HI-SPEED INDUSTRIAL SERVICE

MILLINGTON, TN

September 2, 2021

Bio Energy

Subject: September (Q3) vibration service

Most of the machines surveyed were found to be in good condition with the exception of the following: Supporting data included.

QualiTest® uses a four-step rating system for defects.

Class I: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

Class II: Defect (s) present that may cause problem in long term (2-6 months.). Repair during normal maintenance scheduling. Continue to monitor.

Class III; Defect (s) present that may cause failure in short term (less than 2 months.). This should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.

Class IV; Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

Hi-Speed **Industrial Service** tests and inspects industrial machinery and equipment and makes recommendations concerning maintenance and repairs based on its experience in the field of industrial repair and maintenance. The information contained herein is provided as an opinion only, not as a guaranty or warranty of the matters discussed herein.

This completes our assessment of your equipment for this survey. Thank you for your business and don't hesitate to call if you have any comments or questions.

Sincerely,

David W Shook

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Reportable equipment

PC 1425A
Most measurements on this unit are at shaft speed and the vibrations are near ½"/second velocity peak. We suspect imbalance, alignment or possible loose fasteners or structural issues are at the root cause of the high vibration. Inspect for suggested issues at the next opportunity. **Rated a Class II Defect.**

PC 1526B
The motor bearings are showing signs of distress. Lubrication could be an issue, but the bearings are hurt. Prepare to replace the motor in the near future. **Rated a Class II Defect.**

PV 2510B
The outboard end of the pump has an increase in vibration at shaft speed in the horizontal. Inspect the unit. Check for loose fasteners or damage to the unit feet or base. There could possibly be some imbalance. **Rated a Class I Defect.**

PC 7130A
Vibration data for the motor shows non-synchronous harmonic peaks in the spectrum. We suspect slight bearing race defects. No immediate action required other than ensure the bearings have lubrication. **Rated a Class I Defect.**

PC 7210B
Vibration data for the motor shows non-synchronous harmonic peaks in the spectrum. We suspect slight bearing race defects. No immediate action required other than ensure the bearings have lubrication. **Rated a Class I Defect.**
The pump also shows an elevated noise floor throughout the spectrum indicating possible cavitation. Ensure the pump is operating properly.

PC 7215B
Motor vibration data still seems to indicate an air gap issue between the rotor and stator or possibly an electrical issue. Check all electrical connections, perform a phase to phase current and voltage check, and ensure there is no motor case distortion due to a soft foot. If the motor is actually running close to synchronous speed, then there could be a possible alignment or coupling issue. **Rated a Class II Defect.**

PV 7245
Vibration data shows a low amplitude shaft speed vibration in the unit. Inspect the unit for loose fasteners, broken fan, coupling wear, or shaft alignment issues. **Rated a Class I Defect.**

PC 7522B
Vibration data shows a low amplitude shaft speed vibration in the motor. Inspect the unit for loose fasteners, broken motor fan, coupling wear, or shaft alignment issues. **Rated a Class I Defect.**

PC 9002
First data on this unit.
The pump has a very strong dominant vibration in the shaft end horizontal at what appears to be 4x RPM. Other pump measurements also show a similar frequency vibration but at lower amplitudes. This is most likely a strong vane pass in the pump. Inspect the unit for mechanical soundness. Ensure the pump is operating in the best part of the performance curve. **Rated a Class IV Defect.**

PC 9320
Non-synchronous vibrations indicate early bearing defects in both the motor and pump. Ensure the bearings have lubrication and that the pump is operating in the performance curve. **Rated a Class I Defect for now.**

PC 9432A
Vertical pumps tend to have higher vibration levels due to the nature of the design, either at shaft speed, vane pass, or sometimes at resonant frequencies. This unit has a slightly elevated shaft speed vibration. No immediate concern. **Rated a Class I Defect.**

PC 9520B
Vibration data for the motor shows non-synchronous harmonic peaks in the spectrum. We suspect slight bearing race defects. No immediate action required other than ensure the bearings have lubrication. **Rated a Class I Defect.**

PC 9701B
Vibration data for the unit shows a 1x and 2xRPM vibration throughout. Inspect all fasteners, the coupling and alignment. Check for shaft run out. Pump axial vibration is asynchronous in the time waveform. **Rated a Class I Defect.**

PC 9901B
Vibration data for the pump shows synchronous and non-synchronous harmonic peaks in the spectrum. We suspect slight bearing race defects. No immediate action required other than ensure the bearings have lubrication. **Rated a Class I Defect.**

DAF EFFULENT PUMP
Vibration data shows a strong shaft speed vibration in the unit. Inspect the unit for loose fasteners, broken fan, coupling wear, shaft alignment issues or pump wear or imbalance. **Rated a Class III Defect.**

Previously report but not running this survey

PC 1001B
The Pump bearings are most likely in distress and have overall acceleration at near 5 G's RMS. This is the first data we have on this unit. Have a replacement pump ready for future changeout. **Rated a Class II Defect.**

PC 1520B
Pump vibration data shows harmonics of 9x RPM (vane pass) and possible early bearing defects. Check pump operating parameters. Ensure pump bearing are lubricated. **Rated a Class I Defect.**

PC 1538A (maybe PM 1538A) Dosing Pump Caustic
There is an extremely high vibration in the motor at 85 Hz. The data does not point to any direct problem that we can identify at this time. We can only recommend a thorough inspection of this unit as soon as possible. **Rated a Class III Defect.**

PC 1538B
There is an elevated vibration in the motor at near 46 Hz. Inspect the drive train component, all fasteners, and check the alignment. **Rated a Class II Defect.**

PC 3110A
Data shows an elevated vibration at about 54 Hz which we believe is 3x RPM. Inspect the coupling and alignment. **Rated a Class II Defect.**

PC 7225A
Motor data shows a moderate shaft speed vibration at the motor fan end. Inspect the motor for loose fasteners, broken fan, coupling wear, or shaft alignment issues. **Rated a Class I Defect.**

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                    Abbreviated Last Measurement Summary
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                Database:  Bio Energy .rbm
                Station:   BIO ENERGY
                Report Date:  02-Sep-21   14:46

MEASUREMENT POINT      OVERALL LEVEL       HFD / VHFD      MACHINE SPEED
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1425 A      - PC 1425 A                     (02-Sep-21)
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		OVERALL LEVEL	1 - 20 KHz	
	MOH	.292 In/Sec	.446 G-s	1785.0 RPM
	MOV	.440 In/Sec	.191 G-s	
	MIH	.256 In/Sec	.258 G-s	
	MIV	.294 In/Sec	.056 G-s	
	MIA	.073 In/Sec	.119 G-s	
	EIA	.059 In/Sec	.153 G-s	
	EIH	.233 In/Sec	.577 G-s	
	EIV	.276 In/Sec	.144 G-s	
	EOH	.232 In/Sec	.543 G-s	
	EOV	.183 In/Sec	.163 G-s	

1430 A - PC 1430 A (02-Sep-21)

		OVERALL LEVEL	1 - 20 KHz	
	MOH	.023 In/Sec	.127 G-s	1785.0 RPM
	MOV	.016 In/Sec	.035 G-s	
	MIH	.014 In/Sec	.070 G-s	
	MIV	.011 In/Sec	.026 G-s	
	MIA	.0093 In/Sec	.021 G-s	
	EIA	.0088 In/Sec	.026 G-s	
	EIH	.015 In/Sec	.089 G-s	
	EIV	.013 In/Sec	.020 G-s	
	EOH	.013 In/Sec	.102 G-s	
	EOV	.013 In/Sec	.025 G-s	

1526 B - PC 1526 B (02-Sep-21)

		OVERALL LEVEL	1 - 20 KHz	
	MOH	.131 In/Sec	3.489 G-s	1785.0 RPM
	MOV	.072 In/Sec	.728 G-s	
	MIH	.093 In/Sec	2.042 G-s	
	MIV	.046 In/Sec	.428 G-s	
	MIA	.036 In/Sec	.362 G-s	
	EIA	.015 In/Sec	.082 G-s	
	EIH	.016 In/Sec	.198 G-s	
	EIV	.018 In/Sec	.099 G-s	
	EOH	.012 In/Sec	.137 G-s	
	EOV	.016 In/Sec	.121 G-s	

1536 B - PM 1536 B (02-Sep-21)

		OVERALL LEVEL	1 - 20 KHz	
	MOH	.090 In/Sec	.250 G-s	1785.0 RPM
	MOV	.047 In/Sec	.085 G-s	
	MIH	.062 In/Sec	.093 G-s	
	MIV	.048 In/Sec	.064 G-s	
	MIA	.030 In/Sec	.025 G-s	
	EIA	.043 In/Sec	.051 G-s	
	EIH	.031 In/Sec	.036 G-s	
	EIV	.024 In/Sec	.085 G-s	
	EOH	.026 In/Sec	.051 G-s	
	EOV	.028 In/Sec	.019 G-s	

1538B1539 - PM 1538 B PM 1539 (02-Sep-21)

		OVERALL LEVEL	1 - 20 KHz	
	MOH	.041 In/Sec	.142 G-s	1785.0 RPM
	MOV	.066 In/Sec	.075 G-s	
	MIH	.056 In/Sec	.081 G-s	
	MIV	.106 In/Sec	.050 G-s	

	MIA	.067 In/Sec	.034 G-s	
	EIA	.064 In/Sec	.012 G-s	
	EIH	.027 In/Sec	.031 G-s	
	EIV	.039 In/Sec	.025 G-s	
	EOH	.024 In/Sec	.028 G-s	
	EOV	.022 In/Sec	.021 G-s	

1621 B - PD 1621 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.013 In/Sec	.089 G-s	1785.0 RPM
MOV	.028 In/Sec	.123 G-s	
MIH	.017 In/Sec	.167 G-s	
MIV	.013 In/Sec	.147 G-s	
MIA	.020 In/Sec	.160 G-s	

1631 B - PM 1631 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.061 In/Sec	.137 G-s	1785.0 RPM
MOV	.055 In/Sec	.039 G-s	
MIH	.036 In/Sec	.058 G-s	
MIV	.038 In/Sec	.033 G-s	
MIA	.023 In/Sec	.013 G-s	
EIA	.036 In/Sec	.017 G-s	
EIH	.026 In/Sec	.049 G-s	
EIV	.030 In/Sec	.031 G-s	
EOH	.025 In/Sec	.024 G-s	
EOV	.022 In/Sec	.025 G-s	

1632 B - PD 1632 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.033 In/Sec	.307 G-s	1785.0 RPM
MOV	.049 In/Sec	.256 G-s	
MIH	.025 In/Sec	.512 G-s	
MIV	.029 In/Sec	.196 G-s	
MIA	.028 In/Sec	.293 G-s	
EIA	.044 In/Sec	.508 G-s	
EIH	.040 In/Sec	.815 G-s	
EIV	.057 In/Sec	.542 G-s	
EOH	.040 In/Sec	.954 G-s	
EOV	.031 In/Sec	.249 G-s	

2101 B - PC 2101 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.021 In/Sec	.708 G-s	1785.0 RPM
MOV	.025 In/Sec	.136 G-s	
MIH	.022 In/Sec	.958 G-s	
MIV	.027 In/Sec	.294 G-s	
MIA	.020 In/Sec	.379 G-s	
EIA	.043 In/Sec	.104 G-s	
EIH	.035 In/Sec	.103 G-s	
EIV	.024 In/Sec	.032 G-s	
EOH	.027 In/Sec	.106 G-s	
EOV	.033 In/Sec	.037 G-s	

2105 A - PC 2105 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.041 In/Sec	.341 G-s	1785.0 RPM

MOV	.037 In/Sec	.140 G-s	
MIH	.037 In/Sec	.988 G-s	
MIV	.024 In/Sec	.222 G-s	
MIA	.0080 In/Sec	.786 G-s	
EIA	.021 In/Sec	.164 G-s	
EIH	.018 In/Sec	.193 G-s	
EIV	.022 In/Sec	.175 G-s	
EOH	.021 In/Sec	.162 G-s	
EOV	.065 In/Sec	.097 G-s	

2106 - PC 2106 (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.045 In/Sec	.230 G-s	1785.0 RPM
MOV	.044 In/Sec	.197 G-s	
MIH	.065 In/Sec	.337 G-s	
MIV	.120 In/Sec	.110 G-s	
MIA	.040 In/Sec	.102 G-s	
EIA	.057 In/Sec	.103 G-s	
EIH	.094 In/Sec	.235 G-s	
EIV	.058 In/Sec	.129 G-s	
EOH	.079 In/Sec	.380 G-s	
EOV	.043 In/Sec	.107 G-s	

2115 B - PV 2115 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.109 In/Sec	.297 G-s	1785.0 RPM
MOV	.176 In/Sec	.358 G-s	
MIH	.143 In/Sec	.381 G-s	
MIV	.187 In/Sec	.204 G-s	
MIA	.143 In/Sec	.132 G-s	
EIA	.186 In/Sec	.626 G-s	
EIH	.175 In/Sec	1.243 G-s	
EIV	.184 In/Sec	.676 G-s	
EOH	.235 In/Sec	1.654 G-s	
EOV	.151 In/Sec	.445 G-s	

2205 B - PC 2205 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.069 In/Sec	.458 G-s	1785.0 RPM
MOV	.077 In/Sec	.209 G-s	
MIH	.082 In/Sec	.466 G-s	
MIV	.131 In/Sec	.149 G-s	
MIA	.052 In/Sec	.288 G-s	
EIA	.046 In/Sec	.431 G-s	
EIH	.071 In/Sec	.632 G-s	
EIV	.047 In/Sec	.246 G-s	
EOH	.055 In/Sec	.725 G-s	
EOV	.047 In/Sec	.271 G-s	

2206 A - PC 2206 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.170 In/Sec	.316 G-s	1785.0 RPM
MOV	.110 In/Sec	.187 G-s	
MIH	.162 In/Sec	.194 G-s	
MIV	.152 In/Sec	.063 G-s	
MIA	.061 In/Sec	.142 G-s	
EIA	.067 In/Sec	.106 G-s	

EIH	.150 In/Sec	.268 G-s	
EIV	.076 In/Sec	.104 G-s	
EOH	.154 In/Sec	.324 G-s	
EOV	.054 In/Sec	.163 G-s	

2301 A - PC 2301 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.032 In/Sec	.183 G-s	1785.0 RPM
MOV	.076 In/Sec	.150 G-s	
MIH	.021 In/Sec	.175 G-s	
MIV	.024 In/Sec	.050 G-s	
MIA	.026 In/Sec	.050 G-s	
EIA	.021 In/Sec	.049 G-s	
EIH	.024 In/Sec	.131 G-s	
EIV	.019 In/Sec	.063 G-s	
EOH	.029 In/Sec	.287 G-s	
EOV	.023 In/Sec	.047 G-s	

2301 C - PC 2301 C (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.030 In/Sec	.124 G-s	1785.0 RPM
MOV	.047 In/Sec	.173 G-s	
MIH	.017 In/Sec	.088 G-s	
MIV	.033 In/Sec	.045 G-s	
MIA	.023 In/Sec	.031 G-s	
EIA	.025 In/Sec	.046 G-s	
EIH	.016 In/Sec	.072 G-s	
EIV	.023 In/Sec	.055 G-s	
EOH	.014 In/Sec	.106 G-s	
EOV	.019 In/Sec	.034 G-s	

2310 A - PC 2310 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.016 In/Sec	.339 G-s	1785.0 RPM
MOV	.043 In/Sec	.453 G-s	
MIH	.021 In/Sec	.316 G-s	
MIV	.031 In/Sec	.144 G-s	
MIA	.027 In/Sec	.355 G-s	
EIA	.031 In/Sec	.217 G-s	
EIH	.032 In/Sec	.249 G-s	
EIV	.029 In/Sec	.157 G-s	
EOH	.026 In/Sec	.235 G-s	
EOV	.026 In/Sec	.071 G-s	

2501 A - PC 2501 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.076 In/Sec	.279 G-s	1785.0 RPM
MOV	.106 In/Sec	.111 G-s	
MIH	.045 In/Sec	.351 G-s	
MIV	.054 In/Sec	.136 G-s	
MIA	.039 In/Sec	.131 G-s	
EIA	.040 In/Sec	.108 G-s	
EIH	.036 In/Sec	.366 G-s	
EIV	.043 In/Sec	.144 G-s	
EOH	.051 In/Sec	.756 G-s	
EOV	.039 In/Sec	.183 G-s	

2510 B - PV 2510 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.071 In/Sec	.116 G-s	1785.0 RPM
MOV	.145 In/Sec	.069 G-s	
MIH	.076 In/Sec	.073 G-s	
MIV	.139 In/Sec	.021 G-s	
MIA	.075 In/Sec	.038 G-s	
EIA	.054 In/Sec	.131 G-s	
EIH	.049 In/Sec	.151 G-s	
EIV	.093 In/Sec	.124 G-s	
EOH	.301 In/Sec	.153 G-s	
EOV	.087 In/Sec	.065 G-s	

4101 B - PC 4101 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.025 In/Sec	.185 G-s	1785.0 RPM
MOV	.015 In/Sec	.031 G-s	
MIH	.016 In/Sec	.204 G-s	
MIV	.017 In/Sec	.037 G-s	
MIA	.0089 In/Sec	.049 G-s	
EIA	.030 In/Sec	.025 G-s	
EIH	.024 In/Sec	.097 G-s	
EIV	.032 In/Sec	.041 G-s	
EOH	.020 In/Sec	.125 G-s	
EOV	.021 In/Sec	.030 G-s	

4110 A - PC 4110 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.015 In/Sec	.067 G-s	1785.0 RPM
MOV	.012 In/Sec	.034 G-s	
MIH	.015 In/Sec	.053 G-s	
MIV	.011 In/Sec	.027 G-s	
MIA	.0055 In/Sec	.026 G-s	
EIA	.018 In/Sec	.066 G-s	
EIH	.024 In/Sec	.066 G-s	
EIV	.028 In/Sec	.048 G-s	
EOH	.012 In/Sec	.056 G-s	
EOV	.017 In/Sec	.066 G-s	

4125 A - PC 4125 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.016 In/Sec	.104 G-s	1785.0 RPM
MOV	.019 In/Sec	.155 G-s	
MIH	.016 In/Sec	.080 G-s	
MIV	.023 In/Sec	.050 G-s	
MIA	.010 In/Sec	.063 G-s	
EIA	.032 In/Sec	.051 G-s	
EIH	.101 In/Sec	.171 G-s	
EIV	.073 In/Sec	.139 G-s	
EOH	.045 In/Sec	.173 G-s	
EOV	.040 In/Sec	.087 G-s	

4300 A - PC 4300 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.048 In/Sec	.079 G-s	1785.0 RPM
MOV	.048 In/Sec	.021 G-s	
MIH	.046 In/Sec	.072 G-s	

MIV	.020 In/Sec	.030 G-s	
MIA	.021 In/Sec	.039 G-s	
EIA	.014 In/Sec	.078 G-s	
EIH	.015 In/Sec	.264 G-s	
EIV	.017 In/Sec	.213 G-s	
EOH	.010 In/Sec	.365 G-s	
EOV	.016 In/Sec	.218 G-s	

4304 B - PC 4304 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.068 In/Sec	.141 G-s	1785.0 RPM
MOV	.054 In/Sec	.072 G-s	
MIH	.054 In/Sec	.231 G-s	
MIV	.043 In/Sec	.044 G-s	
MIA	.023 In/Sec	.043 G-s	
EIA	.049 In/Sec	.368 G-s	
EIH	.036 In/Sec	.413 G-s	
EIV	.038 In/Sec	.332 G-s	
EOH	.030 In/Sec	.588 G-s	
EOV	.047 In/Sec	.586 G-s	

4401 A - PC 4401 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.0072 In/Sec	.100 G-s	1785.0 RPM
MOV	.0084 In/Sec	.023 G-s	
MIH	.0073 In/Sec	.149 G-s	
MIV	.0077 In/Sec	.058 G-s	
MIA	.0066 In/Sec	.051 G-s	
EIA	.0071 In/Sec	.010 G-s	
EIH	.0074 In/Sec	.037 G-s	
EIV	.0070 In/Sec	.027 G-s	
EOH	.0061 In/Sec	.043 G-s	
EOV	.0087 In/Sec	.048 G-s	

4410 B - PC 4410 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.014 In/Sec	.097 G-s	1785.0 RPM
MOV	.012 In/Sec	.025 G-s	
MIH	.014 In/Sec	.098 G-s	
MIV	.0094 In/Sec	.035 G-s	
MIA	.0071 In/Sec	.057 G-s	
EIA	.010 In/Sec	.117 G-s	
EIH	.0095 In/Sec	.165 G-s	
EIV	.011 In/Sec	.078 G-s	
EOH	.0077 In/Sec	.261 G-s	
EOV	.014 In/Sec	.068 G-s	

5205 A - PC 5205 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.018 In/Sec	.316 G-s	1785.0 RPM
MOV	.018 In/Sec	.151 G-s	
MIH	.018 In/Sec	.320 G-s	
MIV	.016 In/Sec	.073 G-s	
MIA	.012 In/Sec	.088 G-s	
EIA	.014 In/Sec	.019 G-s	
EIH	.037 In/Sec	.055 G-s	
EIV	.024 In/Sec	.020 G-s	

	EOH	.034 In/Sec	.110 G-s	
	EOV	.024 In/Sec	.038 G-s	

6110 A - PC 6110 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.029 In/Sec	.368 G-s	1785.0 RPM
MOV	.045 In/Sec	.537 G-s	
MIH	.030 In/Sec	.751 G-s	
MIV	.037 In/Sec	.263 G-s	
MIA	.021 In/Sec	.183 G-s	
EIA	.049 In/Sec	.351 G-s	
EIH	.057 In/Sec	.826 G-s	
EIV	.061 In/Sec	.680 G-s	
EOH	.045 In/Sec	1.126 G-s	
EOV	.051 In/Sec	.482 G-s	

6120 B - PC 6120 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.026 In/Sec	.116 G-s	1785.0 RPM
MOV	.024 In/Sec	.111 G-s	
MIH	.020 In/Sec	.140 G-s	
MIV	.018 In/Sec	.081 G-s	
MIA	.012 In/Sec	.069 G-s	
EIA	.0094 In/Sec	.058 G-s	
EIH	.019 In/Sec	.157 G-s	
EIV	.017 In/Sec	.058 G-s	
EOH	.019 In/Sec	.201 G-s	
EOV	.019 In/Sec	.083 G-s	

6501 B - PC 6501 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.030 In/Sec	.073 G-s	1785.0 RPM
MOV	.037 In/Sec	.071 G-s	
MIH	.033 In/Sec	.070 G-s	
MIV	.017 In/Sec	.034 G-s	
MIA	.016 In/Sec	.023 G-s	
EIA	.035 In/Sec	.059 G-s	
EIH	.042 In/Sec	.078 G-s	
EIV	.019 In/Sec	.037 G-s	
EOH	.034 In/Sec	.063 G-s	
EOV	.014 In/Sec	.048 G-s	

7101 B - PC 7101 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.111 In/Sec	.144 G-s	1785.0 RPM
MOV	.085 In/Sec	.044 G-s	
MIH	.084 In/Sec	.201 G-s	
MIV	.140 In/Sec	.032 G-s	
MIA	.058 In/Sec	.068 G-s	
EIA	.063 In/Sec	.408 G-s	
EIH	.067 In/Sec	.492 G-s	
EIV	.084 In/Sec	.618 G-s	
EOH	.041 In/Sec	.708 G-s	
EOV	.056 In/Sec	.352 G-s	

7101 D - PC 7101 D (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz

MOH	.074 In/Sec	.243 G-s	1785.0 RPM
MOV	.096 In/Sec	.053 G-s	
MIH	.071 In/Sec	.194 G-s	
MIV	.101 In/Sec	.041 G-s	
MIA	.055 In/Sec	.045 G-s	
EIA	.106 In/Sec	.476 G-s	
EIH	.131 In/Sec	1.413 G-s	
EIV	.094 In/Sec	.444 G-s	
EOH	.078 In/Sec	1.384 G-s	
EOV	.103 In/Sec	.216 G-s	

7130 A - PC 7130 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.026 In/Sec	1.449 G-s	1785.0 RPM
MOV	.035 In/Sec	.085 G-s	
MIH	.019 In/Sec	.388 G-s	
MIV	.031 In/Sec	.078 G-s	
MIA	.022 In/Sec	.113 G-s	
EIA	.194 In/Sec	.086 G-s	
EIH	.285 In/Sec	.195 G-s	
EIV	.104 In/Sec	.116 G-s	
EOH	.029 In/Sec	.120 G-s	
EOV	.142 In/Sec	.067 G-s	

7210 B - PC 7210 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.029 In/Sec	1.431 G-s	1785.0 RPM
MOV	.037 In/Sec	.218 G-s	
MIH	.029 In/Sec	.555 G-s	
MIV	.033 In/Sec	.271 G-s	
MIA	.041 In/Sec	.403 G-s	
EIA	.039 In/Sec	.341 G-s	
EIH	.039 In/Sec	.592 G-s	
EIV	.046 In/Sec	.126 G-s	
EOH	.053 In/Sec	1.496 G-s	
EOV	.048 In/Sec	.249 G-s	

7215 B - PC 7215 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.258 In/Sec	.159 G-s	1785.0 RPM
MOV	.204 In/Sec	.047 G-s	
MIH	.230 In/Sec	.293 G-s	
MIV	.329 In/Sec	.052 G-s	
MIA	.120 In/Sec	.028 G-s	
EIA	.068 In/Sec	.560 G-s	
EIH	.159 In/Sec	1.495 G-s	
EIV	.108 In/Sec	.319 G-s	
EOH	.120 In/Sec	1.353 G-s	
EOV	.080 In/Sec	.360 G-s	

7240 A - PC 7240 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.132 In/Sec	.118 G-s	1785.0 RPM
MOV	.066 In/Sec	.037 G-s	
MIH	.075 In/Sec	.140 G-s	
MIV	.040 In/Sec	.100 G-s	
MIA	.042 In/Sec	.044 G-s	

	EIA	.032 In/Sec	.053 G-s	
	EIH	.044 In/Sec	.119 G-s	
	EIV	.034 In/Sec	.034 G-s	
	EOH	.024 In/Sec	.156 G-s	
	EOV	.024 In/Sec	.066 G-s	

7245 - PV 7245 (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.067 In/Sec	.182 G-s	1785.0 RPM
MOV	.302 In/Sec	.212 G-s	
MIH	.121 In/Sec	.128 G-s	
MIV	.292 In/Sec	.494 G-s	
MIA	.089 In/Sec	.120 G-s	
EIA	.116 In/Sec	.749 G-s	
EIH	.144 In/Sec	1.287 G-s	
EIV	.303 In/Sec	.853 G-s	
EOH	.280 In/Sec	2.313 G-s	
EOV	.224 In/Sec	1.284 G-s	

7252 A - PC 7252 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.028 In/Sec	.207 G-s	1785.0 RPM
MOV	.024 In/Sec	.057 G-s	
MIH	.029 In/Sec	.170 G-s	
MIV	.017 In/Sec	.036 G-s	
MIA	.012 In/Sec	.072 G-s	
EIA	.024 In/Sec	.029 G-s	
EIH	.037 In/Sec	.090 G-s	
EIV	.020 In/Sec	.041 G-s	
EOH	.042 In/Sec	.185 G-s	
EOV	.019 In/Sec	.055 G-s	

7501 B - PC 7501 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.028 In/Sec	.266 G-s	1785.0 RPM
MOV	.019 In/Sec	.057 G-s	
MIH	.026 In/Sec	.345 G-s	
MIV	.021 In/Sec	.465 G-s	
MIA	.0085 In/Sec	.147 G-s	
EIA	.017 In/Sec	.028 G-s	
EIH	.028 In/Sec	.088 G-s	
EIV	.019 In/Sec	.035 G-s	
EOH	.021 In/Sec	.151 G-s	
EOV	.015 In/Sec	.064 G-s	

7505 A - PC 7505 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.032 In/Sec	.221 G-s	1785.0 RPM
MOV	.023 In/Sec	.120 G-s	
MIH	.032 In/Sec	.413 G-s	
MIV	.023 In/Sec	.149 G-s	
MIA	.022 In/Sec	.166 G-s	
EIA	.043 In/Sec	.092 G-s	
EIH	.057 In/Sec	.169 G-s	
EIV	.052 In/Sec	.080 G-s	
EOH	.042 In/Sec	.315 G-s	
EOV	.049 In/Sec	.075 G-s	

7506 A - PC 7506 A			(02-Sep-21)
	OVERALL LEVEL	1 - 20 KHz	
MOH	.016 In/Sec	.061 G-s	1785.0 RPM
MOV	.012 In/Sec	.012 G-s	
MIH	.015 In/Sec	.054 G-s	
MIV	.012 In/Sec	.0088 G-s	
MIA	.0067 In/Sec	.016 G-s	
EIA	.0095 In/Sec	.0050 G-s	
EIH	.011 In/Sec	.029 G-s	
EIV	.012 In/Sec	.0053 G-s	
EOH	.0062 In/Sec	.032 G-s	
EOV	.0094 In/Sec	.0059 G-s	

7522 B - PC 7522 B			(02-Sep-21)
	OVERALL LEVEL	1 - 20 KHz	
MOH	.110 In/Sec	.395 G-s	1785.0 RPM
MOV	.243 In/Sec	.109 G-s	
MIH	.098 In/Sec	.251 G-s	
MIV	.146 In/Sec	.045 G-s	
MIA	.071 In/Sec	.047 G-s	
EIA	.038 In/Sec	.108 G-s	
EIH	.093 In/Sec	.712 G-s	
EIV	.126 In/Sec	.121 G-s	
EOH	.091 In/Sec	.518 G-s	
EOV	.096 In/Sec	.116 G-s	

9002 - PC 9002			(02-Sep-21)
	OVERALL LEVEL	1 - 20 KHz	
MOH	.108 In/Sec	.063 G-s	1785.0 RPM
MOV	.099 In/Sec	.018 G-s	
MIH	.091 In/Sec	.132 G-s	
MIV	.040 In/Sec	.015 G-s	
MIA	.037 In/Sec	.041 G-s	
EIA	.549 In/Sec	.082 G-s	
EIH	1.489 In/Sec	.153 G-s	
EIV	.357 In/Sec	.073 G-s	
EOH	.545 In/Sec	.094 G-s	
EOV	.236 In/Sec	.029 G-s	

9202 B - PC 9202 B			(02-Sep-21)
	OVERALL LEVEL	1 - 20 KHz	
MOH	.103 In/Sec	.235 G-s	1785.0 RPM
MOV	.109 In/Sec	.057 G-s	
MIH	.100 In/Sec	.139 G-s	
MIV	.112 In/Sec	.022 G-s	
MIA	.062 In/Sec	.047 G-s	

9305 A - PC 9305 A			(02-Sep-21)
	OVERALL LEVEL	1 - 20 KHz	
MOH	.089 In/Sec	.500 G-s	1785.0 RPM
MOV	.055 In/Sec	.141 G-s	
MIH	.090 In/Sec	.400 G-s	
MIV	.084 In/Sec	.171 G-s	
MIA	.036 In/Sec	.118 G-s	
EIA	.081 In/Sec	.158 G-s	
EIH	.075 In/Sec	.599 G-s	

	EIV	.045 In/Sec	.208 G-s	
	EOH	.041 In/Sec	.479 G-s	
	EOV	.037 In/Sec	.238 G-s	

9305 B - PC 9305 B (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.153 In/Sec	.256 G-s	1785.0 RPM
MOV	.115 In/Sec	.060 G-s	
MIH	.145 In/Sec	.298 G-s	
MIV	.112 In/Sec	.158 G-s	
MIA	.037 In/Sec	.138 G-s	
EIA	.062 In/Sec	.550 G-s	
EIH	.099 In/Sec	.528 G-s	
EIV	.075 In/Sec	.314 G-s	
EOH	.071 In/Sec	.650 G-s	
EOV	.046 In/Sec	.369 G-s	

9320 - PC 9320 (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.093 In/Sec	1.623 G-s	1785.0 RPM
MOV	.084 In/Sec	.459 G-s	
MIH	.101 In/Sec	1.829 G-s	
MIV	.076 In/Sec	.486 G-s	
MIA	.048 In/Sec	.613 G-s	
EIA	.056 In/Sec	.896 G-s	
EIH	.079 In/Sec	1.685 G-s	
EIV	.071 In/Sec	.631 G-s	
EOH	.039 In/Sec	.671 G-s	
EOV	.038 In/Sec	.321 G-s	

9322 - PC 9322 (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.112 In/Sec	.847 G-s	1785.0 RPM
MOV	.079 In/Sec	.186 G-s	
MIH	.106 In/Sec	.843 G-s	
MIV	.079 In/Sec	.244 G-s	
MIA	.044 In/Sec	.271 G-s	
EIA	.046 In/Sec	.388 G-s	
EIH	.088 In/Sec	.871 G-s	
EIV	.052 In/Sec	.292 G-s	
EOH	.028 In/Sec	.211 G-s	
EOV	.029 In/Sec	.130 G-s	

9432 A - PC 9432 A (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.260 In/Sec	.033 G-s	1785.0 RPM
MOV	.313 In/Sec	.019 G-s	
MIH	.154 In/Sec	.254 G-s	
MIV	.142 In/Sec	.116 G-s	
MIA	.078 In/Sec	.234 G-s	
EIA	.047 In/Sec	.293 G-s	
EIH	.102 In/Sec	.852 G-s	
EIV	.135 In/Sec	.173 G-s	
EOH	.035 In/Sec	.470 G-s	
EOV	.066 In/Sec	.108 G-s	

9520 B - PC 9520 B (02-Sep-21)

		OVERALL LEVEL	1 - 20 KHz	
	MOH	.066 In/Sec	1.191 G-s	1785.0 RPM
	MOV	.137 In/Sec	.462 G-s	
9621 B	- PC 9621 B		(02-Sep-21)	
		OVERALL LEVEL	1 - 20 KHz	
	MOH	.071 In/Sec	1.273 G-s	1785.0 RPM
	MOV	.036 In/Sec	.417 G-s	
	MIH	.039 In/Sec	.614 G-s	
	MIV	.029 In/Sec	.233 G-s	
	MIA	.027 In/Sec	.207 G-s	
	EIA	.035 In/Sec	.356 G-s	
	EIH	.054 In/Sec	.534 G-s	
	EIV	.071 In/Sec	.373 G-s	
	EOH	.045 In/Sec	.850 G-s	
	EOV	.081 In/Sec	.741 G-s	
9701 B	- PC 9701 B		(02-Sep-21)	
		OVERALL LEVEL	1 - 20 KHz	
	MOH	.297 In/Sec	.312 G-s	1785.0 RPM
	MOV	.205 In/Sec	.071 G-s	
	MIH	.211 In/Sec	.279 G-s	
	MIV	.295 In/Sec	.073 G-s	
	MIA	.078 In/Sec	.112 G-s	
	EIA	.229 In/Sec	.506 G-s	
	EIH	.166 In/Sec	.981 G-s	
	EIV	.175 In/Sec	.207 G-s	
	EOH	.119 In/Sec	.923 G-s	
	EOV	.115 In/Sec	.172 G-s	
9901 B	- PC 9901 B		(02-Sep-21)	
		OVERALL LEVEL	1 - 20 KHz	
	MOH	.029 In/Sec	.062 G-s	1785.0 RPM
	MOV	.022 In/Sec	.020 G-s	
	MIH	.033 In/Sec	.140 G-s	
	MIV	.018 In/Sec	.080 G-s	
	MIA	.016 In/Sec	.078 G-s	
	EIA	.090 In/Sec	.259 G-s	
	EIH	.127 In/Sec	.658 G-s	
	EIV	.077 In/Sec	.480 G-s	
	EOH	.070 In/Sec	1.246 G-s	
	EOV	.080 In/Sec	.365 G-s	
INFLUENT	- DAF INFULENT		(02-Sep-21)	
		OVERALL LEVEL	1 - 20 KHz	
	MOH	.080 In/Sec	.123 G-s	1785.0 RPM
	MOV	.042 In/Sec	.058 G-s	
	MIH	.022 In/Sec	.117 G-s	
	MIV	.112 In/Sec	.042 G-s	
	MIA	.104 In/Sec	.061 G-s	
	EIA	.111 In/Sec	.020 G-s	
	EIH	.043 In/Sec	.046 G-s	
	EIV	.188 In/Sec	.020 G-s	
CIRC PUMP	- DRUM CIRCULATION PUMP		(02-Sep-21)	
		OVERALL LEVEL	1 - 20 KHz	
	MOH	.030 In/Sec	.144 G-s	1785.0 RPM

MOV	.066 In/Sec	.040 G-s	
MIH	.035 In/Sec	.215 G-s	
MIV	.043 In/Sec	.041 G-s	
MIA	.037 In/Sec	.037 G-s	

EFFULENT - DAF EFFULENT (02-Sep-21)

	OVERALL LEVEL	1 - 20 KHz	
MOH	.516 In/Sec	.269 G-s	1785.0 RPM
MOV	.538 In/Sec	.161 G-s	
MIH	.613 In/Sec	.309 G-s	
MIV	.512 In/Sec	.174 G-s	
MIA	.267 In/Sec	.264 G-s	
EIA	.213 In/Sec	.173 G-s	
EIH	.683 In/Sec	.255 G-s	
EIV	.462 In/Sec	.151 G-s	

Clarification Of Vibration Units:

Acc	-->	G-s	RMS
Vel	-->	In/Sec	PK