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) 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:

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

Parts below (identified by □) also sold separately:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>P/N</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1</td>
<td>12602</td>
<td>Spring Casting</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>12601</td>
<td>Gearbox</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>12600</td>
<td>1/8 HP Motor</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>12610</td>
<td>MFM Bolt</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>104706</td>
<td>Microswitch Harness Subassy</td>
</tr>
</tbody>
</table>

For device installation videos, scan code below or go to detex.com

Owner's Copy
TOOLS REQUIRED:
- Safety glasses
- 1/8" Allen wrench
- Slotted screwdriver
- Hammer
- Needle nose pliers
- 5/16" nut driver
- #2 Phillips screwdriver
- #3 Phillips screwdriver

SWITCH HARNESS CONNECTION:

<table>
<thead>
<tr>
<th>WIRE COLOR</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLUE</td>
<td>Latch Switch COM</td>
</tr>
<tr>
<td>GRAY</td>
<td>Latch Switch N C</td>
</tr>
<tr>
<td>BROWN</td>
<td>Backcheck Switch N C</td>
</tr>
<tr>
<td>ORANGE</td>
<td>Backcheck Switch COM</td>
</tr>
</tbody>
</table>

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)

1) UNPLUG HARNESS FROM CONTROL BOARD
2) REMOVE MOTOR GROUND SCREW
3) REMOVE FOUR 1/4-20 GEARBOX MOUNTING SCREWS

(RH unit shown in all views. LH similar.)

(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.

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.
CLOCK SPRING REPLACEMENT:

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.

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:

Rub a small amount of oil on the new Shaft to inhibit rust. Install new shaft key and reinsert 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 and drop in new spring. Rotate the shaft using the operator arm to tighten the spring. Rotate about 1/2 turn. The spring grips must seat into the spring housing. Allow spring to slowly unwind.

Refer to HANDING DIAGRAM for proper placement of Square Stop and install the three screws. Replace Round Stops and Switch Plate.

Refer to HANDING DIAGRAM for the Cam setting. Final adjustment to Cam can be made after unit has been reinstalled and attached to the door leaf.
NOTES FOR ASSEMBLING SPRING, ARBOR AND CAM:

FOR LH UNITS

ATTACH STOP PLATE ORIENTED AS SHOWN USING THREE SCREWS

POSITION OF SPRING ARBOR IN RELAXED POSITION FOR LH UNITS

HOOK SPRING AS SHOWN FOR LH UNITS

104709-1 LH PUSH
104709-2 LH PULL

FOR RH UNITS

POSITION OF SPRING ARBOR IN RELAXED POSITION FOR RH UNITS

HOOK SPRING AS SHOWN FOR RH UNITS

ATTACH STOP PLATE ORIENTED AS SHOWN USING THREE (ITEM 12) SCREWS

104709-3 RH PUSH
104709-4 RH PULL

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

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