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August 11, 2025

**NUCOR Melt Shop** 

Subject: July 2025 vibration survey

Below is a summary report for the Melt Shop monthly vibration survey that was performed on 08/07/25. Most of the machines surveyed were found to be in good condition except for the following:

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

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

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

<u>Class III:</u> 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.

As always, it has been a pleasure to serve NUCOR Steel Flowood-Jackson, MS. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

ISO Certified Vibration Analyst, Category III

HI-SPEED
INDUSTRIAL SERVICE
QualiTest Diagnostics

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#### **Defects**

# Middle Caster Mold Water Pump

**Pump was down this survey; however, the following likely still applies:** Vibration data shows issues in the pump. Data suggests looseness/wear of the pump bearings/fits. Impeller and other pump internals may also have wear. The pump will likely need attention soon. Rated as a **CLASS II** defect.

#### **East Caster Mold Water Pump**

Pump has some vibrations associated with vane pass. This could be an issue with the impeller. We are monitoring this closely. Rated as a **CLASS I** defect.

# **East Booster Pump**

**Pump was down this survey; however, the following likely still applies:** Motor vibration data indicates defects are present in the motor bearings. Inspect motor as scheduling allows. Rated as a **CLASS III** defect.

# Cooling Tower #1 Supply Pump

Pump has some elevated 1 x rpm DE vibration (horizontal and axial). For now, it is recommended to inspect pump coupling, alignment, and all pump fasteners as scheduling allows. Rated as a **CLASS II** defect.

#### Cooling Tower #4 Supply Pump

**Pump was down this survey; however, the following likely still applies:** Pump data shows some signs of bearing defects/wear in the ODE pump bearing. Inspect pump as scheduling allows. Rated as a **CLASS III** defect.

# **Cooling Tower #5 Supply Pump**

Pump has some increased 1 x rpm axial vibration. The pump front right foot is loose to the base. The lock washer appears to have broken on the fastener. It is highly recommended to inspect all pump fasteners, couplings, alignment, and as soon as practical Overall vibration is over 1.5 ips-pk. Rated as a **CLASS III** defect.

#### Cooling Tower #6 Supply Pump

The pump vibration data still indicates that there is bearing wear, and possibly cavitation in the pump. Inspect ODE pump bearing. Ensure the pump has no inlet restrictions and is operating in the correct part of the curve. Impeller may have excessive wear. Rated as a **CLASS II** defect.

#### Caster Baghouse ID Fan

Fan ODE bearing is starting to show increased acceleration and also some low amplitude non-synchronous peaks have appeared in spectra. These are good indications of early stage bearing wear. For now, Check lube at next downtime. We are monitoring this closely. Rated as a **CLASS I** defect.

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Database: nucorja9.rbm Station: Melt Shop

MEASUREMENT	POINT	OVERALL LE	VEL HFD / VHFD
WCMWP	- WEST	CASTER MOLD WATER PUM OVERALL L	EVEL 1K-20KHz
MOH			
MIH		.084 In/	Sec .381 G-s
MIA		.093 In/	Sec       .237 G-s         Sec       1.041 G-s         Sec       .936 G-s
PIA		.295 In/	Sec 1.041 G-s
PIH		.192 In/	Sec .936 G-s
POH		.270 In/	Sec .784 G-s
ECMWP	- EAST	CASTER MOLD WATER PUM	
		OVERALL L	EVEL 1K-20KHz
MOH		.178 ln/	Sec .666 G-s
MIH		.132 In/	Sec .850 G-s Sec .702 G-s Sec 4.383 G-s
MIA		.104 In/	Sec .702 G-s
PIA		.289 In/	Sec 4.383 G-s Sec 2.216 G-s
PIH		.1/2 111/	DEC 2.210 G 5
POH		.146 In/	Sec 2.443 G-s
WBOSTRP	- WEST		(07-Aug-25)
		OVERALL L	EVEL 1K-20KHz
MOH		.085 In/ .053 In/	Sec .706 G-s
MIH		.053 In/	Sec .471 G-s
MIA			Sec .327 G-s
PIA		.148 In/	Sec 2.587 G-s
PIH		.146 In/	Sec 1.781 G-s Sec 2.272 G-s
POH			
		December DIMED	
EBOSTRP	- EAST	Booster PUMP	(17-Apr-25)
EBOSTRP	- EAST		EVEL IK-2UKHZ
MOH	- EAST	.136 In/	Sec 1.103 G-s
	- EAST	.136 In/	Sec 1.103 G-s
мон	- EAST	.136 In/ .206 In/ .169 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s
MOH MIH	- EAST	.136 In/ .206 In/ .169 In/ .183 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s
MOH MIH MIA	- EAST	.136 In/ .206 In/ .169 In/ .183 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s
MOH MIH MIA PIA	- EAST	.136 In/ .206 In/ .169 In/ .183 In/ .167 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s
MOH MIH MIA PIA PIH POH		.136 In/ .206 In/ .169 In/ .183 In/ .167 In/ .052 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s T (07-Aug-25)
MOH MIH MIA PIA PIH POH ECSWP 1LFT		.136 In/ .206 In/ .169 In/ .183 In/ .167 In/ .052 In/	Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s T (07-Aug-25)
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH		CASTER SPRAY WP 1 LEF  OVERALL L  .136 In/ .206 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEF  OVERALL L  .078 In/	EVEL 1K-20KHZ  Sec 1.103 G-s  Sec 2.826 G-s  Sec 1.006 G-s  Sec .126 G-s  Sec .211 G-s  Sec .234 G-s  T (07-Aug-25)  EVEL 1K-20KHZ  Sec .243 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT		CASTER SPRAY WP 1 LEF  OVERALL L  .136 In/ .206 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEF  OVERALL L  .078 In/	EVEL 1R-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEF  OVERALL L  .136 In/ .206 In/ .169 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEF  OVERALL L  .078 In/ .060 In/	EVEL 1R-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEF  OVERALL L  .136 In/ .206 In/ .169 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEF  OVERALL L  .078 In/ .060 In/ .103 In/	EVEL 1R-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s (07-Aug-25)
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L  .136 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEFT  OVERALL L  .078 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L  .114 In/	EVEL 1K-20KHZ  Sec 1.103 G-s  Sec 2.826 G-s  Sec 1.006 G-s  Sec .126 G-s  Sec .211 G-s  Sec .234 G-s  T (07-Aug-25)  EVEL 1K-20KHZ  Sec .440 G-s  Sec .133 G-s  (07-Aug-25)  EVEL 1K-20KHZ  Sec .387 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 2LFT	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L  .136 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEFT  OVERALL L  .078 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L  .114 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA  MCSWP 2LFT MOH	- EAST	OVERALL L	EVEL 1K-20KHZ  Sec 1.103 G-s  Sec 2.826 G-s  Sec 1.006 G-s  Sec .126 G-s  Sec .211 G-s  Sec .234 G-s  T (07-Aug-25)  EVEL 1K-20KHZ  Sec .440 G-s  Sec .133 G-s  (07-Aug-25)  EVEL 1K-20KHZ  Sec .387 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 2LFT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEF  OVERALL L  .136 In/ .206 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEF  OVERALL L  .078 In/ .060 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L  .114 In/ .077 In/ .081 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25)
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 2LFT MOH MIH MIA	- EAST	OVERALL L	EVEL 1K-20KHZ  Sec 1.103 G-s  Sec 2.826 G-s  Sec 1.006 G-s  Sec .126 G-s  Sec .211 G-s  Sec .234 G-s  T (07-Aug-25)  EVEL 1K-20KHZ  Sec .440 G-s  Sec .133 G-s  (07-Aug-25)  EVEL 1K-20KHZ  Sec .387 G-s  Sec 1.138 G-s  Sec .512 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 2LFT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L .136 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEFT  OVERALL L .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L .114 In/ .077 In/ .081 In/  CASTER SPRAY WP 3 RIGH  OVERALL L .087 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 2LFT MOH MIH MIA MCSWP 3RT	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L .078 In/ .060 In/ .060 In/ .060 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L .114 In/ .077 In/ .081 In/  CASTER SPRAY WP 3 RIGH  OVERALL L .087 In/ .073 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec .387 G-s Sec .387 G-s Sec .512 G-s
MOH MIH MIA PIA PIH POH ECSWP 1LFT MOH MIH MIA MCSWP 3RT MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L .078 In/ .060 In/ .060 In/ .060 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L .114 In/ .077 In/ .081 In/  CASTER SPRAY WP 3 RIGH  OVERALL L .087 In/ .073 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s
MOH MIH MIA PIA PIH POH  ECSWP 1LFT  MOH MIH MIA  MCSWP 2LFT  MOH MIH MIA  MCSWP 3RT  MOH MIH MIA	- EAST	CASTER SPRAY WP 1 LEFT  OVERALL L  .136 In/ .169 In/ .183 In/ .167 In/ .052 In/  CASTER SPRAY WP 1 LEFT  OVERALL L  .078 In/ .060 In/ .103 In/  CASTER SPRAY WP 2 LEFT  OVERALL L  .114 In/ .077 In/ .081 In/  CASTER SPRAY WP 3 RIGH  OVERALL L .087 In/ .073 In/ .073 In/ .063 In/	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec .313 G-s  H (07-Aug-25)
MOH MIH MIA PIA PIH POH  ECSWP 1LFT  MOH MIH MIA  MCSWP 2LFT  MOH MIH MIA  MCSWP 3RT  MOH MIH MIA	- EAST	OVERALL L	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .243 G-s Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec 1.138 G-s Sec 1.138 G-s Sec .512 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .327 G-s Sec .327 G-s Sec .318 G-s H (07-Aug-25) EVEL 1K-20KHZ
MOH MIH MIA PIA PIH POH  ECSWP 1LFT  MOH MIH MIA  MCSWP 2LFT  MOH MIH MIA  MCSWP 3RT  MOH MIH MIA	- EAST	OVERALL L	EVEL 1K-20KHZ Sec 1.103 G-s Sec 2.826 G-s Sec 1.006 G-s Sec .126 G-s Sec .211 G-s Sec .234 G-s  T (07-Aug-25) EVEL 1K-20KHZ Sec .440 G-s Sec .440 G-s Sec .133 G-s  (07-Aug-25) EVEL 1K-20KHZ Sec .387 G-s Sec 1.138 G-s Sec 1.138 G-s T (07-Aug-25) EVEL 1K-20KHZ Sec .327 G-s Sec .327 G-s Sec .379 G-s Sec .318 G-s  H (07-Aug-25) EVEL 1K-20KHZ Sec .379 G-s

MIA .111 In/Sec .613 G-s

MOH MIH PIV			PUMP OVERALL LEVEL	1K-20KHz .810 G-s 1.960 G-s 1.842 G-s
MIH PIV			.118 In/Sec .130 In/Sec	.413 G-s .891 G-s
SERVOHRECP MOH MIH PIV	-		CC PUMP OVERALL LEVEL .120 In/Sec .108 In/Sec .195 In/Sec	1K-20KHz
N2DECKHYDP MOH MIH PIV	_		Hyd PUMP	(08-Aug-25)
2DEKRECIP MOH MIH PIV			yd RECIRC PUM OVERALL LEVEI .108 In/Sec .097 In/Sec	(08-Aug-25)
MOH MIH PIV			Hyd PUMP OVERALL LEVEL .226 In/Sec .050 In/Sec .588 In/Sec	1K-20KHz .931 G-s 1.633 G-s 4.432 G-s
1SUPLYP  MOH MIH MIA PIA PIH POH	_	#1 Supply Pump	OVERALL LEVEL .134 In/Sec .232 In/Sec .212 In/Sec .761 In/Sec	.484 G-s .305 G-s 2.020 G-s
2SUPLYP  MOH MIH MIA PIA PIH POH * POV	-	#2 Supply Pump	.083 In/Sec .138 In/Sec	1.007 G-s .907 G-s .653 G-s 1.076 G-s .695 G-s 2.567 G-s
3SUPLYP  MOH MIH MIA PIA PIH POH	-	#3 Supply Pump	.066 In/Sec .066 In/Sec .063 In/Sec	.659 G-s .589 G-s

	_	#5 01100	oly Pump		/0	8-Aug-25)
SSOPLIP	_	#5 Supp	ory Pump	OVERA	LL LEVEL	•
MO	н				In/Sec	
MI				.133	In/Sec	1.112 G-s
MI	A			.140	In/Sec In/Sec	.338 G-s
PI	A			1.509	In/Sec	2.241 G-s
PI	H			.608	In/Sec	1.023 G-s
PO	H			.593	In/Sec	1.442 G-s
COURTIER		# <i>C</i> Q	. 1			0. 3 05)
6SUPLYP	_	#6 Supp	ora bamb	OVEDA	LL LEVEL	8-Aug-25) 1K-20KHz
мо	ч				In/Sec	
MI				373	In/Sec	.228 G-s
MI				.344	In/Sec	.127 G-s
PI	A			.225	In/Sec	.127 G-s 1.047 G-s
PI	H			.253	In/Sec	
PO	H			.296	In/Sec	1.428 G-s
* PO	V			.132	In/Sec	1.295 G-s
CDD3		G3 GEED	D3 0110110E	DEL.ED 61		0. 3 05)
CBRA	_	CASTER	BAGHOUSE		-	8-Aug-25) 1K-20KHz
MO	н				In/Sec	
MI				.028	In/Sec	.310 G-s
MI				.021	In/Sec	.156 G-s
FI				.023	In/Sec In/Sec	.318 G-s
FO	H			.037	In/Sec	.192 G-s
FO	V			.039	In/Sec	.072 G-s
FI	V			.048	In/Sec	.076 G-s
CDID		CA CEED	DA CHOHOE	TD EAN	(0	O 3 OEV
CBID	_	CASTER	BAGHOUSE		LL LEVEL	_
MO	н				In/Sec	
MO				.028	In/Sec	.105 G-s
MI	H				In/Sec In/Sec	.228 G-s
MI	V					
MI	A			.022	In/Sec	.109 G-s
FI				.031	In/Sec	1.048 G-s
FI	H			.060	In/Sec	1.149 G-s
FI FI	H V			.060	In/Sec In/Sec	1.149 G-s .618 G-s
FI FI FO	H V H			.060	In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s
FI FI	H V H V			.060 .032 .073	In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s
FI FO FO	H V H V A			.060 .032 .073 .024 .073	In/Sec In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s
FI FI FO	H V H V A	Furnace	e REVERSE	.060 .032 .073 .024 .073	In/Sec In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25)
FI FO FO FRAF	H V H V A	Furnace	∍ REVERSE	.060 .032 .073 .024 .073 AIR Far	In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz
FI FO FO FRAF	H V H V A -	Furnace	e REVERSE	.060 .032 .073 .024 .073 AIR Far	In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz
FI FO FO FRAF MO MI	H V H V A - H H	Furnace	∍ REVERSE	.060 .032 .073 .024 .073 AIR Far	In/Sec In/Sec In/Sec In/Sec In/Sec In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz
FI FO FO FO FRAF MO MI MI	H V H V A - H H	Furnace	e REVERSE	.060 .032 .073 .024 .073 AIR Fai OVERAI .039 .051	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s
FI FO FO FRAF MO MI	H V H V A - H H A A	Furnace	∍ REVERSE	.060 .032 .073 .024 .073 AIR Fai OVERAI .039 .051	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s
FI FO FO FRAF MO MI MI FI	H V H V A H H H A A H	Furnace	e REVERSE	.060 .032 .073 .024 .073 AIR Fair .039 .051 .020 .044 .038	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s
FI FO FO FRAF MO MI MI FI FI	H V H V A H H H A H H	Furnace	∍ REVERSE	.060 .032 .073 .024 .073 AIR Fair .039 .051 .020 .044 .038 .032	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s
FI FO FO FRAF MO MI MI FI FI	H V H V A H H H A A H H H V	Furnace	∍ REVERSE	.060 .032 .073 .024 .073 AIR Fair .039 .051 .020 .044 .038 .032	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s 8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s
FI FC FC FRAF MC MI MI FI FC FC FC	H W H H H H H A A H H W V V			.060 .032 .073 .024 .073 AIR Fai .039 .051 .020 .044 .038 .032 .023 .062	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s
FI FC FC FRAF MC MI MI FI FC FC FC	H W H H H H H A A H H W V V			.060 .032 .073 .024 .073 AIR Far OVERAL .039 .051 .020 .044 .038 .032 .023 .062 House	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s
FI FO FO FO FI	H V H V A			.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 House OVERAL	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz
FI FC FC FRAF MC MI MI FI FC FC FC	H V H V A			.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 House OVERAL	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz
FI FO FO FO FI EFBHF	H V H V A			.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 G House OVERAL .089 .086	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s
FI FO FO FO FO FI EFBHF	H V H V A			.060 .032 .073 .024 .073 AIR Fai OVERAI .039 .051 .020 .044 .038 .032 .023 .062 House OVERAI .089 .086 .034 .121	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s
FI FO	НVНVА ННААННVV ННААН			.060 .032 .073 .024 .073 AIR Fair OVERAL .039 .051 .020 .044 .038 .032 .062 G House OVERAL .089 .086 .034 .121	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s
FI FO FO FO FI FO FI FO FO FI FO FI FO FO FI FO FI FO FI FO FI FO FO FI FI FO FI FO FI FI FO FI FI FO FI FO FI FI FI FO FI FI FI FO FI FI FI FO FI	НVНVА ННААННVV ННААНН			.060 .032 .073 .024 .073 AIR Fai OVERAI .039 .051 .020 .044 .038 .032 .023 .062 House OVERAI .089 .086 .034 .121 .136 .125	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s 1.233 G-s
FI FO	НVНVА ННААННVV ННААНН			.060 .032 .073 .024 .073 AIR Fai OVERAI .039 .051 .020 .044 .038 .032 .023 .062 House OVERAI .089 .086 .034 .121 .136 .125	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s
FI FO FO FI FO FI FO FI	нунуа ннааннуу ннаанну -	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fair OVERAL .039 .051 .020 .044 .038 .032 .023 .062 G House OVERAL .089 .086 .034 .121 .136 .125 .082	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s 1.233 G-s .888 G-s
FI FO FO FI FO FI FO FI	нунуа ннааннуу ннаанну -	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fair OVERAL .039 .051 .020 .044 .038 .032 .023 .062 G House OVERAL .089 .086 .034 .121 .136 .125 .082	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .160 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s 1.233 G-s .888 G-s
FI FO FO FI FO FI FO FI	нунуа ннааннуу ннаанну –	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fair OVERAL .039 .051 .020 .044 .038 .032 .062 G House OVERAL .089 .086 .034 .121 .136 .125 .082 G House OVERAL	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.254 G-s 1.448 G-s 1.233 G-s .888 G-s
FI FO FO FI FI FO FI	НVНVА ННААННVV ННААННV Н	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 HOUSE OVERAL .136 .125 .082 .082	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.448 G-s 1.233 G-s .888 G-s 8-Aug-25) 1K-20KHz .748 G-s
FRAF  FRAF  MO MI MI FI FO FO FO FO FO FO FO FO MI MI MI FI FO MO MI	НVНVА ННААННVV ННААННV –	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 House OVERAL .136 .125 .082 .084 .121 .136 .125 .082	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.248 G-s 1.233 G-s .888 G-s 8-Aug-25) 1K-20KHz .748 G-s
FRAF  FRAF  MO MI MI FI FO FO FO FO FO FI  WFBHF  MO MI	НVНVА ННААННVV ННААННV –	East Fu	ırnace Baq	.060 .032 .073 .024 .073 AIR Fai OVERAL .039 .051 .020 .044 .038 .032 .023 .062 House OVERAL .136 .125 .082 .084 .121 .136 .125 .082	In/Sec	1.149 G-s .618 G-s 2.713 G-s 3.809 G-s 1.997 G-s  8-Aug-25) 1K-20KHz .234 G-s 1.938 G-s 1.478 G-s .259 G-s .297 G-s .368 G-s .787 G-s  8-Aug-25) 1K-20KHz .778 G-s .922 G-s .640 G-s 1.254 G-s 1.248 G-s 1.233 G-s .888 G-s 8-Aug-25) 1K-20KHz .748 G-s

FIH	.162 In/Sec	1.095	G-s
FOH	.110 In/Sec	. 940	G-s
FOV	.071 In/Sec	. 451	G-s
FIV	.083 In/Sec	1.301	G-s

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#### Clarification Of Vibration Units:

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