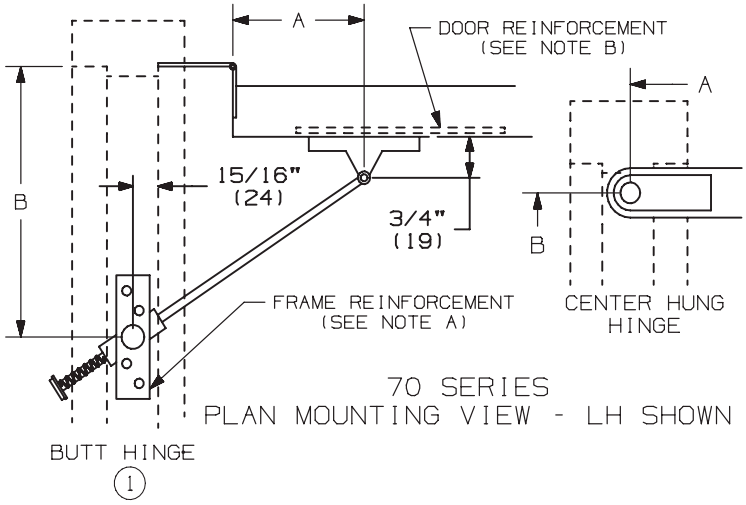
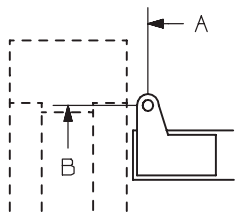
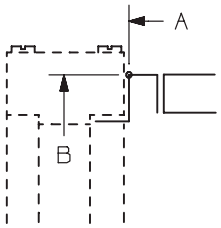
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM CHART BELOW. CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A" AND "B" DIMENSIONS FROM CHART ON PAGE 3. FOR DEAD STOP ADD 3/8"(10) TO THE "A" AND "B" DIMENSIONS FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



70 SERIES
PLAN MOUNTING VIEW - LH SHOWN





DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/4" (44mm)	4" WIDE BUTT	1
	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	CENTERHUNG PIVOT	2
2" (51mm)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	1
	CENTERHUNG PIVOT	2
2 1/4" (57mm)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	SOSS 220	1
	CENTERHUNG PIVOT	2

NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 2 1/2"(64) MINIMUM WIDTH PLATE.

C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN AND STOP ONLY MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

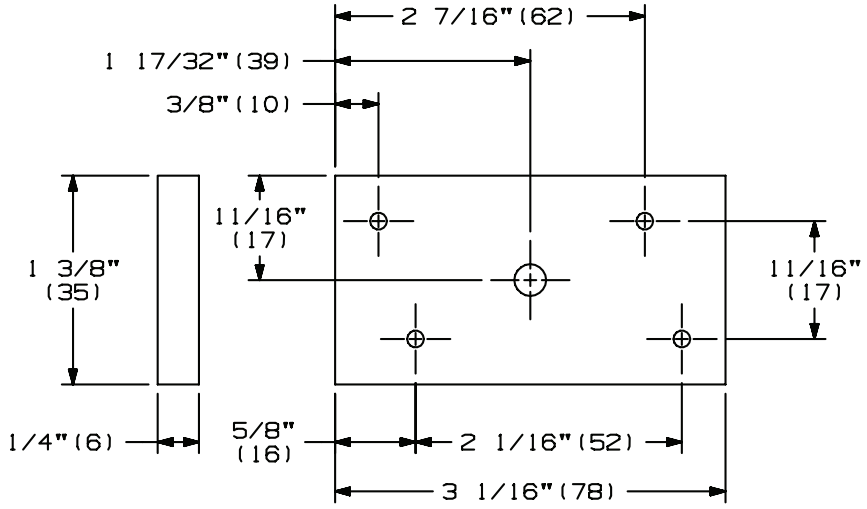
HOLD-OPEN TENSION ADJUSTMENT

USING A 3/4" WRENCH, TURN NUT AT THE END OF BAR. TO INCREASE THE HOLD-OPEN TENSION, TURN NUT CLOCKWISE. TO DECREASE THE HOLD-OPEN TENSION, TURN NUT COUNTER-CLOCKWISE.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

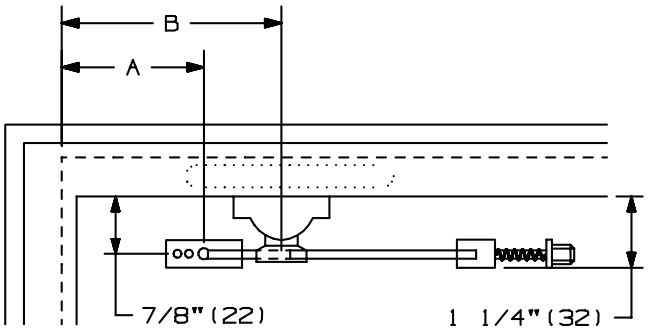
SCREW DETAILS			
	QTY	WOOD	METAL
JAMB	4	#14 x 1 1/2" FPHSMS	1/4"-20 x 3/4" FPHMS
DOOR STD	2	1/4"-20 x 1 3/4" PPHMS	1/4"-20 x 1 3/4" PPHMS
	2	1/4"-20 GROMMET NUTS	1/4"-20 GROMMET NUTS
	1	#14 x 1 1/2" PPHMS	----
	3	----	1/4"-20 x 1 3/4" PPHMS
DOOR SEX BOLT	2	Ø 3/8" x 1 9/16" SEX BOLTS	Ø 3/8" x 1 9/16" SEX BOLTS
	2	1/4"-20 x 1 3/4" PPHMS	1/4"-20 x 1 3/4" PPHMS
	1	#14 x 1 1/2" PPHMS	#14 x 1 1/2" PPHMS

2. A. LOCATE "B" DIMENSION ON THE STOP. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. FOR METAL FRAMES, USE A #7 DRILL AND A 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL A 3/16" PILOT HOLES IN 4 PLACES.

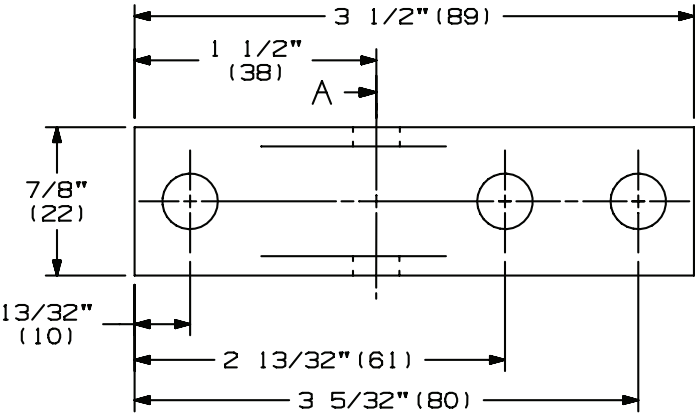


JAMB BRACKET

3. A. LOCATE "A" DIMENSION ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. CHOOSE THE TYPE OF FASTENERS BEING USED TO MOUNT THE DOOR BRACKET TO THE DOOR. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.
      1. MACHINE SCREWS TO A REINFORCED METAL DOOR, DRILL DOWN 7/8"(22) FROM THE STOP USING #7 DRILL AND 1/4-"20 TAP IN 3 PLACES.
      2. USING GROMMET NUTS ON THE OUTSIDE TWO MOUNTING HOLES, DRILL 7/8"(22) DOWN FROM STOP 9/32"(7) DIAMETER THROUGH DOOR IN 2 PLACES. ON THE CENTER HOLE FOR METAL DOORS, USE A #7 DRILL AND 1/4"-20 TAP OF FOR WOOD DOORS, DRILL A 3/16" PILOT HOLE.
      3. OPTIONAL, USING SEX BOLTS ON THE OUTSIDE TWO MOUNTING HOLES, DRILL 7/8"(22) DOWN FROM STOP 3/8"(10)DIAMETER THROUGH DOOR IN 2 PLACES. ON THE CENTER HOLE FOR METAL DOORS, USE A #7 DRILL AND 1/4"-20 TAP OR FOR WOOD DOORS, DRILL A 3/16" PILOT HOLES. NOT PROVIDED STANDARD, BUT AVAILABLE ON REQUEST.



FRONT ELEVATION



DOOR BRACKET

4. A. INSTALL JAMB BRACKET ON THE STOP.
   B. INSTALL THE DOOR BRACKET ON THE DOOR.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

MOUNTING GROUPS 1 & 2
70 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

FOR DEAD STOP ADD 3/8" (10) TO THE "A" & "B" DIMENSIONS

HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO		
		DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	BAR LENGTH
MOUNTING GROUP #1	702	IN.	23 1/16-27	5 3/8	10 1/16	5	9 5/8	4 11/16	9 1/4	4 3/8	8 15/16	4 1/8	8 5/8	3 5/8	8 3/8	14 15/16
		mm	585-686	137	256	127	244	119	235	111	227	105	219	98	213	379
	703	IN.	27 1/16-33	6 3/4	14 3/4	6 1/2	14 1/8	6 1/4	13 1/2	6	13	5 3/4	12 9/16	5 9/16	12 1/16	19 1/16
		mm	687-838	171	375	165	359	159	343	152	330	146	319	141	306	484
	704	IN.	33 1/16-39	9 1/4	17 1/4	8 3/4	16 5/8	8 1/4	16 1/8	7 3/4	15 11/16	7 1/4	15 3/8	6 3/4	15 1/8	22 7/16
		mm	839-991	235	438	222	422	210	410	197	398	184	391	171	384	570
	705	IN.	39 1/16-45	12	19 9/16	11 15/16	18 1/4	11 7/8	17	11 13/16	15 13/16	11 5/8	14 15/16	11 1/4	14 3/8	25 13/16
		mm	992-1143	305	497	303	464	302	432	300	402	295	379	286	365	656
	706	IN.	45 1/16-54	14 1/4	22 13/16	14 1/8	21 3/8	14	20	13 7/8	18 3/4	13 3/4	17 5/8	13 3/8	16 15/16	29 9/16
		mm	1144-1372	362	579	359	543	356	508	352	476	349	448	340	430	751
MOUNTING GROUP #2	702	IN.	27 1/16-33	5 3/8	10 1/8	5 1/16	9 3/4	4 3/4	9 7/16	4 1/2	9 1/8	4 5/16	8 3/4	4 1/16	8 9/16	14 15/16
		mm	687-838	137	257	129	248	121	240	114	232	110	222	103	217	379
	703	IN.	33 1/16-39	9	12 9/16	8 1/2	12 1/16	8 1/8	11 9/16	7 3/4	11 3/16	7 7/16	10 3/4	7 1/8	10 7/16	19 1/16
		mm	839-991	229	319	216	306	206	294	197	284	189	273	181	265	484
	704	IN.	39 1/16-45	11 11/16	14 7/8	11 1/8	14 3/16	10 5/8	13 5/8	10	13 5/16	9 5/8	12 7/8	9 1/8	12 5/8	22 7/16
		mm	992-1143	297	378	283	360	270	346	254	338	244	327	232	321	570
	705	IN.	45 1/16-51	14 1/16	17 1/2	13 1/2	16 5/8	12 7/8	16	12 1/4	15 1/2	11 3/4	15	11 1/4	14 5/8	25 13/16
		mm	1144-1295	357	445	343	422	327	406	311	394	298	381	286	371	656
	706	IN.	51 1/16-57	16 3/4	20 3/8	15 15/16	19 1/2	15 3/16	18 13/16	14 9/16	18 1/8	14 1/16	17 7/16	13 9/16	16 15/16	29 9/16
		mm	1296-1448	425	518	405	495	386	478	370	460	357	443	344	430	751

INST.70

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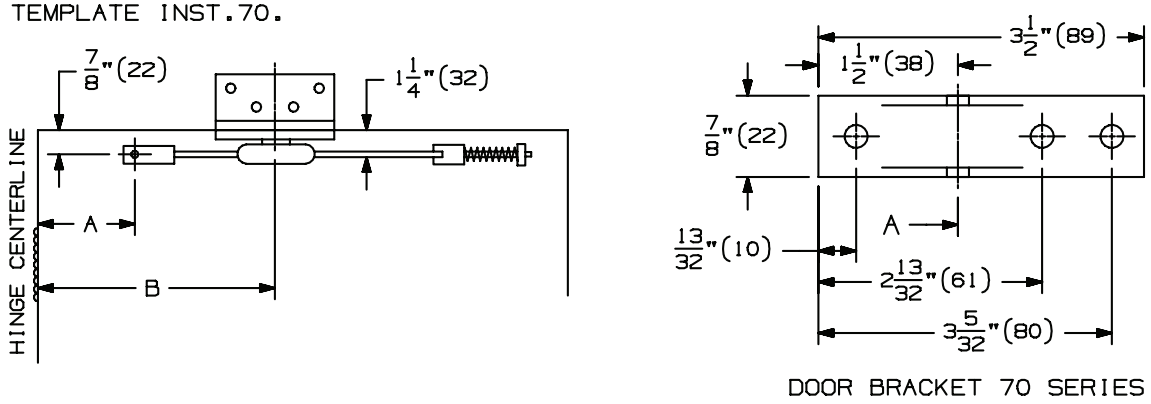
INST.70 Rev. 01/14-b

OVERHEAD HOLDER OR STOPS MUST BE INSTALLED BEFORE CLOSERS.

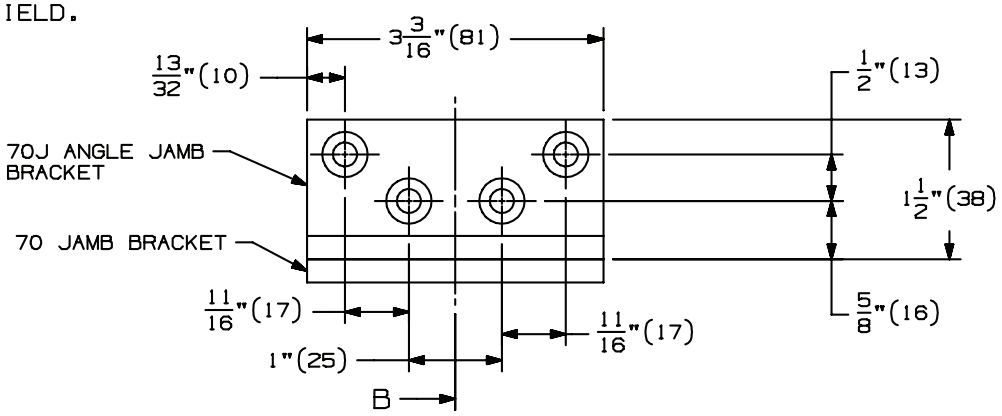
1. A. FOLLOW STEP 1 FROM THE 70 SERIES SURFACE OVERHEAD HOLDER INSTALLATION TEMPLATE INST.70.



DOOR BRACKET 70 SERIES

2. A. LOCATE "B" DIMENSION ON THE FACE OF THE FRAME OR ON THE FLUSH TRANSOM PANEL. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

B. FOR METAL FRAMES, USE A #7 DRILL AND 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 3/16" PILOT HOLES IN 4 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. FOLLOW STEP 3 FROM THE 70 SERIES OVERHEAD SURFACE HOLDER INSTALLATION TEMPLATE INST.70

4. A. INSTALL ANGLE BRACKET ONTO STANDARD JAMB BRACKET WITH 1/4"-20 X 1/2" FPHMS PROVIDED WITH THE ANGLE BRACKET.

B. INSTALL THE DOOR BRACKET ON THE DOOR.

C. INSTALL THE ANGLE BRACKET TO THE FACE OF THE FRAME OR THE TRANSOM PANEL.

SCREW DETAILS

	QTY	WOOD	METAL
ANGLE	4	1/4"-20 X 1/2" FPHMS	1/4"-20 X 1/2" FPHMS
JAMB	4	#14 X 1 1/2" FPHSMS	1/4"-20 X 3/4" FPHMS
DOOR	2	1/4"-20 X 1 3/4" PPHMS	1/4"-20 X 1 3/4" PPHMS
DOOR	2	1/4"-20 GROMMET NUTS	1/4"-20 GROMMET NUTS
DOOR	1	#14 X 1 1/2" PPHMS	
DOOR	3		1/4"-20 X 3/4" PPHMS

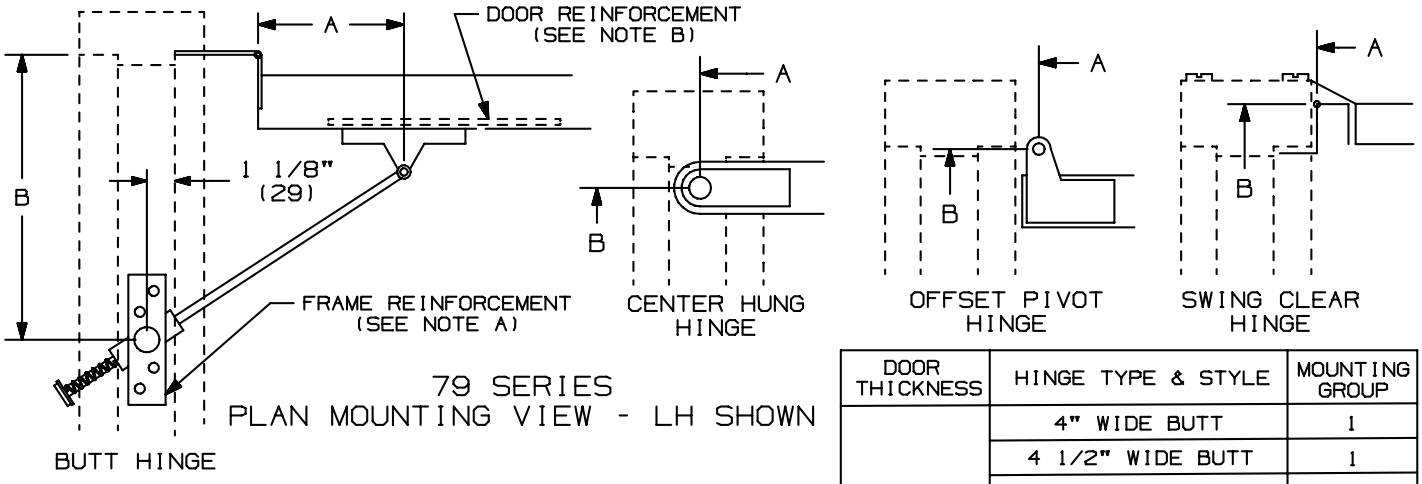
NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

INST.70J

INST.70J Rev. 01/14-b

OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A" AND "B" DIMENSIONS FROM CHART ON PAGE 3. FOR DEAD STOP ADD 7/8"(22) TO THE "A" AND "B" DIMENSIONS FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



79 SERIES
PLAN MOUNTING VIEW - LH SHOWN

DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/4" (44mm)	4" WIDE BUTT	1
	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	CENTERHUNG PIVOT	2
2" (51mm)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	1
	CENTERHUNG PIVOT	2
2 1/4" (57mm)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	SOSS 220	1
	CENTERHUNG PIVOT	2

NOTES:
A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.
B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 2 1/2"(64) MINIMUM WIDTH PLATE.
C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ.
D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN AND STOP ONLY MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

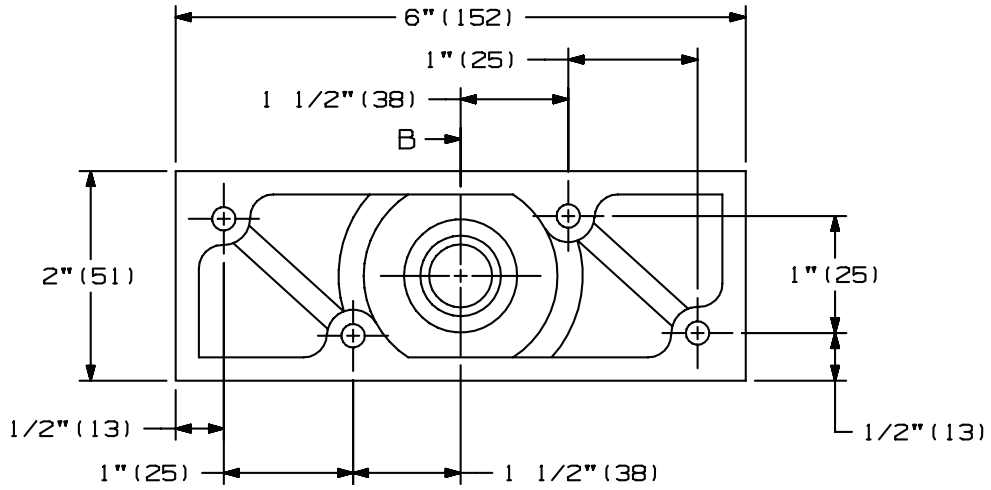
HOLD-OPEN TENSION ADJUSTMENT

USING A 3/4" WRENCH, TURN NUT AT THE END OF BAR. TO INCREASE THE HOLD-OPEN TENSION, TURN NUT CLOCKWISE. TO DECREASE THE HOLD-OPEN TENSION, TURN NUT COUNTER-CLOCKWISE.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

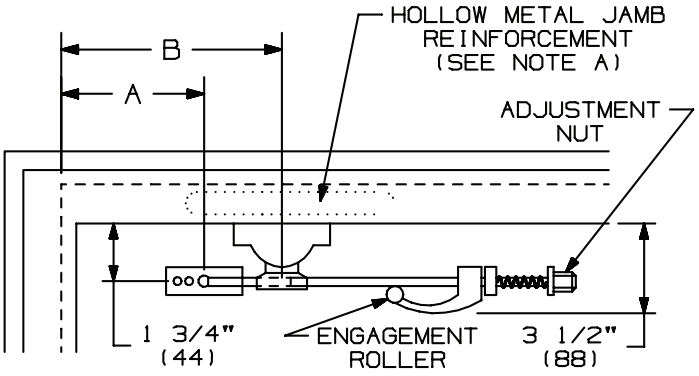
SCREW DETAILS			
	QTY	WOOD	METAL
JAMB	4	#18 x 2" FPHSMS	5/16"-18 x 1 1/2" FPHMS
DOOR STD	2	5/16"-18 x 2 1/2" PPHMS	5/16"-18 x 2 1/2" PPHMS
	2	5/16"-18 HEX CAP NUTS	5/16"-18 HEX CAP NUTS
	1	FLAT WASHER	FLAT WASHER
	3	SPLIT LOCK WASHER	SPLIT LOCK WASHER
DOOR SEX BOLT	2	Ø 1/2" x 1 9/16" SEX BOLTS	Ø 1/2" x 1 9/16" SEX BOLTS
	2	5/16"-18 x 1 1/2" FPHMS	5/16"-18 x 1 1/2" FPHMS

2. A. LOCATE "B" DIMENSION ON THE STOP. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. FOR METAL FRAMES, USE A F DRILL AND A 5/16"-18 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL A 1/4" PILOT HOLE IN 4 PLACES.

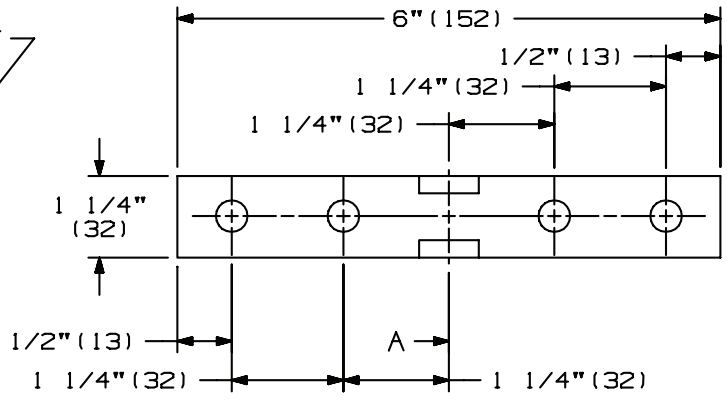


JAMB BRACKET

3. A. LOCATE "A" DIMENSION ON THE DOOR. NOTE THAT THE "A" DIMENSIONIS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. CHOOSE THE TYPE OF FASTENERS BEING USED TO MOUNT THE DOOR BRACKET TO THE DOOR. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.
      1. USING SCREWS, FLAT WASHERS, SPLIT WASHERS, AND HEX CAP NUTS WHICH ARE PROVIDED, DRILL 1 3/4"(44) DOWN FROM STOP 11/32"(13) DIAMETER THROUGH DOOR IN 4 PLACES.
      2. OPTIONAL, USING SEX BOLTS, DRILL 1 3/4"(44) DOWN FROM STOP 1/2"(13) DIAMETER THROUGH DOOR IN 4 PLACES. NOT PROVIDED STANDARD, BUT AVAILABLE ON REQUEST.



FRONT ELEVATION



DOOR BRACKET

4. A. INSTALL JAMB BRACKET ON THE STOP.
   B. INSTALL THE DOOR BRACKET ON THE DOOR.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

MOUNTING GROUPS 1 & 2
79 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR
FOR DEAD STOP ADD 7/8" (22) TO THE "A" AND "B" DIMENSIONS
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO		
		DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	BAR LENGTH
MOUNTING GROUP #1	792	IN.	23 1/16-27	4 1/4	9 5/16	4	8 7/8	3 3/4	8 1/2	3 1/2	8 1/8	-	-	-	-	17 15/16
		mm	585-686	108	237	102	225	95	216	89	206	-	-	-	-	456
	793	IN.	27 1/16-33	6 1/16	11 1/16	5 13/16	10 7/16	5 7/16	10 1/16	5 1/8	9 11/16	4 13/16	9 3/8	4 9/16	9 1/16	20 5/8
		mm	687-838	154	281	148	265	138	256	130	246	122	238	116	230	524
	794	IN.	33 1/16-39	8 5/8	13 5/8	8	13 3/16	7 9/16	12 3/4	7 1/16	12 7/16	6 1/2	12 5/16	6 1/16	12 1/8	23 5/16
		mm	839-991	219	346	203	335	192	324	179	316	165	313	154	308	592
	795	IN.	39 1/16-45	11 1/4	16 1/8	10 11/16	15 7/16	10 1/8	14 7/8	9 1/2	14 9/16	9 1/16	14 1/8	8 11/16	13 11/16	26 13/16
		mm	992-1143	286	410	271	392	257	378	241	370	230	359	221	348	681
	796	IN.	45 1/16-54	-	-	13	18 1/8	12 7/16	17 3/8	11 7/8	16 3/4	11 1/2	16 1/16	10 7/8	15 13/16	30 5/16
		mm	1144-1372	-	-	330	460	316	441	302	425	292	408	276	402	770
MOUNTING GROUP #2	792	IN.	27 1/16-33	4 9/16	9 1/16	4 1/4	8 13/16	4	8 9/16	3 11/16	8 3/8	3 9/16	8 1/8	-	-	17 15/16
		mm	687-838	116	230	108	224	102	217	94	213	90	206	-	-	456
	793	IN.	33 1/16-39	6 1/8	11	5 3/4	10 5/8	5 1/4	10 1/2	5 1/16	10 1/8	4 13/16	9 7/8	4 11/16	9 1/2	20 5/8
		mm	839-991	156	279	146	270	133	267	129	257	122	251	119	241	524
	794	IN.	39 1/16-45	8 3/8	13 13/16	8	13 1/4	7 7/16	12 15/16	7	12 5/8	6 15/16	12 1/16	6 5/8	11 3/4	23 5/16
		mm	992-1143	213	351	203	337	189	329	178	321	176	306	168	298	592
	795	IN.	45 1/16-51	11	16 3/8	10 7/16	15 3/4	9 3/4	15 3/8	9 1/2	14 3/4	9 1/16	14 3/8	8 13/16	13 7/8	26 13/16
		mm	1144-1295	279	416	265	400	248	391	241	375	230	365	224	352	681
	796	IN.	51 1/16-57	13 9/16	19	12 13/16	18 5/16	12 1/4	17 5/8	11 13/16	17	11 5/16	16 1/2	10 7/8	16 1/16	30 5/16
		mm	1296-1448	344	483	325	465	311	448	300	432	287	419	276	408	770

INST.79

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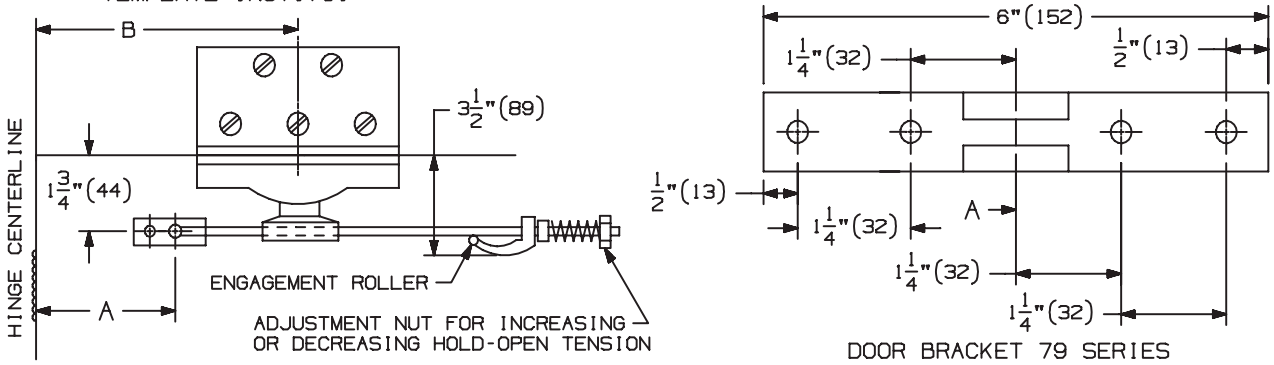
INST.79 Rev. 01/14-b

Surface Overhead Holder Angle Bracket (Push Side)

Installation Instructions

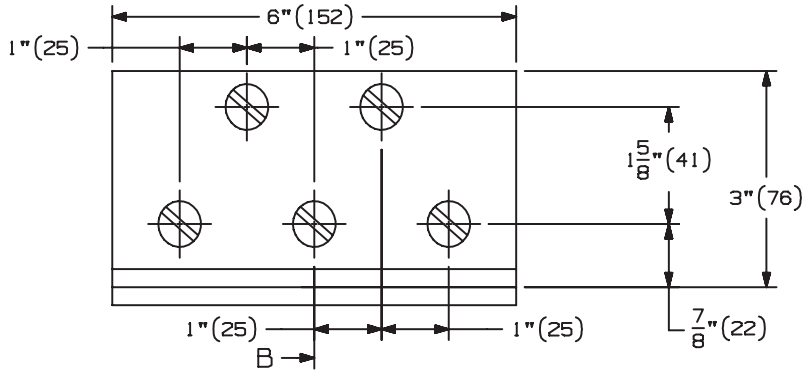
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS.

1. A. FOLLOW STEP 1 FROM THE 79 SERIES SURFACE OVERHEAD HOLDER INSTALLATION TEMPLATE INST.79.



2. A. LOCATE "B" DIMENSION ON THE FACE OF THE FRAME OR ON THE FLUSH TRANSOM PANEL. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

   B. FOR METAL FRAMES, USE A F DRILL AND 5/16"-18 TAP IN 5 PLACES. FOR WOOD FRAMES, DRILL 1/4" PILOT HOLES IN 5 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. FOLLOW STEP 3 FROM THE 79 SERIES OVERHEAD SURFACE HOLDER INSTALLATION TEMPLATE INST.79

4. A. INSTALL ANGLE BRACKET ONTO STANDARD JAMB BRACKET WITH 5/16"-18 X 1/2" FPHMS PROVIDED WITH THE ANGLE BRACKET.

   B. INSTALL THE DOOR BRACKET ON THE DOOR.

   C. INSTALL THE ANGLE BRACKET TO THE FACE OF THE FRAME OR THE FLUSH TRANSOM PANEL.

SCREW DETAILS

	QTY	WOOD	METAL
ANGLE	4	5/16"-18 X 1/2" FPHMS	5/16"-18 X 1/2" FPHMS
JAMB	4	#18 X 2" FPHSMS	5/16"-18 X 1 1/2" FPHMS
DOOR	4	5/16"-18 X 2 1/2" PPHMS	5/16"-18 X 2 1/2" PPHMS
DOOR	4	5/16"-18 HEX CAP NUT	5/16"-18 HEX CAP NUT
DOOR	4	FLAT WASHER	FLAT WASHER
DOOR	3	SPLIT LOCK WASHER	SPLIT LOCK WASHER

INST.79J

Customer Service

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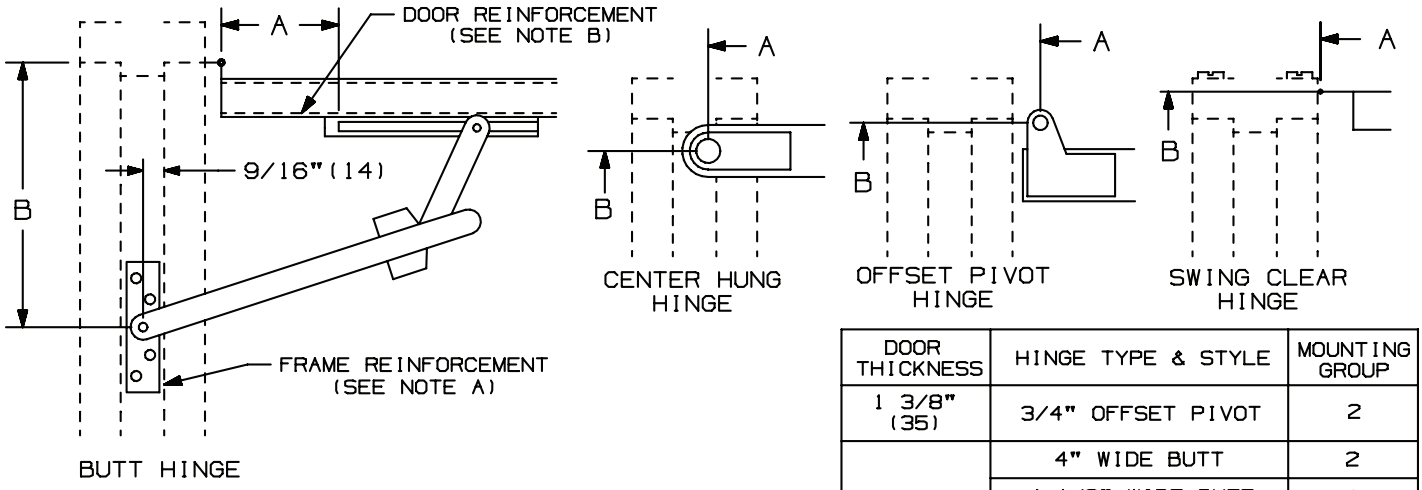
ALLEGION

INST.79J Rev. 04/14-b

OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A" AND "B" DIMENSIONS FROM CHARTS STARTING ON PAGE 3. FOR DEAD STOP ADD 13/16" (21) TO THE "A" DIMENSION FROM THE CHART.



81 SERIES
PLAN MOUNTING VIEW
LH SHOWN

DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/8" (35)	3/4" OFFSET PIVOT	2
1 3/4" (44)	4" WIDE BUTT	2
	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4" SWINGCLEAR	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	CENTERHUNG PIVOT	3
2" (51)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	1
	CENTERHUNG PIVOT	3
2 1/4" (57)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	1
	CENTERHUNG PIVOT	3

NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12" (305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 2 1/2"(64) MINIMUM WIDTH PLATE.

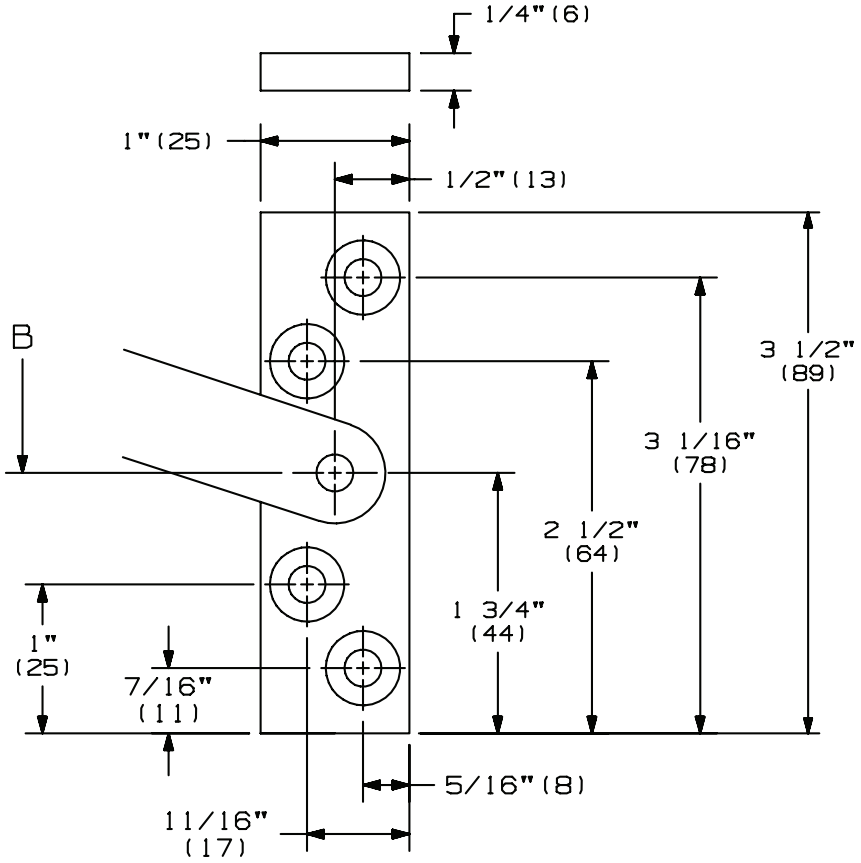
C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD-OPEN AND STOP ONLY MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5-7 DEGREES LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK AGAINST A WALL OR OBSTRUCTION.

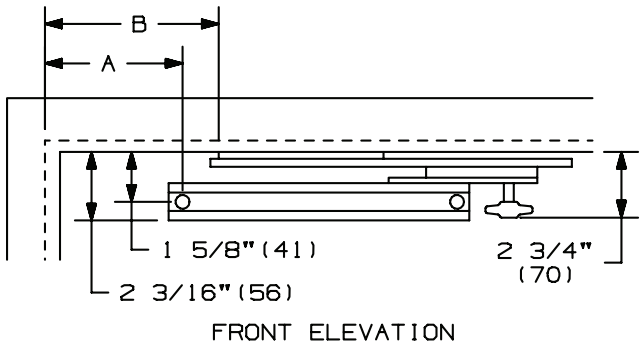
SCREW DETAILS			
	QTY	WOOD	METAL
JAMB	4	#14 x 1 1/2" FPHSMS	1/4"-20 x 3/4" FPHMS
DOOR (STD)	2	1/4"-20 x 1 1/4" OPHMS	1/4"-20 x 1 1/4" OPHMS
	2	1/4"-20 x 2 1/2" SEX BOLTS	1/4"-20 x 2 1/2" SEX BOLTS

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS

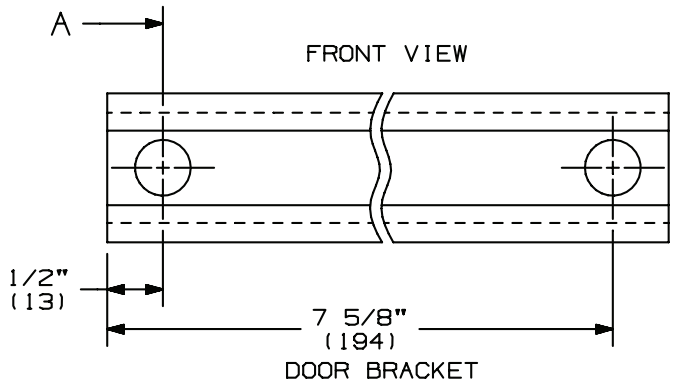
2. A. LOCATE "B" DIMENSION ON THE STOP. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. FOR METAL FRAMES, USE A #7 DRILL AND A 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL A 3/16" PILOT HOLE IN 4 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. LOCATE "A" DIMENSION ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. DRILL THE 3/8" (10) DIAMETER HOLES DOWN 1 5/8" (41) FROM STOP. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



FRONT ELEVATION



DOOR BRACKET

4. A. INSTALL JAMB BRACKET ON THE STOP.
   B. INSTALL THE CHANNEL ON THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF THE DOOR.

NOTE: DIMENSIONS IN () ARE MILLIMETERS

NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

MOUNTING GROUPS 1 & 2
81 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR
FOR DEAD STOP ADD 13/16" (21) TO THE "A" DIMENSION
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO	
		DIM	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B
MOUNTING GROUP #1	813	IN	27 1/16-33	9 3/16	8 15/16	8 5/8	8 3/8	8 1/8	7 7/8	7 1/8	7 1/2	7 3/8	7 1/8	7 1/16	6 13/16
		mm	687-838	233	227	219	213	206	200	181	191	187	181	179	173
	814	IN	33 1/16-39	13 5/16	11 9/16	12 5/8	10 7/8	12	10 1/4	11 1/2	9 3/4	11 1/16	9 5/16	10 11/16	8 15/16
		mm	839-991	338	294	320	276	305	260	292	248	281	237	271	227
	815	IN	39 1/16-45	17 15/16	14 3/8	17 1/8	13 9/16	16 3/8	12 13/16	15 3/4	12 3/16	15 1/4	11 11/16	14 3/4	11 3/16
		mm	992-1143	460	365	435	344	416	325	400	310	387	297	375	284
	816	IN	45 1/16-54	20 9/16	16 1/16	20 5/8	15 1/8	18 7/8	14 3/8	18 1/8	13 5/8	17 1/2	13	17 1/16	12 9/16
		mm	114-1372	522	408	524	384	479	365	460	346	445	330	433	319
MOUNTING GROUP #2	813	IN	27 1/16-33	9 7/16	9 3/16	8 13/16	8 9/16	8 7/16	8 3/16	8	7 3/4	7 5/8	7 3/8	7 5/16	7 1/16
		mm	687-838	240	233	224	217	214	208	203	197	194	187	190	179
	814	IN	33 1/16-39	13 1/2	11 3/4	12 3/4	11	12 3/16	10 7/16	11 11/16	9 15/16	11 3/16	9 7/16	10 13/16	9 1/16
		mm	839-991	343	298	324	279	309	265	297	252	284	240	275	230
	815	IN	39 1/16-45	18 1/8	14 9/16	17 1/4	13 11//16	16 9/16	13	15 15/16	12 3/8	15 3/8	11 13/16	14 7/8	11 5/16
		mm	992-1143	460	370	438	348	421	330	405	314	391	300	378	287
	816	IN	45 1/16-54	20 3/4	16 1/4	19 13/16	15 5/16	19 1/16	14 9/16	18 3/8	13 7/8	17 3/4	13 1/4	17 1/4	12 3/4
		mm	1144-1372	527	413	503	389	484	370	467	352	451	337	438	324

MOUNTING GROUP 3
81 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR
FOR DEAD STOP ADD 13/16" (21) TO THE "A" DIMENSION
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO	
		DIM	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B
MOUNTING GROUP #3	813	IN	33 1/16-39	9 15/16	9 11/16	9 3/8	9 1/16	8 13/16	8 11/16	8 1/2	8 1/4	7 13/16	7 7/8	7 13/16	7 9/16
		mm	839-991	253	246	240	230	224	221	220	210	206	200	198	192
	814	IN	39 1/16-45	14	12 1/4	13 1/4	11 1/2	12 9/16	10 13/16	12 3/16	10 7/16	11 3/4	10	11 3/8	9 5/8
		mm	992-1143	360	311	340	292	319	275	309	265	298	254	290	244
	815	IN	45 1/16-51	18 5/8	15 1/16	17 3/4	14 3/16	17 1/16	13 1/2	16 3/8	12 13/16	15 3/4	12 3/16	15 3/8	11 13/16
		mm	114-1295	473	383	451	360	433	343	420	325	400	310	390	300
	816	IN	51 1/16-57	21 3/16	16 11/16	20 1/4	15 3/4	19 7/16	14 15/16	18 3/4	14 1/4	18 1/8	13 5/8	18 3/16	13 1/16
		mm	1296-1448	540	424	514	400	493	379	476	362	460	346	462	332

NOTE: DIMENSIONS IN () ARE IN MILLIMETERS

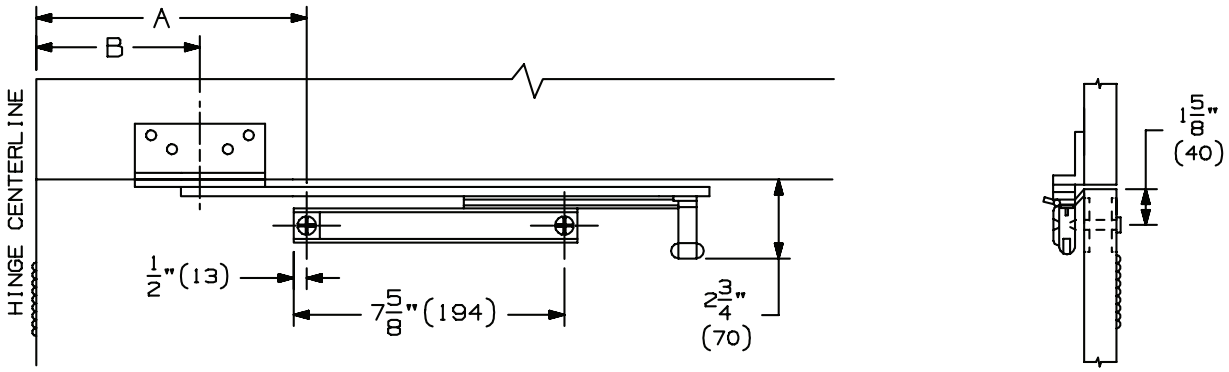
ALLEGION

INST.81 Rev. 01/14-b

INST.81

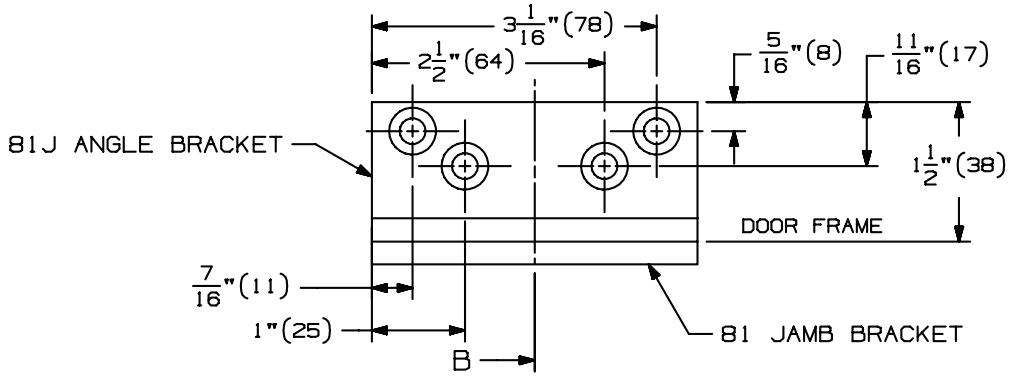
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS.

1. A. FOLLOW STEP 1 FROM THE 81 SERIES SURFACE OVERHEAD HOLDER INSTALLATION TEMPLATE INST.81.



2. A. LOCATE "B" DIMENSION ON THE FACE OF THE FRAME OR ON THE FLUSH TRANSOM PANEL. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

B. FOR METAL FRAMES, USE A #7 DRILL AND 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 3/16" PILOT HOLES IN 4 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. LOCATE "A" DIMENSION ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF HINGE AS SHOWN.

B. DRILL THE 3/8" (10) DIAMETER THROUGH HOLES DOWN 1 5/8" (41) FROM THE FRAME OR FLUSH TRANSOM PANEL IN TWO PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.

4. A. INSTALL ANGLE BRACKET ONTO STANDARD JAMB BRACKET WITH 1/4"-20 X 1/2" FPHMS PROVIDED WITH THE ANGLE BRACKET.

B. INSTALL THE CHANNEL ON THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.

SCREW DETAILS

	QTY	WOOD	METAL
ANGLE	4	1/4"-20 X 1/2" FPHMS	1/4"-20 X 1/2" FPHMS
JAMB	4	#14 X 1 1/2" FPHSMS	1/4"-20 X 3/4" FPHMS
DOOR	2	1/4"-20 X 1 1/4" OPHMS	1/4"-20 X 1 1/4" OPHMS
DOOR	2	1/4"-20 X 2 1/2" SEX BOLT	1/4"-20 X 2 1/2" SEX BOLT

NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

INST.81J

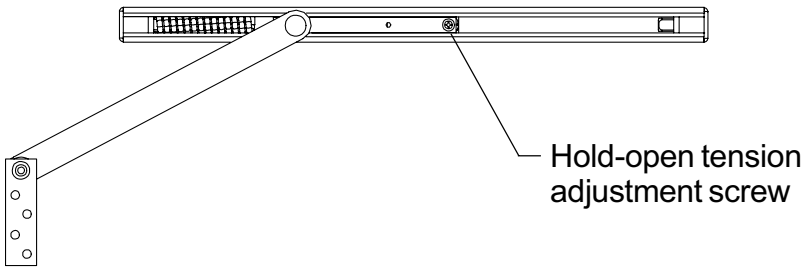
These instructions cover the following models: 90H (Hold Open), 90S (Stop only), 90F (Friction), and 90SE (Special Stop Only)

⚠ INSTALLATION NOTES

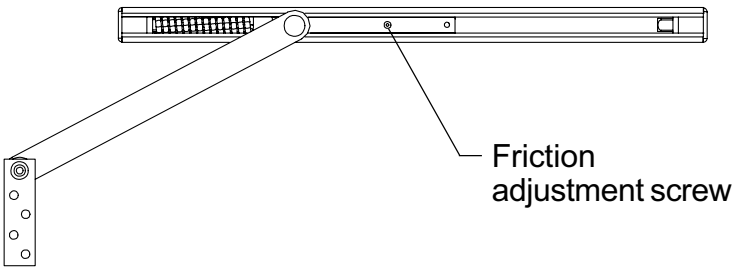
1. Hollow metal frames should be properly reinforced with a 3/16" (5mm) minimum thickness by 12" (305mm) minimum length plate.
2. Hollow metal doors should be properly reinforced with a 3/16" (5mm) minimum thickness by 2-1/2" (64mm) minimum width plate.
3. Stop only units are permitted on many fire door applications. However, mechanical hold-open devices that require manual release are not permitted for use on any fire door as outlined on NFPA80® or NFPA101®. Contact Glynn Johnson or your local representative for assistance.

ADJUSTMENTS

Hold-open tension adjustment (Hold-open model only): Using a phillips screwdriver, turn screw shown clockwise to increase hold-open tension and counterclockwise to decrease hold open tension.



Friction adjustment (Friction model only): Using a 3/32" hex wrench, turn screw shown clockwise to increase friction and counterclockwise to decrease friction.

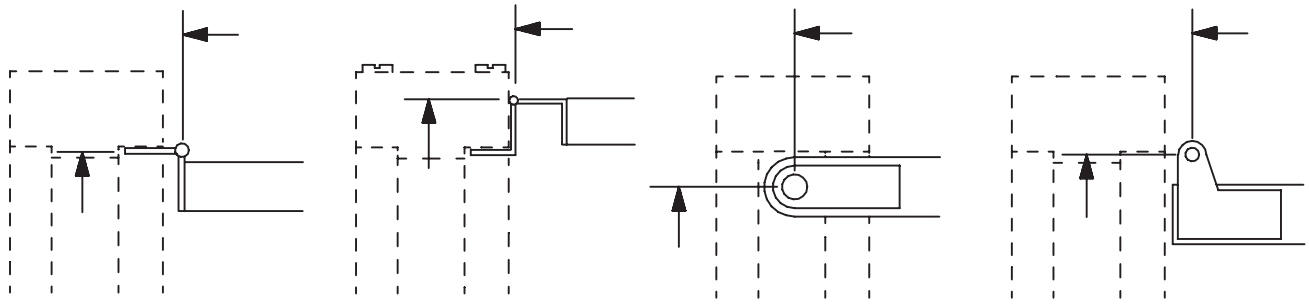


INST.90

INST.90 Rev. 06/15-d

INSTALLATION STEPS

1 Determine what type of hinge or pivot is being used on the door as shown below.

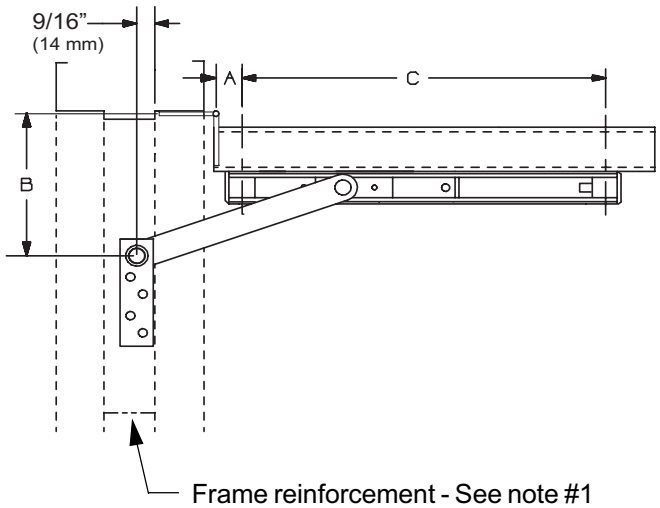


Butt Hinge | Swing Clear Hinge | Center Hung Pivot | Offset Pivot

2 Find correct type and size of hinge or pivot on the chart below to identify correct mounting group.

Hinge Type & Size	Mounting Group
Butt Hinge 4” Wide	3
Butt Hinge 4-1/2” Wide	2
Butt Hinge 5” Wide	1
Swing Clear Hinge 4” Wide	1
Swing Clear Hinge 4-1/2” Wide (1-3/4” door)	3
Swing Clear Hinge 4-1/2” Wide (2” door)	2
Swing Clear Hinge 4-1/2” Wide (2-1/4” door)	1
Swing Clear Hinge 5” Wide (1-3/4” door)	3
Swing Clear Hinge 5” Wide (2” door)	2
Swing Clear Hinge 5” Wide (2-1/4” door)	1
Center Hung Pivot (1-3/4” - 2-1/4” doors)	4
3/4” Offset Pivot (1-3/8” door)	3
3/4” Offset Pivot (1-3/4” door)	2
3/4’ Offset Pivot (2” or 2-1/4” door)	1
SOSS 220 (2” or 2-1/4” door)	2

3 Dimensions A, B, and C (shown below) will be used to locate holder on door and frame.



Frame reinforcement - See note #1 on page 1 under “Installation Notes”

4 Using the mounting group and GJ model numbers, find dimensions “A”, “B”, and “C” on page 3 chart.

Notes on using chart:

- “Degrees” shown on chart represent desired hold-open degree (on hold-open, friction, and stop only models) or stop degree (on SE models).
- “l” = Arm length from center to center (for reference only).
- On hold-open, friction, and stop only models, the dead stop (DS) degree is normally 5-7 degrees beyond the hold-open degree shown on chart. The DS door position is reached when the shock spring is fully compressed.
- When installing on doors which open back-to-back, or against a wall or obstruction, it may be desirable to install the holder based on the dead stop angle rather than the hold-open angle. To do this, add 13/16” (21mm) to the “A” dimension on chart. This will effectively reduce the dead stop and hold-open by 5-7 degrees. This can only be done on hold-open, friction, and stop only models, but NOT on SE models.

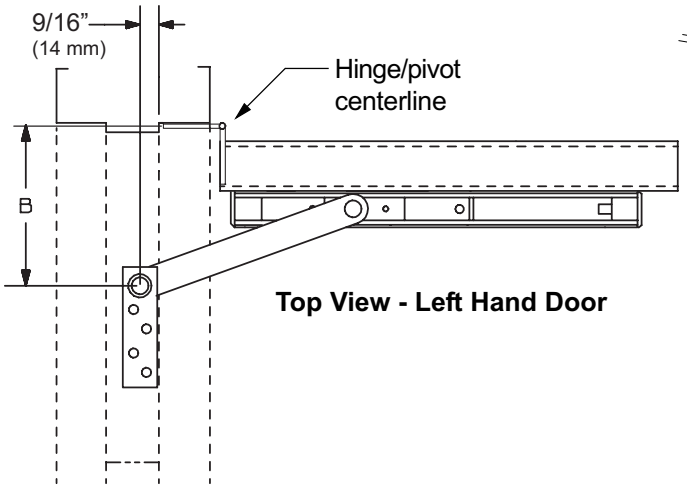
CAUTION: “A” & “B” dimensions are measured from the centerline of hinge, not edge of door.

				85 degrees		90 degrees		95 degrees		100 degrees		105 degrees		110 degrees			
	GJ MODEL	DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	C	I
MOUNTING GROUP #1	902	IN.	23 1/16-27*	1 11/16*	4 5/8*	-	-	-	-	-	-	-	-	-	-	19 3/4	10
		mm	585-687	43	117	-	-	-	-	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 1/2	6 11/16	3 1/16*	6 1/4*	2 11/16*	5 7/8*	2 3/8*	5 9/16*	-	-	-	-	22	12
		mm	688-838	89	170	78	159	68	149	60	141	-	-	-	-	559	305
	904	IN.	33 1/16-39	7	8 3/16	6 9/16	7 11/16	6 1/8	7 5/16	5 3/4	6 15/16	5 3/8	6 9/16	-	-	23 3/4	15 3/4
		mm	839-991	178	208	167	195	156	186	146	176	137	167	-	-	603	400
	905	IN.	39 1/16-45	11 5/16	9	10 3/4	8 7/16	10 1/4	7 15/16	9 13/16	7 1/2	9 1/2	7 3/16	9 1/8	6 13/16	24 1/2	20
		mm	992-1143	287	229	273	214	260	202	249	191	241	183	232	173	622	508
	906	IN.	45 1/16-54	17 1/4	10 7/16	16 5/8	9 3/4	16	9 3/16	15 1/2	8 11/16	15 1/8	8 1/4	14 3/4	7 15/16	26	26
		mm	1144-1372	438	265	422	248	406	233	394	221	384	210	375	202	660	660
MOUNTING GROUP #2	902	IN.	23 1/16-27*	1 15/16*	4 7/8*	1 5/8*	4 9/16*	-	-	-	-	-	-	-	-	19 3/4	10
		mm	585-687	49	124	41	116	-	-	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 5/8	6 13/16	3 1/4*	6 7/16*	2 7/8*	6 1/16*	2 9/16*	5 3/4*	2 5/16*	5 1/2*	-	-	22	12
		mm	688-838	92	173	83	164	73	154	65	146	59	140	-	-	559	305
	904	IN.	33 1/16-39	7 3/16	8 3/8	6 11/16	7 7/8	6 5/16	7 1/2	5 15/16	7 1/8	5 9/16	6 3/4	5 5/16	6 1/2	23 3/4	15 3/4
		mm	839-991	183	213	170	200	160	191	151	181	141	171	135	165	603	400
	905	IN.	39 1/16-45	11 1/2	9 1/8	10 15/16	8 5/8	10 7/16	8 1/16	10	7 11/16	9 5/8	7 5/16	9 5/16	7	24 1/2	20
		mm	992-1143	292	232	278	219	265	205	254	195	244	186	237	178	622	508
	906	IN.	45 1/16-54	17 7/16	10 5/8	16 3/4	9 15/16	16 3/16	9 3/8	15 11/16	8 7/8	15 1/4	8 3/8	14 7/8	8 1/16	26	26
		mm	1144-1372	443	270	425	252	411	238	398	225	387	213	378	205	660	660
MOUNTING GROUP #3	902	IN.	23 1/16-27*	2 1/8	5 1/16	1 13/16	4 3/4	1 9/16	4 1/2	-	-	-	-	-	-	19 3/4	10
		mm	585-687	54	129	46	121	40	114	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 13/16	7	3 3/8	6 9/16	3 1/16*	6 1/4*	2 3/4*	5 15/16*	2 1/2*	5 11/16*	-	-	22	12
		mm	688-838	97	178	86	167	78	159	70	151	64	144	-	-	559	305
	904	IN.	33 1/16-39	7 3/8	8 9/16	6 7/8	8 1/16	6 7/16	7 5/8	6 1/16	7 1/4	5 3/4	6 15/16	5 7/16	6 5/8	23 3/4	15 3/4
		mm	839-991	187	217	175	205	164	194	154	184	146	176	138	168	603	400
	905	IN.	39 1/16-45	11 5/8	9 5/16	11 1/16	8 3/4	10 5/8	8 1/4	10 3/16	7 13/16	9 13/16	7 1/2	9 1/2	7 3/16	24 1/2	20
		mm	992-1143	295	237	281	222	270	210	259	198	249	191	241	183	622	508
	906	IN.	45 1/16-54	17 5/8	10 13/16	16 15/16	10 1/16	16 3/8	9 1/2	15 7/8	9 1/16	15 7/16	8 9/16	15 1/16	8 1/4	26	26
		mm	1144-1372	448	275	430	256	416	241	403	230	392	217	383	210	660	660
MOUNTING GROUP #4	902	IN.	27 1/16-33	2 13/16	5 3/4	2 1/2	5 7/16	2 3/16	5 1/8	2	4 15/16	1 3/4	4 11/16	1 9/16	4 1/2	19 3/4	10
		mm	688-838	71	146	64	138	56	130	51	125	44	119	40	114	502	254
	903	IN.	33 1/16-39	4 5/16	7 7/16	3 15/16	7 1/8	3 9/16	6 3/4	3 1/4	6 7/16	3	6 3/16	2 3/4	5 15/16	22	12
		mm	839-991	110	189	100	181	90	171	83	164	76	157	70	151	559	305
	904	IN.	39 1/16-45	7 7/8	9	7 3/8	8 9/16	6 15/16	8 1/8	6 9/16	7 3/4	6 1/4	7 7/16	6	7 1/8	23 3/4	15 3/4
		mm	992-1143	200	229	187	217	176	206	167	197	159	189	152	181	603	400
	905	IN.	45 1/16-51	12 1/4	9 15/16	11 11/16	9 3/8	11 3/16	8 7/8	10 3/4	8 3/8	10 3/8	8	10 1/16	7 3/4	24 1/2	20
		mm	1144-1295	311	252	297	238	284	225	273	213	264	203	256	197	622	508
	906	IN.	51 1/16-57	18 1/4	11 7/16	17 9/16	10 3/4	17	10 1/16	16 7/16	9 9/16	16	9 1/8	15 9/16	8 3/4	26	26
		mm	1296-1448	464	291	446	273	432	256	418	243	406	232	395	222	660	660

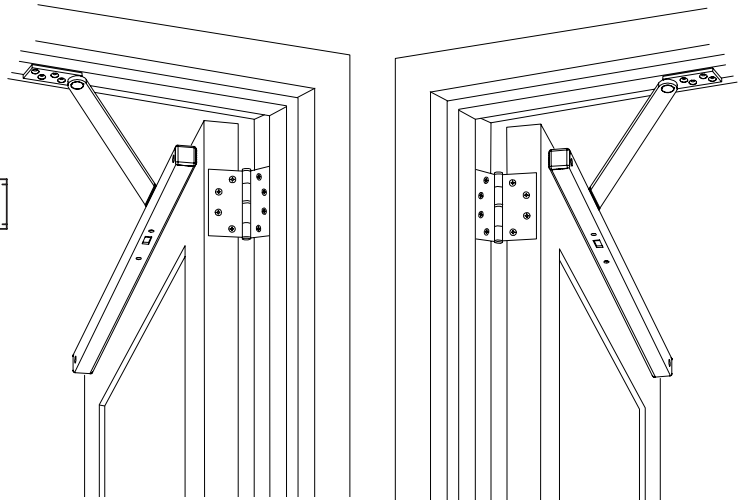
*Not to be used with swing clear hinges.

5 Mark “B” dimension (from chart) on frame. Note that “B” dimension is measured from centerline of hinge as shown.

6 Cut out “Jamb Bracket Template” from bottom of page and align on frame to locate 4 holes to drill.



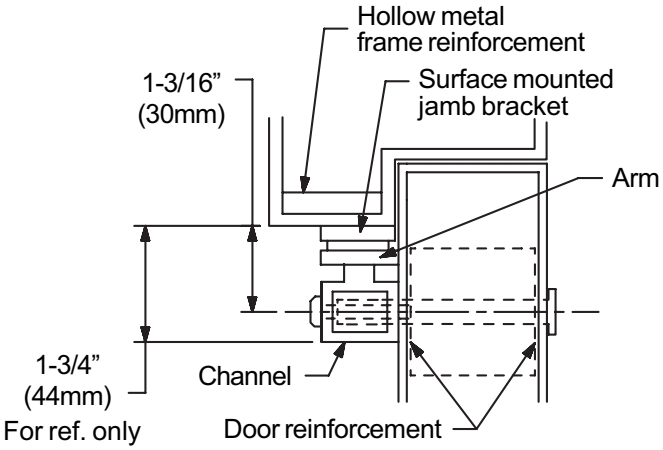
Top View - Left Hand Door

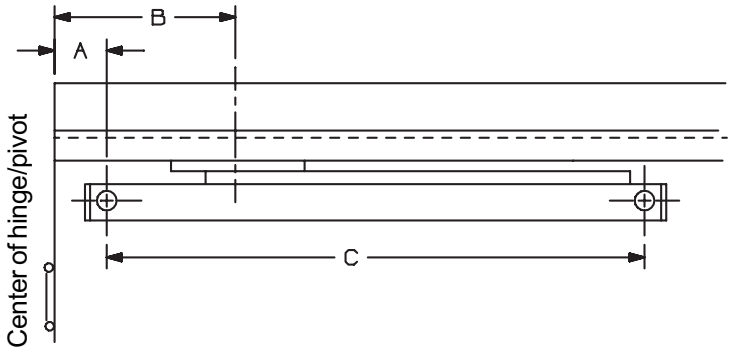


Right Hand Door **Left Hand Door**

7 Locate and mark “A” and “C” dimensions on door. Note that “A” dimension is measured from centerline of hinge as shown. For dead stop add 13/16” (21mm) to the “A” dimension from the chart. For more information about dead stop, see page 2 under “Notes on using chart”.

8 Drill two 3/8” (10mm) diameter through holes per chart and dimensions shown below. Mounting holes should be prepared only after door and frame are installed.





Screw Chart

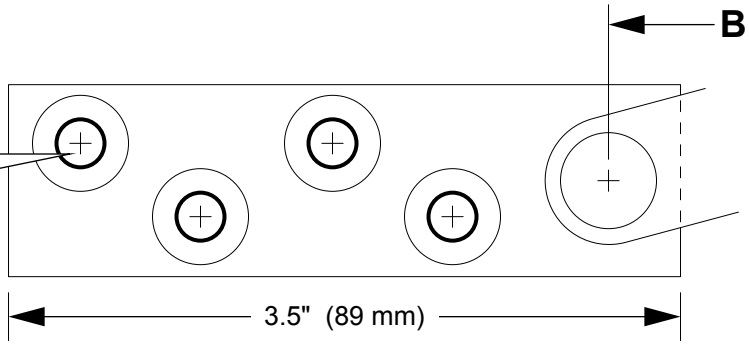
	QTY	Screw type	Wood	Metal
Jamb	4	#14 x 1-1/2” FPHSMS	✔	
	4	1/4”-20 x 3/4” FPHMS		✔
Door	2	1/4”-20 x 1-1/4” OPHMS	✔	✔
	2	1/4”-20 x 2-1/2” Sex bolts	✔	✔

9 Install jamb bracket on the stop (see Screw Chart).

10 Install the channel on the door (see Screw Chart)
Shock spring should be located on hinge end of the door.

Jamb Bracket Template (actual size)

4 holes	
Metal	#7 Drill 1/4"-20 tap
Wood	3/16" pilot hole



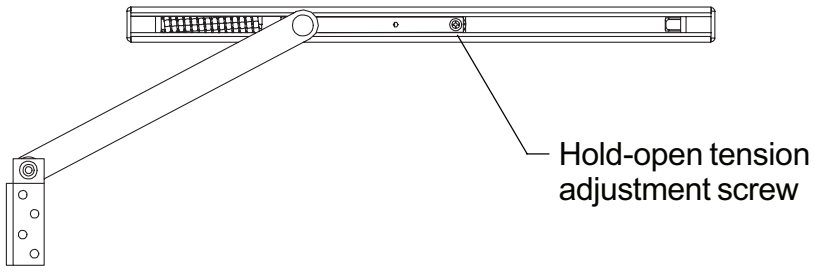
These instructions cover the following models: 90H (Hold Open), 90S (Stop only), 90F (Friction), and 90SE (Special Stop Only)

⚠ INSTALLATION NOTES

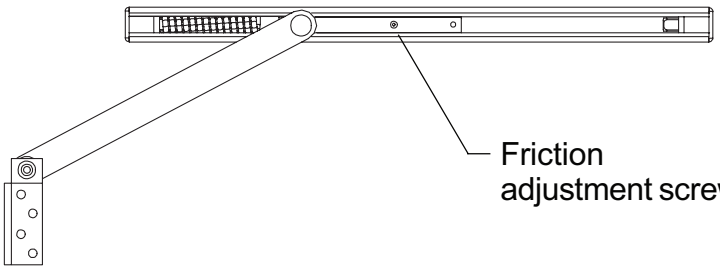
1. Hollow metal frames should be properly reinforced with a 3/16" (5mm) minimum thickness by 12" (305mm) minimum length plate.
2. Hollow metal doors should be properly reinforced with a 3/16" (5mm) minimum thickness by 2-1/2" (64mm) minimum width plate.
3. Stop only units are permitted on many fire door applications. However, mechanical hold-open devices that require manual release are not permitted for use on any fire door as outlined on NFPA80® or NFPA101®. Contact Glynn Johnson or your local representative for assistance.

ADJUSTMENTS

Hold-open tension adjustment (Hold-open model only): Using a phillips screwdriver, turn screw shown clockwise to increase hold-open tension and counterclockwise to decrease hold open tension.



Friction adjustment (Friction model only): Using a 3/32" hex wrench, turn screw shown clockwise to increase friction and counterclockwise to decrease friction.



INST.90J

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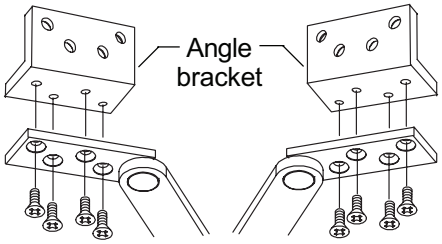
ALLEGION

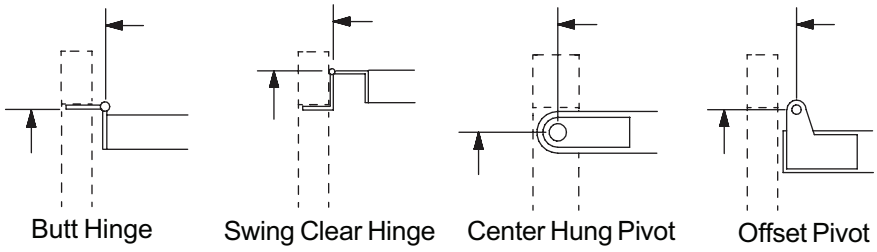
INST.90J Rev. 01/14-b

INSTALLATION STEPS

1 Install angle bracket on closer.
Note: Flip bracket as needed so that mounting surface is against frame.



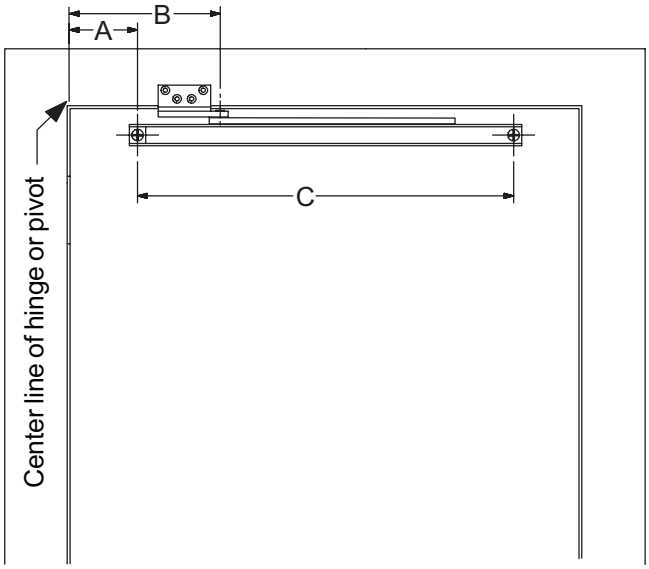
2 Determine what type of hinge or pivot is being used on the door.



3 When installing closer on pull side of door, use "Pull Side Mounting Chart" regardless of hinge type and size. When installing closer on push side of door, find correct type and size of hinge or pivot on the chart below to identify correct mounting group to use on chart.

Hinge Type & Size	Mounting Group
Butt Hinge 4" Wide	3
Butt Hinge 4-1/2" Wide	2
Butt Hinge 5" Wide	1
Swing Clear Hinge 4" Wide	1
Swing Clear Hinge 4-1/2" Wide (1-3/4" door)	3
Swing Clear Hinge 4-1/2" Wide (2" door)	2
Swing Clear Hinge 4-1/2" Wide (2-1/4" door)	1
Swing Clear Hinge 5" Wide (1-3/4" door)	3
Swing Clear Hinge 5" Wide (2" door)	2
Swing Clear Hinge 5" Wide (2-1/4" door)	1
Center Hung Pivot (1-3/4" - 2-1/4" doors)	4
3/4" Offset Pivot (1-3/8" door)	3
3/4" Offset Pivot (1-3/4" door)	2
3/4" Offset Pivot (2" or 2-1/4" door)	1
SOSS 220 (2" or 2-1/4" door)	2

4 Dimensions A, B, and C (shown below) will be used to locate holder on door and frame.



5 Using the mounting group and GJ model numbers, find dimensions "A", "B", and "C" on page 3 chart.

Notes on using chart:

- "Degrees" shown on chart represent desired hold-open degree (on hold-open, friction, and stop only models) or stop degree (on SE models).
- "I" = Arm length from center to center (for reference only).
- On hold-open, friction, and stop only models, the dead stop (DS) degree is normally 5-7 degrees beyond the hold-open degree shown on chart. The DS door position is reached when the shock spring is fully compressed.
- When installing on doors which open back-to-back, or against a wall or obstruction, it may be desirable to install the holder based on the dead stop angle rather than the hold-open angle. To do this, add 13/16" (21mm) to the "A" dimension on chart. This will effectively reduce the dead stop and hold-open by 5-7 degrees. This can only be done on hold-open, friction, and stop only models, but NOT on SE models.

CAUTION: “A” & “B” dimensions are measured from the centerline of hinge, not edge of door.
*Not to be used with swing clear hinges.

Push Side Mounting Chart

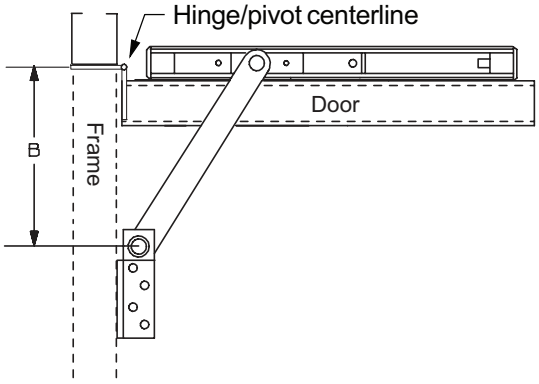
				85 degrees		90 degrees		95 degrees		100 degrees		105 degrees		110 degrees			
	GJ MODEL	DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	C	I
MOUNTING GROUP #1	902	IN.	23 1/16-27*	1 11/16*	4 5/8*	-	-	-	-	-	-	-	-	-	-	19 3/4	10
		mm	585-687	43	117	-	-	-	-	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 1/2	6 11/16	3 1/16*	6 1/4*	2 11/16*	5 7/8*	2 3/8*	5 9/16*	-	-	-	-	22	12
		mm	688-838	89	170	78	159	68	149	60	141	-	-	-	-	559	305
	904	IN.	33 1/16-39	7	8 3/16	6 9/16	7 11/16	6 1/8	7 5/16	5 3/4	6 15/16	5 3/8	6 9/16	-	-	23 3/4	15 3/4
		mm	839-991	178	208	167	195	156	186	146	176	137	167	-	-	603	400
	905	IN.	39 1/16-45	11 5/16	9	10 3/4	8 7/16	10 1/4	7 15/16	9 13/16	7 1/2	9 1/2	7 3/16	9 1/8	6 13/16	24 1/2	20
		mm	992-1143	287	229	273	214	260	202	249	191	241	183	232	173	622	508
	906	IN.	45 1/16-54	17 1/4	10 7/16	16 5/8	9 3/4	16	9 3/16	15 1/2	8 11/16	15 1/8	8 1/4	14 3/4	7 15/16	26	92
		mm	1144-1372	438	265	422	248	406	233	394	221	384	210	375	202	660	660
MOUNTING GROUP #2	902	IN.	23 1/16-27*	1 15/16*	4 7/8*	1 5/8*	4 9/16*	-	-	-	-	-	-	-	-	19 3/4	10
		mm	585-687	49	124	41	116	-	-	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 5/8	6 13/16	3 1/4*	6 7/16*	2 7/8*	6 1/16*	2 9/16*	5 3/4*	2 5/16*	5 1/2*	-	-	22	12
		mm	688-838	92	173	83	164	73	154	65	146	59	140	-	-	559	305
	904	IN.	33 1/16-39	7 3/16	8 3/8	6 11/16	7 7/8	6 5/16	7 1/2	5 15/16	7 1/8	5 9/16	6 3/4	5 5/16	6 1/2	23 3/4	15 3/4
		mm	839-991	183	213	170	200	160	191	151	181	141	171	135	165	603	400
	905	IN.	39 1/16-45	11 1/2	9 1/8	10 15/16	8 5/8	10 7/16	8 1/16	10	7 11/16	9 5/8	7 5/16	9 5/16	7	24 1/2	20
		mm	992-1143	292	232	278	219	265	205	254	195	244	186	237	178	622	508
	906	IN.	45 1/16-54	17 7/16	10 5/8	16 3/4	9 15/16	16 3/16	9 3/8	15 11/16	8 7/8	15 1/4	8 3/8	14 7/8	8 1/16	26	26
		mm	1144-1372	443	270	425	252	411	238	398	225	387	213	378	205	660	660
MOUNTING GROUP #3	902	IN.	23 1/16-27*	2 1/8	5 1/16	1 13/16	4 3/4	1 9/16	4 1/2	-	-	-	-	-	-	19 3/4	10
		mm	585-687	54	129	46	121	40	114	-	-	-	-	-	-	502	254
	903	IN.	27 1/16-33	3 13/16	7	3 3/8	6 9/16	3 1/16*	6 1/4*	2 3/4*	5 15/16*	2 1/2*	5 11/16*	-	-	22	12
		mm	688-838	97	178	86	167	78	159	70	151	64	144	-	-	559	305
	904	IN.	33 1/16-39	7 3/8	8 9/16	6 7/8	8 1/16	6 7/16	7 5/8	6 1/16	7 1/4	5 3/4	6 15/16	5 7/16	6 5/8	23 3/4	15 3/4
		mm	839-991	187	217	175	205	164	194	154	184	146	176	138	168	603	400
	905	IN.	39 1/16-45	11 5/8	9 5/16	11 1/16	8 3/4	10 5/8	8 1/4	10 3/16	7 13/16	9 13/16	7 1/2	9 1/2	7 3/16	24 1/2	20
		mm	992-1143	295	237	281	222	270	210	259	198	249	191	241	183	622	508
	906	IN.	45 1/16-54	17 5/8	10 13/16	16 15/16	10 1/16	16 3/8	9 1/2	15 7/8	9 1/16	15 7/16	8 9/16	15 1/16	8 1/4	26	26
		mm	1144-1372	448	275	430	256	416	241	403	230	392	217	383	210	660	660
MOUNTING GROUP #4	902	IN.	27 1/16-33	2 13/16	5 3/4	2 1/2	5 7/16	2 3/16	5 1/8	2	4 15/16	1 3/4	4 11/16	1 9/16	4 1/2	19 3/4	10
		mm	688-838	71	146	64	138	56	130	51	125	44	119	40	114	502	254
	903	IN.	33 1/16-39	4 5/16	7 7/16	3 15/16	7 1/8	3 9/16	6 3/4	3 1/4	6 7/16	3	6 3/16	2 3/4	5 15/16	22	12
		mm	839-991	110	189	100	181	90	171	83	164	76	157	70	151	559	305
	904	IN.	39 1/16-45	7 7/8	9	7 3/8	8 9/16	6 15/16	8 1/8	6 9/16	7 3/4	6 1/4	7 7/16	6	7 1/8	23 3/4	15 3/4
		mm	992-1143	200	229	187	217	176	206	167	197	159	189	152	181	603	400
	905	IN.	45 1/16-51	12 1/4	9 15/16	11 11/16	9 3/8	11 3/16	8 7/8	10 3/4	8 3/8	10 3/8	8	10 1/16	7 3/4	24 1/2	20
		mm	1144-1295	311	252	297	238	284	225	273	213	264	203	256	197	622	508
	906	IN.	51 1/16-57	18 1/4	11 7/16	17 9/16	10 3/4	17	10 1/16	16 7/16	9 9/16	16	9 1/8	15 9/16	8 3/4	26	26
		mm	1296-1448	464	291	446	273	432	256	418	243	406	232	395	222	660	660

Pull Side Mounting Chart

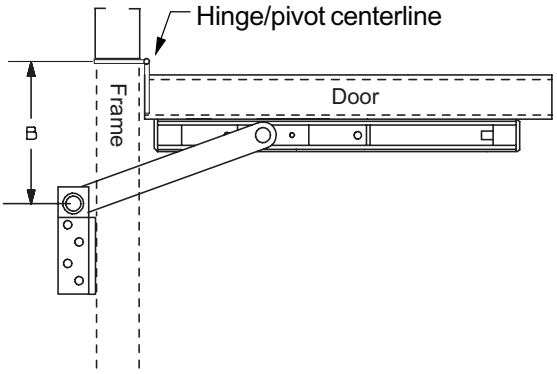
			85 degrees		90 degrees		95 degrees		100 degrees		105 degrees		110 degrees			
GJ MODEL	DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	C	I
902	IN.	23 1/16-27	3 11/16	5 7/16	3 3/8	5 1/16	3 1/8	4 13/16	2 15/16	4 9/16	2 3/4	4 5/16	2 9/16	4 1/8	19 3/4	10
	mm	585-686	94	138	86	129	79	122	75	116	70	110	65	105	502	254
903	IN.	27 1/16-33	5 1/16	7 3/16	4 11/16	6 13/16	4 5/16	6 1/2	4	6 3/16	3 3/4	5 15/16	3 1/2	5 3/4	22	12
	mm	687-838	129	183	119	173	110	165	102	157	95	151	89	146	559	305
904	IN.	33 1/16-39	8 9/16	8 15/16	8 1/16	8 7/16	7 11/16	8	7 5/16	7 5/8	7	7 1/4	6 3/4	6 15/16	23 3/4	15 3/4
	mm	839-991	217	227	205	214	195	203	186	194	178	184	171	176	603	400
905	IN.	39 1/16-45	12 3/4	10 7/16	12 3/16	9 7/8	11 11/16	9 3/8	11 1/4	8 7/8	10 13/16	8 7/16	10 1/2	8 1/8	24 1/2	20
	mm	992-1143	324	265	310	251	297	238	286	225	275	214	267	206	622	508
906	IN.	45 1/16-45	19 1/4	11 1/8	18 9/16	10 7/16	18	9 7/8	17 7/16	9 3/8	17	8 7/8	16 5/8	8 7/16	26	26
	mm	1144-1372	489	283	471	265	457	251	443	238	432	225	422	214	660	660

6 Mark “B” dimension (from chart) on frame. Note that “B” dimension is measured from centerline of hinge as shown.

Pull side mounting



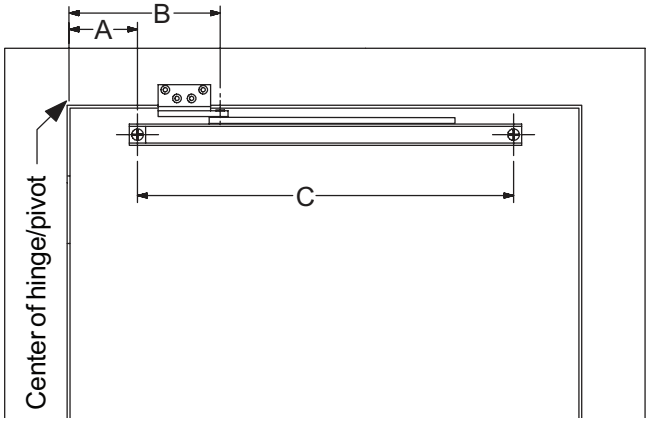
Push side mounting



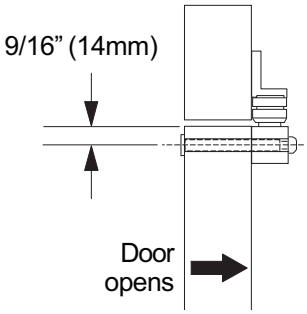
7 Cut out “Angle Bracket Template” from bottom of page and align on frame to locate 4 holes to drill.

8 Locate and mark “A” and “C” dimensions on door. Note that “A” dimension is measured from centerline of hinge as shown. For dead stop add 13/16” (21mm) to the “A” dimension from the chart. For more information about dead stop, see page 2 under “Notes on using chart”.

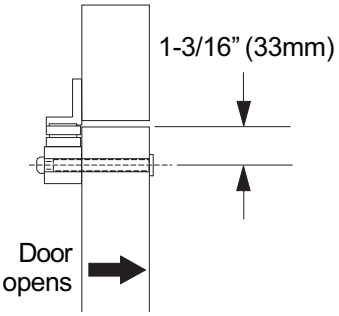
9 Drill two 3/8” (10mm) diameter channel mounting holes through door per chart and dimensions shown below. Mounting holes should be prepared only after door and frame are installed.



Pull side mounting



Push side mounting



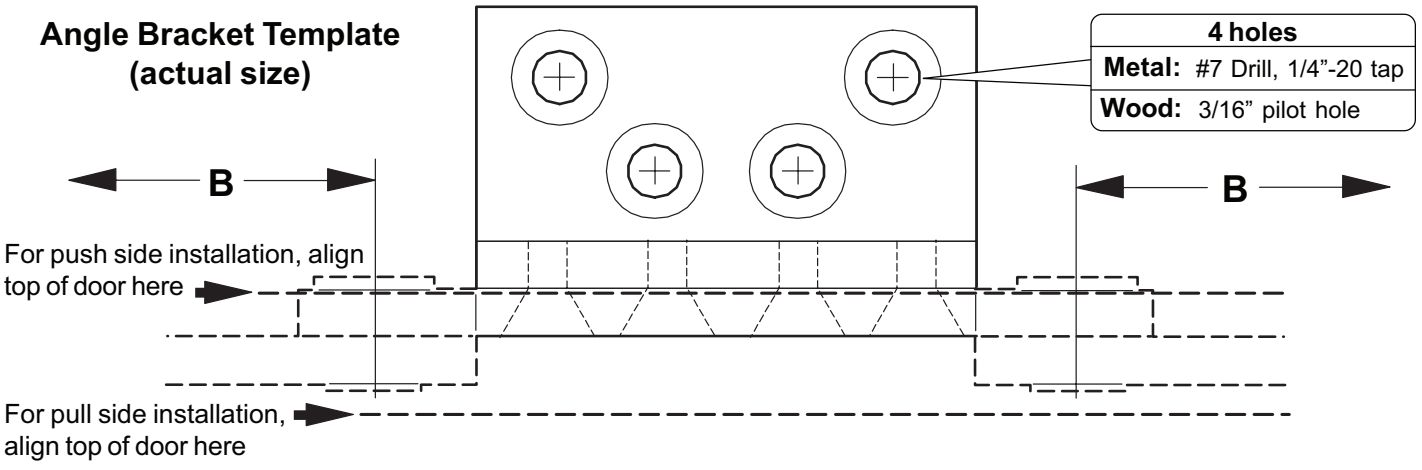
10 Install jamb bracket on the stop (see Screw Chart).

11 Install the channel on the door (see Screw Chart)
Shock spring should be located on hinge end of the door.

Screw Chart

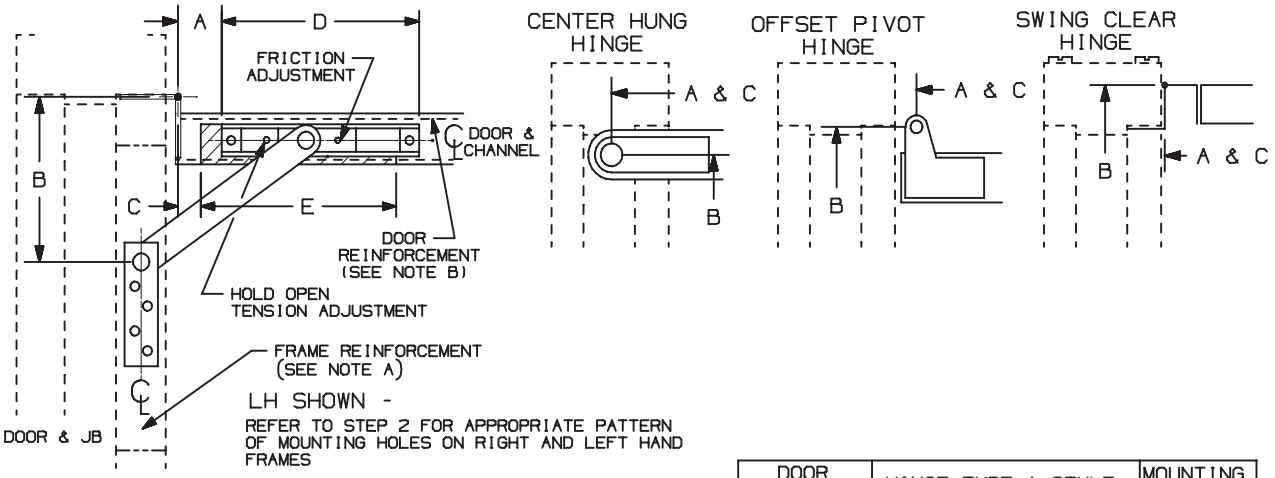
	QTY	Screw type	Wood	Metal
Jamb	4	#14 x 1-1/2” FPHSMS	✔	
	4	1/4”-20 x 3/4” FPHMS		✔
Door	2	1/4”-20 x 1-1/4” OPHMS	✔	✔
	2	1/4”-20 x 2-1/2” Sex bolts	✔	✔
Angle Brkt.	4	1/4”-20 x 1/2”	✔	✔

Angle Bracket Template (actual size)



OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM THE CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A","B","C","D", AND "E" DIMENSIONS FROM CHART ON PAGE 3. FOR DEAD STOP ADD 9/16"(14) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS PLATE.

C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN, FRICTION AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/4" (44mm)	4" WIDE BUTT	2
	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	2
	4" SWINGCLEAR	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	CENTERHUNG PIVOT	3
2" (51mm)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	SOSS 220	2
	CENTERHUNG PIVOT	3
2 1/4" (57mm)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	2
	CENTERHUNG PIVOT	3

100 ADJUSTMENTS:

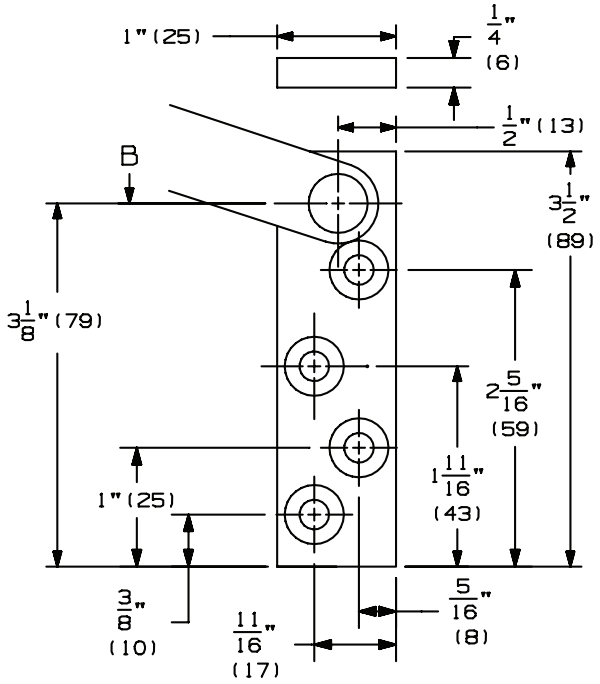
HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)- USING A 1/8" BALL END ALLEN WRENCH, TURN SCREW SHOWN IN BOTTOM OF CHANNEL CLOCKWISE TO INCREASE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO DECREASE HOLD-OPEN TENSION.

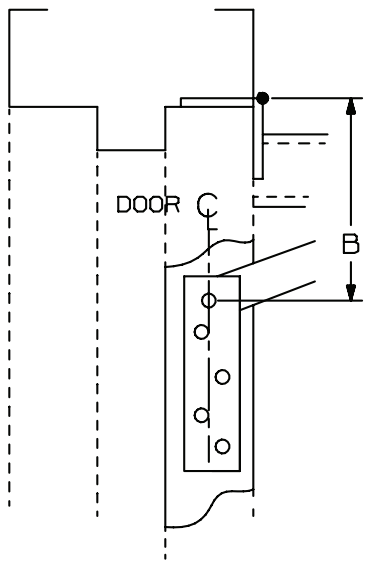
FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)- USING A 1/8" ALLEN WRENCH, HOLD SCREW SHOWN IN PLACE WHILE USING A 7/16" WRENCH TO TURN JAMB NUT COUNTERCLOCKWISE UNTIL LOOSE. TURN SCREW CLOCKWISE TO INCREASE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION. WHILE HOLDING THE SCREW IN PLACE, TURN THE JAMB NUT CLOCKWISE UNTIL TIGHT.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

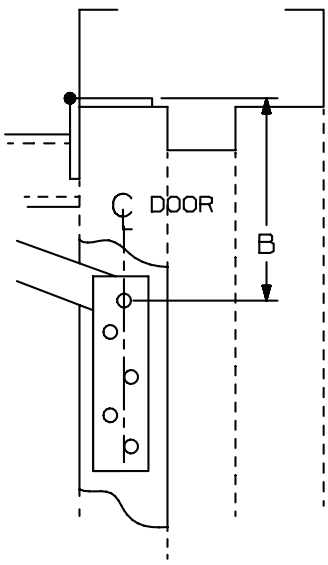
SCREW DETAILS			
	QTY	WOOD	METAL
DOOR	2	#18 x 3" PPHWS	5/16"-18 x 1 1/2" PPHMS
JAMB	4	#14 x 1 1/2" FPHSMS	1/4"-20 x 3/4" FPHMS

2. A. LOCATE "B" DIMENSION ON THE FRAME. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE JAMB BRACKET AS SHOWN. REFER TO LEFT AND RIGHT HAND PLAN VIEWS FOR APPROPRIATE HOLE PATTERN.
   C. FOR METAL FRAMES, USE A #7 DRILL AND A 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 3/16" PILOT HOLE IN 4 PLACES.





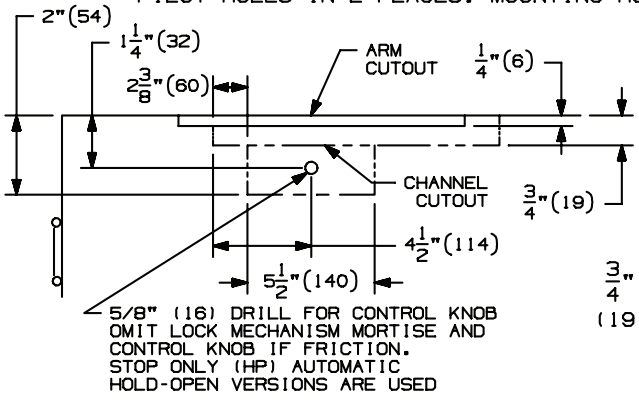
LEFT HAND DOOR
(PLAN VIEW)



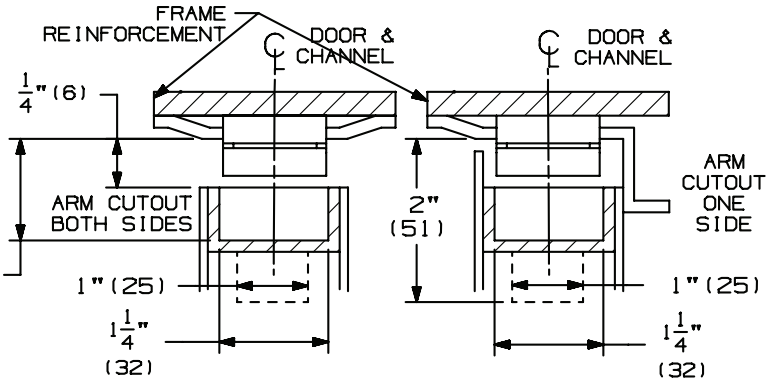
RIGHT HAND DOOR
(PLAN VIEW)

REFER TO ILLUSTRATION BELOW AND ON SHT 1 FOR THE FOLLOWING NOTES:

3. A. LOCATE "A" AND "D" DIMENSIONS ON THE CENTERLINE OF THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE CHANNEL AS SHOWN IF REQUIRED. FOR 100H HOLD-OPEN VERSION, MORTISE FOR HOLD-OPEN LOCK MECHANISM AND DRILL 5/8" (16) DIAMETER HOLE FOR CONTROL KNOB AS SHOWN. (WHEN HP HOLD-OPEN, F FRICTION OR S STOP UNIT IS SUPPLIED, ADDITIONAL MORTISE FOR HOLD-OPEN MECHANISM AND CONTROL KNOB ARE NOT REQUIRED.)
   C. LOCATE "C" AND "E" DIMENSIONS ON THE TOP OF THE DOOR. NOTE THAT THE "C" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   D. MORTISE FOR ARM CUTOUT AS SHOWN.
   E. FOR METAL DOORS, USE A F DRILL AND 5/16-18 TAP IN 2 PLACES. FOR WOOD DOORS, DRILL 1/4" PILOT HOLES IN 2 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



FRONT ELEVATION



CROSS SECTION IN CLOSED POSITION

4. A. INSTALL THE CHANNEL IN THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.
   B. INSTALL JAMB BRACKET IN FRAME.
   C. FOR 100H HOLD-OPEN VERSION ONLY, EPOXY (NOT PROVIDED) EYELET IN 5/8" (16) HOLE.
   D. FOR 100H HOLD-OPEN VERSION ONLY, PLACE SERRATED KNOB AND KNOB SPACER OVER CAP SCREW AS SHOWN. THREAD ASSEMBLY THROUGH 5/8" (16) HOLE IN DOOR ONTO LOCK.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

MOUNTING GROUPS 1, 2 & 3
100 SERIES CONCEALED OVERHEAD STOP & HOLDER

CAUTION: "A", "B", & "C" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

		DEGREE	85 HO				90 HO				95 HO				100 HO				105 HO				110 HO					
	DIM.	DOOR OPENING	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	D	I
MOUNTING GROUP #1	101	IN.	18-23 */	2 5/16	3 7/16	0	14	2 1/16	3 3/16	0	14	1 7/8	3	0	13 3/4	-	-	-	-	-	-	-	-	-	-	-	-	14 3/8	10
		mm	457-584 */	59	87	0	356	52	81	0	356	48	76	0	349	-	-	-	-	-	-	-	-	-	-	-	-	365	254
	102	IN.	23 1/16-27*	4 1/4	4 1/2	2	15 1/2	3 15/16	4 1/8	1 3/4	15 1/2	3 11/16	3 15/16	1 1/2	15 1/2	3 7/16	3 11/16	1 1/4	15 1/2	3 1/4	3 1/2	1	15 1/2	-	-	-	-	15 1/2	12
		mm	585-686 *	108	114	51	394	100	105	44	394	94	100	38	394	87	94	32	394	83	89	25	394	-	-	-	-	394	305
	103	IN.	27 1/16-33	7 15/16	5 5/8	4 1/4	17 7/8	7 9/16	5 1/4	3 7/8	17 7/8	7 1/4	4 15/16	3 9/16	17 7/8	6 15/16*	4 5/8*	3 1/8*	18*	6 11/16*	4 7/16*	2 15/16*	17 7/8*	6 1/2*	4 3/16*	2 11/16*	18*	16 3/4	15 3/4
		mm	687-838	202	143	108	454	192	133	98	454	184	125	90	454	176	117	79	457	170	113	75	454	165	106	68	457	425	400
	104	IN.	33 1/16-39	12 1/8	6 5/8	5 1/4	22	11 11/16	6 1/8	4 3/4	22 1/8	11 5/16	5 13/16	4 7/16	22	11	5 7/16	3 15/16	22 1/4	10 3/4	5 1/8	3 5/8	22 1/4	10 1/2	4 15/16	3 7/16	22 1/4	17 3/4	20
		mm	839-991	308	168	133	559	297	156	121	562	287	148	113	559	279	138	100	565	273	130	92	565	267	125	87	565	451	508
	105	IN.	39 1/16-45	18	8 7/16	7 1/16	28 1/8	17 7/16	7 7/8	6 1/2	28 1/8	17	7 7/16	6 1/16	28 1/8	16 9/16	7	5 1/2	28 1/4	16 3/16	6 9/16	5 1/16	28 1/4	15 7/8	6 5/16	4 13/16	28 1/4	19 3/4	26
		mm	992-1143	457	214	179	714	443	200	165	714	432	189	154	714	421	178	140	718	411	167	129	718	403	160	122	718	502	660
	106	IN.	45 1/16-54	24	9 11/16	8 5/16	34 1/8	23 3/8	9	7 5/8	34 1/8	22 3/4	8 1/2	7 1/8	34 1/8	22 5/16	7 15/16	6 7/16	34 1/4	21 7/8	7 9/16	6 1/16	34 1/4	21 1/2	7 3/16	5 11/16	34 1/4	21 1/4	32
		mm	1144-1372	610	246	211	867	594	229	194	867	578	216	181	864	567	202	164	895	556	192	154	870	546	183	144	870	533	813
MOUNTING GROUP #2	101	IN.	18-23 */	2 9/16	3 11/16	0	14 1/2	2 5/16	3 7/16	0	14	2 1/16	3 3/16	0	14	1 15/16	3	0	13 3/4	-	-	-	-	-	-	-	-	14 3/8	10
		mm	457-584 */	65	94	0	368	59	87	0	356	52	81	0	356	49	76	0	349	-	-	-	-	-	-	-	-	365	254
	102	IN.	23 1/16-27*	4 7/16	4 5/8	2	15 3/4	4 1/8	4 3/8	1 3/4	15 3/4	3 7/8	4 1/16	1 1/2	15 3/4	3 11/16	3 15/16	1 1/4	15 3/4	3 1/2	3 11/16	1	15 3/4	3 5/16	3 1/2	1	15 3/4	15 1/2	12
		mm	585-686 *	113	117	51	400	105	111	44	400	98	103	38	400	94	100	32	400	89	94	25	400	84	89	25	400	394	305
	103	IN.	27 1/16-33	8 1/8	5 13/16	4 7/16	17 7/8	7 3/4	5 7/16	4 1/16	17 7/8	7 7/16	5 1/8	3 3/4	17 7/8	7 1/8*	4 13/16*	3 5/16*	18*	6 15/16*	4 9/16*	3 1/16*	18*	6 11/16*	4 3/8*	2 7/8*	18*	16 3/4	15 3/4
		mm	687-838	206	148	113	454	197	138	103	454	189	130	95	454	181	122	84	457	176	116	78	457	170	111	73	457	425	400
	104	IN.	33 1/16-39	12 5/16	6 13/16	5 7/16	22	11 7/8	6 5/16	4 15/16	22 1/8	11 1/2	6	4 5/8	22	11 3/16	5 11/16	4 3/16	22 1/8	10 7/8	5 3/8	3 7/8	22 1/8	10 5/8	5 1/8	3 5/8	22 1/8	17 3/4	20
		mm	839-991	313	173	138	559	302	160	125	562	292	152	117	559	284	144	106	562	276	137	98	562	270	130	92	562	451	508
	105	IN.	39 1/16-45	18 1/4	8 11/16	7 5/16	28 1/8	17 5/8	8 1/8	6 3/4	28	17 1/8	7 5/8	6 1/4	28	16 3/4	7 3/16	5 11/16	28 1/4	16 3/8	6 3/4	5 1/4	28 1/4	16	6 1/2	5	28 1/8	19 3/4	26
		mm	992-1143	464	221	186	714	448	206	171	711	435	194	159	711	425	183	144	718	416	171	133	718	406	165	127	714	502	660
	106	IN.	45 1/16-54	24 1/4	9 13/16	8 7/16	34 1/4	23 1/2	9 1/4	7 7/8	34 1/4	23	8 9/16	7 3/16	34 1/4	22 1/2	8 1/8	6 5/8	34 1/4	22 1/16	7 11/16	6 3/16	34 1/4	21 11/16	7 5/16	5 13/16	34 1/4	21 1/4	32
		mm	1144-1372	676	249	214	870	597	235	200	864	584	217	183	870	572	206	168	870	560	195	157	870	551	186	148	870	533	813
MOUNTING GROUP #3	101	IN.	18-23 */	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14 3/8	10
		mm	457-584 */	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	365	254
	102	IN.	23 1/16-27*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15 1/2	12
		mm	585-686 *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	394	305
	103	IN.	33 1/16-39	8 7/8	6 5/8	5 1/4	17 3/4	8 1/2	6 1/8	4 3/4	17 7/8	8 1/8	5 7/8	4 1/2	17 3/4	7 3/16	5 1/2	4	18	7 9/16	5 1/4	3 3/4	18	7 5/16	5	3 1/2	18	16 3/4	15 3/4
		mm	839-991	225	168	133	451	216	156	121	454	206	147	114	451	198	140	102	457	192	133	95	457	186	127	89	457	425	400
	104	IN.	39 1/16-45	13 3/16	7 5/8	6 1/4	22 1/8	12 11/16	7 1/16	5 11/16	22 1/8	12 1/4	6 11/16	5 5/16	22 1/8	11 7/8	6 3/8	4 7/8	22 1/8	11 9/16	6	4 1/2	22 1/4	11 5/16	5 11/16	4 3/16	22 1/4	17 3/4	20
		mm	992-1143	335	194	159	562	322	179	144	562	311	170	135	562	302	162	124	562	294	152	114	565	287	144	106	565	451	508
	105	IN.	45 1/16-51	19 1/16	9 7/16	8 1/16	28 1/8	18 7/16	8 7/8	7 1/2	28 1/8	17 15/16	8 1/4	6 7/8	28 1/4	17 7/16	7 13/16	6 5/16	28 1/4	17 1/16	7 7/16	5 15/16	28 1/4	16 3/4	7 1/16	5 9/16	28 3/8	19 3/4	26
		mm	1144-1295	484	240	205	714	468	225	191	714	456	210	175	718	443	198	160	718	433	189	151	718	425	179	141	721	502	660
	106	IN.	51 1/16-57	25 1/16	10 3/4	9 3/8	34 1/8	24 3/8	10	8 5/8	34 1/8	23 3/4	9 3/8	8	34 1/8	23 1/4	8 13/16	7 5/16	34 3/8	22 3/4	8 7/16	6 15/16	34 3/8	22 3/8	7 15/16	6 7/16	34 3/8	21 1/4	32
		mm	1296-1448	637	273	238	867	619	254	219	867	603	238	203	867	591	224	186	873	578	214	176	870	568	202	164	873	533	813

FOR DEAD STOP ADD 9/16" (14) TO THE "A" DIMENSION
FOR SE STOPS USE HOLD-OPEN MOUNTING DIMENSIONS
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

* NOT TO BE USED WITH OFFSET PIVOTS
/ NOT TO BE USED WITH SWINGCLEAR HINGES

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

INST.100

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INST.100 Rev. 01/14-b

100ADJ

GLYNN-JOHNSON

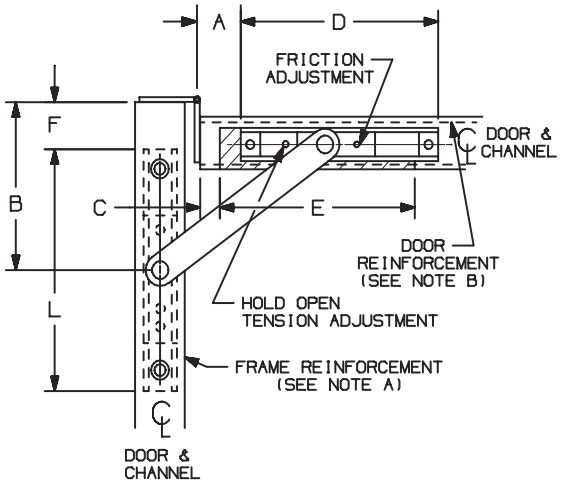
INST.100ADJ

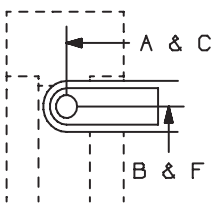
Concealed Overhead Holder

Installation Instructions

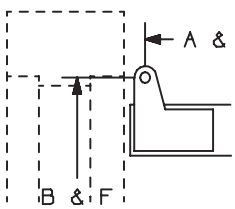
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM THE CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE, FIND "A","C", "D","E", AND "L" DIMENSIONS FROM CHART ON PAGE 3. FOR DEAD STOP ADD 9/16"(14) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.

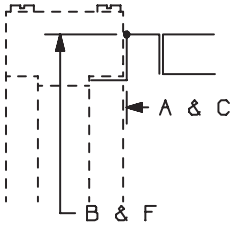




CENTER HUNG HINGE



OFFSET PIVOT HINGE



SWING CLEAR HINGE

NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 18"(457) MINIMUM LENGTH PLATE.
B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS PLATE.
C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.
D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN, FRICTION AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/4" (44mm)	4" WIDE BUTT	2
	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	2
	4" SWINGCLEAR	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	CENTERHUNG PIVOT	3
2" (51mm)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	SOSS 220	2
	CENTERHUNG PIVOT	3
2 1/4" (57mm)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	2
	CENTERHUNG PIVOT	3

100 ADJUSTMENTS:

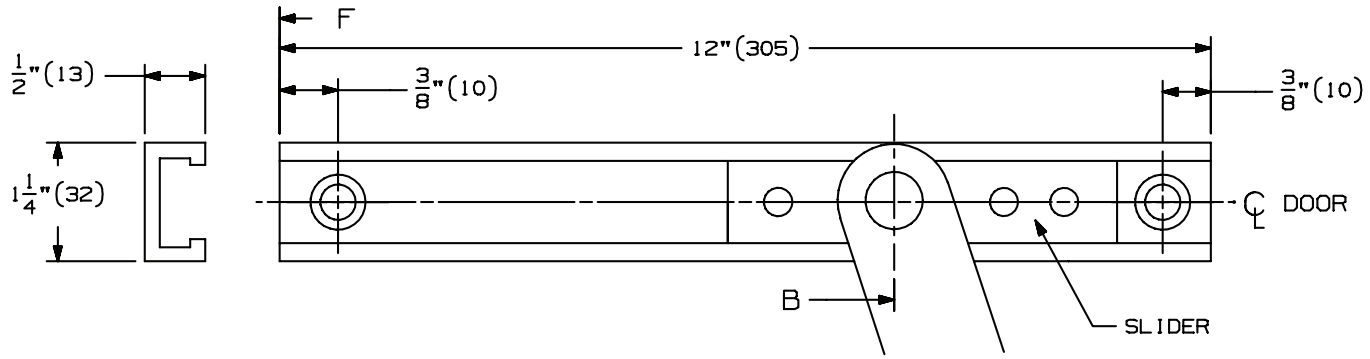
HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)- USING A 1/8" BALL END ALLEN WRENCH, TURN SCREW SHOWN IN BOTTOM OF CHANNEL CLOCKWISE TO INCREASE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO DECREASE HOLD-OPEN TENSION.

FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)- USING A 1/8" ALLEN WRENCH, HOLD SCREW SHOWN IN PLACE WHILE USING A 7/16" WRENCH TO TURN JAMB NUT COUNTERCLOCKWISE UNTIL LOOSE. TURN SCREW CLOCKWISE TO INCREASE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION. WHILE HOLDING THE SCREW IN PLACE, TURN THE JAMB NUT CLOCKWISE UNTIL TIGHT.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

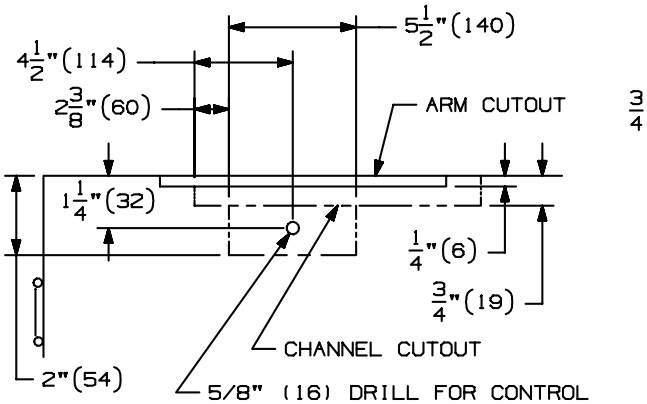
SCREW DETAILS			
	QTY	WOOD	METAL
DOOR	2	#18 x 3" PPHWS	5/16"-18 x 1 1/2" PPHMS
JAMB	2	#14 x 1 1/2" FPHSMS	1/4"-20 x 3/4" FPHMS

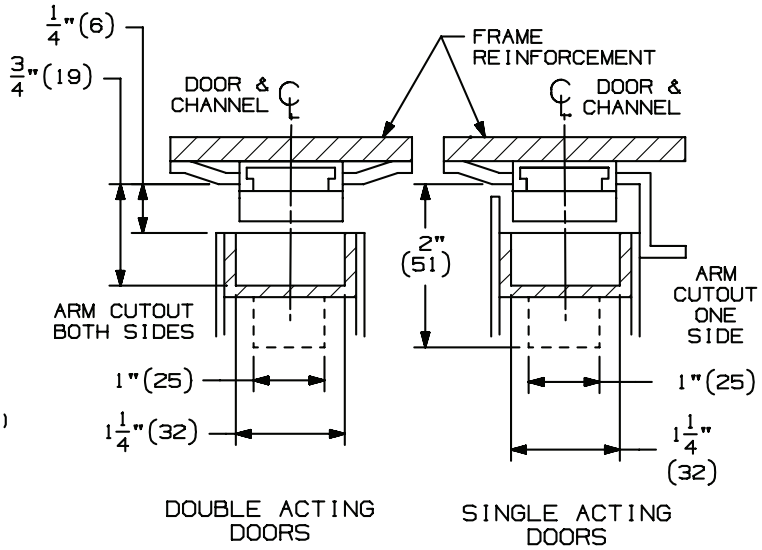
2. A. LOCATE "F" AND "L" DIMENSIONS ON THE FRAME. NOTE THAT THE "F" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE JAMB BRACKET TRACT AS SHOWN.
   C. FOR METAL FRAMES, USE A #7 DRILL AND A 1/4"-20 TAP IN 2 PLACES. FOR WOOD FRAMES, DRILL 3/16" PILOT HOLE IN 2 PLACES.



REFER TO ILLUSTRATION BELOW AND ON SHT 1 FOR THE FOLLOWING NOTES:

3. A. LOCATE "A" AND "D" DIMENSIONS ON THE CENTERLINE OF THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE CHANNEL AS SHOWN IF REQUIRED. FOR 100H HOLD-OPEN VERSION, MORTISE FOR HOLD-OPEN LOCK MECHANISM AND DRILL 5/8" (16) DIAMETER HOLE FOR CONTROL KNOB AS SHOWN. (WHEN HP HOLD-OPEN, F FRICTION OR S STOP UNIT IS SUPPLIED, ADDITIONAL MORTISE FOR HOLD-OPEN MECHANISM AND CONTROL KNOB HOLE ARE NOT REQUIRED.)
   C. LOCATE "C" AND "E" DIMENSIONS ON THE TOP OF THE DOOR. NOTE THAT THE "C" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   D. MORTISE FOR ARM CUTOUT AS SHOWN.
   E. FOR METAL DOORS, USE A F DRILL AND 5/16-18 TAP IN 2 PLACES. FOR WOOD DOORS, DRILL 1/4" PILOT HOLES IN 2 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.





4. A. INSTALL THE CHANNEL IN THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.
   B. INSTALL JAMB BRACKET TRACT IN FRAME.
   C. FOR 100H HOLD-OPEN VERSION ONLY, EPOXY (NOT PROVIDED) EYELET IN 5/8" (16) HOLE.
   D. FOR 100H HOLD-OPEN VERSION ONLY, PLACE SERRATED KNOB AND KNOB SPACER OVER CAP SCREW AS SHOWN. THREAD ASSEMBLY THROUGH 5/8" (16) HOLE IN DOOR ONTO LOCK MECHANISM.
   E. ADJUST THE SLIDER IN THE JAMB BRACKET TRACT TO THE DESIRED DEGREE OF OPENING ("B" DIMENSION) AND TIGHTEN THE SET SCREWS.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

MOUNTING GROUPS 1, 2 & 3
100ADJ SERIES CONCEALED OVERHEAD STOP & HOLDER

CAUTION: "A","B","C" & "F" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

FOR DEAD STOP ADD 9/16" (14) TO THE "A" DIMENSION
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

* NOT TO BE USED WITH OFFSET PIVOTS

		DEGREE		B (REFERENCE ONLY)													
		DIM.	DOOR OPENING	A	85 HO	90 HO	95 HO	100 HO	105 HO	110 HO	C	D	E	F	L	I
MOUNTING GROUP #1	103	IN.	27 1/16-33*	3 3/8	9 9/16	8 7/16	7 3/8	6 7/16	5 11/16	5	7/8	22 1/2	22 1/2	2 3/4	12	13
		mm	687-838*	86	243	214	187	164	144	127	22	572	572	70	305	330
	104	IN.	33 1/16-39	5 5/8	12 1/4	10 15/16	9 3/4	8 11/16	7 3/4	7	3 1/8	26 5/16	26 1/4	4 3/4	12	16 1/4
		mm	839-991	143	311	278	248	221	197	178	79	668	667	121	305	413
	105	IN.	39 1/16-45	9 3/8	13 11/16	12	10 1/2	9 3/16	8 1/16	7 1/8	6 7/8	28	28	4 1/4	12	20
		mm	992-1143	238	348	305	267	233	205	181	175	711	711	108	305	508
	106	IN.	45 1/16-54	12	15 7/16	13 1/2	11 3/4	10 1/4	9	8	9 1/2	30 1/2	30 1/2	5 7/8	12	23
		mm	1144-1372	305	392	343	298	260	229	203	241	775	775	149	305	584
MOUNTING GROUP #2	103	IN.	27 1/16-33*	3 1/2	9 1/2	8 7/16	7 7/16	6 9/16	5 13/16	5 3/16	1	22 1/2	22 1/2	2 3/4	12	13
		mm	687-838*	89	241	214	189	167	148	132	25	572	572	70	305	330
	104	IN.	33 1/16-39	5 5/8	12 5/16	11 1/16	9 15/16	8 7/8	8	7 1/4	3 1/8	26 5/16	26 1/4	4 3/4	12	16 1/4
		mm	839-991	143	313	281	252	225	203	184	79	668	667	121	305	413
	105	IN.	39 1/16-45	9 1/2	13 11/16	12	10 9/16	9 1/4	8 3/16	7 1/4	7	28	28	4 1/4	12	20
		mm	992-1143	241	348	305	268	235	208	184	178	711	711	108	305	508
	106	IN.	45 1/16-54	12 3/4	14 3/8	12 11/16	10 5/8	9 3/16	7 15/16	7	10 1/4	30 1/2	30 1/2	4 7/8	12	23
		mm	1144-1372	324	365	322	270	233	202	178	260	775	775	124	305	584
MOUNTING GROUP #3	103	IN.	33 1/16-39	4 1/2	8 5/8	7 5/8	6 13/16	6 1/16	-	-	2	22 1/2	22 1/2	3 3/8	12	13
		mm	839-991	114	219	194	173	154	-	-	51	572	572	98	305	330
	104	IN.	39 1/16-45	7 1/8	10 13/16	9 9/16	8 1/2	7 9/16	6 3/4	6 1/16	4 5/8	26 5/16	26 1/4	4	12	16 1/4
		mm	992-1143	181	275	243	216	192	171	154	117	668	667	102	305	413
	105	IN.	45 1/16-51	10 1/2	12 13/16	11 1/4	9 15/16	8 3/4	7 13/16	7	8	28	28	4	12	20
		mm	1144-1295	267	325	286	252	222	198	178	203	711	711	102	305	508
	106	IN.	51 1/16-57	13	14 11/16	12 15/16	11 3/8	10 1/16	8 15/16	8	10 1/2	30 1/2	30 1/2	5 1/2	12	23
		mm	1296-1448	330	373	329	289	256	227	203	267	775	775	140	305	584

DIMENSIONS IN ( ) ARE MILLIMETERS.

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100CJ

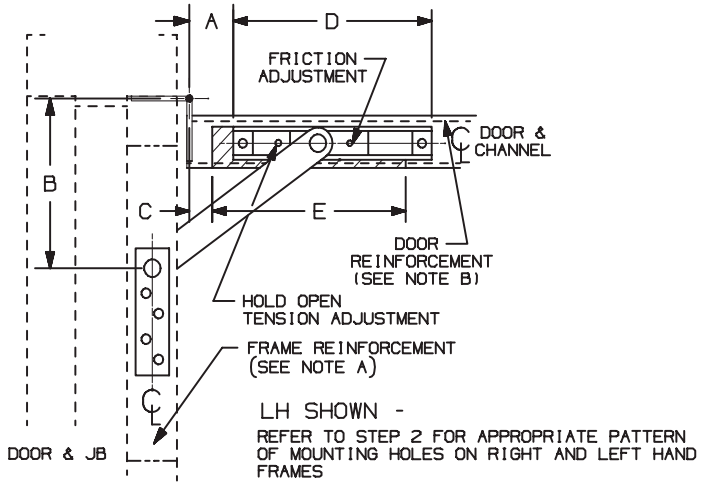
GLYNN-JOHNSON

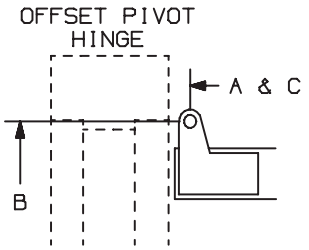
Concealed Overhead Holder

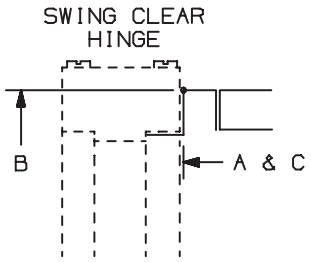
Installation Instructions

OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. USING THE OVERHEAD HOLDER OR STOP SIZE FIND "A","B","C","D", AND "E" DIMENSIONS FROM CHART ON PAGE 4. FOR DEAD STOP ADD 9/16"(14) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.







NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS PLATE.

C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN, FRICTION AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

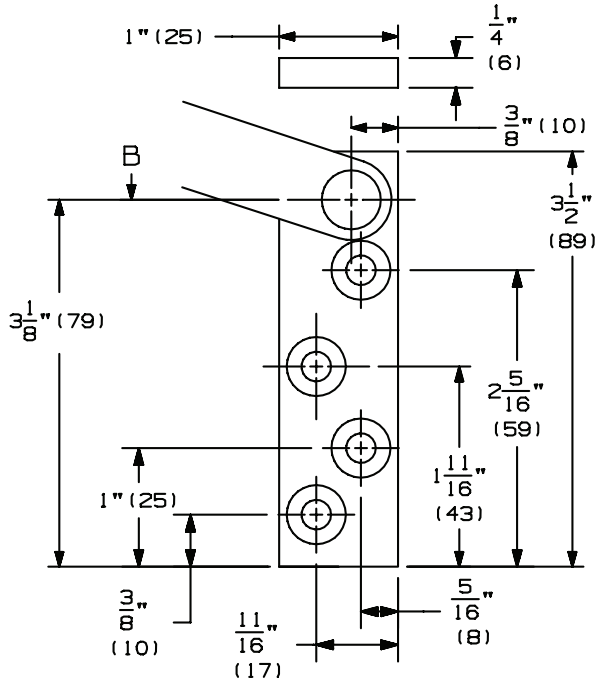
100 ADJUSTMENTS:

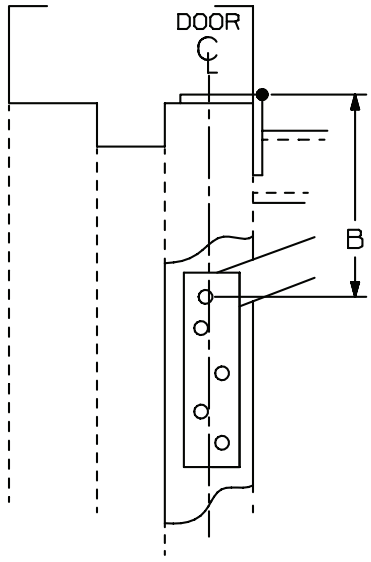
HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)- USING A 1/8" BALL END ALLEN WRENCH, TURN SCREW SHOWN IN BOTTOM OF CHANNEL CLOCKWISE TO INCREASE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO DECREASE HOLD-OPEN TENSION.

FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)- USING A 1/8" ALLEN WRENCH, HOLD SCREW SHOWN IN PLACE WHILE USING A 7/16" WRENCH TO TURN JAMB NUT COUNTERCLOCKWISE UNTIL LOOSE. TURN SCREW CLOCKWISE TO INCREASE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION. WHILE HOLDING THE SCREW IN PLACE, TURN THE JAMB NUT CLOCKWISE UNTIL TIGHT.

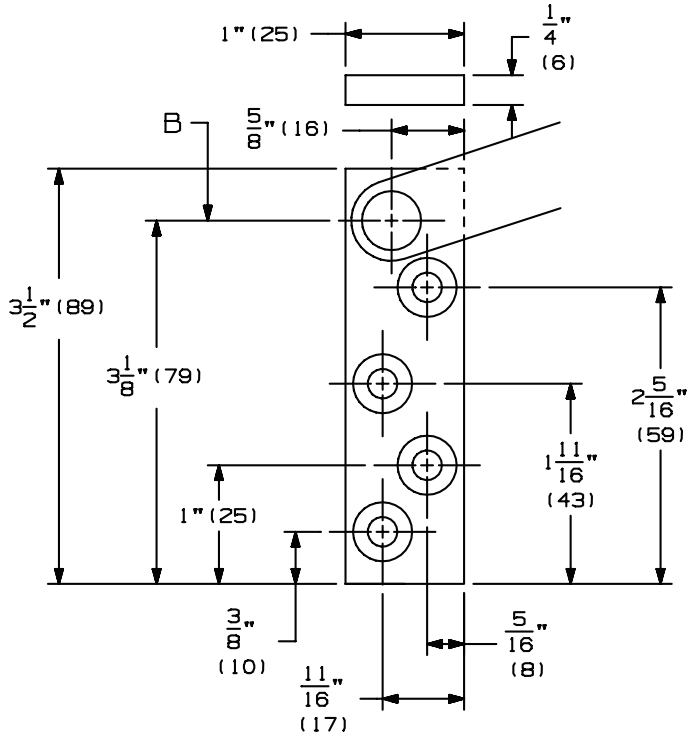
SCREW DETAILS			
	QTY	WOOD	METAL
DOOR	2	#18 x 3" PPHWS	5/16"-18 x 1 1/2" PPHMS
JAMB	4	#14 x 1 1/2" FPHSMS	1/4"-20 x 3/4" FPHMS

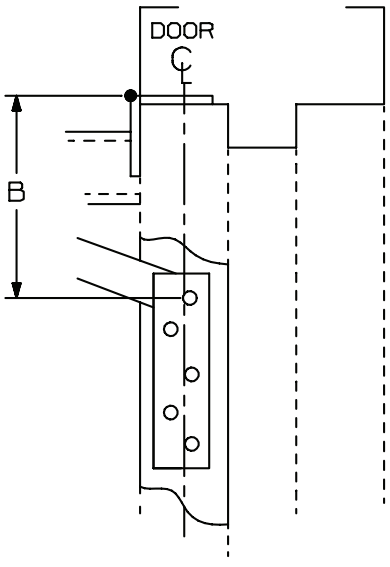
2. A. LOCATE "B" DIMENSION ON THE FRAME. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE JAMB BRACKET AS SHOWN. REFER TO LEFT AND RIGHT HAND PLAN VIEWS FOR APPROPRIATE HOLE PATTERN.
   C. FOR METAL FRAMES, USE A #7 DRILL AND A 1/4"-20 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 3/16" PILOT HOLE IN 4 PLACES.





LEFT HAND DOOR
(PLAN VIEW)

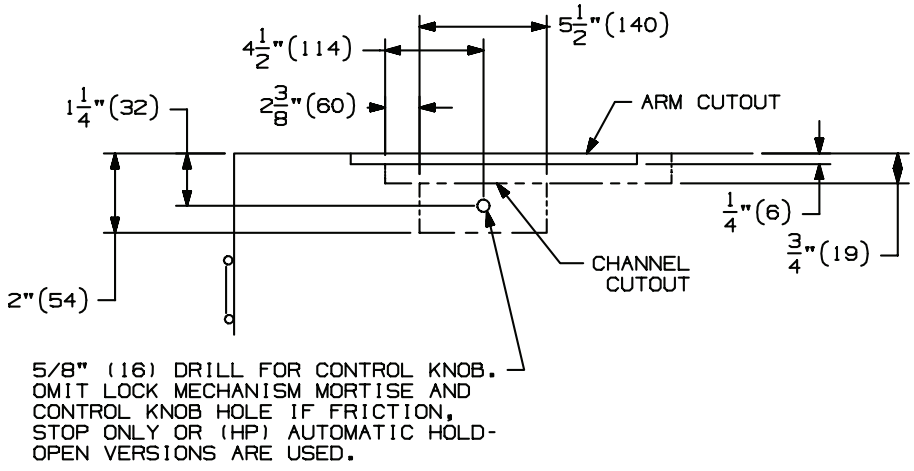


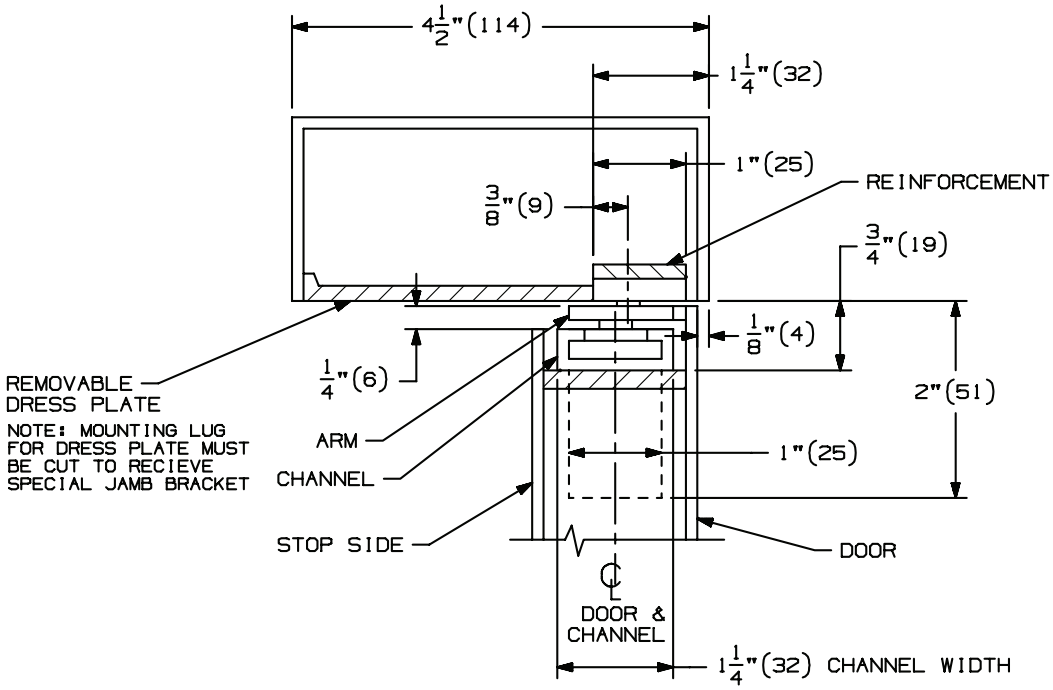


RIGHT HAND DOOR
(PLAN VIEW)

REFER TO ILLUSTRATION BELOW AND ON SHT 1 FOR THE FOLLOWING NOTES:

3. A. LOCATE "A" AND "D" DIMENSIONS ON THE CENTERLINE OF THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE CHANNEL AS SHOWN IF REQUIRED. FOR 100H HOLD-OPEN VERSION, MORTISE FOR HOLD-OPEN LOCK MECHANISM AND DRILL 5/8" (16) DIAMETER HOLE FOR CONTROL KNOB AS SHOWN. (WHEN HP HOLD-OPEN, F FRICTION OR S STOP UNIT IS SUPPLIED, ADDITIONAL MORTISE FOR HOLD-OPEN MECHANISM AND CONTROL KNOB ARE NOT REQUIRED.)
   C. LOCATE "C" AND "E" DIMENSIONS ON THE TOP OF THE DOOR. NOTE THAT THE "C" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   D. MORTISE FOR ARM CUTOUT AS SHOWN.
   E. FOR METAL DOORS, USE A F DRILL AND 5/16-18 TAP IN 2 PLACES. FOR WOOD DOORS, DRILL 1/4" PILOT HOLES IN 2 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.





4. A. INSTALL THE CHANNEL IN THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.
   B. INSTALL JAMB BRACKET IN FRAME.
   C. FOR 100H HOLD-OPEN VERSION ONLY, EPOXY (NOT PROVIDED) EYELET IN 5/8" (16) HOLE.
   D. FOR 100H HOLD-OPEN VERSION ONLY, PLACE SERRATED KNOB AND KNOB SPACER OVER CAP SCREW AS SHOWN. THREAD ASSEMBLY THROUGH 5/8" (16) HOLE IN DOOR ONTO LOCK.

100CJ SERIES CONCEALED OVERHEAD STOP & HOLDER

CAUTION: "A","B", & "C" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

FOR DEAD STOP ADD 9/16" (14) TO THE "A" DIMENSION
FOR SE STOPS USE HOLD-OPEN MOUNTING DIMENSIONS
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

	DEGREE		90 HO					
	DIM.	DOOR OPENING	A	B	C	E	D	I
104	IN.	33 1/16-39	11 7/8	6 5/16	4 15/16	22 1/8	17 3/4	20
	mm	839-991	302	160	125	562	451	508
105	IN.	39 1/16-45	17 5/8	8 1/8	6 3/4	28	19 3/4	26
	mm	992-1143	448	206	171	711	502	660
106	IN.	45 1/16-54	23 1/2	9 1/4	7 7/8	34	21 1/4	32
	mm	1144-1372	597	235	200	864	533	813

INST.100CJ

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829416-00

SensaGuard™ 280 GLYNN-JOHNSON

Installation Instructions

PUSH SIDE – Header Mounting

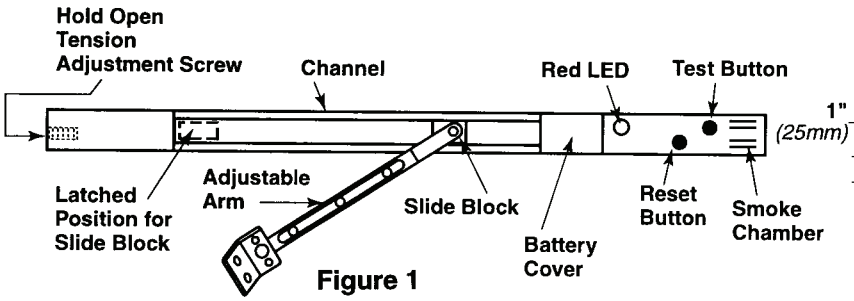


Figure 1

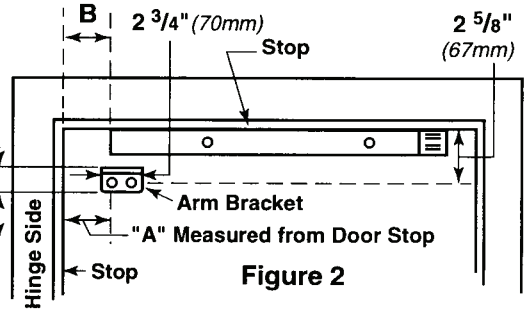


Figure 2

Instructions:

1. Remove battery compartment cover (see Fig. 1) and install alkaline 9-volt battery. (The red LED should now flash once every second and the motor will run briefly.)
2. Reinstall the battery cover and attach with both screws. (The red LED should stop flashing 3 seconds after securing 2nd screw.) (The red LED will now begin flashing once every 40 seconds.)
3. Wait 15 seconds.
4. Press and hold the "reset" button for 2 seconds. (You should hear the motor run briefly.) (Note: If you do not hear the motor run, wait 15 seconds, and try again.)
5. Select proper "B" dimension from Table 1.
6. Close the door and place unit against bottom of stop (see Fig. 2).
7. Leave a 1/8" gap between the door and the unit (see Fig. 3).
8. Using the unit as a template, mark the location of the 3 mounting holes in the stop.
9. Drill the 3 mounting holes with a 13/64" bit and tap 1/4-20.
10. Install the unit onto the stop with the 3 machine screws and lock washers.
11. Select proper "A" dimension from Table 1.
12. Mark the bracket hole locations on the door (see Fig. 2).
13. Loosen arm set screws (see Fig. 4).
14. For 180 degrees hold open, move the arm to the bracket hole closest to the hinge. Otherwise, leave arm in center bracket hole. Install arm bracket using sex bolts, lock washers, and sex nuts (see Fig. 4).
15. Move the slide block to the latched position (see Fig. 1).
16. Open the door to the desired hold open angle.
17. Tighten arm set screws (see Fig. 4). (The door should now be held open.)
18. Manually open and close the door several times to check the hold open position.
19. Manually move the door into hold open position.
20. Press the "Test" button to simulate a fire condition. (Door should release from hold open.)
21. Wait 15 seconds.
22. Press the "Reset" button to reset the unit.
23. Manually move the door into the hold open position. (Door should now be held open.)
24. If desired, adjust hold open tension by turning adjustment screw clockwise to increase or counterclockwise to decrease (see Fig. 1).

Figure 3

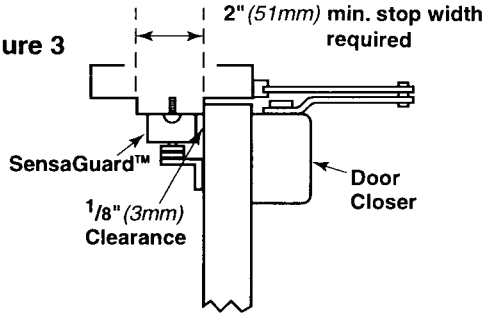


Figure 4

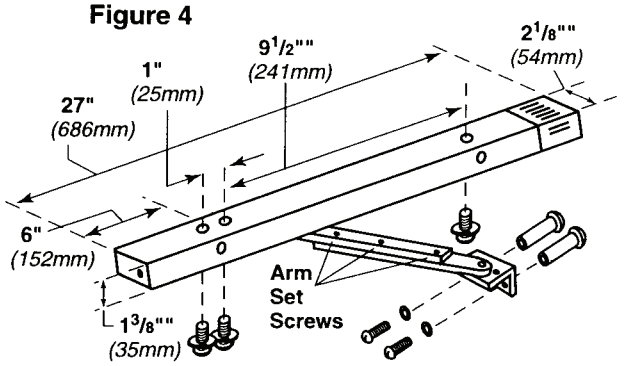


Table 1

Degrees Hold Open	90°-130°	130° - 180°
A	4 1/2" (114mm)	1/2" (13mm)
B	5" (127mm)	3" (76mm)

Screw Details		
	Qty.	Description
Push Side Channel	3	1/4-20 x 1/2" PHMS
	3	1/4" Split Lock Washer
Pull Side Channel	2	1/4-20 x 1/2" SHCS
Arm Bracket*	2	1/4-20 x 3/4" Truss PHMS
	2	1/4-20 Sex Bolts
	2	1/4" Split Lock Washer
Channel Hole Plugs	4	Painted Plastic Hole Plugs

*The screw comes installed in sex bolt.

PULL SIDE – Face Mounting

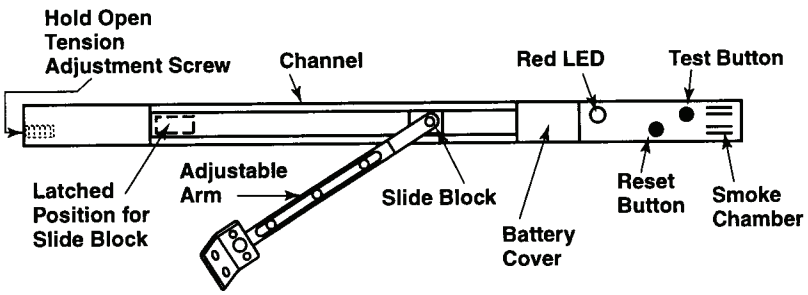


Figure 1

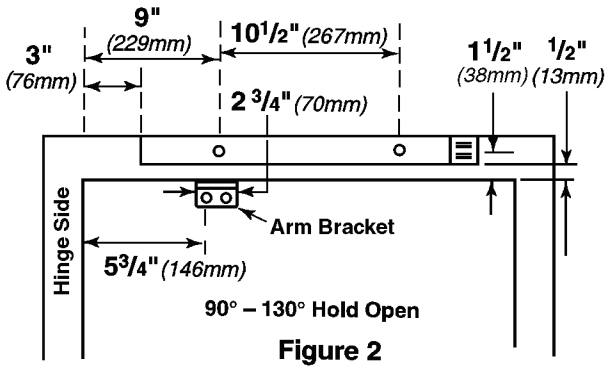


Figure 2

Instructions:

1. Remove battery compartment cover (see Fig. 1) and install alkaline 9-volt battery. (The red LED should now flash once every second and the motor will run briefly.)
2. Reinstall the battery cover and attach with both screws. (The red LED should stop flashing 3 seconds after securing 2nd screw.) (The red LED will now begin flashing once every 40 seconds.)
3. Wait 15 seconds.
4. Press and hold the "reset" button for 2 seconds. (You should hear the motor run briefly.) (Note: If you do not hear the motor run, wait 15 seconds, and try again.)
5. Place unit against frame (see Fig. 2 & Fig. 3).
6. Using the unit as a template, mark the location of the 2 channel mounting holes.
7. Drill the 2 mounting holes with a 13/64" bit and tap 1/4-20.
8. Install the unit onto the frame with the 2 socket head cap screws.
9. Mark the bracket hole locations on the door (see Fig. 2).
10. Loosen arm set screws (see Fig. 4).
11. Install arm bracket using sex bolts, lock washers, and sex nuts (see Fig. 4).
12. Move the slide block to the latched position (see Fig. 1).
13. Open the door to the desired hold open angle.
14. Tighten arm set screws (see Fig. 4). (The door should now be held open.)
15. Manually open and close the door several times to check the hold open position.
16. Manually move the door into hold open position.
17. Press the "Test" button to simulate a fire condition. (Door should release from hold open.)
18. Wait 15 seconds.
19. Press the "Reset" button to reset the unit.
20. Manually move the door into the hold open position. (Door should now be held open.)
21. If desired, adjust hold open tension by turning adjustment screw clockwise to increase or counterclockwise to decrease (see Fig. 1).

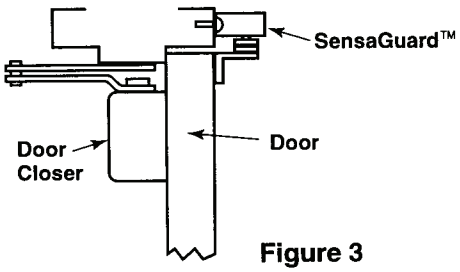


Figure 3

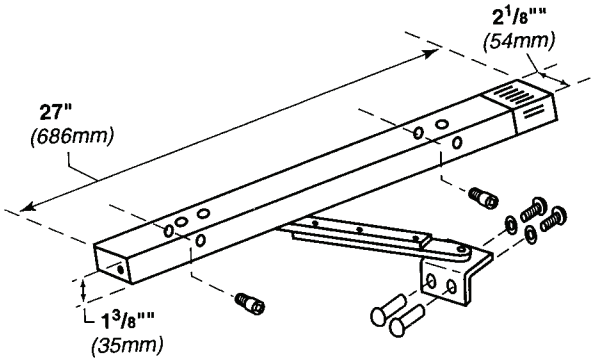
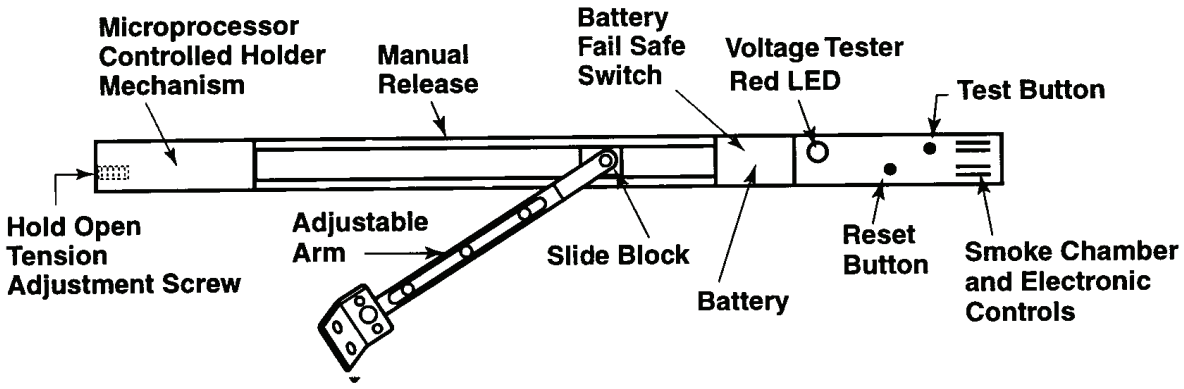


Figure 4

Screw Details		
	Qty.	Description
Push Side Channel	3	1/4-20 x ½" PHMS
	3	¼" Split Lock Washer
Pull Side Channel	2	1/4-20 x ½" SHCS
Arm Bracket*	2	1/4-20 x ¾" Truss PHMS
	2	1/4-20 Sex Bolts
	2	¼" Split Lock Washer
Channel Hole Plugs	4	Painted Plastic Hole Plugs
*The screw comes installed in sex bolt.		

Problem	*Comments*
Door Will Not Hold Open	1. Check if 9-volt alkaline battery is installed and battery cover is attached with both screws. 2. Does red LED flash when "test" button is pushed and held? If yes, continue. If no, call Glynn-Johnson Technical Assistance at (888) 371-7331. 3. Wait 15 seconds. 4. Push and hold "reset" button for 2 seconds. 5. Move door to desired hold open angle and see if hold open mechanism catches. If no, continue. 6. Does slide block inside channel travel completely to end of the track when the door is fully open? If not, adjust (shorten) the arm length. Note: The slide block must travel to the end of the channel to engage the latch mechanism. 7. If unit still will not hold open, call Glynn-Johnson Technical Assistance at (888) 371-7331.
Door Will Not Release When "Test" Button Is Pushed	1. Wait 15 seconds. 2. Push and hold "test" button for 2 seconds. 3. If unit does not release, make sure door is not hung up on frame or the floor and that the closer is working properly. If unit still does not release, call Glynn-Johnson Technical Assistance at (888) 371-7331.
Door Is Difficult To Release From Hold Open Manually	1. Adjust tension by turning hold open tension adjustment screw. 2. Check to see if unit is securely attached to the door and frame. If the unit rocks on the frame, the release mechanism may bind up during manual release.
Door Will Not Shut Completely	1. Check if adjustable arm rubs or contacts any part of the channel. If it does, the arm may be adjusted too long, the door bracket may be mounted too high, or the channel improperly located. Verify template dimensions.
Door Will Not Hold Open After "Smoke Test"	1. As long as smoke is in the detection chamber, the red LED will be flashing. Wait for all smoke to dissipate, then press "reset" button, wait 15 seconds, and try again.

GLYNN-JOHNSON. SensaGuard™ 280
General Information



Test Button ..... Push for 2 sec. to release door holder.

Reset Button ..... Push for 2 sec. to reset holder. (wait 15 sec. between Test & Reset)

Smoke Chamber ..... Ionization Chamber detects smoke and particles of combustion...signaling a held open door to release.

LED Voltage Tester..... Monitors the battery voltage once every 40 sec. A low battery condition will signal the holder to release...thus providing a FAIL SAFE condition.

Battery Holder..... Uses standard 9 Volt Eveready Energizer #522 battery or Duracell #MN1604. Do not substitute other brands.

Fail Safe Switch ..... Removal of Battery Cover causes a held open door to release. A good battery must be installed and the cover in place before holder can be activated.

Slide Block..... Engages holder mechanism to hold door open.

Adjustable Arm..... Connects door to slide block. Adjustable for Single Point hold open.
90° – 130° when Pull Side mounted.
90° – 180° when Push Side mounted.

Microprocessor ..... Mechanism "Holds" when Reset Switch is pushed.

Holder Mechanism..... Mechanism "Releases" when:
Test Button is pushed
Smoke is detected
Battery voltage low
Battery impedance high
Battery cover removed

Manual Release ..... Pulling door toward the closed position will release the holder mechanism. Pushing the door fully open will reset the holder.

Replace Battery Yearly On A Regular Maintenance Schedule

Note: *A held open door will release automatically when smoke is detected. It is necessary to push the reset button after the smoke clears the chamber. This will re-arm the holder mechanism.*

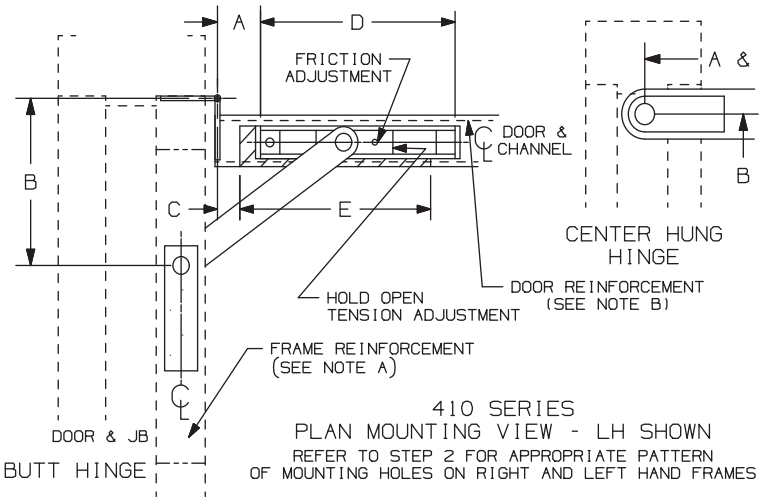
Customer Service
1-877-671-7011 www.allegion.com/us

ALLEGION

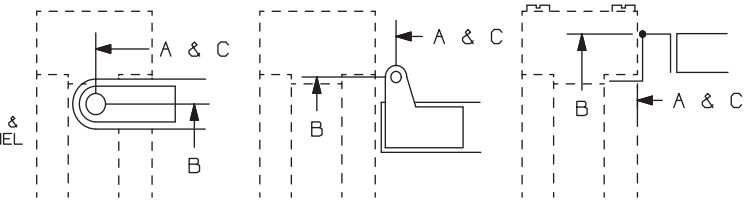
829416-00 Rev. 01/14-b

OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM THE CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A","B","C","D", AND "E" DIMENSIONS FROM CHARTS ON PAGE 3 THRU 6. FOR DEAD STOP ADD 9/16"(14) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



410 SERIES
PLAN MOUNTING VIEW - LH SHOWN
REFER TO STEP 2 FOR APPROPRIATE PATTERN OF MOUNTING HOLES ON RIGHT AND LEFT HAND FRAMES



DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/8" (35)	3" WIDE BUTT	3
	3 1/2" WIDE BUTT	3
	3/4" OFFSET PIVOT	4
	CENTERHUNG PIVOT	4
1 3/4" (44)	4" WIDE BUTT	2
	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	2
	4" SWINGCLEAR	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	SOSS 218	3
	CENTERHUNG PIVOT	4
2" (51)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	2
	5" SWINGCLEAR	2
	SOSS 220	2
	CENTERHUNG PIVOT	4
2 1/4" (57)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	2
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	2
	CENTERHUNG PIVOT	4

NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS PLATE.

C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN, FRICTION AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

410 ADJUSTMENTS:

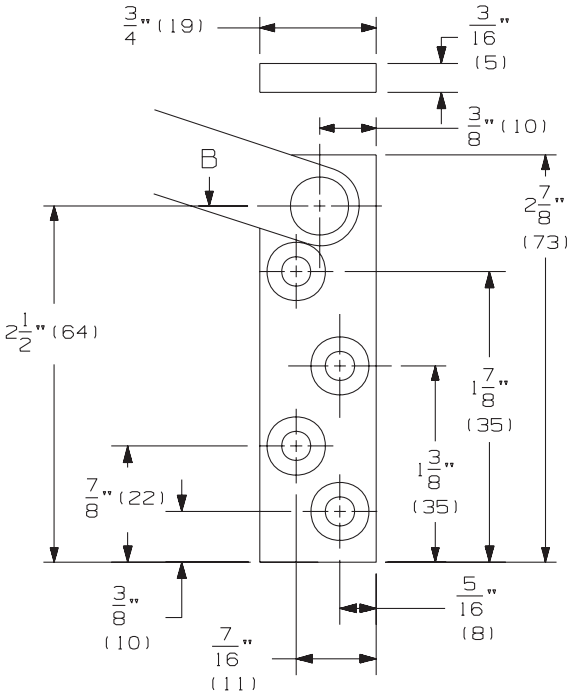
HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)- USING A 5/32" BALL END ALLEN WRENCH, TURN SCREW INSIDE "LONG" END OF THE CAM CLOCKWISE TO DECREASE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO INCREASE HOLD-OPEN TENSION. TENSION SET TO MINIMUM AT FACTORY.

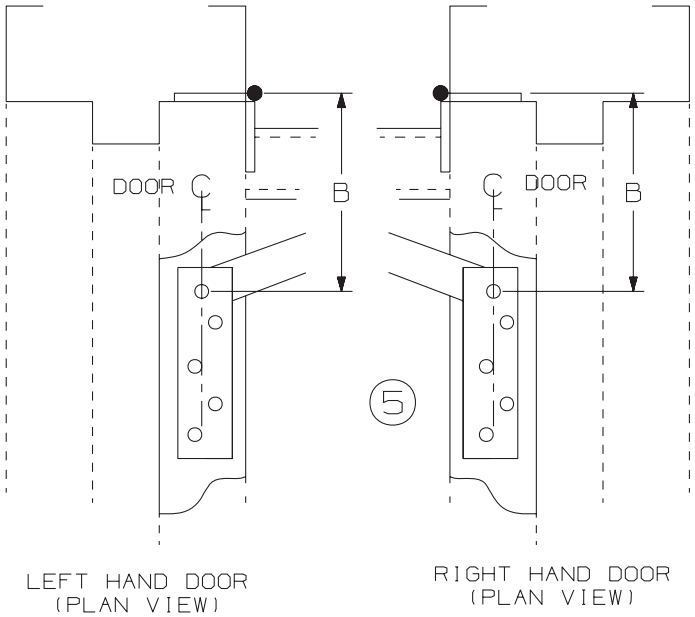
FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)- USING A 3/32" ALLEN WRENCH, TURN SCREW SHOWN CLOCKWISE TO INCREASE THE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

SCREW DETAILS			
	QTY	WOOD	METAL
DOOR	2	#10 x 1 1/2" FILPHSMS	10-32 x 1 1/2" FILPHMS
JAMB	4	#10 x 1 1/2" FPHSMS	10-32 x 1/2" FPHMS

2. A. LOCATE "B" DIMENSION ON THE FRAME. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE JAMB BRACKET AS SHOWN. REFER TO LEFT AND RIGHT HAND PLAN VIEWS FOR APPROPRIATE HOLE PATTERN.
   C. FOR METAL FRAMES, USE A #21 DRILL AND A 10-32 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL A 1/16" PILOT HOLE IN 4 PLACES.



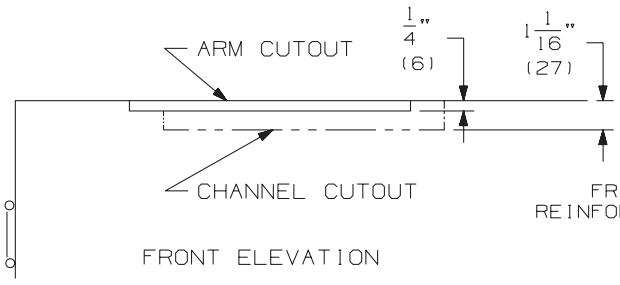


LEFT HAND DOOR (PLAN VIEW)

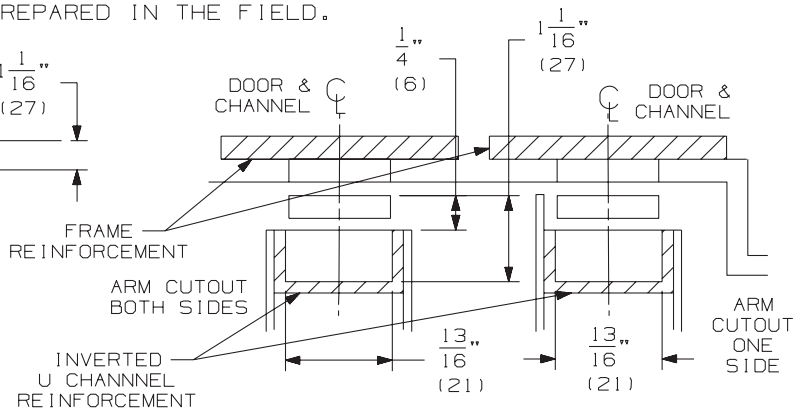
RIGHT HAND DOOR (PLAN VIEW)

REFER TO ILLUSTRATION BELOW AND ON SHT 1 FOR THE FOLLOWING NOTES:

3. A. LOCATE "A" AND "D" DIMENSIONS ON THE CENTERLINE OF THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   B. MORTISE FOR THE CHANNEL AS SHOWN IF REQUIRED.
   C. LOCATE "C" AND "E" DIMENSIONS ON THE TOP OF THE DOOR. NOTE THAT THE "C" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.
   D. MORTISE FOR ARM CUTOUT AS SHOWN.
   E. FOR METAL DOORS, USE A #21 DRILL AND 10-32 TAP IN 2 PLACES. FOR WOOD DOORS, DRILL 1/8" PILOT HOLES IN 2 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



FRONT ELEVATION



CROSS SECTION IN CLOSED POSITION

4. A. INSTALL THE CHANNEL IN THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.
   B. INSTALL JAMB BRACKET IN FRAME.

DIMENSIONS IN ( ) ARE MILLIMETERS.

		DEGREE	85 HO				90 HO				95 HO				100 HO				105 HO				110 HO					
		DIM.	DOOR OPENING	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	A	B	C	E	D	I
MOUNTING GROUP #1	411	IN.	18-23 * /	1 15/16	4 1/4	0	13	1 5/8	4	0	12 3/4	1 7/16	3 13/16	0	12 1/2	1 1/4	3 5/8	0	12 1/4	1 1/16	3 7/16	0	12 1/4	-	-	-	-	15 9/16	8 1/4
		mm	457-584	49	108	0	330	41	102	0	324	37	97	0	318	32	92	0	311	27	87	0	311	-	-	-	-	395	210
	412	IN.	23 1/16-27*	3 3/8	5 3/8	2	14 1/2	3 1/16	5 1/4	2	14 1/2	2 13/16	5	1	14 1/2	2 9/16	4 13/16	1	14 1/2	2 3/8	4 9/16	0	15	2 3/16	4 3/8	0	15	17 3/16	10
		mm	585-686	86	143	51	368	78	133	51	368	71	127	25	368	65	122	25	368	60	116	0	381	56	111	0	381	437	254
	413	IN.	27 1/16-33	7 5/16	6 3/4	5 3/4	16	6 15/16	6 3/8	5	16 1/4	6 9/16	6	4 1/4	16 1/4	6 5/16	5 11/16	3 1/2	16 3/4	6 *	5 7/16 *	3 1/4 *	16 3/4 *	5 13/16*	5 1/4 *	3 *	17 *	18 7/16	14
		mm	687-838	186	171	146	406	176	162	127	413	167	152	108	413	160	144	89	425	152	138	83	425	148	133	76	432	468	356
	414	IN.	33 1/16-39	11 3/16	8 3/8	7 3/8	20	10 5/8	7 7/8	6 7/8	20	10 1/4	7 7/16	6 7/16	20	9 7/8	7	5 7/8	20 1/8	9 1/2	6 11/16	5 9/16	20 1/8	9 1/4	6 7/16	5 5/16	20 1/8	20 3/16	18
		mm	839-991	284	213	187	508	270	200	175	508	260	189	164	508	251	178	149	511	241	170	141	511	235	164	135	511	513	457
	415	IN.	39 1/16-45	14 3/4	9 3/4	8 3/4	23 5/8	14 3/16	9 3/16	8 3/16	23 5/8	13 11/16	8 5/8	7 5/8	23 3/4	13 1/4	8 1/8	7	23 7/8	12 7/8	7 13/16	6 11/16	23 7/8	12 9/16	7 7/16	6 5/16	23 7/8	21 11/16	21 3/4
		mm	992-1143	375	248	222	600	360	233	208	600	348	219	194	603	337	206	178	606	327	198	170	606	319	189	160	606	551	552
MOUNTING GROUP #2	411	IN.	18-23 * /	2 1/16	4 7/16	0	13	1 13/16	4 3/16	0	13	1 9/16	3 15/16	0	12 3/4	1 3/8	3 3/4	0	12 1/2	1 1/4	3 9/16	0	12 1/4	1 1/16	3 7/16	0	12 1/4	15 9/16	8 1/4
		mm	457-584	52	113	0	330	46	106	0	330	40	100	0	324	35	95	0	318	32	90	0	311	27	87	0	311	395	210
	412	IN.	23 1/16-27*	3 1/2	5 3/4	2	14 1/2	3 3/16	5 7/16	2	14 1/2	2 15/16	5 1/8	2	14 1/2	2 11/16	4 15/16	1	14 1/2	2 1/2	4 3/4	0	15	2 5/16	4 1/2	0	15	17 3/16	10
		mm	585-686	89	146	51	368	81	138	51	368	75	130	51	368	68	125	25	368	64	121	0	381	59	114	0	381	437	254
	413	IN.	27 1/16-33	7 1/2	6 15/16	5 15/16	16	7 1/16	6 1/2	5 1/2	16	6 3/4	6	5	16	6 7/16	5 7/8	4 1/4	16 1/4	6 3/16	5 9/16	3 1/2	16 3/4	5 13/16	5 1/4	3	16 3/4	18 7/16	14
		mm	687-838	191	176	151	406	179	165	140	406	171	156	130	406	164	149	108	413	157	141	89	425	148	133	76	425	468	356
	414	IN.	33 1/16-39	11 5/16	8 1/2	7 1/2	20	10 13/16	8	7	20	10 5/16	7 9/16	6 9/16	20	10	7 3/16	6 1/16	20 1/8	9 11/16	6 7/8	5 3/4	20 1/8	9 3/8	6 9/16	5 7/16	20 1/8	20 3/16	18
		mm	839-991	287	216	191	508	275	203	178	508	262	192	167	508	254	183	154	511	246	175	146	511	238	167	138	511	513	257
	415	IN.	39 1/16-45	14 15/16	9 7/8	8 7/8	23 3/4	14 5/16	9 5/16	8 5/16	23 3/4	13 13/16	8 3/4	7 3/4	23 3/4	13 3/8	8 5/16	7 3/16	23 7/8	13	7 7/8	6 3/4	23 7/8	12 11/16	7 9/16	6 7/16	23 7/8	21 11/16	21 3/4
		mm	992-1143	379	251	225	603	364	237	211	603	351	222	197	603	340	211	183	606	330	200	171	606	322	192	164	606	551	552
MOUNTING GROUP #3	411	IN.	18-23 * /	2 1/4	4 9/16	0	13 1/4	1 15/16	4 5/16	0	13	1 3/4	4 1/16	0	13	1 9/16	3 7/8	0	12 3/4	1 3/8	3 3/4	0	12 1/2	1 1/4	3 9/16	0	12 1/4	15 9/16	8 1/4
		mm	457-584	57	116	0	337	49	110	0	330	44	103	0	330	40	98	0	324	35	95	0	318	32	90	0	311	395	210
	412	IN.	23 1/16-27*	3 5/8	5 7/8	2	14 1/2	3 5/16	5 9/16	2	14 1/2	3 1/16	5 1/16	2	14 1/2	2 13/16	5 1/16	1	14 1/2	2 5/8	4 13/16	1	14 1/2	2 7/16	4 5/8	0	15	17 3/16	10
		mm	585-686	92	149	51	368	84	141	51	368	78	135	51	368	71	129	25	368	67	122	25	368	62	117	0	381	437	254
	413	IN.	27 1/16-33	7 5/8	7 1/16	6 1/16	16	7 1/4	6 5/8	5 5/8	16	6 7/8	6 5/16	5	16	6 9/16	6	4 1/4	16 1/4	6 5/16	5 3/4	3 1/2	16 3/4	6 1/16	5 1/2	3	17	18 7/16	14
		mm	687-838	194	179	154	406	184	168	143	406	175	160	127	406	167	152	108	413	160	146	89	425	154	140	76	432	468	356
	414	IN.	33 1/16-39	11 1/2	8 9/16	7 9/16	20 1/8	11	8 1/16	7 1/16	20 1/8	10 1/2	7 11/16	6 11/16	20	10 1/8	7 5/16	6 3/16	20 1/8	9 3/4	7	5 7/8	20 1/8	9 1/2	6 5/8	5 1/2	20 1/8	20 3/16	18
		mm	839-991	292	217	192	511	279	205	179	511	267	195	170	508	257	186	157	511	248	178	149	511	241	168	140	511	514	457
	415	IN.	39 1/16-45	15 1/16	10	9	23 5/8	14 7/16	9 7/16	8 7/16	23 5/8	13 15/16	8 7/8	7 7/8	23 3/4	13 1/2	8 7/16	7 5/16	23 7/8	13 1/8	8	6 7/8	23 7/8	12 3/4	7 11/16	6 9/16	23 7/8	21 11/16	21 3/4
		mm	992-1143	383	254	229	600	367	240	214	600	354	225	200	603	343	214	186	606	333	203	175	606	324	195	167	606	551	552
MOUNTING GROUP #4	411	IN.	23 1/16-27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15 9/16	8 1/4
		mm	585-686	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	395	210
	412	IN.	27 1/16-33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17 3/16	10
		mm	687-838	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	437	254
	413	IN.	33 1/16-39	8	7 7/16	6 7/16	16	7 5/8	7	6	16	7 1/4	6 11/16	5 11/16	16	6 15/16	6 5/16	5 3/16	16 1/8	6 3/4	5 15/16	4 13/16	16 3/8	6 7/16	5 13/16	4 11/16	16 1/8	18 7/16	14
		mm	839-991	203	189	164	406	194	178	152	406	184	170	144	406	176	160	132	410	171	151	122	416	164	148	119	410	458	356
	414	IN.	39 1/16-45	11 7/8	9 1/16	8 1/16	20	11 5/16	8 9/16	7 9/16	20	10 15/16	8 1/16	7 1/16	20	10 1/2	7 3/4	6 5/8	20	10 3/16	7 5/16	6 3/16	20 1/8	9 7/8	7	5 7/8	20 1/8	20 3/16	18
		mm	992-1143	302	230	206	508	287	217	192	508	278	206	179	508	267	197	154	508	259	186	157	511	251	178	149	511	516	457
	415	IN.	45 1/16-51	15 1/2	10 1/2	9 1/2	23 5/8	14 7/8	9 7/8	8 7/8	23 5/8	14 3/8	9 5/16	8 5/16	23 3/4	13 15/16	8 13/16	7 11/16	23 7/8	13 1/2	8 7/16	7 5/16	23 7/8	13 1/8	8 1/8	7	23 7/8	21 11/16	21 3/4
		mm	1144-1295	394	267	241	600	378	251	225	600	305	237	211	603	354	224	195	606	343	214	186	606	333	206	178	606	551	552

CAUTION: "A", "B", & "C" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

FOR EAD STOP ADD 9/16" (14) TO THE "A" DIMENSION
FOR SE STOPS USE HOLD-OPEN MOUNTING INSTRUCTIONS
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

* NOT TO BE USED WITH OFFSET PIVOTS
/ NOT TO BE USED WITH SWINGCLEAR HINGES

INST.410

Customer Service

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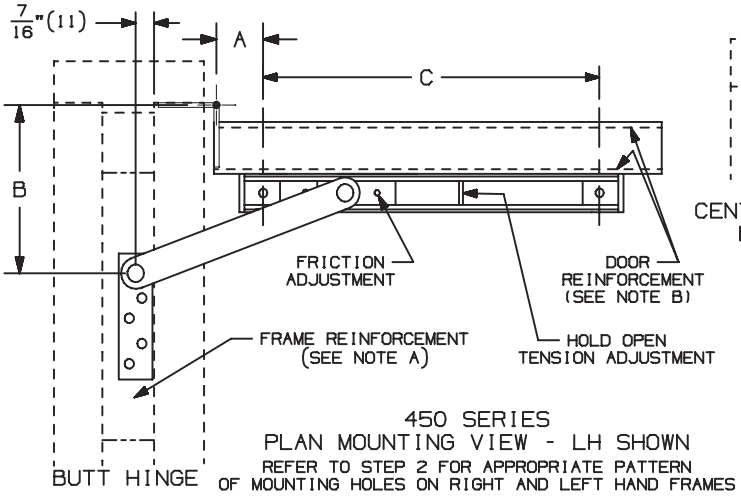
ALLEGION

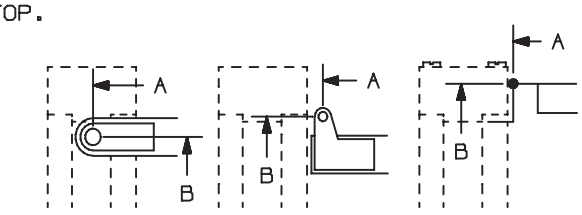
Printed in U.S.A.
INST.410 Rev. 10/14-c

OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS

1. A. DETERMINE THE MOUNTING BEING USED FROM ILLUSTRATION BELOW.
   B. SELECT MOUNTING GROUP NUMBER FROM THE CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A" & "B" DIMENSIONS FROM CHARTS ON PAGES 3, 4, & 5. FOR DEAD STOP ADD 9/16"(14) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



450 SERIES
PLAN MOUNTING VIEW - LH SHOWN
REFER TO STEP 2 FOR APPROPRIATE PATTERN OF MOUNTING HOLES ON RIGHT AND LEFT HAND FRAMES



CENTER HUNG HINGE | OFFSET PIVOT HINGE | SWING CLEAR HINGE

DOOR THICKNESS	HINGE TYPE & STYLE	MOUNTING GROUP
1 3/8" (35)	3" WIDE BUTT	4
	3 1/2" BUTT	3
	3/4" OFFSET PIVOT	3
	SOSS 216	4
1 3/4" (44)	4" WIDE BUTT	2
	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	2
	4" SWINGCLEAR	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	2
	CENTERHUNG PIVOT	5
2" (51)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	3/4" OFFSET PIVOT	1
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	1
	SOSS 220	2
	CENTERHUNG PIVOT	5
2 1/4" (57)	4 1/2" WIDE BUTT	2
	5" WIDE BUTT	1
	4 1/2" SWINGCLEAR	1
	SOSS 220	1
	CENTERHUNG PIVOT	5

NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 12"(305) MINIMUM LENGTH PLATE.

B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16"(5) MINIMUM THICKNESS BY 2 1/2" (64) MINIMUM WIDTH PLATE.

C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OR NFPA101 Ⓡ. CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.

D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD OPEN, FRICTION AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK-TO-BACK, AGAINST A WALL OR OBSTRUCTION.

450 ADJUSTMENTS:

HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)- USING A 5/32" BALL-END ALLEN WRENCH, TURN SCREW INSIDE "LONG" END OF CAM CLOCKWISE TO DECREASE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO INCREASE HOLD-OPEN TENSION. TENSION SET TO MINIMUM AT FACTORY.

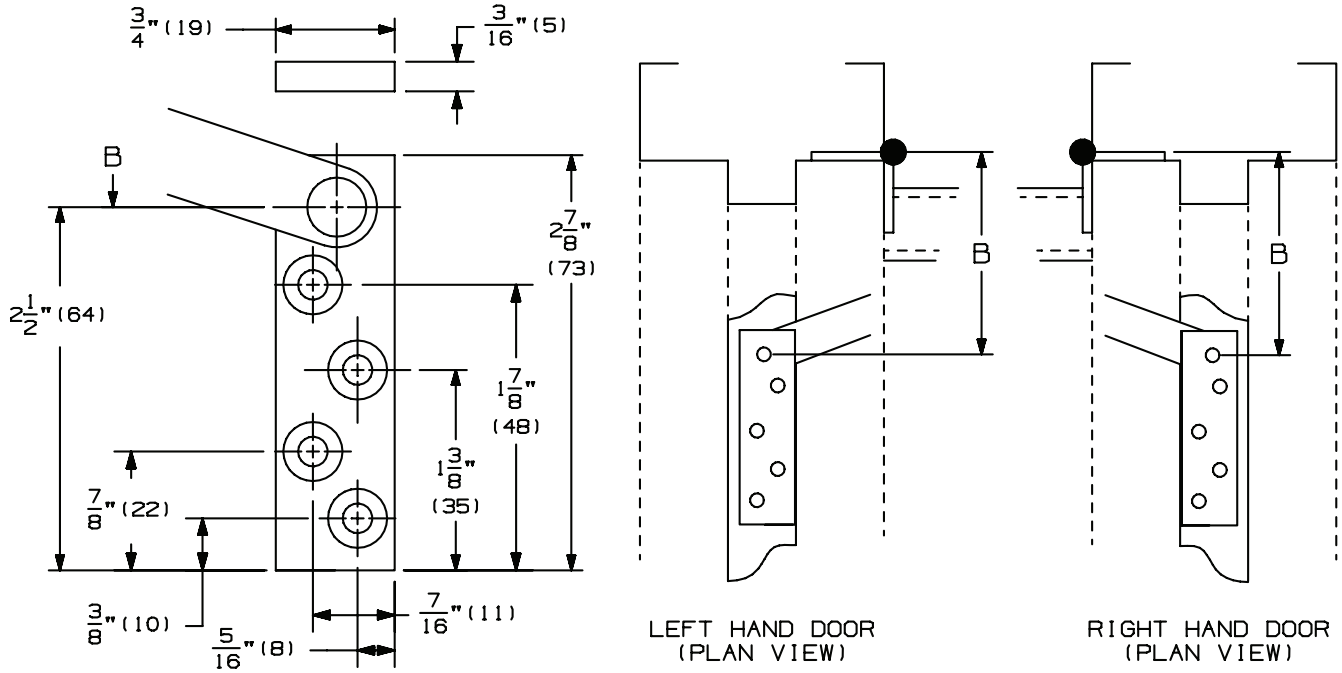
FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)- USING A 3/32" ALLEN WRENCH, TURN SCREW SHOWN CLOCKWISE TO INCREASE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION.

DIMENSIONS IN ( ) ARE IN MILLIMETERS

SCREW DETAILS			
	QTY	WOOD	METAL
JAMB	4	#10 x 1 1/2" FPHSMS	10-32 x 1/2" FPHMS
DOOR	2	10-24 x 1 9/16" SEX BOLTS	10-24 x 1 9/16" SEX BOLTS
	2	10-24 x 1 1/2" PPHMS	10-24 x 1 1/2" PPHMS

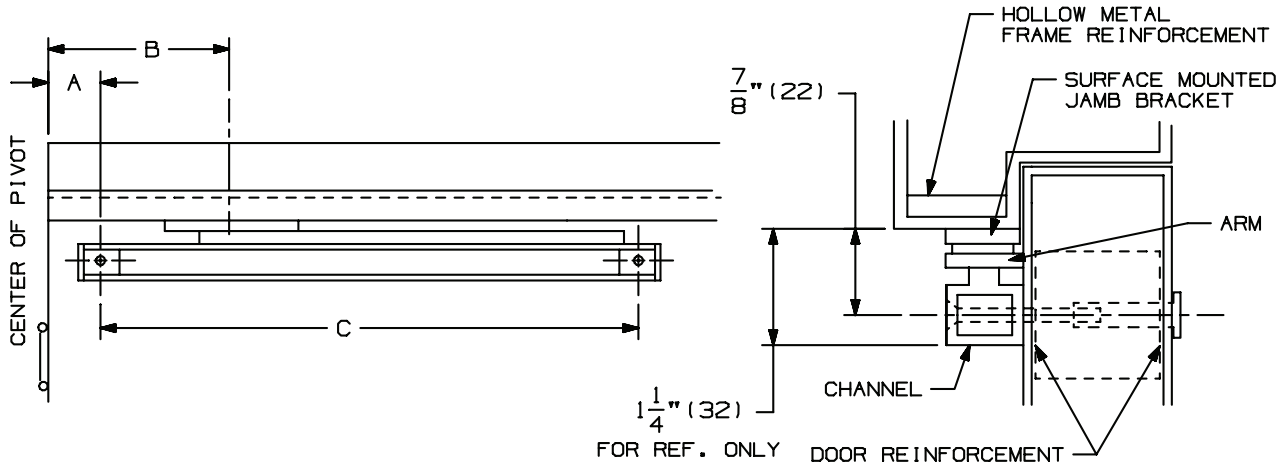
2. A. LOCATE "B" DIMENSION ON THE FRAME. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

C. FOR METAL FRAMES, USE A #21 DRILL AND 10-32 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 1/8" PILOT HOLE IN 4 PLACES. REFER TO LEFT AND RIGHT PLAN VIEWS FOR APPROPRIAE HOLE PATTERN.



3. A. LOCATE "A" AND "C" DIMENSIONS ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

B. DRILL THE 1/4" (6) DIAMETER THROUGH HOLES DOWN 7/8" (22) DOWN FROM STOP IN TWO PLACES. ON THE PULL SIDE OF THE DOOR, DRILL 13/32" (10) DIAMETER HOLE, 1 5/8" (41) DEEP FOR SEX BOLT. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



4. A. INSTALL JAMB BRACKET ON THE STOP.

B. INSTALL THE CHANNEL ON THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF THE DOOR.

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

MOUNTING GROUPS 1, 2, 3, & 4
450 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

FOR DEAD STOP ADD 9/16" (14) TO THE "A" DIMENSION
FOR SE STOPS USE HOLD-OPEN MOUNTING DIMENSION
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

* NOT TO BE USED WITH SWINGCLEAR HINGES

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO			
		DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	C	I
MOUNTING GROUP #1	451	IN.	18-23	-	-	-	-	-	-	-	-	-	-	-	-	14 3/4	8 1/4
		mm	457-584	-	-	-	-	-	-	-	-	-	-	-	-	375	210
	452	IN.	23 1/16-27*	2 15/16	4 15/16	2 9/16*	4 9/16*	-	-	-	-	-	-	-	-	16 3/8	10
		mm	585-686	75	125	65	116	-	-	-	-	-	-	-	-	416	254
	453	IN.	27 1/16-33	6 7/8	6 1/16	6 7/16	5 11/16	6 1/8	5 5/16	5 13/16	5	-	-	-	-	17 5/8	14
		mm	687-838	175	154	164	144	156	135	148	127	-	-	-	-	448	356
	454	IN.	33 1/16-39	10 3/4	7 5/8	10 1/4	7 3/16	9 13/16	6 3/4	9 7/16	6 3/8	9 1/8	6	8 13/16	5 13/16	19 3/8	18
		mm	839-991	273	194	260	183	249	171	240	162	232	152	224	148	492	457
	455	IN.	39 1/16-45	14 5/16	9	13 3/4	8 7/16	13 1/4	8	12 7/8	7 1/2	12 1/2	7 1/8	12 3/16	6 13/16	20 7/8	21 3/4
		mm	992-1143	364	229	349	214	337	203	327	191	318	181	310	173	530	552
MOUNTING GROUP #2	451	IN.	18-23*	1 1/2*	3 5/8*	-	-	-	-	-	-	-	-	-	-	14 3/4	8 1/4
		mm	457-584*	38	92	-	-	-	-	-	-	-	-	-	-	375	210
	452	IN.	23 1/16-27	3 1/8	5 1/8	2 13/16*	4 3/4*	2 1/2*	4 1/2*	-	-	-	-	-	-	16 3/8	10
		mm	585-686	79	130	71	121	64	114	-	-	-	-	-	-	416	254
	453	IN.	27 1/16-33	7 1/16	6 5/16	6 11/16	5 13/16	6 5/16	5 1/2	6	5 3/16	5 3/4	4 15/16	-	-	17 5/8	14
		mm	687-838	179	160	170	148	160	140	152	132	146	125	-	-	448	356
	454	IN.	33 1/16-39	10 7/8	7 7/8	10 7/16	7 3/8	10	6 15/16	9 5/8	6 9/16	9 5/16	6 3/16	9 1/16	5 15/16	19 3/8	18
		mm	839-991	276	200	265	187	254	176	244	167	237	157	230	151	492	457
	455	IN.	39 1/16-45	14 9/16	9 3/16	13 15/16	8 11/16	13 1/2	8 1/16	13	7 11/16	12 11/16	7 5/16	12 5/16	7 1/16	20 7/8	21 3/4
		mm	992-1143	370	233	354	221	343	205	330	195	322	186	313	179	530	552
MOUNTING GROUP #3	451	IN.	18-23*	1 13/16	3 15/16	1 9/16	3 3/8	-	-	-	-	-	-	-	-	14 3/4	8 1/4
		mm	457-584*	46	100	40	92	-	-	-	-	-	-	-	-	375	210
	452	IN.	23 1/16-27	3 5/16	5 5/16	3	5	2 3/4	4 3/4	2 1/2	4 1/2	2 1/4	4 1/4	-	-	16 3/8	10
		mm	585-686	84	135	76	127	70	121	64	114	57	108	-	-	416	254
	453	IN.	27 1/16-33	7 1/4	6 1/2	6 7/8	6 1/8	6 1/2	5 3/4	6 1/4	5 7/16	6	5 3/16	5 3/4	5	17 5/8	14
		mm	687-838	184	165	175	156	165	146	159	138	152	132	146	127	448	356
	454	IN.	33 1/16-39	11 1/8	8 1/16	10 5/8	7 9/16	10 3/16	7 1/8	9 13/16	6 13/16	9 1/2	6 7/16	9 1/4	6 1/8	19 3/8	18
		mm	839-991	283	205	270	192	259	181	249	173	241	164	235	156	492	457
	455	IN.	39 1/16-45	14 3/4	9 1/2	14 1/8	8 13/16	13 5/8	8 5/16	13 3/16	7 15/16	12 7/8	7 1/2	12 1/2	7 1/4	20 7/8	21 3/4
		mm	992-1143	375	241	359	224	346	211	335	202	327	191	318	184	530	552
MOUNTING GROUP #4	451	IN.	18-23*	2	4 1/8	1 3/4	3 7/8	1 1/2	3 5/8	-	-	-	-	-	-	14 3/4	8 1/4
		mm	457-584*	51	105	44	98	38	92	-	-	-	-	-	-	375	210
	452	IN.	23 1/16-27	3 1/2	5 1/2	3 3/16	5 1/8	2 7/8	4 7/8	2 11/16	4 5/8	2 7/16	4 7/16	2 1/4	4 1/4	16 3/8	10
		mm	585-686	89	140	81	130	73	124	68	117	62	113	57	108	416	254
	453	IN.	27 1/16-33	7 7/16	6 11/16	7	6 1/4	6 11/16	5 15/16	6 3/8	5 9/16	6 1/8	5 5/16	5 7/8	5 1/8	17 5/8	14
		mm	687-838	189	170	178	159	170	151	162	141	156	135	149	130	448	356
	454	IN.	33 1/16-39	11 1/4	8 1/4	10 3/4	7 3/4	10 5/16	7 1/4	9 15/16	6 15/16	9 5/8	6 5/8	9 5/16	6 5/16	19 3/8	18
		mm	839-991	286	210	273	197	262	184	252	176	244	168	237	160	492	457
	455	IN.	39 1/16-45	14 7/8	9 9/16	14 1/4	9	13 3/4	8 1/2	13 5/16	8	13	7 5/8	12 5/8	7 5/16	20 7/8	21 3/4
		mm	992-1143	378	243	362	229	349	216	338	203	330	194	321	186	530	552
MOUNTING GROUP #5	451	IN.	23 1/16-27	2 3/8	4 1/2	2 1/8	4 1/4	1 7/8	4	1 11/16	3 13/16	1 9/16	3 11/16	1 3/8	3 1/2	14 3/4	8 1/4
		mm	585-687	60	114	54	108	48	102	43	97	40	94	35	89	375	210
	452	IN.	27 1/16-33	3 3/4	5 3/4	3 1/2	5 1/2	3 1/4	5 1/4	3	5	2 3/4	4 3/4	2 5/8	4 5/8	16 3/8	10
		mm	688-838	95	146	89	140	83	133	76	127	70	121	67	117	416	254
	453	IN.	33 1/16-39	7 3/4	7	7 3/8	6 5/8	7	6 1/4	6 11/16	5 15/16	6 7/16	5 11/16	6 3/16	5 7/16	17 5/8	14
		mm	839-991	197	178	187	168	178	159	170	151	164	144	157	138	448	356
	454	IN.	39 1/16-45	11 9/16	8 9/16	11	8	10 5/8	7 5/8	10 1/4	7 1/4	9 15/16	6 15/16	9 5/8	6 5/8	19 3/8	18
		mm	992-1143	294	217	279	203	270	194	260	184	252	176	244	168	492	457
	455	IN.	45 1/16-51	15 1/4	10	14 5/8	9 3/8	14 1/8	8 7/8	13 5/8	8 3/8	13 1/4	8	12 7/8	7 5/8	20 7/8	21 3/4
		mm	1144-1295	387	254	371	238	359	225	346	213	337	203	327	194	530	552

"A" & "B" DIMENSION CHANGES
FOR MOUNTING GROUP #5

NOTE: DIMENSIONS IN ( ) ARE MILLIMETERS.

INST.450

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ALLEGION

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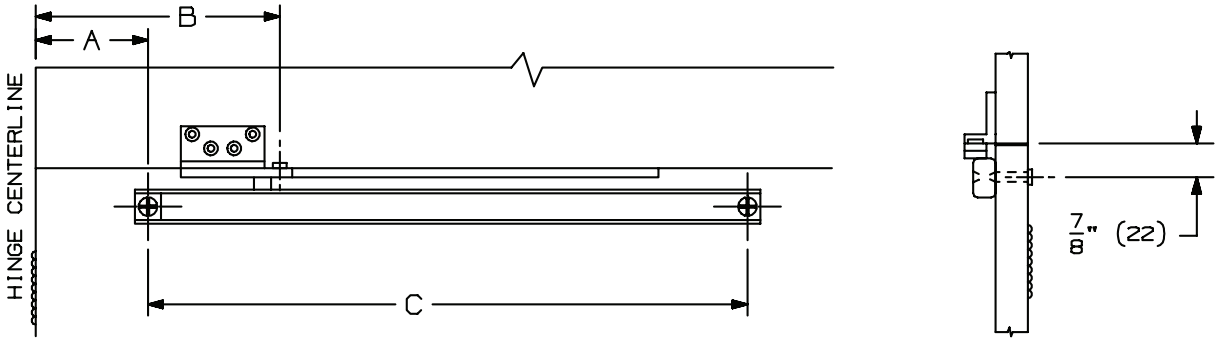
INST.450 Rev. 01/14-b

Surface Overhead Holder Angle Bracket (Push Side)

Installation Instructions

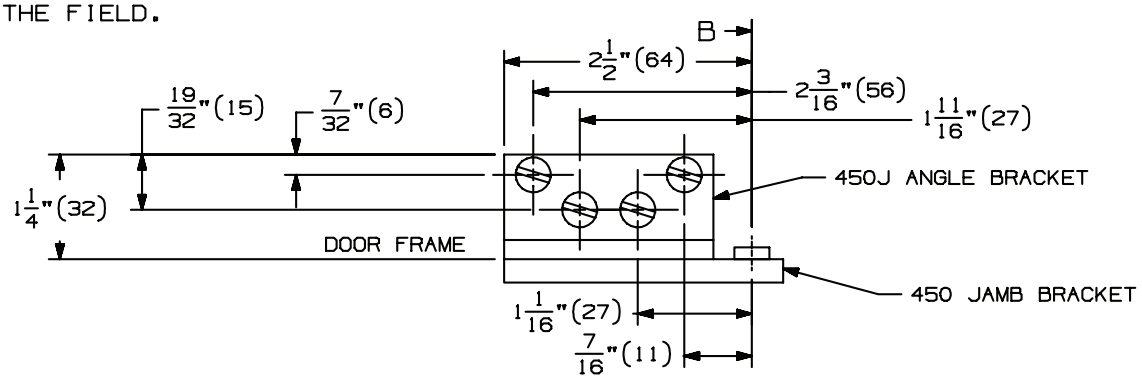
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS.

1. A. FOLLOW STEP 1 FROM THE 450 SERIES SURFACE OVERHEAD HOLDER INSTALLATION TEMPLATE INST.450.



2. A. LOCATE "B" DIMENSION ON THE FACE OF THE FRAME OR ON THE FLUSH TRANSOM PANEL. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

B. FOR METAL FRAMES, USE A #21 DRILL AND 10-32 TAP IN 4 PLACES. FOR WOOD FRAMES, DRILL 1/8" PILOT HOLES IN 4 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. LOCATE "A" & "C" DIMENSIONS ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF HINGE AS SHOWN.

B. DRILL THE 1/4" (6) DIAMETER THROUGH HOLES DOWN 7/8" (33) FROM THE FRAME OR FLUSH TRANSOM PANEL IN TWO PLACES. ON THE PULL SIDE OF DOOR, DRILL 13/32" (10) DIAMETER HOLE, 1 5/8" (41) DEEP FOR SEX BOLT. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.

4. A. INSTALL ANGLE BRACKET ONTO STANDARD JAMB BRACKET WITH 10-32 X 1/2" FPHMS PROVIDED WITH THE ANGLE BRACKET.

B. INSTALL THE CHANNEL ON THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.

C. INSTALL THE ANGLE BRACKET TO THE FACE OF THE FRAME OR THE FLUSH TRANSOM PANEL.

SCREW DETAILS

	QTY	WOOD	METAL
ANGLE	4	10-32 X 1/2" FPHMS	10-32 X 1/2" FPHMS
JAMB	4	#10 X 1 1/2" FPHSMS	10-32 X 1/2" FPHMS
DOOR	2	10-24 X 1 1/2" PPHMS	10-24 X 1 1/2" PPHMS
DOOR	2	10-24 X 1 9/16" SEX BOLT	10-24 X 1 9/16" SEX BOLT

NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

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ALLEGION

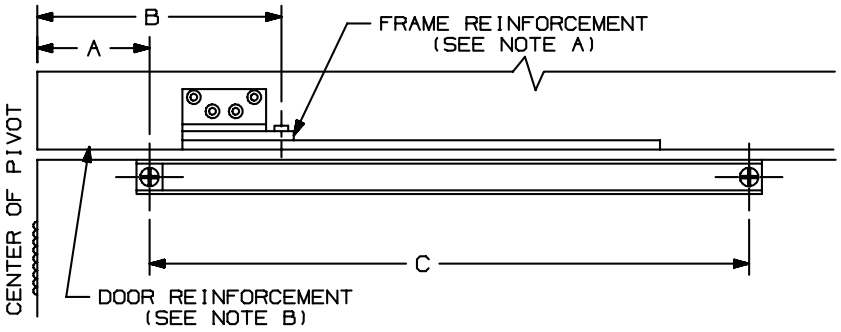
INST.450J Rev. 01/14-b

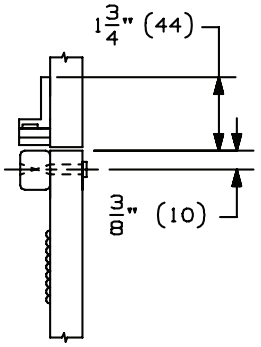
OVERHEAD HOLDERS OR STOPS MUST BE INSTALLED BEFORE CLOSERS.

1. A. DETERMINE THE MOUNTING BEING USED FROM THE ILLUSTRATIONS BELOW.

   B. SELECT MOUNTING GROUP NUMBER FROM THE CHART BELOW. MOST CONTINUOUS HINGES ARE GROUPED WITH 4 1/2" WIDE BUTT OR 4 1/2" SWING CLEAR HINGE.

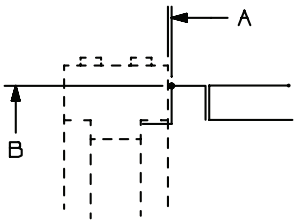
   C. USING THE MOUNTING GROUP NUMBER AND THE OVERHEAD HOLDER OR STOP SIZE AND THE DEGREE OF OPENING DESIRED, FIND "A", "B", AND "C" DIMENSIONS FROM THE CHART ON PAGE 3. FOR DEAD STOP ADD 9/16" (14mm) TO THE "A" DIMENSION FROM THE CHART. SEE NOTE D FOR INFORMATION ABOUT DEAD STOP.



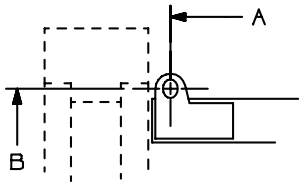


NOTES:

A. HOLLOW METAL FRAMES SHOULD BE PROPERLY REINFORCED WITH A 3/16" (5) MINIMUM THICKNESS BY 12" (305) MINIMUM WIDTH PLATE.
B. HOLLOW METAL DOORS SHOULD BE PROPERLY REINFORCED WITH A 3/16" (5) MINIMUM THICKNESS PLATE BY 2 1/2" (64) MINIMUM WIDTH PLATE.
C. STOP ONLY UNITS ARE PERMITTED ON MANY FIRE DOOR APPLICATIONS. HOWEVER, MECHANICAL HOLD-OPEN DEVICES THAT REQUIRE MANUAL RELEASE ARE NOT PERMITTED FOR USE ON ANY FIRE DOOR AS OUTLINED ON NFPA80 Ⓡ OF NFPA101 Ⓡ .CONTACT GLYNN-JOHNSON OR YOUR LOCAL REPRESENTATIVE FOR ASSISTANCE.
D. DEAD STOP (DS) TEMPLATING MAY BE USED ON HOLD-OPEN, FRICTION STOP AND STOP ONLY MODELS, BUT SHOULD NOT BE USED ON "SE" MODELS. THE DS POSITION IS REACHED WHEN THE SHOCK SPRING IS FULLY COMPRESSED. WHEN DS TEMPLATING IS USED, THE INITIAL DEGREE OF STOP WILL BE 5°-7° LESS THAN THE DS OPENING. FOR USE ON DOORS OPENING BACK TO BACK, AGAINST A WALL OR OBSTRUCTION.



SWING CLEAR HINGE



OFFSET PIVOT HINGE

450 ADJUSTMENTS:

HOLD-OPEN TENSION ADJUSTMENT (HOLD-OPEN UNIT ONLY)
USING A PHLLIPS SCREWDRIVER, TURN SCREW IN THE END OF SLIDER CLOCKWISE TO INCREASE THE HOLD-OPEN TENSION AND COUNTERCLOCKWISE TO DECREASE THE HOLD-OPEN TENSION.

FRICTION TENSION ADJUSTMENT (FRICTION UNIT ONLY)
USING A 3/32" ALLEN WRENCH, TURN SET SCREW IN THE MIDDLE OF THE SLIDER CLOCKWISE TO INCREASE THE FRICTION TENSION AND TURN COUNTERCLOCKWISE TO DECREASE THE FRICTION TENSION.

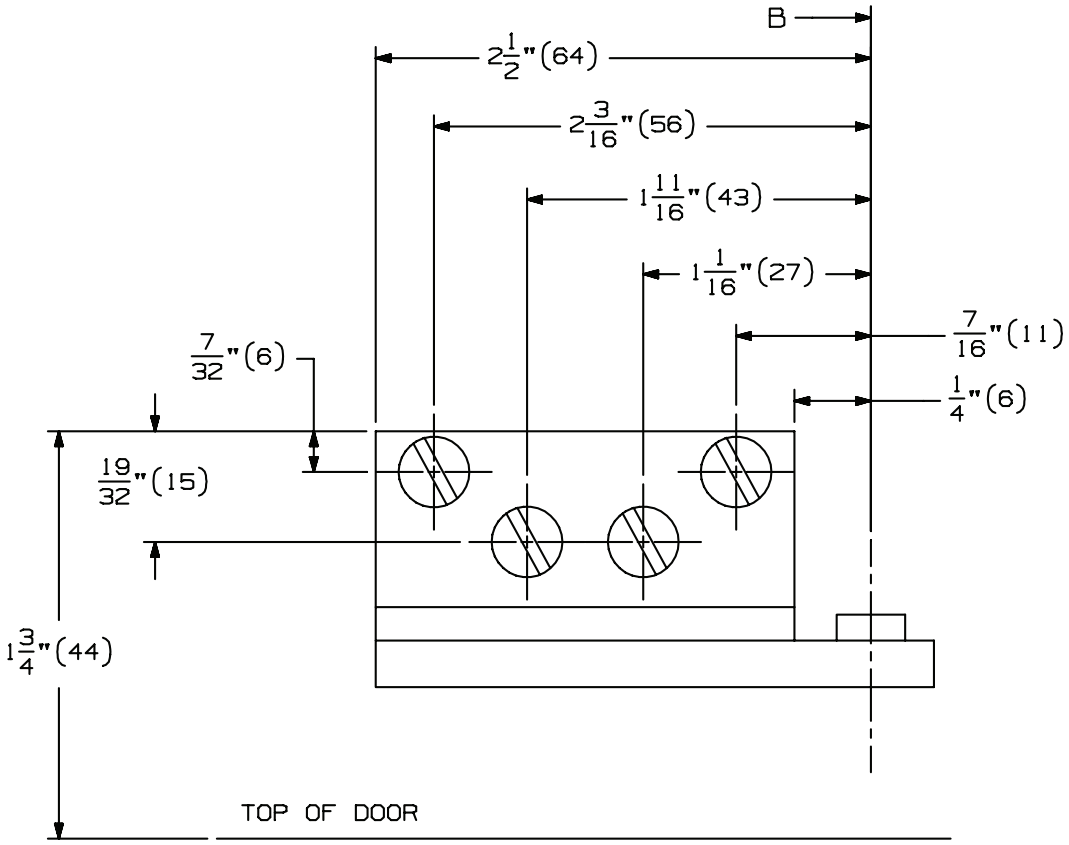
SCREW DETAILS			
	QTY	WOOD	METAL
ANGLE	4	10-32 x 1/2" FPHMS	10-32 x 1/2" FPHMS
JAMB	4	#10 x 1 1/2" FPHSMS	10-32 x 1/2" FPHMS
DOOR	2	10-24 x 1 1/2" PPHMS	10-24 x 1 1/2" PPHMS
	2	10-24 x 1 9/16" SEX BOLT	10-24 x 1 9/16" SEX BOLT

DOOR THICKNESS	HINGE & TYPE SHOWN	MOUNTING GROUP
1 3/8" (35mm)	3 1/2" BUTT	2
	3/4" OFFSET PIVOT	2
1 3/4" (44mm)	4" WIDE BUTT	1
	4 1/2" WIDE BUTT	1
	3/4" OFFSET PIVOT	2
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	2
2" (51mm)	4 1/2" WIDE BUTT	1
	5" WIDE BUTT	2
	3/4" OFFSET PIVOT	2
	4 1/2" SWINGCLEAR	1
	5" SWINGCLEAR	2
	SOSS 220	1
2 1/4" (57mm)	5" WIDE BUTT	1
	4 1/2" SWINGCLEAR	1
	SOSS 220	1

NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

2. A. LOCATE "B" DIMENSION ON THE FACE OF THE FRAME. NOTE THAT THE "B" DIMENSION IS MEASURED FROM THE CENTERLINE OF THE HINGE AS SHOWN.

B. FOR METAL FRAMES, USE #21 DRILL AND 10-32 TAP IN 4 PLACES. FOR WOOD FRAMES DRILL 1/8" PILOT HOLES IN 4 PLACES. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.



3. A. LOCATE "A" & "C" DIMENSION ON THE DOOR. NOTE THAT THE "A" DIMENSION IS MEASURED FROM THE CENTERLINE OF HINGE AS SHOWN.

B. DRILL THE 1/4" (6) DIAMETER THROUGH HOLES DOWN 3/8" (10) FROM THE TOP OF THE DOOR IN TWO PLACES. ON THE PULL SIDE OF DOOR, DRILL 13/32" (10) DIAMETER HOLE, 1 5/8" (41) DEEP FOR SEX BOLT. MOUNTING HOLES SHOULD BE PREPARED IN THE FIELD.

4. A. INSTALL ANGLE BRACKET ONTO STANDARD JAMB BRACKET WITH 10-32 x 1/2" FPHMS PROVIDED WITH THE ANGLE BRACKET.

B. INSTALL THE CHANNEL ON THE DOOR WITH THE SHOCK SPRING TOWARDS THE HINGE EDGE OF DOOR.

C. INSTALL THE ANGLE BRACKET TO THE FACE OF THE FRAME.

NOTE: DIMENSIONS IN ( ) ARE IN MILLIMETERS

MOUNTING GROUPS 1 & 2
450 SERIES SURFACE OVERHEAD STOP & HOLDER

CAUTION: "A" & "B" DIMENSIONS ARE MEASURED FROM THE CENTERLINE OF PIVOT, NOT EDGE OF DOOR

FOR DEAD STOP ADD 9/16" (14mm) TO THE "A" DIMENSION
FOR SE STOPS USE HOLD-OPEN MOUNTING DIMENSION
HO=HOLD-OPEN FOR HOLDERS, OPENING FOR STOPS
I=ARM LENGTH FROM PIVOT CENTERLINE TO PIVOT CENTERLINE
(FOR REFERENCE ONLY)

* NOT TO BE USED WITH SWINGCLEAR HINGES

		DEGREE		85 HO		90 HO		95 HO		100 HO		105 HO		110 HO			
		DIM.	DOOR OPENING	A	B	A	B	A	B	A	B	A	B	A	B	C	I
MOUNTING GROUP #1	451	IN.	18-23	2 13/16	4 7/8	2 9/16	4 5/8	2 5/16	4 7/16	2 1/8	4 3/16	1 15/16*	4 1/16*	1 3/4*	3 7/8*	14 3/4	8 1/4
		mm	457-584	71	124	65	117	59	113	54	106	49	103	44	98	375	210
	452	IN.	23 1/16-27	4 3/16	6 1/8	3 7/8	5 13/16	3 9/16	5 9/16	3 5/16	5 5/16	3 3/16	5	3	14 13/16	16 3/8	10
		mm	585-686	106	156	98	148	90	141	84	135	81	127	76	122	416	254
	453	IN.	27 1/16-33	8 1/4	7 7/16	7 13/16	7	7 7/16	6 11/16	7 1/8	6 5/16	6 7/8	6 1/16	6 5/8	5 13/16	17 5/8	14
		mm	687-838	210	189	198	178	189	170	181	160	175	154	168	148	448	356
	454	IN.	33 1/16-39	12 1/16	9	11 9/16	8 1/2	11 1/8	8 1/16	10 3/4	7 5/8	10 3/8	7 5/16	10 1/16	7	19 3/8	18
		mm	839-991	306	229	294	216	283	205	273	194	264	186	256	178	492	457
	455	IN.	39 1/16-45	15 3/4	10 3/8	15 3/16	9 5/16	14 5/8	9 3/16	14 1/8	8 3/4	13 11/16	8 7/16	13 3/8	8	20 7/8	21 3/4
		mm	992-1143	400	264	386	244	371	233	359	222	348	214	340	203	530	552
MOUNTING GROUP #2	451	IN.	18-23	2 3/4	4 7/8	2 1/2	4 9/16	2 5/16	4 5/16	2 1/16	4 3/16	1 15/16*	4*	1 3/4*	3 7/8*	14 3/4	8 1/4
		mm	457-584	70	124	64	116	59	110	52	106	49	102	44	98	375	210
	452	IN.	23 1/16-27	4 1/8	6 1/8	3 13/16	5 3/4	3 9/16	5 1/2	3 5/16	5 5/16	3 1/16	5 1/16	2 15/16	4 7/8	16 3/8	10
		mm	585-686	105	156	97	146	90	140	84	135	78	129	75	124	416	254
	453	IN.	27 1/16-33	8 1/4	7 5/16	7 13/16	6 7/8	7 7/16	6 1/2	7 1/8	6 1/4	6 13/16	6	6 9/16	5 3/4	17 5/8	14
		mm	687-838	210	186	198	175	189	165	181	159	173	152	167	146	448	356
	454	IN.	33 1/16-39	12	9	11 1/2	8 1/2	11 1/16	8	10 11/16	7 9/16	10 5/16	7 1/4	10	7	19 3/8	18
		mm	839-991	305	229	292	216	281	203	271	192	262	184	254	178	492	457
	455	IN.	39 1/16-45	15 3/4	10 3/16	15 1/16	9 11/16	14 1/2	9 1/4	14 1/8	8 5/8	13 11/16	8 5/16	13 5/16	8	20 7/8	21 3/4
		mm	992-1143	400	259	383	246	368	235	359	219	348	211	338	203	530	552

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