Horton Automatics

INSTALLATION INSTRUCTIONS & OWNER'S MANUAL

for Automatic Sliding Windows

G850 Rev 7/88

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

INSTALLATION INSTRUCTIONS
SERIES 8000 AUTOMATIC
WINDOW

G850.1
12/85
Rev 11/87

We are pleased that you have chosen a Horton Automatic Window and we believe that our appreciation will be well expressed through years of dependable operation.

This manual is provided to enable you to acquaint yourself with installation and service data and to show you how to keep it in good working order. Included in the manual are:

1) Installation instructions
2) Operator adjustments
3) A trouble shooting guide

YOUR REGULAR INSPECTIONS ARE VITAL TO KEEPING EACH WINDOW IN SAFE AND PROPER WORKING CONDITION. PLEASE FAMILIARIZE YOURSELF WITH AND FOLLOW EXACTLY ALL INSTRUCTIONS IN THIS MANUAL.

SERVICE AVAILABILITY

Horton products are distributed through a nationwide distributor network offering both installation and service.

Consult the yellow pages under "Doors-Operating Devices" for the local Horton Distributor or call 800-531-3111 for a list of Horton Distributors.

LIMITED WARRANTY

Horton (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 OR 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.

INFORMATION TO BE PROVIDED FROM THE DISTRIBUTOR TO THE OWNER

Be sure that your Horton distributor has given you all the following information for each installation.

1. Location of operator power cut-off switches.
2. Instructions on circuit breaker location (locked window protection, etc.)
3. Warning of maintenance problems that could result from window being allowed to operate incorrectly.
4. Number to call for problems or service. If you have a problem you cannot correct or in case of malfunction, turn off the window operating equipment and call your service representative.

The following information should be filled in by your Horton distributor when your equipment is installed:

Date shipped from Horton_____

Equipment placed into service_____

Horton invoice number for warranty reference and product recall.

_____

Equipment Type:

Window Operator _____

Activating device_____

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

INSTALLATION INSTRUCTIONS G850.2
SERIES 8000 AUTOMATIC 12/85
WINDOW Rev 11/87

1. GENERAL INSTALLATION INSTRUCTIONS

Most windows are shipped completely assembled, if not upon receipt of merchandise, check material to be sure all items have been received. At least the following items should be included with each shipment.

- Header housing the operator
- 2 - Jambs per unit
- Accessory bag (electrical)
- Screw Bag
- Sill
- Door Panels
- Optional: Transoms and sidelites

TOOL LIST

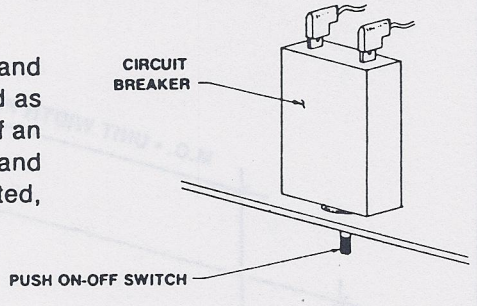
Knife
Hacksaw
Wire Cutter
Electrical tape
Screwdrivers: Phillips #1 #2
Straight: Small, Medium
Wrenches: Open End - 3/8, 7/16, 1/2
Extension Cord
Socket 3/8, 7/16
1/4" Electric drill
Bits #19, #21, #31, 1/4", 5/16" Masonry
4' or 6' ladder
Hammer
Tape Measure
Level
Caulking and gun
Shim material (Shingles)
Allen Wrench Set
Channel lock pliers
Flat file (coarse)

2. ELECTRICAL (Note: If the unit is manually operated, delete sections devoted to electrical wiring.)

115V 60 cycle current must be available with 15 amp service. All electrical wiring must conform to the National Electric Code. Note: Up to 5 window units may be connected to one 15 amp circuit.)

24 VAC is provided from the C8160-3 master control, for switching operations (mats, push buttons, etc). A two conductor wire with a four (4) pin plug is provided for the low voltage switching circuits. This plugs directly into the C8160-3 control box.

A .8 amp combination circuit breaker on-off switch is provided and located under the header behind the face plate. This switch is used as an on-off switch. The white ring indicates the off position. In case of an electrical overload in the unit, this plunger will automatically release and turn the unit off. After the door restriction or other problem is corrected, the plunger may be reset.



A. Install 115 VAC

Route 115 VAC to the operator header entering at the fixed panel end. See detail page 3. Use wire nuts to connect 115 VAC to 3 conductor lace provided in accessory bag, plug other end into C8160-3 (See Step 8).

B. Install Floor Switch

Steps will vary depending upon the type of activating devices that are being used with the window. Floor switches are the most common. That type of installation is used in the illustration. The thing you must remember regardless of the type actuator switch is a control wire must run from the switch to the operators' C8160-3 master control.

Plug the two conductor 24 Volt mat wire into C8160-3 (4 pin plug - See Step 8) leaving slack in wire for clearance. Then pull mat wire out end of header, down jamb to mat or other activating device.

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

3. ASSEMBLE WINDOW FRAME

Note most windows ship completely assembled. If so proceed to Step 4.

Only large units with transoms or sidelites require job site assembly. The frame has been prefabricated and all screws are provided. See Step 5.

4. INSTALL ASSEMBLED FRAME

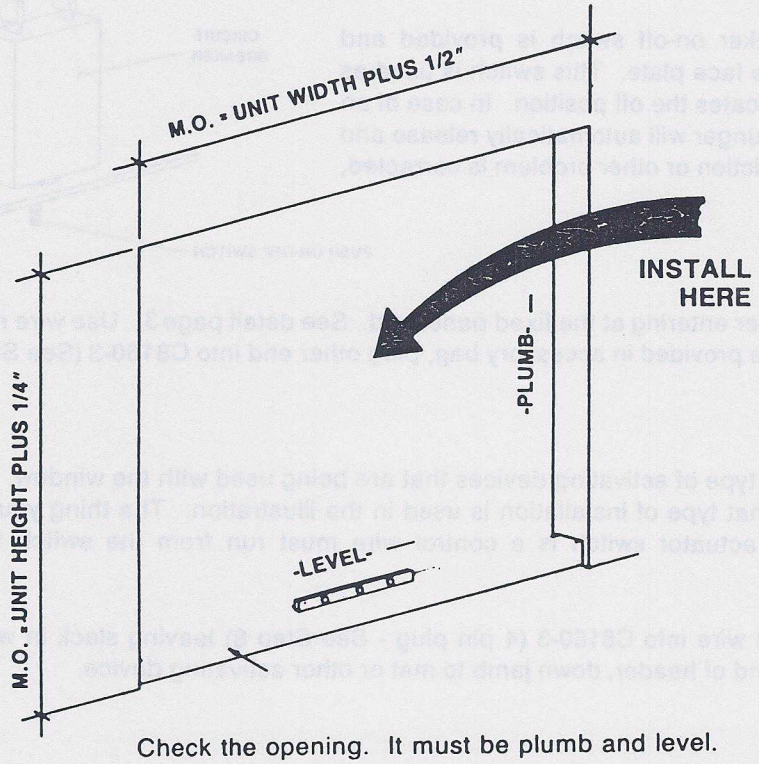
You are now ready to install the assembled frame into the opening. Care should be taken so the frame will not be racked and the concealed control wires are not pinched in the process. We suggest that you have on hand a number of wood shingles to be used to shim the unit.

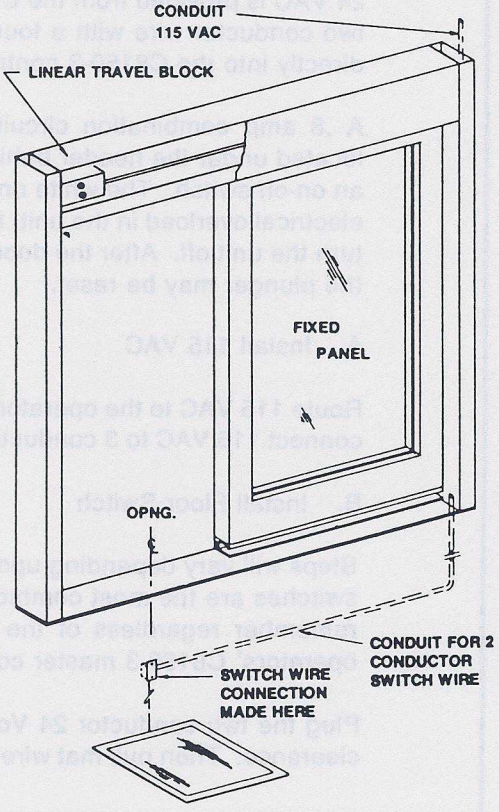
Install with the sliding window to the inside. The removable face plate on the header is located on the inside of the sliding window.

Set frame into opening. The wood shingles can be used as wedges to hold the unit in the opening and also serve as shims.

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 115 VAC power line into the header entering at the fixed panel end.

SCREWS: All screws are provided, however, in some cases alterations may be necessary for anchoring jambs. Masonry opening requires 1/4" masonry bit and plastic screw anchors (provided).





Check the opening. It must be plumb and level.

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

5. INSTALL SLIDING DOOR AND SIDELITE

Note these are provided for the few windows that are not shipped completely assembled or for future maintenance instructions.

A. Assemble jambs to header and sill and secure window in opening.

B. Install sidelite mounting base parallel to sliding door threshold.

C. Install sliding window. Back out on the height adjustment screws so you can see only 1/8" of the screw when viewing through the holes where hanger bolt will be inserted. This will allow the sliding window to be adjusted higher or lower to suit building settlement later in the equipments life. See sketch below.

Insert bottom guide pins into guide channel and swing panel into place. Attach top assembly to wheel carriage. The guide pins should have sufficient clearance to give a satisfactory operation. If the guide does not have equal clearance recheck the guide to see that it was set at the proper height and is level with the bottom of the header. (Do this before sidelite is installed).

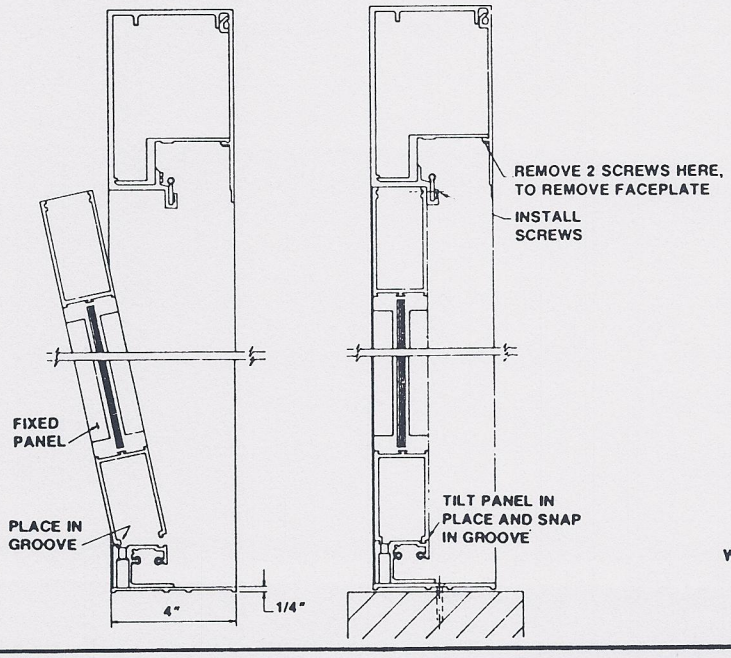
D. Install sidelite. Place on top of guide channel and swing panel into position. The panel will snap into the guide. Hold panel firmly against lip on bottom of header. Drill from inside #21 bit through countersunk holes and screw into top of fixed panel.

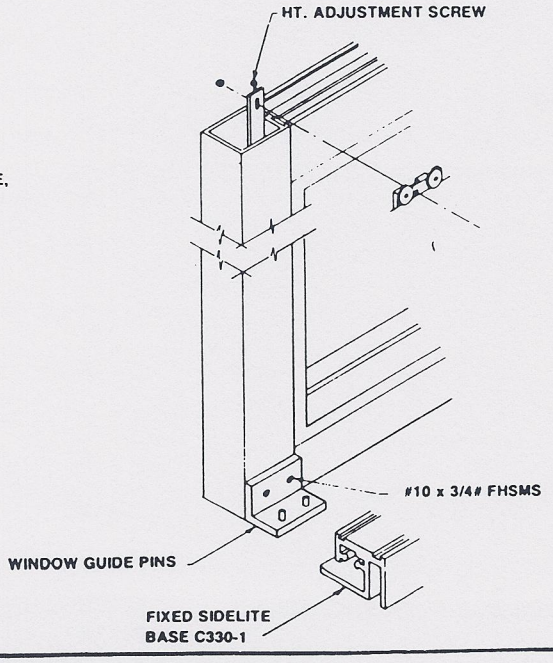
6. ADJUSTING SLIDING VENT

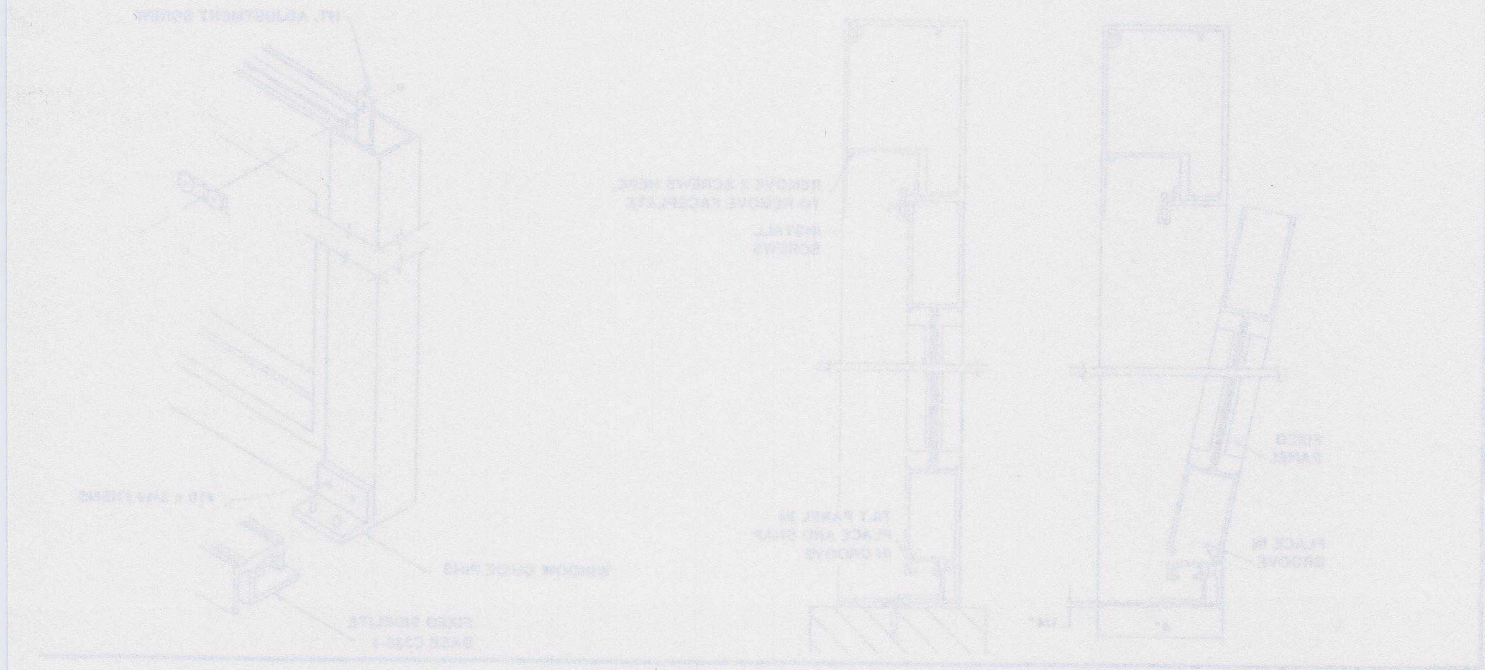
Manually check operation of sliding vent. It should be free of physical bind. This is an important phase of installation. If manual operation is hard, the vent will not perform correctly when power operated.

(Note: Turn off toggle switch from C8160-3 to eliminate motor drag, otherwise manual operation will be difficult.)

Check for proper weather seal at door nosing and jamb. Raise or lower window panel to give proper seal. The adjustable astragal can be used to make final weatherseal. Do not install with astragal too loose or you will get a poor weatherseal at lock faceplate area. Height adjustment screws are provided in the hanger strap. To raise or lower the sliding panel, loosen the hanger bolts slightly. With a 1/4" wrench adjust small hex head screw to proper height. Retighten hanger bolt nuts.



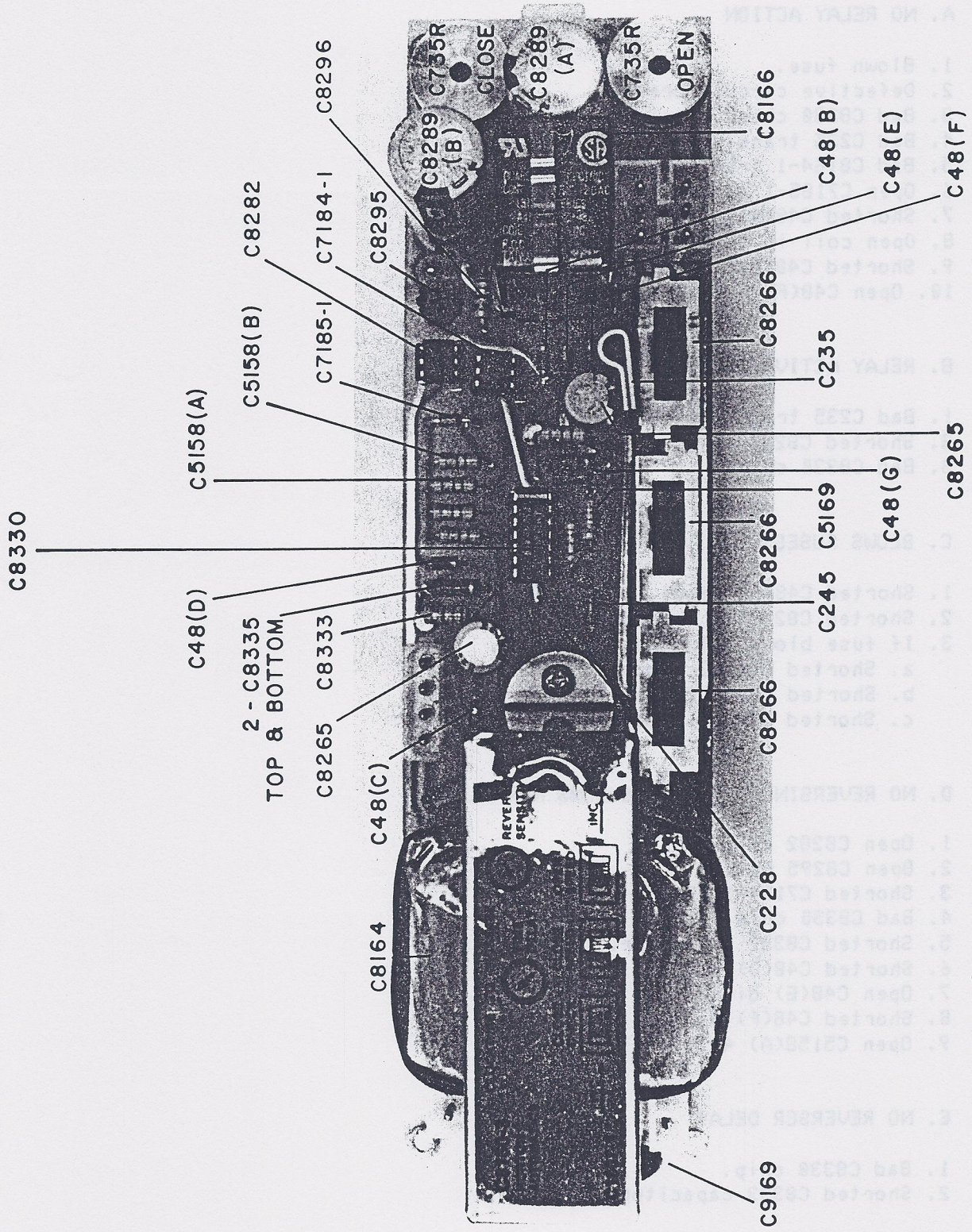




Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

C-8160-3 MASTER CONTROL H-350

To be used with Trouble Shooting Guide



Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

TROUBLESHOOTING THE NEW C8160-3 CONTROL
(MAY 1984 REVISION) 24 MAY 1984

H-350.1
Reprint 1988

A. NO RELAY ACTION

1. Blown fuse.
2. Defective circuit breaker.
3. Bad C8330 chip.
4. Bad C235 transistor.
5. Bad C8164-1 transformer.
6. Open C7185-1 zener diode.
7. Shorted C48(A) diode.
8. Open coil in C8166 relay.
9. Shorted C48(E) diode.
10. Open C48(F) diode.

B. RELAY ACTIVATES IMMEDIATELY & STAYS ON

1. Bad C235 transistor.
2. Shorted C8282 chip.
3. Bad C8330 chip.

C. BLOWS FUSES

1. Shorted C48(B) diode.
2. Shorted C8265(A) capacitor.
3. If fuse blows only when actuated:
   a. Shorted C48(C) diode.
   b. Shorted C8265(B) capacitor.
   c. Shorted C48(A) diode.

D. NO REVERSING (OTHERWISE RUNS NORMALLY)

1. Open C8282 chip.
2. Open C8295 pot.
3. Shorted C7184-1 chip.
4. Bad C8330 chip.
5. Shorted C8332 capacitor.
6. Shorted C48(D) diode.
7. Open C48(E) diode.
8. Shorted C48(F) diode.
9. Open C5158(A) 4.7K resistor.

E. NO REVERSER DELAY

1. Bad C8330 chip.
2. Shorted C8333 capacitor.

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

F. RUNS OPEN, THEN ATTEMPTS TO CLOSE AT REGULAR INTERVALS, BUT WON'T CLOSE

1. Reverser sensitivity set too high.
2. Open C7184-1 chip.
3. Shorted C48(G) diode.
4. Open C5158(B) 4.7K resistor.

G. NO TIME DELAY

1. Shorted C8265(A) capacitor.
2. Shorted C48(C) diode.
3. Bad C8330 chip.
4. Defective C228 pot.

H. EXTREMELY LONG TIME DELAY

1. Open C228 pot.
2. Open C245 resistor.

I. TRIPS CIRCUIT BREAKER WHEN OPENING

1. Shorted C735R(OPEN) bridge.
2. Shorted C8289(A) capacitor.

J. TRIPS CIRCUIT BREAKER IMMEDIATELY

1. Shorted or burned up C8164-1 transformer.
2. Shorted contacts in C8166 relay.

K. TRIPS CIRCUIT BREAKER ON CLOSE

1. Shorted C735R(CLOSE) bridge.
2. Shorted C8289(B) capacitor.

L. NO OPEN SPEED

1. Defective C8266 open speed switch.
2. Defective C8166 relay.
3. Defective C735R(OPEN) bridge.

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

M. NO CLOSE SPEED

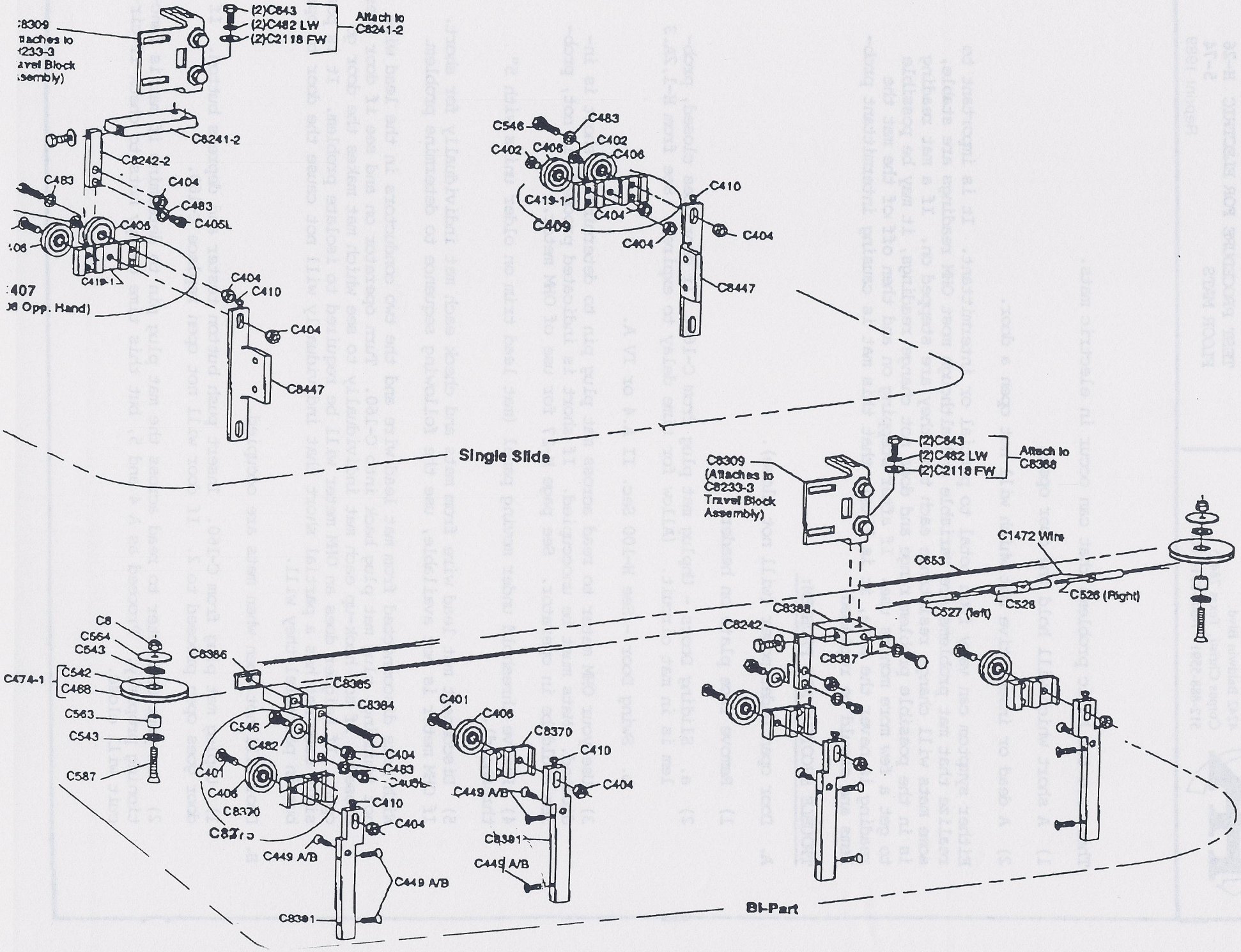
1. Defective C8266 close speed switch.
2. Defective C8166 relay.
3. Defective C735R(CLOSE) bridge.
4. Open C8281 resistor. NOTE: If this resistor is open, it is likely that the C8282 and C7184-1 chips, as well as the C8295 pot, will have to be replaced.

N. RELAY CHATTER WHEN SWITCHING

1. Open C5169 resistor.
2. Bad C8330 chip.

O. MOTOR HUM WHEN OPENING OR CLOSING

1. Open C8289 capacitor. (A) capacitor is bad if motor hums when opening. (B) capacitor is bad if hum occurs during closing.


(2)C643
(2)C482 LW
(2)C2118 FW
Attach to C8241-2
C8241-2
C8242-2
C483
C404
C405L
C406
C419-1
C407
(Opp. Hand)
C410
C8447
C546
C402
C409
Single Slide
C8309
(Attaches to C8233-3 Travel Block Assembly)
Attach to C8368
C1472 Wire
C653
C527 (left)
C528
C526 (Right)
C8388
C8242
C8387
C8
C564
C543
C542
C488
C474-1
C563
C587
C8386
C8385
C8384
C546
C482
C401
C406
C8370
C449 A/B
C8381
Bi-Part

Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

There are two basic problems that can occur in electric mats.

1) A short which will hold the door open.

2) A dead or insensitive mat which will not open a door.

Either symptom can vary from total to partial or intermittant. It is important to realize that mat problems are variable and although most OHM readings are stable, some mats will change resistance each time they are stepped on. If a mat reading is in the possible problem range and does not change readings, it may be possible to get a few more months use. If after stepping on and then off of the mat the reading is never the same, it is likely that this mat is causing intermittant problems and should be replaced.

TROUBLE SHOOTING MAT PROBLEM:

A. Door open under power (will not close).

1) Remove face plate on header.

2) a. Sliding Doors - Unplug mat plug from C-160. If door goes closed, problem is in mat circuit. (Allow for time delay to expire). See from H-1,2A.3

b. Swing Door - See H-100 Sec. II A.4 or IV A.

3) Use your OHM meter to read across mat plug pin to determine if short is indicated. Mats must be unoccupied. If short is indicated proceed; if not, problem could be in operator. See page H-27 for use of OHM meter.

4) Remove threshold under moving panel (mat lead trim on older units with 5" threshold).

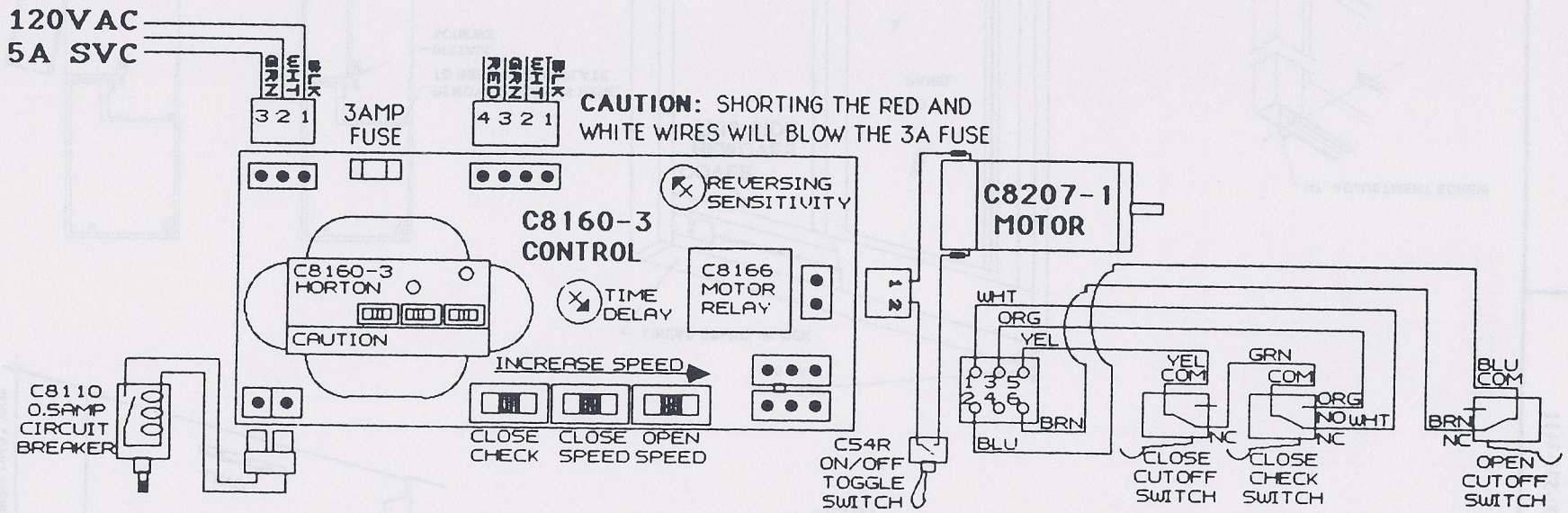
5) Disconnect mat lead wire from mats and check each mat individually for short. If OHM meter is not available, use the following sequence to determine problem.

With mats disconnected from mat lead wire and the two conductors in the lead wire not touching, plug mat plug back into C-160. Turn operator on and see if door goes closed. If so, hook-up each mat individually to see which mat makes the door go open. If neigher does an OHM meter will be required to isolate problem. It is possible each mat has a partial short that individually will not cause the door to open but in parrallel they will.

B. Door will not open when mats are occupied.

1) Unplug mat plug from C-160. Insert push button tester and depress button. If door goes open proceed to 2. If door will not open replace C-160.

2) Use your OHM meter to read across the mat plug pin to determine if mat is functioning properly. Proceed as A 4 and 5, but this time occupy mats to check if circuit will close.



SERIES 8000 OPERATOR SCHEMATIC

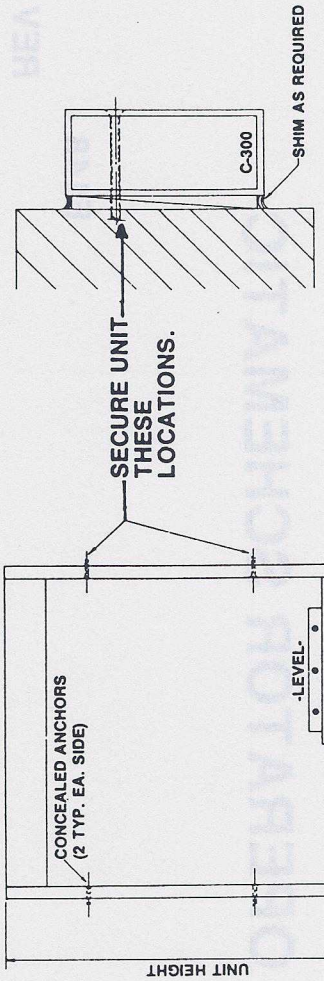
E148 8-87

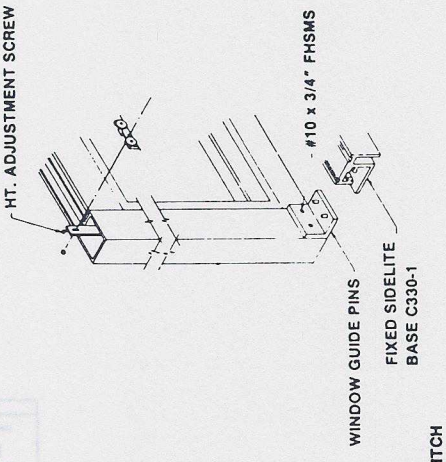
REV 1-90

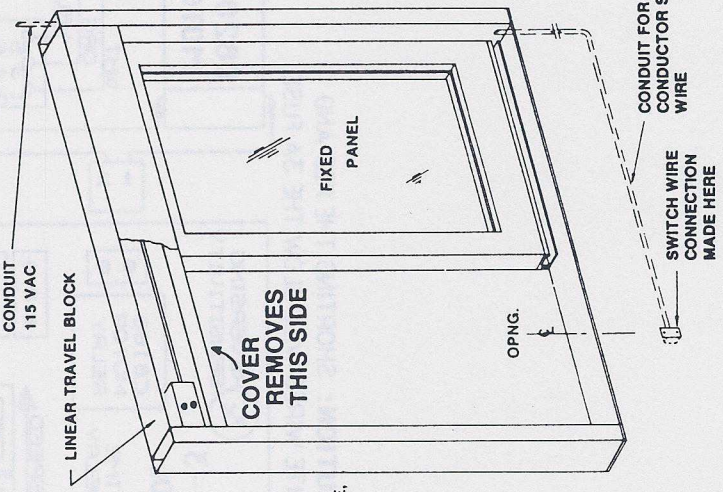
Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

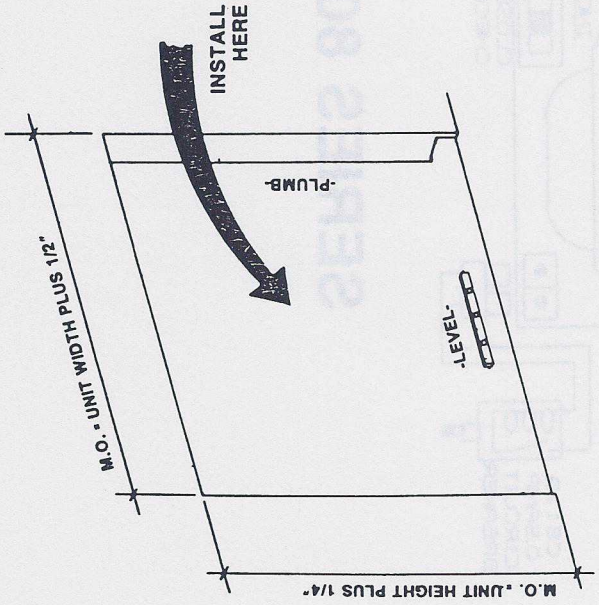
INSTALLATION INSTRUCTIONS
SERIES 8000 AUTOMATIC
WINDOW

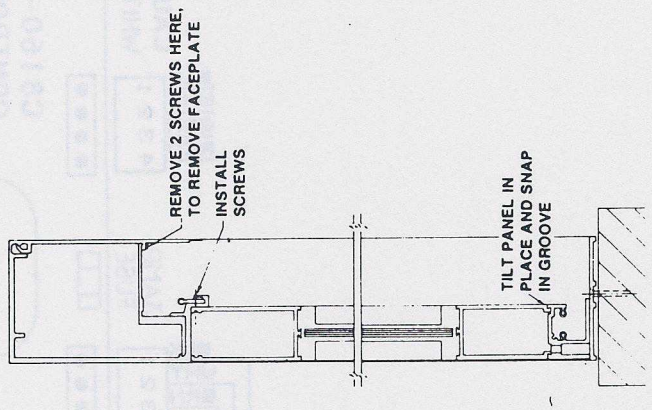
G850.10
12/85
11/87

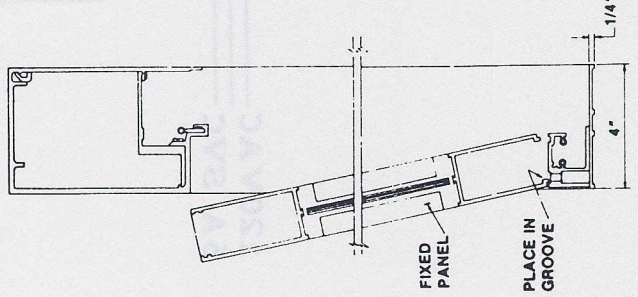




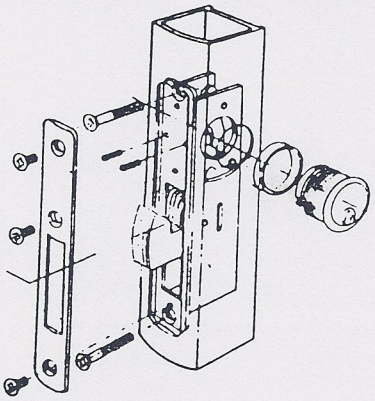








Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111



7. LOCKS

A. Manual Lock

The slide window locks into the jamb at the predrilled notch. A thumb-turn is included with each window, if a key cylinder is desired, any 1-5/32" cylinder with a M.S. cam will work.

B. Automatic Lock

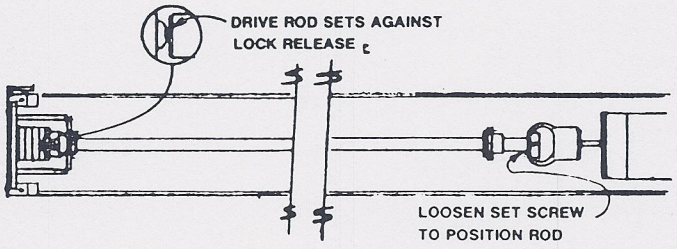
The operator can be supplied with an automatic lock. When properly adjusted the automatic lock will securely lock the window everytime it closes. It will not unlock unless the operator is activated or the manual release if depressed. The manual release has a hold down device that will keep the lock in the unlocked position should extended manual use be desired. The automatic lock is adjusted by following these steps.

(Note: On window units without autolock, we recommend loosening bearing block (clutch) so there is some slippage in drive rod when motor starts.)

1. The lock bolt is released by the drive rod moving forward when the motor turns on. The bearing block must grip the rod with sufficient force to eliminate slippage. Two screws are provided to adjust the force on the bearing block. (New installations from the factory are preset.)

2. Slide the window closed. The keeper bracket connected to the bearing block should engage the lock bolt and hold the window securely closed. The keeper is adjustable to suit job condition.

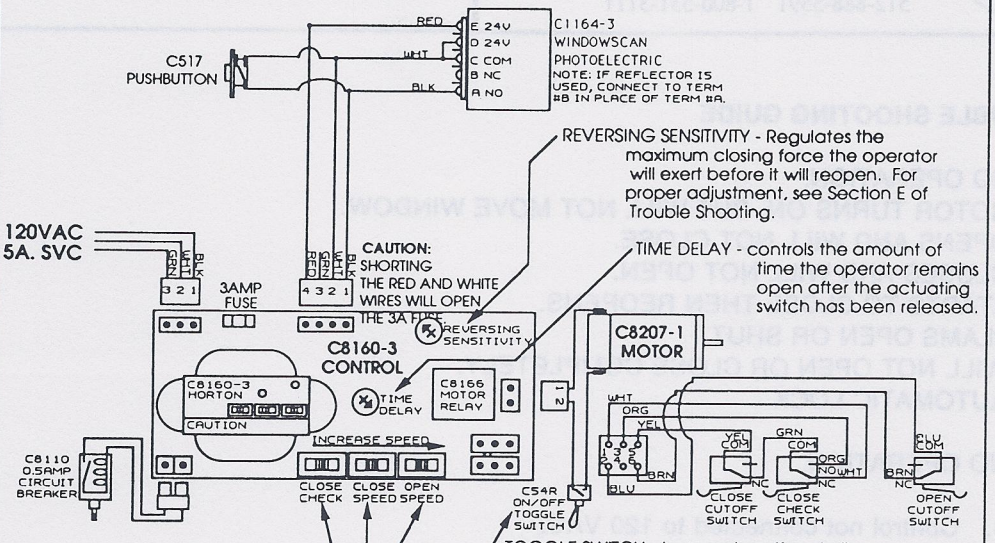
See trouble shooting guide G850.7 for additional information.



POSITION DRIVE ROD AGAINST LOCK RELEASE.

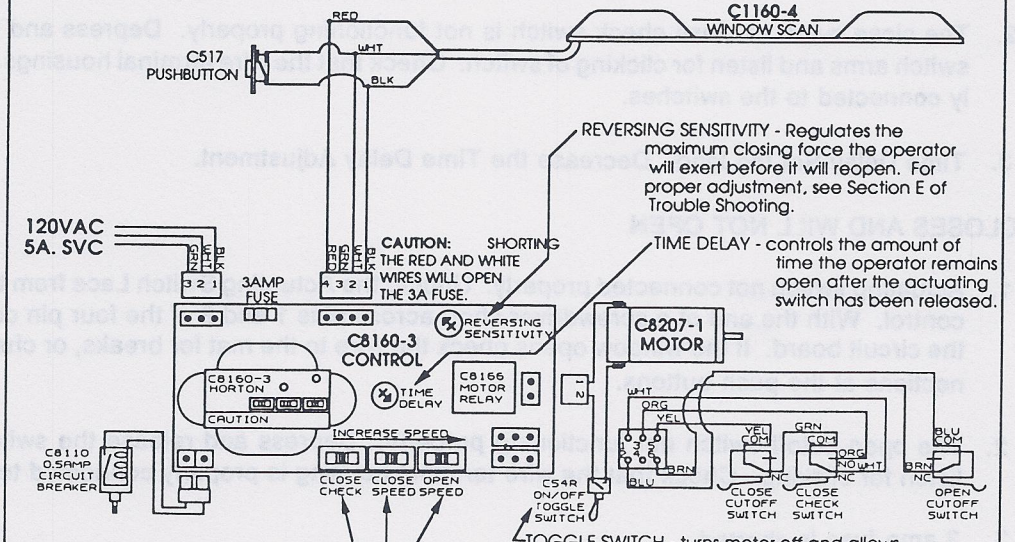
8. FINE TUNING THE OPERATOR

The C8160-3 control has several adjustments to provide proper control of the opening and closing of the window. See illustration for location and function of these adjustments. If the operator cannot be adjusted properly, check the Trouble Shooting Section.



8. FINE TUNING THE OPERATOR

The C8160-3 control has several adjustments to provide proper control of the opening and closing of the window. See illustration for location and function of these adjustments. If the operator cannot be adjusted properly, check the Trouble Shooting Section.



Horton Automatics
a division of the Dallas Corporation
4242 Baldwin Blvd.
Corpus Christi, Texas 78405
512-888-5591 1-800-531-3111

9. TROUBLE SHOOTING GUIDE

A. NO OPERATION.
B. MOTOR TURNS ON, BUT WILL NOT MOVE WINDOW.
C. OPENS AND WILL NOT CLOSE.
D. CLOSES AND WILL NOT OPEN.
E. STARTS TO CLOSE THEN REOPENS.
F. SLAMS OPEN OR SHUT.
G. WILL NOT OPEN OR CLOSE COMPLETELY.
H. AUTOMATIC LOCK

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.

B. MOTOR TURNS ON, BUT WILL NOT MOVE DOOR.

1. To much physical bind on the window. Adjust window height if window rubs sill or binds in the guide track. See height adjustment, page G850.4.

C. OPENS AND WILL NOT CLOSE

1. Actuating switch wires are shorted. Unplug the actuating switch (mat) lace from the control. 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 C8160-3 control. With the end of a screwdriver short across pins 1 and 2 of the four pin connector on the circuit board. If the window opens check the wire to the mat for breaks, or check the connections at the push buttons.

2. The open cutoff switch not functioning properly. Depress and release the switch arm and listen for clicking. Check that the wire terminal housing is properly connected to the switch.

3. 3 amp fuse is shorted.

E. STARTS TO CLOSE THEN REOPENS

The C8160-3 control has a reversing circuit that will cause the window to reopen if it is restrained during the closing cycle.* The REVERSER SENSITIVITY adjustment should be at the minimum setting (fully clockwise) until all other alignment and speed adjustments have been made. To adjust REVERSER SENSITIVITY, place a screwdriver or wrench across the lock jamb so the door cannot completely close and allow the operator to push against it. Slowly INCREASE the REVERSER SENSITIVITY until the window reopens.

If REVERSER SENSITIVITY is adjusted to the minimum setting (fully clockwise) and the window continues to recycle then check the window for proper height adjustment, guide pins and track and points at which the window might have exessive drag or motor may be defective. Refer to trouble shooting guide H1020.17 for amperage test.

*The reversing circuit is not effective for the first 1.5 seconds of the closing cycle. It also has a built in time delay of 3 seconds, before it releases the window to close, after the reverser has been activated.

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 operator switches can easily be changed by loosening the screw in the corner of the switch plate and sliding the switch to the desired position. 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 operator switches. If the motor turns off before the door reaches the desired position the operator switches must be adjusted. Loosen the screw in the corner of the switch plate and slide the switch so the window will stop at the desired position.

H. AUTOMATIC LOCK

When properly adjusted the automatic lock will securely lock the window every time it closes. It will not unlock unless the operator is activated or the manual release is depressed.

H. AUTOMATIC LOCK

Lock will not release - Loosen set screw and slightly shift drive rod toward lock.
- Tighten the two screws at the center of the bearing block approximately one half turn each.

Lock releases when door is pulled
- Loosen set screw and slightly shift the drive rod away from the lock.
- Move the close cutoff switch away from the lock so the switch will not be released when the door is pulled.

10. MAINTENANCE TIPS

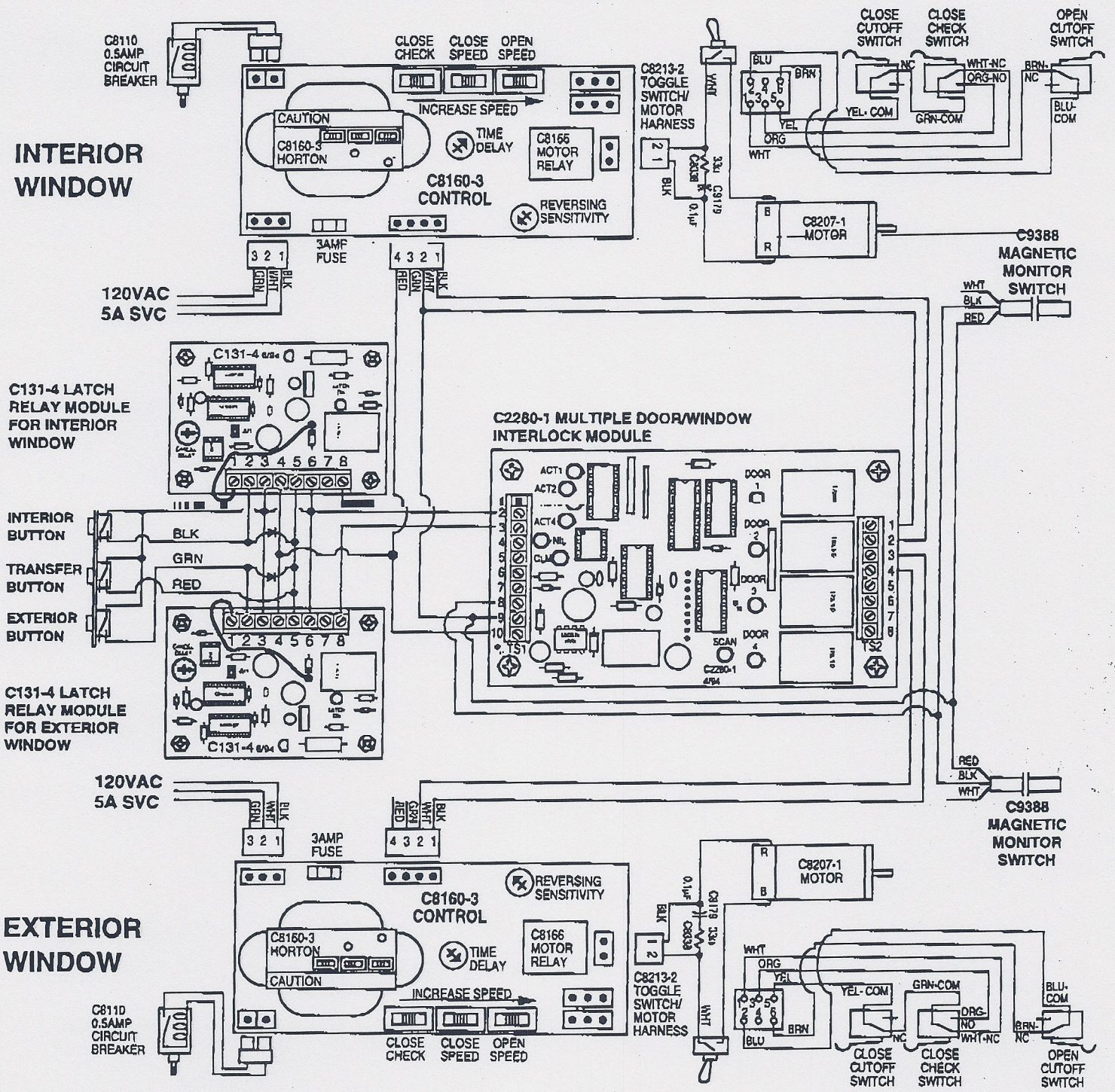
A. Semi-annually the drive rod and drive rod bushings should be cleaned and lubricated with regular motor oil. The bearing block has two internal felt oilers which will pick up oil applied to the drive rod. The door track and wheels should also be inspected for wear and replaced if necessary.

B. Floor mat switches and wire can easily be damaged. DO NOT PICK UP MAT BY WIRES. If floor mats are not secured to the floor then care should be taken not to damage wire by picking up or moving mat.

C. Disconnect power supply before servicing window operator.

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.