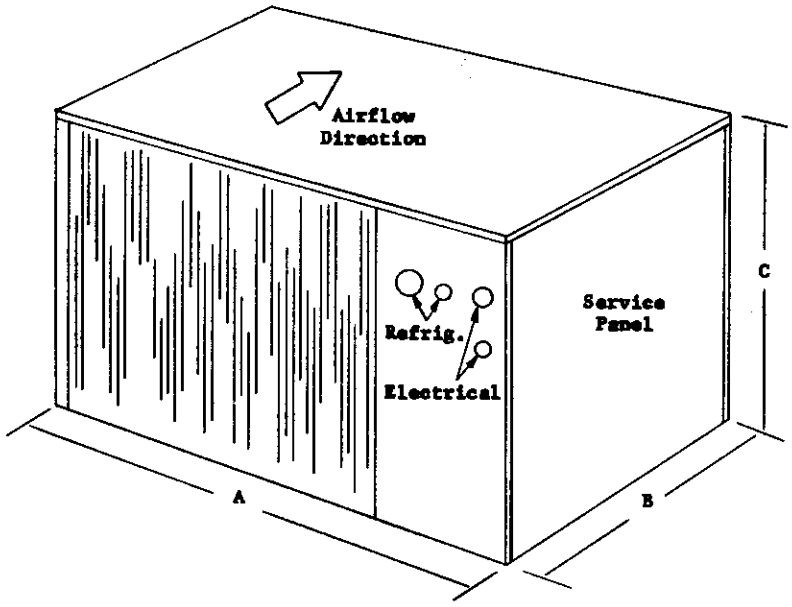
SPLIT SYSTEM AIR CONDITIONERS

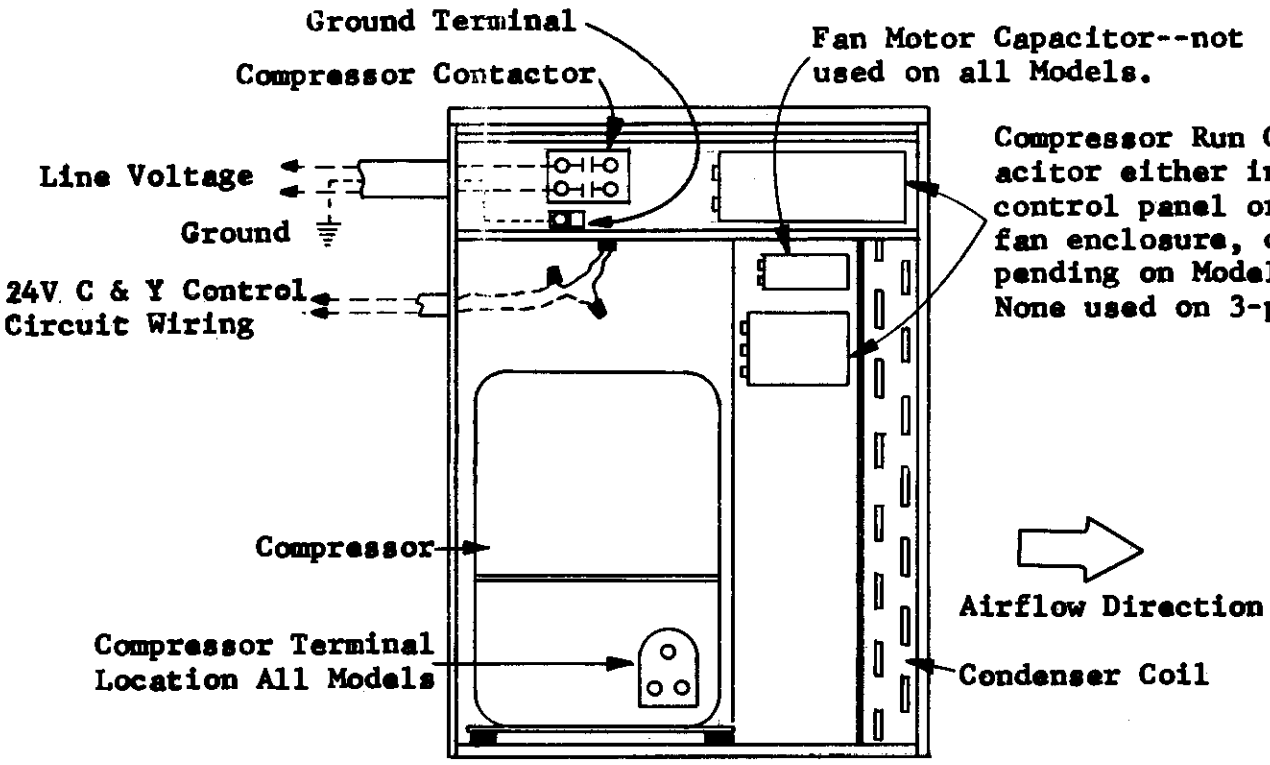
INSTALLATION INSTRUCTIONS



MODEL	18ECQ1 24ECQ1	30ECQ2, 31ECQ 36ECQ4, 37ECQ	42ECQ, 48ECQ1, 60ECQ1
Dimension			
A	36	40	48
B	18	18	18
C	21	22-5/8	30-3/4

MODEL	18ECQ1	24ECQ1	30ECQ2	31ECQ	36ECQ4	36ECQ4	37ECQ	42ECQ	42ECQ	48ECQ1	48ECQ1	60ECQ1	60ECQ1
Electrical Rating*	230/208-1		230-1	230/208-1	230-1	240-3	230/208-1	230-1	240-3	230-1	240-3	230/208-1	230/208-3
Operating Voltage -Minimum	197	197	207	197	197	187	197	197	187	197	187	197	187
Operating Voltage -Maximum	253	253	253	253	253	264	253	253	264	253	264	253	264
Total Unit Amps	13.5	15.5	17.6	14.6	25.6	13.8	19.6	24.6	15.6	26.6	17.6	31.8	22.8
Min. Cir. Amp.	17	19	22	18	32	17	24	30	19	33	22	39	28
60° Copper Wire Size	#12	#12	#10	#12	#8	#12	#10	#10	#12	#8	#10	#8	#10
Ground Wire Size	#12	#12	#10	#12	#10	#12	#10	#10	#12	#10	#10	#10	#10
Maximum Time Delay Fuse	25	30	35	30	50	25	40	50	30	50	35	60	45
Compressor Type	PSC	PSC	PSC	PSC	PSC	3-Phase	PSC	PSC	3-Phase	PSC	3-Phase	PSC	3-Phase
Crankcase Heat Type	Internal					External	Internal		External	Internal	External	Internal	Internal
Fan Motor-HP/RPM	1/5 / 1050							1/3 / 825					
Fan Motor Nameplate-F.L.A.	1.5A	1.5A	1.6A	1.6A	1.6A	1.6A	1.6A	2.6A	2.6A	2.6A	2.6A	2.6A	2.6A
Fan Dia/CFM	18"/1950		20"/2600					24"/3600					
Coil Face Area, Ft^2.	3.75	3.75	5.04	5.04	5.04	5.04	5.04	7.7	7.7	7.7	7.7	7.7	7.7
Coil Rows/FPI	2/18	2/18	2/18	3/16	2/18	2/18	3/16	2/15	2/15	2/15	2/15	3/14	3/14
Shipping Wt. Lbs.	128	140	182	186	193	193	193	225	225	276	276	286	286

*All ratings shown are 60 Hertz.



TYPICAL ECQ ENDVIEW
SERVICE PANEL END

CFM REQUIREMENTS FOR MATCHING INDOOR COIL SECTIONS		
Outdoor Unit Model	Indoor Coil Model	Rated CFM/Press. Drop In. H_2O ⚠1
18ECQ1	18QS3	625/.30
	B18EQ1	650/.10 ⚠1
24ECQ1	24QS	900/.30
	2ACQ	900/.30
	B24EQ1	830/.10 ⚠1
30ECQ2	3ACQ3	1070/.16
	3HCQ	950/.30
	B36EHQ	1080/.30 ⚠1
31ECQ	3ACQ3	1100/.17
	3HCQ	1100/.30
	B36EHQ	1070/.35 ⚠1
36ECQ4	3ACQ3	1260/.29
	3HCQ	1000/.30
	B36EHQ	1300/.25 ⚠1
37ECQ	3ACQ3	1300/.30
	3HCQ	1100/.30
	B36EHQ	1325/.30 ⚠1
42ECQ	4ACQ1	1400/.20
	4HCQ	1400/.21
	B48EHQ	1625/.30 ⚠1
48ECQ1	4ACQ1	1600/.25
	5ACQ1	1600/.19
	4HCQ	1600/.25
	B48EHQ	1625/.30 ⚠1
60ECQ1	5ACQ1	2100/.21
	5HCQ	1650/.30
	B48EHQ	1625/.30 ⚠1

⚠1 External Resistance, In. H_2O, for Models With "B" Prefix.

GENERAL

These instructions explain the recommended method to install the pre-charged air cooled remote type condensing unit, the interconnecting pre-charged refrigerant tubing and the electrical wiring connections to the unit.

The condensing units are to be used in conjunction with the matching pre-charged evaporator coils or pre-charged evaporator blower units for comfort cooling applications as shown in the specification sheet.

These instructions and any instructions packaged with any separate equipment required to make up the entire air conditioning system should be carefully read before beginning the installation. Note particularly "Connecting Quick-Connect Couplings, Starting Procedure" and any tags and/or labels attached to the equipment.

The installation should be made in accordance with national codes and/or local codes.

Authorities having jurisdiction should be consulted before the installation is made.

LOCATION

The condensing unit (outdoor unit) must be located in an area having good air circulation and set where the hot discharge air from the unit will not be recirculated into the condensing coil. Figure 1 illustrates the recommended clearances for unrestricted airflow and service access.

MOUNTING UNIT OUTSIDE ON SLAB

A solid level base or platform, capable to support the unit's weight, must be set at the outdoor unit predetermined location. The base should be at least two inches larger than the base dimensions of the unit and at least two inches higher than the surrounding grade level. The required unit minimum installed clearances must be maintained as called out in figure 1 when locating and setting the base.

Remove the unit from its shipping crate and position the unit on the prepared base or platform.

Do not attach the unit or its base to the building structure to avoid the transmission of noise into the occupied area.

NOTE: These units employ internally sprung compressors; therefore, it is not necessary to remove or loosen the base mounting bolts on the compressor prior to operation.

Consideration should be given to the electrical and tubing connections when placing the unit to avoid unnecessary bends or length of material.

WIRING

All wiring must be installed in accordance with the National Electrical Code and local codes. Power supply voltage must conform to the voltage shown on the unit serial plate. A wiring diagram of the unit is attached to the inside of the electrical cover. The power supply shall be sized and fused according to the specifications supplied. A ground lug is supplied in the control compartment for equipment ground.

The control circuit is a 24 volt circuit. "Typical" wiring diagrams illustrating some of the various circuits which could be encountered can be found on pages 7 and 8.

Model 30ECQ2 and 36ECQ4 when matched with B36EHQ blower coil unit should be wired according to the control circuit wiring diagrams shown in the B36EHQ installation instructions. The instructions describe which control circuit diagram should be used based upon installed Kw of electric heat. If OKw model is installed, use diagram AAH-1 and disregard the wire between W terminal at thermostat and J terminal at B36EHQ 24V terminal strip.

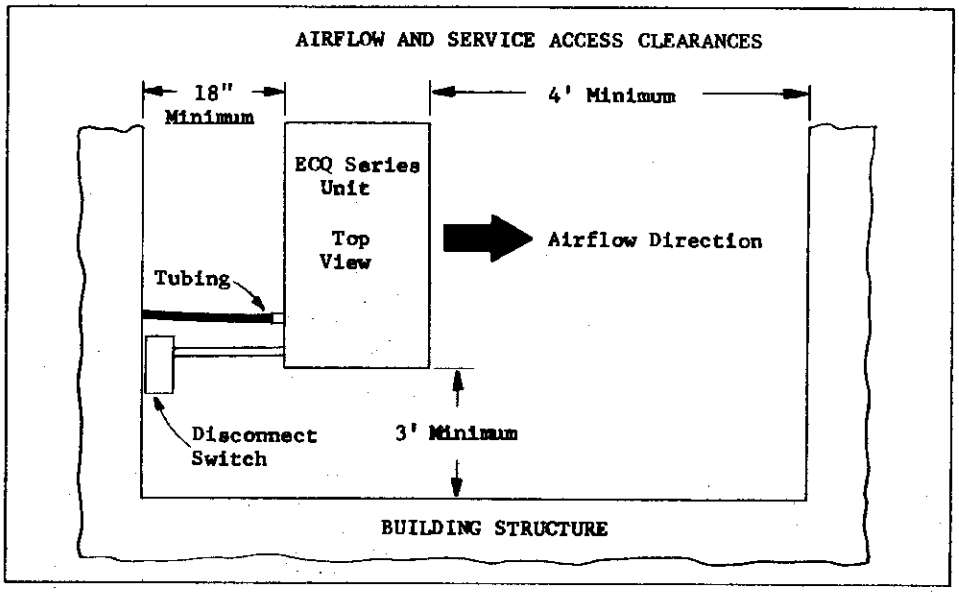
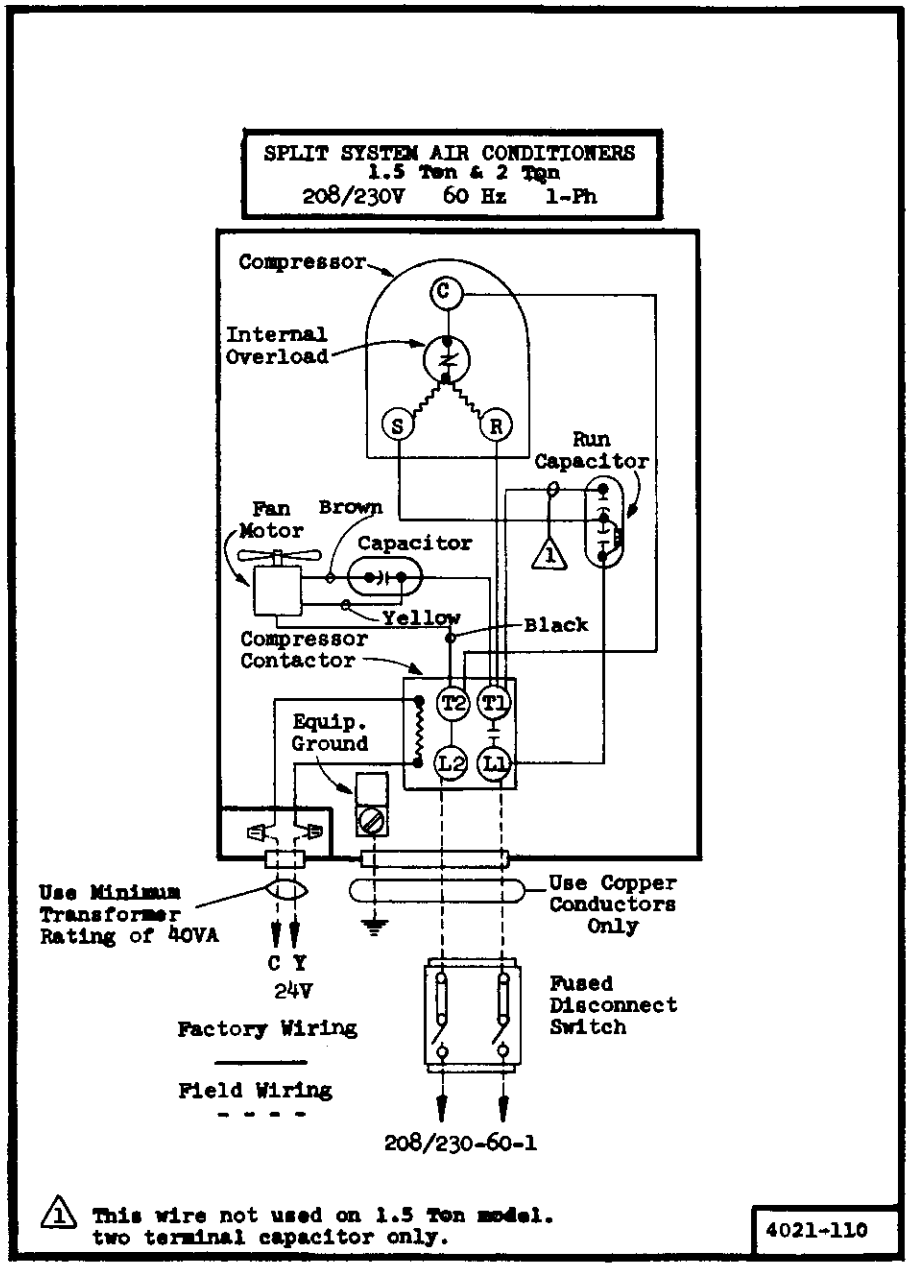
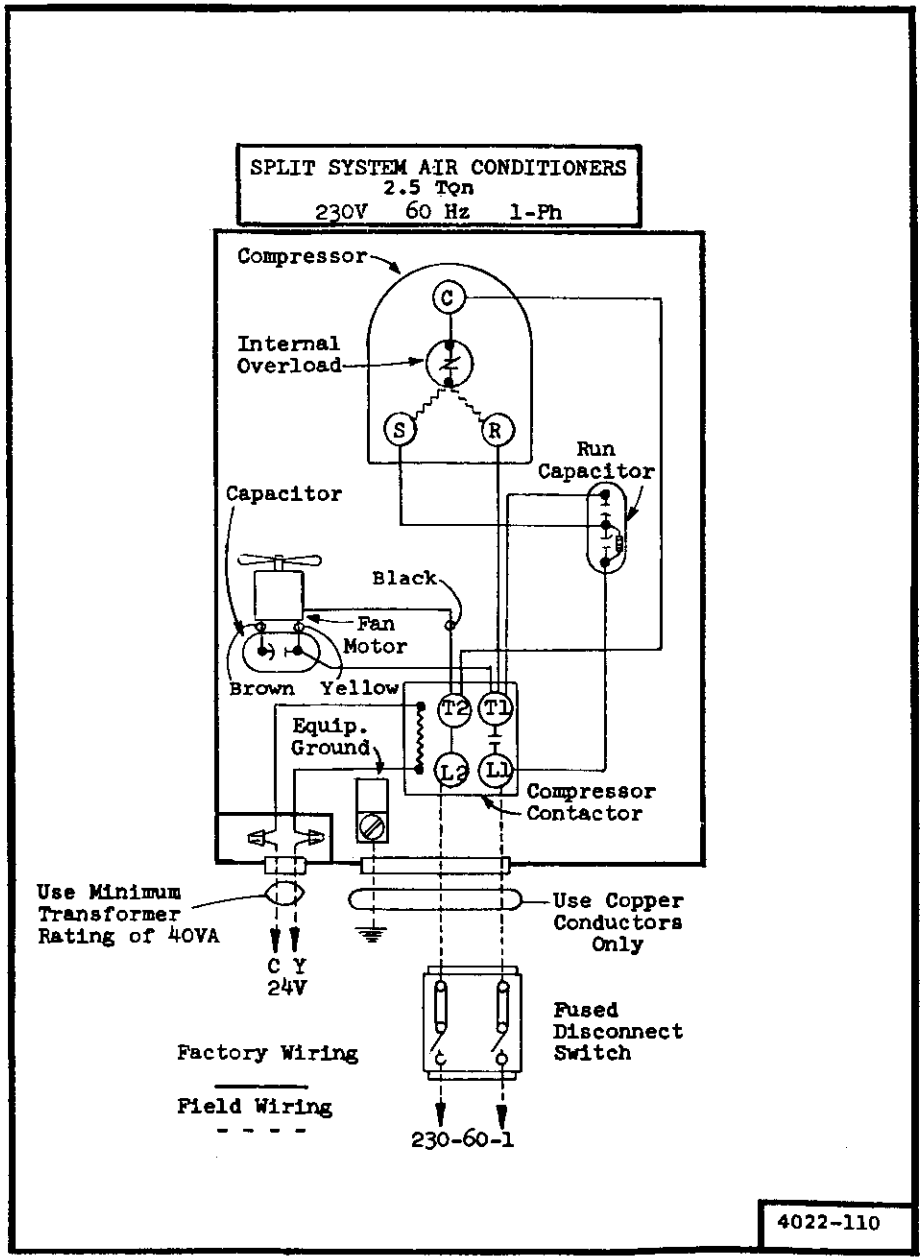


Figure 1

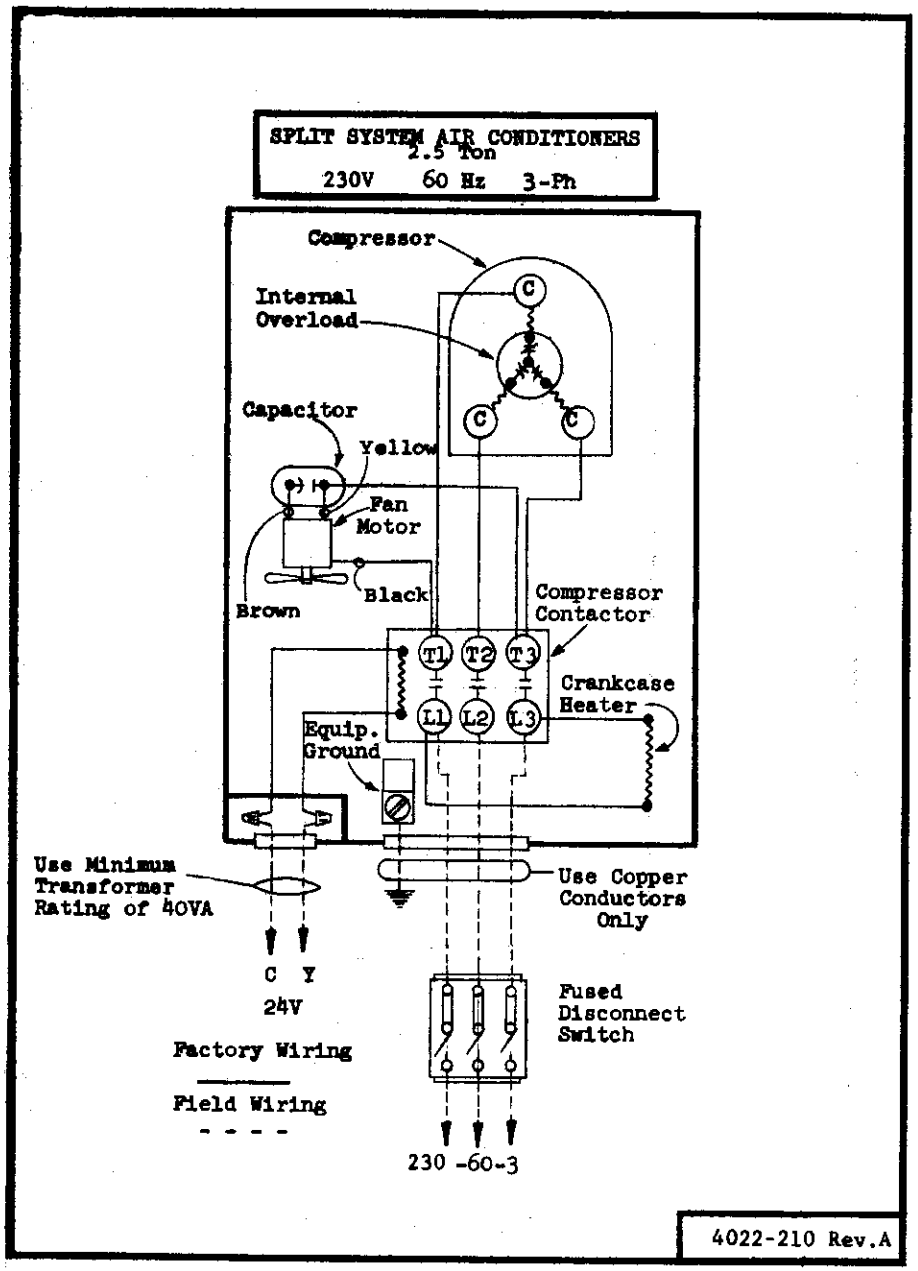
18ECQ1 and 24ECQ1



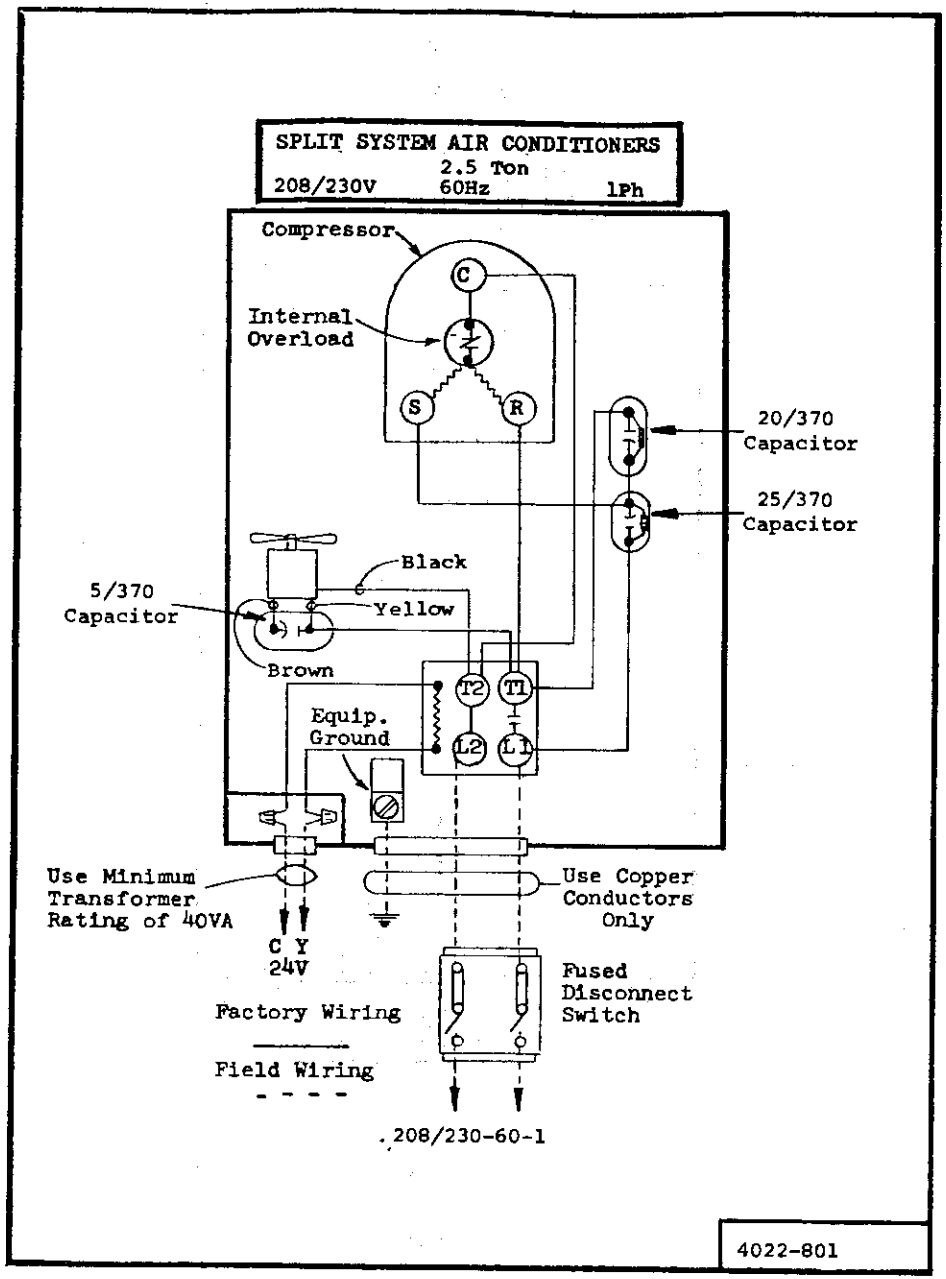
30ECQ2



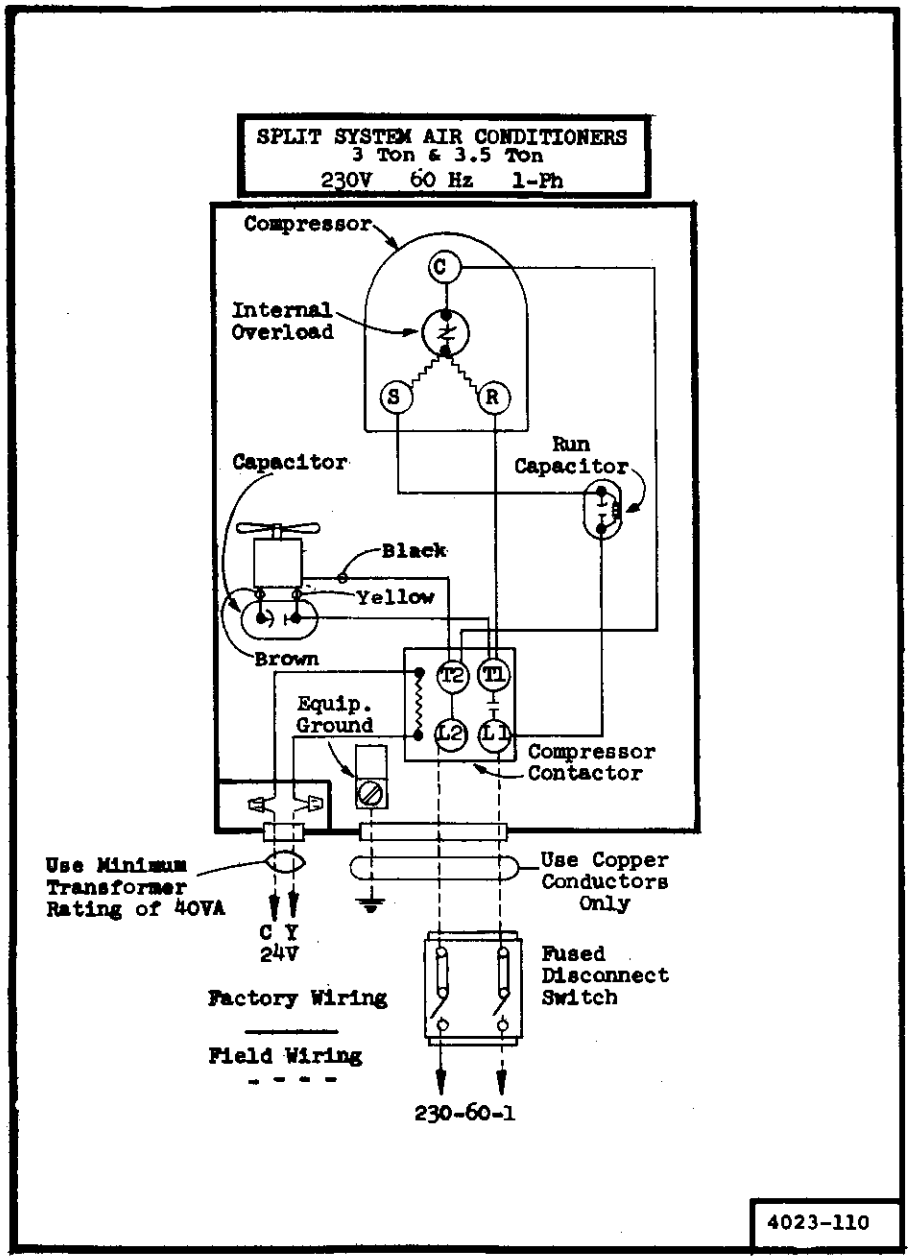
30ECQ2



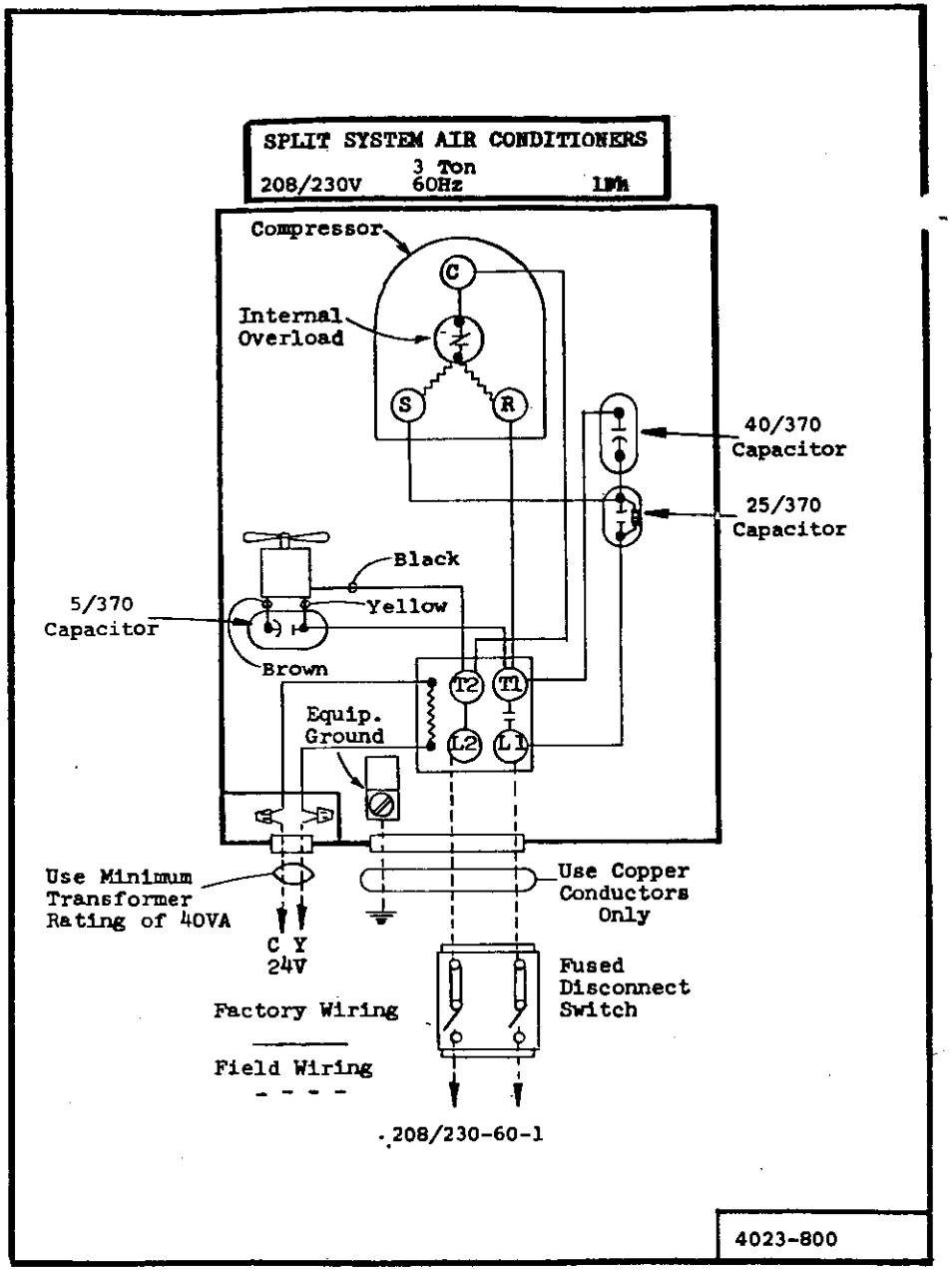
31ECQ



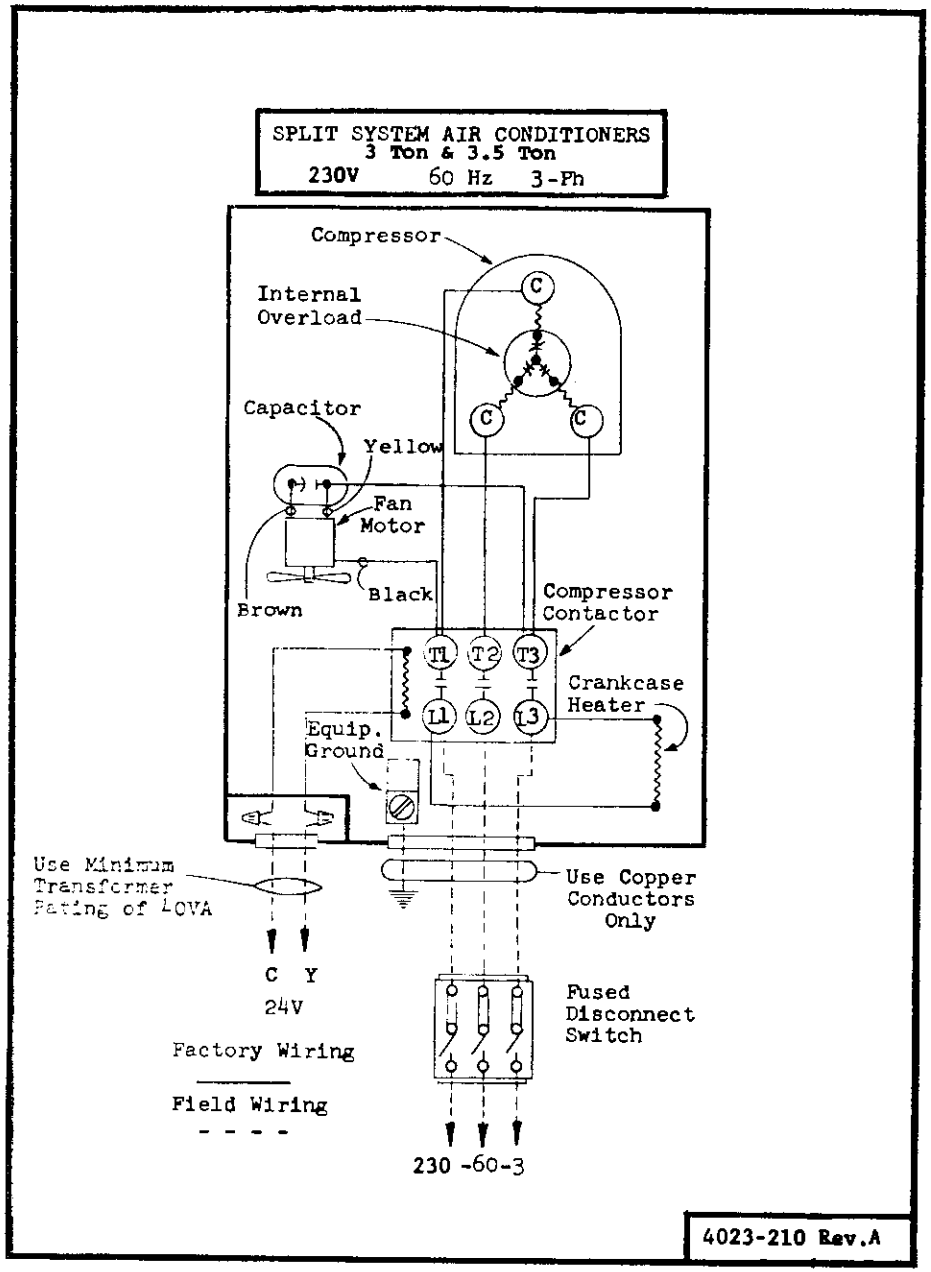
36ECQ4 and 42ECQ



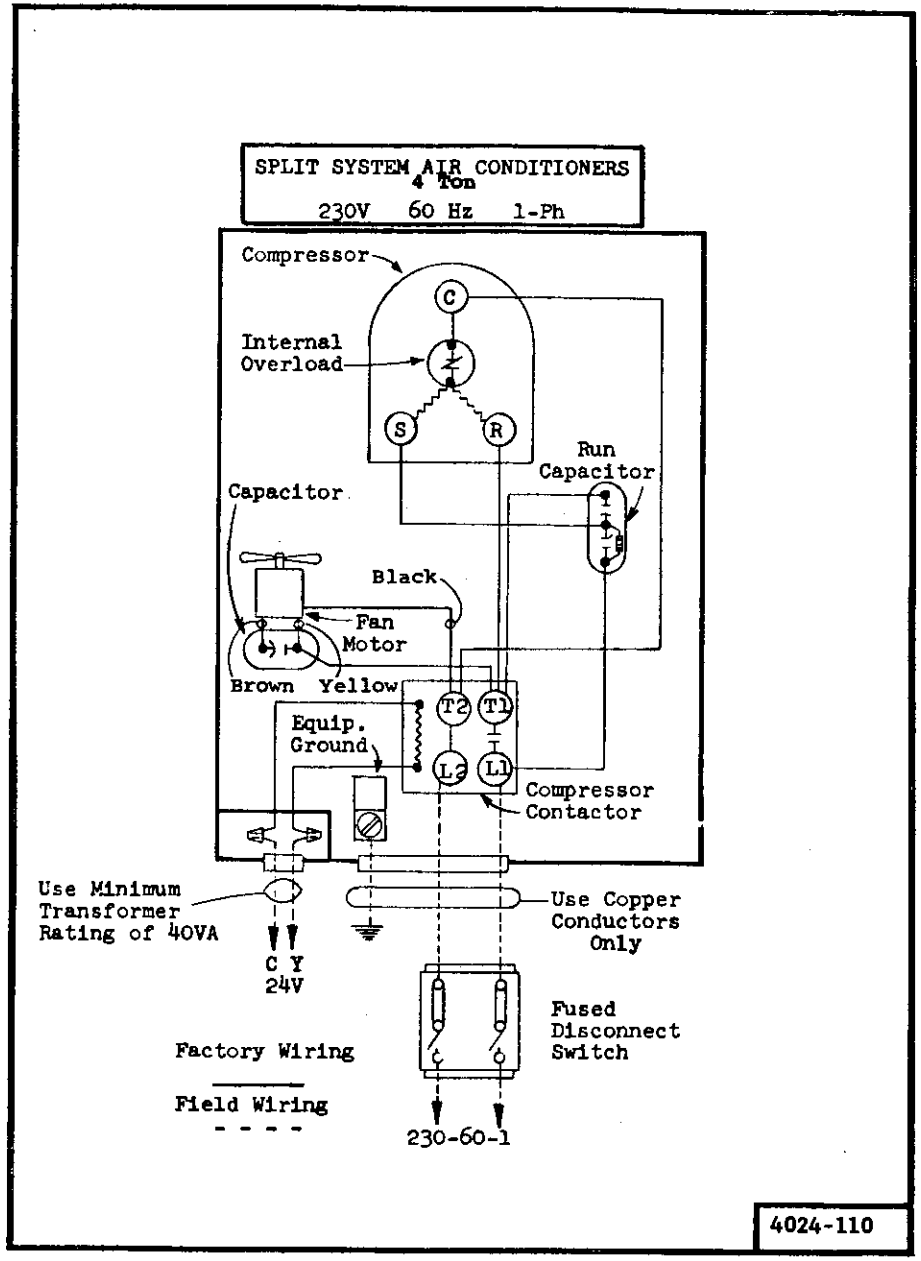
37ECQ



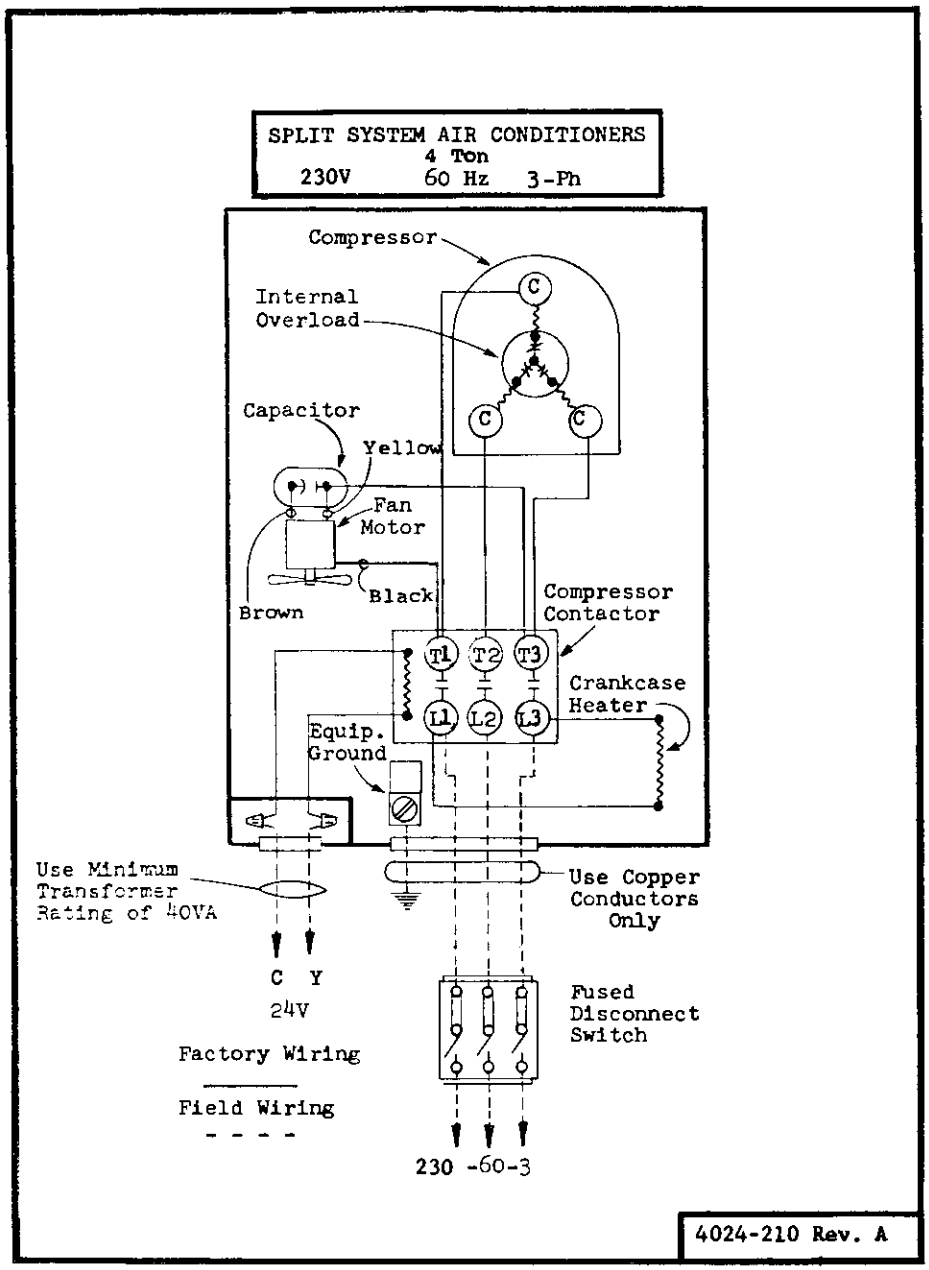
36ECQ4 and 42ECQ



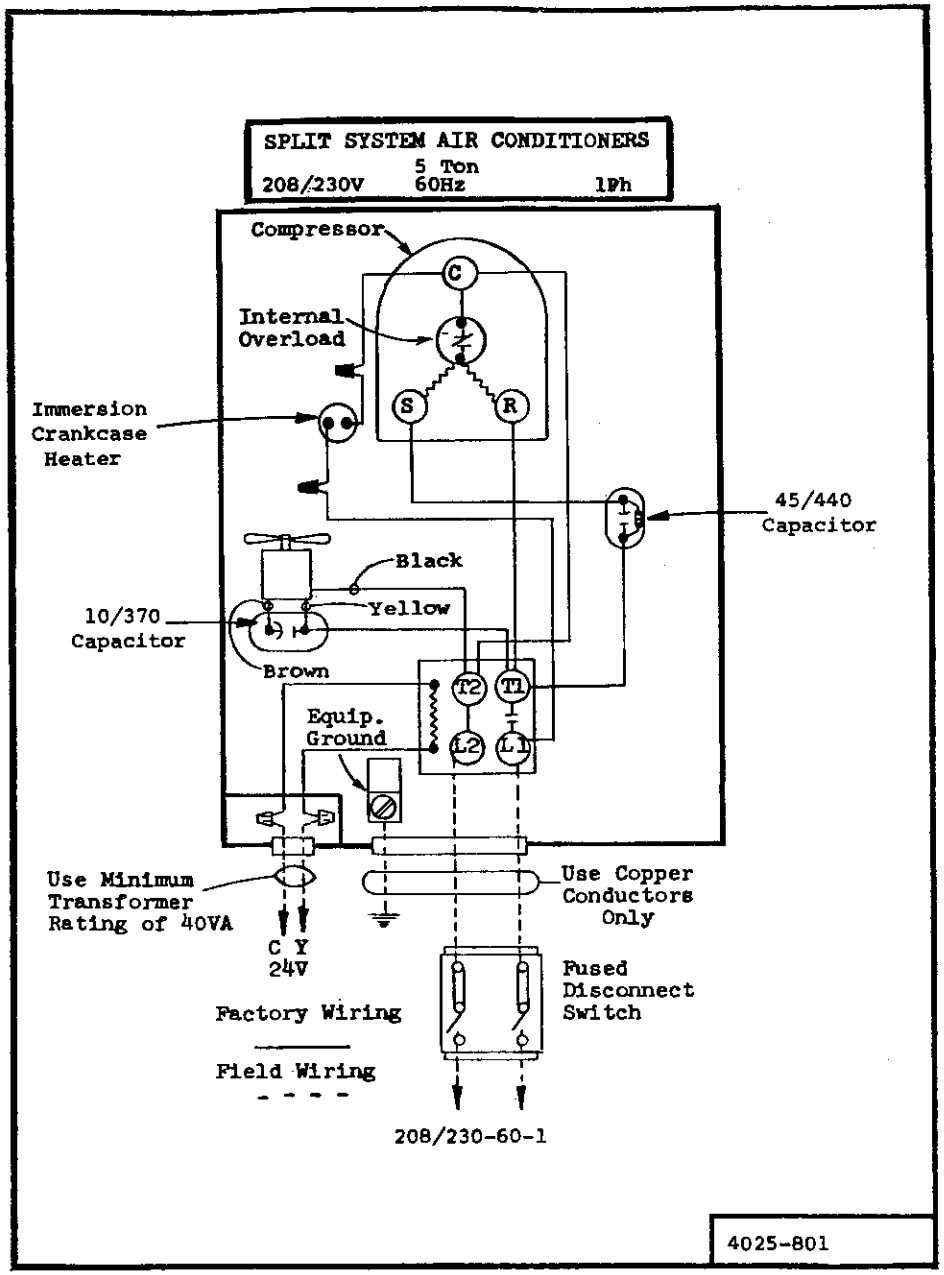
48ECQ1



48ECQ1

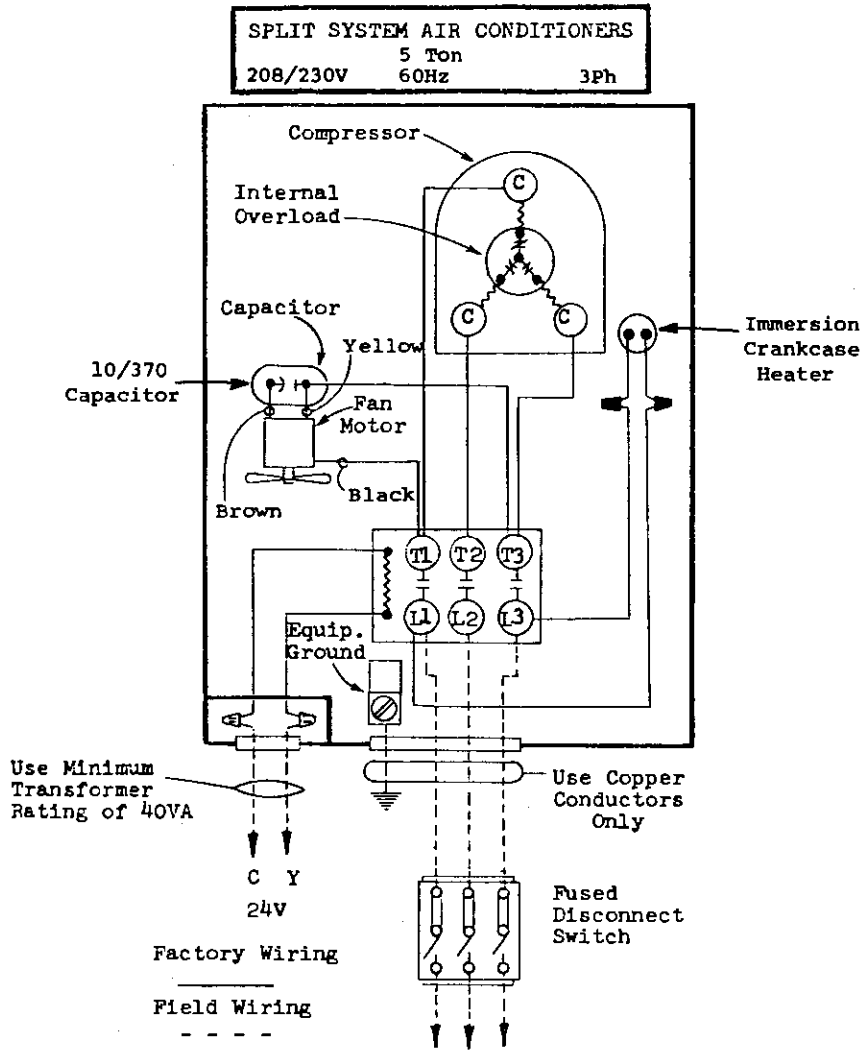


60ECQ1



60ECQ1

SPLIT SYSTEM AIR CONDITIONERS
5 Ton
208/230V 60Hz 3Ph

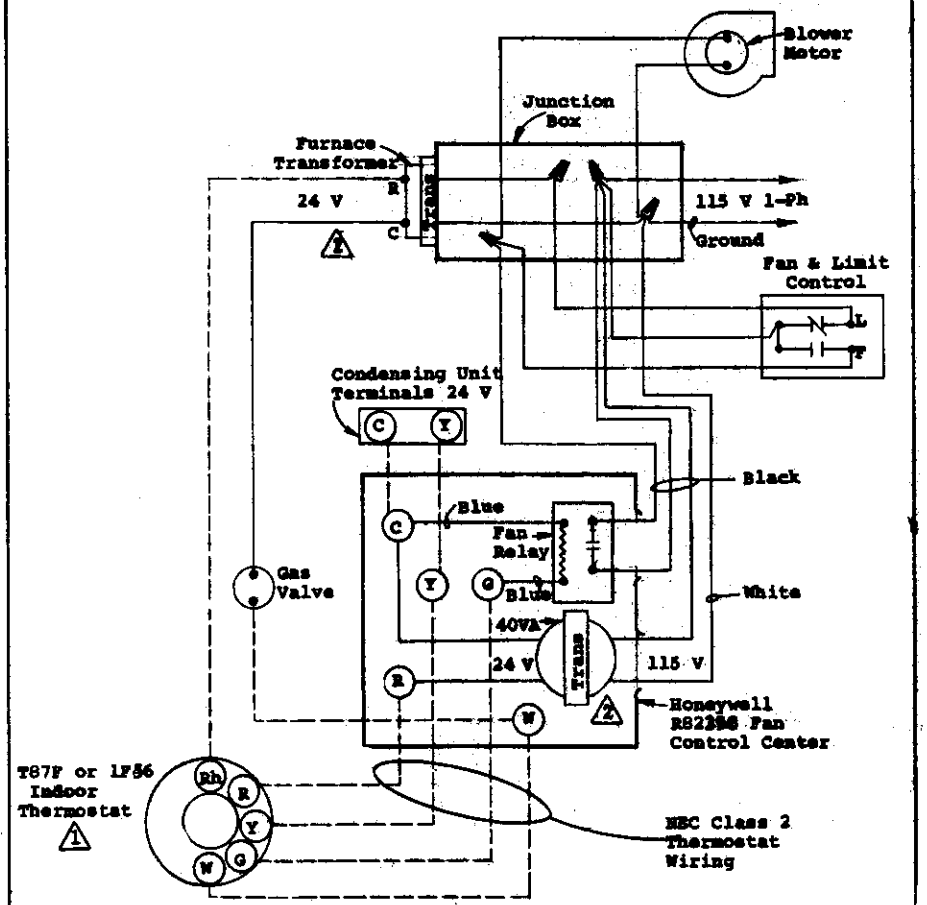


208/230-60-3

4025-802

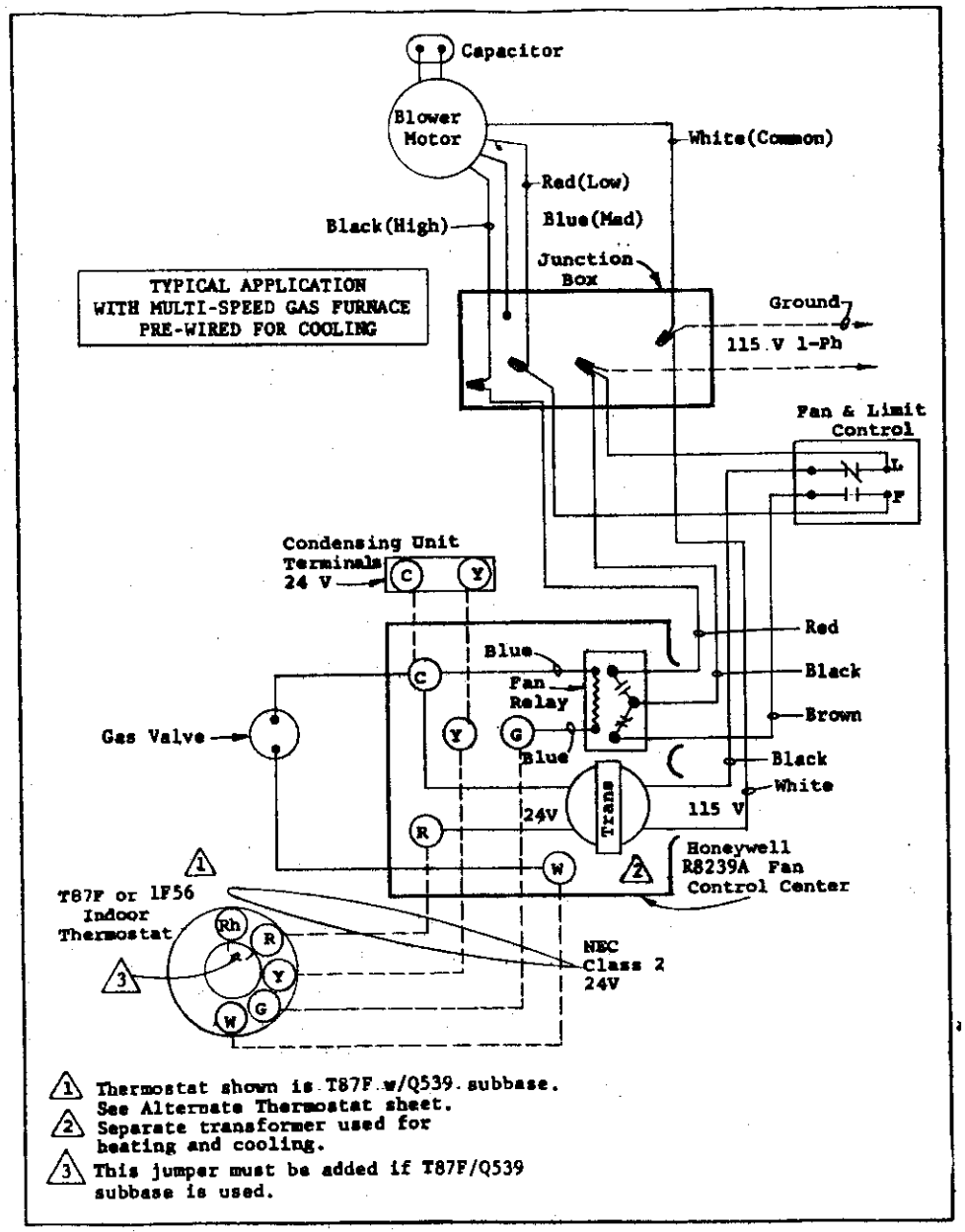
TYPICAL APPLICATION WITH GAS FURNACE

D183

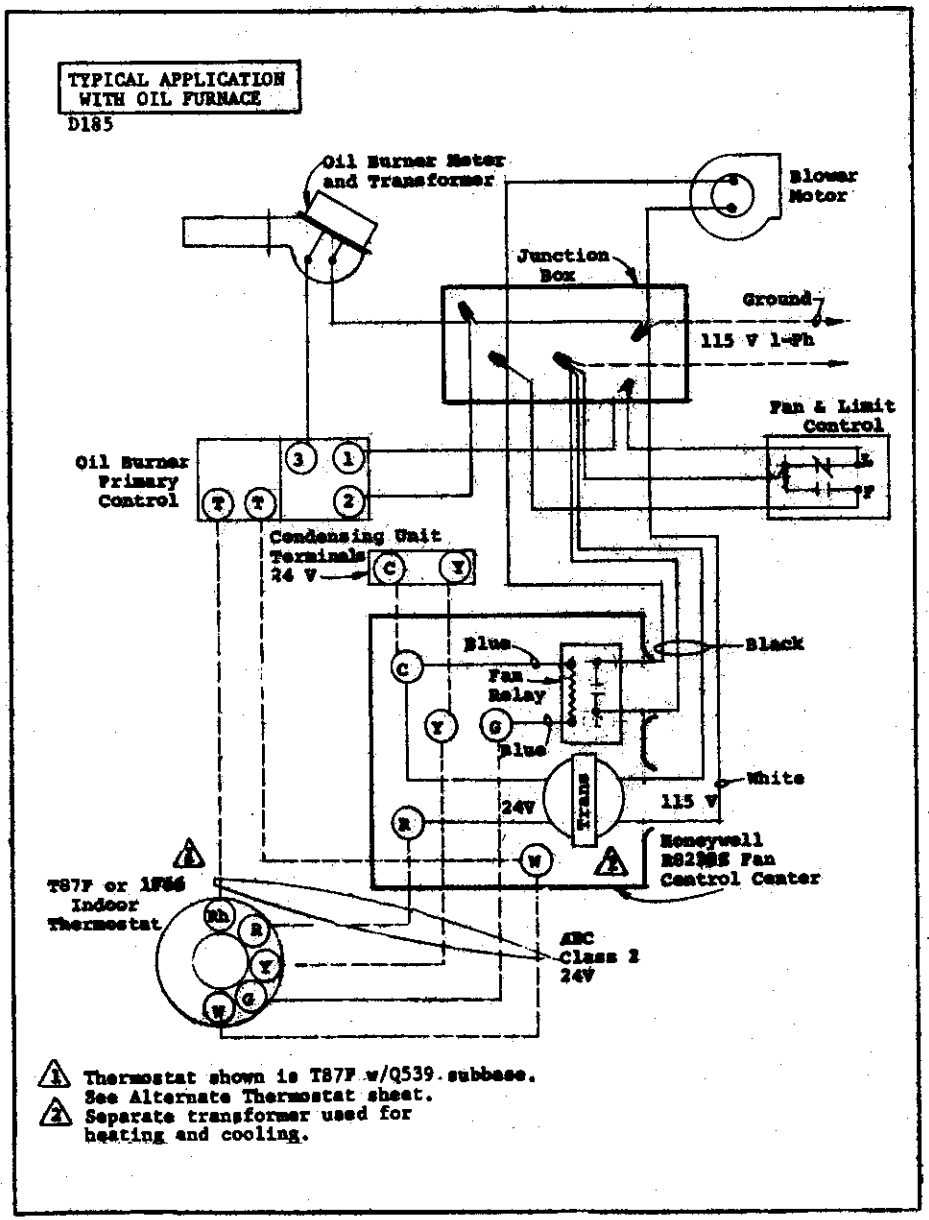


1 Thermostat shown is T87F w/Q539 Subbase. See alternate thermostat sheet.

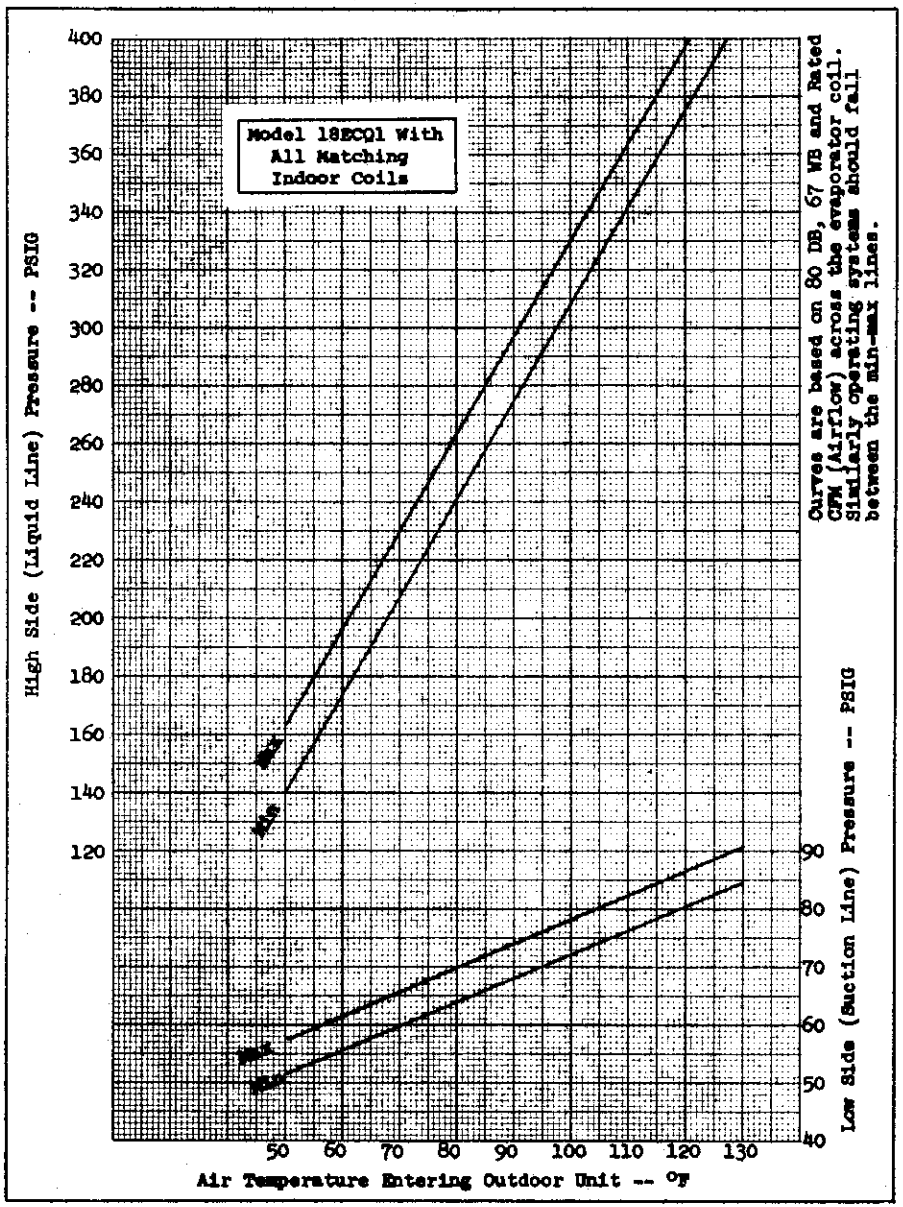
2 Separate transformer used for heating and cooling.

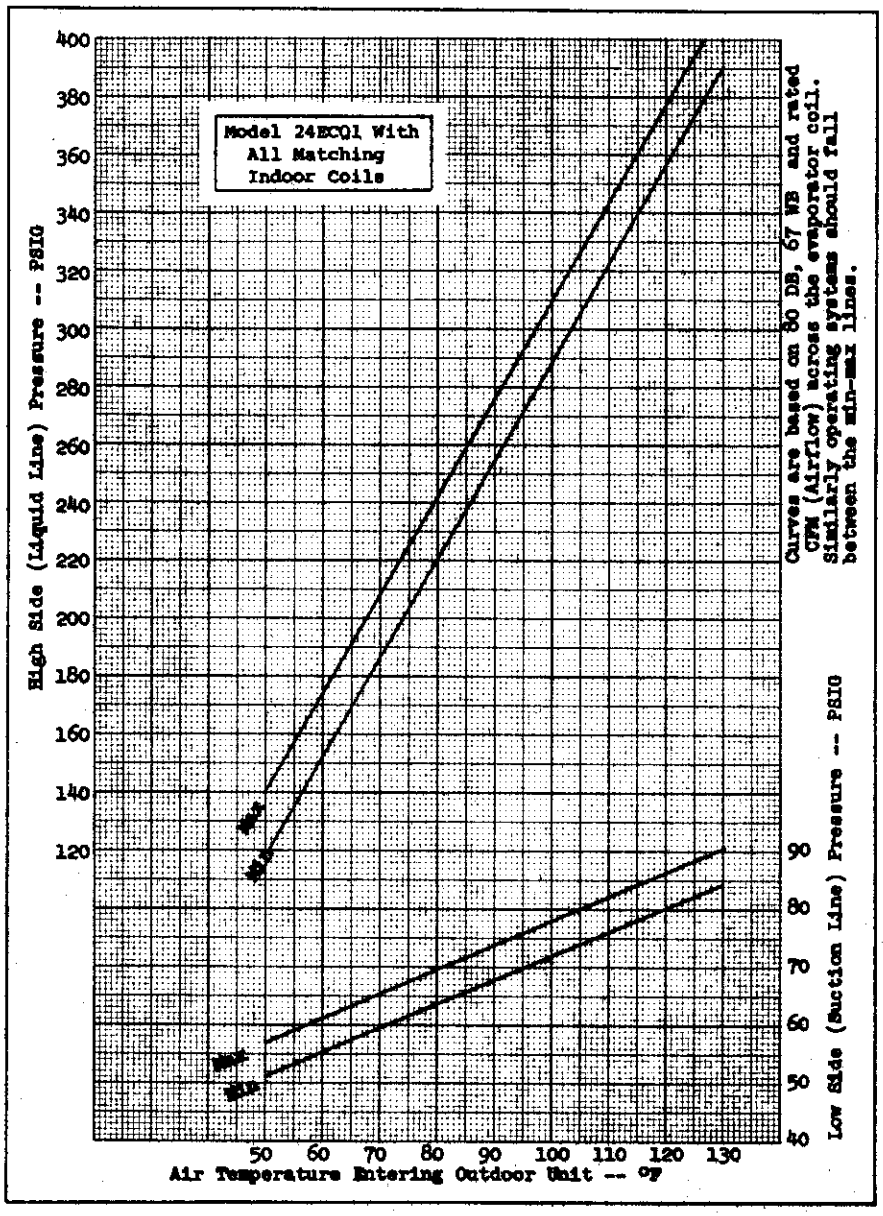


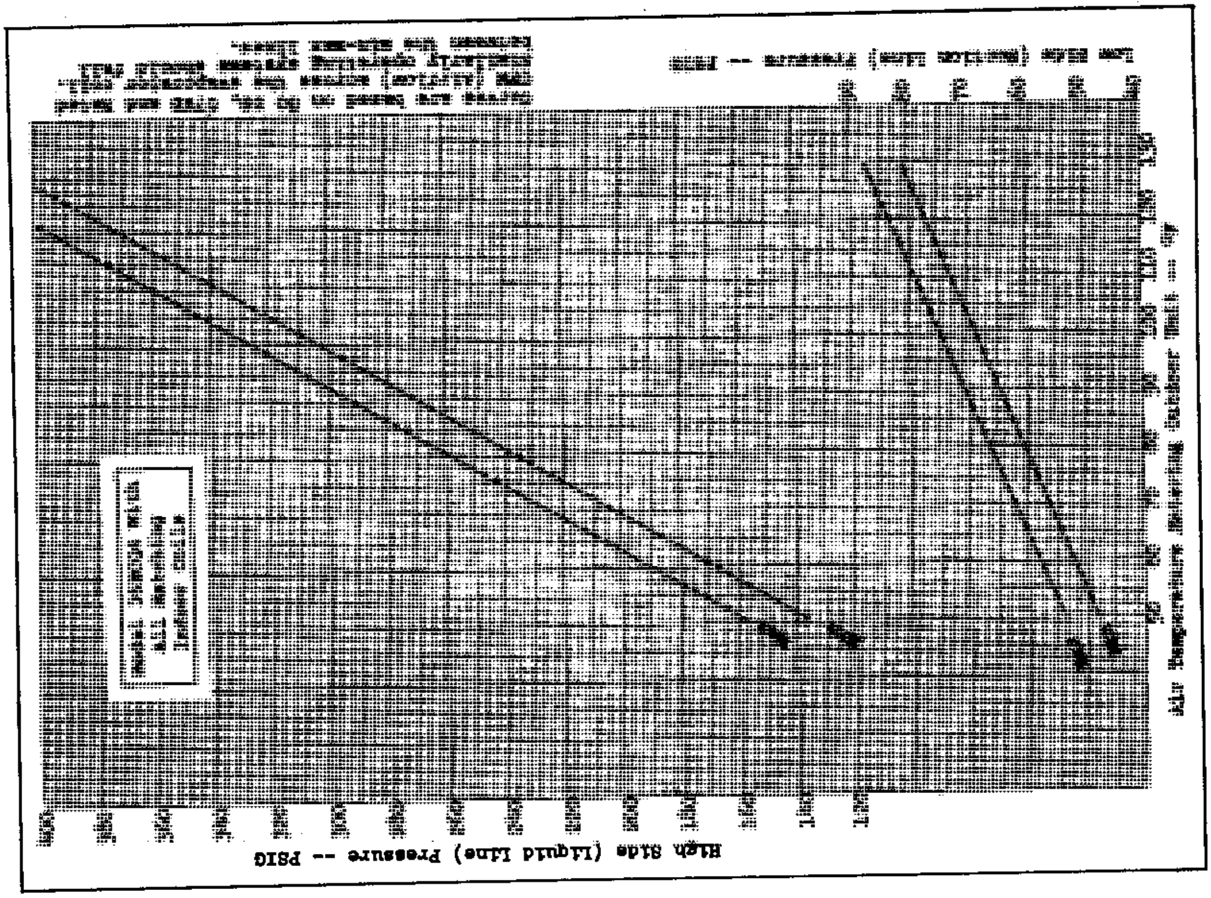
1 Thermostat shown is T87F w/Q539 subbase. See Alternate Thermostat sheet.
2 Separate transformer used for heating and cooling.
3 This jumper must be added if T87F/Q539 subbase is used.

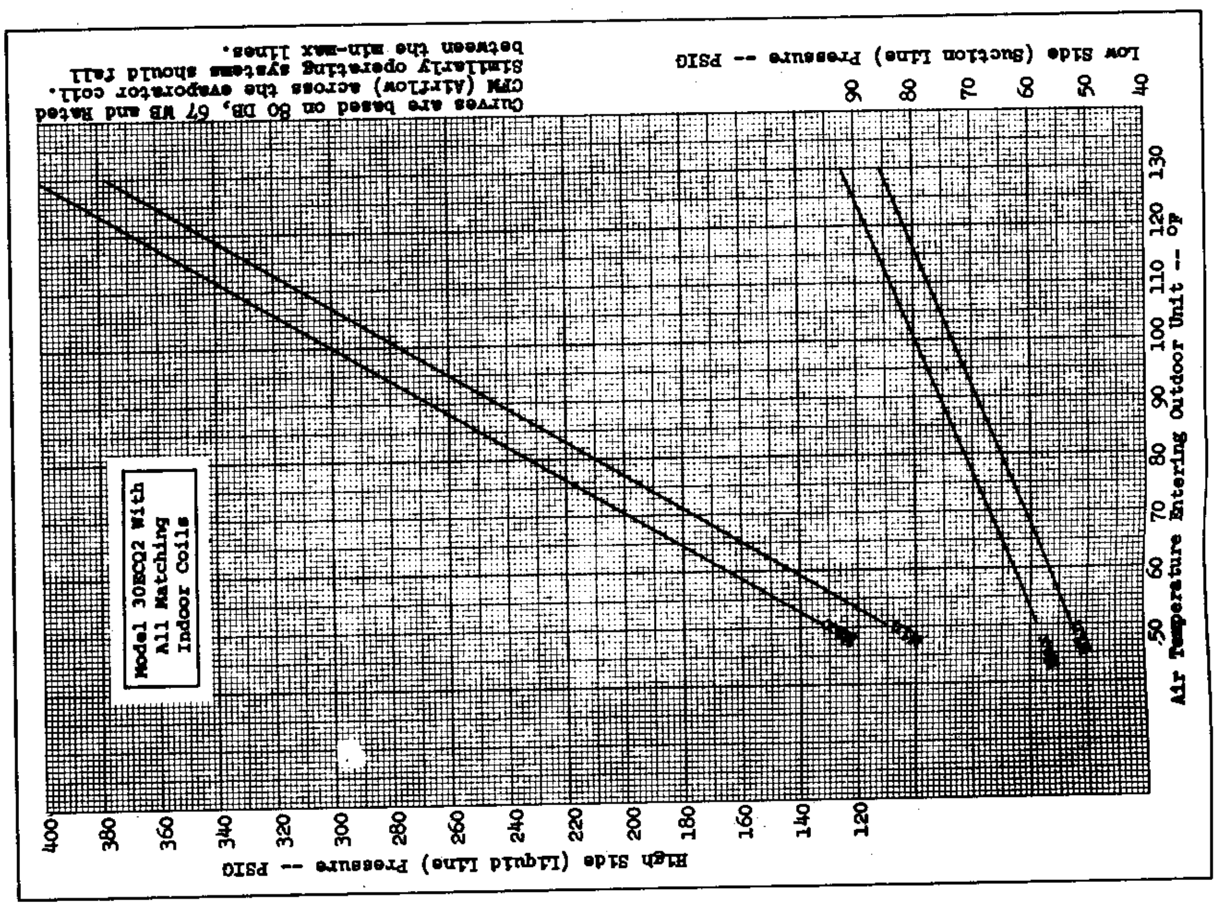


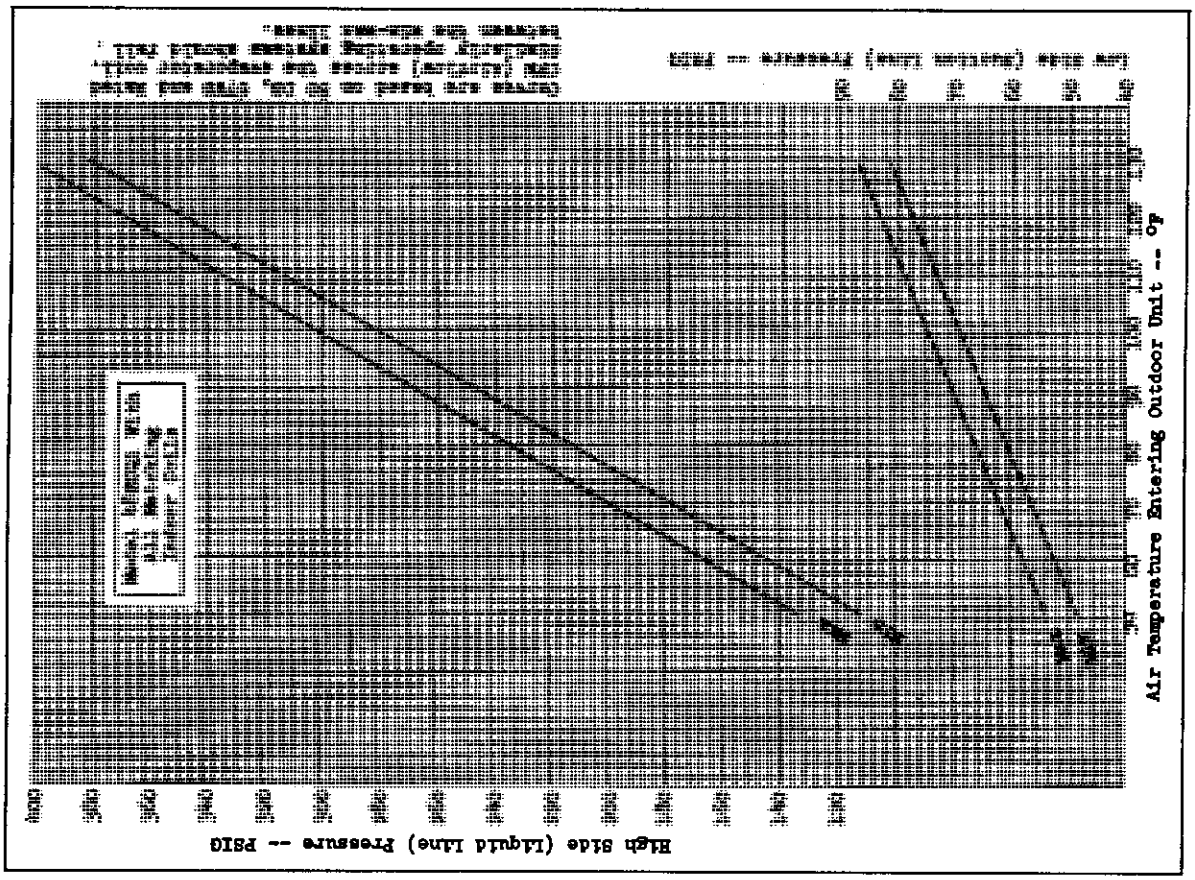
1 Thermostat shown is T87F w/Q539 subbase. See Alternate Thermostat sheet.
2 Separate transformer used for heating and cooling.

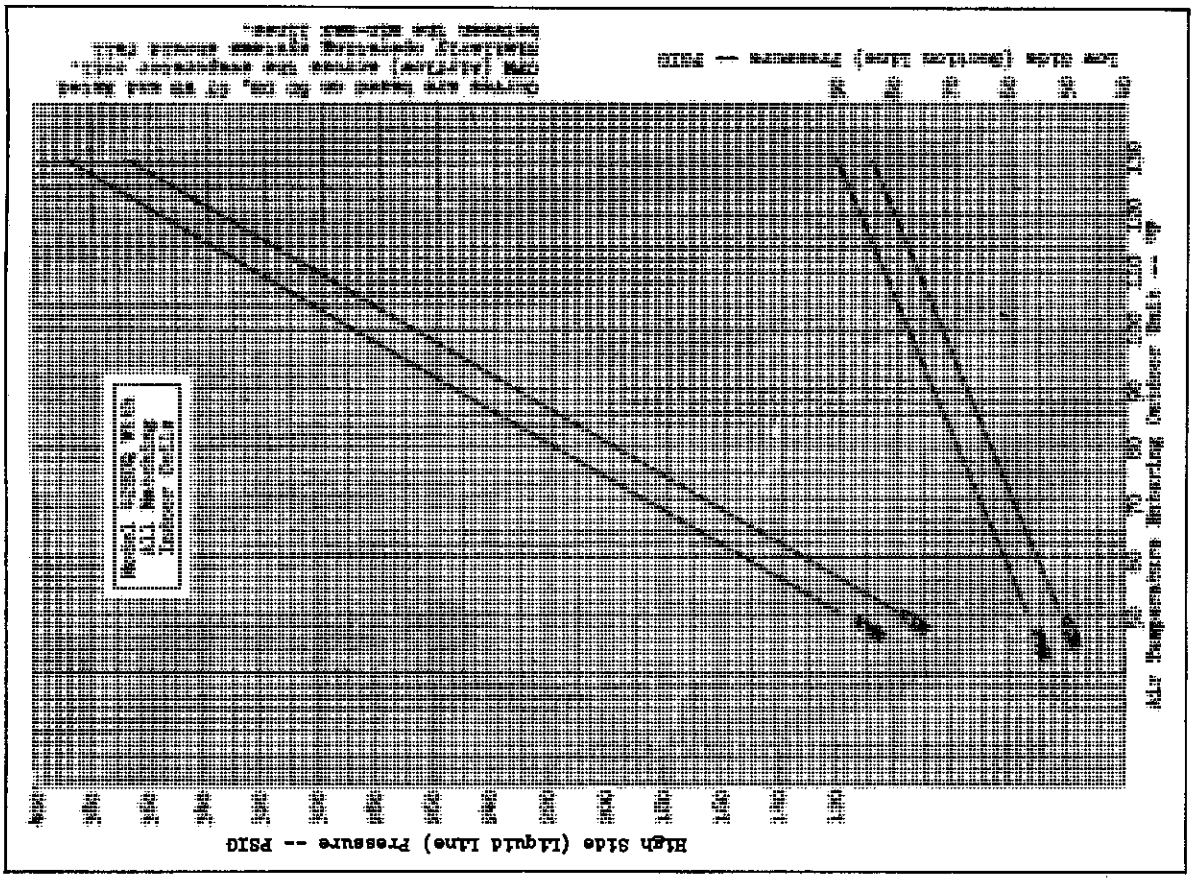

Model 18ECQ1 With
All Matching
Indoor Coils
Curves are based on 80 DB, 67 WB and Rated CFM (Airflow) across the evaporator coil. Similarly operating systems should fall between the min-max lines.
High Side (Liquid Line) Pressure -- PSIG
Low Side (Suction Line) Pressure -- PSIG
Air Temperature Entering Outdoor Unit -- °F
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
90
80
70
60
50
40
50 60 70 80 90 100 110 120 130


Model 24ECQ1 With
All Matching
Indoor Coils
Curves are based on 80 DB, 67 WB and rated CFM (Airflow) across the evaporator coil. Similarly operating systems should fall between the min-max lines.
High Side (Liquid Line) Pressure -- PSIG
Low Side (Suction Line) Pressure -- PSIG
Air Temperature Entering Outdoor Unit -- °F
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
90
80
70
60
50
40
50 60 70 80 90 100 110 120 130

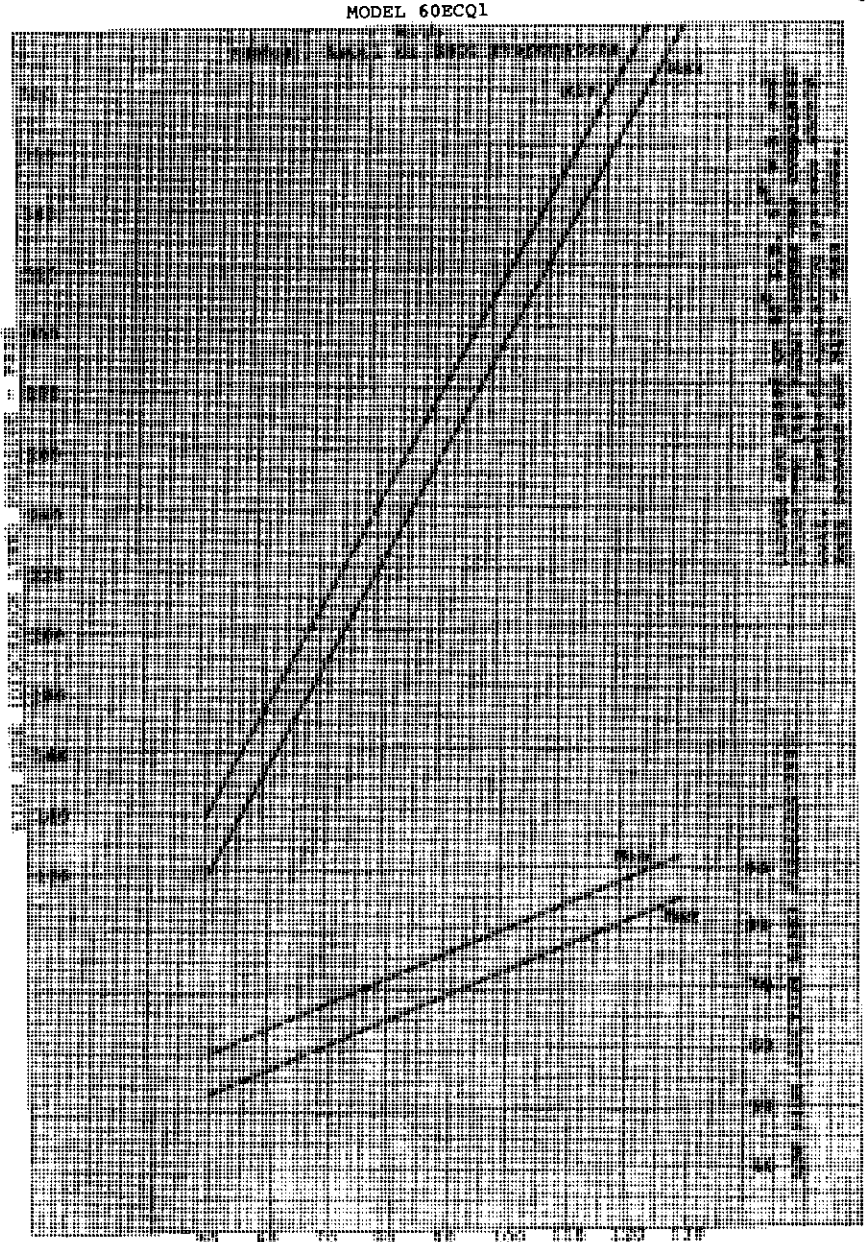

High Side (Liquid Line) Pressure -- PSIG
Low Side (Suction Line) Pressure -- PSIG


Model 30HCQ2 With
All Matching
Indoor Coils
Curves are based on 80 DB, 67 WB and Rated
CFM (Airflow) across the evaporator coil.
Similarly operating systems should fall
between the min-max lines.
Low Side (Suction Line) Pressure -- PSIG
40
50
60
70
80
90
High Side (Liquid Line) Pressure -- PSIG
400
380
360
340
320
300
280
260
240
220
200
180
160
140
120
Air Temperature Entering Outdoor Unit -- °F
50
60
70
80
90
100
110
120
130


High Side (Liquid Line) Pressure -- PSIG
Air Temperature Entering Outdoor Unit -- °F


High Side (Liquid Line) Pressure -- PSIG
Air Temperature Entering Outdoor Unit -- °F

BARD
MODEL 60ECQ1



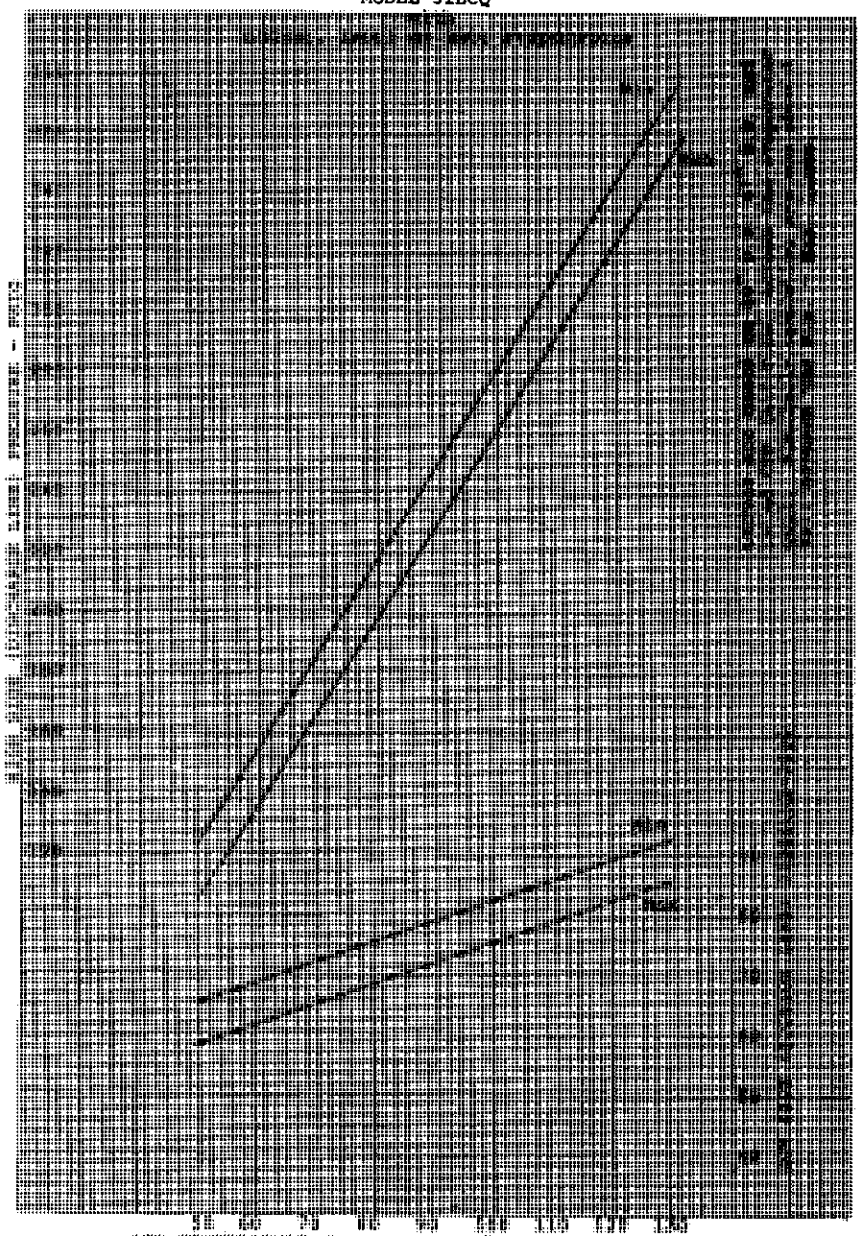
AIR TEMPERATURE ENTERING CONDENSER - DEGREE F.

ALPHABETICAL PARTS LIST
SPLIT SYSTEM CONDENSING UNITS

PART NO.	DESCRIPTION	18ECQ1	24ECQ1	30ECQ2	31ECQ	36ECQ4	36ECQ4-3	37ECQ	42ECQ	42ECQ-3	48ECQ1	48ECQ1-3	60ECQ1	60ECQ1-3	36ECQ4-3 460V	48ECQ1-3 460V	60ECQ1-3 460V
8552-015	Capacitor 25/370V	x			x			x									
8552-007	Capacitor 20/15-370V		x	x					x								
8552-012	Capacitor 35/440V				x												
8552-009	Capacitor 25/15-440V										x						
8552-017	Capacitor 45/440V								x	x	x	x	x			x	x
8552-005	Capacitor 10/370V												x	x			
8552-022	Capacitor 20/370V				x												
8552-024	Capacitor 40/370V							x									
8552-002	Capacitor 5/370V	x	x	x	x	x	x	x									
8000-001	Compressor AB111FT	x															
8000-002	Compressor AB114FT		x														
8000-006	Compressor AH152GT			x													
8000-050	Compressor HZEA253AB				x												
8000-008	Compressor AH301FT					x											
8000-051	Compressor HZEA363AB							x									
8000-009	Compressor AH302RT						x			x							
8000-011	Compressor YRB4-0300								x								
8000-013	Compressor YRC4-0350										x						
8000-015	Compressor YRC4-0350											x					
8000-027	Compressor AG122ET												x				
8000-031	Compressor AG122RT													x			
8000-010	Compressor AH302TT														x		
8000-018	Compressor CL157TT															x	
8000-048	Compressor AG122UT																x
5051-011	Condenser Coil	x															
5051-013	Condenser Coil		x														
5051-001	Condenser Coil			x		x	x								x		
5051-023	Condenser Coil				x			x									
5051-009	Condenser Coil								x	x	x	x				x	
5051-024	Condenser Coil												x	x			x
8401-007	Contactor - Comp. 25A	x	x	x	x			x									
8401-003	Contactor - Comp. 30A					x			x		x						
8401-002	Contactor - Comp. 25A						x			x		x		x	x	x	x
8401-016	Contactor - Comp. 35A												x				
8605-001	Crankcase Heater						x			x		x					
8605-002	Crankcase Heater														x	x	
5151-001	Fan Blade TF1839	x	x														
5151-007	Fan Blade TF2029			x	x	x	x	x							x		
5151-017	Fan Blade FA2430-4B								x	x	x	x	x	x		x	x
8406-010	High Pressure Switch															x	
8103-008	Motor - Fan 1/5	x	x														
8103-009	Motor - Fan 1/5			x	x	x	x	x							x		
8105-005	Motor - Fan 1/3								x	x	x	x	x	x		x	x
8200-001	Motor Mount - Fan	x	x	x	x	x	x	x							x		
8200-004	Motor Mount - Fan								x	x	x	x	x	x		x	x
8607-002	Terminal Block 230V														x	x	x
8407-003	Transformer-Stepdown														x	x	x

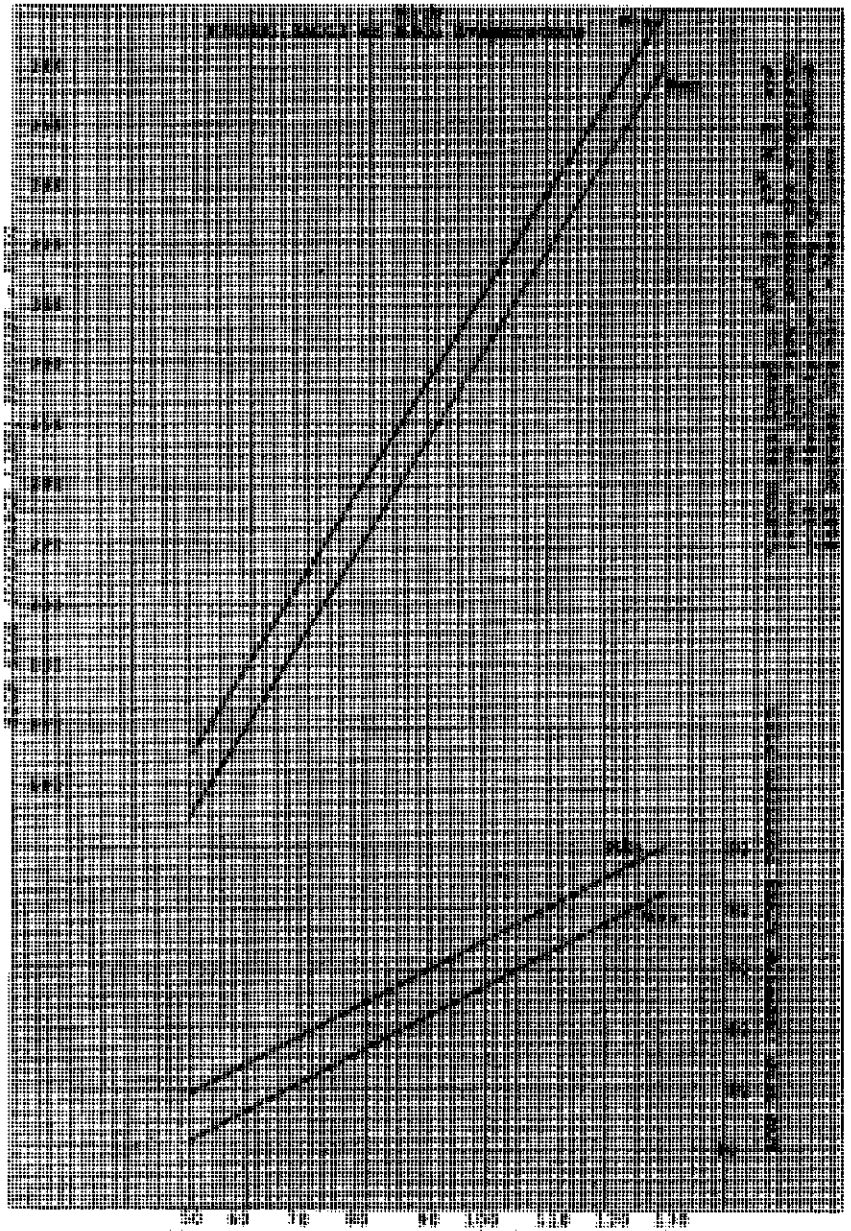
BARD
MODEL 31ECQ

32



BARD
MODEL 37ECQ

33



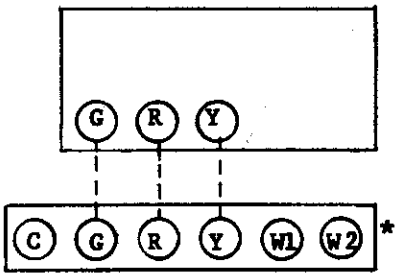
ALTERNATE THERMOSTATS

WIRING

All wiring should be done according to local and National Electrical Codes and Ordinances.

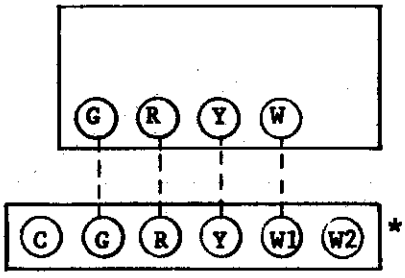
White-Rodgers
1-Stage Cool

1D51-605



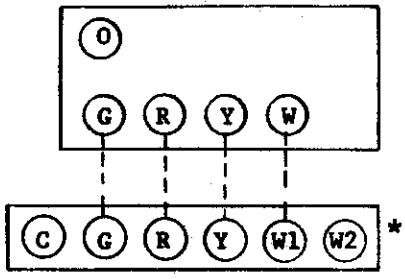
White-Rodgers
1-Stage Cool
1-Stage Heat

1F56-318



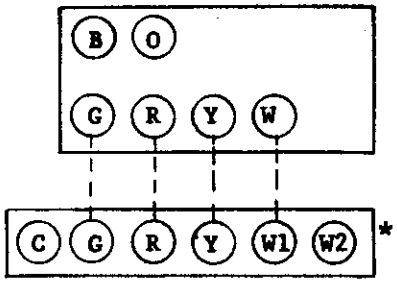
White-Rodgers
1-Stage Cool
1-Stage Heat

1F56-304



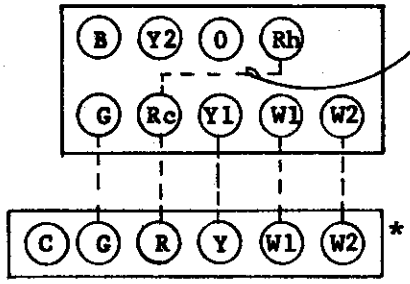
Honeywell
1-Stage Cool
1-Stage Heat

T87F/Q539A-1006



Honeywell
1-Stage Cool
2-Stage Heat

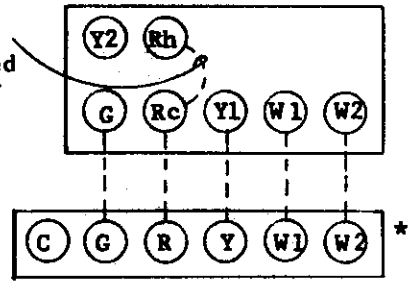
T872C/Q672A-1003



Field Installed Jumper

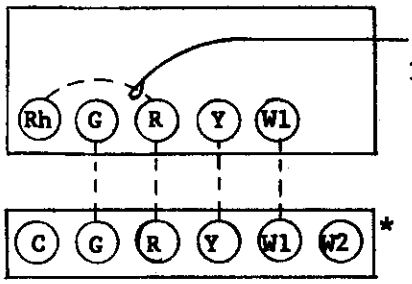
Honeywell
1-Stage Cool
2-Stage Heat

T872C/Q672A-1005



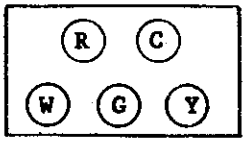
Honeywell
1-Stage Cool
1-Stage Heat

T87F/Q539A-1147



Field Installed Jumper

*Terminal block shown is located in Bard Self-Contained Air Conditioners, Self-Contained Heat Pumps, and Remote Heat Pumps. On those Remote Air Conditioning systems employing a fan center (combination fan relay and transformer), the terminals are marked as follows:



INSTALLING REFRIGERANT TUBING

PRE-CHARGED TUBING - Examine carefully the two lengths of pre-charged tubing furnished with the Unit. The larger is the suction line. The smaller is the liquid line. The end of the tubing with the hex nut and gauge port is to be attached to the Condensing Unit.

Unroll the tubing, being careful not to kink, and install it between the Condensing Unit and the Evaporator Coil.

CAUTION: Be careful not to tear the insulation when pushing it through holes in masonry or frame walls.

When sealing tube opening in house wall use a soft material to prevent tube damage and vibration transmission.

Before fastening either end, use a tubing bender to make any necessary bends in the tubing. (AVOID EXCESSIVE BENDING IN ANY ONE PLACE TO AVOID KINKING).

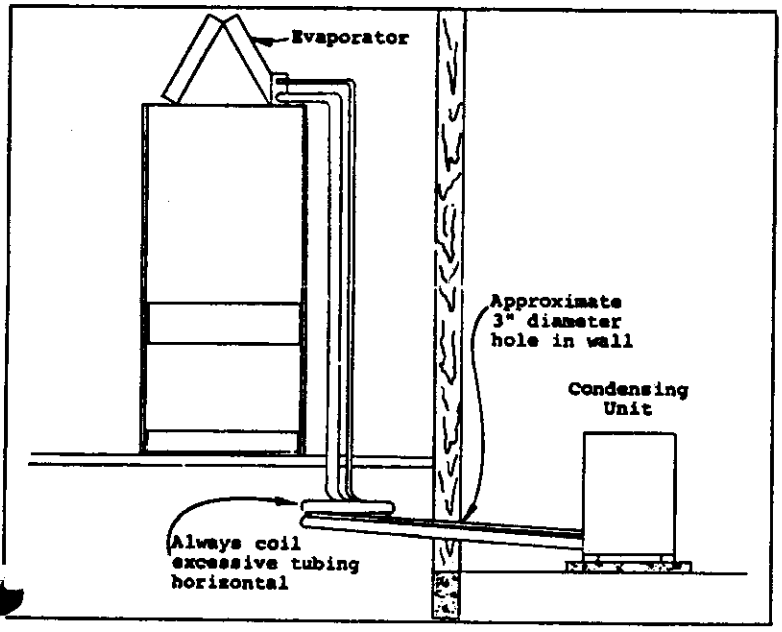
Start connecting the tubing at the Evaporator coil end, first remove the protective caps and plugs from the quick-connect fittings on the Evaporator Coil and the pre-charged tubing. Inspect fittings and clean if necessary, making sure they are clear of foreign materials. If you clean the fittings, lubricate them with refrigeration oil. Connect both tubes to the fittings on the coil and draw up by hand.

When necessary to bend the insulated tube, suction line, cut the insulation around its circumference at a distance far enough beyond the point of the bend so as to clear the tubing bender.

Slip the insulation back together and vapor seal the joint with tape.

NOTE: The maximum distance for pre-charge tubing between the Condenser and the Evaporator is 45 feet.

CAUTION: Prior to connecting the pre-charged tubing to the Evaporator Coil or Condensing Unit, be sure all bends have been made, then coil any excess tubing in a horizontal plane, with the slope of the tubing toward the Condensing Unit.



CAUTION: Be sure to hold the coupling firmly to prevent movement of the coupling and tubing. Failure to do so could tear out the diaphram causing a blockage of the system.

CAUTION: After starting to tighten up the fitting never try to back it off or take it apart.

For connecting the tubing at the condensing unit end, first remove the protective caps and plugs from the quick-connect fittings on the condensing unit and the pre-charged tubing. Inspect fittings and clean if necessary, making sure they are clear of foreign materials. If you clean the fittings, lubricate them with refrigeration oil. Connect both tubes to the fittings on the coil and draw up by hand.

Locate the Gauge Port in a 45° angle from a vertical up position so as to be accessible for gauge connections.

Use a wrench on the hex nut of the female fitting backing up the fitting with another wrench to keep tube from turning. Tighten the fittings together until they bottom out then tighten for an additional 1/4 turn so that coupling will seat properly.

Check the gauge port cap to make sure it is tight. If loose, tighten, being careful not to tighten too much as it will damage the valve in the gauge port.

Leak test all connections using an Electronic Leak Detector or a Halida Torch.

When tubing is installed in attics or drop ceiling, insulate the quick connect fitting on the larger tube thoroughly with 3/8" wall thickness, closed cell sponge tube insulation or equivalent. Failure to insulate will result in water damage to ceiling since the fitting will "sweat" and drop water on the ceiling.

PROCEDURE FOR

LEAK TEST - EVACUATION - CHARGING

LEAK-TEST

1. Remove gauge port cap from suction and liquid service valve ports and attach a Manifold Suction Gauge Hose.

2. Pressurize the complete system until the pressure reaches 40 psig and further pressurize with dry nitrogen to 100 psig. Do not exceed 150 psig.

3. Check all soldered joints, including those on the evaporator coil with an Electronic Leak detector or Halide Torch. If a leak is found which requires soldering, pressure in the system must be bled off since it is impossible to solder with unit pressurized. Be sure all leaks are located and marked before bleeding pressure from circuit.

4. When leaks, if any, have been repaired, system is ready to be evacuated and charged. Relieve all pressure from the system down to 0 psig.

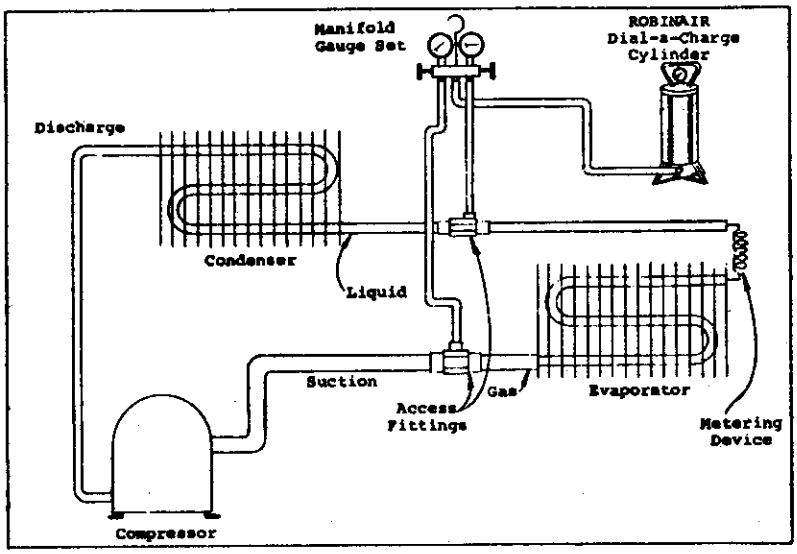
EVACUATION

1. Connect a manifold gauge set to the low and high gauge ports and the other hose to a high vacuum pump. Evacuate the system to 500 microns absolute pressure and continue to evacuate for 30 minutes.

2. After a vacuum of 500 microns has been obtained and holds constant for 10 minutes, close both sides of the manifold gauge set and turn pump off.

3. Disconnect charging line at vacuum pump and connect to refrigerant supply. (Dial A Charge Cylinder) Crack valve and purge charging line at center on manifold. Then close valve.

4. The system is now ready for the correct operating charge of Refrigerant 22.



CHARGING

1. SINGLE PACKAGE UNITS - Refer to the unit serial plate for the full operating charge.

2. SPLIT SYSTEMS - The condensing unit factory charge is shown on the unit serial plate. The total system charge required to recharge the system after service repairs should be marked on the serial plate under TOTAL R-22 CHARGE. This is normally marked by the installer and is determined from the R-22 System Charge Table located on the inside of the outdoor unit access panel. There is also a R-22 System Charge Table printed on the reverse side of this page.

3. CTO ADAPTER KITS - When using field tubing and CTO adapters, use the procedure outlined on the reverse side of this page to determine the correct ozs. of R-22 for the tubing only. The R-22 weight is determined by the length and size of the liquid line.

4. FILTER-DRIER CHARGES - If a liquid line filter-drier is used, either in conjunction with field tubing and a CTO adapter kit, or as part of procedure for system clean-up after a compressor burn-out, additional R-22 must be added to the system when recharging. This is in addition to the amount determined from the R-22 System Charge Table.

SPORLAN CATCH-ALL	R-22 WEIGHT
C-083S	8 oz.
C-163S	10 oz.

5. With manifold suction valve closed and manifold discharge valve open, open refrigerant cylinder valve and allow pressure in circuit to balance pressure of cylinder.

6. To obtain full rated capacity the R-22 refrigerant must be accurately weighed to the system using a charging cylinder.

   (a) Check the charge against the allowable head pressure as shown in the head pressure chart and correct if needed.

7. Close refrigerant cylinder valve and allow unit to run for 30 minutes. Refer to Start-Up Procedure and Check List for further start up details.

INSTALLER NOTE: Optimum unit performance will occur with a refrigerant charge resulting in a suction line temperature (near the compressor) of 53° to 58° F with 95° F outdoor temperature and 80° F dry bulb/ 67° F wet bulb (50% R.H.) indoor temperatures and rated airflow across the indoor coil.

SCT-3-1
R-22 TOTAL SYSTEM CHARGE FOR
SPLIT AIR CONDITIONING SYSTEMS

The following table lists the total system operating charge for split air conditioning systems when using standard charged tubing lengths of 15 ft, 25 ft, 35 ft, or 45 ft. The values shown are the total amount of refrigerant received in the precharged system components, which include the outdoor unit, indoor unit, and inter-connecting tubing. This is also the amount of refrigerant required for a system recharge following any refrigeration system repairs.

Find the outdoor section and matching indoor section being used, and follow across horizontally to the correct column based on number of feet of inter-connecting tubing. This value is the TOTAL SYSTEM CHARGE.

Outdoor Unit Model	Indoor Unit Model	Outdoor Unit Basic Charge	Total System Charge For Standard Tubing Lengths			
			15 ft.	25 ft.	35 ft.	45 ft.
18ECQ1	18QS3	1# 7 oz	1# 15 oz	2# 3 oz	2# 7 oz	2# 11 oz
	B18EQ1	1# 7 oz	1# 13 oz	2# 1 oz	2# 5 oz	2# 9 oz
24ECQ1	24QS	2# 1 oz	2# 5 oz	2# 9 oz	2# 13 oz	3# 1 oz
	2ACQ	2# 1 oz	2# 3 oz	2# 7 oz	2# 11 oz	2# 15 oz
	B24EQ1	2# 1 oz	2# 4 oz	2# 8 oz	2# 12 oz	3# 0 oz
30ECQ2	3ACQ3	2# 12 oz	3# 0 oz	3# 4 oz	3# 15 oz	4# 5 oz
	3HCQ	2# 12 oz	3# 2 oz	3# 6 oz	4# 1 oz	4# 7 oz
	B36EHQ	2# 12 oz	3# 3 oz	3# 7 oz	4# 2 oz	4# 8 oz
31ECQ	3ACQ3	3# 2 oz	3# 6 oz	3# 10 oz	4# 5 oz	4# 11 oz
	3HCQ	3# 2 oz	3# 8 oz	3# 12 oz	4# 7 oz	4# 13 oz
	B36EHQ	3# 2 oz	3# 9 oz	3# 13 oz	4# 8 oz	4# 14 oz
36ECQ4	3ACQ3	3# 1 oz	3# 5 oz	3# 9 oz	4# 4 oz	4# 10 oz
	3HCQ	3# 1 oz	3# 7 oz	3# 11 oz	4# 6 oz	4# 12 oz
	B36EHQ	3# 1 oz	3# 8 oz	3# 12 oz	4# 7 oz	4# 13 oz
37ECQ	3ACQ3	3# 6 oz	3# 10 oz	3# 14 oz	4# 9 oz	4# 15 oz
	3HCQ	3# 6 oz	3# 12 oz	4# 0 oz	4# 11 oz	5# 1 oz
	B36EHQ	3# 6 oz	3# 13 oz	4# 1 oz	4# 12 oz	5# 2 oz
42ECQ	4ACQ1	4# 6 oz	4# 15 oz	5# 5 oz	5# 11 oz	6# 1 oz
	4HCQ	4# 6 oz	5# 7 oz	5# 13 oz	6# 3 oz	6# 9 oz
	B48EHQ	4# 6 oz	5# 15 oz	6# 5 oz	6# 11 oz	7# 1 oz
48ECQ1	4ACQ1	4# 11 oz	5# 4 oz	5# 10 oz	6# 0 oz	6# 6 oz
	5ACQ1	4# 11 oz	5# 2 oz	5# 8 oz	5# 14 oz	6# 4 oz
	4HCQ	4# 11 oz	5# 12 oz	6# 2 oz	6# 8 oz	6# 14 oz
	B48EHQ	4# 11 oz	6# 4 oz	6# 10 oz	7# 0 oz	7# 6 oz
60ECQ1	5ACQ1	5# 3 oz	5# 10 oz	6# 0 oz	6# 6 oz	6# 12 oz
	5HCQ	5# 3 oz	5# 14 oz	6# 4 oz	6# 10 oz	7# 0 oz
	B48EHQ	5# 3 oz	7# 1 oz	7# 7 oz	7# 13 oz	8# 3 oz

In the event that the installer is running his own tubing or is modifying a precharged tubing set by adding or subtracting a few feet of tubing length, the tubing set should be evacuated and charged before being connected to the outdoor and indoor sections.

18ECQ1, 24ECQ1, 30ECQ2, 31ECQ, 36ECQ4 and 37ECQ use 1/4" liquid line up to and including 25A. These models use 3/8" liquid line over 25 ft. long, as do all 42ECQ, 48ECQ1 and 60ECQ1 for all tubing sets regardless of length.

To determine LINE SET ONLY charges, use the following table:

Liquid Line Size		Oz of R-22 per ft.		Less
1/4" O.D.	x	.4	-	7 oz
3/8" O.D.	x	.6	-	7 oz

Example: A 32 ft. line set with 3/8" liquid line is being used.

32 ft. x .6 oz/ft = 19.2 oz -7 oz = 12.2 oz

After evacuating the line set, weigh in 12 oz of R-22 to line set.
NOTE: The 12 oz should be introduced into both the liquid line and vapor line so that there is a positive pressure in both lines when connected.

To determine a TOTAL SYSTEM CHARGE for a system that is connected with a non-standard tubing length, the outdoor unit basic charge (from above table) is added to the line set calculation based on liquid line O.D. size (.4 oz per ft of 1/4" and .6 oz per ft of 3/8"). An additional adjustment factor may be required depending on the indoor coil section used. Determine this adjustment from the following charge:

Indoor Unit Model	Adjustment Factor
18QS3	+2
B18EQ1	0
24QS	-2
2ACQ	-4
B24EQ1	-3
3ACQ3	-2
3HCQ	0

Indoor Unit Model	Adjustment Factor
B36EHQ	+1
4ACQ1	0
4HCQ	0
B48EHQ	+16
5ACQ1	0
5HCQ	0

Example: Model 36ECQ4 matched with model 3ACQ3 and connected by a 30 ft line set.

Basic charge - 3# 1 oz plus .6 x 30 ft -2 oz adjustment factor
3# 1 oz plus 18 oz* -2 oz = 4# 1 oz total

*Round off to nearest whole number if calculation does not come out even.