

SAFER TRANSPORTATION THROUGH INNOVATION

BREAK-SAFE[®]

Omni-Directional Breakaway Sign Support System

DESIGN BOOK



20 JONES STREET | NEW ROCHELLE, NY 10801-6098 | 914-636-1000

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Transpo Industries, Inc. manufactures a variety of innovative products and materials designed for improving road safety and bridge preservation. The company's reputation as an expert in rehabilitation, preservation and safety products has made Transpo a leading supplier since 1968.



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Break-Safe® OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT SYSTEM

Saving Lives With Breakaway Support System

Transpo's Break-Safe® is an omni-directional breakaway support system for ground mounted signs located within roadside clear zones or other locations vulnerable to vehicular impacts. The system is designed to break away quickly and cleanly upon impact, thus saving lives and reducing property damage costs.

All Break-Safe® models are FHWA approved for use on the National Highway System (NHS). Break-Safe is designed to support a wide range of post sizes, up to and including the largest permitted by AASHTO. The flexibility built into the system provides many choices when selecting post types for specific applications.



TYPE A MODELS		
Model Number	Size	Type
A14	4", 5"	Standard I-Beams
A16	6"x9"	Wide Flange
AP	3", 3.5", 4", 4.5"	O.D. Round Pipes
AS	2.5", 3", 3.5", 4"	Square Tubes

TYPE B MODELS		
Model Number	Size	Type
B525	6", 8"	Wide Flange
	5", 6"	Square Tubes
B650	10"-21"	Wide Flange
	7", 8"	Square Tubes



SAFER TRANSPORTATION THROUGH INNOVATION

Break-Safe®**OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT SYSTEM****Break-Safe® Sign Post Selection Program**

This is a valuable, FREE, tool designed to select the appropriate sign supports and Break-Safe® model for a wide variety of sign configurations.

**Omni-Directional Breakaway Performance**

Break-Safe® couplings are omni-directional, meaning the system breaks away with consistent, predictable behavior, regardless of the vehicle's angle of impact. Accident research and field experience have demonstrated that vehicles often leave the roadway and impact structures at high angles of incident. This unique capability exceeds FHWA and AASHTO requirements for impact performance.

Hinge Plates

In addition to Break-Safe®'s symmetrical coupling design, the system includes hinge plates that connect the upper and lower sections of each post in multi-post sign installations. When only one post of a multi-post sign is impacted, the Break-Safe® Hinge Plates allow the lower post section to swing out away from the vehicle, while the non-impacted posts remain intact.

High Structural Capacity

Break-Safe® offers unmatched, high structural load-carrying capacity. New national signing standards specify increased sign sizes for visibility in addition to increased wind load levels. The changes create a significant increase in structural demands on sign supports. Break-Safe® is available in a variety of models, designed to accommodate different sign configurations and post types. The high-strength coupling and L-bracket design provides increasing structural capacity as the size of the post increases.

High Durability

All Break-Safe® couplings and hardware are hot-dip galvanized in accordance with ASTM A153 to provide proven corrosion protection in harsh roadside environments. Additionally, independent fatigue testing has demonstrated that Break-Safe® couplings are capable of withstanding more than 2 million loading cycles with no reduction in structural capacity.

Easy to Install and Maintain

No special tools or equipment are required to properly install and maintain Break-Safe®. All components are easily secured using the American Institute of Steel Construction (AISC) turn-out-nut tightening method, which eliminates the torque requirement typical with other systems.

Low Profile

Break-Safe® offers the lowest stub height after impact of any current breakaway system for signs. This is essential for maximum safety and allows for variations in foundation height. Break-Safe®'s after impact stub height is less than 1 inch (25mm) above the top foundation.

**Need More Information?**

WWW.TRANSPO.COM/SAFETY

Contact the safety experts at Transpo to find out more about the various products we offer. If you need advice on how to install the product, the professionals at Transpo will guide you through the process. Project specific questions? We can assist you in creating a cost-effective, tailored solution for your project.

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Break-Safe®

Breakaway Support System for Sign Posts

DESCRIPTION:

Transpo's Break-Safe is a breakaway support system for ground-mounted signs located within roadside clear zones or other locations vulnerable to vehicular impacts. The primary component of the system is a set of precision-machined couplings, designed to breakaway quickly and cleanly upon impact, thus saving lives and reducing property damage costs. The safety performance of Break-Safe is *omni-directional*, meaning the system breaks away with consistent, predictable behavior regardless of the vehicle's angle of impact. All models and sizes are FHWA-approved in accordance with NCHRP Report 350.

In addition to superior safety performance, Break-Safe provides high structural load-carrying capacity. New national signing standards specify increased sign sizes for visibility, in addition to increased wind load levels. These changes create a significant increase in structural demands on sign supports. Break-Safe is designed to support a wide range of signpost sizes, up to and including the largest permitted by AASHTO. This flexibility built into the system gives you many choices when selecting post types and sizes for specific applications, and promotes increased signing efficiency and safety.

FEATURES and ADVANTAGES:

Omni-Directional Breakaway Performance: Accident research and field experience have demonstrated that errant vehicles often leave the roadway traveling along high angle trajectories. Break-Safe's symmetrical coupling design allows the system to breakaway with consistent, predictable behavior regardless of the vehicle's angle of impact. This unique *omni-directional* capability exceeds FHWA and AASHTO requirements for impact performance of breakaway supports.

High Structural Capacity: Break-Safe is available in a variety of models and sizes, designed to support different sign configurations and post types. The high-strength coupling and L-bracket design provides increasing structural capacity as the size of the post increases. This unique feature offers unmatched load-carrying capacity, and accommodates many different post types and sizes.

Easy to Install and Maintain: No special tools or equipment are required to properly install and maintain Break-Safe. All components are easily secured using the American Institute of Steel Construction (AISC) Turn-of-Nut Tightening method, which eliminates the need to maintain precise torque levels on bolts.

Low Profile: Break-Safe offers the lowest stub height after impact of any breakaway system for signs, which is essential for maximum safety. Break-Safe's after-impact stub height is less than 25 mm (1 in) above the top of the foundation.

Breakaway Support System for Sign Posts

PERFORMANCE SPECIFICATIONS:

System Performance Criteria:

1. Break-Safe[®] conforms to AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe[®] has been crash-tested and FHWA approved in accordance with the requirements of NCHRP Report 350, "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

Component Properties:

Anchors: Transpo[®] Type A and B Female Anchors are embedded in concrete flush with the top surface of the foundation. Minimum tensile load capacity of each anchor type is shown below. Actual pullout strengths may vary, depending on foundation design and concrete properties.

<u>Transpo Anchor</u>	<u>Min. Ultimate Tensile Strength</u>
Type A	267 kN (60,000 lbs)
Type B	267 kN (60,000 lbs)

Breakaway Couplings: Break-Safe[®] Type A and B Breakaway Couplings are threaded into the corresponding Anchor Type. Minimum tensile load capacity of each coupling type is shown below.

<u>Break-Safe[®] Coupling</u>	<u>Min. Ult. Tensile Strength</u>
Type A	84 kN (18,900 lbs)
Type B	179 kN (40,400 lbs)

Sign Post Brackets: Break-Safe[®] Type A and B Brackets provide a connection from the signpost to the breakaway couplings, and incorporate a load-concentrating member, which is precisely located to maximize performance of the system.

Hinge Plates: Break-Safe[®] Hinge Plates connect the upper and lower sections of each post in multi-post sign installations. When only one post of a multi-post sign is impacted, the Break-Safe[®] Hinge Plates allow the lower post section to swing out away from the vehicle, while the non-impacted posts remain intact. Minimum tensile load capacity of each hinge plate type is shown below.

<u>Break-Safe[®] Hinge Plate</u>	<u>Min. Ult. Tensile Strength</u>
Type A	32 kN (7100 lbs)
Type B525	50 kN (11,300 lbs)
Type B650	76 kN (17,000 lbs)

Hardware: Break-Safe[®] hardware component specifications are shown in the Parts List for each Break-Safe[®] Model.

Installation:

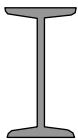
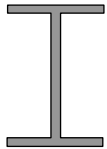
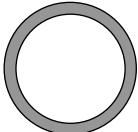

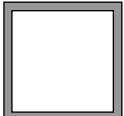
Break-Safe[®] shall be installed per manufacturer's written instructions.

Certification:

Each Break-Safe[®] shipment contains a *Materials Certificate*, indicating that all materials, procedures and test results meet the manufacturer's written design requirements, and all steel components are of U.S. origin and manufacture.

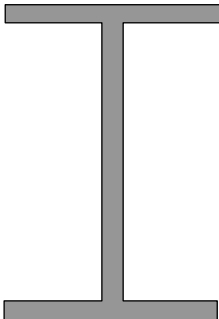
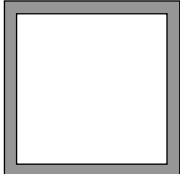
Break-Safe® Type A

Breakaway Support System for Sign Posts

Sign Post Type	Recommended Post Sizes	Break-Safe® Model	Page	
	Standard "S"-Shape Steel or Aluminum I-Beam	Metric (U.S. Customary) S75x8 (S3x5.7) S100x11 (S4x7.7)	AI4	5 and 6
	W150x14 (W6x9) Steel or Aluminum Wide Flange I-Beam	W150x14 (W6x9)	AI6	7 and 8
	Round Pipe Steel or Aluminum	73 mm (2-7/8") O.D. 89 mm (3-1/2") O.D. 102 mm (4") O.D. 114 mm (4-1/2") O.D.	AP3 AP3.5 AP4 AP4.5	9 and 10
	Square Tube Steel or Aluminum	76x76 mm (3"x3")	AS3	11 and 12
	Square Tube Steel or Aluminum	102x102 mm (4"x4") Single Post 102x102 mm (4"x4") Multiple Post	AS4 AS4H	13 and 14 15 and 16

Break-Safe® Type B

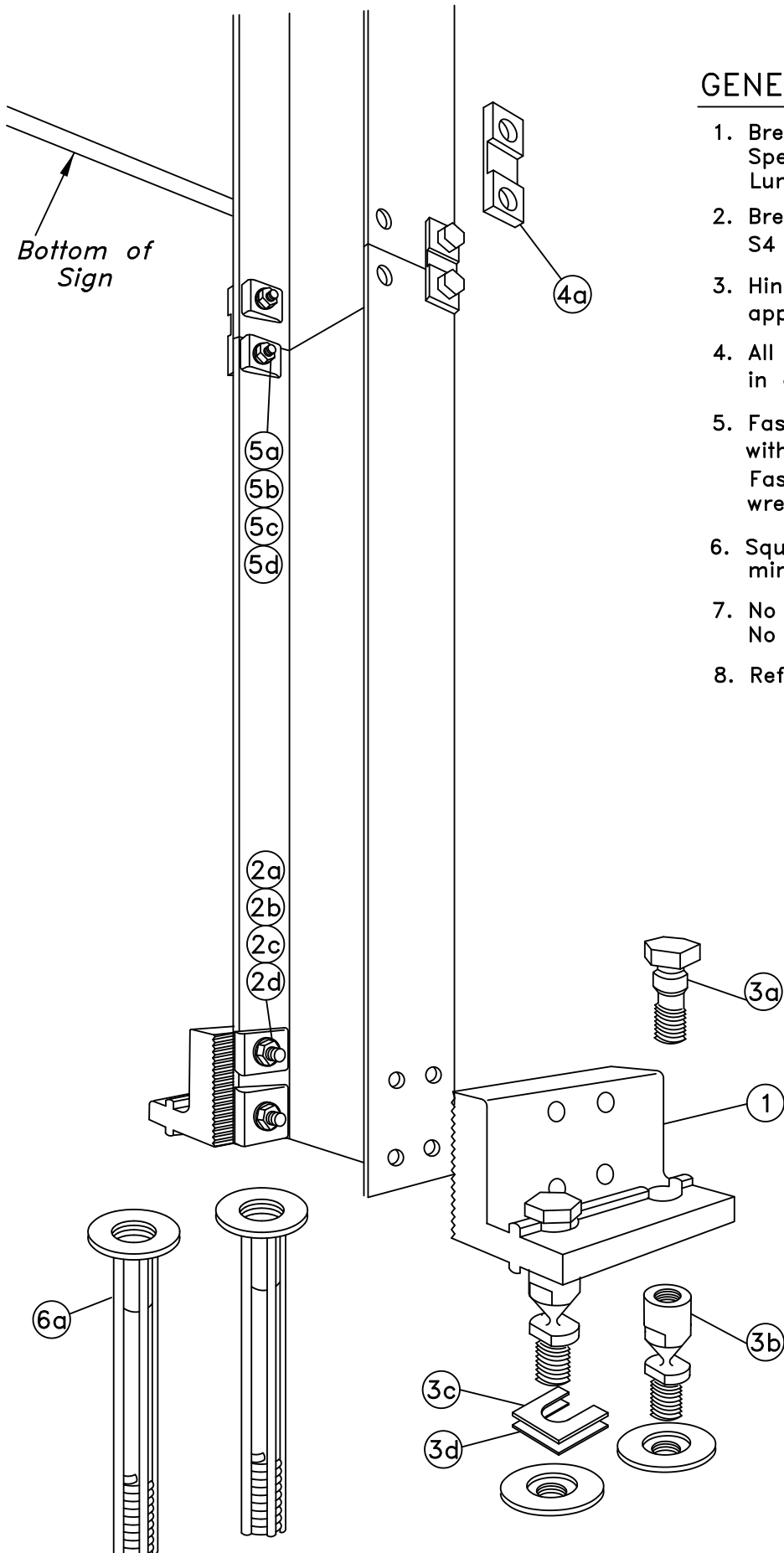
Breakaway Support System for Sign Posts

Sign Post Type	Recommended Post Sizes	Break-Safe® Model	Page
	150 mm (6") and 200 mm (8") Steel or Aluminum Wide Flange I-Beam	Metric (U.S. Customary) W150x18 (W6x12) W150x22 (W6x15) W200x27 (W8x18) W200x31 (W8x21)	B525 17 and 18
	250 mm (10") to 530 mm (21") Steel or Aluminum Wide Flange I-Beam	W250x33 (W10x22) W250x39 (W10x26) W310x39 (W12x26) W360x45 (W14x30) W410x46 (W16x31) W460x52 (W18x35) W460x60 (W18x40) W530x66 (W21x44)	B650 21 and 22
	Square Tube Steel or Aluminum	127x127 mm (5"x5") 152x152 mm (6"x6")	B525 19 and 20
	Square Tube Steel or Aluminum	178x178 mm (7"x7") 203x203 mm (8"x8")	B650 23 and 24

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model AI4	Includes Items 1-5 below.	1	SBMAI4*
1	Bracket, Type AI4	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type AI4, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx57.2mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
2b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
2d	Bevel Washer	12.7mm(1/2"), Clipped, ASTM F436, Galv. ASTM A153	8	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type A, includes:		1	SB-HB3
4a	Hinge Plate	Type A, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type A, includes:		1	SB-HHA
5a	Bolt	12.7mm(1/2")-13UNCx37.2mm(1-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
5d	Bevel Washer	12.7mm(1/2"), Clipped, ASTM F436, Galv. ASTM A153	8	
6	Anchor Assembly, Type A, includes:		1	SBAAPK
6a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model AI4 is designed to fit S3 (S75mm) and S4 (S100mm) Standard S-Shaped I-Beam signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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Break-Safe Model AI4
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AI4

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

1. Butt upper and lower post sections together on a flat surface.
2. Drill eight (8) 14.3mm (9/16") holes in the flanges of the post sections as shown.
3. Place Hinge Plates on outer surface of the post flanges and secure with bolts, bevel washers, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

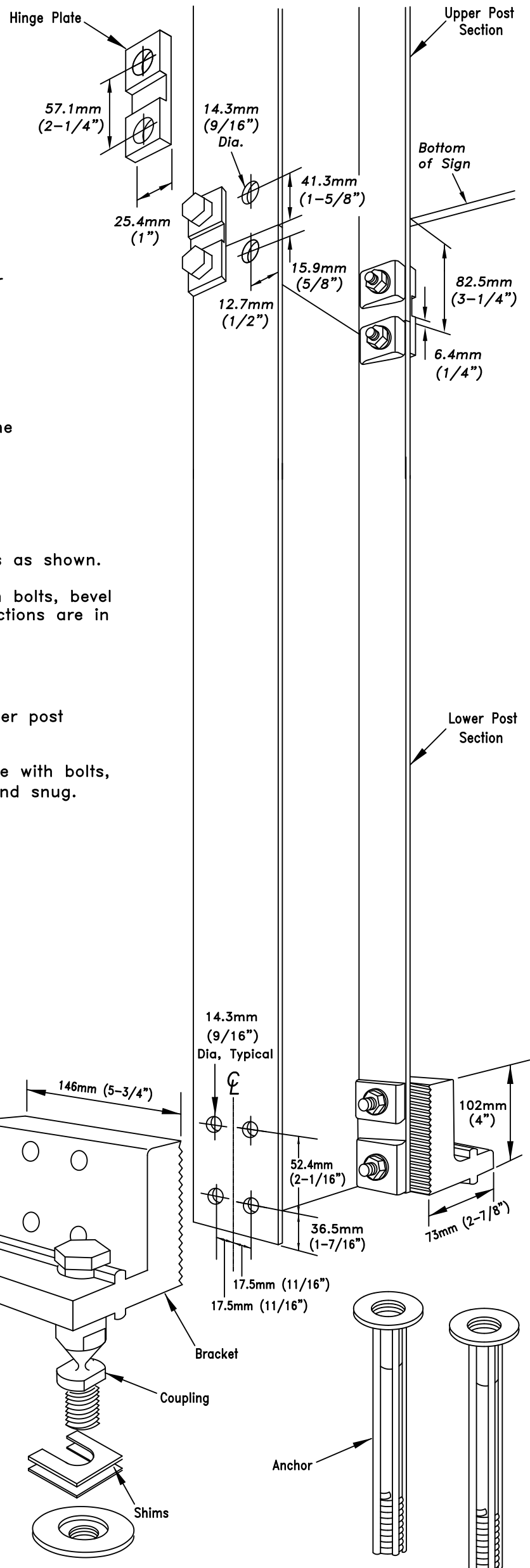
1. Drill eight (8) 14.3mm (9/16") diameter holes in the flanges of the lower post section as shown.
2. Place Brackets squarely on outer surface of the post flanges, and secure with bolts, bevel washers, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

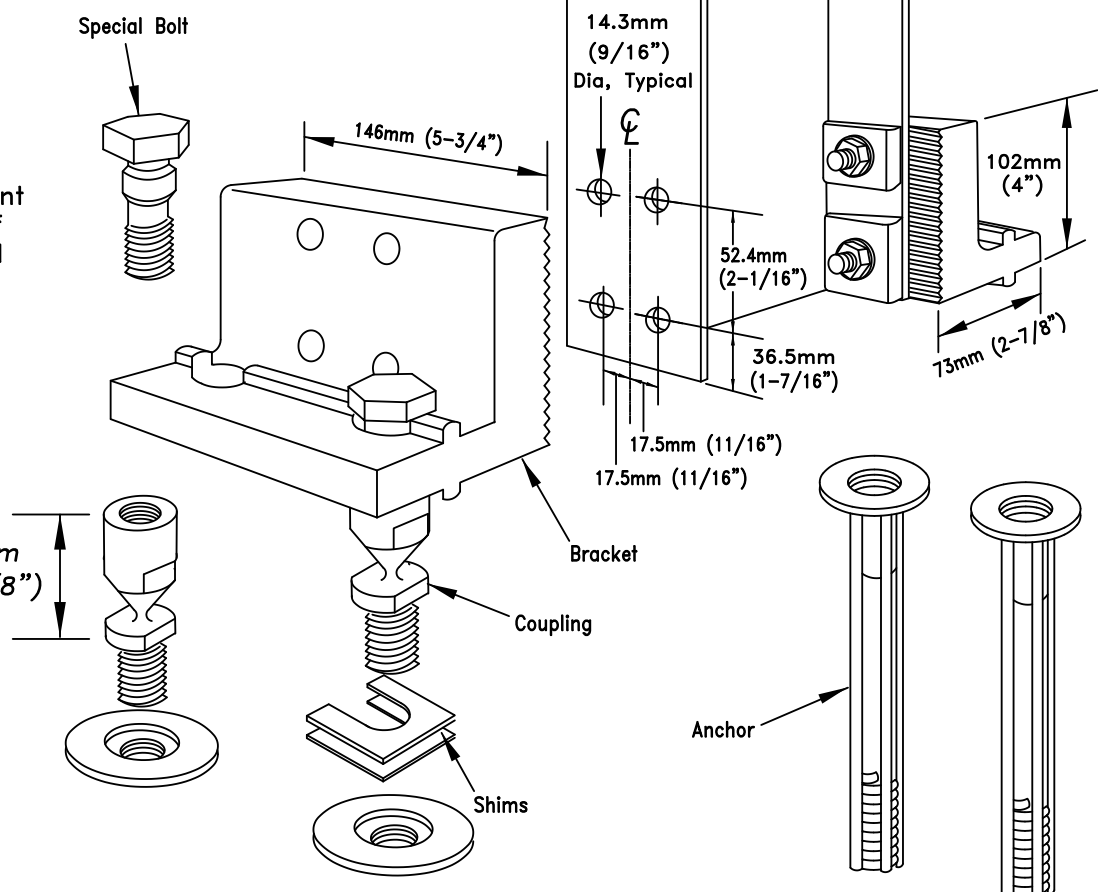
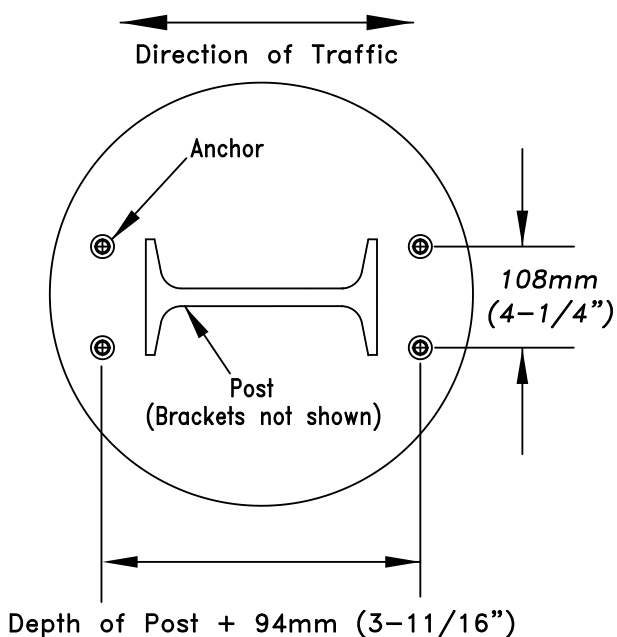
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



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Break-Safe Model AI4
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

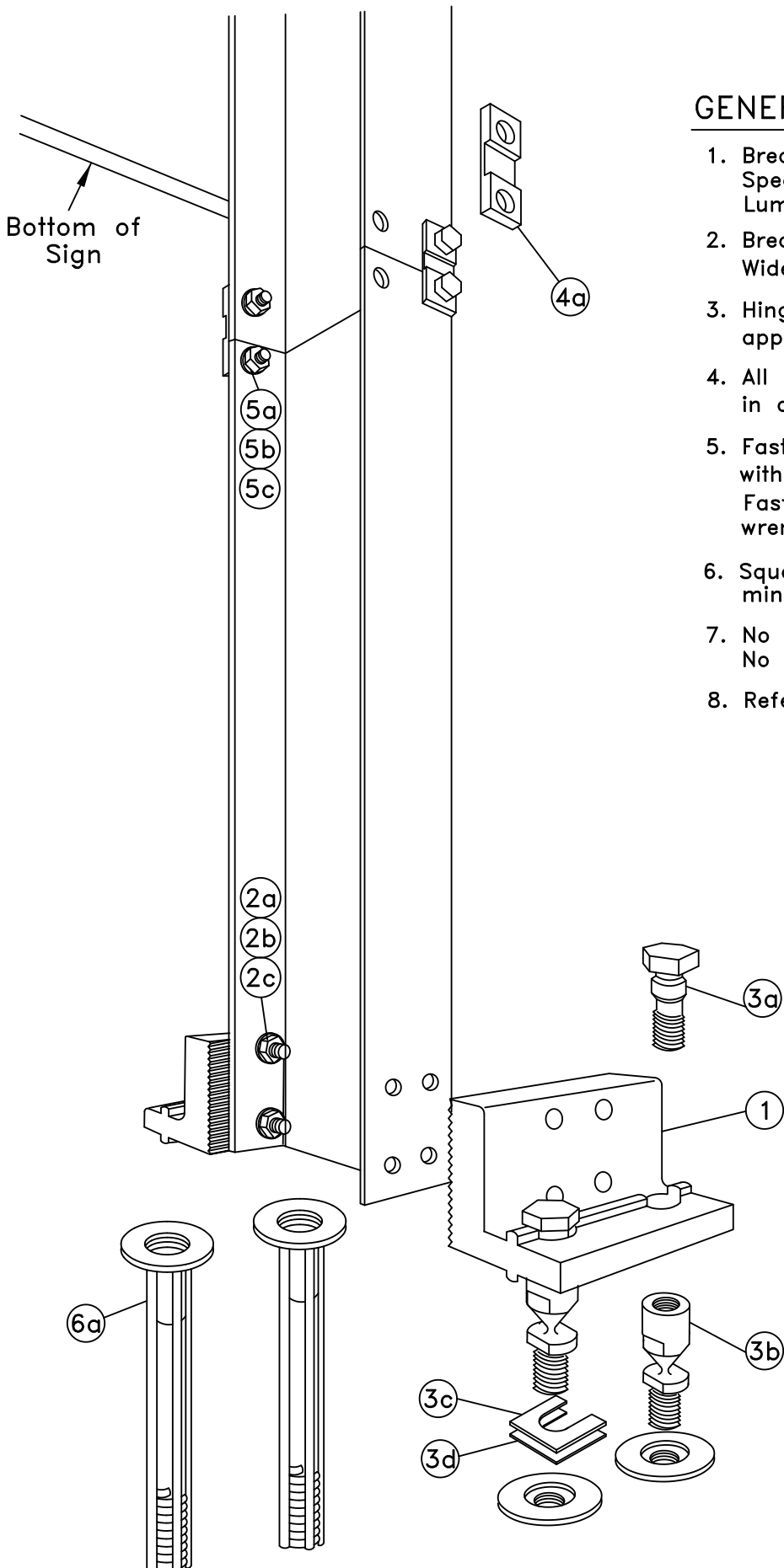
Drawing No. BS-AI4

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model AI6	Includes Items 1-5 below.	1	SBMAI6*
1	Bracket, Type AI6	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type AI6, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx57.2mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
2b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type A, includes:		1	SB-HB3
4a	Hinge Plate	Type A, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type A, includes:		1	SB-HHA
5a	Bolt	12.7mm(1/2")-13UNCx37.2mm(1-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type A, includes:		1	SBAAPK
6a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model AI6 is designed to fit W6x9 (W150x14) Wide Flange I-Beam signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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Break-Safe Model AI6
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AI6

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

1. Butt upper and lower post sections together on a flat surface.
2. Drill eight (8) 14.3mm (9/16") holes in the flanges of the post sections as shown.
3. Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

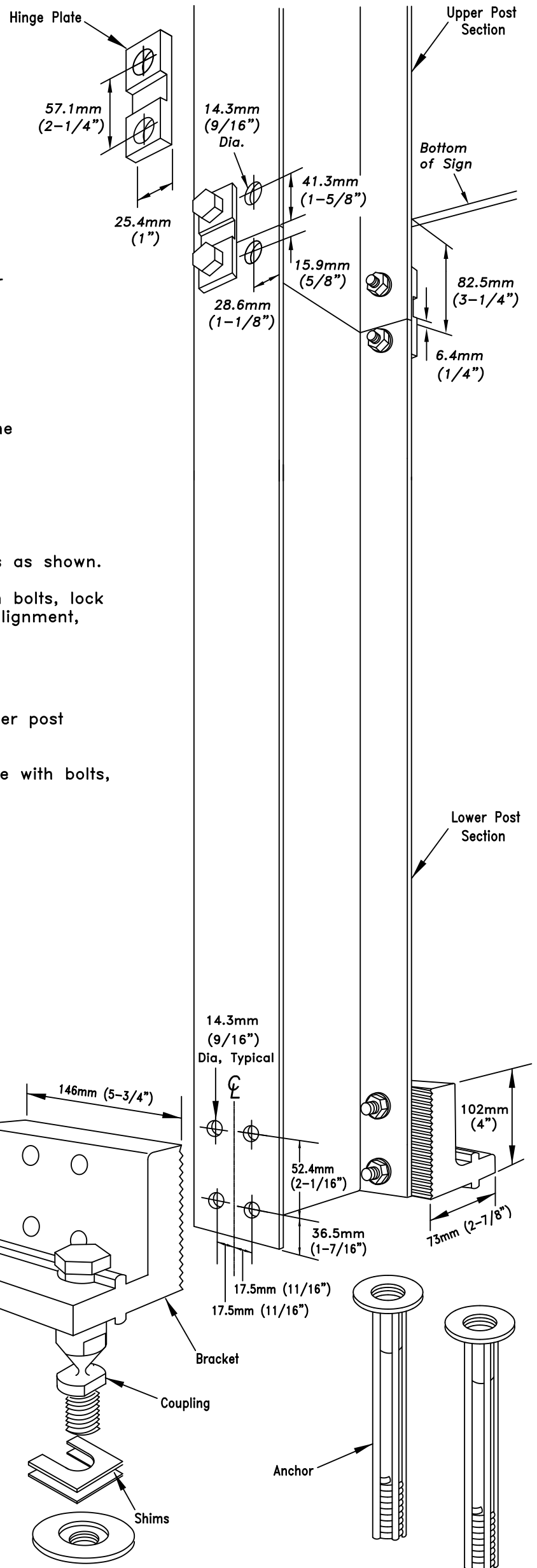
1. Drill eight (8) 14.3mm (9/16") diameter holes in the flanges of the lower post section as shown.
2. Place Brackets squarely on outer surface of the post flanges, and secure with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

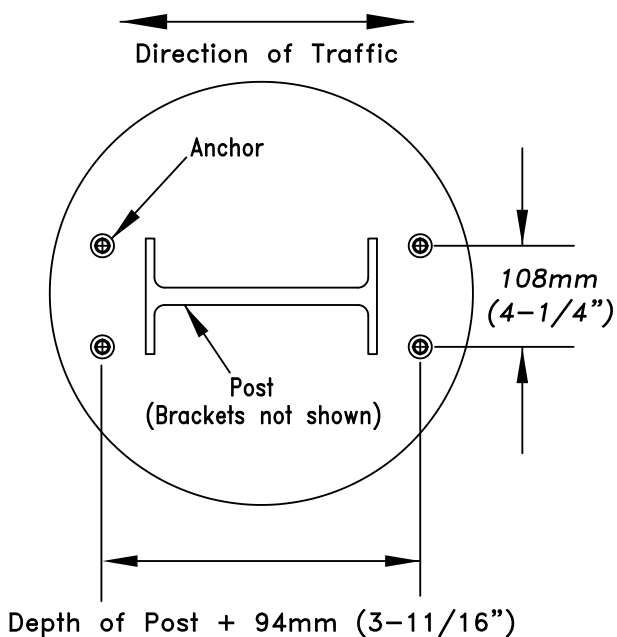
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



Patent Nos. 4,528,786 and 5,596,845

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Break-Safe Model AI6
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AI6

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
Model AP3, AP3.5, AP4, AP4.5	Includes Items 1-4 below.		1	SBMAP3, 3.5, 4, 4.5*
1	Bracket, Type AP3/AP3.5, AP4/AP4.5	6061-T6 Aluminum	2	
2	Bracket Adaptor, Type AP3, AP3.5, AP4, AP4.5	6061-T6 Aluminum	2	
2a	with Adaptor Ring, Type AP3, AP4	6061-T6 Aluminum	1	
3	Bracket Hardware Assembly, Type AP3, AP3.5, AP4, AP4.5, includes:		1	
3a	Bolt	12.7mm(1/2")-13UNC, Hex Head, ASTM A325, Galv. ASTM A153	4	
3b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	4	
3c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	4	
4	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
4a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
4b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
4c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
4d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
5	Anchor Assembly, Type A, includes:		1	SBAAPK
5a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

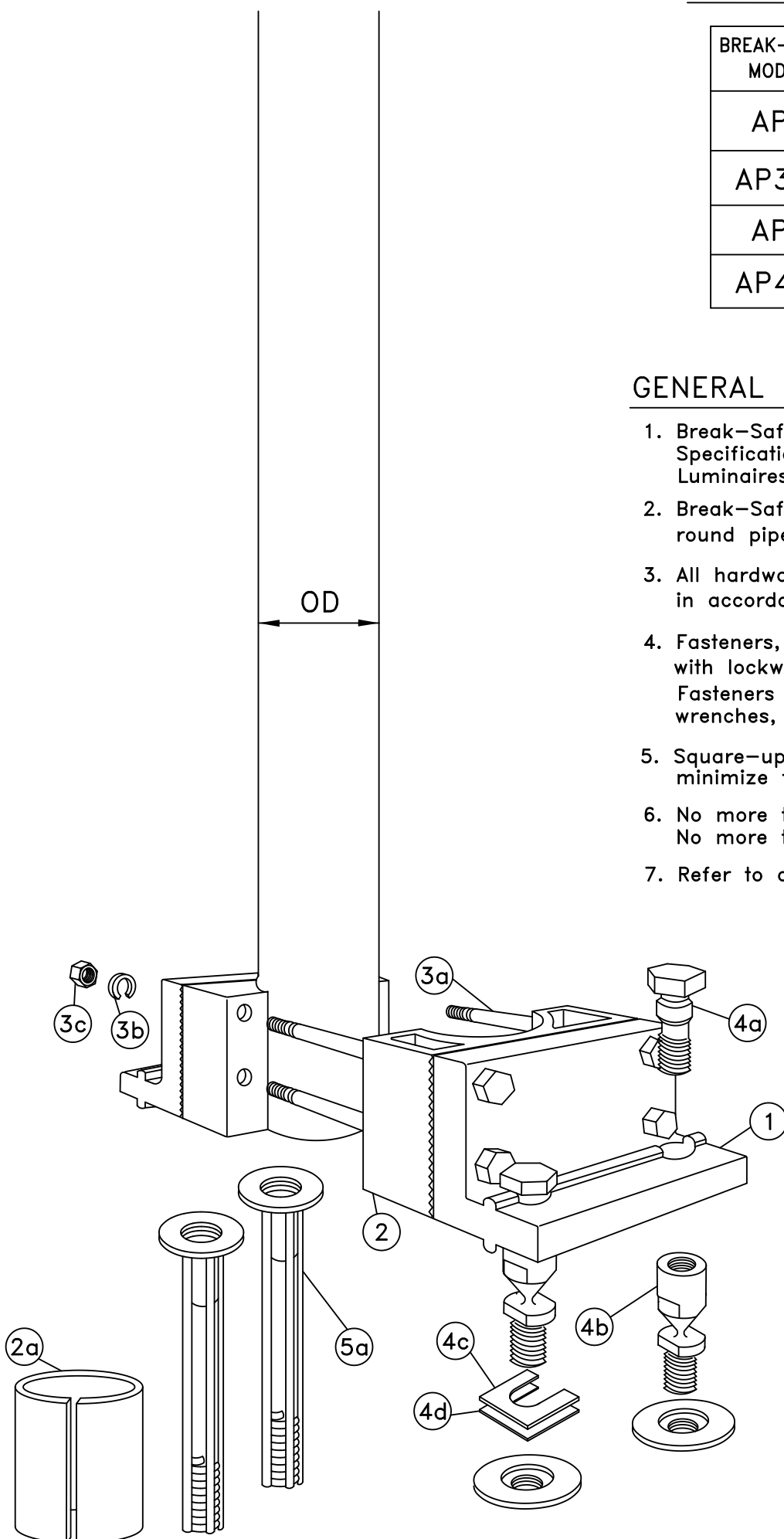
*Complete assembly includes line items 1-4. Item 5, Anchors sold separately.

BREAK-SAFE MODEL AP SELECTION TABLE

BREAK-SAFE MODEL	PIPE OUTSIDE DIAMETER (OD)	NOMINAL SCH. 40 PIPE SIZE
AP3	73 mm (2-7/8")	2-1/2"
AP3.5	89 mm (3-1/2")	3"
AP4	102 mm (4")	3-1/2"
AP4.5	114 mm (4-1/2")	4"

GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model AP is designed to fit steel or aluminum round pipe signposts. See table above for pipe sizes.
3. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
4. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
5. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
6. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
7. Refer to other side of page for complete installation instructions.



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Break-Safe Model AP
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

Drawing No. BS-AP

Sheet: 1 of 2

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

BRACKET ASSEMBLY:

1. Place Bracket Adaptors (& Adaptor Ring for Models AP3 & AP4) and Brackets squarely on the bottom of the post, such that the lower end of the post is flush with the bottom of both Bracket Adaptors.
2. Secure the Bracket assembly with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.
3. Adapter Ring Provided for AP3 and AP4. Slide Adapter Ring over pipe and secure bracket assembly to pipe.

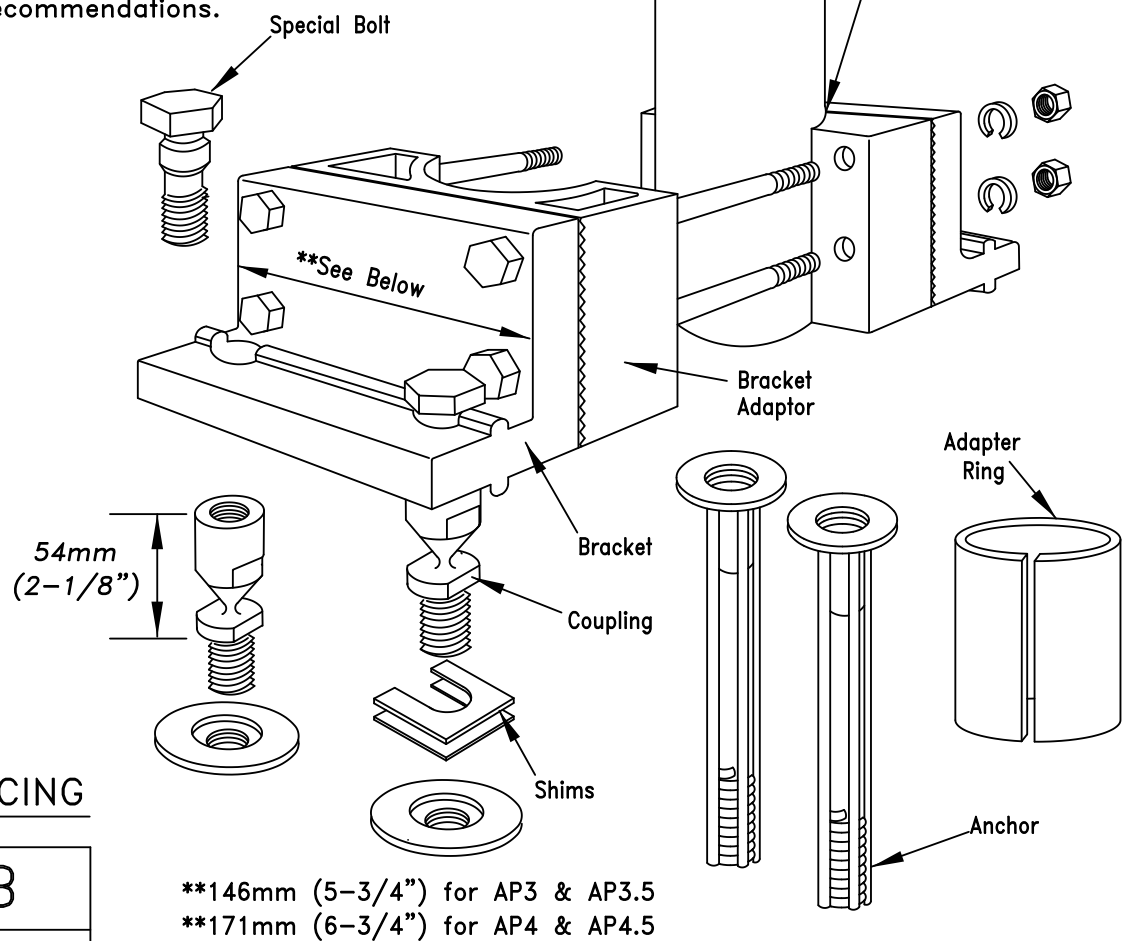
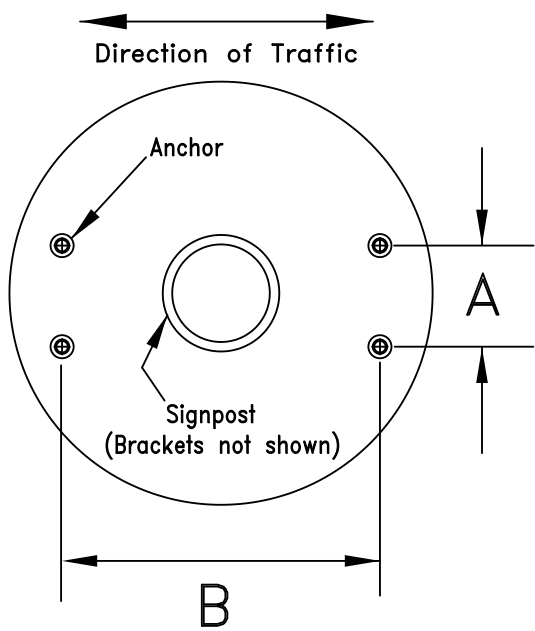
COUPLING ASSEMBLY:

1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.

PLAN VIEW OF TYPICAL FOUNDATION



BREAK-SAFE MODEL AP ANCHOR SPACING

BREAK-SAFE MODEL	POST OUTSIDE DIAMETER (OD)	NOMINAL SCH 40 PIPE	A	B
AP3*	73 mm (2-7/8")	2-1/2"	70 mm (2-3/4")	202 mm (7-15/16")
AP3.5	89 mm (3-1/2")	3"	70 mm (2-3/4")	202 mm (7-15/16")
AP4*	102 mm (4")	3-1/2"	83 mm (3-1/4")	227 mm (8-15/16")
AP4.5	114 mm (4-1/2")	4"	83 mm (3-1/4")	227 mm (8-15/16")

*Install supplied Adaptor Ring for Models AP3 & AP4.

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Break-Safe Model AP
Breakaway Support System for Sign Posts

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Date: January 2015

Drawing No. BS-AP

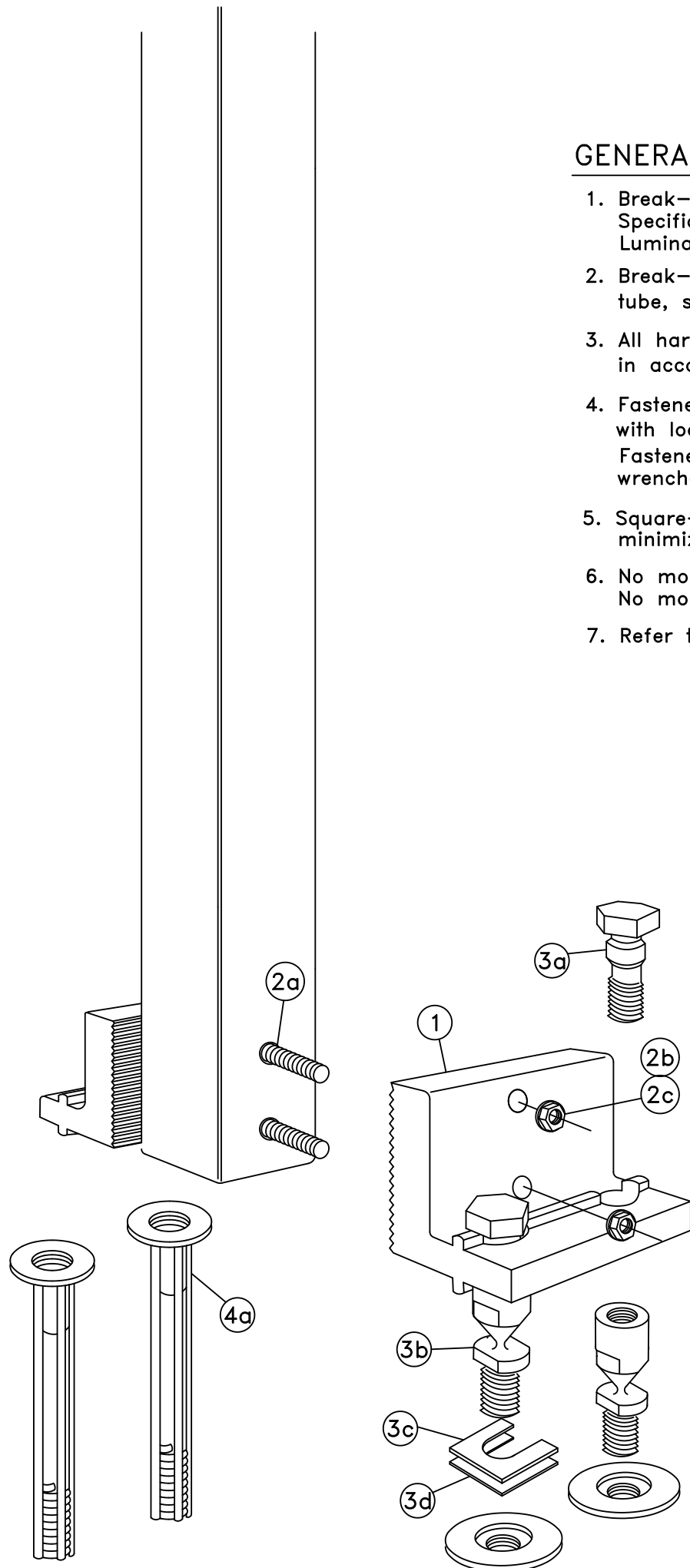
Sheet: 2 of 2

Patent Nos. 4,528,786 and 5,596,845

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model AS3	Includes Items 1-3 below.	1	SBMAS3*
1	Bracket, Type AS3	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type AS3, includes:		1	
2a	Bolt	19.1mm(3/4")-10UNCx158.8mm(6-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	2	
2b	LockWasher	19.1mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	2	
2c	Nut	19.1mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	2	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Anchor Assembly, Type A, includes:		1	SBAAPK
4a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-3. Item 4, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model AS3 is designed to fit 3" (76 mm) square tube, steel or aluminum signposts.
3. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
4. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
5. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
6. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
7. Refer to other side of page for complete installation instructions.

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Break-Safe Model AS3
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

Drawing No. BS-AS3

Sheet: 1 of 2

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

BRACKET ASSEMBLY:

1. Drill four (4) 20.6mm (13/16") diameter holes in the bottom end of the post section as shown.
2. Place Brackets squarely on outer surface of the post, and secure with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

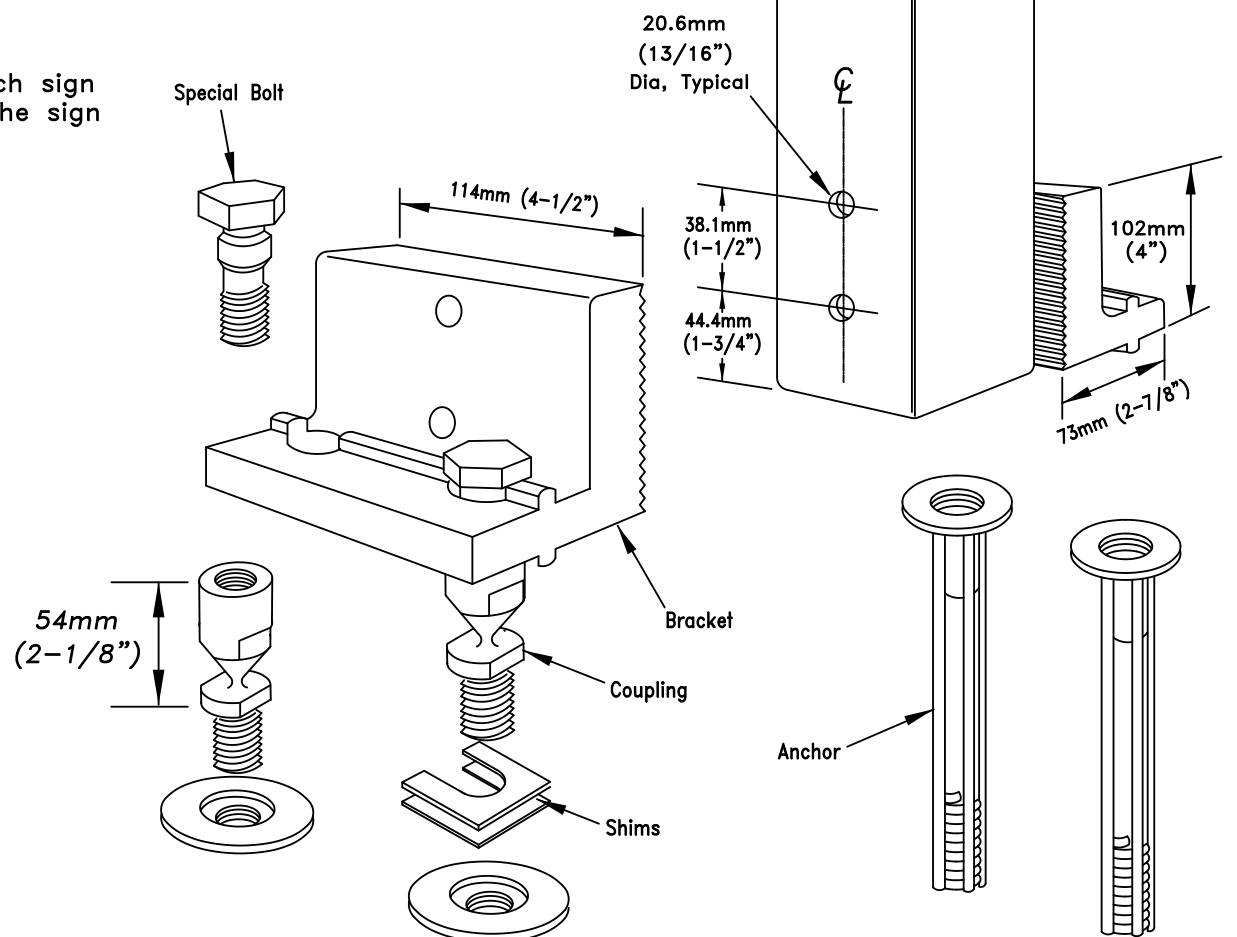
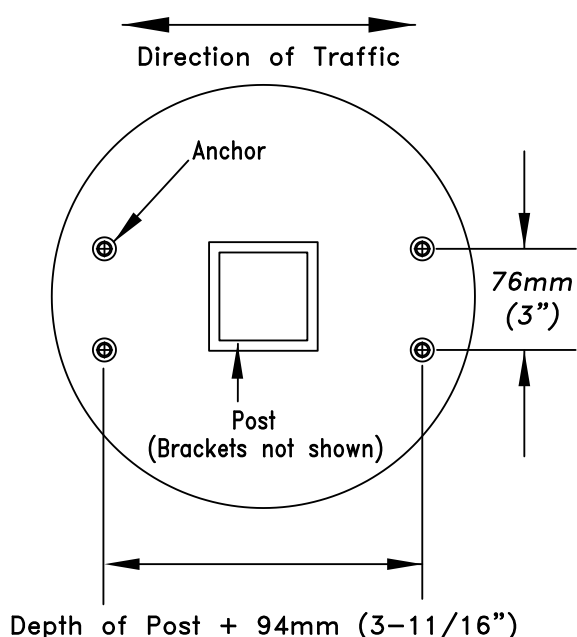
COUPLING ASSEMBLY:

1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.

PLAN VIEW OF TYPICAL FOUNDATION



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Date: January 2015

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Drawing No. BS-AS3

Sheet: 2 of 2

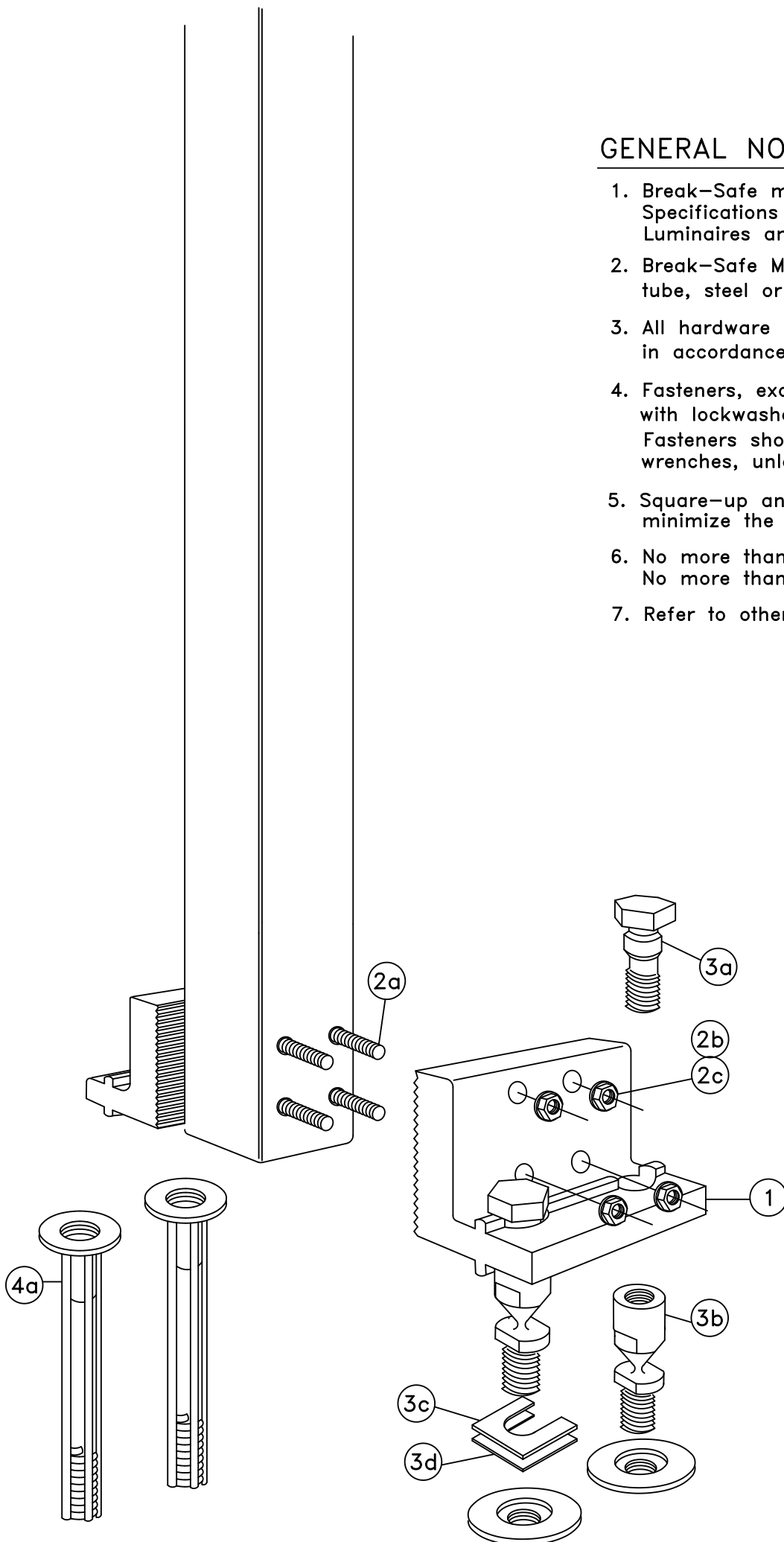
PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model AS4	Includes Items 1-3 below.	1	SBMAS4*
1	Bracket, Type AS4	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type AS4, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx184mm(7-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	4	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	4	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Anchor Assembly, Type A, includes:		1	SBAAPK
4a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line Items 1-3. Item 4, Anchors sold separately.

GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signs."
2. Break-Safe Model AS4 is designed to fit 4" (102mm) square tube, steel or aluminum signposts.
3. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
4. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
5. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
6. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
7. Refer to other side of page for complete installation instructions.



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Break-Safe Model AS4
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AS4

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

BRACKET ASSEMBLY:

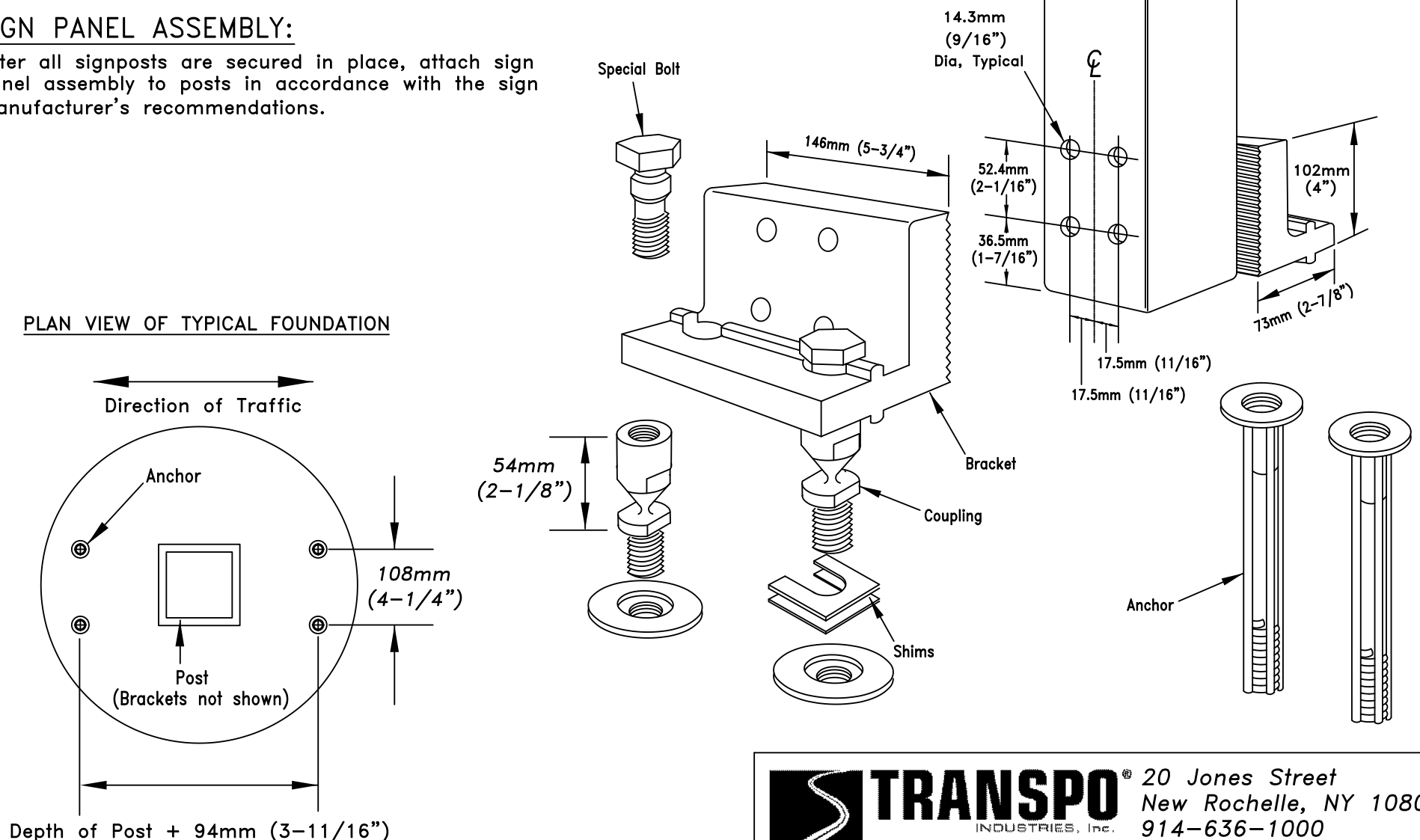
1. Drill eight (8) 14.3mm (9/16") diameter holes in the bottom end of the post section as shown.
2. Place Brackets squarely on outer surface of the post, and secure with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



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Break-Safe Model AS4
Breakaway Support System for Sign Posts

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Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

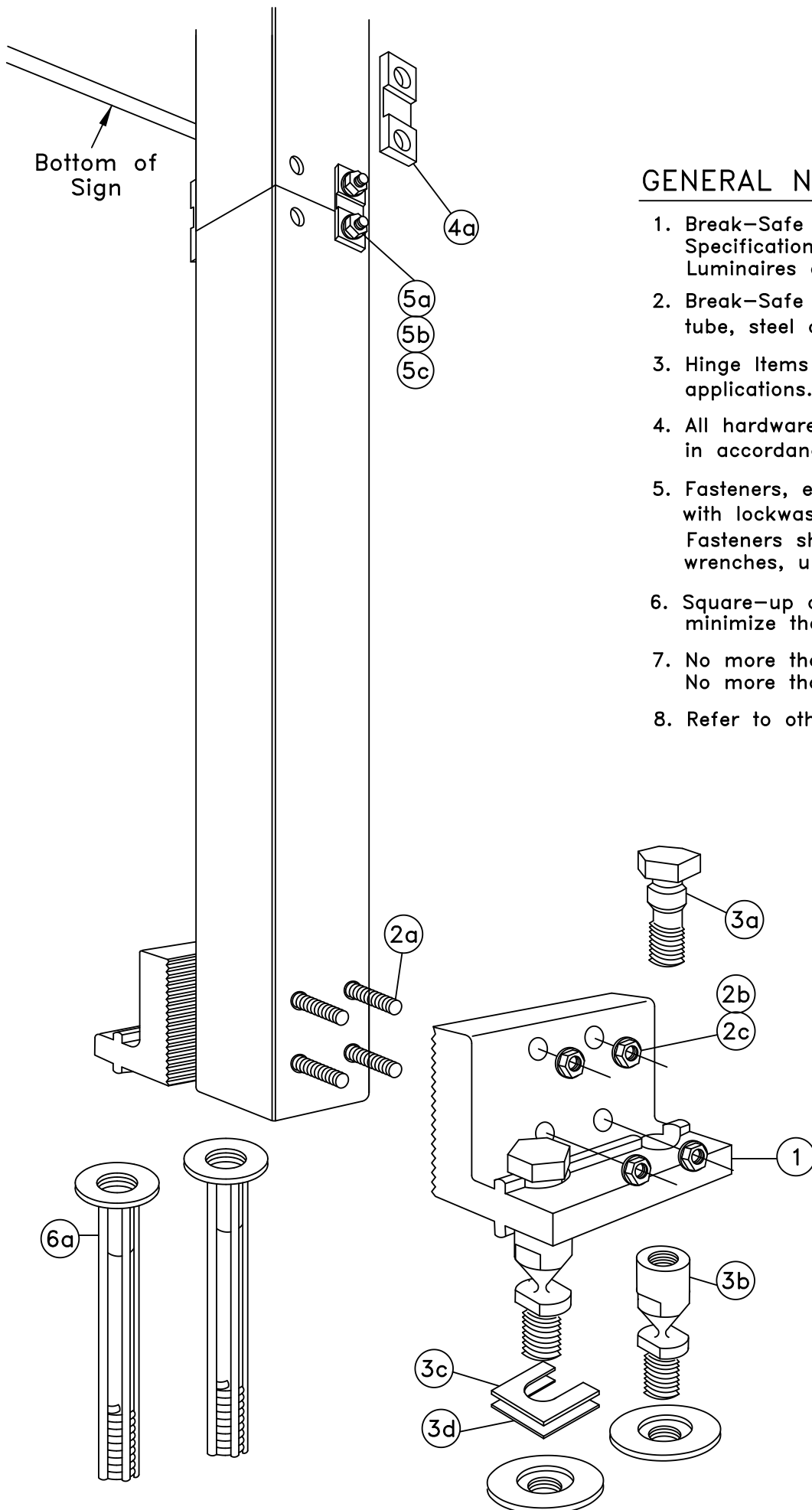
Drawing No. BS-AS4

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model AS4H	6061-T6 Aluminum	1	SBMAS4H*
1	Bracket, Type AS4	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type AS4, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx184mm(7-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	4	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	4	
3	Coupling & Special Bolt Assembly, Type A, includes:		1	SB-CALP
3a	Special Bolt	15.9mm(5/8")-11UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	15.9mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.9mm(5/8") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.9mm(5/8") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type A, includes:		1	SB-HB3
4a	Hinge Plate	Type A, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type A, includes:		1	SB-HHA
5a	Bolt	12.7mm(1/2")-13UNCx133mm(5-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
5b	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	4	
5c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	4	
6	Anchor Assembly, Type A, includes:		1	SBAAPK
6a	Anchor	15.9mm(5/8")-11UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model AS4H is designed to fit 4" (102mm) square tube, steel or aluminum signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications. Use Model AS4 for single post signs.
4. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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Break-Safe Model AS4H
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AS4H

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

1. Butt upper and lower post sections together on a flat surface.
2. Drill eight (8) 14.3mm (9/16") holes in the upper and lower post sections as shown.
3. Place Hinge Plates on outer surface of the post, and secure with bolts, lock washers, and nuts. Bolt Heads may be tack welded to inside of tubular post. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

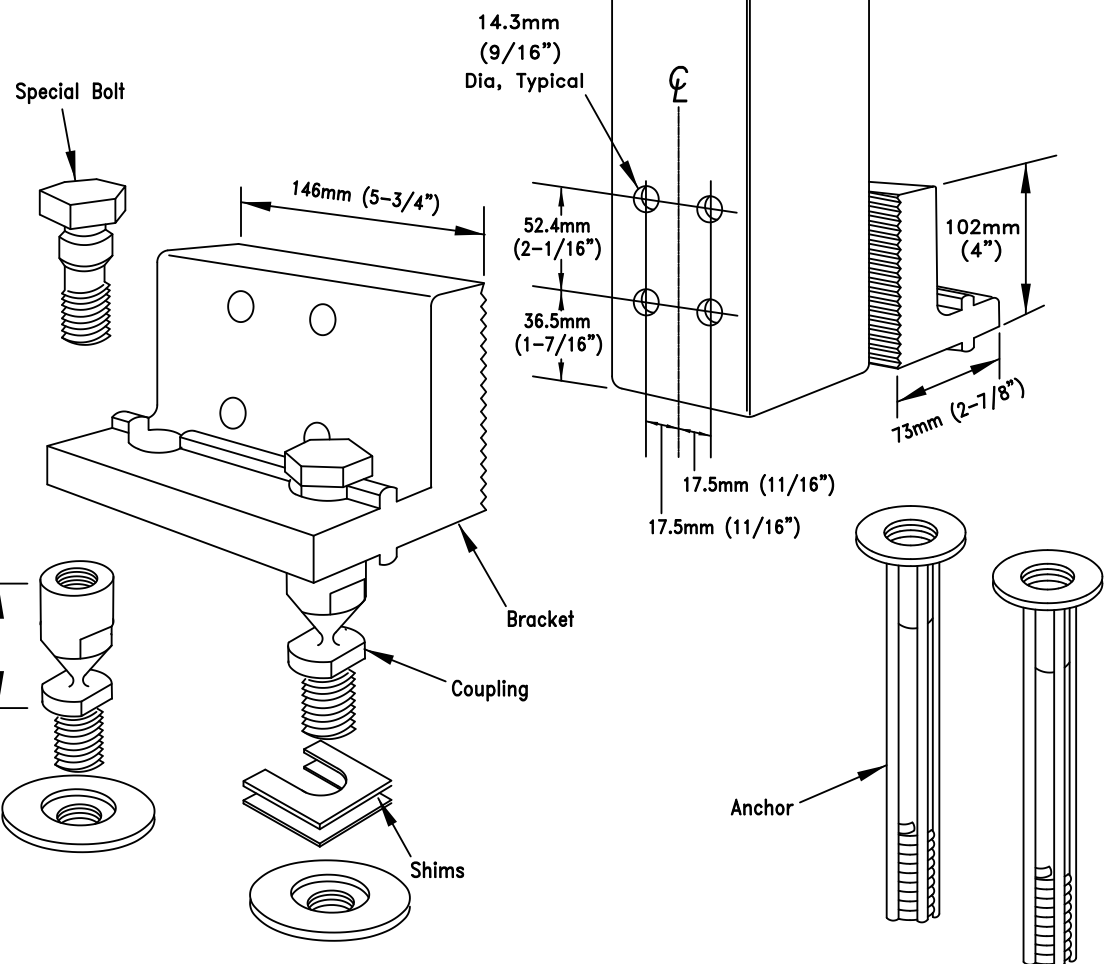
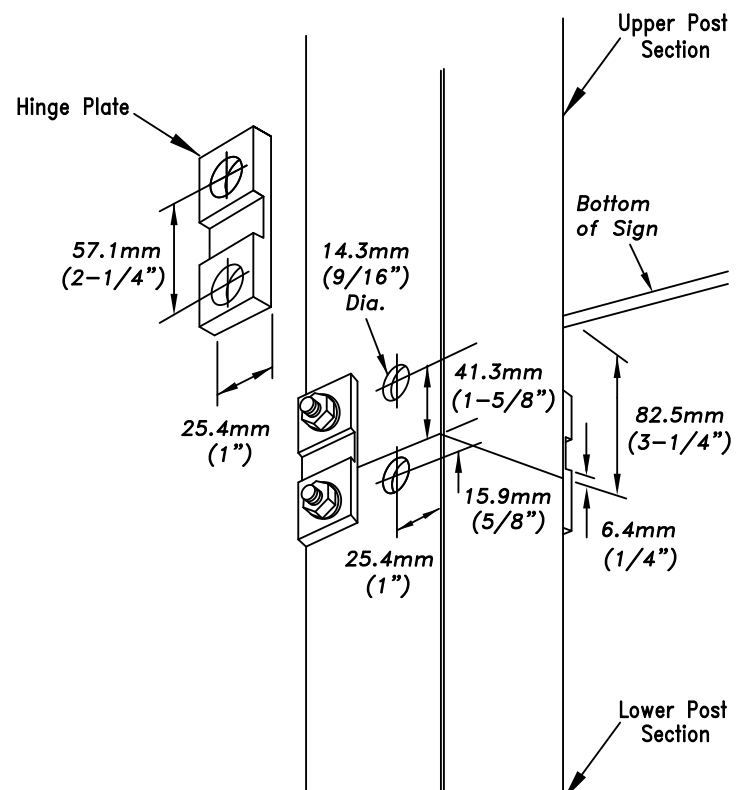
1. Drill eight (8) 14.3mm (9/16") diameter holes in the bottom end of the lower post section as shown.
2. Place Brackets squarely on outer surface of the post, and secure with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

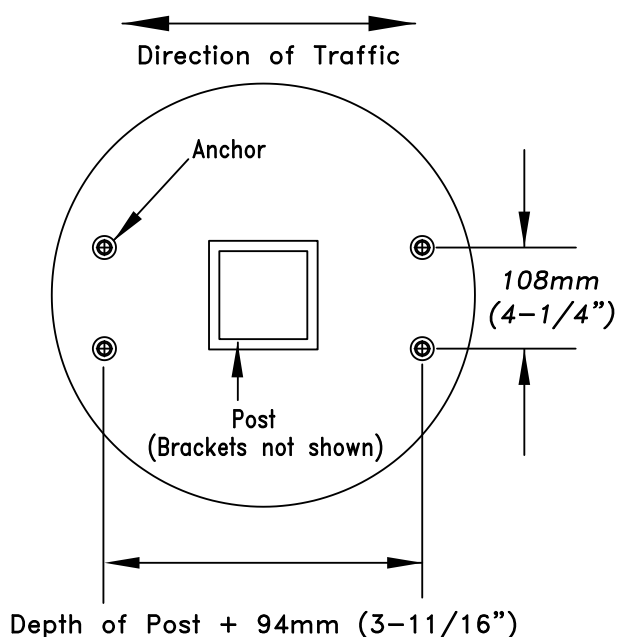
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



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Break-Safe Model AS4H
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Drawing No. BS-AS4H

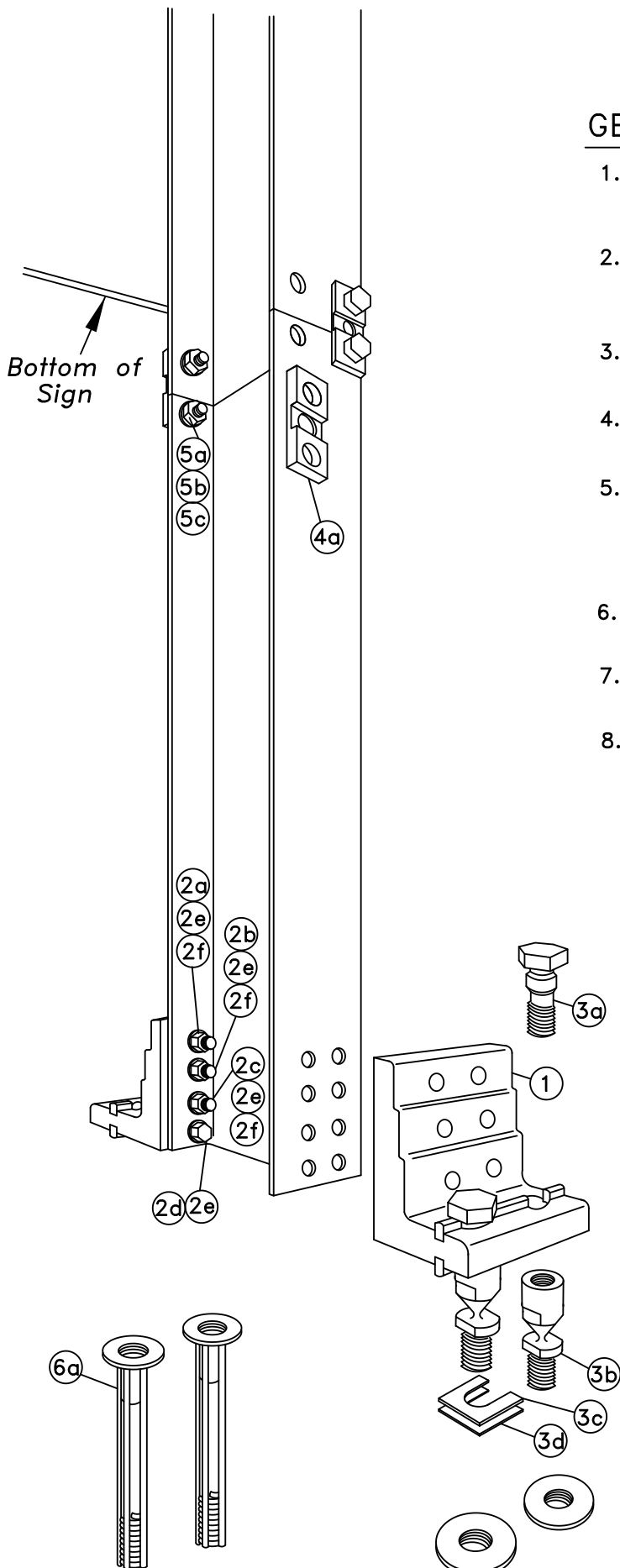
Sheet: 2 of 2

Patent Nos. 4,528,786 and 5,596,845

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model B525	Includes Items 1-5 below.	1	SBM525*
1	Bracket, Type B525	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type B525, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx63.5mm(2-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	12.7mm(1/2")-13UNCx69.8mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	12.7mm(1/2")-13UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	12.7mm(1/2")-13UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B525, includes:		1	SB-HB1
4a	Hinge Plate	Type B525, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model B525 is designed to fit W6 (W150mm) and W8 (W200mm) Wide Flange I-Beam, and 5" (127mm) and 6" (150mm) Square Tube signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gvanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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Break-Safe Model B525 Breakaway Support System for Sign Posts

for 6" & 8" W-Shape I-Beam Posts
Multiple Post Sign Application with Hinges

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

Drawing No. BS-B525

Sheet: 1 of 2

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY: (for Multiple Post Sign Applications)

1. Butt upper and lower post sections together on a flat surface.
2. Drill eight (8) 20.6mm (13/16") holes in the flanges of the post sections as shown.
3. Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

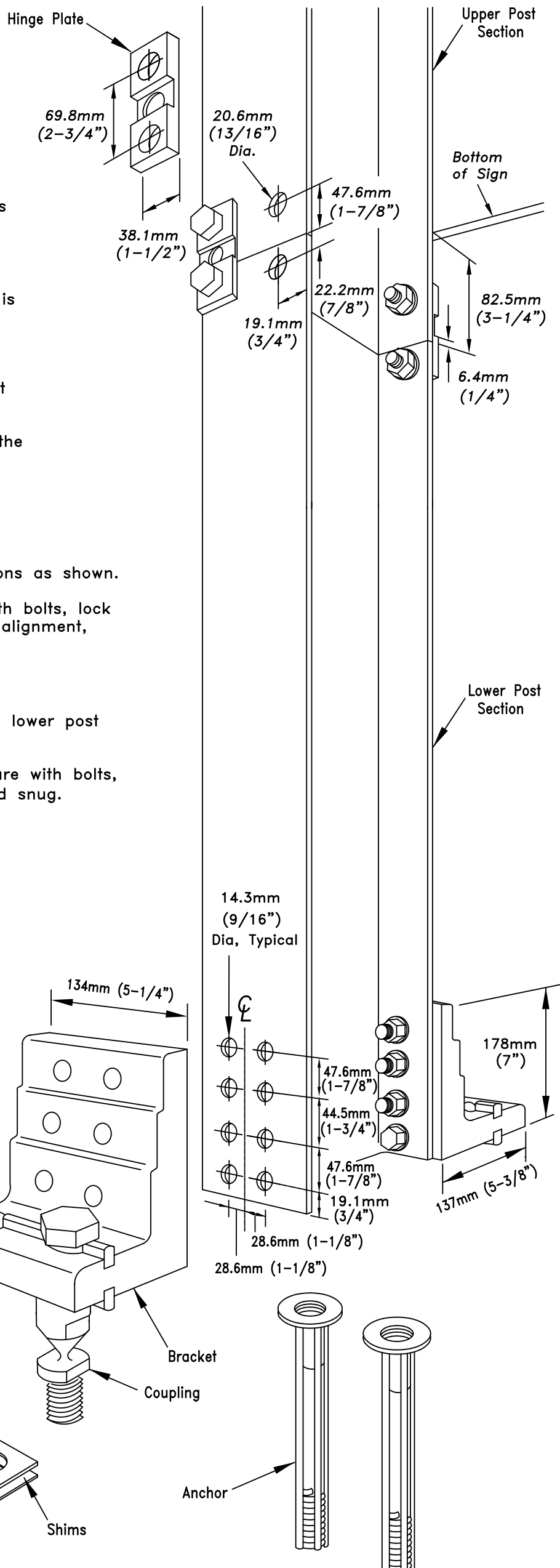
1. Drill sixteen (16) 14.3mm (9/16") diameter holes in the flanges of the lower post section as shown.
2. Place Brackets squarely on outer surface of the post flanges, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

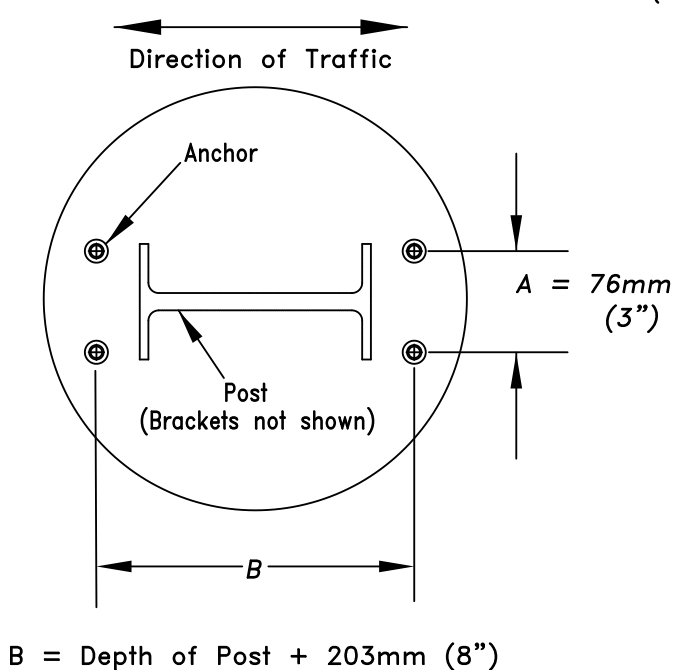
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



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Break-Safe Model B525
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

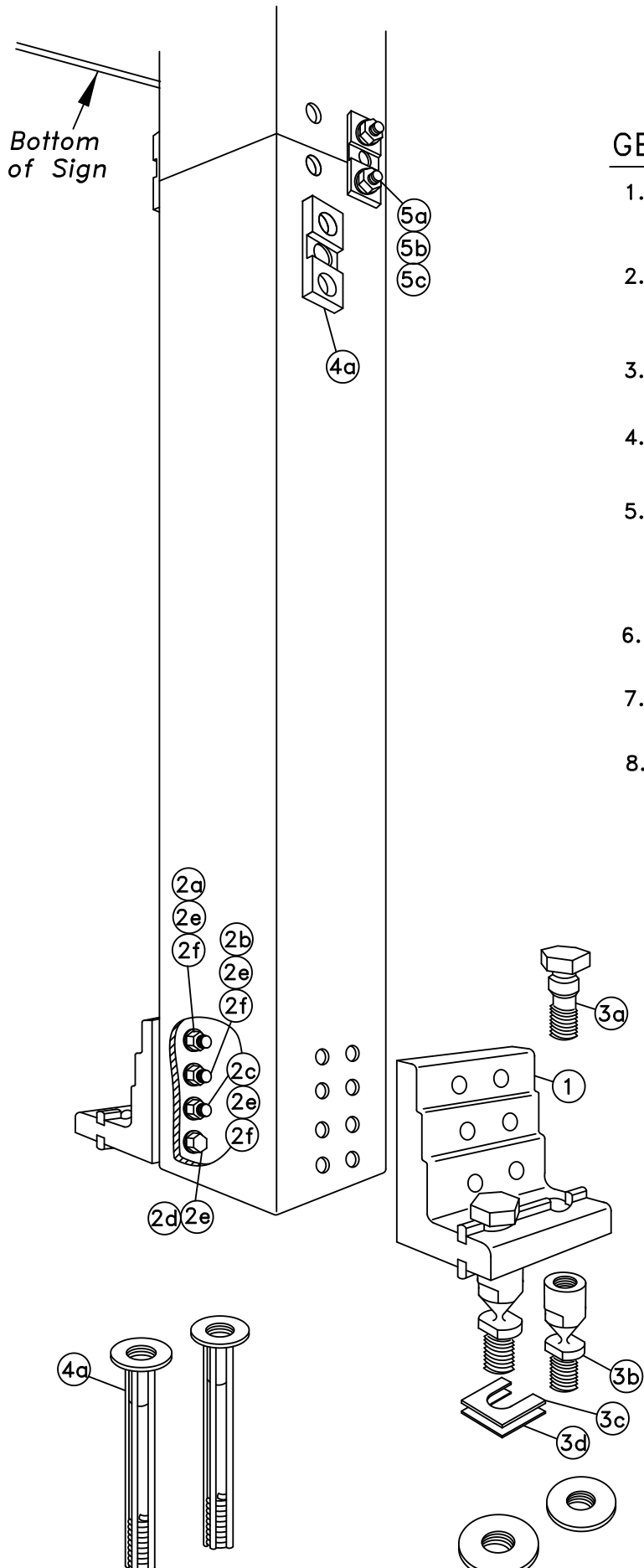
Drawing No. BS-B525

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model B525	Includes Items 1-5 below.	1	SBM525*
1	Bracket, Type B525	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type B525, includes:		1	
2a	Bolt	12.7mm(1/2")-13UNCx63.5mm(2-1/2"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	12.7mm(1/2")-13UNCx69.8mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	12.7mm(1/2")-13UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	12.7mm(1/2")-13UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	12.7mm(1/2"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B525, includes:		1	SB-HB1
4a	Hinge Plate	Type B525, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model B525 is designed to fit W6 (W150mm) and W8 (W200mm) Wide Flange I-Beam, and 5" (127mm) and 6" (150mm) Square Tube signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gvanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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*Break-Safe Model B525
Breakaway Support System for Sign Posts
for 5" & 6" Square Tube Posts*

Scale: Not To Scale

Date: January 2015

Drawing No. BS-B525S

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY: (for Multiple Post Sign Applications)

1. Butt upper and lower post sections together on a flat surface, and drill eight (8) 20.6mm (13/16") holes in the flanges of the post sections as shown.
2. Insert bolts thru holes from the inside of the upper and lower post sections, and weld the bolt heads to the inside of the tubes.
3. Place Hinge Plates over bolts that extend from outer surfaces of the post, and secure with lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

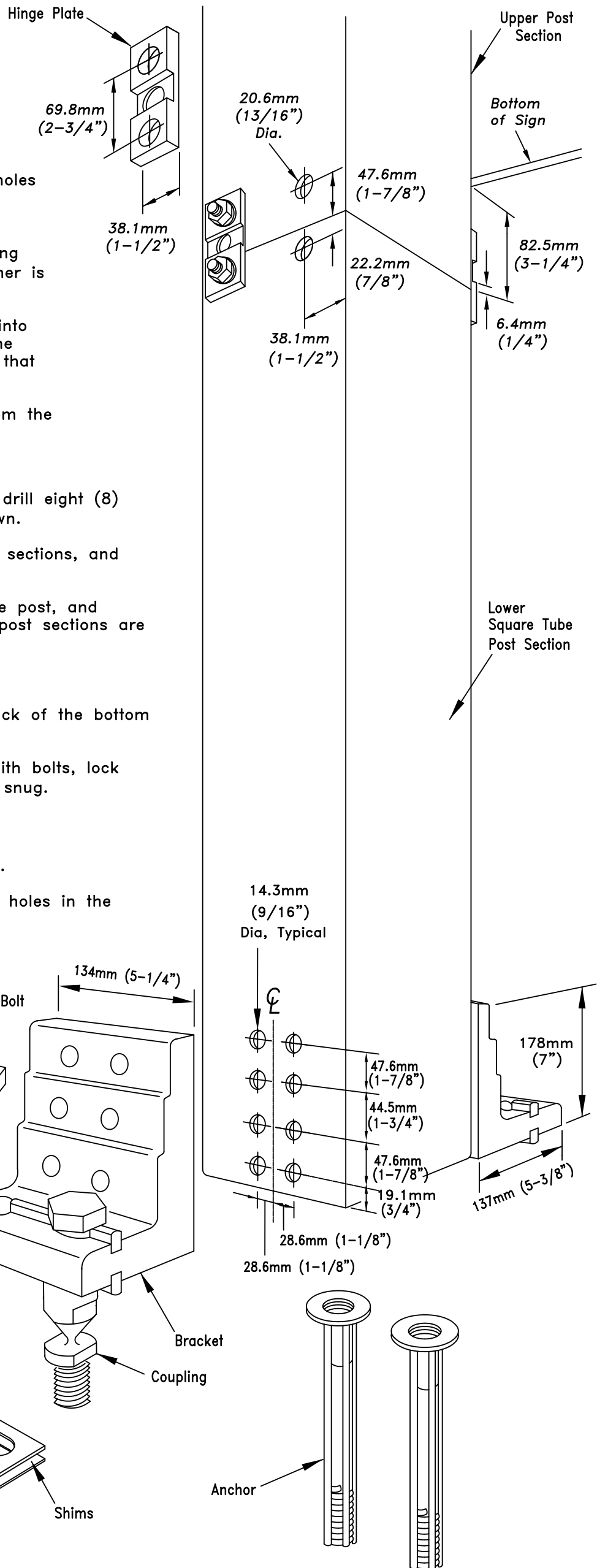
1. Drill sixteen (16) 14.3mm (9/16") diameter holes in the front & back of the bottom end of post section as shown.
2. Place Brackets squarely on outer surface of the post, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

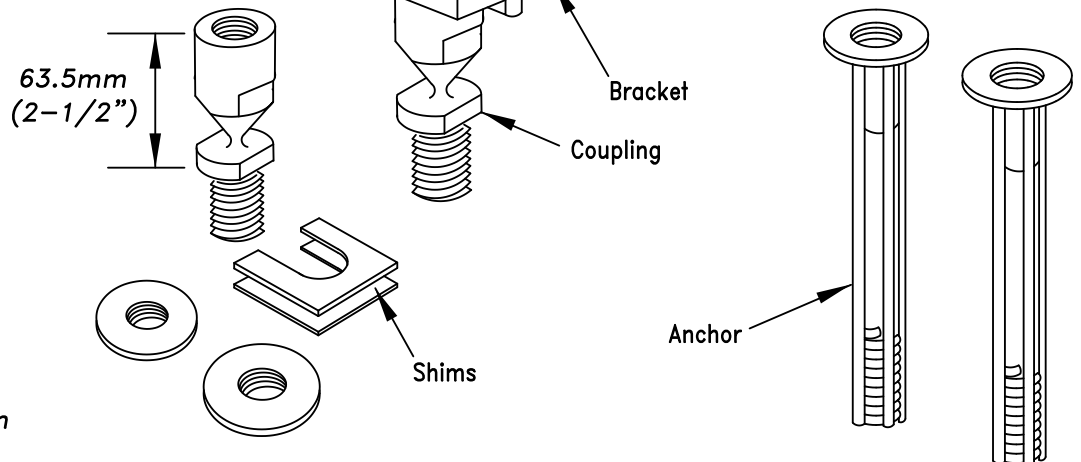
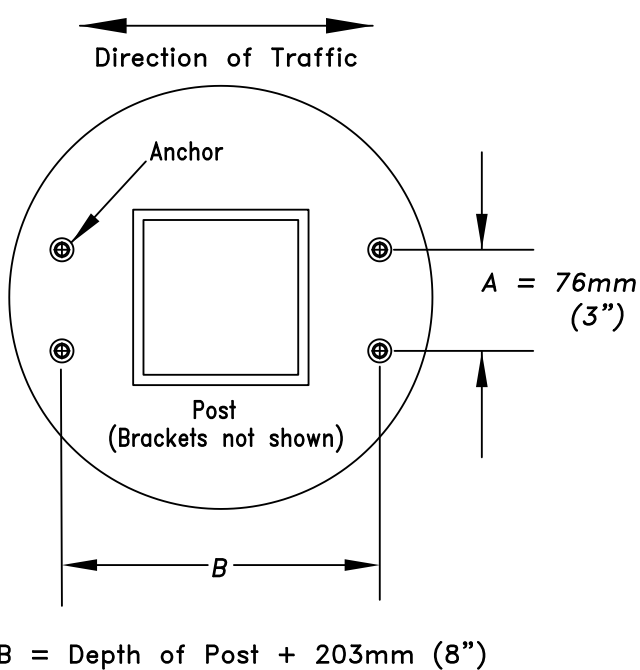
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



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*Break-Safe Model B525
for 5" & 6" Square Tube Posts*

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

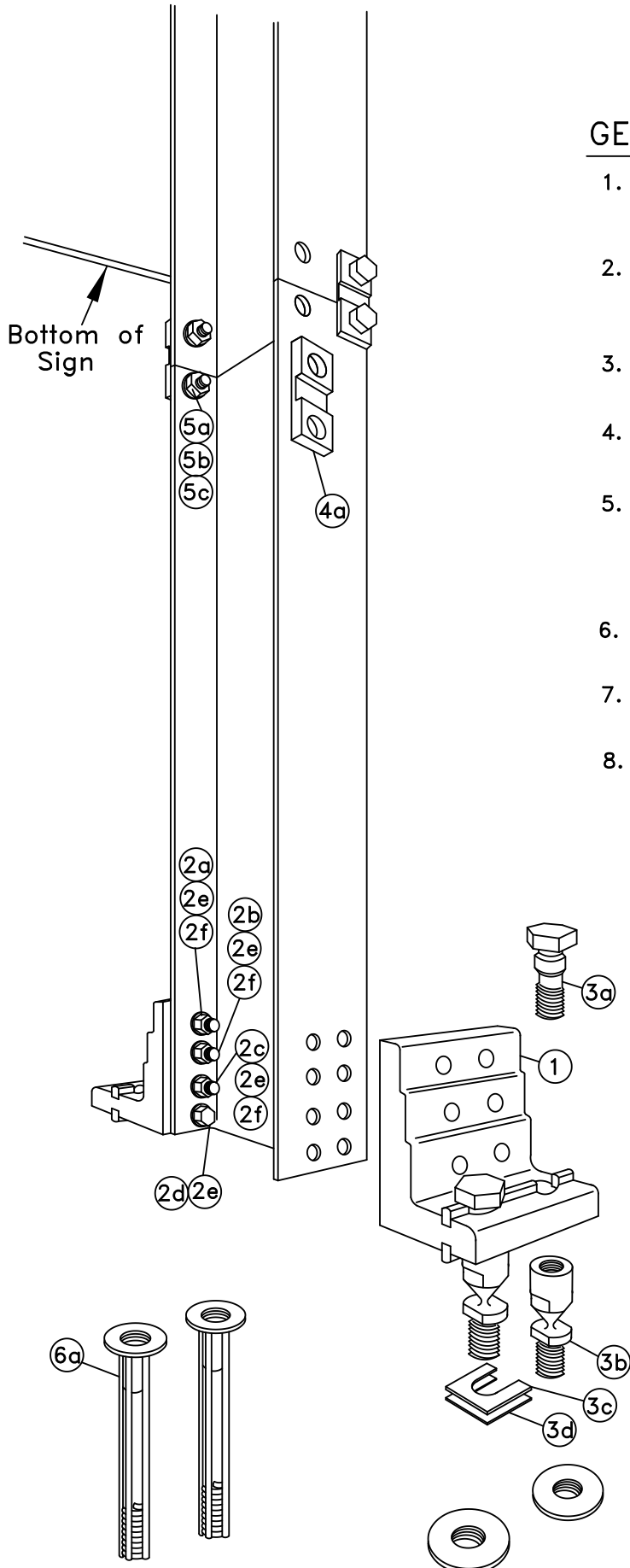
Drawing No. BS-B525S

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model B650	Includes Items 1-5 below.	1	SBM650*
1	Bracket, Type B650	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type B650, includes:		1	
2a	Bolt	15.9mm(5/8")-11UNCx69.9mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	15.9mm(5/8")-11UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	15.9mm(5/8")-11UNCx82.6mm(3-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	15.9mm(5/8")-11UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	15.9mm(5/8"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	15.9mm(5/8")-11UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B650, includes:		1	SB-HB2
4a	Hinge Plate	Type B650, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model B650 is designed to fit W10 (W250mm) thru W21 (W530mm) Wide Flange I-Beam, and 7" (178mm) and 8" (203mm) Square Tube signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gavanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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Break-Safe Model B650 Breakaway Support System for Sign Posts

for 10" thru 21" W-Shape I-Beam Posts
Multiple Post Sign Application with Hinges

Scale: Not To Scale

Date: January 2015

Drawing No. BS-B650

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY: (for Multiple Post Sign Applications)

1. Butt upper and lower post sections together on a flat surface.
2. Drill eight (8) 20.6mm (13/16") holes in the flanges of the post sections as shown.
3. Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

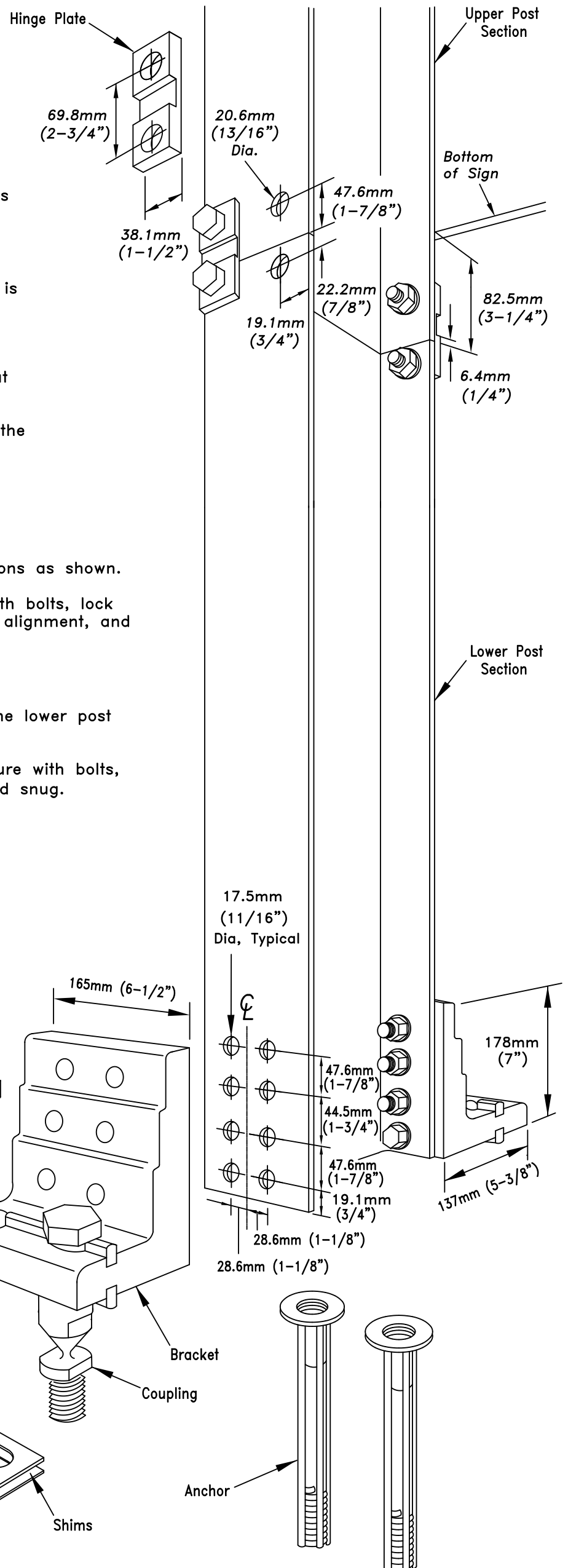
1. Drill sixteen (16) 17.5mm (11/16") diameter holes in the flanges of the lower post section as shown.
2. Place Brackets squarely on outer surface of the post flanges, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

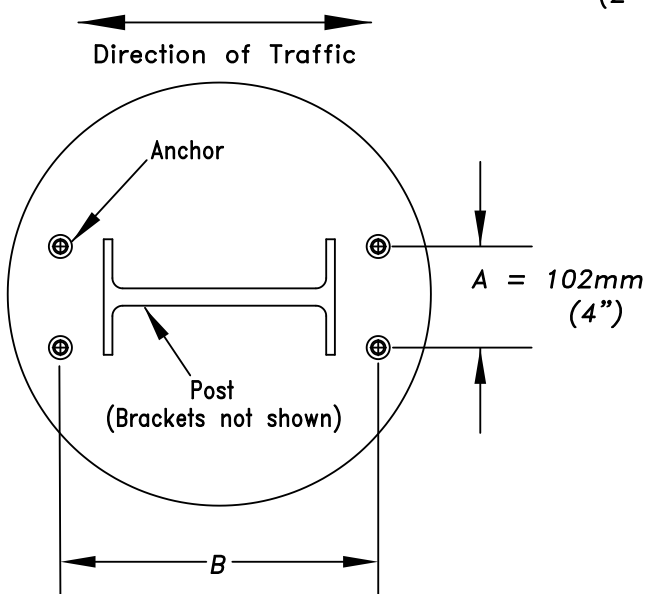
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



$B = \text{Depth of Post} + 203\text{mm (8")}$

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Break-Safe Model B650
Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: January 2015

Patent Nos. 4,528,786 and 5,596,845

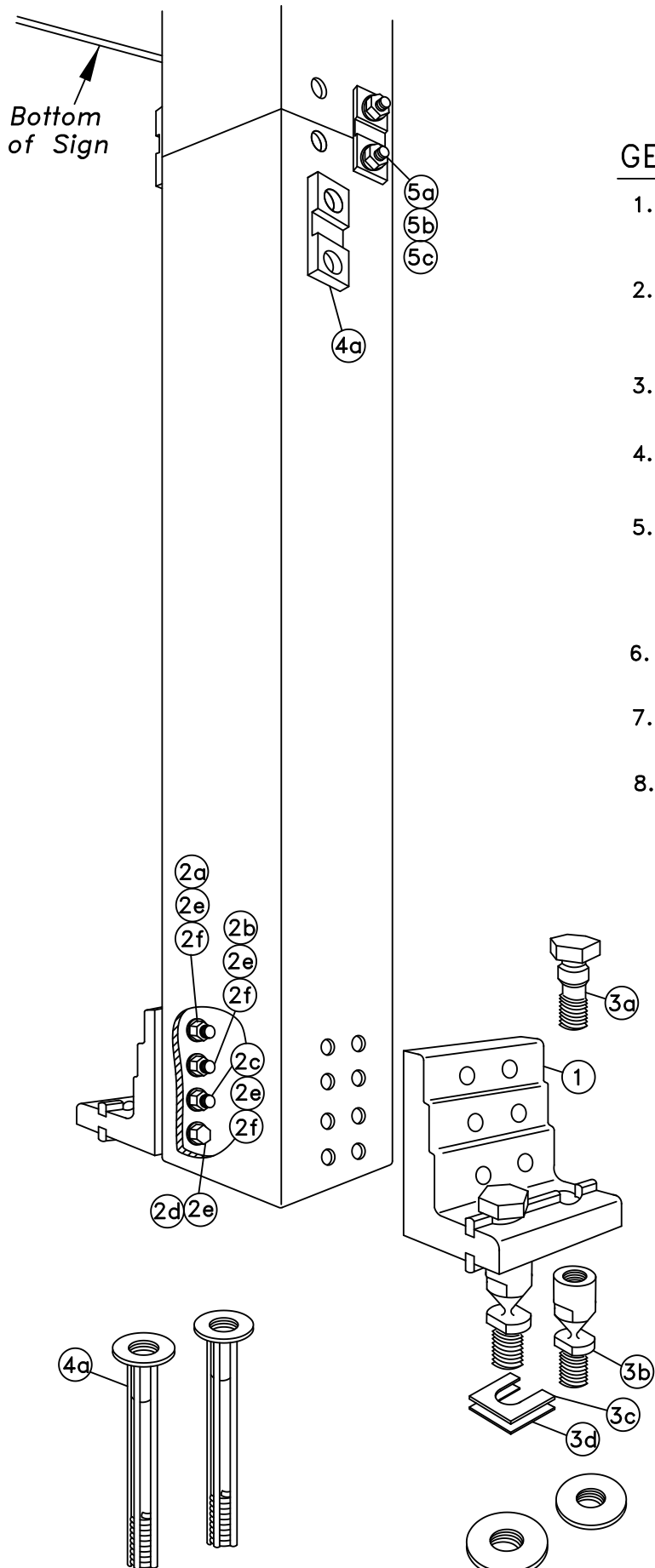
Drawing No. BS-B650

Sheet: 2 of 2

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
	Model B650	Includes Items 1-5 below.	1	SBM650*
1	Bracket, Type B650	6061-T6 Aluminum	2	
2	Bracket Hardware Assembly, Type B650, includes:		1	
2a	Bolt	15.9mm(5/8")-11UNCx69.9mm(2-3/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2b	Bolt	15.9mm(5/8")-11UNCx76.2mm(3"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2c	Bolt	15.9mm(5/8")-11UNCx82.6mm(3-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	4	
2d	Cap Screw	15.9mm(5/8")-11UNCx31.7mm(1-1/4"), Hex Head, ASTM A307, Galv. ASTM A153	4	
2e	LockWasher	15.9mm(5/8"), ANSI B18-21-1, Galv. ASTM A153	16	
2f	Nut	15.9mm(5/8")-11UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	12	
3	Coupling & Special Bolt Assembly, Type B, includes:		1	SB-CBLP
3a	Special Bolt	25.4mm(1")-8UNC, ASTM A449, Galv. ASTM A153	4	
3b	Coupling	25.4mm(1")-8UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv. Steel Sheet	2	
4	Hinge Assembly, Type B650, includes:		1	SB-HB2
4a	Hinge Plate	Type B650, AISI 4130 Steel, Galv. ASTM A123	4	
5	Hinge Hardware Assembly, Type B, includes:		1	SB-HHB
5a	Bolt	19.0mm(3/4")-10UNCx57.1mm(2-1/4"), Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	LockWasher	19.0mm(3/4"), ANSI B18-21-1, Galv. ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. DH, Galv. ASTM A153	8	
6	Anchor Assembly, Type B, includes:		1	SBABPK
6a	Anchor	25.4mm(1")-8UNC, 304 S.S. Ferrule, AISI 1038 Rod, AISI 1008 Coil	4	

*Complete assembly includes line items 1-5. Item 6, Anchors sold separately.



GENERAL NOTES:

1. Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
2. Break-Safe Model B650 is designed to fit W10 (W250mm) thru W21 (W530mm) Wide Flange I-Beam, and 7" (178mm) and 8" (203mm) Square Tube signposts.
3. Hinge Items 4 & 5 above are not used for single post sign applications.
4. All hardware items are American Standard sizes, gvanized in accordance with ASTM A153.
5. Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
6. Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
7. No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
8. Refer to other side of page for complete installation instructions.

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*Break-Safe Model B650
Breakaway Support System for Sign Posts
for 7" & 8" Square Tube Posts*

Scale: Not To Scale

Date: January 2015

Drawing No. BS-B650S

Sheet: 1 of 2

Patent Nos. 4,528,786 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

1. Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
2. Attach four (4) Transpo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
4. Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY: (for Multiple Post Sign Applications)

1. Butt upper and lower post sections together on a flat surface, and drill eight (8) 20.6mm (13/16") holes in the flanges of the post sections as shown.
2. Insert bolts thru holes from the inside of the upper and lower post sections, and weld the bolt heads to the inside of the tubes.
3. Place Hinge Plates over bolts that extend from outer surfaces of the post, and secure with lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

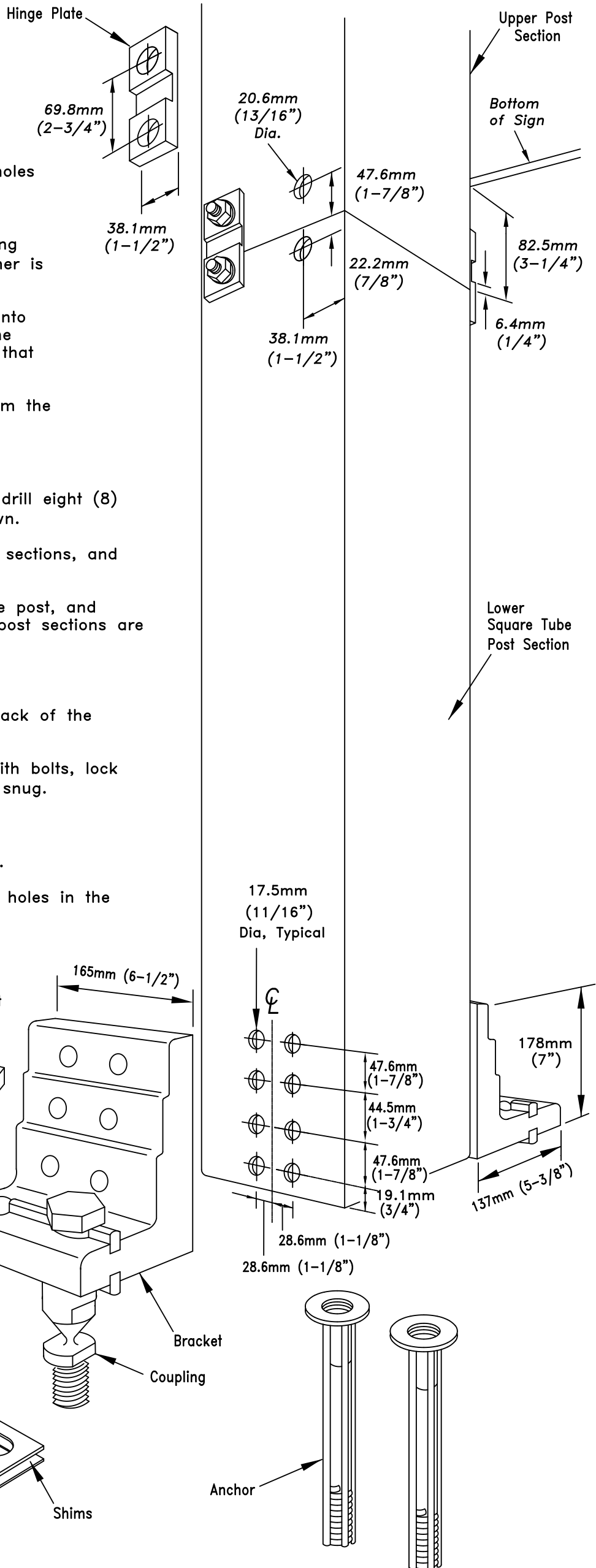
1. Drill sixteen (16) 17.5mm (11/16") diameter holes in the front & back of the bottom end of post section as shown.
2. Place Brackets squarely on outer surface of the post, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

COUPLING ASSEMBLY:

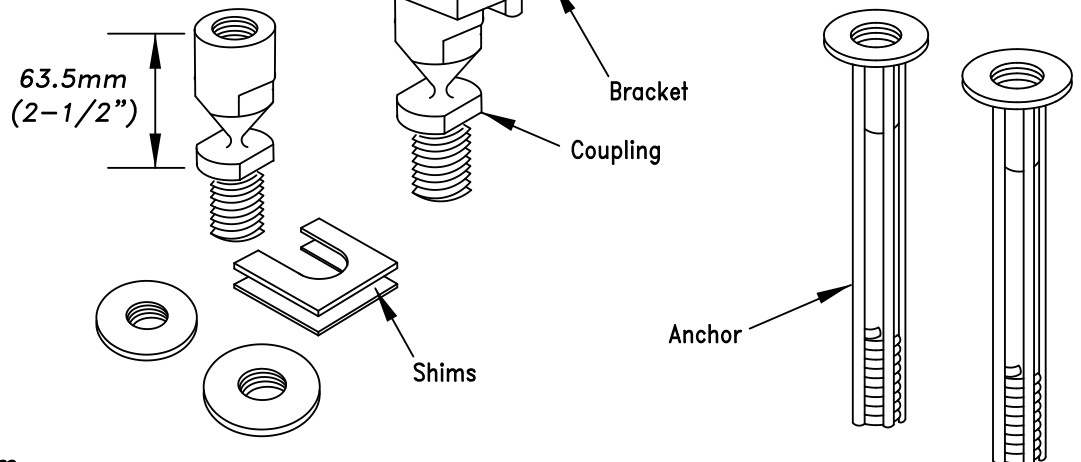
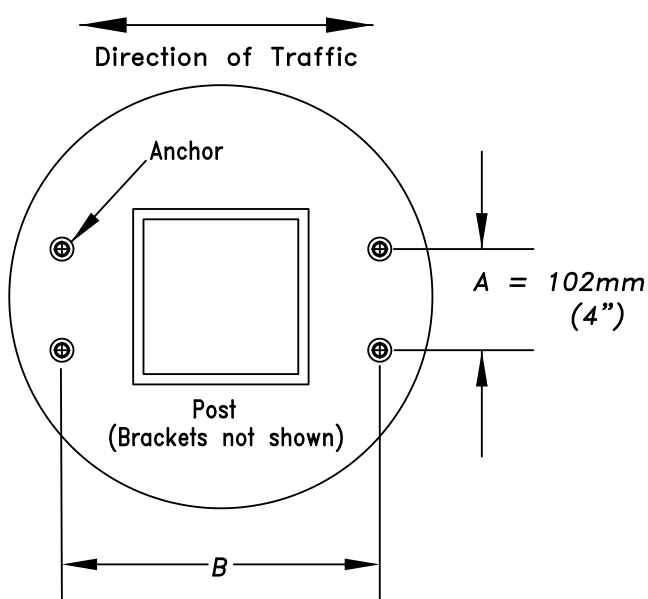
1. Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
2. Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
3. If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
4. Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
5. Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

1. After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.



PLAN VIEW OF TYPICAL FOUNDATION



TRANSPO® 20 Jones Street
New Rochelle, NY 10801
INDUSTRIES, Inc. 914-636-1000
The Smart Solutions Company www.transpo.com

*Break-Safe Model B650
for 7" & 8" Square Tube Posts*

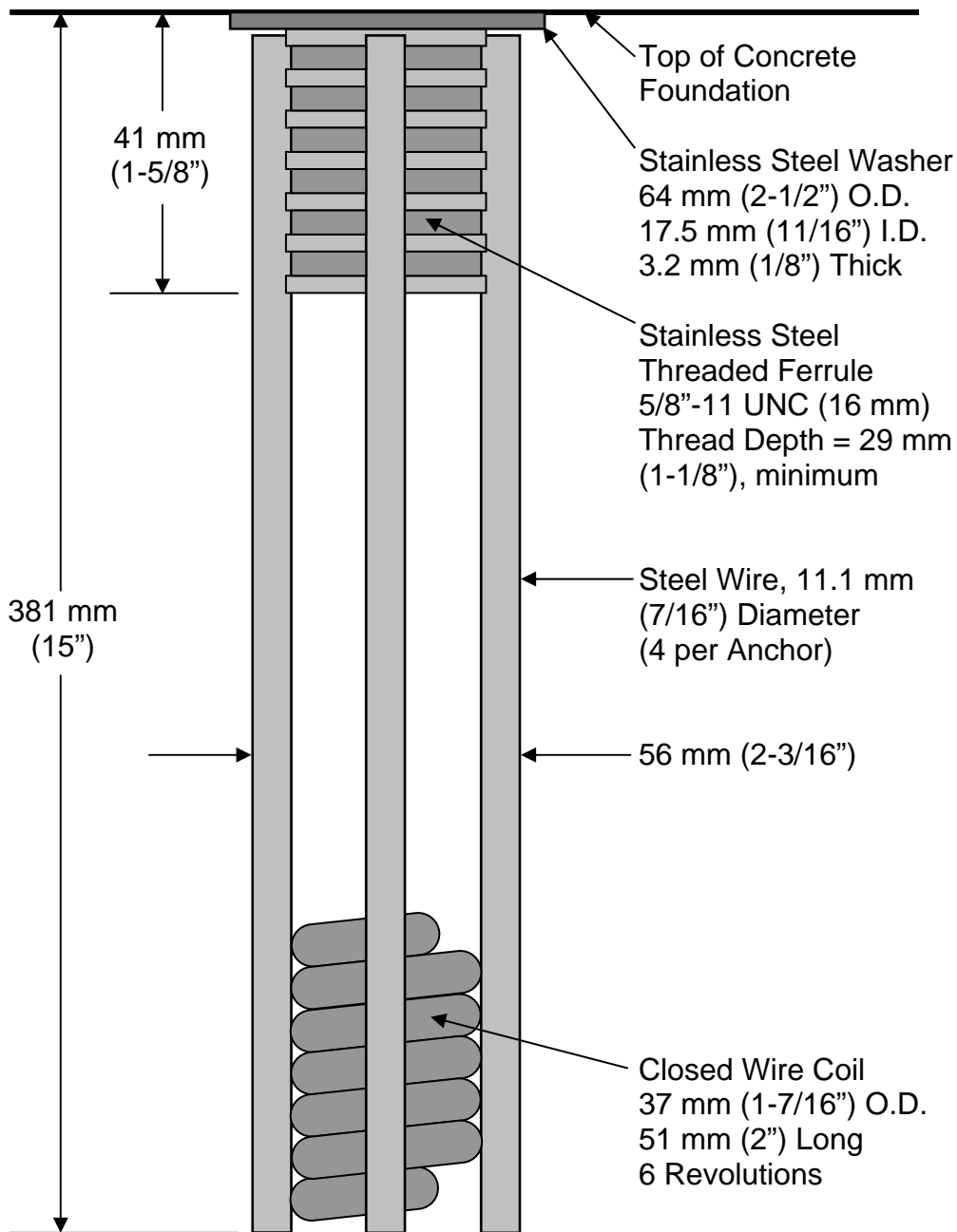
Scale: Not To Scale

Date: January 2015

Drawing No. BS-B650S

Sheet: 2 of 2

Patent Nos. 4,528,786 and 5,596,845



SPECIFICATIONS

Physical Properties:

1. Ultimate Tensile Load = 267 kN (60.0 kips) minimum per Anchor.
2. Actual Pullout Strength depends on foundation design and concrete properties.

Installation Instructions:

See other side of page for typical installation diagrams.

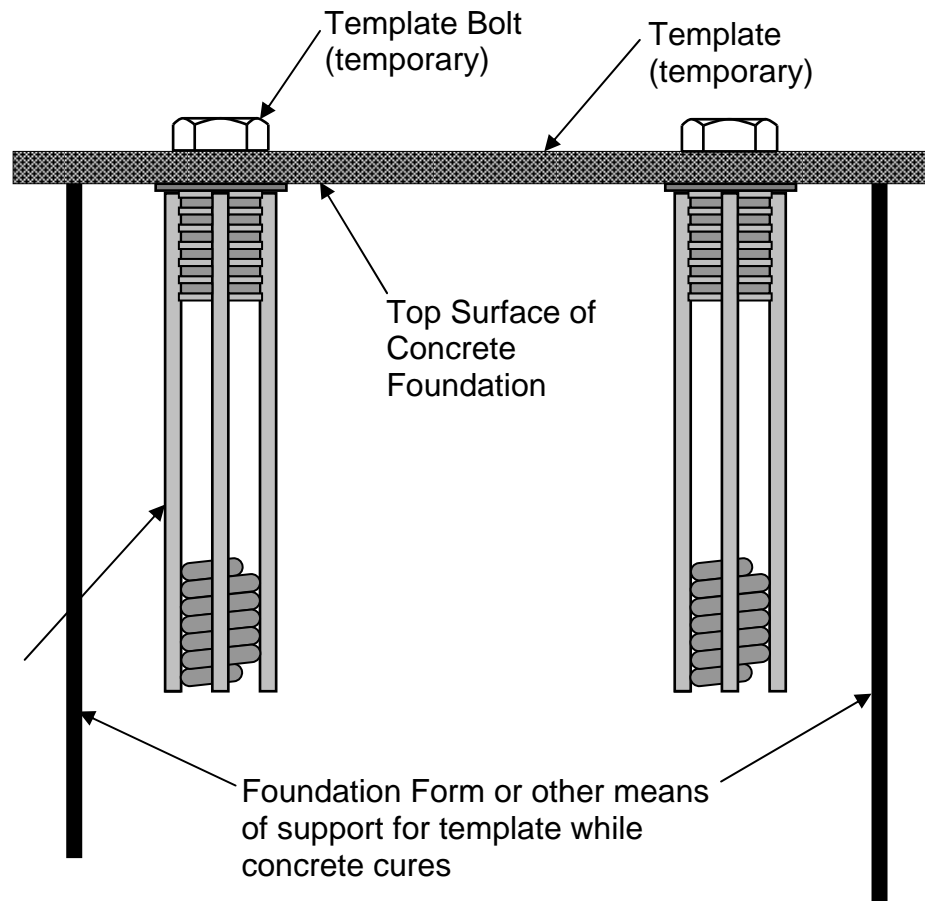
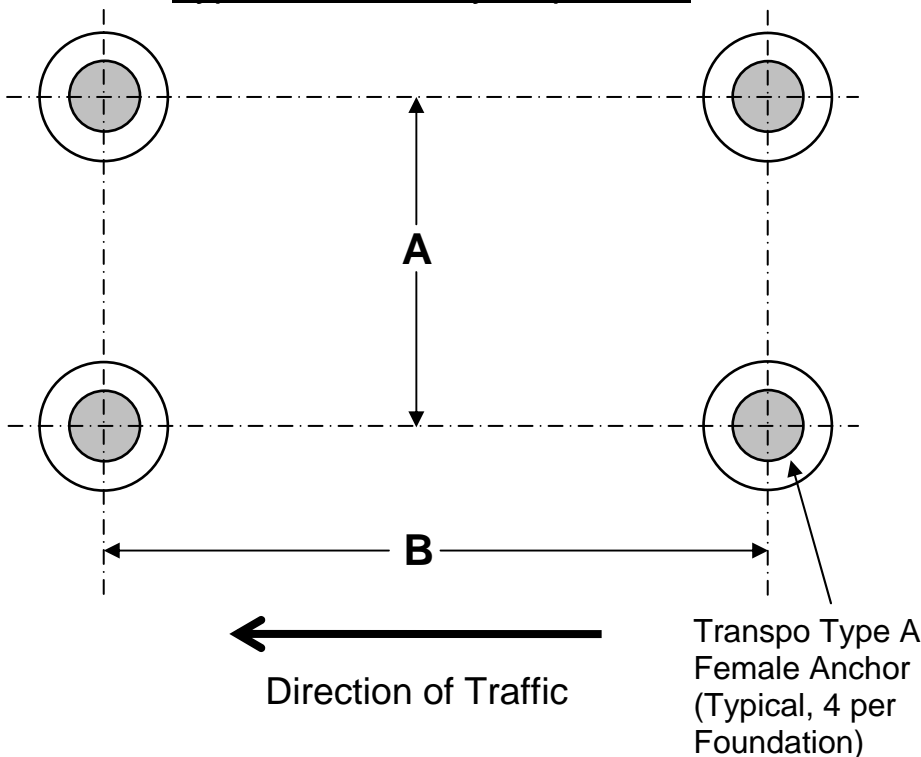
1. Fabricate a flat rigid template with four (4) 16 mm (5/8") diameter holes located to match the specified bolt pattern of the Break-Safe brackets attached to the signpost.
2. Attach four (4) Break-Safe® Type A Female Anchors to template using four (4) 16 mm (5/8") diameter bolts. Ensure that each Anchor Washer is flush and snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation.
4. Support template such that all Anchors are level and in their proper locations.
5. Allow concrete to cure, and then remove bolts and template from the top of the foundation.

Transpo® Type A Female Anchor
for use with Break-Safe® Type A
Breakaway Support System for Sign Posts



20 Jones Street
New Rochelle, NY 10801
914-636-1000

Typical Anchor Layout per Post



Break-Safe Model	A	B
AI4, AI6	108 mm (4-1/4")	Depth of Post Section + 94 mm (3-11/16")
AP3, AP3.5	70 mm (2-3/4")	202 mm (7-15/16")
AP4, AP4.5	83 mm (3-1/4")	227 mm (8-15/16")
AS3	76 mm (3")	Depth of Post Section + 94 mm (3-11/16")
AS4/AS4H	108 mm (4-1/4")	Depth of Post Section + 94 mm (3-11/16")

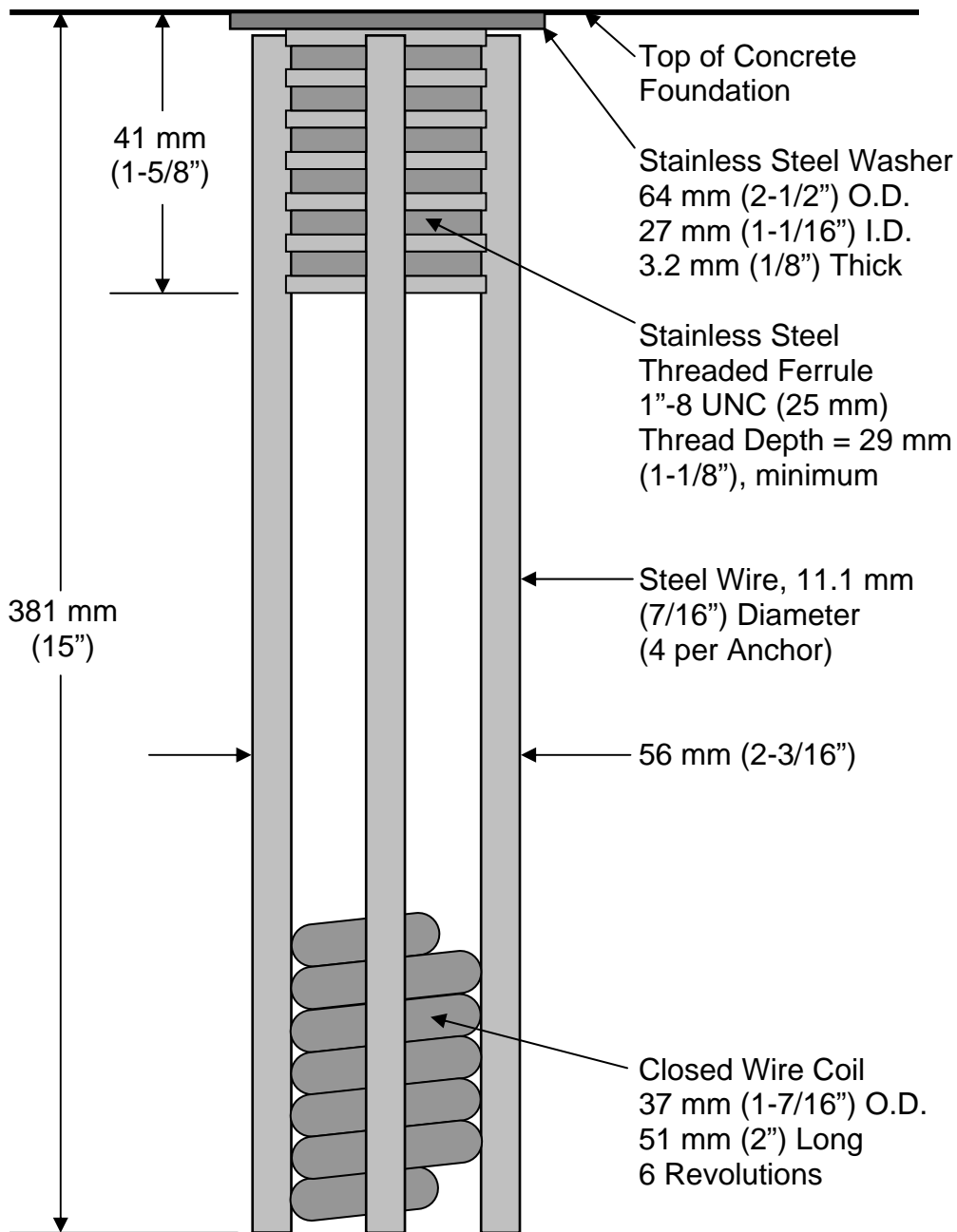
See other side of page for complete Installation Instructions

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Transpo® Type A Female Anchor
 for use with Break-Safe® Type A
 Breakaway Support System for Sign Posts



20 Jones Street
 New Rochelle, NY 10801
 914-636-1000



SPECIFICATIONS

Physical Properties:

1. Ultimate Tensile Load = 267 kN (60.0 kips) minimum per Anchor.
2. Actual Pullout Strength depends on foundation design and concrete properties.

Installation Instructions:

See other side of page for typical installation diagrams.

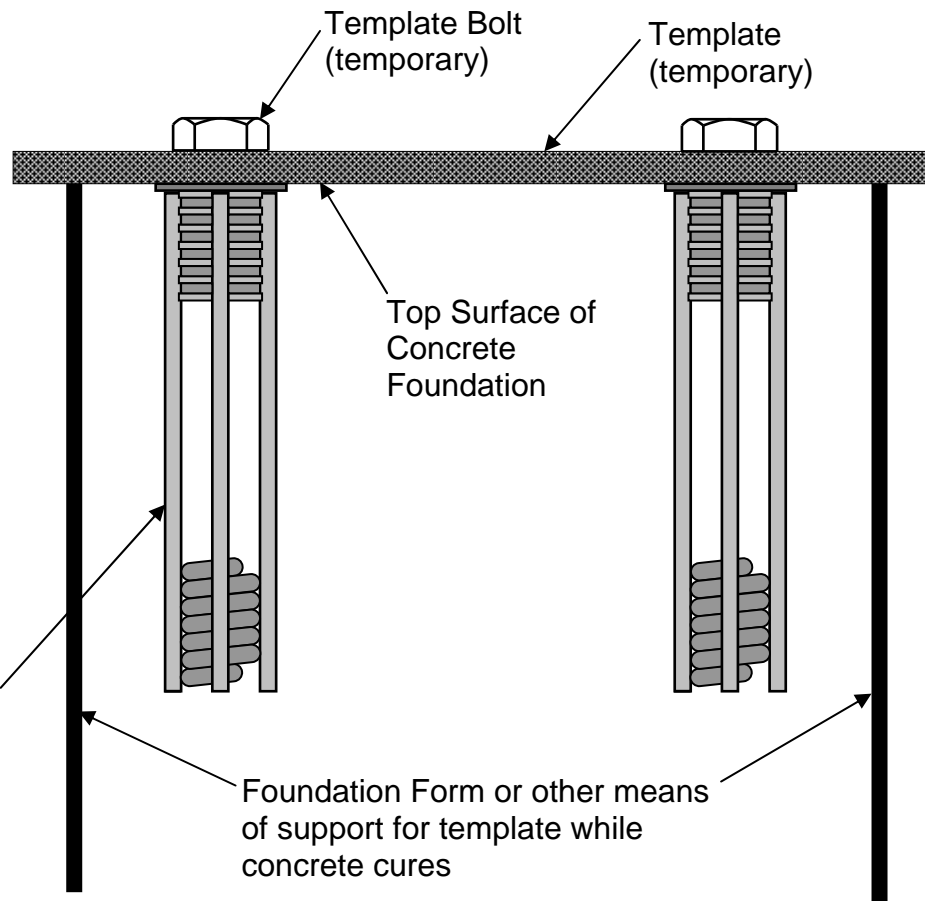
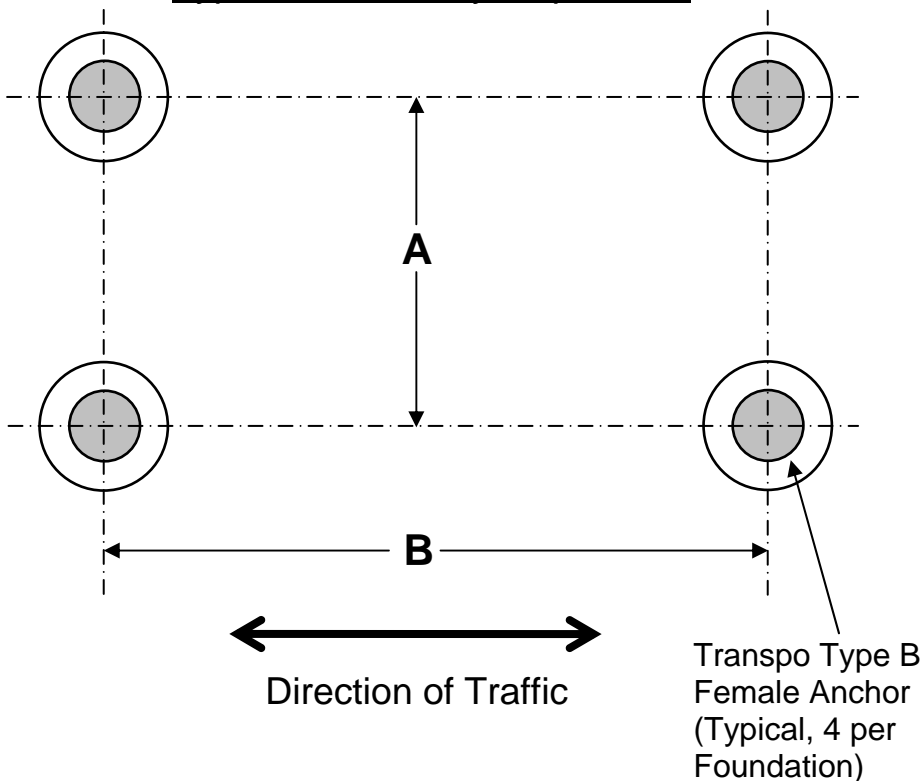
1. Fabricate a flat rigid template with four (4) 25 mm (1") diameter holes located to match the specified bolt pattern of the Break-Safe brackets attached to the signpost.
2. Attach four (4) Break-Safe® Type B Female Anchors to template using four (4) 25 mm (1") diameter bolts. Ensure that each Anchor Washer is flush and snug against the bottom of the template.
3. Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation.
4. Support template such that all Anchors are level and in their proper locations.
5. Allow concrete to cure, and then remove bolts and template from the top of the foundation.

Transpo® Type B Female Anchor
for use with Break-Safe® Type B
Breakaway Support System for Sign Posts



20 Jones Street
New Rochelle, NY 10801
914-636-1000

Typical Anchor Layout per Post



Break-Safe Model B525

A = 76 mm (3")

B = Depth of Post Section + 203 mm (8")

Break-Safe Model B650

A = 102 mm (4")

B = Depth of Post Section + 203 mm (8")

**See other side of page for complete
Installation Instructions**

1/15

**Transpo® Type B Female Anchor
for use with Break-Safe® Type B
Breakaway Support System for Sign Posts**



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Visit the Transpo[®] website to use the Break-Safe[®] Sign Post Selection Program

This is a valuable, FREE, tool available from Transpo for sign design verification based on AASHTO specifications and created by engineers for engineers and designers.

The Sign Post Selection Program will give you all your design and verification data right down to the hinges.

Break-Safe[®] Sign Post Selection Program is designed to select the appropriate breakaway sign supports for a wide variety of sign configurations. Using project-specific input parameters, the analysis software provides structural analysis results, recommended post sizes, and corresponding Break-Safe[®] model.

