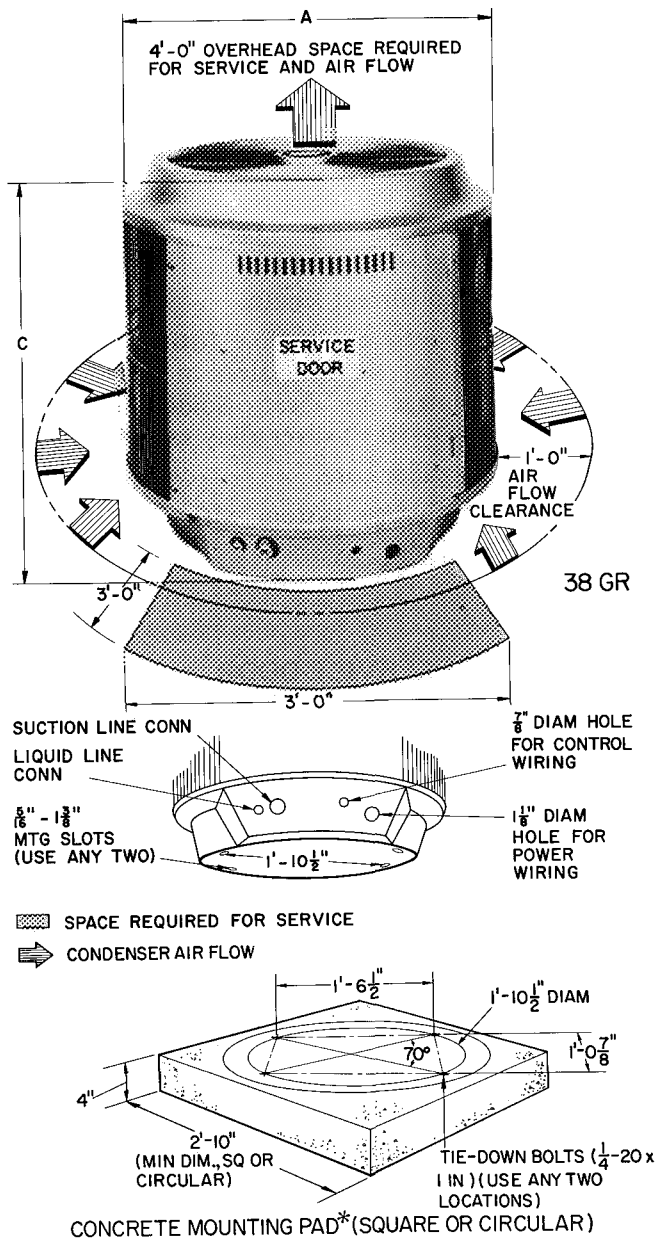


Superseded by 38GR-3SI 12-72 Air-Cooled Condensing Units



*CONCRETE PAD SHOULD WEIGH 1-1/2 TO 2 TIMES WEIGHT OF UNIT

Fig. 1 — Dimensions, Connections and Mounting Pad

Table 1 — Installation Data

CONDENSING UNIT		38GR					
		002	003	004	045	005	006*
OPERATING WT (lb)		151	170	182	194	234	260
DIMENSIONS (ft-in.)	Diam A	2-5 1/4					
	Height B	2-4	2-4	2-4	2-4	2-8	2-8
REFRIG CONN.	Suct ODF	3/4	3/4	3/4	3/4	3/4	1 1/8*
	Liq ODF	3/8					

*38GR006 supplied with 3/4 to 1-1/8 in suction valve connection adapter (field installed)

TRANSPORTATION DAMAGE

File claim with shipping company if shipment is damaged or incomplete.

PRELIMINARY SURVEY

Consult local building codes and National Electric Code (NEC) for special installation requirements.

When installing unit, allow sufficient space for air-flow clearance, wiring, refrigerant piping and servicing unit. Recommended minimum requirement is 3 ft (Fig. 1). Position unit so water from roof or eaves will not pour directly on top of unit.

Install unit on a solid, level mounting pad. Position tie-down bolts in pad. Any two holes in unit base may be used to fasten unit to pad.

38GR Condensing Units Connected to Carrier Approved Evaporators with Carrier Accessory Tubing — 38GR units contain correct refrigerant charge when evaporator is same size, or one size larger than condensing unit and are connected with Carrier accessory tubing. Check refrigerant charge when tubing lengths are above 50 feet. See Refrigerant Charging for details.

38GR Condensing Units Connected to Non-Carrier Evaporators — Check refrigerant charge when the 38GR is added to a system in which other than a Carrier approved evaporator is being used or where the evaporator has been previously installed. Field-supplied refrigerant piping must be in accordance with Refrigerant Piping Data table. Where evaporator is below condensing unit, reduce liquid line size one diameter (min 1/4-in. OD).

PIPING CONNECTIONS

38GR condensing units can be connected to evaporator sections using Carrier accessory tubing package or field-supplied tubing of refrigerant grade. (Accessory tubing not available for 38GR006.) See Table 2 for accessory tubing sizes and Table 3 for recommended field-supplied tubing sizes. Do not use damaged or contaminated tubing. Do not use less than 10 ft of liquid line. Do not cut 5/16-in. or 1/4-in. liquid line. Bend or coil to fit.

If accessory tubing package or evaporator section has been open for more than 15 seconds per connection, evacuate or purge evaporator coil and tubing system (use field-supplied refrigerant, not unit refrigerant). If necessary, refer to Carrier System Design Manual, Part 3, for standard piping techniques.

Connection Procedure — When making piping connections, be sure to provide clearance at unit for electrical connections.

Connect refrigerant liquid and suction lines to condensing unit (Fig. 1). Unit Compatible Fitting permits two methods of refrigerant line connection: mechanical (quick connect) or sweat connection.

38GR006 UNITS — Remove suction line adapter taped to compressor suction line and connect to suction line Compatible Fitting. Sweat connect refrigerant suction line to adapter. Connect liquid refrigerant line to unit.

MECHANICAL CONNECTION (Mate one set of connections at a time).

1. Loosen nut on Compatible Fitting one turn. Do not remove.

2. Remove plug and be sure O-ring is in the groove inside the Compatible Fitting.
3. Cut tubing to correct length.
4. Use gage on tag attached to service valve to mark tube end for correct insertion depth. Insert tube into Compatible Fitting until it bottoms. (Tube should be inserted at least as far as mark on tubing.)
5. Tighten nut until it *bottoms* on back coupling flange.

→ **SWEAT CONNECTION** (use refrigerant grade tubing).

1. Remove locking nut, rubber O-ring and Schrader core from valve.
2. Cut tubing to correct length.
3. Insert tube into compatible fitting. Wrap top and bottom of service valves in wet cloth to prevent damage by heat. Solder with low-temperature (450 F) silver alloy solder.
4. Replace Schrader core.
5. Evacuate or purge system with field-supplied refrigerant.

Table 2 — Accessories

PART NUMBER	DESCRIPTION						
HH01AD040	Low-Voltage Control - Honeywell Deluxe Thermostat						
HH93AZ040	Thermostat Subbase						
HH51AR001	Comfort Control Center (Use with HH01AD040)						
HH07AT070, HH07AT074	Low-Voltage Control - Honeywell Thermostat						
HH93AZ076	Thermostat Subbase (with Automatic Changeover)						
HH01AD042 HH93AZ042	Low-Voltage Control - Honeywell Thermostat Thermostat Subbase						
HH01YA092 HH93YZ094	Low-Voltage Control - Grayson Thermostat Thermostat Subbase						
32LM001-301	Solid State Head Pressure Control Special field-installed fan motor required						
	<table><tr><th>Unit</th><th>38GR002,003,004,045</th><th>38GR005,006</th></tr><tr><th>Motor No.</th><td>HC38VE700</td><td>HC40VL701</td></tr></table>	Unit	38GR002,003,004,045	38GR005,006	Motor No.	HC38VE700	HC40VL701
Unit	38GR002,003,004,045	38GR005,006					
Motor No.	HC38VE700	HC40VL701					
38GC900-152	Indoor Fan Relay (Six - 38BA400693)						
	Tubing Packages (not available for 38GR006) Packages have 3/4-in. suction line and 3/8-in. liquid line. Suction line is insulated and has a 90° bend on one end.						
38GC900071	10 ft						
38GC900081	18 ft						
38GC900091	25 ft						
38GC900101	35 ft						
38GC900111	50 ft						

SERVICE DOOR

Service door can be opened or removed for wiring or servicing unit.

Remove three screws from left side of service door (Fig. 1) to swing door open.

Door Removal — Ensure power is off. Refer to Fig. 4 and 5. Disconnect plug 1 (from receptacle 1), and five high-voltage wires with ground wire from control panel which is mounted on door. Disconnect plug 1 by pressing down on tabs at top and bottom of receptacle 1, and pulling gently on plug while holding receptacle. Do not pull on wiring. After plug and wiring is disconnected, lift door from roll pin hinges.

Table 3 — Refrigerant Piping Data

COND UNIT	REFRIG CONTROL	MAX COND UNIT HT (ft)		REFRIGERANT LINE LENGTH (ft)									
		Above Evap	Below Evap	25		50		75		100		150	
				Suction	Liquid	Suction	Liquid	Suction	Liquid	Suction	Liquid	Suction	Liquid
→ 38GR002	TXV	90	90	3/4	3/8	3/4	3/8	3/4	3/8	3/4	3/8	3/4	3/8
	Cap. Tube	70	50										
38GR003	TXV	90	90	3/4	3/8	3/4	3/8	3/4	3/8	3/4	3/8	7/8	3/8
	Cap. Tube	70	50										
38GR004	TXV	90	90	3/4	3/8	3/4	3/8	7/8	3/8	7/8	1/2	7/8	1/2
	Cap. Tube	70	50										
38GR045	TXV	90	90	3/4	3/8	3/4	1/2	7/8	1/2	7/8	1/2	7/8	1/2
	Cap. Tube	70	50										
38GR005	TXV	90	90	3/4	3/8	7/8	1/2	7/8	1/2	7/8	1/2	1 1/8	5/8
	Cap. Tube	70	50										
38GR006	TXV	90	90	1 1/8	3/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8

Cap. Tube — Capillary Tube

TXV — Thermal Expansion Valve

ELECTRICAL DATA AND WIRING

Table 4 — Electrical Data

COND UNIT	V/PH	COMPR			FAN			BRANCH CIRCUIT		
		LRA	FLA	FLA	Wire Size* (AWG)	Max F+* Wire	Fuse† Amps			
38GR002---	230/1	72.0	14.8	1.0	12	10	39.8	62.8	25	
38GR002310		72.0	14.8	1.0	12	10	39.8	62.8	25	
38GR003---		90.0	19.2	1.1	10	8	48.9	76.2	30	
38GR003310		90.0	19.2	1.1	10	8	48.9	76.2	30	
38GR004---		100.0	22.9	1.3	10	8	41.0	64.0	35	
38GR004310		100.0	22.9	1.3	10	8	41.0	64.0	35	
38GR045---		108.0	26.9	1.3	8	6	54.9	84.9	40	
38GR005---		118.0	30.4	2.0	8	6	47.8	73.8	50	
38GR006---		155.0	39.0	2.0	6	4	58.3	89.5	60	
38GR003---	200/3	60.0	13.0	1.1	12	10	51.8	81.9	25	
38GR003410		70.0	13.0	1.1	12	10	51.8	81.9	25	
38GR004---		69.0	14.0	1.3	12	10	47.8	75.5	25	
38GR004410		80.0	14.0	1.3	12	10	47.8	75.5	25	
38GR045---		87.0	14.0	1.3	12	10	47.8	75.5	25	
38GR005---		90.0	18.6	2.0	10	8	56.0	99.5	30	
38GR006---		110.0	23.0	2.0	8	6	82.0	109.4	40	
38GR003---	230/3	50.0	11.5	1.1	12	10	64.1	101.4	20	
38GR003510		60.0	11.5	1.1	12	10	64.1	101.4	20	
38GR004---		60.0	12.6	1.3	12	10	58.1	92.0	20	
38GR004510		70.0	12.6	1.3	12	10	58.1	92.0	20	
38GR045---		87.0	12.4	1.3	12	10	58.9	93.2	20	
38GR005---		78.5	16.1	2.0	10	8	70.5	125.2	30	
38GR006---		100.0	20.5	2.0	10	8	56.7	100.7	35	
38GR004---	460/3	30.0	6.5	7	14	12	139.0	224.0	15	
38GR004610		35.0	6.5	7	14	12	139.0	224.0	15	
38GR045---		46.0	6.2	7	14	12	145.0	234.0	15	
38GR005---		39.3	8.3	1.2	14	12	105.0	170.0	15	
38GR006---		50.0	10.3	1.2	14	12	87.0	140.0	20	

→ Corresponding wire sizes and wire lengths

FLA — Full Load Amps

LRA — Locked Rotor Amps

--- Electrical data shown applicable to all units for which complete model numbers are not shown. Example: 38GR003___ applies to all 003 models except 38GR003510.

* Copper wire sizes and lengths. Use latest National Electric Code (NEC) for aluminum wire sizing

† Maximum dual element fuse size

NOTES:

1. Motors and controls will operate satisfactorily from 10% above to 10% below unit voltage. Control circuit voltage is 24 volts on all units. On 3-phase units, phases must be balanced within 2%.
2. Nominal Distribution System Voltage (NDSV) is 240 v for 230 v, 1-ph units; 208 v for 200 v, 3-ph units; 220-240 v for 230 v, 3-ph units; 440-480 v for 460 v, 3-ph units

Wiring — Field wiring must comply with local and national codes. Install a branch circuit fused disconnect of adequate size to handle starting current. When making electrical connections, provide clearance at unit for refrigerant piping connections.

LINE POWER wiring is brought thru hole provided in base pan (Fig. 1) and into unit junction box, Fig. 5. Make line power connections to pressure connector side of terminal block as shown in Fig. 2. The terminal block is suitable for use with copper or aluminum field wire.

CONTROL POWER (24 v) wiring is brought thru hole provided in unit base pan (Fig. 1) and into low-voltage section of unit junction box. Splice control leads to pigtailed supplied with unit. When

aluminum field wire is used, lubricate splices with a suitable splice compound. Use approved copper to aluminum splice connectors. Unit transformer, furnace (or fan coil) transformer or both may be used as 24-v supply fan system. See Fig. 3. When two 24-volt transformers are used, be sure to phase secondaries. Condensing unit transformer must be used to power condensing unit control circuit.

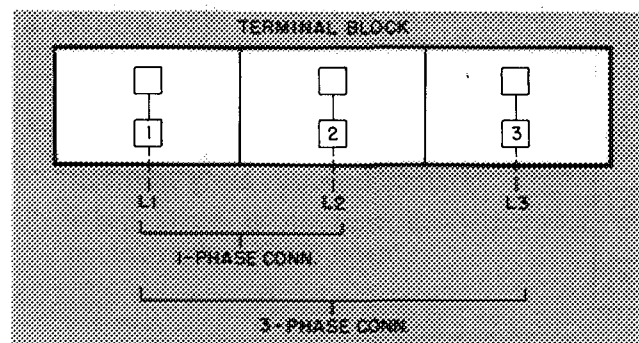


Fig. 2 — Line Power Connections

START-UP INSTRUCTIONS

Energize crankcase heater a minimum of four hours before starting unit.

Start Procedure

1. Backseat (open) liquid and suction line service valves.
2. Close electrical disconnects energizing entire system.
3. Set room thermostat to desired temperature.
4. Set room thermostat to "Cool" and fan switch as desired ("Fan") ("Auto."). Unit will start in 4 to 6 minutes. Operate unit for 15 minutes, then check system refrigerant charge. See Refrigerant Charging.

Motors and controls will operate satisfactorily in a range from 10% above to 10% below nominal unit voltage (Table 4).

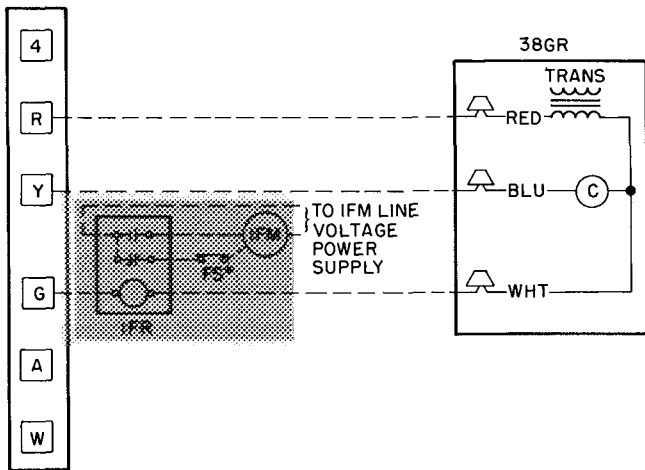
Do not connect charging hoses to capillary-controlled system during initial start procedure. (Loss of charge from this procedure may result in capacity reduction.) If necessary to add manifold gages for servicing, refer to Carrier Standard Service Techniques Manual, Chapter 1, pages 1-5, Fig. 8, for bypass method of returning charge to system.

Table 5 — Service Data

COND UNIT	R-22 CHG* (lb-oz)	CONDENSER FAN			
		Rpm		Diam (in.)	Cfm
		Hi	Lo		
38GR002	4-13	1050	850	20	2800 2300
38GR003	5-6	1050	850	20	2800 2300
38GR004	6-5	1050	850	20	3100 2600
38GR045	6-5	1050	850	20	3100 2600
38GR005	7-0	1070	870	20	3700 3200
38GR006	7-3	1070	870	20	3700 3200

* Factory refrigerant charge adequate when condensing units are connected to Carrier approved evaporators that are the same size as (or one size larger than) condensing unit with Carrier accessory tubing. See Refrigerant Charging for details

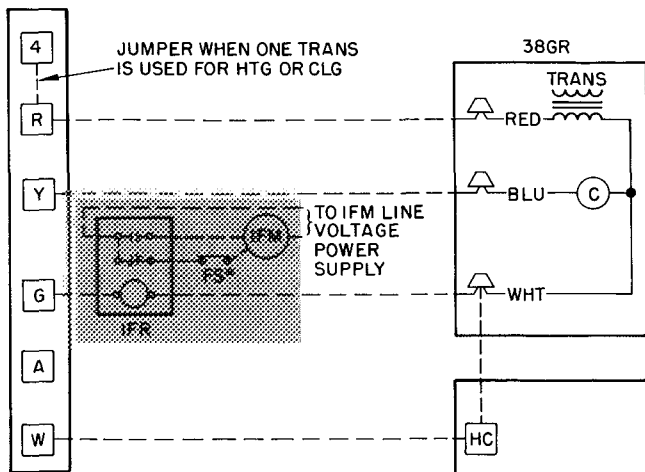
THERMOSTAT SUBBASE TERMINALS
HH93AZ042 OR
HH93AZ040



**ARRANGEMENT A-
(COOLING ONLY)**

*Connect FS to low-speed indoor fan terminal when two-speed fan is used

THERMOSTAT SUBBASE TERMINALS
HH93AZ042 OR
HH93AZ040



**ARRANGEMENT B-
ONE TRANSFORMER
(ONE STAGE HT)**

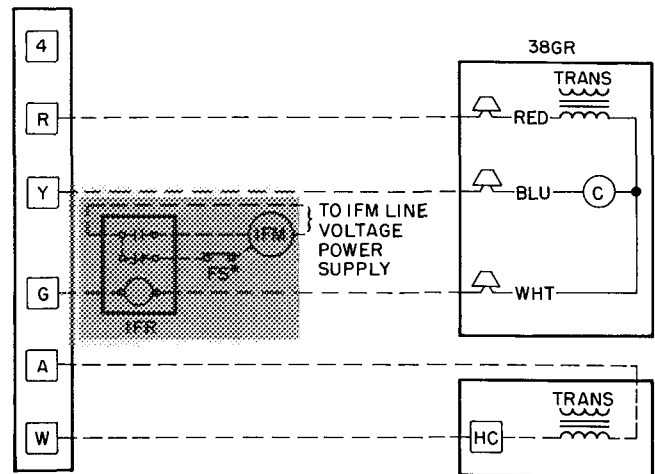
*Connect FS to low-speed indoor fan terminal when two-speed fan is used

NOTE Two transformers required for 24-volt external load over 10 va on cooling or 25 va on heating (See Arrangements C and D.)

IFR - Indoor Fan Relay
If accessory IFR is required for cooling only applications, locate (IFR) in fan coil

C - Contactor
Clg - Cooling
FS - Fan Switch
HC - Heating Control
Htg - Heating
IFM - Indoor Fan Motor

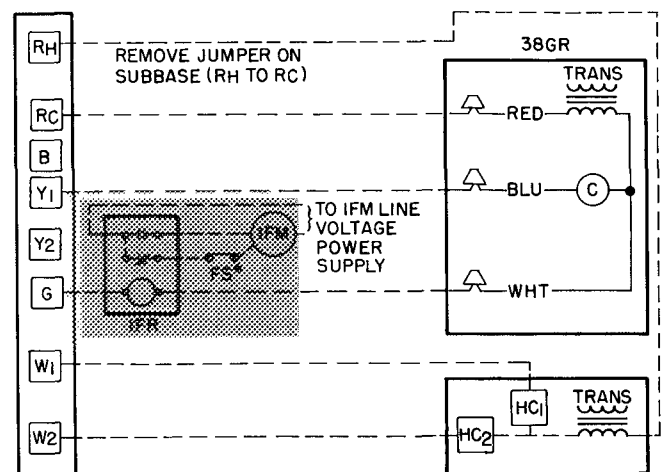
THERMOSTAT SUBBASE TERMINALS
HH93AZ042 OR
HH93AZ040



**ARRANGEMENT C-
TWO TRANSFORMERS
(ONE STAGE HT)**

*Connect FS to low-speed indoor fan terminal when two-speed fan is used

THERMOSTAT SUBBASE TERMINALS
HH93AZ076



**ARRANGEMENT D-
TWO TRANSFORMERS
(TWO STAGE HT)**

*Connect FS to low-speed indoor fan terminal when two-speed fan is used

IFR - Indoor Fan Relay
Trans - Transformer
 Field Splice

--- Field Wiring
— Factory Wiring

NOTE:

On cooling/heating applications where furnace has a transformer - a two-transformer wiring hookup is recommended (Arrangements C and D).

Fig. 3 - Control Circuit Connections

UNIT PROTECTION

- **High-Pressure Relief Valve** is located in compressor. Relief valve opens at a pressure differential of approximately 450 – 550 psi between suction and discharge. Valve permits pressure equalization at running condition described above and during unit shutdown. A hissing sound during pressure equalization does not indicate bad valves.

High Pressurestat is located on unit liquid line and has black leads. High pressurestat settings are: cutout, 425 ± 5 psig; cut-in, 320 ± 20 psig.

Low Pressurestat is located on unit suction line and has blue leads. Low pressurestat settings are: cutout, 31 ± 4 psig; cut-in, $60 + 15$ psig – 0 psig.

Internal Compressor Thermostat resets automatically when internal motor temperatures drop to a safe level (thermostat may require up to 30 minutes to reset). When internal thermostat is suspected of being open, check by using an ohmmeter or continuity tester. If necessary, refer to Carrier Standard Service Techniques Manual, Chapter 2, for complete instructions.

Outdoor Fan Thermostat switches fan to high speed (Table 5) when outdoor temperature reaches 90 F – maintains proper condensing temperature at high outdoor air temperatures. Thermostat is located on Control Panel, Fig. 4.

Filter-Drier is installed in liquid line.

Compressor Protection Control System (CPCS – Solid State, Fig. 4) provides: compressor motor locked rotor protection; compressor start winding protection; compressor motor running overload protection; compressor over temperature protection; contactor anti-chatter protection.

The CPCS also provides for a 4- to 6-minute delay before restarting compressor after shutdown for any reason. If compressor loading was light at the moment compressor was shut off, the delay will be approximately 4 minutes. If loading was heavy, the delay will be approximately 6 minutes. The CPCS board is located on control panel beneath a sheet metal protective cover. To troubleshoot the CPCS, remove protective sheet metal cover, and use unit label diagram or wiring booklet with Control Circuit Troubleshooting Chart, page 6.

CONTROL CIRCUIT TROUBLESHOOTING CHART NOTES:

1. Ensure thermostat calls for cooling before troubleshooting unit.
2. To disconnect plug 1 from receptacle 1 and receptacle 2 from CPCS board – press down on tabs located on top and bottom of the receptacles, and pull gently while holding receptacles. Do not pull on wiring.

3. Receptacle female connections, which are not tightly rounded, may be repaired with a small pen knife.
4. Pins on plug 1 can be slipped out of plug by pushing in on pin locking tab, Fig. 6.
- 5. All voltage readings are taken with receptacle no. 2 connected to CPCS board. Place meter probes into receptacle holes beside wiring. Refer to label diagram for component arrangement.
6. When taking meter readings at receptacle 2 or plug 1, bottom meter probe into terminal hole to ensure good electrical contact.
- 7. When there is no time delay between unit cycles, replace CPCS board.

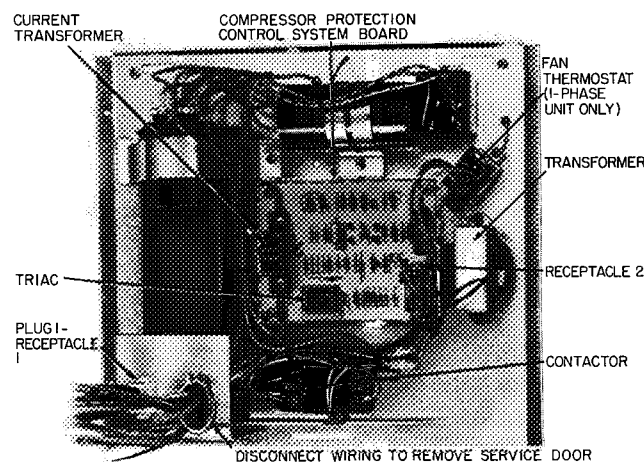


Fig. 4 – Control Panel (Cover Removed)

COMPRESSOR REMOVAL

See Table 6 for compressor information and Fig. 5 for component location.

1. Shut off power to unit. Vent refrigerant to atmosphere or use refrigerant removal methods shown in Carrier Standard Service Techniques Manual, Chapter 1.
2. Remove unit top cover (grille). Open or remove service door.
3. Disconnect plug 1 from receptacle 1 at control box (refer to Service Door, page 2). *If necessary*, remove fan motor leads from plug 1 – pins attached to leads can be slipped out of plug by pushing in on pin locking tab (Fig. 6). Remove six screws holding fan motor orifice assembly in place and lift assembly from unit.
4. Compressor sound shield is fastened to tube sheets with four screws and to base pan with three. Loosen screws and remove sound shield by sliding it straight up using tube sheets as guides.
5. Remove power leads from compressor terminal box. Unsweat suction and hot gas lines.
6. Remove compressor hold-down bolts. Lift compressor out thru top of unit.

CONTROL CIRCUIT TROUBLESHOOTING CHART

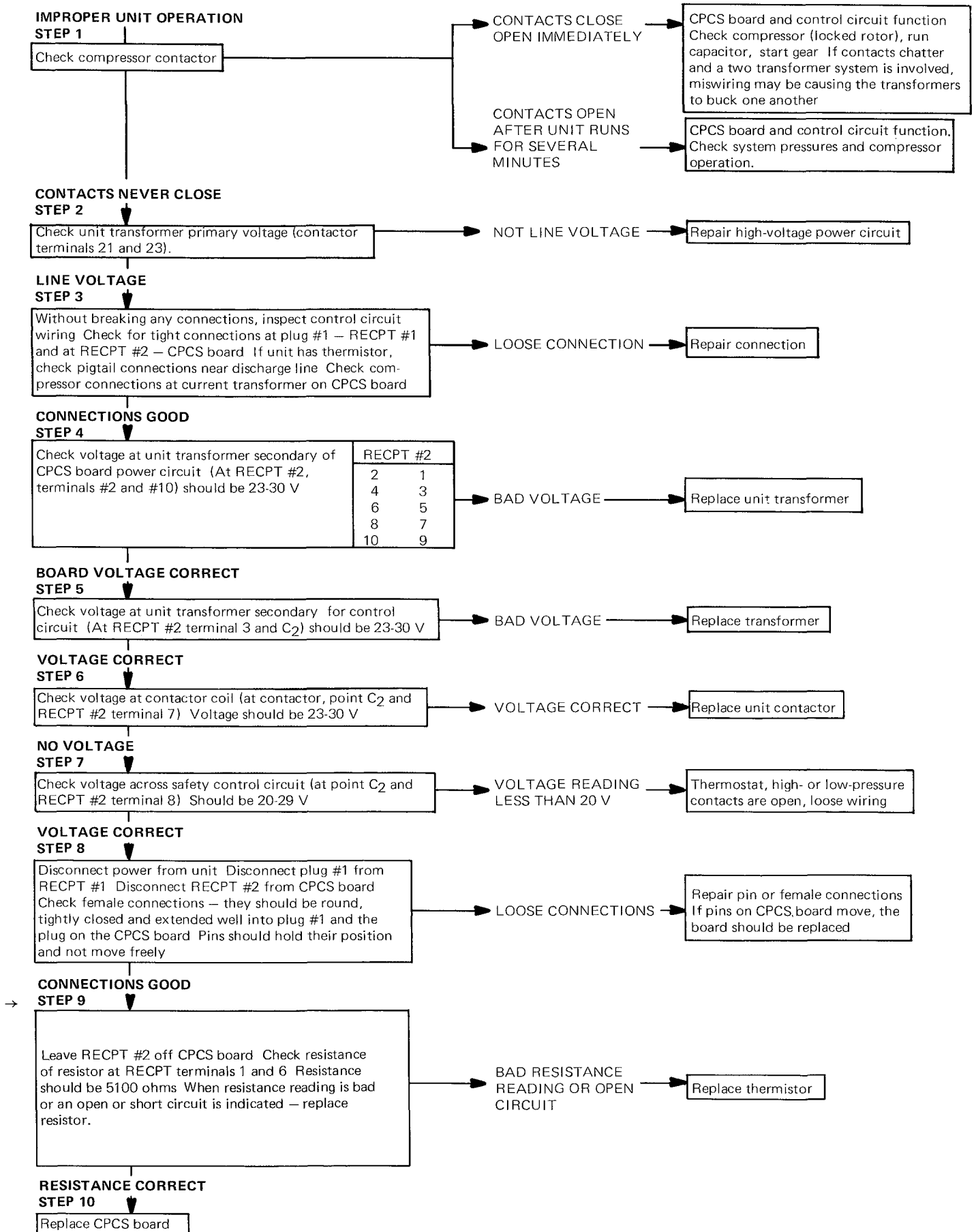


Table 6 – Compressor Data

COND UNIT	V/PH	PRODUCTION COMPRESSOR*	OIL RECHARGE (oz)
38GR002---	230/1*	38GL400324	40 5
38GR002310		MD2723CB	43 2
38GR003---		38GR400234	31 5
38GR003310		MC3423CB	43 2
38GR004---		38GC401564	45 0
38GR004310		MC4023CB	43 2
38GR045---		48DL400794	45 0
38GR005---	200/3	RC5425CJ	72 0
38GR006---		RC7025CT	72.0
38GR003---		RF3522CJ	50.4
38GR003410		MF3423CB	43 2
38GR004---		RF3922CJ	50 4
38GR004410		MF4023CB	43 2
38GR045---		48DL400804	45 0
38GR005---	230/3	RF5425CJ	72 0
38GR006---		RF7025CJ	72.0
38GR003---		RG3522CJ	50 4
38GR003510		MG3423CB	43 2
38GR004---		RG3922CJ	50.4
38GR004510		MG4023CB	43 2
38GR045---		48DL400804	45.0
38GR005---	460/3	RG5425CJ	72 0
38GR006---		RG7025CJ	72.0
38GR004---		RH3922CJ	50.4
38GR004610		MH4023CB	43 2
38GR045---		48DL400814	41 4
38GR005---		RH5425CJ	64 8
38GR006---		RH7025CJ	64 8

*All 38GR single-phase compressors are capacitor start. Refer to Service Parts Catalog for replacement compressor model numbers

---Tabular data shown applicable to all models except those shown italicized 000

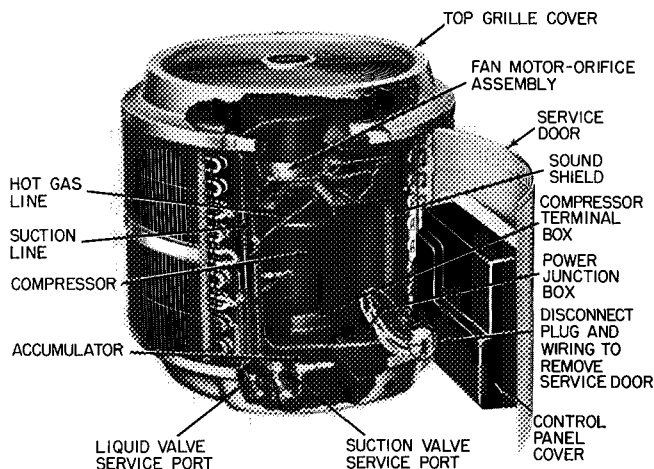


Fig. 5 – Condensing Unit with Service Door Open

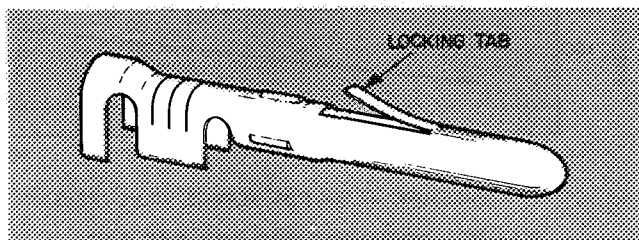


Fig. 6 – Pin Locking Tab

PUMPDOWN PROCEDURE

The 38GR units may be pumped down in order to make repairs on low side of system without losing complete refrigerant charge.

1. Attach pressure gage to suction service valve gage port.
2. Frontseat the liquid line valve.
3. Jumper low-pressure switch.
4. Start unit and run until suction pressure reaches 5 psig (see CAUTION).
5. Shut unit off and frontseat suction valve.
6. Vent remaining pressure to atmosphere.

CAUTION: The 38GR condensers will hold only factory supplied amount of refrigerant. Additional refrigerant may cause units to cycle on high pressurestat (indicated by a high discharge pressure or a sudden rise of suction pressure) before suction pressure reaches 5 psig. If this occurs, shut unit off immediately, frontseat suction valve and vent remaining pressure to atmosphere.

REFRIGERANT CHARGING

38GR units contain correct operating charge for complete system when connected to Carrier approved evaporators that are the same as (or one size larger than) condensing unit, with Carrier accessory tubing. For every 10 ft of liquid line of recommended size over 50 ft, add refrigerant charge as follows: .7 lb for 1/2 in. line, .4 lb for 3/8 in. line, 1.1 lb for 5/8 in. line. Charge adjustment may be required on other systems.

To check or adjust refrigerant charge on all Carrier approved systems, use a Carrier *Chargemaster*™ (Part No. 38GC680004) for capillary tube systems or *Charging Chart Method* for thermal expansion valve systems.

To recharge these systems, use *Weight Method* when evaporator is same size or one size larger than condensing unit, and they are connected with Carrier accessory tubing; *Chargemaster* for remaining Carrier capillary tube systems and *Charging Chart Method* for remaining Carrier thermal expansion valve systems. When 38GR condensing unit is connected to other than a Carrier evaporator, use *Weight Method* or *Sight Glass Method* of recharging.

Evacuate 38GR systems to 5,000 microns (29.7-in. vacuum) before recharging. Refer to Carrier Standard Service Techniques Manual, Chapter 1, for system evacuation-dehydration instructions and details of charging instructions listed below.

CAUTION: Do not overcharge these systems. An overcharge may result in compressor damage due to refrigerant flooding.

Charging Chart Method — Use Charging Chart, Fig. 7 or 8. See Carrier Standard Service Techniques Manual, Chapter 1, for procedure.

Weight Method — Refer to Table 5 or unit nameplate for correct system refrigerant charge. Blow any refrigerant remaining in system before recharging.

When system is not evacuated, subtract the following amount from total charge:

38GR002 — .10 lb (1.6 oz)

38GR003,004,045,005,006 — .20 lb (3.2 oz)

Keep refrigerant recharge within one oz of specified charge on 38GR002 systems and within 2 oz on 38GR003,004,045,005,006 systems.

Dial-a-charge charging cylinder is an accurate device used to recharge systems by weight. These cylinders are available at refrigeration supply firms.

Chargemaster™ Operation — Operate unit 10 minutes before using *Chargemaster* (Carrier Part No. 38GC680004).

1. Tape *Chargemaster* feeler bulb to suction line close to condensing unit. Insulate bulb. Ensure suction line is clean for good contact with bulb.
2. Connect refrigerant drum to *Chargemaster* inlet port with drum in position for vapor charging.
3. Connect *Chargemaster* outlet port to unit suction valve service port.
4. Crack valves on refrigerant drum and *Chargemaster* to purge lines from drum to suction valve. After purging lines, close valve on *Chargemaster* only.
5. Measure outdoor air dry-bulb temperature.
6. Crack unit suction valve and read *evaporator temperature at red needle position on Chargemaster temperature gage and suction line temperature at black needle position.*

CAUTION: Do not read evaporator temperature with *Chargemaster* valve open.

7. Enter Suction Line Temperatures table at outdoor air temperature (step 5) and evaporator temperature (step 6). Find the suction line temperature required for correct system charge. If actual suction line temperature (step 6) is higher than table value, the system is undercharged. If suction line temperature is lower than table value, the system is overcharged.

Example: At outdoor air temperature of 85 F and evaporator temperature of 40 F, the system will be correctly charged at 71 F (± 2 F) suction line temperature.

8. Add charge by slowly opening *Chargemaster* valve. If necessary, reduce charge by bleeding at liquid line service valve. Check outdoor air and evaporator temperature during procedure. If they change, refer back to Suction Line Temperatures table for new value.

Correct use of *Chargemaster* ensures an optimum refrigerant charge will be in system when conditions and system components are normal. However, the *Chargemaster* does not solve or fix

system abnormalities. It indicates correct charge for condition of system. It will not make corrections for dirty filters, slow fans, excessively long or short suction lines or other abnormal conditions. This charging device ensures that a correct relationship exists between outdoor temp, evaporator temp, and suction line temp on a specific system.

Sight Glass Method — A satisfactory operating charge can be obtained on 38GR TXV systems by charging to a clear sight glass. For optimum charge, use Charging Chart Method.

Elevate high-side pressure to 380 ± 10 psig by blocking condenser fan discharge or condenser entering air. Charge to a clear sight glass while holding high-side pressure constant.

Table 7 — Suction Line Temperature (F)

OUTDOOR TEMP (F)	EVAPORATOR TEMP (F)													
	28	30	32	34	36	38	40	42	44	46	48	50		
60	60													
65	49	58	65											
70	41	48	58	68	70									
75	35	41	48	58	68	75								
80	31	36	42	50	59	69	80							
85		32	38	44	52	60	71	82						
90			35	40	47	53	61	69	78					
95				37	42	48	53	59	67	79				
100					39	43	47	52	58	68	88			
105						40	44	48	53	60	75	104		
110							41	44	49	54	65	80		
115									46	50	62	69		

Example

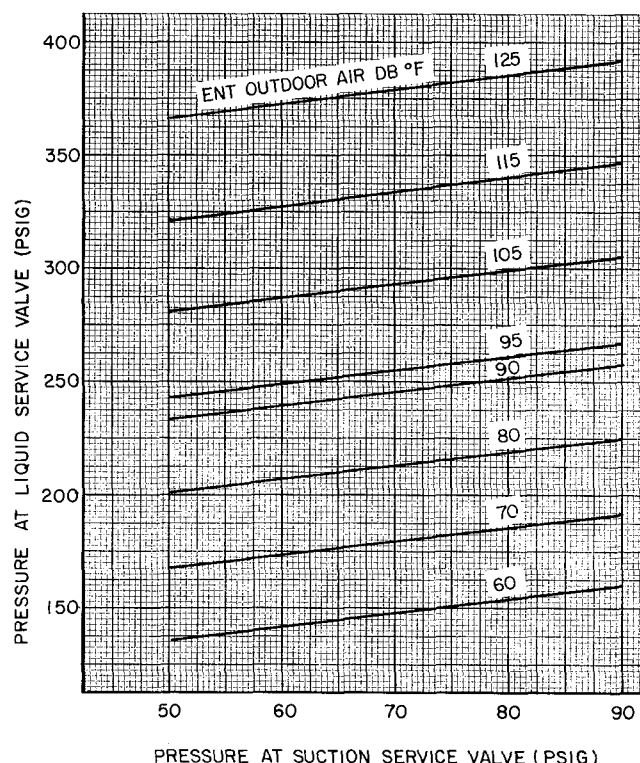


Fig. 7 — 38GR002,003,004,045,005
Charging Chart — TXV Systems

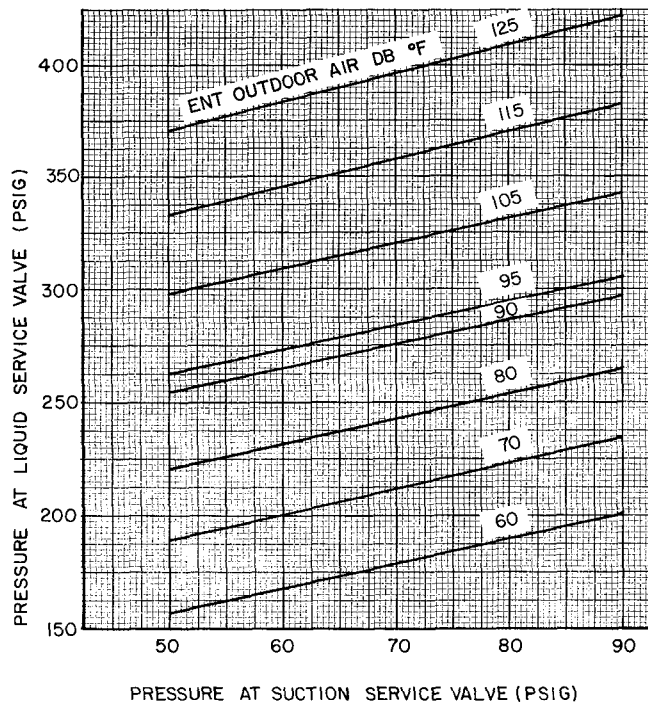


Fig. 8 – 38GR006 Charging Chart – TXV Systems

COMPATIBLE FITTING REPAIR

Leaking Mechanical Connection – Frontseat condensing unit service valves and relieve refrigerant pressure in tubing. Back locknut off Compatible Fitting onto tube. Cut fitting between threads and seal ring head as shown in Fig. 9. Remove tubing section remaining in threaded portion of fitting. Discard locknut.

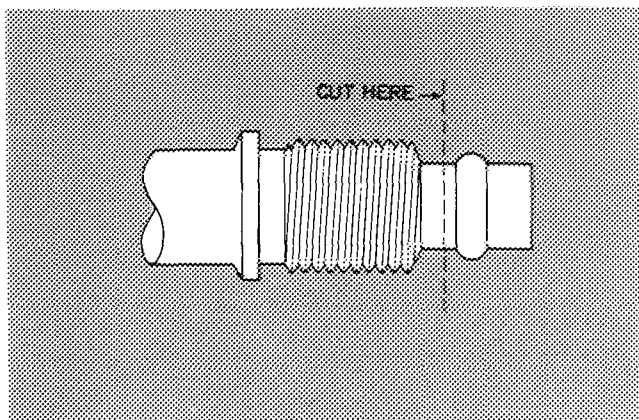


Fig. 9 – Repair of Mechanical Connection

Clean, flux, and insert new tube end into remaining portion of Compatible Fitting. *Wrap valve base in wet rag.* Heat and apply low temperature (450 F) solder.

Leaking Sweat Connection – Frontseat service valves and relieve refrigerant pressure in tubing. Clean and flux area around leak and apply low temperature (450 F) solder.

Evacuate or purge evaporator coil and tubing system. Add refrigerant charge (see charging instructions).

CONDENSER

Coil Cleaning – Clean by washing with refrigerant, low-pressure water or steam.

Fan is correctly positioned in unit by placing fan on motor shaft – align flat mark on top of fan hub with flat on shaft. Press down evenly on top of fan hub until shaft bottoms in fan hub.

Fan Motor Removal

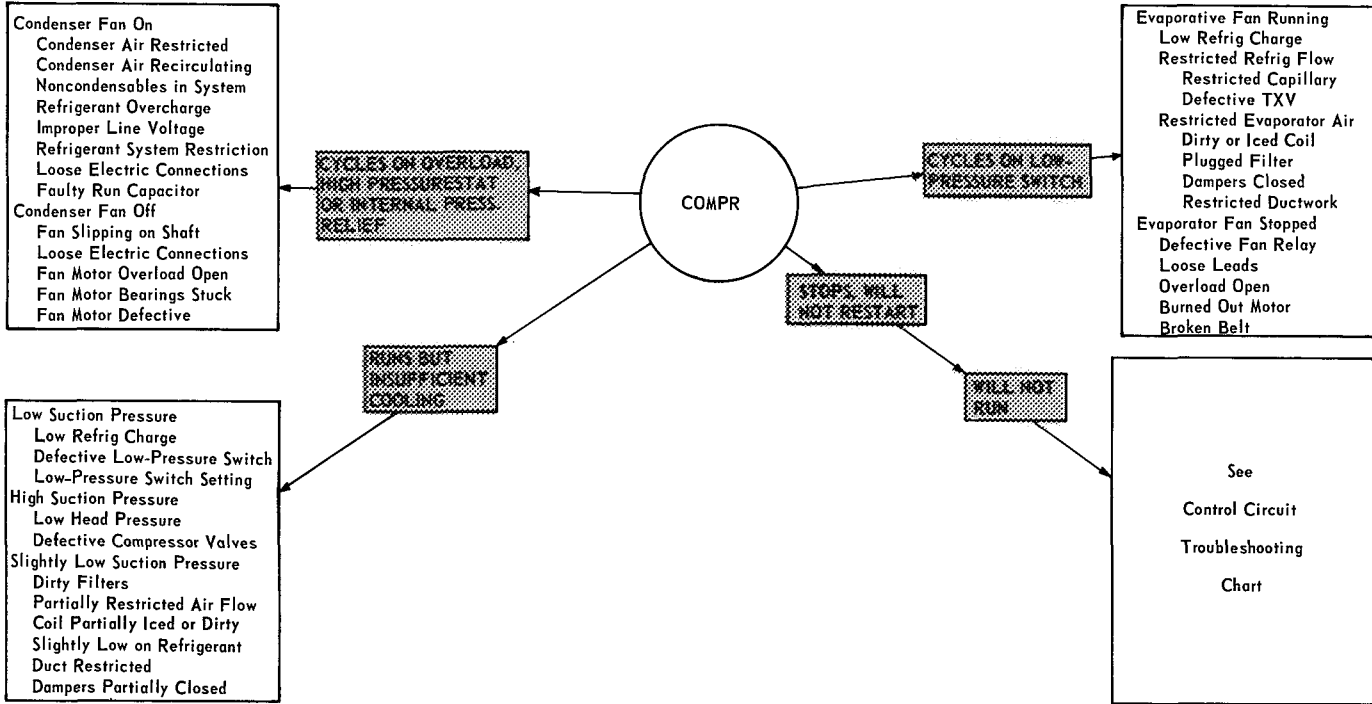
1. Shut off power to unit.
 2. Remove unit top cover (grille). Open or remove service door. With door open, remove control panel cover.
 3. Disconnect plug 1 from receptacle 1 at control box (refer to Service Door, page 2). Remove fan motor leads from plug 1. Pins attached to leads can be slipped out of plug by pushing in on pin locking tab (Fig. 6).
 4. Remove fan from motor shaft by pulling upward on fan hub.
 5. Remove bolt holding fan motor to motor mounting bracket. Remove motor with wiring thru top of unit. To replace motor: place motor on self-positioning motor mounting bracket and retighten bolt.
- When replacing metal fan with plastic fan, remove slinger and spacer from fan motor shaft. Wipe motor shaft clean – remove all rust preventative.

LUBRICATION

Fan Motor Bearings are prelubricated.

Compressor contains factory oil charge. When oil is lost, see Table 6 for oil recharge and Carrier Standard Service Techniques Manual, Chapter 1, page 1-21, for instructions. Use Carrier PP33-1, Texaco Capella B or Suniso 3G oil.

TROUBLESHOOTING CHART



For replacement items use Carrier Specified Parts.

Manufacturer reserves the right to change any product specifications without notice.

CARRIER AIR CONDITIONING COMPANY • SYRACUSE, NEW YORK