

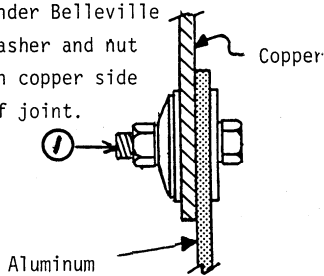
SEATTLE CITY LIGHT  
**CONSTRUCTION GUIDELINE**

STANDARD NUMBER: **D14-4/NSV-20**  
 PAGE: 1 of 2  
 DATE: October 6, 1983  
 REV: February 24, 1999

**BOLTED CONNECTION**

Item	Description	Stock No.	Mtl. Std.
1	FASTENER ASSEMBLY, Aluminum, 1/2" x 1-3/4"	782050	7820.0
		782051	7820.0
		782053	7820.0
		782052	7820.0
2	BOLT, Silicon Bronze, 1/2" x 1-1/2"	784587E	7845.1
		784588E	7845.1
		784589E	7845.1
3	NUT, 1/2" Silicon Bronze	783325E	7833.3
4	WASHER, Flat Bronze, 1/2"	788026E	7880.2
5	WASHER, Bronze Lock	788125E	7880.2
7	NUT, Aluminum, 1/2"	783558	-
8	WASHER, Al. Flat 1/2"	788253	-
9	WASHER, Al. Lock 1/2"	788273	-
10	BOLT, Aluminum, 5/8" x 2"	781813	-
		781815	-
		781817	-
11	NUT, Aluminum, 5/8"	783560	-
12	WASHER, Al. Flat, 5/8"	788254	-
13	WASHER, Al. Lock, 5/8"	788274	-

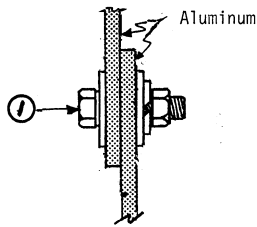
Place one Stainless Steel flat washer under Belleville washer and nut on copper side of joint.



Aluminum-Copper

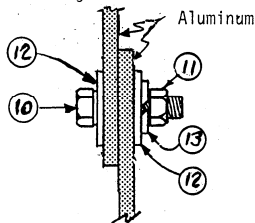
When using Belleville washer with Al. Bolt tighten until a sudden stop is felt. DO NOT back off.

Note-- See DU5-1/NSV-30 for preparation of Bolted Joints.



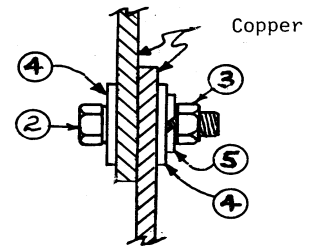
Aluminum-Aluminum

1/2" Bolts for Al. Service entrance connector plates, and Al. lug to Al. neutral bus.



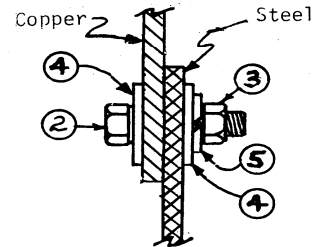
Aluminum-Aluminum

5/8" Bolts for Al. neutral bus to bus, IWCB channel, plates & IWCB lugs.



Copper-Copper

Max. Torque is 40 ft./lbs. for 1/2" Bronze bolt.



Copper-Steel

ORIGINATOR	STANDARDS COORDINATOR	STANDARDS SUPERVISOR	UNIT DIRECTOR
Keith "BAG HOG" Rosand	Jim S. Horn	John C. Skinner	Betty Robin

**MATERIAL SUMMARY FOR BOLTED ELECTRICAL CONNECTIONS**

D14-4M3.XLS	Al Bellville Kit Assembly (Note 1)				Stainless Steel Bellville Kit Assembly				1/2" Al Bolt & Flat/ Lock Washer Assembly (Note 2)				5/8" Al Bolt & Flat/ Lock Washer Assembly (Note 3)				Silicon Bronze Bolt & Flat/Lock Washer Assembly (Note 4)										
	782050 Bellville Kit 1/2" x 1-3/4"	782051 Bellville Kit 1/2" x 2"	782053 Bellville Kit 1/2" x 2-1/2"	782052 Bellville Kit 1/2" x 3-1/2"	782040 Bellville Kit 1/2" x 1-1/2"	782041 Bellville Kit 1/2" x 2"	782042 Bellville Kit 1/2" x 2-1/2"	781809 Bolt, 1/2" x 2"	781811 Bolt, 1/2" x 2-1/2"	781812 Bolt, 1/2" x 3"	783558 Nut, 1/2"	788253 Flat Washer, 1/2"	788273 Lock Washer, 1/2"	781813 Bolt, 5/8" x 2"	781815 Bolt, 5/8" x 2-1/2"	781817 Bolt, 5/8" x 3"	783560 Nut, 5/8"	788254 Flat Washer, 5/8"	788274 Lock Washer, 5/8"	784578E Bolt, 1/2" x 1-1/2"	784589E Bolt, 1/2" x 2"	784588E Bolt, 1/2" x 1-3/4"	783325E Nut, 1/2"	788026E Flat Washer, 1/2"	788125E Lock Washer, 1/2"		
Single Cu Lug - Al Bus	X				X																						
Double Cu Lug - Al Bus	X					X	X																				
Single Al Lug - Single Cu Bus	X					X																					
Single Al Lug - Double Cu Bus		X	X				X																				
Double Al Lug - Single Cu Bus		X	X				X																				
Double Al Lug - Double Cu Bus			X	X			X																				
Single Al Lug - Al Bus		X						X		X	X	X															
Double Al Lug - Al Bus								X		X	X	X															
Al Neutral Bus to Bus													X				X	X	X								
Single Al Lug - IWCB/Conn. Plt.*															X	X	X	X									
Double Al Lug - IWCB/Conn. Plt.*																X	X	X									
Conn. Plt.-IWCB														X		X	X	X									
Single Cu Lug - Single Cu Bus																				X			X	X	X		
Double Cu Lug - Single Cu Bus																					X	X	X	X	X		
Single Cu Lug - Double Cu Bus																						X	X	X	X	X	
Double Cu Lug - Double Cu Bus																					X		X	X	X	X	
Cu Bus to Cu Bus																				X			X	X	X	X	

- Note 1: Alum. or stainless steel Belleville kit assembly to be used for all Cu to Al bolted connections. Tighten until nut comes to snug stop.
- Note 2: 1/2" Al flat/lock washer assembly to be used for Al lug-to-Al neutral bus, and Al lug-to-Al service entrance connector plate. Torque to 25 Ft-Lbs
- Note 3: 5/8" Al flat/lock washer assembly to be used for IWCB connector plate-to-IWCB channel, and for Al lug-to-IWCB connector plate or channel. Al neutral bus-to-bus 4-bolt connections. Torque to 55 Ft-Lbs
- Note 4: Bolted connection to be used for all Cu lug-to-Cu bus connections, and for Cu bus-to-bus 4 bolt connections. (Stock items are exempt) Torque to 40 Ft-Lbs
- Note 5: Bolts Indicated are minimum length. Longer bolts can also be used.

\* For 750 kcmil Al compact round cable lug terminations, use Stock No. 651275 to connect to IWCB connector plate, and use Stock No. 651274 for all other lug terminations.