

martin®

Martin®
Railcar Opener

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Operator's Manual
M3604

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

The Martin® Railcar Opener is an air-powered wrench that opens the most stubborn hopper gates. Railcar opener specifications are provided in Table I.

Table I. Martin® Railcar Opener Specifications

Air supply	90 to 120 psi (6.2 to 8.2 bar)	18.5 to 20.5 cfm (8.7 to 9.7 L/s)
RPM at drive shaft at 90 psi (6.2 bar)	8.4 rpm	
Output force at 90 psi (6.2 bar)	2100 ft-lbs (290 kg-m)	

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 herein and all owner/employer safety rules must be strictly followed when working on this equipment.

Materials Required

Only standard hand tools are required to install and service this equipment.

Before Assembling Railcar Opener

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 railcar opener from shipping containers. Equipment in containers should include the following:
 - Martin[®] Railcar Opener
 - Handle
 - Capstan extension

NOTE

The shipping container includes a pre-assembled Martin[®] Railcar Opener. Handle and capstan extension will need to be attached to the railcar opener.

3. If anything is missing or damaged, contact Martin Engineering or a representative.

IMPORTANT

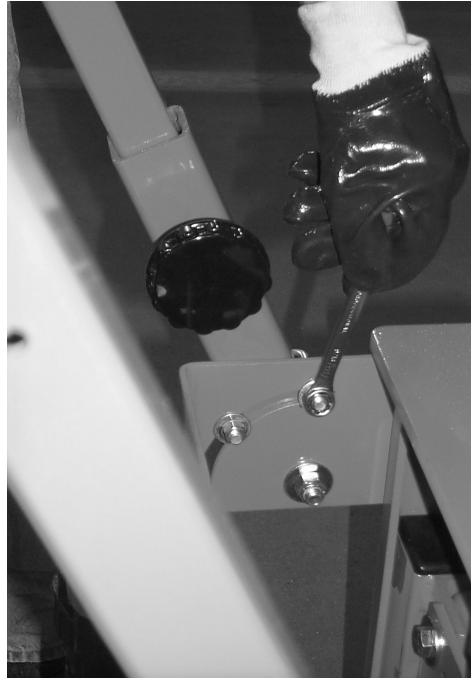
Read and understand the safety information in the previous section.

Assembling Railcar Opener

Attaching the handle



1. Loosen knobs and adjust handle to desired height. Retighten knobs.

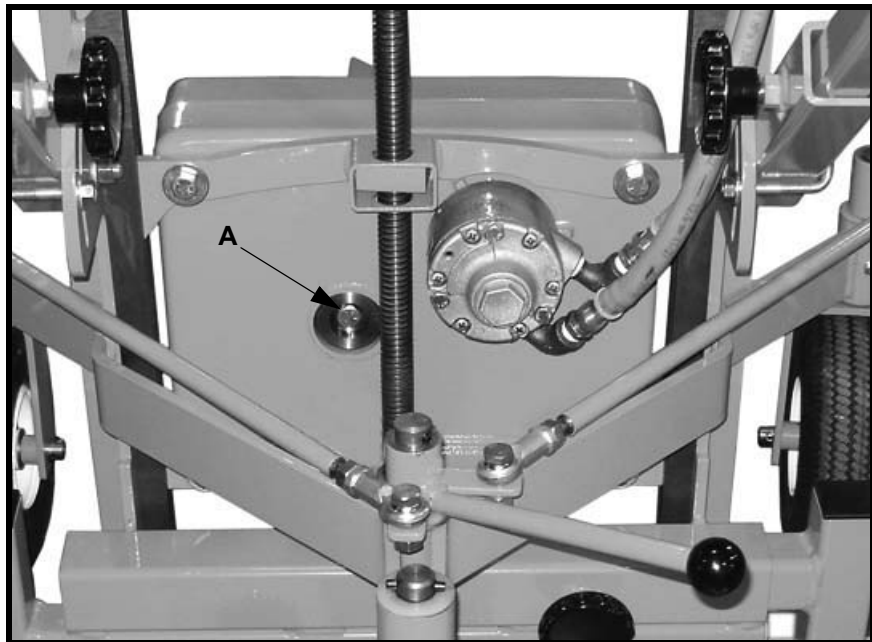


2. Loosen three bolts on each side to adjust angle position of handle.

Attaching capstan extension



1. Insert capstan extension into square hole.

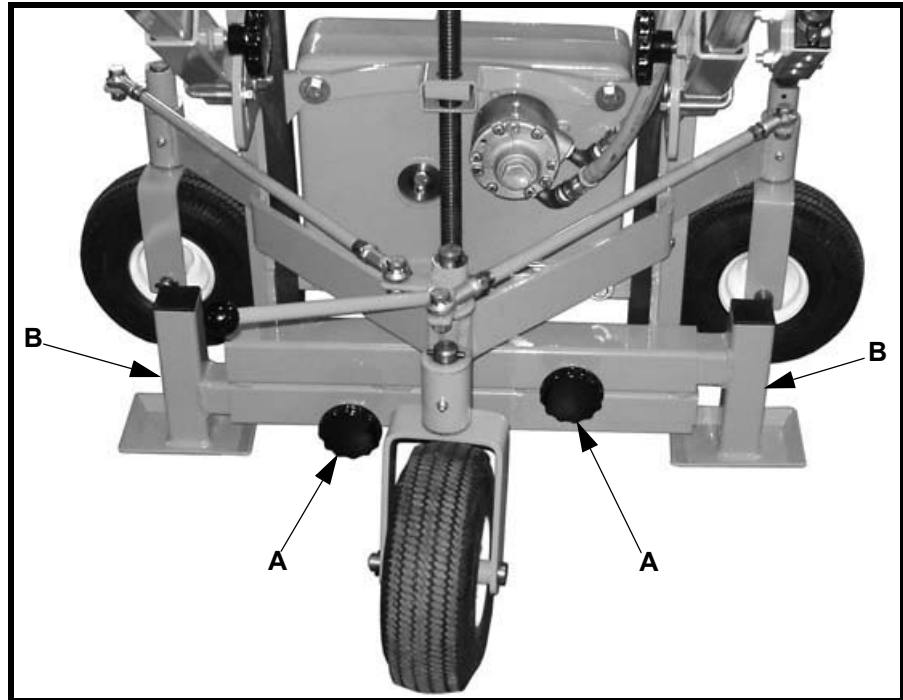


2. Lock capstan extension into place with 1/2 - 13 x 3 bolt (A) and tighten bolt.

*Adjusting
Outriggers*

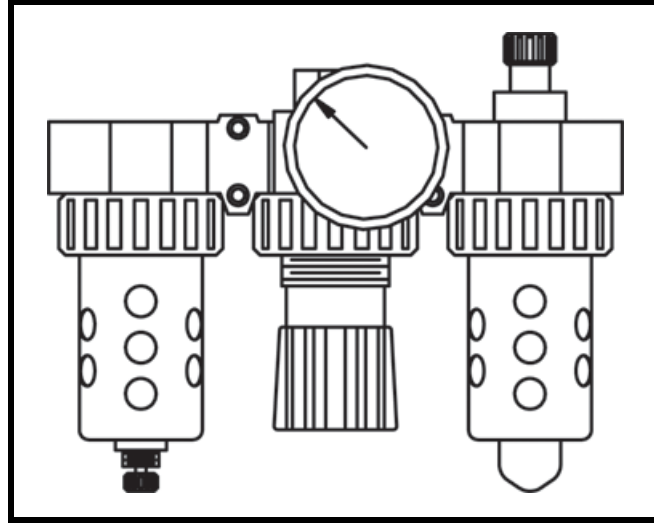
IMPORTANT

Outriggers must be extended when operating railcar opener. Operator to determine the minimum extent that outriggers must be placed for safe operation of railcar opener. Outriggers may be pushed in to allow unit to pass through doorways or for storage.



1. Loosen knobs (A) and extend outriggers (B) to desired length. Tighten knobs and make sure railcar opener is stable.

***Preparing the
Filter, Regulator,
and Lubricator***



NOTE

Refer to Filter, Regulator, and Lubricator operating instructions.

***Installation
and Service
Instructions***

1. The manufactures installation and service instructions for the filter, regulator and lubricator are included as separate items with this booklet.
2. Adhere to all safety information posted on these instructions.

NOTE

Recommendations

Air supply must be lubricated for proper air motor operation.

Martin Engineering recommends using 1/2 in. hose or larger for air supply.

Martin Engineering recommends the use of Air Motor Oil (P/N 14766) when servicing the lubricator.

*Attaching hose to
plant air supply*



Assembly

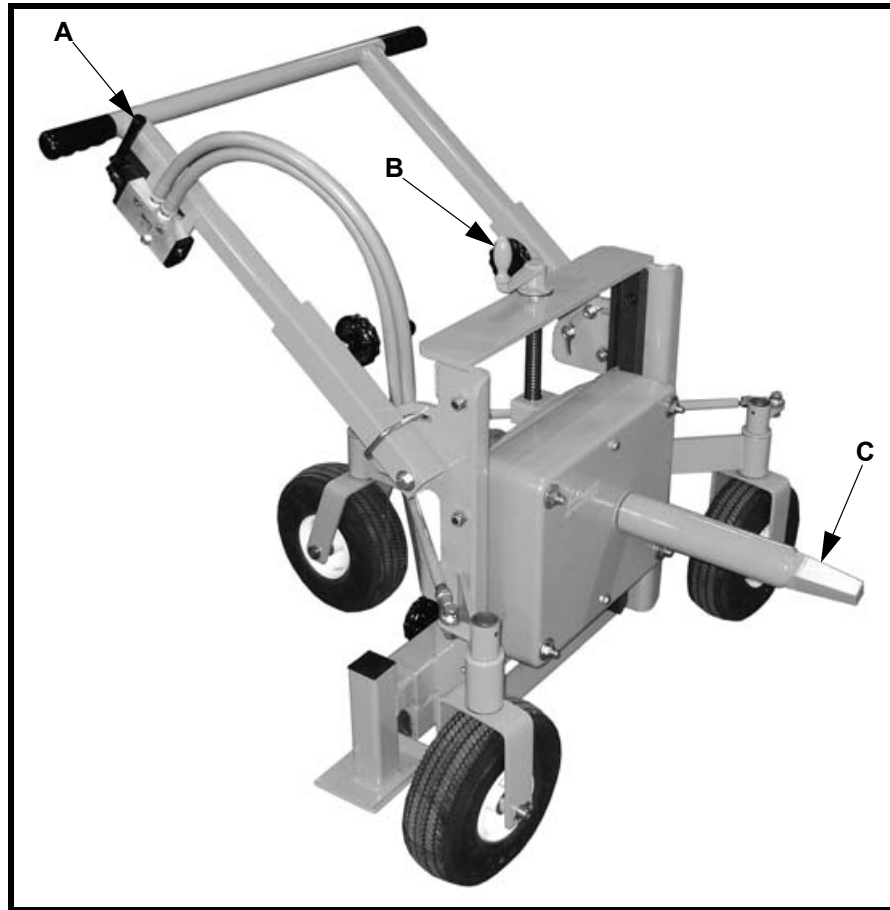
▲ WARNING

Pins must be inserted to prevent hoses from coming apart.

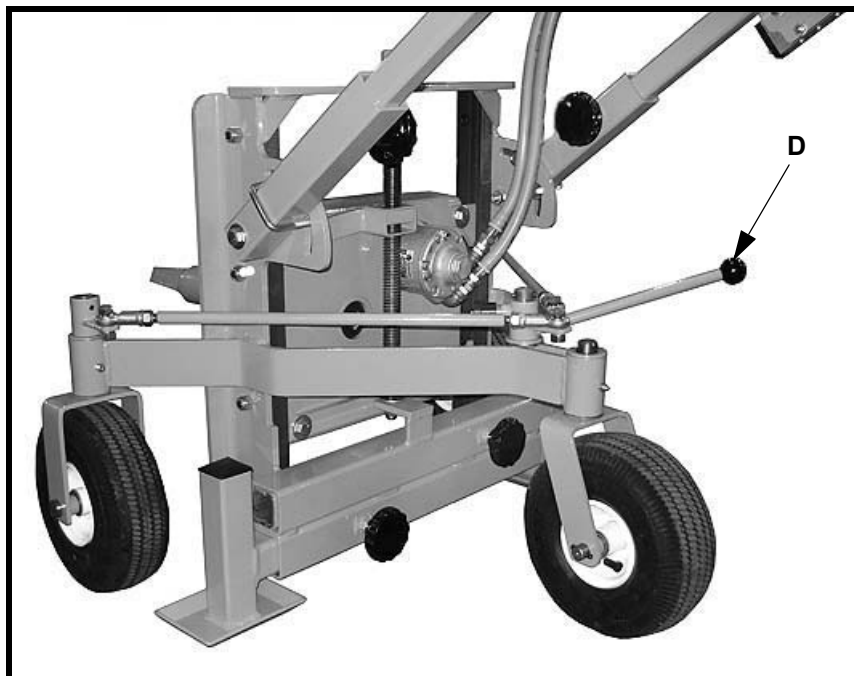
Operating Railcar Opener

IMPORTANT

Martin® Railcar Opener produces torque for opening railcar gates and doors. It is not designed for rapid directional change of gears. Rapid reversal of railcar opener may cause damage to gears and chain.

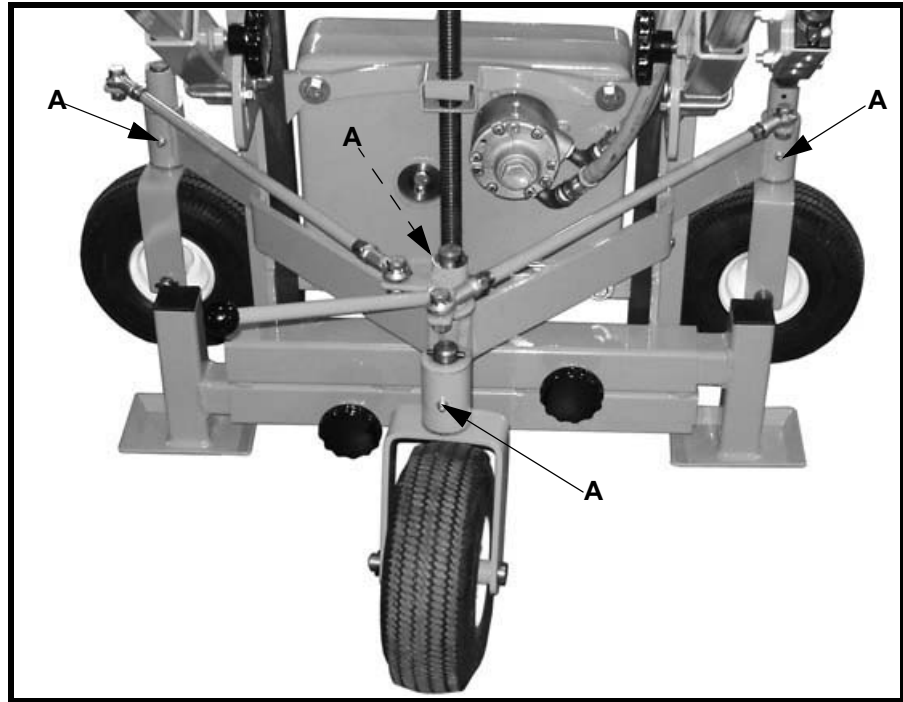


1. Extend outriggers and make sure the drive shaft is level and square to the capstan of the railcar gate.
2. Adjust height of drive shaft (C) by rotating handle (B).
3. Insert drive shaft into capstan of the railcar gate.



4. Determine if the capstan travels or is stationary. If the capstan travels to open the gate, turn handle (D) to rotate the wheels so the Martin[®] Railcar Opener moves laterally as the gate is being open/closed.
5. Determine which way the capstan needs to be turned to open/close and engage the control lever (A) in the proper direction (clockwise/counter clockwise).
6. Once the control lever is engaged, leave it engaged for several seconds so that the Martin[®] Railcar Opener can build the required torque to open/close the gate. If after several seconds the capstan has not turned, disengage the control lever and verify that the air pressure is set correctly (80 - 120 psi) and that the Martin[®] Railcar Opener is being operated in the proper direction to open/close the gate.

Maintenance



1. Grease pivot points.
 - a. Clean area around grease fittings (A) with clean shop towel.
 - b. Insert grease gun onto grease fitting and add grease.
2. Inspect all hardware and tighten if necessary.
3. Wipe all labels clean. If labels are not readable, contact Martin Engineering or a representative for replacements.

Troubleshooting

Symptom	Corrective Action
Railcar opener will not operate.	<ul style="list-style-type: none"> • Muffler on control valve is clogged. Replace. • Insufficient air pressure and/or cfm. Check main source. Check regulator setting.

Part Numbers

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

Martin® Railcar Opener Assembly

Martin® Railcar Opener Assembly, P/N 38475. See Figure 1.

Loud Noise Warning Label, P/N 34070. See Figure 2.

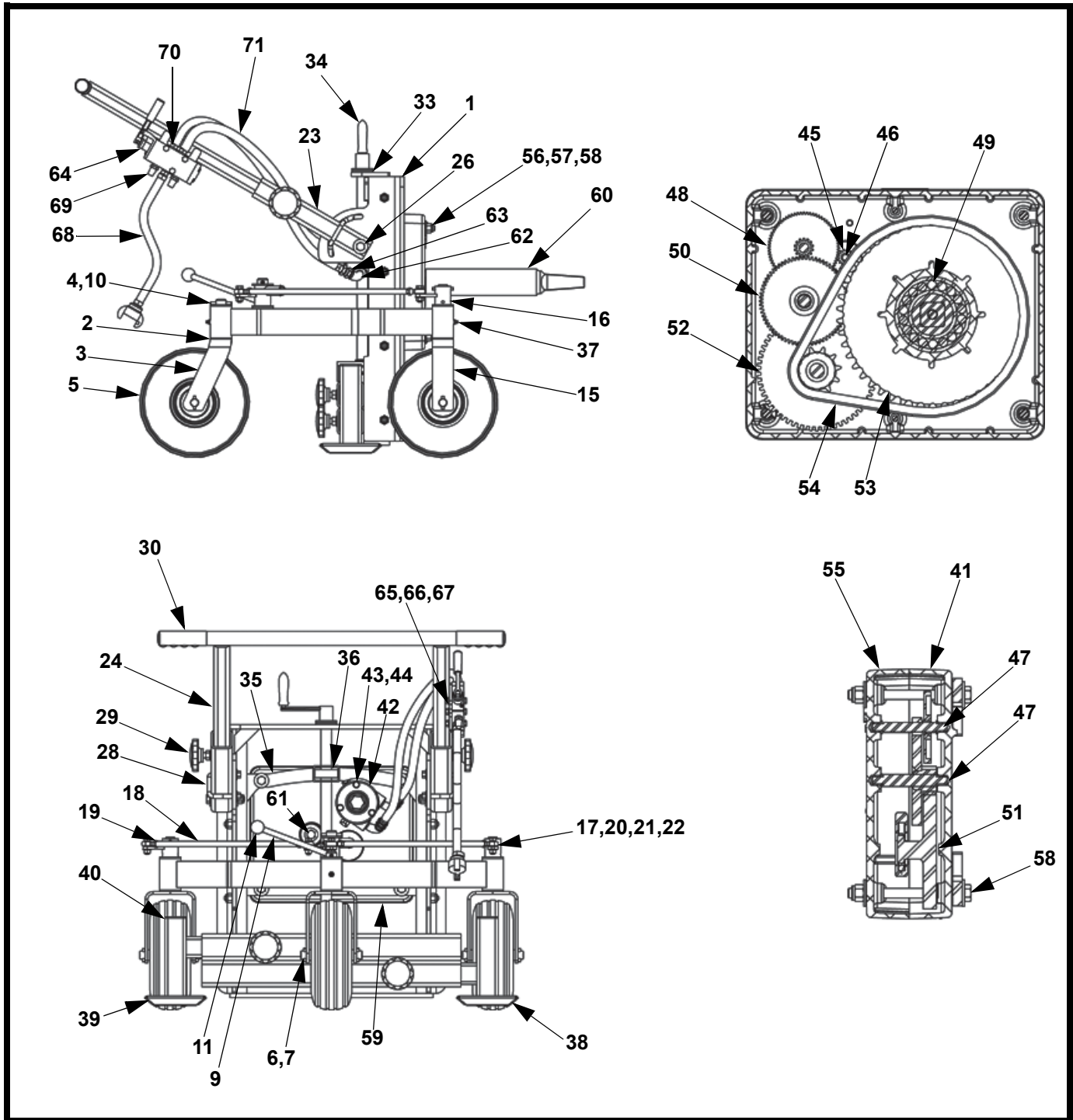


Figure 1. Martin® Railcar Opener Assembly, P/N 38475 (Sheet 1 of 3)

Item	Description	Part no.	Qty
1	Frame Weldment	38446	1
2	Washer Nylon 9/16	34097	5
3	Rear Wheel Mounting Fork Weldment	38453	1
4	Washer Flat 1 Narrow	22733	5
5	Tire and Rim	35757	3
6	Pin Clevis 3/4 x 5	33046-01	3
7	Pin Cotter 1/8 x 1-3/4	14210	3
8 (NS)	Label Kit	35851	1
9	Rear Steering Weldment	38467	1
10	Pin Slotted Spring 1/4 x 2	35434	4
11	Steering Knob	38471	1
12 (NS)	Ball	11464-01	1
13 (NS)	Spring Compression 5/8 OD ZP	38472	1
14 (NS)	Pin Spring 1/8 x 1 ZP	33574	1
15	Front Wheel Mounting Fork Weldment	38451	2
16	Wheel Steering Weldment	38463	2
17	Ball Joint Rod End	38469	4
18	Steering Rod	38468	2
19	Nut Hex 3/8-24NF ZP	13646	4
20	Screw HHC 3/8-16NC x 1-1/4 ZP	12215	4
21	Washer Compression 3/8	11747	4
22	Nut Hex 3/8-16NC ZP	11770	4
23	Handle Mounting Tube Weldment	36962	2
24	Handle Weldment	38448	1
25 (NS)	Washer Flat 1/2 Wide ZP	17328	13
26	Screw HHC 1/2-13NC x 3-1/4 ZP	22352	2
27 (NS)	Nut Hex Elastic Lock 1/2-13NC ZP	18577	15
28	U-bolt with Nuts and Washers	36968	2
29	Clamping Knob Plastic 1/2-13NC	36967	4
30	Grip Vinyl Nubbed Black	36972	2
31 (NS)	Nylon Slider Bar	38447	2
32 (NS)	Screw SHC 1/2-13NC-3A x 1-1/2	13290	8
33	Bottom Bushing	35674-R	1
34	Crank Handle with Acme Rod	36960	1
35	Top Slide Plate Weldment	38458	1
36	Threaded Block	38459	1
37	Fitting Grease 1/8-27 NPT	38584	4
38	Outrigger Left	38474-L	1

Part Numbers

Item	Description	Part no.	Qty
39	Outrigger Right	38474-R	1
40	Plug for 2.0 Square Tube	36178	2
41	Shell Machined (motor side)	34323	1
42	Air Motor	35749	1
43	Washer Lock Helical Spring 5/16 ZP	M209	3
44	Screw HHC 5/16-18NC x 3-1/2 ZP	11712	3
45	Pinion	35747	1
46	Pin Slotted Spring 1/8 x 5/8 ZP	12081	1
47	Bushing Bronze .377 ID	M969	4
48	Gear Assembly	35723	1
49	Bearing	35748	2
50	Gear/Shaft Weldment	35714	1
51	Bushing Bronze	35708	2
52	Gear and Sprocket Assembly	35743	1
53	Shaft/Sprocket Assembly	35713-B	1
54	Chain	M960	1
55	Shell Machined	34325	1
56	Washer Compression 5/16	31401	2
57	Screw HHC 5/16-18NC x 4 ZP	36292	2
58	Screw HHC 1/2-13NC x 6 ZP	18625	4
59	Bottom Sliding Plate	38460	1
60	Drive Shaft	35709-19	1
61	Screw HHC 1/2-13NC x 3 ZP	19136	1
62	Elbow 3/8 NPT 90 degree Street	M900-2	3
63	3/8 NPT Swivel Fitting	M916	2
64	Valve Inline Manually Operated 3/8 NPT	38480	1
65	Screw HHC 1/4-20NC x 2 ZP	30793	2
66	Washer Flat 1/4 Wide ZP	15073	2
67	Nut Hex 1/4-20NC ZP	11769	2
68	Hose Assembly	37479-20	1
69	Muffler Air 3/8 NPT	36893	2
70	Hose Fitting 3/8 NPT x 1/2	22463	4
71	1/2 ID 200 PSI Hose	14770	6.5
72 (NS)	1/2 NPT FRL	14760	1
73 (NS)	Operator's Manual	M3604	1

NS = Not Shown

Figure 1. Martin® Railcar Opener Assembly, P/N 38475 (Sheet 3 of 3)

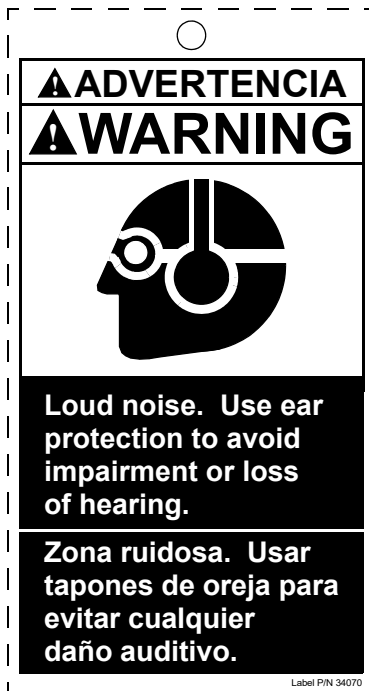


Figure 2. Loud Noise Warning Tag, P/N 34070

Notes

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