V-SERIES
AIR CONDITIONER
VA06 MODEL
INSTRUCTION MANUAL

Rev. G

P/N 90164958

90164958

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WARRANTY AND RETURN POLICY

https://hoffman.nvent.com/en/hoffman/warranty-information

RECEIVING THE AIR CONDITIONER

Inspect the air conditioner. Check for concealed damage that may have occurred during shipment. Look for dents,scratches, loose assemblies, evidence of oil, etc. Damage evident upon receipt should be noted on the freight bill. Damage should be brought to the attention of the delivering carrier -- NOT to nVent Electronics & Electronical Protection China -- within 15 days of delivery. Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier.

nVent Electronics & Electronical Protection China cannot accept responsibility for freight damages; however, we will assist you in any way possible.

HANDLING AND TESTING THE AIR CONDITIONER

If the air conditioner has been in a horizontal position, be certain it is placed in an upright, vertical or mounting position for a minimum of five (5) minutes before operating.

⚠ CAUTION

Do not attempt to operate the air conditioner while it is horizontal or on its side, back or front. The refrigeration compressor is filled with lubricating oil. This will cause permanent damage to the air conditioner and also voids the warranty.

TEST FOR FUNCTIONALITY BEFORE MOUNTING THE AIR CONDITIONER TO THE ENCLOSURE.

Refer to the nameplate for proper electrical current requirements, and then connect the power cord to a properly grounded power supply. Minimum circuit ampacity should be at least 125% of the amperage shown in the design data section for the appropriate model. No other equipment should be connected to this circuit to prevent overloading.

Immediately after applying power the evaporator blower (enclosure air) should start running. Operate the air conditioner with the compressor running for five (5) to ten (10) minutes. No excessive noise or vibration should be evident during this run period. You will need to set the cooling thermostat below the ambient temperature to operate the compressor.

Condenser air temperatures should be warmer than normal room temperatures within a few minutes after the condenser impeller starts.

See sequence of operation for specifics on how the unit operates when powered up.

HOW TO READ MODEL NUMBERS

VA06	06	25	G	052	A
1	2	3	4	5	6

1. Identifies the type/family of air conditioner and the approximate height (i.e. VA06 = Value family about 501 mm to 600mm high).
2. This is the air conditioner's listed capacity in Watt at rated conditions. (i.e. 06 = 600 Watt at 35°C ENCLOSURE 35°C ambient.)
3. 2 = 220 /230Volt,5=50Hz.
4. Identifies the construction material and refrigerant of air conditioner.(i.e.G=Galvanized Sheet Metal and R134a).
5. Unique set of numbers for each air conditioner which identifies the accessories on a model.
6. A=The updated version.

INSTALLATION INSTRUCTIONS

1. Inspect the air conditioner and verify correct functionality before mounting the air conditioner. See HANDLING AND TESTING THE AIR CONDITIONER on page 3.
2. Using the mounting gasket kit provided with the unit, install gaskets to the air conditioner, Figure 2.
3. Mount air conditioner on enclosure taking care not to damage the mounting gasket. The mounting gasket is the seal between the air conditioner and the enclosure. Avoid dragging the air conditioner on the enclosure with the mounting gasket attached as this could cause rips or tears in the gasket and risk losing the water tight seal.
4. Allow unit to remain upright for a minimum of five (5) minutes before starting. CAUTION! Air conditioner must be in upright position during operation.
5. Refer to the nameplate for electrical requirements. Wire the unit to a properly grounded power supply. Electrical circuit should be fused with slow blow or HACR circuit breaker.
6. Set thermostat for required cabinet temperature. Refer to Sequence of Operation on page 5 for thermostat adjustment and operation.

DIMENSIONAL DRAWING

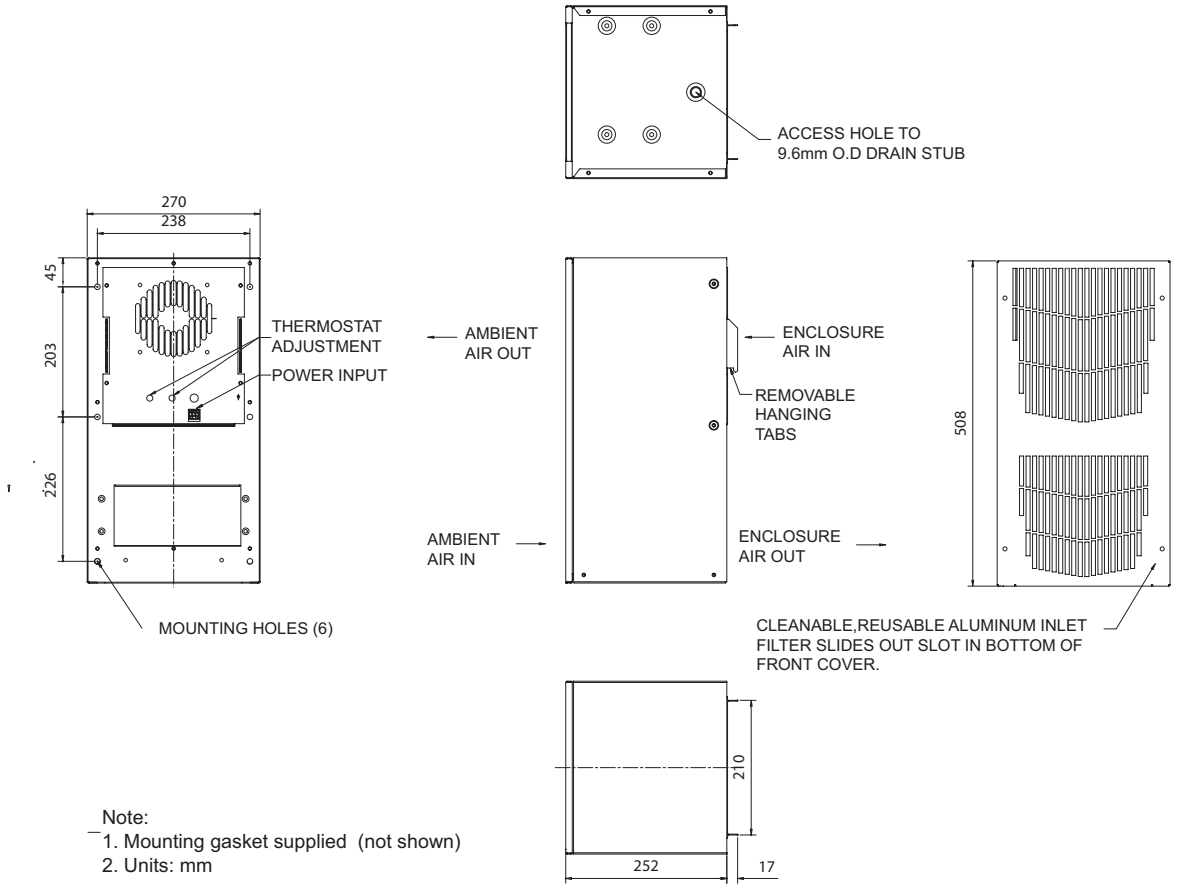
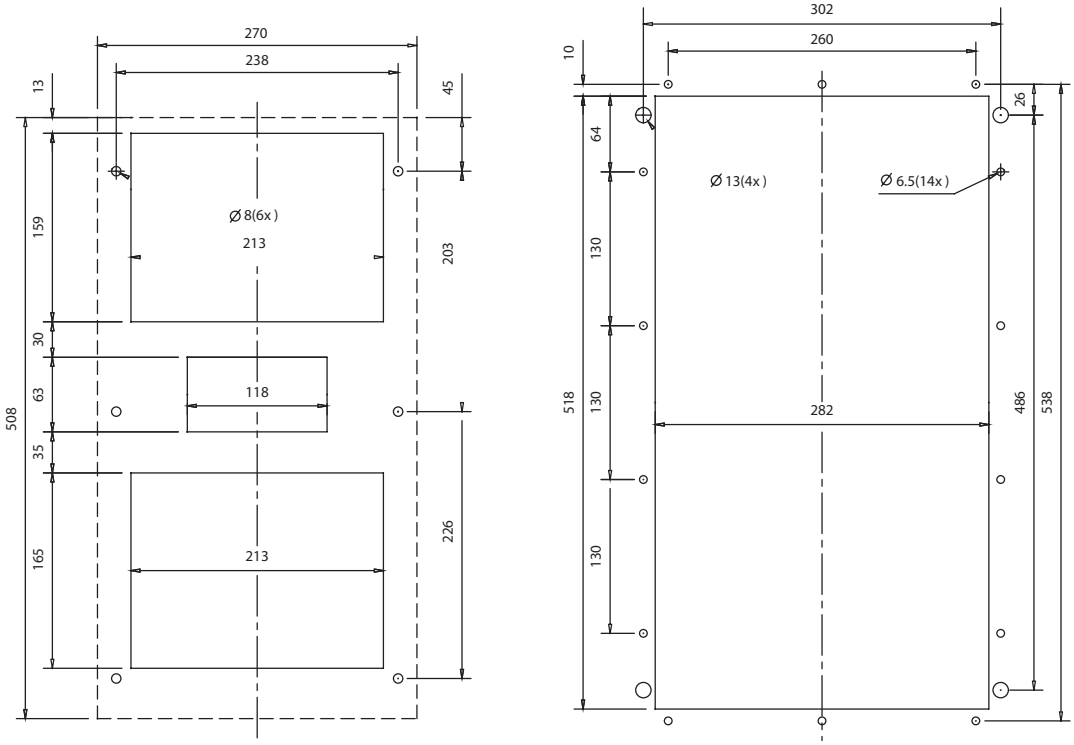


Figure 1

MOUNTING CUTOUT DIMENSIONS



External Mounting Partial Recess Mounting

Figure 2
CUTOUT INSTRUCTIONS
(As viewed from outside of enclosure)

NOTE: Dashed lines represent air conditioner.

TECHNICAL INFORMATION

SEQUENCE OF OPERATION

The air conditioner comes standard with one internally mounted thermostat. There is one mode of operation; only cooling. During cooling mode the evaporator fan will be running.

HEATING (OPTIONAL)

When the enclosure temperature is below the heating thermostat setpoint, power is applied to the heater. When the enclosure temperature is 5°C degrees above the setpoint the heater is powered off.

COOLING

When the enclosure temperature is above the cooling thermostat setpoint, power is applied through the thermostat. The compressor is then energized either directly. The condenser impeller will start immediately if the unit is not equipped with an optional head pressure control switch. If the unit is equipped with an optional head pressure control switch, the condenser impeller will start once the refrigerant pressure reaches the setting of the switch. Component specific information is listed below.

Operating the air conditioner below the minimum ambient temperature or above the maximum ambient temperatures indicated on the nameplate voids all warranties. DO NOT set the enclosure thermostat to a temperature lower than 21°C. Doing so can increase the likelihood of frost buildup on the evaporator coil.

The moisture that the enclosure air can contain is limited. If moisture flows from the drain tube continuously, this can only mean that ambient air is entering the enclosure. Be aware that frequent opening of the enclosure's door admits humid air that the air conditioner must then dehumidify.

STANDARD AND OPTIONAL COMPONENT OPERATION

THERMOSTAT

The VA06 air conditioner uses our standard 3204580 thermostat. The thermostat setpoint equals the temperature that the air conditioner turns off. The thermostat has a 5°C differential from setpoint until it calls for cooling or heating. An example of operation is shown below.

FOR COOLING (35°C RANGE):

- Tstat setpoint = 35°C
- Cooling turns on at 40°C
- Cooling turns off at 35°C

FOR HEATING (13°C RANGE):

- Tstat setpoint = 13°C
- Heating turns on at 13°C
- Heating turns off at 18°C

NOTE: For testing purposes only, the thermostat stop screw may be removed (on units so equipped) to allow settings below 21°C. After testing, replace the stop screw and verify that the thermostat can not be set below 21°C. Extended operation below 21°C can cause coil freeze ups resulting in reduced load and/or unit damage.

HEAD PRESSURE CONTROL (OPTIONAL)

Unit is set at the factory, no adjustment necessary.

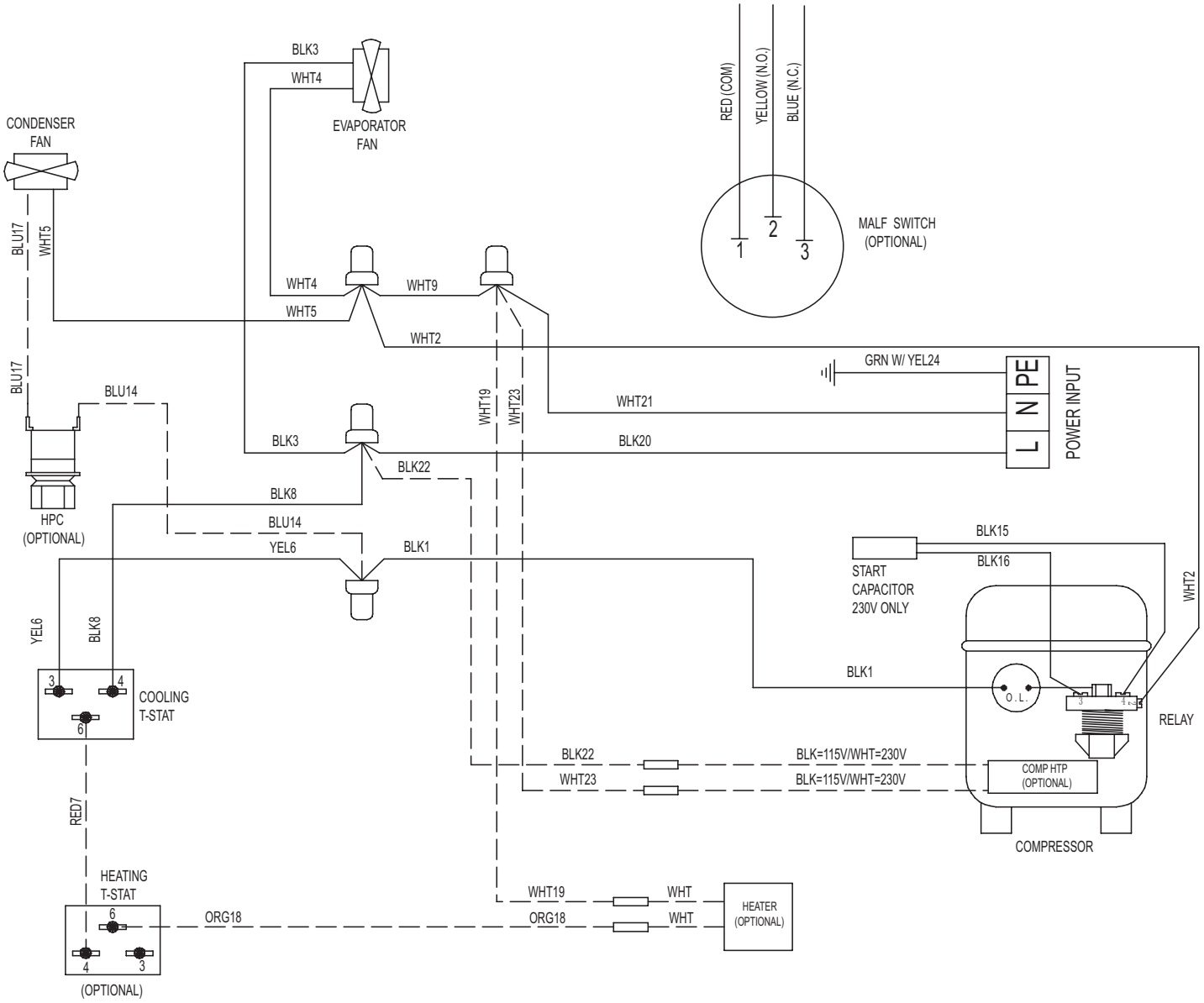
At a saturated condenser temperature of 48°C (1.14 MPa), the condenser fan will power on. At a saturated condenser temperature of 29°C (0.66 MPa), the condenser fan will power off.

UNIT CHARACTERISTICS

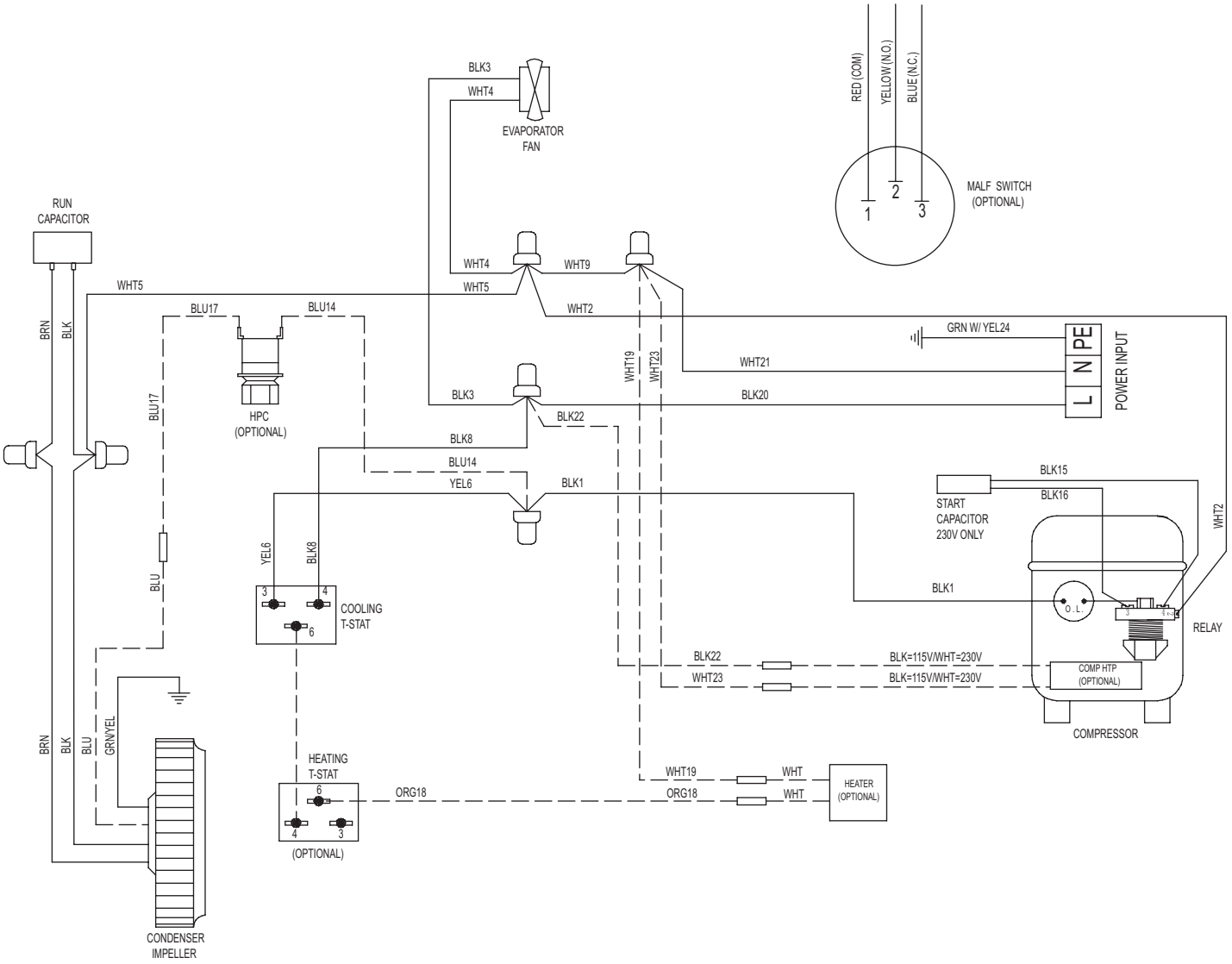
	Model	Model
	VA060325GXXXA	VA060625GXXXA
Dimensional Data		
Height(MM)	508	508
Width(MM)	270	270
Depth(MM)	252	252
Unit Weight(kg)	23	23
IP Code	IP56 internal loop IP34 external loop	
Cooling Data		
Refrigerant	R134a	R134a
Refrigerant Charge (g)	100	150
Cooling Capacity (W),L35 L35	400	600
Cooling Capacity (W),L35 L50	310	510
Maximum Ambient Temp (°C)	55	55
Minimum Ambient Temp (°C)	20	20
Enclosure Airflow (m3/h)	115	180
External Airflow (m3/h)	325	270
Condensate Management	Hose discharge / Optional powered C/E	Hose discharge / Optional powered C/E
Heating Data		
Capacity (W)	500	500
Electrical Data		
Rated Voltage (V)	230	230
Rated Frequency (Hz)	50	50
Voltage Range (V)	207-253	207-253
Cooling Amps at Max Conditions (A)	1.5	2.8
Heating Amps (A)	2.3	2.3
Compressor RLA / LRA (A)	1.02 / 6.5	2.01 / 15.5
Evaporator Fan RLA (A)	0.12	0.15
Condenser Fan RLA (A)	0.15	0.35

WIRE DIAGRAMS

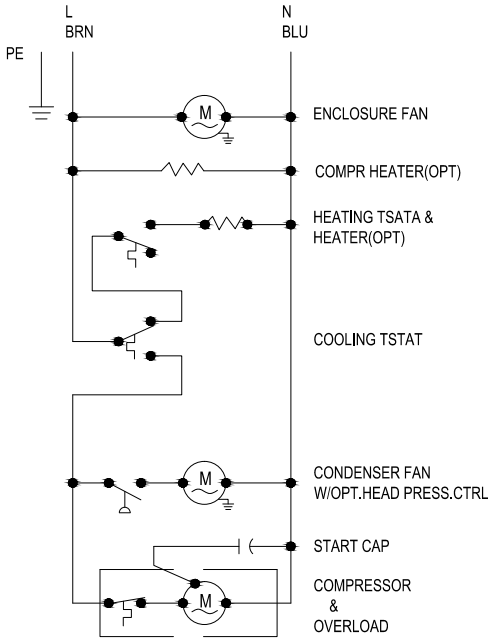
VA060325GXXXA GENERIC WIRE DIAGRAM (ACTUAL UNIT OPTIONS MAY VARY)



VA060625GXXXA GENERIC WIRE DIAGRAM (ACTUAL UNIT OPTIONS MAY VARY)

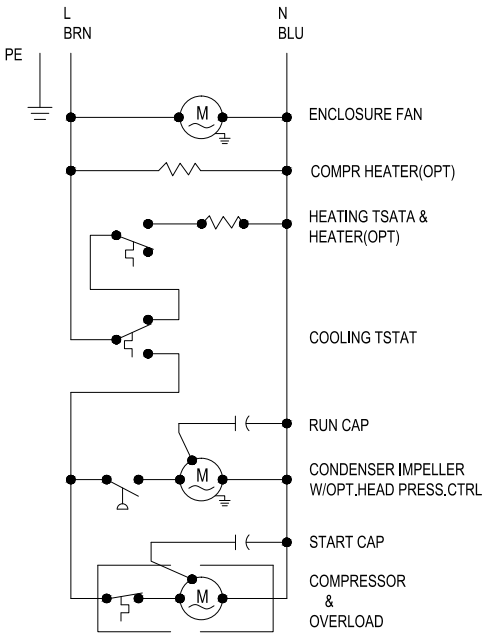


SCHEMATICS



ELECTRICAL SCHEMATIC
3218306 REV B

VA060325GXXXA



ELECTRICAL SCHEMATIC
3218307 REV B

VA060625GXXXA

SERVICE DATA

COMPONENTS LIST

Part Description	Part Number	
	VA060325GXXXA	VA060625GXXXA
Capacitor,Condenser,Impeller	N/A	3218246
Coil,Condenser	90157951	3218296
Coil,Evaporator	3218272	3218295
Compressor	3218299	3218294
Filter,Air,Reusable	3218278	3218278
Filter/Dryer	3218298	3218298
Head Pressure Control Switch(option)	3206068	3206068
Fan,Condenser	3205740	3218245
Fan,Evaporator	3218293	3205740
Capillary Tube	90157960	90157960
Thermostat,SPDT,55-100F	3204580	3204580
Display(option)	90164848	90164848
T-Block 769-603/004-000	90164849	90164849
T-Block 769-103	90164850	90164850

MAINTENANCE

COMPRESSOR

The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service.

INLET AIR FILTER

Proper maintenance of the inlet air filter, located behind the front cover, will assure normal operation of the air conditioner. If filter maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

If the compressor's operating temperature increases above designed conditions due to a dirty or clogged filter (or plugged condenser coil), the air conditioner's compressor will stop operating due to actuation of the thermal overload cut-out switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switch's cut-in setting, the compressor will restart automatically. However the above condition will continue to take place until the filter or coil has been cleaned. It is recommended that power to the air conditioner be interrupted intentionally when abnormally high compressor operating temperature causes automatic shut-down of the unit. The above described shut-down is symptomatic of a clogged or dirty filter, thus causing a reduction in cooling air flow across the surface of the compressor and condenser coil.

Do not run the air conditioner for extended periods of time with the filter removed. Particles of dust, lint, etc., can plug the fins of the condenser coil which will give the same reaction as a plugged filter. The condenser coil is not visible through the filter opening, so protect it with a filter.

Continued operation under the above conditions can and will damage and shorten compressor life. The air conditioner is available with an easily removable inlet filter to facilitate necessary cleaning. There should be no reason to neglect this necessary maintenance.

HOW TO REMOVE, CLEAN OR INSTALL A NEW INLET AIR FILTER

RP aluminum washable air filters are designed to provide excellent filtering efficiency with a high dust holding capacity and a minimum amount of resistance to air flow. Because they are constructed entirely of aluminum they are lightweight and easy to service. To achieve maximum performance from your air handling equipment, air filters should be cleaned on a regular basis.

The inlet air filter is located behind the front cover. To access filter,pull ring protruding from slot in bottom of front cover. The filter may now be cleaned or new filter installed.

Cleaning Instructions:

1. Flush the filter with warm water from the exhaust side to the intake side. DO NOT USE CAUSTICS.
2. After flushing, allow filter to drain. Placing it with a corner down will assure complete drainage.

CONDENSER AND EVAPORATOR AIR MOVERS

Impeller motors require no maintenance. All bearings, shafts, etc. are lubricated during manufacturing for the life of the motor.

If the condenser impeller motor (ambient impeller) should fail, it is not necessary to remove the air conditioner from the cabinet or enclosure to replace the impeller. The condenser impeller is mounted on its own bulkhead and is easily accessible by removing the front cover.

⚠ CAUTION

Operation of the air conditioner in areas containing airborne caustics or chemicals can rapidly deteriorate filters, condenser coils, blowers and motors, etc. Contact nVent Equipment Protection for special recommendations.

REFRIGERANT LOSS

Each air conditioner is thoroughly tested prior to leaving the factory to insure against refrigeration leaks. Shipping damage or microscopic leaks not found with sensitive electronic refrigerant leak detection equipment during manufacture may require repair or recharging of the system. This work should only be performed by qualified professionals, generally available through a local, reputable air conditioning repair or service company.

If the unit requires recharging, replace the charging tube with a new one, recommended size of charging copper tube is 6.35mm O.D. X 100mm L.

Refer to the data on the nameplate which specifies the type of refrigerant and the charge size in ounces.

Before recharging, make sure there are no leaks and that the system has been properly evacuated into a deep vacuum.

TROUBLE SHOOTING

BASIC AIR CONDITIONING TROUBLE SHOOTING CHECK LIST

1. Check manufacturer's nameplate located on the unit for correct power supply.
2. Turn on power to the unit. The evaporator (Enclosure or "COLD" air) fan should come on. Is there airflow?

YES, proceed to step 3.	
NO, possible problem: • Open motor winding • Stuck impeller motor • Obstructed wheel	**Repair or Replace defective part**

3. Check thermostat setting and adjust thermostat to the lowest setting. This should turn the condenser fan and the compressor on. Did condenser fan and compressor come on when the thermostat was turned on?

YES, proceed to step 4.	
NO, possible problem: • Defective thermostat	**Replace Part**

4. Are all impellers and the compressor running? If not the unit will not cool properly.
5. Check condenser (Ambient or "HOT" air) impellers for airflow. Is there airflow?

YES, proceed to step 6.	
NO, possible problem: • Defective thermostat • Open motor winding • Stuck impeller motor • Obstructed wheel	**Repair or Replace defective part**

6. Carefully check the compressor for operation - motor should cause slight vibration, and the outer case of the compressor should be warm. Is the compressor showing signs of this?

YES, wait 5 minutes, then proceed to step 7.	
NO, possible problem: • Defective thermostat • Open motor winding • Stuck impeller motor • Obstructed wheel	**Repair or Replace defective part**

7. Make sure the coils are clean. Then check evaporator "air in" and "air out" temperatures. If the temperatures are the same:

• Possible loss of refrigerant • Possible bad valves in the compressor	**Repair or Replace defective part**

8. To check for a bad thermostat, turn power to the unit off. Remove the upper access panel and place both thermostat wires onto one terminal (replace upper access panel for safety). This will activate the switch in the thermostat. Turn the power on and if all impellers and the compressor come on,the thermostat needs to be replaced.

SYMPTOMS AND POSSIBLE CAUSES:

SYMPTOM	POSSIBLE CAUSE
Unit won't cool	Clogged fins on coil(s)
	Dirty filter
	Impellers not running
	Compressor not running
	Compressor runs, but has bad valves
	Loss of refrigerant
Compressor tries to start but won't run	Low line voltage at start. Should be +/-10% rated voltage.
	Compressor motor stuck
	Bad contactor
	Bad overload switch
Unit blows breakers	Undersized breaker/fuse or not time delayed
	Short in system
Getting water in enclosure	Drain plugged
	Drain tube kinked
	Enclosure not sealed (allowing humidity in)
	Mounting gasket damaged

For additional technical support, contact nVent Electronics & Electronical Protection China at 400-820-1133.

F-GAS INFORMATION

	V060325GXXX	V060625GXXX
Refrigerant Kühlmittel Chłodziwo	R134a	R134a
GWP	1430	1430
Factory Charge Füllmenge durch Hersteller Opłata Fabryczna	100 Grams 100 Gramm 100 Gramów	150 Grams 150 Gramm 150 Gramów
CO_2 Equivalent CO_2 Equivalent CO_2 Ekwilalent	0.14 Tons 0,14 Tonnen 0,14 Tony	0.21 Tons 0,21 Tonnen 0,21 Tony

NOTES

NOTES

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