

Precision Maintenance Pre-Alignment Check List

Following this check-off list will ensure an alignment that will be kept when the machine is in operation and will last for an extended Mean Time Between Repairs.

This list contains all the items that should be checked in a worst case scenario. In a new installation, for instance, many of these would not be necessary. However, where the equipment is in service and depending upon the nature of problems experienced it is appropriate to look at most of these to ensure confidence that a sound machine is being returned to service on completion of the alignment.

Remember, alignment is the last task to be carried out on a machine before it is run up for testing prior to return to service (other than for in-situ balance corrections).

- If a hot alignment check is required, determine alignment method to be used. Gather all necessary tools and bring to job site.
Condition/Comments:
- Before shutting the machine off, take temperature readings in the planes of the feet for all machines to determine if the machine is subject to thermal growth. Check the service history files/records for any additional information that may be useful.
Condition/Comments:
- Tag/lock out the machine to be aligned. Ensure safety of all individuals. For pumps, close suction/discharge valves to protect against pump back spin.
Condition/Comments:
- Assemble fixtures on the machine and check either the hot or cold alignment.
Condition/Comments:
- Inspect machine base and foundation for cracks, warped surfaces and corrosion.
Condition/Comments:
- Clean base (near feet) of rust and other foreign matter.
Condition/Comments:
- If carbon steel shims are used, remove and replace with pre-cut stainless steel shims. Remove and replace any shims that may be cracked, bent, folded, rusted, hand-cut, brass, plastic or otherwise defective.
Condition/Comments:
- Whenever possible, start with 3mm of shim under each foot to allow for vertical adjustment.
Condition/Comments:
- Ensure all bolts on both machines are torque to the correct tension. Check bolt lubrication, die-cut any thread roughness and remove any cupped/belled washers.
Condition/Comments:
- Remove dowel pins from both machines.
Condition/Comments:
- Ensure both vertical and horizontal jacking bolt are loosened off and clear from the machines.
Condition/Comments:

- Check for pipe and/or electrical connection strain.
 Condition/Comments:
- Before rotating shafts ensure that the bearings are properly lubricated with the correct type and amount of grease or oil. If an auxiliary oil system is used make sure it has been serviced.
 Condition/Comments:
- Rotate shafts slowly. Listen/feel for any binding/roughness. Always rotate in the direction of equipment rotation to prevent backlash and distorted readings in couplings and gearboxes.
 Condition/Comments:
- Check machine for worn or defective bearings.
 Condition/Comments:
- Check coupling for the following:
 - Looseness (grips, teeth, disks or elastomers, etc)
 - Fit an shaft (taper or straight bore)
 - Eccentricity (runout)
 - Worn grid/teeth members
 - Correct lubricant; type and amount
 - Set screw tightness
 - Proper bolts and washers: note length, machining, weight.
 - Proper key length
 - Match marks in correct place.
 Condition/Comments:
- Check shafts of both machines for:
 - Concentricity (runout)
 - Movement in the axial, horizontal and vertical planes (which is greater than the manufacturers allowable limits)
 - Smooth fixture mounting surface (pipewrench footprints)
 Condition/Comments:
- Find and mark the magnetic centre on motors that have axial end float (sleeve bearings).
 Condition/Comments:
- Ensure the axial position of the machine is correct and that the coupling will allow both machines to run in their respective axial positions.
 Condition/Comments:
- Check and remove any soft foot for both machines.
 Condition/Comments:
- If no hot alignment check is required, assemble alignment fixtures, check for accuracy and working condition. Take cold alignment readings.
 Condition/Comments:

This list is not meant to be a step by step procedure. There may be more specific checks required at different facilities, while others do not apply. The objective is a thorough examination of the condition of the machine before doing a precision alignment. Without these checks, precision is not obtainable.