LANSON

OPTIC

SAFETY

SYSTEM

MODEL #4200

LANSON ELECTRONICS INC.
INSTALLATION INSTRUCTIONS FOR OPTIC-SENSOR MODEL 4200

FOREWORD:

The model 4200 system is designed to protect pedestrian traffic from a swinging door. This system in conjunction with a Gyro-Tech door, operates as follows.

The system is composed of several parts. There is a motion detector mounted above the door on the approach side, a motion sensor mounted on the approach side of the door at a height of 32", another on the swing side at the same height, and a presence sensor above the door on the swing side. There is also a lockout module inside the header to interlock the various components.

When a pedestrian approaches the door, the overhead motion detector will sense them and activate the door. (The door mounted unit will also activate the door but at a closer range.) As they move through the door opening, the door mounted unit will sense their motion and continue to hold the door open. If they should stand still in the closing path of the door while it is closing, the approach sensor will see them and re-activate the door.

The presence sensor mounted above the door on the swing side is an ultrasonic range-finder. It does not need motion to sense an object. If someone is behind the door when it is closed or within the latch zone, it will sense them and prevent the door from being activated. If the door is fully open, it will hold open as long as it senses a presence.

The unit on the swing side of the door is a one-way motion detector; that is, it will sense only objects moving towards it. This unit is connected to the door's safety system when the door is closed or in the process of opening or closing. It is switched out of the circuit when the door is fully open or anywhere in the backcheck zone.

If the swing-side sensor is tripped, the door will not open if closed, and will stop if in the process of opening. If it is tripped when the door is fully open or in backcheck, nothing will happen.

The **lockout** module has two functions:

1. It switches the presence sensor in and out of the safety system at the proper times.
2. It switches the swing-side door mounted sensor in and out of the safety system at the proper times.

INSTALLATION

These instructions are written with the assumption that the installation is on a single standard aluminum and glass door. Reference will be made to special situations that require either different installation methods or alternate products. This system's housing is being supplied cut to an exact length given to us by the customer. The system is shipped disassembled with the circuit boards out of the housing. The housing should be installed in the door first; then the circuit boards installed by the automatic door technician. At the time of installation all metal chips must be cleaned out of the housing.

1. HOLE DRILLING AND DOOR PREPARATION

A. Drill 5 holes in the door stiles for mounting the housing as shown in figure 2.

B. Position the housing at the holes and fasten to the doors with the four hex bolts provided. See figure 2.

C. Drill the door cord holes in the door and the door frame. The door cord must be mounted inside the building. See fig.4.

D. If it is a simultaneous pair. See figure 3.

2. WIRING

A. Snake the 6-conductor Y harness provided from the inside of the housing (The "Y" staying at the housing end.), up through the hole in the end bracket to the door cord hole in the hinge stile.

B. Place the door cord from the door stile to the door frame. See figure 4A.

C. Snake the 6 feet piece of 6 conductor cable through the hole in the frame up into the header. Reconnect the harness connectors to each other then shove it into the door frame, See Fig.4.

D. Secure door cord using the cover plates and the 6 screws provided. Make sure the **nylon spiral** is in place, See Fig.4A.

E. Connect the six wires now in the header to the 24 volt transformer, the motion detector, the control box, the presence sensor and the lockout as shown in figure 5 and 6. Excess wire may be cut off.

F. Install the two circuit board assemblies into the housing as shown in figure 8. Mount the more complex board (5 pin connector) such that it will face the swing side of the door See figure 8.

The board which faces the housing must be mounted in the screw-in spacers and the one pointing the other way does not use the long spacers except on one end. Both boards will now have a long spacer on one end which is only used as a brace when the cover is on.

Run the cables as shown in figure 8; being careful that they are not pinched under the cover when it is on. Do not connect to the circuit board yet.

G. If an **ON/OFF/HOLD-OPEN** switch is to be used, wire it as shown in figure 1. Note that a different wiring scheme is used for a P.A.C. door.

H. Soft-start capacitor connection: The soft-start capacitor must be connected as shown in figure 7A.

SPECIAL VARIATIONS.

If the installation is on a P.A.C. simultaneous pair, refer to figure 3 for the mounting instructions and call the factory for wiring instructions. Note that two presence sensors are needed for this installation. See figure 9 for single P.A.C. installations.

TURN-ON, ADJUSTMENT AND TEST

Before applying power. Be sure the connectors to the two sensor circuit boards are not connected until after the following operating check is made.

Turn **ON** all power to the door. Verify that the 4300 presence sensor is fully connected. Jumper pins 3 and 4 of the approach side harness and verify that the activate relay picks. Jumper pins 3 and 4 of the swing side harness and verify that the safety relay picks.

Turn **OFF** the power and connect the cable to it's respective pigtails. Note: Adjust the circuit board sensitivities with the cover on.

At this time mount and connect the approach motion detector and adjust the pickup pattern as required. Verify that it will activate the door.

Set the control box's **safety** switch to **SWING-SAFE** position.

Refer to figure 7 for patterns and adjust the range of the 4300 presence sensor as follows:

A. Set the time delay adjustment to minimum.

B. Set the range adjustment to minimum.

C. Verify that the unit will trip on a target such as a hand at a distance of approximately 4 feet. The red L.E.D. should signify a trip.

D. Slowly increase the range adjustment while testing for the bottom of the pattern until it is approximately 12 inches from the floor.

To set the sensitivity of the **approach** sensor, slowly increase the potentiometer at the end of the circuit board until the door recycles on the door frame every time it tries to close; then **back off** the adjustment about 1 division on the dial of the potentiometer. Varying conditions such as walls, rails, etc. may require different adjustments. Observe several cycles each time it is re-adjusted to make sure that it does not recycle while closing.

To set the sensitivity of the **swing-side** sensor; slowly increase the potentiometer at the end of the circuit board while cycling the door open. When the door begins to stop before reaching **backcheck**, decrease the sensitivity until it will repeatedly cycle open without stopping early. Here again, varying conditions will require different settings, rails and walls will require lower settings of sensitivity. Be sure that enough cycles are tried and enough warm-up is allowed to ensure that no premature tripping will occur. The red L.E.D on the end of the circuit board is an indication that a trip has occured.

Now verify that the presence sensor will keep the door from opening whenever it's L.E.D. is **ON** and the door is in the latch zone or fully closed.

To test the ability of the system to stop the door while opening. Stand in the path of the door and activate it. The door should stop when you are sensed. The door will remain stationary as long as an activate signal is kept ON it after a trip such as this. If the activate signal is removed, the door will close after time delay of about 8 seconds. If the door is pushed open while it is locked up, it will open at backcheck speed after it reaches the backcheck point.

Be sure the 4300 angle is set such that it does not see the door while it is in the latch zone.

Owners must be instructed in testing these systems for proper operation regularly. It is recommended that each door be checked every day when first turned ON.

TROUBLESHOOTING

It is highly recommended that each service person have a set of test plugs for the optic-sensor system (Lanson part #100326). With these test plugs the presence sensor, the approach and the swing sensor can be removed from the system while retaining all other functions. This is useful to isolate any problem to particular portion of the system. Full instructions are supplied with each set of test plugs. The lockout can easily be unplugged to try another unit.

Symptom	Possible problem
Door stops before reaching backcheck.	Swing-side sensitivity too high or a loose board.
Door won't recycle while closing.	Angle of 4300 too low.
Door recycles while closing.	Approach-side sensitivity too high or a loose board.
Presence sensor L.E.D. On when there is no target.	Range set too high or it is cross-talking with another unit. Solutions: 1. Re-adjust the range. 2. Reverse the 24 volt wires for one of the units.
Door closes in latch speed.	Lockout not getting proper power check wiring or replace the lockout
Door has no backcheck.	Same as above.
Erratic operation.	Bad connections or a sensor not adjusted properly.

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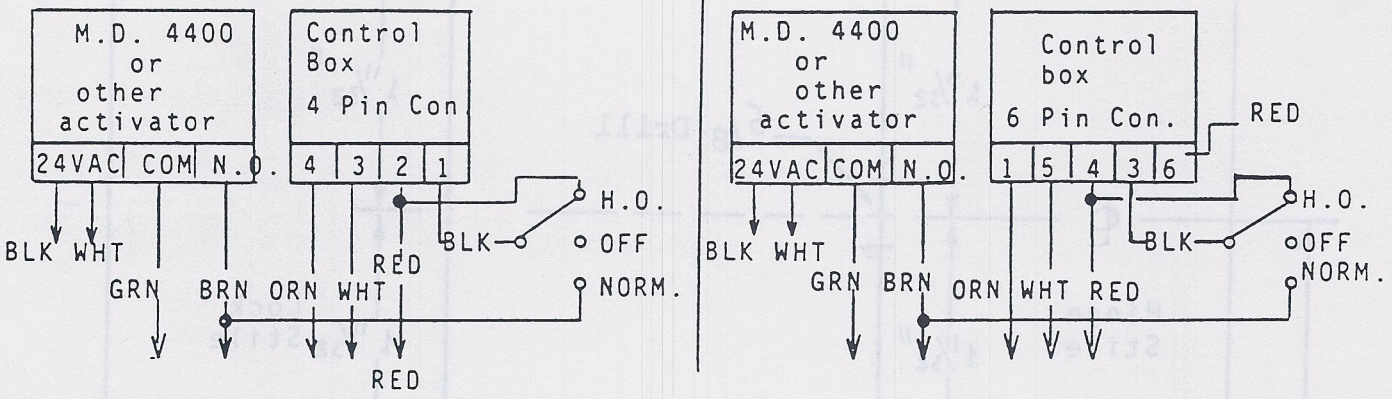


For POSC Control For P.A.C. Control

Fig.1 ON/OFF/HOLD-OPEN Switch connection.

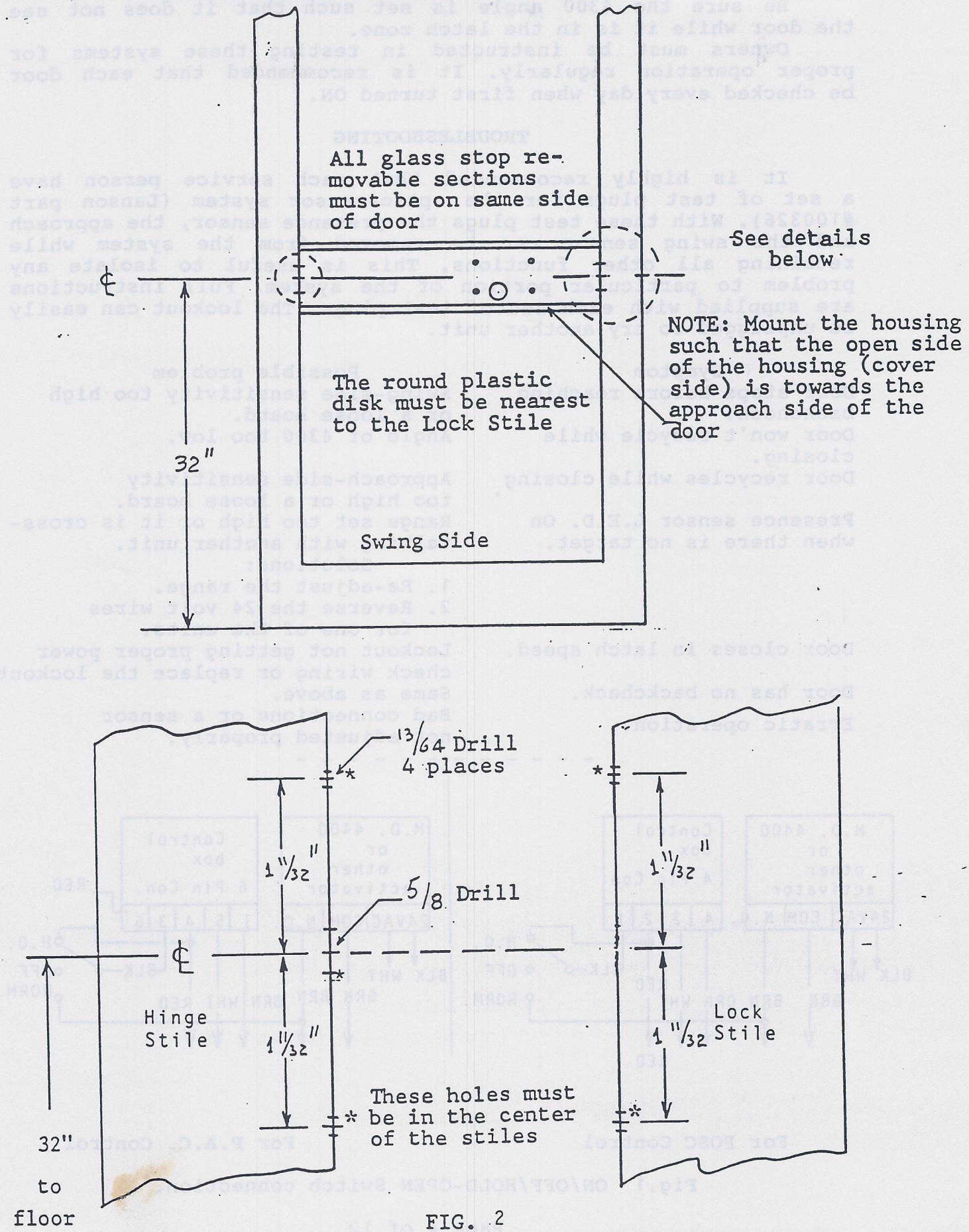
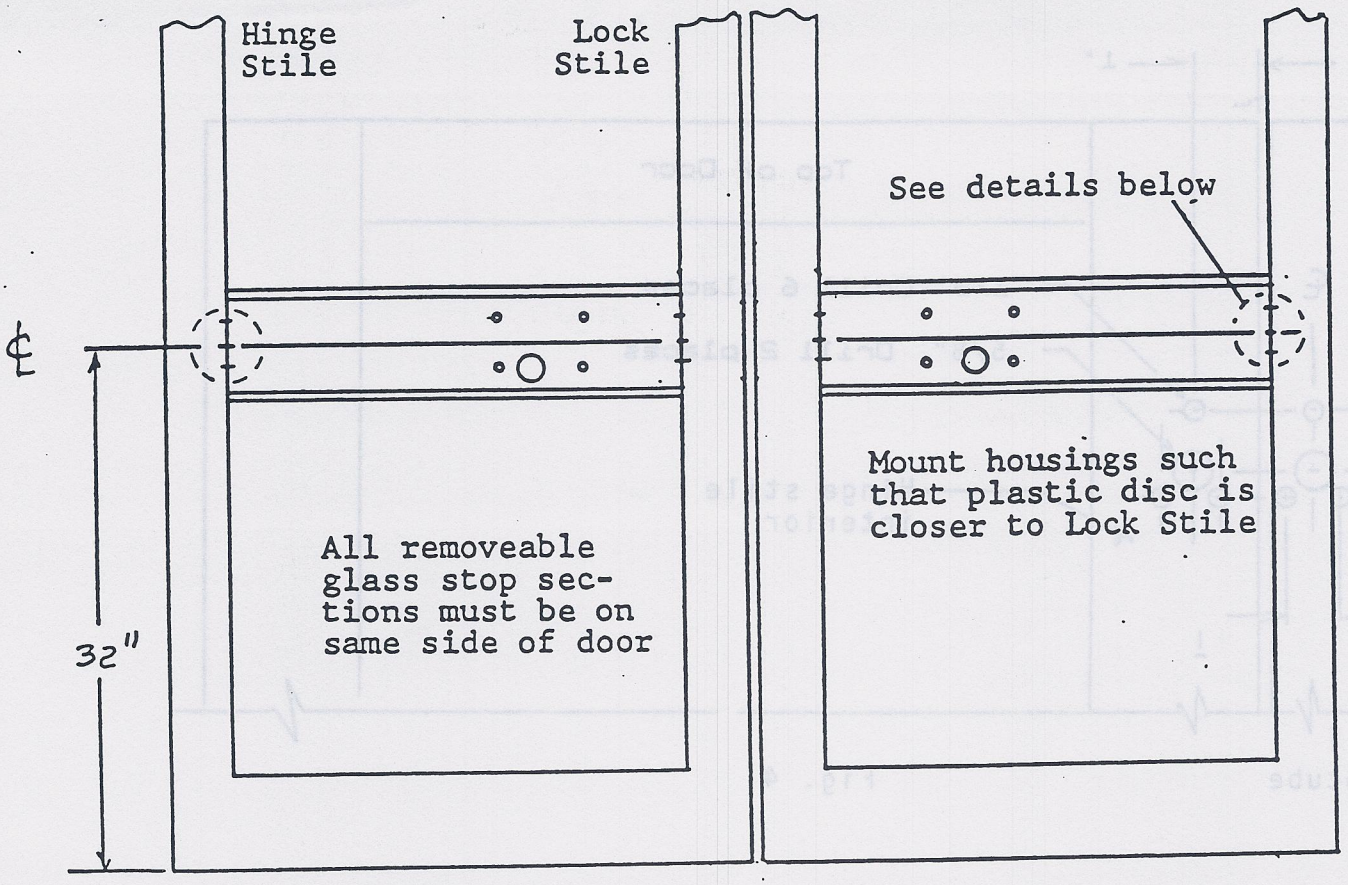
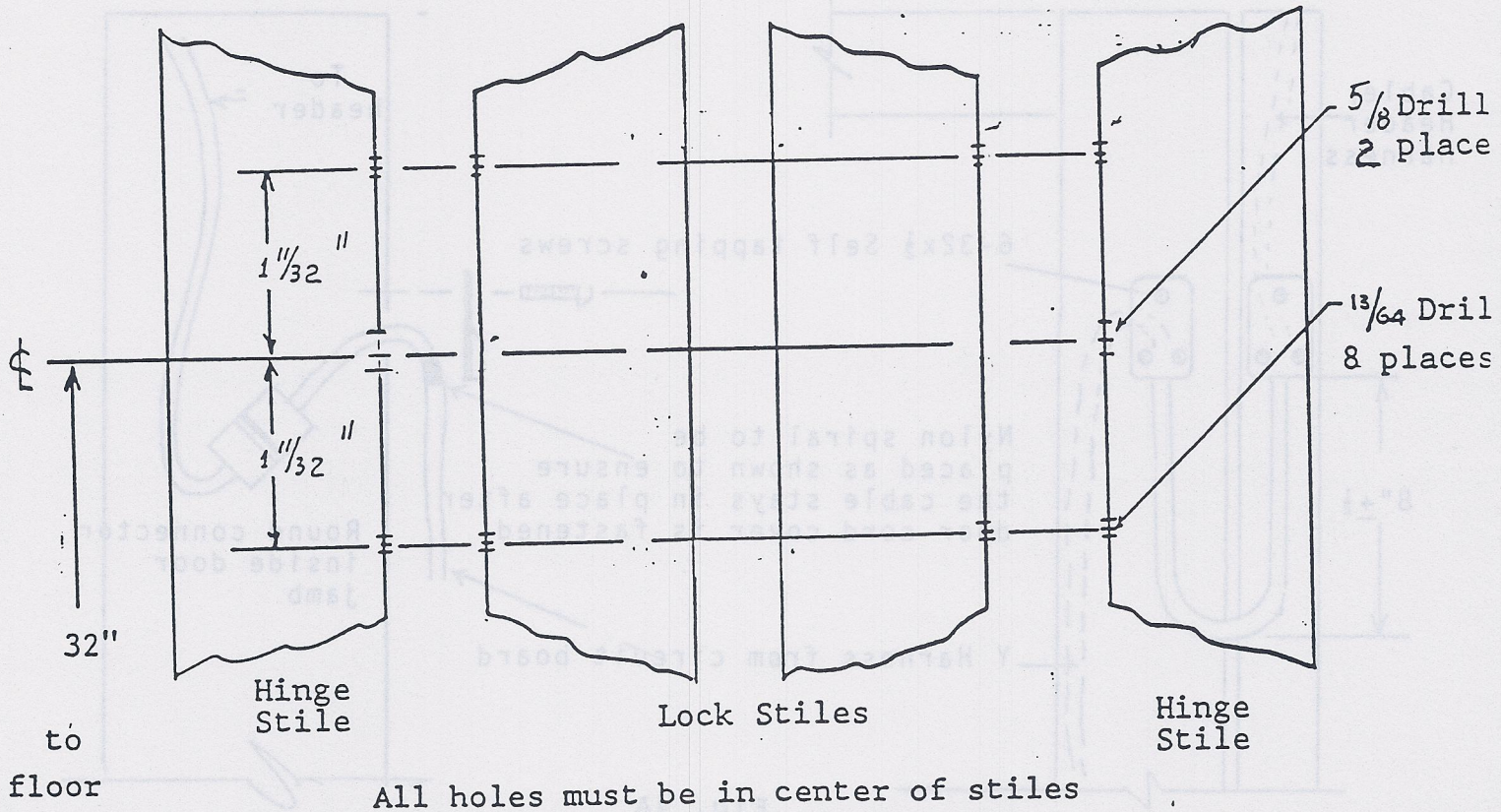


FIG. 2

MOUNTING HOLE DIAGRAM FOR SINGLE DOOR



SWING SIDE



All holes must be in center of stiles

FIG. 3-

MOUNTING FOR SIMULTANEOUS PAIR

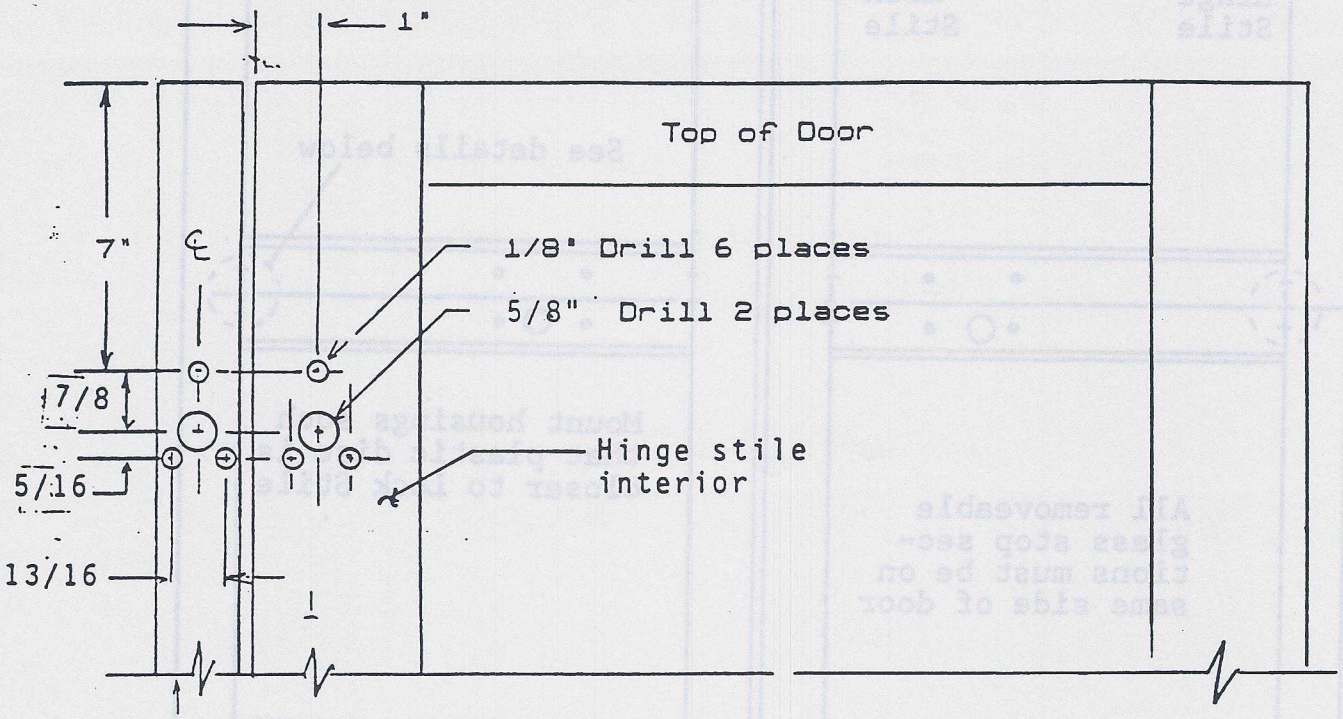

1"
Top of Door
7"
℄
1/8" Drill 6 places
5/8" Drill 2 places
17/8
5/16
Hinge stile
interior
13/16
Jambtube

Fig. 4

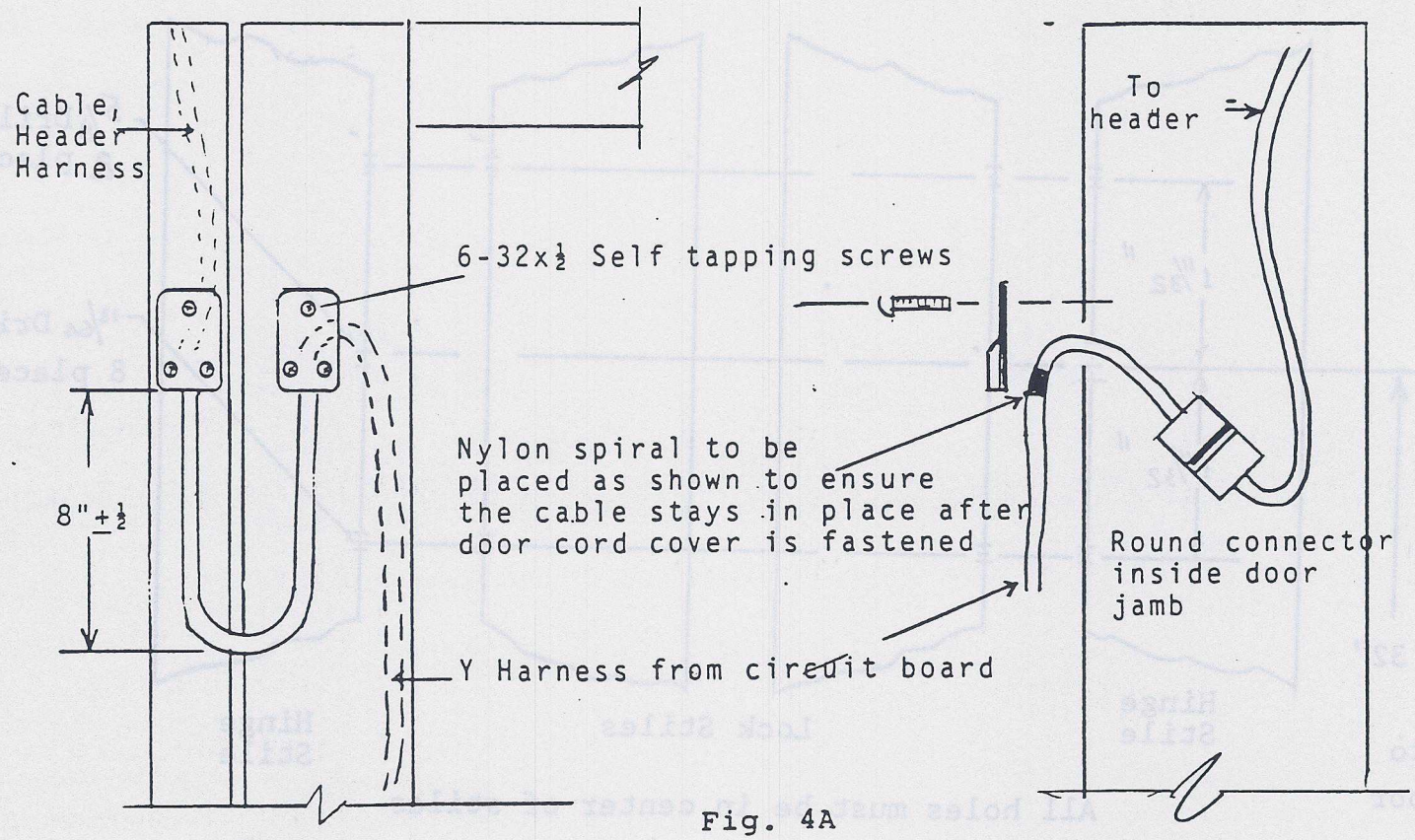

Cable,
Header
Harness
6-32x½ Self tapping screws
To
header
Nylon spiral to be
placed as shown to ensure
the cable stays in place after
door cord cover is fastened
8"±½
Round connector
inside door
jamb
Y Harness from circuit board

Fig. 4A

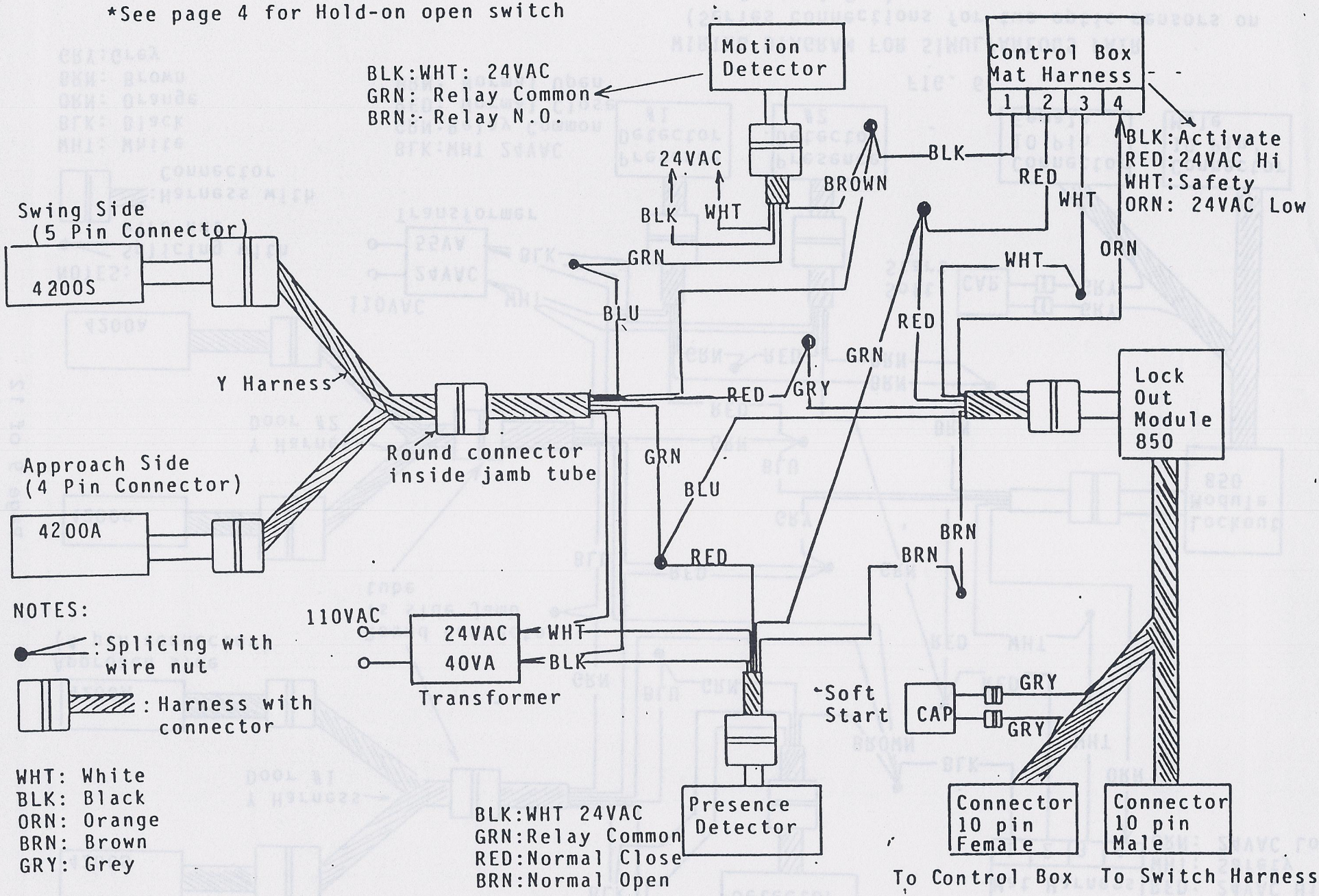


FIG: 5 WIRING DIAGRAM FOR SINGLE DOOR

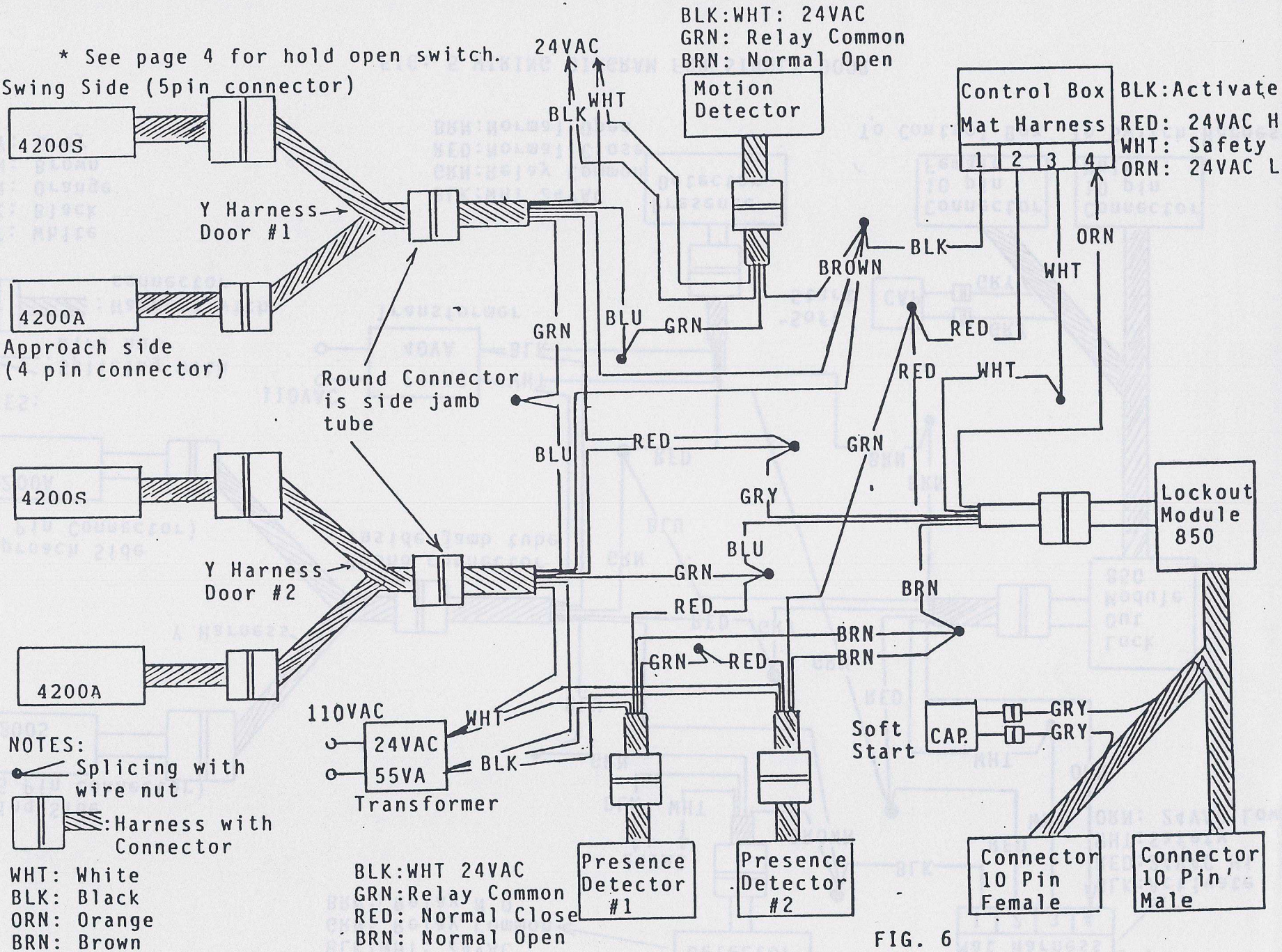
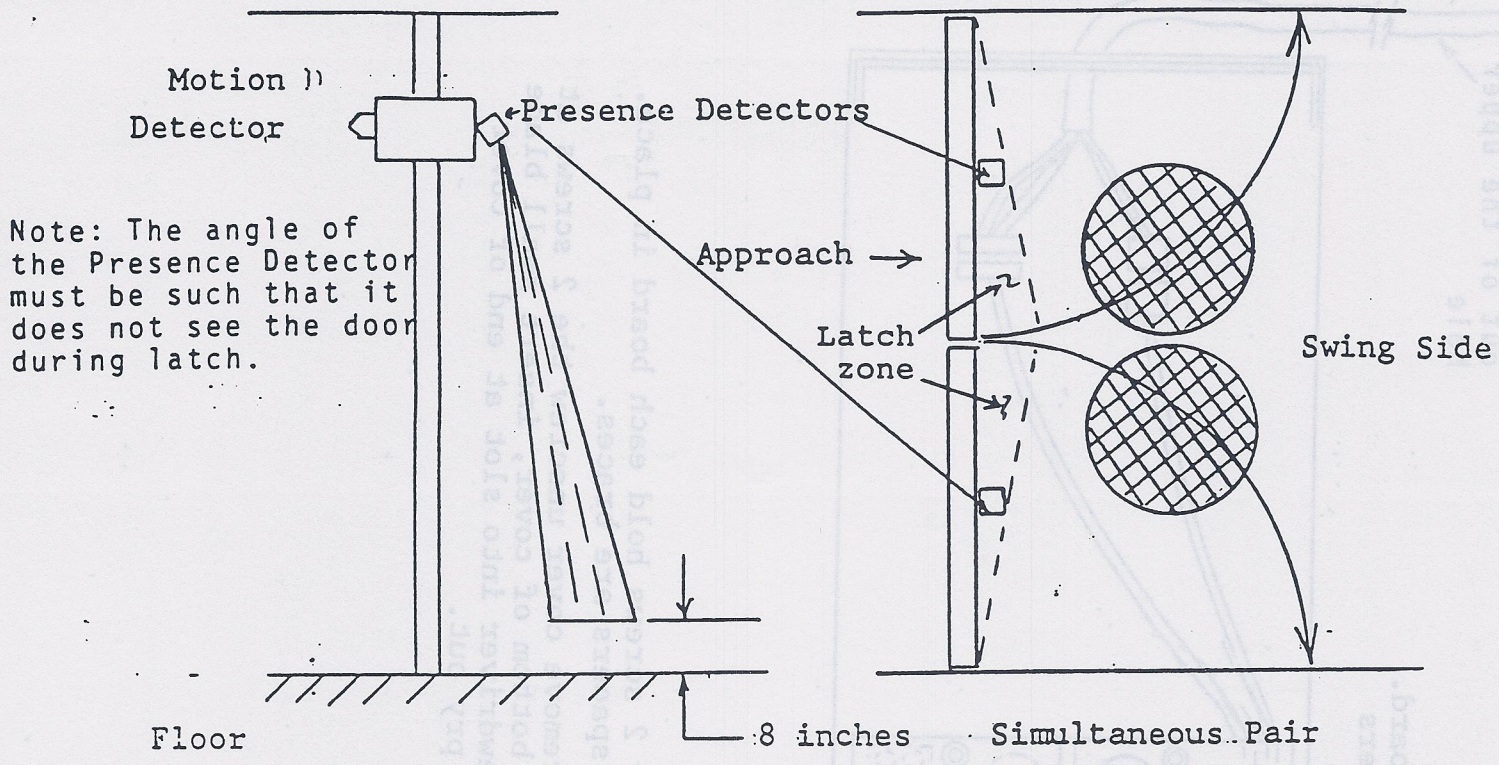


FIG. 6

WIRING DIAGRAM FOR SIMULTANEOUS PAIR
(Series connections for two optic sensors on one Control Box)



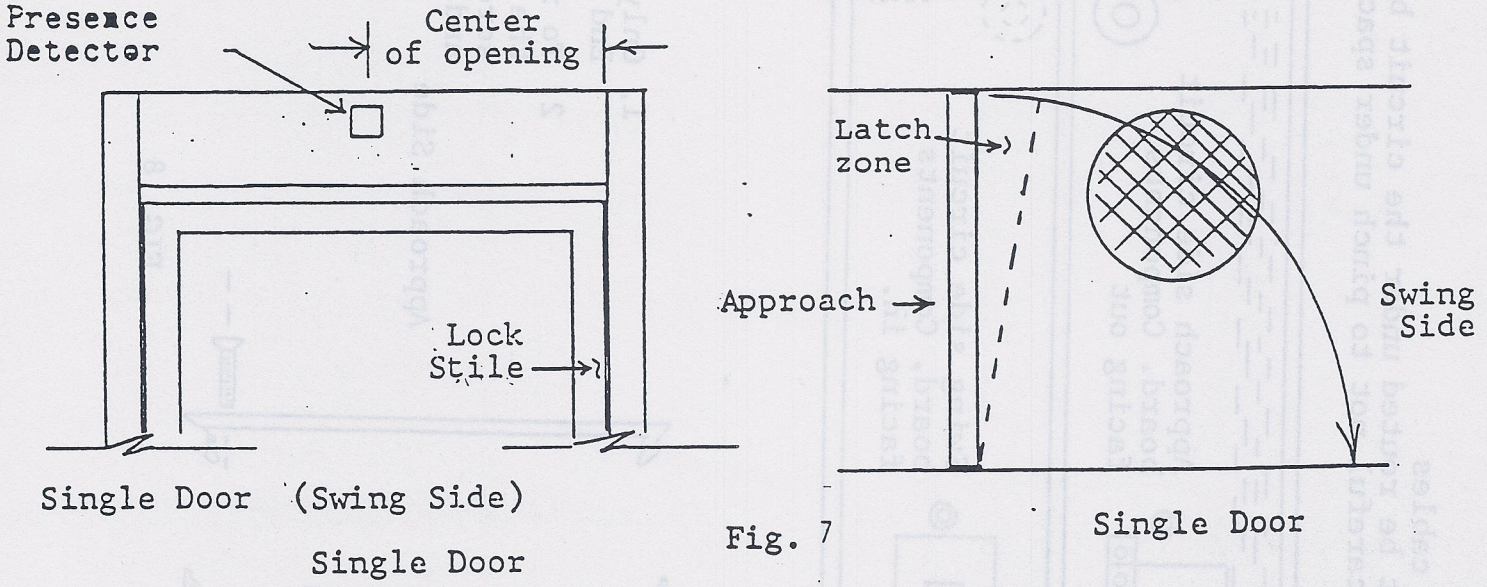
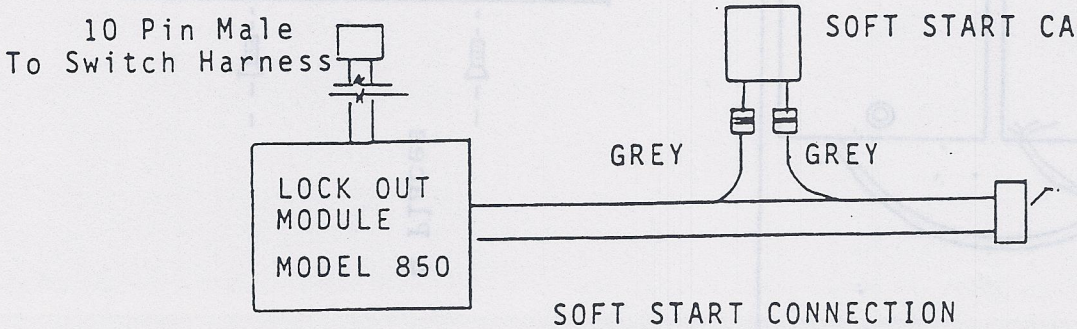
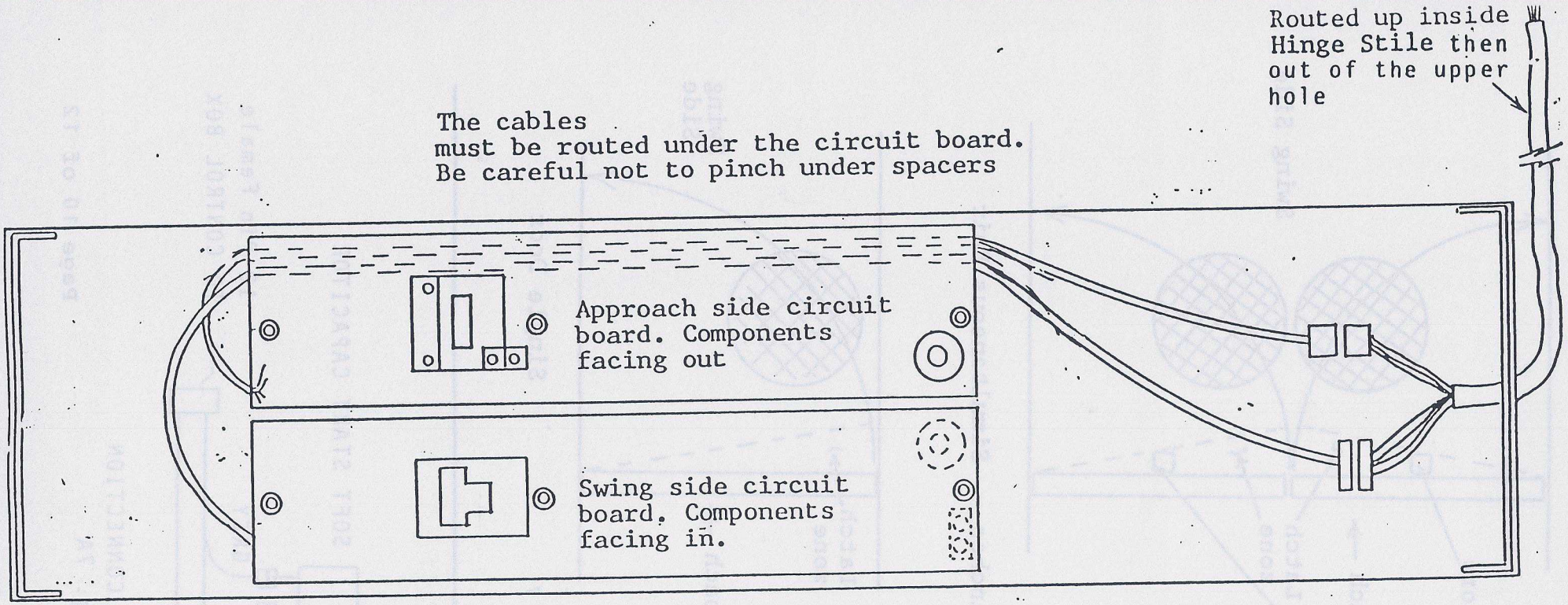
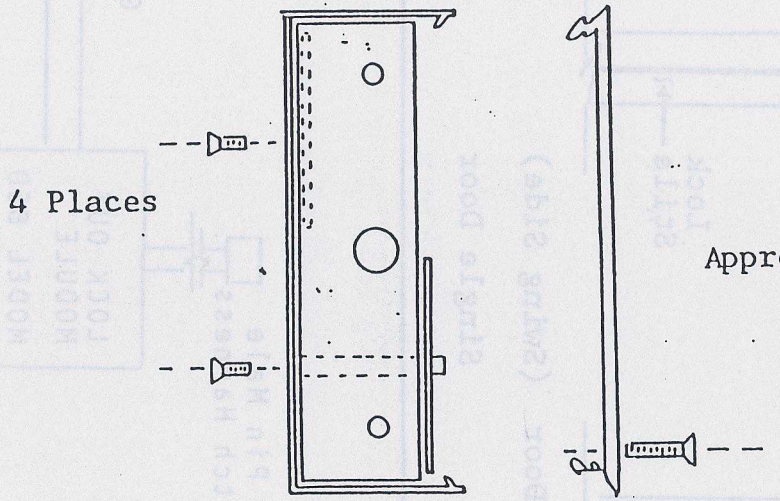


Fig. 7



SOFT START CONNECTION
Fig. 7A





1. Only 2 screws hold each board in place. End spacers are braces.
2. To remove cover unscrew the 2 screws at the bottom of cover, insert small blade screwdriver into slot at end of cover and pry out.

FIG. 8

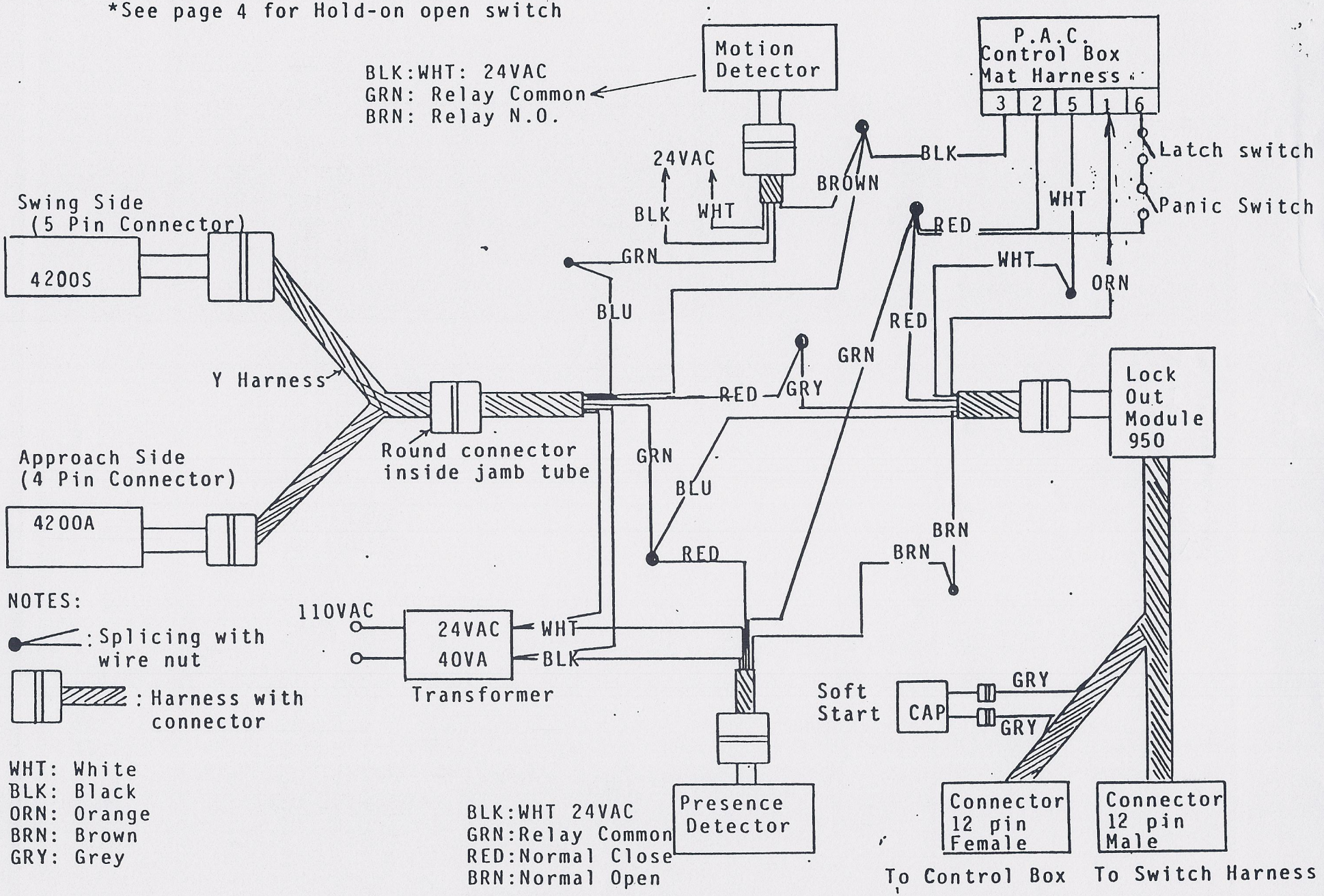


FIG.9 WIRING DIAGRAM FOR SINGLE DOOR - PAC