



TROUBLESHOOTING GUIDE

FOR ROOM HEATING UNITS

**MODELS: 212EXT, 312EXT, 412EXT,
512EXT, & 612EXT**

PREFACE

This guide contains instructions for troubleshooting the Steffes Corporation room heating units: Models 212-612EXT.

In compiling this guide, Steffes Corporation has used its best judgement based upon information available but disclaims any responsibility or liability for any errors or miscalculations, contained herein, or any revisions, hereof, or which result, whole or in part, from the use of this guide, or any revision hereof.

**If there are any questions, contact Steffes Corporation
Technical Support at 1-888-STEFFES (783-3337)**

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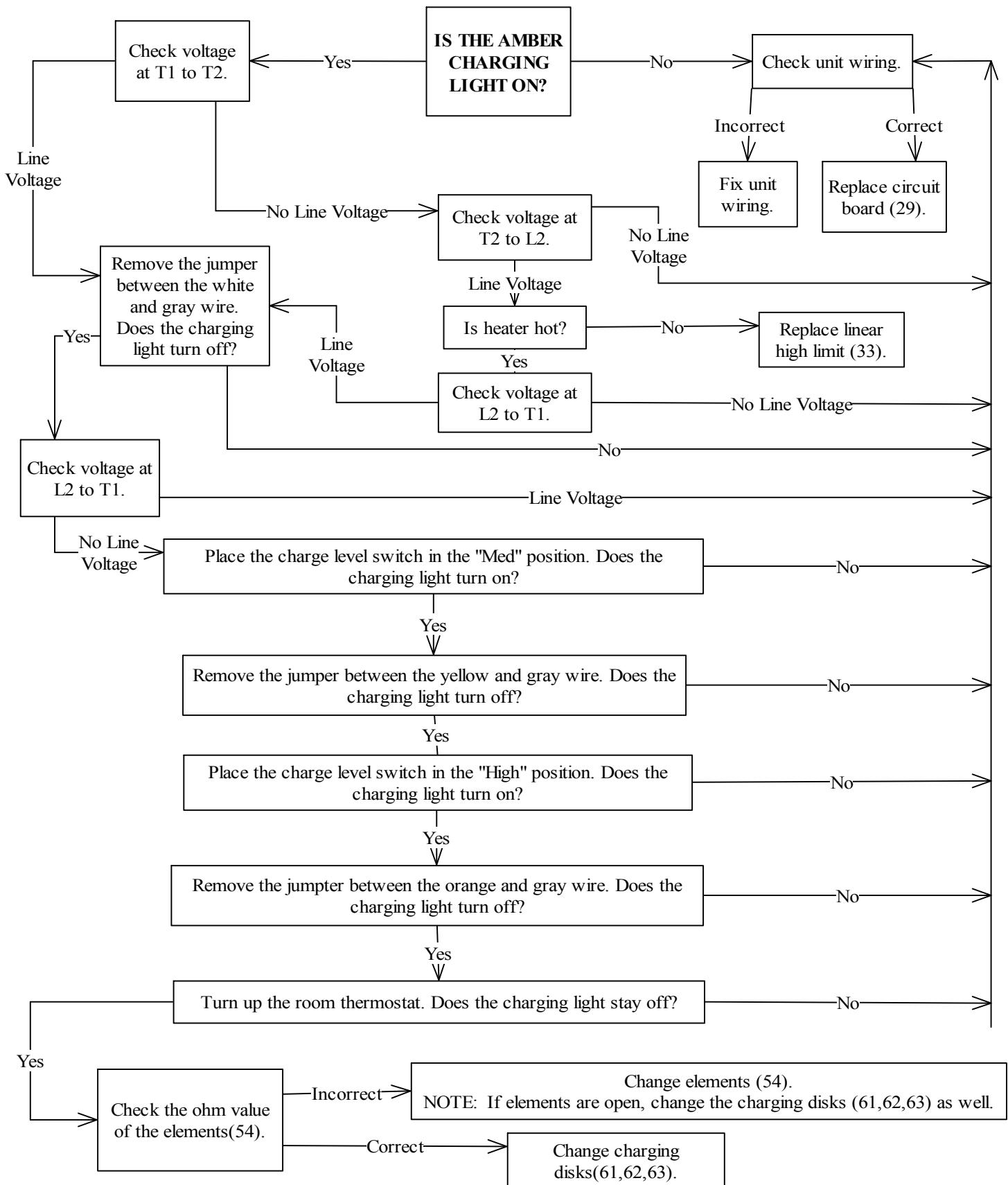
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MODEL: EXT
FUNCTION: Core Charging
PROBLEM: Unit Charges Improperly

Place heat storage switch in the "On" position. Place charge level switch in the "Low/Auto" position. Turn thermostat all the way down (counter clockwise) to the low stop position. Energize heater, ensure that proper line voltage is present at L1 to L2 and F1 to F3. Remove the wiring from the charging disks and put jumpers in their place (white to gray, orange to gray, and yellow to gray). Jumper the blue and blue/white peak control wires.

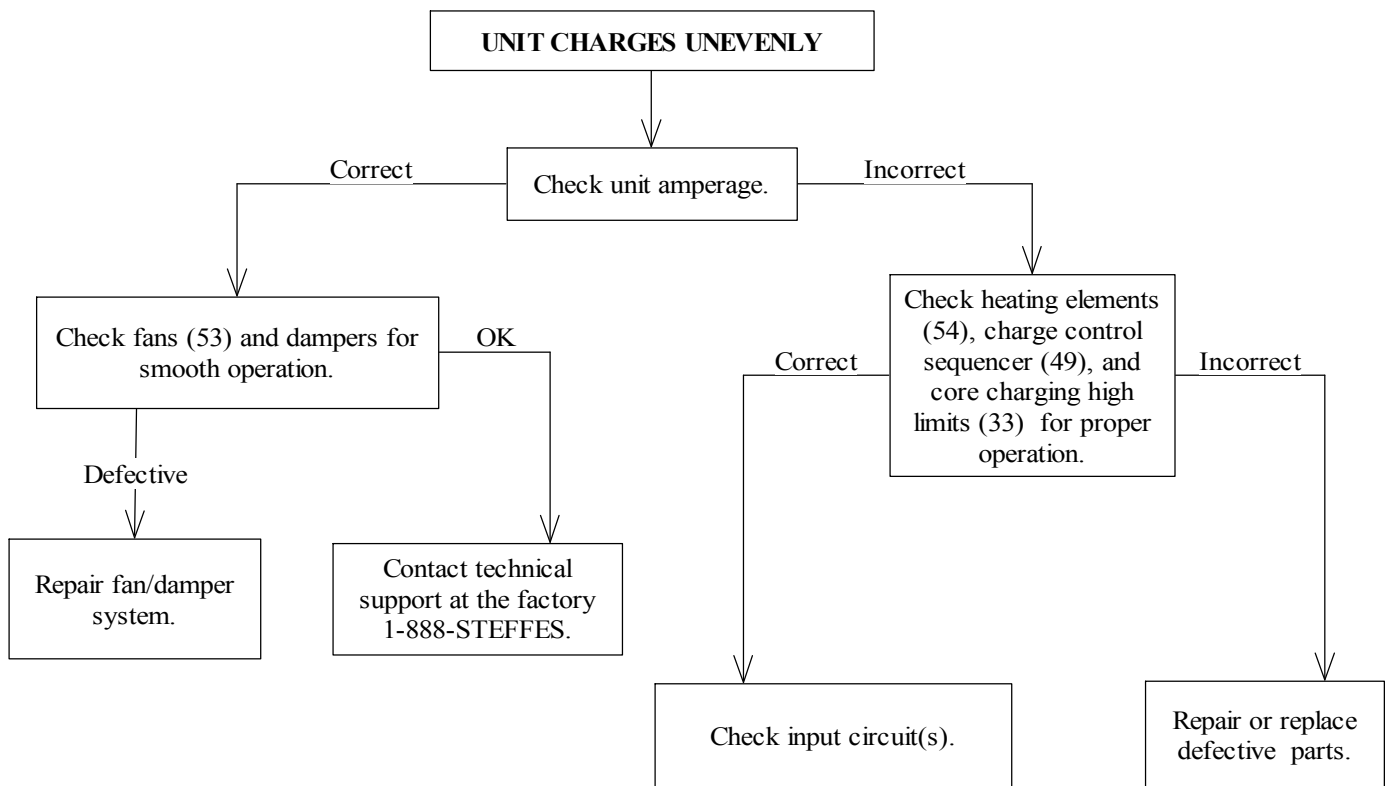


MODEL: EXT (2-Mode Circuit Board without Outdoor Sensor)

FUNCTION: Core Charging

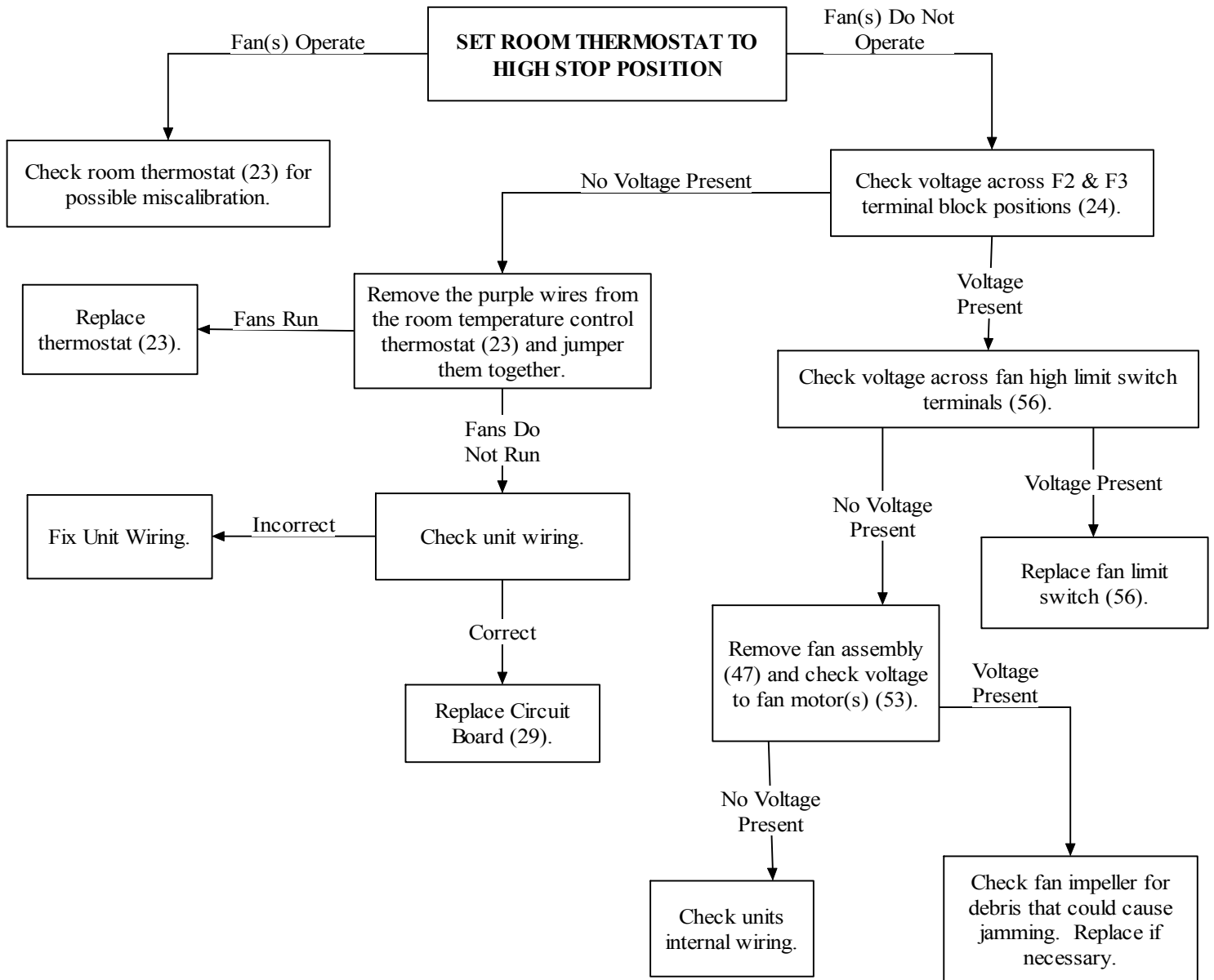
PROBLEM: Unit Charges Unevenly

Before starting any procedures listed below, check room thermostat and circuit breaker settings.
NOTE: For cross reference to number coded components, refer to the Exploded View Diagram.



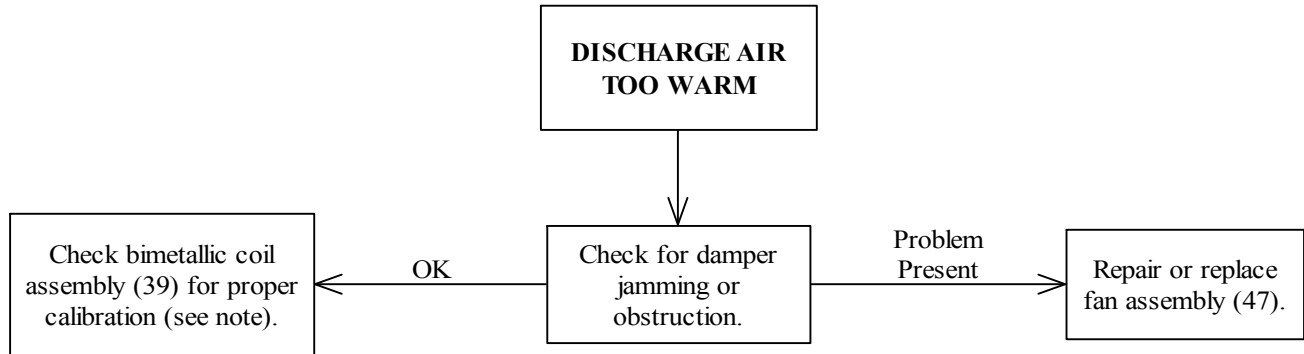
MODEL: EXT
FUNCTION: Air Delivery
PROBLEM: Fan(s) do not operate.

Before starting any procedures listed below, check room thermostat and circuit breaker settings. Make sure there is appropriate line voltage between F1/F3 terminal block positions in the heater. The room temperature cannot exceed 85 degrees when performing the following test procedures. NOTE: For cross reference to number coded components, refer to the Exploded View Diagram.



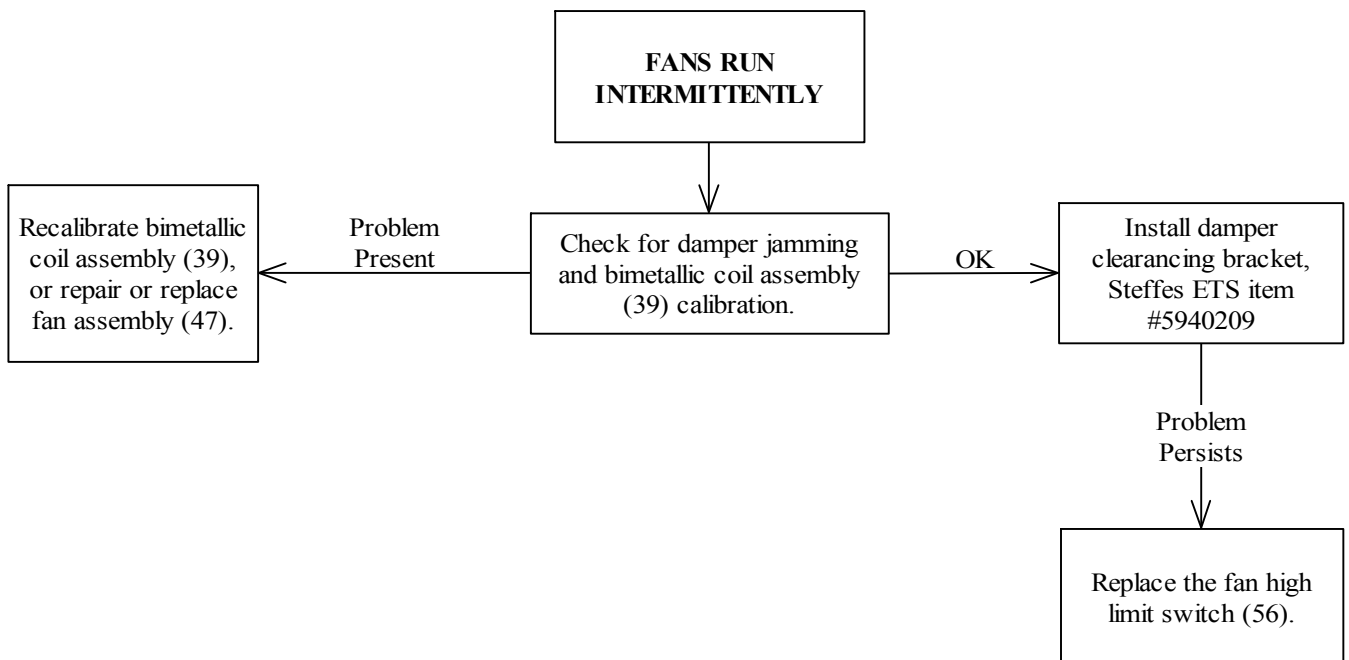
MODEL: EXT
FUNCTION: Air Delivery
PROBLEM: Discharge Air too Warm

Before starting any procedures listed below, check room thermostat and circuit breaker settings.
NOTE: For cross reference to number coded components, refer to the Exploded View Diagram.



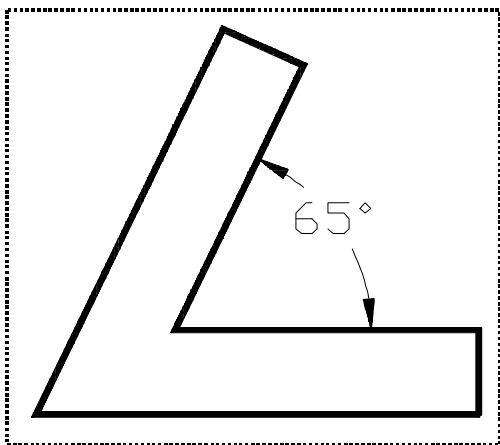
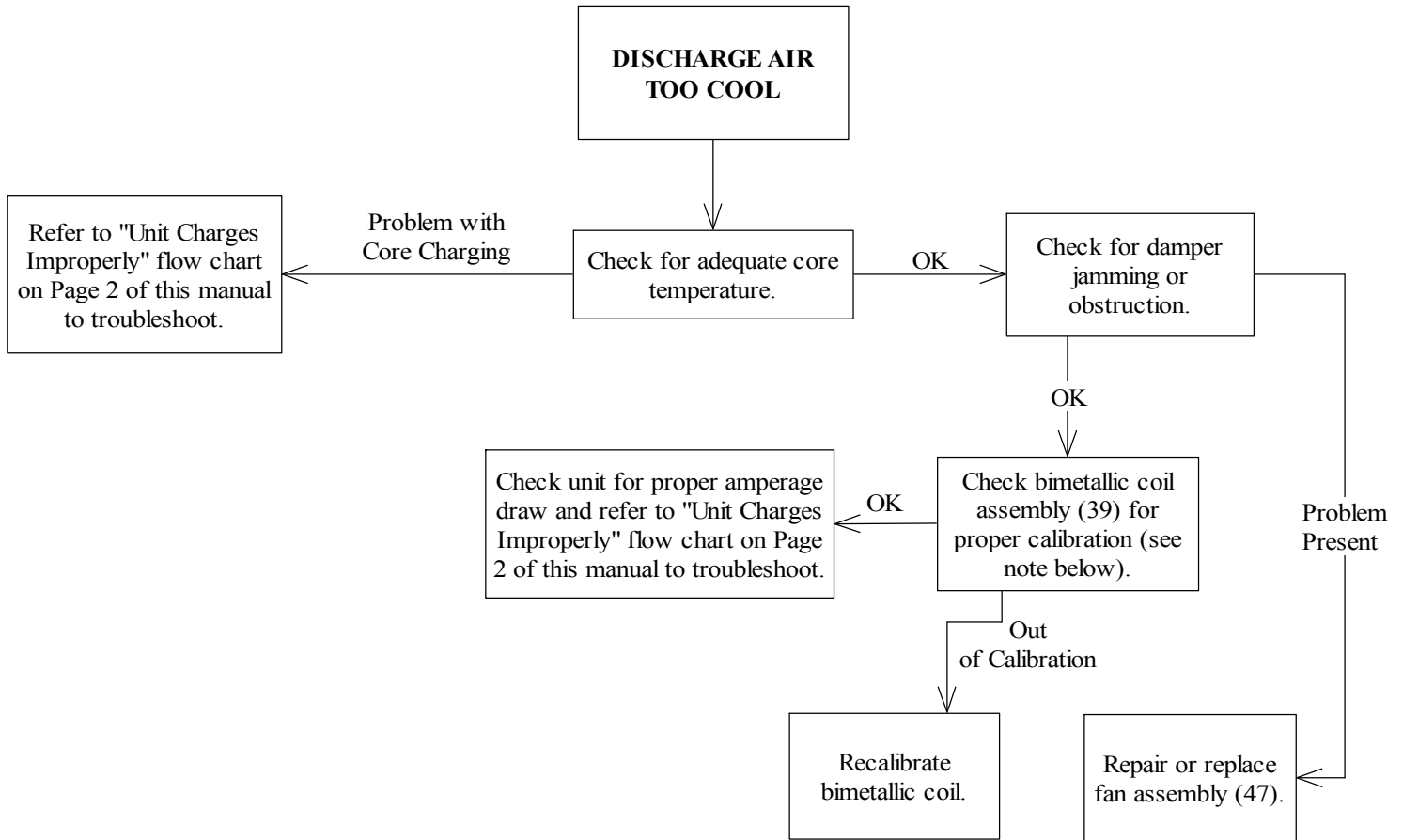
MODEL: EXT
FUNCTION: Air Delivery
PROBLEM: Fans Run Intermittently

Before starting any procedures listed below, check room thermostat and circuit breaker settings.
NOTE: For cross reference to number coded components, refer to the Exploded View Diagram.



MODEL: EXT
FUNCTION: Air Delivery
PROBLEM: Discharge Air too Cool

Before starting any procedures listed below, check room thermostat and circuit breaker settings.
 NOTE: For cross reference to number coded components, refer to the Exploded View Diagram.



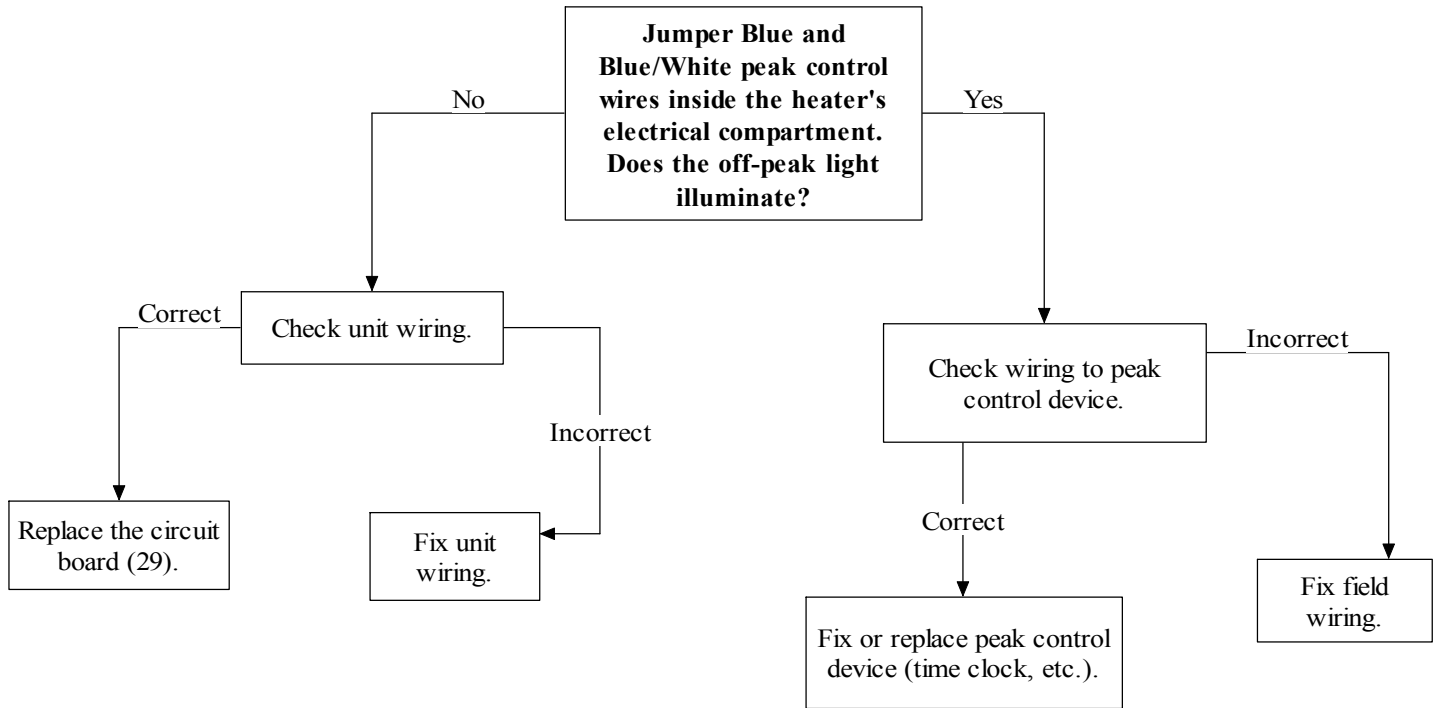
NOTE: To test the bimetallic coil assembly, it must be completely cold. Either allow room unit to cool completely or remove fan assembly and cool to room temperature. Once the coil is cold, disconnect the damper linkage and let the bimetallic coil go to its relaxed position. The bimetallic coil on units equipped with air deflectors should be calibrated at a 90 degree angle from the front of the fan assembly. The bimetallic coil of units not equipped with an air deflector are calibrated at a 65 degree angle from the front of the fan assembly. Use the cutout gauge on the left for checking this calibration. (To determine whether the unit is equipped with an air deflector, these deflectors would be located in fan assembly behind bimetallic coil.

MODEL: EXT

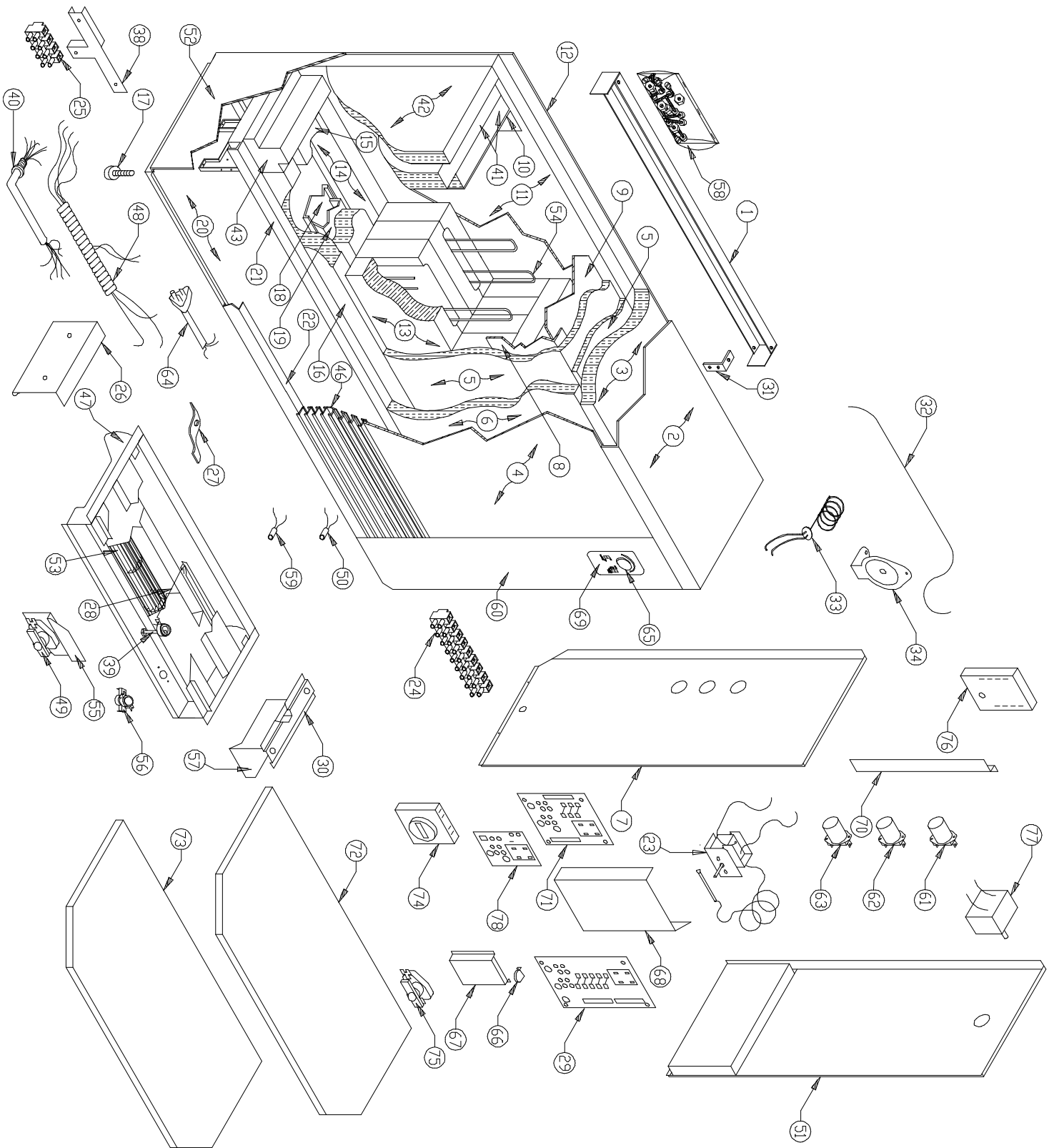
FUNCTION: Peak Control

PROBLEM: Green Off-Peak light does not come on at the appropriate times

Before starting any procedures listed below, there must be appropriate line voltage present between F1/F3 and L1/L2 terminal block positions in the heater.



EXPLODED VIEW DIAGRAM



EXT PARTS LIST

DWG. REF. NO.	DESCRIPTION	212EXT ITEM NO.	312EXT ITEM NO.	412EXT ITEM NO.	512EXT ITEM NO.	612EXT ITEM NO.
1.	Wall Support Bracket	5942000	5942001	5942002	5942003	5942004
2.	Painted Panel, Top	5942010	5942011	5942012	5942013	5942014
3.	1" Blanket Insulation, Top	1050010	1050011	1050012	1050013	1050014
4.	Painted Panel, Front	5941147	5941148	5941149	5941150	5941151
5.	1/2" Insulation Blanket, Front & Top	1050020	1050021	1050022	1050023	1050024
6.	Insulation Panel, Front	1053000	1053002	1053004	1053006	1053008
7.	Mid Side Panel	5942045	5942045	5942045	5942045	5942045
8.	Aluminized Steel, Front	5940002	5940004	5940006	5940008	5940010
9.	Aluminized Steel, Back & Top	5940012	5940014	5940016	5940018	5940020
10.	Aluminized Steel Side	5942050	5942050	5942050	5942050	5942050
11.	Insulation Panel, Back	1053000	1053002	1053004	1053006	1053008
12.	Painted Panel, Back	5942020	5942021	5942022	5942023	5942024
13.	Heat Storage Brick	5903007	5903007	5903007	5903007	5903007
14.	Brick Support Insulation, Back	1052000	1052001	1052002	1052003	1052004
15.	Brick Support Insulation, Center	1052011	1052012	1052013	1052014	1052015
16.	Brick Support Insulation, Front	1052016	1052017	1052018	1052019	1052020
17.	Leveling Leg	1159003	1159003	1159003	1159003	1159003
18.	Element Tray Cover, Right (Std Output)	5942092	5941096	5941094	5941094	5941096
"	Element Tray Cover, Left	N/A	N/A	5941094	5941098	5941096
19.	Element Tray (Std Output)	5941116	5941118	5941120	5941122	5941124
20.	Painted Panel, Bottom	5942030	5942031	5942032	5942033	5942034
21.	Brick Support Assembly (Std Output)	5941106	5941108	5941110	5941112	5941114
22.	Grill Support Bracket	5942070	5942071	5942072	5942073	5942074
23.	Room Thermostat Kit	1190114	1190114	1190114	1190114	1190114
24.	Terminal Block Kit (Main)	1040240	1040240	1040240	1040240	1040240
25.	Terminal Block Kit (Aux)	N/A	N/A	N/A	1040062	1040062
26.	Fan Support Bracket	5940220	5940220	5940220	5940220	5940220
27.	Element Retainer	5941104	5941104	5941104	5941104	5941104
28.	Bimetallic Linkage	5940001	5940001	5940001	5940001	5940001
29.	*Charge Control Circuit Board	*	*	*	*	*
30.	Center Fan Track Assembly	N/A	N/A	N/A	5940242	N/A
31.	Wall Support Clip	5941020	5941020	5941020	5941020	5941020
32.	High Limit Guide Tube, Right	1105005	1105006	1105007	1105008	1105011
"	High Limit Guide Tube, Left	N/A	N/A	N/A	1105009	1105010
33.	Core Charging High Limit	1012000	1012000	1040056	1012000	1012000
34.	Core Charging High Limit Mtg. Brkt.	5940190	5940190	5940190	5940190	5940190
38.	T-Block Mounting Bracket (Main)	N/A	N/A	N/A	N/A	N/A
"	T-Block Mounting Bracket (Aux.)	N/A	N/A	N/A	N/A	5941084
39.	Bimetallic Coil Assembly	5190006	5190006	5190006	5190006	5190006
40.	Umbilical Cord	1040260	1040261	1040261	1040263	1040263
41.	1" Insulation Blanket, Right Inner/Middle	1050080	1050080	1050080	1050080	1050080
"	1" Insulation Blanket, Left Inner/Middle	1050080	1050080	1050080	1050080	1050080
42.	1" Insulation Blanket, Right Outer	1050009	1050009	1050009	1050009	1050009
"	1" Insulation Blanket, Left Outer	1050009	1050009	1050009	1050009	1050009

EXT Parts List Continued...

DWG. REF. NO.	DESCRIPTION	212EXT ITEM NO.	312EXT ITEM NO.	412EXT ITEM NO.	512EXT ITEM NO.	612EXT ITEM NO.
43.	Block Insulation, Right (Std Output)	1052040	1052040	1052040	1052040	1052040
"	Block Insulation, Left (Std Output)	1052022	1052022	1052022	1052022	1052022
46.	Grill	5942080	5942081	5942082	5942083	5942084
47.	*Fan Assembly w/o Fan (Std Output)	1040092	1040093	1040094	1040095	1040109
48.	*Fan Wiring Harness (Std Output)	1040290	1040291	1040292	1040293	1040294
49.	Charge Control Sequencer	N/A	N/A	1040000	1040000	1040000
50.	*Red Service Light (240VAC)	1015021	1015021	1015021	1015021	1015021
51.	Painted Panel, Right	5942040	5942040	5942040	5942040	5942040
52.	Painted Panel, Left	5941140	5941140	5941140	5941140	5941140
53.	*Fan with Motor & Shroud (230 VAC)	1022000	1022007	1022004	1022004	1022007
54.	*Heating Element (1200W, 240 VAC)	1040079	1040079	1040079	1040079	1040079
55.	Sequencer Mounting Bracket	N/A	N/A	5941082	5941082	5941082
56.	Fan High Limit Switch	1012013	1012013	1012013	1012013	1012013
57.	T-Block Mounting Bracket, Center	N/A	N/A	N/A	5941083	N/A
58.	Wall Bracket Hardware Kit	1190002	1190002	1190002	1190002	1190002
59.	Green Charge Light, Optional	1015026	1015026	1015026	1015026	1015026
60.	Right Panel, Front	5942047	5942047	5942047	5942047	5942047
61.	Charge Control Assy (130°)	1040282	1040282	1040282	1040282	1040282
62.	Charge Control Assy (265°)	1040305	1040305	1040305	1040305	1040305
63.	Charge Control Assy (190°)	1040284	1040284	1040284	1040284	1040284
64.	Cord Assembly (120 VAC)	1015000	N/A	N/A	N/A	N/A
65.	Room Temp. Control Knob	1154006	1154006	1154006	1154006	1154006
66.	Tip Over Switch (120V plug-in units)	1024018	N/A	N/A	N/A	N/A
67.	Outdoor Temperature Sensor, optional	1040300	1040300	1040300	1040300	1040300
68.	Circuit Board Mounting Plate	5942087	5942087	5942087	5942087	5942087
69.	*Circuit Board Face Plate	*	*	*	*	*
70.	Low Voltage Wire Channel	5942090	5942090	5942090	5942090	5942090
71.	Outdoor Sensor Interface Board, optional	1043020	1043020	1043020	1043020	1043020
72.	Security Base Shell (120V plug-in units)	5942110	N/A	N/A	N/A	N/A
73.	Security Base Filler (120V plug-in units)	1190020	N/A	N/A	N/A	N/A
74.	*Time Clock (240 VAC), optional	1301006	1301006	1301006	1301006	1301006
75.	Peak Control Sequencer, optional	1309006	1309006	1309006	1309006	1309006
76.	Utility Mode Timer, optional	1018015	1018015	1018015	1018015	1018015
77.	Peak Override Wind-up Timer, optional	1024020	1024020	1024020	1024020	1024020
78.	Multi-Mode Interface Board, optional	1023030	1023030	1023030	1023030	1023030

* Contact factory with model and serial number as optional voltages, wattages, high output fan assemblies and circuit board configurations are available.