

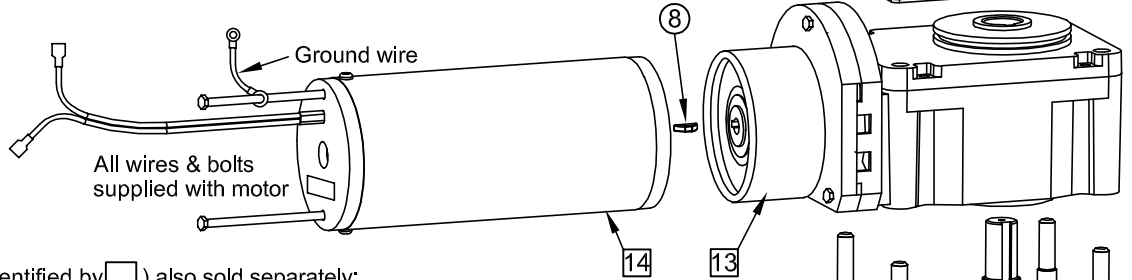
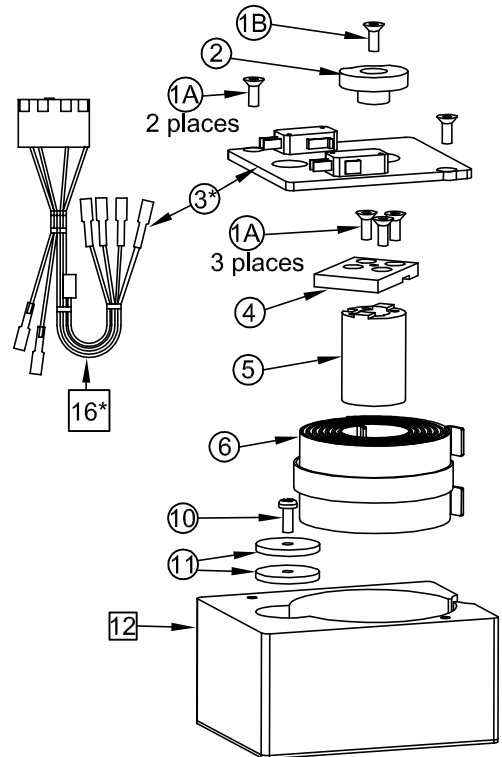
## DETEX AO19 Distributor Pull Style Motor/Gearbox Repair Manual

### Drawing: 105412

When refurbishing a used Motor/Gearbox, replacing all wearable components will ultimately save time in the future. Distributor rebuild kit (p/n 105412-1) includes all replaceable components, screws and keys. Additional parts such as spring housings, motors, mounting bolts can be ordered separately as needed.

Service Parts Kit #105412 contents:

ITEM	QTY	P/N	DESCRIPTION
①A	5	12407-2	10-32 x 1/2" FH Allen Head screw
①B	1	12407-3	10-32 x 3/4" FH Allen Head screw
②	1	12607	Black Plastic Cam
③	1	104708	Micro-Switch Plate with Switches and Harness (*Harness also sold separately, see below)
④	1	12604	Stop Plate
⑤	1	12606	Spring Arbor
⑥	1	12603	Clock Spring
⑦	2	12611	3/16 x 3/16 x 1" Shaft Key
⑧	1	12612	1/8 x 1/2 Woodruff Motor Key
⑨	1	12605-1	Gearbox Shaft (Push)
⑩	1	12403-1	10-32 x 1/2" Phillips Panhead Screw
⑪	2	12783	Flat Washer Round Stop



Parts below (identified by ) also sold separately:

<input type="checkbox"/> 12	1	12602	Spring Casting
<input type="checkbox"/> 13	1	12601	Gearbox
<input type="checkbox"/> 14	1	12600	1/8 HP Motor
<input type="checkbox"/> 15	4	12610	MFM Bolt
<input type="checkbox"/> 16	1	104706	Microswitch Harness Subassy

**For device installation  
 videos, scan code below  
 or go to [detex.com](http://detex.com)**

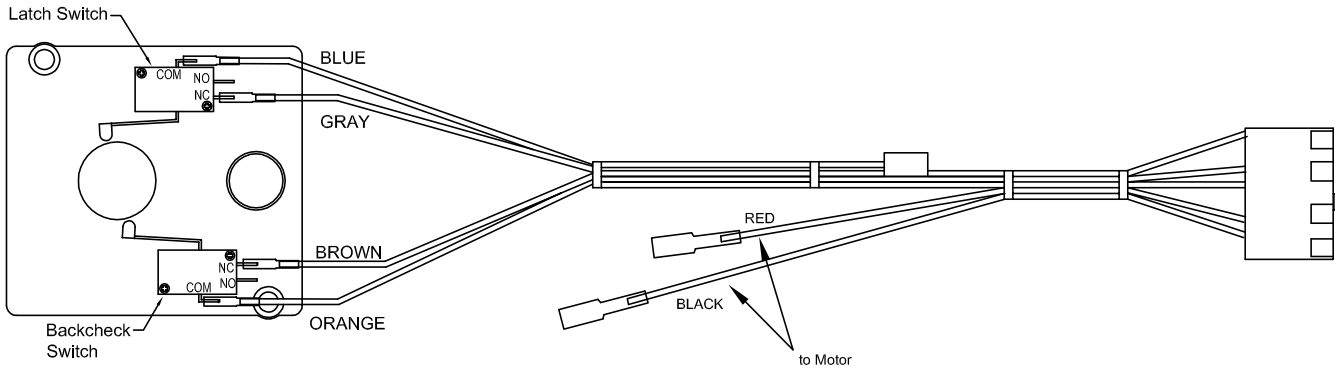


**Owner's Copy**

**TOOLS REQUIRED:**

Safety glasses	Needle nose pliers
1/8" Allen wrench	5/16" nut driver
Slotted screwdriver	#2 Phillips screwdriver
Hammer	#3 Phillips screwdriver

**SWITCH HARNESS CONNECTION:**



WIRE COLOR	POSITION
BLUE	Latch Switch COM
GRAY	Latch Switch N C
BROWN	Backcheck Switch N C
ORANGE	Backcheck Switch COM

**NOTES:**

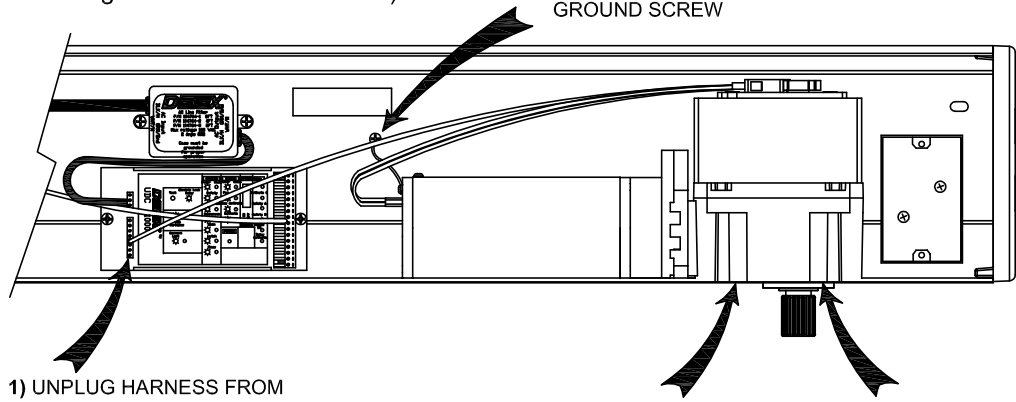
1. SEE PAGE 7 FOR CLOCK SPRING (12603), SPRING ARBOR (12606) & CAM (12607) POSITIONING.
2. PLUG THE DISCONNECTS ON THE MOTOR INTO THE WIRING HARNESS DISCONNECTS AS FOLLOWS:  
 FOR LH PUSH OR LH PULL - RED TO RED & BLACK TO BLACK  
 FOR RH PUSH OR RH PULL - RED TO BLACK & BLACK TO RED
3. CONNECT THE MICROSWITCH HARNESS TO THE SWITCH PLATE AS SHOWN IN VIEW & TABLE ABOVE.

**GEAR MOTOR REMOVAL:**

(Must remove push/pull arm for gear motor to be removed)

2) REMOVE MOTOR GROUND SCREW

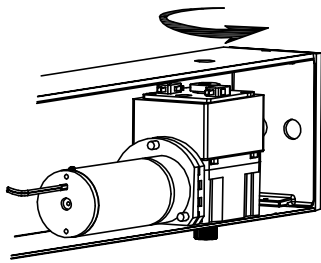
RH unit shown in all views. LH similar.



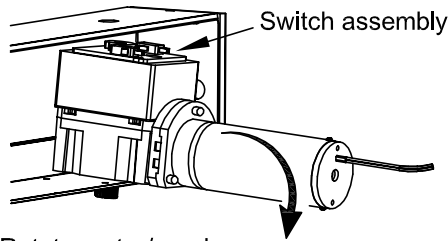
1) UNPLUG HARNESS FROM CONTROL BOARD

3) REMOVE FOUR 1/4-20 GEARBOX MOUNTING SCREWS

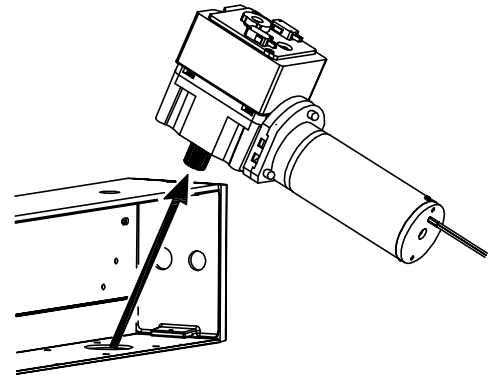
(views for reference only, component appearance & position may vary slightly)



Rotate motor/gearbox out of enclosure



Rotate motor/gearbox down being careful not to let switch assembly hit enclosure

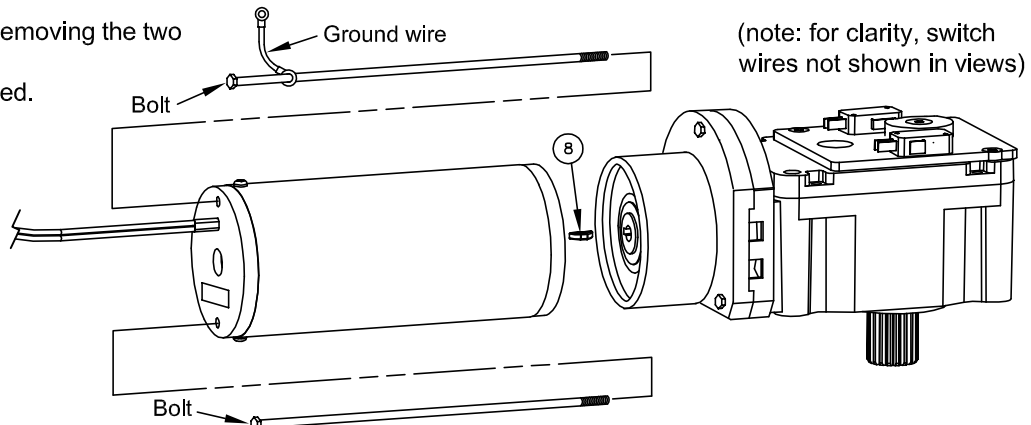


Pull motor/gearbox clear of enclosure

(note: for clarity, switch wires not shown in views)

**MOTOR SHAFT KEY REPLACEMENT:**

Separate motor from gearbox by removing the two bolts as shown at right. Some gentle prying may be required.

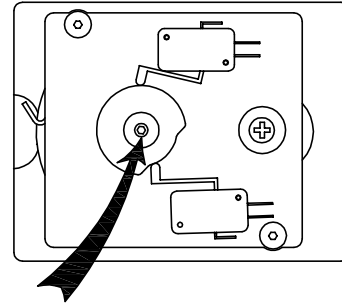
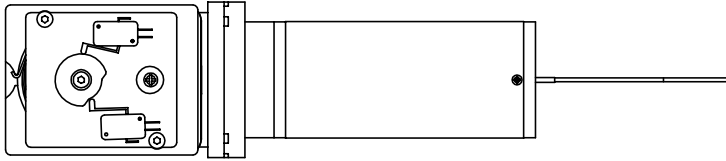


(note: for clarity, switch wires not shown in views)

Examine motor shaft for excessive wear in key slot. Replace motor if necessary. Replace 1/8" Woodruff key. Apply a light grease to shaft to inhibit rust. Reassemble motor to gearbox. Pay close attention to key when aligning. Key may push out. When assembled, use power arm to rotate gearbox and be sure motor rotates. If motor 'locks up' or does not rotate, separate motor & reinsert key and reassemble motor to gearbox. Retest.

**CAM REPLACEMENT:**

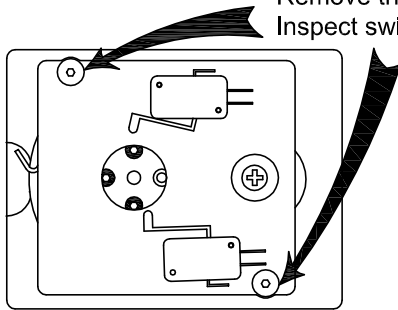
Position the unit with the motor to the right as shown below



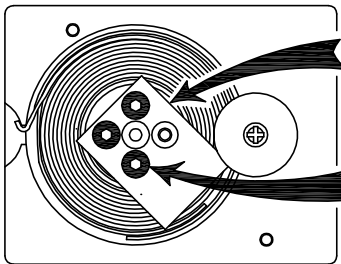
Mark Cam position. If no parts are broken this will aid in the reassembly process.  
Remove the 1/8" 10-32 Allen head Cam screw.  
Remove the Cam and replace if damaged or modified.

**MICROSWITCH PLATE AND HARNESS REPLACEMENT:  
(Cam must be removed before plate removal)**

Remove the two 1/8" 10-32 Allen head mounting screws and lift off the Microswitch plate.  
Inspect switches and replace assembly if necessary.



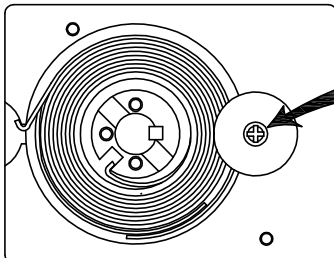
**SQUARE STOP REPLACEMENT:**



Note plate orientation and screw placement.  
**RH unit shown**

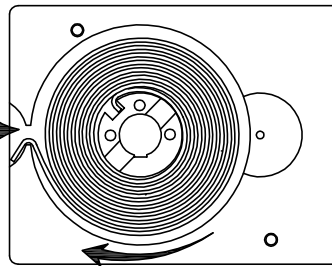
Remove the three 10-32 Allen head mounting screws and remove the Square Stop Plate.  
Inspect for damage and replace if necessary.

**ROUND STOP REPLACEMENT:**



Remove the 10-32 screw and two Round Stops.  
Inspect and replace if damaged.

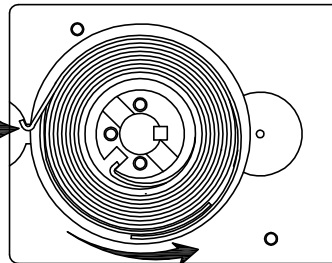
Note CLOCK SPRING orientation BEFORE removing



LH unit shown

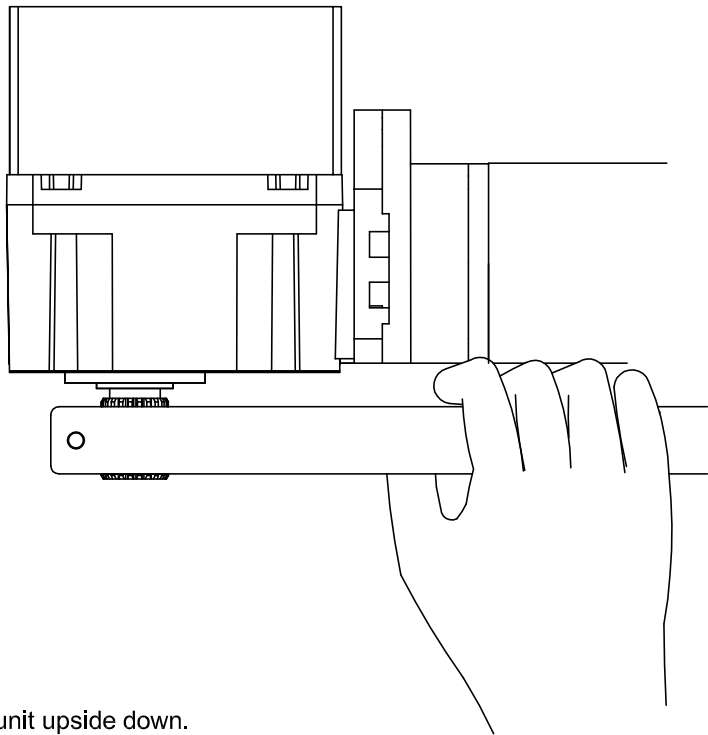
**CLOCK SPRING REPLACEMENT:**

Note CLOCK SPRING orientation BEFORE removing

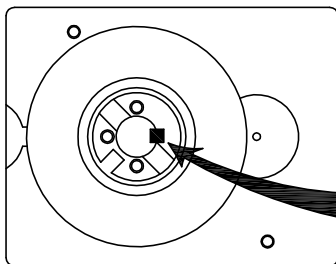


RH unit shown

Reattach the operator arm to unwind the Clock Spring until it can be lifted out.  
 Turn in direction shown (opposite for LH).  
**CAUTION:** If the spring is broken it will need to be pried out.  
 The spring does not expand more than approximately 3/8".

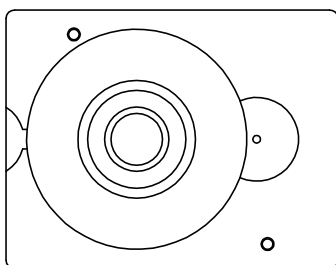


**SHAFT AND ARBOR REPLACEMENT:**

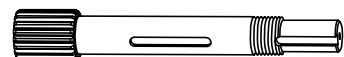


To replace the shaft, turn unit upside down.  
 Tap the top on a hard surface or carefully tap the SPLINED end of the shaft with a flat face hammer until the key from the Arbor and the Shaft can be removed.  
 If this fails, drill with 1/8" drill bit, insert an easy-out (a small screw may work) and pull key out.

Remove Key



Unscrew Arbor from Shaft.  
 Inspect keyway and screw holes for damage.  
 Replace if necessary.



Drop Shaft out from the splined end.  
 Inspect for straightness.  
 Inspect the keyway for wear.  
 Replace if necessary

**REASSEMBLY:**

To set the gearbox to open to 90°, the Stop Plate must be modified. **DO NOT** replace the Shaft Key into the shaft or the spring at this time.

Rub a small amount of oil on the new Shaft to inhibit rust.

Install new Shaft into gearbox.

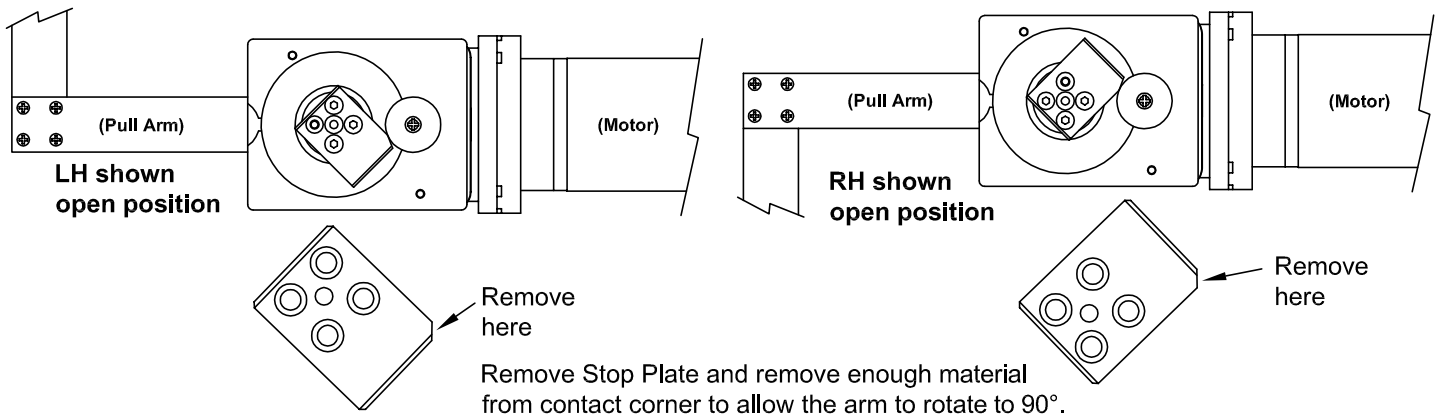
Screw Arbor down until it bottoms out and reverse until the new key can be inserted.

Review HANDING DIAGRAM (see page 7) to determine the correct Spring & Arbor position.

Reassemble the Stop Plate to the Arbor per views below (see page 7 also).

Replace Round Stops.

Attach the Pull Arm assembly so the short portion is parallel with the operator, opposite of the motor. If the arm is over-rotated, remove it from shaft and reattach to the one position less than 90°.



Insure there is solid contact between the Stop Plate and the Round Stop at the meeting point.

Once satisfied with the open position, mark the shaft and the Arm for future position reference.

Remove Round Stops, Stop Plate, Arbor & Shaft.

Insert Shaft Key and reinstall Shaft.

Screw Arbor down until it bottoms out and reverse until the new key can be inserted. (see page 7)

Install the spring (see page 7). Insure the outer grips are seated. Rotate to preload spring 1/2 turn and allow spring to return to relaxed position.

Assemble Stop Plate (see page 7).

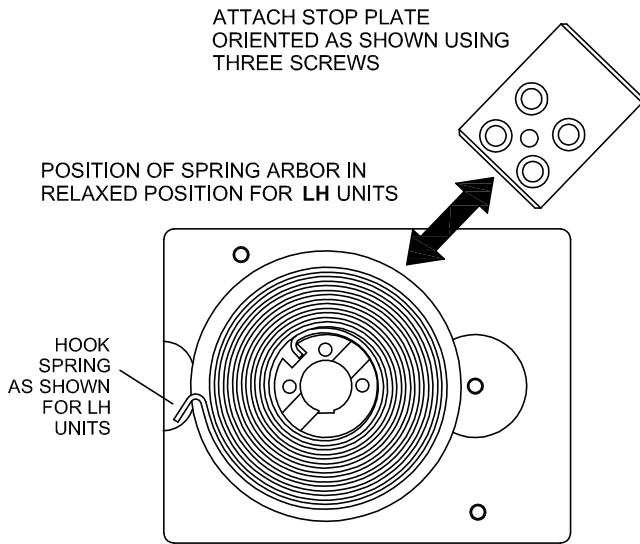
Assemble round Stops.

Attach Microswitch plate and harness.

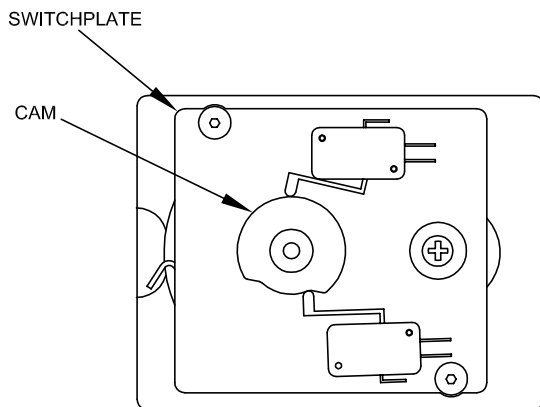
Set Cam (see page 7). Final adjustment to Cam can be made after unit has been reinstalle

# NOTES FOR ASSEMBLING SPRING, ARBOR AND CAM:

## FOR LH UNITS

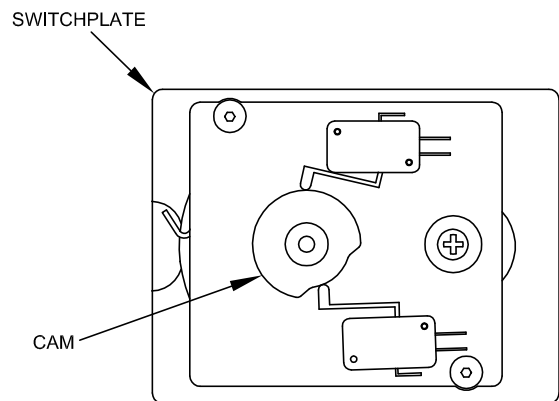
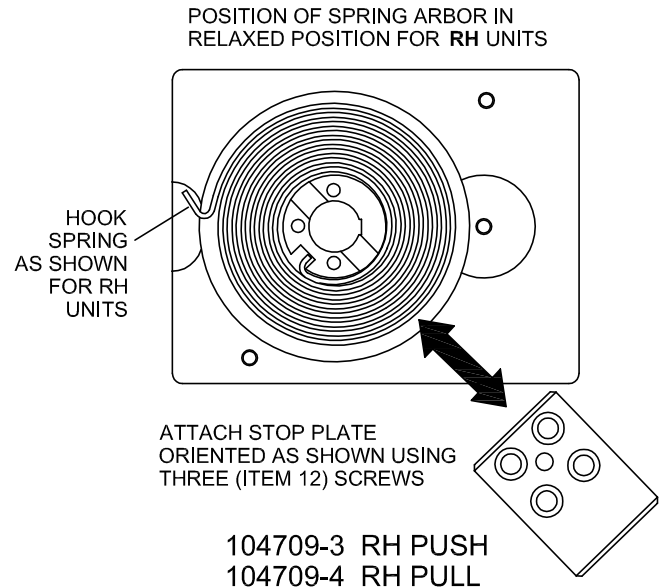


104709-1 LH PUSH  
104709-2 LH PULL



CAM ORIENTATION  
IN FULL OPEN  
POSITION  
104709-1 LH PUSH  
104709-2 LH PULL

## FOR RH UNITS



CAM ORIENTATION  
IN FULL OPEN  
POSITION  
104709-3 RH PUSH  
104709-4 RH PULL