



TRANE®

Confidential Service Bulletin

Mandatory Retrofit for Insulated Bearing and Brush Kit

**For CenTraVac chillers with LiquiFlo 2.0
drives and 7318 (large) size thrust bearings**

Order Number: CTV-SVC27B-EN

DATE: September 2006

This confidential service bulletin provides special warranty policy and/or service expense compensation information for use by Trane warranty representatives.

NOTICE: Warnings and Cautions appear at appropriate sections throughout this literature. Read these carefully.

⚠ WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

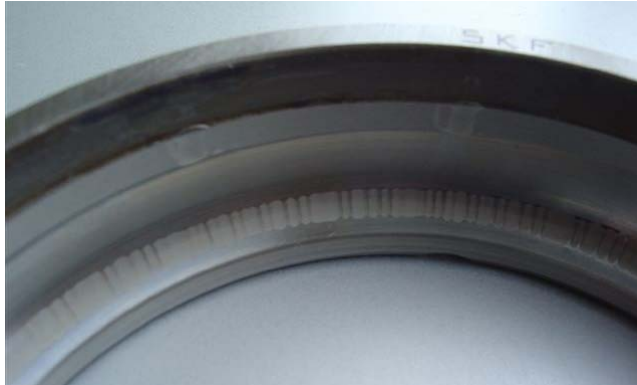
CAUTION: Indicates a situation that may result in equipment or property-damage only accidents.

Introduction

The purpose of this bulletin is to advise Trane Service Companies of a mandatory retrofit action for CVHF chillers that meet ALL of the following criteria:

- The units are equipped with standard steel thrust bearings BRG01210 (large).
- The units are factory equipped with the LiquiFlo 2.0 Adaptive Frequency Drive (drive model # AFDE....).

Figure 1. Photo of typical spark discharge damage in a bearing race



Problem

A situation may occur in some LF 2.0 equipped CVHF units where the chiller motor experiences a shaft voltage. The shaft voltage created may seek a path to ground through the thrust bearings, resulting in damage to the thrust bearing.

Units Affected

Rockwell LF 2.0 Adaptive Frequency Drive equipped CVHF centrifugal chillers manufactured after May 31, 2002 that use large thrust bearing (7318) BRG01210. A list of all affected units is attached to this bulletin.

Corrective Actions

For an LF 2.0 equipped CVHF chiller with a standard steel thrust bearing BRG01210 that is with or without a brush kit: Order and install the insulated bearing assembly, new design brush, and (if needed) a new bearing inspection cover. See the parts ordering information below for details.



Parts Ordering Information

For affected units order an insulated bearing kit BRG01586.

Note: BRG01586 comes with a new self-locking nut. Refer to service bulletin CTV-SVB19C-EN for instructions regarding the self-locking nut.

For affected units that do not have a brush kit already installed, or that have an older design brush kit installed, order one new design brush kit BRU00428.

For affected units shipped prior to 9/24/2004, or that have the older design brush kit installed, order one replacement New Design Bearing Inspection Cover COV03610.

Also order any other common parts needed for a thrust bearing replacement (gasket, o-ring) etc.

ROTOR BOLT

For affected units shipped prior to 9/24/2004 and that do not already have a rotor bolt installed, order and install one KIT12220. KIT12220 consists of the flat-headed rotor bolt, Belleville washer, drill bits, and tap that are needed to provide the shaft with a flat running surface for the grounding brush.

AFD equipped chillers shipped after 9/24/2004 should already be equipped with a drilled and tapped motor shaft and with a grounding bolt. Do not order KIT12220 if the affected chiller shipped after 9/24/2004.

The rotor shaft grounding system consists of the flat headed bolt that must be installed into the motor shaft, and a brush assembly that mounts through the new style bearing inspection cover.

Refer to the instructions below for the installation of the rotor shaft grounding bolt, or refer to the instructions for the bolt installation that were provided in PART-SVN79A-EN.

Note: The installer may find that some units already have a 7/16-20 hole tapped into the shaft, and/or that a flat headed bolt may already be installed into the motor shaft. If this is found it is not necessary to follow the full instructions for drilling and tapping the shaft or installing the bolt.

Instructions

- Remove the thrust bearing inspection cover, if the thrust bearings are to be changed at this time follow the applicable instructions for thrust bearing removal as detailed in service bulletin CVHE-SB-33C. Whenever these instructions reference a bulletin, always use the most recent version of that bulletin.

Note: Drilling and tapping of the motor shaft for the grounding system can be done with the thrust bearings and bearing bracket installed, but great care must be taken to prevent contamination of the thrust bearings. It is highly recommended, but not required, that the drilling and tapping be accomplished with the thrust bearings removed.

CAUTION

Thrust Bearing Damage!

Extreme care must be taken when drilling and tapping the motor shaft with the thrust bearings and bearing bracket installed. Failure to follow this recommendation may lead to contamination and damage of the thrust bearings.

- Follow all warnings and cautions as stated in bulletin CVHE-SB-33C.
- Use paper or plastic sheeting and tape to seal the bearing and motor cavity. Use the tape to seal the shaft to the sheeting, and the sheeting to the motor housing. This is done to keep the motor and housing CLEAN!



- Use the 1/4" drill bit provided in KIT12220 and carefully drill the center of the motor shaft, using the existing shaft center dimple and hole as a guide. Keep the drill bit well lubricated and drill to a depth of 2.0" to 2.2" from the end of the shaft. Drill straight into the shaft.
- Use the 25/64" drill bit provided in KIT12220 and carefully enlarge the 1/4" hole drilled in the step above. Keep the drill bit well lubricated and drill to a depth of 2.0" to 2.2" from the end of the shaft. Drill straight into the shaft.
- Flush any remaining chips or debris from the drilled hole.
- Use the 7/16-20 LH tap provided in KIT12220 and carefully tap the 25/64" hole that was drilled in the end of the motor shaft. Note the tap is LEFT-HAND. Keep the tap well lubricated and clean. Tap the hole in small steps, reversing the tap often to keep it clean. Tap to a minimum of 1.75" depth from the end of the shaft.
- Flush any remaining chips or debris from the drilled and tapped hole.
- Properly place the belleville washer onto the rotor grounding bolt provided in KIT12220. Note that the washer MUST be placed such that the concave side of the washer will be towards the motor shaft. The washer, when properly collapsed, will provide spring tension to the bolt. See Figure 1. You may install a small amount of Loctite 271 to the threads of the bolt.
- Install the rotor grounding bolt and washer onto the end of the motor shaft using a 1-1/8" socket. Note that the bolt has left-hand threads. Hold the shaft and tighten the bolt to 55-65 lb.-ft. The belleville washer should be evenly centered during tightening and fully compressed after tightening is complete.
- Carefully collect any debris and remove the sheeting and tape from the shaft and housing. Visually inspect the motor and remove any debris found.
- If not already done, re-install the inner bearing cap and install the new insulated thrust bearings onto the shaft. Follow the standard SKF mounting instructions for heating and pressing the bearings as provided in service bulletin CVHE-SB-33C. Install the thrust bearing center race retention locknut. Tighten and secure the locknut using the instructions in service bulletin CTV-SVB19C-EN
- Continue to use CVHE-SB-33C to position the inner seal, re-install the motor bearing bracket, and re-install the bearing retaining ring and bolts. Use CTV-SB-66F for guidance on the use of Loctite.
- If required, prepare the new inspection cover for installation onto the chiller. Transfer the bearing temperature sensor well (or plug, if the chiller is not equipped with bearing temp sensors) from the original bearing inspection cover to the new bearing inspection cover.
- Properly install the new bearing inspection cover onto the chiller.
- To install the new brush into the inspection cover, first remove the plug (if present) from the center fitting of the cover, then clean the threads. The threads and o-ring of the new style brush should be lubricated with Trane compressor oil OIL00022. The brush can then be inserted into the cover and tightened to a final maximum torque of 150 lb.-ft.

Note: The application of Loctite to the threads of the brush assembly is not recommended. The Loctite can enter into the assembly and cause it to seize or stick.

- Reassemble the bearing oil supply and return lines. Also reference service bulletins CTV-SVB11C-EN (oil orifice size), CVHE-SB-33C (thrust bearing installation procedures), and CTV-SB-66F (o-ring and flange sealants). Pressurize and leak test the chiller.

Figure 2. Rotor grounding bolt and washer, must be installed in the end of motor shaft to provide a smooth surface for the grounding brush to ride upon.



Figure 3. New Design Grounding Brush



Figure 4. Original Bearing Inspection Cover without brush fitting or brush.



Figure 5. New design Bearing Inspection Cover with brush fitting, but without the brush installed. This cover is standard on LF 2.0 equipped chillers since 9/24/2004.



Figure 6. New design Bearing Inspection Cover with new design Grounding Brush installed.



Material Deposition

Scrap all failed bearings.

Notification

Upon completion of the repair send an e-mail to techservice@trane.com containing the job name and unit serial number, to notify La Crosse Tech Service that the unit has been repaired per this service bulletin.

Labor Authorization

- Up to 2 hours will be allowed to install the new design brush kit.
- Standard hours will be allowed to install the thrust bearing.
- Standard hours will be allowed for refrigerant removal and reinstallation.
- 3 hours travel per job

Expiration Date

This service bulletin expires April 30, 2007.



List of Affected Units

Sales Order	Sales Office	Unit Serial	Job Name	Location	Ship Date
N8T858A	Akron - Canton	L04G03417	ALLIANCE HOSPITAL CHILLERS 2004	CANTON OH	08/10/2004
T6F879A	Appleton	L05F02728	UW RIVER FALLS STUDENT UNION	RIVER FALLS WI	06/28/2005
G1E006A	Atlanta	L05D02096	GWINNET COUNTY DETENTION - ORDER	LAWRENCEVILLE GA	05/16/2005
G1K702A	Atlanta	L02K17471	EQUITY OFFICE BLDG - 650 TON CHILLER REPLACEMENT	FOREST PARK GA	10/21/2002
G1N545A	Atlanta	L05A00227	ATLANTA FINANCIAL CENTER - 500 TON REPLCMT CHILLER	FOREST PARK GA	01/28/2005
G2E710A	Atlanta	L02H13707	CIVIC CENTER CHILLER REPLACEMENT	AUGUSTA GA	08/20/2002
E1D329A	Baltimore	L02L21477	TOWSON UNIVERSITY CHILLER PLANT IOS	SPARROWS POINT MD	12/17/2002
E1D329B	Baltimore	L02L21481	TOWSON UNIVERSITY CHILLER PLANT IOS	SPARROWS POINT MD	12/16/2002
E1J270A	Baltimore	L05J04295	JHU STUDENT HOUSING AND BOOKSTORE	BALTIMORE MD	10/20/2005
E1J270B	Baltimore	L05J04296	JHU STUDENT HOUSING AND BOOKSTORE	BALTIMORE MD	10/20/2005
K6T088A	Baton Rouge	L04E02289	PERKINS ROWE VILLAGE CENTRAL PLANT	BATON ROUGE LA	05/28/2004
K6T088B	Baton Rouge	L04E02290	PERKINS ROWE VILLAGE CENTRAL PLANT	BATON ROUGE LA	05/28/2004
J4F472A	Birmingham	L03F05446	UNIVERSITY OF ALABAMA - CENTRAL ENERGY PLANT	TUSCALOOSA AL	06/27/2003
J4F472B	Birmingham	L03F05448	UNIVERSITY OF ALABAMA - CENTRAL ENERGY PLANT	TUSCALOOSA AL	06/27/2003
A1A204A	Boston	L03B01957	SIEMENS - BOSTON HERALD	NORTH ANDOVER MA	02/27/2003
A1A361A	Boston	L03D04240	NETS - WHIDDEN HOSPITAL	TEWKSBURY MA	04/29/2003
A1C837A	Boston	L04D01802	MASS GENERAL HOSPITAL-CHARLES RIVER PLAZA	BOSTON MA	05/06/2004
A1C837B	Boston	L04D01811	MASS GENERAL HOSPITAL-CHARLES RIVER PLAZA	BOSTON MA	05/10/2004
A1C837C	Boston	L04D01815	MASS GENERAL HOSPITAL-CHARLES RIVER PLAZA	BOSTON MA	05/10/2004
A1H625A	Boston	L05L04758	SIMMONS COLLEGE CHILLER PLANT1	SOUTH BOSTON MA	11/21/2005
A1N680B	Boston	L03A00008	COMMAIR/ FIDELITY 300 & 400 PURITAN WAY	AVON MA	01/20/2003
C3Q733A	Buffalo	L02J16581	C349150 - UB CARY/FARBER/SHERMAN COMPLEX	LOCKPORT NY	10/14/2002
C3Q733B	Buffalo	L02L20519	C349150 - UB CARY/FARBER/SHERMAN COMPLEX	LOCKPORT NY	12/03/2002
C3Q733C	Buffalo	L02L20521	C349150 - UB CARY/FARBER/SHERMAN COMPLEX	LOCKPORT NY	12/03/2002



Sales Order	Sales Office	Unit Serial	Job Name	Location	Ship Date
CSA136A	Calgary, Alberta	L04B00917	STANDARD LIFE PLACE 800	CALGARY AB	03/19/2004
F1B894A	Charlotte	L05D01801	BLUM CHILLER PLANT	STANLEY NC	04/21/2005
R1E324A	Chicago	L02M22350	HYATT WAIKIKI 44CWT - ORDER	SAN PEDRO CA	12/27/2002
R1E324B	Chicago	L02M22366	HYATT WAIKIKI 44CWT - ORDER	SAN PEDRO CA	12/27/2002
R1E328B	Chicago	L02M22355	HARD ROCK [COPY]	BROADVIEW IL	12/23/2002
R1G940A	Chicago	L03G06219	GBA - RPSL COHN RESEARCH - ORDER	CHICAGO IL	08/18/2003
R1J030A	Chicago	L04B00801	INS FEDERAL BUILDING CHILLER	SKOKIE IL	02/27/2004
R1K758A	Chicago	L03L07840	MOTOROLA CHILLER PLANT REPLACEMENT 2138-041-00IL23	SCHAUMBURG IL	12/10/2003
R1K758B	Chicago	L03L07842	MOTOROLA CHILLER PLANT REPLACEMENT 2138-041-00IL23	SCHAUMBURG IL	12/10/2003
R1N872A	Chicago	L04H04095	WRIGLEY GLOBAL INNOVATION CENTER	CHICAGO IL	09/23/2004
R1S100A	Chicago	L05A00199	TOOTSIE ROLL 600 TON CHILLER	CHICAGO IL	01/24/2005
R1V621B	Chicago	L02G12183	ST. MARG NORTH AND SOUTH CAMPUS	DYER IN	07/31/2002
R1X085A	Chicago	L05L05104	JOLIET JUNIOR COLLEGE - #226995	CHICAGO, IL	12/19/2005
R1X143A	Chicago	L05K04645	GOOD SHEPHERD COOLING SYSTEM UPGRADE - PHASE 2	CHICAGO IL	11/17/2005
N3K763A	Cleveland	L02M22811	CCF - BRB CHILLERS	GARFIELD HEIGHTS OH	01/06/2003
N3K763B	Cleveland	L02M22810	CCF - BRB CHILLERS	GARFIELD HEIGHTS OH	01/06/2003
N3N996A	Cleveland	L04D01576	PROGRESSIVE CALL CENTER - D	RIVERVIEW FL	04/22/2004
V6L450A	Colorado Springs	L04K04762	BROADMOOR EVENTS CENTER CHILLER	COLORADO SPRINGS CO	11/12/2004
V6M317A	Colorado Springs	L05J04103	NORTH MEMORIAL HOSPITAL	COLORADO SPRINGS CO	10/12/2005
V6M317B	Colorado Springs	L05J04275	NORTH MEMORIAL HOSPITAL	COLORADO SPRINGS CO	10/12/2005
N4D934B	Columbus	L02G12196	MT. CARMEL EAST EXPANSION - TOWER CHILLERS	COLUMBUS OH	07/29/2002
N4P960A	Columbus	L05H03643	COLUMBUS CONVENTION CENTER CHILLER	xx	09/15/2005
L3C535A	Dallas	L02J16193	VA TEMPLE	TEMPLE TX	09/27/2002
L3E225B	Dallas	L03A01219	ECONOMEDES HIGH SCHOOL	EDINBURG TX	01/31/2003
L3J617A	Dallas	L03L07805	RADIO SHACK - RIVERFRONT CAMPUS CHILLERS	FORT WORTH TX	11/21/2003
L3J617B	Dallas	L03L07807	RADIO SHACK - RIVERFRONT CAMPUS CHILLERS	FORT WORTH TX	11/18/2003
L3J617C	Dallas	L03L07809	RADIO SHACK - RIVERFRONT CAMPUS CHILLERS	FORT WORTH TX	11/18/2003
L3J617D	Dallas	L03L07819	RADIO SHACK - RIVERFRONT CAMPUS CHILLERS	FORT WORTH TX	11/20/2003



Sales Order	Sales Office	Unit Serial	Job Name	Location	Ship Date
L3J617E	Dallas	L03L07821	RADIO SHACK - RIVERFRONT CAMPUS CHILLERS	FORT WORTH TX	11/24/2003
L3L041B	Dallas	L04C01178	TAC AMERICAS--CITY HALL PERFORMACE CONTRACT	IRVING TX	09/02/2004
L3P135A	Dallas	L04L04943	TSTC CHILLER REPLACEMENT	HARLINGEN TX	11/22/2004
L3R695A	Dallas	L05D01939	POLY AMERICA HENDERSON PLANT-04	HENDERSON NV	05/03/2005
L3R734A	Dallas	L05D01940	POLY AMERICA HENDERSON PLANT-04	HENDERSON NV	05/03/2005
L3R933A	Dallas	L05F02867	WISE REGIONAL HEALTH SYSTEMS--REPLACEMENT HOSPITAL	IRVING TX	06/30/2005
L3R967A	Dallas	L05E02158	HARRIS METHODIST - HEB	BEDFORD TX	05/13/2005
R4P853A	Davenport	L04B00598	BLACK HAWK COLLEGE BLDG #1	MOLINE IL	02/25/2004
R4S464C	Davenport	L05K04641	RIA - CHILLER PROJECT- BLDG 348/73	ROCK ISLAND IL	11/28/2005
N5G810A	Dayton	L05C01590	BVH -SOUTH PROJECT	FINDLAY OH	04/18/2005
N5G810B	Dayton	L05C01594	BVH -SOUTH PROJECT	FINDLAY OH	04/18/2005
V5W310A	Denver	L05B00894	DENVER HEALTH AND HOSPITAL CHILLER PLANT ADDITION	DENVER CO	03/09/2005
V5W310B	Denver	L05B00927	DENVER HEALTH AND HOSPITAL CHILLER PLANT ADDITION	DENVER CO	03/09/2005
V5X098A	Denver	L05H03635	ST MARY - SAN FRANCISCO	SAN FRANCISCO CA	08/30/2005
V5X098B	Denver	L05H03641	ST MARY - SAN FRANCISCO	SAN FRANCISCO CA	08/30/2005
R5H481A	Des Moines	L04D01672	MERLE HAY MALL - CHILLER	DES MOINES IA	04/27/2004
R5J179A	Des Moines	L05B00759	OAKDALE POWERHOUSE BUILDING - MECHANICAL	OAKDALE IA	02/25/2005
R5J179B	Des Moines	L05B00761	OAKDALE POWERHOUSE BUILDING - MECHANICAL	OAKDALE IA	02/25/2005
M1S530A	Detroit	L03L08001	BLUE CROSS BLUE SHIELD OF MICHIGAN DETROIT TOWER	DETROIT MI	12/02/2003
M1V217A	Detroit	L04C01194	O.C.C. ORCHARD RIDGE - CHILLER REPLACEMENT	FARMINGTON HILLS MI	04/28/2004
M1Y610A	Detroit	L05F02709	UM SCHOOL OF PUBLIC HEALTH	ANN ARBOR MI	06/27/2005
P6J663A	Evansville	L04B00674	BRIGGS & STRATTON CHILLER	MURRAY KY	02/24/2004
S1B329A	Fargo	L02L20504	UND MEDICAL SCIENCE BLDG.	GRAND FORKS ND	11/26/2002
N7F515A	Fort Wayne	L05B00965	WEST LAFAYETTE JR SR HIGH SCHOOL	WEST LAFAYETTE IN	03/11/2005
N7G020A	Fort Wayne	L05C01577	LUTHERAN ORTHO - VFD CHILLER	FORT WAYNE IN	04/13/2005
N7G412A	Fort Wayne	L05L04797	DUPONT HOSPITAL EXPANSION	FORT WAYNE IN	11/28/2005
K9G287A	Fort Worth	L03E05178	UNT HEALTH SCIENCE LAB	FORT WORTH TX	06/16/2003
K9G287B	Fort Worth	L03E05186	UNT HEALTH SCIENCE LAB	FORT WORTH TX	06/19/2003
X3G200A	Fresno	L03L07825	C.O.S MULTI - MEDIA LEARNING CENTER	VISALIA CA	11/24/2003
X3H336A	Fresno	L04K04447	TAFT CORRECTIONAL - 700 TON CTV CHANGEOUT	TAFT CA	10/21/2004



Sales Order	Sales Office	Unit Serial	Job Name	Location	Ship Date
X3H431A	Fresno	L05D01821	7 STORY TOWER & CENTRAL PLANT - CHILLERS & BACNET	MODESTO CA	04/28/2005
X3H462A	Fresno	L05B00774	C.O.S.- RENOVATION OF BLDG 27	VISALIA CA	02/28/2005
M5Q433B	Grand Rapids	L02H13450	ARMSTRONG CHILLERS FINAL SELECTIONS	KALAMAZOO MI	08/22/2002
F3G329A	Greensboro	L04B00644	GTCC CENTRAL ENERGY PLANT ORDER	GREENSBORO NC	02/20/2004
F3G329B	Greensboro	L04B00656	GTCC CENTRAL ENERGY PLANT ORDER	GREENSBORO NC	02/20/2004
F3J583B	Greensboro	L05D01931	SALEM COLLEGE CHILLER	GREENSBORO NC	04/29/2005
F3R820A	Greensboro	L03D04589	VALASSIS PRINTING - 2003	DURHAM NC	05/19/2003
D1G095A	Harrisburg	L05L05131	BAYER CORP MYERSTOWN BUILDING #4 CHILLER ADDITION	MYERSTOWN, PA	12/22/2005
B2T046B	Hartford	L03B01933	NORDEN PARK-CHILLER REPLACEMENT	PLAINVILLE CT	02/19/2003
B2V453A	Hartford	L05A00458	MERRITT TOWERS AT 901 MAIN ST NORWALK (SUBMITTAL]	PLAINVILLE CT	02/09/2005
B2V453B	Hartford	L05A00459	MERRITT TOWERS AT 901 MAIN ST NORWALK (SUBMITTAL]	PLAINVILLE CT	02/09/2005
B2W083A	Hartford	L05G03142	BULKELEY HIGH SCHOOL	xx	8/3/2005
B2W083B	Hartford	L05G03143	BULKELEY HIGH SCHOOL	xx	8/3/2005
B2W428A	Hartford	L05K04485	HIG NORTH PLAZA CHILLER PLANT UPGRADE CH-4	MIDDLETOWN CT	11/08/2005
W1L693B	Honolulu	L04F03013	UNIVERSITY OF HAWAII REVISED CHILLERS	LONG BEACH CA	07/26/2004
W1L792A	Honolulu	L04L05036	WHOLE BARRACKS RENEWAL PH 2C1	LONG BEACH CA	12/06/2004
L4B790A	Houston	L05K04379	2000 ST. JAMES	HOUSTON TX	10/27/2005
L4B790B	Houston	L05K04384	2000 ST. JAMES	HOUSTON TX	10/27/2005
L4L670A	Houston	L04E02113	JEFFERSON COUNTY HOSPITAL - BID	PORT ARTHUR TX	05/21/2004
L4L670B	Houston	L04E02119	JEFFERSON COUNTY HOSPITAL - BID	PORT ARTHUR TX	05/21/2004
L4L670C	Houston	L04E02120	JEFFERSON COUNTY HOSPITAL - BID	PORT ARTHUR TX	05/21/2004
L4M182A	Houston	L04G03239	PRAIRIE VIEW A&M SCHOOL OF NURSING	HOUSTON TX	07/29/2004
L4M182B	Houston	L04G03242	PRAIRIE VIEW A&M SCHOOL OF NURSING	HOUSTON TX	07/29/2004
Q2D920A	Kansas City	L02E08711	PARK RIDGE MEDICAL CENTER	CHATTANOOGA TN	05/31/2002
Q2F870A	Kansas City	L04A00077	UNIVERSITY OF KANSAS MURPHY HALL CHILLER REPLACE	KANSAS CITY MO	01/20/2004
Q2H294B	Kansas City	L05F02719	IRS PROCESSING CENTER CHILLERS	KANSAS CITY MO	07/19/2005
T2V870A	La Crosse	L05K04483	LUTHER MIDELFORT 2005 CHILLER PLANT	EAU CLAIRE WI	11/04/2005
W4K451A	Las Vegas	L04L05144	UBC UNITED CARPENTER HALL	LAS VEGAS NV	12/09/2004
W4K451B	Las Vegas	L04L05146	UBC UNITED CARPENTER HALL	LAS VEGAS NV	12/09/2004
K3R731A	Little Rock	L02E09644	UCA - FERRIS CHILLER	CONWAY AR	06/17/2002
K3W041A	Little Rock	L05F02703	ST. JOSEPH'S CHILLER PLANT	HOT SPRINGS AR	06/23/2005



Sales Order	Sales Office	Unit Serial	Job Name	Location	Ship Date
K3W112A	Little Rock	L05F03025	UCA WEST CHILLER PLANT - NEW CHILLER	CONWAY AR	08/31/2005
K3W165B	Little Rock	L05K04623	TYSON FOODS R&D FACILITY	SPRINGDALE AR	11/18/2005
W2D004A	Los Angeles	L02H14114	CTI - PAT - WILSHIRE	SANTA MONICA CA	08/26/2002
W2D864A	Los Angeles	L03A00452	CHUMASH	SANTA YNEZ CA	01/24/2003
W2D864B	Los Angeles	L03A00454	CHUMASH	SANTA YNEZ CA	01/24/2003
W2D966A	Los Angeles	L03E04853	MT. SAC	WALNUT CA	06/04/2003
W2D966B	Los Angeles	L03E04854	MT. SAC	WALNUT CA	06/04/2003
W2E737B	Los Angeles	L03H06552	KAISER ONTARIO	FONTANA CA	09/05/2003
W2E811C	Los Angeles	L04B00509	500 NEWPORT CENTER DRIVE - IRVINE CHILLERS	LONG BEACH CA	02/13/2004
W2H838A	Los Angeles	L04J04137	LA TIMES - CMM CONSTRUCTORS (ORDER)	SOUTH EL MONTE CA	09/29/2004
W2H838B	Los Angeles	L04J04142	LA TIMES - CMM CONSTRUCTORS (ORDER)	SOUTH EL MONTE CA	09/29/2004
W2N230A	Los Angeles	L05G03399	SCTS NUTRALITE	xx	8/22/2005
K2E015A	Memphis	L03F05456	SHADES OF GREEN	LAKE BUENA VISTA FL	07/15/2003
K2E418A	Memphis	L04M05696	FEDERAL CORRECTIONAL INSTITUTE	POLLOCK LA	01/11/2005
K2E418B	Memphis	L04M05704	FEDERAL CORRECTIONAL INSTITUTE	POLLOCK LA	01/17/2005
K2E418C	Memphis	L04M05706	FEDERAL CORRECTIONAL INSTITUTE	POLLOCK LA	01/14/2005
T5K556A	Milwaukee	L02K19813	ST. LUKE'S CARDIAC CENTER AND PATIENT TOWER-IOS	MILWAUKEE WI	11/18/2002
T5K556B	Milwaukee	L02K19814	ST. LUKE'S CARDIAC CENTER AND PATIENT TOWER-IOS	MILWAUKEE WI	11/15/2002
P4B498A	Nashville	L05G03512	CUMBERLAND MEDICAL CENTER	xx	8/25/2005
B1H561A	New Haven	L03F05454	BRANFORD INTERMEDIATE SCHOOL	PLAINVILLE CT	06/30/2003
B1J262A	New Haven	L04D01798	W.C.S.U. - NEW SCIENCE BUILDING	DANBURY CT	04/30/2004
B1J262B	New Haven	L04D01800	W.C.S.U. - NEW SCIENCE BUILDING	DANBURY CT	04/30/2004
B1L237A	New Haven	L05L04755	ESPN BUILDING 3 AND 3A	BRISTOL CT	11/17/2005
B3L200A	New York	L03D04075	AIG DATA CENTER II	FORT WORTH TX	04/29/2003
B3L200D	New York	L03D04236	AIG DATA CENTER II	FORT WORTH TX	04/29/2003
B3U609A	New York	L03K07464	CLEVELAND PLAYHOUSE REVISION 2	CLEVELAND OH	11/10/2003
B3U813A	New York	L03M08541	650 5TH AVE - CHILLER REPLACEMENT	HAUPPAUGE NY	01/22/2004
B3U813B	New York	L03M08553	650 5TH AVE - CHILLER REPLACEMENT	HAUPPAUGE NY	01/22/2004
E5F068A	Norfolk	L02K19060	NNSB CENTRAL PLANT	NEWPORT NEWS VA	11/07/2002
E5F068B	Norfolk	L02K19063	NNSB CENTRAL PLANT	NEWPORT NEWS VA	11/08/2002
E5P759A	Norfolk	L05B00896	SENTARA - WRMC CHILLERS-ORDER	WILLIAMSBURG VA	03/07/2005
B6B991B	North Jersey	L05D01619	5 WOOD HOLLOW ROAD-PARSIPPANY	ROCKAWAY NJ	04/15/2005



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B6P479A	North Jersey	L05K04620	MORRISTOWN MEMORIAL HOSPITAL-- HEART HOSPITAL	RANDOLPH NJ	11/22/2005
B6P479B	North Jersey	L05K04621	MORRISTOWN MEMORIAL HOSPITAL-- HEART HOSPITAL	RANDOLPH NJ	11/22/2005
B6P479C	North Jersey	L05K04628	MORRISTOWN MEMORIAL HOSPITAL-- HEART HOSPITAL	RANDOLPH, NJ	12/5/2005
B6W601A	North Jersey	L04M05403	RUTGERS - LIFE SCIENCE ADDITIONS TO OLSON HALL	NEWARK NJ	12/23/2004
B6W601B	North Jersey	L04M05409	RUTGERS - LIFE SCIENCE ADDITIONS TO OLSON HALL	NEWARK NJ	12/23/2004
B6Z438A	North Jersey	L05L05103	UNILEVER CHILLER AND BOILER REPLACEMENT	RANDOLPH, NJ	12/19/2005
B6Z438B	North Jersey	L05L05109	UNILEVER CHILLER AND BOILER REPLACEMENT	RANDOLPH, NJ	12/21/2005
B6Z438C	North Jersey	L05L05118	UNILEVER CHILLER AND BOILER REPLACEMENT	RANDOLPH, NJ	12/21/2005
L1B888A	Oklahoma City	L05H03634	DELL TECHNICAL SUPPORT CENTER PHASE 2	OKLAHOMA CITY OK	08/31/2005
L1C133A	Oklahoma City	L05L05263	REYNOLDS ARMY HOSPITAL	OKLAHOMA CITY, OK	1/9/2006
H3T914A	Orlando	L05D02020	PAUL J. HAGERTY HIGH SCHOOL	OVIDO FL	05/11/2005
R3M152A	Peoria	L05F02694	MOSS-CAT TC BLDG AC ENERGY CENTER 1200T CHIL	MOSSVILLE IL	06/20/2005
D2P604A	Philadelphia	L03D03943	COLORITE PROCESS CHILLER	BURLINGTON NJ	04/17/2003
D2P810A	Philadelphia	L03D04638	INTERBORO HIGH SCHOOL	PROSPECT PARK PA	05/20/2003
D2R864A	Philadelphia	L04B00864	DOYLESTOWN HOSPITAL CHILLER	PHILADELPHIA PA	03/09/2004
D2R864B	Philadelphia	L04B00866	DOYLESTOWN HOSPITAL CHILLER	PHILADELPHIA PA	03/09/2004
D2R864C	Philadelphia	L04C01403	DOYLESTOWN HOSPITAL CHILLER	DOYLESTOWN PA	04/29/2004
D2S307B	Philadelphia	L04B00846	PHOENIX MECHANICAL - MONTGOMERY COUNTY GERIATRIC	ROYERSFORD PA	03/03/2004
D2U929A	Philadelphia	L05D01947	ROWAN UNIVERSITY - CENTRAL CHILLER PLANT	GLASSBORO NJ	05/11/2005
D2U929B	Philadelphia	L05D01975	ROWAN UNIVERSITY - CENTRAL CHILLER PLANT	GLASSBORO NJ	05/11/2005
D2U940A	Philadelphia	L05C01194	BRT - 555 LANCASTER	PHILADELPHIA PA	03/22/2005
D2U940B	Philadelphia	L05C01196	BRT - 555 LANCASTER	PHILADELPHIA PA	03/22/2005
D2V404A	Philadelphia	L05F02698	MERCK OFFICE COMPLEX CHILLER EXPANSION	MAINLAND PA	06/21/2005
D2W461B	Philadelphia	L05L05067	COMCAST CENTER	PHILADELPHIA, PA	12/22/2005
V3D034A	Phoenix	L03C03337	USAA PHOENIX NORTERRA CAMPUS PROJECT PHASE 1A	DEER VALLEY AZ	03/31/2003
V3D640A	Phoenix	L03J06959	EAST CENTRAL MIDDLE SCHOOL	PHOENIX AZ	09/30/2003
V3D640B	Phoenix	L03J06961	EAST CENTRAL MIDDLE SCHOOL	PHOENIX AZ	09/30/2003
V3D827A	Phoenix	L03J07125	WELLS FARGO OCOTILLO SITE	PHOENIX AZ	10/13/2003
V3D827B	Phoenix	L03J07126	WELLS FARGO OCOTILLO SITE	PHOENIX AZ	10/17/2003



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V3D827C	Phoenix	L03J07132	WELLS FARGO OCOTILLO SITE	PHOENIX AZ	10/13/2003
V3D827D	Phoenix	L03K07235	WELLS FARGO OCOTILLO SITE	PHOENIX AZ	10/17/2003
V3F928A	Phoenix	L04H03684	MCKESSON AT GALLERIA FINAL 6-30-04	SCOTTSDALE AZ	08/23/2004
V3G498A	Phoenix	L05A00359	W F TEMPE DATA CENTER	PHOENIX AZ	02/03/2005
V3G498B	Phoenix	L05A00363	W F TEMPE DATA CENTER	PHOENIX AZ	02/03/2005
V3G498C	Phoenix	L05A00448	W F TEMPE DATA CENTER	PHOENIX AZ	02/09/2005
V3H091A	Phoenix	L05C01326	NAU CHILLER 11-18-04 HI EFF CHILLERS	FLAGSTAFF AZ	03/30/2005
V3H091B	Phoenix	L05C01327	NAU CHILLER 11-18-04 HI EFF CHILLERS	FLAGSTAFF AZ	03/30/2005
D3P490A	Pittsburgh	L03C03775	ST MARGARETS CHILLER PLANT - BHKRA #97051.34	PITTSBURGH PA	04/11/2003
A2A925A	Portland, ME	L03L08013	UNUMPROVIDENT ADDITIONAL CHILLER	AUBURN ME	12/11/2003
A2E195A	Portland, ME	L05D02009	EXETER TURN KEY CHILLER	GOFFSTOWN NH	05/09/2005
A2E263A	Portland, ME	L05H03644	UNE - BIDDEFORD CHILLER PLANT UPGRADE	AUBURN ME	08/31/2005
Y2T197A	Portland, OR	L05D01974	STATE OF OREGON, CENTRAL DATA CENTER	SALEM OR	05/09/2005
Y2T197B	Portland, OR	L05D01981	STATE OF OREGON, CENTRAL DATA CENTER	SALEM OR	05/09/2005
A5G192A	Providence	L03H06414	AT CROSS CTV FINAL 6.24.02	LINCOLN RI	08/29/2003
A5K246A	Providence	L05L05135	NEWPORT MARRIOT	CRANSTON, RI	12/28/2005
A5K246B	Providence	L05L05137	NEWPORT MARRIOT	CRANSTON, RI	12/28/2005
75A609B	Reinetsu	L04L05278	75A609 - 75A609 - FUJIFILM ODAWARA	SEATTLE WA	12/22/2004
75A708A	Reinetsu	L05G03525	75A708 - FUJI FILM CL 600RT	SEATTLE WA	08/30/2005
E3A542A	Richmond	L02H14589	WINCHESTER MEDICAL CTR CHILLER ADD - RD/3326	WINCHESTER VA	09/18/2002
E3A542B	Richmond	L02H15109	WINCHESTER MEDICAL CTR CHILLER ADD - RD/3326	WINCHESTER VA	09/17/2002
C4P132A	Rochester	L04F02798	ARNOT OGDEN HOSPITAL - PAVILION ADDITION 2004	ELMIRA NY	07/14/2004
X2Q389A	Sacramento	L03H06340	CSUS - MODOC HALL	SACRAMENTO CA	08/27/2003
V4B954A	Salt Lake City	L05C01318	BENEFICIAL LIFE TOWER CHILLER PLANT	MURRAY UT	03/25/2005
V4B954B	Salt Lake City	L05C01320	BENEFICIAL LIFE TOWER CHILLER PLANT	MURRAY UT	03/25/2005
V4C191A	Salt Lake City	L05J04086	UTAH STATE CAPITAL CENTRAL PLANT	SALT LAKE CITY UT	10/10/2005
V4C853A	Salt Lake City	L05L04760	ARRABELLE AT VAIL SQUARE	VAIL CO	11/28/2005
W3B232A	San Diego	L05A00442	FIRST NATIONAL BANK CENTER CHILLER REPLACEMENT	SAN DIEGO CA	02/04/2005



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W3B232B	San Diego	L05A00451	FIRST NATIONAL BANK CENTER CHILLER REPLACEMENT	SAN DIEGO CA	02/04/2005
W3B243A	San Diego	L05E02394	FOUR SEASONS AVIARA CHILLER REPLACEMENT TURNKEY	SAN DIEGO CA	05/27/2005
W3C816A	San Diego	L03J06965	110 PLAZA - ENERGY RETROFIT	LAKESIDE CA	10/03/2003
W3D966D	San Diego	L04M05705	QUALCOMM BLDG W CENTRAL PLANT	SAN DIEGO CA	01/17/2005
W3T108A	San Diego	L03C03121	29 PALMS PHASE III ENERGY CONSERVATION UPGRADE	LAKESIDE CA	03/26/2003
W3T108D	San Diego	L03C03133	29 PALMS PHASE III ENERGY CONSERVATION UPGRADE	LAKESIDE CA	03/21/2003
W3W325A	San Diego	L04H03778	HEWLETT PACKARD CHILLER ADDITION #2	RANCHO BERNARDO CA	09/08/2004
X1A391A	San Francisco	L02E09746	CELL GENESYS--S.S.F. -- RICK TAIPALE X1-20357	HAYWARD CA	06/21/2002
X1A391B	San Francisco	L02E09755	CELL GENESYS--S.S.F. -- RICK TAIPALE X1-20357	HAYWARD CA	06/21/2002
X1A422A	San Francisco	L02F10516	DELTAGEN -- LOEK -- CHILLERS+COILS X1-20372	MENLO PARK CA	06/28/2002
X1A422B	San Francisco	L02F10518	DELTAGEN -- LOEK -- CHILLERS+COILS X1-20372	MENLO PARK CA	06/28/2002
X1A777A	San Francisco	L02K18045	SEAGATE - MILPITAS, CA (BLDG. 8A CHILLERS) REV. 8	MILPITAS CA	10/24/2002
X1A845A	San Francisco	L02K18587	ADOBE PHASE 2 TOWER 2	SAN JOSE CA	10/30/2002
X1B492B	San Francisco	L03G06151	DE YOUNG MUSEUM - CMI	MENLO PARK CA	08/12/2003
X1B862A	San Francisco	L04M05506	CHOMP CHILLERS - CMI - VIJAY SINGH	MENLO PARK CA	12/28/2004
X1B862B	San Francisco	L04M05508	CHOMP CHILLERS - CMI - VIJAY SINGH	MENLO PARK CA	12/28/2004
X1D442B	San Francisco	L04G03440	WELLS FARGO - CHILLERS	SAN FRANCISCO CA	08/10/2004
X1D461B	San Francisco	L04H03843	AGILENT	SAN JOSE CA	09/03/2004
X1E118A	San Francisco	L05B01003	HP_B1-6_CENTRAL PLANT UPGRADE	HAYWARD CA	03/15/2005
X1E352A	San Francisco	L05E02322	XEROX PARC CHILLER,PHASE2	SAN JOSE CA	05/25/2005
X1E502A	San Francisco	L05F02729	QUALCOMM-QMT CENTRAVAC CHILLERS	SAN JOSE CA	07/26/2005
X6C144B	San Francisco	L03M08428	QB-3 MISSION BAY CHILLER	SAN FRANCISCO CA	01/06/2004
X6C237A	San Francisco	L04D01915	SBC PINE STREET CHILLER	SAN FRANCISCO CA	05/11/2004
X6C549A	San Francisco	L05F03034	SIEMENS - MERCED CHILLER	xx	8/5/2005
Y3E177A	Seattle	L03J06929	OSTROM'S MECHANICAL SYSTEM UPGRADE	OLYMPIA WA	09/25/2003
Y3F505B	Seattle	L04M05509	SEATTLE ART MUSEUM EXPANSION	SEATTLE WA	12/30/2004
Y3F515A	Seattle	L04M05521	WASHINGTON MUTUAL TOWER CHILLER PLANT	SEATTLE WA	12/29/2004
Y3F515B	Seattle	L04M05532	WASHINGTON MUTUAL TOWER CHILLER PLANT	SEATTLE WA	12/30/2004
A3A904A	Springfield, MA	L03E05198	MILFORD WHITINSVILLE REGIONAL HOSPITAL - VOLUME 1	MILFORD MA	06/20/2003

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A3C004A	Springfield, MA	L05C01336	PEPSICO MECHANICSBURG UTILITY UPGRADES	MECHANICSBURG PA	03/29/2005
A3C004B	Springfield, MA	L05C01347	PEPSICO MECHANICSBURG UTILITY UPGRADES	MECHANICSBURG PA	03/30/2005
A3C004C	Springfield, MA	L05C01339	PEPSICO MECHANICSBURG UTILITY UPGRADES	MECHANICSBURG PA	03/29/2005
A3C004D	Springfield, MA	L05C01341	PEPSICO MECHANICSBURG UTILITY UPGRADES	MECHANICSBURG PA	03/30/2005
A3C155A	Springfield, MA	L05G03505	BR+A/ WORCESTER COURT	SMITHFIELD RI	08/30/2005
A3C155B	Springfield, MA	L05G03511	BR+A/ WORCESTER COURT	SMITHFIELD RI	08/30/2005
S3S160A	Twin Cities	L05D01949	JAMAR - ST. MARY'S HOSPITAL AHU'S & CHILLER ONLY	DULUTH MN	05/09/2005
CTV490A	Vancouver, B.C.	L03K07436	TD TOWER CHILLER REPL 60702	VANCOUVER BC	10/31/2003
CTV511A	Vancouver, B.C.	L04A00075	TD TOWER CHILLER REPL 60702	DELTA BC	01/23/2004
Q1S501C	Wichita	L05B00925	BOEING MPF 3000 TON PLANT FINAL	WICHITA KS	03/31/2005
H8B938A	xx	L05L05186	JMCH CEP AND LAUNDRY	JACKSON, TN	12/26/2005
H8B938B	xx	L05L05191	JMCH CEP AND LAUNDRY	JACKSON, TN	12/23/2005

Questions

For general questions contact the CTV Technical Service department in La Crosse at 608-787-3943 or e-mail at TechService@trane.com.



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