



Challenger 3 Parts Manual Rev. 6/92

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EXCELLENCE THROUGH TEAMWORK

Challenger 3

Parts
Manual

Challenger 3

Parts Manual
60 Hz

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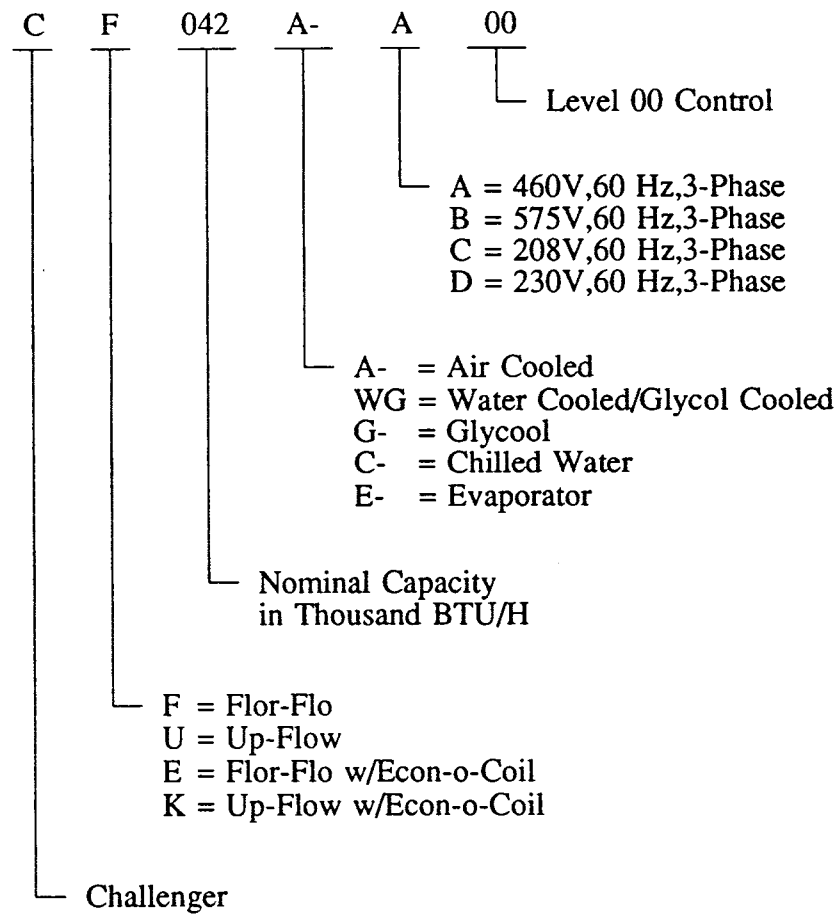
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Glossary

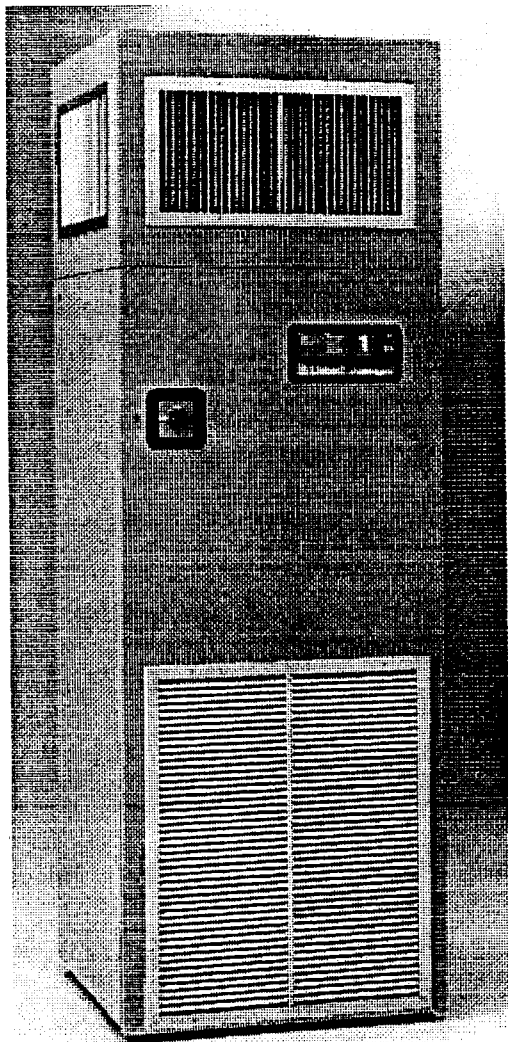
Reader Comment Form

Challenger 3 Model Numbers



How to Use This Manual

The Challenger 3 manual comprises three major parts sections. **Section 1** applies to 3-Ton units. The 3-Ton model numbers are at the top of these pages. **Section 2** applies to 5-Ton units. The 5-Ton model numbers are at the top of these pages. **Section 3** contains assemblies in table format and applies to both 3-Ton and 5-Ton units.



Challenger 3

You must know the model number and/or capacity (3-Ton or 5-Ton) of your Challenger 3 unit in order to use this parts manual. At the top of each parts page are the model numbers and capacity that apply. If your model number does not appear at the top of the page, do not use the parts on that page. Find the pages in Section 1 or 2 that apply to your unit.

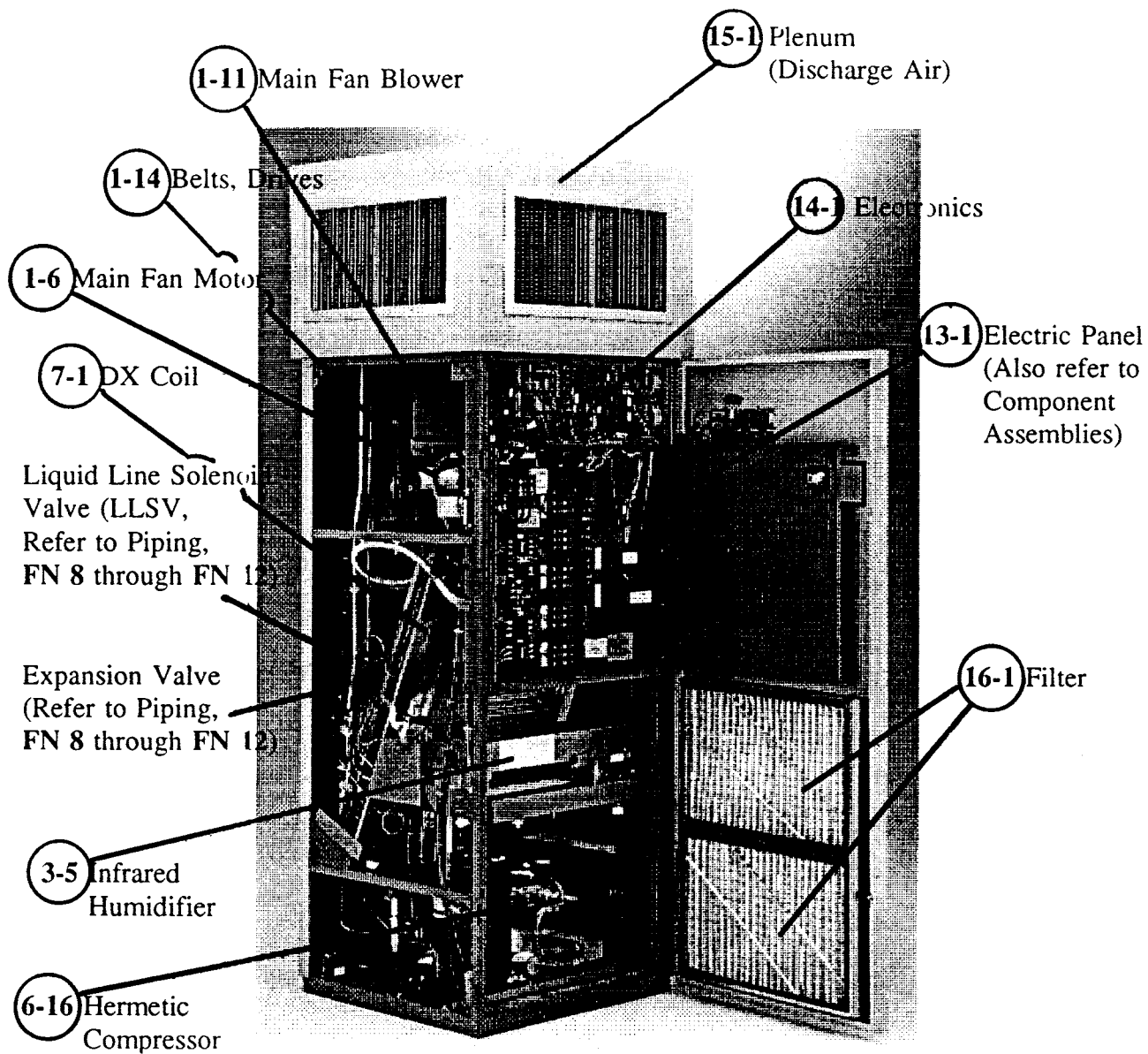
Model Numbers

The model number describes the basic unit's logical and physical characteristics. For example, the model number describes the method of cooling (Air, Water/Glycol, Glycool, Chilled Water). The model number also describes the method of air discharge (Up-Flo, Flor-Flo), and the control logic (always Level 0 for Challenger 3). Use the chart on Page vii to determine the characteristics of your unit.

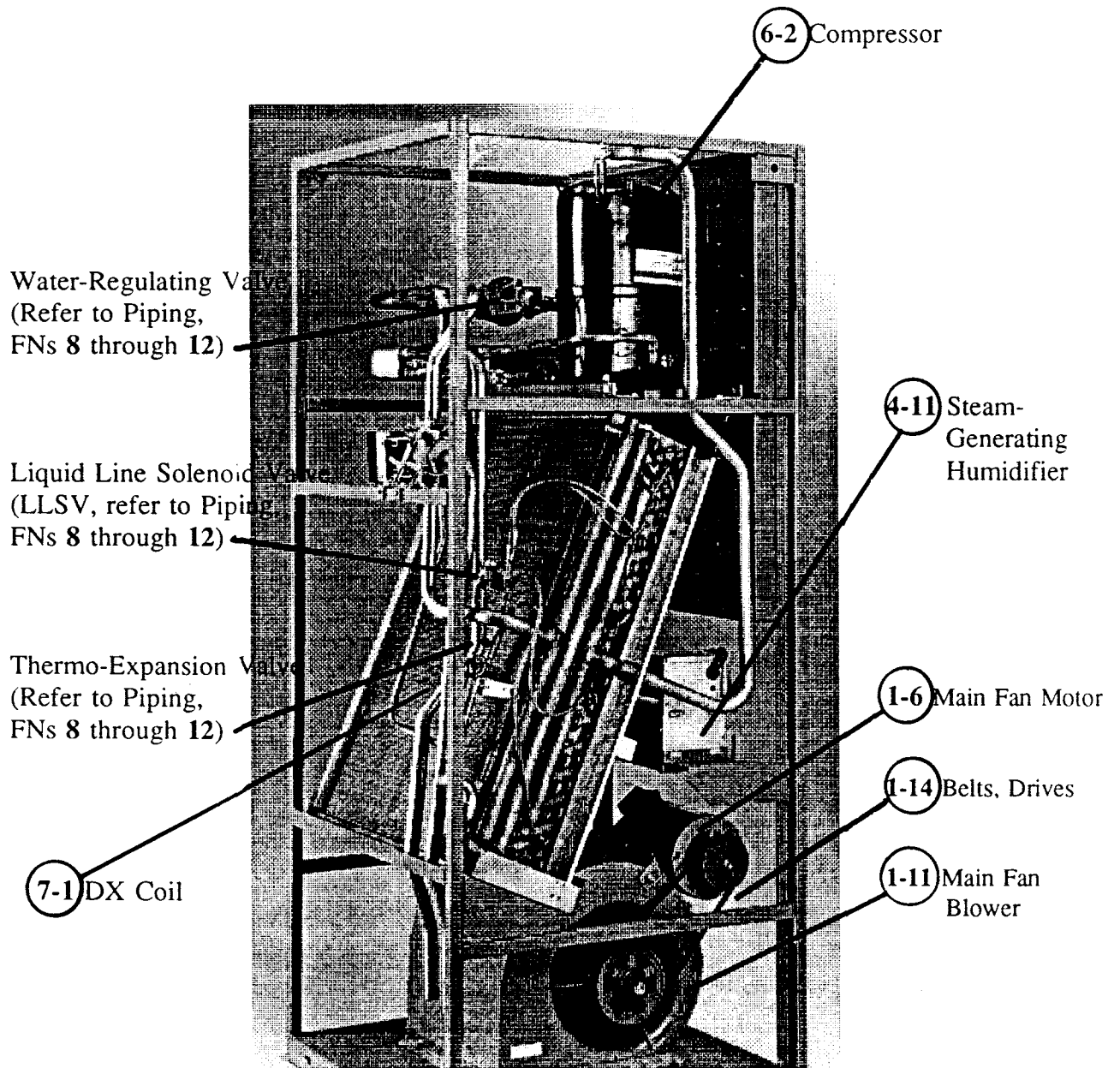
Find Numbers

The Find Number (FN) is a sequentially-assigned two-part number. The first part shows the major group. The second part shows the sub-assembly or component. For example, the Main Fan is FN 1 (major group 1). The Main Fan Motor Assembly is FN 1-6, an assembly. The Main Fan Motor is FN 1-7, a component.

Most assemblies are in tables (Section 3). If there is a table, the Table Number matches the FN it describes. For example, Table Number 1-6 describes the FN 1-6 Main Fan Motor assemblies. The numbers that appear in the pictures on the next two pages are also FNs. Locate the Main Fan Motor in the pictures that follow. Note FN 1-6 appears in both pictures. If an FN does not appear in a picture, refer to the Table of Contents. It contains FNs as well.



**Challenger 3, Water-Cooled
Up-Flo, Infrared Humidifier, Plenum**



**Challenger 3, Water-Cooled
Flor-Flo, Steam-Generating Humidifier**

Challenger 3 Model

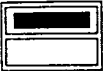
CF/CU042A-()00
 CF/CU046WG-()00
 CF/CU068C-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

3-Ton

5-Ton

**Main Fan, Blower**

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
1-1	Electric Panel, Main Fan, Components	See Table 1-1	
1-2	Contactor 3-Pole 24V Coil 15A/20A	124501P1	01
1-3	Fuseblock 250V 3-Pole 30A	E-1020	01
1-3	Fuseblock 600V 3-Pole 30A	E-1050	01
1-4	Fuse Dual Element 250V 15A	E-2070	03
1-4	Fuse Dual Element 600V 15A	E-2410	03
1-5	Wire Harness, {MF} to Fuseblock, 208V/230V	1C14105G1	01
1-5	Wire Harness, {MF} to Fuseblock, 460V/575V	1C14103G1	01
1-6	Main Fan Motor, Assembly	See Table 1-6	
1-7	Motor .75 HP 208V Internal Overload	B13-0260	01
1-7	Motor .75 HP 230V/460V	B13-0270	01
1-7	Motor 1.0 HP 208V Internal Overload	B13-0290	01
1-7	Motor 1.0 HP 230V/460V	B13-0300	01
1-8	Sheave 1VP34 x 5/8"	B13-0080	01
1-9	Blower Tailpiece w/Hardware	B-102A	02
1-10	Wire Harness	128065G1	01
1-11	Blower, Assembly	See Table 1-11	
1-12	Bushing, Pulley 1" Diameter	B-0080	01
1-13	Pulley AK61H	B13-0150	01
1-14	Belt, A-36, .75 HP, Flor-Flo/Up-Flo	B13-0200	01
1-14	Belt, A-37, 1.0 HP, Flor-Flo/Up-Flo	B13-0210	01
1-15	Bearing, Flor-Flo/Up-Flo	B-0040	02
1-16	Shaft, Flor-Flo/Up-Flo	B-1150	01
1-16	Blower Part Package, Flor-Flo/Up-Flo	B06-0010	01
1-17	Angle Blower Mounting, Flor-Flo/Up-Flo	128070P1	01
1-18	Plate Blower Mounting, Top, Up-Flo	128050P1	01
1-19	Blower Motor Mounting Bracket, Flor-Flo/Up-Flo	B06-001A	01



CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

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***Find Number (FN)**
Recommended Spare Parts (RSP)

Challenger 3 Parts Manual, June 1992

Challenger 3 Model

CF/CU042A-()00

CF/CU046WG-()00

CF/CU068C-()00

(Volts,Hertz,Phase)

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C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

3-Ton

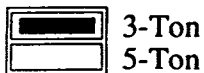
5-Ton



Infrared Humidifier

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
3-1	Electric Panel, Infrared Humidifier, Components	See Table 3-1	
3-2	Contactor, 2-Pole 24V Coil 20A/30A, 575V	E-011A	01
3-2	Contactor, 3-Pole 24V Coil 25A/30A, 208V/230V	E-0110	01
3-3	Contactor, 3-Pole 24V Coil 15A/20A, 460V	124501P1	01
3-3	Fuseblock, 3-Pole, 30A, 208V/230V	E-1020	01
3-3	Fuseblock, 3-Pole, 30A, 460V	E-1050	01
3-3	Fuseblock, 2-Pole, 30A, 575V (Infrared)	E-6030	01
3-4	Fuse, Dual Element, 20A, 208V	E-123	03
3-4	Fuse, Dual Element, 15A, 230V	E-2070	03
3-4	Fuse, Dual Element, 15A, 460V/575V	E-2410	03
3-5	Infrared Humidifier, Assembly	See Table 3-5	
3-6	Humidifier Lamp, Quartz, 208V	H-002A	03
3-6	Humidifier Lamp, Quartz, 230V	H-0020	03
3-6	Humidifier Lamp, Quartz, 460V	H13-0010	03
3-6	Humidifier Lamp, Quartz, 575V	H-002A	03
3-7	Safety Switch	R13-0090	01
3-8	Manual Reset Safety Switch Assembly	035-0342	01
3-8	Safety Switch {HS3} 225°F	H-0450	01
3-8	Plug	G02-033B	01
3-8	Receptacle	G02-003A	01
3-9	Bus Bar Socket Assembly 3, 5-Position, Right Side	009-0261	01
3-9	Bus Bar Socket Assembly 3, 5-Position, Left Side	009-0262	01
3-9	Porcelain Bus Bar Socket	H-014A	01
3-9	Bus Bar	H-0370	03
3-10	Bus Bar Socket End Cover	F-6090	02
3-11	Reflector	124578P1	01
3-12	Autoflush Valve Assembly	1C11414G1	01
3-12	Solenoid Valve/Strainer/Flo-Regulator	P-5590	01
3-12	Brass Adapter	1C11415P1	01
3-12	Brass Ell	P15-0250	01
3-13	Humidifier Pan	128089G1	01
3-14	Standpipe Assembly w/o Nut	1C18003G3	01
3-15	Cover Humidifier Electric Box	124685P1	01
3-16	Bracket, Autoflush Valve	1C14983P1	01



Challenger 3 Model

CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

(Volts,Hertz,Phase)

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D = 230V,60Hz,3-Ph

Steam-Generating Humidifier

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
4-1	Electric Panel, Steam-Generating Humidifier, Components	See Table 4-1	
4-2	Contactor 3-Pole 24V Coil 25A/30A, 208V/230V	E-0110	01
4-2	Contactor 3-Pole 24V Coil 15A/20A, 460V/575V	124501P1	01
4-3	Fuseblock 3-Pole, 30A, 208V/230V	E-1020	01
4-3	Fuseblock 3-Pole, 30A, 460V/575V	E-1050	01
4-4	Fuse, Dual Element, 20A, 208V	E-1230	03
4-4	Fuse, Dual Element, 15A, 230V	E-2070	03
4-4	Fuse, Dual Element, 15A, 460V/575V	E-2410	03
4-5	Printed Circuit Board (Control)	121089G1	01
4-6	Switch, Rocker, 2P2T	1A19592P1	01
4-7	Bracket, Switch	1C19694P1	01
4-8	Relay, 1P2T, 24V, 50Hz/60Hz	E03-0170	01
4-9	Wire Harness, Low Voltage	128217G1	01
4-10	Wire Harness, Relay to Fuseblock, 208V/230V	1C14105G1	01
4-10	Wire Harness, Relay to Fuseblock, 460V/575V	1C14103G1	01
4-11	Steam-Generating Humidifier, Assembly	See Table 4-11	
4-12	Humidifier Cannister (Tank)	121795P1	01
4-13	Humidifier Box Cover	128317P1	01
4-14	Manifold Assembly, Flor-Flo	128224G1	01
4-14	Manifold Assembly, Up-Flo	128222G1	01
4-15	Fiberglass Hose, 1 1/4" Inside Diameter	1A21071P1	01
4-16	Y-Strainer, Brass	H-0390	01
4-17	Plate, Humidifier Bypass Duct, Flor-Flo	128566P1	01
4-18	Plate, Humidifier Bypass Duct, Flor-Flo	128322P1	01

Challenger 3 Model

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3-Ton

5-Ton

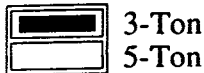
**Condensate Pump**

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
5-1	Electrical Panel, Condensate Pump	See Table 5-1	
5-2	Fuse, 2.8A, 208V/230V	E-203D	02
5-2	Fuse, 2.8A, 460V/575V	E-1951	02
5-3	Fuseblock, 2-Pole, 30A, 208V/230V	E-6040	01
5-3	Fuseblock, 2-Pole, 30A, 460V/575V	E-6030	01
5-4	Wire Assembly, High Voltage	128237G1	01
5-5	Condensate Pump, Components		
5-6	Pump, 208V/230V/575V, w/Wire, No Aux	X-015A	01
5-6	Pump, 460V, w/Wire	1C19034P1	01
5-7	Transformer, 575V, Assembly	021-1224	01
5-7	Transformer, 500VA, 575V-230V	E05-4600	01
5-11	Bracket, Condensate Pump, Adj-Part A	F20-2290	02
5-11	Bracket, Condensate Pump, Adj-Part B	F20-2300	02

Drain

FN*	DESCRIPTION	PART NUMBER	RSP*
5-12	Drain	See Table 5-12	
5-14	Nylon Adapter, 3/4 FPT x 3/4	P02-0260	01
5-15	Humidifier Trap, Rubber, CW/D	1C19070P1	01
5-16	Nylon Union, 3/4 x 3/4 Barb	P15-0140	01
5-17	Bypass Cover Plate for No Humidifier	128091P1	01
5-18	Drain Line, Flor-Flo/Up-Flo	1C11305P1	01



Challenger 3 Model

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(Volts,Hertz,Phase)

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D = 230V,60Hz,3-Ph

Compressor (Air, Water/Glycol)

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
6-1	Electrical Panel, Compressor, Components	See Table 6-1	
6-2	Compressor (Water/Glycol Unit), Assembly (Module)	See Table 6-2	
6-3	Compressor (Air), Assembly (Module)	See Table 6-3	
6-4	Valve, Water-Regulating, 2-Way, 3/4", UB	127170P3	01
6-4	Valve, Water-Regulating, 2-Way, 3/4", Standard Pressure	P-026A	01
6-4	Valve, Water-Regulating, 2-Way, 3/4", High Pressure, 300#	P-026A	01
6-4	Valve, Water-Regulating, 3-Way, 3/4"	P-0330	01
6-4	Valve, Water-Regulating, 3-Way, 3/4", 300#	P-4760	01
6-4	Valve, Water-Regulating, 3-Way, 1", 300#	P-311B	01
6-5	Mounting Spring Kit, Compressor	C03-0020	01
6-6	Brazed Plate, Condenser, 30	128165P3	01
6-7	Dual Pressure Switch, Compressor, WGGL <i>MAN IN. P-026A</i>	1D16204P1	01
6-7	Pressure Switch, Compressor (Air w/o Lee-Temp)	1D14684P1	01
6-8	Pressure Switch Wire Harness, Compressor, WGGL	131855G1	01
6-9	Discharge Line, WGGL, Assembly (Before 11-91)	128279G1	01
6-9	Discharge Line, WGGL, Assembly (From 11-91)	128232G1	01
6-10	Valve, Access Body, 1/4"	P02-0270	01
6-11	Valve, Rotolock, 7/8" x 1" (From 11-91)	1C16317P1	01
6-12	Liquid Line, Flor-Flo, WG, Assembly	128436G1	01
6-13	Liquid Indicator (Sight Glass), 3/8" ODF	P-3870	01
6-14	Filter/Drier, 3/8" ODF	P03-0030	01
6-15	Sound Jacket	128150P1	01
6-16	Compressor, Hermetic		
6-16	208V/230V, 50Hz/60Hz (Before 11-91)	129102P1	01
6-16	208V/230V, 50Hz/60Hz (From 11-91)	132500P1	01
6-16	380V/460V, 50Hz/60Hz (Before 11-91)	129102P2	01
6-16	380V/460V, 50Hz/60Hz (From 11-91)	132500P2	01

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3-Ton
5-Ton



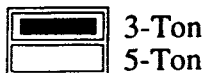
Coil

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
7-1	Coil, Assembly	See Table 7-1	
7-2	Coil, Chilled Water	128155P1	01
7-2	Coil, Air, Water/Glycol, Glycool	128151P1	01
7-3	Pan, Drain Assembly, Flor-Flo/Up-Flo	128017G1	01

Piping (Air, Self-Contained)

FN*	DESCRIPTION	PART NUMBER	RSP*
8-1	Piping (Air), All Components	See Table 8-1	
8-2	Piping, Catch-All Assembly, Flor-Flo/Up-Flo	128114G1	01
8-3	Valve, Solenoid {LLSV}	P-0070	01
8-4	Liquid Indicator (Sight Glass)	P-3870	01
8-5	Filter Drier, 3/8"	P03-0030	01
8-6	Expansion Valve, Assembly, Flor-Flo/Up-Flo	128175G1	01
8-6	Expansion Valve, Assembly, w/HGBP, Flor-Flo/Up-Flo	128175G3	01
8-7	Expansion Valve	128157P1	
8-8	Distributor, "Y", 5/8" x 1/2" x 1"	128170P1	01
8-9	Solenoid Valve, 1/2" ODM x 1/2" ODF	P-0070	01
8-10	Discharge Line, Assembly, Flor-Flo	128109G1	01
8-10	Discharge Line, Assembly, Up-Flo	128110G1	01
8-12	Suction Line, Assembly, Flor-Flo	128442G1	01
8-12	Suction Line, Assembly, Up-Flo	128443G1	01
8-13	Valve, Access Body, 1/4" x SWT (Discharge/Suction Assy)	P02-0270	02
8-14	Optional Hot Gas Bypass (HGBP), Flor-Flo	128111G2	01
8-14	Optional Hot Gas Bypass (HGPB), Up-Flo	128111G1	01
8-15	Valve, Bypass	P-0180	01
8-16	Valve, Solenoid	P-0080	01
8-17	Harness, Assembly {P14}	131856G1	01



3-Ton
5-Ton

Challenger 3 Model

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CF/CU068C-()00

(Volts,Hertz,Phase)

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C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

Piping (Air, Split System)

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
8-1	Piping (Air), All Components	See Table 8-1	
8-6	Expansion Valve, Assembly, Flor-Flo/Up-Flo (See Self-Contained)	See FN 8-5	
8-11	Liquid Line, Flor-Flo, Assembly w/Fitting	128494G1	01
8-11	Liquid Line, Up-Flo, Assembly w/Fitting	128495G1	01
8-12	Suction Line, Flor-Flo, Assembly	128440G1	01
8-12	Suction Line, Up-Flo, Assembly	128441G1	01
8-18	Flare Cap, 1/4" w/Insert	P-0570	01
8-19	Valve Core, Refrigerant	P02-0290	01

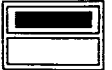
Piping (Chilled Water)

FN*	DESCRIPTION	PART NUMBER	RSP*
9-1	Piping (Valve, Actuator), Components	See Table 9-1	
9-2	Chilled Water Valve, Components		
9-3	Valve, 2-Way, 1", Standard Pressure	123622P1	01
9-3	Valve, 2-Way, 1", High Pressure	1C23805P3	01
9-3	Valve, 3-Way, 1", Standard Pressure	123623P1	01
9-3	Valve, 3-Way, 1", High Pressure	1C23806P3	01
9-4	Union, 1 1/8" x 1"	P2400	01
9-5	Modulating Motor, Non-Spring Return, Assembly		
9-6	Actuator, High Pressure	1C23803P1	01
9-7	Modulating Motor, Standard Pressure	1C14176P1	01
9-8	Actuator Linkage, High Pressure	1C23804P1	01
9-9	Wire Harness, Low Voltage, {P-22} for Actuator	128235G1	01
9-9	Wire Harness, {P-22} for Modulating Motor	127709G1	01
9-10	Ball Valve, Bronze, 1"	1C14431P2	01
9-11	Flow Switch, SPDT, 1", Standard Pressure	P-4120	01
9-11	Flow Switch, SPDT, 1.25", High Pressure	P-5540	01

CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

A = 460V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

3-Ton
5-Ton



Piping (Water/Glycol)

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]



CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

A = 460V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

***Find Number (FN)**
Recommended Spare Parts (RSP)

Page 1 - 10

Challenger 3 Model

CF/CU042A-()00

CF/CU046WG-()00

CF/CU068C-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

3-Ton

5-Ton

**Electrical Panel, Options**
 *Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
13-1	Smoke Detector, Assembly	See Table 13	
13-2	Tubing, Clear Vinyl, 3/4" Inside Diameter, Flor-Flo/Up-Flo	S04-0420	06
13-3	PCB Assembly, Smoke Detector Control, 24 VDC	124502P1	01
13-4	Tube Sampling, Smoke Detector	128230P1	01
13-5	Harness Assembly, Low Voltage, Flor-Flo	1C16983G1	01
13-5	Harness Assembly, Low Voltage, Up-Flo	1C16983G2	01
13-6	Enclosure Assembly, Smoke Detector	129322G1	01
13-7	Sequential Auto Restart, Assembly	See Table 13	01
13-8	Terminal Strip Section One-Position	E-0380	02
13-9	Relay Time Delay, 24V, 2P2T, Adjustable 90 Seconds	E-3530	01
13-10	Wire Harness, Low Voltage, Sequential Auto Restart	128239G1	01
13-11	Main Fan Overload, 32A, Assembly	See Table 13	01
13-12	Wire Harness, High Voltage Jumper Set Overload, 12-Gauge	124540G1	01
13-13	W/B Mount, Overload Relay, 32A, Set Points C-H	124547P1	01
13-14	Cover, Overload Relay, Set Points C-H	124548P1	01
13-15	Manual Restart, Assembly	See Table 13	01
13-13	Relay, 2P2T, 24 VAC, Coil	E-0130	01
13-14	Switch Pushbutton, Not Mommentary, SPST	E-2580	01
13-15	Electric Box Single Square Corner	E-0450	01
13-16	Electric Box Cover, Single Blank	E-0470	01
13-17	Label, Manual Restart	1A20154P1	01
13-18	Firestat, Flor-Flo/Up-Flo, Assembly	See Table 13	01
13-19	Firestat	E-2350	01
13-20	Wire Harness	1C14094G1	01
13-21	Disconnect	See Table 13	



3-Ton
5-Ton

Challenger 3 Model

CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

Electronics

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
14-1	Bezel, Assembly	1C16164G10	01
14-2	Lamp, Clear, 28V, Wedge Base	G12-0470	02
14-3	Switch, ON	G-3240	01
14-4	Switch, Alarm Silence	G12-0470	01
14-5	Lens, Alarm Silence, Yellow Plastic	4A10069P1	01
14-6	ON Lens, Green Plastic	G-3210	01
14-7	Printed Circuit Board, Display	4C12681G1	01
14-8	Bezel, Black Plastic	4D10399P1	01
14-9	Label, Faceplate	4D10383P9	01
14-10	Wire Harness, {P9} ON	1C13969G1	01
14-11	Wire Harness, {P28} Alarm Silence	1C13970G1	01
14-12	Wire Harness, {P26} Ribbon Cable	1C13999G1	01
14-13	Printed Circuit Board, Control, DX	1D14001G17	01
14-13	Printed Circuit Board, Control, CW	1D14001G9	01
14-14	Printed Circuit Board, Temperature & Humidity (Internal Only)	4C13121G1	01
14-15	Sensor, Temperature (TH, Internal Only)	020-0150	01
14-16	Sensor, Humidity, 44%/53% (HU, Internal Only)	020-0162	01
14-17	Wire Harness, {P16}, Flor-Flo	1C19096G1	01
14-17	Wire Harness, {P16}, Up-Flo	124774G1	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 30 Ft	020-0357	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 60 Ft	1C11236G1	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 150 Ft	1C11292G1	01
14-19	Printed Circuit Board, Temperature and Humidity	4C13121G1	01
14-20	Sensor, Temperature (TH)	020-0005	01
14-21	Sensor, Humidity (HU)	020-0172	01
14-22	Wall Box, Surface Mounted	020-0482	01
14-23	Wall Box Cover, Plastic	G03-001A	01
14-24	Label, Sensor Wall Box Cover	Y-2130	01
14-25	Wire Harness {P16}	022-2742	01
14-26	Wire Harness, Temperature/Humidity, 30 Ft	022-2741	01
14-26	Wire Harness, Temperature/Humidity, 60 Ft	1C11237P1	01
14-26	Wire Harness, Temperature/Humidity, 150 Ft	1D11293P1	01

CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

(Volts,Hertz,Phase)

A = 460V, 60Hz, 3-Ph

C = 208V, 60Hz, 3-Ph

D = 230V, 60Hz, 3-Ph

3-Ton



5-Ton

Electronics (Continued)

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]



CF/CU042A-()00
CF/CU046WG-()00
CF/CU068C-()00

A = 460V, 60Hz, 3-Ph
C = 208V, 60Hz, 3-Ph
D = 230V, 60Hz, 3-Ph

*Find Number (FN)
Recommended Spare Parts (RSP)

Page 1 - 14

Challenger 3 Model

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C-()00

CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

B = 575V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

3-Ton

5-Ton



Main Fan, Blower

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
1-1	Electric Panel, Main Fan, Components	See Table 1-1	
1-2	Contactor 3-Pole 24V Coil 15/20A	124501P1	01
1-3	Fuseblock 250V 3-Pole 30A	E-1020	01
1-3	Fuseblock 600V 3-Pole 30A	E-1050	01
1-4	Fuse Dual Element 250V 15A	E-2070	03
1-4	Fuse Dual Element 600V 15A	E-2410	03
1-5	Wire Harness, {MF} to Fuseblock, 208V/230V	1C14105G1	01
1-5	Wire Harness, {MF} to Fuseblock, 460V/575V	1C14103G1	01
1-6	Main Fan Motor, Assembly	See Table 1-6	
1-7	Motor 1.5 HP 208V Internal Overload	B13-0320	01
1-7	Motor 1.5 HP 230V/460V Internal Overload	B13-0330	01
1-7	Motor 1.5 HP 575V Internal Overload	B13-0340	01
1-8	Sheave 1VP50 x 7/8", Flor-Flo	B-005A	01
1-8	Sheave 1VP44 x 7/8", Up-Flo	B13-0120	01
1-9	Blower Tailpiece w/Hardware	B-102A	02
1-10	Wire Harness, High Voltage	128065G1	01
1-11	Blower, Assembly	See Table 1-11	
1-12	Bushing, Pulley 1" Diameter	B-0080	01
1-13	Pulley AK61H	B13-0150	01
1-14	Belt, A-36, .75 HP, Flor-Flo/Up-Flo	B13-0200	01
1-14	Belt, A-37, 1.0 HP, Flor-Flo/Up-Flo	B13-0210	01
1-14	Belt, A-38, 1.5 HP, V-Belt	128179P1	01
1-15	Bearing, Flor-Flo/Up-Flo	B-0040	02
1-16	Shaft, Flor-Flo/Up-Flo	B-1150	01
1-16	Blower Part Package, Flor-Flo/Up-Flo	B06-0010	01
1-17	Angle Blower Mounting, Flor-Flo/Up-Flo	128070P1	01
1-18	Plate Blower Mounting, Top, Up-Flo	128050P1	01
1-19	Blower Motor Mounting Bracket, Flor-Flo/Up-Flo	B06-001A	01



(Volts,Hertz,Phase)

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

A = 460V, 60Hz, 3-Ph
B = 575V, 60Hz, 3-Ph
C = 208V, 60Hz, 3-Ph
D = 230V, 60Hz, 3-Ph

Electric Reheat

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]

Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

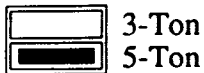
(Volts,Hertz,Phase)
A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

3-Ton 
5-Ton 

Infrared Humidifier

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
3-1	Electric Panel, Infrared Humidifier, Components	See Table 3-1	
3-2	Contactor, 2-Pole 24V Coil 20A/30A, 575V	E-011A	01
3-2	Contactor, 3-Pole 24V Coil 25A/30A, 208V/230V	E-0110	01
3-3	Contactor, 3-Pole 24V Coil 15A/20A, 460V	124501P1	01
3-3	Fuseblock, 3-Pole, 30A, 208V/230V	E-1020	01
3-3	Fuseblock, 3-Pole, 30A, 460V	E-1050	01
3-3	Fuseblock, 2-Pole, 30A, 575V (Infrared)	E-6030	01
3-4	Fuse, Dual Element, 20A, 208V	E-123	03
3-4	Fuse, Dual Element, 15A, 230V	E-2070	03
3-4	Fuse, Dual Element, 15A, 460V/575V	E-2410	03
3-5	Infrared Humidifier, Assembly	See Table 3-5	
3-6	Humidifier Lamp, Quartz, 208V	H-002A	03
3-6	Humidifier Lamp, Quartz, 230V	H-0020	03
3-6	Humidifier Lamp, Quartz, 460V	H13-0010	03
3-6	Humidifier Lamp, Quartz, 575V	H-002A	03
3-7	Safety Switch	R13-0090	01
3-8	Manual Reset Safety Switch Assembly	035-0342	01
3-8	Safety Switch {HS3} 225°F	H-0450	01
3-8	Plug	G02-033B	01
3-8	Receptacle	G02-003A	01
3-9	Bus Bar Socket Assembly 3, 5-Position, Right Side	009-0261	01
3-9	Bus Bar Socket Assembly 3, 5-Position, Left Side	009-0262	01
3-9	Porcelain Bus Bar Socket	H-014A	01
3-9	Bus Bar	H-0370	03
3-10	Bus Bar Socket End Cover	F-6090	02
3-11	Reflector	124578P1	01
3-12	Autoflush Valve Assembly	1C11414G1	01
3-12	Solenoid Valve/Strainer/Flo-Regulator	P-5590	01
3-12	Brass Adapter	1C11415P1	01
3-12	Brass Ell	P15-0250	01
3-13	Humidifier Pan	128089G1	01
3-14	Standpipe Assembly w/o Nut	1C18003G3	01
3-15	Cover Humidifier Electric Box	124685P1	01
3-16	Bracket, Autoflush Valve	1C14983P1	01



3-Ton
5-Ton

Challenger 3 Model
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)
 A = 460V,60Hz,3-Ph
 B = 575V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

Steam-Generating Humidifier

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
4-1	Electric Panel, Steam-Generating Humidifier, Components	See Table 4-1	
4-2	Contactor 3-Pole 24V Coil 25A/30A, 208V/230V	E-0110	01
4-2	Contactor 3-Pole 24V Coil 15A/20A, 460V/575V	124501P1	01
4-3	Fuseblock 3-Pole, 30A, 208V/230V	E-1020	01
4-3	Fuseblock 3-Pole, 30A, 460V/575V	E-1050	01
4-4	Fuse, Dual Element, 20A, 208V	E-1230	03
4-4	Fuse, Dual Element, 15A, 230V	E-2070	03
4-4	Fuse, Dual Element, 15A, 460V/575V	E-2410	03
4-5	Control, Printed Circuit Board	121089G1	01
4-6	Switch, Rocker, 2P2T	1A19592P1	01
4-7	Bracket, Switch	1C19694P1	01
4-8	Relay, 1P2T, 24V, 50Hz/60Hz	E03-0170	01
4-9	Wire Harness, Low Voltage	128217G1	01
4-10	Wire Harness, Relay to Fuseblock, 208V/230V	1C14105G1	01
4-10	Wire Harness, Relay to Fuseblock, 460V/575V	1C14103G1	01
4-11	Steam-Generating Humidifier, Assembly	See Table 4-11	
4-12	Humidifier Cannister (Tank)	121795P1	01
4-13	Humidifier Box Cover	128317P1	01
4-14	Manifold Assembly, Flor-Flo	128224G1	01
4-14	Manifold Assembly, Up-Flo	128222G1	01
4-15	Hose, Fiberglass, 1 1/4" Inside Diameter, 6 Ft	1A21071P1	01
4-16	Clamp, Hose, Worm Drive, 3/4" to 1 3/4"	P02-0020	01
4-17	Y-Strainer, Brass	H-0390	01
4-18	Bracket, Y-Strainer	123566P1	01
4-19	Plate, Humidifier Bypass Duct, Flor-Flo	128322P1	01

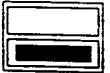
Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

3-Ton
5-Ton



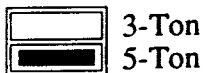
Condensate Pump

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
5-1	Electrical Panel, Condensate Pump	See Table 5-1	
5-2	Fuse, 2.8A, 208V/230V	E-203D	02
5-2	Fuse, 2.8A, 460V/575V	E-1951	02
5-3	Fuseblock, 2-Pole, 30A, 208V/230V	E-6040	01
5-3	Fuseblock, 2-Pole, 30A, 460V/575V	E-6030	01
5-4	Wire Assembly, High Voltage	128237G1	01
5-5	Condensate Pump, Components		
5-6	Pump, 208V/230V/575V, w/Wire, No Aux	X-015A	01
5-6	Pump, 460V, w/Wire	1C19034P1	01
5-7	Transformer, 575V, Assembly	021-1224	01
5-7	Transformer, 500VA, 575V-230V	E05-4600	01
5-11	Bracket, Condensate Pump, Adj-Part A	F20-2290	02
5-11	Bracket, Condensate Pump, Adj-Part B	F20-2300	02

Drain

FN*	DESCRIPTION	PART NUMBER	RSP*
5-12	Drain	See Table 5-12	
5-14	Nylon Adapter, 3/4 FPT x 3/4	P02-0260	01
5-15	Humidifier Trap, Rubber, CW/D	1C19070P1	01
5-16	Nylon Union, 3/4 x 3/4 Barb	P15-0140	01
5-17	Bypass Cover Plate for No Humidifier	128091P1	01
5-18	Drain Line, Flor-Flo/Up-Flo	1C11305P1	01



Challenger 3 Model
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)
 A = 460V,60Hz,3-Ph
 B = 575V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

Compressor (Air, Water/Glycol)

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
6-1	Electrical Panel, Compressor, Components	See Table 6-1	
6-2	Compressor (Water/Glycol Unit), Assembly (Module)	See Table 6-2	
6-3	Compressor (Air Unit), Assembly (Module)	See Table 6-3	
6-4	Valve, Water-Regulating, 2-Way, 1", UB, Standard Pressure	131852P1	01
6-4	Valve, Water-Regulating, 2-Way, 1", High Pressure 300#	P-311A	01
6-4	Valve, Water-Regulating, 3-Way, 1"	131853P1	01
6-4	Valve, Water-Regulating, 3-Way, 1" 300#	P-311B	01
6-5	Mounting Spring Kit, Compressor	1A17649P1	01
6-6	Brazed Plate, Condenser, 50	128165P1	01
6-7	Dual Pressure Switch, Compressor, WGGL	1D16204P1	01
6-7	Pressure Switch, Compressor (Air, w/o Lee-Temp)	1D14684P1	01
6-8	Wire Harness, Pressure Switch, Compressor, WGGL	131855G1	01
6-8	Wire Harness, High Voltage, Compressor, WGGL	128068G1	01
6-9	Discharge Line, WGGL, Assembly (Before 11-91)	128279G2	01
6-9	Discharge Line, WGGL, Assembly (From 11-91)	128232G2	01
6-10	Valve, Access Body, 1/4"	P02-0270	03
6-11	Valve, Rotolock, 7/8" x 1" (From 11-91)	1C16317P1	01
6-12	Liquid Line, Flor-Flo, WG, Assembly	128436G1	01
6-13	Liquid Indicator (Sight Glass), 1/2" ODF	P-0050	01
6-14	Filter/Drier, 1/2" ODF	128177P1	01
6-15	Seal, Rotolock, 1" x 14", Teflon	W-0320	01
6-16	Valve, Bronze Ball, 3/4"	1C14431P1	01
6-17	Sound Jacket	128150P1	01
6-18	Compressor, Hermetic		
6-18	208V/230V, 50Hz/60Hz (Before 11-91)	127650P1	01
6-18	208V/230V, 50Hz/60Hz (From 11-91)	1C17638P1	01
6-18	380V/460V, 50Hz/60Hz (Before 11-91)	127650P2	01
6-18	380V/460V, 50Hz/60Hz (From 11-91)	1C17638P2	01
6-18	575V, 60Hz (Before 11-91)	1A17649P1	01
6-18	575V, 60Hz (After 11-91)	128253G0	01

Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

3-Ton
5-Ton



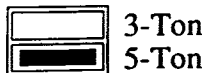
Coil

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
7-1	Coil, Assembly	See Table 7-1	
7-2	Coil, Chilled Water	128156P1	01
7-2	Coil, Evaporator, Air, Water/Glycol, Glycool	128180P1	01
7-3	Coil, Econ-o-Coil	128153P1	
7-4	Pan, Drain Assembly, Flor-Flo/Up-Flo	128017G1	01

Piping (Air, Self-Contained)

FN*	DESCRIPTION	PART NUMBER	RSP*
8-1	Piping (Air), All Components	See Table 8-1	
8-2	Piping, Catch-All Assembly, Flor-Flo/Up-Flo	128114G2	01
8-3	Valve, Solenoid (LLSV)	P-0080	01
8-4	Liquid Indicator (Sight Glass)	P-0050	01
8-5	Filter Drier, 3/8"	128177P1	01
8-6	Expansion Valve, Assembly, Flor-Flo/Up-Flo	128175G2	01
8-6	Expansion Valve, Assembly, w/HGBP, Flor-Flo/Up-Flo	128175G4	01
8-7	Expansion Valve	128158P1	01
8-8	Distributor, "Y", 5/8" x 1/2" x 1"	128170P1	01
8-9	Solenoid Valve, 1/2" ODM x 1/2" ODF	P-0070	01
8-10	Discharge Line, Assembly, Flor-Flo (Before 11-91)	128109G2	01
8-10	Discharge Line, Assembly, Up-Flo (Before 11-91)	128110G1	01
8-10	Discharge Line, Assembly, Flor-Flo (From 11-91)	128118G2	01
8-10	Discharge Line, Assembly, Up-Flo (From 11-91)	128119G2	01
8-11	Suction Line, Assembly, Flor-Flo	128103G2	01
8-11	Suction Line, Assembly, Up-Flo	128141G2	01
8-12	Valve, Access Body, 1/4" x SWT (Discharge / Suction Assy)	P02-0270	02
8-12	Valve, Rotolock, 7/8" x 1" (Discharge Line, From 11-91)	1C16317P1	01
8-12	Valve, Rotolock, 7/8" x 1 1/4", Up-Flo	C-0480	01
8-13	Optional Hot Gas Bypass (HGBP), Flor-Flo	128111G3	01
8-13	Optional Hot Gas Bypass (HGPB), Up-Flo	128112G2	01
8-14	Valve, Bypass	P-0180	01
8-15	Valve, Solenoid	P-0080	01
8-16	Harness, Assembly (P14)	131856G1	01
8-17	Seal, Rotolock, 1 1/4" x 12", Teflon	W-0330	01
8-17	Seal, Rotolock, 1" x 14", Teflon	W-0320	01



Challenger 3 Model
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)
 A = 460V,60Hz,3-Ph
 B = 575V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

Piping (Air, Split System)

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
8-1	Piping (Air), All Components	See Table 8-1	
8-6	Expansion Valve, Assembly, Flor-Flo/Up-Flo (See Self-Contained)	See FN 8-5	
8-11	Liquid Line, Flor-Flo, Assembly w/Fitting	128494G1	01
8-11	Liquid Line, Up-Flo, Assembly w/Fitting	128495G1	01
8-12	Suction Line, Flor-Flo, Assembly	128440G1	01
8-12	Suction Line, Up-Flo, Assembly	128441G1	01
8-18	Flare Cap, 1/4" w/Insert	P-0570	01
8-19	Valve Core, Refrigerant	P02-0290	01

Valve, Actuator (Chilled Water)

FN*	DESCRIPTION	PART NUMBER	RSP*
9-1	Piping (Valve, Actuator), Components	See Table 9-1	
9-2	Chilled Water Valve, Components		
9-3	Valve, 2-Way, 1", Standard Pressure	123622P1	01
9-3	Valve, 2-Way, 1", High Pressure	1C23808G1	01
9-3	Valve, 3-Way, 1", Standard Pressure	123623P1	01
9-3	Valve, 3-Way, 1", High Pressure	1C23809G1	01
9-5	Modulating Motor, Non-Spring Return, Assembly		
9-6	Actuator, High Pressure	1C23803P1	01
9-7	Modulating Motor, Standard Pressure	1C14176P1	01
9-8	Actuator Linkage	1C23804P1	01
9-9	Wire Harness, Low Voltage, {P-22} for Actuator	128235G1	01
9-9	Wire Harness, {P-22} for Modulating Motor	127709G1	01
9-10	Ball Valve, Bronze, 1"	1C14431P2	01
9-11	Flow Switch, SPDT, 1", Standard Pressure	P-4120	01
9-11	Flow Switch, SPDT, 1.25", High Pressure	P-5540	01

CE061G-()00

D = 230V,60Hz,3-Ph

5-Ton



Piping (Water/Glycol)

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]



Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

Wire Harness

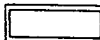

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]

Challenger 3 Model

CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

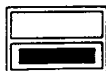
(Volts,Hertz,Phase)
 A = 460V,60Hz,3-Ph
 B = 575V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

3-Ton 
 5-Ton 

Electrical Panel, Options

*Find Number (FN)
 Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
13-1	Smoke Detector, Assembly	See Table 13	
13-2	Tubing, Clear Vinyl, 3/4" Inside Diameter, Flor-Flo/Up-Flo	S04-0420	06
13-3	PCB Assembly, Smoke Detector Control, 24 VDC	124502P1	01
13-4	Tube Sampling, Smoke Detector	128230P1	01
13-5	Harness Assembly, Low Voltage, Flor-Flo	1C16983G1	01
13-5	Harness Assembly, Low Voltage, Up-Flo	1C16983G2	01
13-6	Enclosure Assembly, Smoke Detector	129322G1	01
13-7	Sequential Auto Restart, Assembly	See Table 13	
13-8	Terminal Strip Section One-Position	E-0380	02
13-9	Relay Time Delay, 24V, 2P2T, Adjustable 90 Seconds	E-3530	01
13-10	Wire Harness, Low Voltage, Sequential Auto Restart	128239G1	01
13-11	Main Fan Overload, 32A, Assembly	See Table 13	
13-12	Wire Harness, High Voltage Jumper Set Overload, 12-Gauge	124540G1	01
13-13	W/B Mount, Overload Relay, 32A, Set Points C-H	124547P1	01
13-14	Cover, Overload Relay, Set Points C-H	124548P1	01
13-15	Manual Restart, Assembly	See Table 13	
13-13	Relay, 2P2T, 24 VAC, Coil	E-0130	01
13-14	Switch Pushbutton, Not Mommentary, SPST	E-2580	01
13-15	Electric Box Single Square Corner	E-0450	01
13-16	Electric Box Cover, Single Blank	E-0470	01
13-17	Label, Manual Restart	1A20154P1	01
13-18	Firestat, Flor-Flo/Up-Flo, Assembly	See Table 13	
13-19	Firestat	E-2350	01
13-20	Wire Harness	1C14094G1	01
13-21	Disconnect	See Table 13	



3-Ton
5-Ton

Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

Electronics

*Find Number (FN)
Recommended Spare Parts (RSP)

FN*	DESCRIPTION	PART NUMBER	RSP*
14-1	Bezel, Assembly	1C16164G10	01
14-2	Lamp, Clear, 28V, Wedge Base	G12-0480	02
14-3	Switch, ON	G-3240	01
14-4	Switch, Alarm Silence	G12-0470	01
14-5	Lens, Alarm Silence, Yellow Plastic	4A10069P1	01
14-6	ON Lens, Green Plastic	G-3210	01
14-7	Printed Circuit Board, Display	4C12681G1	01
14-8	Bezel, Black Plastic	4D10399P1	01
14-9	Label, Faceplate	4D10383P9	01
14-10	Wire Harness, {P9} ON	1C13969G1	01
14-11	Wire Harness, {P28} Alarm Silence	1C13970G1	01
14-12	Wire Harness, {P26} Ribbon Cable	1C13999G1	01
14-13	Printed Circuit Board, Control, DX	1D14001G17	01
14-13	Printed Circuit Board, Control, CW	1D14001G9	01
14-14	Printed Circuit Board, Temperature & Humidity (Internal Only)	4C13121G1	01
14-15	Sensor, Temperature (TH, Internal Only)	020-0150	01
14-16	Sensor, Humidity, 44%/53% (HU, Internal Only)	020-0162	01
14-17	Wire Harness, {P16}, Flor-Flo	1C19095G1	01
14-17	Wire Harness, {P16}, Up-Flo	124774G1	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 30 Ft	020-0357	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 60 Ft	1C11236G1	01
14-18	Remote Temp & Hum Control w/Sensors, Assembly, 150 Ft	1C11292G1	01
14-19	Printed Circuit Board, Temperature and Humidity	4C13121G1	01
14-20	Sensor, Temperature (TH)	020-0005	01
14-21	Sensor, Humidity (HU)	020-0172	01
14-22	Wall Box, Surface Mounted	020-0482	01
14-23	Wall Box Cover, Plastic	G03-001A	01
14-24	Label, Sensor Wall Box Cover	Y-2130	01
14-25	Wire Harness {P16}	022-2742	01
14-26	Wire Harness, Temperature/Humidity, 30 Ft	022-2741	01
14-26	Wire Harness, Temperature/Humidity, 60 Ft	1C11237P1	01
14-26	Wire Harness, Temperature/Humidity, 150 Ft	1D11293P1	01



Challenger 3 Model

CF/CU/CE/CK067A-()00
CF/CU/CE/CK071WG-()00
CF/CU/CE/CK102C-()00
CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
B = 575V,60Hz,3-Ph
C = 208V,60Hz,3-Ph
D = 230V,60Hz,3-Ph

Exterior Panels

***Find Number (FN)**
Recommended Spare Parts (RSP)

[illegible]

Challenger 3 Model

CF/CU042A-()00

CF/CU046WG-()00

CF/CU068C-()00

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C-()00

CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

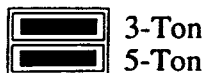
D = 230V,60Hz,3-Ph

3-Ton 
5-Ton **Table 1 Main Fan, Blower**

MAIN FAN OPTION	208V	230V	460V	575V
Table 1-1 Electrical Panel, Man Fan Motor				
.75, 1.0, 1.5 HP	128202G8	128202G8	128202G9	128202G9
Table 1-6 Main Fan Motor, Assembly				
.75 HP, 3-Ton	128249G1	128249G2	128249G3	No Unit
1.0 HP, 3-Ton	128249G8	128249G9	128249G10	No Unit
1.5 HP, 5-Ton, Flor-Flo	128249G4	128249G5	128249G6	128249G7
1.5 HP, 5-Ton, Up-Flo	128249G11	128249G12	128249G13	128249G14
Table 1-11 Blower, Assembly				
.75 HP, 3-Ton, Flor-Flo (Standard)	128251G1	128251G1	128251G1	128251G1
.75 HP, 3-Ton, Up-Flo (Standard)	128250G1	128250G1	128250G1	128250G1
1.0 HP, 3-Ton, Flor-Flo (Optional)	128251G2	128251G2	128251G2	128251G2
1.0 HP, 3-Ton, Up-Flo (Optional)	128250G2	128250G2	128250G2	128250G2
1.5 HP, 5-Ton, Flor-Flo/Up-Flo, DX	128251G3	128251G3	128251G3	128251G3
1.5 HP, 5-Ton, Flor-Flo/Up-Flo, CW	128251G4	128251G4	128251G4	128251G4

Table 2 Electric Reheat

MAIN FAN OPTION	208V	230V	460V	575V
Table 2-1 Electrical Panel, Electric Reheat				
3-Ton, Flor-Flo/Up-Flo	128202G11	128202G11	128202G12	No Unit
5-Ton, Flor-Flo/Up-Flo	128202G13	128202G13	128202G12	128202G12
Table 2-6 Electric Reheat, Assembly				
3-Ton, Flor-Flo/Up-Flo	128256G1	128256G2	128256G3	No Unit
5-Ton, Flor-Flo/Up-Flo	128256G4	128256G5	128256G6	128256G7



Challenger 3 Model

CF/CU042A-()00
 CF/CU046WG-()00
 CF/CU068C-()00
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C--()00
 CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

Table 3 Infrared Humidifier

MAIN FAN OPTION	208V	230V	460V	575V
Table 3-1 Elec Panel,Infrared Humidifier				
3-Ton, 4.8kW	128202G1	128202G2	128202G3	No Unit
5-Ton, 4.8kW	128202G1	128202G2	128202G3	128202G4
Table 3-5 Infrared Humidifier, Assembly				
3-Ton, Flor-Flo, w/Condensate Pump	128259G9	128259G10	128259G11	No Unit
5-Ton, Flor-Flo, w/Condensate Pump	128259G9	128259G10	128259G11	128259G12
3-Ton, Flor-Flo, No Condensate Pump	128259G13	128259G14	128259G15	No Unit
5-Ton, Flor-Flo, No Condensate Pump	128259G13	128259G14	128259G15	128259G16
3-Ton, Up-Flo, w/Condensate Pump	128259G1	128259G2	128259G3	No unit
5-Ton, Up-Flo, w/Condensate Pump	128259G1	128259G2	128259G3	128259G4
3-Ton, Up-Flo, No Condensate Pump	128259G5	128259G6	128259G7	No Unit
5-Ton, Up-Flo, No Condensate Pump	128259G5	128259G6	128259G7	128259G8

Table 4 Steam-Generating Humidifier

MAIN FAN OPTION	208V	230V	460V	575V
Table 4-1 Elec Panel,S-G Humidifier				
3-Ton	128202G5	128202G6	128202G7	No Unit
5-Ton	128202G5	128202G6	128202G7	128202G7
Table 4-11 S-G Humidifier, Assembly				
3-Ton, Flor-Flo, w/Condensate Pump	128260G7	128260G7	128260G8	No Unit
5-Ton, Flor-Flo, w/Condensate Pump	128260G7	128260G7	128260G8	128260G9
3-Ton, Flor-Flo, No Condensate Pump	128260G10	128260G10	128260G11	No Unit
5-Ton, Flor-Flo, No Condensate Pump	128260G10	128260G10	128260G11	128260G12
3-Ton, Up-Flo, w/Condensate Pump	128260G1	128260G1	128260G2	No Unit
5-Ton, Up-Flo, w/Condensate Pump	128260G1	128260G1	128260G2	128260G3
3-Ton, Up-Flo, No Condensate Pump	128260G4	128260G4	128260G5	No Unit
5-Ton, Up-Flo, No Condensate Pump	128260G4	128260G4	128260G5	128260G6

Challenger 3 Model

CF/CU042A-()00
 CF/CU046WG-()00
 CF/CU068C-()00
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph
 C = 208V,60Hz,3-Ph
 D = 230V,60Hz,3-Ph

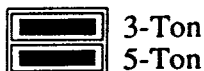
3-Ton 
 5-Ton 

Table 5-1 Condensate Pump

MAIN FAN OPTION	208V	230V	460V	575V
Table 5-1 Electrical Panel, Condensate Pump				
3-Ton	128202G48	128202G48	128202G49	No Unit
5-Ton	128202G48	128202G48	128202G49	128202G49

Table 5-12 Drain

MAIN FAN OPTION	208V	230V	460V	575V
Table 5-12 Drain, Assembly				
3-Ton, w/Condensate Pump, Flor-Flo	128258G1	128258G1	128258G2	No Unit
5-Ton, w/Condensate Pump, Flor-Flo	128258G1	128258G1	128258G2	128258G6
3-Ton, w/Condensate Pump, Up-Flo	128258G4	128258G4	128258G5	No Unit
5-Ton, w/Condensate Pump, Up-Flo	128258G4	128258G4	128258G5	128258G7
3-Ton, No Condensate Pump, Flor-Flo/Up-Flo	128258G3	128258G3	128258G3	No Unit
5-Ton, No Condensate Pump, Flor-Flo/Up-Flo	128258G3	128258G3	128258G3	128258G3



Challenger 3 Model

(Volts,Hertz,Phase)

CF/CU042A-()00

A = 460V,60Hz,3-Ph

CF/CU046WG-()00

C = 208V,60Hz,3-Ph

CF/CU068C-()00

D = 230V,60Hz,3-Ph

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C--()00

CE061G-()00

Table 6 Compressor Module (Air, Water/Glycol)

MAIN FAN OPTION	208V	230V	460V	575V
Table 6-1 Electrical Panel, Compressor				
3-Ton, 50Hz/60Hz	128202G20	128202G20	128202G21	No Unit
5-Ton, 50Hz/60Hz	128202G22	128202G22	128202G21	128202G21
Table 6-2 Compressor (Water/Glycol), Assembly				
3-Ton, Flor-Flo, Standard Pressure, 2-Way	128253G30	128253G30	128253G31	No Unit
5-Ton, Flor-Flo, Standard Pressure, 2-Way	128253G32	128253G32	128253G33	128253G34
3-Ton, Flor-Flo, High Pressure, 2-Way	128253G35	128253G35	128253G36	No Unit
5-Ton, Flor-Flo, High Pressure, 2-Way	128253G37	128253G37	128253G38	128253G39
3-Ton, Flor-Flo, Standard Pressure, 3-Way	128253G40	128253G40	128253G41	No Unit
5-Ton, Flor-Flo, Standard Pressure, 3-Way	128253G42	128253G42	128253G43	128253G44
3-Ton, Flor-Flo, High Pressure, 3-Way	128253G45	128253G45	128253G46	No Unit
5-Ton, Flor-Flo, High Pressure, 3-Way	128253G47	128253G47	128253G48	128253G49
3-Ton, Up-Flo, Standard Pressure, 2-Way	128253G1	128253G1	128253G3	No Unit
5-Ton, Up-Flo, Standard Pressure, 2-Way	128253G4	128253G4	128253G6	128253G7
3-Ton, Up-Flo, High Pressure, 2-Way	128253G8	128253G8	128253G10	No Unit
5-Ton, Up-Flo, High Pressure, 2-Way	128253G11	128253G11	128253G13	128253G14
3-Ton, Up-Flo, Standard Pressure, 3-Way	128253G15	128253G15	128253G17	No Unit
5-Ton, Up-Flo, Standard Pressure, 3-Way	128253G18	128253G18	128253G20	128253G21
3-Ton, Up-Flo, Standard Pressure, 3-Way	128253G22	128253G22	128253G24	No Unit
5-Ton, Up-Flo, Standard Pressure, 3-Way	128253G25	128253G25	128253G27	128253G28
Table 6-3 Compressor (Air), Assembly				
3-Ton, Fan Speed Condenser	128284G1	128284G1	128284G3	No Unit
5-Ton, Condenser	128284G4	128284G4	128284G6	128284G7
3-Ton, Condenser	128284G8	128284G8	128284G9	No Unit
5-Ton, Lee-Temp Condenser	128284G10	128284G10	128284G11	128284G12

Challenger 3 Model

CF/CU042A-()00
 CF/CU046WG-()00
 CF/CU068C-()00
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

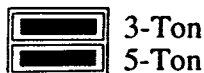
3-Ton 
 5-Ton 

Table 7 Coil

DESCRIPTION	Flor-Flo	Up-Flo
Table 7-1 Coil, Assembly		
Chilled Water, 3-Ton	128266G4	128267G4
DX Air, Water/Glycol, Glycool, 3-Ton	128266G1	128267G1
Chilled Water, 5-Ton	128266G5	128267G5
DX Air, Water/Glycol, Glycool, 5-Ton	128266G2	128267G2
Econ-o-Coil, 5-Ton	128266G3	128267G3

Tables 8-11 Piping Chilled Water)

DESCRIPTION	Flor-Flo	Up-Flo
Table 8-1 Piping (Air)		
3-Ton, Split System	128269G1	128270G1
5-Ton, Split System	128269G2	128270G2
3-Ton, Self-Contained	128282G1	128283G1
5-Ton, Self-Contained	128282G2	128283G2
3-Ton, Self-Contained, Hot Gas Bypass	128282G3	128283G3
5-Ton, Self-Contained, Hot Gas Bypass	128282G4	128283G4



Challenger 3 Model

(Volts,Hertz,Phase)

CF/CU042A-()00

A = 460V,60Hz,3-Ph

CF/CU046WG-()00

C = 208V,60Hz,3-Ph

CF/CU068C-()00

D = 230V,60Hz,3-Ph

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C--()00

CE061G-()00

Tables 8—11 Piping

DESCRIPTION	Flor-Flo	Up-Flo
Table 9-1 Piping (Chilled Water)		
3-Ton, 2-Way, Standard Pressure	128275G1	128276G1
3-Ton, 3-Way, Standard Pressure	128275G2	128276G2
3-Ton, 2-Way, High Pressure	128275G3	128276G3
3-Ton, 3-Way, High Pressure	128275G4	128276G4
5-Ton, 2-Way, Standard Pressure	128275G5	128276G5
5-Ton, 3-Way, Standard Pressure	128275G6	128276G6
5-Ton, 2-Way, High Pressure	128275G7	128276G7
5-Ton, 3-Way, High Pressure	128275G8	128276G8
3-Ton, 2-Way, Standard Pressure, w/Flow Switch	128287G1	128288G1
3-Ton, 3-Way, Standard Pressure, w/Flow Switch	128287G2	128288G2
3-Ton, 2-Way, High Pressure, w/Flow Switch	128287G3	128288G3
3-Ton, 3-Way, High Pressure, w/Flow Switch	128287G4	128288G4
5-Ton, 2-Way, Standard Pressure, w/Flow Switch	128287G5	128288G5
5-Ton, 3-Way, Standard Pressure, w/Flow Switch	128287G6	128288G6
5-Ton, 2-Way, High Pressure, w/Flow Switch	128287G7	128288G7
5-Ton, 3-Way, High Pressure, w/Flow Switch	128287G8	128288G8
3-Ton, 2-Way, Standard Pressure, w/Ball Valve	128246G1	128247G1
3-Ton, 3-Way, Standard Pressure, w/Ball Valve	128246G2	128247G2
3-Ton, 2-Way, High Pressure, w/Ball Valve	128246G3	128247G3
3-Ton, 3-Way, High Pressure, w/Ball Valve	128246G4	128247G4
5-Ton, 2-Way, Standard Pressure, w/Ball Valve	128246G5	128247G5
5-Ton, 3-Way, Standard Pressure, w/Ball Valve	128246G6	128247G6
5-Ton, 2-Way, High Pressure, w/Ball Valve	128246G7	128247G7
5-Ton, 3-Way, High Pressure, w/Ball Valve	128246G8	128247G8

Challenger 3 Model



CF/CU042A-()00
 CF/CU046WG-()00
 CF/CU068C-()00
 CF/CU/CE/CK067A-()00
 CF/CU/CE/CK071WG-()00
 CF/CU/CE/CK102C-()00
 CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

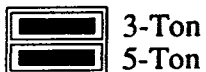
C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

 3-Ton 
 5-Ton 
Tables 8—11 Piping

DESCRIPTION	Flor-Flo	Up-Flo
Table 10-1 Piping (Water/Glycol)		
3-Ton, 2-Way, Standard Pressure	128271G9	128272G9
3-Ton, 3-Way, Standard Pressure	128271G1	128272G1
3-Ton, 2-Way, High Pressure	128271G1	128272G1
3-Ton, 3-Way, High Pressure	128271G2	128272G2
3-Ton, 2-Way, Standard Pressure, w/Hot Gas Bypass	128271G10	128272G10
3-Ton, 3-Way, Standard Pressure, w/Hot Gas Bypass	128271G5	128272G5
3-Ton, 2-Way, High Pressure, w/Hot Gas Bypass	128271G5	128272G5
3-Ton, 3-Way, High Pressure, w/Hot Gas Bypass	128271G6	128272G6
5-Ton, 2-Way, Standard Pressure	128271G11	128272G11
5-Ton, 3-Way, Standard Pressure	128271G3	128272G3
5-Ton, 2-Way, High Pressure	128271G3	128272G3
5-Ton, 3-Way, High Pressure	128271G4	128272G4
5-Ton, 2-Way, Standard Pressure, w/Hot Gas Bypass	128271G12	128272G12
5-Ton, 3-Way, Standard Pressure, w/Hot Gas Bypass	128271G7	128272G7
5-Ton, 2-Way, High Pressure, w/Hot Gas Bypass	128271G7	128272G7
5-Ton, 3-Way, High Pressure, w/Hot Gas Bypass	128271G8	128272G8

DESCRIPTION	Flor-Flo	Up-Flo
Table 11-1 Piping (Glycool)		
5-Ton, Standard Pressure	128273G1	128274G1
5-Ton, High Pressure	128273G2	128274G2
5-Ton, Standard Pressure, w/Hot Gas Bypass	128273G3	128274G3
5-Ton, High Pressure, w/Hot Gas Bypass	128273G4	128274G4



3-Ton

5-Ton

Challenger 3 Model

CF/CU042A-()00

CF/CU046WG-()00

CF/CU068C-()00

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C--()00

CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

Table 12 Wiring

DESCRIPTION	Flor-Flo	Up-Flo
Table 12-1 Electrical Panel, Low Voltage Wiring		
Air, Split System	128216G1	128216G1
Air, Self-Contained	128216G4	128216G4
Water/Glycol	128216G2	128216G2
Glycool	128216G5	128216G5
Chilled Water	128216G3	128216G3

Table 13 Electrical Panel, Options

DESCRIPTION	Flor-Flo	Up-Flo
Smoke Detector, Assembly		
Sequential Auto-Restart, Assembly		12
Main Fan Overload, 32A, Assembly	SKSADSDCH3-3000	13
Manual Restart, Assembly		14
Firestat, Assembly	(both should read)	15

MAIN FAN OPTION	208V	SMOKE DETECTOR 15V		
Disconnect				
3-Ton, Non-Locking	128202G38	128202G38	128202G39	No Unit
5-Ton, Non-Locking	128202G38	128202G38	128202G39	128202G39
3-Ton, Locking	128202G40	128202G40	128202G41	No Unit
5-Ton, Locking	128202G40	128202G40	128202G41	128202G41

Challenger 3 Model

CF/CU042A-()00

CF/CU046WG-()00

CF/CU068C-()00

CF/CU/CE/CK067A-()00

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C-()00

CE061G-()00

(Volts,Hertz,Phase)

A = 460V,60Hz,3-Ph

C = 208V,60Hz,3-Ph

D = 230V,60Hz,3-Ph

**Table 15 (Plenum, Panels, Floorstand, Turning Vanes)**

DESCRIPTION	Flor-Flo	Up-Flo
Table 15-1 Plenum, Assembly		
2-Side Discharge	128261G4	128261G4
3-Side Discharge	128261G2	128261G2
4-Side Discharge	128261G3	128261G3
Front Discharge	128261G1	128261G1
5-Ton, Filter, Glycool	128261G3	No Unit
Table 15-2 Exterior Panels, All Components		
Exterior Panels, w/Disconnect	128280G1	128280G2
Exterior Panels, no Disconnect	128280G3	128280G4
Exterior Panels, Flange, w/Disconnect	128280G5	No Unit
Exterior Panels, Flange, no Disconnect	128280G6	No Unit
Table 15-3 Floorstand, Assembly		
Nominal Height 9"	128007G1	128007G1
Nominal Height 12"	128007G2	128007G2
Nominal Height 15"	128007G3	128007G3
Nominal Height 18"	128007G4	128007G4
Nominal Height 21"	128007G5	128007G5
Nominal Height 24"	128007G6	128007G6
Table 15-4 Turning Vane, Assembly		
Nominal Height 9"	128046G1	128046G1
Nominal Height 12"	128046G2	128046G2
Nominal Height 15"	128046G3	128046G3
Nominal Height 18"	128046G4	128046G4
Nominal Height 21"	128046G5	128046G5
Nominal Height 24"	128046G6	128046G6



(Volts,Hertz,Phase)

A = 460V, 60Hz, 3-Ph

C = 208V, 60Hz, 3-Ph

D = 230V,60Hz,3-Ph

CF/CU/CE/CK071WG-()00

CF/CU/CE/CK102C--()00

CE061G-()00

[illegible]

Glossary

A

Actuator—Device that senses suction pressure and loads or unloads the compressor cylinders accordingly

Amps—Common designation for amperes

Ampere—Measure of the amount of electric current flow (called amps; noted as *A* in this manual) passing a certain point at a specific time; the amount of current required to flow through a conductor having a resistance of one ohm at a pressure of one volt

B

Ball Valve—Valve in which a ball in the fitting allows fluid to flow in only one direction

Bearing—Device surface designed to minimize friction when in contact with another surface

Blower—Air-moving device; fan

Brazing—Joining and sealing of metals with a nonferrous metal having a melting point of over 800°F

Bus Bar—Electrical conductor common to several circuits

Bushing—Cylindrical sleeve fitted into a hole to reduce its diameter or reduce friction between the hole and whatever passes through it

C

Coil—Section of more than one length of finned pipe used to conduct heat

Compressor—Mechanical pump in a refrigeration system that recovers refrigerant

vapor and raises its temperature and pressure to the point at which it can be condensed for reuse

Condensate—Water vapor that liquifies due to the lowering of its temperature to the saturation point

Condensate Pump—Water pump that disposes of, or recirculates, collected condensation

Condensation—Water that forms on a cold coil

Condenser—Heat exchanger in which compressed refrigerant vapor is cooled until it becomes liquid

Contactor—Switch that can repeatedly cycle, making and breaking an electrical circuit; a circuit control (When sufficient current flows through a coil built into the contactor, the resulting magnetic field closes the contacts.)

D

Discharge—Output of a pump, fan, or compressor

Discharge Line—Line between the compressor discharge port and the condenser; also called the hot gas line

Disconnect—Switch that cuts off electrical power to a unit being serviced

Drier—Accessory that removes moisture from a refrigeration system

F

Filter—Device that removes impurities from that which passes through it

Flare—Spread end of a tube that forms a 45° flange that serves to retain the tube and act as a gasket in a flare fitting

Fuse—Self-destructive element in an electrical circuit that melts to interrupt the circuit whenever current load exceeds its rating value (Destruction of the fuse element is inherent in its design.)

H

Hermetic Compressor—Self-contained; in a single casing

Hertz—Frequency at which AC reversing occurs; measured in cycles per second; noted as *Hz* in this manual

Hot Gas Bypass—Evaporator defrosting system in which the hot compressor discharge gas goes directly to the evaporator, instead of to the condenser

Hot Gas Line—Compressor discharge line in a refrigeration system

Humidifier—Machine that adds water vapor to the air to increase the humidity

Hz—Common designation for Hertz

K

kHz—kiloHertz; AC that has frequency of one thousand Hertz

kVA—kiloVolt-Ampere; an apparent power level of one thousand VA (Volt-Amperes)

L

LED—Light Emitting Diode; type of semiconductor that emits light when electric current passes through it

Liquid Indicator—Transparent fitting installed in the liquid line of a refrigeration system to permit observation of conditions in the line; sight glass

Liquid Line—Portion of refrigerant tubing extending from the condenser outlet to the metering device

M

Manifold—Device for controlling the flow and, along with gauges, measuring pressure of refrigerant during servicing

Model Number—Number that identifies a unit with defined attributes and a defined set of components (The model number of a Challenger 3 unit defines the type {air, water/glycol, glycool, or chilled water}, up-flo or flor-flo, capacity in BTUs, Volts, Hertz, and Phases. You must know the model number in order to use the Challenger 3 Parts Manual.)

Modulating Motor—Motor having the ability to adjust the position of the controlled device (for example, valve) in continuous positions of increments or decrements

Module—Set of components that form a unit which performs a complete function

Motor—Machine that converts electrical energy into mechanical energy

Mount—Support or support leg

P

PCB—Printed Circuit Board; insulating material used to hold electronic components with connecting traces (paths) or wires

Piping—Heavy duty tubes that conduct fluid

Plenum—Enclosed chamber of pressurized gas; discharge trunk of an air handler

Pulley—Wheel that transmits force by means of a belt around its outer edge

R

Relay—Electrical switch controlled by the flow of current in a separate or parallel circuit

Reset—To return a control to its original position

S

Sensor—Device that reacts to a change in the conditions being measured, therefore permitting control of the condition

Shaft—Long, thin, cylindrical connecting rod

Sight Glass—Refer to *Liquid Indicator*

Step-Down Transformer—Transformer that has a primary-to-secondary turns ratio that produces a lower output voltage than supplied at the input side (The V/A capability remains constant through a transformer so that current is increased by the same ratio as voltage is decreased.)

Step-Up Transformer—Transformer that has a primary-to-secondary turns ratio that produces a higher output voltage than supplied at the input side (The V/A capability remains constant through a transformer so that current is decreased by the same ratio as voltage is increased.)

Strainer—Filter that removes large, solid particles from the liquid passing through it

Switch—Mechanical device that closes or opens an electrical circuit

T

Transformer—Electromagnetic device that changes the voltage and/or isolates an electrical circuit from a source by induction (Also refer to Step-Up Transformer and Step-Down Transformer.)

Trap—Vertical U-shaped offset in a length of piping

U

Union—Fitting used to connect two lengths of pipe or tubing, neither of which can be turned

V

Valve—Device that restricts or controls fluid flow in a pipe or tube

Volt—Quantitative unit of measure of electric pressure; the electromotive force that sends one ampere through one ohm of resistance

Voltage—Electrical force or potential (Voltage causes current to flow when a circuit is complete, or closed. Voltage is present in an energized line, regardless of whether there is current flow or not.)

W

Water-Regulating Valve—Device that varies the flow of cooling water to the condenser in response to variation in requirements for cooling

Wire Harness—Assembly of wires to connect various electrical devices for transmission of electrical signals

