





**WILDLIFE PROTECTION**  
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# WILDLIFE PROTECTION

Practice and Regulations

This section covers the current products and construction practices for the protection of avian species common to Ameren’s service areas in Illinois and Missouri. In addition, the wildlife guards for prevention of animal caused outages are included to improve reliability of distribution facilities.

Ameren’s first approach is to maintain minimum horizontal and vertical conductor separation unless economics or existing conditions force the use of other methods. The areas intended for new overhead lines shall be evaluated for risk to the protected birds (resident or migratory). Lines scheduled for repair or replacement shall also be evaluated for this same risk.

All Divisions must follow Ameren standards for new construction and existing retrofit to provide avian friendly facilities. Alternative suggested practices or products are not acceptable unless evaluated and approved by Standards.

Wood or composite poles are preferred because the insulating nature of these materials reduces the clearances required for avian protection to less than those required for metal structures. After completion of construction all leftover scrap or reusable material shall be removed and disposed of in an appropriate manner.

All legal procedures must be followed by the Ameren Division when there is evidence of an avian injury or fatality in the vicinity of an Ameren overhead line (69 kV and below). In addition, the Division shall be proactive in correcting or modifying existing structures to eliminate the possibility of further injury or fatalities to avian species. This commitment is to meet the regulatory requirements for protecting avian species on new and existing circuits. The laws that are applicable are:

1. The Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703-712).
2. The Endangered Species Act (ESA; 1531-1544).
3. The Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d)
4. Ameren Avian Protection Plan

REV	DATE	ENG	DESCRIPTION
2	04/01/22	KR	Converted to new format
1	07/02/18	MJ	

The critter line guard (Stock #75 25 216) is used to prevent animals from crossing a section of overhead conductor leading to a substation or other distribution equipment. If the line guard is installed on an energized conductor, proper protective clothing, equipment and procedures must be followed. The line guard includes five (5) rollers, two (2) wheels, two (2) "L" brackets, and six (6) cable ties. When properly installed the five rollers are placed between the two wheels and secured in place with the "L" brackets. When an animal (squirrel) tries to cross over the installed line guard, the rollers will rotate and the animal will be rolled off of the conductor. Line guard can be applied to lines with a voltage level of 69kV or less.

**INSTRUCTIONS:**

1. For substation applications, place the line guard at least 5' outside the substation fence.
2. For other applications, place the line guard at least 2' from the pole or standing structure.
3. Verify the size (OD) of the conductor that the line guard will be installed on. The line guard rollers are fabricated with a 1" OD hole and two cutouts, one for 2" OD and another for 3" OD. The first groove on each roller represents 2", and the second groove represents 3". The cutouts can be easily removed with a knife.
4. Position one of the "L" brackets closest to the point the line guard will be protecting. If this work is being done with the conductor energized the "L" bracket can be replaced with a hot line clamp from the table on Sheet 2 of this standard. The hot line clamp can be installed with a "shotgun" hot stick. If the "L" bracket is used place it on the conductor and secure it into place with two cable ties. The cable ties must be placed through the holes provided and around the conductor. Pull the ties tight to hold the "L" bracket in place.

**NOTE:** The stainless steel cable ties will have sharp edges if the ties are cut off. Therefore, the ends of the ties should be bent over to remove any sharp edges.

5. Position the halves of the rollers around the conductor and snap them together. Each roller will have a series of four snaps. All of the snaps must be fastened.

**NOTE:** On conductors larger than 2" OD, the rollers will have only two snaps. If the cutout for a 3" hole is removed, the end snaps will also be removed. This will not affect the integrity or operation of the product.

6. While assembling the first and last rollers the wheels must be installed. Spread apart a wheel and place it on the end of the roller that faces the "L" bracket. Tightly fasten one cable tie at the base of the wheel (See Figure 1) to secure it to the roller.

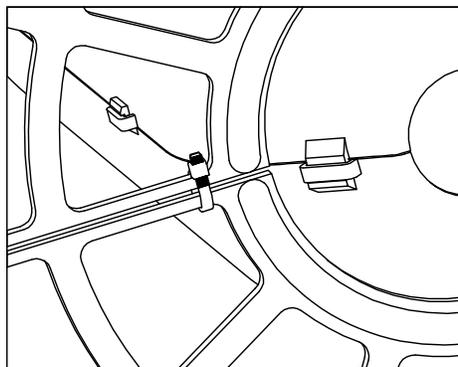


Figure 1 - Cable Ties Connecting Roller

7. After all of the rollers have been snapped around the conductor, push the line guard assembly along the conductor until it is snug against the installed "L" bracket.

REV	DATE	ENG	DESCRIPTION
3	04/01/22	KR	Converted to new format, added new drawings
2	09/23/15	MJ	

8. Position the remaining “L” bracket (or hot line clamp) at the opposite end of the line guard assembly and secure it in place with two cable ties as described in Instruction #4. Remember to bend the ends of the stainless steel ties to eliminate any sharp edges.
  
9. When the line guard installation is complete, it should appear as shown in Figure 2.

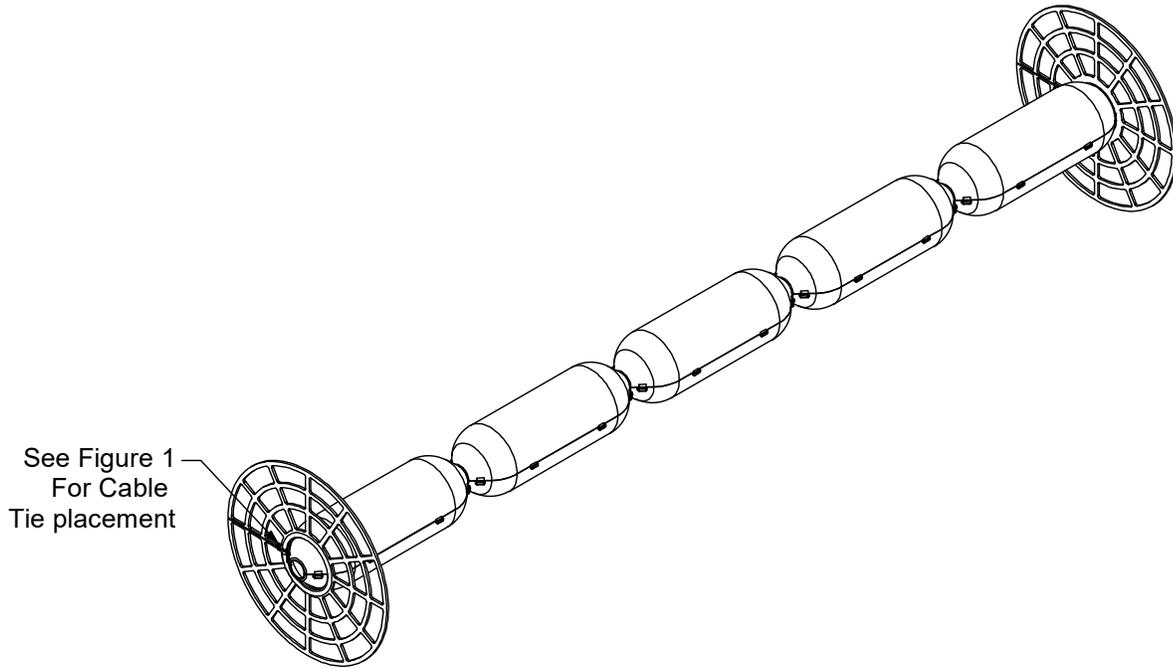


Figure 2 - Completed Line Guard

Stock Number	Material	Conductor Range (Inches)	DOJM Code
23 78 394	Copper	0.128 – 0.414	HLC10C
23 78 183	Copper	0.162 – 0.745	HLC350C
17 62 088	Aluminum	0.157 – 0.905	HLC336A
17 62 112	Aluminum	0.502 – 1.031	HLC556A
17 62 143	Aluminum	0.939 – 1.490	HLC954A

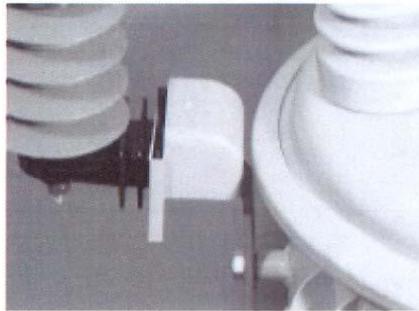
The lightning arrester mounting bracket guard is used to prevent bird caused outages associated with birds perched on the grounded LA bracket making contact with an energized line lead. The LA bracket guard covers the grounded metal mounting bracket and arrester mounting bolt on tank mounted arresters. The guards have flexible fingers that securely hold the guards in place. The guard is designed to fit brackets from all common polymer arrester suppliers. The guard has been tested to withstand 21kV to ground without a flashover. The smooth, rounded profile of the guard acts as a perch deterrent.



**Arrester Bracket Guard**

**INSTRUCTIONS:**

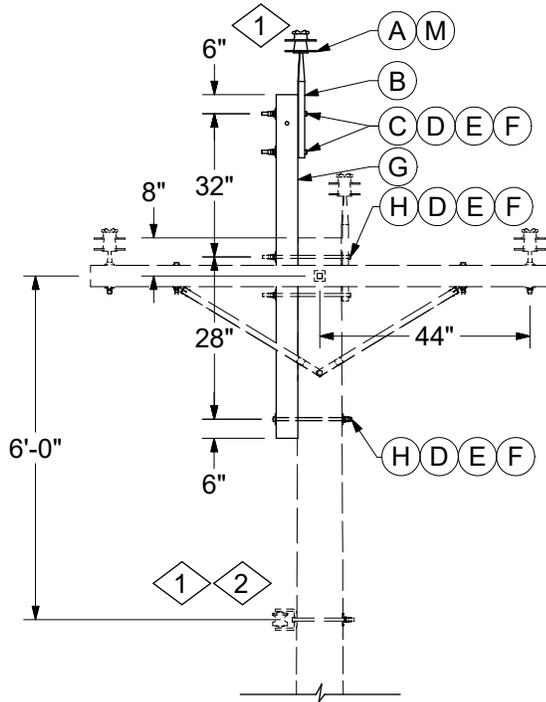
1. Make sure that the arrester is positioned properly and securely attached to the tank mounting bracket.
2. Place the wildlife guard over the last insulating rib on the polymer arrester mounting bracket and over the tank mounting bracket and bolt.
3. Push down on the wildlife guard until the flexible fingers, at the base of the guard, snap into place and securely hold the guard. No external ties or tape are required to hold the wildlife guard in place.



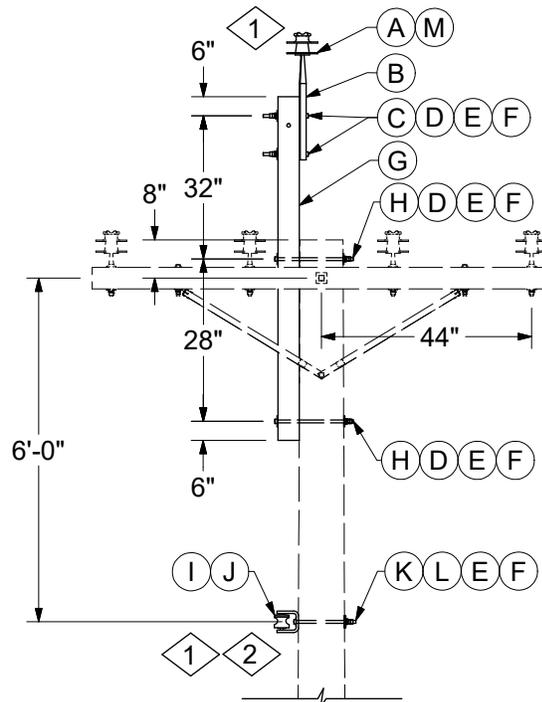
**Installed Arrester Bracket Guard**

ITEM	STK / DCS #	DESCRIPTION	05 00 05 **	05
A	69 56 037	Guard, Wildlife, for Covering LA Tank Bracket		1
B	111	Wildlife Guards Installation		1

This standard provides modification of existing structures to increase spacing between conductors to reduce the likelihood of injury to or death of protected avian species. The 3-wire and 4-wire modification achieves mandated conductor spacing, while retaining the eight foot crossarm used in the standard configuration.



05 11 10 01 - Three Wire Modification



05 11 10 02 - Four Wire Modification

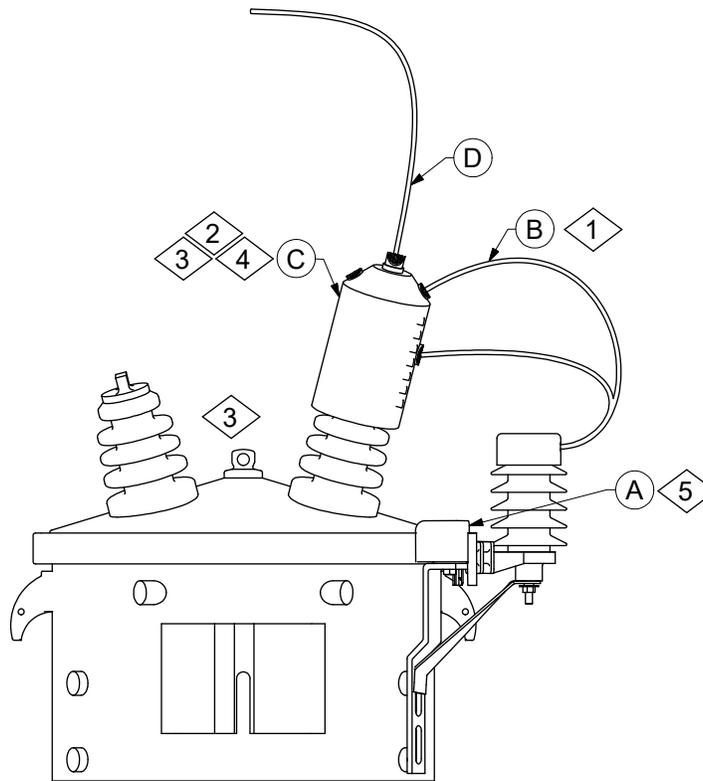
**CONSTRUCTION NOTE(S):**

- 1. See DCS **06 12 01 02** for insulator detail and DCS **06 01 01 \*\*** for secondary clevis detail.
- 2. See DCS **29 00 17 02** for neutral ground clearance.

	ITEM	STK / DCS #	DESCRIPTION	05 11 10 **	01	02
1,2	A	25 05 069	Insulator, Pin Type, 12kV		1	1
	B	23 62 156	Pin - Insulator, Pole Top, 24"		1	1
	C	23 52 255	Bolt, Mach., 5/8" x 9" w/ square nut		2	2
	D	23 66 027	Washer, Flat, Square 5/8"		4	4
	E	23 66 134	Lock Washer - 5/8" Double Coil		4	5
	F	23 65 043	Lock Nut - 5/8" Square		4	5
	G	41 01 006	6' Crossarm - 3-1/2" x 4-1/2"		1	1
	H	23 52 068	Bolt, Mach., 5/8" x 16" w/ square nut		2	2
	I	23 06 040	Clevis - Secondary		-	1
	J	25 59 044	Insulator, Spool		-	1
	K	23 52 066	Bolt, Mach., 5/8" x 14" w/ square nut		-	1
	L	23 66 207	Washer, Curved, Square, 5/8"		-	1
	@	M	TT*W	Top Tie, See DCS <b>07 00 41 00</b>		1
ST*W			Side Tie, See DCS <b>07 00 41 00</b>		-	1

REV	DATE	ENG	DESCRIPTION
2	04/01/22	KR	Converted to new format
1	04/29/10	MJ	

The covers described in this standard are for wildlife contact only and NOT intended for personal protection.

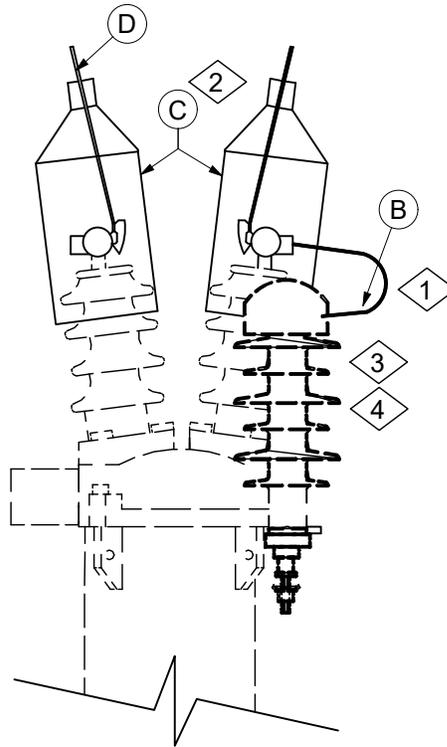


CONSTRUCTION NOTE(s):

1. Bolt the arrester lead away from the transformer to keep the lead opening in the arrester guard away from animals.
2. Be sure the bushing guard completely covers the terminal and only the top bushing skirt.
3. On Delta Primary Systems, wildlife guards must be installed on both HV bushings.
4. When transformers are banked, install the arrester lead in the side of the guard so that the primary leads can be installed in the top holes.
5. Refer to DCS 05 00 00 05 if arrester bracket guard has not been placed.

	ITEM	STK / DCS #	DESCRIPTION	05 12 10 **	01
	A	69 56 037	Wildlife Guard - Transformer Arrester Bracket		1
1	B	69 58 178	Wire, Lead, Arrester w/ terms		1
2	C	69 58 296	Guard, Clam-Shell, Wildlife		1
	D	18 51 025	Wire, Transformer Riser (ft)		6
	E	111	Wildlife Guard Installation		1

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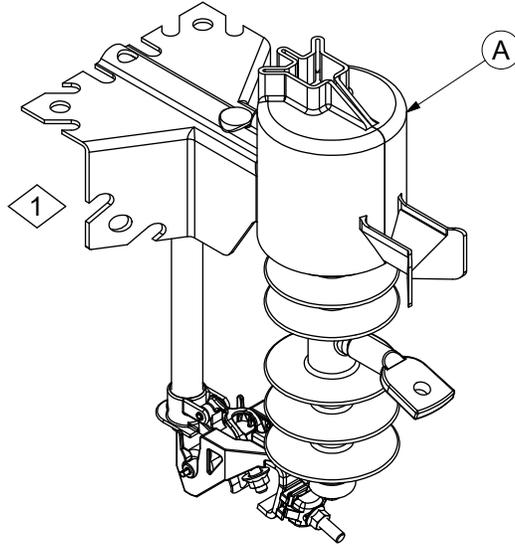


CONSTRUCTION NOTE(S):

- 1. Bolt the arrester lead away from the tank to keep the lead opening in the arrester guard away from animals.
- 2. Be sure the bushing guard completely covers the terminal and only the top bushing skirt.
- 3. An arrester should be installed if one is not present.
- 4. Refer to DCS **05 00 00 05** if arrester bracket guard has not been placed.

	ITEM	STK / DCS #	DESCRIPTION	05 14 10 **	01	02	03
3,4	A	10 01 145	Arrester 10kV w/o Bracket		1	1	1
1	B	69 58 178	Wire-Lead, Arrester w/terms		1	1	1
2	C	69 58 296	Guard, Clam-Shell, Wildlife		2	2	2
@	D	18 51 025	Wire, SD., #4 Cu., Poly (ft)		12	-	-
		18 51 024	Wire, SD., #1/0 Cu., Poly (ft)		-	12	-
		18 51 023	Wire, SD., #4/0 Cu., Poly (ft)		-	-	12
	E	111	Wildlife Guard Installation		1	1	1

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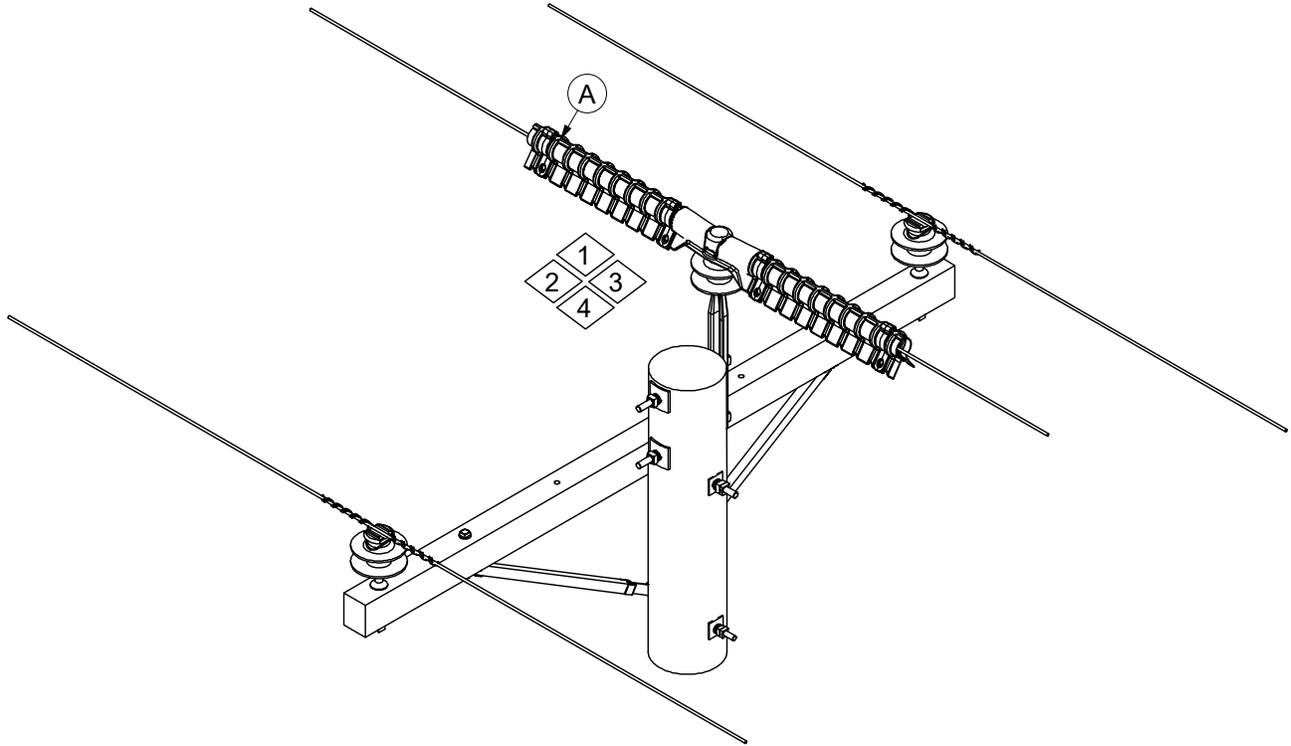
**CONSTRUCTION NOTE(s):**

1. Cover can be installed with live line tools.
2. Refer to DCS **10 12 01** \*\* for cutout installation.
3. Install the cutout cover from the front side. Push the cutout cover around the conductors. Pull the cover down until the interior fingers fully engage the sleet hood.
4. Caution: At temperatures below 0° F the cutout covers become rigid and lose their flexibility. Installing the covers with a hotstick may cause the covers to break.

ITEM	STK / DCS #	DESCRIPTION	05 15 10 **	01
A	23 17 411	Wildlife Guard - Cover Cutout		1
B	111	Cutout cover Installation		1

The covers described in this standard are for wildlife contact only and NOT intended for personal protection.

The conductor and insulator cover shown in this standard shall be used where horizontal conductor spacing is less than five feet.



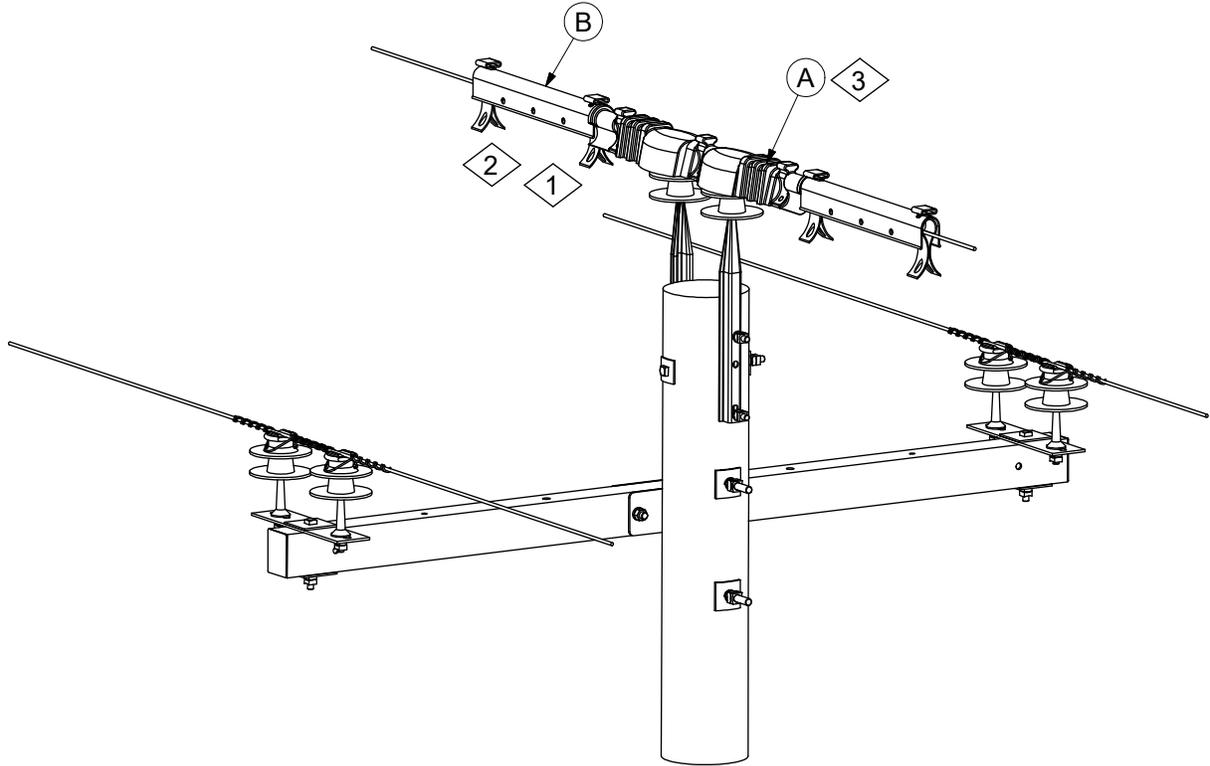
CONSTRUCTION NOTE(s):

- 1. The cover can be installed with live line tools.
- 2. Cover fits #6 Cu to 556 AAC conductor.
- 3. Install two covers on two interior positions when existing arm has four conductor configuration.
- 4. If preference is to use the three piece cover utilize DCS **05 16 10 02**.

	ITEM	STK / DCS #	DESCRIPTION	05 16 10 **	01	02
1	A	23 17 600	Wildlife Guard - Tangent Cover		1	-
1	B	23 17 406	Cover, Single Pin Configuration		-	1
1	C	23 17 416	Cover, Extension Arm		-	2
	D	111	Wildlife cover Installation		1	1

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The conductor and insulator cover shown in this standard shall be used where horizontal conductor spacing is less than five feet.



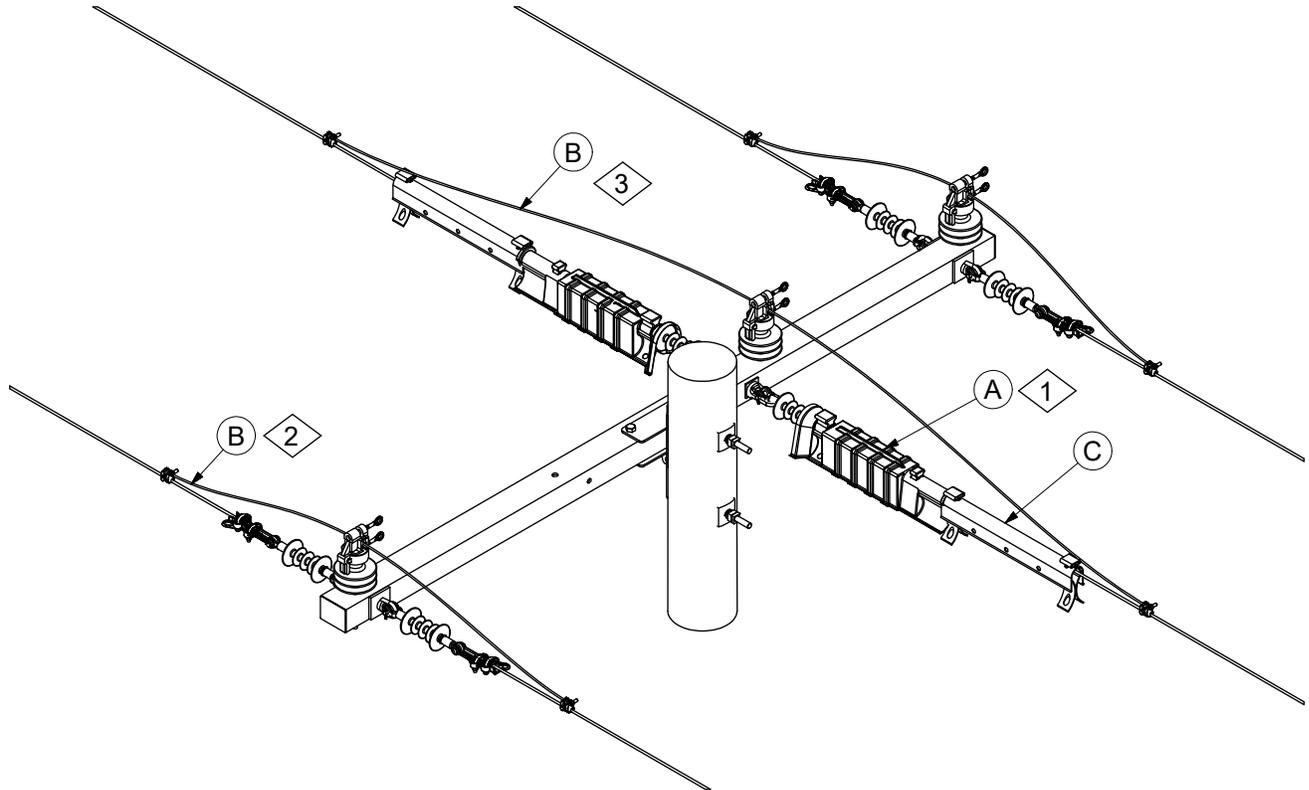
### CONSTRUCTION NOTE(s):

- 1. The cover can be installed with live line tools.
- 2. Install two covers on two interior positions when existing arm has four conductor configuration.
- 3. Cover fits #6 Cu to 556 AAC conductor.

	ITEM	STK / DCS #	DESCRIPTION	05 16 11 **	01	02
1	A	23 17 408	Cover, Double pin configuration		1	2
1	B	23 17 416	Cover, Extension Arm		2	4
	C	111	Wildlife Cover Installation		1	2

The covers described in this standard are for wildlife contact only and NOT intended for personal protection.

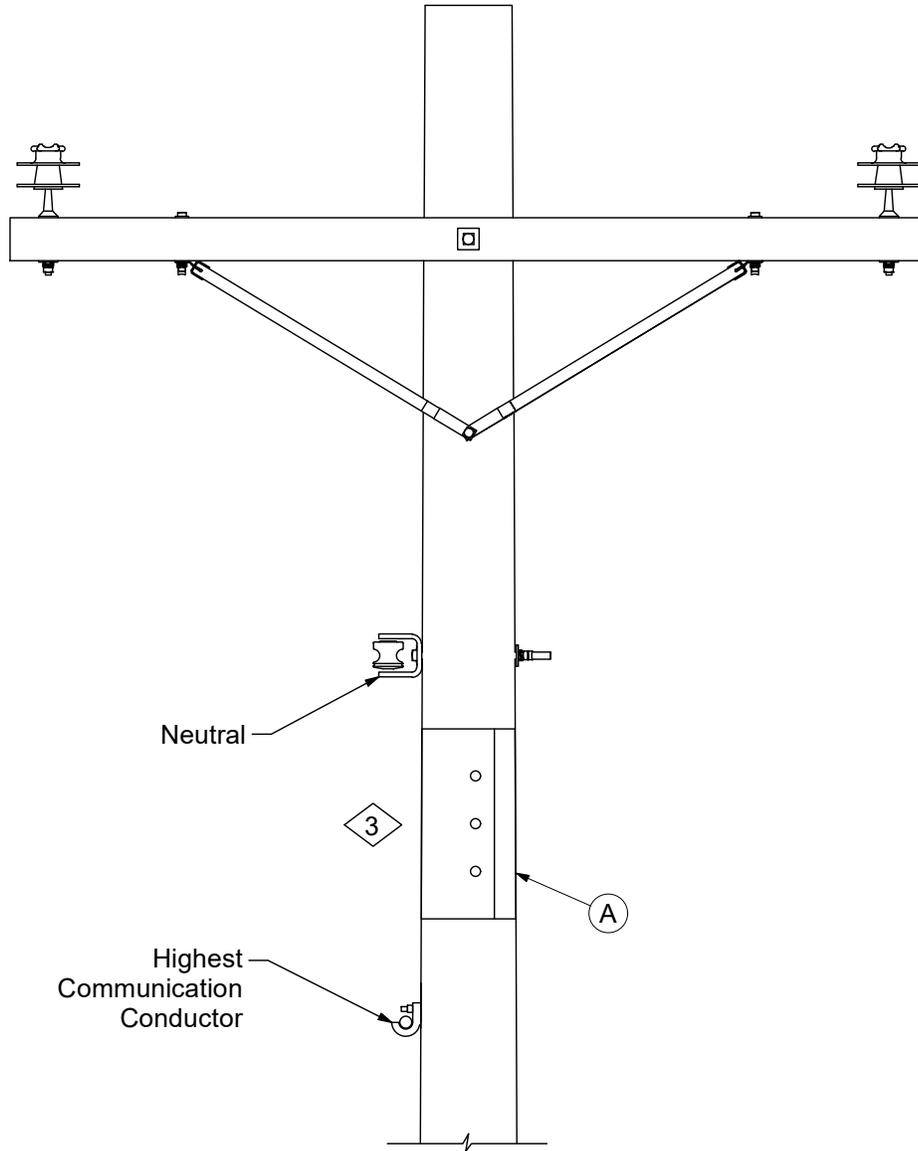
The conductor and insulator cover shown in this standard shall be used where horizontal conductor spacing is less than five feet.



CONSTRUCTION NOTE(S):

- 1. The cover can be installed using live line tools.
- 2. If configuration has two wood cross arms, use standard DCS 05 16 12 02.
- 3. Line hose is required if the jumper is bare conductor.

	ITEM	STK / DCS #	DESCRIPTION	05 16 12 **	01	02
1 3,@	A	23 17 409	Cover, DE		2	4
	B	23 17 413	Cover, Loopover, up to 0.5" Cond. Diameter (ft)		10	20
		23 17 414	Cover, Loopover, 0.5" to 0.856" Cond. Diameter (ft)		10	20
	C	23 17 416	Cover, Extension Arm		2	4
	D	111	Wildlife cover Installation		1	2



**CONSTRUCTION NOTE(S):**

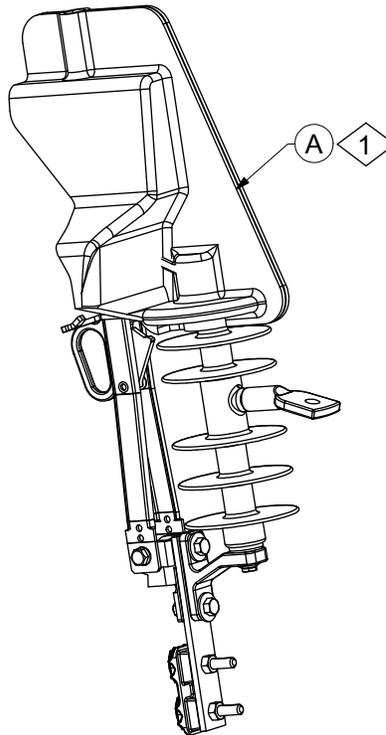
1. Pole wrap may be installed on poles requiring additional animal protection.
2. Pole wrap is received in 100' roles.

3 Rough side of wrap is placed against pole to allow water to evaporate against pole.

ITEM	STK / DCS #	DESCRIPTION	05 16 13 **	01
A	23 17 473	Animal Guard - Pole Wrap 30"		1
B	111	Wildlife Cover Installation		1

REV	DATE	ENG	DESCRIPTION
2	04/01/22	KR	New format, Moved pole wrap between neutral & comm & revised notes 2 & 3
1	04/18/18	KR	

The cover described in this standard is for wildlife contact only and NOT intended for personal protection.



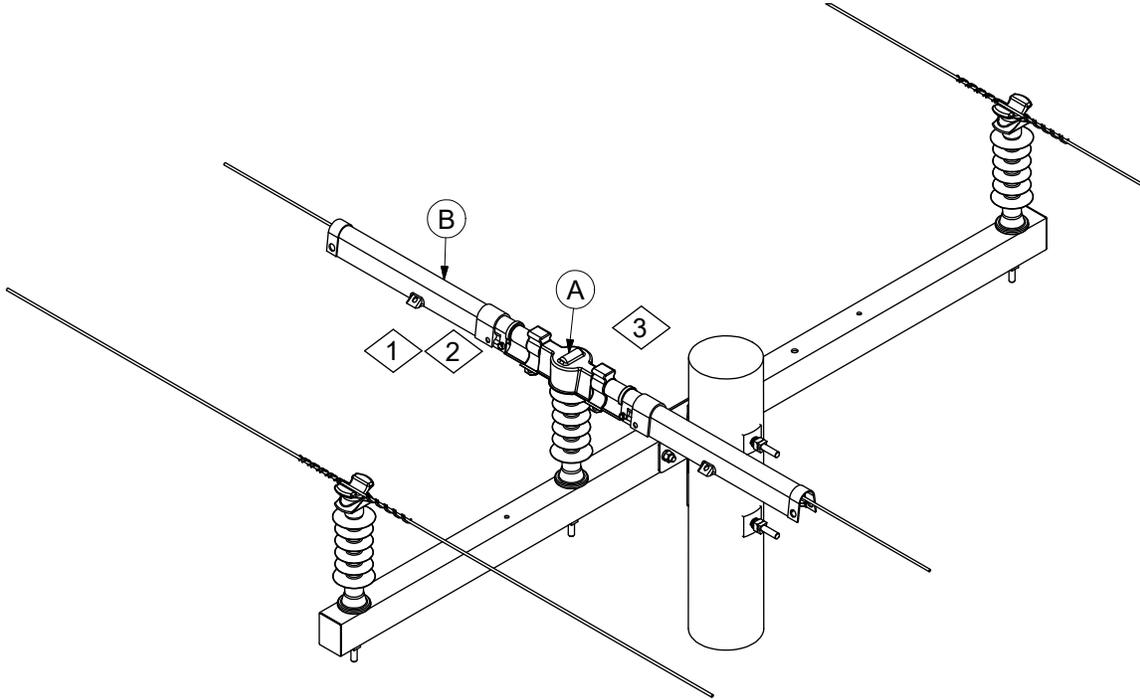
CONSTRUCTION NOTE(s):

1. Caution: At temperatures below 0° F the cutout covers become rigid and lose their flexibility.

ITEM	STK / DCS #	DESCRIPTION	05 16 14 **	01
A	23 17 512	Wildlife Guard - Vertical Switch 600 Amp		1
B	111	Cutout cover Installation		1

The covers described in this standard are for wildlife contact only and NOT intended for personal protection.

The conductor and insulator cover shown in this standard shall be used where horizontal conductor spacing is less than five feet.



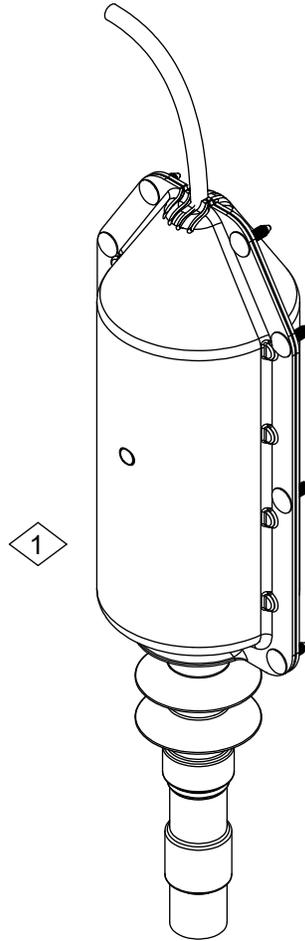
CONSTRUCTION NOTE(s):

- 1. The cover can be installed with live line tools.
- 2. Cover fits #6 Cu to 795 AAC conductor.
- 3. This cover can only be installed on crossarm pin insulator Stock #25 05 203.

	ITEM	STK / DCS #	DESCRIPTION	05 17 01 **	01
1	A	23 17 526	Cover, Single Pin Configuration		1
	B	23 17 527	Cover, Extension Arm		2
	C	111	Wildlife Cover Installation		1

REV	DATE	ENG	DESCRIPTION
1	04/01/22	KR	New Standard

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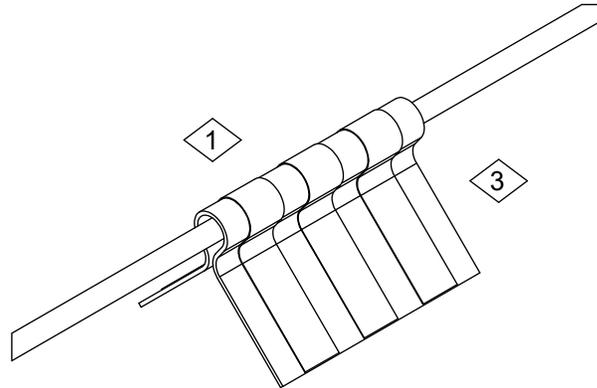
CONSTRUCTION NOTE(s):

1. This cover goes over the top shed only.

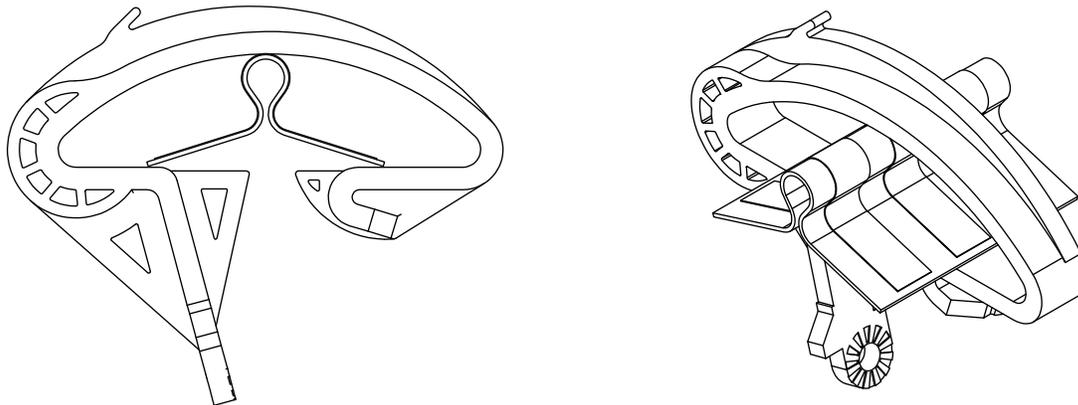
	ITEM	STK / DCS #	DESCRIPTION	05 18 01 **	01
1	A	23 17 417	Guard - Wildlife, Cover, Termination, #1 to 750 kcmil		1
	B	111	Cutout cover Installation		1

REV	DATE	ENG	DESCRIPTION
1	04/01/22	KR	New Standard

Avian flight diverters provide maximum visibility in low light conditions from all angles to prevent avian outages and collisions on distribution conductors.



Flight Diverter Installed



Hotstick Adapter With Diverter

CONSTRUCTION NOTE(S):

1. First flight diverter is 15' away from pole.
2. Flight diverters can be installed using live line tools. Hot stick adapter Stock #86 11 444 is available for conductor diameters 0.2"-1.05" and Stock #86 11 445 for conductor diameters 1.10"-1.60".
3. If bird collisions have been reported each diverter is spaced 15' apart. If these are being placed as precautionary measures each diverter is placed 30' apart.

	ITEM	STK / DCS #	DESCRIPTION	05 20 01 **	01
3,@	A	23 17 471	Cover, Flight Diverter, 0.2" - 0.56" Cond. Diameter		#
		23 17 470	Cover, Flight Diverter, 0.57" - 1.05" Cond. Diameter		#
		23 67 543	Cover, Flight Diverter, 1.10" - 1.60" Cond. Diameter		#
@	B	111	Wildlife Cover Installation		#