

# **Crown Industrial Operators**



GENERAL INSTALLATION, OPERATION, MAINTENANCE, and PARTS MANUAL for your



1285 SLIDE GATE OPERATOR Model "E"

Crown Industrial Operators (formerly manufactured by Richards-Wilcox) 213 Michelle Ct. So. San Francisco, CA 94080

**G-1000** 



A. PURPOSE: This Crown Industrial Operators Installation, Operation, Maintenance and Parts Manual has been developed to assist you in the installation, operation, and maintenance of your electric operator, and thus enable you to utilize it to its maximum efficiency.

B. MODELS COVERED: At the time this manual is issued to you, it covers the current Model 1285, and contains the latest information and data available. The parts pages have been prepared so that you can easily determine the parts contained in your electric operator.

#### C. DESCRIPTION:

(1) GENERAL: The 1285 electric operator consists of an instantly reversible gearmotor, disc brake, a safety friction disc clutch, an emergency release which can be locked open or closed, a reversing starter with overload protection and a fully automatic limit switch. This unit is compact, easy and economical to install, and is completely wired at the factory. (Figure 1) All items are mounted on a heavy steel base and are protected by a weather resistant cover with padlock attachment.

(2) GEARMOTORS: The standard 1285 Operator is furnished with 1 1/2, 2, 3 or 5 H.P. gearmotors.



These gearmotors are available in single phase; however, three phase current is highly recommended for best all around performance.

#### 2. INSTALLATION AND OPERATION

#### A. GENERAL

(1) The Crown Industrial Operators 1285 electric gate operators have been field proven for dependable, trouble free operation of sliding gates. Four basic applications are shown in Figure 2a, b, c & d. To insure correct installation and proper operation, follow the instructions listed below.

(2) CHECK THE SHIPMENT: Included with the installation packet is a copy of the material specification sheet for the components supplied with the order. Check the components received with the material specification sheets to insure that all equipment is complete.

CHECK THE GATE: Before starting operator (3)installation, inspect to insure that the gate is in good working condition, slides freely, is rigidly supported, and has no obstructions to block or retard its slide.

REVIEW THE INSTALLATION DRAWING: The (4) installation drawing shows the layout of the gate, template drilling for the gate bracket and channel post, and general terms used to described components. Review of the drawing will familiarize you with the equipment.



(5) PREPARING THE GATE: The Electric Gate Operator powers the gate through the use of a single horizontal strand of heavy duty roller chain connected to a gate bracket on each end of the gate. Locate each bracket at the appropriate level, square with the gate and mount. Included with the operator will be one or more chain guide brackets. Mount the chain guide bracket at a height to suit that will clear the operator as it passes in front of it. Space the chain guide brackets accordingly.

#### **B. PREPARING THE MOUNTING CHANNEL**

(1) CONCRETE EMBEDDED TYPE: The channel post for support of the operator is an optional extra cost item. When furnished as an optional part of the operator equipment, it will be pre-drilled for the mounting of the operator.

NOTE: SUITABLE MOUNTING OF POST IS THE RESPONSIBILITY OF THE CUSTOMER AND/OR CONTRACTOR. THE POST MUST BE INSTALLED PLUMB AND IN EXACT POSITION.

(2) PAD MOUNTED TYPE: The pad mounted column for support of the Operator is available as an optional extra cost item. When furnished, they will be pre-drilled for mounting of the Operator and to the concrete pad.

#### NOTE: A SUITABLE MOUNTING PAD WITH (4) 3/4" DIAMETER. STUDS IS THE RESPONSIBILITY OF THE CUSTOMER AND/OR CONTRACTOR. THE PAD MUST BE LEVEL AND THE STUDS IN THE EXACT POSITION.

#### C. MOUNTING THE OPERATOR

(1) Remove the Electric Gate Operator from the crate and then remove the weather resistant cover by lifting it straight up and off.

(2) Raise the operator into position being sure the operator drive sprocket is on the side facing the gate. With the operator parallel to the gate, secure in place.

#### D. CONNECTION OF CHAIN

(1) Slide the operator release arm located on the end of the operator. Hold release arm in by placing a pin through the matching holes. Check to see if the drive sprocket is free to rotate.

(2) As noted on the red tag attached to the operator, thread the drive chain under the idler sprockets and over the drive sprocket.

(3) Connect the chain to the adjusting screws on each gate bracket and proceed to apply proper tension.

For correct chain tension the chain should sag at midspan, approximately 1% of the total free run of the chain.



CAUTION: EXCESSIVE CHAIN TIGHTNESS COULD CAUSE EXTREME WEAR ON THE IDLER SPROCKET BUSHINGS AND SHORTEN THEIR LIFE. CONVERSELY, A LOOSE CHAIN COULD JUMP THE DRIVE SPROCKET AND JAMB OR CHANGE GATE STOPPING POINTS.

#### E. WIRING THE OPERATOR:

(1) The operator itself is prewired and tested at the factory for a particular voltage and is marked as such. Check to insure your power source is the same. As shown on the wiring diagram from the packing list envelope, bring power and control leads to the operator and connect to the proper numbered terminals in the operator terminal box. BE SURE ALL POWER IS OFF.

#### F. PHASING OUT MOTOR

(1) Three Phase: With gate still free to move by hand, turn the power on. Using the left side reversing contactor for the left movement of the gate, and the right side contactor for the right movement of the gate, press on of the control buttons and note the direction that the clutch rotates. If the clutch rotates in the direction as though to power the gate to the right, then the right side contactor coil should be energized. If the coil on the left side contactor happens to be energized, for this right movement, exchange any two power leads. (2) Single Phase: The operator assembly is wired at the factory for correct phasing.

(3) Check both directions of travel several times to insure proper phasing of the motor. Incase the motor continues to run and the limit switches do not stop rotation, check the power source and review the wiring diagram.

#### G. ADAPTING CONTROLS:

(1) Using the left side contactor for the left movement of the gate, determine if the left movement will open or close the gate. Wire the corresponding open or close signal to terminal #8 in the operator terminal box.

(2) Using the right side contactor for right movement of the gate, wire the opposite cycle signal to terminal #9 in the operator terminal box.

## H. PRELIMINARY ROTARY LIMIT SWITCH ADJUSTMENT

#### (1) DESCRIPTION

This rotary limit switch is designed to accurately control the end limits of gate travel provided by the electric gate operator. The limit switch input shaft drives a worm and worm gear which in turn drives the nylon cams through spur gears. (See Figure 10). Each precision limit switch unit is actuated by a cam lobe on its individual nylon cam. This switch is provided with both rough and fine adjustments. The rough adjustment is accomplished by the rotational positioning of the nylon cam lobe in respect to its limit switch unit. The fine adjustment is accomplished by linear adjustment of the limit switch unit in respect to its cam lobe.

#### (2) WIRING

The rotary limit switch should be wired to the electric operator control circuit with the limit switch unit closest to the limit switch input shaft (Mark "A") controlling the right movement of the gate and, the limit switch unit farthest from the input shaft of the limit switch (Mark "B") controlling the left movement of the gate. See Figure 12 for determining right and left movement of gate when standing on the gate side of the opening. See Figure 12 for determination of limit switch Mark "A" and Mark "B".





Figure 12.

#### (3) PREPARATION FOR ADJUSTMENT

(a). DISCONNECT THE ELECTRICAL POWER SUPPLY TO THE ELECTRIC GATE OPERATOR.

(b). Remove the limit switch cover plate.

(c). Inspect the fine adjustment thumb wheels. An approximate 3/16" clearance should exist between the face of the wheel and its mounting post on limit switch unit "A". An approximate 1/16" clearance should exist between the face of the wheel and its mounting post on limit switch unit "B". If necessary, adjust the thumb wheels to these clearances.

#### (4). ROUGH ADJUSTMENT

(a). Manually slide the gate to the right until it reaches its full travel position.

(b). See Figure below. With the limit switch cover removed, loosen the cam locking screw "A" by turning it 360° in a counter clockwise direction.

(c). With tip of a screwdriver, rotate the limit switch cam "A" until the black indicating line "A" on the cam is positioned in the spotting slot "A" as shown in Figure below.

(d). Securely tighten cam locking screw "A" to properly seat lockwasher.

WARNING: DO NOT OVERTIGHTEN THIS SCREW SINCE OVER TORQUEING CAN DAMAGE THE LIMIT SWITCH CAM AND RESULT IN ERRATIC OPERATION OF THE LIMIT SWITCH.

(e) Manually slide the gate to the left until it reaches its full travel position.

(f). See Figure 14. Loosen the cam locking screw "B" by turning it 360° in the counterclockwise direction.

(g). With the tip of the screwdriver, rotate the limit switch cam "B" until the black indicating line "B" on the cam is positioned in the spotting slot "B" as shown in Figure 14.

(h). Securely tighten cam locking screw "B" to properly seat lockwasher.

WARNING: DO NOT OVERTIGHTEN THIS SCREW SINCE OVER TORQUEING CAN DAMAGE THE LIMIT SWITCH CAM AND RESULT IN ERRATIC OPERATION OF THE LIMIT SWITCH.

(i). Pull out the operator release lever to re-engage the operator's dog clutch.

WARNING!! SOME ELECTRICAL GATE OPERATOR CONTROL CIRCUITS CAN CAUSE IMMEDIATE GATE OPERATION UPON APPLYING POWER. INSURE THAT THE PATH OF THE GATE IS FREE FROM OBSTRUCTIONS AND PERSONNEL.

(j). Reconnect the electrical power supply to the electric gate operator. For final adjustment see section K.

#### I. SETTING THE CLUTCH

(1) The purpose of the clutch is to protect the equipment from shock loads that might be introduced into the system. Under normal operation the clutch will not slip. Therefore, the clutch should be adjusted to a sufficient torque that will allow the operator to start and stop the gate without any slipping. However, the clutch should not be so tight that it cannot slip under excessive loads.



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#### J. BRAKE ADJUSTMENT

(1) The brake has been preadjusted at the factory and requires no further adjustment at initial installation. When adjustment is required due to brake lining wear, follow the instruction sheet found in the starter enclosure.

#### K. FINAL ROTARY LIMIT SWITCH ADJUSTMENT

(1) With the controls provided, operate the gate so it slides to the right. You will note that the limit switch will stop the gate short of its intended full travel position.

(2) DISCONNECT THE ELECTRICAL POWER SUPPLY TO THE ELECTRIC GATE OPERATOR.

(3) See Figure 17. Rotate the thumbscrew "A" in a direction towards the limit switch input shaft. A complete turn of the thumbscrew will increase the gate travel by approximately six inches.

(4) Connect the electrical power supply to the electric gate operator.

(5) With the controls provided, operate the gate so it slides to the left. You will note that the limit switch will stop the gate short of its intended full travel position.



(6) DISCONNECT THE ELECTRICAL POWER SUPPLY TO THE ELECTRIC GATE OPERATOR.

(7) See Figure 18. Rote the thumbscrew "B" in a direction away from the limit switch input shaft. A complete turn of the thumbscrew will increase the gate travel by six inches.

(8) Connect the electrical power supply to the electric gate operator.

(9) Repeat steps one (1) through eight (8) until the end limits are accurately set for the desired end positions of the gate in each direction of its travel. Note that if during the fine adjustment, the gate should overtravel its desired end positions, the travel can be shortened by rotating the thumbscrews in the opposite direction given in steps three (3) and seven (7).

(10) Replace the limit switch cover.



Figure 18.

A. GENERAL: To insure that the electric operator is ready for operation at all times, it must be inspected systematically which will preclude serious damage or failure. Proper adjustment and lubrication must be maintained and checked as recommended below.

#### **B. LUBRICATION**

(1) LUBRICATION FOR GEARMOTOR

(a) Figure 18 shows the proper location of vent, oil level, and drain plugs.

(b) The gearunit is prelubricated and shipped with Mobil "SHC 634" synthetic lubricant. This oil is a lifetime lubricant rated for operation in ambient temperatures ranging from  $-40^{\circ}$ F to  $+ 125^{\circ}$ F.

(2) Every 900 cycles, where one cycle consists of opening and closing of the door, or every 3 months whichever comes first, clean and lubricate the chain with a SAE lubricant as required for ambient temperature.

**C. PREVENTIVE MAINTENANCE:** To prevent damage or improper operation, the following inspections should be made at least EVERY 6 MONTHS.

(1) Check oil level by removing the oil level plug. Oil should be up to the bottom of the plug hole.

(2) Check Tension of chain.



### Figure 18. Gearmotor Plug Locations

(3) Check all electrical components and wiring for tightness.

(4) Check clutch to see that it doesn't slip under normal operation.

- (5) Check all bolts and nuts for tightness.
- 4. PARTS

A. TO ORDER REPLACEMENT PARTS: Order all replacement parts using the number shown on the following parts list pages.

(1) SEND IN SERIAL NUMBER OF ELECTRIC OPERATOR.

(2) SPECIFY the number of pieces needed.

(3) Order by part number and name of part.

(4) State whether to ship by freight, truck, parcel post, or air express.

(5) State whether transportation charges are to be prepaid or collect.

(6) Give name and address of person or company to whom parts are to be shipped.

(7) Give name and address of person or company to whom invoice is to be sent.

**B. PARTS LIST:** The following pages list the replacement parts which are illustrated in Figures 19 and 20.





"Open" or "Close" contacts.





1 CLUTCH DIGGS 2 CLUTCH SPRING 0 CLUTCH BEARING 4 CLUTCH SPROCKET

1285 CLUTCH 3HP PART# 1285.103-2 HALF SCALE 3/26/94 INDUSTRIAL OPERATORS SO. SAN FRANCISCO. CA (415)952-5150

(1)578"x2" H.H.M. BOLT(4) W/L WASHERS & HEX NUT (5)1/2"SO × 1 1/2 FC KEA (3)3/8" × 3/4" A.H.SET SCR. MATERIAL LIST 4)3/8" × 1" A.H.SET SCR. 5)(2)3/4" L.WASH. & HEX NUTS PART NO. DESCRIPTION QUAN. (6)1/8"×1" RALL PIN OPER. BASE PLT. ASSEMBLY 1 1 (7)(2)1/4\*×1/2\* H.H.M. SCR 2 OPER. SADDLE 3 W/S.&L. WASHERS DRIVE SPROCKET #60 CHAIN 1 4 2 IDLER SPROCKET ASSY. (8)(4)#8×1″R.H.M. BOLT W/SHAKEPROOF 5 1 TIMING SPROCKET ASSSY. WASHER & #8 HEX. NUT. (4 EA) 6 JACKSHAFT 2" 7 2 IDLER AXLE (9)1/4"×3/8" R.M. SCR'S (4) W/STOCK WASHERS 8 LEVER STUD (10) #MP-32 BEARING 9 RELEASE LEVER 10 CLUTCH DRIVEN SPROCKET ASSY. (11)(2) 5/8"×1 3/4"H.H.M. SCR.W/L&S WASHERS 11 CLUTCH ENGAGEMENT HD. (12) 5/8" STOCK WASHER 12 CLUTCH DISC (13) 2"PLAIN WASHER (2) CLUTCH COLLAR 13 14 RETAINING RING (14) 3/8\*×1/2\* A.H.SET SCR 15 SPRING (15) (3) 5/16"×1 1/4" H.H.M.SCR W/L.WASHERS COLLAR STUDS 16 17 #MSF-32 BEARING (16)1/2"SQ.×1-1/2" LG. KEY 18 #MP-32 BEARING (17) 3/8"×1/2" A.H.SET SCREW 19 #1285.103-2 CLUTCH (18) 3/8"×3/4" A.H. SET SCR. (19) 1/2" SEALTITE CONDUIT PROVIDE OPERATOR SERIAL NUMBER HORSE POWER & VOLTAGE WHEN ORDERING PARTS SHEET: 2 DF 2 CROWN DESCRIPTION 1285 ELECTRIC OPERATOR ASSY. INDUSTRIAL SCALE: 1/8"=1" DRAWING NO. REV. DRAWN BY. DATE: **OPERATORS** BY:

CHECKED BY:

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ED-85790

SHEET

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DATE:

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REV.

BY:

7-29-97

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SO. SAN FRANCISCO. CA

(415)952 - 5150

# **MAINTENANCE INFORMATION**

(To Be Filled Out By User)

Operator Serial Number 1285-		<u></u> Н. <u>Р.</u>	
Supplied on CIO Order Number			
Power Supply	Volts	Hz	Phase
Installed At:		. Date:	
Notes:			
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