

INSIDE WIRE AND CABLE SELECTION

1. GENERAL

1.01 This section contains information formerly covered in Section 461-200-180, Issue 7, which is hereby canceled.

1.02 This section describes the selection of inside wire and cable, which has been changed to:

- Include B and D Station Wire.
- Include F and G Cross-Connecting Wire.
- Include C Drop Wire.
- Delete Jacketed and GS Station Wire and E Drop Wire now being rated MD.
- Delete D Cross-Connecting Wire now being rated MD.
- Delete ABAM and ABMM Cable. Information is provided in Section 632-034-101.

1.03 In selecting wire or cable, the following should be considered:

- **Type and gauge** of wire or cable to meet the specific job requirements.
- **Number of conductors** necessary for service and providing an economical allowance for future requirements.
- **Location of terminal**, protector, connecting block, telephone set, conduit facilities provided, etc.
- Customer satisfaction with appearance and routing of wire and cable.



Do not use privately owned wire or cable systems without the approval of a supervisor.

2. SELECTION

(a) *Ordering Guide*

Inside Wire

Cordage, Flat, 4 Conductor, KS-7144

Wire, Block, E (Type*)

Wire, Cross-Connecting, F (Type*)

Wire, Cross-Connecting, G (Color *) (Type*)

Wire, Drop, C

Wire, Ground, No. (Gauge*)

Wire, Station, B (Color*)

Wire, Station, D (Color*)

Wire, Station, SK

Inside Cable

Cable, Wiring, Inside, D, No. (Pair*)

Cable, Wiring, Inside, E

*Include desired type, color, gauge, and/or pair from Table A or F.

(b) *Inside Wire*

(1) **Code, type, gauge, color, and use** are found in Table A.

(2) **D Station Wire** is intended for general use in station wiring as a replacement for JKT and GS Station Wire.

- It is smaller in diameter and more flexible than JKT or GS, and the plastic jacket has improved frictional properties permitting placement without the aid of lubricants.

**TABLE A
SELECTION OF WIRE**

CODE OF WIRE (NOTE)		TYPE	GAUGE	COLOR							USE										REMARKS					
				LT OLIVE GRAY	IVORY	BLACK	WHITE	VIOLET	WHITE AND VIOLET	GROUND	CLASS OF SERVICE			CIRCUITS					CROSS-CONN	TERM. AND CROSS-CONN BOX						
											INDIVIDUAL	RESIDENCE	PTY	COIN	TWO INDIVIDUAL (MAXIMUM 100 FT)	EXTENSION RINGER	TELETYPE	LEASED WIRE				LOUDSPEAKER AND PAGING SYSTEM, ETC				
Station	D	Quad	22	•	•							•	•	•	•	•	•	•	•	•		Use for all interior station wiring including ducts and all conduits. May be run outside on wall of building for short runs between terminal and protector, protector and station, extension station, or bell where the wire run on building extends outdoors.				
	B	2 Pair	26	•	•							•	•	•	•							Adhesive-backed wire. Use where impossible or impracticable to use D station wire.				
	SK	Pair	20	•																•		Shielded Wire				
Ground	Single	14	•							•	•											Ground Wire Capacity				
	Single	12	•							†	•											Size No. Protectors				
	Single	10	•							†	•											Fused Fuseless†				
	Single	6	•							†	•											14 1 to 3 1				
	Single	6	•							†	•											12 4 to 6 2				
E Block	Single	21½				•				•												Used outdoors, in freezing rooms, factories, and for short runs in homes or offices.				
	Pair									•												10 7 or more or 3 to 6				
	Triple									•	•	•	•		•	•		•				6 Any number Any number				
F Cross-Conn	Pair	24	See Table D																	•	Use for all indoor cross-connections between incoming cables and station equipment. (Do not use in central office distributing frame.)					
	Triple																								•	
	2 Pair																									•
	3 Pair																									
G Cross-Conn	Single	22				• or •															•	Use for cross-connections in outdoor terminals. (Do not use in building.)				
	Pair							•													•	Use violet for battery and white for ground.				
C Drop	Pair	18½			•								•	•								May be substituted for E block wire.				
KS-7144 Flat Cordage	Quad	18	•									•	•	•		•						Use under rugs and carpets.				

Note: All wires listed should not be used near heat sources exceeding 140 degrees fahrenheit.

* Local option.

† Any ground wire that can be used as a protector ground can also be used as a signal ground. Because of expense, it is not recommended that No. 12, 10, or 6 gauge wire be placed for use as signal ground only.

- It can be used for indoor or outdoor runs and may be terminated on any terminals which will accommodate 22 AWG conductors. **Do not use D Station Wire to span, eg, between buildings.**
- The insulation of the individual conductors is distinctively colored to provide identification. Refer to Table B for color codes.

TABLE B.

D STATION WIRE

CONDUCTOR IDENTIFICATION

TYPE	CIRCUIT NO.	COLOR	
		TIP	RING
Quad	1	Green	Red
	2	Black	Yellow

(3) **B Station Wire** is for use in areas where it is impossible or impracticable to use D Station Wire and standard fasteners due to construction of building.

- An adhesive-backed wire, rectangular in cross-section.
- May be used on most types of surfaces; however, it should not be used on damp or dirty surfaces, raw plaster, or a coarse surface such as cinderblock or untreated concrete.
- Wire runs should be limited to 100 feet for any single line installation, and 60 feet for installations involving two talking circuits.
- The insulation is slotted permitting separation of conductor pairs as well as individual conductors.
- Pair identification is established by raised areas spaced along surface of insulation.

(4) **SK Station Wire** is a shielded twisted pair wire.

- It is used in loudspeaker systems as amplifier output leads and associated wiring.
- Insulation of individual conductors is colored red or green.

(5) **Ground wire** is a single conductor insulated wire.

- No. 6 ground wire is used to make ground connections to protected cable, cable terminals, protector mountings, and to groups of station protectors.
- No. 10, 12, and 14 ground wire is used to make ground connections primarily in station wiring.

(6) **E Block Wire** is used in block distribution and in ring runs on buildings. It may also be used inside factories, freezing rooms, or for short runs in homes.

- May be used in spans not exceeding 35 feet in length.
- Ridge tracers are provided in the insulation for conductor identification. Refer to Table C.

TABLE C

E BLOCK WIRE

CONDUCTOR IDENTIFICATION

TYPE	RIDGE TRACER		
	DOUBLE	SINGLE	PLAIN
Single	•		
Double		•	•
Triple	•	•	•

(7) **F Cross-Connecting Wire** is used for all indoor cross-connection applications between incoming cables and station equipment. (Not for use in central offices.)

- Conductor identification is established through use of colored insulation in combination with single dashes of colored ink. Refer to Table D.

TABLE D
F CROSS-CONNECTING WIRE
CONDUCTOR IDENTIFICATION

TYPE	WIRE		
	TIP	RING	SLEEVE OR GROUND
Pair	Y-BL	BL-Y	
Triple	O-BK	BL-BK	G-BK
2 Pair	R-BL	BL-R	
	R-O	O-R	
3 Pair	W-BL	BL-W	
	W-O	O-W	
	W-G	G-W	

(8) **G Cross-Connecting Wire** is used for cross-connections in outdoor terminals.

- It should not be used in buildings due to its limited fire-retarding properties.

- The colored insulation provides conductor identification. Refer to Table E.

TABLE E
G CROSS-CONNECTING WIRE
CONDUCTOR IDENTIFICATION

TYPE	COLOR	
	BATTERY	GROUND
Single	Violet	or White
Pair	Violet	White

(9) **C Drop Wire** is a parallel pair wire used for subscriber loop runs between poles and from pole to house.

- It should not be used for runs exceeding 500 feet in length due to transmission limitations.
- A single ridge tracer is provided on jacket adjacent to one conductor for identification.

(10) **KS-7144 Flat Cordage** is used for station wiring under rugs on subscriber premises.

- Insulation of individual conductors is colored red, green, yellow, and black for identification.

(c) **Inside Wiring Cable**

(1) **Code, pair, gauge, and use** are found in Table F.

TABLE F
SELECTION OF INSIDE WIRING CABLE

CODE OF WIRE	NO. OF PAIRS	GAUGE	SHEATH			USE			
			SHEATHLESS	LIGHT OLIVE GRAY	POLYVINYL CHLORIDE (PVC) PLASTIC	DUCT AND CONDUIT SYSTEMS	TERMINALS AT		REMARKS
							DAMP LOCATIONS	DRY LOCATIONS	
D Inside Wiring	6, 12, 16, 21, 25, 50, 75, 100	24		•	•	•	•	•	Annealed-copper conductors (plastic insulated) color coded
E Inside Wiring	6	24	•					•	

(2) **D Inside Wiring Cable** is for general use in customer telephone systems wiring. The plastic jacket has improved frictional properties permitting placement without the aid of lubricants. Lubricants could eventually corrode and clog conduit, making it more difficult to place additional wire.

- All pairs, in the 6- to 25-pair sizes, are stranded around each other to form the cable.

- The 50- to 100-pair sizes are composed of 2 to 4 units of 25 pairs each. The units are stranded together to form the core. Each unit has a different color binder for unit identification. Refer to Table G.

- The colored insulation in combination with single dashes of colored ink provide individual conductor identification. Refer to Table G.

TABLE G
D INSIDE WIRING CABLE
CONDUCTOR IDENTIFICATION

PAIR	RING WIRE	TIP WIRE	BINDER COLOR FOR 50, 75, AND 100 PAIRS
1	BL-W	W-BL	BL-W
2	O-W	W-O	
3	G-W	W-G	
4	BR-W	W-BR	
5	S-W	W-S	
6	BL-R	R-BL	
7	O-R	R-O	
8	G-R	R-G	
9	BR-R	R-BR	
10	S-R	R-S	
11	BL-BK	BK-BL	
12	O-BK	BK-O	
13	G-BK	BK-G	
14	BR-BK	BK-BR	
15	S-BK	BK-S	
16	BL-Y	Y-BL	
17	O-Y	Y-O	
18	G-Y	Y-G	
19	BR-Y	Y-BR	
20	S-Y	Y-S	
21	BL-V	V-BL	
22	O-V	V-O	
23	G-V	V-G	
24	BR-V	V-BR	
25	S-V	V-S	
26-50	Repeat First 25 Colors		O-W
51-75	Repeat First 25 Colors		G-W
76-100	Repeat First 25 Colors		BR-W

- Runs should be limited to 150 feet in length.
- (3) ***E Inside Wiring Cable*** is used for pre-wiring houses during construction.
- The insulated conductors are twisted into pairs, and the pairs are stranded together to complete the cable.
 - The colored insulation in combination with single dashes of colored ink provide individual conductor identification. Refer to Table H.

**TABLE H
E INSIDE WIRING CABLE
CONDUCTOR IDENTIFICATION**

PAIR	WIRE	
	RING	TIP
1	BL-W	W-BL
2	O-W	W-O
3	G-W	W-G
4	BR-W	W-BR
5	S-W	W-S
6	BL-R	R-BL