



## TURBOJET™

### COMBINATION COOK TANK, CHILLER & SOUS VIDE PRODUCTION UNIT

MODEL:  TJ-100-CC



#### **Cleveland General Specifications**

The capacity of the TurboJet is up to 100 gal. for pumpable (kettle produced) products and up to 700 lbs. of meat in the cook tank mode. The TurboJet functions as a cook tank, a product chiller and a sous vide production unit. Most pumpable food products packaged in pouches or casings can be cooled from 170°F to 40°F in an average of less than one hour.

#### **Cleveland Standard Features**

- Microprocessor operating controls mounted in Type 4X housing
  - Power on/off switch
  - Time and temperature set-point controls
  - Three operating mode selection
    - ✓ Chill Cycle
    - ✓ Cooking/Heating cycle to time and temperature
    - ✓ Automatic cooking cycle with core temperature probe
- Low 40" loading rim height
- Tank equipped with two powerful turbo jets for water and product agitation
- All stainless steel type 304 construction
- Rounded internal tank corners for efficient cooling and easy cleaning
- Powerful 7.5 HP water circulation pump with high and low pre-set flow-rates
- 1 HP water circulation pump for even water bath temperature distribution
- High efficiency plate type heat exchanger for product cooling
- 100 PSI steam jacket for product/tank heating
- Stainless steel spring assisted hinged rear cover
- 4 legs with adjustable flanged feet for floor bolting
- Core-temperature meat probe for recording internal product temperature
- Built in chart recorder for time / temperature recording
- 20 HP remote condensing unit (specify air or water cooled)
- Heat exchange tank (190 gal. capacity) with automatic temperature control and 3 HP glycol circulation pump

ITEM NUMBER \_\_\_\_\_

JOB NAME / NUMBER \_\_\_\_\_



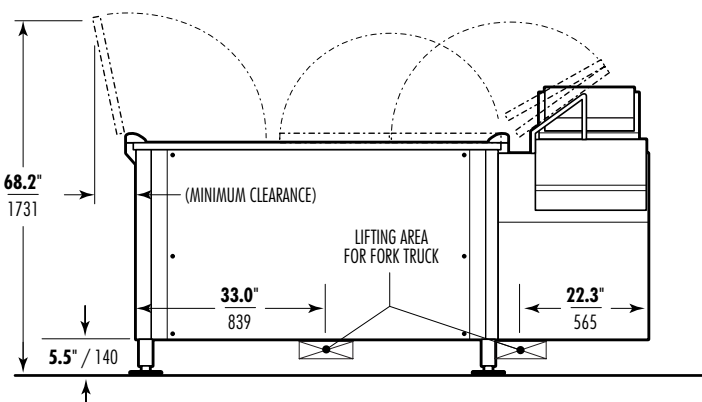
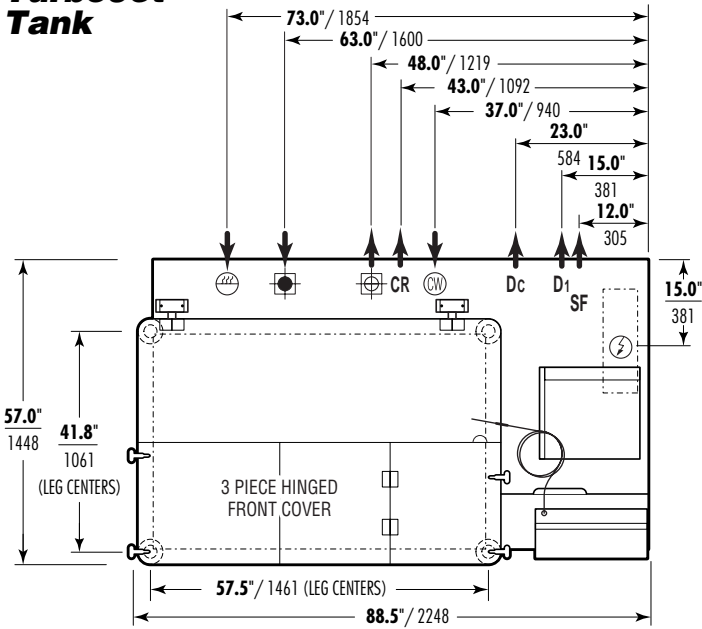
#### **Short Form Specifications**

Shall be CLEVELAND Model: TJ-100-CC Combination Cook Tank, Product Chiller and Sous Vide Production Unit with 20 HP Remote Condensing Unit and Heat Exchange Tank, capacities: 100 gal. of casing packaged pumpable product or 700 lbs. of meat. Temperature reduction of 170°F to 40°F in less than one hour for most products, 40" loading rim height, all stainless steel type 304 construction, 7.5 HP Water Circulation Pump with high/low preset flow rates, 1 HP Water Circulation Pump with tank mounted Microprocessor Operating Controls and Chart Recorder.

#### **Options & Accessories**

- One set of wire baskets with carrier for meat cooking
- Dolly for wire basket set
- Ice-builder Package (in lieu of glycol heat exchange package)
- Electric Chain Hoist for product loading of cook tank items
- Steam Boiler

# TurboJet Tank



### Minimum Clearance

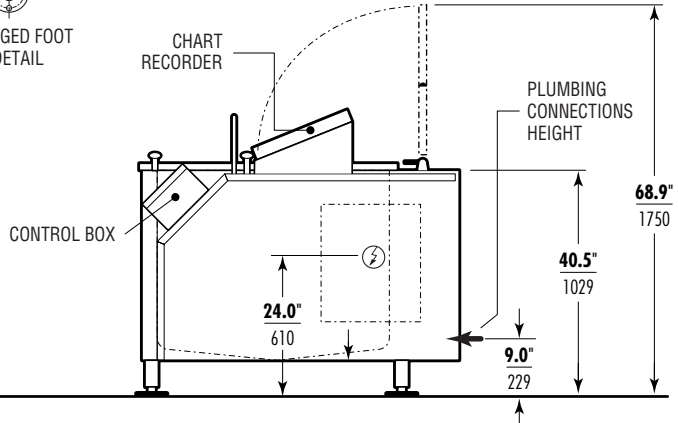
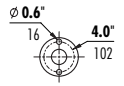
BACK - 12.0"	LEFT - 6.0"	RIGHT - 18.5"
305	153	470

**Notes:**  
OPTIONAL HOIST AVAILABLE (HIGHLY RECOMMENDED) FOR LOADING COOK TANK BASKETS

### Utility Connections

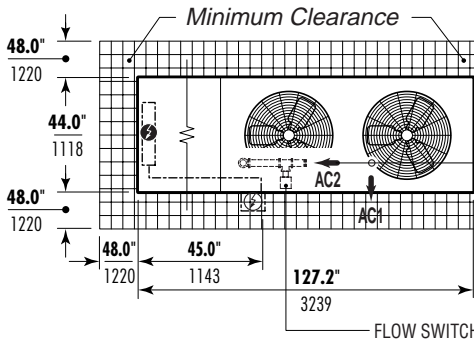
- ☞ 1" NPT STEAM IN (420 lbs./191 kg. per hour required, 60-80 PSI steam pressure recommended)
- ☞ 1" NPT COLD POTABLE WATER IN (30 gal./114 litres per minute)
- ☞ 1 1/4" NPT COOLING WATER OR GLYCOL IN (flow rate is 40 gal./152 litres per minute)
- CR 3/4" NPT CONDENSATE RETURN
- ☞ 1 1/4" NPT COOLING WATER OR GLYCOL OUT
- ⚡ MAIN POWER IN (208/3 - FLRA 35 Amps)
- D1 1 1/2" NPT TANK DRAIN TO FLOOR DRAIN
- Dc 3/4" NPT COOLING DRAIN WATER
- SF 1" NPT STRAINER FLUSH TO FLOOR DRAIN

DIMENSIONS	
INCHES"	MILLIMETERS
<b>SHIPPING WEIGHTS</b>	
TurboJet Chiller : 1,700 lbs. (772 kg.)	
Condensing Unit : 1,850 lbs. (840 kg.)	
Heat Exchange Package : 450 lbs. (205 kg.)	

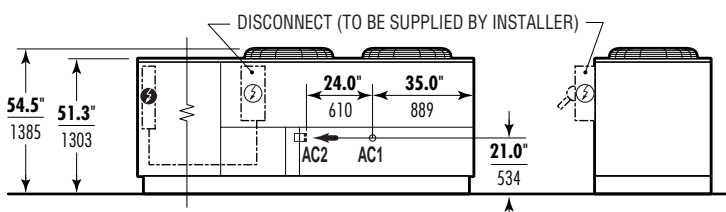


## Air Cooled Condensing Unit

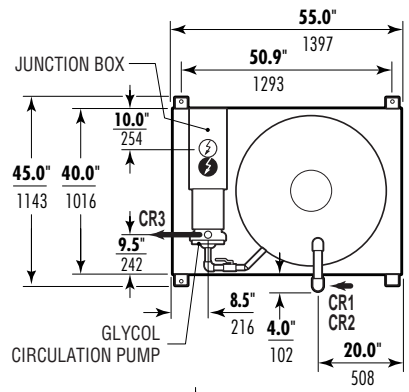
20 HP air cooled condensing unit (13 ton cooling capacity) for outdoor installation  
**Note:** optional water cooled condensing unit for indoor installation available



- ⚡ CONDENSING UNIT POWER IN 208V/3PH/60HZ, FLRA 68 AMPS
- ⚡ CONTROL POWER IN 120V/1PH/60HZ, FLRA 10 AMPS
- AC1 2" NPT GLYCOL TO CR2 ON CHILLER RESERVOIR
- AC2 2" NPT GLYCOL TO CR3 ON CHILLER RESERVOIR



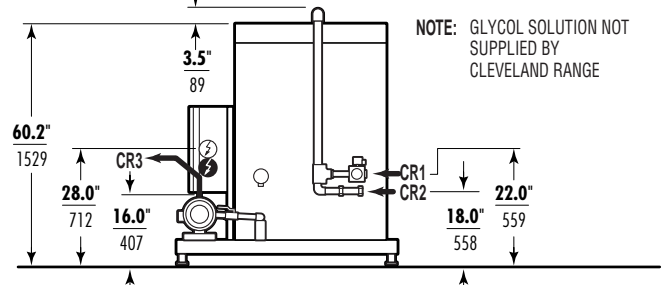
## Heat Exchange Tank



### Minimum Clearance

BACK - 6.0" / 153
FRONT - 20.0" / 508
LEFT - 20.0" / 508
RIGHT - 6.0" / 153

- ⚡ MAIN POWER IN 208V/3PH/60HZ, FLRA 11 AMPS
- ⚡ CONTROL POWER IN 120V/1PH/60HZ, FLRA 3 AMPS
- CR1 1" NPT GLYCOL FROM ON TURBOJET
- CR2 1 1/4" NPT GLYCOL FROM AC1 ON AIR COOLED CHILLER
- CR3 1" NPT GLYCOL OUT TO AC2 ON AIR CHILLER

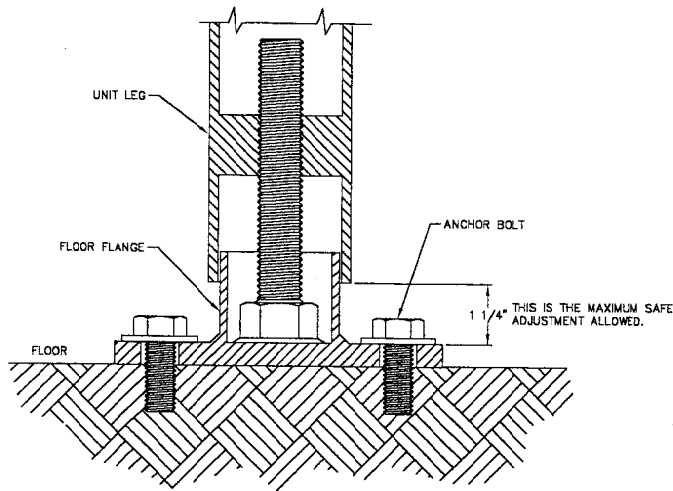


**NOTE:** GLYCOL SOLUTION NOT SUPPLIED BY CLEVELAND RANGE

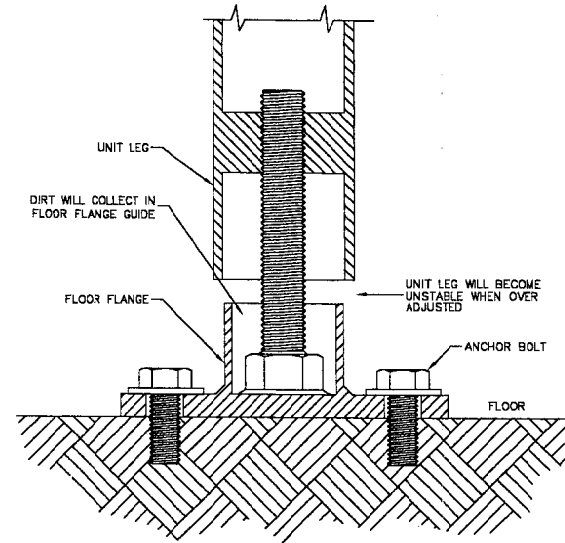
**FACTORY RECOMMENDATION:** INSTALL CONDENSING UNIT AND HEAT EXCHANGE TANK NEXT TO EACH OTHER

**NOTES:**

AFTER UNIT IS LEVEL, ANCHOR ALL FLOOR FLANGES TO THE FLOOR BY USING AN ANCHOR BOLT IN EACH HOLE OF THE FLANGES.



CORRECT ADJUSTMENT OF FLOOR FLANGE



INCORRECT ADJUSTMENT OF FLOOR FLANGE

**J.C.PARDO & SONS INC.**

1250 REAMES RD.  
PHONE (410) 391-3600



BALTO MD. 21220  
FAX (410) 391-9042

CHECKED BY:

DRAWN BY: JAY S.

DATE: 4-27-96

SCALE: NONE

APPROVED BY:

**2" TO 2 1/2" FLOOR FLANGE ADJUSTMENT INSTRUCTIONS**

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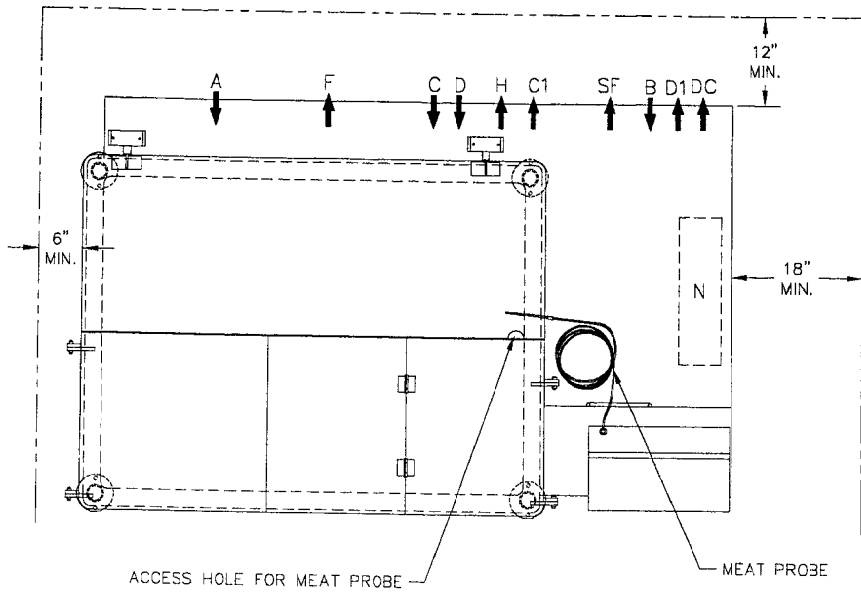
SIZE:  
B

DRAWING NUMBER:  
8576

REV.

SHEET

1 of 1

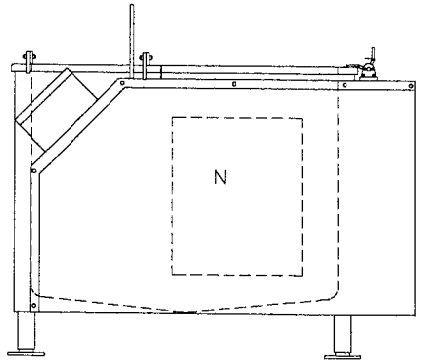
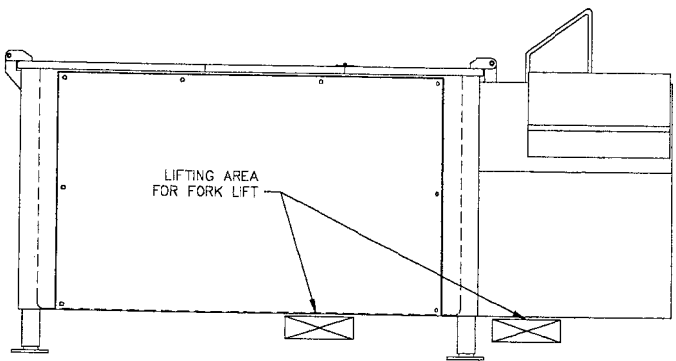


**UTILITY CONNECTIONS:**

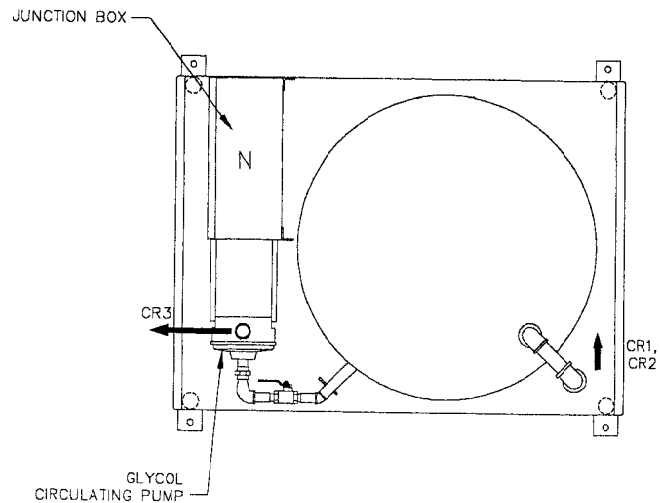
- A) 1" NPT STEAM IN.
- B) 1" NPT COLD POTABLE WATER IN.
- C) 1" NPT HEAT EXCHANGER HOT WATER BACK FLUSH IN.
- C1) 1" NPT HEAT EXCHANGER HOT WATER BACK FLUSH OUT TO FLOOR DRAIN.
- D) 1 1/4" NPT GLYCOL IN FROM AC1 ON AIR COOLED CHILLER.
- F) 3/4" NPT CONDENSATE RETURN.
- H) 1 1/4" NPT GLYCOL OUT TO CR1 ON CHILLER RESERVOIR.
- N) MAIN POWER IN 208V/3PH/60HZ.
- D1) 1 1/2" NPT TANK DRAIN TO FLOOR DRAIN.
- DC) 3/4" NPT COOLING DRAIN WATER TO FLOOR DRAIN.
- SF) 1" NPT STRAINER FLUSH TO FLOOR DRAIN.

**LEVELING INSTRUCTIONS**

CONTROL SIDE OF TANK TO BE 1/2" LOWER THAN LEFT SIDE OF TANK. DO NOT UNSCREW FEET MORE THAN THE MAXIMUM SAFE ADJUSTMENT ALLOWED (REF. DWG. #B576) IF THIS IS NOT ENOUGH THEN USE SHIMS UNDER THE FEET. TANK MUST BE LEVEL FRONT TO BACK.

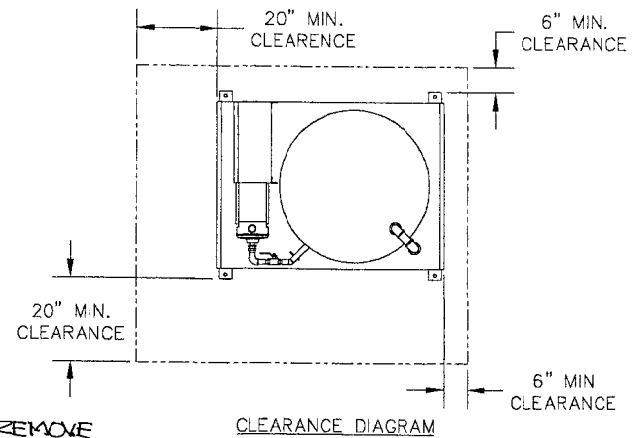
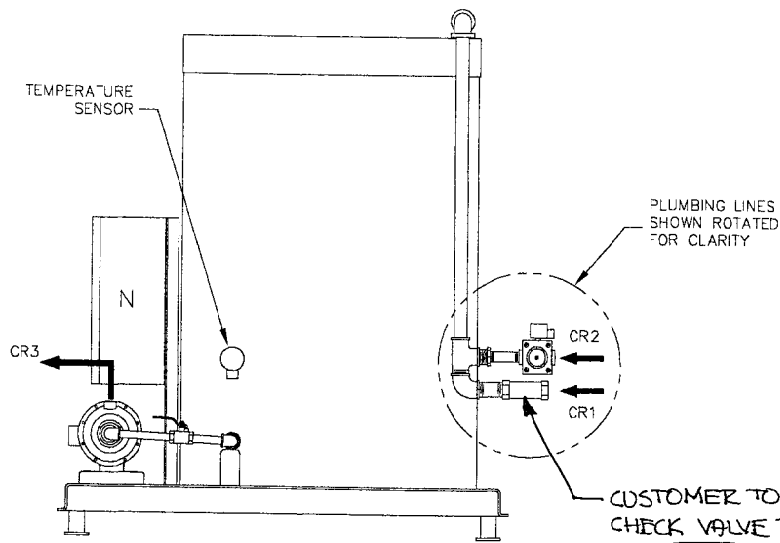


REV.		DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 391-3800 FAX (410) 391-9042		CHECKED BY: DRAWN BY: JAY S. DATE: 2-20-01 SCALE: NONE	<b>JCP-N-100 TURBOJET          UTILITY CONN.</b>		SIZE: <b>C</b>	DRAWING NUMBER: <b>9043</b>
REVISIONS							APPROVED BY:	<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons, Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>		REV.	SHEET <b>1 of 1</b>



**UTILITY CONNECTIONS:**

- CR1) 1 1/4" NPT GLYCOL IN FROM H ON TURBOJET AND HEATEXCHANGER.
- CR2) 1" NPT GLYCOL BYPASS FROM AC1 ON AIR COOLED CHILLER.
- CR3) 1" NPT GLYCOL OUT TO AC2 ON AIR CHILLER.
- N) MAIN POWER IN 208V/3PH/60HZ..



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

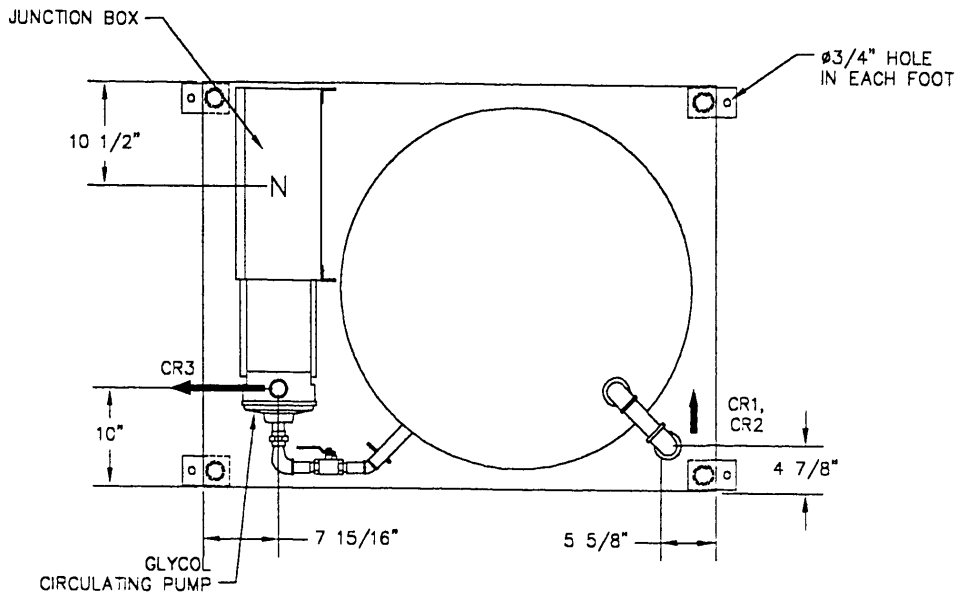
**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3600 FAX (410) 391-8042

CHECKED BY: DRAWN BY: JAY S.  
 DATE: 2-20-01  
 APPROVED BY: SCALE: NONE

CHILLER RESERVOIR TANK & CIRC. PUMP

SIZE: C  
 DRAWING NUMBER: 9045  
 SHEET: 1 of 1

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**UTILITY CONNECTIONS:**

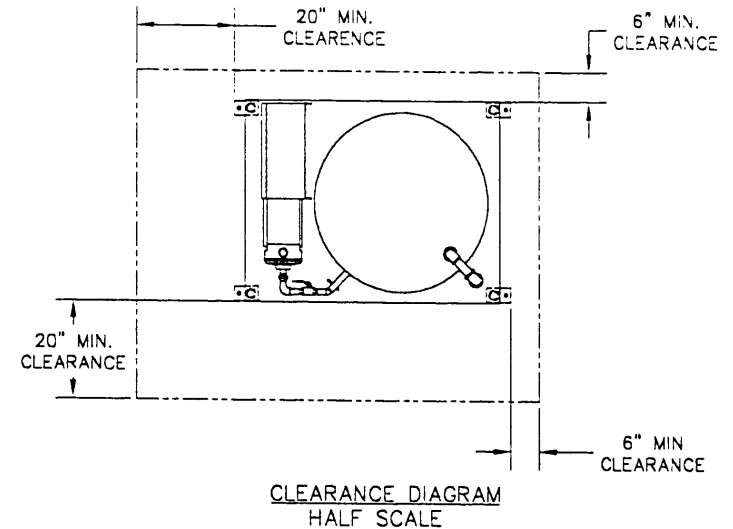
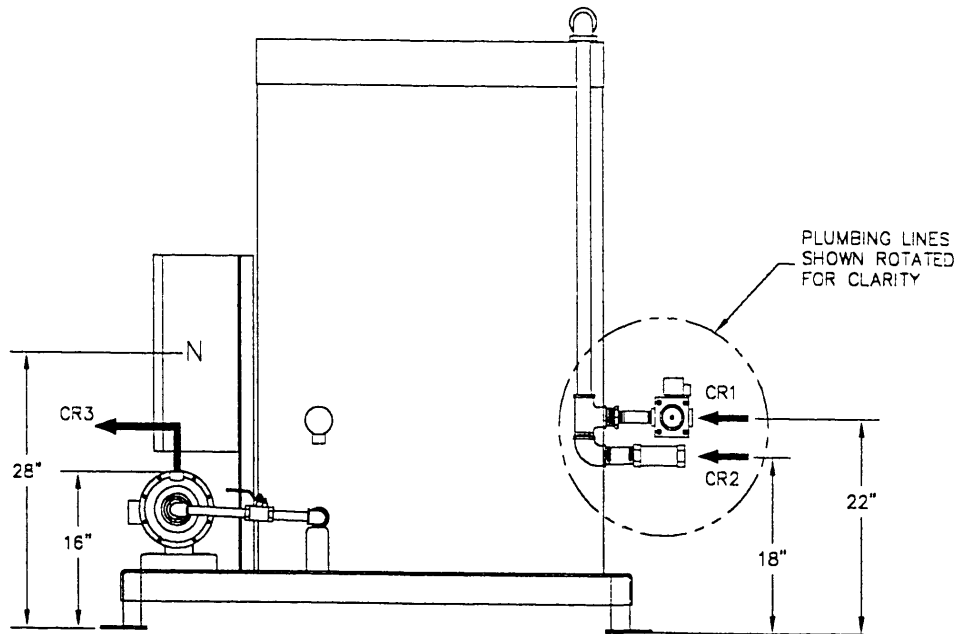
- CR1) 1" NPT GLYCOL IN FROM H ON TURBOJET.
- CR2) 1 1/2" NPT GLYCOL BYPASS FROM AC1 ON AIR COOLED CHILLER.
- CR3) 1" NPT GLYCOL OUT TO AC2 ON AIR CHILLER.
- N) MAIN POWER IN 208/230/460V AND 120V CONTROL POWER (SEE NOTE 2)

**NOTE:**

- 1) CUSTOMER TO SUPPLY IN LINE DISCONNECT FOR CIRCULATING PUMP AS PER LOCAL CODE.
- 2) ELECTRICIAN TO PUNCH HOLE IN BOX AS PER LOCAL CODE FOR POWER CONNECTION.

**CIRCULATING PUMP INFORMATION:**

- 1) 3HP 208/230/460V PUMP.
- 2) 110 FEET HEAD (MAX.) WITH 35 GPM (MIN.) AT TURBOJET.



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

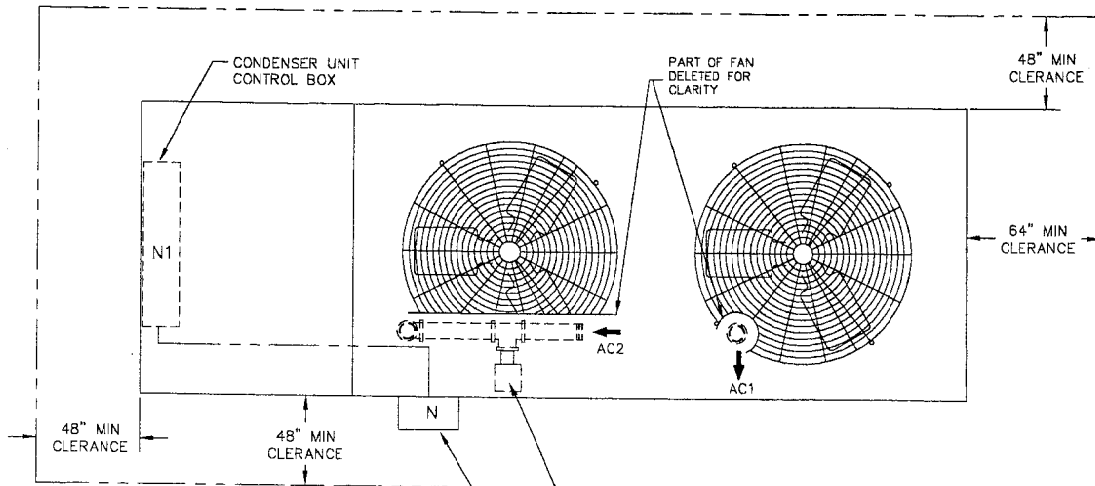
**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY	DRAM BY JES
APPROVED BY	DATE 11/15/01
	SCALE NONE

**JCP-N-100 TURBOJET  
CHILLER RESERVOIR TANK & CIRC. PUMP**

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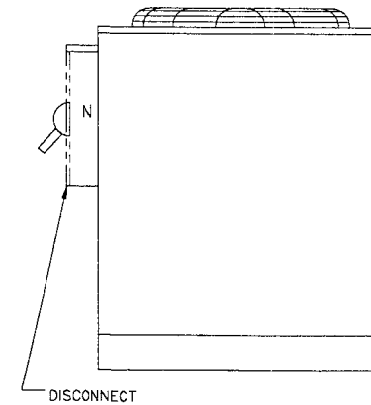
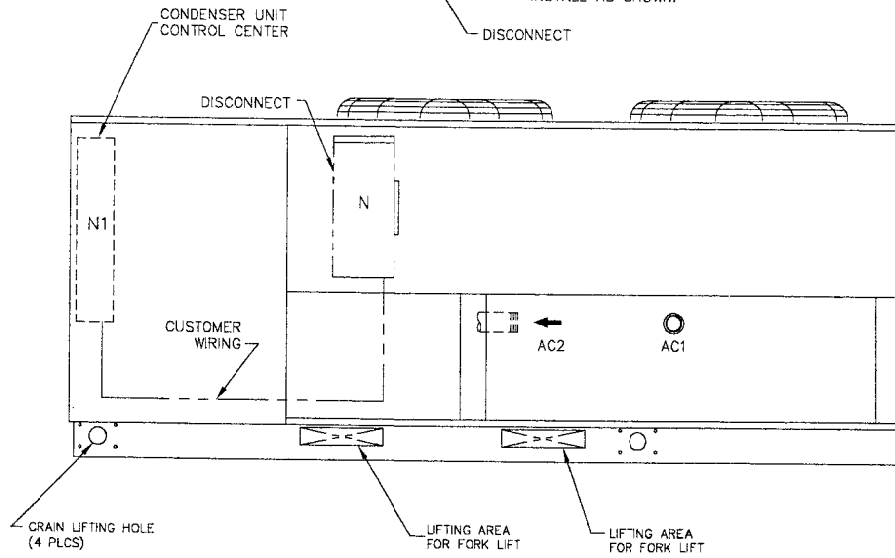
REV. C	DRAWING NUMBER 9116
	SHEET 1 of 1



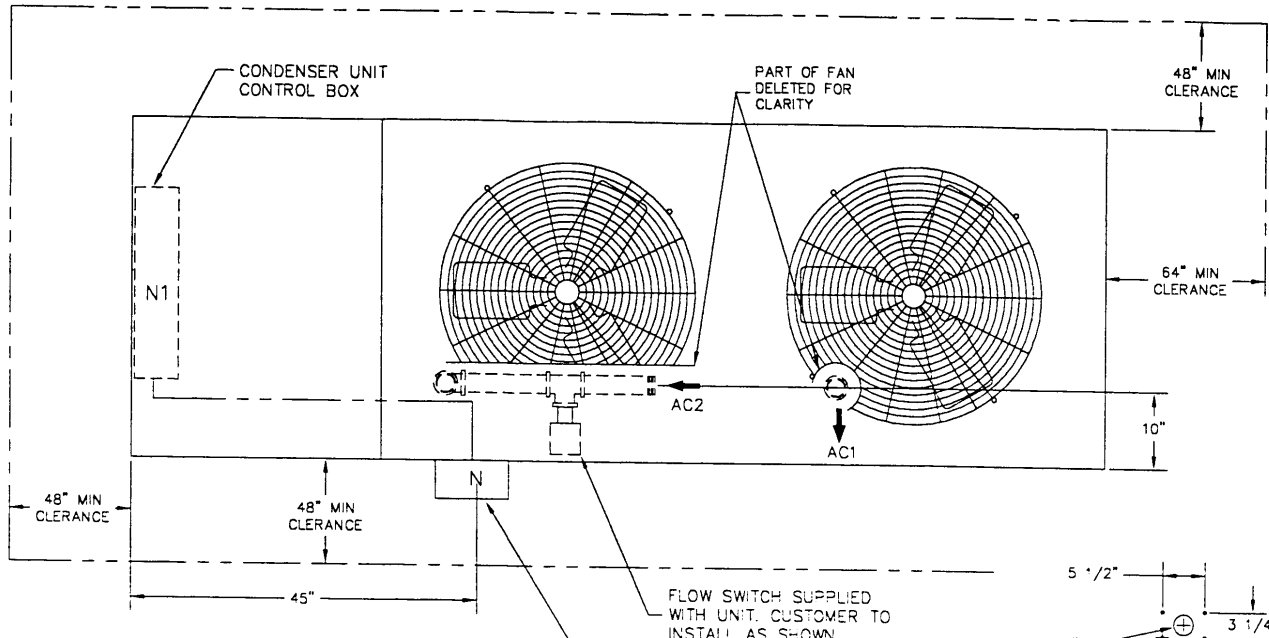
**UTILITY CONNECTIONS:**

- AC1) 2" NPT GLYCOL TO CR2 ON CHILLER RESERVOIR.
- AC2) 2" NPT GLYCOL FROM CR3 ON CHILLER RESERVOIR.
- N) CONDENSER UNIT POWER IN 208V/3PH/60HZ.
- N1) CONTROL POWER IN 120V/1PH/60HZ.

FLOW SWITCH SUPPLIED WITH UNIT. CUSTOMER TO INSTALL AS SHOWN.

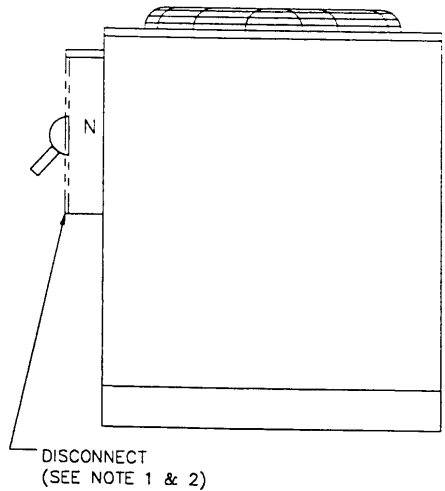
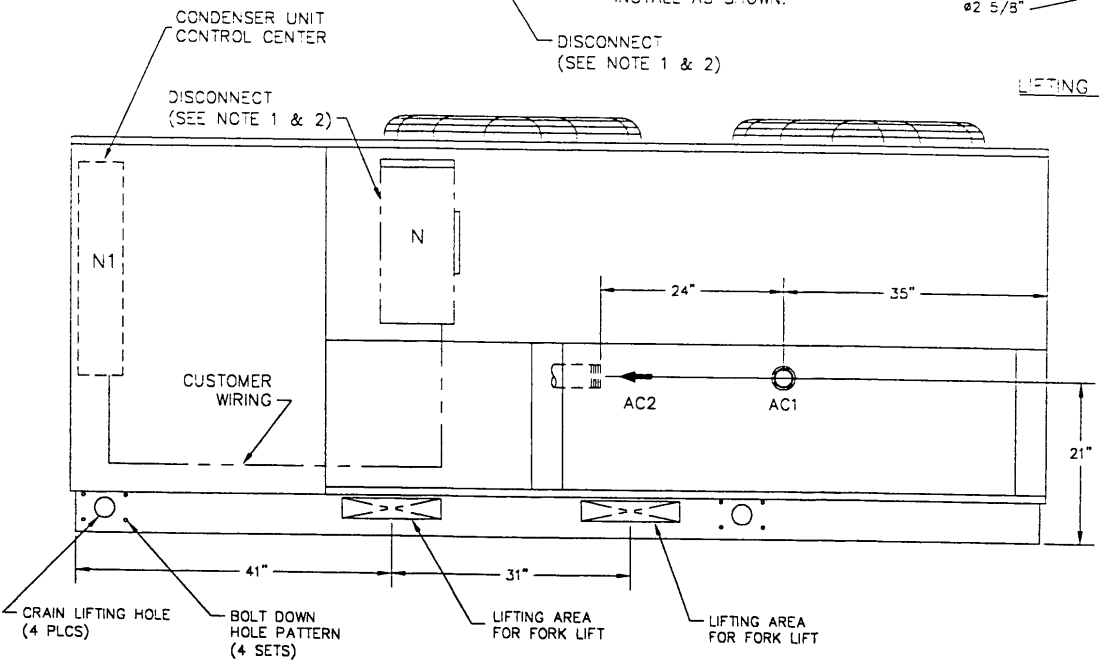
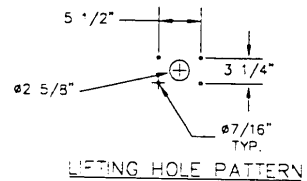


<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 391-3800 FAX (410) 391-8042			CHECKED BY: DRAWN BY: JAY S. DATE: 2-20-01 APPROVED BY: SCALE: NONE	<b>AIR COOLED CHILLER          UTILITY CONNECTIONS</b>	SIZE: C DRAWING NUMBER: 9044
REV. DESCRIPTION BY DATE REVISIONS	<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc., Balto MD. The drawing and information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>			REV. SHEET 1 of 1	



**UTILITY CONNECTIONS:**  
 AC1) 2" NPT GLYCOL TO CR2 ON CHILLER RESERVOIR.  
 AC2) 2" NPT GLYCOL FROM CR3 ON CHILLER RESERVOIR.  
 N) CONDENSER UNIT POWER IN 208/230/460V  
 N1) CONTROL POWER IN 120V.

**NOTE:**  
 1) CUSTOMER TO SUPPLY AND WIRE DISCONNECT TO UNIT JUNCTION BOX AS PER LOCAL CODE.  
 2) DISCONNECT TO BE LOCATED AS SHOWN AND INDICATED ON UNIT.



**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY: DRAWN BY: JES  
 DATE: 11/16/01  
 APPROVED BY: SCALE: NONE

JCP-N-100 TURBOJET  
 AIR COOLED CHILLER

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REV.	DESCRIPTION	BY	DATE
	REVISIONS		

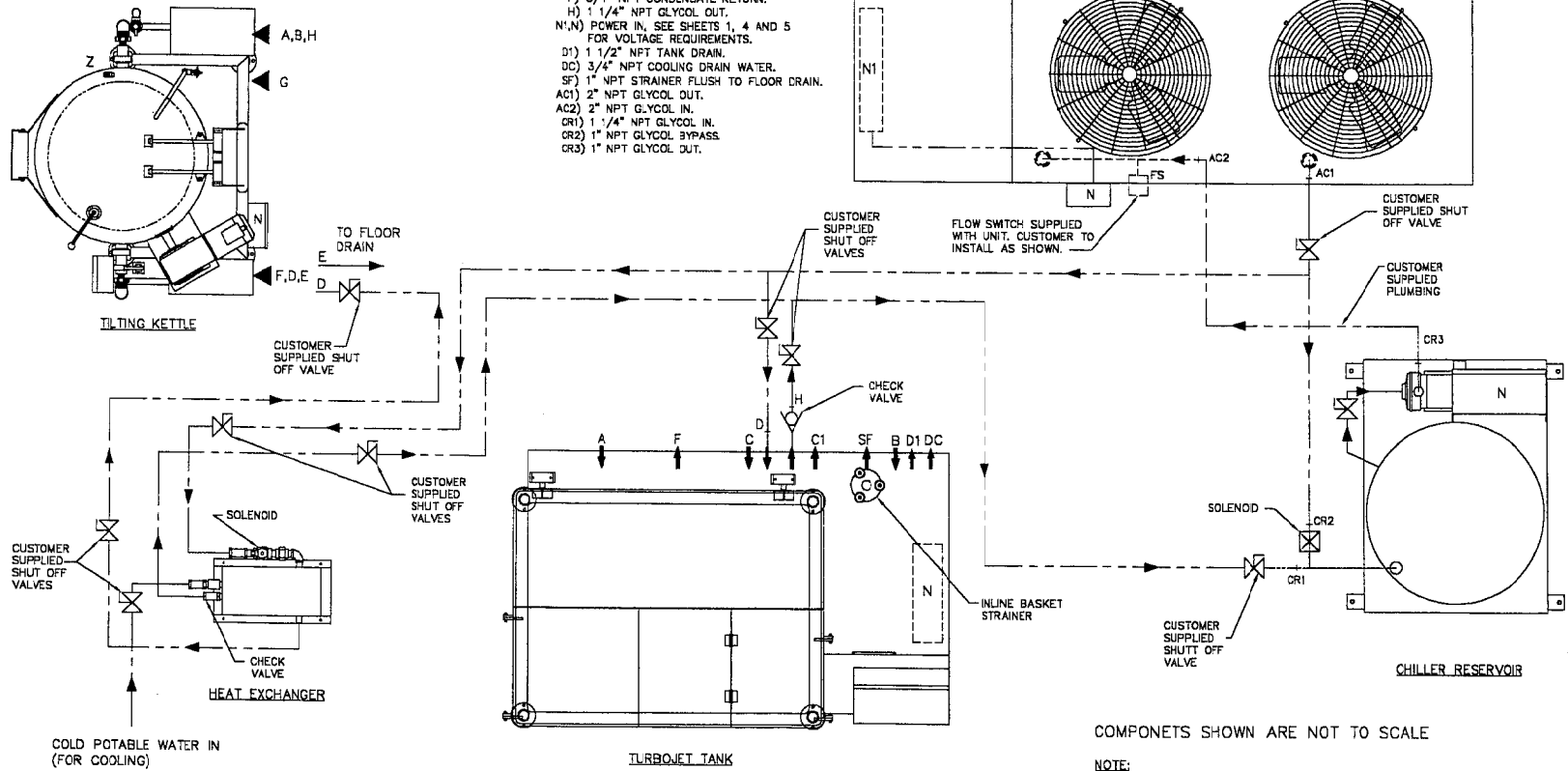
SIZE	DRAWING NUMBER
C	9117
REV.	SHEET
	1 of 1

**KETTLE UTILITY CONNECTIONS:**

- A) STEAM IN
- B) COLD POTABLE WATER IN
- D) CHILLED WATER IN
- F) CONDENSATE RETURN
- G) AIR IN
- H,E) CHILLED WATER OUT & JACKET DRAIN
- N) ELECTRICAL CONNECTIONS FROM CONTROL PANEL
- Z) AIR QUICK DISCONNECT FOR FOOD PUMP

**TURBOJET, AIR COOLED CHILLER & CHILLER RESERVOIR UTILITY CONNECTIONS:**

- A) 1" NPT STEAM IN.
- B) 1" NPT COLD POTABLE WATER IN.
- C) 1" NPT HEAT EXCHANGER HOT WATER BACK FLUSH IN.
- C1) 1" NPT HEAT EXCHANGER HOT WATER BACK FLUSH OUT TO FLOOR DRAIN.
- D) 1 1/4" NPT GLYCOL IN.
- F) 3/4" NPT CONDENSATE RETURN.
- H) 1 1/4" NPT GLYCOL OUT.
- N,N) POWER IN, SEE SHEETS 1, 4 AND 5 FOR VOLTAGE REQUIREMENTS.
- D1) 1 1/2" NPT TANK DRAIN.
- DC) 3/4" NPT COOLING DRAIN WATER.
- SF) 1" NPT STRAINER FLUSH TO FLOOR DRAIN.
- AC1) 2" NPT GLYCOL OUT.
- AC2) 2" NPT GLYCOL IN.
- CR1) 1 1/4" NPT GLYCOL IN.
- CR2) 1" NPT GLYCOL BYPASS.
- CR3) 1" NPT GLYCOL OUT.



COMPONENTS SHOWN ARE NOT TO SCALE

NOTE:  
1) ALL DESIGNS, SPECIFICATIONS AND DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE.

B	KETTLE WAS NON-TILT	JES	3-13-01
A	UP DATED HEAT-EX DETAIL	JES	2-14-01
REV.	DESCRIPTION	BY	DATE
	REVISIONS		

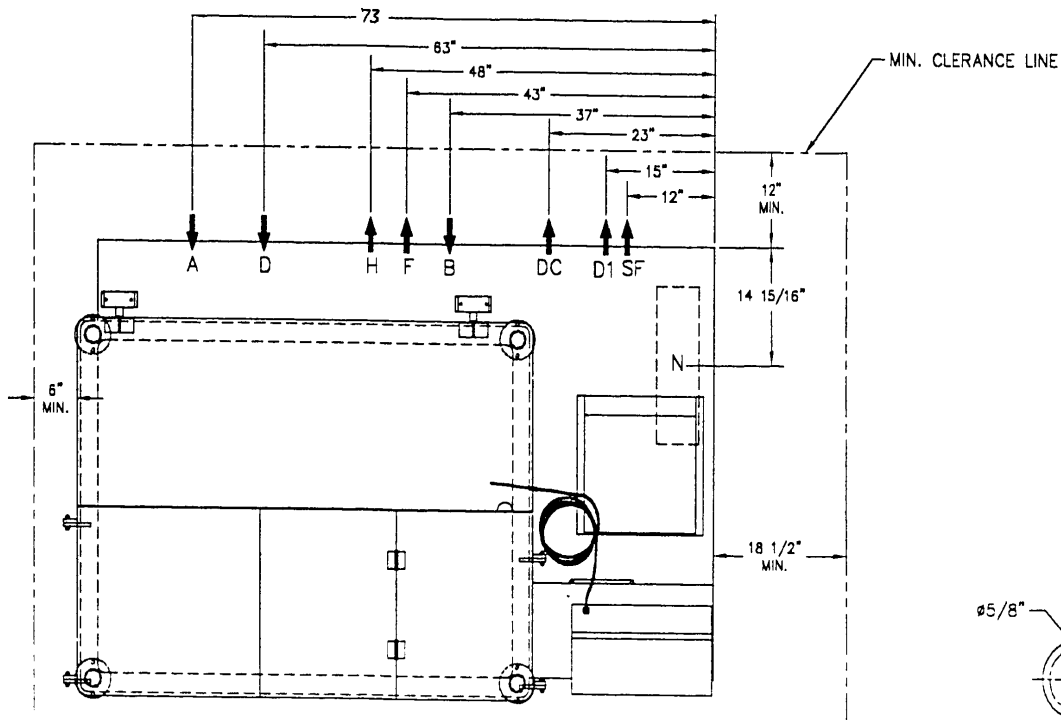
**J.C. PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3600 FAX (410) 391-9042

DESIGNED BY:	JES
DRAWN BY:	JES
DATE:	11/3/00
APPROVED BY:	
SCALE:	NONE

**TURBO JET, CHILLING SYSTEM & KETTLE FLOW DIAGRAM**

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REV:	C	DRAWING NUMBER:	9002
REV:	B	SHEET:	1 of 1

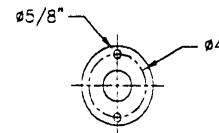


**UTILITY CONNECTIONS:**

- A) 1" NPT STEAM IN.
- B) 1" NPT COLD POTABLE WATER IN.
- D) 1 1/4" NPT GLYCOL IN FROM AC1 ON AIR COOLED CHILLER.
- F) 3/4" NPT CONDENSATE RETURN.
- H) 1 1/4" NPT GLYCOL OUT TO CR1 ON CHILLER RESERVOIR.
- N) MAIN POWER IN (SEE NOTE 1)
- D1) 1 1/2" NPT TANK DRAIN TO FLOOR DRAIN.
- DC) 3/4" NPT COOLING DRAIN WATER TO FLOOR DRAIN.
- SF) 1" NPT STRAINER FLUSH TO FLOOR DRAIN.

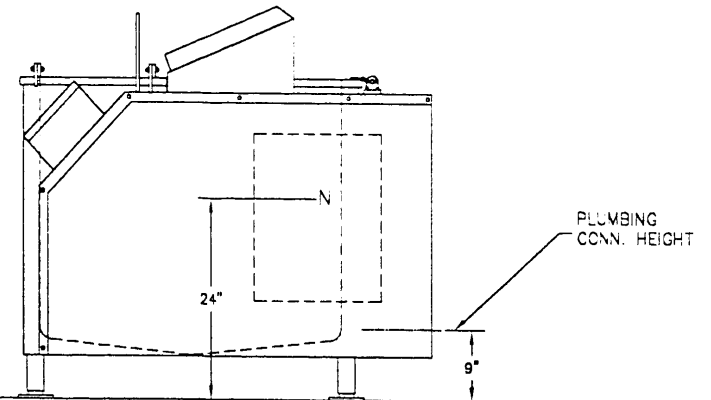
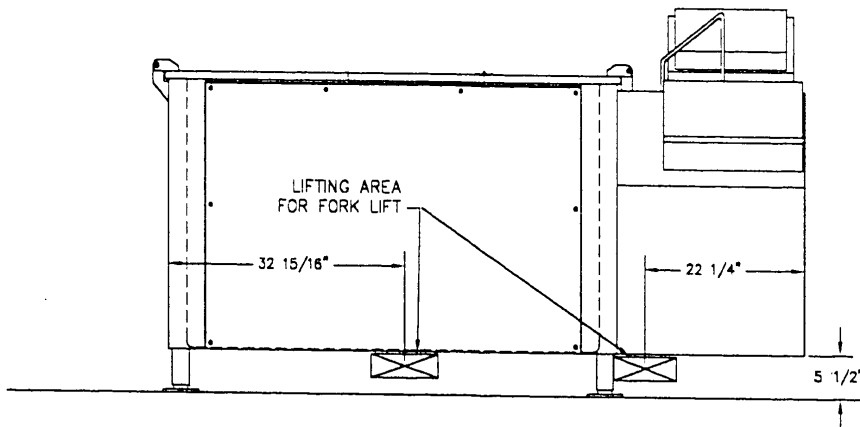
**NOTE:**

- 1) ELECTRICIAN TO PUNCH HOLE IN JUNCTION BOX AS PER LOCAL CODE FOR POWER CONNECTIONS.



FLOOR FLANGE DETAIL

SCALE: 2:1

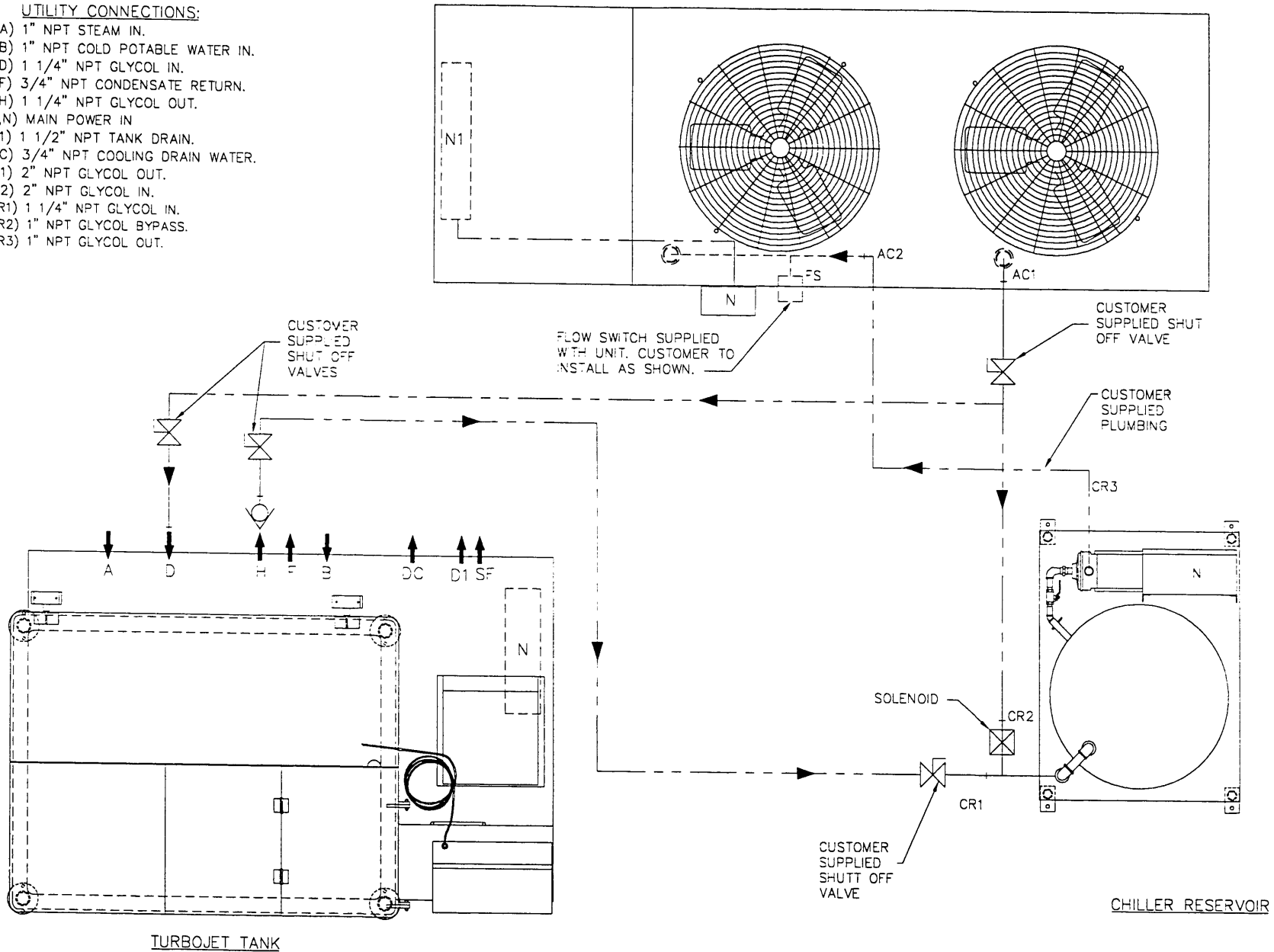


REV.		DESCRIPTION		BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 391-3600 FAX (410) 391-9042		CHECKED BY APPROVED BY	DRAWN BY JES DATE 11/16/01 SCALE NONE	<b>JCP-N-100 TURBOJET          COOK/CHILL TANK</b>		SIZE <b>C</b>	DRAWING NUMBER <b>9115</b>
REVISIONS										<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>		SHEET <b>1 of 1</b>	

AIR COOLED CHILLER

UTILITY CONNECTIONS:

- A) 1" NPT STEAM IN.
- B) 1" NPT COLD POTABLE WATER IN.
- D) 1 1/4" NPT GLYCOL IN.
- F) 3/4" NPT CONDENSATE RETURN.
- H) 1 1/4" NPT GLYCOL OUT.
- N1,N) MAIN POWER IN
- D1) 1 1/2" NPT TANK DRAIN.
- DC) 3/4" NPT COOLING DRAIN WATER.
- AC1) 2" NPT GLYCOL OUT.
- AC2) 2" NPT GLYCOL IN.
- CR1) 1 1/4" NPT GLYCOL IN.
- CR2) 1" NPT GLYCOL BYPASS.
- CR3) 1" NPT GLYCOL OUT.



COMPONENTS SHOWN ARE NOT TO SCALE

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C. PARDO & SONS INC.**  
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JCP-N-100 TURBO JET  
 HEAT EXCHANGER FLOW DIAGRAM

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REV. C	DRAWING NUMBER: 9118
	SHEET



# Installation Instructions

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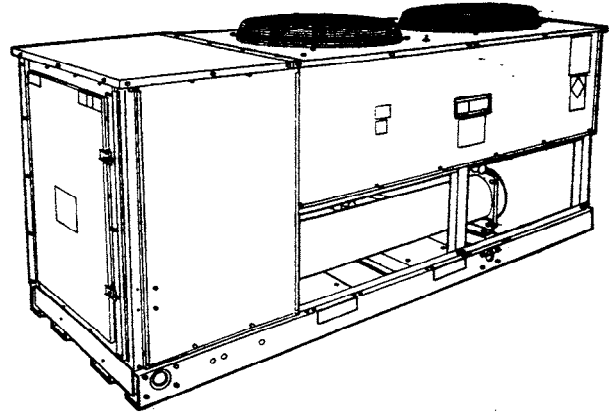


Fig. 1 — Model 30GTN (020 Shown)

## SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc).

Only trained, qualified installers and service mechanics should install, start up, and service this equipment (Fig. 1).

Untrained personnel can perform basic maintenance functions such as cleaning coils. All other operations should be performed by trained service personnel.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Keep quenching cloth and fire extinguisher nearby when brazing.
- Use care in handling, rigging, and setting bulky equipment.
- See Tables 1A and 1B for Physical Data.

	<p><b>ELECTRIC SHOCK HAZARD</b>          Open all remote disconnects before servicing this equipment.</p>
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## INSTALLATION

### Step 1 — Rig and Place the Unit

**RIGGING** — Preferred method is with spreader bars from above the unit. Use 2-in. (50 mm) OD pipe or hooks in lifting holes. Rig with 4 cables and spreader bars. All panels must be in place when rigging. See rigging label on unit for details concerning shipping weights, distance between lifting holes, center of gravity, and spreader bar dimensions. See Fig. 2.

If overhead rigging is not possible, place chiller on skid or pad for rolling or dragging. When rolling, use a minimum of 3 rollers. When dragging, pull the pad. *Do not apply force to the unit.* When in final position, raise from above to lift unit off pad.

<b>⚠ CAUTION</b>
All panels must be in place when rigging.

**PLACING UNIT** — There must be at least 4 ft (1.2 m) for service and for unrestricted airflow on all sides of unit, and a minimum of 8 ft (2.4 m) clear air space above unit. Provide ample room for servicing cooler. For cooler removal see clearance requirements in Fig. 3-5. For multiple units, allow 8 ft (2.4 m) separation between units for airflow and service.

If unit is to be used in an area with high solar radiation, mounted position should be such that control box is not exposed to direct solar radiation. Exposure to direct solar radiation could affect the temperature switch controlling cooler heaters. See Table 2.

**Table 1A — Physical Data — 60 Hz**

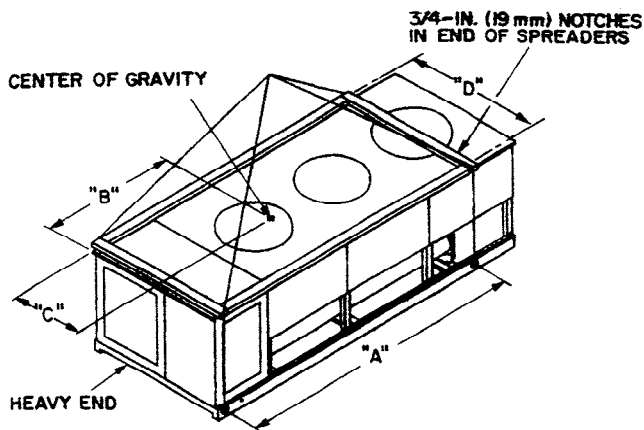
UNIT 30G7N	015	020	025	030	035
<b>COMPRESSOR</b> No. ...Type No. Cyls (ea)...Speed, Rpm (r/s) Capacity Steps Oil Charge*, Pt (L)	1...06DG537 6...1750 (29) 3 8 (3.8)	1...06E2250 4...1750 (29) 2 17 (8.0)	Reciprocating, Semi-Hermetic 1...06E7265 6...1750 (29) 3 21 (9.9)	1...06E7275 6...1750 (29) 3 21 (9.9)	1...06E7299 6...1750 (29) 3 19 (9.0)
<b>REFRIGERANT CHG, R-22</b> Total/Over Clear Glass, lb (kg)	25.0 (11.3)/5.0 (2.3)	31.0 (14.1)/7.0 (3.2)	43.0 (19.5)/12.0 (5.4)	47.0 (21.3)/14.0 (6.4)	57.0 (25.9)/8.0 (3.6)
<b>CONDENSER FANS, Type</b> No. ...Diameter, in. (mm) Total Airflow, Cfm (L/s) Speed, Rpm (r/s)	2...30 (762) 10,600 (5000) 1140 (19)	3...17 (1.49) 23.5 (2.18)	Propeller Type, Direct Drive 2...30 (762) 15,700 (7400) 1140 (19)	2...30 (762) 15,700 (7400) 1140 (19)	3...30 (762) 23,700 (11 200) 1140 (19)
<b>CONDENSER COIL, Type</b> Rows...Fins/in. (Fin Spacing mm) Total Face Area, sq ft (m <sup>2</sup> )	2...19 (1.34) 23.5 (2.18)	3...17 (1.49) 23.5 (2.18)	Horizontal Plate Fin 2...19 (1.34) 39.2 (3.64)	3...17 (1.49) 39.2 (3.64)	3...17 (1.49) 58.4 (5.43)
<b>COOLER</b> Net Water Volume, gal. (L) Maximum Design Working Pressure psig (kPa)	6.8 (25.7)		Shell and Tube, Direct Expansion 9.9 (37.5) Refrigerant Side — 235 (1620) Water Side — 150 (1034)		12.8 (48.4)
<b>WATER CONNECTIONS, in.</b> Inlet and Outlet Drain			2 FPT 3/4 MPT		2 1/2 FPT 3/4 MPT

\*See Oil Charge section for Carrier-approved oil.

**Table 1B — Physical Data — 50 Hz**

UNIT 30G7N	015	020	025	030	
<b>COMPRESSOR</b> No. ...Type No. Cyls (ea)...Speed, Rpm (r/s) Capacity Steps Oil Charge*, Pt (L)	1...06E2250 4...1450 (24.2) 2 17 (8.0)		Reciprocating, Semi-Hermetic 1...06E7265 6...1450 (24.2) 3 21 (9.9)	1...06E7275 6...1450 (24.2) 3 21 (9.9)	1...06E7299 6...1450 (24.2) 3 19 (9.0)
<b>REFRIGERANT CHG, R-22</b> Total/Over Clear Glass, lb (kg)	26.0 (11.8)/6.0 (2.7)	35.0 (15.9)/8.0 (3.6)	40.0 (18.1)/12.0 (5.4)	49.0 (22.2)/14.0 (6.4)	
<b>CONDENSER FANS, Type</b> No. ...Diameter, in. (mm) Total Airflow, Cfm (L/s) Speed, Rpm (r/s)	2...30 (762) 10,600 (5000) 950 (15.8)		Propeller Type, Direct Drive 2...30 (762) 15,700 (7400) 950 (15.8)	2...30 (762) 15,700 (7400) 950 (15.8)	
<b>CONDENSER COIL, Type</b> Rows...Fins/in. (Fin Spacing mm) Total Face Area, sq ft (m <sup>2</sup> )	2...19 (1.34) 23.5 (2.18)	3...17 (1.49) 23.5 (2.18)	Horizontal, Plate Fin 2...19 (1.34) 39.2 (3.64)	2...19 (1.34) 39.2 (3.64)	3...17 (1.49) 39.2 (3.64)
<b>COOLER</b> Net Water Volume, gal. (L) Maximum Design Working Pressure psig (kPa)	6.8 (25.7)		Shell and Tube, Direct Expansion 9.9 (37.5) Refrigerant Side — 235 (1620) Water Side — 150 (1034)	9.9 (37.5)	
<b>WATER CONNECTIONS, in.</b> Inlet and Outlet Drain			2 FPT 3/4 MPT		

\*See Oil Charge section for Carrier-approved oil.



UNIT 30GTN	MAXIMUM SHIP WT		LIFTING HOLES "A"		CENTER OF GRAVITY				"D"	
	Lb	Kg	in.	mm	"B"		"C"		in.	mm
015	1876	851	94.0	2388	48.0	1219	23.0	583	49.5	1256
020	2031	921	94.0	2388	47.5	1207	23.0	583	49.5	1256
025	2415	1095	94.0	2388	51.0	1295	34.5	876	73.5	1867
030	2606	1182	94.0	2388	51.0	1295	34.5	876	73.5	1867
035	3365	1526	127.0	3225	66.5	1689	35.5	901	73.5	1867

Fig. 2 — Rigging with Spreader Bars  
(Field Supplied)

Table 2 — Temperature Limits for Standard Units

TEMPERATURE	F	C
Maximum Ambient Temperature	125	52
Minimum Ambient Temperature	0	-18
Maximum Cooler EWT*	95	35
Maximum Cooler LWT	70	21
Minimum cooler LWT†	38	3.3

LEGEND

EWT — Entering Fluid (Water) Temperature  
LWT — Leaving Fluid (Water) Temperature

\*For sustained operation, EWT should not exceed 85 F (29.4 C).  
†Unit requires modification below this temperature.

**MOUNTING UNIT** — When unit is in proper location, use of mounting holes in base rails is recommended for securing unit to supporting structure, or for mounting unit on vibration isolators if required. See Fig. 3-5. Fasteners for mounting unit

are field supplied. Be sure unit is level to ensure proper oil return to compressor.

**Step 2 — Check Compressor Mounting** — As shipped, compressor is held down by 4 bolts. After unit is installed, loosen each bolt using nut indicated in Fig. 6 until the flat washer (3/8 in.) can be moved with finger pressure.

**Step 3 — Cooler Fluid and Drain Piping Connections** — When facing the cooler side of the unit, the return water connection is on the left and the leaving water connection is on the right. See Fig. 3-5 and 7. Install a minimum 40-mesh strainer in the cooler fluid inlet line just ahead of and as close as possible to the cooler. Provide a means of venting air from the high point of the field-installed piping.

After field piping is complete, freeze-up protection is recommended using inhibited ethylene glycol or other suitable inhibited antifreeze solution and electric heat tapes in area where piping is exposed to low ambient temperatures (34 F [1 C] or below). Heat tapes should possess a rating for area ambients and be covered with a suitable thickness of closed-cell insulation. Route power for heating tapes from a separately-fused disconnect. Identify disconnect as heat tape power source with a warning that power must not be turned off except when unit is being serviced.

The cooler drain connection is at the opposite end from the compressor (See Fig. 3-5). Insulate the drain piping (in the same manner as the chilled water piping) for at least one ft (305 mm) from cooler.

**PREPARATION FOR YEAR-ROUND OPERATION** — If unit is on year-round operation, add sufficient inhibited ethylene glycol or other suitable inhibited antifreeze solution to chilled water to prevent freezing under low-ambient operating conditions. Consult local water authority on characteristics of area water and add a recommended inhibitor to the chilled water.

**PREPARATION FOR WINTER SHUTDOWN** — *Do not shut off control power disconnect during off-season shutdown.* At end of cooling season:

1. Drain water from system.
2. Replace drain plug and put 2 gallons (8 liters) of inhibited ethylene glycol (or other suitable inhibited antifreeze) in cooler to prevent freezing of residual water. (Remove plug on top of leaving chilled water nozzle to add liquid.)
3. At the beginning of the next cooling season, refill cooler and add recommended inhibitor.

**NOTES:**

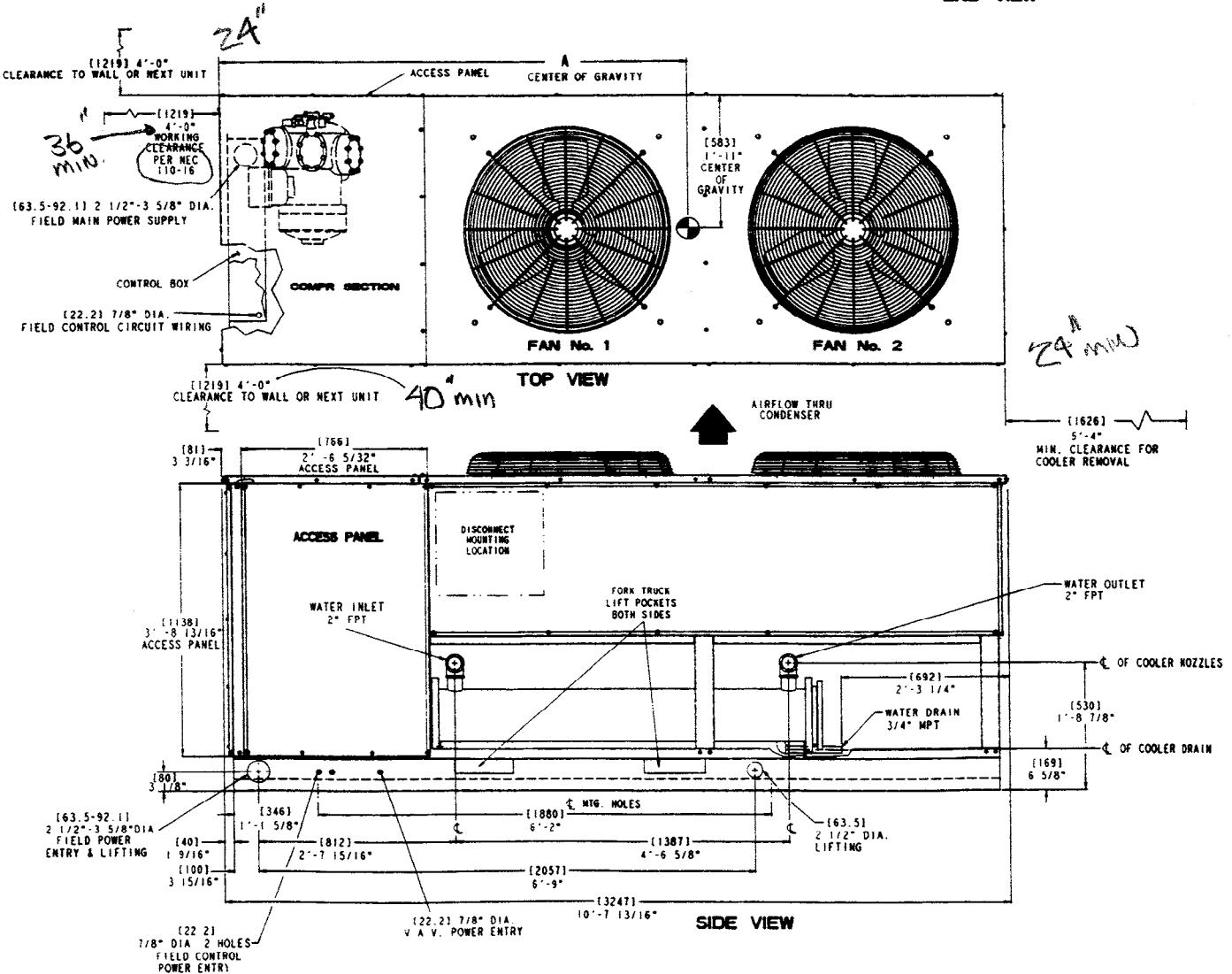
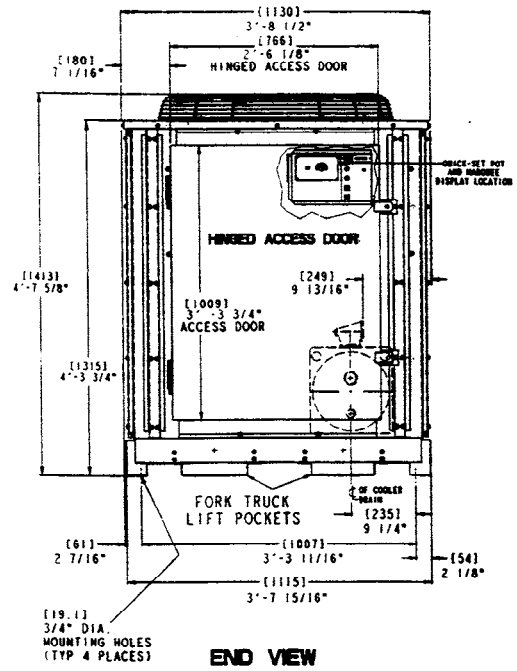
1. There must be minimum 8 ft (2.4 m) clear air space above unit.
2. Dimensions in [ ] are in millimeters.
3. The approximate operating weight of the unit is:

60 Hz		
UNIT	Lb	Kg
30GTN015	1640	744
30GTN015C	1732	786
30GTN020	1821	826
30GTN020C	1945	882

50 Hz		
UNIT	Lb	Kg
30GTN015	1741	790
30GTN015C	1833	831
30GTN020	1864	846
30GTN020C	1988	902

UNIT	A
30GTN015	(1219) 4'-0"
30GTN020	(1207) 3'-11 1/2"

- LEGEND**
- C — Copper Coils
  - COMPR — Compressor
  - MTG — Mounting
  - NEC — National Electrical Code (U.S.A.)
  - VAV — Variable-Air Volume



**Fig. 3 — Dimensional Drawing, 30GTN015,020**



**NOTES:**

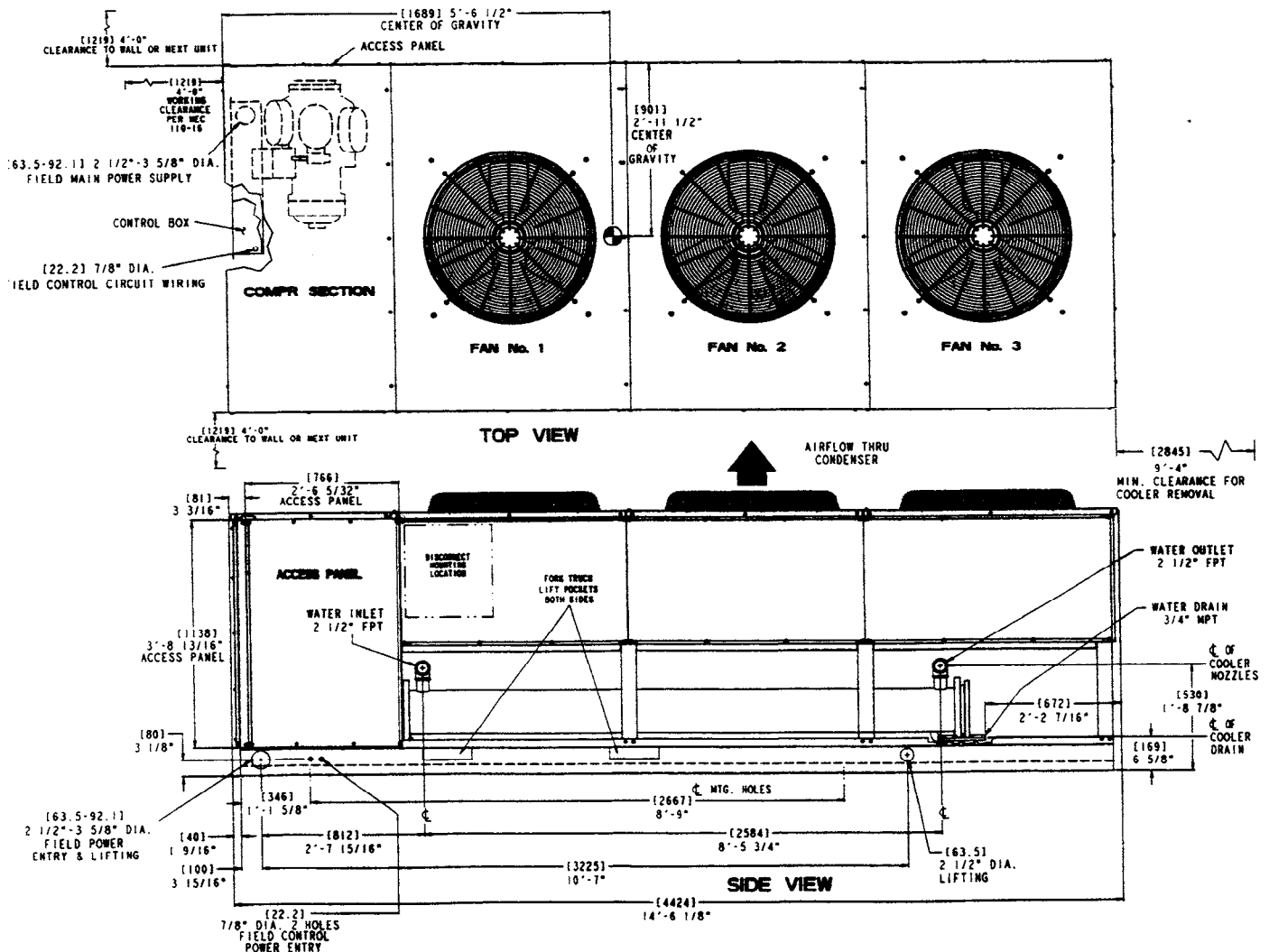
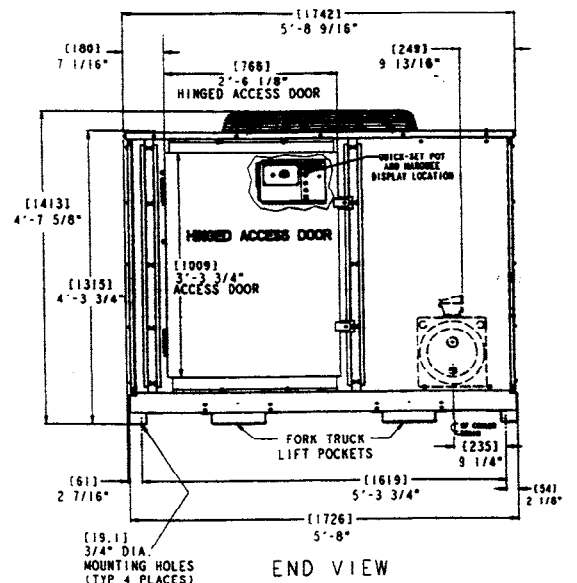
1. There must be minimum 8 ft (2.4 m) clear air space above unit.
2. Dimensions in [ ] are in millimeters.
3. The approximate operating weight of the unit is:

**60 Hz**

UNIT	Lb	Kg
30GTN035	2965	1345
30GTN035C	3273	1485

**LEGEND**

- COMPR — Copper Coils
- COMPR — Compressor
- MTG — Mounting
- NEC — National Electrical Code (U.S.A.)



**Fig. 5 — Dimensional Drawing, 30GTN035**

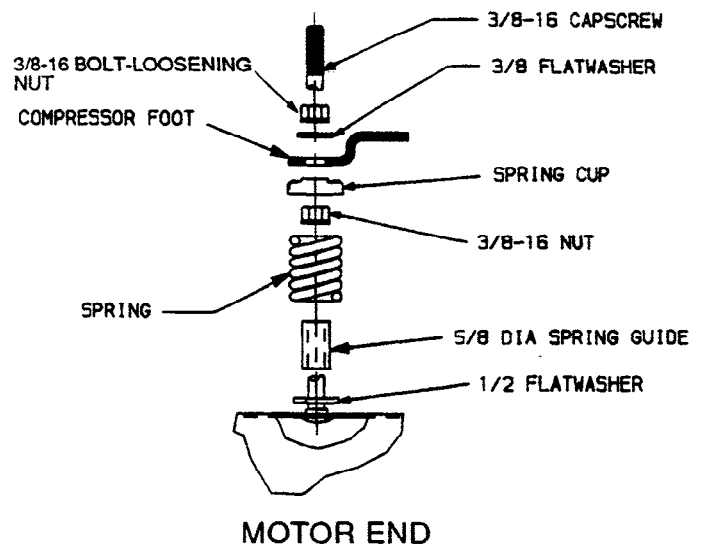
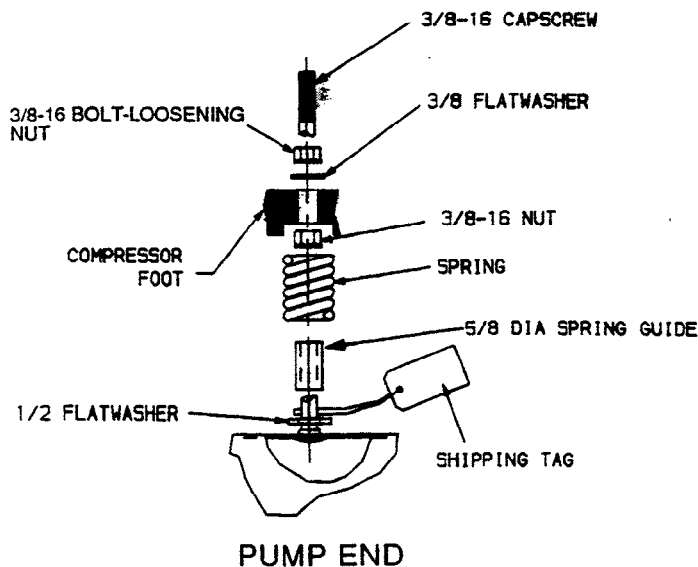


Fig. 6 — Compressor Mounting

NOTE: All dimensions are in inches.

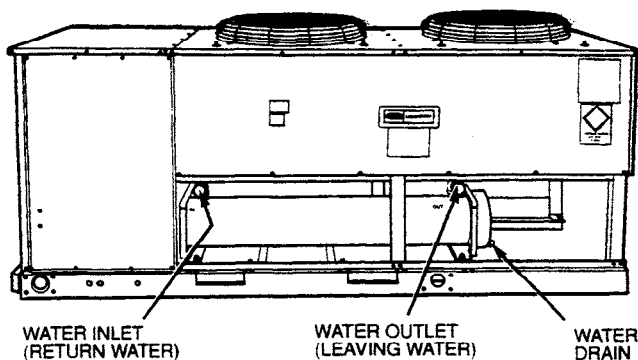


Fig. 7 — Water Connection Locations

#### Step 4 — Make Electrical Connections

**POWER SUPPLY** — Electrical characteristics of available power supply must agree with unit nameplate rating. Supply voltage must be within limits shown in Tables 3A and 3B.

**IMPORTANT:** Operating unit on improper supply voltage or with excessive phase imbalance constitutes abuse and may affect Carrier warranty.

**POWER WIRING** — All power wiring must comply with applicable local and national codes. Install field-supplied branch circuit fused disconnect(s) per NEC (National Electrical Code, U.S.A.) of a type that can be locked OFF or ON. Disconnect(s) must be within sight from and readily accessible from unit in compliance with NEC Article 440-14.

#### General Wiring Notes

1. The control circuit power must be from a separate source and must be brought through a field-supplied fused disconnect rated at 15 amps for 230-v and 30 amps for 115-v control power. Two terminal blocks are provided for field-wired control devices.
2. Crankcase and cooler heaters are wired in the control circuit so they are always operable as long as the control power disconnect is on and safety device is open or the Enable-Off-Remote contact switch is in the Off position. Heaters are wired so that they are energized even when

power to the Main Base Board (MBB) is off. They are protected by a 7-amp fuse in field-supplied control power supply disconnect.

3. The control circuit field-supplied disconnect should never be off except when unit is being serviced or is to be down for a prolonged period, in which case cooler should be drained. When operation is resumed, crankcase heater should be energized for 24 hours before start-up.
4. Power entry is at one end only.
5. Maximum field wire sizes allowed by lugs on terminal block are:  
350 kcmil for 30GTN030,035 (208/230-3-60) and 30GTN030 (230-3-50) units.  
2/0 AWG for all other units.
6. Terminals for field power supply are suitable for copper, copper-clad aluminum, or aluminum conductors. Insulation must be rated 167 F (75 C) minimum.

#### Field Connections

**Main Power** — Bring wires from the fused disconnect switch through hole in bottom rail of unit to control box (Fig. 3-5) and connect to terminals on terminal block TB1 (See Fig. 8).

**Control Power** — Bring separate source power (see Fig. 8, note 2) into unit as shown in Fig. 3-5. This supplies power for control circuit, compressor crankcase heater, and cooler heater. Connect incoming wires to TB4 in unit control box (L1 to 1 and L2 to 2). Neutral side must be connected to the neutral terminal block (by C-A1) for 380-3-60 and 400-3-50 V units only. In the auxiliary power supply a field-supplied disconnect with 15-amp circuit protection must be provided to accommodate crankcase heater and cooler heater cable.

To comply with NEC Article 440-14, the disconnect must be located within sight from and readily accessible from unit.

**IMPORTANT:** To ensure power to the heaters, make sure auxiliary power to unit is always on (except for servicing or prolonged shutdown).

A toggle switch (marked Emergency On-Off on the unit label diagram and by the switch) allows the control circuit to be manually disconnected when necessary. This switch does not affect the crankcase heater and cooler heater cable.

**Table 3A — Electrical Data — Standard Unit**

UNIT SIZE 30GTN	UNIT							CONTROL CIRCUIT				
	Voltage V-Hz (3 Ph)	Supplied*		MCA	MOCP	ICF	Rec Fuse Size	V-Hz (Single Ph)	Supplied		MCA and MOCP	
		Min	Max						Min	Max		
015	208/230-60	187	253	82.2	125	278.4	100	115-60	104	127	30	
	460-60	414	506	38.3	60	126.2	45	115-60	104	127	30	
	575-60	518	633	31.7	50	102.8	40	115-60	104	127	30	
	380-60	418	342	43.9	70	152.8	60	230-60	198	254	15	
	380/415-50	342	440	49.4	80	179.0	60	230-50	198	254	15	
020	208/230-60	187	253	97.4	150	357.4	125	115-60	104	127	30	
	460-60	414	506	49.6	80	179.2	60	115-60	104	127	30	
	575-60	518	633	42.9	70	126.8	60	115-60	104	127	30	
	380-60	418	342	51.1	80	198.8	60	230-60	198	254	15	
	380/415-50	342	440	60.5	100	229.0	80	230-50	198	254	15	
025	208/230-60	187	253	124.7	200	458.4	150	115-60	104	127	30	
	460-60	414	506	60.7	100	229.2	80	115-60	104	127	30	
	575-60	518	633	52.4	80	170.8	70	115-60	104	127	30	
	380-60	418	342	64.7	110	254.8	80	230-60	198	254	15	
	380/415-50	342	440	68.5	110	259.0	90	230-50	198	254	15	
030	208/230-60	187	253	145.5	250	518.4	175	115-60	104	127	30	
	460-60	414	506	68.7	110	259.2	90	115-60	104	127	30	
	575-60	518	633	54.9	90	182.8	70	115-60	104	127	30	
	380-60	418	342	73.6	125	287.8	90	230-60	198	254	15	
	380/415-50	342	440	87.8	150	351.0	110	230-50	198	254	15	
035	208/230-60	187	253	203.0	350	708.6	250	115-60	104	127	30	
	460-60	414	506	91.1	150	354.3	110	115-60	104	127	30	
	575-60	518	633	81.6	125	286.2	100	115-60	104	127	30	
	380-60	418	342	111.1	175	393.7	150	230-60	198	254	15	

See Legend and Notes on page 9.

**Table 3B — Electrical Data — Unit with Factory-Installed Motormaster® I Control**

UNIT SIZE 30GTN	UNIT							CONTROL CIRCUIT			
	Voltage V-Hz (3 Ph)	Supplied*		MCA	MOCP	ICF	Rec Fuse Size	V-Hz (Single Ph)	Supplied		MCA and MOCP
		Min	Max						Min	Max	
015	208/230-60	187	253	82.2	125	278.4	100	115-60	104	127	30
	460-60	414	506	38.3	60	129.3	45	115-60	104	127	30
	575-60	518	633	30.8	50	105.6	40	115-60	104	127	30
	380-60	418	342	43.9	70	152.8	60	230-60	198	254	15
	380/415-50	342	440	51.9	80	181.5	70	230-50	198	254	15
020	208/230-60	187	253	97.4	150	357.4	125	115-60	104	127	30
	460-60	414	506	49.6	80	182.3	60	115-60	104	127	30
	575-60	518	633	42.0	70	129.6	50	115-60	104	127	30
	380-60	418	342	51.1	80	198.8	60	230-60	198	254	15
025	380/415-50	342	440	63.0	100	231.5	80	230-50	198	254	15
	208/230-60	187	253	124.7	200	458.4	150	115-60	104	127	30
	460-60	414	506	60.7	100	232.3	80	115-60	104	127	30
	575-60	518	633	51.5	80	173.6	70	115-60	104	127	30
	380-60	418	342	64.7	110	254.8	80	230-60	198	254	15
030	380/415-50	342	440	71.0	110	261.5	90	230-50	198	254	15
	208/230-60	187	253	145.5	250	518.4	175	115-60	104	127	30
	460-60	414	506	68.7	110	262.3	90	115-60	104	127	30
	575-60	518	633	54.0	90	185.6	70	115-60	104	127	30
	380-60	418	342	73.6	125	287.8	90	230-60	198	254	15
035	380/415-50	342	440	90.3	150	353.5	110	230-50	198	254	15
	208/230-60	187	253	203.0	350	708.6	250	115-60	104	127	30
	460-60	414	506	91.1	150	357.4	110	115-60	104	127	30
	575-60	518	633	80.7	125	289.0	100	115-60	104	127	30
	380-60	418	342	111.1	175	393.7	150	230-60	198	254	15

**LEGEND**

- ICF** — Maximum Instantaneous Current Flow during starting (the point in the starting sequence where the sum of the LRA for the starting compressor, plus the total RLA for all running compressors, plus the total FLA for all running fan motors is maximum).
- MCA** — Minimum Circuit Amps (complies with National Electrical Code [NEC, U.S.A.], Section 430-24)
- MOCP** — Maximum Overcurrent Protection

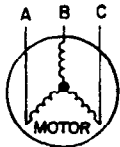
\*Units are suitable for use on electrical systems where voltage supplied to unit terminals is not below or above listed minimum and maximum limits.

NOTE: Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percent voltage imbalance.

Percent Voltage Imbalance

$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 240-3-60.



- AB = 243 v
- BC = 236 v
- AC = 238 v

$$\begin{aligned} \text{Average voltage} &= \frac{243 + 236 + 238}{3} \\ &= 239 \text{ v} \end{aligned}$$

Determine maximum deviation from average voltage:

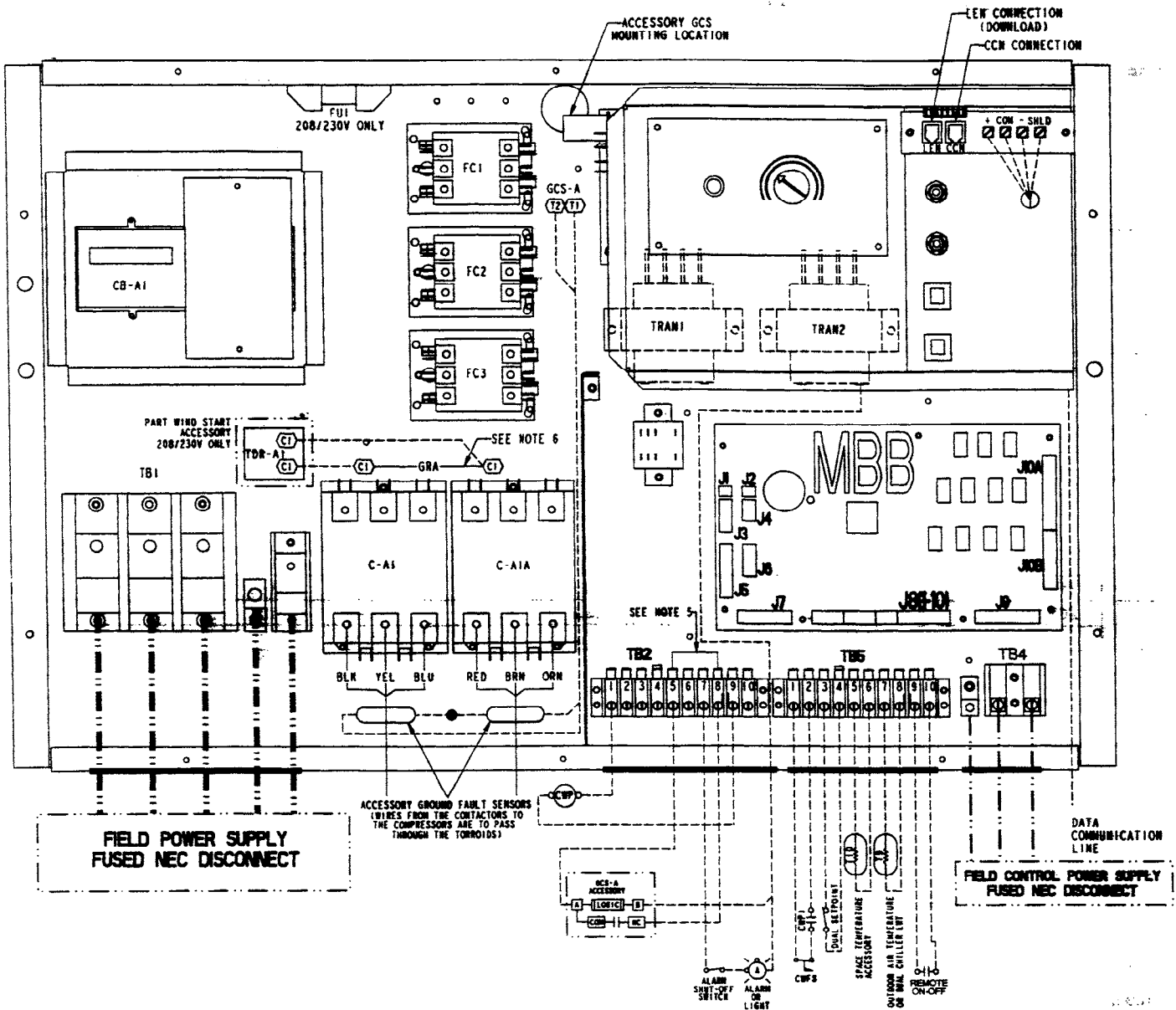
- (AB) 243 - 239 = 4 v
- (BC) 239 - 236 = 3 v
- (AC) 239 - 238 = 1 v

Maximum deviation is 4 v. Determine percent voltage imbalance:

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{4}{239} \\ &= 1.7\% \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

**IMPORTANT:** Contact your local electric utility company immediately if the supply voltage phase imbalance is more than 2%.



**LEGEND**

- C — Compressor Contactor
- CB — Circuit Breaker
- CCN — Carrier Comfort Network
- CWFS — Chilled Water Flow Switch
- CWP — Chilled Water Pump
- CWPI — Chilled Water Pump Interlock
- FC — Fan Contactor
- GCS — Ground Current Sensor
- LEN — Local Equipment Network
- MBB — Main Base Board
- NEC — National Electrical Code (U.S.A. Standard)
- TB — Terminal Block
- TDR — Time Delay Relay
- TRAN — Transformer
- — — — — Field Power Wiring
- — — — — Field Control Power Wiring
- — — — — Field Control Wiring
- — — — — Factory-Installed Wiring
- — — — — Field-Installed Device

**NOTES:**

1. Factory wiring is in accordance with the National Electrical Code. Any field modifications or additions must be in compliance with all applicable codes.
2. Connect separate source of control power from field supplied fused disconnect to terminal 1 of TB4. Neutral side must be connected to terminal 2. This provides power for the unit control circuit, cooler heater and compressor crankcase heater.
3. All field interlock contacts must have minimum rating of 360 va pilot duty plus capacity required for field-installed equipment.
4. For internal unit wiring reference wiring book or unit wiring label diagram.
5. For GCS accessory, remove jumper wire between terminals 5 and 8 on terminal block TB2.
6. For part wind start accessory, remove gray jumper wire between C-A1-C1 and C-A1A-C1. Time delay relay shown in suggested mounting position.
7. Voltage requirements:

MAIN POWER	CONTROL POWER
208/230-3-60	115-1-60
460-3-60	115-1-60
575-3-60	115-1-60
380-3-60	220-1-60
380/415-3-50	230-1-50

**Fig. 8 — Field Wiring Schematic**

## Step 5 — Install Accessories

**ELECTRICAL** — A number of electrical accessories are available to provide the following optional features (for details, refer to the Controls, Start-Up, Operation, Service, and Troubleshooting book):

- Energy Management Module (used for any of the following types of temperature reset, demand limit and ice features):
  - 4 to 20 mA leaving fluid temperature reset (requires field-supplied 4 to 20 mA generator)
  - 4 to 20 mA cooling set point reset (requires field-supplied 4 to 20 mA generator)
  - Discrete inputs for 2-step demand limit (requires field-supplied dry contacts)
  - 4 to 20 mA demand limit (requires field-supplied 4 to 20 mA generator)
  - Discrete input for Ice Done switch (requires field-supplied dry contacts)
- Chilled fluid flow switch/interlock
- Navigator display:

Provides hand-held, mobile capability using easy to read 4-line display. Keypad function is the same as the Scrolling Marquee module. Features magnet for 'hands free' service of components.

**HOT GAS BYPASS** — Hot gas bypass usually is *not* recommended because it results in application of equipment out of its normal design application range. However, if its use is required, the appropriate hot gas bypass package may be used. For installation details, refer to separate instructions supplied with the accessory package.

## Step 6 — Refrigerant Circuit

**LEAK TESTING** — Units are shipped with complete operating charge of R-22 (see Tables 1A-1B) and should be under sufficient pressure to conduct a leak test. If there is no pressure in the system, use standard refrigeration practices to search for the leak. Repair the leak using good refrigeration practices. After leaks are repaired, system must be evacuated and dehydrated prior to recharging with refrigerant.

**DEHYDRATION** — Refer to Carrier Standard Service Techniques Manual, Chapter 1, Refrigerants, Sections 6 and 7 for details. *Do not use compressor to evacuate system.*

**REFRIGERANT CHARGE** (Refer to Table 1A or 1B) — Immediately ahead of filter drier in each circuit is a factory-installed liquid line service valve. Each valve has a 1/4-in. Schrader connection for charging liquid refrigerant.



**Cleveland Range, LLC.**  
1333 East 179<sup>th</sup> Street  
Cleveland, OH 44110  
Phone: (216) 481-4900  
Fax: (216) 481-3782  
<http://www.clevelandrange.com>

## Turbo Jet Chiller

### Electrical Requirements

- Voltage
- Phase
- Amp draw
- Wire Size
- Check motor rotation

### Water Requirements

- Hot and cold water supply (Potable)
- Line Size
- Chill Water (In and Out)
- Water Pressure
- Check for leaks

### Drain Requirements

- Line Size

### Steam Requirements

- Line sizes
- Steam pressure
- Steam usage
- Check safety valve operation
- Check for leaks

Model no. \_\_\_\_\_  
Serial no. \_\_\_\_\_

Comments:

## CLEVELAND TURBOJET COOK/CHILL SYSTEM

### Operational Guide

- A. Turn on power to the control panel
1. The operator's panel will display the initialization message.
  2. There is a 5-second delay to allow the other electronic components to power up and settle. The panel will now display the main menu that contains 3 options.
    - a. CHILL
    - b. COOK TO TIME
    - c. COOK TO PROBE
  3. There are two other options available at this time by selection from the function keys.
    - a. RE-THERMALIZATION
    - b. CLEAN
- B. Within the operation of the cook/chill system the E-STOP function key is always active, and anytime a process is in operation the PAUSE/RESUME function key is active. The other function keys, WATER TEMP, COOK TIME, PROBE TEMP, and HOLD TIME are active during the various process heating cycles.
1. E-STOP
    - a. This will stop the operation of the system immediately as would any emergency stop or reset. If the process has been started an abort signal is sent to the plc and other controlling electronics. However, if the process has not been started only the control panel is reset.
    - b. The main menu will be displayed on the screen
  2. PAUSE/RESUME
    - a. This function key acts as a 2 position switch, with PAUSE being one position and RESUME being the other position
    - b. This function key is active anytime a cycle has been started and is operating.
    - c. PAUSE will stop any currently running pumps and will close any open water valves.
    - d. RESUME will restart any pumps that should be running and will open any water valves that should be open for the current mode of operation.
  3. WATER TEMP
    - a. This function key is active during the COOK TO TIME, COOK TO PROBE, RETHERM , and CLEAN cycles.

- b. Pressing this function key will result in the display of the water temperature preset screen. This preset value will control the temperature within the turbojet tank.
4. COOKING TIME
- a. This function key is only active during the COOK TO TIME cycle.
  - b. By pressing this function key a screen will be displayed that will allow the operator to control how long the cooking process is to run, in minutes, after the water temperature within the turbojet tank has reached the preset water temperature.
5. PROBE TEMP
- a. This function key is active only during the COOK TO PROBE cycle.
  - b. This function key is used to preset the probe temperature to be reached during the COOK TO PROBE cycle.
6. HOLD TIME
- a. This function key is only active during the COOK TO PROBE cycle.
  - b. Pressing this function key will display a screen that will allow the operator to adjust the preset holding time that determines the cooking time after the probe temperature has reached the preset value.
7. RETHERM CYCLE
- a. This function key is only active from the main menu screen
  - b. This function key will take the operator through the steps to re-thermalize a product.
8. CLEAN CYCLE
- a. This function key is also only active from the main menu screen
  - b. The operator will be taken through the steps of the CLEAN cycle if the function key is pressed.
9. The RAISE and LOWER keys along with the number pad and ENTER key are the only other keys that are active. These keys are only active when the control panel is waiting for a numerical value from the operator. At all other times these keys are deactivated.

### C. CHILL

1. After the chill option is selected the Chill page is displayed. This page contains the commands for the steps of the chill cycle, the water temperature, and the CHILL STOP button.
2. There are two main steps to the Chill operation. Each step is displayed only when that step can be activated.
  - a. START
  - b. FULL CHILL.
3. By pressing the START button the process of chilling begins.
  - a. The water valve is opened, filling the tank to the lower level.

- b. The PAUSE/RESUME function key features are available at this time.
    - c. The water temperature is constantly displayed on the screen.
  4. Once the low water level is reached the water valve will close; the chill solenoid valve will open and the small circulating pump will start. The large pump will start at low speed and full chill message will appear. The operator can start loading the product into the chiller.
  5. After the last bag of product is in the chiller the operator must push the FULL CHILL button. If the chiller tank is not full to the second level the water solenoid valve will open, filling the chiller to the full level and close. At this time the large pump will go to full speed. Chilling process will continue until operator turns it off.
  6. To stop the chill cycle, this can be done in two ways:
    - a. By pushing the E-STOP key this will stop all functions and open the tank drain valve. You can then remove all product from the chiller.
  7. Push the key marked CHILL STOP. This will stop all functions but the tank drain valve will not open. The water will stay in the Chiller tank. The operator can remove the product and then the water can be reused for a second load of product.
  8. To restart, repeat chilling sequence and push CHILL START first.

#### **D. COOK TO TIME**

1. The operator fills the turbojet tank with the food product to be cooked.
2. Having selected the COOK TO TIME option the display will:
  - a. Inform the operator of the cook to time selection.
  - b. Request the operator enter the water temperature preset.
3. The operator modifies the water temperature preset by:
  - a. Pressing the RAISE button to increase the displayed preset value,
  - b. pressing the LOWER button to decrease the displayed preset value, or
  - c. by entering the actual numeric value on the number pad keys, then
  - d. press the ENTER button to accept and store the preset value.
4. The display will now ask for the cooking time in minutes to be entered by the operator.
5. The operator modifies the cooking time preset by:
  - a. Pressing the RAISE button to increase the displayed preset value,

- b. pressing the LOWER button to decrease the displayed preset value, or
  - c. by entering the actual numeric value on the number pad keys, then
  - d. press the ENTER button to accept and store the preset value.
6. The cook to time cycle is now ready to begin.
- a. To start the sequence, just push START. Water will come on, filling the first level, steam will come on and small pump will start. Water will continue filling to full level and then stop.
  - b. If the operator desires to use the large pump for more uniform and faster cooking, he must push the center key to turn the large pump on.
  - c. If you wish to go back to check the temperature set point, push the button marked WATER TEMPERATURE to see if you want to raise or lower the temperature.
  - d. Push the up or down arrow keys and push ENTER.
  - e. The screen will automatically go back to display the cooking process.
  - f. The same procedure can be done for COOKING TO TIME. When set point temperature is reached, the timer will start counting up. When it times out, everything will stop, the drain will open and the hot water will drain out.
  - g. Drain will stay open for (10) minutes and then close.
  - h. Water valve will open and refill the tank to the first level. Chill valve will open and the small and large pumps will start and water will continue to fill to top level and stop.
  - i. System will stay on Chill mode until turned off by and operator. You may turn off by pushing the PAUSE button and save the ice water or by pushing the E-STOP, and drain valve will open to drain all water.
  - j. You may then empty product from the tank.

#### **E. COOK TO PROBE**

1. The operator fills the tank with the food product to be cooked.

Push button marked COOK TO PROBE. Screen will display water set point. Follow previous instructions by using the arrow keys to raise or lower. Push enter. Screen will change to Probe -- Temperature Set Point.

- a. The temperature can be adjusted in the same manner. Probe temperature will only go up to 5\* below the water temperature set point.
- b. Press enter. Screen will go to hold time set point.
- c. Set the time the same way by raising or lowering using the arrow keys and press ENTER.

- d. Push button marked START. Water will come on and fill to 1st level.
- e. Steam will come on and small pump will come on.
- f. Water will continue filling to top level and stop.
- g. When probe temperature is reached, the time will start counting up until it times out.
- h. Drain valve will open for (10) minutes and drain all hot water out.
- i. When drain closes the water valve will come on and fill tank to first level. Chill water valve will open and small circulating pump will come on.
- j. Water will continue to fill to the top level and stop.
- k. Large pump will come on. Chilling process will continue until operator turns it off. This can be done by using the PAUSE button or the E-STOP. The E-STOP will drain the tank.

#### F. RE-THERMALIZATION

1. Having selected the RETHERM CYCLE option the display will:
  - a. Inform the operator of the re-thermalization selection.
  - b. Request the operator enter the water temperature preset.
2. The operator modifies the water temperature preset by:
  - a. Pressing the RAISE button to increase the displayed preset value,
  - b. pressing the LOWER button to decrease the displayed preset value, or
  - c. by entering the actual numeric value on the number pad keys, then
  - d. press the ENTER button to accept and store the preset value.
3. Now the operator is requested to select a water level for the re-thermalization process. Pressing the button under the desired level on the screen makes this selection.
4. The re-thermalization cycle is now ready to begin. The operator activates the START button and:
  - a. The display informs the operator it is now heating.
  - b. The current water temperature is displayed.
  - c. The PAUSE/RESUME function key features are now active.
  - d. The water valve opens and fills the tank to the selected level.
  - e. The small circulating pump and the large pump are started.
  - f. The steam valve is opened.
  - g. The operator fills the tank with the food product to be re-thermalized.
5. At any time after the START button is pushed the water temperature preset can be modified by:
  - a. Pressing the WATER TEMP function key.
  - b. This takes the operator back to the water temperature preset screen.

- i. The operator can adjust the preset value as before.
  - ii. The enter button must be pressed for the new value to be accepted.
  - iii. If no activity is present on the keyboard for 5 seconds the display will return to the re-thermalization cycle display.
6. When the water temperature reaches the preset value, the steam valve is opened and closed to maintain the temperature of the water.
7. This processing cycle will continue until the operator presses the **CYCLE STOP** button.
  - a. If another food product is to be re-thermalized the product can be loaded into the turbojet tank and the **RE THERM CYCLE** function key pressed and the process will be restarted.

## G. CLEAN

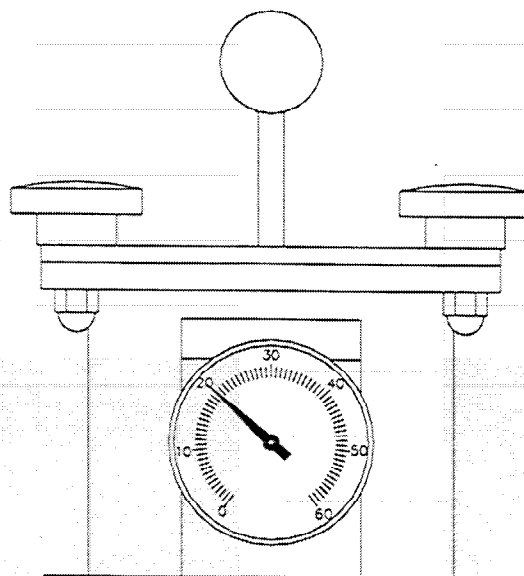
1. The operator places the cleaning solution into the turbojet tank
2. Having selected the **CLEAN CYCLE** option the display will:
  - a. Inform the operator of the clean selection.
  - b. Request the operator enter the water temperature preset.
3. The operator modifies the water temperature preset by:
  - a. Pressing the **RAISE** button to increase the displayed preset value,
  - b. pressing the **LOWER** button to decrease the displayed preset value, or
  - c. by entering the actual numeric value on the number pad keys, then
  - d. press the **ENTER** button to accept and store the preset value.
4. The clean cycle is now ready to begin. The operator activates the **START** button and:
  - a. The display informs the operator it is now heating.
  - b. The current water temperature is displayed.
  - c. The **PAUSE/RESUME** function key features are now active.
  - d. The water valve opens and fills the tank to the lower float level.
  - e. The small circulating pump is started.
  - f. The large pump is started at medium speed.
  - g. The steam valve is opened.
5. At any time after the **START** button is pushed the water temperature preset can be modified by:
  - a. Pressing the **WATER TEMP** function key.
  - b. This takes the operator back to the water temperature preset screen.
    - i. The operator can adjust the preset value as before.
    - ii. The enter button must be pressed for the new value to be accepted.
    - iii. If no activity is present on the keyboard for 5 seconds the display will return to the clean cycle display.

6. When the water temperature reaches the preset value, the steam valve is opened and closed to maintain the temperature of the water.
7. This processing cycle will continue until the operator presses the CYCLE STOP button. The display will go back to the main menu screen and the tank will be drained.

#### **H. TURBOJET BACK FLUSHING FOR CLEANING HEAT EXCHANGER**

1. After (4) chill cycles it will automatically go into back flush through the cooling heat exchanger. Only the large pump will come on; the small pump will not come on until the back flush is finished.
2. Back flush time is adjustable by the manual timer located in the bottom junction box. Recommended time is approximately five (5) minutes depending on hot water supply.

## I. INSTRUCTIONS FOR INLINE FILTER OPERATION



1. The pressure gauge indicates water pressure from the pump going through the filter and then through the Heat Exchanger.
2. Normal operating pressure = 20 PSI + or - 2 PSI.
3. **If pressure rises** to 27-28 PSI that means that the inline basket strainer must be cleaned.
  - a. Push Pause Button to stop chiller operation.
  - b. Loosen and remove black knobs on strainer top flange.
  - c. Remove flange, then remove basket and clean inside with brush supplied and water spray.
  - d. Reinstall basket. Make sure opening on basket top aligns with hole on strainer housing.
  - e. Replace flange making sure that it is properly realigned.
  - f. Tighten knobs before pressing the resume button.
4. **If pressure drops** below 10 PSI this means that the inside perforated screen on right side of tank is being blocked either with bags of product not moving or floating particles of food. Whatever the case may be it must be cleaned for the chilling process to go on.

**INTERNAL BACK SCREEN REMOVAL AND INSTALLATION**

BACK SCREEN MUST BE IN PLACE AND SECURED AS SHOWN ON DWG. #9055. THIS WILL PREVENT BAGS FROM BEING DRAWN INTO THE PUMP.

**INTERNAL RIGHT SCREEN REMOVAL AND INSTALLATION**

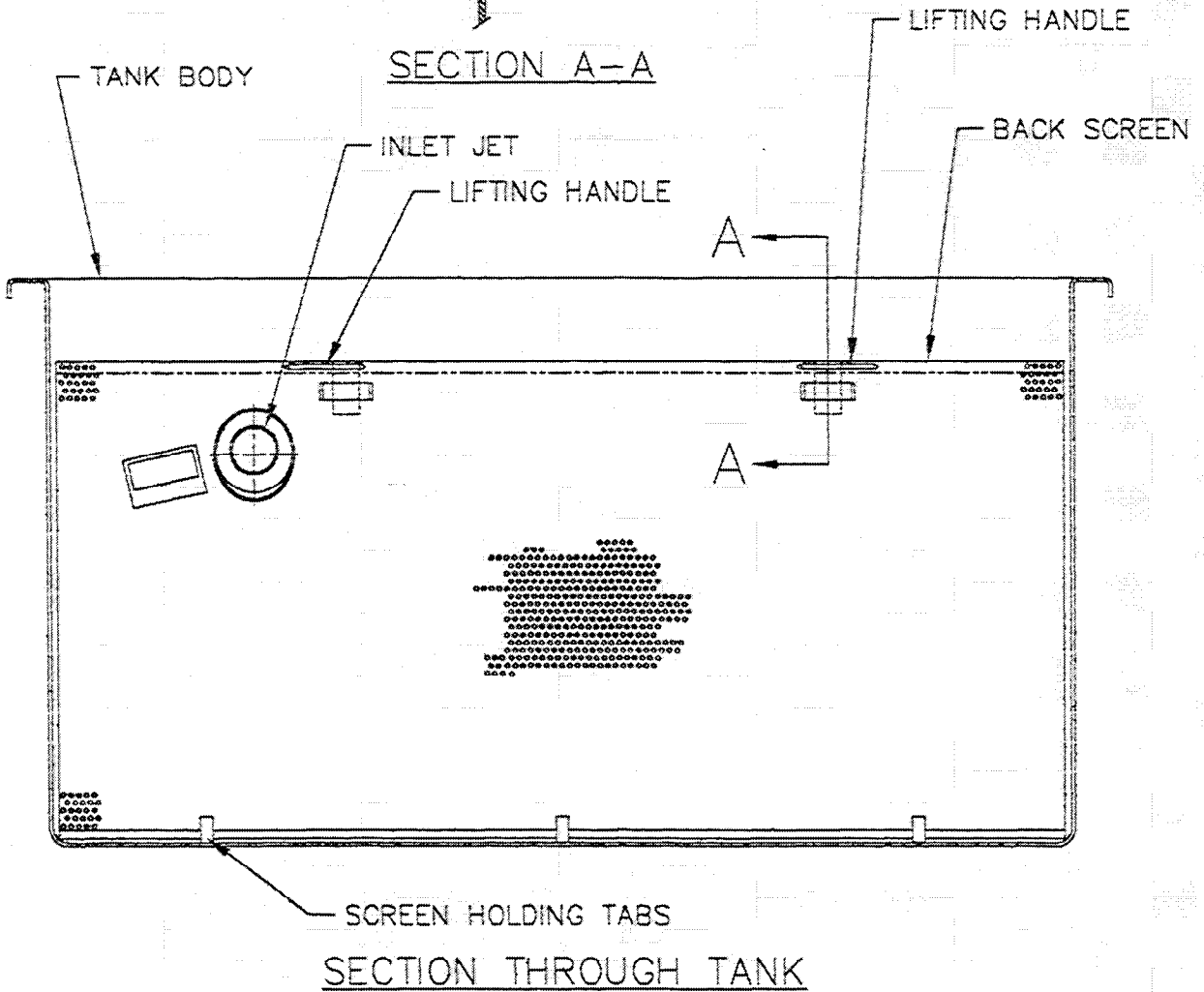
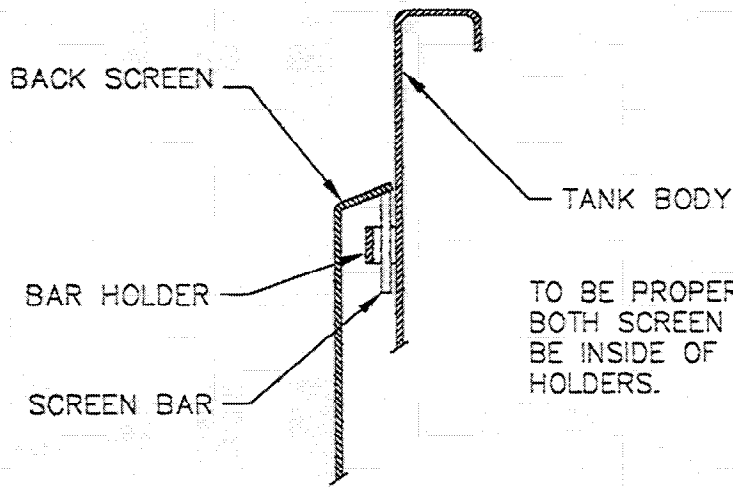
RIGHT SCREEN MUST BE IN PLACE AND SECURED AS SHOWN ON DWG. #9056. THIS WILL PREVENT FOOD PARTICLES AND TRASH GOING THRU THE PUMP CAUSING SEVERE DAMAGE.

**TO REMOVE:**

1. TURN LATCHES TO THE OPEN POSITION.
2. LIFT SCREEN OUT USING THE HANDLE.

**TO REINSTALL:**

1. MAKE SURE LATCHES ARE IN THE OPEN POSITION.
2. LOWER SCREEN IN MAKING SURE YOU ARE INSIDE OF BOTTOM AND SIDE TABS.
3. PUSH TOWARD TANK WALL AND DOWN MAKING SURE THE TOP OF SCREEN IS IN PLACE. NOW TURN LATCHES TO THE CLOSE POSITION.
4. BOTTOM DRAIN SCREEN MUST BE IN PLACE AT ALL TIMES FOR THE SIDE SCREEN TO BE EFFECTIVE.



# J. C. PARDO & SONS INC.

PTJ-100-TC/CT BACK SCREEN  
REMOVAL & INSTALLATION

DRAWN BY: JES

SCALE: NONE

DATE: 3/29/01

SHEET: 1 OF 1

CHECKED BY:

APPROVED BY:

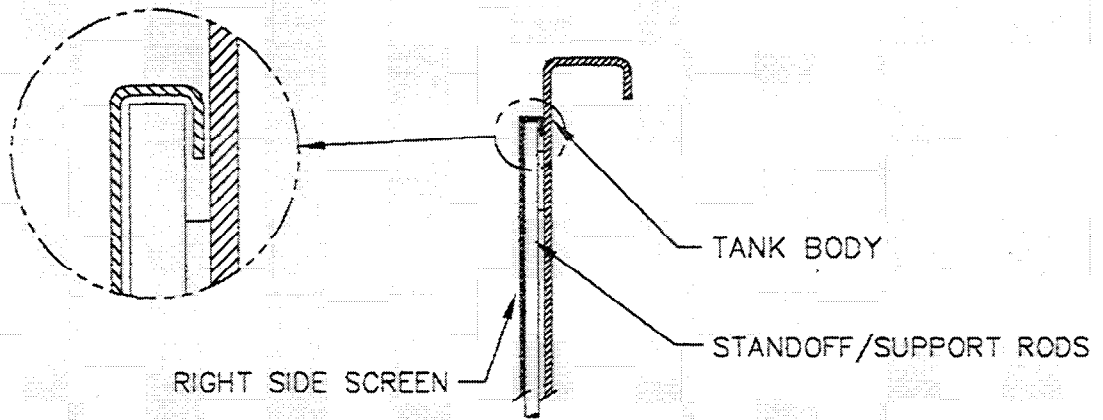
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DRAWING NUMBER:

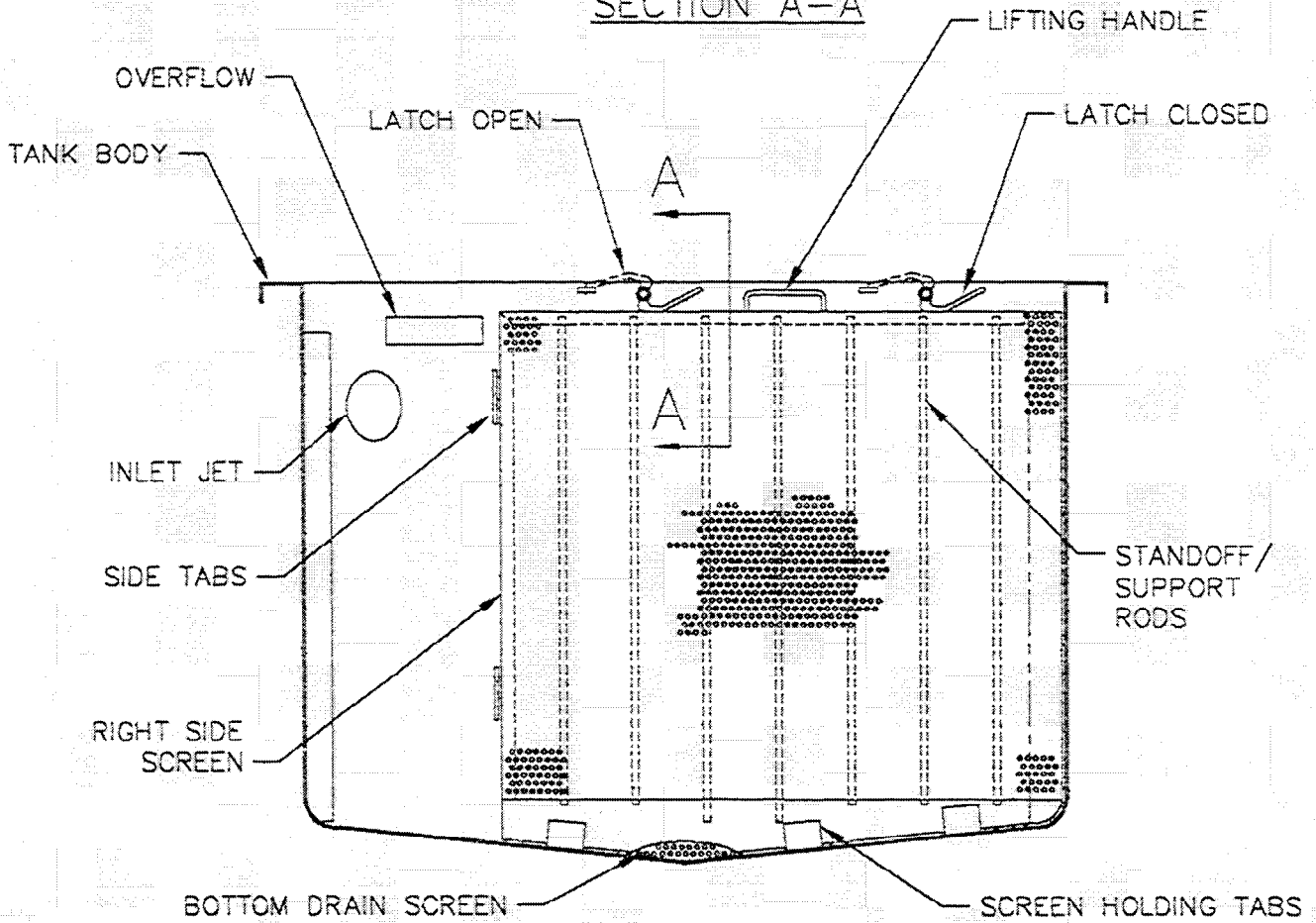
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9055



SECTION A-A



SECTION THROUGH TANK

# J. C. PARDO & SONS INC.

PTJ-100-TC/CT RIGHT SIDE SCREEN  
REMOVAL & INSTALLATION

DRAWN BY: JES

SCALE: NONE

DATE: 3/29/01

SHEET: 1 OF 1

CHECKED BY:

APPROVED BY:

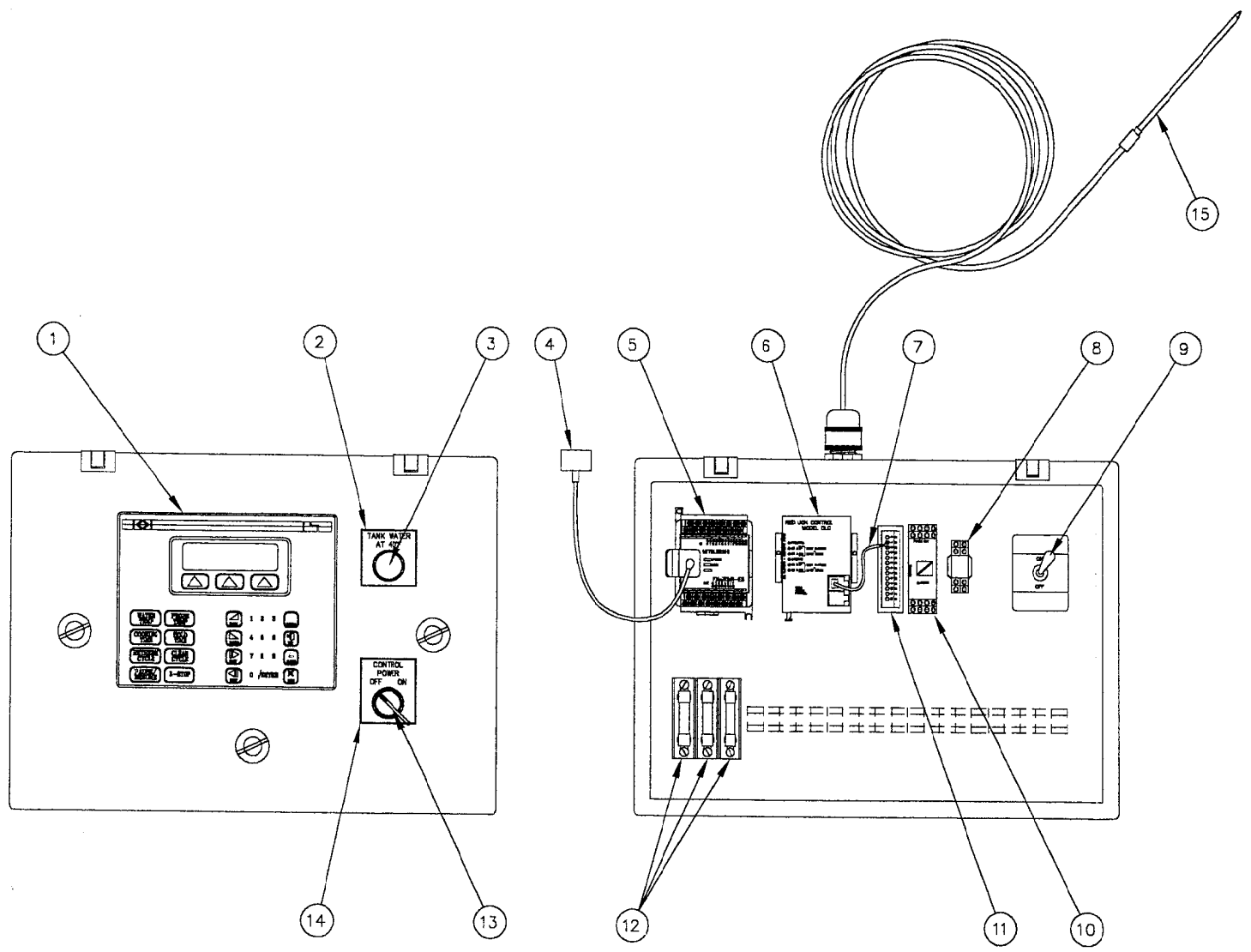
SIZE:

DRAWING NUMBER:

REV.

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9056



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**

1250 REAMES RD. BALTO MD. 21220  
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CHECKED BY: DRAWN BY: JES

APPROVED BY: DATE: 3/8/01

NAME: NONE


**PTJ-100-TC/CT TURBOJET CONTROL BOX  
 REPLACEMENT PARTS**

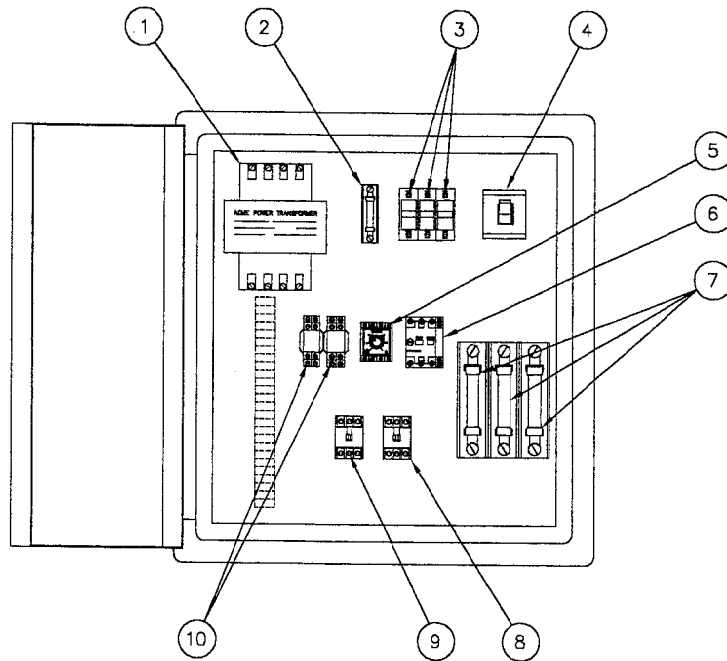
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REV: C DRAWING NUMBER: 11603

REV: SHEET: 1 of 2

REPLACEMENT PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	ELBC0-0000050	DIGITAL DISPLAY CONTROLLER
2	NPYELLOW00136	NAMEPLATE
3	2EP00-8800002	RED INDICATOR LIGHT
-	ELV00-6000001	REPLACEMENT BULB FOR ITEM #3
4	ELBC0-0000055	PLC LINKING CABLE
5	ELBC0-0000054	mitsubishi CONTROLLER
6	ELBC0-0000051	DLC CONTROLLER
7	ELBC0-0000056	CUSTOM LINKING CABLE
8	ELPSW-0000002	RELAY
-	ELPSW-0000003	REPLACEMENT BASE FOR ITEM #8
9	ELPSW-0000008	TOGGLE SWITCH
10	ELBC0-0000053	24V POWER SUPPLY
11	ELBC0-0000052	SIGNAL CONVERTER
12	ELV02-5000011	4 AMP FUSE
13	2EP00-8800006	TWO POSITION TURN SWITCH
14	NPYELLOW00110	NAMEPLATE
15	TSENSOR00005	MEAT PROBE

REV.	DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD.  BALTO MD. 21220 PHONE (410) 391-3800 FAX (410) 391-9042		DESIGNED BY DRAWN BY JES DATE 3/8/01 APPROVED BY RECAL: NONE	PTJ-100-TC/CT TURBOJET CONTROL BOX REPLACEMENT PARTS <small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Baltimore, Md. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>	QTY C REV.	DRAWING NUMBER 11603 SHEET 1 of 2
REVISIONS									



## REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	ELV05-000002	TRANSFORMER
2	ELV02-5000001	5 AMP FUSE
3	ELV06-0000020	6 AMP FUSE
4	ELPSW-0000043	HIGH VOLTAGE DISCONNECT
5	ELBC0-0000017	TIMER
-	ELP00-0000006	BASE FOR ITEM #5
6	ELPSW-0000023	MOTOR PROTECTOR
7	ELV02-5000021	45 AMP FUSE
8	ELPSW-0000042	MOTOR CONTACTOR
9	ELPSW-0000041	MOTOR CONTACTOR
10	ELPSW-00000C2	RELAY
-	ELPSW-00000C3	BASE FOR ITEM #10

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**  
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 PHONE (410) 391-3600 FAX (410) 391-9048

CHECKED BY: DRAWN BY: JES  
 DATE: 3/8/01  
 APPROVED BY: SCALE: NONE

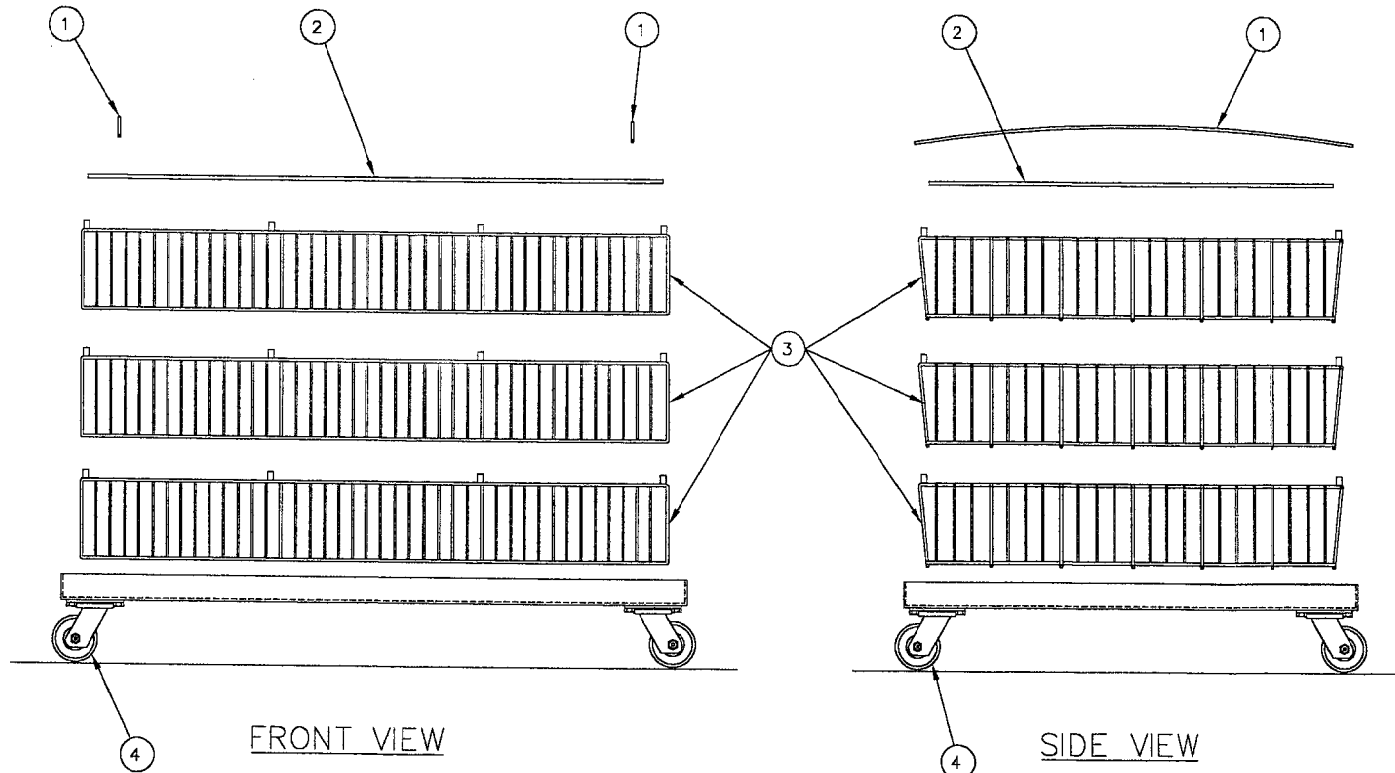
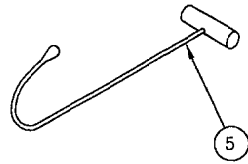
**PTJ-100-TC/CT JUNCTION BOX  
 REPLACEMENT PARTS**

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REV. C	DRAWING NUMBER: 11604
REV.	SHEET 1 of 1

# REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	RB400-2500001	HOLD DOWN ROD
2	2BSCREEN00015	COVER RACK
3	2BBASKET00005	BASKET
4	HWD00-0000006	SWIVEL CASTER
5	1FS00-0000032	BAG REMOVAL TOOL



FRONT VIEW

SIDE VIEW

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY:	DRAWN BY: JES
APPROVED BY:	DATE: 3/8/01
	SCALE: NONE

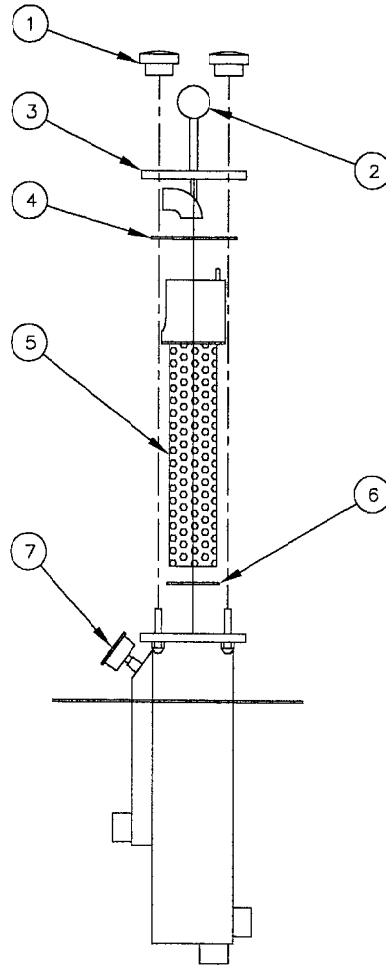
PTJ-100-TC/CT RACKS W/WHEELED CART  
 REPLACEMENT PARTS

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REV:	C	DRAWING NUMBER:	11605
REV:		SHEET:	1 of 1

### REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	HWP00-3800002	COVER KNOBS
2	MSP02-0000001	RED BALL
3	1FS00-0000028	COVER
4	SE30RING00028	O-RING
5	1FS00-0000026	STRAINER BASKET
6	SE30RING00008	O-RING
7	AR800-2500016	GAUGE



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C. PARDO & SONS INC.**

1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY

DRWN BY: JES

APPROVED BY

DATE 3/9/01

SCALE: NONE

PTJ-100-TC/CT INLINE STRAINER  
 REPLACEMENT PARTS

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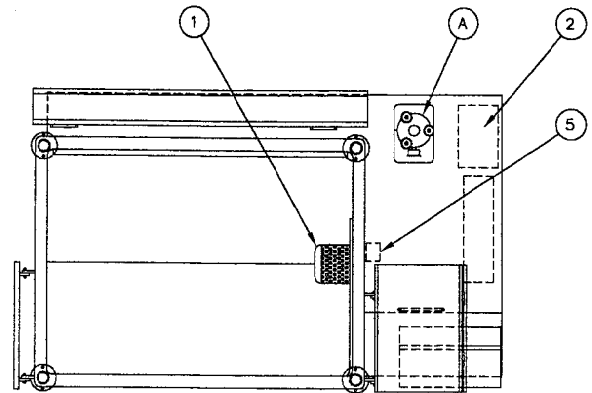
SIZE: C

DRAWING NUMBER: 11606

REV.

SHEET

1 of 1



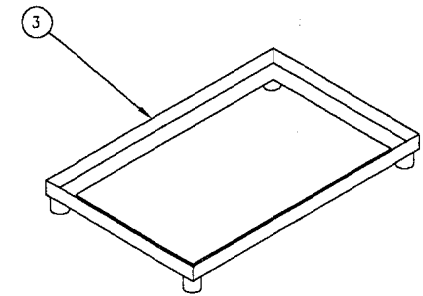
COVERS SHOWN OPEN IN TOP VIEW

REPLACEMENT PARTS

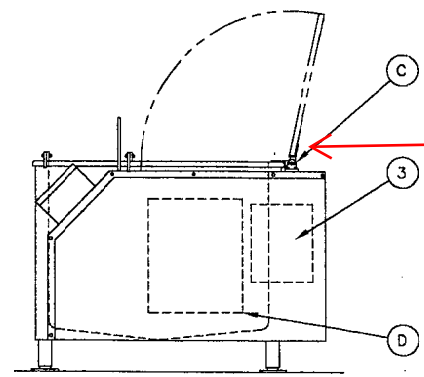
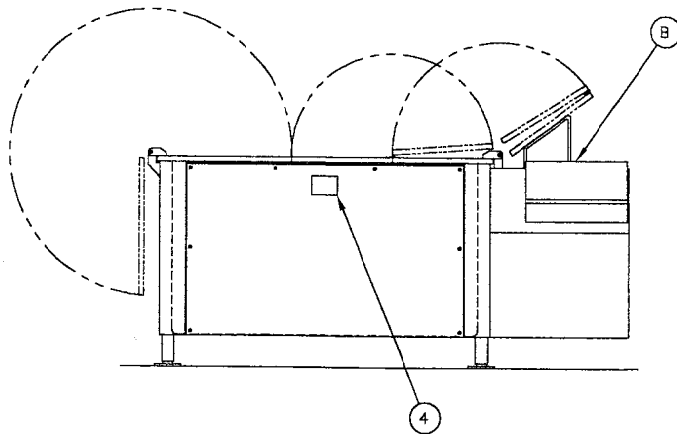
ITEM	PART NO.	DESCRIPTION
1	1FS00-000C031	DRAIN SCREEN
2	ELH07-5000001	7 1/2 HP INVERTER, 208V
3	2BBASKE100006	BASKET FRAME
4	NPRED0000C024	WARNING NAMEPLATE
5	ELS00-120C001	FLOAT SWITCHES

DRAWING LIST

ITEM	DRAWING NO.	DESCRIPTION
A	C-11606	INLINE STRAINER
B	C-11603	CONTROL BOX
C	B-8539	COVER ACTUATOR
D	C-11604	JUNCTION BOX



BASKET FRAME



KE50121-1  
spring

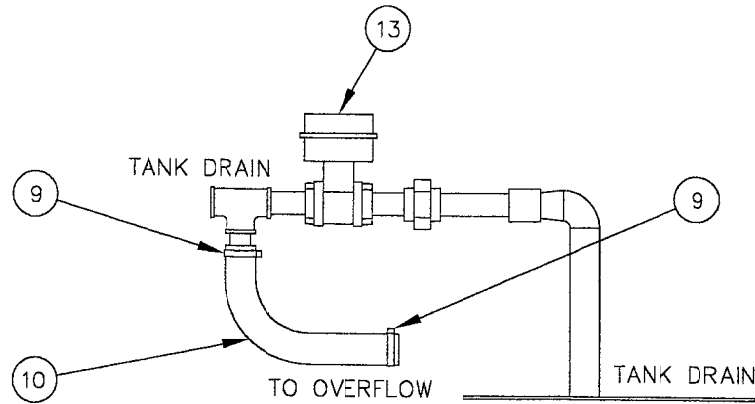
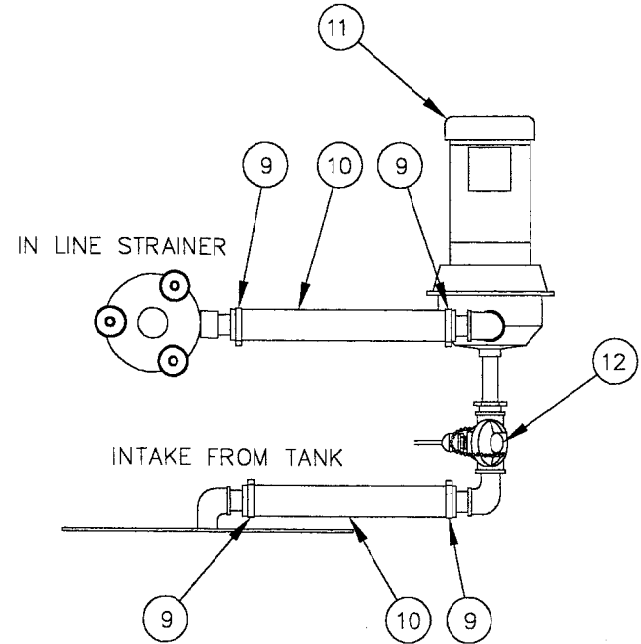
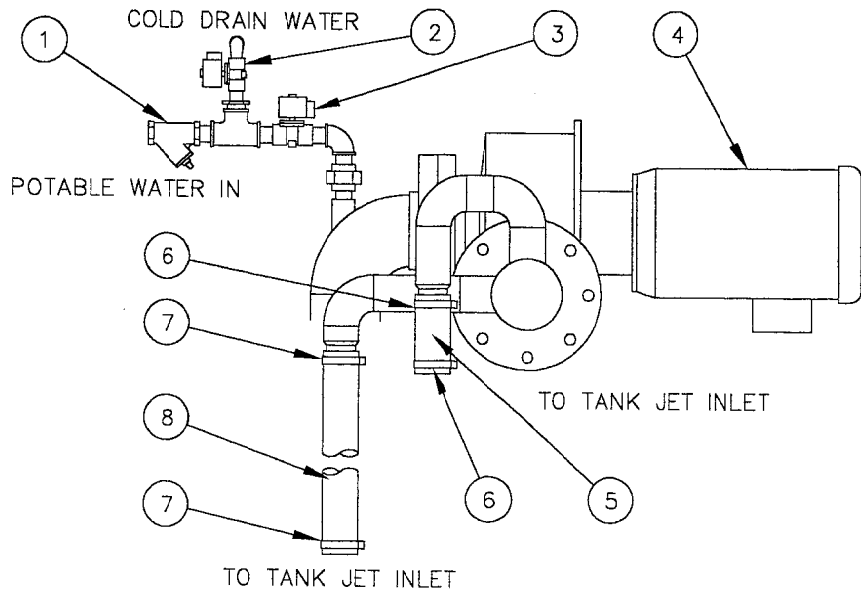
REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 381-3800 FAX (410) 381-8048

CHECKED BY: DRAWN BY: JES  
 DATE: 3/8/01  
 APPROVED BY: SCALE: NONE

PTJ-100-TC/CT TURBOJET  
 REPLACEMENT PARTS  
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SIZE: C DRAWING NUMBER: 11607  
 SHEET: 1 of 1



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3900 FAX (410) 391-8042

CHECKED BY: \_\_\_\_\_  
 DRAWN BY: JES  
 DATE: 3/12/01  
 APPROVED BY: \_\_\_\_\_  
 SCALE: NONE


**PTJ-100-TC/CT PLUMBING  
 REPLACEMENT PARTS**

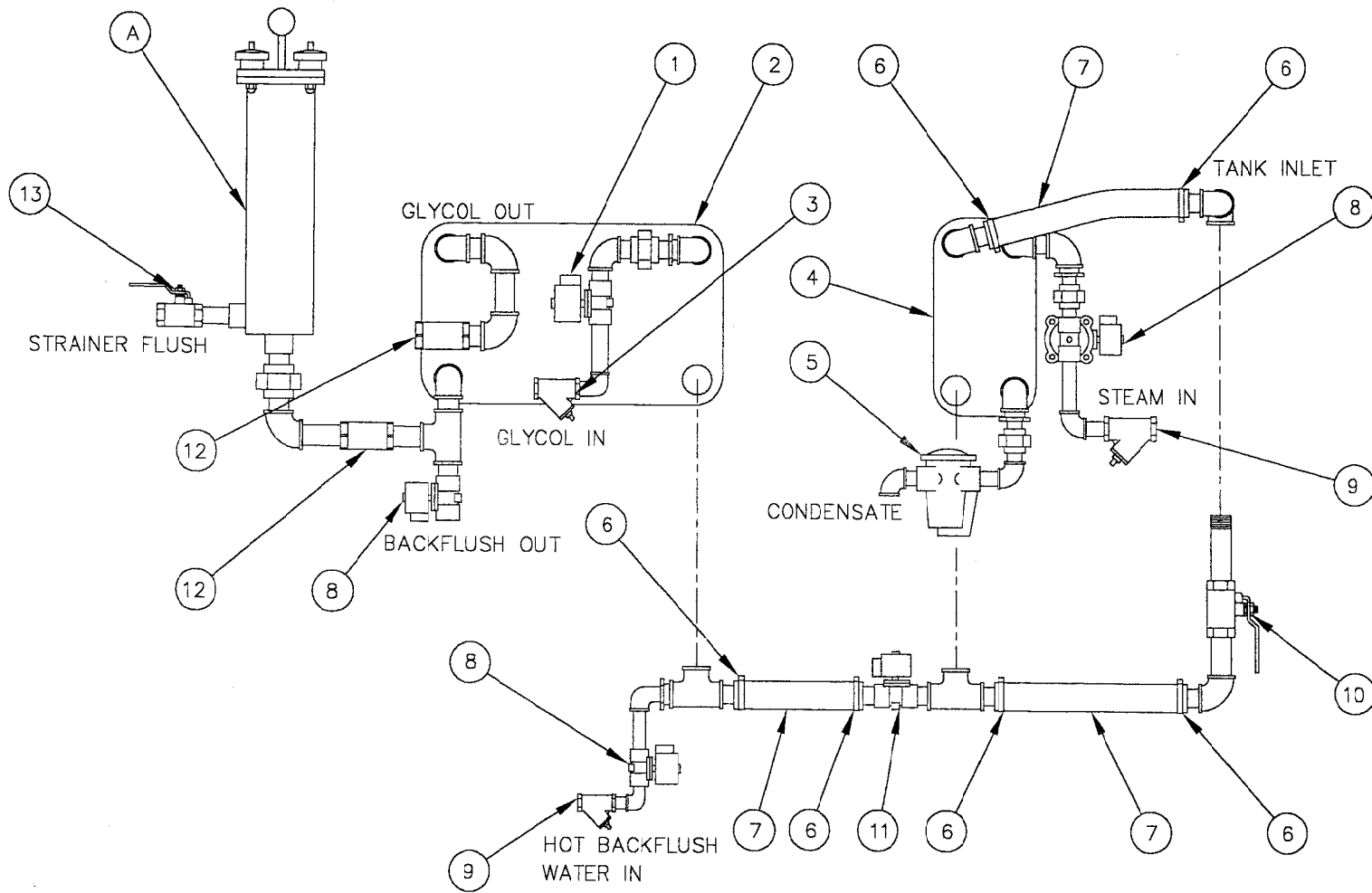
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SIZE: C  
 DRAWING NUMBER: 11608  
 REV: \_\_\_\_\_  
 SHEET: 1 of 2

## REPLACEMENT PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	MSB01-0000001	STRAINER
-	MSB01-0000004	REPLACEMENT SCREEN FOR ITEM #1
2	ELB00-7500015	COLD DRAIN WATER SOLENOID
-	SP999-9900004	REPAIR KIT FOR ITEM #2
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #2
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #2
3	ELB01-0000012	POTABLE WATER IN SOLENOID
-	SP999-9900001	REPAIR KIT FOR ITEM #3
-	SP988-8800001	REPLACEMENT COIL FOR ITEM #3
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #3
4	ELH07-5000002	AGITATION PUMP
-	ELH07-5000003	REPLACEMENT MOTOR FOR ITEM #4
-	2P800-0000001	IMPELLER REPAIR KIT FOR ITEM #4
-	2P800-0000002	SEAL KIT FOR ITEM #4
-	SE3ORING00040	REPLACEMENT HOUSING GASKET ITEM #4
5	PBD03-0000001	HOSE
6	HYS03-7500001	HOSE CLAMP
7	HYS03-2500003	HOSE CLAMP
8	PBD02-5000001	HOSE
9	HYS02-2500001	HOSE CLAMP
10	PBD01-5000005	HOSE
11	ELH01-0000007	CIRCULATING PUMP
-	ELH01-0000008	REPLACEMENT MOTOR FOR ITEM #11
-	SP999-9900079	REPAIR KIT FOR ITEM #11
12	TSSENSOR00006	TEMPERATURE SENSOR
13	ELS01-5000001	BALLVALVE W/ACTUATOR
-	PBS01-5000029	REPLACEMENT BALLVALVE FOR ITEM #13
-	ELMISCO000001	REPLACEMENT ACTUATOR FOR ITEM #13
-	ELMISCO000002	REPLACEMENT MOUNTING KIT FOR ITEM #13

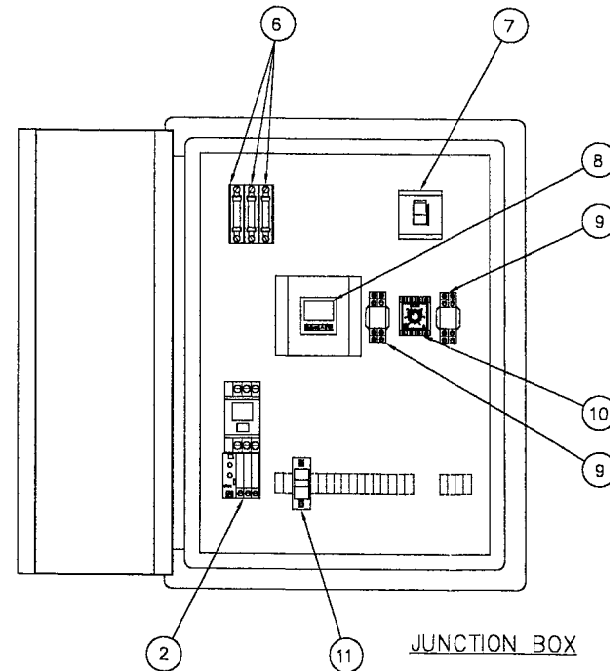
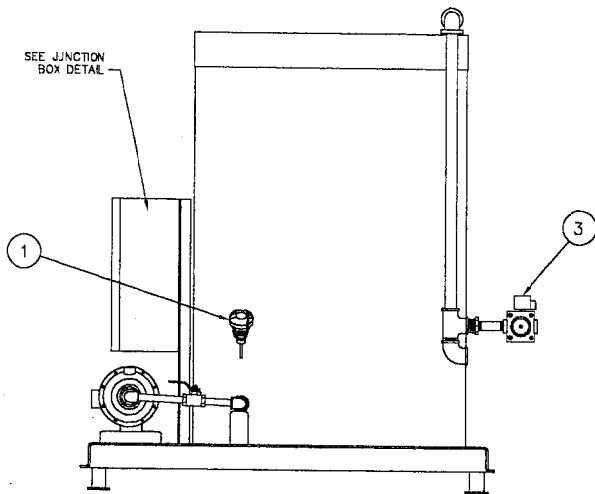
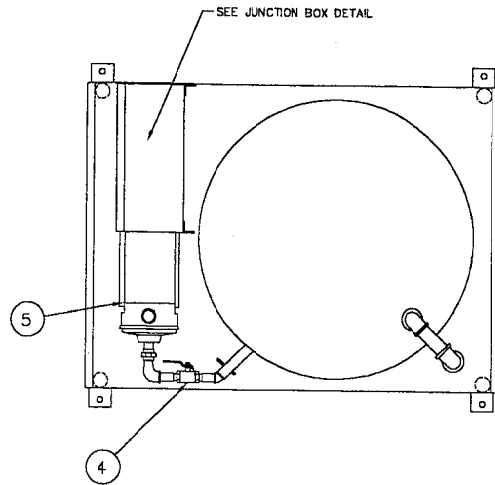
<b>REV.</b>	<b>DESCRIPTION</b>	<b>BY</b>	<b>DATE</b>	<b>J.C.PARDO &amp; SONS INC.</b>	<b>CHECKED BY</b>	<b>DRAWN BY: JES</b>	<b>PTJ-100-TC/CT PLUMBING REPLACEMENT PARTS</b>	<b>REV:</b>	<b>DRAWING NUMBER:</b>
	REVISIONS			1250 REAMES RD.  BALTO MD. 21220 PHONE (410) 381-3600 FAX (410) 381-9042				C	11608
					<b>APPROVED BY:</b>	<b>DATE: 3/12/01</b>	This drawing and all information contained herein is the property of J.C.Pardo & Sons Inc. (Sons Inc). The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and it not to be used directly or indirectly in any way detrimental to J.C.Pardo & Sons.	<b>REV:</b>	<b>SHEET:</b>
						<b>SCALE: NONE</b>			2 of 2



<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 391-3800 FAX (410) 391-9042		CHECKED BY: DRAWN BY: JES DATE: 3/12/01 SCALE: NONE	<b>PTJ-100-TC/CT PLUMBING          REPLACEMENT PARTS</b> <small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and will not be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>	REV: C SHEET: 1 of 2	DRAWING NUMBER: <b>11609</b>
REV.	DESCRIPTION	BY	DATE		
	REVISIONS				

REPLACEMENT PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	ELB01-2500010	GLYCOL IN SOLENOID
-	SP999-9900001	REPAIR KIT FOR ITEM #1
-	SP988-8800001	REPLACEMENT COIL FOR ITEM #1
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #1
2	MSC00-0000027	HEAT EXCHANGER
3	MSB01-2500001	STRAINER
-	MSB01-2500005	REPLACEMENT SCREEN FOR ITEM #3
4	MSC00-0000028	HEAT EXCHANGER
5	MSC00-7500010	STEAM TRAP
-	SP999-9900075	REPAIR KIT FOR ITEM #5
-	SP999-9900076	REPLACEMENT SCREEN FOR ITEM #3
6	HYS02-2500001	HOSE CLAMP
7	PBD01-5000005	HOSE
8	ELB01-0000013	STEAM & HOT BACKFLUSH IN/OUT
-	SP999-9900005	REPAIR KIT FOR ITEM #8
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #8
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #8
9	MSB01-0000001	STRAINER
-	MSB01-0000004	REPLACEMENT SCREEN FOR ITEM #10
10	MSB01-5000007	BALLVALVE
11	ELB01-5000005	SOLENOID VALVE
-	SP999-9900014	REPAIR KIT FOR ITEM #11
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #11
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #11
12	MSB01-5000004	BALLCONE CHECKVALVE
13	MSB01-0000002	BALLVALVE
DRAWING LIST		
ITEM	DRAWING NO.	DESCRIPTION
A	C-11606	IN LINE STRAINER

REV.	DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 381-3800 FAX (410) 381-9042	CHECKED BY:	DRAWN BY: JBS	PTJ-100-TC/CT PLUMBING REPLACEMENT PARTS	REV:	DRAWING NUMBER:
	REVISIONS				APPROVED BY:	DATE: 3/12/01		SCALE: NONE	C
						<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Baltimore, Md. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>		REV.	SHEET:
									2 of 2



## REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	TSSENSOR00006	TEMPERATURE SENSOR
2	ELPSW-0000044	MOTOR STARTER
-	ELV00-0000004	REPLACEMENT HEATER PACKS FOR #2
3	ELB01-0000013	GLYCOL BYPASS SOLENOID
-	SP998-9900005	REPAIR KIT FOR ITEM #3
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #3
-	ELP00-0000000	REPLACEMENT DINN CONN. ITEM #3
4	MSB01-5000007	MANUAL BALL VALVE
5	ELH03-0000014	CIRCULATING PUMP
6	ELV06-0000017	10 AMP FUSE
7	ELPSW-0000001	3 POLE DISCONNECT SWITCH
8	ELB00-0000026	TEMPERATURE CONTROLLER
9	ELPSW-0000002	RELAY
-	ELPSW-0000003	BASE FOR ITEM #9
10	ELB00-0000017	TIMER
-	ELP00-0000006	BASE FOR ITEM #10
11	ELV02-5000001	5 AMP FUSE

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 381-3800 FAX (410) 381-9042

CHECKED BY: \_\_\_\_\_  
 DRAWN BY: JES  
 DATE: 3/5/01  
 APPROVED BY: \_\_\_\_\_  
 REPAIR: NONE

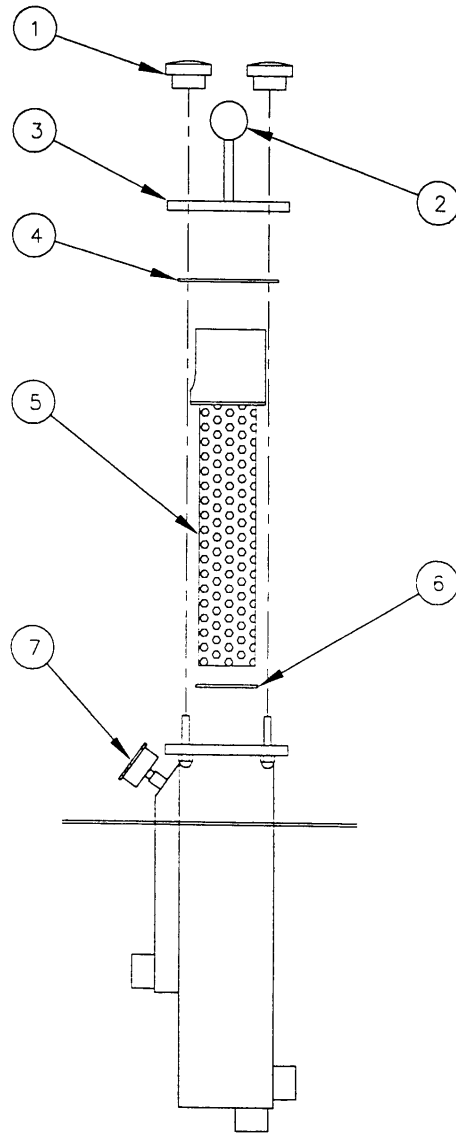
### GLYCOL RESERVOIR TANK REPLACEMENT PARTS

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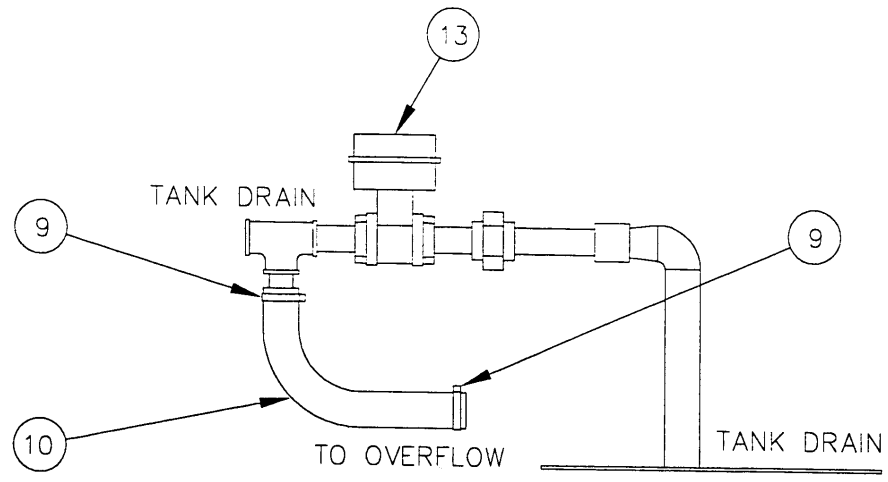
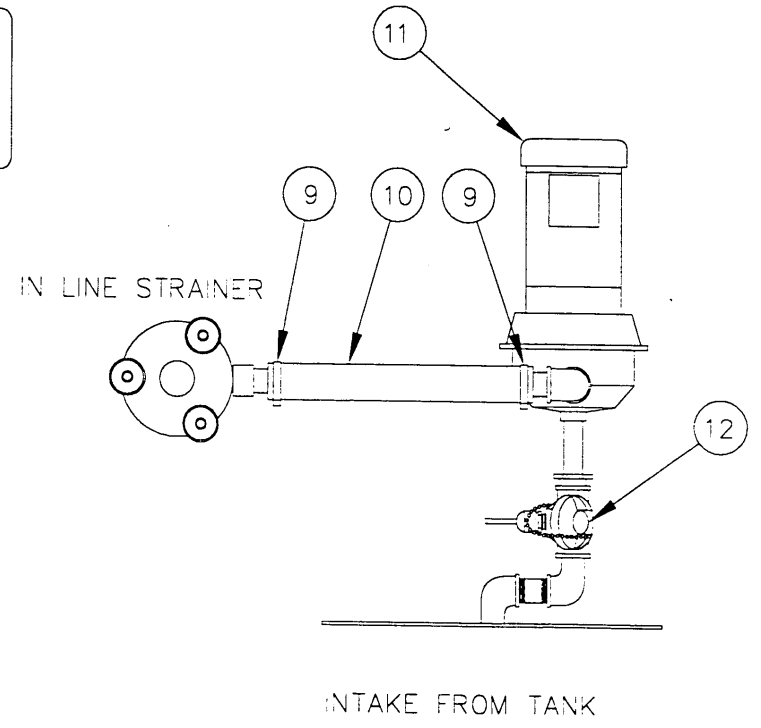
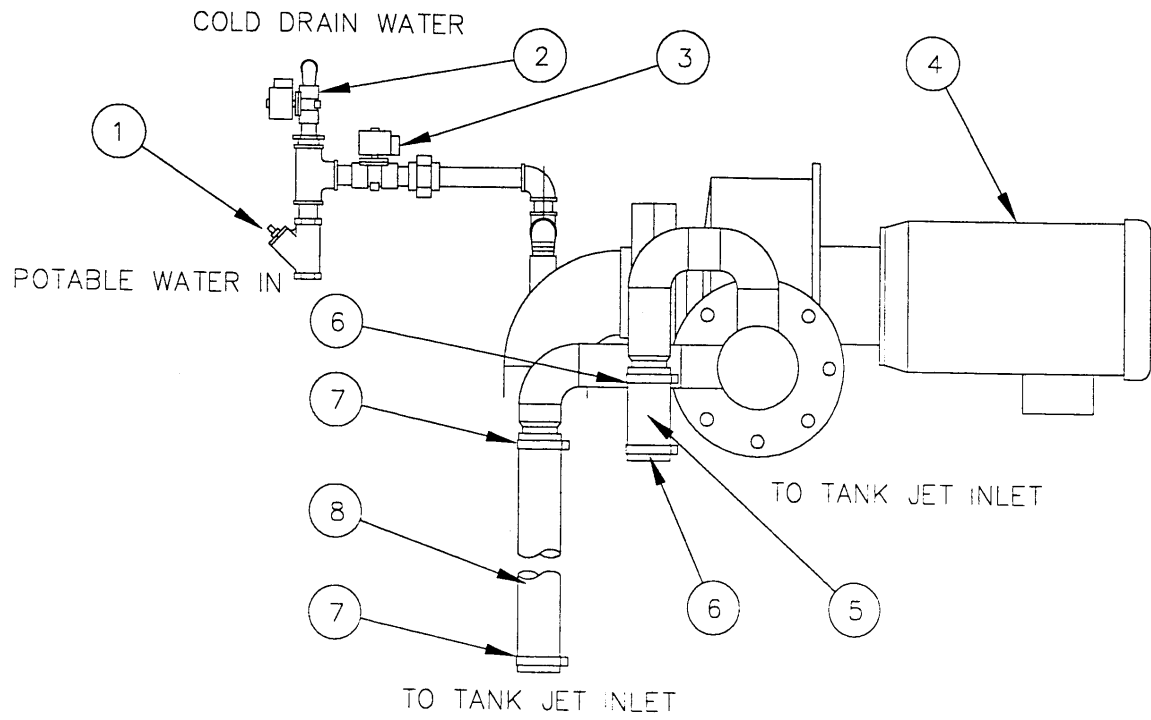
REV: C  
 DRAWING NUMBER: 11597  
 SHEET: 1 of 1

## REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	HWP00-3800002	COVER KNOBS
2	MSP02-0000001	RED BALL
3	1FS00-0000035	COVER
4	SE3ORING00043	O-RING
5	1FS00-0000036	STRAINER BASKET
6	SE3ORING00044	O-RING
7	AR800-2500016	GAUGE



REV.	DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD.  BALTO MD. 21220 PHONE (410) 391-3800 FAX (410) 391-9042	CHECKED BY:	DRAWN BY: tjk	PTJ-100-TC/CT INLINE STRAINER REPLACEMENT PARTS	SIZE:	DRAWING NUMBER:
	REVISIONS				APPROVED BY:	DATE: 12/7/01	<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>	C	11635
						SCALE: NONE		REV:	SHEET
									1 of 1



**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3600 FAX (410) 391-9042

CHECKED BY: \_\_\_\_\_  
 DRAWN BY: TJK  
 DATE: 11/30/01  
 APPROVED BY: \_\_\_\_\_  
 SCALE: NONE

**PTJ-100-TC/CT PLUMBING  
 REPLACEMENT PARTS**


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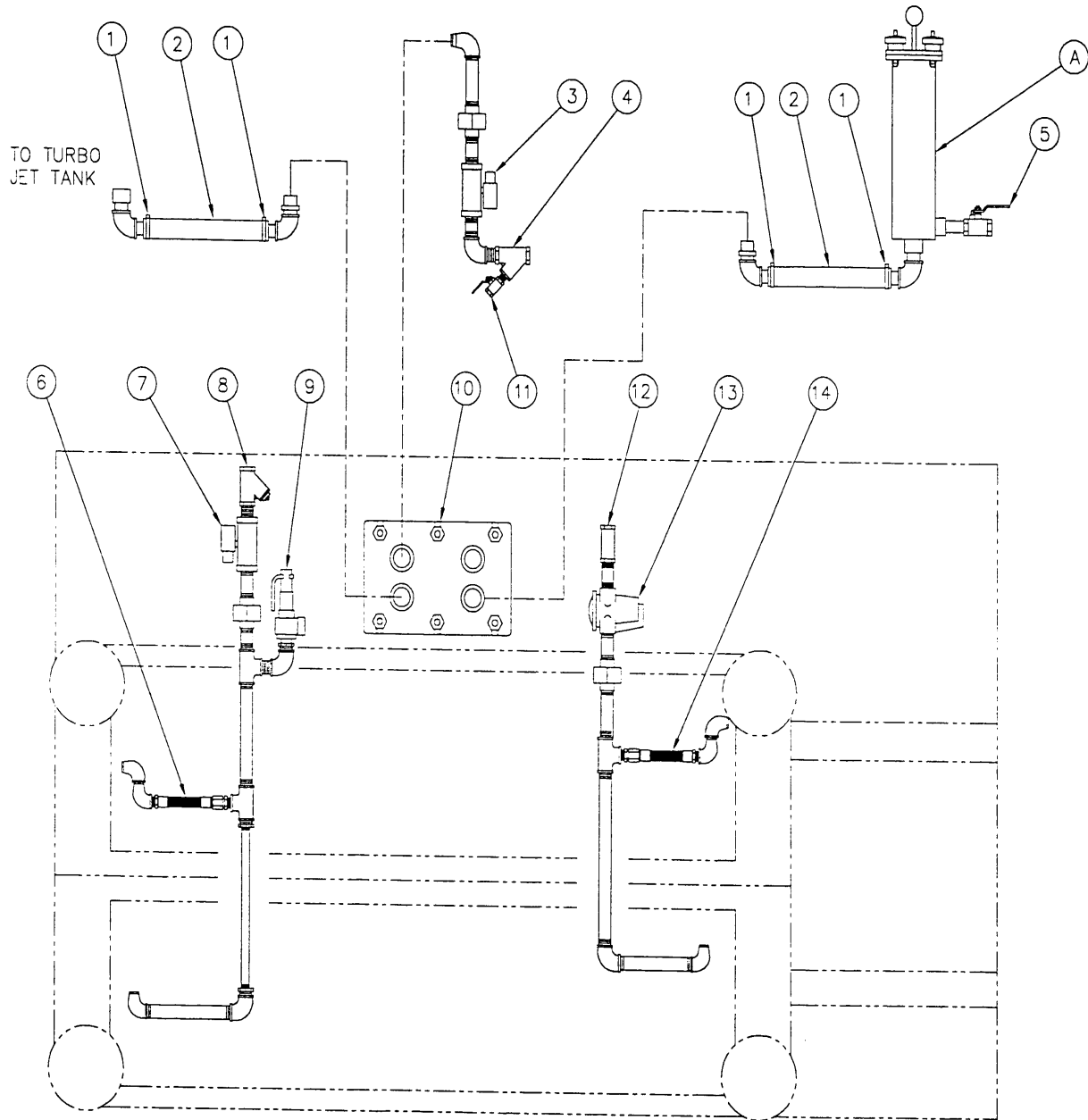
SIZE: C DRAWING NUMBER: 11633  
 REV. SHEET  
 1 of 2

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

REPLACEMENT PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	MSB01-000001	STRAINER
-	MSB01-000004	REPLACEMENT SCREEN FOR ITEM #1
2	ELB00-7500015	COLD DRAIN WATER SOLENOID
-	SP999-9900004	REPAIR KIT FOR ITEM #2
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #2
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #2
3	ELB01-0000012	POTABLE WATER N SOLENOID
-	SP999-9900001	REPAIR KIT FOR ITEM #3
-	SP988-8800001	REPLACEMENT COIL FOR ITEM #3
-	ELP00-0000000	REPLACEMENT DINN CONN. FOR ITEM #3
4	ELH07-5000007	AGITATION PUMP
-	ELH07-5000003	REPLACEMENT MCTOR FOR ITEM #4
-	2P800-0000004	IMPELLER REPAIR KIT FOR ITEM #4
-	2P800-0000002	SEAL KIT FOR ITEM #4
-	SE3ORING000040	REPLACEMENT HOUSING GASKET ITEM #4
-	SEF04-0000003	INLET/ OUTLET FLANGE GASKET ITEM #4
* 5	PBD03-0000001	-HOSE
6	HYS03-7500001	-HOSE CLAMP
7	HYS03-2500003	-HOSE CLAMP
* 8	PBD02-5000001	-HOSE
9	HYS02-0000004	-HOSE CLAMP
* 10	PBD01-5000005	-HOSE
11	ELH01-0000010	CIRCULATING PUMP
-	ELH01-0000011	REPLACEMENT MOTOR FOR ITEM #11
-	SP999-9900080	REPAIR KIT FOR ITEM #11
12	TSENSOR000006	TEMPERATURE SENSOR
13	ELS01-5000001	BALLVALVE W/ACTUATOR
-	PBS01-5000029	REPLACEMENT BALLVALVE FOR ITEM #13
-	ELMISC0000001	REPLACEMENT ACTUATOR FOR ITEM #13
-	ELMISC0000002	REPLACEMENT MOUNTING KIT FOR ITEM #13

\*CUSTOMER TO SPECIFY LENGTH

REV.	DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD.  BALTO MD. 21220 PHONE (410) 391-3600 FAX (410) 391-9042		CHECKED BY: APPROVED BY:	DRAWN BY: TJK DATE: 11/30/01 SCALE: NONE	PTJ-100-TC/CT PLUMBING REPLACEMENT PARTS	SIZE: C	DRAWING NUMBER: 11633
REVISIONS						<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>		REV.	SHEET 2 of 2	



BOTTOM VIEW

REPLACEMENT PARTS LIST

ITEM	PART NO.	DESCRIPTION
1	HYS02-000004	HOSE CLAMPS
2	PBD01-5000001	HOSE
3	ELB01-2500010	COOLING LIQUID IN SOLENOID
-	SP999-9900001	REPAIR KIT FOR ITEM #3
-	SP988-8800001	REPLACEMENT COIL FOR ITEM #3
-	ELP00-0000000	DINN CONNECTOR FOR ITEM #3
4	MSB01-2500001	STRAINER
-	MSB01-2500005	REPLACEMENT SCREEN FOR ITEM #4
5	MSB01-0000002	MANUAL BALL VALVE
6	PBS01-0000025	S.ST. FLEX HOSE
7	ELB01-0000014	STEAM IN SOLENOID
-	SP999-9900008	REPAIR KIT FOR ITEM #7
-	SP988-8800003	REPLACEMENT COIL FOR ITEM #7
-	ELP00-0000000	DINN CONNECTOR FOR ITEM #7
8	MSB01-0000001	STRAINER
-	MSB01-0000004	REPLACEMENT SCREEN FOR ITEM #8
9	VAB00-7500010	SAFETY VALVE
10	MSC00-0000032	HEAT EXCHANGER
11	MSB00-5000004	MANUAL BALL VALVE
12	MSB00-7500004	BALL CONE CHECK VALVE
13	MSC00-7500009	STEAM TRAP
-	SP999-9900081	REPAIR KIT FOR ITEM #13
-	SP999-9900076	REPLACEMENT SCREEN FOR ITEM #13
14	PBS00-7500028	S.ST. FLEX HOSE
LTR	DRAWING #	DESCRIPTION
A	11635	IN-LINE BASKET STRAINER

\* CUSTOMER TO SPECIFY LENGTH

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

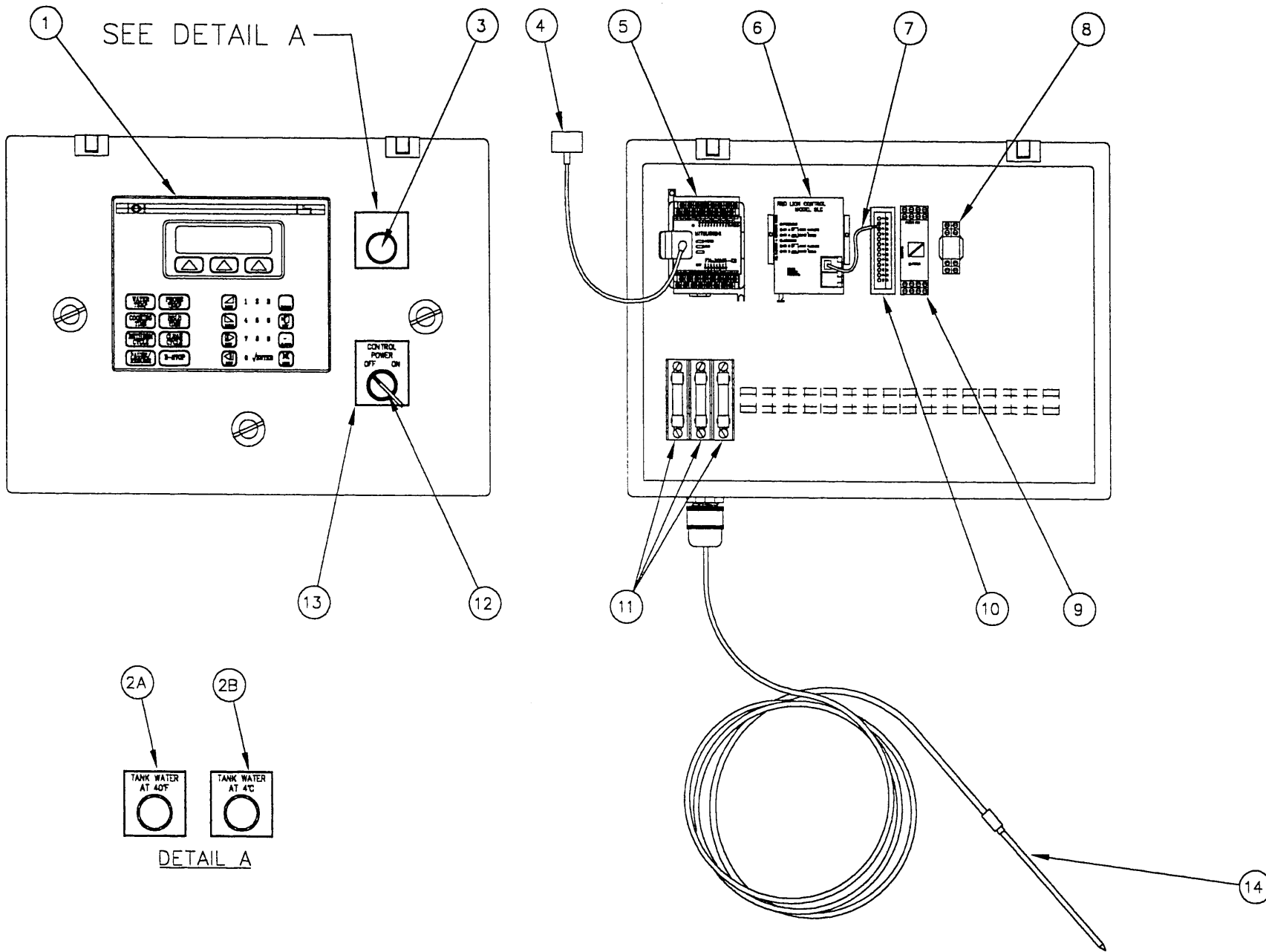
J.C.PARDO & SONS INC.  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-3800

ORDER BY	DATE BY TJK
APPROVED BY	DATE 12/4/2001
READ NONE	

REPLACEMENT PARTS FOR  
 100 GALLON TURBO JET PLUMBING

REV	D	QUANTITY	11636
SHEET			1 of 1

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<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 591-3600 FAX (410) 591-9042		DESIGNED BY: JES DRAWN BY: JES DATE: 12/5/01 APPROVED BY: SCALE: NONE	<b>PTJ-100-TC/CT TURBOJET CONTROL BOX          REPLACEMENT PARTS</b>	SIZE: C SHEET: 1 of 2 DRAWING NUMBER: 11637
REV. DESCRIPTION BY DATE REVISIONS	<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>			

REPLACEMENT PARTS LIST		
ITEM	PART NO.	DESCRIPTION
1	ELBCO-0000050	DIGITAL DISPLAY CONTROLLER
2A	NPYELLOW00136	NAMEPLATE
2B	NPYELLOW00158	NAMEPLATE
3	ELP00-8800006	RED INDICATOR LIGHT
-	ELV01-2000002	REPLACEMENT BULB FOR ITEM #3
4	ELBCO-0000055	PLC LINKING CABLE
5	ELBCO-0000054	mitsubishi CONTROLLER
6	ELBCO-0000051	DLC CONTROLLER
7	ELBCO-0000056	CUSTOM LINKING CABLE
8	ELPSW-0000002	RELAY
-	ELPSW-0000003	REPLACEMENT BASE FOR ITEM #8
9	ELBCO-0000053	24V POWER SUPPLY
10	ELBCO-0000052	SIGNAL CONVERTER
11	ELV02-5000011	4 AMP FUSE
12	2EP00-8800006	TWO POSITION TURN SWITCH
13	NPYELLOW00110	NAMEPLATE
14	TSENSOR00005	MEAT PROBE

**J.C.PARDO & SONS INC.**

1250 REAMES RD.  BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY

DRAWN BY JES

APPROVED BY

DATE 12/5/01

SCALE NONE

PTJ-100-TC/CT TURBOJET CONTROL BOX  
 REPLACEMENT PARTS

REV. C

DRAWING NUMBER  
 11637

REV.

SHEET

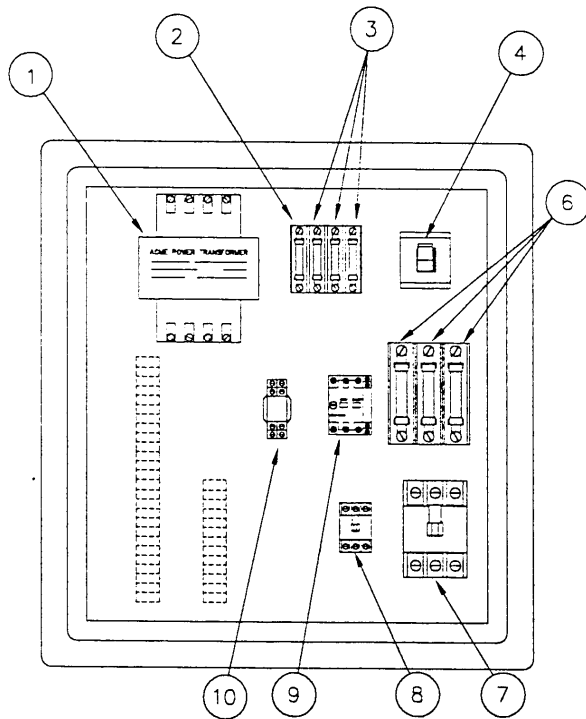
2 of 2

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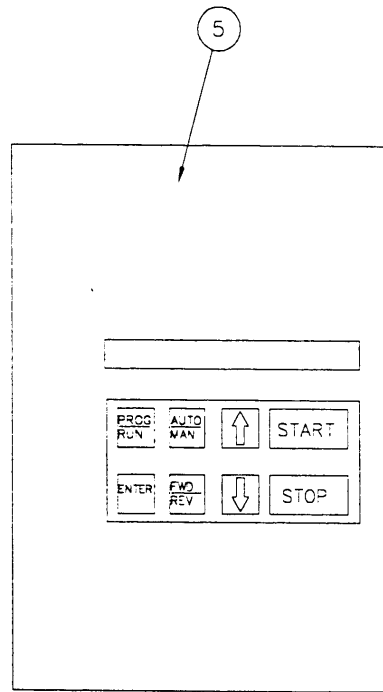
REV.	DESCRIPTION	BY	DATE
	REVISIONS		

# REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	-----	TRANSFORMER BY VOLTAGE
	ELV05-000002	TRANSFORMER FOR 208 VOLTS
	ELV05-000005	TRANSFORMER FOR 230/ 460 VOLTS
2	ELV02-5000001	5 AMP FUSE
3	-----	FUSES BY VOLTAGE
	ELV06-0000017	10 AMP FUSE FOR 208/230 VOLTS
	ELV06-0000002	8 AMP FUSE FOR 460 VOLT
4	ELPSW-0000043	HIGH VOLTAGE DISCONNECT
5	-----	INVERTER BY VOLTAGE
	ELH07-5000005	INVERTER FOR 208/ 230 VOLTS
	ELH07-5000006	INVERTER FOR 460 VOLTS
6	-----	FUSES BY VOLTAGE
	ELV02-5000021	45 AMP FUSE FOR 208/ 230 VOLTS
	ELV06-0000003	25 AMP FUSE FOR 460 VOLTS
7	ELPSW-0000048	MOTOR CONTACTOR
8	ELPSW-0000049	MOTOR CONTACTOR
9	-----	MOTOR PROTECTOR BY VOLTAGE
	ELPSW-0000032	MOTOR PROTECTOR 208/ 230 VOLTS
	ELPSW-0000022	MOTOR PROTECTOR 460 VOLTS
10	ELPSW-0000002	RELAY
-	ELPSW-0000003	BASE FOR ITEM #10



JUNCTION BOX



INVERTER LOCATED NEXT TO JUNCTION BOX

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

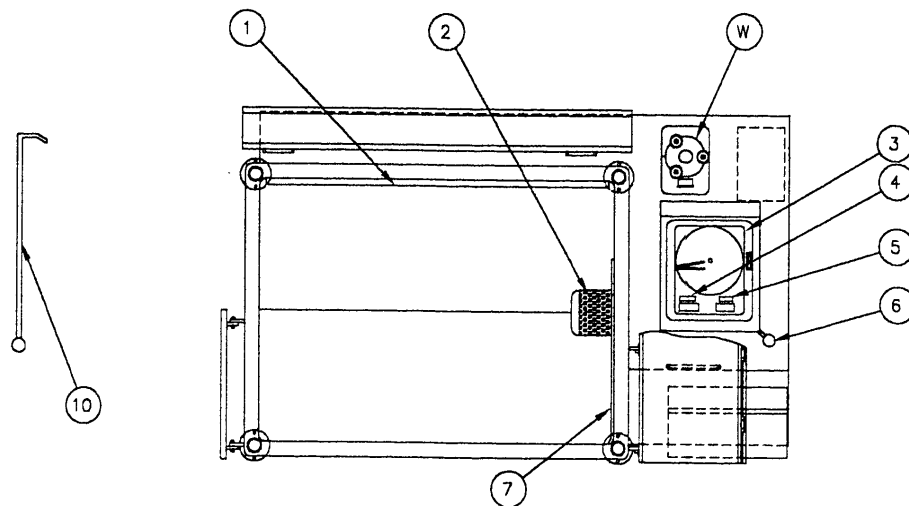
**J.C. PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

CHECKED BY:	DRAWN BY TJK
APPROVED BY:	DATE: 12/6/01
	SCALE: NONE

PTJ-100-TC/CT JUNCTION BOX  
 REPLACEMENT PARTS

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SIZE:	C	DRAWING NUMBER:	11638
REV.		SHEET	1 of 1



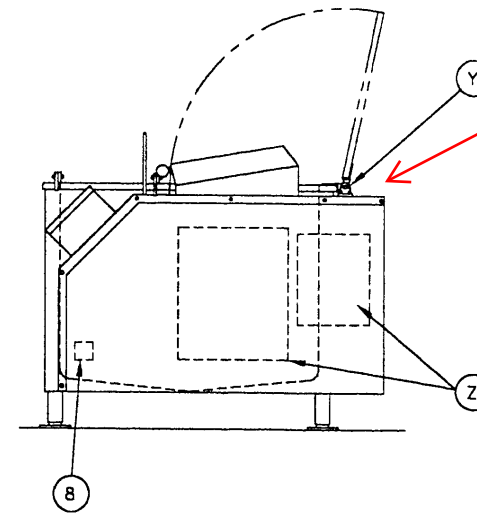
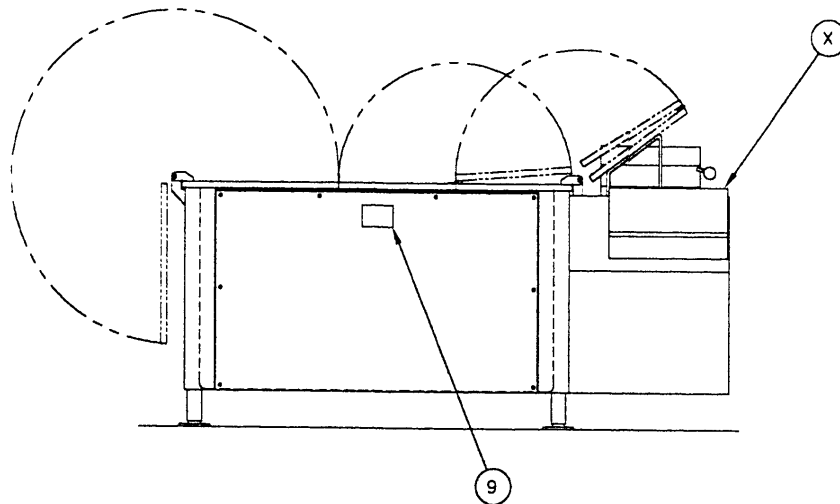
COVERS SHOWN OPEN IN TOP VIEW

### REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	ELS00-000037	BACK SCREEN
2	1FS00-000031	DRAIN SCREEN
3	EL8C0-000061	DUAL PEN PARTLOW
-	MSJ00-000001	PARTLOW CHART PAPER IN 'F'
-	MSJ00-000002	PARTLOW CHART PAPER IN 'C'
-	MSP00-000001	GREEN PEN FOR ITEM #3
-	MSP00-000002	RED PEN FOR ITEM #3
-	EL977-770023	CHART MOTOR FOR ITEM #3
-	EL977-770024	PEN MOTOR FOR ITEM #3
4	NPYELLOW00142	FUNCTION TAG
5	NPYELLOW00143	FUNCTION TAG
6	MSP02-000001	RED BALL
7	1FS00-000038	SIDE SCREEN
8	EL8SW-000005	PRESSURE LEVEL SWITCH
9	NPREDO000024	WARNING NAMEPLATE
10	1FS00-000045	BACK COVER HOOK (OPTIONAL)
-	MSP00-000001	RED BALL FOR ITEM # 10

### DRAWING LIST

ITEM	DRAWING NO.	DESCRIPTION
W	C-11635	INLINE STRAINER
X	C-11637	CONTROL BOX
Y	B-8539	COVER ACTUATOR
Z	C-11638	LOWER ELECTRICAL CONTROLS



KE50121-1  
spring

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

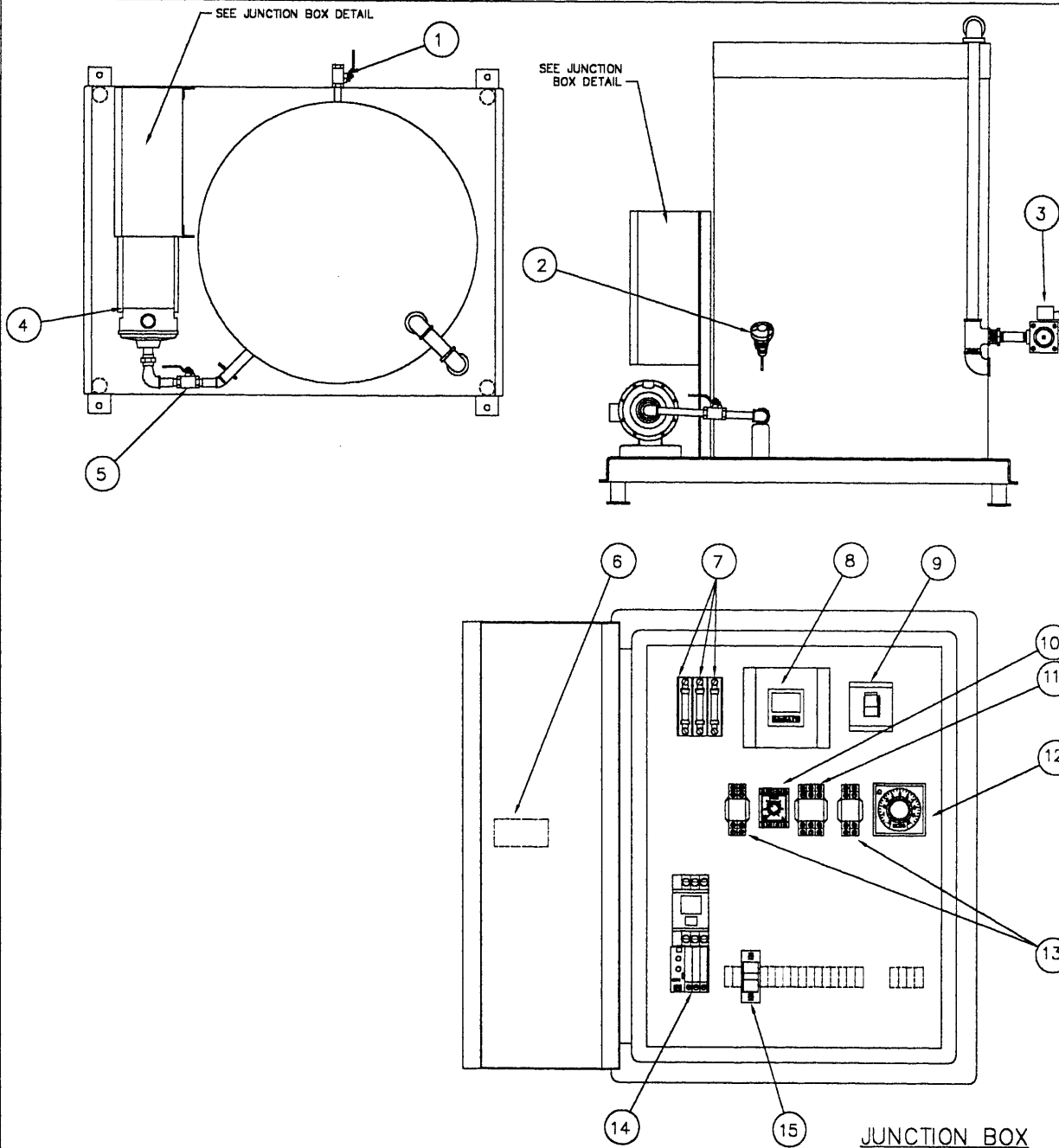
**J.C. PARDO & SONS INC.**  
 1250 REAMES RD.  BALTO MD. 21220  
 PHONE (410) 391-8600 FAX (410) 391-9042

CHECKED BY:	DRAWN BY: TJK
APPROVED BY:	DATE: 12/11/01
	SCALE: NONE

PTJ-100-TC/CT TURBOJET  
REPLACEMENT PARTS

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REV.	DRAWING NUMBER	SHEET
C	11639	
		1 of 1



# REPLACEMENT PARTS

ITEM	PART NO.	DESCRIPTION
1	MSB01-000002	MANUAL BALL VALVE
2	TSENSOR00006	TEMPERATURE SENSOR
3	ELB01-000013	GLYCOL BYPASS SOLENOID
-	SP999-9900005	REPAIR KIT FOR ITEM #3
-	SP988-8800002	REPLACEMENT COIL FOR ITEM #3
4	ELH03-000014	CIRCULATING PUMP
-	ELH03-000015	MOTOR FOR ITEM #4 208/230/460V
-	SP999-9900084	PUMP REPAIR KIT FOR ITEM #4
5	MSB01-5000007	MANUAL BALL VALVE
6	NPRED0000019	WARNING TAG
7	-----	FUSES BY VOLTAGE
-	ELV06-000016	FUSES FOR 208/230 VOLTS
-	ELV06-000020	FUSES FOR 460 VOLTS
8	EL8CO-000026	TEMPERATURE CONTROLLER
9	ELPSW-000001	3 POLE DISCONNECT SWITCH
10	EL8CO-000017	TIMER
-	ELP00-000006	BASE FOR ITEM #10
11	ELPSW-000014	RELAY
-	ELPSW-000015	BASE FOR ITEM #11
12	EL8CO-000065	TIMER
-	ELP00-000042	BASE FOR ITEM #12
13	ELPSW-000002	RELAY
-	ELPSW-000003	BASE FOR ITEM #13
14	ELPSW-000047	MOTOR STARTER W/ HEATER HOLDER
-	ELPSW-000050	MOTOR CONTACTOR FOR ITEM #14
-	ELPSW-000046	HEATER HOLDER FOR ITEM #14
-	ELV00-000022	HEATER PACK FOR ITEM #14 208/230V
-	ELV00-000004	HEATER PACK FOR ITEM #14 460 V
15	ELV02-5000001	5 AMP FUSE

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

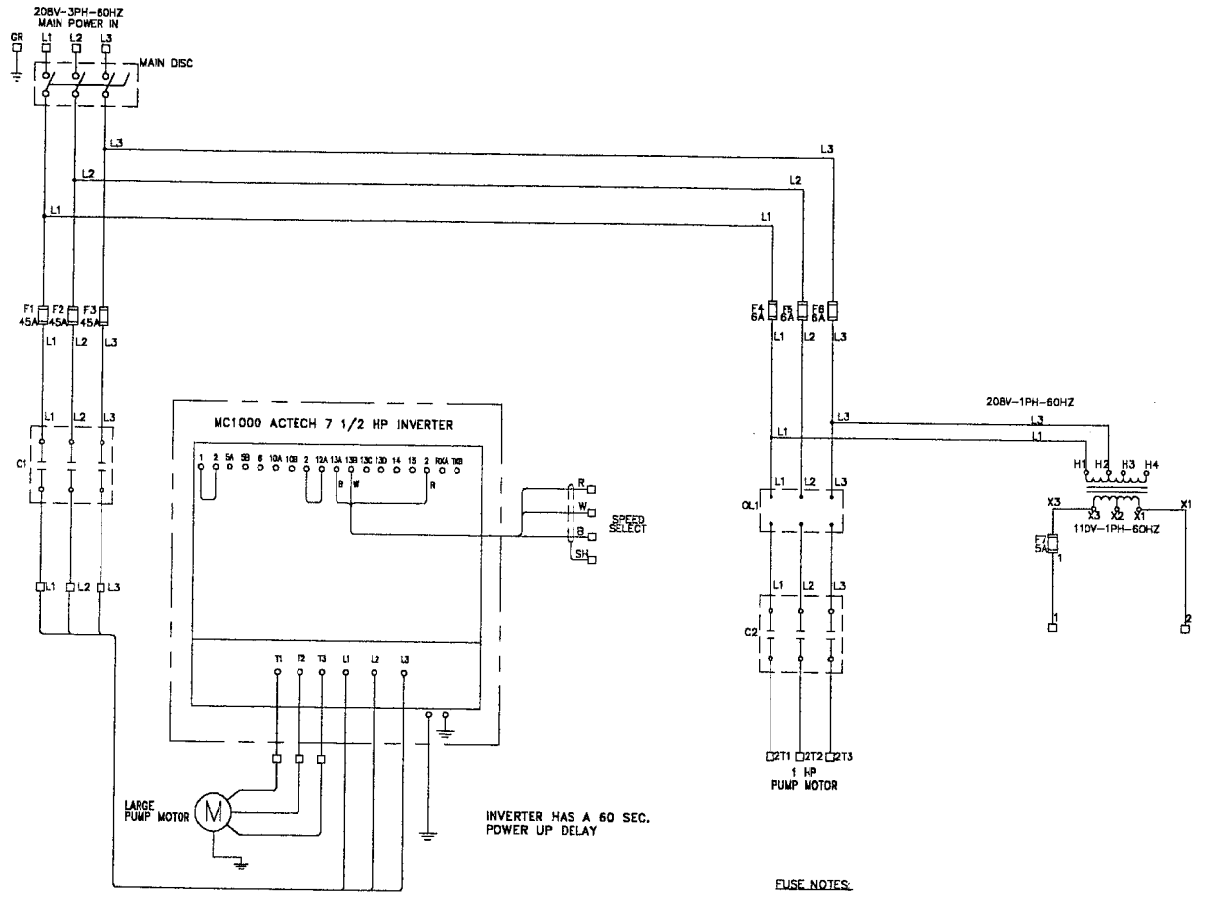
**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-9042

ORDERED BY  
 DRAWN BY TJK  
 DATE 12/18/200  
 APPROVED BY  
 SCALE NONE

## GLYCOL RESERVOIR TANK REPLACEMENT PARTS

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REV: C  
 DRAWING NUMBER: 11641  
 SHEET: 1 of 1



INVERTER HAS A 60 SEC. POWER UP DELAY

FUSE NOTES:  
 FUSES F1-F3 FLNR-ID RATED 250 VOLTS  
 FUSES F4-F6 FNO-R RATED 600 VOLTS  
 FUSES F7-F10 FNM RATED 250 VOLTS

REV.	DESCRIPTION	BY	DATE
	REVISIONS		

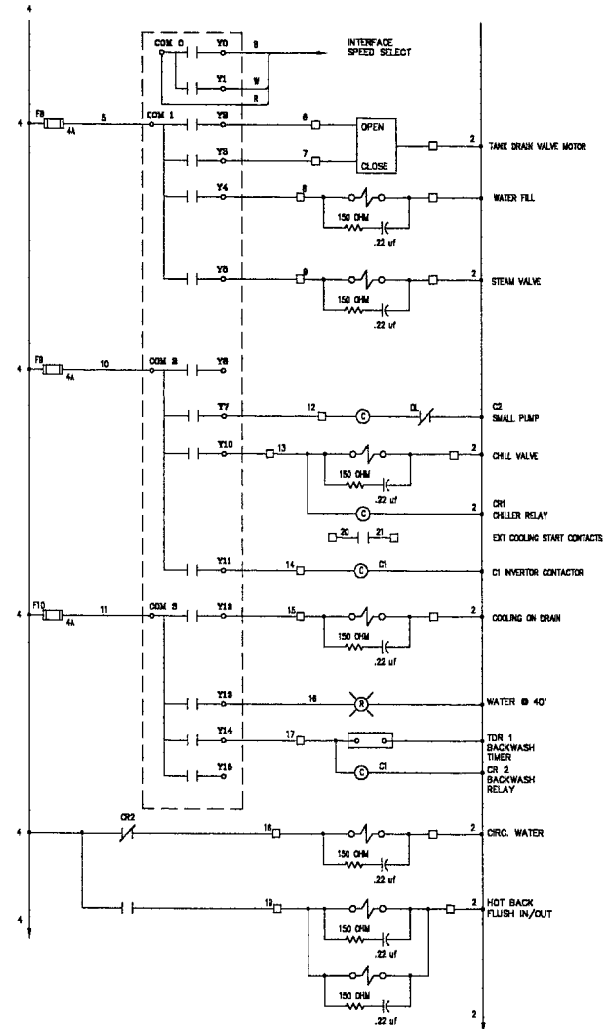
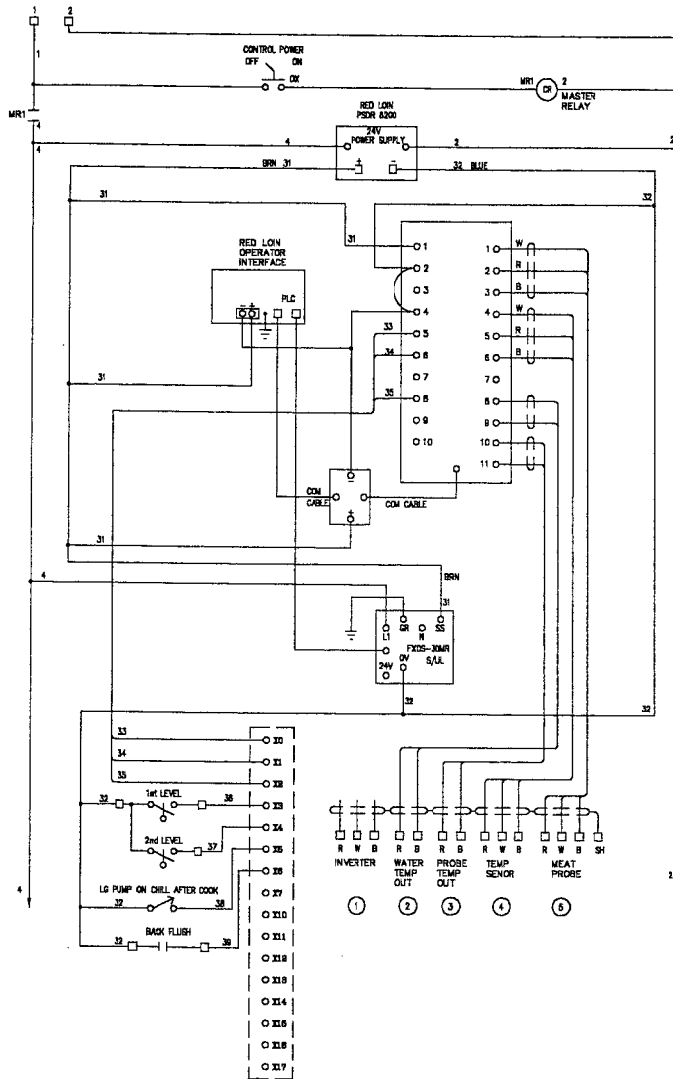
**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3500 FAX (410) 391-9042

DESIGNED BY:	DRAIN BY: SE
APPROVED BY:	DATE: 01-23-01
	SCALE: NONE

ELECTRICAL SCHEMATIC, 208V  
 100-TURBOJET

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SIZE:	DRAWING NUMBER:
C	ES-0203
REV.	SHEET:
	1 of 3



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

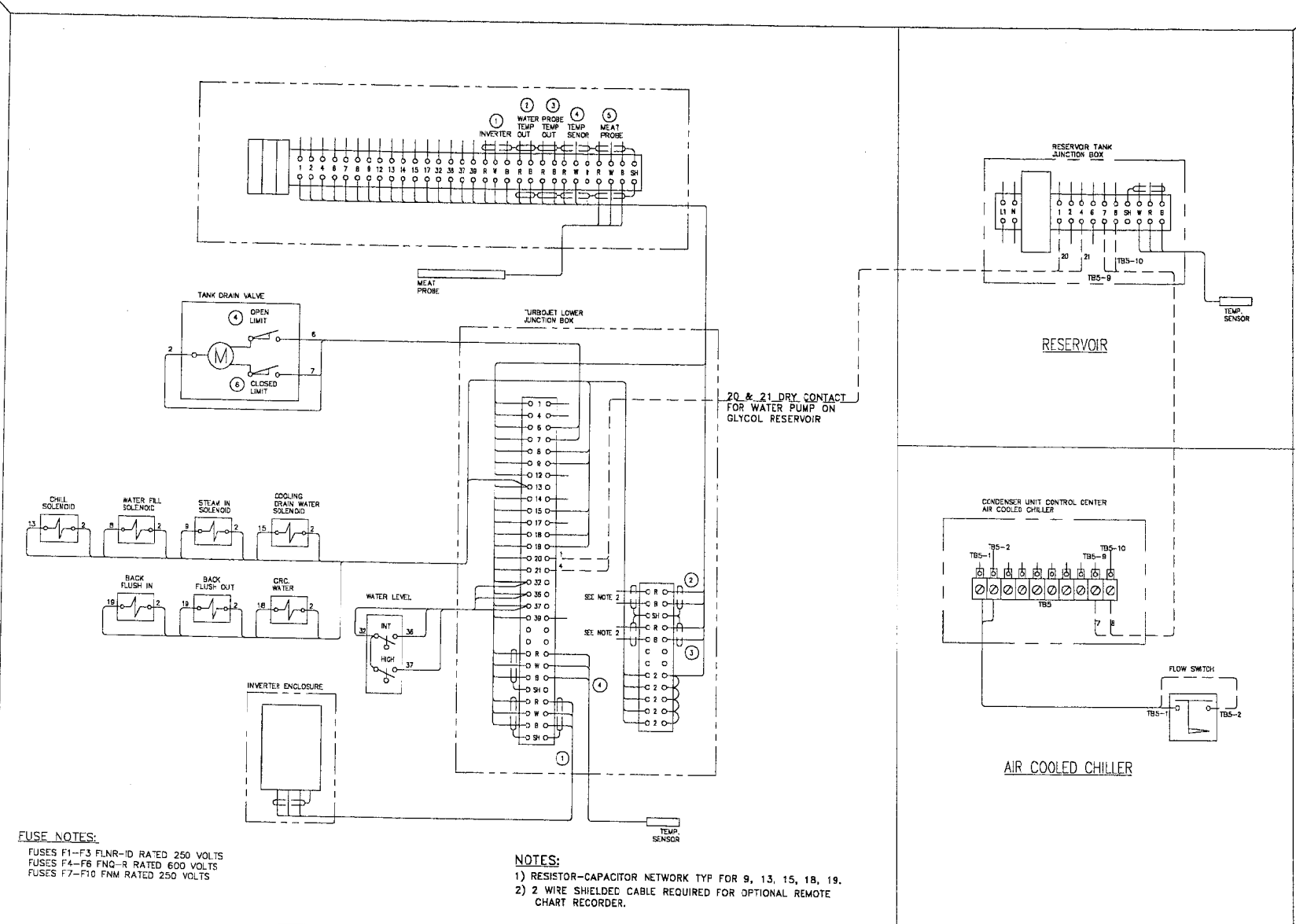
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 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3600 FAX (410) 391-9042

CHECKED BY	DRAWN BY SE
APPROVED BY	DATE 1-23-01
	SCALE NONE

**ELECTRICAL SCHEMATIC, 208V  
100-TURBOJET**

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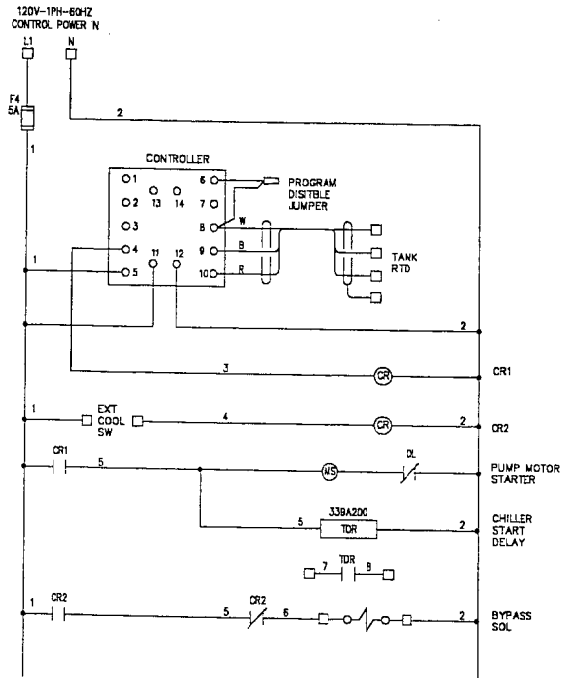
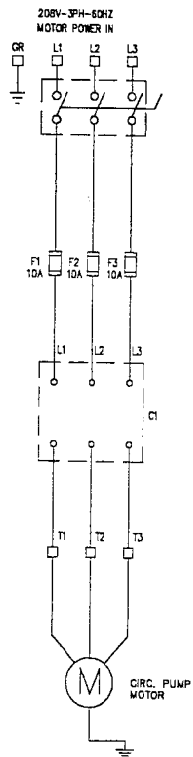
REV. C	DRAWING NUMBER ES-0203
REV.	SHEET 2 of 3



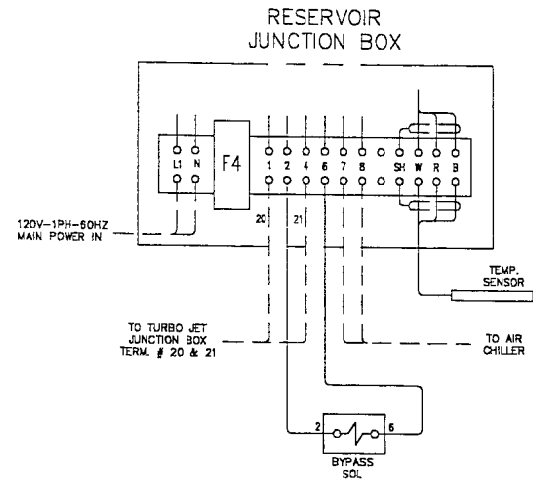
**FUSE NOTES:**  
 FUSES F1-F3 FLNR-ID RATED 250 VOLTS  
 FUSES F4-F6 FNG-R RATED 600 VOLTS  
 FUSES F7-F10 FNM RATED 250 VOLTS

**NOTES:**  
 1) RESISTOR-CAPACITOR NETWORK TYP FOR 9, 13, 15, 18, 19.  
 2) 2 WIRE SHIELDED CABLE REQUIRED FOR OPTIONAL REMOTE CHART RECORDER.

REV.	DESCRIPTION	BY	DATE	<b>J.C.PARDO &amp; SONS INC.</b> 1250 REAMES RD. BALTO MD. 21220 PHONE (410) 391-3600 FAX (410) 391-8042	CHECKED BY: DRAWN BY: SE DATE: 01-23-01 APPROVED BY: SCALE: NONE	<b>ELECTRICAL SCHEMATIC, 208V          100-TURBOJET</b>	B2C: C	DRAWING NUMBER: ES-0203
	REVISIONS				<small>This drawing and all information contained therein is the property of J.C.Pardo &amp; Sons Inc. Balto MD. The drawing and all information is confidential and must not be made public or copied. It is loaned subject to return upon demand and is not to be used directly or indirectly in any way detrimental to J.C.Pardo &amp; Sons.</small>	REV: 3 of 3		



**FUSE NOTES:**  
 FUSES F1-F3 FNQ-R RATED 600 VOLTS.  
 FUSES F4 FNM RATED 250 VOLTS.



REV.	DESCRIPTION	BY	DATE
	REVISIONS		

**J.C.PARDO & SONS INC.**

1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 381-3600 FAX (410) 381-6042

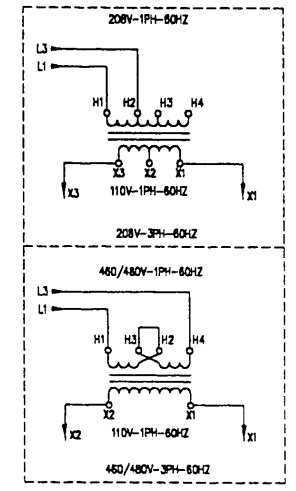
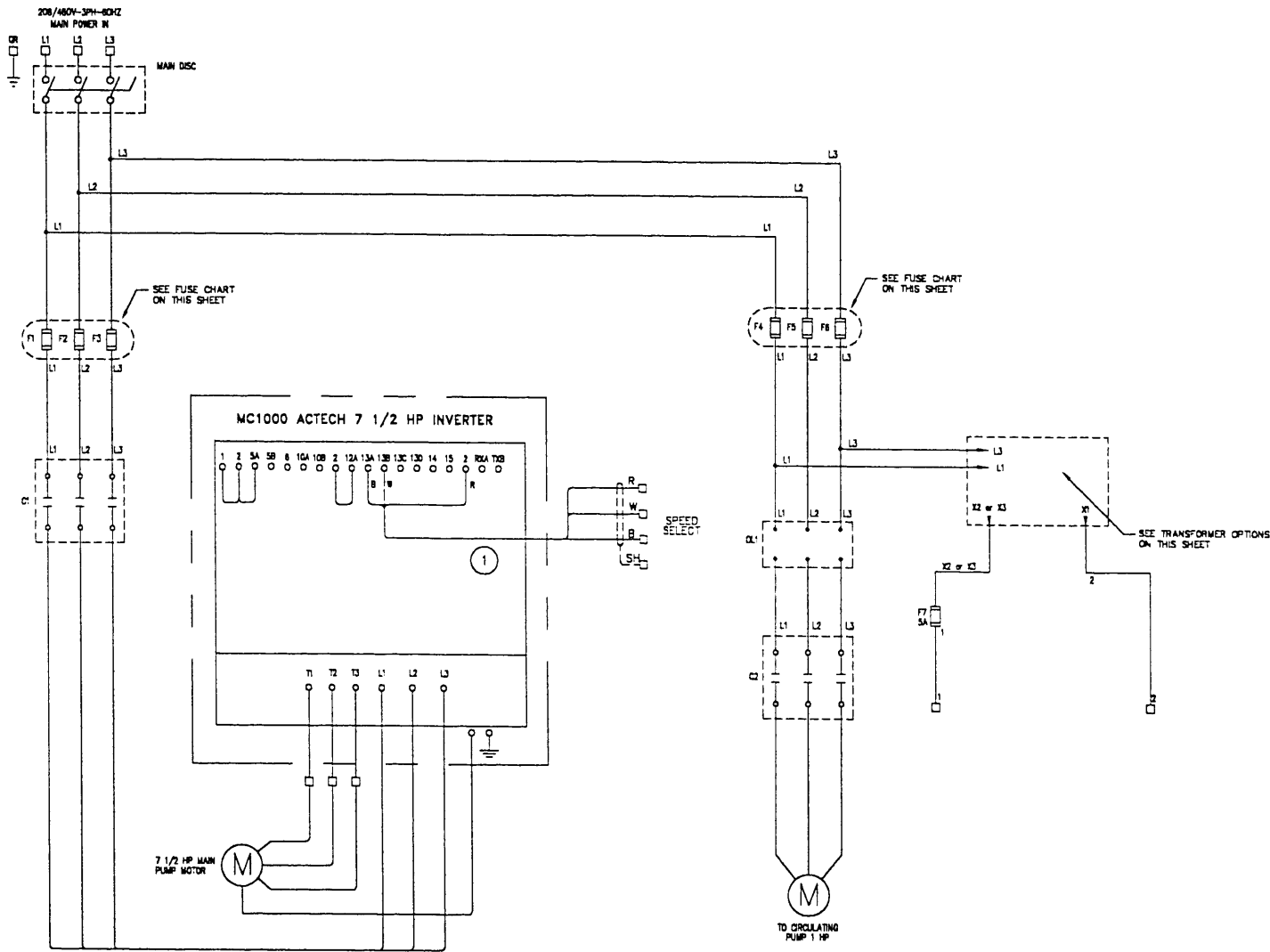
CHECKED BY	DRAWN BY SE
APPROVED BY	DATE: 1/12/01
	SCALE: NONE

**ELECTRICAL SCHEMATIC, 208V/120V  
 100-TURBO JET RESERVOIR TANK**

REV: C DRAWING NUMBER: ES-0221

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REV: SHEET: 1 of 1



TRANSFORMER OPTIONS

FUSE CHART

FUSE#	VOLTAGE	
	208V	460V
F1	45AMP	25AMP
F2	45AMP	25AMP
F3	45AMP	25AMP
F4	10AMP	8AMP
F5	10AMP	8AMP
F6	10AMP	8AMP

REV.	DESCRIPTION	JES	9/01
A	MADE MULTI VOLTAGE	JES	9/01
		BY	DATE

REVISIONS

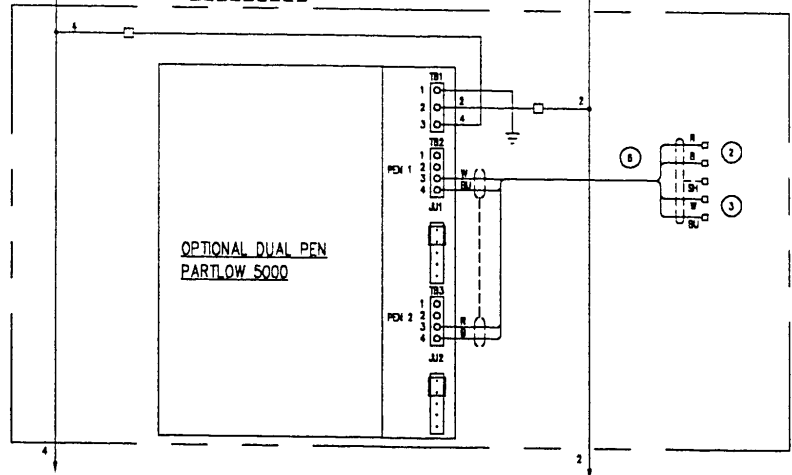
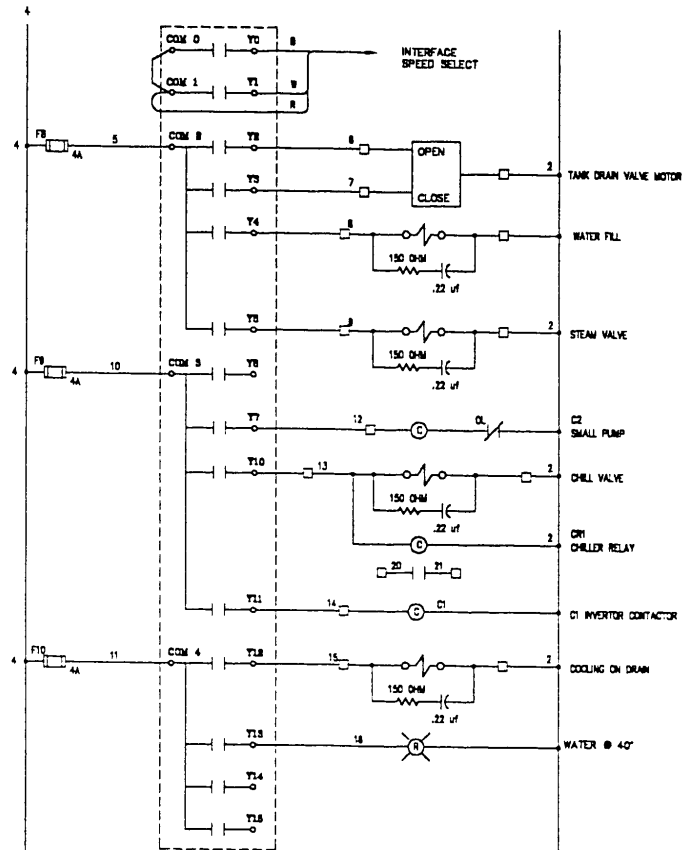
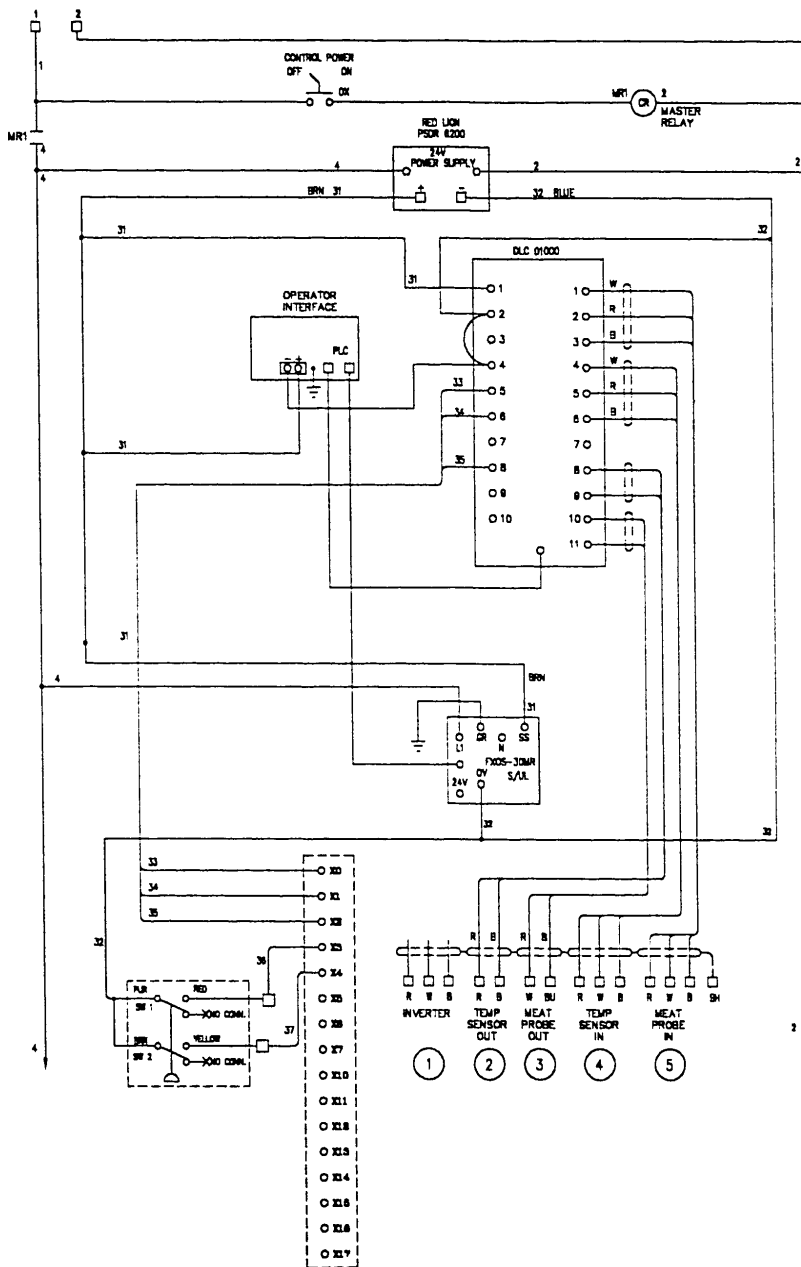
**J.C.PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3800 FAX (410) 391-8042

CHECKED BY	DATE 08-22-01
APPROVED BY	SCALE: NONE

**ELECTRICAL SCHEMATIC, 208/460V  
100-TURBO JET**

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REV.	DRAWING NUMBER
C	ES-0235
REV.	SHEET
A	1 of 3



REV.	DESCRIPTION	BY	DATE
D	NEW LEVEL SWITCH	JES	1/8/02
C	MOVED SH#6 & JUMPERS	JES	1/02
B	REV CONN ON PARTLOW PENS	JES	12/01
A	MADE MULTI VOLTAGE	JES	9/01

REVISIONS

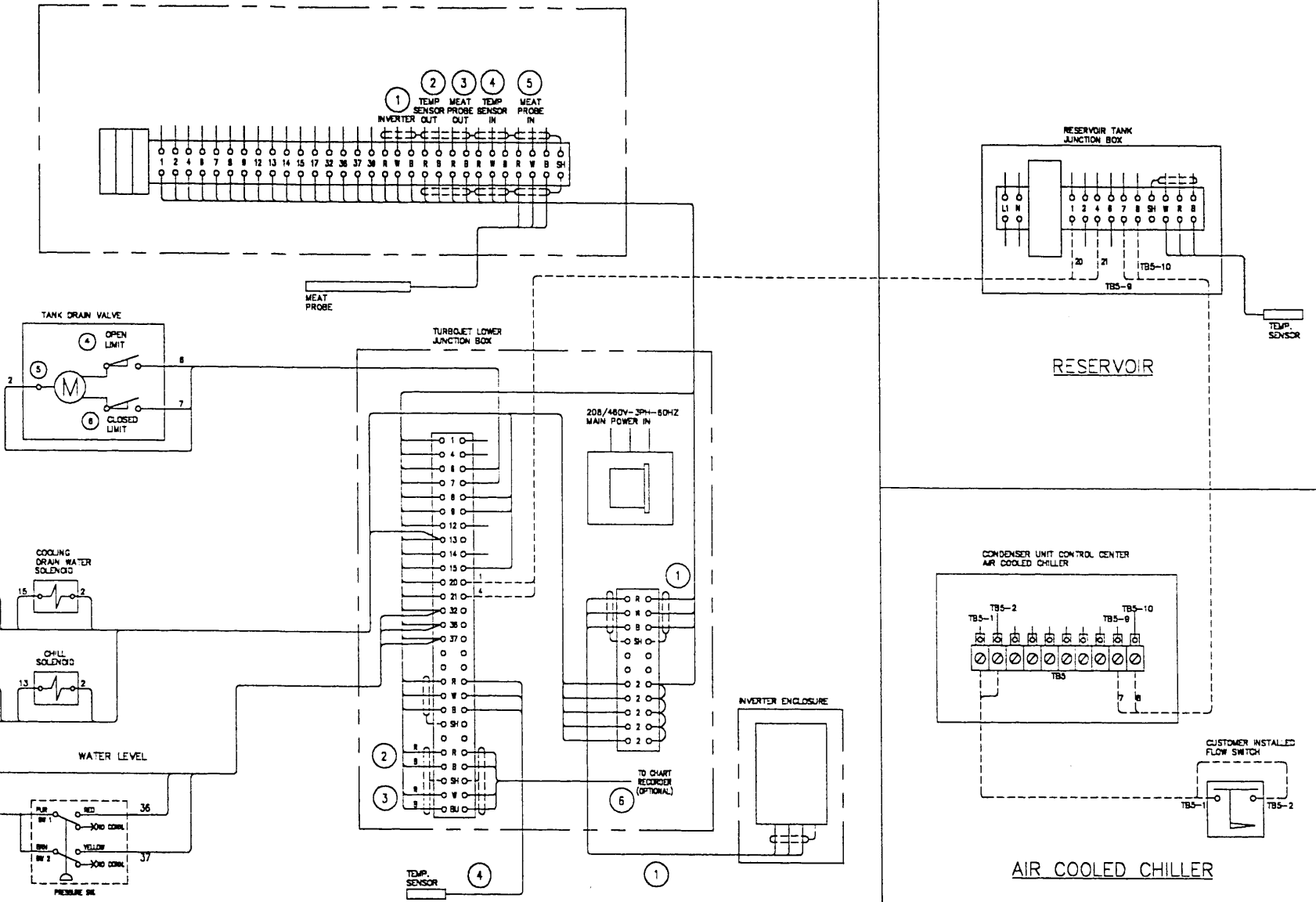
**J.C. PARDO & SONS INC.**  
 1250 REAMES RD. BALTO MD. 21220  
 PHONE (410) 391-3600 FAX (410) 391-9042

DECKED BY: \_\_\_\_\_  
 DRAWN BY: JES  
 DATE: 8-22-01  
 APPROVED BY: \_\_\_\_\_  
 SCALE: NONE

ELECTRICAL SCHEMATIC, 208/460V  
 100-TURBO JET

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REV: C  
 D  
 DRAWING NUMBER: ES-0235  
 SHEET: 2 of 3



FUSE NOTES:  
 F1-F3 FUSES:  
 208 VOLT: FLN-R RATED 250 VOLTS.  
 460 VOLT: KTK-R RATED 600 VOLTS.  
 F4-F6 FUSES FNO-R RATED 600 VOLTS.  
 F7-F10 FUSES FNM RATED 250 VOLTS.

REV.	DESCRIPTION	BY	DATE
C	NEW LEVEL SWITCH	JES	1/8/02
B	REV. FUSE NOTE FOR F1-F3	JES	10/01
A	MADE MULTI VOLTAGE	JES	9/01

REVISIONS

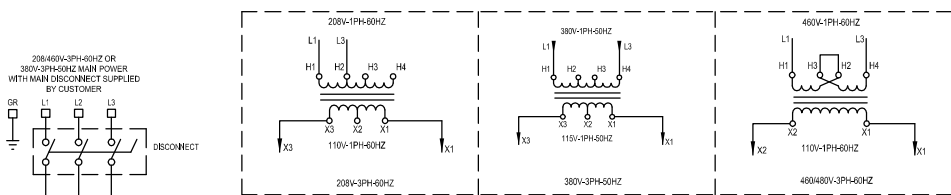
**J.C.PARDO & SONS INC.**  
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 PHONE (410) 391-3600 FAX (410) 391-9042

CHECKED BY:	DRAWN BY: JES
APPROVED BY:	DATE: 08-22-01
	SCALE: NONE

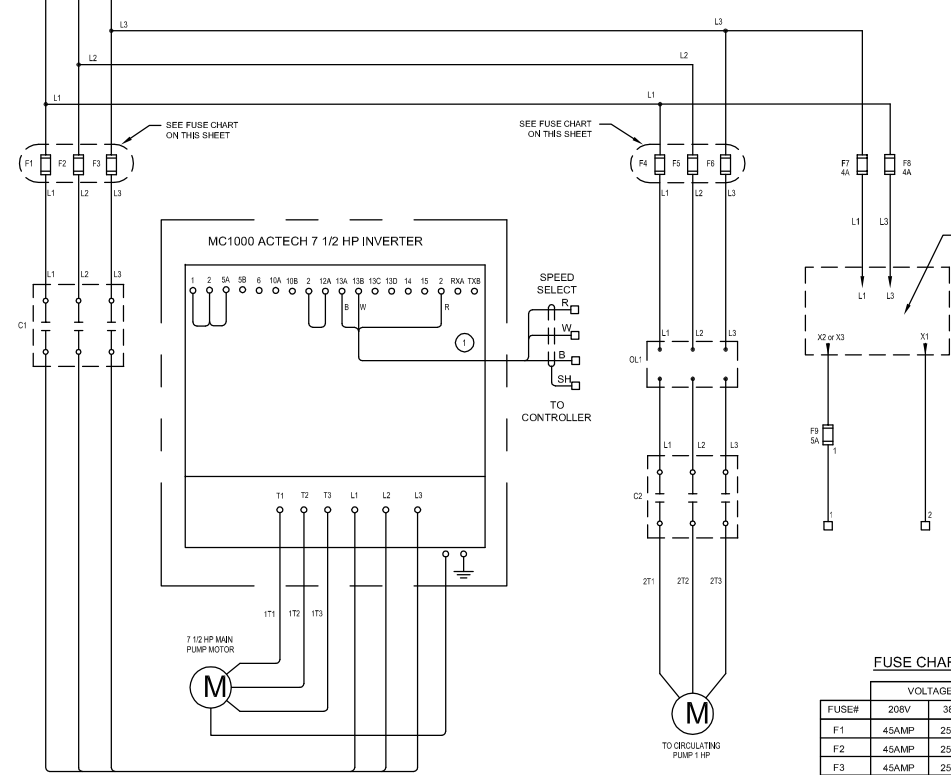
ELECTRICAL SCHEMATIC, 208/460V  
 100-TURBO JET

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REV:	DRAWING NUMBER:
C	ES-0235
REV:	SHEET:
C	3 of 3



**TRANSFORMER OPTIONS**

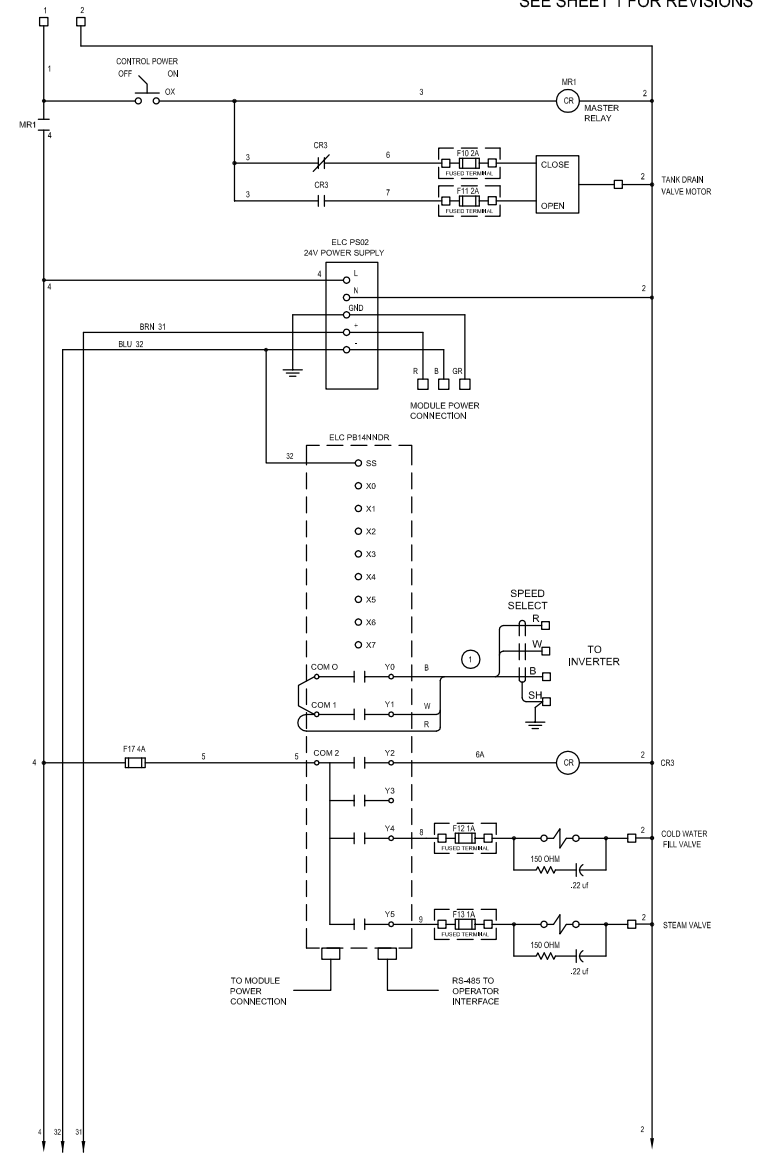


**FUSE NOTES: (208 VOLT SYSTEM)**  
 F1-F3 FUSES FLN-R RATED 250 VOLTS.  
 F4-F6 FUSES FNQ-R RATED 600 VOLTS.  
 F7-F9 FUSES FNM RATED 250 VOLTS.  
 F10-F16 FUSES GMA RATED 250 VOLTS.  
 F17-F18 FUSES FNM RATED 250 VOLTS.

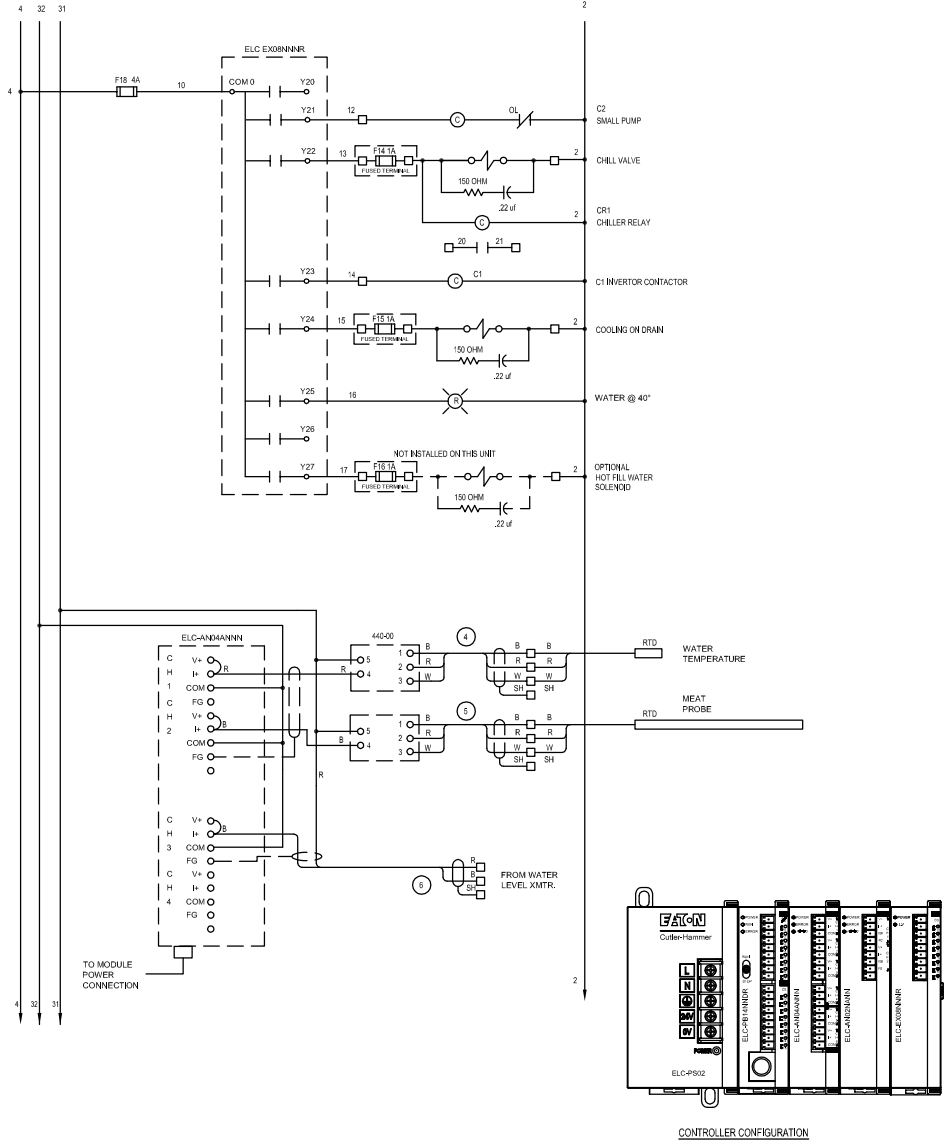
**FUSE NOTES: (380/460 VOLT SYSTEM)**  
 F1-F3 FUSES KTK-R RATED 250 VOLTS.  
 F4-F6 FUSES FNQ-R RATED 600 VOLTS.  
 F7-F9 FUSES FNM RATED 250 VOLTS.  
 F10-F16 FUSES GMA RATED 250 VOLTS.  
 F17-F18 FUSES FNM RATED 250 VOLTS.

**FUSE CHART**

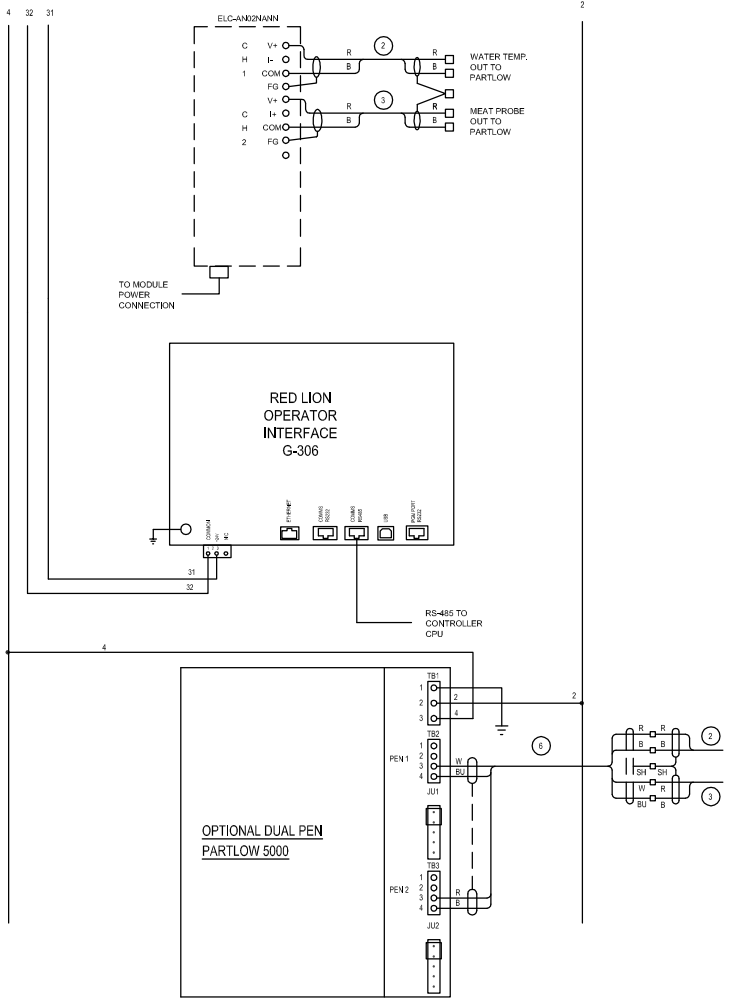
FUSE#	VOLTAGE		
	208V	380V	460V
F1	45AMP	25AMP	25AMP
F2	45AMP	25AMP	25AMP
F3	45AMP	25AMP	25AMP
F4	10AMP	8AMP	8AMP
F5	10AMP	8AMP	8AMP
F6	10AMP	8AMP	8AMP



LET.	REVISIONS	DATE	BY
A	ADDED TERM. 32 ON SHEET 3	6/19/08	JES



CONTROLLER CONFIGURATION



**FUSE NOTES: (208 VOLT SYSTEM)**  
 F1-F3 FUSES FLN-R RATED 250 VOLTS.  
 F4-F6 FUSES FNQ-R RATED 600 VOLTS.  
 F7-F9 FUSES FNM RATED 250 VOLTS.  
 F10-F16 FUSES GMA RATED 250 VOLTS.  
 F17-F18 FUSES FNM RATED 250 VOLTS.

**FUSE NOTES: (380/460 VOLT SYSTEM)**  
 F1-F3 FUSES KTK-R RATED 250 VOLTS.  
 F4-F6 FUSES FNQ-R RATED 600 VOLTS.  
 F7-F9 FUSES FNM RATED 250 VOLTS.  
 F10-F16 FUSES GMA RATED 250 VOLTS.  
 F17-F18 FUSES FNM RATED 250 VOLTS.

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**CLEVELAND RANGE, LLC, PLANT 3**  
 1250 Reames Road, Baltimore, MD, 21220

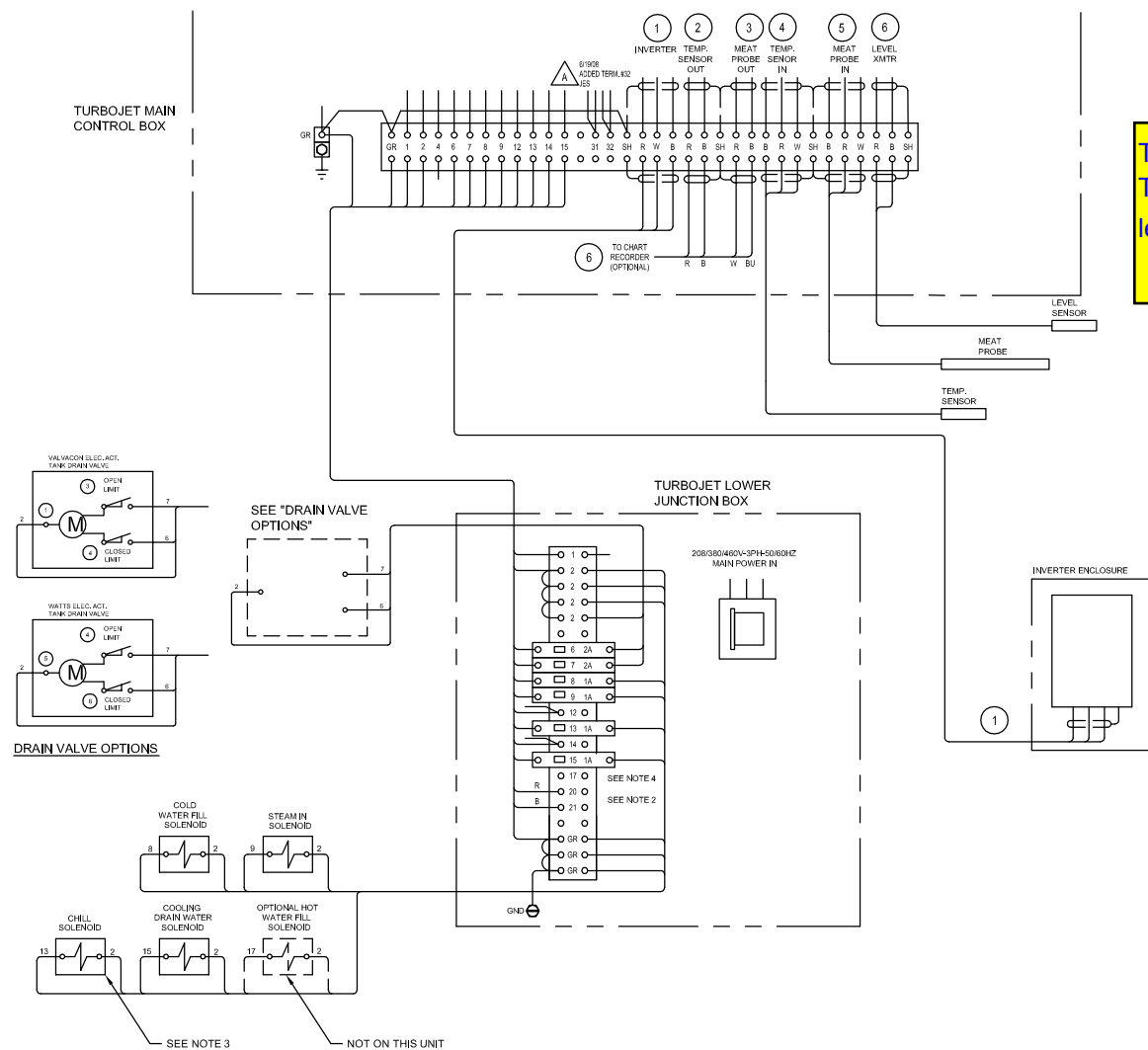
TITLE  
**ELECTRICAL SCHEMATICS  
 TURBOJET**

VOLTAGE: 208/380/460-3-50/60  
 WATTAGE:  
 CURRENT:

DRAWN BY: JES  
 DATE: 11-21-07

DRAWING NO.: B300002  
 SIZE: B  
 SHEET 2 OF 3

REV: A



The water level settings for a Turbojet should be 9 1/2" (low level) and 18 1/2" (hi level).

- NOTES:
- 1) RESISTOR-CAPACITOR NETWORK TYP FOR 8, 9, 13, 15.
  - 2) 20 & 21 DRY CONTACT FOR OPTIONAL CHILL WATER PUMP.
  - 3) ALL SOLENOID HOUSINGS ARE GROUNDED.
  - 4) TERMINAL #17 IS FOR THE HOT FILL WATER OPTION THAT IS NOT ON THIS UNIT.

- FUSE NOTES: (208 VOLT SYSTEM)
- F1-F3 FUSES FLN-R RATED 250 VOLTS.
  - F4-F6 FUSES FNQ-R RATED 600 VOLTS.
  - F7-F9 FUSES FNM RATED 250 VOLTS.
  - F10-F16 FUSES GMA RATED 250 VOLTS.
  - F17-F18 FUSES FNM RATED 250 VOLTS.

- FUSE NOTES: (380/460 VOLT SYSTEM)
- F1-F3 FUSES KTK-R RATED 250 VOLTS.
  - F4-F6 FUSES FNQ-R RATED 600 VOLTS.
  - F7-F9 FUSES FNM RATED 250 VOLTS.
  - F10-F16 FUSES GMA RATED 250 VOLTS.
  - F17-F18 FUSES FNM RATED 250 VOLTS.

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			DATE 11-21-07	SIZE B	SHEET 3 OF 3	

# Wiring Diagrams

50/60 Hz

### INDEX

	Fig. No.
Standard Unit Power and Control Schematic (50/60 Hz).....	1
Standard Unit Component Arrangement (50/60 Hz).....	2
Motormaster®, 208/230 (60 Hz).....	5
Motormaster, 460 v (60 Hz).....	6
Motormaster, 575 v (60 Hz).....	9

### LEGEND (For All Figures)

<b>EQUIP</b>	— Equipment		○ Unmarked Terminal
<b>FC</b>	— Fan Contactor		— Factory Wiring
<b>FM</b>	— Fan Motor		----- Field Control Wiring
<b>GND</b>	— Ground		--- Field Power Wiring
<b>TB</b>	— Terminal Block		
	— Terminal Block Connection		
	— Marked Terminal		

### NOTES

1. For field power connections, splice field wires to (3) leads from contactor number 1 (FC1).

2.

Control Circuit Wiring	Power Supply Wiring
220 v	380 v, 60 Hz
230 v	230 v, 50 Hz 400 v, 50 Hz
115 v	208/230 v, 60 Hz 460 v, 60 Hz 575 v, 60 Hz

Use 14 AWG copper conductors only for control circuit wiring.

3. Fan motors are thermally protected. Three-phase motors are protected against primary single-phasing conditions.
4. Replacement of original wires must be with type 90 C wire or its equivalent.
5. Factory wiring is in accordance with National Electrical Code (NEC). Field modifications or additions must be in compliance with all applicable codes.
6. Wiring for field power supply must be rated 60 C. Use copper, copper-clad aluminum or aluminum conductors.

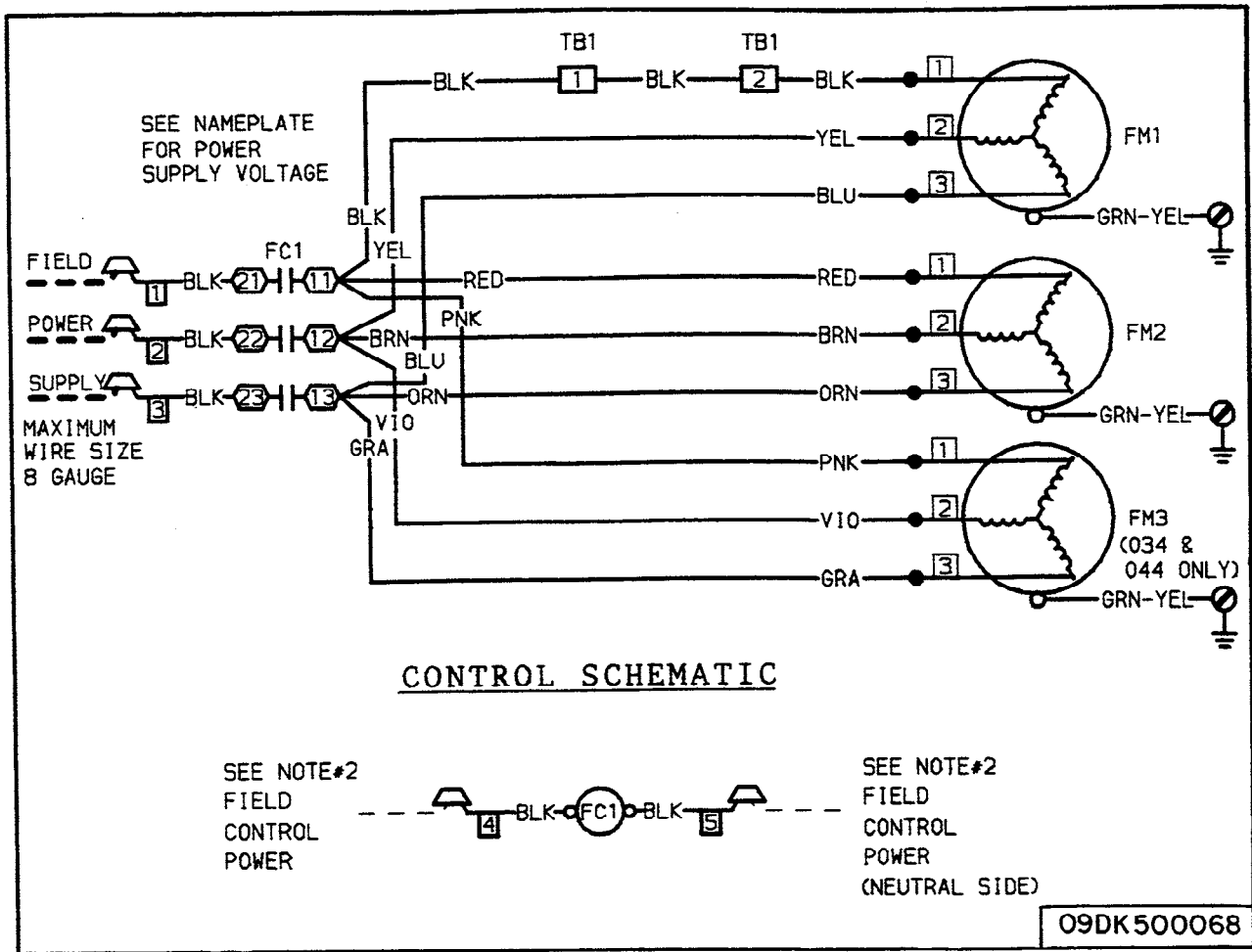


Fig. 1 – Standard Unit Power and Control Schematic

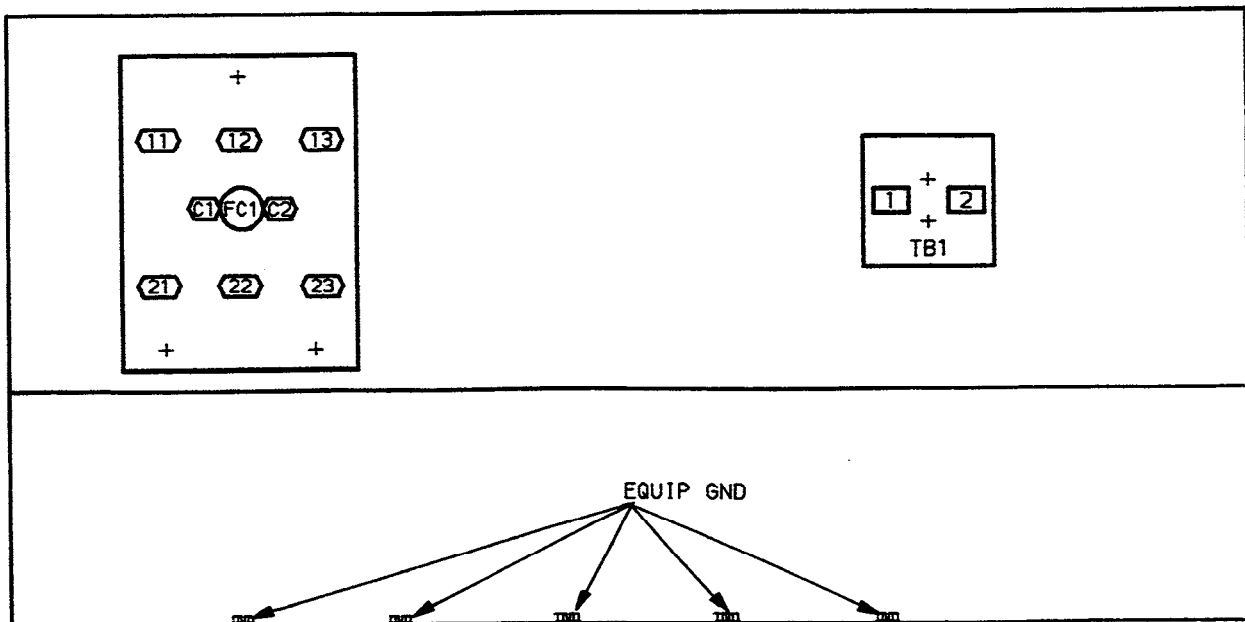


Fig. 2 – Standard Unit Component Arrangement

## MOTORMASTER® CONTROL INSTALLATION

**Safety Considerations** — Installing, starting-up and servicing air conditioning equipment can be hazardous due to system pressures, electrical components and equipment location.

Only trained, qualified installers and service mechanics should install, start up and service this equipment. When working on the equipment, observe precautions in the literature and on tags, stickers and labels attached to the equipment. Follow all safety codes. Wear safety glasses and work gloves.

**General** — Before installing Motormaster control, refer to general information in installation instructions shipped with the Motormaster control in addition to these installation instructions. Refer to Table 1 for Motormaster control usage with 09DK020-044 and unit modification data. See Table 2 for Motormaster package numbers and contents.

**Table 1 — Motormaster® Control Packages For 09DK020 to 044 Units**

PACKAGE NO.	UNIT VOLTS-PH-HZ	MOTOR VOLTS-PH-HZ
50DJ901461	208/230-3-60 575-3-60*	200/230-1-60
50DJ901471	460-3-60	460-1-60

\* For Motormaster head pressure control operation, 575-v unit requires installation of transformer (Carrier Part No. HT01AH954) not included in package.

### Installation

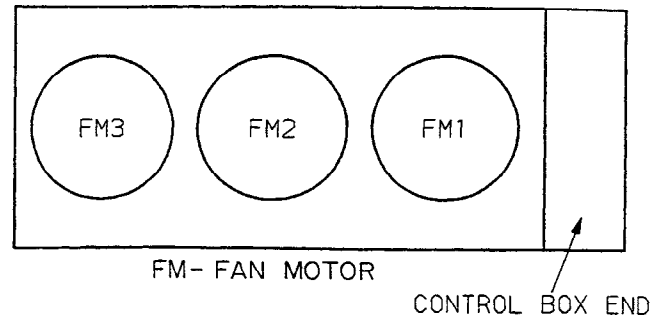
208/230-3-60 AND 460-3-60 UNITS

1. Disconnect all power to the unit.

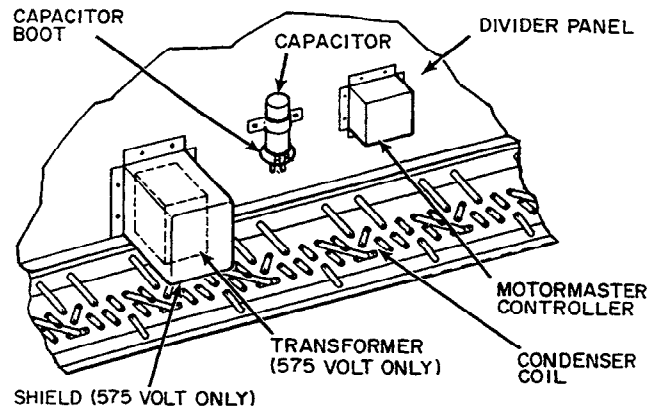
#### ⚠ WARNING

To avoid possible electrical shock and personal injury, all power to unit must be disconnected before working on unit. Tag all disconnects to alert others unit is being worked on.

2. Remove FM1 fan guard (see Fig. 3) located next to control box end.
3. Disconnect FM1 wiring in the motor junction box and remove FM1 from unit.
4. Remove propeller fan from FM1 and save. Propeller fan is reinstalled on the speed control motor.
5. Install speed control motor with rainshield (included in package) in place of FM1.



**Fig. 3 — Fan Motor Locations**



#### NOTES:

1. Transformer and transformer shield are field supplied (transformer part no. HT01AH954).
2. Exact mounting locations on divider panel for capacitor, Motormaster controller and transformer are at discretion of installer. There are no wires or obstructions on reverse side of divider panel to interfere with mounting screws.

**Fig. 4 — Mounting Motormaster Controller, Capacitor and 575-v Transformer**

6. Because the standard FM is 3-phase, and the speed control motor is single-phase, it is necessary to add a capacitor. Install the capacitor on the divider panel above the condenser coil.
7. Mount the capacitor upside down (terminals pointing down) using capacitor strap and screws (holes must be field drilled). See Fig. 4. To prevent capacitor from slipping down, insert an additional screw through the panel for the capacitor to rest on.

**Table 2 — Package Contents**

PACKAGE NO.			
50DJ901461		50DJ901471	
Quantity	Item	Quantity	Item
1	Speed Control Motor (HC52AE232)	1	Speed Control Motor (HC52AE460)
1	Capacitor (HC91DA030)	1	Capacitor (HC91DA030)
1	Capacitor Boot	1	Capacitor Boot
1	Motormaster Controller	1	Motormaster Controller
1	Fastener Package	1	Fastener Package
1	Instruction Booklet	1	Instruction Booklet

8. Disconnect black wire connecting FM1 junction box to TB1 terminal 2 (575-v only). See Fig. 1. Disconnect yellow wire from FC1 terminal 12. Disconnect blue wire from FC1 terminal 13.
9. Connect yellow wire from capacitor to the red wire (T8) in the speed control motor junction box. Use wire nut to connect. See Fig. 5 or 6. Connect blue wire from other side of capacitor to the yellow wire (T4) in the speed control motor junction box. Use wire nut to connect.
10. For 208/230 and 460-v only:  
From the same terminal on the capacitor as blue wire connection, run a field-supplied wire to FC1 terminal 12. On the 460-v motor, tie the blue (T1) and brown (P2) wires in the motor junction box together, using a wire nut. See Fig. 6.
11. On the 208/230-v motor, tie the blue (T1) and black (T5) wires in the motor junction box together. See Fig. 5.  
Remove the black jumper correcting TB1 [1] to TB1 [2] in the control box.
12. Mount the Motormaster® controller vertically on the divider panel next to the capacitor. It must be mounted

vertically with the leads coming out the bottom. Drill the required 4 mounting holes. See Fig. 7 for template dimensions. Use 4 no. 10 sheet metal screws to attach the controller (the screws come with the controller). To ensure electrical ground, insert the star washers provided beneath the screw heads.

13. For 208/230 and 460-v only:

Connect a field-supplied wire from TB1 terminal 1 to one of the black wires in the Motormaster controller. Use wire nut to connect. See Fig. 5 or 6.

14. Take the black wire that was disconnected in step 3 and connect it to the purple wire (P1) in the speed control motor junction box. Use wire nut to connect. For 575-v only, continue with instructions on page 8. Replace junction box cover.

### ⚠ CAUTION

Be sure the wires running to the speed control motor are wire-tied securely to the motor mount, to prevent the wires from becoming entangled in the propeller fan when unit is running.

15. Reinstall the propeller fan and fan guard.

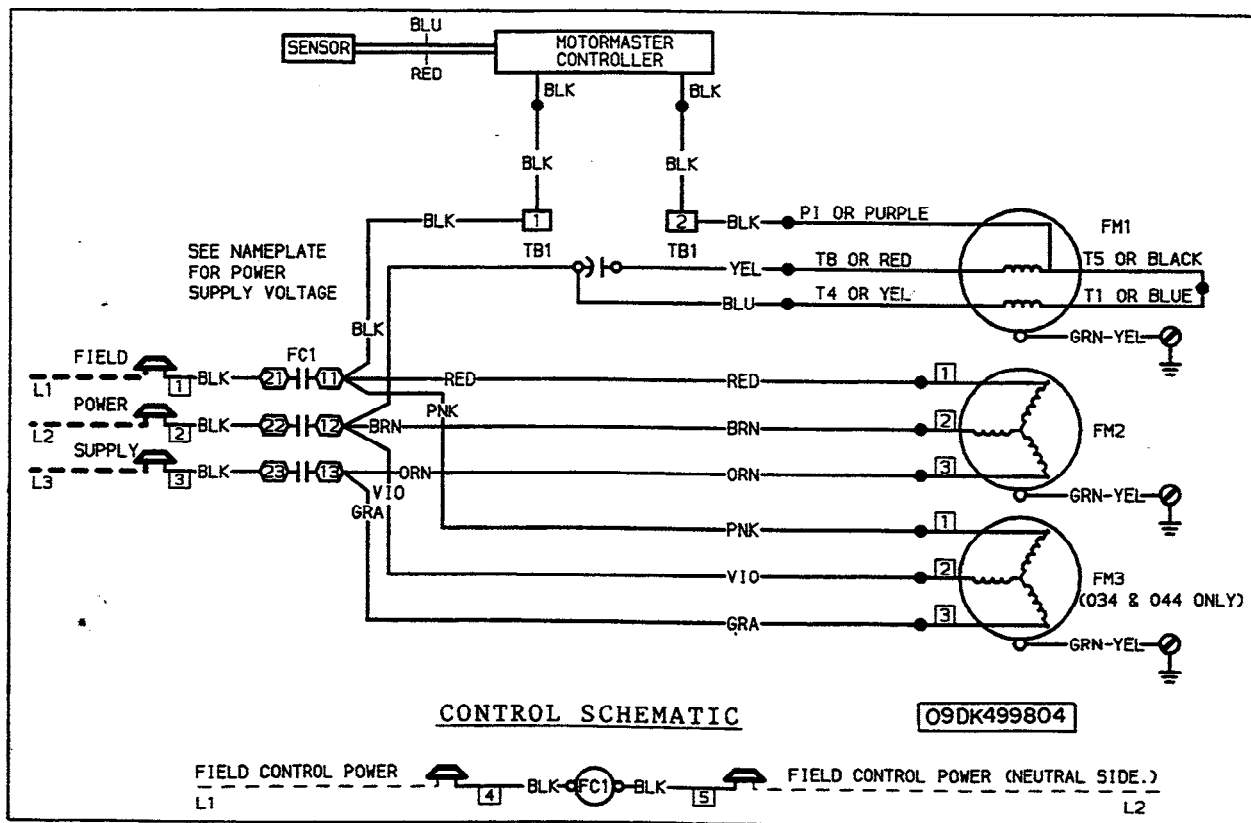


Fig. 5 – Motormaster® Control; 208/230-Volt Units

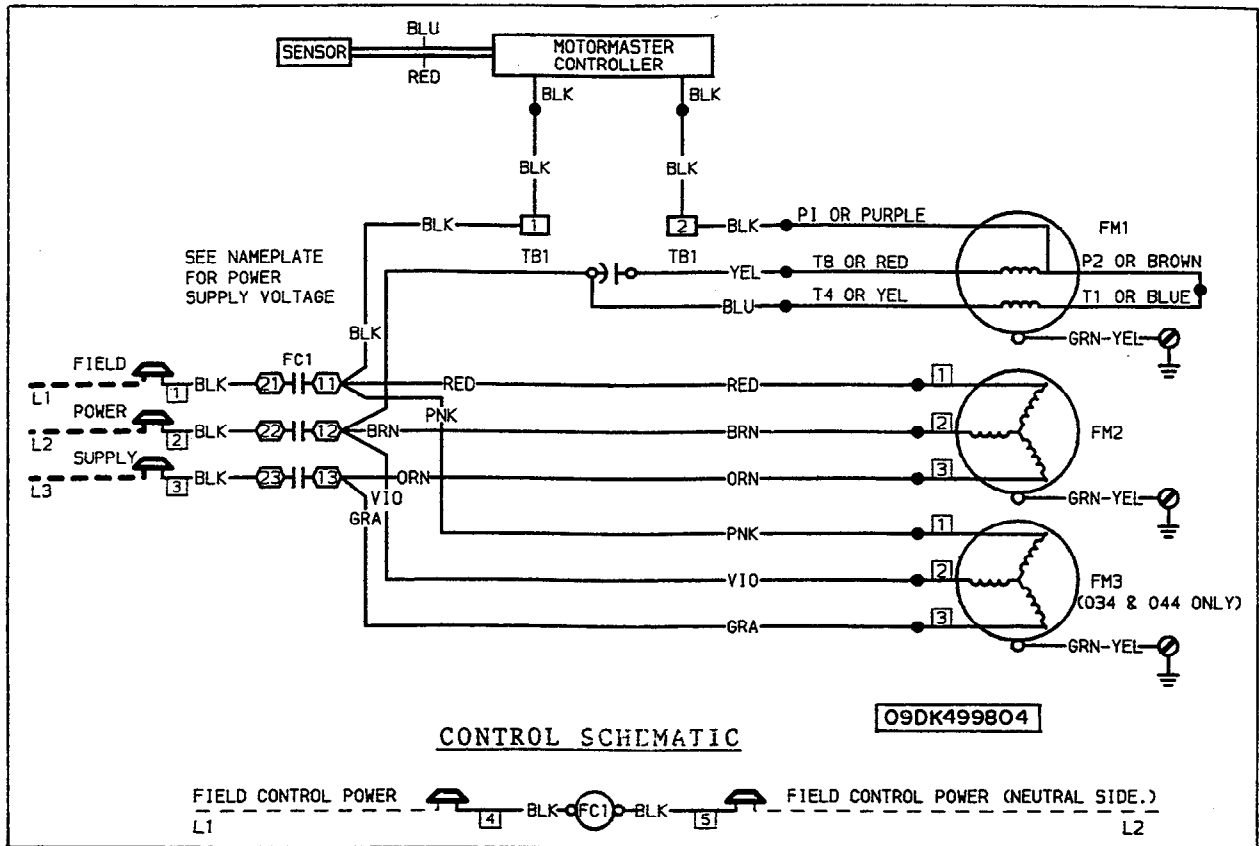


Fig. 6 – Motormaster® Control; 460-Volt Units

- Route the sensor wire from the controller to the sensor location. Secure sensor wire to avoid contact with condenser coil.

**CAUTION**

The sensor assembly is delicate. Handle with care.

- For 09DK020-034 units, secure the sensor to the coil return bend. For 09DK044, secure the sensor to cross-

over tube. See Fig. 8 for proper location for each unit. Use no. 4-40 screw, two plate washers and nut provided. See Fig. 3 of 32LT Installation, Start-Up and Service Instructions provided with controller.

- Coil up excess wire and secure it to controller.
- Protect sensor wire from physical damage by installing field-supplied protective material.
- Replace control box cover.

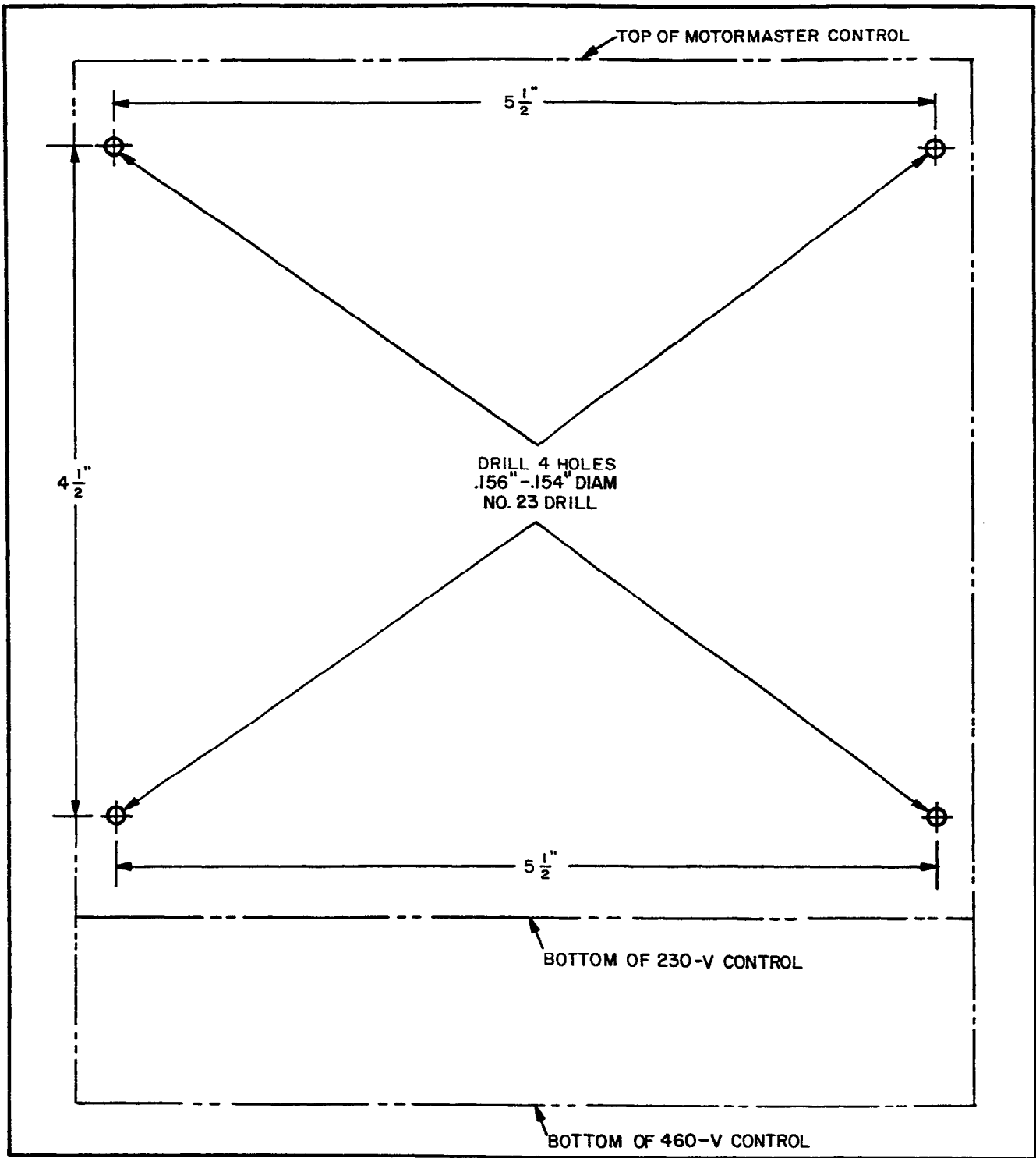
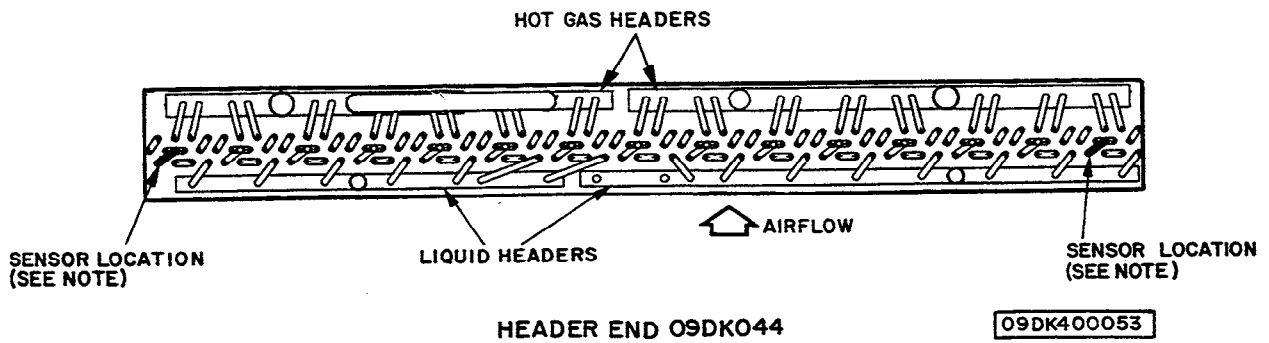
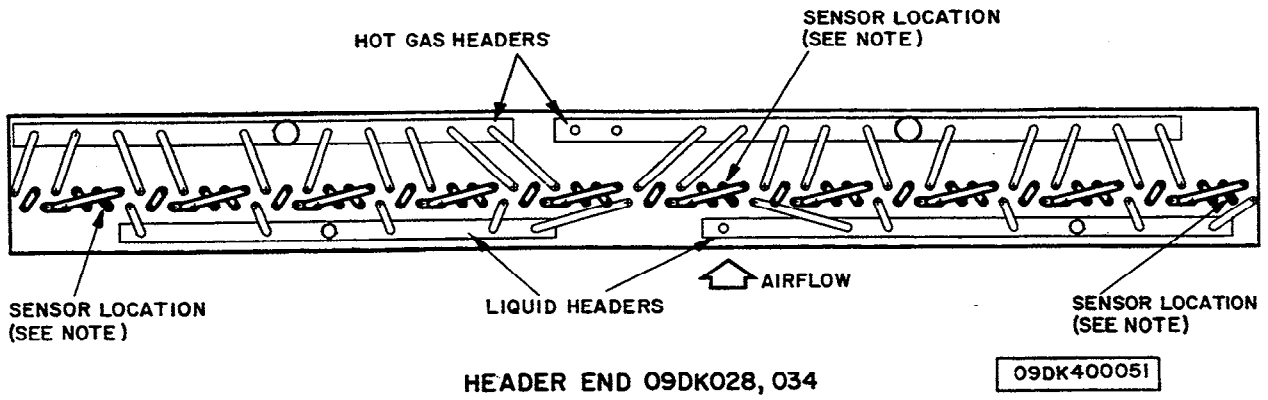
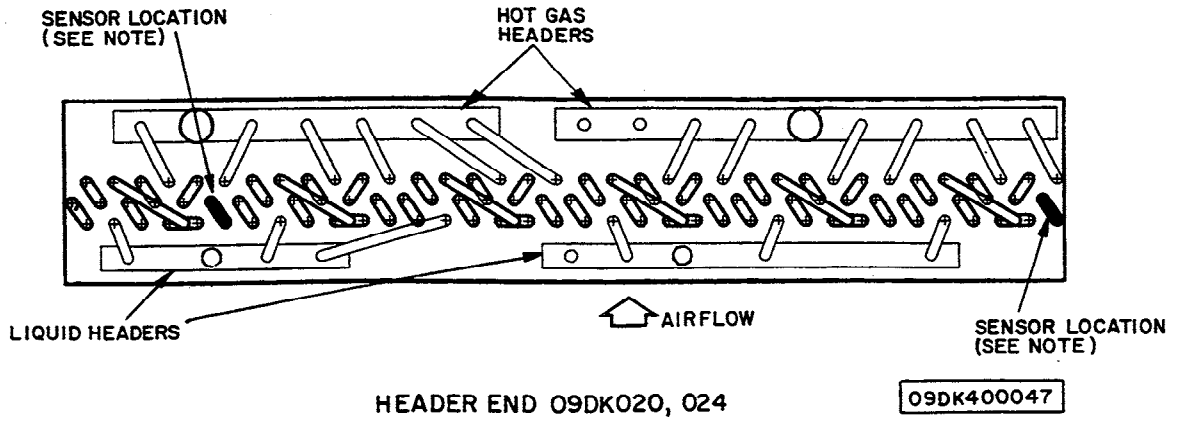


Fig. 7 – Mounting Template 32LT Motormaster® Control



NOTE: When using multiple indoor units, or a dual compressor indoor unit, place sensor on circuit containing refrigerant from leading compressor. Only one sensor is required.

**Fig. 8 – Motormaster® Sensor Locations on Condenser Coil Header End**

**575-Volt Units** — Follow the same steps above for 208/230-v units, except Carrier transformer part number HT01AH954 must be wired in as detailed below:

1. Mount transformer to the divider panel. See Fig. 4. Drill required mounting holes.
2. Connect field-supplied wire from FC1 terminal 11 to the primary side of the transformer. See Fig. 9. Connect a field-supplied wire from FC1 terminal 12 to the other primary of the transformer.
3. Run field-supplied wire from the secondary of the transformer to the capacitor. Run field-supplied wire from the other secondary of the transformer to one of the black wires on the controller. See Fig. 9.
4. Install field-supplied shield over the transformer. See Fig. 4.
5. For remainder of installation, follow steps for 208/230- and 460-v units.

**POWER WIRING** — Refer to Fig. 5, 6 and 9 for wiring of Motormaster® control to condenser fan motors.

**⚠ CAUTION**

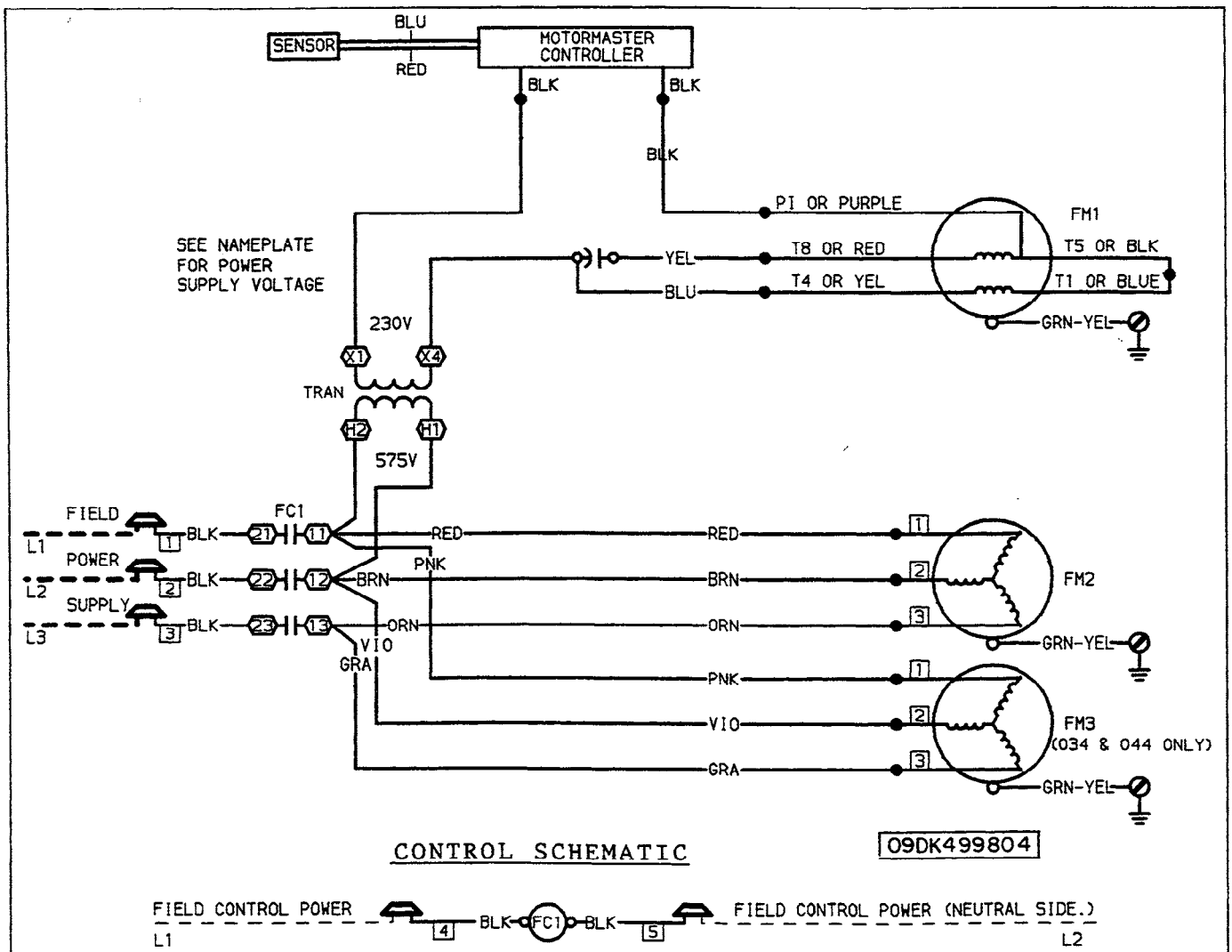
Be sure to wire the Motormaster control in series with the fan motor.

**WINTERSTART CONTROL** — These compressorless condenser sections do not need to be directly modified. However, the total system may require winterstart control. Refer to base unit instructions.

**MOTORMASTER CONTROL AND SENSOR LOCATION**

1. Locate the Motormaster control and sensor as shown in Fig. 5, 6, 8 and 9.
2. Route sensor wire from bottom of Motormaster control to specified sensor location.

**NOTE:** A wind baffle is not required.



**Fig. 9 — Motormaster® Control; 575-Volt Units**

## **TURBO JET**

### **TJ-100-CC**

- Make sure tank is being cleaned properly
- Check inside control panel for signs of water damage and corrosion
- Check incoming voltages
- Check control functions, switches, lamps, read outs, chart recorders
- Check all hot, cold, chill water, and steam connection for leaks, pressures
- Check all in line strainers for debris
- Check lids springs, basket latches (Adjust if needed)
- Check all motor mounting bolts
- Lubricate pump motors per factory specs.
- Run operational test
- Check water fill system
- Check cook cycles with and without meat probe
- Check meat probe cable for signs of wear
- Check timer operation
- Compare actual temps with read out temperatures
- Check chill cycles
- Check safety valve operation
- Check drain operation

## **Turbo Jet Air Cooled Condensing Unit**

- Check condenser coils for debris, clean as necessary
- Check moisture indicator sight glass for refrigerant loss and presents of moisture
- Check refrigerant charge
- Check all refrigerant joints and valves for leaks
- Check chilled water flow switch operation
- Check condenser fan operation
- Check compressor oil level
- Check crank case heater operation
- Inspect all contactors and relays
- Check thermistor operation
- Test oil and replace if necessary
- Check glycol percentage
- Check refrigerant filters dryers, replace if necessary
- Check cooling water strainers

## **Turbo Jet Heat Exchange Tank**

- **Make sure tank is being cleaned properly**
- **Check control panel function, switches, lamps, read outs, chart recorders**
- **Check inside control panel for signs of water damage and corrosion**
- **Check meat probe cable for signs of wear**
- **Check lid springs adjust if needed**
- **Check the impeller and protective screen inside the tank**
- **Check all motor mounting bolts**
- **Lubricate motor per factory specs.**
- **Check all steam and water connection for leaks**
- **Check all in line strainers for debris**
- **Run operational test**
- **Check water fill system**
- **Compare actual temps with read out temps.**
- **Check meat probe operation**
- **Check safety valve operation**
- **Check drain operation**