



# Traffic Control Barrier Operation & Service Instruction Manual

**Notice to Installer:**  
Give this manual to the owner  
for further references.

## THREE WAYS TO SERVE YOU BETTER DOORLEC MODELS TCBOs, TCBOA, TCBOd

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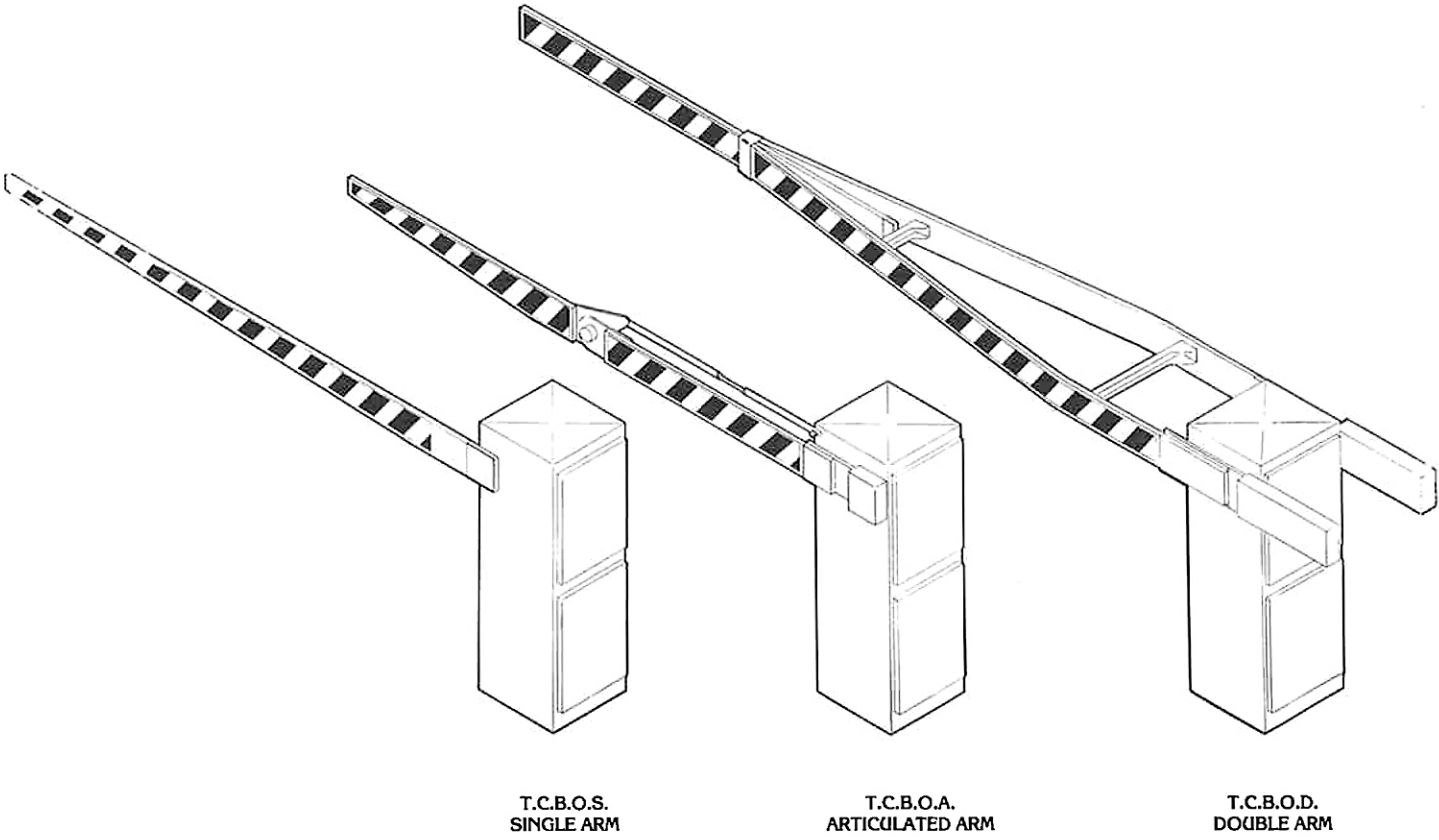
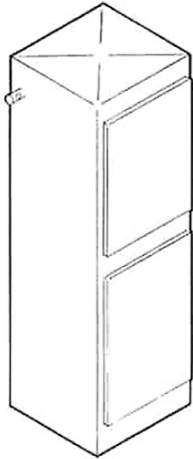


FIG. 1

**NOTE:** Unpack carton and check for possible damage. If damage in shipping is detected, file a claim with the freight carrier before proceeding further.

**BE SURE THAT PACKAGES CONTAIN THE FOLLOWING:**

**MODEL TCBO5**



OPERATOR ASSEMBLY

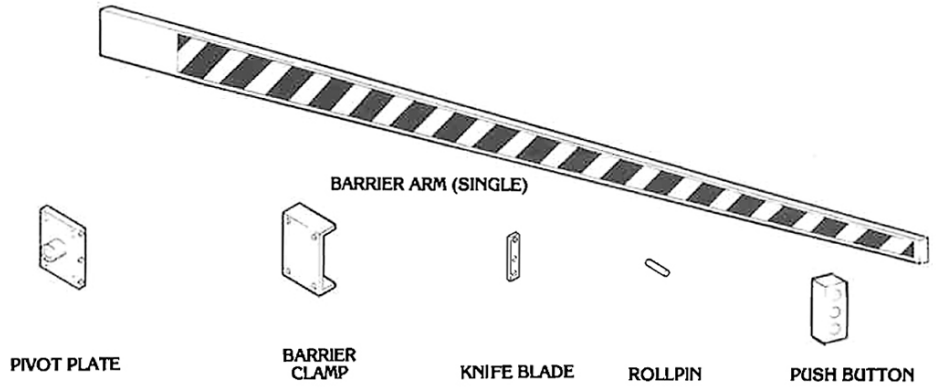
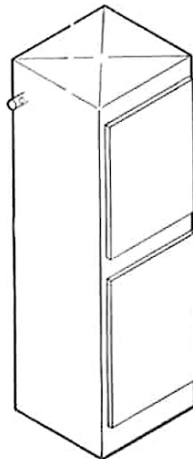


FIG. 2

PACKAGE OF HARDWARE, KEYS, ETC.

**MODEL TCBOA**



OPERATOR ASSEMBLY

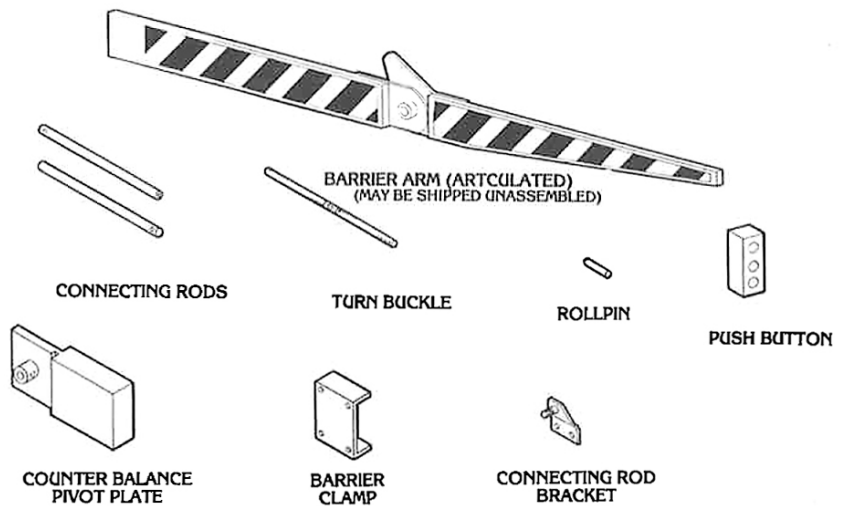
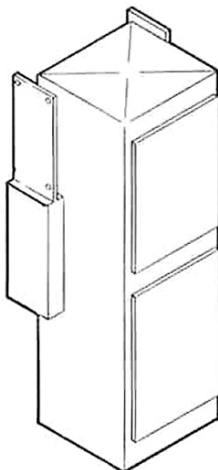


FIG. 3

PACKAGE OF HARDWARE, KEYS, ETC.

**MODEL TCBOD**



OPERATOR ASSEMBLY

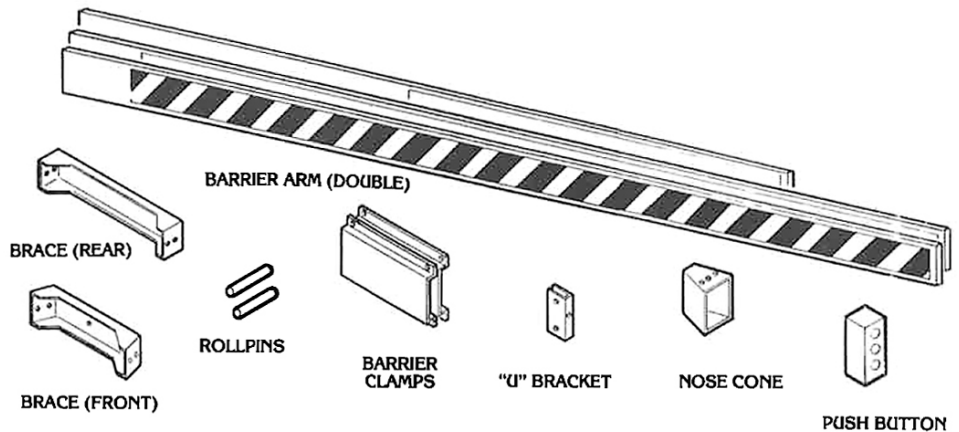


FIG. 4

PACKAGE OF HARDWARE, KEYS, ETC.

**NOTE:** The operator can be installed on the right or left side. The left and application is shown. The same instructions apply to a right hand application.

## BARRIER OPERATOR INSTALLATION

### STEP 1

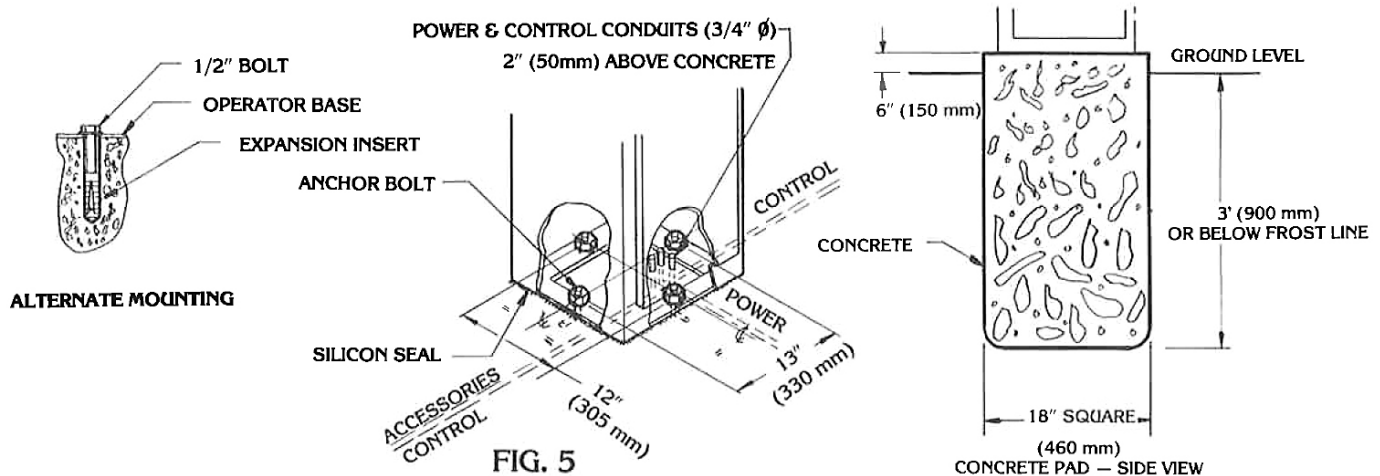
Construct a concrete base 18" × 18" × 3'0" min. or extend below frost line depending on local conditions. Rise base above grade 6" for drainage.

Install anchor bolts and electrical conduit in concrete (6" (150 mm) deep.

Template is available upon request.

Add a silicone seal under and around the mounting flange of the operator.

**IMPORTANT:** Do NOT run the POWER wires in the same conduit as the CONTROL wires.



### STEP 2

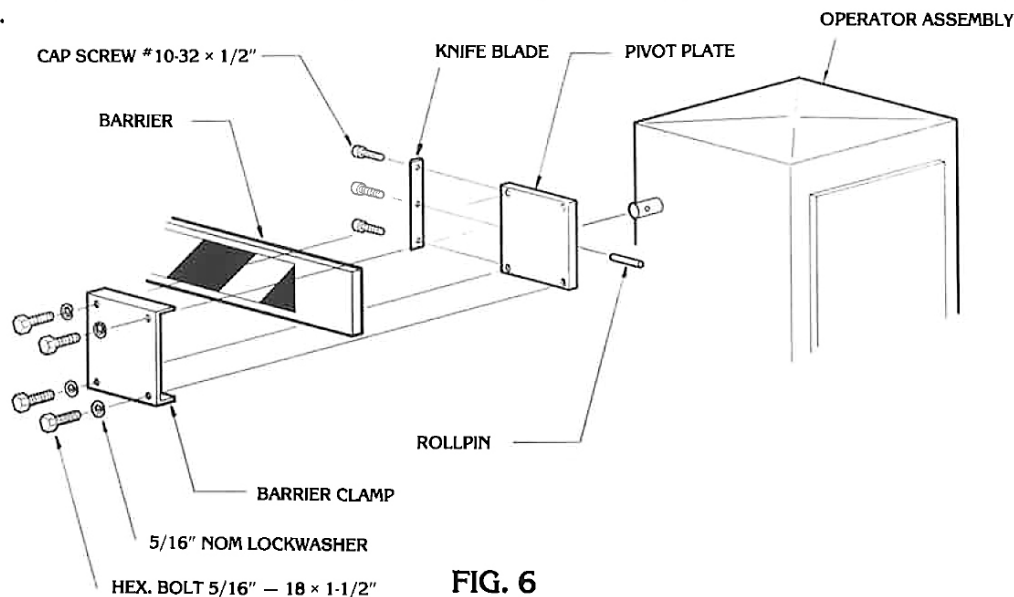
#### TCBOS — Single Arm Assembly

Assemble the pivot plate and knife blade so that the beveled edge of the blade protrudes beyond the thickness of the plate, so as to score the wood.

Attach the pivot plate to the out put shaft of the operator with the rollpin.

Clamp the wood in place with the wood protruding past the end of the pivot plate.

**NOTE:** Barrier will break at the knife blade when struck. To refit: — Loosen the barrier clamp, knockout the existing piece, slide barrier in place until it is protruding past the end of the pivot plate, tighten clamp.



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## TCBOA — Articulated Arm Assembly

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Assemble the barrier arm (tapered) to the pivot housing bracket & the pivot shaft bracket to the barrier arm (straight). Slide the pivot shaft in the pivot housing and secure in place with the retaining ring. Check to insure the top of the barrier forms a straight line. To adjust: — Slacken off the mounting bolts adjust and re-tighten.

Mount the connecting rod bracket to the operator, with the stud facing away from the operator.

Attach the counterbalance pivot plate to the operator output shaft with the rollpin.

Clamp the barrier to the counterbalance pivot plate. Assemble the connecting rods and attach them to the operator & pivot bracket. By rotating the turnbuckle, adjust the top of the tapered barrier arm to form a straight line with the straight barrier arm.

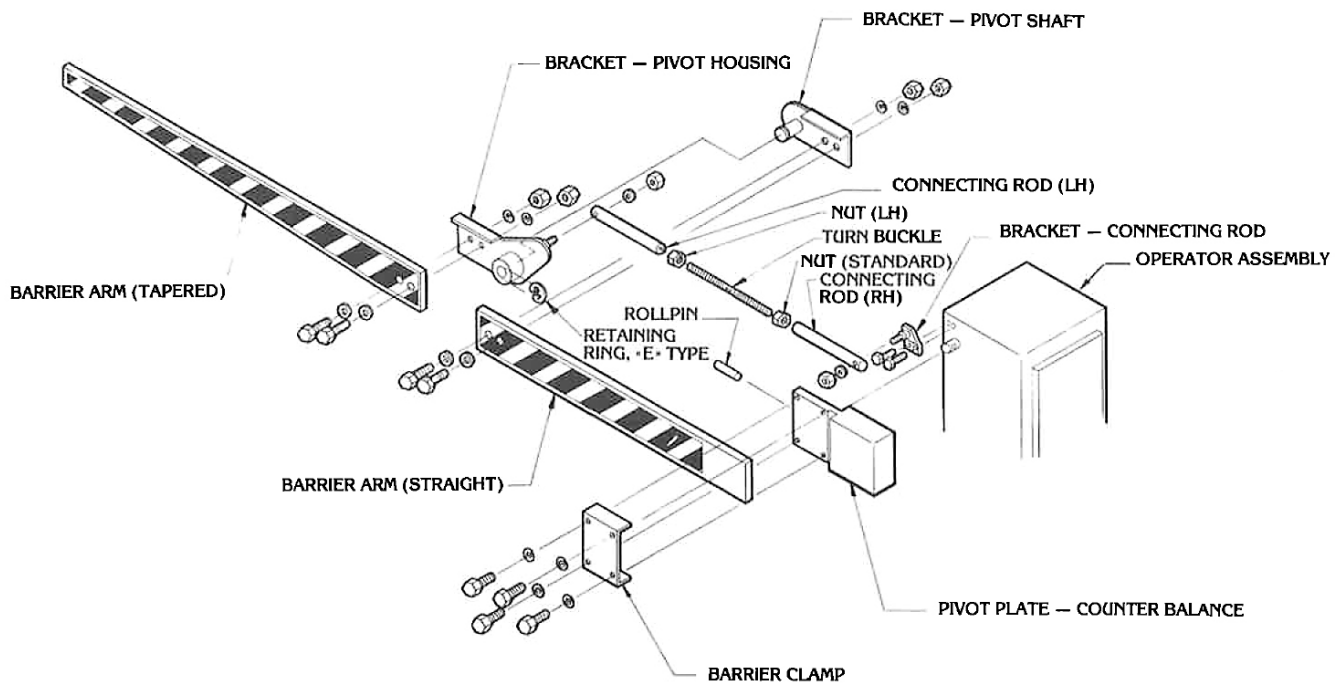


FIG. 7

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## TCBOD — Double Arm Assembly

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Attach the counterbalance pivot plates to the operator output shafts with the rollpins (if necessary).

Assemble the "U" bracket to the front brace, then the barrier extension. Do not tighten the extension hardware yet.

Clamp the barrier arms to the counterbalance pivot plates insuring that the arms are parallel and the ends are flush with the barrier clamps.

Slide the nose cone over the barrier extension assembly and install the front brace. Secure the nose cone to the extension and both barrier arms. Insure the top of the barrier forms a straight line, then tighten the extension hardware.

Install and secure the rear brace.

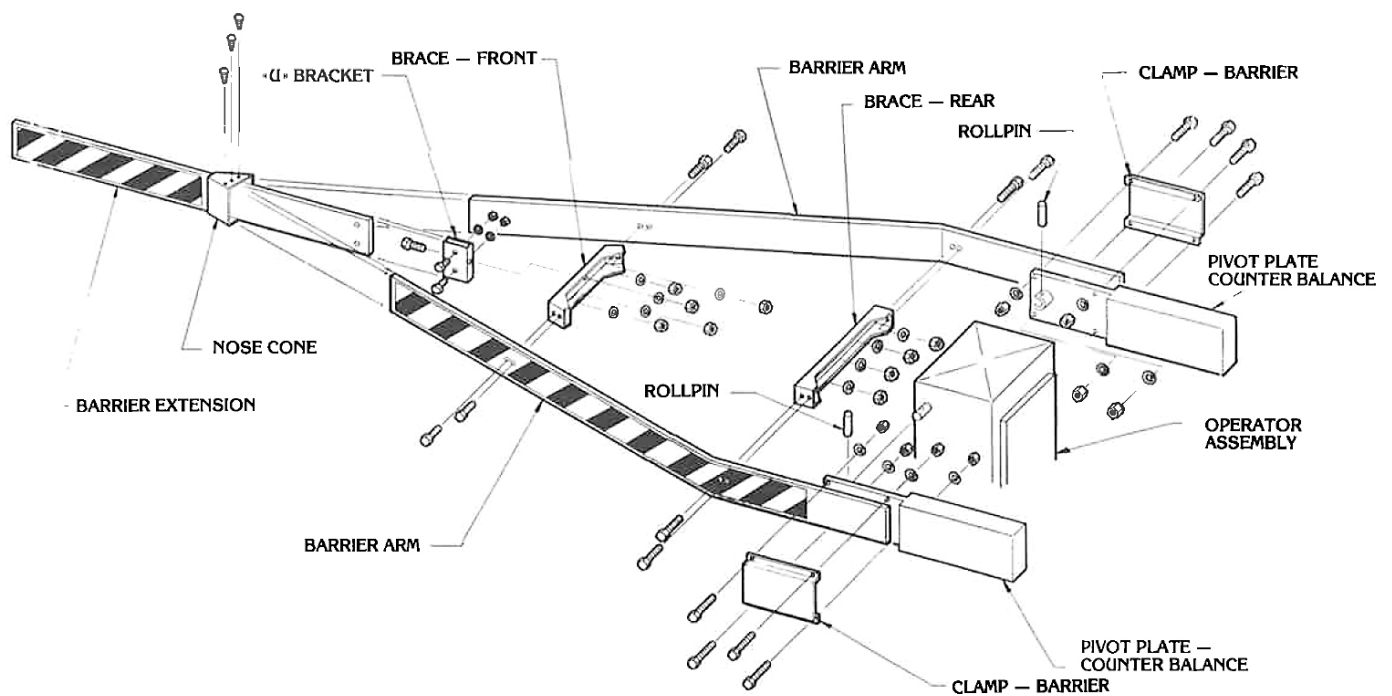


FIG. 8

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## ELECTRICAL CONNECTION

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### STEP 3

Remove the lower panel, connect all accessories and temporarily connect the push button. See the electrical data.

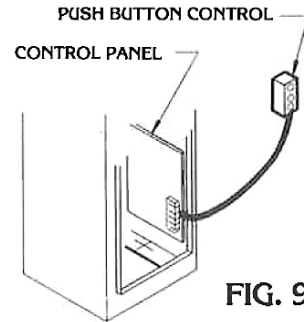


FIG. 9

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**NOTE:** Make sure operator is properly grounded.

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## OPERATING ADJUSTMENTS

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### STEP 4

Remove the upper panel. Adjust the belt tension by loosening the locking nut and turning the adjustment screw until the correct tension is obtained. Tighten the locking nut. (Repeat this operation after the initial run in. — About 2 weeks).

**NOTE:** To change the belt (#4L-320) loosen the adjustment screw until the belt can be removed easily. Replace the belt and adjust tension.

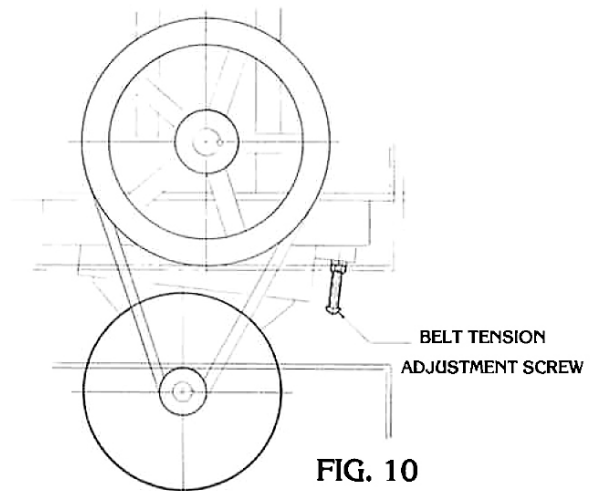


FIG. 10

### STEP 5

The preliminary setting of the cams and limit switches is done at the factory, due to shipping and handling the limit switches may need some fine adjustment. Disconnect the power source. Rotate the large pulley in a clockwise direction until the barrier is 10° degrees above horizontal, apply power and push the “close” push button; barrier should rotate downwards and stop at the horizontal position (be prepared to press the “stop” button just in case). (a) If the motor is three phase, the barrier may move in the wrong direction. Correct motor rotation will be obtained by interchanging any two of the three power line wires. (b) If the barrier rotates to the horizontal and raises; adjust the limit switch setting by rotating the close fine adjustment knob in a counter clockwise direction until the barrier stops in a horizontal position.

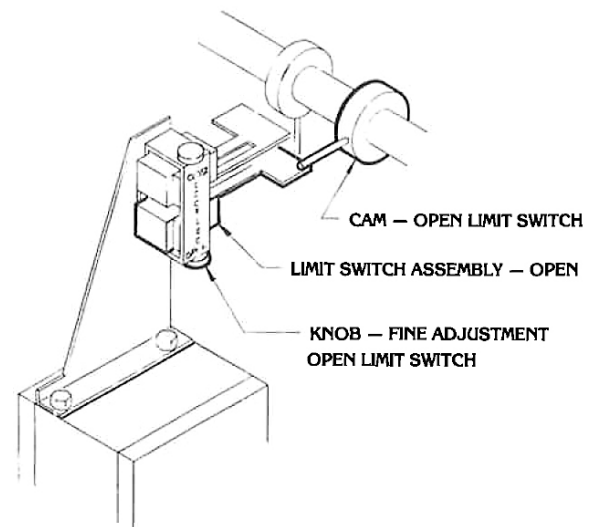


FIG. 11

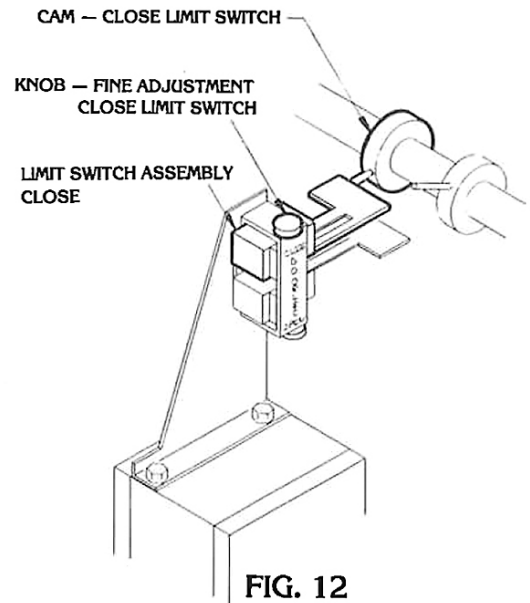
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## STEP 6

Press the open push button; barrier should rotate upwards and stop at the vertical position. (a) If the barrier stops before the vertical position; turn the open limit switch adjustment knob in a clockwise direction. (b) If the barrier rotates to the vertical position, hesitates, and returns to the horizontal position; turn the open limit switch adjustment knob in a counter — clockwise direction. (c) If the articulated arm does not form 90° with the vertical; adjust the close limit cam so the cam activates the close limit switch when the connecting bar (item 19 exploded view) forms a straight line between the barrier shaft lever. (item 26 exploded view) and the gearbox lever assembly (item 16 exploded view) with the center of the connecting bar in line with the center of the gearbox output shaft. Re-adjust the articulated arm as in step 2 TCBOA, then repeat steps 5 and 6. Replace the upper and lower panels, and install the push button.

### NOTE:

The exploded view is located at the end of these instructions.

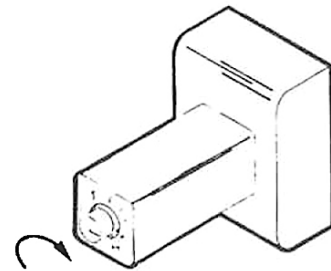


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## OPTIONAL EQUIPMENT

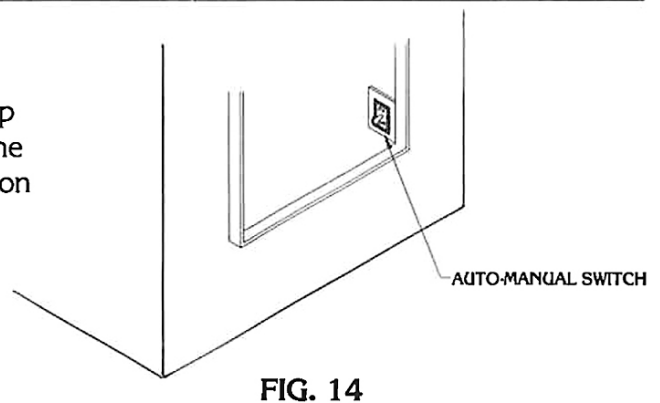
### Auto Timer (Optional)

Remove the lower panel. The auto timer is located on the main electric control panel. Rotating the dial, located on the top of the relay, in the direction of the arrow increases the delay. Rotating in the opposite direction reduces the time delay. Replace the lower panel.



### Auto — Manual, “on-off” switch (Optional)

Remove the lower panel. The switch is located on the lower right hand side. Flip up and the auto timer will automatically lower the barrier after a set time delay. Flip down to the “off” position and the operator returns to the manual mode and can only be operated by a push button or other related device. Replace the lower panel.



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## Safety Sensitive Edge (Optional)

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For mounting the safety sensitive edge kit see the accompanying installation sheet. The sensitive edge is located on the lower portion of the barrier. When the edge encounters an obstruction, the barrier will stop then after a short pause rotate to the vertical position. (a) If the operator is in the auto timer mode, this sequence will continue at the pre-set time until the obstruction is removed. (b) If the operator is activated by the push button control, as soon as the barrier has returned to the vertical position, the push button control may be activated. To adjust the sensitivity of the edge, see the installation sheet.

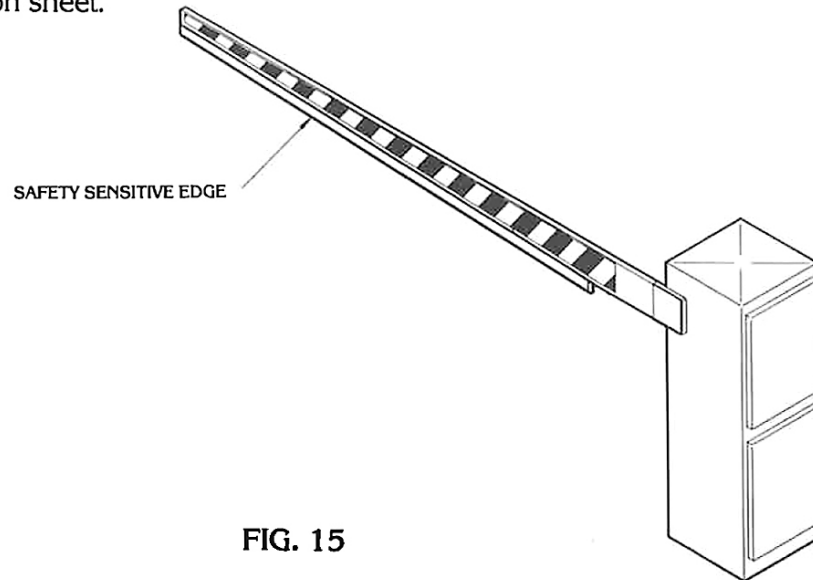


FIG. 15

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## Lights (Optional)

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For mounting the light kit see the accompanying installation sheet. The three red lights are installed on the rear portion of the barrier. The lights will flash continuously when the barrier is in all but the vertical position where upon they will shut-off. The lamp bulbs are of a 24 volt type and are easily replaceable by removing the lens. The lights are interconnected by flexible conduct to the operator control panel located behind the lower cabinet door.

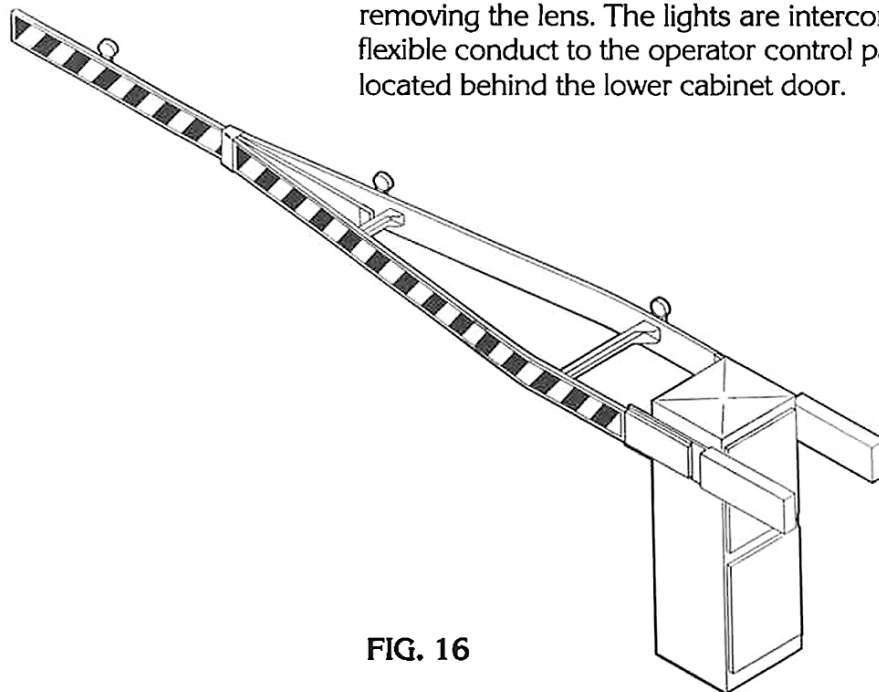


FIG. 16



## REMOTE RADIO CONTROL INSTALLATION (Optional)

Receiver must be installed on operator following the manufacturers instructions. Make sure that electrical connections match.

1: COMM                      2: RLY                      3: 24V

Make sure that the position of the signal code switches inside the transmitter and receiver match.

To change the code, slide or tilt any switch (using a pen or pencil), to any position. Insert a 9 volt zinc-carbon battery in the transmitter.

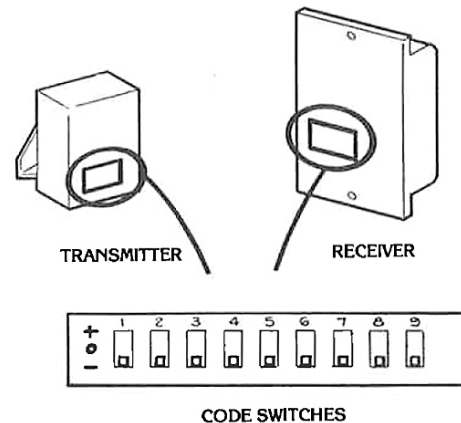


FIG. 17

## ELECTRICAL INFORMATION

### POWER WIRING DISTANCE

WIRE GAUGE	MAX DISTANCE FOR 1/3HP MOTOR		MAX DISTANCE FOR 1/2HP MOTOR	
	120V SUPPLY	240V SUPPLY	120V SUPPLY	240V SUPPLY
12	190 ft (58M)	765 ft (233.1M)	125 ft (38.1M)	500 ft (152.4M)
10	300 ft (91.4M)	1198 ft (1200M)	195 ft (59.4M)	780 ft (237.7M)
8	460 ft (140M)	1850 ft (563.9M)	300 ft (91.4M)	1210 ft (368.8M)
6	700 ft (213.4M)	2800 ft (853.4M)	460 ft (140.2M)	1840 ft (560.8M)

### CONTROL WIRING DISTANCE

WIRE GAUGE	MAX DISTANCE	VOLTAGE
14	150ft (45M)	24V

FIG. 18

**NOTE:** For additional electrical information see accompanying ELECTRICAL DATA SHEET

## OPERATING INSTRUCTIONS

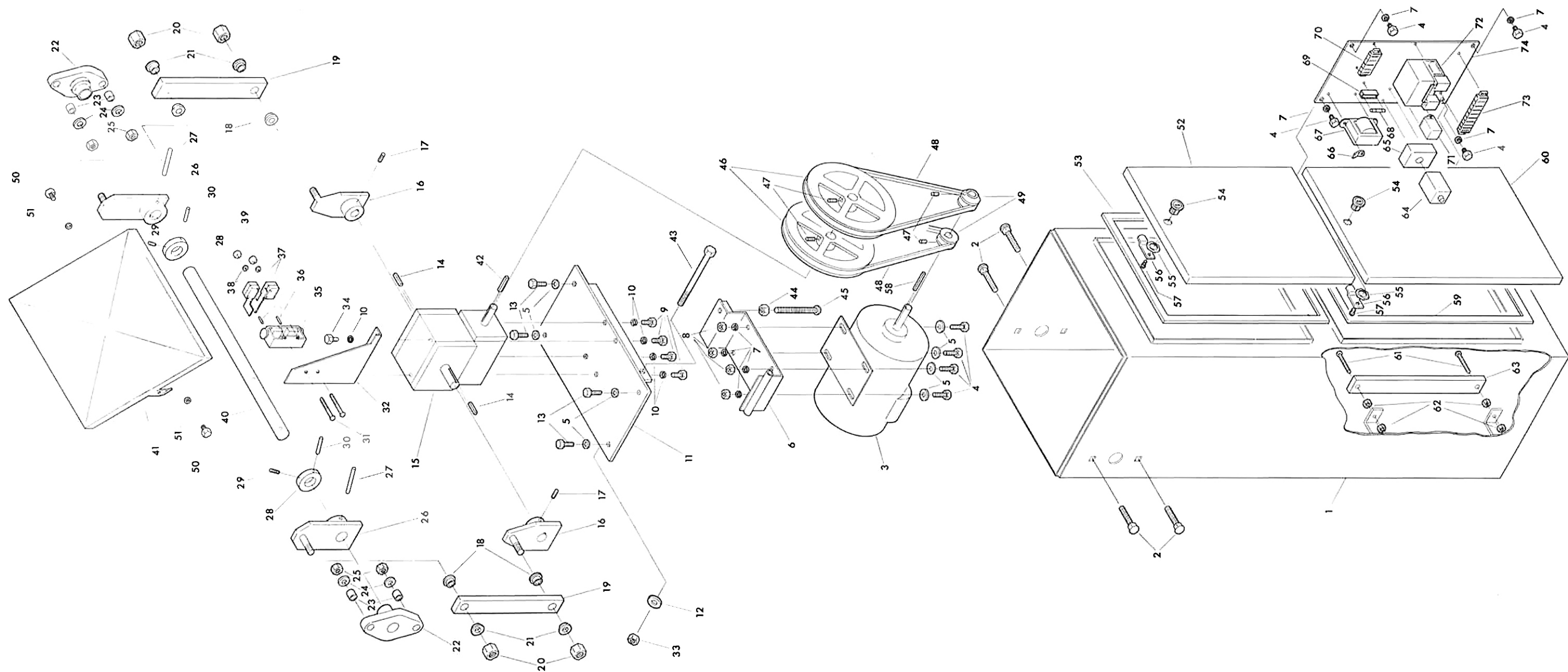
1. When the barrier is up and the close push button is activated, the barrier will rotate down to the horizontal position.
2. When the barrier is down and the open push button is activated, the barrier will rotate up to the vertical position.
3. When the barrier is in motion and the emergency stop push button is activated, the barrier will stop where it is.
4. If the barrier encounters an obstruction while rotating either up or down, the overload circuit will stop the motor after a few seconds. In this case; let the motor cool-off and press the reset button located on the back of the motor to put the unit back into operation.  
**CAUTION: KEEP HANDS AWAY FROM MOVING PARTS.**
5. In case of power failure, remove the top panel and rotate the large pulley.

## GUIDE TO TROUBLE SHOOTING

<p><b>Problem: BARRIER WILL NOT RAISE, CANNOT HEAR A SOUND.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Press the motor reset button located at the rear of the motor.</li> <li>2) Check incoming wiring, circuit breaker or defective fuse.</li> <li>3) Check the push button and its wiring.</li> <li>4) Transformer could be defective.</li> </ol> <p><b>Problem: BARRIER WILL NOT RAISE, MOTOR HUMS.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Let unit coll off and try again.</li> <li>2) Check for defective electrical connections.</li> <li>3) Check relay and replace if necessary.</li> <li>4) Check motor set up, fix or replace if necessary.</li> </ol> <p><b>Problem: MOTOR RUNS BUT BARRIER STAYS STILL.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check if motor pulleys are secure and tighten if necessary.</li> <li>2) Check tension on belt.</li> <li>3) Check if linkage or mounting studs are defective and replace if necessary.</li> <li>4) Check rollpins. Replace if necessary.</li> </ol> <p><b>Problem: FOR NO APPARENT REASON BARRIER DOES NOT COMPLETE CYCLE.</b></p> <ol style="list-style-type: none"> <li>1) Adjust limit switches. Replace if necessary</li> </ol>	<p><b>Problem: MOTOR WORKS ONLY IN ONE DIRECTION.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check motor's electrical wiring.</li> <li>2) Check power supply.</li> <li>3) Check limit switches.</li> <li>4) Check relay. Replace if necessary.</li> </ol> <p><b>Problem: BARRIER CANNOT RAISE OR LOWER COMPLETELY.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check if any obstruction or obstacle might prevent barrier from raising or lowering completely.</li> <li>2) Adjust limit switches.</li> </ol> <p><b>Problem: FOR NO APPARENT REASON, BARRIER OPERATES BY ITSELF.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check push button and its wiring.</li> </ol> <p><b>Problem: A GRINDING NOISE IS HEARD COMING FROM OPERATOR.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check oil level of gearbox, top up to indicator level if necessary with "Shell Omala R 150".</li> </ol> <p><b>Problem: BARRIER TRAVELS TOO SLOW.</b></p> <p><b>Solution:</b></p> <ol style="list-style-type: none"> <li>1) Check motor's wiring.</li> <li>2) Check power supply</li> <li>3) Check capacitor and replace if necessary.</li> <li>4) Check heating element and thermostat (in cold weather).</li> </ol>
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## MAINTENANCE & LUBRICATION (Every 6 months)

1. Check if bolts and nuts are secure. Tighten where necessary.
2. Lubricate linkage pivots with SAE 30 oil.
3. Check lubricant and lubricant level in the gearbox, if necessary replace or top up with "Shell Omala R 150" or equivalent.
4. Check "V" belts for slippage, tension & wear.
5. Do NOT lubricate motor, belt or electrical components.




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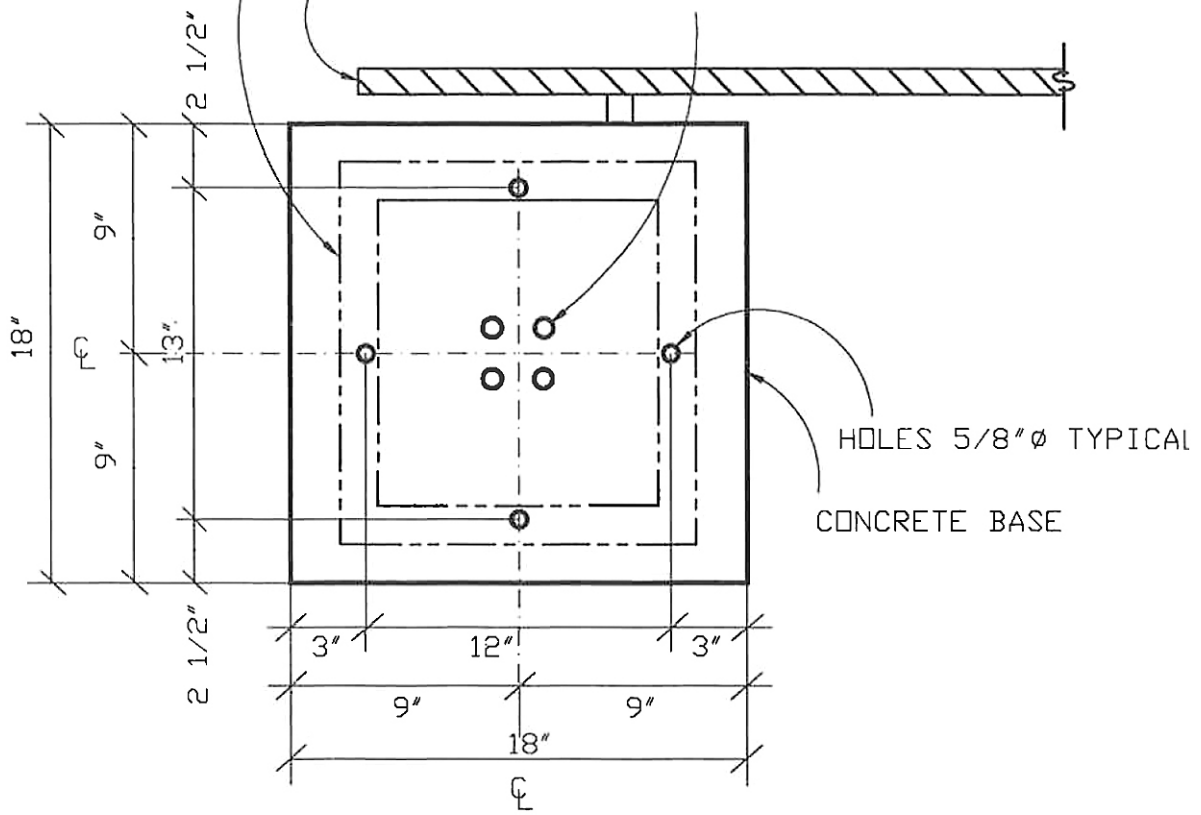
		
<b>TRAFFIC CONTROL BARRIER</b> <b>MODEL TCBO</b>		
Date: May 85	Approved P.G.S.	Drwg. No. 8000

ITEM	DESCRIPTION	QUANTITY	ITEM	DESCRIPTION	QUANTITY
1	Cabinet assembly	1	38	Washer, flat #4	2
2	Bolt, carriage 3/8" — 16 × 1 1/4"	4	39	Nut, hex elastic stop #4 — 40	2
3	Motor	1	40	Shaft, double barrier	1
4	Bolt, hex 5/16" — 18 × 3/4"	8	41	Cover assembly	1
5	Washer, flat 5/16"	4	42	Key, square 3/16" sq × 1 3/8"	1
6	Motor mount assembly	1	43	Bolt, hex 3/8" — 16 × 6"	1
7	Washer, split lock 5/16"	12	44	Nut, hex 3/8" — 16	1
8	Nut, hex 5/16" — 18	8	45	Screw, round head 3/8" — 16 × 3 1/2"	1
9	Bolt, hex 3/8" — 16	4	46	Pulley 8" dia.	2
10	Washer, split lock 3/8"	6	47	Screw, set 1/4" — 20 × 1/2"	4
11	Plate assembly — gearbox mounting	1	48	"V" Belt 4L-320	2
12	Washer, flat 3/8"	1	49	Pulley 1 1/2" dia.	2
13	Bolt, hex 5/16" — 18 × 1"	4	50	Bolt, hex 3/8" — 16 × 1/2"	2
14	Key, square 1/4" sq × 1 3/4"	2	51	Washer, split lock 3/8"	2
15	Gearbox, reduction	1	52	Door assembly	1
16	Lever assembly — gearbox	2	53	Gasket	1
17	Screw, set 1/4" — 20 × 3/8"	2	54	Tumbler — lock	2
18	Bushing, flanged	4	55	Nut, hex — lock tumbler	2
19	Bar, connecting	2	56	Latch, lock tumbler	2
20	Nut, hex elastic stop 5/8" — 11	4	57	Screw, lock tumbler	2
21	Bushing, flanged	4	58	Key, square 3/16" sq × 1 1/2"	1
22	Bearing	2	59	Gasket	1
23	Spacer, bearing mounting	4	60	Door assembly	1
24	Washer, flat 3/8"	4	61	Screw, round head #10 — 32 × 1 1/2"	2
25	Nut, hex elastic stop 3/8" — 16	4	62	Nut, hex #10 — 32	4
26	Lever, barrier shaft	2	63	Element, heater	1
27	Roll Pin 5/16" 0 × 2 1/2"	2	64	Timer, single	1
28	Cam, limit switch	2	65	Base, timer	1
29	Screw, set #10 — 32 × 1/2"	2	66	Lug, 1/4" ground	1
30	Rollpin 3/16" 0 × 1"	2	67	Transformer	1
31	Screw, round head #4 — 40 × 1 1/4"	2	68	Fuse	1
32	Bracket, limit switch mounting	1	69	Holder, fuse	1
33	Nut, hex elastic stop 3/8" — 16	1	70	Block, terminal — 8 pt.	1
34	Bolt, hex 5/16" — 18 × 1/2"	2	71	Relay, reversing	1
35	Limit switch holder	1	72	Contactor, reversing	1
36	Pin 1/8" 0 × 15/16"	2	73	Block, terminal — 12 pt	1
37	Limit switch assy	2	74	Chassis, electrical	1

CABINET 15" x 14"

ARM

2 @ 4 CONDUITS 3/4"  $\phi$   
AS REQUIRED



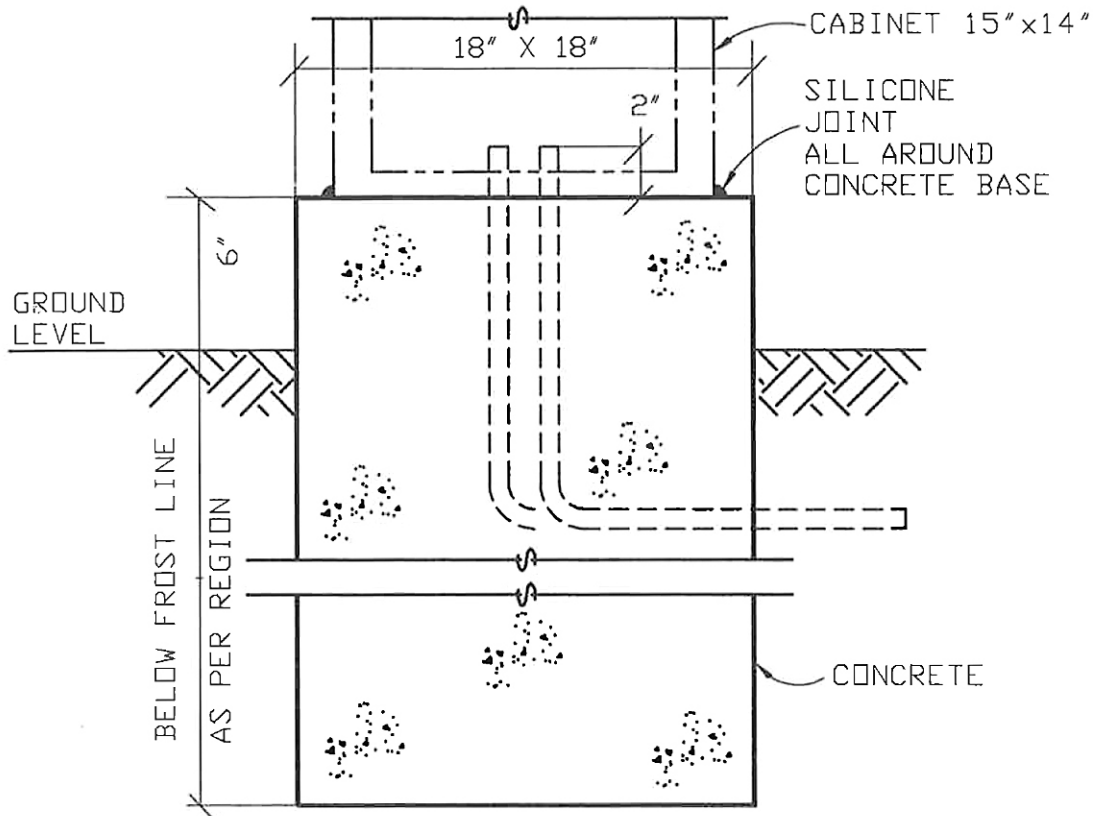
HOLES 5/8"  $\phi$  TYPICAL

CONCRETE BASE

## CONCRETE BASE PLAN VUE

IMPORTANT :

DO NOT INSTALL POWER WIRES  
IN SAME CONDUIT AS CONTROL WIRES



## CONCRETE BASE SECTION

<b>DC</b> ° DOORLEC CORPORATION				
DISTRIBUTOR:				
PROJECT:				
GENERAL CONTRACTOR:				
ARCHITECT/ENGINEER:				
TITLE:				
<b>CONCRETE BASE &amp; MOUNTING ANCHORS FOR MODEL TCBOS-TCBOD-TCBOA</b>				
DESIGN BY: M.D.	APPROVE BY: P.G.S.	DATE JUNE 14/95	REV	DRAWING NO <b>E207-A</b>

## Warranty

Electric door operators and auxiliary equipment sold by DOORLEC CORPORATION are under warranty for one year from date of installation against defects in the materials or workmanship, under normal wear and service. Any parts, or complete units which fail because of such defects within this period, shall at the manufacturer's option, be repaired or replaced at NO CHARGE. The manufacturer will not be responsible for transportation and/or for field service charges.

## **HOW TO ORDER REPAIR PARTS**

### **DEVANCO CANADA**

19192 HAY ROAD, UNIT Q  
SUMMERSTOWN, ON K0C 2E0

TOLL FREE: 855-931-3334  
[www.devancocanada.com](http://www.devancocanada.com)

**WHEN ORDERING REPAIR PARTS  
PLEASE SUPPLY THE FOLLOWING INFORMATION:**

- ✓ PART NUMBER
- ✓ DESCRIPTION
- ✓ MODEL NUMBER



DOORLEC CORPORATION  
MONTREAL, QUEBEC, CANADA

A continuing research program is in effect at DOORLEC CORPORATION. We reserve the right to incorporate product improvement at any time without notice.

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