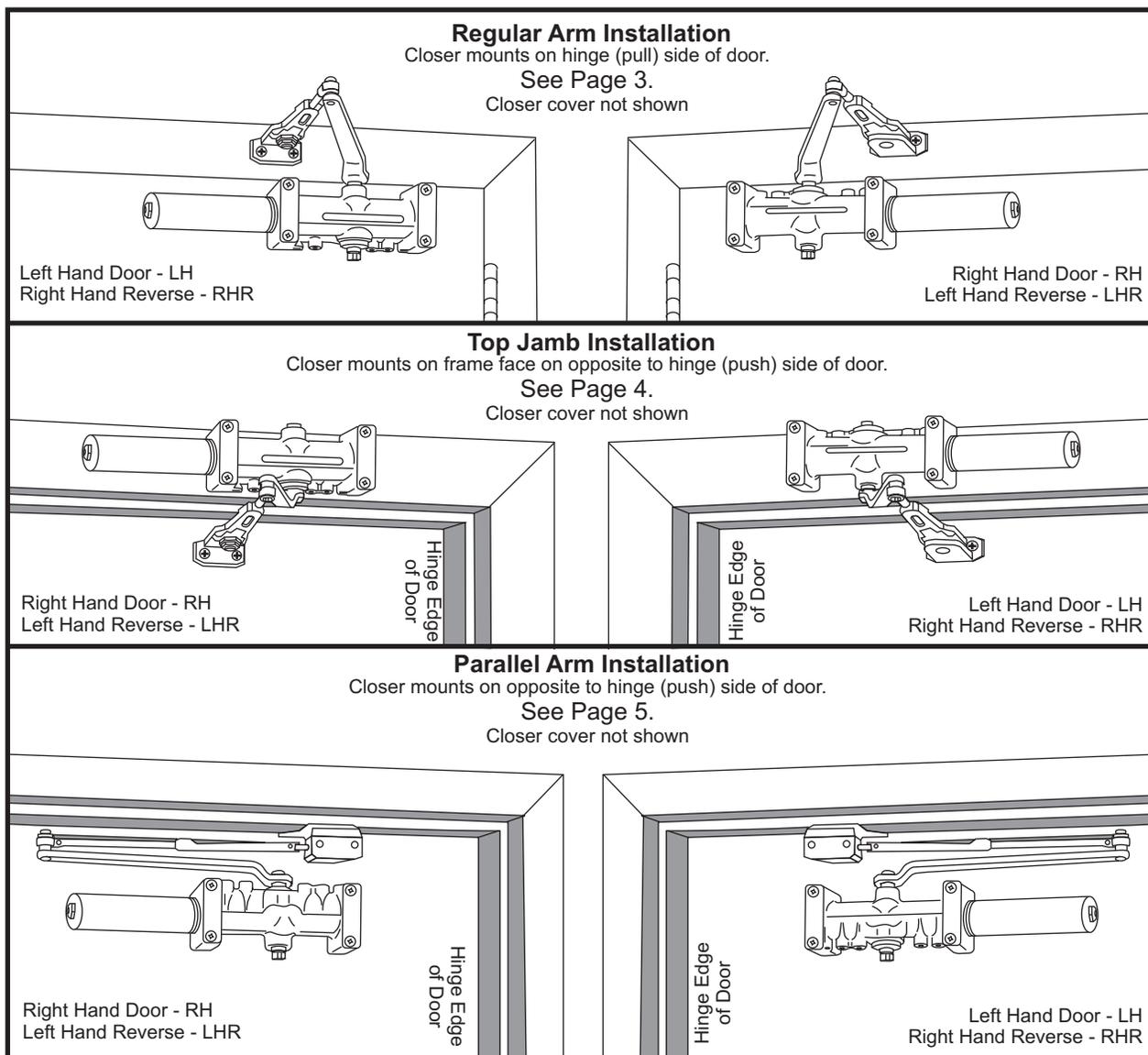


CAUTION

An incorrectly installed or improperly adjusted door closer can cause property damage or personal injury. These instructions should be followed to avoid the possibility of misapplication or misadjustment.

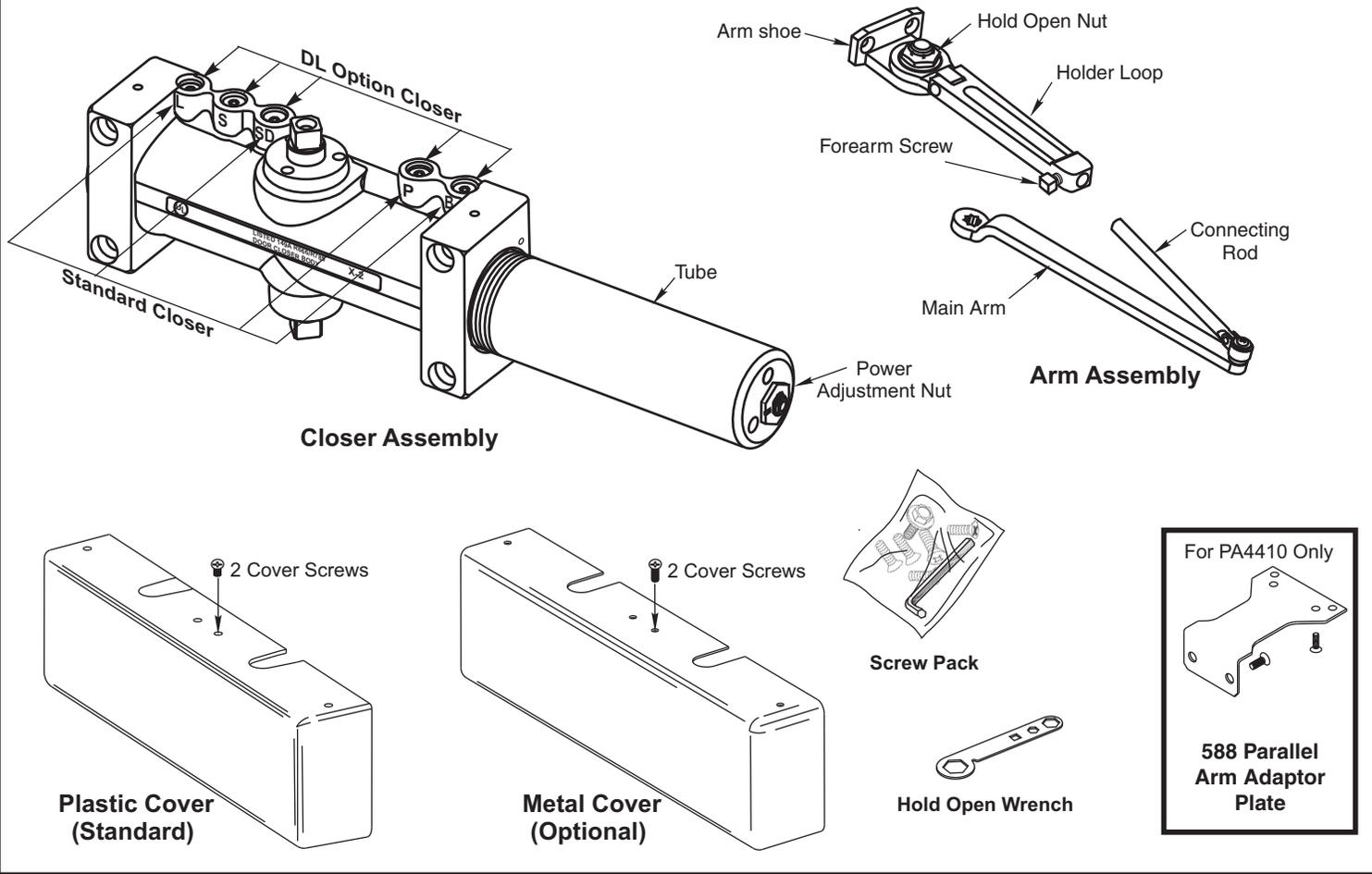
- With or without suffix "DL" (Delayed Action) closing.
- With or without suffix "M" with metal Cover.

For Special Applications a separate door and frame preparation template is packed with these instructions. Use this instruction sheet for installation sequence and closer adjustments only.



Components:

Figure 1



- It is recommended that the door, on which the door closer will be installed, be hung on ball bearing hinges. Door must swing freely.
- A separate door stop, supplied by others, is recommended to prevent damage to the door closer, closer arm; or to the door, frame or adjacent walls.
- Door and Frame must be properly reinforced, or use of special fasteners employed, to prevent the mounting screws from pulling out.
- All dimensions are given in inches with corresponding metric dimensions (millimeters) in parentheses.
- Door closer should never be installed on the exterior of a building.

Preparation for Fasteners (figure 2)			
	Fasteners	Door or Frame	Drill-Sizes
Standard	Self-Drilling Screw	Aluminum or Metal	No drill required
		Wood (see Note)	3/16" (4.30 mm)
	1/4" - 20 machine screw	Metal	Drill: #7 (0.201" dia.) Tap: 1/4" - 20
Optional	Sleeve nuts and bolts	Hollow Metal	9/32" (7 mm) through; 3/8" (9.5 mm) door face opposite to closer
		Aluminum or Wood	3/8" (9.5 mm) through
	Through-bolts and grommet-nuts	All	9/32" (7 mm); 3/8" (9.5 mm) dia. x 3/8" (9.5 mm) deep on door opposite to closer

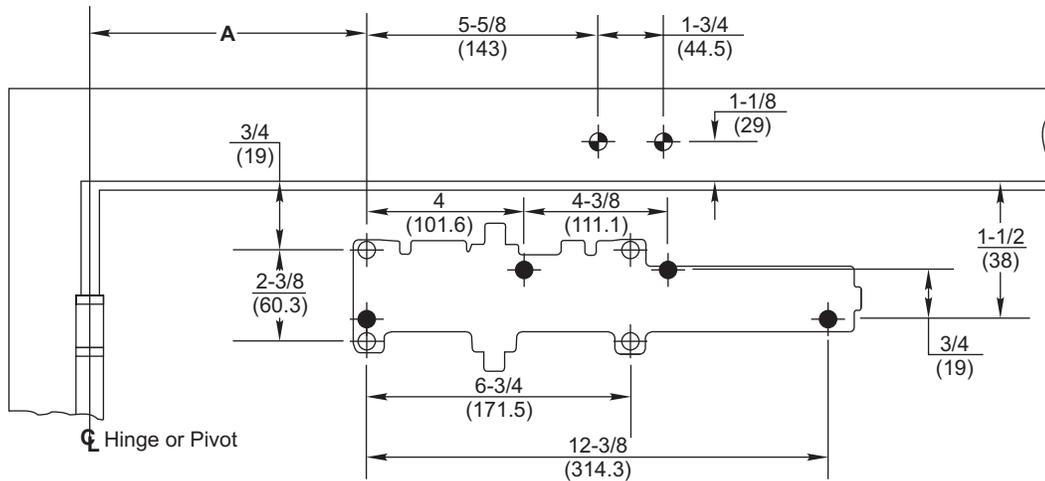
Note: Wood doors/frames. Pilot hole must be drilled when using Self-Drilling Screws.

Always consult door/frame manufacture for fastener compatibility with the material of their door/frame.

Installation Instructions

Regular Arm

Template



Do Not Scale Drawing

Right Hand Door Shown

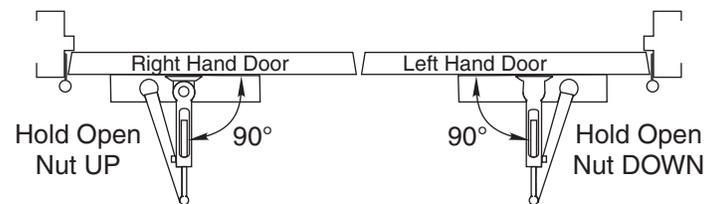
Dimensions are in inches (mm).

● 486 Backplate Mounting Hole Only

Opening	Dimension A	
	inches	mm
To 100°	7-5/8	194
101° to 120°	6-5/8	168
121° to 150°	4-5/8	117
151° to 180°	4-1/8	105

Installation Sequence

- Select angle of opening and use dimensions shown in template and chart to locate 4 holes \oplus on door for closer body (or 4 holes \bullet for optional 486 backplate) and 2 holes \oplus on frame face for arm shoe. For applications that are different from above, a separate template will be supplied for door and frame preparation.



- Prepare door and frame for fasteners using "Preparation for Fasteners" chart, Figure 2, Page 2.
- Fasten optional 486 backplate to door, only if it is required for the door conditions.

- Make closer adjustments, if required, using information below and on Page 6, then install closer cover.

- Set closing power NOW using "Power Adjustment Chart" to the right or set upon completion of installation.

- Install closer body with tube end **away** from hinge, with valves:

Down for **Left Hand** door

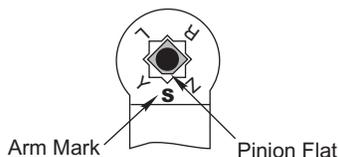
UP for **Right Hand** door.

- Fasten arm shoe (with Holder Assembly) Figure 1, Page 2 to frame face with hold open nut:

UP for **Right Hand** door

Down for **Left Hand** door

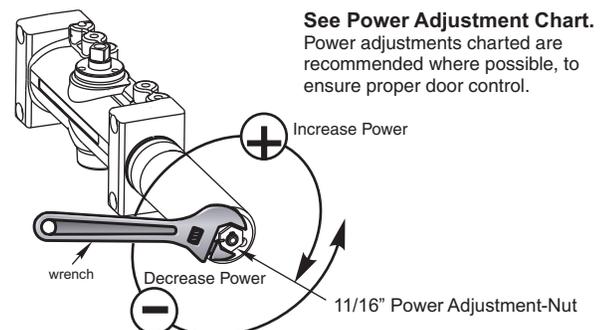
- Install main arm onto closer pinion shaft, aligning arm mark "S" with the one flat corner of the square shaft "Pinion Flat", see illustration below. Secure with hex washerhead main arm screw.



Power Adjustment Chart		
Maximum Interior Door Size inches (mm)	Maximum Exterior Door Size inches (mm)	Full Clockwise Turns of Closer Power Adjustment Nut (from "0" turns)
32 (0.81)	28 (0.70)	5
36 (0.91)	34 (0.86)	8-1/2
42 (1.07)	38 (.96)	11
52 (1.32)	42 (1.07)	13-1/2
60 (1.52)	48 (1.22)	16-1/2

NOTE: Maximum of 16-1/2 turns (360°) of Power Adjustment Nut. Closer is shipped set at 8 turns from the factory.

- Open door slightly to slide connecting rod into holder loop unit. Close door and rotate arm away from hinge until connecting rod and holder loop unit are perpendicular (at a 90° angle) to door. Tighten forearm screw.



See Power Adjustment Chart. Power adjustments charted are recommended where possible, to ensure proper door control.

Installation Instructions

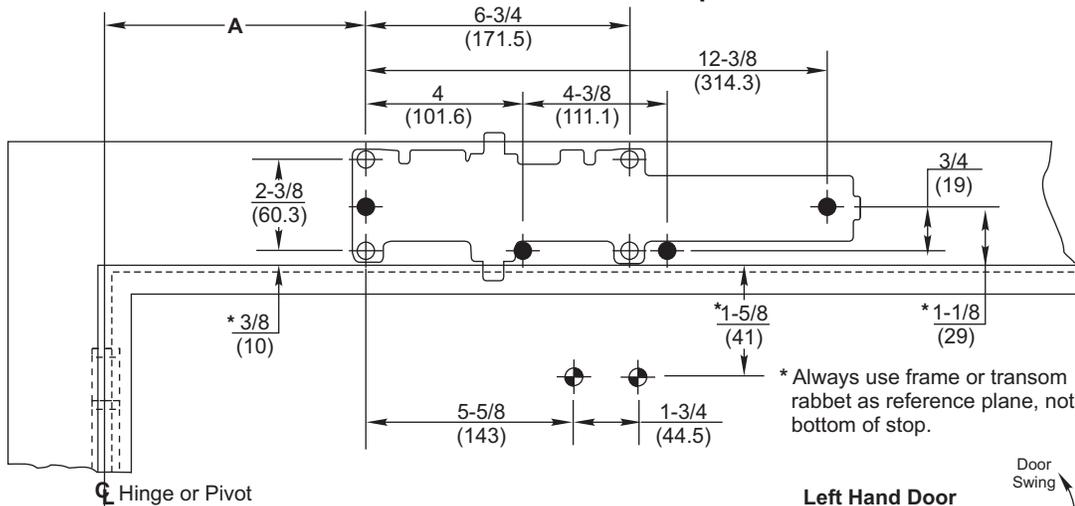
Top Jamb Template

Do Not Scale Drawing

Left Hand Door Shown

Dimensions are in inches (mm).

● 486 Backplate Mounting Hole Only



Opening	Dimension A	
	inches	mm
To 100°	7-5/8	194
101° to 120°	6-5/8	168
121° to 150°	4-5/8	117
151° to 180°	4-1/8	105

* Always use frame or transom rabbet as reference plane, not bottom of stop.

Installation Sequence

- Select angle of opening and use dimensions shown in template and chart to locate 4 holes \oplus on frame for closer body (or 4 holes \bullet for optional 486 backplate) and 2 holes \bullet on door for arm shoe. For applications that are different from above, a separate template will be supplied for door and frame preparation.

- Prepare door and frame for fasteners using "Preparation for Fasteners" chart, Figure 2, Page 2.
- Fasten optional 486 backplate to frame, only if it is required for the frame conditions.
- Set closing power NOW using "Power Adjustment Chart" to the right or set upon completion of installation.

- Install closer body with tube end **away** from hinge, with valves:

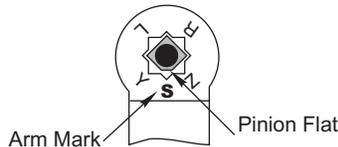
Up for **Left Hand** door
Down for **Right Hand** door.

- Fasten arm shoe (with holder loop) Figure 1, Page 2 to door face with hold open nut:

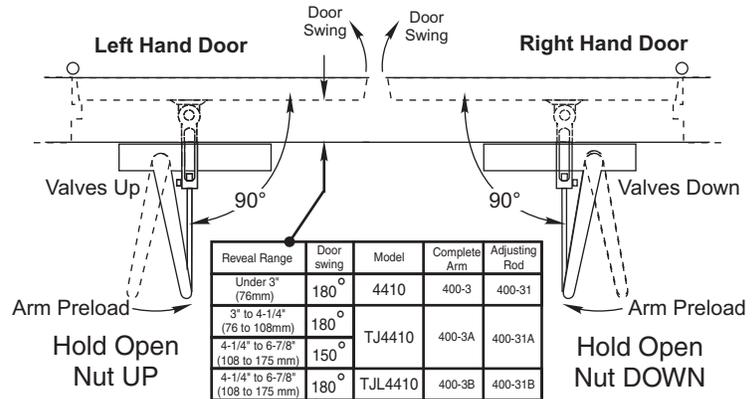
Down for **Right Hand** door
Up for **Left Hand** door

Note that a longer connecting rod or different arm might be required for your frame conditions, see illustration with "Reveal Range" chart to the right.

- Install main arm onto closer pinion shaft, aligning arm mark "S" with the one flat corner of the square shaft, "Pinion Flat", see illustration below. Secure with hex washerhead main arm screw.



- Open door slightly to slide connecting rod into holder loop unit. Close door and rotate arm away from hinge until connecting rod and holder loop unit are perpendicular (at a 90° angle) to door. Tighten set screw.

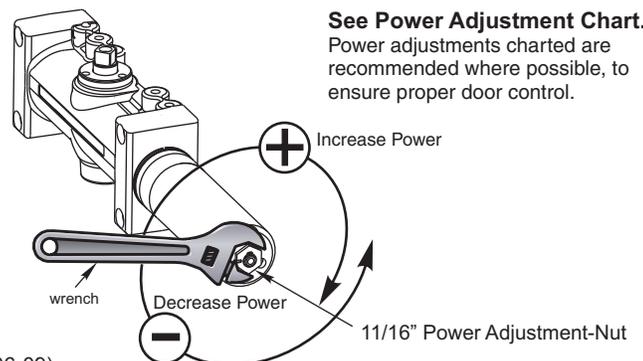


- Make closer adjustments, if required, using information below and on Page 6, then install closer cover.

Power Adjustment Chart		
Maximum Interior Door Size	Maximum Exterior Door Size	Full Clockwise Turns of Closer Power Adjustment Nut (from "0" turns)
inches (mm)	inches (mm)	
32 (0.81)	28 (0.70)	5
36 (0.91)	34 (0.86)	8-1/2
42 (1.07)	38 (.96)	11
52 (1.32)	42 (1.07)	13-1/2
60 (1.52)	48 (1.22)	16-1/2

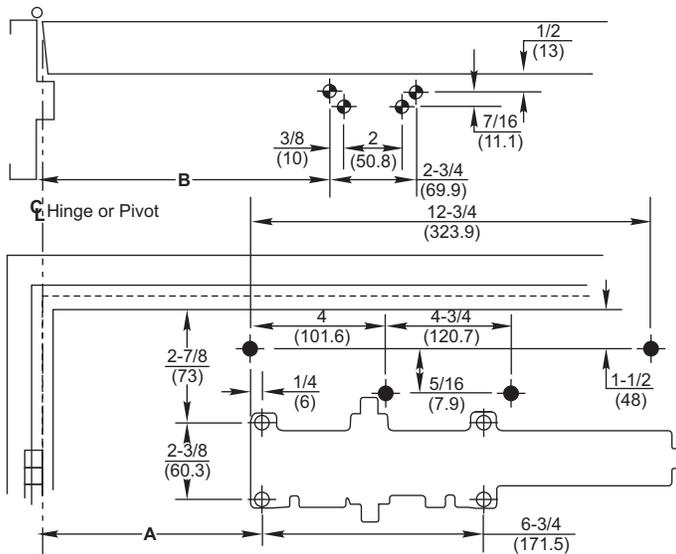
NOTE: Maximum of 16-1/2 turns (360°) of Power Adjustment Nut. Closer is shipped set at 8 turns from the factory.

See Power Adjustment Chart. Power adjustments charted are recommended where possible, to ensure proper door control.



Installation Instructions

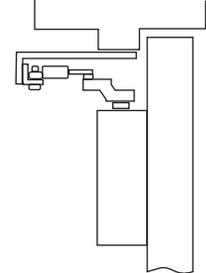
Parallel Arm Template



Opening	Dimension A		Dimension B	
	inches	mm	inches	mm
To 100°	8-3/4	222	9-1/4	235
101° to 130°	7-1/4	184	7-3/4	197
131° to 150°	6-1/4	159	6-3/4	171
151° to 180°	5-1/4	133	5-3/4	146

Do Not Scale Drawing
Left Hand Door Shown
Dimensions are in inches (mm).

● 488 Dropplate
Mounting Hole Only



Installation Sequence

- Select angle of opening and use dimensions shown in template and chart to locate 4 holes \odot on door for closer body (or 4 holes \bullet for optional 488 dropplate) and 4 holes \odot on underside of frame for soffit plate.
For applications that are different from above, a separate template will be supplied for door and frame preparation.

- Prepare door and frame for fasteners using "Preparation for Fasteners" chart, Figure 2, Page 2.
- Fasten optional 488 dropplate to door, only if it is required for the door conditions.
- Set closing power NOW using "Power Adjustment Chart" to the right and on page 6 or set upon completion of installation.

- Install closer body with tube end **away** from hinge, with valves:

Down for **Left Hand** door

UP for **Right Hand** door.

- Fasten soffit plate to frame.

- Install arm shoe (with holder loop) onto soffit plate with hold open nut:

UP for **Right Hand** door

Down for Left Hand door

Secure with screw assembly from screw pack.

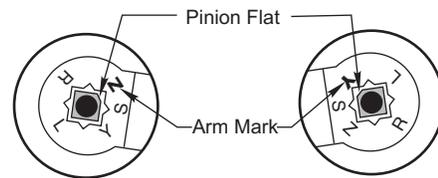
- Install main arm onto closer pinion shaft using information below and above right illustration. The one flat corner of the square shaft "**Pinion Flat**", must be aligned with the corner mark on arm:

Arm mark "**Y**" for Right Hand door

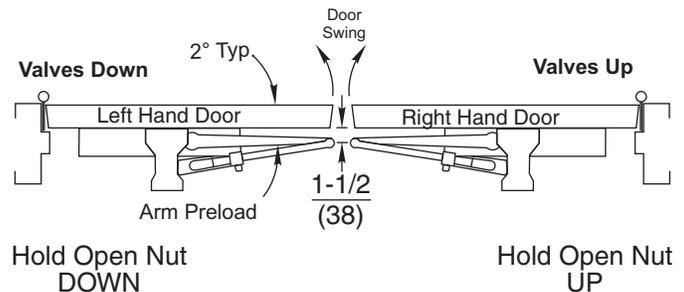
Arm mark "**Z**" for Left Hand door

This requires that the pinion shaft be rotated approximately 50 degrees to get correct alignment .

- Secure with hex washerhead main arm screw.



- Open door slightly to slide connecting rod into holder loop unit. Close door and pull arm away from door face so elbow is 1-1/2" (38mm) off of door face. Tighten set screw in holder loop.



- Make closer adjustments, if required, using information below and on Page 6, then install closer cover.

Power Adjustment Chart		
Maximum Interior Door Size	Maximum Exterior Door Size	4410 Series Only
		Full Clockwise Turns of Closer Power Adjustment Nut (from "0" turns)
30 (0.76)	26 (0.66)	7
34 (0.86)	30 (0.76)	9
38 (.96)	36 (.91)	12-1/2
48 (1.22)	42 (1.07)	14-1/2
54 (1.37)	48 (1.22)	16-1/2
NOTE: Maximum of 16-1/2 turns (360°) of Power Adjustment Nut. Closer is shipped set at 8 turns from the factory.		

Unit Adjustment

Closing Speed Controls (Figure 1A or 1B and 2.)

- Valve "S" Controls Sweep Range.
- Valve "L" Controls Latch Range.
- Optional Valve "D" Controls Delay Range.

Closing Speed Controls Figure 1

Standard Closing Cycle 1A

Delayed Action Closing Cycle 1B

Adjust Closing Speed Time to between 3 to 7 second from 90°. Use of the door by handicapped, elderly or small children may require greater closing time.

Closing Speed Controls Figure 2

Standard Closer

Delayed Action Closer

Do not force valves counter-clockwise out of closer body or a fluid leak will occur.

Slow

Fast

All Valves

Closing Power Control (Figure 3)

- Adjust as required (see Power Adjustment Charts on pages 3, 4, & 5).

Closing Power Control Figure 3

Wrench

11/16" Power Adjustment-Nut

Increase Power

Decrease Power

Opening Door Control (Figure 4.)

- Backcheck ("B") valve controls the hydraulic resistance to door opening. NEVER close this valve completely – it is not to provide a positive stop.
- Backcheck position ("P") valve controls the door angle where backcheck cushioning starts. Valve normally closed.

Opening Door Controls Figure 4

Opening Cycle

Backcheck Figure 5

Backcheck Position

1/8" Hex Key

"P" (Normally Closed)

Open for backcheck later in door-opening cycle.

Backcheck Cushion

Increase

1/8" Hex Key

Decrease

"B" (NEVER Close Completely)

Do not force valves counter-clockwise out of closer body or a fluid leak will occur.

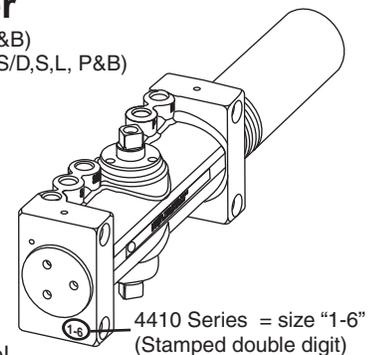
Hold Open

Hold door open to opening angle desired and tighten holder-adjustment-nut (wrench supplied) or use 1" Box or Open End wrench.

Identify Door Closer

Standard 4410 = 4 valves (S/D, L, P&B)
 Delayed Action 4410DL = 5 valves (S/D,S,L, P&B)

Old models may be stamped "1-4" or "2-6". They can be replaced with the new "1-6" model.



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