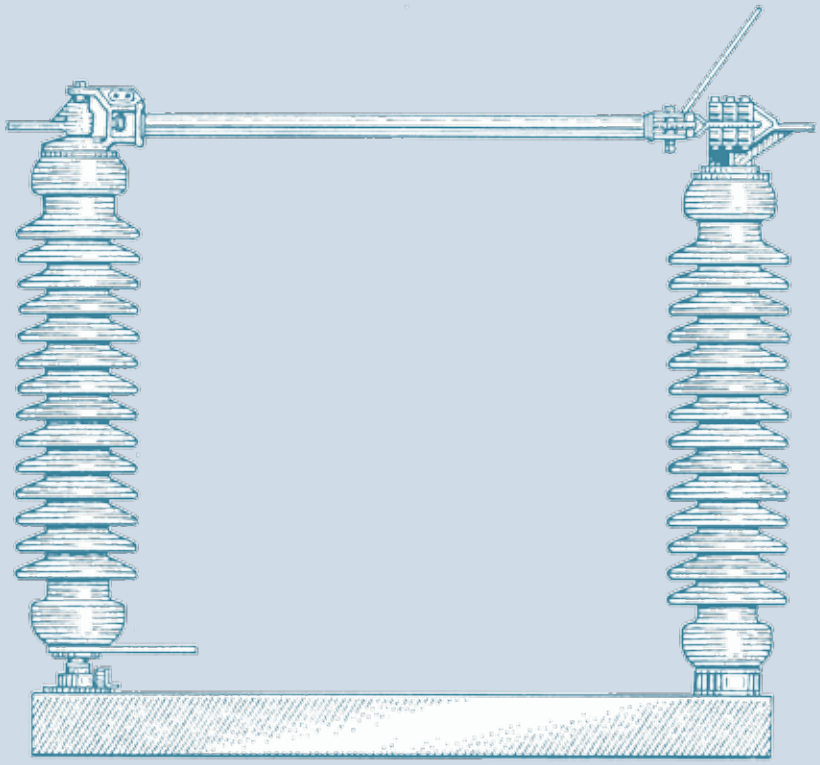
A7



INTRODUCTION & TYPE TEST DATE : 1973	ANNUAL UNITS PRODUCED : 45
UNITS IN SERVICE : > 4000	CONTINUOUS CURRENT : 1200 -1600 AMPS
SHORT CIRCUIT : 99-131 kA PEAK (38-50 kA 3 SECOND)	VOLTAGE : 8.3-145 kV
BIL : 95-650 kV	INSULATOR : LAPP

The A-7 switch is a two insulator side break design. Operation of the switch is accomplished through rotation of one insulator mounted on a maintenance free rotor bearing. Aluminum components are utilized throughout the design except in critical current transfer areas where copper and copper alloy castings are employed. Sealed high pressure current transfer joints in the blade hinge assure trouble free operation. Switch bases are constructed from galvanized structural steel channel. The A-7 side break switch design requires minimum overhead clearance. Additional clearance is required between phases.

A7 VALUE-ADDED FEATURES

Pascor Atlantic's A7 switch is the result of 100 years' experience in developing and supplying power equipment to the electric utility industry. Pascor Atlantic has continuously pioneered the research, design, testing and the manufacture of outdoor disconnect switches. We maintain this leadership because of our continued innovative efforts to provide maximum value in acquisition, installation, maintenance and operating reliability.

Procurement:

Local sales representatives and expertise
Pre-engineered controls available for quick delivery
ISO 9002 certified
ISO 14000 compliant
On-time shipment
Industry's shortest lead times

Engineering:

Universal base and control fit most structures
All parts designed to resist corrosion
Adaptability to meet special requirements
Availability of AutoCAD format drawings
Manual and motor operation

Installation:

Interphase and vertical operating pipes in pre-engineered or customized lengths
Adjustable threaded clevis for ease of fine adjustment of threepole switches
Open-close stops on each switch pole
Service technicians available for assistance
On-time deliveries

Maintenance:

Greaseless rotor bearings with stainless steel ball bearings on switch bases
Weather-sealed, grease-filled enclosed switch hinge contacts
Corrosion-free gears in all operators
No threaded coupling applied in torsion
Replaceable copper moving contacts

Accessories:

The following accessories can be provided for the A7:
Arc Restrictors thru 145 kV (Quick Whips)
Vacuum Interrupters
Auxiliary Switches
Cable Guides (Outriggers)
Spill Gaps
Leveling Screws (Jacking Bolts)
Arcing Horn
Position Indicators
Silver-to-Silver Open Air Contacts

OPERATORS

The A7 can be operated either manually or by a motor mechanism. Below is a list of operators which can be supplied:

Swing Handle
Worm Gear
MO-10 Motor Operator

GROUNDING SWITCH

For grounding during inspection, maintenance, or repair, a threepole grounding switch can be mounted on the hinge and/or jaw end of the A7. Interlocking to prevent the main and ground switches from being closed at the same time can be accomplished via Kirk key interlocks, mechanical interlocks, or electrical interlocks (where electrical operators are used).

High speed grounding switches for fault initiating can also be mounted on the A7. High speed grounding switches can be reset by using a hookstick or one of the operators listed above.

ORDERING INFORMATION:

The following information is the minimum required when ordering A7 side-break switches:

Voltage, BIL rating, continuous current, momentary rating
Mounting positions (upright, vertical, or inverted)
If grounding switches are specified:
- momentary rating
- location and position
- coil voltage (for HSG only)

Operators required (main and ground switches)
Insulator specification including:
- BIL rating
- technical reference (TR #)
- bolt circle diameter

Mounting information
Structure and detail drawings
Fixed terminal pad height if applicable

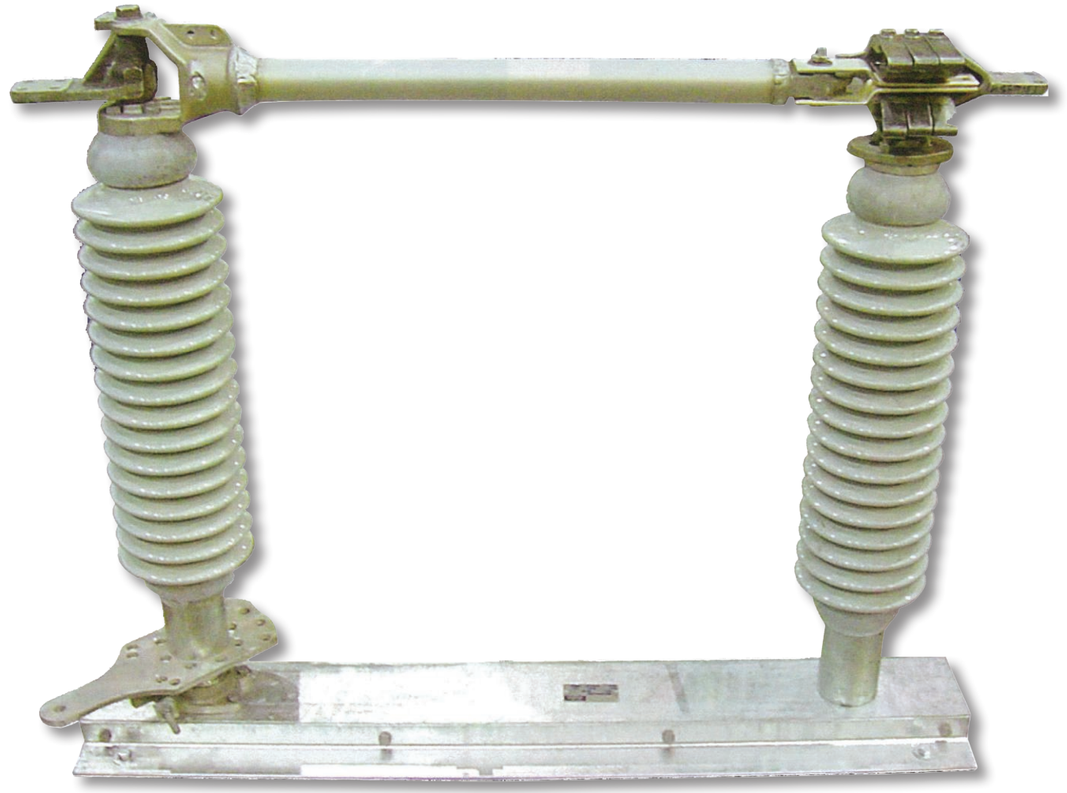
Pascor Atlantic
Air Switch Division • State Route 42
254 Industry Dr. • Bland, Virginia 24315-9709
Phone: 276-688-3328 • Fax:276-688-2228 or 2229
www.pascoratlantic.com

PASCOR ATLANTIC

Type A7

8.25 THRU 145 kV
600-1600A
40-70 KA Momentary

PASCOR ATLANTIC
Delivering More. Delivering Service.



Side-Break Outdoor Air Disconnect Switch

Description

The A7 switch is a modern and reliable two-insulator, side-break, outdoor air switch using a variety of materials in its design selected to do a specific job according to the function required.

Optimum mechanical and electrical characteristics of the current carrying parts are assured through the use of high-conductivity, high-strength aluminum alloys combined with transfer contacts utilizing the time proven high-pressure, silver-to-copper construction. Throughout the current path all bolts, nuts, and pins are stainless steel, minimizing the possibility of corrosion.

A galvanized structural steel channel base supports the insulators and live parts. The switch is designed to enhance the electrical and mechanical characteristics of current carrying parts. The mechanical parts and rotor bearings are designed for durability to withstand cantilever stresses, ensuring long-lasting service in all types of environments. All parts have been designed to be uniform across the product line. As a result, parts are easier to stock and are more readily available from the factory.

SEPTEMBER 2009 DB-A7-A

APPLICATION

Type A7 side-break switches meet or exceed ANSI C37 and IEC 129 standards and are adaptable to substation and line applications. They may be applied for any conventional requirements such as main line disconnecting, bus sectionalizing, breaker isolating and by-passing, or transformer disconnecting. They are also capable of interrupting line-charging and transformer-magnetizing current when equipped with interrupting attachments.

MOUNTING

Type A7 switches can be mounted in upright, inverted or vertical positions.

A7 DESIGN FEATURES AND BENEFITS

Sealed Pressure Hinge Contacts

The A7 switch is backed by years of a solid reputation and proven dependable service life in all types of climates and conditions. The transfer of the current from the copper hinge to the aluminum hinge terminal casting is through a spring-loaded hinge pin threaded into the tinned copper swivel terminal. The hinge pin is tin-plated copper with silver-plated threads. A stainless-steel pressure spring provides positive continuous contact between the threads. A specially designed stainless-steel tapered insert expands the slotted hinge pin, applying a high radial force to engage the tinned surface of the hinge pin with the properly prepared surface of the aluminum hinge terminal casting, thus providing a reliable current transfer. Neoprene O-ring seals protect the contacts from dust, dirt, and moisture. The seal-in lubrication is effective for the life of the switch.

Jaw Contacts

The jaw consists of tinned, hard drawn reverse loop copper jaw fingers backed by stainless steel springs to provide excellent current carrying capability and resistance to corrosion. The stainless steel springs are insulated at one end to eliminate current flow through the spring and thus prevent annealing. This design prolongs the life of the spring and ensures consistent contact pressure.

The reverse loop finger design of the jaw contact assures that the contacts will stay engaged under fault conditions. Magnetic forces from the fault current tend to push the blade deeper into the jaw rather than up, out of the jaw. Consequently, the blade will not be driven from the jaw due to magnetic forces from fault conditions, preventing damage to the switch and any adjacent construction.

The blade contact end consists of a replaceable silver-plated copper bar bolted to the blade end. The contact end is easily replaced in the field by removing a few bolts thereby reducing the amount of downtime.

The blade contact of an A7 switch is a tinned copper bar with silver-plated contact surfaces and is hinged to the blade to provide toggle action. The contact head of the blade is made so that it can pivot through a 15-degree arc as the blade enters or leave the jaw contacts. This blade toggle is designed to reduce operating effort, particularly on opening. The pivoting action allows movement to take place between one pair of contacts at a time, changing the static friction to sliding friction. The transfer of current from the blade contact to the blade is accomplished with the high-pressure hinge contact at the toggle joint with constant pressure maintained by stainless-steel spring washers.

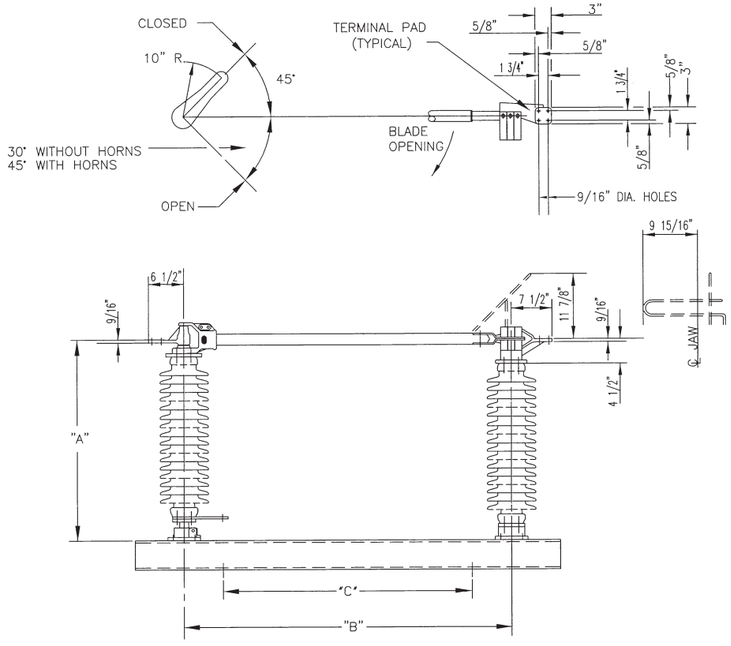
Rotor Bearings

The drive insulator stack rotates on a greaseless rotor bearing that contains two sets of stainless steel ball bearings. Weather seals prevent moisture and foreign matter from entering the rotor bearing. The ball bearing sets are spaced far enough apart to provide sufficient support to withstand cantilever stresses and to allow the ball races to take thrust loading as well as radial loading. This design assures smooth operation and minimized operating effort. Because of this design, no maintenance is required, ever.

Switch Bases

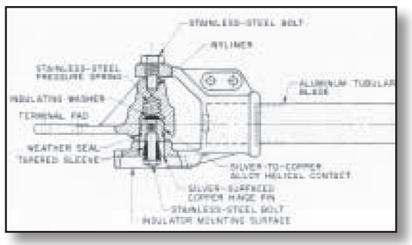
Switch bases of galvanized structural steel channel are designed and tested to be rigid under all operating conditions. Heavy galvanizing is applied after punching to assure long corrosion-free life. Universal bases are available for all switch types. This base allows for infinite mounting bracket location which assures mounting holes will match without the need for field modification.

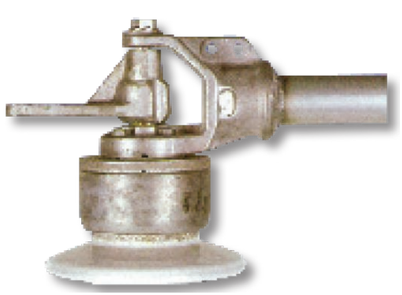
A7 SPECIFICATIONS



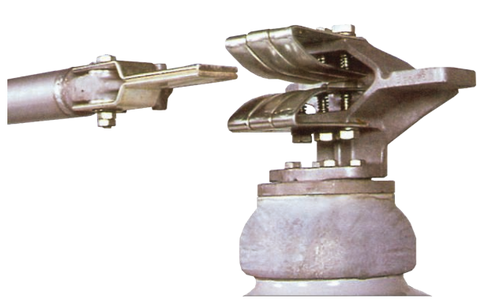
FOR SWITCHES 7.5–69 KV THE BASE IS 6"(152) SINGLE CHANNEL 2"(51) HIGH
FOR SWITCHES 115–138 KV THE BASE IS 6"(152) DOUBLE CHANNEL 6"(152) HIGH.
THIS DIMENSION SHOULD BE ADDED TO DIMENSION "A" FOR EXACT HEIGHT.
BASE MOUNTING IS CUSTOM TO FIT CUSTOMER NEED.

KV	"INS"	"A"		"B"		"C"		APPROX. SINGLE POLE WEIGHT WITH INSULATOR	
		IN.	MM	IN.	MM	IN.	MM	LBS.	KG.
7.5	TR-202	14"	356	15"	381	6"	152	106	48
15	TR-205	16 1/2"	419	15"	381	6"	152	122	55
23	TR-208	20 1/2"	521	18"	457	9"	229	150	68
34.5	TR-210	24 1/2"	622	24"	610	15"	381	174	79
46	TR-214	28 1/2"	734	30"	762	21"	533	212	96
69	TR-216	36 1/2"	927	42"	1067	33"	838	278	126
115	TR-286	51 7/8"	1318	60"	1524	44"	1118	450	204
138	TR-288	60 7/8"	1546	72"	1829	44"	1118	504	229

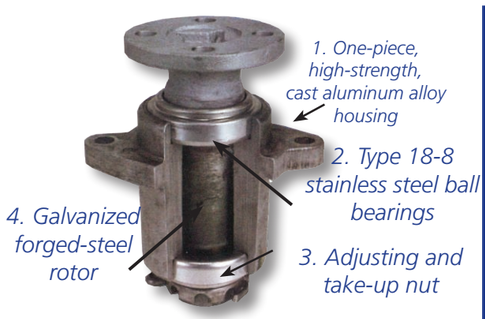




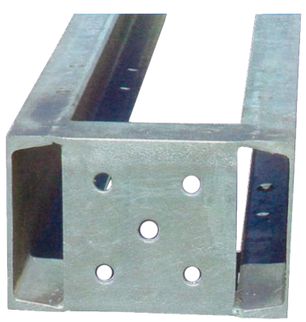
HINGE ASSEMBLY



JAW ASSEMBLY



ROTOR BEARINGS



SWITCH BASES