WORKMASTER®

WE FIND A WAY — OR MAKE ONE!

GO-A3-PW Gate Opener

OWNER / OPERATOR MANUAL

WORKMASTER disclaims any liability for injuries, death or damages arising directly or indirectly, from the use, operation, or application of this product not in accordance with the procedures, specifications and recommendations contained in this owner's manual. The user of this product is responsible to install, maintain and operate the product and parts or components manufactured or supplied by **WORKMASTER** in such a manner as to comply with all federal, state, and local rules, ordinances, regulations, and laws, including the Williams-Steiger Occupational Safety Act, and the American National Standards Institute Safety Code.

WORKMASTER®
PH: 267.350.2809

SYMBOLS

The following symbols are found throughout this Owner/Operator Manual to alert the reader to the relative danger that may result from non-observance.

This indicates a situation in which a hazard is imminent and will result in a high probability of serious injury or death.

This indicates a potentially hazardous situation, which could result in minor to moderate injury.

CAUTION

This indicates a potentially hazardous situation or unsafe practice which could result in product or property damaged.

IMPORTANT

This symbol indicates a general statement to assist the user in the operation or maintenance of the equipment.

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I. INTRODUCTION

Fast, safe, and economical unloading of covered hopper cars continues to be a problem at most unloading sites. One of the biggest contributors to this problem is the often time-consuming and difficult job of opening and closing bottom gates or doors of these hopper cars. Load compaction, weather conditions, age, abuse, or corrosive or gritty bulk materials can combine to prevent gate mechanisms from operating smoothly.

Regardless of cause, the costs associated with the problem are significant. Delays in emptying the hopper cars means slow car turnaround, increased demurrage costs, and interrupted production schedules. Even more importantly, the chance of worker injury is high since at many unloading sites, clumsy or dangerous makeshift tools are used during the "fight" to open a stubborn gate.

To meet our commitment of **"WE FIND A WAY – OR MAKE ONE"**, **WORKMASTER** has developed a line of Hopper Car Gate Openers and accessories which provide a safe, efficient, and economical solution to the problem of opening easy, medium, and hard-to-open hopper car gates.

There are pneumatic, electric, and manual units available producing 1,000 to 13,000 ft-lbs of torque to eliminate the need for "cheater" bars, sledgehammers, jacks, and other improper tools sometimes used on this difficult job.

This Operator's Manual details the specifications, operation, maintenance, and safe use of the **GO-A3-PW** Pneumatic Hopper Car Gate Opener. Experience has proven that the **GO-A3-PW** Opener will open the most difficult car gates. However, the same experience demonstrates that total satisfaction in use depends on attention to detail in operating and maintaining the unit.

IMPORTANT

All persons involved in the operation and maintenance of this equipment should be thoroughly familiar with the contents of this manual.

II. SAFETY

To prevent injury to yourself or others, and/or damage to equipment, you should adhere to the following basic safety instructions.

1. Carefully read the entire Owner/Operator's Manual prior to installing or operating equipment.

2. Always follow proper precautions and use proper tools and safety equipment.

3. Be sure to receive proper training.

4. Always use the equipment and all its components in applications for which they are approved.

5. Be sure to assemble all components correctly.

6. Never use worn, defective or damaged components.

7. Always Practice good housekeeping and maintain good lighting around all equipment.

8. Perform Lock-out/Tag-out procedure on all energy sources to the equipment, mounting structure, loading, and discharge systems in accordance with ANSI Standards before installation or maintenance.

III. REQUIRED MATERIALS

The following items are not supplied with your **WORKMASTER** Gate Opener but are necessary for its proper installation and operation.

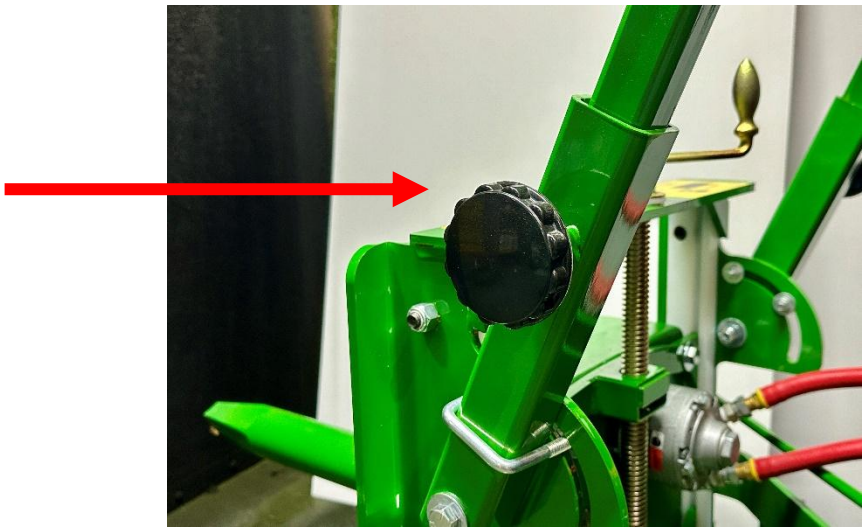
☑ CLEAN, DRY, LUBRICATED compressed air.

☑ High-quality air hose: 1/2" ID, preferably fitted with a Universal (Chicago type) Coupling for maximum air flow.

IV. PRE-START CHECKLIST

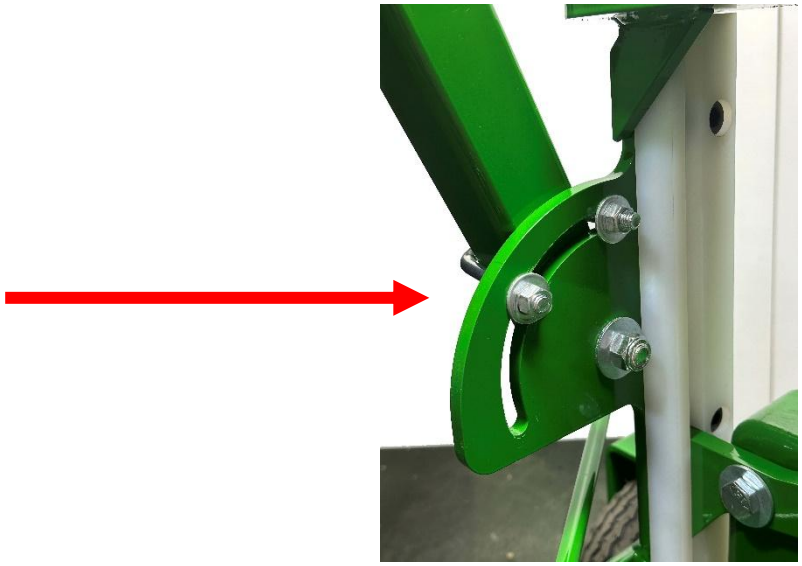
The **GO-A3-PW** comes shipped fully assembled. The handle assembly is adjustable to meet an operator's individual needs.

1. To raise or lower the height of the handle assembly, loosen both handle set-screw knobs located opposite each other on the inside of the handle frame.



2. Once the handle assembly is at the desired height, re-tighten both set-screw knobs.

3. To tilt the handle assembly, loosen three (3) bolts located on each side of the handle frame.



4. When the handle assembly is in the desired position, re-tighten all six (6) bolts.

5. Verify that the bolt which secures the Capstan Drive Fitting is tight.

6. The **GO-A3-PW** comes with a separate filter, regulator, lubricator assembly (FRL) that should be mounted as close as practical to the hopper car unloading site. Once mounted, the FRL's lubricator should be filled with the supplied **WORKMASTER** TOOL-LUBE™ Air Tool Oil **PN: 36-21010**.

IMPORTANT

See **APPENDIX B** for complete directions on how to identify, regulate air (regulator), empty collected airline moisture (Filter), or fill oil (Lubricator) the FRL unit.

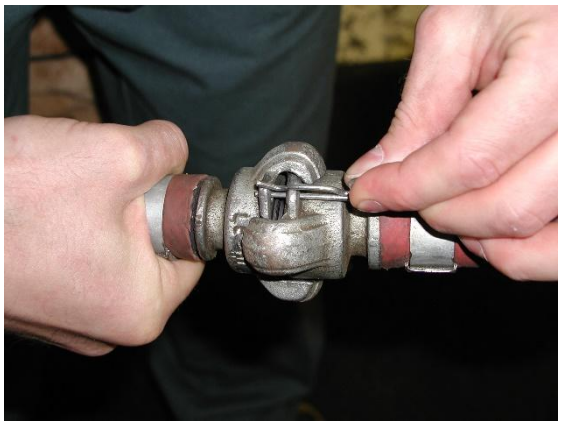
7. Make sure all controls are off and properly secured, and then connect all air hoses.

WARNING

Compressed air is an invisible hazard. Any component through which it passes can release an explosive force which could result in personal injury or death. As noted earlier, all persons involved in the operation and maintenance of this equipment should be thoroughly familiar with its use.

WARNING

Be sure all hose connections are tightly secured. A loose hose not only causes air leaks but can whip around and injure personnel in the area. Secure hose couplings with safety pins, clips, cables, or chains.



8. Each day, before opening any railcar gate, operate the **GO-A3-PW**, for about 1-minute. This will allow oil to coat the Gear Motor's internal components.

V. OPENING CAR GATES

1. Roll the **GO-A3-PW** Opener up to the hopper gate until you "rough spot" position the opener's output drive with the railcar gate's capstan socket.

2. Using the Capstan Swaging Kit (optional accessory, **PN: 33-11120**), clean-out and square-up the capstan socket on the car gate so that the Capstan Drive Fitting on the Gear Motor's output drive can be aligned properly, and fully seated in the railcar gate's capstan socket.

IMPORTANT

Regular use of the CAPSTAN SWAGE TOOL will ensure a long-life for your Drive Fitting and your Impactor's Square Drive Anvil. Also, a clean, square Capstan socket will maximize the torque transfer between the Opener and the Car Gate.

3. Should the railcar's capstan barrel socket be completely worn, use our CAPSTAN RENEW ATTACHMENT, **PN 80-10728**, which slips over the barrel and then pin-locks in place to provide a reusable, perfectly formed female square socket.

4. Disengage the Car Gate Locking Mechanism before attempting to open the gate.

CAUTION

Failure to disengage the Car Gate Locking Mechanism will cause damage to the car gate and/or the railcar gate opener.

5. Roll the Opener forward toward the car gate until the CAPSTAN DRIVE FITTING is firmly seated in the railcar's Capstan Socket.

6. Prior to energizing the Gear Motor, extend the **GO-A3-PW**'s Outriggers to the ***maximum*** practical length.

Outriggers must be extended before operating the Opener. The reaction force produced by the Gear Motor will cause the **GO-A3-PW** to roll over if Outriggers are not properly extended. Outriggers must be slid back into the retracted position when Opener is not in use, eg, travel or storage.

6. To extend the Outriggers, loosen the Outrigger set-screw knobs found on each side of the **GO-A3-PW**'s frame.

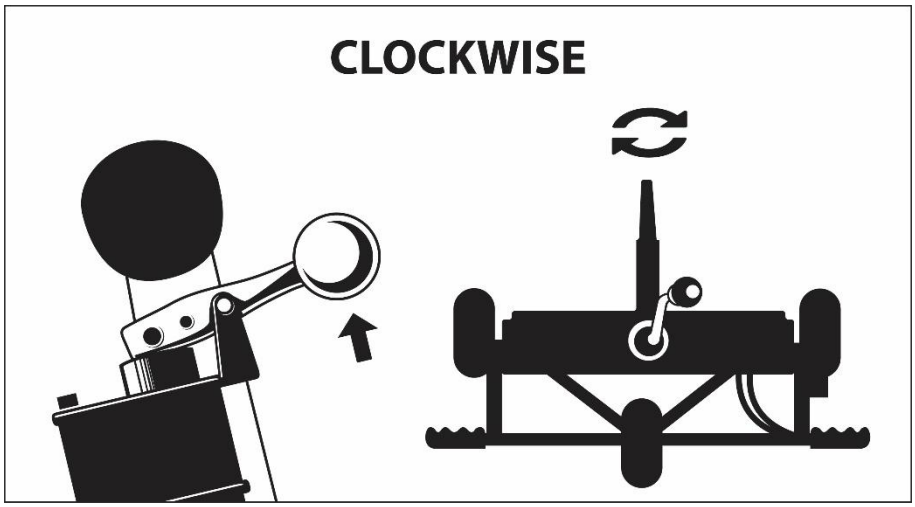
7. Extend both Outriggers to ***maximum*** practical length.

8. Re-tighten both set-screw knobs when the Outriggers are in position.

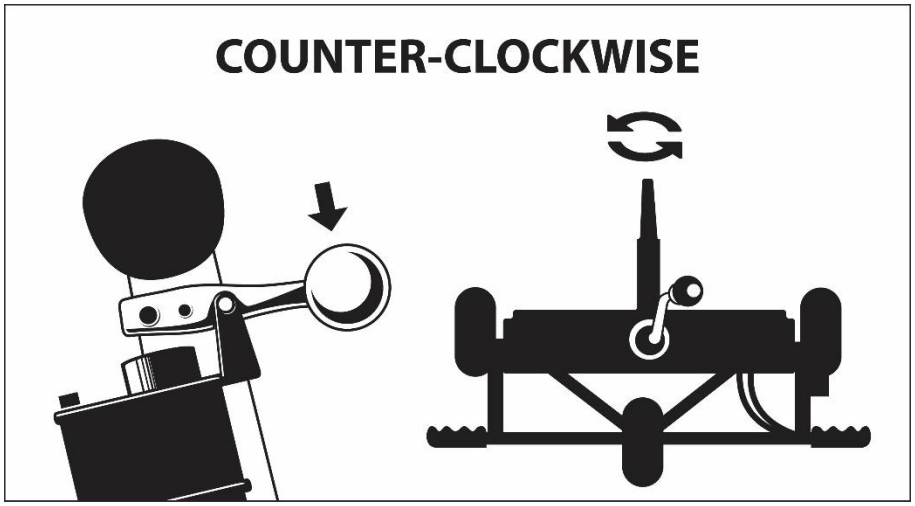
9. Pivot the **GO-A3-PW's** wheels 90º by turning the pivot wheel lever to the right.

10. To open the railcar gate, grip the Opener's handle with both hands. Move the Throttle Lever to the desired position.

11. For ***clockwise rotation (operator's perspective)***, pull the Throttle Lever up towards the operator.



12. For ***counter-clockwise rotation (operator's perspective)***, push the Throttle Lever down, away from the operator.



WARNING

The **GO-A3-PW** produces torque for slowly and deliberately opening railcar gates. It is not designed for rapid direction change of gears. Switching quickly between clockwise and counterclockwise rotation will damage internal gears and chains.

CAUTION

If the railcar gate will not move, STOP using the **GO-A3-PW** Opener, and notify your supervisor, continued operation will destroy the Opener.

13. When the railcar gate is completely opened, move the Throttle Lever back to the neutral position.

CAUTION

Release the Throttle Lever the moment the gate reaches its fully opened position. Prolonged operating can cause structural damage to the Gate mechanism or damage the Opener.

Do not use other opening devices (pry bars, multipliers, etc.) to "help" the **GO-A3-PW**

14. Slide Outriggers back into the frame assembly, put pivot wheels into the straight position, and roll the **GO-A3-PW** back from the railcar, thereby disengaging the Capstan Drive Fitting from the railcar's capstan socket.

15. To close car gates, first re-examine the car's Capstan Socket. Look for rounded edges, spilling or mushrooming. If needed, re-use the Swage Tool to square-up the Capstan Socket.

16. If everything looks good, Repeat Steps 4-14.

17. Re-engage the car gate locking mechanism when the gate is fully closed.

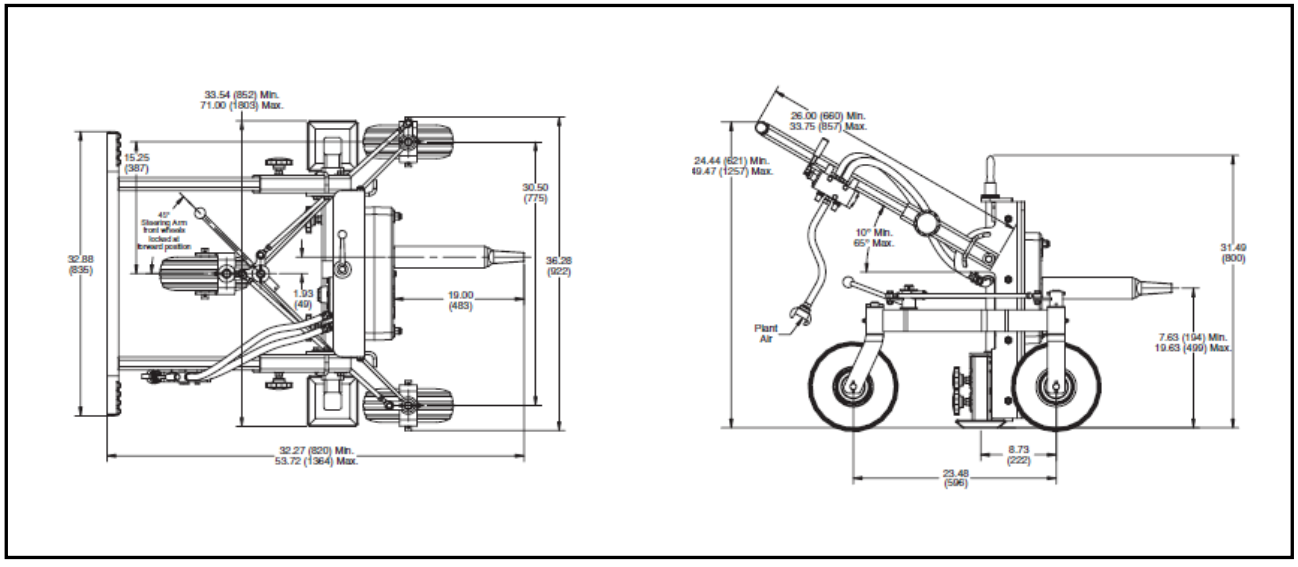
VI. HEIGHT ADJUSTMENT

The height of the **GO-A3-PW** Gate Opener's Drive Shaft can be adjusted to help align the Capstan Drive Fitting with the capstan socket. By rotating the handle, centered at the top of the **GO-A3-PW** frame, the Drive Shaft can be more precisely aligned with the capstan socket.

1. To raise the Drive Shaft, rotate the handle ***clockwise***.

2. To lower the Drive Shaft, rotate the handle ***counterclockwise***.

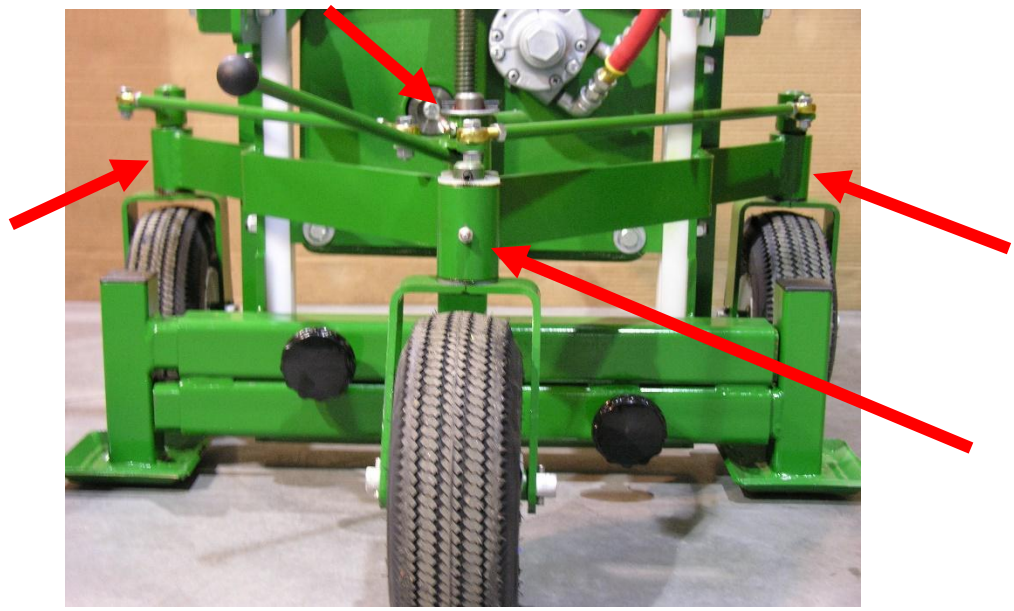
3. The Drive Shaft can be raised to a maximum of 19.75" above the ground.



VII. MAINTENANCE & STORAGE

1. Check airline Filter, and Lubricator's oil level daily.

2. Wipe all labels clean. If labels are not readable, contact **WORKMASTER** or a representative for replacement.



3. Clean area around grease fittings with clean shop towel and grease pivot points.

CAUTION

The airline Filter must be checked daily. The collected water from a wet air system must be emptied from the Filter bowl. Systems containing greater moisture will require more frequent emptying. If excess moisture is allowed to collect within the motor, rusting may occur, and this contamination will not allow the motor to function.

4. When not in use, the **GO-A3-PW** should be stored in a clean, dry, and sheltered area, safely out of the way.

5. If a sheltered area is not available or not practical, **WORKMASTER's** waterproof, puncture and tear-resistant, Protective Cover will provide excellent protection from both the elements and unloading site debris. **PN: 30-20020.**

6. Outriggers should be retracted inside the frame when the **GO-A3-PW** is not in use.

IMPORTANT

The **GO-A3-PW** should be maintained before being stored.

7. If the **GO-A3-PW** is going to be stored for an extended period (*eg,* 60+days), it must be prepared for storage

8. To prep the unit:
    a. Disconnect both hoses feeding the air motor
    b. Pour 12-15 drops of Tool-Lube air tool oil into each open port.
    c. Plug both open ports with standard 3/8" pipe plugs to prevent oil from leaking out of the motor.

IMPORTANT

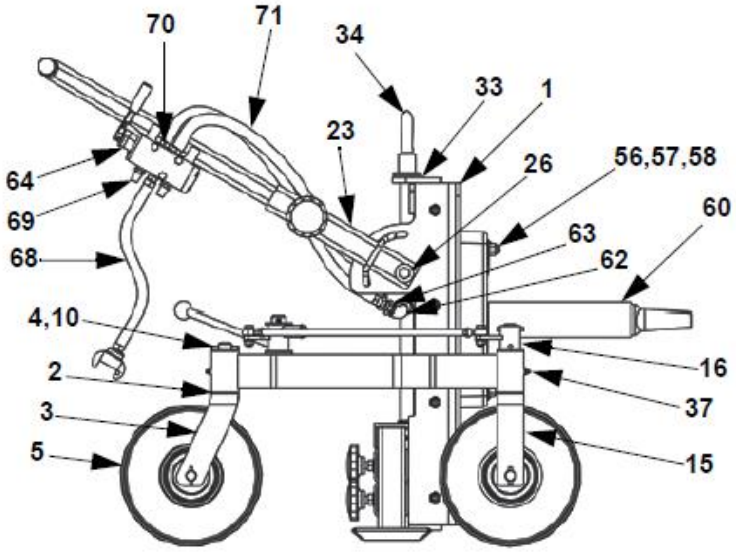
The oil will protect the **GO-A3'**s air motor while the unit is not in

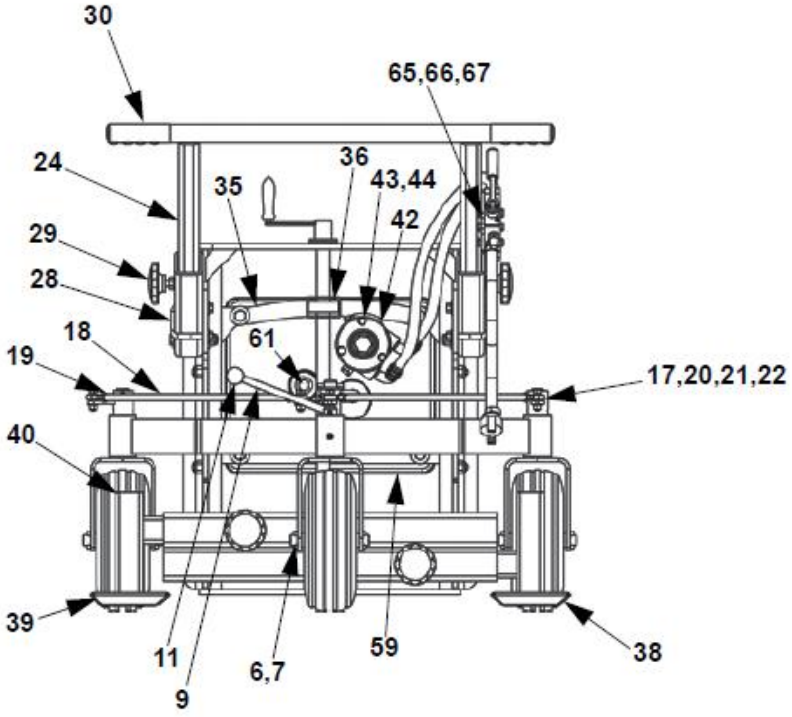
VIII. TROUBLESHOOTING

Symptom	Corrective Action
GO-A3-PW will not operate.	• The muffler on control valve is clogged. Replace. • Insufficient air pressure and/or cfm. Check main source. Check regulator setting.
Throttle Valve does not rotate drive fitting.	• Check all hoses & push fittings. The hoses running from the throttle valve to the air motor must be completely seated onto the push-fittings.
Air is leaking from the throttle valve.	
Motor only turns in one direction.	

APPENDIX A: PARTS LIST

This section provides names and corresponding part numbers for the **GO-A3** Adjustable-Height Railcar Gate Opener and related equipment. Please reference part numbers when ordering parts:



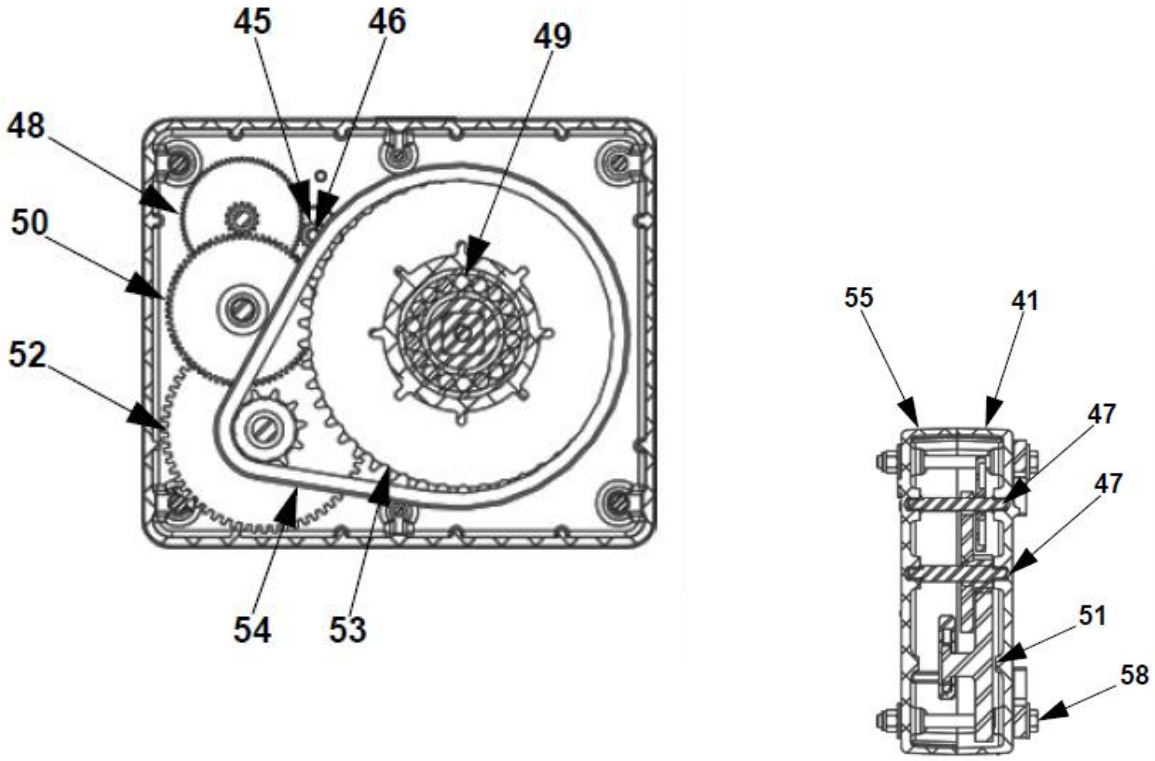


***Not Shown**

Item #	Part #	Description	Qty		Item #	Part #	Description	Qty
1	33-30137	Frame Weldment	1		31	33-30156	Nylon Slider Bar (Not Shown)	2
2	33-30138	Washer	5		32	75-22506	SHCS	8
3	33-30125	Rear Wheel Mounting Fork Weldment	1		33	33-30118	Bottom Bushing	1
4	33-30140	Washer	5		34	33-30121	Crank Handle w/ Acme Rod	1
5	33-30142	Tire & Rim	3		35	33-30157	Top Side Plate Weldment	1
6	33-30144	Wheel Axle	3		36	33-30158	Threaded Block	1
8	33-30145	Spring Pin	3		37	33-30159	Grease Fitting	4
9	33-30146	Rear Sterring Weldment	1		38	33-30160	Outrigger Left	1
10	33-30141	Pin Slotted Spring	4		39	33-30161	Outrigger Right	1
11	33-30147	Steering Knob	1		40	33-30127	Plug for Square Tube	2
12	33-30148	Ball (Not Shown)	1		42	33-30101	Air Motor	1
13	33-30149	Spring (Not Shown)	1		43	33-20213	Lock Washer	3
14	33-30150	Pin Spring (Not Shown)	1		44	75-10214	HHCS	3
15	33-30151	Front Wheel Mounting Fork Weldment	2		56	75-70200	Compression Washer	2
16	33-30152	Wheel Steering Weldment	2		57	75-12216	HHCS	2
17	33-30153	Ball Joint Rod End	4		58	75-12524	HHCS	4
18	33-30154	Steering Rod	2		59	33-30163	Bottom Sliding Plate	1
19	75-31300	Hext Nut	4		60	33-30170	Drive Shaft	1
20	75-10305	HHCS	4		61	75-12512	HHCS	1
21	75-70300	Compression Washer	4		62	72-03331	Elbow	3
22	75-30300	Hex Nut	4		63	80-30512	Swivel Fitting	2
23	33-30122	Handle Mounting Tube Weldment	2		64	33-30164	Valve Inline	1
24	33-30155	Handle Weldment	1		65	75-10108	HHCS	2
25	75-80500	Flat Washer (Not Shown)	13		66	33-30165	Flat Washer	2
26	75-12513	HHCS	2		67	75-32100	Hex Nut	2
27	75-52500	Hex Nut (Not Shown)	15		68	33-30166	Hose Assembly	1
28	33-30123	U-Bolt w/ Nuts and Washers	2		69	31-20010	Muffler	2
29	33-30128	Clamping Plastic Knob	4		70	33-30167	Hose Fitting	4
30	33-30133	Vinyl Grip	2		71	33-30168	Hose	2
						33-30169	Air Motor w/ Pinion	1

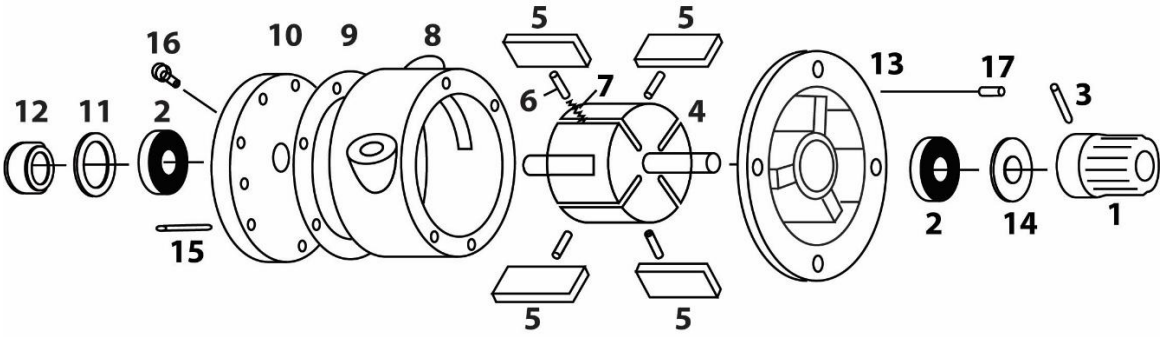
33-30136 Air Motor Rebuild Kit Includes: (2) Bearings, (4) Vanes, (4) Spring Pins, (2) Shims, (1) End Gasket

Gear Case Breakdown



Item #	Part #	Description	Qty
41	33-30100	Shell Machined (motor side)	1
45	33-A3001	Pinion	1
46	33-A3003	Pin Slotted Spring	1
47	33-30162	Bushing; Bronze f/ Gear Assy A & B	4
48	33-30105	Gear Assembly A	1
49	33-30106	Bearing	2
50	33-30107	Gear & Shaft Assembly B	1
51	33-30108	Bushing; Bronze f/ Gear Assy C	2
52	33-30109	Gear & Sprocket Assembly C	1
53	33-30110	Shaft/Sprocket Assembly	1
54	33-30111	Chain	1
55	33-30112	Shell Machined	1
58	75-12524	Screw	4

Air Motor Assembly Breakdown



Item #	Part #	Description	Qty
1	33-A001	Gear Std.	1
2*	33-A3002	Bearing	2
3	33-A3003	Pin	1
4	33-A3004	Rotor	1
5*	33-A3005	Vane	4
6*	33-A3006	Spring Pin	4
7*	33-A3007	Springs	2
8	33-A3008	Body	1
9*	33-A3009	Shims	2
10	33-A3010	Dead End Plate	1
11*	33-A3011	End Cap Gasket	1
12	33-A3012	End Cap	1
13	33-A3013	Drive End Plate	1
14	33-A3014	Seal	1
15	33-A3015	Dowel Pins	4
16	33-A3016	1/4-28 x .50 PFHMS	6
17	33-A3017	1/4-28 x .625 SHCS	6

Service Kit: Part # 33-30136

* Denotes parts included in the Service Kit

Complete Air Motor Assembly (with Mounting Bolts):
Part # 33-30169

APPENDIX B: AIR PREPARATION KIT

The **GO-A3-PW** Gate Opener is shipped with a compact 3/8" Filter, Regulator, Lubricator unit. An Air Pressure Gauge (liquid-filled, 0 – 160 PSI air) threads into the Regulator. The Lubricator, a fill-under-pressure, air mist type oiler, sits alongside the Air Pressure Gauge.

CAUTION

The polycarbonate bowl used on both the Filter and Lubricator are rated at 0 to 150 PSIG pressure, and temperature rated at 32° F to 125° F.

1. The **Regulator** uses a Control Knob to adjust air pressure. To increase the Air Pressure (PSI), eg, from 80 PSI to 100 PSI, rotate the Control Knob ***clockwise***, while watching the Air Pressure Gauge; to decrease Air Pressure, eg, from 125 PSI to 90 PSI, rotate the Control Knob ***counter-clockwise***. The **GO-A3-PW** Gate Opener operates at peak efficiency when supplied with 90 PSI to 100 PSI Gauge Pressure.

IMPORTANT

The Regulator has a pull-up (to adjust PSI setting), or push-down (to lock PSI setting) locking cap which must be properly positioned before and after setting the PSI air pressure to the **GO-A3** Opener.

2. The **Filter** provides excellent water removal efficiency to protect the **GO-A3-PW**'s Air Motor. The Filter uses a 4.4 oz polycarbonate bowl w/metal guard to hold the moisture it removes from an air supply system. The Filter will remove water, oil, and debris down to 40-micron (40 µm). The Filter bowl uses a twist type Drain Kit (at the bottom of the bowl) to enable the operator to easily drain the collected moisture.

IMPORTANT

The Filter bowl should be drained regularly – daily if necessary (eg, high water content in Plant Air Supply), weekly if not.

IMPORTANT

This Lubricator can be filled under pressure.

A. The Lubricator is filled by simply unthreading and removing the twist-off, plastic Fill Cap, and pouring in the required amount of air motor oil. We recommend **WORKMASTER** TOOL-LUBE™ Air Motor Oil (PN: 36-21010 [1 Qt]) because of the special emulsifiers which enable it to absorb 10% of its weight in water, but any *high-grade* air motor oil can be used. Be sure to replace the Fill Cap, and securely tighten after filling the bowl.

CAUTION

Do not use oils with additives, compounded oils containing solvents, graphite, detergents, or synthetic oils, since they can chemically attack the filter's polycarbonate bowl.

B. The lubrication rate must be tailored to specific needs. Precise control is difficult to achieve – it's affected by airflow (CFM), air pressure (PSI), oil level, temperature, and viscosity. **Do not over-lubricate**. Most devices need only a small amount of oil. Oil flooding causes: **(1)** sluggish operation; **(2)** oil laden exhaust air which causes: **(a)** back-pressure due to clogged mufflers; **(b)** product or atmosphere contamination. Regularly check the Lubricator's oil level. Use only a recommended air motor oil (eg, **WORKMASTER** TOOL LUBE Air Motor, or a *high-grade* air motor oil).

C. Lubricator bowl must be kept filled with air motor oil, and the rate of oil flow must be controlled. The Lubricator has a transparent sight dome for 360° visibility.

IMPORTANT

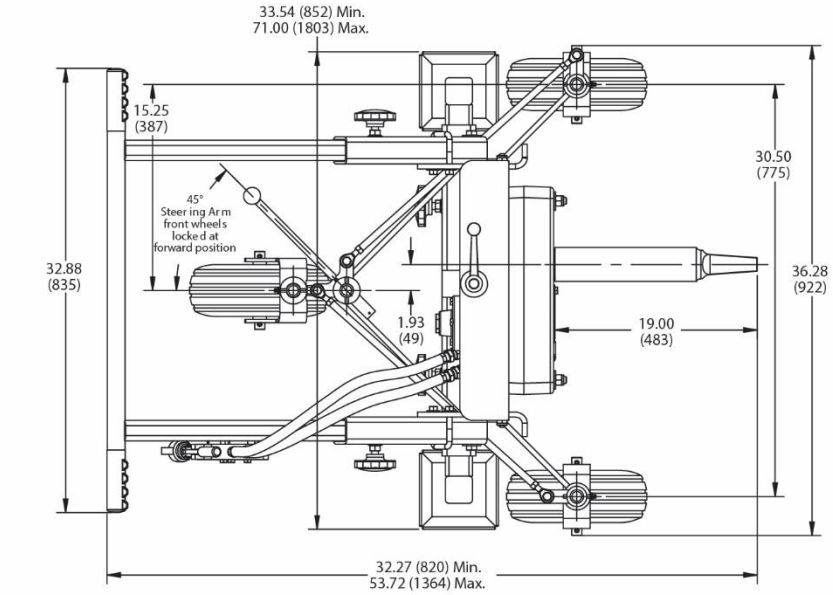
The oil delivery rate increases linearly with increased air flow rate, ie, greater air volume (CFM) passing through the Lubricator, more oil lubrication.

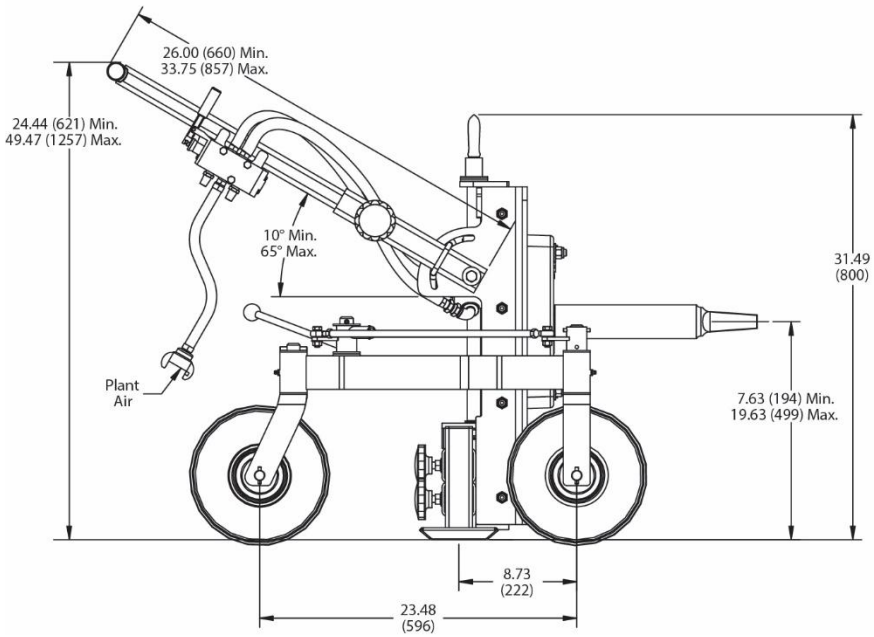
D. The rate of oil flow is controlled by a Metering Knob which sits atop the Lubricator. To increase the oil flow rate, rotate the Metering Knob in the ***counter-clockwise*** direction (standing behind the **GO-A3-PW**, as if operating). To decrease the oil flow, rotate the Metering Knob in the ***clockwise*** direction.

APPENDIX C: SPECIFICATIONS

Model:	**GO-A3-PW** Pivot Wheel Gate Opener
Power:	Pneumatic; Requires 70 CFM @ 90 PSI
Working Torque:	2,700 ft lbs constant at 8.5 RPM
Wheel Assembly:	10.5" Dia. with 4.10 / 3.50 – 4", pneumatic, tubeless tires, sawtooth treads
Frame Dimensions:	42" L x 36" W x 43" H
Handle Width:	36" Wide; fitted with handle grips
Height Adjustment:	Height Adjustable to 19.75 from ground to Capstan Drive Fitting
Inlet Coupling:	Universal Coupling (Chicago Type) with safety lock pin
Finish Coating:	Acrylic enamel coat finish
Included Accessories:	Filter, Regulator w/ Gauge, Lubricator; (1) Drive Fitting; (1) Qt Air Tool oil; (1) Manual
Gate Opener Weight:	273 Lbs
Shipping Weight:	510 Lbs

APPENDIX C: DIMENSIONS





APPENDIX D: AIR SUPPLY PIPING

Use the Table below as a guide for sizing the airlines routed to your Gate Opener.

Recommended Pipe Size for Compressed Air Flow to 125 PSI									
Air Volume	**Pipe Length – feet (') Nominal Pipe Diameter – inches (")**								
cfm	**25'**	**50'**	**75'**	**100'**	**150'**	**200'**	**300'**	**500'**	**1000'**
6	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"
18	1/2"	1/2"	1/2"	3/4"	3/4"	3/4"	3/4"	1"	1"
30	3/4"	3/4"	3/4"	3/4"	1"	1"	1"	1-1/4"	1-1/4"
45	3/4"	3/4"	1"	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"
60	3/4"	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"	1-1/2	1-1/2"
90	1"	1"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	2"
120	1"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"	2"
150	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"
180	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"
240	1-1/4"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"	3"
300	1-1/2"	2"	2"	2"	2"	2-1/2"	2-1/2"	3"	3"
360	1-1/2"	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	3"	3"

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Ask about other Railcar Products

RENEW ATTACHMENT

SWAGE KIT

CAPSTAN REPAIR

Opening hopper car slide gates with a completely worn Capstan Barrel is a problem. When the Barrel's female square is rounded-off, it resists any effort to get a grip with a Gate Opener Drive Fitting. **WORKMASTER** offers two solutions to the problem:

- **Capstan Renew Attachment (PN: 80-10728)**
- **Capstan Swage Kit (PN: 33-11120)**

RAILCAR VIBRATORS

Powerful Pneumatic, Electric, and Hydraulic Railcar Vibrators eliminate the safety and productivity problems associated with the dangerous, dirty, and slow job of unloading Hopper-Bottom Railcars. Select the force and frequency required to unload any type of material.

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