YORK®	Form No.: 160.00-M1 (LS05)	403
	Supersedes: None	
LITERATURE SUPPLEMENT	File with: 160.00-M1	
Subject: Variable Speed Compressor Drive Will Not Slow Down		

GENERAL

Background

There have been instances where the Variable Speed Compressor Drive (VSCD) is not slowing down. Suggestions for unit operating parameters and panel software changes are outlined below which may correct this condition.

Solution 1

Lower the Entering Condenser Water Temperature

Ensure that the return condenser water temperature is not set to 85° F. Many sites are running their tower controls like the chiller is a fixed speed machine. In some case, a YORK chiller is running with another manufacturer's chiller that cannot tolerate cooler condenser water temperatures. A YORK chiller with a VSCD will perform best when the return condenser water temperature is set for 14° F above the leaving chilled liquid temperature, as long as the leaving chilled liquid temperature is not below 41° F.

Solution 2

Ensure Vane Feedback is Properly Calibrated

Ensure that the pre-rotation vane potentiometer is properly adjusted. Use the following steps to for checking adjustment.

1. Shut the chiller down and place the vanes to the fully closed position by using the control panel.
2. Loosen the vane linkage.
3. Gently pull on the vane arm to verify that the vanes are fully closed.
4. Tighten the vane linkage.
5. When power is applied to the chiller, measure the output voltage from the pre-rotation vane potentiometer. This measurement can be taken at the J4 connector pin 1 to pin 2 on the Adaptive Capacity Control board inside the control panel.
6. The voltage measurement should be .3 to .7 volts. If the voltage measurement is outside this range, then loosen the setscrew on the pre-rotation vane potentiometer shaft. Rotate the shaft until the voltage measurement is correct. Tighten the setscrew on the pre-rotation vane potentiometer shaft. Recalibrate the pre-rotation vane potentiometer using the automatic calibration from the control panel.

Solution 3

Set the Stability Limit Adjustment to 7000

Some chiller systems have short primary loops or very light loads. This may cause the chiller to become unstable. In some cases, an adjustment to the stability limit will help the Adaptive Capacity Control to sense the chiller is stable enough to begin to slow the drive down. Set the stability limit adjustment to 7000.

Solution 4
Set Sensitivity to 50% or 30%

A chiller with a light load may be unstable. The flashcard software was modified to improve stability. The leaving chilled liquid temperature control has been modified to reduce vane movement under light load conditions. A YT chiller will require software version C.MLM.02.03.100 or later. A YK chiller will require software version C.MLM.01.06.100 or later. Both of these versions were released to production the first quarter of 2002. The modified leaving chilled liquid temperature control is selected when the vane sensitivity of 50% or 30% is chosen.

Solution 5
Install Slow Ramp-up Software

Many times a lightly loaded chiller will operate in a stall condition. When the chiller is in stall, the Adaptive Capacity Control will not slow down the VSCD. It will determine that the chiller is not stable. The software in the Adaptive Capacity Control has been modified to reduce the chances that the chiller will enter stall within the first 5 minutes of chiller run time. The new software version is C.ACC.01.04. This software was released Nov.2002. The new software will slow the acceleration of the drive during the ramp-up of the compressor motor. The drive will accelerate the motor to 30Hz in 22 seconds (25Hz for 50Hz application). Then the drive will accelerate the compressor motor to full speed over the next 5 minutes. During this time, the pre-rotation vanes will open to pull down the chilled liquid loop. If the leaving chilled liquid temperature setpoint is satisfied during this time, then the drive will not accelerate to full speed, but will start to slow down from the frequency at which the setpoint is satisfied. There is one exception.

> *This exception will occur when cool condenser water is not available. If during the 5 minute ramp-up period the Adaptive Capacity Control determines that the compressor has surged 2 times, then the new software will accelerate the drive to full speed at a rate not to exceed 22 seconds. The new software will perform normally from this time on*.