WARNING

BEFORE STARTING INSTALLATION OR MAINTENANCE PROCEDURES, TURN OFF ELECTRICAL POWER AND COMPLETELY DEPRESSURIZE THE UNIT. FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO THE UNIT.

NEVER REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS UNIT WHILE IT IS UNDER PRESSURE.

WHEN INSTALLING THIS UNIT, ALWAYS COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL CODES.

NEVER OPERATE THIS AFTERCOOLER IF THERE IS A LEAK IN THE CORE. IMMEDIATELY TAKE THE UNIT OUT OF SERVICE AND FIX OR REPLACE THE CORE.

NEVER OPERATE THE AFTERCOOLER ABOVE THE MAXIMUM RATED OPERATING CONDITIONS, AS OUTLINED IN SECTION 3.1.

NEVER REMOVE THE FAN GUARD WHILE THE AFTERCOOLER IS OPERATING. CONTACT WITH THE ROTATING FAN BLADE(S) MAY RESULT IN SERIOUS PERSONAL INJURY.

DURING NORMAL OPERATION, THE INLET PIPING MAY REACH TEMPERATURES OF 150°F TO 400°F. CONTACT WITH THE PIPING MAY RESULT IN SERIOUS PERSONAL INJURY.

1.1 HANDLING THE AFTERCOOLER

CAUTION

NEVER LIFT THE AFTERCOOLER BY THE CORE OR THE INLET AND OUTLET.

WHEN MOVING OR LIFTING THE UNIT, PROTECT THE CORE FROM ACCIDENTAL DAMAGE.

Take extreme care when unpacking, moving or installing. The core is exposed. Damage to the core or fins may render the unit inoperable.

1.2 EQUIPMENT CHECK

Inspect the aftercooler for any damage that may have occurred during shipment. Inspect all items shipped with the unit.

IF THE UNIT HAS BEEN DAMAGED DURING SHIPMENT:

(1) Notify carrier immediately

(2) DO NOT operate the unit before consulting factory
2.1 INSTALLING THE LEGS
This unit was shipped without the legs installed. The legs should be installed before placing the aftercooler in the piping system. Carefully lift and support the unit several feet from the floor.

Position the legs against the unit and fasten them in place using the fasteners provided. Make sure the fasteners are tightened in place.

3.1 SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>WEIGHT</th>
<th>MAXIMUM CAPACITY (SCFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-140</td>
<td>120 LBS</td>
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<td>AC-150-6</td>
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<tr>
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<td>AC-170</td>
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<td>AC-170-6</td>
</tr>
<tr>
<td>AC-180</td>
<td>515 LBS</td>
<td>AC-180-6</td>
</tr>
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</table>

DIMENSIONS .............. See Section 3.2

INLET/OUTLET CONNECTIONS

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAXIMUM WORKING PRESSURE</th>
<th>MAXIMUM WORKING TEMPERATURE</th>
<th>MATERIALS OF CONSTRUCTION</th>
<th>FAN DATA (AMBIENT AIR FLOW)</th>
<th>ELECTRICAL REQUIREMENTS</th>
</tr>
</thead>
</table>

Approach Temperature: The number of degrees above the temperature of the cooling medium (in this case ambient air) to which the aftercooler reduces the compressed air. A higher approach does not mean better performance.

<table>
<thead>
<tr>
<th>INLET TEMP.</th>
<th>150°F</th>
<th>200°F</th>
<th>250°F</th>
<th>300°F</th>
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<tr>
<td>APPROACH TEMP. °F</td>
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<td>10</td>
<td>15</td>
<td>20</td>
<td>5</td>
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<td>AC-160</td>
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<tr>
<td></td>
<td>210</td>
<td>355</td>
<td>480</td>
<td>600</td>
<td>790</td>
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<td>384</td>
<td>650</td>
<td>871</td>
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<td>1475</td>
<td>1950</td>
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<td>460</td>
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<td>520</td>
<td>650</td>
<td>840</td>
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<td>690</td>
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<td>355</td>
<td>625</td>
<td>780</td>
<td>990</td>
<td>1300</td>
</tr>
</tbody>
</table>

MAXIMUM PRESSURE DROP LESS THAN 3 PSI.
4.1 LOCATION

The location should be level and capable of supporting the aftercooler and all components and piping to be installed. The aftercooler must be level to allow proper drainage of fluids from the outlet manifold.

The aftercooler must be installed at least 1 foot from walls or obstructions. It is important for the unit to have an adequate air supply for cooling at all times. If more than one unit is to be installed in the same area, allow at least 1 foot between them.

This unit can be installed indoors or outdoors. If the unit is to be installed outdoors or in an area where ambient temperatures can fall below 35°F, precautions must be made to prevent freeze-up and damage to the unit. The drain lines and separator must be heat traced and/or insulated and the unit should be protected from the wind. REFERENCE Section 4.5 for details.

4.2 MOUNTING THE UNIT

After selecting the proper location as outlined above, the aftercooler should be mounted to the installation surface. Mounting holes are provided on the leg support braces. Reference Section 3.2 for mounting hole locations and dimensions. Use hardware (not supplied) sized for the mounting holes.
4.3 FLEXIBLE HOSE INSTALLATION

**IMPORTANT**
A FLEXIBLE HOSE MUST BE INSTALLED BETWEEN THE COMPRESSOR AND AFTERCOOLER TO VALIDATE THE WARRANTY ON THE AFTERCOOLER.

The flexible hose must be installed perpendicular to the direction of vibration from the compressor.

If a flexible hose was not ordered with the aftercooler, one can be ordered from your Van Air distributor. Figure 2 lists the hose required for each aftercooler model.

4.4 PIPING INSTALLATION

**CAUTION**
ALL PIPING MUST BE ADEQUATELY SUPPORTED AND ISOLATED FROM VIBRATION. EXCESSIVE STRESS OR VIBRATION IN THE PIPING WILL CAUSE DAMAGE TO THE AFTERCOOLER CORE.

TO ENSURE PROPER OPERATION, MAKE SURE THAT THE INLET AND OUTLET PIPING ARE CORRECTLY CONNECTED TO THE UNIT. REFERENCE FIGURE 3.

If the aftercooler is to be installed in an existing piping system, clean the piping to remove accumulated dirt, pipe scale, oil, and other contaminants before installing the unit.

A properly sized pressure relief valve should be installed after the compressor and before any block valves. The relief valve should be installed in compliance with any applicable federal, state, or local codes.

To isolate the aftercooler for maintenance, install bypass piping around the aftercooler and separator (if installed). Reference Figure 3.

Connect the inlet piping to the top of the aftercooler. Make sure that the flexible hose is properly installed before the aftercooler inlet. Provide supports wherever necessary to prevent stress on the aftercooler. Supports should be installed close to the inlet and outlet manifolds. Use either overhead or stiff-leg type supports.

4.5 FREEZE PROTECTION

If the aftercooler is to be installed in a location where ambient temperatures may fall below 35°F, heat tracing and/or insulation must be used on the outlet piping to the separator, the separator, and the drain piping. The aftercooler must be protected from the direct wind, i.e. a roof and/or walls.

The aftercooler should be turned off when ambient temperatures fall below 35°F. DO NOT cycle the fan motor on and off.
4.6 SEPARATOR INSTALLATION

**CAUTION**

WHEN INSTALLING THE SEPARATOR, NEVER REDUCE THE PIPING SIZE BETWEEN THE AFTERCOOLER AND SEPARATOR. THIS MAY CAUSE INADEQUATE DRAINING OF THE AFTERCOOLER AND POSSIBLE BACK PRESSURE OR INCREASED PRESSURE DROP.

IF THE SEPARATOR DRAIN IS TO BE CONNECTED INTO A REMOTE OR COMMON DRAIN LINE, MAKE SURE THAT IT IS VENTED.

THE DISCHARGE FROM THE SEPARATOR MAY CONTAIN COMPRESSOR LUBRICANTS. COMPLY WITH ALL REGULATIONS CONCERNING DISPOSAL OF SUCH FLUIDS.

When the system air is cooled by the aftercooler, moisture in the compressed air condenses and accumulates in the outlet of the aftercooler. To efficiently remove this liquid from the air system, a separator with a float drain must be installed immediately downstream of the aftercooler.

Install the separator as outlined in the Installation, Operation, and Maintenance Instructions supplied with the component. If a separator was not ordered with the aftercooler, one can be ordered from your VAN AIR distributor.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>MWP (PSIG)</th>
<th>FLOW (SCFM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-60-M</td>
<td>18.60&quot;</td>
<td>6.00&quot;</td>
<td>2.60&quot;</td>
<td>2&quot; NPT</td>
<td>1/2&quot; NPT</td>
<td>250</td>
<td>100 650</td>
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<tr>
<td>S-170-M</td>
<td>23.00&quot;</td>
<td>7.75&quot;</td>
<td>3.00&quot;</td>
<td>3&quot; NPT</td>
<td>1/4&quot; NPT</td>
<td>250</td>
<td>260 1700</td>
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<tr>
<td>S-260-M</td>
<td>30.50&quot;</td>
<td>13.75&quot;</td>
<td>7.25&quot;</td>
<td>4&quot; NPT</td>
<td>3/4&quot; NPT</td>
<td>250</td>
<td>1500 3500</td>
</tr>
</tbody>
</table>

4.7 ELECTRICAL CONNECTIONS

**CAUTION**

TURN OFF MAIN POWER SUPPLY BEFORE WIRING TO THE AFTERCOOLER.

MAKE SURE THAT ALL USER SUPPLIED WIRING IS PROPERLY SIZED TO HANDLE THE AMPERAGE REQUIRED BY THE AFTERCOOLER AND ANY ADDITIONAL EQUIPMENT.

WHEN WIRING TO THIS UNIT AND ANY OTHER ELECTRICAL COMPONENTS, ALWAYS COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES.

IF THE AFTERCOOLER IS TO BE INSTALLED OUTDOORS OR IN AN EXTREMELY HUMID ATMOSPHERE, MAKE SURE THAT ALL WIRING AND COMPONENTS ARE PROPERLY RATED.

VERIFY THAT THE POWER SOURCE MATCHES THE AFTERCOOLER ELECTRICAL REQUIREMENTS BEFORE MAKING ANY CONNECTIONS. REFERENCE EQUIPMENT DATA TAG AND FIGURE 4 FOR INFORMATION.

TO PREVENT POSSIBLE ELECTRICAL SHOCK, IT IS IMPORTANT THAT THIS UNIT IS GROUNDED. ALWAYS USE THE PROVIDED GROUNDING SCREW.

The aftercooler electrical requirements are listed on the equipment data tag and in Figure 5. Remove the cover from the electrical junction box on the aftercooler motor. Using FIGURE 5 as reference, make the necessary wiring connections. Several ways to wire the unit are listed below. Make the connections for the pertinent application(s).

1. DEDICATED POWER SUPPLY AND DISCONNECT

   Install a properly sized fused disconnect before the aftercooler. Make the necessary wire connections and re-install the junction box cover.

2. INTERLOCKED WITH COMPRESSOR MOTOR STARTER

   The aftercooler can be interlocked with the air compressor starter. This allows the aftercooler to operate only when the air compressor is operating.

   If a set of auxiliary, normally open contacts is available on the air compressor magnetic starter, make necessary wiring connections from the contacts to the aftercooler.

   If a set of auxiliary contacts is not available, use a properly sized contactor. Wire the contactor's holding coil in parallel with the air compressor starter holding coil. Make the necessary wiring connections from the contactor to the aftercooler.

4.7-1 FAN MOTOR ROTATION

The rotation of the fan motor(s) is important. Units with 3 phase power should be checked for proper rotation after installation.

Energize the unit. Observe the rotation and air flow direction. Reference Section 3.2 for air flow direction. If the fan(s) do not push the air across the core, turn off the unit and switch the wiring as outlined in Figure 6.
5.1 START UP INSTRUCTIONS
Pressurize the compressed air system. If the aftercooler was interlocked with the compressor, the aftercooler will begin to operate immediately. If the aftercooler was wired on a separate electrical source, turn on the source.

Open the inlet and outlet isolation valves on the aftercooler (if installed). Close the bypass valve. The aftercooler is ready for operation.

5.2 OPERATING INSTRUCTIONS
The operation of the aftercooler is simple. The fan rotates, moving ambient air across the core. The ambient air flow cools the compressed air inside the core. The aftercooler will automatically operate as long as electrical power is supplied to the unit.

5.3 SHUT DOWN INSTRUCTIONS
To shut down the aftercooler, turn off the electrical power source. If the aftercooler was interlocked with the compressor, the aftercooler will automatically turn off with the compressor. Open the bypass valve and close the inlet and outlet isolation valves (if installed).

6.0 MAINTENANCE INSTRUCTIONS

**WARNING**

BEFORE STARTING INSTALLATION OR MAINTENANCE PROCEDURES, TURN OFF ELECTRICAL POWER AND COMPLETELY DEPRESSURIZE THE UNIT. FAILURE TO HEED THIS WARNING MAY RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO THE UNIT.

NEVER REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS UNIT WHILE IT IS UNDER PRESSURE.

NEVER REMOVE THE FAN GUARD WHILE THE AFTERCOOLER IS OPERATING. PERSONAL CONTACT WITH THE ROTATING FAN BLADE MAY RESULT IN SERIOUS PERSONAL INJURY.

6.1 CORE EXTERIOR CLEANING
The core should be regularly cleaned. Accumulation of dirt or other contaminants such as oils will greatly reduce the efficiency of the aftercooler.

Normal accumulation of dirt can be removed by blowing off the core with compressed air. If the core becomes contaminated with oil-laden particles, it can be steam cleaned. Clean with extreme care. The aluminum fins can be easily damaged.

6.2 CORE INTERIOR CLEANING
If the compressed air system contains excessive lubricating fluids, build-up may occur. The interior of the core may be cleaned to remove the deposits by circulating a mild cleaning solution through the core. For most conditions, a mild alkaline solution such as OAKITE or equal, is satisfactory. For extreme conditions, it might be necessary to use a weak solution of INHIBITED hydrochloric acid.

Turn off the electrical power supply, depressurize the unit, and disconnect it from the air system. Circulate the solution through the core until it is clean. Make sure that the core is rinsed out thoroughly before returning the unit to service.

When the core is cleaned, it is important that the full characteristics of the fouling material and cleaning agent be known. Proper care must be taken when handling and disposing of the solution. Always follow the instructions supplied with the material.

**CAUTION**

NEVER USE SOLVENTS CONTAINING STRONG ACID OR ALKALINE BASES TO CLEAN THE CORE. DAMAGE TO THE CORE MAY OCCUR.

6.3 MOTOR LUBRICATION
This unit is equipped with a sleeve bearing motor. The sleeve bearings will require lubrication at least every 6 months. Add a few drops of S.A.E. 20 oil to each bearing.

6.4 REPLACEMENT PARTS

**REPLACEMENT CORES**
AC–140 34–0797
AC–150 34–0798
AC–160 34–0799
AC–170 34–0800
AC–180 34–0801
AC–190 34–0802
AC–200 34–0803
AC–210 34–0804
AC–220 34–0805

**REPLACEMENT FANS**
AC–140 26–5908
AC–150 26–5909
AC–160 26–5910
AC–170 26–5912
AC–180 26–5914
AC–190 26–5916
AC–200 26–5916
AC–210 26–5918
AC–220 26–5918

**REPLACEMENT FAN GUARDS**
CONSULT FACTORY

**REPLACEMENT MOTORS**
115/230V 1PH
CONSULT FACTORY

230/480V 3PH
AC–140 26–6328
AC–150 26–6329
AC–160 26–6330
AC–170 26–6331
AC–180 26–6332
AC–190 26–6333
AC–200 26–6333
AC–210 26–6334
AC–220 26–6334
1. FAN MOTOR NOT OPERATING
Motor failure – Check electrical power source. If power supply is okay, check the motor. Replace if necessary.
Power supply failure – Check electrical power source. Check contactors, fuses, or disconnects. Check incoming wiring for damage. If aftercooler is interlocked with the compressor, check the compressor starter.

2. HIGH AFTERCOOLER OUTLET TEMPERATURES
Fan motor not operating – Reference Problem 1.
Plugged aftercooler core or restricted air flow – Inspect the core for deposits of dirt and/or oils. If the core is contaminated, clean it as outlined in Sections 6.1 thru 6.2. Check for obstructions around the aftercooler. Remove if present.

3. INCREASED LIQUID (WATER) CONTENT IN THE COMPRESSED AIR SYSTEM DOWNSTREAM OF THE AFTERCOOLER
Plugged or damaged separator – Check the separator for damage and proper operation.
Separator installed incorrectly – If a separator was installed, check to make sure that it was installed properly. If no separator was installed downstream of the aftercooler, one should be installed to remove the liquid from the air system.
Separator drain plugged or damaged – Check the drain for damage and proper operation.

4. EXCESSIVE PRESSURE DROP ACROSS THE AFTERCOOLER
Aftercooler core damaged or clogged – Inspect the core for damage or blockage. If the core is damaged, repair or replace. If the core is plugged, flush it out as outlined in Section 6.2.

VIII. LIABILITY
§ 1. Seller shall have no liability for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

§ 2. Seller shall have no responsibility for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

§ 3. Seller's obligation under this warranty may, at its option, be discharged by refunding the price of, and workmanship for a period of one (1) year from date of shipment.

§ 4. A copy of the distributor invoice to the customer at time of shipment is required as verification of equipment start up. The specified days are only approximate, since start up supervision is contingent upon equipment and work supplied by others and beyond the control of Seller, and Seller shall be paid for any days actually worked in addition to those specified on a pro-rata basis.

§ 5. A copy of the distributor invoice to the customer at time of shipment is required as verification of shipment from distributor stock. Equipment start up will be verified by receipt of the product registration card.

§ 6. Seller shall have no responsibility for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

§ 7. A copy of the distributor invoice to the customer at time of shipment is required as verification of shipment from distributor stock. Equipment start up will be verified by receipt of the product registration card.

§ 8. Seller shall have no responsibility for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

§ 9. Seller shall have no responsibility for the performance of its Goods when installed under conditions varying materially from those under which the product is usually tested or operated under existing industry standards.

§ 10. A copy of the distributor invoice to the customer at time of shipment is required as verification of shipment from distributor stock. Equipment start up will be verified by receipt of the product registration card.