

# Southern States, Inc.

## Type WAG-A

### Extra Heavy-Duty AIR BREAK SWITCHES

RATINGS: 15 kV — 161 kV  
2000 Amp. — 6000 Amp.

The Southern States Type WAG-A is an extra heavy-duty switch specifically designed for high amperage capacity and switching operations in heavy ice. Developed over the years for use in some of the nation's most demanding environments, this switch line has been field-proven to deliver the ultimate in reliability. The WAG-A conforms to all applicable NEMA and ANSI standards.

#### CONSTRUCTION

Details vary among the different ratings due to varying electrical and mechanical requirements. Southern States will supply drawings and descriptions of specific switches upon request. The following, however, can be used as a general guide to the construction details of all switches in this product line. Hinge and Jaw are formed aluminum bus bars supported by machined aluminum castings (356-T6). Counterbalance springs are enclosed. The mechanical linkages that raise and lower the switch blade are machined cast bronze with Oilite and high density polyethylene bushings. The Type WAG-A uses the same ball-and-socket linkage developed and perfected on the original Type WAG bronze switch, many thousands of which are in service all over the country.

Switch Blade: Depending upon the rating, the blade will be either square tubular copper, or square or round tubular aluminum. Please refer to the factory for specific models. Contacts: All WAG-A's have multiple point, silver-to-silver, pressure multiplying Amplitacts®. The most reliable ever designed for outdoor equipment, these contacts feature 10 mil thick silver making high pressure contact with 43 mil thick silver on the blade. The silver of the blade contact is a different hardness from the silver on the jaw contact surfaces. This prevents galling, or wearing away of the contact metals during switch openings and closings. (See figure 3 for details.) Most importantly, the silver is brazed to the copper members to ensure that the high temperatures of fault currents will not damage the switch contacts.

Switch bases: Due to the extra heavy-duty construction of the WAG-A switches and the sometimes extreme operating conditions they encounter, all ratings have double channel steel bases with bolted stiffeners, galvanized after fabrication.

Insulator Bearing: (See detail, figure 5.) Heavy duty, double row ball-and-race type, factory sealed and completely maintenance-free.

Insulators: All WAG-A's use five-inch B.C. insulators as standard. For special insulation requirements, please refer to the factory.

Insulator Adjustment: An important feature of these switches

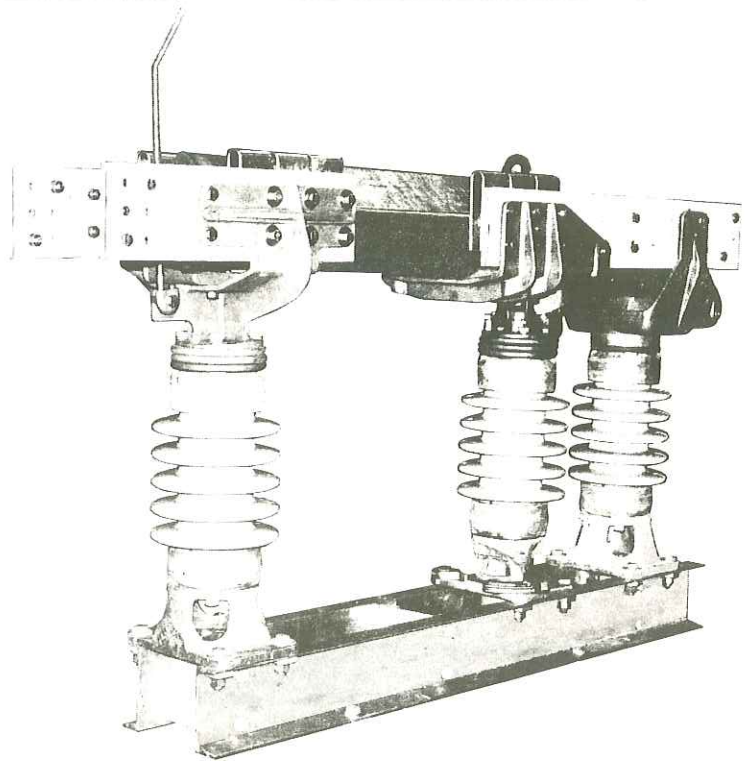


Figure 1 — Type WAG-A 23 kV, 6000 Amp.

is the use of jack screws to support the insulators on higher ratings. These easy-to-use leveling screws make insulator adjustments exceptionally easy and greatly reduce installation times.

#### INSTALLATION AND OPERATION:

All WAG-A's use conventional, easily-installed push-pull operating mechanisms, either manual or motor operated. These switches require no critical adjustments to be made in the field. Ratings 46 kV and below are shipped assembled and ready to be mounted on the structure. 69 kV and above are shipped with the live parts of each switch completely adjusted and bolted to its own switch base. Custom ordered switches have operating pipes already cut to proper length, and all mounting hardware is supplied to reduce installation time to an absolute minimum.

The WAG-A is specifically designed for heavy duty use while providing maintenance-free, trouble-free service. For more information and test reports, get in touch with your local Southern States representative, or call the factory direct.

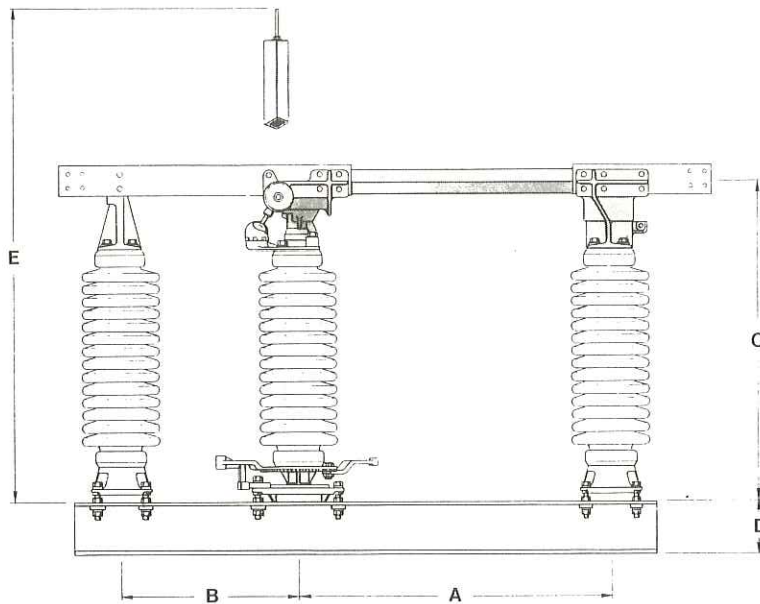


Southern  
States, Inc.

The Quality Name In High Voltage Products



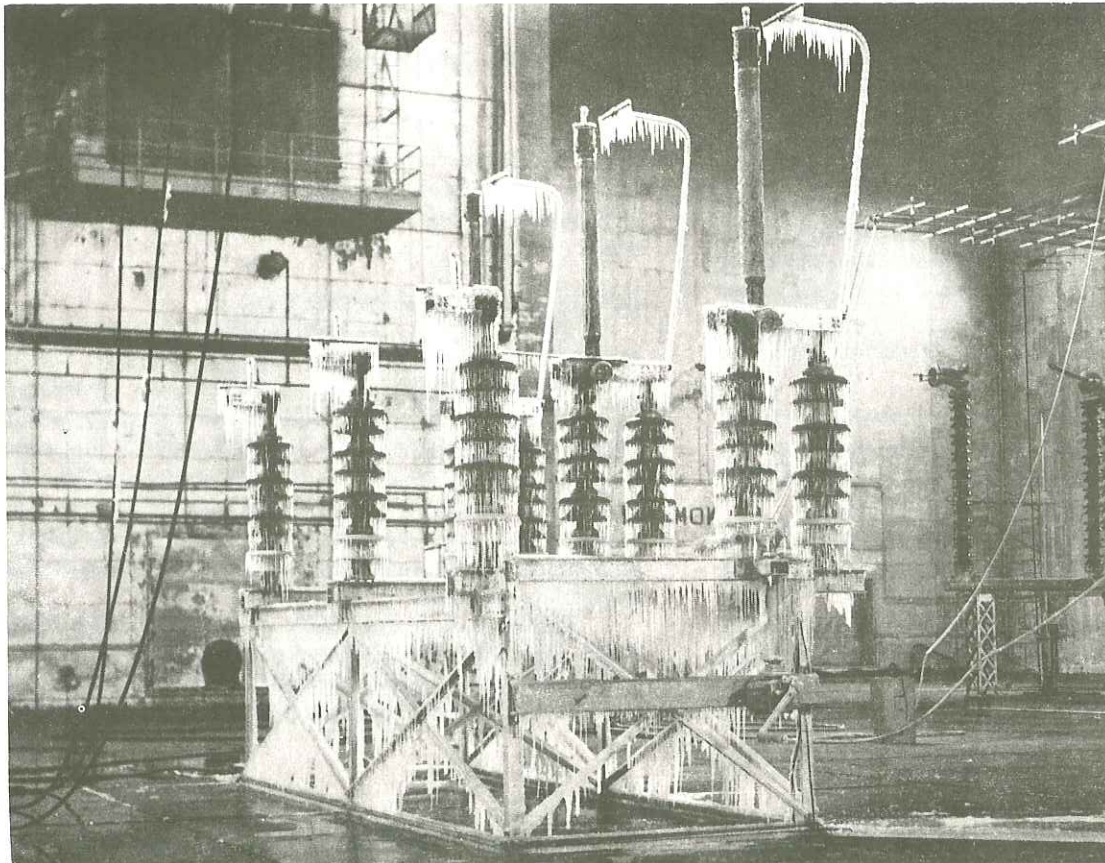
# Type WAG-A Specifications



\*Refer to the factory.

\*\*Dimensions and weights vary with insulators specified and mounting configuration. Do not use these dimensions for construction purposes. Refer to the factory for certified prints and weights, if required.

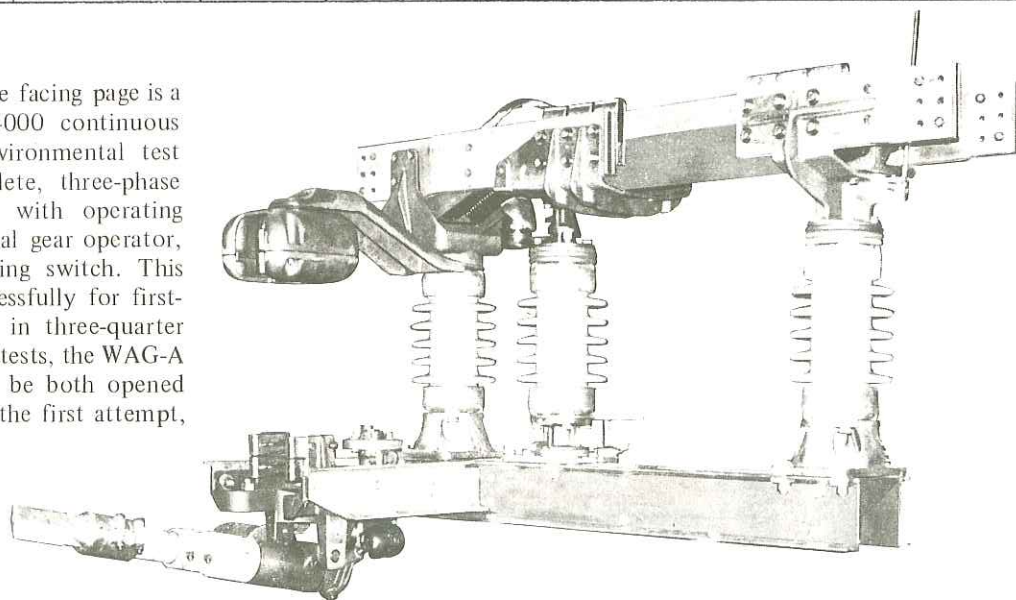
VOLTAGE kV	CURRENT — AMP. CONT. MOM. X1000		
14.4 (15.5 Max.)	2000	80	
	3000	120	
	4000	120	
	5000	*	
	6000	*	
23 (25.8 Max.)	2000	80	
	3000	120	
	4000	120	
	5000	*	
	6000	*	
34.5 (38 Max.)	2000	80	
	3000	120	
	4000	120	
46 (48.3 Max.)	2000	80	
	3000	120	
	4000	120	
	5000	*	
	6000	*	
69 (72.5 Max.)	2000	80	
	3000	120	
	4000	120	
115 (121 Max.)	3000	120	
	4000	120	
	5000	*	
138 (145 Max.)	3000	120	
	5000	*	
161 (169 Max.)	3000	120	
	4000	120	
	5000	*	
	6000	*	





BIL kV	CATALOG NUMBER	APPROXIMATE DIMENSIONS** INCHES (METERS)							
		A	B	C		D	E		
				PED.	POST		PED.	POST	
110	WAGA152000	24 (.610)	16 (.406)	23-3/4 (.603)	25-3/4 (.654)	4 (.102)	55 (1.397)	57 (1.448)	
	WAGA153000						55-3/4 (1.416)	57-3/4 (1.467)	
	WAGA154000	31 (.788)							
	WAGA155000 WAGA156000						63 (1.600)	65 (1.651)	
150	WAGA232000	26 (.660)	16 (.406)	26-3/4 (.680)	29-3/4 (.756)	4 (.102)	59-3/4 (1.518)	62-3/4 (1.594)	
	WAGA233000								
	WAGA234000	33 (.838)					68 (1.727)	70 (1.778)	
	WAGA235000 WAGA236000						68-3/4 (1.746)	70-3/4 (1.797)	
200	WAGA342000	33 (.838)	16 (.406)	29-3/4 (.756)	34-3/4 (.883)	4 (.102)	69-3/4 (1.772)	73-3/4 (1.873)	
	WAGA343000 WAGA344000								
250	WAGA462000	36 (.914)	19 (.483)	34-3/4 (.883)	38-3/4 (.984)	4 (.102)	77-3/4 (1.975)	81-3/4 (2.077)	
	WAGA463000								
	WAGA464000						86 (2.184)	90 (2.286)	
	WAGA465000 WAGA466000								
350	WAGA692000	48 (1.219)	22 (.559)	44-1/2 (1.130)	45-1/2 (1.156)	6 (.152)	100-1/4 (2.546)	102-1/2 (2.604)	
	WAGA693000 WAGA694000								
550	WAGA1153000	72 (1.829)	22 (.559)	60 (1.529)	61-1/2 (1.562)	7 (.178)	141-3/4 (3.601)	143-3/4 (3.651)	
	WAGA1154000								
	WAGA1155000								
650	WAGA1383000	82 (2.083)	26 (.660)	65-1/2 (1.664)	70-1/2 (1.791)	7 (.178)	157-1/4 (3.994)	162-1/4 (4.121)	
	WAGA1385000								
750	WAGA1613000	89 (2.261)	26 (.660)	74-1/2 (1.892)	79-1/2 (2.019)	7 (.178)	176-1/4 (4.477)	178-3/4 (4.540)	
	WAGA1614000								
	WAGA1615000								
	WAGA1616000								

The photograph on the facing page is a Type WAG-A, 161 kV, 4000 continuous ampere switch in an environmental test chamber. This is a complete, three-phase switch on full insulation, with operating mechanism pipes and manual gear operator, plus a high speed grounding switch. This equipment was tested successfully for first-effort opening and closing in three-quarter inches of hard ice. In these tests, the WAG-A demonstrated its ability to be both opened and closed in heavy ice on the first attempt, and without damage.

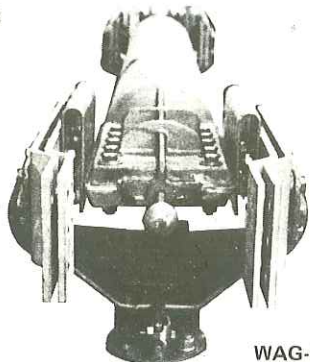


Typically, the Type WAG-A finds application in areas where a combination of service loads demand the ultimate in performance and reliability.

Type WAG-A, 23 kV, 6000 Amp., equipped with a Type EVG-1 grounding switch.

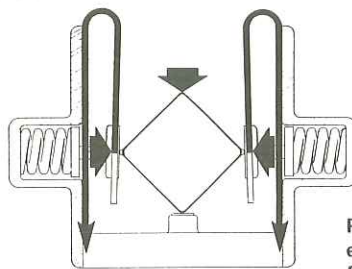
# Type WAG-A

Figure 3



WAG-A 6000 Amp. Jaw

## THE AMPLITACT® CONTACT



Proportions exaggerated for clarity

→ CURRENT PATH  
 → REGION OF MAGNETIC FIELDS  
 → FORCE

All WAG-A switches are equipped with Amplitacts, the most trouble-free contact ever designed for outdoor equipment. Amplitacts are high pressure, pressure-multiplying, multiple point, silver-to-silver, reverse-loop contacts that use the magnetic fields generated by fault currents to increase clamping pressure when it's needed most.

closes, it rotates into the jaw, and initial pressure is supplied by stainless steel springs. Current flow is first up, then down the jaw contact fingers, which generates fields of opposing magnetic forces. These fields intensify with the square of the current, clamping the blade ever tighter as the current increases, providing movement-free, damage-free current interchange.

**CONSTRUCTION:** The contact fingers are work-hardened,

copper, hot-dip tinned, 10 mil thick silver strips are brazed to each finger. The blade tip is hot-dip tinned copper with 43 mil thick, half-round silver strips brazed to each edge. Where tinned copper-to-aluminum interfaces exist, the joint is sealed with an oxidation inhibitor. Brazing the silver to the copper members - as opposed to soldering - ensures performance in high fault currents without heat damage.

Each opening and closing of the switch wipes the contact surfaces clean. Galling of the silver surfaces is prevented by using a different hardness silver alloy on each contact member.

The number of contact fingers is determined by the ampere rating, and each finger provides multiple-point engagement to increase security of operation.

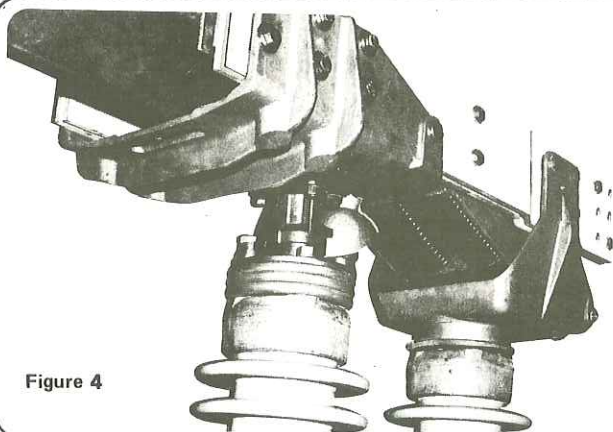


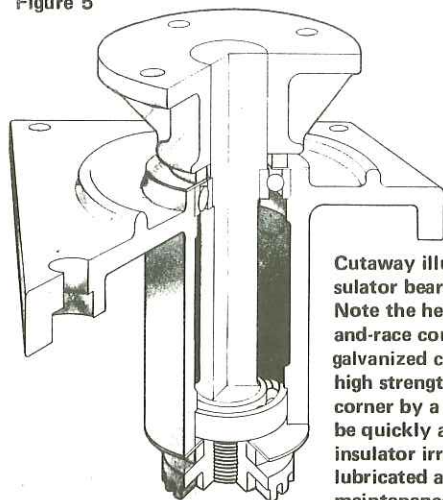
Figure 4

At left is a closeup of the hinge assembly of a WAG-A. Note the massive, high strength construction. The live part supports are cast aluminum, as is the housing that protects the counterbalance spring. The ball-and-socket operating linkage visible in this view is precision machined bronze, factory-adjusted and pinned, completely maintenance-free.

All moving parts bear on either Oilite or high density polyethylene. The rugged construction and superior design features have made the WAG-A recognized as the most dependable switch on the market.

Current flow is along the aluminum bus bar - direct from the NEMA-drilled end to the contact assembly. Please refer to the factory for special terminal requirements.

Figure 5



Cutaway illustration of the rotating insulator bearing used on WAG-A switches. Note the heavy-duty, double row ball-and-race components. The housing is galvanized cast nodular iron; the shaft is high strength steel. Supported on each corner by a jack screw, this bearing can be quickly adjusted to compensate for insulator irregularities. It is factory lubricated and sealed, and completely maintenance-free.



Southern  
States, Inc.

PRINTED IN U.S.A.

30 Georgia Avenue  
Hampton, Georgia 30228

(404) 946-4562  
FAX (404) 946-8106