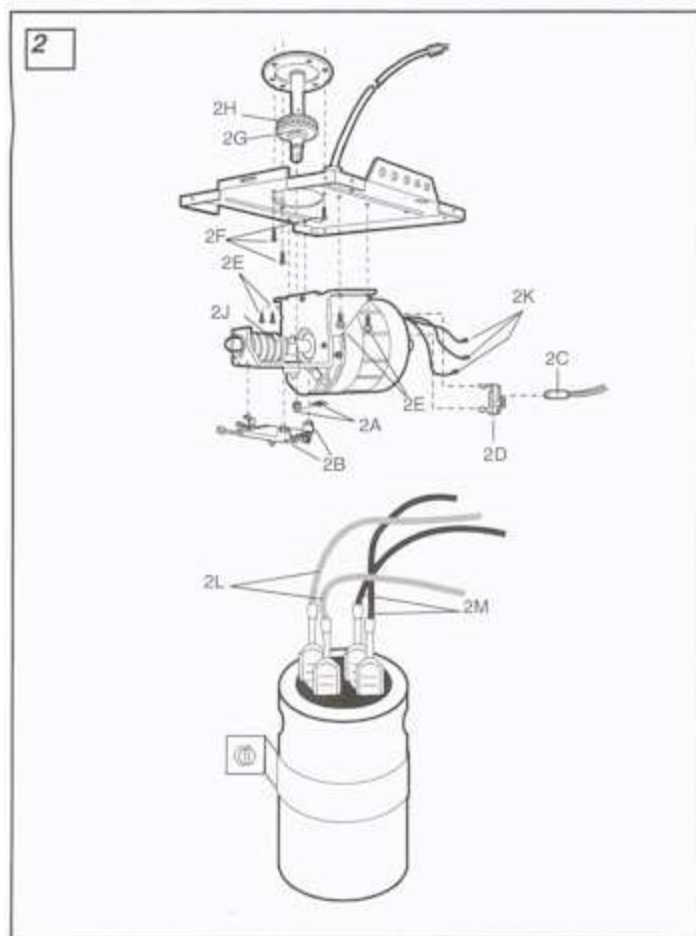
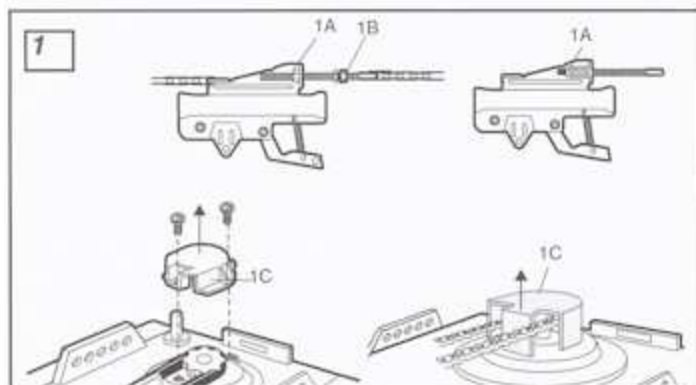


# Replacement Instructions for Drive Gear and Worm Gear

## Tools needed:

- 1/8" Allen wrench
- 1/4" Nut driver
- 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.

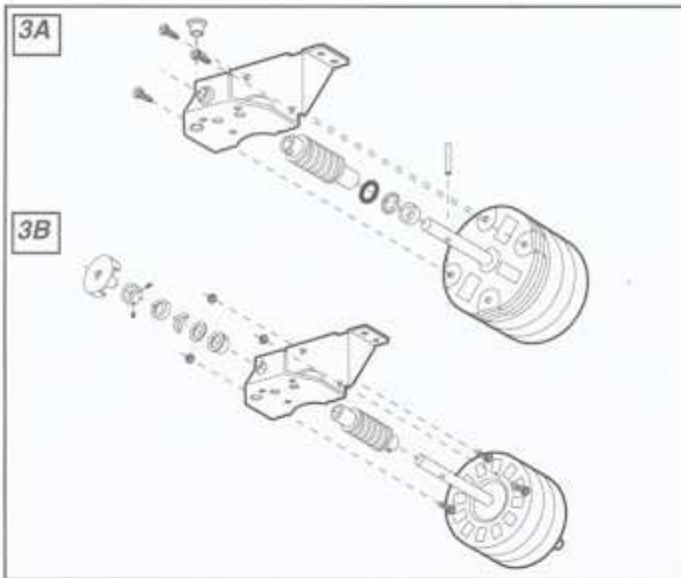
## CHECK OFF STEPS AS THEY ARE COMPLETED

### ☐ 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.
- Relax the chain/belt tension by loosening the outer nut (1A) on the trolley.
- Remove sprocket cover/belt cap retainer (1C).
- 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 and both panels.

### ☐ 2. Disassemble Opener:

- Remove the retainer clip and limit drive gear (2A).
- Remove the limit switch assembly (2B) by squeezing the sides just below the motor bracket near the drive gear (2G).
- Allow the limit switch assembly (2B) to hang by the wires.
- Unplug the wire harness (2C) from the RPM sensor (2D) and remove the RPM sensor.
- Disconnect the 3 wires leading from the motor (RED, WHITE, BLUE), noting their position for reassembly. Keep same color wires from capacitor together: RED/RED (2L), BLUE/BLUE (2M).
- Remove the 4 screws (2E) fastening the motor bracket to the chassis, using a 5/16" magnetic driver. Support motor before removing final screw. Place motor/bracket assembly aside.



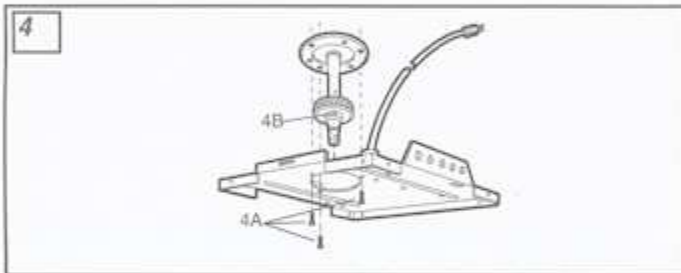
### 3. Removal and replacement of the WORM gear:

#### For Belt Drive (MVIS) (3A):

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

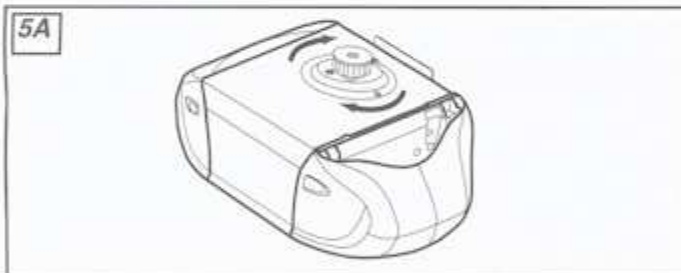
#### For All Other Models (3B):

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



### 4. Replacement of the Drive Gear:

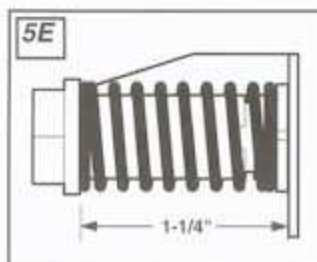
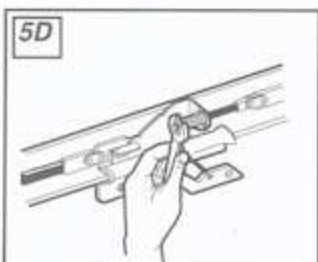
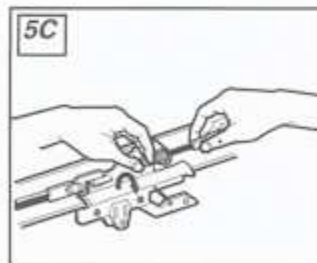
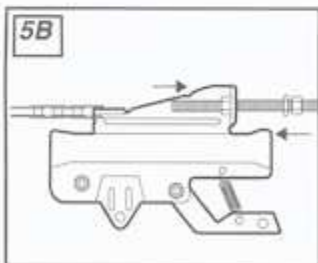
- Remove the 3 screws (4A) from under the chassis and lift out entire assembly by sprocket.
- Use punch and hammer to drive roll pin (4B) from shaft.
- Apply grease generously to each tooth on new drive gear. Replace the gear with the new drive gear.
- Install roll pin in shaft flush with gear hub.
- Refasten assembly to opener chassis.
- Reinstall the limit switch assembly on motor bracket. Install the limit drive gear and retainer clip on the end of the sprocket shaft. Limit switch gear must mesh with limit drive gear.



### 5. Reinstall chain/belt and set tension:

**NOTE:** Trolley must be in the down position before installing chain/belt.

- Reconnect power to opener.
- Run the opener until the sprocket completes a clockwise cycle (5A).
- Remove tape from chain/belt and rail. Reinstall chain/belt and sprocket cover/belt cap on sprocket.
- To tighten the chain, turn outer nut in the direction shown (5A). 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 to secure the adjustment.
- To tighten the belt, manually thread the spring trolley nut on the threaded shaft until it is finger tight (5C).
- Place a 7/16" open end wrench on the square end (5D). Tighten spring to a 1-1/4" tension (5E).





## **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.

### **Run opener and Test:**

- \_ 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" on page 4.

### **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 in Adjustment Step 2.
- 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, 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:**

#### **1. 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. See Adjustment Step 3 in 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.



#### **2. 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.

- Safety reversal system **MUST** be tested every month.
- 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 the floor.

### **Testing the Safety Reverse System:**

#### **TEST:**

- 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.
- Operate the door in the down direction. The door **must** reverse on striking the obstruction.

#### **ADJUST:**

- If the door stops on the obstruction, it is not traveling far enough in the down direction. Increase the **DOWN** limit by turning the **DOWN** limit adjustment screw counterclockwise 1/4 turn.

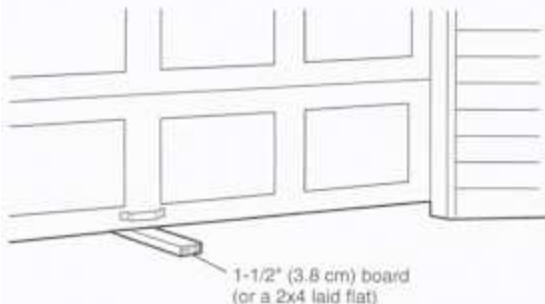
**NOTE:** On a sectional door, make sure limit adjustments do not force the door arm beyond a straight up and down position.

- Repeat the test.
- When the door reverses on the 1-1/2" (3.8 cm) board, remove the obstruction and run the opener through 3 or 4 complete travel cycles to test adjustment.
- If the unit continues to fail the Safety Reverse Test, call for 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.





## **WARNING**

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

### **RING BEARING DESIGN (1,2)**

- Disconnect power to opener.
- Reassemble using the above bearing-washer sequence. Replace used ring with identical new component included in Bearing Kit.

**NOTE:** If bearing is difficult to remove, check motor shaft for burrs and file as needed.

### **COLLAR DESIGN (3,4)**

**IMPORTANT:** Collar "B" replaces collar "A" in all instances.

- Reassemble using the bearing-washer-collar sequence.
- Push motor shaft as far as possible toward the bearing-collar assembly.
- Butt collar against the bearing until the spring washer is compressed, and securely tighten the set screws. (Torque: 60 in. lbs.)
- Reconnect power to opener.

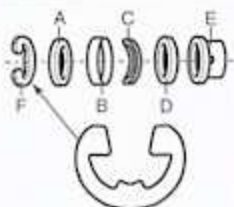
### **IMPORTANT SAFETY CHECK:**

Test the Safety Reverse System after:

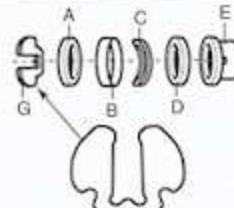
- Each adjustment of door arm length, limits, or force controls.
- Any repair to or adjustment of the garage door (including springs and hardware).
- Any repair to or buckling of the garage floor.
- Any repair to or adjustment of the opener.

## **MOTOR SHAFT BEARING KIT**

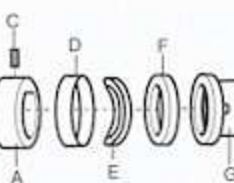
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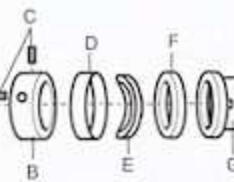
2



3



4



## **AVERTISSEMENT**

Pour prévenir d'éventuelles **BLESSURES GRAVES** ou la **MORT** par suite d'électrocution S'assurer qu'il n'y a pas de courant **AVANT** de poser la commande de porte.

### **ROULEMENT ANNULAIRE (1, 2)**

- Débrancher l'alimentation électrique de l'ouvre-porte.
- Remonter en utilisant la séquence de nettoyage de roulement ci-dessus. Remplacer la bague usée par une bague neuve identique incluse dans le kit de roulement.

**NOTA:** Si le roulement est difficile à enlever, vérifier s'il y a des bavures sur l'arbre et les limer selon le besoin.

### **COLLET (3, 4)**

**IMPORTANT:** Le collet "B" remplace le collet "A" dans tous les cas.

- Remonter en utilisant la séquence de nettoyage du collet.
- Pousser l'arbre du moteur aussi loin que possible vers le collet guide.

## **ROULEMENT D'ARBRE**

- Pousser le collet contre le roulement jusqu'à ce que la rondelle élastique soit comprimée et serrer fermement les vis de blocage (couple de 6,78 Nm ; 60 in-lb).
- Rebrancher l'alimentation électrique de l'ouvre-porte.

### **VÉRIFICATION DE SÉCURITÉ IMPORTANTE:**

Il faut vérifier le système d'inverseur de sécurité après :

- A chaque réglage de la longueur du bras de porte, des limites ou des commandes de force.
- Toute réparation ou réglage de la porte de garage (y compris les ressorts et la quincaillerie).
- Toute réparation ou tout flambement du sol du garage.
- Toute réparation ou réglage de l'ouvre-porte.