

WIRING DIAGRAM MANUAL

Split System Heat Pump

N4H4, R4H4, WCH4

Safety Labeling and Signal Words

DANGER, WARNING, CAUTION, and NOTE

The signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTE** are used to identify levels of hazard seriousness. The signal word **DANGER** is only used on product labels to signify an immediate hazard. The signal words **WARNING**, **CAUTION**, and **NOTE** will be used on product labels and throughout this manual and other manuals that may apply to the product.

DANGER - Immediate hazards which **will** result in severe personal injury or death.

WARNING - Hazards or unsafe practices which **could** result in severe personal injury or death.

CAUTION - Hazards or unsafe practices which **may** result in minor personal injury or product or property damage.

NOTE - Used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Signal Words in Manuals

The signal word **WARNING** is used throughout this manual in the following manner:



The signal word **CAUTION** is used throughout this manual in the following manner:



Signal Words on Product Labeling

Signal words are used in combination with colors and/or pictures on product labels.

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MODELS

208/230- 1- 60
N4H4
R4H4
WCH4

WARNING

DEATH, PERSONAL INJURY, AND/OR PROPERTY DAMAGE HAZARD

Failure to carefully read and follow this warning could result in equipment malfunction, property damage, personal injury and/or death.

Installation or repairs made by unqualified persons could result in equipment malfunction, property damage, personal injury and/or death.

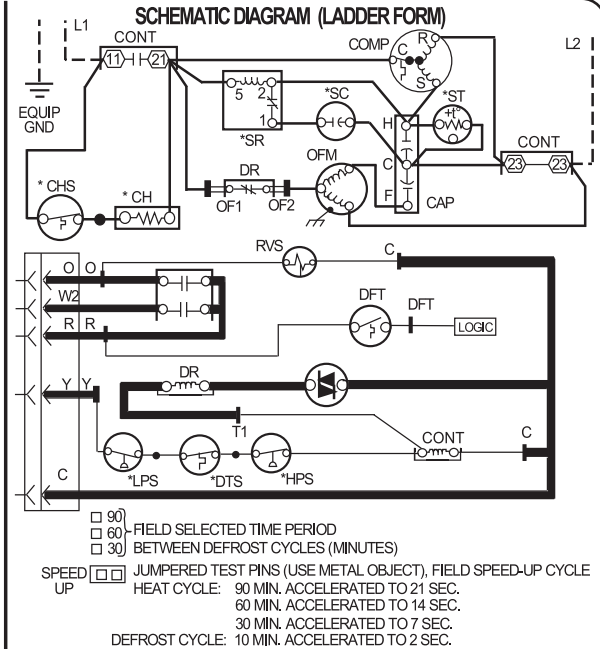
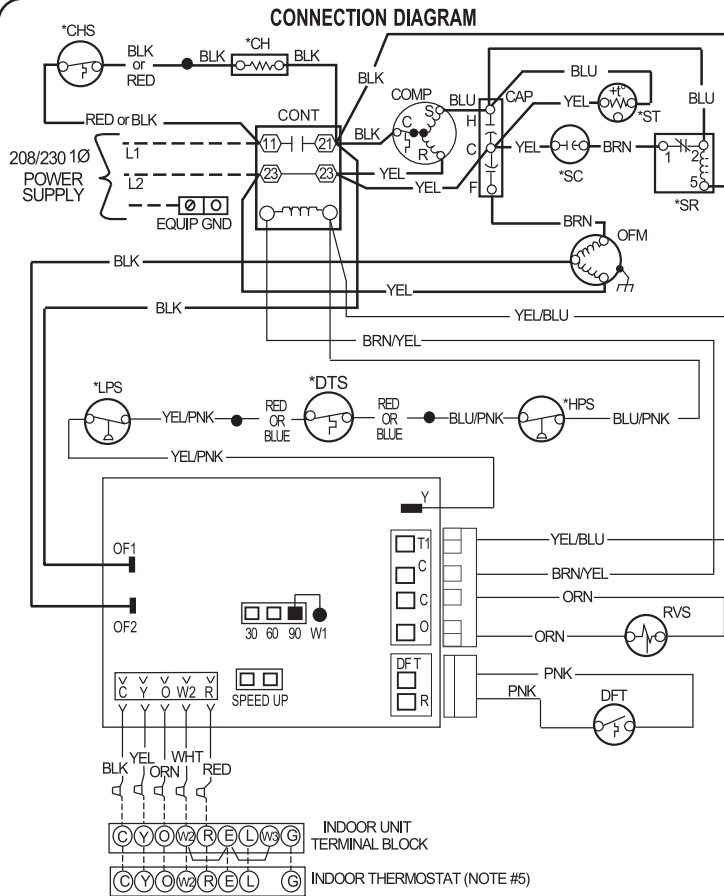
The information contained in this manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.

Installation must conform with local building codes and with the National Electrical Code NFPA70 current edition or Canadian Electrical Code Part 1 CSA C.22.1.

EXPANDED TABLE

DIAGRAM	page	MODEL	DIAGRAM	page	MODEL	DIAGRAM	page	MODEL
339697- 101	3	N4H418GKF100	339904- 101	6	R4H418GKA100	339903- 101	5	R4H460AKB100
339697- 101	3	N4H418GKF200	339904- 101	6	R4H418GKB100	339697- 101	4	R4H460GKA110
339697- 101	3	N4H418GKG101	339904- 101	6	R4H424AKB100	339697- 101	3	R4H460GKA210
339697- 101	3	N4H424GKF100	339701- 101	4	R4H424AKB101	339903- 101	5	R4H460GKB100
339697- 101	3	N4H424GKF200	339904- 101	6	R4H424GKA100	339904- 101	6	WCH4184GKA100
339701- 101	4	N4H424GKG101	339904- 101	6	R4H424GKB100	339904- 101	6	WCH4184GKB100
339697- 101	3	N4H430GKF100	339701- 101	4	R4H424GKB101	339904- 101	6	WCH4244GKA100
339697- 101	3	N4H430GKF200	339904- 101	6	R4H430AKB100	339904- 101	6	WCH4244GKB100
339697- 101	3	N4H430GKG101	339904- 101	6	R4H430GKA100	339701- 101	4	WCH4244GKB101
339697- 101	3	N4H436GKF200	339904- 101	6	R4H430GKB100	339904- 101	6	WCH4304GKA100
339697- 101	3	N4H436GKG101	339904- 101	6	R4H436AKB100	339904- 101	6	WCH4304GKB100
339697- 101	3	N4H437GKG101	339904- 101	6	R4H436GKA100	339904- 101	6	WCH4364GKA100
339697- 101	3	N4H442GKF100	339904- 101	6	R4H436GKB100	339904- 101	6	WCH4364GKB100
339697- 101	3	N4H442GKF200	339904- 101	6	R4H437AKB100	339904- 101	6	WCH4374GKB100
339697- 101	3	N4H442GKG101	339904- 101	6	R4H437GKB100	339904- 101	6	WCH4424GKA100
339697- 101	3	N4H448GKF100	339904- 101	6	R4H442AKB100	339904- 101	6	WCH4424GKB100
339697- 101	3	N4H448GKF200	339904- 101	6	R4H442GKA100	339904- 101	6	WCH4484GKA100
339697- 101	3	N4H448GKG101	339904- 101	6	R4H442GKB100	339904- 101	6	WCH4484GKB100
339697- 101	3	N4H460GKF100	339904- 101	6	R4H448AKB100	339697- 101	3	WCH4604GKA110
339697- 101	3	N4H460GKF200	339904- 101	6	R4H448GKA100	339697- 101	3	WCH4604GKA210
339697- 101	3	N4H460GKG101	339904- 101	6	R4H448GKB100	339903- 101	5	WCH4604GKB100
339904- 101	6	R4H418AKB100	343064- 101	7	R4H449GKC100			

1-Phase 339697-101



90 FIELD SELECTED TIME PERIOD
 60 BETWEEN DEFOREST CYCLES (MINUTES)
 30
 SPEED UP JUMPERED TEST PINS (USE METAL OBJECT), FIELD SPEED-UP CYCLE
 HEAT CYCLE: 90 MIN. ACCELERATED TO 21 SEC.
 60 MIN. ACCELERATED TO 14 SEC.
 30 MIN. ACCELERATED TO 7 SEC.
 DEFOREST CYCLE: 10 MIN. ACCELERATED TO 2 SEC.

CONDENSING UNIT CHARGING INSTRUCTIONS

For use with units using R-410A refrigerant

Liquid Pressure at Service Valve (psig)	Required Subcooling Temperature (°F)					
	6	8	10	12	14	16
251	78	76	74	72	70	68
259	80	78	76	74	72	70
266	82	80	78	76	74	72
274	84	82	80	78	76	74
283	86	84	82	80	78	76
291	88	86	84	82	80	78
299	90	88	86	84	82	80
308	92	90	88	86	84	82
317	94	92	90	88	86	84
326	96	94	92	90	88	86
335	98	96	94	92	90	88
345	100	98	96	94	92	90
354	102	100	98	96	94	92
364	104	102	100	98	96	94
374	106	104	102	100	98	96
384	108	106	104	102	100	98
395	110	108	106	104	102	100
406	112	110	108	106	104	102
416	114	112	110	108	106	104
427	116	114	112	110	108	106
439	118	116	114	112	110	108
450	120	118	116	114	112	110
462	122	120	118	116	114	112
474	124	122	120	118	116	114

- ### COOLING ONLY CHARGING PROCEDURE
1. Only use sub cooling charging method when OD ambient is greater than 70°F and less than 100°F, indoor temp is greater than 70°F and less than 80°F, and line set is less than 80 ft.
 2. Operate unit a minimum of 15 minutes before checking the charge.
 3. Measure liquid service valve pressure by attaching an accurate gauge to the service port.
 4. Measure the liquid line temperature by attaching an accurate thermistor type or electronic thermometer to the liquid line near the outdoor coil.
 5. Refer to unit rating plate for required subcooling temperature.
 6. Find the point where the required subcooling temperature intersects the measured liquid service valve pressure.
 7. To obtain the required subcooling temperature at specific liquid line pressure, add refrigerant if liquid line temperature is higher than indicated. When adding refrigerant, charge in liquid form using a flow restricting device into suction service port. Recover refrigerant if temperature is lower. Allow a tolerance of +/- 3°F.

- ### LEGEND
- FACTORY POWER WIRING
 - FACTORY CONTROL WIRING
 - - - FIELD CONTROL WIRING
 - - - FIELD POWER WIRING
 - CONDUCTOR ON CIRCUIT BOARD
 - COMPONENT CONNECTION
 - 1/4-IN QUICK CONNECT TERMINAL
 - ⌋ FIELD SPICE
 - ⌋ JUNCTION
 - ⌋ PLUG RECEPTACLE
 - CB CIRCUIT BOARD
 - CAP CAPACITOR (CUAL RUN)
 - *CH CRANKCASE HEATER
 - *CHS CRANKCASE HEATER SWITCH
 - COMP COMPRESSOR
 - CONT CONTACTOR
 - DFT DEFOREST THERMOSTAT
 - DR DEFOREST RELAY AND CIRCUITRY
 - *DTS DISCHARGE TEMP SWITCH
 - *HPS HIGH PRESSURE SWITCH
 - *LPS LOW PRESSURE SWITCH
 - OFM OUTDOOR FAN MOTOR
 - RVS REVERSING VALVE SOLENOID
 - *SC START CAPACITOR
 - *SR START RELAY
 - *ST START THERMISTOR
- * MAY BE FACTORY OR FIELD INSTALLED

- ### NOTES:
1. Symbols are electrical representation only.
 2. Compressor and fan motor furnished with inherent thermal protection.
 3. To be wired in accordance with National Electric N.E.C. and local codes.
 4. N.E.C. class 2, 24 V circuit, min. 40 VA required, 60 VA on units installed with LLS.
 5. Use copper conductors only. Use conductors suitable for at least 75°C (167°F).
 6. Must use thermostat and sub-base as stated in pre-sale literature.
 7. If indoor section has a transformer with a grounded secondary, connect the grounded side to "C" on the circuit board.
 8. If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.
 9. Check all electrical connections inside control box for tightness.
 10. Do not attempt to operate unit until service valves have been opened.
 11. Use conductors suitable for at least 75°C (167°F).

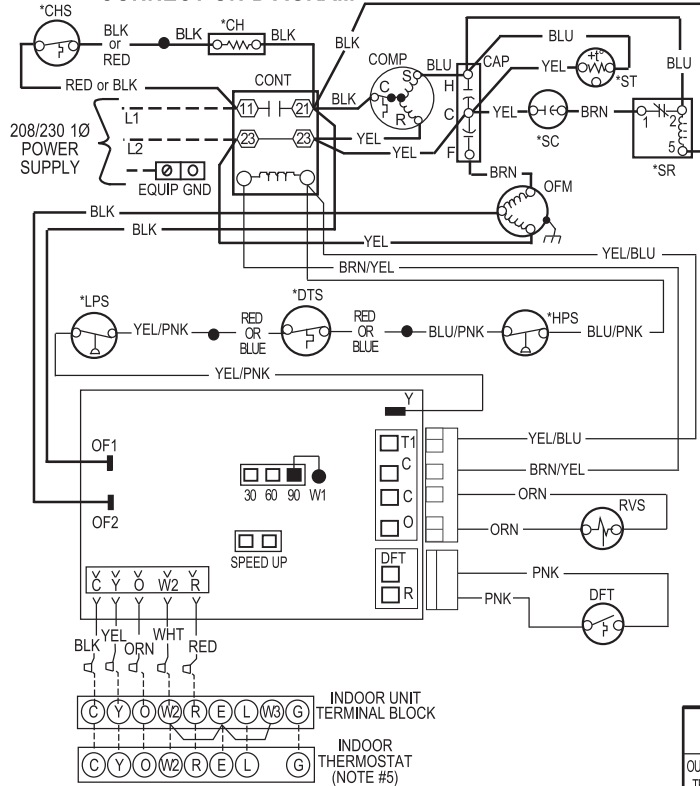
CAUTION

1. Compressor damage may occur if system is over charged.
2. This unit is factory charged with R-410A in accordance with the amount shown on the rating plate. The charge is adequate for most systems using matched coils and tubing not over 15 feet long. Check refrigerant charge for maximum efficiency. See Product Data Literature for required Indoor air Flow Rates and for use of line lengths over 15 feet.
3. Relieve pressure and recover all refrigerant before system repair or final disposal. Use all service ports and open all flow-control devices, including solenoid valves.
4. Never vent refrigerant to atmosphere. Use approved recovery equipment.

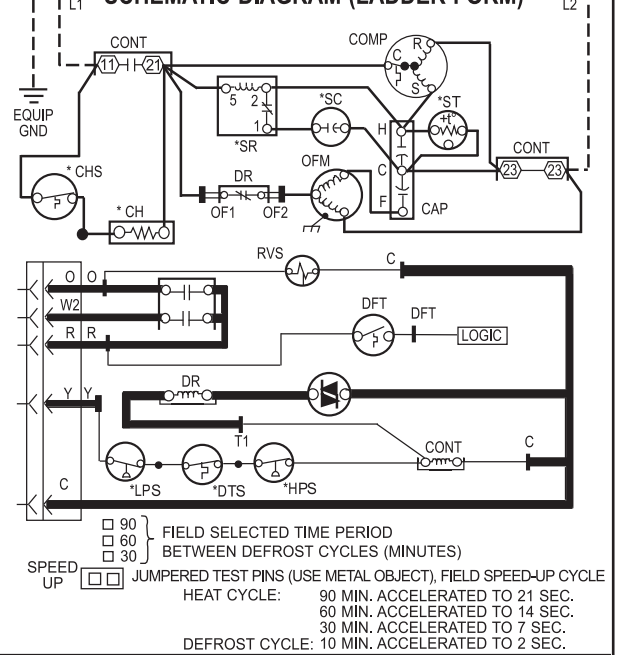


1-Phase 339701-101

CONNECTION DIAGRAM



SCHEMATIC DIAGRAM (LADDER FORM)



CONDENSING UNIT CHARGING INSTRUCTIONS For use with units using R-410A refrigerant

TABLE I - SUPERHEAT CHARGING TABLE (SUPERHEAT °F AT LOW-SIDE SERVICE PORT)

OUTDOOR TEMP °F	EVAPORATOR ENTERING AIR °F WB.															
	50	52	54	56	58	60	62	64	67	68	70	72	74	76	78	80
55	11	11	12	12	12	13	17	20	24	24	25	25	25	25	25	25
60	6	6	7	7	7	7	12	16	21	22	23	23	23	23	23	23
65	--	--	--	--	--	3	7	12	18	19	21	21	22	22	22	22
70	--	--	--	--	--	--	7	14	16	18	20	20	20	20	20	20
75	--	--	--	--	--	--	3	11	13	16	18	18	19	19	19	19
82	--	--	--	--	--	--	--	*6	8	12	15	16	17	17	17	17
85	--	--	--	--	--	--	--	4	7	11	14	15	16	16	16	16
90	--	--	--	--	--	--	--	4	8	12	14	15	15	15	15	15
95	--	--	--	--	--	--	--	--	6	10	12	14	14	14	14	14
100	--	--	--	--	--	--	--	--	4	8	11	12	12	12	12	12
105	--	--	--	--	--	--	--	--	3	6	9	11	11	11	11	11
110	--	--	--	--	--	--	--	--	5	7	10	11	11	11	11	11
115	--	--	--	--	--	--	--	--	3	6	8	10	10	10	10	10

Where a dash (-) appears do not attempt to charge system under these conditions or refrigerant slugging may occur. Charge must be weighed in. Note: Superheat °F is at low-side service port, allow a tolerance of +/- 3 °F. Note: Indoor dry bulb between 70 °F and 80 °F. * Optimum performance point, 82 °F outdoor ambient and (80 °F dry bulb), (67 °F wet bulb) indoor conditions. (DOE B Test Conditions)

TABLE II - REQUIRED SUCTION TUBE TEMPERATURE °F (MEASURED AT LOW-SIDE SERVICE PORT)

SUPERHEAT TEMP. °F	SUCTION PRESSURE AT SERVICE PORT PSIG.															
	108	112	117	121	126	131	139	141	146	151	156	161	166	171	176	181
0	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65
2	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67
4	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69
6	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71
8	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73
10	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75
12	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77
14	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
16	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81
18	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83
20	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85
22	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87
24	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89
26	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91
28	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93
30	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95

COOLING ONLY CHARGING PROCEDURE

- Operate unit a minimum of 10 minutes before checking charge.
- Measure suction pressure by attaching an accurate gage to suction valve service port.
- Measure suction temperature by attaching an accurate thermistor type or electronic thermometer to the suction line at service valve.
- Measure outdoor air dry-bulb temperature with a thermometer.
- Measure indoor air (entering indoor coil) wet-bulb temperature with a sling psychrometer.
- Refer to Table I. Find outdoor temperature and evaporator entering air wet-bulb temperature. At this intersection, note superheat. Where a dash (-) appears on table do not attempt to charge system under these conditions or refrigerant slugging may occur. Charge must be weighed in, adding or removing 0.6 oz/ft of 3/8 liquid line above or below 15 ft, respectively.
- Refer to Table II. Find superheat temperature located in step 6 and suction pressure. At this intersection note suction line temperature.
- If unit has a higher suction line temperature than charted temperature, add refrigerant until charted temperature is reached.
- If unit has a lower suction line temperature than charted temperature, remove and recover refrigerant until charted temperature is reached.
- When adding refrigerant, charge in liquid form into the suction service port using a flow-restricting device.
- If outdoor air temperature or pressure at suction valve changes, charge to new suction line temperature indicated on chart.
- This procedure is valid when indoor air flow is within +/- 21% of its rated cfm

-LEGEND-

- FACTORY POWER WIRING
- - - FIELD POWER WIRING
- FACTORY CONTROL WIRING
- - - - - FIELD CONTROL WIRING
- ▬ CONDUCTOR ON CIRCUIT BOARD
- COMPONENT CONNECTION
- ▬ 1/4-IN QUICK CONNECT TERMINALS
- ⊕ FIELD SPLICE
- JUNCTION
- CAP CAPACITOR
- *CH CRANKCASE HEATER
- *CHS CRANKCASE HEATER SWITCH
- COMP COMPRESSOR
- CONT CONTACTOR
- CB CIRCUIT BOARD
- DFT DEFROST THERMOSTAT
- DR DEFROST RELAY & CIRCUITRY
- *DTS DISCHARGE TEMP. SWITCH
- *HPS HIGH PRESSURE SWITCH
- *LLS LIQUID LINE SOLENOID VALVE
- *LPS LOW PRESSURE SWITCH
- OFM OUTDOOR FAN MOTOR
- RVS REVERSING VALVE SOLENOID
- *SC START CAPACITOR
- *SR START RELAY
- *ST START THERMISTOR
- *MAY BE FACTORY OR FIELD INSTALLED

NOTES:

- Compressor and fan motor furnished with inherent thermal protection.
- To be wired in accordance with National Electric Code (N.E.C.) and local codes.
- N.E.C. class 2, 24V circuit, min. 40 VA required, 60 VA on units installed with LLS.
- Use copper conductors only, from disconnect to unit.
- Must use thermostat and sub-base as stated in pre-sale literature.
- If indoor section has a transformer with a grounded secondary, connect the grounded side to "C" on the circuit board.
- If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.
- Check all electrical connections inside control box for tightness.
- Do not attempt to operate unit until service valves have been opened.
- Use conductors suitable for at least 75°C (167°F).

CAUTION

- Compressor damage may occur if system is over charged.
- This unit is factory charged with R-410A in accordance with the amount shown on the rating plate. The charge is adequate for most systems using matched coils and tubing not over 15 feet long. Check refrigerant charge for maximum efficiency. See Product Data Literature for required Indoor air Flow Rates and for use of line lengths over 15 feet.
- Relieve pressure and recover all refrigerant before system repair or final disposal. Use all service ports and open all flow-control devices, including solenoid valves.
- Never vent refrigerant to atmosphere. Use approved recovery equipment.

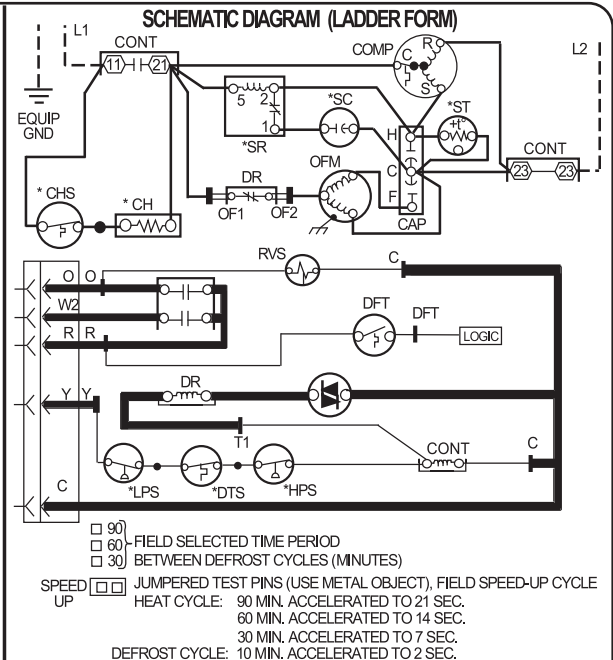
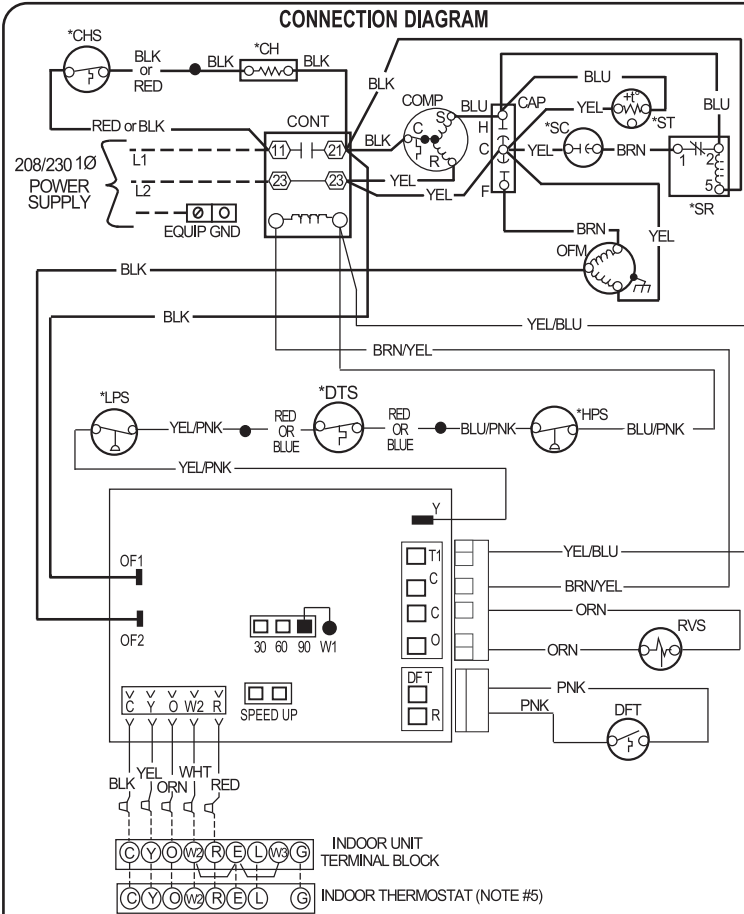


339701-101 REV. B

339701-101 REV. B



1-Phase 339903-101



CONDENSING UNIT CHARGING INSTRUCTIONS
For use with units using R-410A refrigerant

Liquid Pressure at Service Valve (psig)	Required Subcooling Temperature (°F)					
	6	8	10	12	14	16
251	78	76	74	72	70	68
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283	86	84	82	80	78	76
291	88	86	84	82	80	78
299	90	88	86	84	82	80
308	92	90	88	86	84	82
317	94	92	90	88	86	84
326	96	94	92	90	88	86
335	98	96	94	92	90	88
345	100	98	96	94	92	90
354	102	100	98	96	94	92
364	104	102	100	98	96	94
374	106	104	102	100	98	96
384	108	106	104	102	100	98
395	110	108	106	104	102	100
406	112	110	108	106	104	102
416	114	112	110	108	106	104
427	116	114	112	110	108	106
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450	120	118	116	114	112	110
462	122	120	118	116	114	112
474	124	122	120	118	116	114

- COOLING ONLY CHARGING PROCEDURE**
- Only use sub cooling charging method when OD ambient is greater than 70°F and less than 100°F, indoor temp is greater than 70°F and less than 80°F, and line set is less than 80 ft.
 - Operate unit a minimum of 15 minutes before checking the charge.
 - Measure liquid service valve pressure by attaching an accurate gauge to the service port.
 - Measure the liquid line temperature by attaching an accurate thermistor type or electronic thermometer to the liquid line near the outdoor coil.
 - Refer to unit rating plate for required subcooling temperature.
 - Find the point where the required subcooling temperature intersects the measured liquid service valve pressure.
 - To obtain the required subcooling temperature at specific liquid line pressure, add refrigerant if liquid line temperature is higher than indicated. When adding refrigerant, charge in liquid form using a flow restricting device into suction service port. Recover refrigerant if temperature is lower. Allow a tolerance of +/- 3°F.

CAUTION

- Compressor damage may occur if system is over charged.
- This unit is factory charged with R-410A in accordance with the amount shown on the rating plate. The charge is adequate for most systems using matched coils and tubing not over 15 feet long. Check refrigerant charge for maximum efficiency. See Product Data Literature for required Indoor air Flow Rates and for use of line lengths over 15 feet.
- Relieve pressure and recover all refrigerant before system repair or final disposal. Use all service ports and open all flow-control devices, including solenoid valves.
- Never vent refrigerant to atmosphere. Use approved recovery equipment.

LEGEND

- FACTORY POWER WIRING
- FACTORY CONTROL WIRING
- FIELD CONTROL WIRING
- FIELD POWER WIRING
- CONDUCTOR ON CIRCUIT BOARD
- COMPONENT CONNECTION
- 1/4-IN QUICK CONNECT TERMINAL
- FIELD SPLICE
- JUNCTION
- PLUG RECEPTACLE
- CIRCUIT BOARD
- CAPACITOR (CUAL RUN)
- CRANKCASE HEATER
- CRANKCASE HEATER SWITCH
- COMPRESSOR
- CONTACTOR
- DEFROST THERMOSTAT
- DEFROST RELAY AND CIRCUITRY
- DISCHARGE TEMP SWITCH
- HIGH PRESSURE SWITCH
- LOW PRESSURE SWITCH
- OUTDOOR FAN MOTOR
- REVERSING VALVE SOLENOID
- START CAPACITOR
- START RELAY
- START THERMISTOR

* MAY BE FACTORY OR FIELD INSTALLED

NOTES:

- Symbols are electrical representation only.
- Compressor and fan motor furnished with inherent thermal protection.
- To be wired in accordance with National Electric N.E.C. and local codes.
- N.E.C. class 2, 24 V circuit, min. 40 VA required, 60 VA on units installed with LLS.
- Use copper conductors only. Use conductors suitable for at least 75°C (167°F).
- Must use thermostat and sub-base as stated in pre-sale literature.
- If indoor section has a transformer with a grounded secondary, connect the grounded side to "C" on the circuit board.
- If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.
- Check all electrical connections inside control box for tightness.
- Do not attempt to operate unit until service valves have been opened.
- Use conductors suitable for at least 75°C (167°F).

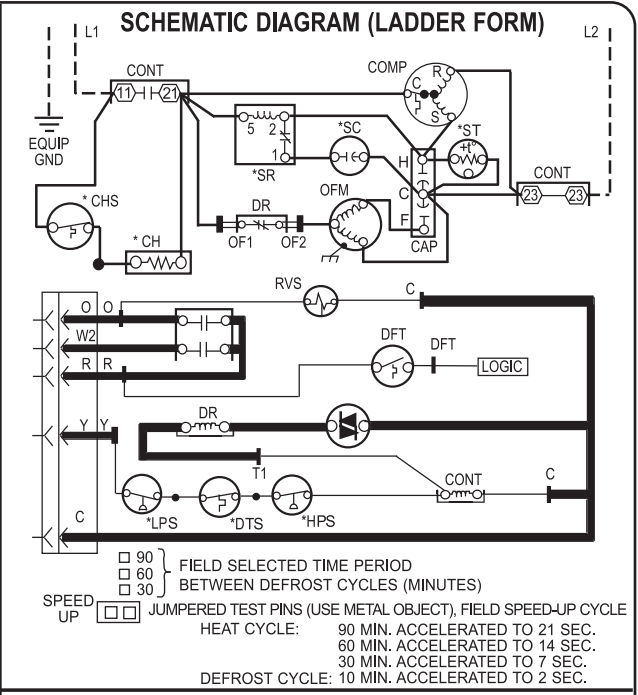
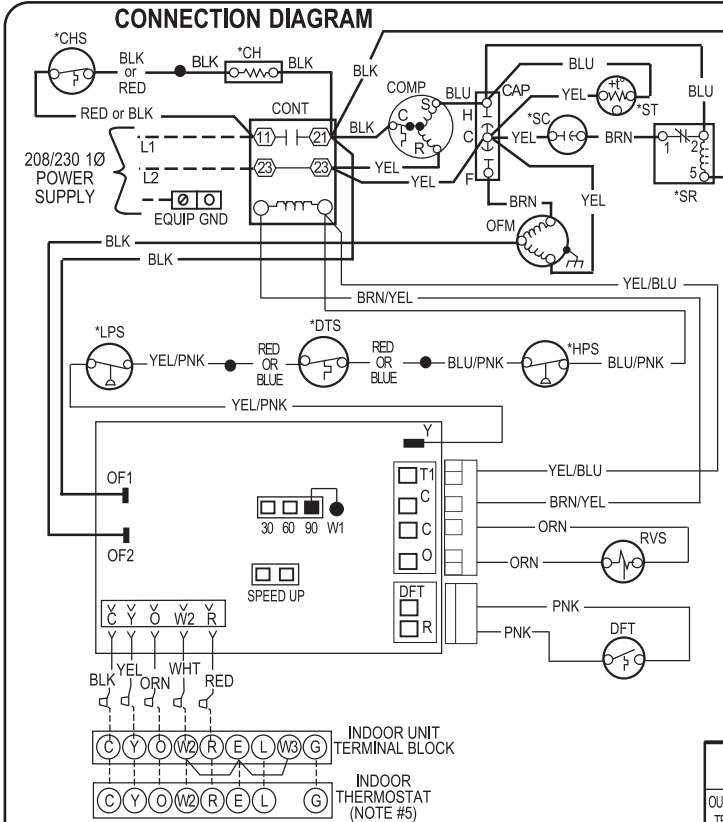


339903-101 REV. A



339903-101 REV. A

1-Phase 339904-101



CONDENSING UNIT CHARGING INSTRUCTIONS

For use with units using R-410A refrigerant

TABLE I - SUPERHEAT CHARGING TABLE (SUPERHEAT °F AT LOW-SIDE SERVICE PORT)

OUTDOOR TEMP °F	EVAPORATOR ENTERING AIR °F WB.															
	50	52	54	56	58	60	62	64	67	68	70	72	74	76		
55	11	11	12	12	13	13	17	20	24	24	25	25	25	25		
60	6	6	7	7	7	7	12	16	21	22	23	23	23	23		
65	--	--	--	--	--	3	7	12	18	19	21	21	22	22		
70	--	--	--	--	--	--	7	14	16	18	20	20	20	20		
75	--	--	--	--	--	--	3	11	13	16	18	18	19	19		
82	--	--	--	--	--	--	--	*6	8	12	15	16	17	17		
85	--	--	--	--	--	--	--	4	7	11	14	15	16	16		
90	--	--	--	--	--	--	--	4	8	12	14	15	15	15		
95	--	--	--	--	--	--	--	--	6	10	12	14	14	14		
100	--	--	--	--	--	--	--	--	4	8	11	12	12	12		
105	--	--	--	--	--	--	--	--	--	3	6	9	11	11		
110	--	--	--	--	--	--	--	--	--	5	7	10	10	10		
115	--	--	--	--	--	--	--	--	--	3	6	8	8	8		

- COOLING ONLY CHARGING PROCEDURE**
- Operate unit a minimum of 10 minutes before checking charge.
 - Measure suction pressure by attaching an accurate gauge to suction valve service port.
 - Measure suction temperature by attaching an accurate thermometer to type or electronic thermometer to the suction line at service valve.
 - Measure outdoor air dry-bulb temperature with a thermometer.
 - Measure indoor air (entering indoor coil) wet-bulb temperature with a sling psychrometer.
 - Refer to Table I. Find outdoor temperature and evaporator entering air wet-bulb temperature. At this intersection, note superheat. Where a dash (-) appears on table do not attempt to charge system under these conditions or refrigerant slugging may occur. Charge must be weighed in, adding or removing 0.6 oz/ft. of 3/8 liquid line above or below 15 ft. respectively.

Where a dash (-) appears do not attempt to charge system under these conditions or refrigerant slugging may occur. Charge must be weighed in. Note: Superheat °F is at low-side service port, allow a tolerance of +/- 3 °F. Note: Indoor dry bulb between 70 °F and 80 °F. * Optimum performance point, 82 °F outdoor ambient and (80 °F dry bulb), (67 °F wet bulb) indoor conditions. (DOE B Test Conditions)

TABLE II - REQUIRED SUCTION TUBE TEMPERATURE °F (MEASURED AT LOW-SIDE SERVICE PORT)

SUPERHEAT TEMP °F	SUCTION PRESSURE AT SERVICE PORT PSIG.															
0	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65
2	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67
4	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69
6	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71
8	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73
10	45	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75
12	47	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77
14	49	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79
16	51	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81
18	53	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83
20	55	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85
22	57	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87
24	59	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89
26	61	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91
28	63	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93
30	65	67	69	71	73	75	77	79	81	83	85	87	89	91	93	95

- Refer to Table II. Find superheat temperature located in step 6 and suction pressure. At this intersection note suction line temperature.
- If unit has a higher suction line temperature than charted temperature, add refrigerant until charted temperature is reached.
- If unit has a lower suction line temperature than charted temperature, remove and recover refrigerant until charted temperature is reached.
- When adding refrigerant, charge in liquid form into the suction service port using a flow-restricting device.
- If outdoor air temperature or pressure at suction valve changes, charge to new suction line temperature indicated on chart.
- This procedure is valid when indoor air flow is within +/- 21% of its rated cfm

- LEGEND-**
- FACTORY POWER WIRING
 - FIELD POWER WIRING
 - FACTORY CONTROL WIRING
 - FIELD CONTROL WIRING
 - CONDUCTOR ON CIRCUIT BOARD
 - COMPONENT CONNECTION
 - 1/4-IN QUICK CONNECT TERMINALS
 - FIELD SPLICE
 - JUNCTION
 - CAP CAPACITOR
 - *CH CRANKCASE HEATER
 - *CHS CRANKCASE HEATER SWITCH
 - COMP COMPRESSOR
 - CONT CONTACTOR
 - CB CIRCUIT BOARD
 - DFT DEFROST THERMOSTAT
 - DR DEFROST RELAY & CIRCUITRY
 - *DTS DISCHARGE TEMP. SWITCH
 - *HPS HIGH PRESSURE SWITCH
 - *LLS LIQUID LINE SOLENOID VALVE
 - *LPS LOW PRESSURE SWITCH
 - OFM OUTDOOR FAN MOTOR
 - RVS REVERSING VALVE SOLENOID
 - *SC START CAPACITOR
 - *SR START RELAY
 - *ST START THERMISTOR
 - *MAY BE FACTORY OR FIELD INSTALLED

- NOTES:**
- Compressor and fan motor furnished with inherent thermal protection.
 - To be wired in accordance with National Electric Code (N.E.C.) and local codes.
 - N.E.C. class 2, 24V circuit, min. 40 VA required, 60 VA on units installed with LLS.
 - Use copper conductors only, from disconnect to unit.
 - Must use thermostat and sub-base as stated in pre-sale literature.
 - If indoor section has a transformer with a grounded secondary, connect the grounded side to "C" on the circuit board.
 - If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.
 - Check all electrical connections inside control box for tightness.
 - Do not attempt to operate unit until service valves have been opened.
 - Use conductors suitable for at least 75°C (167°F).
- CAUTION**
- Compressor damage may occur if system is over charged.
 - This unit is factory charged with R-410A in accordance with the amount shown on the rating plate. The charge is adequate for most systems using matched coils and tubing not over 15 feet long. Check refrigerant charge for maximum efficiency. See Product Data Literature for required Indoor air Flow Rates and for use of line lengths over 15 feet.
 - Relieve pressure and recover all refrigerant before system repair or final disposal. Use all service ports and open all flow-control devices, including solenoid valves.
 - Never vent refrigerant to atmosphere. Use approved recovery equipment.



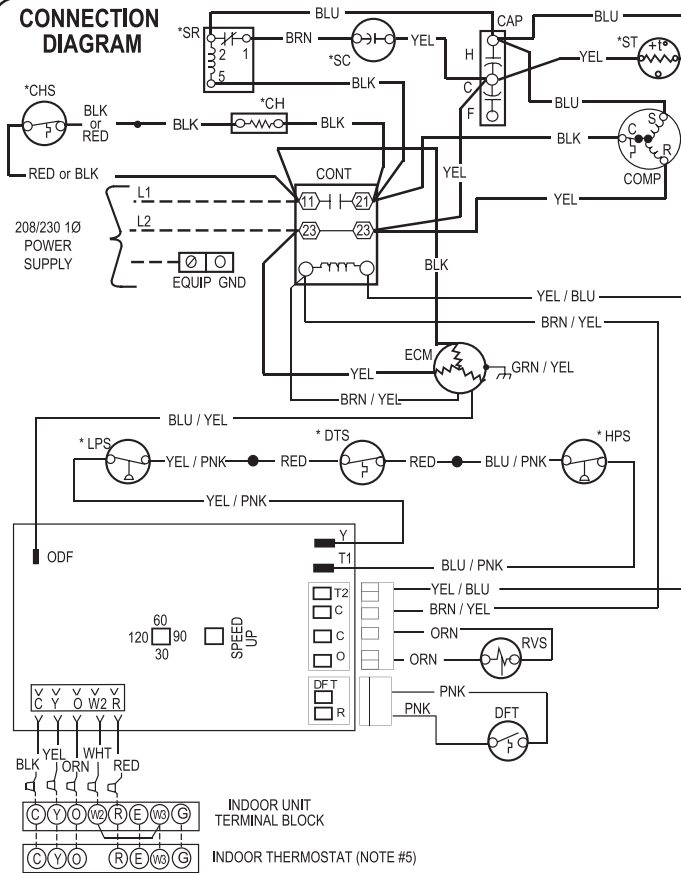
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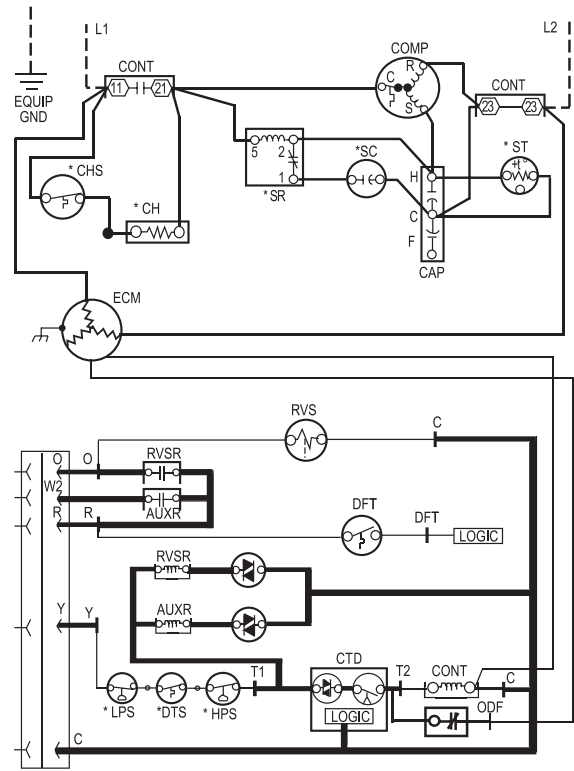


1-Phase 343064-101

CONNECTION DIAGRAM



SCHEMATIC DIAGRAM (LADDER FORM)



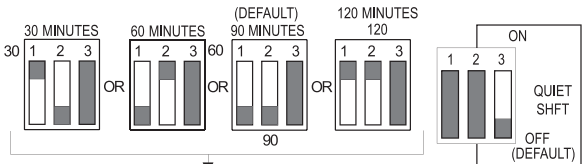
LEGEND

- | | | | |
|------|----------------------------------|------|---------------------------------|
| — | FACTORY POWER WIRING | *CH | CRANKCASE HEATER |
| — | FACTORY CONTROL WIRING | *CHS | CRANKCASE HEATER SWITCH |
| ---- | FIELD CONTROL WIRING | COMP | COMPRESSOR |
| ---- | FIELD POWER WIRING | CONT | CONTACTOR |
| — | CONDUCTOR ON CIRCUIT BOARD | CTD | COMPRESSOR TIME DELAY |
| ○ | COMPONENT CONNECTION | DFT | DEFROST THERMOSTAT |
| — | 1/4-INCH QUICK CONNECT TERMINALS | DR | DEFROST RELAY |
| ⊕ | FIELD SPLICE | *DTS | DISCHARGE TEMPERATURE SWITCH |
| ⊕ | JUNCTION | *HPS | HIGH PRESSURE SWITCH |
| ⊕ | PLUG RECEPTACLE | *LPS | LOW PRESSURE SWITCH |
| AUXR | AUXILLARY HEAT RELAY | RVS | REVERSING VALVE SOLENOID |
| CAP | CAPACITOR (DUAL RUN) | RVSR | REVERSING VALVE SOLENOID |
| CB | CIRCUIT BOARD | *SC | RELAY START CAPACITOR |
| | | *SR | START RELAY |
| | | *ST | START THERMISTOR |
| | | ECM | ELECTRONICALLY COMMUTATED MOTOR |
- * MAY BE FACTORY OR FIELD INSTALLED**

NOTES:

- Compressor and fan motor furnished with inherent thermal protection.
- To be wired in accordance with national electric code (N.E.C.) and local codes.
- N.E.C. Class 2, 24 V circuit, min. 40 VA required, 60 VA on units installed with LLS.
- Use copper conductors only from disconnect to unit.
- Must use thermostat and sub-base as stated in pre-sale literature.
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- If any of the original wire, as supplied, must be replaced, use the same or equivalent wire.
- Check all electrical connections inside control box for tightness.
- Do not attempt to operate unit until service valves have been opened.
- Use conductors suitable for at least 75°C (167°F).

DIP SWITCH SETTINGS



- FIELD SELECTABLE OPTIONS FOR TIME PERIOD BETWEEN DEFROST CYCLES (MINUTES)
- SPEED UP JUMPERED TEST PINS (USE METAL OBJECT), FIELD SPEED-UP CYCLE
- MOMENTARILY SHORT PINS AND RELEASE TO BYPASS COMPRESSOR OFF DELAY.
 - SHORT FOR 5+ SEC. AND RELEASE FOR FORCED DEFROST.
 - PERMANENT SHORT WILL BE IGNORED.
- DEFROST WILL TERMINATE IN 30 SEC. IF DFT OPEN.
DEFROST WILL TERMINATE NORMALLY IF DFT IS CLOSED.

NOTE

THIS DEFROST CONTROL BOARD CONTAINS A FIVE MINUTE SHORT CYCLE PROTECTOR. A FIVE MINUTE DELAY WILL OCCUR BETWEEN COMPRESSOR OFF/ON CYCLES.



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NOTES:

A series of horizontal dashed lines for taking notes.