

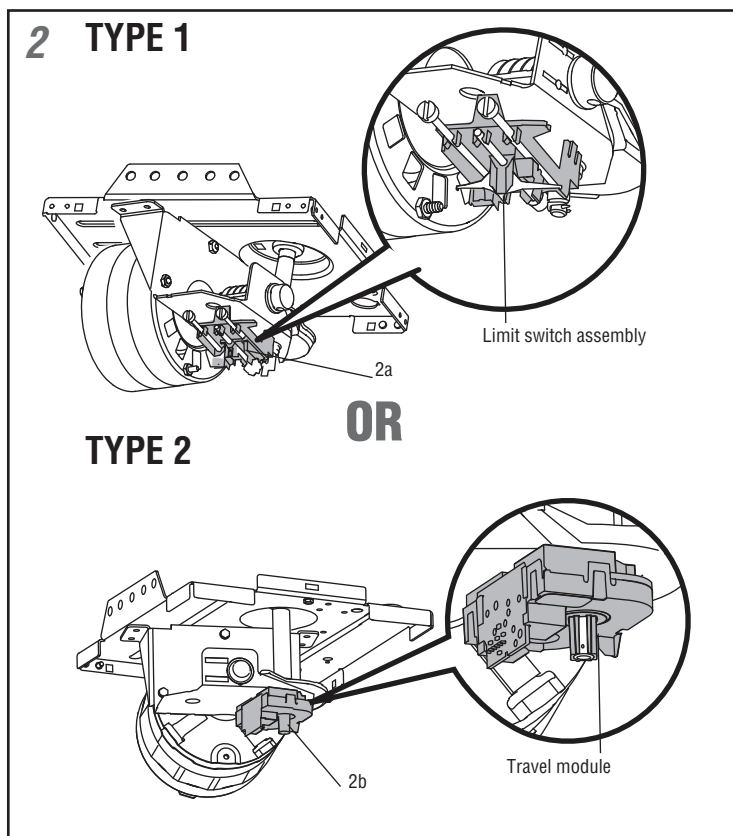
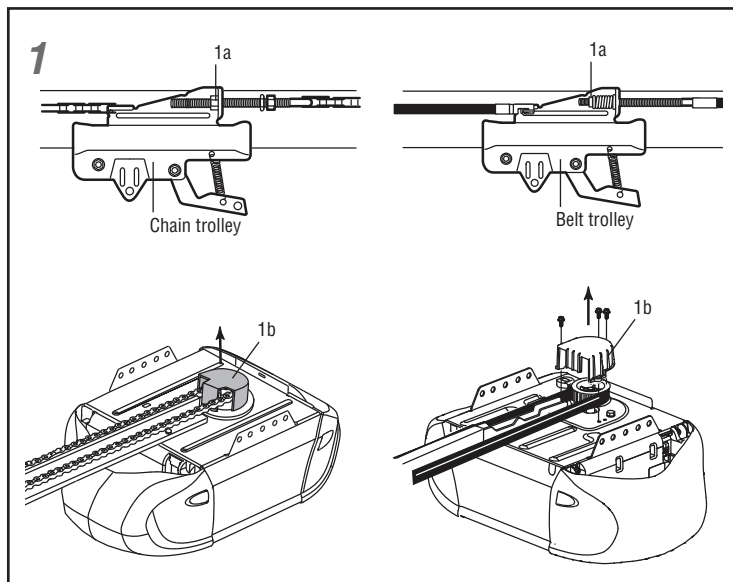
# Drive Gear and Worm Gear Kit Model 41A2817

## OVERVIEW

This instruction sheet is for AC garage door openers. It is highly recommended that you grease and replace both the drive gear and worm gear. Failure to grease and replace both gears will result in premature failure of the gears. The images are for reference and your product may look different.

## TOOLS NEEDED:

- 1/8" Allen wrench
- 1/4" Nut driver or socket
- 3/8" Nut driver or socket
- Hammer
- Flat head screw driver
- 5/32" Punch
- 5/16" Nut driver or socket w/extension



## **WARNING**

To prevent possible **SERIOUS INJURY** or **DEATH** from electrocution, disconnect power to opener **BEFORE** proceeding.

## **CAUTION**

The garage door **MUST** be in the fully closed position during installation.

## Installation

### **CHECK OFF STEPS AS THEY ARE COMPLETED**

#### **1. Preparation**

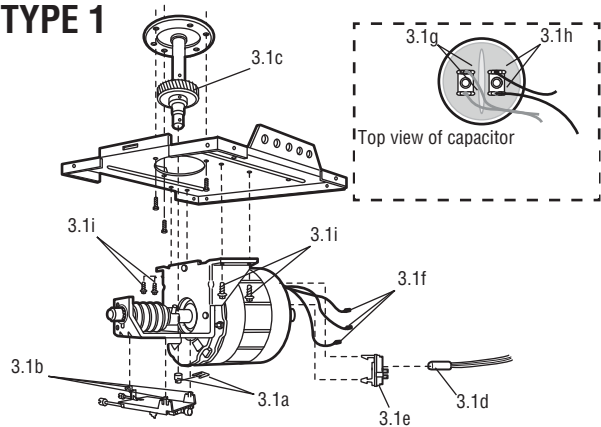
- \_ Disconnect power to opener.
- \_ Disengage the outer trolley by pulling the emergency release rope.
- \_ Manually pull the garage door to a closed position.
- \_ Remove sprocket cover (1b).
- \_ Relax the chain/belt tension by loosening the outer nut (1a) on the trolley.
- \_ Remove chain/belt from sprocket. Manually slide the inner trolley to closed position until it engages the outer trolley.
- \_ Place loose chain/belt on the end of the rail nearest sprocket. Tape the chain/belt to the rail to prevent the chain/belt from falling to the floor.
- \_ Remove cover, light lenses and both end panels.

#### **2. Identify your opener type**

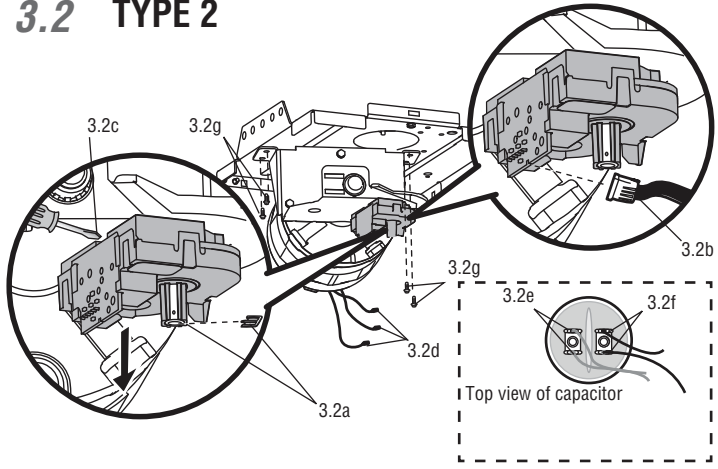
- Some instructions will vary depending on your garage door opener.
- \_ Identify the type of garage door opener you have.
    - TYPE 1 - Garage door opener with a limit switch assembly (2a).
    - TYPE 2 - Garage door opener with a travel module (2b).
  - \_ Proceed with disassembly instructions according to your garage door opener type.

**For more information:  
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or call toll free at 855-931-3334**

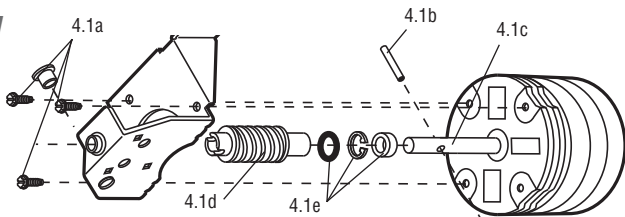
### 3.1 TYPE 1



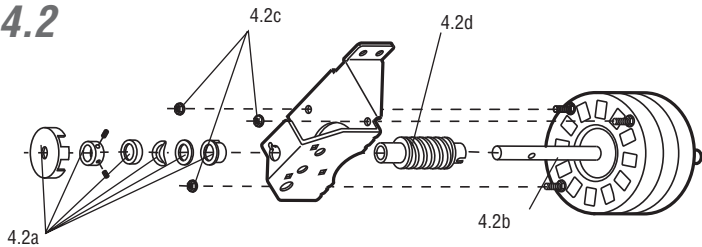
### 3.2 TYPE 2



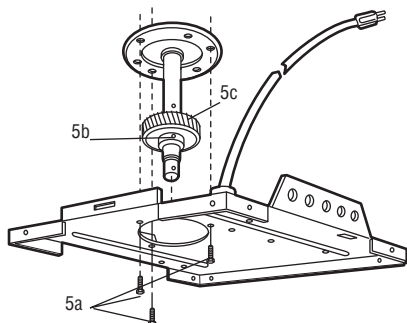
### 4.1



### 4.2



### 5



## 3. Disassemble opener

### TYPE 1 - Limit switch (3.1)

- \_ Remove the retainer clip and limit drive gear (3.1a).
- \_ Remove the limit switch assembly (3.1b) by squeezing the sides just below the motor bracket near the drive gear (3.1c).
- \_ Allow the limit switch assembly to hang by the wires.
- \_ Unplug the wire harness (3.1d) from the RPM sensor (3.1e) and remove the RPM sensor.
- \_ Disconnect the 3 wires (3.1f) leading from the motor (RED, WHITE, BLUE), noting their position. Keep same color wires from capacitor together for reassembly: RED/RED (3.1g), BLUE/BLUE (3.1h).
- \_ Remove the 4 screws (3.1i) fastening the motor bracket to the chassis. Support motor before removing final screw. Place motor/bracket assembly aside.

### TYPE 2 - Travel module (3.2)

- \_ Remove the retainer clip from the travel module (3.2a).
- \_ Unplug the wire harness (3.2b) from the travel module.
- \_ Remove the travel module using the tip of a screwdriver to gently pry the travel module from the motor bracket (3.2c).
- \_ Disconnect the 3 wires (3.2d) leading from the motor (RED, WHITE, BLUE), noting their position. Keep same color wires from capacitor together for reassembly: RED/RED (3.2e), BLUE/BLUE (3.2f).
- \_ Remove the 4 screws (3.2g) fastening the motor bracket to the chassis. Support motor before removing final screw. Place motor/bracket assembly aside.

## 4. Removal and replacement of the worm gear

### For belt drive (MVIS) (4.1)

- \_ Separate bracket from motor by removing the 3 screws (4.1a).
- \_ Use punch and hammer to drive roll pin (4.1b) from motor shaft (4.1c) and slide worm gear (4.1d) off.
- \_ Remove "O" ring, "C" ring and spacer (4.1e).
- \_ Replace with new parts in proper sequence.
- \_ Reassemble the motor and bracket assembly.

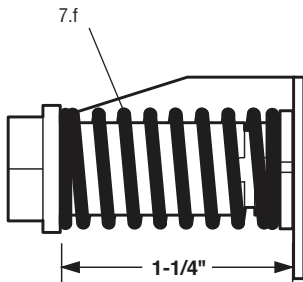
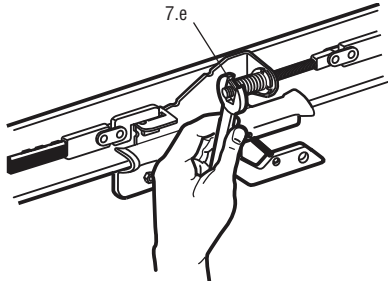
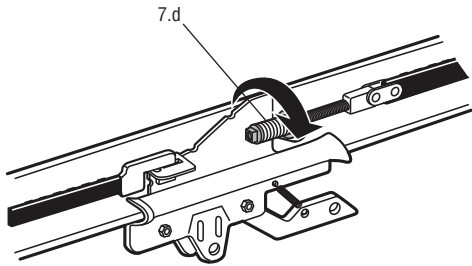
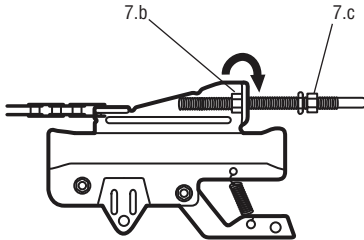
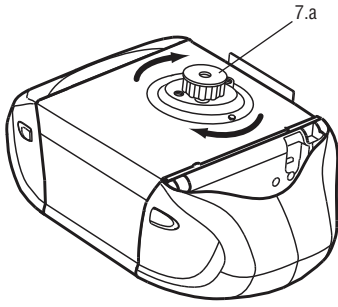
### For all other models (4.2)

- \_ Remove interrupter cup, collar, washers, and bearing (4.2a) from motor shaft (4.2b) and set aside in proper sequence for replacement.
- \_ Separate bracket from motor by removing the 3 nuts (4.2c).
- \_ Remove worm gear (4.2d) from motor shaft and replace with new, fitting the slots in the worm gear over roll pin on shaft.
- \_ Replace with new parts in proper sequence. Replace only those parts used on your model.
- \_ Reassemble the motor and bracket assembly.

## 5. Removal and replacement of the drive gear

- \_ Remove the 3 screws (5a) from under the chassis and lift out entire assembly by sprocket.
- \_ Use punch and hammer to drive roll pin (5b) from shaft.
- \_ Replace the gear with the new drive gear and install roll pin in shaft flush with gear hub.
- \_ Apply grease generously to each tooth on new drive gear (5c) and worm gear.
- \_ Reattach the drive gear assembly to the opener chassis.

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**6. Reinstall the motor, motor bracket and components**

- \_ Reinstall motor and motor bracket to the opener chassis.
- \_ Reinstall the limit switch assembly or travel module to the motor bracket.
- \_ For openers with a limit switch assembly, install the limit drive gear so that it meshes with the limit switch drive gear.
- \_ Align the opening of the limit drive gear or travel module with the hole in the motor shaft and replace the retainer clip.

**7. Reinstall chain/belt and set tension**

- \_ Reconnect power to the garage door opener.
- \_ Run the opener until the sprocket (7a) completes a clockwise cycle.
- \_ Remove tape from chain/belt and rail. Reinstall chain/belt and sprocket cover on sprocket.
- \_ To tighten the chain, turn outer nut (7b) in the direction shown.
- \_ When the chain is approximately 1/4" (square rail) or 1/2" (T-rail) above the base of the rail at its midpoint, re-tighten the inner nut (7c) to secure the adjustment.
- \_ To tighten the belt, manually thread the spring trolley nut (7d) on the threaded shaft until it is finger tight.
- \_ Place a 7/16" open end wrench on the square end of the spring trolley nut (7e). Tighten spring to a 1-1/4" tension (7f).

**8. Proceed to Adjustments**

- Page 4 - (TYPE 1) Garage door opener with a limit switch assembly.
- Page 5 - (TYPE 2) Garage door opener with a travel module.

## WARNING

Without a properly installed safety reversal system, persons (particularly small children) could be SERIOUSLY INJURED or KILLED by a closing garage door.

- Incorrect adjustment of garage door travel limits will interfere with proper operation of safety reversal system.
- Too much force on garage door will interfere with proper operation of safety reversal system.
- NEVER increase force beyond minimum amount required to close garage door.
- NEVER use force adjustments to compensate for a binding or sticking garage door.
- If one control (force or travel limits) is adjusted, the other control may also need adjustment.
- After ANY adjustments are made, the safety reversal system MUST be tested. Door MUST reverse on contact with 1-1/2" high (3.8 cm) object (or 2x4 laid flat) on floor.

## CAUTION

To prevent damage to vehicles, be sure fully open door provides adequate clearance.



Limit Adjustment Screws



Force Adjustment Controls

## Adjustments

### TYPE 1 - Garage door opener with a limit switch assembly

- \_ Run the opener through a complete travel cycle.
- \_ Does the door open and close completely?
- \_ Does the door stay closed and not reverse unintentionally when fully closed?

If you answered "No" to either of the above questions, read "When to adjust the Limits" and "When to Adjust the Forces".

If your door passes both of these tests, no limit/force adjustments are necessary please proceed to "Testing the Safety Reverse System".

#### When to Adjust the Limits:

- **If the door does not open completely but opens at least five feet (1.5 m):**

Increase up travel. Turn the UP limit adjustment screw clockwise. One turn equals 2" (5 cm) of travel for 1/2 HP, 1/3 HP and 1/4 HP opener. One turn equals 3" (7.5 cm) of travel for 3/4 HP opener.

**NOTE:** To prevent the trolley from hitting the cover protection bolt, keep a minimum distance of 2-4" (5-10 cm) between the trolley and the bolt.

- **If door does not open at least 5 feet (1.5 m):**

Adjust the UP (open) force as explained above.

- **If the door does not close completely:**

Increase down travel. Turn the down limit adjustment screw counterclockwise. One turn equals 2" (5 cm) of travel for 1/2 hp, 1/3 hp and 1/4 hp opener. One turn equals 3" (7.5 cm) of travel for 3/4 hp opener. If door still won't close completely and the trolley bumps into the pulley protection bolt, try lengthening the door arm and decreasing the down limit.

- **If the opener reverses in fully closed position:**

Decrease down travel. Turn the down limit adjustment screw clockwise. One turn equals 2" (5 cm) of travel for 1/2 HP, 1/3 HP and 1/4 HP opener. One turn equals 3" (7.5 cm) of travel for 3/4 HP opener.

- **If the door reverses when closing and there is no visible interference to travel cycle:**

If the opener lights are flashing, the safety reversing sensors are either not installed, misaligned, or obstructed.

#### When to Adjust the Force:

##### Test the DOWN (CLOSE) force

- Grasp the door bottom when the door is about halfway through DOWN (close) travel. The door should reverse. Reversal halfway through down travel does not guarantee reversal on a 1-1/2" (3.8 cm) obstruction. Refer to the owner's manual.
- If the door is hard to hold or doesn't reverse, decrease the DOWN (close) force by turning the control counterclockwise. Make small adjustments until the door reverses normally. After each adjustment, run the opener through a complete cycle.
- If the door reverses during the down (close) cycle and the opener lights aren't flashing, increase DOWN (close) force by turning the control clockwise. Make small adjustments until the door completes a close cycle. After each adjustment, run the opener through a complete travel cycle. *Do not increase the force beyond the minimum amount required to close the door.*

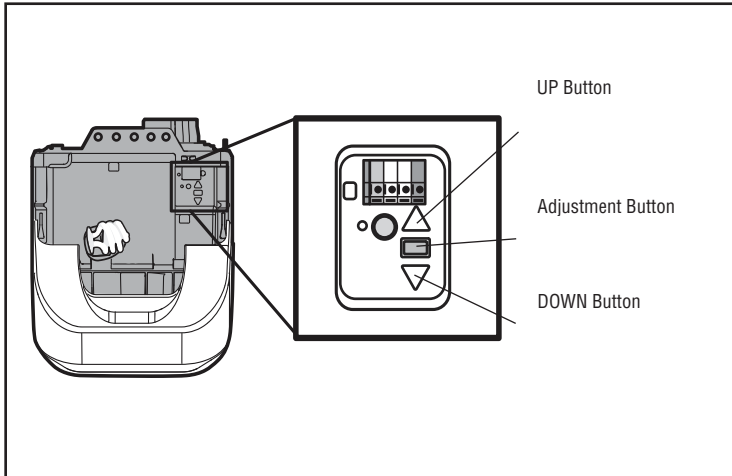
##### Test the UP (OPEN) force

- Grasp the door bottom when the door is about halfway through UP (open) travel. The door should stop. If the door is hard to hold or doesn't stop, decrease UP (open) force by turning the control counterclockwise. Make small adjustments until the door stops easily and opens fully. After each adjustment, run the opener through a complete travel cycle.
- If the door doesn't open at least 5 feet (1.5 m), Increase UP (open) force by turning the control clockwise. Make small adjustments until door opens completely. Readjust the UP limit if necessary. After each adjustment, run the opener through a complete travel cycle.

## **⚠ WARNING**

Without a properly installed safety reversal system, persons (particularly small children) could be **SERIOUSLY INJURED** or **KILLED** by a closing garage door.

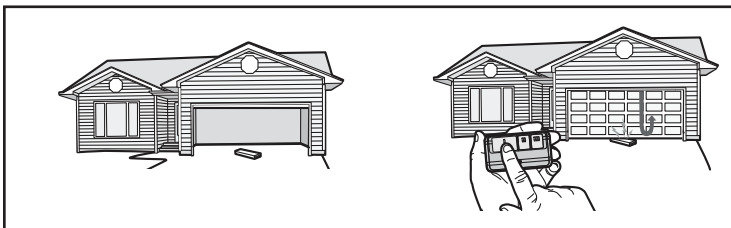
- Incorrect adjustment of garage door travel limits will interfere with proper operation of safety reversal system.
- After ANY adjustments are made, the safety reversal system **MUST** be tested. Door **MUST** reverse on contact with 1-1/2" (3.8 cm) high object (or 2x4 laid flat) on floor.



## **⚠ WARNING**

Without a properly installed safety reversal system, persons (particularly small children) could be **SERIOUSLY INJURED** or **KILLED** by a closing garage door.

- Safety reversal system **MUST** be tested every month.
- After ANY adjustments are made, the safety reversal system **MUST** be tested. Door **MUST** reverse on contact with 1-1/2" high (3.8 cm) object (or 2x4 laid flat) on the floor.



## **Adjustments**

### **TYPE 2 - Garage door opener with a travel module**

#### **Program the travel**

1. Press and hold the black adjustment button until the UP button begins to flash and/or a beep is heard.
2. Press and hold the UP button until the door is in the desired UP position.  
**NOTE:** The UP and DOWN buttons can be used to move the door up and down as needed.
3. Once the door is in the desired UP position press and release the black adjustment button. The garage door opener lights will flash twice and the DOWN button will begin to flash.
4. Press and hold the DOWN button until the door is in the desired DOWN position.  
**NOTE:** The UP and DOWN buttons can be used to move the door up and down as needed.
5. Once the door is in the desired DOWN position press and release the black adjustment button. The garage door opener lights will flash twice and the UP button will begin to flash.
6. Press and release the UP button. When the door travels to the programmed UP position, the DOWN button will begin to flash.
7. Press and release the DOWN button. The door will travel to the programmed DOWN position. Programming is complete.

If the garage door opener lights are flashing 5 times during the steps for Program the Travel, the programming has timed out. If the garage door opener lights are flashing 10 times during the steps for Adjust the Travel, the safety reversing sensors are misaligned or obstructed. When the sensors are aligned and unobstructed, cycle the door through a complete up and down cycle using the remote control or the UP and DOWN buttons. Programming is complete. If you are unable to operate the door up and down, repeat the steps above.

## **Test**

### **Test the Safety Reversal System**

1. With the door fully open, place a 1-1/2" (3.8 cm) board (or a 2x4 laid flat) on the floor, centered under the garage door.
2. Press the remote control push button to close the door. The door **MUST** reverse when it makes contact with the board.

If the door stops and does not reverse on the obstruction, it is not travelling far enough down. Increase the down travel and repeat the test.

When the door reverses upon contact with the 1-1/2" board, remove the board and open/close the door 3 or 4 times to test the adjustment. If the opener continues to fail the safety reversal test, call a trained door systems technician.

### **Important Safety Check**

Test the Safety Reverse System after:

- Each adjustment of door arm length, limits, or force controls.
- Any repair to or adjustment of the garage door (including springs and hardware).
- Any repair to or buckling of the garage floor.
- Any repair to or adjustment of the opener.

### **Test the Protector System<sup>®</sup>**

1. Open the door. Place the garage door opener carton in the path of the door.
2. Press the remote control push button to close the door. The door will not move more than an inch (2.5 cm), and the garage door opener lights will flash 10 times.

The garage door opener will not close from a remote control if the LED in either safety reversing sensor is off (alerting you to the fact that the sensor is misaligned or obstructed).

If the garage door opener closes the door when the safety reversing sensor is obstructed (and the sensors are no more than 6" [15 cm] above the floor), call for a trained door systems technician.

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