



UNITED TECHNOLOGIES
CARRIER
TRANSCOLD

Carrier Transicold Division
Carrier Corporation
P.O. Box 4805
Syracuse, New York 13221

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CROSS REFERENCE INDEX

DESCRIPTION	INSTALLATION DRAWING NO.	KIT NO.
FUEL TANKS (22" DIAMETER)	98-02201	76-00295-XX
LIGHT BAR INSTALLATION INSTRUCTIONS	98-03140	76-00542-00
LED LIGHT BAR INSTALLATION INSTRUCTIONS	98-03246	76-02000-XX

PART NO.	MODEL DESCRIPTION
98-03139-01	(AUST) NDA/M-94
98-03139-02	(DOM) NDA/M-94A/B
98-03139-03	(JAPAN) NDM93/94

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 SUBMITTAL
 - 1.3.5 DATALINK DOWNLOAD VERIFICATION
 - 1.4 DEFROST 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:

NDA ULTRA REEFER UNIT (WET, LESS BATTERY): 1610 LBS [730 KGS]
 NDM ULTRA REEFER UNIT (WET, LESS BATTERY): 1896 LBS [860 KGS]
 NDA OPTIMA REEFER UNIT (WET, LESS BATTERY): 1400 LBS [635 KGS]
 BATTERY (TYPICAL): 50 LBS [23 KGS]
- 3.0 UNIT MOUNTING SURFACES OF THE TRAILER THAT CONTACT THE UNIT MOUNTING PADS MUST BE UNI-PLANAR TO WITHIN 0.13[3] TO PREVENT DISTORTION OF THE UNIT AND/OR TRAILER.
- 4.0 TRAILER SURFACES THAT CONTACT THE UNIT MOUNTING GASKET SHOULD NOT PROTRUDE MORE THAN 0.19[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].

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SHEET INDEX	REV SHEET	W	T	W	T	R
		1	2	3	4	5

SYMBOL	REVISION RECORD	ENGRG.	DATE	APPLICATION ENGRG.	DATE	DRAWN BY	DATE
W	ADDED LED LIGHT BAR TO CROSS REF. INDEX AND UPDATED LIGHT BAR KIT NO. UPDATED SHEET INDEX. SEE SHEET 3.					ZMG	07FEB06
V	ADDED "PER MODEL" TO NOTE 1.3.					GMC	6/22/00
U	UPDATED SHEET INDEX; SEE SHEET #3.					GMC	4/25/00
T	UPDATED SHEET INDEX; SEE SHEET #2,4.					DHL	09/20/99

SUPERSEDES

TITLE

INSTALLATION INSTRUCTIONS
PHOENIX ULTRA/OPTIMA (NDA/M-94)

DRAWING NO.

98-03139
SHT. 1 OF 5

REV

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SEE SEPARATE PARTS LIST



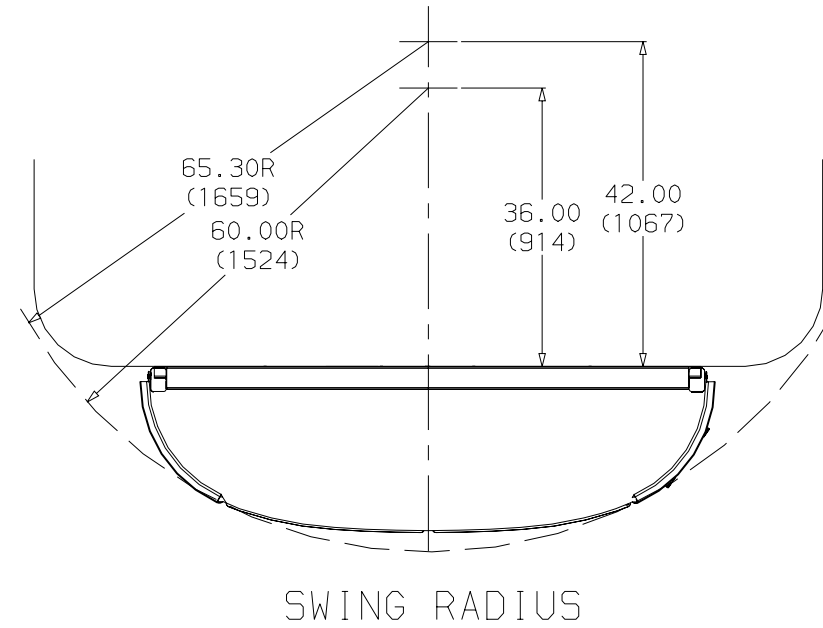
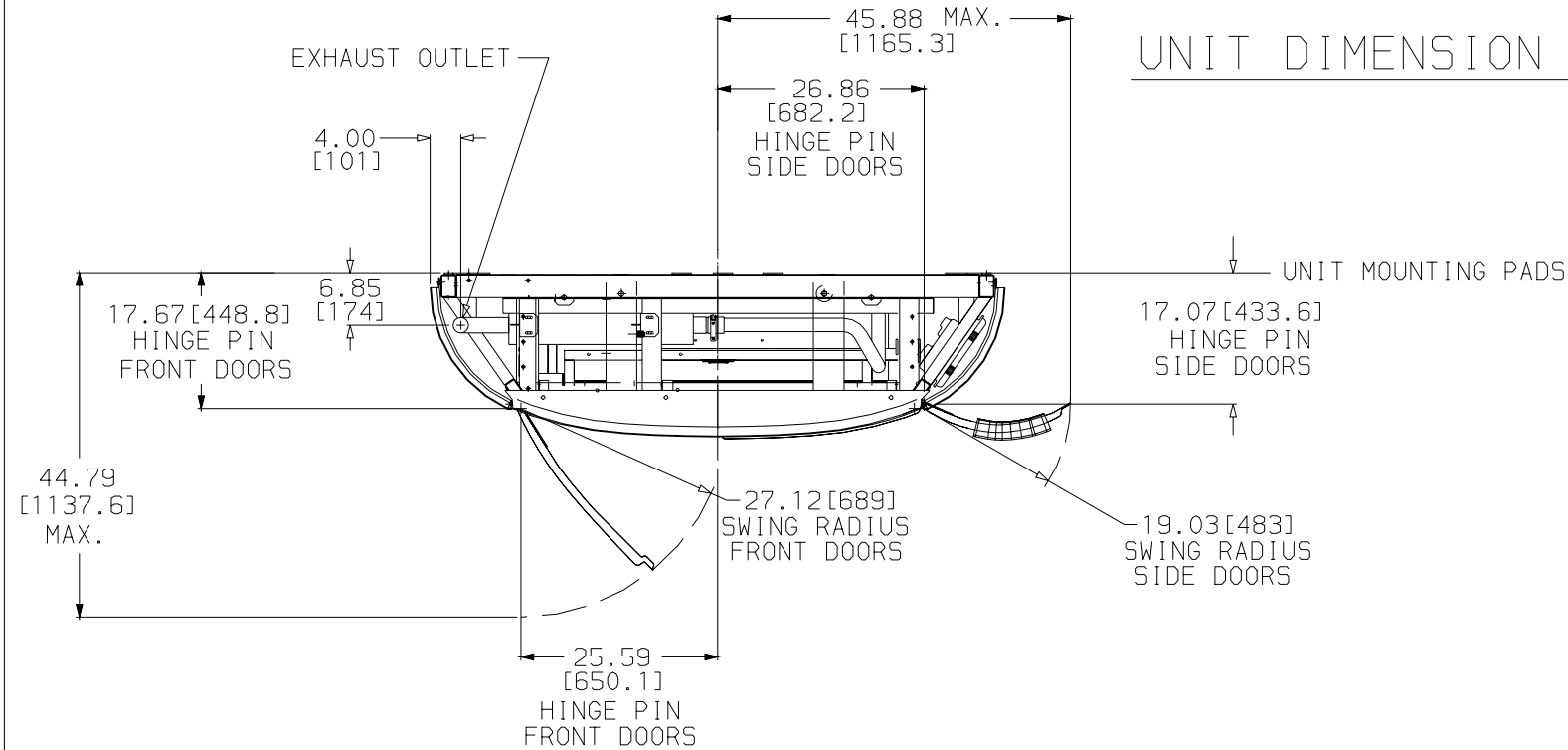
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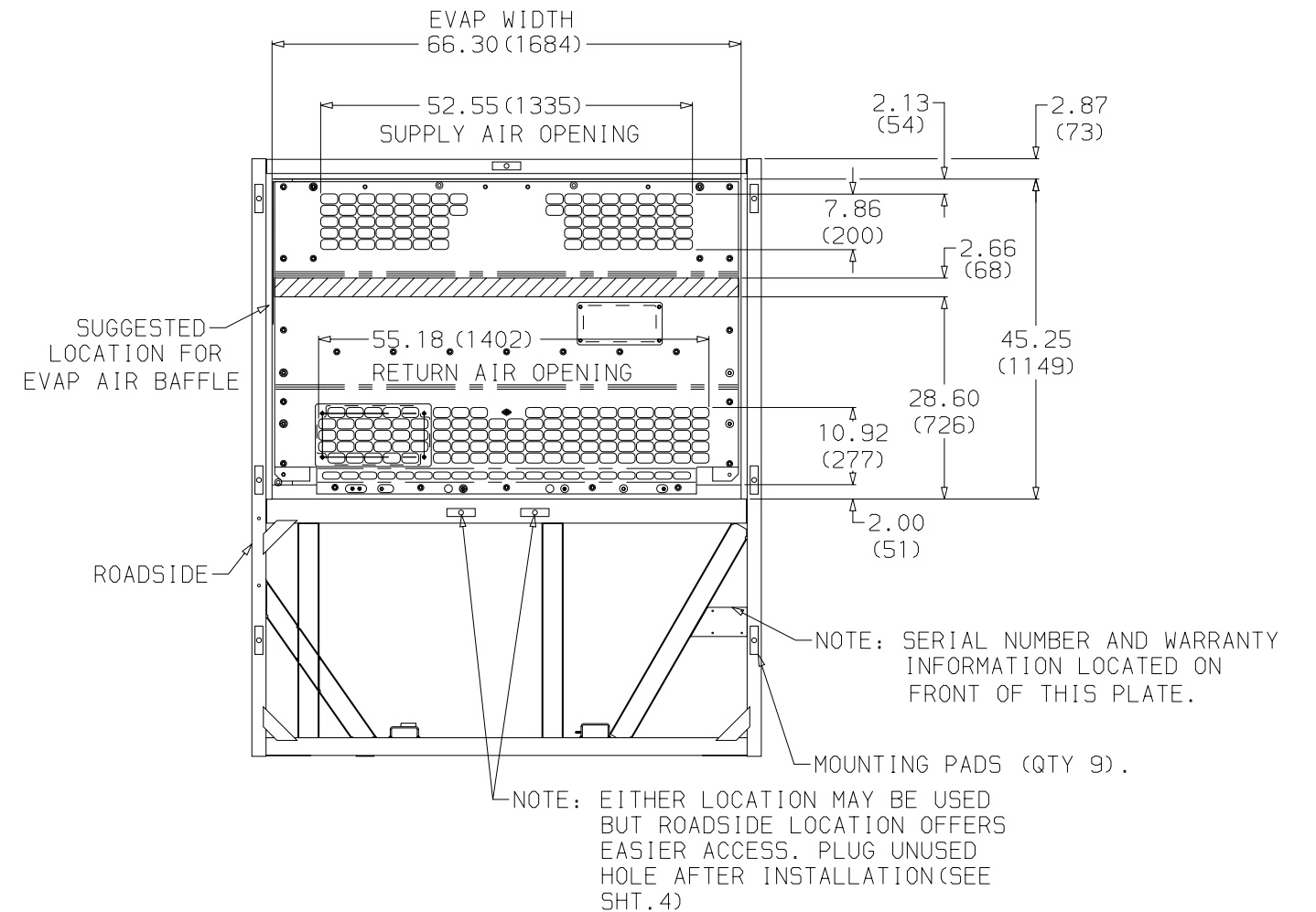
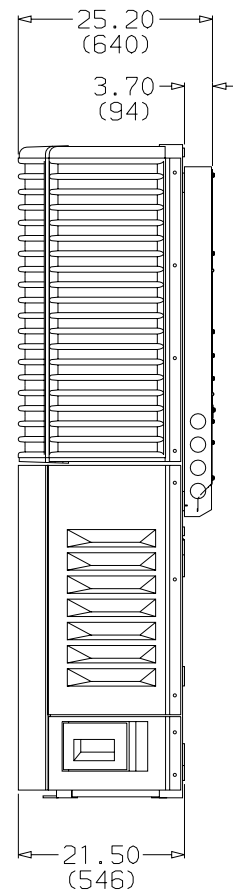
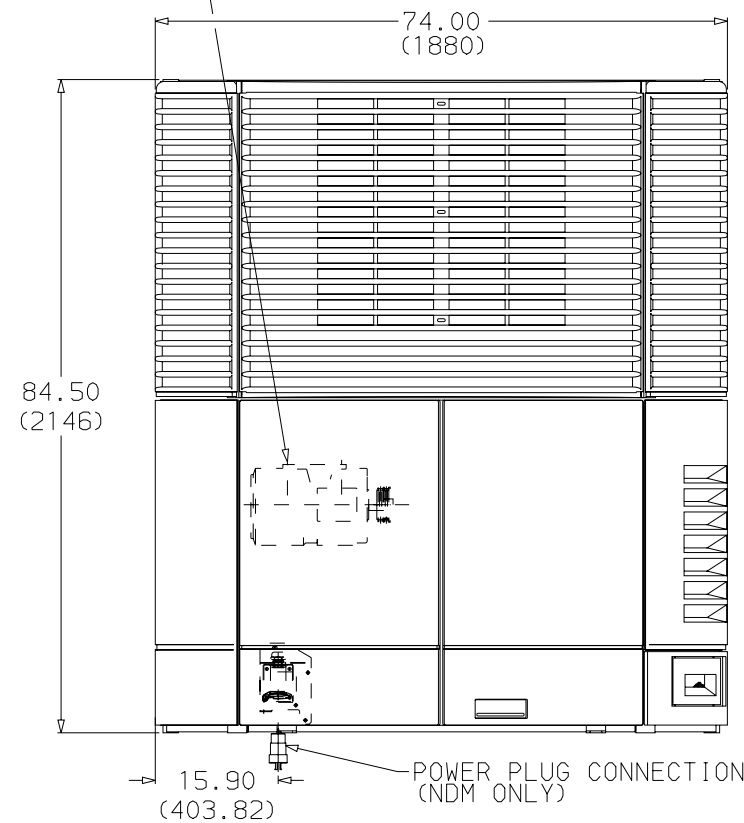
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UNIT DIMENSION INFORMATION



CONVERSION CHART	
DECIMAL INCHES	FRACTIONAL INCHES
2.66	2-11/16
3.70	3-11/16
6.85	6-7/8
7.86	7-7/8
10.92	10-15/16
16.03	16-0
17.07	17-1/16
19.03	19-0
25.20	25-3/16
25.59	25-5/8
27.62	27-5/8
28.60	28-5/8
44.52	44-1/2
52.34	52-5/16
52.55	52-9/16
55.18	55-3/16
59.94	59-15/16
65.30	65-5/16
66.30	66-5/16

STANDBY MOTOR LOCATION (NDM ONLY)



T	PICTORIALLY REVISED TOP VIEW.	PCA7290706				DHL	09/20/99
L	ADDED NOTE "PLUG UNUSED MTG HOLE", 2.87 WAS 3.25, 45.25 WAS 45.50, 2.00 WAS 2.25 PER PCA7272046.					MGC	1/24/97
SYM	REVISION RECORD	ENGRG.	DATE	APPLICATION ENGRG.	DATE	DRAWN BY	DATE

SUPERSEDES	TITLE	INSTALLATION INSTRUCTIONS PHOENIX ULTRA/OPTIMA (NDA/M-94)	DRAWING NO. 98-03139 SHT. 2 OF	REV T
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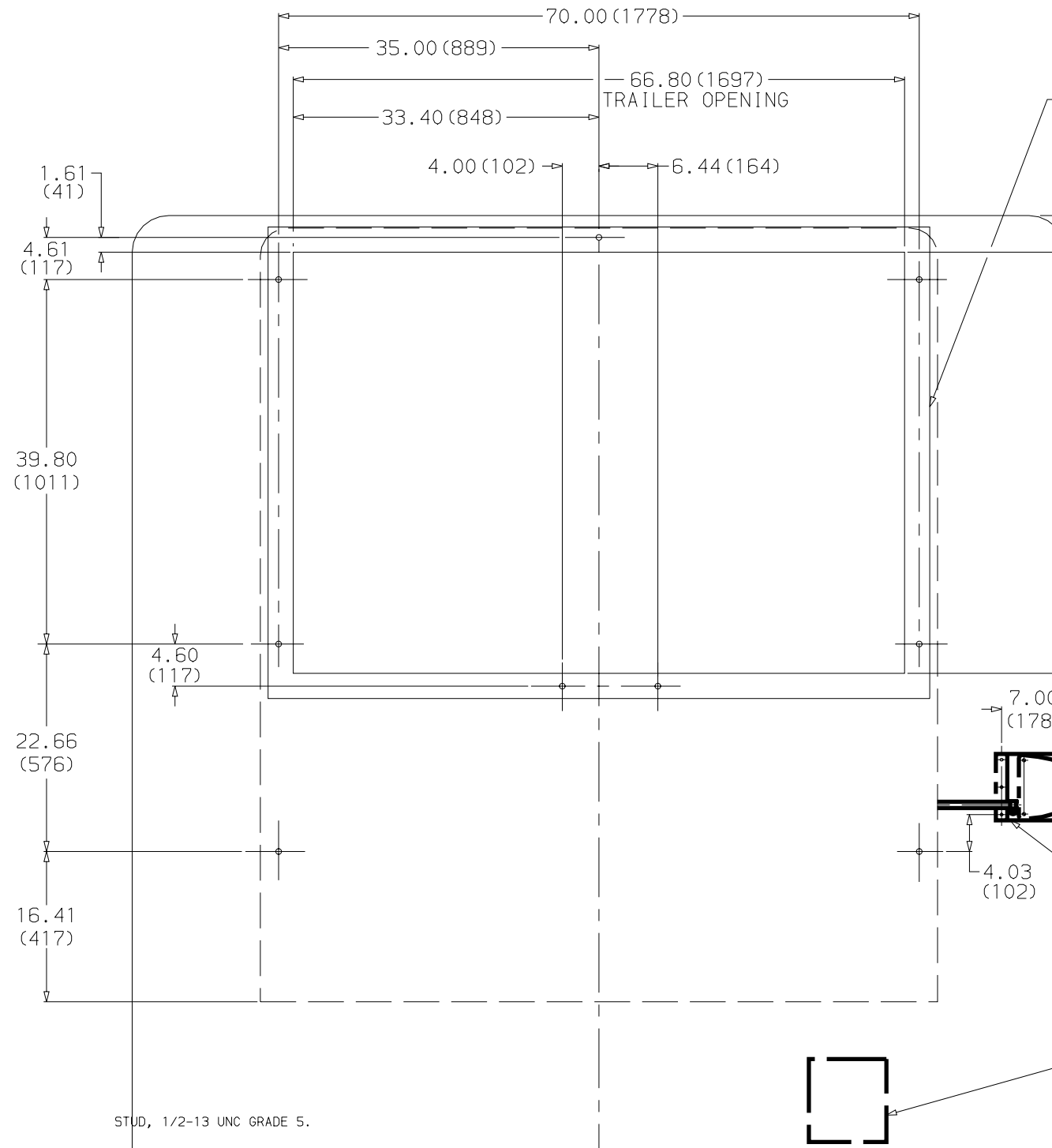
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CAUTION: UNIT MOUNTING SURFACES OF TRAILER THAT CONTACT THE UNIT MOUNTING PADS MUST BE UNI-PLANAR TO WITHIN 0.13(3) TO PREVENT DISTORTION OF UNIT AND/OR TRAILER.

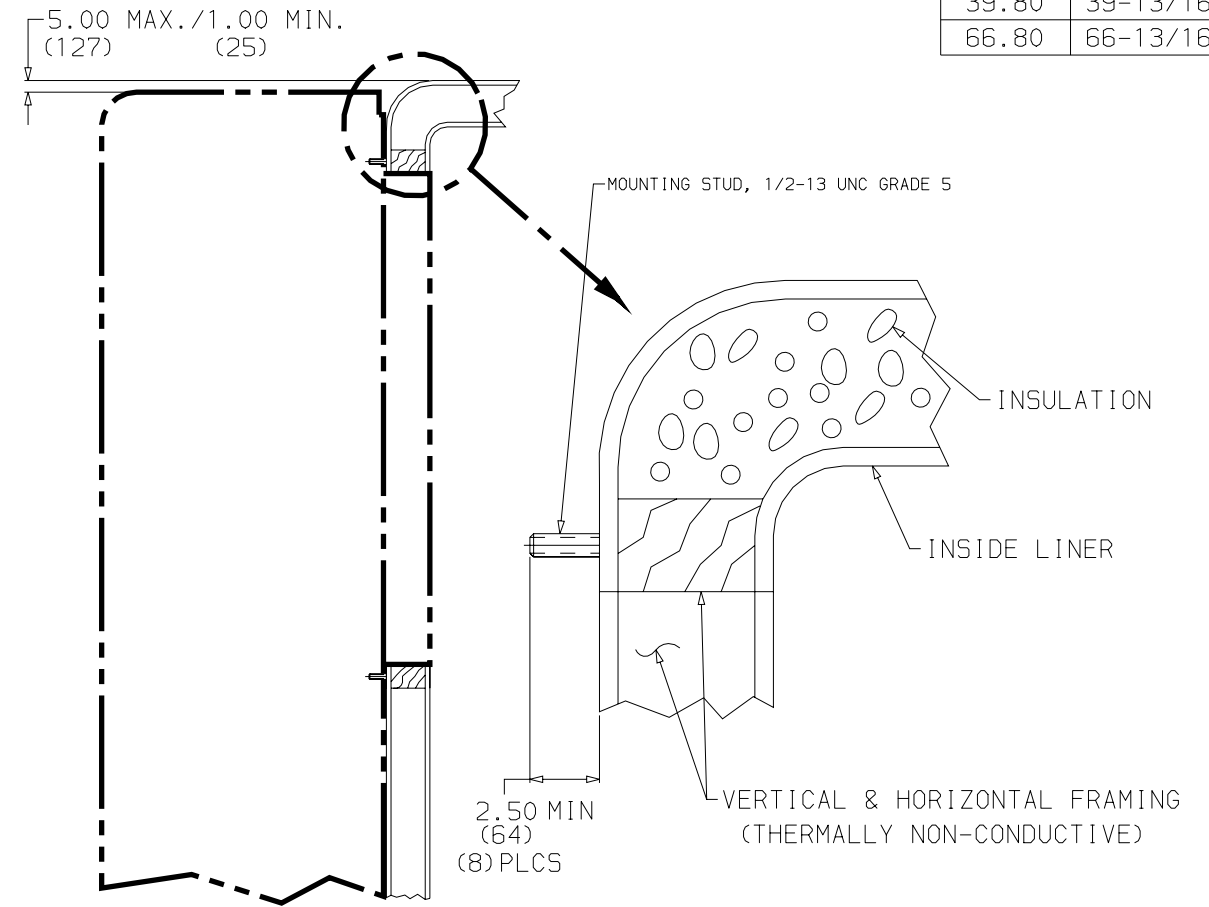
CAUTION: TRAILER SURFACES THAT CONTACT THE UNIT MOUNTING GASKET SHOULD NOT PROTRUDE MORE THAN 0.19(5) ABOVE THE PLANE DEFINED BY THE MOUNTING PAD SURFACES TO ENSURE PROPER AIR SEAL.

TRAILER BODY PREPARATION

CONVERSION CHART	
DECIMAL INCHES	FRACTIONAL INCHES
0.13	1/8
0.19	3/16
4.03	4-0
4.60	4-5/8
4.61	4-5/8
16.41	16-7/16
22.66	22-11/16
33.40	33-3/8
39.80	39-13/16
66.80	66-13/16



ALLOW 2.75" SPACE AROUND TRAILER OPENING FOR GASKET SEALING. (SEE CAUTION NOTES)



LIGHT BAR OPTIONAL (SEE DWG 98-03140 OR 98-03246)

TYPICAL GLADHAND LOCATION

U	REVISED EVAP OPENING DIM 8.00 MAX/4.00 MIN WAS 4.00 AND TOP CLEARANCE DIM 5.00MAX/1.00MIN WAS 1.00. MOUNTING STUD LENGTH 2.50 MIN WAS 3.00. ADDED 98-03246 TO LIGHT BAR CALLOUT. ADDED CALLOUT MOUNTING STUD, 1/2-13 UNC GRADE 5. 72N207GP06					ZMG	07FEB06
SYM	REVISION RECORD	ENGRG.	DATE	APPLICATION ENGRG.	DATE	DRAWN BY	DATE

SUPERSEDES	TITLE	DRAWING NO.	REV
	INSTALLATION INSTRUCTIONS PHOENIX ULTRA/OPTIMA (NDA/M-94)	98-03139 SHT. 3 OF	W



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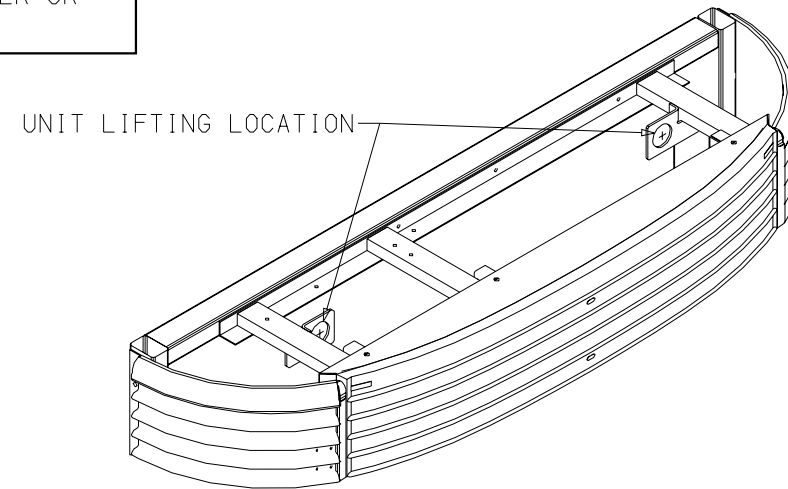
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NOTE: BULKHEAD AND AIR CHUTE SHOWN ARE OPTIONAL FEATURES. FOR BEST AIR CIRCULATION AND PRODUCT PROTECTION, CARRIER TRANSCOLD HIGHLY RECOMMENDS THE USE OF BULKHEADS AND AIR CHUTES. CONTACT YOUR DEALER OR CARRIER TRANSCOLD FOR RECOMMENDATIONS.

UNIT INSTALLATION



PREPARE UNIT FOR INSTALLATION:

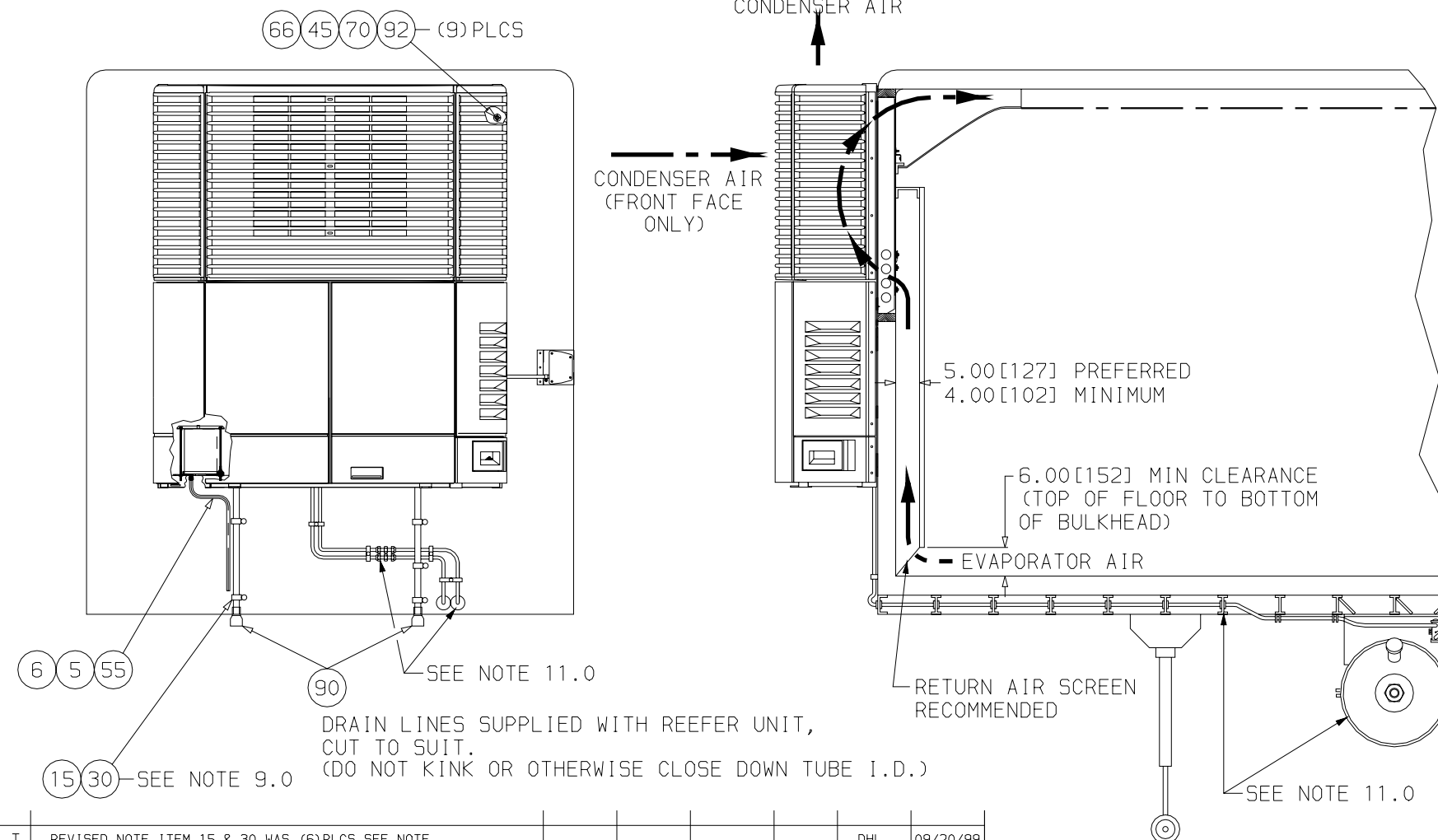
- 1.0 PREPARE THE BODY TO RECEIVE THE UNIT. DIMENSIONS FOR EVAPORATOR OPENING AND MOUNTING STUD LOCATIONS ARE ON SHEET 3 OF THIS DRAWING.
- 2.0 REMOVE WIRE TIES HOLDING DEFROST DRAIN HOSES, COOLANT OVERFLOW TUBE, AND FUEL LINES. PLACE LINES WHERE THEY WILL NOT BE CAUGHT BETWEEN THE UNIT FRAME AND THE TRAILER WALL.
- 3.0 OPEN FRONT DOORS OF UNIT, REMOVE BELT GUARD (4 BOLTS).
- 4.0 OPEN SIDE DOORS TO ALLOW ACCESS TO MOUNTING STUD LOCATIONS ON UNIT.
- 5.0 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.
- 6.0 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.

UNIT INSTALLATION:

- 7.0 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 45) ON EACH OF THE 8 STUDS. (NOTE: THE LOWER CENTER STUD MUST BE ACCESSED 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 EVENLY TIGHTEN ALL EIGHT TO 60 FT-LB/81.6 NM USING A TORQUE WRENCH. REMOVE LIFTING APPARATUS.
- 8.0 INSTALL BUTTON PLUGS (ITEM 92) IN UNIT FRAME WHERE MOUNTING STUDS ARE LOCATED AND ADDITIONAL UNUSED HOLE (SEE SHT.2).
- 9.0 ROUTE DEFROST 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 30) FOR EACH DRAIN HOSE. CUT HOSE TO PROPER LENGTH (APPROXIMATELY 3.00 [76.2] ABOVE 5th-WHEEL PLATE) AND INSTALL KAZOOS (ITEM 90) ON THE HOSES.
- 10.0 RE-INSTALL BELT GUARD.
- 11.0 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 TRANSCOLD. IN-SERVICE DATE MUST BE STAMPED ON THE UNIT IN THE PROPER LOCATION (SERIAL NUMBER PLATE) TO ACTIVATE WARRANTY COVERAGE.



SYM	REVISION RECORD	ENGRG.	DATE	APPLICATION ENGRG.	DATE	DRAWN BY	DATE
T	REVISED NOTE ITEM 15 & 30 WAS (6) PLCS SEE NOTE 8.0; REVISED NOTE 9.0 WAS 3 CLAMPS & 3 THREAD FORMING SCREWS, ADDED BALLOON CALLOUT ITEM 66; PICT'Y REMOVED 2 HALF CLAMPS ITEM 15.					DHL	09/20/99
P	ADDED ITEMS 5,6,55 AND NOTE 9.0; REMOVED NOTE 5.0; OTHER NOTES RENUMBERED.					DLD	03/23/99

SUPERSEDES	TITLE	INSTALLATION INSTRUCTIONS PHOENIX ULTRA/OPTIMA (NDA/M94)	DRAWING NO. 98-03139 SHT. 4 OF	REV T
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UNITS SUPPLIED WITHOUT BATTERY INSTALLED

- ① 1.0 USE THE FOLLOWING INFORMATION TO CORRECTLY SELECT THE BATTERY NEEDED FOR TRAILER UNITS.

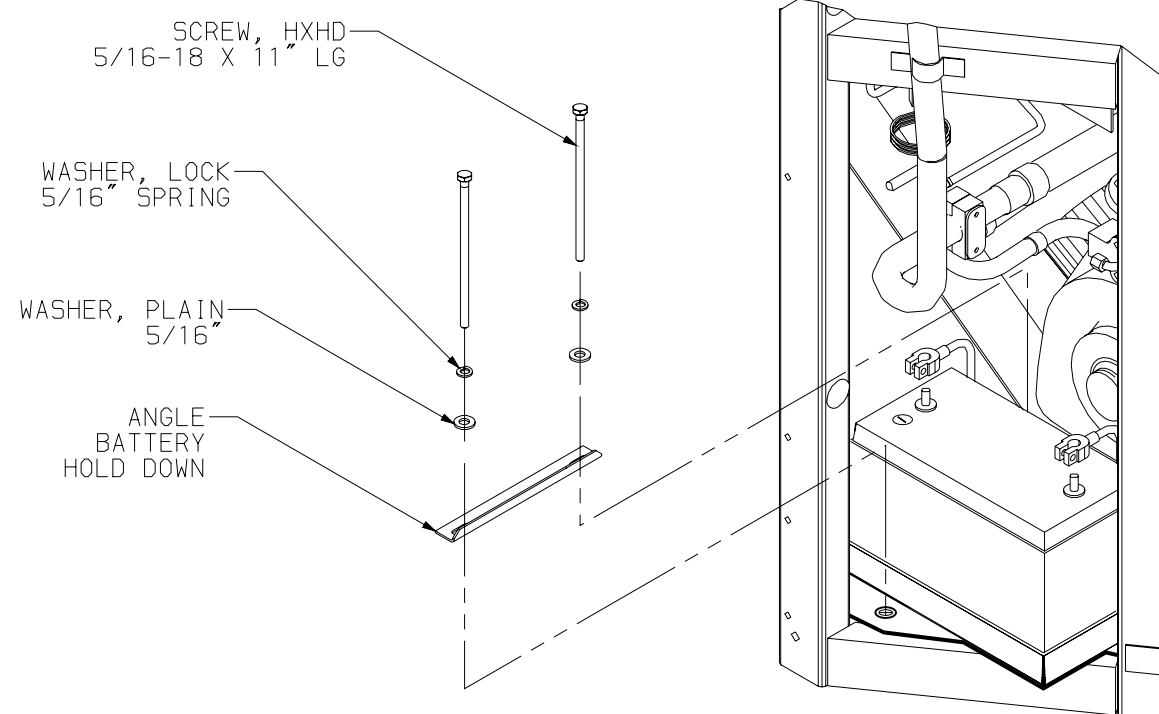
GROUP SIZE:	GROUP 31
VENT LOCATION:	SIDE VENT
VOLTS:	12 VOLTS DC
AMPERAGE:	* MINIMUM 700 COLD CRANKING AMPS @ 0° F * MINIMUM 545 COLD CRANKING AMPS @ -20° F

NOTE: WHEN SELECTING A SPECIFIC BRAND OF BATTERY, ALWAYS ENSURE THAT THE BATTERY CHOSEN IS RATED AT 0°F (0 DEGREES FAHRENHEIT) AND NOT 0°C (0 DEGREES CELSIUS). FAILURE TO USE THE PROPER BATTERY SIZE WILL RESULT IN REDUCED BATTERY LIFE AND A NO-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 (THE 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 COMPRESSOR (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.



ITEMS SUPPLIED IN BATTERY KIT

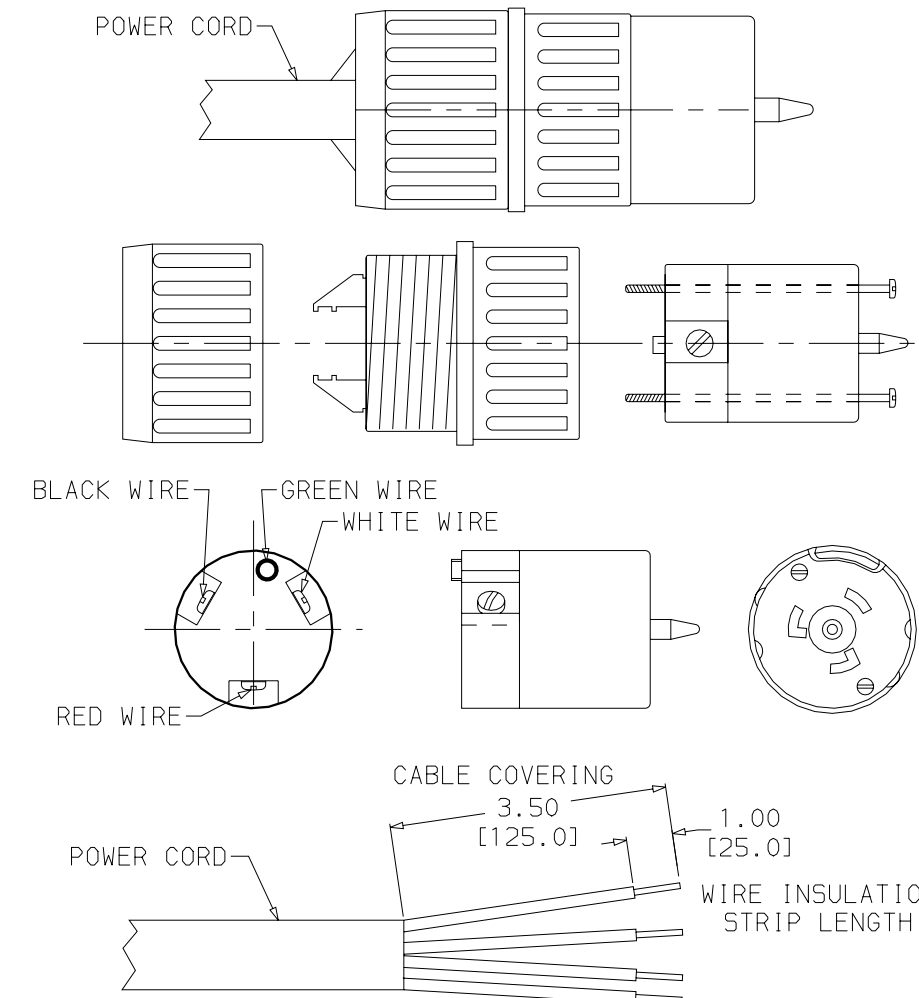
(PARTS IN POLY BAG AND/OR ATTACHED TO BATTERY TRAY)

STANDBY PLUG INSTALLATION (JAPAN ONLY)

VOLTAGE	Hz	PHASE	FULL LOAD AMP	LOCKED ROTOR AMP	POWER SUPPLY C.B. AMPS
200	50/60	3	45.5	305	70

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 STANBY 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."



R	ADDED NOTE #1.0 AND ADJUSTED NUMBERS ACCORDINGLY. PCA729048G				DHL	07/07/99
P	REMOVED DRAIN HOSE DETAILS AND INSTL NOTES; CHGD PCA729015G ITEM NO'S TO COMPONENT DESCRIPTION; SHT 5 WAS 5A.				DLD	02/25/99
SYM	REVISION RECORD	ENGRG.	DATE	APPLICATION ENGRG.	DATE	DRAWN BY DATE

SUPERSEDES

TITLE

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PHOENIX ULTRA/OPTIMA (NDA/M-94)

DRAWING NO.
98-03139
SHT. 5 OF

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