

## BURIED WIRE DESCRIPTION

CONTENTS	PAGE
1. GENERAL . . . . .	1
2. DESCRIPTION . . . . .	3
BSW-2/22-C (C SERVICE WIRE—2 PAIRS) . . . . .	3
BSW-5/22-C (C SERVICE WIRE—5 PAIRS) . . . . .	3
BSW-2/22-GRF (GOPHER-RESISTANT SERVICE WIRE—2 PAIRS) . . . . .	3
BSW-3/22-GRF (GOPHER-RESISTANT SERVICE WIRE—3 PAIRS) . . . . .	3
BSW-4/22-GRF (GOPHER-RESISTANT SERVICE WIRE—4 PAIRS) . . . . .	3
BSW-5/22-GRF (GOPHER-RESISTANT SERVICE WIRE—5 PAIRS) . . . . .	3
BSW-6/22-GRF (GOPHER-RESISTANT SERVICE WIRE—6 PAIRS) . . . . .	3
BDW-1/19-GRE (GOPHER-RESISTANT DISTRIBUTION WIRE—1 PAIR) . . . . .	3
BDW-2/19-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—2 PAIRS) . . . . .	3
BDW-3/19-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—3 PAIRS) . . . . .	3
BDW-2/22-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—2 PAIRS) . . . . .	3

CONTENTS	PAGE
BDW-3/22-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—3 PAIRS) . . . . .	3
BDW-4/22-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—4 PAIRS) . . . . .	3
BDW-5/22-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—5 PAIRS) . . . . .	3
BDW-6/22-GRF (GOPHER-RESISTANT DISTRIBUTION WIRE—6 PAIRS) . . . . .	3

**1. GENERAL**

1.01 This practice describes buried service wire and buried distribution wire.

1.02 This practice is reissued to delete reference to BSW-2/22-GRE service wire and to add reference to:

- BDW-3/19-GRF Distribution Wire
- BDW-2, 3, 4, 5, and 6/22 Pair GRF Distribution Wire
- BSW-2, 3, 4, 5, and 6/22 Pair GRF Service Wire
- Change Fig. 1 through Fig. 6.

Revision arrows are used to emphasize the more significant changes.

1.03 The designations for the wire types are provided in Table A. The wire nomenclature consists of three information groupings which are used to describe the wire. The first grouping consists of up to three letters and describes the application of the wire; BSW denotes buried service wire and BDW denotes buried distribution wire. The second grouping provides the number of conductor pairs and their

gauge; i.e., 2/22 indicates 2 pairs of 22-gauge conductors. The third grouping may consist of up to three letters, an optional 1- or 2-letter feature acronym followed by a letter that indicates the design generation. For example, GRE is gopher-resistant wire generation E.

1.04 Customer requested packaging is available.

TABLE A		
BURIED WIRE DESIGNATIONS		
DESCRIPTION	NEW DESIGNATION	FORMER DESIGNATION
Buried Service Wire (2 pairs and 5 pairs)	BSW-2/22-C BSW-5/22-C	C Service Wire
Buried Service Wire (2, 3, 4, 5, and 6 pairs)	BSW-2/22-GRF	—
	BSW-3/22-GRF	—
	BSW-4/22-GRF	—
	BSW-5/22-GRF	—
	BSW-6/22-GRF	—
Buried Distribution Wire (1 pair)	BDW-1/19-GRE	E Buried Wire
Buried Distribution Wire (2 and 3 pairs)	BDW-2/19-GRF	F Buried Wire
	BDW-3/19-GRF	
Buried Distribution Wire (2, 3, 4, 5, and 6 pairs)	BDW-2/22-GRF	—
	BDW-3/22-GRF	—
	BDW-4/22-GRF	—
	BDW-5/22-GRF	—
	BDW-6/22-GRF	—

## 2. DESCRIPTION

**2.01** Buried service wire and buried distribution wire are available in units as shown in Table B. Large reels of all other buried wire are continuous in length. The small reels are continuous in length and are for placing wire with lawn-type vibratory plows fitted with reel carriers.

<b>TABLE B</b>						
<b>BURIED WIRE</b>						
<b>NOMINAL REEL AND COIL LENGTHS</b>						
WIRE	SMALL REEL		LARGE REEL		COIL	
	LENGTH (FT)	WEIGHT (NOTE 1) (LBS)	LENGTH (FT)	WEIGHT (NOTE 1) (LBS)	LENGTH (FT)	WEIGHT (LBS)
BSW-2/22-C	1500	79.5	8,250	437.0	925	49.0
BSW-5/22-C	1000	89.0	5,500	489.5	250	22.3
BSW-2/22-GRF	2000	88.9	8,250	377.9	1000	41.7
BSW-3/22-GRF	1400	77.2	8,250	456.8	800	41.0
BSW-4/22-GRF	1300	83.4	5,500	363.7	700	42.0
BSW-5/22-GRF	1100	80.1	5,500	407.1	600	40.7
BSW-6/22-GRF	1000	80.1	5,500	444.1	550	41.0
BSW-1/19-GRE	1500	84.0	10,000	644.9	—	—
BDW-2/19-GRF	800	80.1	8,000	832.0	—	—
BDW-3/19-GRF	650	79.3	7,000	882.5	—	—
BDW-2/22-GRF	1150	82.7	12,000	893.8	—	—
BDW-3/22-GRF	950	81.5	6,750	628.3	—	—
BDW-4/22-GRF	850	83.7	6,750	709.1	—	—
BDW-5/22-GRF	750	82.4	6,750	780.5	—	—
BDW-6/22-GRF	700	83.4	6,750	839.3	—	—

**Note:**  
1. Include weight of reels.

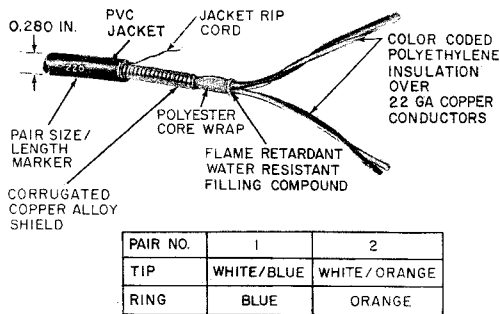
**2.02** The outer jacket of buried wire is marked at 2-foot intervals. The numbering along the length may progress in either direction as wound on the reel. The wire length remaining on the reel is determined by the difference in the length markings at the two ends. These markings simplify the measuring and recording of wire lengths for accounting purposes and permit a more accurate measurement of wire being cut to a specific length.

**2.03** The recommended depths for placing buried wires are specified in Practice 629-200-206. See Practice 629-720-200 for termination methods.

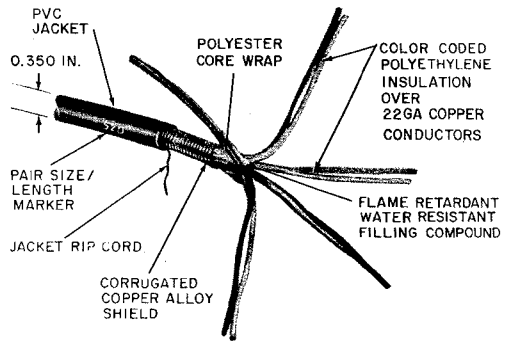
**Note:** When the placing method for buried wire is by plowing, do not use a plow that pulls the wire through the earth. Distribution wire may be placed with a nonvibratory plow or vibratory plow equipped with a feed tube. Service wire is most often placed with a vibratory plow. Do not mount the reel on the vibrator. Do not pass the wire through the engine compartment. Minimum bending radius is 1 inch.

**2.04** Figures 1 through 6 illustrate the makeup and distinctive features of buried wire.

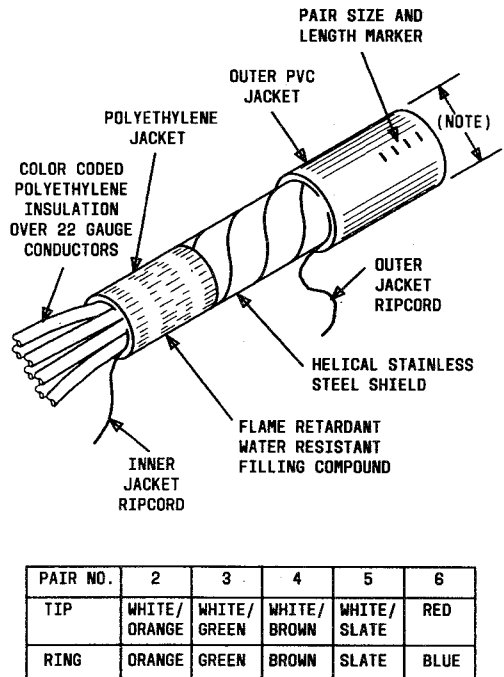
**Note:** Parentheses in figure titles indicate former wire designations.



**Fig. 1—BSW-2/22-C (C Service Wire—2 Pairs)**



**Fig. 2—BSW-5/22-C (C Service Wire—5 Pairs)**



**Fig. 3—Typical BSW-GRF Service Wire (2 Through 6 Pairs)**

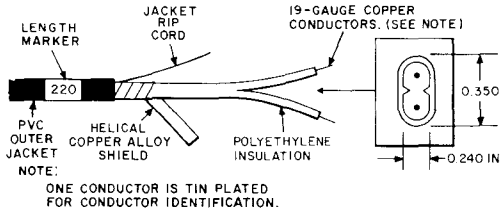
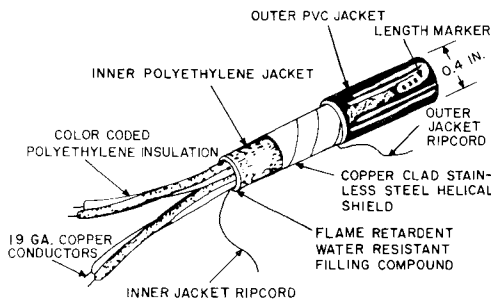
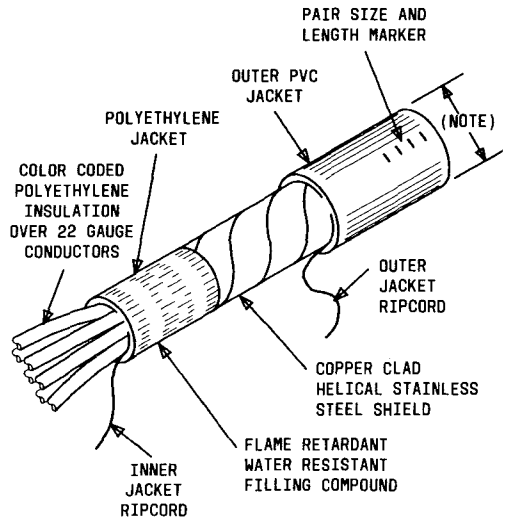


Fig. 4—BDW-1/19-GRE (E Buried Wire)



PAIR NO.	1	2	3
TIP	WHITE/BLUE	WHITE/ORANGE	WHITE/GREEN
RING	BLUE	ORANGE	GREEN

Fig. 5—BDW-2/19-GRF (F Buried Distribution Wire)



PAIR NO.	2	3	4	5	6
TIP	WHITE/ORANGE	WHITE/GREEN	WHITE/BROWN	WHITE/SLATE	RED
RING	ORANGE	GREEN	BROWN	SLATE	BLUE

Fig. 6—Typical BDW-GRF Service Wire (2 Through 6 Pairs)

2.05 Physical characteristics and guidelines for selection of buried wire are listed in Table C.

♦TABLE C♦									
PHYSICAL CHARACTERISTICS AND GUIDELINES FOR SELECTION									
WIRE TYPE	RATING	NO. PAIRS	GAUGE (AWG)	FILLED	RODENT PROTECTION	WEIGHT LB/1000 FT	BREAKING STRENGTH (POUNDS)	RECOMMENDED INSTALLATION LENGTH	COMMENTS
BSW-2/22-C (C Service Wire—2 Pair)	Std	2	22	Yes*	No	53	200	700 (Max. Ft)‡	Service drop from any cable. Provides improved impact and corrosion protection. Flame resistant.
BSW-5/22-C (C Service Wire—5 Pair)	Std	5	22	Yes*	No	89	275	700 (Max. Ft)‡	Service drop from any cable. Provides improved impact and corrosion protection. Flame resistant.
BSW-2/22-GRF	Std	2	22	Yes*	Yes	42	200	700 (Max. Ft)‡	Replaces BSW-2/22-GRE armored wire. Service drop from any cable. Flame resistant.
BSW-3/22-GRF	Std	3	22	Yes*	Yes	51	200	700 (Max. Ft)‡	
BSW-4/22-GRF	Std	4	22	Yes*	Yes	60	200	700 (Max. Ft)‡	
BSW-5/22-GRF	Std	5	22	Yes*	Yes	68	200	700 (Max. Ft)‡	
BSW-6/22-GRF	Std	6	22	Yes*	Yes	75	200	700 (Max. Ft)‡	
BDW-1/19-GRE	Std	1	19	No	Yes	56	200	14 miles §	Used for rural distribution. Also, service drop from any cable.
BDW-2/19-GRF	Std	2	19	Yes*	Yes	98	200	14 miles §	Used for rural distribution. Also, service drop from any cable. Flame resistant.
BDW-3/19-GRF	Std	3	19	Yes*	Yes	113	200	14 miles §	

See footnotes at end of table.

♦TABLE C♦

PHYSICAL CHARACTERISTICS AND GUIDELINES FOR SELECTION

WIRE TYPE	RATING	NO. PAIRS	GAUGE (AWG)	FILLED	RODENT PROTECTION	WEIGHT LB/1000 FT	BREAKING STRENGTH (POUNDS)	RECOMMENDED INSTALLATION LENGTH	COMMENTS
BDW-2/22-GRF	Std	2	22	Yes*	Yes	67	200	7 miles §	Buried distribution wire. Flame resistant
BDW-3/22-GRF	Std	3	22	Yes*	Yes	80	200	7 miles §	
BDW-4/22-GRF	Std	4	22	Yes*	Yes	92	200	7 miles §	
BDW-5/22-GRF	Std	5	22	Yes*	Yes	103	200	7 miles §	
BDW-6/22-GRF	Std	6	22	Yes*	Yes	111	200	7 miles §	

\* Flame-resistant FLEXGEL† filling compound-type material.

† Trademark of AT&T Technologies.

‡ Due to transmission limitations, the wire should not be used normally in runs exceeding 700 feet in length. When runs in excess of 700 feet are unavoidable, care should be taken that the service wire does not cause total loop loss to exceed "Resistance Design" objectives.

§ May require loading on longer run.

- 2.06 Table D lists the electrical characteristics of buried wire.

<b>TABLE D</b>					
<b>REPRESENTATIVE ELECTRICAL CHARACTERISTICS @68° F</b>					
WIRE TYPE	LOOP RESISTANCE ( $\Omega$ /1000 FT) (NOTE 1)	ARMOR SHIELD RESISTANCE ( $\Omega$ /1000 FT) MAX.	MUTUAL CAPACITANCE (nF/1000 FT)	BREAKDOWN VOLTAGE (DC) (NOTE 2)	INSULATION RESISTANCE (MEG OHMS — 1000 FT)
BSW-2/22-C and BSW-5/22-C (C Service Wire— 2- and 5-Pair)	34.4	10	20.0 Max.	10 K	5 K
BSW-2/22-GRF	34.4	300	20.0 Max.	10 K	5 K
BSW-3/22-GRF	34.4	300	20.0 Max.	10 K	5 K
BSW-4/22-GRF	34.4	300	20.0 Max.	10 K	5 K
BSW-5/22-GRF	34.4	300	20.0 Max.	10 K	5 K
BSW-6/22-GRF	34.4	300	20.0 Max.	10 K	5 K
BDW-1/19-GRF (E Buried Wire)	17.0	10	15.7* Avg	10 K	5 K
BDW-2/19-GRF BDW-3/19-GRF	17.0	10	15.7* Avg	10 K	5 K
BDW-2/22-GRF	34.4	10	15.7 Avg	10 K	5 K
BDW-3/22-GRF	34.4	10	15.7 Avg	10 K	5 K
BDW-4/22-GRF	34.4	10	15.7 Avg	10 K	5 K
BDW-5/22-GRF	34.4	10	15.7 Avg	10 K	5 K
BDW-6/22-GRF	34.4	10	15.7 Avg	10 K	5 K
<b>Notes:</b>					
1. Loop resistance is twice conductor resistance.					
2. Conductor-to-conductor breakdown voltage.					
* 0.083 $\mu$ F per mile					