RADIAL ALIGNMENT: {YORK CENTRIFUGAL COMPRESSOR AS APPLICABLE}

It is very important that both an axial and a radial alignment of the driveline components be accomplished prior to operating the system. The general procedure for aligning the compressor is explained in YORK Form 160.71-N2 in Section 11. The estimated off-set versus equipment ambient temperature values for the radial alignment are shown on the chart entitled "Compressor Cold misalignment", sheet 2.

CAUTION: Vibracon adjustable supports may have been used. These supports cannot be used as vertical jacks. Refer to the manufacturer's instructions in Section 19.

NOTE: The initial misalignment values provided in this IOM are subject to review by the qualified YORK Start-up Technician. These values are estimated based on a number of assumptions, any one of which could render the values inaccurate. The most important assumption is that all components are cold and at the same equipment ambient temperature. If the gear oil sump heaters are energized, then the vertical offsets must be adjusted accordingly.

The specific values for calculating the spacer thickness for the compressor axial alignment are listed on the "Axial Alignment Drawing" located in this section of the manual.

ADDITIONAL ALIGNMENT REQUIREMENTS

When reassembling the coupling, follow the coupling manufacturer's instructions when provided. Refer to any special instructions provided on the Instructions to Erecting Engineer drawing or the General arrangement drawing. Reassemble coupling according to match marks for balanced couplings. When no other criteria exists, it is good practice to assemble coupling so the driver and driven keys are on opposite sides.

After alignment has been completed, but before the unit is started, a check must be made for softfoot (foot plane) and piping strain. The softfoot check is described below. The piping strain check is as described in a separate document in this section.

If high vibration is experienced when the system is operated, then the unit should be immediately stopped and the alignment should be rechecked.

After at least 24 hours of successful operation of the unit, the alignment must be verified. There are two ways to accomplish this. First, if shaft proximity vibration is monitored, then vibration readings within the normal operating values published in this manual are considered a verification of shaft alignment. If shaft proximity vibration is not monitored, then a hot alignment check must be made. After the successful alignment verification, the unit may be doweled at the user's discretion per the instructions in this manual.

NOTE: The equipment required to measure shaft alignment is not provided as part of this equipment order. This equipment is considered to be specific and common to millwright trade, and to those persons qualified to perform alignment of rotating equipment. Some special fixtures may be required in order to mount instruments to perform the final hot alignment check. It may be necessary to manufacture such fixtures at the jobsite during the alignment phase.

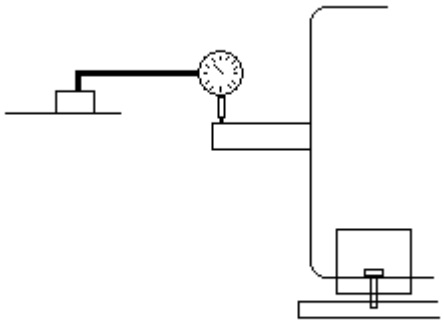
It is very important to keep a record of the current alignment offsets and axial spacer thickness. Forms for these records have been provided in the front of this manual.

CAUTION: NEVER RUN THE DRIVER/GEAR WITH THE HIGH SPEED YORKFLEX COUPLING ASSEMBLED AND THE COMPRESSOR NOT CONNECTED. DAMAGE WILL OCCUR DUE THE OVERHUNG WEIGHT OF THE COUPLING.

METHODS TO DETERMINE SOFTFOOT

Two methods are generally used to determine soft foot, foot measurement or shaft measurement.

In the shaft method a dial indicator is mounted to the base or some other rigid support and the indicator is placed on the end of the shaft. All four motor bolts are tightened and the indicator is zeroed out. Each foot bolt is loosened one at a time and the deflection of the shaft is measured by the indicator. Generally .002 deflection (.001" for screw compressors) is the maximum deflection allowed. While the shaft deflection approach has merit, measuring soft foot at each foot provides a more accurate reading. If foot readings are taken in preparation for alignment and any observable soft foot corrected at that time, a shaft soft foot check should simply service as a confirmation. For details on performing a shaft softfoot check on centrifugal drivelines refer to drawing 560D0132, “Fabrication Notes for Refrigeration Systems using Centrifugal Compressors for PRS”, Section 4.6 and 4.7.



CHECKING FOR SOFTFOOT
USING THE SHAFT METHOD

SHIMMING TO CORRECT FOR SOFT FOOT

On four footed components with feet on separate housings a soft foot condition can occur on a machined flat base front-to-back, side-to-side, or corner to corner. Shim area may be less than the foot area when the component has full length or width feet and/or when shims were provided by the component manufacturer or the foot area is excessively large.