

# TS93 EMF T/PT/TDE

Surface applied door closer

Pull side (T), push side (PT), and double egress track (TDE)  
mount closer (no smoke detector)

## Installation instructions

08280591 – 03-2020

| EN |















dormakaba 

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# 1 Technical specifications

## 1.1 Overview

-  Drawing is not to scale.
-  Dimensions are in inches/[mm].
-  Hand door – see image note.
-  Caution: sex nuts are required for attachment of components to unreinforced doors and to wood or plastic faced composite type fire doors, unless an alternative method is identified in the individual door manufacturer’s listings.
-  Template is for 4-1/2 x 4-1/2 butt hinges & 3/4" offset pivots
-  Maximum door opening degree is:  
T = 170°; PT = 110°; TDE = 130°.
-  Minimum door width is: T = 40"; PT = 44"; TDE = 42".
-  Hold open range with optional hold open kit is:  
T = 80°-125°; PT = 80°-95°; TDE = 80°-115°.
-  The appropriate closer body styles are:  
T = "B" style; PT = "G" style; TDE = "B" style.
-  Arrows on closer mounting plate point upward.
-  Hold Open Power Requirements
-  24VAC/DC at 165mA.
-  An in-line rectifier on the 24 VDC solenoid converts 24 VAC line voltage to DC, allowing all EMF models to accommodate a 24 VDC or 24 VAC input.
-  When using 120 VAC line voltage, a step down transformer is required to convert the voltage down to 24VAC/DC input.

## 1.2 Size selection chart

Table 1

TS93 EMF T								
		Door Width						
Closer	Interior/ Exterior	2'-4" min.	2'-6" max.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.
TS9315 EMF T	Interior	•	•	•	•	•	N/A	N/A
TS9356 EMF T	Interior	N/A	N/A	N/A	N/A	•	•	•

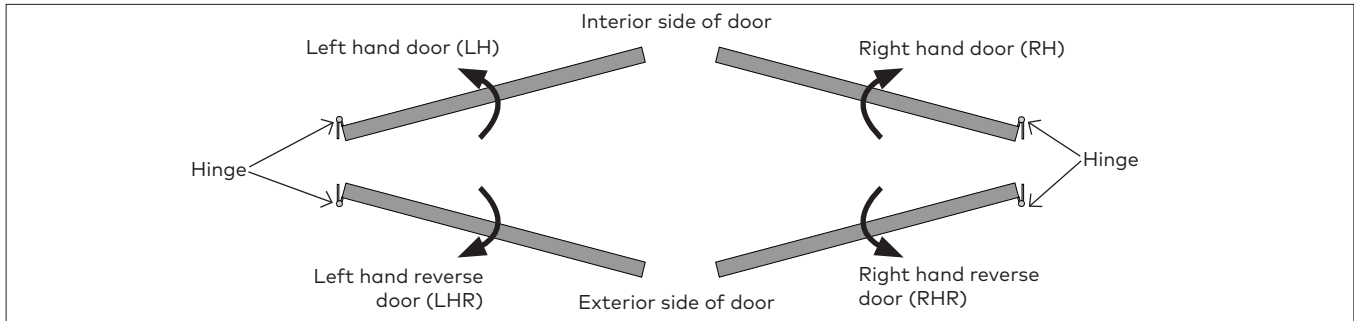
  

TS93 EMF PT								
		Door Width						
Closer	Interior/ Exterior	2'-8" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF PT	Interior	•	•	•	•		N/A	N/A
TS9356 EMF PT	Interior	N/A	N/A	N/A	•	•	•	•

TS93 EMF TDE								
		Door Width						
Closer	Interior/ Exterior	2'-6" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF TDE	Interior	•	•	•	•		N/A	N/A
TS9356 EMF TDE	Interior	N/A	N/A	N/A	•	•	•	•



### 1.3 Handing of the door





### 1.4 Tools recommended

Table 2

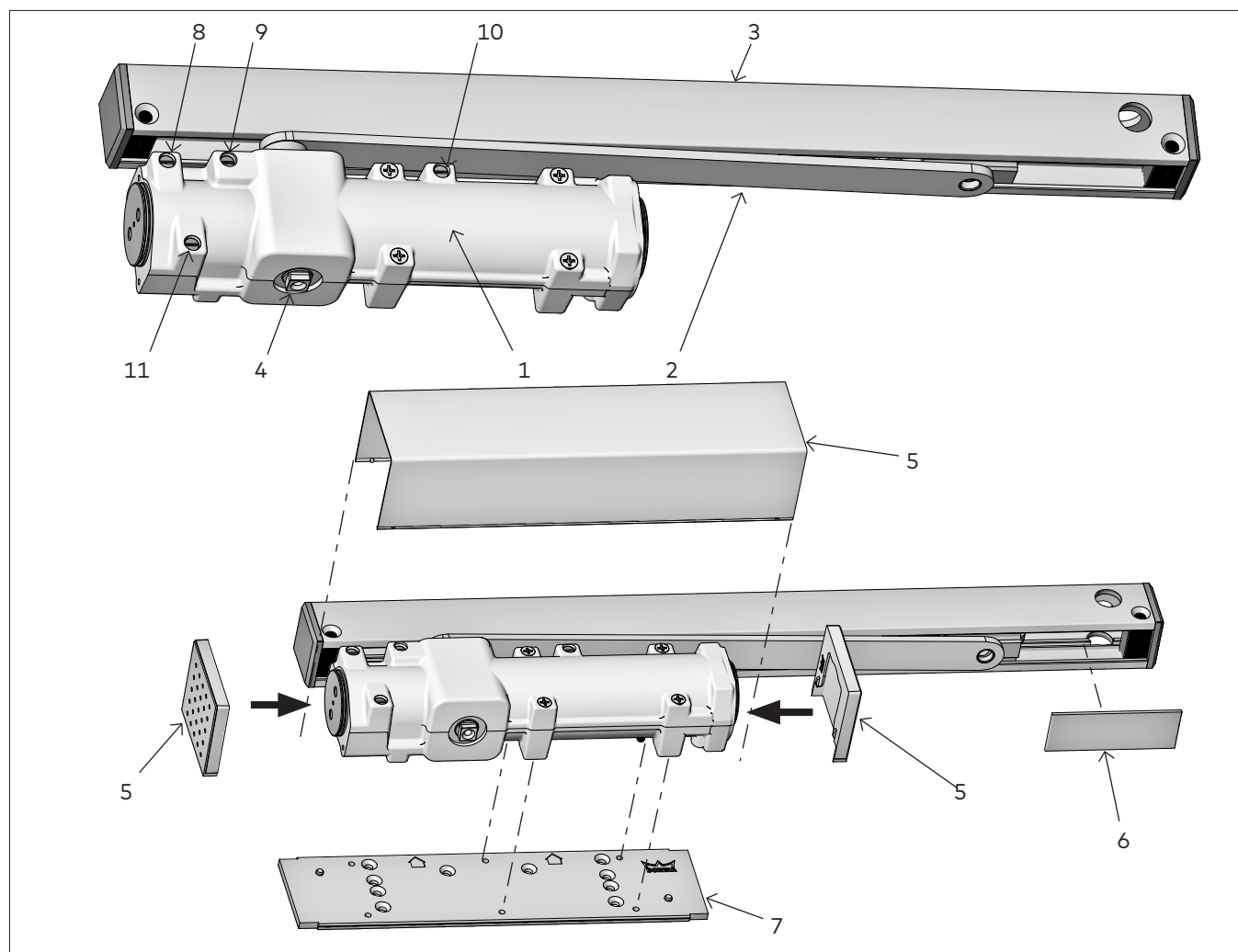
Drill bits:	#2 Phillips screwdriver
Metal: No. 21 & 10-32 tap	3/16" flat head screwdriver
Wood: 9/64"	M5 hex key
Jeweler's flat head screwdriver	

-  Follow included template to properly prepare door and frame for all accessories of the closer installation.
-  Know the swing of the door which is being installed prior to installation.

-  Verify closer spring size prior to installation. See "Size selection chart" on page 3.
-  Make sure door efficiently operates prior to installing closer.

## 1.5 Closer setup

Fig.1

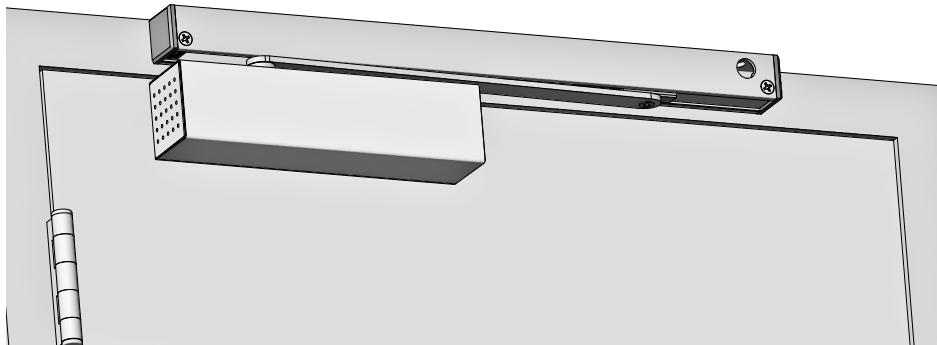


- |                            |                                   |
|----------------------------|-----------------------------------|
| 1. Closer body             | 7. Back plate                     |
| 2. Main arm                | 8. Closing/sweep speed adjustment |
| 3. Track assembly          | 9. Latch speed adjustment         |
| 4. Pinion                  | 10. Backcheck adjustment          |
| 5. Cover and end caps      | 11. Delayed action adjustment     |
| 6. Track channel end cover |                                   |

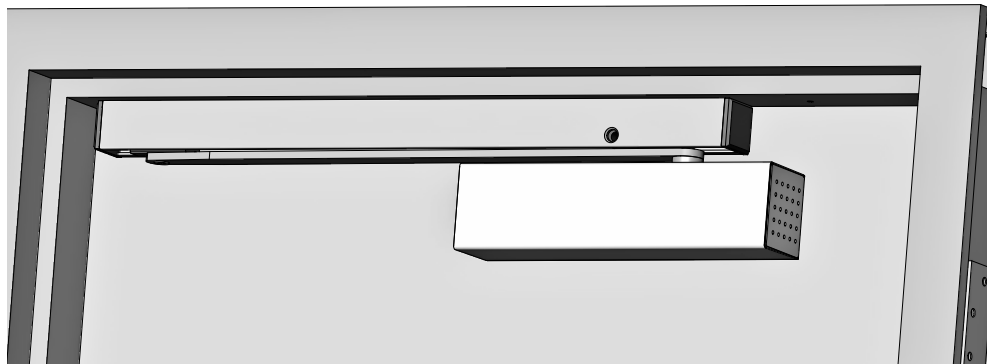
## 1.6 Closer configurations

Fig.2

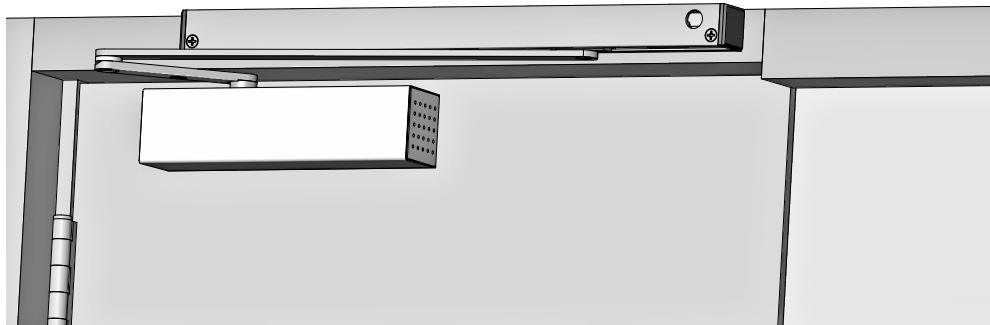
Pull side mount (T): Closer body style "B" (left hand reverse door)



Push side mount (PT): Closer body style "G" (right hand door)



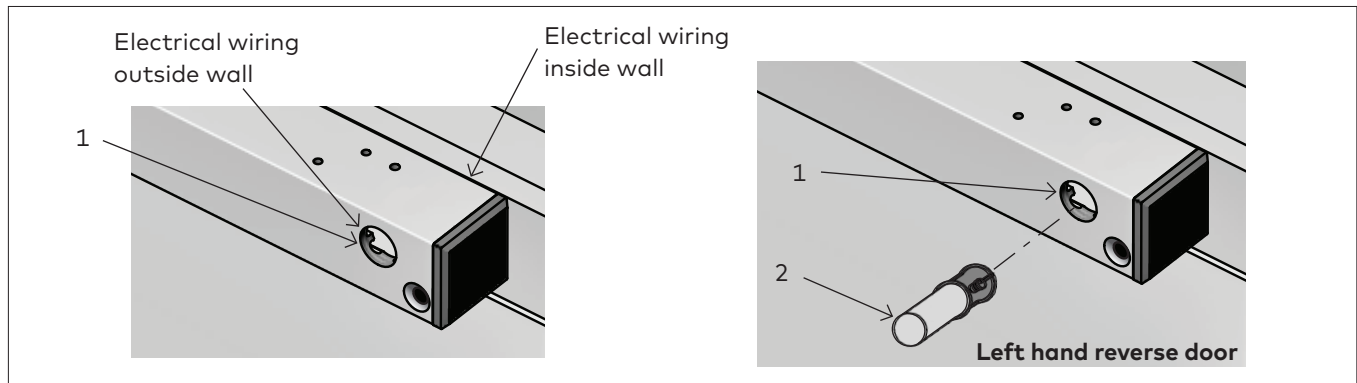
Double egress mount (TDE): Closer body style "B" (left hand reverse door)



## 2 Installation instructions - pull side (T)

### 2.1 Install track

Fig.3



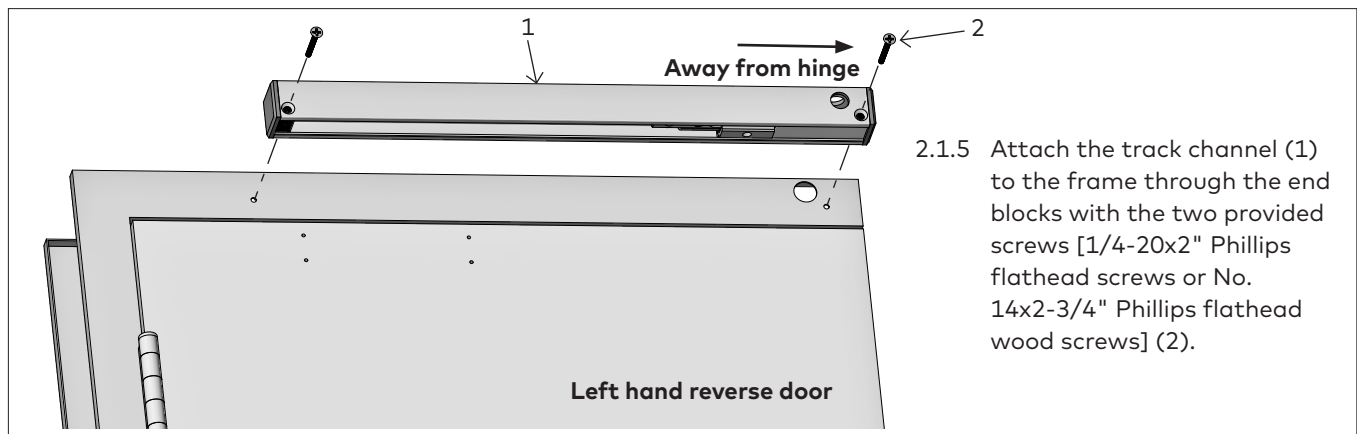
**Reference template 08280592**

**NOTE: For use on regular mount applications on the pull side of the door.**

- 2.1.1 Orient the wire access plugs (1) away from the hinge (see Fig. 4 for orientation).
- 2.1.2 Remove the appropriate wire access plug from the track.

- If removing the frame side wire access plug, ensure it aligns with the through hole in the frame.
- 2.1.3 For wiring applications that are outside of the wall, screw a surface conduit (2) into the exterior wire plug hole.

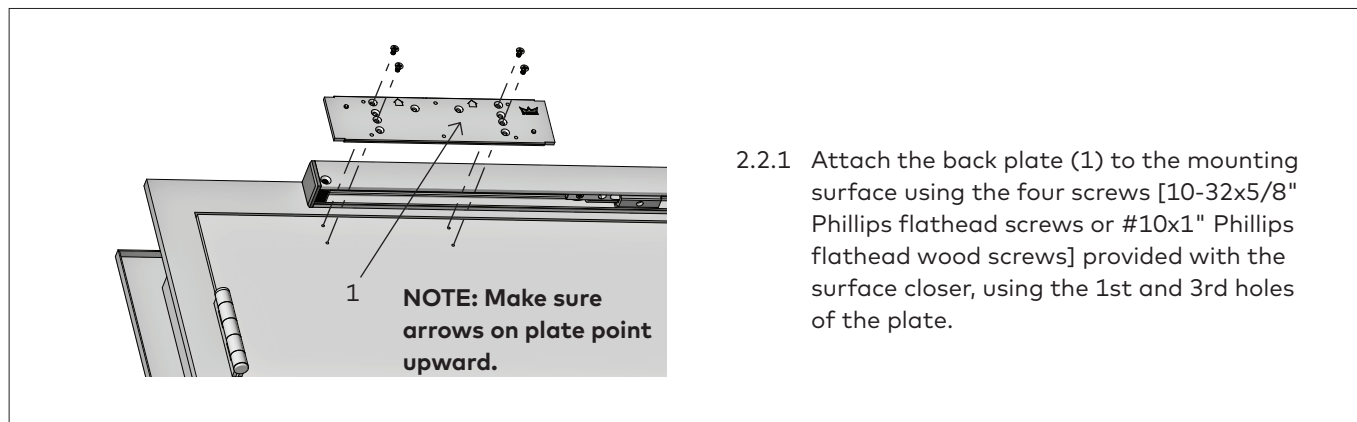
Fig.4



- 2.1.5 Attach the track channel (1) to the frame through the end blocks with the two provided screws [1/4-20x2" Phillips flathead screws or No. 14x2-3/4" Phillips flathead wood screws] (2).

### 2.2 Install backplate

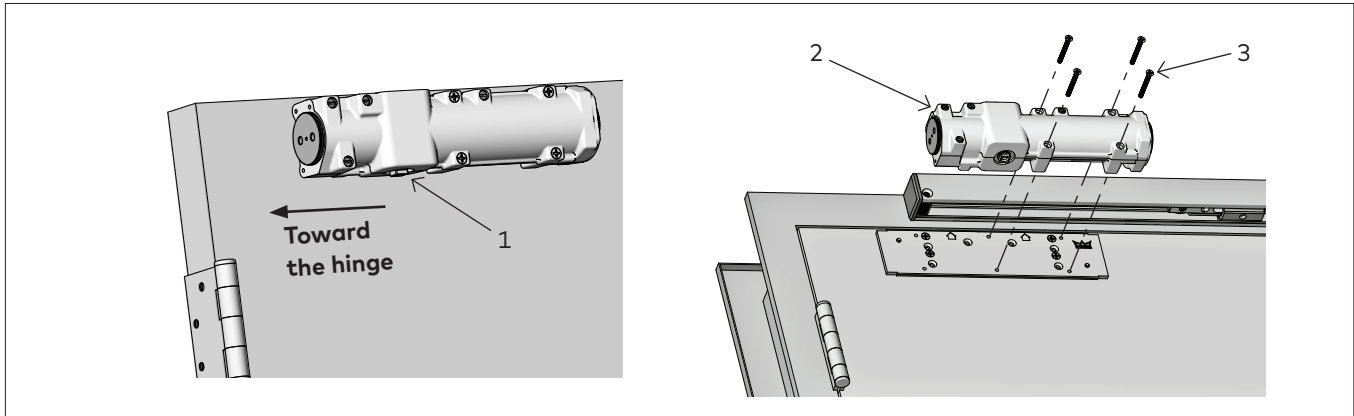
Fig.5



- 2.2.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

## 2.3 Installing the closer

Fig.6

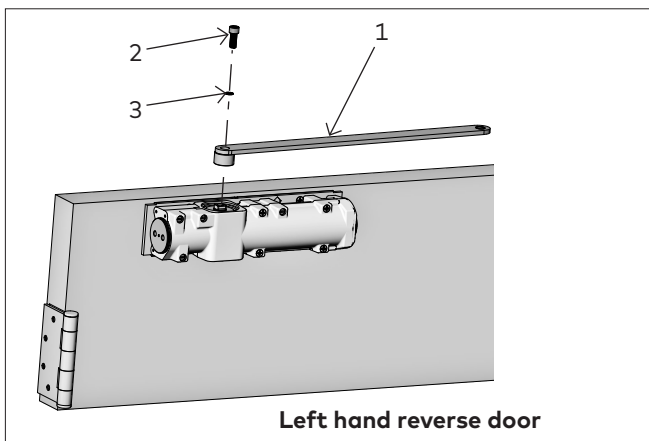


NOTE: Orient pinion (1) closest to hinge.

2.3.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead] (3) provided with the plate itself.

## 2.4 Installing the main arm to closer

Fig.7



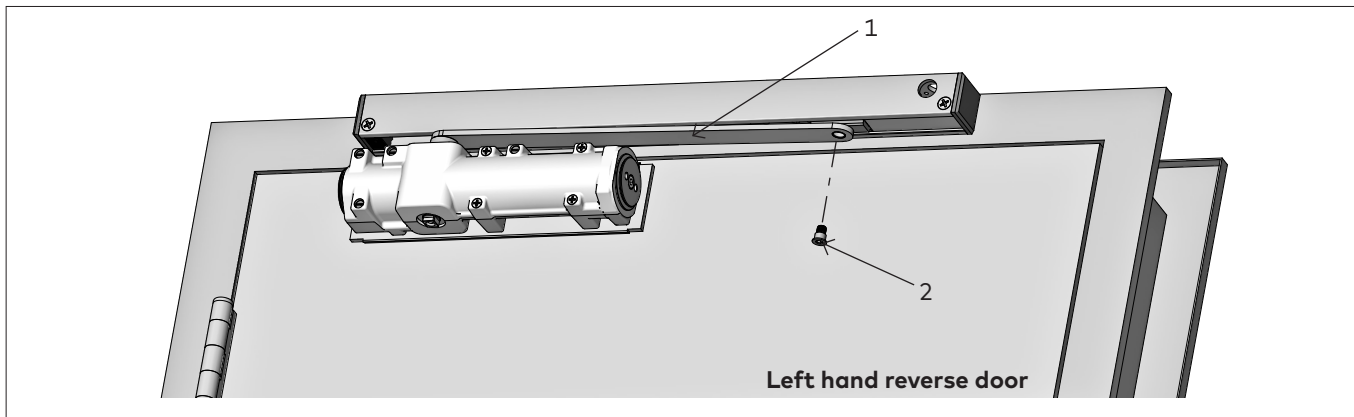
2.4.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.



Be sure the main arm is parallel to the door during application.

## 2.5 Installing arm to door

Fig.8



2.5.1 Align the arm (1) with the slide shoe of the track channel.

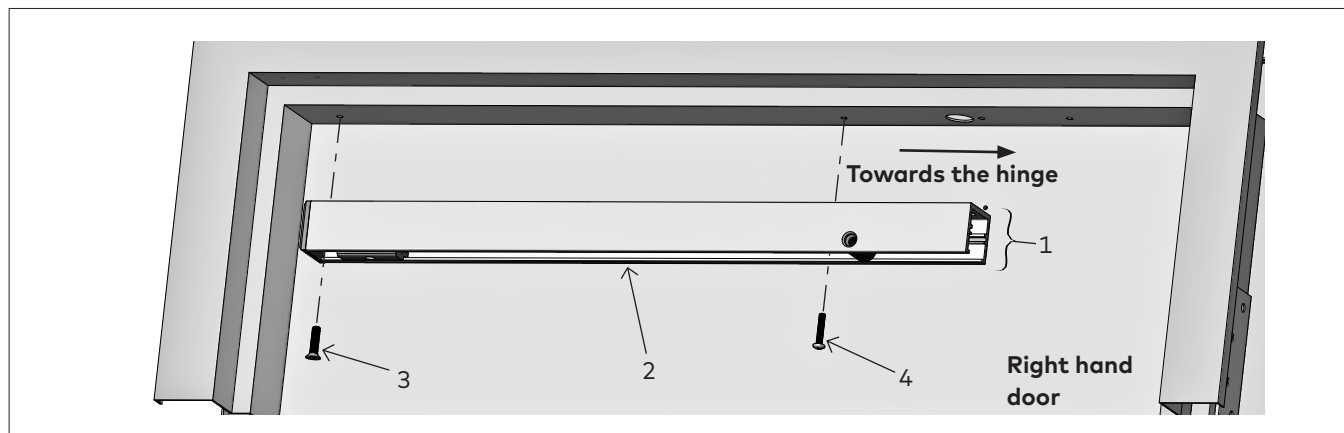
2.5.2 Attach with one shoulder bolt (2) using an M5 hex key.



## 3 Installation instructions - push side (PT)

### 3.1 Install track

Fig.9



#### Reference template 08280593

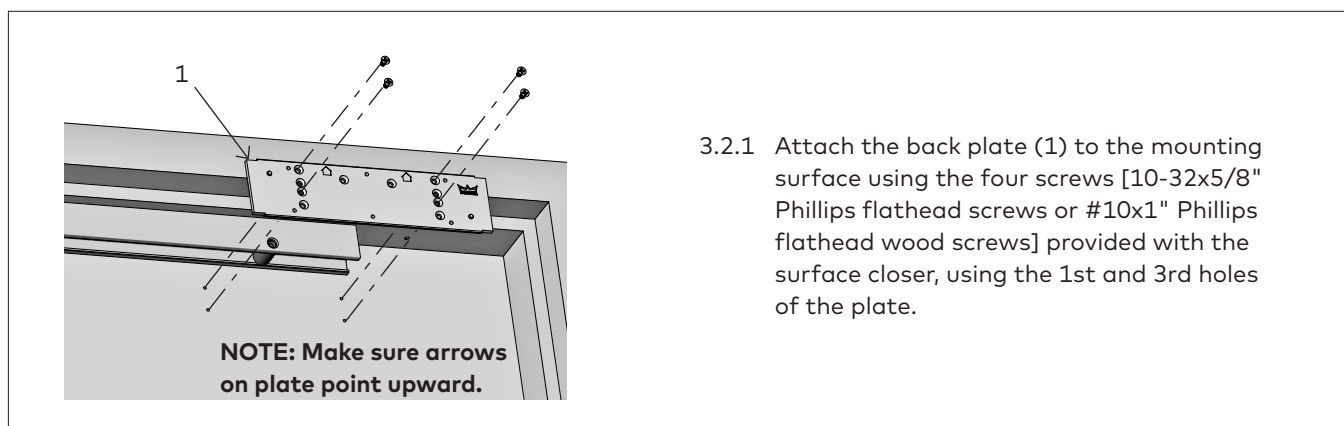
**NOTE:** For use on soffit mount applications on the push side of the door.

3.1.1 Orient the open end of the track (1) towards the hinge.

3.1.2 Attach the track channel (2) to the soffit with one provided screw [one 1/4-20x1-1/4" Phillips flathead screw or one #14x1-2" Phillips flathead wood screw] (3) and through the track with one provided screw [one 1/4-20x5/8" Phillips pan head screw or one #14x1" Phillips pan head wood screw] (4).

### 3.2 Install backplate

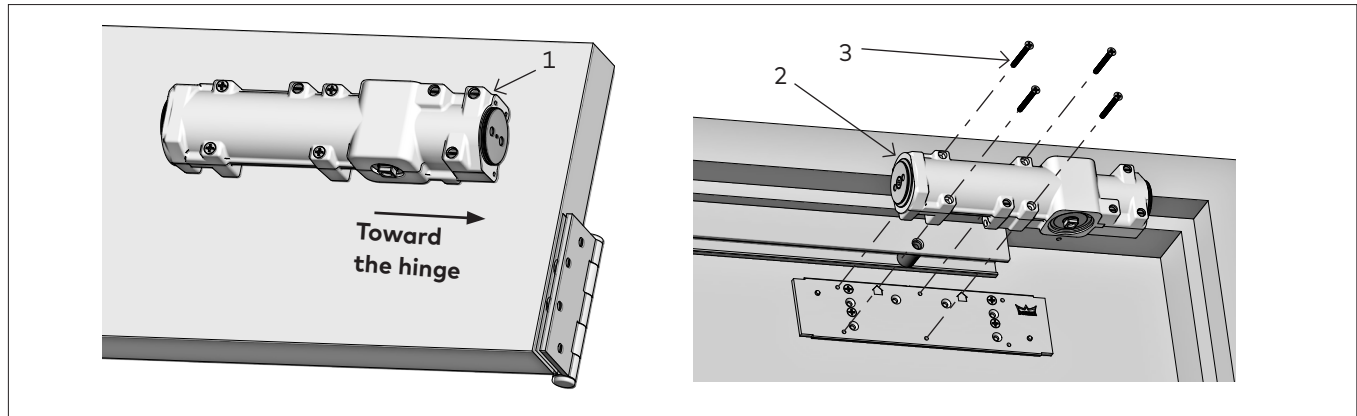
Fig.10



3.2.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

### 3.3 Installing the closer

Fig.11

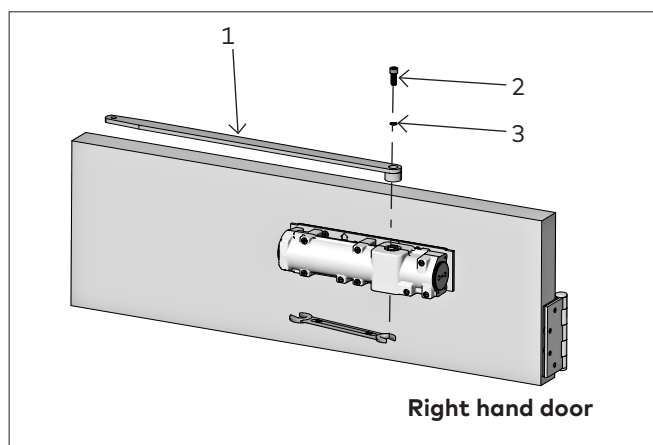


**NOTE:** Orient pinion (1) closest to hinge.

3.3.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead screws] (3) provided with the plate itself.

### 3.4 Installing the main arm to closer


Fig.12



3.4.1 Using an adjustable wrench (and looking up at the bottom of the closer):

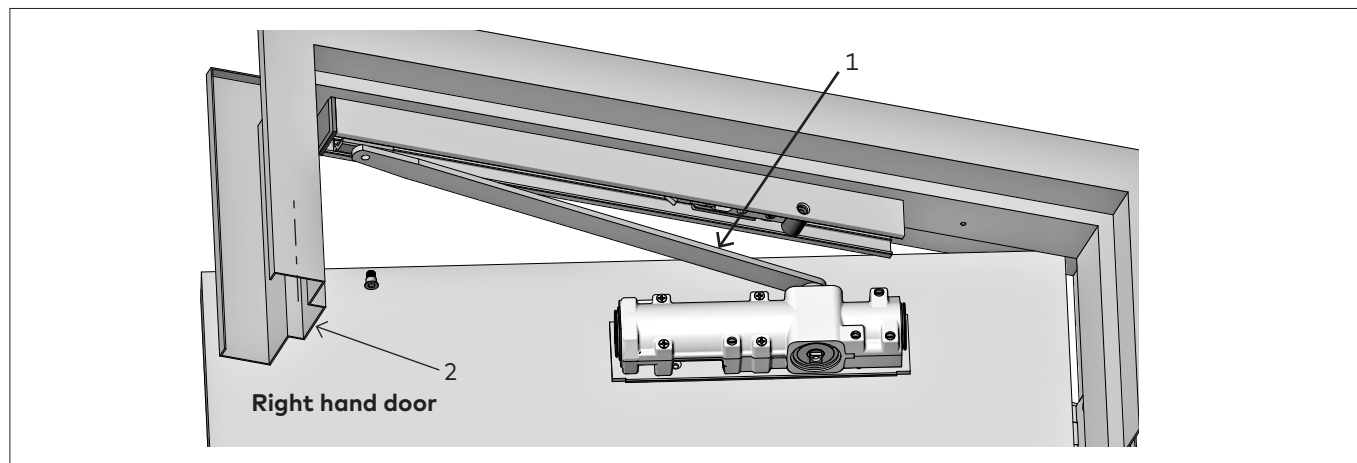
- Left hand door - turn the bottom pinion counter-clockwise 11°.
- Right hand door - turn the bottom pinion clockwise 11°.

3.4.2 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.

 Be sure the main arm is parallel to the door during application.

### 3.5 Installing arm to door

Fig.13



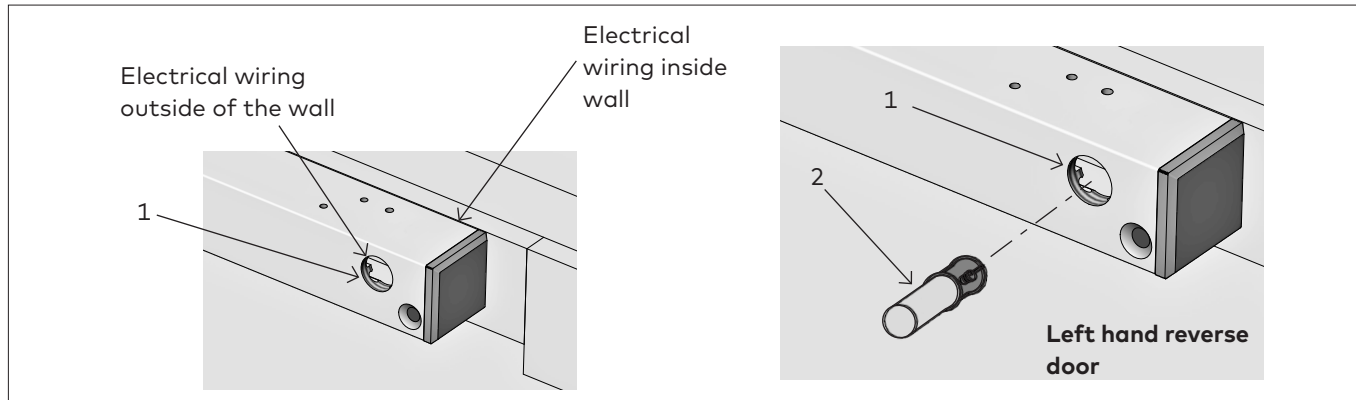
3.5.1 Align the arm (1) with the slide shoe of the track channel.

3.5.2 Attach with one shoulder bolt (2) using an M5 hex key.

# 4 Installation instructions - double egress (TDE)

## 4.1 Install track

Fig.14



Reference template 08280594

**NOTE: For use on regular mount applications on the pull side of the door.**

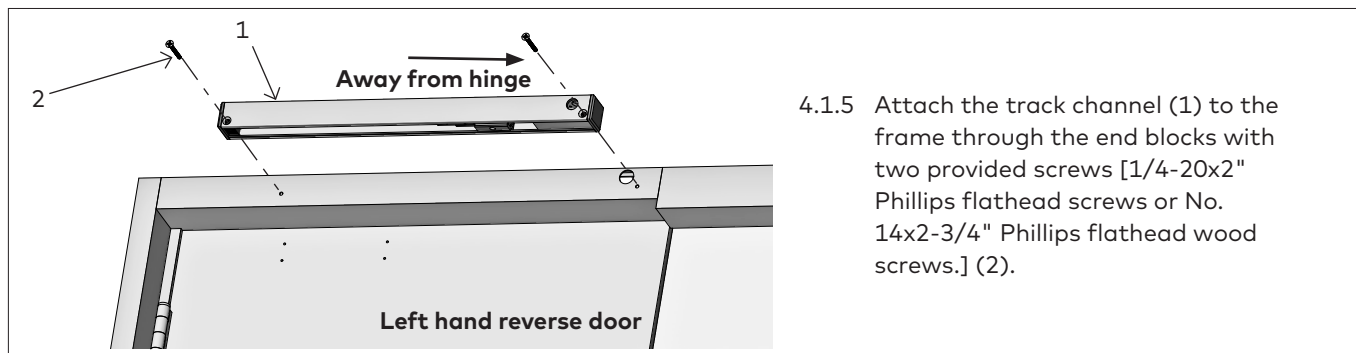
4.1.1 Orient the wire access plugs (1) away from the hinge.

4.1.2 Remove the appropriate wire access plug (1) from the track (see step 2 for orientation).

4.1.3 If removing the frame side wire access plug, ensure it aligns with the through hole in the frame.

4.1.4 For wiring applications that are outside of the wall, screw a surface conduit (2) into the exterior wire plug hole.

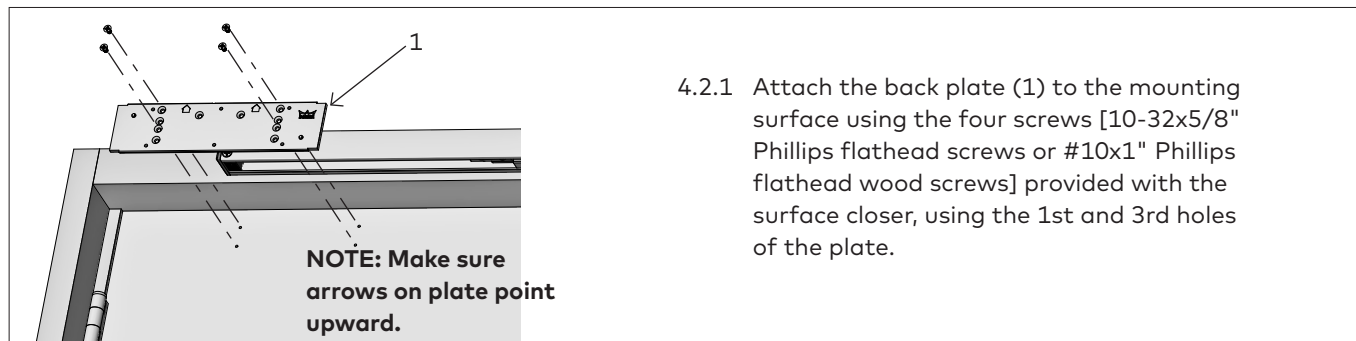
Fig.15



4.1.5 Attach the track channel (1) to the frame through the end blocks with two provided screws [1/4-20x2" Phillips flathead screws or No. 14x2-3/4" Phillips flathead wood screws.] (2).

## 4.2 Install backplate

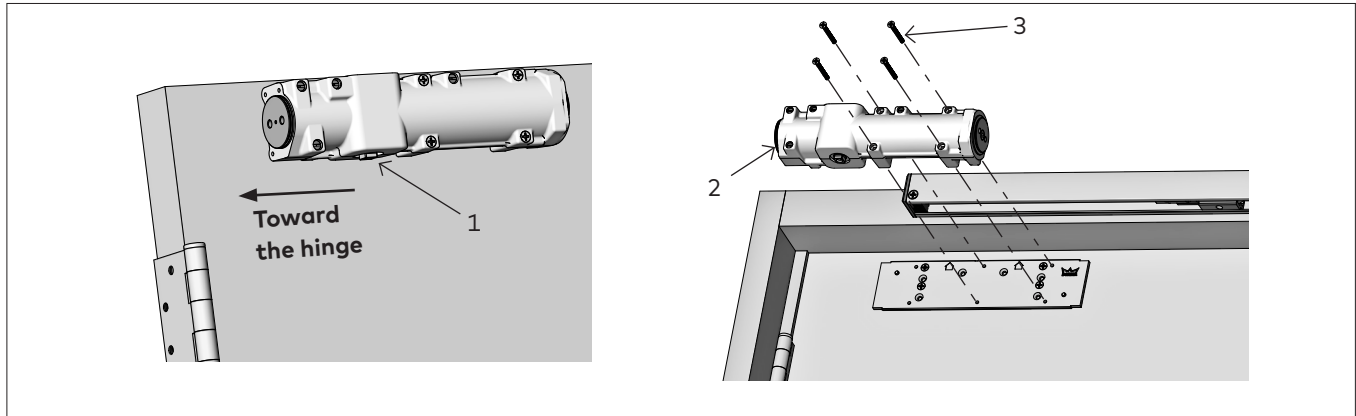
Fig.16



4.2.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

### 4.3 Installing the closer

Fig.17

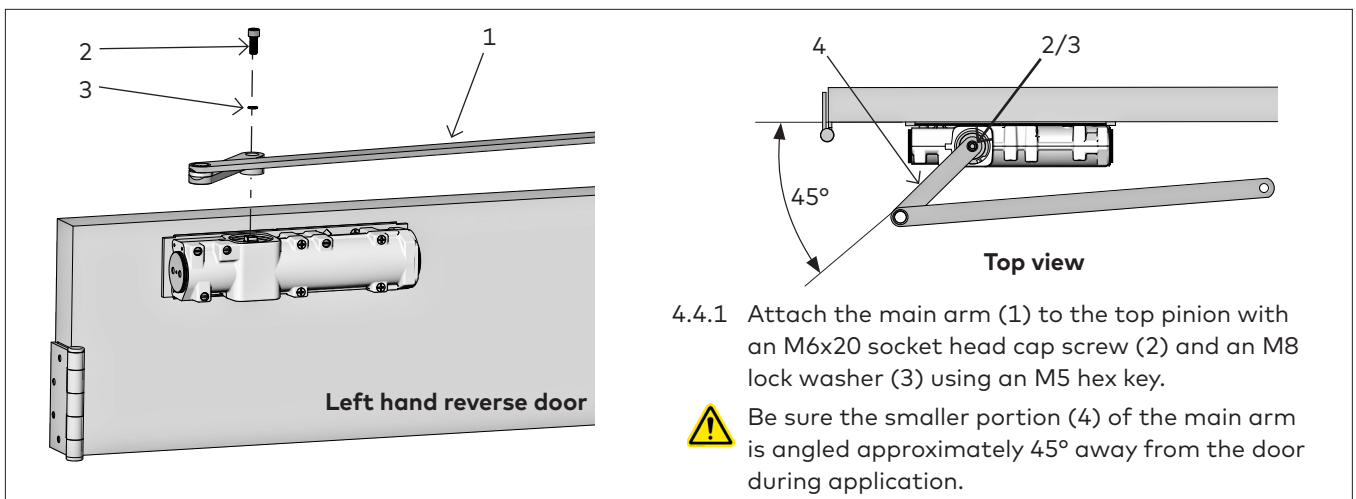


NOTE: Orient pinion (1) closest to hinge.

4.3.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead screw] (3) provided with the plate itself.

### 4.4 Installing the main arm to closer

Fig.18

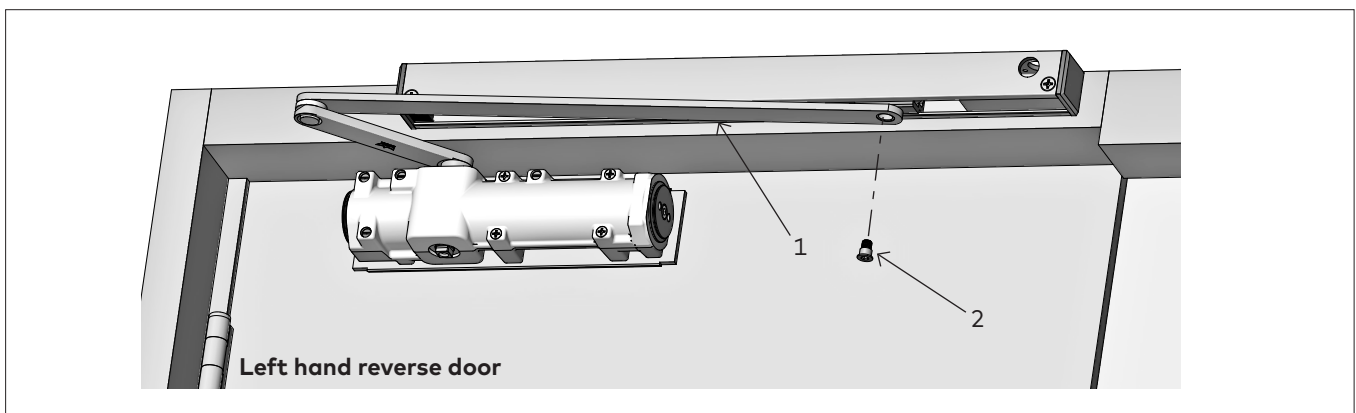


4.4.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.

**!** Be sure the smaller portion (4) of the main arm is angled approximately 45° away from the door during application.

### 4.5 Installing arm to door



Fig.19






4.5.1 Align the arm (1) with the slide shoe of the track channel.

4.5.2 Attach with one shoulder bolt (2) using an M5 hex key.

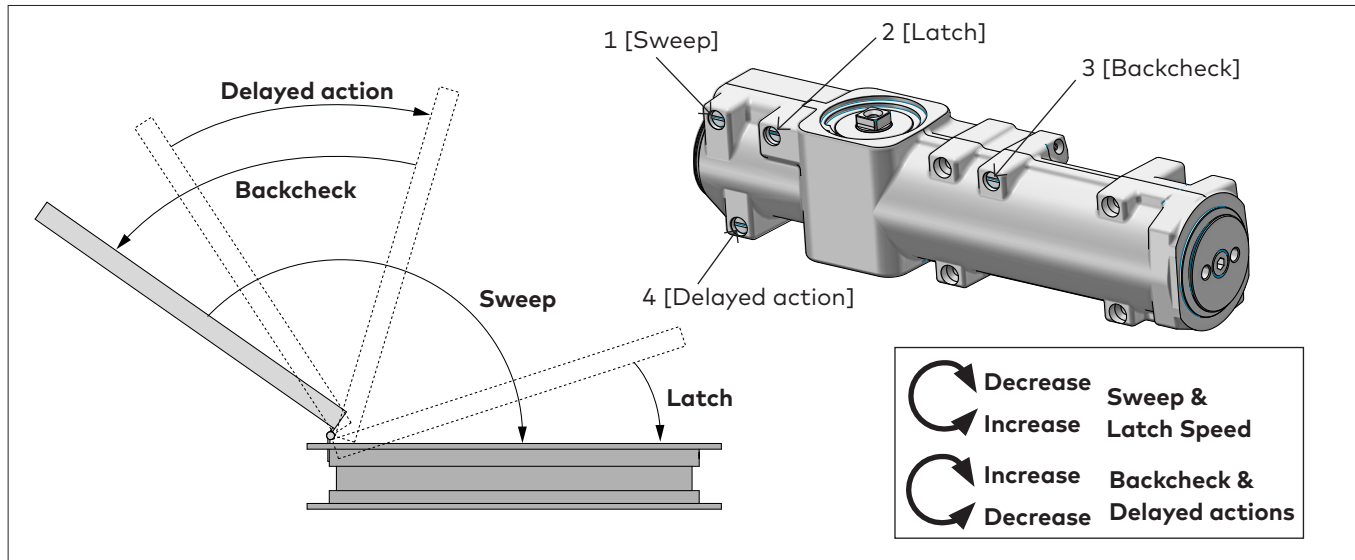
# 5 Adjustments

-  Confirm closer spring size prior to making any closing speed adjustments.
-  Do not back valves out beyond closer casting.

-  Maximum opening angles are listed on page 2.
-  Door should close in 3 to 6 seconds from 90°.
-  Do not close valves completely.

## 5.1 Adjust closing speeds: sweep, latch, backcheck, delayed actions

Fig.20

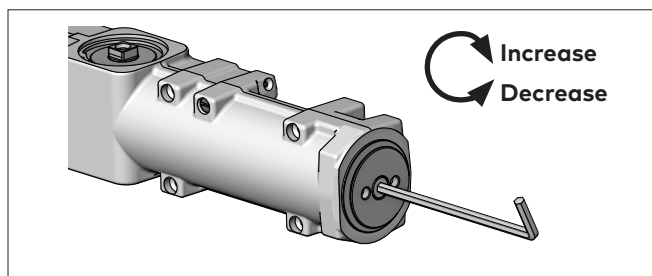


- 5.1.1 Adjust the sweep speed (1) for the area from the maximum open position to 0°. Maximum opening degrees are listed on page 3.
- Increase sweep speed: Turn valve counter-clockwise
  - Decrease sweep speed: Turn valve clockwise.
- 5.1.2 Adjust the latch speed (2) for the area from 7° - 0°.
- Increase latch speed: Turn valve counter-clockwise.

- 5.1.3 Adjust the backcheck (3) for the area from 70° to the maximum opening.
- Increase resistance: Turn valve clockwise
  - Decrease resistance: Turn valve counter-clockwise.
- 5.1.4 Adjust the delayed action (4) for the area from 120° to 70°.
- Increase delayed action: Turn valve clockwise
  - Decrease delayed action: Turn valve counter-clockwise

## 5.2 Adjust spring force

Fig.21



### TS9315

NOTE: Supplied with a size 3 spring setting. Adjust according to chart.

### TS9356

NOTE: Supplied with a size 6 spring setting. Adjust only if more spring tension is required to positively close and latch door.

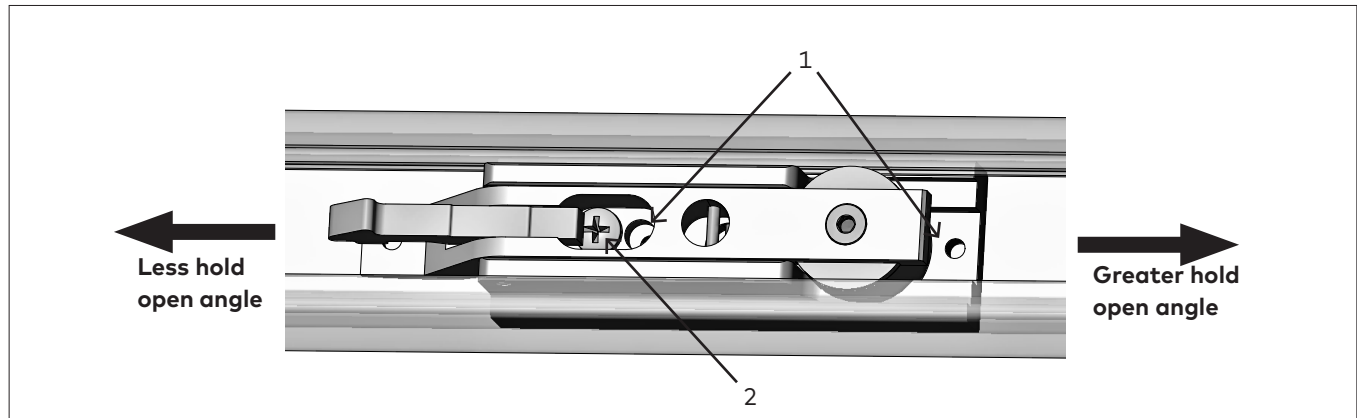
**NOTE: DO NOT ADJUST SPRING LOWER THAN SIZE 3**

CLOSER TYPE	MAX DOOR WEIGHT (LBS)	SPRING SIZE	FULL TURNS OF SPRING ADJUSTER
TS9315	125	3	+3
	150	4	+9
	200	5	+12
TS9356	250	6	0

DOOR WIDTH		FULL TURNS OF SPRING ADJUSTER	CLOSER SIZE
INT.	EXT.		
3'	2'6"	+3	3
3'6"	3'	+9	4
4'	3'6"	+12	5

## 5.3 Adjust hold open

Fig.22



**NOTE: Hold open position is preset at approximately 90°.**

- 5.3.1 Loosen the set screws (1) using a 3/32" hex wrench.
- 5.3.2 Slide the hold open to the desired position.
- 5.3.3 Tighten the screws to desired the position.

5.3.4 Turn the screw (2) with a screw driver to set the force needed to manually disengage the hold open:

- Clockwise = increase force
- Counter clockwise = decrease force

**Note: An auxiliary door stop must be installed to limit the maximum degree of door swing. Failure to do so may result in damage to the unit.**

# 6 Electrical installation



Incoming power supply and unit voltage type: 24VAC/DC.

**CAUTION: DO NOT CONNECT UNIT TO 120 VAC.**



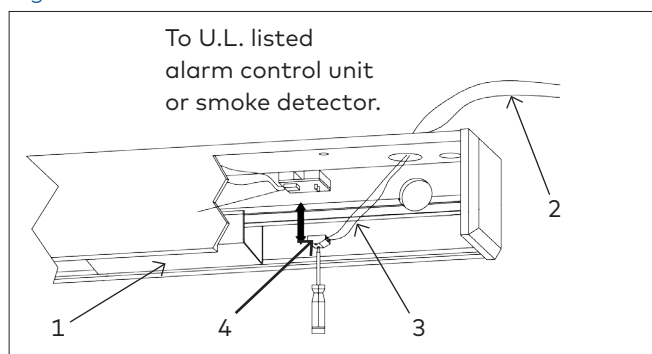
All wiring must comply with national, state, and local electrical codes.



Improper voltage to unit will result in damage to the unit and will void the warranty.

## 6.1 Wiring electromagnet

Fig.23



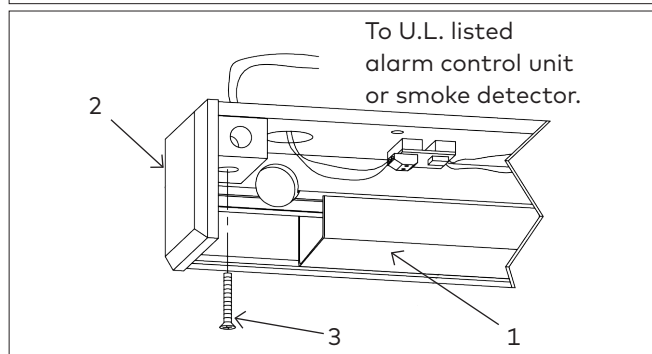
6.1.1 Slide the track channel end cover (1) to allow access to the wire connectors (2).

6.1.2 Connect the power supply (3) to the terminal block (4).

**Note: Terminal block may be removed for easier access.**

**Note: The connection is not polarity dependent.**

6.1.3 Return track channel end cover to the closed position.



**For the TS93 EMF PT only.**

6.1.4 Slide the track channel end cover (1) into the track.

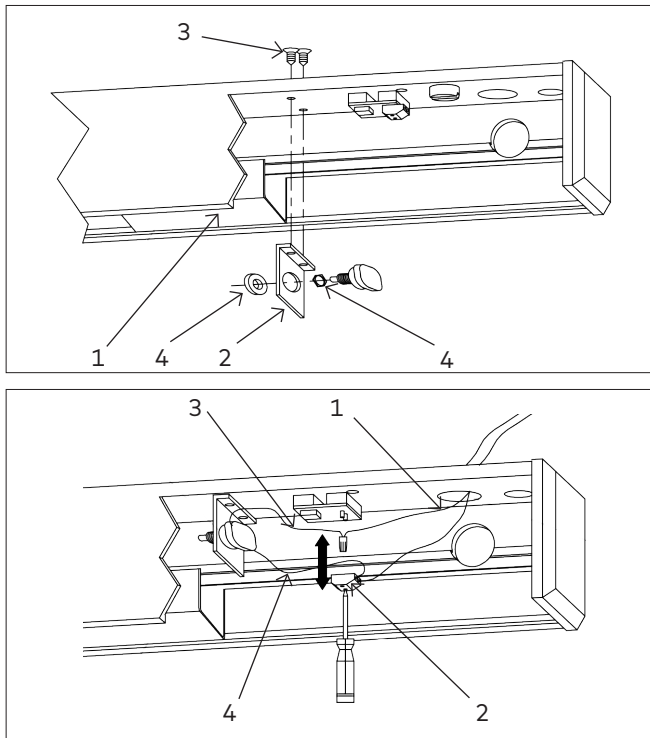
6.1.5 Insert the end cap (2) into the end of the track.

6.1.6 Secure the end cap with one screw [one #14x1-2" Phillips flathead wood screw or one 1/4"-20x1-1/4" Phillips flathead screw] (3).

6.1.7 Return track channel end cover to the closed position.

## 6.2 Installing the optional bypass switch, TS93 EMF T

Fig.24

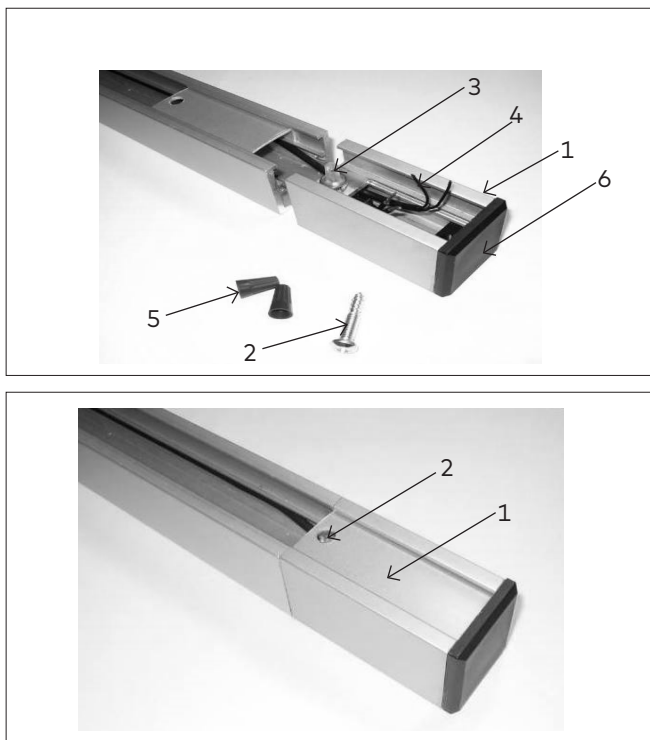


- 6.2.1 Slide the track channel end cover (1) to allow access to the track interior.
- 6.2.2 Attach the bracket (2) to the track with two screws (3).
- 6.2.3 Assemble the bypass switch (4).

- 6.2.4 Disconnect one power supply wire (1) from the terminal block (2).
- 6.2.5 Connect the disconnected power supply wire to one of the bypass switch wires (3).
- 6.2.6 Connect the other bypass switch wire (4) into the empty connector of the terminal block.
- 6.2.7 Return track channel end cover to the closed position.

## 6.3 Installing the optional bypass switch, TS93 EMF PT

Fig.25



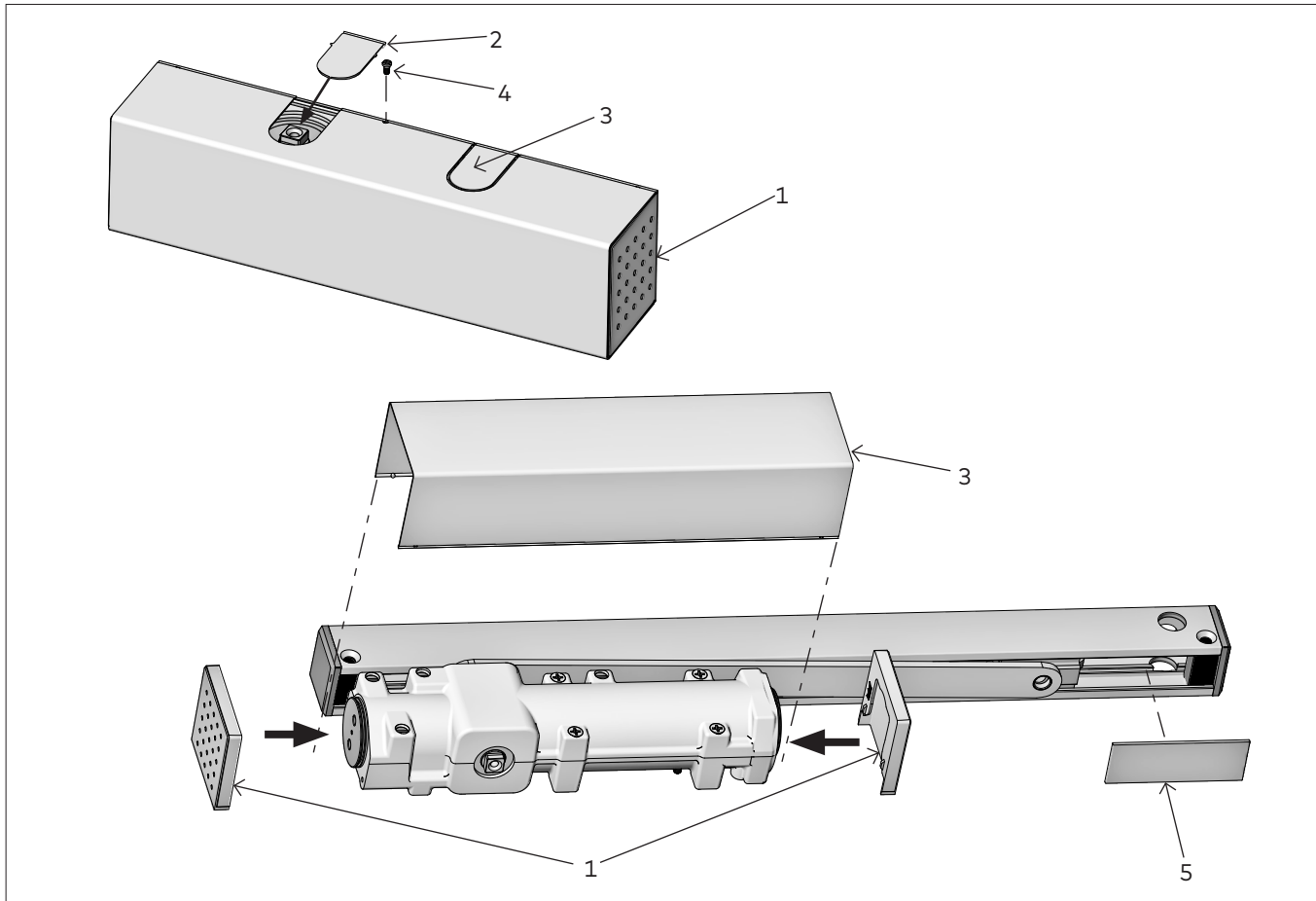
- 6.3.1 Fasten the extension piece (1) into the track with the provided cap head combo screw (2).
- 6.3.2 Connect the switch (3) to the power supply wires (4) using wire nuts (5).
- 6.3.3 Place the end cap (6) into the extension piece and fasten to the frame with the provided flat head screw.

- 6.3.4 Slide the track channel end cover (1) into place over the bypass switch (2).

# 7 Final set up


## 7.1 Installing the covers


Fig.26



7.1.1 Snap both end covers (1) into place.


7.1.2 Remove the un-needed tab (2), and snap the closer body cover (3) into place.

 The unit must be tested after installation by the end user.

 The unit must be periodically tested in conjunction with the testing of the entire fire alarm system.

7.1.3 Attach with a 4-40 Phillips pan head screw (4) .

7.1.4 Slide the track channel end cover (5) away from the closer until it comes up against the end of the track.

 The end user is responsible for the adjustment and maintenance of the unit to retain the system in working order.

7.1.5 After the installation is completed, recheck all the connection.

7.1.6 Apply power to the units.

7.1.7 Open the door so the slide shoe engages with the hold open mechanism.

7.1.8 Advise fire officials prior to testing the unit.

7.1.9 Activate the system. Confirm the functioning of the solenoids.

**Note: If the closer is used in conjunction with a detected unit, trip the test switch on the main closer detector as explained in the test procedure for that unit. After a short delay time, the hold open solenoid of both units will release and the doors will close. Resetting the test switch will allow the units to return to standby.**



