

Product Information Packet

Model LHP-1 700FFHC

Solid State Liquid Cooled Air Conditioner, Heat/Cool

With TC-3F Temperature Control

Part #2-1030-1-000

Thank you for your purchase. Information has been enclosed regarding the installation, specifications, and wiring of your solid-state assembly. Please read and follow all instructions carefully before installation. Only qualified technicians should install this equipment.

If you have any questions regarding your equipment, please do not hesitate to call us at 773-342-4900, and we will be happy to assist you. We are open from 8:30 am-5:00 pm Central Time.

Included in this packet you will find:

Installation Notes for Air Conditioners

Product Literature and Specifications

Assembly Drawing #LHP1700-B-A184

Wiring Drawing #LHP1700-B-E67

Installation Drawing #LHP1700-B-F8

Temperature Control Information

Warranty Information

The logo for Teca, featuring the word "teca" in a bold, lowercase, sans-serif font. To the left of the text is a stylized graphic element consisting of a vertical line and a diamond shape.

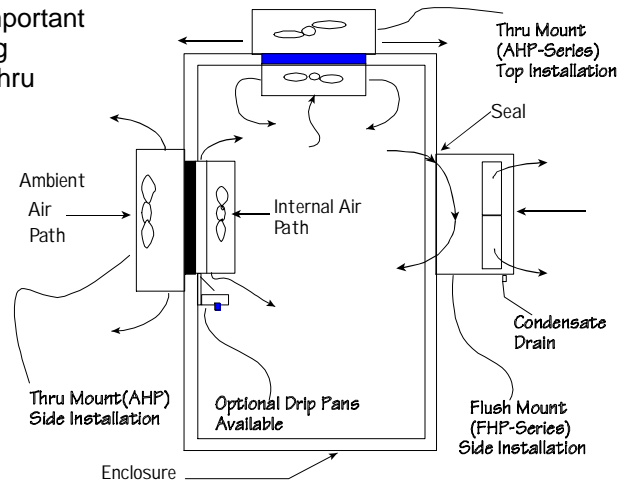
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Ph: 773/342-4900 Fx: 773/342-0191
sales@thermoelectric.com www.thermoelectric.com

Important Installation Notes for Air

Mounting Styles: Both 'thru mount' and 'flush mount' units can be positioned in any orientation and on any enclosure surface. It is important to consider interior air flow patterns when determining the mounting location. Also of importance is an unrestricted flow of ambient air thru the hot side heat exchanger. Ease of access and inspection must be considered for those applications in particularly severe environments which may require occasional maintenance.

Vertical (Side/Front/Back) Mounting:

Vertical mounting refers to the vertical direction of the cold side or interior fins and is recommended for applications with high humidity, poor and incomplete cabinet seals or any condition which may cause the cold side fins to be maintained at temperatures below the dew point for long periods of time allowing for the formation of condensation. The vertical fin direction provides a drip path whereupon condensation can be collected via a moisture removal system (standard on FHP-units) or a drip pan positioned below the cold side fins. Drip pans are optional for thru mount units.



Condensate Removal System:

All FHP-Series and AHP-1400 air conditioners contain a built-in condensate removal system. The condensate kit consists of a antifungal sponge with a condensate wick. PVC tubing is also provided for drainage. Drip pans are optional for thru mount units which must be evaluated on an individual basis. Equations defining a relationship between the cold side fin and enclosure temperatures are provided to assist in the evaluation.

Top Mounting:

Though often the easiest location to mount it is often the most difficult to protect from condensation in this orientation due to the fin orientation, gravity and any susceptible components below. If a drip pan is employed by the end user use caution to place the pan far enough away from the internal fan to minimize the restriction of air flow. The pan should cover the fin ends as well as the fan area. When there is a choice, the vertical orientation is preferred by most users.

Maintenance:

Since the technology is solid-state, there are no filters, compressors, or fluorocarbons to maintain. The only moving parts are the fans. It is recommended for harsh or dirty environments that the heat sinks be cleaned from time to time. This can be accomplished by directing compressed air over the external fins or on NEMA 4 versions by hosing the unit down. This will increase the overall life and performance of the system.

Cautions:

Take care when mounting not to damage the seal between the hot and cold side sinks. Do not attempt to mount a unit to a warped surface or try to make the units mounting surface conform to an unflat surface. Do not pinch or damage any leads when mounting. Do not over tighten any installation screw, use reasonable force. Always mount with any condensate drain down. Do not compress the cold side between the hot side and any other surface. Do not obstruct the airflow on either side. When mounting consider the natural air flows of the enclosure. Connect power only after the installation is complete.

Notes on condensation:

Condensation occurs at the cold side fins when the surface temperature goes below the dew point. To reduce or remove condensate, consider the following:

- Regulate the Fin Temperature above the Dewpoint.
- Keep Enclosure Closed and Sealed from Outside Humidity.
- Use Desiccant (Moisture absorbing Granules.)
- Employ Condensate Removal System/Drip Pans.

If you have any questions regarding your installation, Please feel free to contact our technical department for assistance at 773-342-4900.

LHP-1700FF

Liquid Cooled
Thru Mount
Nema-12

Solid-State Air Conditioner

FEATURES

- Standard 19" rack mount
- Weighs only 46 lbs. (21 kg)
- Ambient range 0°C to +70°C
- Available in 120 or 240 VAC
- Adaptable to NEMA-4 and explosion proof applications
- Can be mounted entirely inside purged enclosure
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts in any orientation

INCLUDES

- Integral power supply
- Compression fittings
- Power cord

APPLICATIONS

Useful where ambient air can not be used for heat removal such as paper processing at paper mills, and abrasives processing plants.



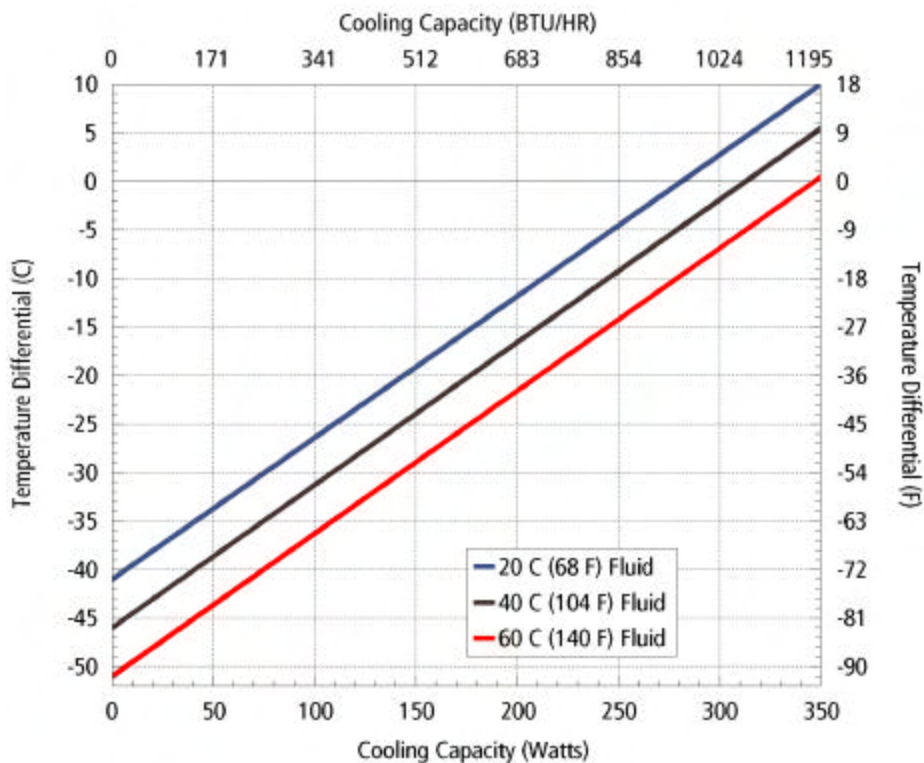
SPECIFICATIONS

MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VAC 50/60 HZ	CURRENT AMPS.	Min Flow GPM	WEIGHT LBS. (kg)	TEMP. CONTROL *	OPERATING AMBIENT °C
LHP-1700FF	2-1090-0-000	Cool only	950-1180	120	7.0	0.3	46(21)	none	0/+70
LHP-1700FF	2-1080-0-000	Cool only	950-1180	120	7.0	0.3	46(21)	TC-6F	0/+70
LHP-1700FF	2-1050-0-000	Cool only	950-1180	120	7.0	0.3	46(21)	OPT*	0/+70
LHP-1700FFHC	2-1030-1-000	Heat/Cool	950-1180	120	7.0	0.3	46(21)	TC-3F	0/+70
LHP-1700FFHC	2-1050-1-000	Heat/Cool	950-1180	120	7.0	0.3	46(21)	OPT*	0/+70
LHP-1702FF	2-1092-0-000	Cool only	950-1180	240	4.7	0.3	46(21)	none	0/+70
LHP-1702FF	2-1082-0-000	Cool only	950-1180	240	4.7	0.3	46(21)	TC-6F	0/+70
LHP-1702FF	2-1052-0-000	Cool only	950-1180	240	4.7	0.3	46(21)	OPT*	0/+70
LHP-1702FFHC	2-1032-1-000	Heat/Cool	950-1180	240	4.7	0.3	46(21)	TC-3F	0/+70
LHP-1702FFHC	2-1052-1-000	Heat/Cool	950-1180	240	4.7	0.3	46(21)	OPT*	0/+70

*OPT; Unit is set up for TC-3300 controller (or similar)

LHP-1700FF

PERFORMANCE CURVE



Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$			
Fluid Temp	20°C	40°C	60°C
Enclosure Air	$y = .147x - 41.0$	$y = .147x - 46.0$	$y = .147x - 51.0$
Cold Sink	$y = .11x - 41.0$	$y = .11x - 46.0$	$y = .11x - 51.0$

MOUNTING STYLE

Thru Mount

ENVIRONMENTS

Nema-12 IP 40 (maintains IP 52)

RATING (TRADITIONAL)

1050 BTU/hr @ 0 °F ΔT

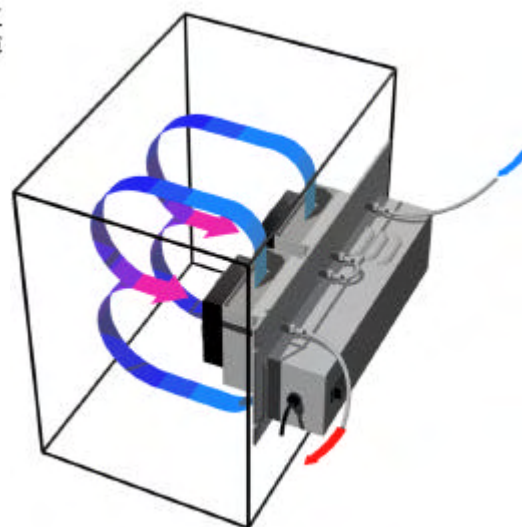
1320 BTU/hr @ +20 °F ΔT *

RATING (DIN 3168)

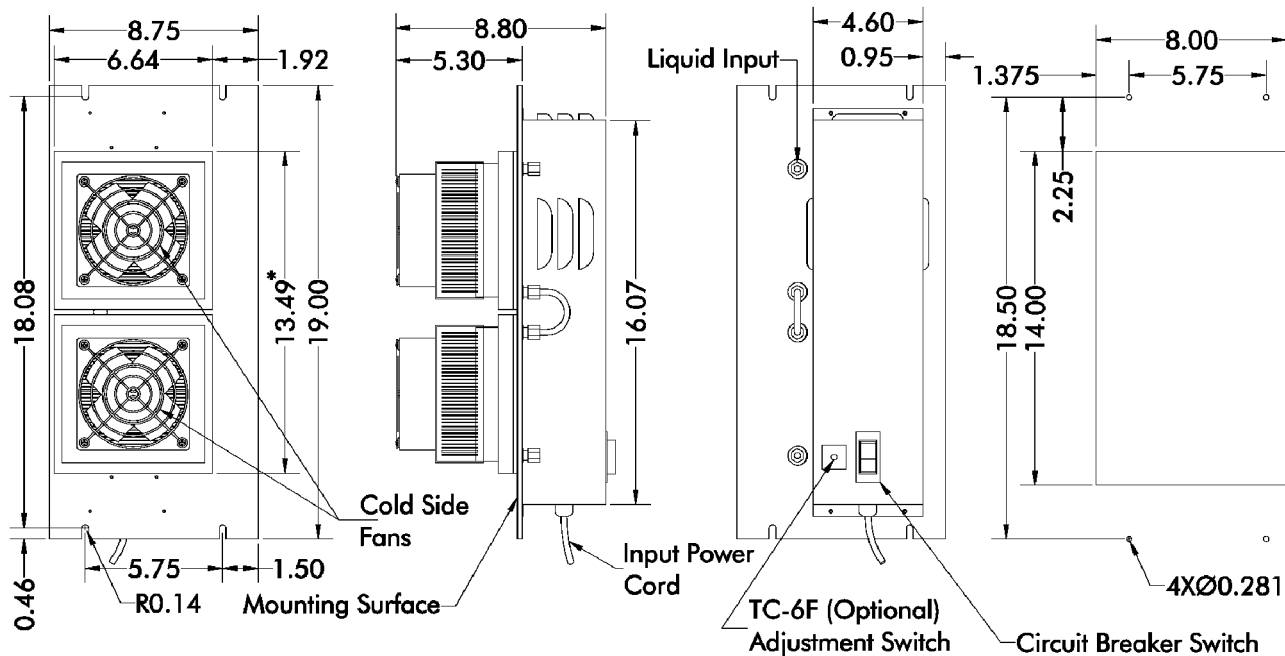
312 Watts L35 L35

225 Watts L35 L50

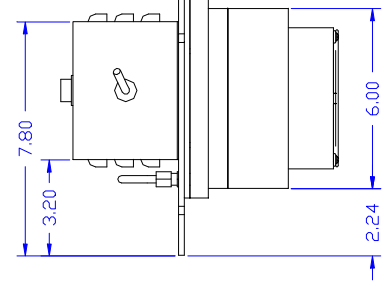
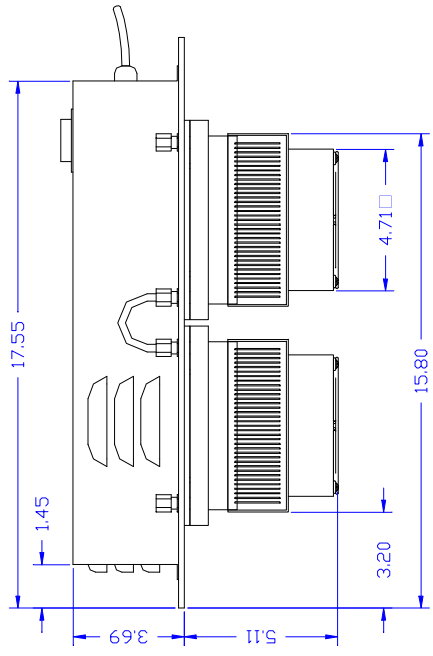
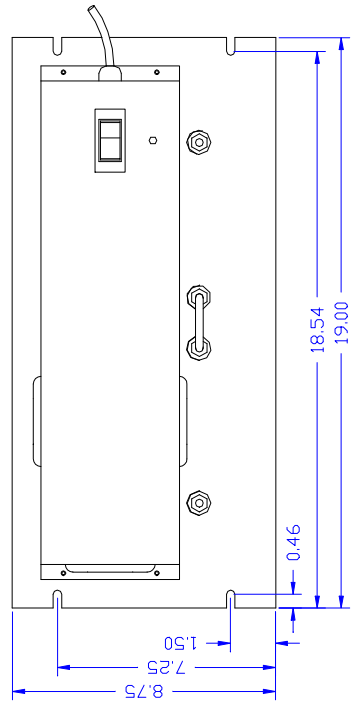
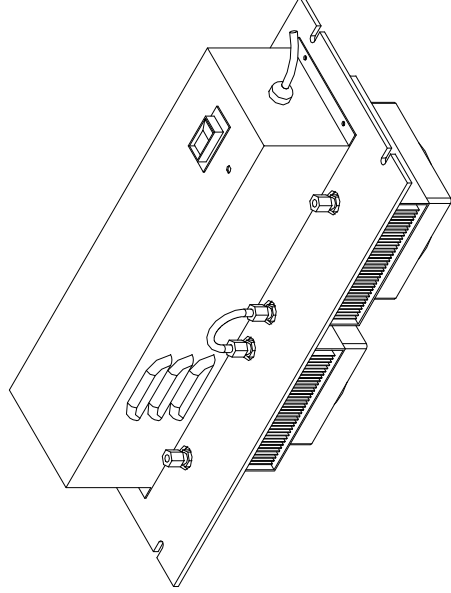
* See page 6



DIMENSIONS



* Dimension does not include hardware, insulation. Dimensions: inches.

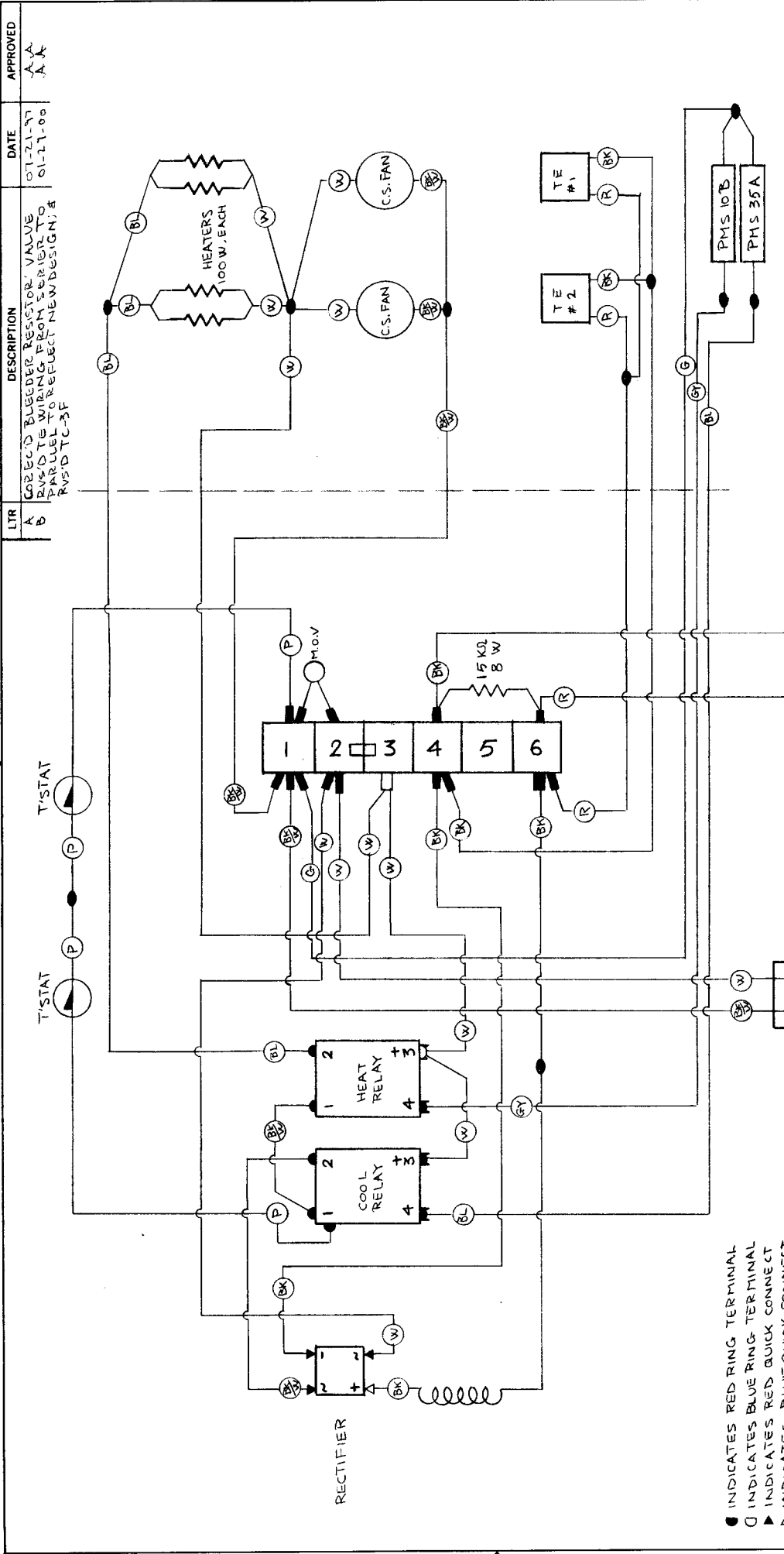


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HEREIN IS THE PROPERTY
OF THERMOELECTRIC
CORPORATION. ALL RIGHTS
RESERVED. NO PART OF
THIS INFORMATION IN ANY
UNAUTHORIZED MANNER.
FINISH:

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS: .005
ANGLES: .002
FRACTIONS: 1/16

THERMOELECTRIC COOLING AMERICA CORP.	
LHP-1700 FF ASSEMBLY	
DRAWN BY: AA	DRAWING #
DATE: 12/04/00	LHP1700-B-A184
D5549	SCALE
	MASTER: 1700-B-1089
	REV LEVEL
	SHEET

REV	DESCRIPTION	DATE	APPROVED



LTR	A	DESCRIPTION	DATE	APPROVED
	B	REVISOR'S NAME	07-21-77	A.A.
		REVISION	01-11-00	A.A.
		REVISION		

REVISOR'S NAME: CORRECT BLEEDER RESISTOR VALUE
 REVISION: REVISE WIRING FROM SERIAL TO PARALLEL TO RESPECT NEW DESIGN; #
 REVISED TO: RVS DTC-3F

 ThermoElectric Cooling America Corp.	
LHP-1700FFHC W/TC-3F WIRING DIAGRAM	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	FRACTIONS DECIMALS ANGLES
1/16 ± .005	.XX ± .015 ±
MATERIAL	FINISH
APPROVALS	DATE
DRAWN <i>A.A.</i>	2-14-75
CHECKED	
SIZE	DRAWING NO.
B	LHP1700-B-E67
SCALE	SHEET
	D3352
	OF

- INDICATES RED RING TERMINAL
- INDICATES BLUE RING TERMINAL
- ▶ INDICATES RED QUICK CONNECT
- ▷ INDICATES BLUE QUICK CONNECT
- INDICATES RED FORK TERMINAL
- INDICATES BLUE FORK TERMINAL
- INDICATES SOLDER CONNECTION
- INDICATES SMALL RED RING TERMINAL
- INDICATES SMALL BLUE RING TERMINAL

SWITCH BREAKER

110 VAC INPUT

CAPACITOR

RECTIFIER

COOL RELAY

HEAT RELAY

1 2 3 4 5 6

HEATERS
100W, EACH

C.S. FAN

C.S. FAN

TE #1

TE #2

PMS 10B

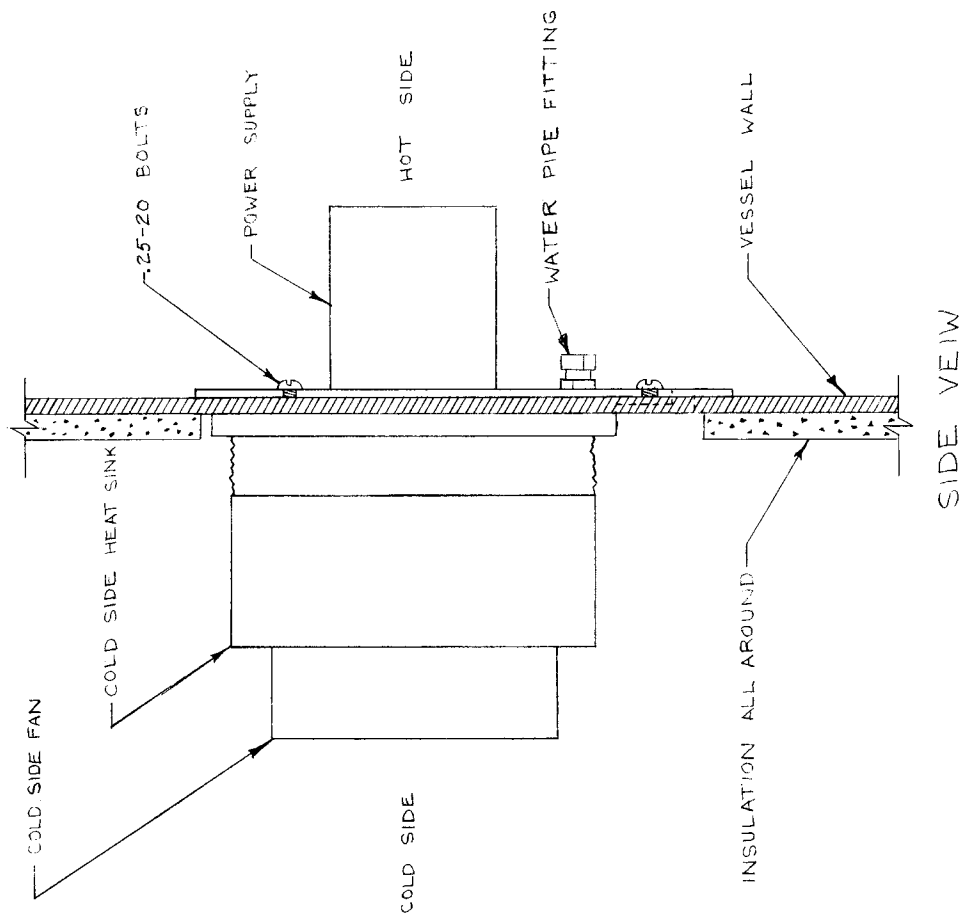
PMS 35A

T'STAT

T'STAT



APPLICATION		REVISION	
NEXT ASSY	USED ON	LTR	DESCRIPTION
		A	CHGD PIPE FITTING LOCATION
			DATE
			1-2-86
			APPROVED
			AB



INSTALLATION INSTRUCTIONS

1. Cut and drill mounting holes as per field assembly mounting drawing #LHP-1700-B-F7.
2. Clean mounting surface.
3. Install unit, use foam weather proofing strips to seal cabinet air tight.
4. Fit 1" insulation around air conditioner inside of cabinet.
5. Caulk insulation to seal and secure insulation.
6. Inspect for air leaks.
7. Connect 1/4" water lines. (compression fittings) Use one fitting for water inlet, use other fitting for outlet, flow direction does not matter.
8. Minimum recommended coolant flow rate: 1.9 liter/min. (0.5 gal/min.)
9. Inspect for water leaks.
10. Connect power.

NOTE: Never run unit without water circulation.

		ThermoElectrics	
CONTRACT NO.		INSTALLATION INSTRUCTIONS FOR FIN AND FAN LHP-1700	
APPROVALS DRAWN CHECKED	DATE 1-6-82	SIZE B	DRAWING NO. LHP 1700-B-F8
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .XX ± .XXX ±		SCALE N/A	SHEET 1088 OF
MATERIAL		DO NOT SCALE DRAWING	
FINISH		DRAWING NO. LHP 1700-B-F8	

Control/Thermostats

The model **TC-6F** (Cool Only) thermostat is designed using two magnetic reed switches in conjunction with a solid state relay. A three position switch is provided to adjust between the following settings:

Position	Control Temp.	Tolerance	Reset Differential
1	35°C	+/-5°C	10°C Maximum
2	25°C	+/-5°C	10°C Maximum
3	Constant On		

The model **TC-3F** (Heat/Cool) thermostat incorporates the same technology as the TC-6F. It contains a single setting each for both heating and cooling as referenced below:

Mode	Control Temp.	Tolerance	Reset Differential
Cooling	35°C	+/-5°C	-10°C Maximum
Heating	15 °C	+/-5°C	+10°C Maximum

LIMITED WARRANTY

In the event a defect in material or workmanship is discovered in any of TECA's products within one year after the date they are delivered to Buyer, and if: (a) TECA is notified of the defect in writing by certified mail within 14 days of the date of discovery; (b) TECA may then either, at its sole discretion, inspect the product at Buyer's location, or require that the product be made available at Buyer's expense at TECA's premises for TECA's inspection within 14 days of the date of notification; and (c) the products are defective and the defects result from faulty materials and/or workmanship and not in any way from accident, misuse, misapplication, mishandling, modification, or alteration by the Buyer or the shipper, then TECA shall, at its sole option, repair or exchange defective products free of charge to Buyer, or credit to buyer the price of the defective products. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL TECA BE LIABLE FOR ANY CLAIM BASED UPON BREACH OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER DAMAGES WHETHER SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOST PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS OR CUSTOMER RELATIONSHIPS.

RETURNED GOODS, RESTOCKING CHARGES

In order to return merchandise for any reason (repair, replacement, or credit) a return authorization number must be issued by TECA. New merchandise may not be returned for credit beyond 60 days from shipment. Charges for incidental or other damages may also be made. All returned goods must be sent freight prepaid. A restocking charge of 15% will apply. On special equipment and custom modified equipment orders, additional incremental cancellation charges may be made.