

martin®

Martin® 3-inch Impacting Railcar Vibrator

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Operator's Manual
M4123

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.

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Introduction

General

Martin® 3-Inch 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, regulated and lubricated air.

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

This manual covers installing and operating the Martin® 3-Inch 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® 3-Inch Impacting Railcar Vibrator.

Materials required

Materials required for proper operation of this equipment:

- Filter, regulator, lubricator located within 25 feet of vibrator.
(set pressure at 40 psi minimum/80 psi maximum and set lubricator to deliver 1–2 drops of oil per minute)
- 1/2 inch hose minimum.

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/Operating Vibrator

CAUTION

Abusing or handling vibrator carelessly will accelerate wear and shorten its life.

To install the vibrator:

1. Place male wedge bracket into female bracket of railcar.

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 air lines to vibrator with ball valve to quick-start vibrator.
3. Make sure vibrator has a clean FRL setup within 25 feet of vibrator and connect air line.
4. Set pressure to 40–80 psi operating range.
5. Set oil to 1–2 drops per minute.
6. Vibrator needs full air pressure from start with ball valve operation. Fully open ball valve to start vibrator.

NOTE

The Martin® 3-Inch Impacting Railcar Vibrator requires 40 psi minimum/80 psi maximum to start and operate vibrator.

IMPORTANT

Martin Engineering recommends thin grade air motor oil in vibrators.

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

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

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

WARNING

The Martin® 3-Inch Impacting Railcar Vibrator operates at a decibel level of over 85 dba. Hearing protection is required.

Weekly Maintenance

IMPORTANT

Read entire section before beginning work.

1. Check vibrator mounts for damage.
2. Make sure all fasteners are tight. Tighten if necessary. See engineering drawing for torque specs.
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 1–2 drops per minute.**

Troubleshooting

If you are experiencing problems with the Martin® 3-Inch Impacting Railcar Vibrator, see below.

Symptom	Corrective Action
Vibrator not running	Verify air pressure. 40 psi min./80 psi max. 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 may 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 (40 psi min./ 80 psi max.) 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.

Part Numbers

This section provides product names and corresponding part numbers for Martin® 3-Inch Impacting Railcar Vibrator and related equipment. Please reference part numbers when ordering parts.

Railcar Vibrator

Railcar Vibrator Assembly: P/N AP5-300RCX.

Accessories

Female Wedge Bracket (LBF): P/N 12735

Control Line Kit: P/N 39504

Oil

Air Motor Oil (qt): P/N 14766

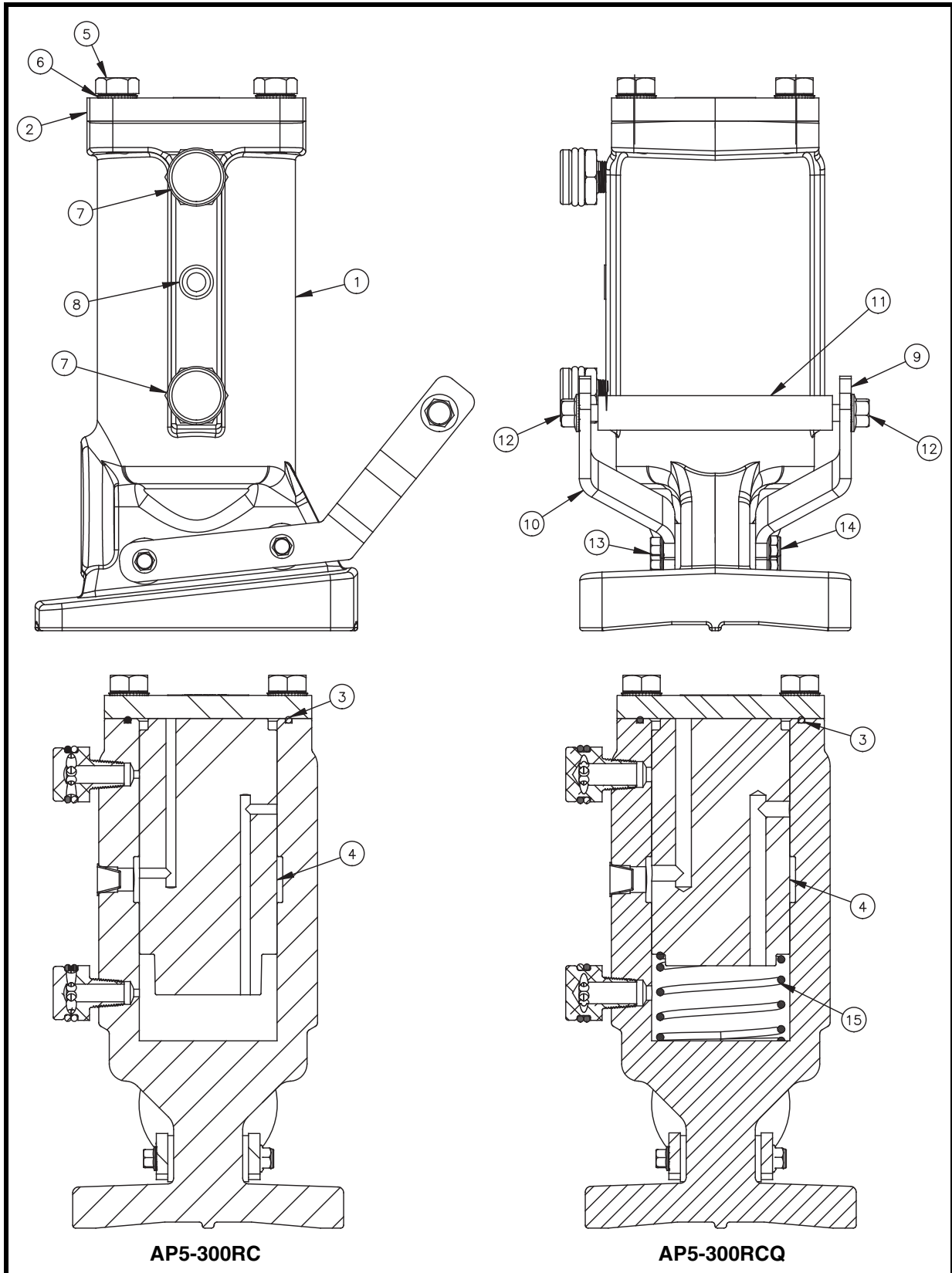


Figure 1. Martin® 3-Inch Impacting Railcar Vibrator Assembly, P/N AP5-300RCX*

Item	Description	Part No.	Qty
1	Vibrator Body	CG-100432-RC	1
2	Top Plate	CG-100433-O	1
3	O-Ring #237 N70	603012	1
4	Piston	Table I	1
5	Screw HHC 9/16-12 x 1-1/4 Gr8 ZP	CG-100435	4
6	Washer Comp D14 Serrated Schnorr	CG-100434	4
7	Muffler 3/8 NPT with O-Ring	CG-100470-A	2
8	Cap Plug 3/8	606013	1
9	Handle Bracket - Right Side	CG-100440-R	1
10	Handle Bracket - Left Side	CG-100440-L	1
11	Handle Tube	CG-100441	1
12	Screw Hex Serrated Flange 3/8-16NC x 5/8 Gr5 ZP	CG-100438	2
13	Screw Hex Serrated Flange 1/4-20NC x 2-1/4 Gr5 ZP	CG-100439	2
14	Nut Hex Flange Nylon Insert Lock 1/4-20NC GR F ZP	CG-100449	2
15	Spring 2.47 ID x .156 WD x 2.5 LG	29684-03	Tbl I
16 (NS)	Label	32238	1
17 (NS)	Operator's Manual	M4123	1
18 (NS)	Tag OSHA Hearing Protection	34085	1
19 (NS)	Tie Nylon Cable	30916	1
20	Washer Rubber 1/4 x 1 x 1/8 70A DUR	39596	4

*X indicates standard (blank) or quiet (Q) version.

NS=Not Shown

Figure 1. Martin® 3-Inch Impacting Railcar Vibrator Assembly, P/N AP5-300RCX*

Table I. Martin® 3-Inch Impacting Railcar Vibrator Part Numbers and Quantities

Part Number	Item 4 Part No.	Item 15 Qty
AP5-300RC	31004-03Z	0
AP5-300RCQ	31004-03QZ	1

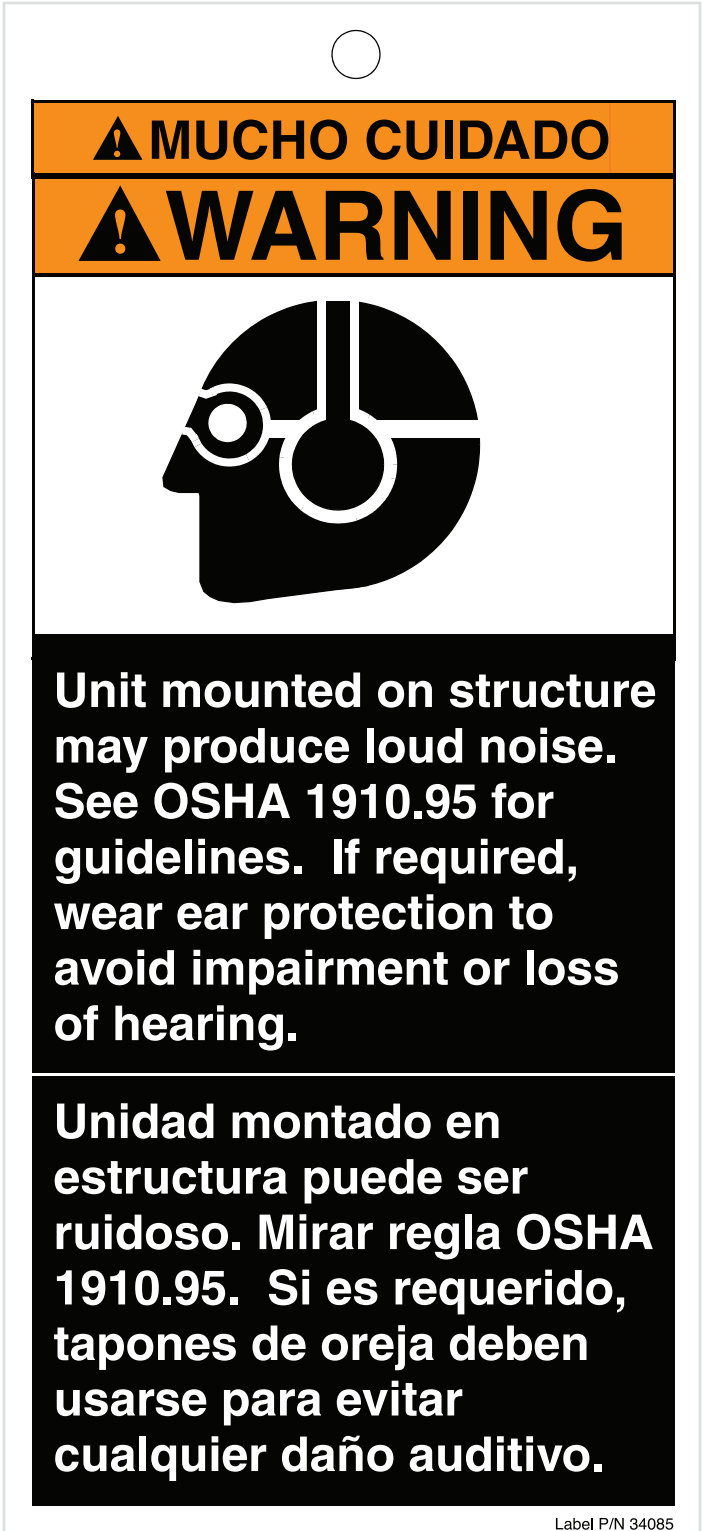
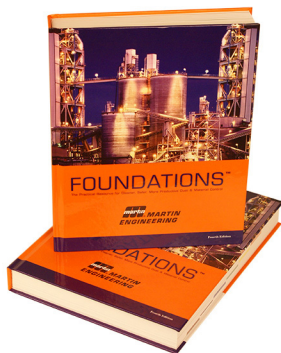


Figure 2. Vibrator Warning Tag, P/N 34085

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