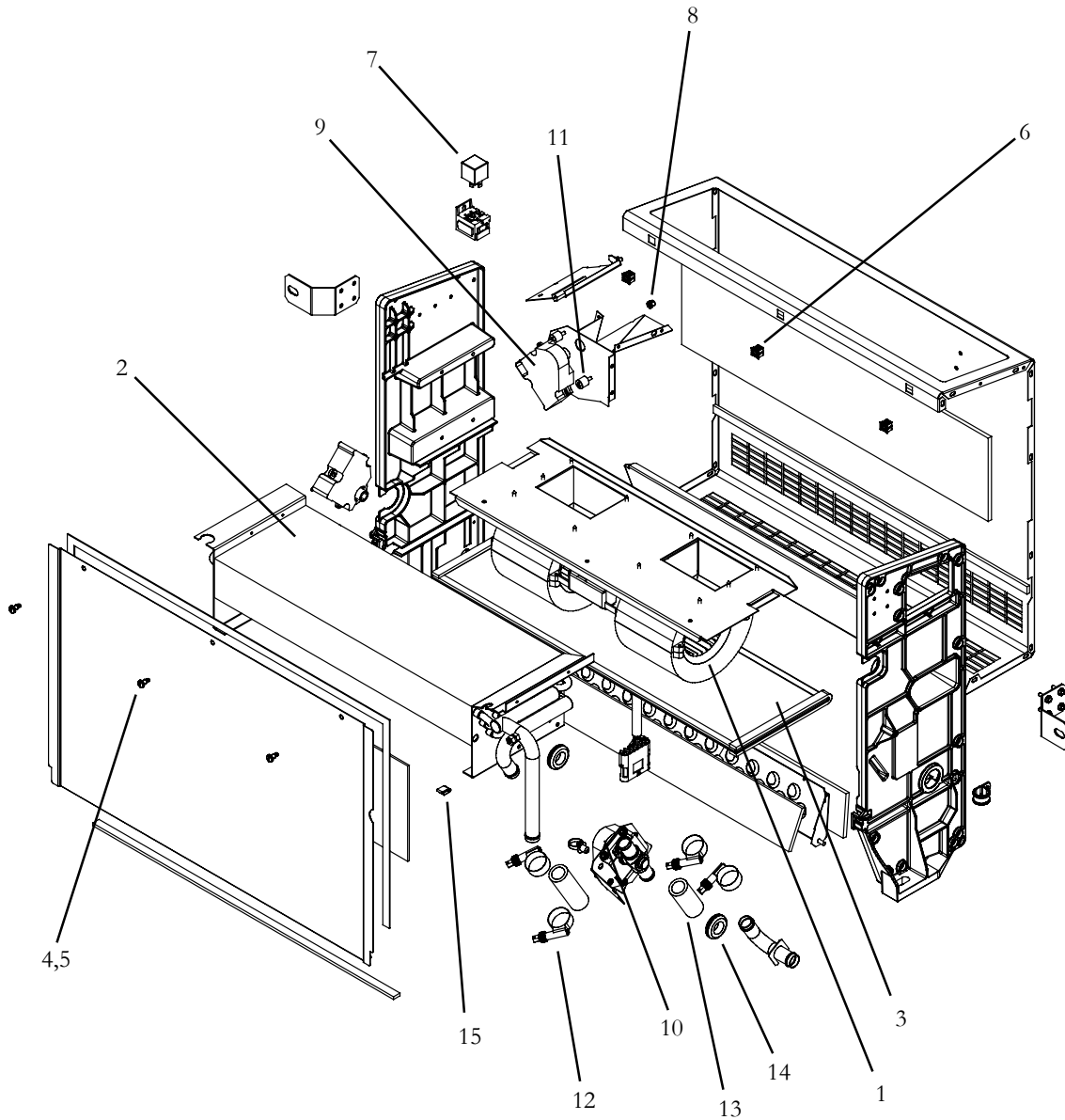
Item	Part Number	Description	Qty
1	15-15082	Blower Assembly, 24V Includes:	1
2	25-3191	Al. Housed Resistor	1
3	22-1355	Heater Coil	1
4	23-0707	Air Filter (Permatron)	1
5	29-1110	Stud, Oval Slotted (SS)	3
6	29-0077	Retainer	3
7	29-0075	Receptacle	3
8	25-1124	Relay 24V	3
N.S.	25-3513	Wiring Harness	NSI



1.9 MCC Front Defroster 12-60076: Continued			
Item	Part Number	Description	Qty
9	28-0326	Snap Bushing, 3/16"	2
10	25-2660	Motor Actuator 24V	2
11	46-0047	Heater Control Valve Assembly	1
12	29-0124	Nylon Spacer, 1/2"	6
13	39-0008	Gear Clamp, 3/4" 4 Ply	4
14	28-0008	Grommet	2
15	29-0437	Panel-Coil Clip	2



1.10 MCC Front Defroster 12-60078



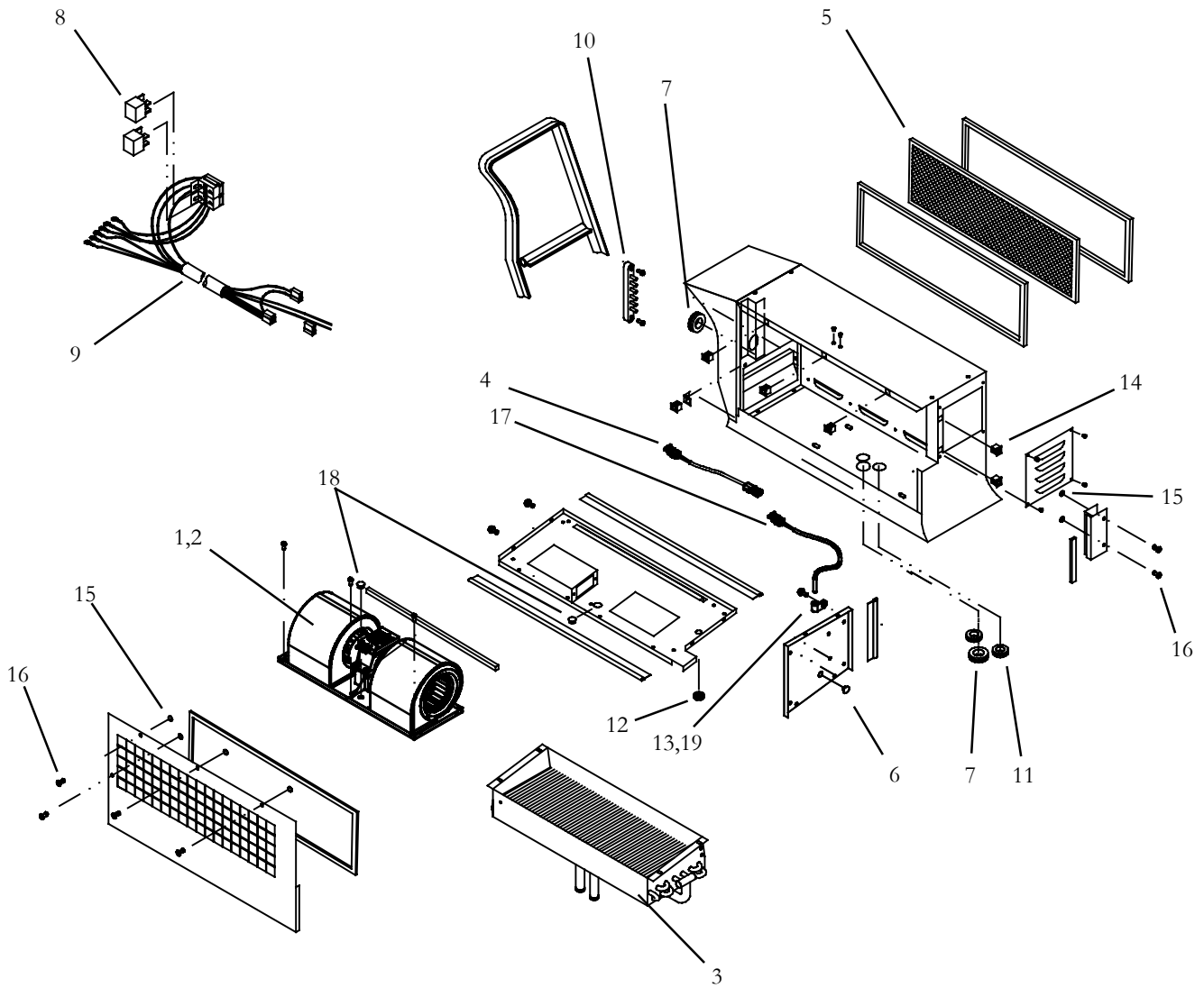
Item	Part Number	Description	Qty
1	15-15078	Blower Assembly, 24V Includes:	1
2	22-1355	Heater Coil	1
3	23-0707	Air Filter (Permatron)	1
4	29-1110	Stud, Oval Slotted (SS)	3
5	29-0077	Retainer	3
6	29-0075	Receptacle	3
7	25-1124	Relay 24V	3
N.S.	T25-3589	Wiring Harness	NSI



1.10 MCC Front Defroster 12-60078: Continued			
Item	Part Number	Description	Qty
8	28-0326	Snap Bushing, 3/16"	1
9	25-2660	Motor Actuator 24V	2
10	46-0047	Heater Control Valve Assembly	1
11	29-0124	Nylon Spacer, 1/2"	3
12	39-0008	Gear Clamp, 3/4" 4 Ply	4
13	27-2660	Hose, 4 Ply	A/R
14	28-0008	Grommet	2
15	29-0437	Panel-Coil Clip	2



1.11 MCC Heater Unit 12-70276



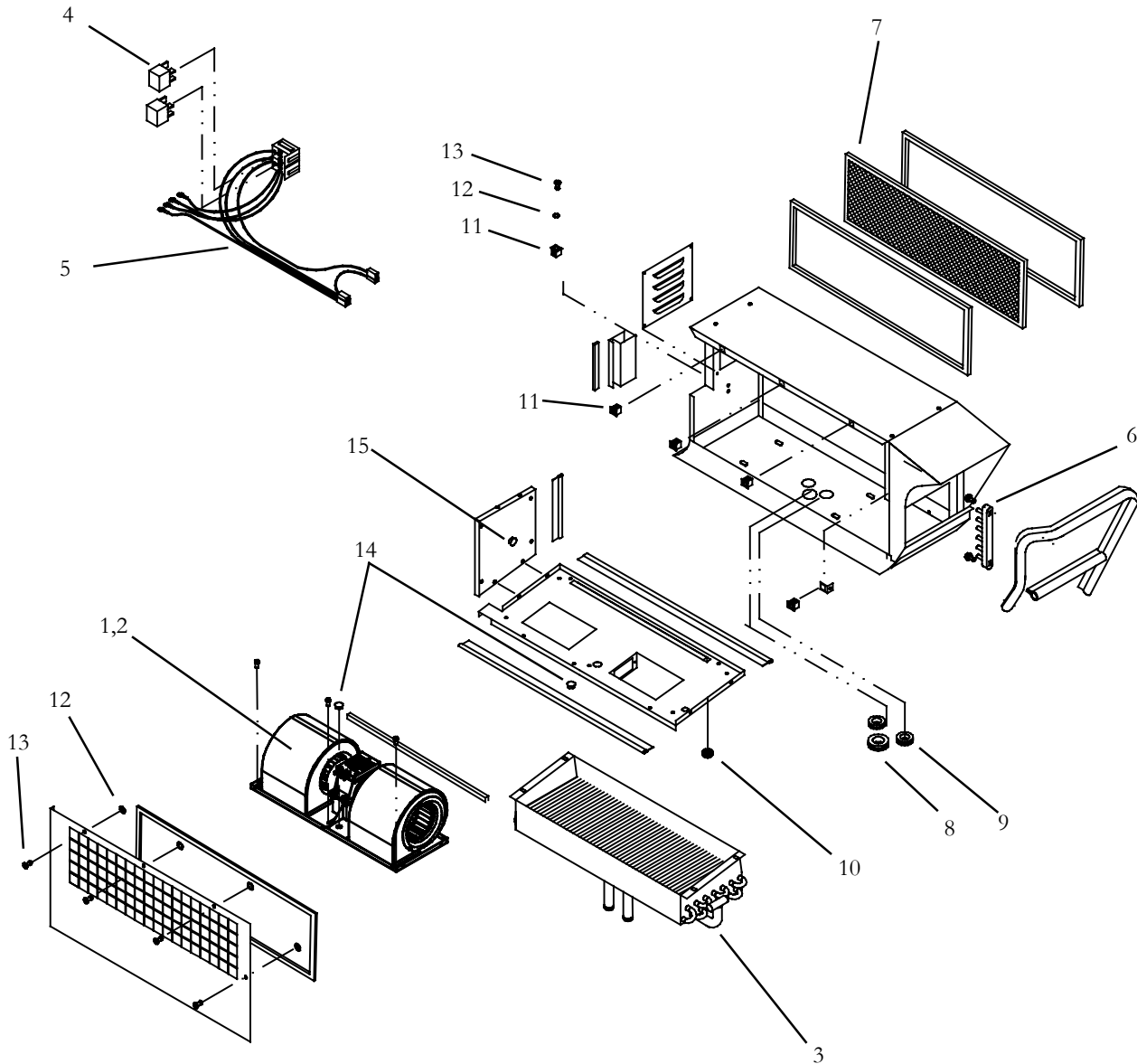
Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0895	Heater Coil Assembly	1
4	24-3344	Jumper Harness	1
5	26-1292	Air Filter	1
6	28-0331	Hole Plug 1/2"	1
7	28-0005	Grommet 5/8"	2
8	25-0219	Relay 24V	2
9	25-3343	Wiring Harness	NSI



1.11 Heater Unit 12-70276 (Parts List) Continued:			
Item	Part Number	Description	Qty
10	25-0006	Junction Block	1
11	28-0008	Grommet	2
12	28-0045	Grommet	1
13	28-0335	Cable Clamp	1
14	29-0075	Receptacle	1
15	29-0077	Retainer	6
16	29-1110	Stud, Oval Slotted	6
17	35-0835	Temperature Sensor	1
18	28-0330	3/8" Hole Plug	2
19	29-0124	Spacer 1/2"	1



1.12 MCC Heater Unit 12-70278



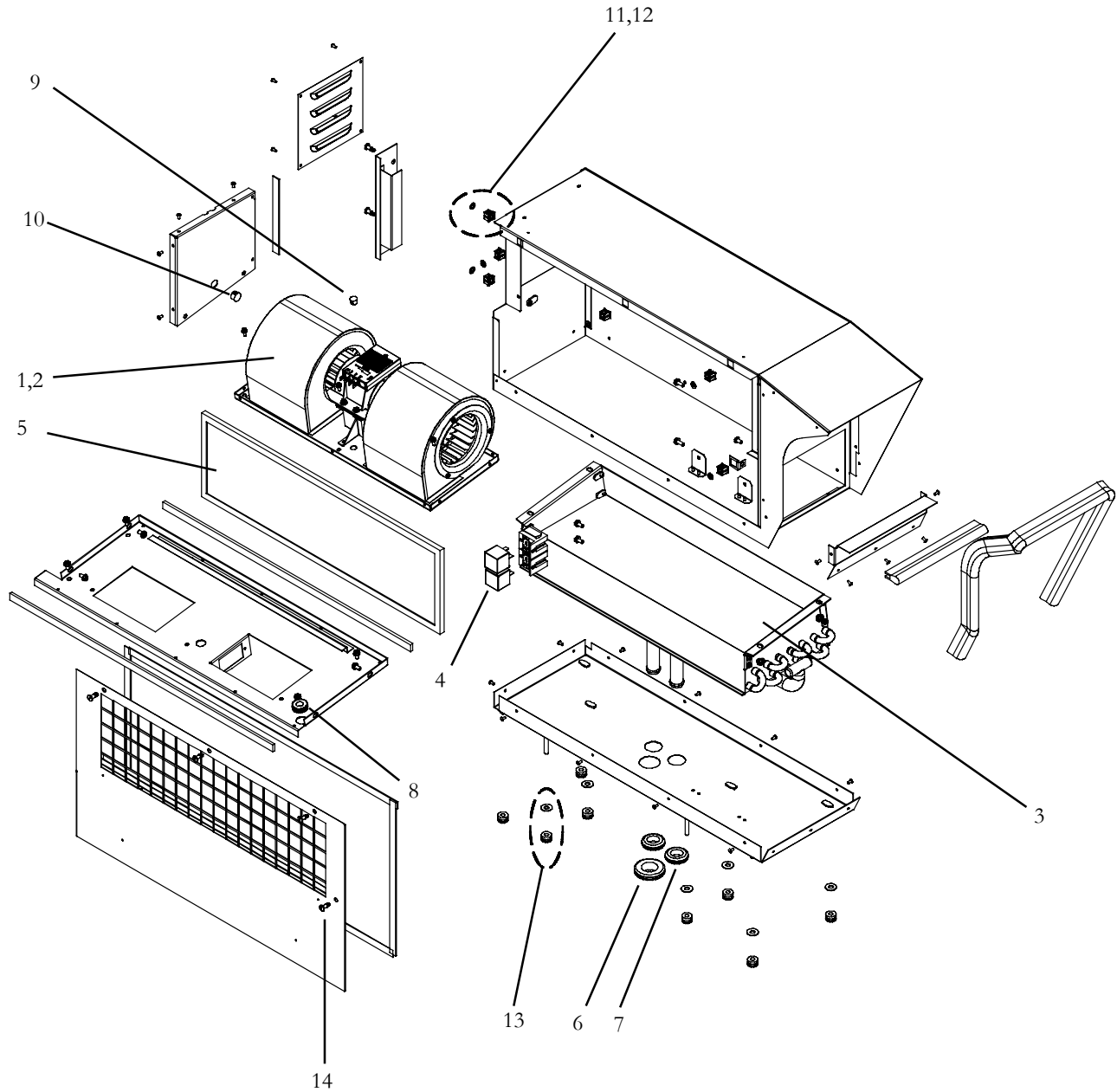
Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0242	Heater Coil Assembly	1
4	25-0219	Relay 24V	2
5	25-3343	Wiring Harness	NSI
6	25-0006	Junction Block	1
7	26-1292	Air Filter	1
8	28-0005	Grommet 5/8"	1
9	28-0008	Grommet	2



1.12 Heater Unit 12-70278 (Parts List) Continued:			
Item	Part Number	Description	Qty
10	28-0045	Grommet	1
11	29-0075	Receptacle	1
12	29-0077	Retainer	1
13	29-1110	Stud, Oval Slotted	1
14	28-0330	3/8" Hole Plug	1
15	28-0331	1/2" Hole Plug	1



1.13 MCC Heater Unit 12-70282



Item	Part Number	Description	Qty
1	15-19196	Blower Assembly 24V, Includes:	1
2	25-2841	Al. Housed Resistor	1
3	22-0242	Heater Coil Assembly	1
4	25-0251	Relay, 12V	2
N.S.	25-3363	Wiring Harness	NSI
5	26-0264	Air Filter	1
6	28-0005	Grommet 5/8"	1
7	28-0008	Grommet	2
8	28-0045	Grommet	1

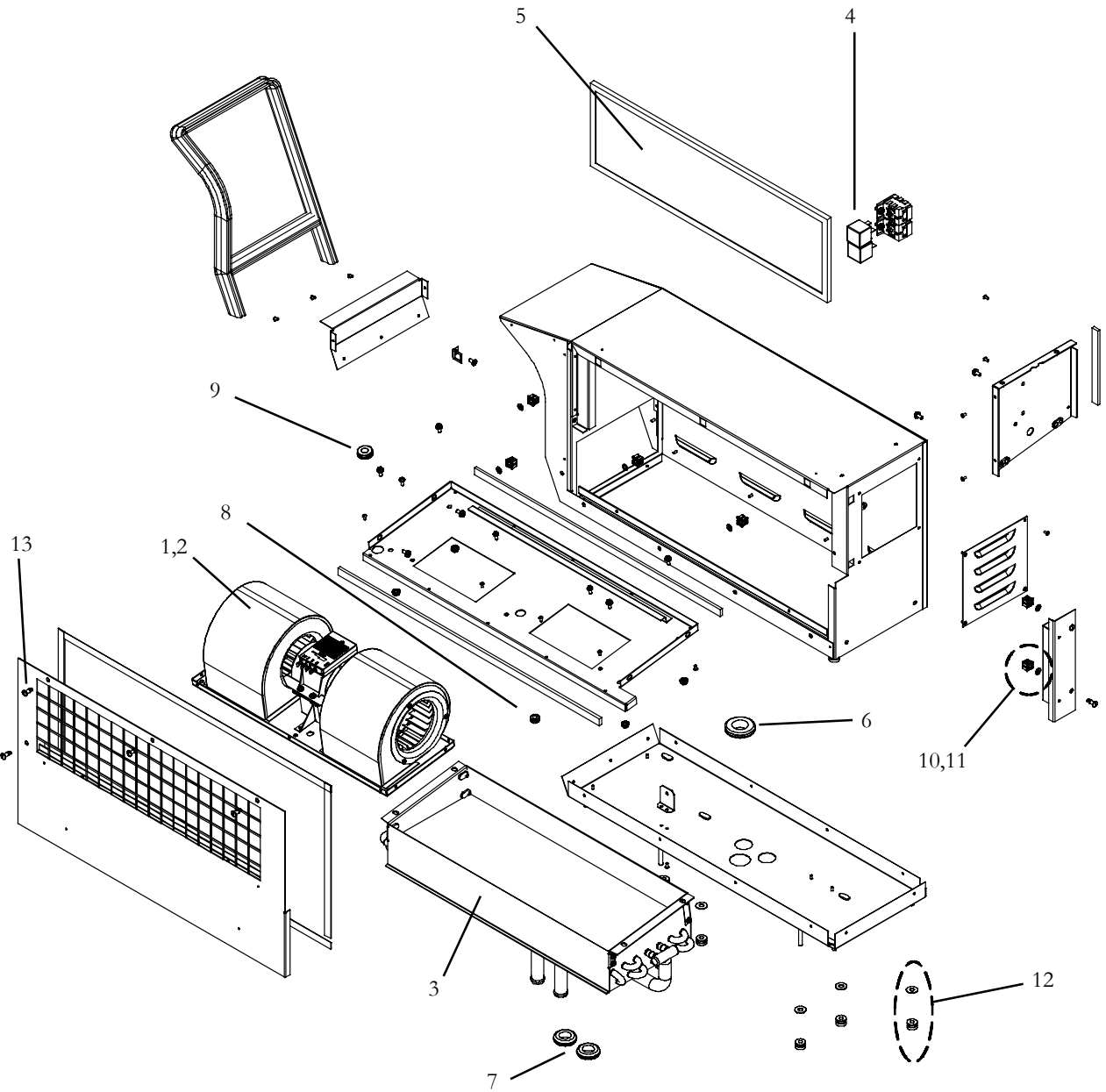


1.13 Heater Unit 12-70282 (Parts List Continued):

Item	Part Number	Description	Qty
9	28-0330	3/8" Hole Plug	1
10	28-0331	1/2" Hole Plug	1
11	29-0075	Receptacle	6
12	29-0077	Retainer	6
13	29-1031	Knurled Nut 1/4"	8
14	29-1110	Stud Oval Slotted	6



1.14 MCC Heater Unit 12-70284



Item	Part Number	Description	Qty
1	15-19196	Blower Assembly 24V, Includes:	1
2	25-2841	Al. Housed Resistor	1
3	22-0895	Heater Coil Assembly	1
4	25-0251	Relay, 12V	2
N.S.	25-3363	Wiring Harness	NSI
5	26-0264	Air Filter	1
6	28-0005	Grommet $\frac{5}{8}$ "	1
7	28-0008	Grommet	2
8	28-0014	Grommet $\frac{3}{8}$ "	1

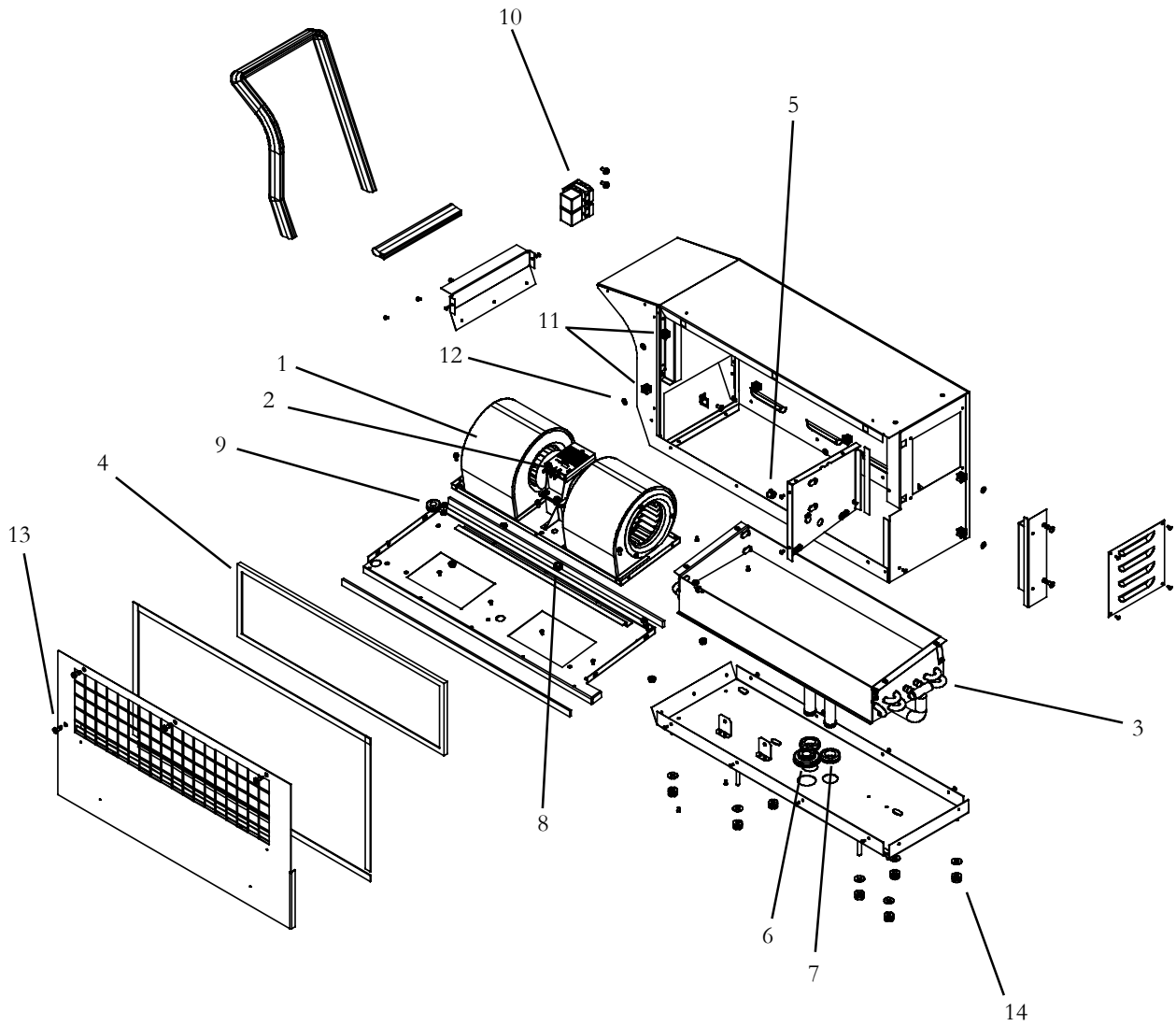


1.14 Heater Unit 12-70284 (Parts List Continued):

Item	Part Number	Description	Qty
9	28-0045	Grommet	1
10	29-0075	Receptacle	6
11	29-0077	Retainer	6
12	29-1031	Knurled Nut 1/4"	8
13	29-1110	Stud Oval Slotted	6



1.15 MCC Heater Unit 12-70286



Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0895	Heater Coil Assembly	1
N.S.	25-3384	Wiring Harness	NSI
4	26-0264	Air Filter	1
5	28-0331	Hole Plug 1/2"	1
6	28-0005	Grommet 5/8"	1
7	28-0008	Grommet	2
8	28-0014	Grommet 3/8"	1

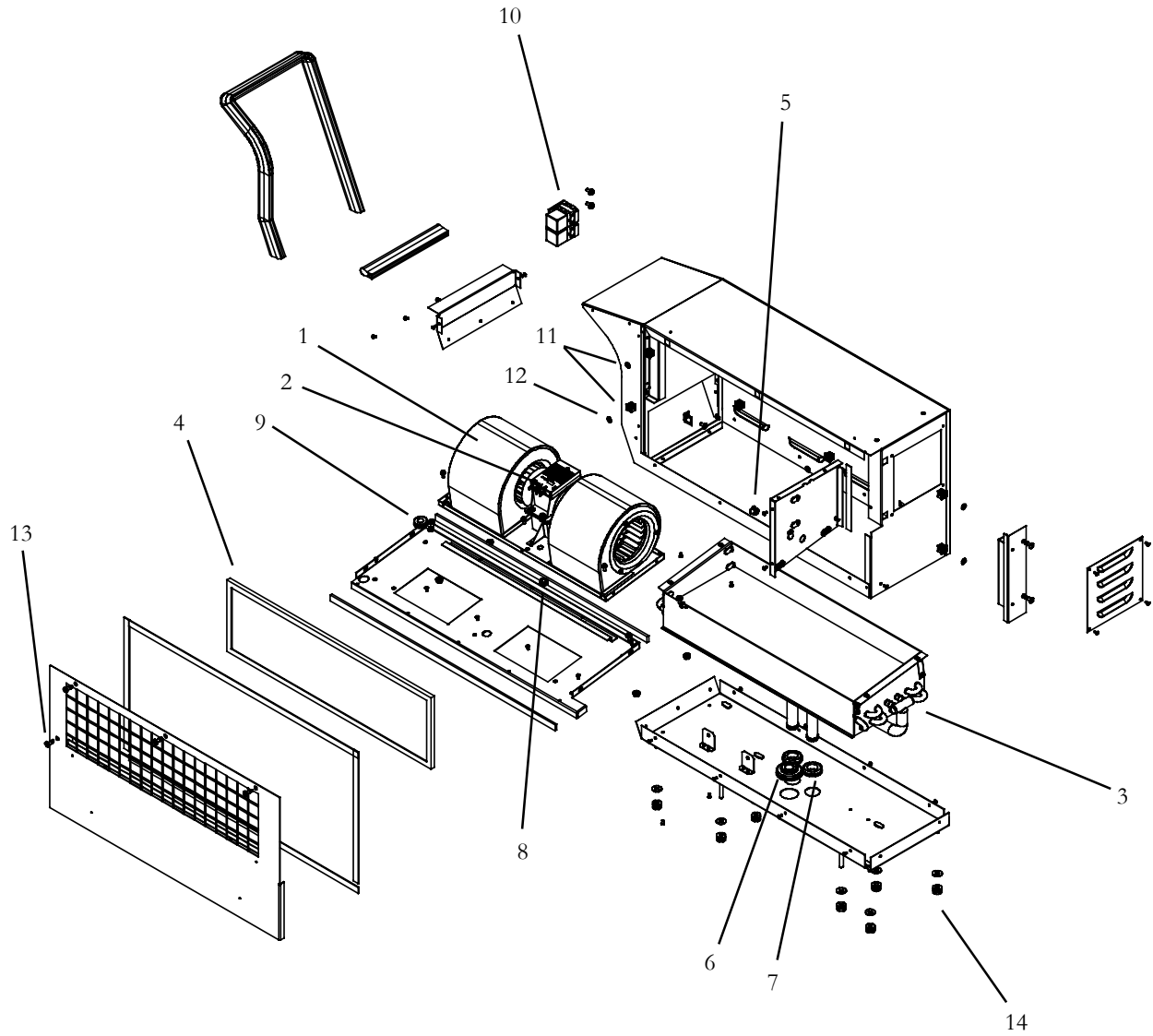


1.15 Heater Unit 12-70286 (Parts List) Continued:

Item	Part Number	Description	Qty
9	28-0045	Grommet	1
10	25-0219	Relay 24V	2
11	29-0075	Receptacle	6
12	29-0077	Retainer	6
13	29-1110	Stud, Oval Slotted	6
14	29-1031	Knurled Nut, 1/4" x 20	8



1.16 MCC Heater Unit 12-70288



Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0242	Heater Coil Assembly	1
N.S.	25-3384	Wiring Harness	NSI
4	26-0264	Air Filter	1
5	28-0331	Hole Plug 1/2"	1
6	28-0005	Grommet 5/8"	1
7	28-0008	Grommet	2
8	28-0014	Grommet 3/8"	1

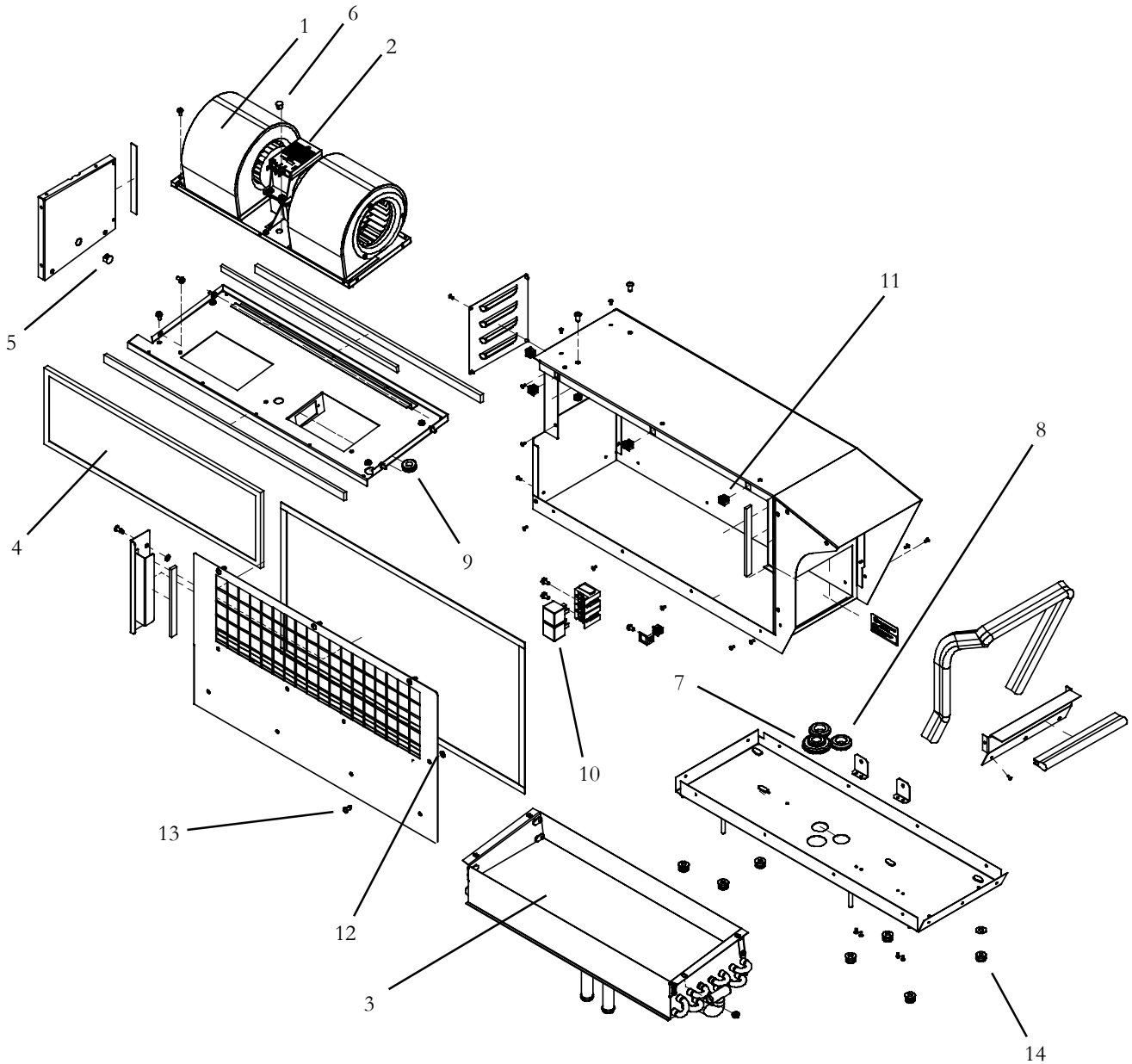


1.16 Heater Unit 12-70288 (Parts List) Continued:

Item	Part Number	Description	Qty
9	28-0045	Grommet	1
10	25-0219	Relay 24V	2
11	29-0075	Receptacle	6
12	29-0077	Retainer	6
13	29-1110	Stud, Oval Slotted	6
14	29-1031	Knurled Nut, 1/4" x 20	8



1.17 MCC Heater Unit 12-70292



Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0242	Heater Coil Assembly	1
N.S.	25-3384	Wiring Harness	NSI
4	26-0264	Air Filter	1
5	28-0331	Hole Plug 1/2"	1
6	28-0330	Hole Plug 3/8"	1
7	28-0005	Grommet 5/8"	1
8	28-0008	Grommet	2

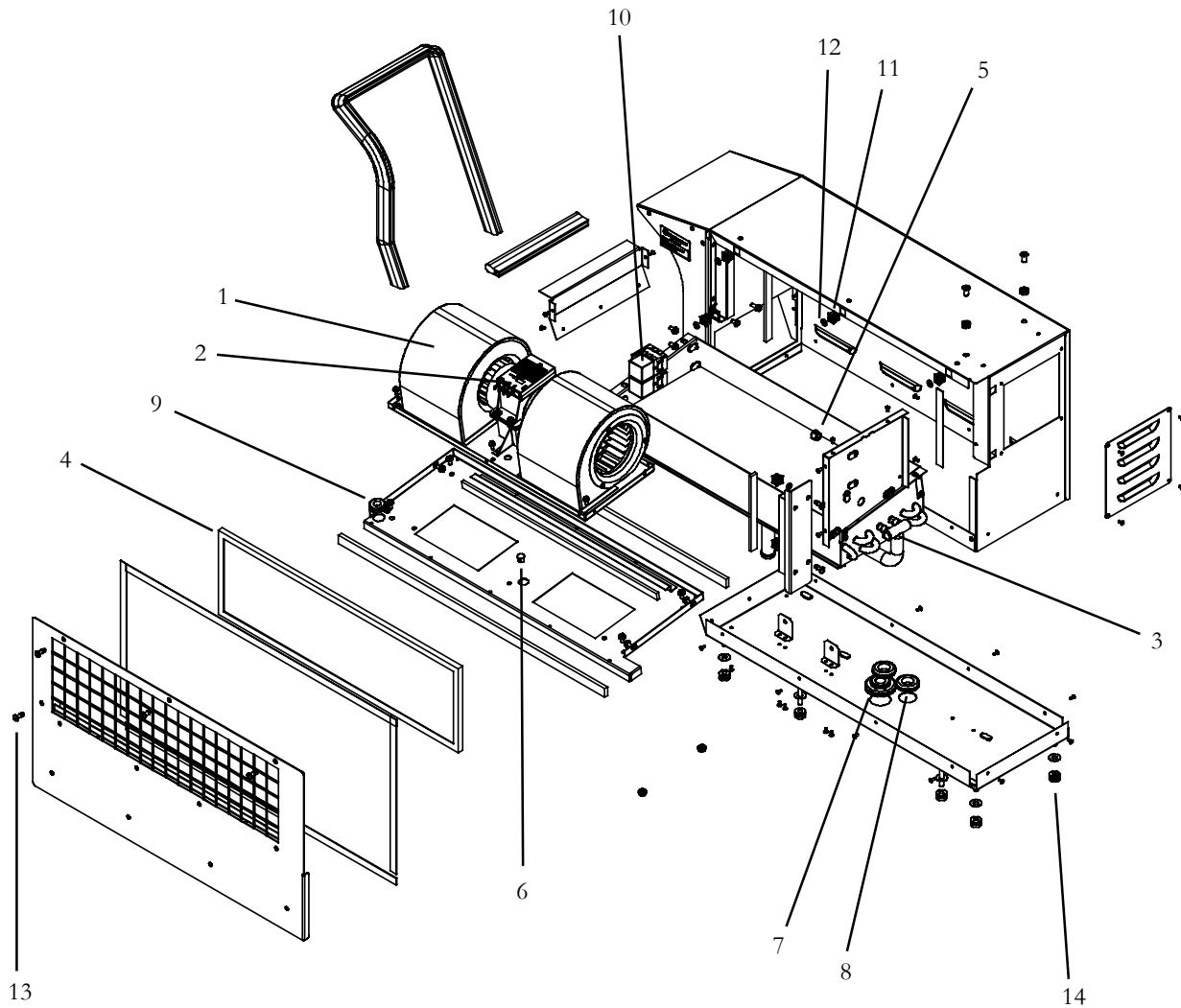


1.17 Heater Unit 12-70292 (Parts List) Continued:

Item	Part Number	Description	Qty
9	28-0045	Grommet	1
10	25-0219	Relay 24V	2
11	29-0075	Receptacle	6
12	29-0077	Retainer	6
13	29-1110	Stud, Oval Slotted	6
14	29-1031	Knurled Nut, 1/4" x 20	8



1.18 MCC Heater Unit 12-70294



Item	Part Number	Description	Qty
1	15-19190	Blower Assembly 24V, Includes:	1
2	25-2848	Al. Housed Resistor	1
3	22-0242	Heater Coil Assembly	1
N.S.	25-3384	Wiring Harness	NSI
4	26-0264	Air Filter	1
5	28-0331	Hole Plug 1/2"	1
6	28-0330	Hole Plug 3/8"	1
7	28-0005	Grommet 5/8"	1
8	28-0008	Grommet	2

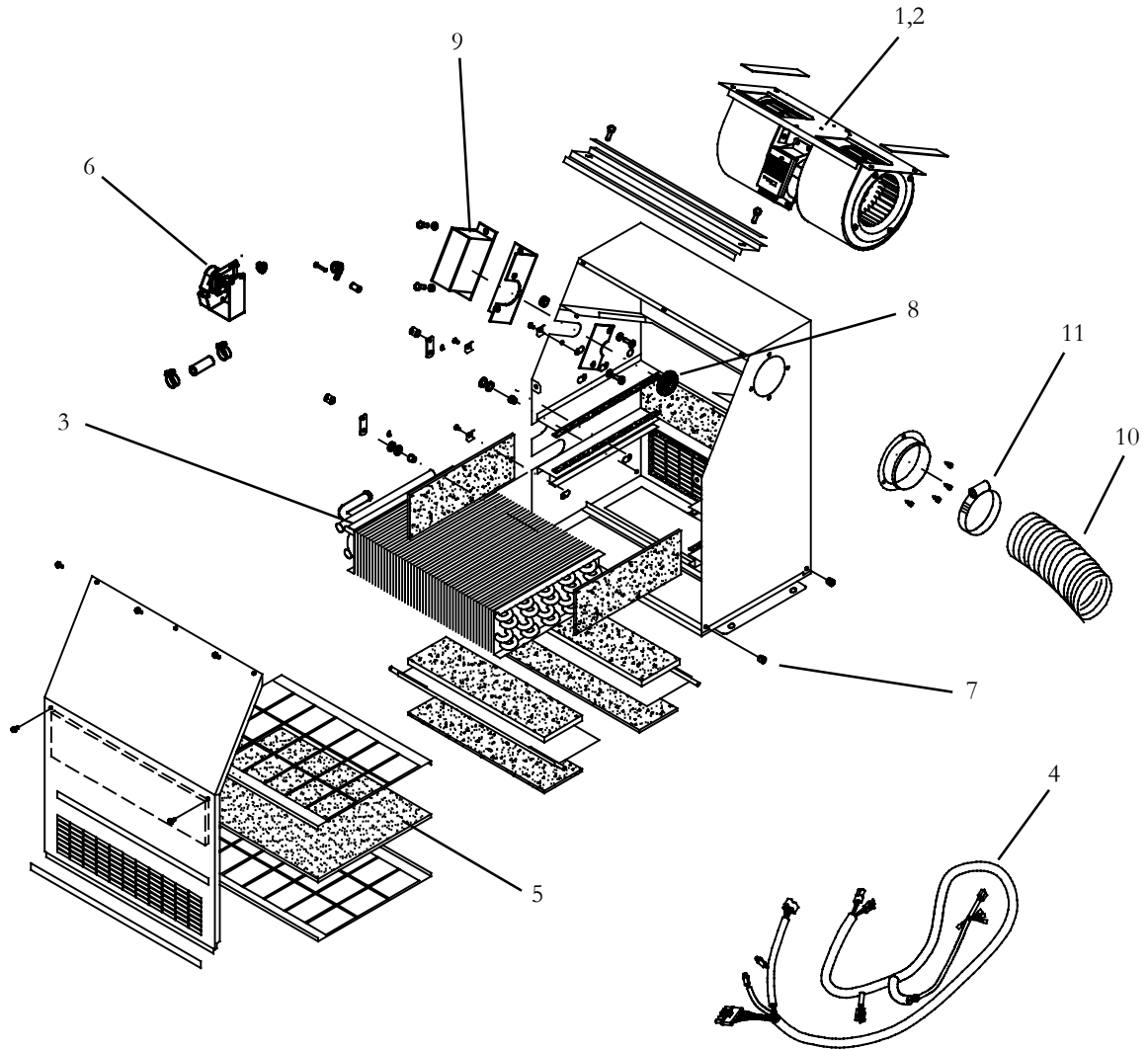


1.18 Heater Unit 12-70294 (Parts List) Continued:

Item	Part Number	Description	Qty
9	28-0045	Grommet	1
10	25-0219	Relay 24V	2
11	29-0075	Receptacle	6
12	29-0077	Retainer	6
13	29-1110	Stud, Oval Slotted	6
14	29-1031	Knurled Nut, 1/4" x 20	8



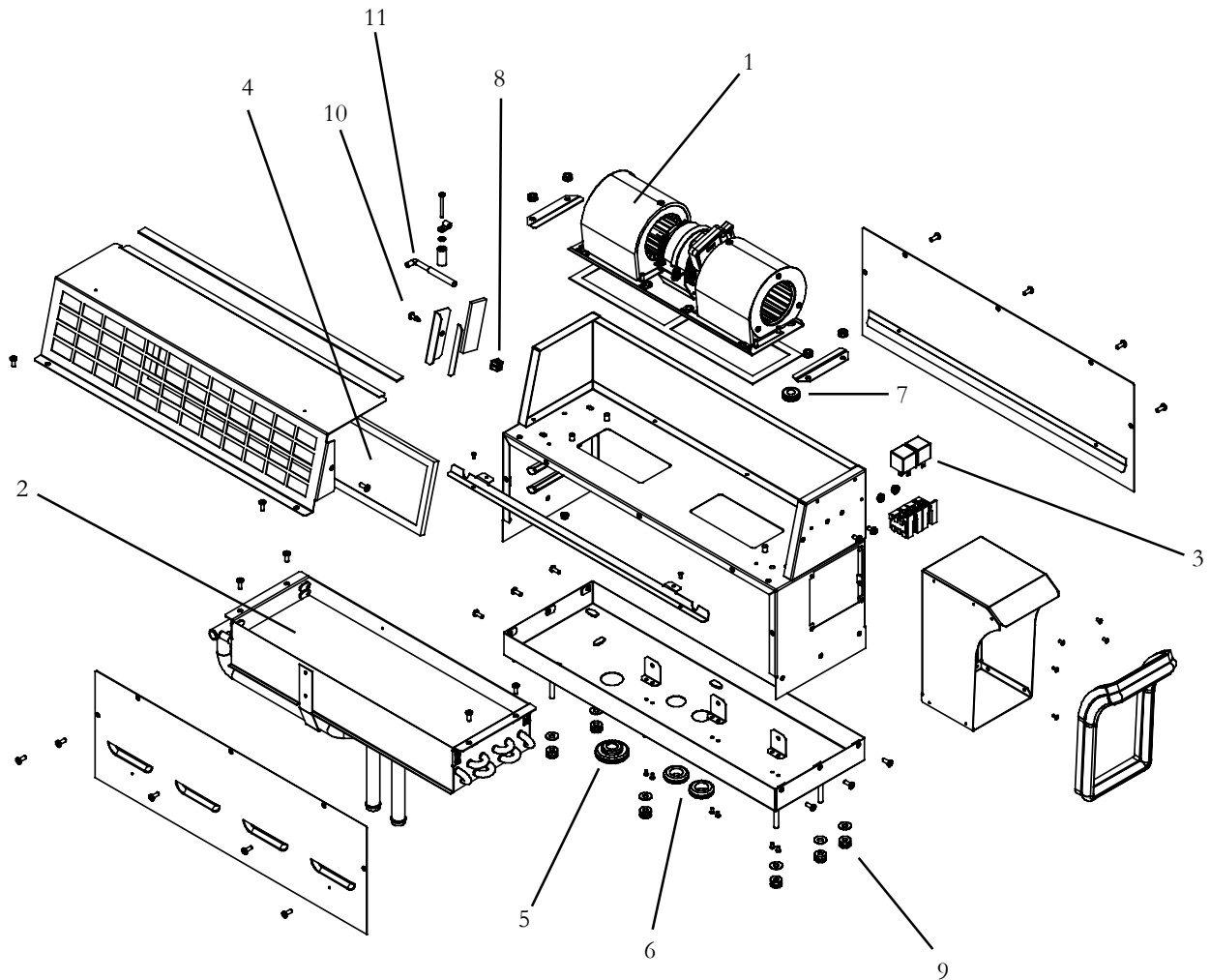
1.19 MCC Heater Unit 12-7558



Item	Part Number	Description	Qty
1	15-3020	Blower Assembly 24V, Includes:	1
2	25-2530	Al. Housed Resistor	1
3	22-1089	Heater Coil Assembly	1
4	25-3450	Wiring Harness	NSI
5	26-0259	Air Filter	1
6	46-0031	Motorized Valve Assembly (Heater)	1
7	28-0029	Bushing, 3/16" Dia. X 5/16" LG.	4
8	28-0004	Grommet	1
9	35-0604	Brushless Controller, 24VDC	1
10	23-0040	Hose, Air, 4" (Length 25.6" (650 mm))	1
11	27-0183	Gear Clamp, 4"	1



1.20 MCC Heater Unit 12-8340



Item	Part Number	Description	Qty
1	15-05038	Blower Assembly 24V, Includes:	1
2	22-1256	Heater Coil Assembly	1
3	25-1124	Relay, 24V	2
N.S.	25-3308	Wiring Harness	NSI
4	26-1452	Air Filter	1
5	28-0005	Grommet 5/8"	1
6	28-0008	Grommet	2
7	28-0045	Grommet	1

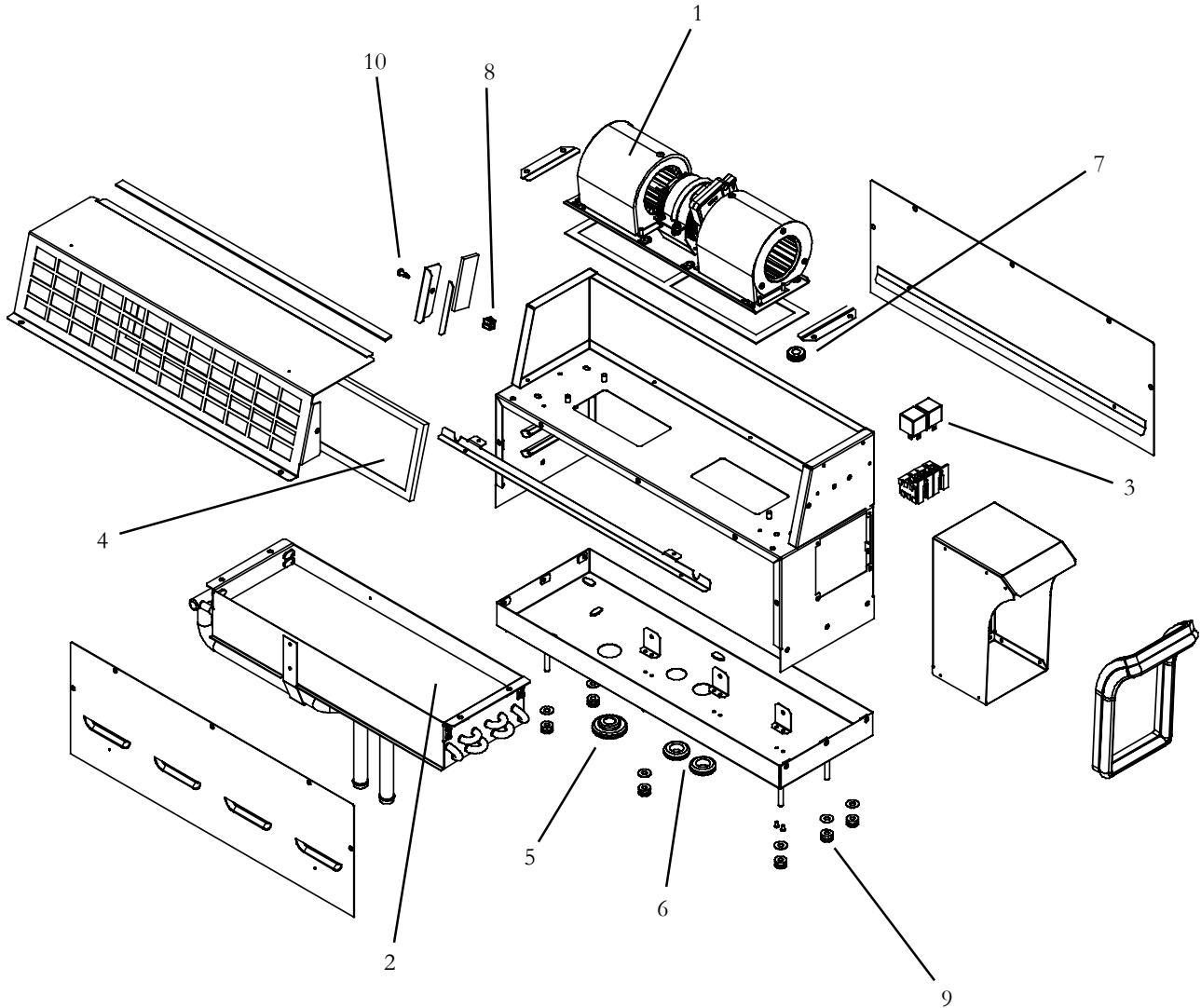


1.20 Heater Unit 12-8340 Parts List Continued):

Item	Part Number	Description	Qty
8	29-0075	Receptacle	1
9	29-1031	Knurled Nut 1/4"	9
10	29-1110	Stud Oval Slotted	1
11	35-0835	Sensor, Temperature	1



1.21 MCC Heater Unit 12-8364



Item	Part Number	Description	Qty
1	15-05038	Blower Assembly 24V, Includes:	1
2	22-1256	Heater Coil Assembly	1
3	25-1124	Relay, 24V	2
N.S.	25-3406	Wiring Harness	NSI
4	26-1452	Air Filter	1
5	28-0005	Grommet 5/8"	1
6	28-0008	Grommet	2
7	28-0045	Grommet	1

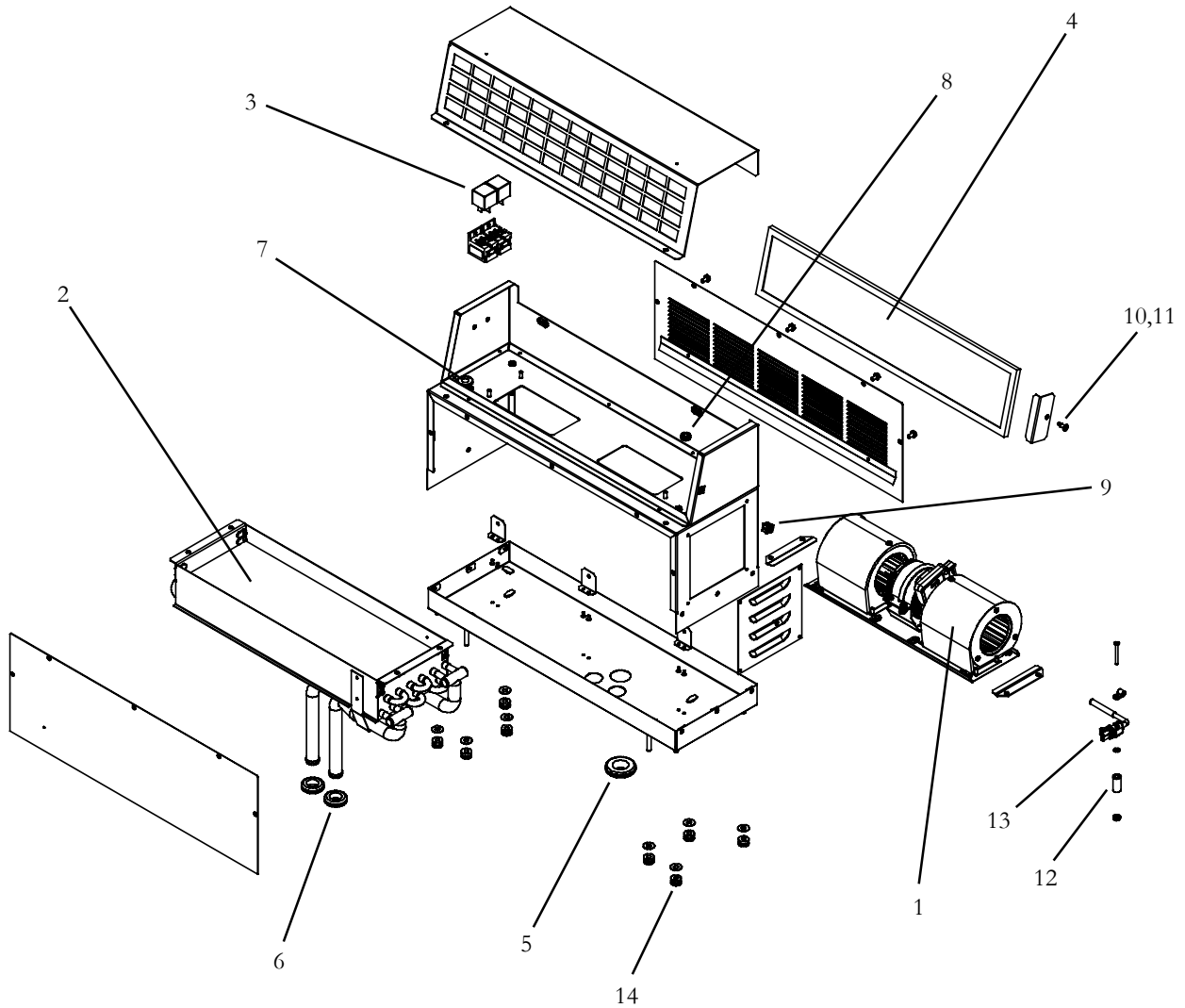


1.21 Heater Unit 12-8364 Parts List Continued):

Item	Part Number	Description	Qty
8	29-0075	Receptacle	1
9	29-1031	Knurled Nut 1/4"	9
10	29-1110	Stud Oval Slotted	1



1.22 MCC Heater Unit 12-8370 & T12-8372



Item	Part Number	Description	Qty
1	15-05038	Blower Assembly 24V, Includes:	1
2	22-1242	Heater Coil Assembly	1
3	25-0219	Relay, 24V	2
N.S.	25-2900	Wiring Harness	NSI
4	26-1452	Air Filter	1
5	28-0005	Grommet, 5/8"	1
6	28-0008	Grommet	2
7	28-0045	Grommet	1
8	28-0014	Grommet, 3/8"	1

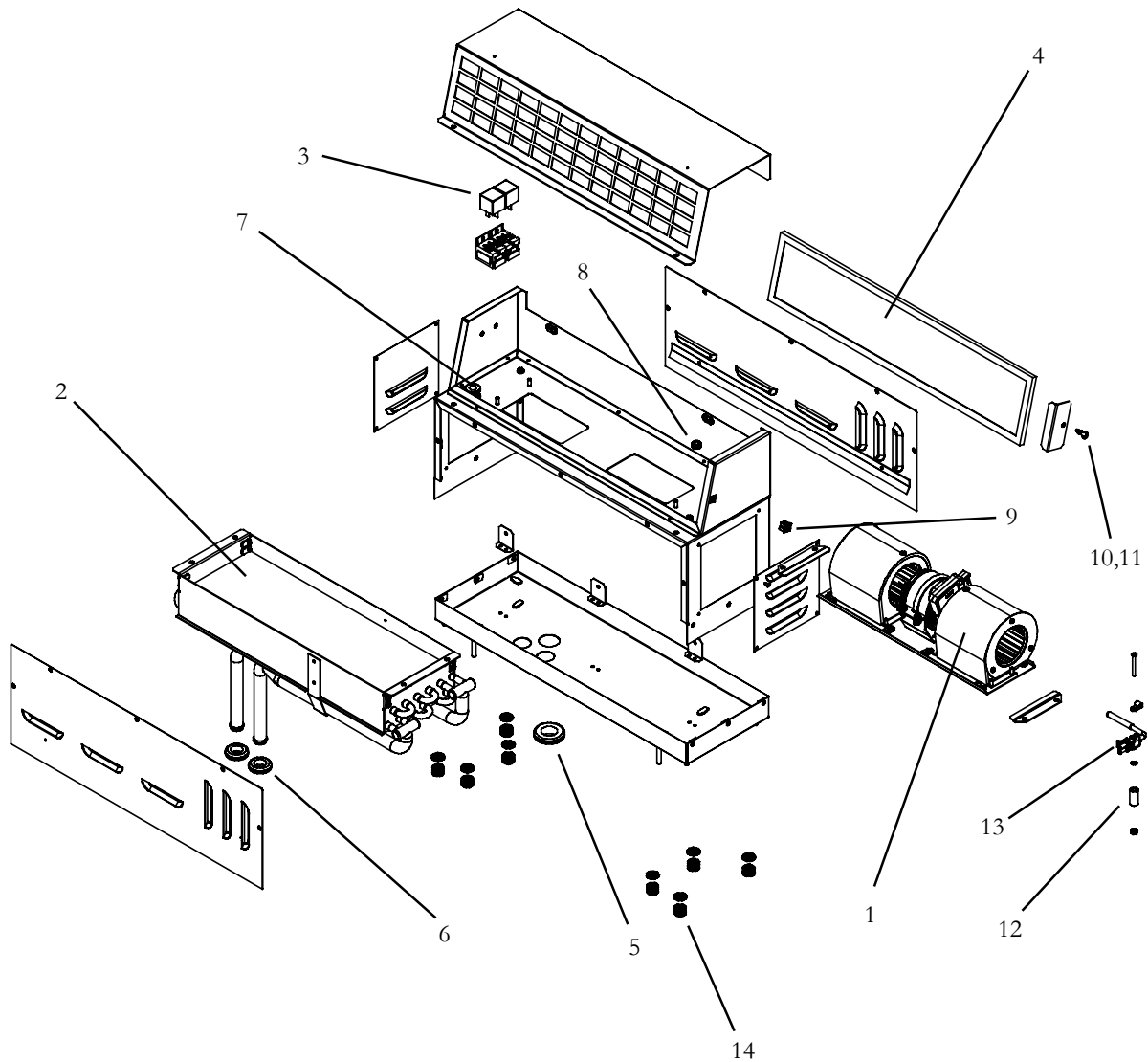


1.22 Heater Unit 12-8370 & T12-8372 Parts List Continued):

Item	Part Number	Description	Qty
9	29-0075	Receptacle	1
10	29-1110	Stud Oval Slotted	1
11	29-0077	Retainer	1
12	29-0125	Nylon Spacer, 1" x 1/2" DIA	1
13	35-0837	Sensor Assembly	1
14	29-1031	Round Knurled Nut	8



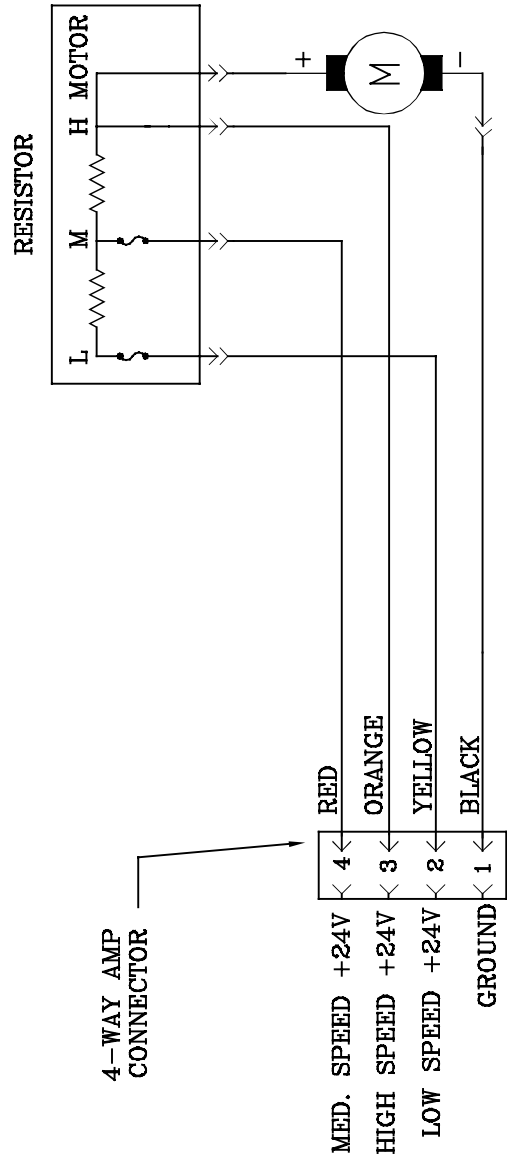
1.23 MCC Heater Unit T12-8374



Item	Part Number	Description	Qty
1	15-05038	Blower Assembly 24V, Includes:	1
2	22-1242	Heater Coil Assembly	1
3	25-0219	Relay, 24V	2
N.S.	25-2900	Wiring Harness	NSI
4	26-1452	Air Filter	1
5	28-0005	Grommet, 5/8"	1
6	28-0008	Grommet	2
7	28-0045	Grommet	1
8	28-0014	Grommet, 3/8"	1



1.23 Heater Unit T12-8374 Parts List Continued):			
Item	Part Number	Description	Qty
9	29-0075	Receptacle	1
10	29-1110	Stud Oval Slotted	1
11	29-0077	Retainer	1
12	29-0125	Nylon Spacer, 1" x 1/2" DIA	1
13	35-0837	Sensor Assembly	1
14	29-1031	Round Knurled Nut	8

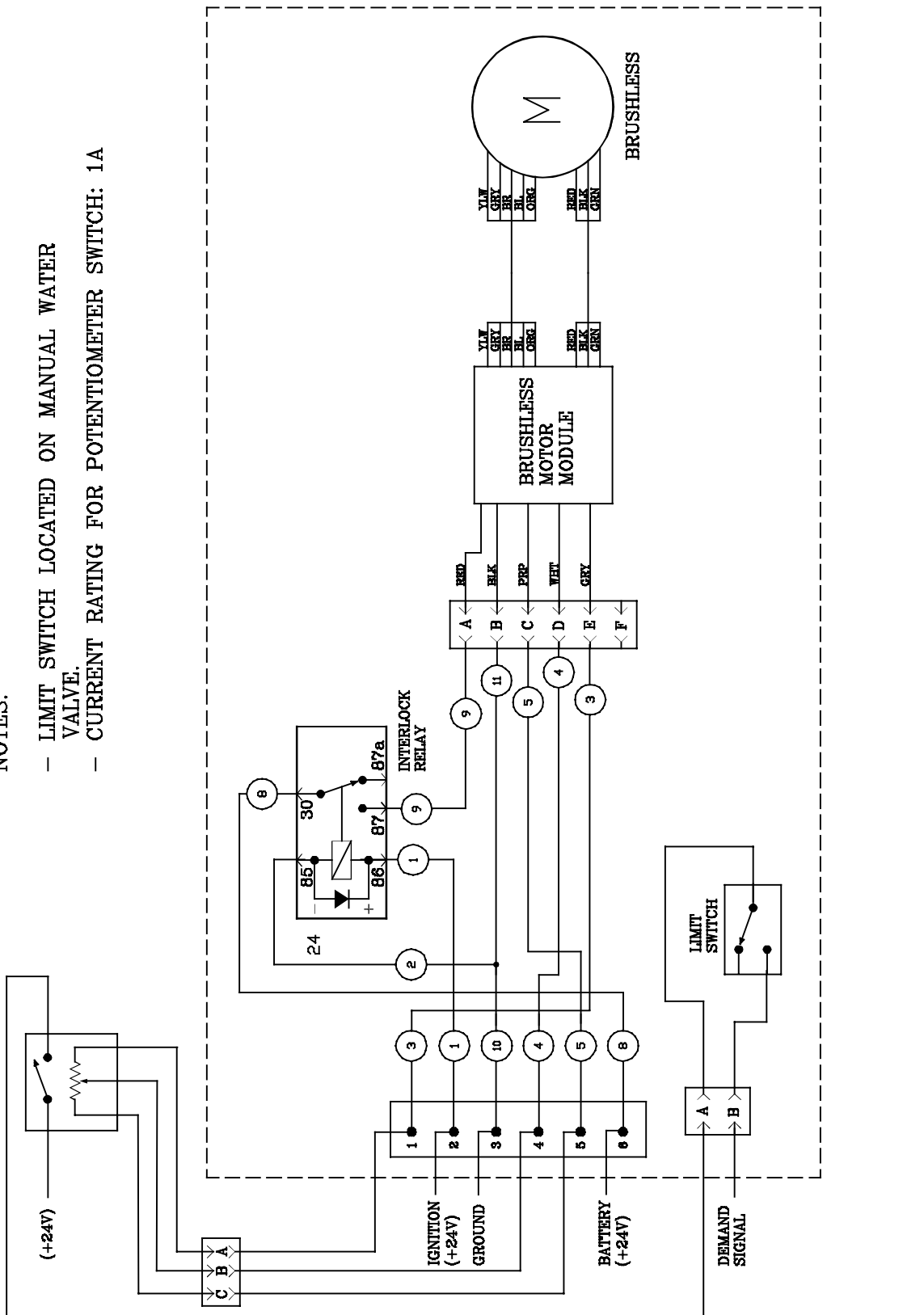


Schematic 12-11632S
&
Schematic 12-11634S

Figure 1-1 Schematic for Models 12-11632 & 12-11634

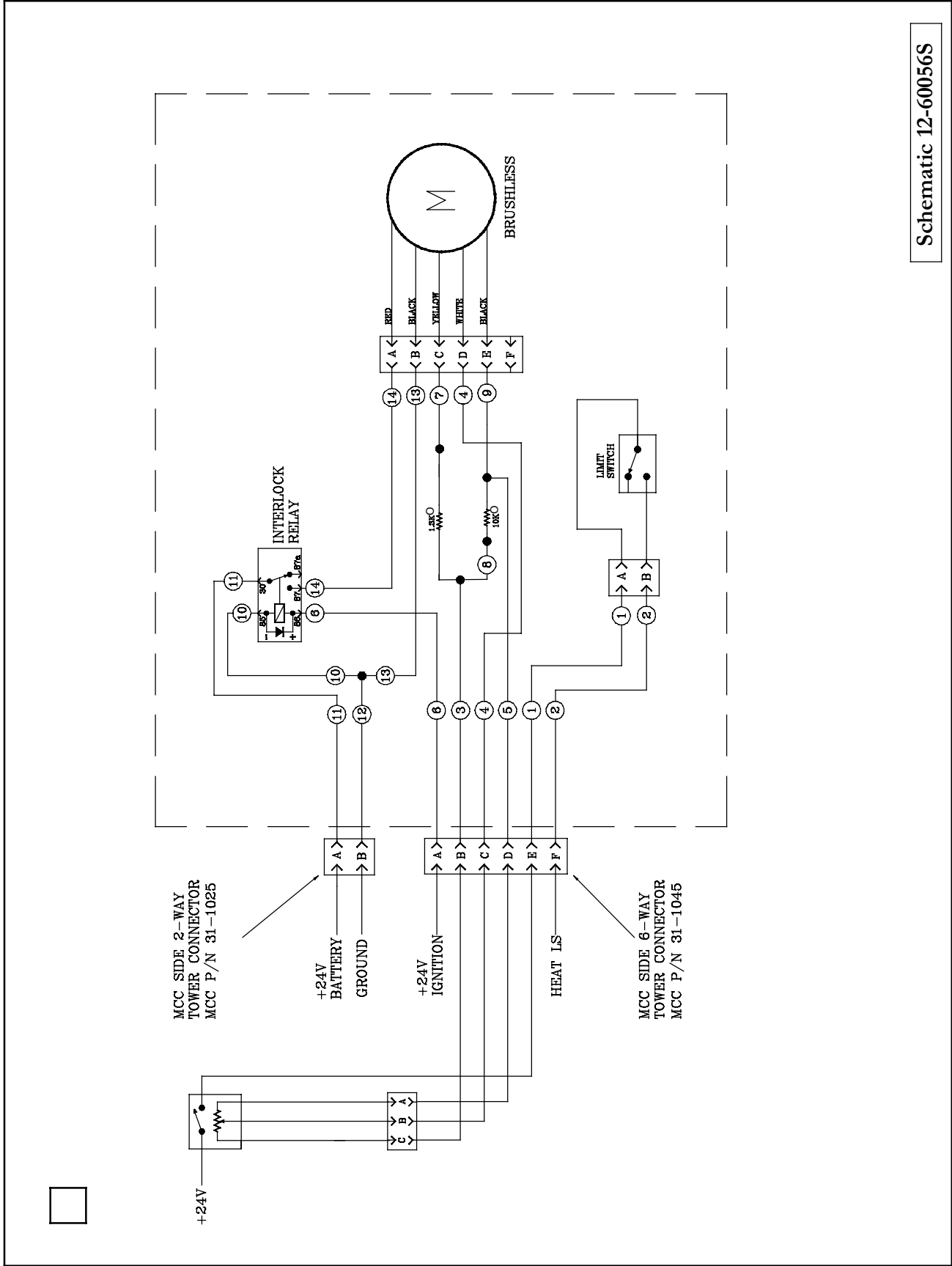


- NOTES:
- LIMIT SWITCH LOCATED ON MANUAL WATER VALVE.
 - CURRENT RATING FOR POTENTIOMETER SWITCH: 1A



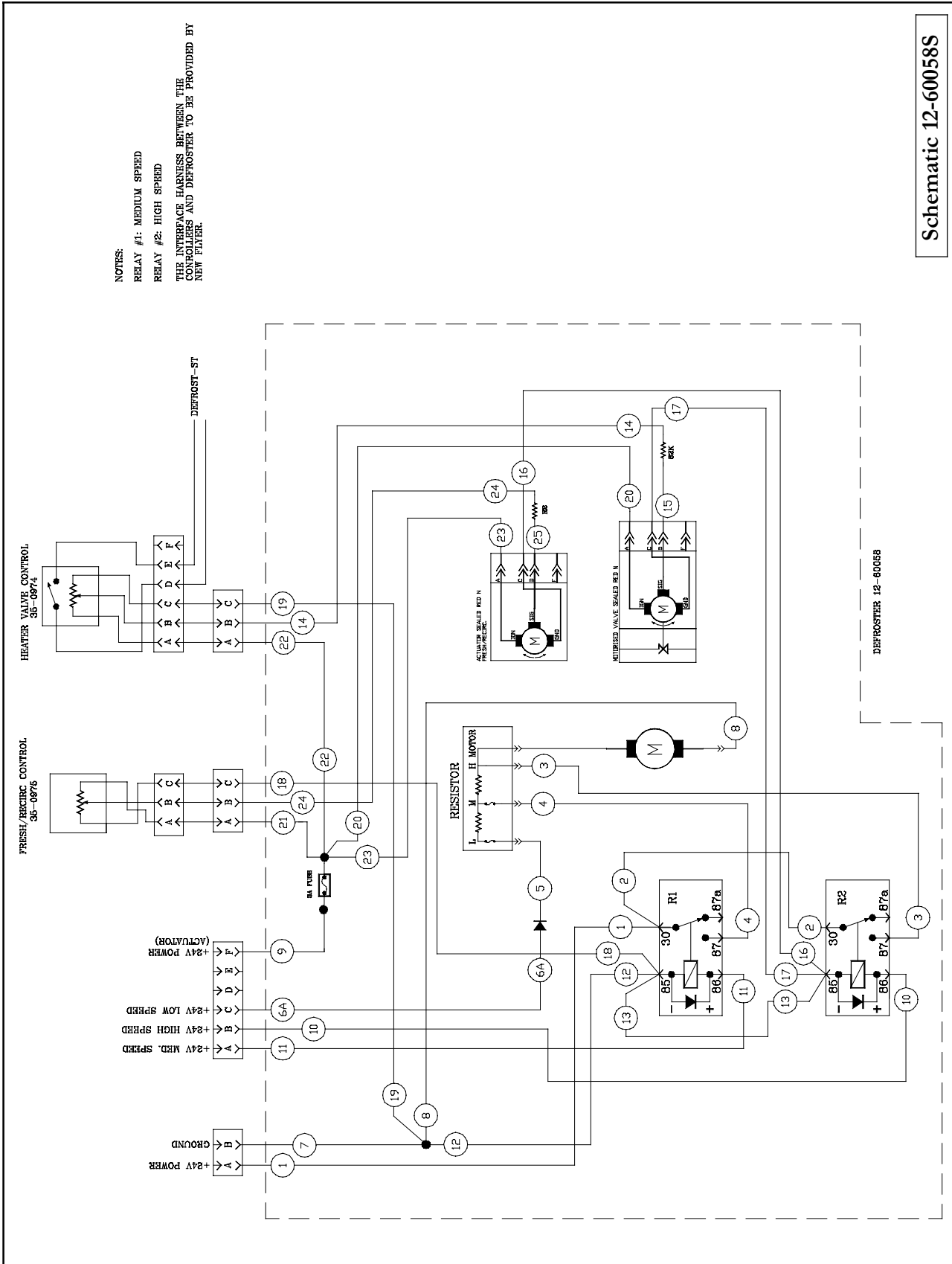
Schematic 12-60046S

Figure 1-2 Schematic for Models 12-60046



Schematic 12-60056S

Figure 1-3 Schematic for Models 12-60056



NOTES:
 RELAY #1: MEDIUM SPEED
 RELAY #2: HIGH SPEED
 THE INTERFACE HARNESS BETWEEN THE CONTROLLERS AND DEFROSTER TO BE PROVIDED BY NEW FILTER.

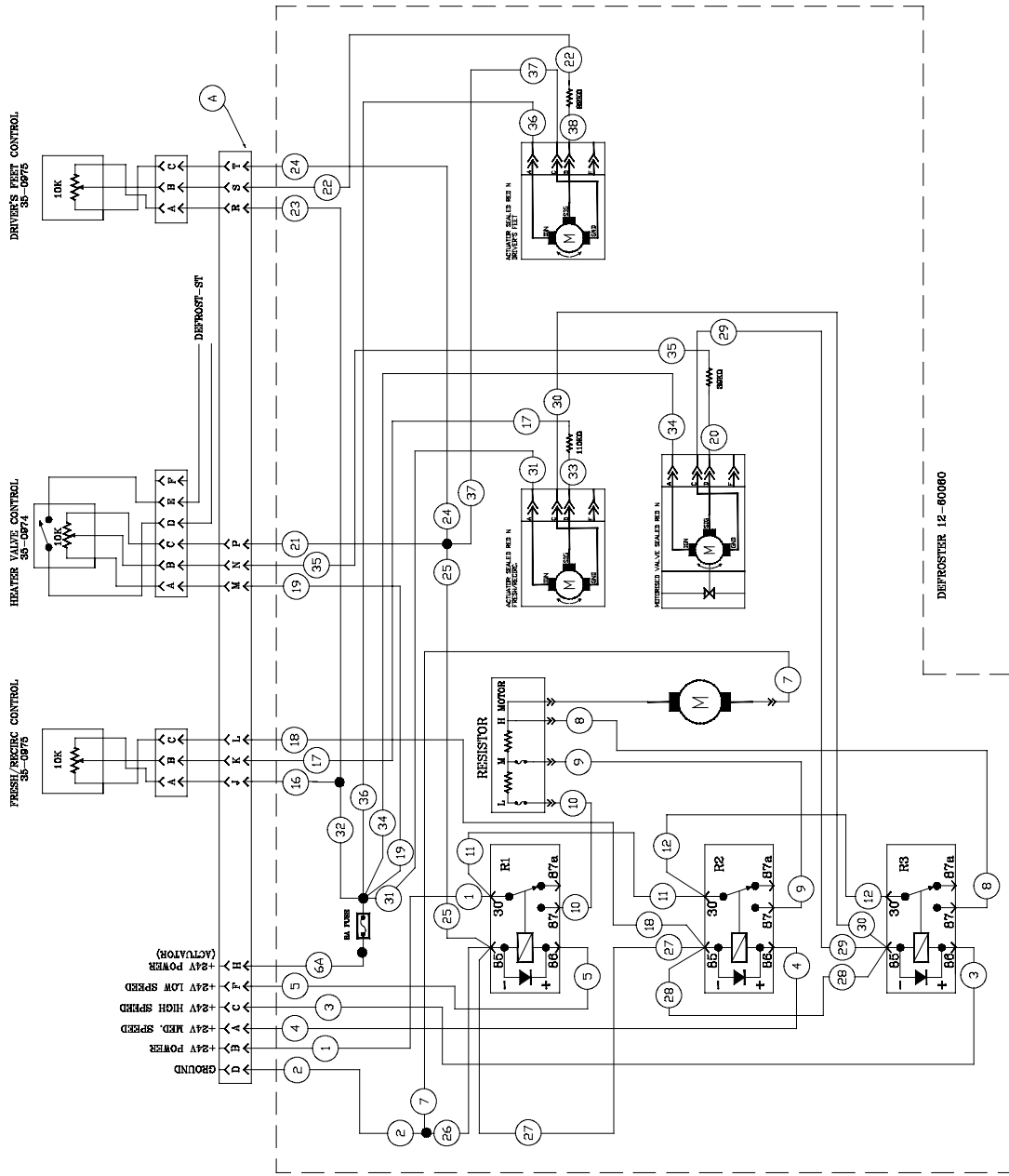
Schematic 12-60058S

Figure 1-4 Schematic for Models 12-60058



- ELECTRICAL CONNECTION:**
- A: MCC SIDE 21-PIN DEUTSCH RECEPTACLE
 - DEUTSCH #HDP24-24-21PN-L017
 - TERMINAL PIN
 - RELAY #1 LOW SPEED
 - RELAY #2 MEDIUM SPEED
 - RELAY #3 HIGH SPEED

- CONNECTOR PIN OUT DESCRIPTION:**
- A: +24V MEDIUM SPEED
 - B: +24V POWER
 - C: +24V HIGH SPEED
 - D: +24V LOW SPEED
 - E: +24V LOW SPEED
 - F: +24V POWER (ACTUATOR)
 - G: GROUND
 - H: +24V (FRESH/RECIRC. CONTROL)
 - I: SIGNAL (FRESH/RECIRC. CONTROL)
 - J: SIGNAL (FRESH/RECIRC. CONTROL)
 - K: SIGNAL (FRESH/RECIRC. CONTROL)
 - L: GROUND (FRESH/RECIRC. CONTROL)
 - M: +24V (HEATER VALVE CONTROL)
 - N: SIGNAL (HEATER VALVE CONTROL)
 - O: SIGNAL (HEATER VALVE CONTROL)
 - P: GROUND (HEATER VALVE CONTROL)
 - Q: +24V (DRIVER'S FEET CONTROL)
 - R: SIGNAL (DRIVER'S FEET CONTROL)
 - S: SIGNAL (DRIVER'S FEET CONTROL)
 - T: GROUND (DRIVER'S FEET CONTROL)



Schematic 12-60060S

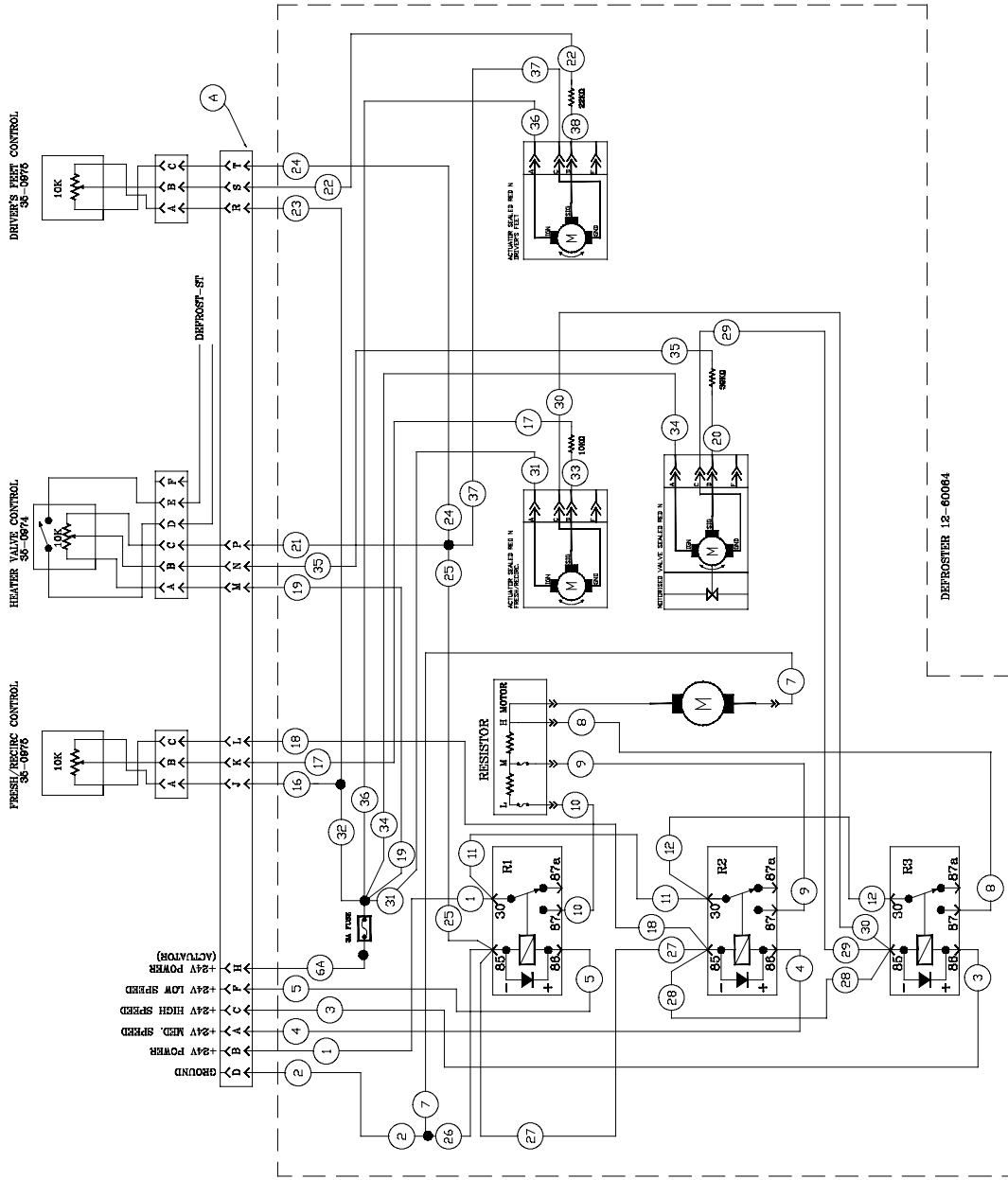
Figure 1-5 Schematic for Models 12-60060



- ELECTRICAL CONNECTION:**
- A: MCC SIDE 21-PIN DEUTSCH RECEPTACLE
 - DEUTSCH #HDP24-24-21PN-L017
 - TERMINAL PIN
 - RELAY #1 LOW SPEED
 - RELAY #2 MEDIUM SPEED
 - RELAY #3 HIGH SPEED
 - RELAY #4 LOW SPEED
 - THE INTERFACE HARNESS BETWEEN THE CONTROLLER AND DEFROSTER TO BE SUPPLIED BY NEW FILTER

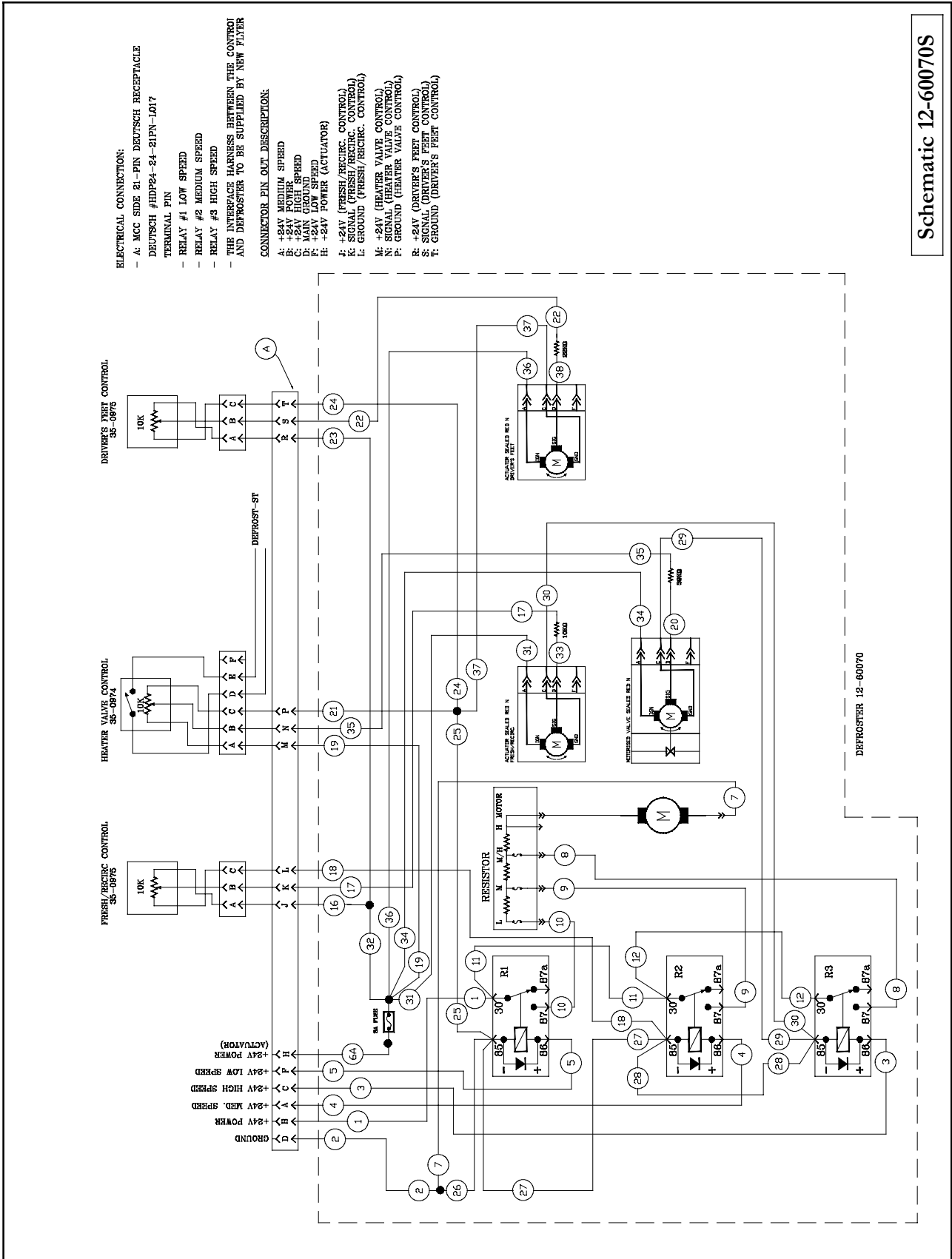
CONNECTOR PIN OUT DESCRIPTION:

- A: +24V MEDIUM SPEED
- B: +24V POWER
- C: +24V HIGH SPEED
- D: +24V LOW SPEED
- E: +24V LOW SPEED
- F: +24V LOW SPEED
- G: +24V POWER (ACTUATOR)
- H: +24V (FRESH/RECIRC. CONTROL)
- I: +24V (FRESH/RECIRC. CONTROL)
- J: SIGNAL (FRESH/RECIRC. CONTROL)
- K: SIGNAL (FRESH/RECIRC. CONTROL)
- L: GROUND (FRESH/RECIRC. CONTROL)
- M: +24V (HEATER VALVE CONTROL)
- N: SIGNAL (HEATER VALVE CONTROL)
- O: GROUND (HEATER VALVE CONTROL)
- P: +24V (DRIVER'S FEET CONTROL)
- Q: SIGNAL (DRIVER'S FEET CONTROL)
- R: +24V (DRIVER'S FEET CONTROL)
- S: SIGNAL (DRIVER'S FEET CONTROL)
- T: GROUND (DRIVER'S FEET CONTROL)



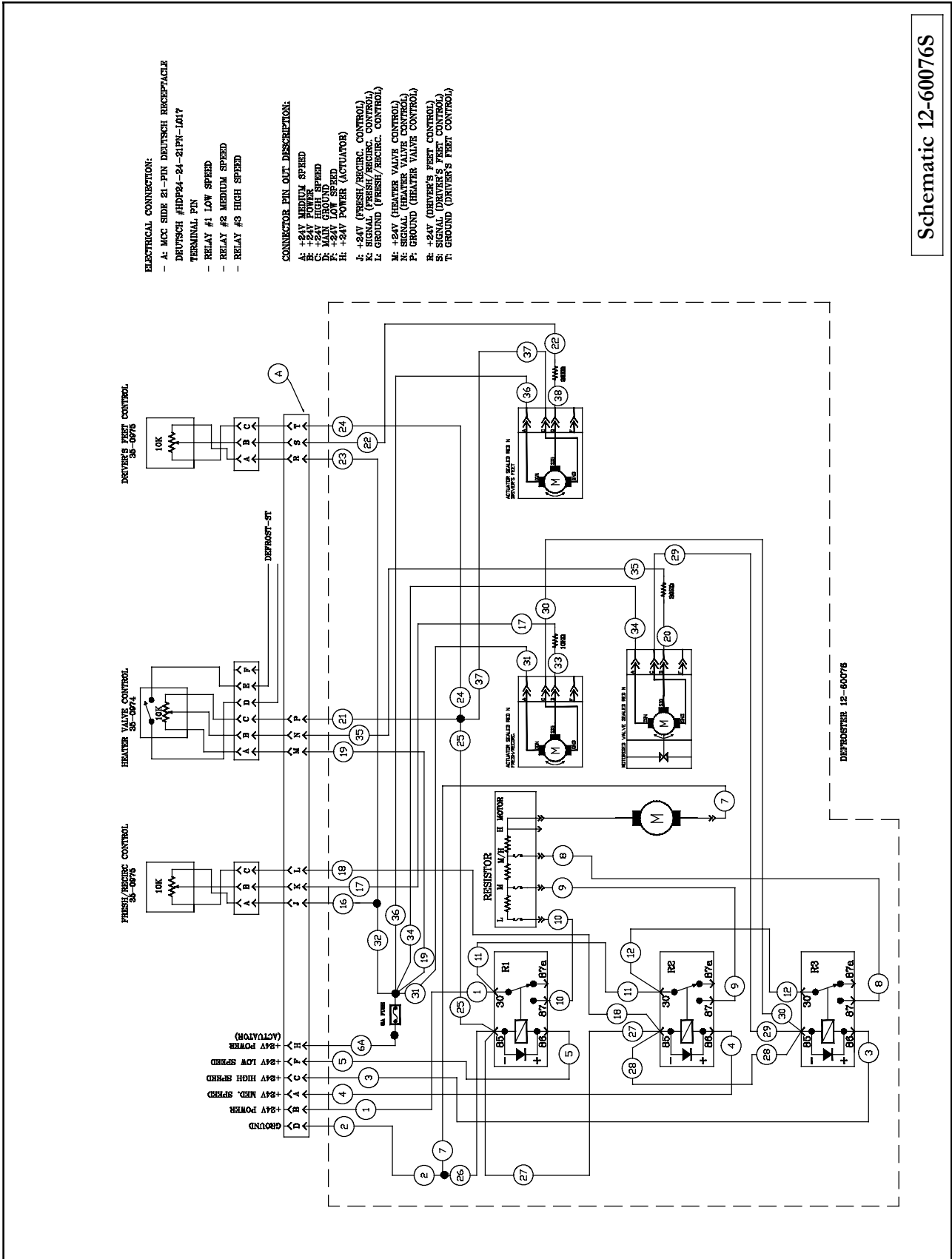
Schematic 12-60064S

Figure 1-6 Schematic for Models 12-60064



Schematic 12-60070S

Figure 1-7 Schematic for Models 12-60070

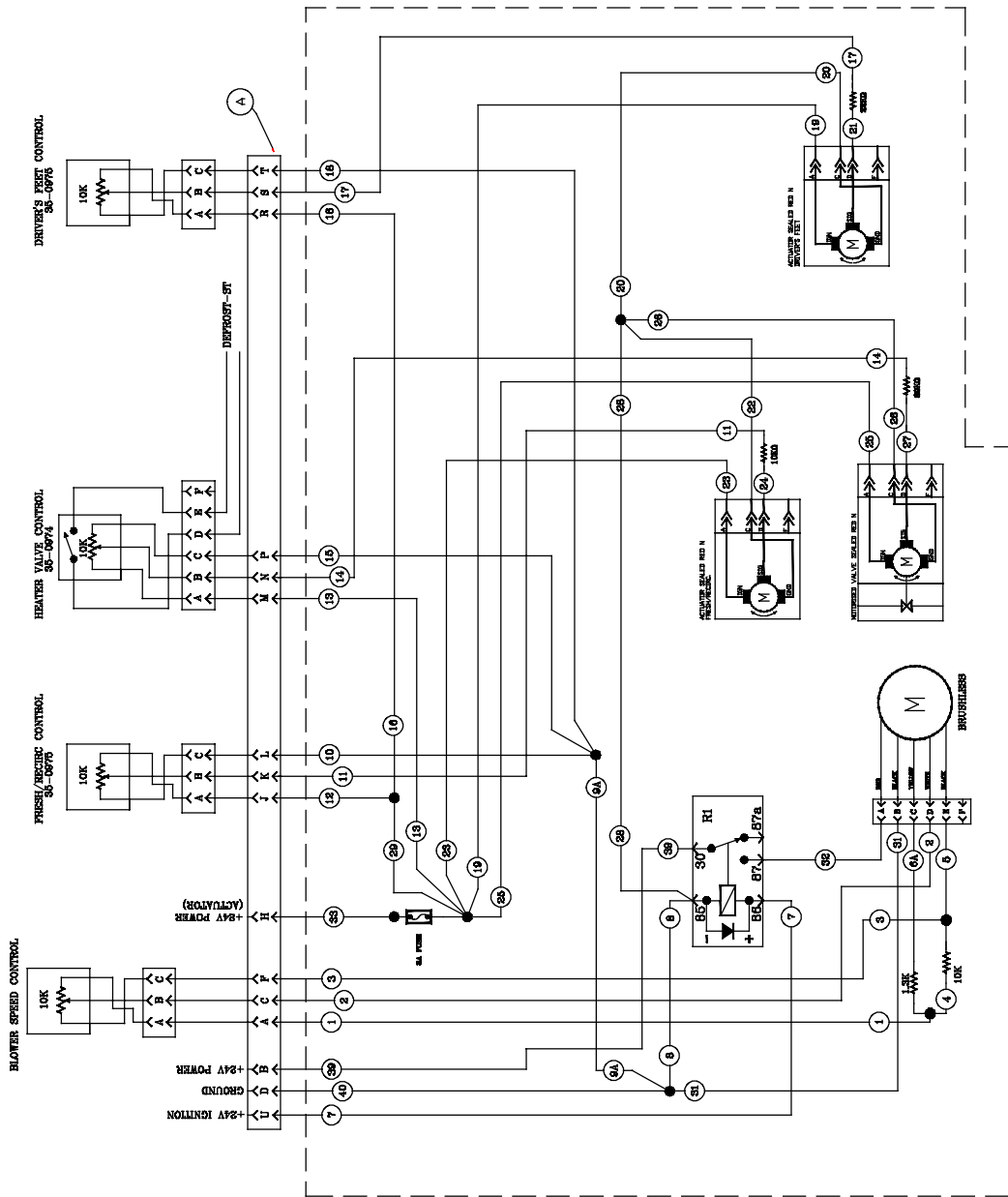


Schematic 12-60076S

Figure 1-8 Schematic for Models 12-60076



- ELECTRICAL CONNECTION:
 - A: MCC SIDE 21-PIN DEUTSCH RECEPTACLE
 DEUTSCH #HDP24-24-21PN-1017
 - RELAY #1 INTERLOCK RELAY
 - THIS INTERLOCK HARNESS BETWEEN THE CONTROLLER
 AND DEPRESTER TO BE SUPPLIED BY NEW FLUXER
 CONNECTOR PIN OUT DESCRIPTION:
 A: VARIABLE SPEED CONTROL
 B: +24V POWER
 C: VARIABLE SPEED CONTROL
 D: VARIABLE SPEED CONTROL
 E: +24V POWER (ACTUATOR)
 F: -24V (FRESH/RECIRC. CONTROL)
 K: SIGNAL (FRESH/RECIRC. CONTROL)
 L: GROUND (FRESH/RECIRC. CONTROL)
 M: +24V (HEATER VALVE CONTROL)
 N: SIGNAL (HEATER VALVE CONTROL)
 P: GROUND (HEATER VALVE CONTROL)
 R: +24V (DRIVER'S FEET CONTROL)
 S: SIGNAL (DRIVER'S FEET CONTROL)
 T: GROUND (DRIVER'S FEET CONTROL)
 U: +24V IGNITION

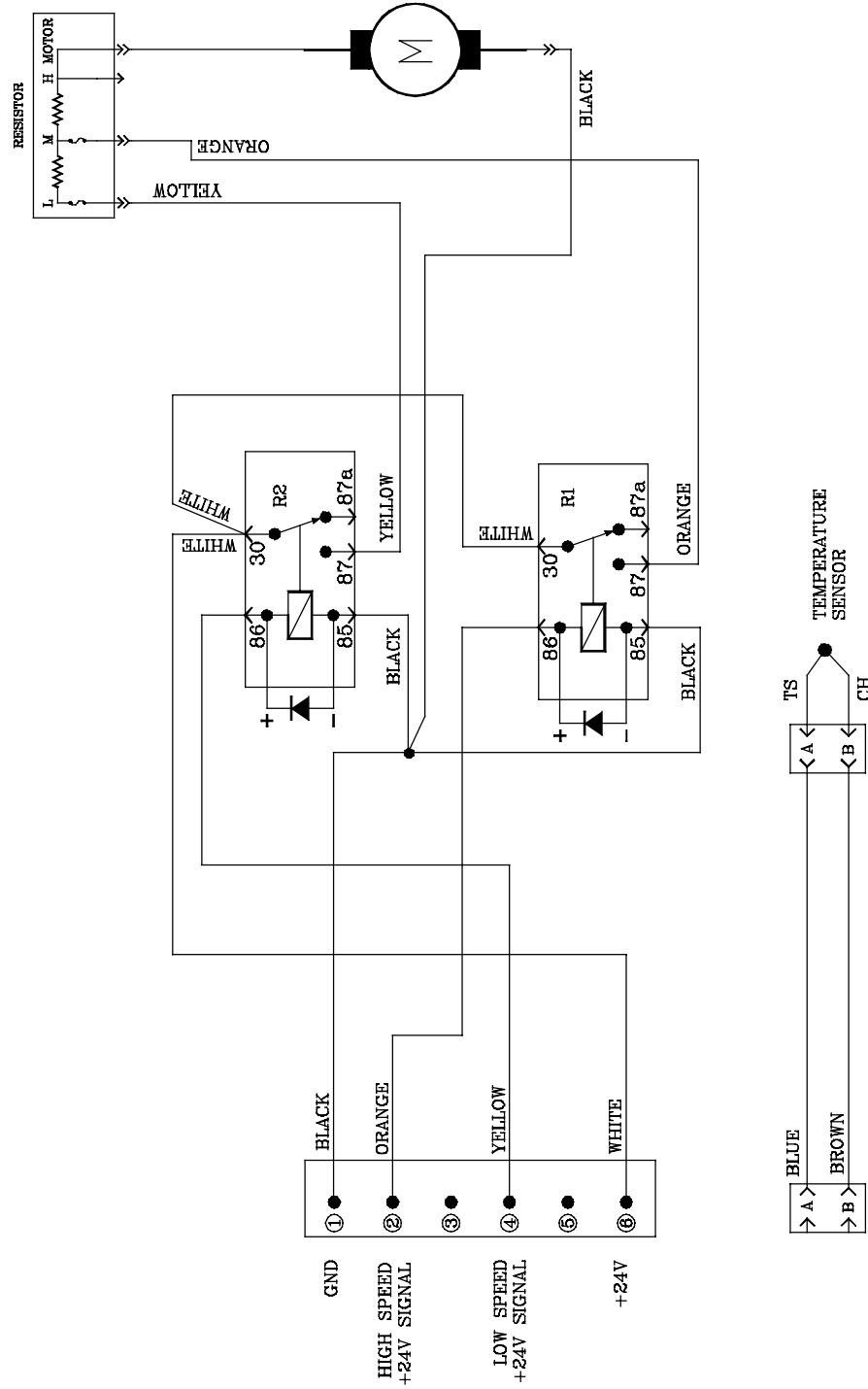


Schematic 12-60078S

Figure 1-9 Schematic for Models 12-60078



NOTES:
 - R1: HIGH SPEED RELAY
 - R2: LOW SPEED RELAY

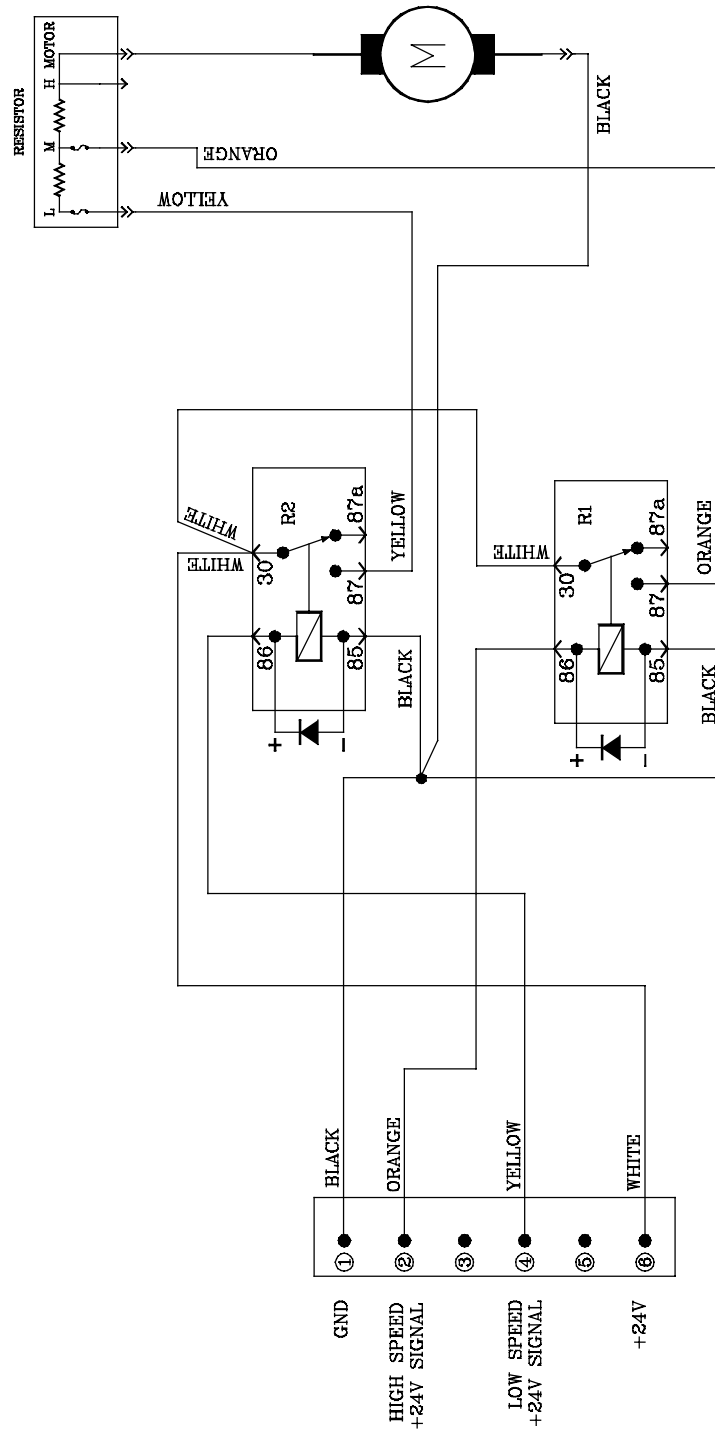


Schematic 12-70276S

Figure 1-10 Schematic for Models 12-70276

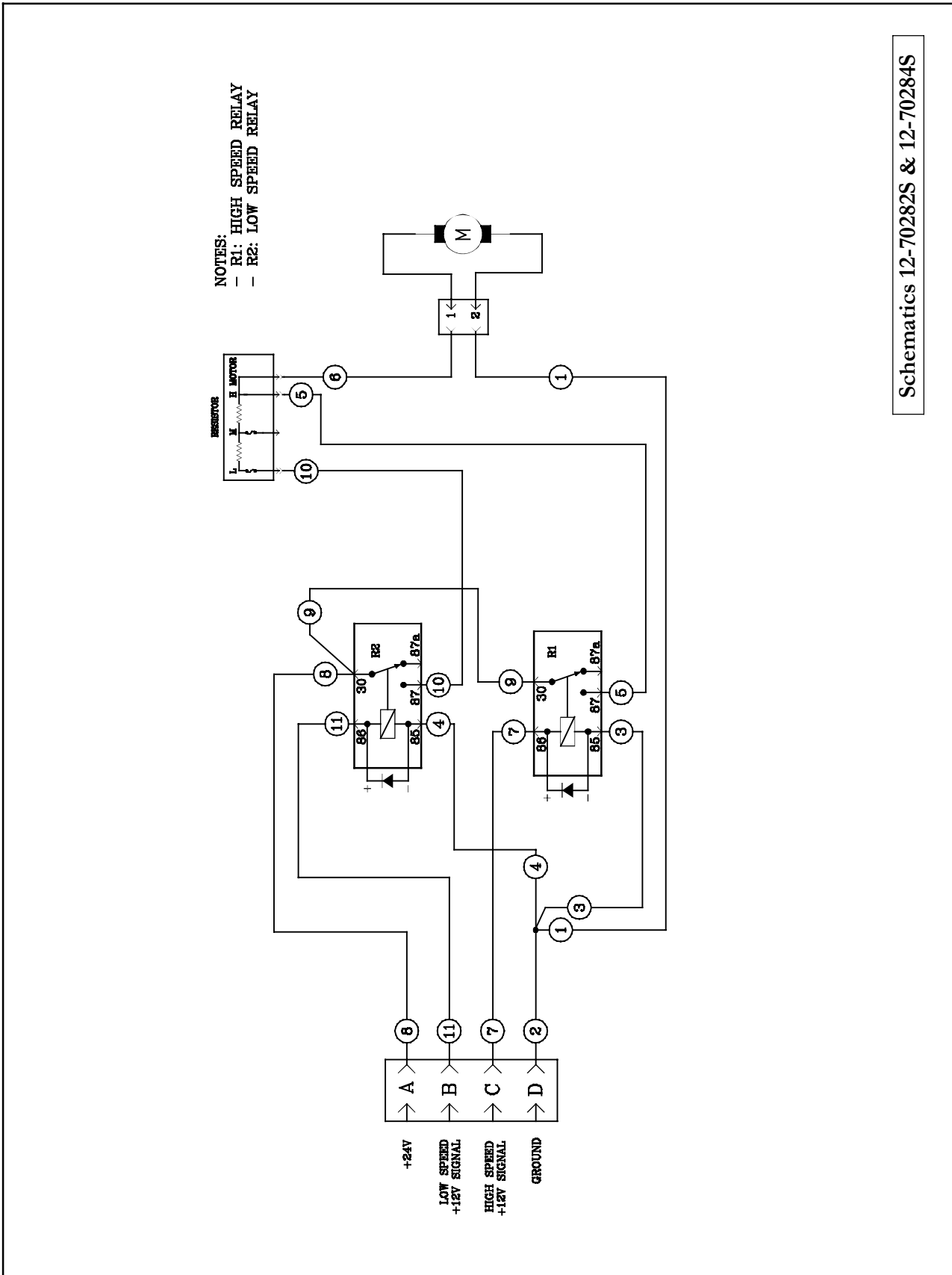


NOTES:
 - R1: HIGH SPEED RELAY
 - R2: LOW SPEED RELAY



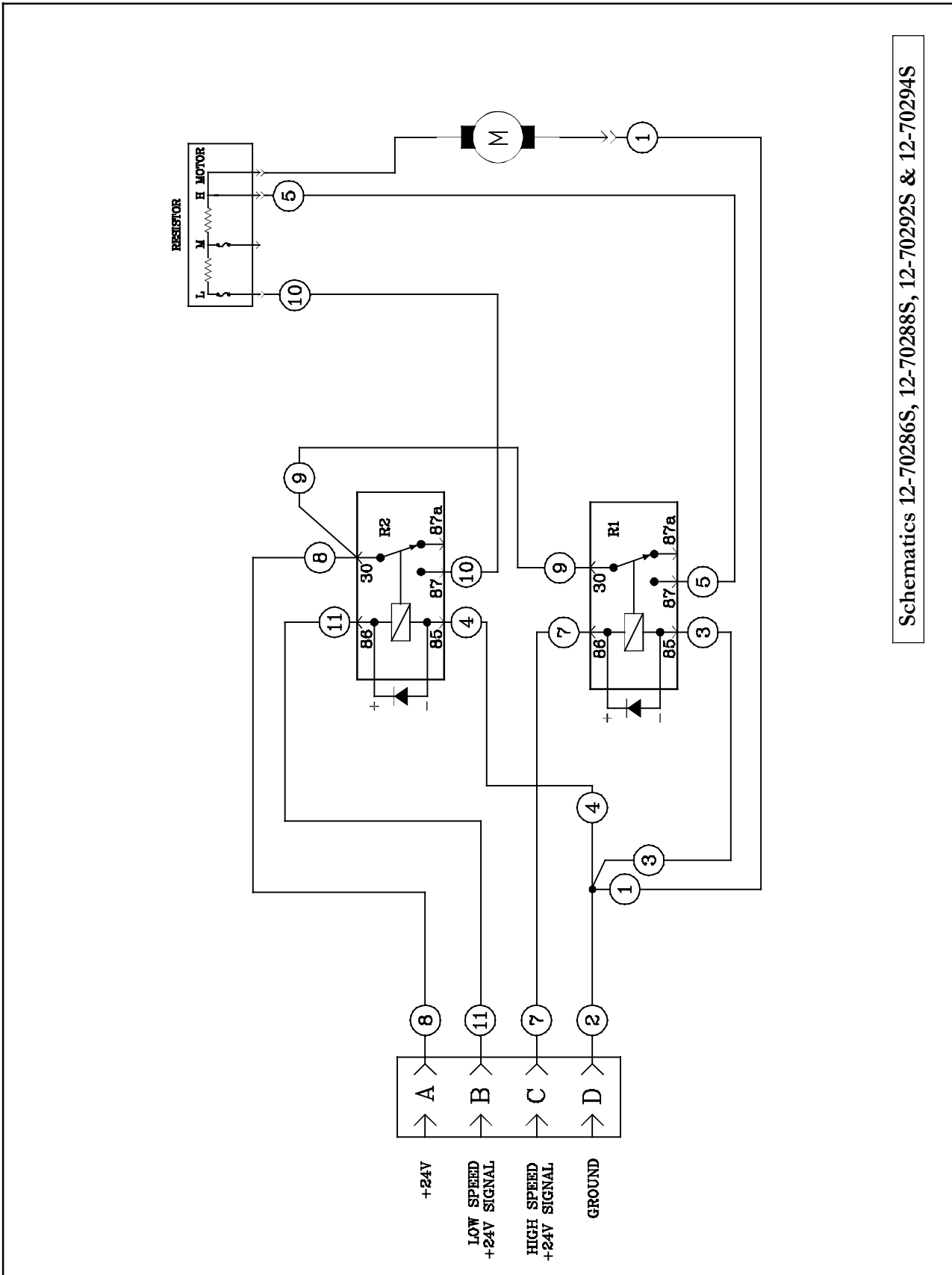
Schematic 12-70278S

Figure 1-11 Schematic for Models 12-70278



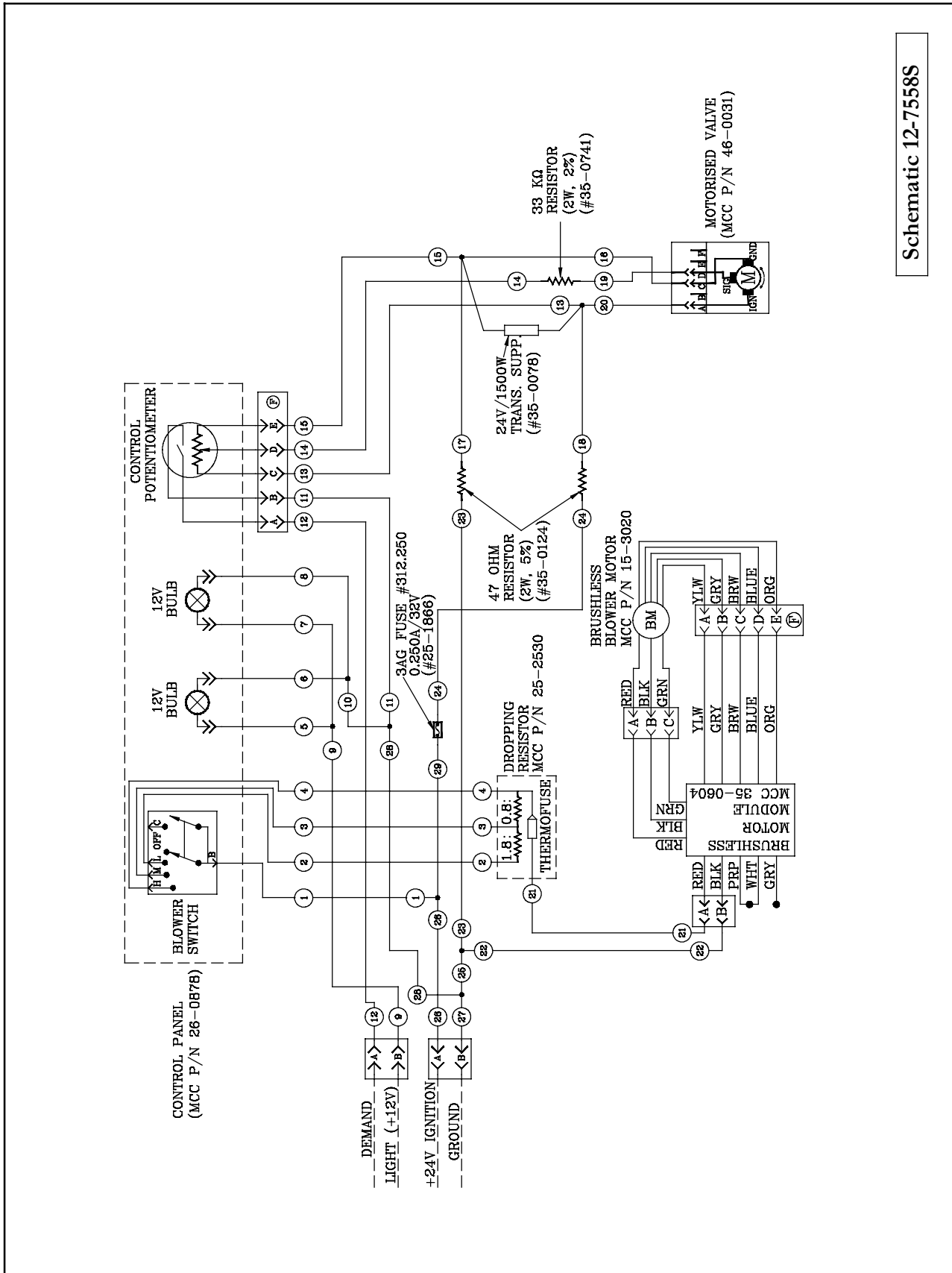
Schematics 12-70282S & 12-70284S

Figure 1-12 Schematic for Models 12-70282 & 12-70284



Schematics 12-70286S, 12-70288S, 12-70292S & 12-70294S

Figure 1-13 Schematic for Models 12-70286, 12-70288, 12-70292 & 12-70294

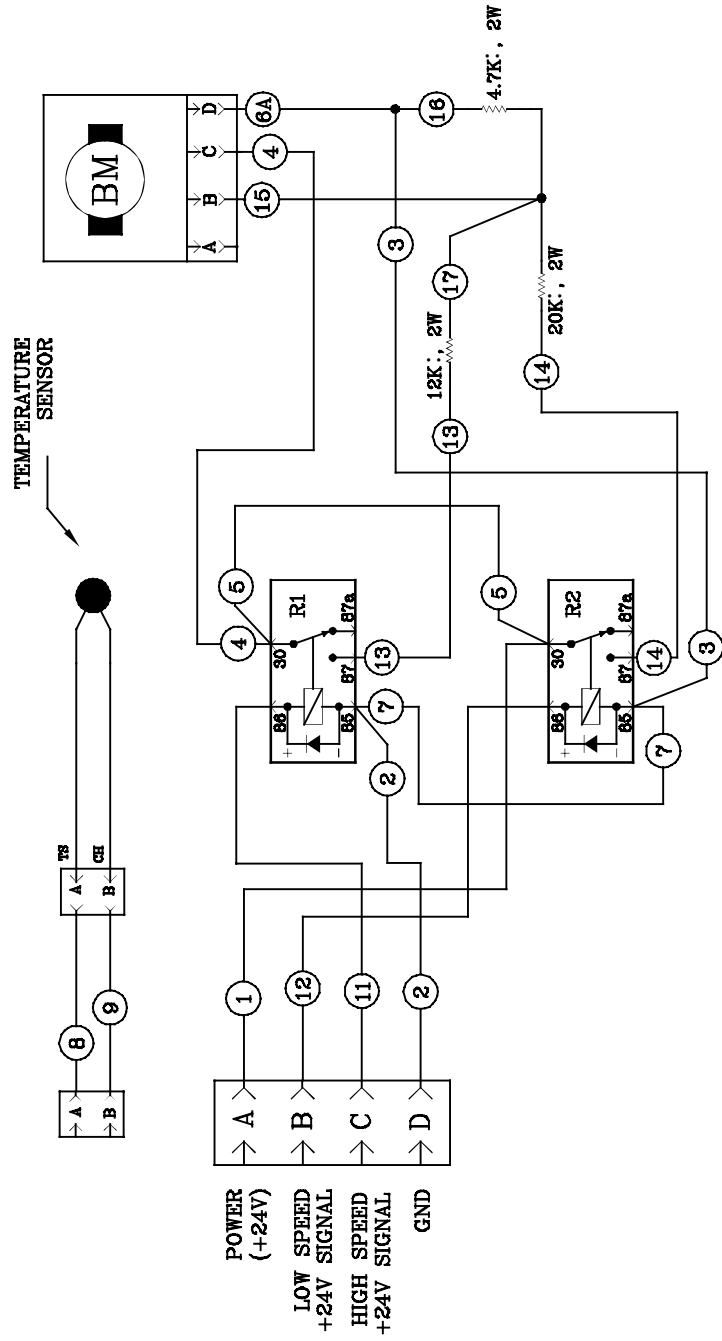


Schematic 12-7558S

Figure 1-14 Schematic for Models 12-7558



NOTES:
 - RELAY R1 - HIGH SPEED
 - RELAY R2 - LOW SPEED

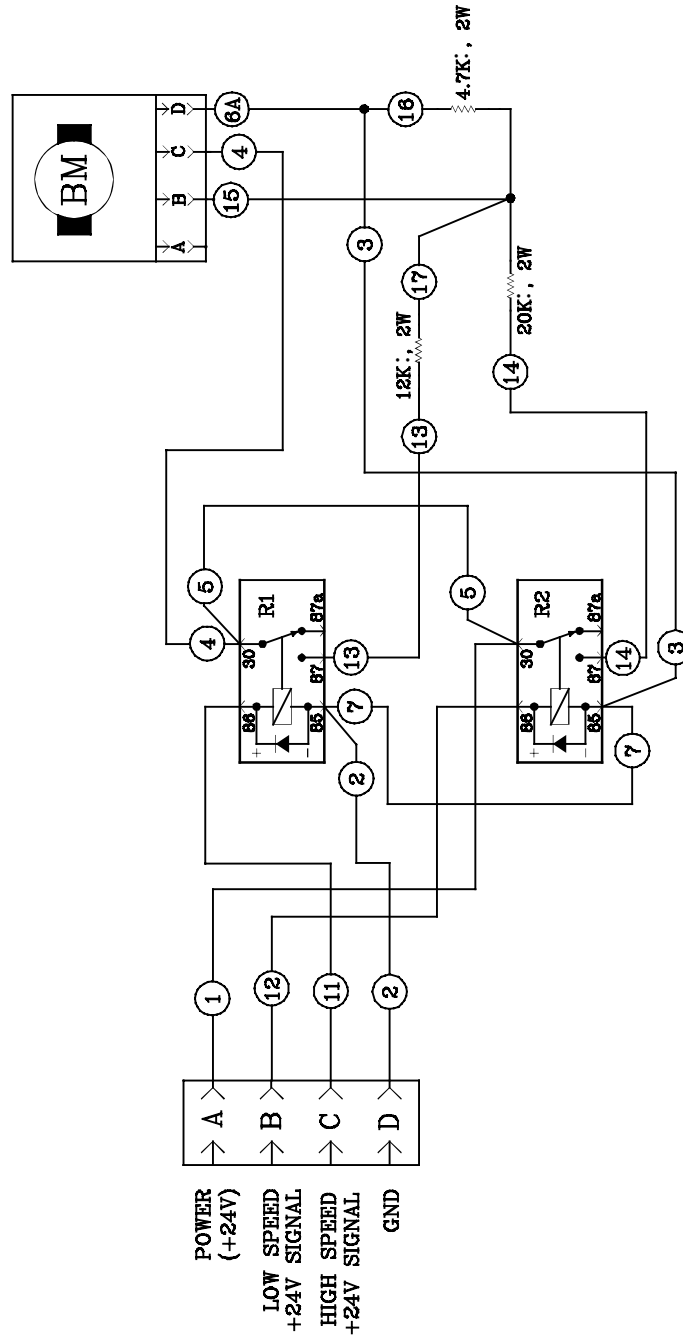


Schematic 12-8340S

Figure 1-15 Schematic for Models 12-8340



NOTES:
 - RELAY R1 - HIGH SPEED
 - RELAY R2 - LOW SPEED

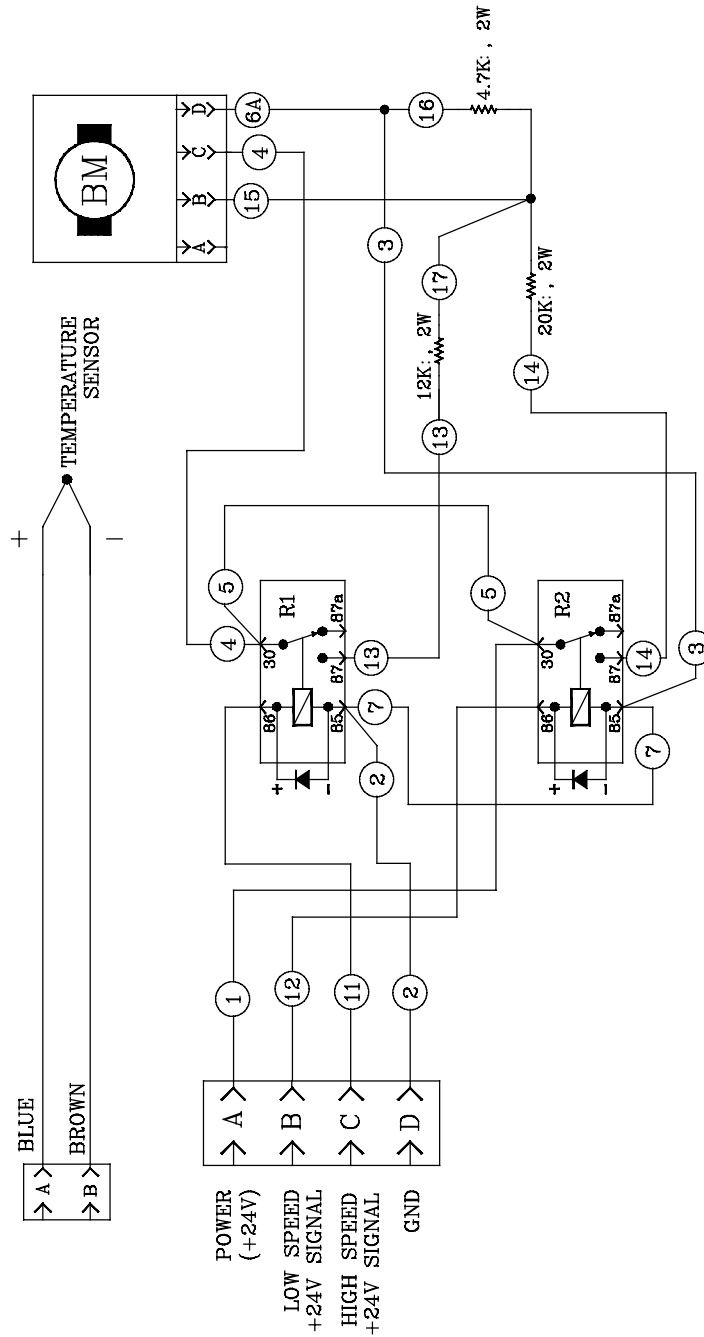


Schematic 12-8364S

Figure 1-16 Schematic for Models 12-8364



NOTES:
 - RELAY R1- HIGH SPEED
 - RELAY R2- LOW SPEED



Schematic 12-8370S, T12-8372S & T12-8374S

Figure 1-17 Schematic for Models 12-8370, T12-8372 & T12-8374



INDEX

Part#	Page#	Part#	Page#
1			
13430	2, 3	24-3344	20
13431	2, 3	25-0006	21, 22
14524	2, 3	25-0022	6, 8
15-0484	2, 3	25-0219	20, 22, 29, 31, 33, 35, 41, 43
15-05038	37, 39, 41, 43	25-0232	8
15-15064	10, 12	25-0251	24, 26
15-15078	6, 18	25-0623	4
15-15082	14, 16	25-1124	4, 6, 8, 10, 12, 14, 16, 18, 37, 39
15-19176	8	25-1309	9
15-19190	20, 22, 28, 30, 32, 34	25-2530	2, 3, 36
15-19196	24, 26	25-2660	9, 11, 13, 15, 17, 19
15-1982	4	25-2841	24, 26
15-3020	36	25-2848	8, 10, 20, 22, 28, 30, 32, 34
16534	2, 3	25-2900	41, 43
2		25-3056	5
		25-3191	12, 14, 16
		25-3308	37
22-0226	4, 6	25-3343	20, 22
22-0242	22, 24, 30, 32, 34	25-3345	2, 3
22-0895	20, 26, 28	25-3347	9
22-1089	36	25-3354	7
22-1222	2, 3	25-3363	24, 26
22-1242	41, 43	25-3384	28, 30, 32, 34
22-1256	37, 39	25-3406	39
22-1266	8	25-3414	10
22-1329	10	25-3450	36
22-1355	12, 14, 16, 18	25-3513	12, 14, 16
23-0040	36	26-0259	36
23-0611	8	26-0264	24, 26, 28, 30, 32, 34
23-0657	10	26-0265	4, 6
23-0707	12, 14, 16, 18	26-0277	6
24-1257	4, 8	26-1292	20, 22
24-1258	4, 8	26-1452	37, 39, 41, 43
		26-1619	2, 3



INDEX

Part#	Page#	Part#	Page#
26-1714	4, 6	29-0077	5, 7, 9, 16, 18, 21, 23, 25, 27, 29, 31, 33, 35, 42, 44
26-1843	9	29-0120	5, 7
27-0183	36	29-0124	9, 11, 13, 15, 17, 19, 21
27-0238	7	29-0125	42, 44
27-0910	6	29-0424	7, 9
27-0911	6, 9	29-0437	19
27-2660	5, 19	29-0443	5, 9
27-3176	9	29-0558	15
28-0004	7, 9, 36	29-1031	25, 27, 29, 31, 33, 35, 38, 40, 42, 44
28-0005	5, 7, 9, 20, 22, 24, 26, 28, 30, 32, 34, 37, 39, 41, 43	29-1110	12, 14, 16, 18, 21, 23, 25, 27, 29, 31, 33, 35, 38, 40, 42, 44
28-0007	2, 3, 5, 11		
28-0008	13, 15, 17, 19, 21, 22, 24, 26, 28, 30, 32, 34, 37, 39, 41, 43	3	
28-0011	15	35-0437	5
28-0014	5, 26, 28, 30, 41, 43	35-0604	36
28-0029	5, 9, 36	35-0835	21, 38
28-0045	5, 7, 11, 21, 23, 24, 27, 29, 31, 33, 35, 37, 39, 41, 43	35-0837	42, 44
28-0079	5, 7, 9	37-0035	9
28-0293	4, 7, 9	39-0008	19
28-0326	5, 7, 9, 11, 13, 15, 17, 19	4	
28-0330	21, 23, 25, 32, 34	46-0025	11
28-0331	20, 23, 25, 28, 30, 32, 34	46-0031	36
28-0335	21	46-0047	13, 15, 17, 19
28-0404	2, 3	T	
29-0075	5, 7, 9, 10, 12, 14, 16, 18, 21, 23, 25, 27, 29, 31, 33, 35, 38, 40, 42, 44	T25-3589	18
29-0076	9, 10		

Every driver deserves the best possible vehicle climate with MCC products

MCC provides exceptional performance in mobile climate comfort.



www.mcc-hvac.com

Member of MCC Group • Certified ISO 9001 and ISO 14001.
Specifications subject to change without notice. MCC is a registered trademark.