

GC-11 : TRAILING CABLE GROUND-CHECK/GROUND RESISTANCE

Trailing cables are offered in a range of types, sizes, and voltage ratings. Appendix A lists some of the various types that are manufactured in accordance with IPCEA Publication S-68-516 and have been tested by MSHA. Other manufacturers and types of trailing cable have generally the same size of ground-check and ground conductors. Some manufacturers use a #12 ground-check conductor on the smaller, lower voltage cables. Some manufacturers of the G-GC type use the same size of ground-check conductor as would have been used for the third ground conductor in the non-ground-check type.

For the Phillips Portable Power Cables, listed in Appendix A, the typical range of ground-check versus ground wires and their resistances are summarized in the table below. The resistance values are taken from the Northern Telecom, 1977 Edition, Electrical Conductors Handbook (Table 1 for Concentric-Lay-Stranded Copper Conductors, ASTM B8, Classes A, B).

Ground-Check Wire		Ground Wires		GC Res	GC Res x 100
Size	Resistance (Ohms/Mile)	Size	Resistance (Ohms/Mile)	GND Res	(GC Res + GND Res)
#10 AWG	5.381	2 x #10 AWG	5.381/2	2.00	67%
		2 x #8 AWG	3.383/2	3.18	76%
		2 x #7 AWG	2.683/2	4.01	80%
		2 x #6 AWG	2.128/2	5.06	83%
#8 AWG	3.381	2 x #10 AWG	5.381/2	1.26	56%
		2 x #8 AWG	3.383/2	2.00	67%
		2 x #6 AWG	2.683/2	3.18	76%
		2 x #5 AWG	2.128/2	4.06	80%
		2 x #4 AWG	1.667/2	5.06	83%
		2 x #3 AWG	1.338/2	6.38	86%
		2 x #2 AWG	0.8416/2	8.04	88%
		2 x #1 AWG	0.6674/2	10.10	91%
		2 x 1/0	0.5294/2	12.80	92%
		2 x 2/0	0.4196/2	16.10	94%
2 x 4/0	0.2640/2	26.26	96%		

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APPENDIX A

The following information is summarized from the Phillips Portable Power Cables catalogue.

G-GC 0-2 kV			
Phase Conductors		Ground Conductor Size	Ground-Check Conductor Size
Size	Ampacity		
#8 AWG	59	2 x #10 AWG	#10 AWG
#4 AWG	79	2 x #10 AWG	#10 AWG
#6 AWG	104	2 x #8 AWG	#10 AWG
#2 AWG	138	2 x #7 AWG	#10 AWG
#1 AWG	161	2 x #6 AWG	#8 AWG
1/0	186	2 x #5 AWG	#8 AWG
2/0	215	2 x #4 AWG	#8 AWG
3/0	249	2 x #3 AWG	#8 AWG
4/0	287	2 x #2 AWG	#8 AWG
250MCM	320	2 x #1 AWG	#8 AWG
350MCM	394	2 x 1/0	#8 AWG
500MCM	487	2 x 2/0	#8 AWG

SHC-GC 0-2 kV			
Phase Conductors		Ground Conductor Size	Ground-Check Conductor Size
Size	Ampacity (A)		
#6 AWG	93	2 x #10 AWG	#10 AWG
#4 AWG	122	2 x #10 AWG	#10 AWG
#3 AWG	140	2 x #7 AWG	#10 AWG
#2 AWG	159	2 x #6 AWG	#10 AWG
#1 AWG	184	2 x #5 AWG	#8 AWG
1/0	211	2 x #4 AWG	#8 AWG
2/0	243	2 x #3 AWG	#8 AWG
3/0	279	2 x #2 AWG	#8 AWG
4/0	321	2 x #1 AWG	#8 AWG
250MCM	355	2 x 1/0	#8 AWG
300MCM	398	2 x 1/0	#8 AWG
350MCM	435	2 x 2/0	#8 AWG
500MCM	536	2 x 4/0	#8 AWG

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SHD-GC 0—2 kV, 2-5 kV, 5—8 kV, 8—15 kV, & 15—25 kV			
Phase Conductors		Ground Conductor Size	Ground-Check Conductor Size
Size	Ampacity (A) ⁵		
#6 AWG ²	93	2 x #10 AWG	#10 AWG ¹
#4 AWG ³	122	2 x #8 AWG	#10 AWG ¹
#2 AWG	159	2 x #6 AWG	#8 AWG
#1 AWG	184	2 x #5 AWG	#8 AWG
1/0	211	2 x #4 AWG	#8 AWG
2/0	243	2 x #3 AWG	#8 AWG
3/0	279	2 x #2 AWG	#8 AWG
4/0	321	2 x #1 AWG	#8 AWG
250MCM ³	355	2 x 1/0	#8 AWG
350MCM ³	435	2 x 2/0	#8 AWG
500MCM ³	536	2 x 4/0	#8 AWG

NOTES:

¹ #8 AWG ground-check on > 2-kV types.

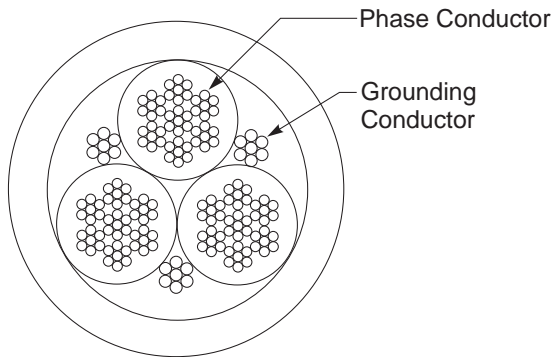
² Cable not available in > 5-kV types.

³ Cable not available in < 8-kV types.

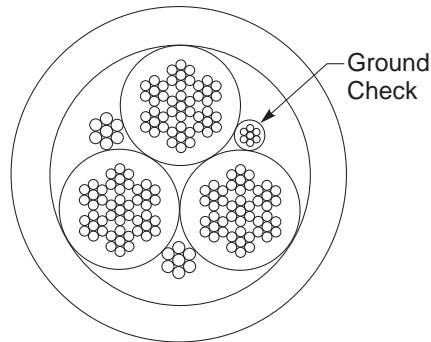
⁴ Cable not available in >15-kV types.

⁵ Ampacity is 3—5 A higher than shown for 8—15 kV types and is 6—7 A higher than show for 15—25 kV types.

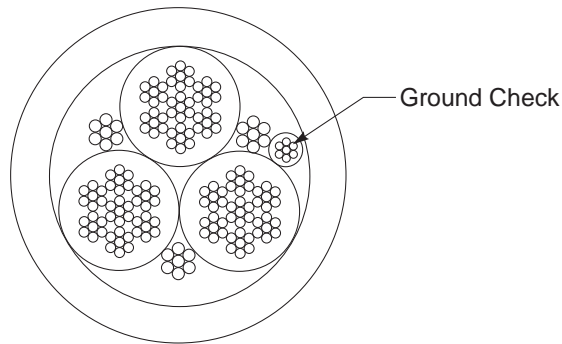
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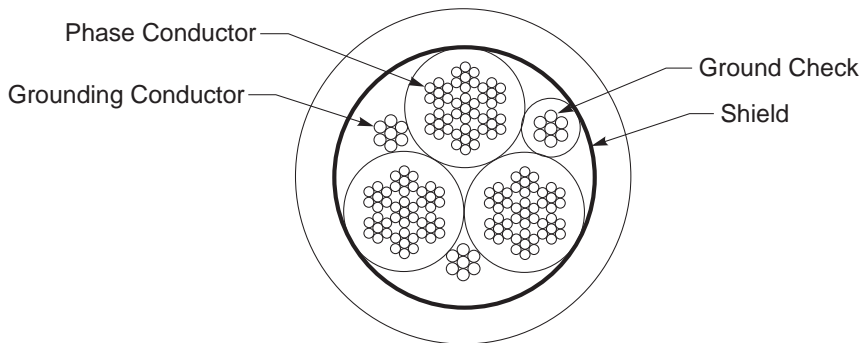
TYPE G



TYPE G-GC



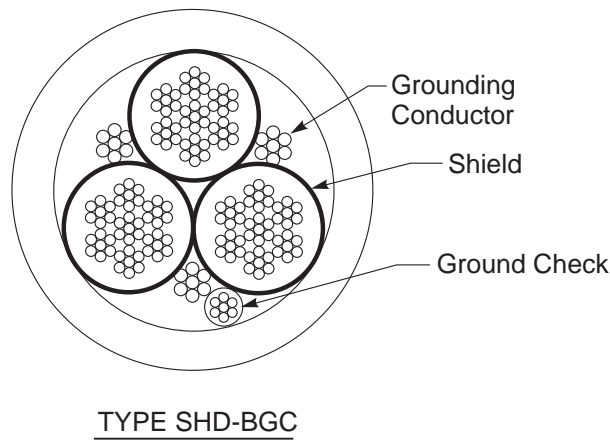
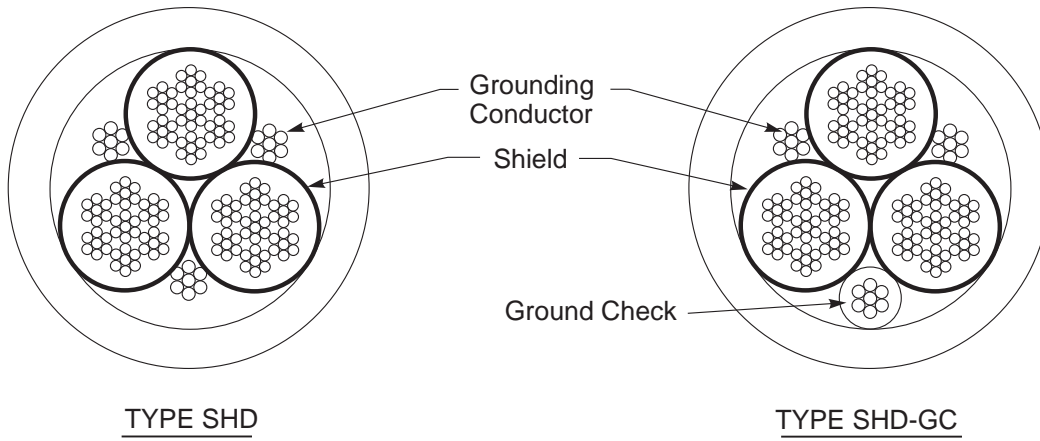
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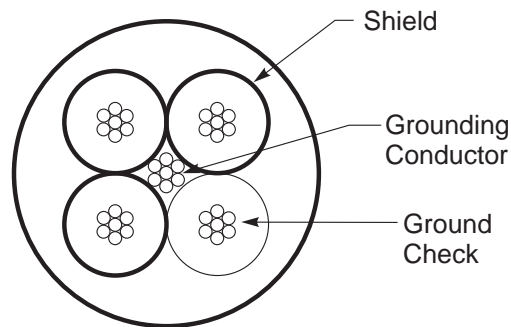
TYPE SHC-GC

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Three-Conductor Round Cable with a Central Grounding Conductor for Underground Coal Mining Applications, Up to 5 kV



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