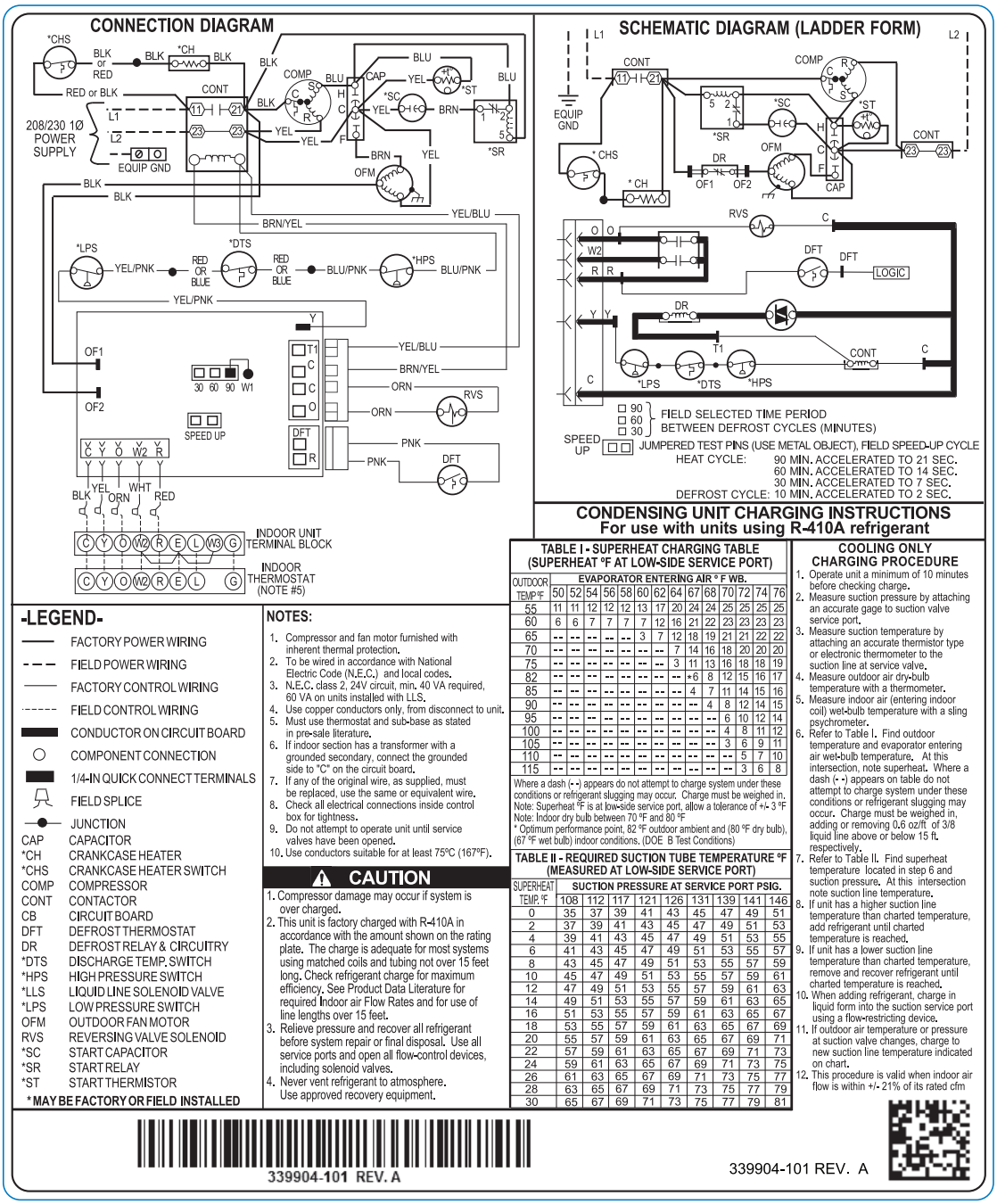
Wiring Diagram



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

-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:

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

⚠ 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.

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

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

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 ºF is at low-side service port, allow a tolerance of +/- 3 ºF
Note: Indoor dry bulb between 70 ºF and 80 ºF
* Optimum performance point, 82 ºF outdoor ambient and (80 ºF dry bulb), (67 ºF wet bulb) indoor conditions. (DOE B Test Conditions)

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

SUPERHEAT TEMP. ºF	SUCTION PRESSURE AT SERVICE PORT PSIG.								
	108	112	117	121	126	131	139	141	146
0	35	37	39	41	43	45	47	49	51
2	37	39	41	43	45	47	49	51	53
4	39	41	43	45	47	49	51	53	55
6	41	43	45	47	49	51	53	55	57
8	43	45	47	49	51	53	55	57	59
10	45	47	49	51	53	55	57	59	61
12	47	49	51	53	55	57	59	61	63
14	49	51	53	55	57	59	61	63	65
16	51	53	55	57	59	61	63	65	67
18	53	55	57	59	61	63	65	67	69
20	55	57	59	61	63	65	67	69	71
22	57	59	61	63	65	67	69	71	73
24	59	61	63	65	67	69	71	73	75
26	61	63	65	67	69	71	73	75	77
28	63	65	67	69	71	73	75	77	79
30	65	67	69	71	73	75	77	79	81

COOLING ONLY CHARGING PROCEDURE

1. Operate unit a minimum of 10 minutes before checking charge.
2. Measure suction pressure by attaching an accurate gage to suction valve service port.
3. Measure suction temperature by attaching an accurate thermistor type or electronic thermometer to the suction line at service valve.
4. Measure outdoor air dry-bulb temperature with a thermometer.
5. Measure indoor air (entering indoor coil) wet-bulb temperature with a sling psychrometer.
6. 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.
7. Refer to Table II. Find superheat temperature located in step 6 and suction pressure. At this intersection note suction line temperature.
8. If unit has a higher suction line temperature than charted temperature, add refrigerant until charted temperature is reached.
9. If unit has a lower suction line temperature than charted temperature, remove and recover refrigerant until charted temperature is reached.
10. When adding refrigerant, charge in liquid form into the suction service port using a flow-restricting device.
11. If outdoor air temperature or pressure at suction valve changes, charge to new suction line temperature indicated on chart.
12. This procedure is valid when indoor air flow is within +/- 21% of its rated cfm

339904-101 REV. A

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Fig. 1 – Wiring Diagram — Model sizes 1-1/2 - 5 tons, 208/230-1