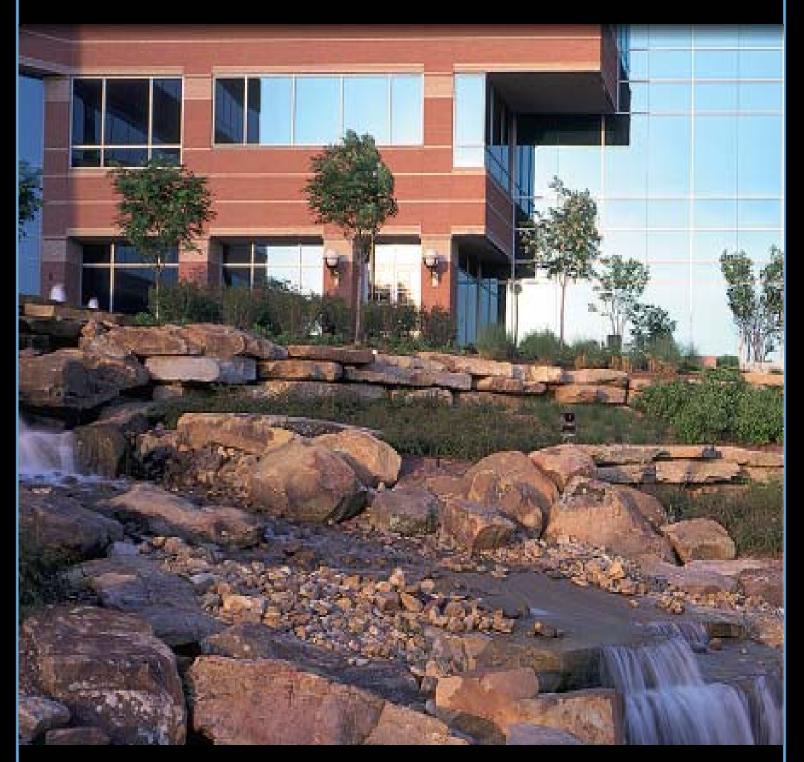
## STOREFRONT - DORMARTS 88 CONCEALED OVERHEAD CLOSER SUPPLEMENT

INSTAUATION INSTRUCTIONS



Part NO. Y013

February 2013



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PAGE 21

THESE INSTRUCTIONS USE FLUSH GLAZE STOREFRONT AS A BASIS FOR DETAILING. THE TRANSOM BAR PREPS WILL BE THE SAME FOR ALL OTHER FRAMING SYSTEMS THAT REQUIRE A C.O.C. AND HAVE A TUBULAR TRANSOM BAR TO ACCEPT THE CLOSER. PLEASE CONSULT THE INSTALLATION INSTRUCTIONS FOR THE PARTICULAR SYSTEM BEING INCORPORATED FOR THE TRANSOM BAR AND SHEAR BLOCKS REQUIRED AS A REPLACEMENT THROUGHOUT THESE INSTRUCTIONS.

### Minimizing Condensation

NOTE: Please reference EFCO's "Understanding Condensation" brochure which can be obtained through your EFCO representative.

Condensation will form on any surface when unfavorable conditions (interior temperature and relative humidity and exterior temperature) are present. When the formation of excessive condensation is a concern, it is highly recommended that a design professional is utilized to perform an analysis of the shop drawings to recommend the best installation methods. Please contact EFCO representative for information on EFCO's Thermal Analysis Services.

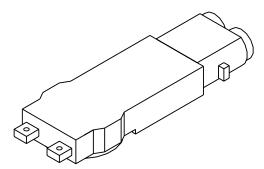
Many current installation practices lead to an increase in the possibility of the formation of condensation. Though not all inclusive, the list of examples below illustrates conditions under which condensation is likely to occur:

- Bridging system thermal break with non-thermally broken metal flashing or lintels that are exposed to the exterior.
- System exposure to cold air cavities.
- Interior relative humidity levels not maintained at recommended levels, see EFCO's "Understanding Condensation" brochure.
- 4. Inadequate separation between system and surrounding condition at perimeter.
- Product combinations during the shop drawing stage that result in bridging thermal breaks of one or all products involved

## SECTION I PARTS IDENTIFICATION

CONCEALED OVERHEAD CLOSERS REQUIRE PRECISE ASSEMBLY TO FUNCTION PROPERLY. CORRECT CLOSER APPLICATION MUST BE DETERMINED (CENTER PIVOT, BUTT HINGE, GEARED HINGE OR OFFSET PIVOT) AND ASSEMBLY FOLLOWED PER THESE INSTRUCTIONS. SOME OR ALL OF THE PARTS SHOWN BELOW WILL BE REQUIRED FOR INSTALLATION OF THE C.O.C. PARTS IDENTIFICATION:

- ALL PARTS FOLLOWED BY (C) ARE INCLUDED IN THE CONCEALED OVERHEAD CLOSER PACKAGE.
- ALL PART NUMBERS ENCLOSED BY { } ARE SUPPLIED BY EFCO.
- SCREWS ARE LABELED AT DETAILS WITH EFCO PART NUMBERS ADDED.









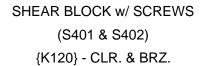
EFCO STANDARD C.O.C. DORMA RTS 88 (C)

ANGLE BRACKET for BUTT HINGES or GEARED HINGES (C)

"F" CLIP for BUTT HINGES or GEARED HINGES (C)

ANGLE CLIP for OFFSET PIVOTS HQ42 (C)





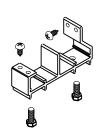


SHEAR BLOCK w/ SCREWS
4" & 4 1/2" HEADER
(S402)
{K173}

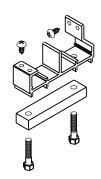


ANGLE CLIP w/
OFFSET PIVOTS
{FT16}

## SECTION I PARTS IDENTIFICATION (CON'T)



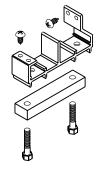
MOUNT w/ SCREWS for 4" HEADER @ BUTT or GEARED HINGES {K497}



MOUNT w/ SPACER & SCREWS for 4 1/2"
HEADER @ BUTT or GEARED HINGES
{K929}



MOUNT w/ SCREWS for 4" HEADER @ CENTER PIVOTS {K498}



MOUNT w/ SPACER &
SCREWS for 4 1/2"
HEADER @ CENTER
PIVOTS
{K928}



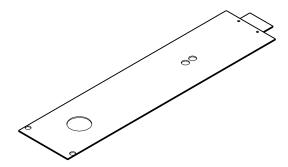
MOUNTING BLOCK
w/ SCREWS
for OFFSET PIVOTS
{K435}



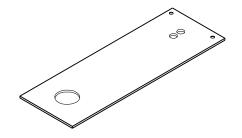
1/4" SPACER BLOCK for 2"
TRANSOM BAR @ BUTT
HINGES or GEARED HINGES
2 REQUIRED
{F045}



1/2" SPACER BLOCK for S945
SYSTEM
- MUST SPECIFY NOT SUPPLIED {FT71}



COVER PLATE w/ BUTT HINGES, GEARED
HINGES, or CENTER PIVOTS
{K492} PKG. MILL
{K495} PKG. CLR
{K496} PKG. BRZ



COVER PLATE w/ OFFSET PIVOTS

{FT20} RIGHT HAND MILL

{FT26} LEFT HAND MILL

{FU02} RIGHT HAND CLR

{FU04} LEFT HAND CLR

{FU03} RIGHT HAND BRZ

{FU05} LEFT HAND BRZ

THE BUTT HINGE AND GEARED HINGE APPLICATION HEADER PREPS ARE IDENTICAL. THE CENTER PIVOT AND OFFSET PIVOT APPLICATION HEADER PREP ARE NOT, DUE TO THE DIFFERING CLOSER LOCATIONS. THE BUTT HINGE, GEARED HINGE, AND CENTER PIVOT INSTALLATION PROCESS IS IDENTICAL. PLEASE FOLLOW THE CORRECT INSTRUCTIONS FOR YOUR C.O.C. APPLICATION.

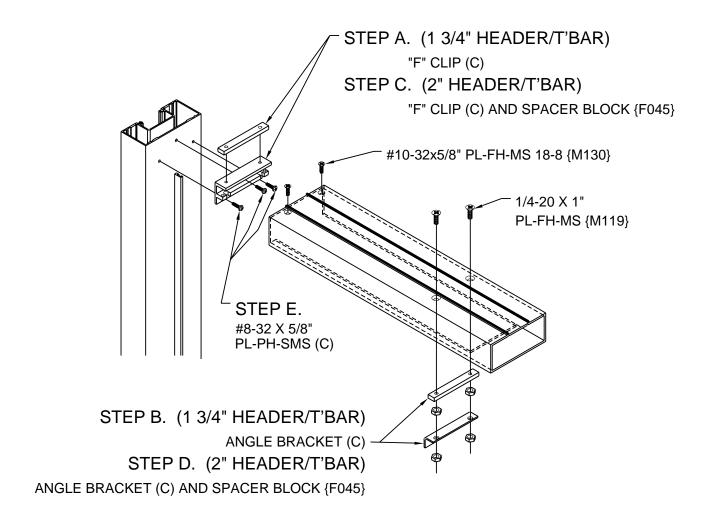
### A. BUTT HINGE, CONTINUOUS HINGE, AND CENTER PIVOTS

- 1. 1 3/4" OR 2" HEADER/T'BAR INSTALLATION STEPS
  - A. ATTACH THE DORMA "F" CLIP TO THE HEADER/TRANSOM BAR WITH TWO #10-32x5/8" PL-FH-MS.
  - **B.** PLACE TWO 1/4-20x1" PL-FH-MS THROUGH THE HOLES IN THE HEADER/T-BAR AND SECURE THEM WITH TWO 1/4"-20 HEX NUTS AND LOCK WASHERS. PLACE THE ANGLE BRACKET ON THE THREADS THAT EXTEND PAST THE NUTS AND SECURE WITH TWO MORE 1 /4"-20 HEX NUTS AND LOCK WASHERS.
  - C. APPLICATIONS WITH A 2" HEADER/T-BAR: ONE SPACER BLOCK {F045} MUST BE USED BETWEEN THE "F" CLIP AND THE HEADER/T-BAR. USE TWO #10-32x5/8" PL-FH-MS TO FASTEN THE ASSEMBLY INTO PLACE.
  - D. APPLICATIONS WITH A 2" HDR/T-BAR: USE TWO 1/4-20x1" PL-FH-MS THROUGH THE HOLES IN THE HEADER/T-BAR TO SECURE ONE SPACER BLOCK {F045} WITH TWO 1/4"-20 HEX NUTS AND LOCK WASHERS. PLACE THE ANGLE BRACKET ON THE THREADS THAT EXTEND PAST THE NUTS AND SECURE WITH TWO MORE 1/4"-20 HEX NUTS AND LOCK WASHERS.
  - E. COAT BOTH ENDS OF THE HDR/T-BAR WITH BUTYL TYPE SEALANT AND FASTEN THE "F" CLIP(S) TO THE HINGE/PIVOT JAMB(S) WITH THREE #8-32x5/8" PL-PH-MS EACH.
  - F. AT SINGLE DOORS LOCATE THE HDR/T-BAR ON THE SHEAR BLOCK (K120) AT THE LOCK JAMB AND FASTEN INTO PLACE WITH SUPPLIED SCREWS.

- A. BUTT HINGE, CONTINUOUS HINGE, AND CENTER PIVOTS (CON'T)
  - 1. 1 3/4" OR 2" HEADER/T'BAR INSTALLATION STEPS (CON'T)

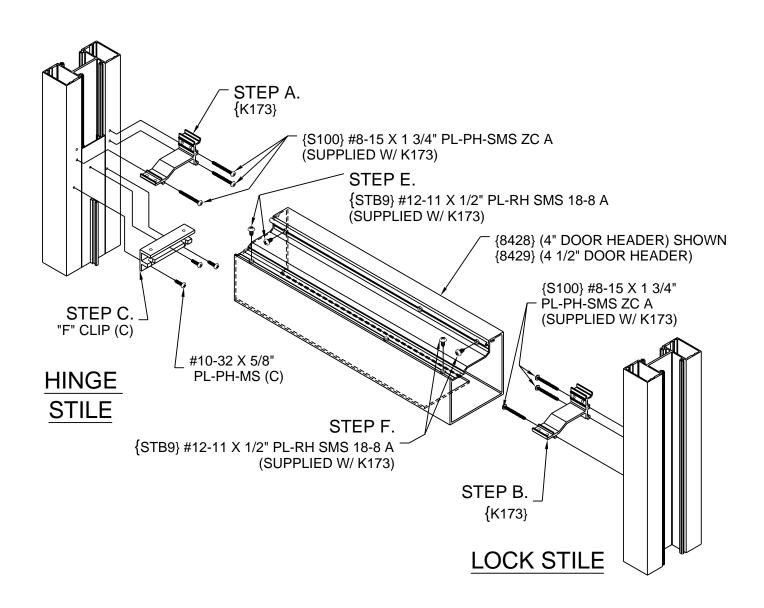
NOTE: 2" HEADER/T'BAR PREPARATION (SHOWN)

1 3/4" HEADER/T'BAR PREPARATION SIMILAR
FOR SINGLE DOORS AT LOCK JAMB USE K120 SHEAR BLOCK



- A. BUTT HINGE, CONTINUOUS HINGE, AND CENTER PIVOTS (CON'T)
  - 2. 4" OR 4 1/2" HEADER/T'BAR INSTALLATION STEPS
    - A. ATTACH THE SHEAR BLOCK (K173) TO THE HINGE/PIVOT JAMB(S) WITH THREE #8-15X1 3/4" PL-PH-SMS {S100}.
    - B. REPEAT STEP 1 ON THE LOCK JAMB(S).
    - C. ATTACH THE DORMA "F" CLIP TO THE HINGE/PIVOT JAMB(S) WITH TWO #10-32x5/8" PH-MS (C).
    - D. COAT BOTH ENDS OF THE HEADER/TRANSOM BAR WITH BUTYL TYPE SEALANT AND INSTALL IT OVER THE SHEAR BLOCKS.
    - E. FASTEN THE HEADER/TRANSOM BAR AT THE HINGE/PIVOT JAMB(S) TO THE SHEAR BLOCK WITH TWO #12-11 X 1/2" PL-RH-SMS 18-8 A {STB9}.
    - F. REPEAT STEP E. ON THE LOCK JAMB(S).

- A. BUTT HINGE, CONTINUOUS HINGE, AND CENTER PIVOTS (CON'T)
  - 1. 4" OR 4 1/2" HEADER/T'BAR INSTALLATION STEPS (CON'T)



### **B. OFFSET PIVOTS**

### 2. 1 3/4" OR 2" HEADER/T'BAR INSTALLATION STEPS

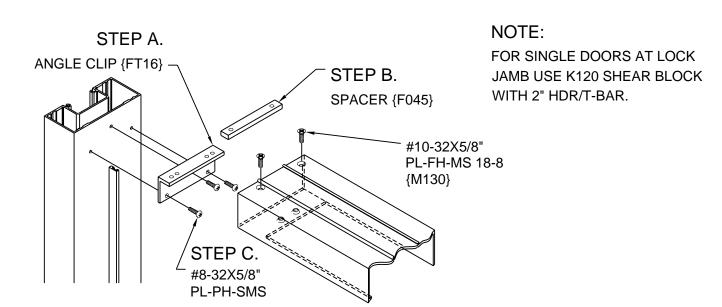
A. ATTACH ANGLE CLIP (FT16) TO THE HEADER/T'BAR WITH TWO #10-32X5/8' FH-MS.

B. APPLICATIONS WITH A 2" HEADER/T'BAR: ONE SPACER BLOCK {F045} MUST BE USED BETWEEN THE ANGLE CLIP {FT16} AND THE HEADER/T'BAR. USE TWO #10-32X5/8" FH-MS TO FASTEN THE ASSEMBLY INTO PLACE.

C. COAT THE ENDS OF THE HEADER/T'BAR WITH BUTYL TYPE SEALANT AND FASTEN THE ANGLE CLIP(S) {FT16} AND THE HEADER/T'BAR TO THE HINGE/PIVOT JAMB(S) WITH THREE #8-32X5/8" PL-PH-SMS.

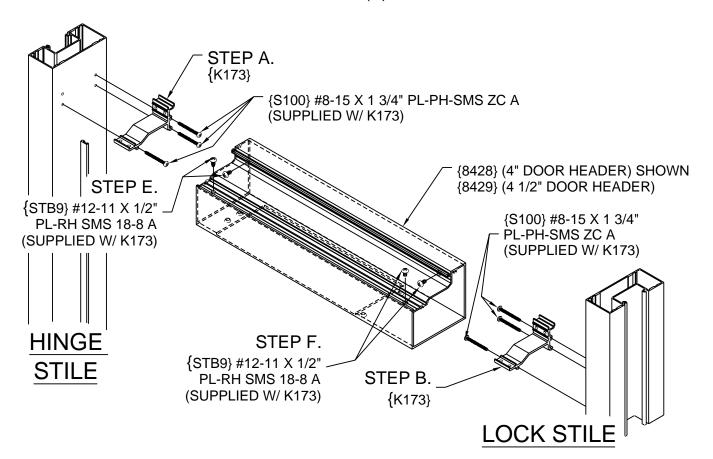
### D. AT SINGLE DOORS:

LOCATE THE HEADER/T'BAR ON THE SHEAR BLOCK AT THE LOCK JAMB AND FASTEN IN PLACE WITH THE SUPPLIED SCREWS.



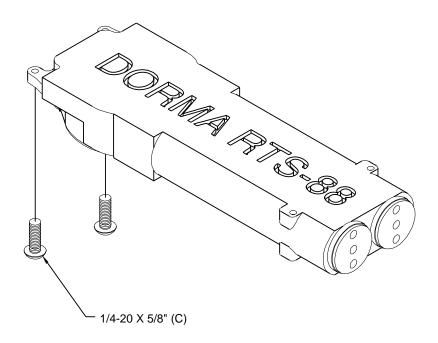
# SECTION II HEADER/TRANSOM BAR AND CLOSER PREPARATION AND INSTALLATION (CON'T)

- B. OFFSET PIVOTS (CON'T)
  - 2. 4" OR 4 1/2" HEADER/T'BAR INSTALLATION STEPS
    - A. ATTACH THE SHEAR BLOCK (K173) TO THE HINGE/PIVOT JAMB(S) WITH THREE #8-15X1 3/4" PL-PH-SMS {S100}.
    - B. REPEAT STEP A ON THE LOCK JAMB(S).
    - C. COAT BOTH ENDS OF THE HEADER/TRANSOM BAR WITH BUTYL TYPE SEALANT AND INSTALL IT OVER THE SHEAR BLOCKS.
    - D. FASTEN THE HEADER/TRANSOM BAR AT THE HINGE/PIVOT JAMB(S) TO THE SHEAR BLOCK WITH TWO #12-11 X 1/2" PL-RH-SMS 18-8 A {STB9}.
    - E. REPEAT STEP D. ON THE LOCK JAMB(S).



- A. BUTT HINGE, CONTINUOUS HINGE, CENTER PIVOTS
  - 1. CLOSER PREP AND INSTALLATION STEPS FOR 1 3/4" AND 2" HEADER/T'BAR

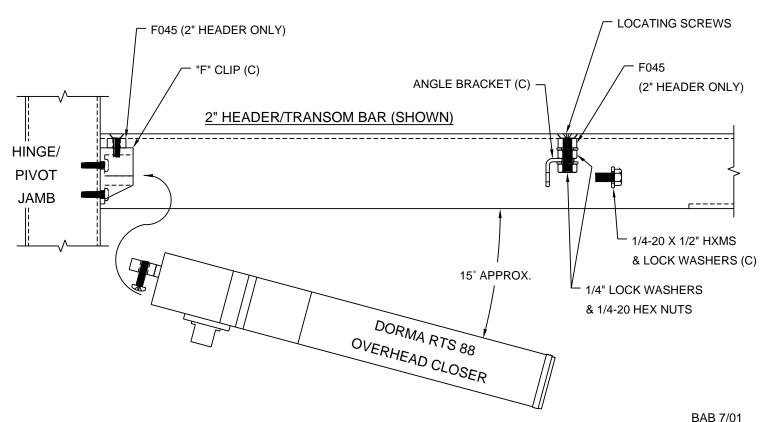
A. THREAD TWO 1/4-20 X 5/8" FILLISTER HEAD MACHINE SCREWS (SUPPLIED BY DORMA) APPROX. TWO TO THREE TURNS INTO THE THREADED HOLES ON THE HINGE/PIVOT SIDE OF THE CLOSER. LEAVE LOOSE UNTIL THE CLOSER IS INSTALLED IN THE "F" CLIP.



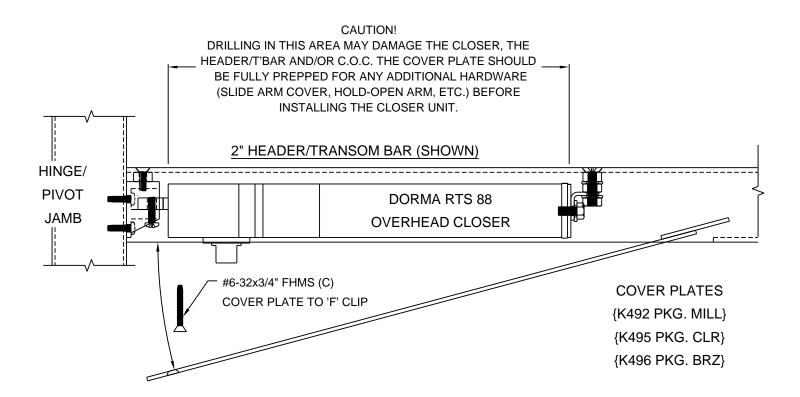
- A. BUTT HINGE, CONTINUOUS HINGE, CENTER PIVOTS (CON'T)
  - 1. CLOSER PREP AND INSTALLATION STEPS FOR 1 3/4" AND 2" HEADER/T'BAR (CON'T)

INSTALLATION OF THE CLOSER IS IDENTICAL FOR THE 1 3/4" AND 2" HEADERS. THE 2" HEADER IS SHOWN IN THE FOLLOWING DETAILS.

- B. WHILE HOLDING THE CLOSER AT A 15° ANGLE TO THE HDR/T-BAR, INSERT THE CLOSER MOUNTING LUGS INTO THE "F" CLIP AND RAISE THE OPPOSITE END OF THE CLOSER TO ALIGN THE ANGLE CLIP SCREW HOLES WITH THE THREADED HOLES IN THE CLOSER END. SECURE THE CLOSER IN PLACE WITH TWO 1/4-20 HEX BOLTS AND WASHERS.
- C. TIGHTEN THE FILLISTER HEAD SCREWS AND RECHECK TO MAKE SURE THAT ALL SCREWS / NUTS ARE TIGHT.



- A. BUTT HINGE, CONTINUOUS HINGE, CENTER PIVOTS (CON'T)
  - CLOSER PREP AND INSTALLATION FOR 1 3/4" AND 2" HEADER/T'BAR (CON'T)
  - D. LOCATE THE C.O.C. COVER PLATE INTO THE HEADER/TRANSOM BAR CUTOUT AND FASTEN THE COVER PLATE INTO PLACE WITH THE SUPPLIED SCREWS THAT WILL THREAD INTO THE 'F' CLIP.



E. ATTACH THE DOOR STOP / SLIDE ARM COVER IN THE CORRECT LOCATION TO LINE UP WITH THE DOOR STOPS AT THE JAMBS.

### A. BUTT HINGE, CONTINUOUS HINGE, CENTER PIVOTS (CON'T)

## 2. CLOSER PREP AND INSTALLATION STEPS FOR 4" AND 4 1/2" HEADER/T'BAR

A. THREAD TWO 1/4-20 X 5/8" FILLISTER HEAD MACHINE SCREW (SUPPLIED BY DORMA) APPROX. TWO TO THREE TURNS INTO THE THREADED HOLES ON THE HINGE/PIVOT SIDE OF THE CLOSER. LEAVE LOOSE UNTIL THE CLOSER IS INSTALLED IN THE "F" CLIP.

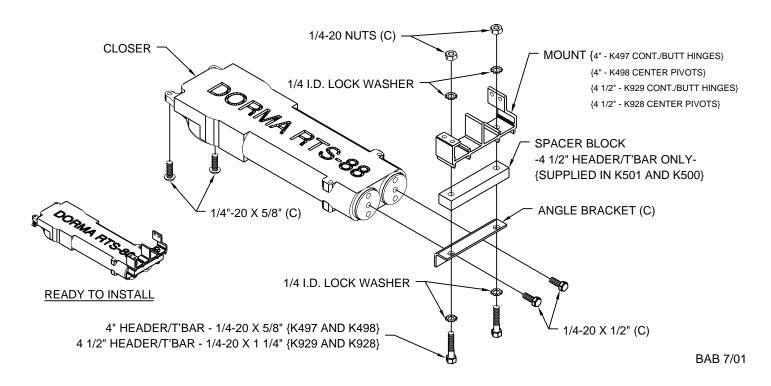
**B.** FASTEN THE DORMA ANGLE BRACKET TO THE CLOSER USING THE 1/4"-20 BOLTS AND WASHERS, SUPPLIED WITH THE CLOSER.

### C. 4" HEADER/TRANSOM BAR:

FASTEN THE MOUNT {K497 OR K498} TO THE ANGLE BRACKET USING THE TWO 1/4"-20 X 5/8" HEX BOLTS {ISS1}, SUPPLIED WITH THE K497. USE THE 1/4"-20 LOCK WASHERS AND 1/4"-20 NUTS THAT ARE SUPPLIED WITH THE CLOSER.

#### 4 1/2" HEADER/TRANSOM BAR:

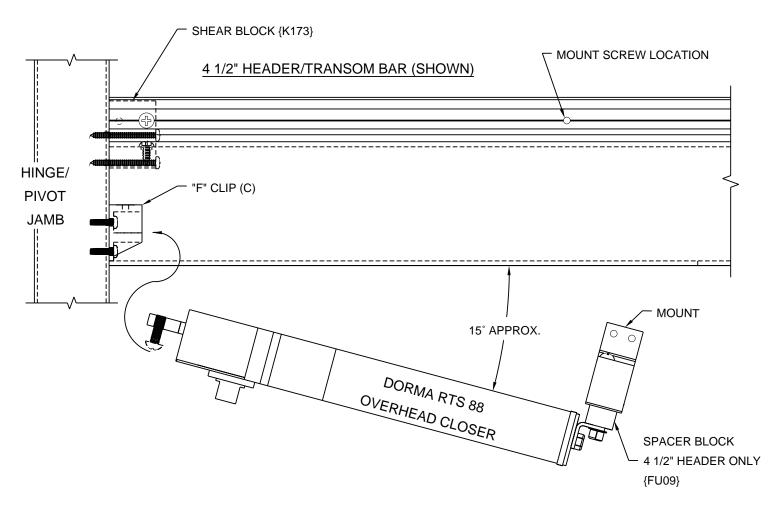
FASTEN THE MOUNT {K929 OR K928} TO THE ANGLE BRACKET, PLACING THE SPACER BLOCK (SUPPLIED WITH THE K929) BETWEEN THE ANGLE BRACKET AND THE MOUNT, USING THE TWO 1/4"-20 X 1 1/4" HEX BOLTS {IHP9}, SUPPLIED WITH THE K929. USE THE 1/4"-20 LOCK WASHERS AND 1/4"-20 NUTS THAT ARE SUPPLIED WITH THE CLOSER.



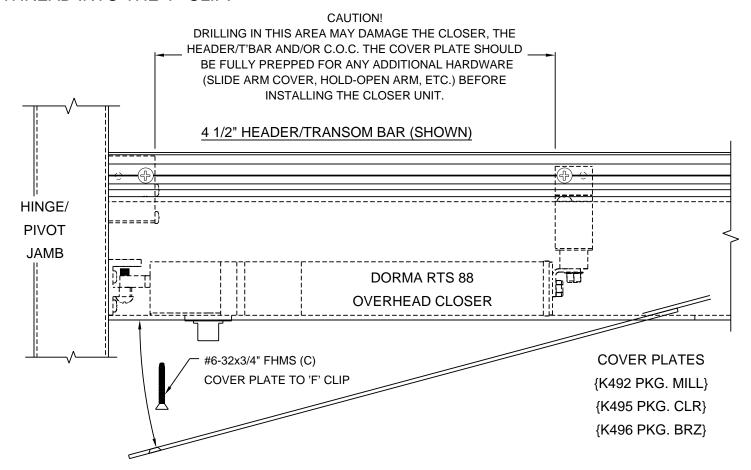
- A. BUTT HINGE, CONTINUOUS HINGE, CENTER PIVOTS (CON'T)
  - 2. CLOSER PREP AND INSTALLATION STEPS FOR 4" AND 4 1/2" HEADER/T'BAR (CON'T)

INSTALLATION OF THE CLOSER IS IDENTICAL FOR THE 4" AND 4 1/2" HEADERS. THE 4 1/2" HEADER IS SHOWN IN THE FOLLOWING DETAILS.

D. WHILE HOLDING THE CLOSER AT A 15° ANGLE TO THE HDR/T-BAR, INSERT THE CLOSER MOUNTING LUGS INTO THE "F" CLIP AND RAISE THE OPPOSITE END OF THE CLOSER TO ALIGN THE MOUNT SCREW HOLES WITH THE PREP IN THE HEADER/T'BAR. SECURE THE CLOSER IN PLACE WITH TWO #12-11 X 1/2" PL-RH-SMS {STB9}.



- A. BUTT HINGE, CONTINUOUS HINGE, AND CENTER PIVOTS (CON'T)
  - 2. CLOSER PREP AND INSTALLATION STEPS FOR 4" AND 4 1/2" HEADER/T'BAR (CON'T)
  - E. TIGHTEN THE FILLISTER HEAD SCREWS AND RECHECK TO MAKE SURE THAT ALL SCREWS / NUTS ARE TIGHT.
  - F. LOCATE THE C.O.C. COVER PLATE INTO THE HEADER/TRANSOM BAR CUTOUT AND FASTEN THE COVER PLATE INTO PLACE WITH THE SUPPLIED SCREWS THAT WILL THREAD INTO THE 'F' CLIP.



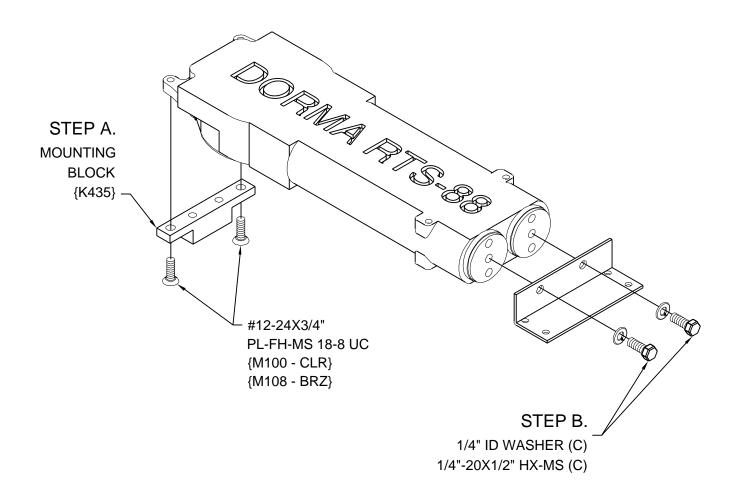
4. ATTACH THE DOOR STOP / SLIDE ARM COVER IN THE CORRECT LOCATION TO LINE UP WITH THE DOOR STOPS AT THE JAMBS.

### **B. OFFSET PIVOTS**

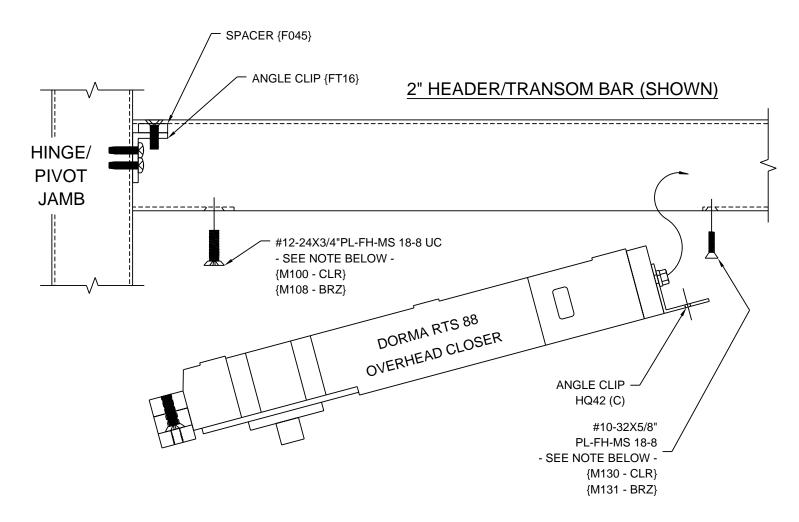
### 1. CLOSER PREPARATION AND INSTALLATION STEPS

A. ATTACH THE MOUNTING BLOCK TO THE CLOSER WITH TWO #12-24X3/4" FH-MS THROUGH THE BLOCK AND INTO THE CLOSER AS SHOWN.
RETAIN THE SCREWS THAT MATCH THE COLOR OF THE FRAME FOR ATTACHMENT OF THE ASSEMBLY TO THE HEADER/T-BAR.

B. ATTACH THE ANGLE CLIP TO THE CLOSER WITH TWO 1/4"-20X5/8" BOLTS WITH LOCK WASHERS THROUGH THE ANGLE CLIP AND INTO THE CLOSER AS SHOWN.



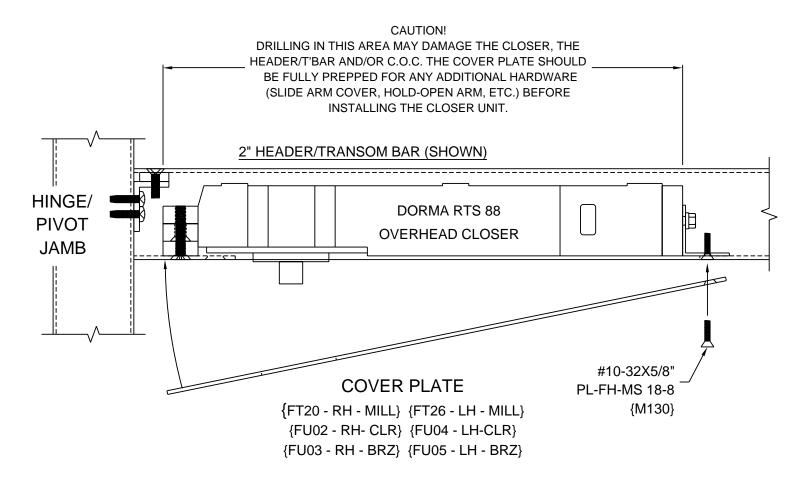
- B. OFFSET PIVOTS (CON'T)
  - 1. CLOSER PREPARATION AND INSTALLATION STEPS
    - C. INSERT THE CLOSER, WITH THE ANGLE CLIP AND THE SPACER BLOCK ATTACHED (402 ONLY), INTO THE TRANSOM BAR. LOCATE THE SPACER BLOCK OVER THE PREPPED HOLES IN THE TRANSOM BAR AND ATTACH WITH TWO #12-24X3/4" FH-MS.
    - D. SECURE THE CLOSER IN PLACE WITH TWO #10-32X5/8" FH-MS INTO THE ANGLE CLIP AT THE OPPOSITE END.



NOTE:

THE FINISH ON THE ATTACHMENT SCREWS SHOULD MATCH THE FRAME'S FINISH.

- B. OFFSET PIVOTS (CON'T)
  - 1. CLOSER PREPARATION AND INSTALLATION STEPS (CON'T)
    - E. TIGHTEN THE FLAT HEAD SCREWS AND RECHECK TO MAKE SURE THAT ALL SCREWS AND NUTS ARE TIGHT.



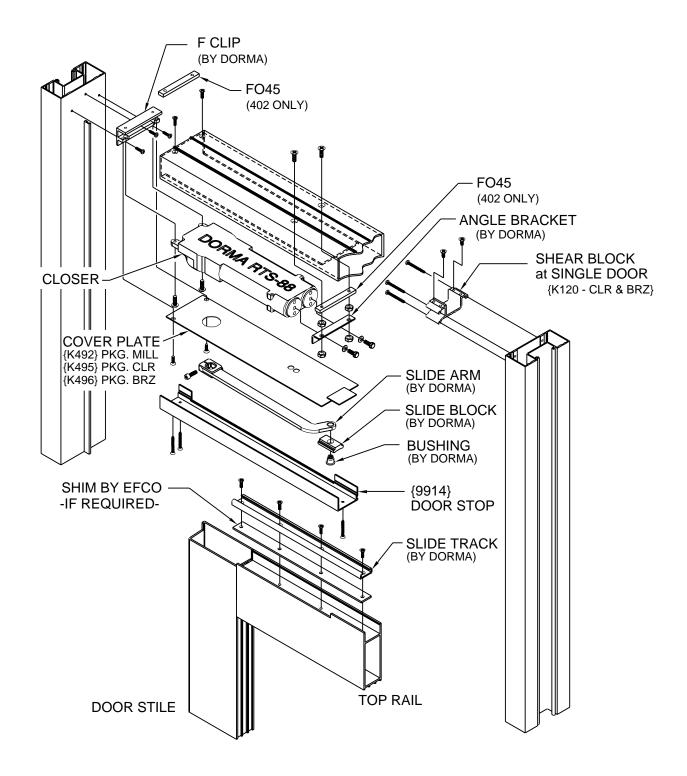
F. LOCATE THE C.O.C. COVER PLATE INTO THE HEADER/T'BAR CUTOUT AND FASTEN THE COVER PLATE IN PLACE WITH THE SUPPLIED FASTENERS AT THE ANGLE CLIP END.

NOTE: THE DOOR STOP/SLIDE ARM COVER WILL RETAIN THE SPINDLE END OF THE COVER, WHEN IT IS ATTACHED.

**G**. ATTACH THE DOOR STOP/SLIDE ARM COVER IN THE CORRECT LOCATION TO LINE UP WITH THE DOOR STOPS AT THE JAMBS.

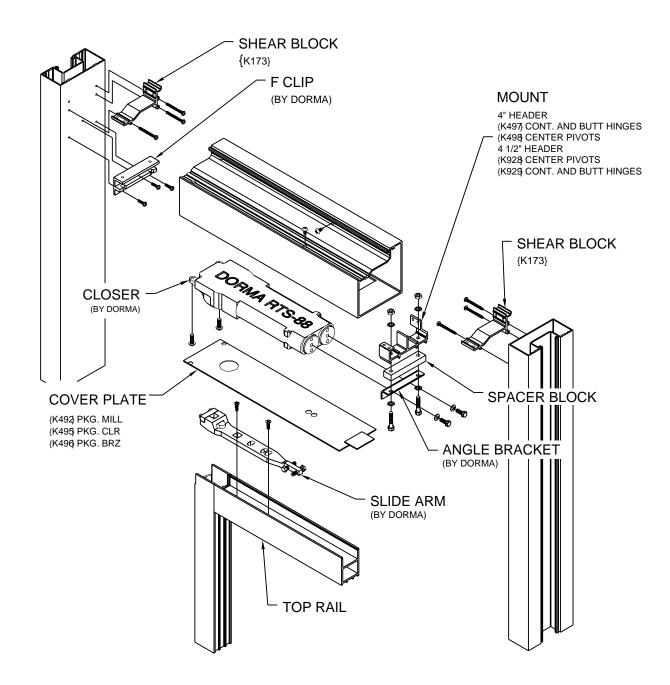
## SECTION IV EXPLODED VIEWS

### A. BUTT HINGE AND CONTINUOUS HINGE



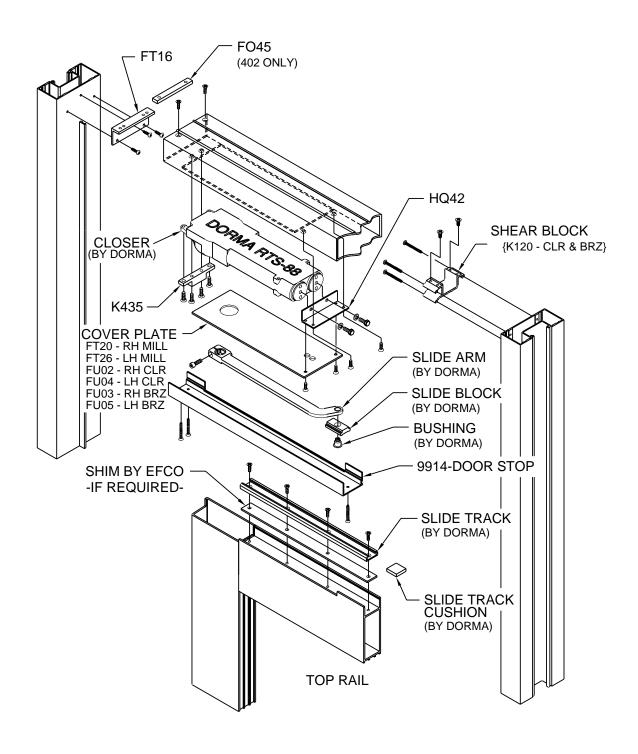
## SECTION IV EXPLODED VIEWS (CON'T)

### **B. CENTER PIVOTS**



## SECTION IV EXPLODED VIEWS (CON'T)

### C. OFFSET PIVOTS



## SECTION V DOOR INSTALLATION

- A. HANG THE DOOR ON THE PREPARED FRAMES WITH THE APPROPRIATE HINGING AND ADJUST THE DOOR HEIGHT CLEARANCE TO 1/8".
- B. SLIDE THE C.O.C. ARM INTO THE SLIDE TRACK IN THE TOP RAIL OF THE DOOR AND INSTALL THE OPPOSITE END ON THE SPINDLE OF THE C.O.C.
- C. CLOSE THE DOOR AND TIGHTEN THE SCREW IN THE ARM AT THE SPINDLE END.
- D. CORRECTLY LOCATE AND ATTACH THE SLIDE ARM COVER/DOOR STOP TO THE HEADER/T'BAR WITH THE SCREWS PROVIDED.

### SECTION VI CLOSER ADJUSTMENT

- A. CHECK THE LATCHING SPEED OF THE DOOR AND ADJUST THIS WITH VALVE "A", WHICH IS TOWARD THE CENTER OF THE DOOR. CLOCKWISE TURNS DECREASE THE LATCHING SPEED, WHEREAS COUNTERCLOCKWISE TURNS INCREASE THE LATCHING SPEED.
- B. CHECK THE CLOSING SPEED OF THE DOOR AND ADJUST THIS WITH VALVE "B", WHICH IS TOWARD THE SPINDLE OF THE C.O.C. COUNTERCLOCKWISE TURNS INCREASE THE CLOSING SPEED.

