

martin®

Martin® ***Impacting Railcar Vibrator***

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Operator's Manual
M3836

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.

Table of Contents

Section	Page
List of Figures	ii
Introduction	1
General	1
References	1
Safety	1
Materials required	1
Before Installing Vibrator	2
Installing Vibrator	3
Locating vibrator on structure	3
Mounting vibrator onto structure	3
Connecting air lines	5
After Installing Vibrator	6
Weekly Maintenance	7
Troubleshooting	8
Part Numbers	9

List of Figures

Figure	Title	Page
1	Martin® Impacting Railcar Vibrator Assembly, P/N 38851	10
2	Vibrator Warning Tag, P/N 34085	11

Introduction

General

Martin® Impacting Railcar Vibrators provide force to activate the free flow of sticky, coarse, high-moisture materials in railcars. The vibrators require no maintenance when used with filtered and lubricated air.

Vibrators are quiet, lightweight, and are used on the sloped portion of railcars.

This manual covers installing and operating the Martin® Impacting Railcar Vibrators. For assistance installing the vibrators or for other applications, call Martin Engineering or a representative.

References

The following documents are referenced in this manual:

- American National Standards Institute (ANSI) z244.1-1982, *American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements*, American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.
- Federal Register, Volume 54, Number 169, Part IV, 29 CFR Part 1910, *Control of Hazardous Energy Source (Lockout/Tagout); Final Rule*, Department of Labor, Occupational Safety and Health Administration (OSHA), 32nd Floor, Room 3244, 230 South Dearborn Street, Chicago, IL 60604.

Safety

All safety rules defined in the above documents, and all owner/employer safety rules, must be strictly followed when working on the Martin® Impacting Railcar Vibrator.

Materials required

In addition to standard hand tools, the following materials are required to install this equipment:

- Filter-Regulator-Lubricator (FRL) kits (see “Part Numbers”).
- Air Motor Oil (see “Part Numbers”).

Before Installing Vibrator

IMPORTANT

The delivery service is responsible for damage occurring in transit. Martin Engineering CANNOT enter claims for damages. Contact your transportation agent for more information.

1. Inspect shipping container for damage. Report damage to delivery service immediately and fill out delivery service's claim form. Keep any damaged goods subject to examination.
2. Remove vibrator from shipping container.
3. If anything is missing, contact Martin Engineering or representative.
4. Make sure mounting surface and vibrator are clean and free of debris.

Installing Vibrator

IMPORTANT

Read entire section before beginning work.

⚠ CAUTION

If installation instructions are not followed, structure and vibrator can be damaged. Abusing or handling vibrator carelessly will accelerate wear and shorten its life.

To install the vibrator, follow the procedures corresponding to the following steps:

1. Determine where to locate the vibrator on the structure.

IMPORTANT

Piston vibrators produce linear vibration best applied to wet, sticky material adhering to a railcar wall. The object is to move the wall back and forth to dislodge the material.

2. Connect lubricated air lines to vibrator with ball valve to quick-start vibrator.

Locating vibrator on structure

Locate vibrator on railcar bracket. If second vibrator is required, locate on opposite side of pocket if bracket is available, so two vibrators will synchronize and operate together.

Mounting vibrator onto structure

⚠ WARNING

Move vibrator into final position carefully. Sudden movements could cause unit to fall out of wedge bracket causing injury to personnel if placed in bracket incorrectly.

1. Make sure vibrator has a clean FRL setup.
2. Set pressure to 80 psi operating range.
3. Set oil to 5–10 drops per minute
4. Vibrator needs full air pressure from start with ball valve operation.

IMPORTANT

Martin Engineering recommends thin grade air motor oil in vibrators.

IMPORTANT

It is strongly recommended to use size 5 micrometer filters due to the small tolerance between piston and bore.

IMPORTANT

Air line and FRL kit need to be adequate for individual vibrator.

IMPORTANT

Verify lubricator is working while unit is on. Lack of lubrication will terminate vibrator.

▲ WARNING

If vibrator is mounted more than 6 in. (152 mm) above ground, install cable securing vibrator to structure. Without cable, vibrator could fall and cause injury.

NOTE

For instructions on mounting cable onto vibrator or cable mounting kit, contact Martin Engineering or representative.

NOTE

Vibrator operates at temperatures of 30°F (-1°C) and above.

Connecting air lines

IMPORTANT

At least 40 psi (2.75 bar) is required to operate the Martin® Impacting Railcar Vibrator. Martin Engineering recommends using an air filter on the air line (available from Martin Engineering).

Lubricated air must be used to ensure proper operation of the vibrator.

1. Run a lubricated air line (supplied by the customer) to the intake on the side of the vibrator body.
2. Remove plastic plug.
3. Connect air line to vibrator.

IMPORTANT

Ensure that air lines can carry the volume of air to individual vibrator.

After Installing Vibrator

IMPORTANT

Read entire section before beginning work.

▲ WARNING

The Martin® Impacting Railcar Vibrator operates at a decibel level of over 85 dba. Hearing protection is required.

1. Start vibrator.
2. Observe operation of vibrator and ensure proper operation.

Weekly Maintenance

IMPORTANT

Read entire section before beginning work.

1. Check vibrator mounts for structural damage.
2. Make sure all fasteners are tight. Tighten if necessary.
3. Check air filter for accumulation of dirt. If clogged, wash out or replace.
4. Install air line.
5. Check lubricator for sufficient oil in the container.
6. Wipe all labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.
7. Restart vibrator.

IMPORTANT

It is extremely important to keep lubricator filled with oil. Vibrator will be damaged if lubricator runs out of oil. Set lubricator at a rate of 5–10 drops per minute.

NOTE

If back cover is removed for cleaning, re-torque to 25 ft-lbs.

Troubleshooting

If you are experiencing problems with the Martin® Impacting Railcar Vibrator, see below.

Symptom	Corrective Action
Vibrator not running	Verify air pressure. Vibrator needs full air pressure on start-up with ball valve operation. No air pressure. Make sure air is on and being supplied to vibrator. Check lubrication. Vibrator will not operate at temperatures below 30°F.
Vibrator not performing full-speed	Check air pressure and air line. Air line and components must be proper volume for individual vibrator. Ensure that flexible tube is not bent. Make sure inside diameter of air pressure supply pipe is large enough and not too long. Check inside diameter of valves used. Make sure there are not too many air consumers being operated at the same time with one air line. Consumers should be selectively controlled. Check lubrication.
Vibrator not starting (manually driven)	The piston needs to be supplied with full pressure upon start-up. Open the valve as quickly as possible or make use of the solenoid valves. Electrically- or pneumatically-driven valves are recommended. Insufficiently large tube or valve diameter may cause similar problems. Check lubrication.
Vibrator not starting	Gumming of oil causes parts to stick together. Add 10 drops of kerosene into air inlet to dissolve the gumming oil. Air pressure supply blockage: Check hose for clogging. If clogged, wash out with kerosene and replace. Check lubrication.

NOTE

Vibrator operates at temperatures of 30°F and above.

Part Numbers

This section provides product names and corresponding part numbers for Martin® Impacting Railcar Vibrator and related equipment. Please reference part numbers when ordering parts.

Railcar Vibrator

Railcar Vibrator Assembly: P/N 38851.

Vibrator mounts

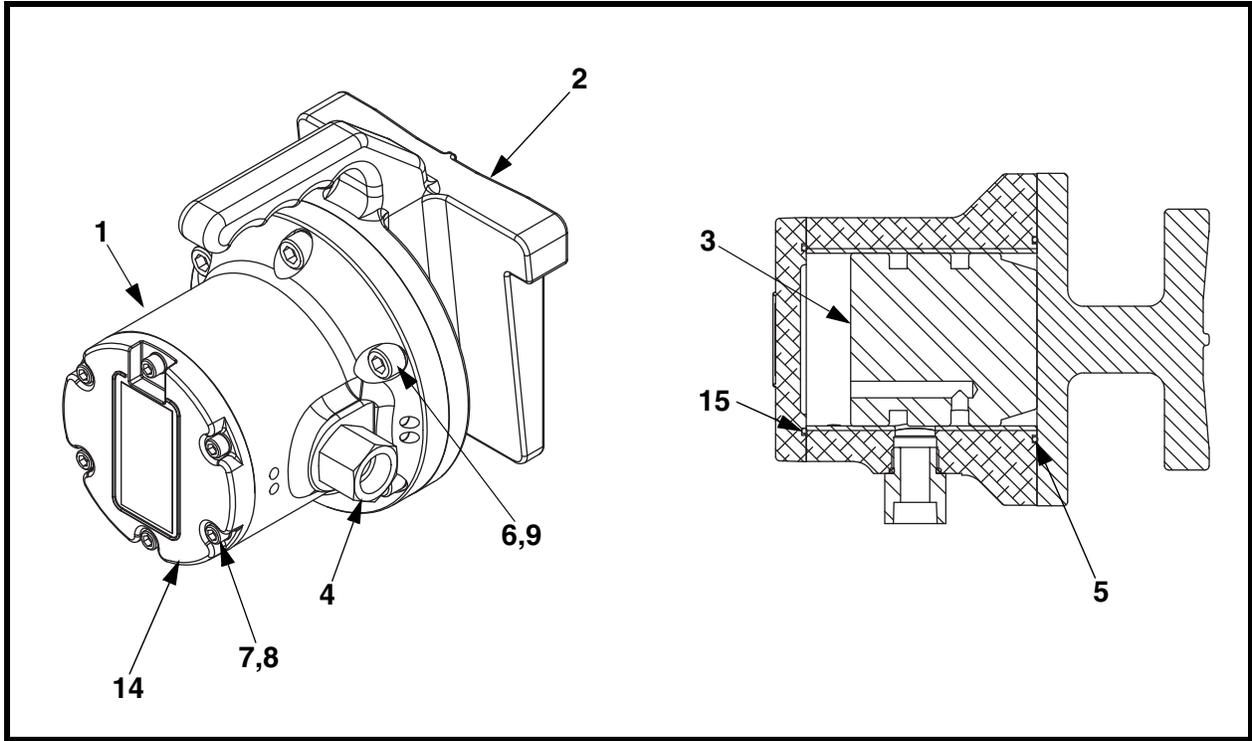
Female Wedge Bracket (LBF): P/N 12735

Miscellaneous

NPT Filter-Regulator-Lubricator (FRL) Kit (3/4-inch): P/N 14762

Oil

Air Motor Oil: P/N 14766



Item	Description	Part No.	Qty
1	Vibrator Body	38845	1
2	Wedge	38846	1
3	Piston	38847	1
4	Fitting 1-1/16-12 o-ring x 3/4 NPTF	38849	1
5	O-Ring #245 4-5/8 x 4-3/8 x 1/8	38848	1
6	Washer Schnorr D12.7 S Series ZPY	38819	6
7	Washer Schnorr D8 VS Series ZPY	513004	6
8	Screw SHC 5/16-18NC x 3/4 BO	32995	6
9	Screw SHC 1/2-13NC-3A x 1-1/2 BO	13290	6
10 (NS)	Plug Plastic 3/4 NPT	11663	2
11 (NS)	Operator's Manual	M3836	1
12 (NS)	Tag OSHA Hearing Protection	34085	1
13 (NS)	Tie Nylon Cable	30916	1
14	Top Cover (Machined)	36400	1
15	O-Ring #242 3.984 ID N70A	36404	1
16 (NS)	Label Piston Vibrator	36403	1

Figure 1. Martin® Impacting Railcar Vibrator Assembly, P/N 38851

NS=Not Shown

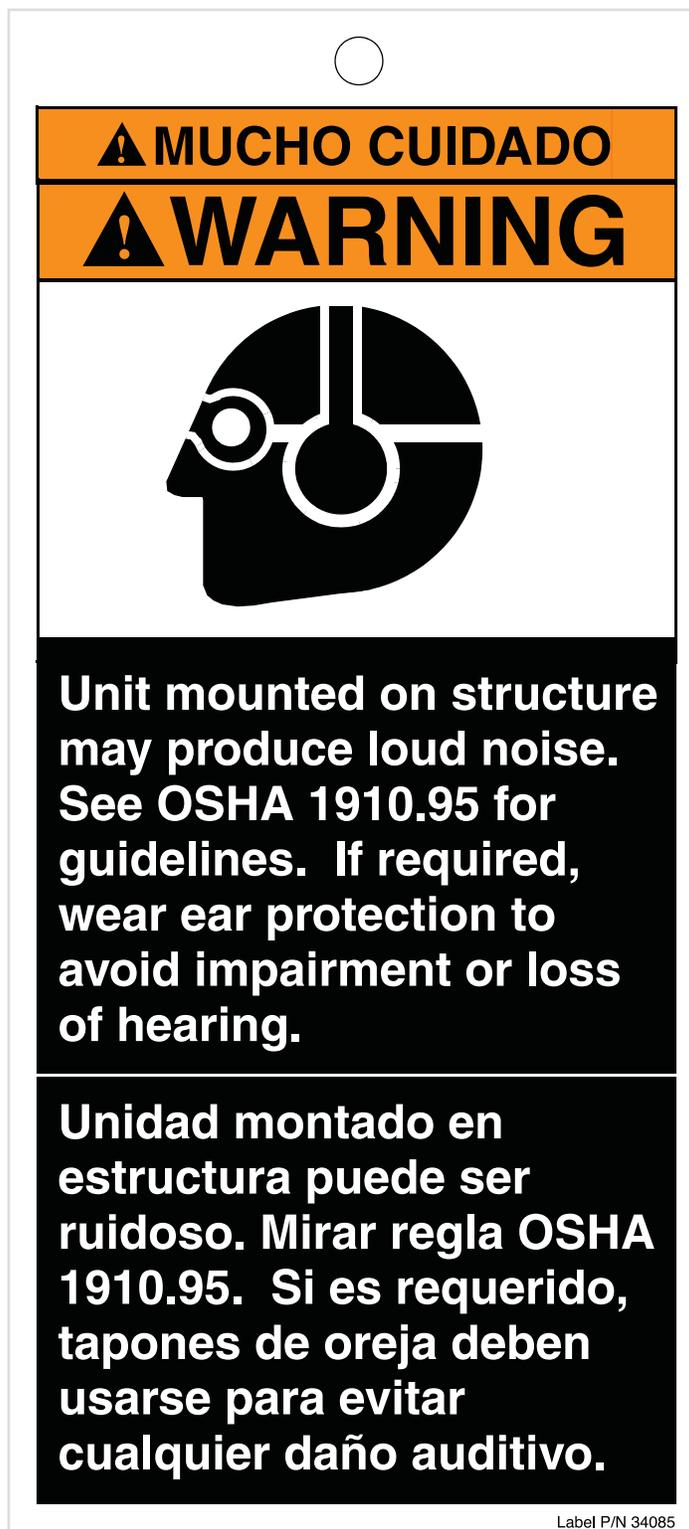
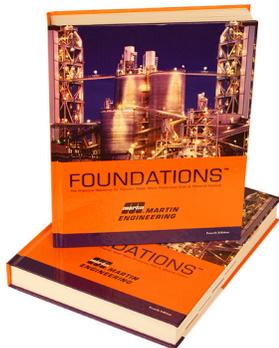


Figure 2. Vibrator Warning Tag, P/N 34085

Notes

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