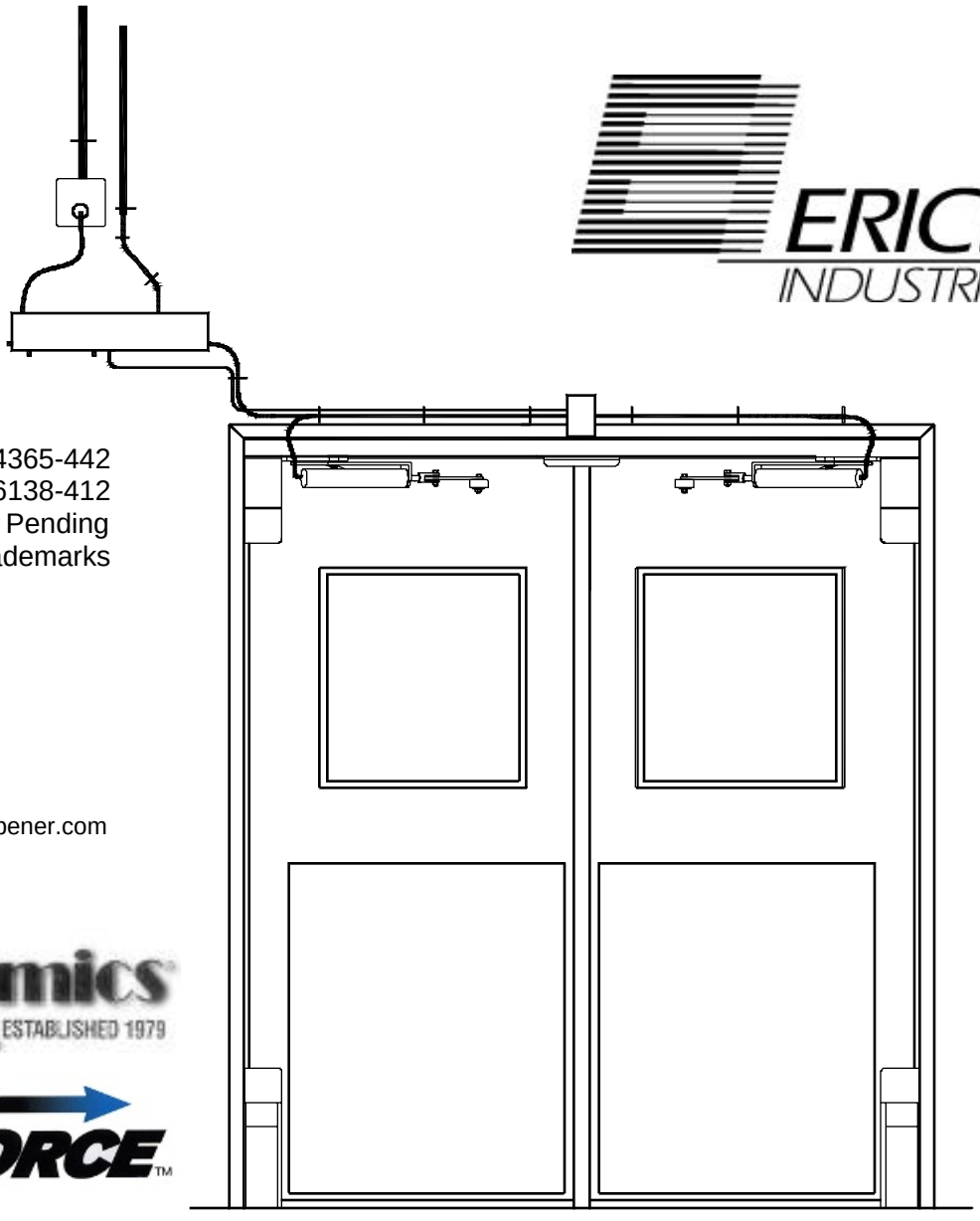
Model 600 Installation Instructions & Owners Manual

Automatic Door Operator

- **Center Hung**
- **Flush**

$20



ERICH INDUSTRIES

U.S. Patent #4365-442
U.S. Patent #6138-412
Other Patents Pending
Misc. U.S. Trademarks

- Parts
- Technical
- Sales
- Support

IndustrialDoorOpener.com

Door Dynamics Inc. ESTABLISHED 1979

AirForce™

- WARNING -

As with any mechanized equipment, do not install, operate or service this product unless you have read and understand the safety section, warnings, installation and operating instructions contained in this manual. Failure to do so could result in property damage, bodily injury or even death.

1-800-882-5839

1/1/19

P/N 15099.00

Contents

Section 1 - Model 600 Description

Application

The 600 series door operator is a surface mounted pneumatic door opener. It is used for swing doors in Industrial, Institutional and Commercial applications. It is compatible with virtually all types of interior and exterior doors. Door panels from 2'-6" to 5'-0" wide and weighing up to 600 pounds can be accomodated. One way, two way and two way bi-parting traffic patterns can be used by varying combinations of activators and orientations of actuators. Simultaneous operation of double doors is standard.

Description

The 600 series operator applies opening force to the door header by a pneumatic cylinder, actuator arm and a rubber wheel. There are only three minimally wearing bearing points for long life and there are no gears, clutches or motors required. The operator is not attached to the door so it can be operated manually with complete means of egress at any time, without any harm to the opener mechanism. A standard pull side door closer provides the closing portion of the cycle. Automatic operation is obtained through a wide number of activation devices. Because of the operator Ultra-Force™ bracket configuration and pneumatic system there is little risk of damage if the doors are activated and then struck with a load, or activated while the doors are locked or blocked in the open or closed positions.

Operation

Automatic door operation is accomplished when the open or initiate command is transmitted from the activation device to the control enclosure. A wide variety of devices can be used to activate the doors including: wall switches, floor mats, motion or proximity sensors, touchless switches, infrared beams, remote radio control, or any device that switches using dry contacts. A microprocessor based control board controls the hold open time and functionality of the doors. Hold open times can be set from 1-99 seconds by means of the control board, and opening times can be adjusted from 1.5 to 5 seconds by changing air regulator pressure and air flow controls.

Mounting

The 600 series can be easily mounted to any conventional door frame header and the face of the door. Reinforcement of hollow metal jams may be required. Special reinforcing plates are available. Installation and service should be conducted by qualified personnel. Technical support is available by calling the factory at **1-800-305-6736.**

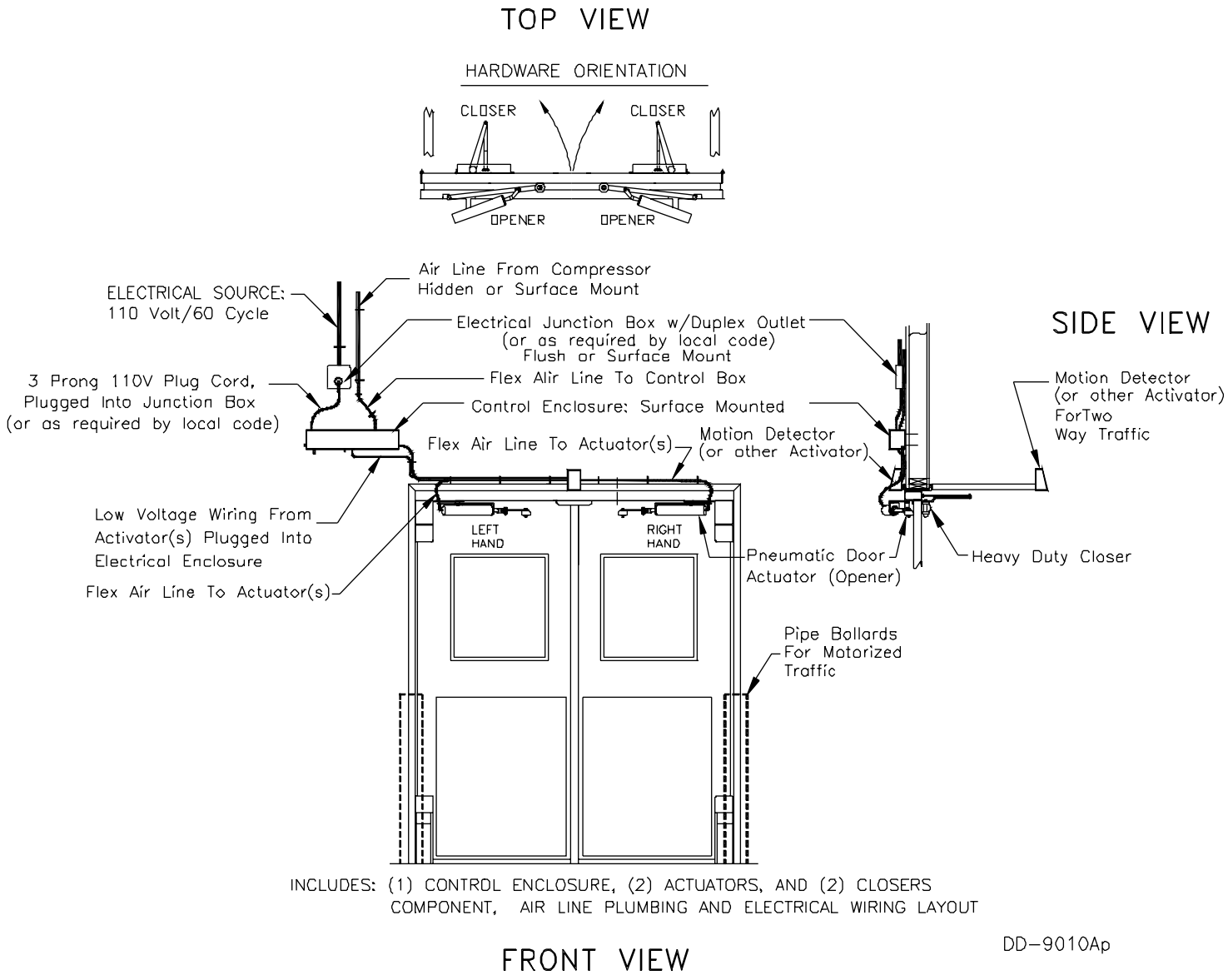
Control Enclosure

The control enclosure is microprocessor based to insure maximun reliability and flexibility for the end user. The system has been designed to be easy to set up and operate. The control unit is designed to be connected to a constant power source of 110VAC 60HZ or 230VAC 50HZ, which powers the control enclosure and a wide variety of activation devices with 24VAC power. The control enclosure can be mounted up to 25 feet away from the operators (consult factory for greater distances). The only connection between the control enclosure and the operators is two flexible 1/4" diameter air lines. Air supply to the control enclosure is accomplished through a single 1/4" or 3/8" air line.

Security

Connecting to security devices such as electric strikes, electromagnetic locks, card readers, keyed switches, time locks and push button key pads is easily accomplished. Consult factory to determine appropriate control panel configuration.

Center Hung Mounting Shown



Section 2 – Safety

- WARNING -

Read these safety practices before installing, operating or servicing the door opener. Failure to follow these safety practices could result in property damage, serious bodily injury or death.

READ AND UNDERSTAND ALL OPERATING INSTRUCTIONS IN THIS MANUAL BEFORE OPERATING THE DOOR OPENER. If you do not understand the instructions, ask your qualified supervisor to teach you how to use the door opener.

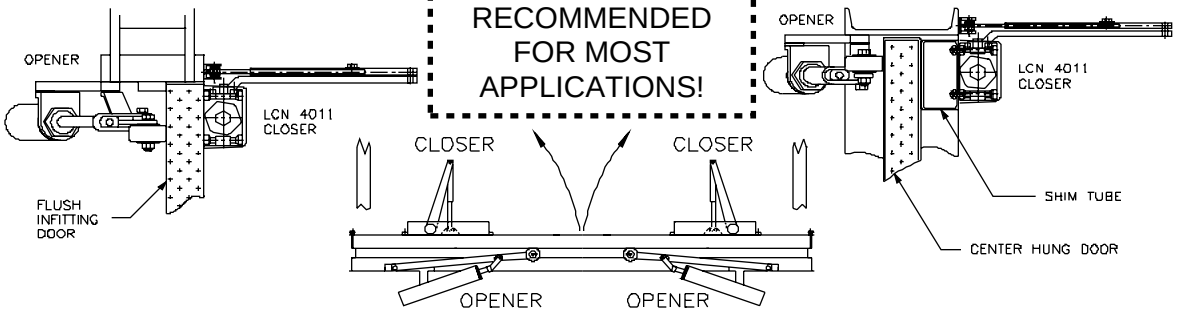
IMPORTANT: Doors must have vision panels in each door panel and/or be in accordance with all applicable OSHA or other governing rules and regulations.

1. Do not operate the door opener while under the influence of drugs or alcohol.
2. Do not use the door opener if it or the door appears in any way to be broken or not operating properly. Advise your supervisor at once.
3. Stay clear of the door and door opener while moving.
4. Keep all body parts including hands, feet, and head clear of door and door opener at all times.
5. Do not operate the door opener with equipment, material, people or any other object in the door or openers operational path.
6. Disconnect power before performing any electrical, mechanical or air supply service, cleaning or other maintenance on the door or door opener. OSHA requires power and air supply to be properly tagged and locked out during all maintenance or service of the equipment. With the power supply disconnected, always verify using a volt meter.
7. All electrical, mechanical or air supply troubleshooting or service must be completed by a qualified personnel or service person and must meet all applicable local, state, federal, international and any other governing agency codes.
8. When it is necessary to service the control box with power on, USE EXTREME CAUTION. Do not place any fingers or un-insulated tools inside the control box. Touching wires or other parts inside the enclosure may cause electrical shock, serious injury or death.
9. It is your responsibility to keep all warning labels and instructional manuals legible, intact and kept with the door opener. Replacement labels and manuals are available from Erich Industries, Inc.
10. Prior to putting the door opener into operation the user must have a safety training meeting with all personnel and users to instruct them on proper operation and all applicable safety procedures.
11. If you have any questions contact your supervisor or Erich Industries, Inc.
12. Failure to operate the door opener as intended, as described, or heed any warning may result in equipment damage, property damage, serious bodily injury or even death.

Erich Industries Opener/Closer System

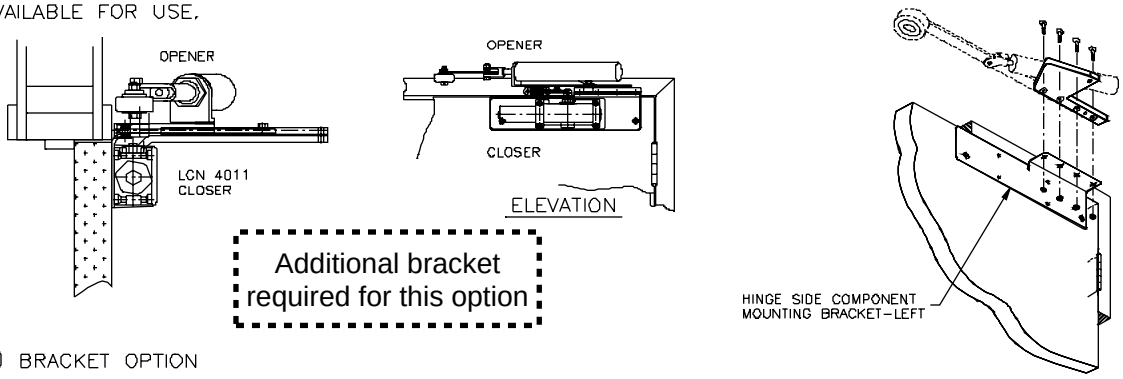
1 3 MOUNTING METHODS FOR HEADER INSTALLATION

STANDARD MOUNTING METHOD RECOMMENDED FOR MOST APPLICATIONS. UNIVERSAL – CAN BE MOUNTED ON VIRTUALLY ALL TYPES OF SWING DOORS. IDEAL FOR NEW CONSTRUCTION AND RETRO-FITS ON EXISTING SWING DOORS.



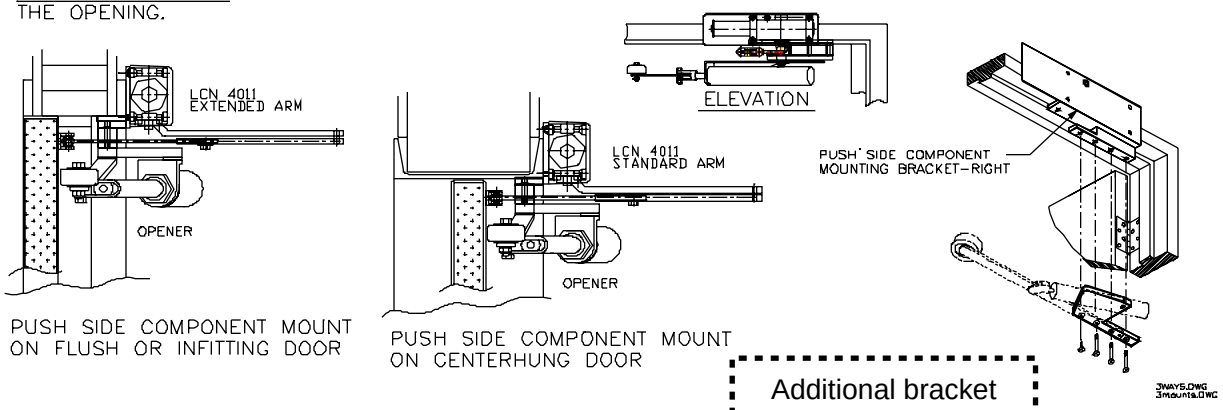
2 BRACKET OPTION

HINGE SIDE COMPONENT MOUNTING USED ONLY ON FLUSH INFITTING TYPE DOORS. IDEAL FOR CLEAN ROOMS AND IN-SWINGING SECURITY DOORS. THIS METHOD ALLOWS THE OPENER AND CLOSER COMPONENTS TO BE MOUNTED ON THE BACK (SWING) SIDE OF THE DOORS USING THE FACTORY SUPPLIED MOUNTING BRACKET, SO WHEN THE DOORS ARE FULLY OPENED, THE COMPLETE OPENING IS AVAILABLE FOR USE.



3 BRACKET OPTION

PUSH SIDE COMPONENT MOUNTING ALLOWS ALL COMPONENTS TO BE MOUNTED TO THE HEAD ON THE "PUSH SIDE" WITH FACTORY SUPPLIED MOUNTING BRACKET. CAN BE USED WITH FLUSH INFITTING AND CENTER HUNG DOORS. IDEAL FOR APPLICATIONS WHERE SWING SIDE OF DOOR HAS INSUFFICIENT CLEARANCE FOR CLOSER PROJECTION, AND FOR OUTSWINGING SECURITY DOORS.
NOT RECOMMENDED FOR OPENING HEIGHTS OF LESS THAN 7'-6" OR WHERE HIGH LOADS PASS THROUGH THE OPENING.



Center Hung, New Construction

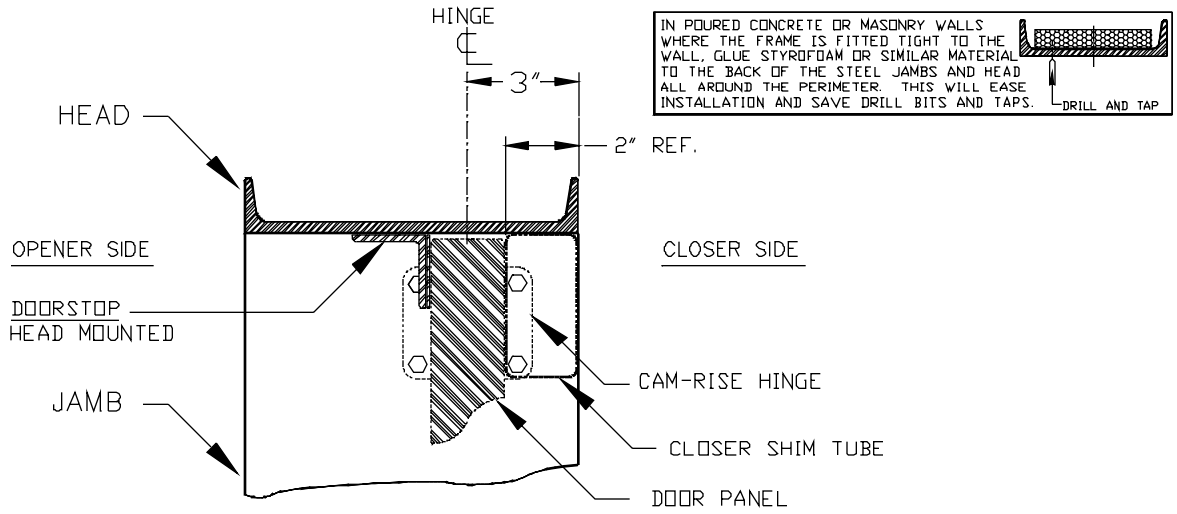
Section 3A - Center Hung, New Construction

OPENER / CLOSER INSTALLATION INSTRUCTIONS

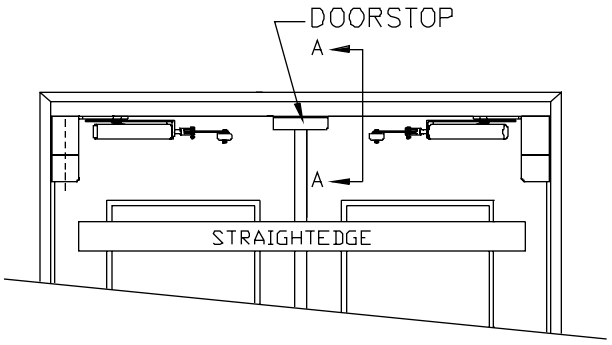
CAM-RISE CENTER HUNG DOORS – NEW CONSTRUCTION

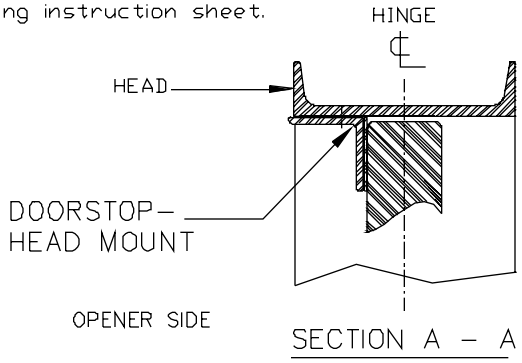
STEP 1: Install the doors according to manufacturer's instructions.
DOORS MUST SWING FREELY (GASKETS MUST NOT DRAG ON FLOOR OR HEADER)
OR OPERATOR WILL NOT FUNCTION PROPERLY.

IMPORTANT NOTE: Hinge centerline must be 3" from closer side of jamb.

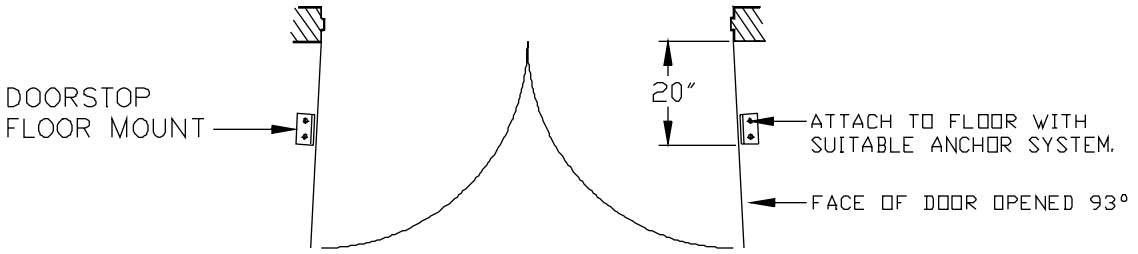


STEP 2: Install HEAD MOUNTED DOOR STOP per drawing instruction sheet.





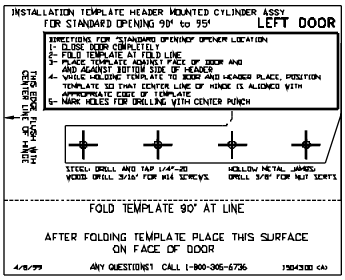
STEP 3: Install FLOOR MOUNTED DOOR STOPS (IF USED) per instruction sheet.

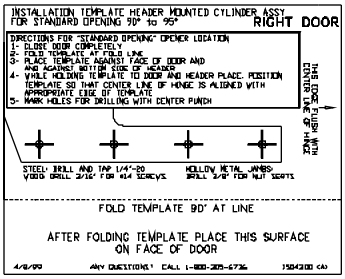


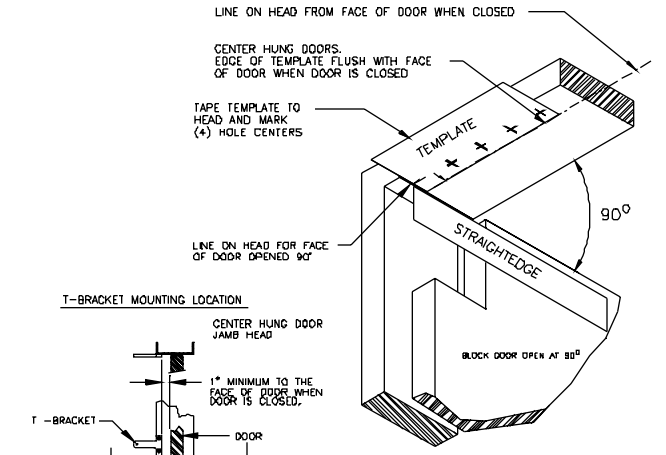
OPENER / CLOSER INSTALLATION INSTRUCTIONS

CAM-RISE CENTER HUNG DOORS - NEW CONSTRUCTION

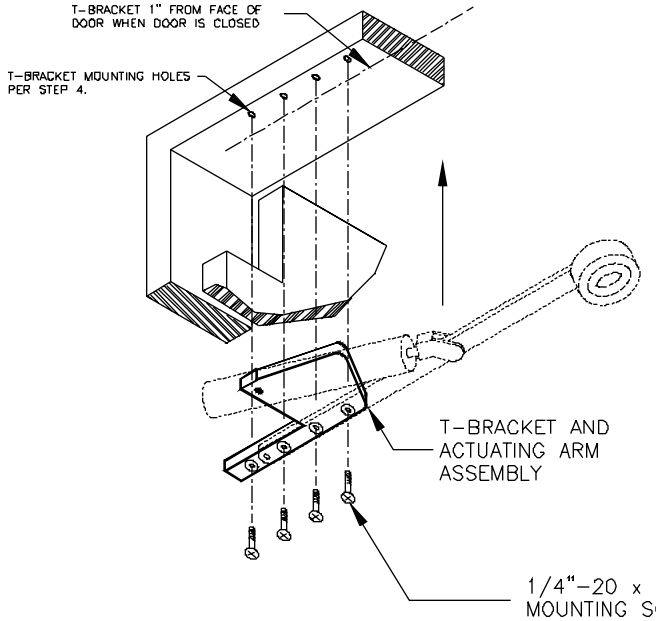
STEP 4: Drill and tap holes for T-BRACKET using template 15043.00.
NOTE: T-BRACKET must be a minimum of 1" from face of door in closed position.
Refer to Basic Component Orientation & Hole Pattern drawing for location dimensions.







STEP 5: Install the T-BRACKET and ACTUATING ARM using the stainless steel screws provided.



INSTALLATION PROCEDURE

A. Install the T-BRACKET and ACTUATING ARM assembly using the (4)1/4"-20x7/8" Flat Head Phillips Machine Screws.
NOTE: Left hand and Right hand assemblies are marked "L" or "R" on the top of the T-BRACKET.

B. Cycle the actuator manually through it's complete range of motion to insure that all components are attached properly and do not interfere with any other components.
Adjust if necessary.

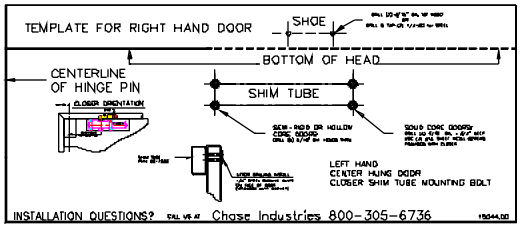
WARNING - Improper or inadequate installation could result in premature product wear or failure and could then cause property damage, bodily injury or even death.

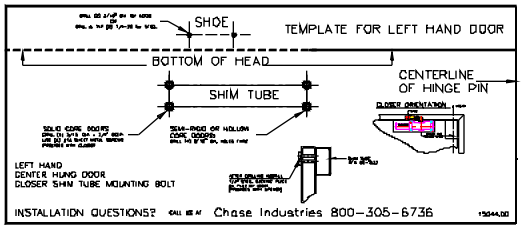
DWG. NO. DDINST-4

OPENER / CLOSER INSTALLATION INSTRUCTIONS

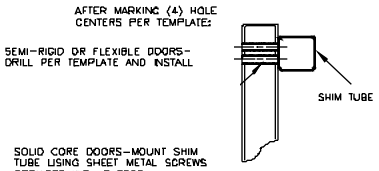
CAM-RISE CENTER HUNG DOORS – NEW CONSTRUCTION

STEP 6: Install SHIM TUBE and CLOSER using template 15044.00.

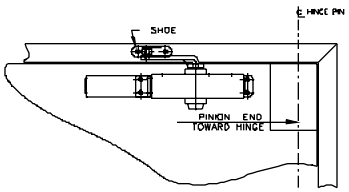




SHIM TUBE MOUNTING

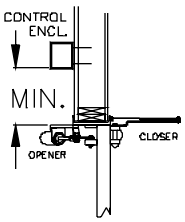


CLOSER ORIENTATION

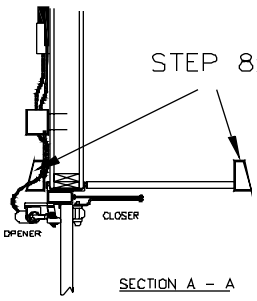


STEP 7: Install CONTROL ENCLOSURE to wall per template. Mount with anchors and screws provided.

CONTROL ENCLOSURE TO BE MOUNTED AT LEAST 6" ABOVE TOP OF OPENING

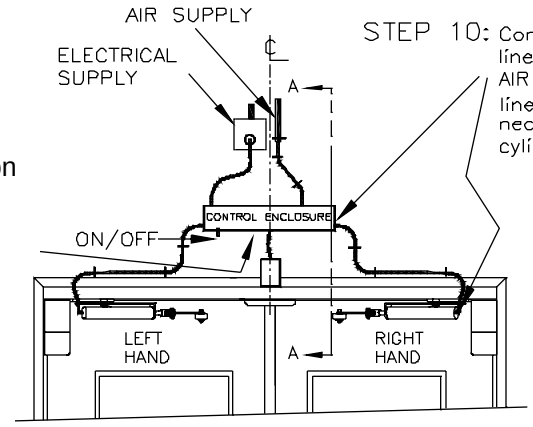


STEP 8: Install ACTIVATING DEVICE (motion detector, etc.) according to manufacturer's instructions



STEP 9: Connect CONTROL ENCLOSURE to air supply and electrical supply, making sure ON/OFF switch is OFF (white showing).
NOTE: Purge or blow out air lines prior to connecting air supply to control enclosure. WARRANTY MAY BE VOIDED IF THIS STEP IS OMITTED.

STEP 10: Connect 1/4" flexible air lines from control box to AIR CYLINDERS by inserting lines into the quick disconnect fittings on box and cylinders.



STEP 11:

Wire activating and safety sensors into control panel following wiring details in section 8 and following sensor manufacturers directions.

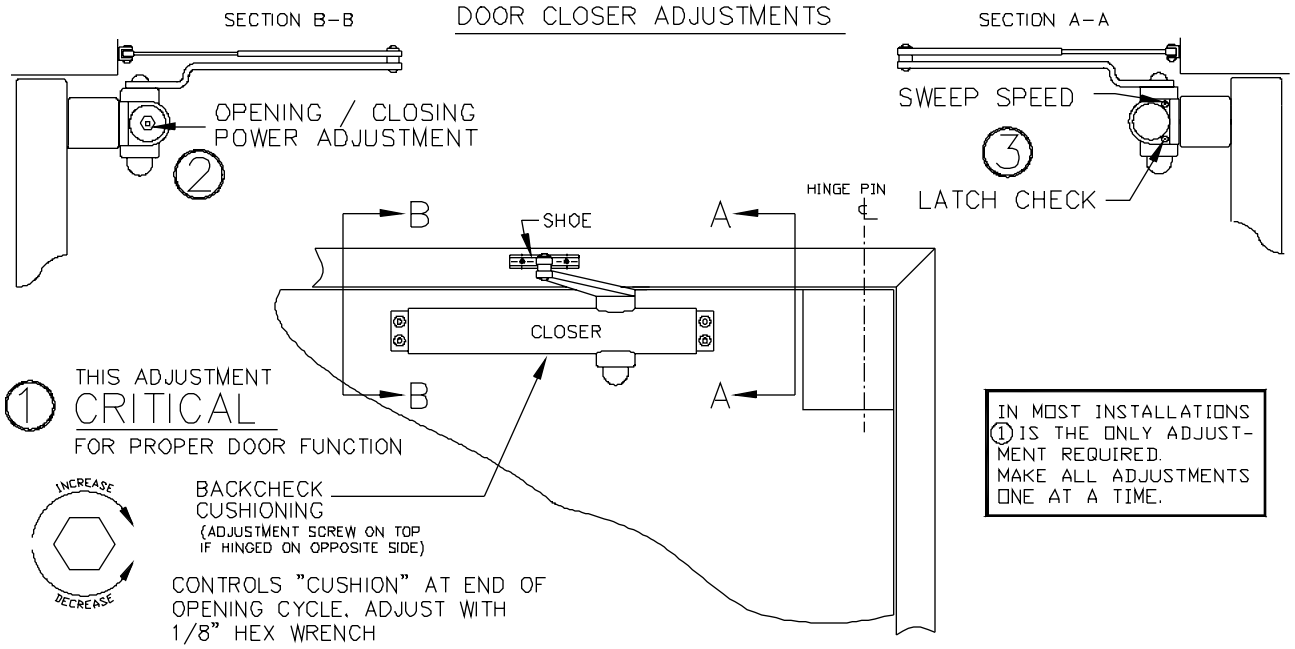
REMINDER: If this system is to be utilized in a rated Hazardous Location the control box must be located in a rated General Purpose location.

DWG. NO. DDINST-5

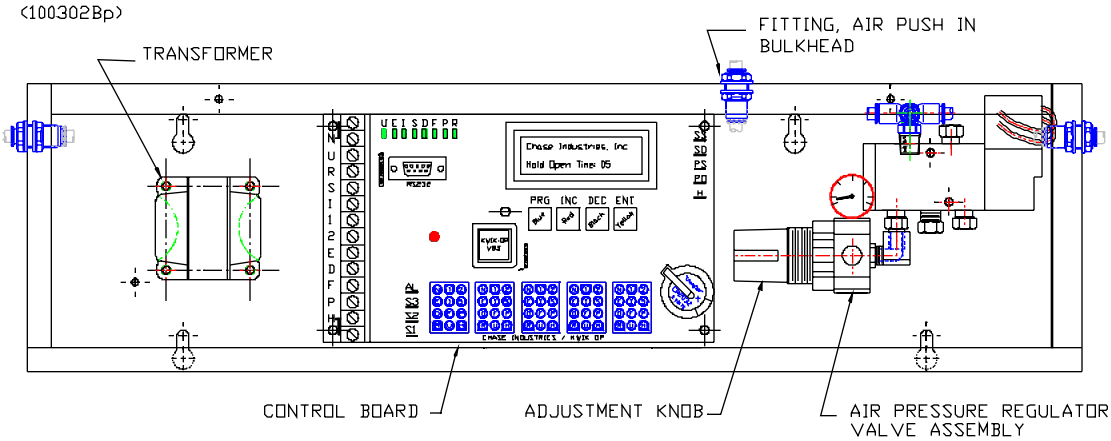
OPENER / CLOSER INSTALLATION INSTRUCTIONS

CAM-RISE CENTER HUNG DOORS – NEW CONSTRUCTION

STEP 12: Turn on control enclosure and test unit, adjust closer as necessary for smooth opening, backcheck cushioning, and latch check.



STEP 13: Adjust opening speed with Air Pressure Regulator. Pull knob "out" to adjust, then push knob "in" to lock in adjustment. Factory setting is 45 PSI. NEVER adjust beyond 85 PSI or any setting that is safe! Door speed will vary depending on weight of door and any air pressures.



TIP - If you're opening a single door use the supplied plug to cap one of the "OPEN" air ports.

STEP 14: Adjust activating device according to manufacturer's instructions, specifications, or to owner's preference.

TIP: As you would with all delicate instruments and tools, preserve your openers finish by maintaining the protective oil coating on all metal bracket components.

REMINDER - Don't forget to mount the "CAUTION Automatic Door" stickers on the door(s)!

STEP 15: For future use, these installation instructions should be left with the proper authority on site.

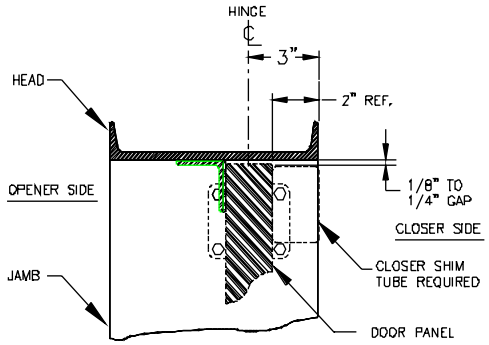
DWG. NO. DDINST11

Center Hung, Retrofit

Cam-Rise Center Hung Doors - Retofit

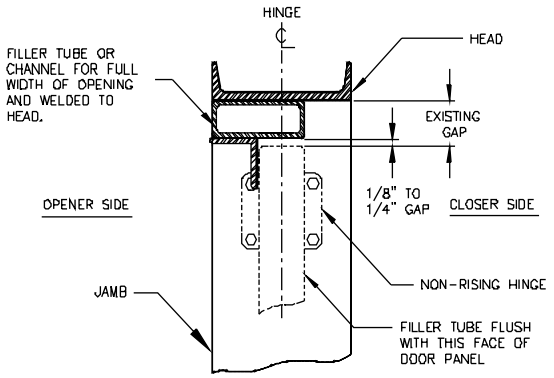
STEP 1: Convert the existing cam-rise hinge system with the NO-RISE Conversion Kit per instruction sheet in the Instruction Sheets/Drawings Section of this manual. DOORS MUST SWING FREELY OR OPERATOR WILL NOT FUNCTION PROPERLY. Establish a 1/8" to 1/4" gap between the top of the door panel and the head by one of the 3 methods shown below.

RAISE DOOR/HINGES



Raise door panel or hinge system to establish the desired 1/8" to 1/4" gap between the top of door panel and head. Horizontal movement of hinge centerline to 3" dimension may be necessary.
A CLOSER SHIM TUBE is required.
An EXTENDED BOTTOM SWEEP may be required.
See Instruction Sheets/Drawings Section for details.

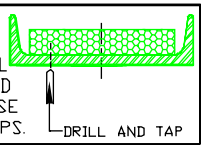
FILLER TUBE



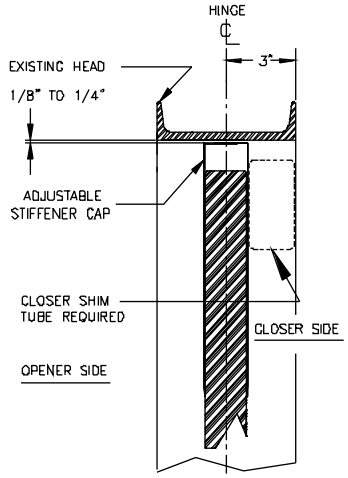
FOR 7'-6" AND TALLER OPENINGS

An appropriate sized steel tube or channel is welded to the head to achieve the desired 1/8" to 1/4" gap.
NO movement of door panel or hinges is required.
NO Closer Shim Tube is required.
See Instruction Sheets/Drawings Section for details.

IN POURED CONCRETE OR MASONRY WALLS WHERE THE FRAME IS FITTED TIGHT TO THE WALL, GLUE STYROFOAM OR SIMILAR MATERIAL TO THE BACK OF THE STEEL JAMBS AND HEAD ALL AROUND THE PERIMETER. THIS WILL EASE INSTALLATION AND SAVE DRILL BITS AND TAPS.

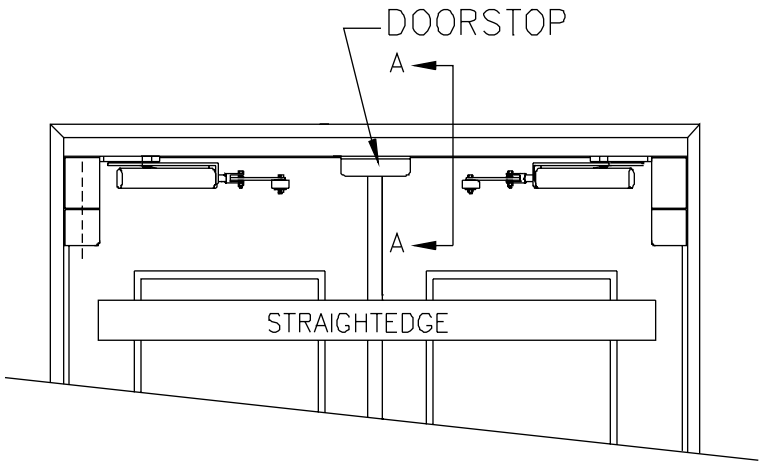


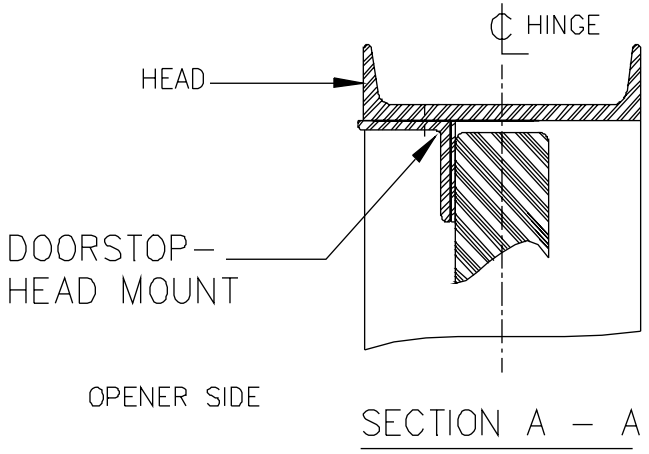
STIFFENER CAP



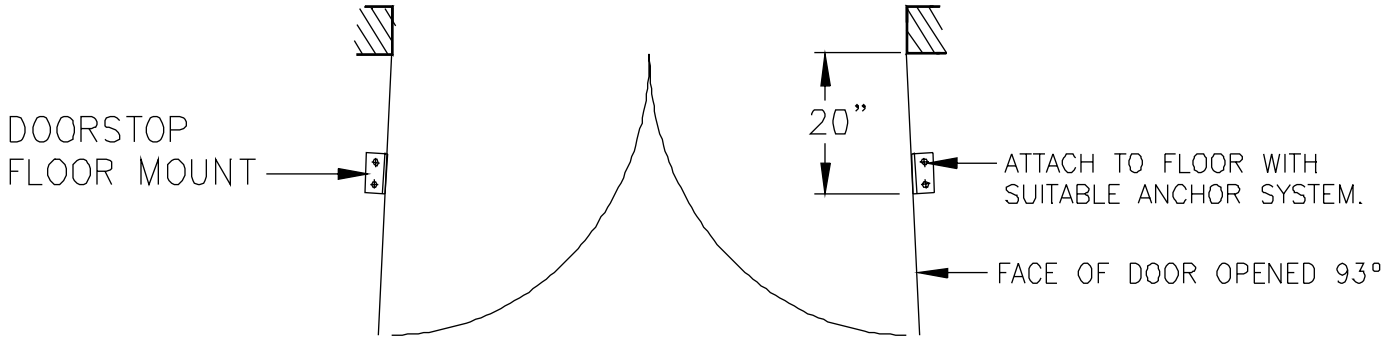
An ADJUSTABLE STIFFENER CAP is attached to the top of the door panel to establish the desired 1/8" to 1/4" gap. Horizontal movement of the hinge centerline may be necessary.
A CLOSER SHIM TUBE is required.
See Instruction Sheets/Drawings Section for details.

STEP 2: Install HEAD MOUNTED DOOR STOP per details in Instruction Sheets/Drawings Section.



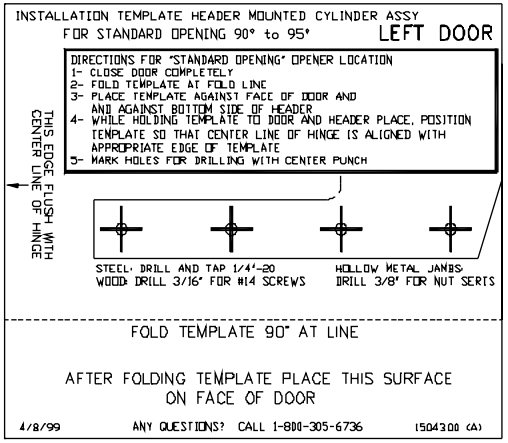


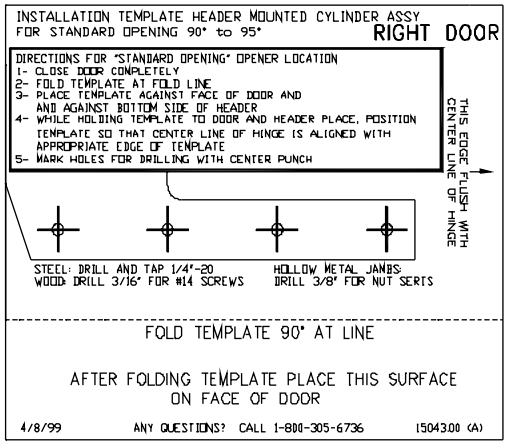
STEP 3: Install FLOOR MOUNTED DOOR STOPS (IF USED). See Instruction Sheets/Drawings Section for details.

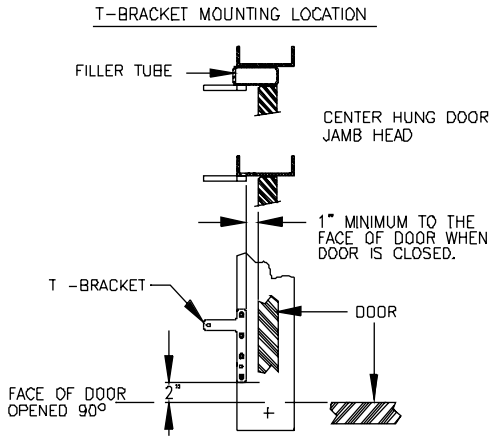


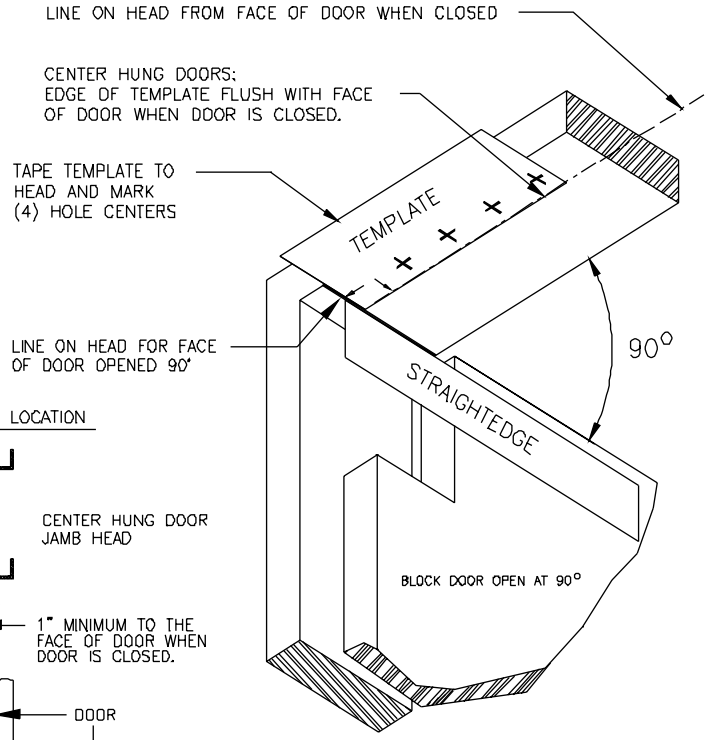
Cam-Rise Center Hung Doors - Retofit

STEP 4: Drill and tap holes for T-BRACKET using template 15043.00 (A)
NOTE: T-BRACKET must be a minimum of 1" from face of door in closed position.





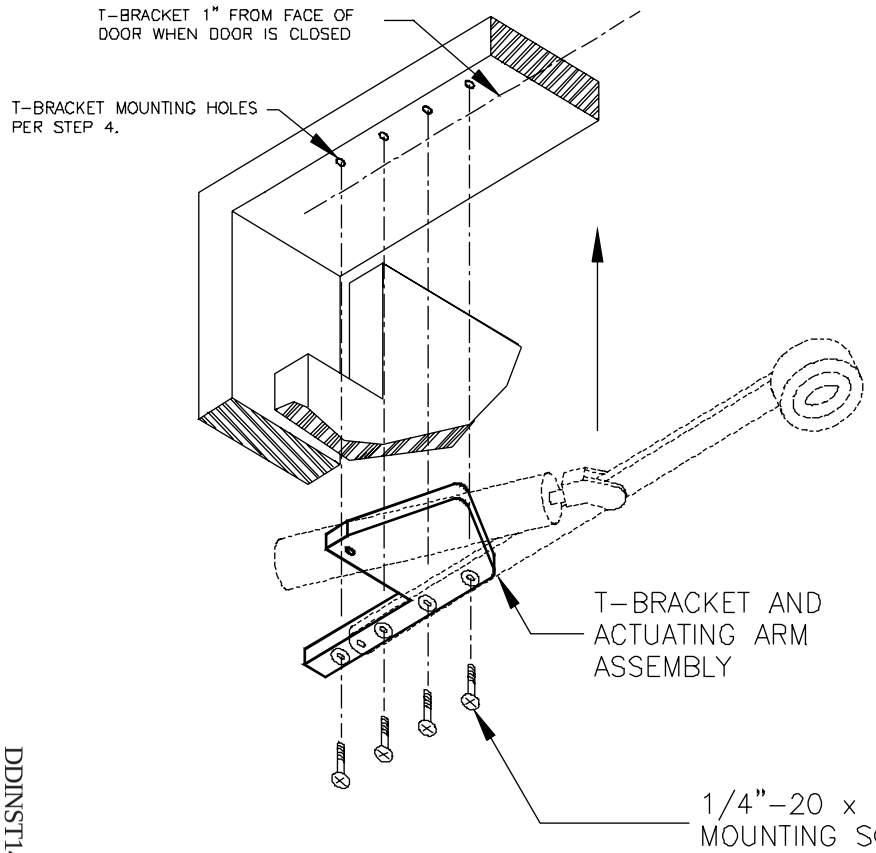




"LEFT HAND HINGE" SHOWN

DDINST14p

STEP 5: Install the T-BRACKET and ACTUATING ARM using the stainless steel screws provided.



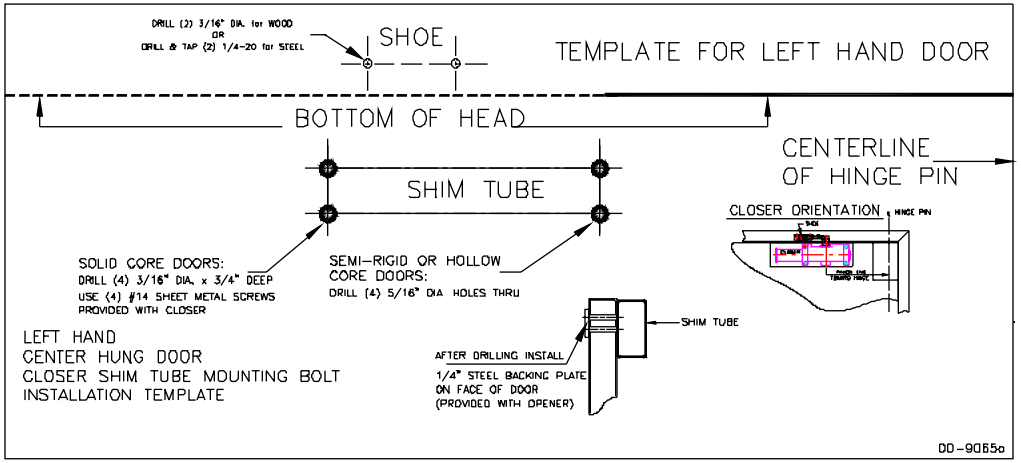
INSTALLATION PROCEDURE

A. Install the T-BRACKET and ACTUATING ARM assembly using the (4)1/4"-20x7/8" Flat Head Phillips Machine Screws.
NOTE: Left hand and Right hand assemblies are marked "L" or "R" on the top of the T-BRACKET.

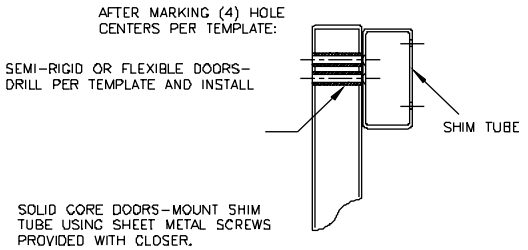
B. Cycle the actuator manually through it's complete range of motion to insure that all components are attached properly and do not interfere with any other components.
Adjust if necessary.

CAM–RISE CENTER HUNG DOORS – RETROFIT

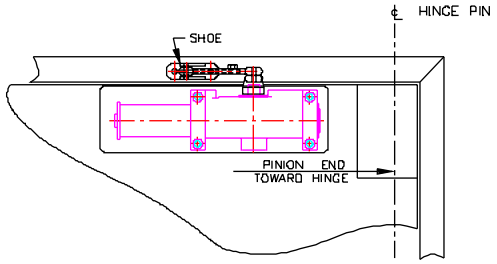
STEP 6: Install SHIM TUBE and CLOSER using the SHIM TUBE INSTALL template. Refer to the BASIC COMPONENT ORIENTATION & HOLE PATTERN and the CLOSER SHIM TUBE drawings in the Instruction Sheets/Drawings Section for location dimensions.



SHIM TUBE MOUNTING

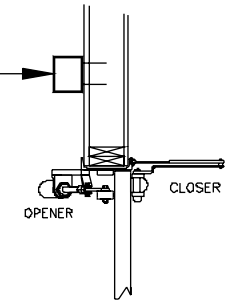


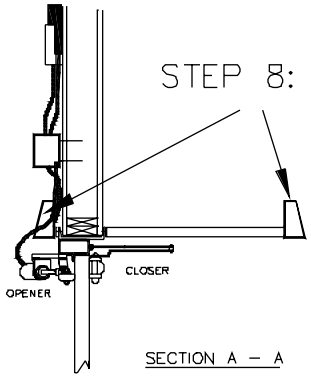
CLOSER ORIENTATION



STEP 7: Install ELECTRICAL ENCLOSURE to wall per Control Box Mounting Template. Mount with anchors and screws provided.

ELECTRICAL ENCLOSURE TO BE MOUNTED AT SIDE OF OPENING





STEP 8: Install ACTIVATING DEVICE (motion detector, etc.) according to manufacturer's instructions

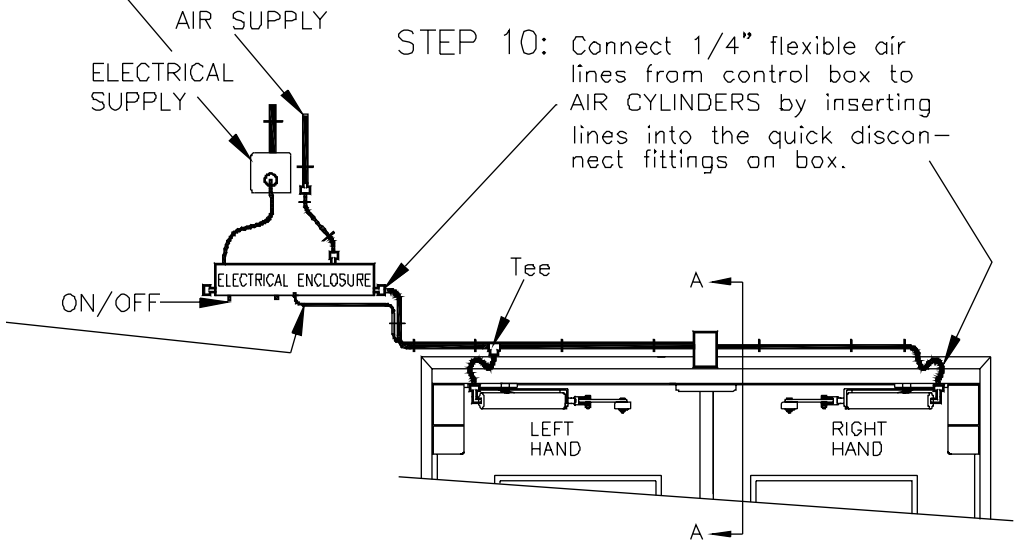
STEP 9: Connect ELECTRICAL ENCLOSURE to air supply and electrical supply, making sure ON/OFF switch is OFF (white showing).

NOTE: Purge or blow out air lines prior to connecting air supply to electrical enclosure. WARRANTY MAY BE VOIDED IF THIS STEP IS OMITTED.

STEP 10: Connect 1/4" flexible air lines from control box to AIR CYLINDERS by inserting lines into the quick disconnect fittings on box.

STEP 11:

Wire Activating and safety sensors into control panel following wiring details in section 8 and following sensor manufacturers directions.

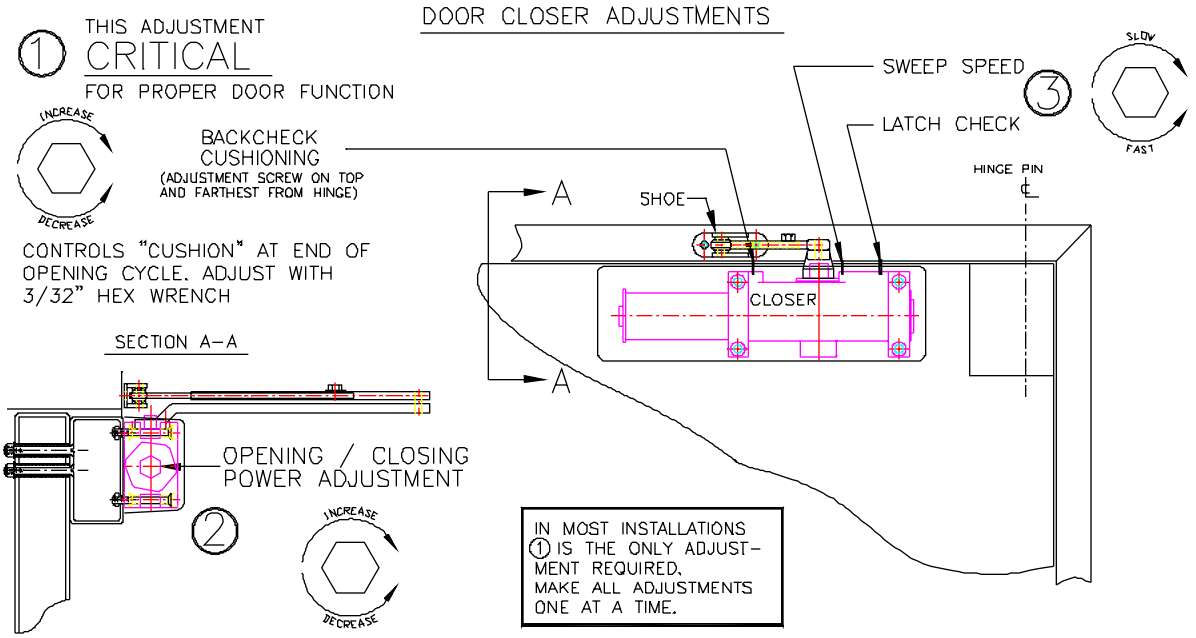


DWG. NO. DDINST20

CAM–RISE CENTER HUNG DOORS

STEP 12: Power Control Enclosure and test unit. Adjust closer as necessary for smooth opening, backcheck cushioning, and latch check.

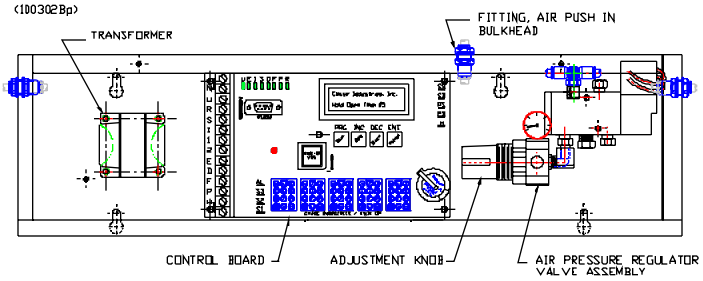
DOOR CLOSER ADJUSTMENTS



REMOVE THE FRONT COVER

STEP 13: Adjust opening speed with Air Pressure Regulator. Pull knob "out" to adjust, then push knob "in" to lock in adjustment. Factory setting is 45 PSI. NEVER adjust beyond 85 PSI or any setting that is safe! Door speed will vary depending on weight of door and any air pressures.

TIP - If you're opening a single door use the supplied plug to cap one of the "OPEN" air ports.



STEP 14: Adjust activating device according to manufacturer's instructions, specifications, or to owner's preference.

TIP: As you would with all delicate instruments and tools, preserve your openers finish by maintaining the protective oil coating on all metal bracket components.

STEP 15: For future use, these installation instructions should be left with the proper authority on site.

REMINDER - Don't forget to mount the "CAUTION Automatic Door" stickers on the door(s)!

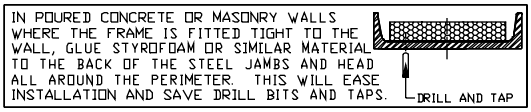
DWG. NO. DDINST17

Flush or Infitting

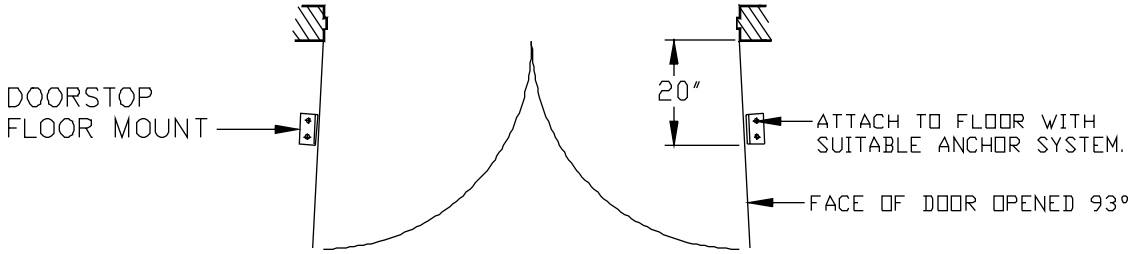
OPENER / CLOSER INSTALLATION INSTRUCTIONS

FLUSH OR INFITTING DOORS

STEP 1: Install the doors (if they are not already installed) according to manufacturer's instructions. DOORS MUST SWING FREELY OR OPERATOR WILL NOT FUNCTION PROPERLY.



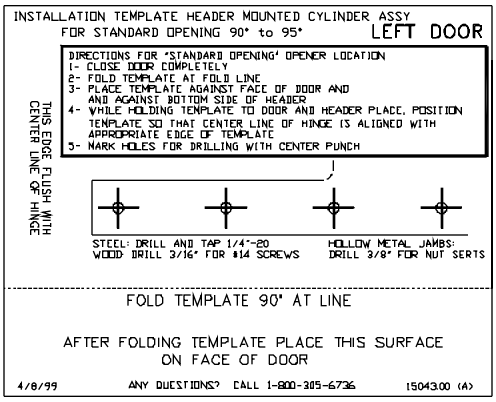
STEP 2: Install FLOOR MOUNTED DOOR STOPS.

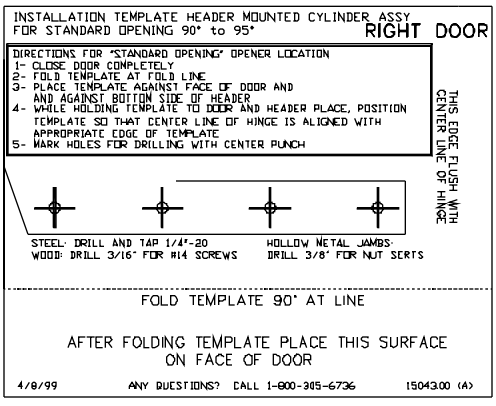


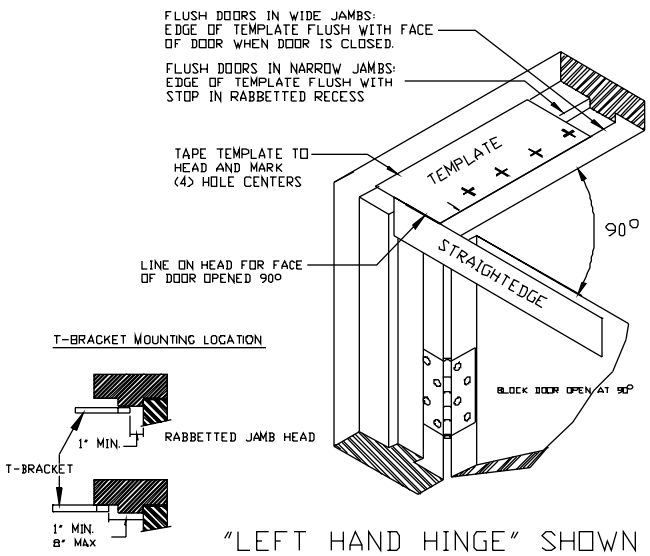
STEP 3: Mark (4) hole centers for T-BRACKET using template .
NOTE: T-BRACKET must be a minimum of 1" from face of door in closed position.

Whenever possible, locate the T-BRACKET as close to the 1" minimum from face of door as is practical.

Reinforce jambs as required.







"LEFT HAND HINGE" SHOWN

FLUSH OR IN-FITTING DOOR

See drawings DD-9028 and DD-9029 in section 10 of this manual for more jamb mount details.

DWG. NO. DDINST-7
15043Ap

Section 3C - Flush or Infitting

OPENER / CLOSER INSTALLATION INSTRUCTIONS
FLUSH OR INFITTING DOORS

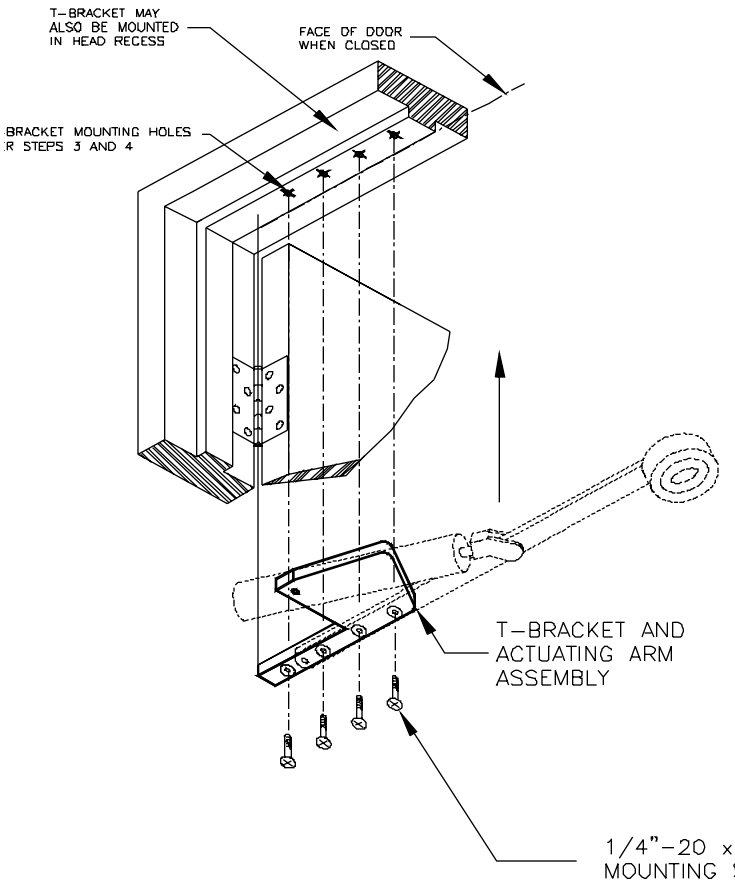
STEP 4: REFER TO THE 3 OPTIONS BELOW, DEPENDING ON THE JAMB STRUCTURE AND MOUNTING SYSTEM FURNISHED.

16 GAGE or HEAVIER JAMBS: Drill (4) 3/8" dia. holes thru head for 1/4"–20 NUT SERTS. See Jamb Detail No. 7

LESS THAN 16 GAGE: Drill and tap (4) 1/4"–20 thru head and reinforcement. See jamb details 8 or 10.

WELD BRACKET: Install Weld Bracket per Jamb Detail No. 9.

STEP 5: Install the T–BRACKET and ACTUATING ARM using the stainless steel screws provided.



INSTALLATION PROCEDURE

A. Install the T–BRACKET and ACTUATING ARM assembly using the (4)1/4"–20x7/8" Flat Head Phillips Machine Screws. NOTE: Left hand and Right hand assemblies are marked "L" or "R" on the top of the T–BRACKET.

B. Cycle the actuator manually through its complete range of motion to insure that all components are attached properly and do not interfere with any other other Adjust if necessary.

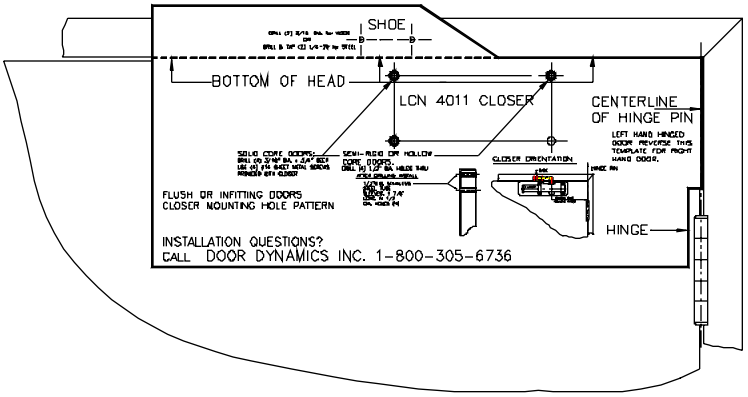
WARNING - Improper or inadequate installation could result in premature product wear or failure and could then cause property damage, bodily injury or even death.

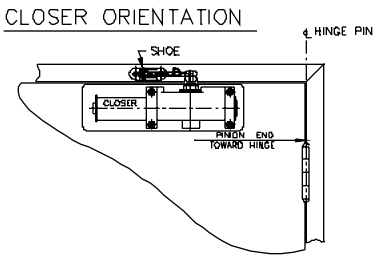
Section 3C - Flush or Infitting

OPENER / CLOSER INSTALLATION INSTRUCTIONS

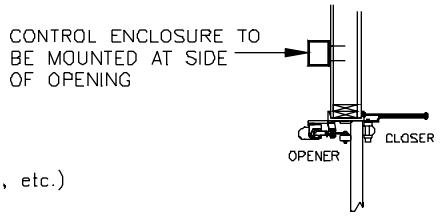
FLUSH OR INFITTING DOORS

STEP 6: Install CLOSER using template.

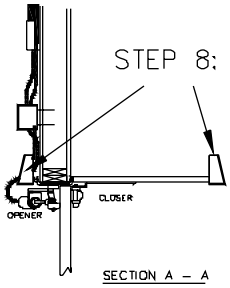




STEP 7: Install CONTROL ENCLOSURE to wall per template Mount with anchors and screws provided.



STEP 8: Install ACTIVATING DEVICE (motion detector, etc.) according to manufacturer's instructions



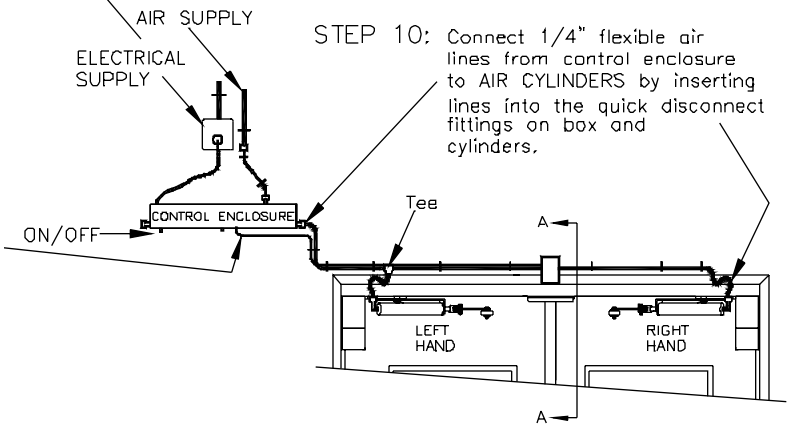
STEP 9: Connect CONTROL ENCLOSURE to air supply and electrical supply, making sure ON/OFF switch is OFF

NOTE: Purge or blow out air lines prior to connecting air supply to control enclosure. WARRANTY MAY BE VOIDED IF THIS STEP IS OMITTED.

STEP 10: Connect 1/4" flexible air lines from control enclosure to AIR CYLINDERS by inserting lines into the quick disconnect fittings on box and cylinders.

STEP 11:

Wire activating and safety sensors into control panel following wiring details in section 8 and following sensor manufacturers directions.



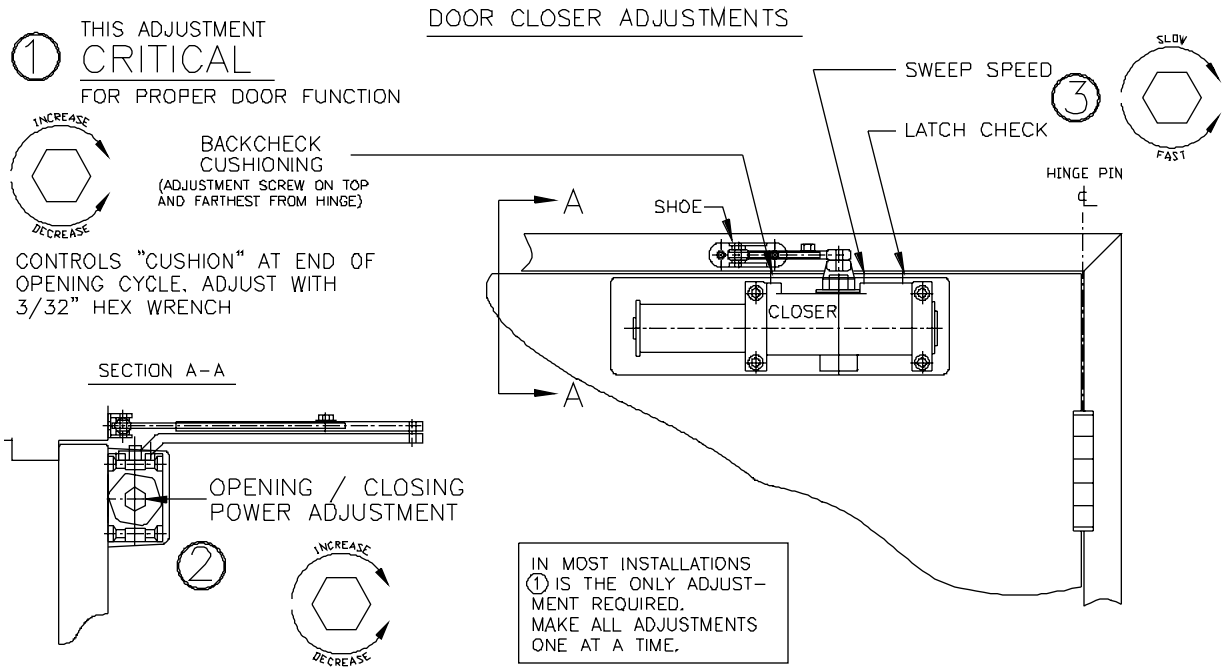
REMINDER: If this system is to be utilized in a rated Hazardous Location the control box must be located in a rated General Purpose location.

DWG. NO. DDINST18

OPENER / CLOSER INSTALLATION INSTRUCTIONS

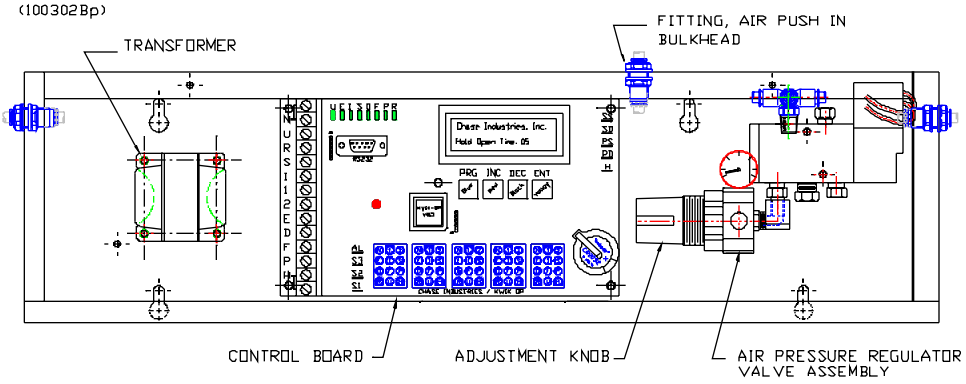
FLUSH OR INFITTING DOORS

STEP 12: Turn on control enclosure and test unit. Adjust closer as necessary for smooth opening, backcheck cushioning, and latch check.



REMOVE THE FRONT COVER

STEP 13: Adjust opening speed with Air Pressure Regulator. Pull knob "out" to adjust, then push knob "in" to lock in adjustment. Factory setting is 45 PSI. NEVER adjust beyond 85 PSI or any setting that is safe! Door speed will vary depending on weight of door and any air pressures.



TIP - If you're opening a single door use the supplied plug to cap one of the "OPEN" air ports.

STEP 14: Adjust activating device according to manufacturer's instructions, specifications, or to owner's preference.

TIP: As you would with all delicate instruments and tools, preserve your openers finish by maintaining the protective oil coating on all metal bracket components.

STEP 15: For future use, these installation instructions should be left with the proper authority on site.

REMINDER - Don't forget to mount the "CAUTION Automatic Door" stickers on the door(s)!

DWG. NO. DDINST19

Section 4 - Operation

Erich Industries, Inc.
Performance Products Division
550 N. Nine Mound Road
Verona, WI 53593
1-800-882-5839

1-800-882-5839

OPERATING PROCEDURES FOR OPENERS

A) Start-up (refer to installation instructions for details)

1. Make sure air lines have been purged (blown free of particles in air line) prior to supply line hook-up to control enclosure. Attach supply line to control enclosure.
2. Plug in cord or hard wire to electric (110 volt) sources in accordance with local codes.
3. Depress ON-OFF switch to turn on.
4. Set activating devices to owner's requirements.
5. Adjust opening speed with air pressure control knob in control enclosure. Never lower more than 40 PSI or raise higher than 85 PSI.
6. Door should not slam open or closed. If this occurs, increase the back check on the door closer to a cushioned stop at the end of the cycle. Adjust the latch check on the closer for a cushioned close at the end of the closing cycle.

B) Operation

1. Depress ON-OFF switch to activate door operator and turn on.
2. Release ON-OFF switch to de-activate door operator and turn off.
3. All activating devices must be plugged into control enclosure to function.
4. Operators will not be damaged if held in closed or open position while activated for an extended period of time.

C) Emergency Operation

1. In case of a power outage or if turned off, the doors will open and close manually. The operator will not be damaged when operated manually.
2. Always turn operators off during a power outage and turn on when power is restored.

D) Shutdown

1. Use ON-OFF switch on the control enclosure to de-activate the operator. Turn off.

WARNING - Be sure all safety devices and activators are working properly before putting openers into service. If you are having any problem with these devices, turn off the opener and contact the manufacturer of the sensor or Erich Industries.

Erich Industries, Inc.
Performance Products Division
550 N. Nine Mound Road
Verona, WI 53593
1-800-882-5839

1-800-882-5839

MAINTENANCE PROCEDURES

A) <u>Maintenance - Air Source</u> (as applicable)

1. Service compressors, filters, etc. as per manufacturer's instructions.
2. Service should be carried out in 3 month intervals, or as required. Consult this manual for details.

B) <u>Maintenance - Operators</u>

1. Manually open doors to check for ***"free swing".*** Adjust and/or lubricate hinges.
2. Check actuator arms for excessive play. If required, loosen set screw or lock nut and tighten bolt to remove play. Do not over tighten, which will cause binding. After tightening set screw or lock nut, check again to insure that the unit has free action.
3. Check cylinder jamb nut and tighten (if required) with the cylinder vent on the bottom.
4. Lubricate bearing points with spray lube.
5. Check air filter on supply air line. Clean, drain, or replace as required.
6. Check, air hoses and connections for leaks, kinks, or contact with moving parts. Correct as required.
7. Check air pressure and opening speed. Adjust per instructions as required.
8. Check closer back check, closing speed, and latch speed. Adjust per instructions as required.
9. Check Time Delay period. Adjust per instructions as required.
10. Service should be carried out in 3 month intervals along with compressor servicing, or as required.

TIP: As you would with all delicate instruments and tools, preserve your openers finish by maintaining the protective oil coating on all metal bracket components.

Section 6 - Troubleshooting

Erich Industries, Inc.
Performance Products Division
550 N. Nine Mound Road
Verona, WI 53593
1-800-882-5839

1-800-882-5839

TROUBLESHOOTING

1. **Unit Will Not Actuate**

   a. Check for physical jamming or binding of door.
   (A minimum 1/16" gap must exist between the floor and the bottom seal of the door.)
   b. See if door will open using the HOLD OPEN switch on the control enclosure.
   If it **does work, go to (d) of these instructions.**
   The problem is with input devices or control circuit board.
   c. **Door does not open when using the HOLD OPEN switch mounted on the control enclosure:**
   problem is either with air supply or power supply.
   Open control enclosure and read gauge pressure.
   If open/close pressure is at least 30/20 PSI ► air supply is OK.
   If any lights are lit on the control circuit board ► the problem may be a faulty soleniod.
   If circuit board lights are all off ► the problem may be loss of electrical power.
   Make sure the electrical outlet feeding the control enclosure is working.
   If it is ► the problem may be a faulty transformer.
   d. **Door opens when using HOLD OPEN switch, but does not respond to other open signals.**
   Remove cover from control enclosure and observe the display on the control circuit board.
   It **should be lit.** If it **is not** ► replace the control unit board.
   e. Observe the status lights in the upper left corner of the control circuit board.
   The 2nd light from the left should light when any initiate signal is active (such as a sensing motion detector).
   If this light **does not indicate activity** ► most likely a faulty sensor device.

2. **Door Opens But Will Not Close**

   a. Check for binding of actuator arm and cylinder.
   Check for ***free movement*** of the door.
   b. Position of Safety Zone Sensor may cause it to "see" the door.
   c. Program function may be incorrect.
   (Refer to programming instructions in section 8 of this manual.)

Continued...

3. **Unit Actuates, Opens Door Correctly, Door Closes Slowly But Not Completely**

   a. Check for ***free movement*** of door and action of door closer.
   Check sweep and latch adjustment of close.
   Increase door closer spring pressure if required (with corresponding adjustment of air pressure and opening speed as necessary).
   b. Check for ***free movement*** of actuator arm and cylinder.
   c. Check for release of exhaust pressure at solenoid by loosening the hose fitting at the solenoid.

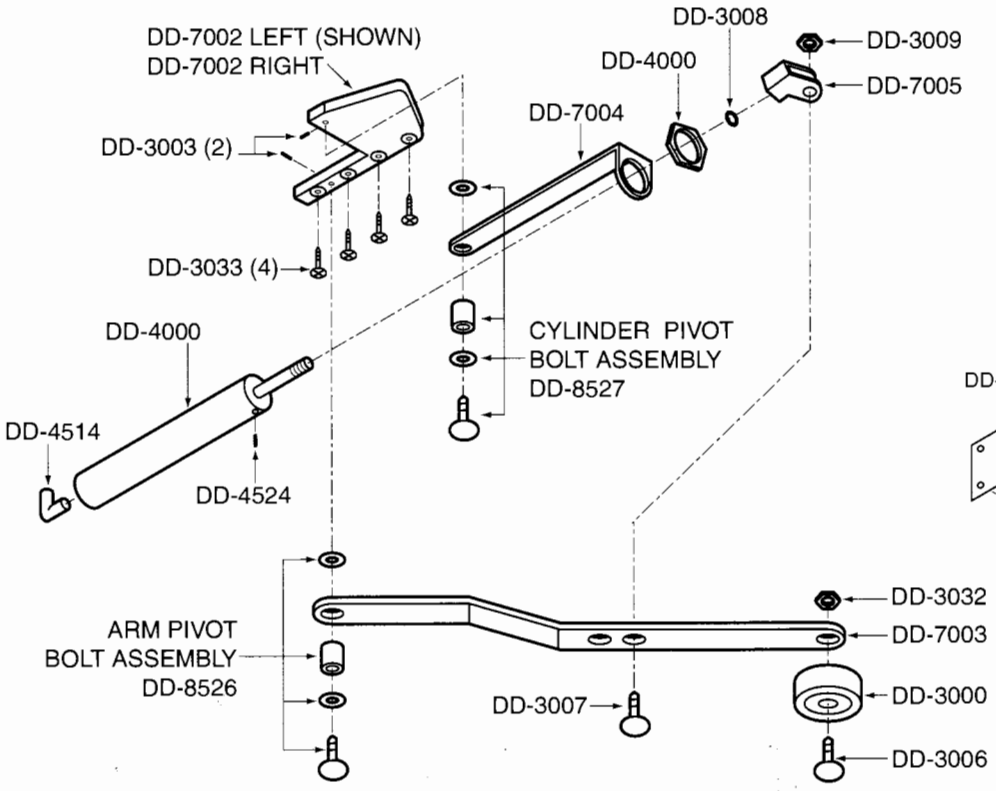
4. **Door Action Too Fast, Unable To Control**

   a. Reduce air pressure to 40 PSI on air regulator and reset LCN hydraulic door closer backcheck using backcheck adjustment screw (see instructions included with hydraulic door closer). Then gradually increase air pressure (opening speed) to achieve full opening without "overswing" while making minor adjustments to the backcheck screw.
   Note: The hydraulic door closer is used to cushion the stopping action of the door.

WARNING - Be sure all safety devices and activators are working properly before putting openers into service. If you are having any problem with these devices, turn off the opener and contact the manufacturer of the sensor or Erich Industries.

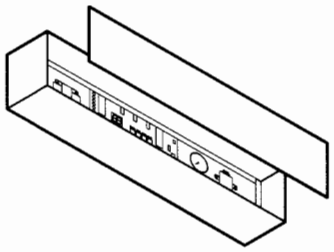
Assembly and Parts List

Exploded View

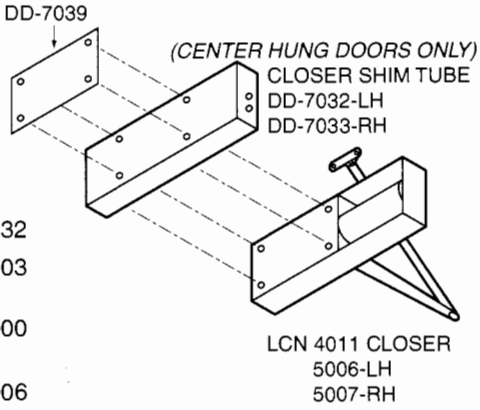


Control Box

DD-8500



Closer



Parts List

Opener Parts
DD 4000 Cylinder, 2" x 8" stainless steel
DD 7002 T-bracket, right hand
DD 7002 T-bracket, left hand
DD 7003 Arm
DD 7004 Cylinder bracket
DD 7005 Clevis
DD 3000 Wheel
DD 8526 Arm bolt assembly with bearings
DD 8527 Cylinder bolt assembly with bearings
DD 3006 5/16-24 x 1-3/4" hex head cap screw
DD 3007 5/16-24 x 1-1/2" hex head cap screw
DD 3008 Jamnut 1/2" x 20
DD 3003 1/4 - 20 set screw
DD 3009 5/16 x 24 thin Nyloc nut
DD 3033 1/4 x 20 x 7/8" flat head phillips

DD 7039 Backer plate
DD 4514 Swivel 90 degree elbow
DD 4524 Vent plug
DD 3032 5/16 Nyloc nut

Closer Parts
DD 5007RH LCN 4011 Closer, right hand
DD 5006LH LCN 4011 Closer, left hand
DD 7033 Closer shim tube, right hand
DD 7032 Closer shim tube, left hand

Opener Assemblies
DD 8505 Left hand opener, complete assembly
DD 8506 Right hand opener, complete assembly
DD 8500 Control box

Erich Industries, Inc.
AIR FORCE® AND DOOR DYNAMICS® DOOR OPENER
ELECTRICAL WIRING DETAILS

Our control box is microprocessor based to insure maximum reliability and flexibility for the user. The system has been designed to be easy to set up and operate. Directions for setting the proper program are in the Circuit Board User's Manual located elsewhere in this manual. The control unit is designed to be connected to a constant power source of 110VAC 60HZ or 230VAC 50HZ, which powers the control box and a wide variety of activation devices with 24VAC power.

Activating devices and input signals should be connected directly to the terminal strip located on the left side of the control board.

N	=	Power Common Lead
N	=	Power Common Lead
U	=	Unused - Auxiliary
R	=	Remote Proof of Closure Signal
S	=	Safety Signal (Sensors)
I	=	Initiate Signal
#1	=	Unused - Auxiliary
#2	=	Unused - Auxiliary
E	=	Safety Signal (Lockout)
D	=	Safety Signal (Photoeyes)
F	=	Fire Signal
P	=	Proof of Closure Switch Signal
H	=	24V Power
H	=	24V Power

Notes: Use Terminal strip connection to N and F to lock out opening if maglock is used and active. We recommend Asterix model 176 maglocks and a seperate power source. Door will remain in open position if receiving input from terminal strip D or S regardless of input from activation device.

Below we provide wiring details for a variety of activation and safety devices available from Erich Industries. In most cases other manufacturer's models can also be wired to the system in a similar fashion. Please consult with the manufacturer of that particular unit with questions or call us.

E-2005 MS Sedco microStar Motion Detector

Red to H
White to N
Brown to I
Black to N

E-3060 MS Sedco GD11S Photoeye Safety Beam

Transmitter:	White to H
	Black to N
Receiver:	White to H
	Black to N
	Gray to D
	Green to N

E-3070 BEA Microcell Photoeye Safety Beam

#1 to H
#2 to N
#3 to D
#4 to N

E-3090 MS Sedco DH400 Presence Sensor

Red to H
Black to N
Yellow to E
White to N

E-5010 MS Sedco 216 Touchless Switch

Red to H
Green to N
Red to N
Blue to I

E-5020 BEA MS-08 Touchless Switch

Red to H
Black to N
White to N
Green to I

Cont.

E-4020 MS Sedco 99 Push Plate

Normally Open to I
Common to N

MS Sedco 614 Piezo Switch

Normally Open to I
Common to N

BEA IS40 and IS40P Sensors

Red to H
Black to N
White to N
Green to I
White/Black to N
Green/Black to E (for safety with lockout)

E-5040 BEA MS09 Touchless Switch

Red to H
Black to N
White to N
Green to I

E-5060 Piezo Push Button Switch

Plus to H
Minus to N
Com1 to N
Normally Open to I

E-6010 VEE CP1 Pull Cord

Normally Open to I
Common to N

MS Sedco DH94 Presence Sensor

Red to H
Black to N
Yellow to E
White to N

E-5030 BEA MS21 Touchless Switch

Red to H
Black to N
Green to I
White to N
Green/yellow to Earth Ground

E-5050 BEA MS11 Touchless Switch

Red to H
Black to N
Green to I
White to N

E-1010-1EX Explosion Proof Push Button

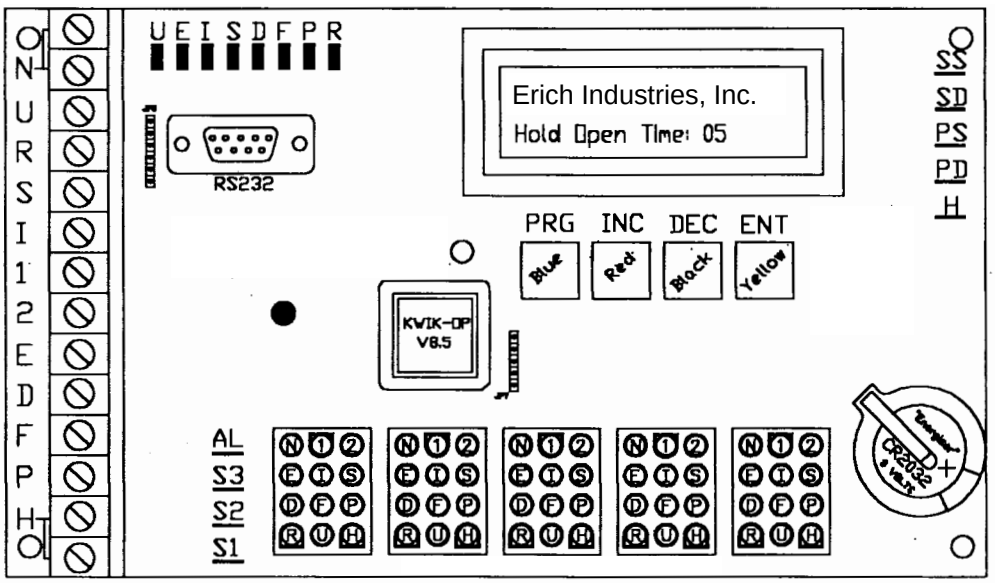
Normally Open to I
Common to N

Additional questions can typically be answered by calling the factory technical support staff at 1-800-882-5839.

Revision 01/01/23

Erich Industries, Inc.
Performance Products Division
Automatic Door Opener

Circuit Board User's Manual



KOCBMan.dwg

Erich Industries, Inc.

Control Board Software User's Manual

NOTE: Most functions are pre-programmed at the factory so no adjustments may be required here. Utilize this section for future reference.

General

Status/Health LED

A single red LED displays the general health of the controller. These indications are summarized in the following table:

Indication	Meaning
1 short blink every second	Controller is running normally
1-7 blinks every 6.4 seconds	Error condition
LED off	Controller failure
LED on for 5 seconds then off	Internal failure; clock failure or firmware corruption

In the case of errors, the number of times the LED blinks within each 6.4 second indicates which error(s) have been detected. The number of blinks is the sum of the failure counts in the table below:

Error	Blink Code
LCD Controller Failure	1
Non-volatile storage read/write failure	2
Non-volatile storage checksum error	4

The number of blinks in error mode indicates the *sum* of these blink codes, e.g. a combined non-volatile storage R/W failure with data corruption will result in a blink count of 6 each 6.4 seconds.

LCD Controller Failure

This error is indicated when proper communications cannot be established with the liquid crystal display module's controller. The error is cleared at power-up. If this indication persists, it indicates that the LCD module probably needs to be replaced.

Non-volatile Storage Read/Write Failure

This error indicates that the non-volatile storage contained in the real-time clock is unreliable. The error is cleared at power-up and is tested during each initialization.

Non-volatile Storage Checksum Failure

This error is an indication that the non-volatile parameter storage was corrupt when it was loaded at power-up. This is a normal indication when the control is first powered up prior to being programmed. This condition is cleared when any operation is performed that writes the non-volatile parameters, such as pressing the **PRG** button while in Local Programming Mode.

Programming

Setting the functional parameters in the control can be accomplished by either using the operator keyswitches on the control marked **PRG**, **INC**, **DEC** and **ENT** or by connecting a serial terminal to the control. Using the keyswitches is referred to as "Local Programming" while using a serial device is referred to as "Remote Programming". Only one programming method can be in use at a given time.

Parameters

Local Programming

When the controller is not any programming mode, pressing the **PRG** key on the board will place the control into Local Programming Mode and Remote Programming Mode is inhibited.

While in Local Programming Mode, the keys on the control perform the following functions:

PRG	Advances to the next value to be displayed or changed. This key auto-repeats.
INC	Increments the current value of the displayed parameter. Values "wrap around" from maximum value to minimum values. This key auto-repeats.
DEC	Decrements the current value of the displayed parameter. Values "wrap around" from minimum value to maximum values. This key auto-repeats.
ENT	Pressing this key causes any changes made to be stored in non-volatile storage so that they will be loaded when the control is next powered up. Note that if this key is *not* pressed, any changes in values will not be stored and will be temporary.[1]

Remote Programming

Remote programming of the unit is accomplished by connecting a standard DA-9P to DB-25 (or DB-9) "straight through" serial cable to the DA-9S onboard connector.[2] Only the transmit and receive data lines are required for operation in addition to a ground. The connected serial device must be set to 9600 baud, 8-bit data and no parity. For best results, the serial device should emulate an ANSI terminal and should have "destructive backspace" enabled and "local echo" off.

---

[1] It is not possible to make "temporary" changes to the time or date. Pressing **ENT** programs the clock, exiting programming mode without saving data doesn't.

[2] The actual serial connector and RS-232C electrical interface are optional. Remote serial programming can still be accomplished by providing a stand-alone TTL to RS-232C interface and converting the serial signals presented to the serial option connector instead.

Standard Menu

Remote Programming mode is initiated by sending a single Carriage Return character. The controller will respond with the remote menu[3]:

```
Erich Industries, Inc.

 A) HOLD OPEN TIME
 B) VALID SAFETY
 C) TIME TO CLOSE
 D) DELAY TO SECOND
 E) MAGNETIC STRIKE
 F) OPERATION MODE
 G) COUNT TO PURGE
 H) PURGE LENGTH
 I) SET DATE
 J) SET TIME
 K) ZONE START
 L) ZONE END
 M) ZONE ACTIVE DAYS
 N) LANGUAGE

Enter Your Choice : _
```

To select an item, enter the letter indicated (do not press **ENTER**) and you will be prompted with the current value and, if applicable, the range of acceptable values, such as:

```
Enter Your Choice: D
DELAY TO SECOND= 05 SECONDS, RANGE: 00-99, NEW VALUE=_
```

If no value is entered, or if the entry is invalid, the existing value will not be changed. If no keys are pressed for 30 seconds, the controller will automatically exit the Remote Programming Mode. While in Remote Programming Mode, the on-board programming switches are disabled and the controller's LCD will show the message "REMOTE PROGRAM MODE ACTIVE".

In addition to the visible menu choices (A-N), additional special codes may be entered at this menu:

\ Toggle debug mode

? Display Status

S Special Factory Menu

Debug Mode

While in Debug Mode, the controller's LCD will show the state of the various AC control output lines:

```
ALS3S2S1SSSDPSPD
- - * * - - - -
```

A "-" symbol indicates that the related output is off, a "*" indicates it is on.

Status Display

The status display shows some internal settings and then reprompts the main menu.

[3] The menu text shown is for the default language (English).

Special Factory Menu

The Special Factory Menu is:

```
FACTORY SPECIAL MENU

 A) CLEAR COUNTER
 B) SET COUNTER

Enter Your Choice : _
```

These command clear and set the activation cycle counter.

Special Modes

Factory Defaults

To return all parameters to factory default values, press and hold the **INC** and **DEC** switches when the control is powered up. The LCD will display a message requiring confirmation to restore defaults; pressing **ENT** confirms.

"Flip-Flop" Mode

The "Flip-Flop" mode is intended for functional checkout of the control. It is activated by pressing the **PRG** switch when the control is powered up. Press the **ENT** switch to confirm activating Flip-Flop mode. Once activated, this mode continues until the control is powered down.

Below is a list of the parameters presently being used to control operation of the control board, and a description of what each parameter does.

Parameter	Setting	Range	Function	Board Connections
P1 (A)	05	02-99	Sets the hold open time. If the value of P6 is 10, 11, 12 or 13 the value of P1 is ignored. If the value of P6 is 14, 15, 16, or 17 then the unit is changed to toggle mode with a timeout enabled also.	
P2 (B)	1.0	0.0-9.9	Tells the computer how many tenths of seconds a safety signal has to last to be considered valid.	S
P3 (C)	4.0	0.0-9.9	Tells the computer how many tenths of seconds during door closing time to wait for the safety device to detect the door. At the end of this time or after getting a safety signal, the system considers the door shut.	S
P4 (D)	05	00-99	Determines delay till sending a signal to open a second set of doors. Also delays a signal to a secondary door strike.	S2
P5 (E)	01	01-04	Sets the magnetic strike time. Even if no strike is used, this value is not allowed to go below 1.	S1
P6 (F)			Operation Mode Settings. See page 38 for additional details.	
P7 (G)	05	00-99	Sets the number of door cycles to count between the activation of the air-tank purge signal.	PD
P8 (H)	0.2	0.0-9.9	Sets the amount of time that the air-tank purge signal is to stay on.	PD

See the following page for determination of proper value for Parameter "P6" (F)

Operation Mode Abbreviations

LCD Screen Display	Description
STD TOG TIME-OUT	Standard Toggle Mode Time-Out – door open when requested and doors close when requested. However, if the request to close is not received within the set amount of time ("Time To Close") – the doors will close automatically.
STD TOGGLE MODE	Standard Toggle Mode – doors open when requested and doors close when requested – no timer function.
STD TIMER MODE	Standard Timer Mode – **Normal setting**, doors open when requested and close automatically after the "Time To Close" input time has been reached.
TERMINA TIME-OUT	Terminate Time-Out (Cancels Time Out Mode)
INT TIMER MODE	Interlock Timer Mode - Standard Interlock Timer Mode, doors open when requested and close automatically after the "Time To Close" input time has been reached.
INT TOGGLE MODE	Interlock Toggle Mode, first set of doors opens when requested, and doors close when requested - then, the second set of doors open. When requested the second set of doors close – no timer function.

Operation Mode is obtained by pressing the Program "PRG" (Blue Button) six times until "Operation Mode" is seen on the LCD Screen.

Using the Increase "INC" (Red Button) or Decrease "DEC" (Black Button) press until the Mode required is observed on the Screen.

After selecting the Mode press Enter "ENT" (Yellow Button) to store the Mode into memory.

Note: this setting is maintained even if the power is loss. If Enter is not pressed, the Mode selected will be temporary and will not be stored into memory.

Interlock – definition – first sets of doors must be closed before the second set of doors can open.

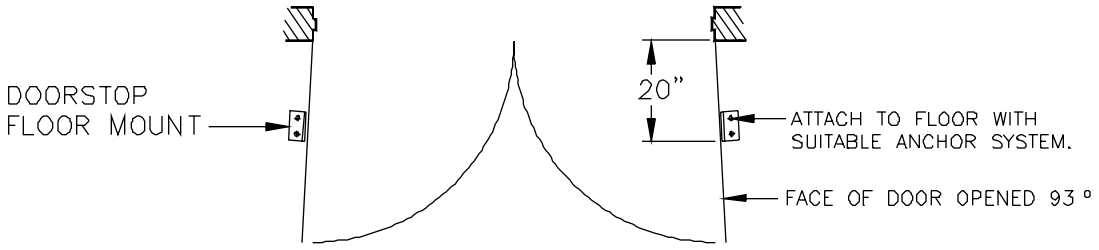
Section 9 - Options

OPENER / CLOSER INSTALLATION INSTRUCTIONS

FLUSH OR INFITTING DOORS – HINGE SIDE COMPONENT MOUNTING SYSTEM

STEP 1: Install the doors (if they are not already installed) according to manufacturer's instructions. DOORS MUST SWING FREELY (GASKETS MUST NOT DRAG ON FLOOR OR HEADER) OR OPERATOR WILL NOT FUNCTION PROPERLY.

STEP 2: Install FLOOR MOUNTED DOOR STOPS.



STEP 3: Orient Hinge Side Component Mounting Bracket – Left Hand, and Right Hand on their respective door panels (opener mounting tab is always toward the hinge), at 1 1/2" from the hinge to the end of the bracket, and with the notch flush with the notch flush with the top of the door panel.

Drill (2) holes as noted for wood or steel doors.

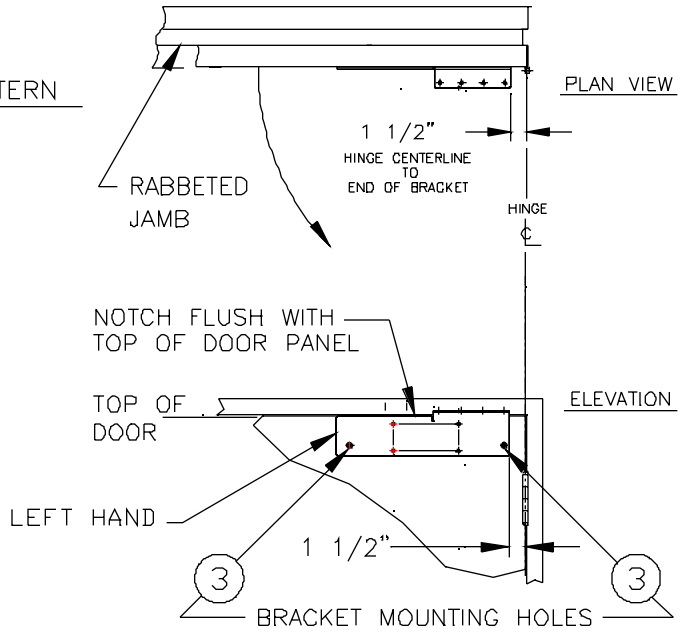
Insert (2) bracket mounting screws as noted.

(3) MOUNTING BRACKET HOLE PATTERN

LOCATE MOUNTING BRACKET
1 1/2" FROM THE HINGE
AND WITH THE NOTCH EVEN
WITH THE TOP OF THE DOOR.

MARK AND DRILL (2) MOUNTING
SCREW HOLES, AND MOUNT WITH:
2-#14x1 1/4" SCREWS(WOOD DOOR)
OR
2-1/4-20x1/2" SCREWS(STEEL DOOR)

"LEFT HAND HINGE" SHOWN
RIGHT HAND IS MIRROR IMAGE



DWG. NO. DDINST21

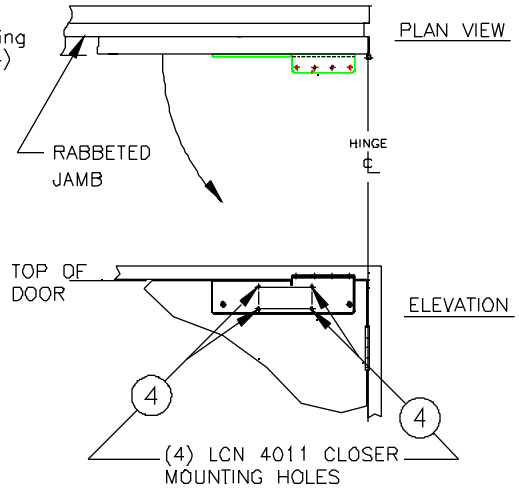
OPENER / CLOSER INSTALLATION INSTRUCTIONS

FLUSH OR INFITTING DOORS – HINGE SIDE COMPONENT MOUNTING SYSTEM

STEP 4: Using the mounted Hinge Side Component Mounting Bracket L or R as a template, drill (and tap) (4) holes as noted for wood or steel doors.

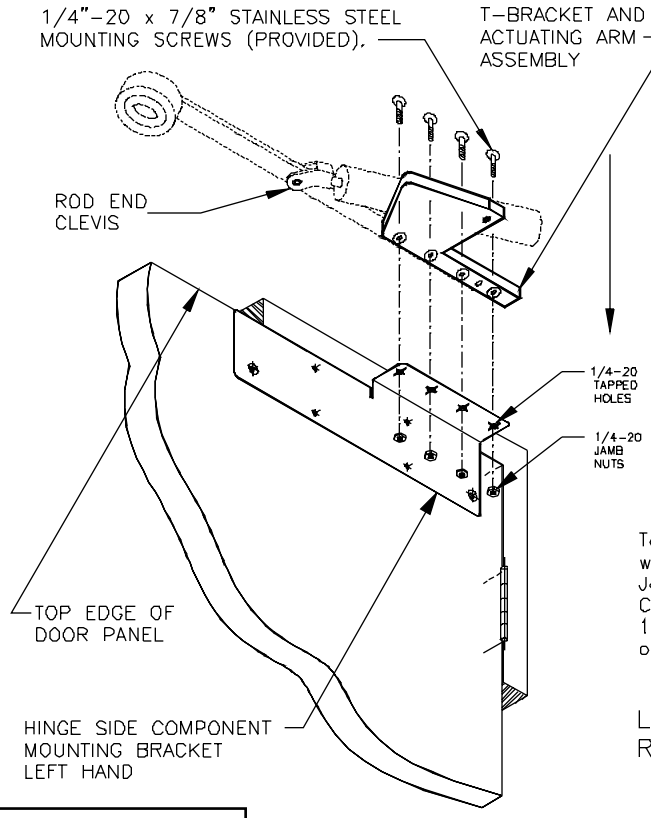
(4) CLOSER MOUNTING PATTERN

USING THE MOUNTED BRACKET AS A TEMPLATE:
STEEL DOOR: DRILL #7 & TAP (4) 1/4–20
WOOD DOOR: DRILL (4) 3/16ø FOR #14 SCREWS



NOTE:
Watch drilled hole depth on Steel or Wood doors:
DO NOT DRILL THROUGH DOOR unless required

STEP 5: Install the T–BRACKET and ACTUATING ARM using the stainless steel screws provided.



INSTALLATION PROCEDURE

A. Install the T–BRACKET and ACTUATING ARM on the MOUNTING BRACKET using the (4)1/4–20x7/8" Flat Head Phillips Machine Screws.

NOTE: Left hand and Right hand assemblies are marked "L" or "R" on the top of the T–BRACKET.

B. Cycle the actuator manually through it's complete range of motion to insure that all components are attached properly and do not interfere with any other components. Adjust if necessary.

C. Install the (4) 1/4–20 Jamb Nuts on the Mounting Screws.

To achieve MAXIMUM DOOR OPENING – with the cylinder fully retracted, loosen the Jamb Nut and rotate the Cylinder Rod in the Clevis out (counterclockwise) until the Roller is 1/16" from the head. Maintain six (6) turns of engagement of the Rod End in the Clevis.

LEFT HAND INSTALLATION SHOWN
RIGHT HAND IS MIRROR IMAGE.

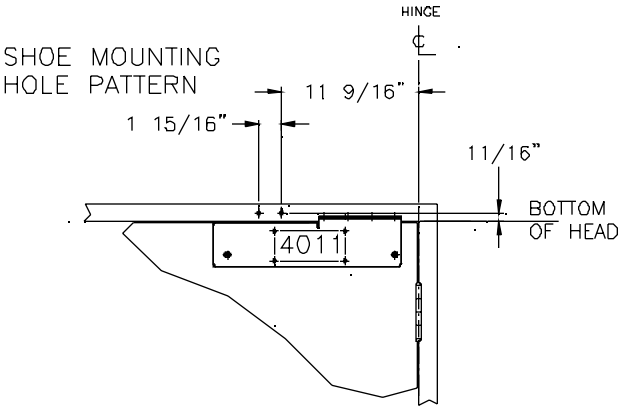
WARNING - Improper or inadequate installation could result in premature product wear or failure and could then cause property damage, bodily injury or even death.

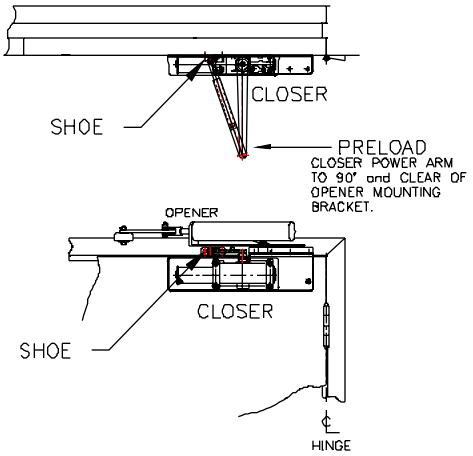
DWG. NO. DDINST22

OPENER / CLOSER INSTALLATION INSTRUCTIONS

FLUSH OR INFITTING DOORS – HINGE SIDE COMPONENT MOUNTING SYSTEM

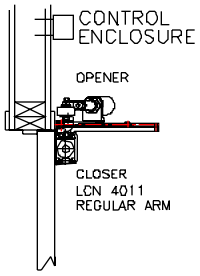
STEP 6: Install CLOSER using the MODIFIED manufacturer's template to locate and drill SHOE mounting holes. Use fasteners provided by manufacturer to mount CLOSER and SHOE.



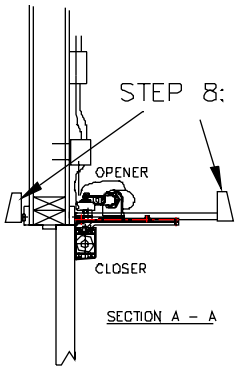


STEP 7: Install CONTROL ENCLOSURE to wall per template. Mount with anchors and screws provided.

CONTROL ENCLOSURE to be MOUNTED AT SIDE OF OPENING



STEP 8: Install ACTIVATING DEVICES (motion detectors, etc.) according to manufacturer's instructions

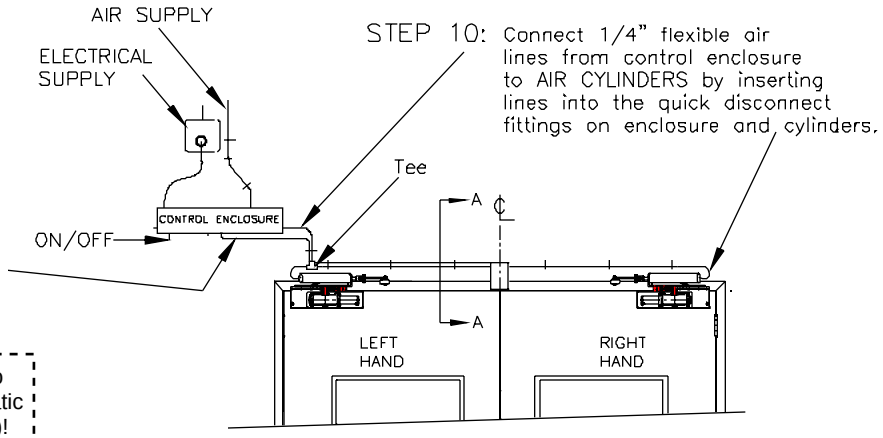


STEP 9: Connect CONTROL ENCLOSURE to air supply and electrical supply, making sure ON/OFF switch is OFF (white showing).
NOTE: Purge or blow out air lines prior to connecting air supply to control enclosure. WARRANTY MAY BE VOIDED IF THIS STEP IS OMITTED.

STEP 10: Connect 1/4" flexible air lines from control enclosure to AIR CYLINDERS by inserting lines into the quick disconnect fittings on enclosure and cylinders.

STEP 11:

Wire activating and safety sensors into control panel following wiring details in section 8 and following sensor manufacturers directions.



REMINDER - Don't forget to mount the "CAUTION Automatic Door" stickers on the door(s)!

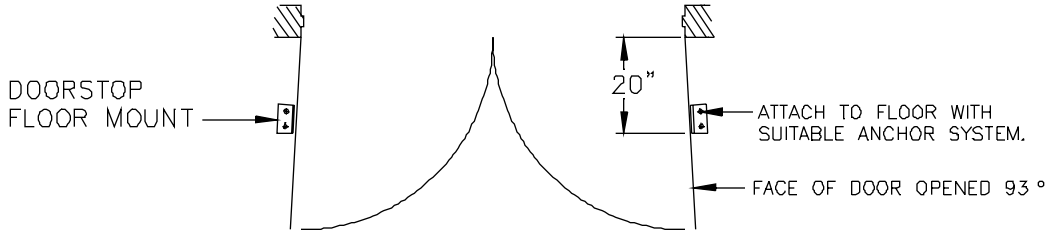
DWG. NO DDINST23

OPENER / CLOSER INSTALLATION INSTRUCTIONS

PUSH SIDE COMPONENT MOUNTING SYSTEM

STEP 1: Install the doors (if they are not already installed) according to manufacturer's instructions. DOORS MUST SWING FREELY (GASKETS MUST NOT DRAG ON FLOOR OR HEADER) OR OPERATOR WILL NOT FUNCTION PROPERLY.

STEP 2: Install FLOOR MOUNTED DOOR STOPS.



STEP 3: HOLE PATTERN LAYOUT

Open door panel(s) 90° and block in place. Project a line from the face of the door across the lower surface of the head.

Orient Push Side Component Mounting Bracket – Right Hand , and Left Hand on their respective sides of the frame head at 2" from the end of Bracket TO THE 90° line on head. RABBETED JAMBS ONLY: make sure that the lower surface of the long leg lis below the jamb stop (to allow for opener arm clearance).

Shim rabbeted jambs with Push Side Shim (5/16 x 1 1/2 x 9").

(NUM) Plumb Closer Mount Face of Bracket and drill appropriate dia. hole for fastener. Install Bracket Plumb Fastener and tighten until Closer Mounting Face is plumb.

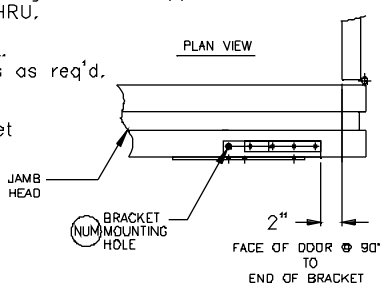
(NUM) Mark the (4) vertical holes thru the Bracket by spot drilling centers with a 5/16ø drill bit.

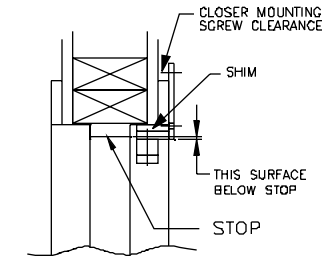
(NUM) Mark the (4) Closer Mounting CLEARANCE holes by spot drilling thru the tapped holes with a 3/16ø drill bit. SPOT DRILL (8) ONLY – DO NOT DRILL THRU.

Drill (and tap if req'd) (4) vertical holes to mount Bracket.
Drill 5/16ø CLEARANCE holes for Closer Mounting Fasteners as req'd.

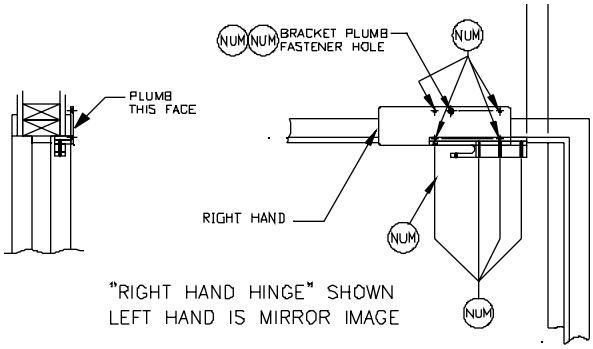
(NUM) Remount Push Side Component Mounting Bracket with the (1) vertical fastener and the (1) horizontal bracket plumbing fastener. Check plumb of Closer Mounting Face.

MOUNT PUSH SIDE BRACKET USING:
2–#14 SCREWS INTO WOOD
OR
2–1/4–20 SCREWS INTO STEEL





SHIM BRACKET FOR STOP CLEARANCE ON FLUSH OR INFITTING DOOR



"RIGHT HAND HINGE" SHOWN
LEFT HAND IS MIRROR IMAGE

DWG. NO. DDINST24

OPENER / CLOSER INSTALLATION INSTRUCTIONS

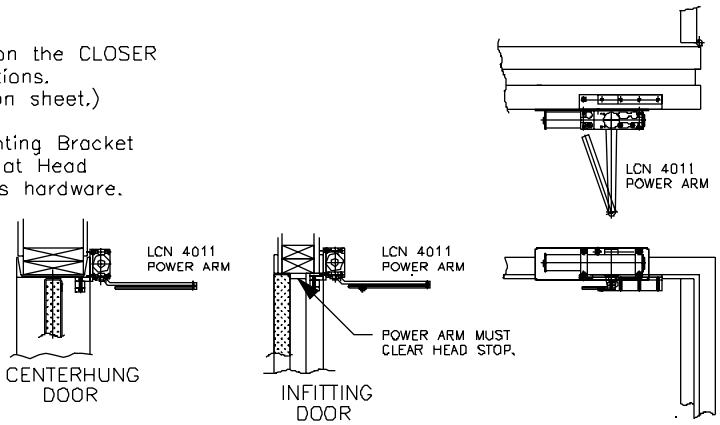
PUSH SIDE COMPONENT MOUNTING SYSTEM

STEP 4: CLOSER MOUNTING

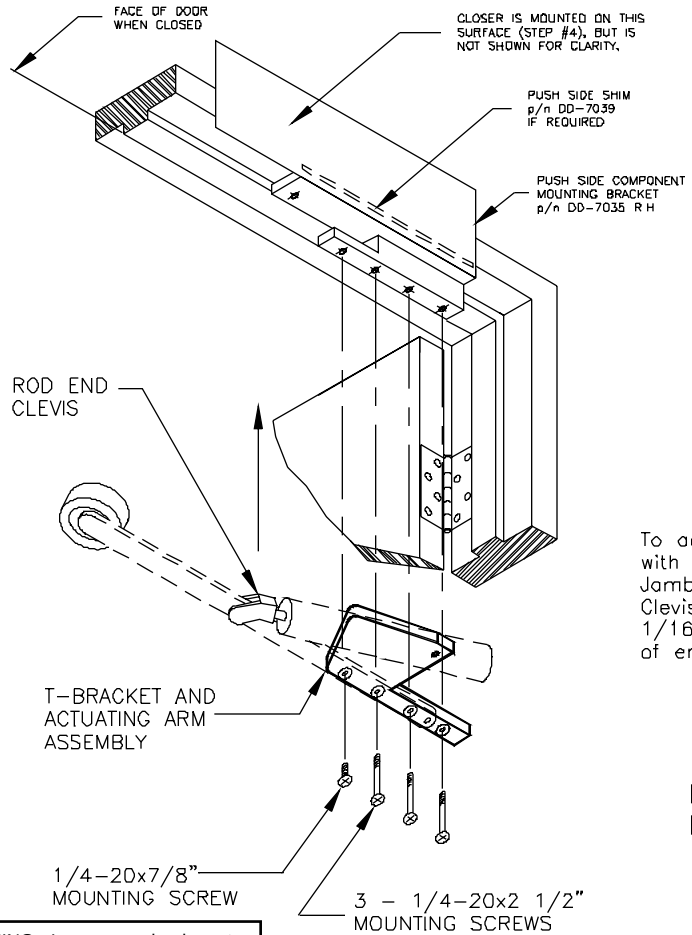
Mount the CLOSER POWER ARM on the CLOSER BODY per manufacturer's instructions. (Step #4 on LCN 4011 instruction sheet.)

Mount Closer on Push Side Mounting Bracket using the (4) 1/4–20x2 1/4" Flat Head Machine Screws in manufacturer's hardware.

Cycle the Power Arm for 180° to insure that it clears the frame head (centerhung door) or frame head stop (infitting door).



STEP 5: Install the T–BRACKET and ACTUATING ARM using the stainless steel screws provided.



INSTALLATION PROCEDURE

A. Install the T–BRACKET and ACTUATING ARM on the MOUNTING BRACKET using the (1) 1/4–20x7/8" and (3) 1/4–20 or #14 x 2 1/2" screws provided.

NOTE: Left hand and Right hand assemblies are marked "L" or "R" on the top of the T–BRACKET.

B. Cycle the actuator manually through it's complete range of motion to insure that all components are attached properly and do not interfere with any other components. Adjust if necessary.

To achieve MAXIMUM DOOR OPENING – with the cylinder fully retracted, loosen the Jamb Nut and rotate the Cylinder Rod in the Clevis out (counterclockwise) until the Roller is 1/16" from the door. Maintain six (6) turns of engagement of the Rod End in the Clevis.

RIGHT HAND INSTALLATION SHOWN
LEFT HAND IS MIRROR IMAGE.

WARNING - Improper or inadequate installation could result in premature product wear or failure and could then cause property damage, bodily injury or even death.

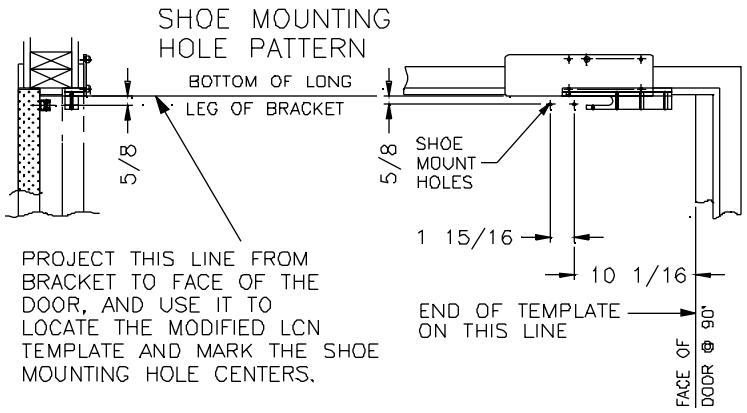
DWG. NO DDINST25

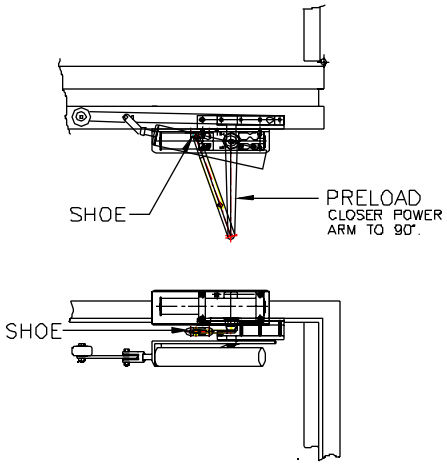
OPENER / CLOSER INSTALLATION INSTRUCTIONS

PUSH SIDE COMPONENT MOUNTING SYSTEM

STEP 6: MOUNT SHOE

Install SHOE/ADJUSTABLE ARM using MODIFIED manufacturer's template to locate and drill shoe mounting holes. Use fasteners provided by manufacturer to mount SHOE.

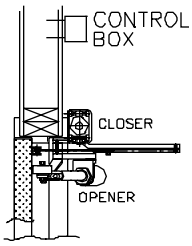




STEP 7:

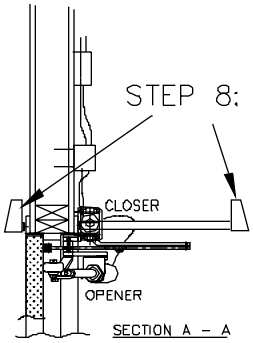
Install CONTROL ENCLOSURE to wall per template.
Mount with anchors and screws provided.

CONTROL ENCLOSURE TO BE MOUNTED AT SIDE OF OPENING



STEP 8:

Install ACTIVATING DEVICES (motion detectors, etc.) according to manufacturer's instructions

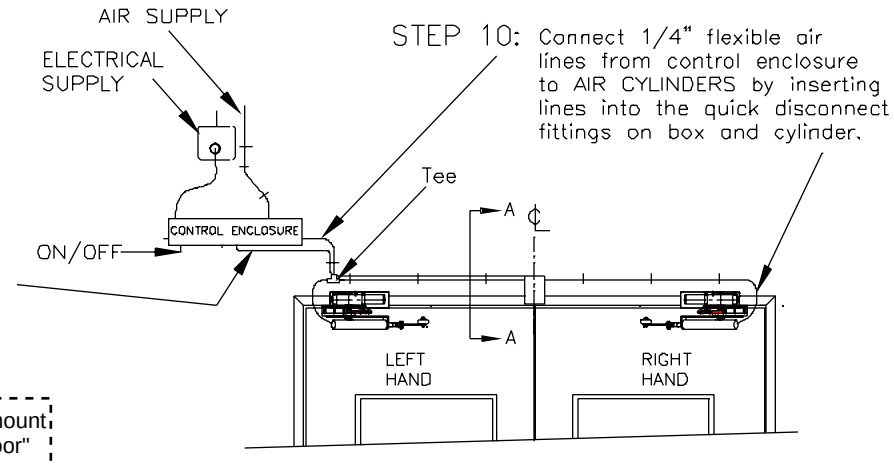


STEP 9:

Connect CONTROL ENCLOSURE to air supply and electrical supply, making sure ON/OFF switch is OFF (white showing).
NOTE: Purge or blow out air lines prior to connecting air supply to control enclosure. WARRANTY MAY BE VOIDED IF THIS STEP IS OMITTED.

STEP 10:

Connect 1/4" flexible air lines from control enclosure to AIR CYLINDERS by inserting lines into the quick disconnect fittings on box and cylinder.



STEP 11:

Wire activating and safety sensors into control panel following wiring details in section 8 and following sensor manufacturers directions.

REMINDER - Don't forget to mount the "CAUTION Automatic Door" stickers on the door(s)!

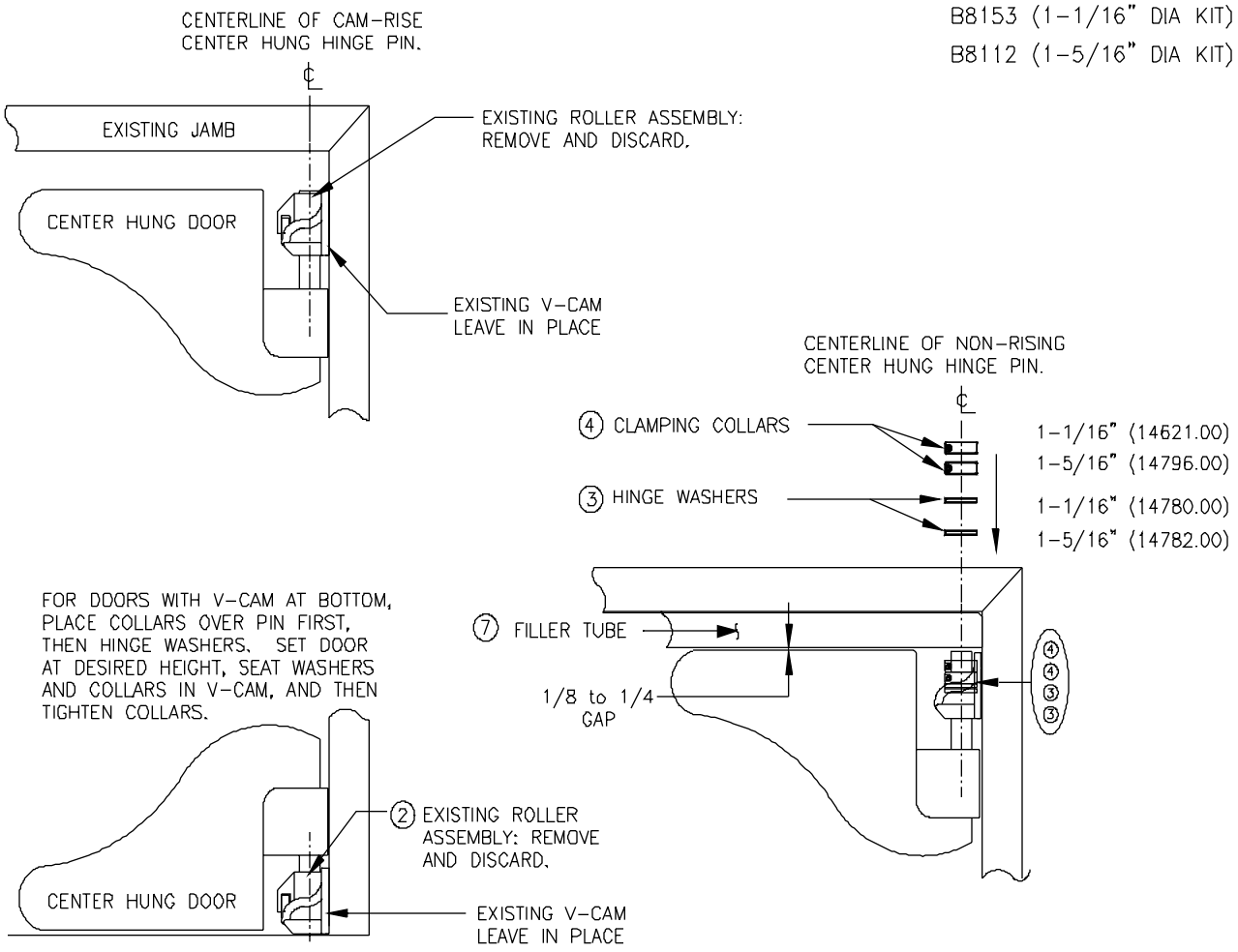
DWG. NO. DDINST26

Section 10

Instruction Sheets / Drawings

NO-RISE CONVERSION KIT INSTALLATION INSTRUCTIONS

B8153 (1-1/16" DIA KIT)
B8112 (1-5/16" DIA KIT)

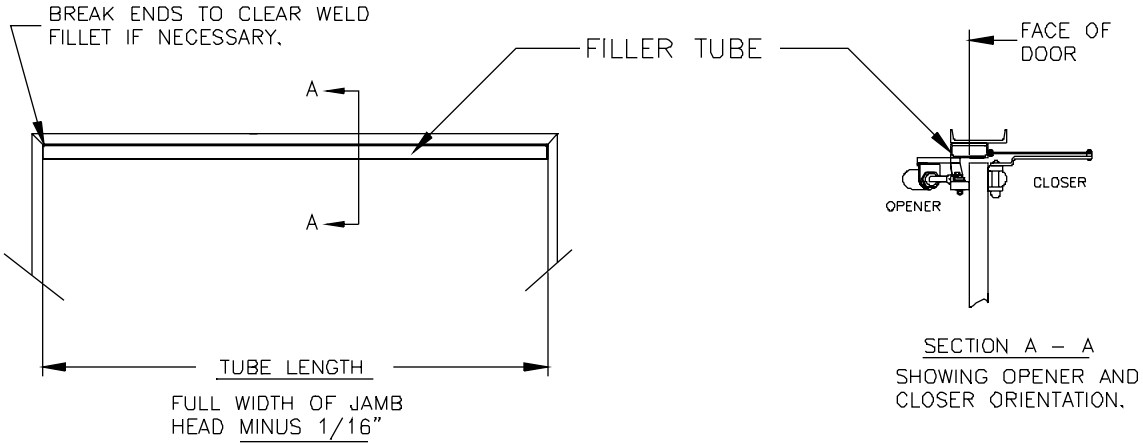


NO-RISE CONVERSION INSTALLATION PROCEDURE

1. PLACE BLOCK UNDER DOOR PANEL TO HOLD IT AT EXISTING HEIGHT.
2. REMOVE AND DISCARD EXISTING ROLLER ASSEMBLY AND SPRINGS.
3. PLACE (2) WASHERS OVER HINGE PIN AND SEAT IN BOTTOM OF V-CAM RECESS.
4. SPRAY WITH SILICONE OR OTHER PLASTIC LUBRICANT ON BOTTOM, IN BETWEEN, AND ON TOP OF WASHERS.
5. PLACE (2) CLAMPING COLLARS OVER PIN AND SEAT FIRMLY ON WASHERS. TIGHTEN SETSCREWS FIRMLY.
6. OPEN DOOR TO ENSURE BOTTOM SWEEP DOES NOT DRAG ON FLOOR, ADJUST AS NECESSARY BY REPOSITIONING CLAMP COLLARS.
7. INSTALL FILLER TUBE; SEE INSTRUCTION SHEETS/DRAWINGS SECTION. NOTE 1/8" TO 1/4" GAP BETWEEN TOP OF DOOR AND TUBE/HEAD.

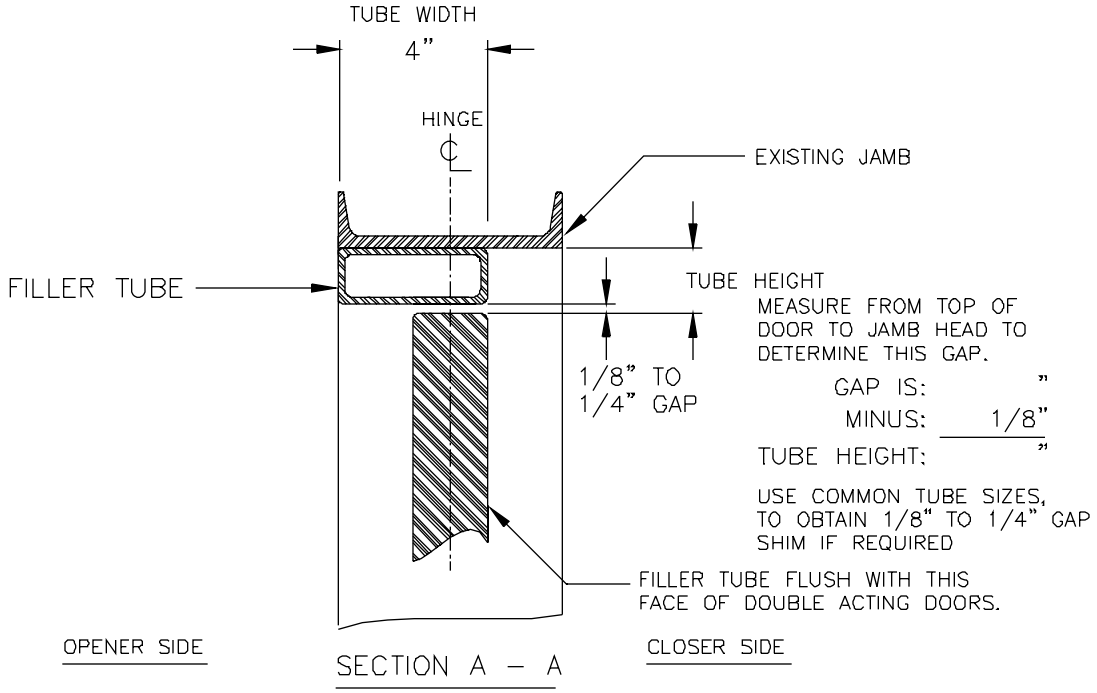
DWG. NO. DD-9011

FILLER TUBE SIZING FOR CAM-LIFT TO NO-RISE HINGE CONVERSION



FILLER TUBE TO BE: ____"WIDE x ____"HIGH x ____"LONG x 1/4" WALL RECTANGULAR STEEL TUBE

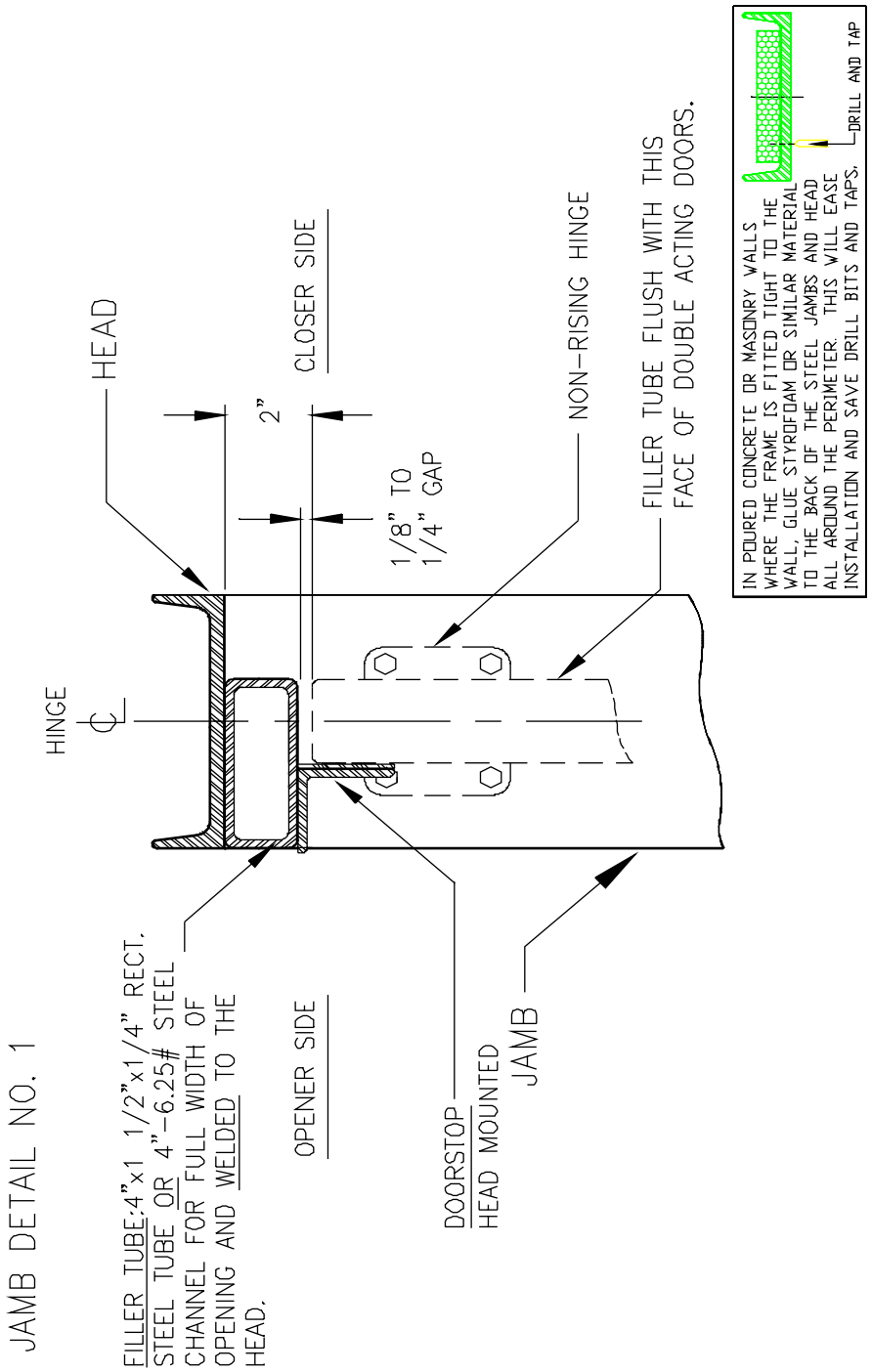
____ REQUIRED – BY OTHERS.



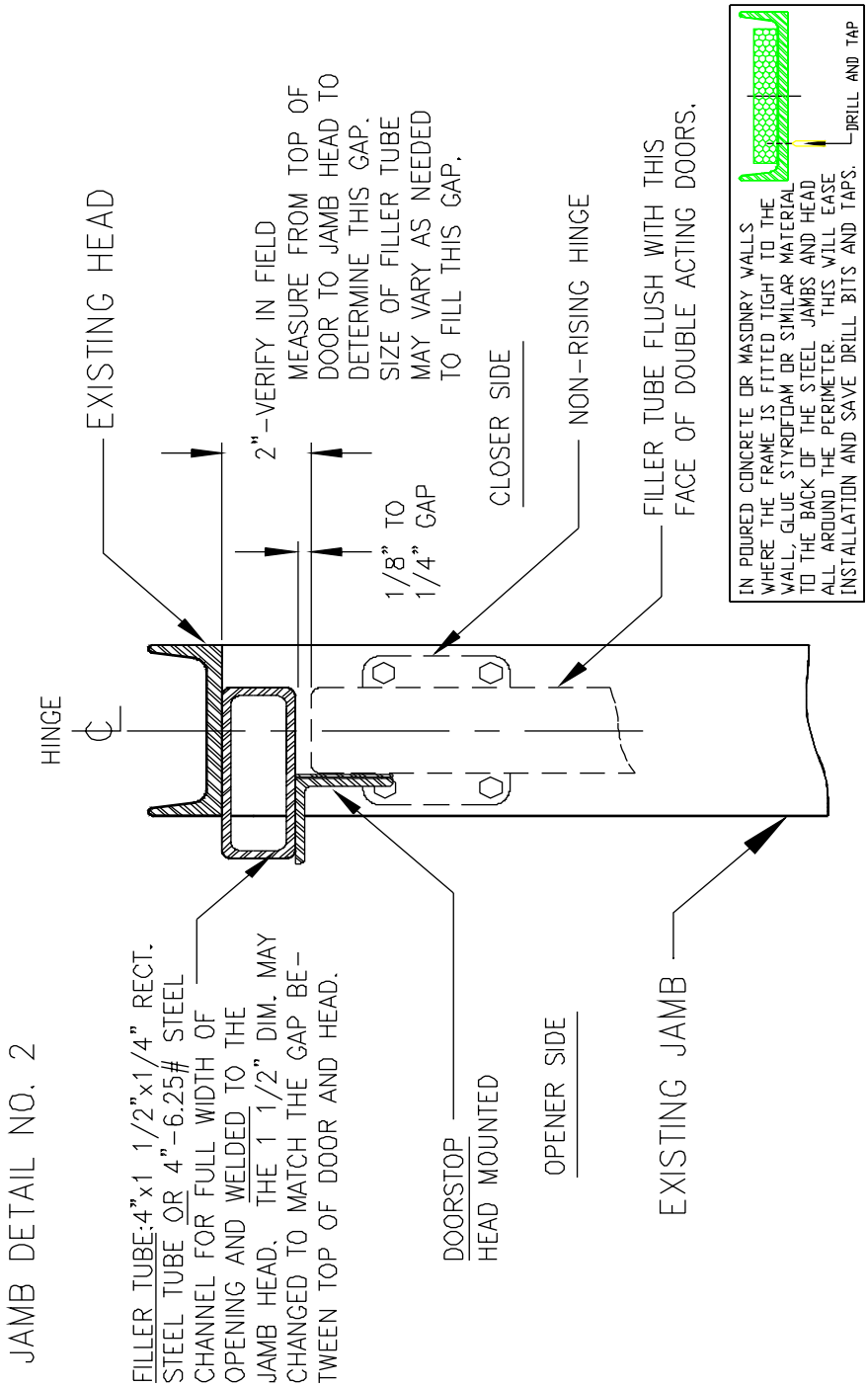
DWG. NO. DD-9012

Section 10 - Instruction Sheets / Drawings

Double Acting (Center Hung) Doors: Jamb & Head Construction Detail

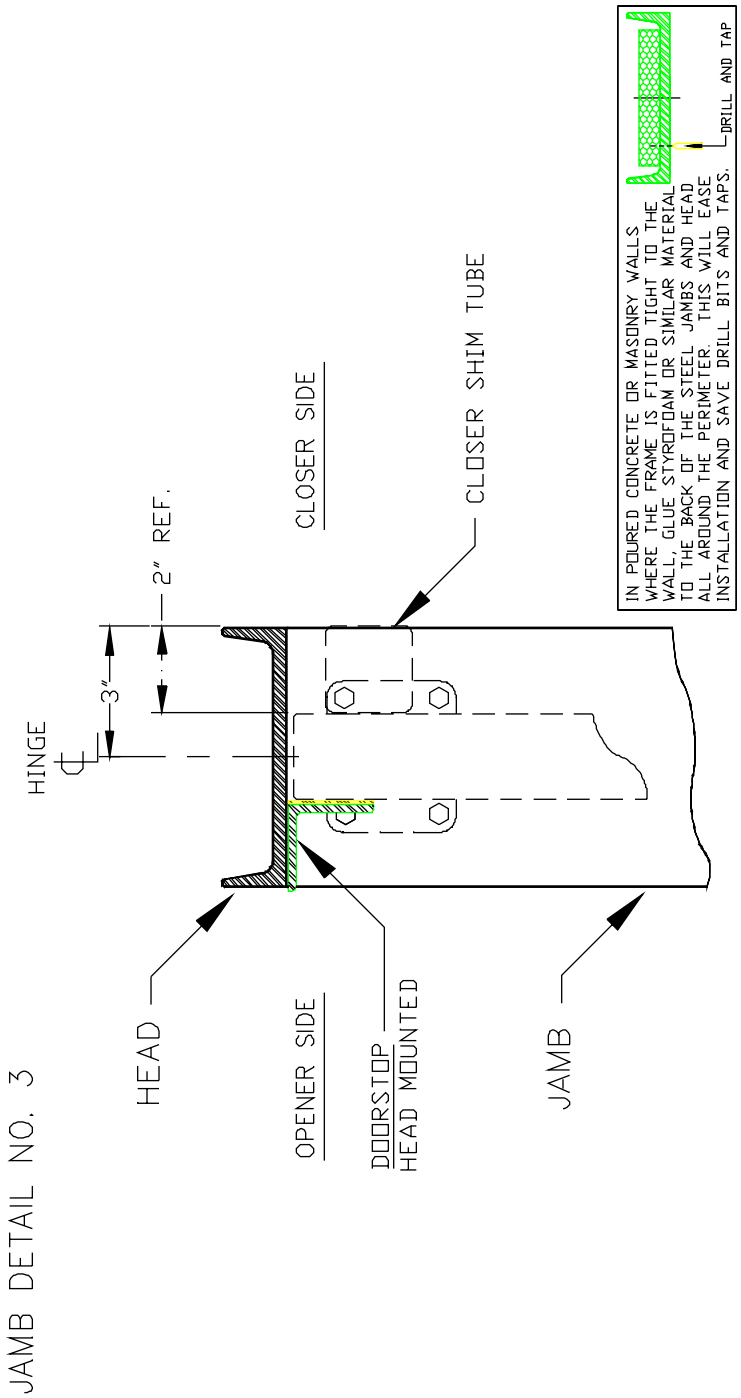


Double Acting (Center Hung) Doors: Jamb & Head Construction Detail

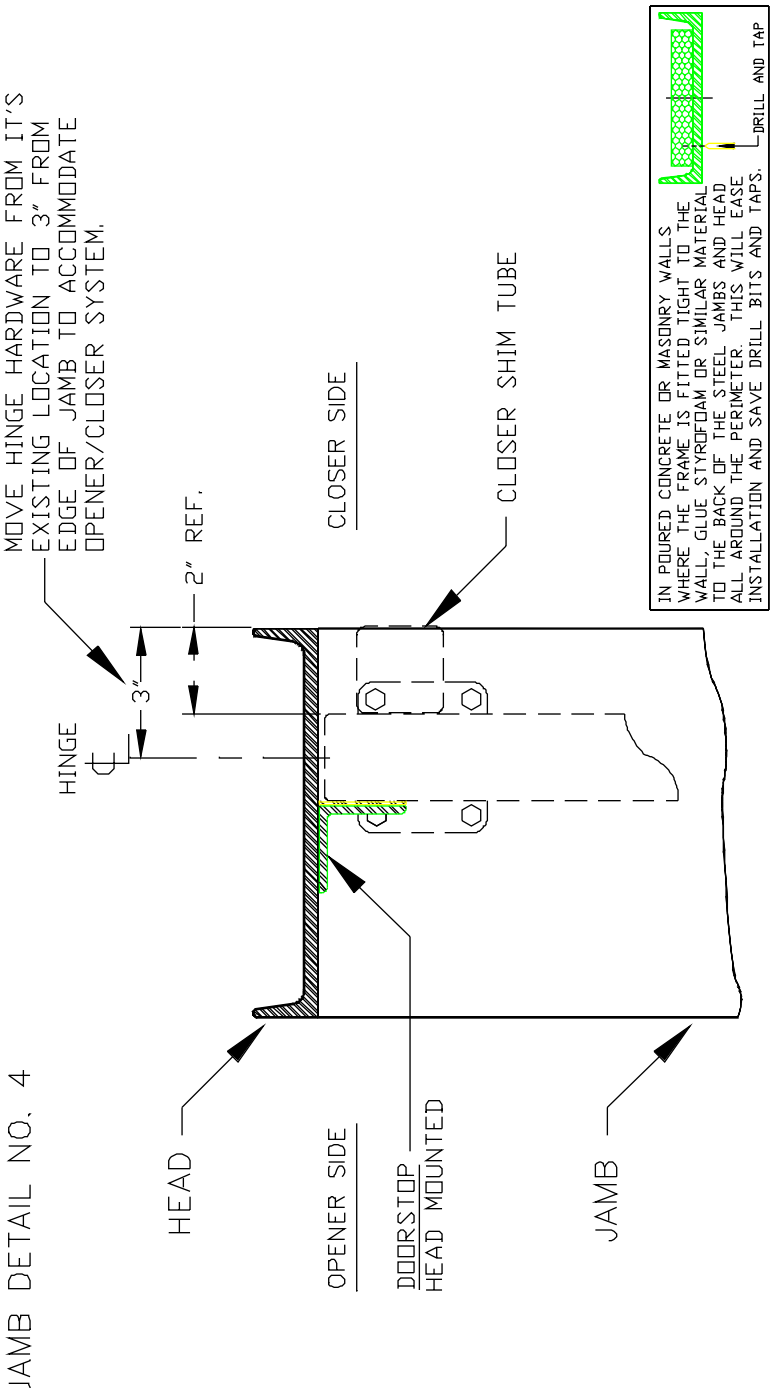


Section 10 - Instruction Sheets / Drawings

Double Acting (Center Hung) Doors: Jamb & Head Construction Detail



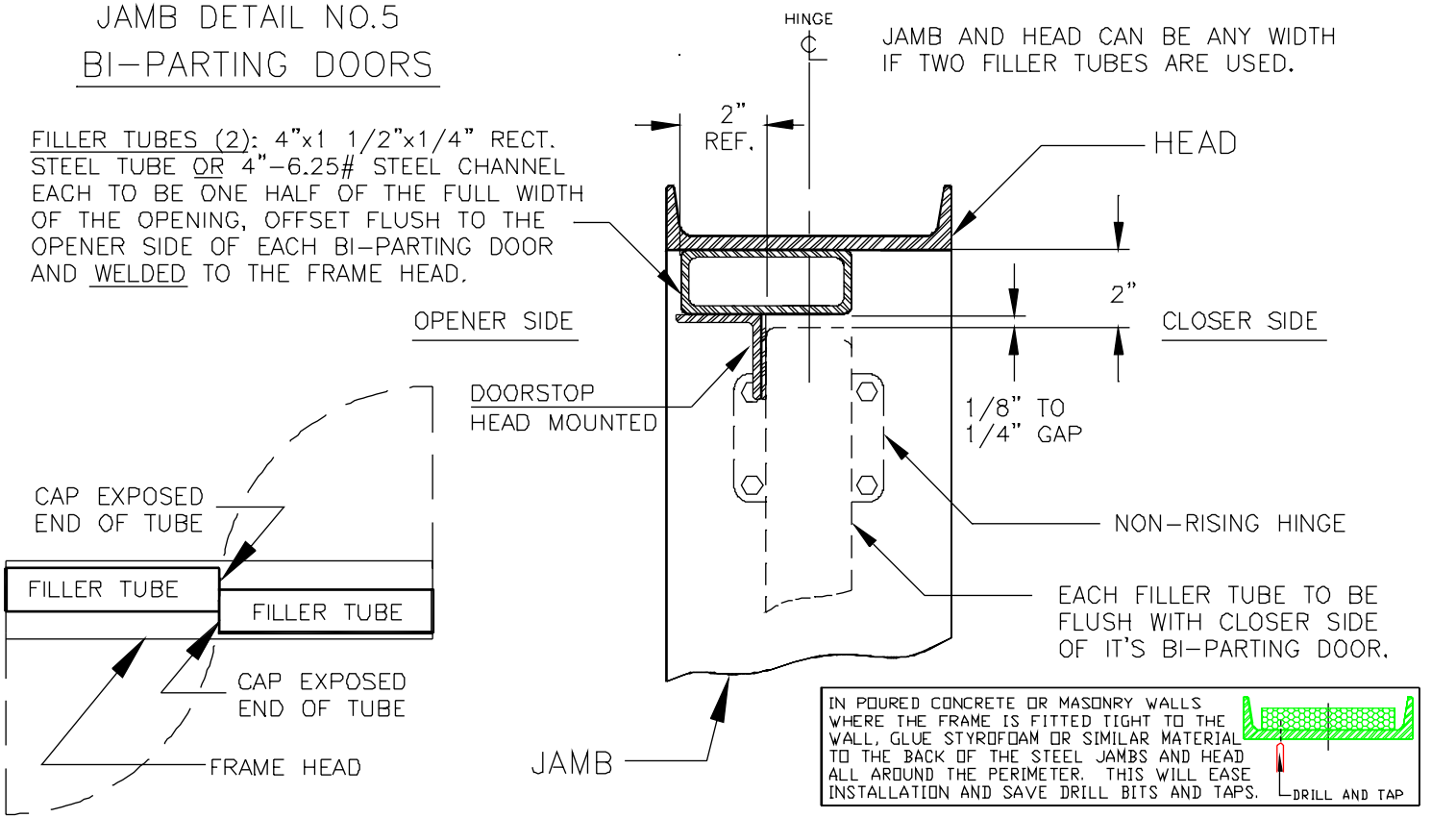
Double Acting (Center Hung) Doors: Jamb & Head Construction Detail



DOUBLE ACTING (CENTER HUNG) DOORS ; JAMB AND HEADER CONSTRUCTION DETAILS

JAMB DETAIL NO.5
BI–PARTING DOORS

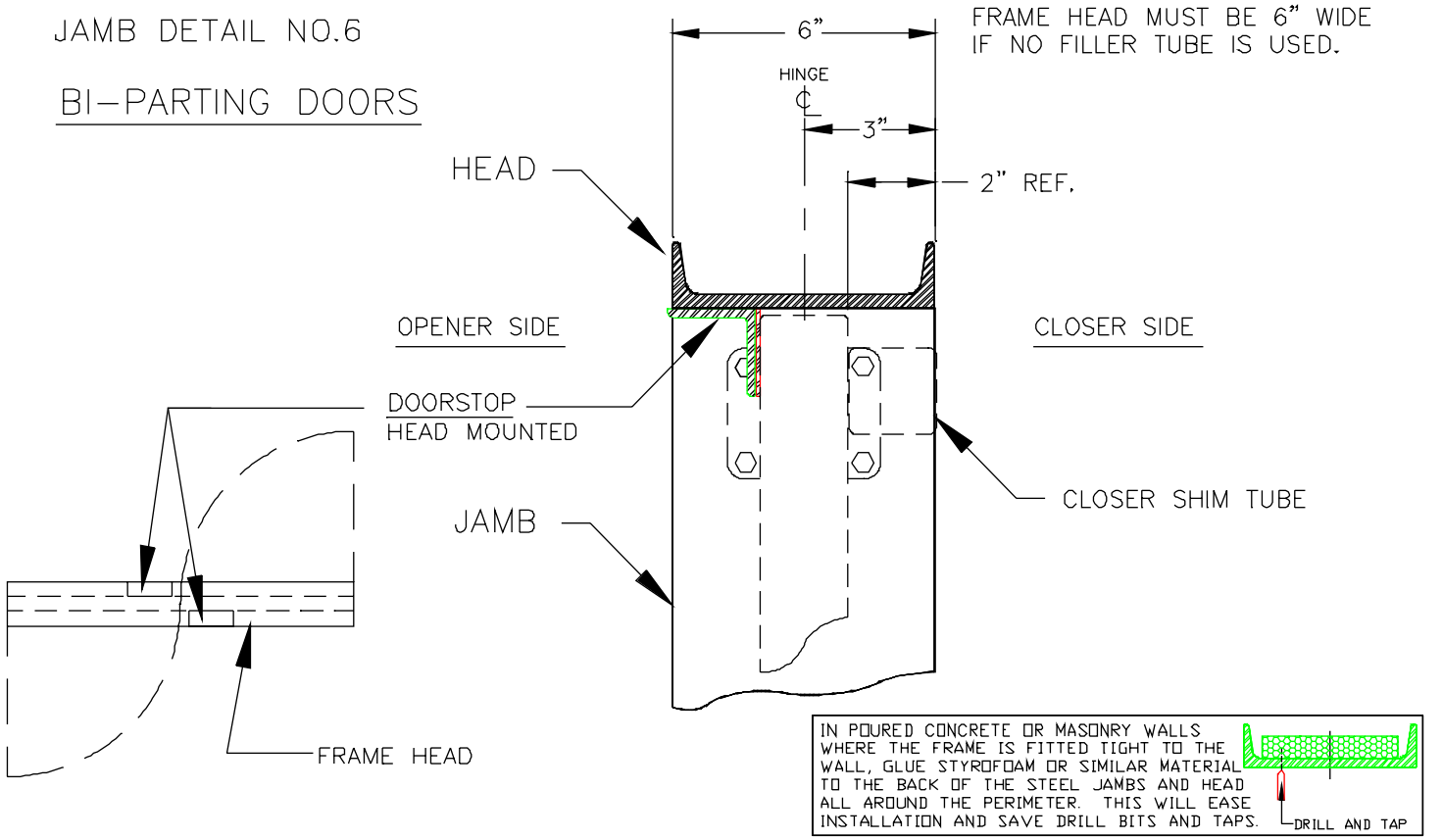
FILLER TUBES (2): 4"x1 1/2"x1/4" RECT. STEEL TUBE OR 4"–6.25# STEEL CHANNEL EACH TO BE ONE HALF OF THE FULL WIDTH OF THE OPENING, OFFSET FLUSH TO THE OPENER SIDE OF EACH BI–PARTING DOOR AND WELDED TO THE FRAME HEAD.



DD–9025a

JAMB DETAIL NO.6

BI-PARTING DOORS



DWG. NO. DD-9025

FLUSH DOORS IN RABBETTED JAMBS: T-BRACKET MOUNTING DETAILS

JAMB DETAIL NO.7

16 GAGE OR HEAVIER

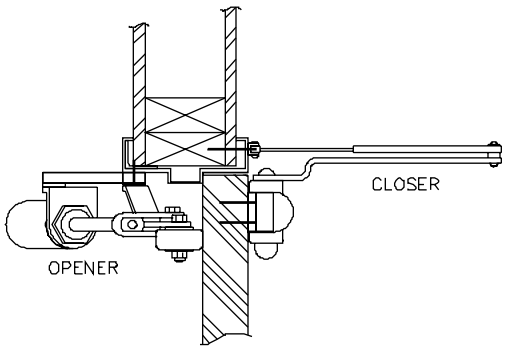
RETROFIT

PER TEMPLATE 15043.00
DRILL (4) 3/8" DIA. HOLES THRU
HEAD FOR 1/4"-20 NUT SERTS.

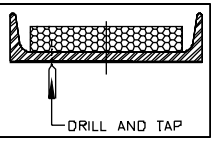
ON VERY NARROW JAMBS,
INSTALL NUT SERTS IN
RECESS.

T-BRACKET

1"

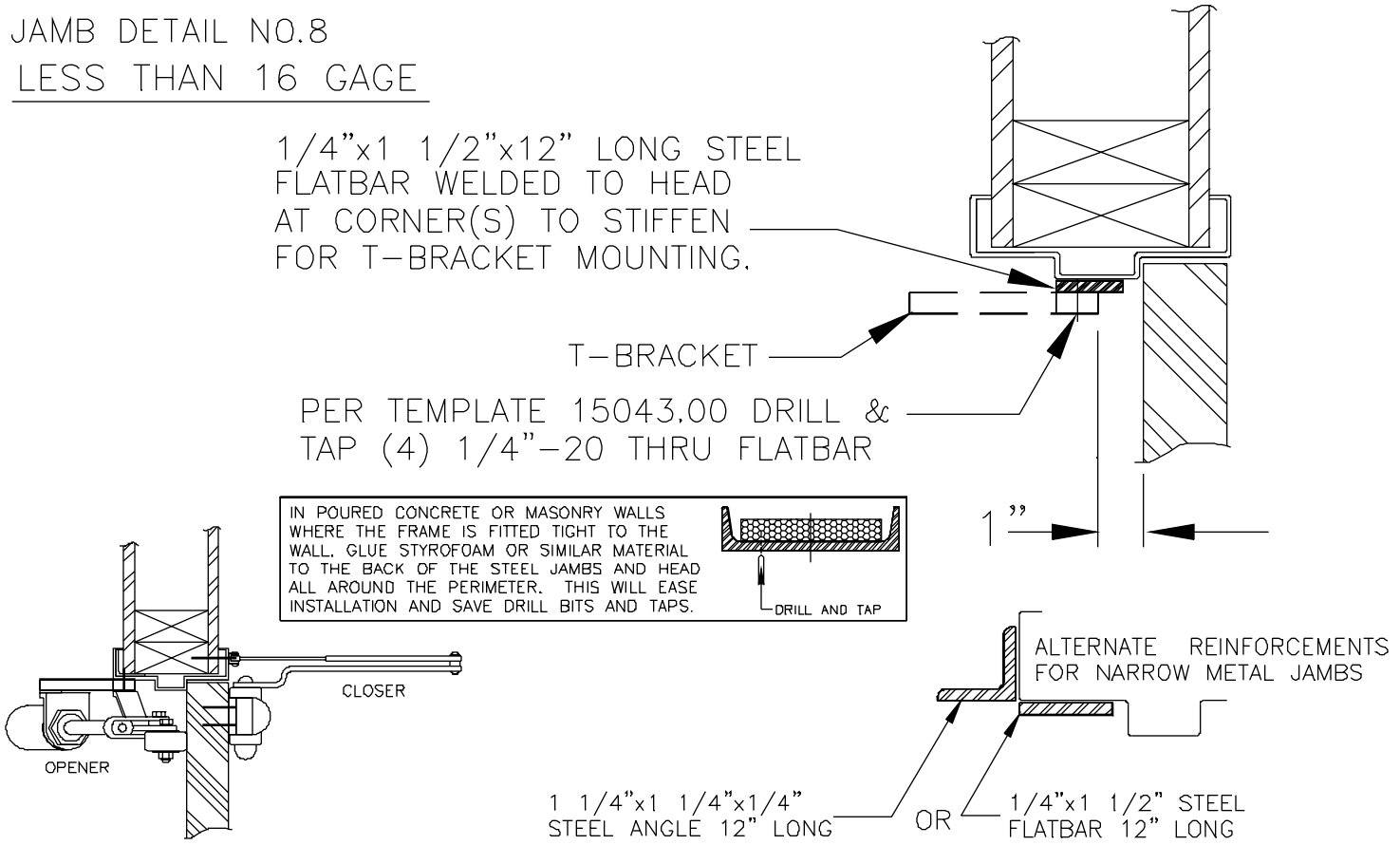


IN POURED CONCRETE OR MASONRY WALLS WHERE THE FRAME IS FITTED TIGHT TO THE WALL, GLUE STYROFOAM OR SIMILAR MATERIAL TO THE BACK OF THE STEEL JAMBS AND HEAD ALL AROUND THE PERIMETER. THIS WILL EASE INSTALLATION AND SAVE DRILL BITS AND TAPS.



DD-9028a

JAMB DETAIL NO.8
LESS THAN 16 GAGE



DWG. NO. DD-9028

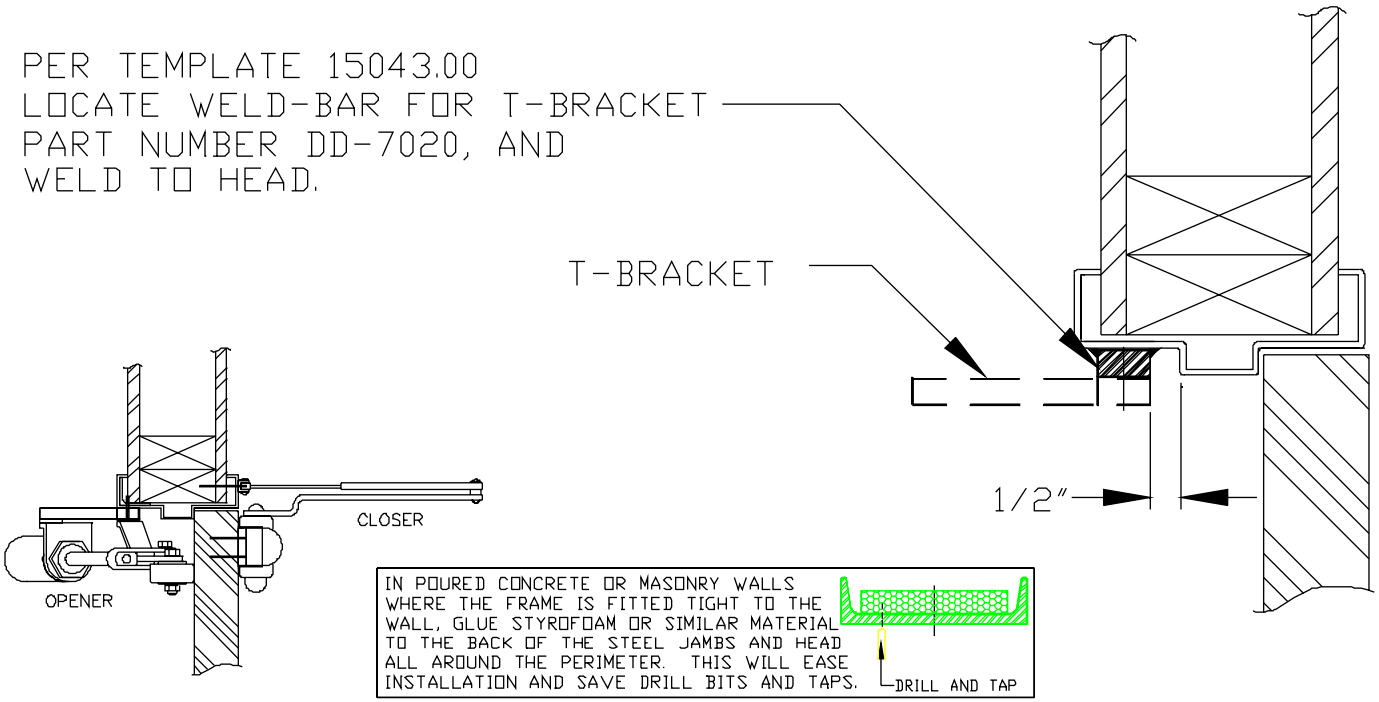
FLUSH DOORS IN RABBETTED JAMBS: T-BRACKET MOUNTING DETAILS

NEW CONSTRUCTION

JAMB DETAIL NO.9

WELD BRACKET (RECOMMENDED FOR VERY NARROW JAMBS)

PER TEMPLATE 15043.00
LOCATE WELD-BAR FOR T-BRACKET
PART NUMBER DD-7020, AND
WELD TO HEAD.



IN POURED CONCRETE OR MASONRY WALLS WHERE THE FRAME IS FITTED TIGHT TO THE WALL, GLUE STYROFOAM OR SIMILAR MATERIAL TO THE BACK OF THE STEEL JAMBS AND HEAD ALL AROUND THE PERIMETER. THIS WILL EASE INSTALLATION AND SAVE DRILL BITS AND TAPS.

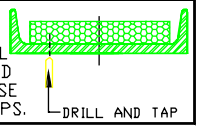
DWG. NO. DD-9029

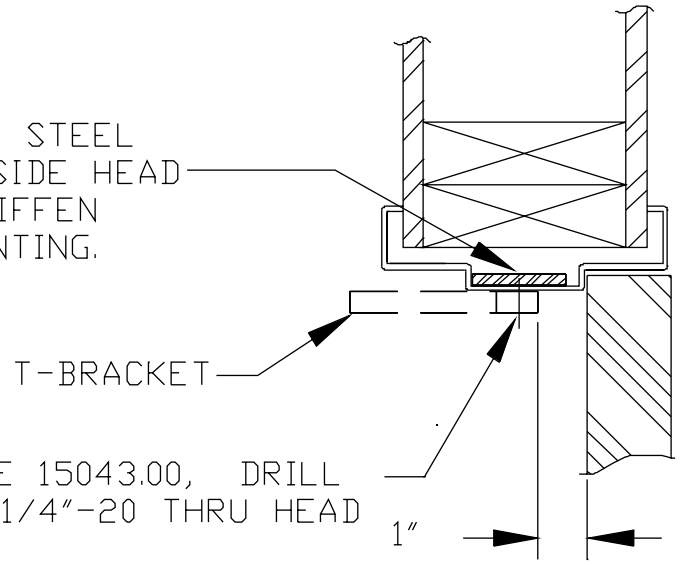
JAMB DETAIL NO.10

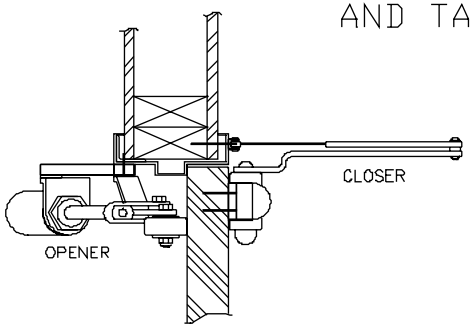
HEAD BACKING

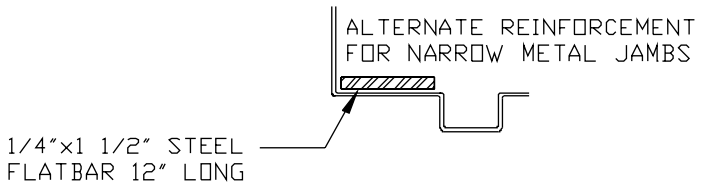
1/4"x1 1/2"x12" LONG STEEL FLATBAR WELDED INSIDE HEAD AT CORNER(S) TO STIFFEN FOR T-BRACKET MOUNTING.

IN POURED CONCRETE OR MASONRY WALLS WHERE THE FRAME IS FITTED TIGHT TO THE WALL, GLUE STYROFOAM OR SIMILAR MATERIAL TO THE BACK OF THE STEEL JAMBS AND HEAD ALL AROUND THE PERIMETER. THIS WILL EASE INSTALLATION AND SAVE DRILL BITS AND TAPS.









DWG. NO. DD-9029

Section 10 - Instruction Sheets / Drawings

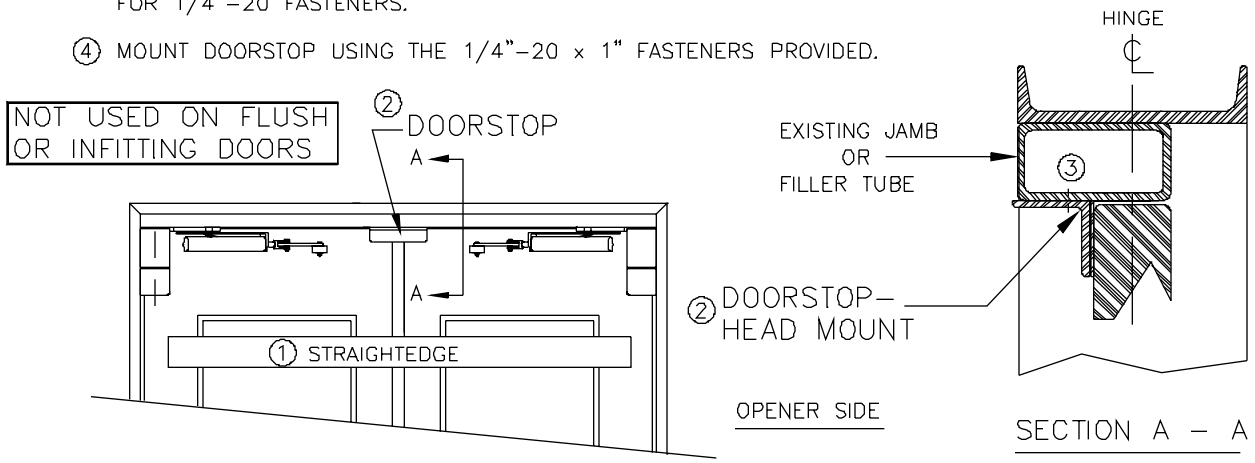
DOORSTOP – HEAD MOUNTED for CENTER HUNG DOORS ONLY

① ALIGN DOORS IN THE CLOSED POSITION BY PLACING A STRAIGHTEDGE ACROSS BOTH PANELS.

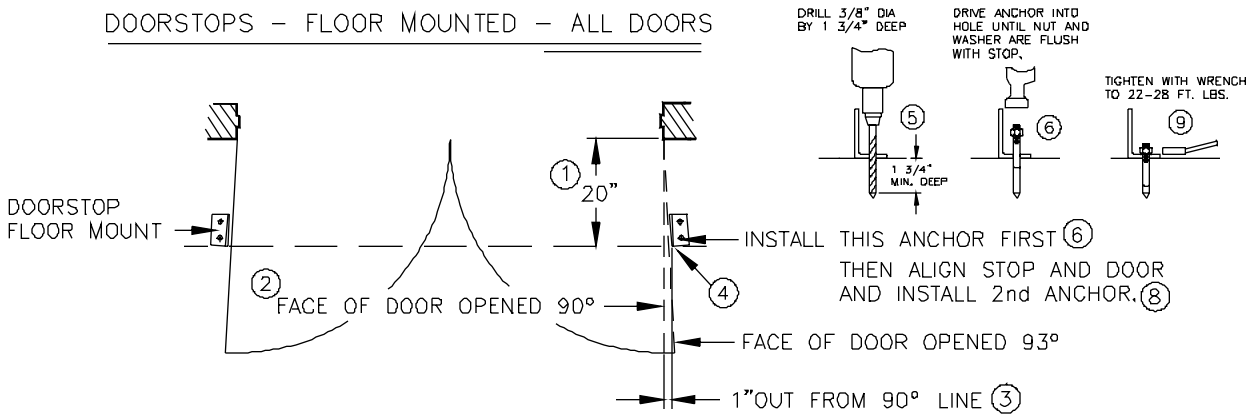
② CENTER DOORSTOP ON CENTERLINE OF OPENING OR AT MEETING EDGES OF PANELS.

③ USING HOLES IN DOORSTOP AS A TEMPLATE, MARK HOLE CENTERS, AND THEN DRILL AND TAP FOR 1/4"–20 FASTENERS.

④ MOUNT DOORSTOP USING THE 1/4"–20 x 1" FASTENERS PROVIDED.



DOORSTOPS – FLOOR MOUNTED – ALL DOORS



① MEASURE OUT FROM HINGE 20" AND STRIKE LINE PARALLEL TO WALL

② OPEN DOOR 90°, SET WITH CARPENTER'S SQUARE. MARK FACE OF DOOR @ 90° ON 20" LINE.

③ MEASURE OUT 1" ON 20" LINE FROM "FACE OF DOOR" AND MARK FOR CORNER OF STOP.

④ LOCATE CORNER OF DOORSTOP @ 20"–1" LINES AND MARK CLOSEST (OUTER) HOLE CENTER.

⑤ DRILL (1) 3/8" DIA. HOLE TO A MINIMUM DEPTH OF 1 3/4".

⑥ DRIVE ANCHOR INTO HOLE UNTIL NUT AND WASHER ARE FLUSH WITH STOP.

⑦ TIGHTEN NUT SNUG TO STOP.

⑧ OPEN DOOR AGAINST STOP AND ALIGN FACE OF STOP WITH FACE OF DOOR (NOW AT 93°). MARK 2nd. HOLE CENTER AND REPEAT STEPS 5 & 6.

⑨ TIGHTEN NUTS WITH TORQUE WRENCH TO 22–28 FT. LBS.

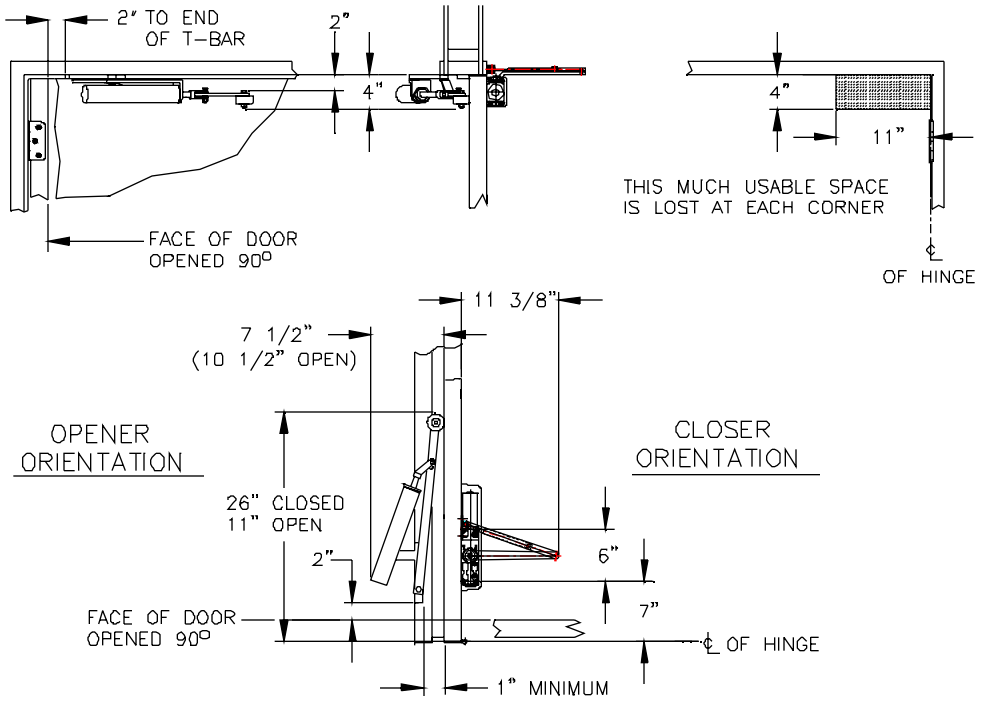
⑩ REPEAT STEPS 2 THRU 9 WITH OTHER DOOR PANEL.

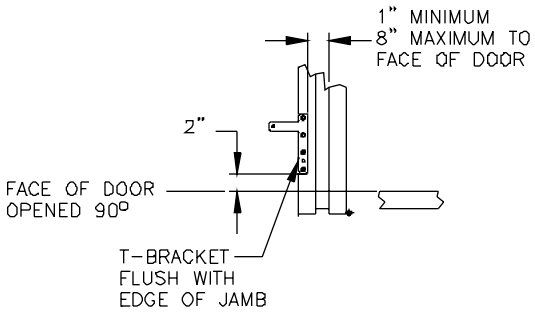
DWG. NO. DD–9013

Center Hung or Flush Installation:

OPENER/CLOSER INSTALLATION INSTRUCTIONS

BASIC COMPONENT ORIENTATION AND HOLE PATTERNS



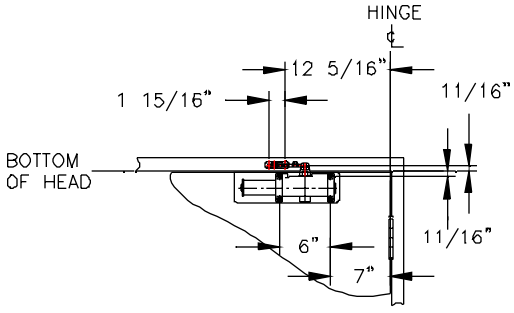


T-BRACKET MOUNTING LOCATION

USING THE TEMPLATE PROVIDED:
STEEL: DRILL AND TAP 1/4"-20

WOOD: DRILL 3/16" FOR #14 SCREWS

HOLLOW METAL JAMBS: WELD ON 1/4" ANGLE OR FLATBAR TO PROVIDE SOLID MOUNTING SURFACE.



CLOSER MOUNTING HOLE PATTERN

USING THE TEMPLATE PROVIDED:
STEEL: DRILL AND TAP 1/4"-20

WOOD: DRILL 3/16" FOR #14 SCREWS

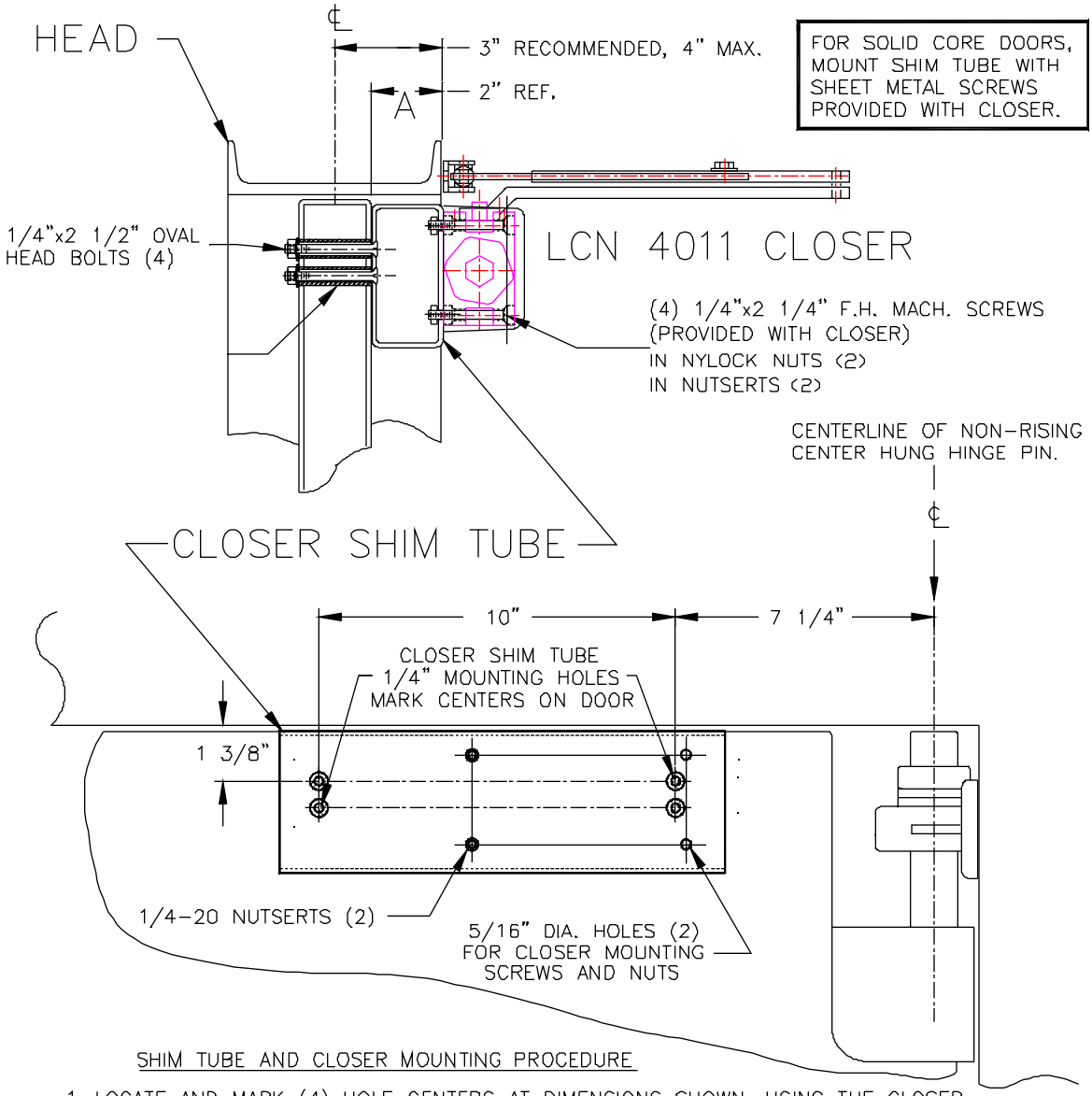
DWG NO DD-9057

INSTALLATION OF CLOSER SHIM TUBE FOR CENTER HUNG DOORS

FOR USE IF CLOSER FACE OF DOOR IS MORE THAN 1" AND LESS THAN 3" FROM FACE OF JAMB (DIM. "A").

IF DIM. "A" IS GREATER THAN 3" CONTACT FACTORY.

NEW CONSTRUCTION: MOUNT HINGES SO CENTERLINE IS 3" FROM FACE OF JAMB.

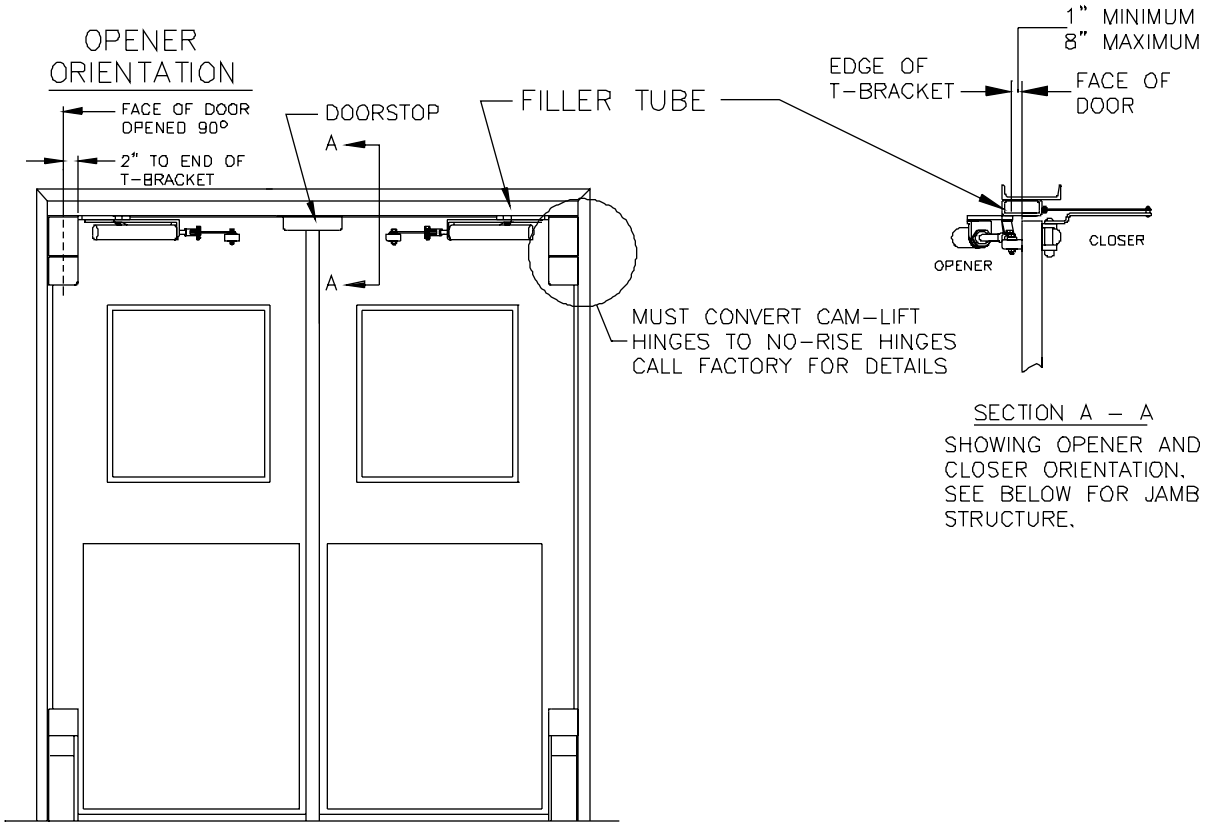


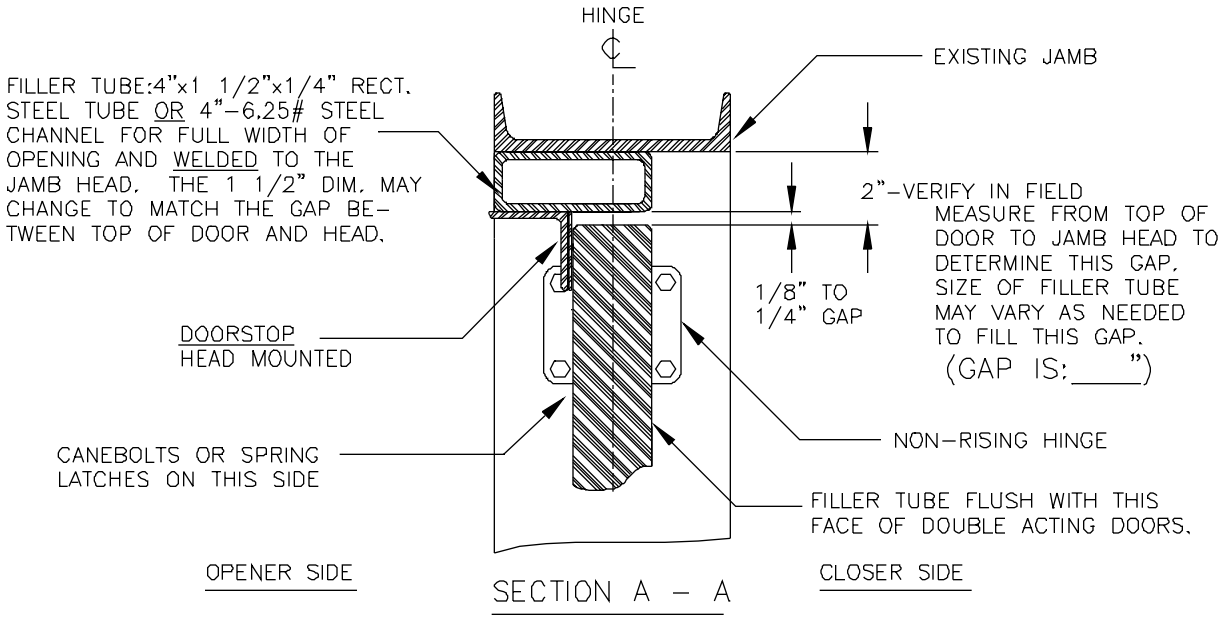
SHIM TUBE AND CLOSER MOUNTING PROCEDURE

1-LOCATE AND MARK (4) HOLE CENTERS AT DIMENSIONS SHOWN, USING THE CLOSER SHIM TUBE MOUNTING BOLT/SLEEVE INSTALLATION TEMPLATE.
2-DRILL (4) 1/2" DIA. HOLES AND INSTALL (4) STAINLESS STEEL TUBE SLEEVES.
3-MOUNT CLOSER SHIM TUBE WITH (4) 1/4"x2 1/2" BOLTS, NUTS AND WASHERS.
4-USE Closer Shim Tube Mounting Template TO LOCATE AND DRILL (2) SHOE MOUNTING HOLES IN JAMB HEAD.
5-MOUNT AND ADJUST DOOR CLOSER

DWG. NO. DD-9059

CAM–LIFT DOUBLE ACTING DOORS CONVERTED TO NO–RISE SINGLE ACTION WITH OPENER



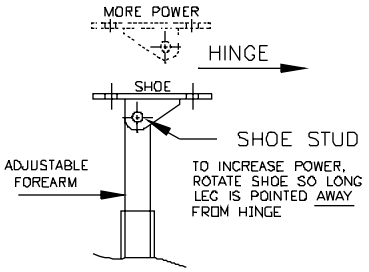


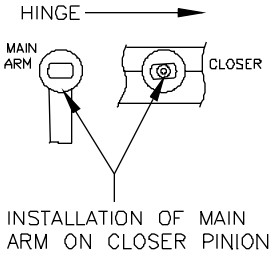
DWG. NO. DD–9004

LCN 4011 DOOR CLOSER COMPONENT INSTALLATION

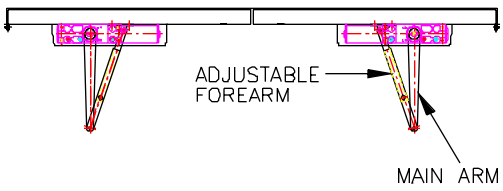
AFTER DRILLING MOUNTING HOLES WITH THE TEMPLATE PROVIDED, ORIENT AND MOUNT THE CLOSER AND THE ARM ASSEMBLY USING THE APPROPRIATE FASTENERS, THEN ADJUST CLOSER AS SHOWN IN DETAILS BELOW.

ARM ASSEMBLY ORIENTATION





OPEN DOOR TO ALLOW CONNECTING ROD TO BE INSERTED INTO ARM SLIDE. INSERT ROD AND CLOSE DOOR.
ROTATE THE MAIN ARM AWAY FROM HINGE UNTIL MAIN ARM IS PERPENDICULAR TO THE DOOR.
SECURE IN POSITION WITH FOREARM SCREW.



DOOR CLOSER ADJUSTMENTS

① THIS ADJUSTMENT IS CRITICAL FOR PROPER DOOR FUNCTION

BACKCHECK CUSHIONING
(ADJUSTMENT SCREW ON TOP AND FARTHEST FROM HINGE)

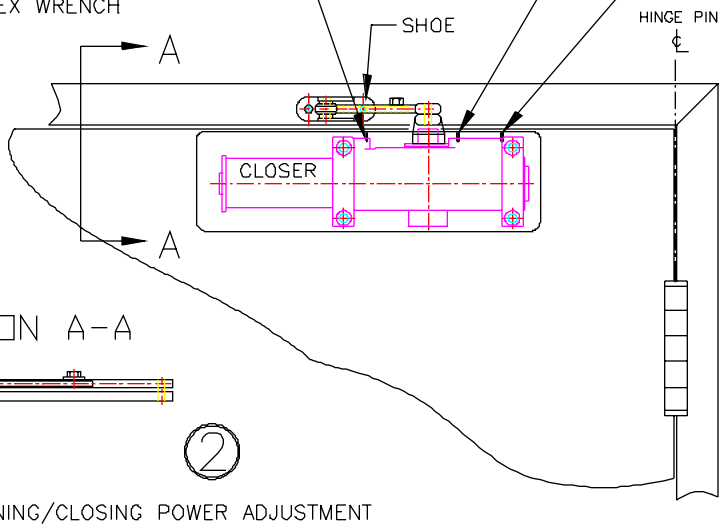
CONTROLS "CUSHION" AT END OF OPENING CYCLE. ADJUST WITH 3/32" HEX WRENCH

③ ADJUST WITH 3/32" HEX WRENCH

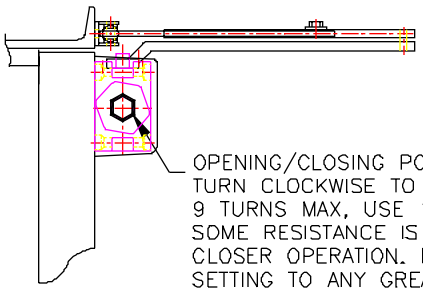
SWEEP SPEED

LATCH CHECK

IN MOST INSTALLATIONS ① IS THE ONLY ADJUSTMENT REQUIRED. MAKE ALL ADJUSTMENTS ONE AT A TIME.



SECTION A-A



② OPENING/CLOSING POWER ADJUSTMENT
TURN CLOCKWISE TO INCREASE POWER
9 TURNS MAX, USE 1/4-1/2 TURN INCREMENTS
SOME RESISTANCE IS REQUIRED FOR PROPER CLOSER OPERATION. DO NOT DECREASE FACTORY SETTING TO ANY GREAT DEGREE.

REFER TO LCN "SMOOTHEE" CLOSER INSTALLATION SHEET, DOOR MOUNTING, 101° TO 120° OPENING.

ANY QUESTIONS? CALL 1-800-305-6736

DWG. NO. DD-9061A