



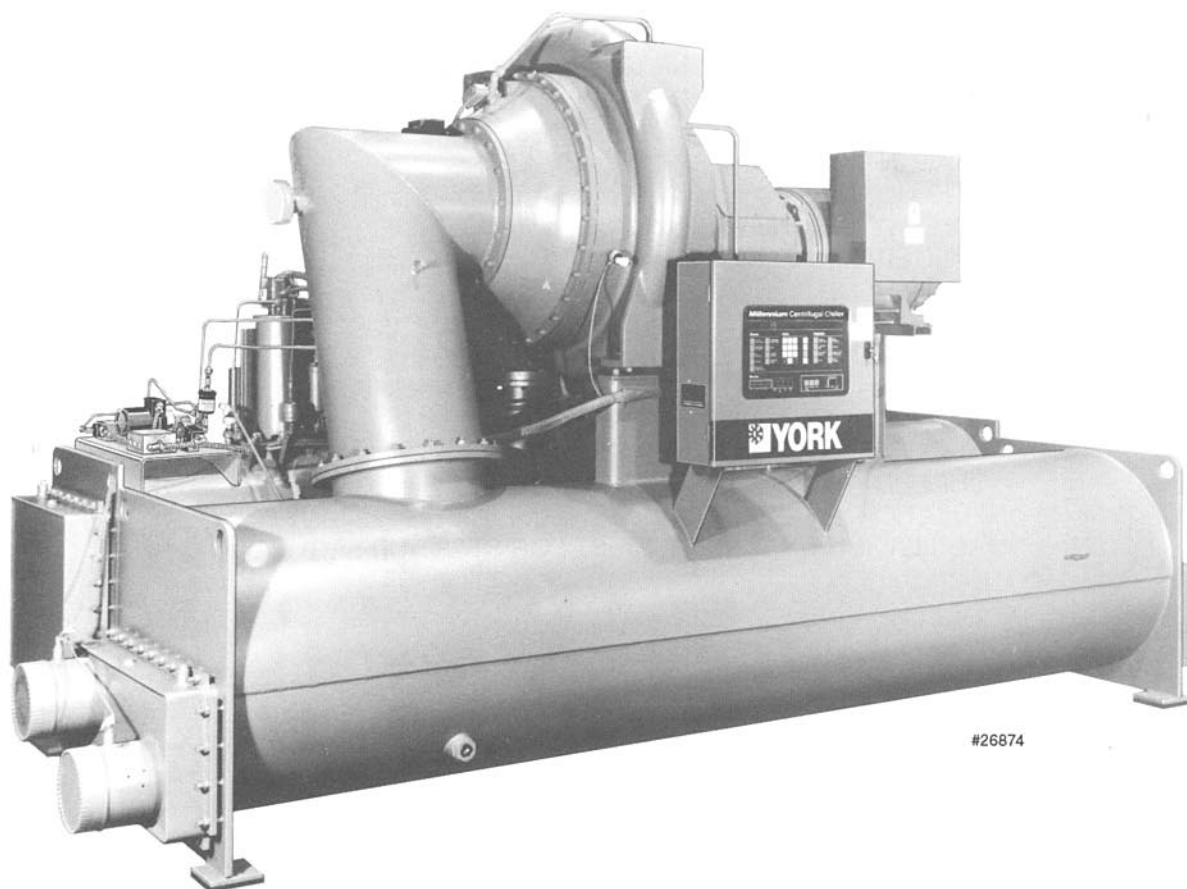
MILLENNIUM™
CENTRIFUGAL LIQUID CHILLERS

INSTALLATION INSTRUCTIONS

Supersedes: Nothing

FORM 160.48-N1 (396)

MODEL
YTG0A1B1 THRU YTL6D8F2 (STYLE H)
HCFC-123 (COOLING ONLY)
WITH MICROCOMPUTER CONTROL CENTERS
PART NO. 371-01200-002 & 371-01200-007
FOR ELECTRO-MECHANICAL STARTER, SOLID STATE STARTER,
AND VARIABLE SPEED DRIVE



#26874

WARNING

SYSTEM CONTAINS REFRIGERANT UNDER PRESSURE.

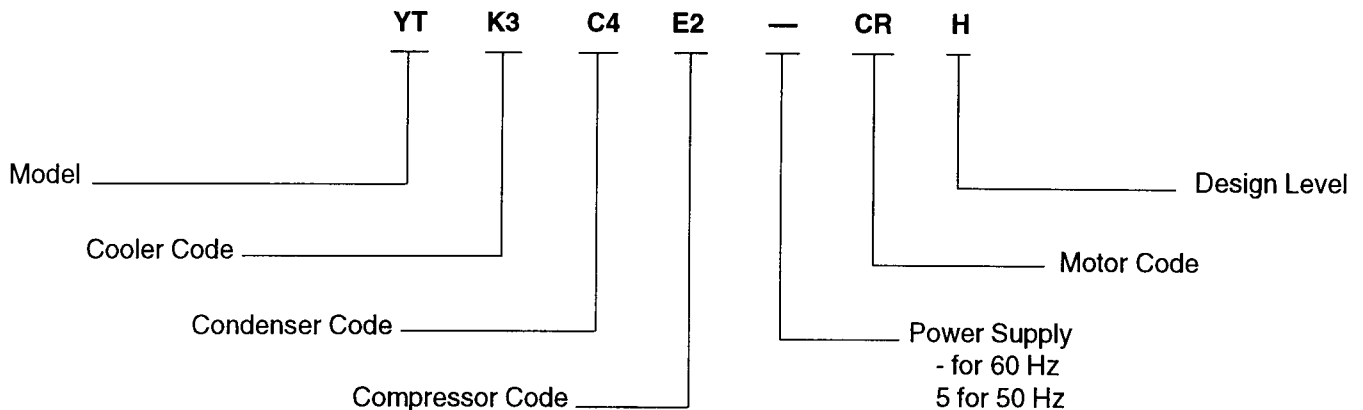
SERIOUS INJURY COULD RESULT IF PROPER PROCEDURES ARE NOT FOLLOWED WHEN SERVICING SYSTEM. ALL SERVICE WORK SHALL BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN IN ACCORDANCE WITH YORK INSTALLATION/OPERATION MANUAL.

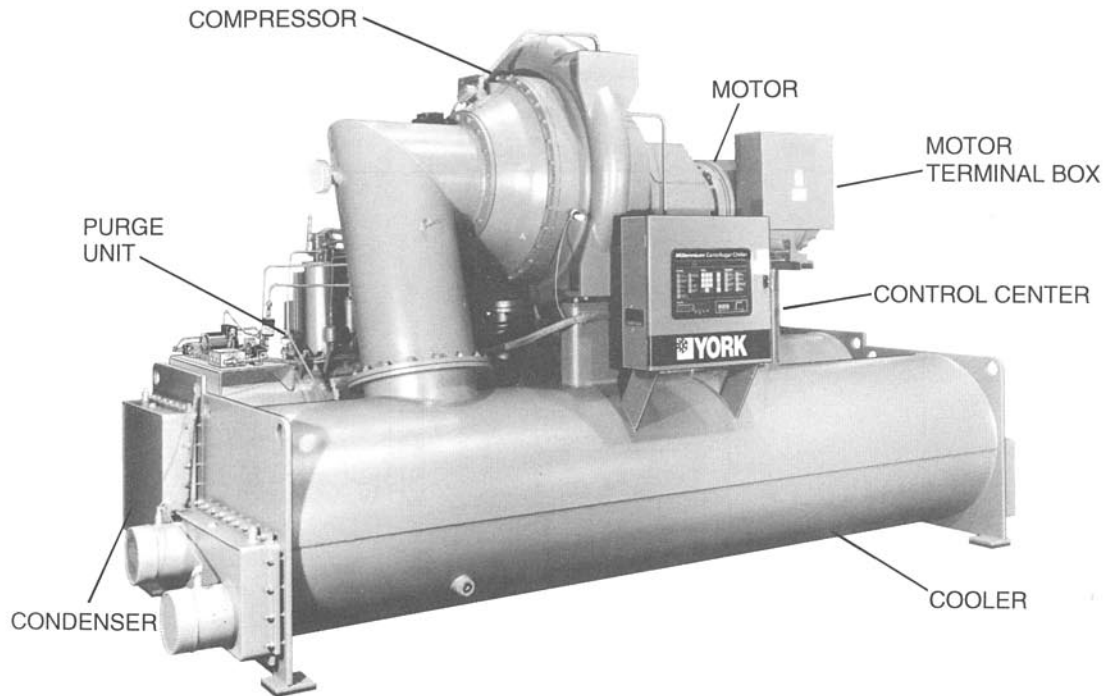
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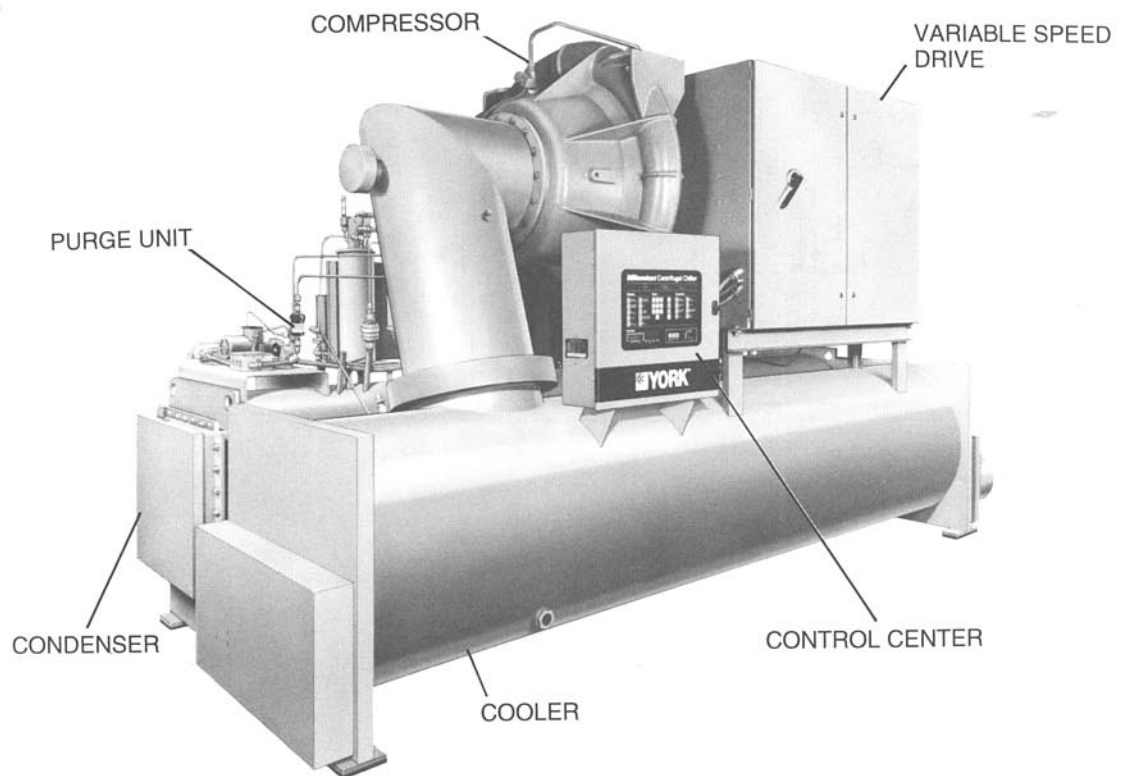
NOMENCLATURE

The model number denotes the following characteristics of the unit:





#26874

FIG. 1 - YT CHILLER WITH ELECTRO-MECHANICAL STARTER

#28009

FIG. 2 - YT CHILLER WITH VARIABLE SPEED DRIVE

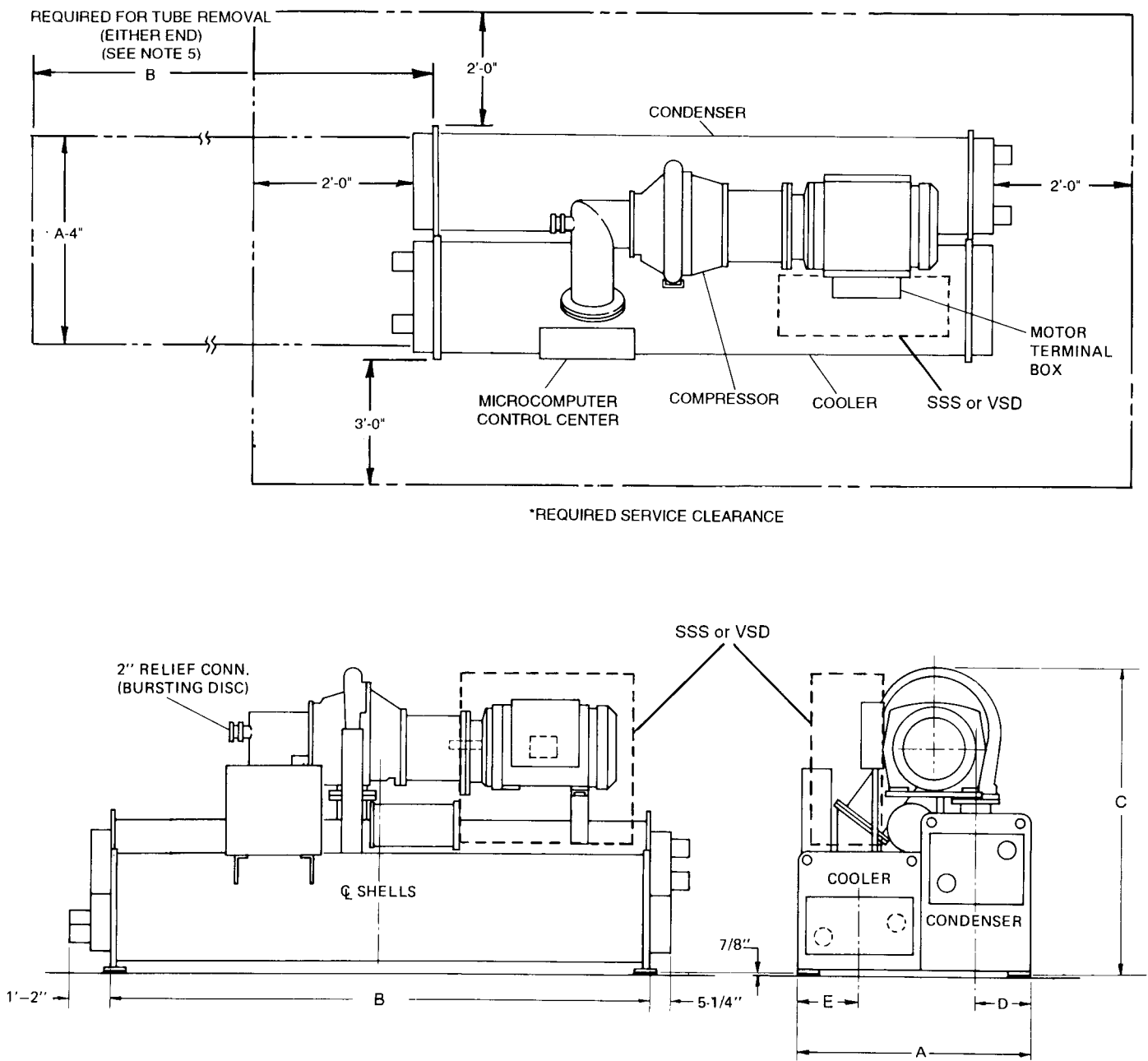


FIG. 3 - OVERALL DIMENSIONS AND SERVICE CLEARANCES

DIM.	B COMPRESSOR
	COOLER - CONDENSER CODE
	G-A
A	5' 7-3/4"
B	13' 0"
C	7' 6-1/8"
D	1' 4"
E	1' 5-7/8"

DIM.	C COMPRESSOR					
	COOLER - CONDENSER CODE					
	G-A	H-A	H-B	J-A	J-B	K-B
A	5' 7-3/4"	5' 10-1/2"	6' 3-1/2"	6' 1-1/2"	6' 6-1/2"	6' 10-1/2"
B	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"
C	8' 1-1/4"	8' 1-1/4"	8' 4-3/4"	8' 1-1/4"	8' 4-3/4"	8' 4-3/4"
D	1' 4"	1' 4"	1' 6-1/2"	1' 4"	1' 6-1/2"	1' 6-1/2"
E	1' 5-7/8"	1' 7-1/4"	1' 7-1/4"	1' 8-3/4"	1' 8-3/4"	1' 10-3/4"

DIM.	E COMPRESSOR								
	COOLER - CONDENSER CODE								
	G-A	H-A	H-C	J-A	J-C	K-C	K-D	L-C	L-D
A	5' 7-3/4"	5' 10-1/2"	6' 3-1/2"	6' 1-1/2"	6' 6-1/2"	6' 10-1/2"	7' 4"	7' 0-1/2"	7' 6"
B	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"	13' 0"
C	9' 0-1/8"	9' 0-1/8"	9' 5-3/8"	9' 0-1/8"	9' 5-3/8"	9' 5-3/8"	9' 6-1/8"	9' 5-3/8"	9' 6-1/8"
D	1' 4"	1' 4"	1' 6-1/2"	1' 4"	1' 6-1/2"	1' 6-1/2"	1' 9-1/4"	1' 6-1/2"	1' 9-1/4"
E	1' 5-7/8"	1' 7-1/4"	1' 7-1/4"	1' 8-3/4"	1' 8-3/4"	1' 10-3/4"	1' 10-3/4"	1' 11-3/4"	1' 11-3/4"

DIM.	F COMPRESSOR			
	COOLER - CONDENSER CODE			
	K-C	K-D	L-C	L-D
A	6' 10-1/2"	7' 4"	7' 0-1/2"	7' 6"
B	15' 0"	15' 0"	15' 0"	15' 0"
C	9' 10"	10' 2-1/2"	9' 10"	10' 2-1/2"
D	1' 6-1/2"	1' 9-1/4"	1' 6-1/2"	1' 9-1/4"
E	1' 10-3/4"	1' 10-3/4"	1' 11-3/4"	1' 11-3/4"

CHILLER WEIGHTS (LESS MOTOR) (LBS.)

TABLE 1 - B COMPRESSOR

SHELL CODES	CHILLER SHIPPING	CHILLER OPERATING
G0A1	11,090	13,015
G0A2	11,250	13,230
G0A3	11,435	13,480
G0A4	11,645	13,770
G1A1	11,238	13,220
G1A2	11,394	13,430
G1A3	11,578	13,680
G1A4	11,792	13,970
G3A1	11,536	13,630
G3A2	11,692	13,840
G3A3	11,876	14,090
G3A4	12,090	14,380

TABLE 2 - C COMPRESSOR

SHELL CODES	CHILLER SHIPPING	CHILLER OPERATING
G1A1	11,815	13,795
G1A2	11,970	14,010
G1A3	12,155	14,260
G1A4	12,370	14,540
G3A1	12,112	14,205
G3A2	12,248	14,400
G3A3	12,452	14,665
G3A4	12,665	14,955
H1A1	12,590	14,810
H1A2	12,745	15,020
H1A3	12,930	15,270
H1A4	13,145	15,560
H3A1	12,850	15,170
H3A2	12,990	15,365
H3A3	13,190	15,630
H3A4	13,410	15,925
H1B1	14,275	16,780
H1B2	14,495	17,075
H1B3	14,740	17,410
H1B4	15,020	17,790
H3B1	14,540	17,145
H3B2	14,755	17,440
H3B3	15,000	17,770
H3B4	15,282	18,150
J1A1	13,110	15,485
J1A2	13,250	15,840
J1A3	13,450	15,945
J1A4	13,665	16,395
J3A1	13,465	16,130
J3A2	13,600	16,320
J3A3	13,805	16,590
J3A4	14,020	16,880
J1B1	14,796	17,620
J1B2	15,015	17,915
J1B3	15,260	18,245
J1B4	15,540	18,625
J3B1	15,150	18,100
J3B2	15,368	18,400
J3B3	15,615	18,730
J3B4	15,895	19,110
K1B1	16,715	20,040
K1B2	16,935	20,335
K1B3	17,180	20,670
K1B4	17,460	21,050
K3B1	17,145	20,630
K3B2	17,362	20,925
K3B3	17,610	21,260
K3B4	17,890	21,640

TABLE 3 - E COMPRESSOR

SHELL CODES	CHILLER SHIPPING	CHILLER OPERATING
G1A1	14,880	16,860
G1A2	15,035	17,070
G1A3	15,220	17,325
G1A4	15,415	17,595
G3A1	15,210	17,305
G3A2	15,365	17,515
G3A3	15,550	17,765
G3A4	15,745	18,035
H1A1	15,550	17,765
H1A2	15,710	17,985
H1A3	15,890	18,230
H1A4	16,085	18,500
H3A1	15,810	18,125
H3A2	15,965	18,340
H3A3	16,150	18,590
H3A4	16,345	18,860
H1C1	17,590	20,140
H1C2	17,810	20,440
H1C3	18,055	20,775
H1C4	18,335	21,155
H3C1	17,850	20,500
H3C2	18,070	20,800
H3C3	18,316	21,135
H3C4	18,595	21,515
J1A1	16,460	18,995
J1A2	16,616	19,205
J1A3	16,800	19,455
J1A4	16,995	19,725
J3A1	16,805	19,470
J3A2	16,960	19,680
J3A3	17,145	19,930
J3A4	17,340	20,200
J1C1	18,512	21,380
J1C2	18,730	21,675
J1C3	18,976	22,010
J1C4	19,255	22,390
J3C1	18,860	21,860
J3C2	19,075	22,150
J3C3	19,322	22,490
J3C4	19,600	22,865
K1C1	20,075	23,445
K1C2	20,290	23,740
K1C3	20,540	24,075
K1C4	20,815	24,450
K3C1	20,500	24,030
K3C2	20,720	24,330
K3C3	20,965	24,665
K3C4	21,245	25,045
K1D1	22,085	25,830
K1D2	22,435	26,310
K1D3	22,825	26,840
K1D4	23,270	27,440
K3D1	22,510	26,420
K3D2	22,861	26,895
K3D3	23,253	27,430
K3D4	23,700	28,035
L1C1	21,175	24,800
L1C2	21,395	25,220
L1C3	21,640	25,550
L1C4	21,919	25,930
L3C1	21,700	25,650
L3C2	21,920	25,950
L3C3	22,165	26,285
L3C4	22,443	26,660
L1D1	23,180	27,300
L1D2	23,530	27,780
L1D3	23,921	28,310
L1D4	24,365	28,915

NOTES:

- Shipping weights are for a unit including Control Center but DO NOT include weight of motor, refrigerant, thermal insulation, marine water boxes or shipping skids. See Table 5 for motor weights. See Form 160.48-PA1 for other additional weights.
- Operating weights shown include unit (less motor weight), Control Center, oil, water, refrigerant operating charge and factory insulation of cooler. Add motor weights per Table 5.
- Loading per isolator equals operating weight divided by 4.
- If optional marine type water boxes are furnished, increase unit weights per Form 160.48-PA1.

CHILLER WEIGHTS (LESS MOTOR) (LBS.)**TABLE 4 - F COMPRESSOR**

SHELL CODES	CHILLER SHIPPING	CHILLER OPERATING
K4C5	22,190	25,845
K4C6	22,440	26,185
K4C7	22,725	26,685
K4C8	23,050	27,010
K6C5	22,535	26,335
K6C6	22,790	26,680
K6C7	23,075	27,065
K6C8	23,400	27,505
K7C5	22,840	26,720
K7C6	23,095	27,065
K7C7	23,380	27,450
K7C8	23,700	27,885
K9C5	23,340	27,415
K9C6	23,595	27,760
K9C7	23,880	28,145
K9C8	24,200	28,580
K4D5	24,476	28,565
K4D6	24,880	29,115
K4D7	25,340	29,400
K4D8	25,850	30,430
K6D5	24,825	29,060
K6D6	25,225	29,600
K6D7	25,680	30,220
K6D8	26,200	30,925
K7D5	25,130	29,445
K7D6	25,530	29,990
K7D7	25,990	30,610
K7D8	26,850	31,655
K9D5	25,630	30,140
K9D6	26,037	30,690
K9D7	26,490	31,305
K9D8	27,000	32,000
L4C5	24,114	28,355
L4C6	24,340	28,670
L4C7	24,655	28,780
L4C8	24,980	29,525
L6C5	24,715	29,190
L6C6	24,970	29,540
L6C7	25,255	29,925
L6C8	25,580	30,365
L4D5	26,345	31,020
L4D6	26,750	31,570
L4D7	27,200	32,180
L4D8	27,720	32,885
L6D5	26,945	31,860
L6D6	27,350	32,410
L6D7	27,800	33,020
L6D8	28,320	33,722

MOTOR WEIGHTS (LBS.)**TABLE 5 -**

60 HZ		50 HZ	
MOTOR CODE	TYPICAL MOTOR WEIGHT	MOTOR CODE	TYPICAL MOTOR WEIGHT
CF	960	5CC	960
CG	960	5CD	1,335
CH	1,335	5CE	1,335
CJ	1,335	5CF	1,335
CK	1,335	5CG	1,655
CL	1,655	5CH	2,125
CM	2,125	5CI	2,125
CN	2,125	5CJ	2,125
CP	2,125	5CK	2,200
CR	2,200	5CL	2,200
CS	2,200	5CM	2,800
CT	2,800	5CN	2,800
CU	2,800	5CO	3,800
CV	3,800	5CP	3,800
CW	3,800	5CQ	4,400
CX	4,100	5CR	4,400
CY	4,700	5CS	5,000
CZ	4,700	5CT	5,100
CA	5,700	5CU	5,100
CB	5,700	5CV	5,200

NOTE: 1. Motor weight shown in Table 5 is typical of 200 thru 600 volt motors; high voltage motors may be heavier - see Form 160.48-PA1.

INTRODUCTION

GENERAL

This instruction describes the installation of a MODEL YT MILLENNIUM Liquid Chilling Unit. This unit is shipped as a single factory assembled, piped, and wired package requiring a minimum of field labor to make chilled water connections, condenser water connections, refrigerant atmospheric relief connections, and electrical power connections. (Refrigerant charge shipped separately.)

MILLENNIUM Chillers can also be shipped dismantled when required by rigging conditions, but generally it is more economical to enlarge access openings to accommodate the factory assembled unit. Chillers shipped dismantled **MUST** be field assembled under the supervision of a YORK representative, but otherwise installation will be as described in this instruction.

FIELD ASSEMBLED UNITS ONLY

Use Form 160.48-N3 in conjunction with this installation instruction. This instruction will be furnished with all units that are to be field assembled. Extra copies may be ordered from the YORK Publication Distribution Center.

CONSTRUCTION DRAWINGS

Construction drawings are furnished for each job. These drawings must be carefully followed and used in conjunction with this installation instruction, to insure proper installation of the unit. In event of any differences between drawings and this instruction, the drawings will govern.

The services of a YORK representative will be furnished to check the installation, supervise the initial start-up and operation of all MILLENNIUM Chillers installed within Continental United States.

CAUTION: *The YORK Warranty will be voided if the following restrictions are not adhered to:*

1. *No valves or connections should be opened under any circumstances because such action will result in loss of the factory nitrogen charge.*
2. *Do not dismantle or open the chiller for any reason except under the supervision of a YORK representative.*
3. *When units are shipped dismantled, notify the nearest YORK office in ample time for a YORK representative to supervise rigging the unit to its operating position and the assembly of components.*

4. *Do not make final power supply connections to the compressor motor or control center.*
5. *Do not charge the compressor with oil.*
6. *Do not charge the unit with refrigerant.*
7. *Do not attempt to start the unit.*
8. *Do not run hot water (110°F max.) or steam through the cooler or condenser at any time.*

SHIPMENT

The chiller may be ordered and shipped in the following forms:

Form 2. - Factory Assembled Unit, complete with motor (refrigerant charge shipped separately).

1. The motor/compressor assembly mounted, with all necessary interconnecting piping assembled. MicroComputer Control Center is mounted on the unit. Complete unit factory leak tested, evacuated and charged with holding charge of nitrogen.

An optional Solid State Starter or Variable Speed Drive can be factory mounted and wired.

2. Miscellaneous material - Four (4) vibration isolator pads (or optional spring isolators and brackets).

Form 3. - Driveline Separate From Shells - Shipped as two major assemblies. Unit first factory assembled, refrigerant piped, wired and leak tested; then dismantled for shipment. Compressor/motor assembly removed from shells and skidded. Cooler/condenser is not skidded.

All wiring integral with compressor is left on it, and all conduit is left on shell. All openings on compressor, oil separator, and shell are closed and charged with dry nitrogen (2 to 3 psig).

Miscellaneous packaging of control center, oil educator filter, tubing, water temperature controls, wiring, oil, isolators, solid state starter (option), etc.; refrigerant charge shipped separately.

NOTE: *Units shipped dismantled **MUST** be reassembled by, or under the supervision of a YORK representative. (See Form 160.48-N3)*

Form 7. - Split Shells - Shipped as three major assemblies. Unit first factory assembled, refrigerant piped, wired and leak tested; then dismantled for shipment. Compressor/motor assembly removed from shells and skidded.

Cooler and condenser shells are separated at tube sheets and are not skidded. Refrigerant lines between shells are flanged and capped, requiring no welding.

All wiring integral with compressor is left on it. All wiring harnesses on shells are removed. All openings on compressor and shells are closed and charged with dry nitrogen (2 to 3 psig).

Miscellaneous packaging of control center, oil eductor filter, tubing, water temperature controls, wiring, oil, isolators, solid state starter (option), etc.; refrigerant charge shipped separately.

NOTE: Units shipped dismantled MUST be reassembled by, or under the supervision of a YORK representative. (See Form 160.48-N3)

When more than one chiller is involved, the major parts of each unit will be marked to prevent mixing of assemblies. (Piping and Wiring Drawings to be furnished by YORK.)

INSPECTION - DAMAGE - SHORTAGE

The unit shipment should be checked on arrival to see that all major pieces, boxes and crates are received. Each unit should be checked on the trailer or rail car when received, before unloading, for any visible signs of damage. Any damage or signs of possible damage must be reported to the transportation company immediately for their inspection.

YORK WILL NOT BE RESPONSIBLE FOR ANY DAMAGE IN SHIPMENT OR AT JOB SITE OR LOSS OF PARTS. (Refer to Shipping Damage Claims, Form 50.15-NM.)

When received at the job site all containers should be opened and contents checked against the packing list. Any material shortage should be reported to YORK immediately. (Refer to Shipping Damage Claims, Form 50.15-NM.)

CHILLER DATA PLATE

A chiller data plate is mounted on the control center assembly of each unit, giving unit model number; design working pressure; water passes; refrigerant charge; serial numbers; and motor power characteristics and connection diagrams.

Additional information may be found on the motor date plate. This information should be included when contacting the factory on any problem relating to the motor.

RIGGING (See Fig. 4)

The complete standard chiller is shipped without skids. (When optional skids are used it may be necessary to remove the skids so riggers skates can be used under the unit end sheets to reduce overall height.)

Each unit has four (4) lifting holes (two on each end) in the end sheets which should be used to lift the unit.

Care should be taken at all times during rigging and handling of the chiller to avoid damage to the unit and its external connections. Spreader bars may be necessary to protect unit components. See Fig. 4, Detail B. Lift only using holes shown.

Do not lift the unit with slings around motor/compressor assembly or by means of eyebolts in the tapped holes of the compressor motor assembly. Do not turn a unit on its side for rigging. Do not rig vertically.

CAUTION: If necessary to rig the chiller by one end to permit lifting or dropping through a vertical passage-way, such as an elevator shaft, contact YORK factory shipping for special rigging instructions.

The rigging and operating weights and overall dimensions are given on pages 4 thru 7 as a guide in determining the clearances required for rigging. (Add 6" to overall height for optional skidded unit.)

LOCATION

Chillers are furnished with vibration isolator mounts for basement or ground level installations. Chillers may be located on upper floor levels providing the floor is capable of supporting the total unit operating weight and optional spring isolators are used.

IMPORTANT

Sufficient clearance to facilitate normal service and maintenance work must be provided all around and above the unit, and particularly space provided at either end to permit cleaning or replacement of cooler and condenser tubes. (See Fig. 3)

A doorway or other sufficiently large opening properly located may be used. The chiller should be located in an indoor location where temperature range from 40°F to 110°F.

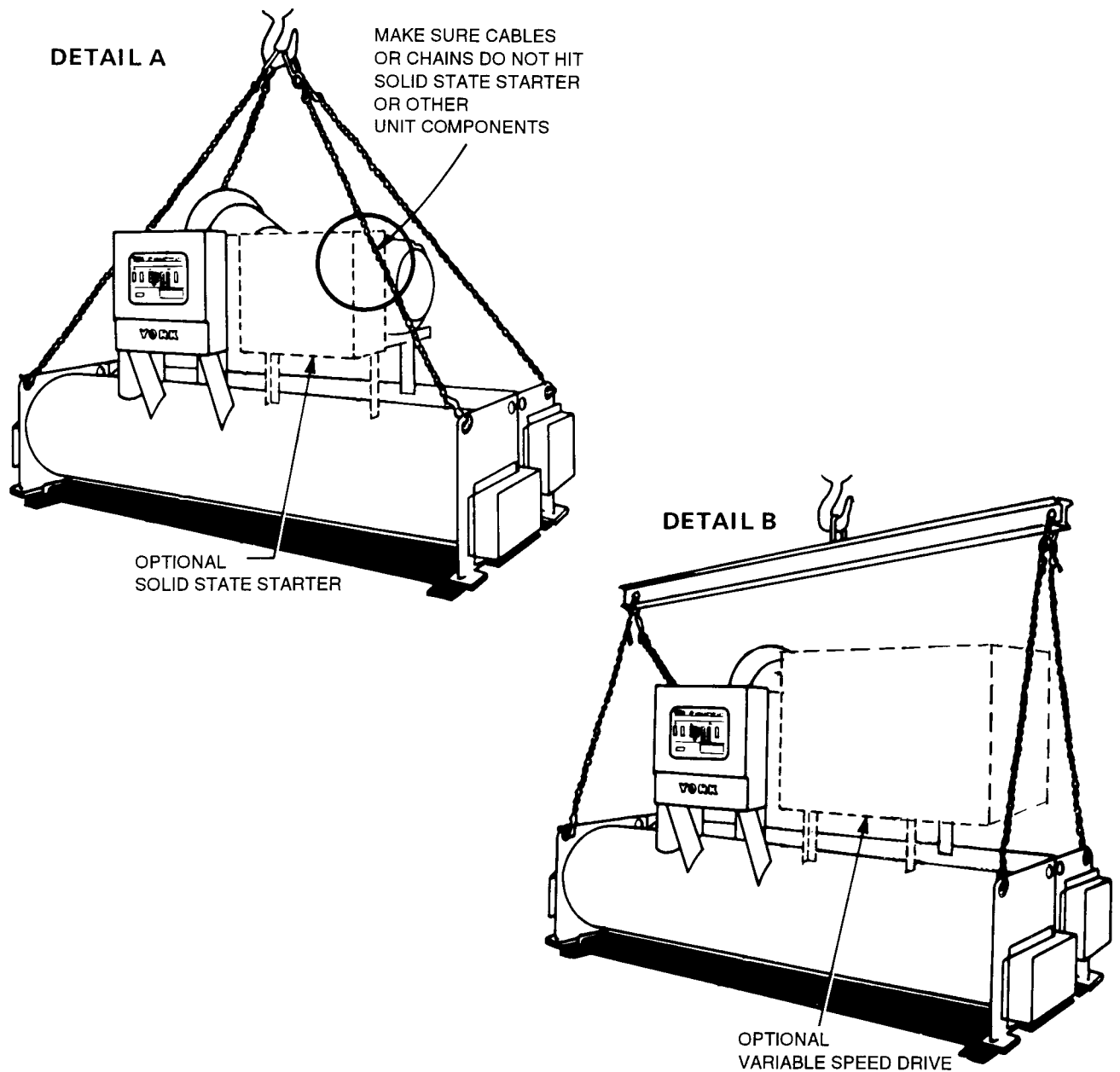


FIG. 4 - RIGGING

OPEN MOTORS - VENTILATION

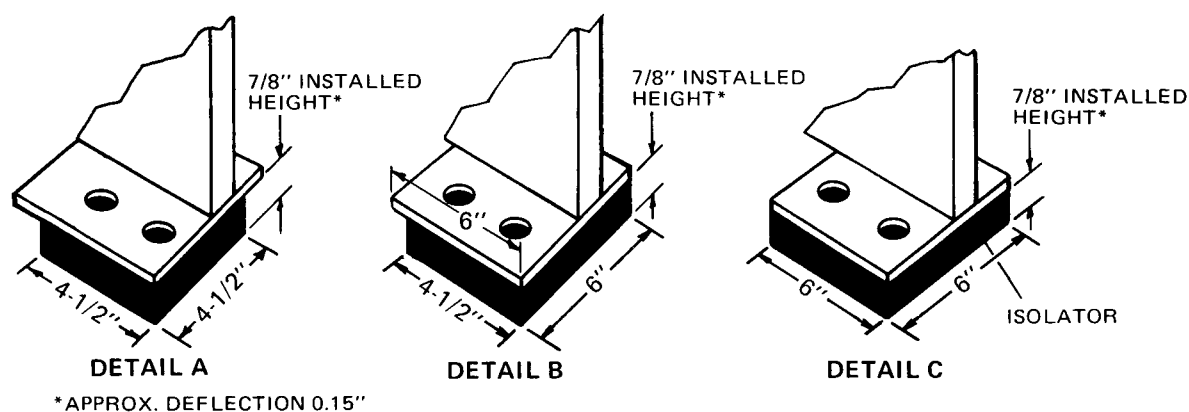
The open motor is air cooled which requires ventilation. Equipment room should be ventilated to allow heat removal approximately 2 to 3 air changes per minute. Check state, local and other codes.

FOUNDATION

A level floor, mounting pad or foundation must be provided by others, capable of supporting the operating weight of the unit.

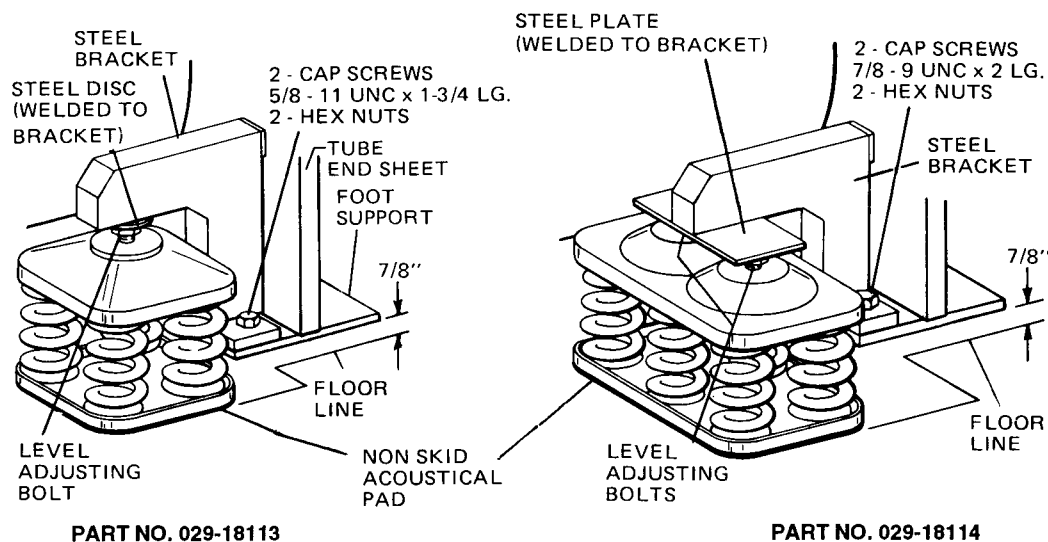
CLEARANCE

Clearance should be adhered to as shown in Fig. 3.



DETAIL	CHILLER OPERATING WEIGHT	ISOLATOR PART NO.
A	UP TO 16365	028-10578
B	16366 TO 28835	028-10518
C	28836 TO 53530	028-10519

FIG. 5 - STANDARD NEOPRENE VIBRATION ISOLATOR PAD MOUNTS



SPRING ISOLATORS (4 PER UNIT)

SYSTEM OPERATING WEIGHT LBS.	PART NO.
12,848 to 15,768	029-18113-004
15,769 to 19,636	029-18113-001
19,637 to 24,363	029-18113-002
24,364 to 30,545	029-18113-003
30,546 to 36,545	029-18114-001
36,546 to 45,818	029-18114-002
45,819 to 57,876	029-18114-003

FIG. 6 - SPRING ISOLATORS

INSTALLATION

RIGGING UNIT TO FINAL LOCATION

Rig the unit to its final location on the floor or mounting pad, lift the unit (or shell assembly) by means of an overhead lift and lower the unit to its mounting position. (If optional shipping, skids are used remove them before lowering the chiller to its mounting position.)

NOTE: At this point units shipped dismantled should be assembled under the supervision of a YORK representative.

If cooler is to be field insulated, the insulation should be applied to the cooler before the unit is placed in position while the unit is in the lift position. Be sure unit is properly supported. (See INSULATION)

LOCATING AND INSTALLING ISOLATOR PADS (REFER TO FIG. 5)

The isolator pad mounts are to be located as shown in Fig. 5.

After the isolator pads have been placed into position on the floor, lower the chiller onto the pads. When the unit is in place, remove the rigging equipment and check that the unit is level, both longitudinally and transversely. The unit should be level within 1/4" from one end to the other end and from front to the rear. If the chiller is not level within the amount specified, lift it and place shims between the isolator pad and the chiller tube sheets. (Shims furnished by the installer.) Lower unit again and recheck to see that it is level.

CHECKING THE ISOLATOR PAD DEFLECTION

All isolator pads should be checked for the proper deflection while leveling the chiller. Each pad should be deflected approximately 0.15 inch. If an isolator pad is under-deflected, shims should be placed between the unit tube sheet and the top of the pad to equally deflect all pads.

LEVELING THE UNIT

The longitudinal alignment of the unit should be checked by placing a level on the top center of the cooler shell under the compressor/motor assembly. Transverse alignment should be checked by placing a level on top of the shell end sheets at each end of the chiller.

INSTALLING OPTIONAL SPRING ISOLATORS (REFER TO FIG. 6)

When ordered, 4 spring-type isolator assemblies will be furnished with the unit. The 4 assemblies are identical and can be placed at any of the 4 corners of the unit.

While the unit is still suspended by the rigging, the isolators should be bolted to the unit by inserting the cap screw(s) through the holes(s) in the mounting bracket into the tapped hole in the top of the isolator leveling bolt(s). Then the unit can be lowered onto the floor.

The leveling bolts should now be rotated one (1) turn at a time, in sequence, until the unit end sheets are about 1-3/4" off the floor or foundation, and the unit is level. Check that the unit is level, both longitudinally and transversely (see Leveling the Unit). If the leveling bolts are not long enough to level unit due to an uneven or sloping floor or foundation, steel shims (grouted, if necessary) must be added beneath the isolator assemblies as necessary.

After the unit is leveled, wedge and shim under each corner to solidly support the unit in this position while piping connections are being made, pipe hangers adjusted and connections checked for alignment. Then the unit is filled with water and checked for leaks. The leveling bolts should now be finally adjusted until the wedges and shims can be removed. The unit should now be in correct level position, clear of the floor or foundation and without any effect from the weight of the piping. When the unit is properly supported, spring isolator installed height will be 6" to 6-1/4".

PIPING CONNECTIONS

After the unit is leveled (and wedged in place for optional spring isolators) the piping connections may be made; chilled water, condenser water and refrigerant relief. The piping should be arranged with offsets for flexibility, and adequately supported and braced independently of the unit to avoid strain on the unit and vibration transmission. Hangers must allow for alignment of pipe. Isolators (by others) in the piping and hangers are highly desirable, and may be required by specifications, in order to effectively utilize the vibration isolation characteristics of the vibration isolation mounts of the unit.

Check for piping alignment - Upon completion of piping, a connection in each line as close to the unit as possible should be opened, by removing the flange bolts or coupling and checked for piping alignment. If any of the bolts are bound in their holes, or if the connection springs out of alignment, the misalignment must be corrected by properly supporting the piping or by applying heat to anneal the pipe.

NOTE: If the piping is annealed to relieve stress, the inside of the pipe must be cleaned of scale before it is finally bolted in place.

COOLER AND CONDENSER WATER PIPING

The cooler and condenser liquid heads of MILLENNIUM chiller units have nozzles which are grooved, suitable for welding 150 PSIG DWP flanges or the use of Vic-taulic couplings.

The nozzles and water pass arrangements are furnished in accordance with the job requirements. Standard units are designed for 150 psig DWP on the water side. If job requirements are for greater than 150 psig DWP, check the unit data plate before applying pressure to cooler or condenser to determine if the chiller has provisions for the required DWP.

Inlet and outlet connections are identified by labels placed adjacent to each nozzle.

Chilled Water

Foreign objects which could lodge in, or block flow through the cooler and condenser tubes must be kept out of the water circuit. All water piping must be cleaned or flushed before being connected to the chiller pumps, or other equipment.

Permanent strainers (by others) are required in both the cooler and condenser water circuits to protect the chiller as well as the pumps, tower spray nozzles, chilled water coils and controls, etc. The strainer should be installed in the entering chilled water line, directly up-stream of the chiller.

Water piping circuits should be arranged so that the pumps discharge through the chiller, and should be controlled as necessary to maintain essentially constant chilled and condenser water flows through the unit at all load conditions.

If pumps discharge through the chiller, the strainer may be located upstream from pumps to protect both pump and chiller. (Piping between strainer, pump and chiller must be very carefully cleaned before startup.) If pumps are remotely installed from chiller, strainers should be located directly upstream of the chiller.

Condenser Water Circuit

For proper operation of the unit, condenser refrigerant pressure must be maintained above cooler pressure. If operating conditions will fulfill this requirement, no attempt should be made to control condenser water temperature by means of automatic valves, cycling of the cooling tower fan or other means, since MILLENNIUM Chillers are designed to function satisfactorily and efficiently when condenser water is allowed to seek its own temperature level at reduced loads and off-peak seasons of the year. However, if entering condenser water temperature can go below the required minimum, (refer to 160.48-O1) condenser water temperature must be maintained equal to or slightly higher than the required minimum. Refer to Fig. 7 for typical water piping schematic.

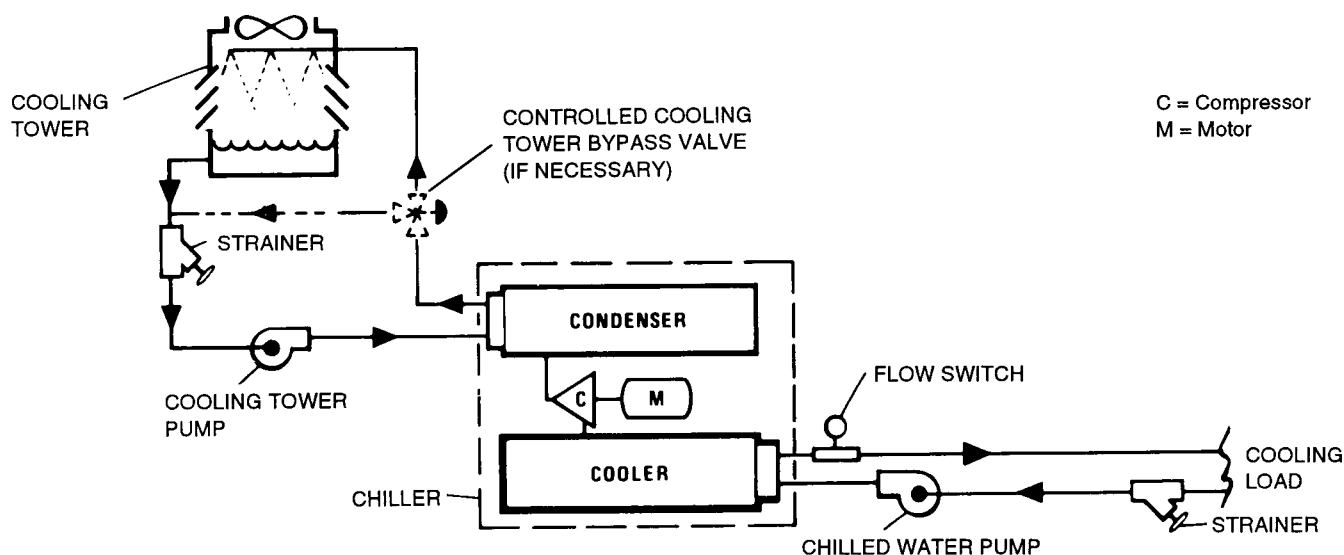


FIG. 7 - SCHEMATIC OF A TYPICAL PIPING ARRANGEMENT

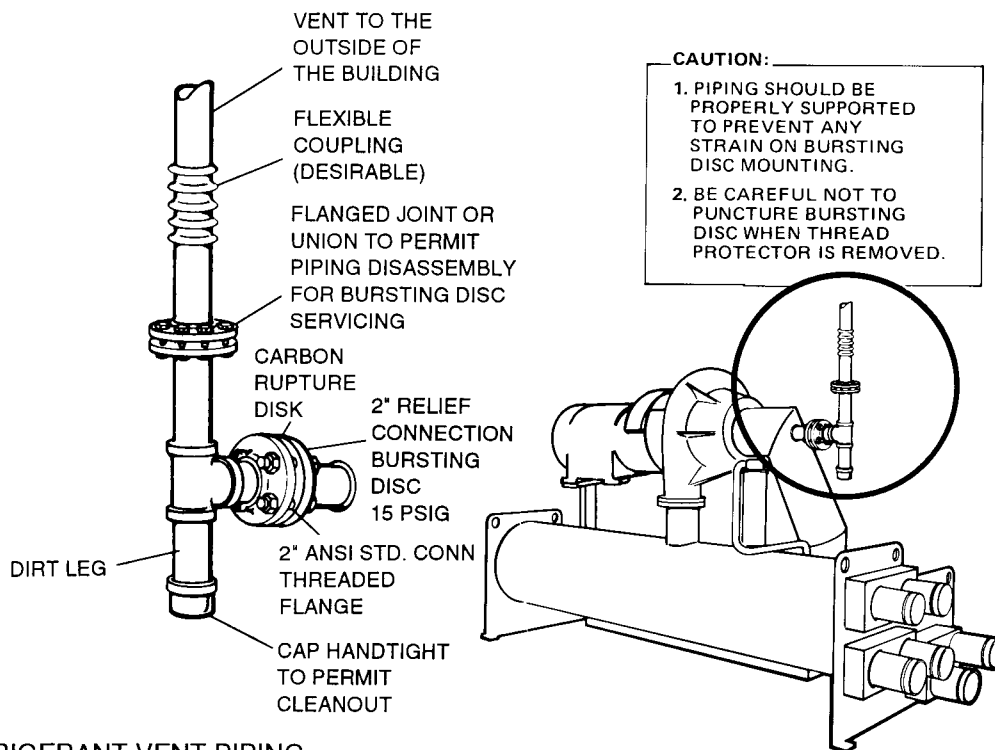


FIG. 8 - REFRIGERANT VENT PIPING

Stop Valves

Stop valves may be provided (by others) in the cooler and condenser water piping adjacent to the unit to facilitate maintenance. Thermometer wells and pressure taps should be provided (by others) in the piping as close to the unit as possible to facilitate operating checks.

Flow Switches (Field Installed)

A flow switch or pressure differential control in the chilled water line(s) adjacent to the unit is an accessory furnished for connection to the control center. If a flow switch is used, it must be directly in series with the chiller and sensing only water flow through the chiller. The differential switch must sense pressure drop across the unit.

Drain and Vent Valves

Drain and vent valves (by others) should be installed in the connections provided in the cooler and condenser liquid heads. These connections may be piped to drain if desired.

Checking Piping Circuits and Venting Air

After the water piping is completed, but before any water box insulation is applied, tighten and torque (to maintain between 30 and 60 ft. lbs.) the nuts on the liquid head flanges. Gasket shrinkage and handling during transit cause nuts to loosen. If water pressure is applied before

this is done, the gaskets may be damaged and have to be replaced. Fill the chilled and condenser water circuits, operate the pumps manually and carefully check the cooler and condenser water heads and piping for leaks. Repair leaks as necessary.

Before initial operation of the unit both water circuits should be thoroughly vented of all air at the high points.

REFRIGERANT RELIEF PIPING

Each unit is equipped with a frangible carbon bursting disc assembly located on the compressor suction connection for the purpose of quickly relieving excess pressure of the refrigerant charge to the atmosphere as a safety precaution in case of an emergency, such as fire. The bursting disc is furnished in accordance with ANSI B9.1 and is set to relieve at 15 psig.

Refrigerant relief vent piping (by others), from the bursting disc to the outside of the building, is required by code in most areas and should be installed on all chillers. The vent line should be sized in accordance with the ANSI/ASHRE-15, or local code, **but should never be smaller than the 2" bursting disc connection**. The vent line must include a dirt trap in the vertical leg to intercept and permit clean out of bursting disc fragments in the event of disc rupture and to trap any vent stack condensation (see Fig. 8). The piping **MUST** be arranged to avoid strain on the bursting disc, using a flexible connection, if necessary and must be removable for replacement of bursting disc.

DO NOT LOOSEN FLANGES THAT CONTAIN BURSTING DISC ASSEMBLY. Otherwise, refrigerant will be lost or moisture will enter the unit. Do not hit or contact the carbon bursting disc with any object. The bursting disc will break, causing refrigerant to escape and moisture to enter the unit.

UNIT PIPING

Compressor lubricant piping and system external piping are factory installed on all units shipped assembled. On units shipped dismantled, the following piping should be completed under the supervision of the YORK representative; (1) The lubricant piping to oil sump and oil cooler and system oil return connections using material furnished. See Form 160.49-N3.

CONTROL WIRING

On units shipped disassembled, after installation of the control center, control wiring must be completed between unit components and control center or solid state starter or variable speed drive when used, using wiring harness furnished. Refer to Form 160.48-N3.

Field wiring connections for commonly encountered control modifications (by others) if required, are shown on Forms 160.48-PW3.

NOTE: No deviations in unit wiring from that shown on drawings furnished shall be made without prior approval of the YORK representative.

POWER WIRING

Chiller with Electro-Mechanical Starter

A 115 volt - single phase - 60 or 50 Hertz power supply of 15 amperes must be furnished to the control center, from the control transformer (2 KVA required) included with the compressor motor starter. DO NOT make final power connections to control center until approved by YORK representative.

Oil Pump - 3 Phase Starter

Separate wiring or a fused disconnect switch should be supplied by the installer. Refer to the Field Wiring Diagram.

NOTE: Remote Elector-Mechanical starters for the chiller must be furnished in accordance with YORK Standard R-1051 (Product Drawing Form 160.45-PA5.1) to provide the features necessary for the starter to function properly with the YORK control system.

Each chiller is furnished for a specific electrical power supply as stamped on the Unit Data Plate, which also details the motor connection diagrams.

NOTE: To insure proper motor rotation, the starter power input and starter-to-motor connections must be checked with a phase sequence indicator in the presence of the YORK representative.

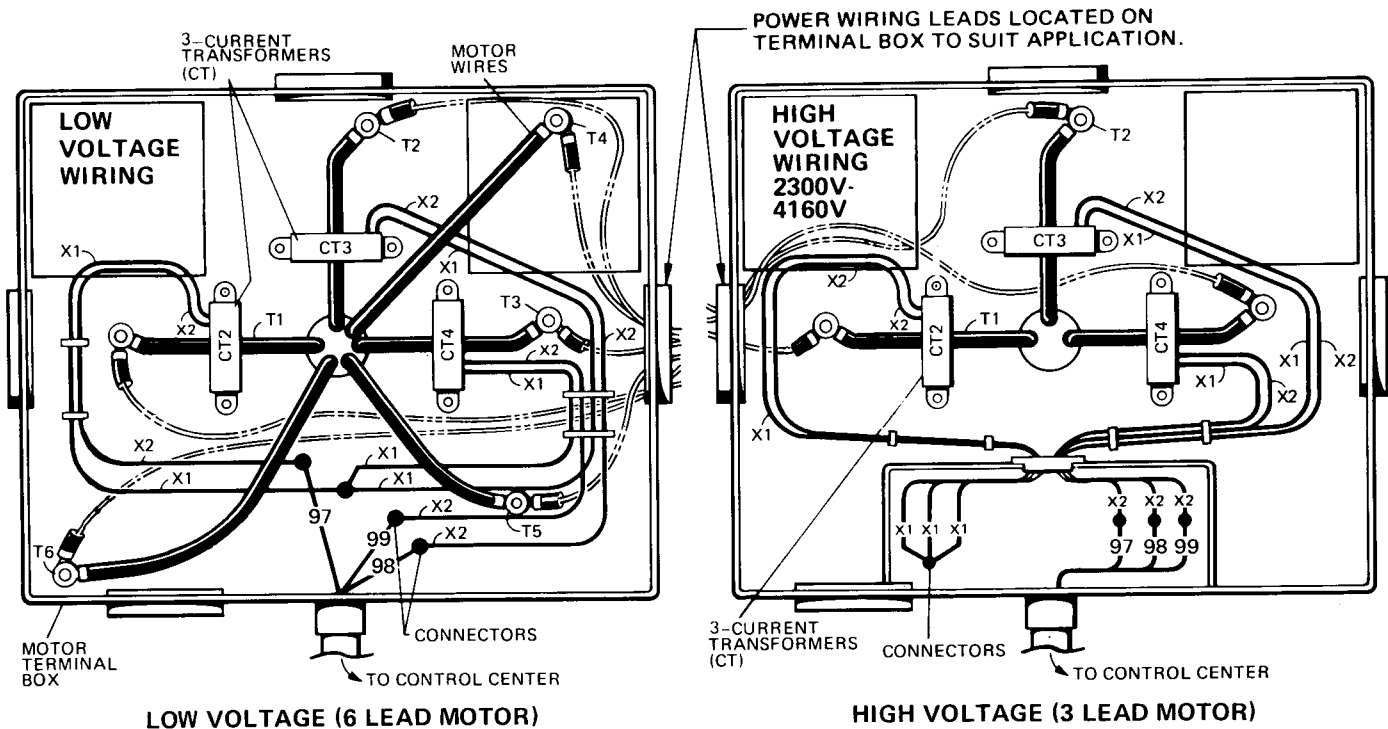


FIG. 9 - MOTOR CONNECTIONS

IMPORTANT

DO NOT cut wires to final length or make final connections to motor terminals or starter power input terminals until approved by the YORK representative.

Motors (Electro-Mechanical Starter)

Fig. 9 shows the power wiring hook-up for Motor Connections. (Refer to Wiring Labels in Motor Terminal Box for hook-up to suit motor voltage and amperage.)

Motor leads are furnished with a crimp type connection having a clearance hole for a 3/8" bolt, motor terminal lugs are not furnished.

Chiller with Solid State Starter or Variable Speed Drive

A chiller equipped with a Solid State Starter or Variable Speed Drive does not require wiring to the compressor motor. The motor power wiring is factory connected to the Solid State Starter or the Variable Speed Drive (or an optional factory installed disconnect switch). See Field Wiring Diagram. All wiring to the control panel and the oil pump starter is completed by the factory. A control transformer is furnished with the Solid State Starter and the Variable Speed Drive.

INSULATION (See Product Drawings FORM 160.48-PA1)

IMPORTANT

DO NOT field insulate until the unit has been leak tested under the supervision of the YORK representative.

Insulation of the type specified for the job, or minimum thickness to prevent sweating of 30° F surfaces (water chill application), should be furnished (by others) and applied to the cooler shell, end sheets, liquid feed line to flow chamber, compressor suction connection, and cooler liquid heads and connections. The liquid head flange insulation must be removable, to allow head removal for the tube maintenance. Details of areas to be insulated are given on the Product Drawing.

Units are furnished factory anti-sweat insulated on order at additional cost. This includes all low temperature surfaces except the two (2) cooler liquid heads.

INSTALLATION CHECK - REQUEST FOR START-UP SERVICE

The services of a YORK representative will be furnished to check the installation and supervise the initial start-up and operation on all chillers installed within the Continental United States.

After the unit is installed, piped and wired as described in this Instruction, but before any attempt is made to start the unit, the YORK District Office should be advised so that the start-up service, included in the contract price, can be scheduled. Notification to the YORK office should be by means of Installation Check List and Request, Form 160.45-CL1, in triplicate.



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