INSTALLATION • MAINTENANCE

INSTRUCTIONS

AUTOVALVE LIGHTNING ARRESTERS TYPE SV

For Protection of Rotating Machinery

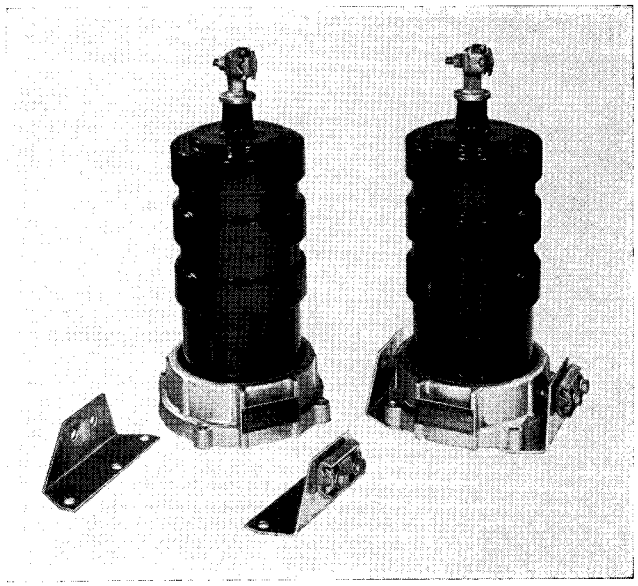


FIG. 1. The Arresters are Shipped as Shown at the Left. The Angle Feet and Arrester Unit are Assembled as Shown at the Right

TYPE SV AUTOVALVE LIGHTNING ARRESTERS designed for the protection of rotating machines are the station-type, for indoor or outdoor service, 3000 to 12,000 volts. These arresters have characteristics which are different from the standard station-type arresters commonly used for the protection of static apparatus such as transformers and circuit breakers. The type used for the protection of static apparatus should not be used at the terminals of rotating machines, and the types designed for the protection of rotating machines should not be used for the protection of static equipment, with the exception of dry-type, air-insulated transformers such as the Westinghouse type ASL transformer.

The voltage rating of the arrester given on the nameplate is a maximum rating. It designates the maximum system voltage applied across the arrester line and ground terminals against which the arrester is able to return itself to an insulator after having discharged a surge. If the system voltage applied to the terminals under normal or abnormal operating conditions such as faults exceeds the arrester rating, then the arrester is likely to remain conducting after it has been discharged by a surge and will be damaged.

INSTALLATION

Unpack the equipment carefully and inspect it for any damage during shipment, particularly the porcelain parts. If there has been any breakage, file a claim immediately with the carrier.

For the protection of rotating machines, install the arresters at or near the machine terminals, together with capacitors. In addition, use standard arresters on the incoming lines as described in published literature on lightning protection for machines.

The apparatus is shipped as shown at the left in Fig. 1. It consists of the lightning arrester unit with integral line terminal; and two angle feet, to one of which the ground terminal is fastened. The base is drilled for one-half inch diameter mounting bolts. Insert the two angle feet between the arrester base and the foundation, passing the mounting bolts through the holes in the angles. The arrester is shown as installed at the right in Fig. 1. The position of the angle feet and of the unit may be chosen so that the line and ground leads are in the most convenient positions. Do not attempt to change the position of the line terminal with respect to the arrester unit itself. The line lead may be positioned either horizontally or vertically by merely loosening the center portion of the line terminal until it can be rotated to the desired position. Dimensions and clearances are shown in Fig. 2.

Do not attempt to lift or move the arrester by means of the line terminal.

Attach the line and ground leads to their terminals, keeping them short. Connect the arrester and capacitor ground terminals to the machine frame either directly or through a short common ground connection.

MAINTENANCE

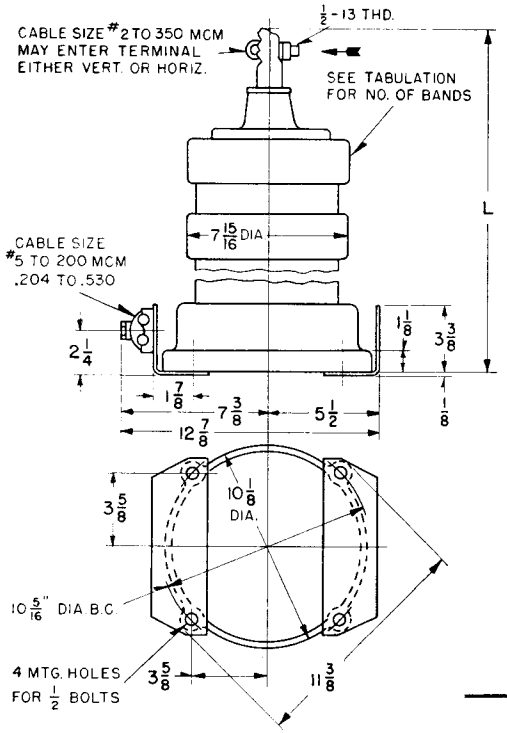
The Autovalve arrester requires no maintenance other than occasional inspection. In locations where dirt or soot collect, clean the porcelain periodically. Do not wash the arresters with a hose while energized.

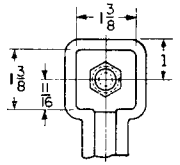
Autovalve arresters are assembled in air-conditioned shops and carefully sealed and tested for tightness against moisture entrance. Do not open them in the field.

The series spark gap in Westinghouse Station Type Lightning Arresters are shunted by high resistance. If megger readings are made, infinite resistance will not be shown. When megger tests are made, be sure the outside of the porcelain housing is clean and dry to avoid misleading results. It is recommended that if such tests are made they be done periodically and trends of the readings observed.

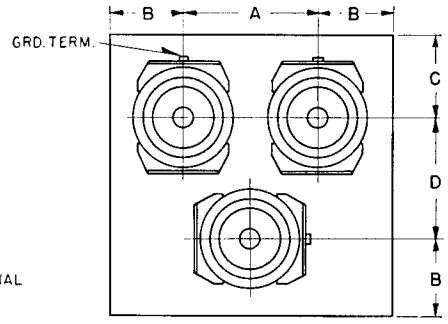
If the readings remain consistent then the units are in good condition. If there is a considerable deviation from the previous values its condition may be open to question.

When writing concerning this equipment, include the complete data shown on the nameplate.

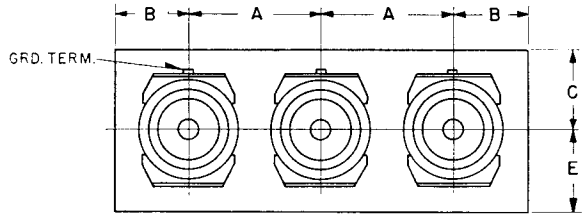




ENLARGED VIEW OF TERMINAL
IN DIRECTION OF ARROW.



GROUP I.



GROUP II.

STYLE NUMBER	NO. OF BANDS	ARRESTER RATING KV RMS	DIMENSION L	INDOOR USE ONLY							OUTDOOR USE						
				MINIMUM MOUNTING DIMENSIONS (See Note 1)					MINIMUM POSSIBLE ENCLOSURE		MINIMUM MOUNTING DIMENSIONS					MINIMUM POSSIBLE ENCLOSURE	
				A	B	C	D	E	GROUP I	GROUP II	A	B	C	D	E	GROUP I	GROUP II
1594 608	2	3	17 ± 7/16	*	*	*	*	*	20 3/8 x 23	30 1/2 x 13	*	5 3/8	*	*	*	20 7/8 x 23 1/4	31 x 13
1594 609	2	4.5	17 ± 7/16	*	*	*	*	*	20 3/8 x 23	30 1/2 x 13	*	5 1/2	*	*	*	21 1/8 x 23 3/8	31 1/4 x 13
1594 610	2	6	17 ± 7/16	*	5 1/4	*	*	*	20 5/8 x 23 1/8	30 3/4 x 13	10 1/2	6	*	*	6	22 1/2 x 23 7/8	33 x 13 3/8
1594 611	3	7.5	22 3/16 ± 5/8	*	5 3/8	*	*	*	20 7/8 x 23 1/4	31 x 13	10 3/4	6 3/8	*	10 3/4	6 3/8	23 1/2 x 24 1/2	34 1/4 x 13 3/4
1594 612	3	9	22 3/16 ± 5/8	*	6 1/4	*	*	6 1/4	22 5/8 x 24 1/8	32 3/4 x 13 5/8	11 3/4	7 1/8	*	11 3/4	7 1/8	26 x 26 1/4	37 3/4 x 14 1/2
1594 613	3	12	22 3/16 ± 5/8	11 5/8	7	*	11 5/8	7	25 5/8 x 26	37 1/4 x 14 3/8	14 1/8	9	9	14 1/8	9	32 1/8 x 32 1/8	46 1/4 x 18

* As low as physically possible.

NOTE 1—If line terminal is taped for rated voltage of arrester, all ratings of arresters may be mounted as close as physically possible in all dimensions.

FIG. 2. Outline Dimensions and Clearances of Type SV Autovalve Lightning Arresters for Machine Protection

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EAST PITTSBURGH PLANT • SWITCHGEAR DIVISION • EAST PITTSBURGH, PA.
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AUTOVALVE LIGHTNING ARRESTERS TYPE SV

For Protection of Rotating Machinery

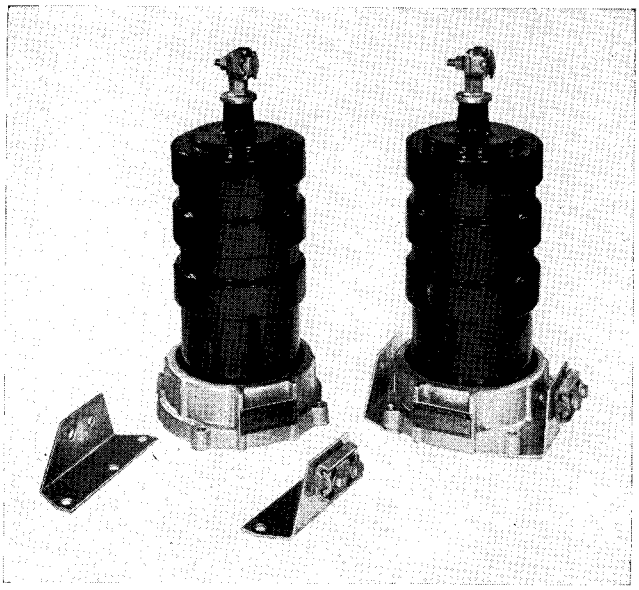

FIG. 1. The Arresters are Shipped as Shown at the Left. The Angle Feet and Arrester Unit are Assembled as Shown at the Right.

TYPE SV AUTOVALVE LIGHTNING ARRESTERS designed for the protection of rotating machines are the station-type, for indoor or outdoor service, 3000 to 21,000 volts. These arresters have characteristics which are different from the standard station-type arresters commonly used for the protection of static apparatus such as transformers and circuit breakers. The type used for the protection of static apparatus should not be used at the terminals of rotating machines, and the types designed for the protection of rotating machines should not be used for the protection of static equipment, with the exception of dry-type, air-insulated transformers such as the Westinghouse type ASL transformer.

The voltage rating of the arrester given on the nameplate is a maximum rating. It designates the maximum system voltage applied across the arrester line and ground terminals against which the arrester is able to return itself to an insulator after having discharged a surge. If the system voltage applied to the terminals under normal or abnormal operating conditions such as faults exceeds the arrester rating, then the arrester is likely to remain conducting after it has been discharged by a surge and will be damaged.

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Do not attempt to lift or move the arrester by means of the line terminal.

Attach the line and ground leads to their terminals, keeping them short. Connect the arrester and capacitor ground terminals to the machine frame either directly or through a short common ground connection.

MAINTENANCE

The Autovalve arrester requires no maintenance other than occasional inspection. In locations where dirt or soot collect, clean the porcelain periodically. Do not wash the arresters with a hose while energized.

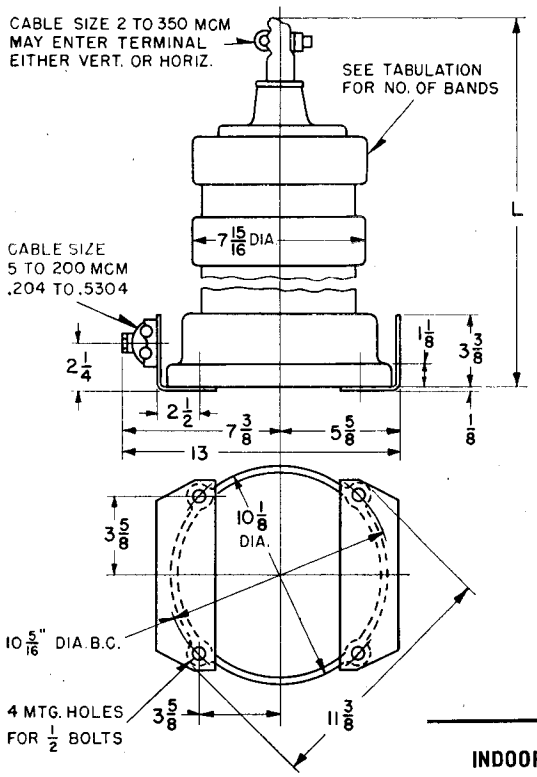
Autovalve arresters are assembled in air-conditioned shops and carefully sealed and tested for tightness against moisture entrance. Do not open them in the field.

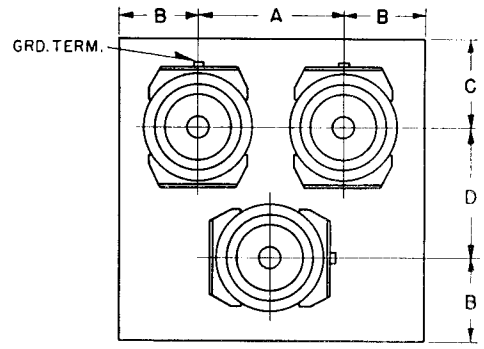
The series spark gap in Westinghouse Station Type Lightning Arresters are shunted by high resistance. If megger readings are made, infinite resistance will not be shown. If measured with a 500 volt megger, the minimum resistances to be expected in the case of the Station Type arresters for rotating machine protection are shown in the adjoining table.

If megger tests are made, be sure the outside of the porcelain housing is clean and dry to avoid misleading results.

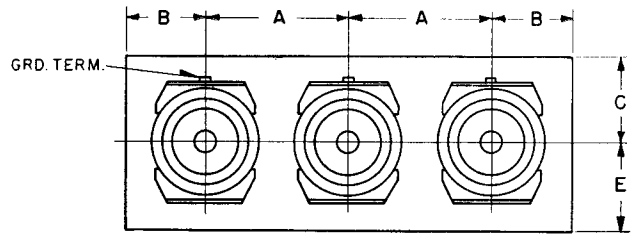
When writing concerning this equipment, include the complete data shown on the nameplate.

ARRESTER RATING	RESISTANCE
VOLTS	MEGOHMS
3000	3
4500	5.5
6000	8
7500	11
9000	14
12000	19
15000	25
16500	28
18000	31
21000	35





GROUP I.



GROUP II.

STYLE NUMBER	NO. OF BANDS	ARRESTER RATING KV RMS	DIM. L	INDOOR USE ONLY: MINIMUM MOUNTING DIMENSIONS (See Note 1) A	B	C	D	E	INDOOR USE ONLY: MINIMUM POSSIBLE ENCLOSURE GROUP I	GROUP II	OUTDOOR USE: MINIMUM MOUNTING DIMENSIONS A	B	C	D	E	OUTDOOR USE: MINIMUM POSSIBLE ENCLOSURE GROUP I	GROUP II
1594 608	2	3	16 5/8 ± 7/16	*	*	*	*	*	20 3/8 x 23	30 1/2 x 13	*	5 3/8	*	*	*	20 7/8 x 23 1/4	31 x 13
1594 609	2	4.5	16 5/8 ± 7/16	*	*	*	*	*	20 3/8 x 23	30 1/2 x 13	*	5 1/2	*	*	*	21 1/8 x 23 3/8	31 1/4 x 13
1594 610	2	6	16 5/8 ± 7/16	*	5 1/4	*	*	*	20 5/8 x 23 1/8	30 3/4 x 13	10 1/2	6	*	*	6	22 1/2 x 23 7/8	33 x 13 3/8
1594 611	3	7.5	22 3/16 ± 5/8	*	5 3/8	*	*	*	20 7/8 x 23 1/4	31 x 13	10 3/4	6 3/8	*	10 3/4	6 3/8	23 1/2 x 24 1/2	34 1/4 x 13 3/4
1594 612	3	9	22 3/16 ± 5/8	*	6 1/4	*	*	6 1/4	22 5/8 x 24 1/8	32 3/4 x 13 5/8	11 3/4	7 1/8	*	11 3/4	7 1/8	26 x 26 1/4	37 3/4 x 14 1/2
1594 613	3	12	22 3/16 ± 5/8	11 5/8	7	*	11 5/8	7	25 5/8 x 26	37 1/4 x 14 3/8	14 1/8	9	9	14 1/8	9	32 1/8 x 32 1/8	46 1/4 x 18
1594 614	4	15	25 1 1/16 ± 1 1/16	12 1/8	7 1/4	*	12 1/8	7 1/4	26 5/8 x 26 3/4	38 3/4 x 14 5/8	14 7/8	9 7/8	9 7/8	14 7/8	9 7/8	34 5/8 x 34 5/8	49 1/2 x 19 3/4
1594 615	6	16.5	32 1/4 ± 7/8	13	8 1/4	8 1/4	13	8 1/4	29 1/2 x 29 1/2	42 1/2 x 16 1/2	16 1/4	11 3/8	11 3/8	16 1/4	11 3/8	39 x 39	55 1/4 x 22 3/4
1594 616	6	18	32 1/4 ± 7/8	13 1/2	9 1/4	9 1/4	13 1/2	9 1/4	32 x 32	45 1/2 x 18 1/2	17 1/8	11 1/2	11 1/2	17 1/8	11 1/2	40 1/8 x 40 1/8	57 1/4 x 23
1594 617	6	21	32 1/4 ± 7/8	14 3/8	9 1/4	9 1/4	14 3/8	9 1/4	32 7/8 x 32 7/8	47 1/4 x 18 1/2	18 5/8	12 7/8	12 7/8	18 5/8	12 7/8	44 3/8 x 44 3/8	63 x 25 3/4

* As low as physically possible.

NOTE 1—If line terminal is taped for rated voltage of arrester, all ratings of arresters may be mounted as close as physically possible in all dimensions.

FIG. 2. Outline Dimensions and Clearances of Type SV Autovalve Lightning Arresters for Machine Protection

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