

June 4, 2004

Refer to: HSA-10/CC-75C

Owen S. Denman, P.E.
President
Barrier Systems, Incorporated
180 River Road
Rio Vista, California 94571-1208

Dear Mr. Denman:

In your May 6 letter, you requested acceptance of a modified cable anchor and backstop design for your TAU-II series crash cushions. Named the "Flush Mount Backstop", this modification differs from your original design by incorporating the rear cable anchors into the backstop structure and reversing the cable so it is tensioned at the front of the system. These changes allow installation of the TAU-II in locations where it is not feasible to tension the cables from the back due to the size/shape of a new or existing backup structure. The overall system layout and detailed drawings of the modified front and rear cable anchors are shown in the enclosures to this letter.

Staff review of the revised geometry and of your analysis of the structural capacity of the new design compared to the tested anchor detail indicates that the modified design should not change the crash performance of the Universal TAU-II System. It remains acceptable for use on the National Highway System at the appropriate test level with either anchor design.

Sincerely yours,

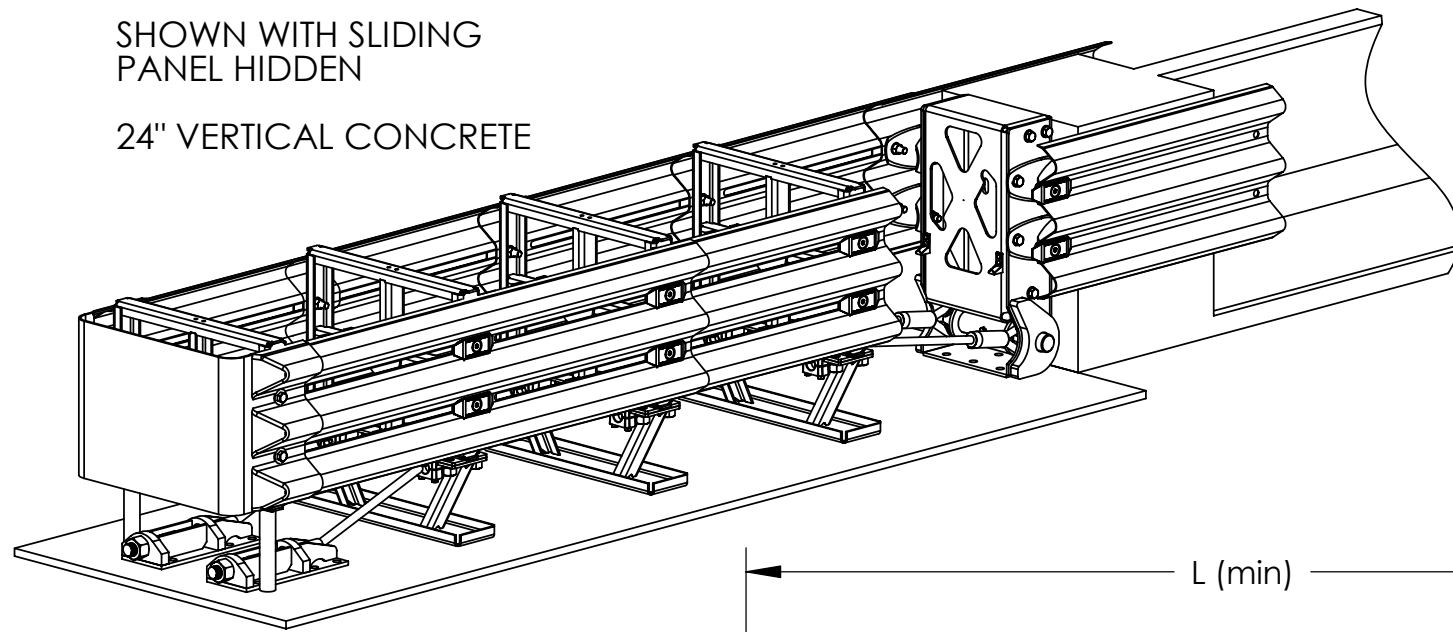
/Original Signed by/

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

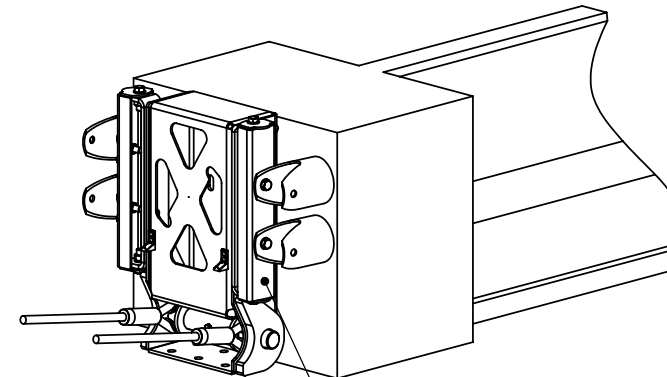
3 Enclosures

SHOWN WITH SLIDING
PANEL HIDDEN

24" VERTICAL CONCRETE



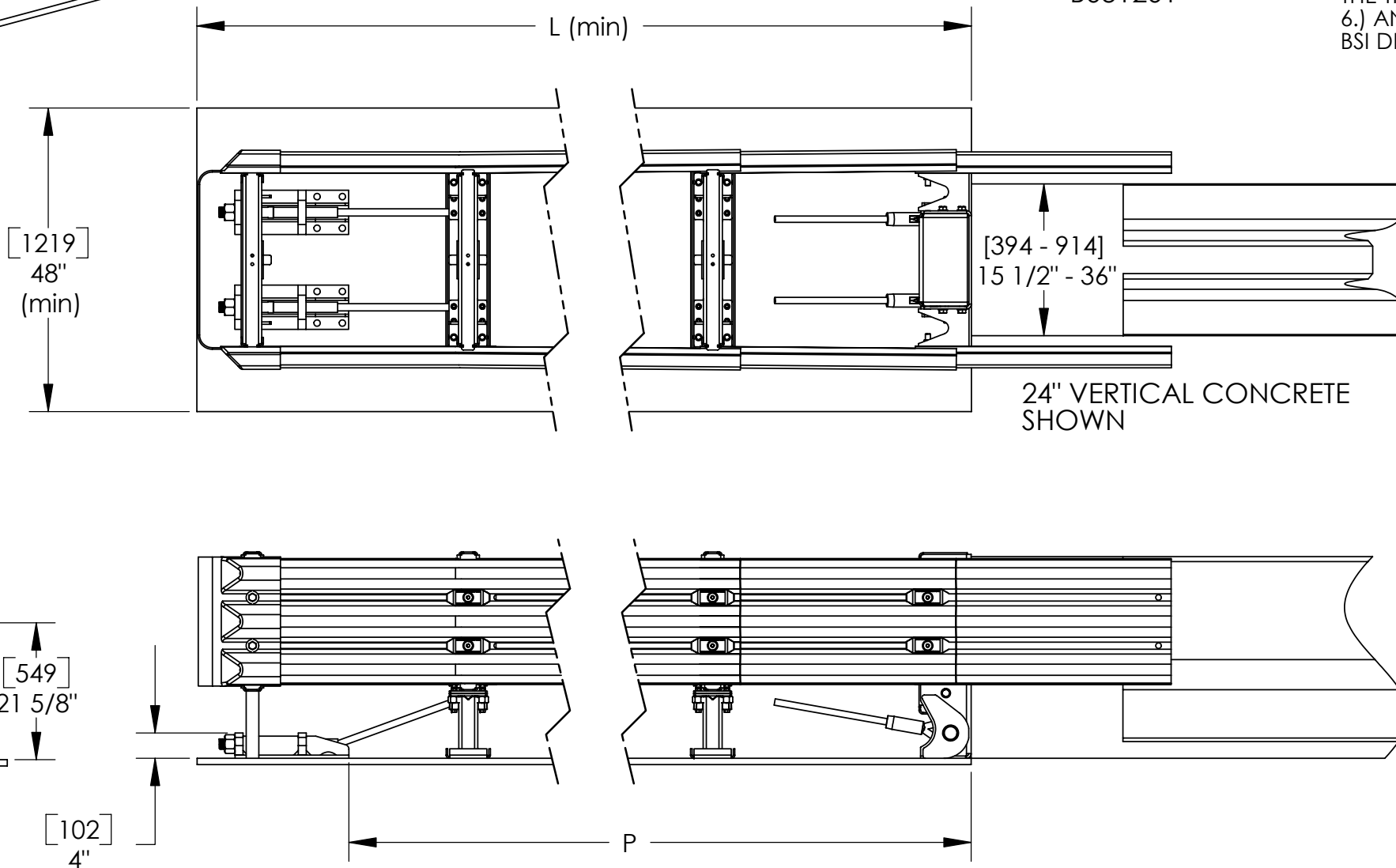
36" VERTICAL CONCRETE



36" ADAPTER
BSI PART No.
B031201

NOTES:

- 1.) FLUSH MOUNT BACKSTOP SYSTEMS ARE INTENDED FOR APPLICATIONS WHERE THE HAZARD WIDTH EXCEEDS THE LIMITATIONS OF THE PCB BACKSTOP. FLUSH MOUNT SYSTEMS ARE ALSO APPLICABLE IN LOCATIONS WITH LIMITED FOUNDATION SIZE.
- 2.) THE FLUSH MOUNT BACKSTOP MAY BE ATTACHED TO REINFORCED SAFETY SHAPE OR VERTICAL CONCRETE STRUCTURES UP TO 36" [914] WIDE. STRUCTURES OVER 24" [610] WIDE REQUIRE 36" ADAPTER B031201. EDGES OF VERTICAL CONCRETE MAY REQUIRE CHAMFER ACCORDING TO LOCAL STANDARDS.
- 3.) VERTICAL SLOTS ON THE BACKSTOP ALLOW REMOVAL/REPLACEMENT OF THE BACKSTOP. ANCHORS MUST BE PLACED AT THE TOP OF SAID SLOTS TO BE EFFECTIVE.
- 4.) FLUSH MOUNT BACKSTOP SYSTEMS USE THE SAME CABLE USED IN ALL PARALLEL SYSTEMS. THE CABLE IS INSTALLED WITH THE THREADED TENSIONING END FORWARD. THE LOOPED END IS PINNED IN PLACE AT THE BACKSTOP.
- 5.) THE FRONT CABLE ANCHOR USES AN INSERTED KEY TO KEEP THE THREADED STUD FROM ROTATING DURING TENSIONING.
- 6.) ANCHOR ACCORDING TO BSI SPECIFICATIONS. REFERENCE BSI DRAWING A040113.



FOUNDATION PAD LENGTH DIMENSION "L" (MINIMUM)			
BAY No.	CAPACITY (kph)	L (ft-in)	L (mm)
2	50	6' - 11 1/2"	2121
3	60	9' - 9 1/2"	2985
4	70	12' - 7 1/2"	3848
5	80	15' - 5 1/2"	4712
6	85	18' - 4"	5588
7	90	21' - 2"	6452
8	100	24' - 0"	7315
9	105	26' - 10"	8179
10	110	29' - 8 1/2"	9055
11	115	32' - 6 1/2"	9919
12	120	35' - 4 1/2"	10782

FRONT ANCHOR PLACEMENT DIMENSION "P"			
BAY No.	CAPACITY (kph)	P (ft-in)	P (mm)
2	50	4' - 11 1/2"	1511
3	60	7' - 9 1/2"	2375
4	70	10' - 7 1/2"	3239
5	80	13' - 5 1/2"	4102
6	85	16' - 4"	4978
7	90	19' - 2"	5842
8	100	22' - 0"	6706
9	105	24' - 10"	7569
10	110	27' - 8 1/2"	8446
11	115	30' - 6 1/2"	9309
12	120	33' - 4 1/2"	10173

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SCALE: 1:24

Standard Tolerance
Angular +/- 1/2 Deg.
Fractional +/- 1/16
Dec. XXX= +/- .010
Dec. .XX= +/- .030

NOTE:
THICKNESS OF WELD TO BE EQUAL TO THE THINNER OF 2 PIECES BEING JOINED. WELD TO BE ALL AROUND UNLESS OTHERWISE SPECIFIED

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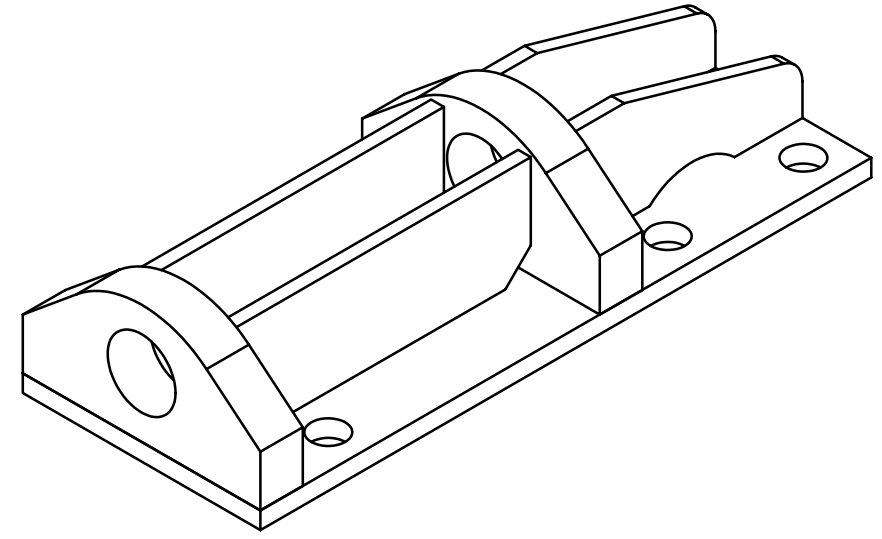
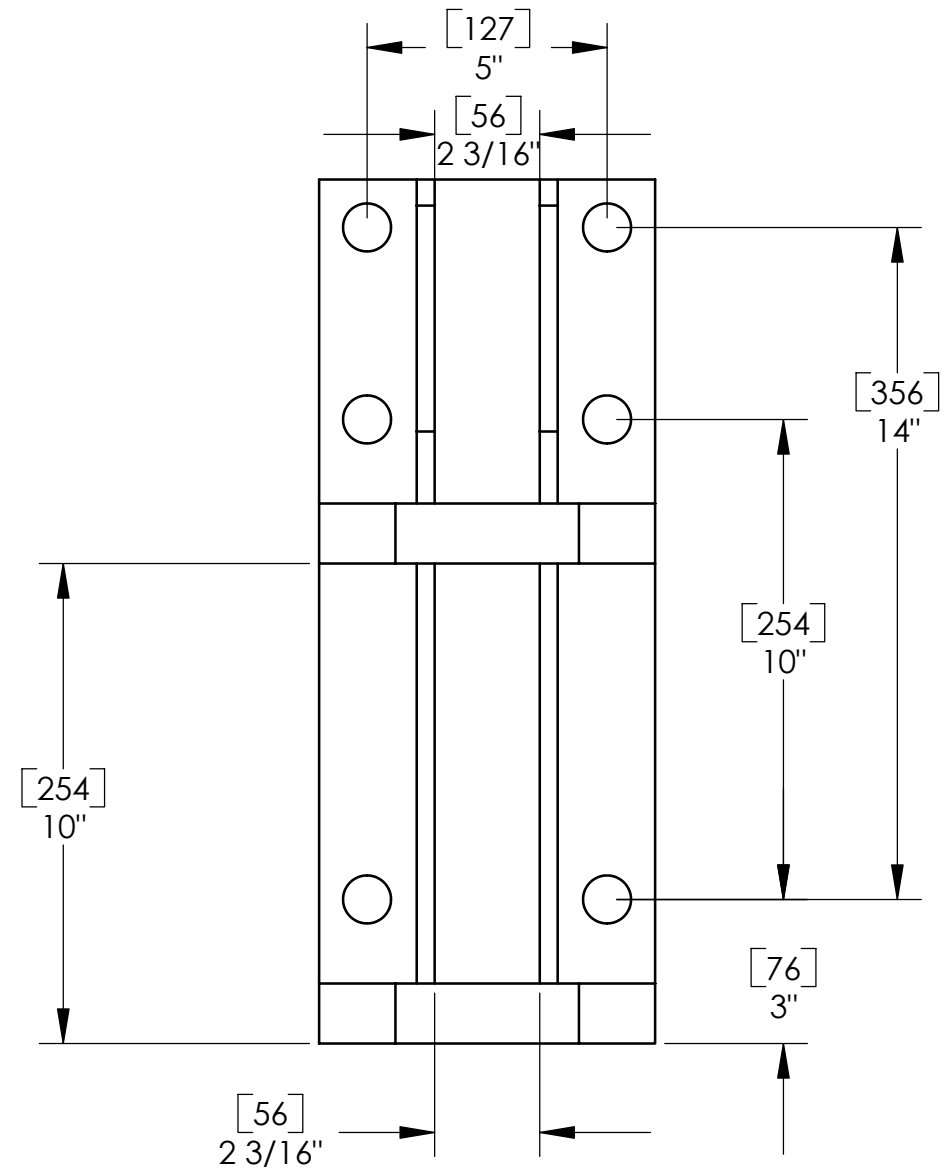
DRAWN BY DATE INIT.
4/21/04 GAD

TITLE: APPLICATION, FLUSH MOUNT BACKSTOP

REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY.	ITEM
				1	TBD	1

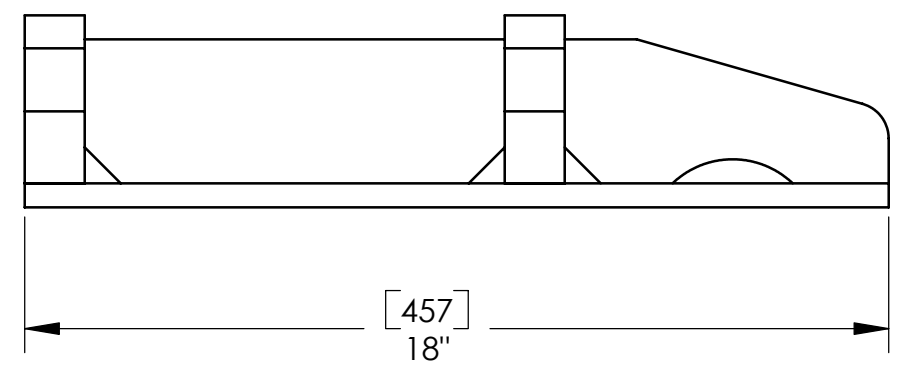
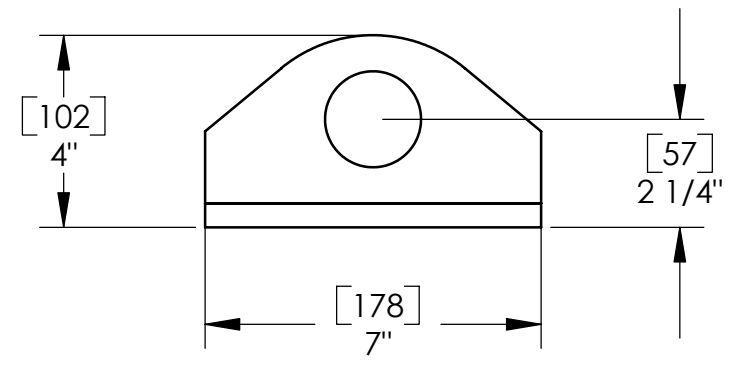
MODEL	DRAWING NUMBER	REV
	B040239	

ITEM	QTY / DWG	PART DESCRIPTION	SPECIFICATION	DWG #
1	1	BASE PLATE	NA	B031216
2	2	LUG	NA	B040413
3	2	GUSSET	NA	B040414
4	2	GUSSET	NA	B040415

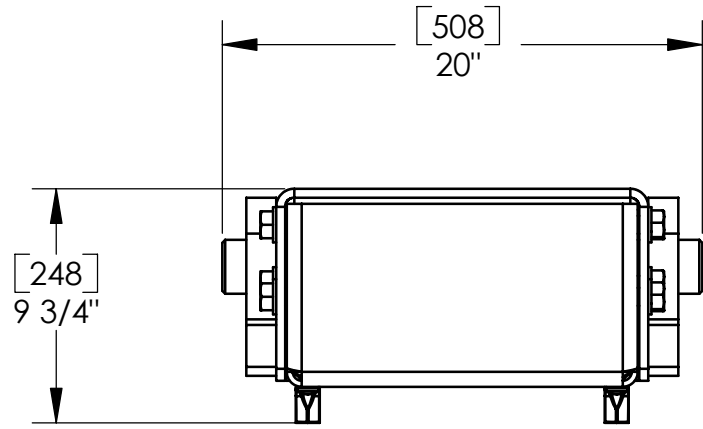


NOTES:

- 1.) ALL STEEL COMPONENTS ARE ASTM A36.
- 2.) PART TO BE HOT DIPPED GALVANIZED PER ASTM A-123.



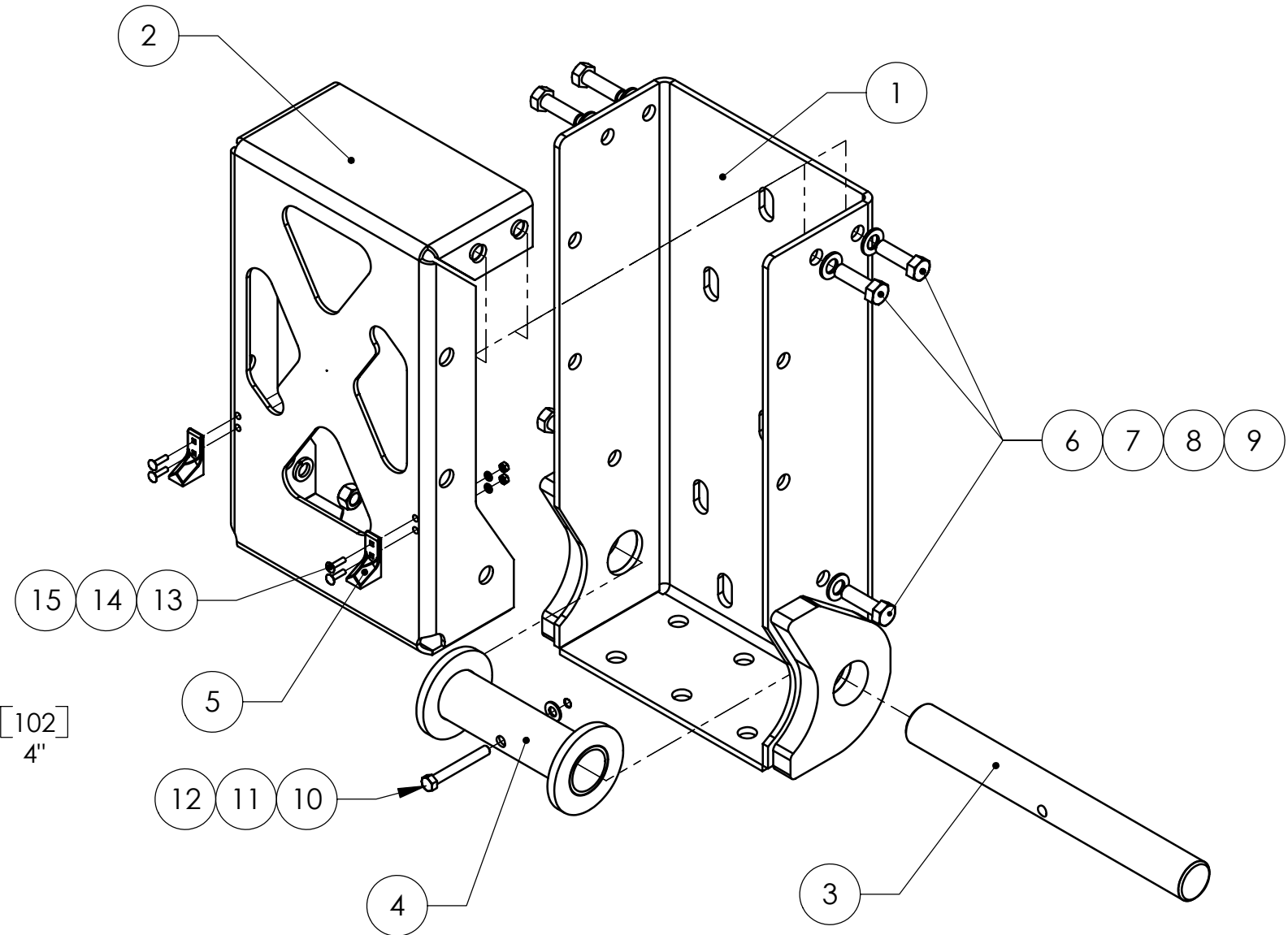
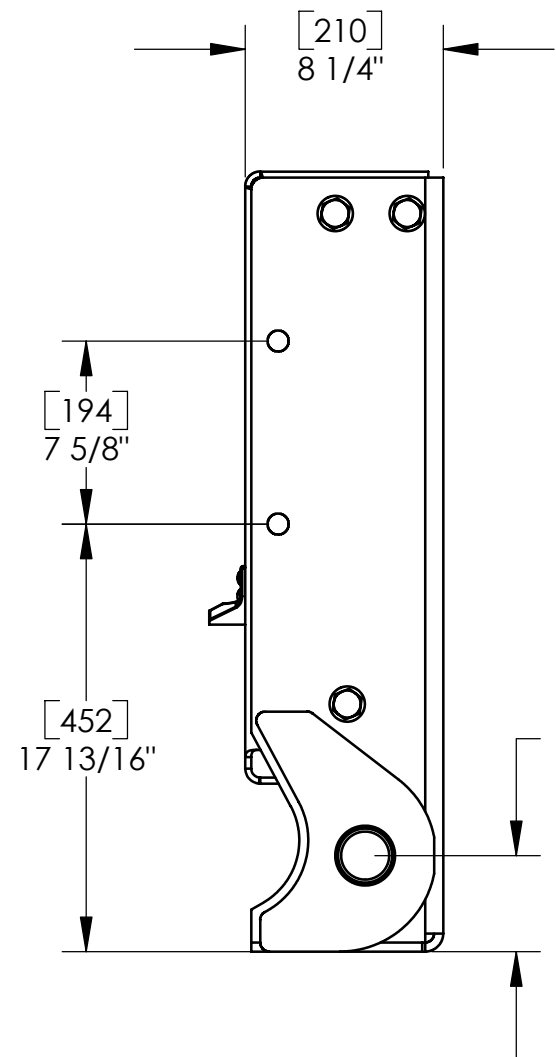
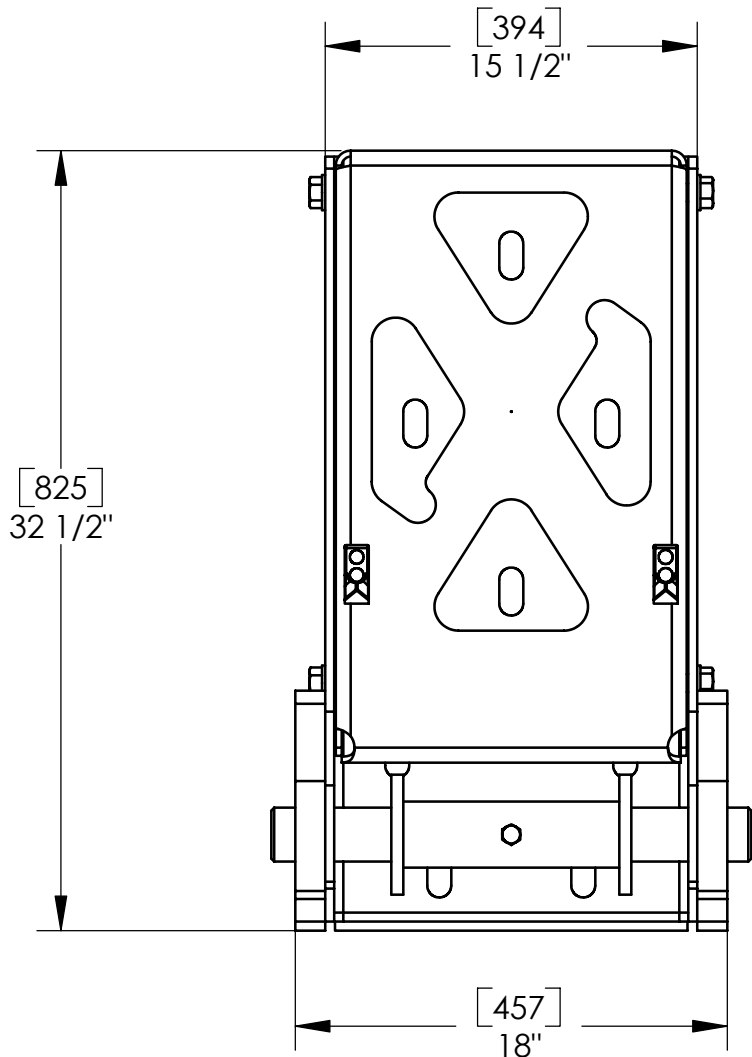
© 2004 Barrier Sytems Inc.		SCALE: 1:4				Standard Tolerance Angular +/- 1/2 Deg. Fractional +/- 1/16 Dec. XXX= +/- .010 Dec. .XX= +/- .030				
The information heron is proprietary to Barrier Systems Inc. shall not be disclosed, duplicated or used otherwise without the express written approval of Barrier Systems Inc.		DRAWN BY		DATE	INIT.			MODEL	DRAWING NUMBER	REV
				04/12/04	GAD				B040412-0	
REV.	CHANGES	DATE	BY	REQ'D	NEXT ASSY.	ITEM	TITLE: FRONT CABLE ANCHOR, REVERSE			
				1	TBD	1				



NOTES:

- 1.) ALL STEEL COMPONENTS ARE ASTM A36 OR EQUIVALENT UNLESS OTHERWISE STATED.
- 2.) ALL STEEL COMPONENTS ARE HOT DIPPED GALVANIZED PER ASTM A-123 UNLESS OTHERWISE STATED.
- 3.) ALL FASTENERS ARE GRADE 2 OR EQUIVALENT AND GALVANIZED UNLESS OTHERWISE STATED.
- 4.) STANDARD TORQUE SPECIFICATION FOR 20MM-2.5 FASTENERS WHEN NOT SPECIFIED IS 120 FT-LBF [160 N-M].
- 5.) ALL FASTENERS WILL INCORPORATE A POSITIVE THREAD LOCKING DEVICE.

ITEM	QTY / DWG	PART DESCRIPTION	SPECIFICATION	DWG #
1	1	BACKSTOP WELDMENT	NA	B040214
2	1	FACE PLATE	NA	B040216
3	1	PIN	NA	B040408
4	1	CABLE SPACER	NA	B040409
5	2	EAC LOCATOR	NA	B031112
6	6	HEX BOLT	20MM-2.5 X 65MM, GR2, GALV	2001495
7	6	FLAT WASHER	20MM, GR2, GALV	2001160
8	6	SPLIT LOCK WASHER	20MM, GR2, GALV	2001501
9	6	HEX NUT	20MM-2.5, GR2, GALV	2001499
10	1	HEX BOLT	MECH GALV, GR2, 12MM-1.75 X 100MM	2001457
11	1	SPLIT LOCK WASHER	MECH GALV 12MM	2001458
12	1	HEX NUT	MECH GALV, GR2, 12MM-1.75	2001455
13	4	CARRIAGE BOLT	6MM X 25MM, GR2, GALV	2001541
14	4	SPLIT LOCK WASHER	6MM, GALV	2001542
15	4	HEX NUT	6MM, GR2, GALV	2001543



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						DRAWN BY 4/19/04		GAD							
REV.						CHANGES		DATE BY		1 TBD		1		TITLE: FLUSH MOUNT BACKSTOP ASSEMBLY	
												B040219			