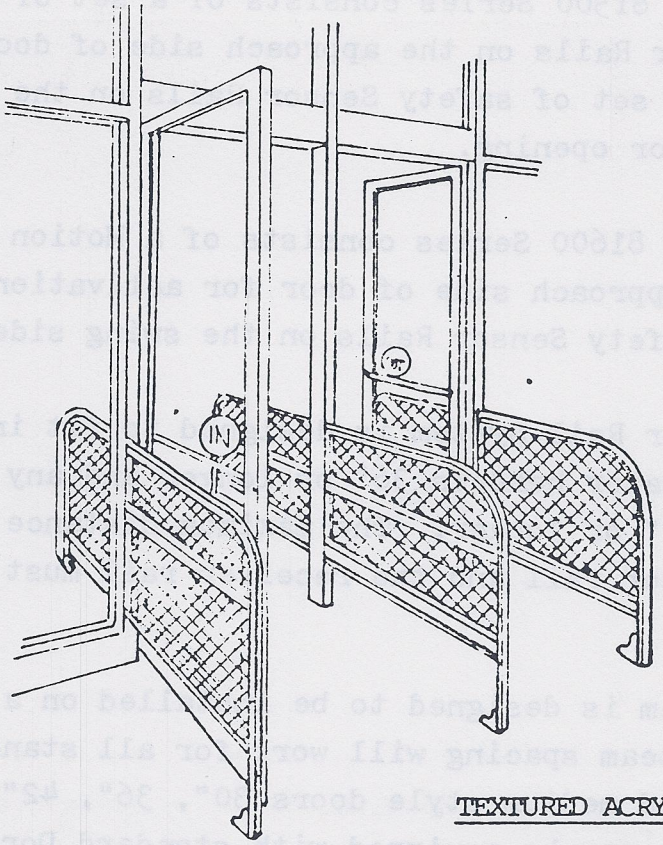
DOR-O-MATIC®

SENSOR-RAIL DETECTION SYSTEM



TEXTURED ACRYLIC PANELS STANDARD

OPTIONAL EXPANDED METAL SCREENS SHOWN

INSTALLATION AND SERVICE INSTRUCTIONS

DOR-O-MATIC

Division of Republic Industries, Inc

7350 West Wilson Avenue, Chicago, Illinois 60656 (312) 867-7400

England: Dor-O-Matic G.B. Ltd., Thames House, Wellington Square, London S.E. 18.
Canada: Dor-O-Matic of Canada, Toronto

81500-984
PRICE: $15.00
4/84

General Description

A. There are two basic model number series described in this manual: # 81500 and # 81600.

1. The # 81500 Series consists of a set of activating Sensor Rails on the approach side of door opening and a set of safety Sensor Rails on the swing side of door opening.

2. The # 81600 Series consists of a Motion Detector on the approach side of door for activation and a set of Safety Sensor Rails on the swing side of door.

B. The Sensor Rail System is designed to fit in single door operator headers 36" or longer and any simultaneous header 60" or longer. The maximum distance between the transmitter rail and the receiver rail must not exceed 10 feet.

C. The system is designed to be installed on a $4\frac{1}{2}$" wide jamb so beam spacing will work for all standard narrow styles and medium style doors 30", 36", 42" and 48" wide. All doors may be equipped with standard Dor-O-Matic cart guards.

D. The Sensor Rails are designed to mount on any flat and level floor surface. They are normally not intended to be installed on ramped or sloping floors.
The Sensor Rails are 49" long and 32" high. Adequate floor space should be considered to allow for normal traffic floor pattern.

E. NOTE:

1. The system will not work with opaque doors unless a small vision panel is provided by door manufacturer.

2. The system will not work with some of the darker bronze or smoke tinted glass. The type and size of door and the type and color of the glass should be verified before selling or installing this type of system.

EQUIPMENT FURNISHED BY DOR-O-MATIC

A. For Basic Model # 81500 (Sensor Rails on both sides of door)

1 - Activating Side Transmitter Rail Assembly
1 - Activating Side Receiver Rail Assembly
1 - Safety Side Transmitter Rail Assembly
1 - Safety Side Receiver Rail Assembly
1 - Activating Side Cable Assembly
1 - Safety Side Cable Assembly
1 - Sensor Rail Master Control Box
1 - Package of Mounting Screws
1 - Instruction Sheet

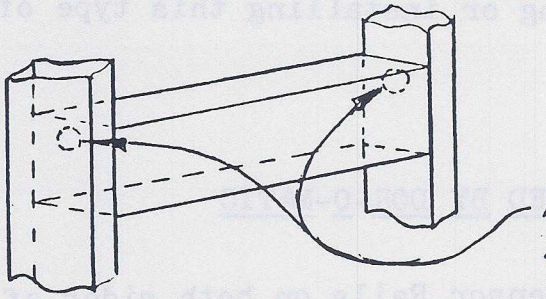
B. For Basic Model # 81600 (Motion Detector on Activating Side and Sensor Rails on safety side of door)

1 - Activating Side Motion Detector
1 - Adaptor Plug connector and wire
1 - 12 v. Transformer
1 - Safety Side Receiver Rail
1 - Safety Side Cable Assembly
1 - Sensor Rail Master Control Box
1 - Package of Mounting Screws
1 - Instruction Sheet

FIELD INSTALLATION - (With Dor-O-Matic Astro-Swing Operator)

A. Header:

On existing installations the door operator and control box must be removed so that proper wire clearance holes can be drilled into side jambs. (See Fig. #1)



DRILL A 3/4 DIA. HOLE THRU BOTH ENDS, AND AS CLOSE TO TOP OF HEADER AS POSSIBLE INTO SIDE JAMBS.

REMOVE ALL SHARP EDGES

Fig - 1

B. 115 Volt 60 H_Z A.C. Supply:

Normally the 115 volt power is already installed and connected into junction box in header as indicated below:

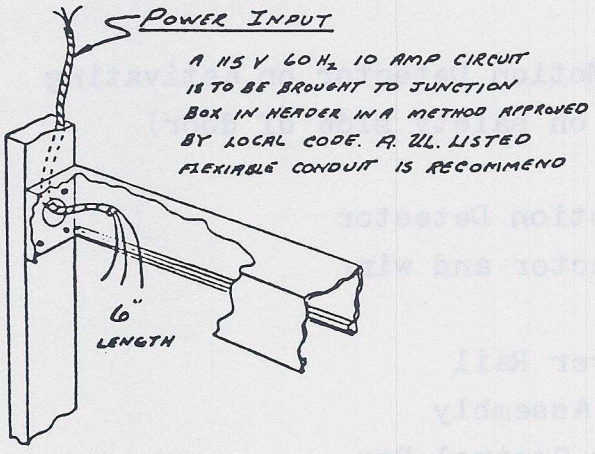


Fig. - 2

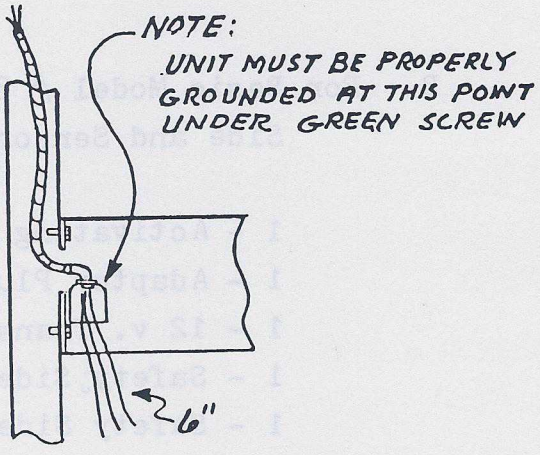


Fig - 3

C. Connect the four (4) pin female wire connectors, Part # 81275-000, to the 115 volt line at junction box as indicated.

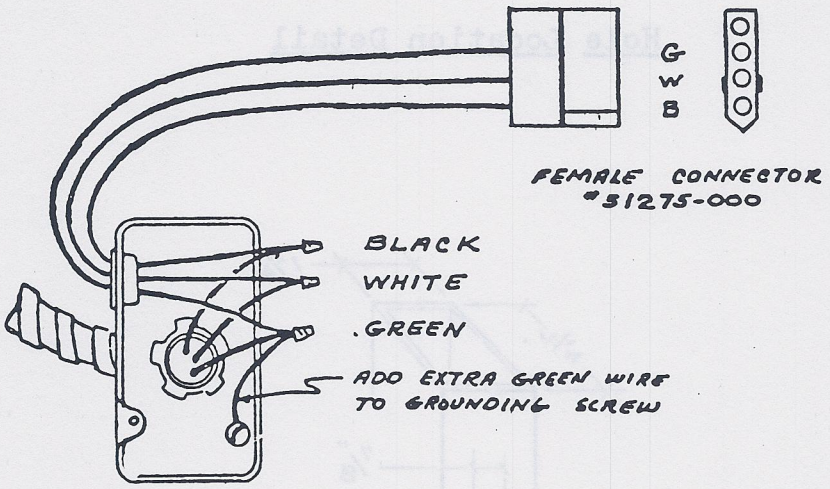


Fig.-4

JAMB PREPARATION:

NOTE:

Exact layout of system must now be determined as to which side of door opening is to be the safety side and which type of activation is to be used, Sensor Rail or Motion Detector.

A. Safety Side Sensor Rails - Both Jambs

NOTE:

The preparation for mounting the Sensor Rails is exactly the same as for Standard Guide Rails except for the addition of a 3/4" diam. wire clearance hole. When drilling this hole extreme care should be taken to remove all burrs and sharp corners that could cut or damage the wire cable.

Hole Location Detail

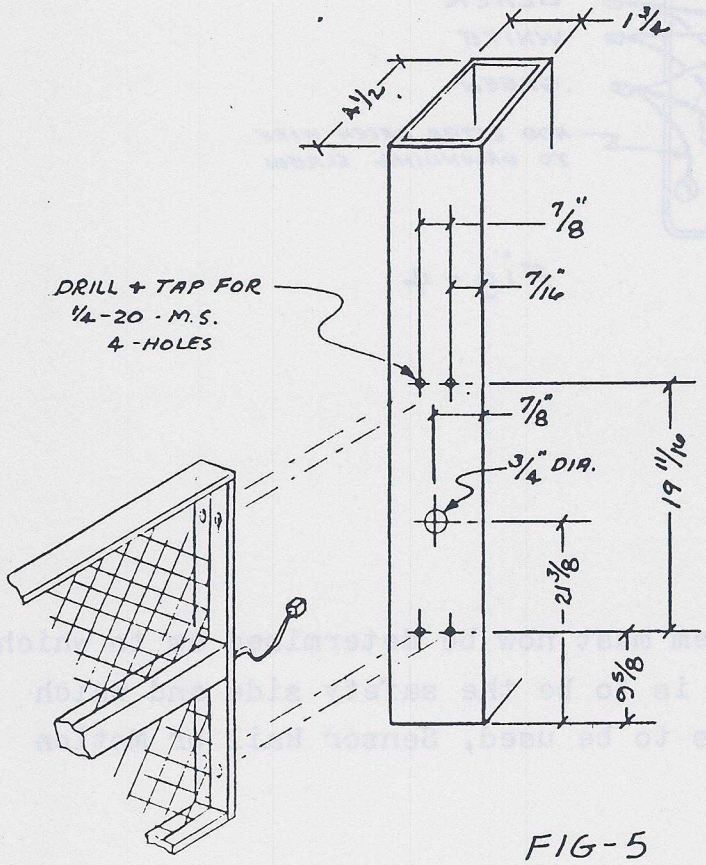


FIG-5

B. Activating Side Sensor Rails - Both Jambs

Hole Location Detail

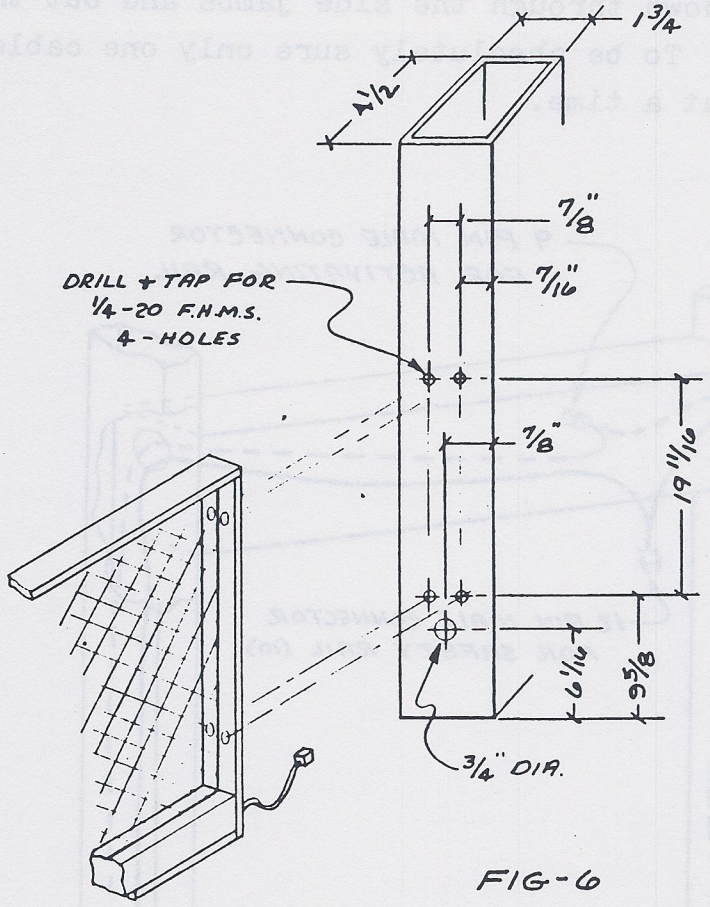


FIG-6

C. After jambs are prepared Sensor Rails should be temporarily installed with the $\frac{1}{4}$-20 F.H.M.S. and all floor anchors located and installed. Care should be taken to assure that rails are square to door and parallel with each other.

CABLE INSTALLATIONS

A. After all holes have been drilled for mounting Sensor Rails and wire holes are deburred the Activating and Safety side cables can be installed in jambs.

B. CAUTION: Extreme care must be taken to assure that cables and connectors are not mixed up or damaged when pulling them down through the side jambs and out through proper holes. To be absolutely sure only one cable should be installed at a time.

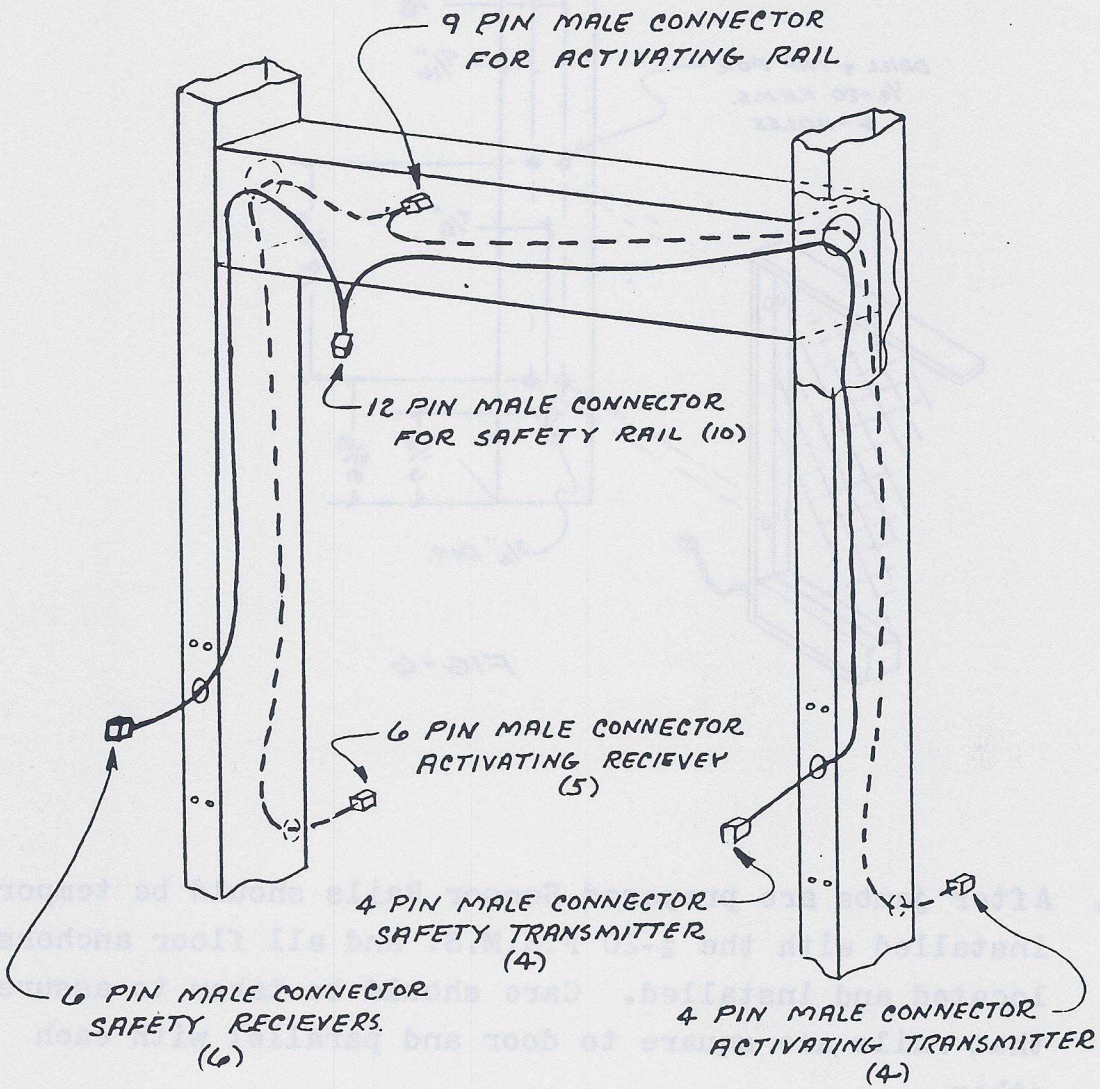


FIG-7

SENSOR RAIL INSTALLATION

CAUTION: The wires coming out of the Sensor Rail are small and fragile and must be handled carefully to avoid damage.

A. Hold proper Sensor Rail in position and plug in the Molex Connector. Very carefully feed it back through the hole in the side jamb and attach Sensor Rail to jamb with the $\frac{1}{4}$-20 F.H.M.S. Be very careful not to pinch a wire between the jamb and rail.
Install one of the floor mounting screws by hand just to hold rail in position.

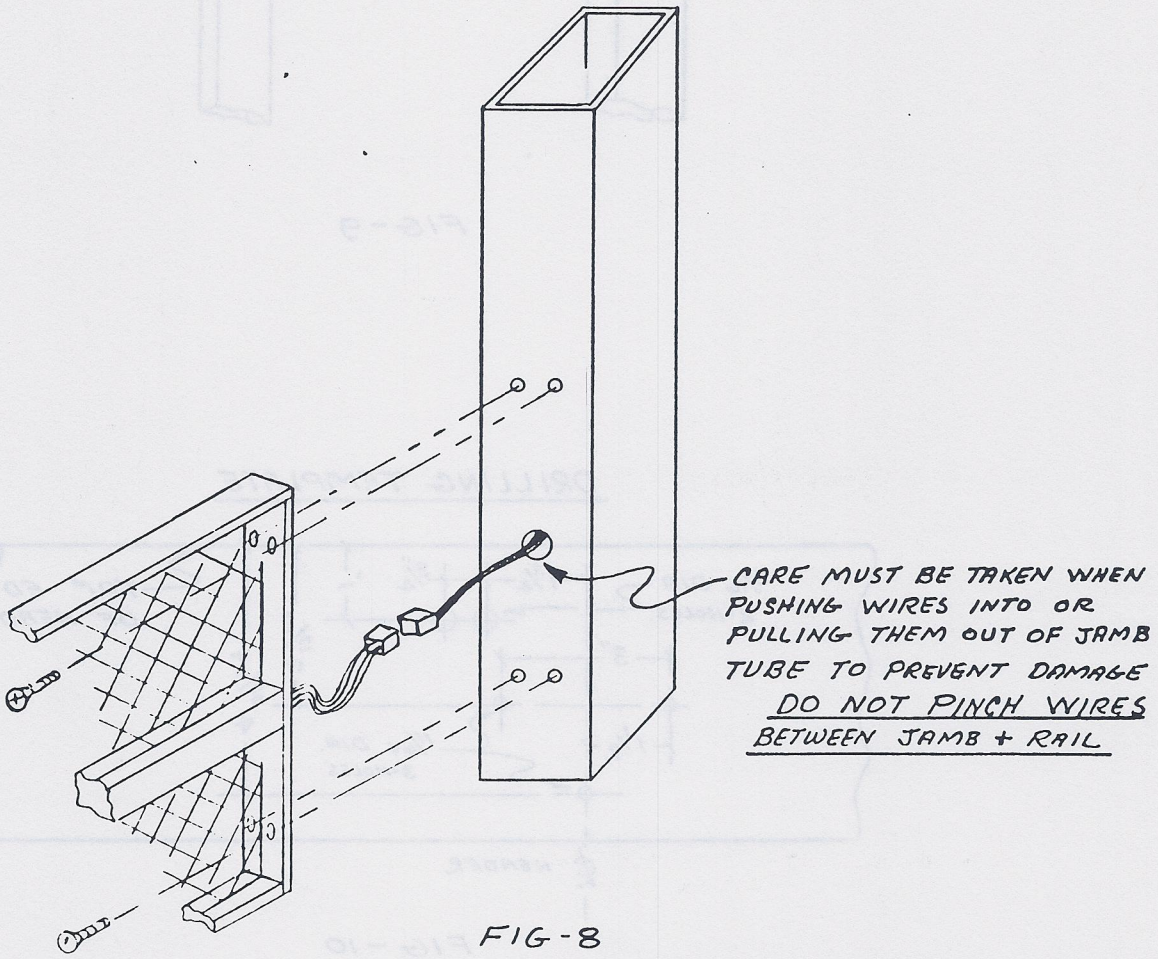


FIG-8

For Motion Detector on the Activating (approach) Side and Sensor Rails on the Safety (swing) side of door opening.

Header Preparation: Activating Side Only

A. The Motion Detector is designed to install on the face of Astro-Swing Header and centered above door opening.

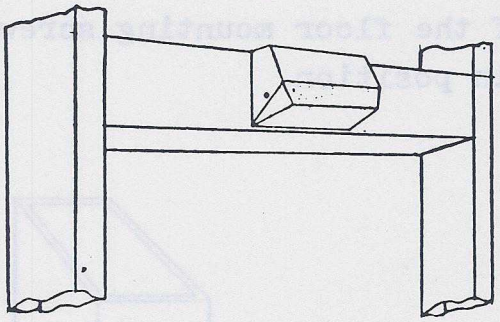


FIG-9

DRILLING TEMPLATE

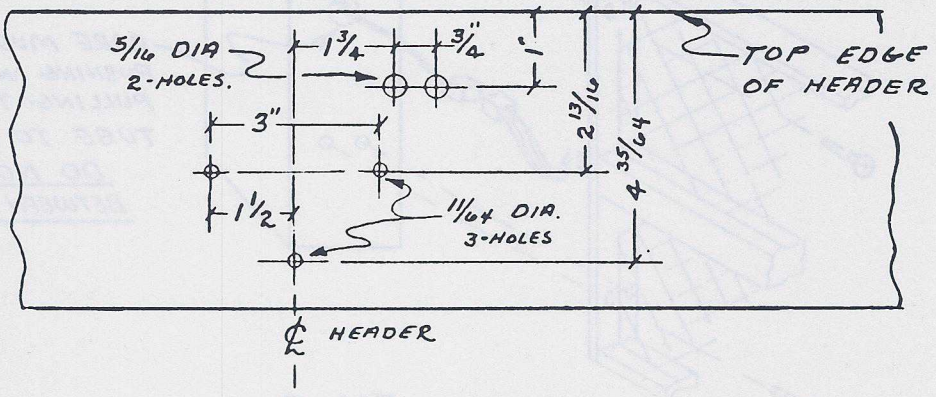


FIG-10

MOUNTING SENSOR HEADS:

A. Remove the two (#6-32 F.H.M.S.) cover security screws and remove the snap-in cover as shown in Fig. # 11, by applying pressure at point A and pivoting the cover about axis B.

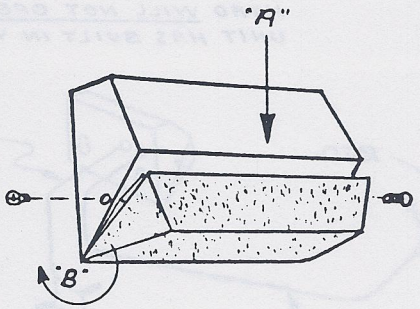


FIG-11

B. Locate two mounting holes in header that line up with the keyed mounting holes in scanner head.

C. Insert two #10-32 X 9/16 "combo" drive swageform screws into punched holes and drive screw in 4 to 5 turns.

D. Fit keyed holes in Sensor head over mounting screws heads and slip down into place.

E. Add additional #10-32 X 9/16 combo drive through lower locking screw hole. (this prevents the Sensor head from being pushed up off the mounting screws) Tighten all (3) screws securely.

Transformer: 12 Volt A.C.

WARNING: The Astro Scan Motion Detector operates on 12 volt A.C. only. Do not connect to any other voltage source or unit may be permanently damaged.

A. The mounting of the transformer must be worked out in the field at the time of installation because of the space limitations. In the 36" single unit a smaller alternate transformer may have to be used.

B. Mount transformer as required and connect as shown.

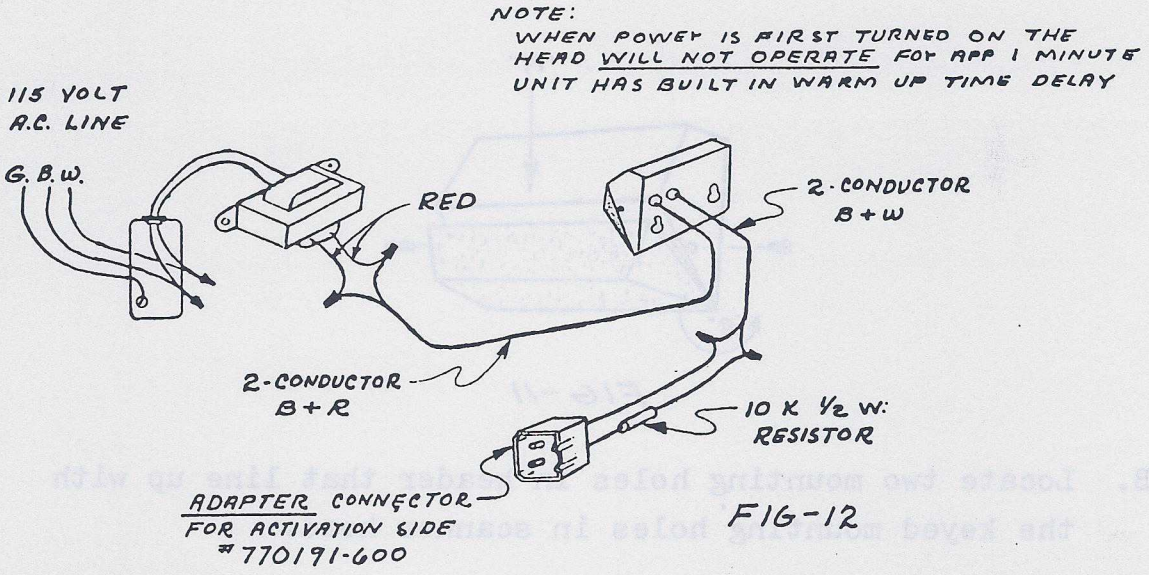


FIG-12

NOTE:
THIS ADAPTER MUST BE USED WHEN CONNECTING ANY TYPE MOTION DETECTOR HEADS TO SENSOR RAIL SYSTEM.

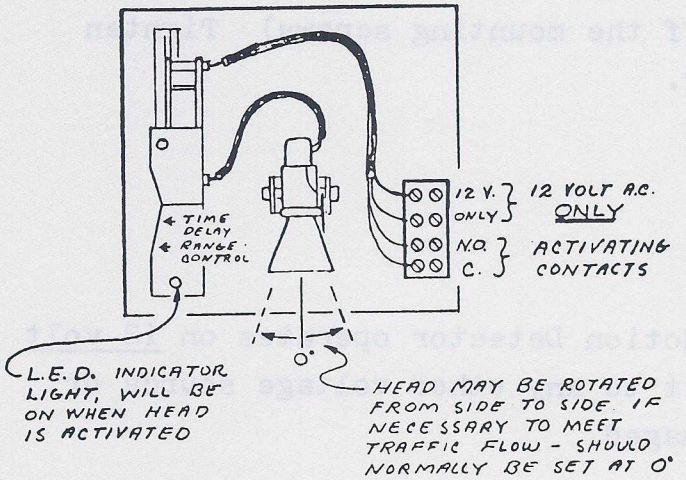


FIG-13

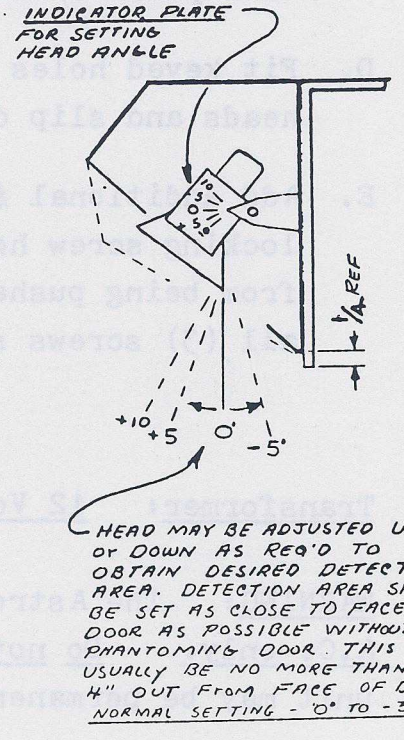


FIG-14

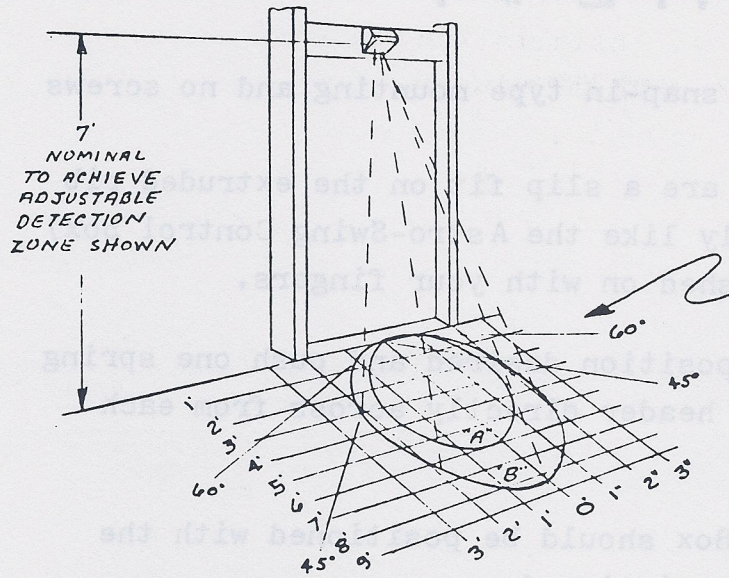
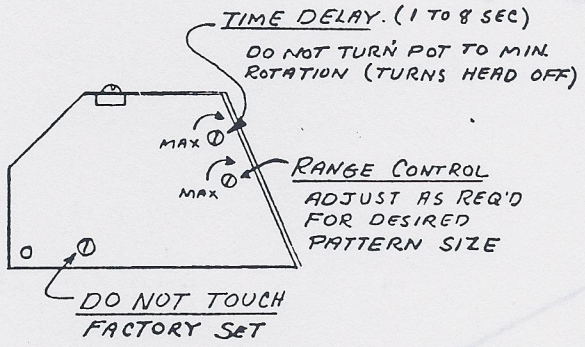


FIG-15



NOTE:
TO COMPLY WITH THE REVISED ANSI. STANDARD #A-156.10, THE TIME DELAY PERIOD MUST BE SET FOR A MINIMUM OF 4 SECONDS, OR MORE AFTER DETECTION AREA IS CLEAR.

FIG-16

Safety Side: Sensor Rails:

A. This is exactly the same as described on page # 5 Fig. # 5.

B. Mounting and wiring would also be exactly the same as previously described.

Master Control Box: **TYPE #1**

A. The Control Box is a snap-in type mounting and no screws are required.
The two spring clips are a slip fit on the extruded rib in the header (exactly like the Astro-Swing Control Box) and can be easily pushed on with your fingers.

B. Determine the exact position desired and push one spring clip on each side of header directly across from each other.

C. Sensor Rail Control Box should be positioned with the red and green lights pointing down.

D. Carefully route all cables and wires up over top or along either side of Sensor Rail Control Box and snap in place by pushing straight up.

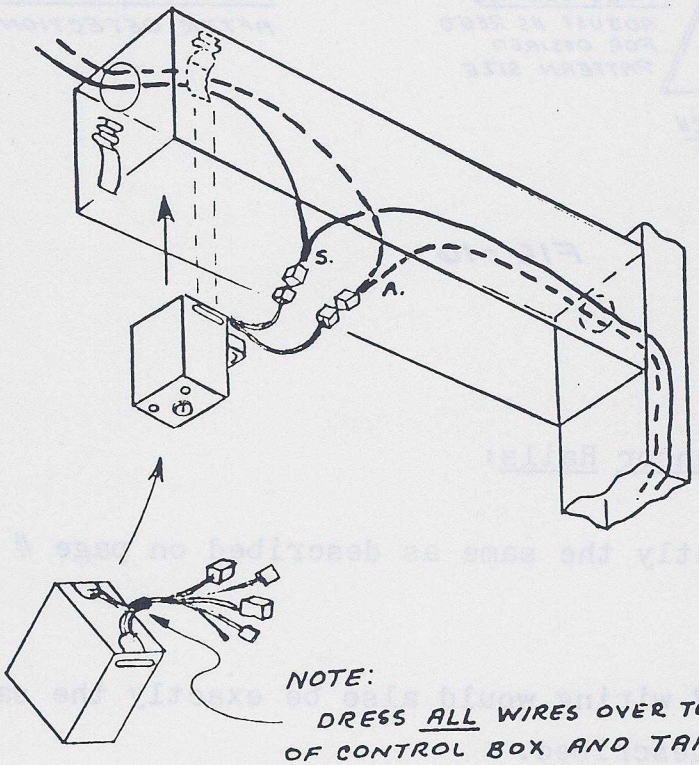


FIG-17

NOTE:
DRESS ALL WIRES OVER TO CENTER OF CONTROL BOX AND TAPE TOGETHER TO AVOID CATCHING AND PINCHING WIRES UNDER SPRING CLIP.

Master Control Box: **TYPE #2**

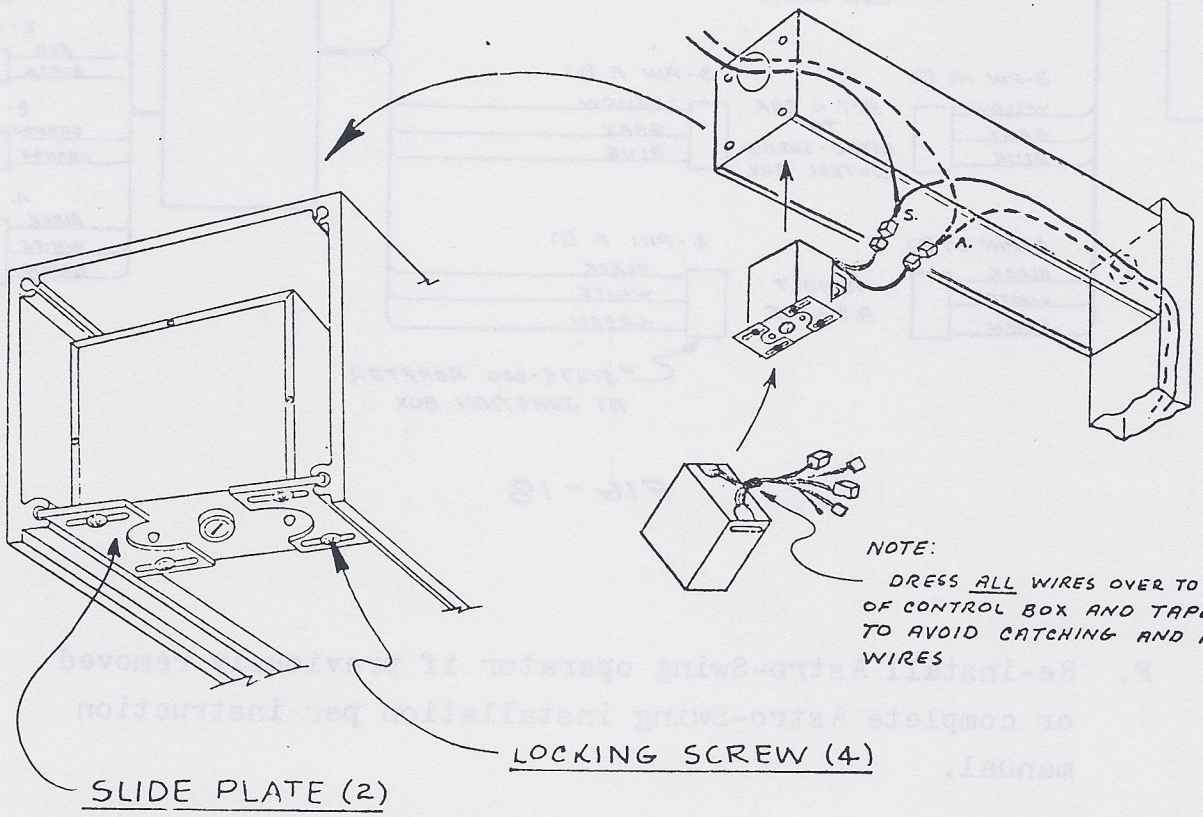
A. This Control Box is mounted into the Astro-Swing header with two adjustable slide plates and locked solidly into position with 4 phillips head screws.

B. Determine the exact mounting position in header for ease of wiring and push control box up into header with the red and green lights pointing down.

C. Make sure the edges of the slide plates fit into the narrow 1/8" groove along both sides of the header.

D. Spread the slide plates apart and tight against sides of header. Securely tighten the 4 phillips head screws.

FIG-17-A



E. Re-install Astro-Swing Control Box and make proper connections as shown.

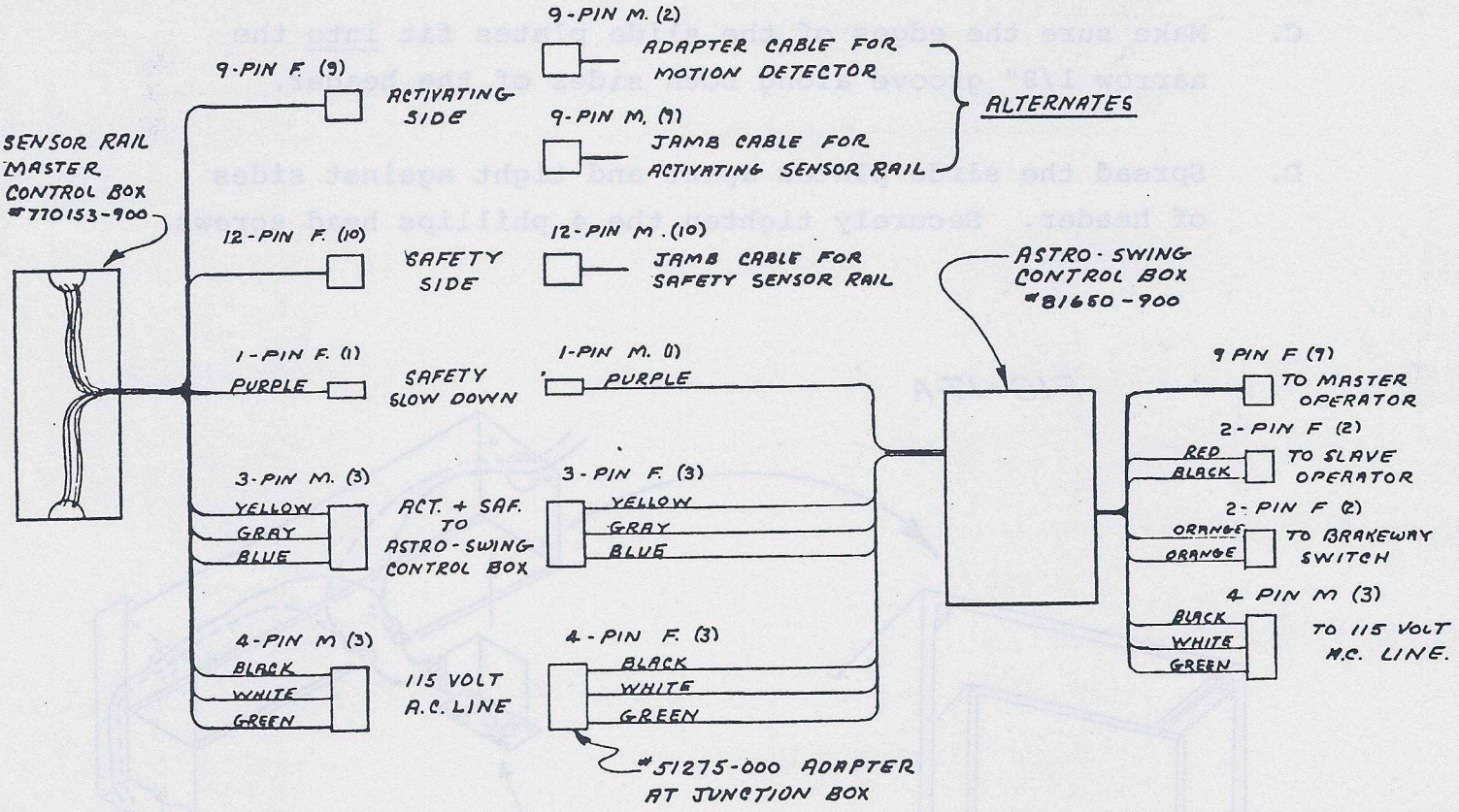


FIG-18

F. Re-install Astro-Swing operator if previously removed or complete Astro-Swing installation per instruction manual.

G. Turn on 115 volt power and check out system for proper operation.

SENSOR RAIL CHECKOUT PROCEDURE

I. ACTIVATE RAIL

1. Interrupt each beam, one at a time. Check that all five beams cause the green light in the master control to light and hold the door open. Each beam must be blocked for 5 seconds minimum.

II. SAFETY RAIL

1. With door open, interrupt each beam one at a time. Check that each of the first seven safety beams cause the red light in the master control to light and hold the door open. Each beam must be blocked for 3 seconds minimum.

III. WALK TESTS

1. With door closed, walk into the safety area. Each of the first seven beams must cause the red light to light. While the red light is on, have someone try to activate the door. The door should not open.
2. While the door is closing, try to activate the door. It must open without any delay.
3. Block only the # 8 beam. Have someone activate the door. The door should open slowly.

H. If system does not operate, re-check complete installation and refer to trouble shooting section.

I. If system works properly complete installation by securing rails to floor permanently and making sure all screws are tight.

Dress Plates:

A. If desired two holes can be drilled through Dress Plate so that the red and green lights can be observed during normal operation.

B. Very carefully position the Dress Plate over Control Box. Mark the exact position of the lights and drill (2) $\frac{1}{4}$" diam. holes. Deburr holes

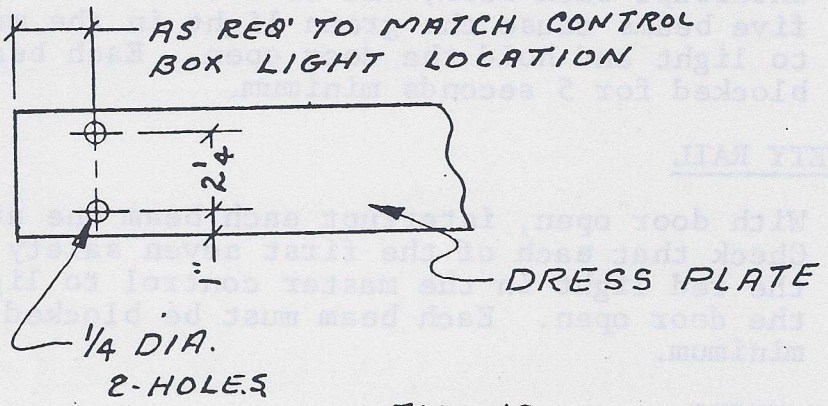


FIG-19

Release of Astro-Swing system for service.

A. Remove all tools and installation equipment and clean any debris from vicinity of door.

B. Install all safety, traffic control, and instruction decals to door as required.

This is very important! Failure to do this leaves DOR-O-MATIC and the installer LIABLE for any accident that might occur. THIS MUST BE DONE.

C. Verbally explain the proper operation of the door system to the owner or person in charge.

D. Install the dress plates in the header.

SENSOR RAIL TROUBLESHOOTING

I. DOOR DOES NOT OPEN

1. Check if green light comes on when one of the activate beams is blocked.

   A. If light comes on, check the operator control box.

   B. If light does not come on, replace the rail master control box.

II. DOOR OPENS BUT DOES NOT HOLD OPEN WHEN STANDING IN THE SAFETY AREA

1. Check if red light comes on when in the safety area.

   A. If light comes on, check the operator control box.

   B. If light does not come on, replace the rail master control box.

III. DOOR WILL HOLD OPEN BUT WILL NOT SAFETY

1. Check if red light comes on after walking into safety area with door closed.

   A. If light comes on, check the operator control box.

   B. If light does not come on, replace the rail master control box.

IV. DOOR OPENS SLOW

1. Hold snooper about one foot from the safety # 8 beam. (farthest from the door) The snooper light should go out.

   A. If light does not go out, replace the # 8 transmitter.

   B. If light goes out, replace the # 8 receiver.

V. DOOR DOES NOT CLOSE

1. Check red and green lights on rail master control.

   A. If green light is on, use procedure # I, below.

   B. If red light is on, use procedure # 2, below.

   C. If both lights are on, use procedure # 3, below.

   D. If neither light is on, use procedure # 4, below.

PROCEDURE # 1

1. Hold snooper about one foot from each of the 5 activate transmitters. The snooper light should go out when in front of each transmitter.

   A. If light fails to go out on a particular beam, replace that transmitter.

   B. If light goes out on all 5 beams, remove receiver cover and unplug all 5 receiver cables. Green light should go out and door should close. If not, replace the rail master control. If door closes, plug in receiver closest to the door. If door does not hold open, plug in the next receiver and check. Continue plugging in receivers until one is found that causes door to hold open. Replace that receiver.

PROCEDURE # 2

1. Hold snooper about one foot from each of the 8 safety transmitters. The snooper light should go out when in front of each transmitter.

   A. If light fails to go out on a particular beam, replace that transmitter.

   B. If light goes out on all 8 beams, remove receiver cover and unplug all 8 receiver cables. Red light should go out and the door should close. If not, replace the rail master control. If door closes, plug in the # 8 receiver (farthest out from door). Block the # 8 beam and have someone activate the door. Door should open slowly. If not, replace the # 8 receiver. Put a piece of tape over the # 8 beam transmitter. Plug in the receivers one at a time, beginning with the one closest to the door. Continue until one is found that causes the red light to come on. Replace the receiver and remove the tape.

PROCEDURE # 3

1. Replace master control. If problem continues, go through procedure 1 and procedure 2.

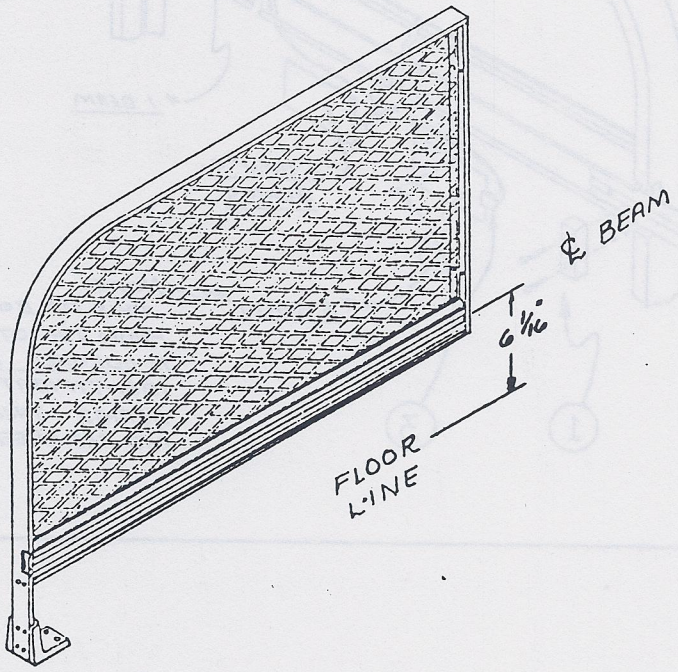
PROCEDURE # 4

1. Unplug rail master control from the operator master. If door now closes, replace rail master control. If not, replace operator control.

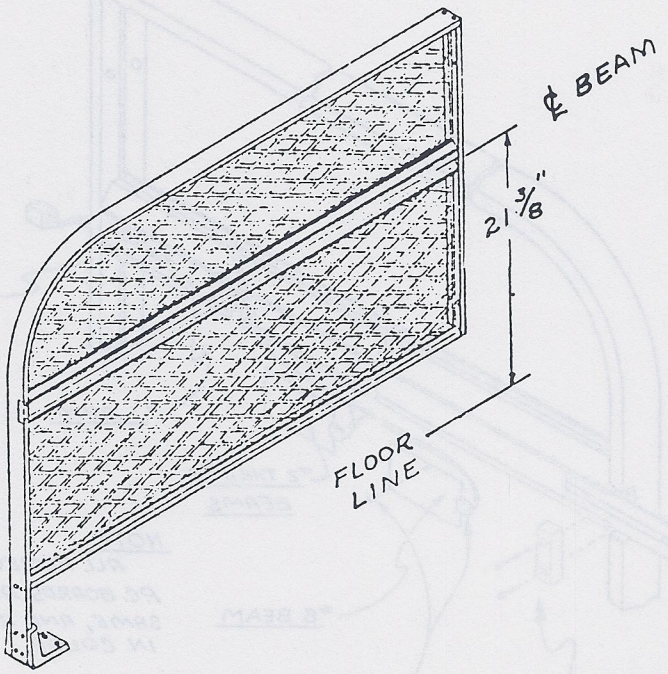
SENSOR RAIL

SERVICING PROCEDURES

FOR

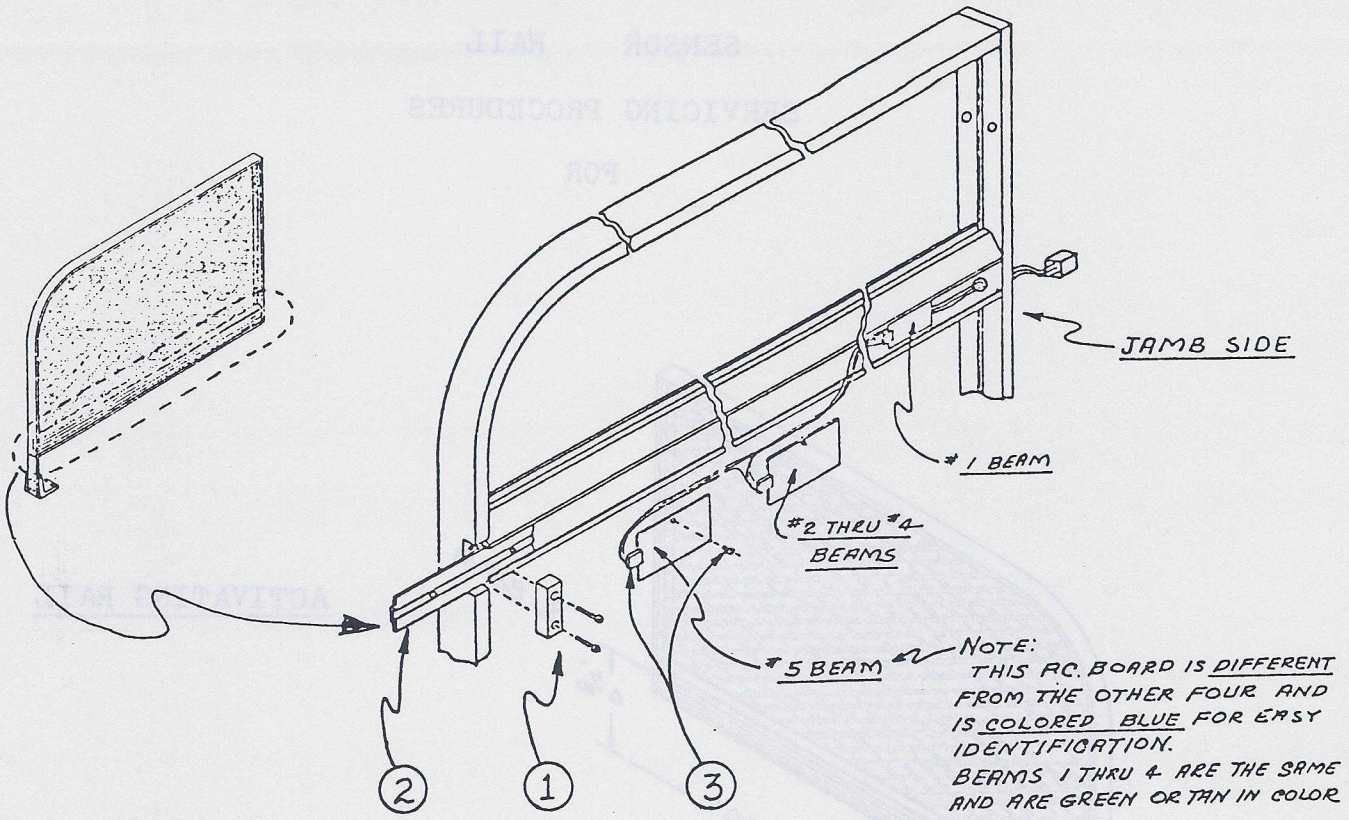


ACTIVATING RAIL



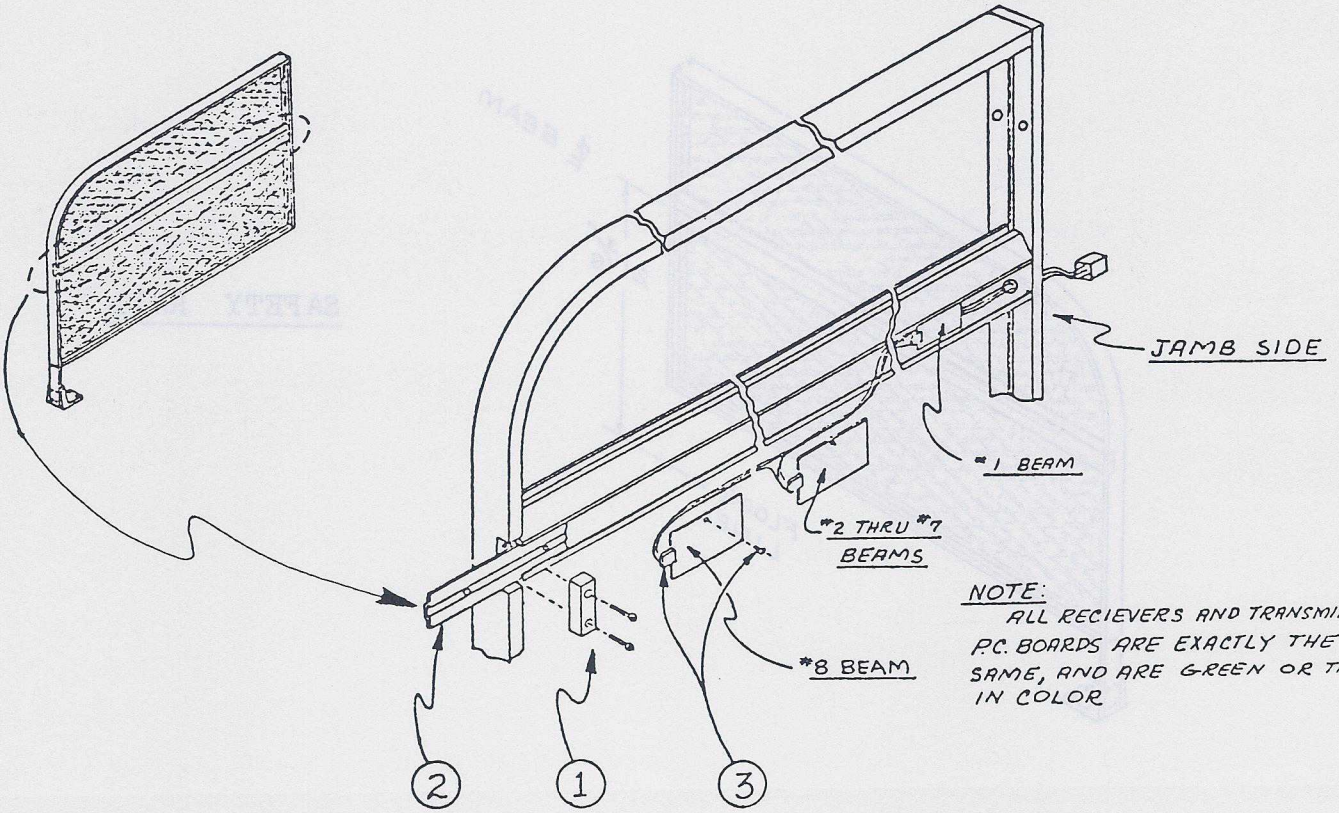
SAFETY RAIL

ACTIVATING RAIL



NOTE:
THIS P.C. BOARD IS DIFFERENT FROM THE OTHER FOUR AND IS COLORED BLUE FOR EASY IDENTIFICATION.
BEAMS 1 THRU 4 ARE THE SAME AND ARE GREEN OR TAN IN COLOR

SAFETY RAIL



NOTE:
ALL RECIEVERS AND TRANSMITTER P.C. BOARDS ARE EXACTLY THE SAME, AND ARE GREEN OR TAN IN COLOR

NOTE:

DISASSEMBLY AND ASSEMBLY PROCEDURE IS THE SAME FOR BOTH THE ACTIVATING OR SAFETY RAILS.

REFER TO DRAWING ON PAGE 20

STEP ONE:

REMOVE THE 2 #6-32 SOCKET HEAD CAP SCREWS AND FILLER BLOCK.

STEP TWO:

SLIDE OUT THE SENSOR RAIL COVER USING A PAIR OF LONG NOSE PLIERS IF NECESSARY.

STEP THREE:

REMOVE THE TRANSMITTER OR RECEIVER P.C. BOARD BY GENTLY PULLING OFF THE WIRE CONNECTOR AND REMOVING THE HOLDING SCREW.

STEP FOUR:

REPLACE THE TRANSMITTER AND RECEIVER AS NECESSARY AND RE-ASSEMBLY THE SENSOR RAIL IN REVERSE ORDER.

NOTE:

WHEN REPLACING THE RAIL COVER BE CERTAIN THAT THE END OF THE COVER WITH THE LABEL READING JAMB SIDE IS INSERTED FIRST. IF INSERTED INCORRECTLY THE PHOTO CELLS WILL NOT LINE UP WITH HOLES IN RAIL COVER.

STEP FIVE:

AFTER SENSOR RAIL HAS BEEN RE-ASSEMBLED CHECK FOR PROPER OPERATION AS DESCRIBED IN STEPS I, II AND III ON PAGE 15.

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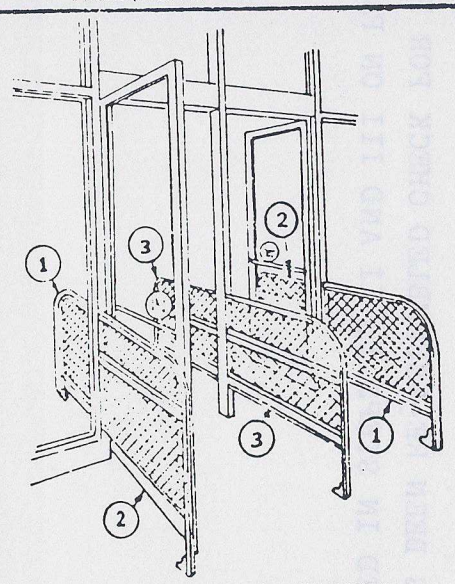
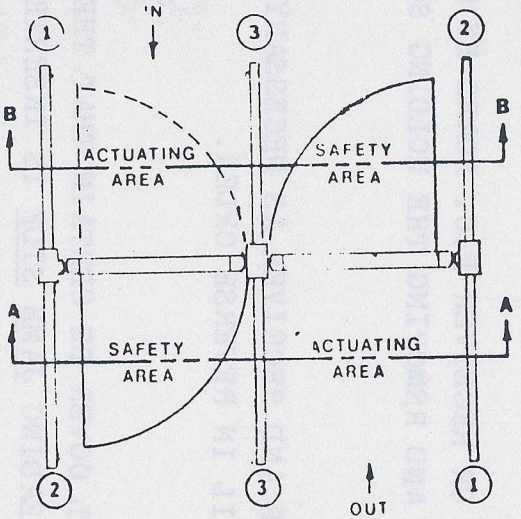
Phone (312) 867-7400

SENSOR RAIL

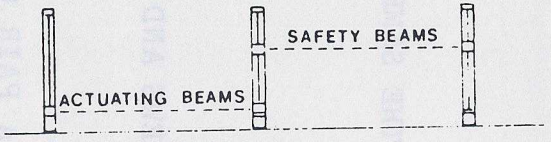
TWO SINGLE DOORS,
ONE IN, ONE OUT,
RIGHT HAND OUT TRAFFIC



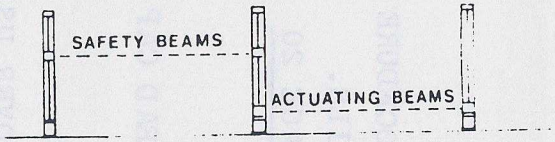
VIEW FROM INTERIOR
RIGHT HAND OUT TRAFFIC



PLAN

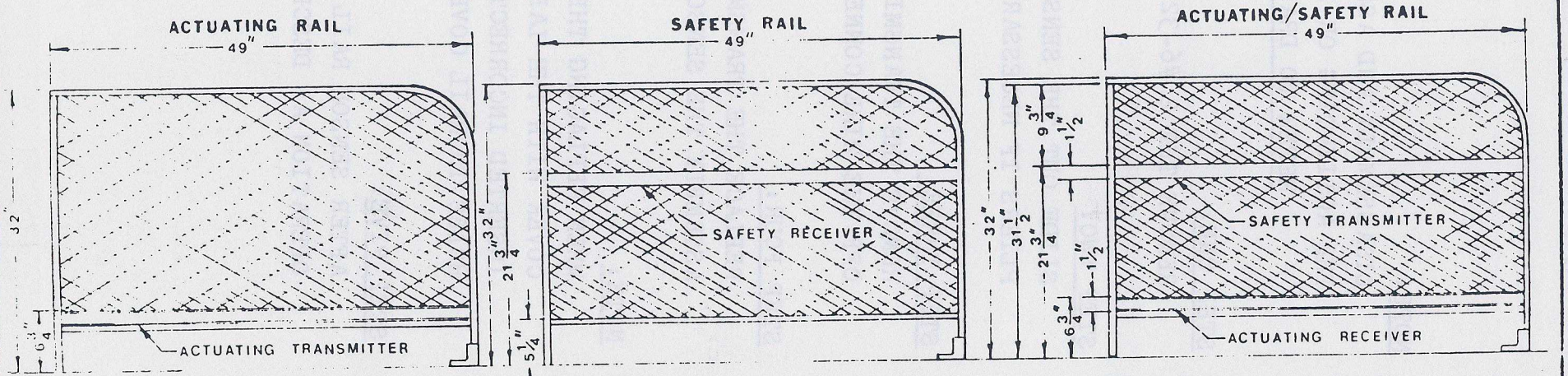


SECTION B-B



SECTION A-A

ELEVATION



(1) TRANSMITTER (R.H.)

(2) RECEIVER (R.H.)

(3) TRANSMITTER RECEIVER (R.H.)

SCALE 1" = 1'

DOR-O-MATIC
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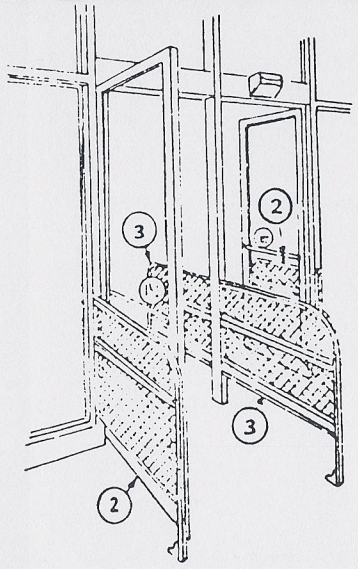
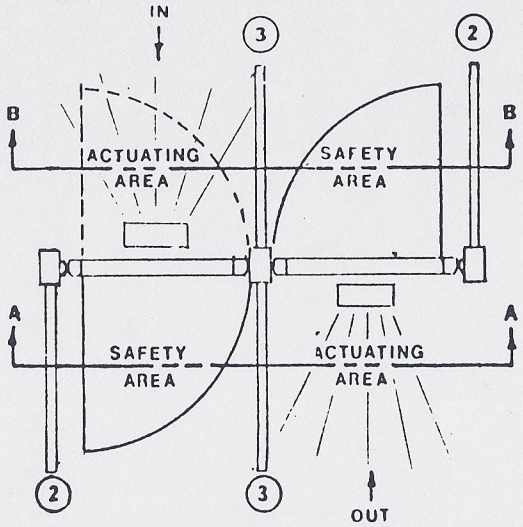
SENSOR RAIL / MOTION DETECTOR

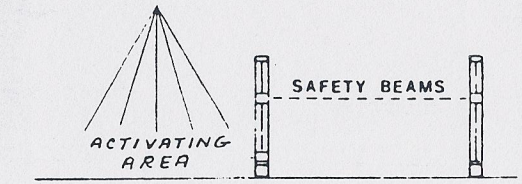
TWO SINGLE DOORS,
ONE IN, ONE OUT,
RIGHT HAND OUT TRAFFIC



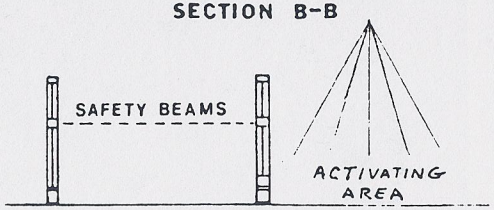
VIEW FROM INTERIOR
RIGHT HAND OUT TRAFFIC



PLAN

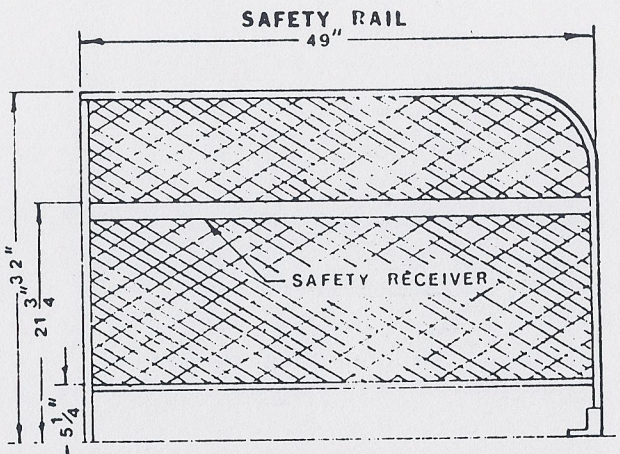


SECTION B-B

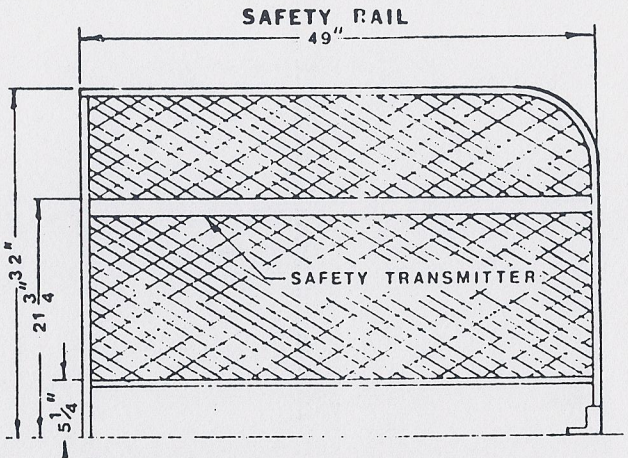


SECTION A-A

ELEVATION



(2) RECEIVER (R.H.)



(3) TRANSMITTER (R.H.)