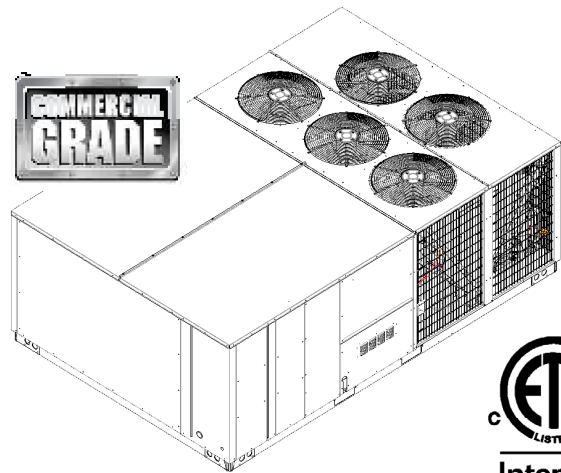


DSG SERIES

PACKAGED GAS/ELECTRIC

UNIT 15 to 25 Ton



NOTE: 25 ton model shown in picture.
 20 ton model has 4 fans
 15 ton model has 3 fans



RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

These installation instructions cover the outdoor installation of single package heating and cooling units. See the Specification Sheet applicable to your model for information regarding accessories.

***NOTE:** Please contact your distributor or our website for the applicable Specification Sheet referred to in this manual.

This Forced Air Central Unit Design Complies With Requirements Embodied in the American National Standard / National Standard of Canada shown below. ANSI Z21.47•CSA-2.3 Central Furnaces.

NOTE: This equipment is approved to use only with R-32 refrigerant.

NOTE: Specifications and performance data listed herein are subject to change without notice.

NOTE: Never operate the unit without the recommended filter or the outer panel installed.

WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREINAFTER, “SERVICE”) THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT.

THIS EQUIPMENT IS NOT INTENDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPACITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE EQUIPMENT.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SUPERVISION, SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT. IMPROPER SUPERVISION, INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER SUPERVISION OR TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

DO NOT BYPASS SAFETY DEVICES.

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SAFETY INSTRUCTIONS

TO THE INSTALLER

Before installing this unit, please read this manual to familiarize yourself on the specific items which must be adhered to, including maximum external static pressure to unit, air temperature rise and minimum or maximum CFM.

Keep this literature in a safe place for future reference.



WARNING

IF THE INFORMATION IN THESE INSTRUCTIONS IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

- DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.
- WHAT TO DO IF YOU SMELL GAS:
 - DO NOT TRY TO LIGHT ANY APPLIANCE.
 - DO NOT TOUCH ANY ELECTRICAL SWITCH; DO NOT USE ANY PHONE IN YOUR BUILDING.
 - IMMEDIATELY CALL YOUR GAS SUPPLIER FROM A NEIGHBOR'S PHONE. FOLLOW THE GAS SUPPLIER'S INSTRUCTIONS.
 - IF YOU CANNOT REACH YOUR GAS SUPPLIER, CALL THE FIRE DEPARTMENT.
- INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.



WARNING

SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS SHUTOFF VALVE EXTERNAL TO THE FURNACE BEFORE TURNING OFF THE ELECTRICAL SUPPLY.



CAUTION

SHEET METAL PARTS, SCREWS, CLIPS AND SIMILAR ITEMS INHERENTLY HAVE SHARP EDGES, AND IT IS NECESSARY THAT THE INSTALLER AND SERVICER PERSONNEL EXERCISE CAUTION.



WARNING

DO NOT CONNECT TO OR USE ANY DEVICE THAT IS NOT CERTIFIED BY THE MANUFACTURER FOR USE WITH THIS UNIT. SERIOUS PROPERTY DAMAGE, PERSONAL INJURY, REDUCED UNIT PERFORMANCE AND/OR HAZARDOUS CONDITIONS MAY RESULT FROM THE USE OF SUCH NON-APPROVED DEVICES.



WARNING

DO NOT USE MEANS TO ACCELERATE THE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER.

THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE OR AN OPERATING ELECTRIC HEATER). DO NOT PIERCE OR BURN. BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.



WARNING

ONLY AUXILIARY DEVICES APPROVED BY THE APPLIANCE MANUFACTURER OR DECLARED SUITABLE WITH THE REFRIGERANT SHALL BE INSTALLED IN CONNECTING DUCTWORK.



WARNING

DO NOT OPERATE THE COMPRESSOR(S) WITHOUT THE TERMINAL PLUG FULLY ENGAGED OR THE TERMINAL COVER PROPERLY INSTALLED. GET AWAY IF UNUSUAL SOUNDS ARE HEARD FROM WITHIN THE COMPRESSOR. DISCONNECT ELECTRICAL POWER FROM THE UNIT.



WARNING

A TRIPPED CIRCUIT BREAKER OR BLOWN FUSE MAY INDICATE THAT AN ELECTRICAL PROBLEM EXISTS.

DO NOT RESET A CIRCUIT BREAKER OR REPLACE FUSES WITHOUT FIRST PERFORMING THOROUGH ELECTRICAL TROUBLESHOOTING AND TESTING PROCEDURES.



WARNING

HIGH VOLTAGE!

PRIOR TO SERVICING THE UNIT OR REMOVING THE COMPRESSOR TERMINAL PLUG OR TERMINAL COVER, DISCONNECT ALL ELECTRICAL POWER FROM THE UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT.



WARNING

THIS UNIT MUST NOT BE USED AS A "CONSTRUCTION HEATER" DURING THE FINISHING PHASES OF CONSTRUCTION ON A NEW STRUCTURE. THIS TYPE OF USE MAY RESULT IN PREMATURE FAILURE OF THE UNIT DUE TO EXTREMELY LOW RETURN AIR TEMPERATURES AND EXPOSURE TO CORROSIVE OR VERY DIRTY ATMOSPHERES.

DANGER



CARBON MONOXIDE POISONING HAZARD

Special Warning for Installation of Furnace or Air Handling Units in Enclosed Areas such as Garages, Utility Rooms or Parking Areas

Carbon monoxide producing devices (such as an automobile, space heater, gas water heater, etc.) should not be operated in enclosed areas such as unventilated garages, utility rooms or parking areas because of the danger of carbon monoxide (CO) poisoning resulting from the exhaust emissions. If a furnace or air handler is installed in an enclosed area such as a garage, utility room or parking area and a carbon monoxide producing device is operated therein, there must be adequate, direct outside ventilation.

This ventilation is necessary to avoid the danger of CO poisoning which can occur if a carbon monoxide producing device continues to operate in the enclosed area. Carbon monoxide emissions can be (re)circulated throughout the structure if the furnace or air handler is operating in any mode.

CO can cause serious illness including permanent brain damage or death. B10259-216

DANGER
PELIGRO



RIESGO DE INTOXICACIÓN POR MONÓXIDO DE CARBONO

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Los equipos ó aparatos que producen monóxido de carbono (tal como automóvil, calentador de gas, calentador de agua por medio de gas, etc) no deben ser operados en áreas cerradas debido al riesgo de envenenamiento por monóxido de carbono (CO) que resulta de las emisiones de gases de combustión. Si el equipo ó aparato se opera en dichas áreas, debe existir una adecuada ventilación directa al exterior. Esta ventilación es necesaria para evitar el peligro de envenenamiento por CO, que puede ocurrir si un dispositivo que produce monóxido de carbono sigue operando en el lugar cerrado.

Las emisiones de monóxido de carbono pueden circular a través del aparato cuando se opera en cualquier modo.

El monóxido de carbono puede causar enfermedades severas como daño cerebral permanente ó muerte. B10259-216

DANGER



RISQUE D'EMPOISONNEMENT AU MONOXYDE DE CARBONE

Advertencia especial para la instalación de calentadores ó manejadoras de aire en áreas cerradas como estacionamientos ó cuartos de servicio.

Avertissement special au sujet de l'installation d'appareils de chauffage ou de traitement d'air dans des endroits clos, tels les garages, les locaux d'entretien et les stationnements. Evitez de mettre en marche les appareils produisant du monoxyde de carbone (tels que les automobile, les appareils de chauffage autonome, etc.) dans des endroits non ventilés tels que les d'empoisonnement au monoxyde de carbone. Si vous devez faire fonctionner ces appareils dans un endroit clos, assurez-vous qu'il y ait une ventilation directe provenant de l'exterieur.

Cette ventilation est nécessaire pour éviter le danger d'intoxication au CO pouvant survenir si un appareil produisant du monoxyde de carbone continue de fonctionner au sein de la zone confinée.

Les émissions de monoxyde de carbone peuvent être recirculées dans les endroits clos, si l'appareil de chauffage ou de traitement d'air sont en marche.

Le monoxyde de carbone peut causer des maladies graves telles que des dommages permanents au cerveau et même la mort. B10259-216

WARNING

HIGH VOLTAGE
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



CAUTION

AUXILIARY DEVICES WHICH MAY BE A POTENTIAL IGNITION SOURCE SHALL NOT BE INSTALLED IN THE DUCT WORK. EXAMPLES OF SUCH POTENTIAL IGNITION SOURCES ARE HOT SURFACES WITH A TEMPERATURE EXCEEDING 700°C AND ELECTRIC SWITCHING DEVICES.

WARNING

LEAK DETECTION SYSTEM INSTALLED. UNIT MUST BE POWERED EXCEPT FOR SERVICE.

WARNING

THIS UNIT IS EQUIPPED WITH ELECTRICALLY POWERED SAFETY MEASURES. TO BE EFFECTIVE, THE UNIT MUST BE ELECTRICALLY POWERED AT ALL TIMES AFTER INSTALLATION, OTHER THAN WHEN SERVICING.

WARNING

TO PREVENT THE RISK OF PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT STORE COMBUSTIBLE MATERIALS OR USE GASOLINE OR OTHER FLAMMABLE LIQUIDS OR VAPORS IN THE VICINITY OF THIS APPLIANCE.

WARNING

HERMETIC COMPRESSOR ELECTRICAL TERMINAL VENTING CAN BE DANGEROUS. IN CERTAIN CIRCUMSTANCES, THE TERMINAL MAY BE EXPELLED, VENTING THE REFRIGERANT VAPOR AND COMPRESSOR OIL CONTAINED WITHIN THE COMPRESSOR HOUSING AND SYSTEM. BE ALERT FOR SOUNDS OF ARCING (SIZZLING, SPUTTERING, OR POPPING) INSIDE THE COMPRESSOR. IMMEDIATELY GET AWAY IF YOU HEAR THESE SOUNDS AND DISCONNECT ELECTRICAL POWER FROM THE UNIT.

TERMINAL VENTING

Never operate the compressor without the terminal cover secured and properly in place or without the electrical plug fully seated and engaged to the terminal posts.

If a terminal is damaged, electrically overloaded, or short circuited to ground, there is a remote possibility that the terminal can be suddenly expelled from the terminal housing thereby venting the refrigerant and compressor oil mixture to atmosphere.

This discharge can be ignited from electrical arcing, or other open sources of ignition, and can cause potentially severe or fatal injury. This event is known as "Terminal Venting".

To reduce the possibility of external ignition, all open flames or other heat sources must be extinguished, and all electrical power must be turned off prior to opening the terminal cover or removing the electrical plug and servicing the system. Proper sealed system evacuation is required during equipment servicing to maintain adequate internal system cleanliness while eliminating contaminants.

Be alert for sounds of arcing (sizzling, sputtering, or popping) inside the compressor. IMMEDIATELY GET AWAY from the unit if you hear these sounds and disconnect electrical power.

DETECTION OF FLAMMABLE REFRIGERANTS

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system.

REPLACEMENT PARTS

ORDERING PARTS

When reporting shortages or damages, or ordering repair parts, give the complete unit model and serial numbers as stamped on the unit's nameplate. Refrigerant Sensors for refrigeration detection system shall only be replaced with sensors specified by the manufacturer. Shortages and damage needs to be reported to logistic Feedback @ <https://www.goodmanmfg.com/logistics-feedback>.

Replacement parts for this appliance are available through your contractor or local distributor. Your nearest distributor can be located online at www.daikincomfort.com or by contacting:

EQUIPMENT SUPPORT
DAIKIN COMFORT TECHNOLOGIES
MANUFACTURING, L.P.
19001 KERMIER ROAD
WALLER, TEXAS 77484
855-770-5678

GENERAL INFORMATION

For complete information and installation instructions for models with DDC controls, see manual DK-DDC-TGD-XXX.



WARNING

TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO FIRE, EXPLOSIONS, SMOKE, SOOT, CONDENSATION, ELECTRIC SHOCK OR CARBON MONOXIDE, THIS UNIT MUST BE PROPERLY INSTALLED, REPAIRED, OPERATED AND MAINTAINED.

This unit is approved for outdoor installation ONLY. For Installation Only in Locations Not Accessible to the General Public. Rated performance is achieved after 20 hours of operation. Rated performance is delivered at the specified airflow. See outdoor unit specification sheet for split system models or product specification sheet for packaged and light commercial models. Specification sheets can be found at www.daikincomfort.com for Daikin brand products. Within the website, please select the residential or commercial products menu and then select the submenu for the type of product to be installed, such as air conditioners or heat pumps, to access a list of product pages that each contain links to that model's specification sheet.

To assure that your unit operates safely and efficiently, it must be installed, operated, and maintained in accordance with these installation and operating instructions, all local building codes and ordinances, or in their absence, with the latest edition of the National Fuel Gas Code NFPA54/ANSI Z223.1 and National Standard of Canada CAN/CSA B149 Installation Codes.

QUALIFICATION OF WORKERS

Personnel must be certified to service, work, and/or repair units with FLAMMABLE REFRIGERANTS. A certificate should document the competence and qualification achieved through training that included the substance of the following:

- Information about the explosion potential of FLAMMABLE REFRIGERANTS to show that flammables may be dangerous when handled without care.
- Information about POTENTIAL IGNITION SOURCES, especially those that are not obvious, such as lighters, light switches, vacuum cleaners, electric heaters.
- Information about the different safety concepts, including ventilated and unventilated areas.
- Information about refrigerant detectors, including function, operation, and service measures.
- Information about the concept of sealed components and sealed enclosures according to IEC 60079-15:2010.
- Information about the correct working procedures, including commissioning, maintenance, repair, decommissioning, and disposal procedures.

EPA REGULATIONS

IMPORTANT: THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) HAS ISSUED VARIOUS REGULATIONS REGARDING THE INTRODUCTION AND DISPOSAL OF REFRIGERANTS IN THIS UNIT. FAILURE TO FOLLOW THESE REGULATIONS MAY HARM THE ENVIRONMENT AND CAN LEAD TO THE IMPOSITION OF SUBSTANTIAL FINES. BECAUSE REGULATIONS MAY VARY DUE TO PASSAGE OF NEW LAWS, WE SUGGEST A CERTIFIED TECHNICIAN PERFORM ANY WORK DONE ON THIS UNIT. SHOULD YOU HAVE ANY QUESTIONS PLEASE CONTACT THE LOCAL OFFICE OF THE EPA.

NATIONAL CODES

This product is designed and manufactured to permit installation in accordance with National Codes. It is the installer's responsibility to install the product in accordance with National Codes and/or prevailing local codes and regulations.

The heating and cooling capacities of the unit should be greater than or equal to the design heating and cooling loads of the area to be conditioned. The loads should be calculated by an approved method or in accordance with ASHRAE Guide or Manual J - Load Calculations published by the Air Conditioning Contractors of America.

Obtain from:
American National Standards Institute
25 West 43rd Street, 4th Floor
New York, NY 10036

System design and installation should also, where applicable, follow information presented in accepted industry guides such as the ASHRAE Handbooks. The manufacturer assumes no responsibility for equipment installed in violation of any code or regulation. The mechanical installation of the packaged roof top units consists of making final connections between the unit and building services; supply and return duct connections; and drain connections (if required). The internal systems of the unit are completely factory-installed and tested prior to shipment.

Units are generally installed on a steel roof mounting curb assembly which has been shipped to the job site for installation on the roof structure prior to the arrival of the unit. The model number shown on the unit's identification plate identifies the various components of the unit such as refrigeration tonnage, heating input and voltage.

Carefully inspect the unit for damage including damage to the cabinetry. Any bolts or screws which may have loosened in transit must be re-tightened. In the event of damage, the receiver should:

1. Make notation on delivery receipt of any visible damage to shipment or container.
2. Notify the carrier promptly and request an inspection.
3. In case of concealed damage, the carrier should be notified as soon as possible-preferably within 5 days.

4. File the claim with the following supporting documents:
 - a. Original Bill of Lading, certified copy, or indemnity bond.
 - b. Original paid freight bill or indemnity in lieu thereof.
 - c. Original invoice or certified copy thereof, showing trade and other discounts or reductions.
 - d. Copy of the inspection report issued by the carrier representative at the time damage is reported to the carrier. The carrier is responsible for making prompt inspection of damage and for a thorough investigation of each claim. The distributor or manufacturer will not accept claims from dealers for transportation damage.

NOTE: WHEN INSPECTING THE UNIT FOR TRANSPORTATION DAMAGE, REMOVE ALL PACKAGING MATERIALS. RECYCLE OR DISPOSE OF THE PACKAGING MATERIAL ACCORDING TO LOCAL CODES.

PRE-INSTALLATION CHECKS

NOTE: VERIFY THAT VOLTAGE LISTED ON SERIAL PLATE MATCHES VOLTAGE BEING SUPPLIED BY SITE.

Carefully read all instructions for the installation prior to installing unit. Ensure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally.

CABLING / WIRING

Check that cabling / wiring will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

THE FOLLOWING INSTRUCTIONS ARE MANDATORY FOR A2L SYSTEMS AND SUPERSEDE OTHER INSTRUCTIONS



WARNING

ONLY BRAZING TECHNIQUES OR APPROVED MECHANICAL JOINTS SHOULD BE USED TO CONNECT REFRIGERANT TUBING CONNECTIONS. NON-APPROVED MECHANICAL CONNECTORS AND OTHER METHODS ARE NOT PERMITTED IN THIS SYSTEM CONTAINING A2L REFRIGERANT. APPROVED MECHANICAL JOINTS WILL BE DETAILED IN THE PRODUCT'S SPECIFICATION SHEETS.

STANDING PRESSURE TEST/LEAK DETECTION METHOD

USING DRY NITROGEN OR DRY HELIUM, PRESSURIZE THE SYSTEM TO 450 PSIG. ALLOW THE PRESSURE TO STABILIZE AND HOLD FOR 15 MINUTES (MINIMUM). THE SYSTEM IS CONSIDERED LEAK-FREE IF THE PRESSURE DOES NOT DROP BELOW 450 PSIG. IF, AFTER 15 MINUTES, THE PRESSURE DROPS BELOW 450 PSIG, IT IMPLIES A LEAK IN THE SYSTEM. PROCEED WITH IDENTIFYING AND SEALING THE LEAK AND REPEATING THE STANDING PRESSURE TEST. LEAK TEST THE SYSTEM USING DRY NITROGEN OR DRY HELIUM AND SOAPY WATER TO IDENTIFY LEAKS. NO REFRIGERANT SHALL BE USED FOR PRESSURE TESTING TO DETECT LEAKS. PROCEED TO SYSTEM EVACUATION USING THE DEEP VACUUM METHOD.

DEEP VACUUM METHOD

The Deep Vacuum Method requires a vacuum pump rated for 500 microns or less. This method effectively and efficiently ensures the system is free of non-condensable air and moisture. The Triple Evacuation Method is detailed in the Service Manual for this product model as an alternative. To expedite the evacuation procedure, it is recommended that the Schrader Cores be removed from the service valves using a core-removal tool.

1. Connect the vacuum pump, micron gauge, and vacuum-rated hoses to both service valves. Evacuation must use both service valves to eliminate system mechanical seals.
2. Evacuate the system to less than 500 microns.
3. Isolate the pump from the system and hold the vacuum for 10 minutes (minimum). Typically, pressure will rise slowly during this period. If the pressure rises to less than 1000 microns and remains steady, the system is considered leak-free; proceed to system charging and startup.
4. If pressure rises above 1000 microns but holds steady below 2000 microns, non-condensable air or moisture may remain, or a small leak may be present. Return to step 2: If the same result is achieved, check for leaks and repair. Repeat the evacuation procedure.
5. If pressure rises above 2000 microns, a leak is present. Check for leaks and repair them. Then, repeat the evacuation procedure.

ACCESSORY INSTALLATION



WARNING

ALL ACCESSORIES THAT MAY BECOME A POTENTIAL IGNITION SOURCE IF INSTALLED, SUCH AS ELECTRONIC AIR CLEANERS, MUST ONLY BE POWERED THROUGH OUR ACCESSORY CONTROL BOARD KIT. IF AN ELECTRONIC AIR CLEANER IS ALREADY INSTALLED IN THE DUCT WORK AND NOT CONNECTED TO THE ACCESSORY CONTROL BOARD. IT WILL HAVE TO BE DISABLED OR REMOVED. ENSURE THAT ANY ADDITIONAL WIRING FROM THE INDOOR UNIT TO THE ACCESSORY CONTROL BOARD IS ROUTED AND PROTECTED FROM DAMAGE WEAR, AVOIDING THE FLUE PIPE AND ANY JOINTS THAT MAY NEED BRAZED OR DISCONNECTED FOR SERVICE. REFER TO THE PRODUCT SPECIFICATION SHEET FOR THE ACCESSORY CONTROL BOARD KIT PART NUMBER.

ALTITUDE ADJUSTMENT FACTOR TO CALCULATE MINIMUM ROOM AREA

The Indoor equipment mitigation requirements are calculated at sea level. For higher altitudes adjust the minimum room area specified near the Serial Plate by the corresponding altitude adjustment factor shown below. This table is provided as a reference.

Adjusted room area ($A_{\min \text{ adj}}$) is the product of the minimum room area specified in the serial plate and the adjustment factor AF, as shown in below formula

$$A_{\min \text{ adj}} = A_{\min} (\text{serial plate}) * AF$$

Height in meters	Height in feet	Altitude Adjustment Factor (AF)
At sea level	At sea level	1.00
1~200	1~660	1.02
200~400	660~1320	1.03
400~600	1320~1970	1.05
600~800	1970~2630	1.07
800~1000	2630~3290	1.09
1000~1200	3290~3940	1.11
1200~1400	3940~4600	1.13
1400~1600	4600~5250	1.15
1600~1800	5250~5910	1.17
1800~2000	5910~6570	1.19
2000~2200	6570~7220	1.21
2200~2400	7220~7880	1.24
2400~2600	7880~8540	1.26
2600~2800	8540~9190	1.29
2800~3000	9190~9850	1.31
3000~3200	9850~10500	1.34

UNIT LOCATION

NOTE: THESE UNITS ARE DESIGNED FOR ROOF TOP INSTALLATIONS ONLY AT A MAX ALTITUDE OF 2000 METERS OR 6562 FEET ABOVE SEA LEVEL.



WARNING

TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING MUST BE OBSERVED WHEN INSTALLING, STORING AND OPERATING THE UNIT.



WARNING

THE APPLIANCE SHALL BE INSTALLED, OPERATED AND STORED IN A ROOM WITH A FLOOR AREA NOT LESS THAN THE MINIMUM ROOM AREA INDICATED.



$$\geq 15.3 \text{ m}^2$$
$$164.7 \text{ ft}^2$$

IMPORTANT NOTE: Remove wood shipping rails prior to installation of the unit. See *important note under Roof Curb Installation Only*.

ALL INSTALLATIONS:

IMPORTANT NOTE: Unit should be energized 24 hours prior to compressor start up to ensure crankcase heater has sufficiently warmed the compressors. Compressor damage may occur if this step is not followed.

NOTE: THIS APPLIANCE IS A DEDICATED DOWNFLOW DESIGN.

Proper installation of the unit ensures trouble-free operation. Improper installation can result in problems ranging from noisy operation to property or equipment damages, dangerous conditions that could result in injury or personal property damage. Damage or repairs due to improper installation are not covered under the warranty. Give this booklet to the user and explain its provisions. The user should retain these instructions for future reference.

- For proper flame pattern within the heat exchanger and proper condensate drainage, the unit must be mounted level.
- The flue outlet must be at least 12 inches from any opening through which flue gases could enter a building, and at least three feet above any forced air inlet located within ten feet. The economizer/manual fresh air intake/motorized fresh air intake and combustion air inlet mounted on the unit are not affected by this restriction.

- To avoid possible corrosion of the heat exchanger, do not locate the unit in an area where the outdoor air (i.e. combustion air for the unit) will be frequently contaminated by compounds containing chlorine or fluorine. Common sources of such compounds include swimming pool chemicals and chlorine bleaches, paint stripper, adhesives, paints, varnishes, sealers, waxes (which are not yet dried) and solvents used during construction and remodeling. Various commercial and industrial processes may also be sources of chlorine/fluorine compounds.
- To avoid possible illness or death of the building occupants, do NOT locate outside air intake device (economizer, manual fresh air intake, motorized fresh air intake) too close to an exhaust outlet, gas vent termination, or plumbing vent outlet. For specific distances required, consult local codes.
- Allow minimum clearances from the enclosure for fire protection, proper operation, and service access (see unit clearances). These clearances must be permanently maintained.
- The combustion air inlet and flue outlet on the unit must never be obstructed. If used, do not allow the economizer/manual fresh air damper/ motorized fresh air damper to become blocked by snow or debris. In some climates or locations, it may be necessary to elevate the unit to avoid these problems.
- When the unit is heating, the temperature of the return air entering the unit must be between 50°F and 100°F.

GROUND LEVEL INSTALLATIONS ONLY:

- When the unit is installed on the ground adjacent to the building, a level concrete (or equal) base is recommended. Prepare a base that is 3" larger than the package unit footprint and a minimum of 3" thick.
- The base should also be located where no runoff of water from higher ground can collect in the unit.

ROOF TOP INSTALLATIONS ONLY:

- To avoid possible property damage or personal injury, the roof must have sufficient structural strength to carry the weight of the unit(s) and snow or water loads as required by local codes. Consult a structural engineer to determine the weight capabilities of the roof.
- The unit may be installed directly on wood floors or on Class A, Class B, or Class C roof covering material.
- To avoid possible personal injury, a safe, flat surface for service personnel should be provided.
- As indicated on the unit data plate, a minimum clearance of 36" to any combustible material is required on the furnace access side of the unit. All combustible materials must be kept out of this area.
- This 36" clearance must also be maintained to insure proper combustion air and flue gas flow. The combustion air intake and furnace flue discharge must not be blocked for any reason, including blockage by snow.

- Adequate clearances from the furnace flue discharge to any adjacent public walkways, adjacent buildings, building openings or openable windows must be maintained in accordance with the latest edition of the National Fuel Gas Code (ANSI Z223.1)
- Minimum horizontal clearance of 48" from the furnace flue discharge to any electric meters, gas meters, regulators and relief equipment is required.

UNIT PRECAUTIONS

- Do not stand or walk on the unit.
- Except for holes in the wiring entrances (see Figure below), do not drill holes anywhere in panels or in the base frame of the unit. Unit access panels provide structural support.
- Do not remove any access panels until unit has been installed on roof curb or field supplied structure.
- Do not roll unit across finished roof without prior approval of owner or architect.
- Do not skid or slide on any surface as this may damage unit base. The unit must be stored on a flat, level surface. Protect the condenser coil because it is easily damaged.

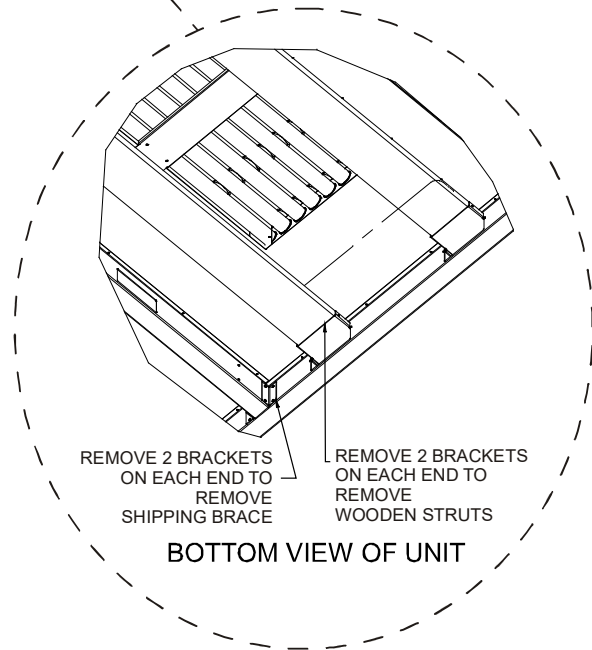
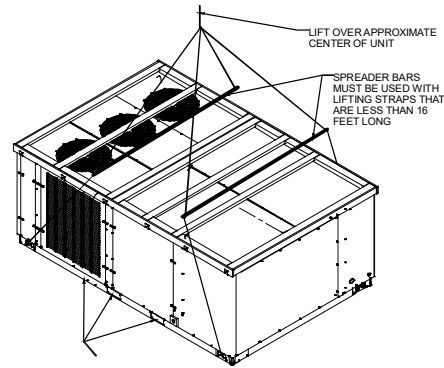
ROOF CURB INSTALLATIONS ONLY:

Before installing this unit...

IMPORTANT NOTE: This unit has been equipped with a shipping brace under the compressor section that **MUST BE REMOVED** before installing the unit on a roof curb. Please follow the instructions below to remove brace.

 CAUTION
WHEN UNIT IS SUSPENDED, BOARDS AND SHIPPING BRACE WILL DROP WHEN SCREWS ARE REMOVED. TO PREVENT PERSONAL INJURY, STAND CLEAR. REMOVE FORK HOLE BRACKETS, BOARDS AND SHIPPING BRACE FROM BOTTOM OF UNIT BEFORE PLACING UNITS ONTO CURB.

1. Remove wooden struts and shipping brace per installation instructions. *The struts are located in the fork holes and are used to protect the unit from damage while lifting with forks. The shipping brace is located under the unit (under compressor).* Also remove the fork hole brackets as shown in the following figure.
2. Locate and remove the end brackets as shown in the following figure.



3. Lift unit per the "Rigging Details" section of this manual, observing all warnings and cautions. When unit is lifted, boards and shipping brace will drop if screws have been removed. To avoid injury, **STAND CLEAR.**
4. Dispose of the boards and brace appropriately.

Curb installations must comply with local codes and should be done in accordance with the established guidelines of the National Roofing Contractors Association.

Proper unit installation requires that the roof curb be firmly and permanently attached to the roof structure. Check for adequate fastening method prior to setting the unit on the curb.

Full perimeter roof curbs are available from the factory and are shipped unassembled. Field assembly, squaring, leveling and mounting on the roof structure are the responsibility of the installing contractor. All required hardware necessary for the assembly of the sheet metal curb is included in the curb accessory.



WARNING

TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING BULLET POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.

- Sufficient structural support must be determined prior to locating and mounting the curb and package unit.
- Ductwork must be constructed using industry guidelines. The duct work must be placed into the roof curb before mounting the package unit. Our full perimeter curbs include duct connection frames to be assembled with the curb. Cantilevered type curbs are not available from the factory.
- Curb insulation, cant strips, flashing and general roofing material are furnished by the contractor.
- The curbs must be supported on parallel sides by roof members. The roof members must not penetrate supply and return duct opening areas as damage to the unit might occur.

NOTE: THE UNIT AND CURB ACCESSORIES ARE DESIGNED TO ALLOW VERTICAL DUCT INSTALLATION BEFORE UNIT PLACEMENT. DUCT INSTALLATION AFTER UNIT PLACEMENT IS NOT RECOMMENDED.

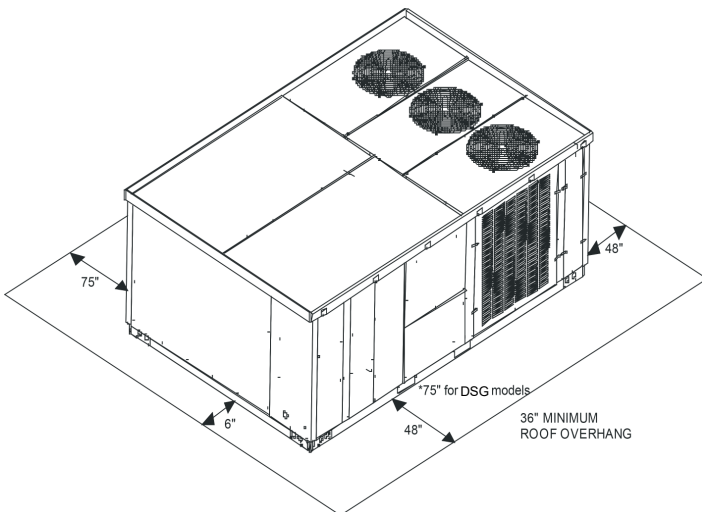


CAUTION

ALL CURBS LOOK SIMILAR. TO AVOID INCORRECT CURB POSITIONING, CHECK JOB PLANS CAREFULLY AND VERIFY MARKINGS ON CURB ASSEMBLY. INSTRUCTIONS MAY VARY IN CURB STYLES AND SUPERSEDE INFORMATION SHOWN.

See the manual shipped with the roof curb for assembly and installation instructions.

CLEARANCES

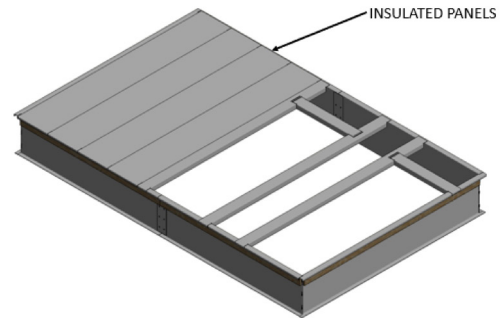
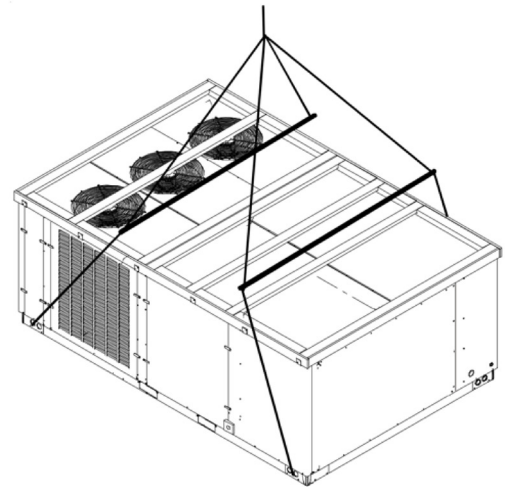


UNIT CLEARANCES

Adequate clearance around the unit should be kept for safety, service, maintenance, and proper unit operation. A 75" clearance on the non-service side of the unit is required to facilitate possible blower assembly and coil removal.

A 75" clearance on the service side of the unit is required for removal of the gas heat exchanger. This unit must not be installed beneath any obstruction. This unit should be installed remote from all building exhausts to inhibit ingestion of exhaust air into the unit's fresh air intake.

NOTE: IF THE 48" MINIMUM IS USED ON THE CONTROL PANEL SIDE OF A UNIT, A FLUE EXTENSION (220-DK-014) NEEDS BE TO INSTALLED TO PREVENT FLUE GAS RECIRCULATION.



ROOF CURB INSTALLATION

ROOF CURB POST-INSTALLATION CHECKS

After installation, check the top of the curb, duct connection frame and duct flanges to make sure gasket has been applied properly. Gasket should be firmly applied to the top of the curb perimeter, duct flanges and any exposed duct connection frame. If gasket is loose, re-apply using strong weather resistant adhesive.

PROTRUSION

Inspect curb to ensure that none of the utility services (electric) routed through the curb protrude above the curb.

NOTE: IF THE DUCT IS TO BE FASTEN TO THE CURB THE SCREW SHOULD BE INSTALLED HORIZONTALLY INTO THE FLANGES OF THE DUCT OPENINGS OF THE CURB.



CAUTION

IF PROTRUSIONS EXIST, DO NOT ATTEMPT TO SET UNIT ON CURB.

ROOF TOP DUCT CONNECTIONS

Install all duct connections on the unit before placing the unit on rooftop.

RIGGING DETAILS



WARNING

TO PREVENT PROPERTY DAMAGE, THE UNIT SHOULD REMAIN IN AN UPRIGHT POSITION DURING ALL RIGGING AND MOVING OPERATIONS. TO FACILITATE LIFTING AND MOVING WHEN A CRANE IS USED, PLACE THE UNIT IN AN ADEQUATE CABLE SLING.



CAUTION

DO NOT LIFT UNITS TWO AT A TIME. PROVISIONS FOR FORKS HAVE BEEN INCLUDED IN THE UNIT BASE FRAME. MINIMUM FORK LENGTH IS 72" TO PREVENT DAMAGE TO THE UNIT.

Provisions for forks have been included in the unit base frame. No other fork locations are approved.



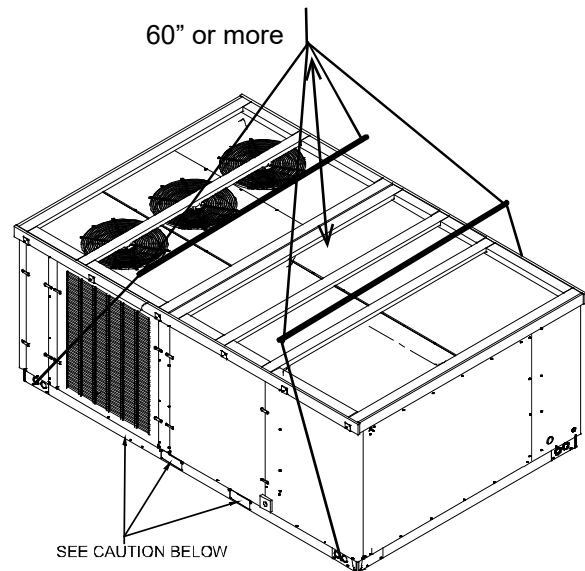
WARNING

TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, THE FOLLOWING BULLET POINTS MUST BE OBSERVED WHEN INSTALLING THE UNIT.

- Unit must be lifted by the four lifting holes located at the base frame corners.
- Lifting cables should be attached to the unit with shackles.
- The distance between the crane hook and the top of the unit must not be less than 60".
- Two spreader bars must span over the unit to prevent damage to the cabinet by the lift cables. Spreader bars must be of sufficient length so that cables do not come in contact with the unit during transport. Remove wood struts mounted beneath unit base frame before setting unit on roof curb. These struts are intended to protect unit base frame from fork lift damage. Removal is accomplished by extracting the sheet metal retainers and pulling the struts through the base of the unit. Refer to rigging label on the unit.

IMPORTANT NOTE: If using with roof curb, ductwork should be attached to the curb prior to installing the unit. Ductwork dimensions are shown in Roof Curb Installation Instructions.

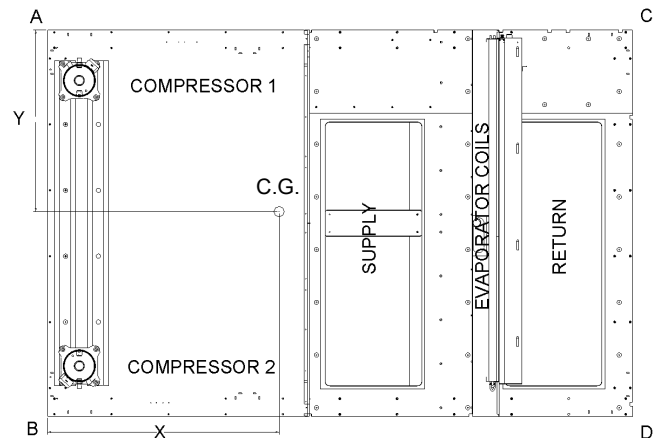
Refer to the Roof Curb Installation Instructions for proper curb installation. Curbing must be installed in compliance with the National Roofing Contractors Association Manual. Lower unit carefully onto roof mounting curb. While rigging unit, center of gravity will cause condenser end to be lower than supply air end.



CAUTION

WHEN UNIT IS SUSPENDED, BOARDS AND SHIPPING BRACE WILL DROP WHEN SCREWS ARE REMOVED. TO PREVENT PERSONAL INJURY, STAND CLEAR. REMOVE FORK HOLE BRACKETS, BOARDS AND SHIPPING BRACE FROM BOTTOM OF UNIT BEFORE PLACING UNITS ONTO CURB.

To assist in determining rigging requirements, unit weights are shown in table below.



CORNER & CENTER OF GRAVITY LOCATIONS

DATA	DSG Weights (lbs)		
	15T	20T	25T
Corner Weight - A	479	620	620
Corner Weight - B	487	608	611
Corner Weight - C	511	514	577
Corner Weight - D	445	533	508
Unit Shipping Weight	2037	2290	2431
Unit Operating Weight	1922	2175	2316

X (Inches)	66.4	63.7	62.3
Y (Inches)	45.3	46	45.9

NOTE: THESE WEIGHTS ARE WITHOUT ACCESSORIES INSTALLED.



CAUTION

TO PREVENT SEVERE DAMAGE TO THE BOTTOM OF THE UNIT, DO NOT FORK LIFT UNIT AFTER WOOD STRUTS HAVE BEEN REMOVED.

Bring condenser end of unit into alignment with the curb. With condenser end of the unit resting on curb member and using curb as a fulcrum, lower opposite end of the unit until entire unit is seated on the curb. When a rectangular cantilever curb is used, care should be taken to center the unit. Check for proper alignment and orientation of supply and return openings with duct.

RIGGING REMOVAL



CAUTION

TO PREVENT DAMAGE TO THE UNIT, DO NOT ALLOW CRANE HOOKS AND SPREADER BARS TO REST ON THE ROOF OF THE UNIT.

Remove spreader bars, lifting cables and other rigging equipment.

ELECTRICAL WIRING



WARNING

HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



WARNING

HIGH VOLTAGE

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT TAMPER WITH FACTORY WIRING. THE INTERNAL POWER AND CONTROL WIRING OF THESE UNITS ARE FACTORY-INSTALLED AND HAVE BEEN THOROUGHLY TESTED PRIOR TO SHIPMENT. CONTACT YOUR LOCAL REPRESENTATIVE IF ASSISTANCE IS REQUIRED.



CAUTION

TO PREVENT DAMAGE TO THE WIRING, PROTECT WIRING FROM SHARP EDGES. FOLLOW NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES AND ORDINANCES. DO NOT ROUTE WIRES THROUGH REMOVABLE ACCESS PANELS.



CAUTION

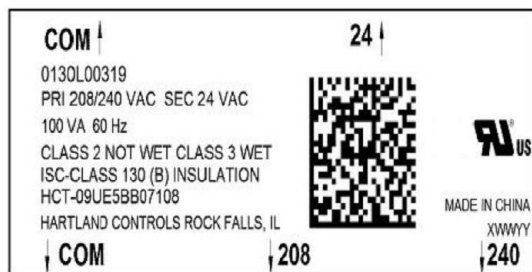
CONDUIT AND FITTINGS MUST BE WEATHER-TIGHT TO PREVENT WATER ENTRY INTO THE BUILDING OR UNIT.

For unit protection, use a fuse or HACR circuit breaker that is in excess of the circuit ampacity, but less than or equal to the maximum overcurrent protection device. **DO NOT EXCEED THE MAXIMUM OVERCURRENT DEVICE SIZE SHOWN ON UNIT DATA PLATE.**

All line voltage connections must be made through weatherproof fittings. All exterior power supply and ground wiring must be in approved weatherproof conduit. The main power supply wiring to the unit and low voltage wiring to accessory controls must be done in accordance with these instructions, the latest edition of the National Electrical Code (ANSI/NFPA 70), and all local codes and ordinances.

The main power supply shall be three-phase, three wire with a ground. The unit is factory wired for the voltage shown on the unit's data plate.

NOTE: IF SUPPLY VOLTAGE IS 208V, ALL LEADS ON PRIMARY OF TRANSFORMER(S) MUST BE MOVED FROM THE 240V TO THE 208V TAP.



Main power wiring should be sized for the minimum circuit ampacity shown on the unit's database. Size wires in accordance with the ampacity tables in Article 310 of the National Electrical Code. If long wires are required, it may be necessary to increase the wire size to prevent excessive voltage drop. Wires should be sized for a maximum of 3% voltage drop.

CAUTION

TO AVOID PROPERTY DAMAGE OR PERSONAL INJURY DUE TO FIRE, USE ONLY COPPER CONDUCTORS.

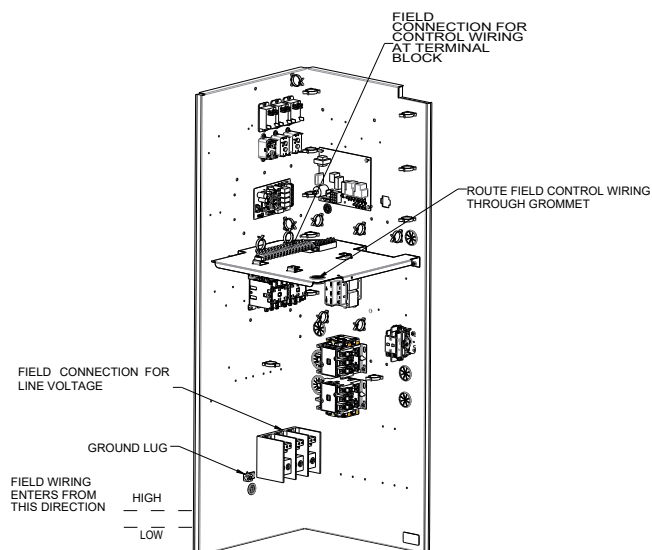
CAUTION

TO PREVENT IMPROPER AND DANGEROUS OPERATION DUE TO WIRING ERRORS, LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. VERIFY PROPER OPERATION AFTER SERVICING.

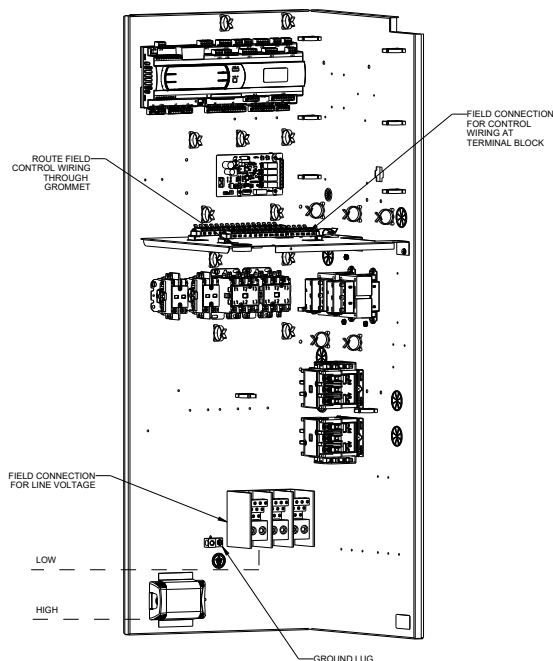
NOTE: A WEATHER-TIGHT DISCONNECT SWITCH, PROPERLY SIZED FOR THE UNIT TOTAL LOAD, MUST BE FIELD OR FACTORY INSTALLED. AN EXTERNAL FIELD SUPPLIED DISCONNECT MAY BE MOUNTED ON THE EXTERIOR PANEL. SWITCH SHALL BE PROVIDED TO ENSURE ALL-POLE DISCONNECTION FROM THE SUPPLY MAINS.

Ensure the data plate is not covered by the field-supplied disconnect switch.

- Some disconnect switches are not fused. Protect the power leads at the point of distribution in accordance with the unit data plate.
- The unit must be electrically grounded in accordance with local codes or, in the absence of local codes, with the latest edition of the National Electrical Code (ANSI-NFPA 70). A ground lug is provided for this purpose. Size grounding conductor in accordance with Table 250-95 of the National Electrical Code. Do not use the ground lug for connecting a neutral conductor.
- Connect power wiring to the middle contactor within the main control box or power block, if equipped.



15-25 Ton TSTAT POWER AND LOW VOLTAGE TERMINAL LOCATIONS



15-25 Ton DDC POWER AND LOW VOLTAGE TERMINAL LOCATIONS

NOTE: DEPENDING ON THE OPTIONS INSTALLED, THE LOCATION OF THE COMPONENTS MAY VARY IN SOME MODELS.

WARNING

FAILURE OF UNIT DUE TO OPERATION ON IMPROPER LINE VOLTAGE OR WITH EXCESSIVE PHASE UNBALANCE CONSTITUTES PRODUCT ABUSE AND IS NOT COVERED BY THE WARRANTY. IT MAY CAUSE SEVERE DAMAGE TO THE UNIT ELECTRICAL COMPONENTS.

AREAS WITHOUT CONVENIENCE OUTLET

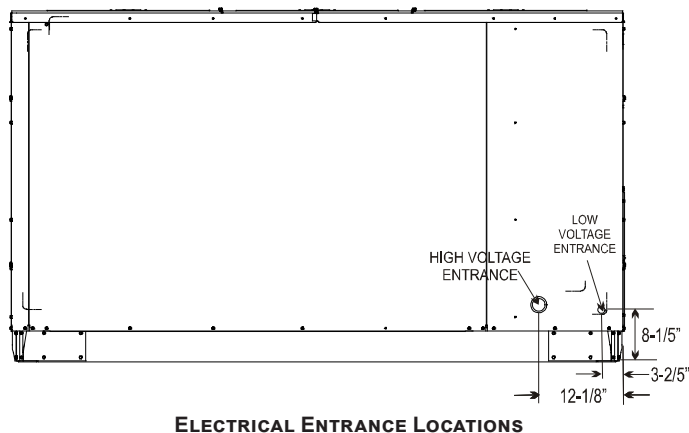
It is recommended that an independent 115V power source be brought to the vicinity of the roof top unit for portable lights and tools used by the service mechanic. Do not Field install outlets powered off of the unit electrical connections.

NOTE: REFER TO LOCAL CODES FOR REQUIREMENTS. THESE OUTLETS CAN ALSO BE FACTORY INSTALLED.

UNITS INSTALLED ON ROOF TOPS

Main power and low voltage wiring may enter the unit through the side or through the roof curb. If connections need to be made through the roof curb, a through the base kit (TTBCK03) will need to be used. Install conduit connectors at the designated entrance locations. External connectors must be weatherproof. All holes in the unit base must be sealed (including those around conduit nuts) to prevent water leakage into building. All required conduit and fittings are to be field supplied.

Supply voltage to roof top unit must not vary by more than 10% of the value indicated on the unit data plate. Phase voltage unbalance must not exceed 2%. Contact your local power company for correction of improper voltage or phase unbalance.



Unit is equipped with a Low Voltage Terminal Block and has Single Point wiring to the contactor (Above Image).

NOTE: FOR MODELS EQUIPPED WITH THE DDC CONTROLS OPTION, REFER TO THE SUPPLEMENTAL DDC LITERATURE SUPPLIED WITH THE UNIT FOR ADDITIONAL INFORMATION.

LOW VOLTAGE CONTROL WIRING

1. A 24V thermostat must be installed for unit operation. It may be purchased with the unit or field -supplied. Thermostats may be programmable or electromechanical as required.
2. Locate thermostat or remote sensor in the conditioned space where it will sense average temperature. Do not locate the device where it may be directly exposed to supply air, sunlight or other sources of heat. Follow installation instructions packaged with the thermostat.
3. Use #18 AWG wire for 24V control wiring runs not exceeding 75 feet. Use #16 AWG wire for 24V control wiring runs not exceeding 125 feet. Use #14 AWG wire for 24V control wiring runs not exceeding 200 feet. Low voltage wiring may be National Electrical Code (NEC) Class 2 where permitted by local codes.

4. Route thermostat wires from sub-base terminals to the unit. Control wiring should enter through the duct panel (dimple marks entrance location) or through the approved base pan location. Connect thermostat and any accessory wiring to low voltage terminal block TB1 in the main control box.

NOTE: FIELD-SUPPLIED CONDUIT MAY NEED TO BE INSTALLED DEPENDING ON UNIT/CURB CONFIGURATION. USE #18 AWG SOLID CONDUCTOR WIRE WHENEVER CONNECTING THERMOSTAT WIRES TO TERMINALS ON SUB-BASE. DO NOT USE LARGER THAN #18 AWG WIRE. A TRANSITION TO #18 AWG WIRE MAY BE REQUIRED BEFORE ENTERING THERMOSTAT SUB-BASE.

NOTE: REFER TO UNIT WIRING DIAGRAMS FOR THERMOSTAT HOOKUPS.

GAS SUPPLY PIPING



WARNING

TO PREVENT PERSONAL INJURY OR DEATH DUE TO IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE, REFER TO THIS MANUAL. FOR ADDITIONAL ASSISTANCE OR INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

IMPORTANT NOTE: This unit is factory set to operate on natural gas at the altitudes shown on the rating plate.



WARNING

TO PREVENT PROPERTY DAMAGE, PERSONAL INJURY OR DEATH WHEN EITHER USING PROPANE GAS ALONE OR AT HIGHER ALTITUDES, OBTAIN AND INSTALL THE PROPER CONVERSION KIT(S). FAILURE TO DO SO CAN RESULT IN UNSATISFACTORY OPERATION AND/OR EQUIPMENT DAMAGE. HIGH ALTITUDE KITS ARE FOR U.S. INSTALLATIONS ONLY AND ARE NOT APPROVED FOR USE IN CANADA.

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the unit is equipped to operate on the type of gas available. Conversion to propane (LP) gas is permitted with the use of the factory authorized conversion kit (see the unit Technical Manual for the appropriate kit). For High Altitude derates, refer to the latest edition of the National Fuel Gas Code NFPA 54/ ANSI Z223.1.

INLET GAS PRESSURE	
NATURAL	Min. 5.0" W.C., Max. 10.0" W.C.
PROPANE	Min. 11.0" W.C., Max. 14.0" W.C.

INLET GAS PRESSURE MUST NOT EXCEED THE MAXIMUM VALUE SHOWN IN TABLE ABOVE.

The minimum supply pressure should not vary from that shown in the table above because this could prevent the unit from having dependable ignition. In addition, gas input to the burners must not exceed the rated input shown on the rating plate. Overfiring of the unit could result in premature heat exchanger failure.

PIPING

IMPORTANT NOTE: To avoid possible unsatisfactory operation or equipment damage due to under firing of equipment, do not undersize the natural/propane gas piping from the meter/tank to the unit. When sizing a trunk line, include all appliances on that line that could be operated simultaneously.

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the unit is equipped to operate on the type of gas available. The gas line installation must comply with local codes, or in the absence of local codes, with the latest edition of the National Fuel Gas Code NFPA 54/ANSI Z223.1.

NATURAL GAS CONNECTION

Natural Gas Capacity of Pipe in Cubic Feet of Gas Per Hour (CFH)					
Length of Pipe in Feet	Nominal Black Pipe Size (inches)				
	1/2	3/4	1	1 1/4	1 1/2
10	132	278	520	1050	1600
20	92	190	350	730	1100
30	73	152	285	590	980
40	63	130	245	500	760
50	56	115	215	440	670
60	50	105	195	400	610
70	46	96	180	370	560
80	43	90	170	350	530
90	40	84	160	320	490
100	38	79	150	305	460

Pressure= .50 PSIG or less and Pressure Drop of 0.3" W.C.
(Based on 0.60 Specific Gravity Gas)

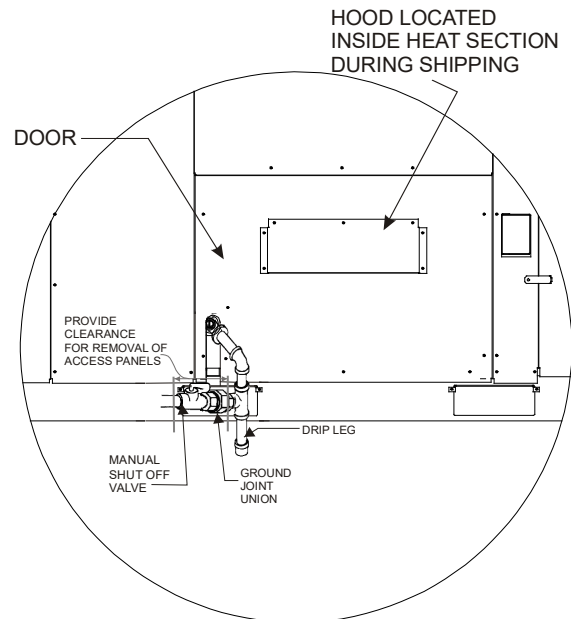
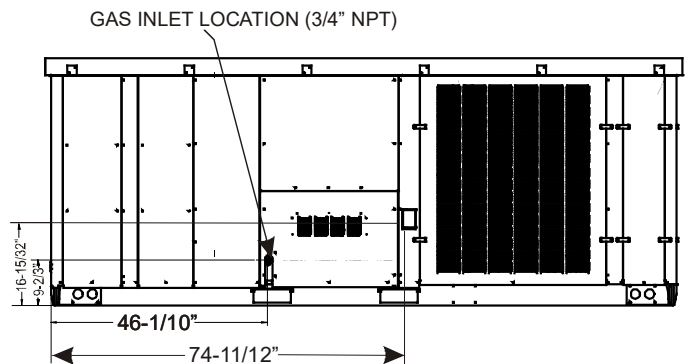
$$\text{CFH} = \frac{\text{BTUH Furnace Input}}{\text{Heating Value of Gas (BTU/Cubic Foot)}}$$

Refer to the Proper Piping Practice drawing for the general layout at the unit. The following rules apply:

1. Use black iron pipe and fittings for the supply piping. The use of a flex connector and/or copper piping is permitted as long as it is in agreement with local codes.
2. Use pipe joint compound on male threads only. Pipe joint compound must be resistant to the action of the fuel used.
3. Use ground joint unions.
4. Install a drip leg to trap dirt and moisture before it can enter the gas valve. The drip leg must be a minimum of three inches long.
5. Use two pipe wrenches when making connection to the gas valve to keep it from turning.
6. Install a manual shut-off valve in a convenient location (within six feet of unit) between the meter and the unit.
7. Tighten all joints securely.

8. The unit must be connected to the building piping by one of the following methods:

- Rigid metallic pipe and fittings
- Semirigid metallic tubing and metallic fittings (Aluminum alloy tubing must not be used in exterior locations)
- Listed gas appliance connectors used in accordance with the terms of their listing that are completely in the same room as the equipment
- In the prior two methods above the connector or tubing must be protected from physical and thermal damage. Aluminum alloy tubing and connectors must be coated to protect against external corrosion when in contact with masonry, plaster or insulation or are subject to repeated wettings by liquids (water - not rain water, detergents or sewage).



PROPER PIPING PRACTICE

NOTE: The unit gas supply entrance is factory sealed with plugs. Keep plugs in place until gas supply is ready to be installed. Once ready, replace the plugs with the supplied grommets and install gas supply line.

NOTE: GAS SUPPLY CONNECTION IS 3/4" NTP.

GAS PIPING CHECKS



CAUTION

TO PREVENT PROPERTY DAMAGE OR PERSONAL INJURY DUE TO FIRE, THE FOLLOWING INSTRUCTIONS MUST BE PERFORMED REGARDING GAS CONNECTIONS AND PRESSURE TESTING:

- THE UNIT AND ITS GAS CONNECTIONS MUST BE LEAK TESTED BEFORE PLACING IN OPERATION. BECAUSE OF THE DANGER OF EXPLOSION OR FIRE, NEVER USE A MATCH OR OPEN FLAME TO TEST FOR LEAKS. NEVER EXCEED SPECIFIED PRESSURES FOR TESTING. HIGHER PRESSURE MAY DAMAGE GAS VALVE AND CAUSE OVERFIRING WHICH MAY RESULT IN PREMATURE HEAT EXCHANGER FAILURE.
- THIS UNIT AND ITS SHUT-OFF VALVE MUST BE DISCONNECTED FROM THE GAS SUPPLY DURING ANY PRESSURE TESTING OF THAT SYSTEM AT TEST PRESSURES IN EXCESS OF 1/2 PSIG (3.48 kPA).
- THIS UNIT MUST BE ISOLATED FROM THE GAS SUPPLY SYSTEM BY CLOSING ITS MANUAL SHUT-OFF VALVE DURING ANY PRESSURE TESTING OF THE GAS SUPPLY PIPING SYSTEM AT TEST PRESSURES EQUAL TO OR LESS THAN 1/2 PSIG (3.48 kPA).



WARNING

TO AVOID PROPERTY DAMAGE OR PERSONAL INJURY, BE SURE THERE IS **NO OPEN FLAME** IN THE VICINITY DURING AIR BLEEDING.

There will be air in the gas supply line after testing for leaks on a new installation. Therefore, the air must be bled from the line by loosening the ground joint union until pure gas is expelled. Tighten union and wait for five minutes until all gas has been dissipated in the air. Be certain there is no open flame in the vicinity during air bleeding procedure. The unit is placed in operation by closing the main electrical disconnect switch for the unit.

PROPANE GAS INSTALLATIONS



WARNING

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO FIRE OR EXPLOSION CAUSED BY A PROPANE GAS LEAK, INSTALL A GAS DETECTING WARNING DEVICE. SINCE RUST CAN REDUCE THE LEVEL OF ODORANT IN PROPANE GAS, A GAS DETECTING WARNING DEVICE IS THE ONLY RELIABLE WAY TO DETECT A PROPANE GAS LEAK. CONTACT A LOCAL PROPANE GAS SUPPLIER ABOUT INSTALLING A GAS DETECTING WARNING DEVICE.

IMPORTANT NOTE: Propane gas conversion kits must be installed to convert units to propane gas.

All propane gas equipment must conform to the safety standards of the National Board of Fire Underwriters (See NBFU Manual 58). Line pressure 11.3 - 14" w.c. For satisfactory operation, propane gas manifold pressure must be within 9.7 - 10.3 inches w.c. for high fire and within 6.7 - 7.3 inches w.c. low fire at the manifold with all gas appliances in operation. Maintaining proper gas pressure depends on three main factors:

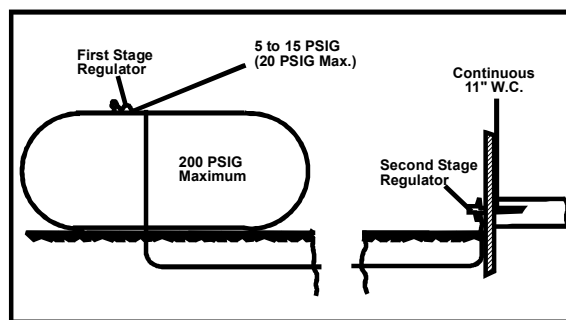
1. Vaporization rate, which depends on (a) temperature of the liquid, and (b) wetted surface area of the container or containers.

2. Proper pressure regulation.
3. Pressure drop in lines between regulators, and between second stage regulator and the appliance. Pipe size required will depend on length of pipe run and total load of all appliances.

TANKS AND PIPING

Complete information regarding tank sizing for vaporization, recommended regulator settings and pipe sizing is available from most regulator manufacturers and propane gas suppliers.

Since propane gas will quickly dissolve white lead or most standard commercial compounds, special pipe dope must be used. Shellac base compounds resistant to the actions of liquefied petroleum gases such as Gasolac®, Stalactic®, Clyde's® or John Crane® are satisfactory. See following figure for typical propane gas piping.



TYPICAL PROPANE GAS PIPING

ROOF TOP LOCATION AND INSTALLATION

The gas supply piping location and installation for roof top units must be in accordance with local codes or, in the absence of local codes, with ordinances of the latest edition of the National Fuel Gas Code (ANSI Z223.1).

A manual gas shut off valve must be field installed external to the roof top unit. In addition, a drip leg must be installed near the inlet connection. A ground joint union connection is required between the external shut off valve and the unit connection to the gas valve to permit removal of the burner assembly for servicing.

1. Route gas piping to unit so that it does not interfere with the removal of access panels. Support and align piping to prevent strains or misalignment of the manifold assembly.
2. All units are furnished with standard female NPT pipe connections. Connection pipe size is 3/4" NPT. The size of the gas supply piping to the unit must be based on length of run, number of units on the system, gas characteristics, BTU requirement and available supply pressure. All piping must be done in accordance with local codes or, in the absence of local codes, with the latest edition of the National Fuel Gas Code (ANSI Z223.1).

NOTE: The gas connection size at the unit does NOT establish the size of the supply line.

3. These units are designed for either natural or propane (LP) gas and are specifically constructed at the factory for only natural gas fuel. The fuels are NOT interchangeable. However, the furnace can be converted in the field from natural gas to LP gas with the appropriate factory kit (see unit Technical Manual for the appropriate kit). Only a qualified contractor, experienced with natural and propane gas systems, should attempt conversion. Kit instructions must be followed closely to assure safe and reliable unit operation.
4. With all units on a common line operating under full fire, natural gas main supply pressure should be adjusted to approximately 7.0" w.c., measured at the unit gas valve. If the gas pressure at the unit is greater than 10.5" w.c., the contractor must furnish and install an external type positive shut off service pressure regulator. The unit will not function satisfactorily if supply gas pressure is less than 5.5" w.c. or greater than 10.5" w.c..
NOTE: A minimum horizontal distance of 48" between the regulator and the furnace flue discharge is required.
5. With all units on a common line operating under full LP gas main supply pressure should be at least 11.0" w.c. and must be no greater than 14.0" w.c., measured at the unit gas valve. Unit will not function satisfactorily if supply gas pressure is less than 11.0" w.c. or greater than 14.0" w.c.
6. All pipe connections should be sealed with a pipe thread compound, which is resistant to the fuel used with the furnace. A soapy water solution should be used to check all joints for leaks. A 1/8" NPT plugged tap is located on the entering side of the gas valve for test gauge connection to measure supply (main) gas pressure. Another 1/8" tap is provided on the side of the manifold for checking manifold pressure.



WARNING

THIS UNIT AND ITS INDIVIDUAL SHUTOFF VALVE MUST BE DISCONNECTED FROM THE GAS SUPPLY SYSTEM DURING ANY PRESSURE TESTING OF THAT SYSTEM AT TEST PRESSURES IN EXCESS OF 1/2 PSIG (13.8" w.c.).



CAUTION

THIS UNIT MUST BE ISOLATED FROM THE GAS SUPPLY PIPING SYSTEM BY CLOSING ITS INDIVIDUAL MANUAL SHUTOFF VALVE DURING ANY PRESSURE TESTING EQUAL TO OR LESS THAN 1/2 PSIG.

7. There must be no obstruction to prevent the flow of combustion and ventilating air. A vent stack is not required and must never be used. The power ventor will supply an adequate amount of combustion air as long as the air passageways are kept free of any obstructions and the recommended external unit clearances are maintained.

CIRCULATING AIR AND FILTERS

DUCTWORK

The supply duct should be provided with an access panel large enough to inspect the air chamber downstream of the heat exchanger. A cover should be tightly attached to prevent air leaks.

Ductwork dimensions are shown in the roof curb installation manual. False ceilings or drop ceilings may be used as a return air plenum.

NOTE: ADEQUATE RETURN GRILLS HAVE TO BE SUPPLIED FOR EACH ROOM FOR PROPER RETURN FOR THAT SPACE.

If desired, supply and return duct connections to the unit may be made with flexible connections to reduce possible unit operating sound transmission.

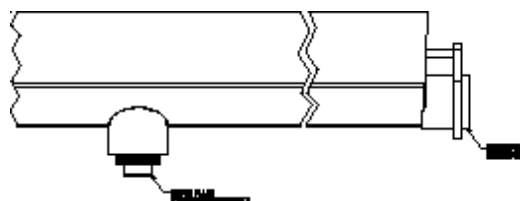
VENTING

NOTE: VENTING IS SELF-CONTAINED.

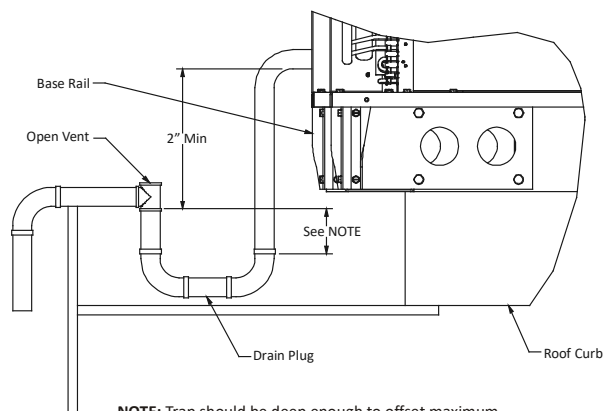
CONDENSATE DRAIN CONNECTION

CONDENSATE DRAIN CONNECTION

A 1" female NPT drain connection is supplied on the end of the condensate pan, with an alternative connection on the bottom of the pan. An external trap must be installed for proper condensate drainage.



DRAIN PAN (SIDE VIEW)



NOTE: Trap should be deep enough to offset maximum unit static difference. A minimum 4" trap is recommended.

DRAIN CONNECTION

Install condensate drain trap as shown. Use 1" drain line and fittings or larger. Do not operate without trap.

NOTE: ALL THREADED CONNECTIONS SHOULD BE SEALED WITH A THREAD SEALER.

HORIZONTAL DRAIN

Drainage of condensate directly onto the roof may be acceptable; (refer to local code). It is recommended that a small drip pad of either stone, mortar, wood or metal be provided to prevent any possible damage to the roof. When using the horizontal drain connection, check the drain plug in bottom connection to ensure it is tight.

CLEANING

Due to the fact that drain pans in any air conditioning unit will have some moisture in them, algae and fungus will grow due to airborne bacteria and spores. Periodic cleaning is necessary to prevent this build-up from plugging the drain.

STARTUP, ADJUSTMENTS, AND CHECKS

 WARNING	
HIGH VOLTAGE TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, BOND THE FRAME OF THIS UNIT TO THE BUILDING ELECTRICAL GROUND BY USE OF THE GROUNDING TERMINAL PROVIDED OR OTHER ACCEPTABLE MEANS. DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT.	
 CAUTION	
TO PREVENT PROPERTY DAMAGE OR PERSONAL INJURY, Do NOT START THE UNIT UNTIL ALL NECESSARY PRE-CHECKS AND TESTS HAVE BEEN PERFORMED.	
 WARNING	
MOVING MACHINERY HAZARD! TO PREVENT POSSIBLE PERSONAL INJURY OR DEATH, DISCONNECT POWER TO THE UNIT AND PADLOCK IN THE "OFF" POSITION BEFORE SERVICING FANS.	

This unit is equipped with an electronic ignition device to automatically light the main burners. It also has a power vent blower to exhaust combustion products.

On new installations, or if a major component has been replaced, the operation of the unit must be checked.

Check unit operation as outlined in the following instructions. If any sparking, odors, or unusual sounds are encountered, shut off electrical power and recheck for wiring errors, or obstructions in or near the blower motors.

The Startup, Adjustments, and Checks procedure provides a step-by-step sequence which, if followed, will assure the proper startup of the equipment in the minimum amount of time. Air balancing of duct system is not considered part of this procedure. However, it is an important phase of any air conditioning system startup and should be performed upon completion of the Startup, Adjustments, and Checks procedure. The Startup, Adjustments, and Checks procedure at outside ambients below 55°F should be limited to a readiness check of the refrigeration system with the required final check and calibration left to be completed when the outside ambient rises above 55°F.

CONTRACTOR RESPONSIBILITY

The installing contractor must be certain that:

- All supply and return air ductwork is in place, properly sealed, and corresponds with installation instructions.
- All thermostats are mounted and wired in accordance with installation instructions.
- All electric power, all gas, and the condensate drain installation have been made to each unit on the job. These main supply lines must be functional and capable of operating all units simultaneously.
- Requirements are met for venting and combustion air.
- Clean Air filters are in place.
- Input rate and temperature rise are adjusted per rating plate.

ROOF CURB INSTALLATION CHECK

Inspect the roof curb for correct installation. The unit and curb assembly should be level. Inspect the flashing of the roof mounting curb to the roof, especially at the corners, for good workmanship. Also check for leaks around gaskets. Note any deficiencies in a separate report and forward to the contractor.

OBSTRUCTIONS, FAN CLEARANCE AND WIRING

Remove any extraneous construction and shipping materials that may be found during this procedure. Rotate all fans manually to check for proper clearances and that they rotate freely. Check for bolts and screws that may have jarred loose during shipment to the job site. Re-tighten if necessary. Re-tighten all electrical connections.

FIELD DUCT CONNECTIONS

Verify that all duct connections are tight and that there is no air bypass between supply and return.

FILTER SECTION CHECK

Remove filter section access panels and check that filters are properly installed. Note airflow arrows on filter frames.

PRE-STARTUP PRECAUTIONS

It is important to your safety that the unit has been properly grounded during installation. Check ground lug connection in main control box for tightness prior to closing circuit breaker or disconnect switch. Verify that supply voltage on line side of disconnect agrees with voltage on unit identification plate and is within the utilization voltage range as indicated in Appendix C Electrical Data.

System Voltage - That nominal voltage value assigned to a circuit or system for the purpose of designating its voltage class.

Nameplate Voltage - That voltage assigned to a piece of equipment for the purpose of designating its voltage class and for the purpose of defining the minimum and maximum voltage at which the equipment will operate.

Utilization Voltage - The voltage of the line terminals of the equipment at which the equipment must give fully satisfactory performance. Once it is established that supply voltage will be maintained within the utilization range under all system conditions, check and calculate if an unbalanced condition exists between phases. Calculate percent voltage unbalance as follows:

THREE PHASE MODELS

$$\begin{array}{l} \text{3) PERCENT VOLTAGE UNBALANCE} \\ \text{2) MAXIMUM VOLTAGE DEVIATIONS FROM AVERAGE VOLTAGE} \\ \text{1) AVERAGE VOLTAGE} \end{array} = 100 \times \frac{\quad}{\quad}$$

HOW TO USE THE FORMULA:

EXAMPLE: With voltage of 220, 216, and 213

1) Average Voltage = $220+216+213=649 / 3 = 216$

2) Maximum Voltage Deviations from Average Voltage = $220 - 216 = 4$

3) Percent Voltage Unbalance = $100 \times \frac{4}{216} = \frac{400}{216} = 1.8\%$

Percent voltage unbalance MUST NOT exceed 2%.

- The unit has one set of taps for cooling (T1-T5) and a second set of taps for heating (T6-T10).
- When Heat is called TB1-W1 will also call TB1-DH activating the second set of taps T6-T10.
- If cooling and heating is called at the same time heating will take priority and T6-T10 will be chosen by default.

CONTROL VOLTAGE CHECK

Close the disconnect switch to energize control transformer. Check primary and secondary (24V) of control transformer.

AIR FLOW ADJUSTMENTS

When the final adjustments are complete, the current draw of the motor should be checked and compared to the full load current rating of the motor. The amperage must not exceed the service factor stamped on the motor nameplate. The total airflow must not be less than that required for operation of the electric heaters or the furnace. If an economizer is installed, check the unit operating balance with the economizer at full outside air and at minimum outside air.

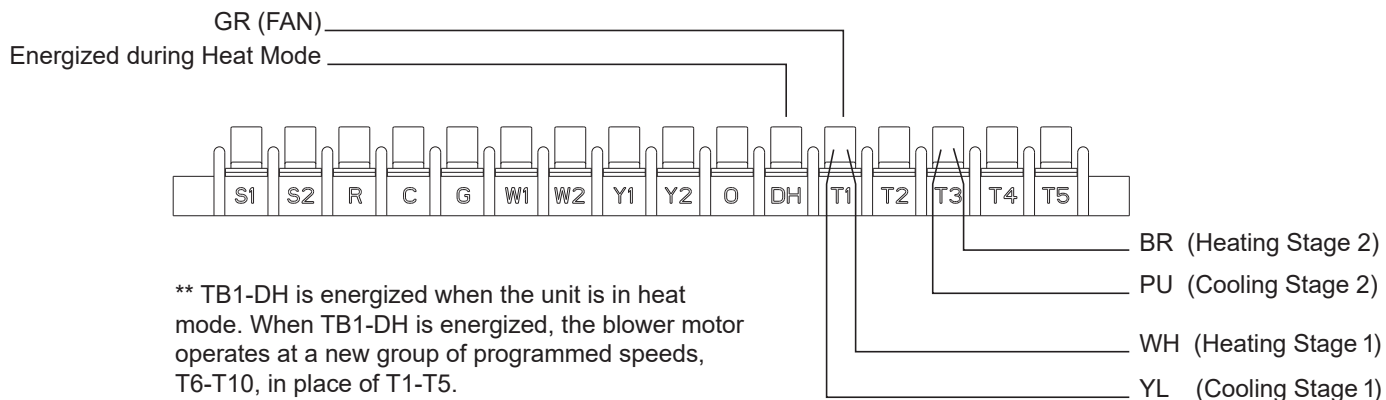
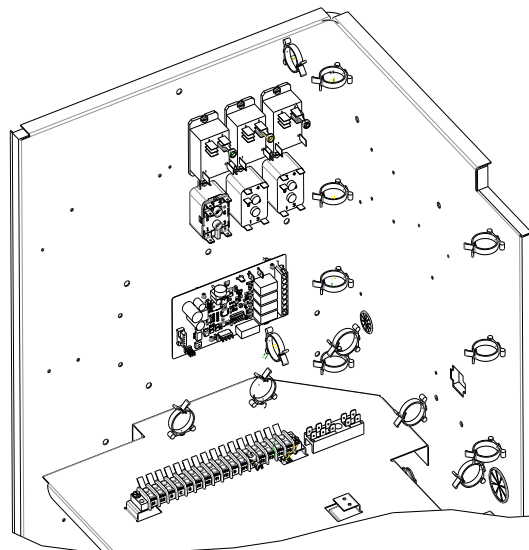
NOTE: HIGH STAGE AIRFLOW SETTING BELOW 300 CFM/TON IS NOT RECOMMENDED, AS EVAPORATOR FREEZING OR POOR UNIT PERFORMANCE IS POSSIBLE.

- Taps T1 and T2 are for low cool operation (cooling stage 1) and Taps T3 to T5 are for high cool operation (cooling stage 2).
- Taps T6 and T7 are for low heat operation (heating stage 1) and taps T8 to T10 are for high heat operation (heating stage 2).

Taps are selected by changing the position of the low voltage leads on the terminal block TB1. Refer to Appendix A for blower performance at each speed tap.

Fan speed for G (GR) is fixed at TB1-T1 and cannot be moved.

NOTE: REFER APPENDIX A ON PAGE 33 FOR AIRFLOW TABLES.



- Move YELLOW (YL) wire from TB1-T1 to T2 to change blower speed during cooling stage 1 operation. (Do not move wires YL and PU to the same taps)
- Move WHITE (WH) wire from TB1-T6 to T7 to change blower speed during heating stage 1 operation. (Do not move wires WH and BR to the same taps)
- Move PURPLE (PU) wire from TB1-T3 to T4 or T5 to change blower speed during cooling stage 2 operation. (Do not move wires YL and PU to the same taps)
- Move BROWN (BR) wire from TB1-T8 to T9 or T10 to change blower speed during heating stage 2 operation. (Do not move wires WH and BR to the same taps)

DSC/DSG OPERATION and WIRE RANGE CHART

DSC/DSG OPERATION							WIRE RANGE									
AC	G	Y1	Y2	W1	W2	DH	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Fan Only	X						GR									
Cooling Mode LO	X	X					● →									
Cooling Mode HI	X	X	X						● →							
Heating Mode Lo	X			X								● →				
Heating Mode HI	X			X	X									● →		

X= 24V Signal

● → = Range of AVAILABLE TAPS

For wire color information and placement, view DSC/DSG Model Wiring

Low Cool Y1, Yellow (YL) is movable and set to TB1-T1.
Low Heat W1, White (WH) is movable and set to TB1-T6.
High Cool Y2, Purple (PU) is movable and set to TB1-T3.
High Heat W2, Brown (BR) is movable and set to TB1-T8.
These wires can be moved together or separately and placed on any unoccupied terminal.

NOTE: YL CAN BE MOVED TO TAP T3 AS LONG AS YL DOES NOT SHARE THE TAP WITH PU. WH CAN BE MOVED TO TAP T7 AS LONG AS WH DOES NOT SHARE THE TAP WITH BR.

If high cool operation is set at Tap T4 or T5, low cool operation must be set at T2.

If high heat operation is set at T9 or T10, low heat operation must be set at T7.

NOTE: ON UNITS WITH DDC CONTROLS INSTALLED, AIR FLOW ADJUSTMENTS ARE MADE THROUGH SETTINGS IN THE DDC CONTROLLER AND SPEED TAP ADJUSTMENTS ARE NOT REQUIRED. REFER TO THE DDC USER MANUAL FOR DETAILS ON MAKING AIRFLOW ADJUSTMENTS. INDIVIDUAL SETTINGS ARE AVAILABLE FOR FAN ONLY, LOW STAGE COOLING, HIGH STAGE COOLING, LOW STAGE HEATING, AND HIGH STAGE HEATING WHICH CAN BE ADJUSTED AS NEEDED TO MEET AIRFLOW REQUIREMENTS.

ELECTRICAL INPUT CHECK

Make preliminary check of evaporator fan ampere draw and verify that motor nameplate amps are not exceeded. A final check of amp draw should be made upon completion of air balancing of the duct system (see Appendix B).

GAS SYSTEM CHECK

NOTE: FOR MODELS EQUIPPED WITH THE DDC CONTROLS OPTION, REFER TO THE SUPPLEMENTAL DDC LITERATURE SUPPLIED WITH THE UNIT FOR ADDITIONAL INFORMATION.

PRE-OPERATION CHECKS

1. Set the room thermostat to its lowest possible setting.
2. Turn off the electrical power supply to the unit.
3. Remove the heat exchanger door on the side of the unit by removing screws.
4. This unit is equipped with an ignition device which automatically lights the main burner. DO NOT try to light burner by any other method.
5. Move the gas control valve switch to the OFF position. Do not force.
6. Wait five minutes to clear out any gas.
7. Smell for gas, including near the ground. This is important because some types of gas are heavier than air. If you have waited five minutes and you do smell gas, immediately follow the warnings on page 3 of this manual. If having waited for five minutes and no gas smell is noted, move the gas control valve switch to the ON position.
8. Replace the heat exchanger door on the side of the unit.

9. Open the manual gas valve external to the unit.
10. Turn on the electrical power supply to the unit.
11. Set the thermostat to desired setting.

GAS SUPPLY PRESSURES & REGULATOR ADJUSTMENTS



WARNING

SHOULD OVERHEATING OCCUR OR THE GAS SUPPLY FAIL TO SHUT OFF, TURN OFF THE MANUAL GAS SHUTOFF VALVE EXTERNAL TO THE UNIT BEFORE TURNING OFF THE ELECTRICAL SUPPLY.



WARNING

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH, DO NOT FIRE GAS UNIT WITH THE FLUE BOX COVER REMOVED.

IMPORTANT NOTE: This unit is factory set to operate on natural gas at the altitudes shown on the rating plate.



WARNING

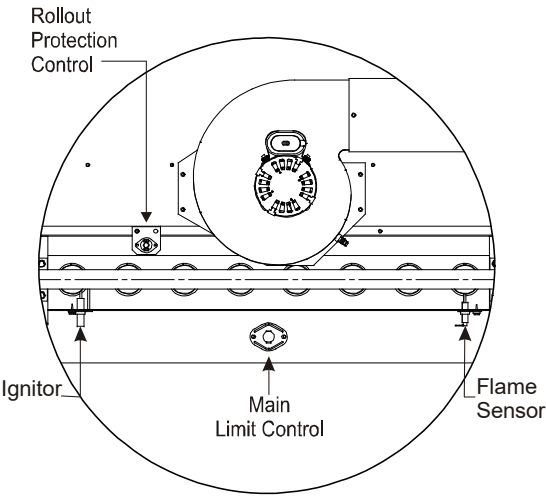
TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH WHEN EITHER USING PROPANE GAS ALONE OR AT HIGHER ALTITUDES, OBTAIN AND INSTALL THE PROPER CONVERSION KIT(S). FAILURE TO DO SO CAN RESULT IN UNSATISFACTORY OPERATION AND/OR EQUIPMENT DAMAGE. HIGH ALTITUDE KITS ARE FOR U.S. INSTALLATIONS ONLY AND ARE NOT APPROVED FOR USE IN CANADA.

NOTE: GAS APPLIANCES LOCATED MORE THAN 2000 FEET ABOVE SEA LEVEL MUST BE DERATED 4% PER 1000 FEET OF TOTAL ELEVATION AND THAT VARIANCE IN GAS HEATING VALUE AND SPECIFIC GRAVITY REQUIRE CHANGE IN MANIFOLD PRESSURE TO OBTAIN RATING, IT IS MANDATORY THAT THE INPUT BE ADJUSTED AT THE INSTALLATION SITE. ALL INSTALLATIONS SHOULD BE MADE AS OUTLINED.

NOTE: EXCEPT DURING BRIEF PERIODS WHEN GAS PRESSURES ARE BEING MEASURED BY QUALIFIED SERVICE PERSONNEL, THE FURNACE ACCESS PANEL MUST ALWAYS BE SECURED IN PLACE WHEN THE FURNACE IS IN OPERATION. AN INSPECTION PORT IN THE ACCESS PANEL IS PROVIDED TO MONITOR THE FLAME.

The first step in checking out the gas-fired furnace is to test the gas supply piping to the unit for tightness and purge the system of air using methods outlined in the latest edition of the National Fuel Gas Code ANSI Z223.1. Verify that the disconnect switch is in the "OFF" position. A soapy water solution should be used to check for gas leaks. Since the unit is subject to considerable jarring during shipment, it is extremely important that all gas connections and joints be tested for tightness. Gas piping downstream from the unit inlet should be checked for leaks during the subsequent sequence check.

The supply gas pressure should be adjusted to 7.0" w.c. on natural gas and 11.0" on LP gas with the gas burners operating. If there is more than one unit on a common gas line, the pressures should be checked with all units under full fire. A supply pressure tap is provided on the upstream side of the gas valve. A manifold pressure tap is provided on the manifold. The normal manifold pressure for full input is 3.5" w.c. on natural gas and 10.0" w.c. for propane gas. Minimum gas supply pressure is 5.5" w.c. for natural gas and 11.0" for propane gas. In order to obtain rating, gas supply pressure must be 11.0" w.c. for propane gas. The pressure regulator on LP gas models is adjusted for 10.0" w.c. manifold pressure and is intended to prevent over-firing only. Do not attempt adjustment of the built-in pressure regulator unless the supply pressure is at least 7.0" w.c. on natural gas or 14.0" w.c. on propane gas. Check the location of the ignition electrode and the flame sensor for correct gas setting. (See Figure below)



MAXIMUM INPUT (BTUH)	NUMBER of BURNERS	MAXIMUM BTUH/BURNER	GAS ORIFICES	
			NATURAL	PROPANE (LP)
350,000	7	50,000	#30	#48
400,000	8	50,000	#30	#48

HEAT EXCHANGER AND BURNER ORIFICE SPECIFICATIONS

NOTE: GAS APPLIANCES LOCATED MORE THAN 2000 FEET ABOVE SEA LEVEL MUST BE DERATED 4% PER 1000 FEET OF TOTAL ELEVATION AND THAT VARIANCE IN GAS HEATING VALUE AND SPECIFIC GRAVITY REQUIRE CHANGE IN MANIFOLD PRESSURE TO OBTAIN RATING, IT IS MANDATORY THAT THE INPUT BE ADJUSTED AT THE INSTALLATION SITE. ALL INSTALLATIONS SHOULD BE MADE AS OUTLINED IN THE LATEST EDITION OF THE NATIONAL FUEL GAS CODE ANSI Z223.1, SECTION "PROCEDURES TO BE FOLLOWED TO PLACE AN APPLIANCE IN OPERATION". REFER ALSO TO THE "USER'S INFORMATION MANUAL" SUPPLIED WITH THE UNIT FOR ADDITIONAL INFORMATION ON THE GAS FURNACE.

GAS SUPPLY AND MANIFOLD CHECK

Gas supply pressure and manifold pressure with the burners operating must be as specified on the rating plate.

GAS INLET PRESSURE CHECK

Gas inlet pressure must be checked and adjusted in accordance to the type of fuel being consumed.

WITH POWER AND GAS OFF:

1. Connect a water manometer or adequate gauge to the inlet pressure tap of the gas valve.
Inlet gas pressure can also be measured by removing the cap from the dripleg and installing a predrilled cap with a hose fitting.

WITH POWER AND GAS ON:

2. Put unit into heating cycle and turn on all other gas consuming appliances.

INLET GAS PRESSURE	
NATURAL	Min. 5.0" W.C., Max. 10.0" W.C.
PROPANE	Min. 11.0" W.C., Max. 14.0" W.C.

NOTE: INLET GAS PRESSURE MUST NOT EXCEED THE MAXIMUM VALUE SHOWN.

If operating pressures differ from above, make necessary pressure regulator adjustments, check piping size, etc., and/or consult with local utility.

MANIFOLD PRESSURE CHECK

The gas valve has a tapped opening to facilitate measurement of the manifold pressure. A "U" Tube manometer having a scale range from 0 to 12 inches of water should be used for this measurement. The manifold pressure must be measured with the burners operating.

To adjust the pressure regulator, remove the adjustment screw or cover on the gas valve. Turn out (counterclockwise) to decrease pressure, turn in (clockwise) to increase pressure. Only small variations in gas flow should be made by means of the pressure regulator adjustment. In no case should the final manifold pressure vary more than plus or minus 0.3 inches water column from the specified nominal pressure. Any major changes in flow should be made by changing the size of the burner orifices. The measured input rate to the furnace must not exceed the rating specified on the unit rating plate.

For natural gas, the manifold pressure must be between 3.2 and 3.8 inches w.c. (3.5 nominal) for high fire and between 1.7 and 2.3 inches w.c. (2.0 nominal) for low fire. For propane gas, the manifold pressure must be between 9.7 and 10.3 inches w.c. (10.0 nominal) for high fire and between 6.7 and 7.3 inches w.c. (7.0 nominal) for low fire.

GAS INPUT (NATURAL GAS ONLY) CHECK

It is the responsibility of the contractor to adjust the gas input to the unit.

To measure the gas input use a gas meter and proceed as follows:

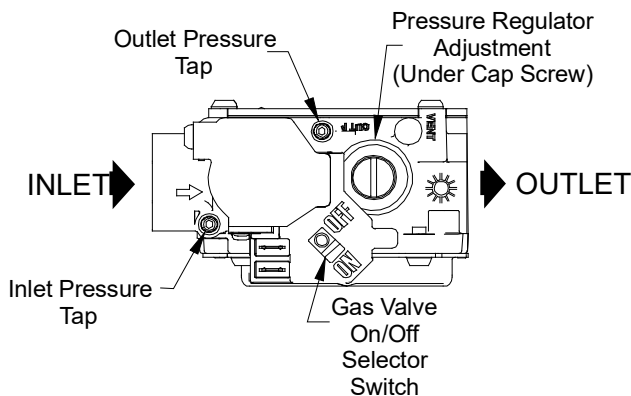
1. Turn off gas supply to all other appliances except the unit.
2. With the unit operating, time the smallest dial on the meter for one complete revolution. If this is a 2 cubic foot dial, divide the seconds by 2; if it is a 1 cubic foot dial, use the seconds as is. This gives the seconds per cubic foot of gas being delivered to the unit.
3. $\text{INPUT} = \text{GAS HTG VALUE} \times 3600 / \text{SEC. PER CUBIC FOOT}$

Example: Natural gas with a heating value of 1000 BTU per cubic foot and 34 seconds per cubic foot as determined by Step 2, then:

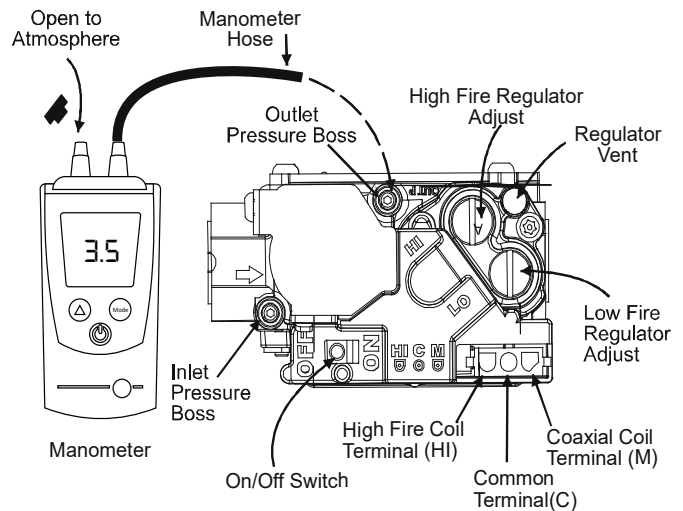
Input = $1000 \times 3600 / 34 = 106,000$ BTU per Hour.

NOTE: BTU content of the gas should be obtained from the gas supplier. This measured input must not be greater than shown on the unit rating plate.

Adjust input rate by varying the adjustment of the gas pressure regulator on the gas valve. All adjustments must be made with furnace operating at high fire and at normal operating temperature. A manometer should be connected to the gas valve to verify pressure is within the specified range (see following figures for manometer connections). Clockwise rotation of the pressure regulator screw increases pressure and gas flow rate. Turn screw counterclockwise to decrease pressure and gas flow rate. After adjustment the furnace temperature rise must be within the range specified on the unit data plate. **NOTE:** Thermal efficiency of the furnace is a product efficiency rating determined under continuous operating conditions independent of any installed system.



WHITE-RODGERS 36G22 - SINGLE STAGE



WHITE-RODGERS 36G54 (2-STAGE) CONNECTED TO MANOMETER PRESSURE ADJUSTMENTS

TO CONNECT MANOMETER TO GAS VALVE:

1. Back outlet pressure test screw (inlet/outlet pressure boss) out one turn (counterclockwise, not more than one turn).
2. Attach a hose and manometer to the outlet pressure boss of the valve. (See image above)

TO REMOVE MANOMETER FROM GAS VALVE:

1. Remove manometer hose from outlet pressure boss.
2. Turn outlet pressure test screw in to seal pressure port (clockwise, 7 in-lb. minimum).
3. Turn on electrical power and gas supply to the system.
4. Turn on system power and energize valve.
5. Using a leak detection solution or soap suds, check for leaks at pressure boss screw. Bubbles forming indicate a leak. SHUT OFF GAS AND FIX ALL LEAKS IMMEDIATELY.



CAUTION

TO PREVENT UNRELIABLE OPERATION OR EQUIPMENT DAMAGE, THE GAS MANIFOLD PRESSURE MUST BE AS SPECIFIED ON THE UNIT RATING PLATE. ONLY MINOR ADJUSTMENTS SHOULD BE MADE BY ADJUSTING THE GAS VALVE PRESSURE REGULATOR.

6. Relight all other appliances turned off in step 1. Be sure all pilot burners are operating.

MAIN BURNER FLAME CHECK

Flames should be stable, soft and blue (dust may cause orange tips but they must not be yellow) and extending directly outward from the burner without curling, floating or lifting off.

TEMPERATURE RISE CHECK

Check the temperature rise through the unit by placing thermometers in supply and return air registers as close to the unit as possible. Thermometers must not be able to sample temperature directly from the unit heat exchangers, or false readings could be obtained.

1. All registers must be open; all duct dampers must be in their final (fully or partially open) position and the unit operated for 15 minutes on HIGH FIRE before taking readings.
2. The temperature rise must be within the range specified on the rating plate.

NOTE: AIR TEMPERATURE RISE IS THE TEMPERATURE DIFFERENCE BETWEEN SUPPLY AND RETURN AIR.

With a properly designed system, the proper amount of temperature rise will normally be obtained when the unit is operated at rated input with the recommended blower speed.

If the correct amount of temperature rise is not obtained, it may be necessary to change the blower speed. A higher blower speed will lower the temperature rise. A slower blower speed will increase the temperature rise.

NOTE: BLOWER SPEED MUST BE SET TO GIVE THE CORRECT AIR TEMPERATURE RISE THROUGH THE UNIT AS MARKED ON THE RATING PLATE.

NORMAL SEQUENCE OF OPERATION - HEATING

This unit has one (RS) Manual Reset Limit Control Switch. Check the limit to make sure it has not tripped. The limit may arrive at the job site tripped as a result of shipping shock.

If the vent motor comes on, but the unit does not attempt ignition, check if the RS (Rollout Switch) requires resetting. ALS could be open as well but will automatically reset after cool down.

1. With electricity and gas turned on, the system switch in the "HEAT" or "AUTO" position and the fan switch in the "AUTO" position, the thermostat will close the circuit between unit terminals R and W (R-W) when the temperature falls below the thermostat setting.
2. D1 on IIC energizes relay VMR.
3. Relay VMR energizes the vent motor.
4. Operation of the vent motor closes the pressure switch PS located in the burner compartment. The control then initiates a 15-second pre-purge time delay. During this period, the vent motor will clear the combustion chamber of any residual gas.
5. After the pre-purge period, the ignition control energizes the W1-C gas valve and simultaneously initiates a "three (3)-try" spark ignition sequence.
6. When the burners are ignited, a minimum four (4) micro-amp DC current will flow through the flame between the sensor electrode and the grounded burner.
7. When the controller proves that the flame has been established, it will keep the gas valve energized and discontinue the ignition spark. First stage manifold pressure will be approximately 2.0" w.c. for natural gas and 7.0" w.c. for propane (LP).

8. If the control is unable to ignite the burners after its initial attempt, it will initiate another purge and spark sequence. A third purge and spark sequence will be initiated if the second attempt is unsuccessful. If the third attempt is unsuccessful, the controller will close the gas valve and lock itself out. It may be reset by momentarily interrupting power. This may be accomplished by briefly lowering the room thermostat set-point below room temperature, or by shutting off the main power to the unit. (See TP-105 for more details.)
9. Integrated ignition control will close its normally open contacts after a delay of approximately 30 seconds. This action energizes contactor BC and starts the supply fan motor. Operation of the supply fan circulates air across the heat exchanger and delivers heated air to the conditioned space.
10. When the space temperature rises, the thermostat will open R-W. Opening R-W will cause the gas valve to close, and the furnace to shut down.
11. The furnace has three high temperature limit controls, which can shut down the burner. They do not shut down the vent motor.

UNIT SHUTDOWN

1. Set the thermostat to lowest setting.
2. Turn off the electrical power supply to the unit.
3. Remove the heat exchanger door on the side of the unit by removing screws.
4. Move the gas control valve switch to the OFF position. Do not force.
5. Close manual gas shut off valve external to the unit.
6. Replace the heat exchanger door on the unit.
7. If cooling and/or air circulation will be desired, turn ON the electrical power.

AUTOMATIC RESET HIGH LIMIT CONTROL (LS)

Located in the burner compartment on the heat exchanger, its sensing element projects through the blower section bulkhead and senses the temperature at the rear of the furnace. It will cycle the furnace off if the temperature exceeds 100°F plus maximum rise.

AUXILIARY RESET HIGH LIMIT CONTROL (ALS)

Located in the blower compartment on the blower housing, it senses air temperature within the blower compartment and protects the filters from excessive temperature. It will shut down the furnace if it senses excessive temperatures. Elevated temperatures at the control are normally caused by blower failure. The reason for the opening should be determined and repaired prior to resetting.

MANUAL RESET FLAME ROLLOUT CONTROL (RS)

Located in the burner compartment at the top of the burner assembly, it senses high temperature that could occur if the heat exchanger tubes were plugged and the flame was rolling out instead of entering the tubes. It has a manual push-button reset that cannot be actuated until the limit control has cooled.

The reason for elevated temperatures at the control should be determined and repaired prior to resetting this manual reset control.



WARNING

TO AVOID PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO FIRE OR EXPLOSION, A QUALIFIED SERVICER MUST INVESTIGATE THE REASON FOR THE ROLLOUT PROTECTION DEVICE TO OPEN BEFORE MANUALLY RESETTING THE ROLLOUT PROTECTION DEVICE.

REFRIGERATION SYSTEM

The unit is equipped with a thermal expansion valve as a metering device.

Make sure the TXV bulb is clamped tight to the suction line exiting the evaporator coil. Ensure the hold-down bolts on the compressor are secure and have not vibrated loose during shipment. Check that vibration grommets have been installed. Visually check all piping for damage and leaks; repair if necessary. The entire system has been factory charged and tested, making it unnecessary to field charge. Factory charges are shown on the unit's nameplate. To confirm charge levels or, if a leak occurs and charge needs to be added to the system, it is recommended to evacuate the system and recharge refrigerant to unit nameplate specifications.

This unit has been rated in the cooling mode at the AHRI rated conditions of: Indoor (80°db / 67°wb) and outdoor (95°db).

While operating at this condition, the superheat and subcool for each circuit for each unit should fall within the values listed in the table below. The superheat is measured at the suction service port located near the compressor. The subcool is measured at the liquid line service port.

SUPERHEAT AND SUBCOOLING

CHECKING SUBCOOLING

NOTE: UNITS WITH A TXV SHOULD BE CHARGED TO SUBCOOLING ONLY. MAKE SURE THE AIR FLOW IS CORRECT BEFORE MAKING ANY ADJUSTMENTS.

EXAMPLE:

- Liquid Line Pressure = 417 PSI
- Corresponding Temp. = 120°F
- Thermometer on Liquid line = 109°F.

To obtain the amount of subcooling, subtract 109°F from 120°F. The difference is 11° subcooling. See the specification sheet or technical information manual for the design subcooling range for your unit.

SUBCOOLING FORMULA = SATURATED LIQUID LINE TEMPERATURE - LIQUID LINE TEMPERATURE

CHECKING SUPERHEAT

EXAMPLE:

- Suction Pressure = 143 PSI
- Corresponding Temp. = 50°F
- Thermometer on Suction Line = 59°F

To obtain the degrees temperature of superheat, subtract 50.0 from 59.0°F. The difference is 9° Superheat. The 9° Superheat would fall in the ± range of allowable superheat.

SUPERHEAT = SUCTION LINE TEMP - SAT. SUCTION TEMP.

SUPERHEAT ADJUSTMENT

NOTE: SUPERHEAT ADJUSTMENTS SHOULD NOT BE MADE UNTIL INDOOR AMBIENT CONDITIONS HAVE STABILIZED AND AIRFLOW VERIFIED. THIS COULD TAKE UP TO 24 HOURS DEPENDING ON INDOOR TEMPERATURE AND HUMIDITY. BEFORE CHECKING SUPERHEAT, RUN THE UNIT IN COOLING FOR 15-20 MINUTES OR UNTIL REFRIGERANT PRESSURES STABILIZE. USE THE FOLLOWING GUIDELINES AND METHODS TO CHECK UNIT OPERATION AND ENSURE THAT THE REFRIGERANT CHARGE IS WITHIN LIMITS.

For TXV systems, to adjust superheat, unscrew the cover from the expansion valve, locate the adjustment screw, and turn it clockwise (in) to increase superheat or counterclockwise (out) to decrease superheat. It is recommended to make small adjustments at a time, 1/8-1/4 turn increments. Replace adjustment cap. Wait a minimum of 15 minutes between adjustments to allow time for the TXV and pressures to stabilize.

REFRIGERANT CHARGE CHECK

NOTE: FOR OPTIMAL PERFORMANCE, FOLLOW CHARGING INSTRUCTIONS BELOW.

UNITS WITH EXPANSION VALVE (TXV)

Single Stage Cooling Application: Refer to the Design Superheat & Subcooling table.

Two-Stage Cooling Application: Run unit on Low Stage cooling and refer to Design Superheat & Subcooling table.

- Purge gauge lines. Connect service gauge manifold to access fittings. Run system at least 10 minutes to allow pressure to stabilize.
- Temporarily install thermometer on liquid (small) line near liquid line access fitting with adequate contact and insulate for best possible reading.
- Check subcooling and superheat. System should have a subcooling and superheat within the range listed on the Design Superheat and Subcooling table.
 - If subcooling and superheat are low, adjust TXV superheat, then check subcooling.

NOTE: To adjust superheat, turn the valve stem clockwise to increase and counterclockwise to decrease.

- b. If subcooling is low and superheat is high, add charge to raise subcooling then check superheat.
- c. If subcooling and superheat are high, adjust TXV valve superheat, then check subcooling.
- d. If subcooling is high and superheat is low, adjust TXV valve superheat and remove charge to lower the subcooling.

NOTE: Do NOT adjust the charge based on suction pressure unless there is a gross undercharge. If an under charge is suspected recover the charge, re-evacuate the system and recharge per data plate. No adjustments should be made if suspecting a charge issue.

4. Disconnect manifold set, installation is complete.

Design Superheat & Subcooling					
Model	Circuit	Superheat ± 2°F	Subcooling ± 1°F	Expansion Device	Outdoor Ambient (°F)
DSG180	1	9	14	TXV	95
DSG180	2	9	13	TXV	95
DSG240	1	11	10	TXV	95
DSG240	2	9	11	TXV	95
DSG300	1	12	13	TXV	95
DSG300	2	11	8	TXV	95

START-UP PROCEDURE AND CHECKLIST

Begin with power turned on at all disconnects.

AIR CONDITIONING START-UP PROCEDURE

1. Ensure the thermostat is set to OFF and Fan is set to Auto. On units with DDC controls installed, use Test/Balance menu to force the unit to Off Mode.
2. Inspect all registers and set them to the normal open position.
3. Turn on the electrical supply at the disconnect.
4. Turn the fan switch to the "ON" position. The blower should operate after a 7 second delay. On units with DDC controls installed, use Test/Balance Menu to force the unit to Vent Mode. This test bypasses internal delays.
5. Turn the fan switch to "Auto" position. The blower should stop after a 65 second delay. On units with DDC controls installed, use Test/Balance Menu to force the unit to Off Mode. This test bypasses internal delays.
6. Set the thermostat to Cool mode and lower the cooling until the unit is running both stage of cooling. The compressors, blowers, and condenser fans should now be operating. Allow the unit to run 10 minutes, make sure cool air is being supplied by the unit. On units with DDC controls installed, use Test/Balance Menu to force the unit to High Cool Mode. This test bypasses internal delays.

7. Check that both compressors are operating correctly. The scroll compressors in these units **MUST** operate in the proper rotation. To ensure the compressors are operating in the correct direction, check that the temperature of the compressor discharge line increases when the compressor turns on. If this does not occur and the compressor is producing an exceptional amount of noise, this indicates that there is a phasing issue. Perform the following to correct:
 - 7.1 Turn power to the unit OFF.
 - 7.2 Switch any two leads of power supply at unit Single Point Power Block.
 - 7.3 Turn power to the unit ON.
 - 7.4 Perform step 7 again.
8. Turn the temperature setting to the highest position, stopping the unit. The indoor blower will continue to run for 60 seconds. On units with DDC controls installed, use Test/Balance Menu to force the unit to Vent Mode. This test bypasses internal delays.
9. Turn the thermostat system switch to "OFF". On units with DDC controls installed, use Test/Balance Menu to disable Force Mode operation and allow the unit to return to normal operation.

FINAL SYSTEM CHECKS

10. Check to see if all supply and return air grilles are adjusted and the air distribution system is balanced for the best compromise between heating and cooling.
11. Check for air leaks in the ductwork. See Sections on Air Flow Adjustments.
12. Make sure the unit free of "rattles", and the tubing in the unit is free from excessive vibration. Also make sure tubes or lines are not rubbing against each other or sheet metal surfaces or edges. If so, correct the trouble.
13. Set the thermostat at the appropriate setting for cooling and heating or automatic changeover for normal use.
14. Be sure the Owner is instructed on the unit operation, filter, servicing, correct thermostat operation, etc.

REFRIGERATION PERFORMANCE CHECK

Check that compressor RLA corresponds to values shown in Appendix B. RLA draw can be much lower than values listed at low load conditions and low ambient condensing temperatures. Values in Appendix B can slightly exceed at high load conditions and high ambient condensing temperatures.

 WARNING	
HIGH VOLTAGE DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.	

NORMAL SEQUENCE OF OPERATION - COOLING

REFRIGERATION SEQUENCE CHECK

With the disconnect switch open, remove the field connected thermostat wire from terminal R on TB1 terminal block. Place a jumper across terminals R and G, and across R and Y on TB1 terminal block. Close the disconnect switch. The following operational sequence should be observed.

1. Current through primary winding of transformer TRANS1 energizes the 24-volt control circuit.
2. To simulate a mechanical call for cooling from the wall thermostat, place a jumper across terminals R and Y1 of terminal block TB1.
3. UNIT WITH ECONOMIZER OPTION: The compressor circuit is interlocked through terminals 3 and 4 of the economizer module. If the outdoor air enthalpy (temperature and humidity) is not suitable for cooling, the economizer terminals will be closed permitting compressor to be energized.
4. The blower contactor closes its contacts L1, L2 and L3 to T1, T2 and T3 to provide power to the supply fan motor.
5. Compressor contactor closes its contacts L1, L2 and L3 to T1, T2 and T3 to provide power to the compressor motor COMP 1; COMP 2, if conditions are correct. In addition, contactor C1 closes its contact L3 to T3, energizing the condenser fan motor.



WARNING

BURN HAZARD!
DO NOT TOUCH! DISCHARGE LINE MAY BE HOT!

6. Check that each compressor is operating correctly. The scroll compressors in these units **MUST** operate in the proper rotation. To ensure the compressors are operating in the correct direction, check the compressor discharge line pressure or temperature after each compressor is started. The discharge pressure and discharge line temperature should increase. If this does not occur and the compressor is producing an exceptional amount of noise, perform the following checks.
 - Ensure all compressors are operating in the proper direction. If a single motor is operating backwards, check the power wiring for that motor and correct any leads that have been interchanged at the contactor or at the motor.
7. With all safety devices closed, the system will continue cooling operation until the thermostat is satisfied.
8. Disconnecting the jumper wire between R and Y1 and Y2 and between R and G on TB1 terminal block will simulate a satisfied thermostat. The compressors will cycle off and IIC (pin 12) will initiate its time delay cycle. The compressor and the supply fan will cycle off.

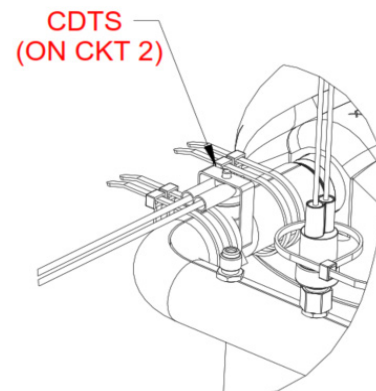
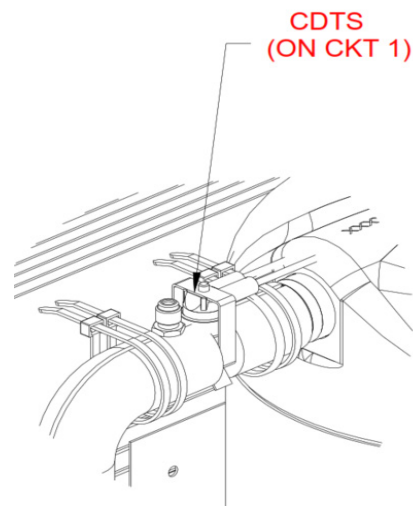
9. After a time delay of approximately 3 minutes, the compressor control circuits will be ready to respond to a subsequent call for cooling from the wall thermostat.
10. Open disconnect switch. Reconnect the field thermostat wire at terminal R on terminal block TB1.

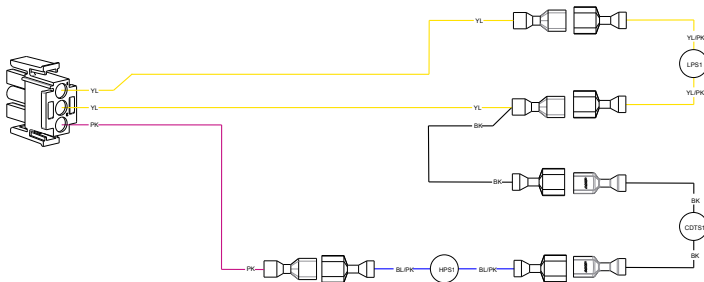
COMPRESSOR DISCHARGE TEMPERATURE SWITCH (CDTS) (USED ON 20 TON & 25 TON UNIT ONLY)

Compressor Discharge Temperature Switch (CDTS) is a thermostatic switch located on the discharge line which turns off the compressor if the temperature of hot gas is 275°F or greater.

The CDTS is located on each compressor's discharge line within 6 inches of the discharge line braze joint. Discharge temperature switch must not be moved from its factory installed location or electrically disconnected.

OPERATING TEMPERATURE:	
OPEN:	126.7 / 137.8 DEG.C 260.0 / 280.0 DEG.F
CLOSE:	76.7 / 98.9 DEG.C 170.0 / 210.0 DEG.F





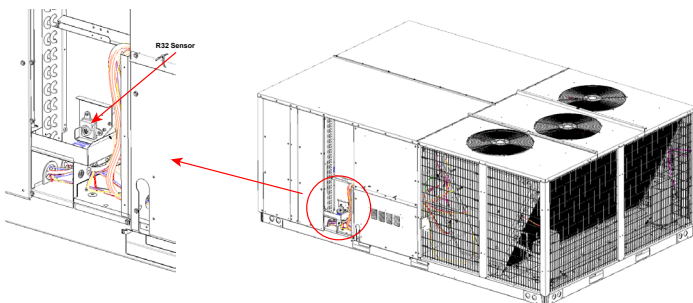
REFRIGERATION DETECTION SYSTEM (RDS)

RDS FUNCTION

The mitigation system is a stationary device that detects the presence of R-32 refrigerant above 25% LFL using refrigerant sensors and then initiates mitigation actions. The mitigation system's primary function is to reduce the concentration of leaked R-32 refrigerant to prevent serious safety hazards. The mitigation actions are accomplished by halting HVAC operation and continuing indoor blower operation to provide airflow. Once refrigerant concentration reaches below a safe threshold, the unit will remain in mitigation mode for five minutes to evacuate any remaining R-32 refrigerant within the unit. Upon completion, the unit will resume its normal operation.

RDS OPERATION

During operation, the mitigation system is controlled by a refrigerant sensor(s), which is secured to a designated location(s) for active monitoring. Throughout this period, the HVAC operation stops, and the indoor blower fan remains **on** providing airflow at or above Qmin to evacuate excess concentration. If the unit has a zone damper(s), all zones will open automatically, as part of the mitigation mode, to provide ventilation throughout all ducting. If the unit is installed with a communicating thermostat, the thermostat will display relevant alerts/information concerning mitigation mode. Once sensors read concentration levels below a safe threshold, a five-minute timer will initiate. Once the time is over, the unit will resume back to its normal operation. If the sensors detect another concentration excess, the unit will go back into mitigation mode and will repeat the same process.



MAINTENANCE



WARNING

ELECTRIC SHOCK, FIRE OR EXPLOSION HAZARD
FAILURE TO FOLLOW SAFETY WARNINGS EXACTLY COULD RESULT IN DANGEROUS OPERATION, SERIOUS INJURY, DEATH OR PROPERTY DAMAGE. IMPROPER SERVICING COULD RESULT IN DANGEROUS OPERATION, SERIOUS INJURY, DEATH OR PROPERTY DAMAGE.

- BEFORE SERVICING, DISCONNECT ALL ELECTRICAL POWER TO FURNACE.
- WHEN SERVICING CONTROLS, LABEL ALL WIRES PRIOR TO DISCONNECTING. RECONNECT WIRES CORRECTLY.
- VERIFY PROPERTY OPERATION AFTER SERVICING.



WARNING

HIGH VOLTAGE

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



WARNING

TO PREVENT PERSONAL INJURY OR DEATH DUE TO IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE, REFER TO THIS MANUAL. FOR ADDITIONAL ASSISTANCE OR INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.



CAUTION

SHEET METAL PARTS, SCREWS, CLIPS AND SIMILAR ITEMS INHERENTLY HAVE SHARP EDGES, AND IT IS NECESSARY THAT THE INSTALLER AND SERVICE PERSONNEL EXERCISE CAUTION.



CAUTION

THIS UNIT MUST BE ISOLATED FROM THE GAS SUPPLY PIPING SYSTEM BY CLOSING ITS INDIVIDUAL MANUAL SHUTOFF VALVE DURING ANY PRESSURE TESTING EQUAL TO OR LESS THAN 1/2 PSIG.

Preventive maintenance is the best way to avoid unnecessary expense and inconvenience. Have this system inspected at regular intervals by qualified service personnel, at least twice a year. Routine maintenance should cover the following items:

1. Tighten set screws, and wire connections.
2. Clean evaporator mechanically or with cold water, if necessary. Usually any fouling is only matted on the entering air face of the coil and can be removed by brushing.
3. Replace filters as needed (see below).
4. Check for blockage of condensate drain.
5. Check power and control voltages.
6. Check running amperage.
7. Check operating temperatures and pressures.
8. Check and adjust temperature and pressure controls.
9. Check and adjust damper linkages.

10. Check operation of all safety controls.
11. Examine gas furnaces (see below and the User's Information Manual).
12. Check condenser fans and tighten set screws.

FILTERS



CAUTION

TO PREVENT PROPERTY DAMAGE DUE TO FIRE AND LOSS OF EQUIPMENT EFFICIENCY OR EQUIPMENT DAMAGE DUE TO DUST AND LINT BUILD UP ON INTERNAL PARTS, NEVER OPERATE UNIT WITHOUT AN AIR FILTER INSTALLED IN THE RETURN AIR SYSTEM.

Removing old Air Filters:

Always remove the filters on the bottom first and then the top ones. Following are the steps to remove the air filters:

Step 1: Pull the part marked as 'A' horizontally, as it slides out, start removing air filters one by one.

Step 2: Remove the screw marked as 'B'

Step 3: Pull the part marked as 'C'. This will allow the sliding part to slide down by an inch. Once it slides down by an inch, pull the strap and remove all filters one by one.

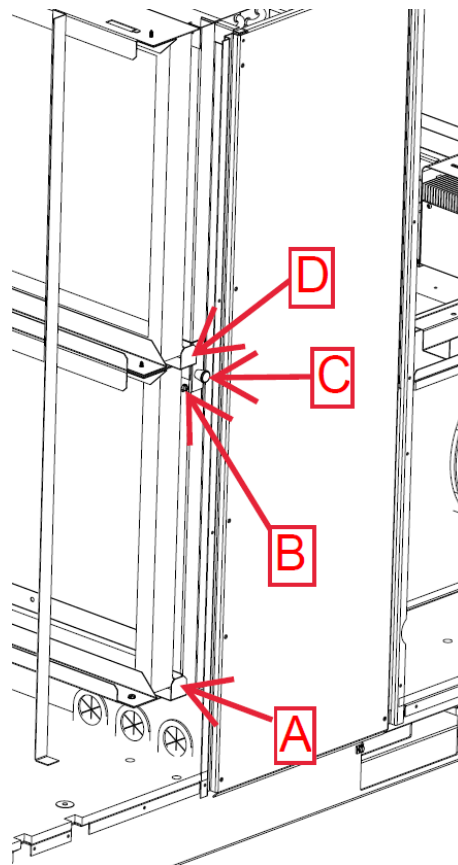
Replacing with new filters:

Follow the above steps in reverse order. First install the top filters and then the bottom filters.

Step 1: With strap 'D' pulled, add filters one by one (Qty 4) on the top and push the strap marked as 'D'.

Step 2: Pull the part marked as 'C' and at the same time keeping it pulled position, push it upwards until it aligns with the screw hole marked as 'B' and release the pull. Install screw at the location 'B' to lock the movement.

Step 3: Pull strap marked as 'A' by 1 to 2 inch and add filters at the bottom slots one by one and push the strap back.



Every application may require a different frequency of replacement of dirty filters. Filters must be replaced at least every three (3) months during operating seasons.

Dirty filters are the most common cause of inadequate heating or cooling performance. Filter inspection should be made at least every two months; more often if necessary because of local conditions and usage.

Dirty throwaway filters should be discarded and replaced with a new, clean filter.

Disposable return air filters are supplied with this unit. See the unit Specification Sheet or Technical Manual for the correct size and part number. To remove the filters, remove the filter access panel on return side of the unit.

CABINET FINISH MAINTENANCE

Use a fine grade automotive wax on the cabinet finish to maintain the finish's original high luster. This is especially important in installations with extended periods of direct sunlight.

CONDENSER AND INDUCED DRAFT MOTORS

Bearings on the condenser fan motors and the combustion fan motor are permanently lubricated. No additional oiling is required.

LUBRICATION

The fan shaft bearings and the supply fan motor have grease fittings that should be lubricated during normal maintenance checks.

CLEAN INDOOR COIL (QUALIFIED SERVICER ONLY)

Before cleaning the indoor coil, A2L sensor must be removed from the unit to avoid damage and contamination. Air filters should also be removed before performing maintenance. The coil with the filtered air flowing over it should be inspected and cleaned as frequently as necessary to keep the finned areas free of debris. Any air blowing or water rinsing should be performed from inside-out (opposite operating airflow direction) to prevent damage to the tube, fin coil and any other components. Prior to resuming unit operation, ensure to reinstall the A2L sensor.

CLEAN OUTSIDE COIL

The coil with the outside air flowing over it should be inspected annually and cleaned as frequently as necessary to keep the finned areas free of lint, hair and debris. **NOTE:** clean the coil in the opposite direction of air flow.

RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

CHARGING PROCEDURES

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment.
- Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is grounded prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

MAINTENANCE OF MICROCHANNEL HEAT EXCHANGERS (MCHE)

Frequent servicing is essential to maintaining the required MCHE performance. For every installed Danfoss MCHE, service records must be documented.



CAUTION

PRIOR TO SERVICING MCHE, BE SURE TO DISCONNECT THE POWER SUPPLY AND USE LOCK-OUT METHODS TO PREVENT THE POWER FROM ACCIDENTALLY BEING TURNED ON.

SHUT DOWN PERIODS

During periods when the MCHE is not operated for longer than a week, the MCHE must be completely cleaned following the cleaning procedure. This practice must also be performed during short shut-down periods where corrosive deposits accumulate on the MCHE.

CLEANING PROCEDURE

Relative to tube & fin heat exchangers, MicroChannel heat exchanger coils tend to accumulate more dirt on the surface of the coil and less dirt inside the coil, making them easier to clean. Follow the steps below for proper cleaning:

STEP 1: REMOVE SURFACE DEBRIS

Remove surface dirt, leaves, fibers, etc. with a vacuum cleaner (preferably with a brush or other soft attachment rather than a metal tube), compressed air blown from the inside out, and/or a soft bristle (not wire!) brush. Do not impact or scrape the coil with the vacuum tube, air nozzle, etc.

STEP 2: RINSE

Rinse the coil by following procedure:

1. Rinse the coil by approved MCHE cleaner first, or rinsing by water directly;
2. Waiting for 5 minutes;

3. Wash the coil by water;
Adjust the angle of gimbaled nozzle and insert it through fans. Using an extension rod if the nozzle cannot reach the bottom side. Preferably cleaning the coils from the inside-out and top to bottom (see figure 1), running the water through every fin passage until it comes out clean. The fins of MicroChannel coils are stronger than traditional tube & fin coil fins but still need to be handled with care. Do not hit the coil with the hose. We recommend placing your thumb over the end of the hose to obtain a gentler spray and reduce the possibility of impact damage. Please **PAY MORE ATTENTION** when using a pressure cleaning equipment to prevent damage.

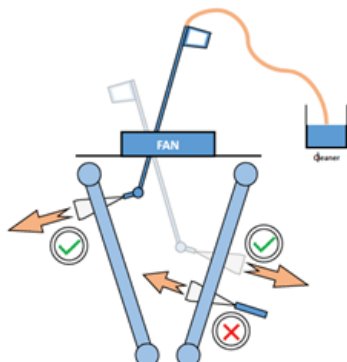


FIGURE 1

Highest pressure of cleaning equipment shall not exceed 15 bar, and tentatively move the cleaning equipment from far to near to prevent damage.

- KEEP the outlet of washer away from coil for at least 4in (see figure 2);
- KEEP the water gun perpendicular to the coil surface and the angle error shall less than 20° , or $\pm 40^\circ$ if the distance from washer to coil is more than 12in (see figure 2);
- Water outlet angle for high pressure cleaning equipment shall over 15° (see figure 3).

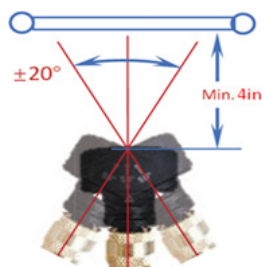


FIGURE 2



FIGURE 3

Warranty claims related to cleaning damage, especially for incorrect pressure washing operation, or corrosion resulting from applying non-recommended cleaners, will NOT be honored.

STEP 3: REMOVE SURFACE DEBRIS

Depending on the installation and fin geometry, MicroChannel heat exchangers could possibly retain more water compared to traditional tube & fin coils. It is advised to blow off or vacuum out the residual water from the coil to speed up drying and prevent pooling. Daikin recommends a quarterly cleaning of the coils, as the minimum. The cleaning frequency should be increased depending on the level of dirt/dust accumulation and the environment (e.g., coastal areas with chlorides and salts) or industrial areas with aggressive substances.



WARNING

FIELD APPLIED COATINGS ARE NOT RECOMMENDED FOR BRAZED ALUMINUM MICROCHANNEL HEAT EXCHANGERS. MICROCHANNEL HEAT EXCHANGERS MUST NOT BE COATED USING ANY OTHER COATING, COATING OF A COIL USING A SUPPLIER OR COATING PROCESS IS NOT APPROVED AND IS NOT COVERED BY THE PRODUCT WARRANTY. IT MAY ALSO REDUCE THE LIFETIME AND/OR THE PERFORMANCE OF THE MICROCHANNEL HEAT EXCHANGER.

FLAME SENSOR (QUALIFIED SERVICER ONLY)

A drop in the flame current can be caused by a nearly invisible coating on the flame sensor. This coating, created by the fuel or combustion air supply, can be removed by carefully cleaning the flame sensor with steel wool.

NOTE: AFTER CLEANING, THE MICROAMP SIGNAL SHOULD BE STABLE AND IN THE RANGE OF 4 - 6 MICROAMPS DC.

FLUE PASSAGES (QUALIFIED SERVICER ONLY)

At the start of each heating season, inspect and, if necessary, clean the unit flue passage.

INSPECTION & CLEANING

All flue product carrying areas of the furnace, its vent system, and main burners should be examined by a qualified service agency before the start of each heating season. This examination is necessary for continued safe operation. Particular attention should be given to deterioration from corrosion or other sources. This examination is accomplished in the following manner.

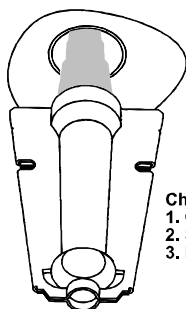
1. Disconnect power to the unit lock and tag out and remove furnace section access panel.
2. Remove burner assembly:
 - a. Disconnect the three wires from the gas valve after noting which wires are connected to each terminal.
 - b. Disconnect wires from the flame rod and ignition electrode.
 - c. Disconnect the gas piping at the union.
 - d. The entire burner assembly can now be removed from the unit.

NOTE: USE ALL SCREWS THAT WERE REMOVED; THEY ARE NECESSARY FOR SAFE AND PROPER OPERATION OF THE UNIT.

3. Inspect and periodically clean the vent outlet (bird screen) on the access panel.

NOTE: PERIODIC OBSERVATION OF THE FLAME AND A LOG OF CO₂ MEASUREMENTS ARE RECOMMENDED. THIS WILL AID IN DETERMINING WHETHER THE FURNACE IS OPERATING EFFICIENTLY OR IF THE FURNACE REQUIRES CLEANING.

Flames should be stable, soft and blue (dust may cause orange tips but must not be yellow). The flames must extend directly outward from the burner without curling, floating or lifting off.



Check the burner flames for:
 1. Good adjustment
 2. Stable, soft and blue
 3. Not curling, floating, or lifting off.

BURNER FLAME



WARNING

TO AVOID PERSONAL INJURY OR DEATH DUE TO ELECTRICAL SHOCK, DO NOT REMOVE ANY INTERNAL COMPARTMENT COVERS OR ATTEMPT ANY ADJUSTMENT. CONTACT A QUALIFIED SERVICER AT ONCE IF AN ABNORMAL FLAME SHOULD DEVELOP.

At least once a year, prior to or during the heating season, make a visual check of the burner flames.

NOTE: THIS WILL INVOLVE REMOVING AND REINSTALLING THE HEAT EXCHANGER DOOR ON THE UNIT, WHICH IS HELD BY TWO SCREWS. IF YOU ARE UNCERTAIN ABOUT YOUR ABILITY TO DO THIS, CONTACT A QUALIFIED SERVICER.

If a strong wind is blowing, it may alter the airflow pattern within the unit enough that an inspection of the burner flames is not possible.

FUNCTIONAL PARTS

Refer to the unit Parts Catalog for a list of functional parts. Parts are available from your distributor.

TROUBLESHOOTING

IGNITION CONTROL ERROR CODES

The following presents probable causes of questionable unit operation. Refer to *Diagnostic Indicator Chart* for an interpretation of the signal and to this section for an explanation.

Remove the control box access panel and note the number of diagnostic LED flashes. Refer to *Diagnostic Indicator Chart* for an interpretation of the signal and to this section for an explanation.

INTERNAL CONTROL FAILURE

If the integrated ignition control in this unit encounters an internal fault, it will go into a "hard" lockout and turn off the diagnostic LED. If diagnostic LED indicates an internal fault, check power supply to unit for proper voltage, check all fuses, circuit breakers and wiring. Disconnect electric power for five seconds. If LED remains off after restoring power, replace control.

ABNORMAL OPERATION - HEATING CODES

EXTERNAL LOCKOUT (1 FLASH CODE)

An external lockout occurs if the integrated ignition control determines that a measurable combustion cannot be established within three (3) consecutive ignition attempts. If flame is not established within the seven (7) second trial for ignition, the gas valve is deenergized, 15 second inter-purge cycle is completed, and ignition is reattempted. The control will repeat this routine three times if a measurable combustion is not established. The control will then shut off the induced draft blower and go into a lockout state.

If flame is established but lost, the control will energize the circulator blower at the heat speed and then begin a new ignition sequence. If flame is established then lost on subsequent attempts, the control will recycle for four (4) consecutive ignition attempts (five attempts total) before locking out.

The diagnostic fault code is 1 flash for a lockout due to failed ignition attempts or flame dropouts. The integrated control will automatically reset after one hour, or it can be reset by removing the thermostat signal or disconnecting the electrical power supply for over five seconds. If the diagnostic LED indicates an external lockout, perform the following checks:

- Check the supply and manifold pressures
- Check the gas orifices for debris
- Check gas valve for proper operation
- Check secondary limit

A dirty filter, excessive duct static, insufficient air flow, a faulty limit, or a failed circulator blower can cause this limit to open. Check filters, total external duct static, circulator blower motor, blower motor speed tap (see wiring diagram), and limit. An interruption in electrical power during a heating cycle may also cause the auxiliary limit to open. The automatic reset secondary limit is located on top of the circulator blower assembly.

- *Check rollout limit*

If the burner flames are not properly drawn into the heat exchanger, the flame rollout protection device will open. Possible causes are restricted or blocked flue passages, blocked or cracked heat exchanger, a failed induced draft blower, or insufficient combustion air. The rollout protection device is a manual reset limit located on the burner bracket. The cause of the flame rollout must be determined and corrected before resetting the limit.

- *Check flame sensor*

A drop in flame signal can be caused by nearly invisible coating on the sensor. Remove the sensor and carefully clean with steel wool.

- *Check wiring*

Check wiring for opens/shorts and miswiring.

IMPORTANT NOTE: If you have to frequently reset your gas/electric package unit, it means that a problem exists that should be corrected. Contact a qualified servicer for further information.

PRESSURE SWITCH STUCK OPEN (2 FLASH CODE)

A pressure switch stuck open can be caused by a faulty pressure switch, faulty wiring, a disconnected or damaged hose, a blocked or restricted flue, or a faulty induced draft blower.

If the control senses an open pressure switch during the pre-purge cycle, the induced draft blower only will be energized. If the pressure switch opens after ignition has begun the gas valve is deenergized, the circulator blower heat off cycle begins, and the induced draft blower remains on. The diagnostic fault code is two flashes.

PRESSURE SWITCH STUCK CLOSED (3 FLASH CODE)

A stuck closed pressure switch can be caused by a faulty pressure switch or faulty wiring. If the control encounters a pressure switch stuck closed, the induced draft blower remains off. The diagnostic LED code for this fault is three (3) flashes.

OPEN THERMAL PROTECTION DEVICE (4 FLASH CODE)

If the primary limit switch opens, the gas valve is immediately deenergized, the induced draft and air circulating blowers are energized. The induced draft and air circulator blowers remain energized until the limit switch recloses. The diagnostic fault code for an open limit is four (4) flashes.

A primary limit will open due to excessive supply air temperatures. This can be caused by a dirty filter, excessive duct static, insufficient air flow, or a faulty limit. Check filters, total external duct static, blower motor, blower motor speed tap (see wiring diagram), and limit. This limit will automatically reset once the temperature falls below a preset level.

FLAME DETECTED WITH GAS VALVE CLOSED (5 FLASH CODE)

If flame is detected with the gas valve deenergized, the combustion and air circulator blowers are energized. The diagnostic fault code is five (5) flashes for this condition. The control can be reset by removing the power supply to the unit or it will automatically reset after one hour. Miswiring is the probable cause for this fault. If a flame is still present turn off gas supply at the shut off valve before turning off electrical power and contact a qualified technician.

ABNORMAL OPERATION - COOLING CODES **SHORT CYCLE COMPRESSOR DELAY (6 FLASH CODE)**

The automatic ignition control has a built-in feature that prevents damage to the compressor in short cycling situations. In the event of intermittent power losses or intermittent thermostat operation, the ignition control will delay output to the compressor contactor for three minutes from the time power is restored. (Compressor is off a total of three minutes). The diagnostic LED will flash six (6) times to indicate the compressor contactor output is being delayed.

NOTE: SOME ELECTRONIC THERMOSTATS ALSO HAVE A BUILT-IN COMPRESSOR SHORT CYCLE TIMER THAT MAY BE LONGER THAN THE THREE MINUTE DELAY GIVEN ABOVE. IF YOU ARE USING AN ELECTRONIC THERMOSTAT AND THE COMPRESSOR HAS NOT STARTED AFTER THREE MINUTES, WAIT AN ADDITIONAL FIVE MINUTES TO ALLOW THE THERMOSTAT TO COMPLETE ITS SHORT CYCLE DELAY TIME.



CAUTION

TO PREVENT UNRELIABLE OPERATION OR EQUIPMENT DAMAGE, THE GAS MANIFOLD PRESSURE MUST BE AS SPECIFIED ON THE UNIT RATING PLATE. ONLY MINOR ADJUSTMENTS SHOULD BE MADE BY ADJUSTING THE GAS VALVE PRESSURE REGULATOR.

RDS

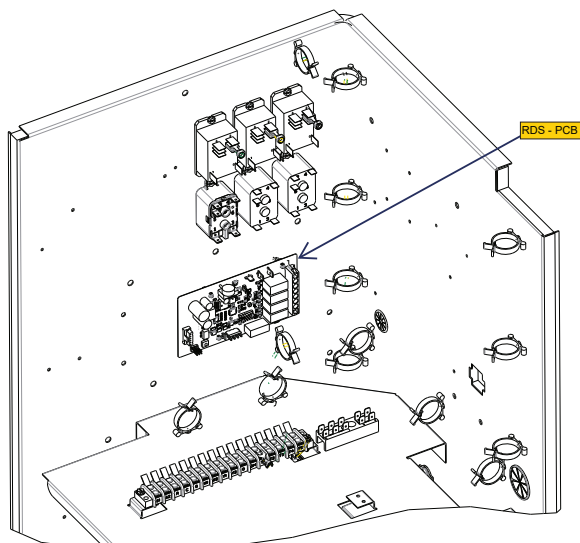
Servicing measures for the REFRIGERANT DETECTION SYSTEM:

Before servicing, identify the mode of operation of the system by reading the LED flashing pattern on the PCB within the control box and matching the LED flashing pattern with mode of operation in the A2L PCB fault code table on the wiring diagram which is attached on the back side of the control box panel. After identifying the mode of operation, take recommended actions as specified in the recommended action for PCB LED Flashing Codes Table .

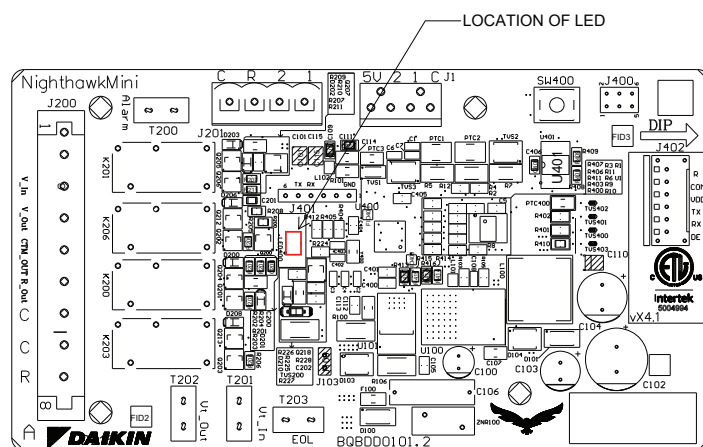
REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS shall only be replaced with sensors specified by the manufacturer.

LED STATUS	
MODE	LED FLASHING PATTERN
NORMAL OPERATION	SLOW LED FLASHING PATTERN (2 SECONDS ON 2 SECONDS OFF)
R-32 LEAK ALARM	FAST LED FLASHING PATTERN
DELAY MODE	LED WILL BE ON CONTINUOUSLY
SYSTEM VERIFICATION MODE	FAST LED FLASHING PATTERN
CONTROL BOARD INTERNAL FAULT	LED WILL FLASH 2 TIMES AND THEN BE OFF FOR 5 SECONDS
R32 SENSOR COMMUNICATION FAULT	LED WILL FLASH 3 TIMES AND THEN BE OFF FOR 5 SECONDS
R32 SENSOR FAULT	LED WILL FLASH 4 TIMES AND THEN BE OFF FOR 5 SECONDS

RDS PCB FAULT CODE TABLE



RDS PCB



PCB LED

RECOMMENDED ACTION FOR RDS PCB LED FLASHING CODES

LED TROUBLESHOOT STATUS					
	MODE	DEFINITION	LED FLASHING PATTERN	RECOMMENDED ACTIONS	NOTES
1	Normal Operation	No faults to report.	Slow LED flashing pattern (2 seconds on and 2 seconds off)	No actions needed.	
2	R32 Leak Alarm	R32 leak is currently being detected.	Fast LED Flashing Pattern	A technician will need to find where the refrigerant leak and address it. Unit shall be thawed before servicing.	In terms of the controls, no action is needed. The controls and sensor are working fine.
3	Delay Mode	After R32 leak or alarm has been cleared, the unit will remain in alarm mode for 5 minutes before returning to normal operation.	LED will be on continuously	No action needed - If the system was previously experiencing an actual R32 Leak, the refrigerant can no longer be detected by the sensor meaning it's either gone and the system won't work anymore or there was a false alarm. If the system was experiencing a Fault, the fault is gone and the system will return to normal operation in 5 min.	After any alarm or fault, it is required to remain in R32 mitigation mode for 5 minutes.
4	System Verification Mode	Manual test run by contractor to simulate R32 Leak Alarm (test will last for 5 minutes max).	Fast LED Flashing Pattern	No actions needed.	To enter system verification test mode, press the button on the control 2 times within 5 seconds. The control will enter a simulated R32 Leak Alarm state and remain in that mode for 5 minutes. After 5 minutes, the control will return to Normal Operation automatically. If the contractor wants to end the test early they need to press the button one time.
5	Control Board Internal Fault	Control board has detected an issue with the R32 detection system.	LED will flash 2 times and then be off for 5 seconds, before repeating pattern	1) Unplug and plug the R32 sensor back in. Cycle power to the system. 2) If the control is in "Normal Operation" or "Delay Mode", there is no more issue. If not, continue with diagnostics 3) Unplug R32 sensor and leave unplugged. Cycle power to the system 4) If the control still displays "Control Board Internal Fault" (2 flash pattern), replace the control. If the control now displays "R32 Sensor Communication Fault" (3 flash pattern), replace the sensor.	This error could indicate an on board relay failure or a short with the sensor communications. A sensor communication short could occur on the board itself or external to the board. These steps will determine if the error is on the board or external to the board.
6	R32 Sensor Communication Fault	Control board does not have communications with R32 sensor.	LED will flash 3 times and then be off for 5 seconds, before repeating pattern	1) Unplug and plug the R32 sensor back in. Cycle power to the system. 2) If control is in "Normal Operation" or "Delay Mode", there is no more issue. If not, continue with diagnostics. 3) If the control still displays "R32 Sensor Communication Fault" (3 flash pattern), replace both the sensor and the PCB.	If the control cannot talk to the sensor there could be a problem with the sensor, a problem with the sensor harness or a problem internal to the control. The field will not be able to measure anything to reliably fix this error assuming the connector is properly secured to the control. Replacing both is the only option.
7	R32 Sensor Fault	R32 Sensor has reported an internal issue.	LED will flash 4 times and then be off for 5 seconds, before repeating pattern	Replace R32 sensor.	Communications to the sensor are perfectly fine. The sensor itself is reporting an internal fault.

NOTE: FOR DECOMMISSIONING, PLEASE SEE DECOMMISSIONING SECTION IN SERVICE MANUAL.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - STANDARD

DSG180DL Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	3395	501	466	0.19	0.18
	0.4	2923	565	545	0.22	0.21
	0.6	2352	622	625	0.24	0.24
	0.8	1784	677	672	0.26	0.26
	1	1433	719	714	0.28	0.27
	1.2	1096	768	758	0.29	0.29
T2	0.2	4916	626	577	0.47	0.43
	0.4	4638	677	627	0.51	0.47
	0.6	4310	723	685	0.54	0.51
	0.8	3951	774	742	0.58	0.55
	1	3537	820	792	0.61	0.59
	1.2	3060	859	857	0.64	0.64
T3	0.2	5509	682	620	0.63	0.57
	0.4	5247	718	667	0.66	0.61
	0.6	4991	760	714	0.70	0.65
	0.8	4617	811	773	0.74	0.71
	1	4281	857	824	0.79	0.76
	1.2	3926	902	869	0.83	0.80
T4	0.2	6791	845	747	1.27	1.12
	0.4	6591	875	783	1.31	1.18
	0.6	6401	907	820	1.36	1.23
	0.8	6221	938	856	1.41	1.29
	1	6034	969	893	1.45	1.34
	1.2	5823	1000	932	1.50	1.40
T5	0.2	6824	891	785	1.59	1.41
	0.4	6660	917	817	1.64	1.46
	0.6	6502	943	847	1.69	1.52
	0.8	6350	968	876	1.73	1.57
	1	6203	995	910	1.78	1.63
	1.2	6034	1024	940	1.83	1.68
T6	0.2	6096	738	661	0.82	0.74
	0.4	5868	778	706	0.87	0.79
	0.6	5619	814	747	0.91	0.83
	0.8	5369	854	793	0.95	0.88
	1	5037	892	851	0.99	0.95
	1.2	4734	935	896	1.04	1.00
T7	0.2	6378	764	681	0.92	0.82
	0.4	6146	802	723	0.97	0.87
	0.6	5915	837	763	1.01	0.92
	0.8	5669	873	807	1.05	0.97
	1	5364	910	860	1.10	1.04
	1.2	5053	950	909	1.15	1.10
T8	0.2	6096	740	662	0.82	0.74
	0.4	5861	781	706	0.87	0.79
	0.6	5608	818	749	0.91	0.83
	0.8	5357	856	793	0.95	0.88
	1	5027	894	853	1.00	0.95
	1.2	4716	936	896	1.04	1.00
T9	0.2	7431	864	763	1.40	1.24
	0.4	7211	896	802	1.45	1.30
	0.6	6999	927	839	1.51	1.36
	0.8	6803	958	875	1.56	1.42
	1	6595	991	914	1.61	1.48
	1.2	6361	1023	955	1.66	1.55
T10	0.2	8463	956	843	2.00	1.76
	0.4	8251	987	879	2.06	1.84
	0.6	8061	1016	912	2.12	1.90
	0.8	7868	1041	943	2.17	1.97
	1	7698	1071	979	2.24	2.04
	1.2	7496	1099	1014	2.30	2.12

DSG180DM Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	3355	505	463	0.19	0.18
	0.4	2911	571	542	0.22	0.21
	0.6	2398	637	612	0.24	0.23
	0.8	1746	682	679	0.26	0.26
	1	1511	725	722	0.28	0.28
	1.2	1239	772	774	0.30	0.30
T2	0.2	5008	642	576	0.48	0.43
	0.4	4706	686	630	0.51	0.47
	0.6	4393	731	683	0.55	0.51
	0.8	4002	784	745	0.59	0.56
	1	3593	833	797	0.62	0.60
	1.2	3162	873	864	0.65	0.65
T3	0.2	5583	698	619	0.64	0.57
	0.4	5312	739	667	0.68	0.61
	0.6	5065	782	718	0.72	0.66
	0.8	4763	823	770	0.75	0.71
	1	4405	867	825	0.79	0.76
	1.2	4031	913	873	0.84	0.80
T4	0.2	6771	856	742	1.29	1.11
	0.4	6560	887	808	1.33	1.21
	0.6	6394	920	820	1.38	1.23
	0.8	6207	951	856	1.43	1.29
	1	6020	981	891	1.47	1.34
	1.2	5820	1008	931	1.51	1.40
T5	0.2	6786	908	784	1.62	1.40
	0.4	6617	931	816	1.67	1.46
	0.6	6461	956	846	1.71	1.51
	0.8	6321	984	880	1.76	1.57
	1	6175	1008	909	1.81	1.63
	1.2	6020	1038	936	1.86	1.68
T6	0.2	7517	880	763	1.43	1.24
	0.4	7283	912	830	1.48	1.35
	0.6	7098	945	843	1.54	1.37
	0.8	6891	977	880	1.59	1.43
	1	6683	1007	917	1.64	1.49
	1.2	6461	1036	957	1.69	1.56
T7	0.2	7851	909	791	1.60	1.40
	0.4	7614	938	826	1.65	1.46
	0.6	7399	969	863	1.71	1.52
	0.8	7219	999	899	1.76	1.59
	1	7024	1029	936	1.81	1.65
	1.2	6819	1058	972	1.87	1.71
T8	0.2	7517	880	763	1.43	1.24
	0.4	7283	912	830	1.48	1.35
	0.6	7098	945	843	1.54	1.37
	0.8	6891	977	880	1.59	1.43
	1	6683	1007	917	1.64	1.49
	1.2	6461	1036	957	1.68	1.56
T9	0.2	8287	946	819	1.84	1.60
	0.4	8056	975	856	1.90	1.67
	0.6	7865	1004	890	1.96	1.73
	0.8	7684	1032	925	2.01	1.80
	1	7497	1062	959	2.07	1.87
	1.2	7289	1091	994	2.13	1.94
T10	0.2	8587	981	848	2.05	1.77
	0.4	8374	1007	882	2.10	1.84
	0.6	8176	1033	914	2.16	1.91
	0.8	7999	1064	951	2.22	1.99
	1	7814	1090	983	2.28	2.05
	1.2	7618	1118	1016	2.33	2.12

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - STANDARD

DSG180DH Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	3355	505	463	0.19	0.18
	0.4	2911	571	542	0.22	0.21
	0.6	2398	637	612	0.24	0.23
	0.8	1746	682	679	0.26	0.26
	1	1511	725	722	0.28	0.28
	1.2	1239	772	774	0.30	0.30
T2	0.2	5008	642	576	0.48	0.43
	0.4	4706	686	630	0.51	0.47
	0.6	4393	731	683	0.55	0.51
	0.8	4002	784	745	0.59	0.56
	1	3593	833	797	0.62	0.60
	1.2	3162	873	864	0.65	0.65
T3	0.2	5583	698	619	0.64	0.57
	0.4	5312	739	667	0.68	0.61
	0.6	5065	782	718	0.72	0.66
	0.8	4763	823	770	0.75	0.71
	1	4405	867	825	0.79	0.76
	1.2	4031	913	873	0.84	0.80
T4	0.2	6788	857	743	1.29	1.12
	0.4	6577	888	809	1.33	1.21
	0.6	6410	921	821	1.38	1.23
	0.8	6223	952	857	1.43	1.29
	1	6035	982	892	1.47	1.34
	1.2	5835	1009	932	1.52	1.40
T5	0.2	6803	909	785	1.63	1.41
	0.4	6634	932	817	1.67	1.46
	0.6	6477	957	846	1.71	1.52
	0.8	6337	985	880	1.76	1.58
	1	6190	1009	910	1.81	1.63
	1.2	6035	1039	937	1.86	1.68
T6	0.2	7851	909	791	1.60	1.40
	0.4	7614	938	826	1.65	1.46
	0.6	7399	969	863	1.71	1.52
	0.8	7219	999	899	1.76	1.59
	1	7024	1029	936	1.81	1.65
	1.2	6819	1058	972	1.87	1.71
T7	0.2	8287	946	819	1.84	1.60
	0.4	8056	975	856	1.90	1.67
	0.6	7865	1004	890	1.96	1.73
	0.8	7684	1032	925	2.01	1.80
	1	7497	1062	959	2.07	1.87
	1.2	7289	1091	994	2.13	1.94
T8	0.2	7851	909	791	1.60	1.40
	0.4	7614	938	826	1.65	1.46
	0.6	7399	969	863	1.71	1.52
	0.8	7219	999	899	1.76	1.59
	1	7024	1029	936	1.81	1.65
	1.2	6819	1058	972	1.87	1.71
T9	0.2	8477	966	836	1.97	1.71
	0.4	8263	996	872	2.03	1.78
	0.6	8073	1023	907	2.09	1.85
	0.8	7876	1050	938	2.14	1.92
	1	7697	1080	974	2.21	1.99
	1.2	7510	1108	1008	2.26	2.06
T10	0.2	8863	1003	864	2.23	1.92
	0.4	8646	1030	901	2.29	2.01
	0.6	8456	1056	934	2.35	2.08
	0.8	8270	1084	967	2.41	2.15
	1	8109	1111	997	2.48	2.22
	1.2	7903	1136	1030	2.53	2.29

DSG240DL Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	4230	597	560	0.34	0.32
	0.4	3918	647	616	0.37	0.35
	0.6	3474	706	676	0.41	0.39
	0.8	3065	749	733	0.43	0.42
	1	2518	792	792	0.46	0.46
	1.2	2121	826	828	0.48	0.48
T2	0.2	5930	763	696	0.84	0.76
	0.4	5684	797	735	0.87	0.80
	0.6	5448	836	778	0.92	0.85
	0.8	5177	875	821	0.96	0.90
	1	4845	914	866	1.00	0.95
	1.2	4523	959	911	1.05	1.00
T3	0.2	6999	861	778	1.27	1.15
	0.4	6766	893	816	1.32	1.21
	0.6	6551	925	853	1.37	1.26
	0.8	6333	958	890	1.42	1.32
	1	6112	991	926	1.47	1.37
	1.2	5856	1025	967	1.52	1.43
T4	0.2	8707	1037	934	2.40	2.16
	0.4	8480	1063	965	2.46	2.24
	0.6	8314	1085	992	2.51	2.30
	0.8	8153	1109	1021	2.57	2.37
	1	8015	1134	1040	2.63	2.41
	1.2	7839	1156	1074	2.68	2.49
T5	0.2	8870	1057	942	2.58	2.30
	0.4	8651	1081	979	2.63	2.38
	0.6	8489	1104	1002	2.69	2.44
	0.8	8341	1125	1028	2.74	2.50
	1	8178	1146	1060	2.79	2.58
	1.2	8015	1171	1085	2.85	2.64
T6	0.2	7373	896	809	1.46	1.31
	0.4	7158	928	845	1.51	1.37
	0.6	6959	958	879	1.56	1.43
	0.8	6742	989	914	1.61	1.48
	1	6523	1020	950	1.66	1.54
	1.2	6305	1052	986	1.71	1.60
T7	0.2	8356	986	893	2.01	1.82
	0.4	8138	1015	926	2.07	1.89
	0.6	7951	1041	957	2.13	1.95
	0.8	7757	1069	988	2.18	2.02
	1	7582	1097	1016	2.24	2.07
	1.2	7387	1125	1048	2.30	2.14
T8	0.2	7365	896	808	1.46	1.31
	0.4	7154	925	842	1.50	1.37
	0.6	6952	956	877	1.55	1.43
	0.8	6754	986	911	1.60	1.48
	1	6526	1017	949	1.65	1.54
	1.2	6307	1050	984	1.71	1.60
T9	0.2	9117	1063	954	2.52	2.26
	0.4	8922	1080	985	2.56	2.33
	0.6	8739	1106	1014	2.62	2.40
	0.8	8566	1131	1039	2.68	2.46
	1	8392	1156	1068	2.74	2.53
	1.2	8215	1182	1098	2.80	2.60
T10	0.2	9413	1092	974	2.74	2.44
	0.4	9193	1115	1008	2.79	2.53
	0.6	9010	1137	1038	2.85	2.60
	0.8	8867	1154	1066	2.89	2.67
	1	8694	1178	1093	2.95	2.74
	1.2	8534	1203	1122	3.01	2.81

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - STANDARD

DSG240DM Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	3788	543	533	0.31	0.31
	0.4	3382	605	589	0.35	0.34
	0.6	2939	656	649	0.38	0.37
	0.8	2489	709	710	0.41	0.41
	1	2002	743	769	0.43	0.44
	1.2	1648	787	808	0.45	0.47
T2	0.2	5502	698	671	0.76	0.73
	0.4	5211	737	711	0.81	0.78
	0.6	4929	782	752	0.86	0.82
	0.8	4597	831	796	0.91	0.87
	1	4288	869	841	0.95	0.92
	1.2	3976	904	885	0.99	0.97
T3	0.2	6499	787	755	1.17	1.12
	0.4	6247	821	791	1.22	1.17
	0.6	6006	857	827	1.27	1.22
	0.8	5756	894	862	1.32	1.28
	1	5493	937	898	1.39	1.33
	1.2	5207	979	939	1.45	1.39
T4	0.2	8958	969	926	2.24	2.15
	0.4	8675	999	959	2.32	2.22
	0.6	8459	1027	989	2.38	2.29
	0.8	8239	1052	1016	2.44	2.35
	1	8024	1082	1045	2.51	2.42
	1.2	7818	1114	1077	2.58	2.50
T5	0.2	9175	983	939	2.40	2.29
	0.4	8868	1010	969	2.46	2.36
	0.6	8657	1039	998	2.53	2.43
	0.8	8455	1066	1028	2.60	2.51
	1	8243	1093	1056	2.66	2.57
	1.2	8024	1122	1085	2.73	2.64
T6	0.2	7899	930	826	1.81	1.61
	0.4	7666	955	856	1.86	1.67
	0.6	7482	980	886	1.91	1.73
	0.8	7296	1005	915	1.96	1.78
	1	7119	1030	946	2.01	1.84
	1.2	6904	1059	978	2.06	1.91
T7	0.2	7996	908	867	1.94	1.85
	0.4	7718	938	899	2.00	1.92
	0.6	7501	967	929	2.06	1.98
	0.8	7306	997	961	2.13	2.05
	1	7089	1024	990	2.19	2.11
	1.2	6866	1057	1020	2.26	2.18
T8	0.2	7899	930	826	1.81	1.61
	0.4	7666	955	856	1.86	1.67
	0.6	7482	980	886	1.91	1.73
	0.8	7296	1005	915	1.96	1.78
	1	7119	1030	946	2.01	1.84
	1.2	6904	1059	978	2.06	1.91
T9	0.2	9117	1063	954	2.52	2.26
	0.4	8922	1080	985	2.56	2.33
	0.6	8739	1106	1014	2.62	2.40
	0.8	8566	1131	1039	2.68	2.46
	1	8392	1156	1068	2.74	2.53
	1.2	8215	1182	1098	2.80	2.60
T10	0.2	9413	1092	974	2.74	2.44
	0.4	9193	1115	1008	2.79	2.53
	0.6	9010	1137	1038	2.85	2.60
	0.8	8867	1154	1066	2.89	2.67
	1	8694	1178	1093	2.95	2.74
	1.2	8534	1203	1122	3.01	2.81

DSG240DH Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	3788	543	533	0.31	0.31
	0.4	3382	605	589	0.35	0.34
	0.6	2939	656	649	0.38	0.37
	0.8	2489	709	710	0.41	0.41
	1	2002	743	769	0.43	0.44
	1.2	1648	787	808	0.45	0.47
T2	0.2	5502	698	671	0.76	0.73
	0.4	5211	737	711	0.81	0.78
	0.6	4929	782	752	0.86	0.82
	0.8	4597	831	796	0.91	0.87
	1	4288	869	841	0.95	0.92
	1.2	3976	904	885	0.99	0.97
T3	0.2	6499	787	755	1.17	1.12
	0.4	6247	821	791	1.22	1.17
	0.6	6006	857	827	1.27	1.22
	0.8	5756	894	862	1.32	1.28
	1	5493	937	898	1.39	1.33
	1.2	5207	979	939	1.45	1.39
T4	0.2	8958	969	926	2.24	2.15
	0.4	8675	999	959	2.32	2.22
	0.6	8459	1027	989	2.38	2.29
	0.8	8239	1052	1016	2.44	2.35
	1	8024	1082	1045	2.51	2.42
	1.2	7818	1114	1077	2.58	2.50
T5	0.2	9175	983	939	2.40	2.29
	0.4	8868	1010	969	2.46	2.36
	0.6	8657	1039	998	2.53	2.43
	0.8	8455	1066	1028	2.60	2.51
	1	8243	1093	1056	2.66	2.57
	1.2	8024	1122	1085	2.73	2.64
T6	0.2	7784	892	855	1.82	1.75
	0.4	7531	917	890	1.87	1.82
	0.6	7311	949	923	1.94	1.88
	0.8	7099	980	954	2.00	1.95
	1	6890	1012	984	2.07	2.01
	1.2	6650	1046	1017	2.14	2.08
T7	0.2	7996	908	867	1.94	1.85
	0.4	7718	938	899	2.00	1.92
	0.6	7501	967	929	2.06	1.98
	0.8	7306	997	961	2.13	2.05
	1	7089	1024	990	2.19	2.11
	1.2	6866	1057	1020	2.26	2.18
T8	0.2	7784	892	855	1.82	1.75
	0.4	7531	917	890	1.87	1.82
	0.6	7311	949	923	1.94	1.88
	0.8	7099	980	954	2.00	1.95
	1	6890	1012	984	2.07	2.01
	1.2	6650	1046	1017	2.14	2.08
T9	0.2	8422	947	906	2.24	2.14
	0.4	8133	979	938	2.32	2.22
	0.6	7945	1004	967	2.38	2.29
	0.8	7742	1031	996	2.44	2.36
	1	7544	1059	1023	2.51	2.42
	1.2	7337	1090	1053	2.58	2.49
T10	0.2	8663	971	930	2.43	2.33
	0.4	8392	998	959	2.50	2.40
	0.6	8197	1026	986	2.57	2.47
	0.8	8007	1051	1016	2.63	2.55
	1	7822	1079	1043	2.70	2.61
	1.2	7607	1106	1071	2.77	2.68

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - STANDARD

DSG300DL Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	5677	764	679	0.75	0.67
	0.4	5447	804	725	0.79	0.71
	0.6	5218	844	773	0.83	0.76
	0.8	4937	883	822	0.87	0.81
	1	4689	923	867	0.91	0.85
	1.2	4376	963	914	0.95	0.90
T2	0.2	6841	842	753	1.11	0.99
	0.4	6594	790	874	1.04	1.15
	0.6	6555	802	881	1.06	1.16
	0.8	6377	907	836	1.20	1.10
	1	6174	941	872	1.24	1.15
	1.2	5651	1007	959	1.33	1.27
T3	0.2	7993	996	879	1.78	1.57
	0.4	7824	1024	913	1.83	1.63
	0.6	7646	1052	946	1.88	1.69
	0.8	7489	1079	976	1.92	1.74
	1	7307	1104	1007	1.97	1.80
	1.2	7131	1133	1043	2.02	1.86
T4	0.2	10708	1084	980	2.68	2.43
	0.4	10513	1113	1004	2.76	2.49
	0.6	10318	1131	1025	2.80	2.54
	0.8	10153	1156	1050	2.86	2.60
	1	10005	1182	1069	2.93	2.65
	1.2	9833	1199	1095	2.97	2.71
T5	0.2	10848	1196	1072	3.60	3.22
	0.4	10653	1220	1102	3.67	3.32
	0.6	10488	1247	1128	3.75	3.39
	0.8	10324	1268	1150	3.82	3.46
	1	10161	1292	1176	3.89	3.54
	1.2	10005	1314	1202	3.95	3.62
T6	0.2	6511	793	710	0.89	0.79
	0.4	6238	828	759	0.92	0.85
	0.6	6030	864	798	0.96	0.89
	0.8	5782	898	839	1.00	0.94
	1	5491	935	884	1.04	0.99
	1.2	5243	970	925	1.08	1.03
T7	0.2	8520	994	891	1.92	1.73
	0.4	8294	1020	919	1.98	1.78
	0.6	8103	1047	950	2.03	1.84
	0.8	7913	1075	988	2.08	1.91
	1	7712	1101	1017	2.13	1.97
	1.2	7540	1129	1050	2.19	2.03
T8	0.2	6511	793	710	0.89	0.79
	0.4	6238	828	759	0.92	0.85
	0.6	6030	864	798	0.96	0.89
	0.8	5782	898	839	1.00	0.94
	1	5491	935	884	1.04	0.99
	1.2	5243	970	925	1.08	1.03
T9	0.2	10400	1165	1054	3.33	3.01
	0.4	10210	1193	1078	3.41	3.08
	0.6	10040	1216	1102	3.48	3.15
	0.8	9869	1239	1127	3.54	3.22
	1	9709	1263	1151	3.61	3.29
	1.2	9555	1288	1176	3.68	3.36
T10	0.2	10570	1186	1063	3.51	3.15
	0.4	10380	1210	1093	3.58	3.24
	0.6	10220	1237	1119	3.66	3.31
	0.8	10060	1258	1141	3.73	3.38
	1	9901	1282	1167	3.80	3.46
	1.2	9749	1304	1192	3.86	3.53

DSG300DM Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	5677	764	679	0.75	0.67
	0.4	5447	804	725	0.79	0.71
	0.6	5218	844	773	0.83	0.76
	0.8	4937	883	822	0.87	0.81
	1	4689	923	867	0.91	0.85
	1.2	4376	963	914	0.95	0.90
T2	0.2	6841	842	753	1.11	0.99
	0.4	6594	790	874	1.04	1.15
	0.6	6555	802	881	1.06	1.16
	0.8	6377	907	836	1.20	1.10
	1	6174	941	872	1.24	1.15
	1.2	5651	1007	959	1.33	1.27
T3	0.2	7993	996	879	1.78	1.57
	0.4	7824	1024	913	1.83	1.63
	0.6	7646	1052	946	1.88	1.69
	0.8	7489	1079	976	1.92	1.74
	1	7307	1104	1007	1.97	1.80
	1.2	7131	1133	1043	2.02	1.86
T4	0.2	10708	1084	980	2.68	2.43
	0.4	10513	1113	1004	2.76	2.49
	0.6	10318	1131	1025	2.80	2.54
	0.8	10153	1156	1050	2.86	2.60
	1	10005	1182	1069	2.93	2.65
	1.2	9833	1199	1095	2.97	2.71
T5	0.2	10848	1196	1072	3.60	3.22
	0.4	10653	1220	1102	3.67	3.32
	0.6	10488	1247	1128	3.75	3.39
	0.8	10324	1268	1150	3.82	3.46
	1	10161	1292	1176	3.89	3.54
	1.2	10005	1314	1202	3.95	3.62
T6	0.2	6511	793	710	0.93	0.83
	0.4	6238	828	759	0.97	0.89
	0.6	6030	864	798	1.01	0.93
	0.8	5782	898	839	1.05	0.98
	1	5491	935	884	1.09	1.03
	1.2	5243	970	925	1.13	1.08
T7	0.2	8520	994	891	1.92	1.73
	0.4	8294	1020	919	1.98	1.78
	0.6	8103	1047	950	2.03	1.84
	0.8	7913	1075	988	2.08	1.91
	1	7712	1101	1017	2.13	1.97
	1.2	7540	1129	1050	2.19	2.03
T8	0.2	9267	1044	936	1.22	1.09
	0.4	9044	1071	963	1.25	1.12
	0.6	8997	1079	970	1.26	1.13
	0.8	8679	1123	1021	1.31	1.19
	1	8490	1146	1053	1.34	1.23
	1.2	8288	1170	1088	1.37	1.27
T9	0.2	10400	1165	1054	3.33	3.01
	0.4	10210	1193	1078	3.41	3.08
	0.6	10040	1216	1102	3.48	3.15
	0.8	9869	1239	1127	3.54	3.22
	1	9709	1263	1151	3.61	3.29
	1.2	9555	1288	1176	3.68	3.36
T10	0.2	10570	1186	1063	3.51	3.15
	0.4	10380	1210	1093	3.58	3.24
	0.6	10220	1237	1119	3.66	3.31
	0.8	10060	1258	1141	3.73	3.38
	1	9901	1282	1167	3.80	3.46
	1.2	9749	1304	1192	3.86	3.53

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - STANDARD

DSG300DH Standard Static						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	5677	764	679	0.75	0.67
	0.4	5447	804	725	0.79	0.71
	0.6	5218	844	773	0.83	0.76
	0.8	4937	883	822	0.87	0.81
	1	4689	923	867	0.91	0.85
	1.2	4376	963	914	0.95	0.90
T2	0.2	6841	842	753	1.11	0.99
	0.4	6594	790	874	1.04	1.15
	0.6	6555	802	881	1.06	1.16
	0.8	6377	907	836	1.20	1.10
	1	6174	941	872	1.24	1.15
	1.2	5651	1007	959	1.33	1.27
T3	0.2	7993	996	879	1.78	1.57
	0.4	7824	1024	913	1.83	1.63
	0.6	7646	1052	946	1.88	1.69
	0.8	7489	1079	976	1.92	1.74
	1	7307	1104	1007	1.97	1.80
	1.2	7131	1133	1043	2.02	1.86
T4	0.2	10708	1084	980	2.68	2.43
	0.4	10513	1113	1004	2.76	2.49
	0.6	10318	1131	1025	2.80	2.54
	0.8	10153	1156	1050	2.86	2.60
	1	10005	1182	1069	2.93	2.65
	1.2	9833	1199	1095	2.97	2.71
T5	0.2	10848	1196	1068	3.60	3.22
	0.4	10653	1220	1102	3.68	3.32
	0.6	10488	1247	1128	3.76	3.40
	0.8	10324	1268	1150	3.82	3.47
	1	10161	1292	1176	3.90	3.55
	1.2	10005	1314	1202	3.96	3.62
T6	0.2	9183	1055	950	2.48	2.23
	0.4	8970	1083	974	2.54	2.29
	0.6	8794	1110	1003	2.60	2.35
	0.8	8613	1134	1031	2.66	2.42
	1	8613	1134	1031	2.66	2.42
	1.2	8433	1160	1063	2.72	2.49
T7	0.2	8520	994	891	1.92	1.73
	0.4	8294	1020	919	1.98	1.78
	0.6	8103	1047	950	2.03	1.84
	0.8	7913	1075	988	2.08	1.91
	1	7712	1101	1017	2.13	1.97
	1.2	7540	1129	1050	2.19	2.03
T8	0.2	9183	1055	950	2.48	2.23
	0.4	8970	1083	974	2.54	2.29
	0.6	8794	1110	1003	2.60	2.35
	0.8	8613	1134	1031	2.66	2.42
	1	8613	1134	1031	2.66	2.42
	1.2	8433	1160	1063	2.72	2.49
T9	0.2	10400	1165	1054	3.33	3.01
	0.4	10210	1193	1078	3.41	3.08
	0.6	10040	1216	1102	3.48	3.15
	0.8	9869	1239	1127	3.54	3.22
	1	9709	1263	1151	3.61	3.29
	1.2	9555	1288	1176	3.68	3.36
T10	0.2	10570	1186	1060	3.51	3.14
	0.4	10380	1210	1093	3.58	3.24
	0.6	10220	1237	1119	3.66	3.31
	0.8	10060	1258	1141	3.73	3.38
	1	9901	1282	1167	3.80	3.46
	1.2	9749	1304	1192	3.86	3.53

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG180WL HIGH STATC						
SPEED Tap	Static	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	2334	441	417	0.18	0.17
	0.4	1701	525	515	0.21	0.21
	0.6	1237	582	573	0.23	0.23
	0.8	953	636	633	0.25	0.25
	1	496.1	686	669	0.27	0.27
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T2	0.2	2334	441	417	0.18	0.17
	0.4	1701	525	515	0.21	0.21
	0.6	1237	582	573	0.23	0.23
	0.8	953	636	633	0.25	0.25
	1	496.1	686	669	0.27	0.27
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T3	0.2	6268	781	693	0.92	0.82
	0.4	6015	815	728	0.96	0.86
	0.6	5781	849	765	1.00	0.90
	0.8	5530	886	812	1.05	0.96
	1	5226	922	863	1.09	1.02
	1.2	4918	964	914	1.14	1.08
	1.4	4606	1006	958	1.19	1.13
	1.6	4185	1042	1021	1.23	1.21
	1.8	3821	1075	1055	1.27	1.25
	2	3442	1107	1095	1.31	1.30
T4	0.2	8561	931	859	1.14	1.05
	0.4	8286	959	886	1.17	1.08
	0.6	8012	986	920	1.21	1.12
	0.8	7754	1013	951	1.24	1.16
	1	7487	1041	983	1.27	1.20
	1.2	7219	1068	1018	1.31	1.24
	1.4	6935	1098	1055	1.34	1.29
	1.6	6642	1131	1090	1.38	1.33
	1.8	6309	1163	1127	1.42	1.38
	2	6023	1193	1157	1.46	1.41
T5	0.2	8479	963	889	1.52	1.40
	0.4	8235	990	915	1.56	1.44
	0.6	7994	1015	946	1.60	1.49
	0.8	7767	1041	975	1.64	1.54
	1	7534	1067	1005	1.68	1.59
	1.2	7307	1093	1036	1.72	1.64
	1.4	7072	1120	1069	1.77	1.69
	1.6	6828	1149	1103	1.81	1.74
	1.8	6558	1177	1137	1.86	1.79
	2	6320	1206	1167	1.90	1.84
	2.2	6023	1235	1202	1.95	1.90

T6	0.2	7287	856	758	1.26	1.12
	0.4	7032	889	795	1.31	1.17
	0.6	6812	919	827	1.36	1.22
	0.8	6582	965	872	1.42	1.29
	1	6359	985	901	1.45	1.33
	1.2	6098	1014	941	1.50	1.39
	1.4	5817	1050	993	1.55	1.47
	1.6	5539	1087	1034	1.60	1.53
	1.8	5264	1125	1073	1.66	1.58
	2	4962	1163	1122	1.72	1.66
T7	0.2	8954	1011	898	2.16	1.92
	0.4	8720	1038	926	2.22	1.98
	0.6	8521	1068	955	2.29	2.04
	0.8	8320	1095	983	2.34	2.10
	1	8129	1123	1011	2.40	2.16
	1.2	7925	1151	1040	2.46	2.23
	1.4	7745	1171	1073	2.51	2.30
	1.6	7546	1189	1107	2.55	2.37
	1.8	7308	1225	1140	2.62	2.44
	2	7034	1251	1182	2.68	2.53
T8	0.2	6693	1277	1220	2.73	2.61
	0.2	7275	857	758	1.26	1.12
	0.4	7032	890	794	1.31	1.17
	0.6	6814	921	828	1.36	1.22
	0.8	6591	954	863	1.41	1.27
	1	6369	994	943	1.47	1.39
	1.2	6096	1016	975	1.50	1.44
	1.4	5818	1051	991	1.55	1.46
	1.6	5502	1087	1034	1.60	1.53
	1.8	5181	1126	1074	1.66	1.58
T9	2	4511	1152	1134	1.70	1.67
	2.2	4561	1192	1168	1.76	1.72
	0.2	9254	1016	913	2.28	2.05
	0.4	8981	1060	942	2.38	2.11
	0.6	8772	1084	971	2.43	2.18
	0.8	8583	1111	998	2.49	2.24
	1	8405	1139	1028	2.56	2.31
	1.2	8234	1159	1057	2.60	2.37
	1.4	8040	1185	1086	2.66	2.44
	1.6	7809	1211	1116	2.72	2.50
T10	1.8	7612	1238	1150	2.78	2.58
	2	7420	1267	1189	2.84	2.67
	2.2	7120	1291	1230	2.90	2.76
	0.2	9435	1051	931	2.47	2.18
	0.4	9201	1077	959	2.53	2.25
	0.6	9003	1105	989	2.59	2.32
	0.8	8817	1132	1017	2.66	2.39
	1	8627	1158	1043	2.72	2.45
	1.2	8450	1183	1072	2.78	2.52
	1.4	8262	1208	1100	2.83	2.58
	1.6	8067	1233	1128	2.89	2.65
	1.8	7876	1259	1157	2.95	2.72
	2	7681	1286	1192	3.02	2.80
	2.2	7445	1311	1230	3.08	2.89

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG180WM - HIGH STATIC						
SPEED Tap	S.P	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	2418	455	455	0.18	0.18
	0.4	1654	580	570	0.23	0.23
	0.6	1239	627	627	0.25	0.25
	0.8	845.7	696	693	0.28	0.28
	1	-	-	-	-	-
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T2	0.2	2418	455	455	0.18	0.18
	0.4	1654	580	570	0.23	0.23
	0.6	1239	627	627	0.25	0.25
	0.8	845.7	696	693	0.28	0.28
	1	-	-	-	-	-
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T3	0.2	6447	705	794	0.83	0.94
	0.4	6138	756	839	0.89	0.99
	0.6	5813	808	882	0.96	1.04
	0.8	5542	858	921	1.01	1.09
	1	5225	912	962	1.08	1.14
	1.2	4902	963	1008	1.14	1.19
	1.4	4592	1006	1053	1.19	1.25
	1.6	4251	1047	1101	1.24	1.30
	1.8	3849	1118	1134	1.32	1.34
	2	3431	1156	1165	1.37	1.38
T4	0.2	8561	931	859	1.14	1.05
	0.4	8286	959	886	1.17	1.08
	0.6	8012	986	920	1.21	1.12
	0.8	7754	1013	951	1.24	1.16
	1	7487	1041	983	1.27	1.20
	1.2	7219	1068	1018	1.31	1.24
	1.4	6935	1098	1055	1.34	1.29
	1.6	6642	1131	1090	1.38	1.33
	1.8	6309	1163	1127	1.42	1.38
	2	6023	1193	1157	1.46	1.41
T5	0.2	8479	963	889	1.52	1.40
	0.4	8235	990	915	1.56	1.44
	0.6	7994	1015	946	1.60	1.49
	0.8	7767	1041	975	1.64	1.54
	1	7534	1067	1005	1.68	1.59
	1.2	7307	1093	1036	1.72	1.64
	1.4	7072	1120	1069	1.77	1.69
	1.6	6828	1149	1103	1.81	1.74
	1.8	6558	1177	1137	1.86	1.79
	2	6320	1206	1167	1.90	1.84
	2.2	6023	1235	1202	1.95	1.90

T6	0.2	9517	944	1061	2.22	2.49
	0.4	9207	986	1100	2.31	2.58
	0.6	8956	1020	1132	2.39	2.66
	0.8	8752	1052	1161	2.47	2.72
	1	8540	1085	1189	2.55	2.79
	1.2	8364	1118	1218	2.62	2.86
	1.4	8180	1150	1247	2.70	2.93
	1.6	7973	1182	1272	2.77	2.99
	1.8	7762	1220	1298	2.86	3.05
	2	7545	1254	1327	2.94	3.11
T7	0.2	9797	957	1078	2.34	2.64
	0.4	9484	997	1119	2.44	2.74
	0.6	9248	1028	1149	2.52	2.81
	0.8	9049	1065	1176	2.61	2.88
	1	8839	1101	1204	2.70	2.95
	1.2	8626	1132	1231	2.77	3.01
	1.4	8441	1163	1259	2.85	3.08
	1.6	8201	1198	1285	2.93	3.15
	1.8	7999	1227	1313	3.01	3.22
	2	7860	1260	1340	3.09	3.28
T8	0.2	9517	944	1061	2.22	2.49
	0.4	9207	986	1100	2.31	2.58
	0.6	8956	1020	1132	2.39	2.66
	0.8	8752	1052	1161	2.47	2.72
	1	8540	1085	1189	2.55	2.79
	1.2	8364	1118	1218	2.62	2.86
	1.4	8180	1150	1247	2.70	2.93
	1.6	7973	1182	1272	2.77	2.99
	1.8	7762	1220	1298	2.86	3.05
	2	7545	1254	1327	2.94	3.11
T9	0.2	9797	957	1078	2.34	2.64
	0.4	9484	997	1119	2.44	2.74
	0.6	9248	1028	1149	2.52	2.81
	0.8	9049	1065	1176	2.61	2.88
	1	8839	1101	1204	2.70	2.95
	1.2	8626	1132	1231	2.77	3.01
	1.4	8441	1163	1259	2.85	3.08
	1.6	8201	1198	1285	2.93	3.15
	1.8	7999	1227	1313	3.01	3.22
	2	7860	1260	1340	3.09	3.28
T10	0.2	9992	971	1102	2.48	2.81
	0.4	9691	1011	1140	2.58	2.91
	0.6	9447	1046	1171	2.67	2.99
	0.8	9247	1077	1200	2.75	3.06
	1	9049	1108	1227	2.83	3.13
	1.2	8870	1140	1254	2.91	3.20
	1.4	8654	1170	1280	2.99	3.27
	1.6	8469	1202	1306	3.07	3.33
	1.8	8272	1234	1328	3.15	3.39
	2	8075	1269	1358	3.24	3.46
	2.2	7861	1305	1386	3.33	3.54

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG180WH - HIGH STATIC						
SPEED Tap	S.P	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	2418	455	455	0.18	0.18
	0.4	1654	580	570	0.23	0.23
	0.6	1239	627	627	0.25	0.25
	0.8	845.7	696	693	0.28	0.28
	1	-	-	-	-	-
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T2	0.2	2418	455	455	0.18	0.18
	0.4	1654	580	570	0.23	0.23
	0.6	1239	627	627	0.25	0.25
	0.8	845.7	696	693	0.28	0.28
	1	-	-	-	-	-
	1.2	-	-	-	-	-
	1.4	-	-	-	-	-
	1.6	-	-	-	-	-
	1.8	-	-	-	-	-
	2	-	-	-	-	-
T3	0.2	6447	705	794	0.83	0.94
	0.4	6138	756	839	0.89	0.99
	0.6	5813	808	882	0.96	1.04
	0.8	5542	858	921	1.01	1.09
	1	5225	912	962	1.08	1.14
	1.2	4902	963	1008	1.14	1.19
	1.4	4592	1006	1053	1.19	1.25
	1.6	4251	1047	1101	1.24	1.30
	1.8	3849	1118	1134	1.32	1.34
	2	3431	1156	1165	1.37	1.38
T4	0.2	8561	931	859	1.14	1.05
	0.4	8286	959	886	1.17	1.08
	0.6	8012	986	920	1.21	1.12
	0.8	7754	1013	951	1.24	1.16
	1	7487	1041	983	1.27	1.20
	1.2	7219	1068	1018	1.31	1.24
	1.4	6935	1098	1055	1.34	1.29
	1.6	6642	1131	1090	1.38	1.33
	1.8	6309	1163	1127	1.42	1.38
	2	6023	1193	1157	1.46	1.41
T5	0.2	8479	963	889	1.52	1.40
	0.4	8235	990	915	1.56	1.44
	0.6	7994	1015	946	1.60	1.49
	0.8	7767	1041	975	1.64	1.54
	1	7534	1067	1005	1.68	1.59
	1.2	7307	1093	1036	1.72	1.64
	1.4	7072	1120	1069	1.77	1.69
	1.6	6828	1149	1103	1.81	1.74
	1.8	6558	1177	1137	1.86	1.79
	2	6320	1206	1167	1.90	1.84
	2.2	6023	1235	1202	1.95	1.90

T6	0.2	9517	944	1061	2.22	2.49
	0.4	9207	986	1100	2.31	2.58
	0.6	8956	1020	1132	2.39	2.66
	0.8	8752	1052	1161	2.47	2.72
	1	8540	1085	1189	2.55	2.79
	1.2	8364	1118	1218	2.62	2.86
	1.4	8180	1150	1247	2.70	2.93
	1.6	7973	1182	1272	2.77	2.99
	1.8	7762	1220	1298	2.86	3.05
	2	7545	1254	1327	2.94	3.11
T7	0.2	9797	957	1078	2.34	2.64
	0.4	9484	997	1119	2.44	2.74
	0.6	9248	1028	1149	2.52	2.81
	0.8	9049	1065	1176	2.61	2.88
	1	8839	1101	1204	2.70	2.95
	1.2	8626	1132	1231	2.77	3.01
	1.4	8441	1163	1259	2.85	3.08
	1.6	8201	1198	1285	2.93	3.15
	1.8	7999	1227	1313	3.01	3.22
	2	7860	1260	1340	3.09	3.28
T8	0.2	9517	944	1061	2.22	2.49
	0.4	9207	986	1100	2.31	2.58
	0.6	8956	1020	1132	2.39	2.66
	0.8	8752	1052	1161	2.47	2.72
	1	8540	1085	1189	2.55	2.79
	1.2	8364	1118	1218	2.62	2.86
	1.4	8180	1150	1247	2.70	2.93
	1.6	7973	1182	1272	2.77	2.99
	1.8	7762	1220	1298	2.86	3.05
	2	7545	1254	1327	2.94	3.11
T9	0.2	9797	957	1078	2.34	2.64
	0.4	9484	997	1119	2.44	2.74
	0.6	9248	1028	1149	2.52	2.81
	0.8	9049	1065	1176	2.61	2.88
	1	8839	1101	1204	2.70	2.95
	1.2	8626	1132	1231	2.77	3.01
	1.4	8441	1163	1259	2.85	3.08
	1.6	8201	1198	1285	2.93	3.15
	1.8	7999	1227	1313	3.01	3.22
	2	7860	1260	1340	3.09	3.28
T10	0.2	9992	971	1102	2.48	2.81
	0.4	9691	1011	1140	2.58	2.91
	0.6	9447	1046	1171	2.67	2.99
	0.8	9247	1077	1200	2.75	3.06
	1	9049	1108	1227	2.83	3.13
	1.2	8870	1140	1254	2.91	3.20
	1.4	8654	1170	1280	2.99	3.27
	1.6	8469	1202	1306	3.07	3.33
	1.8	8272	1234	1328	3.15	3.39
	2	8075	1269	1358	3.24	3.46
	2.2	7861	1305	1386	3.33	3.54

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG240WL - HIGH STATIC						
SPEED Tap	S.P	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	5985	721	787	0.79	0.86
	0.4	5657	775	835	0.85	0.92
	0.6	5260	834	880	0.91	0.96
	0.8	4929	881	924	0.97	1.01
	1	4639	924	965	1.01	1.06
	1.2	4343	967	963	1.06	1.06
	1.4	4082	1007	1042	1.10	1.14
	1.6	3705	1043	1084	1.14	1.19
	1.8	3291	1103	1116	1.21	1.22
	2	2973	1138	1141	1.25	1.25
T2	2.2	2736	1167	1168	1.28	1.28
	0.2	6292	747	818	0.89	0.97
	0.4	6008	800	864	0.95	1.03
	0.6	5657	854	904	1.01	1.07
	0.8	5338	897	945	1.07	1.12
	1	5049	939	986	1.12	1.17
	1.2	4760	980	1025	1.16	1.22
	1.4	4489	1022	1063	1.21	1.26
	1.6	4201	1065	1103	1.26	1.31
	1.8	3856	1100	1141	1.31	1.36
T3	2	3420	1154	1168	1.37	1.39
	2.2	3113	1186	1192	1.41	1.42
	0.2	8963	957	1052	2.07	2.27
	0.4	8662	996	1089	2.15	2.35
	0.6	8453	1033	1120	2.23	2.42
	0.8	8228	1069	1152	2.31	2.49
	1	8105	1103	1182	2.38	2.56
	1.2	7853	1139	1211	2.46	2.62
	1.4	7568	1179	1242	2.55	2.69
	1.6	7310	1214	1273	2.62	2.75
T4	1.8	7076	1243	1301	2.69	2.81
	2	6853	1274	1330	2.75	2.88
	2.2	6660	1305	1358	2.82	2.94
	0.2	10340	1016	1116	2.18	2.40
	0.4	10029	1053	1153	2.26	2.48
	0.6	9767	1093	1191	2.35	2.56
	0.8	9552	1126	1222	2.42	2.62
	1	9322	1157	1248	2.48	2.68
	1.2	9084	1190	1275	2.56	2.74
	1.4	8819	1228	1304	2.64	2.80
T5	1.6	8546	1265	1330	2.72	2.86
	1.8	8234	1306	1359	2.80	2.92
	2	8015	1336	1386	2.87	2.98
	2.2	7772	1366	1417	2.93	3.04
	0.2	10257	1041	1152	2.55	2.82
	0.4	9969	1081	1186	2.65	2.90
	0.6	9756	1114	1217	2.73	2.98
	0.8	9580	1141	1245	2.79	3.05
	1	9373	1170	1270	2.86	3.11
	1.2	9198	1202	1297	2.94	3.18

T6	0.2	7571	836	928	1.32	1.46
	0.4	7289	880	969	1.39	1.53
	0.6	7014	925	1004	1.46	1.58
	0.8	6734	971	1039	1.53	1.64
	1	6386	1019	1074	1.61	1.69
	1.2	6113	1058	1113	1.67	1.76
	1.4	5836	1095	1095	1.73	1.73
	1.6	5597	1129	1180	1.78	1.86
	1.8	5358	1171	1215	1.85	1.92
	2	5127	1204	1246	1.90	1.97
T7	2.2	4851	1232	1274	1.94	2.01
	0.2	8483	911	1010	1.76	1.96
	0.4	8212	958	1049	1.85	2.03
	0.6	7979	991	1085	1.92	2.10
	0.8	7705	1034	1127	2.00	2.18
	1	7443	1077	1152	2.09	2.23
	1.2	7151	1118	1180	2.16	2.28
	1.4	6899	1153	1210	2.23	2.34
	1.6	6672	1187	1242	2.30	2.40
	1.8	6438	1216	1271	2.35	2.46
T8	2	6211	1254	1301	2.43	2.52
	2.2	5995	1285	1331	2.49	2.58
	0.2	7571	836	928	1.32	1.46
	0.4	7289	880	969	1.39	1.53
	0.6	7014	925	1004	1.46	1.58
	0.8	6734	971	1039	1.53	1.64
	1	6386	1019	1074	1.61	1.69
	1.2	6113	1058	1113	1.67	1.76
	1.4	5836	1095	1095	1.73	1.73
	1.6	5597	1129	1180	1.78	1.86
T9	1.8	5358	1171	1215	1.85	1.92
	2	5127	1204	1246	1.90	1.97
	2.2	4851	1232	1274	1.94	2.01
	0.2	9342	978	1083	2.25	2.49
	0.4	9071	1018	1118	2.34	2.57
	0.6	8859	1053	1151	2.42	2.64
	0.8	8653	1084	1182	2.49	2.71
	1	8436	1118	1212	2.57	2.78
	1.2	8199	1154	1240	2.65	2.85
	1.4	7928	1194	1266	2.74	2.91
T10	1.6	7648	1235	1295	2.84	2.97
	1.8	7424	1267	1322	2.91	3.03
	2	7185	1296	1352	2.98	3.10
	2.2	6995	1325	1379	3.04	3.17
	0.2	9762	1012	1122	2.53	2.81
	0.4	9468	1056	1160	2.64	2.90
	0.6	9247	1091	1191	2.73	2.98
	0.8	9038	1124	1218	2.81	3.05
	1	8863	1157	1248	2.89	3.12
	1.2	8664	1181	1274	2.95	3.19

NOTES:

If high static fan is needed it should be ordered as factory installed.

Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.

Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.

Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG240WM HIGH STATC													
SPEED Tap	S.P	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2							
T1	0.2	5965	791	703	0.87	0.77	T6	0.2	9086	1084	980	2.43	2.20
	0.4	5707	827	735	0.91	0.81		0.4	8865	1111	997	2.49	2.24
	0.6	5487	862	778	0.94	0.85		0.6	8678	1135	1024	2.55	2.30
	0.8	5202	896	824	0.98	0.90		0.8	8471	1161	1057	2.61	2.37
	1	4939	935	872	1.02	0.96		1	8293	1186	1080	2.66	2.42
	1.2	4653	977	915	1.07	1.00		1.2	8111	1213	1105	2.72	2.48
	1.4	4320	1019	962	1.12	1.05		1.4	7939	1238	1131	2.78	2.54
	1.6	4045	1052	1014	1.15	1.11		1.6	7759	1262	1160	2.83	2.60
	1.8	3687	1083	1060	1.19	1.16		1.8	7593	1287	1191	2.89	2.67
	2	3356	1113	1098	1.22	1.20		2	7405	1312	1221	2.94	2.74
T2	2.2	3026	1143	1127	1.25	1.24	T7	2.2	7175	1330	1257	2.99	2.82
	0.2	6230	823	726	0.98	0.86		0.2	9246	1090	990	2.56	2.32
	0.4	6014	856	760	1.02	0.90		0.4	9220	1124	1009	2.64	2.37
	0.6	5785	888	800	1.05	0.95		0.6	9034	1149	1037	2.70	2.43
	0.8	5536	920	840	1.09	1.00		0.8	8829	1172	1064	2.75	2.50
	1	5287	957	883	1.14	1.05		1	8631	1202	1086	2.82	2.55
	1.2	5008	997	929	1.18	1.10		1.2	8468	1228	1115	2.88	2.62
	1.4	4698	1038	970	1.23	1.15		1.4	8311	1248	1140	2.93	2.68
	1.6	4433	1072	1014	1.27	1.20		1.6	8129	1273	1168	2.99	2.74
	1.8	4148	1103	1055	1.31	1.25		1.8	7949	1291	1193	3.03	2.80
T3	2	3799	1130	1110	1.34	1.32	T8	2	7772	1317	1222	3.09	2.87
	2.2	3466	1157	1144	1.37	1.36		2.2	7601	1344	1253	3.15	2.94
	0.2	8871	1067	951	2.31	2.06		0.2	9086	1084	980	2.43	2.20
	0.4	8650	1093	980	2.36	2.12		0.4	8865	1111	997	2.49	2.24
	0.6	8458	1118	1007	2.42	2.18		0.6	8678	1135	1024	2.55	2.30
	0.8	8278	1144	1035	2.47	2.24		0.8	8471	1161	1057	2.61	2.37
	1	8077	1168	1064	2.53	2.30		1	8293	1186	1080	2.66	2.42
	1.2	7897	1193	1092	2.58	2.36		1.2	8111	1213	1105	2.72	2.48
	1.4	7711	1219	1122	2.64	2.43		1.4	7939	1238	1131	2.78	2.54
	1.6	7537	1244	1151	2.69	2.49		1.6	7759	1262	1160	2.83	2.60
T4	1.8	7328	1270	1182	2.75	2.56	T9	1.8	7593	1287	1191	2.89	2.67
	2	7153	1297	1208	2.80	2.61		2	7405	1312	1221	2.94	2.74
	2.2	6965	1325	1245	2.87	2.69		2.2	7175	1330	1257	2.99	2.82
	0.2	9787	1175	1048	2.71	2.42		0.2	9246	1102	1003	2.59	2.35
	0.4	9536	1207	1077	2.79	2.49		0.4	9220	1124	1009	2.64	2.37
	0.6	9343	1232	1103	2.85	2.55		0.6	9034	1149	1037	2.70	2.43
	0.8	9145	1259	1131	2.91	2.61		0.8	8829	1172	1064	2.75	2.50
	1	8966	1284	1160	2.96	2.68		1	8631	1202	1086	2.82	2.55
	1.2	8763	1311	1189	3.03	2.75		1.2	8468	1228	1115	2.88	2.62
	1.4	8593	1337	1216	3.09	2.81	T10	1.4	8311	1248	1140	2.93	2.68
T5	1.6	8401	1360	1246	3.14	2.88		1.6	8129	1273	1168	2.99	2.74
	1.8	8221	1386	1277	3.20	2.95		1.8	7949	1291	1193	3.03	2.80
	2	8015	1410	1313	3.26	3.03		2	7772	1317	1222	3.09	2.87
	2.2	7843	1441	1343	3.33	3.10		2.2	7601	1344	1253	3.15	2.94
	0.2	9883	1195	1068	3.00	2.69		0.2	9824	1144	1020	2.92	2.60
	0.4	9673	1221	1097	3.07	2.76		0.4	9578	1167	1047	2.98	2.67
	0.6	9468	1246	1125	3.13	2.83		0.6	9384	1190	1074	3.04	2.74
	0.8	9276	1272	1155	3.20	2.90		0.8	9196	1214	1101	3.10	2.81
	1	9088	1298	1180	3.26	2.97		1	9022	1238	1128	3.16	2.88
	1.2	8913	1323	1207	3.33	3.03		1.2	8851	1262	1153	3.22	2.94
	1.4	8741	1346	1235	3.38	3.11		1.4	8669	1284	1177	3.28	3.00
	1.6	8568	1370	1262	3.45	3.17		1.6	8495	1307	1205	3.33	3.07
	1.8	8374	1394	1300	3.50	3.27		1.8	8342	1329	1231	3.39	3.14
	2	8205	1421	1324	3.57	3.33		2	8150	1354	1260	3.45	3.21
	2.2	8015	1443	1355	3.63	3.41		2.2	7971	1378	1288	3.52	3.29

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG240WH HIGH STATC						
SPEED Tap	S.P	AIR FLOW	RPM 1	RPM 2	BHP1	BHP2
T1	0.2	5965	791	703	0.87	0.77
	0.4	5707	827	735	0.91	0.81
	0.6	5487	862	778	0.94	0.85
	0.8	5202	896	824	0.98	0.90
	1	4939	935	872	1.02	0.96
	1.2	4653	977	915	1.07	1.00
	1.4	4320	1019	962	1.12	1.05
	1.6	4045	1052	1014	1.15	1.11
	1.8	3687	1083	1060	1.19	1.16
	2	3356	1113	1098	1.22	1.20
T2	2.2	3026	1143	1127	1.25	1.24
	0.2	6230	823	726	0.98	0.86
	0.4	6014	856	760	1.02	0.90
	0.6	5785	888	800	1.05	0.95
	0.8	5536	920	840	1.09	1.00
	1	5287	957	883	1.14	1.05
	1.2	5008	997	929	1.18	1.10
	1.4	4698	1038	970	1.23	1.15
	1.6	4433	1072	1014	1.27	1.20
	1.8	4148	1103	1055	1.31	1.25
T3	2	3799	1130	1110	1.34	1.32
	2.2	3466	1157	1144	1.37	1.36
	0.2	8871	1067	951	2.31	2.06
	0.4	8650	1093	980	2.36	2.12
	0.6	8458	1118	1007	2.42	2.18
	0.8	8278	1144	1035	2.47	2.24
	1	8077	1168	1064	2.53	2.30
	1.2	7897	1193	1092	2.58	2.36
	1.4	7711	1219	1122	2.64	2.43
	1.6	7537	1244	1151	2.69	2.49
T4	1.8	7328	1270	1182	2.75	2.56
	2	7153	1297	1208	2.80	2.61
	2.2	6965	1325	1245	2.87	2.69
	0.2	9787	1175	1048	2.71	2.42
	0.4	9536	1207	1077	2.79	2.49
	0.6	9343	1232	1103	2.85	2.55
	0.8	9145	1259	1131	2.91	2.61
	1	8966	1284	1160	2.96	2.68
	1.2	8763	1311	1189	3.03	2.75
	1.4	8593	1337	1216	3.09	2.81
T5	1.6	8401	1360	1246	3.14	2.88
	1.8	8221	1386	1277	3.20	2.95
	2	8015	1410	1313	3.26	3.03
	2.2	7843	1441	1343	3.33	3.10
	0.2	9883	1195	1068	3.00	2.69
	0.4	9673	1221	1097	3.07	2.76
	0.6	9468	1246	1125	3.13	2.83
	0.8	9276	1272	1155	3.20	2.90
	1	9088	1298	1180	3.26	2.97
	1.2	8913	1323	1207	3.33	3.03
T5	1.4	8741	1346	1235	3.38	3.11
	1.6	8568	1370	1262	3.45	3.17
	1.8	8374	1394	1300	3.50	3.27
	2	8205	1421	1324	3.57	3.33
	2.2	8015	1443	1355	3.63	3.41

T6	0.2	9558	1126	1006	2.76	2.46
	0.4	9315	1148	1031	2.81	2.52
	0.6	9124	1172	1059	2.87	2.59
	0.8	8933	1197	1086	2.93	2.66
	1	8740	1223	1115	3.00	2.73
	1.2	8572	1251	1133	3.06	2.77
	1.4	8387	1274	1158	3.12	2.84
	1.6	8232	1296	1186	3.17	2.90
	1.8	8056	1319	1215	3.23	2.98
	2	7869	1344	1243	3.29	3.04
T7	2.2	7680	1368	1272	3.35	3.12
	0.2	9824	1144	1020	2.92	2.60
	0.4	9578	1167	1047	2.98	2.67
	0.6	9384	1190	1074	3.04	2.74
	0.8	9196	1214	1101	3.10	2.81
	1	9022	1238	1128	3.16	2.88
	1.2	8851	1262	1153	3.22	2.94
	1.4	8669	1284	1177	3.28	3.00
	1.6	8495	1307	1205	3.33	3.07
	1.8	8342	1329	1231	3.39	3.14
T8	2	8150	1354	1260	3.45	3.21
	2.2	7971	1378	1288	3.52	3.29
	0.2	9558	1126	1006	2.76	2.46
	0.4	9315	1148	1031	2.81	2.52
	0.6	9124	1172	1059	2.87	2.59
	0.8	8933	1197	1086	2.93	2.66
	1	8740	1223	1115	3.00	2.73
	1.2	8572	1251	1133	3.06	2.77
	1.4	8387	1274	1158	3.12	2.84
	1.6	8232	1296	1186	3.17	2.90
T9	1.8	8056	1319	1215	3.23	2.98
	2	7869	1344	1243	3.29	3.04
	2.2	7680	1368	1272	3.35	3.12
	0.2	9824	1144	1020	2.92	2.60
	0.4	9578	1167	1047	2.98	2.67
	0.6	9384	1190	1074	3.04	2.74
	0.8	9196	1214	1101	3.10	2.81
	1	9022	1238	1128	3.16	2.88
	1.2	8851	1262	1153	3.22	2.94
	1.4	8669	1284	1177	3.28	3.00
T10	1.6	8495	1307	1205	3.33	3.07
	1.8	8342	1329	1231	3.39	3.14
	2	8150	1354	1260	3.45	3.21
	2.2	7971	1378	1288	3.52	3.29
	0.2	10090	1172	1048	3.17	2.83
	0.4	9871	1195	1075	3.23	2.91
	0.6	9669	1218	1101	3.29	2.98
	0.8	9468	1241	1126	3.36	3.05
	1	9305	1265	1151	3.42	3.11
	1.2	9148	1286	1175	3.48	3.18
T10	1.4	8968	1308	1200	3.54	3.25
	1.6	8779	1332	1224	3.60	3.31
	1.8	8646	1354	1249	3.66	3.38
	2	8459	1378	1275	3.73	3.45
	2.2	8288	1400	1314	3.79	3.55

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG300WL High Static						
Speed Tap	Static	Airflow	RPM 1	RPM 2	BHP 1	BHP 2
T1	0.2	7461	861	774	1.28	1.15
	0.4	7225	895	812	1.33	1.21
	0.6	6970	930	854	1.39	1.27
	0.8	6700	963	894	1.43	1.33
	1	6423	996	933	1.49	1.39
	1.2	6141	1031	976	1.54	1.45
	1.4	5856	1063	1017	1.58	1.52
	1.6	5560	1095	1055	1.63	1.57
	1.8	5272	1127	1092	1.68	1.63
	2	4993	1155	1123	1.72	1.67
	2.2	4724	1184	1155	1.77	1.72
T2	0.2	7698	882	793	1.39	1.25
	0.4	7466	916	830	1.44	1.30
	0.6	7220	950	870	1.49	1.37
	0.8	6961	982	910	1.54	1.43
	1	6695	1015	947	1.60	1.49
	1.2	6423	1048	989	1.65	1.56
	1.4	6150	1080	1030	1.70	1.62
	1.6	5865	1112	1067	1.75	1.68
	1.8	5590	1143	1103	1.80	1.74
	2	5317	1171	1135	1.84	1.78
	2.2	5052	1200	1168	1.89	1.84
T3	0.2	11015	1176	1056	3.59	3.23
	0.4	10823	1200	1081	3.67	3.30
	0.6	10659	1225	1105	3.74	3.37
	0.8	10492	1246	1129	3.81	3.45
	1	10340	1268	1156	3.87	3.53
	1.2	10171	1289	1184	3.94	3.61
	1.4	9992	1311	1209	4.00	3.69
	1.6	9821	1334	1236	4.07	3.77
	1.8	9668	1358	1261	4.15	3.85
	2	9469	1381	1291	4.22	3.94
	2.2	9257	1403	1323	4.28	4.04
T4	0.2	11578	1212	1089	4.02	3.61
	0.4	11382	1235	1113	4.09	3.69
	0.6	11212	1259	1137	4.17	3.77
	0.8	11039	1279	1160	4.24	3.84
	1	10888	1300	1185	4.31	3.93
	1.2	10720	1321	1211	4.38	4.01
	1.4	10532	1341	1235	4.44	4.09
	1.6	10358	1363	1261	4.52	4.18
	1.8	10203	1385	1285	4.59	4.26
	2	10005	1407	1313	4.66	4.35
	2.2	9794	1428	1343	4.73	4.45
T5	0.2	11801	1241	1117	4.49	4.04
	0.4	11605	1263	1139	4.57	4.12
	0.6	11427	1285	1164	4.65	4.21
	0.8	11245	1304	1185	4.72	4.29
	1	11097	1325	1209	4.79	4.37
	1.2	10933	1344	1231	4.86	4.45
	1.4	10730	1362	1253	4.93	4.53
	1.6	10551	1381	1276	5.00	4.62
	1.8	10391	1401	1297	5.07	4.69
	2	10201	1420	1322	5.14	4.78
	2.2	10003	1438	1348	5.20	4.88

T6	0.2	7565	870	782	1.33	1.19
	0.4	7331	905	820	1.38	1.25
	0.6	7080	939	861	1.43	1.31
	0.8	6815	971	901	1.48	1.38
	1	6543	1005	939	1.53	1.43
	1.2	6265	1038	982	1.59	1.50
	1.4	5986	1071	1023	1.63	1.56
	1.6	5695	1102	1061	1.68	1.62
	1.8	5412	1134	1097	1.73	1.67
	2	5136	1162	1128	1.77	1.72
	2.2	4869	1191	1161	1.82	1.77
T7	0.2	9308	1027	922	2.25	2.02
	0.4	9101	1056	952	2.32	2.09
	0.6	8910	1086	983	2.38	2.15
	0.8	8713	1113	1014	2.44	2.22
	1	8513	1139	1047	2.50	2.30
	1.2	8300	1166	1083	2.56	2.37
	1.4	8094	1193	1116	2.62	2.45
	1.6	7881	1222	1149	2.68	2.52
	1.8	7681	1251	1181	2.74	2.59
	2	7448	1278	1213	2.80	2.66
	2.2	7208	1304	1248	2.86	2.74
T8	0.2	7565	870	782	1.33	1.19
	0.4	7331	905	820	1.38	1.25
	0.6	7080	939	861	1.43	1.31
	0.8	6815	971	901	1.48	1.38
	1	6543	1005	939	1.53	1.43
	1.2	6265	1038	982	1.59	1.50
	1.4	5986	1071	1023	1.63	1.56
	1.6	5695	1102	1061	1.68	1.62
	1.8	5412	1134	1097	1.73	1.67
	2	5136	1162	1128	1.77	1.72
	2.2	4869	1191	1161	1.82	1.77
T9	0.2	11346	1204	1082	3.94	3.54
	0.4	11154	1227	1105	4.01	3.61
	0.6	10987	1251	1129	4.09	3.69
	0.8	10818	1271	1153	4.16	3.77
	1	10670	1292	1177	4.22	3.85
	1.2	10505	1312	1203	4.29	3.93
	1.4	10321	1333	1227	4.36	4.01
	1.6	10150	1354	1253	4.43	4.10
	1.8	9998	1377	1277	4.50	4.17
	2	9804	1398	1305	4.57	4.27
	2.2	9597	1419	1335	4.64	4.36
T10	0.2	11813	1242	1117	4.51	4.05
	0.4	11617	1264	1140	4.58	4.14
	0.6	11438	1286	1165	4.66	4.23
	0.8	11256	1305	1186	4.73	4.30
	1	11107	1326	1209	4.81	4.39
	1.2	10943	1345	1232	4.88	4.47
	1.4	10740	1363	1254	4.95	4.55
	1.6	10560	1382	1276	5.01	4.63
	1.8	10400	1401	1298	5.08	4.71
	2	10210	1420	1323	5.15	4.80
	2.2	10012	1439	1349	5.22	4.89

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG300WM High Static						
Speed Tap	Static	Airflow	RPM 1	RPM 2	BHP 1	BHP 2
T1	0.2	7461	861	774	1.28	1.15
	0.4	7225	895	812	1.33	1.21
	0.6	6970	930	854	1.39	1.27
	0.8	6700	963	894	1.43	1.33
	1	6423	996	933	1.49	1.39
	1.2	6141	1031	976	1.54	1.45
	1.4	5856	1063	1017	1.58	1.52
	1.6	5560	1095	1055	1.63	1.57
	1.8	5272	1127	1092	1.68	1.63
	2	4993	1155	1123	1.72	1.67
T2	2.2	4724	1184	1155	1.77	1.72
	0.2	7698	882	793	1.39	1.25
	0.4	7466	916	830	1.44	1.30
	0.6	7220	950	870	1.49	1.37
	0.8	6961	982	910	1.54	1.43
	1	6695	1015	947	1.60	1.49
	1.2	6423	1048	989	1.65	1.56
	1.4	6150	1080	1030	1.70	1.62
	1.6	5865	1112	1067	1.75	1.68
	1.8	5590	1143	1103	1.80	1.74
T3	2	5317	1171	1135	1.84	1.78
	2.2	5052	1200	1168	1.89	1.84
	0.2	11015	1176	1056	3.59	3.23
	0.4	10823	1200	1081	3.67	3.30
	0.6	10659	1225	1105	3.74	3.37
	0.8	10492	1246	1129	3.81	3.45
	1	10340	1268	1156	3.87	3.53
	1.2	10171	1289	1184	3.94	3.61
	1.4	9992	1311	1209	4.00	3.69
	1.6	9821	1334	1236	4.07	3.77
T4	1.8	9668	1358	1261	4.15	3.85
	2	9469	1381	1291	4.22	3.94
	2.2	9257	1403	1323	4.28	4.04
	0.2	11578	1212	1089	4.02	3.61
	0.4	11382	1235	1113	4.09	3.69
	0.6	11212	1259	1137	4.17	3.77
	0.8	11039	1279	1160	4.24	3.84
	1	10888	1300	1185	4.31	3.93
	1.2	10720	1321	1211	4.38	4.01
	1.4	10532	1341	1235	4.44	4.09
T5	1.6	10358	1363	1261	4.52	4.18
	1.8	10203	1385	1285	4.59	4.26
	2	10005	1407	1313	4.66	4.35
	2.2	9794	1428	1343	4.73	4.45
	0.2	11801	1241	1117	4.49	4.04
	0.4	11605	1263	1139	4.57	4.12
	0.6	11427	1285	1164	4.65	4.21
	0.8	11245	1304	1185	4.72	4.29
	1	11097	1325	1209	4.79	4.37
	1.2	10933	1344	1231	4.86	4.45
T5	1.4	10730	1362	1253	4.93	4.53
	1.6	10551	1381	1276	5.00	4.62
	1.8	10391	1401	1297	5.07	4.69
	2	10201	1420	1322	5.14	4.78
	2.2	10003	1438	1348	5.20	4.88

T6	0.2	9308	1027	922	2.25	2.02
	0.4	9101	1056	952	2.32	2.09
	0.6	8910	1086	983	2.38	2.15
	0.8	8713	1113	1014	2.44	2.22
	1	8513	1139	1047	2.50	2.30
	1.2	8300	1166	1083	2.56	2.37
	1.4	8094	1193	1116	2.62	2.45
	1.6	7881	1222	1149	2.68	2.52
	1.8	7681	1251	1181	2.74	2.59
	2	7448	1278	1213	2.80	2.66
T7	2.2	7208	1304	1248	2.86	2.74
	0.2	10862	1163	1044	3.45	3.09
	0.4	10669	1188	1069	3.52	3.17
	0.6	10504	1213	1094	3.59	3.24
	0.8	10337	1235	1119	3.66	3.31
	1	10183	1256	1145	3.72	3.39
	1.2	10011	1278	1174	3.78	3.48
	1.4	9833	1300	1200	3.85	3.55
	1.6	9661	1324	1228	3.92	3.64
	1.8	9506	1349	1254	3.99	3.71
T8	2	9305	1372	1284	4.06	3.80
	2.2	9090	1395	1317	4.13	3.90
	0.2	9308	1027	922	1.91	1.72
	0.4	9101	1056	952	1.98	1.80
	0.6	8910	1086	983	2.06	1.89
	0.8	8713	1113	1014	2.13	1.98
	1	8513	1139	1047	2.20	2.06
	1.2	8300	1166	1083	2.28	2.15
	1.4	8094	1193	1116	2.35	2.24
	1.6	7881	1222	1149	2.42	2.33
T9	1.8	7681	1251	1181	2.49	2.41
	2	7448	1278	1213	2.55	2.47
	2.2	7208	1304	1248	2.61	2.55
	0.2	11346	1204	1082	3.94	3.54
	0.4	11154	1227	1105	4.01	3.61
	0.6	10987	1251	1129	4.09	3.69
	0.8	10818	1271	1153	4.16	3.77
	1	10670	1292	1177	4.22	3.85
	1.2	10505	1312	1203	4.29	3.93
	1.4	10321	1333	1227	4.36	4.01
T10	1.6	10150	1354	1253	4.43	4.10
	1.8	9998	1377	1277	4.50	4.17
	2	9804	1398	1305	4.57	4.27
	2.2	9597	1419	1335	4.64	4.36
	0.2	11813	1242	1117	4.51	4.05
	0.4	11617	1264	1140	4.58	4.14
	0.6	11438	1286	1165	4.66	4.23
	0.8	11256	1305	1186	4.73	4.30
	1	11107	1326	1209	4.81	4.39
	1.2	10943	1345	1232	4.88	4.47
T10	1.4	10740	1363	1254	4.95	4.55
	1.6	10560	1382	1276	5.01	4.63
	1.8	10400	1401	1298	5.08	4.71
	2	10210	1420	1323	5.15	4.80
	2.2	10012	1439	1349	5.22	4.89

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

DIRECT DRIVE - HIGH STATIC

DSG300WH High Static													
Speed Tap	Static	Airflow	RPM 1	RPM 2	BHP 1	BHP 2							
T1	0.2	7461	861	774	1.28	1.15	T6	0.2	9880	1078	967	2.64	2.37
	0.4	7225	895	812	1.33	1.21		0.4	9681	1105	995	2.71	2.44
	0.6	6970	930	854	1.39	1.27		0.6	9503	1133	1023	2.78	2.51
	0.8	6700	963	894	1.43	1.33		0.8	9321	1158	1052	2.84	2.58
	1	6423	996	933	1.49	1.39		1	9142	1182	1083	2.90	2.65
	1.2	6141	1031	976	1.54	1.45		1.2	8946	1208	1116	2.96	2.73
	1.4	5856	1063	1017	1.58	1.52		1.4	8756	1233	1147	3.02	2.81
	1.6	5560	1095	1055	1.63	1.57		1.6	8562	1260	1178	3.09	2.89
	1.8	5272	1127	1092	1.68	1.63		1.8	8384	1288	1208	3.15	2.96
	2	4993	1155	1123	1.72	1.67		2	8164	1314	1240	3.22	3.04
	2.2	4724	1184	1155	1.77	1.72		2.2	7933	1339	1275	3.28	3.12
	2.2	4724	1184	1155	1.77	1.72	T7	0.2	10862	1163	1044	3.45	3.09
T2	0.2	7698	882	793	1.39	1.25		0.4	10669	1188	1069	3.52	3.17
	0.4	7466	916	830	1.44	1.30		0.6	10504	1213	1094	3.59	3.24
	0.6	7220	950	870	1.49	1.37		0.8	10337	1235	1119	3.66	3.31
	0.8	6961	982	910	1.54	1.43		1	10183	1256	1145	3.72	3.39
	1	6695	1015	947	1.60	1.49		1.2	10011	1278	1174	3.78	3.48
	1.2	6423	1048	989	1.65	1.56		1.4	9833	1300	1200	3.85	3.55
	1.4	6150	1080	1030	1.70	1.62		1.6	9661	1324	1228	3.92	3.64
	1.6	5865	1112	1067	1.75	1.68		1.8	9506	1349	1254	3.99	3.71
	1.8	5590	1143	1103	1.80	1.74		2	9305	1372	1284	4.06	3.80
	2	5317	1171	1135	1.84	1.78		2.2	9090	1395	1317	4.13	3.90
	2.2	5052	1200	1168	1.89	1.84		0.2	9880	1078	967	2.64	2.37
	2.2	5052	1200	1168	1.89	1.84	T8	0.4	9681	1105	995	2.71	2.44
T3	0.2	11015	1176	1056	3.59	3.23		0.6	9503	1133	1023	2.78	2.51
	0.4	10823	1200	1081	3.67	3.30		0.8	9321	1158	1052	2.84	2.58
	0.6	10659	1225	1105	3.74	3.37		1	9142	1182	1083	2.90	2.65
	0.8	10492	1246	1129	3.81	3.45		1.2	8946	1208	1116	2.96	2.73
	1	10340	1268	1156	3.87	3.53		1.4	8756	1233	1147	3.02	2.81
	1.2	10171	1289	1184	3.94	3.61		1.6	8562	1260	1178	3.09	2.89
	1.4	9992	1311	1209	4.00	3.69		1.8	8384	1288	1208	3.15	2.96
	1.6	9821	1334	1236	4.07	3.77		2	8164	1314	1240	3.22	3.04
	1.8	9668	1358	1261	4.15	3.85		2.2	7933	1339	1275	3.28	3.12
	2	9469	1381	1291	4.22	3.94		0.2	11346	1204	1082	3.94	3.54
	2.2	9257	1403	1323	4.28	4.04	T9	0.4	11154	1227	1105	4.01	3.61
	2.2	9257	1403	1323	4.28	4.04		0.6	10987	1251	1129	4.09	3.69
T4	0.2	11578	1212	1089	4.02	3.61		0.8	10818	1271	1153	4.16	3.77
	0.4	11382	1235	1113	4.09	3.69		1	10670	1292	1177	4.22	3.85
	0.6	11212	1259	1137	4.17	3.77		1.2	10505	1312	1203	4.29	3.93
	0.8	11039	1279	1160	4.24	3.84		1.4	10321	1333	1227	4.36	4.01
	1	10888	1300	1185	4.31	3.93		1.6	10150	1354	1253	4.43	4.10
	1.2	10720	1321	1211	4.38	4.01		1.8	9998	1377	1277	4.50	4.17
	1.4	10532	1341	1235	4.44	4.09		2	9804	1398	1305	4.57	4.27
	1.6	10358	1363	1261	4.52	4.18		2.2	9597	1419	1335	4.64	4.36
	1.8	10203	1385	1285	4.59	4.26	T10	0.2	11813	1242	1117	4.51	4.05
	2	10005	1407	1313	4.66	4.35		0.4	11617	1264	1140	4.58	4.14
	2.2	9794	1428	1343	4.73	4.45		0.6	11438	1286	1165	4.66	4.23
T5	0.2	11801	1241	1117	4.49	4.04		0.8	11256	1305	1186	4.73	4.30
	0.4	11605	1263	1139	4.57	4.12		1	11107	1326	1209	4.81	4.39
	0.6	11427	1285	1164	4.65	4.21		1.2	10943	1345	1232	4.88	4.47
	0.8	11245	1304	1185	4.72	4.29		1.4	10740	1363	1254	4.95	4.55
	1	11097	1325	1209	4.79	4.37		1.6	10560	1382	1276	5.01	4.63
	1.2	10933	1344	1231	4.86	4.45		1.8	10400	1401	1298	5.08	4.71
	1.4	10730	1362	1253	4.93	4.53		2	10210	1420	1323	5.15	4.80
	1.6	10551	1381	1276	5.00	4.62		2.2	10012	1439	1349	5.22	4.89
	1.8	10391	1401	1297	5.07	4.69							
	2	10201	1420	1322	5.14	4.78							
	2.2	10003	1438	1348	5.20	4.88							

NOTES:

If high static fan is needed it should be ordered as factory installed.
 Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
 Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
 Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

MODELS: DSG1803WL, DSG1804WL, DSG1807WL
STANDARD STATIC TO 5HP (0.2~1.2 ESP)

CFM	0.2					0.4					0.6				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
3600	523	453	29	0.52	0.44	601	577	30	0.52	0.49	679	646	31	0.56	0.53
3900	545	472	29	0.50	0.42	621	586	30	0.52	0.48	695	655	31	0.57	0.53
4200	568	491	30	0.49	0.42	642	597	31	0.53	0.49	713	664	32	0.60	0.56
4500	592	510	31	0.49	0.42	662	608	32	0.55	0.51	730	674	34	0.64	0.59
4800	615	529	32	0.52	0.45	683	620	34	0.60	0.54	749	686	35	0.70	0.64
5100	639	549	33	0.56	0.48	705	633	35	0.66	0.59	768	697	37	0.78	0.71
5400	663	569	35	0.62	0.54	727	647	37	0.74	0.65	788	710	39	0.87	0.79
5700	688	589	37	0.70	0.60	750	661	39	0.83	0.73	808	724	41	0.98	0.88
6000	713	609	39	0.80	0.68	773	677	41	0.94	0.83	829	738	43	1.11	0.99
6300	738	630	41	0.91	0.78	796	693	44	1.07	0.94	851	753	46	1.25	1.11
6600	763	651	44	1.04	0.89	820	710	46	1.22	1.06	873	770	49	1.41	1.25
CFM	0.8					1					1.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
3600	754	733	32	0.63	0.61	820	789	33	0.70	0.68	876	850	35	0.80	0.80
3900	767	739	33	0.65	0.63	831	795	34	0.75	0.73	886	859	36	0.87	0.86
4200	781	746	34	0.70	0.67	842	803	36	0.81	0.78	897	868	38	0.94	0.93
4500	797	753	36	0.76	0.72	855	811	37	0.88	0.85	908	878	39	1.04	1.02
4800	812	762	37	0.84	0.79	868	819	39	0.97	0.93	921	887	41	1.14	1.11
5100	829	771	39	0.93	0.87	882	828	41	1.08	1.02	935	897	44	1.26	1.22
5400	847	782	41	1.03	0.96	898	838	43	1.20	1.12	949	907	46	1.39	1.33
5700	865	793	43	1.16	1.06	914	848	46	1.33	1.24	965	916	48	1.54	1.46
6000	884	805	46	1.30	1.18	932	859	48	1.48	1.37	981	926	51	1.70	1.60
6300	904	817	49	1.45	1.31	950	871	51	1.65	1.51	999	936	54	1.87	1.75
6600	924	831	52	1.62	1.46	969	883	54	1.83	1.66	1017	946	57	2.06	1.90

MODELS: DSG1803WL, DSG1804WL, DSG1807WL
HIGH STATIC TO 5HP (0.8~2.2 ESP)

CFM	0.8					1					1.2					1.4				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4200	683	665	13	-0.04	0.01	762	747	16	0.11	0.14	850	845	20	0.32	0.34	928	929	23	0.51	0.53
4500	718	695	15	0.06	0.09	793	773	18	0.21	0.23	876	864	22	0.41	0.43	949	943	25	0.61	0.61
4800	753	724	18	0.17	0.19	824	799	21	0.32	0.33	901	883	24	0.52	0.52	970	958	26	0.71	0.71
5100	786	753	20	0.28	0.29	854	824	23	0.44	0.44	926	903	26	0.63	0.63	991	973	28	0.82	0.81
5400	818	781	22	0.40	0.40	883	848	25	0.57	0.56	950	921	28	0.76	0.74	1011	987	31	0.95	0.93
5700	850	808	25	0.54	0.52	911	872	28	0.71	0.68	973	940	30	0.89	0.86	1031	1002	33	1.08	1.05
6000	880	834	27	0.68	0.65	938	895	30	0.85	0.82	996	958	33	1.04	1.00	1051	1016	35	1.22	1.18
6300	909	859	30	0.83	0.78	965	918	33	1.01	0.96	1019	976	35	1.19	1.14	1070	1031	37	1.38	1.32
6600	938	884	33	0.99	0.93	990	940	35	1.17	1.11	1041	994	38	1.35	1.29	1089	1046	40	1.54	1.48
CFM	1.6					1.8					2					2.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4200	1010	989	26	0.71	0.70	1076	1049	28	0.89	0.87	1124	1092	30	1.04	1.01	1173	1161	33	1.22	1.21
4500	1025	1002	27	0.80	0.78	1088	1060	30	0.99	0.96	1134	1103	32	1.13	1.10	1183	1167	34	1.32	1.31
4800	1041	1015	29	0.90	0.88	1100	1072	32	1.09	1.06	1145	1113	34	1.24	1.21	1193	1173	36	1.43	1.41
5100	1056	1028	31	1.01	0.99	1113	1083	33	1.20	1.17	1157	1124	35	1.36	1.32	1203	1180	38	1.55	1.52
5400	1072	1041	33	1.13	1.10	1125	1094	35	1.33	1.29	1168	1135	37	1.49	1.45	1213	1187	40	1.68	1.65
5700	1088	1054	35	1.27	1.23	1138	1106	37	1.46	1.42	1180	1146	39	1.63	1.58	1224	1194	42	1.82	1.78
6000	1103	1067	37	1.41	1.36	1151	1117	40	1.61	1.56	1192	1156	41	1.78	1.73	1235	1201	44	1.98	1.93
6300	1119	1080	40	1.56	1.51	1164	1128	42	1.76	1.71	1205	1167	44	1.94	1.88	1246	1209	46	2.14	2.08
6600	1135	1093	42	1.73	1.66	1178	1139	44	1.93	1.87	1217	1178	46	2.11	2.04	1257	1217	48	2.32	2.25

NOTES:

If high static fan is needed it should be ordered as factory installed.
Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

MODELS: DSG1803DM, DSG1803DH, DSG1804DM, DSG1807DM, DSG1807DH
STANDARD STATIC TO 3.5HP (0.2~1.2 ESP)

CFM	0.2					0.4					0.6				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
3600	523	453	29	0.52	0.44	601	577	30	0.52	0.49	679	646	31	0.56	0.53
3900	545	472	29	0.50	0.42	621	586	30	0.52	0.48	695	655	31	0.57	0.53
4200	568	491	30	0.49	0.42	642	597	31	0.53	0.49	713	664	32	0.60	0.56
4500	592	510	31	0.49	0.42	662	608	32	0.55	0.51	730	674	34	0.64	0.59
4800	615	529	32	0.52	0.45	683	620	34	0.60	0.54	749	686	35	0.70	0.64
5100	639	549	33	0.56	0.48	705	633	35	0.66	0.59	768	697	37	0.78	0.71
5400	663	569	35	0.62	0.54	727	647	37	0.74	0.65	788	710	39	0.87	0.79
5700	688	589	37	0.70	0.60	750	661	39	0.83	0.73	808	724	41	0.98	0.88
6000	713	609	39	0.80	0.68	773	677	41	0.94	0.83	829	738	43	1.11	0.99
6300	738	630	41	0.91	0.78	796	693	44	1.07	0.94	851	753	46	1.25	1.11
6600	763	651	44	1.04	0.89	820	710	46	1.22	1.06	873	770	49	1.41	1.25
CFM	0.8					1					1.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
3600	754	733	32	0.63	0.61	820	789	33	0.70	0.68	876	850	35	0.80	0.80
3900	767	739	33	0.65	0.63	831	795	34	0.75	0.73	886	859	36	0.87	0.86
4200	781	746	34	0.70	0.67	842	803	36	0.81	0.78	897	868	38	0.94	0.93
4500	797	753	36	0.76	0.72	855	811	37	0.88	0.85	908	878	39	1.04	1.02
4800	812	762	37	0.84	0.79	868	819	39	0.97	0.93	921	887	41	1.14	1.11
5100	829	771	39	0.93	0.87	882	828	41	1.08	1.02	935	897	44	1.26	1.22
5400	847	782	41	1.03	0.96	898	838	43	1.20	1.12	949	907	46	1.39	1.33
5700	865	793	43	1.16	1.06	914	848	46	1.33	1.24	965	916	48	1.54	1.46
6000	884	805	46	1.30	1.18	932	859	48	1.48	1.37	981	926	51	1.70	1.60
6300	904	817	49	1.45	1.31	950	871	51	1.65	1.51	999	936	54	1.87	1.75
6600	924	831	52	1.62	1.46	969	883	54	1.83	1.66	1017	946	57	2.06	1.90

MODELS: DSG1803WM, DSG1803WM, DSG1804WM, DSG1807WM, DSG1807WM
STANDARD STATIC TO 5HP (0.8~2.2 ESP)

CFM	0.8					1					1.2					1.4				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4200	683	665	13	-0.04	0.01	762	747	16	0.11	0.14	850	845	20	0.32	0.34	928	929	23	0.51	0.53
4500	718	695	15	0.06	0.09	793	773	18	0.21	0.23	876	864	22	0.41	0.43	949	943	25	0.61	0.61
4800	753	724	18	0.17	0.19	824	799	21	0.32	0.33	901	883	24	0.52	0.52	970	958	26	0.71	0.71
5100	786	753	20	0.28	0.29	854	824	23	0.44	0.44	926	903	26	0.63	0.63	991	973	28	0.82	0.81
5400	818	781	22	0.40	0.40	883	848	25	0.57	0.56	950	921	28	0.76	0.74	1011	987	31	0.95	0.93
5700	850	808	25	0.54	0.52	911	872	28	0.71	0.68	973	940	30	0.89	0.86	1031	1002	33	1.08	1.05
6000	880	834	27	0.68	0.65	938	895	30	0.85	0.82	996	958	33	1.04	1.00	1051	1016	35	1.22	1.18
6300	909	859	30	0.83	0.78	965	918	33	1.01	0.96	1019	976	35	1.19	1.14	1070	1031	37	1.38	1.32
6600	938	884	33	0.99	0.93	990	940	35	1.17	1.11	1041	994	38	1.35	1.29	1089	1046	40	1.54	1.48
CFM	1.6					1.8					2					2.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4200	1010	989	26	0.71	0.70	1076	1049	28	0.89	0.87	1124	1092	30	1.04	1.01	1173	1161	33	1.22	1.21
4500	1025	1002	27	0.80	0.78	1088	1060	30	0.99	0.96	1134	1103	32	1.13	1.10	1183	1167	34	1.32	1.31
4800	1041	1015	29	0.90	0.88	1100	1072	32	1.09	1.06	1145	1113	34	1.24	1.21	1193	1173	36	1.43	1.41
5100	1056	1028	31	1.01	0.99	1113	1083	33	1.20	1.17	1157	1124	35	1.36	1.32	1203	1180	38	1.55	1.52
5400	1072	1041	33	1.13	1.10	1125	1094	35	1.33	1.29	1168	1135	37	1.49	1.45	1213	1187	40	1.68	1.65
5700	1088	1054	35	1.27	1.23	1138	1106	37	1.46	1.42	1180	1146	39	1.63	1.58	1224	1194	42	1.82	1.78
6000	1103	1067	37	1.41	1.36	1151	1117	40	1.61	1.56	1192	1156	41	1.78	1.73	1235	1201	44	1.98	1.93
6300	1119	1080	40	1.56	1.51	1164	1128	42	1.76	1.71	1205	1167	44	1.94	1.88	1246	1209	46	2.14	2.08
6600	1135	1093	42	1.73	1.66	1178	1139	44	1.93	1.87	1217	1178	46	2.11	2.04	1257	1217	48	2.32	2.25

NOTES:

If high static fan is needed it should be ordered as factory installed.
Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

MODELS: DSG2403WL, DSG2404WL, DSG2407WL
STANDARD STATIC TO 5HP (0.2~1.2 ESP)

CFM	0.2					0.4					0.6				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4800	638	574	31	0.47	0.42	710	648	33	0.59	0.53	774	716	34	0.70	0.65
5200	677	607	33	0.58	0.52	743	676	35	0.71	0.64	743	676	37	0.84	0.77
5600	715	640	36	0.72	0.64	777	704	38	0.85	0.77	777	704	40	0.99	0.91
6000	753	672	39	0.87	0.77	811	733	41	1.02	0.92	811	733	43	1.16	1.06
6400	791	705	42	1.04	0.92	846	762	45	1.20	1.08	846	762	47	1.36	1.24
6800	828	737	46	1.23	1.09	880	791	48	1.40	1.26	880	791	50	1.57	1.43
7200	865	770	50	1.43	1.28	915	821	52	1.63	1.46	915	821	54	1.80	1.63
7600	902	802	54	1.66	1.48	950	852	56	1.87	1.68	950	852	58	2.05	1.86
8000	938	834	58	1.91	1.70	985	883	60	2.13	1.91	985	883	62	2.32	2.10
8400	974	866	62	2.18	1.94	1020	914	65	2.41	2.16	1020	914	67	2.61	2.36
8800	1010	898	66	2.47	2.20	1055	946	69	2.71	2.43	1055	946	72	2.92	2.64
CFM	0.8					1					1.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4800	831	778	36	0.83	0.78	883	831	38	0.96	0.91	933	879	40	1.11	1.05
5200	857	797	39	0.97	0.91	907	849	41	1.12	1.05	956	897	43	1.27	1.20
5600	884	818	42	1.14	1.05	932	868	44	1.29	1.20	980	916	46	1.46	1.36
6000	912	840	45	1.32	1.22	958	888	47	1.48	1.38	1005	936	49	1.66	1.54
6400	940	863	49	1.52	1.40	985	910	51	1.69	1.57	1031	957	53	1.88	1.74
6800	970	888	52	1.74	1.60	1013	934	54	1.92	1.77	1059	979	56	2.11	1.96
7200	1001	914	56	1.98	1.81	1043	958	58	2.17	1.99	1087	1003	60	2.37	2.18
7600	1033	941	60	2.24	2.04	1074	984	62	2.43	2.23	1116	1028	65	2.64	2.43
8000	1066	969	64	2.52	2.29	1106	1011	67	2.72	2.48	1146	1053	69	2.93	2.69
8400	1100	999	69	2.82	2.56	1139	1040	71	3.02	2.75	1177	1080	73	3.23	2.97
8800	1135	1030	74	3.13	2.84										

MODELS: DSG2403WL, DSG2404WL, DSG2407WL
STANDARD STATIC TO 5HP (0.8~2.2 ESP)

CFM	0.8					1					1.2					1.4				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
5600	881	830	35	0.98	0.93	937	886	36	1.12	1.06	990	947	38	1.26	1.21	1039	1000	39	1.41	1.37
6000	907	849	37	1.11	1.03	960	905	38	1.25	1.18	1012	965	40	1.41	1.35	1060	1016	41	1.57	1.51
6400	934	869	39	1.25	1.16	985	924	40	1.40	1.31	1034	984	42	1.57	1.49	1082	1033	44	1.74	1.66
6800	962	890	41	1.41	1.30	1010	944	43	1.57	1.47	1058	1003	45	1.75	1.66	1104	1050	46	1.93	1.83
7200	991	913	44	1.59	1.47	1037	966	45	1.76	1.64	1083	1023	47	1.95	1.84	1128	1068	49	2.14	2.02
7600	1020	936	47	1.79	1.65	1064	988	48	1.97	1.83	1109	1044	50	2.17	2.03	1152	1087	52	2.36	2.22
8000	1050	960	50	2.02	1.85	1092	1010	51	2.20	2.03	1135	1065	53	2.40	2.24	1178	1106	55	2.60	2.44
8400	1080	986	53	2.26	2.07	1121	1034	54	2.45	2.26	1163	1086	56	2.66	2.47	1204	1126	58	2.86	2.67
8800	1112	1012	56	2.53	2.30	1151	1059	58	2.72	2.50	1191	1108	60	2.93	2.71					
CFM	1.6					1.8					2					2.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
5600	1088	1050	41	1.58	1.53	1136	1099	42	1.74	1.69	1182	1143	44	1.91	1.85	1227	1186	46	2.09	2.03
6000	1109	1065	43	1.74	1.68	1156	1113	45	1.91	1.84	1202	1158	46	2.09	2.02	1246	1201	48	2.28	2.20
6400	1130	1081	46	1.92	1.84	1176	1128	47	2.10	2.01	1222	1173	49	2.29	2.20	1265	1216	50	2.48	2.39
6800	1152	1097	48	2.12	2.02	1197	1143	50	2.30	2.20	1243	1188	51	2.50	2.39	1285	1231	53	2.70	2.59
7200	1174	1114	51	2.33	2.22	1219	1159	52	2.52	2.39	1263	1203	54	2.72	2.59	1304	1246	56	2.93	2.80
7600	1198	1132	54	2.56	2.42	1241	1175	55	2.75	2.60	1284	1218	57	2.96	2.81	1323	1261	59	3.17	3.02
8000	1222	1150	57	2.81	2.64	1263	1191	58	3.00	2.83	1305	1234	60	3.21	3.04	1343	1276	62	3.43	3.26
8400	1246	1169	60	3.07	2.88	1286	1208	61	3.27	3.06										
8800																				

NOTES:

If high static fan is needed it should be ordered as factory installed.
Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A BLOWER PERFORMANCE DATA

MODELS: DSG2403DM, DSG2403DH, DSG2404DM, DSG2407DM, DSG2407DH
STANDARD STATIC TO 3.5HP (0.2-1.2 ESP)

CFM	0.2					0.4					0.6				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4800	638	574	31	0.47	0.42	710	648	33	0.59	0.53	774	716	34	0.70	0.65
5200	677	607	33	0.58	0.52	743	676	35	0.71	0.64	743	676	37	0.84	0.77
5600	715	640	36	0.72	0.64	777	704	38	0.85	0.77	777	704	40	0.99	0.91
6000	753	672	39	0.87	0.77	811	733	41	1.02	0.92	811	733	43	1.16	1.06
6400	791	705	42	1.04	0.92	846	762	45	1.20	1.08	846	762	47	1.36	1.24
6800	828	737	46	1.23	1.09	880	791	48	1.40	1.26	880	791	50	1.57	1.43
7200	865	770	50	1.43	1.28	915	821	52	1.63	1.46	915	821	54	1.80	1.63
7600	902	802	54	1.66	1.48	950	852	56	1.87	1.68	950	852	58	2.05	1.86
8000	938	834	58	1.91	1.70	985	883	60	2.13	1.91	985	883	62	2.32	2.10
8400	974	866	62	2.18	1.94	1020	914	65	2.41	2.16	1020	914	67	2.61	2.36
8800	1010	898	66	2.47	2.20	1055	946	69	2.71	2.43	1055	946	72	2.92	2.64
CFM	0.8					1					1.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
4800	831	778	36	0.83	0.78	883	831	38	0.96	0.91	933	879	40	1.11	1.05
5200	857	797	39	0.97	0.91	907	849	41	1.12	1.05	956	897	43	1.27	1.20
5600	884	818	42	1.14	1.05	932	868	44	1.29	1.20	980	916	46	1.46	1.36
6000	912	840	45	1.32	1.22	958	888	47	1.48	1.38	1005	936	49	1.66	1.54
6400	940	863	49	1.52	1.40	985	910	51	1.69	1.57	1031	957	53	1.88	1.74
6800	970	888	52	1.74	1.60	1013	934	54	1.92	1.77	1059	979	56	2.11	1.96
7200	1001	914	56	1.98	1.81	1043	958	58	2.17	1.99	1087	1003	60	2.37	2.18
7600	1033	941	60	2.24	2.04	1074	984	62	2.43	2.23	1116	1028	65	2.64	2.43
8000	1066	969	64	2.52	2.29	1106	1011	67	2.72	2.48	1146	1053	69	2.93	2.69
8400	1100	999	69	2.82	2.56	1139	1040	71	3.02	2.75	1177	1080	73	3.23	2.97
8800	1135	1030	74	3.13	2.84										

MODELS: DSG2403WM, DSG240WDH, DSG2404WM, DSG2407WM, DSG2407WH
STANDARD STATIC TO 5HP (0.8-2.2 ESP)

CFM	0.8					1					1.2					1.4				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
5600	881	830	35	0.98	0.93	937	886	36	1.12	1.06	990	947	38	1.26	1.21	1039	1000	39	1.41	1.37
6000	907	849	37	1.11	1.03	960	905	38	1.25	1.18	1012	965	40	1.41	1.35	1060	1016	41	1.57	1.51
6400	934	869	39	1.25	1.16	985	924	40	1.40	1.31	1034	984	42	1.57	1.49	1082	1033	44	1.74	1.66
6800	962	890	41	1.41	1.30	1010	944	43	1.57	1.47	1058	1003	45	1.75	1.66	1104	1050	46	1.93	1.83
7200	991	913	44	1.59	1.47	1037	966	45	1.76	1.64	1083	1023	47	1.95	1.84	1128	1068	49	2.14	2.02
7600	1020	936	47	1.79	1.65	1064	988	48	1.97	1.83	1109	1044	50	2.17	2.03	1152	1087	52	2.36	2.22
8000	1050	960	50	2.02	1.85	1092	1010	51	2.20	2.03	1135	1065	53	2.40	2.24	1178	1106	55	2.60	2.44
8400	1080	986	53	2.26	2.07	1121	1034	54	2.45	2.26	1163	1086	56	2.66	2.47	1204	1126	58	2.86	2.67
8800	1112	1012	56	2.53	2.30	1151	1059	58	2.72	2.50	1191	1108	60	2.93	2.71					
CFM	1.6					1.8					2					2.2				
	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2	RPM1	RPM2	DDC%	BHP1	BHP2
5600	1088	1050	41	1.58	1.53	1136	1099	42	1.74	1.69	1182	1143	44	1.91	1.85	1227	1186	46	2.09	2.03
6000	1109	1065	43	1.74	1.68	1156	1113	45	1.91	1.84	1202	1158	46	2.09	2.02	1246	1201	48	2.28	2.20
6400	1130	1081	46	1.92	1.84	1176	1128	47	2.10	2.01	1222	1173	49	2.29	2.20	1265	1216	50	2.48	2.39
6800	1152	1097	48	2.12	2.02	1197	1143	50	2.30	2.20	1243	1188	51	2.50	2.39	1285	1231	53	2.70	2.59
7200	1174	1114	51	2.33	2.22	1219	1159	52	2.52	2.39	1263	1203	54	2.72	2.59	1304	1246	56	2.93	2.80
7600	1198	1132	54	2.56	2.42	1241	1175	55	2.75	2.60	1284	1218	57	2.96	2.81	1323	1261	59	3.17	3.02
8000	1222	1150	57	2.81	2.64	1263	1191	58	3.00	2.83	1305	1234	60	3.21	3.04	1343	1276	62	3.43	3.26
8400	1246	1169	60	3.07	2.88	1286	1208	61	3.27	3.06										
8800																				

NOTES:

If high static fan is needed it should be ordered as factory installed.
Air flow tables represent dry coil with filters installed; SCFM correction factor for wet coil is 4%.
Refer to the 'Airflow Adjustment' section on page 18 for airflow adjustments.
Measured at standard conditions of 29.92 mm Hg pressure and 68°F temperature.

APPENDIX A ECONOMIZER PRESSURE DROP

Airflow Pressure Drop of Downflow Economizer for 15 to 25 Ton Rooftop Units (100% Return Air)												
SCFM	4500	5000	5500	6000	6500	7000	7500	8000	8500	9000	9500	10000
(In WG)	0.15	0.18	0.22	0.27	0.32	0.37	0.42	0.48	0.55	0.61	0.69	0.76

APPENDIX B ELECTRICAL DATA

Model Number	Electrical Rating	Compressor			Outdoor Fan Motor			Indoor Fan Motor			Optional Electric Heat			Optional Powered	Power Exhaust	Power Exhaust	Power Supply	
		QTY	RLA	LRA	QTY	HP	FLA	Type	HP	FLA	Part #	KW*	FLA	FLA	FLA	FLA	MCA	MOP
DSG1803D	208/230/3/60	2	25.0	178.5	3	0.33	2.0	2	3.5	10.9	-	-	-	-	-	-	84.1/84.1	100/100
											-	-	-	-	4.8	-	88.9/88.9	110/110
											-	-	-	-	-	13.9	98.0/98.0	110/110
											-	-	-	9.6/8.7	-	-	93.7/92.8	110/110
											-	-	-	9.6/8.7	4.8	-	98.5/97.6	110/110
											-	-	-	9.6/8.7	-	13.9	108/107	125/125
DSG1803W	208/230/3/60	2	25.0	178.5	3	0.33	2.0	2	5.0	14.5	-	-	-	-	-	-	91.3/91.3	110/110
											-	-	-	-	4.8	-	96.1/96.1	110/110
											-	-	-	-	-	13.9	105/105	125/125
											-	-	-	9.6/8.7	-	-	101/100	125/125
											-	-	-	9.6/8.7	4.8	-	106/105	125/125
											-	-	-	9.6/8.7	-	13.9	115/114	125/125
DSG1804D	460/3/60	2	10.9	103	3	0.33	0.85	2	3.5	7.2	-	-	-	-	-	-	41.4	50
											-	-	-	-	2.4	-	43.8	50
											-	-	-	-	-	8.1	49.5	60
											-	-	-	4.3	-	-	45.7	50
											-	-	-	4.3	2.4	-	48.1	50
											-	-	-	4.3	-	8.1	53.8	60
DSG1804W	460/3/60	2	10.9	103	3	0.33	0.85	2	5.0	10.6	-	-	-	-	-	-	48.2	50
											-	-	-	-	2.4	-	50.6	60
											-	-	-	-	-	8.1	56.3	60
											-	-	-	4.3	-	-	52.5	60
											-	-	-	4.3	2.4	-	54.9	60
											-	-	-	4.3	-	8.1	60.6	70
DSG1807D	575/3/60	2	8.4	78.0	3	0.33	0.67	2	3.5	5.0	-	-	-	-	-	-	31.0	35
											-	-	-	-	2.0	-	33.0	40
											-	-	-	-	-	8.3	39.3	45
											-	-	-	3.5	-	-	34.5	40
											-	-	-	3.5	2.0	-	36.5	40
											-	-	-	3.5	-	8.3	42.8	50
DSG1807W	575/3/60	2	8.4	78.0	3	0.33	0.67	2	5.0	7.2	-	-	-	-	-	-	35.4	40
											-	-	-	-	2.0	-	37.4	45
											-	-	-	-	-	8.3	43.7	50
											-	-	-	3.5	-	-	38.9	45
											-	-	-	3.5	2.0	-	40.9	45
											-	-	-	3.5	-	8.3	47.2	50
DSG2403D	208/230/3/60	2	29.4	225	4	0.5	2.7	2	3.5	10.9	-	-	-	-	-	-	98.7/98.7	125/125
											-	-	-	-	4.8	-	103/103	125/125
											-	-	-	-	-	13.9	113/113	125/125
											-	-	-	9.6/8.7	-	-	108/107	125/125
											-	-	-	9.6/8.7	4.8	-	113/112	125/125
											-	-	-	9.6/8.7	-	13.9	122/121	150/150

APPENDIX B ELECTRICAL DATA

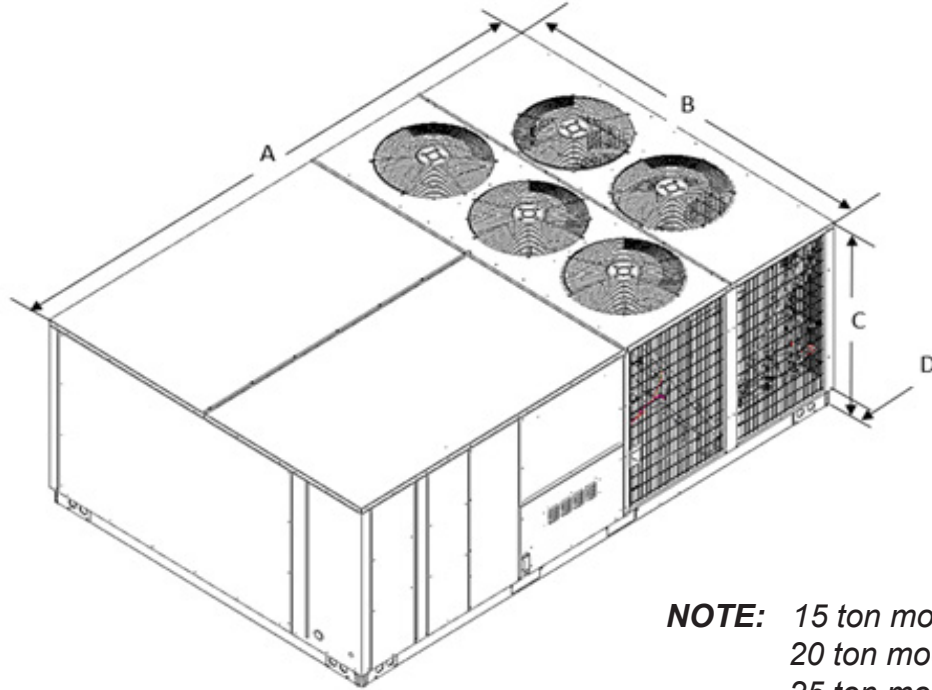
Model Number	Electrical Rating	Compressor			Outdoor Fan Motor			Indoor Fan Motor			Optional Electric Heat			Optional Powered	Power Exhaust	Power Exhaust	Power Supply	
		QTY	RLA	LRA	QTY	HP	FLA	Type	HP	FLA	Part #	KW*	FLA	FLA	FLA	FLA	MCA	MOP
DSG2403W	208/230/3/60	2	29.4	225	4	0.5	2.7	2	5.0	14.5	-	-	-	-	-	-	106/106	125/125
											-	-	-	-	4.8	-	111/111	125/125
											-	-	-	-	-	13.9	120/120	125/125
											-	-	-	9.6/8.7	-	-	115/115	125/125
											-	-	-	9.6/8.7	4.8	-	120/119	125/125
											-	-	-	9.6/8.7	-	13.9	129/128	150/150
DSG2404D	460/3/60	2	13.7	130	4	0.5	1.4	2	3.5	7.2	-	-	-	-	-	-	50.8	60
											-	-	-	-	2.4	-	53.2	60
											-	-	-	-	-	8.1	58.9	70
											-	-	-	4.3	-	-	55.1	60
											-	-	-	4.3	2.4	-	57.5	70
											-	-	-	4.3	-	8.1	63.2	70
DSG2404W	460/3/60	2	13.7	130	4	0.5	1.4	2	5.0	10.6	-	-	-	-	-	-	57.6	70
											-	-	-	-	2.4	-	60.0	70
											-	-	-	-	-	8.1	65.7	70
											-	-	-	4.3	-	-	61.9	70
											-	-	-	4.3	2.4	-	64.3	70
											-	-	-	4.3	-	8.1	70.0	80
DSG2407D	575/3/60	2	10.9	93.7	4	0.5	1.0	2	3.5	5.0	-	-	-	-	-	-	38.5	45
											-	-	-	-	2.0	-	40.5	50
											-	-	-	-	-	8.3	46.8	50
											-	-	-	3.5	-	-	42.0	50
											-	-	-	3.5	2.0	-	44.0	50
											-	-	-	3.5	-	8.3	50.3	60
DSG2407W	575/3/60	2	10.9	93.7	4	0.5	1.0	2	5.0	7.2	-	-	-	-	-	-	42.9	50
											-	-	-	-	2.0	-	44.9	50
											-	-	-	-	-	8.3	51.2	60
											-	-	-	3.5	-	-	46.4	50
											-	-	-	3.5	2.0	-	48.4	50
											-	-	-	3.5	-	8.3	54.7	60
DSG3003D	208/230/3/60	2	48.3	335.5	5	0.5	2.7	2	5.0	14.5	-	-	-	-	-	-	151/151	175/175
											-	-	-	-	4.8	-	156/156	200/200
											-	-	-	-	-	13.9	165/165	200/200
											-	-	-	9.6/8.7	-	-	161/160	200/200
											-	-	-	9.6/8.7	4.8	-	166/165	200/200
											-	-	-	9.6/8.7	-	13.9	175/174	200/200
DSG3003W	208/230/3/60	2	48.3	335.5	5	0.5	2.7	2	5.0	14.5	-	-	-	-	-	-	151/151	175/175
											-	-	-	-	4.8	-	156/156	200/200
											-	-	-	-	-	13.9	165/165	200/200
											-	-	-	9.6/8.7	-	-	161/160	200/200
											-	-	-	9.6/8.7	4.8	-	166/165	200/200
											-	-	-	9.6/8.7	-	13.9	175/174	200/200

APPENDIX B ELECTRICAL DATA

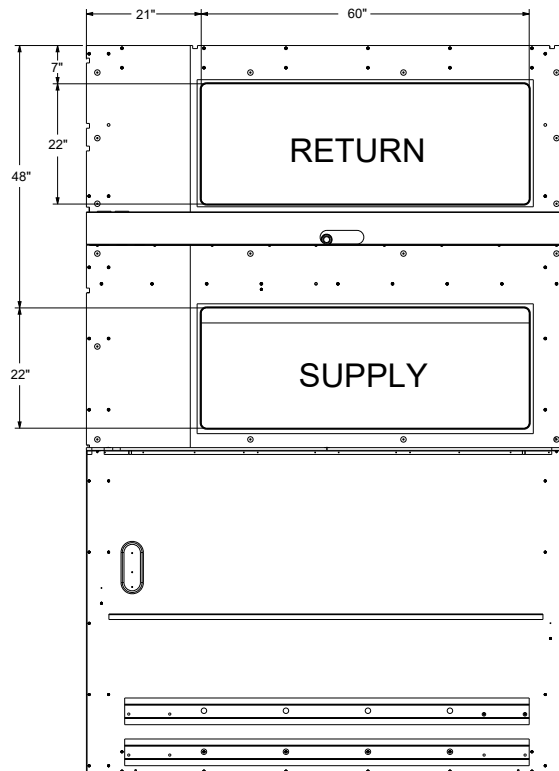
Model Number	Electrical Rating	Compressor			Outdoor Fan Motor			Indoor Fan Motor			Optional Electric Heat			Optional Powered	Power Exhaust	Power Exhaust	Power Supply	
		QTY	RLA	LRA	QTY	HP	FLA	Type	HP	FLA	Part #	KW*	FLA	FLA	FLA	FLA	MCA	MOP
DSG3004D	460/3/60	2	20.5	147	5	0.5	1.4	2	5.0	10.6	-	-	-	-	-	-	74.3	90
											-	-	-	-	2.4	-	76.7	90
											-	-	-	-	-	8.1	82.4	100
											-	-	-	4.3	-	-	78.6	90
											-	-	-	4.3	2.4	-	81.0	100
											-	-	-	4.3	-	8.1	86.7	100
DSG3004W	460/3/60	2	20.5	147	5	0.5	1.4	2	5.0	10.6	-	-	-	-	-	-	74.3	90
											-	-	-	-	2.4	-	76.7	90
											-	-	-	-	-	8.1	82.4	100
											-	-	-	4.3	-	-	78.6	90
											-	-	-	4.3	2.4	-	81.0	100
											-	-	-	4.3	-	8.1	86.7	100
DSG3007D	575/3/60	2	13.8	109	5	0.5	1.0	2	5.0	7.2	-	-	-	-	-	-	50.4	60
											-	-	-	-	2.0	-	52.4	60
											-	-	-	-	-	8.3	58.7	70
											-	-	-	3.5	-	-	53.9	60
											-	-	-	3.5	2.0	-	55.9	60
											-	-	-	3.5	-	8.3	62.2	70
DSG3007W	575/3/60	2	13.8	109	5	0.5	1.0	2	5.0	7.2	-	-	-	-	-	-	50.4	60
											-	-	-	-	2.0	-	52.4	60
											-	-	-	-	-	8.3	58.7	70
											-	-	-	3.5	-	-	53.9	60
											-	-	-	3.5	2.0	-	55.9	60
											-	-	-	3.5	-	8.3	62.2	70

APPENDIX C UNIT DIMENSIONS

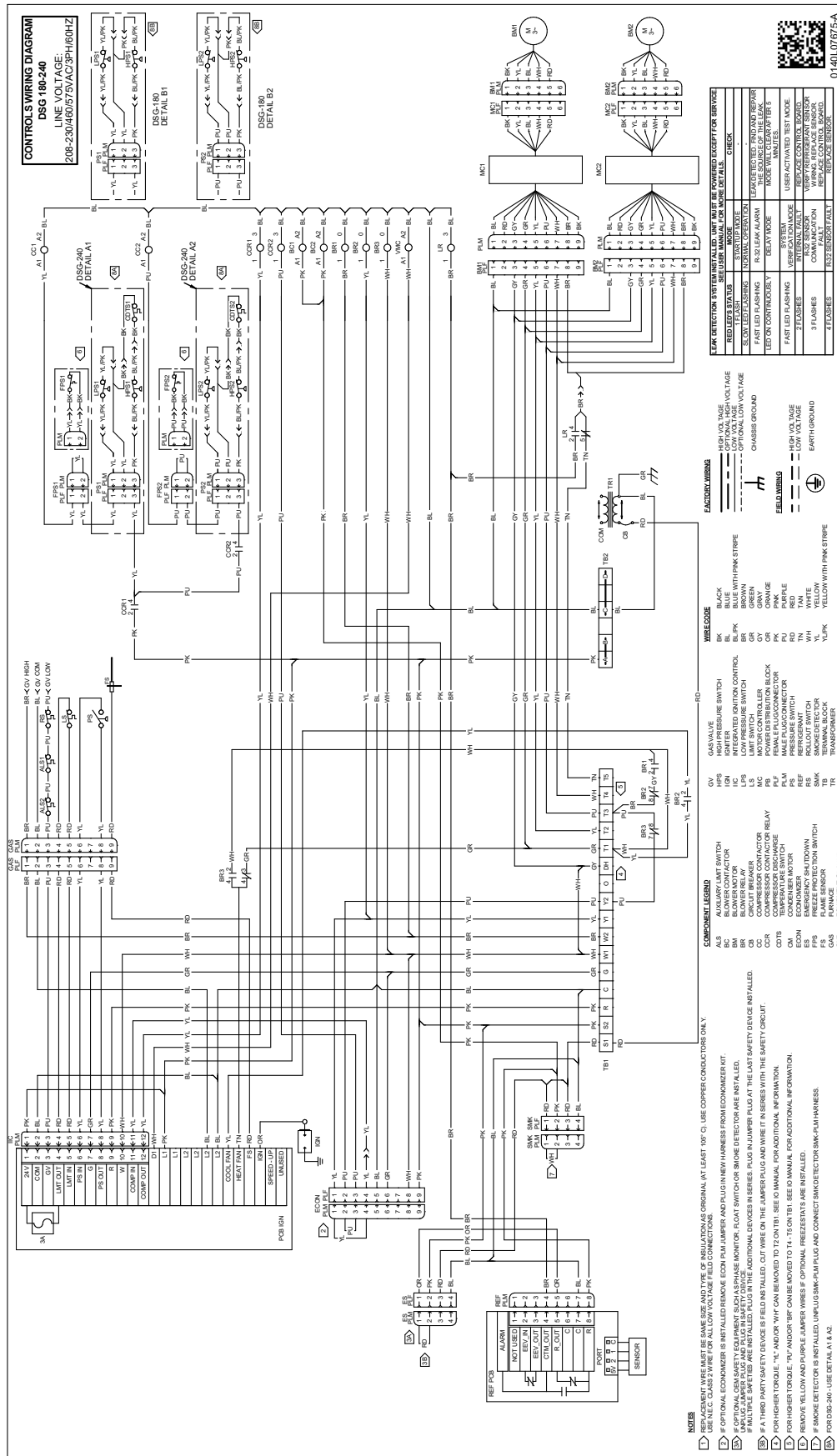
Model	A	B	C	D
15 Ton	133 - 7/8"	88 - 1/2"	51 - 11/16"	5 - 5/32"
20 Ton 25 Ton	133 - 7/8"	88 - 1/2"	51	5 - 5/32"



NOTE: 15 ton models have 3 fans.
20 ton models have 4 fans
25 ton models have 5 fans



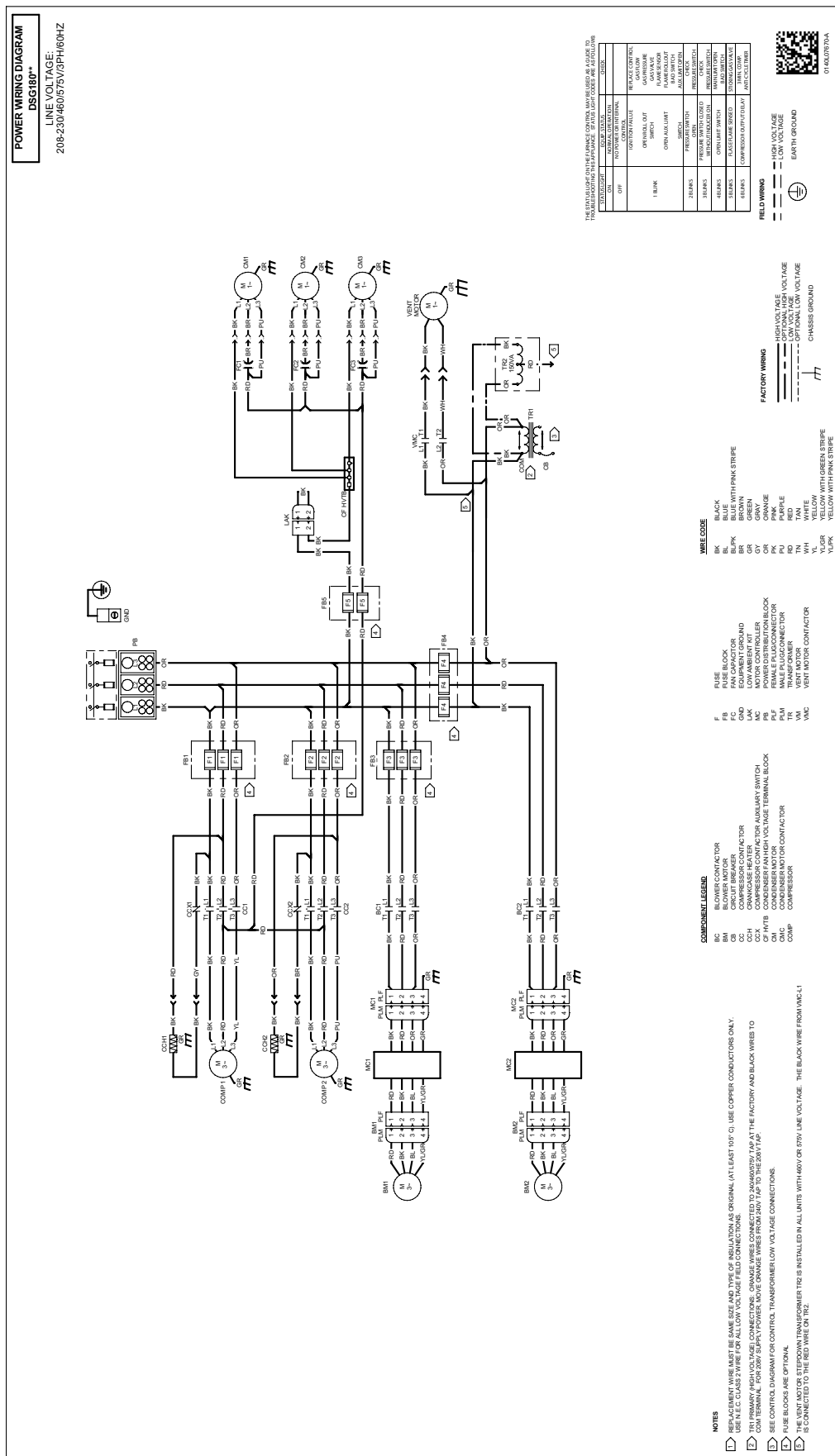
Vertical Discharge (Top View)



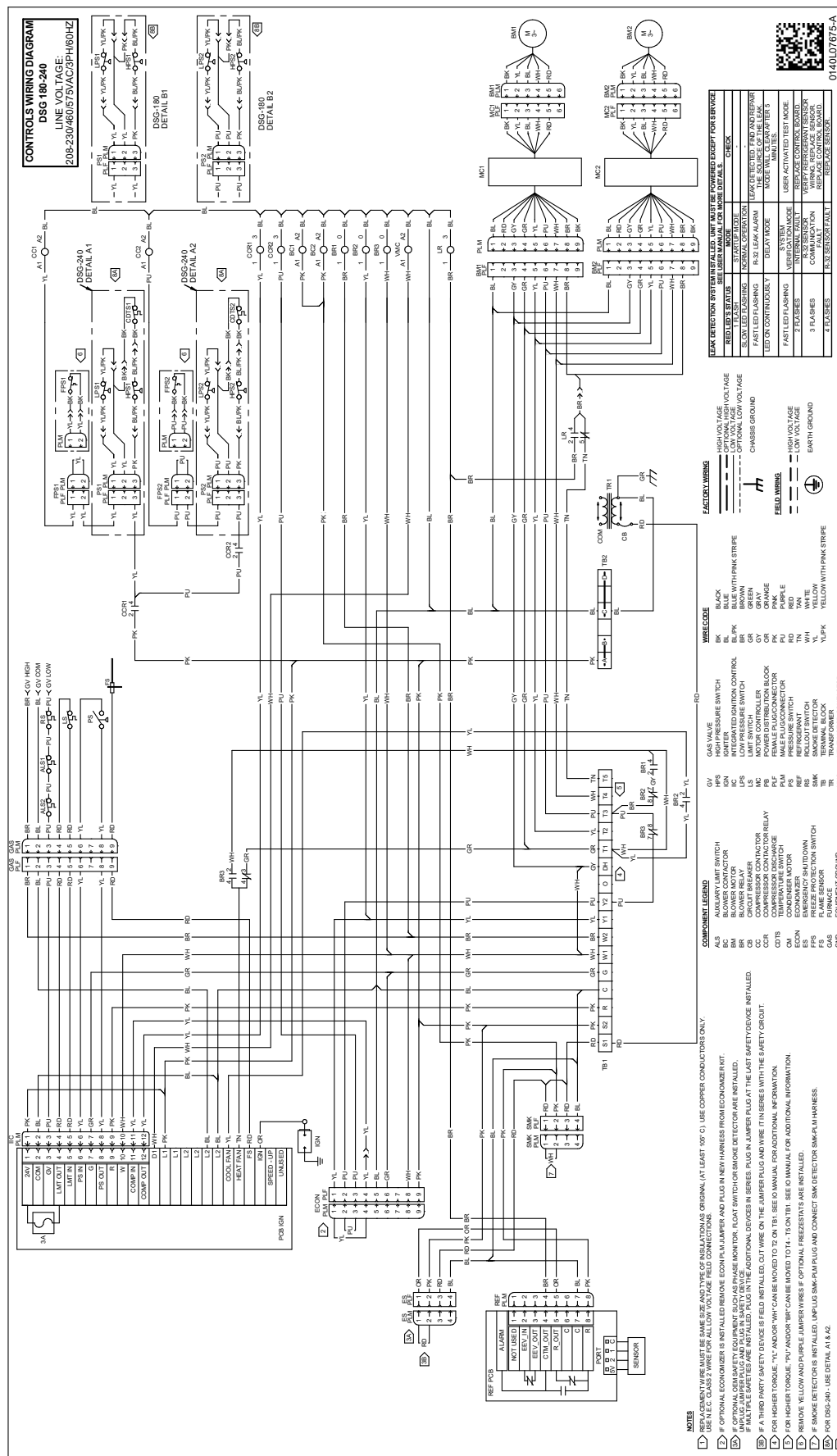
WARNING

HIGH VOLTAGE!

DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

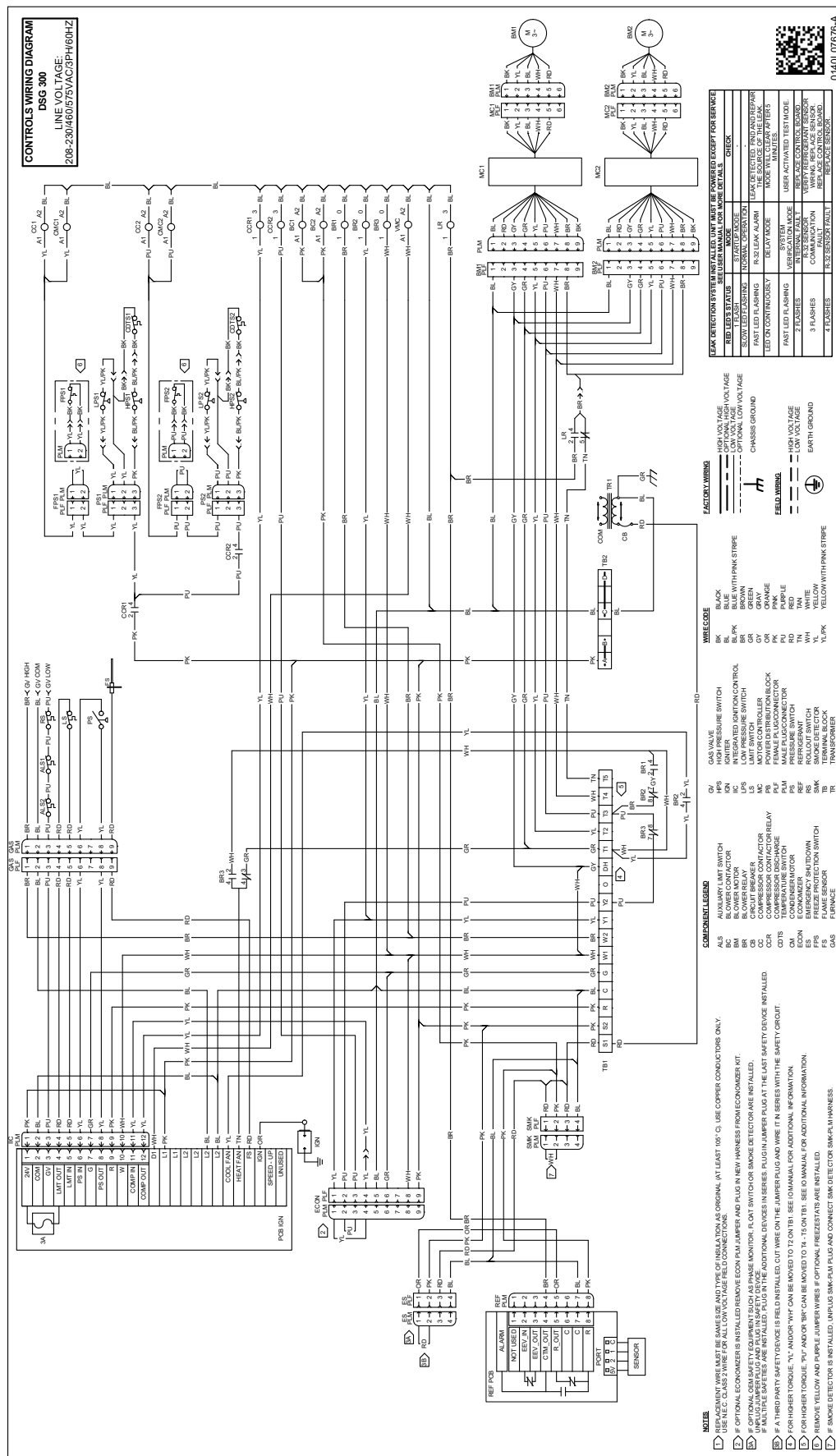


Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.





HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

WARNING

HIGH VOLTAGE!

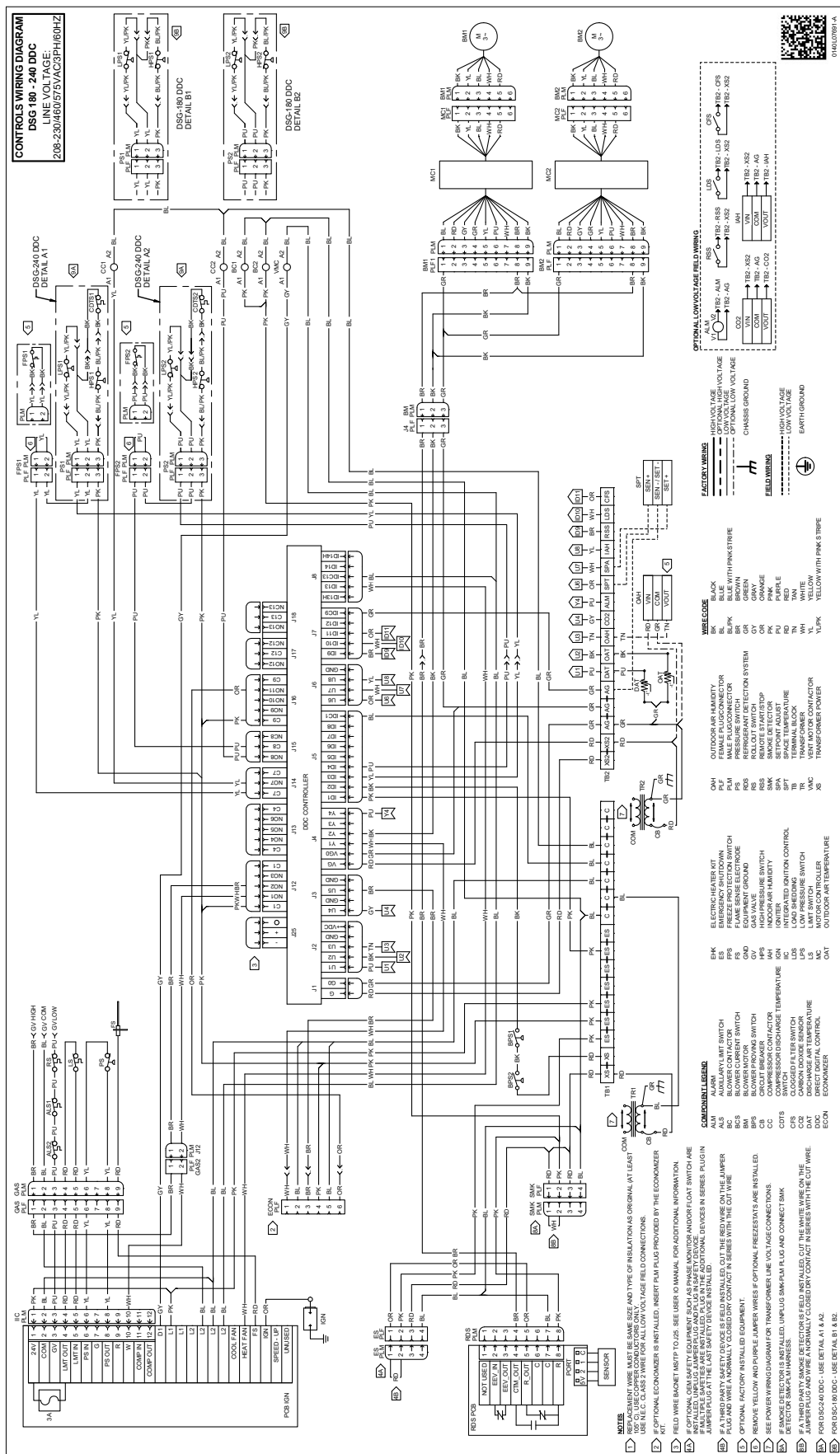
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

[illegible]

WARNING

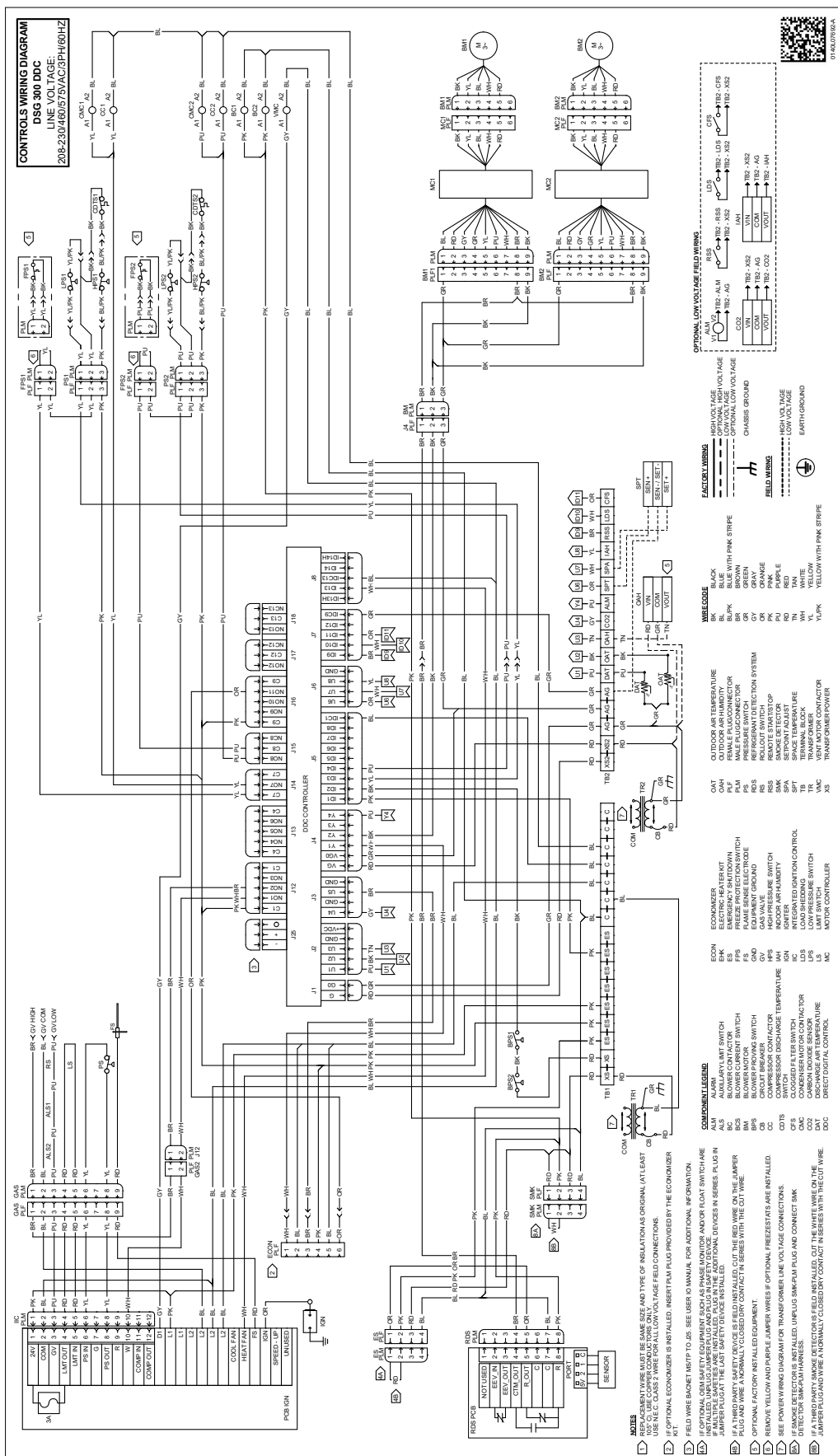
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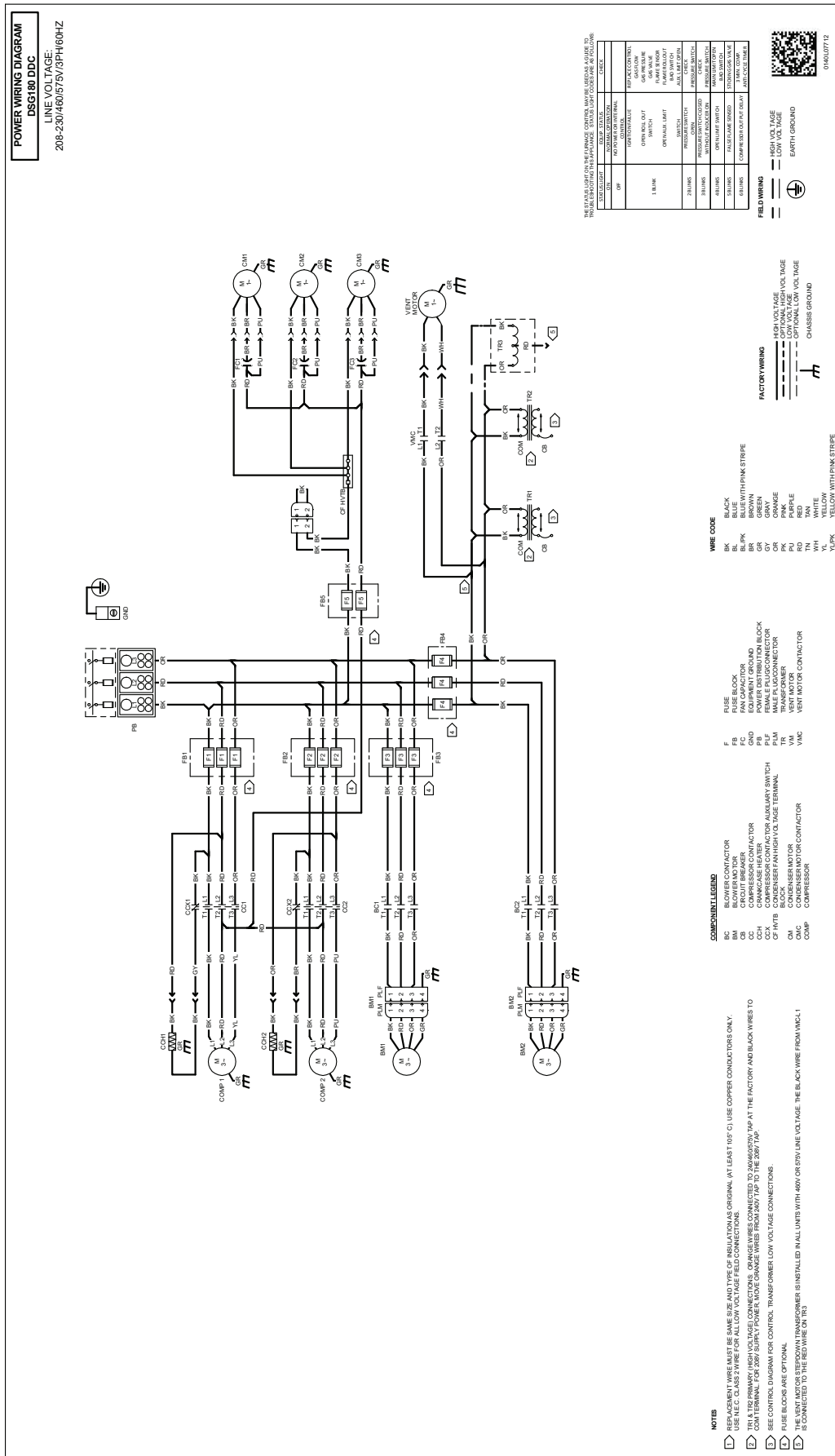


Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

WARNING

HIGH VOLTAGE!

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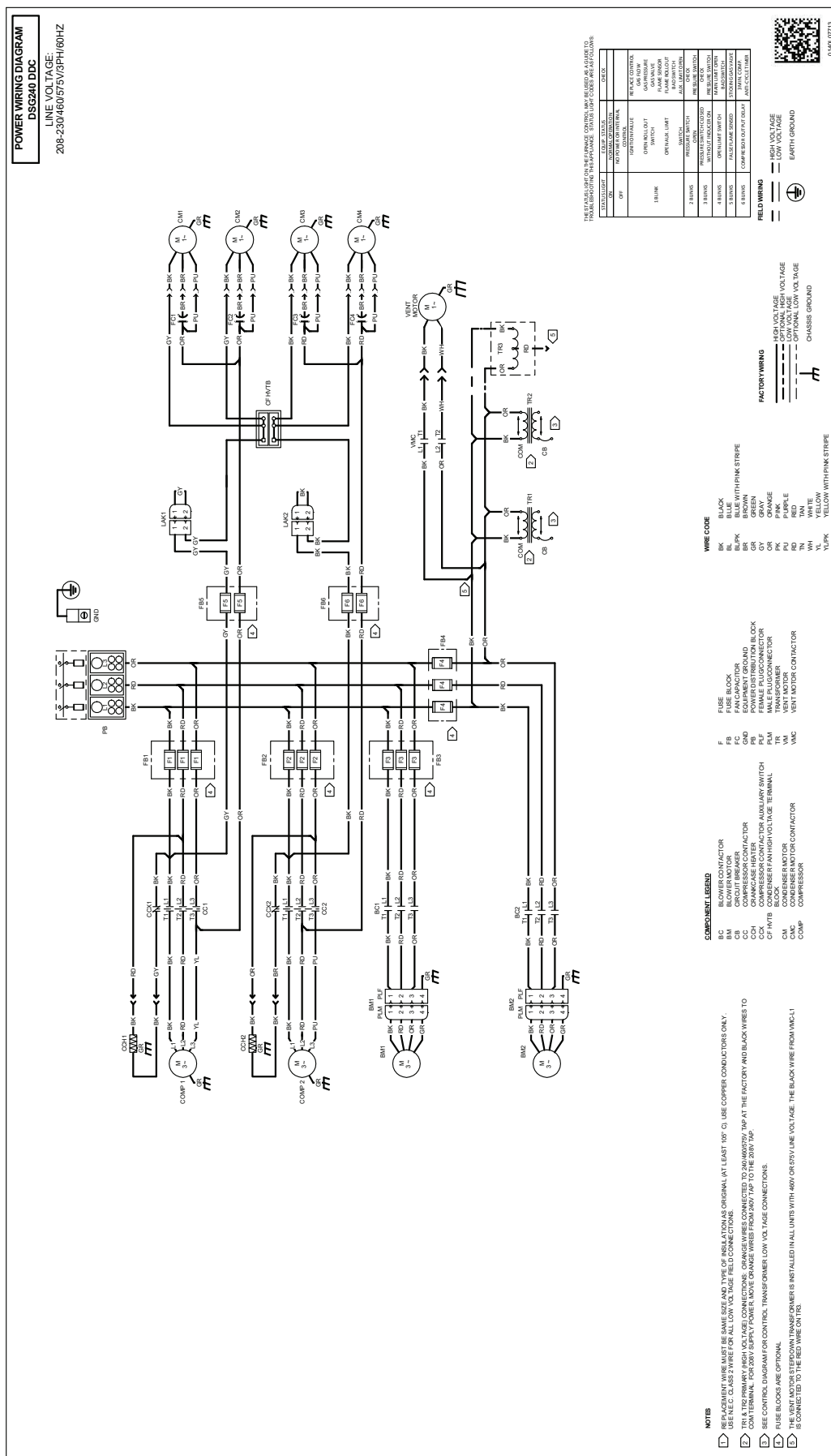


Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

WARNING

HIGH VOLTAGE!

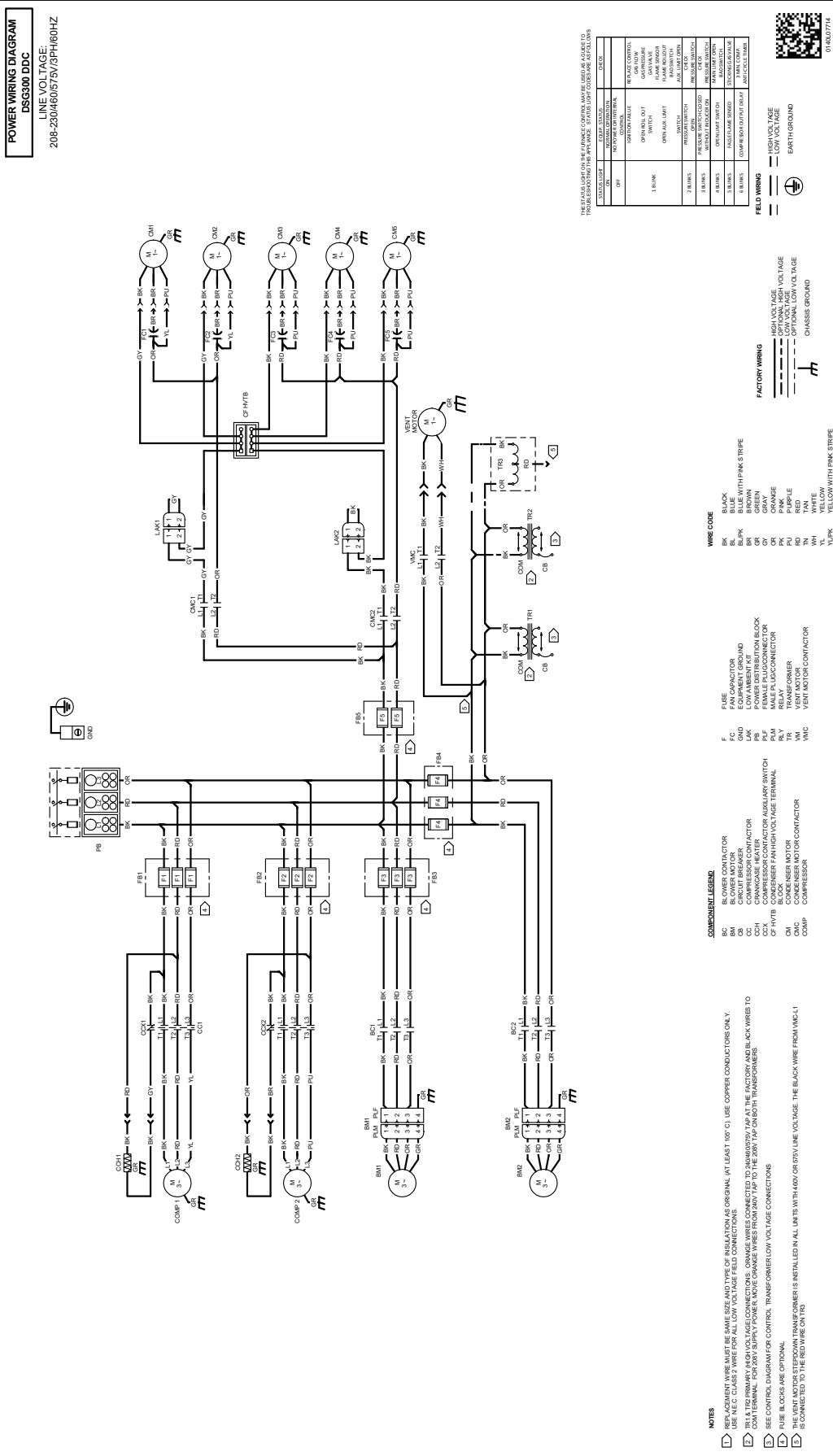
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.





WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.





Start-up Checklist

**Store in job file*

Date: _____ Location: _____
Model Number: _____
Serial Number: _____
Technician: _____ Unit #: _____

Pre Start-Up

(Check each item as completed)

- ☐ Verify all packaging material has been removed.
- ☐ Remove all shipping brackets per installation instructions.
- ☐ Verify the job site voltage agrees with the unit serial plate.
- ☐ Verify condensate connection is installed per installation instructions.
- ☐ Verify proper clearance around the unit for safety, service, maintenance and proper unit operation.
- ☐ Verify proper weatherproofing of all ductwork, roof curbs and electrical connections.
- ☐ Check that the flue screen is in place.
- ☐ Check gas piping for leaks.
- ☐ Verify gas pressure to the unit is within the range specified on the serial plate.
- ☐ Check to ensure that all fans, pulleys and wheels are secure.
- ☐ Check for proper belt tension and alignment per installation instructions.
- ☐ Check refrigerant piping for rubbing and leaks. *Repair if necessary.*
- ☐ Check unit wiring to ensure it is not in contact with refrigerant piping or sharp metal edges.
- ☐ Check all electrical connections and terminals. *Tighten as needed.*
- ☐ Verify that the crankcase heaters have been energized for 24 hours.
- ☐ Verify the scroll compressor(s) are rotating in the right direction.
- ☐ Verify all accessories are installed and operating correctly.
- ☐ Check filters and replace if necessary.
- ☐ Verify the installation of the thermostat.



Start-up Checklist

Start-Up

(Insert the values as each item is completed.)

ELECTRICAL

Supply Voltage	L1 - L2	_____	L2 - L3	_____	L3 - L1	_____
Circuit 1 Compressor Amps	L1	_____	L2	_____	L3	_____
Circuit 2 Compressor Amps	L1	_____	L2	_____	L3	_____
Blower Amps	L1	_____	L2	_____	L3	_____
Condenser Fan Amps	Fan 1	_____	Fan 2	_____	Fan 3	_____

BLOWER EXTERNAL STATIC PRESSURE

Return Air Static Pressure	_____	IN. W.C.
Supply Air Static Pressure	_____	IN. W.C.
Total External Static Pressure	_____	IN. W.C.
Blower Wheel RPM	_____	RPM

TEMPERATURES

Outdoor Air Temperature	_____	DB	_____	WB
Return Air Temperature	_____	DB	_____	WB
Cooling Supply Air Temperature	_____	DB	_____	WB
Heating Supply Air Temperature	_____	DB	_____	

PRESSURES

Gas Inlet Pressure	_____	IN. W.C.		
Gas Manifold Pressure	_____	IN. W.C. (Low Fire)	_____	IN. W.C. (High Fire)
Suction Circuit 1	_____	PSIG	_____	°F
Superheat (Orifice System)			_____	°F
Suction Circuit 2	_____	PSIG	_____	°F
Superheat (Orifice System)			_____	°F
Discharge Circuit 1	_____	PSIG	_____	°F
Subcooling (TXV System)			_____	°F
Discharge Circuit 2	_____	PSIG	_____	°F
Subcooling (TXV System)			_____	°F

(HEAT PUMP ONLY)

Suction Circuit 1	_____	PSIG	_____	°F
Suction Circuit 2	_____	PSIG	_____	°F
Discharge Circuit 1	_____	PSIG	_____	°F
Discharge Circuit 2	_____	PSIG	_____	°F

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CUSTOMER FEEDBACK

Daikin is very interested in all product comments.

Please fill out the feedback form on the following link:

<https://daikincomfort.com/contact-us>

You can also scan the QR code on the right to be directed to the feedback page.

