

# Centrifugal Pump Troubleshooting Guide

Table 4-6 (cont.)

Symptoms										Symptoms										
D Insufficient Disch. Pressure					Short Bearing Life					E										
C Intermittent Operation					Short Mech. Seal Life					F										
B Insufficient Capacity					Vibration & Noise					G										
A No Liquid Delivery					Power Demand Excessive					H										
Possible Causes	#	A	B	C	D	E	F	G	H	#	Possible Remedies									
Speed Too High	16									1	16	* Check Motor Voltage - Slow Down Driver								
Speed Too Low	17	4	4		2						17	* Consult Driver Troubleshooting Guide								
Wrong Direction Of Rotation	18	5			3					6	18	* Check Rotation With Arrow On Casing - Reverse Polarity On Motor								
Impeller Installed Backward (Double Suction Imp.)	19		10							12	19	* Inspect								
Misalignment	20					1	2	4	7		20	* Check Angular And Parallel Alignment Between Pump And Driver								
Casing Distorted From Excessive Pipe Strain	21					2	3	5			21	* Check For Misalignment * Check Pump For Wear Between Casing And Rotating Elements * Analyze Piping Loads								
Inadequate Grouting Of Base	22								6		22	* Check Grouting And Regrout If Required								
Bent Shaft	23					3	4	7	8		23	* Check Deflection (Should Not Exceed 0.002"). Replace Shaft And Bearings If Necessary								
Internal Wear	24				8					9	24	* Check Impeller Clearances								
Possible Causes	#	A	B	C	D	E	F	G	H	#	Possible Remedies									

MECHANICAL SYSTEM

Table 4-6 (cont.)

Symptoms										Symptoms										
D Insufficient Disch. Pressure					Short Bearing Life					E										
C Intermittent Operation					Short Mech. Seal Life					F										
B Insufficient Capacity					Vibration & Noise					G										
A No Liquid Delivery					Power Demand Excessive					H										
Possible Causes	#	A	B	C	D	E	F	G	H	#	Possible Remedies									
Mechanical Defects Worn, Rusted, Defective Bearings	25									5	8	10	25	* Inspect Parts For Defects - Repair Or Replace. Use Bearing Failure Analysis Guide * Check Lubrication Procedures						
Unbalance - Driver	26					5	7	9			26	* Run Driver Disconnected From Pump Unit - Perform Vibration Analysis								
Unbalance - Pump	27					4	6	3			27	* Investigate Natural Frequency								
Motor Troubles	28					6	8	10	11		28	* Consult Motor Troubleshooting Guide								
Possible Causes	#	A	B	C	D	E	F	G	H	#	Possible Remedies									

MECHANICAL SYSTEM



**PUMPING SYSTEMS**  
INCORPORATED

This material was reproduced from *Practical Machinery Management for Process Plants: Machinery Failure Analysis and Troubleshooting* by Heinz P. Bloch and Fred K. Geitner by permission of the publisher Butterworth Heinemann of 225 Wildwood Avenue, Woburn MA 01801 (www.bh.com). 10% Discount on copies of this book will be offered with this sheet.