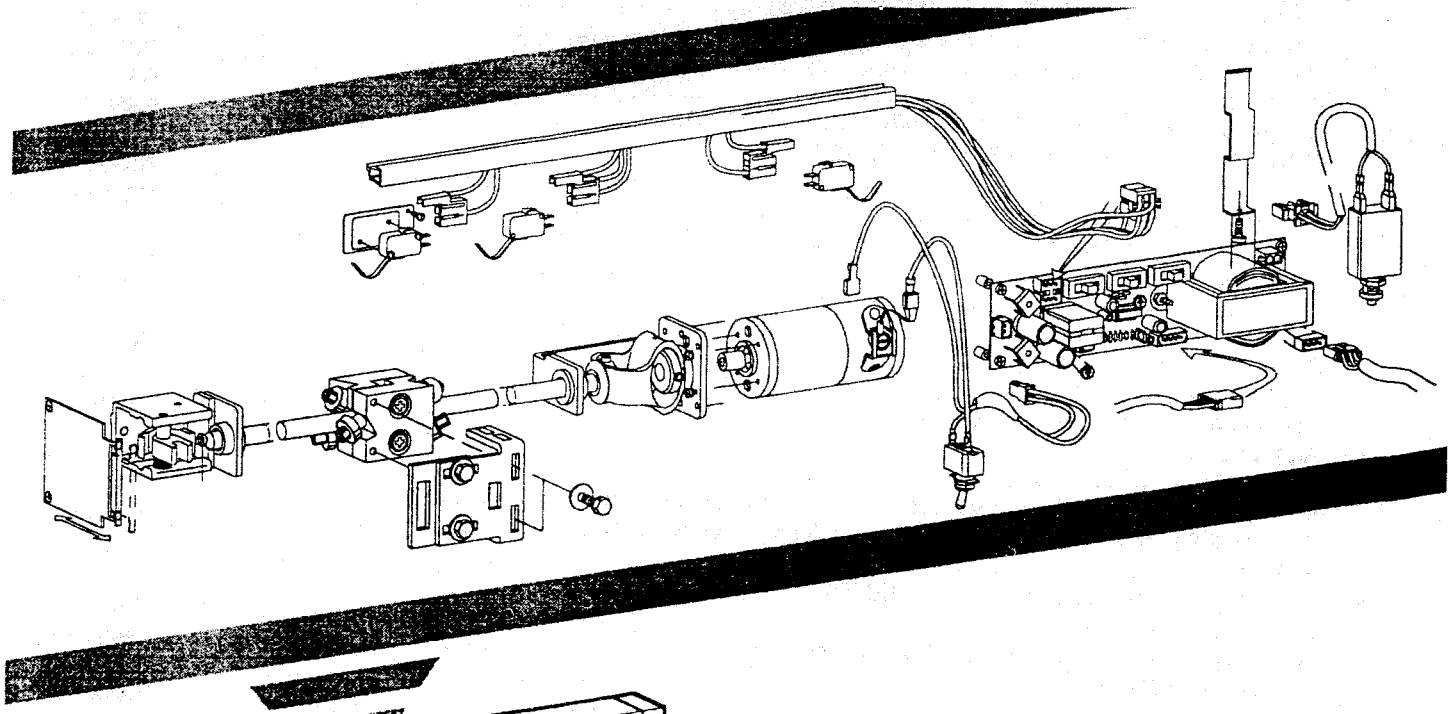
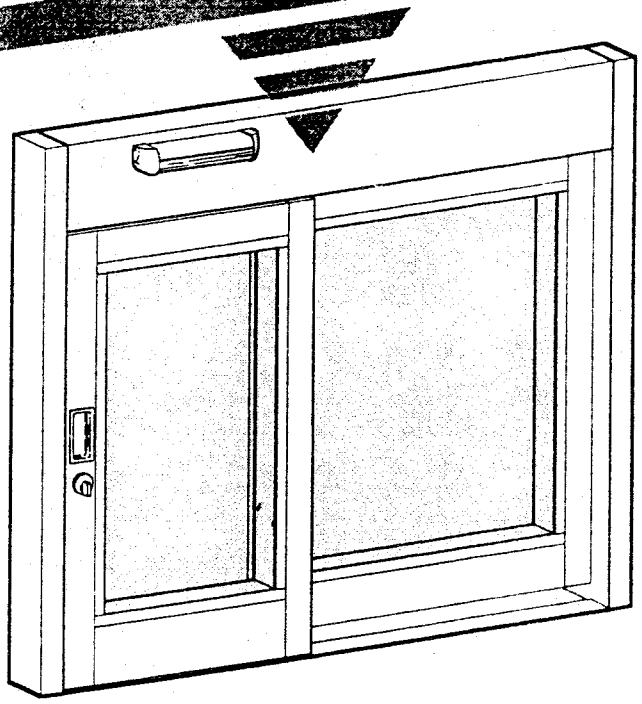
Series 8000

Automatic and Manual Sliding Windows





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Horton AUTOMATICS

G850, DEC85
Revised JUN97

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SERIES 8000
AUTOMATIC SLIDING WINDOWS

1. OWNER'S INFORMATION

We are pleased that you have chosen an Automatic Sliding Window from Horton Automatics. This window will provide many years of safe automatic operation while conserving energy provided the unit is properly installed and maintained.

This Manual is Intended to Serve Two Purposes:

A. To assist the Horton Distributor / Installer in the installation / adjustment of an Automatic Window.
B. To serve as a guide for the Owner to become familiar with the operation and daily safety of his Automatic Window.

Regular inspections are required to keep each window in safe and proper working order. Please acquaint yourself with and follow all instructions in this manual.

Horton Automatics Windows are offered with many options. Consequently, it is possible that this manual may not address all of the possibilities. This Manual and individual Shop Drawings should be kept in your files.

2. SERVICE AVAILABILITY

Horton Automatics' products are manufactured at the company's plant facilities in Corpus Christi, Texas and Telford, England. A network of authorized independent distributors— in the United States, Canada, Mexico and parts of Europe offer both installation and a maintenance program. For the local Horton Automatics distributor in your area call 1-800-531-3111, or consult the Yellow Pages of your Telephone Book under "Door-Operating Devices." In Europe, call the Horton Plant in Telford, England at 011-44-952-670169.

3. LIMITED WARRANTY

Horton Automatics (the "Seller") warrants to the Buyer all products manufactured by the Seller to be free from defects in material or workmanship under normal use and service. The Seller's obligation under this warranty is limited to repairing or replacing, at its factory, any parts which are returned to Seller within twelve months, freight charges prepaid, and which upon examination prove to be defective. Said warranty shall not apply to products which have been installed, altered, or repaired by any persons not expressly authorized by Seller in writing to do so, or which have been subjected to misuse, negligence or accident.

There is no warranty of merchantability of fitness for any particular purpose or any other warranty express or implied except as specifically stated herein.

Seller shall in no event be liable for special or consequential damages of Buyer or claims of any third party against Buyer.

Generally, the installing distributor provides a one-year warranty covering the labor and transportation charges for defective parts replacement. Please ask your installing distributor for any warranty concerning these items. Any such warranty is only from and on behalf of such distributor, as Seller does not authorize any other party to provide any other warranty on behalf of Seller.

4. INSTRUCTIONS TO INSTALLER

To install and adjust the window for proper and safe operation, the installer must carefully read this Instruction Manual before proceeding, then follow the instructions exactly.

After Installation the window must be adjusted to conform with Horton's recommendations and all code requirements. Be sure to carefully study these requirements in these instructions.

After installation and adjustment, the installer's final responsibility is to properly instruct the owner in the safe use of the window. You must present the owner with this Installation Instruction Manual. Each step of the installation and adjustment instructions is important for proper and safe use of the window. If you have any questions about any item contained in these instructions, call Horton's Technical Service or Sales Department for assistance.

5. TOOL LIST

For a fast and complete installation the following tools will be required :

- ☐ Pocket knife
- ☐ Hammer
- ☐ Tape Measure
- ☐ Hacksaw
- ☐ Wire cutter
- ☐ Electrical tape
- ☐ 4' level
- ☐ Channel lock pliers
- ☐ 5/16" Masonry bits
- ☐ Screwdrivers: Phillips - #1 & #2 Straight - small and medium
- ☐ Open end wrenches: 7/16", 1/2" & 3/8"
- ☐ Socket and ratchet: 3/8" drive, 3/8", 1/2" & 7/16"
- ☐ Allen wrench set
- ☐ Electrical extension cord
- ☐ Flat file (coarse)
- ☐ Standard drill bits #19, 21, 31 & 1/4"
- ☐ 1/4" electric drill
- ☐ Volt / Ohm Meter

6. INFORMATION PROVIDED BY DISTRIBUTOR TO OWNER

A. Location of on / off switches and power circuits.
B. Locations and use of Circuit Breakers if power operated.
C. Necessary warnings not covered in these general instructions.
D. Local phone number to call regarding problems or request for service. If a potentially hazardous situation is suspected, lock the window until a professional inspection is made and the problem is corrected.

Additional Information Provided to The Owner:

Date Equipment Shipped From Horton Automatics:_____

Date Equipment Placed Into Service:_____

Horton Automatics Invoice Number For Warranty Reference:_____

Equipment Type:_____

Accessories Included:_____

_____

_____

_____

7. GENERAL INFORMATION / PRODUCT DESCRIPTION

The Horton Automatics Series 8000 windows were developed for commercial use in businesses that offer drive-thru service. The windows are energy efficient and help increase server productivity.

A. How the operator works

When the C8160-3 master control is energized the window opens in open speed. Opening speed, closing speed and latch check are all independently adjustable (See Item 13 "Trouble-shooting and Adjustments"). Mode of actuation is determined by type of window unit selected (See Item 11 "Activating Devices").

B. Operator Features

- Self-contained electromechanical operator.
- 24 VAC low-voltage actuating class II circuit.
- Fully adjustable opening and closing speed and latch check adjustment.
- Manual operation with power on or off.
- 1/2" (13) shaft is constructed of induction hardened steel with maximum straightness.
- Linear actuator utilizes six aircraft quality bearings with integral clutch and rod lubrication.
- Automatic locking.
- Reverses during closing if object impedes closing.
- 1/8 HP DC permanent magnet motor, 1800 RPM.
- Soft start to cushion operation.
- Adjustable time-delay 1-20 seconds.
- Modular construction.
- Meets U.L. 325 requirements for power operated windows and is listed.

C. Operator Housing & General Window Package

Composition and Materials: The operator, track and wheels are concealed within a continuous extruded aluminum header with a side access panel. Header size is 4"x 6" (102 x 152). Optional header size for manual window is 2 1/2" x 4" (63 x 152). These headers and all structural aluminum sections are constructed of 6063T5 or KE45 alloy with a minimum thickness of 1/8" (3). The sliding panel is supported by high quality, ball bearing wheels, rolling on a replaceable nylon covered support track. The bottom of the window is stabilized by concealed guide pins. Mohair weather-stripping is provided on the strike rail of the sliding panel as well as on adjoining vertical rails. Panel construction is tongue-and-groove, key-fitted gussets in each corner.

Finishes and Color: Available in standard finishes of 204-R1 clear anodized aluminum or dark Bronze 313-R1. Other anodized aluminum colors or paint processes are available if specified.

D. Glass

The glass described in each window package (next page) is regular stock glass and is available for shipment with any standard size window package. Window packages can also be ordered without glass but must have glass stops for glazing from 1/4" (6) to 1" (25) glass.

If glass is ordered separately or, for whatever reason, needs to be replaced, it must be in accordance with ANSI standard Z97.1975.

GENERAL INFORMATION / PRODUCT DESCRIPTION - CONT.

E. Available Configurations / Series Types

Series 8100: Flush-mount, single slide, narrow stile, automatic window. Panels have 1" (25) insulated tempered glass and a maximum security thumb-turn lock for manual lockup (key cylinder lock is optional).

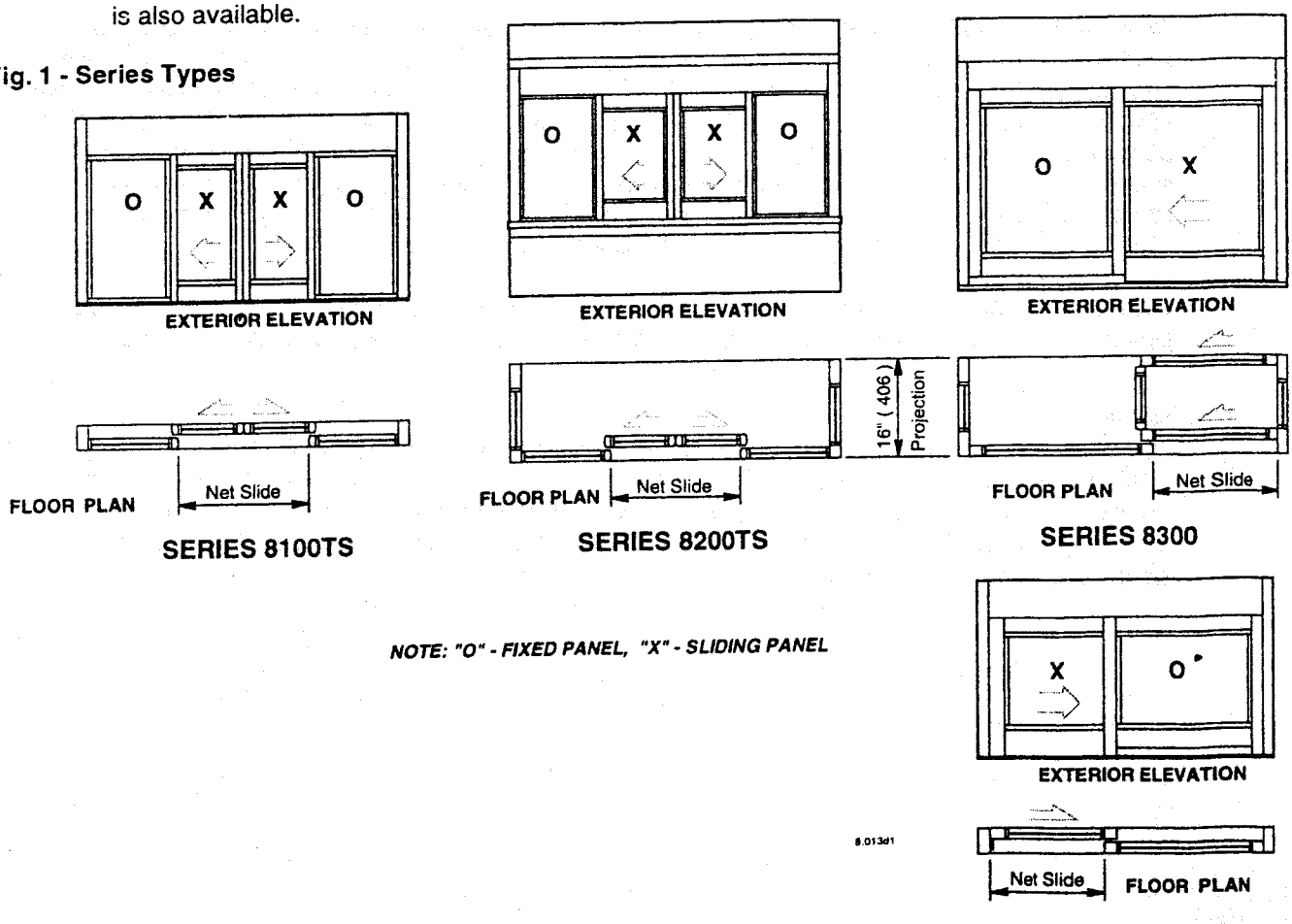
Series 8100TS: Flush-mount, biparting, thin stile, automatic window. Thin stile panels provide maximum field of view. Panels have 1/4" (6) tempered glass and maximum security knob locks for manual lockup.

Series 8200TS: Projected, biparting, thin stile, automatic window. Designed especially for the drive-thru industry - thin stile construction helps increase vision range and the projected design creates a stainless steel counter for additional work space. Panels have 1/4" (6) tempered glass. Sliding panels lock after each closing and have maximum security knob locks for manual lockup.

Series 8300: Projected, interlocking, single slide, narrow stile, automatic window. Designed especially for drive-thru businesses requiring additional deterrents against theft - two interlocking sliding panels are synchronized so that one is always in the closed position. Each sliding panel locks automatically each time it closes. Projected design creates a stainless steel counter for additional work space. Panels have 1" (25) insulated tempered glass (bullet resistant glass is optional) and a maximum security thumb-turn lock for manual lockup (key cylinder lock is optional).

Series 8900: Flush-mount, single slide, narrow stile, manual window. Panels have recessed manual pulls and a maximum security thumb-turn lock (key cylinder lock is optional). Panels accept either 1" (25) insulated tempered glass or 1/4" (6) tempered glass. An optional 2 1/2" low-profile Header is also available.

Fig. 1 - Series Types



GENERAL INFORMATION / PRODUCT DESCRIPTION - CONT.

F. Window Locks

Autolock: All window units are equipped with an automatic locking mechanism that, when properly adjusted, securely locks the window every time it closes. It unlocks only if the window is activated or if the lock release is depressed (See Fig. 4, this page).

Note: For autolock adjustment, see Item No.13 "Trouble-shooting & Adjustments," page G850.20.

Manual Locking: Single slide window units are equipped with C454 *Adams Rite*® #MS1850 lock, C455 cylinder, C463-1 thumbturn, and C459 keeper. The sliding panel locks into the jamb which is predrilled with a keeper prep. Key cylinder is optional (See Fig. 2, this page). Biparting window units are equipped with C8382 *Adams Rite*® #MS1847-06 lock, C8346 escutcheon, C8344 spindle, and C8343 lock knob. One sliding panel locks into the adjoining sliding panel which is predrilled with a keeper prep. (See Fig. 3, this page).

Fig. 2 - Exploded View of Lock for Single Slide

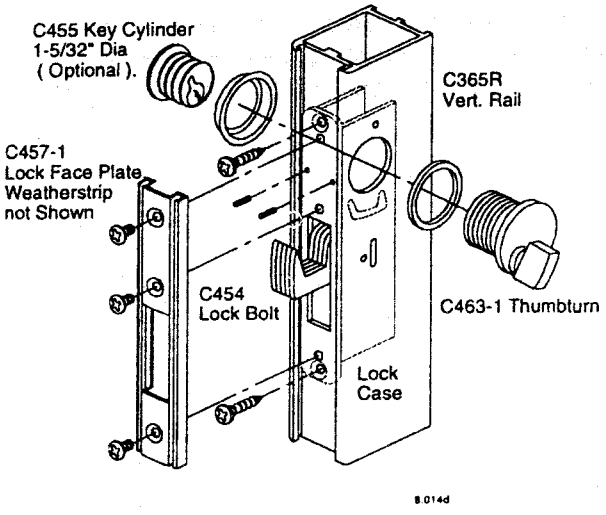


Fig. 3 - Exploded View of Lock for Bipart

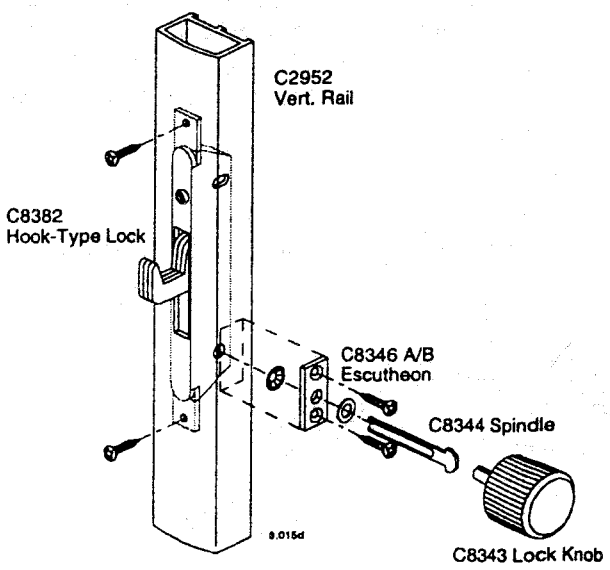
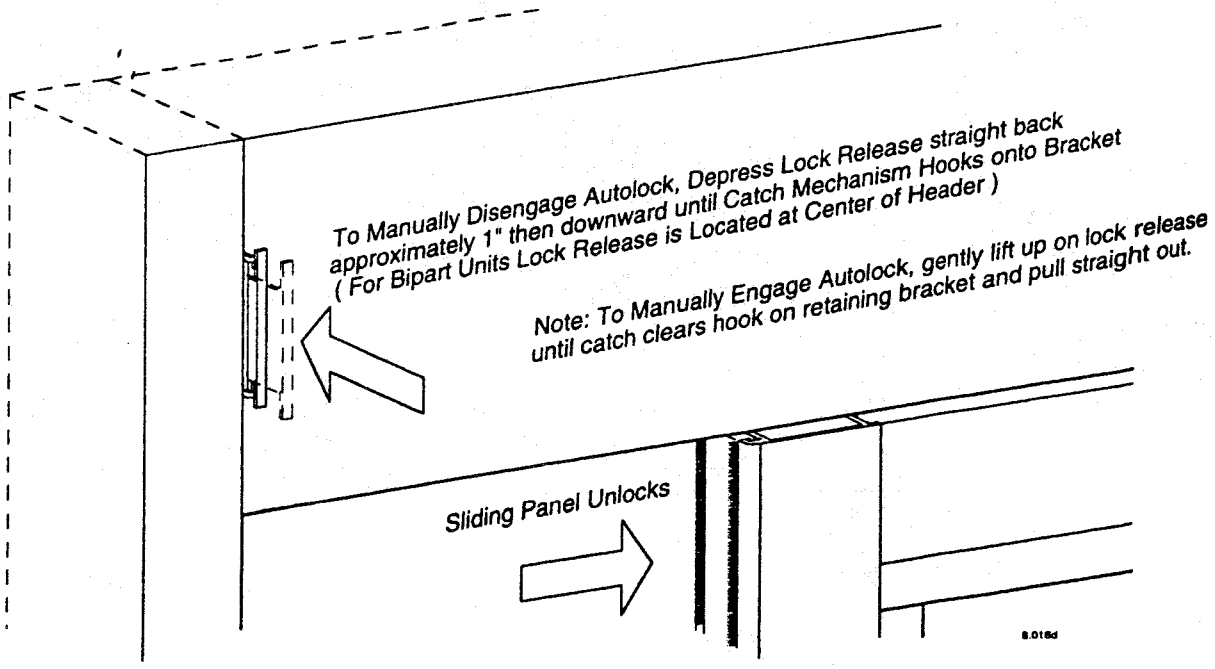


Fig. 4 - Manual Autolock Release



8. GENERAL CONDITIONS

Verify with the General Contractor the exact location of the window unit. The masonry opening must be plumb, level and square with the window jambs. The area where the operator is to be installed must be sturdy and reinforced.

Masonry opening width = unit width + 1/2" (13). Masonry opening height = unit height + 1/4" (6).

9. ELECTRICAL INFORMATION

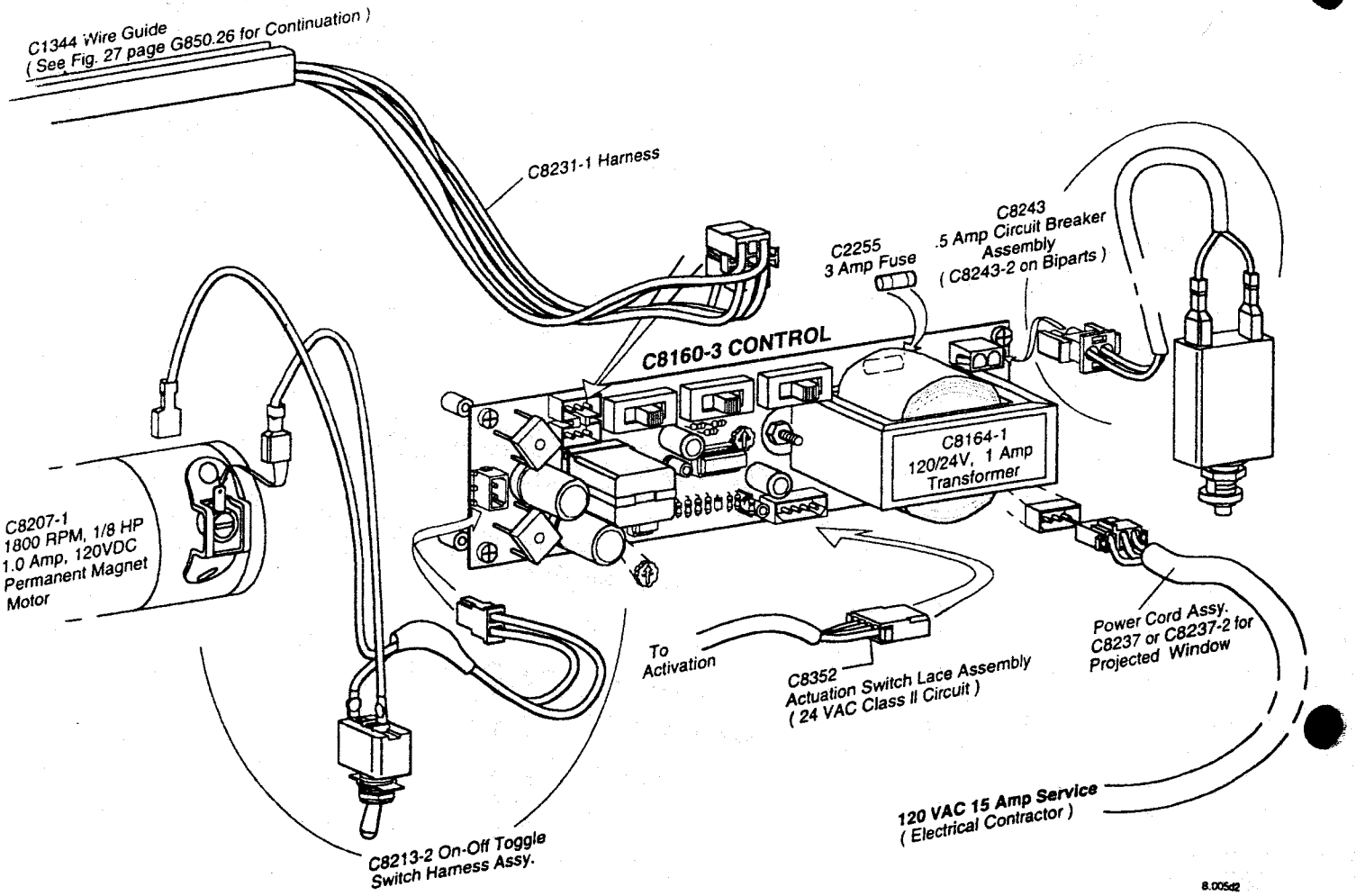
Required Electrical Service: A 120 VAC, 60 Hz, 15 Amp dedicated circuit must be available.

Note: Up to 5 window units may be connected to one circuit.The actual amperage drawn per operator is less than 2 amps (average).

Available Power from Operator: 24 VAC is provided from the C8160-3 master control. A two conductor wire with a four pin plug (C8352) is provided for the low voltage switching circuits. This plugs directly into the C8160-3 control (See Fig. 5, this page).

Circuit Breaker and On-Off Switch: A .5 Amp circuit breaker assembly is provided for each operator. On biparting units, this circuit breaker, is located in the middle of the header and protrudes from face plate. An on-off toggle switch is located just above the circuit breaker (See Fig. 7, page G850.08). On single slide units the circuit breaker and the on-off toggle switch is located on the fixed panel side behind the face plate (See Fig. 8, page G850.08). In the event of an electrical overload, the circuit breaker will automatically release and turn the operator off. The plunger may be reset after the problem is corrected.

Fig. 5 - C8160-3 Master Control and Connections



ELECTRICAL INFORMATION - CONT.

Optional Provision for Fly-Fan: Some installations require that a fly/insect suction fan be installed at or near the window opening. To meet such requirements, Horton provides magnetic reed switches that can be factory installed in automatic or manual window units for actuation of fly-fan when window is open (See Fig. 6, this page). *Note: Fan and wiring by electrical contractor.*

All wiring must be in accordance with the National Electrical Code (U.S. installations) and with the Canadian Electrical Code (Canadian installations) and any local authority having jurisdiction. Europe provides 220 VAC and requires either a C8260-3 Master Control or step down transformer.

Fig. 6 - Fly-Fan Switch Mounting

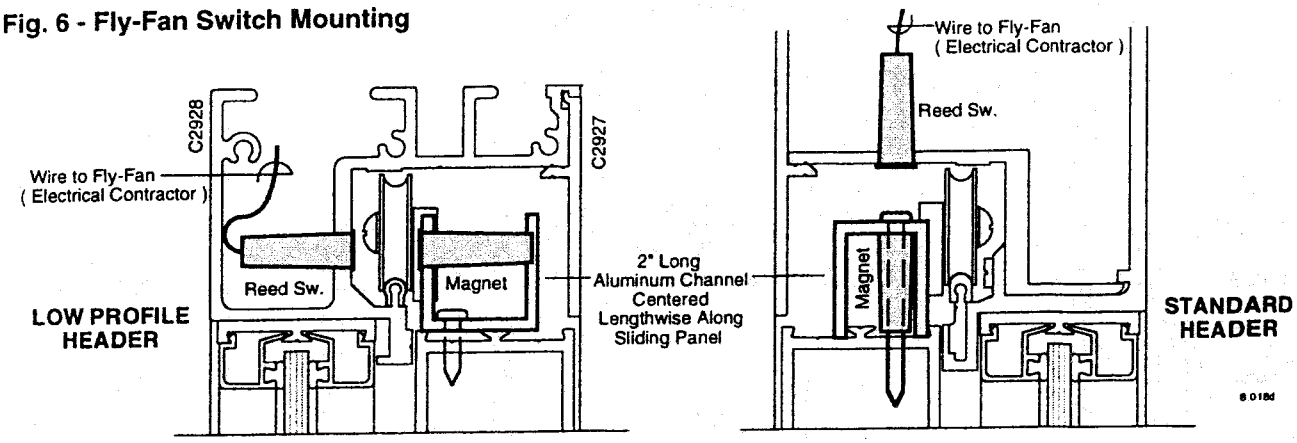


Fig. 7 - Circuit Breaker & On-Off Toggle Switch Location (Bipart)

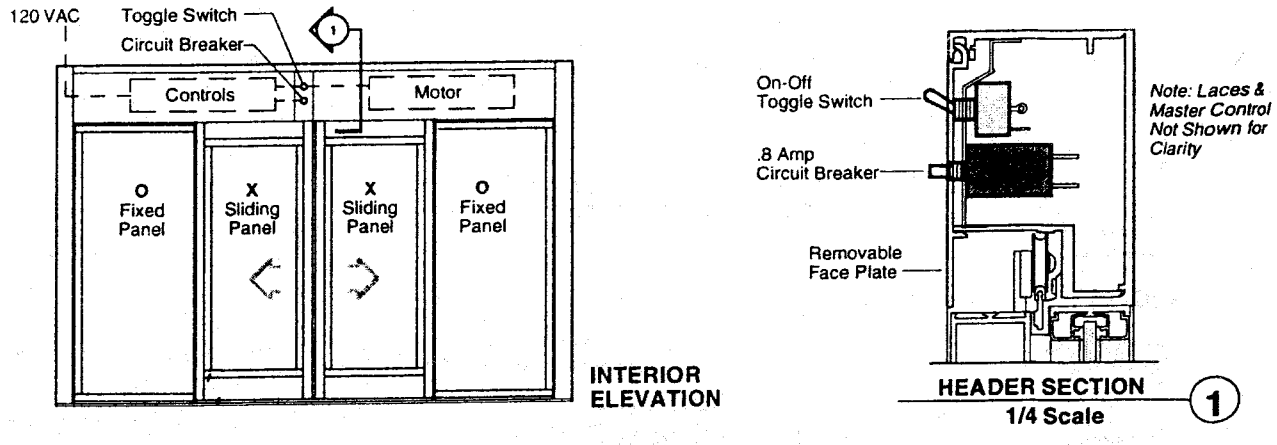
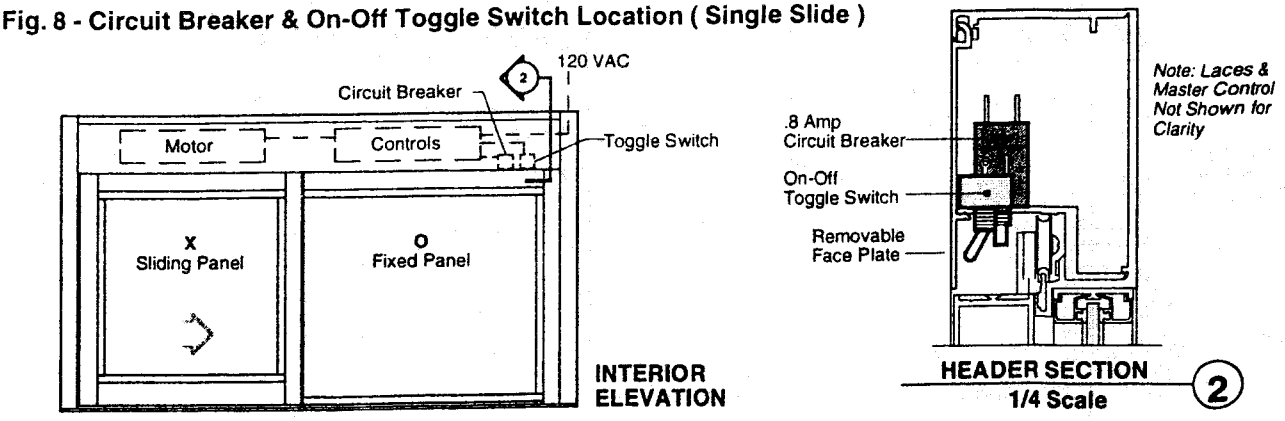
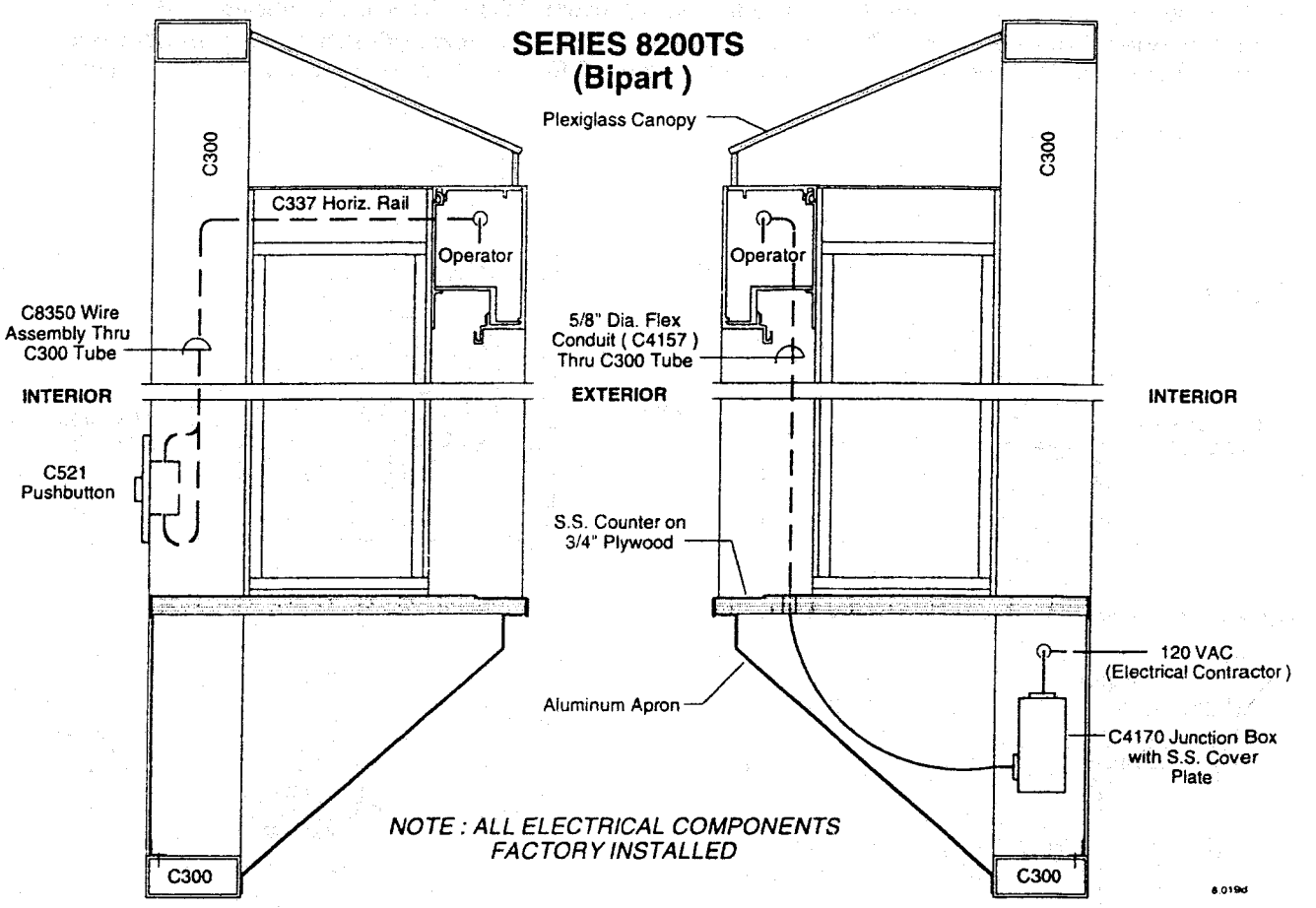


Fig. 8 - Circuit Breaker & On-Off Toggle Switch Location (Single Slide)



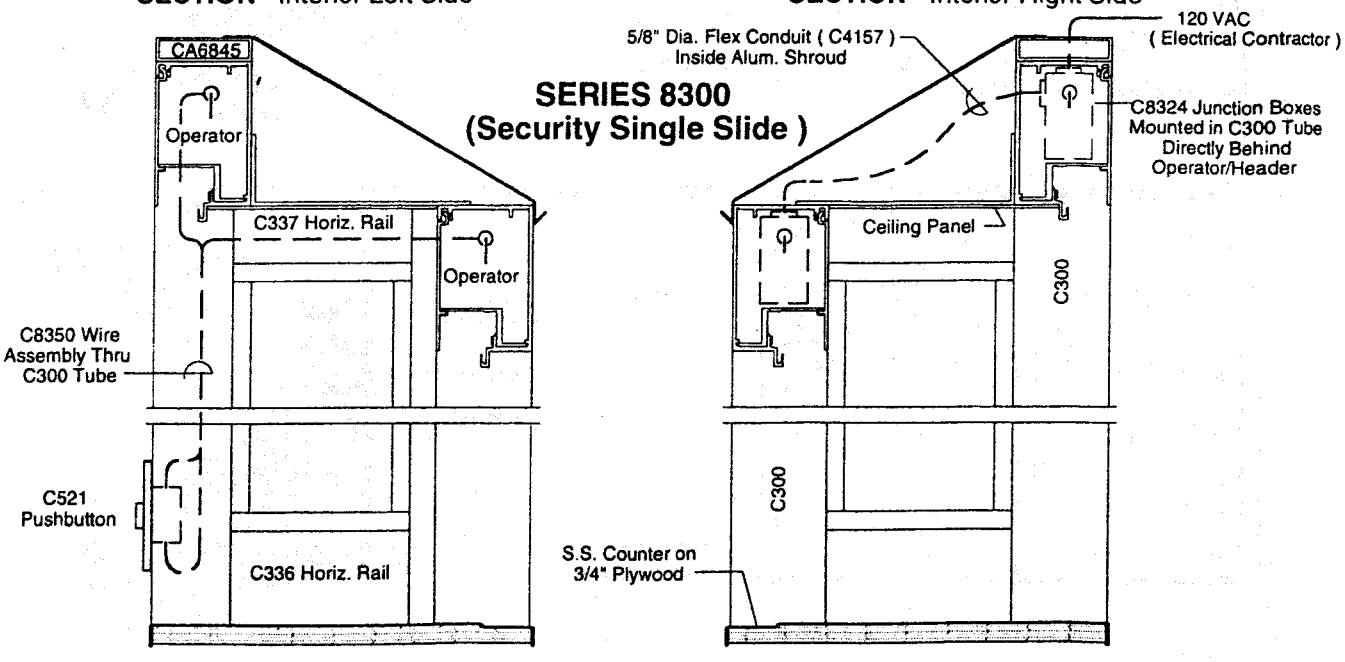
ELECTRICAL INFORMATION - CONT.

Fig. 9 - Projected Windows - Electrical Routing to Pushbuttons & Junction Boxes



SECTION - Interior Left Side

SECTION - Interior Right Side



SECTION - Interior Left Side

SECTION - Interior Right Side

10. INSTALLATION INSTRUCTIONS

Instructions for the single slide, biparting, and projected window units are the same. Care should be taken so the frame will not be racked and the concealed control wires are not pinched in the installation. We suggest that you have on hand a number of wood shingles to shim the unit and hold it in the opening (Fig.10 & 11, this page).

Once the frame has been set in the opening use your level to plumb and level the unit. Secure the jambs with #14 x 3" FHSMS provided at predrilled locations. Make provisions to get the 120 VAC power line into the header entering at the fixed panel end.

Fig. 10 - Installation for Flush-mount Window Unit (Interior View Shown)

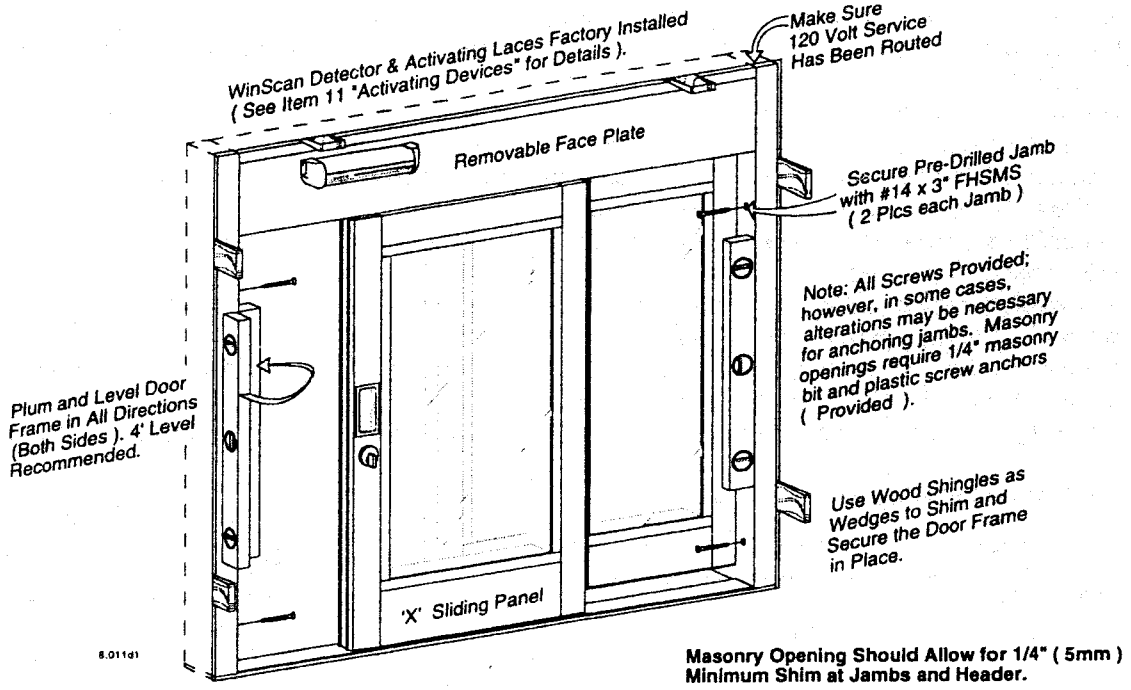
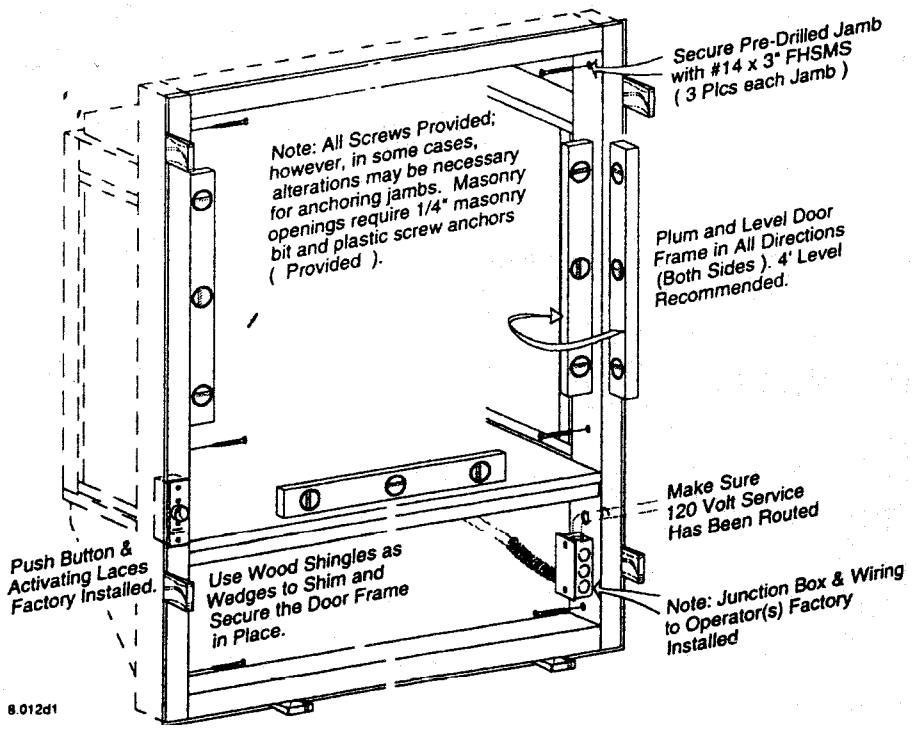


Fig. 11 - Installation for Projected Window Unit (Interior View Shown)



11. ACTIVATING DEVICES

Mode of actuation is determined by type of window unit. There are currently three primary modes of actuation : **C8420 WinScan, C1160-4 Window Scan** and **C519 Security Pushbutton.**
Note: The standard C521 Pushbutton is an auxiliary mode of actuation used with the C8420 and the C1160-4. The following describes each type of actuation and its application.

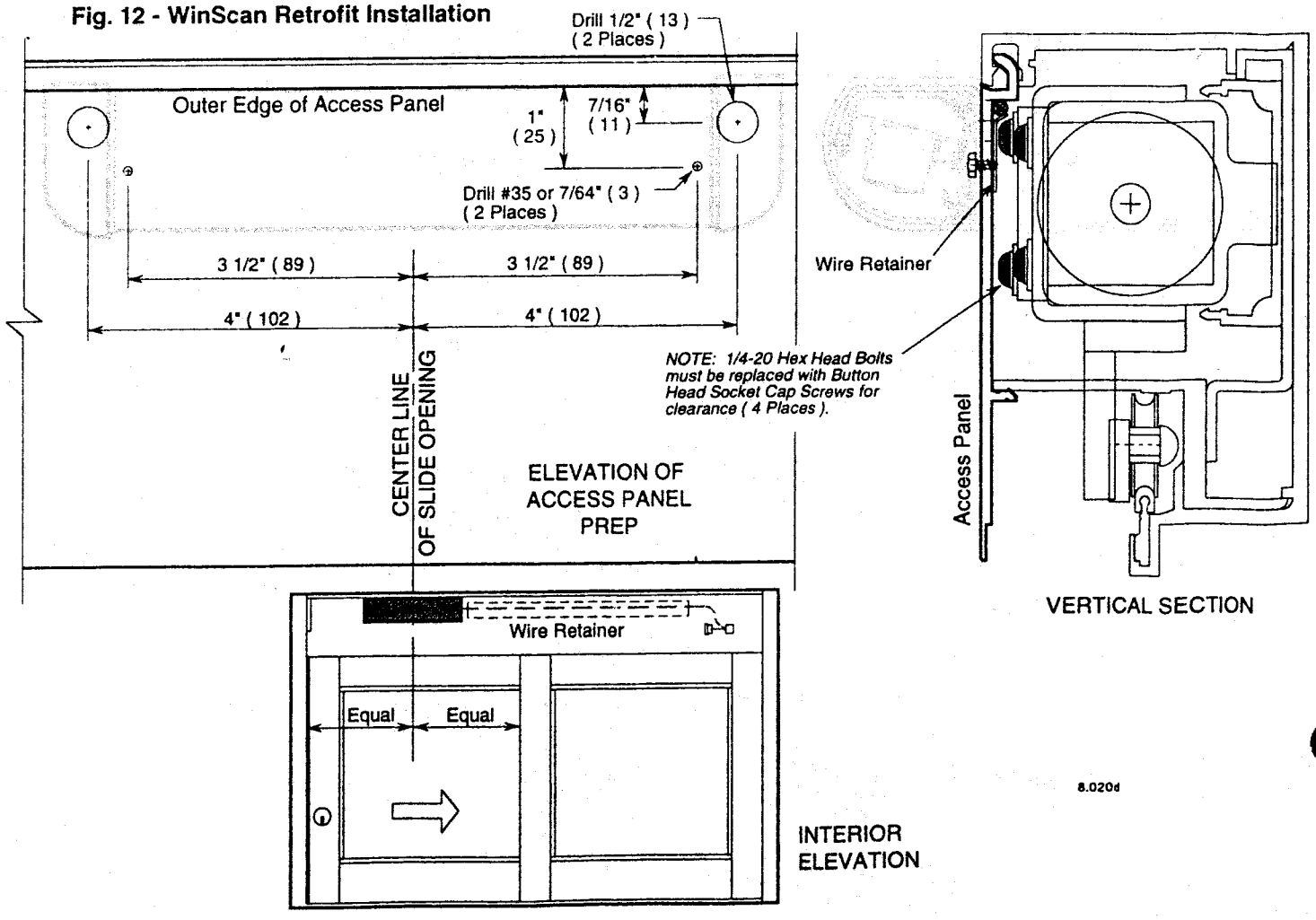
A. WinScan™- for Flush Mounted Single Slide Units

Product description: A surface applied active infrared presence detector factory wired and mounted to the head section of the automatic serving window. The detection pattern is aimed down and in front of the opening. The window is activated when the attendant is within the detection range and it remains open as long as the detection pattern is interrupted. The detection range is an adjustable 10"- 36" (254 - 914) from the sensor (See Fig.13, page G850.12).

Retrofit Installation : Easily installs to existing window, but should be installed by a factory authorized Horton distributor (See Fig.12, this page).

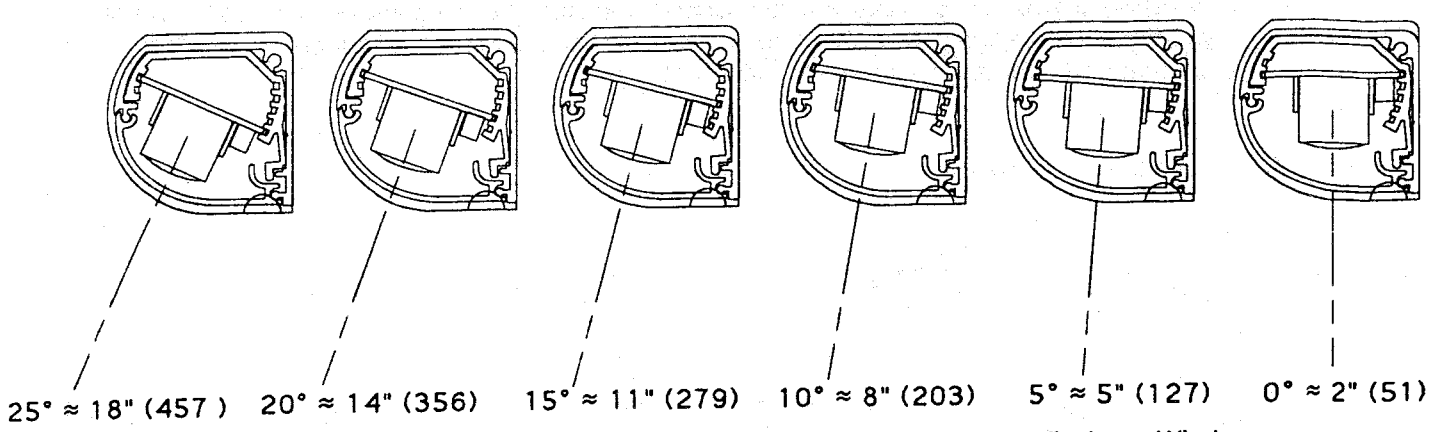
1. Drill holes in access plate as shown.
2. Install WinScan aluminum enclosure with #6 x 1/4" Hex Head screws provided.
3. Route small connector on one end of WinScan harness through 1/2" (13) hole closest to window control and connect to WinScan detector.
4. On inside of access panel, place WinScan harness in corner of extrusion extending from 1/2" (13) hole to end of panel.
5. Remove protective paper from adhesive tape on wire retainer and install next to 1/2" hole extending toward operator control, retaining wire as shown.
6. Remove existing 4 pin plug from control and install in mating connector on WinScan harness; install WinScan harness 4 pin plug into window control.
7. Reinstall access panel and adjust WinScan as desired (See Fig. 13, page G850.12).

Fig. 12 - WinScan Retrofit Installation

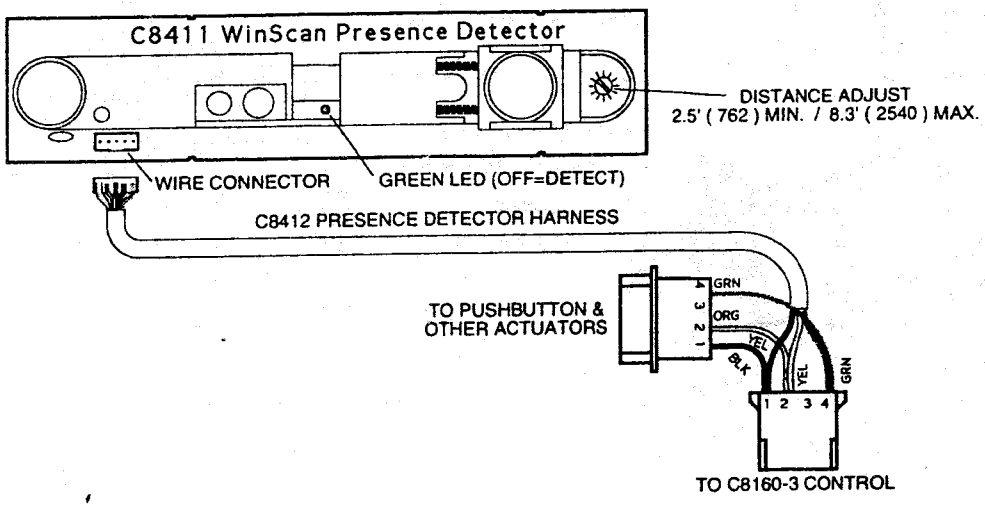


ACTIVATING DEVICES - PART (A) CONT.

Fig. 13 - C8420 WinScan Adjustments



Dimension shown is outer edge of detection zone at 36" below detector & perpendicular to Window



C8420 WINSCAN PARTS LIST

2	C249	SCREW #6 X 1/4" HHSMS (MOUNT C1806 TO HEADER)
4	C864-2	SCREW #1/4-20 X 1/2" BHSCS (REPLACE HEX HEAD SCREWS ON WINDOW)
1	C1808L	ENDCAP - LEFT HAND FOR C1806
1	C1808R	ENDCAP - RIGHT HAND FOR C1806
2	C1810	MOUNTING SCREW FOR ENDCAP
2	C1892	ADJUSTABLE MOUNTING CLIP
1	C8411	PRESENCE DETECTOR - WINSCAN
1	C8413	ASSEMBLY - WINSCAN HARNESS
1	C8415	PLASTIC LENS / COVER - WINSCAN
1	C8416	ALUMINUM ENCLOSURE - WINSCAN
1	C8417	WIRE RETAINER - WINSCAN HARNESS

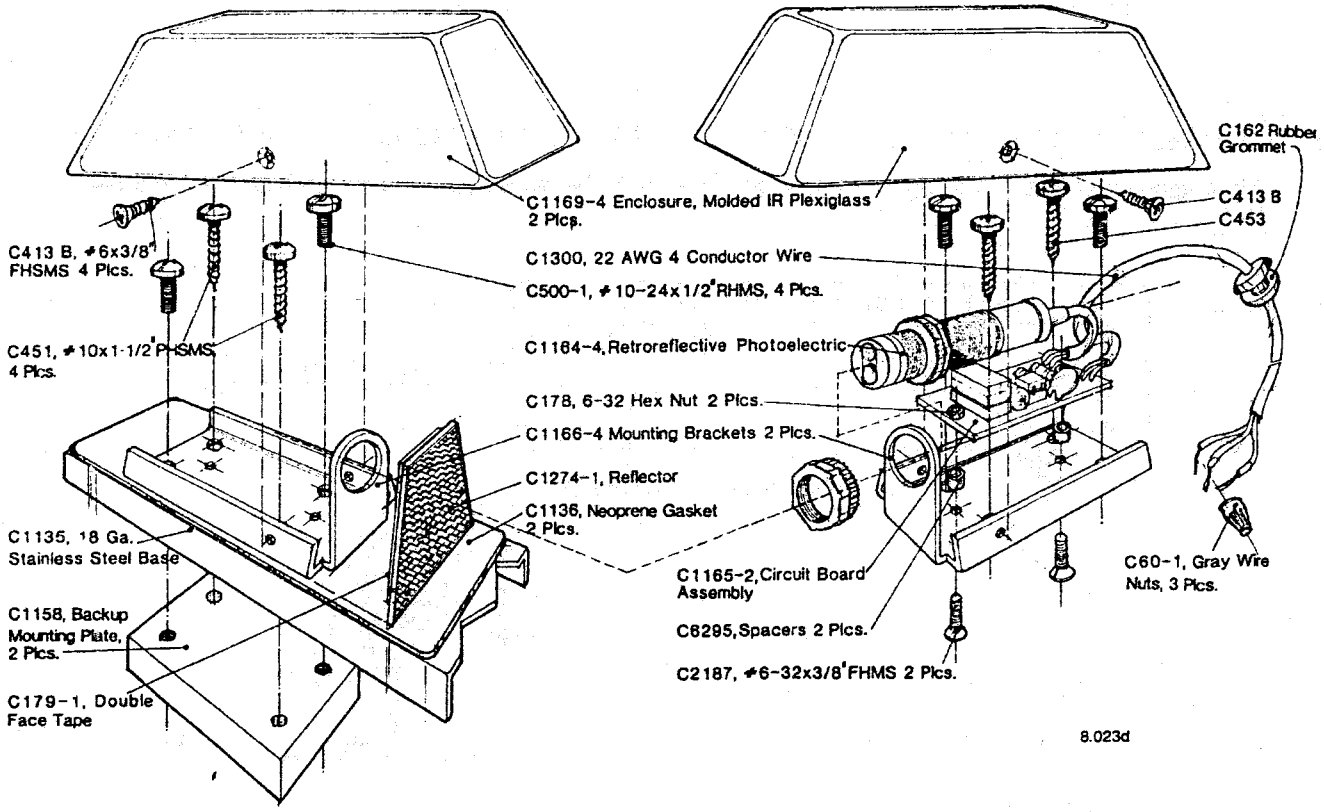
8.021d

ACTIVATING DEVICES - CONT.

B. C1160-4 Window Scan - for Flush Mounted and Projected Biparting Units

Product description: A surface applied activating device that includes a stainless steel base and two molded Lexan enclosures. One enclosure contains a retroreflective photoelectric transmitter/receiver and all electronic components; the other matching enclosure contains a reflector (See Fig. 14, this Page). The system responds to an interruption of the light path between the Lexan enclosures; this interruption signals the window to open.

Fig. 14 - Exploded View of C1160-4

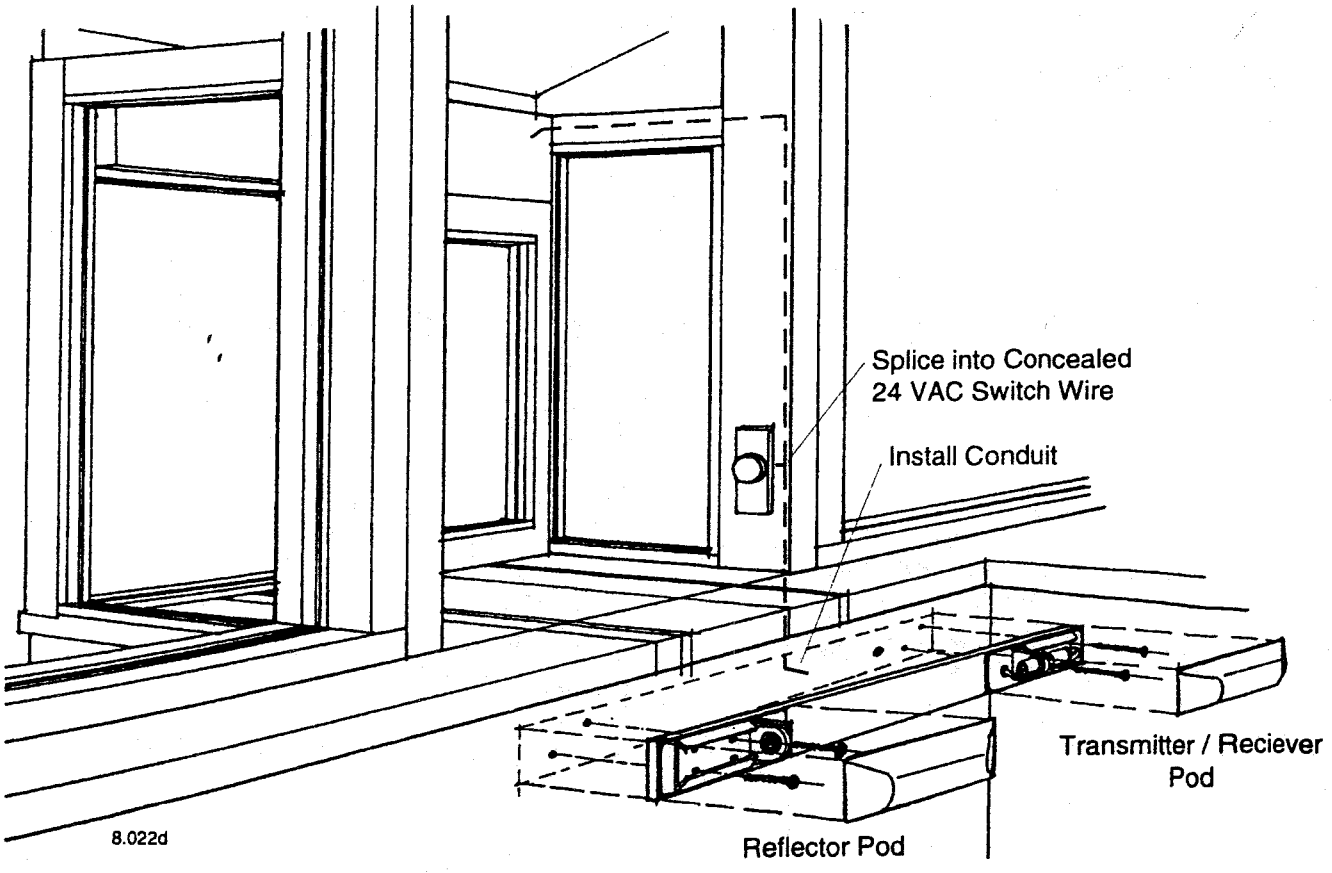


ACTIVATING DEVICES - PART (B) CONT.

Installation: The C1160-4 assembly should be mounted inside and directly in front of the window so when the user leans against the counter, he is also between the Lexan enclosures. *Note: It may be necessary to shim behind the device on some applications.* The electrical contractor should provide an accessible route from the Window Scan mounting location to the base of the window lock jamb, routing the 24 VAC, Class II control wire to the operator.

1. Remove #6 flat head screws retaining the molded acrylic enclosures to the stainless steel base and remove the acrylic enclosures.
2. Hold the stainless steel base assembly in a location that will provide proper operation of the system per the above description, and mark the counter top through the two unused holes at each end of the assembly.
3. Drill the four marked holes with a 1/4" bit for installation of the green screw anchors, or 5/32" if being mounted directly to metal counter.
4. Determine the best location for mounting the wiring to the window lock jamb from some location under the stainless steel base. Drill a minimum 1/4" hole for routing the wire.
5. Turn the window circuit breaker off. Remove the pushbutton assembly in the window lock jamb and route the C1160-4 Window Scan to it.
6. Splice C1160-4 wire to wiring on pushbutton switch; white to blue, black to black, and red to brown. Green is not used. Replace the pushbutton switch assembly.
7. Mount Window Scan unit to counter top with #10 x 1 1/2" screws provided.
8. Turn circuit breaker on. Window should remain closed. Placing an object between the reflector and the photoelectric should cause the window to open. Remount the acrylic enclosures to the stainless steel base.

Fig. 15 - Installation of C1160-4



ACTIVATING DEVICES - CONT.

C. C519 Security Pushbutton - for Projected Single Slide Security Units

Product description: A three button actuating switch that synchronizes the two interlocking single slide panels of the window such that only one is allowed to be open at any given time. Each of the buttons are internally wired to relay modules that provide "Latching" operation of the window's activation system. In other words, the buttons must be pressed once to open then, pressed again to close. *Note: All wiring and installation is done at the factory .*

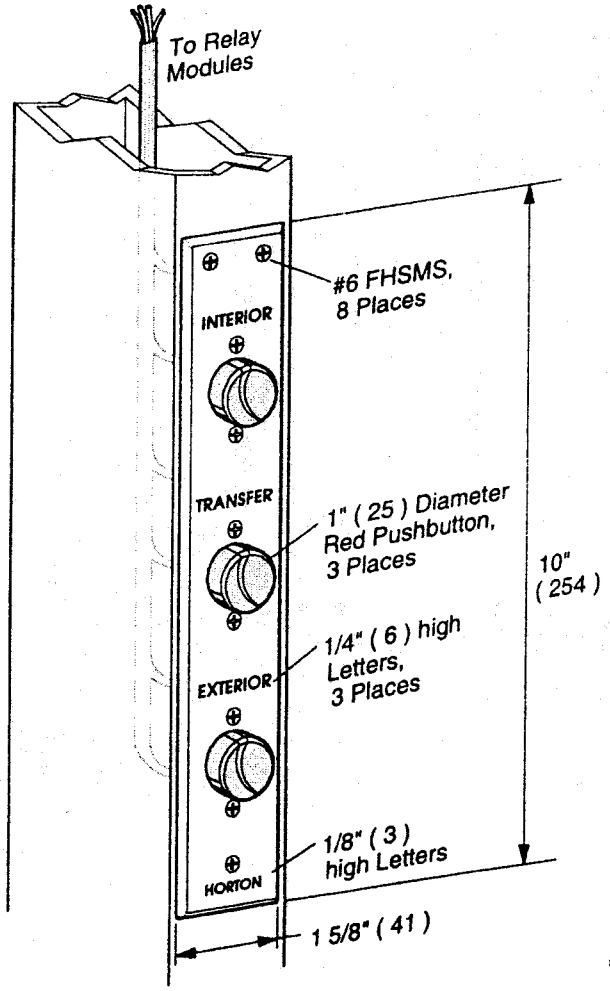
Sequence of Operation: Be careful not to press any buttons out of sequence.

SITUATION:	PROCEDURE:	RESULT:
1. Both panels are closed and the attendant desires to open then close the exterior panel only.	a. Press **'EXTERIOR'** Button once.	a. Exterior panel opens and stays open
	b. Press **'EXTERIOR'** Button again.	b. Exterior panel closes and stays closed
2. Both panels are closed and the attendant desires to open then close one panel at a time.	a. Press **'EXTERIOR'** Button once.	a. Exterior panel opens and stays open
	b. Press **'TRANSFER'** Button once.	b. Exterior panel closes and Interior panel opens and stays open

*Note: Continued use of **'TRANSFER'** Button results in closing of opened panel followed by opening of opposite panel*

1. Both panels are closed and the attendant desires to open then close the interior panel only.	a. Press **'INTERIOR'** Button once.	a. Interior panel opens and stays open
	b. Press **'INTERIOR'** Button again.	b. Interior panel closes and stays closed

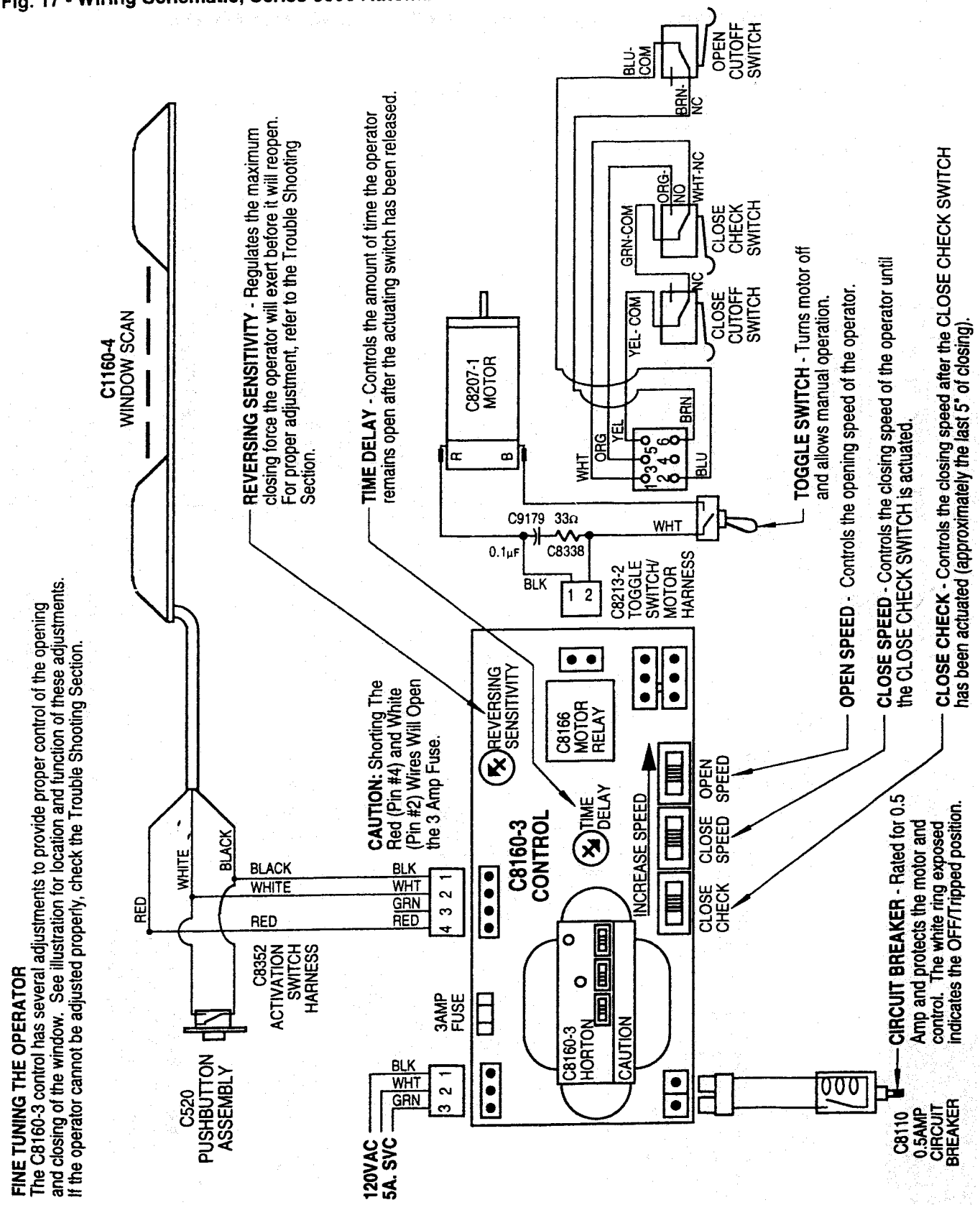
Fig. 16 - C519 Security Pushbutton



Note :
Pushbutton Factory Wired and Mounted to 1 3/4" (44) x 4" (101) Jamb

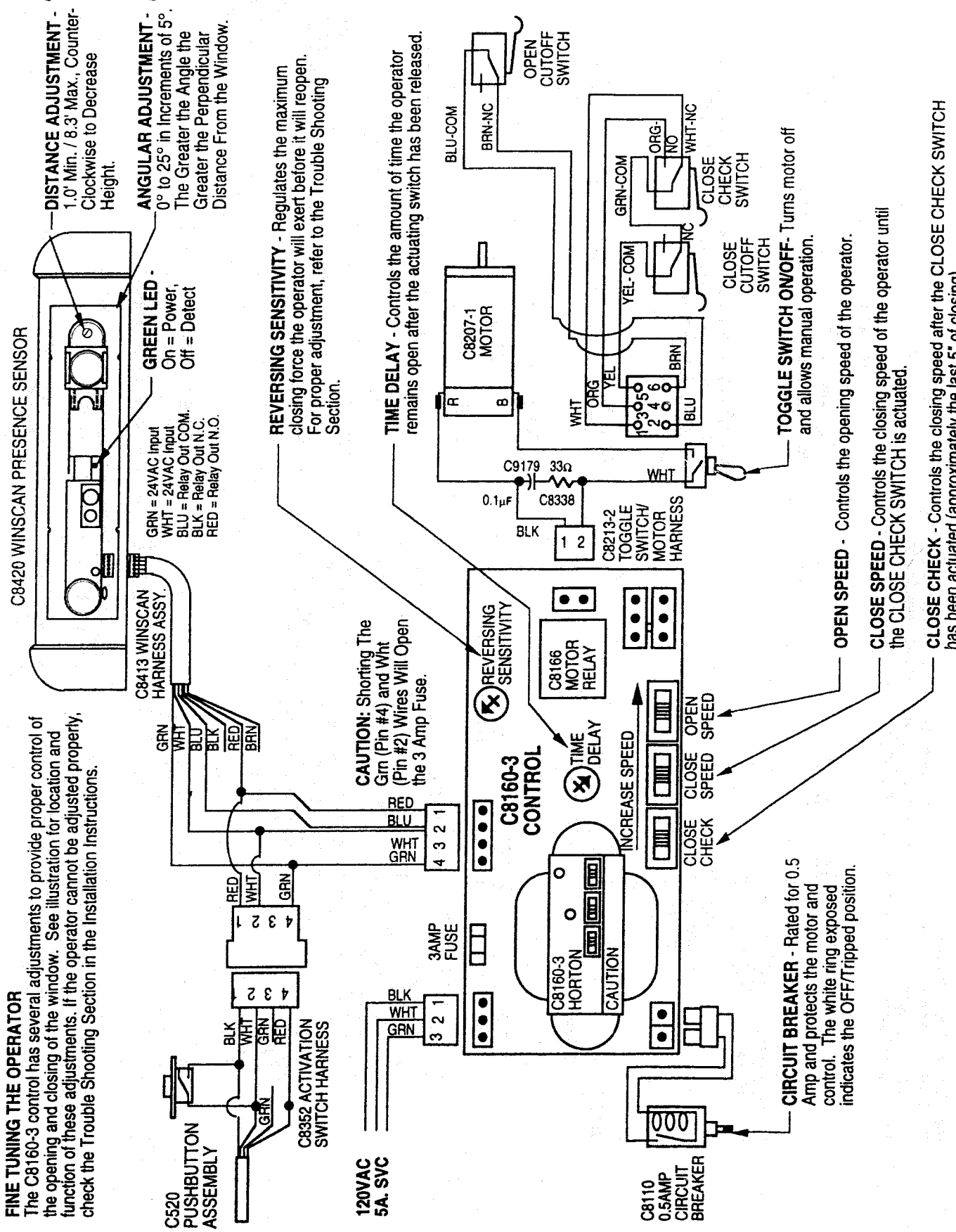
12. WIRING INFORMATION

Fig. 17 - Wiring Schematic, Series 8000 Automatic Window with C1160-4 Window Scan



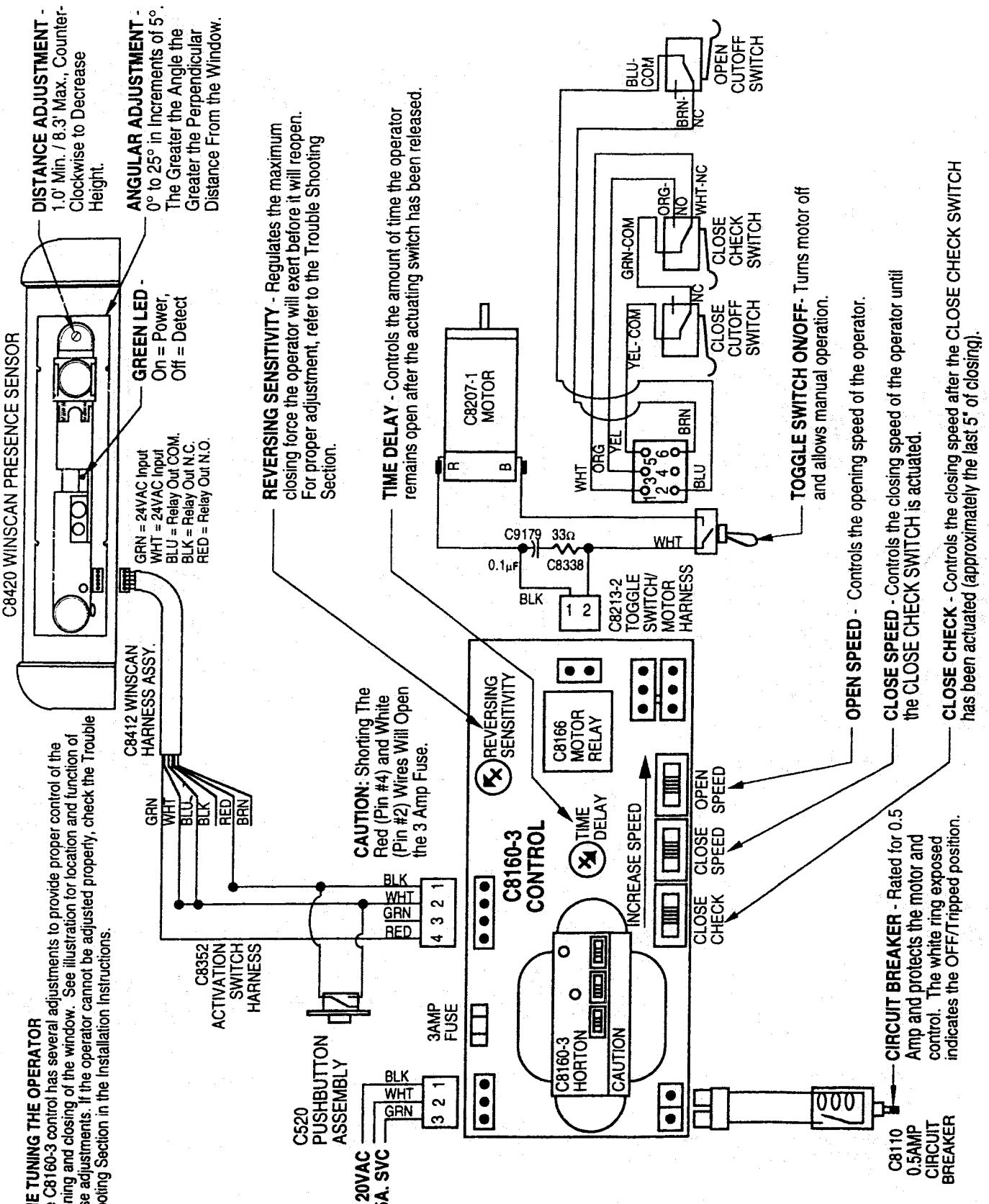
WIRING INFORMATION - CONT.

Fig. 18 - Wiring Schematic, Series 8000 Automatic Window with C8420 WinScan Actuator



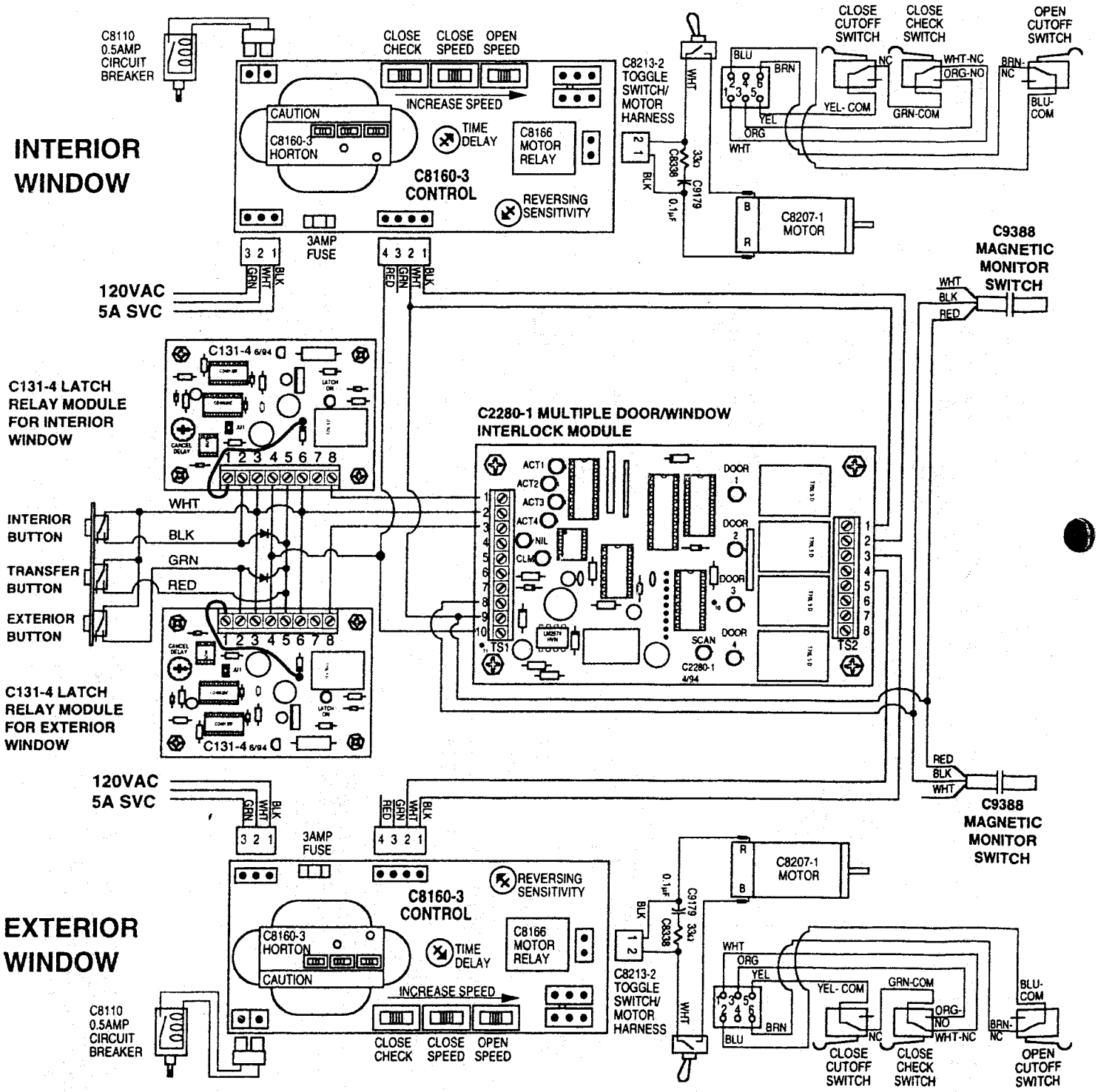
WIRING INFORMATION - CONT.

Fig. 19 - Wiring Schematic, Series 8200TS Automatic Projected Window with C8420 WinScan Actuator



WIRING INFORMATION - CONT.

Fig. 20 - Wiring Schematic, Series 8300 Automatic Projected Security Window



CIRCUIT BREAKER - Rated for 0.5 Amp and protects the motor and control. The white ring exposed indicates the OFF/Tripped position.

REVERSING SENSITIVITY - Regulates the maximum closing force the operator will exert before it will reopen. For proper adjustment, refer to the Trouble Shooting Section.

TIME DELAY - Controls the amount of time the operator remains open after the actuating switch has been released.

TOGGLE SWITCH ON/OFF- Turns motor off and allows manual operation.

CLOSE CHECK - Controls the closing speed after the CLOSE CHECK SWITCH has been actuated (approximately the last 5" of closing).

CLOSE SPEED - Controls the closing speed of the operator until the CLOSE CHECK SWITCH is actuated.

OPEN SPEED - Controls the opening speed of the operator.

13. TROUBLE-SHOOTING AND ADJUSTMENTS

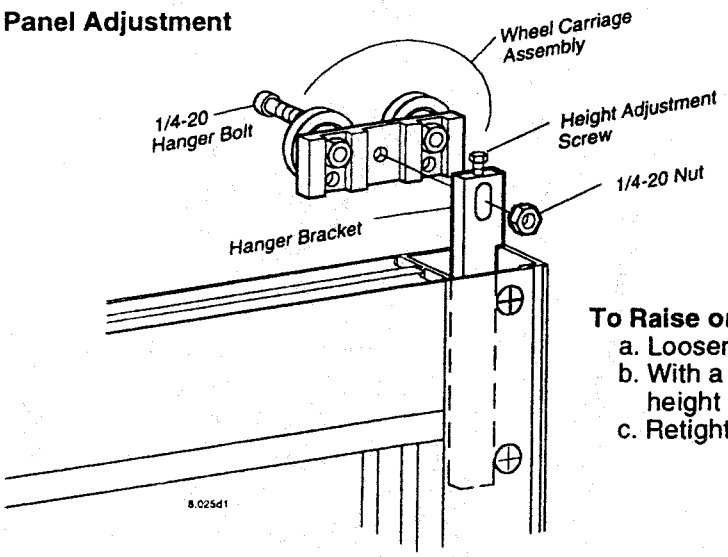
A. No Operation

1. Control not connected to 120 VAC.
2. Circuit breaker turned OFF (white ring indicates OFF); push to turn on.
3. Operator wiring harness or motor not plugged into the control (See Fig. 22, page G850.21).

B. Motor Turns On, But Will Not Move Window Panel

1. Too much physical bind on the window. Adjust panel height if panel rubs sill or binds in the guide track. Refer to Fig. 21 below.

Fig. 21 - Window Panel Adjustment



To Raise or Lower the Sliding Panel:

a. Loosen the hanger bolts slightly.
b. With a 1/4" Wrench, adjust small hex-head height adjustment screw to proper height.
c. Retighten hanger bolts.

C. Opens and Will Not Close

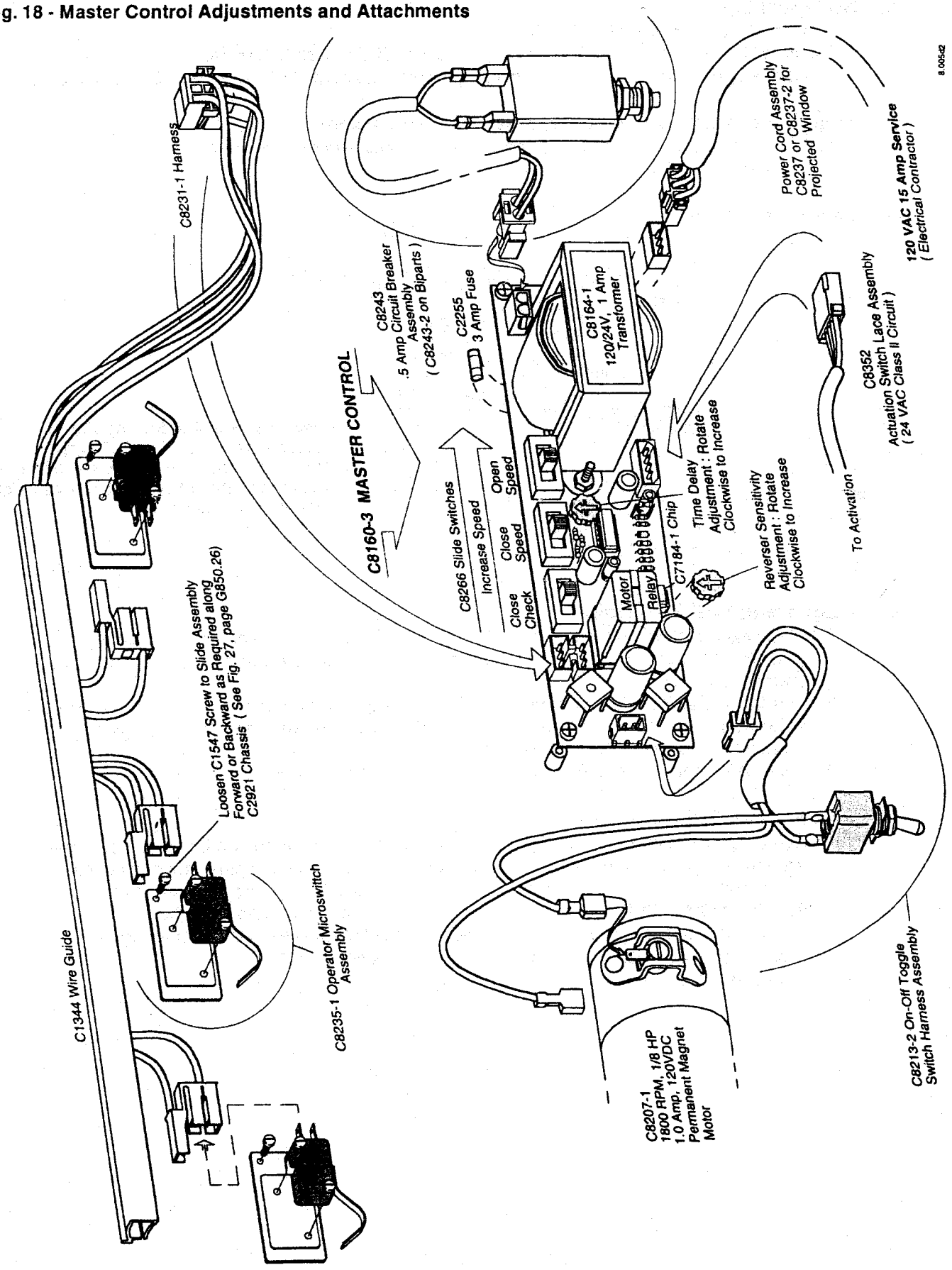
1. Actuating switch wires are shorted. Unplug the Actuating Switch Lace from the control (See Fig. 22, page G850.21). If the window closes, check the wire between the control and switch for a short.
2. The Close Cutoff or Close Check switch is not functioning properly. Depress and release the switch arms and listen for clicking of switch. Check that the wire terminal housings are properly connected to the switches.
3. Time Delay set too long. Decrease the Time Delay Adjustment.

D. Closes and Will Not Open

1. Actuating switch not connected properly. Unplug the Actuating Switch Lace from the control. With the end of a screwdriver short across pins 1 and 2 of the four pin connector on the circuit board. If the the window opens, check the connections at the actuating devices.
2. The Open Cutoff Switch is not functioning properly. Depress and release the switch arms and listen for clicking of switch. Check that the wire terminal housings are properly connected to the switches (See Fig. 22, page G850.21).
3. 3 amp fuse is open.

TROUBLE-SHOOTING AND ADJUSTMENTS - PART (D) CONT.

Fig. 18 - Master Control Adjustments and Attachments



TROUBLE-SHOOTING AND ADJUSTMENTS - CONT.

E. Starts to Close Then Reopens

Note: The C8160-3 control has a reversing circuit that will cause the window to open if it is restrained during the closing cycle. This reversing circuit is not effective for the first 1.5 seconds, before it releases the window to close, after the reverser has been activated. The Reverser Sensitivity adjustment should be at the minimum setting (fully clockwise) until all other alignment and speed adjustments have been made. Refer to Fig.22 on previous page.

1. Adjust Reverser Sensitivity. Place screwdriver or wrench across the lock jamb so the window cannot completely close and allow the operator to push against it. Slowly increase the Reverser Sensitivity until the window reopens.
2. Too much physical bind on window. Adjust panel height if panel rubs sill or binds in the guide track. Refer to Fig.21 on page G850.20.
3. Motor is defective.

F. Slams Open or Shut

1. Operator switches not being actuated. Turn the operator off and manually open and close the window. Check that the switch actuator on the side of the bearing block trips the switches and keeps them tripped as long as it is beside the switch.
2. Adjust the location of the switches. The location of the C8258 operator switches can be easily changed by loosening the C1547 screw in the corner of the switch plate and sliding the switch to the desired position (See Fig. 22, previous page). If the window slams open or shut, change the location of the appropriate cutoff switch so the motor cuts off before slamming the door.
3. Adjust speed. Decrease the appropriate speed control to prevent slamming.

G. Will Not Open or Close Completely

1. Adjust the location of the switches. The location of the operator switches can be easily changed by loosening the screw in the corner of the switch plate and sliding the switch to the desired position (See Fig. 22, previous page).

H. Autolock Will Not Release

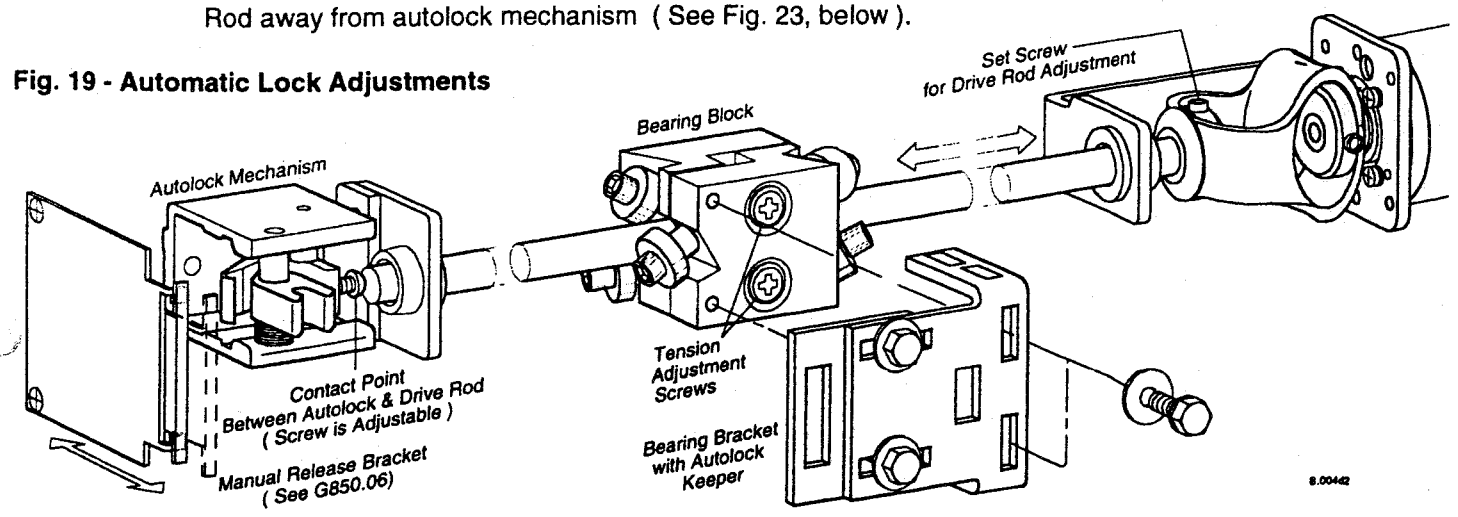
Note: When properly adjusted the autolock securely locks the window every time it closes. It will not unlock unless the operator is activated or the manual release is depressed.

1. Drive Rod set too far back from autolock mechanism. Loosen set screw and slightly shift Drive Rod toward autolock mechanism (See Fig. 23, below).
2. Bearing Block is slipping. Tighten the two tension adjustment screws at the center of the bearing block approximately one half turn each.

I. Autolock Releases When Door is Pulled

1. Drive Rod set too close to autolock mechanism. Loosen set screw and slightly shift Drive Rod away from autolock mechanism (See Fig. 23, below).

Fig. 19 - Automatic Lock Adjustments

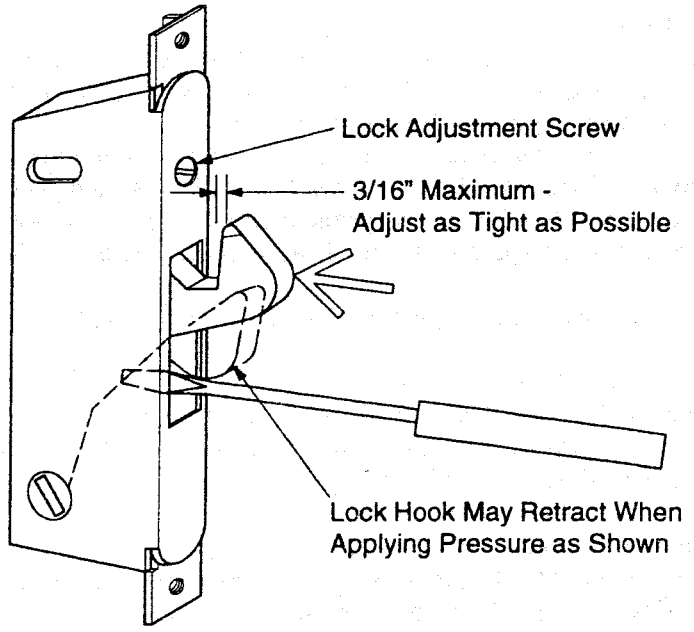


TROUBLE-SHOOTING AND ADJUSTMENTS - CONT.

J. Manual Lock, on Biparting Unit, Backs out of Adjustment

1. This happens with the *Adams Rite* ® MS1847-06 Hook-Type lock during shipment and with normal use in the field. The lock can be retracted with a screwdriver or other small object from the outside. The lock will also collapse if it is pushed directly from the front. Refer to Fig. 24, below.
2. It is important that the lock be adjusted properly. To do this, tighten the lock adjustment screw so that the 3/16" adjustment distance is minimized but still allows the hook to engage and disengage.

Fig. 24 - *Adams Rite* ® MS1847-06 Hook-Type Lock Adjustments



8.026d

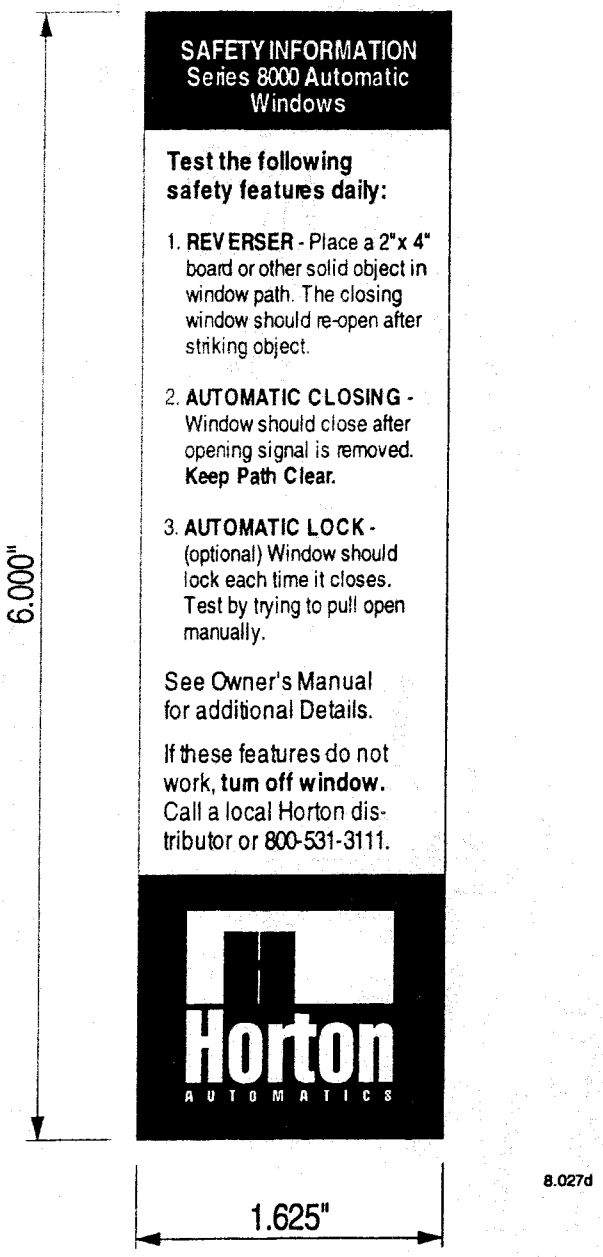
14. MAINTENANCE AND SAFETY

Semi-annually the drive rod and drive rod bushings should be cleaned and lubricated with regular motor oil. The bearing block has two internal felt oilers which will pick up oil to the drive rod. The track and wheels should be inspected for wear and replaced if necessary. Refer to Fig. 26 on the following page for replacement parts

Disconnect power supply before servicing window operator.

A Safety Check List is applied onto the jamb, just above the pushbutton (See Fig. 25, below). Carefully follow the recommendations on a **daily** basis.

Fig. 25 - Series 8000 Window Safety Check List



15. PARTS, ASSEMBLIES AND SUB-ASSEMBLIES

Fig. 26 - Exploded Views - Drive Arms, Wheel Carriages, Hanger Brackets and Pulleys