

Instructions for Changing Operator Hand/Spring

CHANGING OPERATOR HAND/SPRING

(as per reference G.700.22 in 7000 Instruction Manual)

A. GENERAL—These instructions are provided for two purposes:

- (1) To change operator hand or spring
- (2) Replace a broken spring

The Series 7000 operator is versatile. It is non-handed, which means the operator can be used for RH, RHR, LH, and LHR.

Gear train assembly C7100 is a complete unit that is mounted to the universal base plate which becomes the mounting chassis to secure the operator in the cover or to the wall. All operators manufactured after 1981 are the universal type.

Caution: When mounting the gear train to the universal base plate you must use *Loctite™* on the threads of the mounting bolts so they can not work loose.

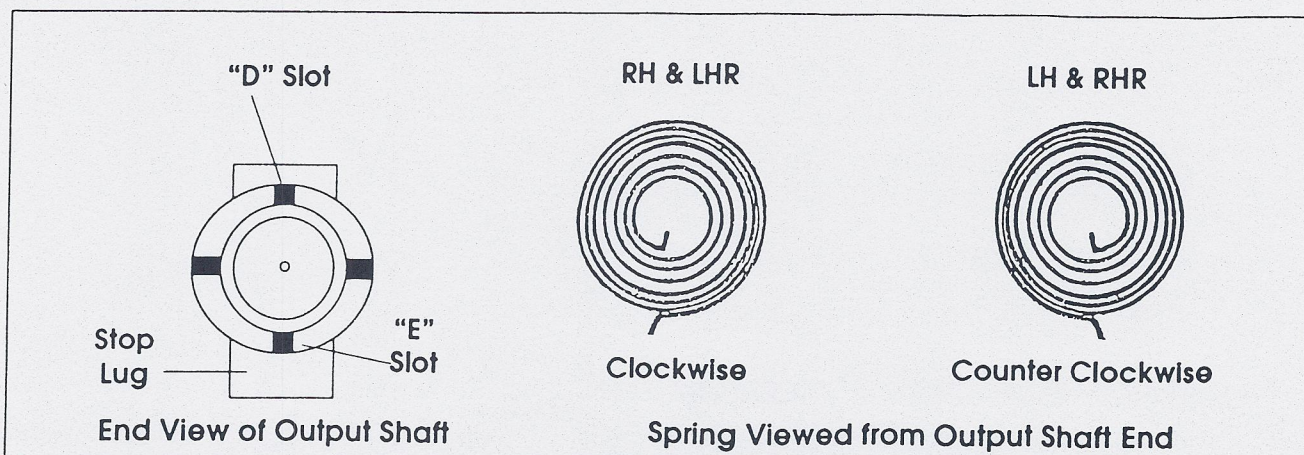
B. SPRING REPLACEMENT

To replace a broken spring, follow instructions C. Operator Hand Change LH to LHR.

C. OPERATOR HAND CHANGE LH (inswing) to LHR (outswing)

Same hand but requires spring and motor leads to be reversed to change the direction of the swing.

1. Clamp the base plate of the LH operator gear train assembly in a vise, with operator output shaft facing up.
2. Slide an arm on the operator output shaft and manually rotate arm approximately 1/4 turn and hold in that position.
3. Remove chassis stop mounting screw 25 and allow closing spring to slowly unwind and push out the chassis stop 26. Remove the chassis stop and the arm.
4. Remove the two lower bearing mounting plate bolts 23.
5. Remove the two assembly bolts 11 and 12 that join the lower bearing plate to the middle bearing plate through the spacers.
6. Remove the lower bearing plate 13 without removing the closing spring. Note that the closing spring is wound counter-clockwise and that the inner spring hook is in the "D" slot in the output shaft 32. (An "E" spring must be hooked into the "E" spring slot in the output shaft.)





7. Manually rotate the operator output shaft **32** until outer spring hooks release from spring retainer bracket **27**.
8. Remove closing spring **15** and reverse it so that it is wound clockwise. Reinstall the inner spring hook in the "D" spring slot in the output shaft **32**. (An "E" spring must be hooked into the "E" spring slot in the output shaft.)
9. Reinstall lower bearing plate **13** and secure with assembly bolts **11 and 12** and lower bearing mounting bolts **23**.
10. Slide an arm on the operator output shaft **32** and manually rotate the shaft until the outer spring hooks clip into the spring retainer bracket **27**. Now rotate the shaft one full turn (360°) and hold in that position.
11. Install chassis stop **26** and secure with mounting screw **25**.
12. Allow arm to slowly counter-rotate until the stop lug on the output shaft rests against the chassis stop **26**. The spring is now pre-loaded for most general applications.
13. Reverse motor leads at potentiometer.

D. OPERATOR HAND CHANGE RH (inswing) to RHR (outswing)

1. To change **RH** to **RHR**, all steps are identical to steps in **E**. **except** reverse winding of closing spring from clockwise to counter-clockwise.

E. OPERATOR HAND CHANGE RH (inswing) to LHR (outswing)

To change operator hand but not spring direction, move gear train to opposite end of universal mounting base plate and reverse motor leads.

1. Clamp the base plate of the **RH** operator gear train assembly in a vise, with operator output shaft facing up.
2. Slide an arm on the operator output shaft **32** and manually rotate arm approximately 1/4 turn and hold in that position.
3. Remove chassis stop mounting screw **25** and allow closing spring to slowly unwind and push out the chassis stop **26**. Remove the chassis stop and the arm.
4. Disconnect all plugs from the C7160 control and remove the control from the base plate **1**.
5. Remove 120 VAC junction box from base plate (if installed).
6. Remove face plate mounting clip installed below control on base plate.
7. Remove closing speed potentiometer **7** by removing mounting screws.
8. Loosen two screws **38** securing check switch mounting bracket **37** and slide bracket from slots.
9. Remove wire guide **9** installed on front of gear train assembly.
10. Remove seven bolts **23** securing upper and lower bearing plates to base plate. Set gear train aside.
11. Remove two mounting bolts **24** from spring retainer bracket **27** and relocate bracket to opposite end of operator base plate. Install mounting bolts and tighten.
12. Install gear train assembly at same end as relocated spring retainer bracket **27**. Use seven mounting bolts **23** to secure to base plate. Note that motor assembly is nearest center of operator base plate.

13. Install check switch mounting bracket **37** using the two slots in the bracket that are furthest away from the base plate. Remove two check switch mounting screws **36** and reposition check switches **35** with their connectors facing operator base plate. Reinstall spacers **40** and mounting screws **36**.
14. Reinstall closing speed potentiometer **7**.
15. Reinstall wire guide **9** on front of gear train assembly.
16. Reinstall 120 VAC junction box on base plate (if installed).
17. Install face plate mounting clip below position where control will be located.
18. Install C7160 control and connect all plugs.
19. Slide an arm on the operator output shaft **32** and manually rotate the shaft until the outer spring hooks clip into the spring retainer bracket **27**. Now rotate the shaft one full turn (360°) and hold in that position.
20. Install chassis stop **26** and secure with mounting screw **25**.
21. Allow arm to slowly counter-rotate until the stop lug on the output shaft rests against the chassis stop **32**. The spring is now pre-loaded for most general applications.
22. It will be necessary to adjust the back-check cam (top) and the latch-check cam (bottom) when the operator is installed.

F. OPERATOR HAND CHANGE LH (inswing) to RHR (outswing)

1. To change from LH to RHR all steps are similar to **G**. Gear train assembly is transferred to opposite end of base plate.

G. OPERATOR HAND CHANGE LHR (outswing) to RHR (outswing)

Changing both operator hand and spring direction requires moving the gear train to the opposite end of the universal mounting base plate and reversing motor leads.

1. Clamp the base plate of the LHR operator gear train assembly in a vise, with operator output shaft facing up.
2. Slide an arm on the operator output shaft **32** and manually rotate arm approximately 1/4 turn and hold in that position.
3. Remove chassis stop mounting screw **25** and allow closing spring to slowly unwind and push out the chassis stop **26**. Remove the chassis stop and the arm.
4. Disconnect all plugs from the C7160 control and remove the control from the base plate **1**.
5. Remove 120 VAC junction box from base plate (if installed).
6. Remove face plate mounting clip installed below control on base plate.
7. Remove closing speed potentiometer **7** by removing mounting screws.
8. Loosen two screws **38** securing check switch mounting bracket **37** and slide bracket from slots.
9. Remove wire guide **9** installed on front of gear train assembly.
10. Remove the two lower bearing mounting plate bolts **23**.
11. Remove the two assembly bolts **11** and **12** that join the lower bearing plate to the middle bearing plate through the spacers.

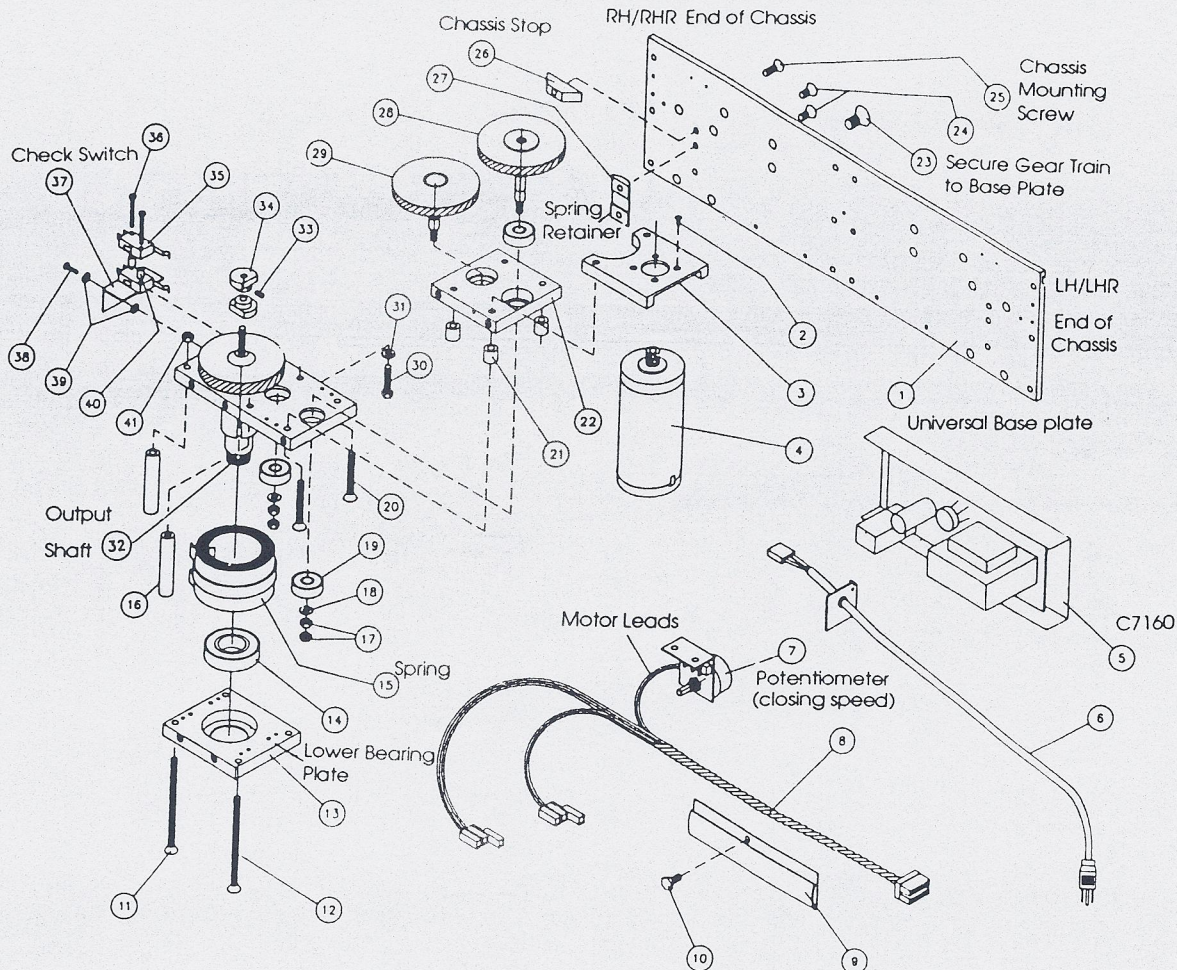


12. Remove the lower bearing plate **13** without removing the closing spring. Note that the closing spring is wound clockwise and that the inner spring hook is in the "D" slot in the output shaft **32**. (An "E" spring must be hooked into the "E" spring slot in the output shaft.)
13. Manually rotate the output shaft **32** until outer spring hooks release from spring retainer bracket **27**.
14. Remove closing spring **15** and reverse it so that it is wound counter-clockwise. Reinstall the outer spring hook in the "D" spring slot in the output shaft **32**. (An "E" spring must be hooked into the "E" spring slot in the output shaft.)
15. Reinstall lower bearing plate **13** and secure with assembly bolts **11** and **12**.
16. Remove the remaining five bolts **32** securing upper and lower bearing plates to base plate. Set gear train aside.
17. Remove two mounting bolts **24** from spring retainer bracket **27** and relocate bracket to opposite end of operator base plate. Install mounting bolts and tighten.
18. Install gear train assembly at same end as relocates spring retainer bracket **27**. Use seven mounting bolts **23** to secure to base plate. Note that motor assembly is nearest center of operator base plate.
19. Install check switch mounting bracket **37** using the two slots in the bracket that are furthest away from the base plate. Remove two check switch mounting screws **36** reposition check switches **35** with their connectors facing operator base plate. Reinstall spacers **40** and mounting screws **26**.
20. Reinstall closing speed potentiometer **7**.
21. Reinstall wire guide **9** on front of gear train assembly.
22. Reinstall 120 VAC junction box on base plate (if installed).
23. Install face plate mounting clip below position where control will be located.
24. Install C7160 control and connect all plugs.
25. Slide an arm on the operator output shaft **32** and manually rotate the shaft until the outer spring hooks clip into the spring retainer bracket **27**. Now rotate the shaft on full turn (360°) and hold in that position.
26. Install chassis stop **26** and secure with mounting screw **25**.
27. Allow arm to slowly counter-rotate until the stop lug on the output shaft rests against the chassis stop **26**. The spring is now pre-loaded for most general applications.
28. Reverse motor leads at potentiometer.
29. It will be necessary to adjust the back check cam (top) and the latch check cam (bottom) when the operator is installed.

H. OPERATOR HAND CHANGE RHR to LHR

1. To change from **RHR** to **LHR** all steps are similar to **G**. **except** reverse winding of closing spring from counter-clockwise to clockwise. Gear train assembly is transferred to opposite end of base plate.

SERIES 7000 GEAR TRAIN ASSEMBLY DIAGRAM



C7100-2 Series 7000 Gear Train Assembly

1	C7012-2	OPERATOR BASE PLATE	1	22	C7130-1	UPPER BEARING PLATE	1
2	C2187	SCREW 6-32 X 3/8" FHMS	4	23	C7089	BOLT 5/16-18 X 1/2" FHSCS	7
3	C7117	MOTOR MOUNTING BRACKET	1	24	C850A	BOLT 1/4-20 X 1/2" FHMS	2
4	C7115-1	MOTOR ASSEMBLY	1	25	C879R	BOLT 1/4-20 X 3/4" FHSCS	1
5	C7160-3	OPERATOR CONTROL	1	26	C7037	STOP CHASSIS MOUNT	1
6	C7150	POWER CORD ASSEMBLY	1	27	C4028	SPRING RETAINER BRACKET	1
7	C4165	POTENTIOMETER (PART OF C9156)	1	28	C7111	1ST TRANSFER SHAFT ASSY	1
8	C9156	OPERATOR WIRING HARNESS	1	29	C7113-2	2ND TRANSFER SHAFT ASSY	1
9	C7083-1	WIRE GUIDE	1	30	C576	BOLT 1/4-20 X 1 1/2" HHMS	1
10	C4056	BOLT 5/16-18 X 1/2" HHMS	1	31	C483	LOCK WASHER 1/4" SPLIT	1
11	C7078	BOLT 1/4-20 X 4" FHMS	1	32	C7020-4	OUTPUT SHAFT ASSEMBLY	1
12	C7079	BOLT 1/4-20 X 4 1/2" FHMS	1	33	C5192	BOLT 10-24 X 3/16" SSS	2
13	C7132	LOWER BEARING PLATE	1	34	C7024-1	CHECK SWITCH CAM	2
14	C7063	BEARING 1"ID X 2"OD	1	35	C2106	MICROSWITCH	2
15	C7050	CLOSING SPRING #D	1	36	C7081	SCREW 4-40 X 1-1/4" BHMS	2
16	C7043-1	SPACER 1/2" OD X 2 1/2"	2	37	C7027	SWITCH MOUNTING BRACKET	1
17	C7044	NUT 1/4-28 HEX LOCK	4	38	C410	BOLT 8-32 X 1/2" HHMS	2
18	C7036	WASHER - SHAFT RETAINER	2	39	C7058	WASHER #8 BRASS	4
19	C4061	BEARING 3/8"ID X 1 1/8"OD	3	40	C8201	SPACER 1/4"OD X 5/16"	2
20	C7066-1	BOLT 1/4-20 X 1 3/4" FHMS	2	41	C404	NUT 1/4-20 HEX	1
21	C7029-1	SPACER 1/2" OD X 1/2"	4				