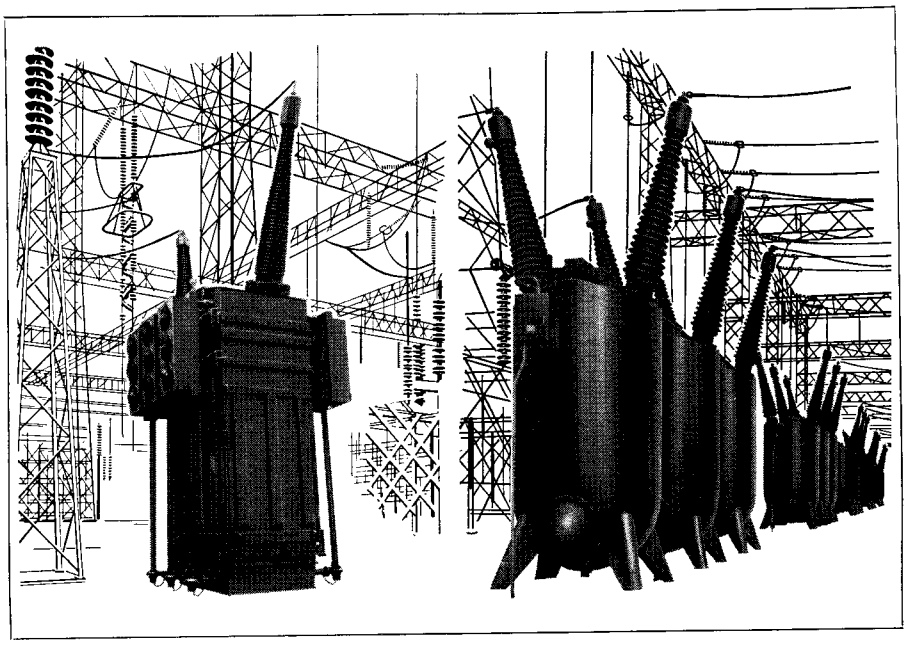
Westinghouse

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers



Introduction

In this seventh edition of the Westinghouse manual of outdoor bushings, the policy of including descriptions and data on bushings built since 1909 will be modified by deleting all bushings built before 1942. (This change will permit better coverage of the more modern and standard bushings.) It is recognized that many built prior to 1942 are still in use providing reliable, satisfactory service. For this reason, those customers with older bushings in operation should retain the 1957 edition of the Westinghouse manual for reference.

Some of the more important developments in Westinghouse bushing design over the span of sixty years are outlined. The long, outstanding service record of Westinghouse bushings has strongly contributed to improved operating safety, greater service continuity, unmatched reliability and the ultimate realization of Extra High Voltage equipment.

Development Program and Basic Design

Over 60 Years of Westinghouse Condenser Bushing Experience

The inherent soundness of the basic condenser bushing design, originated by Westinghouse in 1907, is conclusively demonstrated by over 60 years of reliable service as well as the successful extension of this basic design into the EHV (Extra High Voltage) ratings including 735 kv systems and a 1,100 kv test installation.

Since 1907 Westinghouse has maintained an agressive development program to continually improve the quality of the insulating materials and the details of mechanical construction. This has been evidenced by the many generations of bushing constructions which have appeared over the past half century. One of the most notable achievements which paved the way for present EHV bushings was the development in 1942 of the oil impregnated paper condenser bushing – the Type "O". This insulating system is now standard on Westinghouse bushings for 69 kv and above.

Materials and construction details developed for EHV bushings have been helpful in improving designs of lower kv bushings. In EHV designs more detail attention is required in the cooling arrangement of the condenser to insure thermal stability under the most severe operating conditions. Improvements in processing and in quality of insulation were necessary. Specially treated electrical kraft paper was developed to improve the strength required in EHV designs.

In 1960, EHV bushings were placed in service at the Applegrove, West Virginia Test Project. Experience during this test verified the reliability of the Type "O" bushing at operating voltages of 700 kv and higher. This test project is complemented by the modern test facilities at the Sharon and Trafford Plants, which include capabilities for corona measurements, impulse and wet switching surge testing, thermal stability checks and 60 hz withstand testing as well as power factor and capacitance measurements at high voltage. A 1,100 kv bushing has been designed and will be completed in 1969 for the Waltz Mills Test Project. Westinghouse will continue to anticipate future requirements of EHV transmission and prove out designs for these requirements through test projects such as Applegrove and Waltz Mills and through modern well-equipped test facilities.

General Index

Part 1 presents a tabulation of Westinghouse standard bushings in voltages from 15 kv to 500 kv. Tabulation of the USASI and NEMA standard dimensions with the corresponding Westinghouse identification are also provided for convenient reference.

Parts 2, 3, 4, and 5 present discussions and illustrations on designs of Westinghouse power circuit breaker and transformer bushings since 1938, along with detailed engineering data concerning their interchangeability, tests, maintenance and storage. The general index, below, will assist in locating specifically the various phases of discussion and data.

April, 1969
Supersedes TD 33-360, Pages 1-88, dated October, 1957
E, D, C/1951/DB, 2707,2815

Westinghouse

Part 1 – Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section A: Listing of USASI C76.1 (1964) Table 7.1 (a) (Refer to Figure 1)

Dimensions of Transformer and Circuit Breaker Bushings
23/25 Through 69 Kilovolts

Trafford Bushing Drawing	Sharon Bushing Drawing	Catalog Number	Key No.	Table 7.1 (a) Line No.	Rating Col. 1 Insulation Class	Rating Col. 2 Basic Impulse Level	Rating Col. 3 Rated Continuous Current ①	Lower End Col. 4 Length of Bushing from Flange Seat to Lower End ±⅛	Col. 5 Minimum Insulation Length For Use in Circuit Breakers X	Col. 6 Depth (W) of Current Transformer Pocket and Distance (T) from Bushing Gasket Surface to Minimum Oil Level For Use in Circuit Breakers W and T	Col. 7 For Use in Transformers W	Col. 8 For Use in Transformers T	Col. 9 Diameter from 1" Below Flange to Lower End of Bushing Maximum	Col. 10 Diameter of Lower Washer Maximum
					Kilovolts	Kilovolts	Amperes	L	X	W and T	W	T	D	N
424D787	452C325	2312C29	292	1	23/25	150	400/1200	29½	9½	16½	16½	21	3⅛	3⅛
424D788	452C335	3412C31	392	2	34.5	200	400/1200	31½	11½	16½	16½	21	3½	3½
424D789	452C345	4612C33	492	3	46	250	400/1200	33½	13½	16½	16½	21	4	4
424D813	612D365	6912C37	592	4	69	350	400/1200	37½	17½	16½	16½	21	5¼	4

All dimensions given in inches. The oil gauge and power factor tap when supplied shall be in line and midway between two adjacent flange bolt holes.
①Bushing design provides for 400 amperes maximum in draw lead of 1200 amperes bottom connected.

Section A: Listing of USASI C76.1 (1964) Table 7.1(b) (Refer to Figure 2)

Dimensions of Transformer Bushings
23/25 Through 69 Kilovolts
(Not Applicable to Circuit Breakers)

Sharon Bushing Drawing	Catalog Number	Key No.	Table 7.1 (b) Line No.	Rating Col. 1 Insulation Class	Rating Col. 2 Basic Insulation Level	Rating Col. 3 Rated Continuous Current	Lower End Col. 4 Length of Bushing from Flange Seat to Lower End ±⅛	Col. 5 Depth of Current Transformer Pocket and Distance from Bushing Gasket Surface to Minimum Oil Level	Col. 6 Minimum Diameter from 1" Below Flange to Lower End of Bushing	Col. 7 Diameter of Lower Washer Maximum	Col. 8 Inside Diameter Tube Minimum	Col. 9 Usable Thread	Col. 10 Thread Class UNF-2A
				Kilovolts	Kilovolts	Amperes	L	W and T	D	N			
53B2221	2304S16	283	1			400	16½	10			⅞		
53B2222	2304S23	284	2			400	23	16½					
53B2223	2304S27	285	3	23/25	150	400	27½	21	3⅛	3⅛			
			4			1200	30½	21				2⅛	1½-12
			5			1200	36½	27					
53B2231	3404S18	383	6			400	18½	10			⅞		
53B2232	3404S25	384	7			400	25	16½					
53B2233	3404S29	385	8	34.5	200	400	29½	21	3½	3½			
			9			1200	32½	21				2⅛	1½-12
			10			1200	38½	27					
53B2241	4604S20	483	11			400	20½	10			⅞		
53B2242	4604S27	484	12			400	27	16½					
53B2243	4604S31	485	13	46	250	400	31½	21	4	4			
			14			1200	34½	21				2⅛	1½-12
			15			1200	40½	27					
614D261	6904P30	583	16			400	30½	16½			⅞		
614D262	6904P35	584	17			400	35	21					
			18	69	350	400	41	27	5¼	4			
			19			1200	38	21				2⅛	1½-12
			20			1200	44	27					

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Flange				
Col. 11	Col. 12	Col. 13	Col. 14	Col. 15
Gasket Space		Provision for Bolts		
Maximum Inside Diameter	Minimum Outside Diameter	Number	Bolt Hole Size	Bolt Circle Diameter
P	Q			
4	6¼	4	⅞	7¼
4	6¼	4	⅞	7¼
5	7¼	4	⅞	8¼
6	8¼	6	⅞	9¼

Flange				
Col. 11	Col. 12	Col. 13	Col. 14	Col. 15
Gasket Space		Provision for Bolts		
Inside Diameter Maximum	Outside Diameter Minimum	Number	Bolt Hole Size	Bolt Circle Diameter
P	Q			
4	6¼	4	⅞	7¼
4	6¼	4	⅞	7¼
5	7¼	4	⅞	8¼
6	8¼	6	⅞	9¼

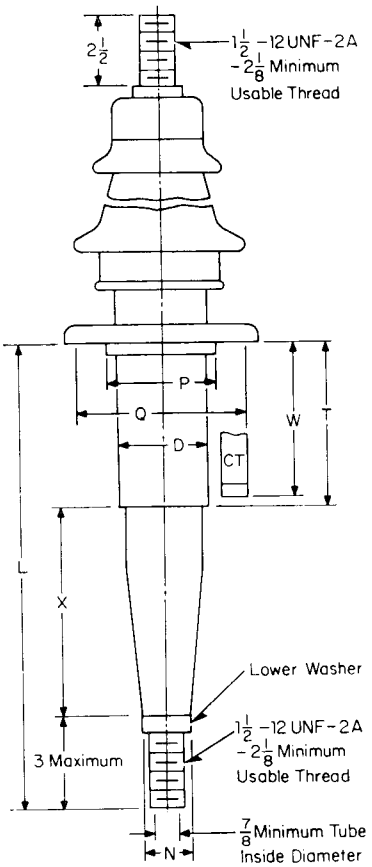


Figure 1 – For Table 7.1 (a)

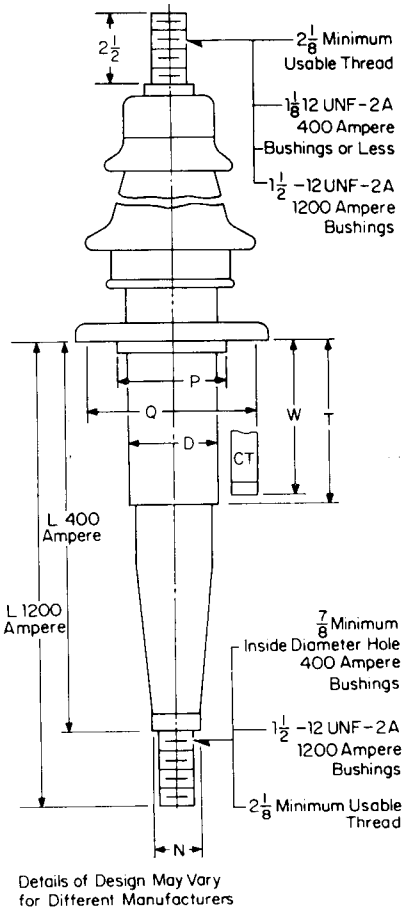


Figure 2 – For Table 7.1 (b)

Westinghouse

Part 1 – Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section A: Listing of USASI, C76.1 (1964) Table 7.1 (c) (Refer to Figure 3)

Dimensions of Transformer and Circuit Breaker Bushings
115 Kilovolts and Above

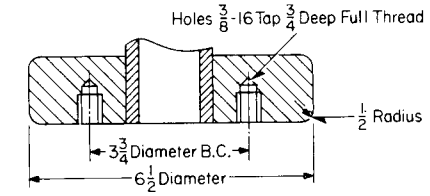
Trafford Bushing Drawing	Sharon Bushing Drawing	Catalog Number	Key No.	Table 7.1(c) Line No.	Rating Col. 1 Insulation Class	Col. 2 Basic Impulse Level	Col. 3 Rated Continuous Current	Lower End Col. 4 Length of Bushing from Flange Seat to Lower End ±⅛	Col. 5 Depth of Current Transformer Pocket and Distance from Bushing Gasket Surface to Minimum Oil Level	Col. 6 Maximum Diameter from 1" Below Flange to Lower End of Bushing	Col. 7 Bottom End Terminal④ Inside Diameter Tube Minimum	Col. 8 Bottom End Terminal④ USASI Figure Number
					Kilovolts	Kilovolts	Amperes ③	L	W	D		
408D780G05	589D116	11512C43	659	2	115①	550	1200	43	23	8¾	1½	2
408D780G06	242D114	11516C43	661	3	115①	550	1600	43	23	9¾	1½	2
382D559G01	.....	11520P43	686	4	115	550	2000	43	23	10¾	②	3
408D781G05	589D139	13812C46	719	5	138①	650	1200	46¾	23	9¾	1⅝	2
408D781G06	242D137	13816C46	722	6	138①	650	1600	46¾	23	10¾	1⅝	2
424D355G03	.....	13820P46	738	7	138	650	2000	46¾	23	12	②	3
408D386G02	589D162	16116C50	760	8	161①	750	1600	50¼	23	12	1⅝	2
408D386G03	.....	16120P50	760	9	161	750	2000	50¼	23	12	②	3
408D997G11	589D197	19616C59	810	11	196①	900	1600	59½	26¾	14⅝	2	3
.....	.....	19620P59	810	12	196	900	2000	59½	26¾	14⅝	②	3

All dimensions given in inches.
① These bushings are dimensionally interchangeable between circuit breakers and transformers. Dimensional interchangeability does not necessarily imply mechanical or electrical interchangeability on apparatus of different manufacturers.
② Not designed for use with draw lead. These bushings are not applicable to transformers.
③ For draw lead application the continuous current rating is limited to the current rating of the draw lead applied by the equipment manufacturer.
④ Oil gauge and capacitance tap are in line midway between two adjacent flange bolt holes and between two adjacent bottom end tapped holes.

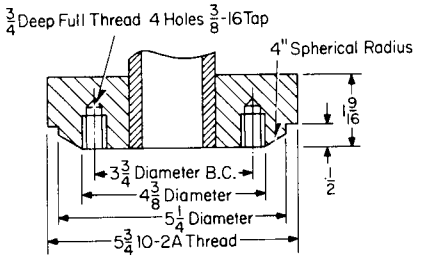
Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

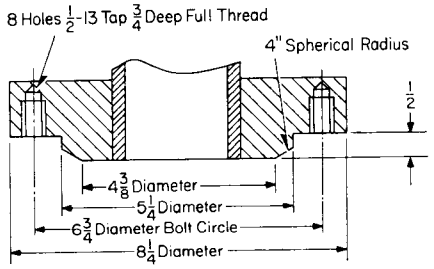
Flange					Top End Terminal	
Col. 9	Col. 10	Col. 11	Col. 12	Col. 13	Col. 14	Col. 15
Gasket Space		Provision for Bolts④			Usable Thread Minimum	Thread Class UNF-2A
Inside Diameter Maximum	Outside Diameter Minimum	Number	Bolt Hole Size	Bolt Circle Diameter		
P	Q				A	B
9⅞	11⅞	6	1¼	13¼	2	1½-12
9⅞	11⅞	6	1¼	13¼	2½	2-12
10⅞	12⅞	6	1¼	14¼	2½	2-12
10⅞	12⅞	6	1¼	14¼	2	1½-12
10⅞	12⅞	6	1¼	14¼	2½	2-12
12⅜	14⅜	8	1¼	15¾	2½	2-12
12⅜	14⅜	8	1¼	15¾	2½	2-12
12⅜	14⅜	8	1¼	15¾	2½	2-12
17⅛	19½	12	1¼	21	2½	2-12
17⅛	19½	12	1¼	21	2½	2-12



(USASI Figure 1)

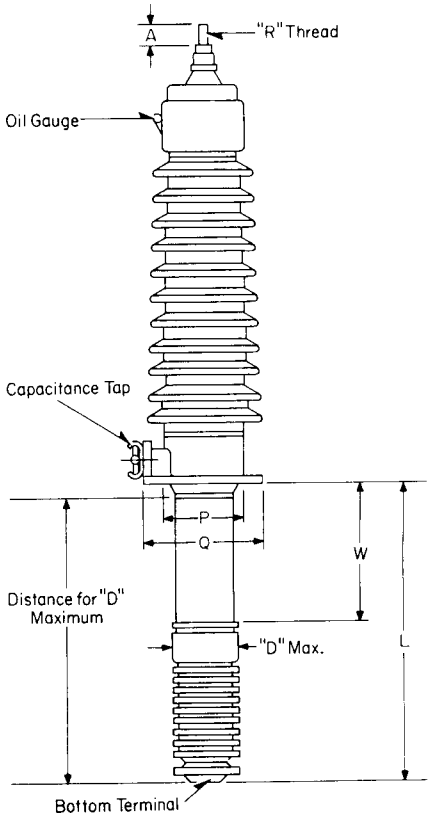


(USASI Figure 2)



(USASI Figure 3)

Figure 3 - For Table 7.1 (c)



Westinghouse

Part 1 - Standard Westinghouse Bushings for Circuit Breakers and Transformer as of 1969

Section A: Listing of NEMA Proposed Standard for Transformer Bushings (Refer to Figure 4a)

Dimension of 23/25 Kv and Above, Higher Current

Sharon Bushing Drawing	Key No.	Catalog Number	Insulation Class Kv	BIL Kv	Rated Continuous Current Amperes	L	T & W①	D	Blade Bottom End Terminal	Flange P	Flange Q
464C024		2320S30	23/25	150	2000	30¾	21	4½	Figure 4b	5	7¼
464C026		2330S31	23/25	150	3000	31	21	5¾	Figure 4c	6	8¼
782C034		3420S32	34.5	200	2000	32¾	21	5¼	Figure 4b	6	8¼
471C344		4620S34	46	250	2000	34¾	21	5¾	Figure 4b	6	8¼
.....		.....	69	350	2000	39	21	7½	Figure 4b	8	10¼

① Depth of Current Transformer Pocket and Distance from Bushing Gasket Surface to Minimum Oil Level.

Section A: Listing of NEMA - Pub. No.: TR 1 (1964) for 15 Kv Transformer Bushings (Refer to Figure 5)

Sharon Bushing Drawing	Key No.	Catalog Number	Insulation Class, Kv	BIL Kv	Rated Continuous Current Amperes	L	T	W	D	Bottom End Terminal Thread	Bottom End Terminal Usable Thread	Flange P	Flange Q
475C608G01 475C608G02 475C608G03		1506B13 1506B20 1506B24	15	110	600	13½ 20 24½	10 16½ 21	10 16½ 21	3⅛	Draw Lead 1½ Minimum I.D.		3⅜	5⅛
475C607G01 475C607G02 475C607G03		1512B16 1512B23 1512B27	15	110	1200	16½ 23 27½	10 16½ 21	10 16½ 21	3⅛	1⅛-12	1½	3⅜	5⅛
475C606G01 475C606G02 475C606G03		1520B17 1520B23 1520B28	15	110	2000	17 23½ 28	10 16½ 21	10 16½ 21	4	1½-12	2	4¼	6¼

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	Number of Bolt Holes	Bolt Hole Size	Bolt Circle Diameter	Top End Terminal: Usable Thread	Top End Terminal: Thread
	4	⅞	8¼	2½	2-12
	6	⅞	9¼	3	3-12
	6	⅞	9¼	2½	2-12
	6	⅞	9¼	2½	2-12
	6	1¼	11½	2½	2-12

	Number of Bolt Holes	Bolt Hole Size	Bolt Circle Diameter	Top End Terminal: Usable Thread	Top End Terminal: Thread
	4	⅝	6	2	1⅛-12
	4	⅝	6	2	1⅛-12
	4	⅝	7¼	2	1½-12

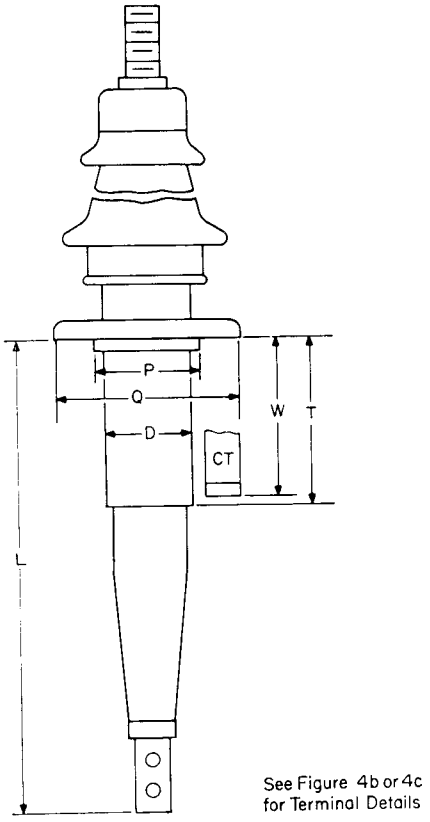


Figure 4a - NEMA Proposed Standard

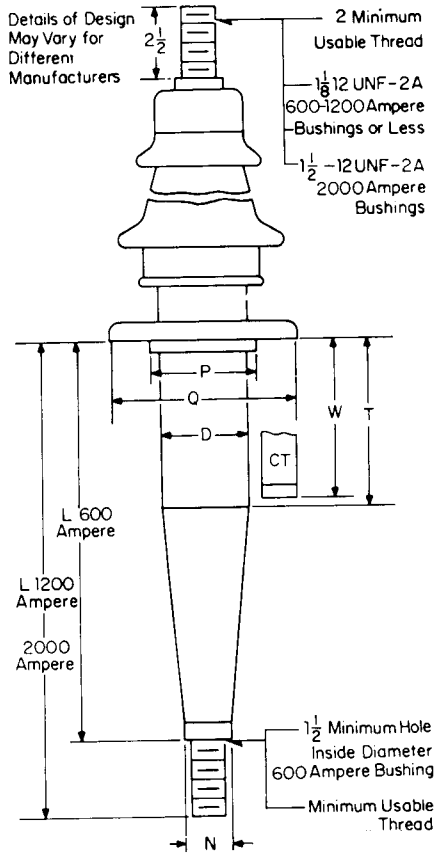


Figure 5 - For NEMA Standard 15 Kv

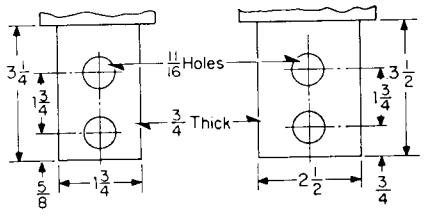


Figure 4b **Figure 4c**

NEMA Proposed Standard

Westinghouse

Part 1 - Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section B – Listing of Type "S" and "O" Circuit Breaker Bushings

Assembly Drawing Reference		Westinghouse Numbers			Fig. No.	Rating			L	W	D	B			
						System	BIL	Continuous①	Inside Length	Depth of C.T. Pocket	Max. Diameter Below	Bottom Terminal			
Drawing Number	Gr.	Type	Key	Catalog		Kv	Kv	Amps.				I. D. Min.	O. D.	No Threads	Length
424D424	1	S	160	.....	6	15	110	600	20	11½	2 7/16	②	1¼	12	2
424D424	2	S	153	.....	6	15	110	1200	20½	11½	2 7/16	②	1¼	12	2
424D787	1	S	292	2312C29	7	23	150	1200	29½	16½	3⅛	⅞	1½	12	2⅛
42A9626	3	S	290	.....	7	23	150	3000	31½	16½	5	②	3¼	12	4
42A9626	4	S	291	.....	7	23	150	4000	31½	16½	6	②	4	12	4
445D873	1	S	266	.....	7	23	150	600	22½	11½	2 7/16	②	1	14	1⅞
424D787	1	S	292	2312C29	7	23	150	1200	29½	16½	3⅛	⅞	1½	12	2⅛
42A9626	2	S	289	.....	7	23	150	2000	31½	16½	4	②	2¼	12	4
424D788	1	S	392	3412C31	7	34.5	200	1200	31½	16½	3½	⅞	1½	12	2⅛
42A9627	2	S	389	.....	7	34.5	200	2000	33½	16½	4¾	②	2¼	12	4
42A9627	3	S	390	.....	7	34.5	200	3000	33½	16½	6	②	3¼	12	4
424D789	1	S	492	4612C33	7	46	250	1200	33½	16½	4	⅞	1½	12	2⅛
891D225	1	S	489	.....	7	46	250	2000	35½	16½	4¾	②	2¼	12	4
424D813	1	O	592	6912C37	8	69	350	1200	37½	16½	5¼	⅞	1½	12	2 7/16
382D506	1	O	593	.....	9④	69	350	2000	37½	17	5¼	Figure 10			
408D780	5	O	659	11512C43	9	115/138	550	1200	43	23	8¾	Figure 11			
408D780	6	O	661	11516C43	9	115/138	550	1600	43	23	8¾	Figure 11			
382D559	1	O	686	11520P43	9	115/138	550	2000	43	23	10 3/64	Figure 12			
424D355	3	O	738	13820P46	9	138/161	650	2000	46¾	23	11⅞	Figure 12			
408D781	5	O	719	13812C46	9	138/161	650	1200	46¾	23	9¾	Figure 11			

① When bottom connected
② Solid lead
③ No. 2 to 1,000 MCM cable or ¼ to ¾ I. P. S. tubing may be connected to top terminal. This bushing is sometimes furnished with 1¼ - 12 x 2 top threads. In such cases, the 600A is S# 891D533G01; the 1200A is 591D533G02.
④ Except: Power factor tap in place of potential top.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Gasket Space		A			Top Threads			H	Type	Net
		Mounting Flange			K		C	Overall Length Approx.	of Breaker	Weight Lbs.
P	Q	Bolt Cir.	No. Bolt	Diameter Bolt	Diameter	No. Threads	Length			
3 1/16	4 5/16	6 5/8	3	1/2	③	③	③	33 1/2	144GC100 144GC250 144GC500	25
3 1/16	4 5/16	6 5/8	3	1/2	③	③	③	33 1/2	144GC250 144GC500	25
4	6 1/4	7 1/4	4	7/8 Dia. Mtg. Holes	1 1/2	12	2 5/16	50 9/16	144G1000	70
6	7 5/8	8 3/4	4	3/4	3 1/4	12	3 1/2	52 1/4	144G1500	205
7	8 5/8	9 3/4	4	3/4	4	12	4	52 3/4	144G1500	305
3 1/16	4 5/16	6 5/8	3	1/2	1	14	1 3/4	37 7/8	230GC250 230GC500	50
4	6 1/4	7 1/4	4	7/8 Dia. Mtg. Holes	1 1/2	12	2 5/16	50 9/16	230G500 230G1500	70
6	7 5/8	8 3/4	4	3/4	2 1/4	12	3	51 3/4	230G1500	165
4	6 1/4	7 1/4	4	7/8 Dia. Mtg. Holes	1 1/2	12	2 5/16	56 9/16	345G1500 345GS1500	85
7	8 5/8	9 3/4	4	3/4	2 1/4	12	3	57 3/4	345G1500 345G2500	200
7 1/16	8 7/16	9 3/4	4	3/4	3 1/4	12	3 1/2	58 1/4	345G2500	220
5	7 1/4	8 1/4	4	7/8 Dia. Mtg. Holes	1 1/2	12	2 5/16	62 9/16	460G1500	106
7	8 5/8	9 3/4	4	3/4	2 1/4	12	3 1/8	64 1/2	460G3000	550
5 1/2	11	9 1/4	6	7/8 Dia. Mtg. Holes	1 1/2	12	5 5/16	74	690G2500 690G3500	150
5 7/8	12 1/2	10	6	3/4	2	12	2 3/16	75 1/8	690GM5000	265
9 1/8	11 7/8	13 1/4	6	3/4	1 1/2	12	2	104 15/32	115KvGM6 1150KvGM5000	515
9 1/8	11 7/8	13 1/4	6	3/4	2	12	2 1/2	105 1/16	1150GM10000	515
10 7/8	12 7/8	14 1/4	6	3/4	2	12	2 1/2	106 7/16	1150GM10000	550
11 1/2	14 3/8	15 3/4	8	3/4	2	12	2 1/2	115 13/16	1380GM13000 1380CM15000	800
10 1/8	12 1/8	14 1/4	6	3/4	1 1/2	12	2	114 3/16	138KvGM5	575

Westinghouse

Part 1 – Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section B – Listing of Type "O" Circuit Breakers Bushings (Continued)

Assembly Drawing Ref.		Westinghouse Numbers			Fig. No.	Rating			L	W	D	B			
						System	BIL	Continuous①	Inside Length	Depth of C. T. Pocket	Max. Diameter Below Cover	Bottom Terminal			
Drawing Number	Gr.	Type	Key	Catalog①		Kv	Kv	Amps.				I. D. Min.	O. D.	No. Threads	Length
408D781	6	O	722	13816C46	9	138	650	1600	46¾	23	9¾	Figure 11			
424D355	3	O	738	13825P46	9	138	650	2500	46¾	23	11⅞	Figure 12			
382D297	1	O	...	.....	9	138	650	3000	46¾	23	11⅞	Figure 12			
408D386	2	O	760	16116C50	9	161	750	1600	50¼	23	11½	Figure 11			
5607D12	1	O	...	.....	9	161	750	3000	50¼	23	12	Figure 12			
408D997	11	O	810	19616C59	9	196/230	900	1600	59½	26¾	14½	Figure 12			
408D997	11	O	810	19620P59	9	196/230	900	2000	59½	26¾	14½	Figure 12			
382D630	1	O	931	.....	9	288/345	1300	1600	81⅜₁₆	27½	20	Figure 13			

① When bottom connected.
Catalog number does not denote color of porcelain.

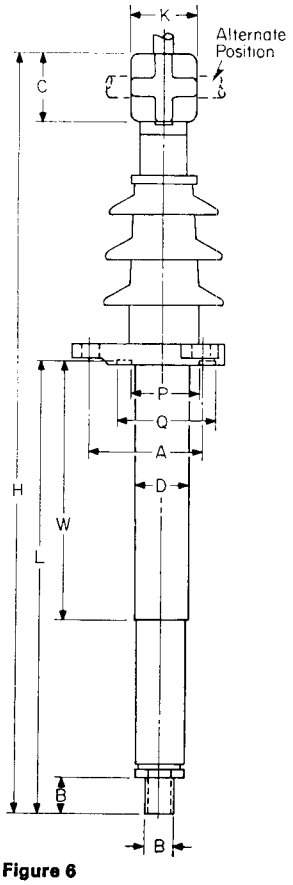


Figure 6

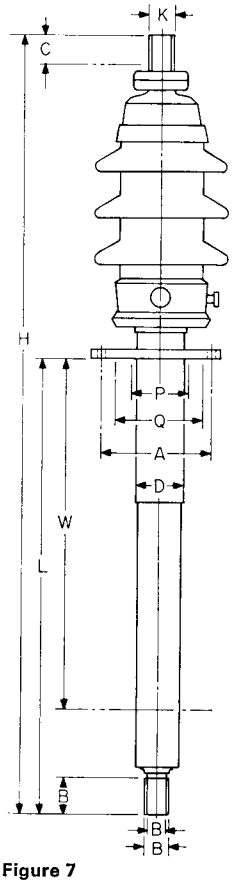


Figure 7

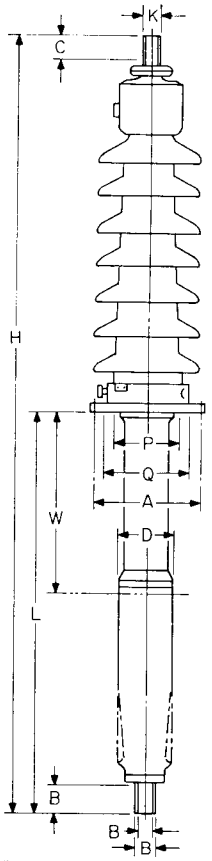


Figure 8

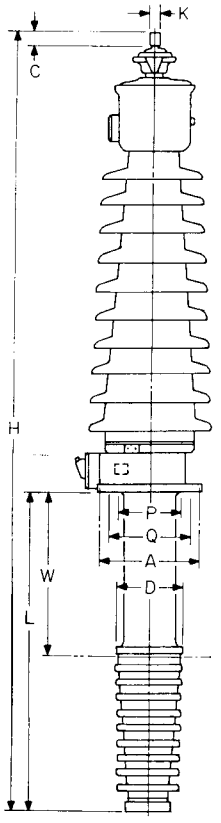


Figure 9

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Gasket Space P	Gasket Space Q	A Mounting Flange Bolt	A Mounting Flange No.	A Mounting Flange Diameter	Top Threads K Diameter	Top Threads K No. Threads	Top Threads C Length	H Overall Length Approx.	Type of Breaker	Net Weight. Lbs.
10⅛	12⅞	14¼	6	¾	2	12	2½	114⅝	138KVGM7 1380GM10000	575
11½	19⅜	15¾	8	¾	2	12	2½	115$^{13}/_{16}$	1380GM10000 1380GM13000	820
11½	14⅜	15¾	8	¾	3	12	3	116⅞	1380GM15000	900
11½	14⅜	15¾	8	¾	2	12	2½	128$^{3}/_{16}$	161KVGM5	825
11½	14⅜	15¾	8	¾	3	12	4	125⅞	1610GM15000	950
16½	19½	21	12	¾	2	12	2½	157½	2300GW10000 2300GW15000	1665
16½	19½	21	12	¾	2	12	2½	157½	2300GW15000	1665
Bevel Seat	....	27⅞	12	1	2¼	12	2⅝	218	345GW25000	3500

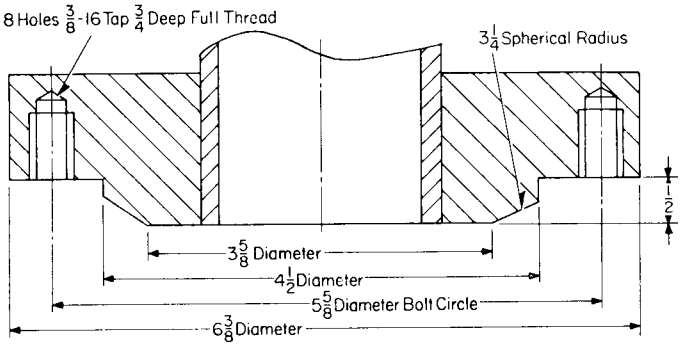


Figure 10

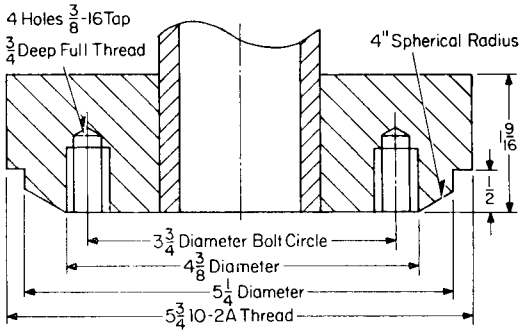
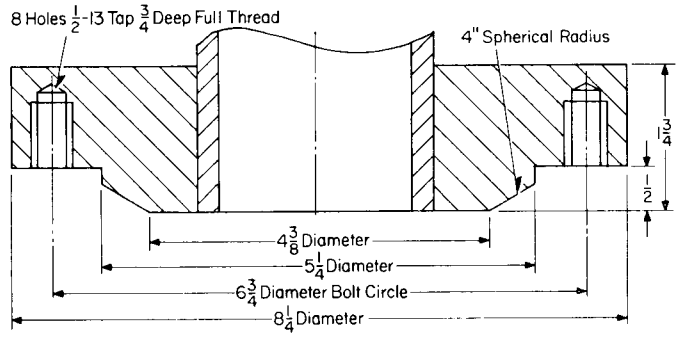


Figure 11 (USASI Fig. 2)



Fige 12 (USASI Fig. 3)

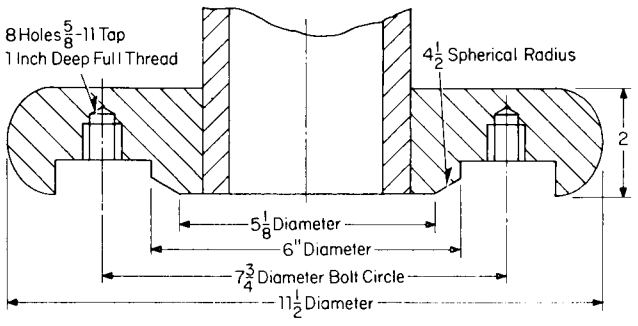


Figure 13

Westinghouse

Part 1 - Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section C – Listing of Type "O" Transformer Bushings (including USASI Standards)

Drawing Number and Gr.	Catalog Number	Key No.	Figure	System Kv	BIL Kv	Rated Continuous Current Amperes	L Inner End	T or W② Maximum Gas Space	D Maximum Diameter Below Cover	M Lead I. D.
614D261 GR. 1①	6904P30	583	14	69	350	400	30½	16½	5¼	⅞
614D262 GR. 1①	6904P35	584	14	69	350	400	35	21	5¼	⅞
612D365 GR. 1①	6912C37	592	15	69	350	400/1200	37½	21	5¼	⅞
242D114 GR. 1①	11516C43	661	11 & 16	115/138	550	1600	43	23	8¾	1⅝
589D116 GR. 1①	11512C43	659	11 & 16	115/138	550	1200	43	23	8¾	1⅝
242D137 GR. 1①	13816C46	722	11 & 16	138/161	650	1600	46¾	23	9¾	1⅝
589D139 GR. 1①	13812C46	719	11 & 16	138/161	650	1200	46¾	23	9¾	1⅝
589D162 GR. 1①	16116C50	760	11 & 16	161	750	1600	50¼	23	11½	1¾
589D197 GR. 1①	19616C59	810	12 & 16	196/230	900	1600	59½	26¾	14 7/16	2¼
242D197 GR. 1		Special	16	196/230	900	3500	63¼	26¾	12⅞	. . .
4193D45 GR. 1		Special	16	345	1050	1600	59½	26½	15¾	2
251D288 GR. 2		Special	16	345	1300	1200	71⅝	27½	18⅝	3¼
264D500 GR. 1		Special	16	500	1550	1600	76¾	26½	21⅝	3
265D500 GR. 1		Special	16	500	1800	1600	81	19	24⅛	3
257D700 GR. 2		Special	16	765	1800	1600	93½	17½	31	2½

① Conforms to USASI Standards.

② W is the depth of current transformer pocket.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bottom End Terminal			Gasket Seat		Mounting Flange			Top End Terminal		H	J	Net
B Thread	Usable Thread	Blade	P I. D.	Q O. D.	A B. C.	No. Bolt Holes	Diameter Hole	K Thread	Usable Thread	Overall Length	Cap Diameter	Weight, (Lbs.)
.....	...	.....	5½	8⅜	9¼	6	⅞	1⅛-12	2⅛	66 15/16	5 15/16	130
....	...	.....	5½	8⅜	9¼	6	⅞	1⅛-12	2⅛	71 7/16	5 15/16	159
1½-12	2½	.....	5½	8⅜	9¼	6	⅞	1½-12	2⅛	73 15/16	5 15/16	160
.....	...	.....	8¾	11⅞	13¼	6	1¼	2-12	2⅝	106 11/16	10 1/16	515
.....	...	.....	8¾	11⅞	13¼	6	1¼	1½-12	2	106 3/16	10 1/16	515
.....	...	.....	9¾	12⅞	14¼	6	1¼	2-12	2⅝	116 5/16	10 1/16	675
.....	...	.....	9¾	12⅞	14¼	6	1¼	1½-12	2⅛	115 13/16	10 1/16	675
.....	...	.....	11½	14⅜	15¾	8	1¼	2-12	2⅝	128 1/16	10 1/16	890
.....	...	.....	16	19⅝	21	12	1¼	2-12	2⅝	157⅜	13 1/16	1675
.....	...	1 x 3 x 3½ LG	16	19⅝	21	12	1¼	3.125 Smooth	3⅝	160⅝	13	1700
.....	...	.....	16	19½	21	12	1¼	2-12	2½	194⅜	17	2700
.....	...	.....	18⅝	26½	28	12	1¼	1½-12	2⅝	207 5/16	17⅛	4000
.....	...	.....	21¾	26½	28	12	1¼	2-12	2½	243 3/16	17	4400
.....	...	.....	24⅛	30¼	32	16	1½	1⅛-12	2½	271 15/16	22	4650
.....	...	.....	31¼	36	37½	18	1¼	2-12	4	340⅞	22	10000

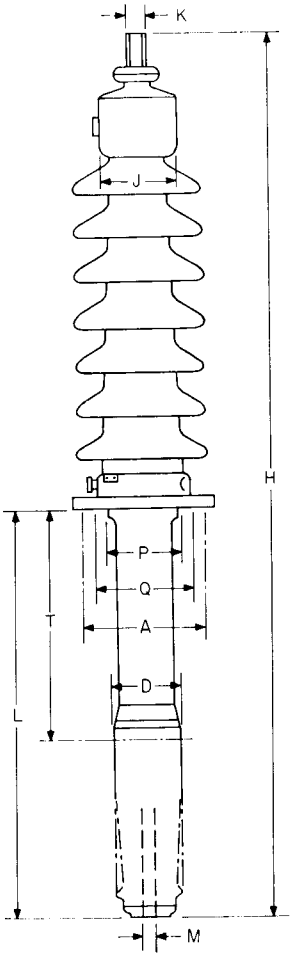


Figure 14

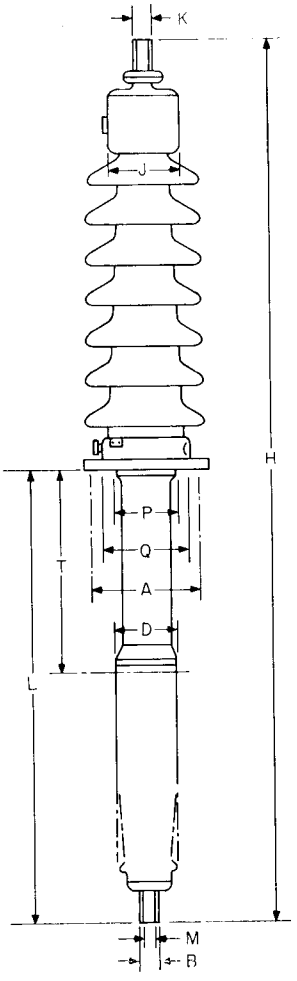


Figure 15

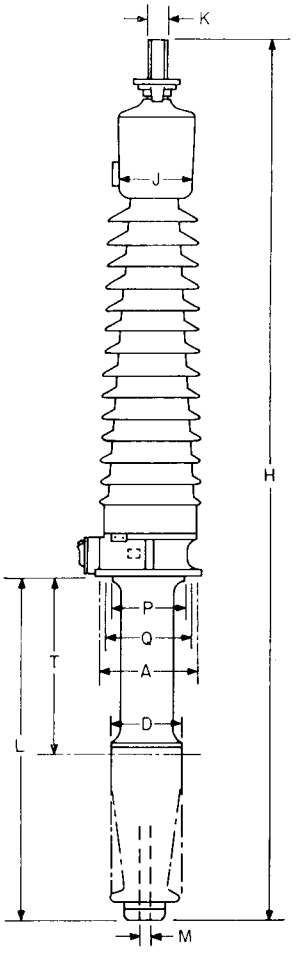


Figure 16

Westinghouse

Part 1 - Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section C – Listing of Type "OS" Transformer Bushings (including USASI Standards)

Drawing Number and Gr.	Catalog Number	Key No.	Fig.	System Kv	BIL Kv	Rated Continuous Current Amperes	L Inner End	T or W② Maximum Gas Space	D Maximum Diameter Below Cover	M Lead I. D.
53B2221 GR. 2①	2304S16	283	17	23/25	150	400	16½	10	3⅛	⅞
53B2222 GR. 2①	2304S23	284	17	23/25	150	400	23	16½	3⅛	⅞
53B2223 GR. 2①	2304S27	285	17	23/25	150	400	27½	21	3⅛	⅞
53B2226 GR. 2①	2312S30	286	18	23/25	150	1200	30½	21	3⅛	..
53B2227 GR. 2①	2312S36	287	18	23/25	150	1200	36½	27	3⅛	..
452C325 GR. 2①	2312C29	292	19	23/25	150	400/1200	29½	21	3⅛	⅞
464C024 GR. 2	2320S30	Special	20	23/25	150	2000	30¾	21	4	..
464C026 GR. 2	2330S31	Special	20	23/25	150	3000	31	21	4⅞	..
53B2231 GR. 2①	3404S18	383	17	34.5	200	400	18½	10	3½	⅞
53B2232 GR. 2①	3404S25	384	17	34.5	200	400	25	16½	3½	⅞
53B2233 GR. 2①	3404S29	385	17	34.5	200	400	29½	21	3½	⅞
53B2236 GR. 2①	3412S35	386	18	34.5	200	1200	35	21	3½	..
53B2237 GR. 2①	3412S38	387	18	34.5	200	1200	41	27	3½	..
452C335 GR. 2①	3412C31	392	18	34.5	200	400/1200	31½	21	3½	..
782C034 GR. 1	3420S32	Special	20	34.5	200	2000	32¾	21	4¾	..
440C434 GR. 4	3424S31	335	18	34.5	200	2450	31⅛	22⅛	4⅞	..
440C435 GR. 5	3440S31	340	18	34.5	200	4000	31⅝	22⅝	6⅝	..
53B2241 GR. 2①	4604S20	483	17	46	250	400	20½	10	4	⅞
53B2242 GR. 2①	4604S27	484	17	46	250	400	27	16½	4	⅞
53B2243 GR. 2①	4604S31	485	17	46	250	400	31½	21	4	⅞
53B2246 GR. 2①	4612S37	486	18	46	250	1200	37	21	4	..
53B2247 GR. 2①	4612S40	487	18	46	250	1200	43	27	4	..
452C345 GR. 2①	4612C33	492	19	46	250	400/1200	33½	21	4	⅞
471C344 GR. 2	4620S34	Special	20	46	250	2000	34¾	21	4⅞	..

① Conforms to USASI Standards.
② W – is the depth of current transformer pocket.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bottom End Terminal			Gasket Seat		Mounting Flange			Top End Terminal		H	J	Net Weight
B Thread	Usable Thread	Blade	P I. D.	Q O. D.	B. C. A	No. Bolt Holes	Diameter Hole	K Thread	Usable Thread	Overall Length	Cap Diameter	of Bushing Lbs.
....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	34 13/16	5 11/16	58
....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	41 5/16	5 11/16	61
....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	45 13/16	5 11/16	64
1½-12	2½	.....	4	6¼	7¼	4	11/16	1½-12	2½	50 9/16	5 11/16	78
1½-12	2½	.....	4	6¼	7¼	4	11/16	1½-12	2½	56 9/16	5 11/16	83
1½-12	2½	.....	4	6¼	7¼	4	⅞	1½-12	2½	50 9/16	5 11/16	66
.....	...	¾ x 1¾	5	7¼	8¼	4	⅞	2-12	2 11/16	51	6 9/16	110
.....	...	¾ x 2½	5⅛	8¼	9¼	6	11/16	3-12	3½	52⅝	7 1/16	150
.....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	40 13/16	5 11/16	72
.....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	47 5/16	5 11/16	75
.....	...	.....	4	6¼	7¼	4	11/16	1⅛-12	2½	51 13/16	5 11/16	78
1½-12	2½	.....	4	6¼	7¼	4	11/16	1½-12	2½	56 9/16	5 11/16	97
1½-12	2½	.....	4	6¼	7¼	4	11/16	1½-12	2½	62 9/16	5 11/16	101
1½-12	2½	.....	4	6¼	7¼	4	⅞	1½-12	2½	56 9/16	5 11/16	97
.....	...	¾ x 1¾	6	8¼	9¼	6	⅞	2-12	2 11/16	56¾	6 9/16	140
2½-12	4¼	.....	5¼	8¼	9¼	6	11/16	2½-12	4¼	58 11/16	6 7/16	160
4-12	4¼	.....	7	10	11¼	6	⅞	3.813 Smooth	5	59 15/16	8 7/16	358
.....	...	.....	5	7¼	8¼	4	11/16	1⅛-12	2½	46 13/16	5 11/16	94
.....	...	.....	5	7¼	8¼	4	11/16	1⅛-12	2½	53 5/16	5 11/16	97
.....	...	.....	5	7¼	8¼	4	11/16	1⅛-12	2½	57 13/16	3 11/16	102
1½-12	2½	.....	5	7¼	8¼	4	11/16	1½-12	2½	62 9/16	5 11/16	120
1½-12	2½	.....	5	7¼	8¼	4	11/16	1½-12	2½	68 9/16	5 11/16	127
1½-12	2½	.....	5	7¼	8¼	4	⅞	1½-12	2½	62 9/16	5 11/16	106
.....	...	¾ x 1¾	5⅛	8¼	9¼	6	11/16	2-12	2 13/16	64¾	6 7/16	175

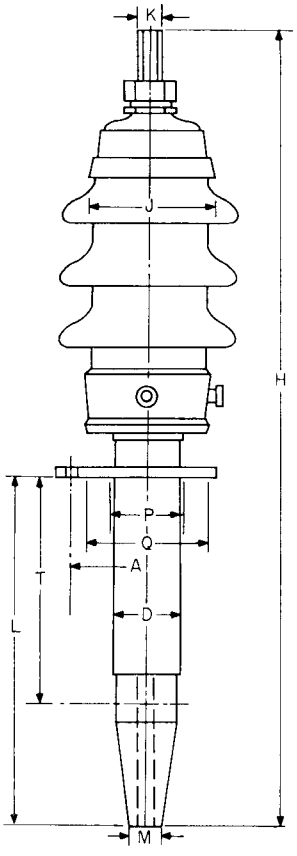


Figure 17

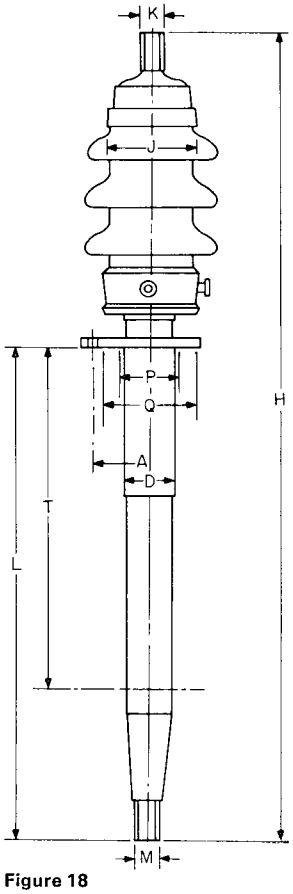


Figure 18

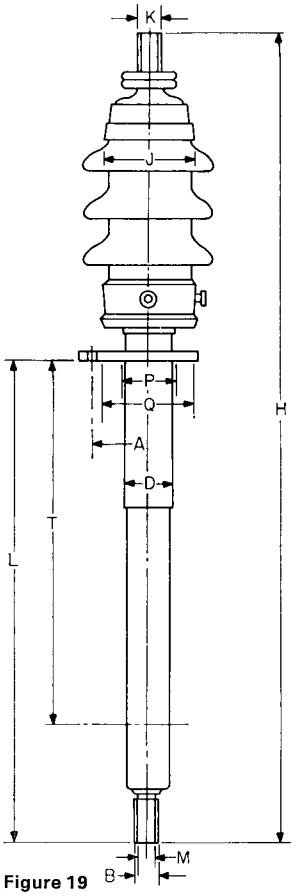


Figure 19

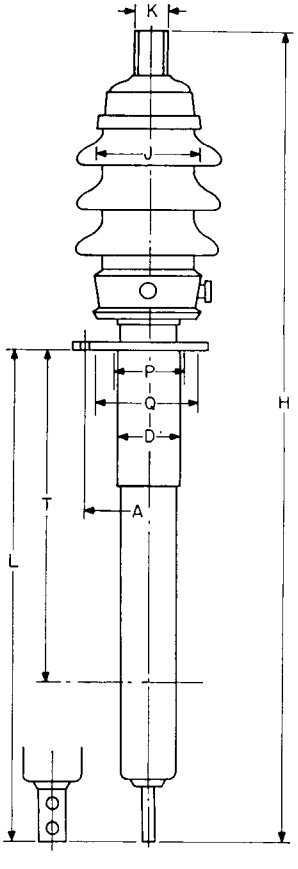


Figure 20

Westinghouse

Part 1 - Standard Westinghouse Bushings for Circuit Breakers and Transformers as of 1969

Section C – Listing of Type "RJ" Transformer Bushings (including NEMA Standards)

Drawing Number and Gr.	Catalog Number	Fig.	System Kv	BIL Kv	Rated Continuous Current Amperes	L Inner End	T or W④ Maximum Gas Space	D Maximum Diameter Below Cover	Bottom End Terminal		Bottom Terminal Mtg.		
									B Thread	Usable Thread	C B. C.	No. Total	Tap
475C608G01①	1506B13	21	15	110	600	13½	10	3⅛	{Draw Lead 1½ Min. I. D.}				
475C608G02①	1506B20	21	15	110	600	20	16½	3⅛					
475C608G03①	1506B24	21	15	110	600	24½	21	3⅛					
475C607G01①	1512B16	22	15	110	1200	16½	10	3⅛	1⅛-12	1½			
475C607G02①	1512B23	22	15	110	1200	23	16½	3⅛	1⅛-12	1½			
475C607G03①	1512B27	22	15	110	1200	27½	21	3⅛	1⅛-12	1½			
475C606G01①	1520B17	22	15	110	2000	17	10	4	1½-12	2			
475C606G02①	1520B23	22	15	110	2000	23½	16½	4	1½-12	2			
475C606G03①	1520B28	22	15	110	2000	28	21	4	1½-12	2			
27B1930 GR. 1	.....	22	15	110	3300	22 13/16	16½	4 7/16	2¼-12	2½			
27B1930 GR. 2	.....	22	15	110	3300	27 13/16	21½	4 7/16	2¼-12	2½			
464C825 GR. 1	.....	23	25	150	5500	25⅜	19¾	8 11/16			3½	8	½-13
464C825 GR. 2②	.....	23	25	150	5500	9⅜	3¾	8 11/16			3½	8	½-13
471C329 GR. 1②	.....	24	25	150	7500	25 7/16	19¾	10 3/16			4¾	8	½-13
471C329 GR. 2	.....	24	25	150	7500	14½	8 13/16	10 3/16			4¾	8	½-13
471C375 GR. 1②	.....	24	25	150	10000	9½	3 11/16	13½			7½	12	¾-10
471C375 GR. 2	.....	24	25	150	10000	25½	19 11/16	13½			7½	12	¾-10
471C224 GR. 1③	.....	24	25	150	12000	25½	19¾	16 3/16			8½	12	¾-10
771C028 GR. 1②	.....	24	25	150	12000	25½	19¾	16 3/16			8½	12	¾-10
771C028 GR. 3②	.....	24	25	150	12000	13	7¼	16 3/16			8½	12	¾-10
475C724 GR. 1③	.....	24	25	150	13500	25½	19¾	16 3/16			8½	12	¾-10
771C029 GR. 1②	.....	24	25	150	13500	25½	19¾	16 3/16			8½	12	¾-10

① Conforms to NEMA Standards
② For wall mounting only
③ For cover mounting only
④ W is the depth of current transformer pocket

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Gasket Seat P I. D.	Q O. D.	Mounting Flange A B. C.	No. Bolt Holes	Diameter Hole	H Overall Length	J Cap Diameter	Top Terminal End K Thread	Usable Thread	Blades E Tks. x F Wd. x G Lg.-No.	Net Weigh of Bushing (Lbs.)
3⅜	5⅛	6	4	⅝	25¾	3	1⅛-12	2		18
3⅜	5⅛	6	4	⅝	32¼	3	1⅛-12	2		20
3⅜	5⅛	6	4	⅝	36¾	3	1⅛-12	2		22
3⅜	5⅛	6	4	⅝	28⁷⁄₁₆	3	1⅛-12	2		29
3⅜	5⅛	6	4	⅝	34¹⁵⁄₁₆	3	1⅛-12	2		34
3⅜	5⅛	6	4	⅝	39⁷⁄₁₆	3	1⅛-12	2		37
4¼	6¼	7¼	4	⅝	28¹⁵⁄₁₆	3	1½-12	2		43
4¼	6¼	7¼	4	⅝	35⁷⁄₁₆	3	1½-12	2		51
4¼	6¼	7¼	4	⅝	39¹⁵⁄₁₆	3	1½-12	2		57
4¹³⁄₁₆	6½	8¼	6	⅝	36⁷⁄₁₆	4¾	2¼-12	2⅜		79
4¹³⁄₁₆	6½	8¼	6	⅝	41⁷⁄₁₆	4¾	2¼-12	2⅜		90
9⅜	12⅜	13¼	6	⅞	45⁷⁄₁₆	8⅞	5⅜ Smooth	6		267
9⅜	12⅜	13¼	6	⅞	29⁷⁄₁₆	8⅞	5⅜ Smooth	6		186
11⅛	14⅛	15	8	¾	45⅛	10¹¹⁄₁₆			½ x 5¼ x 5¹⁵⁄₁₆-4	320
11⅛	14⅛	15	8	¾	34⅛	10¹¹⁄₁₆			½ x 5¼ x 5¹⁵⁄₁₆-4	250
14	17½	18½	12	⅞	26¹⁵⁄₁₆	13⅝			½ x 7¾ x 3¾-4	360
14	17½	18½	12	⅞	42¹⁵⁄₁₆	13⅝			½ x 7¾ x 3¾-4	490
16¾	20	21	12	⅞	43⅛	16¼			⅝ x 9⅝ x 3⅞-4	800
16¾	20	21	12	⅞	43⅛	16¼			⅝ x 9⅝ x 3⅞-4	800
16¾	20	21	12	⅞	30⅝	16¼			⅝ x 9⅝ x 3⅞-4	650
16¾	20	21	12	⅞	43⅛	16¼			⅝ x 9⅝ x 3⅞-4	850
16¾	20	21	12	⅞	43⅛	16¼			⅝ x 9⅝ x 3⅞-4	850

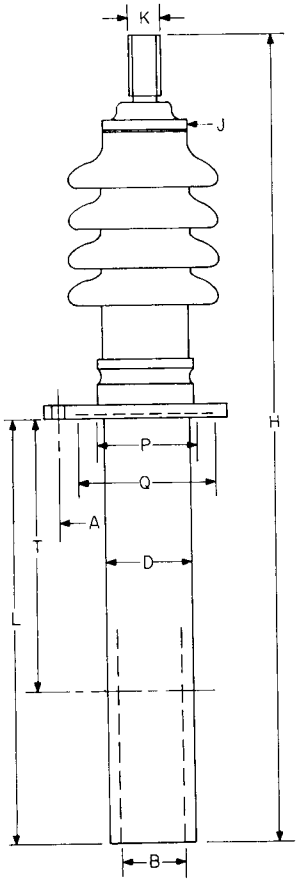


Figure 21

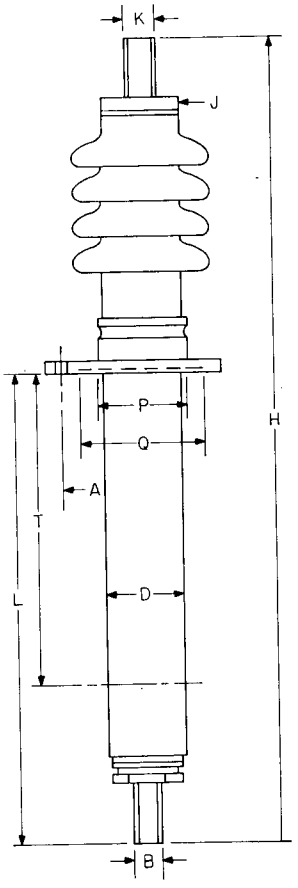


Figure 22

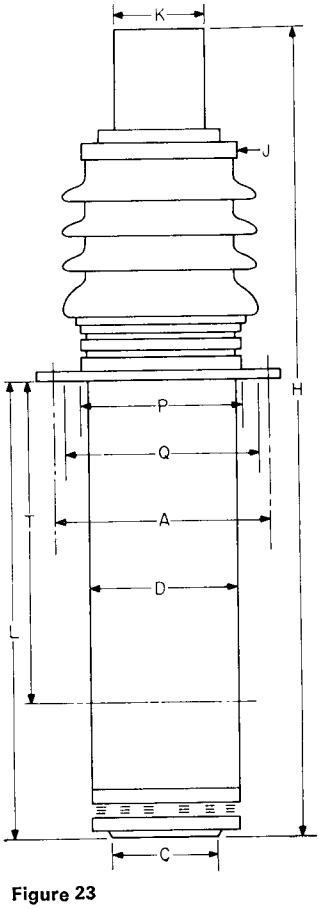


Figure 23

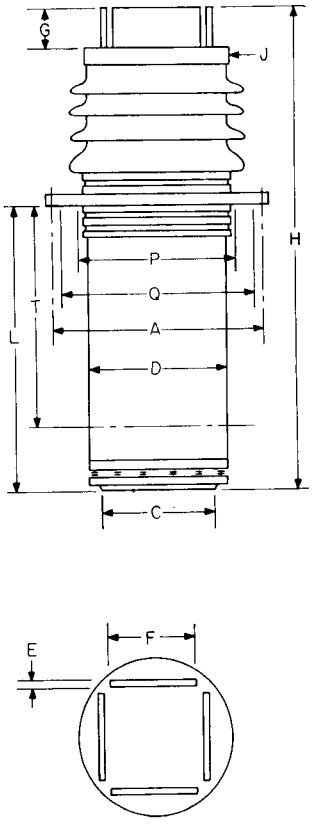


Figure 24

Westinghouse

Part 2 - Description and Illustration of Circuit Breaker and Transformer Bushings with Recommendations for Repair, Spares and Replacements
Section A – Type "O" Bushings for Transformers and Circuit Breakers

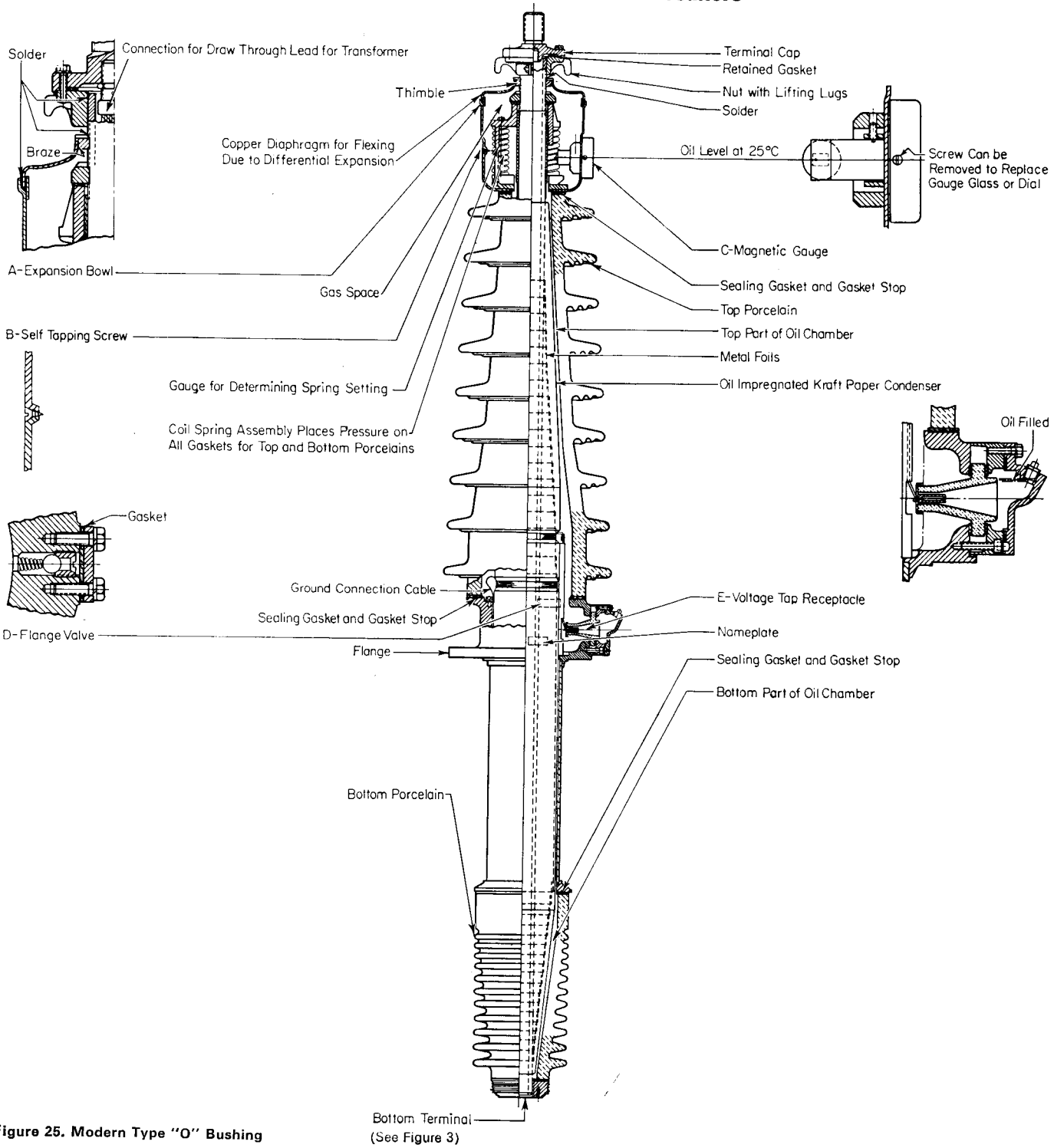


Figure 25. Modern Type "O" Bushing

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 2 – Section A – Type "O" Bushings for Transformers and Circuit Breakers, *Continued*

General Description

The Type "O" condenser bushings have an oil impregnated kraft paper condenser inside an oil filled chamber. The chamber consists of a cap, an upper porcelain weather casing, a metal mounting flange, a lower porcelain and a lower porcelain support. All parts are held under pressure from springs in the cap. Joints to the porcelain are sealed with cork neoprene gaskets encircled by neoprene asbestos stop gaskets. Ample expansion space is allowed in the cap to keep the pressure changes due to thermal expansion to a small amount.

Caution: Do not break any of the oil seals or drain oil for test unless power factor or capacitance tests or some other reason indicate the need for investigation.

Where power factor testing schedules have been adopted make power factor and capacitance test the first year and recheck every second year. For limit of power factor with both ends of bushing clean and dry, see Fig. 33, page 26.

For any major repairs, it is recommended that the damaged bushings be returned to the factory where special equipment is available for drying and oil impregnation.

Specify the voltage rating, S.O. and serial number from bushing nameplate and the S.O. of apparatus when ordering spares or replacements.

For replacements see part 5.

Due to the necessarily increased diameter of lower ends on type "O" bushings as compared to other types used on transformers where no porcelain covering was used over this end, it is necessary that each application as a replacement for older transformer bushings be checked for possible interference with insulating barriers. Transformers manufactured since 1944 have a clearance suitable for the type "O" bushing.

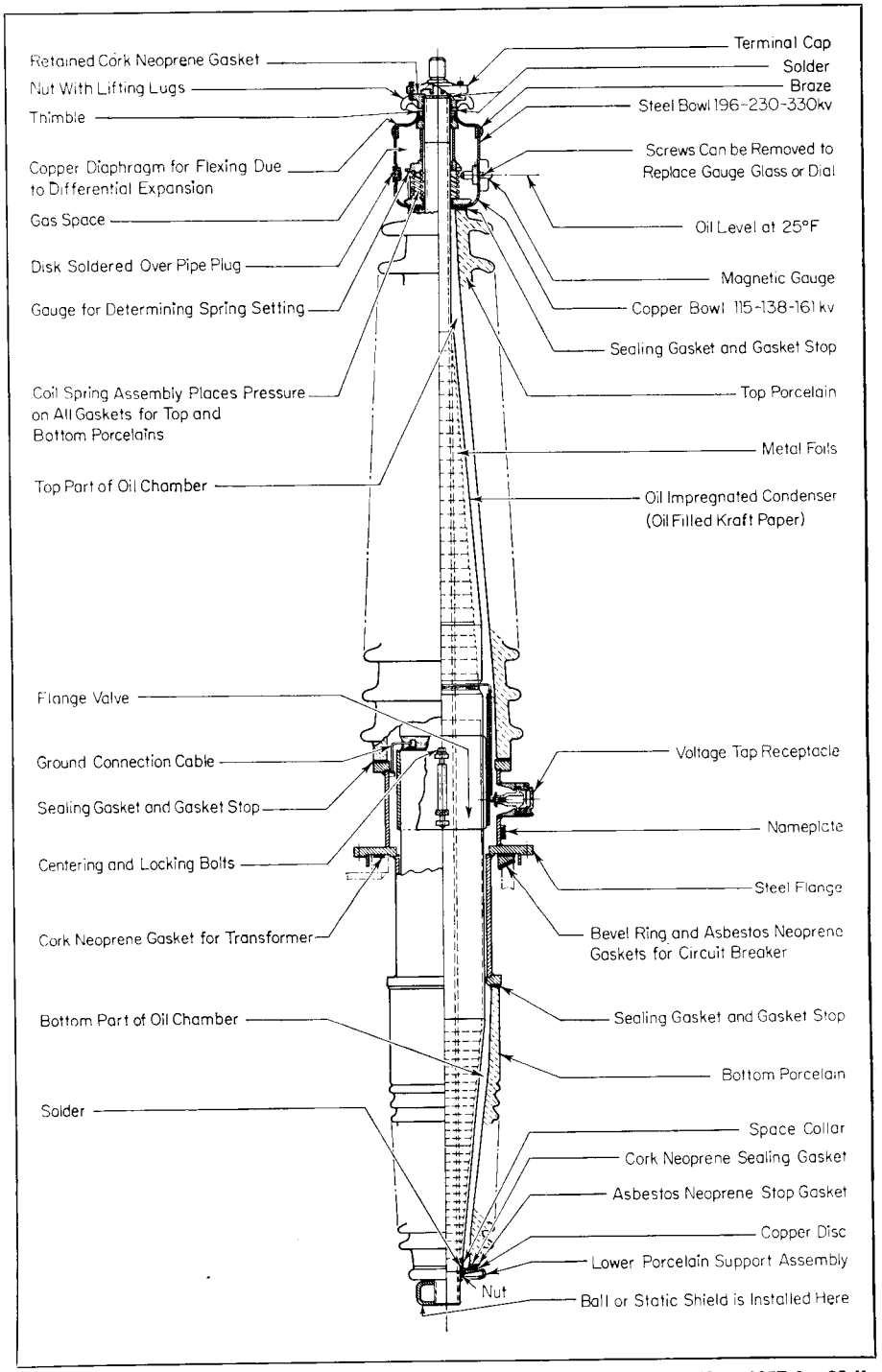


Figure 26: Typical construction of Type "O" bushing manufactured from 1942 to 1957 for 92 Kv and above.

Westinghouse

Part 2 – Section B: Type "S" and "OS" Bushings for Transformers and Circuit Breakers

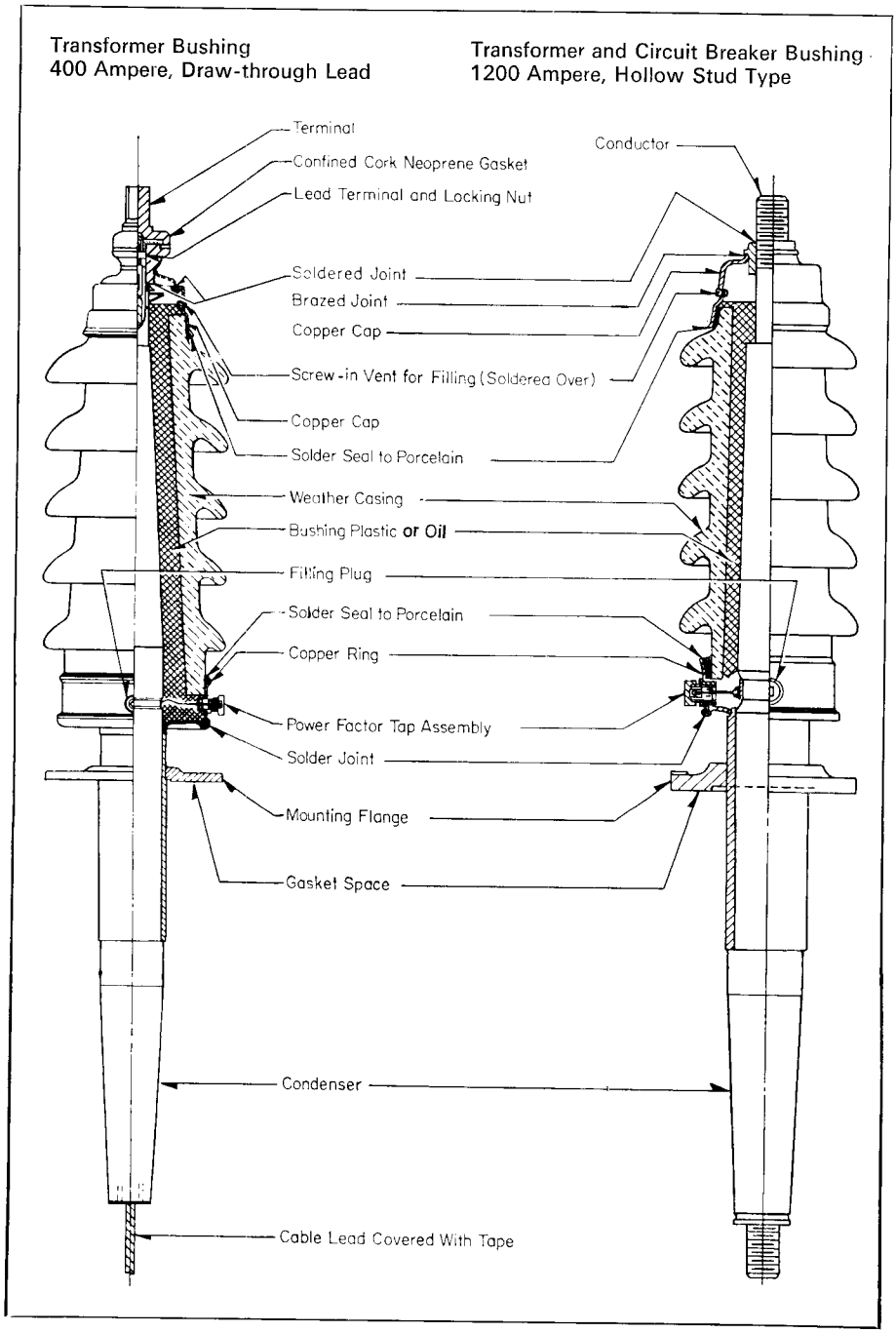


Figure 27: Type "S" and "OS" bushing conforming to USASI Standards as manufactured from 1956.

General Description "S" and "OS" Bushings

Type "S" and "OS" bushings are hermetically sealed with all joints sealed by brazing or soldering. No cement and no gaskets are used in the construction. The top cap, the ring on lower end of porcelain and the porcelain support are all of spun or drawn copper, making it impossible to have heavy strains on the porcelain. The flange with parts brazed together is of pressed-on type. A platinum film is fired into the glaze of the porcelain to which the flexible spinnings at each end are soldered. All openings for filling or for air escape during filling are also solder sealed. Ample expansion space is allowed in the cap to keep the pressure changes due to thermal expansion to a small amount.

Type "OS" designate oil encased bushings of this construction while type "S" designates plastic encased bushings of this construction. A few designs of oil encased solder seal bushings with a modified cap construction are designated type "OS_1".

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 2 – Section B: Type "S" and "OS" Bushings for Transformers and Circuit Breakers

Where power factor testing schedules have been adopted make power factor and capacitance tests the first year.

Recheck with power factor test set annually, any bushings that have noticeably higher power factor than the average power factor for the bushings of this type.

Recheck every two years with the power factor test those bushings that are consistently under the safe power factor limits as indicated by the curve on page 26 of this manual.

Damaged bushings may be rebuilt as duplicates of the original bushings if the condenser is not damaged and tests verify that it is of high quality.

Spares or replacements will be USASI Standard bushings where possible.

Specify the voltage rating, stock order and serial number where available, when ordering spares or replacements.

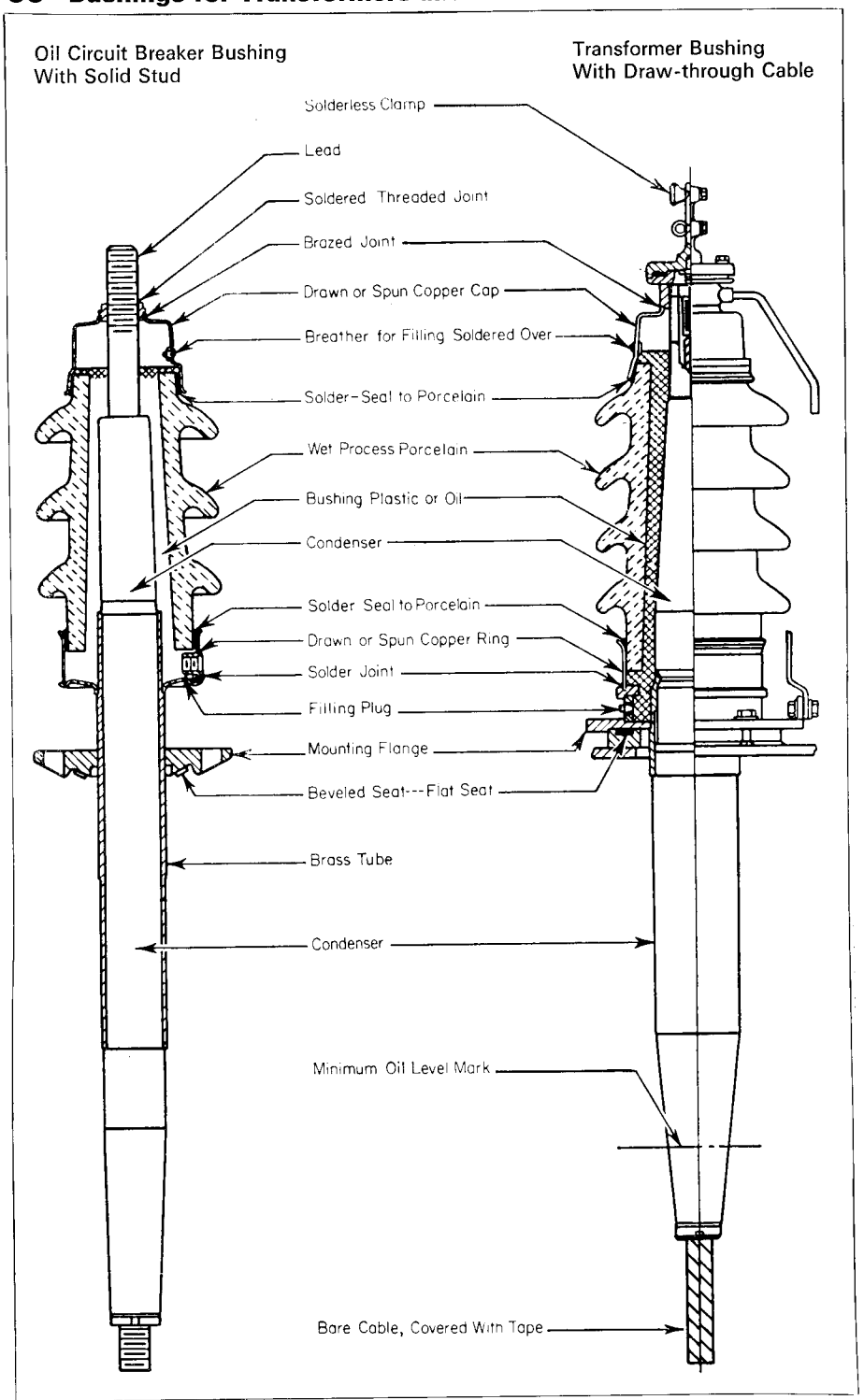


Figure 28: Typical construction of type "S" and "OS" bushing manufactured 1941 to 1956 for 15 Kv to 69 Kv (inclusive).

Westinghouse

Part 2 – Section C: Type "RJ" and "J-2" Bushing for Transformers

Type "RJ"

General Description

"RJ" porcelain type bushings are generally used for voltages 15 kv and below. This bushing is made up of a single piece wet process porcelain with the flange sleeve rolled into grooves in the porcelain over silicone rubber gaskets. Three types of leads are used in these bushings: a solid stud which goes through the cap, a solid stud which screws into the cap and a hollow tube with a cable conductor inside of it. The leads are generally centered within the porcelains with crepe paper tape.

Bushings like this have been used on transformers since 1955.

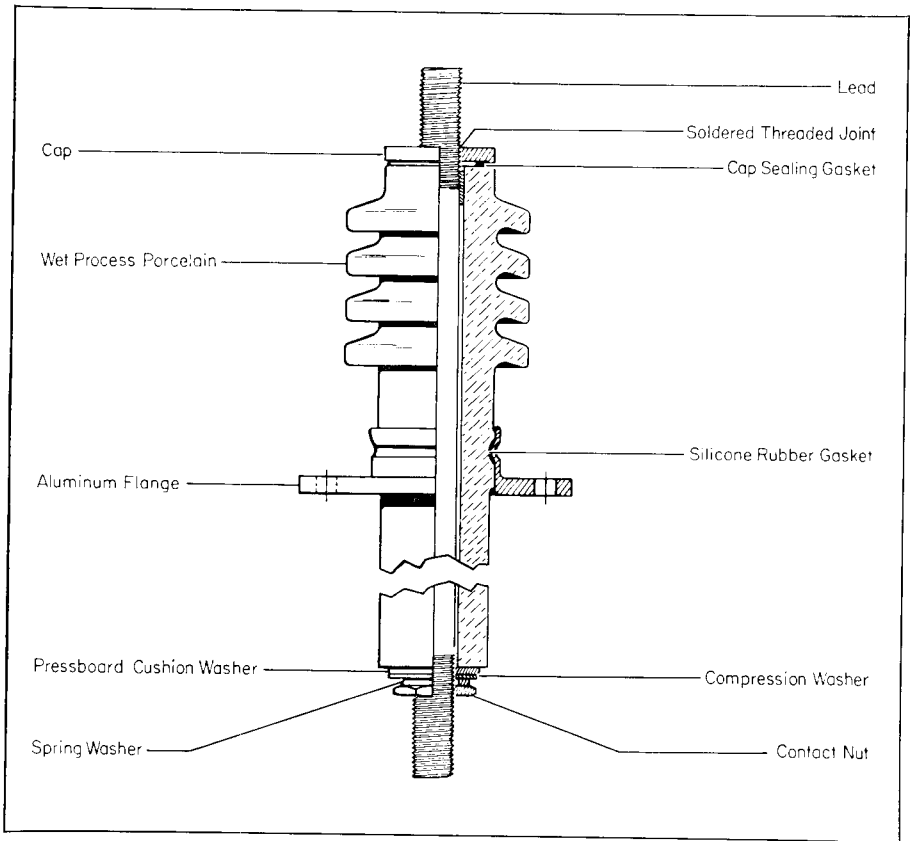


Figure 29: Typical construction of type "RJ" bushing manufactured from 1955 for 15 Kv and below.

Type "J-2"

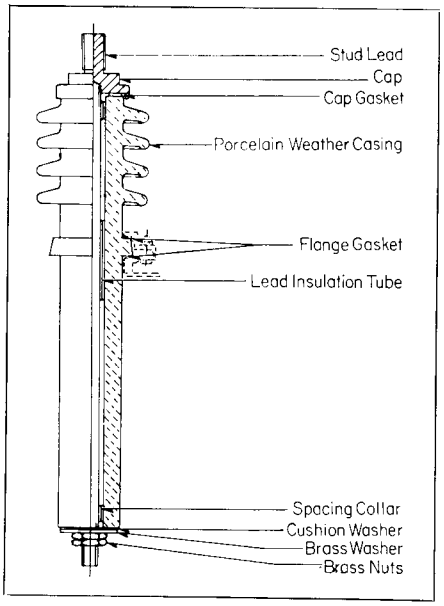


Figure 30: Typical construction of type "J-2" bushing manufactured from 1922 for 4.3 to 23 Kv (inclusive).

General Description

This is a single piece porcelain type bushing, with solid stud lead through the tube. The porcelain is cast with a collar below the rain sheds; this collar fits over the gasketed mounting of the transformer cover.
From 1922, bushings of this type have been used for circuits of 4.3 through 23 kv.

Recommendations for Maintenance and Repair of Type "RJ" and Type "J-2"

Inspect periodically for broken or cracked porcelains and faulty gaskets. Power factor tests need not be made, as such tests will not show defects in the bushing. Repairs to damaged bushings may be made preferably at the factory. Porcelains and other parts are carried in stock to give prompt service.

Recommendations for Spares

Spares or replacements will usually be duplicates of the original design. In some cases a later style of porcelain will be furnished which will be interchangeable and will fit the original cover mounting of the apparatus.
When ordering spares or replacements, specify the voltage rating of the bushing, or transformer, and the shop order or serial number of the apparatus along with all information given on the bushing nameplate.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 3 - Tests, Maintenance, Repair, and Storage

Section A – Tests

Power Factor Tests

It is advisable to make annual power factor tests and, at the same time, make a visual inspection of the mechanical condition of bushings.

a. **Visual Inspection:** Check for leaking compound or oil, mechanical damage, broken or cracked porcelains, accumulations of dirt on porcelain, or carbon on lower end, etc. If any of the above are found and cannot be removed by cleaning, the bushing should be removed from service. Leaking compound or oil, even in small amounts, is a potential hazard, because moisture may be drawn into the bushing.

b. **Power Factor and Capacitance Tests:** The power factor will indicate the dielectric losses and show the general condition of the insulation. The capacitance measurement is valuable to show if a weakness exists in any layer of the bushing.

The Westinghouse Corporation recommends checking all bushings periodically and the immediate reconditioning or replacing of bushings which are indicated to be below normal.

Power factor and capacitance tests, while not absolutely infallible, are the best check on the interior condition of the bushing.

Ungrounded Specimen Test Method

This method is used for making power factor and capacitance measurements of a bushing without disconnecting it from the apparatus. Ten kv test voltage can be applied to the bushing conductor for bushings rated 23 kv and above (use five kv or less for bushings below 23 kv), but do not apply more than 500 volts to the power factor test terminal (Figure 31) or 2500 volts to the test prong (Figure 32). This will avoid damage to the test terminal or corona in the test prong.

Instructions for Condenser Bushings 69 Kv and Below with Power Factor Testing Terminal

Caution: Do not remove terminal cover until bushing is de-energized.

1. Remove terminal cover. Do not remove or turn the power factor terminal.
2. With test lead connected to terminal measure insulation to grounded flange with 500 volt megger. Should measure 5000 megohms or more.
3. Proceed to make a power factor test in the conventional manner used for testing ungrounded specimen (power factor connector S#1809132 may be used).
4. Replace terminal cover finger tight. Do not wrench.

Caution: It is extremely important that the cover be reassembled on the testing terminal before energizing the bushing.

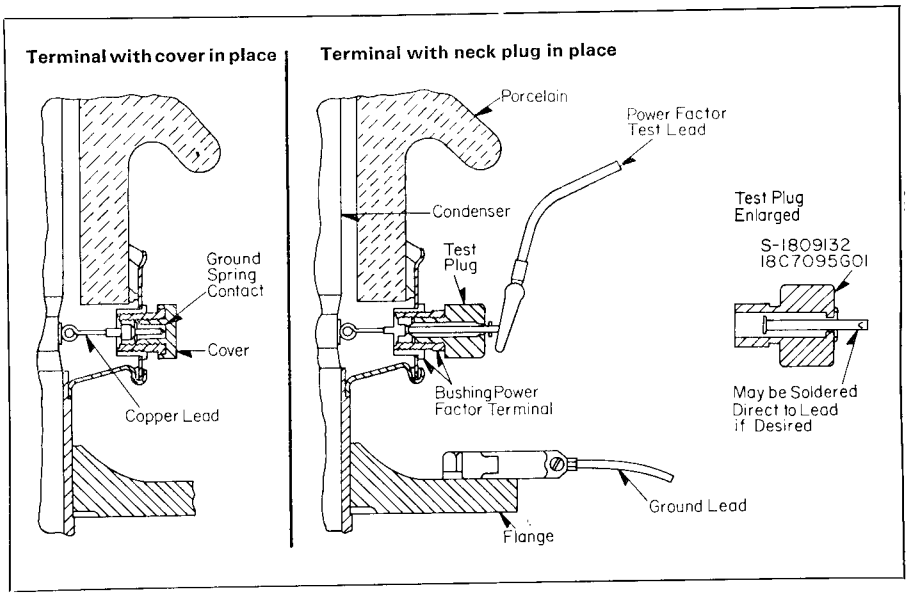


Figure 31: Power Factor Testing Terminal for Making Ungrounded Power Factor Tests on Condenser Bushings 69 Kv and Below.

Westinghouse

Part 3 – Section A: Tests, *Cont.*

Instructions for Bushings Above 69 Kv with Voltage Tap

After bushing is disconnected from the high voltage line and grounded, the procedure for using the test prong is:

1. Remove the pipe plug in the voltage tap cover.
2. Connect the terminal end of the test prong to ground with a flexible connector so an electrostatic charge left on the bushing after it has been removed from service will be discharged to ground when the test prong is inserted in the voltage tap.
3. Insert the prong through the hole in the cover to make contact with the female contact in the rear of the voltage tap assembly.
4. Disconnect the test prong from ground and connect it to the proper power factor test lead.
5. The insulation resistance from the test prong and connected lead to ground should be at least 5000 megohms measured with a 500 volt megger.
6. Proceed to make a power factor test in the conventional manner used for testing ungrounded specimens.
7. After completing the power factor tests, remove the test prong.
8. Add new Wemco "C" oil to have level even with bottom of hole in cover, if necessary.
9. Replace the pipe plug in a weatherproof manner in the cover.

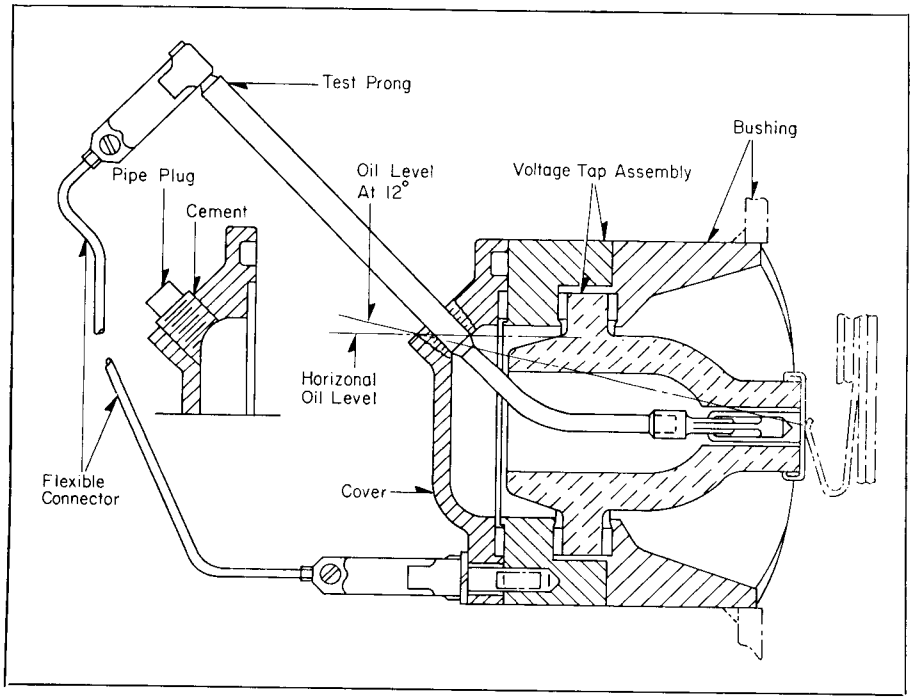


Figure 32: Test Prong for Making Ungrounded Power Factor Tests through Voltage Tap on Bushings above 69 Kv.

General Procedure for Power Factor Tests

It is possible that high power factor may be caused by conducting surfaces in the proximity of the bushing. This is particularly true of spare bushings being tested in their crates. It is possible for the crate, especially if wet, or the tester himself, to cause a high power factor reading. For this reason, it is recommended that the bushings be removed from their crates for testing and all conducting surfaces eliminated from the immediate vicinity of the bushing.

If high losses are found, it is best to determine their location before removal of the bushing; they can often be eliminated by cleaning some surfaces.

Power factors of bushings vary with changes in temperature. It is therefore desirable that the tests be made in warm dry weather with the apparatus not under 60°F. A record of the test should include the temperature of the bushing as well as the ambient temperature.

The temperature of the bushing may be determined approximately by one of the following methods if the apparatus has just been taken out of service.

Use the mean of the air and top oil temperatures as measured by thermometers; the oil temperature to be measured at the top of and inside of the tank; the air temperature to be measured in the shade, at a point not less than four feet away from the tank.

Measure with a thermometer the temperature on the outside of the tank at the level of the top of the oil and add 5°F to allow for the difference in temperature between that of the bushing and the outside of the tank.

If the apparatus has been out of service for a sufficient time to allow all parts to cool to atmospheric temperature, then the atmospheric temperature (measured in the shade) may be used.

The power factors at which apparatus should be withdrawn from service will, of course, depend a great deal on the seriousness of an interruption on the particular circuit.

Generally a bushing having a power factor measurement within the limits of the curves on page 26 will have a dielectric strength necessary to meet the standardized one minute acceptance test and will be satisfactory for service.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 3–Section A: Tests, *Cont.*

Procedure for Power Factor Tests of Circuit Breaker Bushings

Preparation for power factor testing of bushings in circuit breakers.

1. Clean all porcelain and dry thoroughly. This includes the bottom porcelain when the bushing is first installed in its associated breaker.
2. Connections to bus should be disconnected at the bushing. Parallel insulators or length of bus will cause erroneous readings.
3. The weather should be clear and the relative humidity less than 80%.
4. The temperature should be measured by one of the two methods shown under Instructions for P. F. tests.

The general method used to test bushings when installed in a circuit breaker is:

1. Grounded-specimen test (lead at high voltage, mounting flange at ground) on each bushing with the breaker in the open position (six readings).
2. Grounded-specimen test (lead at high voltage, flange at ground) on each phase with the breaker in the closed position (three readings).
3. Ungrounded-specimen tests (lead at high voltage, tap at low voltage, flange at guard) on each bushing-breaker open (six readings). This test cannot be made on bushings without P. F. or Voltage Tap.
4. Tap insulation test
   a. For power factor taps (Figure 31) – a 500 volt "megger" should read 5,000 megohms or more.
   b. For voltage taps (Figure 32) – grounded-specimen test (tap at high voltage-lead and flange at ground).

Tests 1, 2 and 3 above can be conducted at 2.5 to 10 kv – 10 kv is recommended. Test 4a should not be made at more than 500 volts. Test 4b can be made at 500 to 2.5 kv – 2.5 kv is recommended.

Tests 1 and 2 above are used to determine the so-called "Tank Loss Index." This T. L. I. is found by adding the watts lost on the two bushings of any one phase (Test No. 1) and subtracting that value from the losses measured in that phase during Test No. 2. For example, if the sum of the watts lost on bushing No. 5 and No. 6 when measured in the open-breaker position is less than that on the closed position, the additional losses are attributed to the breaker left rod. If the sum of the loss in the open position is greater than the losses of the closed position, the difference could be attributed to leakage in the breaker interrupting grid plates.

The reason for differences between the open and closed position, of course, is that the different members have different applied voltage stresses. This difference or T. L. I. varies between breakers and in most cases is of little value compared to Test No. 3. In a large breaker ten kv will not show any significant losses in a breaker lift rod. Also, breakers with resistor grids or grids that have absorbed moisture will cause concern because of a high value of T. L. I. Moisture in the grids is not harmful if the plates are not warped to a point which interferes with the movement of the contacts as the grids are not primary insulated members. Resistor grids with naturally add to the watts loss.

Procedure for Power Factor Tests of Transformer Bushings

The line terminals of three phase wye connected transformers, and of autotransformers should be connected together before making power factor measurements. This eliminates unsymmetrical losses in the magnetic circuit in the transformer which may otherwise affect the measurements. The transformer winding must be ungrounded when the tests are made.

Bushings with power factor test terminals or voltage taps may be tested in transformers without disconnecting the winding. Where ungrounded power factor methods are not available, the bushings may be tested in transformers by other methods.

For transformer bushings without the power factor test terminal or potential taps where the draw-through lead with top cable connection is used and where it is possible to disconnect the transformer winding from ground, the bushings may be tested without removal from the apparatus providing the testing set is equipped to bring the tube and lead to the same potential and phase relationship. If there is a layer of tape on the lead such as is used in present designs and has been used in most of the old designs, this will be sufficient insulation to permit testing the bushing without removal. A thin wall insulating tube slipped down over the lead provides ample insulation for the top end of the lead.

If the transformer bushings have an insulating head and the testing set is equipped to bring the test circuit and the shielding circuit to the same potential and phase relationship, it will not be necessary to disconnect the internal bushing lead or the small length of outside line; but the transformer winding must be disconnected from ground.

Westinghouse

Part 3 – Section A: Tests, *Cont.*

Power Factor Limits

The best method for determining the condition of a bushing using power factor measurements is to compare several readings taken over a long period of time at approximately the same temperature. These readings should remain fairly constant. Any continual rise in the readings with time indicates that the bushing is deteriorating, and it should be removed from service and checked to determine the cause. Where previous records are not available, compare tests between similar bushings.

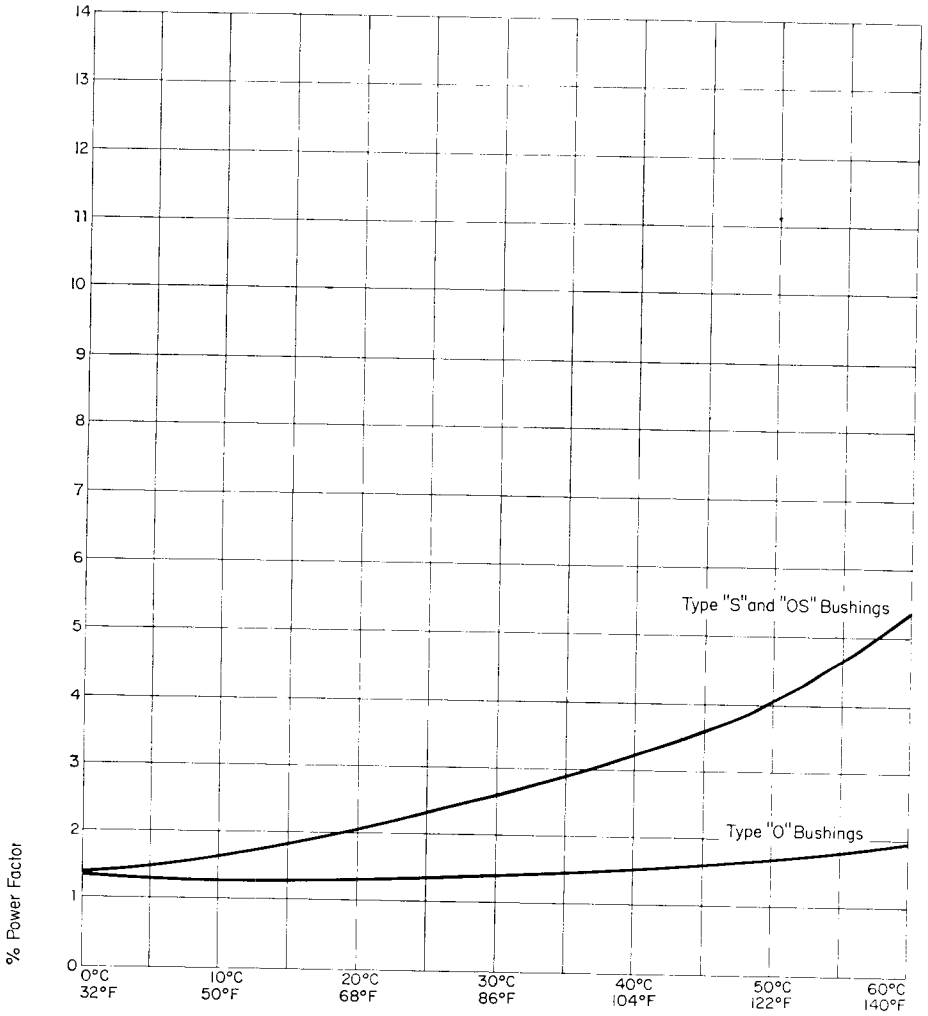


Figure 33: Acceptable Power Factor Limits for Westinghouse Bushings.

Bushings operated at extremely high temperatures either because of heavy loads on the apparatus or because of the location in very hot climates will have larger losses than bushings operated at lower temperatures. For this reason, it is recommended that curves Fig. 33 should be used in determining the safe power factor for bushings.

When field tests with the power factor testing set indicates that the condition of a bushing is questionable, the results may be referred to the Westinghouse bushing engineers for analysis and recommendations. Questions on transformer bushings should be referred to the Power Transformer Engineering Department at Sharon, Pa. and for circuit breaker bushings should be referred to the Power Circuit Breaker Engineering Department at Trafford, Pa.

There will be some difference in the safe power factors of bushings of different periods and constructions as the high power factors will arise from different sources. It is recommended that the factory be consulted in the case of any doubt in the interpretation of test results on any bushings.

With normal capacitance the power factor is directly indicative of the watts loss in the insulation. The power factor shows the quality of the insulation. The watts loss is a composite indication of the quality and amount of insulation tested. The power factor can be used for direct comparison between a small bushing and a large one.

Capacitance measurements of bushings are valuable for analyzing the quality of bushings if the measurement can be compared with previous tests of the same bushing or if they can be compared with measurements of other bushings of the same design (same drawing number). A bushing with increasing capacitance measurements, or one measuring approximately 15% higher than the average of similar bushings, should be suspected and removed for test and investigation. The power factor of such a bushing may still be very acceptable.

In case of a high power factor measurement, the most likely cause is that moisture has found its way inside the porcelain weather casing or that the lower end has been exposed to moisture in storage or to moisture and carbon in the oil. When it has been determined that the high power factor is in the bushing itself, the bushing must be removed from service. See recommendations applying to bushings of the type involved.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 3 – Section B: Maintenance

General Procedure

General maintenance of bushings should include periodic visual inspection for physical damage, leaks, bad connections, etc. The bushings should be cleaned at intervals to keep the insulation surfaces free from accumulation of contamination. Paint exposed metal parts to protect from the weather. If it is necessary to add a small amount of oil to a bushing a device (S# 169C892901) is available to accomplish this without removing the bushing from its apparatus. See drawing 170C587 for instruction on its use. Electric Service Division should be contacted to rent or purchase this tool.

If power factor testing is used, the power factor and capacitance should be measured at intervals suggested for particular type bushings or established by service conditions.

If a bushing is damaged or defective, repair or replacement should be made.

A decision between repair or replacement must often be made by the customer. To make this decision he must know the Corporation's policy on the repair or replacement of bushings and the price of the repair or replacement. It is highly desirable that the customer make this decision before he incurs any expense to send the bushing to the factory.

It is recommended that all condenser bushings other than Type "O" or Type "S" and "OS" be replaced rather than repaired.

When a bushing is to be repaired, it should be returned to the factory (transformer bushings to Sharon, Pa. or Muncie, Indiana and circuit breaker bushings to Trafford, Pa.) Information as to the cause of the return should accompany the bushing.

A few of the advantages obtained by returning the bushing to the factory for repair are as follows:

a. The proper processes, gasket materials, filling compounds, cements, etc. are used.

b. Whenever possible, the bushings are changed to latest construction and all gaskets are renewed.

c. Pressure tests are made to insure tightness of the condenser and the weather casing assembly.

d. Power factor tests and 60 cycle routine tests are made. A bushing which cannot be processed to have a power factor equal to a new design is completely rebuilt. A repaired bushing must meet the same test limits and withstand the same 60 cycle voltage as a new bushing of the same design.

e. Experienced workmen and special facilities are available.

f. A bushing repaired at the factory carries the same warranties as a new bushing of the same type.

If the above schedule for testing and maintenance is followed, and bushings renewed or replaced as per recommendations given, we believe condenser bushing failures will practically disappear.

Potential Tap for Use as Voltage Source

The primary purpose of the potential tap, Figure 34, on Type "O" bushings 115 kv and above is to provide a source of voltage for use in synchronizing, relaying, etc. Figure 35 shows potential device cable attached to a bushing. This cable may be obtained from Trafford, Pa. When using this connector, the potential tap socket cover must be removed from the bushing and the oil replaced with petrolatum. Sufficient petrolatum should be packed in the tap socket so that the cavity is almost full when the connector is in place. The one end of the connector has provisions for clamping it in place, using the same holes and bolts as for the cover of the voltage tap socket. Provisions are made for connecting the other end to the potential device cabinet.

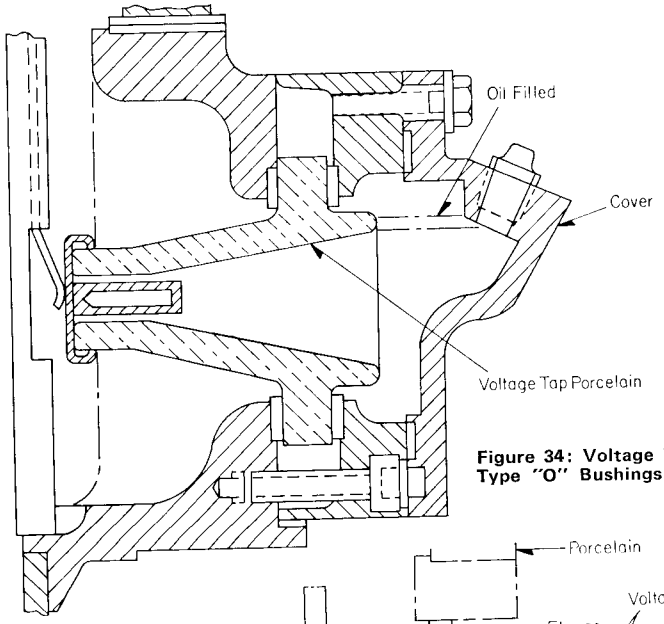


Figure 34: Voltage Tap Receptacle for Type "O" Bushings

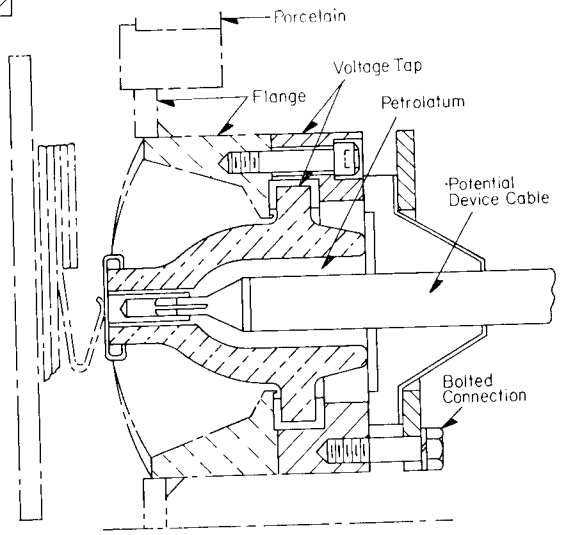


Figure 35: Voltage Tap with Cable Connected, for Type "O" Bushing

Westinghouse

Part 3 – Section B: Maintenance, *Continued*

Potential Device Connection

All modern bushings are capable of providing an input to a PB-2, PBA or PBA-2 potential device and may be connected without using a cable adapter. A PB-1 and PB-11 device may also be used with a modern bushing if a cable adapter is used and the device is modified. If another manufacturer's potential device is to be attached to a Westinghouse bushing, the other manufacturer is responsible for supplying the adapter to connect to the bushing.

Bushing Filling Plastic 53351-HF

The purpose of a filling material (compound or oil) in the Westinghouse Micarta condenser bushing is not to develop and maintain its electrical strength but rather to protect the surface of the condenser and to prevent flash-over inside the porcelain when impulse voltages or excessive 60 cycle voltages reach the terminals. Bushing plastic 53351-HF was developed by Westinghouse Electric Corporation for this use in 1938 and has been used for Type S bushings since that time on both new and repair orders.

This compound is a black asphalt-oil-aeroclor plastic material, which is heavier than water at all operating temperatures. The plastic will not flow readily at room temperature but is quite fluid when heated to 125°±5°C (never heat over 135°C). This material will not crack or pull away from the condenser or porcelain at temperatures as low as −50°C.

Section C – Repair

General Procedure

Bushings manufactured prior to 1940 should be replaced with bushings of modern design whenever their condition, as indicated by visual inspection, or power factor and capacitance tests shows them to be in need of servicing. We also advocate replacement of the bushing manufactured prior to 1940 with bushings of a modern design in case the apparatus is undergoing any major rehabilitation.

When replacing old bushings we recommend using standard bushings. In some cases, because of space limitations, it will not be possible to provide such bushings impulse coordinated even when equipped with standard gap spacings. Adapters are required in some cases to fit standard bushings to old apparatus. When necessary, they are supplied with the replacement bushings.

Condenser bushings can be rebuilt successfully by the customer if proper facilities are available and if the instructions for rebuilding are carefully followed by capable and experienced workmen. However, the best results are obtained by having the work done by Trafford or Sharon Plants of the Westinghouse Corporation. Many of the Corporation's service shops are also well equipped to do the work in an excellent manner. The equipment required for rebuilding should include 60 cycle test and power factor testing equipment. Ovens of a suitable size equipped with temperature control up to 110°C are necessary. A liberal change of air in the ovens is necessary. Facilities for handling the filling compound at a proper temperature must be available. For the larger bushings some crane service is also needed.

Section D – Storage

General Procedure

Outdoor condenser bushings, when installed in circuit breakers or transformers, are not sensitive to weather or atmospheric conditions, because the lower end is kept immersed in oil which prevents it from coming in contact with excessive moisture and the upper end is sealed. In storage other means must be employed to protect the lower end. The exception to this is the Type "O" bushing which is weather proofed all over and the following paragraphs do not apply to Type "O" bushings. Type "O" bushings should be stored vertically or with cap end at least 10° above horizontal and protected from mechanical injury.

Types "S" and "OS" bushings shipped separately from the apparatus with which they are used have the lower end covered with a polyethylene bag containing silica gel crystals. This serves as a protection against moisture and dirt. This protection should not be removed until the bushing is placed in the apparatus or the lower end is placed under oil for storage, unless moisture is seen inside the bag. (This bag is transparent and moisture may readily be seen without removing.) For long storage periods where moisture is detected in the bag, the bag is to be removed, the bushing and bag dried and the bag recharged with dry silica gel. This bag should be removed before making power factor tests. The storage place should be clean, very dry, ventilated, and several degrees warmer than the outdoor temperature to prevent condensation. Do not store in cellars, outside sheds, or similar places. Compound filled bushings should be in an upright position for at least twenty-four hours before they are placed in service or tested.

The condition of the stored bushing can be determined by the power factor test. Periodic tests showing a high or increasing power factor indicate improper storage conditions. Such bushings should be moved to better storage. A power factor test measurement should be made before putting a stored bushing in a breaker or transformer to give additional assurance that the bushing is suitable for service.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 4: Identification of Bushings By Key Numbers

Bushing Catalog Numbers

The catalog numbers assigned to USASI standard condenser bushings by Westinghouse are designed to permit ready identification of the bushings.

The catalog number consists of 7 or 8 characters as follows:

Character	
1 to 3	**Designate system Kv as follows:** 23=23 Kv 115=115 Kv 34=34.5 Kv 138=138 Kv 46=46 Kv 161=161 Kv 69=69 Kv 180=180 Kv 92=92 Kv 196=196 Kv
4 and 5	**Designate current rating as follows:** 04=400 amperes 12=1200 amperes 08=800 amperes 16=1600 amperes
6	**Designate type of bushings as follows:** S=Standard USASI Type S or OS bushing C=Interchangeable (I.C.) P=Standard USASI Type O Porcelain encased bushing
7 and 8	**Designate "L" dimension from USASI Standard C76-1** ("L"=total length of bushing below mounting flange, dropping fractions)

Examples:

3404S23 – 34.5 Kv, 400 amp., USASI Type S or OS bushing with "L" dimension of 23".
4612C33 – 46 Kv, 400/1200 amp, I.C. bushing with "L" dimension of 33".
11512P43 – 115 Kv, 1200 amp., USASI Type O bushing with "L" dimension of 43".
11516C43 – 115 Kv, 1600 amp., I.C. bushing with "L" dimension of 43".

Important: *All characters on bushing nameplate should be given when making reference to any specific bushing.*

Westinghouse

Part 4: Bushing Identification, Replacement, and Interchange

Section A

Identification of Bushings

Most bushings are identified by nameplates mounted on the flanges or on the bushing caps. The bushing design is identified by drawing number (dwg. no.) or style number (S#). Recent designs may have the drawing and group number (dwg._____, gr._____.) The shop order (S.O.) or general order (G.O.) on which the bushing was built is usually given on the nameplate.

The above numbers should be referred to when writing to headquarters about a bushing. In addition, the S.O. identification and rating of the breaker or transformer should be given.

Since 1934, when power factor testing at the factory came into general use, bushings have been identified with serial numbers, following the S.O. number. For example, three bushings, built to dwg. no. 31-A-815, gr. 1, on order number S.O. 70-K-472, would be marked:

Dwg. 31-A-815 gr. 1; S.O. 70-K-472 – 1
Dwg. 31-A-815 gr. 1; S.O. 70-K-472 – 2
Dwg. 31-A-815 gr. 1; S.O. 70-K-472 – 3.

In this way, a record of location and tests on individual bushings may be kept.

Since 1940, bushings have been further identified by kv rating and type letter on the nameplate. The nameplates of bushings supplied today also specify the key number where such has been assigned. For circuit breaker bushings, the ampere rating is also given on the nameplate. The ampere rating of a transformer bushing cannot be specified as it is generally dependent on the size of the draw-through lead.

Key Numbers and Catalog Numbers for Condenser Bushings: A key number has been assigned to most of the outdoor bushings for the purpose of identifying the principal mounting dimensions, internal dimensions and nominal current ratings. Bushings of the same key number will fit into the same apparatus without any change internally in the apparatus or bushing except as specified in the notes of the bushing tabulations pages 80 to 81. For obsolete circuit breaker bushings having porcelain arc shields on the lower end of the bushing, the arc shield is interchangeable where the same key numbers apply except as indicated in the notes on the particular bushing.

Transformer bushings having the same key numbers but different type letters may require a new terminal stud at the top of the draw-through cable, where cables are used. In some cases a longer cable is required. New bushings which are ordered to replace older types are furnished with the necessary cables and terminals.

Bushings of the same key number may have entirely different outside structures as, for instance, the method of connecting leads may be different; the height outside apparatus may be different; the voltage tap connection may be of one or two layers or nonexistent; the receptacle may be of the screwed type with Moldarta insulation or the bolted type with porcelain insulation; the porcelain may be of standard or oversize height; the type of weather casing may be different, etc.

Bushing of the same catalog number are exactly identical. The catalog number is used to relate to standards, correlate between circuit breaker and transformer (IC) bushings, and compare to other manufacturers bushings – see previous page for breakdown of catalog numbers.

If it is necessary to refer to the factory concerning a bushing which does not have a nameplate, or if it is not possible to obtain the nameplate reading, the nameplate reading of the transformer or circuit breaker will usually be sufficient.

The tables following give the major dimensions of all present key numbers and list all bushings of each key number.

How to locate dimensions, replacements, bushing number; and identification of interchangeable bushings:

1. **When key number is known**
   a. Refer to Pages 31-44 for listing of dimensions and interchangeable bushings by drawings.
   b. All bushing drawings listed with same key number are interchangeable.
2. **When drawing number is known**
   a. Refer to Part 5, Section A, Pages 45-79, for key number and latest replacement bushings.

Nominal Current Ratings

Current ratings of bushings as given in the table, Parts 4 and 5 of this manual, are "nominal" current ratings. Actual current ratings depend upon the temperature of the surrounding media in which the bushing operates, that is, the temperature of the ambient air and oil surrounding the bushing. Nominal ratings given are for conditions as follows:

a. Transformer Bushings, lower end in 95°C oil and upper end in ambient air at 40°C with a maximum hot spot not exceeding 105°C. Lowering either the oil or ambient air temperature will allow the transformer bushing to be uprated above the nominal current and vice versa. For this reason operating conditions are an important consideration when applying bushings.

b. Circuit Breaker Bushings are maximum ampere rated.

Sketches for Key Number Dimensions

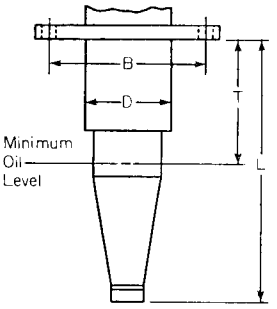


Figure 36. Tube, flat seat

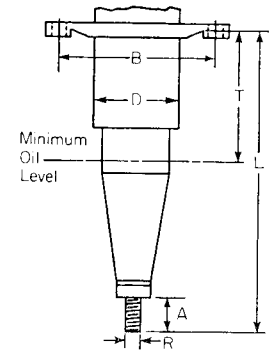


Figure 37. Stud or Tube, bevel seat

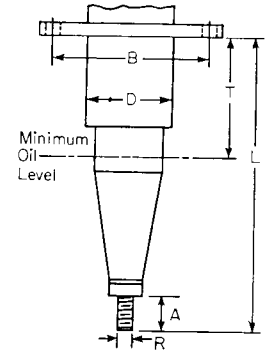


Figure 38. Stud or Tube, flat seat

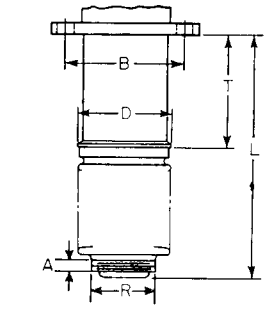


Figure 39. Type "O"

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 4 Section B: Tabulation of Key Numbers

Key No.	Fig. No.	A Mounting Flange Bolt Circle	No. Bolts	Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R O.D.	Thds	B Lgth.	Amp Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 13.8-15 Kv Bushings													
112	36	6	4	½	14½	11⅛	....	....	..	0	165	T	31B452; 66B332; 1B5020; 31A515, Gr. 1, 2, 3, 8, 10; 4B6010; 4B7274; 7B2065; 7B2067; 7B2107
113	36	6	4	½	19½	16⅛	....	....	..	0	165	T	31B453; 81B342; 2B458; 24B2411; 2B4258; 8B8009; 11B1380; 2B6261; 4B4822; 5A5999; 4B8526; 4B6011; 4B7275; 7B2066; 31A515, Gr. 4, 5, 6; 7B2069; 7B2108; 7B2552
114	36	6	4	½	24⅝	21¼	....	....	..	0	165	T	1B5217; 6B4380
116	38	6	4	½	17⅛	11⅛	....	1	14	2⅝	550	T	31B709; 1B5953; 7B2061; 31A515, Gr. 7; 6B5098
117	38	6	4	½	22⅛	16⅛	....	1	14	2⅝	550	T	31B454; 83B314; 2B5633; 31A515, Gr. 11, 12, 13, 14; 4B5444; 4B6012; 4B7276; 7B2109
118	38	6	4	½	27¼	21¼	....	1	14	2⅝	550	T	31B455; 82B458; 2B4069; 24B2417; 4B6017
119	36	6	4	½	23⅛	21⅛	....	....	..	....	165	T	7B2956
123	36	7	3	½	19⅝	16¼	....	....	..	0	400	T	31B456; 65B370; 81B490; 24B2418; 4B4634; 7B1329
124	36	7	3	½	24¾	21⅜	....	....	..	0	400	T	92B584; 92B984; 6B5312; 24B2419; 443C812, Gr. 1, 2; 450C211, Gr. 1, 6, 8, 9
125	38	7	3	½	22¾	16¼	....	1½	12	3⅛	1000	T	31B457; 65B713; 4B6013; 24B2413; 4B8527; 4B6489; 4B7277
126	38	7	3	½	27⅞	21⅜	....	1½	12	3⅛	1600	T	31B458; 93B845; 4B6014; 24B2414; 24B6544; 4B7278; 8B6128; 15B1781; 450C216, Gr. 1, 6, 8, 9, 10
127	38	7	3	½	23¾	16¼	....	2	12	4⅛	1450	T	31B459; 93B499; 7B2648; 11B2749
128	38	7	3	½	28⅞	21⅜	....	2	12	4⅛	1450	T	31B460; 4B6015; 4B7279; 11B4760; 6B5613; 31A515, Gr. 31; 11B7114; 24B2415
132	38	8¼	3	½	23¾	16¼	....	2½	12	4⅛	1920	T	31B461; 92B541; 11B5281
133	38	8¼	3	½	28⅞	21⅜	....	2½	12	4⅛	1920	T	31B462; 4B6016; 4B7280; 24B2416; 15B4081; 31A515, Gr. 37; 7B1745; 11B7115; 450C214, Gr. 1, 6, 8
138	38	9¾	8	½	29⅛	21⅜	....	3	12	3⅞	2700	T	92B648; 1B4814; 7B1327; 11B7155; 24B3148; 11B1364; 11B3848
151	38	6⅝	3	½	20¼	①	2⁷⁄₁₆	1	14	1⅞	600	CB	1A5041; 2A9884; 4A5902; 4A5980; 6A1440; 7A2058, Gr. 1, 2; 9A8077, Gr. 3, 4, 6; 8A2456, Gr. 1; 9A2707; 14A3430, Gr. 1; 424D600, Gr. 3; 424D424, Gr. 5; 891D533, Gr. 5; 891D534, Gr. 3
152	38	7½	4	¾	26	①	....	1	14	2⅜	600	CB	952158; 62A641; 13A4480, Gr. 1
153	38	6⅝	3	½	20	①	2⁷⁄₁₆	1¼	12	1⅞	1200	CB	1A6199; 4A5903; 4A5981; 6A1441; 7A2058, Gr. 3, 4; 9A8077, Gr. 1, 2, 5; 383D602, Gr. 1; 424D424, Gr. 2, 7; 424D600, Gr. 2; 891D533, Gr. 2, 8; 891D534, Gr. 2, 4
154	38	7½	4	¾	26	①	....	1½	14	2⅜	1200	CB	952159; 62A642; 13A4480, Gr. 2
155	37	6½	3	½	15⅝	①	....	1¼	12	1¹⁵⁄₁₆	1200	CB	42A362; 1A5249; 13A4480, Gr. 4
157	37	8⅛	3	⅝	18³⁄₁₆	①	....	1½	14	2⅝	1200	CB	③340909; 18A932; 92A71
158	37	6¼	3	½	14³⁄₁₆	①	....	¾	16	1⅞	400	CB	640014; 4A4513; 9A8077, Gr. 8
159	37	6½	3	½	14³⁄₁₆	①	....	1	14	1⅞	600	CB	640015; 4A2072; 9A8077, Gr. 7
160	38	6⅝	3	½	20	①	2⁷⁄₁₆	1¼	12	2	600	CB	424D424, Gr. 1, 6; 424D600, Gr. 1; 891D533, Gr. 1, 891D534, Gr. 1, 7; 891D772, Gr. 1, 3

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ On drawing 340909, C=4½, kv=7.5, amp=1000.

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Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R O.D.	Oil End Lead Threads R Thds.	Oil End Lead Threads B Lgth.	Amp. Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 23-25 Kv Bushings													
212	36	6	4	½	15	11⅛	....	....	..	0	165	T	31B463; 83B117; 93B825; 31A516, Gr. 2, 3; 4B6020; 4B7281; 7B2070; 7B2072; 7B2113; 53B3128; 441C620
213	36	6	4	½	20	16⅛	....	....	..	0	165	T	31B464; 65B769; 4B6021; 24B2421; 440C621; 4B4698; 4B7282; 7B2071; 7B2073; 7B2114; 7B2649; 31A516, Gr. 4, 5, 6
214	36	6	4	½	25⅛	21¼	....	....	..	0	165	T	83B873; 8B6907
216	38	6	4	½	17⅝	11⅛	....	1	14	2⅝	520	T	2B6728; 4B6106
217	38	6	4	½	22⅝	16⅛	....	1	14	2⅝	520	T	31B465; 1B4977; 4B6022; 31A516, Gr. 7, 8; 4B7283; 24B2422
218	38	6	4	½	27¾	21¼	....	1	14	2⅝	520	T	31B466; 7B2631; 11B2095
223	36	7	3	½	20⅛	16¼	....	....	..	0	400	T	31B467; 2B4734; 7B1507; 11B2305; 15B1489; 27B2352
224	36	7	3	½	25¼	21⅜	....	....	..	0	400	T	46B354; 11B4272; 15B7892; 24B2428
225	36	7	3	½	31⅝	27¾	....	....	..	0	400	T	64B562
228	38	7	3	½	23¼	16¼	....	1½	12	3⅛	950	T	31B468; 93B769; 4B6023; 24B2196; 24B2423; 4B7284; 7B1743; 31A516, Gr. 17
229	38	7	3	½	28⅜	21⅜	....	1½	12	3⅛	950	T	31B469; 2B4715; 6B5311; 24B2426; 27B2350; 53B1988; 11B2096; 31A516, Gr. 21
232	38	8¼	3	½	24¼	16¼	....	2	12	4⅛	1375	T	31B470; 83B316; 31A516, Gr. 24; 11B3446; 24B1098
233	38	8¼	3	½	29⅜	21⅜	....	2	12	4⅛	1375	T	4B7285; 31B471; 4B6024; 24B2424; 1B4588; 31A516, Gr. 27; 440C129, Gr. 1
235	38	8¼	3	½	24¼	16¼	....	2½	12	4⅛	1820	T	31B472; 11B4396; 31A516, Gr. 31
236	38	8¼	3	½	29⅜	21⅜	....	2½	12	4⅛	1820	T	31B473; 1B5280; 1B5497; 15B1752; 4B6025; 4B7286; 7B2118; 31A516, Gr. 34; 450C224
243	36	7	3	½	11	7⅛	....	....	..	0	100/200	CT	69A839; 4B6026
244	36	8¼	4	½	11⅜	7½	....	....	..	0	200/400	CT	69A840; 4B6027
245	36	9¾	8	½	11¾	7⅞	....	....	..	0	500/1000	CT	69A841; 4B6028
246	36	11⅛	8	½	12¼	8⅜	....	....	..	0	500/1000	CT	69A842; 4B6029
251	37	7½	4	¾	30½	①	....	1½	14	2⅝	1200	CB	952127; 62A638; 2A6586; 4A1925; 5A9598; 6A8890, Gr. 2; 7A9324, Gr. 2; 7A2154, Gr. 3; 11A5185, Gr. 4; 8A2847
252	38	7½	4	¾	30½	①	....	1	14	2⅝	600	CB	952126; 62A640; 44A4367
253	38	10½	4	¾	30⅞	①	....	2¼	12	3	2000	CB	662741; 643987; 89A143; 8A2847, Gr. 2; 83A941; 1A4839; 96A939; 4A1980; 4A7890; 6A1732; 6A8890, Gr. 3, 4; 7A9324, Gr. 4, 5; 7A2154, Gr. 2; 15A9772, Gr. 3
254	37	10½	4	⅝	29¼	①	....	3	12	4¼	3000	CB	58A966; 4A7913; 6A1733; 8A2847, Gr. 3; 6A8890, Gr. 6; 7A7002; 7A2154, Gr. 1; 7A2481; 7A9324, Gr. 6; 11A5185, Gr. 1
255	38	10½	6	¾	30	①	....	4	12	6	4000	CB	680580; 96A672; 5A6008; 8A2847, Gr. 4; 5A6275; 6A8890, Gr. 7, 8; 21A5398, Gr. 4; 7A9324, Gr. 7, 8; 11A5185, Gr. 2; ③21A5398, Gr. 2
256	38	7½	4	¾	30½	①	....	1¼	14	2⅝	600	CB	3A8133; 3A8135; 6A1286; 6A8890, Gr. 1; 7A9324, Gr. 1; 11A5185, Gr. 5; ③21A5398, Gr. 1

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ Special for Public Service Co. of N. J.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Key No.	Fig. No.	A Mounting Flange: Bolt Circle	A Mounting Flange: No. Bolts	A Mounting Flange: Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads: R O.D.	Oil End Lead Threads: R Thds	Oil End Lead Threads: B Lgth.	Amp Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 23-25 Kv Bushings, Continued													
257	38	10⅛	4	¾	29	①	....	2¼	12	3⅛	2000	CB	60A815; 6A8890, Gr. 5; 7A9324, Gr. 3; 11A5185, Gr. 3
258	37	8⅛	3	⅝	17 7/16	①	....	1	14	1⅝	400	CB	340908; 18A931; 80A97; 11A5307, Gr. 1
259	37	7⅝	4	⅝	27 3/16	①	....	1½	14	2⅜	1200	CB⑤	404314; ④96A427; ③6A8872, Gr. 1; 8A1153, Gr. 1
261	38	7⅞	4	⅝	25 5/16	①	....	1½	14	2½	1200	CB	661054; 90A739; 6A1227; 8A1153, Gr. 3
263	38	10½	4	¾	31¼	①	....	3	12	4¼	3000	CB	662737; 3A8114; 15A9772, Gr. 1
264	38	7⅝	4	⅝	28 1/16	①	....	2¼	12	3⅛	2000	CB	637376; 79A497; 8A1153, Gr. 2
265	37	6½	3	½	16⅝	①	....	1	14	2	600	CB	23A713; 69A462; 96A469; 21A5675, Gr. 1; 2A5317; 8A1153, Gr. 4
266	37	6⅝	3	½	22¾	①	....	1	14	1⅞	600	CB	1A5179; 2A6451; 4A5904; 6A1534; 9A8429, Gr. 1, 2; 15A9772, Gr. 2; 445D873, Gr. 1, 2, 4; 445D906, Gr. 1, 2;
283	36	7¼	4	⅝	16½	10	3⅛	....	..	0	400	T	447C221, Gr. 1, 2; 452C423, Gr. 1, 3, 5, 7; 462C421, Gr. 1; 53B2221, Gr. 1, 2, 3
284	36	7¼	4	⅝	23	16½	3⅛	....	..	0	400	T	446C822, Gr. 1, 2; 450C422, Gr. 1, 2; 452C423, Gr. 2, 4, 6,8; 53B2222, Gr. 1, 2, 3, 4, 6
285	36	7¼	4	⅝	27½	21	3⅛	....	..	0	400	T	445C623, Gr. 1; 458C923, Gr. 1, 2; 53B2223, Gr. 1, 2, 3
286	38	7¼	4	⅝	30½	21	3⅛	1½	12	2½	1200	T	450C426, Gr. 1, 2; 469C025, Gr. 1, 2; 53B2226, Gr. 1, 2
287	38	7¼	4	⅝	36½	27	3⅛	1½	12	2½	1200	T	53B2227, Gr. 1, 2
288	38	7¼	4	⅝	29½	17①	3⅛	1½	12	2½	1200	CB & T	42A9626, Gr. 1; 44A9807, Gr. 1; 53B2228, Gr. 1, 2
289	38	8¾	4	¾	31½	①	4	2¼	12	4	2000	CB	47A6527, Gr. 1; 42A9626, Gr. 2, 5; 405D511, Gr. 1
290	38	8¾	4	¾	31½	①	5	3¼	12	4	3000	CB	42A9626, Gr. 3, 6; 405D511, Gr. 2
291	38	9¾	4	¾	31½	①	6	4	12	4	4000	CB	42A9626, Gr. 4, 7
292	38	7¼	4	⅞	29½	16½ CB, 21 TR	3⅛	1½	12	2⅛	1200	CB & T	424D787, Gr. 1, 2; 226C325, Gr. 1; 425C325, Gr. 1, 2, 3, 4, 6, 7, 8, 9

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ Special for Public Service Co. of N. J.
④ These drawings require flat flange ring.
⑤ Flat seat.

Westinghouse

Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R O.D.	Oil End Lead Threads R Thds.	Oil End Lead Threads B Lgth.	Amp. Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 33-34.5 Kv Bushings													
305	36	8¼	4	½	10½	⑦	....	....	..	...	....	T	377951; 604920; 662770; 301261; 16A2830, Gr. 1
306	36	8¼	4	½	12⅝	⑦	....	....	..	...	....	T	604956
312	36	7	4	½	16⅛	11¼	....	....	..	0	165	T	③952160; ③10A982, 8A9159; 24B2430; 11B3839; 31B474; 1B4182; 1B5437; 31A517, Gr. 4, 5, 6; 2B4651; 4B6030; 4B7287; 4B6332; 6B4376; 7B2074; 7B2076; 7B2119
313	36	7	4	½	21⅛	16¼	....	....	..	0	165	T	31B475; 6A2673; 4B6031; 24B2431; 4B8528; 7B2120; 4B7288; 53B2599; 7B2075; 7B2077; 31A517, Gr. 1, 2, 3; 1B5592, Gr. 1
316	38	7	4	½	19¼	11¼	....	1	14	3⅛	500	T	11B5230; 31A517, Gr. 16; 2B4748; 46B652
321	36	8¼	4	½	16⅛	11¼	....	....	..	0	165	T	46B897; 1B4936; 4B8298
323	36	8¼	4	½	21⅝	16¼	....	....	..	0	400	T	③635812; ③662766; ③86A730; 11B7130; 24B4595; 4B8529; 7B2121; 6A2656; 15B1769; 6A2747; 12A7024; 5A5134; 15B2959; 31B476; 81B685; 81B755; 24B2432; 24B2437; 31A517, Gr. 7, 9; 93B708; 4B6032; 4B7289; 7B2975
324	36	8¼	4	½	26⅝	21¼	....	....	..	0	400	T	66B265; 7B1512; 15B1786; 24B2435
326	38	8¼	4	½	24¼	16¼	....	1½	12	3⅛	890	T	31B477; 6B4217; 24B2433; ⑤4B8530; 83B315; 2B4356; 4B6033; 4B7604, Gr. 1; 8A5240, Gr. 1; 4B7290; ⑤7B1424; 31A517, Gr. 10, 11, 13, 14
327	38	8¼	4	½	29¾	21¼	....	1½	12	⅛	890	T	31B478; 1B5496; 53B3136; 7B1511; 31A517, Gr. 12; 15B1782; 24B1440; 24B2436; 24B7472; 7B1511
328	38	8¼	4	½	24⅝	16⅝	....	1½-1¾	14	3⅛	1075	T	④661200; 6B4931; 605900
332	38	9¾	8	½	26¼	17¼	....	2	12	4⅛	1280	T	31B479; 92B545
333	38	9¾	8	½	31⅛	22⅛	....	2	12	4⅛	1280	T	31B480; 1B5936; 4B6034; 15B1788; 4B6354; 4B7291; 4B8531
335	38	9¾	8	½	31⅛	22⅛	....	2½	12	4¼	1700	T	11B4271; 20A5990; 24B2438; 24B7771; 24B8938; 440C434, Gr. 1, 2, 3, 4, 6, 7
340	38	11⅛	8	⅝	31⅝	22⅝	6¾	3½	12	4¼	3420	T	11B7199; 24B4485; 8A8019; 440C435, Gr. 1, 2, 3, 4, 5, 6, 8
343	36	8¼	4	½	14¼	8½	....	....	..	0	100/200	CT	69A843; 3A2607; 3A3672; 11B6452; 5A4910; 4B6036; 8A9162; 7B2650; 6B4377
344	36	8¼	4	½	14¼	8½	....	....	..	0	200/400	CT	69A844; 3A2598; 4B6037; 53B1934
345	36	9¾	8	½	14¾	9	....	....	..	0	500/1000	CT	69A845; 4B6038; 15B2029
346	36	11⅛	8	¾	15⅜	9⅝	....	....	..	0	500/1000	CT	69A846; 4B6039
350	37	7½	4	¾	30½	①	....	1	14	2⅜	600	CB	951169; 62A639; 7A7006, Gr. 1; 19A4791, Gr. 1

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ L dimension is approximate only for these bushings.
④ L-T-R approximate only for these bushings.
⑤ 1½-14 threads at ends of bushings.
⑦ Insulated cable lead.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Key No.	Fig. No.	A Mounting Flange: Bolt Circle	A Mounting Flange: No. Bolts	A Mounting Flange: Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R: O.D.	R: Thds	B: Lgth.	Amp Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 33-34.5 Kv Bushings, Continued													
351	37	7½	4	¾	30½	①	....	1¼	14	2⅜	600	CB	3A8375; 3A8376; 4A5908; 6A1241; 6A8873, Gr. 1; 7A9325, Gr. 2; 13A1965, Gr. 2
352	37	7½	4	¾	30½	①	....	1½	14	2⅜	1200	CB	951170; 63A310; 90A139; 13A1965, Gr. 3; 2A1759; 96A343; 1A6121; 2A6366; 3A9915; 6A1517; 6A1735; 6A1925; 6A8873, Gr. 4; 7A1450, Gr. 1; 7A7006, Gr. 4; 7A2113, Gr. 5; 7A9325, Gr. 3; 11A6599, Gr. 1
353	37	8	4	½	22½	①	....	1	14	2⅛	600	CB⑥	643975; 680639; 23A770; 62A606; 1A8195; 2A9954; 4A2548; 4A6089; 4A6164; 6A8873, Gr. 2; 7A2113, Gr. 1, 2; 7A9325, Gr. 1; 7A7006, Gr. 5; 7A1450, Gr. 5; 13A1965, Gr. 1; 19A4761, Gr. 1
354	38	8	4	½	22½	①	....	1	14	2⅛	600	CB③	383753; 643975; 62A606; 4A2548; 4A6089; 4A6164; 23A770; 7A9325, Gr. 6; 6A8873, Gr. 3; 19A4761, Gr. 2
355	38	10½	4	¾	30⅞	①	....	2¼	12	3	2000	CB	622518; 66A36; 1A8294; 6A1226; 6A1516; 6A8873, Gr. 5; 7A1450, Gr. 2, 3; 7A7006, Gr. 6; 7A9325, Gr. 4; 7A9325, Gr. 7; 11A6599, Gr. 2; 2B5999
356	38	10½	6	¾	30⅞	①	....	3	12	4	3000	CB	90A652; 6A8873, Gr. 6; 7A2113, Gr. 6; 7A9325, Gr. 5
357	37	10¼	4	¾	21½	①	....	1	14	2 1/16	600⑨	CB	89A179; 5A9446; 10A928; 17A3905, Gr. 1
363	38	10	4	¾	30⅞	①	....	1½	14	2⅞	400	CB	621428; 647675; 6A1225; 7A7004, Gr. 3, 4
364	38	13	6	⅞	35¾	①	....	2¼	12	3⅜	2000	CB	662733; 662771; 1A8883; 7A7004, Gr. 8; 9A8474; 21A9879, Gr. 1
365	38	8½	4	¾	31 7/16	①	....	1½	14	2¾	1200	CB	5A9467
366	38	7⅞	4	⅝	29 5/16	①	....	1½	14	2¾	400	CB	647681
367	37	7⅞	4	⅝	29 5/16	①	....	1½	14	2¾	1200	CB	647681; 79A250; 1A8138; 7A7004, Gr. 1
368	38	Rect. (4⅝x8)	4	½	26 3/16	①	....	1	14	2	600	CB③	52A109; 7A1450, Gr. 6
370	37	10	4	¾	30⅞	①	....	1½	14	2⅞	1200	CB	621428; 63A319; 73A772; 13A1965, Gr. 4; 1A4888; 1A7463; 3A4241; 7A7009, Gr. 9; 3A9916; 6A1225; 7A2113, Gr. 3, 4; 7A7004, Gr. 2, 3, 4; 11A4538, Gr. 1; 7A7006, Gr. 2, 3; 19A4761, Gr. 4

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ Flat seat.
⑥ Bevel seat.
⑨ At 25 cycles.

Westinghouse

Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R O.D.	Oil End Lead Threads R Thds.	Oil End Lead Threads B Lgth.	Amp. Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 66-69 Kv Bushings													
513	38	9¾	8	½	33¼	17³⁄₁₆	....	....	..	0	400	T	684723; ③344529; ③369100; 24B2460; ③420862; ③622730; ③628387; 24B2466; 30A403; 12A7727; 86A969; 88A369; 3A2633; 3A4581; 6A3674; 4B6060; 4B7297; 29A5164; 7B2082; 7B2084; 1A3174, Gr. 4; 62A3069; 6B5095, Gr. 1; 31A519, Gr. 1, 4, 7, 8; 12A8937; 12A8938; 16A2496; Gr. 1; 16A4430, Gr. 1; 16A4729, Gr. 1; 16A7169, Gr. 1
514	38	9¾	8	½	38⅜	22⁵⁄₁₆	....	1½	12	2⅛	400	T	31A942; 2A2269; 4B6061; 28A8255; 26A9971 4B7298; 7B2083; 7B2085; 623429; 16A7373, Gr. 1; 16A8269, Gr. 1; 20A2329; 37A3573; 37A5076; 24B2461; 37A4369
516	38	9¾	8	½	34⅝	17³⁄₁₆	....	1½	12	3	750	T	30A404; 88A297; 3A4799; 11B1355; 13A9220, Gr. 1
517	38	9¾	8	½	39¾	22⁵⁄₁₆	....	1½	12	3	750	T	30A405; 4B6062; 4B7299; 24B2462; 11B7170; 16A9779, Gr. 1; 24B5838; 26A5873
523	39	9¾	8	...	....	....	....	1¾	12	...	....	T	16A4769, Gr. 1
524	39	9¾	8	...	....	....	....	1¾	12	...	....	T	16A5468, Gr. 1
526	38	9¾	8	...	....	....	....	1¾	12	...	....	T	.....
527	39	9¾	8	...	....	....	....	...	..	...	....	T	16A5469, Gr. 1
529	38	9¾	8	½	39¾	21⁵⁄₁₆	....	2	12	4¼	1650	T	20A2384; 24B2468; 20A4053; 29A8074; 26A8256; 616D064, Gr. 1, 2; 440C469, Gr. 1, 2
534	38	11⅛	8	¾	39¾	11⅞	....	2½	12	3⅛	2080	T	16A9169; 58A7473
540	36	9	4	⅝	21¾	8¾	....	....	..	0	....	CT	③604964; 72A197; 3A5383; 53B6469; 4B6065; ③952093; 301223; 11B2755
543	36	9¾	8	½	25⅛	11⁷⁄₁₆	....	....	..	0	100/200	CT	69A851; 88A733; 6A3591; 20A1873; 4B6066; 31A519, Gr. 9; 7B2969
544	36	11⅛	8	¾	25⅞	12³⁄₁₆	....	....	..	0	200/400	CT	69A852; 88A734; 4B6067
545	36	14	8	¾	26⅛	12⁷⁄₁₆	....	....	..	0	400/800	CT	69A853; 88A298; 4B6068
546	36	14	8	¾	26⅛	12⁷⁄₁₆	....	....	..	0	400/800	CT	69A854; 4B6069; 15B2314
553	37 or 39	9¼	4	⅝	22¼-23½	①	....	1¼	14	1¼-2¼	400/600	CB	363894; 373838; 660018; 4A6090; 63A311; 2A9850; 25A9686, Gr. 1, 3; 6A4269, Gr. 1, 2, and 3; 440C463, Gr. 1, 2; 891D806, Go. 1, 3, 6
553	37 or 39	9¼	4	⅝	22¼-23½	①	....	1¼	14	1¼-2¼	400/600	CB & T	351905; 604736; 622014; 17A2868, Gr. 1; 70A910; 3A5382; 19A1771, Gr. 1; 6A4269, Gr 3; 12A2919, Gr. 1, 3; 72A414, Gr. 1, 5; 440C463; 609D069, Gr. 1; 891D806, Go. 1, 3, 6; 446C727, Gr. 1; 469C261, Gr. 1; 257D161, Gr. 1; 591D961, Gr. 1; 614D261, Gr. 1, 2, 3; 53B2261, Gr. 1, 2
554	37 or 39	9¾	8	⅝	38¼	①	5¹⁵⁄₁₆	1½	12	2⅜	600	CB	24A2505, Gr. 1; 24A3118, Go. 1, 2
555	37 or 39	9¾	8	⅝	38¼	①	5¹⁵⁄₁₆	1½	12	2⅜	1200	CB	24A2505, Gr. 2, 6
556	37 or 39	11⅛	8	¾	44¾	①	....	1½	14	3	1200	CB	⑨680494; 1A738; ③18A828; 22A6524, Gr. 1; 63A318; 73A887; 90A697; 94A156; 1A5080; ③2A2080; 5A6086; ③6A2934; 6A8895, Gr. 2; 7A9327, Gr. 2; 11A6598, Gr. 2; 11A8012, Gr. 2; 18A7270, Gr. 2

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ L and T dimensions are approximate only.
⑨ S# 590 448 only.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Key No.	Fig. No.	A Mounting Flange Bolt Circle	No. Bolts	Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Threads R O.D.	Thds	B Lgth.	Amp Rating ②	T=Transf. CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 66-69 Kv Bushings, Continued													
557	37	11⅛	8	⅝	41¾	①	5⅞	2¼	12	3⅜	2000	CB	27A5522
558	37	11⅛	8	¾	44¾	①	5⅞	2¼	12	3½	2000	CB	44A1262, Gr. 1; 7A9324, Gr. 4; 445D346, Gr. 2, Go. 2
561	37	9¼	4	⅝	33½	①	....	1¼	14	2¼	600	CB	26A774; 61A805; 94A86; 7A9327, Gr. 3; 11A6598, Gr. 3; 18A7270, Gr. 3
562	37	11⅛	8	¾	44¾	28 1/16①	5 3/16	1½	14	3	400/600	CB & T	④680494; 3A8147; 3A8362; 18A828; 6A8895, Gr. 1; ⑤6A8445; ⑥7A6262, Gr. 1; 7A3702; 20A9690; 7A9327, Gr. 1; 11A6598, Gr. 1; 11A8012, Gr 1 or 2; 13A1966, Gr. 1; 17A3906, Gr. 1; ⑥15A6957, Gr. 1; 18A7270, Gr. 1
583	38	9¼	6	⅝	30½	16½	4¾	....	..	0	400	T	53B2261; 53B9861; 446C727, Gr. 1; 469C261, Gr. 1; 257D161, Gr. 1; 591D961, Gr. 1; 614D261, Gr. 1, 2, 3; 53B2261, Gr. 1, 2
584	38	9¼	6	⅝	35	21	4¾	....	..	0	400	T	53B2262; 440C462; 62A4569; 440C462, Gr. 1, 2; 614D262, Gr. 1, 2, 3; 53B2262, Gr. 1, 2
585	38	9¼	6	⅝	41	27	4¾	....	..	0	400	T	53B2263, 460C663, Gr. 1; 53B2263, Gr. 1, 2
586	38	9¼	6	⅝	38	21	4¾	1½	12	2½	1200	T	53B2266, Gr. 1, 2; 53B2269, Gr. 1, 2; 440C766; Gr. 1, 2
587	38	9¼	6	⅝	44	27	4¾	1½	12	2½	1200	T	53B2267; 53B2667, Gr. 1, 2
588	38	9¼	6	⅝	37½	17①	4¾	1½	12	2½	1200	CB & T	42A9629, Gr. 1; 47A6658, Gr. 1; 53B2268, 445D346, Gr. 1; 53B2268, Gr. 1, 2
592	39	9¼	6	¾	37½	①	5¼	1½	12	2 7/16	1200	CB & T	383D326, Gr. 1, 2; 424D813, Gr. 1, 2, 3, 4; Gr. 1, 2, 3, 4; 612D365, Gr. 1, 2
593	39	10	6	¾	33	①	5⅛	....	..	...	2000	CB	382D506, Gr. 1, 2, 3
594	37	11⅛	8	¾	42⅝	①	....	1½	14	2½	800	CB⑧	623734; 79A198; 80A208; 5A6273; 12A2918 Gr. 1; 18A1323, Gr. 1

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
④ S # 590 448 only.
⑤ 6A8445 has larger diameter than others of Key 562.
⑥ 15A6957 has larger diameter than others of Key 562; has 2 layer voltage tap.
⑧ 77 kv.

Westinghouse

Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Thds. R O.D.	Oil End Lead Thds. R Thds.	Oil End Lead Thds. B Lgth.	E③	Amp Rating ②	T=Transf CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 88-92 Kv Bushings														
601	39	11⅛	8	¾	37⅝	19⅞①	....	2	12	3¼	1⁷⁄₁₆	400	CB & T	330261; ④367220; 420877; 647694; 17A6795 Gr. 1; 16A4188, Gr. 1; 16A4773, Gr. 1; 56A781; 71A286; 80A141; 87A876; 96A486; 35B216; 6A3614; 9A5928, Gr. 1; 12A7026, Gr. 1, 4; 62A4588
602	39	11⅛	8	¾	37⅝	①	....	2	12	3¼	....	1200	CB	17A3903
604	37	11⅛	8	¾	47¼	①	....	1½	14	3	⅝	600	CB & T	680479, Fig. 2; 680620, Fig. 2; 13A8850, Gr. 1 69A259; 7A2140
605	39	11⅛	8	¾	39⅜	①	....	2	12	5	...	1400	CB & T	662743; 4A893; 84A765; 56A782; 26A3988
606	38	11⅛	8	¾	39½	19¼	....	2¼	12	2¾	¼	....	T	4A885; 13A8848, Gr. 1
607	39	13¼	6	1¼	40½	23	7	...	..	...	...	800	T	589D192
608	39	13¼	6	1¼	44¼	26¾	7	...	..	...	...	800	T	589D193
614	39	11⅛	8	¾	43⅜	22¹³⁄₁₆	....	2	12	2⅝	1¹¹⁄₁₆	....	CB & T	20A7520; 58A2239; 31A792; 85A492; 5A4392; 13A6101, Gr. 1; 17A3904; Gr. 1; 13A9292, Gr. 1
615	39	11⅛	8	¾	43⅜	22¹³⁄₁₆	....	2	12	2⅝	1¹¹⁄₁₆	....	T	13A9293, Gr. 1
616	39	14	8	¾	46	22⅝	....	2½	12	4	3¾	....	T	26A9062; 29A4700
For 110-115 Kv Bushings														
651	39	13¼	6	¾	38⁵⁄₁₆- 39⁵⁄₁₆	18¹⁄₁₆- 19¹⁄₁₆	....	2	12	...	1⅞	400	CB & T	16A4161, Gr. 1; 20A9495; 26A8620; 363131; 419892; 660016; 662740; 56A702; 56A704; 63A313; 84A72; 16A4926, Gr. 4; 86A993; 2A4605; 74A919; 4A6001; 5A4748; 55B330; 12A7730, Gr. 1; 29A2540; 98A790, Gr. 1, 3; 29B550; 1A5247; 3A8469; 6A1504; 7A6438, Gr. 1, 10; 13A4484, Gr. 1
654	39	14	8	¾	45⅜	21⁹⁄₁₆	....	2¼	12	3¼	⅜	600	CB & T	661000; 667385; 690558; ⑥3A3187, Gr. 4; 6A1506; Gr. 1, 8; 34A268; 56A705; 79A166; 16A2455, Gr. 4; 81A945; 87A131; ⑥1A2590; 2A3135; 3A3235, Gr. 4; 4A6165; 4A7828; 5A9463; 16A3635, Gr. 1; 34A5256; 6A4657; 7A9551, Gr. 1, 2; 13A2845, Gr. 1; 12A4560, Gr. 1, 2; 21A9122, Gr. 1; 20A3028
655	39	14	8	¾	45⅜	21⁹⁄₁₆	....	2¼	12	3¼	⅜	1200	CB & T	13A2845, Gr. 2; 21A9122, Gr. 2; 20A3352; 593D315
658	39	13¼	6	1¼	46¾	26¾	8¾	...	..	...	...	800	T	589D115
659	39	13¼	6	1¼	43	23	8¾	...	..	...	...	1200	CB & T	589D116; 408D780, Gr. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; 424D832, Gr. 1; 602D116, Gr. 1, 2; 602D616, Gr. 1, 2; 589D116, Gr. 1, 2, 3, 5, 6, 7, 8, 9

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ Additional inside length when transformer ball is used.
④ L=36⅝, R=2¼.
⑤ Angle seat.
⑥ Not adapted for circuit breaker arc shields.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Key No.	Fig. No.	A Mounting Flange: Bolt Circle	A Mounting Flange: No. Bolts	A Mounting Flange: Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Thds. R: O.D.	Oil End Lead Thds. R: Thds.	Oil End Lead Thds. B: Lgth.	E③	Amp Rating ②	T=Transf CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 110-115 Kv Bushings, Continued														
660	39	13¼	6	1¼	43	23	9¾	...	..	...	...	1600	CB & T	589D114; 408D384, Gr. 1, 2
661	39	13¼	6	1¼	43	....	8¾	...	..	...	...	1600	CB & T	5416D15, Gr. 1; 242D114, Gr. 1, 2, 3, 4; 408D780, Gr. 3, 4, 6, 8, 10
664	37 or 38	14	8	¾	46⅞	23	....	2	12	2⅝	1 1/16	....	T	31A815; 85A515; 88A315; 5A4315
665	37 or 38	14	8	¾	47½	23	....	2¼	12	3¼	...	600	CB & T	11A2115; 12A3226, Gr. 1; 41A5032, Gr. 1; 11A3865; 14A6077, Gr. 1; 26A3475; 34A1415; 13A6102; 13A9315, Gr. 1; 16A2833, Gr. 1; 16A2450, Gr. 1; 4B8155; 4B8449; 591D816, Gr. 1, 2
666	37 or 39	14	8	¾	47½	23	....	2¼	12	3¼	...	1200	CB & T	12A3226, Gr. 2; 13A9316, Gr. 1; 14A6077, Gr. 2; 41A5032, Gr. 2; 37A3576; 587D916; 588D615; 589D113; 581D916, Gr. 1; 588D615, Gr. 1
681 ⑦	37	14	8	⅞	51½	①	....	2	12	3¼	...	600	CB	76A52; 2A1758, Gr. 4; 3A8577; 6A1395, Gr. 1 3A9429; 6A8422, Gr. 2; 8A7862; 94A135, Gr. 1, 2; 8A4422; 5A8896, Gr. 1, 6
682 ⑦	37	14	8	⅞	51½	①	....	2	12	3¼	...	1200	CB	4A7413; 5A8897, Gr. 1; 6A1398, Gr. 1
685	39	16¼	8	⅞	52 5/16	①	....	3	12	3¼	...	1600	CB	44A9808, Gr.1
686	39	14¼	6	1¼	43	①	10 3/64	...	..	...	...	2000	CB	382D559, Go. 1, 2
For 132-138 Kv Bushings														
701	39	15½	6	¾	42⅜	19¼⑧	....	2¼	12	3¼	⅜	400/600	CB & T	⑤369147; 420669; 660023; 14A1678, Gr. 5; 660013; 56A531; 98A791; 662729; 680663; 55A222; 4A6333, Gr. 1; 9A6333, Gr. 1; 56A492; 6A2496; 7A2343, Gr. 1, 2; 14A1678, Gr. 1
702	39	15½	6	¾	46 15/16	24 15/16	....	2½	12	3¼	...	600	CB & T	⑤350941; ⑤605481; 662769; 680540; 955087; 56A532; 6A1515, Gr. 1; 8A4421, Gr. 1; 9A7035; 18A1321, Gr. 1; 19A6486, Gr. 1
704	37 or 39	16¼	8	⅞	49⅜	22¼⑧	....	2½	12	3¼	⅜	600	CB & T	661060; 680541; 680621; 690551; 23A3800, Gr. 1; 5A3277, Gr. 4; 680540; 20A7083; 20A7519; 20A7788; 9A266; 34A269; 92A195; ④63A315; 92A295; 5A5692; 6A8447, Gr. 1; 11A4901, Gr. 1, 2; 13A4196, Gr. 1; 12A4560, Gr. 3 or 4; 2A1632, Gr. 4; 5A3277, Gr. 4; 16A2810, Gr. 4; 16A3619, Gr. 1; 19A7462, Gr. 1
705	39	15½	6	¾	42⅜	①	....	2¼	12	2 1/16	...	1200	CB	14A1678, Gr. 8
706	37 or 39	15½	6	1	51⅞	23⑧	....	2½	12	3¼	1 1/16	800	CB & T	85A573; 2A2331; 6A2689; ⑥38A5992, Gr. 1; 7A1373, Gr. 9; 16A6614, Gr. 1

① For circuit breakers, use oil height as per oil gauge on tank.
② See note on nominal current ratings on page 30.
③ Additional inside length when transformer ball is used.
④ Not adapted for circuit breaker arc shields.
⑤ 400 amps.
⑥ Have 15½ BC, 6—1-inch bolts; also 16¼ BC, 8—¾-inch bolts.
⑦ Except tubular lead.
⑧ For circuit breakers, use oil height as per oil gauge on tank. Key numbers 751 to 754 inclusive: In type "O" bushing the "T" dimension is as per fig. 40 to 43.

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Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange: Bolt Circle	A Mounting Flange: No. Bolts	A Mounting Flange: Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Thds. R: O.D.	Oil End Lead Thds. R: Thds.	Oil End Lead Thds. B: Lgth.	E③	Amp Rating ②	T=Transf CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 132-138 Kv Bushings, Continued														
707	37 or 38	16¼	8	⅞	49⅜	20½	....	2½	12	3¼	⅜	1200	CB & T⑤	⑦92A860; ⑦3A6160; ⑦3A6425; ⑦7A2142; ⑦18A4651, Gr. 1; ⑦8A6459, Gr. 1; 13A4196 Gr. 2; 19A7462, Gr. 2; 23A3800, Gr. 2; 588D638, Gr. 1
708	37 or 39	15½	6	1	51⅞	①	....	2½	12	3¼	....	1200	CB & T	⑥38A5992, Gr. 2; 590D838, Gr. 1
714	37 or 39	16¼	8	⅞	52$^{15}/_{16}$	23¼	....	2½	12	5⅝	1$^{11}/_{16}$	....	T	④31A838; ④56A765; 2A6314; ④85A538; 5A4338; 9A7928; 11A8010, Gr. 1, 2; 21A5009, Gr. 1; 22A2016, Gr. 1; 35A6368, Gr. 2; ⑥38A5992, Gr. 1
715	37 or 39	16¼	8	¾ or ⅞	51⅞	23¼①	....	2½	12	3¼	...	800	CB & T	13A9338, Gr. 1; 13A9880; 16A6614, 20A2766; 34A2846; 37A5084; 9A6238; 13A6103, Gr. 1; 11C3908; 12A3227, Gr. 1
716	38	16¼	8	⅞	55⅛	23¼	....	2½	12	6½	...	1125	T	54A722; 3A3487
717	39	16¼	8	¾ or ⅞	51⅞	23¼①	....	2½	12	3¼	...	1200	CB & T	13A9339, Gr. 1; 20A2381; 587D939; 11A8015; Gr. 1, 2; 12A3227, Gr. 2; 21A5009, Gr. 2; 20A2381, Gr. 1; 22A2016, Gr. 2; 31A3696, Gr. 1; 35A6368, Gr. 1; ⑥38A5992, Gr. 2 590D838, Gr. 1; 587D939, Gr. 1
718	39	14¼	6	1¼	50½	26¾	9¾	...	..	...	...	800	T	589D138
719	39	14¼	6	1¼	46¾	23	9¾	...	..	...	...	1200	CB & T	589D139; 408D781, Gr. 1; 408D781, Gr. 1, 2, 5, 9, 11, 13; 589D139, Gr. 1, 2, 3, 4; 592D138, Gr. 1; 602D139, Gr. 1, 2; 891D071, Gr. 1
721	39	14¼	6	1¼	46¾	23	10¾	...	..	...	..	1600	CB & T	595D137; 408D385, Gr. 1
722	39	14¼	6	1¼	46¾	①	9¾	..	..	...	...	1600	CB & T	408D781, Gr. 3, 4, 6, 7, 8, 10, 12, 14; 242D137, Gr. 1, 2; 5609D02, Gr. 1
734	39	16¼	8	⅞	52$^{5}/_{16}$	①	....	3	12	3¼	...	1200	CB	36A2695, Gr. 1
735	39	16¼	8	⅞	52$^{5}/_{16}$	①	....	3	12	3¼	...	1600	CB	36A2695, Gr. 5, 7
736	39	16¼	8	⅞	52$^{5}/_{16}$	①	....	3	12	3¼	....	2000	CB	36A2695, Gr. 6
737	39	15½	6	¾	51¾	①	....	2½	12	2$^{3}/_{16}$	...	1200	CB	18A1321, Gr. 1, 5
738	..	15¾	8	1¼	46¾	....	11⅞	...	...	...	...	2000/ 2500	CB	424D355, Gr. 1, 2, 3, 4, 5, 6, 7, 8

① For circuit breakers, use oil height as per oil gauge on tank. Key numbers 751 to 754 inclusive: In type "O" bushing the "T" dimension is as per fig. 36-39.
② See note on nominal current ratings on page 30.
③ Additional inside length when transformer ball is used.
④ Not adapted for circuit breaker arc shields.
⑤ 400 amps.
⑥ Have 15½ BC, 6—1-inch bolts; also 16¼ BC, 8—¾-inch bolts.
⑦ Kv=special 161 kv porcelain—increased insulation thickness.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Thds. R O.D.	Oil End Lead Thds. R Thds.	Oil End Lead Thds. B Lgth.	E③	Amp Rating ②	T=Transf CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 154-288 Kv Bushings														
751	39	15½	6	⅞	44⅛	18⅞①	....	2¼	12	3¼	⅜	600	154 Kv. CB & T	20A3766; ⑨⑦⑤369247; ⑤423721; 660024; 2A4913; 662745; 6A5109; 23A761; 29A875; 56A134; 56A135; 72A245; 17A6796, Gr. 1
752	39	14⅞	4-8	½	46⅝₁₆	22⅝₁₆①	....	2½	12	2¼	2⅝₁₆	600	154 Kv. CB & T	16A4484, Gr. 1; ⑤344608; ⑤605079; 9A7532, Gr. 1; 56A133; 70A5222; 96A906; 15A9770, Gr. 1
755	39	16¼	8	⅞	54	24-20⅜₁₆①	....	3	12	3¼	...	1200	CB & T	13A9362, Gr. 1; 47A6602; 69A366; 2A7045; 11A2161; 23A658; 96A556; 47A6648, Gr. 1; 5A9515; 8A2455; 13A9362, Gr. 1; 12A3228, Gr. 1
756	39	16¼	8	⅞	54	24-20⅜₁₆①	....	3	12	3¼	...	800	CB & T	13A9361, Gr. 1; 661005; 680665; 23A658; 12A3228, Gr. 5; 26A730; 79A113, 12A4560, Gr. 5, 6
759	39	15¾	8	1¼	54	26¾	11¼	...	..	...	...	800	T	589D161
760	39	15¾	8	1¼	50¼	23	12	...	..	...	...	1600	CB & T	589D162; 408D386, Gr. 1, 2, 3, 4, 5, 6; 602D162, Gr. 1, 2, 3; 5605D03, Gr. 1
761	39	15¾	8	1¼	50¼	23	....	...	..	...	...	3000	CB	5607D12, Gr. 1
780	39	22	10	1	64⅛	25¼-23¼	14⅝	4	12	4	⅛	675 / 1130	T	29A8073; 37A4379; ④37A8280
781	39	22	10	1	64	①	....	4	12	4	...	1200	180 Kv. CB & T	32A3000, Gr. 1, 4
782	39	16¼	8	⅞	54	①	....	3	12	3⅛₁₆	...	1200	161 Kv. CB	35A3492, Gr. 1
783	39	16¼	8	⅞	54	①	....	3	12	3⅛₁₆	...	1600	161 Kv. CB	35A3492, Gr. 5
784	39	22	10	1	64	①	....	4	12	4	...	1600	180 Kv. CB	32A3000, Gr. 6
785	39	21	12	1¼	56¾	26¾	14⅝	...	..	...	...	800	T	589D180; 242D180, Gr. 1
801	39	19⅞	12	⅞	51½	19¼①	....	3	12	3½	½	600	187 Kv. CB & T	⑤⑥419781; ⑤438623; 660012; 13A1790; Gr. 5; 660019; 15A6855, Gr. 1; 9A9867, Gr. 1,2; 82A409; 87A653; 93A964; 2A1930; 11A4904, Gr. 1, 2; 13A1790, Gr. 5; 20A1232
802	37 or 39	19⅞	12	⅞	52	19¾	....	3	12	4	½	1000	187 Kv. T	660019; 15A4897, Gr. 1
803	37 or 38	23½	12	1	75	36⅞①	....	4	12	4¼	...	1200	196 Kv. T	9A315; 2A9770
804	37 or 38	23½	12	1	67¾	28⅛①	....	4	12	4¼	5⁄16	1200	196 Kv, T	5A4396; ⑦31A896; 6A1812
805	39	23½	12	1	67¾	28⅛①	....	4	12	4¼	5⁄16	1200	196 Kv. CB & T	13A9397, Gr. 1; 29A4703; 11A2196; 3A8113; 6A1812; 13A9147, Gr. 1; 13A1947, Gr. 1, 7; 44A4823, Gr. 1; 47A6616, Gr. 1
806	39	23½	12	1	67¾	28⅛①	....	4	12	4¼	...	800	196 Kv. CB & T	13A9396, Gr. 1; 58A2996; 13A1947, Gr. 5; 13A1947, Gr. 5, 6
809	39	21	12	1¼	59½	26¾	14⅝	...	..	...	...	800	T	589D196

① For circuit breakers, use oil height as per oil gauge on tank.
Key numbers 755 and 756 inclusive: In type "O" bushing the "T" dimension is as per fig. 40 to 43.
② See note on nominal current ratings on page 30.
③ Additional inside length when transformer ball is used.
④ Bolt circle=23½, number of bolts=12.
⑤ 400 amps.
⑥ L=51¾₁₆, R=2¼.
⑦ Kv=special 161 kv porcelain—increased insulation thickness.
⑨ L=43⅛, A=2¼.

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Part 4 Section B: Tabulation of Key Numbers, Continued

Key No.	Fig. No.	A Mounting Flange Bolt Circle	A Mounting Flange No. Bolts	A Mounting Flange Dia. Bolts	L Inside Lgth.	T Max. Gas Space	D Max. Dia. Under Cover	Oil End Lead Thds. R O.D.	Oil End Lead Thds. R Thds.	Oil End Lead Thds. B Lgth.	E③	Amp Rating ②	T=Transf CT=Cur. Transf. CB=Cir. Breaker	Drawing Number
For 154-288 Kv Bushings, Continued														
810	39	21	12	1¼	59½	26¾	14⅝	...	..	...	...	1600/ 2000	CB & T	589D197; 408D997, Gr. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14; 424D951, Gr. 1, 2, 3, 4; Gr. 2, 3; 602D197, Gr. 1; 589D197, Gr. 1, 2; 616D197, Gr. 1, 2, 3, 4; 5607D02, Gr. 1; 5607D93, Gr. 1
830	39	23½	12	1	67¾	①	....	4	12	3⅞	...	1200/ 1600	196 Kv. CB	36A8825, Gr. 1, 5
831	39	23½	12	1	67¾	①	....	4	12	4⅛	....	1600	196 Kv. CB	13A1947, Gr. 8
851	37 or 39	23½	12	1	83¼	37⅝①	....	4	12	4¼	0	1200	230 Kv. T	19A9002, Gr. 1; 16A6048; 684775; 1A737; 18A921; 47A6648, Gr. 1, 4; 85A724; 5A5384; 16A6048, Gr. 1; 4156D31, Gr. 1
856	39	23½	12	1	76¼	30⅞①	....	4	12	4¼	...	1200	230 Kv. T	13A9431; Gr. 1; 97A212; 7A2063; 5A4330; Gr. 6; 13A4220, Gr. 1, 6
857	39	23½	12	1	76¼	30⅞①	....	4	12	4¼	...	800	230 Kv. T	13A9430, Gr. 1; 13A4200, Gr. 5, 6
890	39	28	12	1	86¼	30⁹⁄₁₆	....	4	12	4½	⅛	550	259 Kv. T	26A8257
901	39	28	12	1	89⅜	44①	....	4	12	4¼	5⁄16	1200	288 Kv. T	16A5708, Gr. 1; 18A9963; 3A3284; 5A4388; 31A888; 62A594
930	39	28	12	1	86¼	30¹¹⁄₁₆①	....	4	12	4⁷⁄₁₆	⅛	1145, 1600/ 2000	288 Kv. CB & T	41A9771, Gr. 1, 2; 30B7106, Gr. 1; 30B7107 Gr. 1; 58A2249; 382D630, Gr. 2, 4
931	39	28	12	1	81⁵⁄₁₆	①	20	...	...	...	...	1600/ 2000	CB	382D630 Gr. 1, 3, 5, 6; 5602D04, Gr. 1

① For circuit breakers, use oil height as per oil gauge on tank.
Key numbers 755 and 756 inclusive: In type "O" bushing the "T" dimension is as per fig. 40 to 43.
② See note on nominal current ratings on page 30.
③ Additional inside length when transformer ball is used.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 5: Tabulation of Westinghouse Bushing Drawings from 1942 Engineering Data and Recommendations for Spares and Replacements

We have listed by numerical order of their assembly drawings, all of the important designs of outdoor bushings manufactured by the Westinghouse Electric Corporation since 1942. Some few sizes having a very low activity have been omitted.

Recommendations for any bushings not included may be obtained by request to the Transformer Engineering Department at Sharon, Pa., or the Power Circuit Breaker Switchgear Engineering Department at East Pittsburgh, Pa.

Where slight departures from the recommendations are necessary, detail notes, designated by footnotes symbols, will be found at the bottom of the page.

For convenience in locating the recommendations for any bushing, a column headed "refer to page" has been provided from which the user may readily obtain the page numbers containing the instructions applying to any particular bushing.

Where designs for replacement or spare bushings have already been made, the drawing number is given as well as the drawing number for the adapter if one is required. Where the ③ appears it indicates that new drawings must be made. Where new designs are required and not shown, they will be prepared as required.

Replacing Bushings

When ordering a replacement bushing from the factory, specify drawing and group of **bushing to be replaced** and shop order number (S. O. №) of breaker or transformer **in which** the bushing will be used. The factory will then determine the most modern bushing and adapter that may be supplied. In a few cases this may be different than listed in the following tables. The reason bushings must be ordered by this is that factory records can be kept more current than publications of this manual. In all cases, an effort to supply USASI bushings will be made.

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Part 5 Section A: Tabulation of Drawings

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
5A6273	....	800	77-G-594	....	CB	None	42A9629	1	S	424D046G01	29
5A8896	1	600	115-N-681	550	CB	None	408D780	1	O	424D425G02	29, 66
5A9515	1	1200	161-N-755	750	CB	None	408D386	1	O	424D778G02 or 383D052G01	29, 67
5A9598	....	1200	23-S-251	150	CB	20, 21	424D787	1	S	60A1056G01	29
6A1225	....	1200	34.5-G-370	200	CB	None	424D788	1	S	405D934G01	29, 68
6A1241	....	600	34.5-OG-351	200	CB	None	424D221	1	S	60A1058G01	.....
6A1286	1	600	23-G-256	150	CB	None	424D787	1	S	60A1057G01	29
6A1517	....	1200	34.5-G-352	200	CB	None	424D788	1	S	60A1058G02	29
6A1735	....	1200	34.5-Spec.-352	200	CB	None	424D788	1	S	60A1058G02	29
6A1812	1	1200	196-N-804	900	CB	None	408D997	1	O	424D444G01 or 424D427G02	29, 69
6A1925	....	1200	34.5-G-352	200	CB	None	424D788	1	S	60A1058G02	29
6A2656	1	600	34.5-S-323	200	T	20, 21	53B2232	2	OS	585D150G07	14
6A2673	1	....	34.5-S-313	200	T	20, 21	53B2232	2	OS	585D150G05	14
6A8445	1	600	69-G-562	350	CB	None	42A9629	1	S	60A1061G02	29
6A8447	1	600	138-N-704	650	CB	None	408D781	1	O	242D224	29, 70
6A8871	2	600	46-G-452	250	CB	None	424D789	1	S	60A1060G02	29
6A8873	1	600	34.5-G-351	200	CB	None	424D788	1	S	60A1058G01	29
6A8873	4	1200	34.5-S-352	200	CB	20, 21	424D788	1	S	60A1058G02	29
6A8890	1	600	23-G-256	150	CB	None	424D787	1	S	60A1057G01	29
6A8890	2	1200	23-G-251	150	CB	None	424D787	1	S	60A1057G01	29
6A8895	1	600	69-G-562	350	CB	None	42A9629	1	S	60A1061G01	29
6A8895	2	1200	69-G-556	350	CB	None	42A9629	1	S	60A1061G02	29
7A1450	1	1200	34.5-S-352	200	CB	20, 21	424D788	1	S	60A1058G02	29
7A2113	3, 4	1200	34.5-OG-370	200	CB	None	424D221	1	S	405D934G01	68
7A2113	5	1200	34.5-OG-352	200	CB	None	424D221	1	S	60A1058G02	.....
7A2154	3	1200	23-G-251	150	CB	None	424D787	1	S	60A1056G01	29
7A2481	1	3000	23-S-254	150	CB	20, 21	7A2481	1	S	None	.....
7A7004	2, 3, 4, 9	1200	34.5-S-370	200	CB	20, 21	424D788	1	S	405D934G01	29, 68
7A7004	1	600/1200	34.5-S-367	200	CB	20, 21	③	..	...	.....	.....
7A7004	5	600	34.5-S-Special	200	CB	20, 21	7A7004	5	S	None	.....
7A7004	6	1200	34.5-S-Special	200	CB	20, 21	7A7004	6	S	None	.....
7A7004	7	2000	34.5-S-Special	200	CB	20, 21	7A7004	7	S	None	.....
7A7004	8	2000	34.5-S-364	200	CB	20, 21	③	..	...	.....	.....
7A7006	1	600	34.5-S-350	200	CB	20, 21	③	..	...	.....	.....
7A7006	2, 3	1200	34.5-S-370	200	CB	20, 21	424D788	1	S	405D934G01	29, 68
7A7006	4	1200	34.5-S-352	200	CB	20, 21	424D788	1	S	60A1058G02	29
7A7006	5	600	34.5-S-353	200	CB	20, 21	③	..	...	.....	.....
7A7006	6	2000	34.5-S-355	200	CB	20, 21	7A7006	6	S	None	.....
7A9324	1	600	23-S-256	150	CB	20, 21	424D787	1	S	60A1057G01	29
7A9324	2	1200	23-S-251	150	CB	20, 21	424D787	1	S	60A1056G01	29
7A9324	3	2000	23-S-257	150	CB	20, 21	7A9324	3	S	None	.....
7A9324	4	2000	23-S-253	150	CB	20, 21	7A9324	4	S	None	.....
7A9324	5	2000	23-S-253	150	CB	20, 21	7A9324	5	S	None	.....
7A9324	6	3000	23-S-254	150	CB	20, 21	7A9324	6	S	None	.....
7A9324	7	4000	23-S-255	150	CB	20, 21	7A9324	7	S	None	.....
7A9324	8	4000	23-S-255	150	CB	20, 21	7A9324	8	S	None	.....
7A9325	1	600	34.5-S-353	200	CB	20, 21	③	..	...	.....	.....
7A9325	2	600	34.5-S-351	200	CB	20, 21	424D788	1	S	60A1058G01	29
7A9325	3	1200	34.5-S-352	200	CB	20, 21	424D788	1	S	60A1058G02	29
7A9325	4	2000	34.5-S-355	200	CB	20, 21	7A9325	4	S	None	.....
7A9325	5	3000	34.5-S-356	200	CB	20, 21	7A9325	5	S	None	.....
7A9325	6	600	34.5-S-354	200	CB	20, 21	7A9325	6	S	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
7A9325	7	2000	34.5-S-355	200	CB	20, 21	7A9325	7	S	None	.....
7A9326	1	600	46-S-451	250	CB	20, 21	③	..	...	.....	.....
7A9326	2	600	46-S-452	250	CB	20, 21	424D789	1	S	60A1060G01	29
7A9326	3	1200	46-S-453	250	CB	20, 21	7A9326	3	S	.....	.....
7A9326	4	1200	46-S-455	250	CB	20, 21	424D789	1	S	60A1060G02	29
7A9327	1	600	69-S-562	350	CB	20, 21	42A9629	1	S	60A1061G01	29
7A9327	2	1200	69-S-556	350	CB	20, 21	42A9629	1	S	60A1061G02	29
7A9327	3	600	69-S-561	350	CB	20, 21	③	..	...	.....	.....
7A9327	4	2000	69-S-558	350	CB	20, 21	7A9327	4	S	None	.....
8A1153	1	1200	23-S-259	150	CB	20, 21	8A1153	1	S	None	.....
8A1153	2	2000	23-S-264	150	CB	20, 21	8A1153	2	S	None	.....
8A1153	3	1200	23-S-261	150	CB	20, 21	8A1153	3	S	None	.....
8A1153	4	600	23-S-265	150	CB	20, 21	8A1153	4	S	None	.....
8A2456	1	600	15-S-151	110	CB	20, 21	891D533	5	S	None	.....
8A2847	1	1200	23-S-251	150	CB	20, 21	424D787	1	S	60A1056G01	29
8A2847	2	2000	23-S-253	150	CB	20, 21	8A2847	2	S	None	.....
8A2847	3	3000	23-S-254	150	CB	20, 21	8A2847	3	S	None	.....
8A2847	4	4000	23-S-255	150	CB	20, 21	8A2847	4	S	None	.....
8A4422	1	600	115-ON-681	550	CB	None	408D780	1	O	424D426G02	29, 71
8A4423	1	600	46-S-465	....	CB	20, 21	8A4423	1	S	.....	.....
8A4423	2	600	46-S-461	....	CB	20, 21	8A4423	2	S	.....	.....
8A5240	1	1550	34.5-S-326	200	T	20, 21	452C335	2	OS	585D150, Gr. 8, 28	29
8A8269	1	2160	25-S-Special	150	T	20, 21	8A8269	1	S	None	10
8A9159	1	305	34.5-S-312	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4	29, 32
8A9162	....	100/200	34.5-S-343	200	CT	20, 21	6B4377	1	S	None	15, 14
9A2707	1	600	15-S-151	110	CB	20, 21	891D533	5	S	None	87
9A6333	1	600④	132-O-701	650	T	18, 19	9A6333	1	O	None	.....
9A8077	1	1200	15-S-153	110	CB	20, 21	9A8077	6	S	.....	.....
9A8077	2	1200	15-S-153	110	CB	20, 21	9A8077	6	S	.....	.....
9A8077	3	600	15-S-151	110	CB	20, 21	9A8077	5	S	.....	.....
9A8077	4	600	15-S-151	110	CB	20, 21	9A8077	5	S	.....	.....
9A8077	5	1200	15-S-153	110	CB	20, 21	9A8077	5	S	.....	.....
9A8077	6	600	15-S-151	110	CB	20, 21	9A8077	6	S	.....	.....
9A8077	7	600	15-S-159	110	CB	20, 21	9A8077	7	S	.....	.....
9A8077	8	400	15-S-158	110	CB	20, 21	9A8077	8	S	.....	.....
9A8429	1	600	23-S-266	150	CB	20, 21	445D906	1	S	.....	.....
9A8429	2	600	23-S-266	150	CB	20, 21	445D906	1	S	.....	.....
11A4538	1	1200	34.5-OS-370	200	CB	20, 21	424D221	1	S	405D934G01	68
11A5185	1	3000	23-S-254	200	CB	20, 21	11A5185	1	S	.....	49
11A5185	2	4000	23-S-255	200	CB	20, 21	11A5185	2	S	.....	49
11A5185	3	2000	23-S-257	200	CB	20, 21	11A5185	3	S	.....	49
11A5185	4	1200	23-S-251	150	CB	20, 21	424D787	1	S	60A1056G01	29
11A5185	5	600	23-S-256	150	CB	20, 21	424D787	1	S	60A1057G01	29
11A5307	1	600	23-S-258	150	CB	20, 21	11A5307	1	S	.....	.....
11A6598	1	600	69-OS-562	350	CB	20, 21	42A9629	1	S	60A1061G01	29
11A6598	2	1200	69-OS-556	350	CB	20, 21	42A9629	1	S	60A1061G02	29
11A6599	1	1200	34.5-S-352	200	CB	20, 21	424D788	1	S	60A1058G02	29
11A6599	2	2000	34.5-S-355	200	CB	20, 21	11A6599	2	S	.....	.....
11A8012	1	600	69-OS-562	350	CB	20, 21	42A9629	1	S	60A1061G01	29
11A8012	2	1200	69-OS-556	350	CB	20, 21	42A9629	1	S	60A1061G02	29
12A2916	1	1200	46-S-453	250	CB	20, 21	12A2916	1	S	.....	.....
12A2918	1	1200	77-S-594	350	CB	20, 21	42A9629	1	S	60A1061G02	29
12A2919	1	600	66-S-553	350	CB	20, 21	891D806	1	S	891D806G05	.....
12A3226	1	800	115-O-665	550	CB	18	408D780	1	O	445D803G02	29, 72
12A3226	2	1200	115-O-666	550	CB	18	408D780	1	O	424D554G02	29, 73
12A3227	1	800	138-O-715	650	CB	18	408D781	1	O	424D224G09	29, 74

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.
④ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
12A3227	2	1200	138-O-717	650	CB	18	408D781	1	O	424D224G09	29, 74
12A3228	1	1200	161-O-755	750	CB	18	408D386	1	O	383D052	29, 75
12A3228	5	800	161-O-756	750	CB	18	408D386	1	O	383D052	29, 75
12A7025	1	400③	73-S-601	350	T	20, 21	53B2263	2	OS	585D150	19, 29, 32
12A7026	4	400③	73-OS-611	350	T	20, 21	16A4773	3	OS	None	19
13A1790	1	800	187-O-801	....	CB	18	13A1790	1	O	None	.....
13A1790	5	800	187-O-801	....	CB	18	13A1790	5	O	None	45
13A1947	1-5-6-7	1200	196-O-805	900	CB	18	408D997	1	O	424D493G02	29, 76
13A1947	8 & 9	1600	196-O-831	900	CB	18	408D997	1	O	424D493G02	29, 77
13A1965	1	600	34.5-S-353	250	CB	20, 21	13A1965	1	S	None	 49
13A1965	2	600	34.5-S-351	200	CB	20, 21	424D788	1	S	60A1058G01	29
13A1965	3	1200	34.5-S-352	200	CB	20, 21	424D912	1	S	60A1058G02	29
13A1965	4	600	34.5-S-369	200	CB	20, 21	13A1965	4	S	None	.....
13A1966	1	600	69-Special-562	350	CB	20, 21	42A9629	1	S	60A1061G02	29
13A2845	1	600	115-O-654	550	CB	18	408D780	1	O	424D495G02	29, 28, 12 .....
13A2845	2	1200	115-O-655	550	CB	18	408D780	1	O	424D495G02	29, 28, 12 .....
13A4196	1	800	138-O-704	650	CB	18	408D781	1	O	424D224G07	29, 79, 12 .....
13A4196	2	1200	138-O-707	650	CB	18	408D781	1	O	424D224G01	29, 80, 12 .....
13A4200	1	1200	230-O-856	1050	CB	18	13A4200	6	O	None	12
13A4200	5	800	230-O-857	1050	CB	18	13A4200	6	O	None	12
13A4480	1	600	15-S-152	....	CB	20, 21	13A4480	1	S	None	.....
13A4480	2	1200	15-S-154	....	CB	20, 21	13A4480	2	S	None	.....
13A4480	4	1200	15-S-155	....	CB	20, 21	13A4480	4	S	None	.....
13A4480	5	1200	15-S-Special	....	CB	20, 21	13A4480	5	S	None	.....
13A4484	1	600	110-O-651	550	CB	18	13A4484	1	O	None	.....
13A9292	1, 2, 5	400③	115-O-614	450	T	18, 19	589D192	1	O	Yes	29
13A9292	3, 4, 6	650	115-O-Special	450	T	18, 19	589D192	1	O	Yes	29
13A9293	1	1140	115-O-615	450	T	18, 19	13A9293	3	O	None	.....
13A9302	1	600	25-J-2-Special	150	T	22	13A9302	1	J-2	None	.....
13A9315	1	600③	115-O-665	550	T	18, 19	589D115	1	O	Yes	29
13A9316	1, 2, 8	800④	115-O-666	550	T	18, 19	589D116	1	O	Yes	29
13A9316	3, 4, 9	650	115-O-Special	550	T	18, 19	589D116	1	O	Yes	29
13A9338	1	600③	138-O-715	650	T	18, 19	589D138	1	O	Yes	29
13A9339	1	720	138-O-717	650	T	18, 19	589D139	1	O	Yes	29
13A9361	1	600③	161-O-756	750	T	18, 19	589D161	1	O	Yes	29
13A9362	1	800④	161-O-755	750	T	18, 19	589D162	1	O	Yes	29
13A9396	1	640	196-O-806	900	T	18, 19	589D196	1	O	Yes	29
13A9397	1	800③	196-O-805	900	T	18, 19	589D197	3	O	Yes	29
13A9430	1	610	230-O-857	1050	T	18, 19	13A9430	3	O	None	.....
13A9431	1	800③	230-O-856	1050	T	18, 19	13A9431	3	O	None	.....
14A1678	1	800	132-O-701	650	CB	18	14A1678	1	O	None	.....
14A1678	5	800	132-O-701	650	CB	18	14A1678	5	O	None	.....
14A1678	8	1200	132-O-705	650	CB	18	14A1678	8	O	None	.....
14A2122⑤	1	158	44-S-405	250	T	20, 21	14A2122	1	S	None	⑤
14A3430	1	600	15-S-151	150	CB	20, 21	14A3430	1	S	None	49
14A6077	1	800	115-O-665	650	CB	18	14A6077	1	O	None	49
14A6077	2	1200	115-O-666	650	CB	18	14A6077	2	O	None	49
15A4897	1	1000	187-O-802	900	CB	18	15A4897	1	O	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.
④ Limited by slotted flange.
⑤ Semi-condenser replacement bushing, for use only where standard type S cannot be applied.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly		Ampere	Kv. System	BIL	Circuit	Refer	Recommendations for Spares and Replacements				
Drawing No.	Gr. No.	Rating①	Type – Key No.	Kv.	Breaker or Transformer	to Page	Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
15A6865	1	800	187-O-801	900	CB	18	15A6865	1	O	None	.....
15A6957	1	600	69-N-562	350	CB	20, 21	42A9629	1	S	60A1061G01	29
15A9770	1	800	154-O-752	750	CB	18	15A9770	1	O	None	.....
15A9772	1	3000	23-S-263	200	CB	20, 21	15A9772	1	S	None	49
15A9772	2	600	23-S-266	200	CB	20, 21	15A9772	2	S	None	49
15A9772	3	2000	23-S-253	200	CB	20, 21	15A9772	3	S	None	49
16A2496	1	400④	69-OS-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	19, 29, 32
16A2830⑥	1	350	33-S-305	200	T	20, 21	452C335	2	OS	585D150, Gr. 10-30	19, 29
16A2858	1	1620	37-S-Special	200	T	20, 21	16A2858	1	S	None	⑧
16A3619	1	600④	138-O-704	650	T	18, 19	16A3619	1	O	None	.....
16A3635	1	600④	115-O-654	550	T	18, 19	16A3635	1	O	None	.....
16A4161	1	585	110-O-651	550	T	18, 19	16A4161	1	O	None	.....
16A4188	1	400④	88-O-601	450	T	18, 19	16A4188	1	O	None	.....
16A4424⑦	1	820	15-S-Special	110	T	20, 21	16A4424	1	S	None	⑥
16A4430	1	400④	69-OS_1-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	12, 29, 32
16A4484	1	600④	154-O-752	650	T	18, 19	16A4484	1	O	None	.....
16A4729	1	400④	73-OS_1-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	12, 29, 32
16A4769	1	400④	69-O-523	350	T	18, 19	16A4769	1	O	None	.....
16A4773	1	400④	73-OS_1-601	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	12, 29, 32
16A5468	1	400④	69-O-524	350	T	18, 19	16A5468	1	O	None	.....
16A5469	1	1420	69-O-527	350	T	18, 19	16A5469	1	O	None	.....
16A5700	....	400④	46-S-Special	250	T	20, 21	16A5700	.....	S	None	.....
16A5708	1	520	345-O-901	1300	T	18, 19	58A2249	1	O	None	49
16A6048	1	540	230-O-851	1050	T	18, 19	16A6048	1	O	None	49
16A6301	1	400/800	69-O-Special	350	CT	18, 19	16A6301	1	O	None	15
16A6614	1	600	138-O-706	650	T	18, 19	16A6614	1	O	None	.....
16A7169	1	400④	69-O-513	350	T	18, 19	16A7169	1	O	None	.....
16A7373	1	400④	73-OS_1-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	19, 29, 32
16A8269	1	400④	69-O-514	350	T	18, 19	16A8269	1	O	None	.....
16A8641	1	2550	25-S-Special	150	T	20, 21	16A8641	1	S	None	23
16A8983	1	2820	25-S-Special	150	T	20, 21	16A8983	1	S	None	23
16A9169	4	2060	69-OS_1-534	350	T	20, 21	16A9169	4	OS	None	.....
16A9779	1	1200	73-OS_1-517	350	T	20, 21	53B2267	2	OS	585D150, Gr. 20, 40	29
17A3906	1	600	69-OK-562	350	CB	20, 21	42A9629	1	S	60A1061G01	29
17A6795	1	600	88-O-601	450	CB	18	17A6795	1	O	None	.....
17A6796	1	600	154-O-751	750	CB	18	17A6796	1	O	None	.....
18A1321	1	800	132-O-702	650	CB	18	18A1321	1	O	None	.....
18A1321	5	1200	132-O-737	650	CB	18	18A1321	5	O	None	.....
18A9967	1	600	138-O-Special	650	CB	18	18A9967	1	O	None	16
18A9967	2	1200	138-O-Special	650	CB	18	18A9967	2	O	None	17
19A6486	1	800	132-O-702	650	CB	18	③	.....	...	....	24
19A6487	1	600	34.5-S-Special	200	CB	20, 21	19A6487	1	S	None	.....
19A7462	1	800	138-O-704	750	CB	18	19A7462	1	O	None	49
19A7462	2	1200	138-O-707	750	CB	18	19A7462	2	O	None	49
19A9002	1	800	230-O-851	1050	CB	18	19A9002	1	O	None	49
20A1232	1	620	230-O-801	825	T	18, 19	20A1232	1	O	None	.....
20A1235	1	2070	115-O-Special	550	T	18, 19	20A1235	1	O	None	.....
20A1873	1	100-200	73-OS_1-543	350	CT	20, 21	20A1873	1	OS	None	.....
20A2165	1	3300	34.5-S-Special	200	T	20, 21	20A2165	1	S	None	7
20A2329	1	400④	73-O-514	350	T	18, 19	20A2329	1	O	None	.....
20A2338	1	1940	25-S-Special	150	T	20, 21	20A2338	1	S	None	7
20A2381	1	800⑤	138-O-717	650	T	18, 19	20A2381	1	O	None	49

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.
④ Limited by steel flange.
⑤ B C 9¾—8½
⑥ Semi-condenser replacement bushing, for use only where standard type S cannot be applied.
⑦ Twin-conductor bushing.
⑧ Inverted pothead bushing.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
20A2384	6, 4	1640	69-OS$_1$-529	350	T	18, 19	616D064	1	O	None	.....
20A2766	1	600⑥	138-O-715	650	T	18, 19	20A2766	1	O	None	24
20A3028	1	600⑥	115-O-654	550	T	18, 19	20A3028	1	O	None	24
20A3352	1	800⑥	115-O-655	550	T	18, 19	20A3352	1	O	None	.....
20A3766	1	600⑥	154-O-751	650	T	18, 19	20A3766	1	O	None	.....
20A4053	1	1640	69-O-529	350	T	18, 19	616D064	1	O	None	.....
20A4530	1	300/600	138-O-Special	650	CT	18, 19	20A4530	1	O	None	.....
20A4576	1	450	15-J-2-Special	110	T	22	20A4576	1	J-2	None	33
20A4809	1	785	8.7-J-2-Special	95	T	22	20A4809	1	J-2	None	33
20A5990	1	2300	37-OS$_1$-355	200	T	20, 21	20A5990	1	OS$_1$	None	19
20A6163	1	300/600	115-O-Special	550	CT	18	20A6163	1	O	None	.....
20A6743	1	2280	8.7-J-2-Special	95	T	22	20A6743	1	J-2	None	33
20A7083	1	600④	138-O-704	650	T	18, 19	20A7083	1	O	None	49
20A7519	1	600④	138-O-704	650	T	18, 19	20A7519	1	O	None	49
20A7520	1	400④	115-O-614	450	T	18, 19	20A7520	1	O	None	.....
20A7788	1	600④	138-O-704	650	T	18, 19	20A7788	1	O	None	49
20A8786	1	2250	69-O-Special	350	T	18, 19	20A8786	1	O	None	25
20A9495	1	600	110-O-651	550	T	18, 19	20A9495	1	O	None	24
20A9690	1	400	73-S-562	350	T	20, 21	20A9690	1	S	None	.....
21A5009	1	800	138-O-715	650	CB	18	③	.....	...	.....	24
21A5009	2	1200	138-O-717	650	CB	18	③	.....	...	.....	24
21A5398	1	600	23-S-256	150	CB	20, 21	424D787	1	S	60A1057G01	29
21A5398	3	2000	23-S-253	150	CB	20, 21	21A5398	3	S	None	.....
21A5398⑦	2	4000	23-S-255	150	CB	20, 21	21A5398	2	S	.....	.....
21A5398⑧	4	4000	23-S-255	150	CB	20, 21	21A5398	4	S	None	.....
21A5675	1	600	23-S-265	150	CB	20, 21	21A5675	1	S	.....	14
21A9122	1	800	115-O-654	550	CB	.....	③	.....	...	.....	24
21A9122	2	1200	115-O-655	550	CB	.....	③	.....	...	.....	24
21A9879⑨	1	2000	34.5-S-364	200	CB	20, 21	21A9879	1	S	.....	.....
22A9899⑫	1	2000	34.5-S-364	200	CB	20, 21	21A9899	1	S	.....	.....
22A2016	1	800	138-O-715	750	CB	18	22A2016	1	O	None	49
22A2016	2	1200	138-O-717	750	CB	18	22A2016	2	O	None	49
22A6524⑩	1	1200	69-S-556	350	CB	20, 21	③	.....	...	.....	.....
23A3800	1	800	138-O-704	650	CB	18	408D781	1	O	424D224G07	29
23A3800	2	1200	138-O-707	650	CB	18	③	.....	...	.....	.....
24A2505	1	600	69-O-554	350	CB	18	24A2505	1	O	None	.....
24A2505	2	1200	69-O-555	350	CB	18	24A2505	2	O	None	.....
24A2505⑪	6	1200	69-O-555	350	CB	18	24A2505	6	O	None	.....
25A9686	1	600	69-O-553	350	CB	18	891D806	1	O	891D806G04 or 891D806G05	81
25A9686	3	600	69-O-553	350	CB	18	891D806	3	O	891D806G04 or 891D806G05	81
26A3243	1	450	25-J-2-Special	150	T	22	26A3243	1	J-2	None	.....
26A3475	1	600	115-O-665	550	T	18, 19	26A3475	1	O	None	49
26A3988	1	800	115-O-605	450	T	18, 19	26A3988	1	O	None	.....
26A4409	1	300/600	115-O-Special	450	CT	18, 19	26A4409	1	O	None	.....
26A5548	1	785	8.7-J-2-Special	95	T	22	26A5548	1	J-2	None	33
26A5817	1	450	15-J-2-Special	110	T	22	26A5817	1	J-2	None	33
26A5853	1	2280	8.7-J-2-Special	95	T	22	26A5853	1	J-2	None	33
26A5869	1	600/1200	138-O-Special	650	CT	18, 19	26A5869	1	O	None	49
26A5873	2	750	69-O-517	350	T	18, 19	26A5873	2	O	None	27
26A8255	1	400④	69-OS$_1$-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	19, 29, 32
26A8256	6, 4	1620	73-OS$_1$-529	350	T	18, 19	616D064	1	O	None	27
26A8257⑤	2	550	345-O-890	1300	T	18, 19	58A2249	2	O	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.
④ Limited by steel flange.
⑤ Upper porcelain has 187" creepage.
⑥ B C 9¾—8½
⑦ Special for Public Service of New Jersey
⑧ Special for Detroit Edison Co.
⑨ Special for Penn Railroad.
⑩ Has 70 inch creepage.
⑪ Special top terminal for Southern California Edison Co.
⑫ Use to replace dwg. 662771 on type HS breaker only.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
26A8257⑧	3	550	345-O-890	1300	T	18, 19	58A2249	1	O	None	.....
26A8620	1	600	115-O-651	550	T	18, 19	26A8620	1	O	None	29
26A9062	1	1800	115-O-616	450	T	18, 19	26A9062	1	O	None	.....
26A9530	1	610	230-O-Special	1050	T	18, 19	26A9530	1	O	None	49
26A9968	1	700/1250	115-O-Special	450	CT	18, 19	26A9968	1	O	None	.....
26A9971	1	400④	69-OS_1-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	19, 27, 29 32
27A5522	1	2000	69-S-557	350	CB	20, 21	27A5522	1	S	None	.....
28A9823	1	600	69-S-Special	350	CB	20, 21	28A9823	1	S	None	.....
28A9823	2	1200	69-S-Special	350	CB	20, 21	28A9823	2	S	None	.....
29A2018	1	2140	69-S_1-Special	350	T	20, 21	29A2018	1	OS_1	None	.....
29A2539	1	1200	69-OS_1-Special	350	T	20, 21	53B2267	2	OS	585D150, Gr. 16-26	29
29A3459	1	1210	15-J-2-Special	110	T	22	29A3459	.....	J-2	None	33
29A4700	1	800③	115-O-615	450	T	18, 19	29A4700	1	O	None	34
29A4703	1	800④	230-O-805	900	T	18, 19	29A4703	1	O	None	34
29A5164	1	400	73-O-513	350	T	18, 19	29A5164	1	O	None	.....
29A5269	1	400④	69-OS_1-Special	350	T	20, 21	29A5269	1	OS_1	None	24, 35
29A6014	1	605	230-O-Special	900	T	18, 19	29A6014	1	O	None	.....
29A8073	1	675	230-O-780	825	T	19	589D180	1	O	Yes	29
29A8074	2	1200	69-O-529	350	T	19	616D064	1	O	None	.....
29A9024	1	2660	69-S-Special	350	T	20, 21	29A9024	2	OS	None	.....
29A9169	1	500/1000	69-O-Special	350	CT	18, 19	29A9169	1	O	None	.....
30A686	....	....	23-J-2-Special	150	T	22	30A686	.....	J-2	None	.....
30A7202	1	1200	23-S-Special	150	CB	20, 21	30A7202	2	OS	None	.....
31A3694	1	4000	15-S-Special	100	CB	20, 21	31A3694	1	S	None	.....
31A3696⑦	1	1200	138-O-717	650	CB	18	31A3696	1	O	None	.....
31A8128⑥	2	1200	69-O-Special	350	CB	18	31A8128	2	O	None	.....
32A3000	1	1200	180-O-781	900	CB	18	32A3000	1	O	None	.....
32A3000⑤	4	1200	180-O-781	900	CB	18	32A3000	4	O	None	.....
32A3000	6	1600	180-O-784	900	CB	18	32A3000	6	O	None	.....
32A5201	1	1200	46-OS-455	250	CB	20, 21	424D789	1	S	60A1060G02	29
33A5445	3	600	34.5-S-Special	200	CB	20, 21	33A5445	3	S	None	.....
33A8420	1	1200	46-S-Special	250	CB	20, 21	33A8420	1	S	None	.....
34A1415	1	600	115-O-665	550	T	18, 19	34A1415	1	O	None	49
34A1905	1	300/600	161-O-Special	750	CT	18, 19	34A1905	1	O	None	.....
34A2846	1	600④	138-O-715	650	T	18, 19	34A2846	1	O	None	.....
34A5104	1	600/1200	161-O-Special	750	CT	18, 19	34A5104	1	O	None	33
34A5256	1	560	115-O-654	550	T	18, 19	34A5256	1	O	None	14, 35, 36
34A5730	1	800④	230-O-Special	1050	T	18, 19	34A5730	1	O	None	.....
35A3492	5	1600	161-O-783	750	CB	18	408D386	1	O	424D826G02	29, 82
35A3492	1	1200	161-O-782	750	CB	18	408D386	1	O	424D826G02	29, 82
35A5945	1	1200	23-S-Special	150	CB	20, 21	35A5945	1	S	None	.....
35A6368	1	1200	138-O-717	650	CB	18	35A6368	1	O	None	.....
35A6368	2	800	138-O-715	650	CB	18	35A6368	1	O	None	.....
35A7405	1	1200	46-S-455	250	CB	20, 21	891D017	1	S	60A1060G02	29
35A7405	2	600	46-S-452	250	CB	20, 21	891D017	1	S	60A1060G01	29
36A1813	1	1200	69-S-Special	350	CB	20, 21	36A1813	1	S	None	.....
36A1814	2	1200	34.5-S-Special	200	CB	20, 21	36A1814	2	S	None	.....
36A1814	3	600	34.5-S-Special	200	CB	20, 21	36A1814	3	S	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by slotted cap.
④ Limited by steel flange.
⑤ Special top terminal—L=1½—12th'ds for Bonneville Power Administration.
⑥ Special for Southern California Edison Co.
⑦ Special for Baltimore Electric and Gas.
⑧ Upper porcelain has 217" creepage.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
36A2695	1	1200	138-O-734	650	CB	18	408D781	3	O	424D227G02	29, 83
36A2695	5	1600	138-O-735	650	CB	18	408D781	3	O	424D227G02	29, 83
36A2695	6	2000	138-O-736	650	CB	18	424D355	3	O	383D789G01	29, 84
36A2695⑤	7	1600	138-O-735	650	CB	18	36A2695	7	O	None	....
36A8825	5	1600	196-O-830	900	CB	18	408D997	1	O	424D213G02	29, 85
36A8825	1	1200	196-O-830	900	CB	18	408D997	1	O	424D213G02	29, 85
37A2700	1	600	69-O-Special	350	T	18, 19	37A2700	1	O	None	.....
37A3573	1	400④	73-O-$S_1$514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	19, 29, 32
37A3576	1	1000	115-O-666	550	T	18, 19	37A3576	1	O	None	49
37A4362	1	1400	161-O-Special	750	T	18, 19	37A4362	1	O	None	.....
37A4369	1	400	69-O-514	350	T	18, 19	37A4369	1	O	None	49
37A4379	1	1130	230-O-780	825	T	18, 19	37A4379	1	O	None	34
37A5076	1	400④	73-OS/-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	19, 29, 32
37A5084	1	600④	138-O-715	650	T	18, 19	37A5084	1	O	None	49
37A5306	1	785	25-J-2-Special	150	T	22	37A5306	1	J-2	None	.....
37A6305	1, 21	220	5-J-2-Special	75	T	22	27B1923	5, 12	RJ	None	30
37A6305	4, 24	220	5-J-2-Special	75	T	22	27B1923	1, 8	RJ	None	30
37A6305	6, 26	220	5-J-2-Special	75	T	22	27B1923	6, 13	RJ	None	30
37A6305	2, 22	400	5-J-2-Special	75	T	22	27B1923	4, 11	RJ	None	30
37A6305	5, 25	400	5-J-2-Special	75	T	22	27B1923	7, 14	RJ	None	30
37A6305	7, 27	400	5-J-2-Special	75	T	22	27B1923	3, 10	RJ	None	30
37A6305	3, 23	785	5-J-2-Special	75	T	22	27B1924	1, 2	RJ	None	30
37A6315	1, 21	220	15-J-2-Special	110	T	22	27B1927	1, 4	RJ	None	30
37A6315	3, 23	220	15-J-2-Special	110	T	22	27B1928	9	RJ	None	30
37A6315	6, 26	220	15-J-2-Special	110	T	22	27B1928	10	RJ	None	30
37A6315	2, 22	400	15-J-2-Special	110	T	22	③	.....	RJ	None	30
37A6315	4, 24	400	15-J-2-Special	110	T	22	27B1928	2	RJ	None	30
37A6315	7, 27	400	15-J-2-Special	110	T	22	27B1928	5	RJ	None	30
37A6315	5, 25	785	15-J-2-Special	110	T	22	27B1928	3	RJ	None	30
37A6315	8, 28	785	15-J-2-Special	110	T	22	27B1928	4	RJ	None	30
37A6325	1, 21	220	25-J-2-Special	150	T	22	37A6325	1, 21	J-2	None	30
37A6325	3, 23	220	25-J-2-Special	150	T	22	37A6325	3, 23	J-2	None	30
37A6325	7, 27	220	25-J-2-Special	150	T	22	37A6325	7, 27	J-2	None	30
37A6325	2, 22	400	25-J-2-Special	150	T	22	37A6325	2, 22	J-2	None	30
37A6325	4, 24	400	25-J-2-Special	150	T	22	37A6325	4, 24	J-2	None	30
37A6325	8, 28	400	25-J-2-Special	150	T	22	37A6325	8, 28	J-2	None	30
37A6325	5, 25	785	25-J-2-Special	150	T	22	37A6325	5, 25	J-2	None	30
37A6325	9, 29	785	25-J-2-Special	150	T	22	37A6325	9, 29	J-2	None	30
37A6325	6, 26	1210	25-J-2-Special	150	T	22	37A6325	6, 26	J-2	None	30
37A6325	10, 30	1210	25-J-2-Special	150	T	22	37A6325	10, 30	J-2	None	30
37A6325	11	1210	25-J-2-Special	150	T	22	37A6325	11	J-2	None	30
37A6387	1, 21	220	8.7-J-2-Special	95	T	22	27B1927	1, 4	RJ	None	9, 31
37A6387	2, 22	400	8.7-J-2-Special	95	T	22	③	.....	RJ	None	9, 31
37A6387	4, 24	400	8.7-J-2-Special	95	T	22	27B1928	1	RJ	None	9, 31
37A6387	6, 26	400	8.7-J-2-Special	95	T	22	27B1928	2	RJ	None	9, 31
37A6387	3, 23	785	8.7-J-2-Special	95	T	22	27B1928	6	RJ	None	9, 31
37A6387	5, 25	785	8.7-J-2-Special	95	T	22	27B1928	7	RJ	None	9, 31
37A6387	7, 27	785	8.7-J-2-Special	95	T	22	27B1928	3	RJ	None	9, 31
37A6387	8, 28	785	8.7-J-2-Special	95	T	22	53B6472	2	RJ	None	9, 31
37A7079	1	1130	230-O-Special	825	T	18, 19	37A7079	1	O	None	.....
37A7418	1	450	5-J-2-Special	75	T	22	37A7418	1	J-2	.....	33
37A7419	1	1200	5-J-2-Special	75	T	22	37A7419	1	J-2	.....	33

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.
④ Limited by steel flange.
⑤ Special for Southern California Edison Co.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
37A7420	1	2280	5-J-2-Special	75	T	22	37A7420	1	J-2	.....	33
37A7421	1	450	15-J-2-Special	110	T	22	37A7421	1	J-2	.....	33
37A7422	1	1200	15-J-2-Special	110	T	22	37A7422	1	J-2	.....	33
37A7423	1	2280	15-J-2-Special	110	T	22	37A7423	1	J-2	.....	33
37A7424	1	450	25-J-2-Special	150	T	22	37A7424	1	J-2	.....	33
37A7425	1	1200	25-J-2-Special	150	T	22	37A7425	1	J-2	.....	33
37A7426	1	2280	25-J-2-Special	150	T	22	37A7426	1	J-2	.....	33
37A8273	1	1995	73-OS_1-Special	350	T	20, 21	37A8273	1	OS	None	.....
37A8280	1	640	230-O-780	825	T	18, 19	37A8280	1	O	None	49
38A5992③	1	800	138-O-706/715	650	CB	18	38A5992	1	O	None	.....
38A5992③	2	1200	138-O-708/717	650	CB	18	38A5992	2	O	None	.....
41A4656	1	2000	23-S-Special	150	CB	20, 21	41A4656	.....	S	None	.....
41A5032④	1	800	115-O-6 5	550	CB	18	41A5032	1	O	None	.....
41A5032④	2	1200	115-O-666	550	CB	18	41A5032	2	O	None	.....
41A9774	1	4000	18-S-Special	150	CB	20, 21	41A9774	1	S	None	.....
41A9771	1, 2	1600/2000	330-O-930	1300	CB	18	382D630	4	O	702C998H01	.....
42A2893⑤	1	2000	69-S-Special	350	SW	20, 21	42A2893	1	S	None	.....
42A2894⑤	1	1200	69-S-Special	350	SW	20, 21	42A2894	1	S	None	.....
42A2894⑤	2	1200	69-S-Special	350	SW	20, 21	42A2894	2	S	None	.....
42A9626	1	1200	23-S-288	150	CB	20, 21	424D787	1	S	None	29
42A9626	2, 5	2000	23-S-289	150	CB	20, 21	42A9626	2	S	None	90
42A9626	3, 6	3000	23-S-290	150	CB	20, 21	42A9626	3	S	None	90
42A9626	4, 7	4000	23-S-291	150	CB	20, 21	42A9626	4	S	None	90
42A9627	1	1200	34.5-S-388	200	CB	20, 21	424D788	1	S	None	29
42A9627	2, 4, 5	2000	34.5-S-389	200	CB	20, 21	42A9627	2	S	None	90
42A9627	7	2000	34.5-S-Special	200	CB	20, 21	42A9627	7	S	None	45
42A9627	3, 6	3000	34.5-S-390	200	CB	20, 21	42A9627	3	S	None	.....
42A9628	1	1200	46-S-488	250	CB	20, 21	424D789	1	S	None	29
42A9629	1	1200	69-S-588	350	CB-T	20, 21	42A9629	1	S	None	29, 88
44A1262⑥	1	2000	69-S-588	350	CB	20, 21	44A1262	1	S	None	.....
44A1262	2	2000	69-S-588	350	CB	20, 21	44A1262	2	S	None	48, 49
44A1264	1	600	15-OS-151	110	CB	18, 20, 21	44A1264	1	OS	None	.....
44A4367	1	600	23-S-252	150	CB	20, 21	44A4367	1	S	None	.....
44A4823⑧	1	1200	230-O-805	900	CB	18	44A4823	.....	O	None	.....
44A9807	1	1200	23-S-288	150	CB	20, 21	44A9807	1	S	None	29, 49, 45
44A9808	1	1600	115-O-685	550	CB	18	44A9808	1	O	None	47
47A6203⑨	1	1200	34.5-S-388	200	CB	20, 21	47A6203	1	S	None	47
47A6527⑨	1	2000	23-S-289	150	CB	20, 21	47A6527	1	S	None	.....
47A6602	1	1200	161-O-755	750	CB	18	47A6602	1	O	None	49
47A6616⑩	1	1200	230-O-805	900	CB	18	47A6616	1	O	None	49
47A6648⑧	1	800	230-O-851	1050	CB	18	47A6648	1	O	None	.....
47A6648⑧	4	800	230-O-851	1050	CB	18	47A6648	4	O	None	49
47A6658	1	1200	69-S-588	350	CB	20, 21	47A6658	1	S	None	47
58A2239	1	600	115-O-614	550	T	18, 19	58A2239	1	O	None	49
58A2249	1	1145	345-O-930	1300	T	18, 19	58A2249	1	O	None	49
58A2249	2	1145	345-O-930	1300	T	18, 19	58A2249	2	O	None	.....
58A2996	....	635	230-O-806	400	T	18, 19	58A2996	.....	O	None	49
58A7473	....	2040	73-S_1-OS_1-534	350	T	20, 21	58A7473	.....	S_1-OS_1	None	.....
58A8255	....	1960	115-O-Special	550	T	18, 19	58A8255	.....	O	None	49
61A2575	....	1500	115-O-Special	550	T	18, 19	61A2575	.....	O	None	49
61A3099	....	640	92-O-Special	450	T	18, 19	61A3099	.....	O	None	7

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Has two B C.
④ Has 92½ creepage.
⑤ Special for telescoping disconnect switch.
⑥ Has pf terminal.
⑧ Special for Southern California Edison Co.
⑨ Special for Baltimore Gas and Electric.
⑩ Special for Pacific Gas and Electric.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
62A1117	....	1950	115-O-Special	550	CT	18, 19	62A1117	...	O	None	33
62A1485	....	1200	180-O-Special	825	T	18, 19	62A1485	.....	O	None	.....
62A2261	....	500③	161-O-Special	750	T	18, 19	62A2261	.....	O	None	49
62A3069	....	400	69-O-513	350	T	18, 19	62A3069	.....	O	None	49
62A4569	.....	400	69-O-584	350	T	18, 19	62A4569	.....	O	None	27
62A4588	.....	400	92-O-601	350	T	18, 19	62A4588	.....	O	None	38
62A7169	....	1200	69-O-586	350	T	18, 19	62A7169	.....	O	None	27
62A9428	1	450	5-RJ-Special	75	T	22	62A9428	1	RJ	None	33
62A9429	1	1200	5-RJ-Special	75	T	22	62A9429	1	RJ	None	33
62A9430	1	2280	5-RJ-Special	75	T	22	62A9430	1	RJ	None	33
62A9431	1	450	15-RJ-Special	110	T	22	62A9431	1	RJ	None	33
62A9432	1	1200	15-RJ-Special	110	T	22	62A9432	1	RJ	None	33
62A9433	1	2280	15-RJ-Special	110	T	22	62A9433	1	RJ	None	33
62A9434	1	1200	15-RJ-Special	110	T	22	62A9434	1	RJ	None	33
64A1384	1	1200	34.5-S-388	200	CB	20, 21	64A1384	1	S	None	45
64A1384	2	2000	34.5-S-389	200	CB	20, 21	64A1384	2	S	None	45
85A542	....	....	23-J-2-Special	150	T	22	85A542	.....	J-2	None	.....
85A660	....	....	23-J-2-Special	150	T	22	85A660	1	J-2	None	.....
127A738	1	2500	161-O-Special	750	CB	18	408D386	4	O	None	29
127A738	2	2000	161-O-Special	750	CB	18	408D386	3	O	None	29
227A584	1	400	15-R_2	....	T	22	227A584	1	RJ	None	.....
1B4793	1	1710	4.3-J-2-Special	75	T	22	11B6113	1	J-2	None	.....
1B4998	1	2280	4.3-J-2-Special	75	T	22	11B6114	1	J-2	None	.....
1B5415	1	220	13.8-J-2-52	110	T	22	11B6125	.....	J-2	None	.....
1B5416	1	220	13.8-J-2-52	110	T	22	11B6125	.....	J-2	None	.....
1B5499	1	220	8.7-J-2-Special	95	T	22	1B5499	1	J-2	None	.....
1B5554	1	220	4.3-J-2-Special	75	T	22	1B5554	1	J-2	None	.....
1B5701	1	2280	4.3-J-2-Special	75	T	22	1B5701	1	J-2	None	.....
1B5856	1	450	8.7-J-2-Special	95	T	22	1B5856	1	J-2	None	.....
1B5978	1	765	4.3-J-2-Special	75	T	22	1B5978	1	J-2	None	.....
2B955	....	450	7.5-J-2-Special	95	T	22	2B955	.....	J-2	None	.....
2B956	....	765	7.5-J-2-Special	95	T	22	2B956	.....	J-2	None	.....
2B957	....	450	15-J-2-Special	110	T	22	2B957	.....	J-2	None	.....
2B958	....	750	15-J-2-Special	110	T	22	2B958	.....	J-2	None	.....
2B959	....	450	23-J-2-Special	150	T	22	2B959	.....	J-2	None	.....
2B960	....	765	23-J-2-Special	150	T	22	2B960	.....	J-2	None	.....
2B967	....	1710	15-J-2-Special	110	T	22	27B1929	2	RJ	None	.....
2B969	....	765	15-J-2-Special	110	T	22	2B969	.....	J-2	None	.....
2B4228	1	450	13.8-J-2-Special	110	T	22	2B4228	1	J-2	None	.....
2B4380	1	450	13.8-J-2-Special	110	T	22	2B4380	1	J-2	None	.....
2B4657	1	765	4.3-J-2-Special	75	T	22	11B6112	.....	J-2	None	6
2B4957	1	5400	4.3-J-2-Special	75	T	22	2B4957	1	J-2	None	7
2B4993	1	3300	4.3-J-2-Special	75	T	22	2B4993	1	J-2	None	.....
2B5023	1	220	4.3-J-2-Special	75	T	22	27B1923	12	RJ	None	6, 30
2B5154	1	220	8.7-J-2-Special	95	T	22	2B5154	1	J-2	None	6
2B5155	1	220	8.7-J-2-32	95	T	22	2B5155	1	J-2	None	.....
2B5248	1	5400	4.3-J-2-Special	75	T	22	2B5248	1	J-2	None	6
2B6043	1	765	4.3-J-2-Special	75	T	22	2B6043	1	J-2	None	7
2B6044	1	765	8.7-J-2-Special	95	T	22	11B6104	.....	J-2	None	7
2B6045	1	450	13.8-J-2-Special	110	T	22	11B6106	1	RJ	None	7
2B6174	1	220	13.8-J-2-Special	110	T	22	2B6174	1	J-2	None	6
2B6283	1	1710	4.3-J-2-Special	75	T	22	2B6283	1	J-2	None	49
2B6592	1	169	25-J-1-Special	150	T	22	2B6592	1	J-1	None	.....
2B6597	1	765	8.7-J-2-Special	95	T	22	2B6597	1	J-2	None	...
2B6600	1	450	13.8-J-2-Special	110	T	22	11B6106	1	J-2	None	6, 7
2B6629	1	765	4.3-J-2-Special	75	T	22	2B6629	1	J-2	None	6

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
2B6630	1	765	8.7-J-2-Special	95	T	22	11B6104	.....	J-2	None	6, 7
2B6631	1	450	13.8-J-2-Specia	110	T	22	4B7701	.....	RJ	None	6
2B6720	1	....	8.7-J-2-Special	95	T	22	2B6720	.....	J-2	None	.....
4B4200	1	450	4.3-J-2-Special	75	T	22	11B6111	2	J-2	None	.....
4B4312	1	1710	8.7-J-2-Special	95	T	22	4B4312	1	J-2	None	.....
4B4393	1	1000	23-J-2-Special	150	T	22	6B5787	1	J-2	None	.....
4B4459	1	450	8.7-J-2-Special	95	T	22	4B4459	1	J-2	None	7
4B4460	1	....	8.7-J-2-Special	95	T	22	4B4460	1	J-2	None	6, 7
4B4611	1	450	4.3-J-2-Special	75	T	22	4B4611	1	J-2	None	.....
4B4930	1	785	4.3-J-2-Special	75	T	22	4B4930	1	J-2	None	.....
4B5073	1	5400	4.3-J-2-Special	75	T	22	4B5073	1	J-2	None	6, 7
4B5375③	1	....	8.7-J-2-Special	95	T	22	4B5375	1	J-2	None	.....
4B5753	1	220	4.3-J-2-Special	75	T	22	4B5753	1	J-2	None	14, 21
4B5754	1	450	4.3-J-2-Special	75	T	22	4B5754	.....	J-2	None	14, 21
4B5755	1	785	4.3-J-2-Special	75	T	22	4B5755	1	J-2	None	14, 21
4B5756	1	1710	4.3-J-2-Special	75	T	22	4B5756	1	J-2	None	14, 21
4B5757	1	3300	4.3-J-2-Special	75	T	22	4B5757	1	J-2	None	14, 21
4B5758	1	450	8.7-J-2-Special	95	T	22	4B5758	1	J-2	None	14, 21
4B5759	1	785	8.7-J-2-Special	95	T	22	53B6472	1	RJ	None	9, 30, 31
4B5760	1	1710	8.7-J-2-Special	95	T	22	4B5760	1	J-2	None	14, 21
4B5761	1	1710	8.7-J-2-Special	95	T	22	27B1929	2	RJ	None	9, 30, 31
4B5762	1	3300	8.7-J-2-Special	95	T	22	4B5762	1	J-2	None	9, 30, 31
4B5763	1	3300	8.7-J-2-Special	95	T	22	4B5763	1	J-2	None	9, 30, 31
4B5764	1	220	4.3-J-2-Special	75	T	22	27B1923	2	RJ	None	30
4B5849	1	5400	4.3-J-2-Special	75	T	22	4B5849	1	J-2	None	6
4B5993	1	5400	4.3-J-2-Special	75	T	22	4B5993	1	J-2	None	6
4B6010	....	350	13.8-S-112	110	T	20, 21	4B6010	.....	S	None	.....
4B6011	....	320	13.8-S-113	110	T	20, 21	4B6011	.....	S	None	.....
4B6012	1	400④	13.8-S-117	110	T	20, 21	4B6012	1	S	None	.....
4B6013	....	1700	13.8-S-125	110	T	20, 21	4B6013	.....	S	None	.....
4B6014	....	1600	13.8-S-126	110	T	20, 21	4B6014	.....	S	None	.....
4B6015	....	2120	13.8-S-128	110	T	20, 21	4B6015	.....	S	None	.....
4B6016	....	2600	13.8-S-133	110	T	20, 21	4B6016	.....	S	None	.....
4B6017	1	400④	13.8-S-118	110	T	20, 21	4B6017	1	S	None	.....
4B6020	1	330	23-S-212	150	T	20, 21	441C620	2	OS	None	.....
4B6021	1	305	23-S-213	150	T	20, 21	441C621	2	OS	None	.....
4B6022	1	400④	23-S-217	150	T	20, 21	441C621	2	OS	None	.....
4B6023	1	1630	23-S-228	150	T	20, 21	452C325	2	OS	585D150, Gr. 3, 23	29
4B6024	....	2050	23-S-233	150	T	20, 21	4B6024	.....	S	None	.....
4B6025	.....	2600	23-S-236	150	T	20, 21	4B6025	.....	S	None	.....
4B6026	....	400④	23-S-243	150	CT	20, 21	4B6026	.....	S	None	.....
4B6027	....	200/400④	23-S-244	150	CT	20, 21	4B6027	.....	S	None	.....
4B6028	....	500/1000	23-S-245	150	CT	20, 21	4B6028	.....	S	None	.....
4B6029	....	500/1000	23-S-246	150	CT	20, 21	4B6029	.....	S	None	.....
4B6030	1	310	34.5-S-312	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4	29, 32
4B6031	1	290	34.5-S-313	200	T	20, 21	53B2232	2	OS	585D150, Gr. 5	29, 32
4B6032	1	1400④	34.5-S-323	200	T	20, 21	53B2232	2	S-OS	585D150, Gr. 7	29, 32
4B6033	1	1550	34.5-S-326	200	T	20, 21	452C335	2	OS	585D150, Gr. 8, 28	29, 32
4B6034	....	1950	34.5-S-333	200	T	20, 21	4B6034	.....	S	None	.....
4B6036	....	100/200	34.5-S-343	200	CT	20, 21	4B6036	.....	S	None	.....
4B6037	....	200/400	34.5-S-344	200	CT	20, 21	4B6037	.....	S	None	.....
4B6038	....	500/1000	34.5-S-345	200	CT	20, 21	4B6038	.....	S	None	.....
4B6039	....	500/1000	34.5-S-346	200	CT	20, 21	4B6039	.....	S	None	.....
4B6040	1	290	46-S-412	250	T	20, 21	53B2241	2	OS	585D150, Gr. 11	29
4B6041	1	270	46-S-413	250	T	20, 21	53B2242	2	OS	585D150, Gr. 14	29, 32
4B6042	1	400④	46-S-416	250	T	20, 21	53B2242	2	OS	585D150, Gr. 14	29, 32

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Twin conductor bushing.
④ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
4B6043	1	1400	46-S-419	250	T	20, 21	452C345	2	OS	585D150, Gr. 14	29
4B6044	1	1850	46-S-426	250	T	20, 21	4B6044	.....	S	None	.....
4B6046	....	100/200	46-S-443	250	CT	20, 21	4B6046	.....	S	None	.....
4B6047	....	200/400	46-S-444	250	CT	20, 21	4B6047	.....	S	None	.....
4B6048	....	500/1000	46-S-445	250	CT	20, 21	4B6048	.....	S	None	.....
4B6049	....	600/1200	46-S-446	250	CT	20, 21	4B6049	.....	S	None	.....
4B6060	1	400③	69-S-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	29, 32
4B6061	1	400③	69-S-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	29, 32
4B6062	1	1220	69-S-517	350	T	20, 21	53B2267	2	OS	585D150, Gr. 40	29
4B6065	....	150/300	69-S-540	350	CT	20, 21	4B6065	.....	S	None	.....
4B6066	....	100/200	69-S-543	350	CT	20, 21	4B6066	.....	S	None	.....
4B6067	....	200/400	69-S-544	350	CT	20, 21	4B6067	.....	S	None	.....
4B6068	....	400/800	69-S-545	350	CT	20, 21	4B6068	.....	S	None	.....
4B6069	....	400/800	69-S-546	350	CT	20, 21	4B6069	.....	S	None	.....
4B6354	1	1950	34.5-S-323	200	T	20, 21	4B8531	1	S	None	14
4B6481	1	1200	8.7-J-2-Special	95	T	22	11B6105	.....	J-2	None	.....
4B6489	1	1750	15-S-125	110	T	20, 21	4B8527	1	S	None	14
4B6974	1	220	4.3-J-2-Special	75	T	22	4B6974	.....	J-2	None	.....
4B7274	....	350	15-SI-112	110	T	20, 21	4B7274	.....	SI	None	6
4B7275	....	320	15-SI-113	110	T	20, 21	4B7275	.....	SI	None	6
4B7276	1	400③	15-SI-117	110	T	20, 21	4B7276	.....	SI	None	6
4B7277	1	1700	15-SI-125	110	T	20, 21	4B7277	.....	SI	None	6
4B7278	1	1620	15-SI-126	110	T	20, 21	4B7278	.....	SI	None	6
4B7279	....	2120	15-SI-128	110	T	20, 21	4B7279	.....	SI	None	6
4B7280	....	2700	15-SI-133	110	T	20, 21	4B7280	.....	SI	None	6
4B7281	1	160	25-SI-212	150	T	20, 21	4B7281	.....	SI	None	6
4B7282	1	160	25-SI-213	150	T	20, 21	4B7282	.....	SI	None	6
4B7283	1	520	25-SI-217	150	T	20, 21	4B7283	1	SI	None	6
4B7284	1	950	25-SI-228	150	T	20, 21	4B7284	1	SI	None	6
4B7285	1	1375	25-SI-233	150	T	20, 21	4B7285	1	SI	None	6
4B7286	1	1820	25-SI-236	150	T	20, 21	4B7286	1	SI	None	6
4B7287	1	150	34.5-SI-312	200	T	20, 21	4B7287	1	SI	None	6
4B7288	1	150	34.5-SI-313	200	T	20, 21	4B7288	1	SI	None	6
4B7289	1	400	34.5-SI-323	200	T	20, 21	4B7289	1	SI	None	6
4B7290	1	890	34.5-SI-326	200	T	20, 21	4B7290	1	SI	None	6
4B7291	....	1280	34.5-SI-333	200	T	20, 21	4B7291	.....	SI	None	6
4B7292	1	140	46-SI-412	250	T	20, 21	4B7292	1	SI	None	6
4B7293	1	140	46-SI-413	250	T	20, 21	4B7293	1	SI	None	6
4B7294	1	400	46-SI-416	250	T	20, 21	4B7294	1	SI	None	6
4B7295	1	830	46-SI-419	250	T	20, 21	4B7295	1	SI	None	6
4B7296	1	1200	46-SI-426	250	T	20, 21	4B7296	.....	SI	None	6
4B7297	1	400	69-SI-513	350	T	20, 21	4B7297	1	SI	None	6
4B7298	1	400	69-SI-514	350	T	20, 21	4B7298	1	SI	None	6
4B7299	1	1220	69-SI-517	350	T	20, 21	4B7299	.....	SI	None	6
4B7328	1	1710	8.7-J-2-Special	95	T	22	4B7328	1	J-2	None	20
4B7329	1	785	8.7-J-2-Special	95	T	22	4B7329	1	J-2	None	20
4B7330	1	1710	8.7-J-2-Special	95	T	22	4B7330	1	J-2	None	20
4B7331	1	450	8.7-J-2-Special	95	T	22	4B7331	1	J-2	None	.....
4B7602	1	390	15-S-Special	110	T	20, 21	4B7602	1	S	None	14
4B7603	1	400③	15-S-Special	110	CT	20, 21	4B7603	1	S	None	13, 14
4B7696	1	785	8.7-J-2-Special	95	T	22	4B7696	1	J-2	None	.....
4B7697	1	1710	8.7-J-2-Special	95	T	22	4B7697	1	J-2	None	6
4B7698	1	1710	8.7-J-2-Special	95	T	22	4B7698	1	J-2	None	6, 20
4B7699	1	220	4.3-J-2-Special	75	T	22	4B7699	1	J-2	None	6
4B7700	1	450	15-J-2-Special	110	T	22	4B7700	1	J-2	None	.....
4B7701	1	450	15-J-2-Special	110	T	22	4B7701	1	J-2	None	6, 23

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
4B7702	1	450	15-J-2-Special	110	T	22	4B7702	1	J-2	None	23
4B8144	1	5400	4.3-J-2-Special	75	T	22	4B8144	1	J-2	None	.....
4B8298	1	310	34.5-S-321	200	T	20, 21	53B2231	2	OS	585D150, Gr. 7	29, 32
4B8526	1	330	15-S-113	110	T	20, 21	4B8526	1	S	None	14
4B8527	1	1730	15-S-125	110	T	20, 21	4B8527	1	S	None	14
4B8528	1	290	34.5-S-313	200	T	20, 21	53B2232	2	OS	585D150, Gr. 5	29, 32
4B8529	1	400④	34.5-S-323	200	T	20, 21	53B2232	2	OS	585D150, Gr. 7	29, 32
4B8530	1	1540	34.5-S-326	200	T	20, 21	452C335	2	OS	None	29
4B8531	1	1950	34.5-S-333	200	T	20, 21	4B8531	1	S	None	14
4B8668	1	350	25-S-Special	150	T	20, 21	4B8668	1	S	None	14
4B8669	1	840	25-S-Special	150	CT	20, 21	4B8669	1	S	None	13, 14
6B4029	1	5400	4.3-J-2-Special	75	T	22	4B4029	1	J-2	None	7
6B4030	1	5400	4.3-J-2-Special	75	T	22	4B4030	1	J-2	None	7
6B4031	1	5400	4.3-J-2-Special	75	T	22	6B4031	1	J-2	None	7
6B4032	1	5400	4.3-J-2-Special	75	T	22	6B4032	1	J-2	None	6, 7
6B4033	1	5400	4.3-J-2-Special	75	T	22	6B4033	1	J-2	None	6, 7
6B4376	1	310	34.5-S-312	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4	29, 32
6B4377	1	100/200	34.5-S-343	200	CT	20, 21	6B4377	1	S	None	14
6B4471	1	220	8.7-J-2-Special	95	T	22	6B4471	1	J-2	None	20
6B4624	1	1710	8.7-J-2-Special	95	T	22	6B4624	1	J-2	None	20
6B4838	1	450	15-J-2-Special	110	T	22	6B4838	1	J-2	None	20, 23
6B4861	1	785	8.7-J-2-Special	95	T	22	6B4861	1	J-2	None	6
6B4863	3	1210	15-J-2-Special	110	T	22	6B4863	1	J-2	None	20, 23
6B4864	1	220	8.7-J-2-Special	95	T	22	6B4864	1	J-2	None	20, 23
6B4931③	1	1800	34.5-S-328	200	T	20, 21	6B4931	1	S	.....	14
6B4983	1	550	15-J-2-Special	110	T	22	6B4983	1	J-2	None	.....
6B4984	1	550	15-J-2-Special	110	T	22	6B4984	1	J-2	None	6
6B4985	1	220	25-J-2-Special	150	T	22	6B4985	1	J-2	None	.....
6B5099	....	2320	46-S-Special	250	T	20, 21	6B5099	1	S	None	.....
6B5286	1	785	15-J-2-Special	110	T	22	6B5286	1	J-2	None	6
6B5311	1	1550	25-S-229	150	T	20, 21	452C325	2	OS	585D150, Gr. 2, 22	29
6B5312	1	400④	15-S-124	110	T	20, 21	6B5312	.....	S	None	.....
6B5580	1	450	15-J-2-Special	110	T	22	6B5580	1	J-2	None	6, 23
6B5581	1	1210	15-J-2-Special	110	T	22	6B5581	1	J-2	None	6, 23
6B5582	1	450	15-J-2-Special	110	T	22	6B5582	1	J-2	None	23
6B5609	1	220	25-J-2-Special	150	T	22	6B5609	1	J-2	None	6
6B5610	1	520	25-J-2-Special	150	T	22	6B5610	1	J-2	None	....
6B5611	1	520	25-J-2-Special	150	T	22	6B5611	1	J-2	None	6
6B5723	1	220	8.7-J-2-Special	95	T	22	6B5723	1	J-2	None	6
6B5724	1	3300	8.7-J-2-Special	95	T	22	6B7214	1	J-2	None	6
6B5725	1	450	8.7-J-2-Special	95	T	22	6B5725	1	J-2	None	6
6B5784	1	3300	8.7-J-2-Special	95	T	22	6B5784	1	J-2	None	6
6B5787	1	1000	25-J-2-Special	150	T	22	6B5787	1	J-2	None	.....
6B5788	1	3300	4.3-J-2-Special	75	T	22	6B5788	1	J-2	None	21
7B1140	1	1810	15-S-Special	110	T	20, 21	7B1140	1	S	None	7
7B1173	1	450	8.7-J-2-Special	95	T	22	7B1173	1	J-2	None	6
7B1174	1	1710	8.7-J-2-Special	95	T	22	7B1174	1	J-2	None	6
7B1175	1	1710	8.7-J-2-Special	95	T	22	7B1175	1	J-2	None	6
7B1329	....	400	15-S-123	110	T	20, 21	7B1329	.....	S	None	.....
7B1376	1	3300	4.3-J-2-Special	75	T	22	7B1376	1	J-2	None	21
7B1424	1	1540	34.5-S-326	200	T	20, 21	452C335	2	OS	585D150, Gr. 8, 28	29
7B1507	1	400④	25-S-223	150	T	20, 21	53B2222	2	OS	585D150, Gr. 2	29, 32

① See note on nominal current ratings on pages 30.
② Refer to pages 80 to 81.
③ 1¾" dia. stud machined to 1½" dia. both ends.
④ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
7B1511	1	1460	34.5-S-327	200	T	20, 21	452C335	2	OS	585D150, Gr. 7, 27	29
7B1512	1	400④	34.5-S-324	200	T	20, 21	53B2233	2	OS	585D150, Gr. 6	29, 32
7B1513	1	220	15-J-2-Special	110	T	22	7B1513	1	J-2	None	6
7B1514	1	220	15-J-2-Special	110	T	22	7B1514	1	J-2	None	.....
7B1743	1	950	25-S-228	150	T	20, 21	7B1743	1	S	None	.....
7B1745	1	2700	15-S-133	110	T	20, 21	7B1745	1	S	None	.....
7B2059	1	250	46-S-414	250	T	20, 21	53B2243	2	OS	585D150, Gr. 11	29
7B2061	1	400④	15-S-116	110	T	20, 21	7B2061	1	S	None	.....
7B2062	1	3300	8.7-J-2-Special	95	T	22	7B2062	1	J-2	None	.....
7B2065③	1	165	15-S-112	110	CSP T	20, 21	7B2065	1	S	None	.....
7B2066③	1	310	15-S-113	110	CSP T	20, 21	7B2066	1	S	None	.....
7B2067③	1	330	15-SI-112	110	CSP T	20, 21	7B2067	1	SI	None	6
7B2069③	1	310	15-SI-113	110	CSP T	20, 21	7B2069	1	SI	None	6
7B2070③	1	160	25-S-212	150	CSP T	20, 21	7B2070	1	S	None	6
7B2071③	1	160	25-S-213	150	CSP T	20, 21	7B2071	1	S	None	.....
7B2072③	1	160	25-SI-212	150	CSP T	20, 21	7B2072	1	SI	None	6
7B2073③	1	160	25-SI-213	150	CSP T	20, 21	7B2073	1	SI	None	6
7B2074③	1	150	34.5-S-312	200	CSP T	20, 21	7B2074	1	S	None	.....
7B2075③	1	280	34.5-S-313	200	CSP T	20, 21	7B2075	1	S	None	.....
7B2076③	1	150	34.5-SI-312	200	CSP T	20, 21	7B2081	1	SI	None	6
7B2077③	1	150	34.5-SI-313	200	CSP T	20, 21	7B2082	1	S	None	.....
7B2078③	1	140	46-S-412	250	CSP T	20, 21	7B2083	1	S	None	.....
7B2079③	1	265	46-S-413	250	CSP T	20, 21	7B2084	1	SI	None	6
7B2080③	1	140	46-SI-412	250	CSP T	20, 21	7B2085	1	SI	None	6
7B2081③	1	140	46-SI-413	250	CSP T	20, 21	7B2076	1	SI	None	6
7B2082③	1	400	69-S-513	350	CSP T	20, 21	7B2077	1	SI	None	6
7B2083③	1	400	69-S-514	350	CSP T	20, 21	7B2078	1	S	None	.....
7B2084③	1	400	69-SI-513	350	CSP T	20, 21	7B2079	1	S	None	.....
7B2085③	1	400	69-SI-514	350	CSP T	20, 21	7B2080	1	SI	None	6
7B2086	1	200/400	46-S-444	350	CT	20, 21	7B2086	1	S	None	.....
7B2311	1	1210	8.7-J-2-Special	95	T	22	7B2311	1	J-2	None	6, 23
7B2313	1	370	25-SI-Special	150	T	20, 21	7B2313	1	SI	None	70
7B2631	1	400④	25-S-218	150	T	20, 21	7B2631	1	S	None	.....
7B2649	1	290	25-S-213	150	T	20, 21	441C621	2	OS	None	49
7B2875	1	4160	4.3-J-2-Special	75	T	22	7B2875	1	J-2	None	26
7B2909	1	450	15-J-2-Special	110	T	22	7B2909	1	J-2	None	.....
7B2910	1	450	15-J-2-Special	110	T	22	7B2910	1	J-2	None	.....
7B2912	1	2280	8.7-J-2-Special	95	T	22	7B2912	1	J-2	None	.....
7B2913	1	2280	8.7-J-2-Special	95	T	22	7B2913	1	J-2	None	6
7B2914	1	1710	8.7-J-2-Special	95	T	22	7B2914	1	J-2	None	.....
7B2956	1	300	15-S-119	110	T	20, 21	7B2956	1	S	None	.....
7B2959	1	400④	25-S-Special	150	T	20, 21	7B2959	1	S	None	5
7B2960	1	400④	15-S-Special	110	T	20, 21	7B2960	1	S	None	5
7B2975	1	860	34.5-S-323	200	T	20, 21	53B2232	2	OS	585D150, Gr. 7, 27	29
7B3383	1	1210	8.7-J-2-Special	95	T	22	7B3383	1	J-2	None	20, 21, 23
7B3384	1	400④	46-S-Special	250	T	20, 21	53B2243	2	OS	Yes	29
7B3790	1	400④	36-S-421	250	T	20, 21	53B2243	2	OS	585D150, Gr. 13	29, 32
7B3809	1	830	46-S-Special	250	T	20, 21	7B3809	1	S	None	49
7B3816	1	4160	4.3-J-2-Special	75	T	22	7B3816	1	J-2	None	21
7B3850	1	5400	4.3-J-2-Special	75	T	22	7B3850	1	J-2	None	6, 7
7B3854	1	785	4.3-J-1-Special	75	T	22	7B3854	1	J-1	None	.....
7B3855	1	5400	4.3-J-2-Special	75	T	22	7B3855	1	J-2	None	6, 7

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Bushing has fusible link inside bushing tube.
④ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
7B3892	1	4000	4.3-J-2-Special	75	T	22	7B3892	1	J-2	None	21
8B6117	1	4000	4.3-J-2-Special	75	T	22	8B6117	1	J-2	None	49
8B6126	1	4000	4.3-J-2-Special	75	T	22	8B6126	1	J-2	None	21
8B6907	1	285	25-S-214	150	T	20, 21	8B6907	1	S	None	.....
8B6910	1	1320	46-S-419	250	T	20, 21	452C345	2	OS	585D150, Gr. 14	29
8B6949	1	4160	4.3-J-2-Special	75	T	22	8B6949	1	J-2	None	6, 21
8B7190	1	150/300	25-J-2-Special	150	CT	22	8B7190	1	J-2	None	.....
8B7423	1	1210	15-J-2-Special	110	T	22	8B7423	1	J-2	None	20
8B7442	1	4000	4.3-J-2-Special	75	T	22	8B7442	1	J-2	None	49
8B7446	1	4160	4.3-J-2-Special	75	T	22	8B7446	1	J-2	None	6, 21
8B7462	1	785	15-J-2-Special	110	T	22	8B7462	1	J-2	None	.....
8B7895	1	220	15-J-2-Special	110	T	22	8B7895	1	J-2	None	.....
8B7896	1	220	5-J-2-Special	75	T	22	8B7896	1	J-2	None	.....
8B8009	1	325	15-S-113	110	T	20, 21	4B8526	1	S	None	14
8B8077	1	785	8.7-J-2-Special	95	T	22	8B8077	1	J-2	None	6, 20
8B8710	1	400③	46-S-417	250	T	20, 21	53B2243	2	OS	None	24
8B8717	1	3300	8.7-J-2-Special	95	T	22	8B8717	1	J-2	None	23
8B8718	1	450	4.3-J-2-Special	75	T	22	8B8718	1	J-2	None	.....
8B8767	1	450	15-J-2-Special	110	T	22	8B8767	1	J-2	None	.....
8B8803	1	820	15-S-Special	110	CT	20, 21	8B8803	1	S	None	.....
11B1355	1	1280	69-S-516	350	CT	20, 21	11B1355	1	S	None	.....
11B1380	1	330	15-S-113③	110	T	20, 21	11B1380	1	S	None	14, 22
11B1740	1	220	15-J-2-Special	110	T	22	11B1740	1	J-2	None	.....
11B1741	1	220	15-J-2-Special	110	T	22	11B1741	1	J-2	None	6
11B1742	1	220	25-J-2-Special	150	T	22	11B1742	1	J-2	None	.....
11B1743	1	220	25-J-2-Special	150	T	22	11B1743	1	J-2	None	6
11B1744	1	220	25-J-2-Special	150	T	22	11B1744	1	J-2	None	.....
11B1745	1	220	25-J-2-Special	150	T	22	11B1745	1	J-2	None	6
11B1746	1	160	25-J-1-Special	150	T	22	11B1746	1	J-1	None	.....
11B1747	1	160	25-J-1-Special	150	T	22	11B1747	1	J-1	None	6
11B1748	1	165	15-J-1-Special	110	T	22	27B1971	1	RJ	None	9, 30
11B1749	1	165	15-J-1-Special	110	T	22	11B1749	1	J-1	None	6
11B1772	1	265	46-S-Special	250	T	20, 21	11B1772	1	S	None	.....
11B1776	1	2280	4.3-J-2-Special	75	T	22	11B1776	1	J-2	None	6
11B2305	1	400③	25-S-223	150	T	20, 21	53B2222	2	OS	585D150, Gr. 2	29, 32,49
11B2308	1	450	15-J-2-Special	110	T	22	11B2308	1	J-2	None	.....
11B2313	1	4000	15-S-Special	110	T	20, 21	11B2313	1	S	None	.....
11B2745	1	400③	46-S-418	250	T	20, 21	452C345	2	OS	585D150, Gr. 15, 35	29
11B2749	....	2230	15-S-127	110	T	20, 21	11B2749	.....	S	None	.....
11B2755	1	150/300	69-OS_1-540	350	CT	20, 21	11B2755	1	OS_1	None	19
11B2757	1	785	15-J-2-Special	110	T	22	11B2757	1	J-2	None	20, 23
11B3026	1	165	15-J-1-Special	110	T	22	11B3026	1	J-1	None	.....
11B3061	1	450	8.7-J-2-Special	95	T	22	11B3061	1	J-2	None	21
11B3063	1	1400	46-S-419	250	T	20, 21	452C345	2	OS	585D150, Gr. 14, 34	29
11B3446	....	2120	25-S-232	150	T	20, 21	11B3446	.....	S	None	.....
11B3461	1	785	4.3-J-2-Special	75	T	22	11B3461	1	J-2	None	6
11B3516	....	....	5-J-2-Special	75	T	22	11B3516	.....	J-2	None	37
11B3839	1	305	34.5-S-312	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4, 24	14, 29
11B3842	1	1710	8.7-J-2-Special	95	T	22	11B3842	1	J-2	None	20, 21, 23
11B3844	1	450	4.3-J-2-Special	75	T	22	11B3844	1	J-2	None	.....
11B3848	1	2750	15-S-138	110	T	20, 21	11B3848	1	S	None	49
11B3882	1	300	8.7-J-2-Special	95	T	22	11B3882	1	J-2	None	6, 23

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
11B4236	1	220	15-J-2-Special	110	T	22	11B4236	1	J-2	None	21
11B4237	1	450	8.7-J-2-Special	95	T	22	11B4237	1	J-2	None	20, 21, 23
11B4271	1	2450	34.5-S-335	200	T	20, 21	11B4271	1	S	None	.....
11B4272	1	400④	25-S-224	150	T	20, 21	53B2223	2	OS	585D150, Gr. 1	29
11B4284	1	220	15-J-2-Special	110	T	22	11B4284	1	J-2	None	.....
11B4338	1	450	8.7-J-2-Special	95	T	22	11B4338	1	J-2	None	20, 21, 23
11B4397	1	220	25-J-2-Special	150	T	22	11B4397	1	J-2	None	20, 23
11B4760③	1	2130	15-S-128	110	T	20, 21	11B4760	1	S	None	.....
11B4765	1	220	25-J-2-Special	150	T	22	11B4765	1	J-2	None	20, 23
11B5212	1	450	8.7-J-2-Special	95	T	22	11B5212	1	J-2	None	21
11B5230	1	400④	34.5-S-316	200	T	20, 21	452C335	2	OS	585D150, Gr. 19, 39	29
11B5270	1	2250	34.5-S-Special	200	T	20, 21	11B5270	1	S	None	.....
11B5281	1	2830	15-S-132	110	T	20, 21	11B5281	1	S	None	.....
11B5294	1	400④	50-S-416	250	T	20, 21	53B2242	2	OS	585D150, Gr. 14	29
11B5298	1	400④	69-S-Special	350	T	20, 21	11B5298	1	S	None	.....
11B5335	1	450	8.7-J-2-Special	95	T	22	11B5335	1	J-2	None	.....
11B5336	1	450	15-J-2-Special	110	T	22	11B5336	1	J-2	None	.....
11B5916	1	2560	34.5-S-Special	200	T	20, 21	11B5916	1	S	None	.....
11B5928	1	4000	5-J-2-Special	75	T	22	11B5928	1	J-2	None	.....
11B5945	1	450	8.7-J-2-Special	95	T	22	11B5945	1	J-2	None	21
11B5964	....	3100	25-S-Special	150	T	20, 21	11B5964	.....	S	None	.....
11B5968	1	450	5-J-2-Special	75	T	22	37A6305	7, 27	J-2	None	30
11B6047	1	1210	25-J-2-Special	150	T	22	11B6047	1	J-2	None	.....
11B6086	1	2280	8.7-J-2-Special	95	T	22	11B6086	1	J-2	None	.....
11B6102	1	785	5-J-2-Special	75	T	22	11B6102	1	J-2	None	.....
11B6103	1	785	5-J-2-Special	75	T	22	11B6103	1	J-2	None	.....
11B6104	1	785	8.7-J-2-Special	95	T	22	11B6104	1	J-2	None	.....
11B6105	1	1210	8.7-J-2-Special	95	T	22	11B6105	1	J-2	None	.....
11B6106	1	450	15-J-2-Special	110	T	22	11B6106	1	J-2	None	.....
11B6107	1	785	15-J-2-Special	110	T	22	11B6107	1	J-2	None	.....
11B6108	1	1210	15-J-2-Special	110	T	22	11B6108	1	J-2	None	.....
11B6109	1	220	5-J-2-Special	75	T	22	37A6305	4, 24	J-2	None	30
11B6110	1	220	5-J-2-Special	75	T	22	27B1923	2, 9	RJ	None	9, 30
11B6111	1	450	5-J-2-Special	75	T	22	37A6305	2, 22	J-2	None	30
11B6112	1	785	5-J-2-Special	75	T	22	37A6305	3, 23	J-2	None	30
11B6113	1	1710	5-J-2-Special	75	T	22	27B1925	1, 7	RJ	None	9, 30
11B6114	1	2280	5-J-2-Special	75	T	22	27B1925	2, 8	RJ	None	9, 30
11B6115	1	3300	5-J-2-Special	75	T	22	27B1926	1	RJ	None	9, 30
11B6116	1	220	8.7-J-2-Special	95	T	22	37A6387	1, 21	J-2	None	30
11B6117	1	220	8.7-J-2-Special	95	T	22	27B1928	8	RJ	None	9, 30, 31
11B6118	1	450	8.7-J-2-Special	95	T	22	37A6387	4, 24	J-2	None	30
11B6119	1	450	8.7-J-2-Special	95	T	22	37A6387	6, 26	J-2	None	30
11B6120	1	785	8.7-J-2-Special	95	T	22	53B6472	1	RJ	None	9, 30, 31
11B6121	1	1710	8.7-J-2-Special	95	T	22	27B1929	1	RJ	None	9, 31
11B6122	1	1710	8.7-J-2-Special	95	T	22	27B1929	2	RJ	None	9, 31
11B6123	1	3300	8.7-J-2-Special	95	T	22	27B1930	1	RJ	None	9, 31
11B6124	1	3300	8.7-J-2-Special	95	T	22	27B1930	2	RJ	None	9, 31
11B6125	1	220	15-J-2-Special	110	T	22	37A6315	1, 21	J-2	None	30
11B6253	1	450	5-J-2-Special	75	T	22	11B6253	1	J-2	None	.....
11B6283	1	785	15-J-2-Special	110	T	22	11B6283	1	J-2	None	.....
11B6452	1	100/200	34.5-S_1-343	200	CT	20, 21	11B6452	1	S_1	None	6
11B6462	1	1210	15-J-2-Special	110	T	22	11B6462	1	J-2	None	26

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81
③ Stud size outer end differs from key 128.
④ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
11B6463	1	1210	7.5-J-2-Special	95	T	22	11B6463	1	J-2	None	26
11B6482	1	400③	34.5-S-Special	200	T	20, 21	11B6482	1	S	None	20, 23
11B6492	1	795	15-J-2-Special	110	T	22	11B6492	1	J-2	None	.....
11B6493	1	785	7.5-J-2-Special	95	T	22	11B6493	1	J-2	None	.....
11B7102	1	220	15-J-2-Special	110	T	22	27B1928	9	RJ	None	9, 30
11B7103	1	785	15-J-2-Special	110	T	22	37A6315	5, 25	J-2	None	30
11B7104	1	220	25-J-2-Special	150	T	22	37A6325	1, 21	J-2	None	30
11B7105	1	450	25-J-2-Special	150	T	22	37A6325	2, 22	J-2	None	30
11B7106	1	220	25-J-2-Special	150	T	22	37A6325	3, 23	J-2	None	30
11B7107	1	785	25-J-2-Special	150	T	22	37A6325	5, 25	J-2	None	30
11B7112	1	2700	15-S-Special	110	T	20, 21	11B7112	1	S	None	.....
11B7114	1	2130	15-S-128	110	T	20, 21	11B7114	1	S	None	14
11B7115	1	2570	15-S-133	110	T	20, 21	11B7115	1	S	None	24
11B7117	....	750/1500	34.5-S-Special	200	CT	20, 21	11B7117	.....	S	None	.....
11B7130	1	400③	34.5-OS_1-323	200	T	20, 21	53B2232	2	OS	585D150, Gr. 7	19, 29
11B7138	1	3040	25-S-Special	150	T	20, 21	11B7138	1	S	None	.....
11B7155	....	3260	15-S-138	110	T	20, 21	11B7155	.....	S-OS	None	.....
11B7157	1	785	15-J-2-Special	110	T	22	37A6315	8, 28	J-2	None	30
11B7159	1	1710	15-J-2-Special	110	T	22	27B1929	2	RJ	None	9, 30
11B7170	1	1200	73-S_1-517	350	T	20, 21	53B2267	2	OS	585D150, Gr. 16	29
11B7199	1	4000	34.5-S-340	200	T	20, 21	11B7199	1	S	None	39
11B7495	1	1360	46-S-420	250	T	20, 21	452C345	2	OS	585D150, Gr. 14, 34	29, 40
11B7844	1	1210	15-J-2-Special	110	T	22	11B7844	1	J-2	None	.....
11B7899	1	3420	25-S-Special	150	T	20, 21	11B7899	1	S	None	.....
11B7987	1	450	8.7-J-2-Special	95	T	22	11B7987	1	J-2	None	.....
11B8557	1	2280	15-J-2-Special	110	T	22	53B2278	1	RJ	None	9, 30
11B8726	1	1210	15-J-2-Special	110	T	22	11B8726	1	J-2	None	.....
11B8727	1	450	15-J-2-Special	110	T	22	27B1928	10	RJ	None	9, 30
11B8728	1	785	8.7-J-2-Special	95	T	22	37A6387	8, 28	J-2	None	30
11B8729	1	785	5-J-2-Special	75	T	22	11B8729	1	J-2	None	7
11B8734	1	3520	15-S-Special	110	T	20, 21	11B8734	1	S	None	.....
11B8791	1	400③	34.5-S-Special	200	T	20, 21	11B8791	1	S	None	7
11B9007	1	785	8.7-J-2-Special	95	T	22	11B9007	1	J-2	None	.....
11B9008	1	220	15-J-2-Special	110	T	22	11B9008	1	J-2	None	.....
11B9025	1	160	25-J-1-Special	150	T	22	11B9025	1	J-1	None	.....
11B9048	1	165	15-J-1-Special	110	T	22	11B9048	1	J-1	None	.....
11B9078	1	450	15-J-2-Special	110	T	22	11B9078	1	J-2	None	.....
11B9096	1	2160	34.5-S-Special	200	T	20, 21	11B9096	1	S	None	.....
11B9098	1	1710	15-J-2-Special	110	T	22	27B1929	3	RJ	None	.....
11B9321	1	4160	5-J-2-Special	75	T	22	11B9321	1	J-2	None	.....
11B9336	1	1710	8.7-J-2-Special	95	T	22	11B9336	1	J-2	None	41
11B9342	1	2900	15-J-2-Special	110	T	22	11B9342	1	J-2	None	.....
11B9350	1	1260	15-S-Special	110	T	20, 21	11B9350	1	S	None	7
11B9756	1	1710	15-J-2-Special	110	T	22	27B1929	1	RJ	None	.....
11B9900	1	400③	34.5-S-Special	200	T	20, 21	15B5215	1	S	None	.....
14B553	1	5400	4.3-J-2-Special	75	T	22	14B553	1	J-2	None	7
15B693	1	765	25-J-2-Special	150	T	22	15B693	1	J-2	None	.....
15B1489	1	400	25-S-223	150	T	20, 21	53B2222	2	OS	584D150, Gr. 1	29, 32, 49
15B1495	1	400③	15-S-Special	110	T	20, 21	15B1495	1	S	None	.....
15B1700	1	3300	5-J-2-Special	75	T	22	15B1700	1	J-2	None	42
15B1739	1	450	25-J-2-Special	150	T	22	15B1739	1	J-2	None	.....
15B1749	1	400	8.7-J-1-Special	95	T	22	15B1749	1	J-1	None	41

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
15B1752	1	2550	25-S-236	150	T	20, 21	15B1752	1	S	None	42
15B1768	1	1210	25-J-2-Special	150	T	22	15B1768	1	J-2	None	41
15B1769	1	400③	34.5-S-323	200	T	20, 21	53B2230	2	OS	585D150, Gr. 7, 27	29
15B1779	1	100	15-J-1-Special	110	T	22	15B1779	.....	J-1	None	41
15B1781	1	1550	15-S-126	110	T	20, 21	15B1781	1	S	None	35
15B1782	1	1420	34.5-S-327	200	T	20, 21	452C335	2	OS	585D150, Gr. 6, 26	29
15B1786	1	400③	34.5-S-324	200	T	20, 21	53B2233	2	OS	585D150, Gr. 6	29, 32
15B1788	1	1900	34.5-S-333	200	T	20, 21	15B1788	1	S	None	35
15B1789	1	2800	25-S-Special	150	T	20, 21	15B1789	1	S	None	35
15B1793	1	3420	25-S-Special	150	T	20, 21	15B1793	1	S	None	43
15B2014	1	785	15-J-2-Special	110	T	22	15B2014	1	J-2	None	41
15B2016	1	2280	5-J-2-Special	75	T	22	15B2016	1	J-2	None	41
15B2029	1	500/1000	34.5-SI-345	200	CT	20, 21	15B2029	1	SI	None	.....
15B2314	1	600/1200	69-S-546	350	CT	20, 21	15B2314	1	S	None	.....
15B2318	1	450	15-J-2-Special	110	T	22	15B2318	1	J-2	None	.....
15B2336	1	1710	15-J-2-Special	110	T	22	15B2336	1	J-2	None	.....
15B2621	1	1710	5-J-2-Special	75	T	22	15B2621	1	J-2	None	.....
15B2959	1	400③	34.5-S-323	200	T	20, 21	53B2230	2	OS	585D150, Gr. 7, 27	44
15B2960	1	400③	46-S-416	250	T	20, 21	53B2240	2	OS	585D150, Gr. 14	44
15B3059	1	2900	25-J-2-Special	150	T	22	15B3059	1	J-2	None	.....
15B3435	1	1210	25-J-2-Special	150	T	22	15B3435	1	J-2	None	.....
15B3823	1	1710	5-J-2-Special	75	T	22	15B3823	1	J-2	None	.....
15B3888	1	1710	8.7-J-2-Special	90	T	22	15B3888	1	J-2	None	35
15B3890	1	400	15-J-1-Special	110	T	22	15B3890	1	J-1	None	41
15B3896	1	2900	15-J-2-Special	110	T	22	15B3896	1	J-2	None	.....
15B3897	1	785	2.4-J-2-Special	60	T	22	15B3897	1	J-2	None	.....
15B3899	1	400	25-J-1-Special	150	T	22	15B3899	1	J-1	None	33
15B4009	1	450	25-J-2-Special	150	T	22	15B4009	1	J-2	None	41
15B4046	1	100	25-J-1-Special	150	T	22	15B4046	1	J-1	None	41
15B4081	1	2650	15-S-133	110	T	20, 21	15B4081	1	S	None	22
15B4089	1	2280	8.7-J-2-Special	95	T	22	53B2278	1	RJ	None	9, 30, 31
15B4306	1	785	8.7-J-2-Special	95	T	22	15B4306	1	J-2	None	14
15B4367	1	450	5-J-2-Special	75	T	22	15B4367	1	J-2	None	14
15B4615	1	512	46-S-Special	250	T	20, 21	53B2243	2	OS	585D150, Gr. 13	29, 33
15B4868	1	2280	8.7-J-2-Special	95	T	22	15B4868	1	J-2	None	.....
15B5213	1	2280	25-J-2-Special	150	T	22	15B5213	1	J-2	None	41
15B5215	1	400③	34.5-S-Special	200	T	20, 21	15B5215	1	S	None	.....
15B5575	1	2120	34.5-S-Special	200	T	20, 21	15B5575	1	S	None	7
15B5576	1	2360	15-S-Special	110	T	20, 21	15B5576	1	S	None	7
15B5577	1	3000	15-S-Special	110	T	20, 21	15B5577	1	S	None	7
15B5578	1	2650	34.5-S-Special	200	T	20, 21	15B5578	1	S	None	7
15B6049	1	450	25-J-2-Special	150	T	22	15B6049	1	J-2	None	41
15B6464	1	2150	34.5-S-Special	200	T	20, 21	15B6464	1	S	None	24
15B6495	1	1710	8.7-J-2-Special	95	T	22	15B6495	1	J-2	None	14
15B6760	1	3400	34.5-S-Special	200	T	20, 21	15B6760	1	S	None	.....
15B6797	1	3420	15-S-138	110	T	20, 21	15B6797	1	S	None	.....
15B6799	1	400③	15-S-Special	110	T	20, 21	15B6799	1	S	None	7
15B7892	....	400	25-SI-224	150	T	20, 21	11B4272	.....	SI	None	6
15B8387	1	4200	15-S-Special	110	T	20, 21	15B8387	1	S	None	35
15B8392	1	3800	15-S-Special	110	T	20, 21	15B8392	1	S	None	.....
15B8713	....	1800	25-S-Special	150	T	20, 21	15B8713	.....	S	None	7
15B9110	1	400③	15-S-Special	110	T	20, 21	15B9110	1	S	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
15B9111	1	1480	25-S-Special	150	T	20, 21	24B2426	1	S	None	.....
24B1098	1	2240	25-S-232	150	T	20, 21	24B1098	1	S	None	.....
24B1440	1	1460	34.5-S-327	200	T	20, 21	452C335	2	OS	285D150, Gr. 7, 27	29
24B1483	1	450	15-J-2-Special	110	T	22	24B1483	1	J-2	None	.....
24B1926	1	785	5-J-2-Special	75	T	22	24B1926	1	J-2	None	.....
24B2192	1	1710	25-J-2-Special	150	T	22	24B2192	1	J-2	None	.....
24B2195	....	3900	25-S-Special	150	T	20, 21	24B2195	.....	S	None	.....
24B2196	1	1630	25-S-228	150	T	20, 21	452C325	2	OS	585D150, Gr. 3, 23	29
24B2411	....	325	15-S-113	110	T	20, 21	24B2411	.....	S	None	.....
24B2413	....	1700	15-S-125	110	T	20, 21	24B2413	.....	S	None	.....
24B2414	....	1600	15-S-126	110	T	20, 21	24B2414	.....	S	None	.....
24B2415	....	2100	15-S-128	110	T	20, 21	24B2415	.....	S	None	.....
24B2416	....	2650	15-S-133	110	T	20, 21	24B2416	.....	S	None	.....
24B2417	....	1060	15-S-118	110	T	20, 21	24B2417	.....	S	None	.....
24B2418	....	400③	15-S-123	110	T	20, 21	24B2418	.....	S	None	.....
24B2419	....	400③	15-S-124	110	T	20, 21	24B2419	.....	S	None	.....
24B2421	....	305	25-S-213	150	T	20, 21	441C621	2	OS	None	.....
24B2422	....	400③	25-S-217	150	T	20, 21	441C621	2	OS	None	.....
24B2423	....	1630	25-S-228	150	T	20, 21	452C325	2	OS	585D150, Gr. 3, 23	29
24B2424	....	2050	23-S-233	150	T	20, 21	24B2424	.....	S	None	.....
24B2426	1	1550	25-S-229	150	T	20, 21	452C325	2	OS	585D150, Gr. 2, 22	29
24B2428	1	400③	25-S-224	150	T	20, 21	53B2223	2	OS	585D150, Gr. 1	29, 32
24B2430	1	310	34.5-S-312	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4, 24	29
24B2431	1	290	34.5-S-313	200	T	20, 21	53B2231	2	OS	585D150, Gr. 4	29, 32
24B2432	1	400③	34.5-S-OS_1-323	200	T	20, 21	53B2232	2	OS	585D150, Gr. 7	29, 32
24B2433	....	1550	34.5-S-OS_1-326	200	T	20, 21	452C335	2	OS	585D150, Gr. 8, 28	29
24B2435	1	400③	34.5-S-324	200	T	20, 21	53B2233	2	OS	585D150, Gr. 6, 26	29
24B2436	1	1460	34.5-S-327	200	T	20, 21	452C335	2	OS	585D150, Gr. 7, 27	29
24B2437	1	400③	34.5-OS_1-323	200	T	20, 21	53B2232	2	OS	585D150, Gr. 7, 27	29
24B2438	....	2450	34.5-S-OS_1-335	200	T	20, 21	24B2438	2	OS	None	.....
24B2443	1	1400	46-S-419	250	T	20, 21	452C345	2	OS	585D150, Gr. 14	29
24B2445	1	400③	46-S-421	250	T	20, 21	53B2243	2	OS	585D150, Gr. 13	29, 32
24B2446	....	2800	46-S-OS_1-431	250	T	20, 21	452C345	2	OS	None	.....
24B2460	1	400③	69-S-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	29, 32
24B2461	1	400③	69-S-514	350	T	20, 21	53B2263	2	OS	585D150, Gr. 16	29
24B2462	1	1240	69-S-517	350	T	20, 21	53B2267	2	OS	585D150, Gr. 40	29
24B2466	1	400③	73-OS_1-S_1-513	350	T	20, 21	53B2263	2	OS	585D150, Gr. 18	29, 32
24B2468	4, 6	1640	69-S_1-529	350	T	20, 21	616D064	1	O	None	.....
24B3148	....	3250	15-S-138	110	T	20, 21	24B3148	2	OS	None	.....
24B3164	1	785	5-J-2-Special	75	T	22	24B3164	1	J-2	None	.....
24B4101	1	3800	25-S-Special	150	T	20, 21	24B4101	2	OS	None	44
24B4417	1	300/600	34.5-S-Special	200	CT	20, 21	24B4417	2	OS	None	14
24B4440	1	785	25-J-2-Special	150	T	22	24B4440	1	J-2	None	.....
24B4485	....	4000	34.5-S-340	200	T	20, 21	24B4485	2	OS	None	.....
24B4595	1	400③	34.5-S-323	200	T	20, 21	53B2230	2	OS	585D150, Gr. 7, 21	44
24B5816	1	400③	34.5-S-Special	200	T	20, 21	53B2233	2	OS	585D150, Gr. 4	29, 32
24B5838	1	1350	73-S_1-517	350	T	20, 21	53B2267	2	OS	585D150, Gr. 40	29
24B5877	1	785	25-J-2-Special	150	T	22	24B5877	1	J	None	41
24B6254	1	1710	15-J-2-Special	110	T	22	24B6254	1	J-2	None	35
24B6287	....	2700	34.5-S-Special	200	T	20, 21	24B6287	2	OS	None	.....
24B6293	1	785	15-J-2-Special	110	T	22	24B6293	1	J-2	None	35
24B6299	1	3320	25-S-Special	150	T	20, 21	24B6299	2	OS	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Limited by steel flange.

Westinghouse

Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
24B6519	1	450	8.7-J-2-Special	95	T	22	24B6519	1	J-2	None	.....
24B6521	1	1710	8.7-J-2-Special	95	T	22	11B6121	1	J-2	None	.....
24B6544	1	1620	15-S-126	110	T	20, 21	24B6544	2	OS	None	.....
24B6610	....	3420	15-S-Special	110	T	20, 21	24B6610	2	OS	None	.....
24B6618	1	785	8.7-J-2-Special	95	T	22	37A6387	5	J-2	None	30
24B6685	1	785	8.7-J-2-Special	95	T	22	24B6685	1	J-2	None	.....
24B7411	1	3500	15-S-Special	110	T	20, 21	24B7411	2	OS	None	.....
24B7472	1	1400	34.5-S-Special	200	T	20, 21	452C335	2	OS	585D150, Gr. 7, 27	29
24B7487	1	220	15-J-2-Special	110	T	22	24B7487	1	J-2	None	.....
24B7488	1 or 3	1350	69-S-Special	350	T	18, 19	612D365	1	O	None	29
24B7499	1	1710	15-S-Special	110	T	20, 21	24B7499	2	OS	None	7
24B7710	1	4000	15-J-2-Special	110	T	22	③	.....	RJ	None	.....
24B7771	1 or 3	2450	34.5-S-335	200	T	20, 21	24B7771	4	OS	None	.....
24B7789	1	3400	25-S-Special	150	T	20, 21	24B7789	2	OS	None	7
24B8542	....	3320	25-S-Special	150	T	20, 21	24B8542	2	OS	None	.....
24B8598	1	3900	15-S-Special	110	T	20, 21	24B8598	2	OS	None	.....
24B8599	....	4000	15-S-Special	110	T	20, 21	24B8599	2	OS	None	.....
24B8749	1	2020	46-S-Special	250	T	20, 21	24B8749	2	OS	None	.....
24B8925	1	1710	8.7-J-2-Special	95	T	22	11B6121	1	J-2	None	.....
24B8930	1	785	23-J-2-Special	150	T	22	24B8930	1	J-2	None	7, 28
24B8938	....	2450	34.5-S-335	200	T	20, 21	24B8938	2	OS	None	.....
24B9634	....	1710	8.7-J-2-Special	95	T	22	24B9634	.....	J-2	None	.....
24B9667	....	2280	8.7-J-2-Special	95	T	22	53B2278	2	RJ	None	9, 30, 31
24B9695	1, 2	4160	8.7-J-Special	95	T	22	③	.....	RJ	None	9, 30, 31
24B9699	1	4000	15-S-Special	110	T	20, 21	24B9699	2	OS	None	.....
27B1246	....	4180	46-S-Special	250	T	20, 21	27B1246	2	OS	None	.....
27B1299	1	3000	15-S-Special	110	T	20, 21	27B1299	2	OS	None	7
27B1923	1	220	5-RJ-Special	75	T	22	27B1923	1	RJ	None	30
27B1923	2	220	5-RJ-Special	75	T	22	27B1923	2	RJ	None	30
27B1923	3	400	5-RJ-Special	75	T	22	27B1923	3	RJ	None	30
27B1923	4	400	5-RJ-Special	75	T	22	27B1923	4	RJ	None	30
27B1923	5	220	5-RJ-Special	75	T	22	27B1923	5	RJ	None	30
27B1923	6	220	5-RJ-Special	75	T	22	27B1923	6	RJ	None	30
27B1923	7	400	5-RJ-Special	75	T	22	27B1923	7	RJ	None	30
27B1923	8	220	5-RJ-Special	75	T	22	27B1923	8	RJ	None	6, 30
27B1923	9	220	5-RJ-Special	75	T	22	27B1923	9	RJ	None	6, 30
27B1923	10	400	5-RJ-Special	75	T	22	27B1923	10	RJ	None	6, 30
27B1923	11	400	5-RJ-Special	75	T	22	27B1923	11	RJ	None	6, 30
27B1923	12	220	5-RJ-Special	75	T	22	27B1923	12	RJ	None	6, 30
27B1923	13	220	5-RJ-Special	75	T	22	27B1923	13	RJ	None	6, 30
27B1923	14	400	5-RJ-Special	75	T	22	27B1923	14	RJ	None	6, 30
27B1924	1	785	5-RJ-Special	75	T	22	27B1924	1	RJ	None	30
27B1924	2	785	5-RJ-Special	75	T	22	27B1924	2	RJ	None	6, 30
27B1924	3	785	5-RJ-Special	75	T	22	27B1924	3	RJ	None	30
27B1924	4	785	5-RJ-Special	75	T	22	27B1924	4	RJ	None	6, 30
27B1924	5	785	5-RJ-Special	75	T	22	27B1924	5	RJ	None	30

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
27B1924	6	785	5-RJ-Special	75	T	22	27B1924	6	RJ	None	6, 30
27B1924	7	785	5-RJ-Special	75	T	22	27B1924	7	RJ	None	30
27B1924	8	785	5-RJ-Special	75	T	22	27B1924	8	RJ	None	30
27B1925	1	1710	5-RJ-Special	75	T	22	27B1925	1	RJ	None	30
27B1925	2	2280	5-RJ-Special	75	T	22	27B1925	2	RJ	None	30
27B1925	3	1710	5-RJ-Special	75	T	22	27B1925	3	RJ	None	30
27B1925	4	1710	5-RJ-Special	75	T	22	27B1925	4	RJ	None	6, 30
27B1925	5	2280	5-RJ-Special	75	T	22	27B1925	5	RJ	None	30
27B1925	6	2280	5-RJ-Special	75	T	22	27B1925	6	RJ	None	6, 30
27B1925	7	1710	5-RJ-Special	75	T	22	27B1925	7	RJ	None	6, 30
27B1925	8	2280	5-RJ-Special	75	T	22	27B1925	8	RJ	None	6, 30
27B1925	9	2280	5-RJ-Special	75	T	22	27B1925	9	RJ	None	30
27B1925	10	2280	5-RJ-Special	75	T	22	27B1925	10	RJ	None	30
27B1925	11	2280	5-RJ-Special	75	T	22	27B1925	11	RJ	None	30
27B1925	12	2000	5-RJ-Special	75	T	22	27B1925	12	RJ	None	46
27B1925	13	2000	5-RJ-Special	75	T	22	27B1925	13	RJ	None	46
27B1925	14	2000	5-RJ-Special	75	T	22	27B1925	14	RJ	None	46
27B1926	1	3300	5-RJ-Special	75	T	22	27B1926	1	RJ	None	30
27B1926	2	3300	5-RJ-Special	75	T	22	27B1926	2	RJ	None	30
27B1926	3	3300	5-RJ-Special	75	T	22	27B1926	3	RJ	None	6, 30
27B1926	4	3300	5-RJ-Special	75	T	22	27B1926	4	RJ	None	30
27B1926	5	3300	5-RJ-Special	75	T	22	27B1926	5	RJ	None	30
27B1926	6	3300	5-RJ-Special	75	T	22	27B1926	6	RJ	None	30
27B1926	7	3300	5-RJ-Special	75	T	22	27B1926	7	RJ	None	30
27B1927	1	220	15-RJ-Special	110	T	22	27B1927	1	RJ	None	30
27B1927	2	220	15-RJ-Special	110	T	22	27B1927	2	RJ	None	30
27B1927	3	220	15-RJ-Special	110	T	22	27B1927	3	RJ	None	30
27B1927	4	220	15-RJ-Special	110	T	22	27B1927	4	RJ	None	6, 30
27B1927	5	220	15-RJ-Special	110	T	22	27B1927	5	RJ	None	6, 30
27B1927	6	220	15-RJ-Special	110	T	22	27B1927	6	RJ	None	6, 30
27B1927	7	220	15-RJ-Special	110	T	22	27B1927	7	RJ	None	30
27B1927	8	220	15-RJ-Special	110	T	22	27B1927	8	RJ	None	6, 30
27B1927	9	220	15-RJ-Special	110	T	22	27B1927	9	RJ	None	6, 30
27B1927	10	220	15-RJ-Special	110	T	22	27B1927	10	RJ	None	6, 30
27B1927	11	220	15-RJ-Special	110	T	22	27B1927	10	RJ	None	30
27B1928	1	400	15-RJ-Special	110	T	22	27B1928	1	RJ	None	30
27B1928	2	400	15-RJ-Special	110	T	22	27B1928	2	RJ	None	30
27B1928	3	785	15-RJ-Special	110	T	22	27B1928	3	RJ	None	30
27B1928	4	785	15-RJ-Special	110	T	22	27B1928	4	RJ	None	30
27B1928	5	400	15-RJ-Special	110	T	22	27B1928	5	RJ	None	30
27B1928	6	785	15-RJ-Special	110	T	22	27B1928	6	RJ	None	30
27B1928	7	785	15-RJ-Special	110	T	22	27B1928	7	RJ	None	30
27B1928	8	220	15-RJ-Special	110	T	22	27B1928	8	RJ	None	30
27B1928	9	220	15-RJ-Special	110	T	22	27B1928	9	RJ	None	30
27B1928	10	220	15-RJ-Special	110	T	22	27B1928	10	RJ	None	30
27B1928	11	785	15-RJ-Special	110	T	22	27B1928	11	RJ	None	6, 30
27B1928	12	785	15-RJ-Special	110	T	22	27B1928	12	RJ	None	6, 30
21B1928	13	600	15-RJ-Special	110	T	22	27B1928	13	RJ	None	6
27B1928	14	600	15-RJ-Special	110	T	22	27B1928	14	RJ	None	6
27B1929	1	1710	15-RJ-Special	110	T	22	27B1929	1	RJ	None	30
27B1929	2	1710	15-RJ-Special	110	T	22	27B1929	2	RJ	None	30
27B1929	3	1710	15-RJ-Special	110	T	22	27B1929	3	RJ	None	30
27B1929	4	1710	15-RJ-Special	110	T	22	27B1929	4	RJ	None	30
27B1929	5	2000	15-RJ-Special	110	T	22	27B1929	5	RJ	None	6
27B1929	6	2000	15-RJ-Special	110	T	22	27B1929	6	RJ	None	6
27B1929	7	2000	15-RJ-Special	110	T	22	27B1929	7	RJ	None	6

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
27B1929	8	2000	15-RJ-Special	110	T	22	27B1929	8	RJ	None	6
27B1930	1	3300	15-RJ-Special	110	T	22	27B1930	1	RJ	None	30
27B1930	2	3300	15-RJ-Special	110	T	22	27B1930	2	RJ	None	30
27B1930	3	4160	15-RJ-Special	110	T	22	27B1930	3	RJ	None	30
27B1930	5	3300	15-RJ-Special	110	T	22	27B1930	5	RJ	None	30
27B1930	6	4100	15-RJ-Special	110	T	22	22B1930	6	RJ	None	30
27B1971	1	165	15-RJ-Special	110	T	22	27B1971	1	RJ	None	30
27B1971	2	165	15-RJ-Special	110	T	22	27B1971	2	RJ	None	6
27B1971	3	165	15-RJ-Special	110	T	22	27B1971	3	RJ	None	6
27B2306	1, 2	4160	5-J-2-Special	75	T	22	439C909	1	RJ	None	30
27B2325	....	3900	25-S-Special	150	T	20, 21	27B2325	2	OS	None	.....
27B2347	1, 6	400/785/-1200	15-J-2-Special	75	T	22	27B2347	1, 6	J-2	None	.....
27B2350	....	1520	25-S-229	150	T	20, 21	452C325	2	OS	585D150, Gr. 2, 22	29
27B2351	....	1400	46-S-419	250	T	20, 21	452C345	2	OS	585D150, Gr. 14, 34	29
27B2352	....	400④	25-S-Special	150	T	20, 21	27B2352	2	OS	None	7
27B2377	....	2280	8.7-J-2-Special	95	T	22	27B2377	.....	J-2	None	.....
30B525	....	765	15-J-2-Special	110	T	22	③	.....	RJ	None	30
30B526	....	3300	8.7-J-2-Special	95	T	22	③	.....	RJ	None	30
30B7106	1	1600/2000	330-O-930	1300	CB	18, 19	382D630	4	O	702C998H01	.....
30B7107	1	1600/2000	330-O-930	1300	CB	18, 19	382D630	4	O	702C998H01	.....
31B388	....	765	4.3-J-2-30	75	T	22	11B6112	.....	J-2	None	.....
31B389	....	1710	4.3-J-2-33	75	T	22	11B6113	.....	J-2	None	.....
31B390	....	3300	4.3-J-2-36	75	T	22	57B1119	1	RJ	None	.....
31B391	....	450	8.7-J-2-37	95	T	22	11B6118	1	J-2	None	.....
31B392	....	450	8.7-J-2-38	95	T	22	11B6119	1	J-2	None	.....
31B393	....	765	8.7-J-2-41	95	T	22	11B6120	1	J-2	None	.....
31B394	....	1710	8.7-J-2-44	95	T	22	11B6121	1	J-2	None	.....
31B395	....	1710	8.7-J-2-45	95	T	22	31B395	1	J-2	None	.....
31B396	....	3300	8.7-J-2-47	95	T	22	11B6123	1	J-2	None	.....
31B397	....	3300	8.7-J-2-48	95	T	22	11B6124	1	J-2	None	.....
31B642	1	220	4.3-J-Special	75	T	22	31B642	1	J-2	None	6
46B154	1	220	8.7-J-2-49	95	T	22	46B154	1	J-2	None	.....
53B1918	....	3800	15-S-Special	110	T	20, 21	53B1918	.....	S	None	.....
53B1934	....	200/400	34.5-S-344	200	CT	20, 21	53B1934	2	OS	None	.....
53B1946	....	400④	46-S-Special	250	T	20, 21	53B2243	2	OS	None	29, 32
53B1988	....	1600	24-S-229	150	T	20, 21	452C325	2	OS	585D150, Gr. 2, 22	29
53B2215	1, 2	2280	15-J-2	110	T	22	53B2278	2	RJ	None	.....
53B2221	1, 2	400	23-S-OS-283	150	T	20, 21	53B2221	2	OS	None	47
53B2221	3	400	28-OS-283	150	T	20, 21	53B2221	3	OS	None	46, 47
53B2222	1, 2	400	23-S-OS-284	150	T	20, 21	53B2222	2	OS	None	47
53B2222	3, 4	400	23-S-OS-284	150	T	20, 21	53B2222	4	OS	None	45, 47
53B2222	6	400	23-OS-284	150	T	20, 21	53B2222	6	OS	None	46, 47
53B2223	1, 2	400	23-O-OS-285	150	T	20, 21	53B2223	2	OS	None	47
53B2223	3	400	23-OS-285	150	T	20, 21	53B2223	3	OS	None	46, 47
53B2226	1, 2	1200	23-S-SO-286	150	T	20, 21	452C325	2	OS	None	47
53B2227	1, 2	1200	23-S-OS-287	150	T	20, 21	53B2227	2	OS	None	47
53B2228	1, 2	1200	23-S-OS-288	150	CB & T	20, 21	452C325	2	OS	None	47
53B2229	1, 2	1850	23-S-OS-Special	150	T	20, 21	53B2229	2	OS	None	.....
53B2230	1, 2	400	23-S-OS-Special	150	T	20, 21	53B2230	2	OS	None	11
53B2231	1, 2	400	34.5-S-OS-383	200	T	20, 21	53B2231	2	OS	None	47
53B2232	1, 2	400	34.5-S-OS-384	200	T	20, 21	53B2232	2	OS	None	47
53B2232	3, 4	400	34.5-S-OS-384	200	T	20, 21	53B2232	4	OS	None	45, 47
53B2232	6	400	34.5-OS-384	200	T	20, 21	53B2232	6	OS	None	47, 49
53B2233	1, 2	400	34.5-S-OS-385	200	T	20, 21	53B2233	2	OS	None	47
53B2233	4	400	34.5-OS-385	200	T	20, 21	53B2233	4	OS	None	46, 47
53B2236	1, 2	1200	34.5-S-OS-386	200	T	20, 21	452C335	2	OS	None	47

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Drawing not made.
④ Limited by steel flange.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly		Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements				Notes No.②
Drawing No.	Gr. No.						Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	
53B2237	1, 2	1200	34.5-S-OS-387	200	T	20, 21	53B2237	2	OS	None	47
53B2238	1, 2	1200	34.5-S-OS-388	200	CB & T	20, 21	452C335	2	OS	None	47
53B2240	1, 2	400	46-S-OS-Special	250	T	20, 21	53B2240	2	OS	None	11
53B2241	1, 2	400	46-S-OS-483	250	T	20, 21	53B2241	2	OS	None	47
53B2241	3	400	46-OS-483	250	T	20, 21	53B2241	3	OS	None	46, 47
53B2242	1, 2	400	46-S-OS-484	250	T	20, 21	53B2242	2	OS	None	47
53B2243	1, 2	400	46-S-OS-485	250	T	20, 21	53B2243	2	OS	None	47
53B2243	3	400	46-OS-485	250	T	20, 21	53B2243	3	OS	None	46, 47
53B2246	1, 2	1200	46-S-OS-486	250	T	20, 21	452C345	2	OS	None	47
53B2247	1, 2	1200	46-S-OS-487	250	T	20, 21	53B2247	2	OS	None	47
53B2248	1, 2	1200	46-S-OS-488	250	CB & T	20, 21	452C345	2	OS	None	47
53B2249	1, 2	400	46-S-OS-Special	250	T	20, 21	53B2249	2	OS	None	11
53B2260	1, 2	400	69-S-OS-Special	350	T	20, 21	53B2260	2	OS	None	11
53B2261	1, 2	400	69-S-OS-583	350	T	18	614D261	1	O	None	47
53B2262	1, 2	400	69-S-OS-584	350	T	18	614D262	1	O	None	47
53B2263	1, 2	400	69-S-OS-585	350	T	20, 21	53B2263	2	OS	None	47
53B2266	1, 2	1200	69-S-OS-586	350	T	18	612D365	1	O	None	47
53B2267	1, 2	1200	69-S-OS-587	350	T	20, 21	53B2267	2	OS	None	47
53B2268	1, 2	1200	69-S-OS-588	350	CB & T	18, 19	612D365	1	O	None	47
53B2269	1, 2	1200	69-S-OS-586	350	T	18, 19	618D365	1	O	None	45, 47
53B2278	1	2280	15-RJ-Special	110	T	22	53B2278	1	RJ	None	30
53B2278	2	2280	15-RJ-Special	110	T	22	53B2278	2	RJ	None	30
53B2278	3	2280	15-RJ-Special	110	T	22	53B2278	3	RJ	None	30
53B2278	4	2280	15-RJ-Special	110	T	22	53B2278	4	RJ	None	30
53B2278	5	2280	15-RJ-Special	110	T	22	53B2278	5	RJ	None	30
53B2278	6	2280	15-RJ-Special	110	T	22	53B2278	6	RJ	None	6, 30
53B2278	7	2280	15-RJ-Special	110	T	22	53B2278	7	RJ	None	30
53B2278	8	2280	15-RJ-Special	110	T	22	53B2278	8	RJ	None	30, 46
53B2599	1	275	34.5-S-313	200	T	20, 21	53B2232	2	OS	585D150, Gr. 5	29, 32
53B3128	1-4	280	25-S-212	150	T	20, 21	44C1620	2	OS	None	49
53B3136	1	1450	34.5-S-327	200	T	20, 21	53B2236	2	OS	585D150, Gr. 7 27	29
53B3199	....	4000	34.5-S-Special	....	T	20, 21	53B3199	2	OS	None	.....
53B3361	....	3300	8.7-J-2-Special	95	T	22	53B3361	.....	J	None	.....
53B4234	....	100/200	15-S-Special	110	CT	20, 21	53B4234	2	OS	None	14
53B4246	....	300/600	46-S-Special	250	CT	20, 21	53B4246	2	OS	None	.....
53B4623	....	6000	23-S-Special	150	T	20, 21	53B4623	2	OS	None	.....
53B4698	....	2610	34.5-S-Special	200	T	20, 21	53B4698	2	OS	None	.....
53B5823	....	6000	23-S-Special	150	T	20, 21	53B5823	2	OS	None	.....
53B6469	....	150/300	69-OS-540	350	CT	20, 21	53B6469	1	OS	None	.....
53B6472	1	785	15-RJ-Special	110	T	22	53B6472	1	RJ	None	30
53B6472	2	785	15-RJ-Special	110	T	22	53B6472	2	RJ	None	30
53B6490	....	7500	15-J-2-Special	110	T	22	53B6490	.....	J-2	None	.....
53B8425	....	5000	25-S-Special	150	T	20, 21	53B8425	2	OS	None	.....
53B8437	....	4320	34.5-S-Special	200	T	20, 21	53B8437	2	OS	None	.....
53B8478③	1	600	15-RJ-Special	110	T	22	53B8478	1	RJ	None	30, 35
53B8478③	2	600	15-RJ-Special	110	T	22	53B8478	2	RJ	None	30, 35
53B8479③	1	1000	15-RJ-Special	110	T	22	53B8479	1	RJ	None	30, 35
53B8479③	2	1000	15-RJ-Special	110	T	22	53B8479	2	RJ	None	30, 35
53B8907	1	785	5-RJ-Special	75	T	22	53B8907	1	RJ	None	30
53B8909	1	785	5-RJ-Special	75	T	22	53B8909	1	RJ	None	30
53B9861	....	400	69-S-583	350	T	20, 21	53B9861	2	OS	None	49
53B9873	1	1710	2.5-RJ-Special	60	T	22	53B9873	1	RJ	None	6, 30
53B9899	1	4000	15-S-Special	110	T	20, 21	53B9899	2	OS	None	7
57B1119	1	3300	5-RJ-Special	75	T	22	57B1119	1	RJ	None	30
57B1127	1	4540DC 4160AC	2.5-RJ-Special	60	T	22	57B1127	1	RJ	None	30
57B1127	2	4160	2.5-RJ-Special	60	T	22	57B1127	2	RJ	None	6, 30

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.
③ Bushing is equipped withi nsulated head for power factor testing.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
447C481	1	1710	5-RJ-Special	75	T	22	447C481	1	RJ	None	35
447C483	1	220	15-RJ-Special	110	T	22	447C483	1	RJ	None	.....
447C531	1	400	34.5-OSI-383	200	T	20, 21	447C531	1	OSI	None	6
447C811	1	3300	5-RJ-Special	75	T	22	447C811	1	RJ	None	35
447C812	1	1000	5-RJ-Special	75	T	22	447C812	1	RJ	None	35
447C833	1	400	34.5-OSI-385	200	T	20, 21	447C833	1	OSI	None	6
447C838	1	2000	5-RJ-Special	75	T	22	447C838	1	RJ	None	.....
447C838	2	2000	5-RJ-Special	75	T	22	447C838	2	RJ	None	.....
448C202	1	400	15-RJ-Special	75	T	22	448C202	1	RJ	None	.....
448C342	1	400	46-SI-484	250	T	20, 21	448C342	1	SI	None	6
448C636	1	1200	34.5-OS-386	200	T	20, 21	448C636	1	OS	None	19
449C218	1, 2	3000	15-S-OS-Special	110	T	20, 21	449C218	2	OS	None	.....
449C241	1, 2	400	46-S-483	250	T	20, 21	449C241	2	OS	None	45
449C247	1	200/400	46-S-444	250	CT	20, 21	449C247	2	OS	None	45
450C211	1-6	400	15-S-OS-124	110	T	20, 21	450C211	5	OS	None	.....
450C211	8	400	15-OS-124	110	T	20, 21	450C211	8	OS	None	46
450C211	9	400	15-OS-124	110	T	20, 21	450C211	9	OS	None	52
450C214	1-6	2650	15-S-OS-133	110	T	20, 21	450C214	5	OS	None	.....
450C214	8	2650	15-OS-133	110	T	20, 21	450C214	8	OS	None	46
450C215	1-4	4000	15-S-OS-Special	110	T	20, 21	450C215	4	OS	None	.....
450C215	6	4000	15-OS-Special	110	T	20, 21	450C215	6	OS	None	46
450C216	1-6	1600	15-S-OS-126	110	T	20, 21	450C216	5	OS	None	.....
450C216	8	1600	15-OS-126	110	T	20, 21	450C216	8	OS	None	19
450C216	9	1600	15-OS-126	110	T	20, 21	450C216	9	OS	None	46
450C216	10	1600	15-OS-126	110	T	20, 21	450C216	10	OS	None	52
450C224	1-4	2600	23-S-OS-236	150	T	20, 21	450C224	4	OS	None	.....
450C224	6	2600	23-OS-236	150	T	20, 21	450C224	6	OS	None	46
450C225	1-6	3320	23-S-OS-Special	150	T	20, 21	450C225	5	OS	None	.....
450C226	2-4	3900	23-S-OS-Special	150	T	20, 21	450C226	4	OS	None	.....
450C226	5	3900	23-OS-Special	150	T	20, 21	450C226	5	OS	None	46
450C227	1-2	6000	23-S-OS-Special	150	T	20, 21	774C827	2	OS	None	.....
450C266	1, 2	1200	69-S-OS-586	350	T	20, 21	450C266	2	OS	None	23
450C290	1, 2, 5, 6	2280	5-RJ	75	T	22	450C290	1,2,5,6	RJ	None	.....
450C290	3, 4, 7, 8	2280	5-RJ	75	T	22	450C290	3,4,7,8	RJ	None	6
450C422	1, 2	400	23-S-OS-284	150	T	20, 21	450C422	2	OS	None	52
450C426	1, 2	1200	23-SI-OSI-286	150	T	20, 21	450C426	2	OSI	None	6
450C432	1, 2	400	34.5-S-OS-384	200	T	20, 21	450C432	2	OS	None	52
450C433	1, 2	400	34.5-S-OS-385	200	T	20, 21	450C433	2	OS	None	52
450C442	1, 2	400	46-S-OS-484	250	T	20, 21	450C442	2	OS	None	52
451C319	1	300	15-RJ	110	T	22	451C319	1	RJ	None	.....
451C319	2	300	15-RJ	110	T	22	451C319	2	RJ	None	6
451C831	1, 2	2500	34.5-S-OS-Special	200	T	20, 21	451C831	2	OS	None	.....
452C280	1, 5	1000	15-RJ-Special	110	T	22	452C280	1, 5	RJ	None	6
452C280	2	600	15-RJ-Special	110	T	22	452C280	2	RJ	None	.....
452C280	3	600	15-RJ-Special	110	T	22	452C280	3	RJ	None	6
452C280	4, 6	1000	15-RJ-Special	110	T	22	452C280	4, 6	RJ	None	.....
452C280	7	1000	15-RJ-Special	110	T	22	452C280	7	RJ	None	46
452C280	8	600	15-RJ-Special	110	T	22	452C280	8	RJ	None	46
452C325	1, 2	400/1200	23-S-OS-292	150	T & CB	20, 21	452C325	2	OS	None	47
452C325	3, 4	400/1200	23-S-OS-292	150	T & CB	20, 21	452C325	4	OS	None	45, 46
452C325	6	400/1200	23-OS-292	150	T & CB	20, 21	452C325	6	OS	None	52
452C325	7	400/1200	23-S-292	150	T & CB	20, 21	452C325	7	OS	None	23
452C325	8	400/1200	23-OS-292	150	T & CB	20, 21	452C325	8	OS	None	19, 52
452C325	9	400/1200	23-OS-292	150	T & CB	20, 21	452C325	9	OS	None	19, 46
452C335	1, 2	400/1200	34.5-S-OS-392	200	T & CB	20, 21	452C335	2	OS	None	47
452C335	3	400/1200	34.5-S-OS-392	200	T & CB	20, 21	452C335	3	OS	None	47, 46

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
452C335	4	400/1200	34.5-S-OS-392	200	T & CB	20, 21	452C335	4	OS	None	52
452C345	1, 2	400/1200	46-S-OS-492	250	T & CB	20, 21	452C345	2	OS	None	47
453C345	3	400/1200	46-OS-492	250	T & CB	20, 21	452C345	3	OS	None	47, 46
452C345	4	400/1200	46-OS-492	250	T & CB	20, 21	452C345	4	OS	None	47, 52
452C345	6	400/1200	46-OS-492	250	T & CB	20, 21	452C345	.....	...	.....	47, 45
452C423	1, 3	400	23-RJ-283	150	T	22	452C423	1, 3	RJ	None	47
452C423	2, 4	400	23-RJ-284	150	T	22	452C423	2, 4	RJ	None	47
452C423	5, 7	400	23-RJ-283	150	T	22	452C423	5, 7	RJ	None	47, 46
452C423	6, 8	400	23-RJ-284	150	T	22	452C423	6, 8	RJ	None	47, 46
452C733	1, 2	400	34.5-S-OS-385	200	T	20, 21	452C733	2	OS	None	47, 45
453C069	1, 2	2000	69-S-OS-Special	350	T	20, 21	453C069	2	OS	None	46
453C069	3	2000	69-OS-Special	350	T	20, 21	453C069	3	OS	None	46
456C128	1, 2	1200	23-S-OS-Special	150	T	20, 21	456C128	2	OS	None	7
456C731	1, 2	400	34.5-S-OS-Special	200	T	20, 21	456C731	2	OS	None	7
457C173	1	2000	5-RJ-Special	75	T	22	457C173	1	RJ	None	.....
457C173	2	2000	5-RJ-Special	75	T	22	457C173	2	RJ	None	6
457C307	1, 2	400/1200	15-S-OS-Special	110	T	20, 21	457C307	2	OS	None	.....
457C307	3	400/1200	15-OS-Special	110	T	20, 21	457C307	3	OS	None	46
457C307	4	400/1200	15-OS-Special	110	T	20, 21	457C307	4	OS	None	19
457C390	1	10000	25-RJ-Special	150	T	22	457C390	1	RJ	None	.....
457C390	2	10000	25-RJ-Special	150	T	22	457C390	2	RJ	None	.....
457C390	3	10000	25-RJ-Special	150	T	22	457C390	3	RJ	None	.....
457C785	1	2000	8.7-J-2-Special	95	T	22	457C785	1	J2	None	.....
458C923	1	400	23-S-285	150	T	20, 21	458C923	2	OS	None	52
458C923	2	400	23-OS-285	150	T	20, 21	458C923	2	OS	None	52
458C935	1	400/1200	34.5-OS-392	200	T & CB	20, 21	458C935	1	OS	None	19
458C935	3	400/1200	34.5-OS-392	200	T & CB	20, 21	458C935	3	OS	None	19, 52
458C945	1	450	25-RJ-Special	150	T	22	458C945	1	RJ	None	45
459C253	1	2900	5-RJ-Special	75	T	22	459C253	1	RJ	None	.....
459C253	2	2900	5-RJ-Special	75	T	22	459C253	2	RJ	None	6
459C253	3	2900	5-RJ-Special	75	T	22	459C253	3	RJ	None	.....
459C253	4	2900	5-RJ-Special	75	T	22	459C253	4	RJ	None	6
459C631	1	400	34.5-S-Special	200	T	20, 21	459C631	2	OS	None	6, 7
459C631	2	400	34.5-OS-Special	200	T	20, 21	459C631	2	OS	None	6, 7
459C635	1	400/1200	34.5-S-392	200	T	20, 21	459C635	2	OS	None	6
459C635	2	400/1200	34.5-OS-392	200	T	20, 21	459C635	2	OS	None	6
459C641	1	400	46-S-Special	250	T	20, 21	459C641	2	OS	None	7
459C641	2	400	46-OS-Special	250	T	20, 21	459C641	2	OS	None	7
460C629	1	4500	5-RJ-Special	75	T	22	460C629	1	RJ	None	.....
460C629	2	4500	5-RJ-Special	75	T	22	460C629	2	RJ	None	6
460C629	3	4500	5-RJ-Special	75	T	22	460C629	3	RJ	None	.....
460C629	4	4500	5-RJ-Special	75	T	22	460C629	4	RJ	None	6
460C629	5	4500	5-RJ-Special	75	T	22	460C629	5	RJ	None	6
460C629	6	4500	5-RJ-Special	75	T	22	460C629	6	RJ	None	6, 46
460C629	7	4500	5-RJ-Special	75	T	22	460C629	7	RJ	None	46
460C629	8	4500	5-RJ-Special	75	T	22	460C629	8	RJ	None	6, 46
460C629	9	4500	5-RJ-Special	75	T	22	460C629	9	RJ	None	46
460C629	10	4500	5-RJ-Special	75	T	22	460C629	10	RJ	None	6, 46
460C632	1	400	34.5-OS-384	200	T	20, 21	460C632	1	OS	None	19
460C643	1, 2	400	46-S-OS-485	250	T	20, 21	460C643	2	OS	None	45
460C663	1	400	69-S-585	350	T	20, 21	460C663	1	S	None	23
462C421	1	400	23-S-283	150	T	20, 21	462C421	1	S	None	23
462C924	1, 2	2000	23-S-OS-Special	150	T	20, 21	462C924	2	OS	None	.....
463C990	1, 2	7500	25-RJ-Special	150	T	22	463C990	1, 2	RJ	None	.....
464C024	1	2000	25-S-Special	150	T	20, 21	464C024	2	OS	None	.....
464C024	2	2000	25-OS-Special	150	T	20, 21	464C024	2	OS	None	.....

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
464C024	3	2000	25-OS-Special	150	T	20, 21	464C024	3	OS	None	52
464C024	4	2000	25-S-Special	150	T	20, 21	464C024	4	OS	None	46
464C026	1	3000	25-S-Special	150	T	20, 21	464C026	2	...	None	.....
464C026	2	3000	25-OS-Special	150	T	20, 21	464C026	2	OS	None	.....
464C026	3	3000	25-OS-Special	150	T	20, 21	464C026	3	OS	None	46
464C026	4	3000	25-OS-Special	150	T	20, 21	464C026	4	OS	None	53
464C674	1	400	34.5-FS-383	200	T	20, 21	464C674	1	FS	None	23
464C674	2	400	34.5-FS-383	200	T	20, 21	464C674	2	FS	None	23, 46
464C825	1	5500	23-RJ-Special	150	T	22	464C825	1	RJ	None	.....
464C825	2	5500	23-RJ-Special	150	T	22	464C825	2	RJ	None	54
464C825	3	5500	23-RJ-Special	150	T	22	464C825	3	RJ	None	6
464C834	1	2000	34.5-S-Special	200	T	20, 21	464C834	2	OS	None	.....
464C834	2	2000	34.5-OS-Special	200	T	20, 21	464C834	2	OS	None	.....
464C834	3	2000	34.5-S-Special	200	T	20, 21	464C834	4	OS	None	45
464C834	4	2000	34.5-OS-Special	200	T	20, 21	464C834	4	OS	None	45
464C835	1	400/1200	34.5-S-392	200	T & CB	20, 21	464C835	2	OS	None	45
464C835	2	400/1200	34.5-OS-392	200	T & CB	20, 21	464C835	2	OS	None	45
466C565	1	400/1200	69-S-592	350	T & CB	20, 21	466C565	1	S	None	23
469C025	1	400/1200	23-S-286	150	T	20, 21	469C025	2	OS	None	6
469C025	2	400/1200	23-OS-286	150	T	20, 21	469C025	2	OS	None	6
469C157	1	600	15-RJ-Special	110	T	22	469C157	1	RJ	None	.....
469C215	1	2500	15-S-Special	110	T	20, 21	469C215	2	OS	None	55
469C215	2	2500	15-OS-Special	110	T	20, 21	469C215	2	OS	None	55
469C235	1	400/1200	34.5-S-392	200	T & CB	20, 21	469C235	1	S	None	23
469C261	1	400	69-S-583	350	T	20, 21	469C261	1	S	None	23
469C330	1	220	25-J-Special	150	T	22	469C330	1	J	None	45
469C346	1	400/1200	46-S-Special	250	T	20, 21	469C346	2	OS	None	.....
469C346	2	400/1200	46-OS-Special	250	T	20, 21	469C346	2	OS	None	.....
469C414	1	5000	15-OS-Special	110	T	20, 21	469C414	1	OS	None	7
469C422	1	7000	25-RJ-Special	150	T	22	469C422	1	RJ	None	.....
471C224	1	12000	25-RJ-Special	150	T	22	471C224	1	RJ	None	61
471C224	2	12000	25-RJ-Special	150	T	22	471C224	2	RJ	None	61
471C241	1	400	46-S-483	250	T	20, 21	471C241	1	S	None	23
471C329	1	7500	25-RJ-Special	150	T	22	471C329	1	RJ	None	61
471C329	2	7500	25-RJ-Special	150	T	22	471C329	2	RJ	None	61
471C344	1	2000	46-S-Special	250	T	20, 21	471C344	2	OS	None	.....
471C344	2	2000	46-OS-Special	250	T	20, 21	471C344	2	OS	None	.....
471C344	3	2000	46-OS-Special	250	T	20, 21	471C344	3	OS	None	19
471C344	4	2000	46-OS-Special	250	T	20, 21	471C344	4	OS	None	45
471C344	6	2000	46-OS-Special	250	T	20, 21	471C344	6	OS	None	46
471C345	1	400/1200	46-OS-492	250	T & CB	20, 21	471C345	1	OS	None	19
471C346	1	3000	46-S-Special	250	T	20, 21	471C346	2	OS	None	.....
471C346	2	3000	46-OS-Special	250	T	20, 21	471C346	2	OS	None	.....
471C375	1	10000	25-RJ-Special	150	T	22	471C375	1	RJ	None	61
471C375	2	10000	25-RJ-Special	150	T	22	471C375	2	RJ	None	61
471C390	1	3300	15-RJ-Special	110	T	22	471C390	1	RJ	None	22
471C390	2	2000	15-RJ-Special	110	T	22	471C390	2	RJ	None	22
475C515	1	2000	15-RJ-Special	110	T	22	475C515	1	RJ	None	35
475C515	2	2000	15-RJ-Special	110	T	22	475C515	2	RJ	None	35
475C515	3	2000	15-RJ-Special	110	T	22	475C515	3	RJ	None	46, 35
475C515	4	2000	15-RJ-Special	110	T	22	475C515	4	RJ	None	46, 35
475C546	1	5000	46-O-Special	250	T	18	475C546	1	O	None	.....
475C560	1	7500	5-RJ-Special	60	T	22	475C560	1	RJ	None	56
475C606	1	2000	15-RJ-NEMA	110	T	22	475C606	1	RJ	None	57
475C606	2	2000	15-RJ-NEMA	110	T	22	475C606	2	RJ	None	57
475C606	3	2000	15-RJ-NEMA	110	T	22	475C606	3	RJ	None	57

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
475C606	4	2000	15-RJ-NEMA	110	T	22	475C606	4	RJ	None	57, 46
475C606	5	2000	15-RJ-NEMA	110	T	22	475C606	5	RJ	None	57, 46
475C606	6	2000	15-RJ-NEMA	110	T	22	475C606	6	RJ	None	57, 46
475C607	1	1200	15-RJ-NEMA	110	T	22	475C607	1	RJ	None	57
475C607	2	1200	15-RJ-NEMA	110	T	22	475C607	2	RJ	None	57
475C607	3	1200	15-RJ-NEMA	110	T	22	475C607	3	RJ	None	57, 46
475C607	4	1200	15-RJ-NEMA	110	T	22	475C607	4	RJ	None	57, 46
475C607	5	1200	15-RJ-NEMA	110	T	22	475C607	5	RJ	None	
475C607	6	1200	15-RJ-NEMA	110	T	22	475C607	6	RJ	None	57, 46
475C608	1	600	15-RJ-NEMA	110	T	22	475C608	1	RJ	None	57
475C608	2	600	15-RJ-NEMA	110	T	22	475C608	2	RJ	None	57
475C608	3	600	15-RJ-NEMA	110	T	22	475C608	3	RJ	None	57
475C608	4	600	15-RJ-NEMA	110	T	22	475C608	4	RJ	None	57, 46
475C608	5	600	15-RJ-NEMA	110	T	22	475C608	5	RJ	None	57, 46
475C608	6	600	15-RJ-NEMA	110	T	22	475C608	6	RJ	None	57, 46
475C615	1	4500	15-RJ-Special	110	T	22	475C615	1	RJ	None	.....
475C615	2	4500	15-RJ-Special	110	T	22	475C615	2	RJ	None	.....
475C615	3	4500	15-RJ-Special	110	T	22	475C615	3	RJ	None	46
475C615	4	4500	15-RJ-Special	110	T	22	475C615	4	RJ	None	46
475C615	5	4500	15-RJ-Special	110	T	22	475C615	5	RJ	None	
475C615	6	4500	15-RJ-Special	110	T	22	475C615	6	RJ	None	46
475C724	1	13500	23-RJ-Special	150	T	22	475C724	1	RJ	None	56
475C724	2	13500	23-RJ-Special	150	T	22	475C724	2	RJ	None	46, 56
475C825	1	2900	23-RJ-Special	150	T	22	475C825	1	RJ	None	54
770C934	1	400	34.5-OS-Special	200	T	20, 21	770C934	1	OS	None	58
771C023	1	2000	25-OS-Special	150	T	20, 21	771C023	1	OS	None	59
771C024	1	2000	25-S-Special	150	T	20, 21	771C024	2	FS	None	23
771C224	2	2000	25-FS-Special	150	T	20, 21	771C024	2	FS	None	23
771C024	3	2000	25-FS-Special	150	T	20, 21	771C024	3	FS	None	46, 23
771C025	1	10000	25-RJ-Special	150	T	22	771C025	1	RJ	None	49, 45
771C028	1	12000	23-RJ-Special	150	T	22	771C028	1	RJ	None	54
771C028	2	12000	23-RJ-Special	150	T	22	771C028	2	RJ	None	54
771C028	3	12000	23-RJ-Special	150	T	22	771C028	3	RJ	None	54
771C028	4	12000	23-RJ-Special	150	T	22	771C028	4	RJ	None	46, 54
771C029	1	13500	23-RJ-Special	150	T	22	771C029	1	RJ	None	54
771C029	2	13500	23-RJ-Special	150	T	22	771C029	2	RJ	None	54, 46
771C114	1	3000	15-S-Special	110	T	20, 21	771C114	1	S	None	7
771C114	2	3000	15-S-Special	110	T	20, 21	771C114	2	S	None	7, 46
774C827	1	6000	23-S-Special	150	T	20, 21	774C827	2	OS	None	.....
774C827	2	6000	23-OS-Special	150	T	20, 21	774C827	2	OS	None	.....
774C838	1	400	34.5-OS-385	200	T	20, 21	774C838	1	OS	None	47, 19
774C924	1	2000	23-OS-Special	150	T	20, 21	774C924	1	OS	None	19
774C925	1	3320	23-OS-Special	150	T	20, 21	774C925	1	OS	None	19
778C634	1	2500	34.5-OS-Special	200	T	20, 21	778C634	1	OS	None	7
779C226	1	3900	23-OS-Special	150	T	20, 21	779C226	1	OS	None	7
781C835	1	400/1200	34.5-OS-Special	200	T	20, 21	781C835	1	OS	None	7
782C034	1	2000	34.5-OS-Special	200	T	20, 21	782C034	1	OS	None	57
782C034	2	2000	34.5-OS-Special	200	T	20, 21	782C034	2	OS	None	19, 57
782C034	3	2000	34.5-OS-Special	200	T	20, 21	782C034	3	OS	None	45, 19, 57
782C034	4	2000	34.5-OS-Special	200	T	20, 21	782C034	4	OS	None	46, 57
782C198	1	2280	15-RJ	110	T	22	782C198	1	RJ	None	35
782C198	2	2280	15-RJ	110	T	22	782C198	2	RJ	None	35
784C205	1	1000	5-RJ	75	T	22	784C205	1	RJ	None	46
784C205	2	1000	5-RJ	75	T	22	784C205	2	RJ	None	46
784C205	3	1000	5-RJ	75	T	22	784C205	3	RJ	None	46
784C205	4	1000	5-RJ	75	T	22	784C205	4	RJ	None	46

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
784C205	5	1000	5-RJ	75	T	22	784C205	5	RJ	None	46
784C205	6	1000	5-RJ	75	T	22	784C205	6	RJ	None	46
784C205	7	1000	5-RJ	75	T	22	784C205	7	RJ	None	46
784C290	1	4100	15-RJ	110	T	22	784C290	1	RJ	None	46
784C290	2	3300	15-RJ	110	T	22	784C290	2	RJ	None	46
784C290	3	4100	15-RJ	110	T	22	784C290	3	RJ	None	46
784C290	4	4100	15-RJ	110	T	22	784C290	4	RJ	None	46
784C291	1	300	5-RJ	75	T	22	784C291	1	RJ	None	46
784C291	2	300	5-RJ	75	T	22	784C291	2	RJ	None	46
784C291	3	600	5-RJ	75	T	22	784C291	3	RJ	None	46
784C291	4	600	5-RJ	75	T	22	784C291	4	RJ	None	46
784C291	5	300	5-RJ-Special	75	T	22	784C291	5	RJ	None	46
784C291	6	300	5-RJ-Special	75	T	22	784C291	6	RJ	None	46
784C291	7	600	5-RJ-Special	75	T	22	784C921	7	RJ	None	46
784C291	8	300	5-RJ-Special	75	T	22	784C291	8	RJ	None	46
784C291	9	300	5-RJ-Special	75	T	22	784C291	9	RJ	None	46
784C291	10	600	5-RJ-Special	75	T	22	784C291	10	RJ	None	46
784C291	11	600	5-RJ-Special	75	T	22	784C291	11	RJ	None	46
784C291	12	300	5-RJ-Special	75	T	22	784C291	12	RJ	None	46
784C291	13	300	5-RJ-Special	75	T	22	784C291	13	RJ	None	46
784C291	14	600	5-RJ-Special	75	T	22	784C291	14	RJ	None	46
784C503	1	10000	25-RJ-Special	150	T	22	784C503	1	RJ	None	46
242D114	1	1600	115-O-661	550	CB & T	18, 19	242D114	1	O	None	47
242D114	2	1600	115-O-661	550	CB & T	18, 19	242D114	2	O	None	45, 47
242D114	3	1600	115-O-661	550	CB & T	18, 19	242D114	3	O	None	46, 47
242D114	4	1600	115-O-661	550	CB & T	18, 19	242D114	4	O	None	45, 46, 47
242D137	1	1600	138-O-722	650	CB & T	18, 19	242D137	1	O	None	47
242D137	2	1600	138-O-722	650	CB & T	18, 19	242D137	2	O	None	46, 47
242D139	1	800/1600	138-O-Special	650	CT	18, 19	242D139	1	O	None	.....
242D162	1	5000	161-O-Special	750	T	18, 19	242D162	1	O	None	.....
242D180	1	800	230-O-785	825	T	18, 19	242D180	1	O	None	23
242D197	1	3500	230-O-Special	900	T	18, 19	242D197	1	O	None	.....
242D197	2	3500	230-O-Special	900	T	18, 19	242D197	2	O	None	45
251D138	1	800/1600	138-O-Special	650	CT	18, 19	251D138	1	O	None	.....
251D288	1	1200	345-O-Special	1300	T	18, 19	251D288	1	O	None	48
251D288	2	1200	345-O-Special	1300	T	18, 19	251D288	2	O	None	48
251D288	3	1200	345-O-Special	1300	T	18, 19	251D288	3	O	None	45
251D288	4	1200	345-O-Special	1300	T	18, 19	251D288	4	O	None	46
251D288	6	1200	345-O-Special	1300	T	18, 19	251D288	6	O	None	46, 48
251D288	7	1200	345-O-Special	1300	T	18, 19	251D288	7	O	None	45, 46
251D392	1	640	115-O-Special	450	T	18, 19	251D392	1	O	None	.....
251D469	1	3000	69-O-Special	350	T	18, 19	251D469	1	O	None	.....
255D500	1	1600	500-O-Special	1300	T	18, 19	255D500	1	O	None	.....
257D161	1	400	69-O-583	350	T	18, 19	257D161	1	O	None	38
257D500	1	800	500-O-Special	1800	T	18, 19	257D500	1	O	None	.....
257D700	1	600	700-O-Special	2050	T	18, 19	257D700	1	O	None	.....
257D700	2	1600	765-O-Special	2050	T	18, 19	257D700	2	O	None	.....
257D892	1	800	115-O-Special	550	T	18, 19	257D892	1	O	None	.....
261D315	1	2000	115-O-Special	550	T	18, 19	261D315	1	O	None	45
261D315	2	2000	115-O-Special	550	T	18, 19	261D315	2	O	None	45
261D315	3	2000	115-O-Special	550	T	18, 19	261D315	3	O	None	46
261D315	4	2000	115-O-Special	550	T	18, 19	261D315	4	O	None	45, 46
261D338	1	3000	138-O-Special	650	T	18, 19	261D338	1	O	None	.....
261D338	2	3000	138-O-Special	650	T	18, 19	261D338	2	O	None	46
264D500	1	1600	500-O-Special	1550	T	18, 19	264D500	1	O	None	.....
264D500	2	1600	500-O-Special	1550	T	18, 19	264D500	2	O	None	45

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
264D500	3	1600	500-O-Special	1550	T	18, 19	264D500	3	O	None	46
265D500	1	1600	500-O-Special	1800	T	18, 19	265D500	1	O	None	.....
265D501	1	1800	500-O-Special	1800	T	18, 19	265D501	1	O	None	.....
270D138	1	2500	138-O-Special	650	T	18, 19	270D138	1	O	None	.....
270D138	2	2500	138-O-Special	650	T	18, 19	270D138	2	O	None	45
271D500	1	1600	500-O-Special	1550	T	18, 19	271D500	1	O	None	45
382D506	1	2000	69-O-593	350	CB	18, 19	382D506	1	O	None	.....
382D506	2	2000	69-O-593	350	CB	18, 19	382D506	2	O	None	45
382D506	3	2000	69-O-593	350	CB	18, 19	382D506	3	O	None	46
382D559	1	2000	115-O-686	550	CB	18, 19	382D559	1	O	None	.....
382D559	2	2000	115-O-686	550	CB	18, 19	382D559	2	O	None	45
382D630	1	1600/2000	345-O-931	1300	CB	18, 19	382D630	1	O	None	.....
382D630	2	1600/2000	345-O-930	1300	CB	18, 19	382D630	2	O	None	.....
382D630	3	1600/2000	345-O-931	1300	CB	18, 19	382D630	3	O	None	.....
382D630	4	1600/2000	345-O-930	1300	CB	18, 19	382D630	4	O	None	.....
382D630	5	1600/2000	345-O-931	1300	CB	18, 19	382D630	5	O	None	.....
382D630	6	1600/2000	345-O-931	1300	CB	18, 19	382D630	6	O	None	46
383D297	1	3000	138-O-Special	650	CB	18, 19	383D297	1	O	None	.....
383D326	1	1200	69-O-592	....	CB	18, 19	383D326	1	O	None	49, 45
383D326	2	1200	69-O-592	....	CB	18, 19	383D326	2	O	None	49, 45
383D602	1	1200	15-S-153	....	CB	20, 21	383D602	1	S	None	49
384D021	1	1200	34.5-S-Special	....	CB	20, 21	384D021	1	S	None	45,89
405D511	1	2000	23-S-289	150	CB	20, 21	405D511	1	S	None	45
405D511	2	3000	23-S-290	150	CB	20, 21	405D511	2	S	None	45
405D921	1	1200	46-S-488	250	CB	20, 21	891D017	1	S	None	45
408D384	1	1600	115-O-650	550	CB & T	18, 19	408D780	1	O	None	29
408D384	2	1600	115-O-650	550	CB	18, 19	408D780	4	O	None	29, 45
408D385	1	1600	138-O-721	650	CB	18, 19	408D781	1	O	None	29
408D386	1	1600	161-O-760	750	CB & T	18, 19	408D386	1	O	None	47
408D386	2	1600	161-O-760	750	CB & T	18, 19	408D386	2	O	None	47
408D386	3	2000	161-O-760	750	CB & T	18, 19	5351D61	1	O	None	47
408D386	4	2500	161-O-Special	750	CB & T	18, 19	408D386	4	O	None	.....
408D386	5	1600	161-O-760	750	CB & T	18, 19	408D386	5	O	None	46, 47
408D386	6	1600	161-O-760	750	CB & T	18, 19	408D386	6	O	None	46, 47
408D780	1	1200	115-O-659	550	CB & T	18, 19	408D780	1	O	None	47
408D780	2	1200	115-O-659	550	CB & T	18, 19	408D780	2	O	None	47, 45
408D780	3	1600	115-O-661	550	CB & T	18, 19	408D780	3	O	None	47
408D780	4	1600	115-O-661	550	CB & T	18, 19	408D780	4	O	None	47, 49
408D780	5	1200	115-O-659	550	CB & T	18, 19	408D780	5	O	None	47
408D780	6	1600	115-O-661	550	CB & T	18, 19	408D780	6	O	None	47
408D780	7	1200	115-O-659	550	CB & T	18, 19	408D780	7	O	None	46, 47
408D780	8	1600	115-O-661	550	CB & T	18, 19	408D780	8	O	None	46, 47
408D780	9	1200	115-O-659	550	CB & T	18, 19	408D780	9	O	None	46, 47
408D780	10	1600	115-O-661	550	CB & T	18, 19	408D780	10	O	None	46, 47
408D781	1	1200	138-O-719	650	CB & T	18, 19	408D781	1	O	None	47
408D781	2	1200	138-O-719	650	CB & T	18, 19	408D781	2	O	None	45, 47
408D781	3	1600	138-O-722	650	CB & T	18, 19	408D781	3	O	None	47
408D781	4	1600	138-O-722	650	CB & T	18, 19	408D781	4	O	None	45, 47
408D781	5	1200	138-O-719	650	CB & T	18, 19	408D781	5	O	None	47
408D781	6	1600	138-O-722	650	CB & T	18, 19	408D781	6	O	None	47
408D781	7	1200	138-O-722	650	CB & T	18, 19	408D781	7	O	None	45, 47
408D781	8	1600	138-O-722	650	CB & T	18, 19	408D781	8	O	None	46, 47
408D781	9	1200	138-O-719	650	CB & T	18, 19	408D781	9	O	None	46, 47
408D781	10	1600	138-O-722	650	CB & T	18, 19	408D781	10	O	None	46, 47
408D781	11	1200	138-O-719	650	CB & T	18, 19	408D781	11	O	None	46, 47
408D781	12	1600	138-O-722	650	CB & T	18, 19	408D781	12	O	None	45, 47

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
408D781	13	1200	138-O-719	650	CB & T	18, 19	408D781	13	O	None	45, 46
408D781	14	1600	138-O-722	650	CB & T	18, 19	408D781	14	O	None	45, 46
408D997	1	1600	196-O-810	900	CB & T	18, 19	408D997	11	O	None	29
408D997	2	1600	196-O-810	900	CB & T	18, 19	408D997	11	O	None	45, 29
408D997	3	1600	196-O-810	900	CB & T	18, 19	408D997	13	O	None	45, 29
408D997	4	2000	196-O-810	900	CB & T	18, 19	408D997	11	O	None	29
408D997	5	1600	196-O-810	900	CB & T	18, 19	408D997	11	O	None	29
408D997	6	2000	196-O-810	900	CB & T	18, 19	408D997	13	O	None	45, 29
408D997	7	2000	196-O-810	900	CB & T	18, 19	408D997	11	O	None	29
408D997	8	1600	196-O-810	900	CB & T	18, 19	408D997	12	O	None	46, 29
408D997	9	1600	196-O-810	900	CB & T	18, 19	408D997	12	O	None	46, 29
408D997	10	2000	196-O-810	900	CB & T	18, 19	408D997	12	O	None	29, 46
408D997	11	2000	196-O-810	900	CB & T	18, 19	408D997	11	O	None	47, 45
408D997	12	2000	196-O-810	900	CB & T	18, 19	408D997	12	O	None	47, 45, 46
408D997	13	2000	196-O-810	900	CB & T	18, 19	408D997	13	O	None	47, 45
408D997	14	2000	196-O-810	900	CB & T	18, 19	408D997	14	O	None	47, 45, 46
424D355	1	2000	138-O-738	650	CB	18, 19	424D355	1	O	None	47
424D355	2	2000	138-O-738	650	CB	18, 19	424D355	2	O	None	47
424D355	3	2500	138-O-738	650	CB	18, 19	424D355	3	O	None	.....
424D355	4	2000	138-O-738	650	CB	18, 19	424D355	4	O	None	47, 45
424D355	5	2500	138-O-738	650	CB	18, 19	424D355	5	O	None	45
424D355	6	2500	138-O-738	650	CB	18, 19	424D355	6	O	None	46
424D355	7	2500	138-O-738	650	CB	18, 19	424D355	7	O	None	45, 46
424D355	8	2500	138-O-738	650	CB	18, 19	424D355	8	O	None	46
424D424	1	600	15-S-160	110	CB	20, 21	424D424	1	S	None	.....
424D424	2	1200	15-S-153	110	CB	20, 21	424D424	2	S	None	.....
424D424	5	600	15-S-151	110	CB	20, 21	424D424	5	S	None	.....
424D424	6	600	15-S-160	110	CB	20, 21	424D424	4	S	None	46
424D424	7	1200	15-S-153	110	CB	20, 21	424D424	7	S	None	46
424D600	1	600	15-S-160	110	CB	20, 21	424D600	1	S	None	45
424D600	2	1200	15-S-153	110	CB	20, 21	424D600	2	S	None	45
424D600	3	600	15-S-151	110	CB	20, 21	424D600	3	S	None	45
424D787	1	1200	23-S-292	150	CB & T	20, 21	424D787	1	S	None	29
424D787	2	1200	23-S-292	150	CB & T	20, 21	424D787	2	S	None	46, 29
424D788	1	1200	34.5-S-392	200	CB & T	20, 21	424D788	1	S	None	29
424D788	2	1200	34.5-S-392	200	CB & T	20, 21	424D788	2	S	None	29, 46
424D789	1	1200	46-S-492	250	CB & T	20, 21	424D789	1	S	None	29
424D789	2	1200	46-S-492	250	CB & T	20, 21	424D789	2	S	None	29, 46
424D813	1	1200	69-O-592	350	CB & T	18, 19	424D813	1	O	None	.....
424D813	2	1200	69-O-592	350	CB & T	18, 19	424D813	2	O	None	45, 29
424D813	3	1200	69-O-592	350	CB & T	18, 19	424D813	3	O	None	45, 29
424D813	4	1200	69-O-592	350	CB & T	18, 19	424D813	4	O	None	29, 46
424D813	5	1200	69-O-592	350	CB & T	18, 19	424D813	5	O	None	45, 46, 29
424D832	1	1200	115-O-659	....	CB	18, 19	424D832	1	O	None	49, 45
424D912	1	1200	34.5-S-392	200	CB	20, 21	424D912	1	S	None	45
424D951	1	1600	196-O-810	900	CB	18, 19	424D951	2	O	None	49
424D951	2	1600	196-O-810	900	CB	18, 19	424D951	2	O	None	49
424D951	3	1600	196-O-810	1050	CB	18, 19	424D951	3	O	None	.....
424D951	4	1600	196-O-810	900	CB	18, 19	424D951	4	O	None	49
445D346	1	1200	69-OS-588	350	CB	20, 21	445D346	1	OS	None	.....
445D346	2	2000	69-OS-558	350	CB	20, 21	445D346	2	OS	None	.....
445D873	1	600	23-S-266	150	CB	20, 21	445D873	1	S	None	.....
445D873	2	600	23-S-266	150	CB	20, 21	445D873	2	S	None	45
445D873	4	600	23-S-266	150	CB	20, 21	445D873	4	600	None	46
445D906	1	600	23-S-266	150	CB	20, 21	445D906	1	S	None	.....
445D906	2	600	23-S-266	150	CB	20, 21	445D906	2	S	None	45

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
584D961	1	450	5-RJ-Special	75	T	22	584D961	1	RJ	None	33
585D080	1	400	230-O-Special	900	T	18, 19	585D080	1	O	None	.....
585D420	1	1500	115-O-Special	550	T	18, 19	242D114	2	O	Yes	.....
587D678	1, 2	400/800	15-J-2-Special	110	T	22	587D678	1, 2	J-2	None	33
587D693	1	1140	115-O-Special	450	T	18	589D116	1	O	Yes	.....
587D832	1	1500	138-O-Special	650	T	18, 19	602D139	1	O	Yes	.....
587D916	1	800	115-O-666	550	T	18, 19	589D116	1	O	Yes	.....
587D939	1	800	138-O-717	650	T	18, 19	589D139	1	O	Yes	.....
588D015	1	2000	115-O-Special	550	T	18, 19	261D315	1	O	Yes	.....
588D615	1	1030	115-O-666	550	T	18, 19	589D116	3	O	Yes	45
588D638	1	800	138-O-707	650	CB & T	18, 19	589D139	2	O	Yes	45
589D113	1	800	115-O-666	550	T	18, 19	589D116	1	O	Yes	49
589D114	1	1600	115-O-660	550	CB & T	18, 19	242D114	1	O	None	29
589D115	1	800	115-O-658	550	T	18, 19	589D116	1	O	Yes	29
589D116	1	1200	115-O-659	550	CB & T	18, 19	589D116	1	O	None	47
589D116	2	1200	115-O-659	550	CB & T	18, 19	589D116	2	O	None	18, 47
589D116	3	1200	115-O-659	550	CB & T	18, 19	589D116	3	O	None	45, 47
589D116	5	1200	115-O-659	550	CB & T	18, 19	589D116	5	O	None	18, 47
589D116	6	1200	115-O-659	550	CB & T	18, 19	589D116	6	O	None	46, 47
589D116	7	1200	115-O-659	550	CB & T	18, 19	589D116	7	O	None	45, 46, 47
589D116	8	1200	115-O-659	550	CB & T	18, 19	589D116	8	O	None	46, 47
589D116	9	1200	115-O-659	550	CB & T	18, 19	589D116	9	O	None	45, 46, 47
589D138	1	800	138-O-718	650	T	18, 19	589D139	1	O	None	29
589D139	1	1200	138-O-719	650	CB & T	18, 19	589D139	1	O	None	29
589D139	1	1200	138-O-719	650	CB & T	18, 19	589D139	1	O	None	47
589D139	2	1200	138-O-719	650	CB & T	18, 19	589D139	2	O	None	45, 47
589D139	3	1200	138-O-719	650	CB & T	18, 19	589D139	3	O	None	46, 47
589D139	4	1200	138-O-719	650	CB & T	18, 19	589D139	4	O	None	45, 46, 47
589D161	1	800	161-O-759	750	T	18, 19	589D162	1	O	None	29
589D162	1	1600	161-O-760	750	CB & T	18, 19	589D162	1	O	None	47
589D162	2	1600	161-O-760	750	CB & T	18, 19	589D162	2	O	None	45, 47
589D162	3	1600	161-O-760	750	CB & T	18, 19	589D162	3	O	None	45, 46, 47
589D180	1	800	230-O-785	825	T	18, 19	589D197	1	O	Yes	29
589D181	1	3500	230-O-Special	825	T	18, 19	589D181	1	O	None	.....
589D192	1	800	115-O-607	450	T	18, 19	589D116	1	O	Yes	29
589D193	1	800	115-O-608	450	T	18, 19	589D116	1	O	Yes	29
589D196	1	800	230-O-809	900	T	18, 19	589D197	1	O	Yes	29
589D197	1	1600	230-O-810	900	CB & T	18, 19	589D197	1	O	None	47
589D197	2	1600	230-O-810	900	CB & T	18, 19	589D197	2	O	None	46, 47
590D765	1	2280	15-RJ-Special	110	T	22	590D765	1	RJ	None	30
590D838	1	1080	138-O-708/717	650	T	18, 19	590D838	1	O	None	.....
591D816	1	1000	115-O-665	550	T	18, 19	591D816	1	O	None	45, 49
591D816	2	800	115-O-665	550	T	18, 19	591D816	2	O	None	45, 49
591D961	1	400	69-O-583	350	T	18, 19	614D261	1	O	None	.....
592D138	1	1200	138-O-719	650	T	18, 19	592D138	1	O	None	34
593D230	1	800	345-O-Special	1050	T	18, 19	593D230	1	O	None	.....
593D315	1	1050	115-O-655	550	T	18, 19	593D315	1	O	None	.....
595D137	1	1600	138-O-721	650	CB & T	18, 19	242D137	1	O	None	29
598D185	1	600/1200	138-O-Special	650	CT	18, 19	598D185	1	O	None	.....
598D794	1	1600	115-O-Special	450	T	18, 19	242D116	1	O	Yes	.....
602D114	1	1200	115-O-Special	550	T	18, 19	602D114	1	O	None	23
602D114	2	1200	115-O-Special	550	T	18, 19	602D114	2	O	None	23, 45
602D114	3	1200	115-O-Special	550	T	18, 19	602D114	3	O	None	23
602D114	4	1200	115-O-Special	550	T	18, 19	602D114	4	O	None	23, 45
602D114	6	1200	115-O-Special	550	T	18, 19	602D114	6	O	None	23, 45, 46
602D114	7	1200	115-O-Special	550	T	18, 19	602D114	7	O	None	23, 45, 46

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

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Part 5 Section A: Tabulation of Drawings, Continued

Bushing Assembly Drawing No.	Bushing Assembly Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
602D115	1	150/300	115-O-Special	550	CT	18, 19	602D115	1	O	None	.....
602D116	1	1200	115-O-659	550	T	18, 19	602D116	1	O	None	45, 47, 49
602D116	2	1200	115-O-659	550	T	18, 19	602D116	2	O	None	45, 47, 49
602D137	1	400/800	138-O-Special	650	CT	18, 19	602D137	1	O	None	.....
602D138	1	1200	138-O-Special	650	T	18, 19	602D138	1	O	None	23
602D139	1	1200	138-O-719	650	T	18, 19	602D139	1	O	None	49, 45
602D139	2	1200	138-O-719	650	T	18, 19	602D139	2	O	None	49, 45
602D161	1	3500	230-O-Special	750	T	18, 19	602D161	1	O	None	45
602D161	2	3500	230-O-Special	750	T	18, 19	602D161	2	O	None	45
602D161	3	3500	230-O-Special	750	T	18, 19	602D161	3	O	None	45, 46
602D162	1	1600	230-O-760	750	T	18, 19	602D162	1	O	None	45
602D162	2	1600	230-O-760	750	T	18, 19	602D162	2	O	None	45, 46
602D162	3	1600	230-O-760	750	T	18, 19	602D162	3	O	None	45
602D196	1	1600/3200	230-O-Special	900	CB & T	18, 19	602D196	1	O	None	.....
602D197	1	1600	230-O-810	900	T	18, 19	602D197	1	O	None	45, 49
602D616	1	1200	115-O-659	550	T	18, 19	602D616	1	O	None	34
602D616	2	1200	115-O-659	550	T	18, 19	602D616	2	O	None	34, 46
605D918	1	1200	115-O-Special	550	T	18, 19	605D918	1	O	None	7
609D069	1	600	69-O-553	350	CB & T	18, 19	609D069	1	O	None	.....
612D365	1	400/1200	69-O-592	350	CB & T	18, 19	612D365	1	O	None	47
612D365	2	400/1200	69-O-592	350	CB & T	18, 19	612D365	2	O	None	47, 46
614D261	1	400	69-O-583	350	T	18, 19	614D261	1	O	None	47
614D261	2	400	69-O-583	350	T	18, 19	614D261	2	O	None	47
614D261	3	400	69-O-583	350	T	18, 19	614D261	3	O	None	47, 46
614D262	1	400	69-O-584	350	T	18, 19	614D262	1	O	None	47
614D262	2	400	69-O-584	350	T	18, 19	614D262	2	O	None	47, 45
614D262	3	400	69-O-584	350	T	18, 19	614D262	3	O	None	47, 46
615D765	1	400/1200	69-O-592	350	T	18, 19	615D765	1	O	None	38
616D064	1	1600	69-O-529	350	T	18, 19	616D064	1	O	None	.....
616D064	1	1600	69-O-529	350	T	18, 19	616D064	2	O	None	.....
616D065	1	400/1200	69-O-592	350	CB & T	18, 19	616D065	1	O	None	46
616D065	2	400/1200	69-O-592	350	CB & T	18, 19	616D065	2	O	None	49, 45
616D065	3	400/1200	69-O-592	350	CB & T	18, 19	616D065	3	O	None	46, 49
616D068	1	1600	69-O-Special	350	T	18, 19	616D068	1	O	None	45
616D068	2	1600	69-O-Special	350	T	18, 19	616D068	2	O	None	.....
616D068	3	1600	69-O-Special	350	T	18, 19	616D068	3	O	None	46
616D069	1	2500	69-O-Special	350	T	18, 19	616D069	1	O	None	.....
616D069	2	2500	69-O-Special	350	T	18, 19	616D069	2	O	None	45
616D069	3	2500	69-O-Special	350	T	18, 19	616D069	3	O	None	45, 46
616D162	1	1600	230-O-Special	750	T	18, 19	616D162	1	O	None	23, 45
616D165	1	600	161-O-Special	750	CT	18, 19	616D165	1	O	None	.....
616D197	1	1600	230-O-810	900	CB & T	18, 19	616D197	1	O	None	45
616D197	2	1600	230-O-810	900	CB & T	18, 19	616D197	2	O	None	45
616D197	3	1600	230-O-810	900	CB & T	18, 19	616D197	3	O	None	45, 46
616D197	4	1600	230-O-810	900	CB & T	18, 19	616D197	4	O	None	45, 46
618D365	1	400/1200	69-O-592	350	CB & T	18, 19	618D365	1	O	None	45
618D365	2	400/1200	69-O-592	350	CB & T	18, 19	618D365	2	O	None	45
618D365	3	400/1200	69-O-592	350	CB & T	18, 19	618D365	3	O	None	45, 46
618D417	1	3500	115-O-Special	550	T	18, 19	.....	..	..	.....	.....
618D417	2	3500	115-O-Special	550	CB & T	18, 19	.....	..	..	.....	45
618D417	3	3500	115-O-Special	550	CB & T	18, 19	.....	..	..	.....	45
618D417	4	3500	115-O-Special	550	CB & T	18, 19	.....	..	..	.....	46
618D417	6	3500	115-O-Special	550	CB & T	18, 19	.....	..	..	.....	46, 47
618D417	7	3500	115-O-Special	550	CB & T	18, 19	.....	..	..	.....	45, 46
618D460	1	400	750-O-Special	1800	T	18, 19	618D460	1	O	None	.....
619D799	1	1400	69-O-Special	350	T	18, 19	619D799	1	O	None	7

① See note on nominal current ratings on page 30.
② Refer to pages 80 to 81.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Bushing Assembly Drawing No.	Gr. No.	Ampere Rating①	Kv. System Type – Key No.	BIL Kv.	Circuit Breaker or Transformer	Refer to Page	Recommendations for Spares and Replacements: Bushing Assembly Drawing No.	Gr. No.	Type	Adapter Drawing No.	Notes No.②
891D017	1	1200	46-S-492	250	CB	20, 21	891D017	1	S	None	45
891D071	1	1200	138-O-719	...	CB	18, 19	891D071	1	O	None	49
891D225	1	2000	46-S-489	250	CB	20, 21	891D225	1	S	None	.....
891D225	2	2000	46-S-489	250	CB	20, 21	891D225	2	S	None	46
891D533	1	600	15-S-160	110	CB	20, 21	891D533	1	S	None	.....
891D533	2	1200	15-S-153	110	CB	20, 21	891D533	2	S	None	.....
891D533	5	600	15-S-151	110	CB	20, 21	891D533	5	S	None	.....
891D533	7	600	15-S-160	110	CB	20, 21	891D533	7	S	None	46
891D225	3	2000	46-S-489	250	CB	20, 21	891D225	3	S	None	45
891D533	8	1200	15-S-153	110	CB	20, 21	891D533	8	S	None	46
891D534	1	600	15-S-160	110	CB	20, 21	891D534	1	S	None	45
891D534	2	1200	15-S-153	110	CB	20, 21	891D534	2	S	None	45
891D534	3	600	15-S-151	110	CB	20, 21	891D534	3	S	None	45
891D534	4	1200	15-S-153	110	CB	20, 21	891D534	4	S	None	45
891D772	1	600	15-S-160	110	CB	20, 21	891D772	1	S	None	49
891D772	3	600	15-S-160	110	CB	20, 21	891D772	3	S	None	45, 49
4156D31	1	1200	230-O-851	1050	T	18, 19	4156D31	1	O	None	62
4193D45	1	1600	345-O-Special	1050	T	18, 19	4193D45	1	O	None	45
4193D45	2	1600	345-O-Special	1050	T	18, 19	4193D45	2	O	None	45
4193D45	3	1600	345-O-Special	1050	T	18, 19	4193D45	3	O	None	45, 46
4193D45	4	1600	345-O-Special	1050	T	18, 19	4193D45	4	O	None	45, 46
4202D30	1	1600	230-O-Special	1050	T	18, 19	4202D30	1	O	None	.....
4213D45	1	1600	345-O-Special	1175	T	18, 19	4213D45	1	O	None	63, 45
4213D45	2	1600	345-O-Special	1175	T	18, 19	4213D45	2	O	None	45
4321D38	1	2500	138-O-738	650	CB & T	18, 19	4321D38	1	O	None	47
5351D61	1	2000	161-O-Special	750	T	18, 19	5351D61	1	O	None	64
5351D61	2	2000	161-O-Special	750	T	18, 19	5351D61	2	O	None	65
5373D45	1	3000	345-O-Special	1050	T	18, 19	5373D45	1	O	None	.....
5391D15	1	3000	115-O-Special	550	T	18, 19	5391D15	1	O	None	.....
5391D15	2	3000	115-O-Special	550	T	18, 19	5391D15	2	O	None	46
5411D01	1	60	1100-O-Special	2175	T	18, 19	5411D01	1	O	None	.....
5416D15	1	1600	115-O-661	550	T	18, 19	5416D15	1	O	None	34
5419D38	1	1200	138-O-Special	650	T	18, 19	5419D38	1	O	None	7
5607D02	1	2000	196-O-810	900	CB	18	5607D02	1	O	None	47
5607D12	1	3000	161-O-761	750	CB	18	5607D12	1	O	None	.....
5607D93	1	1600	196-O-810	900	CB	18	5607D02	1	O	None	47
5609D01	1	1600	115-O-661	550	CB	18	5609D01	1	O	None	47
5609D02	1	1600	138-O-722	650	CB	18	5609D02	1	O	None	47
5609D03	1	2000	161-O-760	750	CB	18	5609D03	1	O	None	47
5609D04	1	2000	345-O-931	1300	CB	18	5609D04	1	O	None	.....

① See note on nominal current ratings on page 30
② Refer to pages 80 to 81.

Westinghouse

Part 5 Section B: Notes Referring to Tabulation

1 Original bushing has lower threads 2¼" long while replacement bushing has lower threads 3¼" long.

2 Replacement bushing can be adjusted for use with PB-1 or PB-11 network by proper adapters on voltage tap receptacle and change of contact plunger in cable.

3 Bushing key #682 (1200 amp CB rating) can replace bushing key #681 (600 amp CB rating).

4 S#940083, key #353, has bevel seat on flange.
S#940084, key #354, has flat seat on flange.

5 Special construction, with Micarta tube over lower part of flange.

6 This bushing for use in Inerteen transformers. Bushings for Inerteen transformers may be used on oil insulated transformers, but bushings for oil insulated transformers must not be used on Inerteen transformers.

7 This bushing is made for mounting in a horizontal position.

8 Some breakers which have arc shield fittings which are clamped over condenser have current transformers of too small an I.D. to take the screwed type fittings and all bushings of this key no. may not fit.

9 The replacement bushing differs in length outside apparatus from the original bushing.

10 The bushing has a beveled flange seat and tapered lower end.

11 The replacement bushing requires a lead extension and static shield.

12 When the type "O" is used as a replacement on transformers bought before 1944 it is necessary to check against mechanical interference between barriers and lower end of the bushing.

13 Has draw-through lead.

14 Special for Consolidated Gas Electric Light & Power Company.

15 This bushing has cap and bell connector combined.

16 With lead extension, this bushing can be used to replace bushings key #731.

17 With lead extension, this bushing can be used to replace bushings key #732.

18 Special design.

19 Bushing has magnetic oil gauge.

20 Inner end of this bushing must be entirely under oil (or Inerteen).

21 This bushing is supplied with a special flange designed to obtain uniform, limited gasket compression. Construction is described in instruction leaflet 3172.

22 Special flange construction. Bushing flange is welded to transformer cover.

23 This bushing may be mounted at any angle from vertical to horizontal.

24 Has shield layer for power factor test.

25 Has sight oil level indicator.

26 Used only as a roof bushing on transformer-switchgear housing.

27 Bushing has greater internal diameter than USASI standard bushing of same key number. Check clearance to metal porcelain support at the bottom end of bushing.

28 For indoor use only.

29 Replacement bushing meets all USASI standard dimensions and characteristics.

30 Replacement bushing has USASI standard threading on terminals.

31 Replacement bushing is a 15 kv bushing.

32 A cable adapter is required with the replacement bushing.

33 These bushings are concentric lead bushings.

34 These bushings for 45° mounting and require a special boss.

35 These bushings have insulated stud for power factor testing.

36 These bushings have pressure gauges on flange.

37 These bushings for metering outfits.

38 These bushings for 35° mounting from vertical.

39 Replacement bushing has special gaps.

40 Replacement bushing requires new top and bottom terminals.

41 These bushings are special for Detroit Edison with rolled on flange.

42 These bushings have smooth studs both ends.

43 These bushings are special for Detroit Edison with grooved studs.

44 These bushings have provisions for protective link.

45 Bushing has extra creepage.

46 External porcelain surface has USASI #70 gray glaze.

47 This bushing is made according to existing USASI Standards.

48 Lower termination on bushing is per USASI Standard C76.1 (1964) Table 7.1 (C), Figure 3.

49 Bushing has extra strike distance on outer porcelain.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers and Transformers

Part 5 Section B: Notes Referring to Tabulation, Continued

50 This bushing has 9¼ – 4⅝ and 9¼ – 6 – ⅝ B. C.

51 This bushing has 9¼ – 6 – ⅝ and 9¾ – 8 – ⅝ B. C.

52 This bushing has fill plug in cap.

53 This bushing has a special tap terminal.

54 These bushings are wall mounted.

55 This bushing is interchangeable with G. E. 15B139.

56 This bushing has four blades arranged in square at top.

57 This bushing is made according to NEMA Standards.

58 This bushing has 3⅛ D. dimension – 6 – 4 – ⅝ B. C.

59 This bushing is interchangeable with G. E. 7B550.

60 The bushing operates with both ends in air.

61 The bushing has a flat blade connector on the top end.

62 This is a replacement bushing for 18A921 and 16A6048.

63 This bushing is interchangeable with G. E. 11B767.

64 This bushing has the same dimensions as 408D386.

65 This bushing has a smooth tap terminal.

66 Use with pole unit 3A9425G01 or 76A78 only.

67 Use 424D778G02 with pole unit 97A337 and 11A6942 only. Use 383D052G0 with pole unit 30A4127G02 only.

68 For De-ion grids only with quick break contacts substitute lead extension IT, 6 52B8618.

69 For pole unit 3A9709G01 use 424D427G02. For pole unit 14A1765 or 6A8800 use 424D444G01 and bushing 13A1947.

70 Use adapter 424D224G07 with pole unit 11A9858G01 and use adapter 424D224G08 with pole unit 5A7888G01.

71 Use with Pole unit 39A5153G01 only.

72 Use with pole units 46A4098G02, 14A6531G01 and 31A6928 only.

73 Use with pole unit 14A6531G01, 18A3814, 46A4098G02 and 31A6928 only.

74 Use with pole units 14A3434, 23A6830, 28A1432G01, 32A8482, and 45A4628G01 only.

75 Use 383D052G01 with pole unit 15A9543 and 383D052G02 with pole units 28A9817 or 14A9124 only.

76 Use with pole unit 39A8729G01 or 28A9813G02 only.

77 Use with pole unit 63A5638G01 only.

78 Use with pole unit 47A2883G01 only.

79 Use with pole unit 23A6830G01 only.

80 Use with pole unit 32A8482G01 only.

81 Use 891D806G04 for bevel seat and 891D806G05 for flat seat.

82 Use with pole unit 35A7852G01 or 38A8868G02 only.

83 Use with pole unit 400D740G01, 445D075, 406D250 and 38A8868 only.

84 Use with pole unit 406D250G01 only.

85 Use with pole unit 404D975G01 only.

86 Original bushing has special filling plug in cap.

87 891D533G05 is a direct replacement when gasket S#1316781 is provided.

88 Type "O" Bushing 424D813G01 can be substituted for 42A9629G01, if C. T. has 5½ I. D.

89 Bushing must be gapped to 13 inches on outside.

90 First group brown, last group is gray.

Outdoor Bushings 15 to 765 Kv

For Power Circuit Breakers
and Transformers

Westinghouse Electric Corporation
Power Circuit Breaker Division, Trafford, Pa. 15085
Power Transformer Division, Sharon, Pa. 16146