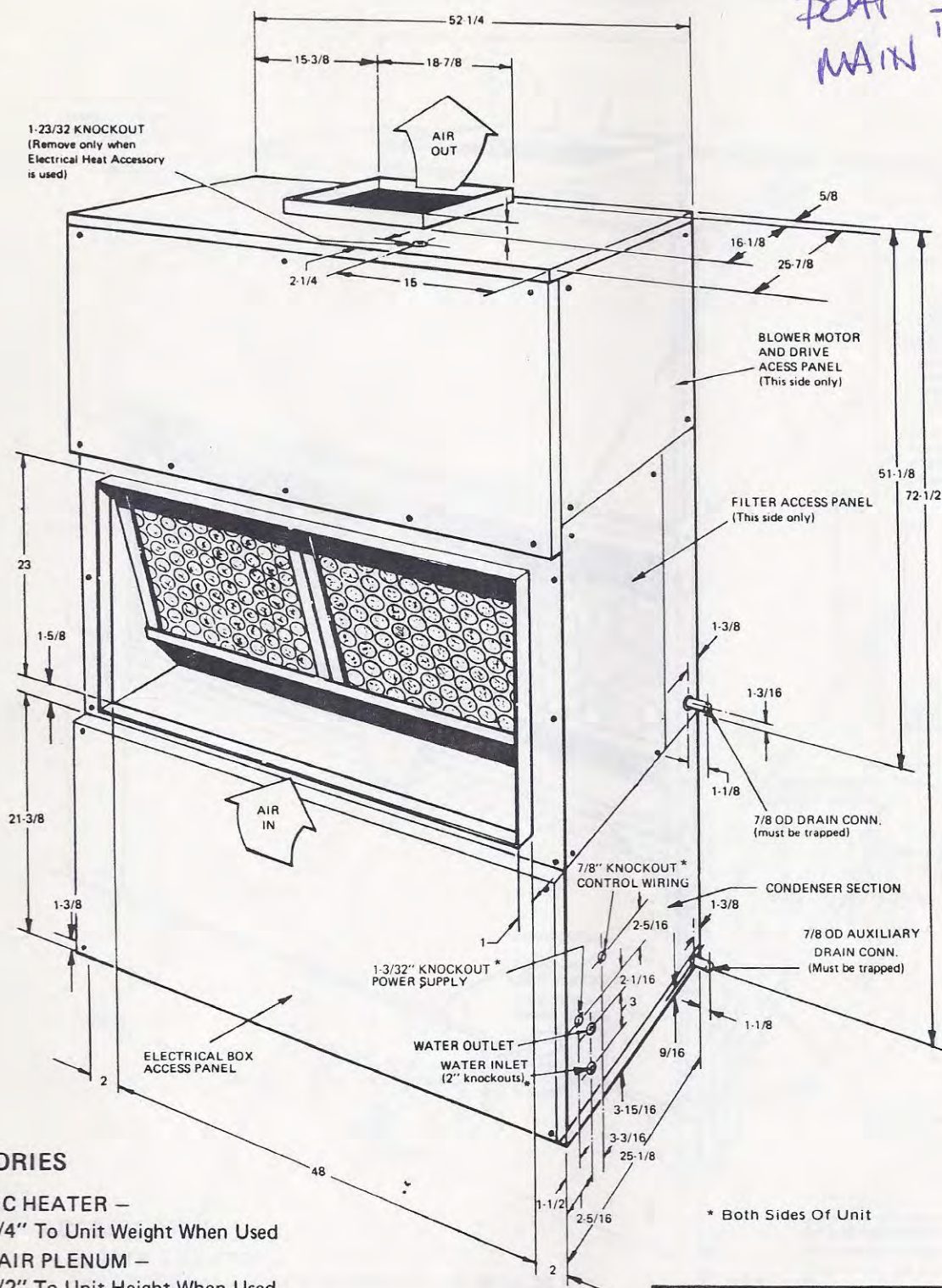


BOAT'S  
MAIN DECK

### ACCESSORIES

- **ELECTRIC HEATER** –  
Add 14-1/4" To Unit Weight When Used
- **SUPPLY AIR PLENUM** –  
Add 27-1/2" To Unit Height When Used

MINIMUM CLEARANCES	
Side with RETURN AIR opening .....	24"
Side with SUPPLY AIR opening .....	24" <sup>1</sup>
Side with PIPING CONNECTIONS.....	52" <sup>2</sup>
Side opposite PIPING CONNECTIONS.....	12"
Side with access for both POWER & CONTROL WIRING	— 3
Bottom .....	— 4

All dimensions are in inches. They are subject to change without notice. Certified dimensions will be provided upon request.

- <sup>1</sup>Overall dimension of the unit will vary if an electric heater or a supply air plenum is used.
- <sup>2</sup>This dimension is required for removal of the coil. Only 26" is required for normal servicing.
- <sup>3</sup>Although no clearance is required for service and operation, some clearance may be required for routing the power and control wiring.
- <sup>4</sup>Allow enough clearance to trap the auxiliary drain line.

FIG. 3 — UNIT DIMENSIONS (CBB090 and CBB120)

TABLE 3 — PHYSICAL DATA

Description			Unit Model			
			CBB060	CBB090	CBB120	CBB180
Compressor (Fully Hermetic)	Quantity Per Unit					
	3-3/4-Ton		—	2	—	—
	5-Ton		1	—	2	1
Evaporator Coil	10-Ton		—	—	—	1 <sup>2</sup>
	Rows Deep x Rows Wide		3 x 24	3 x 24	3 x 32	4 x 26
	Finned Length - inches		30	46	46	54.5
	Face Area - square feet		5.0	7.7	10.2	12.4
	Tube (Copper) OD - inches		3/8	3/8	3/8	1/2
Centrifugal Blower (Forward Curve)	Fins (Aluminum) per inch		13	13	13	12
	Diameter x Width - inches		10 x 10	15 x 15	15 x 15	18 x 18
Motors <sup>1</sup>	Nominal HP Rating		3/4 (1@460-3-60)	1-1/2	2	3
Filters (Throwaway)	Quantity Per Unit	16" x 25" x 1"	2	4	4	—
		20" x 20" x 1"	—	—	—	6
	Face Area - Square feet		5.6	11.1	11.1	16.7
Condenser (Water-Cooled)	Quantity Per Unit					
	3-3/4-Ton		—	2	—	—
Operating Charge	5-Ton		1	—	2	3
	Refrigerant-22, Lbs. - Oz.					
	System #1		5-1	4-10	5-14	12-0 <sup>2</sup>
	System #2		—	4-10	5-14	5-4

<sup>1</sup> Refer to Table 11 for additional blower motor and drive data.<sup>2</sup> The 10-Ton system is wired for first stage operation.TABLE 4 — COOLING CAPACITY<sup>1</sup>

Model	Air Entering Cooling Coil		Total Condenser Water GPM	Condenser Water Temperature, °F																
				80				90				100				110				
	CFM	Temp., °F		Total MBH	Sens. MBH	KW2	Water Range, °F	Total MBH	Sens. MBH	KW2	Water Range, °F	Total MBH	Sens. MBH	KW2	Water Range, °F	Total MBH	Sens. MBH	KW2	Water Range, °F	
		DB																		WB
CBB060 (1 Phase)	2000	86	72	15	69	45	4.4	11.2	65	44	4.7	10.8	62	43	5.0	10.5	58	42	5.3	10.1
		80	67		63	43	4.3	10.4	59	42	4.6	10.0	56	41	4.9	9.7	53	40	5.2	9.4
		74	62		57	41	4.2	9.6	54	40	4.5	9.3	51	39	4.8	9.0	48	38	5.1	8.7
		68	57		52	40	4.1	8.8	49	39	4.4	8.6	46	38	4.7	8.3	43	37	5.0	8.0
CBB060 (3 Phase)	2000	86	72	15	69	45	4.2	11.1	65	44	4.5	10.7	62	43	4.8	10.4	58	42	5.1	10.0
		80	67		63	43	4.1	10.3	59	42	4.4	9.9	56	41	4.7	9.6	53	40	5.0	9.3
		74	62		57	41	4.0	9.5	54	40	4.3	9.2	51	39	4.6	8.9	48	38	4.9	8.6
		68	57		52	40	3.9	8.7	49	39	4.2	8.5	46	38	4.5	8.2	43	37	4.8	7.9
CBB090	3000	86	72	22.5	102	68	6.2	11.0	97	66	6.6	10.6	91	63	7.0	10.2	85	60	7.5	9.8
		80	67		94	65	6.0	10.2	89	63	6.4	9.9	84	61	6.8	9.5	78	58	7.3	9.1
		74	62		86	62	5.8	9.4	81	61	6.2	9.1	76	59	6.6	8.8	71	56	7.1	8.4
		68	57		77	60	5.7	8.6	73	59	6.1	8.4	68	57	6.5	8.1	64	55	7.0	7.8
CBB120	4000	86	72	30	139	93	8.4	11.2	132	90	9.0	10.8	124	87	9.6	10.4	116	85	10.3	10.0
		80	67		128	90	8.2	10.5	121	87	8.8	10.1	114	84	9.4	9.7	106	81	10.0	9.3
		74	62		118	87	8.0	9.7	110	84	8.6	9.4	103	81	9.2	9.0	96	78	9.8	8.6
		68	57		107	84	7.8	8.9	100	81	8.4	8.6	93	78	9.0	8.3	86	75	9.6	7.9
CBB180	6000	86	72	45	211	146	13.4	11.4	203	140	14.0	11.2	188	134	14.7	10.6	170	128	15.4	9.9
		80	67		195	139	13.1	10.6	187	135	13.7	10.4	175	130	14.4	9.9	158	125	15.1	9.3
		74	62		175	133	12.8	9.7	168	130	13.5	9.5	158	126	14.2	9.1	145	122	14.8	8.7
		68	57		154	127	12.6	8.8	149	125	13.3	8.6	141	122	14.0	8.4	132	119	14.6	8.1

Nominal Rating

<sup>1</sup> These capacities are gross ratings. For net capacities, determine the KW requirements of the supply air blower motor per the BLOWER PERFORMANCE data, Table 7. Convert KW to MBH per the following equation and deduct this equivalent heat from the gross cooling ratings.

$$\text{Blower Motor KW} \times \frac{3.415 \text{ MBH}}{\text{KW}} = \text{Blower Motor Heat (MBH)}$$

<sup>2</sup> Compressor KW only. For total unit KW, add the KW requirement of the supply air blower per the BLOWER PERFORMANCE data, Table 7.

Curve No. 1 – CBB180 Unit  
 Curve No. 2 – CBB090 and 120 Unit  
 Curve No. 3 – CBB060 Unit

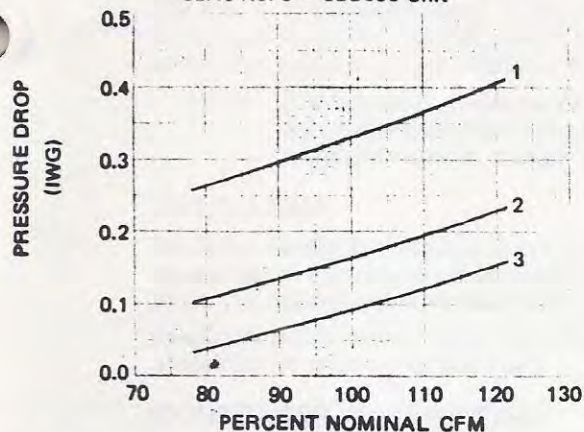


TABLE 10 – CFM RATINGS

Model	% OF NOMINAL CFM				
	80	90	100	110	120
CBB060*	1600	1800	2000	2200	2400
CBB090	2400	2700	3000	3300	3600
CBB120	3200	3600	4000	4400	4800
CBB180	4800	5400	6000	6600	7200

\*Filters must be removed on CBB060 unit only before readings are taken.

FIG. 9 – CFM CURVE

TABLE 11 – BLOWER MOTOR AND DRIVE DATA

Unit Model		Motor*		Blower RPM	Adjustable Motor Pulley		Fixed Blower Pulley		Belt	
		HP	Power Supply		Pitch Diameter (in.)	Bore (in.)	Pitch Diameter (in.)	Bore (in.)	Designation	Pitch Length (in.)
CBB060	-F	3/4	208/230-1-60	810-1110	2.8 - 3.8	5/8	6.0	3/4	A32	33.3
	-W	1	460-3-60			7/8				
CBB090	-T	1 1/2	208/230-3-60	655-880	2.8 - 3.8	7/8	7.5	1	A36	37.3
	-W	1 1/2	460-3-60			7/8				
CBB120	-T	2	208/230-3-60	700-950	2.8 - 3.8	7/8	7.0	1	A36	37.3
	-W	2	460-3-60			7/8				
CBB180	-T	3	208/230-3-60	625-810	3.4 - 4.4	7/8	9.5	1	A57	58.3
	-W	3	460-3-60			7/8				

All of these motors are 1750 RPM and have a 56 frame, inherent protection and permanently lubricated ball bearings. The 3/4 HP motor is split phase and has a resilient base and a 1.25 service factor. All of the 3-phase motors have a solid base and a 1.15 service factor.

CAUTION: Do NOT operate a motor above its nominal HP rating when a unit is equipped with either a hot water or steam coil accessory.

Motors are 600 - 3 - 60

## DUCT CONNECTIONS

All ducts should be made in accordance with all local and/or National Codes and in line with good duct installation practices.

Ductwork should be suspended with flexible hangers. Do not fasten directly to building or structure.

Allow clearance around duct for safety in handling water air, if any.

## SUPPLY AIR DUCTS

See Figure 10 for suggested method of connecting supply air duct work.

Duct should be sized no smaller than the duct flanges of the blower section.

Use flexible fiberglass or plastic cloth collars or other non-flammable material at the duct connections to minimize the transmission of noise and vibration.

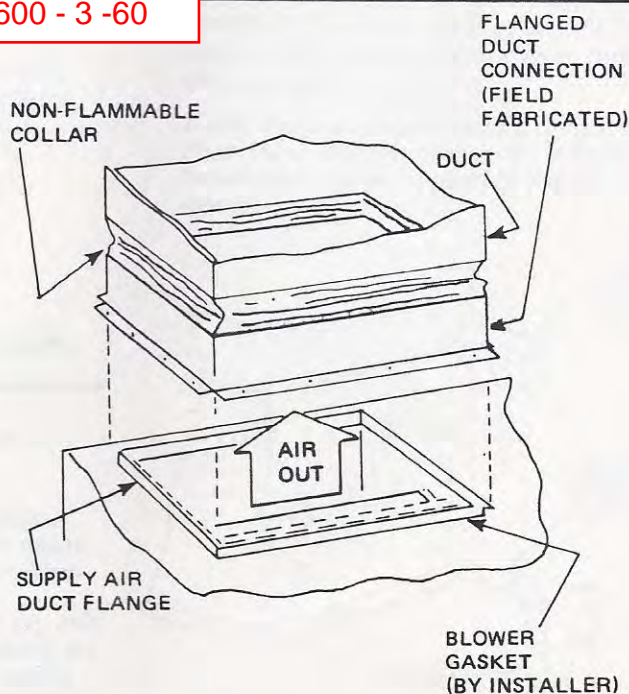


FIG. 10 – SUPPLY AIR DUCT CONNECTION

EXIT











Main Deck AC unit  
Blower  
arrangement



EXIT

Main Deck AC  
Unit: Covers  
removed





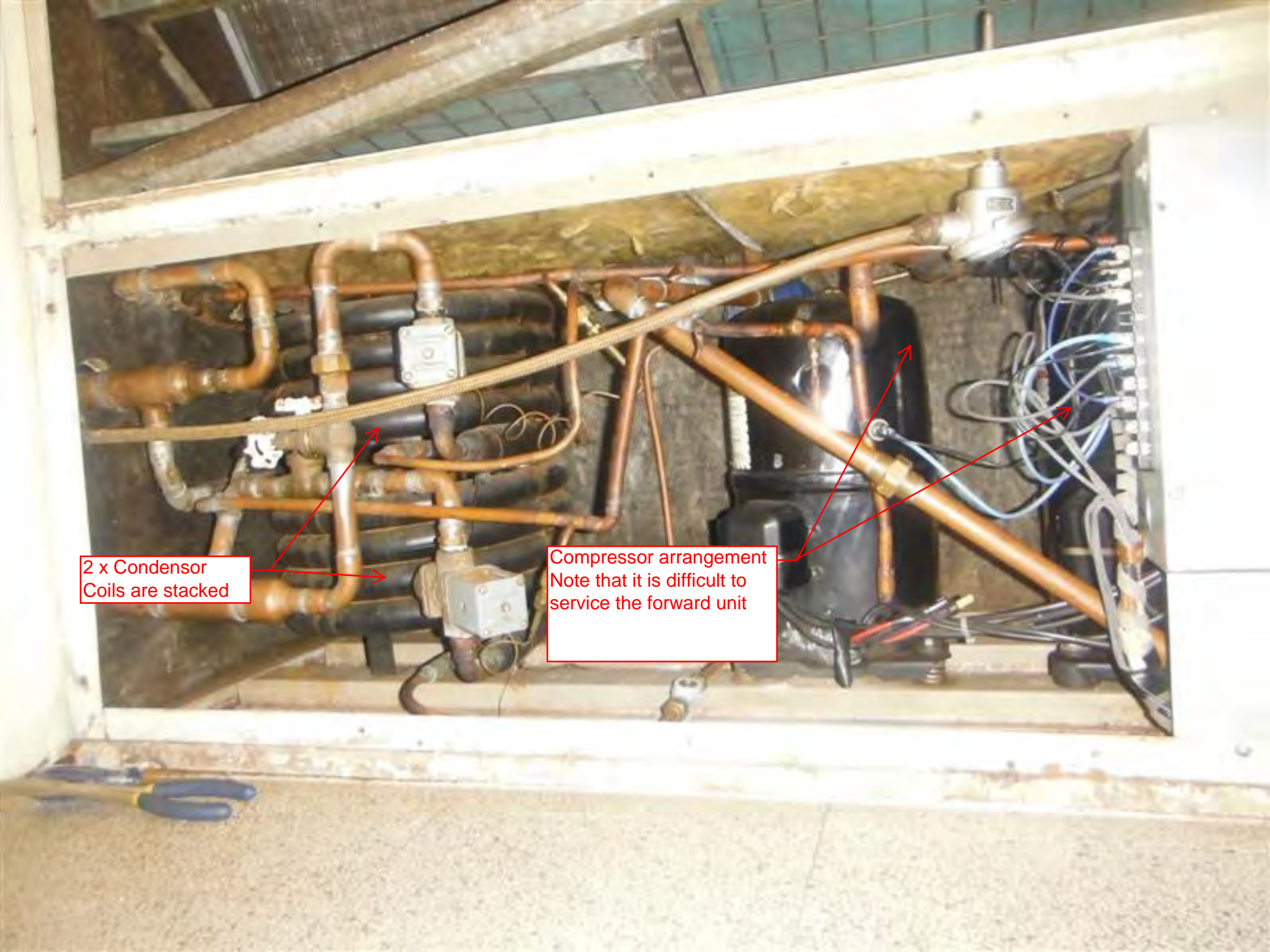
Main Deck AC unit  
Filter Arrangement

Dirty Filter sensor.  
This is not required  
in the new units  
unless regulations  
require it

Return Air  
Temperature to  
Alarm and  
Monitoring system  
Sensor to be  
retained







2 x Condensor  
Coils are stacked

Compressor arrangement  
Note that it is difficult to  
service the forward unit









Note the insulation condition. specification calls for 2 play walls to eliminate this fouling and allow the surfaces to be cleaned

Evaporators

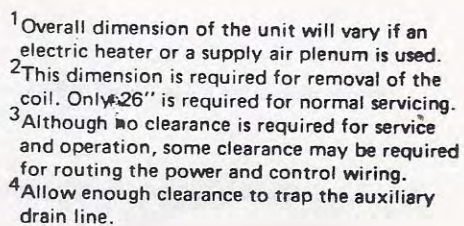
Filter retaining strip



Drain pipe for  
condensate tray.







Focsle Deck AC  
unit

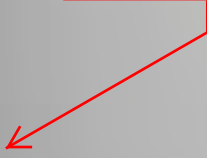


Focsle Deck AC  
Unit

This unit only has 2  
filter screens



Boat Deck AC Unit





Boat Deck AC Unit

Main Deck AC Unit



# Control Room and Bridge units

## PRODUCT LINE AND SPECIFICATIONS

MODEL	PHASE	VOLTS	TOTAL AMPERES	WATTS		FUSE SIZE AMPS (A)	WIRE SIZE GAUGE (B)	BLOWER MOTOR H.P.	BLOWER MOTOR & DRIVE	EVAP. NO OF ROWS	COIL FACE AREA	COND. H.O. PRES. DROP AT A.R.L.		EVAP. CFM AT ARI	COOLING CAPACITY BTU/HR (C)	HEATING CAPACITY BTU/HR (D)	EFFICIENCY RATINGS	
				COOLING	HEATING							FLOW GPM	AP P.S.I.				E.E.R.	C.O.P.
5K9CM	1	115	10.1	1160		20	14	1/8	2 SPEED DIRECT DRIVE	3	1.4	2.8	3.2	415	10,300		8.9	
5K9CMH	1	115	11.0		1230											13,900		3.3
5K13CM	1	208/230	7.2	1400		15	14	1/8	2 SPEED DIRECT DRIVE	3	1.4	3.3	3.8	465	13,200		9.4	
5K13CMH	1	208/230	8.1		1560											16,500		3.1
5K19CM	1	208/230	11.7	2095		30	14		2 SPEED DIRECT DRIVE	3	1.9	5.3	9.0	730	19,500		9.3	
5K19CMH	1	208/230	12.5		2330	30	14	1/5	2 SPEED DIRECT DRIVE	3	1.9	5.3	9.0	730		25,400		3.2
5K25CM	1	208/230	13.8	2805		30	12		2 SPEED DIRECT DRIVE	3	2.9	7.0	6.5	930	25,000		8.9	
5K25CMH	1	208/230	13.9		2665	30	12	1/5	2 SPEED DIRECT DRIVE	3	2.9	7.0	6.5	930		30,000		3.3
5K31CM	1	208/230	18.0			40	10		2 SPEED DIRECT DRIVE	3	2.9	9.0	8.0	1415	34,000		9.6	
5K31CMH	1	208/230	21.1			40	10	1/2	2 SPEED DIRECT DRIVE	3	2.9	9.0	8.0	1415		45,500		3.2
5K33CM	1	208/230	22.3			50	8		2 SPEED DIRECT DRIVE	4	2.9	10.75	11.0	1310	40,000		10.1	
5K33CMH	1	208/230	24.0			50	8	1/2	2 SPEED DIRECT DRIVE	4	2.9	10.75	11.0	1310		53,000		3.4
5K52CM	1	208/230	27.1			60	8		BELT DRIVE VARIABLE PITCH	3	4.0	14.5	10.0	1830	49,000		8.9	
5K52CMH	1	208/230	26.6			60	8	3/4	BELT DRIVE VARIABLE PITCH	3	4.0	14.5	10.0	1830		59,000		3.2
6K52D	1	208/230	27.2			60	8		3 SPEED DIRECT DRIVE	3	4.0	14.5	10.0	1830	56,000		10.1	
6K52DH	1	208/230	29.5			60	8	3/4	3 SPEED DIRECT DRIVE	3	4.0	14.5	10.0	1830		70,000		3.3
6K65D	1	208/230	31.5			70	6		3 SPEED DIRECT DRIVE	4	4.0	15.5	10.0	2000	66,000		10.5	
6K65DH	1	208/230	31.8			70	6	3/4	3 SPEED DIRECT DRIVE	4	4.0	15.5	10.0	2000		80,000		3.4
5K65CM	3	208/230	19.7			40	10		BELT DRIVE VARIABLE PITCH	3	4.0	15.5	10.0	2000	58,000		9.1	
5K65CMH	3	208/230	19.0			40	10	1	BELT DRIVE VARIABLE PITCH	3	4.0	15.5	10.0	2000		64,000		3.2
5K90CM	3	208/230	30.0			60	8		BELT DRIVE VARIABLE PITCH	4	6.0	24.8	8.5	3075	93,000		9.6	
5K90CMH	3	208/230	33.6			60	8	1 1/2	BELT DRIVE VARIABLE PITCH	4	6.0	24.8	8.5	3075		124,000		3.3

(A) Time Delay Fuses Recommended  
(B) Less than 50 Foot Run from Voltage Source.  
(C) Rated in accordance with ARI Standard 210-66.  
(D) Rated in accordance with ARI Standard 240-67.  
Heating cycle requires 50° F E.W.T. minimum.

MODEL DESIGNATIONS:  
Prefix KC—Vertical Series  
Prefix K with suffix CM—Horizontal Series  
Suffix H—Heat Pump  
Suffix T—Cooling Tower Application

Consult factory for voltages other than listed above.  
Portable models with capacities to 25,000 BTU/HR also available. Marine models available with components designed for marine use.

\* Fuse size based on U.L. formula: 2.25 x compressor R.L.A. + sum of all other motor F.L.A. and rounded down to largest standard size.

\*\* Wire size based on N.E.C. 310-16 with ampacity calculated per U.L. formula:

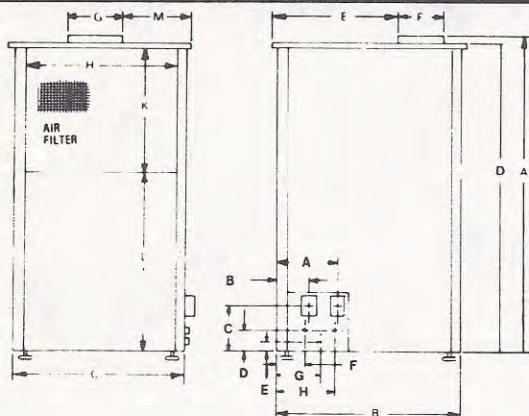
Ampacity = 1.25 x compressor R.L.A. + sum of all other motor F.L.A.

AIR FLOW DATA (WET COIL)	SERIES									
	9	13	19	25	31	33	52	65	90	
EXTERNAL STATIC PRESSURE	C.F.M.									
.1	415	465	730	930	1450	1350	1920	2200	3300	
.2	365	440	680	880	1380	1270	1830	2000	3190	

FOR HEATING IN MODEL 6K65DH ON 208 V, WIRE FOR HIGH-SPEED FAN ONLY.

# DIMENSION DATA

## "VERTICAL COMFORT SYSTEM"



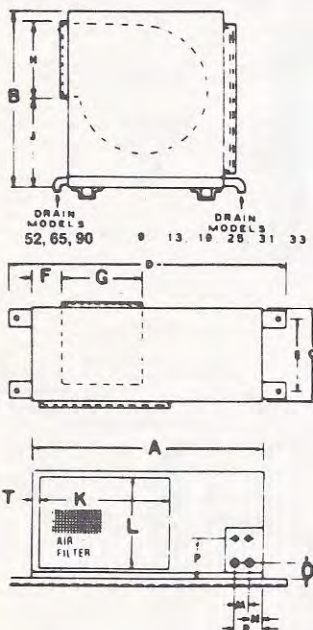
	A	B	C	D	E	F	G	H
5KC19-33	5 1/16	3 3/8	7 3/4	4 3/8	1 9/16	3 3/16	4 1/16	5 11/16
6KC52-65	8 1/4	3 1/2	9 1/2	5 1/4	2 1/8	3	4 1/2	5 1/2

### MODEL NUMBERS

	5KC19D 5KC19DH	5KC25D 5KC25DH	5KC31D 5KC31DH	5KC33D 5KC33DH	5KC52D 5KC52DH	6KC52D 6KC52DH	6KC55D 6KC55DH
A	38 1/4	44 1/4	44 1/4	44 1/4	66	45	45
B	21 3/4	21 3/4	21 3/4	21 3/4	21 13/16	26	26
C	20 3/4	20 3/4	20 3/4	20 3/4	20 3/4	33	33
D	37 1/4	43 1/4	43 1/4	43 1/4	65	44	44
E	12 1/8	10 7/16	9 7/16	9 7/16	9 7/16	12 1/2	12 1/2
F	7 7/8	10 3/8	11 3/8	11 3/8	11 3/8	11 1/2	11 1/2
G	9 3/16	12	12 1/4	12 1/4	12 1/4	13 1/4	13 1/4
H	18	18	18	18	18	29 3/4	29 3/4
K	17 1/2	23 1/2	23 1/2	23 1/2	28	22	22
L	18 11/16	18 11/16	18 11/16	18 11/16	18 11/16	20 11/16	20 11/16
M	5 15/16	4 3/8	4 1/4	4 1/4	3 13/16	9 7/8	9 7/8
WATER CONNEX- TIONS	Standard "T" Tower Application Drain (FPT)	1/2" MF 1/2" MF 3/4" MF	3/4" MF 3/4" MF 3/4" MF	3/4" MF 3/4" MF 3/4" MF	3/4" MF 3/4" MF 3/4" MF	3/4" FPT 3/4" MF 3/4" MF	1" FPT 1" MF 1" MF
AIR FILTER SIZE (F) (Inches)	Width Height Thickness	18 17 1/2 1/2	18 23 1/2	18 23 1/2	18 23 1/2	29 3/4 22 1/2	29 3/4 22 1/2
SHIPPING WEIGHT		205	240	280	300	380	475

Control Room and  
Bridge Units

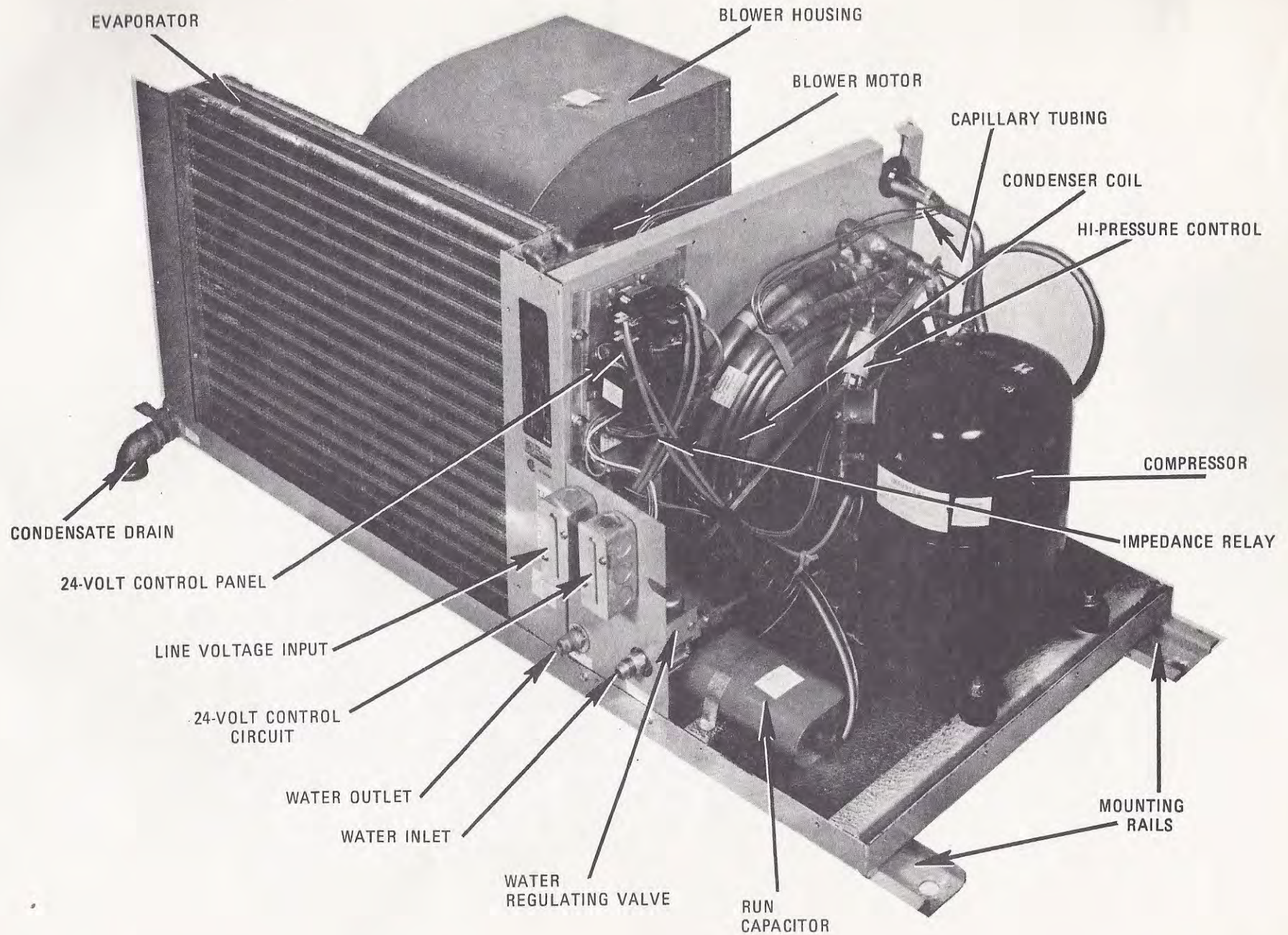
## "HORIZONTAL SYSTEM"



### MODEL NUMBERS

	5K9CMH 5K9CMH	5K13CMH 5K13CMH	5K19CMH 5K19CMH	5K25CMH 5K25CMH	5K31CMH 5K31CMH	5K33CMH 5K33CMH	5K52CMH 5K52CMH	5K65CMH 5K65CMH	5K90CMH 5K90CMH
A	36 7/16	36 7/16	36 7/16	45 7/16	45 7/16	45 7/16	58 3/8	58 3/8	58 3/8
B	11 7/8	11 7/8	15 11/16	18 1/2	18 1/2	18 1/2	24 3/4	24 3/4	24 3/4
C	17 9/16	17 9/16	17 9/16	20 1/8	20 1/8	20 1/8	28	28	28
D	41	41	41	50	50	50	76	76	76
E	14	14	14	16 3/4	16 3/4	16 3/4	24 1/2	24 1/2	24 1/2
F	6 3/8	6 3/8	6 3/8	5 3/8	5 3/8	5 3/8	7 3/8	7 3/8	7 3/8
G	9	9	6 1/4	11 1/8	12 1/4	12 1/4	15 5/8	15 5/8	15 5/8
H	4 1/2	4 1/2	8	10 3/8	11 7/16	11 7/16	13 9/16	13 9/16	13 9/16
J	6 3/4	6 3/4	5 1/2	6 3/4	5 9/16	5 9/16	8 9/16	8 9/16	8 9/16
K	19 7/8	19 7/8	19 3/4	22	22	22	36	36	36
L	10	10	14	17 1/2	17 1/2	17 1/2	24 1/8	24 1/8	24 1/8
M	2 3/8	2 3/8	2 3/8	3 1/2	3 1/2	3 1/2	5	5	5
N	9 3/4	9 3/4	9 3/4	12	12	12	2 3/8	2 3/8	2 3/8
O	3 3/4	3 3/4	3 3/4	3 1/2	3 1/2	3 1/2	7 1/4	7 1/4	7 1/4
P	8 1/2	8 1/2	8 1/2	7 7/8	7 7/8	7 7/8	9	9	9
R	12 3/8	12 3/8	12 3/8	15 1/2	15 1/2	15 1/2	7 3/8	7 3/8	7 3/8
T	1 1/2	1 1/2	1 1/2	2 3/4	2 3/4	2 3/4	1 1/2	1 1/2	1 1/2
WATER CONNEX- TIONS	Standard "T" Tower Application Drain FPT	3/8" MF 1/2" MF 3/4" MF	3/8" MF 1/2" MF 3/4" MF	1/2" MF 1/2" MF 3/4" MF	1/2" MF 3/4" MF 3/4" MF	3/8" MF 3/4" MF 3/4" MF	3/4" FPT 3/4" MF 3/4" MF	3/4" FPT 3/4" MF 3/4" MF	1" FPT 1" MF 1" MF
AIR FILTER SIZE (F) INCHES	Width Height Thickness	20 1/4 9 7/16 1/2	20 1/4 9 7/16 1/2	20 1/4 13 1/8 1/2	22 17 1/2 1/2	22 17 1/2 1/2	17 1/2 EA. 24 1/2	17 1/2 EA. 24 1/2	17 1/2 EA. 24 1/2
SHIPPING WEIGHT		140	190	205	260	280	300	615	720

# CM HORIZONTAL SERIES





The image shows a technical environment, likely a control room or server room. On the left, several large white pipes run vertically. In the center, a white rectangular AC unit is mounted on a wall. To its left is a black rectangular panel. To the right of the AC unit, a red arrow points from a text label to the unit itself. The background features a curved wall and a bright light fixture on the right side.

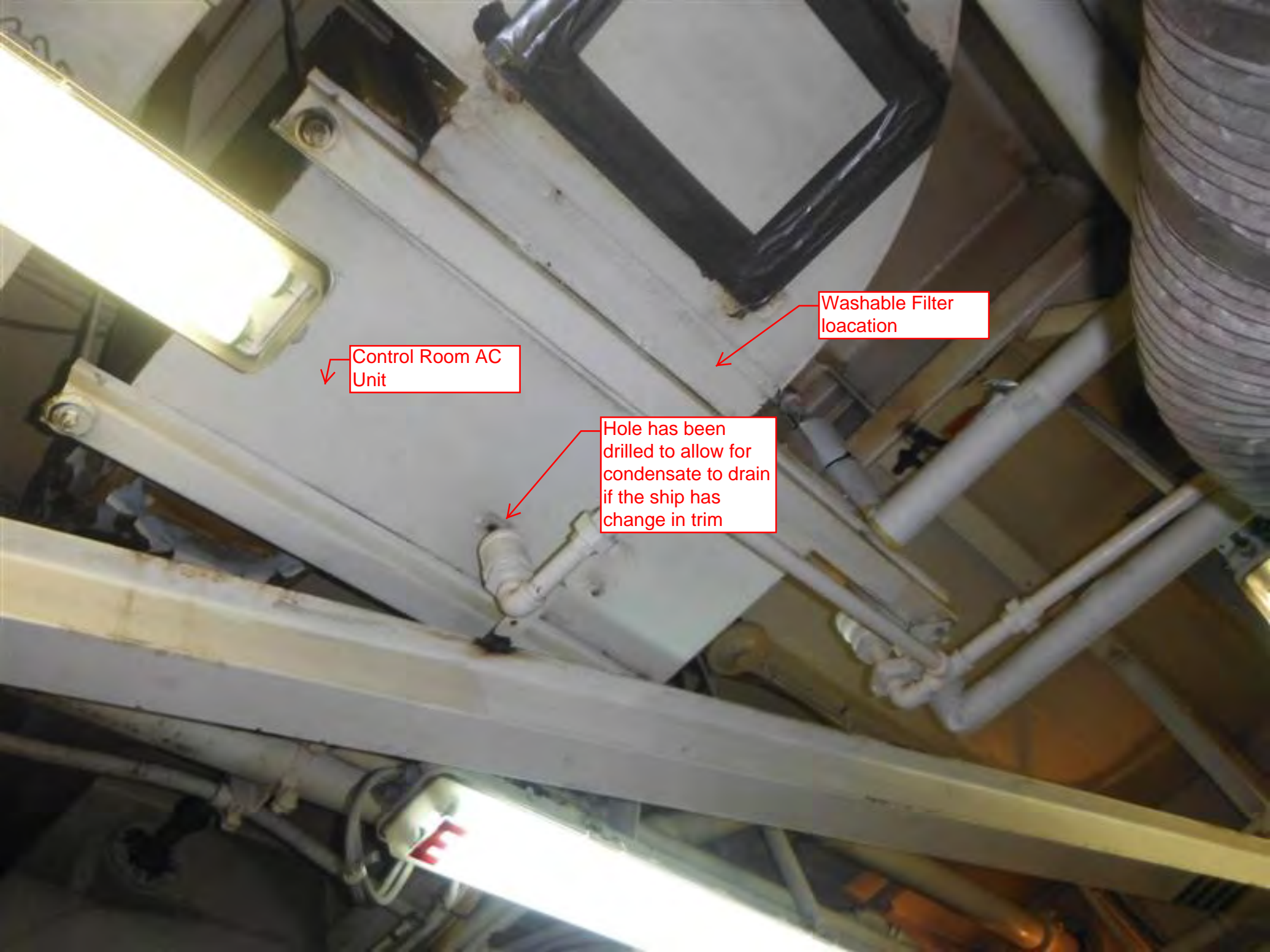
Control Room AC  
Unit

Control Room AC  
Unit

3 TON

S.W.L.





Control Room AC Unit

Washable Filter location

Hole has been drilled to allow for condensate to drain if the ship has change in trim

Bridge AC Unit  
STBD side

Condensate Drain






Bridge AC Unit  
STBD





Bridge AC Unit  
Compressor



Bridge STBD AC  
Unit Compressor.  
Note that the  
cabinet has been  
cut away to allow  
for servicing



Bridge AC Unit  
STBD



Bridge AC Unit  
Port



Bridge AC Unit  
Port

BRIDGE  
TO  
ENGINE

VOLTAGE LOW



REFRIGERANT  
TAG  
ENCLOSED

Underside of Stairs  
to Bridge Deck.  
These will need to  
be cut out to  
access the unit

Bridge AC Unit  
Port





Field Service  
Model: 1000  
Serial: 1000  
Date: 10/10/10  
By: J. Smith  
Notes: 1. Check for leaks.  
2. Check for proper operation.  
3. Check for proper wiring.  
4. Check for proper pressure.  
5. Check for proper temperature.  
6. Check for proper flow.  
7. Check for proper sound.  
8. Check for proper vibration.  
9. Check for proper smell.  
10. Check for proper taste.

REFRIGERANT  
DO NOT OPEN

REFRIGERANT  
TAG  
ENCLOSED

Bridge AC Unit  
Port



REFRIGERANT  
TAG  
ENCLOSED





REFRIGERANT  
TAG  
ENCLOSED