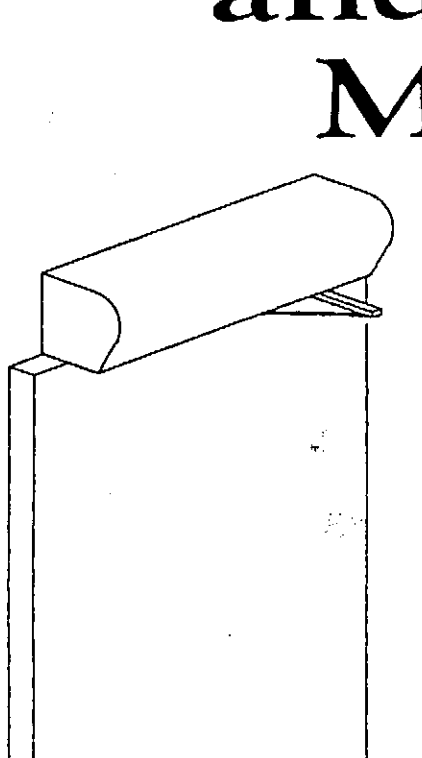
GYRO TECH

710

Low Energy Operator INSTALLATION and SERVICE MANUAL



TOOL LIST

7/16" Wrench: Box or Open End

1/2" Wrench: Box or Open End

3/4" Wrench: Box, Open End, or Adjustable Wrench

5/32" Hex Key

3/32" Hex Key

Phillips Screw Drivers: #2 & #3

Small and Medium Size Slotted Screwdrivers

Drill Bits: 3/16", 7/32", 1/4" and 5/16"

Tape Measure

Part Number ~~125660.01~~
September 1, 1997 Revision

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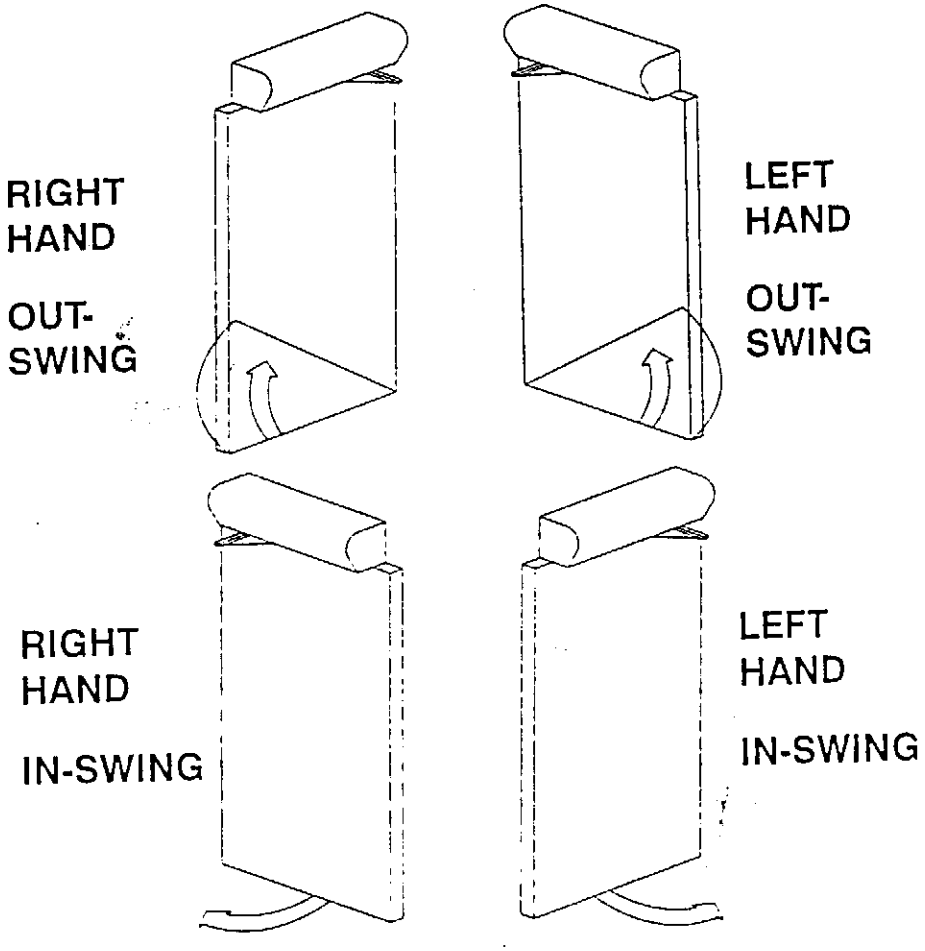
REQUIREMENTS

- Power input to the door control must be 120 volts (50-60 hz).
- Maximum wire size is 14 AWG.
- All wiring must conform to standard wiring practice in accordance with national and local wiring codes.
- **NOTE:** Unless otherwise noted, all dimensions are given in inches, (millimeters).
- Minimum frame face is 1-3/4" (44.45mm).
- Door must swing freely through the entire opening and closing cycle BEFORE beginning the installation.
- Minimum ceiling clearance (from TOP of door) is 7"(178 mm).
- For wiring refer to wiring instructions on pages 8 through 10.
- THE HAND OF UNIT AND HAND OF DOOR MUST BE THE SAME. HAND OF UNIT IS NOT REVERSIBLE.
- A Door can be hung on butt hinges, 3/4" (19mm) offset pivots or center pivots.
- A Door thickness must be 1-3/4" (44mm) minimum; 2-1/4" (57mm) maximum.
- Use of a supplemental door stop is always required.
- When applying the handicap stickers, if "PUSH-N-GO" is not being used, cut off the "PUSH DOOR TO OPERATE" portion of the automatic door sticker.

DETERMINE HAND OF DOOR



GENERAL

- Before beginning installation, verify the door frame is properly reinforced and is well anchored in the wall. Unreinforced hollow metal frames should be prepared and fitted with 1/4-20 blind rivnuts furnished by the installer.
- Electrical conduit and switch or sensor wires should be pulled to the frame before proceeding.

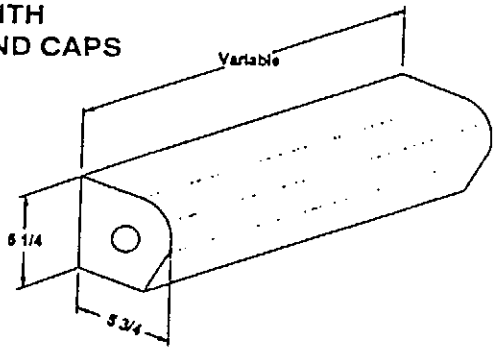
FASTENERS FOR FRAME

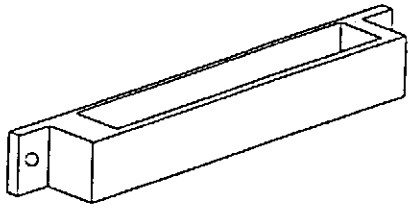
- Frames should be fastened with 1/4-20 machine screws for hollow metal and aluminum or No. 14 [2-3/4"] (70mm) wood screws.

FASTENERS FOR DOOR

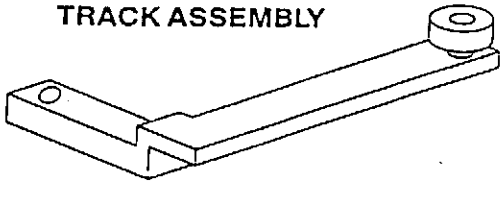
- Doors should be fastened with 1/4-20 machine screws and 3/8" diameter x 1-3/4" (45mm) hollow bolt.

HEADER WITH END CAPS

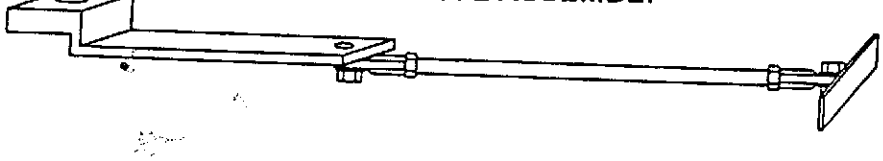




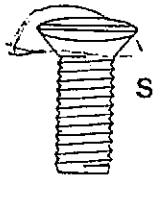
IN-SWING ARM AND TRACK ASSEMBLY



OUT-SWING ARM AND SHOE ASSEMBLY



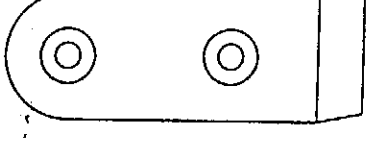
HARDWARE REQUIRED FOR INSTALLATION

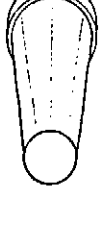


SCREW

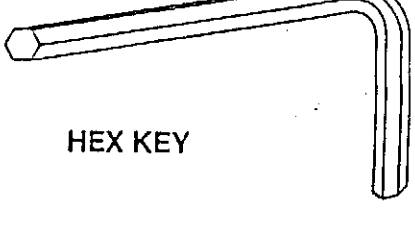
TINNERMAN CLIP

SUPPLEMENTAL DOOR (ARM) STOP



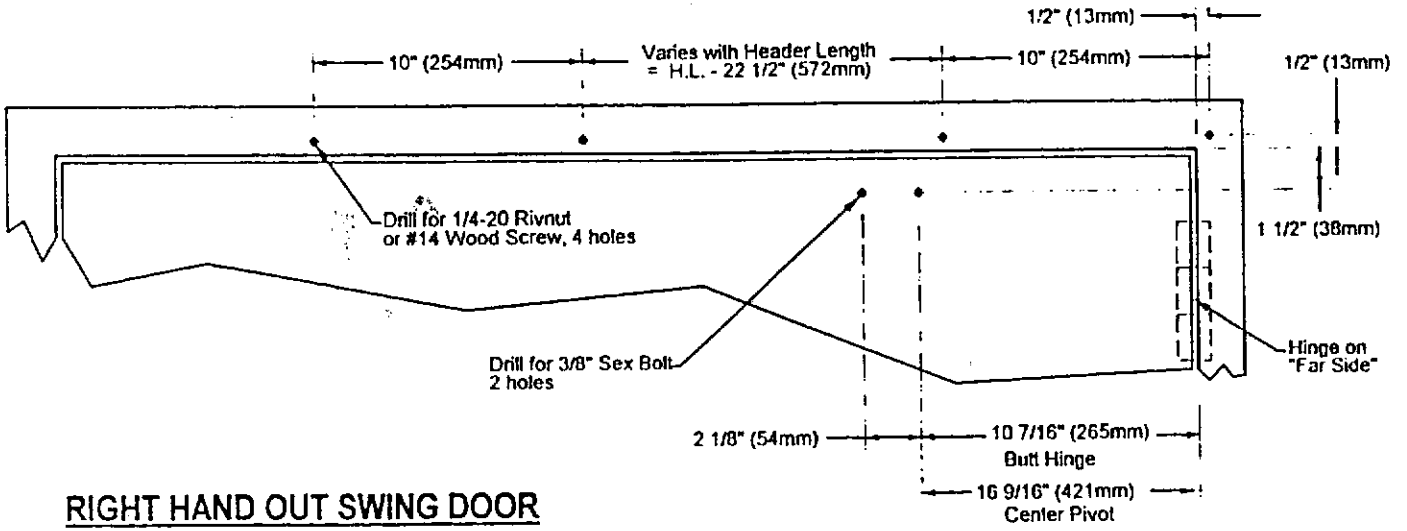


WIRE NUT

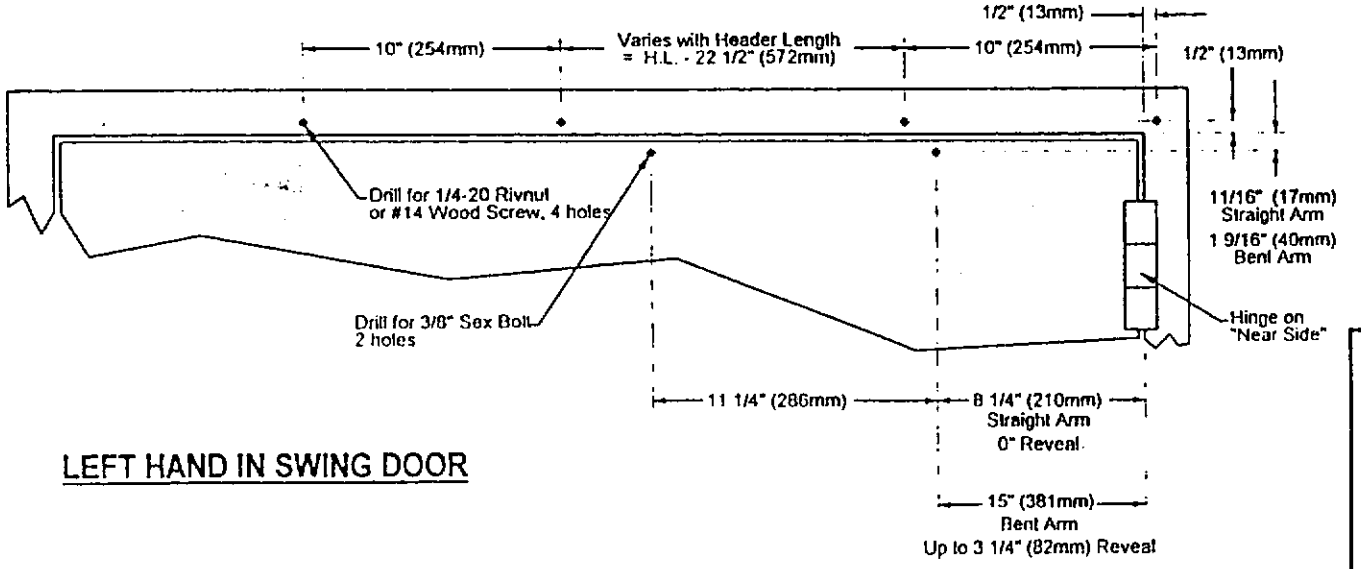


HEX KEY

FRAME DRILLING DETAILS



RIGHT HAND OUT SWING DOOR



LEFT HAND IN SWING DOOR

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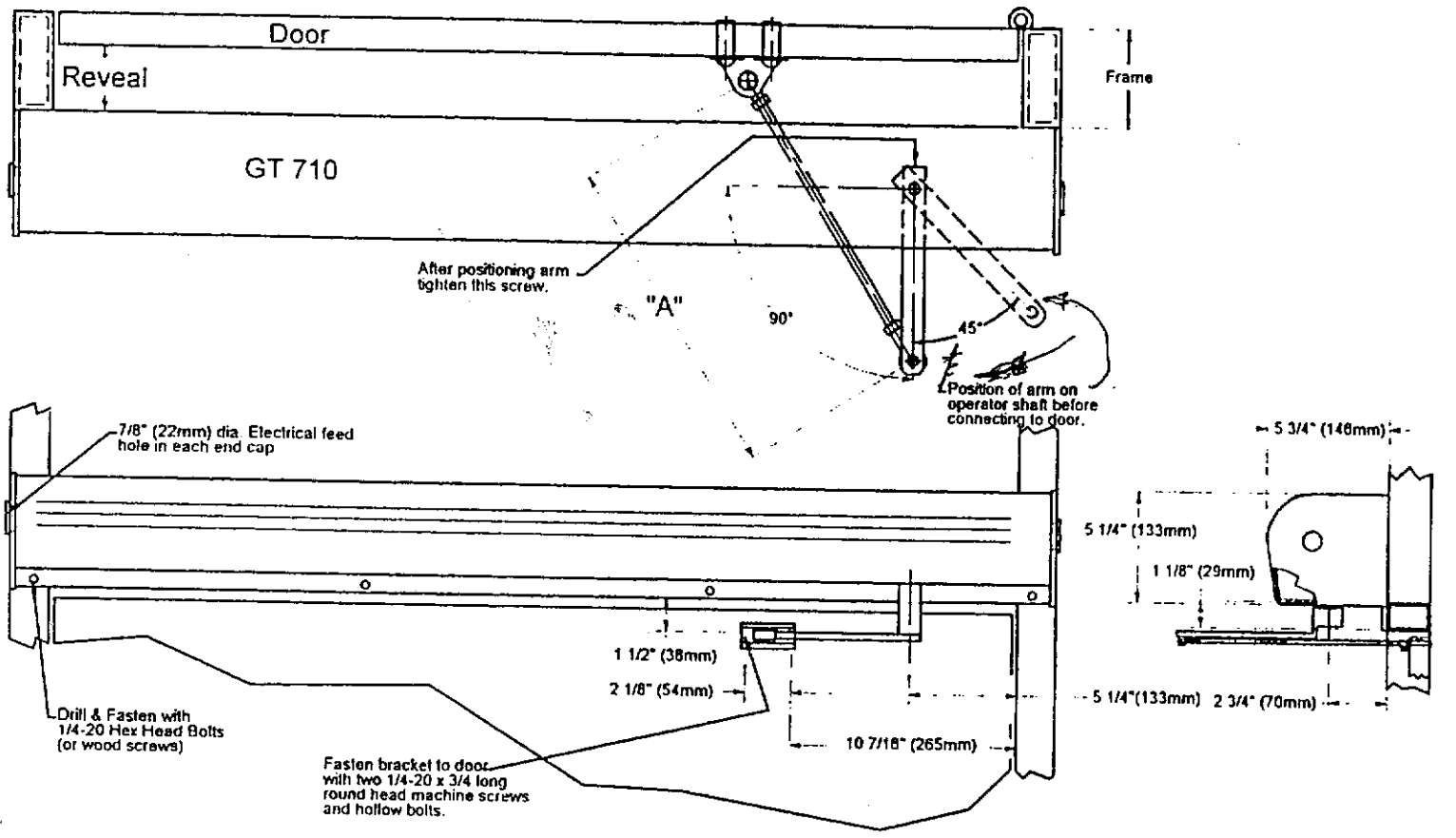

Frame	*Reveal*	*Dimension A*
3" (76mm)	1 1/4 (32mm)	14 5/8 (371mm)
4" (101mm)	2 1/4 (57mm)	15 1/2 (394mm)
4 1/2" (114mm)	2 3/4 (70mm)	16 (406mm)
5" (127mm)	3 1/4 (82mm)	16 1/2 (418mm)
6" (152mm)	4 1/4 (108mm)	17 3/8 (441mm)
7" (178mm)	5 1/4 (133mm)	18 3/8 (467mm)

INSTALLATION DETAILS - RIGHT HAND OUT-SWING BUTT HINGE

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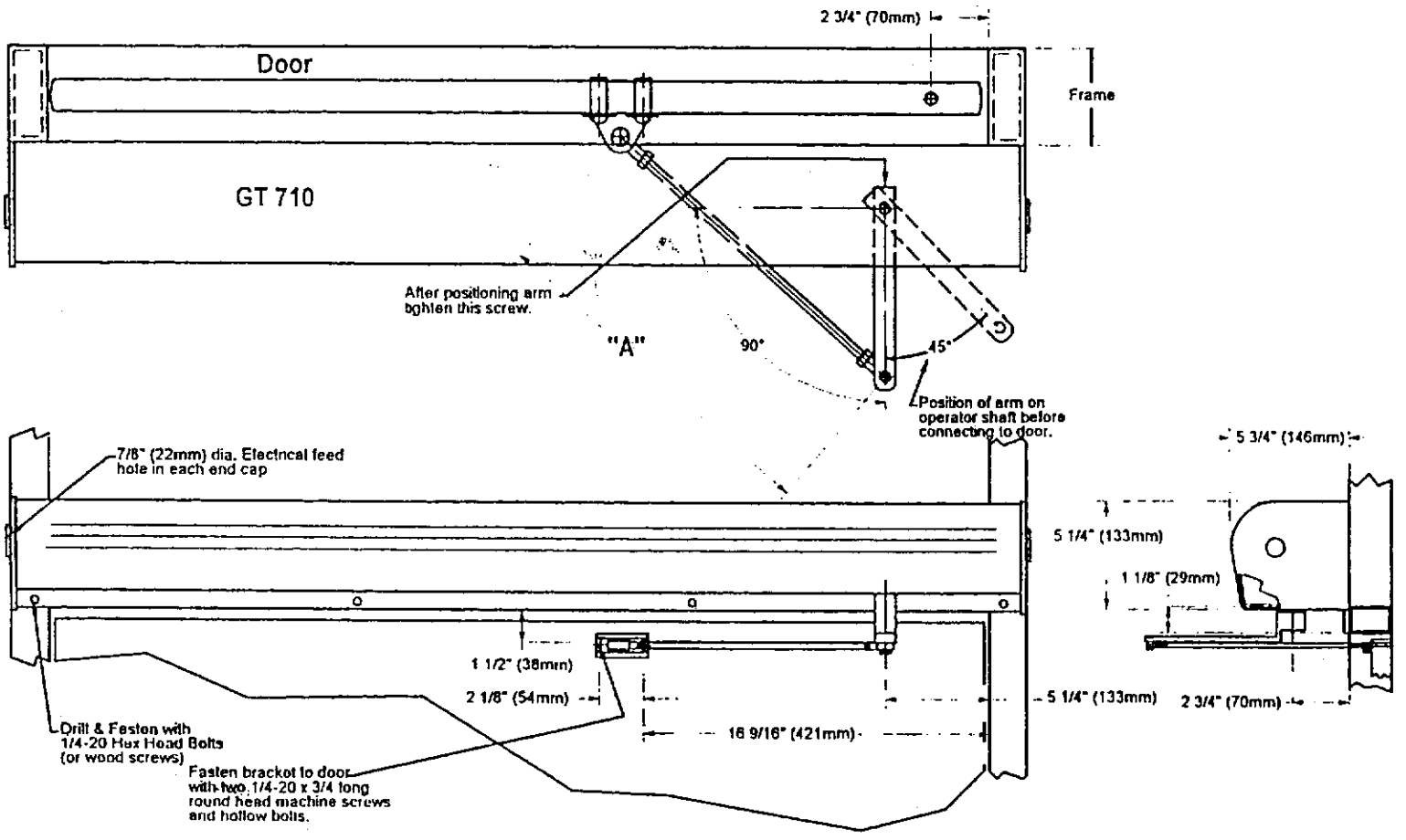

Frame	*Reveal*	*Dimension A*
3" (76mm)	5/8 (16mm)	17 1/2 (444mm)
4" (101mm)	1 1/8 (29mm)	17 15/16 (455mm)
4 1/2" (114mm)	1 3/8 (35mm)	18 1/8 (460mm)
5" (127mm)	1 5/8 (41mm)	18 1/4 (464mm)
6" (152mm)	2 1/8 (54mm)	18 5/8 (473mm)
7" (178mm)	2 5/8 (67mm)	19 1/16 (484mm)

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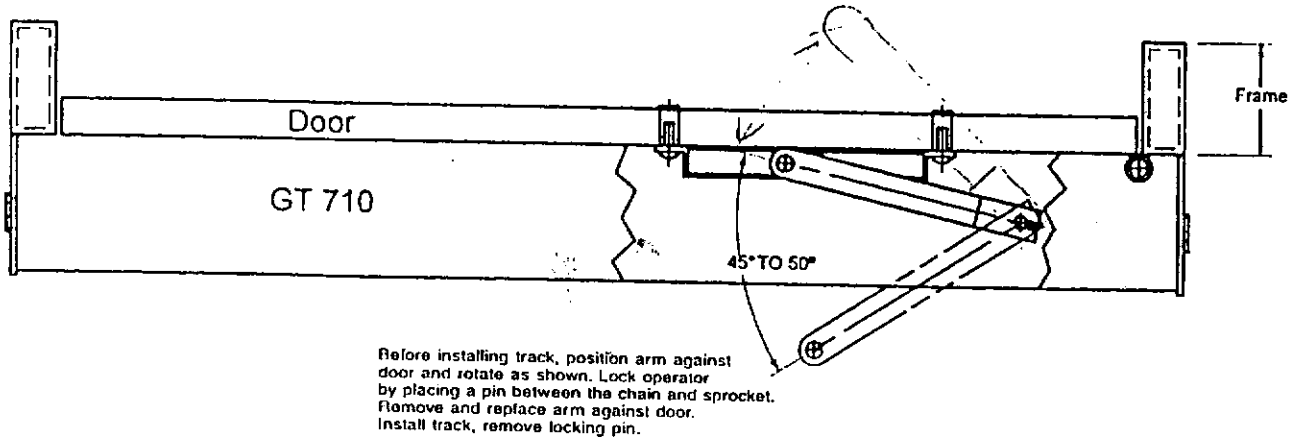
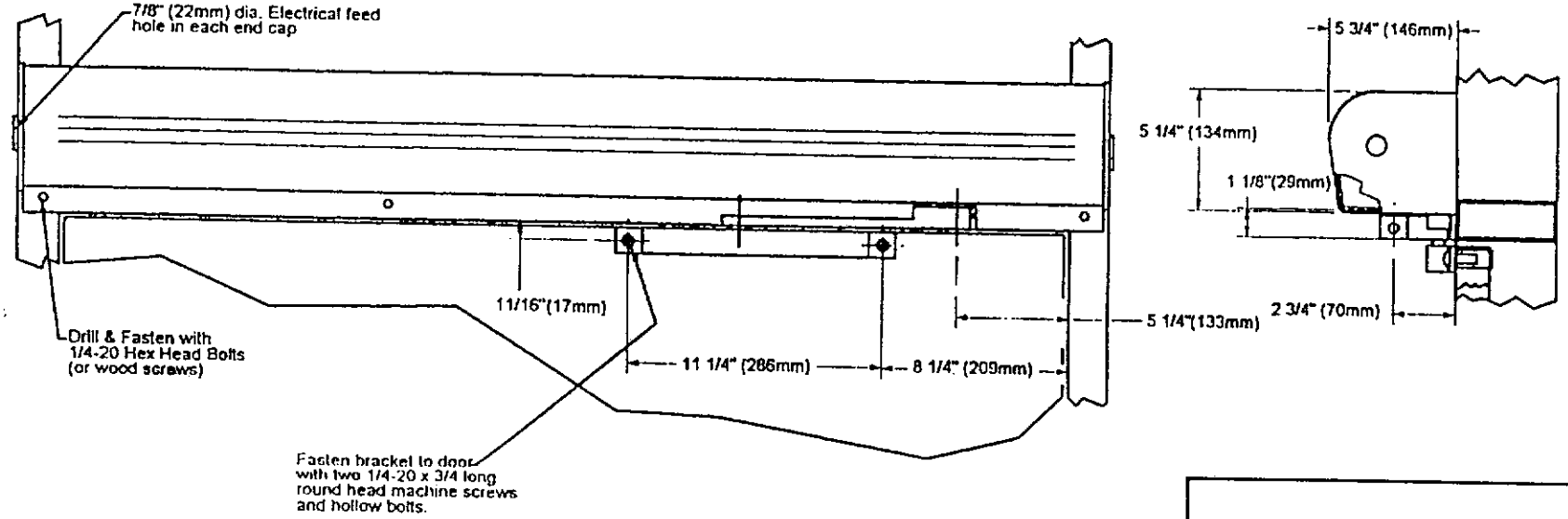
INSTALLATION DETAILS - RIGHT HAND OUT-SWING CENTER PIVOTED



Before installing track, position arm against door and rotate as shown. Lock operator by placing a pin between the chain and sprocket. Remove and replace arm against door. Install track, remove locking pin.



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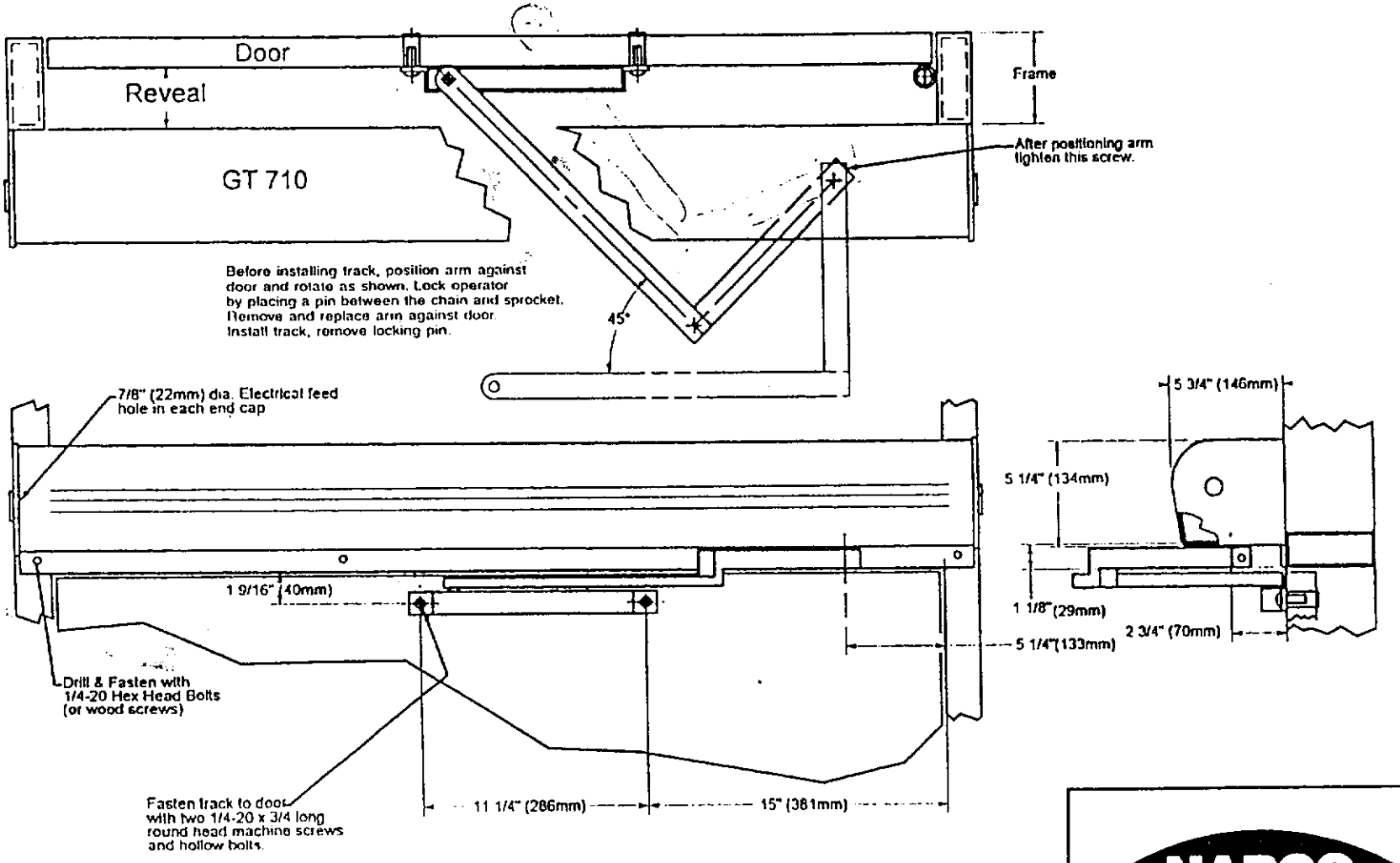
INSTALLATION DETAILS - LEFT HAND IN-SWING NO REVEAL



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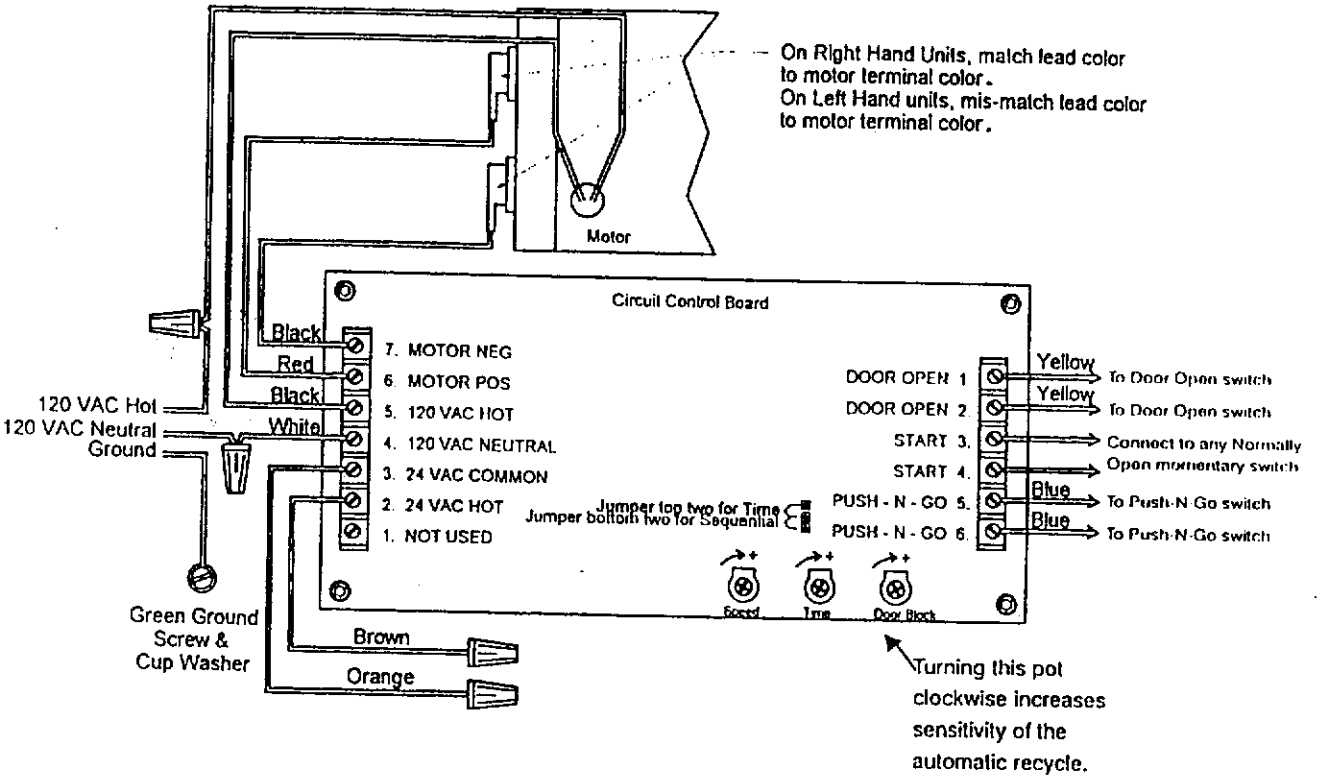
INSTALLATION DETAILS - LEFT HAND IN-SWING UP TO 3¼" REVEAL

POT ADJUSTMENT:

Sequential Mode requires an activation signal to open the door and another to close. **Time Mode** allows the door to close after an adjustable period of time.

1. Move the Jumper to the "Sequential" position.
2. Adjust "Speed Pot" fully ccw.
3. Adjust "Door Block Pot" fully ccw.
4. Adjust "Time Pot" fully ccw.
5. Attach all input and output wiring per diagram.
6. Apply 120V AC power.
   CAUTION: The door will operate at the fastest speed. Stand clear.
7. Close either the "Start" or the "Push-N-Go" switch to open the door.
8. Close either the "Start" or the "Push-N-Go" switch to close the door.
9. Repeat Steps 6 and 7. See page 10 for recommended ANSI speeds. Adjust the "Speed Pot" for desired speed.
10. Place a heavy object in path of the door.
11. Activate the door. The motor should remain on.
12. Adjust the "Door Block Pot" SLOWLY until the motor turns off.
13. Remove the object. Activate the door. The door should open and travel to the end. The motor should remain on at the end of travel.
14. Close the door and block it again. Activate the door. Now the door will travel until the object is hit, then the unit will coast close.
15. Remove the object, and open the door. Close the door, but before it travels halfway, activate the switch again. If necessary, decrease the "Door Block Pot" sensitivity to allow the door to reopen.
16. Move the Jumper to the "Time" position.
17. Activate the door. It should remain open for five to seven seconds and then turn off.
18. Adjust "Time Pot" for desired time. Repeat Step 16.
19. Place the Jumper in the required position.
20. This is the end of adjustment.



CAUTION: PLEASE USE CARE TO AVOID BENDING THE PINS WHEN REMOVING AND REPLACING THE "TIME SEQUENTIAL" JUMPER.

NOTES: IF SEQUENTIAL OPERATION IS DESIRED PLACE JUMPER IN "SEQUENTIAL" POSITION AND DISCONNECT THE "PUSH-N-GO" LEADS.

IF "PUSH-N-GO" IS NOT DESIRED, DISCONNECT THE BLUE "PUSH-N-GO" LEADS.

ELECTRICAL CONNECTIONS TO CONTROL BOARD

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POT ADJUSTMENT:

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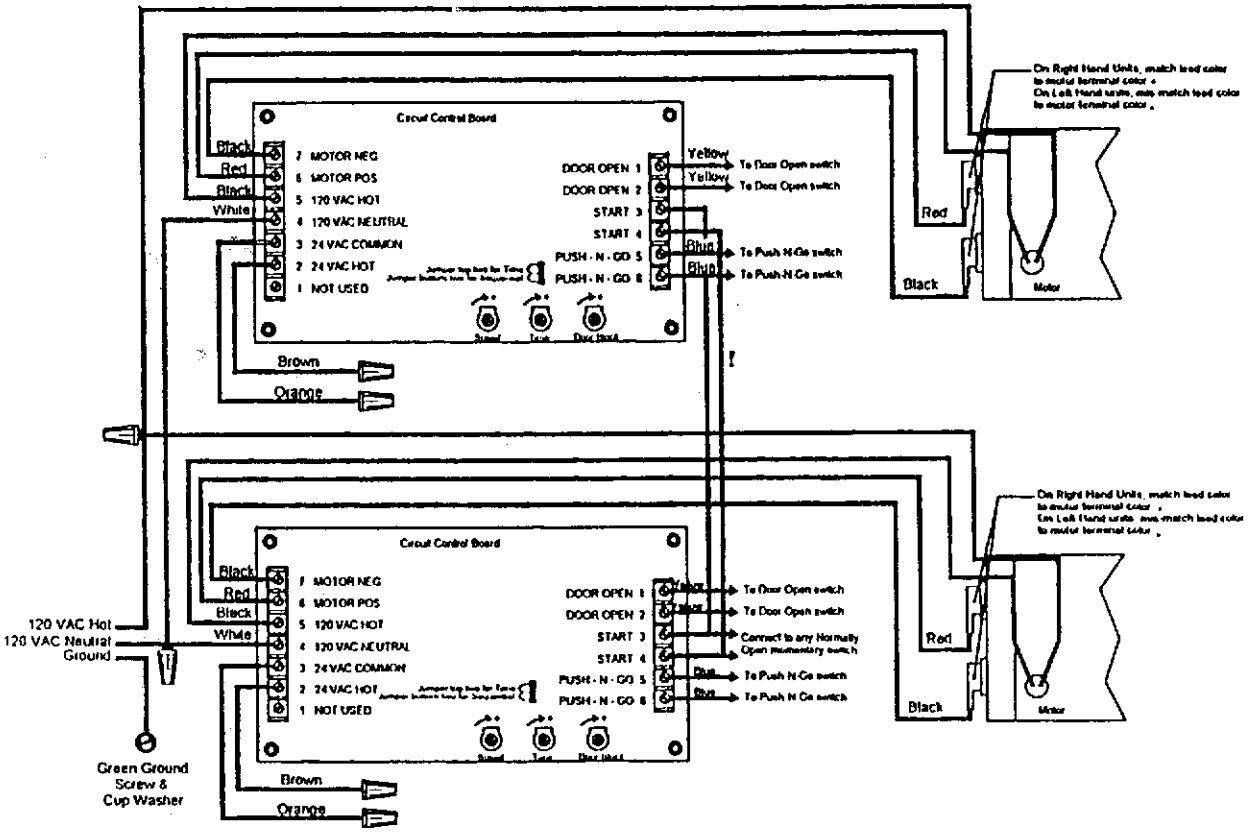
20. This is the end of adjustment.



CAUTION:	PLEASE USE CARE TO AVOID BENDING THE PINS WHEN REMOVING AND REPLACING THE "TIME SEQUENTIAL" JUMPER.
NOTES:	IF SEQUENTIAL OPERATION IS DESIRED PLACE JUMPER IN "SEQUENTIAL" POSITION AND DISCONNECT THE "PUSH-N-GO" LEADS.
	IF "PUSH-N-GO" IS NOT DESIRED, DISCONNECT THE BLUE "PUSH-N-GO" LEADS.

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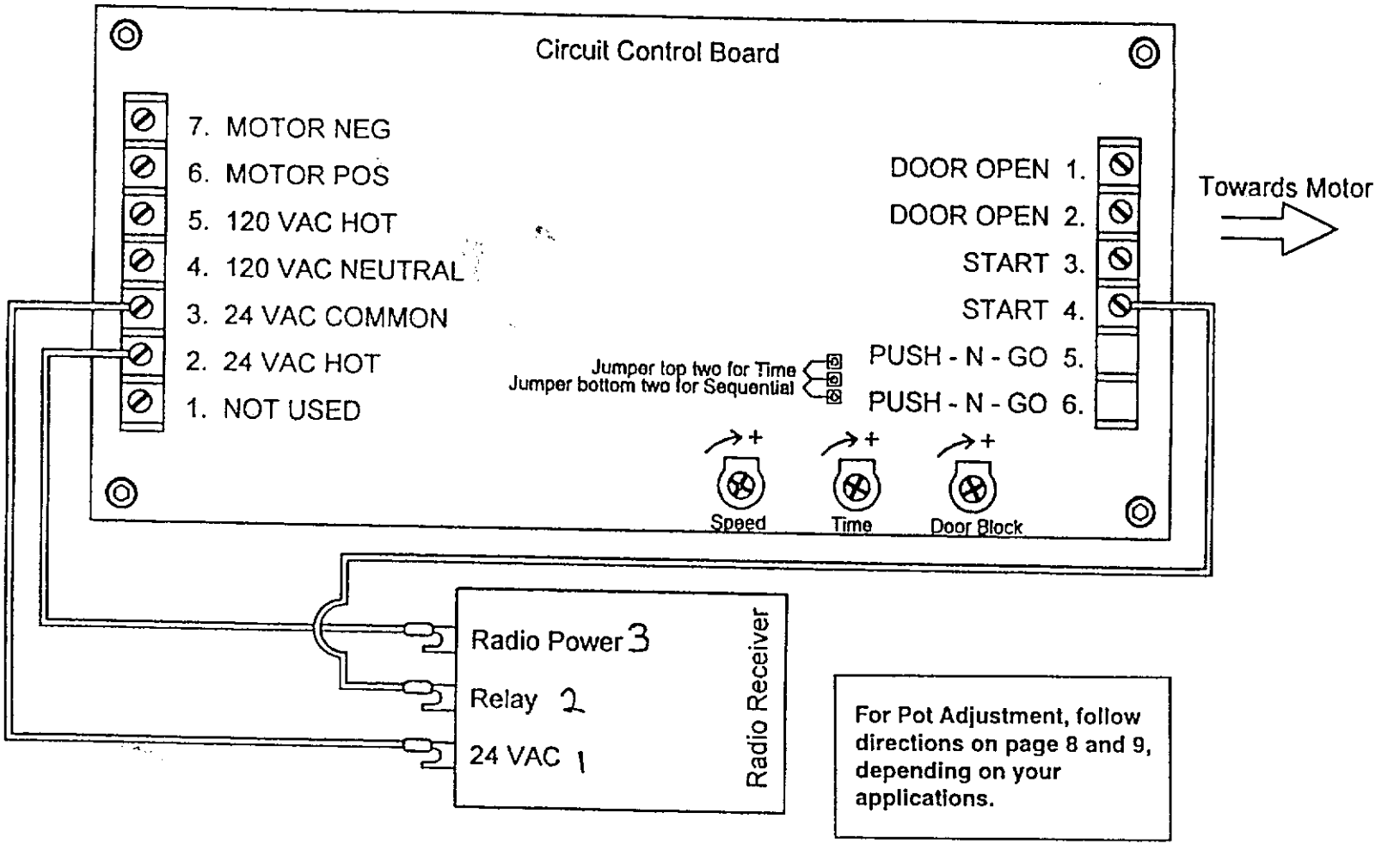
SIMULTANEOUS PAIR OF LOW ENERGY OPERATORS



For Pot Adjustment, follow directions on page 8 and 9, depending on your applications.

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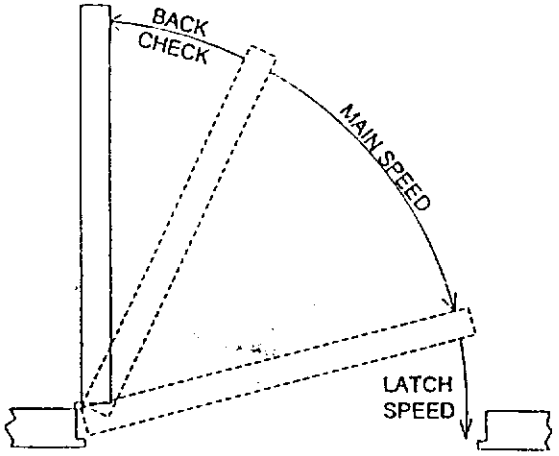
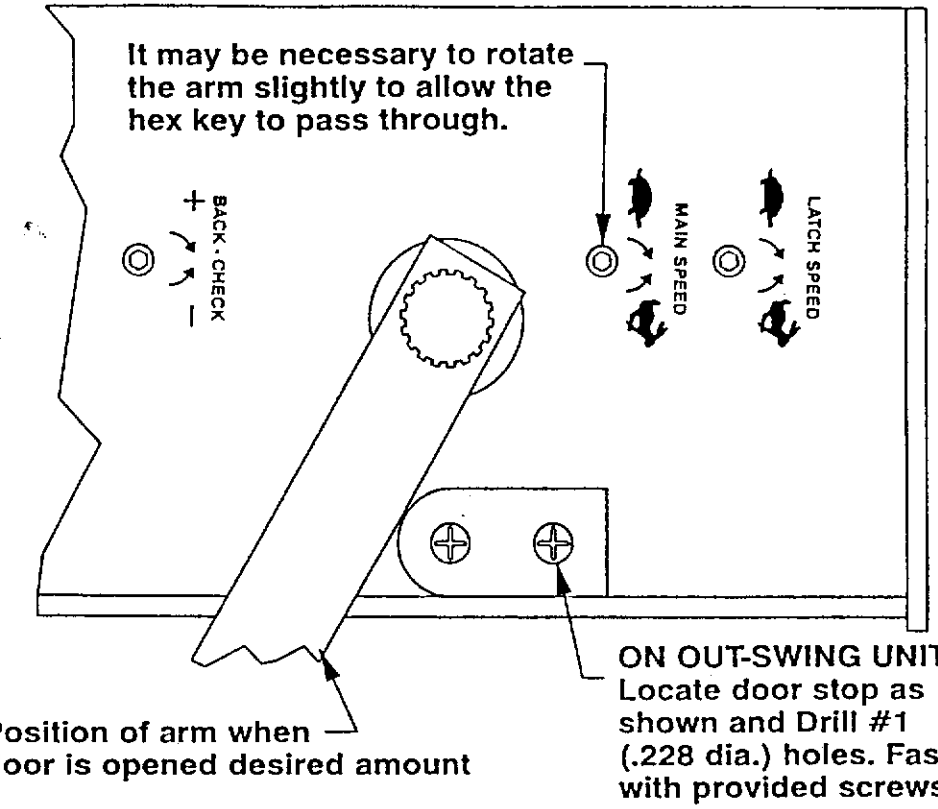
RADIO CONTROL ELECTRICAL CONNECTIONS

IMPORTANT

Do not allow door to slam into frame. A "normal" closing time from a 90 degree open position is five to seven seconds, evenly divided between main swing speed and latch swing speed. Use the furnished hex key to adjust speed.

- To slow **MAIN SWING SPEED** of door turn the main speed screw clockwise.
- To slow **LATCH SPEED** of door turn the latch speed screw clockwise.
- To increase **BACK-CHECK** turn the back-check screw clockwise. Use the lightest back-check which will retard the door opening sufficiently. Do not use an abrupt back-check, nor expect the door closer to act as a doorstop.





CAUTION

IMPROPERLY INSTALLED OR REGULATED CLOSERS CAN CAUSE PROPERTY DAMAGE OR PERSONAL INJURY. PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY.

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DOOR CLOSING ADJUSTMENT PROCEDURE

EXCERPTS FROM ANSI/BHMA A156.19

4.0 REQUIREMENTS FOR LOW ENERGY POWER OPERATED DOORS - (SWINGING) OR LOW ENERGY POWER OPEN DOORS - (SWINGING)

4.1 OPENING SPEED

4.1.1 Doors shall be field adjusted so opening speed to back check or 80 degrees shall be three seconds or longer as required in Table 1.

4.1.2 Opening speed to fully open should be four seconds or longer.

4.2 CLOSING SPEED

4.2.1 Doors should be field adjusted to close from 90 degrees to 10 degrees in three seconds or longer as required in Table 1.

4.2.2 Doors should be field adjusted to close from 10 degrees to fully closed in not less than 1.5 seconds.

4.3 Unless a sensing device is used to hold the door open, the door should be field adjusted to remain fully open for not less than five seconds.

4.4 The force required to prevent a door from opening or closing should not exceed a 15 lbf (67 N) applied one inch (25mm) from the latch edge of the door at any point in the opening or closing cycle.

4.5 The kinetic energy of a door in motion should not exceed 1.25 lbf-ft (1.69 Nm). Table 1 provides speed settings for various weights of doors for obtaining results complying with this paragraph.

4.6 In the event of failure, doors shall open with a manual pressure not to exceed a 25 lbf (111 N) at point one inch (25mm) from latch edge of the door.

4.7 Doors should be equipped with a sign(s) visible from either side, instructing the user as to the operation and function of the door.

TABLE 1

"D" = DOOR LEAF WIDTH INCHES (mm)	Minimum Opening Time to Back Check or 80 degrees (in seconds) or Minimum Closing Time from 90 degrees to Latch Check or 10 degrees (in seconds) "W" = DOOR WEIGHT IN POUNDS (kg)				
	100 (45.4)	125 (56.7)	150 (68.0)	175 (79.4)	200 (90.7)
30 (762)	3.0	3.0	3.0	3.0	3.5
36 (914)	3.0	3.5	3.5	4.0	4.0
42 (1067)	3.5	4.0	4.0	4.5	4.5
48 (1219)	4.0	4.5	4.5	5.0	5.5

Doors of other weights and widths can be calculated using the following formula:

$$T = \frac{D\sqrt{W}}{133 \text{ lbf-ft}} \qquad \left(T = \frac{D\sqrt{W}}{2260 \text{ Nm}} \right)$$

WHERE: T = Time, seconds
D = Door width, inches (mm)
W = Door weight, lbs. (kg)

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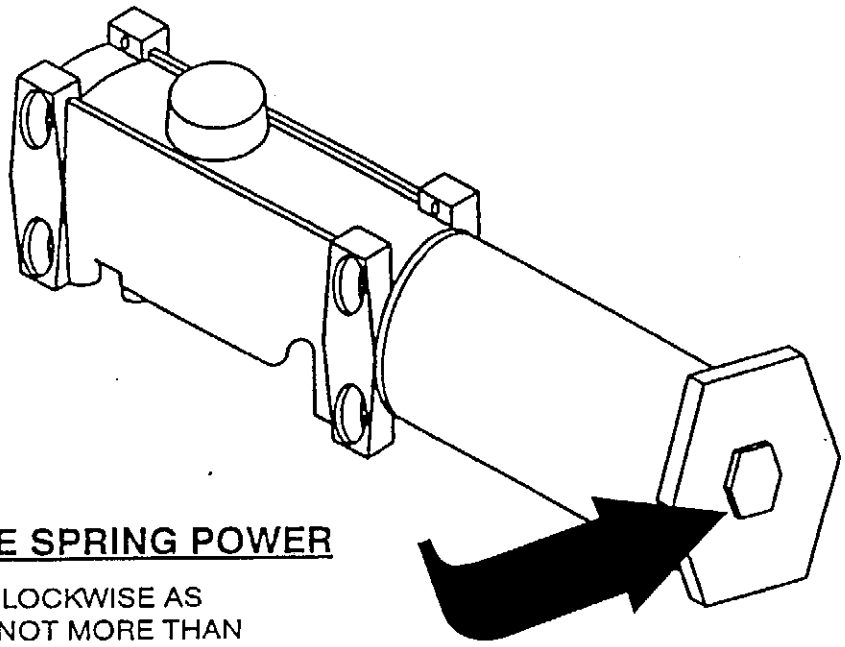
CLOSING FORCE ADJUSTMENT



TO INCREASE SPRING POWER

TURN THE NUT CLOCKWISE AS INDICATED, BUT NOT MORE THAN NINE FULL TURNS.

IF LESS POWER IS NEEDED TO MEET HANDICAP CODES, TURN THE NUT COUNTER CLOCKWISE, BUT NOT MORE THAN FOUR FULL TURNS.

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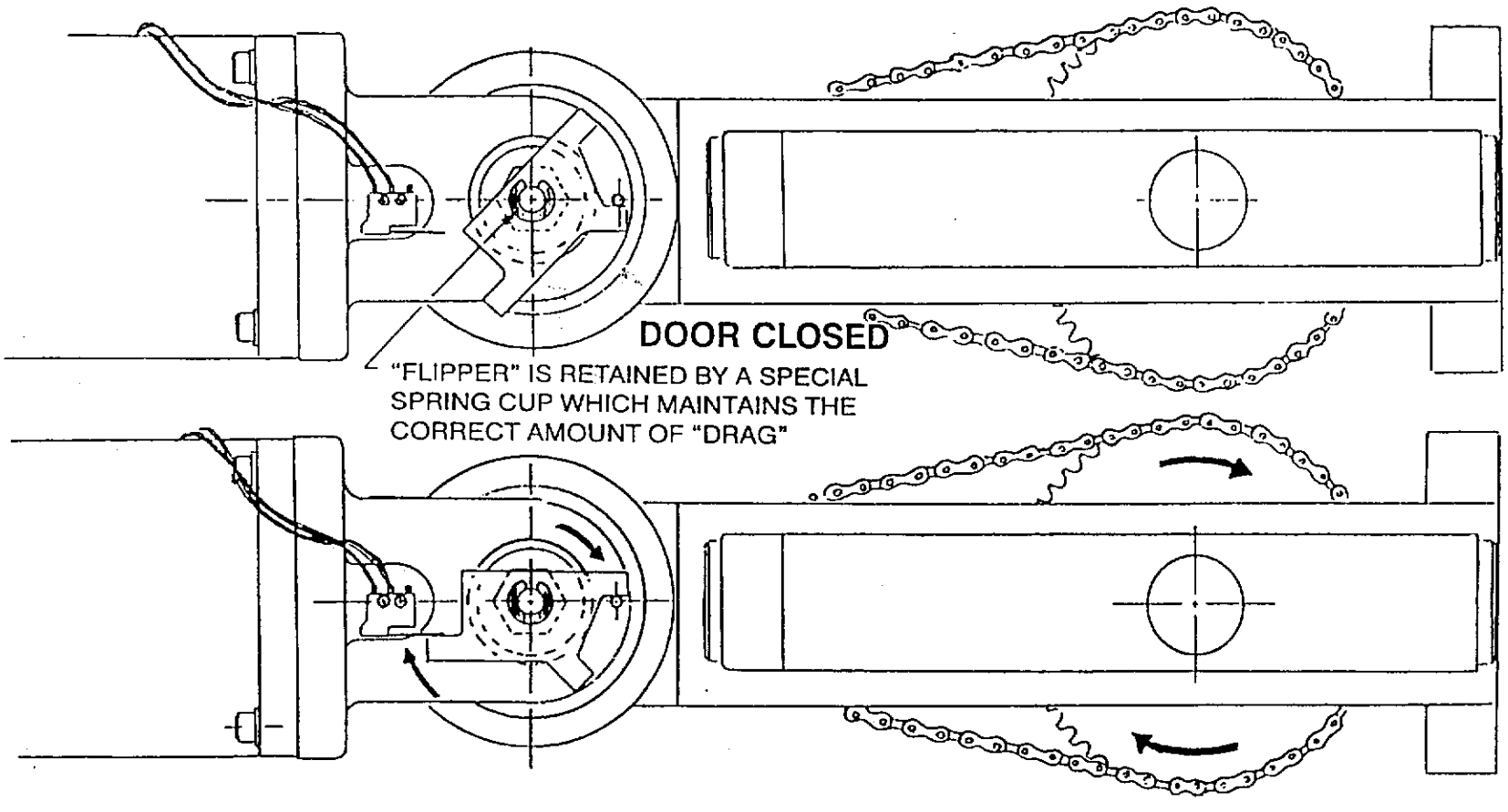

DOOR CLOSED

"FLIPPER" IS RETAINED BY A SPECIAL SPRING CUP WHICH MAINTAINS THE CORRECT AMOUNT OF "DRAG"

DOOR OPEN 10°

WHEN DOOR IS PUSHED OPEN 10 DEGREES EITHER FROM "CLOSED" OR FROM ANY OTHER POSITION, THE ACTUATOR SHOULD ROTATE AS SHOWN TRIPPING THE MICRO SWITCH.

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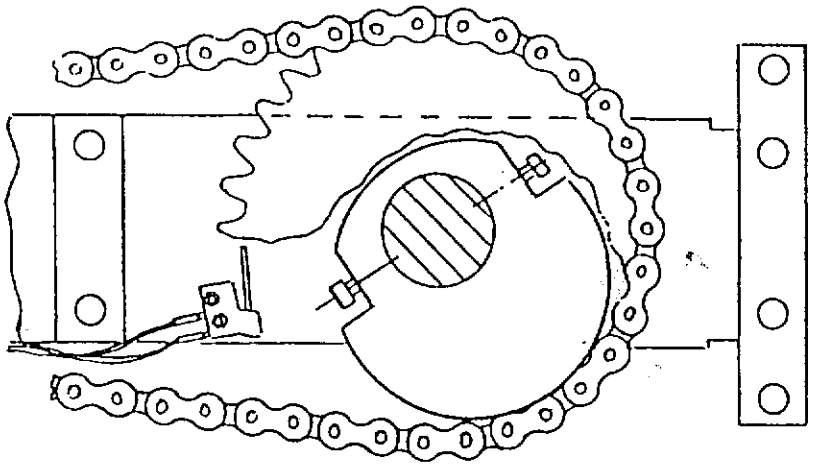
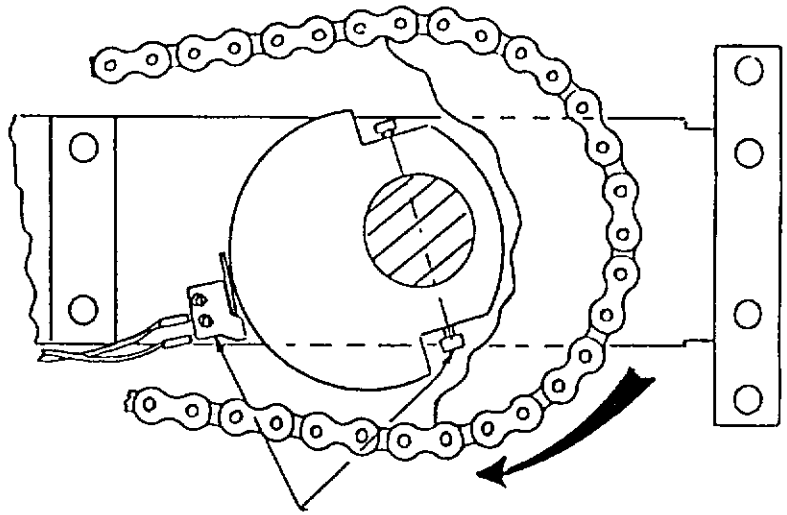
DOOR OPEN 10 DEGREES - PUSH-N-GO ACTUATION



DOOR CLOSED



POSITION CAM AS SHOWN SO THAT IT ACTIVATES SWITCH. TIGHTEN SET SCREW.

DOOR FULLY OPEN

The control has a circuit which senses when the motor has stalled (i.e. an obstruction) and cuts the power when this occurs, allowing the door to reclose. However, since the motor also stalls when the door is fully open, a switch is necessary to tell the control the door is open and to ignore the stalled motor. This switch also reduces motor voltage to prevent overheating during extended "HOLD OPEN" periods.

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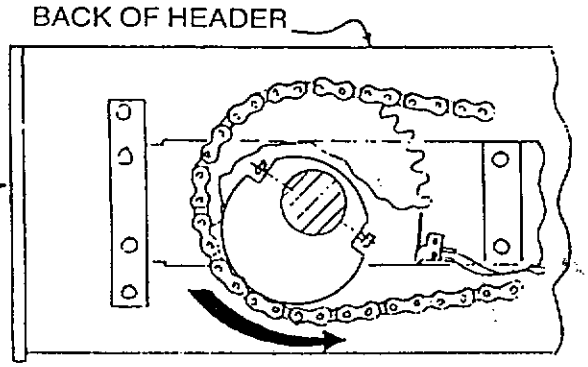
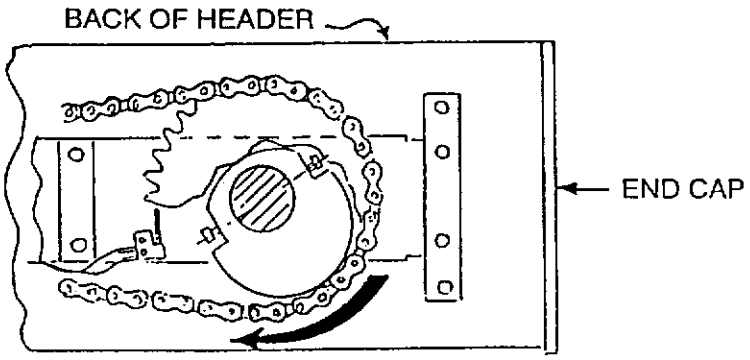
SWITCH ADJUSTMENT - DOOR IN OPEN POSITION

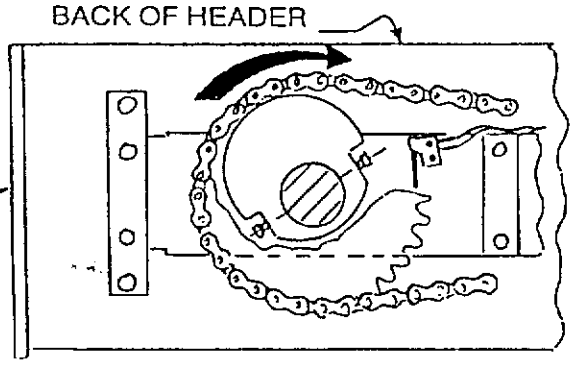
ALL VIEWS LOOKING DOWN FROM TOP



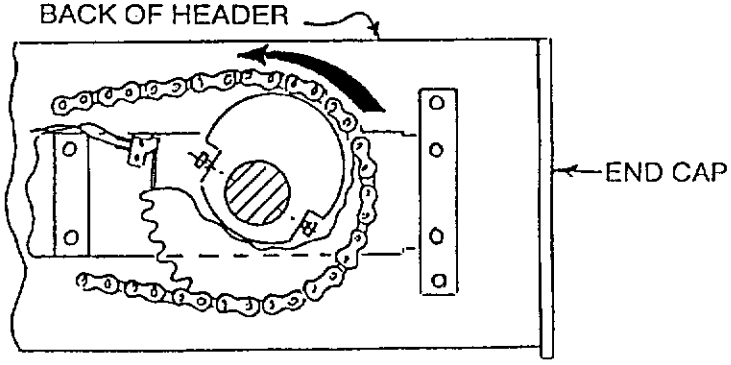
415657 - LEFT HAND OUT-SWING



415655 - RIGHT HAND OUT-SWING



415658 - RIGHT HAND IN-SWING



415656 - LEFT HAND IN-SWING

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SWITCH ADJUSTMENT - DOOR IN CLOSED POSITION