HENRY VOGT MACHINE COMPANY, LOUISVILLE,KY., USA

SERVICE MANUAL

Vogt®

Tube-Ice®

MACHINE

MODEL P118F

MODEL P218F

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A BRIEF HISTORY OF OUR COMPANY

Henry Vogt Machine Co. was founded as a small machine shop in Louisville, Kentucky in 1880. Today it is one of the world's leading producers of ice-making equipment.

In 1938, Vogt built the first TUBE-ICE machine and revolutionized the ice-making industry. Our first "sized-ice" machine quickly replaced the old can-ice plants, which required much hard labor and large amounts of floor space for freezing, cutting, and crushing ice by hand.

VOGT ENERGY-SAVING TUBE-ICE MACHINES ARE COST EFFECTIVE

Today VOGT TUBE-ICE machines enjoy a well-earned reputation as the most energy efficient, dependable ice-making equipment in the world.

Using as little as one-half to one-third the energy required by competitors' ice makers, TUBE-ICE machines produce the same amount of ice--in restaurants, sports arenas, packing plants, and wholesale operations around the globe--at great savings.

In addition, TUBE-ICE machines are renowned for their long life, giving many customers more than 35 years of dependable service.

Ask someone who owns one.

PREVIEW

All the skill in engineering and fabrication that we've learned in over a century of experience is reflected in the TUBE-ICE machine. Since VOGT introduced TUBE-ICE machines in 1938, the process of making TUBE-ICE ice been widely recognized as the most economical means of production. The machine's economic and reliable operation have been proven over and over again in a network of varied types of installations throughout the world.

Furnished with your machine is the CERTIFICATE OF TEST--the report of operating data which is a record of the unit's satisfactory operation at our factory test floor. It is evidence of our desire to deliver to you "the finest ice making unit ever made."

This manual is designed to assist you in the installation, start-up, and maintenance of your unit. Your TUBE-ICE machine will give you a lifetime of service when you install it, maintain it, and service it properly.

Please read your manual carefully before attempting installation, operation, or servicing of this professionally-designed piece of equipment.

If you have additional questions, please call your distributor.

SPECIAL PRECAUTIONS TO BE OBSERVED WHEN CHARGING REFRIGERATION SYSTEMS

Only technically qualified persons, experienced and knowledgeable in the handling and operation of refrigerant systems should perform the operations described in this manual.

Safety goggles should be worn during refrigerant handling, charging, or transfer operations.

If a refrigeration systems is being charged from refrigerant cylinders, disconnect each cylinder when empty or system is fully charged. A gauge should be installed in the charging line to indicate refrigerant cylinder pressure. The cylinder may be considered empty of liquid R-22 when gauge pressure is 40 pounds or less and there is no frost on the cylinder. Close the refrigerant charging valve and cylinder valve before disconnecting cylinder. Loosen union in refrigerant charging line slowly to relieve refrigerant pressure between cylinder valve and charging valve.

CAUTION: IMMEDIATELY CLOSE SYSTEM CHARGING VALVE AT COMMENCEMENT OF DEFROST OR THAWING CYCLE IF REFRIGERANT CYLINDER IS CONNECTED. NEVER LEAVE A REFRIGERANT CYLINDER CONNECTED TO SYSTEM EXCEPT DURING CHARGING OPERATION. FAILURE TO OBSERVE EITHER OR THESE PRECAUTIONS CAN RESULT TO THE REFRIGERANT CYLINDER TO RUPTURE BECAUSE OF PRESSURE FROM EXPANSION OF THE LIQUID REFRIGERANT.

Always store cylinders containing refrigerant-22 in a cool place. They should never be exposed to temperatures higher than 140°F and should be stored in a manner to prevent abnormal mechanical shocks.

It it not recommended that refrigerant be transferred from a refrigeration system into a cylinder. If such a transfer is made, the refrigerant cylinder must be weighed continuously to assure contents do not exceed net weight specified by cylinder manufacturer or any applicable code requirements.

IMPORTANT SAFETY NOTICE

This information is intended for use by individuals possessing adequate backgrounds of electrical, refrigeration, and mechanical experience. Any attempt to repair major equipment may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

INSPECTION

As soon as you receive your machine, inspect it for any damage. If damage is suspected, note it on the shipper's papers (i.e., the trucker's Bill of Lading). **Immediately** make a separate written request for inspection by the freight line's agent. Any repair work or alteration to the machine without the permission of the Henry Vogt Machine Co. can void the machine's warranty.

The machine was shipped with a full charge of R-22 stored in the receiver. Visually check all lines for mechanical damage which may have developed during shipment. Prior to opening valves, check all the joints with a Halogen Leak Detector. All leaks should be reported to the Henry Vogt Machine Co. to obtain authorization for repair.

SPECIFICATIONS

	MODEL P118F-1½				MODEL P118F-1¼				MODEL P118F-1			
	CAPACITY LBS./24 HRS.	KWH 100 #	WATER REQUIREMENTS		CAPACITY LBS./24 HRS.	KWH 100 #	WATER REQUIREMENTS		CAPACITY LBS./24 HRS.	KWH 100 #	WATER REQUIREMENTS	
WATER TEMPERATURE	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM
90°	5650	3.77	28.3	50	7700	3.46	38.6	53	8800	3.04	44.1	55
80°	6350	3.35	31.8	34	8600	3.10	43.1	48	9900	2.71	49.6	50
70°	6850	3.14	34.3	20	9250	2.89	46.4	35	10800	2.49	54.2	40
60°	7275	2.94	36.5	14	9750	2.75	48.9	23	11600	2.32	58.2	25
50°	7625	2.82	38.2	10	10150	2.65	50.9	13	12250	2.20	61.4	15
WEIGHT	NET: 2585 LBS. - SHIPPING: 2800 LBS.				NET: 2775 LBS. - SHIPPING: 3000 LBS.				NET: 2775 LBS. - SHIPPING: 3000 LBS.			
STANDARD ELECTRICAL REQUIREMENTS	32.5 F.L.A. WATER-37.9 F.L.A. AIR				48.9 F.L.A. WATER-54.3 F.L.A. AIR				48.9 F.L.A. WATER-54.3 F.L.A. AIR			
	208/230 VOLT, 3 PHASE, 60 HERTZ. (OPTIONAL ELECTRICAL ARRANGEMENTS ON REQUEST)											
STANDARD CONDENSING UNIT	7½ H.P. RATING				10 H.P. RATING				10 H.P. RATING			
	REFRIGERANT 22 WITH ACCESSIBLE HERMETIC COMPRESSOR AND WATER COOLED TUBE TYPE CONDENSER. REMOTE AIR COOLED CONDENSER AVAILABLE AS OPTIONAL EXTRA.											
ICE SIZE	CYLINDER 1⅜" DIA. X 1"				CYLINDER 1⅛" DIA. X 1"				CYLINDER 7/8" DIA. X 1"			
	CRUSHED ICE 3/16" TO 1/4" THICK CAN BE PRODUCED WITH MODIFICATION OF CUTTER											

NOTE: CAPACITY BASED ON 90° AMBIENT (AIR) TEMPERATURE. (REFRIGERANT CHARGE INCLUDED)
WATER AND KWH BASED ON 60 HERTZ. CAPACITY IS THE SAME FOR BOTH 60 AND 50 HERTZ OPERATION
WATER FOR ICE MAKING DOES NOT INCLUDE BLOWDOWN.

SPECIFICATIONS

	MODEL P218F-1½				MODEL P218F-1¼				MODEL P218F-1			
	CAPACITY LBS./24 HRS.	KWH/100 #	WATER REQUIREMENTS		CAPACITY LBS./24 HRS.	KWH/100 #	WATER REQUIREMENTS		CAPACITY LBS./24 HRS.	KWH/100 #	WATER REQUIREMENTS	
WATER TEMPERATURE	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM	(SEE NOTE)		ICE MAKING GPH	CONDENSER GPM
90°	11300	3.77	56.6	100	15400	3.46	77.2	106	17600	3.04	88.2	110
80°	12700	3.35	63.6	68	17200	3.10	86.2	96	19800	2.71	99.2	100
70°	13700	3.14	68.6	40	18500	2.89	92.8	70	21000	2.49	108.4	80
60°	14550	2.94	73.0	28	19500	2.75	97.8	46	23200	2.32	116.4	50
50°	15250	2.82	76.4	20	20250	2.65	101.8	26	24500	2.20	122.8	30
WEIGHT	NET: 5275 LBS. - SHIPPING: 5600 LBS.				NET: 5675 LBS. - SHIPPING: 6000 LBS.				NET: 5675 LBS. - SHIPPING: 6000 LBS.			
STANDARD ELECTRICAL REQUIREMENTS	65.0 F.L.A. WATER - 75.8 F.L.A. AIR				97.7 F.L.A. WATER - 108.5 F.L.A. AIR				97.7 F.L.A. WATER - 108.5 F.L.A. AIR			
	208/230 VOLT, 3 PHASE, 60 HERTZ. (OPTIONAL ELECTRICAL ARRANGEMENTS ON REQUEST)											
STANDARD CONDENSING UNIT	15 H.P. RATING				20 H.P. RATING				20 H.P. RATING			
	REFRIGERANT 22 WITH ACCESSIBLE HERMETIC COMPRESSOR AND WATER COOLED TUBE TYPE CONDENSER. REMOTE AIR COOLED CONDENSER AVAILABLE AS OPTIONAL EXTRA.											
ICE SIZE	CYLINDER 1⅜" DIA. X 1"				CYLINDER 1⅛" DIA. X 1"				CYLINDER 7/8" DIA. X 1"			
	CRUSHED ICE 3/16" TO 1/4" THICK CAN BE PRODUCED WITH MODIFICATION OF CUTTER											

NOTE: CAPACITY BASED ON 90° AMBIENT (AIR) TEMPERATURE. (REFRIGERANT CHARGE INCLUDED)
WATER AND KWH BASED ON 60 HERTZ. CAPACITY IS THE SAME FOR BOTH 60 AND 50 HERTZ OPERATION
WATER FOR ICE MAKING DOES NOT INCLUDE BLOWDOWN.

SAFETY VALVES

Safety pressure relief valves are an integral part of the packaged TUBE-ICE machine. One is located in each low-side of the system (on the freezer) and one is in each high side of the system (on the receiver). You must vent each of the pressure relief valves to the atmosphere in such a manner as to comply with local and national codes.

MACHINE ROOM

The machine must be located inside a suitable building and must not be subjected to ambient temperatures below 50°F. Heat radiation from other sources (sunlight, furnaces, condenser, etc), or unusual air currents, may affect the operation of the machine and should be avoided. **The electrical components of the TUBE-ICE machine are rated NEMA 1. Therefore, the machine should not be located in a hazardous area, or be sprayed with water.**

WATER AND DRAIN CONNECTIONS

* MODEL P118F WITH WATER COOLED CONDENSER

  (1) Make-up water - 3/4" FPT
  (1) Water tank drain - 3/4" FPT
  (1) Condenser water inlet - 1 1/4" FPT
  (1) Condenser water outlet - 1 1/4" FPT

* MODEL P118F WITH AIR-COOLED CONDENSER

  (1) Make-up water - 3/4" FPT
  (1) Water tank drain - 3/4" FPT

* MODEL P218F WITH WATER COOLED CONDENSER

  (2) Make-up water - 3/4" FPT
  (2) Water tank drain - 3/4" FPT
  (2) Condenser water inlet - 1 1/4" FPT
  (2) Condenser water outlet - 1 1/4" FPT

* MODEL P218F WITH AIR-COOLED CONDENSER

  (2) Make-up water - 3/4" FPT
  (2) Water tank drain - 3/4" FPT

MACHINE WITH WATER COOLED CONDENSERS

The condenser water outlet and water pan drain connections should be extended to a floor drain. Preferred connections should provide for visible discharge of the two drain lines to a common floor sump. It is not recommended that these two lines be connected in a pressure-tight common header, due to the possibility that warm condenser water may back-up into the water pan, thus reducing the ice capacity of the unit or contaminating the ice with bacteria present in the condenser cooling water.

COOLING TOWER (FOR WATER COOLED MACHINES ONLY)

When selecting a cooling tower, careful attention must be given to operating wet bulb condition. It is advisable to check with your local cooling tower distributor for their recommendations based on actual operating conditions in your area. An average wet-bulb of 78°F is typical in the U.S., but many localities have designed wet-bulbs as low as 72°F or as high as 82°F.

Tower water pump must be capable of delivering the required volume of water through the condensers. Due to cooling tower location and pressure drop through water lines and water regulating valves, the pump must be sized for each installation.

The condenser water inlets are 1 1/4" F.I.P. connection located in each condenser head.

The selection of a water recovery system must be done on an individual unit basis with particular emphasis on local wet bulb conditions. The size of the water pump will vary considerably with the location of the cooling tower, size of the tower and the location of the machine to cooling tower; but it must be capable of delivering the required water quantity at the inlet to the condenser.

P.D. = Pressure drop through condensers (PSIG), multiply P.D. by 2.31 to obtain feet of head for pumping sizing.

The water piping for the cooling tower and the installation of the pump must be in accordance with the manufacturer's instructions.

Water treatment for the prevention of scale, slime and algae build-up inside the condenser tubes is recommended. It is suggested that local chemical treatment supplier be contacted to arrange this form of preventative maintenance.

Condenser water outlets (1 1/4") may be piped to a recovery system or a drain, as the case may be.

Local plumbing codes should be checked and complied with.

THE FOLLOWING CRITERIA SHOULD BE FOLLOWED WHEN INSTALLING AIR-COOLED CONDENSERS:

1. CONDENSER SHOULD BE INSTALLED WITH VERTICAL AIR FLOW.
2. CONDENSER SHOULD BE MOUNTED WITH LEGS RESTING ON A SURFACE NO LOWER THAN THE TOP OF TUBE-ICE MACHINE FOR IDEAL OPERATION.
3. ALL PIPING SHOULD BE DONE IN ACCORDANCE WITH "THE SAFETY CODE FOR MECHANICAL REFRIGERATION" (ANSI B9.1) AND THE "CODE FOR PRESSURE PIPING" (ANSI B31.1) AS WELL AS ALL APPLICABLE LOCAL AND NATIONAL CODES.
4. PIPING TO AND FROM CONDENSER SHOULD BE SIZED ACCORDING TO TABLE "A"&"B"
5. HORIZONTAL RUNS IN DISCHARGE LINE SHOULD SLOPE AWAY FROM THE TUBE-ICE MACHINE AT THE RATE OF 1/4" PER FOOT.
6. A TRAP SHOULD BE INSTALLED IN VERTICAL DISCHARGE LINES EVERY 15 FEET. THE WIDTH OF THESE TRAPS SHOULD BE KEPT TO A MINIMUM REQUIRED BY STANDARD WROT COPPER FITTINGS.
7. HEAD PRESSURE CONTROLS (SUCH AS ALCO'S HEADMASTER) ARE NOT TO BE UTILIZED WITH TUBE-ICE MACHINES. UNAUTHORIZED INSTALLATIONS WILL VOID ALL WARRANTIES.
8. CONDENSERS SHOULD BE PROTECTED FROM THE EFFECTS OF PREVAILING WINDS BY AN ENCLOSURE (OPEN TOP AND BOTTOM) EXTENDING ONE (1) FOOT ABOVE CONDENSER AND HAVING SIX (6) INCHES AIR SPACE BETWEEN THE ENCLOSURE AND MOUNTING SURFACE. WHEN CONDENSER IS EXPOSED TO SUB-ZERO TEMPERATURE, THE ENCLOSURE SHOULD BE EXTENDED TO THE MOUNTING SURFACE, AND HAVE OPEN AREA EQUAL TO 150% OF THE CONDENSER FACE SURFACE.
9. THE INSTALLER MUST PROVIDE A DISCONNECT SWITCH ADJACENT TO THE CONDENSER.
10. ELECTRICAL CONNECTIONS BETWEEN THE CONDENSER AND THE TUBE-ICE MACHINE REQUIRE MINIMUM #12 GA. WIRE SIZE.
11. LOCAL ELECTRICAL CODE MUST BE CHECKED FOR WIRING METHOD.
12. REFER TO THE FOLLOWING DRAWINGS FOR MORE DETAILED INSTRUCTIONS:
    DRG. B-57149 - MODEL P118F
    DRG. B-56805 - MODEL P218F
    DRG. B-52283 - ENCLOSURE FOR AIR-COOLED CONDENSER
13. AFTER MACHINE IS OPERATING, IT WILL BE NECESSARY TO ADD ENOUGH R-22 TO FILL THE LIQUID LINE INSTALLED. THE APPROXIMATE AMOUNT OF REFRIGERANT TO BE ADDED IS SHOWN IN TABLE "C".
14. INSULATE DISCHARGE AND LIQUID LINES WITH 1/2" THICK ARMAFLEX INSULATION OR EQUAL.

TABLE "A"

MODEL	DISCHARGE LINE (MACH. TO COND.)	LIQUID LINE (COND. TO REC.)	RECOMMENDED KRAMER-TRENTON COND. MODEL *		CONDENSER HEAT REJECTION	
			60 HZ.	50 HZ.	60 HZ.	50 HZ.
P118F-1 1/2	1 3/8" O.D.	1 1/8" O.D.	DD-230	DD-260	139,200	147,400
P118F-1 1/4	1 3/8" O.D.	1 1/8" O.D.	DD-310	DD-360	177,600	189,450
P118F-1	1 3/8" O.D.	1 1/8" O.D.	DD-310	DD-360	181,200	193,250

NOTE: THE P218F MODELS REQUIRE TWO (2) CONDENSERS AND LINE SETS SIZED FROM THE ABOVE CHART FOR THE PROPER MODEL.

EACH ABOVE LINE SIZE IS BASED ON USE OF TYPE "L" COPPER TUBING AT MAXIMUM EQUIVALENT DISTANCE OF 100 FEET. THE ABOVE LINE SIZES ARE BASED ON AMBIENT AIR TEMPERATURES OF 90° F. IF MACHINE IS INSTALLED IN A LOCATION WITH WARMER CONDITIONS, USE NEXT LARGER TUBING SIZE FOR LIQUID LINES.

TABLE "B"

EQUIVALENT FEET DUE TO FRICTION

COPPER TUBING OD TYPE "L"	1-1/8	1-3/8	1-5/8
GLOBE VALVE (OPEN)	28	36	42
ANGLE VALVE (OPEN)	15	18	21
CLOSE RETURN BEND	6	9	10
90° TURN THROUGH TEE	6	8	9
TEE (STRAIGHT THROUGH OR SWEEP ELBOW)	2	2.5	3
90° ELBOW OR REDUCING TEE (STRAIGHT THROUGH)	3	4	4

* ABOVE CONDENSER SELECTION BASED ON 30°F SUCTION TEMPERATURE AND 105° CONDENSING TEMPERATURE WITH 15°F T.D.

TABLE "C"

POUNDS REFRIGERANT TO BE ADDED WHEN INSTALLED

LINE SIZE	LIQUID LINE LENGTH (FEET)								
	20	30	40	50	60	70	80	90	100
1 1/8" O.D.	4.5	6.7	9.0	11.2	13.5	15.7	17.8	20.1	22.4
1 3/8" O.D.	6.8	10.2	13.7	17.1	20.5	23.9	27.3	30.7	34.1

NOTE: WHEN ADDING REFRIGERANT TO P118F MODELS, EXTREME CAUTION MUST BE EXERCISED TO AVOID LIQUID FLOOD-BACK TO THE COMPRESSOR (REFER TO SERVICE MANUAL FOR PROCEDURE).

HENRY VOGT MACHINE CO LOUISVILLE, KY.

AC CONDENSER INSTALLATION INSTRUCTIONS P118/P218 TUBE ICE MACHINES

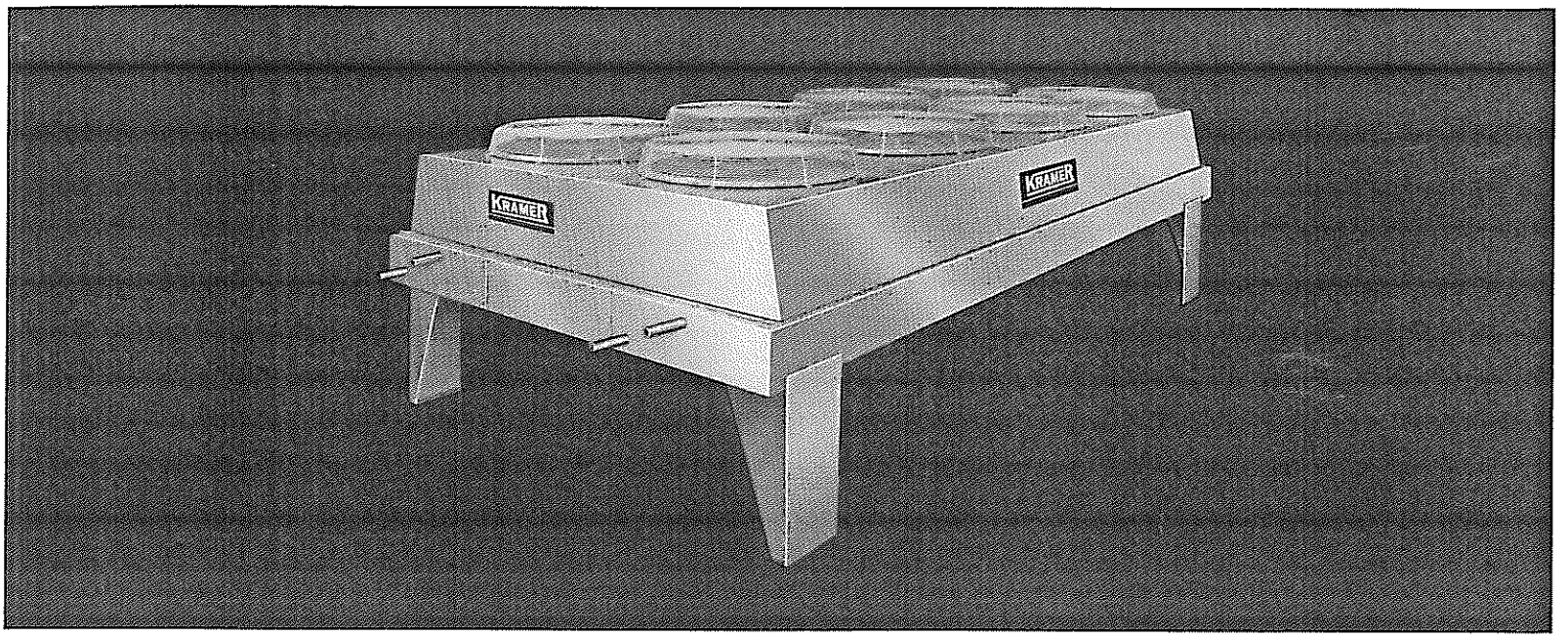
DRG. NO. B-57150

DWN. BY J.INNELL
CKD. BY
RLSD. BY
DATE 08/06/91
SCALE NONE

DIRECT DRIVE UNICON®

AIR COOLED CONDENSERS

SUBMITTAL **U-686G**
November 1990
SUPERSEDES U-686F



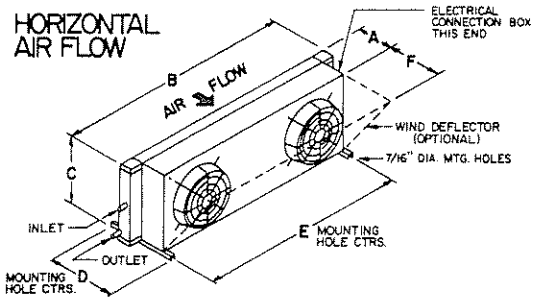
SPECIFICATIONS

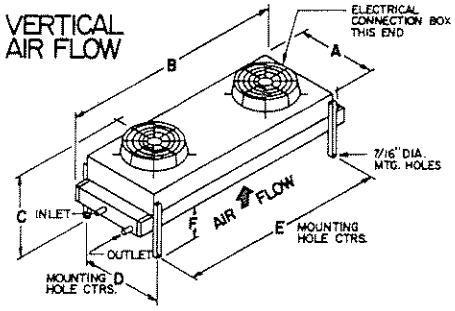
MODEL NO.	PERFORMANCE DATA AT 30° T.D. †, +40° EVAPORATING TEMPERATURE											
	CONDENSER CAPACITY BTU/HR AT THE EVAP.		CFM	FAN(S)			FAN MOTOR(S) RATING 208/230 VOLT*					
	R-12 R-502**	R-22		NO.	DIA.	TIP SPEED	HP	RPM	1 PH. MTRS.*		3 PH. MTRS.*	
									FLA	LRA	FLA	LRA
DD-30	27,100	28,500	2800	1	20	5500	1/8	1050	2.0	3.2	—	—
DD-40	41,000	43,000	2700	1	20	5500	1/8	1050	2.0	3.2	—	—
DD-60	64,000	67,200	5000	1	30	8400	1/3	1075	2.5	7.0	—	—
DD-100	99,000	104,000	9800	2	24	7200	1/2	1140	—	—	3.6	13.2
DD-130	132,000	138,000	9500	2	24	7200	1/2	1140	—	—	3.6	13.2
DD-190	191,000	200,000	15500	3	24	7200	1/2	1140	—	—	5.4	19.8
DD-230	228,000	239,400	15000	3	24	7200	1/2	1140	—	—	5.4	19.8
DD-260	264,000	277,200	14000	3	24	7200	1/2	1140	—	—	5.4	19.8
DD-310	310,000	319,300	22500	5	24	7200	1/2	1140	—	—	9.0	33.0
DD-360	360,000	378,000	22000	5	24	7200	1/2	1140	—	—	9.0	33.0
DD-410	413,000	433,700	20500	5	24	7200	1/2	1140	—	—	9.0	33.0
DD-530	533,000	559,700	34000	5	30	9000	3/4	1140	—	—	17.0	60.0
DD-590	594,000	623,700	33000	5	30	9000	3/4	1140	—	—	17.0	60.0
DD-660	660,000	693,000	32500	5	30	9000	3/4	1140	—	—	17.0	60.0
DD-790	786,000	825,300	31000	5	30	9000	3/4	1140	—	—	17.0	60.0
DD-910	913,000	958,700	65300	8	30	9000	3/4	1140	—	—	27.2	96.0
DD-1010	1,010,000	1,057,400	63600	8	30	9000	3/4	1140	—	—	27.2	96.0
DD-1150	1,154,000	1,211,700	58100	8	30	9000	3/4	1140	—	—	27.2	96.0
DD-1360	1,360,000	1,428,000	79500	10	30	9000	3/4	1140	—	—	34.0	120.0
DD-1550	1,550,000	1,627,000	72600	10	30	9000	3/4	1140	—	—	34.0	120.0

†T.D. = Condensing temperature minus entering air temperature.
All Motors have inherent protection.
All Motors suitable for 50 Hz.
All Models UL listed.

**(R-502 Capacity = R-12 x 1.03).
*Motors on Models DD-100 and larger available for 460V. Specify on order.
Average for 460V is one-half of 230V amperage.

Specifications and dimensions subject to change without notice.
For verified dimensions required for roughing-in or construction purposes, contact Kramer.





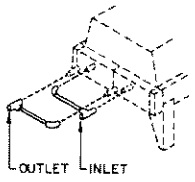
HORIZONTAL AIR FLOW

DIMENSIONS AND FITTINGS									
MODEL NO.	DIMENSIONS - INCHES (APPROX.)						FITTINGS - O.D.		APPROX. NET WT. LBS.
	A	B	C	D	E	F	INLET	OUTLET	
DD-30	14	41	25-3/8	16-1/2	34-1/2	27	7/8	7/8	75
DD-40	14	41	25-3/8	16-1/2	34-1/2	27	7/8	5/8	80
DD-60	15	45-1/2	37-5/8	29	37	37-1/2	7/8	5/8	150
DD-100	15	66	40-1/8	29	54	37-1/2	1-1/8	7/8	250
DD-130	17-3/8	66	40-1/8	29	54	37-1/2	1-1/8	7/8	265
DD-190	17-3/8	105	40-1/8	29	94	38-1/4	1-3/8	7/8	370
DD-230	17-3/8	105	40-1/8	29	94	38-1/4	1-3/8	1-1/8	400
DD-260	19-3/8	105	40-1/8	29	94	38-1/4	1-5/8	1-1/8	520

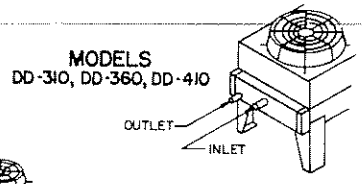
VERTICAL AIR FLOW

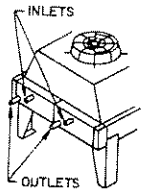
DIMENSIONS AND FITTINGS (LEGS ARE SHIPPED DISASSEMBLED)									
MODEL NO.	DIMENSIONS - INCHES (APPROX.)						FITTINGS - O.D.		APPROX. NET WT. LBS.
	A	B	C	D	E	F	INLET	OUTLET	
DD-60	38-7/8	45-1/2	36-1/8	37-7/8	37	16-1/8	7/8	5/8	150
DD-100	41-3/8	66	36-1/8	40-3/8	54	16-1/8	1-1/8	7/8	250
DD-130	41-3/8	66	36-1/8	40-3/8	54	13-3/4	1-1/8	7/8	265
DD-190	41-3/8	105	36-1/8	40-3/8	94	13-3/4	1-3/8	7/8	370
DD-230	41-3/8	105	36-1/8	40-3/8	94	13-3/4	1-3/8	1-1/8	400
DD-260	41-3/8	105	36-1/8	40-3/8	94	11-3/4	1-5/8	1-1/8	520

VERTICAL AIR FLOW

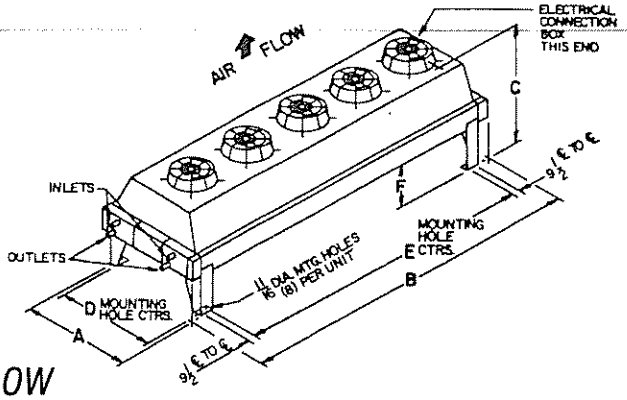


MANIFOLD SADDLES FOR SINGLE CIRCUIT (OPTIONAL)





MODELS
DD-530 THRU DD-1550



VERTICAL AIR FLOW

DIMENSIONS AND FITTINGS (LEGS ARE SHIPPED DISASSEMBLED)											
MODEL NO.	DIMENSIONS — INCHES (APPROX.)						FITTINGS - O.D.		MANIFOLD SADDLES (OPTIONAL)* FITTINGS - I.D.		APPROX. NET WT. LBS.
	A	B	C	D	E	F	INLET	OUTLET	INLET	OUTLET	
DD-310	28-3/4	180-1/8	41-5/8	27	147-5/8	14-5/8	(1) 1-5/8	(1) 1-1/8	—	—	610
DD-360	28-3/4	180-1/8	41-5/8	27	147-5/8	14-5/8	(1) 1-5/8	(1) 1-5/8	—	—	660
DD-410	28-3/4	180-1/8	41-5/8	27	147-5/8	14-5/8	(1) 2-1/8	(1) 1-1/8	—	—	750
DD-530	57	180-1/8	45-5/8	55-1/4	147-5/8	14-5/8	(2) 1-5/8	(2) 1-1/8	2-1/8	1-3/8	1020
DD-590	57	180-1/8	45-5/8	55-1/4	147-5/8	14-5/8	(2) 1-5/8	(2) 1-1/8	2-1/8	1-3/8	1175
DD-660	57	180-1/8	45-5/8	55-1/4	147-5/8	14-5/8	(2) 1-5/8	(2) 1-1/8	2-1/8	1-3/8	1200
DD-790	57	180-1/8	45-5/8	55-1/4	147-5/8	14-5/8	(2) 2-1/8	(2) 1-1/8	2-5/8	1-5/8	1500
DD-910	85-1/4	180-1/8	56-1/2	83-1/2	147-5/8	25-1/2	(2) 2 1/8	(2) 1-3/8	2-5/8	1-5/8	1635
DD-1010	85-1/4	180-1/8	56-1/2	83-1/2	147-5/8	25-1/2	(2) 2-1/8	(2) 1-3/8	2-5/8	1-5/8	1965
DD-1150	85-1/4	180-1/8	56-1/2	83-1/2	147-5/8	25-1/2	(2) 2-1/8	(2) 1-3/8	2-5/8	1-5/8	2260
DD-1360	85-1/4	222-1/2	56-1/2	83-1/2	190-1/8	25-1/2	(2) 2-5/8	(2) 1-5/8	3-1/8	2-1/8	2900
DD-1550	85-1/4	222-1/2	56-1/2	83-1/2	190-1/8	25-1/2	(2) 2-5/8	(2) 1-5/8	3-1/8	2-1/8	3100

DESCRIPTION OF MACHINE

The VOGT Model P118F and P218F TUBE-ICE machines are similar as far as component parts such as freezers, receivers, cutter/tank assemblies, compressors, related line sizes, valves, and operation are concerned.

The difference between the two is that there is twice as many of the above mentioned component parts in a P218F as a P118F.

The Models P118F and P218F are completely piped, wired, and operational tested, and are available as either "water cooled" or "air-cooled" machines. Air-cooled condensers are shipped separately.

PRINCIPLE OF OPERATION

The TUBE-ICE machine operates in a cycle that consists of two periods, a "FREEZE PERIOD" and a "HARVEST PERIOD". The ice is made during the "FREEZE PERIOD" and is discharged during the "HARVEST PERIOD".

The operation of the machine is controlled by the "ON-OFF" toggle switch located inside the control panel.

The "ICE-CLEAN" toggle switch must always be set in the "ICE" position during normal ice making operation. It is set in the "CLEAN" position only when the equipment is to be cleaned, as outlined in the "CLEANING POSITION" instructions attached to the machine.

Drawings B-56760 and B-56714 illustrate the piping diagram of the refrigerant and water system of the TUBE-ICE machine, with numbers for easy reference.

The freezer (2) is a shell and tube type vessel. During the freezing period, water is constantly recirculated through the vertical tubes of the freezer by a centrifugal pump (6). Make-up water is maintained by a float valve (12) in the water pan (7). During the freezing period, the solenoid valve (20), sometimes referred to as the "A" valve, is open. Solenoid valve (18), sometimes referred to as the "D" valve, is closed.

Refrigerant gas from the top of freezer passes through the accumulator (88), the heat exchanger (13), to the compressor (3), which discharges it through the oil separator (14) into the condenser (15).

Any entrained oil in the discharge gas is returned to the compressor crankcase by the oil separator. Liquid refrigerant from the receiver flows through the accumulator (88), the drier (46), the strainer (43), the thawing chamber (16) of the freezer, the "A" solenoid valve (20), the expansion valve (17), and into the freezer; thereby completing the completing the freezing cycle.

At the end of the freezing period, thawing is started by action of the pressure switch (56) in the control panel. Solenoid valve (18) opens and "A" valve (20) is closed. The water pump is stopped and the ice cutter is started. Hot gas from the condensing system is discharged into the freezer through valve (18); thereby thawing the ice which drops on the rotating cutter for sizing.

FREEZE PERIOD

The TUBE-ICE is frozen inside the stainless steel tubes in each freezer by the direct application of refrigerant to the shell side (outside) of the tubes. The ice is produced from constantly recirculating water during the "FREEZE PERIOD" down each tube.

HARVEST PERIOD

Each freezer's harvest cycle is controlled by a thawing timer and a control relay after it has been initiated by the freezer pressure.

When a control relay is energized to start a harvest period of a freezer, the water pump, liquid valve, and freezer pilot light are de-energized and the cutter motor, thawing valves, thaw pilot, and thawing timer are energized.

The ice should release in approximately 15 seconds to drop onto the rotating cutter for sizing and discharge through the opening in the water pan. The length of the harvest period (usually three minutes) should be set for at least 30 seconds longer than the time required to harvest the entire discharge of ice. If it should become necessary to change the length of the harvest period of a particular freezer, adjust the timer for that freezer to increase or decrease the length of the harvest period as required.

At the completion of the time period set on the thawing timer, the control relay is de-energized and the freezer switches back to the "FREEZE CYCLE".

See Drawing B-57114 on Page 16 for more detail of thawing timer.

REVISION					
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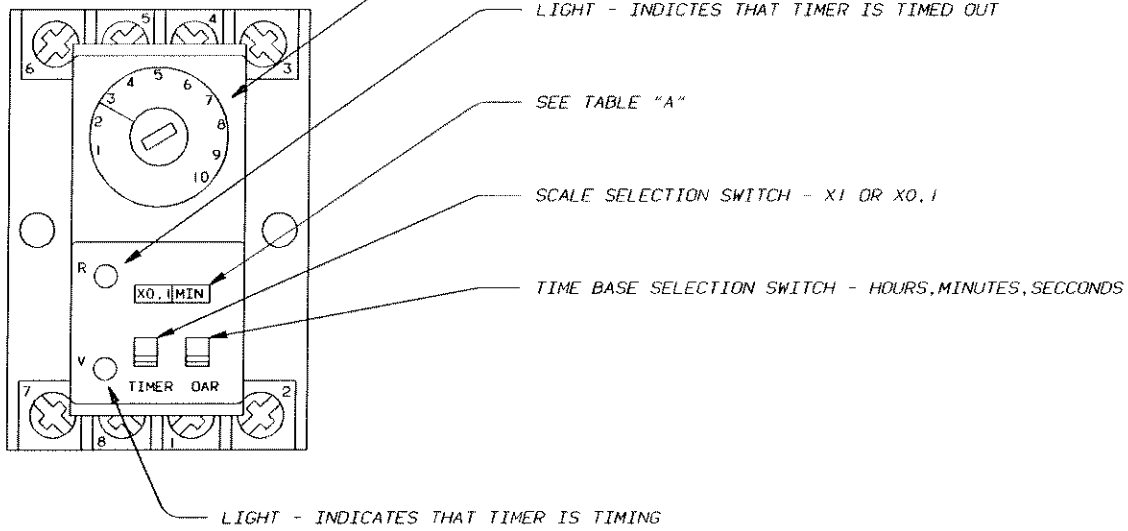
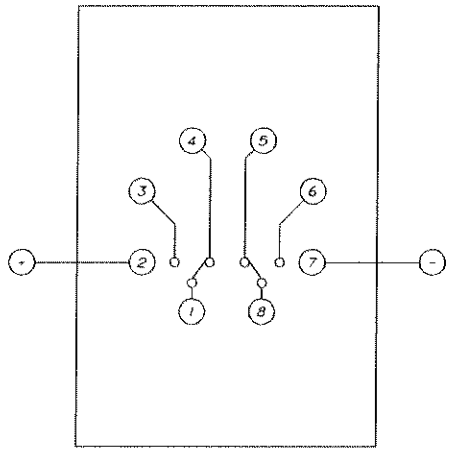


TABLE "A"	
TIMER SETTING OPTIONS	TIMER SETTING USEAGE
XO,1 SEC = 0 TO 1 SECOND	NOT USED
X1 SEC = 1 TO 10 SECONDS	DELAY TIMER
XO,1 MIN = 0.1 TO 1 MINUTE	DELAY TIMER
X1 MIN = 1 TO 10 MINUTES	THAWING TIMER
XO,1 HRS = 0.1 TO 1 HOUR	NOT USED
X1 HRS = 1 TO 10 HOURS	AUTOMATIC RESTART



WIRING DIAGRAM

NOTE : THIS TIMER IS USED IN VARIOUS FUNCTIONS OF THE TUBE-ICE MACHINE, CHECK TABLE "A" FOR USAGE AND SETTING COMPARISONS.

(VOGT #12A-7503E22000000) TIMER
(VOGT #12A-7503E22010000) TIMER BASE

SERVICE MANUAL

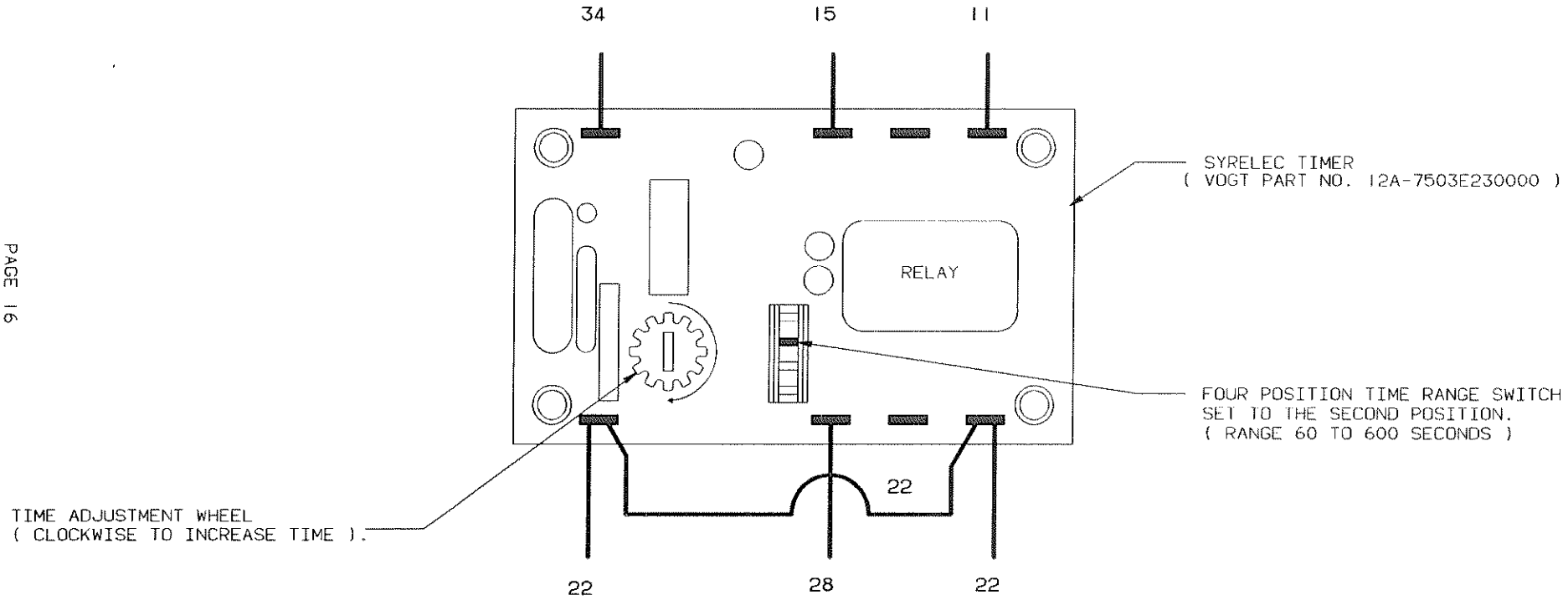
DWN. BY T. BLOCK
CKD. BY DWS 2392
RLSD.BY GMB
DATE 01/30/92
SCALE

HENRY Vogt MACHINE CO
LOUISVILLE,KY.

TIMER DATA

DRG. NO. B-57420

REVISION					
NO	DATE	FROM	TO	BY	CK
			0		



THE THAWING TIMER GOVERNS THE ICE THAWING PERIOD. IT IS LOCATED INSIDE THE CONTROL PANEL. IT IS STARTED BY ACTION OF THE FREEZER PRESSURE SWITCH WHICH ENERGIZES THE "CR" RELAY. THIS TIMER IS SET PRIOR TO SHIPMENT FOR APPROXIMATELY A TWO-MINUTE PERIOD.

SET THE THAWING PERIOD FOR AT LEAST 30 SECONDS LONGER THAN THE TIME REQUIRED TO HARVEST THE ENTIRE DISCHARGE OF ICE. IF IT SHOULD BECOME NECESSARY TO CHANGE THE SETTING OF THE TIMER, TURN THE ADJUSTMENT WHEEL CLOCKWISE TO INCREASE THE TIME OR COUNTER-CLOCKWISE TO DECREASE THE TIME. CHECK THAW TIME AFTER EACH ADJUSTMENT.

SERVICE MANUAL

DWN. BY GARY BO.
CKD. BY
RLSD. BY
DATE 6-20-91
SCALE

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

THAWING TIMER

DRG. NO. B-57114

NO	DATE	REVISION FROM	TO	BY	CK

1 - CONTROL PANEL
1PG - SUCTION PRESSURE GAUGE
2PG - DISCHARGE PRESSURE GAUGE
2 - FREEZER
3 - COMPRESSOR
4PS - DUAL HIGH/LOW PRESSURE SWITCH
5M - CUTTER MOTOR
5R - GEAR REDUCER
6 - WATER PUMP
7 - WATER TANK (INCLUDES CUTTER ASSEMBLY)
8 - WATER DISTRIBUTING CHAMBER
12 - MAKE-UP WATER FLOAT VALVE
13 - HEAT-EXCHANGER
14 - OIL SEPARATOR
15 - CONDENSER
15R - RECEIVER
16 - THAWING CHAMBER
17 - EXPANSION VALVE
18 - THAWING GAS SOLENOID VALVE "D"
18S - THAWING GAS PRESSURE SWITCH
20 - LIQUID FEED SOLENOID VALVE "A"
23 - CONDENSER WATER INLET (WATER-COOLED MACHINES ONLY)
23A - MAKE-UP WATER INLET CONNECTION
24 - CONDENSER WATER OUTLET (WATER-COOLED MACHINES ONLY)
25 - WATER TANK DRAIN CONNECTION
28 - REFRIGERANT CHARGING VALVE
30 - RECEIVER SIGHT GLASS
31 - GAGE GLASS STOP VALVE
34 - COMPRESSOR SUCTION SERVICE VALVE
35 - COMPRESSOR DISCHARGE SERVICE VALVE
37 - OIL CHARGING / DRAIN VALVE
39 - WATER TANK DRAIN VALVE
40 - AUTOMATIC WATER TANK BLOWDOWN
41 - CONDENSER WATER REGULATOR (WATER-COOLED MACHINES ONLY)
41A - CONDENSER PRESSURE CONTROL (AIR-COOLED MACHINES ONLY)
43 - STRAINER
44 - RECEIVER DRAIN VALVE
46 - FILTER DRIER
47 - SUPER HEAT SENSOR
48 - MUFFLER
49 - SUCTION LINE STOP VALVE
50 - RECEIVER SAFETY VALVE
51 - FREEZER SAFETY VALVE
53 - COLD WEATHER SOLENOID VALVE "X" (AIR-COOLED MACHINES ONLY)
55 - DISCHARGE LINE STOP VALVE FOR AIR-COOL MACHINES
56 - FREEZERPRESSURE SWITCH
58 - LIQUID OUTLET VALVE
59 - RECEIVER PURGE VALVE
69 - FREEZER PRESSURE STOP VALVE
70 - OIL RETURN STOP VALVE
88 - ACCUMULATOR
90 - THAWING GAS STOP VALVE
91 - RECEIVER LIQUID RETURN STOP VALVE
94 - COMPRESSOR OIL PRESSURE SAFETY CONTROL
101 - CHECK VALVE

HENRY Vogt MACHINE CO LOUISVILLE, KY.

P118F / P218F
NOMENCLATURE

DRG. NO. B-56760

DWN. BY TINNELL
CKD. BY
RLSD. BY
DATE 12/04/90
SCALE NONE

B-56760

B-56713

REVISION NO					
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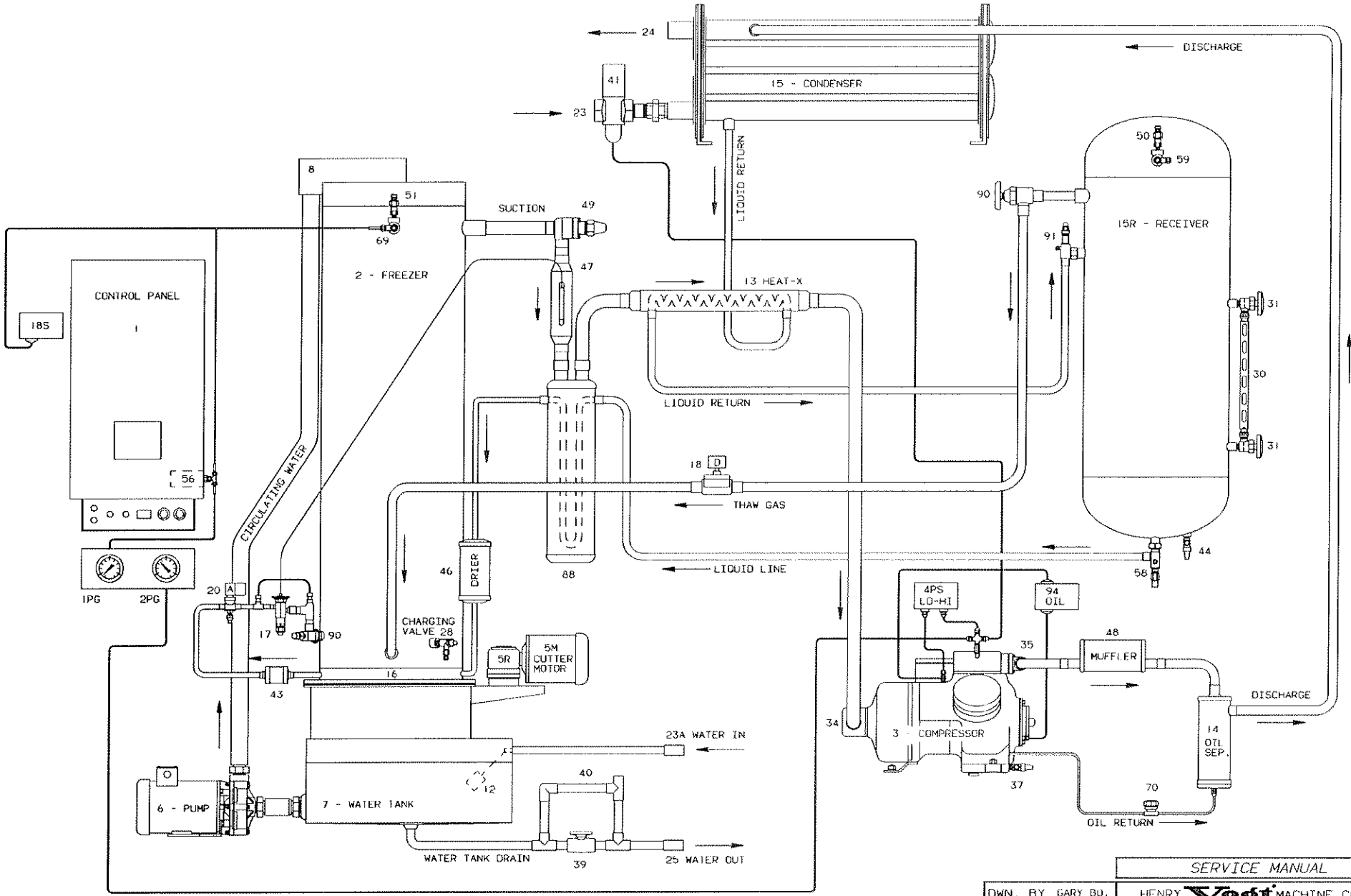

SERVICE MANUAL

DWN. BY GARY BU.	HENRY Vogt MACHINE CO LOUISVILLE, KY.
CKD. BY	P118F / P218F WATER COOLED PIPING SCHEMATIC
RLSD. BY	
DATE 11-17-90	DRG. NO. B-56713
SCALE NONE	

B-56714

REVISION					
NO	DATE	FROM	TO	BY	CK

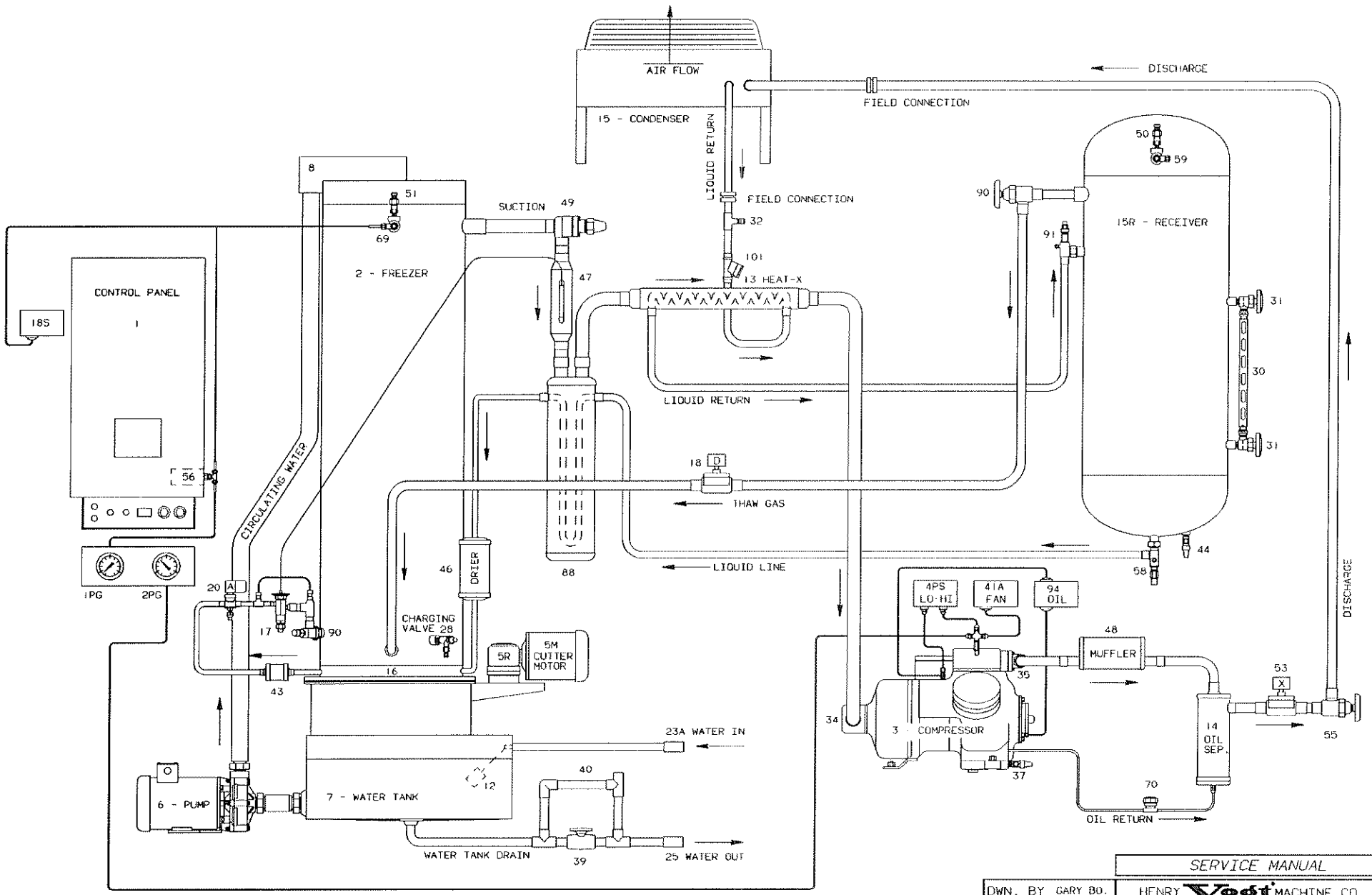

FIGURE 1

DWN. BY GARY BO.	SERVICE MANUAL
CKD. BY	HENRY Vogt MACHINE CO LOUISVILLE, KY.
RLSD. BY	P118F / P218F AIR-COOLED PIPING SCHEMATIC
DATE 11-17-90	DRG. NO. B-56714
SCALE NONE	

* (CM) COMPRESSOR MOTOR CONTACTOR

Provides power to the compressor motor continuously. Energized during freezing and thawing. Auxiliary contacts provide power to P, CU, T, A-solenoid, D-solenoid, and FC.

* (FB1) FUSE BLOCK

Secondary pump/cutter motor protection.

* (FB2) FUSE BLOCK

Air-cooled condenser fan motor protection.

* (CR) CONTROL RELAY

For making and breaking various circuits concerning freezing and thawing. Energized during the thaw period.

* (CU) CUTTER MOTOR CONTACTOR WITH OVERLOAD RELAY

Stops operation of cutter motor in the event of a mechanical or electrical malfunction resulting in excessive motor amperes.

* (P) PUMP MOTOR CONTACTOR WITH OVERLOAD RELAY

Stops operation of cutter motor in the event of a mechanical or electrical malfunction resulting in excessive motor amperes.

* (BC) BIN CONTROL RELAY

Starts and stops machine operation by action of optional bin thermostat.

* (PF) POWER FAILURE RELAY

Stops the machine when there is a power failure or interruption by the high/low pressure switch, oil failure pressure switch, pump overload, compressor overload or the control circuit fuses. Machine must be manually restarted by pushing start button after pushing stop button or any of the safeties tripping.

* (T) THAWING TIMER

Controls the time of the thawing period.

* (FC) FAN CONTACTOR

Cycles the fan motor(s) of air-cooled condenser "ON" and "OFF". Activated by the condenser pressure switch. (Air-cooled machines only)

* (TS1) ICE/CLEAN TOGGLE SWITCH

Two position toggle switch to operate machine in ice making mode or clean mode. When in clean position only the water pump will run, allowing cleaner to be circulated through the freezer without making ice.

* (TS2) ON/OFF TOGGLE SWITCH

Two position switch use to stop machine at the end of the harvest and restart
the machine in a freeze cycle.

* (ET) ELAPSED TIME INDICATOR

Indicates hours of machine operation. Energized when compressor is operating.

* (PB1) STOP PUSH BUTTON (RED)

Used to stop machine immediately.

* (PB2) START PUSH BUTTON (GREEN)

For starting machine or manually harvesting. Will initiate a harvest cycle whenever pushed.

* (TB) TERMINAL BLOCK

Numbered for multiple wire connections and ease of troubleshooting.

* (FU1, FU2) .5 AMP FUSES

Overload and short circuit protection for crankcase heater and the control circuit.

* (FPS) FREEZER PRESSURE SWITCH

For regulating the ice thickness by sensing freezer pressure and initiating the thaw period.

* (ET1, ET2) ELAPSED TIME INDICATORS

Registers total operating hours on the compressor(s).

* (4M, 6M)PUMP MOTOR CONTACTORS WITH OVERLOAD RELAY

Stops operation of pump motor in the event of a mechanical or electrical malfunction resulting in excessive motor amperes.

* (3M, 5M) CUTTER MOTOR CONTACTORS WITH OVERLOAD RELAYS

Stops operation of cutter motor in the event of a mechanical or electrical malfunction resulting in excessive motor amperes.

* (1M, 2M) CONTACTORS

Isolates the freezers in a shutdown or overload situation.

* (CR1, CR2) CONTROL RELAY

Controls the freezing and thawing. When de-energized freezing, when energized thawing (one for each freezer).

* (T1, T2) THAWING TIMER

Controls the thawing time on the freezer (one on each freezer).

* (3PS, 4PS) HIGH/LOW PRESSURE SAFETY SWITCH

Protects machine from damage in event some malfunction creates an undue low or high pressure. This is a manual reset type control.

* (TS1) "ON-OFF" TOGGLE SWITCH

Two position switch used to stop the machine at the end of the harvest.

* (TS2) "ICE-CLEAN" TOGGLE SWITCH

Two position switch to operate the machine in an "ice" making mode or a "clean" mode. When in the "clean" position, only the water pumps will run, allowing cleaner to be circulated through the freezers without making ice.

* (1LT, 3LT) FREEZER PILOT LIGHTS (AMBER)

Indicates when freezer is in a "freeze period" (one for each freezer).

* (2LT, 4LT) THAW PILOT LIGHT (RED)

Indicates when freezer is in a "harvest period" (one for each freezer).

* (5LT) POWER ON PILOT LIGHT

Indicates when power to machine is on.

* (1SS) "COMP #1-AUTO-COMP #2" SELECTOR SWITCH

Allows operation of single freezers (independently) or both freezers (automatically).

* (FB1) FUSE BLOCK

Control circuit protection.

* (FB2, FB3) FUSE BLOCK

Water pump / Cutter motor protection.

* (FB4) FUSE BLOCK

Air-cool condenser fan motor protection.

* (IC1, IC2) "ICE CLEAN CONTACTORS"

Allows only pump to run when "TS2" toggle switch is in "clean" position.

* (PF) POWER FAILURE

Stops machine when there is a power failure or interruption.

* (TB1, TB2) TERMINAL BLOCKS

Power inlet connections and internal wiring.

* (OPS1, OPS2) OIL PRESSURE SAFETY SWITCHES

For low compressor oil pressure protection.

* (1PS, 2PS) FREEZER PRESSURE SWITCHES

For regulating the ice wall thickness by sensing the freezer pressure and initiating the thaw period.

* (TD) TIMER

Time delay for second compressor. Prevents compressors from both starting simultaneously, reducing inrush amps.

REVISION					
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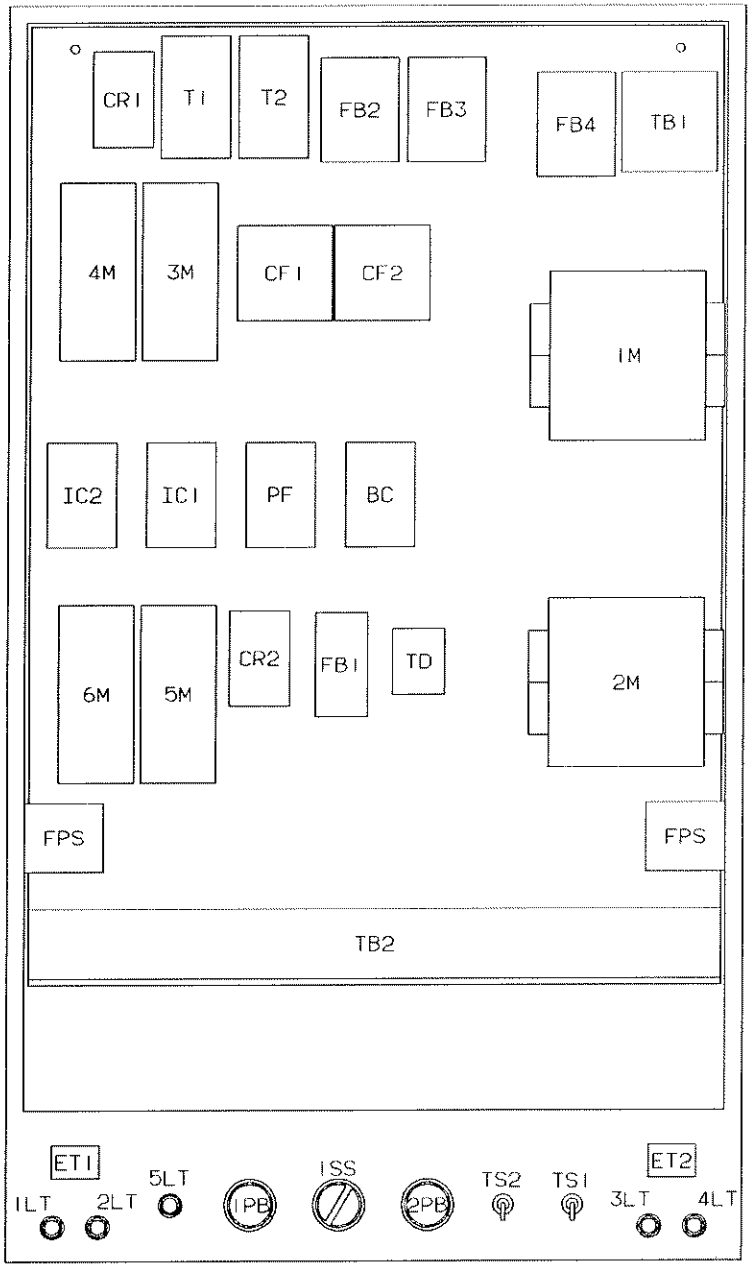
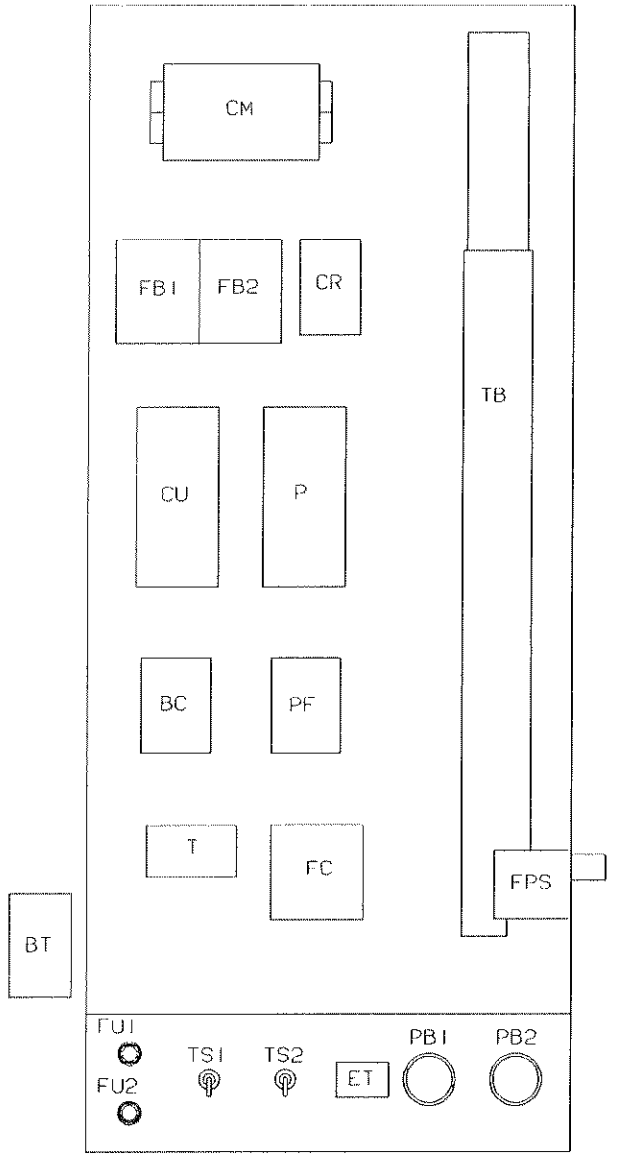
1	05/24/91	NEEDED T1& CONTROL ... LAYOUT		TMS	

P218F CONTROL PANEL



P118F CONTROL PANEL



SERVICE MANUAL

DWN. BY T. BLOCK
CKD. BY
RLSD.BY
DATE 01/05/91
SCALE NONE

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

CONTROL PANEL LAYOUT
P118/218 TUBE-ICE MACHINES

DRG. NO. B-56802

B-52283

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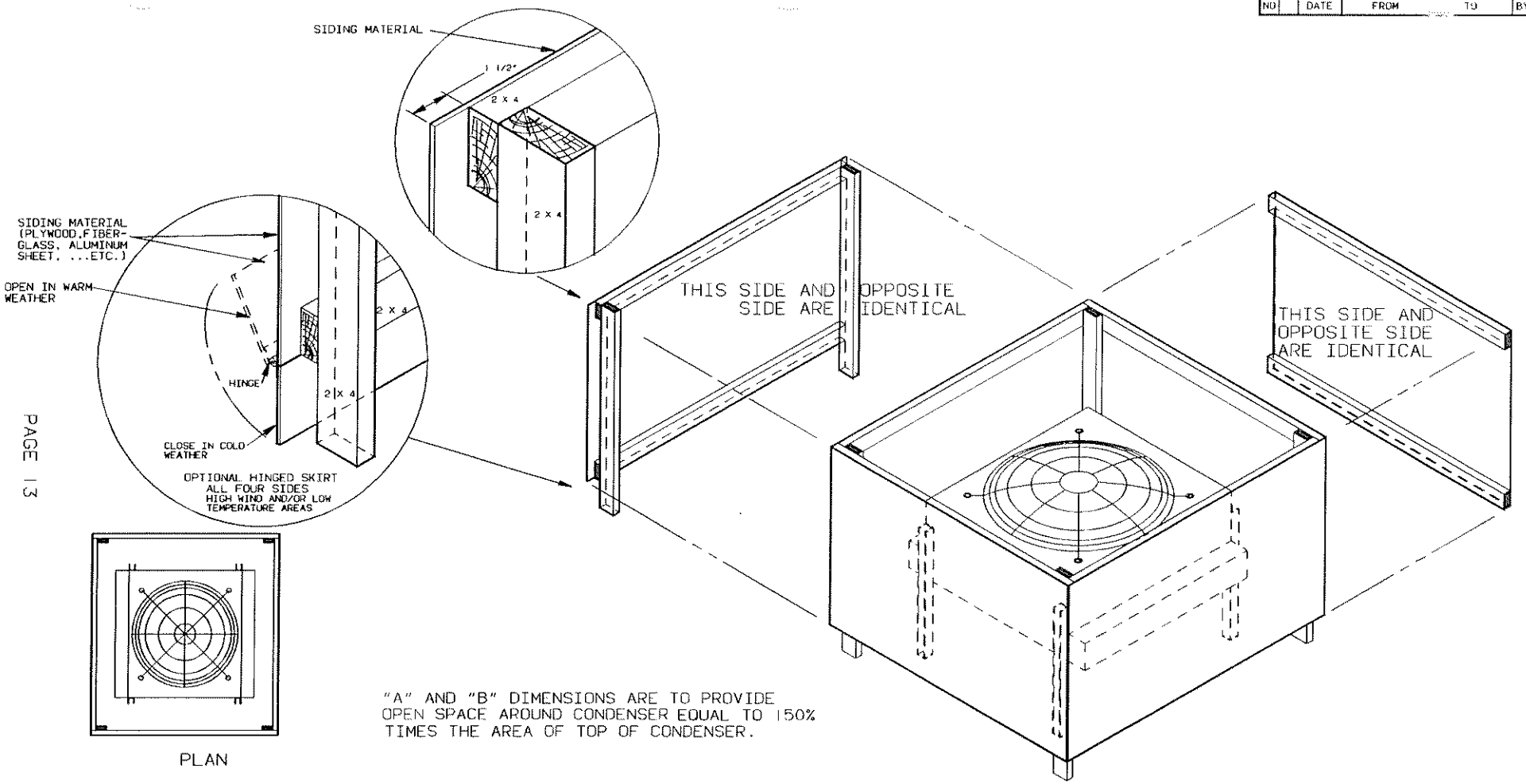
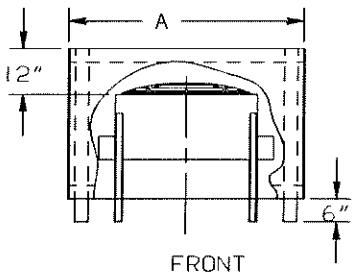


PAGE 13

PLAN

"A" AND "B" DIMENSIONS ARE TO PROVIDE OPEN SPACE AROUND CONDENSER EQUAL TO 150% TIMES THE AREA OF TOP OF CONDENSER.



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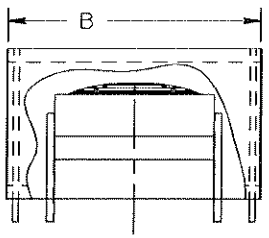


SIDE

FIGURE 7

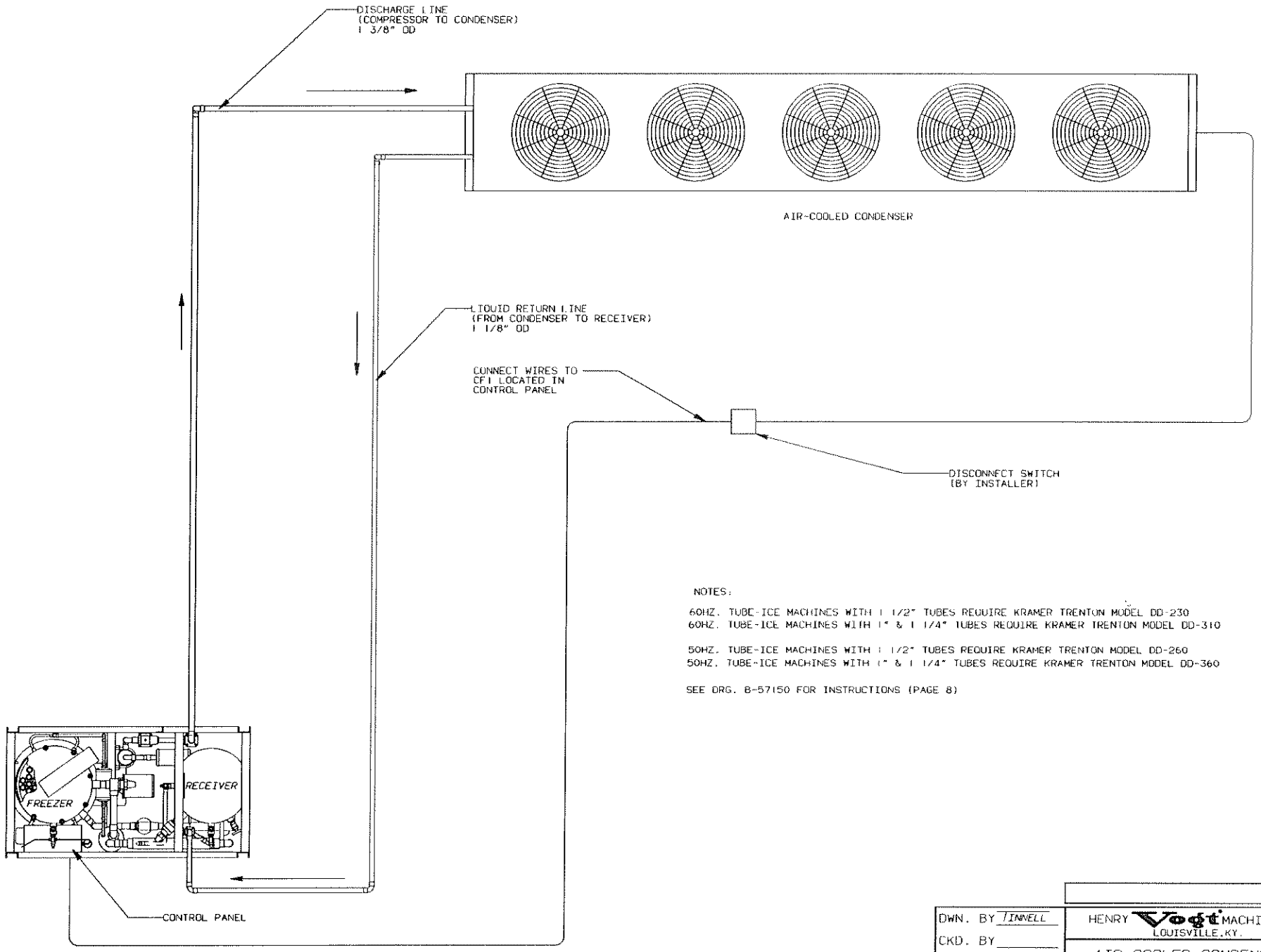
NOTE:

BOTH CONDENSER AND ENCLOSURE MUST BE SECURELY FASTENED TO BUILDING. MATERIALS SELECTION AND FASTENING TO BE DETERMINED BY OTHERS. REINFORCEMENTS TO SUITE LOCAL CONDITIONS TO BE DETERMINED BY OTHERS. THIS DRAWING TO CONVEY GENERAL POSITIONING AND RELATIVE SIZE ONLY.

DWN. BY COOPER	HENRY Vogt MACHINE CO LOUISVILLE, KY.
CKD. BY CAC	ENCLOSURE FOR AIR COOLED CONDENSER IN WINDY AND/OR LOW TEMPERATURE INSTALLATIONS ON TUBE-ICE MACHINES
RLSD. BY	
DATE 1/25/83	
SCALE NONE	DRG. NO. B52283

B-57149

REVISION RD						
NO		DATE	FROM	TO	BY	CK



PAGE 11

NOTES:

60HZ. TUBE-ICE MACHINES WITH 1 1/2" TUBES REQUIRE KRAMER TRENTON MODEL DD-230
60HZ. TUBE-ICE MACHINES WITH 1" & 1 1/4" TUBES REQUIRE KRAMER TRENTON MODEL DD-310

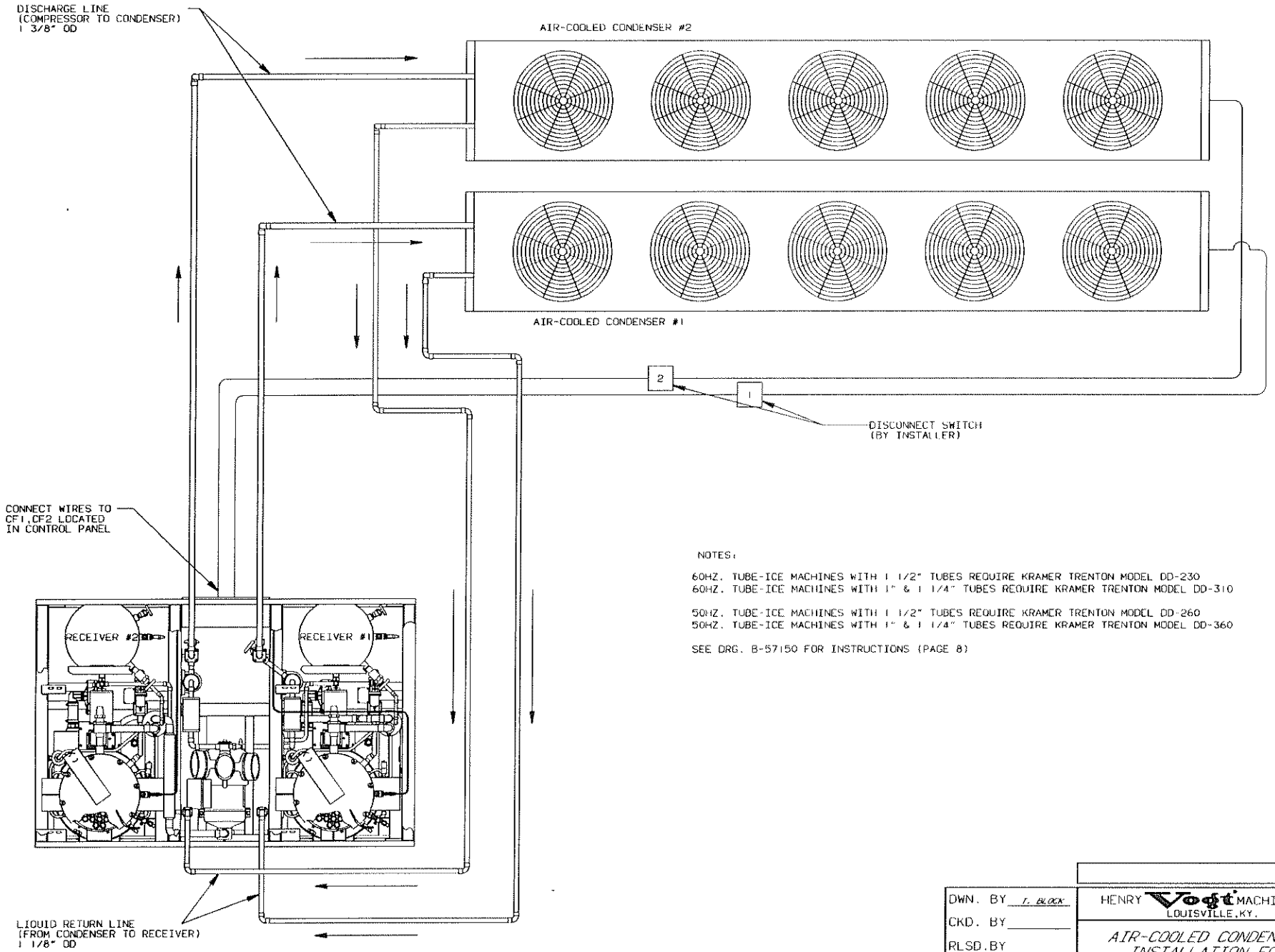
50HZ. TUBE-ICE MACHINES WITH 1 1/2" TUBES REQUIRE KRAMER TRENTON MODEL DD-260
50HZ. TUBE-ICE MACHINES WITH 1" & 1 1/4" TUBES REQUIRE KRAMER TRENTON MODEL DD-360

SEE DRG. B-57150 FOR INSTRUCTIONS (PAGE 8)

DWN. BY TINNELL	HENRY Vogt MACHINE CO LOUISVILLE, KY.
CKD. BY	AIR-COOLED CONDENSER INSTALLATION FOR P118 TUBE-ICE MACHINE
RLSD. BY	
DATE 08/06/91	
SCALE NONE	DRG. NO. B-57149

B-56805

REVISION					
NO	DATE	FROM	TO	BY	CK



NOTES:

60HZ. TUBE-ICE MACHINES WITH 1 1/2" TUBES REQUIRE KRAMER TRENTON MODEL DD-230
60HZ. TUBE-ICE MACHINES WITH 1" & 1 1/4" TUBES REQUIRE KRAMER TRENTON MODEL DD-310

50HZ. TUBE-ICE MACHINES WITH 1 1/2" TUBES REQUIRE KRAMER TRENTON MODEL DD-260
50HZ. TUBE-ICE MACHINES WITH 1" & 1 1/4" TUBES REQUIRE KRAMER TRENTON MODEL DD-360

SEE DRG. B-57150 FOR INSTRUCTIONS (PAGE 8)

DWN. BY T. BLOCK
CKD. BY
RLSD. BY
DATE 01/09/91
SCALE NONE

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

AIR-COOLED CONDENSER INSTALLATION FOR P218 TUBE-ICE MACHINE

DRG. NO. B-56805

VOGT® TUBE-ICE® MACHINE BASIC PRODUCT WARRANTY

The Henry Vogt Machine Co., hereinafter referred to as Seller, warrants every Vogt Tube-Ice Machine Model HE10, HE20, HE30, HE40, P118F and P218F to be free from defects in material and workmanship, if properly installed, maintained and operated, for a period of 24 months from date of original installation or 27 months from date of shipment from Seller's plant.

Seller's obligation under this warranty shall be strictly limited, at Seller's option, to: (i) repairing or furnishing replacement parts on an exchange basis, F.O.B. Louisville, Kentucky, without charge to the purchaser or original end-user, hereinafter referred to as Purchaser; or (ii) issuing written authorization for Purchaser or others to replace or repair, without charge to Purchaser, those parts proven defective upon examination by Seller; or (iii) in discharge of Seller's maximum liability herewith, refunding all monies paid by Purchaser to Seller for the product and, at discretion of Seller, having the product removed and returned to Seller at Purchaser's expense. All transportation charges relative to corrective work, defective parts or replacement parts shall be borne by Purchaser. Purchaser shall give Seller immediate notice upon discovery of any defect. The undertaking of repairs or replacement by Purchaser or its agents without Seller's written consent shall relieve Seller of all responsibility herewith.

Any alteration in material or design of Seller's product or component parts thereof by Purchaser or others without written authorization by Seller voids all obligations of Seller regarding the product and any associated warranty herein stated or implied.

Seller's sole liability shall be exclusively as set forth herein, and **Seller shall not be liable for any incidental or consequential damages due to its breach of any warranty herein contained, or otherwise.** *Without limitation to the foregoing, in no event shall Seller be liable for the loss of use of the product or for the loss of use of any other product, process, plant, equipment, or facilities of the Purchaser whether partially or wholly due to defects in material and/or, workmanship and/or design of Seller's product, and in no event shall Seller be liable for removal of appurtenances or incidentals such as connections, pipe work and similar items of obstruction or for any cost brought about by the necessity of removing the product from its point of installation.*

Sellers makes no warranty of any kind whatsoever, express or implied, other than as specifically stated herein; and there are no warranties of merchantability and/or fitness for a particular purpose which exceed the obligations and warranties specifically stated herein.

Parts furnished without charge as replacements for original parts under warranty are warranted for that period of time during which the original parts warranty is effective.

FIVE-YEAR EXTENDED WARRANTY

At the termination of the two-year warranty period above, Seller hereby extends this warranty for three years to cover **COMPRESSORS AND CUTTER ASSEMBLIES, EXCLUDING THE CUTTER BEARINGS AND DRIVE TRAINS.**

LIFETIME WARRANTY *

This warranty is further extended for the life of the machine to cover the EVAPORATOR (FREEZER), FRAME, CIRCULATING WATER TANK AND REFRIGERANT RECEIVER, EXCLUDING GAGE GLASS ASSEMBLIES AND VALVES. Damage to evaporator tubes as a result of expansion caused by re-freezing of ice or corrosion damage due to water quality is specifically excluded.

These extensions of warranty apply only to **VOGT TUBE-ICE® MACHINE MODELS HE10, HE20, HE30, HE40, P118F AND P218F** and only those **IN USE IN THE UNITED STATES OF AMERICA,** for the exclusive benefit of Purchaser or original end user, as defined above. All other obligations, terms and conditions of the Basic Product Warranty apply to the Extended Warranty.

* "Lifetime" is defined as 25 years.

VOGT® AND TUBE-ICE® ARE REGISTERED TRADE MARKS OF HENRY VOGT MACHINE CO., 1000 WEST ORMSBY AVE., LOUISVILLE, KENTUCKY 40210

CUTTER

To remove the cutter (21), if necessary, proceed as follows:

Shut down the appropriate freezer and shut down the exterior valve in the water inlet line to its water pan and drain pan.

Separate motor from the cutter drive reducer by removing four cap screws. Watch for shaft key when separating unit which must be installed in motor keyway when unit is re-assembled. It is not necessary to remove the reducer from its mounting plate on the water pan.

Remove the water tank, which contains the cutter, by unbolting it from freezer. It may then be taken to a work bench for removal of cutter assembly. This is held in place by three 3/8" cap screws, which fasten the cutter support to the side of the water pan. Before loosening these cap screws, remove the ice deflector and the cutter disc assembly.

If the cutter bearing (47) is badly worn, it should be replaced with a new one, which may be ordered from the factory. A 3/16" drive pin locks the bearing to the hub. It is suggested that a bearing be retained as a spare part to prevent a prolonged shutdown of the machine in the event of a bearing failure.

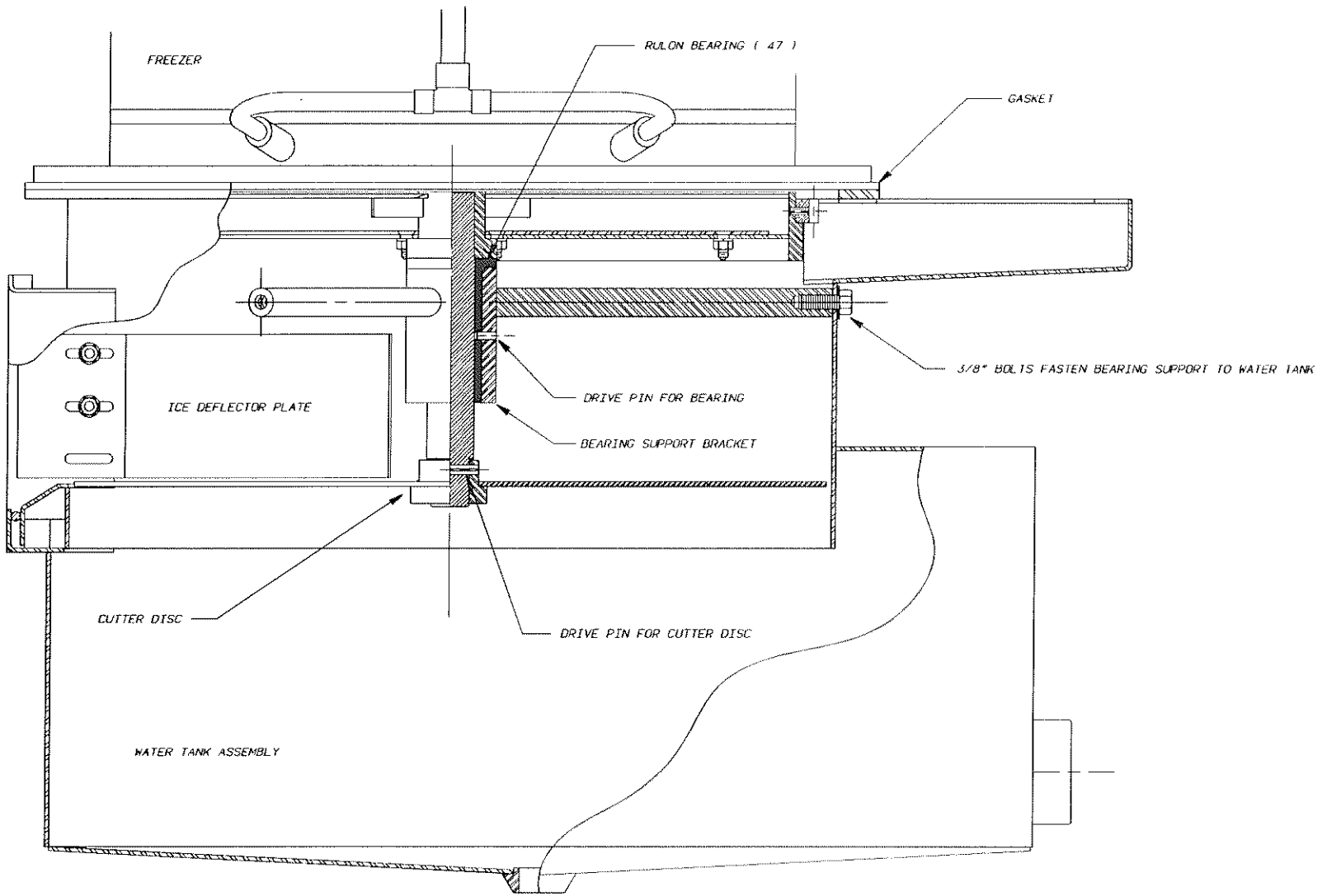
After pressing the new bearing in the cutter support it may be necessary to ream the I.D. to obtain free running clearance between bearing and cutter shaft. Use a 1 1/4" straight reamer for this application. Drill a 1/8" hole through the bearing and install the locking pin in the original hole in the hub.

The parts should be reassembled, reversing the procedure described for removal.

See Drawings B-56934 on Page 26 and B-56990 on Page 27.

B-56934

REVISION					
NO	DATE	FROM	TO	BY	CK



NOTE : P118F W / 1 1/2" TUBES WILL HAVE A DIFFERENT STYLE WATER TANK AND ICE DEFLECTOR DOOR. THE ICE DEFLECTOR DOOR IS PINNED AND HINGED TO TO THE CENTER BEARING SUPPORT HUB.

SERVICE MANUAL

DWN. BY	GARY BO.
CKD. BY	
RLSD. BY	
DATE	3-27-91
SCALE	NONE

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

P118F AND P218F
CUTTER/TANK ASSEMBLY DETAIL

DRG. NO. B-56934

NOTE : MODEL P118F WITH 1 1/2" TUBES WILL HAVE A ROUND WATER TANK WITH A SWINGING DEFLECTOR DOOR INSTEAD OF WHAT IS SHOWN ON THIS DRAWING.

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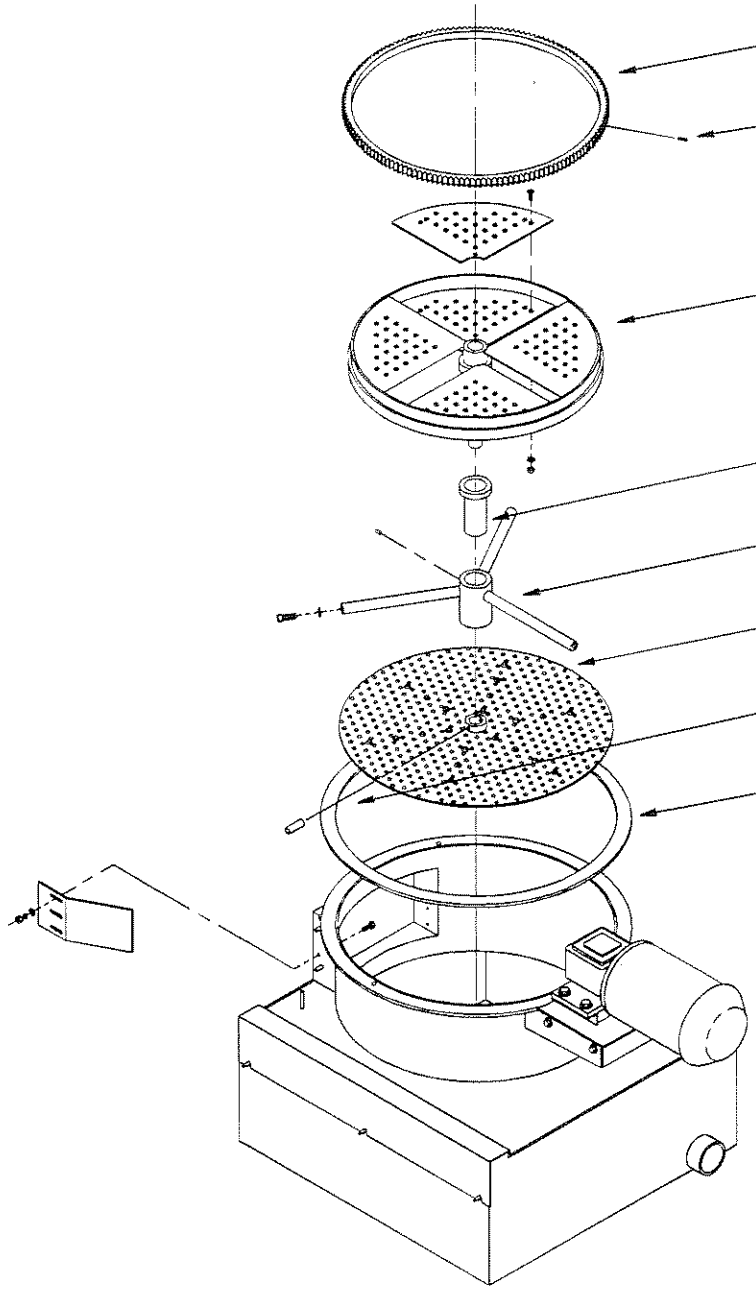
NO	DATE	FROM	TO	BY	CK



(12A-2615R0200) RING GEAR

(12A-2615R0200) RING GEAR

(12A-2160C0201) CUTTER ASSEMBLY , INCULDING RING GEAR

(12A-2020R0100) RULON CUTTER BEARING

(12A-2025B0101) BEARING SUPPORT (LESS DEFLECTOR DOOR)

(12A-2163D02010) CUTTER DISC ASSEMBLY

(12A-3040S0100) 1/4 X 1 1/2 SPIROL PIN

(12A-2600G0500) GUM RUBBER GASKET

SERVICE MANUAL

HENRY Vogt MACHINE CO LOUISVILLE,KY.

CUTTER/TANK ASSEMBLY DETAIL

MODELS P118F AND P218F

DRG. NO. B-56990

DWN. BY GARY BG.
CKD. BY
RLSD.BY
DATE 4-10-91
SCALE NONE

B-56990

REFRIGERANT CHARGE

Included with the machine is the required charge (approx. 260 lbs.) of Refrigerant 22, which has been isolated in the receiver (15R). Before shipment of the machine, the compressor service valves (34), (45), and the stop valves in the various lines to the condenser and receiver have been closed. These valves are tagged with instructions that the valves are to be opened prior to start-up of the machine. Before opening these valves it is advisable to check all joints for leaks which may have developed during shipment. If no leaks are present, a positive pressure should be on the freezer and receiver. They should indicate a pressure approximately equal to the ambient temperature.

If it should ever become necessary to add refrigerant to the system, charging valve (28) is provided for the purpose. Through this valve refrigerant can be added in liquid form. See **ADDING REFRIGERANT**

Set the "ICE/CLEAN" switch (TS-1) to the "CLEAN" position. Set the "ON/OFF" switch (TS-2) to the "ON" position and push the "START" button. This will allow only the water pump to run. If necessary to purge air from the pump, push the "STOP" button to stop the pump for a few seconds and start again by pushing the "START" button. When there is a good water level in the pumping tank and water is being circulated by the pump, set the "ICE/CLEAN" switch in the "ICE" position. This will start the compressor and the TUBE-ICE machine will be operating in a freezing cycle.

ADDING REFRIGERANT

When charging machine, it is necessary for the following procedure to be followed:

1. Make connection between charging valve and refrigerant cylinder using hose or pipe suitable for R-22 service. See instruction card attached to cylinder for proper position of cylinder so machine can be charged with liquid.

2. Open valve on R-22 cylinder and purge air out of charging line at the charging valve connections

3. Open charging valve.

4. Refrigerant can be added only during the freeze cycle. The charging valve must be closed when the freezer is in a harvest.

See the "certificate" of test in the front of the manual for the approximate refrigerant charge for your machine.

SHUTDOWN CYCLE

When the "SHUTDOWN" operation is initiated, the next freezer to go into a harvest period will be the first one to shut down.

When the last freezer to shutdown completes its harvest period, operation will cease.

PUMPDOWN

To pump the refrigerant out of the freezer(s) and into the receiver(s), the following procedure should be followed:

a. Open electrical disconnect switch and pull wire #28 loose from thawing timers, close electrical disconnect switch.

   The other option is to close the 1/4" valve (69) at the top of the freezer which will isolate the freezer pressure switch and keep it from pulling down and starting a "HARVEST CYCLE".

b. Start machine and allow it to operate until low pressure switch stops the machine. (Adding warm water to pumping tank will aid in a more complete removal of refrigerant from the freezer. Do not exceed 80°F water temperature in the tank.)

c. Close thawing gas line stop valve, compressor suction, and discharge service valves, as well as the stop valve in the oil return line.

d. Open electrical disconnect switch.

e. Drain all water from condenser, water pumps, (water cooled machines) and pumping tank if machine will be down for an extended period of time.

REFRIGERANT REMOVAL

To transfer the refrigerant charge from the machine into a separate container, proceed as instruction under "PUMPDOWN". This will isolate the refrigerant in the condenser and receiver.

Then connect a length of copper tubing or a charging hose to receiver drain valve and to an approved Refrigerant 22 storage container. Purge tubing or hose of air by allowing a small amount of refrigerant to escape.

Pack the storage container in ice and be sure that the container has a storage capacity in excess of the amount (weight) of refrigerant in the system. (CAUTION - DO NOT CHARGE IN EXCESS OF 80% OF CONTAINER'S VOLUME) Open the receiver drain valve and the storage container valve. When the pressure in the receiver is reduced to approximately 50 PSI, close the drain valve. Close storage container valve.

MAINTENANCE

A careful inspection of the TUBE-ICE machines refrigeration system for leaks and correct operational functions at time of installation will start its long satisfactory life of service. In order to insure this degree of dependability, a systematic maintenance program is recommended. Therefore, the following schedule is suggested as a minimum.

(A) DAILY

1. Check "ice-out" time (maintain 30 second free running after last ice is out).

2. Check clarity of ice produced and hole size.

3. Check compressor oil level.

4. Check refrigerant charge by observing operating level in receiver gage glass (30).

(B) WEEKLY

1. Check system for leaks with suitable leak detector for the first four weeks of operation.

2. Check oil level and condition.

3. Check refrigerant level in receiver.

(C) MONTHLY (In addition to weekly checks)

1. Check calibration and operation of all controls (high and low pressure switches, oil pressure switch, etc.)

2. Check cooling tower for scaling and algae (consult water treatment suppliers for corrective measures).

3. Check water distributors in freezer for scale accumulation.

4. Check water tanks for solids to be removed.

5. Check all motor drive units (compressor, cutter and pump motors, cooling tower fan and pump, etc.) for abnormal noise and/or vibrations.

(D) YEARLY (In addition to weekly and monthly)

1. Check entire system for leaks (See "E").

2. Drain water from condenser and cooling tower and check condenser tubes. Check closely for damage by corrosion or scale.

3. Remove all rust from all equipment, clean, and paint.

4. Check all motors for shaft wear and end play.

5. Check operation and general condition of all electrical controls, relays, motor starters, and solenoid valves.

6. Check freezing time, ice release time, and ice out time.

WATER TANK

The production of opaque ice usually indicate that the water in the water tank contains a concentrated amount of suspended or dissolved solids.

Remove cover plate. Open Drain Valve (39). Clean tank thoroughly by flushing out with a hose and scrubbing with a stiff brush. Fill the water tank with fresh water. Never use a carbon steel brush on the stainless steel, since this can initiate rust. Use a brush with fiber or stainless steel bristles.

When restarting the machine, be sure that the water pump is circulating water. It is possible that air may have collected in the pump impeller housing and the unit may have to be stopped and started several times to expel the air.

DRIP PAN

If the machine is installed on a bin with a drip pan it is important to keep the drip pan free of any foreign materials and to keep the drain for this pan open. This drain must not run through the ice compartment of the bin.

WATER COOLED CONDENSERS (Checking Operation)

How often condensers need cleaning depends on many variables, so it is impossible to recommend a schedule. Some will seldom need cleaning, others perhaps need cleaning once a year. In rare cases, cleaning is required several times a year.

Proper operation of cooling towers will increase the interval between cleaning considerably. The tower overflow rate should be checked frequently. If a tower is operated with insufficient overflow, nominal 1-1/2 to 3 GPH bleed depending on water quality, the resulting mineral concentration in the water can cause rapid and heavy fouling inside the condenser tubes, requiring excessively frequent cleaning. Also, these conditions often lead to severe corrosion.

Chemical additives, including those to stop algae and related growths, should be obtained only from a reputable, established supplier, and use specifically according to directions. Excessive treatment of the water can cause more harm than good; the condensers, pumps, piping, and the towers themselves may be damaged.

It is advisable to double check the system to make sure that fouling is actually causing the trouble. High head pressure alone does not mean a fouled condenser. The following possibilities should always be checked before cleaning is undertaken.

1. Non-condensables in system, or faulty head pressure gauge? Check standby pressures against refrigerant tables.

2. Incorrectly set, or defective, water regulator valve? Check its setting and operation.

3. Partly closed compressor discharge service valve? Check its setting. Stem should be backseated.

4. High water temperatures entering condenser? Check tower fan and system.

After the above possibilities have been eliminated, determine the temperature difference between the water leaving the condenser and the refrigerant

condensing temperature (saturation temperature, from pressure-temperature chart, corresponding to head pressure). If this difference is more than 10°F, cleaning is indicated, because this difference indicates a good heat exchange is not being made. If this difference is less than 8°F, something other than a fouled condenser may be causing the high head pressure. In normal operation, this difference will stay between 5°F and 10°F regardless of water inlet temperature, when the water flow is regulated by a pressure operated water valve. If this difference is less than 5°F, restricted water flow, or a low pressure, is indicated. A restriction can occur with foreign matter in the condenser, but it is likely to be somewhere else in the system.

DRAINING WATER COOLED CONDENSER

Draining of water-cooled condensers is recommended in preparation for the winter cold, where units may be left exposed to ambient temperatures below 32°F. Theoretically, it is easy to drain a condenser. In practice, the problem can be complex.

Despite the fact that a condenser may have vent and drain fittings, the opening of these fittings is not sufficient for a natural gravity flow. Water will be retained in tube; due to (1) surface tension and (2) the normal curvature between tube supports. Our experience shows that as much as 20% of the water in the condenser can be retained. Whether water left in the tubes will cause damage during a freeze-up will be dependent upon how quickly the freeze occurs and the location of the water inside the condenser.

In the field it is recommended that the water covers be removed and tubes be blown out individually with air. Alternatively, a minimum of 25% ethylene glycol in the system will also prevent a freeze which can rupture the tubes.

CHEMICAL CLEANING OF WATER COOLED CONDENSER

The Henry Vogt Machine Co. makes no recommendation for any particular chemical preparation. The same chemical may not be effective for all situations.

CAUTION THE FOLLOWING DIRECTIONS AND PRECAUTIONS SHOULD BE OBSERVED WHEN CLEANING IS UNDERTAKEN. THE WARRANTY ON CONDENSERS IS VOID IF THEY ARE DAMAGED BY IMPROPER CLEANING TOOLS OR METHODS. IF HARSH CHEMICALS ARE USED, BE SURE TO FOLLOW THE MANUFACTURERS RECOMMENDATIONS REGARDING SAFETY IN HANDLING THOSE SOLUTIONS. PARTICULARLY REGARDING SPLASH PROOF GOGGLES, RUBBER GLOVES, ETC.

a. Use only preparations from an established, reliable source.

b. Follow directions exactly, particularly regarding amounts to use, and flushing or neutralizing procedure after cleaning.

c. Close the water stop valve. Remove the condenser water regulating valve (41).

d. Circulate the solution through the condenser until it is considered clean.

e. Flush the condenser according to directions.

f. Install the water regulating valve and connecting piping.

g. Open the water supply stop valve and check for leaks.

MECHANICAL CLEANING OF WATER COOLED CONDENSER

Part I.

1. Close the stop valve in the water supply line.

2. Drain the water from the condenser.

3. Remove water regulating valve (41) and attached piping to the condenser.

4. Remove the cover plate on the side of the frame to expose the condenser end plate.

5. Remove the nuts, water plates, and gaskets from both ends of the condenser. If the gasket does not lift off with the end plate, do not try to pry it off. The seal surface may be damaged, which would cause a water leak. To free a sticking gasket, replace the water plate and tap it on the outside face with a mallet or a block of wood. After a few taps, the gasket will spring free, and will then slip off with the water end plate.

6. Gaskets need only be rinsed in running water: rust, scale or dirt will not stick to the gasket material. A rag, or soft brush, is all that is required to remove any foreign matter.

Part II.

The inside of the water end plates and the outer tube sheet surfaces should be cleaned with clear water and a rag or soft bristle brush. A worn paint brush is excellent.

These surfaces have been coated with a special material, which will give years of protection against corrosion, unless damaged. Never use a wire brush or a strong caustic on these surfaces.

Flush condenser tubes clear with water or a piece of rag on a stick or wire. In many cases this is all that is required. If the inside surfaces are smooth, even though discolored, further cleaning is not necessary. It is useless to try and get a bright copper surface on the inside of the tubes. They will discolor almost immediately in service, and the condenser has been designed with an adequate reserve for moderate fouling on these surfaces.

If, however, a rough coating remains inside the tubes after flushing and wiping, further cleaning is desirable. The color of this coating varies with water conditions, but roughness indicates cleaning tools should be used.

Any type tool to be considered should be tried first on a piece of copper tubing held in a vise or flare block. Nylon, brass or copper brushes are recommended. If any flakes of copper appear or if score marks are made inside the tube, the tool should not be used. Never use anything with sharp or rigid edges which could cut into the copper tubing.

A cleaning tool is available from VOGT, through your distributor. Ask for Part #12A-2055B01.

When using a cleaning tool, keep the inside of the tube wet and move the tool slowly from one end to the other while rotating it at a moderate speed. A hand drill brace is recommended. If an electric drill is used, a low speed attachment on a 1/4" size drill is preferred. Larger units are powerful enough

to damage a tube, if for any reason, the cleaning tool should stick. After one or two passes in each tube, they should be flushed and inspected. Often this is enough, although some deposits require more. In any case, stop when a few places begin to show a copper color.

After cleaning, wipe all foreign matter from the tube sheets and studs. Reassemble as outlined on gasket installation instructions.

If the gasket seal ridge was damaged, and a replacement is not immediately available, water leaks can be stopped by removing the gasket, drying it, and applying a thin film of a non-hardening gasket sealer, such as Permatex #2, around the seal ridge. This film should be no thicker than the height of the ridge itself and about 3/16" wide. Then re-assemble.

If a new gasket is put on later, be sure to remove any grit or particles that stick to the sealer film on the tube sheet. It is not necessary to remove all traces of the sealer before installing a new gasket, as long as no particles that cut into the new gasket remain on the surface.

WARNING: ACID CAN CAUSE SERIOUS BURNS OR BLINDNESS. ALWAYS ADD ACID TO WATER FOR DILUTION. WEAR EYE AND BODY PROTECTION.

AIR-COOLED CONDENSER CLEANING

Visual inspection will indicate if dirt is accumulating and clogging the fin face of the condenser. A vacuum cleaner, compressed air or a brush may be used to remove any accumulation of loose direct from the fin section of the condenser.

If fins have been damaged, they should be straightened with the proper fin comb.

LUBRICATION

Your VOGT TUBE-ICE machine is equipped with a low oil pressure safety switch to protect the compressor. However, this switch cannot fully do its job unless the following precautions are observed.

COMPRESSOR

In starting and charging the unit, the oil sight glass (33) in the crankcase of the compressor should be watched carefully for the first hour to make certain the proper lubrication is being maintained. The oil may become low in the crankcase on an initial start-up, if the electrical current has been interrupted to the machine, thus de-energizing the compressor crankcase heater.

Before starting the machine again, the heater should be energized for a time period of at least two hours to evaporate refrigerant that may have condensed in the crankcase during the shutdown period. If level is low after start-up, it should begin to return after a short period of operation.

The oil level should be checked frequently, particularly during the start-up operation, to see that a sufficient amount of oil remains in the crankcase. While it is important to observe the oil splash during operation, the true level can be obtained only when the compressor is stopped. With the compressor idle, the oil level should be at a height of 1/3 to 2/3 of the sight glass, but never out of sight above it.

Although the machine was shipped with the oil charge which was originally added for the test operation, it may be found necessary to add some oil when or if new refrigerant is added to the system.

An oil pump should be used to force any oil that may be required into the system. Oil may be added to the compressor of all units through the low-pressure test connection adjacent to the high/low pressure switch or through the compressor suction service valve. The compressor suction service valve should be "backseated" to shut off pressure to the gauge port when connecting the oil pump. Air should be purged from the oil pump discharge line, by forcing some oil through the line before tightening the charging connection.

Use "Dual Inhibited Sunisco 3GS" (Viscosity 150), or equal.

OIL PRESSURE SWITCH

If it is necessary to install a new oil pressure switch, see Drawing B-56996 on Page 37 for adjusting.

NO	DATE	REVISION FROM	TO	BY	CK

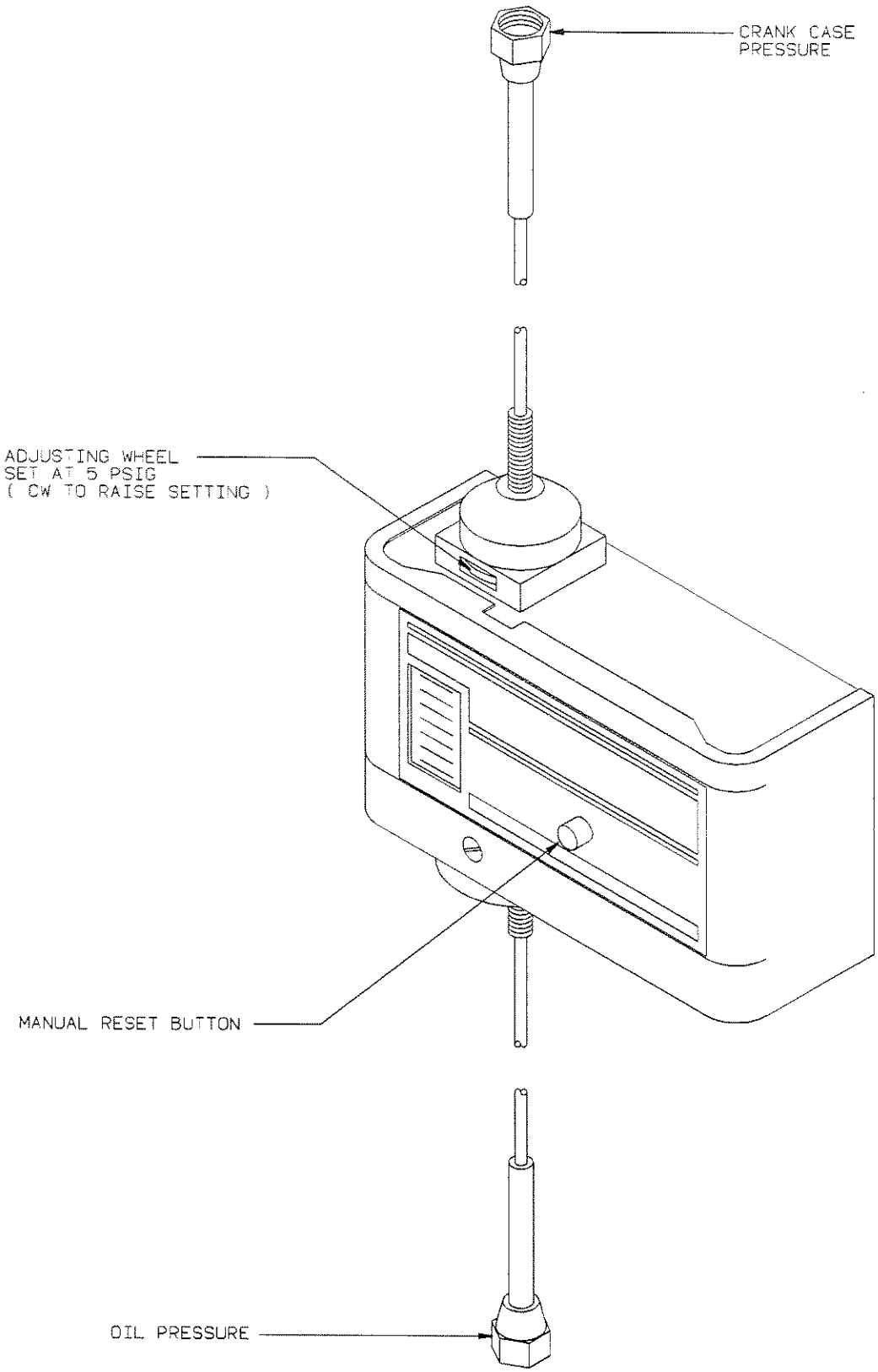
PART NO.

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

OIL PRESSURE SWITCH DETAIL
FOR
MID-SIZE TUBE-ICE MACHINE

DRG. NO. B-56996

DWN. BY PECKENPAUGH
CKD. BY
RLSD. BY
DATE 11 APR 91
SCALE NONE



B-56996

ADJUSTABLE BLOWDOWN (for clearer ice)

A petcock is installed on the water pump to provide means for obtaining blowdown from the water pan during the freezing period. This supplements the blowdown that is discharged during the thawing period through the bypass piping connected to the drain of the water pan. (See "Automatic Blowdown," below.)

The petcock was set at the factory to discharge approximately one (1) gallon of water in fifteen minutes. After installation it should be adjusted to the minimum rate required to maintain production of clear ice.

AUTOMATIC BLOWDOWN (harvest cycle)

A patented feature of this machine is the automatic blowdown (40) which is provided to eliminate or reduce the necessity for frequent flushing or cleaning of the water tank (7) to remove accumulated salts or solids in the water as a result of the freezing action.

A principle of operation of the blowdown arrangement is a drain-bypass effect, which is initiated during each thawing period when the water pump is stopped and the water in the freezer tubes returns to the water tank, thereby raising the water level higher than the bypass piping (40) and causing a portion of the water to drain from the bottom of the tank.

The water level, controlled by the float valve (12), regulates the quantity of blowdown during the thawing period.

FLOAT VALVE (make-up water)

The make-up float valve (12) maintains the proper pumping level in the water tank for ice making. The valve should be set to maintain a water level in the water tank during the freezing period, so that there will be a quantity of bypass or blowdown only during the thaw mode. The water level during the freeze mode should always be below the bypass piping to prevent excessive waste of cold water, resulting in loss of ice capacity.

If is should become necessary to clean the float valves, close the stop valve in the make-up water line to the machine and remove the float valves. After the valves have been cleaned and reinstalled, check to ascertain if the proper water level is being maintained.

It is advisable to install a large area strainer in the water supply line to protect the float valve from dirt or solids in the water which would necessitate frequent cleaning. A strainer of 40 mesh screen is usually satisfactory. This stainer should be checked and cleaned at least once a year.

EXPANSION VALVE

The expansion valve was adjusted before shipment, and it is rarely necessary to change this setting.

If considerably less ice than shown on spec sheet is being produced per discharge, check the water supply, circulating water pump, water distributors, liquid line valves, refrigerant level, freezer pressure switch and all other avenues BEFORE changing the factory setting of the expansion valve.

The expansion valve should not be opened to the extent that frost will appear on the suction line between the heat exchanger and the compressor. If this part of the suction line does frost, close expansion valve as required or compressor damage will result.

FREEZER PRESSURE SWITCHES

The freezing time period for the production of cylinder ice is controlled by the freezer pressure switch located inside the control panel.

The switch(es) were set at the factory to produce ice of recommended thickness. Look at the "Certificate of Test", which was provided with the machine for a sample set of pressure readings with corresponding time periods and water temperatures. Do not make any adjustments until several ice discharging cycles have been made.

If it becomes necessary to install a new freezer pressure switch, the following procedure is recommended for its adjustment.

ALLEN BRADLEY SWITCH

The following procedure is recommended for initially setting an AB pressure switch which has not been previously adjusted:

1. Set "CUT-OUT" pressure (contact opens) at approximately 50 PSIG. Turning "Range Adjustment Screw" clockwise raises both the "CUT-IN" and "CUT-OUT" pressures approximately 2 PSIG for each turn. One turn is approximately one-fourth of a scale division.

2. Set "CUT-IN" pressure (contact closes) for cylinder ice production at approximately 40 PSIG and for crushed ice production at approximately 44 PSIG. Turning the "Differential Adjustment Screw" counter clockwise lowers the "CUT-IN" pressure, producing thicker ice. One division of the "Differential Indicating Dial" represents approximately 2 PSIG.

See Drawing B-56992 on Page 41.

The freezing time can be such that a small percentage of the ice is frozen solid. If so, some ice from the top and bottom of the freezer should have a small hole in the center to insure that the freezing time has not been extended to where a loss in capacity would result.

It is preferable that the freezing cycle be such that a small diameter hole remain in the center of the ice cylinder. (1/16" diameter for 7/8" diameter ice, and 3/16" diameter for 1 1/8" and 1 3/8" diameter ice.) This insures that the freezing cycle is not extended unnecessarily and eliminates a possible opaque core in the center of the ice.

When crushed ice is produced, the freezer pressure switch can be set to produce ice having a wall thickness of anywhere from 1/4" to 1/16", depending on the needs of the owner. 3/16" thick ice provides crushed ice of good appearance that does not melt excessively quickly.

NO	DATE	REVISION FROM	TO	BY	CK

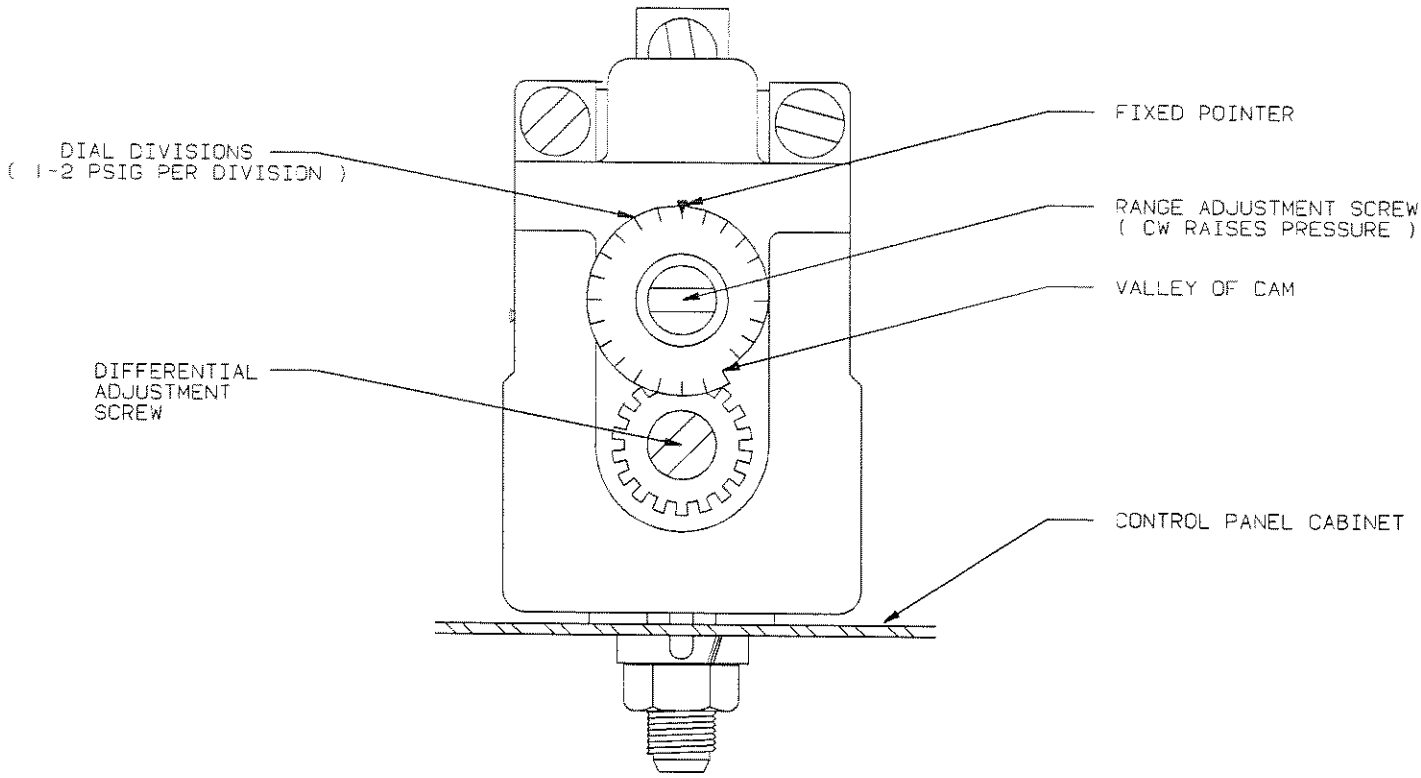
PART NO.

HENRY VOGT MACHINE CO
LOUISVILLE, KY.

FREEZER PRESSURE SWITCH DETAIL
FOR
MID-SIZE TUBE-ICE MACHINE

DRG. NO. B-56992

DWN. BY PECKENPAUGH
CKD. BY
RLSD. BY
DATE 11 APR 91
SCALE NONE



B-56992

HIGH-LOW PRESSURE SWITCH

The high-low pressure switch is a two pole dual function switch. Located in the machine, next to the compressor, it protects the machine from possible damage due to abnormal pressure during operation.

CAUTION: WHEN THIS SWITCH CAUSES THE MACHINE TO STOP, THE CAUSE SHOULD BE IDENTIFIED AND CORRECTED BEFORE RESUMING NORMAL OPERATION.

The low pressure cut-in should be set at 35 PSIG and the cut-out set at 15 PSIG. after tripping at the cutout setting, the switch will reset automatically when the pressure rises to the cut-in setting.

The high pressure cut-out should be set at 300 PSIG. After tripping, reset the switch manually.

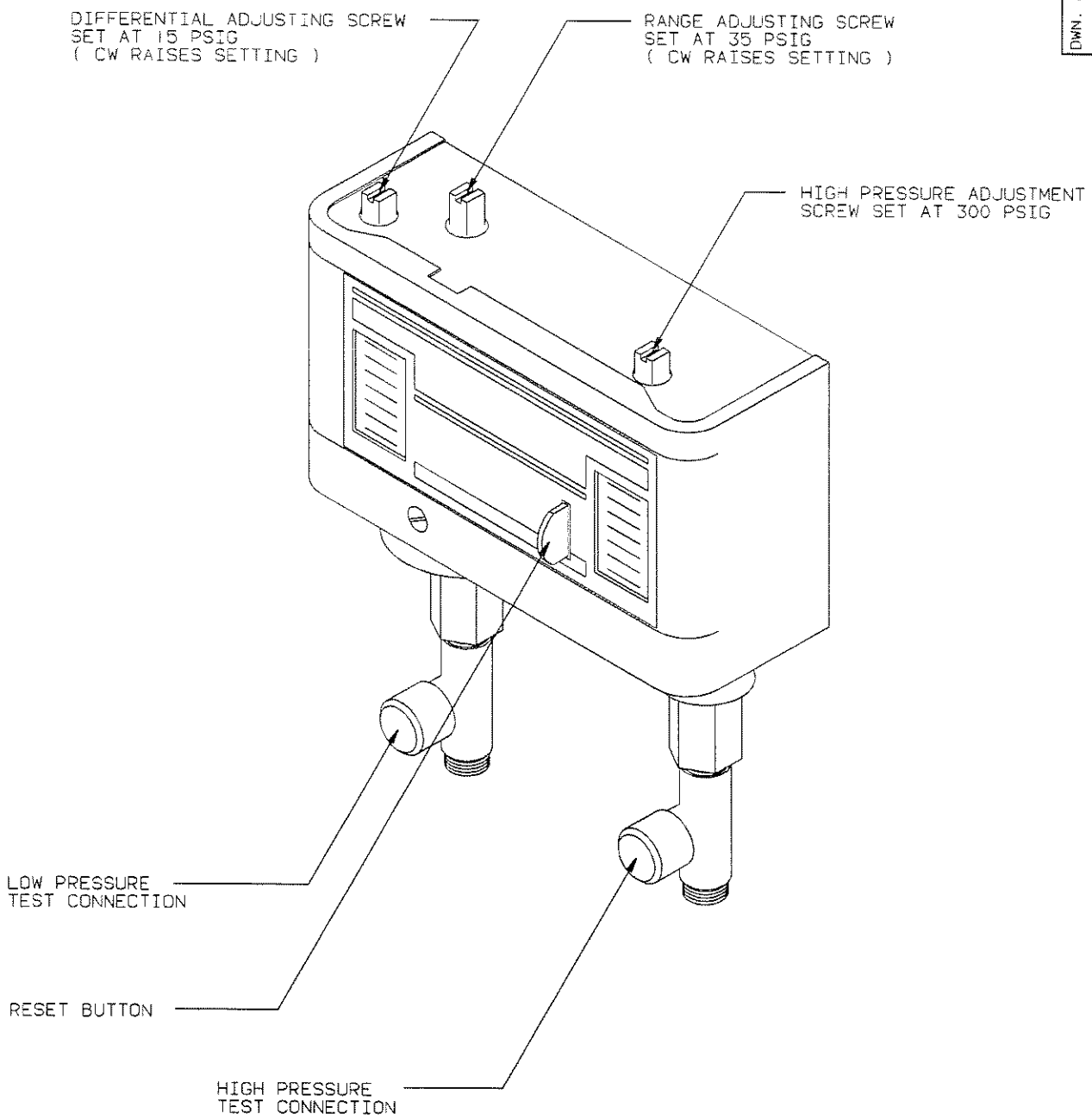
If it becomes necessary to install a high-low pressure switch, the following procedure is recommended for its adjustment.

Turn the adjusting screws clockwise to raise the pressure setting. Turn counter-clockwise to lower the setting. Adjust the switch to the indicated pressure settings and test with an accurate gage to be sure the switch functions properly.

See Drawing B-56993 on Page 43.

NO	DATE	REVISION FROM	TO	BY	CK

PART NO.	HENRY Vogt MACHINE CO LOUISVILLE, KY.
DWN. BY PECKENPAUGH	HIGH-LOW PRESSURE SWITCH DETAIL FOR MID-SIZE TUBE-ICE MACHINE
CKD. BY	
RLSD. BY	
DATE 11 APR 91	DRG. NO. B-56993
SCALE NONE	



B-56993

HEAD PRESSURE

The head pressure should be maintained at 190-210 PSIG during the freeze cycle. The accuracy of the pressure gages on the machine can be checked at the test connection in the high pressure line, near the high-low pressure switch.

See Drawing B-56993 on Page 43.

AIR-COOLED UNITS

The condenser fan switch is used to regulate the head pressure. This is an adjustable pressure switch located on the right-hand front of machine above the thawing gas pressure switch. It controls the operation of the condenser fan motor(s) through a contactor (FC) located in the control panel. The switch is set to cycle the fan motor(s) "ON" at 210 PSIG and "OFF" at 190 PSIG.

See Drawing B-56994 on Page 45.

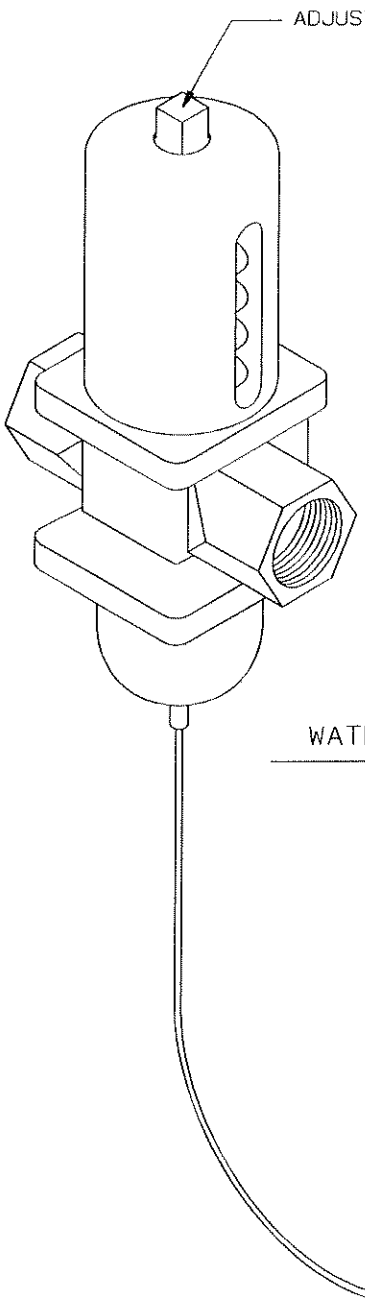
WATER COOLED UNITS

A water regulating valve located in the condenser water inlet line is used to control the water flow through the condenser. This valve should be adjusted to maintain a head pressure of 190-200 PSIG. Increasing the water flow lowers the head pressure and decreasing the water flow raises the head pressure. This valve is adjusted during the factory test.

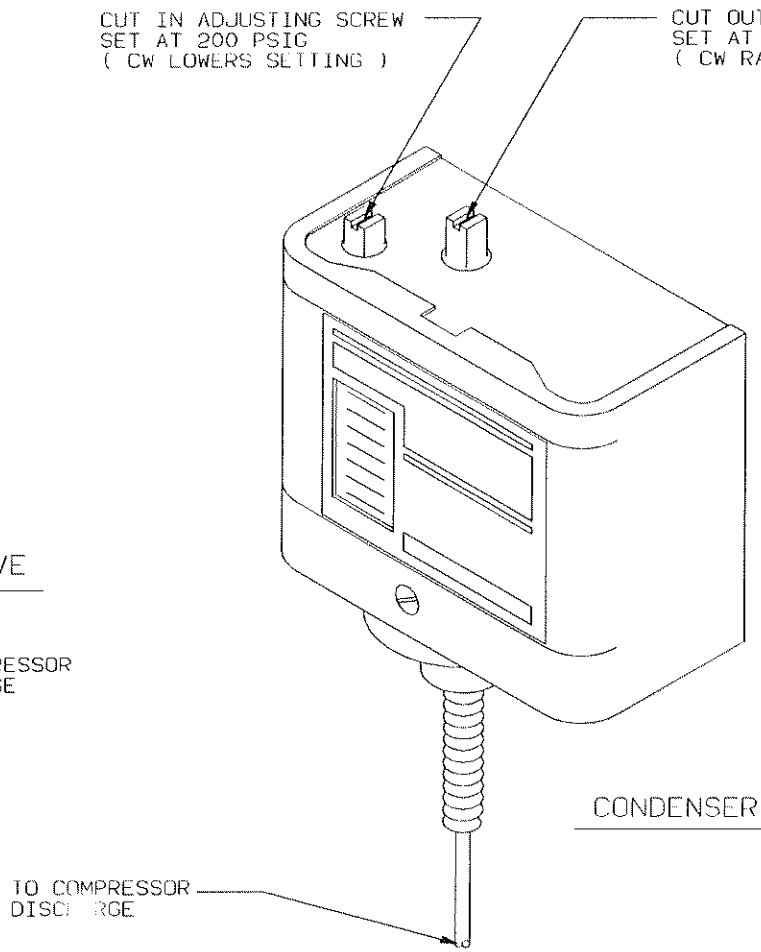
Running at higher head pressure may reduce water usage but will reduce ice capacity and increase energy consumption. Likewise, running at lower head pressures increases water use. Running at 200 psig is a good compromise for typical installation.

See Drawing B-56994 on Page 45.

REVISION				RD		
NO	DATE	FROM		TO	BY	CK



WATER REGULATING VALVE



CONDENSER FAN SWITCH

PART NO.

DWN. BY PECKENPAUGH
CKD. BY
RLSD.BY
DATE 11 APR 91
SCALE NONE

HENRY Vogt MACHINE CO
LOUISVILLE, KY.

WATER REGULATING VALVE AND CONDENSER FAN SWITCH DETAILS FOR MID-SIZE TUBE-ICE MACHINE

DRG. NO. B-56994

COMPRESSOR CRANKCASE HEATER

When electrical power is supplied to terminals L1, L2, & L3 the crankcase heater is energized when the compressor is not operating.

WATER DISTRIBUTORS

To clean distributors, stop the unit and remove the distributing head (8) on top of the freezer. The water distributors may then be removed for cleaning by soaking in a solution of ice machine cleaner or 10% muratic acid and water.

WARNING: ACID CAN CAUSE SERIOUS BURNS OR BLINDNESS. ALWAYS ADD ACID TO WATER FOR DILUTION. WEAR EYE AND BODY PROTECTION.

THAWING GAS VALVE PRESSURE SWITCH

The thawing gas valve (18) is closed and opened during the harvest cycle by an adjustable pressure switch located in the machine, outside the control panel. The pressure CUT-IN (contacts close) are to be set at 62 PSIG and CUT-OUT (contacts open) set at 68 PSIG.

If it becomes necessary to install a new thawing gas valve pressure switch, the following procedure is recommended for its adjustment:

Set the cut-out pressure at 68 PSIG (CW raises setting). Set the cut-in pressure at 62 PSIG (CCW lowers setting).

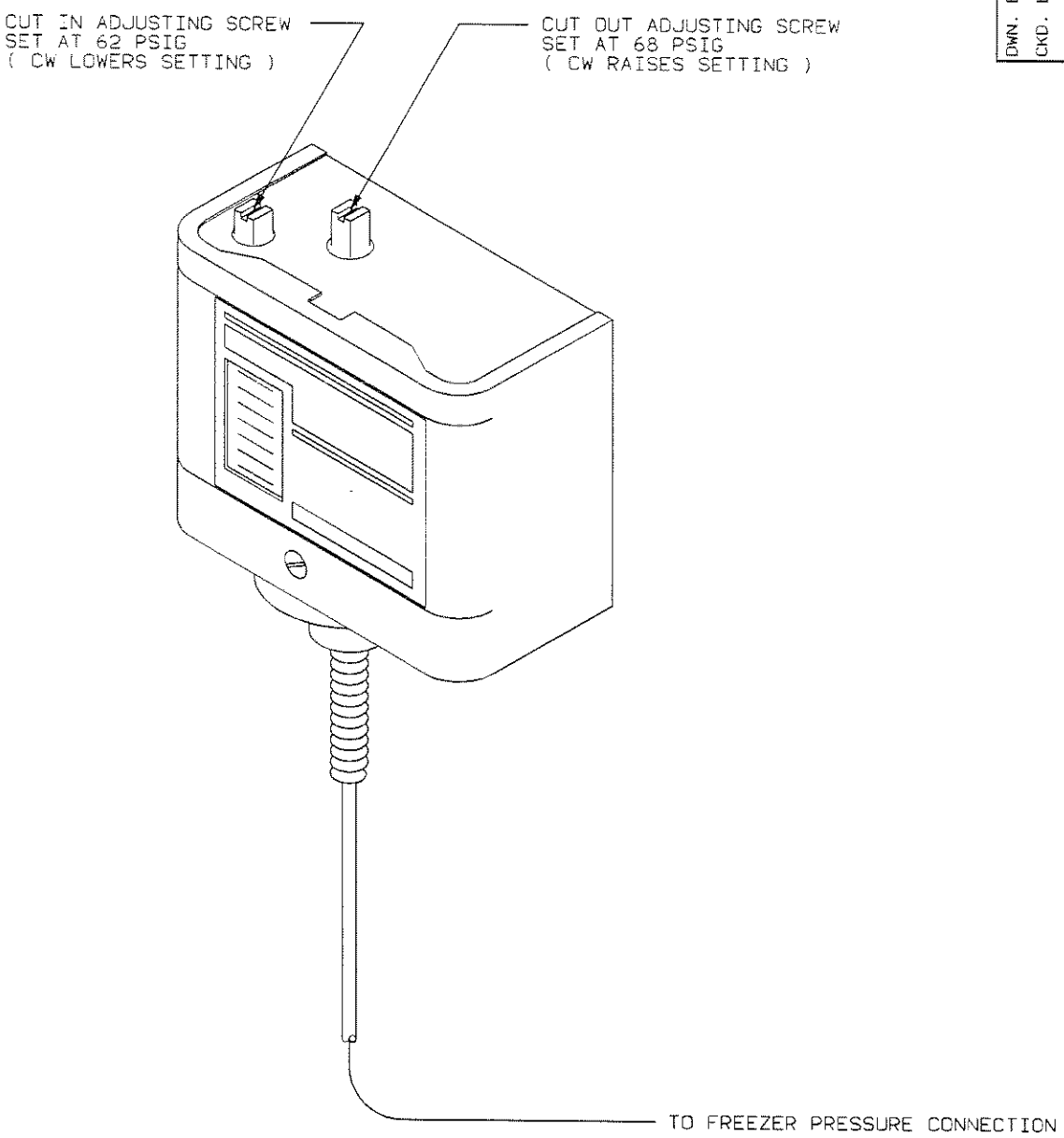
Attach a refrigerant gage to the test connection in the low pressure line near the high/low pressure switch. Adjust the CUT-OUT and CUT-IN during a harvest cycle, using the refrigerant gage for reference.

See Drawing B-56995 on Page 47.

REVISION				
NO	DATE	FROM	TO	BY / CK

PART NO.

DWN. BY PEDKENPAUGH	HENRY Vogt MACHINE CO LOUISVILLE, KY.	
CKD. BY	THAWING GAS PRESSURE SWITCH DETAIL FOR MID-SIZE TUBE-ICE MACHINE	
RLSD. BY		
DATE 11 APR 91		DRG. NO. B-56995
SCALE NONE		



CLEANING PROCEDURE
VOGT TUBE-ICE MACHINES
P118F and P218F

1. Set toggle switch to "OFF" position. (If the machine is running, it will shut down on completion of the last ice harvest period.)

2. Remove ice from storage area or securely cover opening into it.

3. Shut off water supply and drain each water tank (7). Remove any loose sediment from each tank.

4. Close drain valves and fill each water tank with water. On units equipped with petcocks on the water pumps, close the petcocks during the cleaning period.

5. Add three bottle (approximately 36 oz.) of Calgon Ice Machine Cleaner (a food grade liquid phosphoric acid) to each water tank during the refill period.

6. Remove grid in ice discharge of water tanks and place inside tank during the cleaning operation.

7. To run pump only, set the toggle switch to the "CLEAN" position. If necessary to purge air from pump, return switch to "ICE" position for a few seconds, then back to "CLEAN" position.

8. Circulate cleaning solution for 30 minutes or until deposits are dissolved.

9. Set switch to "ICE" position to stop pump, then drain and flush water tank with fresh water. Open water supply to machine.

10. Replace grid in ice discharge chute and start pump again by setting switch to "CLEAN". Operate for 15 minutes, then stop pump by returning switch to "ICE".

11. Drain and flush tank and then refill with fresh water.

12. Clean inside of ice storage area and remove any solution that entered during the cleaning process. Remove cover if one was installed over opening into storage area.

13. Place toggle switch to the "ON" position.

14. Start ice making cycle by depressing "START" push button.

15. Adjust setting of pump petcock per instructions in the service manual.

REMOVING OLD CUTTER (See Page 50)

1. Turn power off.
2. Shut off water supply.
3. Drain water tank.
4. Disconnect make-up water line at float valve, and also tubing from drain and pump connections.
5. Remove four bolts from flange of the gear reducer holding the motor to the gear reducer, and pull the motor away from the reducer, removing it completely from the reducer.
6. Remove ice discharge chute.
7. Remove the three bolts or nuts from around the freezer flange progressively, allowing the water tank to drop down inside the frame.
8. Remove the water tank from the frame.
9. Remove spiral pin that holds cutter disc to cutter shaft.
10. Pull cutter assembly out of water tank.
11. Remove the three screws that bolt cutter bearing support to tank and remove support.
12. Unbolt screws and remove ice deflector plate.

NOTE : MODEL P118F WITH 1 1/2" TUBES WILL HAVE A ROUND WATER TANK WITH A SWINGING DEFLECTOR DOOR INSTEAD OF WHAT IS SHOWN ON THIS DRAWING.

REVISION				
NO	DATE	FROM	TO	BY	CK

SERVICE MANUAL

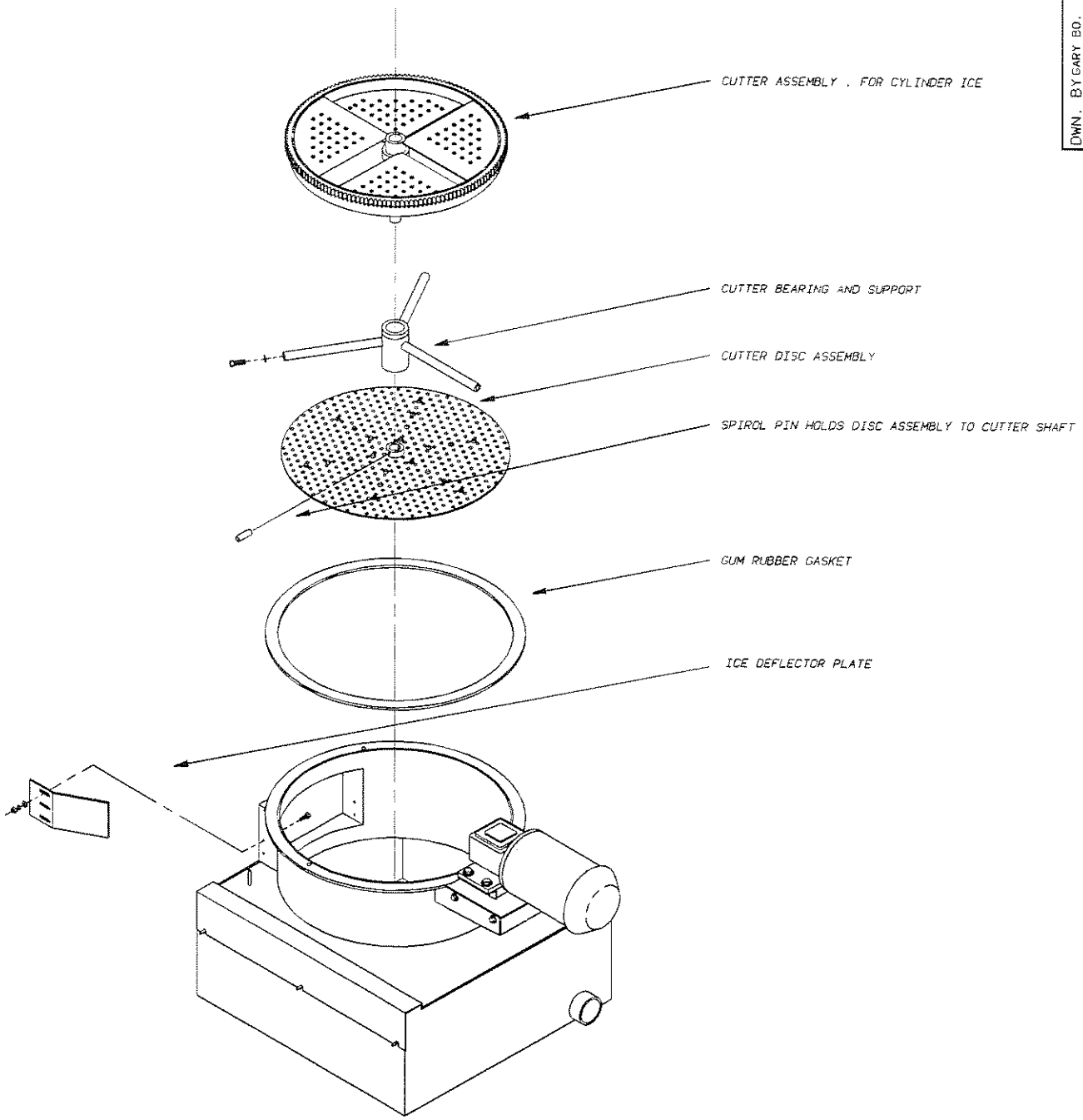
HENRY VOGT MACHINE CO LOUISVILLE, KY.

CRUSHED ICE CONVERSION

REMOVING OLD CUTTER

DRG. NO. B-56998

DWN. BY GARY BO.
CKD. BY
RLSD. BY
DATE 4-10-91
SCALE NONE



B-56998

CRUSHED ICE CONVERSION

INSTALLING CRUSHED ICE CUTTER (See Page 52)

1. Drill four holes in tank and tap for 10/24 screws.

2. Install slush screen assembly and secure to water tank with 10/24 screws.

3. Set cutter disc assembly down in bottom of water tank.

4. Install cutter bearing support and bolt in place.

5. Install crushed ice cutter assembly (12-6413A).

6. Slip cutter disc assembly over shaft and drive in spiral pin.

7. Install ice deflector plate to opposite side of ice discharge opening.

8. When making crushed ice the cutter must turn the opposite direction. To change the rotation of the cutter, the following wiring change is required:

   P118F with 1 1/2" tubes has a single phase motor. To change the direction, change the wiring in the motor by hooking the blue and black wire to L1, tie the red, orange, and white wire together and leave the yellow wire on L2.

   All other P118 and P218 models have 3 phase cutter motors. To change the direction, switch two of the three wires (52-53-54) at the terminal block inside the control panel.

9. Reinstall water tank with gum rubber gasket in place and bolt up snug to bottom of freezer.

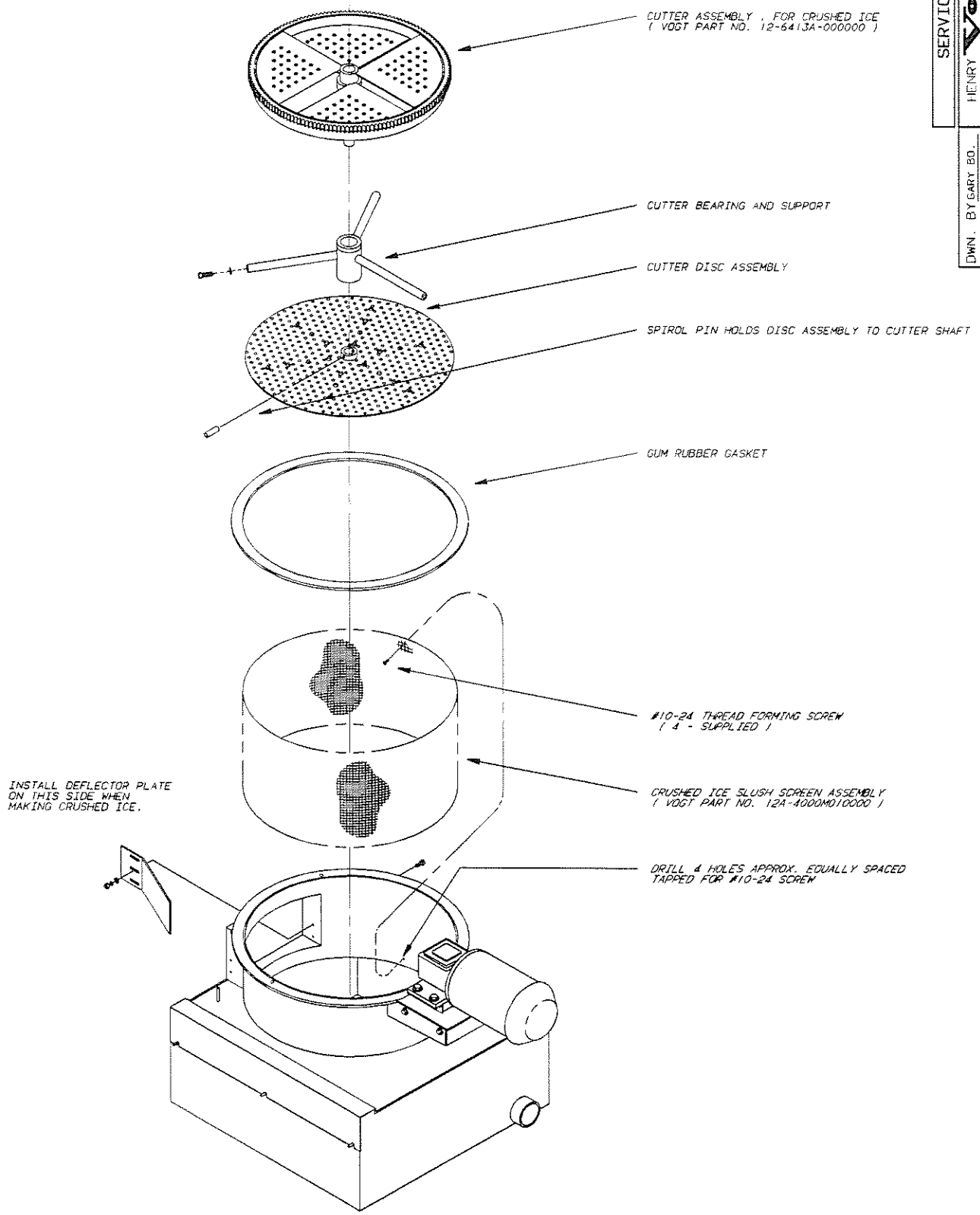
10. Connect water lines and tubing, making sure hose clamps are tight, especially on the pump suction.

11. Install cutter motor onto the gear reducer, sliding keyed shaft into reducer. Lubricate shaft before installation.

12. After completing reassembly of all parts, turn the power and water on, and check operation.

13. Adjust freezer pressure switch to approximately 40 PSI (see page 35) or until ice wall thickness is approximately 3/16" thick.

NOTE : MODEL P118F WITH 1 1/2" TUBES WILL HAVE A ROUND WATER TANK WITH A SWINGING DEFLECTOR DOOR INSTEAD OF WHAT IS SHOWN ON THIS DRAWING.



REVISION

NO	DATE	FROM	TO	BY	CK

SERVICE MANUAL

HENRY VOGT MACHINE CO LOUISVILLE, KY.

CRUSHED ICE CONVERSION

MODELS P118F AND P218F

DRG. NO. B-56999

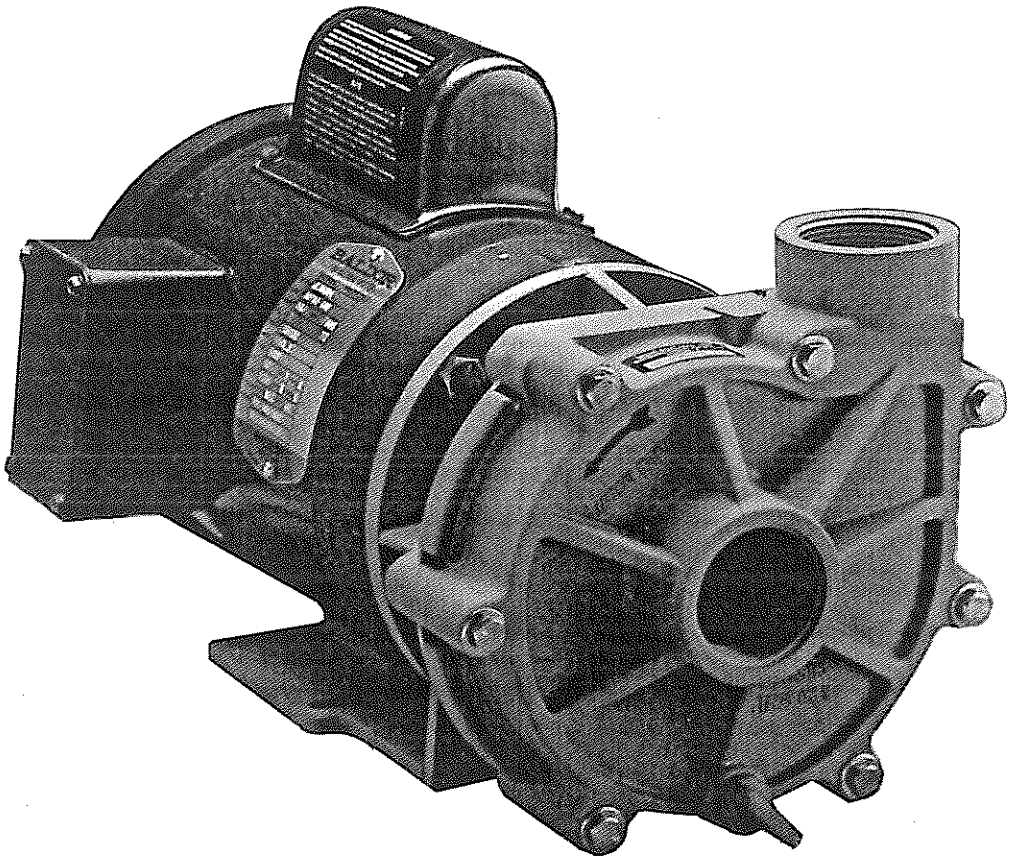
DWN. BY GARY BO.
CKD. BY
RLSD. BY
DATE 4-10-91
SCALE NONE

B-56999

SEQUENCE 1000

Reliable, Corrosion Resistant Chemical Pumps

INSTALLATION AND SERVICE MANUAL



SEQUENCE 1000 PUMP

TYPE: Straight Centrifugal

HORSEPOWER AVAILABLE: 1/4, 1/3, 1/2, 3/4, 1, 1½, 2

MOTOR: NEMA C Face, 56J

PORT SIZE: 1½" Intake and Discharge

MATERIALS: 30% Glass-Filled Noryl or 40% Glass-Filled Polypropylene

OPTIONS: Stainless Steel Seal With Viton, Impenetra Seal, Stainless Steel Hardware

WARNING: Please Read Completely Before You Install or Operate Your New Pump!
Never Run Pump Dry — Never Reverse Rotation
Never Exceed an Internal Case Pressure of:
65 PSI Max Polypropylene 100 PSI Max Noryl

We congratulate you on your choice of the Sequence 1000 Centrifugal Pump! It has been carefully designed using the advantages of today's technology and carefully constructed to give you the dependability of yesterday.

To insure proper performance, we urge you to carefully follow the instructions in this manual. If you have any questions, call your nearest distributor or M.D.M. for assistance.

PUMP END ASSEMBLY

1. Clean and inspect all pump parts (O-ring, seal seats, motor shaft, etc.).
2. Apply sealant in bracket bore hole and possibly around seal case according to sealant instructions. Note: For SS seal, chamfer the edge of the bracket bore hole.
3. Press carbon graphite seal into bracket while taking care not to damage carbon graphite face.
4. Place slinger (rubber washer) over motor shaft and mount bracket to motor.
5. Carefully lubricate boot or O-ring around ceramic piece and press into impeller. (If ceramic has O-ring, the marked side goes in.) Note: Use glycerine for EPDM.
6. Sparingly lubricate carbon-graphite and ceramic sealing surfaces. Water, glycerine, or a light-weight machine oil may be used, depending on the elastomers used in the pump. *Do not* use silicon lubricants or grease!
7. Thread impeller onto shaft and tighten! If required, remove motor end-cap and use a screwdriver on the back of motor shaft to prevent shaft rotation while tightening. Replace motor end cap.
8. Electrically, connect the motor so that the impeller will rotate CCW when facing the pump with the motor toward the rear. *Incorrect rotation will damage the pump and void the warranty! For 3Ø power, electrically check rotation of impeller with volute disassembled from backet. If pump end is assembled and rotation is incorrect, serious damage to pump end assembly will occur even if the switch is "quickly bumped." If rotation is incorrect, simply exchange any two leads.*
9. Seat O-ring, in volute slot and assemble volute to bracket.
10. Install drain plug with its O-ring in volute drain hole.

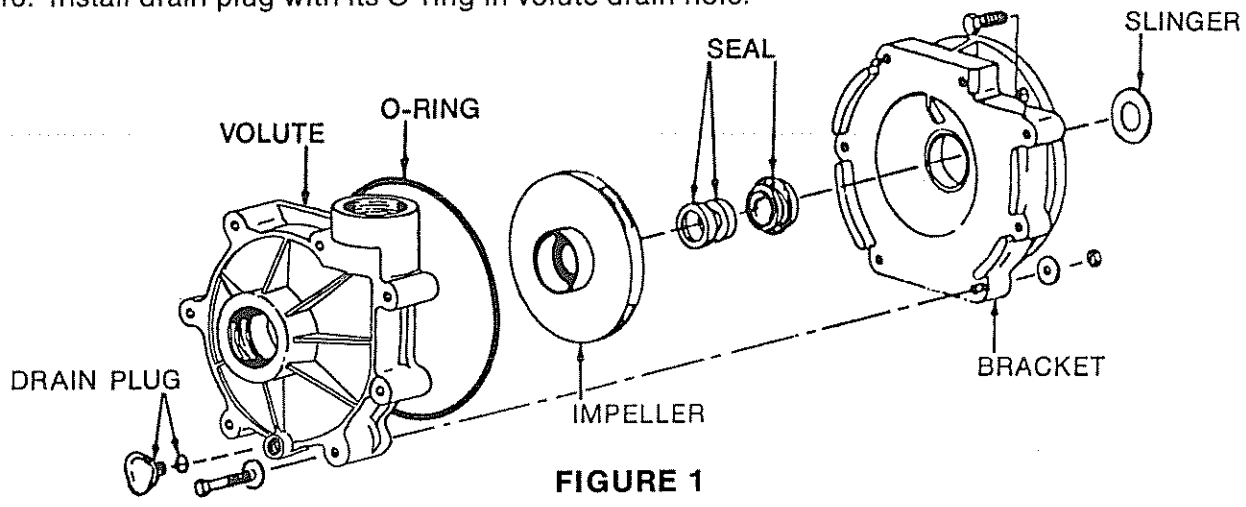


FIGURE 1

DISASSEMBLY

1. Shut off power to motor before disconnecting any electrical wiring from the back of the motor.
2. Disassemble the bracket-motor assembly from the volute, by removing the 7¼ 20x2½ cap screws. (The volute may be left in-line if you wish.)
3. Remove cap covering shaft at back of motor and with a large screwdriver, prevent shaft rotation while unscrewing impeller.
4. Remove ceramic piece from impeller.
5. Detach bracket from motor.
6. Remove carbon-graphite seal from bracket by pressing out from the back. *Do not dig out from the front!*