CROSS REFERENCE INDEX

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>INSTALLATION DRAWING NO.</th>
<th>KIT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUEL TANKS (22&quot; DIAMETER)</td>
<td>98-02201</td>
<td>76-00295-XX</td>
</tr>
<tr>
<td>LIGHT BAR INSTALLATION INSTRUCTIONS</td>
<td>98-03140</td>
<td>76-00542-00</td>
</tr>
<tr>
<td>LED LIGHT BAR INSTALLATION INSTRUCTIONS</td>
<td>98-03245</td>
<td>76-02000-XX</td>
</tr>
</tbody>
</table>

NOTES:

1.0 COMPLETE INSTALLATION INCLUDES AND IS NOT LIMITED TO:
   1.1 UNIT INSTALLATION
   1.2 BATTERY INSTALLATION, INCLUDING DRAIN HOSE
   1.3 COMPLETION OF PRE DELIVERY INSPECTION PER MODEL
   1.3.1 UNIT PREP AND INITIAL ADJUSTMENTS
   1.3.2 CHECKLIST
   1.3.3 UNIT RUN IN PER PDI CHECKLIST
   1.3.4 WARRANTY REGISTRATION CARD SUBMITAL
   1.3.5 DATA LINK DOWNLOAD VERIFICATION
   1.4 DEFOST LINE ROUTING AND CLAMPING
   1.5 FUEL LINE CONNECTIONS TO UNIT

2.0 THE TRAILER STRUCTURE MUST BE EVALUATED BY THE TRAILER MANUFACTURER TO DETERMINE ITS ABILITY TO WITHSTAND THE LOADS IMPOSED BY THE UNIT OVER ITS SERVICE LIFE. CARRIER TRANSCOLD DOES NOT CONVEY ANY ENDORSEMENT OR WARRANTY FOR THE TRAILER'S STRUCTURAL INTEGRITY.

WEIGHTS:
   NAD ULTRA REEFER UNIT (WT, LESS BATTERY): 1610 LBS (730 KG)
   NAD ULTRA REEFER UNIT (WT, LESS BATTERY): 1896 LBS (902 KG)
   NAD OPTIMA REEFER UNIT (WT, LESS BATTERY): 1400 LBS (635 KG)

3.0 UNIT MOUNTING SURFACES OF THE TRAILER THAT CONTACT THE UNIT MOUNTING PADS MUST BE UNI-PLANAR TO WITHIN 0.133 TO PREVENT DISTORTION OF THE UNIT AND/OR TRAILER.

4.0 TRAILER SURFACES THAT CONTACT THE UNIT MOUNTING GASKET SHOULD NOT PROTRUDE MORE THAN 0.185 (5) ABOVE THE PLANE DEFINED BY THE MOUNTING PAD SURFACES TO ENSURE PROPER AIR SEAL.

5.0 ALL DIMENSIONS SHOWN ARE IN INCHES, WITH THE METRIC CONVERSIONS IN MILLIMETERS.
UNIT INSTALLATION

1.0 PREPARE UNIT FOR INSTALLATION:
   1.1 PREPARE THE BODY TO RECEIVE THE UNIT. DIMENSIONS FOR EVAPORATOR OPENING AND MOUNTING STUD LOCATIONS ARE ON SHEET 3 OF THIS DRAWING.
   1.2 REMOVE WIRE TIES HOLDING DRAINFRESH DRAIN HOSES, COOLANT OVERFLOW TUBE AND FUEL LINES. PLACE LINES WHERE THEY WILL NOT BE CAUGHT BETWEEN THE UNIT FRAME AND THE TRAILER WALL.
   1.3 OPEN FRONT DOORS OF UNIT, REMOVE BELT GUARD (4 BOLTS).
   1.4 OPEN SIDE DOORS TO ALLOW ACCESS TO MOUNTING STUD LOCATIONS ON UNIT.
   1.5 INSTALL BATTERY ACCORDING TO INSTRUCTIONS ON SHEET 5. IF UNIT HAS BEEN SUPPLIED WITH BATTERY, CONNECT BATTERY CABLES ACCORDING TO THE INSTRUCTIONS ON SHEET 5.
   1.6 PREPARE THE UNIT FOR LIFTING, STANDING ON A LADDER OR WORK-STAND, HOOK LIFTING APPARATUS (LIFTING BAR OR STRAPS) WITH SUFFICIENT CAPACITY TO SUPPORT UNIT AND BATTERY THROUGH THE LIFTING EYES. LIFT POINT SHOULD BE CENTERED OVER THE UNIT INSTALLATION.
   1.7 RAISE THE UNIT AND INSTALL IN THE BODY OPENING. ENSURE THAT ALL EIGHT STUDS ARE FULLY ENGAGED IN THE UNIT FRAME. PLACE WASHER (ITEM 70) AND LOCK-NUT (ITEM 48) ON EACH OF THE 8 STUDS. INSTEAD, THE LOWER CENTER STUD MUST BE ACCESSIBLE FROM THE FRONT OF THE UNIT. IF BELT GUARD WAS NOT REMOVED EARLIER, IT MUST BE REMOVED NOW TO ALLOW ACCESS TO THIS STUD. SNUG THE NUTS, THEN ENSURE THAT ALL EIGHT TO 60 FT-LB/61.8 NM USING A TORQUE WRENCH, REMOVE LIFTING APPARATUS.
   1.8 INSTALL BUTTON PLUGS (ITEM 52) IN UNIT FRAME WHERE MOUNTING STUDS ARE LOCATED AND ADDITIONAL UNUSED HOLE(ES) GH1-21.
   1.9 ROUTE DRAINFRESH DRAIN HOSES DOWN THE FRONT OF THE TRAILER AND CLAMP TO FRONT WALL OF TRAILER USING 2 CLAMPS (ITEM 15) AND 2 THREAD FORMING SCREWS (ITEM 33) FOR EACH DRAIN HOSE. DRAIN HOSE TO PROPER LENGTH (APPROXIMATELY 3.00[76.21] ABOVE SLW-WHEEL PLATE) AND INSTALL 4-4005 (ITEM 50) ON THE HOSES.
   1.10 RE-INSTALL BELT GUARD.
   1.11 INSTRUCTIONS FOR FUEL LINE CONNECTION ARE SUPPLIED WITH THE FUEL TANK KIT. INSTRUCTIONS FOR LIGHT BAR INSTALLATION ARE INCLUDED WITH THE LIGHT BAR KIT.

AFTER INSTALLATION

12.0 PERFORM PRE-DELIVERY INSPECTION (ITEM 99). COPIES OF COMPLETED CHECKLIST SHOULD BE SUPPLIED TO SELLING DEALER AND CUSTOMER.
13.0 OPERATE UNIT IN CONTINUOUS RUN (MANUAL) MODE FOR A MINIMUM OF 8 HOURS (12 HOURS PREFERRED). PERFORM FINAL INSPECTION ON UNIT.
14.0 IMPORTANT, PRIOR TO FINAL DELIVERY TO CUSTOMER, WARRANTY REGISTRATION (ITEM 101) MUST BE COMPLETED. ONE COPY SHOULD BE PROVIDED TO THE CUSTOMER, ONE COPY TO THE SELLER, AND THE FINAL COPY MUST BE SENT TO CARRIER TRANSICOLD. IN-SERVICE DATE MUST BE STAMPED ON THE UNIT IN THE PROPER LOCATION (SERIAL NUMBER PLATE) TO ACTIVATE WARRANTY COVERAGE.

NOTE: BULKHEAD AND AIR CHUTE SHOWN ARE OPTIONAL FEATURES. FOR BEST AIR CIRCULATION AND PRODUCT PROTECTION, CARRIER TRANSICOLD HIGHLY RECOMMENDS THE USE OF BULKHEADS AND AIR CHUTES. CONTACT YOUR DEALER OR CARRIER TRANSICOLD FOR RECOMMENDATIONS.
## Units Supplied Without Battery Installed

1.0 Use the following information to correctly select the battery needed for trailer units.

<table>
<thead>
<tr>
<th>Group Size</th>
<th>Group 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT Location</td>
<td>Side 2nd</td>
</tr>
<tr>
<td>AMP</td>
<td>12 Volt 25</td>
</tr>
<tr>
<td>RPM</td>
<td>1,000</td>
</tr>
<tr>
<td>Voltage</td>
<td>Minimum 700 Cold Cranking Amps @ 0°F</td>
</tr>
<tr>
<td></td>
<td>Minimum 545 Cold Cranking Amps @ 20°F</td>
</tr>
</tbody>
</table>

**NOTICE:** When selecting a specific brand of battery, always ensure that the battery chosen is rated at 0°F (0 degrees Fahrenheit) and not 20°F (20 degrees Fahrenheit). Failure to use the proper battery size will result in reduced battery life and a non-start condition.

2.0 Cut wire tie holding these parts in the battery tray and remove parts. Place battery in tray with negative (-) terminal to the rear of the unit as shown. Connect battery cables (use of a corrosion inhibitor on the terminals is recommended). Red cable to positive (+) terminal, black cable to the negative (-) terminal. Cables should be routed toward the battery (as shown), tighten terminal connectors securely.

3.0 Install screws and hold-down angle using plain and lock washers as shown. Securely tighten the screws to prevent movement of the battery.

4.0 Position terminal covers supplied with cables over terminals.

**Units Supplied with Battery Installed**

1.0 Cut wire tie(s) that hold cables to unit frame.

2.0 Connect red battery cable to the positive (+) battery terminal. Connect black cable to negative (-) battery terminal (use of corrosion inhibitor is recommended).

3.0 Position terminal covers supplied with cables over terminals.

---

### Standby Plug Installation (Japan Only)

<table>
<thead>
<tr>
<th>Voltage (Hz)</th>
<th>Phase</th>
<th>Full Load (Amps)</th>
<th>Locked Rotor (Amps)</th>
<th>Power Supply (CIR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50/60</td>
<td>3</td>
<td>45.5</td>
<td>305</td>
</tr>
</tbody>
</table>

**Make connections to plug as shown**

1. Strip power cord insulation back 3-1/2 inches.
2. Cut away any protective packing from wires.
3. Strip insulation of wires back approximately 1 inch.
4. Insert wire ends into the plug as shown in drawing. It is important that the green wire is connected to the safety ground connection (marked green) on the side of the plug.
5. Tighten connectors securely and assemble the plug.
6. When testing the operation of the unit in standby mode, ensure that the rotation of the standby motor is correct. If the rotation is not correct, reverse the connection of any two of the three phase wires. Do not reverse any wire with the green safety ground.

---

**Items Supplied in Battery Kit**

Parts in poly bag and/or attached to battery tray

---

**Revision Record**

Endorse Date: 07/18/19
Print Distribution: 07/14/19

**Installation Instructions**

Phoenix Ultra/Optima (MDA/M-94)

---

**Diagram**

- Power Cord
- Black Wire
- Green Wire
- Red Wire
- Cable Covering
- Wire Insulation Strip Length

---

**Print Distribution**

PH-03138 SP 5 of 5