

DEPARTMENT OF TRANSPORTATION

DIVISION OF TRAFFIC OPERATIONS

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*Flex your power!
Be energy efficient!*

July 9, 2014

Mr. Greg Kirchgerner, Project Manager
Xcessories Squared Development & Mfg., Inc.
P.O. Box 135
Auburn, IL 62615

Dear Mr. Kirchgerner:

The Redi-Torque Slip Base System, Model 280, is approved for use on California State highways at Test Level (TL) – 3. This approval was recommended by the California Department of Transportation's (Caltrans) Highway Safety Features New Products Committee (HSFNPC), based on information you provided indicating the device complied with the requirements of the National Cooperative Highway Research Program Report 350. The Federal Highway Administration accepted the Model 280 on May 9, 2006 (HAS-10/SS-134).

The Model 280 consists of top and bottom triangular slip plates, three Teflon coated, u-shaped slip washers for each notch, between the plates, and three ½-inch, Grade 8, double head bolts that are necked down between the top and bottom hex sizes of 9/16 inches and ¾ inches, respectively.

The Model 280 can be used with up to three 2½-inch square or 2⅞-inch round support posts for a small sign panel. The Model 280 will be included on the Caltrans Authorized Materials List and will be an equal alternative to other sign panel supports.

If you have any questions, please contact Randy Hiatt, Chair, HSFNPC at (916) 654-2465.

Sincerely,

A handwritten signature in blue ink that reads "Duper Tong".

DUPER TONG
Chief, Office of Traffic Engineering

C: Randy Hiatt, Chair, HSFNPC

Redi - Torque Model 280 Slip Base System

Makes Torque Wrenches Obsolete

NCHRP 350 COMPLIANT - FHWA ACCEPTED (LETTERS SS-134 & SS-134A)



Benefits of the Redi - Torque Slip Base System

- Does not require any special tools such as a torque wrench.
- Can be used with new Square, Round and Beam Post installations.
- Can be retrofitted to existing Triangular Slip Base installations, including 8", 9", & 10", as well as rectangular slip bases.
- When properly installed, the Redi - Torque bolts create a clamping force equal to the pre-determined torque value that allows the plate to disengage on impact, well below the maximum change of velocity, under NCHRP 350 criteria.
- The 3 Bolt system is FHWA accepted for up to three posts in 7' span with triangular slip bases.
- The 4 Bolt system is FHWA accepted for up to two posts in 7' span with rectangular slip bases.



www.x-sqrd.com



The REDI - TORQUE system does not require a torque wrench. The top hex head of the REDI - TORQUE bolt breaks off at the pre-determined torque value needed to allow the plates to disengage on impact, yet clamps the slip plates with 30% greater clamping force than Conventional Square post Slip Bases.

"AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires & Traffic Signals" 4th Edition, 2001

90 MPH - TELES PAR		
CENTROID HEIGHT	2 ½" X 12 ga.	2 ½" X 10 ga.
10'	17.2 ft ²	19.8 ft ²
12'	14.3 ft ²	16.5 ft ²
14'	12.3 ft ²	14.1 ft ²
16'	10.7 ft ²	12.4 ft ²



120 MPH - TELES PAR		
CENTROID HEIGHT	2 ½" X 12 ga.	2 ½" X 10 ga.
10'	9.4 ft ²	10.9 ft ²
12'	7.8 ft ²	9.1 ft ²
14'	6.7 ft ²	7.8 ft ²
16'	5.9 ft ²	6.8 ft ²

ALLOWABLE WINDLOAD

- Maximum allowable square footage based on a single support. Use a multiplier of 2 or 3 for 2 and 3 support installations
- To increase capacity for 2-1/2" x 12 ga., insert a 2-1/4" x 12 ga. and use a multiplier of 1.8.
- To increase capacity for 2-1/2" x 10 ga., insert a 2-3/16" x 10 ga. and use a multiplier of 1.8.



For Soil Installation

Not recommended in weak soil

FHWA ACCEPTED



For Concrete Installation

Concrete Footing Recommendation (12"x30" STANDARD SOIL)



Xcessories Squared

PATENT PENDING

X609RT280

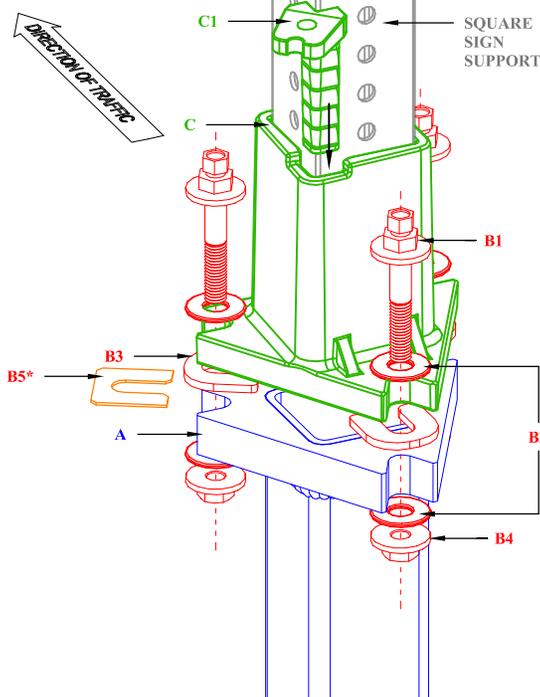
INSTALLATION GUIDE REDI-TORQUE MODEL 280 OMNI DIRECTIONAL SLIP BASE (COMBINATION ANCHOR WITH LOWER SLIP PLATE). RECEIVES SQUARE SIGN SUPPORT

RT280U-SQ1

MEETS OR EXCEEDS NCHRP 350 CRITERIA
FHWA ACCEPTANCE LETTERS SS-134 & SS-134A

July 31, 2013

XCESSORIES SQUARED DEV. & MFG. CO., INC. AUBURN, IL 62615
TEL: (800) 621-7948 FAX: (217) 438-3917 www.x-sqrd.com



PARTS LIST

A: Unibase - Lower Slip Plate

ITEM	QTY	DESCRIPTION
A	1	Combination Anchor/Lower Slip Plate

B: Redi-Torque Match Plate Hardware

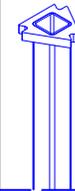
ITEM	QTY	DESCRIPTION
B1	3	1/2"-13 x 3" Gr. 8 Redi-Torque Bolt
B2	6	5/8" U.S.S. Flat Washer
B3	3	3/16" thick, Teflon Coated Slip Washer
B4	3	1/2"-13 Gr. 8 large diameter Flange Nut
B5*	0	1/16" thick Leveling Shim

* may not be necessary for every installation

C: Upper Slip Plate Sub-Assembly

ITEM	QTY	DESCRIPTION
C	1	Top Receiver for Square Sign Support
C1	1	Square Sign Support Locking Wedge

STEP A



1. Install appropriate Unibase (A) plumb & squared up with road, with point of triangular slip plate facing oncoming traffic.

2. Depth of embedment to leave 2-1/2" (+/-1/2") from grade to top of Lower Slip Plate of Unibase (A).

NOTE: For soil or concrete installation options, see details at lower left.

NOTE: If installing in concrete, auger the footing hole shallow enough to be able to drive 3-4 inches of Unibase (A) into the bottom of the hole. This will help stabilize the unit as concrete is being poured and cured while also allowing for proper drainage.

NOTE: On multi-leg installations, be sure that all Unibases are squared & lined up with each other.

STEP B



1. Place one each teflon coated Slip Washer (B3) on top of Lower Slip Plate of Unibase (A) at each notched point with open end of slot facing center of slip plate. Leave enough room between the closed ends of the slot/notch to allow 1/2" Redi-Torque Bolt (B1) to pass through.

2. Place Upper Slip Plate (C) onto the three Slip Washers (B3) properly indexed so that square post receiver portion is squared up with road.

3. Slide 1 each 5/8" Flat Washer (B2) on to each Redi-Torque Bolt (B1) then insert Bolt (B1) with Washer (B2) down through notched points of Upper Slip Plate (C), slot of Slip Washer (B3) and notched point of Lower Slip Plate of Unibase (A).

4. slide 1 each 5/8" Flat Washer (B2) up on exposed thread of each Bolt (B1) followed by threading 1 each 1/2" Flange Nut (B4) on to each Bolt (B1) one half turn past finger tight.

NOTE: When tightening bolts during this step use the 3/4" (larger) hex and NOT the 1/16" (smaller) hex.

STEP C



1. Insert Square Sign Support into Upper Slip Plate (C) receiver until support bottoms out.

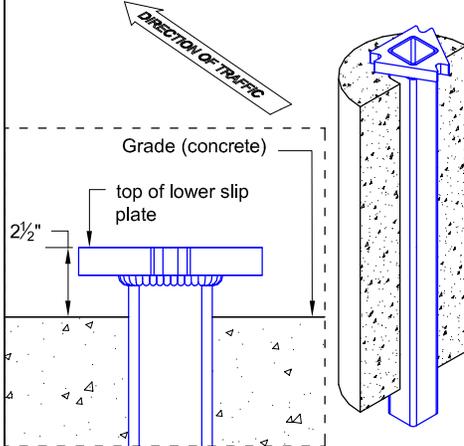
2. With a hand held hammer, drive the square sign support Locking Wedge (C1) into the Upper Slip Plate (C) receiver at the pre-determined corner, marked by a 1/4" notch. (The Locking Wedge does not need to be driven flush with top of Upper Slip Plate receiver)

***SHIMMING:** Before moving on to step 3, check the plumb of the sign support(s). If necessary, 1/16" thick Leveling Shim(s) (B5) may be used at the appropriate point(s) between slip plates. To replumb, loosen Bolt (B1) at desired point enough to lean the Upper Slip Plate (C) back and slide Leveling Shim (B5) into place. Shim(s) should be placed under Teflon Coated Slip Washer. Maximum of 2 each Leveling Shims per notched point.

3. After Locking wedge (C1) is securely in place, loosen each Bolt (B1) and Nut (B4), one at a time, then retighten each Bolt (B1), using the 1/16" (smaller) hex, until the 3/16" hex head twists off from the 3/4" hex head. This will set the proper torque level.

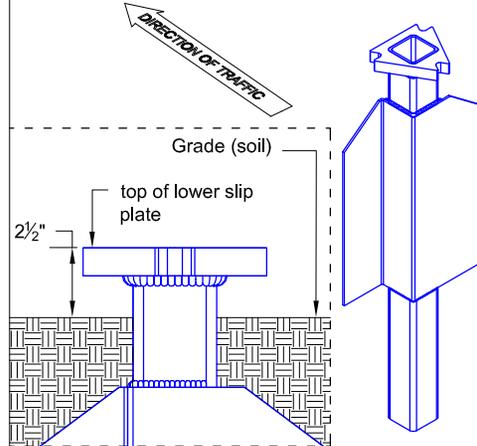
- UP TO A MAXIMUM OF THREE OMNI DIRECTIONAL SLIP BASES WITH REDI-TORQUE MODEL 280 MATCHPLATE HARDWARE MAY BE INSTALLED WITHIN A SEVEN FOOT SPAN.
- FOR ADDITIONAL WINDLOAD CAPABILITY, A POST OF THE NEXT SIZE SMALLER MAY BE INSERTED INTO THE SQUARE SIGN SUPPORT A MINIMUM OF FOUR FEET AT THE BOTTOM OF THE SUPPORT.

CONCRETE INSTALLATION DETAIL

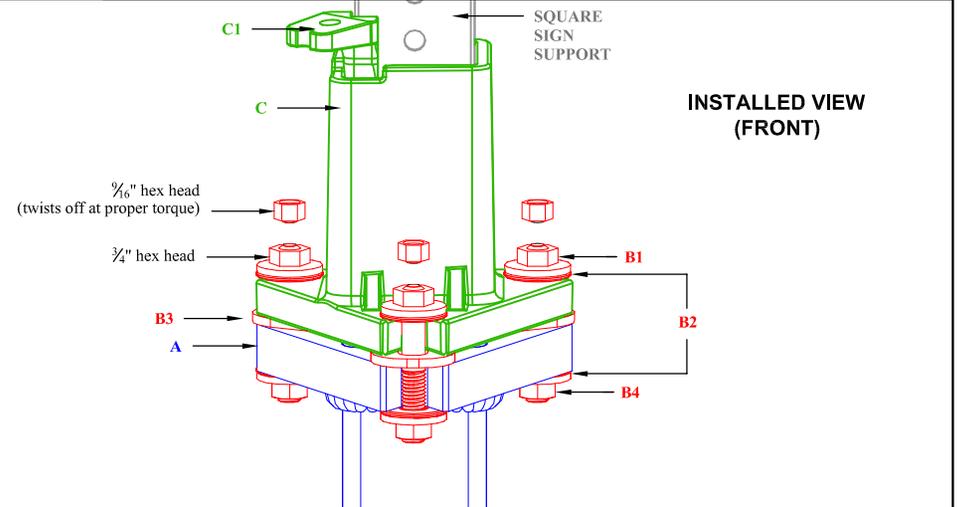


NOTE: Recommended footing size a minimum of 12" in diameter and 30" deep.

DIRECT DRIVEN SOIL INSTALLATION DETAIL



NOTE: Install with the widest bearing surface of the stabilizing wing parallel with the face of the sign.



INSTALLED VIEW (FRONT)

REINSTALLATION PROCEDURE:

- NOTE:** All match plate hardware components are generally reusable except the Redi-Torque Bolts (B1)
- Remove sign support Locking Wedge (C1) from Upper Slip Plate (C) receiver with a hand held hammer.
 - Place Upper Slip Plate (C) on Lower Slip Plate of Unibase (A) to check for warpage and level of slip plates.
 - Visually check all welds and castings for fractures or other damage.
 - When assured both Lower Slip Plate (A) and Upper Slip Plate (C) are reusable employ new or reused hardware (B) with NEW Redi-Torque Bolts (B1) then follow installation procedures, starting with **STEP B**.

WINDLOAD COORDINATES FOR TELES PAR® AT 90 MPH
 (AASHTO Standard Specifications for Structural supports for - Highway Signs, Luminaires and Traffic Signals, 4th Edition 2001)

ALLOWABLE SIGN AREA (FT²) PER SINGLE POST*

SIGN CENTROID	SLIP BASE NOT ALLOWED										MAXIMUM 3 SLIP BASES ALLOWED IN 7' SPAN						
	FHWA APPROVED FOR: 2 POSTS PER SIGN					1 POST PER SIGN		SLIP BASE OPTIONAL**			SLIP BASE REQUIRED						
	1½" x 12 ga perf.	1½" x 14 ga perf.	1½" x 12 ga perf.	2" x 14 ga perf.	2" x 12 ga perf.	2½" x 14 ga perf.	2½" x 12 ga Perf.	2-3/16 x 10 ga perf.	2½" x 12 ga perf.	2½" x 10 ga perf.	2½" x 12 ga perf.	2-3/16 x 10 ga 2½" x 10 ga perf.	3" x 8 ga solid	3" x 7 ga solid			
16.5'	3.46	3.90	4.85	5.19	6.48	6.67	8.34	9.03	10.44	12.04	18.78	21.07	25.45	28.57			
16'	3.57	4.02	5.00	5.36	6.68	6.88	8.60	9.31	10.76	12.41	19.36	21.73	26.24	29.46			
15.5'	3.68	4.15	5.17	5.53	6.90	7.11	8.88	9.61	11.11	12.82	19.99	22.43	27.09	30.41			
15'	3.81	4.29	5.34	5.71	7.13	7.34	9.17	9.93	11.48	13.24	20.65	23.18	27.99	31.43			
14.5'	3.94	4.44	5.52	5.91	7.37	7.60	9.49	10.28	11.87	13.70	21.36	23.97	28.96	32.51			
14'	4.08	4.59	5.72	6.12	7.64	7.87	9.83	10.64	12.30	14.19	22.13	24.83	29.99	33.67			
13.5'	4.23	4.76	5.93	6.35	7.92	8.16	10.19	11.04	12.75	14.71	22.95	25.75	31.10	34.92			
13'	4.39	4.95	6.16	6.59	8.22	8.47	10.59	11.46	13.24	15.28	23.83	26.74	32.30	36.26			
12.5'	4.57	5.15	6.41	6.86	8.55	8.81	11.01	11.92	13.77	15.89	24.78	27.81	33.59	37.71			
12'	4.76	5.36	6.67	7.14	8.91	9.18	11.47	12.42	14.35	16.55	25.82	28.97	34.99	39.28			
11.5'	4.96	5.59	6.96	7.45	9.30	9.58	11.97	12.96	14.97	17.27	26.94	30.23	36.51	40.99			
11'	5.19	5.85	7.28	7.79	9.72	10.01	12.51	13.54	15.65	18.06	28.16	31.6	38.17	42.85			
10.5'	5.44	6.13	7.63	8.16	10.18	10.49	13.11	14.19	16.40	18.92	29.50	33.11	39.99	44.89			
10'	5.71	6.43	8.01	8.57	10.69	11.01	13.76	14.90	17.22	19.86	30.98	34.76	41.99	47.14			
9.5'	6.01	6.77	8.43	9.02	11.25	11.59	14.49	15.68	18.12	20.91	32.61	36.59	44.20	49.62			
9'	6.34	7.15	8.90	9.52	11.88	12.24	15.29	16.55	19.13	22.07	34.42	38.63	46.65	52.38			
8.5'	6.72	7.57	9.42	10.08	12.58	12.96	16.19	17.53	20.26	23.37	36.45	40.90	49.40	55.46			
8'	7.14	8.04	10.01	10.71	13.36	13.77	17.20	18.62	21.52	24.83	38.72	43.45	52.48	58.92			

* USE A MULTIPLIER OF 2 OR 3 FOR 2 & 3 POST INSTALLATIONS.

** SLIP BASE REQUIRED ON 2 & 3 POST INSTALLATION.