

April 15, 2008 Supersedes October 17, 2006

MEASURING PAVER VIBRATOR FREQUENCY

SCOPE

This test procedure describes the method for manual determination of the vibration frequency of each individual internal vibrator on a slipform Portland Cement Concrete (PCC) paver.

PROCEDURE

A. Apparatus

A length of steel rod, 1/2 in. (12.5 mm) in diameter, with a small fork at the lower end to straddle the vibrator body or hydraulic line protector hose. The length of the rod depends upon the distance from about 3 ft. (0.91 m) above the paver operator expanded metal walkway down to the vibrators. The width limit of the fork depends upon the size of openings in the expanded metal walkway. A typical rod might be 1/2 in. (12.5 mm) in diameter by 4 ft. (1.21 m) to 7 ft. (2.13 m)-long with a 2 in. (50 mm) fork opening (Figure 1).

Tachometers: (Figure 3)

- Vibra-Tak®, single wire reed type.
- Standco®, vibrating reed type.

Note: A Vibra-Tak[®], single wire reed type tachometer, is sometimes preferred as it has a wide range of frequency, is low-cost, durable and gives readings with acceptable accuracy.

B. Recording Procedure

Take vibrator readings immediately after the start of paving and the following:

- When vibration monitoring is used, check and record frequency on a minimum of two random vibrators daily.
- When vibration monitoring is not used, check and record frequency of each vibrator twice daily.

Take readings after any changes are made to the vibrator.

C. Taking Readings

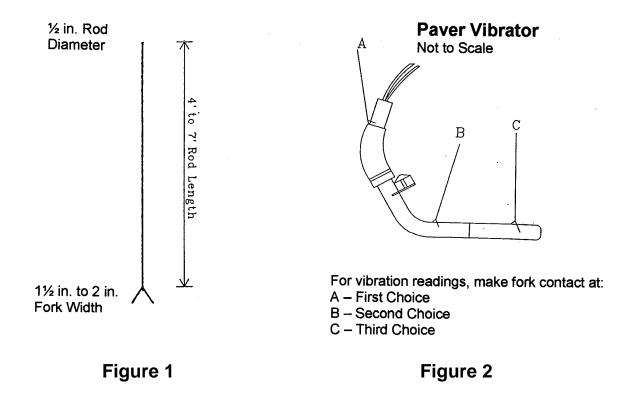
In most cases, the best readings can be obtained through contact with the hydraulic line protector hose just above the vibrator (position A, Figure 2). The second choice location would be position B (Figure 2). Taking readings directly from the vibrator body (position C, Figure 2) may be excessively harsh, hard to read, and could eventually damage the tachometer-testing apparatus.

Vibration transmission to the tachometer is obtained by placing the lower end of the forked rod on or near each vibrator (Figure 2) while reading the vibrations per minute (VPM) value from the tachometer at the top of the rod. (Caution, do not allow the metal rod to touch any other part of the paver, such as the metal walkway, while taking readings.)

Vibration readings are obtained by holding the nose of a wire type Vibra-Tak[®] against the top end of the rod, perpendicular to the rod axis. As the wire reed of the Vibra-Tak[®] is moved in or out of its holder, by moving the tuning slide, a maximum reed vibration will occur at a specific reed length. Read the VPM (x 1000) on the reed holder body adjacent to the top rim of the tuning slide. Standco[®] readings are taken directly from the tachometer (Note: Be aware that resonant harmonics from lower frequencies (*1800 vpm*) can invoke a response at a higher frequency (*3600 vpm*) with lower amplitude.

D. Specifications (Refer to Article 2301.07.)

E. Report – Report results on form number 830213.



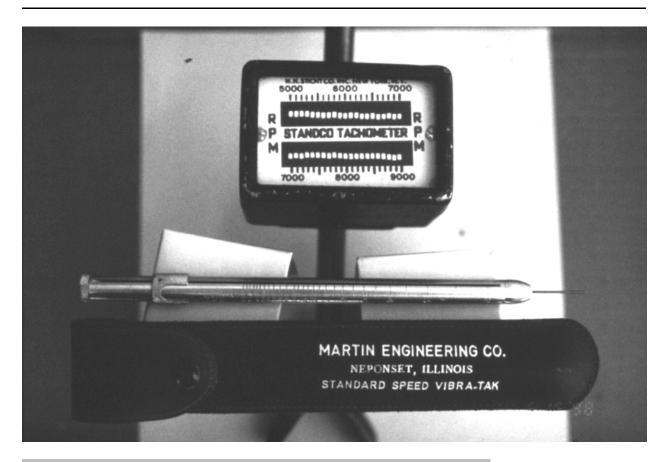


Figure 3 – Vibrating reed type and single wire reed type tachometers.

Location Divisoit Inspector		Pro	Project Number	Jumb	er						Con	Contract No	No			Ē	County	>					
Divised Increase																							
Linject IIIshert	or										Pav	Paving Foreman	orem	an									
Type/Model of Paver	Paver																						
Type/Mounting Location of Tie-Bar Inserter	Location	lof	TIe-B	ar Ins	serte																		
Location of Tie-Bar Inserter from pavement Edge	Bar Inse	arter	from	pave	men	t Edg	e																
	Note: If any information changes during the project, a new form needs to be completed	If a	IN I	forn	natio	n ch	ange	s du	ring t	he p	rojec	t, a r	ew f	mo	need	s to	be co	duc	eted.	-			
Spacing (in)		-											-	_							_		
Paving	Ţ	T	T I	T	—	Ť	÷	†	÷	+	-	\leftarrow	-	-	÷	÷	_	-	╞	—	⇐	Ļ	-
Cumulative Total	_	-		F		F	-	-	-	-	-	-	\vdash	-	-	\vdash	-	-	-		-	_	
Vibrator No	1 2	3	4	2	9	~	8	ი	10	11	12	13	14	15	16	17	18	19	8	21	22	23	24
Freq X 100																							
Station				_																			
Freq X 100															2						0		
Station					-																	0.015	
Freq X 100																							
Station																							
x	al Notes: Spec Limits – Refer to specific Spacing not to exceed 16". Ce max due to physical limitations spacing should not be increase number of vibrators. When vibration monitoring is us when vibration monitoring is no when vibration monitoring is no	ical l ical l i i i i i i i i	o spé d 16 e indra e indra oring oring	ease ease daily.	ation interl of pi d for sed,	2301 aver a tie s tie s check	such such teel ir teel ir	g ma as mu serti reco	efer to specification 2301. exceed 16". Centerline spacing may be increased to 30" sical limitations of paver such as mounting bracket location not be increased for tie steel insertion or lack of adequate tors. monitoring is used, check and record frequency on a vibrators daily.	increa na br lack quen	ased acket of ac	to 30 fequs ra y of e	tie tions;		SIDE VIEW						ŝ ê		

April 15, 2008 Supersedes October 17, 2006

4

Form 630213 10-07

1

🔗 lowa Department of Transportation