

1) SYSTEM DESCRIPTION

The Keane Monroe Series 1100 and 1100 Ultra-Glide Automatic Sliding Entranceways are high-performance micro-processor controlled automatic sliding doors for pedestrian use. The package includes door frames, sliding door and sidekick panels, header with operating mechanism, service access cover, door carriers and all related hardware. The package does not include glass, glazing, or activation devices. The units are designed to automate entrances for applications including airports, grocery stores, hospitals, office buildings, and other public buildings.

Keane Monroe Series 1100 Automatic Sliding Doors Installation Instructions and Troubleshooting Guide

2) FEATURES

The Series 1100 automatic sliding door is self-contained and requires no external power source. The following features are included:

- Infinite adjustment of opening and closing speeds
- Infinite adjustment of braking (opening check) and cushioning (closing check) speed and position
- Automatic recycle: If an object is obstructing the opening or closing path of the door, the control also enters a search feature which causes the door to reverse direction to the full open or close position if an obstruction is met, and then close/open the door at creep (reduced) speed to search for the obstruction. If the obstruction is again encountered, the door is shut down and an alarm is sounded. If the obstruction is not encountered, the door completes its cycle and returns to normal operating speed on the next activation signal.
- Adjustable hold open time from 1-60 seconds

Keane Monroe Corporation
Series 1100 and Series 7100 Ultra-Glide
Automatic Sliding Entranceway

1). SYSTEM DESCRIPTION

The Keane Monroe Series 1100 and 7100 Ultra-Glide Automatic Sliding Entranceways are high-performance microprocessor controlled automatic sliding doors for pedestrian use. The package includes door frames, sliding door and sidelite panels, header with operating mechanism, service access cover, door carriers and all related hardware. The package does not include glass, glazing, or activation devices. The units are designed to automate entrances for applications including airports, grocery stores, home centers, hospitals, office buildings, and other public facilities.

The Series 1100/7100 feature a drive train that consists of a brushless, moulded DC motor and nylon reinforced timing belt. Movement is transmitted to the sliding doors by the belt through coordination with an idler pulley, and the sliding doors are suspended on four sealed ball bearing rollers.

2). FEATURES

The KM 1100/7100 operation is directed by a self-contained microprocessor based motor controller ("control") offering the following features:

- Infinite adjustment of opening and closing speeds
- Infinite adjustment of braking (opening check) and cushioning (closing check) speed and position
- Automatic recycle if an object is obstructing the opening or closing paths of the door. The control also offers a search feature which causes the door to reverse direction to the full open or close position if an obstruction is met, and then close/open the door at creep (reduced) speed to search for the obstruction. If the obstruction is again encountered, the door is shut down and an alarm is sounded. If the obstruction is not encountered, the door completes its cycle and returns to normal operating speed on the next activation signal.
- Adjustable hold open time from 1-60 seconds

-Adjustable reduced door opening size for heating/cooling conservation. The door opening can be selected to open to seven reduced sizes from 12.5% to 87.5% of the full door opening, which allows a smaller opening when pedestrian traffic is low.

-A self-monitoring system which adjusts speeds, recycle force, and other operating characteristics on every open/close cycle for changes in temperature, wind load, pressure, and mechanical drag.

All drive and control components are enclosed in a 4 1/2" by 6 1/2" aluminum extruded header. The header includes a channel in which the idler pulley, motor/gear box, control, power transformer, and terminal blocks are mounted. The door carrier rollers glide on an extruded aluminum track fastened to the header. To provide quiet operation, a vinyl track cap is applied to the track and acts as a barrier between the rollers and the track. An extruded close-out shelf provides a barrier to any unauthorized exploration into the header from the door opening area. A service access cover hinges on the header and snaps into the close-out shelf to form a completely contained header mechanism.

A 120/100/24VAC transformer is used to supply 100 V to the control and 24 V to the external activation devices. The 100 V and 24 V secondarys are isolated. The 24 V winding is protected by a 2 amp fuse, and a resettable circuit breaker is used to protect the 100V winding as well as provide a disconnect means for servicing the motor and/or the control.

NOTE: GLASS AND GLAZING ARE NOT INCLUDED IN THE PACKAGE. THE GLAZING MATERIALS IN BOTH THE DOORS AND SIDELITES SHALL COMPLY WITH THE REQUIREMENTS IN THE AMERICAN NATIONAL STANDARD PERFORMANCE SPECIFICATION AND METHODS OF TEST FOR SAFETY GLAZING MATERIALS USED IN BUILDINGS, 297.1-1975.

3).FRAME INSTALLATION

-Be sure the opening has been properly prepared. It must be plumb and square, and it must be sized in accordance with approved shop drawings or architectural details. If the floor is not level, have it re-prepared. Establish the highest point of the threshold line and raise the side jambs to be level with this point.

-Remove the side jambs and set them in the opening to check the fit. If the frame opening is too small for the

jamb, re-check the opening dimensions and re-prepare the opening. If the unit has a transom, cut the top of the side jamb as required. Vertical mullions, transom tie rods, and glass stops will also have to be cut.

-Prepare a work surface covered with cardboard to protect the unit's finish.

-Attach the header to the side jamb using the brackets and screws provided. If the unit has a transom, attach vertical mullion to clips on the transom top. Insert tie rod through the vertical mullions and transom top into the header. Attach transom top to side jamb and tighten the tie rods.

-When the frame assembly is complete, carefully raise the unit into the prepared opening. **THE INSTALLED UNIT MUST BE PLUMB, LEVEL, AND SQUARE TO ALLOW THE UNIT TO FUNCTION PROPERLY.**

-Secure the frame assembly to the opening.

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3) FRAME INSTALLATION

-Be sure the opening has been properly prepared. It must be plumb and square, and it must be sized in accordance with approved shop drawings or architectural details. If the floor is not level, have it re-prepared. Establish the highest point of the threshold line and raise the side jamb to be level with this point.

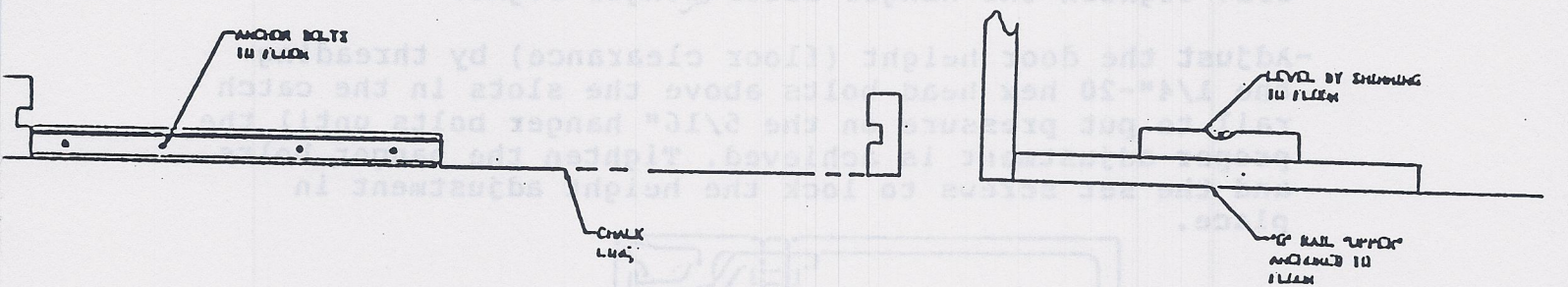
-Remove the side jamb and set them in the opening to check the fit. If the frame opening is too small for the

4). INSTALLATION OF BOTTOM GUIDE AND THRESHOLD

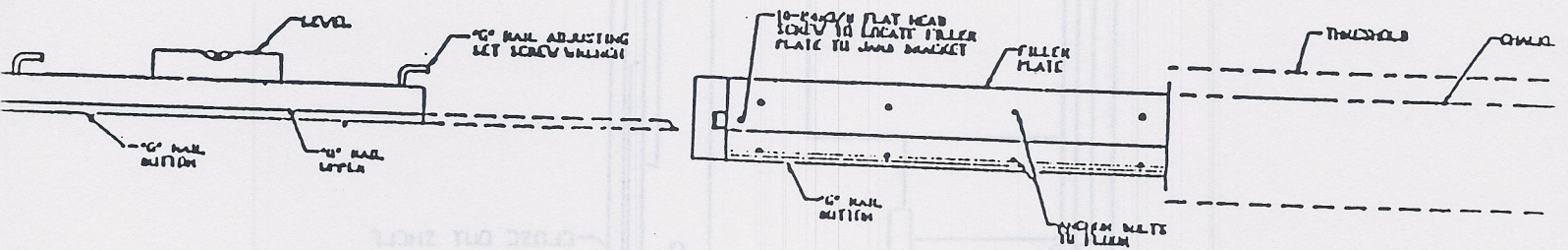
-Begin installation of the bottom guide (floor portion) by snapping a chalk line between the side jambs on the interior $1 \frac{3}{4}$ " face of the jambs. This straight reference line will be used to locate the bottom guide.

-THE BOTTOM GUIDE SYSTEM MUST BE LEVEL AND STRAIGHT TO INSURE PROPER OPERATION OF THE DOOR. When using a system other than sway rail with threshold, the guide must be leveled using shims. The two-piece sway rail with threshold has set screws to allow self-leveling (to a total of $\frac{3}{16}$ ").

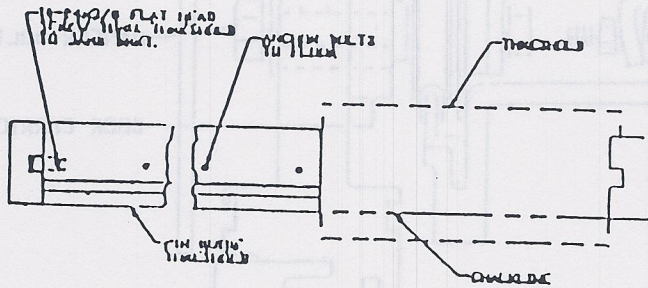
-Refer to the appropriate drawing below for the type of guide used.



NF WITHOUT THRESHOLD



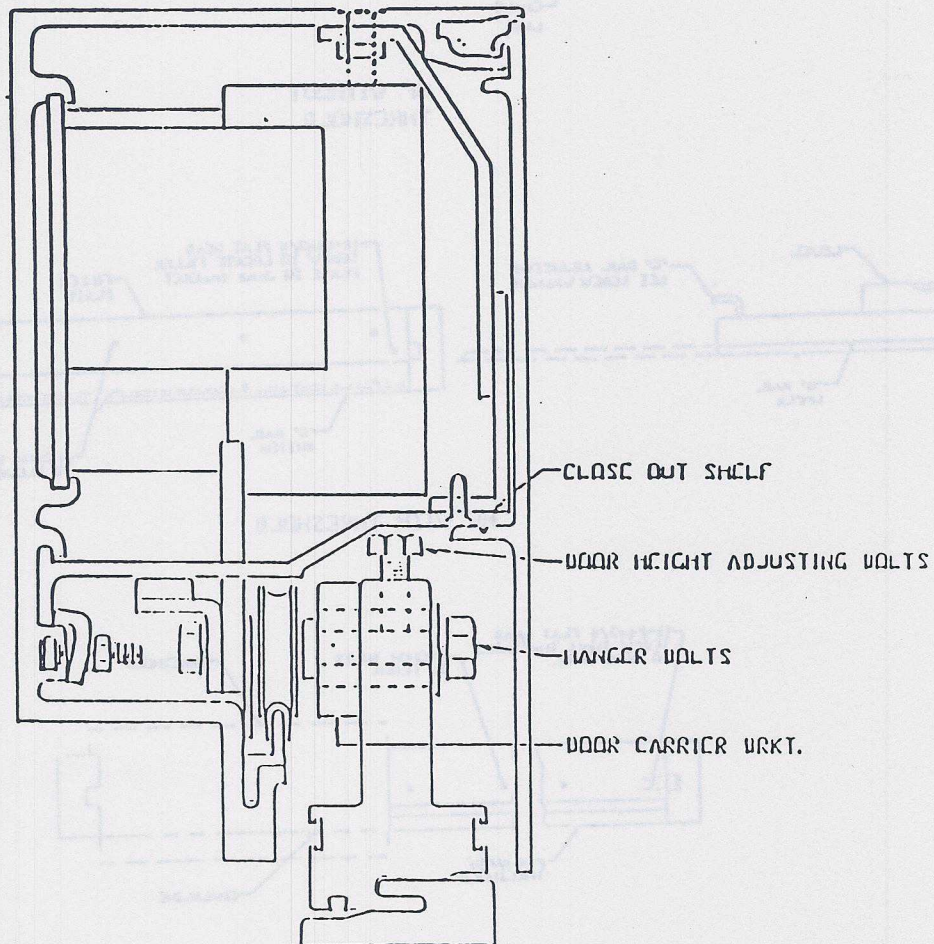
NF WITH THRESHOLD



PIN GUIDE THRESHOLD

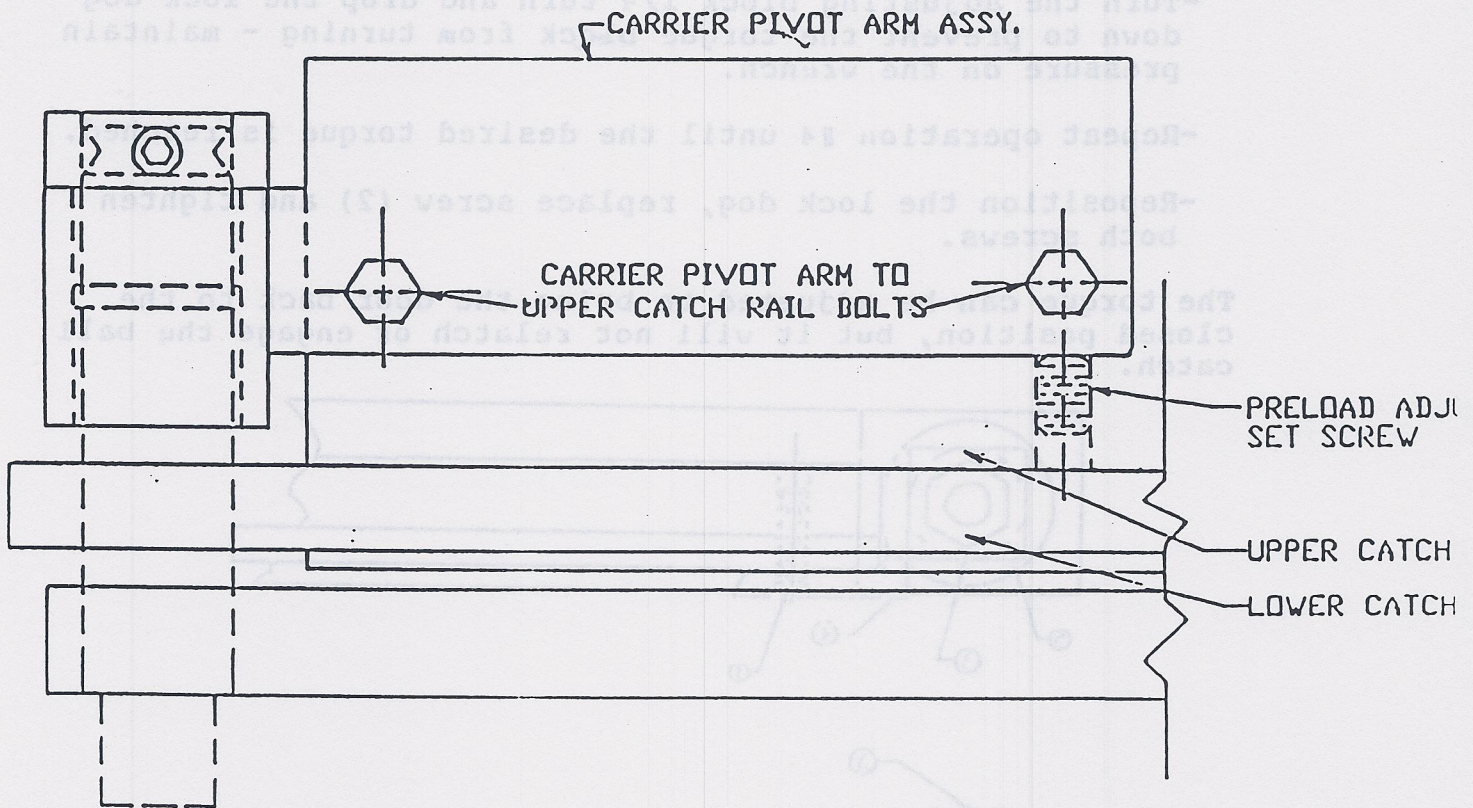
5). HANGING THE SLIDING DOOR

- Position the door so that it will panic to the exterior of the building when broken away.
- Install the door portion of the bottom guide in the pivot stile of the door using four 10-32 screws provided. Position the door portion of the bottom guide into the sway rail or pin guide track (depending on which floor portion is used).
- Place the door so that the slots in the upper catch rail are lined up with 5/16" tapped holes in the door carrier brackets. Thread the two (2) 5/16"-10 x 1 1/4" hardened hex head hanger bolts with the flat washer and split ring lock washer through the slots into the door carriers. Tighten the hanger bolts finger tight.
- Adjust the door height (floor clearance) by threading the 1/4"-20 hex head bolts above the slots in the catch rail to put pressure on the 5/16" hanger bolts until the proper adjustment is achieved. Tighten the hanger bolts and the set screws to lock the height adjustment in place.



6). ADJUSTING THE SLIDING DOOR PRELOAD

- Loosen the two (2) 1/4" hex bolts which lock the carrier pivot arm assembly to the upper catch rail.
- Breakaway the door and tighten the preload adjusting set screw which is visible in the underside of the upper catch rail.
- Retighten the carrier pivot arm screws.



7). SPRING RETRUN TORQUE ADJUSTMENT

The torque generated by the spring concealed in the pivot stile of the sliding door on units with spring closing doors can be adjusted without taking the doors down.

-Referring to the drawing below, loosen screw 1 and remove screw 2.

-With an 11/16" wrench on the torque adjusting nut (3), relieve the tension against the lock dog (4).

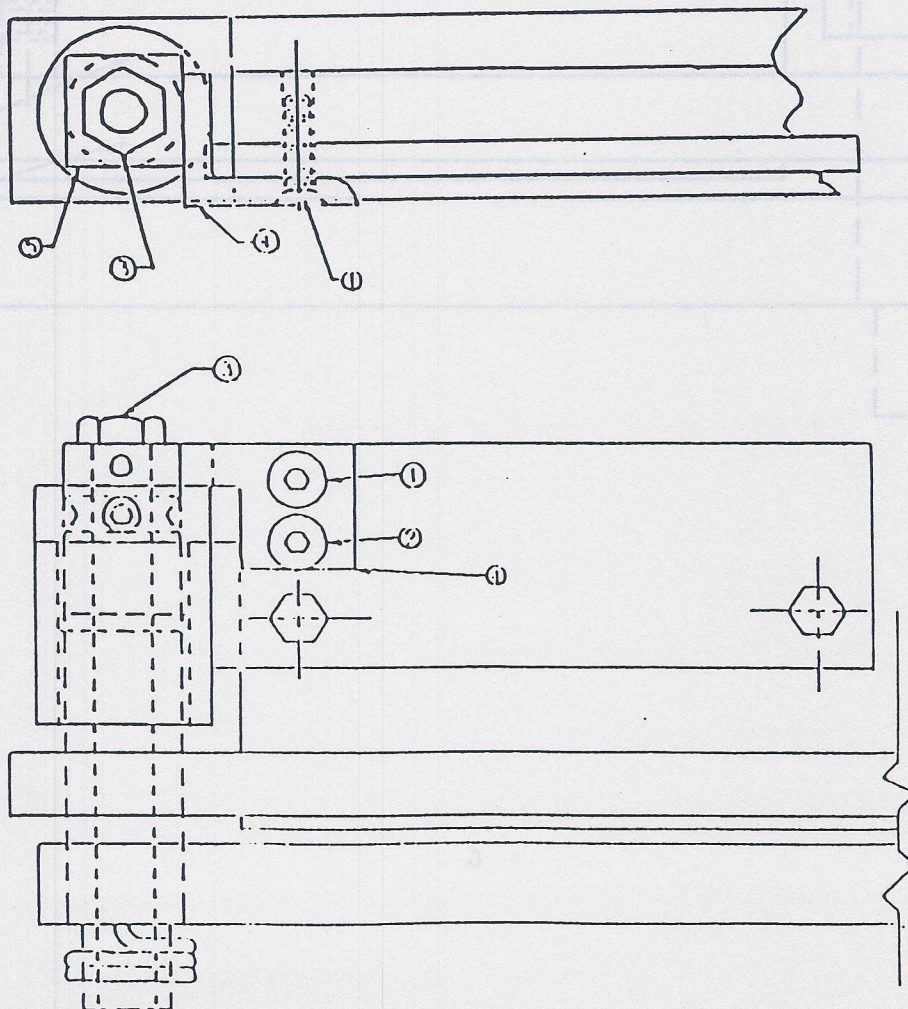
-Raise the lock dog (4) to clear the top of the square torque block (5).

-Turn the adjusting block 1/4 turn and drop the lock dog down to prevent the torque block from turning - maintain pressure on the wrench.

-Repeat operation #4 until the desired torque is reached.

-Reposition the lock dog, replace screw (2) and tighten both screws.

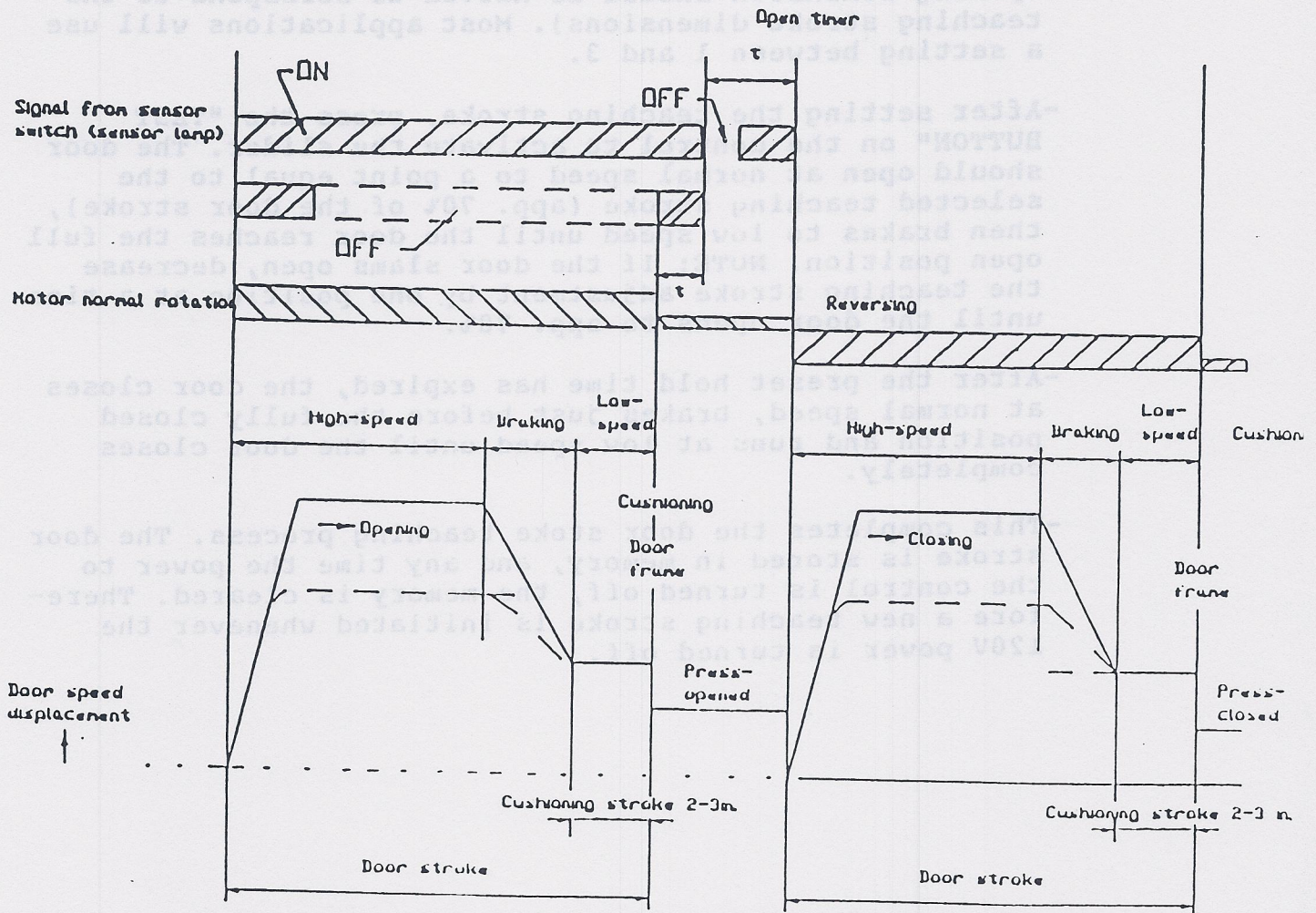
The torque can be adjusted to bring the door back to the closed position, but it will not re latch or engage the ball catch.



8). DOOR OPERATION PRINCIPLES

-The microprocessor controlled Series 1100/7100 eliminates the need for limit switches to determine door position. The control counts the number of pulses generated by the motor, and memorizes the pulses required to reach full open and full close positions. The number of pulses required to move the door from full closed to full open is called the door stroke. Based on the door stroke, the control adjusts the braking position and half-open position.

-In order for the control to learn the open and close limits, it operates the door through an initial "teaching stroke". The purpose of the teaching stroke is to provide an opportunity for the control to set the open and close limits as well as the degree of braking AS SMOOTHLY AS POSSIBLE. If the teaching stroke selector on the control is set too high, the door will slam open and close, possibly causing damage to motor, idler pulley, door, or frame. Therefore, it is very important that the teaching stroke be set correctly (refer to the following section).



- After the initial teaching stroke, the control is ready for normal operation. Please note, however, that the control analyzes the door on every stroke, continuously adjusting for wind load, friction, and door weight to provide optimum performance. The control also performs self-diagnostic checks continuously, on every door stroke.

9). TEACHING STROKE

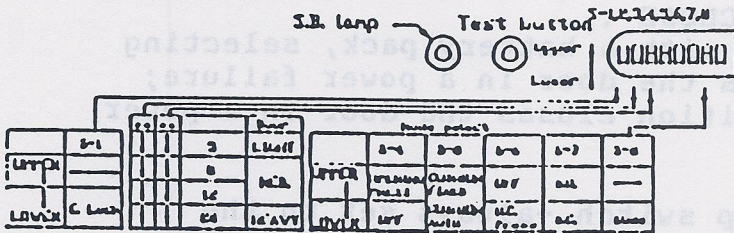
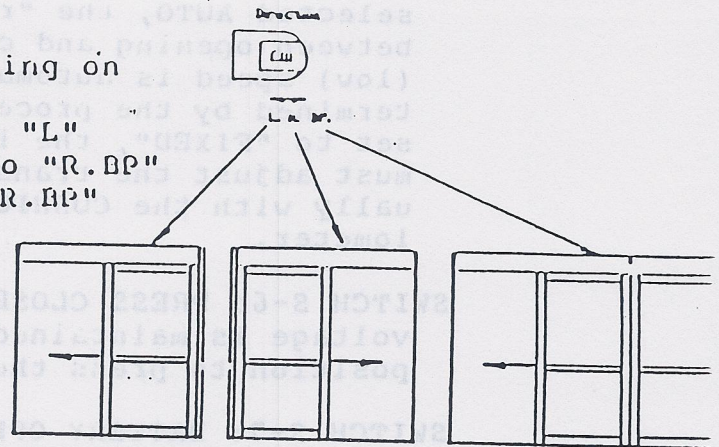
- The teaching stroke should be set to approximately 70% of the full door stroke (clear door opening), allowing the control adequate time to brake the door to low speed and move gently to the full open door stop.
- The length of the teaching stroke is set using the teaching stroke potentiometer (T.STR.) on the control. The stroke can be varied from setting 0 - 9, with 0 being for a very narrow door opening and 9 for a very large opening. (NOTE: The settings are based on a single sliding door; so when setting for a bi-part, the clear opening dimension should be halved to correspond to the teaching stroke dimensions). Most applications will use a setting between 1 and 3.
- After setting the teaching stroke, press the "TEST BUTTON" on the control to activate the slider. The door should open at normal speed to a point equal to the selected teaching stroke (app. 70% of the door stroke), then brakes to low speed until the door reaches the full open position. NOTE: If the door slams open, decrease the teaching stroke adjustment by one position at a time until the door opens to app. 70%.
- After the preset hold time has expired, the door closes at normal speed, brakes just before the fully closed position and runs at low speed until the door closes completely.
- This completes the door stroke teaching process. The door stroke is stored in memory, and any time the power to the control is turned off, the memory is cleared. Therefore a new teaching stroke is initiated whenever the 120V power is turned off.

10). CONTROL ADJUSTMENTS

A). DOOR DIRECTION SELECTOR

Shift this selector depending on door direction:

- Single slide left - Set to "L"
- Single slide right - Set to "R.BP"
- Di-parting pair - Set to "R.BP"



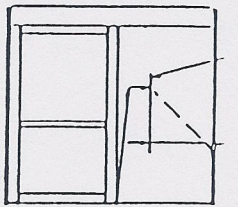
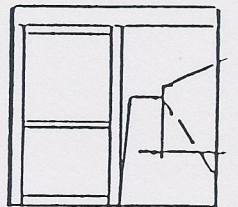
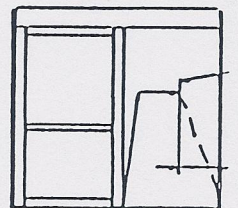
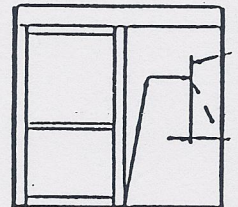
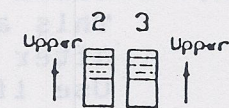
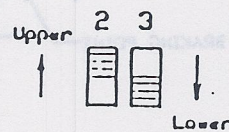
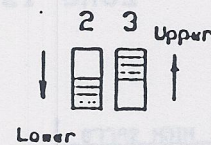
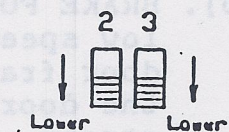
B). SWITCHES S1 - S0:

SWITCH S1: ELECTRIC LOCK:

If the unit is equipped with an electric lock system, set S-1 to the lower position.

SWITCH S-2 & S-3: BRAKING STROKE ADJUSTMENT:

- S-2 lower, S-3 lower: setting for light-weight or short stroke doors. Brake point: 5" from full closed position
- S-2 lower, S-3 upper: setting for standard weight doors. Brake point: 0" from full close
- S-2 upper, S-3 lower: setting for standard to heavy weight doors. Brake point: 12" from full close.
- S-2 upper, S-3 upper: setting for heavy weight or long stroke doors. Brake point: 20" from full close.



SWITCH S-4: PRESS OPEN: When selected ON (upper) low voltage is maintained on the motor to press the door fully against the door stop until the hold time runs out.

SWITCH S-5: CUSHION FIXED/AUTO: When selected AUTO, the "ramp-down" between opening and checking (low) speed is automatically determined by the processor. If set to "FIXED", the installer must adjust the transition manually with the CUSHION potentiometer.

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Upper
Lower

	2-4	2-5	2-6	2-7	2-8
UPPER	2-4	2-5	2-6	2-7	2-8
LOWER	2-4	2-5	2-6	2-7	2-8

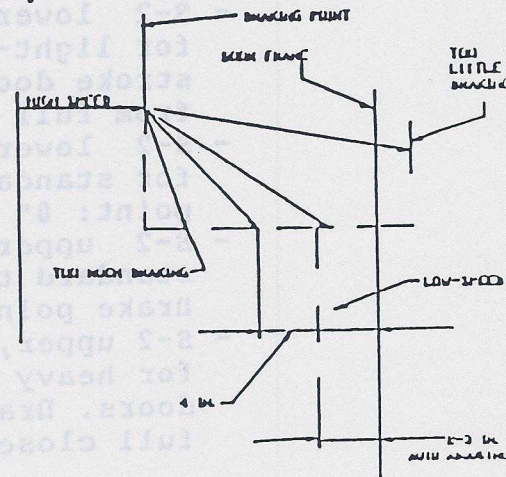
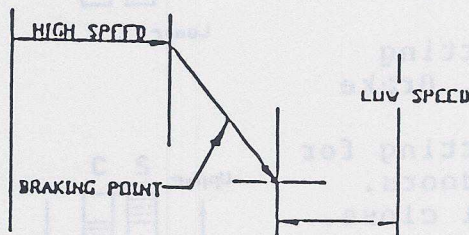
SWITCH S-6: PRESS CLOSE: When selected on (lower), low voltage is maintained on the motor in the full close position to press the door against the side jamb.

SWITCH S-7: BATTERY OPEN/CLOSE :
If the unit is supplied with a battery pack, selecting the upper position opens the door in a power failure; selecting the lower position closes the door in a power failure.

SWITCH S-8: Factory set-up switch -always set to the lower position.

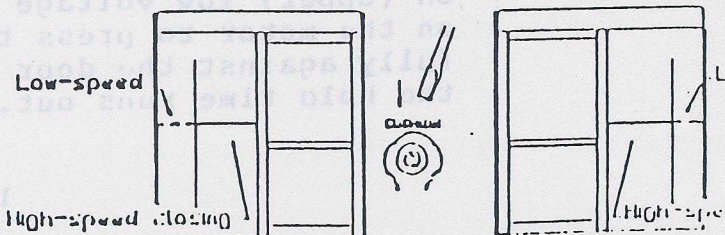
C). TEACHING STROKE ADJUSTMENT (T.STR): See Section 9

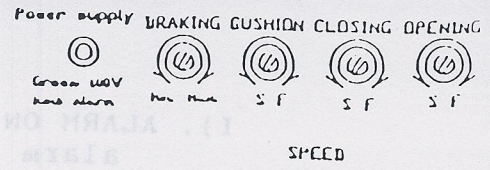
D). BRAKE FORCE ADJUSTMENT: Adjust brake force so that the low speed zone (checking) is set to 2"-4" from the door frame. If braking is too weak, the door will hit the door frame at high speed. If the braking is too strong, the door judders to a stop. If the cushion mode is set to auto (factory setting), the low speed zone is automatically set to 2"-2.5".



E). CUSHION (LOW SPEED) ADJUSTMENT:

This adjusts the door speed after the brake is applied. Use if the cushioning mode is "fixed", and adjust so zone is 2"-2.5".

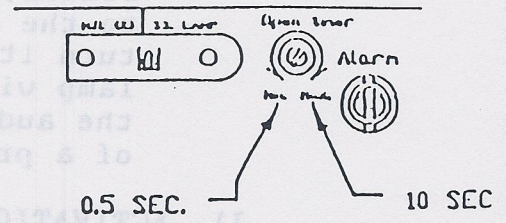




F). OPENING AND CLOSING SPEED ADJUST:
Use these to adjust the normal opening and closing speeds.

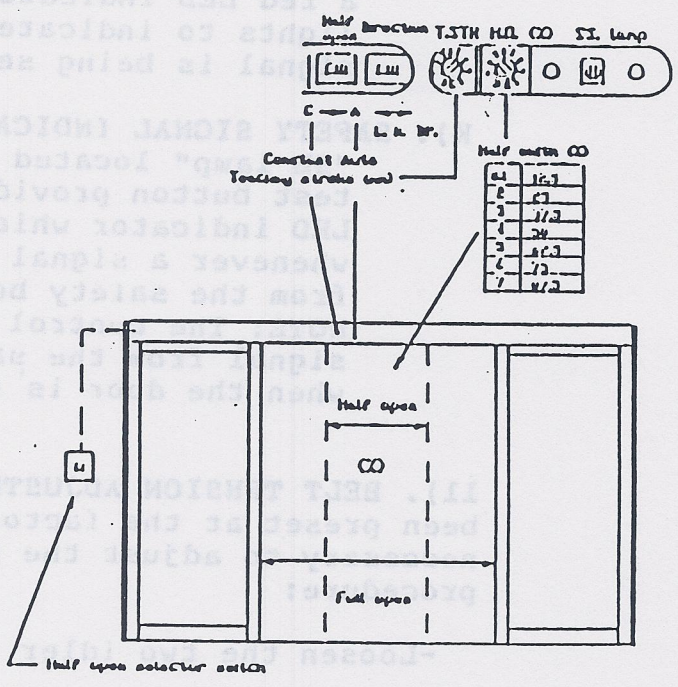
NOTE: AFTER ADJUSTING ANY OF THE SPEED ADJUSTING KNOBS, ALWAYS TURN THE POWER OFF THEN ON TO CHECK THE EFFECT.

G). OPEN TIMER ADJUSTMENT: This adjusts the hold-open time, which is the time the door will remain open after the activation signal has cleared. Can be adjusted from 0.5 to 10 seconds.



H). REDUCED OPENING ADJUSTMENT:

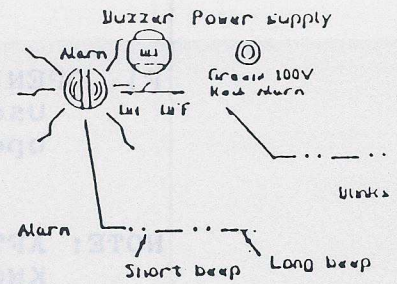
The control can be adjusted to open the door to an intermediate opening size using the HALF OPEN switch and the HALF WIDTH (H.O.W.) potentiometer (H.O.V.). The door opening can be reduced in seven steps from 12.5% to 87.5% of the full door opening. The HALF OPEN switch can be selected to either CONSTANT or AUTO. In the AUTO mode, the door will open to the reduced opening if traffic is slow; if the activation signal is maintained for seven seconds or longer (indicating heavy traffic), the control automatically opens the door to the full open position. If an activation signal is received on the closing stroke from the half-open position, the door reverses to the half-open position. However, if another activation signal is received on the next closing stroke, the door reverses and travels to the full open position.



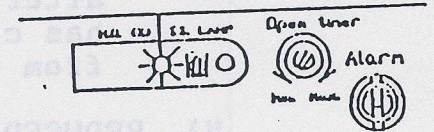
In the CONSTANT mode, the door travels to the reduced opening point at all times, regardless of traffic volume.

NOTE: IN ORDER FOR THE REDUCED OPENING FEATURE TO BE USED, AN EXTERNAL "HALF OPEN SELECTOR SWITCH" MUST BE INSTALLED AND USED TO INITIATE THE HALF OPEN FEATURE.

I). ALARM ON/OFF SWITCH: An audible alarm is provided to alert users to problem operation and to assist service personnel in troubleshooting (refer to Section 12 for descriptions of the various alarms). If the alarm is objectionable to the end user, use this switch to turn it off. NOTE: The power indicator lamp will flash from green to red in time with the audible alarm providing a visual indication of a problem situation.



J). ACTIVATION SIGNAL INDICATOR: The "SS. lamp" located next to the half open adjustment provides a red LED indicator which lights to indicate an activation signal is being sent to the control.



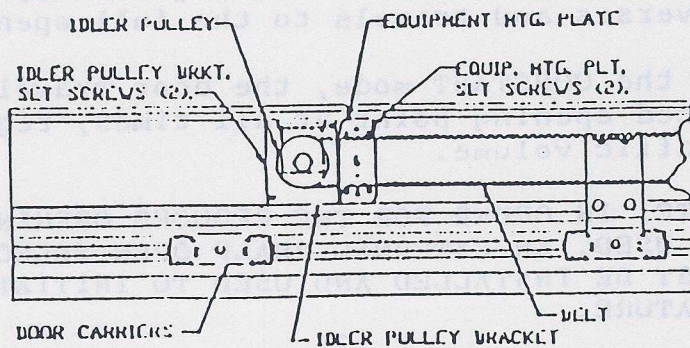
K). SAFETY SIGNAL INDICATOR: The "SD lamp" located next to the test button provides a red LED indicator which lights whenever a signal is present from the safety beam/sensor. NOTE: The control ignores any signal from the safety beam when the door is fully closed.



11). BELT TENSION ADJUSTMENT: The tension on the timing has been preset at the factory; however if it should become necessary to adjust the belt tension, use the following procedure:

-Loosen the two idler pulley bracket set screws

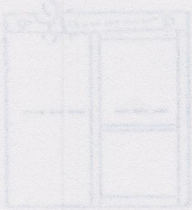
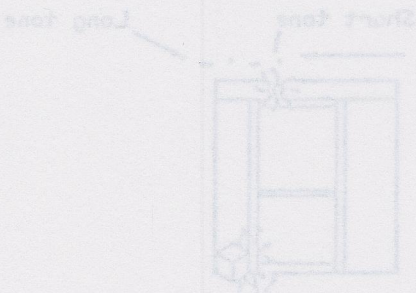
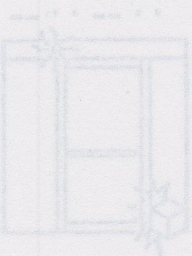
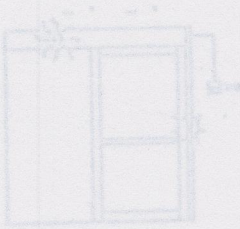
-To increase the belt tension, insert a screw driver blade between the edge of the equipment mounting plate and the idler pulley bracket. Twisting the screwdriver will force the idler pulley bracket to the left, increasing the belt tension. Relock the idler pulley set screws while maintaining force against the bracket. NOTE: DO NOT OVER TENSION THE BELT. THIS WILL CAUSE REDUCED BELT LIFE AND POSSIBLE DAMAGE TO THE GEARMOTOR.



-To decrease the belt tension, loosen the equipment mounting plate set screws, then loosen the idler pulley bracket set screws and allow the belt to pull the pulley assembly to the right. Relock the idler pulley bracket set screws.

-Reposition the equipment mounting plate so that there is approximately a 1/16" gap between the idler pulley bracket and the equipment mounting plate.

Alarm (Signal sound)



A) NO DOOR OPERATION; NO PROGRAMMING:
Check to insure incoming power is supplied. Door may have been turned on before being unlocked causing the circuit breaker to trip.

B) SAFETY STOP/ RECYCLE ON OBSTRUCTION:
If the door encounters an obstruction on the opening stroke, the control stops the door and sounds an alarm (Safety Stop).

If the door encounters an obstruction on the closing stroke, the control safety reverses the door and recloses it at low speed "searching" for the obstruction (Recycle on obstruction). If the obstruction has been removed, the door closes at low speed and then resumes normal operation. If the obstruction has not been removed, the control shuts the door down and sounds an alarm.

C) SLACK BELT: If the timing belt is too slack, the opening and closing strokes will be erratic. If the belt slips, the control will sound an alarm.

D) OVERLOAD: If the unit encounters excessive friction or external mechanical forces, the motor will turn slowly trying to overcome the friction then an alarm will sound.

12). TROUBLESHOOTING

If the control diagnoses a problem, such as a jammed door or a slack belt, it shuts off power to the motor and triggers an alarm. There are different alarms for different problems, and the illustrations below can be used to assist in trouble detection. NOTE: The audible alarm sounds and the power lamp flashes from green to red in time with each other giving both visual and audible indication of a problem.

A). NO DOOR OPERATION; NO PROGRAMMING:

Check to insure incoming power is supplied. Door may have been turned on before being unlocked causing the circuit breaker to trip.

B). SAFETY STOP/ RECYCLE ON OBSTRUCTION:

If the door encounters an obstruction on the opening stroke, the control stops the door and sounds an alarm (Safety Stop).

If the door encounters an obstruction on the closing stroke, the control safety-reverses the door and re-closes it at low speed "searching" for the obstruction (Recycle on obstruction). If the obstruction has been removed, the door closes at low speed and then resumes normal operation. If the obstruction has not been removed, the control shuts the door down and sounds an alarm.

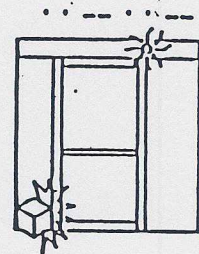
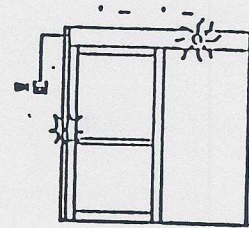
C). SLACK BELT:

If the timing belt is too slack, the opening and closing strokes will be erratic. If the belt slips, the control will sound and alarm.

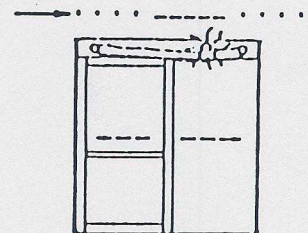
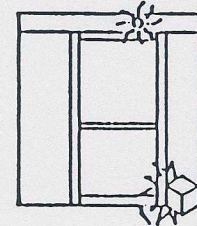
D). OVERLOAD:

If the unit encounters excessive friction or external mechanical forces, the motor will turn slowly trying to overcome the friction then an alarm will sound.

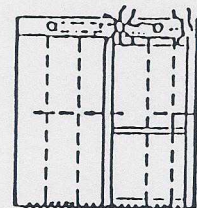
Alarm (signal sound)



Short tone Long tone



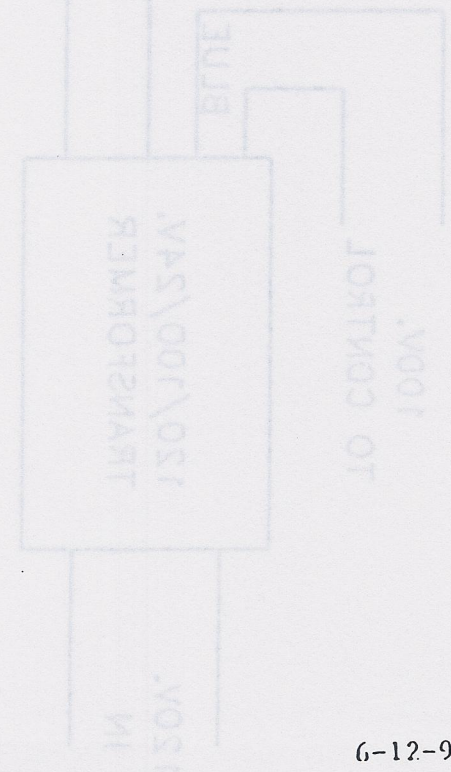
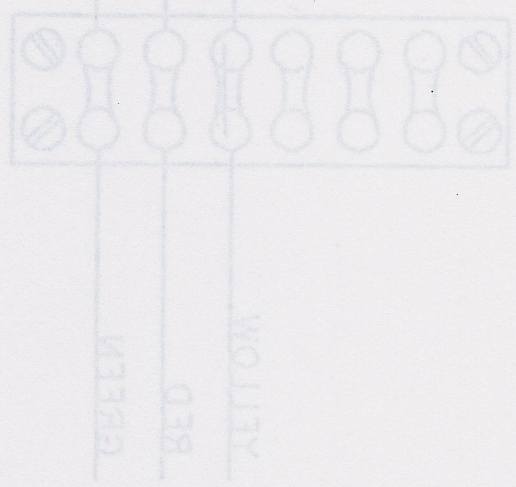
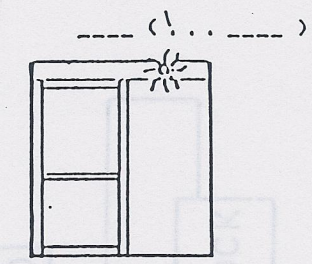
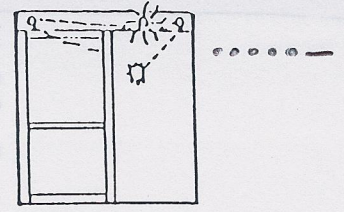
Overload

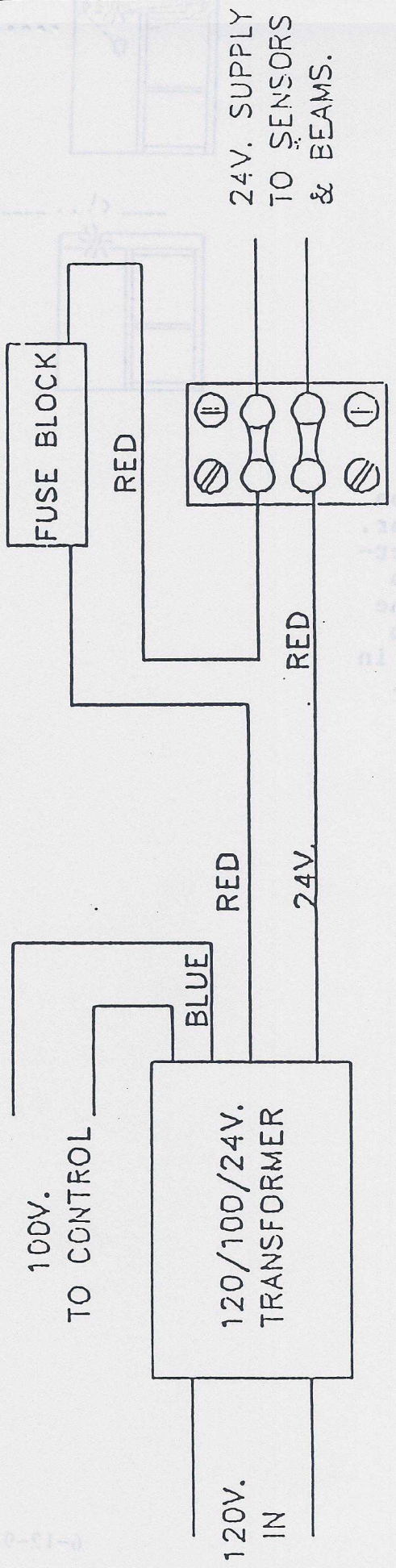


E). **BROKEN BELT:** If the timing belt breaks, the motor will continue to run for approximately three minutes, and then an alarm will sound.

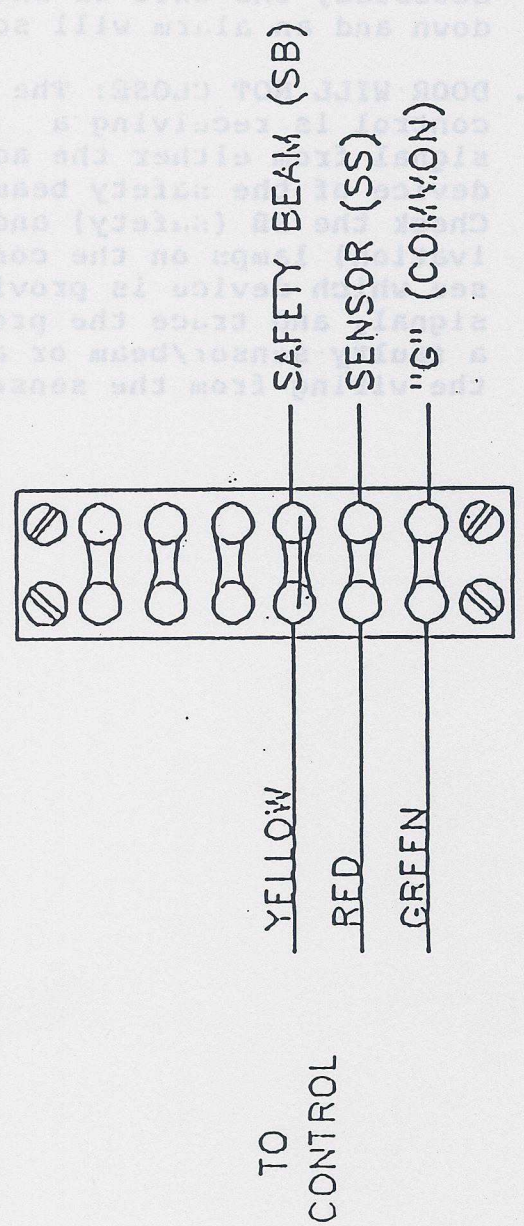
F). **INTERNAL CONTROL PROBLEM:** The control has a built-in diagnostic feature which checks for proper control operation continuously. If an internal problem is detected, the unit is shut down and an alarm will sound.

G). **DOOR WILL NOT CLOSE:** The control is receiving a signal from either the activation device of the safety beams/sensor. Check the SB (safety) and SS (activation) lamps on the control to see which device is providing the signal, and trace the problem to a faulty sensor/beam or a short in the wiring from the sensor/beam.



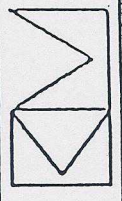


Accessory Power Hookup



SAFETY BEAM (SB)	GRN./YEL.
SENSOR (SS)	GRN./RED

Control Input Terminal Bar



Keene Morte Corp.
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MORFE, N.C. 28111

Door Control
Products