

Martin[®] Vibrotor[™]

CCR Vibrator



Operator's Manual

M3444

Important

MARTIN ENGINEERING HEREBY DISCLAIMS ANY LIABILITY FOR: DAMAGE DUE TO CONTAMINATION OF THE MATERIAL; USER'S FAILURE TO INSPECT, MAINTAIN AND TAKE REASONABLE CARE OF THE EQUIPMENT; INJURIES OR DAMAGE RESULTING FROM USE OR APPLICATION OF THIS PRODUCT CONTRARY TO INSTRUCTIONS AND SPECIFICATIONS CONTAINED HEREIN. MARTIN ENGINEERING'S LIABILITY SHALL BE LIMITED TO REPAIR OR REPLACEMENT OF EQUIPMENT SHOWN TO BE DEFECTIVE.

Observe all safety rules given herein along with owner and Government standards and regulations. Know and understand lockout/tagout procedures as defined by American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements* and Occupational Safety and Health Administration (OSHA) Federal Register, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*.

The following symbols may be used in this manual:



Danger: Immediate hazards that will result in severe personal injury or death.



Warning: Hazards or unsafe practices that could result in personal injury.



Caution: Hazards or unsafe practices that could result in product or property damages.



Important: Instructions that must be followed to ensure proper installation/operation of equipment.



Note: General statements to assist the reader.



⚠ DANGER

Before installing equipment, turn off and lock out/tag out all energy sources to the hopper, conveyor, and/or conveyor accessories according to ANSI standards. Failure to do so could result in serious injury or death.

1. Turn off and lock out/tag out energy source according to American National Standards Institute (ANSI) z244.1-1982 and Federal Register, Volume 54, Number 169, Part IV, 29 CFR Part 1910.
2. Make sure mounting surface and vibrator are clean and free of debris.

IMPORTANT

Vibrator must be mounted with exhaust port facing down or to the side.

3. If using an existing mount, ensure vibrator exhaust port is facing down or to the side. If exhaust will be facing up in final location, disassemble the vibrator and reassemble as follows:
 - a. Remove all bolts holding vibrator together.
 - b. Remove end caps and shaft.
 - c. Rotate end caps and shaft 180° and reinstall onto vibrator, making sure shaft maintains its original position between the end caps.
 - d. Torque all bolts to 53 ft-lbs (72 N•m).
4. See Figure 1. Locate vibrator in lower 1/4 to 1/3 of structure slope length. If second vibrator is needed, mount 180 degrees from first vibrator and halfway up slope.

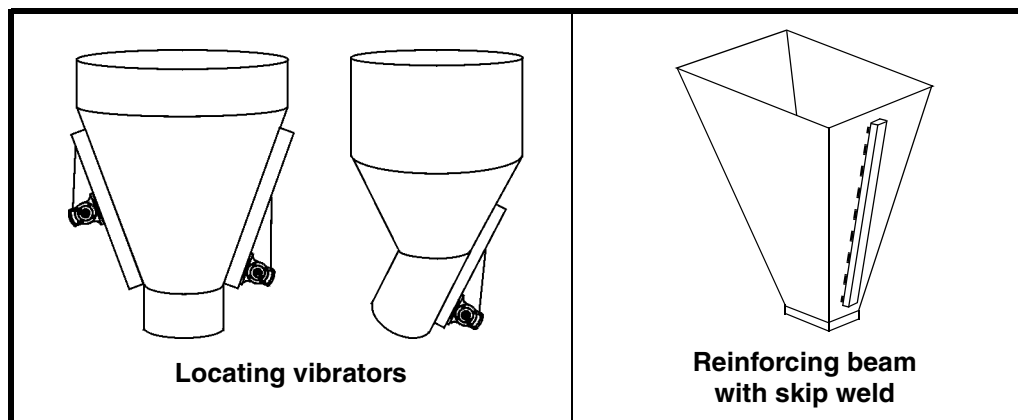


Figure 1. Locating Vibrators and Reinforcing Beams on Hoppers

5. If necessary, install reinforcing beam to strengthen chute wall (see Figure 1). Skip weld beam in place: Weld 3 in. (76 mm) then skip 2 in. (51 mm). Repeat for entire perimeter of beam. Do not weld last 1 in. (25 mm) of either end of beam or any corner. Make sure beam extends at least 3/4 the length of structure from top to bottom.
6. Install mounting plate. Skip weld in place. (Mounting plate should be at least the size of vibrator bracket base.)
7. Install vibrator onto mount using new cap screws, compression washers, and lock nuts. See Table I for mounting bolt sizes and torque requirements.

IMPORTANT

Lubricated air must be used to ensure proper operation of the vibrator/impactor. Set lubricator to deliver 2–4 drops of oil per minute. Use Martin[®] Air Motor Oil or an equivalent, such as spindle oil ISO 22 or SAE No. 10 non-detergent oil.

8. Run a lubricated air line (supplied by the customer) to the intake on the vibrator as follows. (See Table II for recommended pipe sizes.)
 - a. See Figure 2. Connect air line to ball valve (A) and Filter/Regulator/Lubricator (FRL) Kit (B). Set lubricator to deliver 2–4 drops per minute.

WARNING

Wire control box and solenoid in accordance with National Electrical Code Article 430. Have wiring installed by a qualified electrician only.

- b. If using, connect power to control box (C) and solenoid valve (D). Run lubricated air lines through solenoid valve to vibrator (E).
- c. Connect air to vibrator.

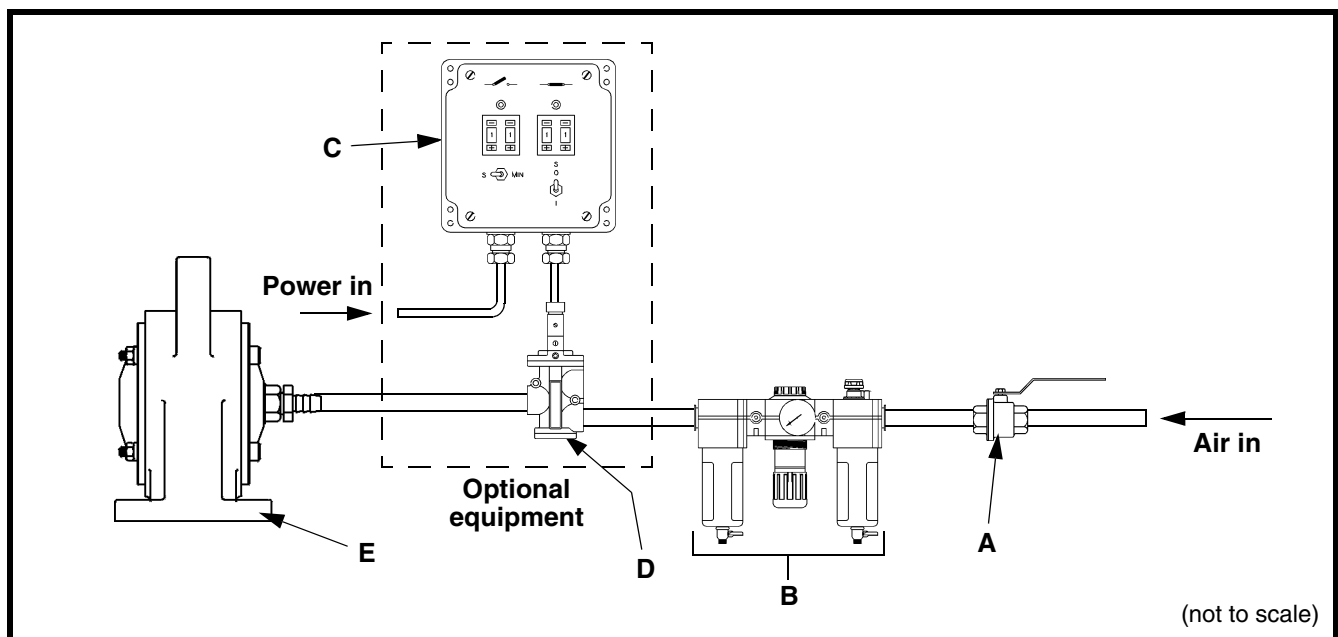


Figure 2. Connecting Air Lines to Vibrator

Table II. Recommended Pipe Size for Compressed Air Flow to 125 psi (8.62 bar)

Air Volume cfm (cls)	Pipe Length—ft (m) Nominal Pipe Diameter								
	25 (8)	50 (15)	75 (23)	100 (31)	150 (46)	200 (61)	300 (92)	500 (152)	1000 (305)
6 (2.8)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4
18 (8.5)	1/2	1/2	1/2	3/4	3/4	3/4	3/4	1	1
30 (14.2)	3/4	3/4	3/4	3/4	1	1	1	1-1/4	1-1/4
45 (21.3)	3/4	3/4	1	1	1	1	1-1/4	1-1/4	1-1/4
60 (28.3)	3/4	1	1	1	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2
90 (42.5)	1	1	1-1/4	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2	2
120 (56.6)	1	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2	2	2
150 (70.8)	1-1/4	1-1/4	1-1/4	1-1/2	1-1/2	2	2	2	2-1/2
180 (85)	1-1/4	1-1/2	1-1/2	1-1/2	2	2	2	2-1/2	2-1/2
240 (113.3)	1-1/4	1-1/2	1-1/2	2	2	2	2-1/2	2-1/2	3
300 (141.6)	1-1/2	2	2	2	2	2-1/2	2-1/2	3	3
360 (170)	1-1/2	2	2	2	2-1/2	2-1/2	2-1/2	3	3

9. Start vibrator.

10. After 1 hour of operation, tighten mounting bolts while vibrator is operating to fully seat vibrator.

Weekly Maintenance

1. Turn off and lock out/tag out energy source according to ANSI standards (see “Installation”).
2. Make sure fasteners are tight. Tighten if necessary.

Troubleshooting

Symptom	Corrective Action
Condensation freezing in air lines.	Add a metal bowl oiler downstream from present FRL and fill with non-flammable air line antifreeze.

Part Numbers and Specifications

Performance Chart and Part Numbers for Vibrotor™ Vibrators

Model	Part Number	Unbalance lb—in.	20 psi (1.38 bar)			40 psi (2.76 bar)			60 psi (4.14 bar)			80 psi (5.52 bar)			Max. lb (kg) Material in Slope of Bin
			vpm*	Force lb (kg)	cfm** (lit/min)	vpm*	Force lb (kg)	cfm** (lit/min)	vpm*	Force lb (kg)	cfm** (lit/min)	vpm*	Force lb (kg)	cfm** (lit/min)	
CCR-4400	29725	.441	7200	649 (294)	35 (991)	11500	1655 (751)	53 (1501)	13500	2281 (1035)	65 (1841)	15000	2816 (1277)	73 (2067)	28160 (12773)
CCR-5500†	28848	1.262	6600	1560 (708)	32 (906)	10000	3582 (1625)	42 (1189)	12500	5596 (2538)	55 (1558)	14000	7020 (3184)	58 (1643)	70200 (31843)
CCR-6500	29905	2.344	5800	2238 (1015)	25 (708)	8500	4806 (2180)	35 (991)	10700	7616 (3455)	44 (1246)	12500	10395 (4715)	50 (1416)	103950 (47152)

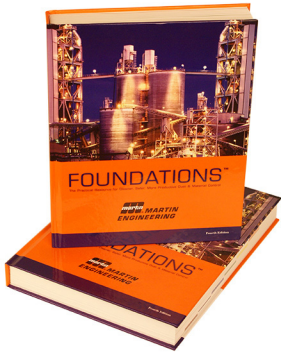
*Vibrations per minute.

**Cubic feet per minute.

†For replacement parts, order CCR 5500 Repair Kit, P/N 30483. (Kit includes rollers, plates, shaft, and vane.)

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