

Centrifugal Pump Troubleshooting Guide

Table 4-6

Troubleshooting Guide -- Centrifugal Process Pumps

Symptoms												
D Insufficient Disch. Pressure						E Short Bearing Life						
C Intermittent Operation				F Short Mech. Seal Life				G				
B Insufficient Capacity				H Power Demand Excessive				G				
A No Liquid Delivery				H				H				
Possible Causes												
Possible Remedies												
SUCTION PROBLEMS	Pump Is Cavitating (Symptom For Liquid Vaporizing In Suction System) -Horizontal Pumps	1	2	1	1			9	1		1	* Check NPSHa/ NPSHr Margin * If Pump Is Above Liquid Level, Raise Liquid Level Closer To Pump * If Liquid Is Above Pump, Increase Liquid Level Elevation
	Insufficient Immersion Of Suction Pipe Or Bell (VertTurbinePump)	2	1	1	1				1		2	* Lower Suction Pipe Or Raise Sump Level * Increase System Resistance
	Pump Not Primed	3	1		2						3	* Fill Pump And Suction Piping Complete With Liquid * Eliminate High Points In Suction * Remove All Non-Condensibles (Air From Pump, Piping and Valves) * Eliminate High Points In Suction Piping * Check For Faulty Foot Valve Or Check Valve
HYDRAULIC SYSTEM	Non-Condensibles In Liquid	4		2	3	1					4	* Check For Gas/Air Ingress Through Suction System/Piping * Install Gas Separation Chamber
	Supply Tank Empty	5	3								5	* Refill Supply Tank
	Obstructions In Lines Or Pump Housing	6		9		7				7	6	* Inspect And Clear
Possible Causes												
Possible Remedies												

Table 4-6 (cont.)

Symptoms													
D Insufficient Disch. Pressure						E Short Bearing Life							
C Intermittent Operation				F Short Mech. Seal Life				G					
B Insufficient Capacity				H Power Demand Excessive				G					
A No Liquid Delivery				H				H					
Possible Causes													
Possible Remedies													
HYDRAULIC SYSTEM	Strainer Partially Clogged	7		3							7	* Inspect And Clean	
	Pump Impeller Clogged	8	8	8						5	8	* Check For Damage And Clean	
	Suction And/Or Discharge Valve(s) Closed	9	9								9	* Shut Down And Open Valves	
	Viscosity Too High	10		7		5				4	10	* Heat Up Liquid To Reduce Viscosity * Increase Size Of Discharge Piping To Reduce Pressure Loss * Use Larger Driver Or Change Type Of Pump * Slow Pump Down	
	Specific Gravity Too High	11									2	11	* Check Design Specific Gravity
	Total System Head Lower Than Design Head Of Pump	12				4		11			3	12	* Increase System Resistance To Obtain Design Flow * Check Design Parameters Such As Impeller Size, Etc.
MECHANICAL SYSTEM	Total System Head Higher Than Design Head Of Pump	13	6	5	4			10	2		13	* Decrease System Resistance To Obtain Design Flow * Check Design Parameters Such As Impeller Size, Etc.	
	Unsuitable Pumps In Parallel Operation	14	7	6		6					14	* Check Design Parameters	
	Improper Mechanical Seal	15						1			15	* Check Mechanical Seal Selection Strategy	
Possible Causes													
Possible Remedies													