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GO-B3 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/Operator'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.

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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.

DANGER

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

WARNING

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 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 the 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, battery-driven, and manual units available producing from 400 to 13,000 lbs-ft of torque eliminating the need for "cheater" bars, sledgehammers, jacks, and other improper tools sometimes used on this difficult job.

The **GO-B3** Gate Opener uses a planetary geared action to open or close hopper car gates with a continuous 360° revolution.

This Owner/Operator's Manual details the specifications, operation, maintenance, and safe use of the **GO-B3** Battery-Operated Hopper Car Gate Opener. Experience has proven that total satisfaction with this product 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.

Table 1: GO-B3 Hopper Car Gate Opener Specifications

Square Drive	1″
Min. Torque	≈ 750 lbs-ft (1016 Nm) – Setting #1
Max. Torque	≈ 3000 lbs-ft (4030 Nm) – Setting#7
GO Weight: (Tool; Drive Fitting; Battery)	27.5 lbs
GO Weight: (Tool; Drive Fitting; Battery; Reaction Arm)	38.5 lbs
RPM at Min. Torque	0.5
RPM at Max. Torque	2
Included	(1) Capstan Drive Fitting w/ Pin & O-Ring Retainer; (1) Torque Reaction Arm w/ socket head shoulder bolt and 1/8″ Hex Key; (2) HD Li-Ion Batteries; (1) Battery Charger; (1) Sturdy Carrying Bag; (1) Operator's Guide

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.

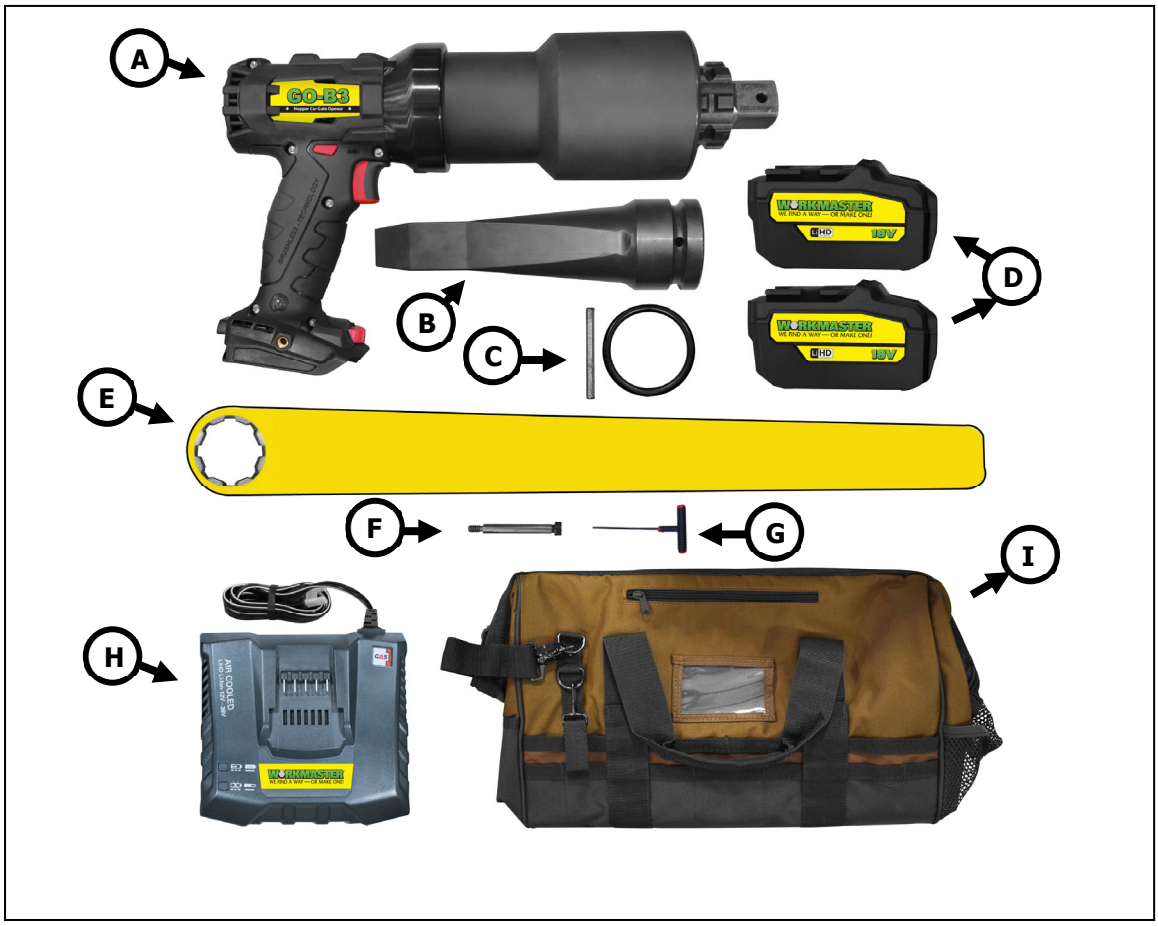
7. Practice good housekeeping always and maintain good lighting around all equipment.

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. SUPPLIED MATERIALS

Perform the following unpacking and pre-installation procedures prior to preparing the Opener for operation. Contact **WORKMASTER** or your Regional Distributor if you have questions or problems.

1. Shown below are the items supplied with your **GO-B3** Gate Opener. Verify that you received all the items shown and described below and inspect all items for signs of damage.



The **GO-B3** is shipped with its basic components unassembled. The items supplied include:

(A) **GO-B3** Battery Powered Hopper Car Gate Opener.

(B) Capstan Drive Fitting. The Drive Fitting has a socket on one end, which slides onto the Opener's 1" output drive, and a drive tip on the opposite end, that is inserted into the railcar gates Capstan Socket. The Drive Fitting is supplied with a 1-piece Pin & Ring Retainer.

(C) Pin and Ring Retainer.

(D) Li-Ion Battery Qty. (2) for powering the Opener.

(E) Torque Reaction Arm. This Reaction Arm slides onto the Opener's gear housing and is secured to the Opener with a Socket Head Shoulder Bolt (SHSB).

(F) Torque Reaction Arm Socket Head Shoulder Bolt (SHSB) for securing the Reaction Arm.

(G) 1/8" Hex Key for tightening SHSB fastener.

(H) Li-Ion Battery Charger w/ 70" Power Cord.

(I) Sturdy Carrying Bag holds all components. This carrying bag enables the Operator to store and transport the components of the GO-B3 Opener safely and securely.

Item	P/N	Description
A	33-B3001	Torque Tool
B	33-01210	Capstan Drive Fitting
C*	32-50123	Pin
	32-50004	Ring
D	33-B3002	Li-Ion Battery Qty (2)
E	33-B3008	Torque Reaction Arm
F	33-B3005	Shoulder Bolt
G	33-B3006	1/8" Hex Key
H	33-B3009	Lio-Ion Battery Charger
I	32-90022	Utility Bag

***Included w/ Item B**

IMPORTANT

If anything is missing or damaged promptly contact **WORKMASTER** or your Regional Distributor.

IV. PRE-START CHECKLIST

The assembly of the **GO-B3** components can be accomplished within 5 minutes and requires no special tools.

1. Attach the Torque Reaction Arm onto the Opener.

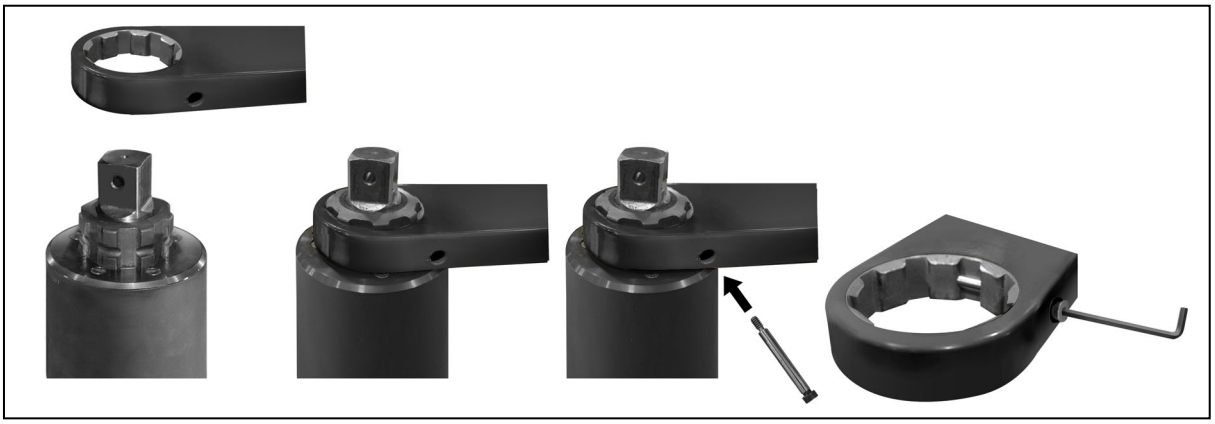
    a. Remove the Socket Head Shoulder Bolt (SHSB) from the Reaction Arm using the 1/8" Hex Key provided.

    b. Slide the Torque Reaction Arm over the front of Opener.

    c. Re-install the SHSB to finger tight and then tighten with provided 1/8" Hex Key. **(See Figure 1)**

        NOTE: The SHSB can only be installed in only one direction.

Figure 1: Socket Head Shoulder Bolt Install

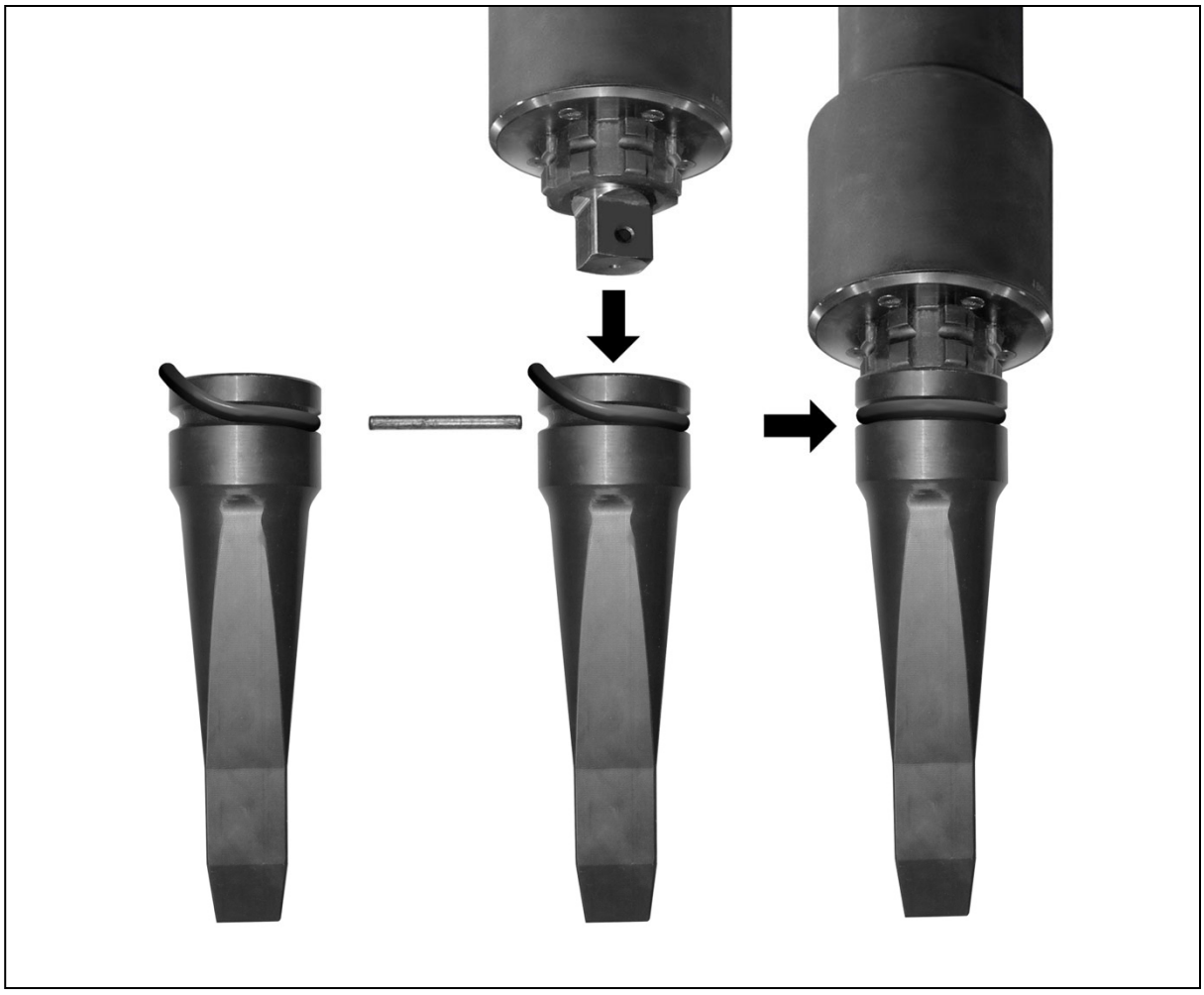


2. Attach Capstan Drive Fitting onto Opener.

    a. The 1" Female Square Socket slides onto the Opener's 1" Male Square Drive.

    b. Secure the Drive Fitting to the Opener with the supplied Pin & O-Ring Retainer **(See Figure 2, Pg 7)**.

Figure 2: Attaching Drive Fitting



V. SETTING GO-B3 TORQUE OUTPUT

The **GO-B3's** output torque is adjustable and can be set by rotating the unit's thumb wheel Torque Dial.

The Torque Dial shown in **Figure 3**, has seven (7) settings. The **approximate** torque values are shown in **Table 2**.

Figure 3: Torque Dial

When adjusting the Torque Dial, a click sound will be heard when each setting is reached.

Table 2: Torque Output Dial Adjustments

TORQUE DIAL SETTING	APPROX. TORQUE OUTPUT
1	750 lbs-ft
2	1125 lbs-ft
3	1500 lbs-ft
4	1875 lbs-ft
5	2250 lbs-ft
6	2625 lbs-ft
7	3000 lbs-ft

NOTE: Tool is shipped with Thumb Wheel in Position 7 – but should be checked before use.

VI. OPENING CAR GATES

1. Inspect and prepare the trackside worksite so that it will accommodate the practical and safe use of the **GO-B3** Gate Opener and its Torque Reaction Arm.

CAUTION

The surface of the unloading site around the hopper car gate must be level, flat, smooth, and unobstructed to provide the firm base which will safely support the **GO-B3**'s Torque Reaction Arm.

2. Inspect the Slide Gate's Capstan Socket to make sure the Drive Fitting can make a good, square, secure fit in the Socket. If the Capstan Socket is worn (out of square, completely rounded out, etc.) use either a **WORKMASTER** Capstan Swaging Kit **(PN 33-11120)** to clean out and square-up the Capstan Socket, or, if completely rounded out, a **WORKMASTER** Capstan Renew Attachment **(PN: 80-10728),** which slides over and is pinned to the Capstan Socket and provides the Drive Fitting the required, well-formed, female square drive. **(See Back Cover)**

IMPORTANT

A clean, square Capstan Socket will maximize the torque transfer between the **GO-B3** Opener and the car gate.

3. Disengage the car gate locking mechanism before attempting to open the gate.

CAUTION

Failure to disengage the car gate locking mechanism will damage the Gate Opener.

4. Check the Opener's rotation direction setting, either Clockwise (CW) or Counter-Clockwise (CCW) **(Figure 4, Item 1 & 2)**. Securely push the sliding Selector Switch in the appropriate direction based on capstan travel.

NOTE: The Reaction Arm will rotate in the opposite direction of Drive Fitting rotation.

Figure 4, Item 1: Clockwise Rotation

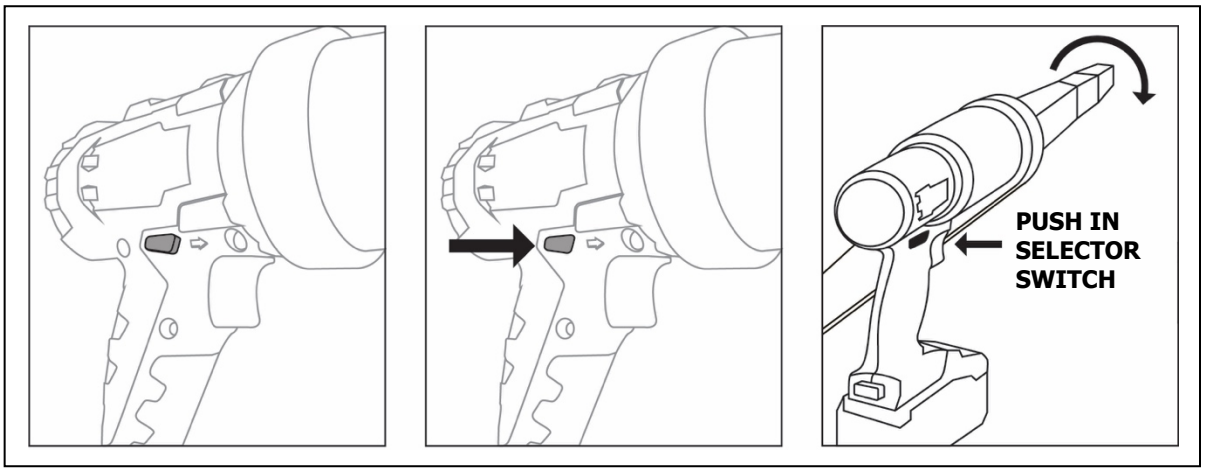
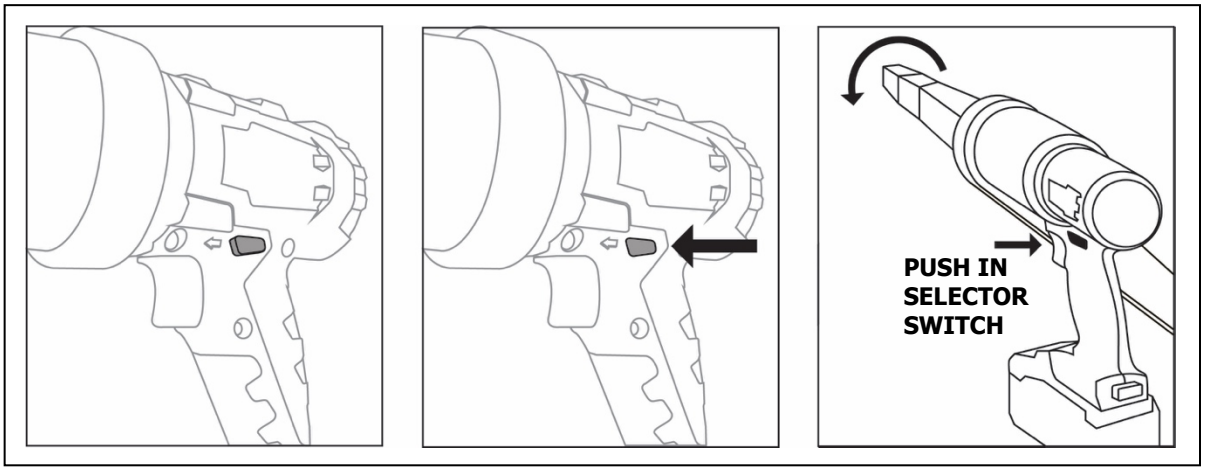
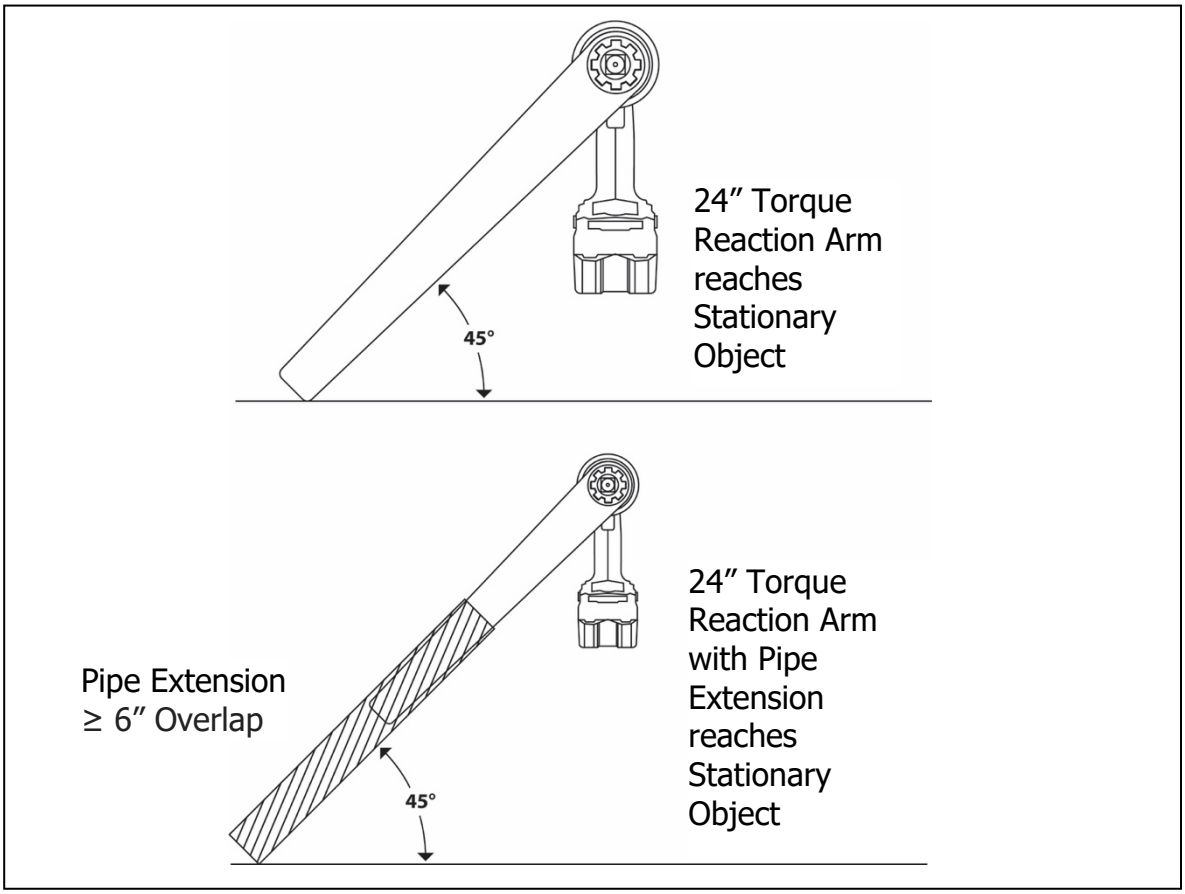


Figure 4, Item 2: Counter-Clockwise Rotation



5. Hold the **GO-B3** Gate Opener perpendicular to the railcar's Capstan Socket, firmly seat the Capstan Drive Fitting into the car's Capstan Socket, and securely position the Reaction Arm against the ground or a stationary object **(See Figure 5, Pg 11)**.

Figure 5: Torque Reaction Arm Orientation



DANGER

Since reaction torque equals output torque, be sure to select an anchor point or stationary base which is sufficient to withstand the torque reaction forces imposed upon the Torque Reaction Arm.

IMPORTANT

When positioning the **GO-B3**, be sure the Capstan Drive Fitting is positioned so that the Torque Reaction Arm is at an angle **NO GREATER** than 45° to the ground. Torque reaction creates a rotational force in the **opposite direction** from which input force is applied.

6. To rotate the Drive Fitting clockwise (Operator's perspective), push the Selector Switch into the CW position. **(See Figure 4, Item 1)**

7. To rotate the Drive Fitting counter-clockwise (Operator's perspective), push the Selector Switch into the CCW position. **(See Figure 4, Item 2)**

8. Depress and hold the Opener's On/Off Trigger.

DANGER

Maintain firm hand control of the **GO-B3** Opener's handle during entire opening operation. Uncontrolled use could cause sudden release of stored torque causing the **GO-B3** to spin in the reverse direction which could result in serious injury.

9. If the railcar gate will not move, STOP using the **GO-B3** Opener, and notify your supervisor. Continued application of force will damage the Opener.

WARNING

Do not use other opening devices (pry bars, come-a-longs, etc) to "help" the **GO-B3** Opener.

10. When the railcar gate is completely opened, release the On/Off Trigger.

CAUTION

Stop applying force the moment the gate reaches its fully opened position. Prolonged ratcheting can cause damage to the Gate Opener.

11. Release the stored torque in the **GO-B3** Opener by pushing the Selector Switch to the opposite direction, for example: from CW to CCW, then momentarily depress the On/Off Trigger until Torque Reaction Arm relaxes off the ground.

Maintain firm hand control of the Opener when releasing stored torque from the **GO-B3** Opener, since recoil from stored torque will be experienced. This could cause the Torque Reaction Arm to spin in the reverse direction and result in serious injury.

12. Remove the **GO-B3** Opener from the railcar capstan.

VII. MAINTENANCE & BEST PRACTICES

GENERAL MAINTENANCE

1. Maintain the Gate Opener. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the Opener's operation. If damaged, have the **GO-B3** repaired before use. **(Accidents are caused by poorly maintained equipment)**

TORQUE OUTPUT THROUGH THE LIFE OF THE BATTERY

Although the torque should be consistent until the last few Openings/Closings before the Battery discharges. Change the Battery before the charge drops to 25% battery life.

CHANGING ACCESSORIES

1. Remove the **GO-B3** Opener from the Hopper Car's Capstan Socket.

2. Disconnect the Battery from the **GO-B3** Gate Opener.

3. Remove the Drive Fitting by pulling off Pin and O-Ring Retainer.

4. When re-installing the Drive Fitting make sure it is properly secured to the Opener's square drive by using the supplied Pin & O-Ring Retainer.

BATTERY SAFETY, USE, AND CAUSE INSTRUCTIONS

1. Do not expose **GO-B3** Opener to rain or wet conditions. Water entering the Battery will increase the risk of electric shock and/or damage to the Opener.

2. Disconnect the Battery from the Opener before changing accessories or storing the Gate Opener. This will reduce the risk of starting the **GO-B3** accidentally and, also, provide an opportunity to charge the Battery for next use.

3. Recharge the Battery only with the Charger supplied by **WORKMASTER**. A Charger that is suitable for one type of battery may create a risk of fire when used with another battery.

4. When the Battery is not in use, keep it away from other metal objects (paper clips, coins, keys, nails, screws or other small metal objects) that can accidently make a connection from one terminal to another. Shorting the Battery's terminals together may cause burns or a fire.

5. Under abusive conditions, liquid may be ejected from the Battery – avoid contact.

Liquid ejected from Battery may cause irritation or burns. If Battery liquid contacts skin, flush with water. If liquid contacts eyes, seek medical help immediately.

6. Protect the Battery from water and moisture.

7. Do not expose the Battery to flame or excessive heat.

VIII. BATTERY TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	RECOMMENDED ACTION
One (1) LED is flashing.	1. The Battery is almost depleted.	1. If necessary, press the charge read button and check the LEDs to read the charge level. If the Battery is almost depleted (<25%), it must be recharged.
GO-B3 automatically switches OFF.	1. Electronics have activated automatic protection mode. 2. Long, continuous overloading of the Opener. 3. Safety shutdown.	1. A warning signal sounds (continuous beeping). Beeping stops after 30-seconds or when Trigger is released. 2. Activates the temperature cut-out. Allow the GO-B3 Opener to cool. NOTE: If the Battery feels very warm, the Battery will cool more quickly in its "Air Cooled" Charger and is operated it at idling speed. 3. If the slew rate of the current is too high (for example, if the GO-B3 suddenly seizes or kickback occurs), the Opener turns OFF. Switch the Opener OFF at the Trigger. Switch it ON again and continue to work as normal. Try to prevent the Opener from seizing. **NOTE:** The LED lamp switches OFF automatically after a specific time. To activate the electronic functions, press the Trigger.

GATE OPENER REPAIRS

After extended use of the **GO-B3** Gate Opener, or in the case of degrading performance or other apparent damage, send the **GO-B3** Gate Opener to **WORKMASTER's** Authorized Service Center: **AIRMATIC**, 284 Three Tun Rd, Malvern, PA 19355 for repair. The unit must be properly packaged for shipping.

NOTES

NOTES

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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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