

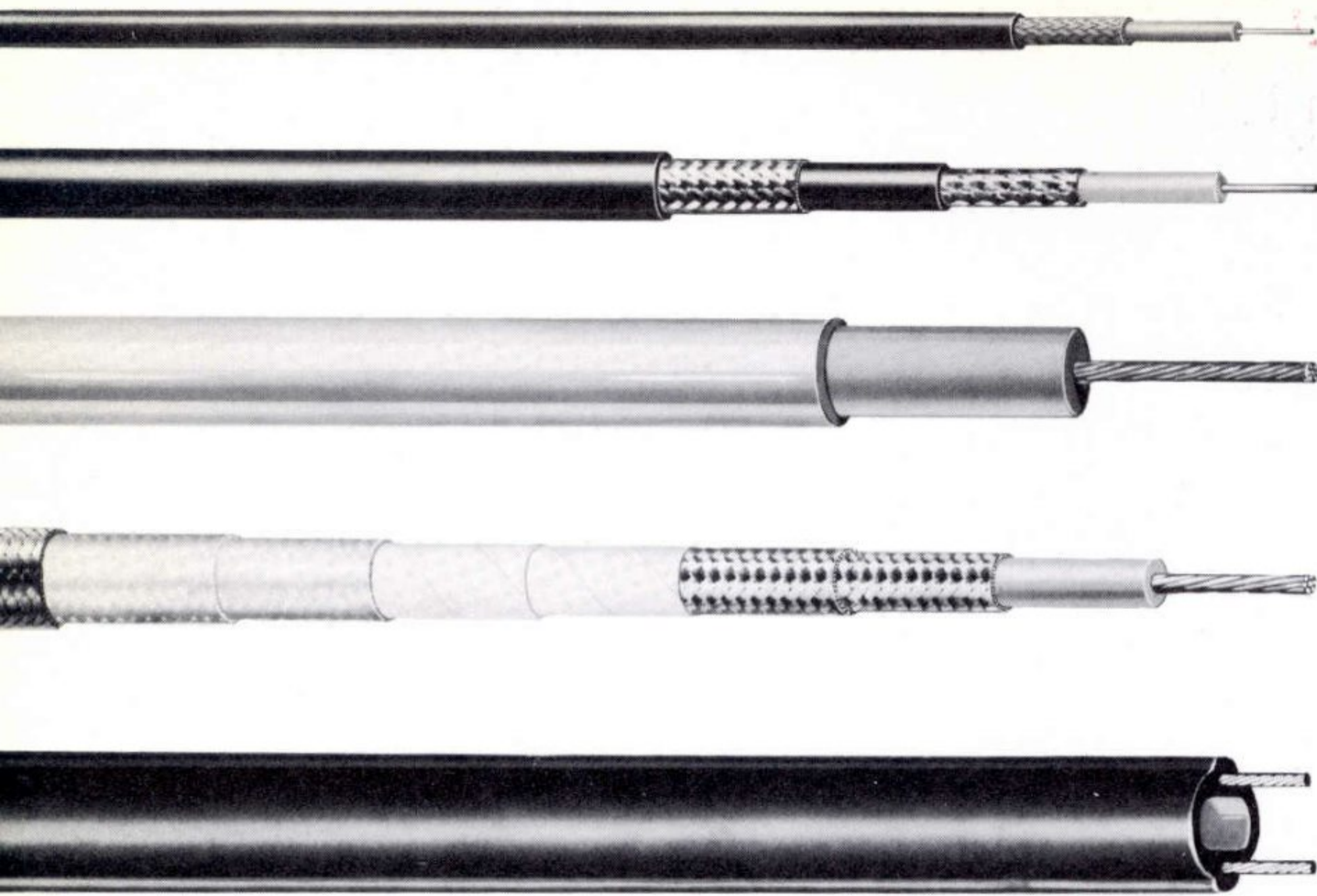


RADIO FREQUENCY  
COAXIAL CABLES  
and  
TRANSMISSION LINES

CATALOG **W1**

**AMPHENOL**

AMERICAN PHENOLIC CORPORATION • CHICAGO 50, ILLINOIS



## AMPHENOL CATALOG W-1

Due to the great demand for AMPHENOL Transmission Lines and Cables, AMPHENOL facilities for the designing and production of these products have more than doubled in the past two years. This great expansion of the AMPHENOL wire-mill line has made it necessary to create an enlarged and separate cataloging of AMPHENOL Radio Frequency Coaxial Cables and Transmission Lines. The purpose of this publication is to present not only the electrical characteristics of each cable, but also to give the physical properties of jackets, insulations and conductors so that the cable may be easily selected which will meet the requirements of the equipment and conditions under which it will operate.

Of particular value to users of RG Type Coaxial Cables are the AMPHENOL RF Connector Folders. An individual folder on each RF Connector Series contains complete engineering data plus military numbering cross reference indexes, recommended cables for each connector, a mating components chart, mounting holes and complete cable-connector assembly instructions. Folders are available for Series UHF, N, C, HN, LC, BNC, BN, Laboratory Push-On Connectors, Cable Fittings and Between Series Adapters.

A further convenience in selecting cable and cable-connector combinations is the AMPHENOL Cable and Connector Selector—a time-saving slide chart available upon request.

*“building to the future of electronics . . .”*

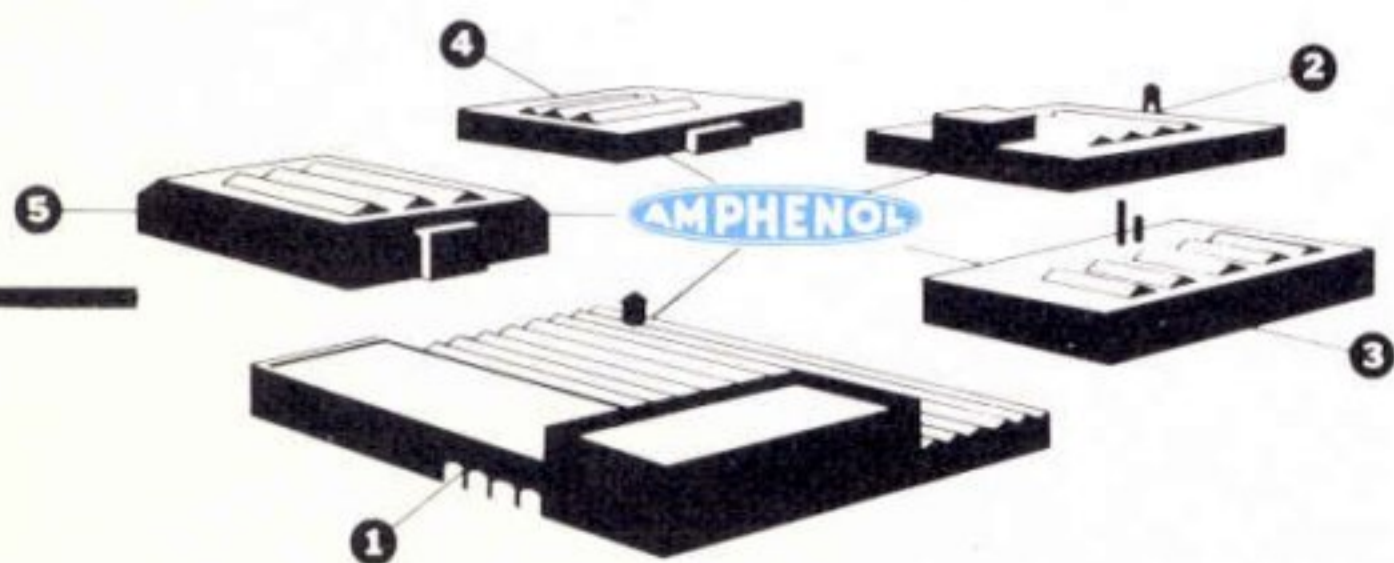
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LOT  
108

RADIO FREQUENCY CABLES . . .  
TRANSMISSION LINES . . .  
INSULATED WIRE . . .

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AMERICAN PHENOLIC CORPORATION  
chicago 50, illinois

# FACILITIES

**AMPHENOL**



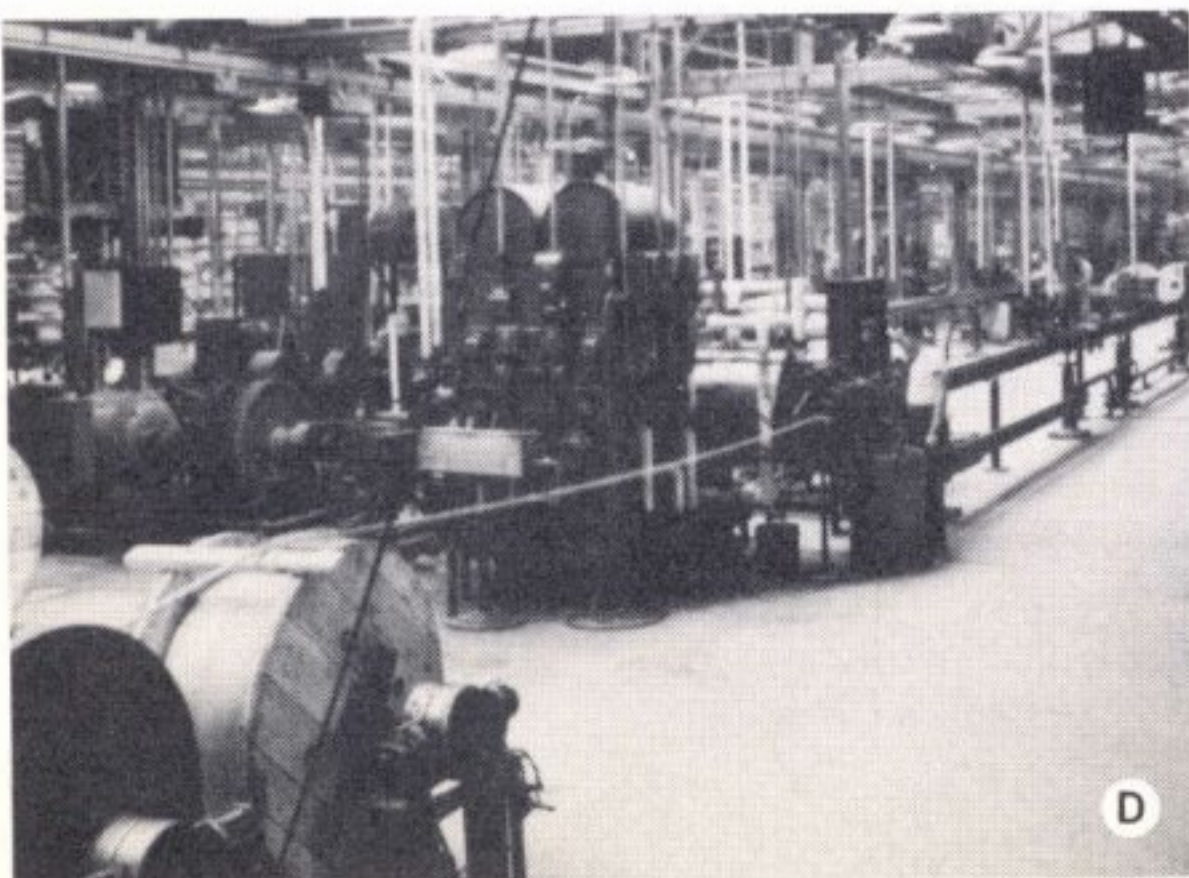
Ⓐ **AMPHENOL PLANT NUMBER FOUR**, one of the newest and most modern synthetics plants in the Middle West, was built to meet the growing demand for AMPHENOL Cables and Transmission Lines. Pioneers in Radio Frequency Cables since 1936, AMPHENOL feels proud that the self-imposed high standards of production and testing, which have never been sacrificed even in periods of artificial demands, have resulted in the need for this new plant which has doubled the production of AMPHENOL wire-mill products. The 70,000 square feet of this self-contained operating plant provides ample space for quality controlled production of cables and transmission lines from the stocking of raw materials to the stocking of standard cables for immediate order filling.



Ⓑ **THE GENERAL OFFICE** of Plant Number Four provides the coordinated management necessary to the production of the highest quality cables at the lowest possible cost. Here the Material Control Department requisitions raw materials and schedules incoming materials. The Production Control Department schedules production orders for the maintenance of standard cable inventories and the production of modified and custom cables. The Purchasing Department controls all buying for the needs of Plant Four. The AMPHENOL Cable Engineering Department coordinates production and the Quality Control Laboratory which makes it possible to guarantee every reel of AMPHENOL Cable with a certified affidavit stating its physical and electrical performance. In addition to guarding the quality of AMPHENOL Cable production, the Engineering Department is devoted to the improvement of standard cables and the development of new cables. At their disposal for conferences on tough research problems are specialists in electronics, plastics, chemistry and metallurgy from the other five AMPHENOL Radio Components Plants also located in Chicago.



Ⓒ **AMPLE STORAGE FACILITIES** for raw materials makes it possible for AMPHENOL to buy in large quantities—another reason why AMPHENOL can produce the best cable at the lowest possible cost. Here jacket material, wire and dielectric materials are stored in an area designed especially for that purpose. Humidity, stacking and accessibility are controlled for the protection of these quality materials which are received with affidavits certifying their conformation with AMPHENOL's high standards. Electric trucks convey these materials to the production department.



Ⓓ **AMPHENOL PRECISION EXTRUDING EQUIPMENT** includes many special devices to insure the uniform quality and performance of every foot of AMPHENOL Cable. There are no cracks or voids in the extruded dielectrics; uniformity of dielectric O.D. is maintained within limits of .005" to .015" and the accuracy of inner-conductor centering is held within a range of plus or minus .005" to .0005". Here extruding equipment covers a range of O.D.s from .060" to 1.120".

Ⓔ **THE BRAIDING DEPARTMENT** continues to guard the engineering investment, quality materials and precision extrusion of AMPHENOL Cables. The wire that makes up the braid is given the same rigid testing for quality and uniformity to which the center conductor wire already has been subjected. During the braiding operation additional tests ascertain that the braid is woven uniformly with the specified number of picks per inch and that the percentage of coverage is as specified.

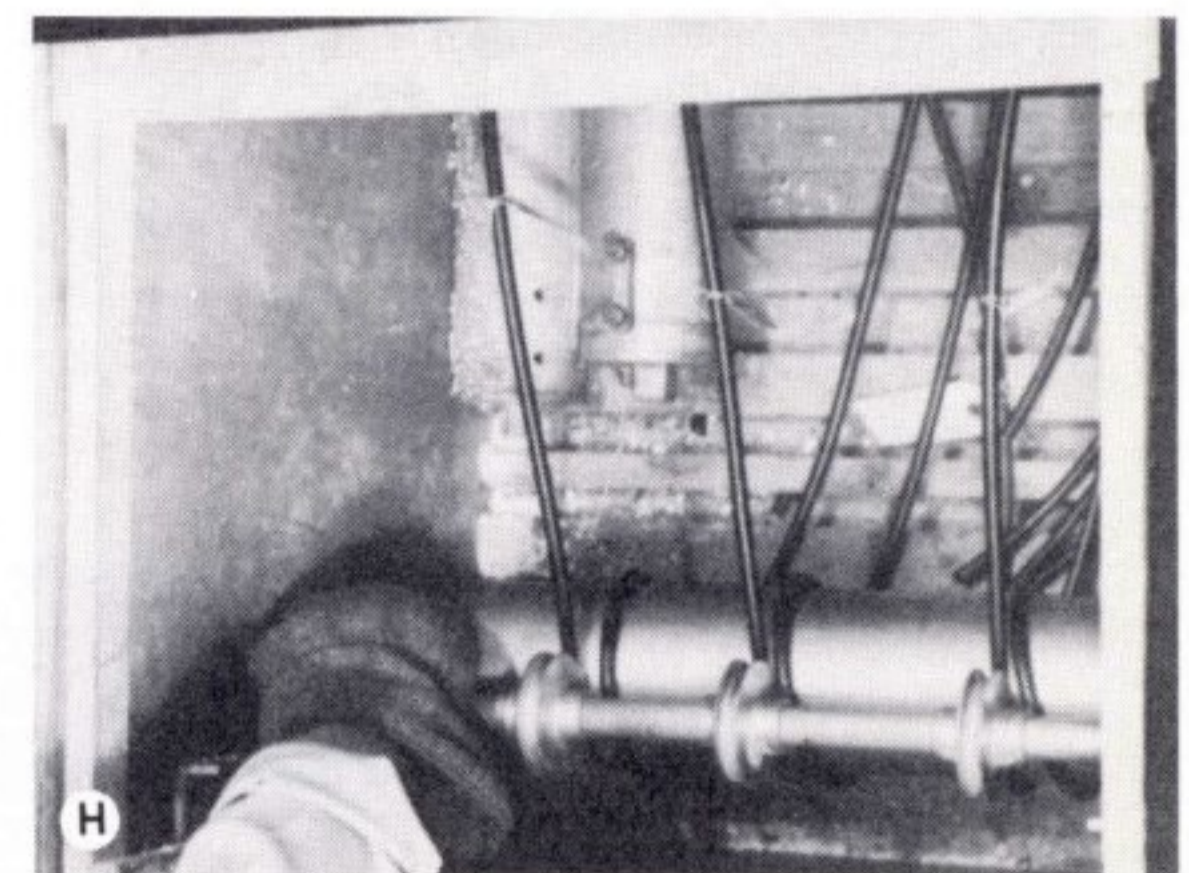
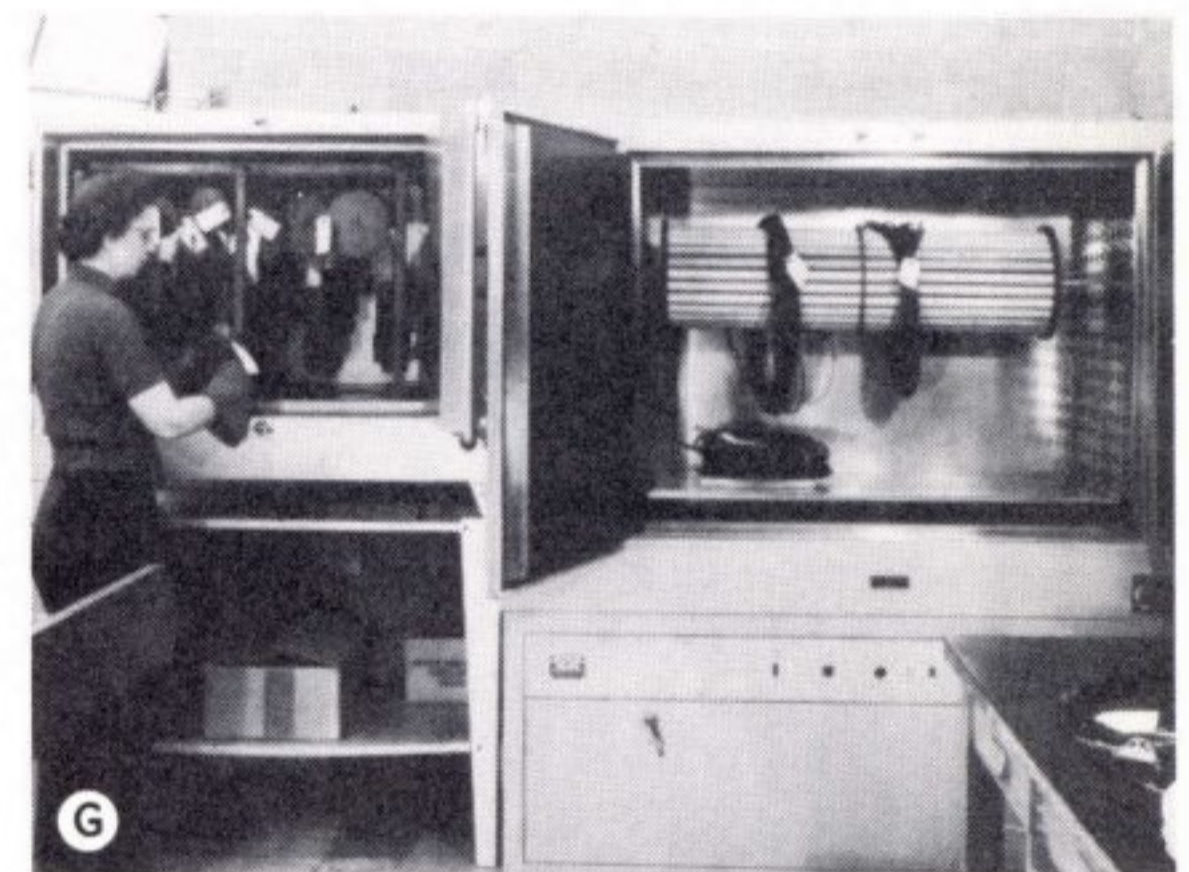
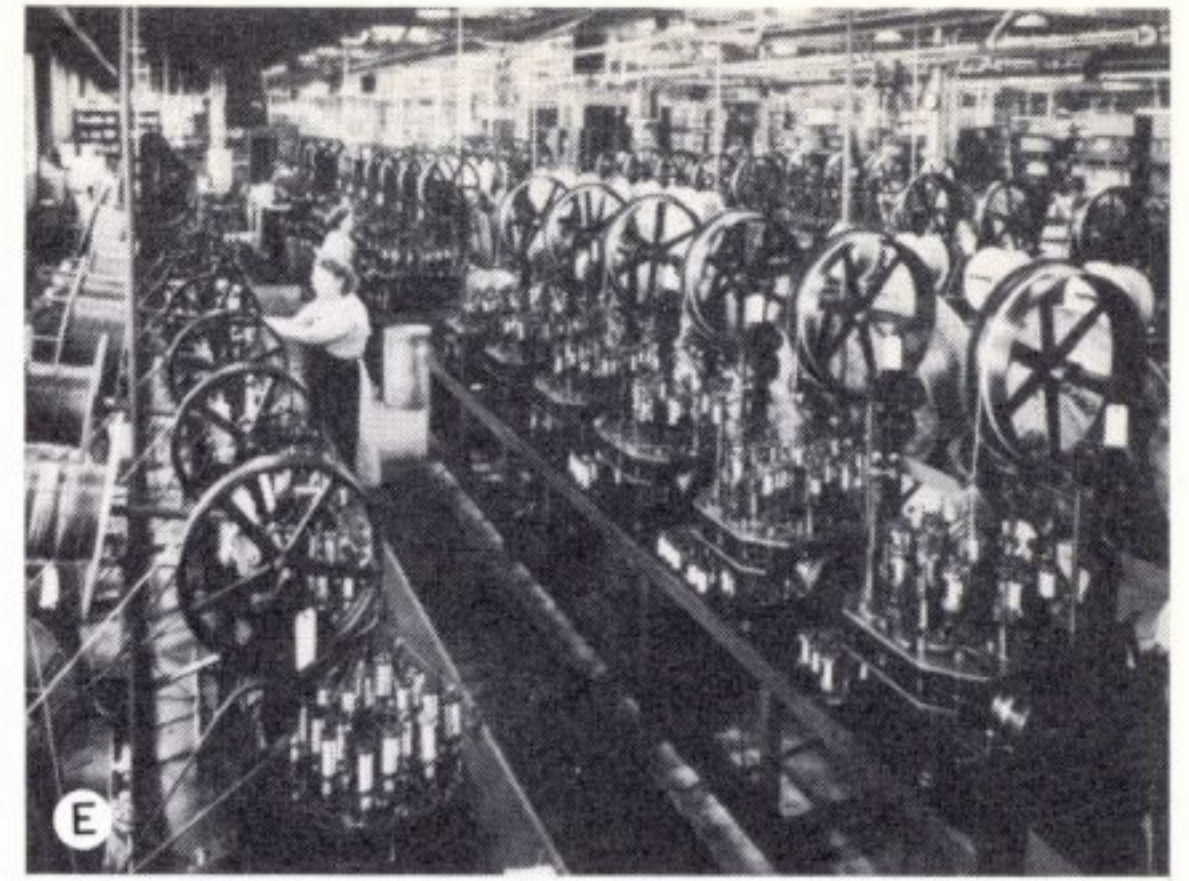
The extrusion of jacket material is identical to the dielectric extrusion. The jacket is tested for smoothness, must have uniform wall thickness, be free of porosity and the marking must be clear and legible. Uniform overall diameter of the completed cable must be within specification limits.

Ⓕ **THE AMPHENOL QUALITY CONTROL LABORATORY** continues the relentless quality checking and testing procedure that goes on from receipt of raw materials to the shipment of cable reels. Upon completion of every 5,000 to 10,000 feet of continuous cable, a 110 foot sample is sent to the Quality Control Laboratory. After complete dimensional checks the cable is tested for such important quality factors as nominal impedance, velocity of propagation, attenuation at ultra-high frequency, nominal capacitance, low capacitance unbalance, absence of cracks and fractures of dielectric and jacket after cold bend tests, close centering, minimum displacement of inner conductor after flow test, attenuation stability, capacitance stability and absence of corona effect at high voltage. The results of these mechanical and electrical tests on each reel of cable are recorded and certified by a properly notarized affidavit. This affidavit accompanies each military shipment and may be obtained on request by civilian users without charge.

Ⓖ **THE AGING OVENS** represent one of the many types of special testing apparatus necessary to ascertain the exact physical characteristics of high frequency cables. Here a sample from each production run of cable is held at a temperature of  $98^{\circ}\text{C}$  ( $205^{\circ}\text{F}$ ) for  $7\frac{1}{2}$  hours with specified weights on the center conductor. The cable is then inspected by fluoroscopic X-ray to determine heat deformation, and particularly to see whether the inner conductor has left dead center. The center conductor must not be displaced from the center a distance greater than 15% of the diameter of the dielectric measured along the direction of flow.

Ⓗ **THE COLD BOX MANDRIL TEST** subjects a sample of the cable to a temperature of  $-40^{\circ}\text{C}$  for two to twenty hours bent over a mandril ten times the outside cable diameter. If either the jacket or the dielectric cracks, the entire cable run is rejected. The production materials, processes and equipment involved in that run of cable are reviewed and the factor causing the defect is corrected.

Ⓘ **LARGE INVENTORY OF AMPHENOL RG-/U CABLES** insures immediate order filling. Before the cable can be released for shipment, the Shipping Department must have a certified affidavit for each reel stating that the structural quality and electrical performance factors of the cable make it worthy to carry the name "AMPHENOL". . . the *quality* name in Electronics.



## Coaxial Cable Jackets

### STANDARD BLACK JACKET

The jacket of the cable primarily weatherproofs the cable and protects it from mechanical and electrical injury. Black vinyl jackets, to date the most widely used, have excellent abrasion and weathering properties and will withstand direct burial. Cable jacketed with black vinyl will withstand a  $-40^{\circ}$  cold bend test and can be used in elevated temperatures to  $180^{\circ}$  F. This jacket contains an ester type plasticizer which is non-resinous. The plasticizer is an additive to the vinyl changing it from a rigid to a flexible plastic.

### STANDARD GRAY JACKET

The gray vinyl is similar to the black except that it utilizes a resinous plasticizer. The resinous plasticizer will not migrate from the vinyl into the polyethylene at elevated temperatures as is the case in standard black jacket plasticizer. The migrating plasticizer contaminates the polyethylene core material resulting in increased dielectric losses. This jacketed cable is suitable only at temperatures down to  $-25^{\circ}$  C ( $-13^{\circ}$  F).

### LOW TEMPERATURE BLACK JACKET

Because the standard gray jacket is usable only at temperatures down to  $-13^{\circ}$  F, a jacket for lower temperature applications was developed. This jacket is also a non-contaminating type. It is black in color to distinguish it from the standard gray jacket and carries white ink marking in place of the conventional impression marking. Ink marking



is used because the impression marking tends to weaken the jacket at the point of impression. It is suitable for operation at  $-40^{\circ}$  C ( $-40^{\circ}$  F).

### POLYETHYLENE JACKET

Polyethylene jackets are usually thin in cross section because they have replaced older type cotton jackets and are used mainly for indoor applications. They are not recommended for outdoor use because of poor abrasion resistance and because polyethylene is not too stable under ultra-violet light. For this reason polyethylene is pigmented dark brown to shield out the rays of the sun. Some commercial cables use heavy jackets of brown polyethylene. This will give sufficient abrasion resistance as well as resistance to ultra-violet rays of the sun.

### FIBERGLAS JACKET

For the high temperature Teflon dielectric cables, the lower temperature vinyl and polyethylene plastic jackets cannot be used. Instead, a Fiberglass jacket is braided around the cable. This Fiberglass braid is then impregnated with four coats of high temperature silicone varnish to seal the Fiberglass braid against moisture and to keep the braid from fraying when cut. This jacket is suitable for operations up to  $500^{\circ}$  F.

### ARMOR

For certain applications, where the abrasion resistance of vinyl is insufficient, a metal armor is woven over the jacket.

## Operating Temperature Limits

Jacket Type	Military Designation	Non-Contaminating	Operating Temperature Limits
Standard Black	Type I	No	$-40^{\circ}$ C to $+80^{\circ}$ C*
Standard Gray	Type II	Yes	$-25^{\circ}$ C to $+80^{\circ}$ C*
Low Temperature Black	Type IIa	Yes	$-40^{\circ}$ C to $+80^{\circ}$ C*
Polyethylene	Type III	Yes	$-40^{\circ}$ C to $+80^{\circ}$ C
Fiberglass	Type V	Yes	$-55^{\circ}$ C to $+250^{\circ}$ C

\* This temperature limit imposed by Polyethylene Dielectric of the Standard Type Cable construction.

# Coaxial Cable Conductors

A coaxial cable has two conductors having a common axis. The center conductor is covered with a low loss insulating material over which is woven a metal braid forming the second conductor.

## CENTER CONDUCTOR

The center conductor may be a solid or standard wire or in some instances a tube. In most cables a copper wire is used. It may be plain, tinned or silver plated. For special applications, some cables have a copper covered steel wire (Copperweld) or a high resistance wire (Nichrome or Karma).



## OUTER CONDUCTOR

The second or return conductor can be a copper tube over the dielectric or a braid of fine metal wires where flexibility is important. This can be a single or double braid depending upon the degree of shielding effectiveness desired.

The outer conductor, in addition to being a return conductor, confines the signal within the cable and is, therefore, often referred to as a shield. The braid can be made of plain, tinned or silver plated copper wire or high resistance wire.

## WIRE CHART

Table of Standard Annealed Bare Copper Wire Using American Wire Gauge (B & S)

Gauge (AWG or (B & S))	DIA. Inches (Nom.)	AREA Circular Mils	WEIGHT Pounds per M'	LENGTH Feet per Lb.	RESISTANCE AT 68° F		
					Ohms per M'	Feet per Ohm	Ohms per Lb.
0000	.4600	211600.	640.5	1.561	.04901	20400.	.00007652
000	.4096	167800.	507.9	1.968	.06180	16180.	.0001217
00	.3648	133100.	402.8	2.482	.07793	12830.	.0001935
0	.3249	105500.	319.5	3.130	.09827	10180.	.0003076
1	.2893	83690.	253.3	3.947	.1239	8070.	.0004891
2	.2576	66370.	200.9	4.977	.1563	6400.	.0007778
3	.2294	52640.	159.3	6.276	.1970	5075.	.001237
4	.2043	41740.	126.4	7.914	.2485	4025.	.001966
	.250	62500.	189.1	5.286	.1659	6025.	.000877
5	.1819	33100.	100.2	9.980	.3133	3192.	.003127
6	.1620	26250.	79.46	12.58	.3951	2531.	.004972
7	.1443	20820.	63.02	15.87	.4982	2007.	.007905
8	.1285	16510.	49.98	20.01	.6282	1592.	.01257
	.188	35344.	106.98	9.425	.2934	3407.	.00276
9	.1144	13090.	39.63	25.23	.7921	1262.	.01999
10	.1019	10380.	31.43	31.82	.9989	1001.	.03178
11	.09074	8234.	24.92	40.12	1.260	794.	.05053
12	.08081	6530.	19.77	50.59	1.588	629.6	.08035
13	.07196	5178.	15.68	63.80	2.003	499.3	.1278
14	.06408	4107.	12.43	80.44	2.525	396.0	.2032
15	.05707	3257.	9.858	101.4	3.184	314.0	.3230
16	.05082	2583.	7.818	127.9	4.016	249.0	.5136
17	.04526	2048.	6.200	161.3	5.064	197.5	.8167
18	.04030	1624.	4.917	203.4	6.385	156.5	1.299
19	.03589	1288.	3.899	256.5	8.051	124.2	2.065
20	.03196	1022.	3.092	323.4	10.15	98.5	3.283
21	.02846	810.1	2.452	407.8	12.80	78.11	5.221
22	.02535	642.4	1.945	514.2	16.14	61.95	8.301
23	.02257	509.5	1.542	648.4	20.36	49.13	13.20
24	.02010	404.0	1.223	817.7	25.67	38.96	20.99
25	.01790	320.4	.9699	1031.	32.37	30.90	33.37
26	.01594	254.1	.7692	1300.	40.81	24.50	53.06
27	.01420	201.5	.6100	1639.	51.47	19.43	84.37
28	.01264	159.8	.4837	2067.	64.90	15.41	134.2
29	.01126	126.7	.3836	2607.	81.83	12.22	213.3
30	.01003	100.5	.3042	3287.	103.2	9.691	339.2
31	.008928	79.7	.2413	4145.	130.1	7.685	539.3
32	.007950	63.21	.1913	5227.	164.1	6.095	857.6
33	.007080	50.13	.1517	6591.	206.9	4.833	1364.
34	.006305	39.75	.1203	8310.	260.9	3.833	2168.
35	.005615	31.52	.09542	10480.	329.0	3.040	3448.
36	.005000	25.00	.07568	13210.	414.8	2.411	5482.
37	.004453	19.83	.06001	16660.	523.1	1.912	8717.
38	.003965	15.72	.04759	21010.	659.6	1.516	13860.
39	.003531	12.47	.03774	26500.	831.8	1.202	22040.
40	.003145	9.888	.02993	33410.	1049.	0.9534	35040.
41	.00280	7.8400	.02373	42140.	1323.	.7559	55750.
42	.00249	6.2001	.01877	53270.	1673.	.5977	89120.
43	.00222	4.9284	.01492	67020.	2104.	.4753	141000.
44	.00197	3.8809	.01175	85100.	2672.	.3743	227380.
45	.00176	3.0976	.00938	106600.	3348.	.2987	356890.
46	.00157	2.4649	.00746	134040.	4207.	.2377	563900.

## STANDARD WIRE STRANDINGS

Used in RG/U CABLES

A. W. GAUGE	O. D.	STRANDING
22	.030	7/30
22	.030	27/36
21	.034	19/.0068
20	.037	7/28
20	.035	10/30
18	.046	7/.0152
18	.048	7/26
17	.054	7/25
16	.060	7/24
16	.060	7/.020
16	.058	19/.0117
16	.058	26/30
15	.067	7/.022
14	.073	19/.0147
13	.085	7/21
12	.096	7/20
7	.162	7/.054

# Coaxial Cable Dielectrics

## POLYETHYLENE

A pioneer in the coaxial cable field, AMPHENOL introduced a polystyrene fish spline beaded cable in 1936. This was an ingenious construction and a radical improvement over any similar cable available at the time. The cable had excellent dielectric properties. For many applications, where low capacity and high frequency are required, polystyrene beaded cable is excellent. However, for most applications it is not practical because the air pockets between the "beads" permit condensation of moisture.

Because of these shortcomings, the need became apparent for a solid dielectric low loss cable. The first extrudable low loss dielectric was AMPHENOL's "Copolene", a combination of polystyrene and polyisobutylene. It had the electrical characteristics of polystyrene, yet flexible and extrudable to result in a rugged cable without air spaces and easy to terminate with connectors. AMPHENOL Copolene cables were ideal for high frequency or microwave operation, such as is required for television, frequency modulation, test equipment, lead-in transmission lines and many others.

The AMPHENOL research laboratories continued to investigate and test other dielectric materials. Polyethylene was introduced in 1940 from England and has been produced in this country ever since. It was the answer to most coaxial cable problems mechanically as well as electrically. In the past thirteen years, billions of feet of coaxial cable and lead-in wire have been extruded from polyethylene. *The values for the properties in the accompanying chart are based upon maximum and minimum figures submitted by a number of manufacturers of each type of plastic material. Differences in these procedures and sizes of test specimens may lead to erroneous conclusions in some cases if direct comparisons are attempted. Special grades of materials are often available which excel in one particular property. A.S.T.M. specifications for various grades of some of the plastics will be found on pages 1019-1035 of the 1950 Modern Plastics Encyclopedia.*



Properties	Polytetrafluoroethylene Molding Compound	Polyethylene Molding Compound
Molding qualities.....	—	Excellent
Compression molding temp., °F.....	—	275-300
Compression molding pressure, p.s.i.....	—	200
Injection molding temp., °F.....	—	300-500
Injection molding pressure, p.s.i.....	—	8000-15000
Compression ratio.....	—	2.1-3.6
Mold shrinkage, in. per in.....	—	0.02-0.05
Specific gravity.....	2.1-2.3	0.92
Specific volume, cu. in. per lb.....	13.2-12.1	30.1
Refractive index, n <sub>D</sub> .....	1.35	1.51
Tensile strength, p.s.i.....	1800	1500-1800
Elongation, %.....	110	50-550
Modulus of elasticity in tension, 10 <sup>5</sup> , p.s.i.....	0.58	0.19
Compression strength, p.s.i.....	1700	—
Flexural strength, p.s.i.....	—	—
Impact strength, ft.-lb. per in. of notch (½ x ½ in. notched bar, Izod test).....	4.0	>16
Hardness, Rockwell.....	D55 (Shore)	R11
Thermal conductivity, 10 <sup>-4</sup> cal. per sec. per sq. cm. per 1° C. per cm.....	6	8.0
Specific heat, cal. per °C. per gm.....	0.25	0.55
Thermal expansion, 10 <sup>-5</sup> per °C.....	10	16-18
Resistance to heat, °F. (continuous) <sup>a</sup> .....	500	212
Heat distortion, temp., °F.....	270 (66 p.s.i.)	—
Volume resistivity, ohm-cm. (50% relative humidity and 23° C.).....	10 <sup>15</sup>	>10 <sup>15</sup>
Dielectric strength, short-time ⅛-in. thickness, volts per mil.....	480	460
Dielectric strength, step-by-step ⅛-in. thickness, volts per mil.....	430	420
Dielectric constant, 60 cycles.....	2.0	2.3
Dielectric constant, 10 <sup>3</sup> cycles.....	2.0	2.3
Dielectric constant, 10 <sup>6</sup> cycles.....	2.0	2.3
Dissipation (power) factor, 60 cycles.....	< 0.0002-0.0005	< 0.0005
Dissipation (power) factor, 10 <sup>3</sup> cycles.....	< 0.0002-0.0005	< 0.0005
Dissipation (power) factor, 10 <sup>6</sup> cycles.....	< 0.0002-0.0005	< 0.0005
Arc resistance, sec.....	>200	135
Water absorption, 24 hr., ⅛ in. thickness, %.....	0.00	< 0.01
Burning rate.....	Nil	Slow
Effect of sunlight.....	None	Surface crazing except black and brown.
Effect of weak acids.....	None	Resistant
Effect of strong acids.....	None	Attacked by oxidizing acids.
Effect of weak alkalis.....	None	Resistant
Effect of strong alkalis.....	None	Resistant
Effect of organic solvents.....	None	Soluble in aromatic solvents above 60° C.
Effect on metal inserts.....	Inert	Inert
Machining qualities.....	Excellent	Fair
Clarity.....	Opaque	Translucent to opaque.
Color possibilities.....	Limited	Unlimited



# Coaxial Cable Dielectrics

## TEFLON

Jet aircraft and guided missiles introduced a new high temperature requirement for low-loss coaxial cable. AMPHENOL engineers selected a fluorine derivative, which has electrical properties equivalent to polyethylene, and perfected a technique of extrusion and fabrication resulting in Teflon dielectric coaxial cable. This new thermoplastic operates without difficulty at temperatures from  $-100^{\circ}\text{F}$



( $-73.33^{\circ}\text{C}$ ) to  $+500^{\circ}\text{F}$  ( $+260^{\circ}\text{C}$ ) thereby extending the range of solid dielectric radio frequency cable far beyond previous coverage. Teflon is an outstanding dielectric not only because of its efficiency at high temperatures, but also because of its extremely low loss and high voltage breakdown. In addition, Teflon has no measurable water absorption characteristic.

PROPERTY	TEST METHOD	TEST RESULT
Specific gravity .....	2.1-2.3 .....	D792-44T
Tensile strength at $77^{\circ}\text{F}$ , psi .....	2000-4500 .....	(1) D412-41T
Elongation at $77^{\circ}\text{F}$ , % .....	300-400 .....	(1) Die C
Flexural strength at $77^{\circ}\text{F}$ , psi .....	2000 .....	(2) D650-42T
Stiffness at $77^{\circ}\text{F}$ , psi (0.125 in.) .....	60,000 .....	D747-43T
Impact strength, Izod, $-70, 77, 170^{\circ}\text{F}$ , ft-lb/in. ....	2.0 4.0 6.0 .....	D256-41T
Hardness, "D", Durometer .....	55 .....	---
Compressive strength, psi at 0.1% deformation .....	1700 .....	D695-42T
Yield temperature, $^{\circ}\text{F}$ .....	$> 320$ .....	Arl. M-8
Heat-distortion temperature, low-load, $^{\circ}\text{F}$ .....	266 .....	D648 (B) -44T
Specific heat, cal/g/ $^{\circ}\text{C}$ .....	0.25 .....	(3) ---
Coefficient of expansion per $^{\circ}\text{F}$ ( $77-140^{\circ}\text{F}$ ).....	$5.5 \times 10^{-5}$ .....	D696-42T
Thermal conductivity, BTU/hr/ft <sup>2</sup> / $^{\circ}\text{F}$ /in. (0.18 in.) ..	1.7 .....	(4) Arl. P-32
Brittleness temperature, $^{\circ}\text{F}$ .....	$< -100$ .....	D746-43T
Dielectric strength, short-time, volt/mil (0.080 in.) ..	480 .....	(5) D149-40T
Volume resistivity, ohm-cm .....	$10^{16}$ .....	D257-38
Dielectric constant at 60, $10^3, 10^6, 10^8$ cycles .....	2.0 .....	D150-40T
Power factor at 60, $10^3, 10^6, 10^8$ cycles .....	$< 0.0002$ .....	D150-40T
Water-absorption, % .....	0.00 .....	(6) D570-42
Moisture-permeability g/meter <sup>2</sup> /24 hr .....	0.00-0.5 .....	D697-42T
Outdoor weathering .....	No detectable change in 1 year	

- (1) Tensile strength in oriented film may be as high as 15,000 psi.
- (2) Specimens do not break.
- (3) Method of mixtures.
- (4) Cenco-Fitch apparatus.
- (5) 1000-2000 volt/mil in thicknesses 5 to 12 mils.
- (6) Not wet by water.



# RG Type COAXIAL CABLES

## Polyethylene Dielectric

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28										
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields Outer	Shields Inner	Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.
5	21-001				.332	Black	C	C	.185	16	65.9	28.5	3000	52.5
5A	21-271	5B	21-294		.328	Grey	S	S	.181	16S	65.9	29	3000	50
6	21-002	6A	21-330		.332	Grey	C	S	.185	21CW	65.9	20	2700	76
7	21-003				.370	Black	—	C	.250*	19	84	12.5	1000	97
8	21-004	8A	21-290		.405	Black	—	C	.285	7/21	65.9	29.5	4000	52
9	21-005				.420	Grey	C	S	.280	7/21S	65.9	30	4000	51
9A	21-231	9B	21-332		.420	Grey	S	S	.280	7/21S	65.9	30	4000	51
10	21-006	10A	21-338	.475	.405	Grey	—	C	.285	7/21	65.9	29.5	4000	52
11	21-007	11A	21-296		.405	Black	—	C	.285	7/26T	65.9	20.5	4000	75

\*Semi-solid dielectric


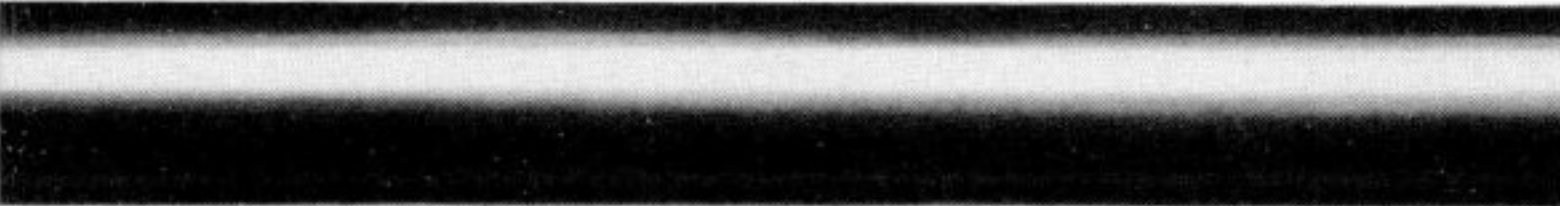


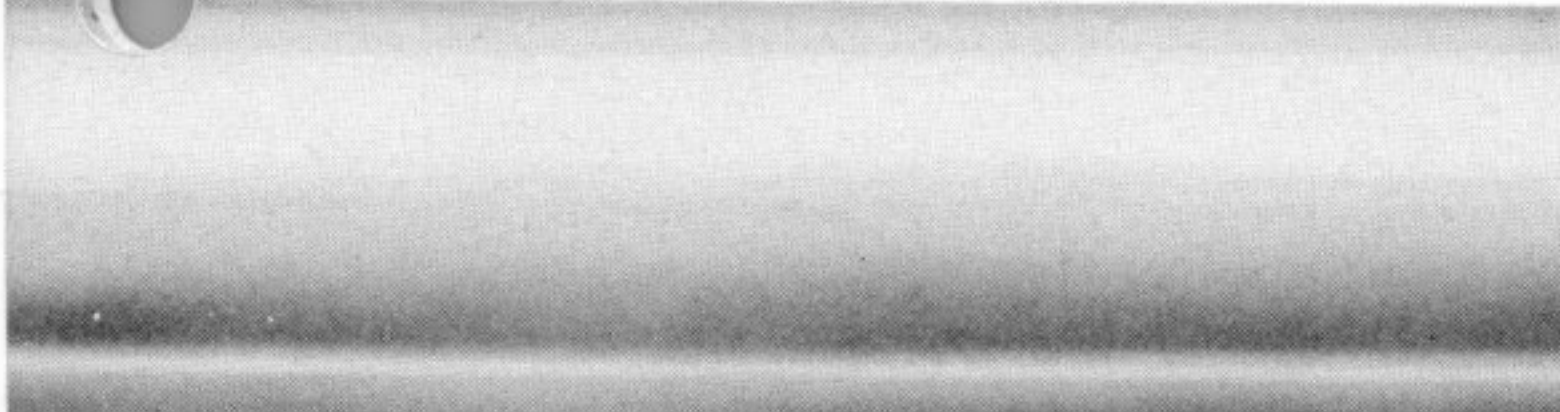
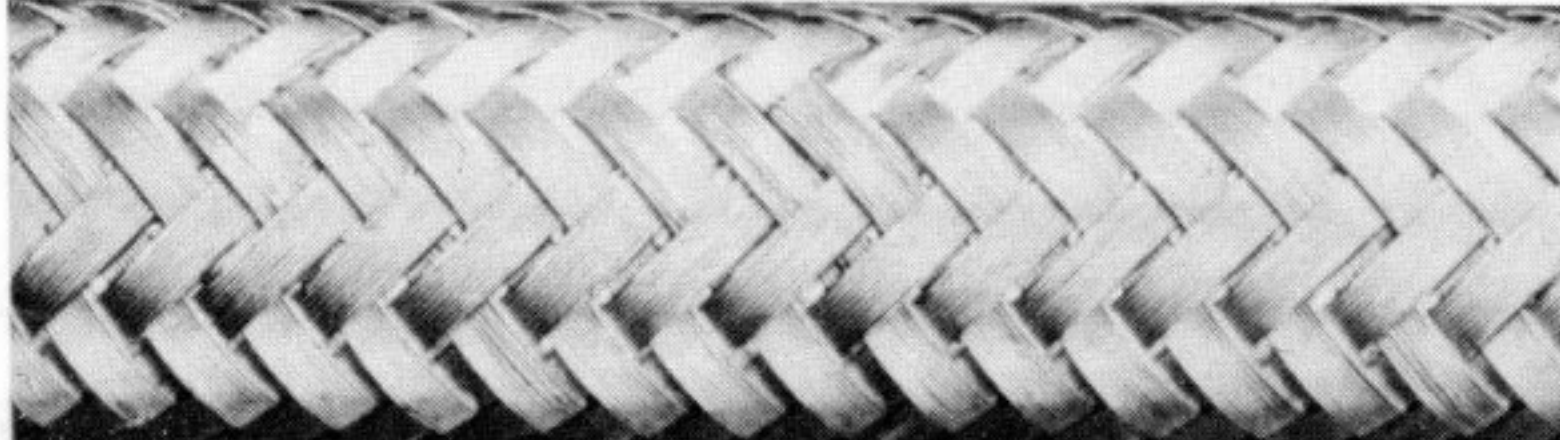
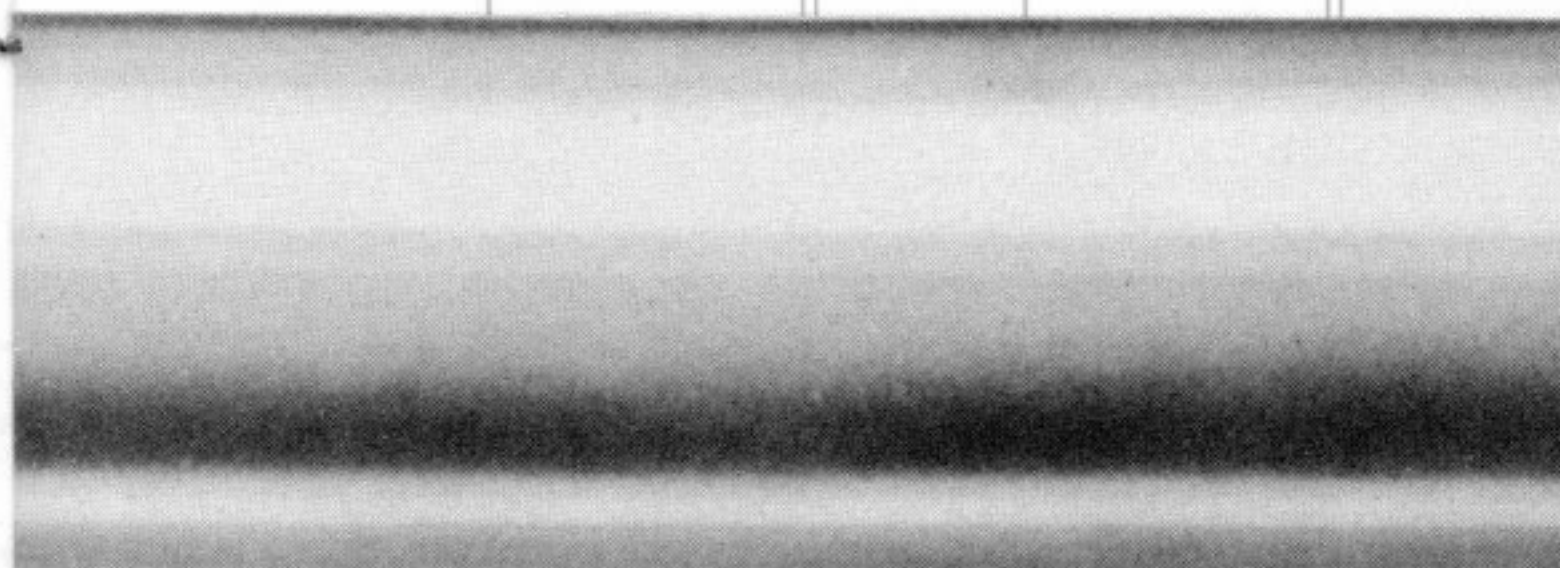
C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28											
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields Outer	Shields Inner	Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.	
	12	21-008	12A	21-340	.475	.405	Grey	—	C	.285	7/26T	65.9	20.5	4000	75
	13	21-009	13A	21-334		.420	Black	C	C	.280	7/26T	65.9	20.5	4000	74
	14	21-010	14A	21-336		.545	Grey	C	C	.370	10	65.9	29.5	5500	52
	15	21-011				.545	Black	C	C	.370	15CW	65.9	20	5000	76
	17	21-013	17A	21-298		.870	Grey	—	C	.680	.188	65.9	29.5	11000	52
	18	21-014	18A	21-300	.945	.870	Grey	—	C	.680	.188	65.9	29.5	11000	52
	19	21-015	19A	21-303		1.120	Grey	—	C	.910	.250	65.9	29.5	14000	52

\*\*Semi-solid dielectric

C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper



# RG Type COAXIAL CABLES

## Polyethylene Dielectric

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28											
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields		Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.	
							Outer	Inner							
	20	21-016	20A	21-305	1.195	1.120	Grey	—	C	.910	.250	65.9	29.5	14000	52
	21	21-017	21A	21-308		.332	Grey	S	S	.185	16N	65.9	29	2700	53
	22	21-038				.405	Black	—	T	.285	Two 7/.0152	65.9	16	1000	95
	22A	21-148	22B	21-310		.420	Grey	T	T	.285	Two 7/.0152	65.9	16	1000	95
	23	21-094	23A	21-516		.650X .945	Black	C	C	.380	Two 7/21	65.9	12	3000	125
	24	21-096	24A	21-518	.735X 1.034	.650X .945	Black	C	C	.380	Two 7/21	65.9	12	3000	125
	29	21-018				.184	Poly	—	T	.116	20	65.9	28.5	1900	53.5

\*Semi-solid dielectric

C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28										
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields Outer	Shields Inner	Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.
34	21-019	34A	21-429		.625	Black	—	C	.455	7/21	65.9	21.5	5200	71
35	21-020	35A	21-311	.945	.870	Grey	—	C	.680	9	65.9	21.5	10000	71
42	21-021				.342	Grey	S	S	.196	21N	65.9	20	2700	78
54A	21-022				.250	Poly	—	T	.178	7/.0152	65.9	26.5	3000	58
55	21-023				.206	Poly	T	T	.116	20	65.9	28.5	1900	53.5
57	21-039	57A	21-313		.625	Black	—	T	.472	Two 7/21	65.9	17	3000	95
58	21-024	58B	21-315		.195	Black	—	T	.116	20	65.9	28.5	1900	53.5
58A	21-199	58C	21-316		.195	Black	—	T	.116	19/.0071	65.9	28.5	1900	50
59	21-025	59A	21-291		.242	Black	—	C	.146	22CW	65.9	21	2300	73
62	21-026	62A	21-318		.242	Black	—	C	.146*	22CW	84	13.5	750	93

\*Semi-solid dielectric

C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper



# RG Type COAXIAL CABLES

## Polyethylene Dielectric

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28										
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields		Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.
							Outer	Inner						
63	21-027	63B	21-320		.405	Black	—	C	.285*	22CW	84	10	1000	125
71	21-029				.250	Poly	T	T	.146*	22CW	84	13.5	750	93
74	21-041	74A	21-321	.615	.545	Grey	C	C	.370	10	65.9	29.5	5500	52
79	21-070	79B	21-325	.475	.405	Black	—	C	.285*	22CW	84	10	1000	125
83	21-180				.405	Black	—	C	.240	10	65.9	44	2000	35
89	21-253				.632	Black	—	C	.285*	22CW	84	10	1000	125
108	21-261	108A	21-327		.245	Black	—	T	.079 Ea.	Two 7/28		25	1000	76
111	21-255	111A	21-329	.490	.420	Grey	T	T	.285	Two 7/0.152	65.9	16	1000	95

\*Semi-solid dielectric

C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper

Standard Jacket		Low Temp. Black Jacket		Attenuation and Power Ratings on Page 28										
Military Number RG-/U	AMPHENOL Number	Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket O.D.	Standard Jacket	Shields Outer	Shields Inner	Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd. /Ft.	Max. Oper. Volts Rms.	Nom. Imp. Ohms.
164	21-125				.870	Grey	—	C	.680	9	65.9	21.5	10000	71
114	21-440	114A	21-520		.405	Black	—	C	.285*	33CW		6.5	1000	185
		122	21-441		.160	Black	—	T	.096	27/36T	65.9	29.5	1900	50
		125	21-442		.600	Black	—	C	.460*	26CW	84	7.8	1000	150
130	21-436				.625	Black	—	T	.472	Two 7/21	65.9	17	3000	95
131	21-437			.710	.625	Black	—	T	.472	Two 7/21	65.9	17	3000	95
133	21-525				.405	Black	—	C	.285	21	65.9	16.2	1000	95

\*Semi-solid dielectric

C—Copper

S—Silvered copper

N—Nichrome

CW—Copperweld

T—Tinned copper

## Quality Standards Attested by Affidavit

AMPHENOL polyethylene and Teflon cables are fully approved and produced to rigid Military specifications. Accurate centering, proper size and quality of inner conductors; absence of voids in, and accuracy of outside diameter of the dielectric; proper size and quality of braided shielding; close centering of outer jacket; correct overall diameter and proper cable markings are quality-plus features which insure utmost efficiency and dependability in all AMPHENOL cables. When finally processed and ready for use, AMPHENOL polyethylene and Teflon cables are thoroughly checked against Military specifications and the results certified by a notarized affidavit.



# RG Type COAXIAL CABLES

## Teflon Dielectric

Attenuation and Power Ratings on Page 28

Military Number RG- /U	AMPHENOL Number	Armor O.D.	Jacket		Teflon Tape		Shields		Dielectric O.D.	Center Con- ductor	V.P. %	Cap. Mmfd /Ft.	Max. Oper. Volts	Nom. Imp. Ohms
			Outer	Inner	Outer	Inner	Outer	Inner						
87A	21-250		.425	X	X	X	S	S	.280	7/20S	69.5	29.5	4000	50
116	21-378	.475	.425	X	X	X	S	S	.280	7/20S	69.5	29.5	4000	50
117	21-377		.730	X	X	X		C	.610	.188C	69.5	29	5000	50
118	21-374	.780	.730	X	X	X		C	.610	.188C	69.5	29	5000	50
119	21-398		.470	X	X	X	C	C	.328	10C	69.5	29	5000	50
120	21-399	.515	.470	X	X	X	C	C	.328	10C	69.5	29	5000	50
126	21-443		.290	X	X	X		K	.180	7/24K	69.5	29	2000	50

C—Copper

S—Silver Copper

K—Karma



Military Number RG-/U	AMPHENOL Number	Armor O.D.	Jacket		Teflon Tape		Shields		Dielectric O.D.	Center Conductor	V.P. %	Cap. Mmfd / Ft.	Max. Oper. Volts	Nom. Imp. Ohms
			Outer	Inner	Outer	Inner	Outer	Inner						
140	21-379			.242	X	X		S	.146	21SCW	69.5	21	1700	73
141	21-382			.195		X		S	.116	19SCW	69.5	29	1500	50
142	21-385			.206		X	S	S	.116	19SCW	69.5	29	1500	50
143	21-388		.325	X	X	X	S	S	.185	15SCW	69.5	29	2000	50
144	21-391		.395	X	X	X		S	.280	7/25SCW	69.5	21	3000	72

C—Copper

S—Silver Copper

SCW—Silver Coated Copperweld



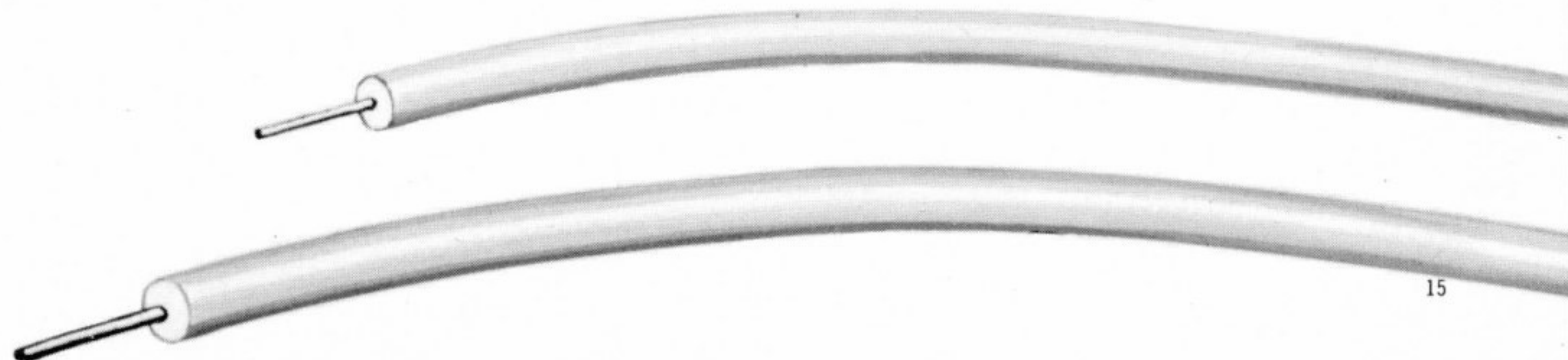
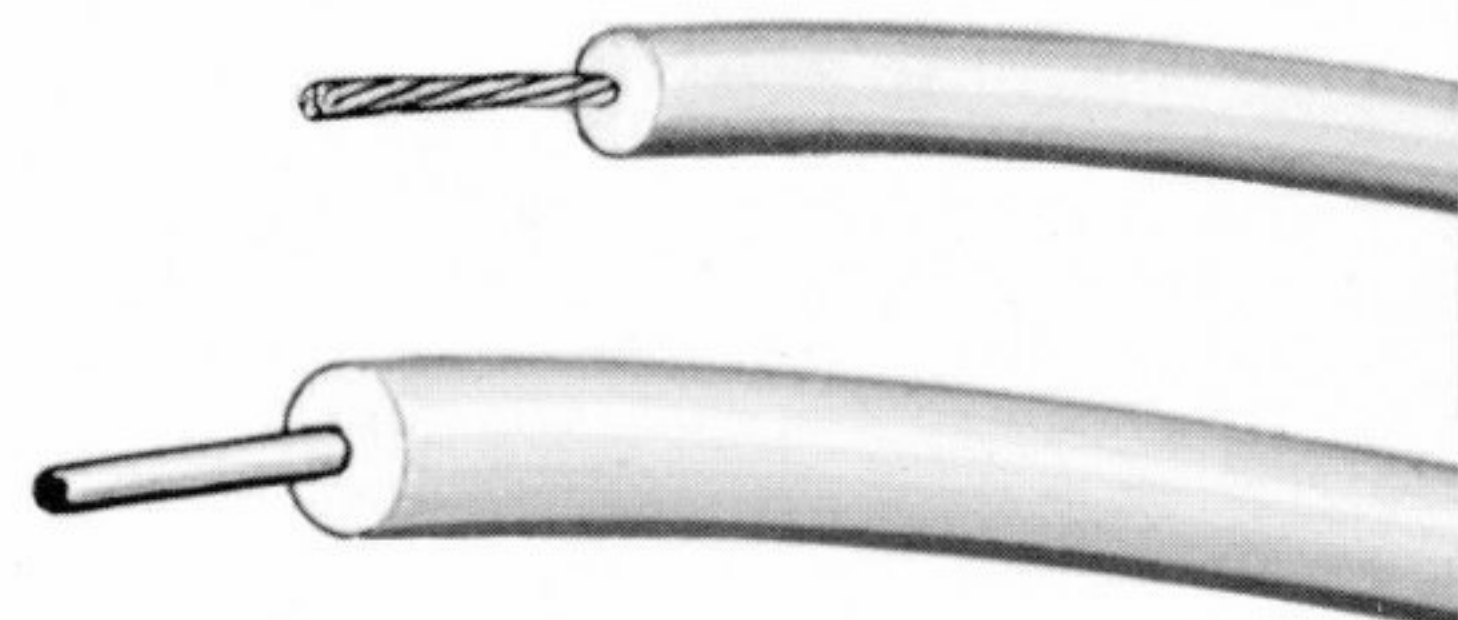
## Extruded TEFLON Insulated Wire

AMPHENOL Number	Conductor			Dielectric O.D.
	A.W.G.	O.D.	Type	
14-260	12	.096	7/20S	.280
14-340	19	.036	SCW	.116
14-344	5	.188	C	.620
14-346	21	.028	SCW	.146
14-347	17	.054	7/25SCW	.280
14-348	15	.057	SCW	.185
14-350	10	.102	C	.328

C—Copper

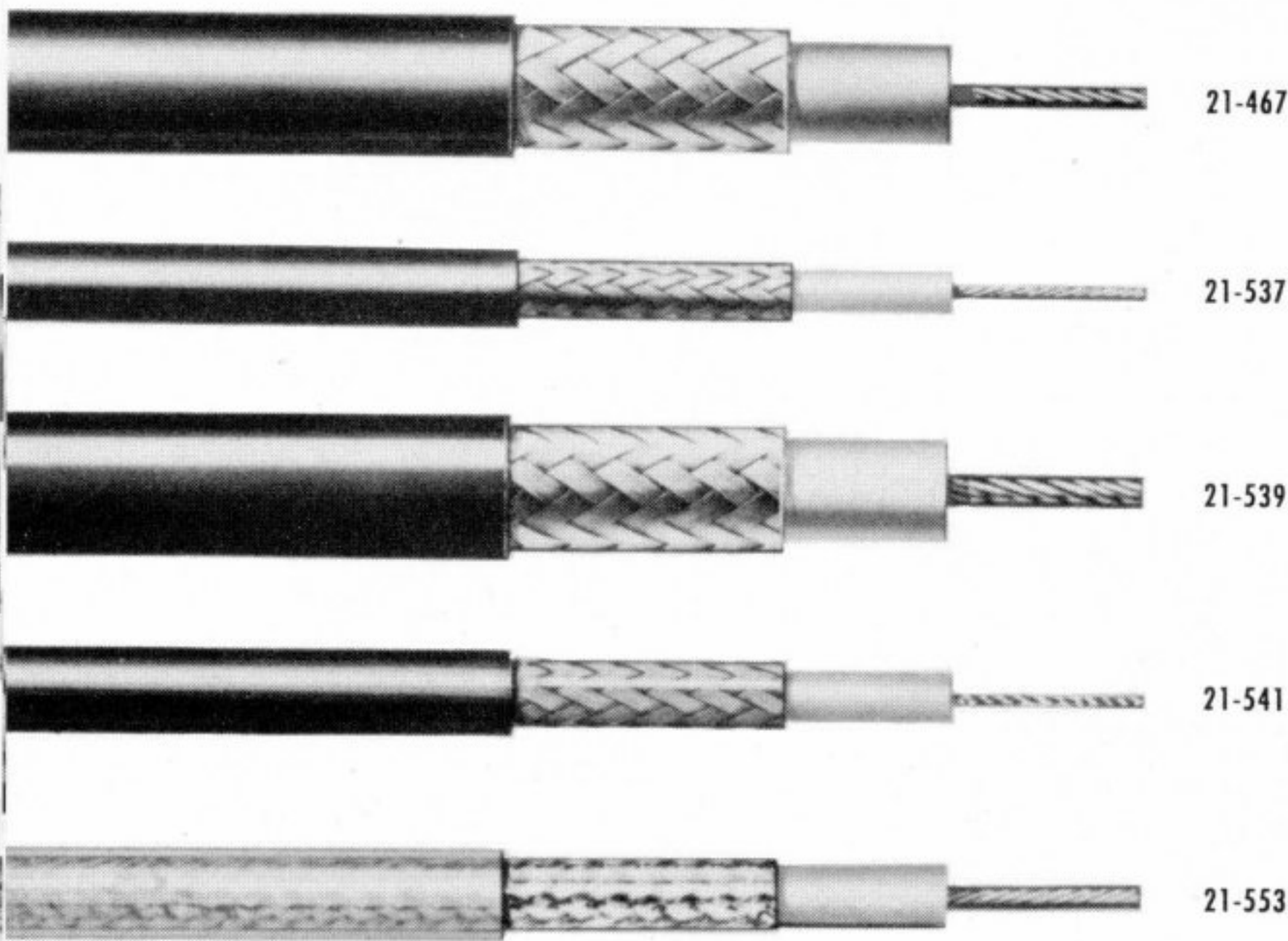
S—Silver

SCW—Silver Coated Copperweld





# NOISE-FREE Coaxial Cable



AMPHENOL Noise-Free cable fulfills the need for coaxial cable which will remain electrically neutral under conditions of shock and vibration. The spurious signals generated by standard coaxial cable, due to flexing or distorting the cable, may well be of a higher level than the useful signal being transmitted along the cable. After considerable research the Development Division of AMPHENOL has achieved an efficient and effective method to differentiate between these cables and standard coaxial cables.

The five AMPHENOL Noise-Free cables are similar in construction to RG-11/U, -8/U, -54A/U, -58A/U and -59/U. The reduction of inherent noise is achieved on these cables by the application of a semi-conductive coating over the dielectric. See pages 8 to 13 for dimensions and materials.

AMPHENOL Part No.	Similar to RG-/U
21-467	11
21-537	58A
21-539	8
21-541	59
21-553	54A

## Method of Measuring Noise-Free Cable

There are three methods by which "noise" can be produced in a coaxial cable. These are: (1) bending, (2) twisting and (3) squeezing. The type of stress used by AMPHENOL for measuring was selected after a preliminary investigation of each was performed.

Bending stresses produced output voltage too low for accurate measurement. The "squeezing" or "impulse" stresses produced voltages with very short rise and decay times making accurate recording difficult. The twisting motion appeared to give an output that would lend itself easily to accurate measurement. Twisting the cable through a small angle produces a voltage dip with moderate rise and decay times and the true magnitude is easily recorded.

A motor drive and twisting arbor is used to twist each cable sample. A motor drive system is utilized to obtain a constant output from the sample under test.

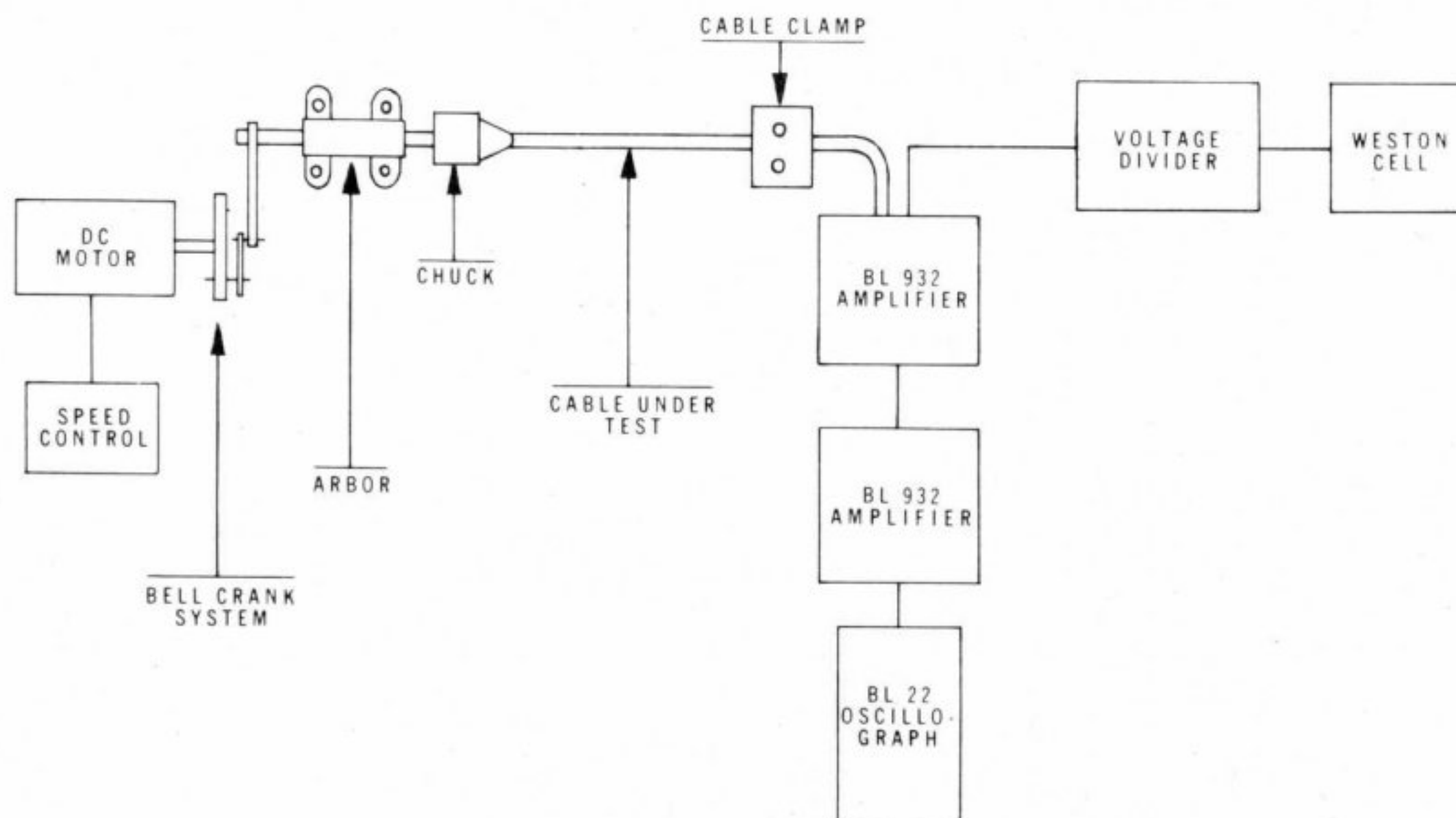
To perform a measurement, a four foot sample of cable is used with an 83-ISP connector assembled to one

end. The opposite end is covered with an electrical grade of tape and inserted into the chuck. The stationary clamp is tightened after the slack has been removed between the chuck and stationary clamp. The motor is then started and the amplifiers adjusted to obtain a reasonable deflection on the recording oscillograph.

It has been found that a suitable capacitance connected across the output terminals of the cable under test will change the time constant of the system so that constant voltage will be recorded regardless of motor speed. The magnitude of the voltage is measured by calibrating the system with a Weston standard cell.

With this system it is possible to obtain constant output voltage which can easily be compared to standard cables and experimental low noise cables.

As a part of quality control on noise free cables, tests are also performed in accordance with Bureau of Ships Memorandum, Serial 817A3-M-1516A whenever required.



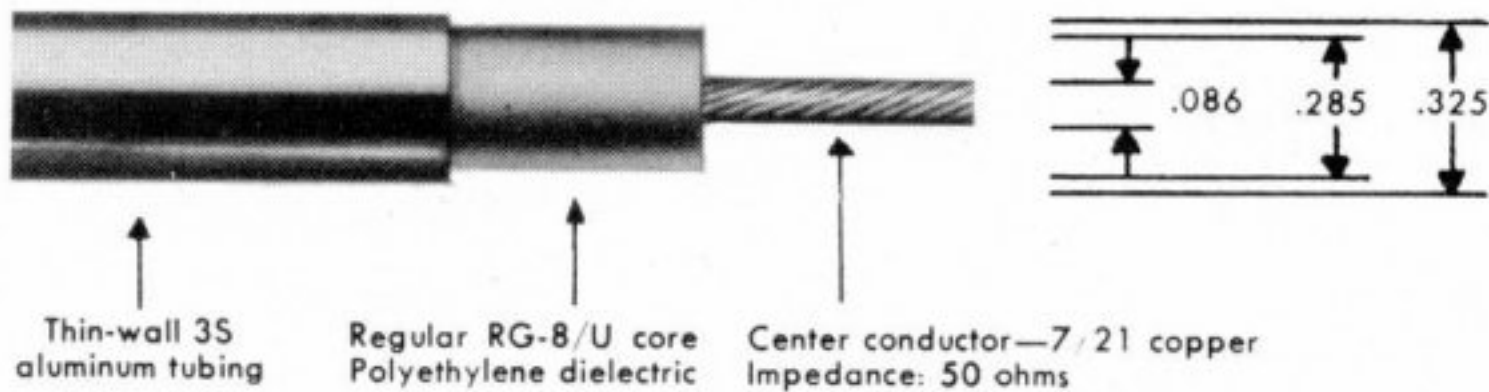


# ALUMINUM JACKETED Coaxial Cable

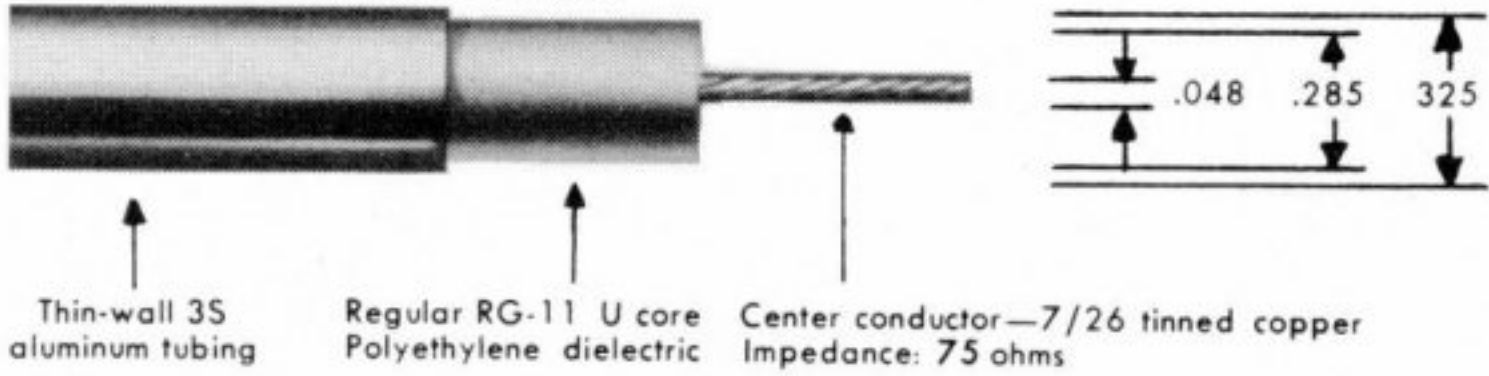


## Polyethylene Dielectric

no. 21-606

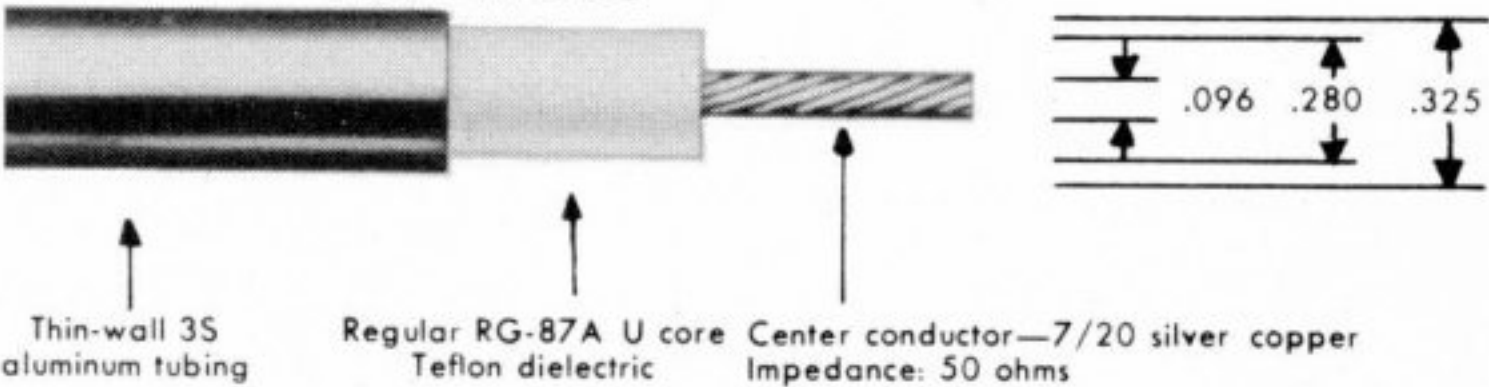


no. 21-607

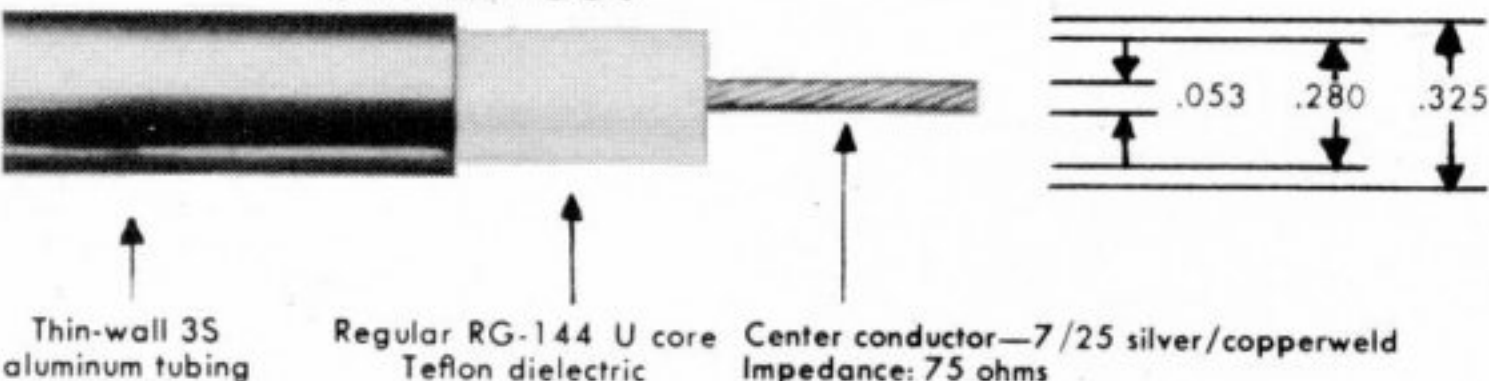


## Teflon Dielectric

no. 21-608



no. 21-609



The four new ALJAK cables are smaller, tougher versions of standard RG-8/U, RG-11/U, RG-87A/U and RG-144/U coaxial cables. Instead of a vinyl jacket ALJAK has a seamless extruded aluminum jacket swaged over either Teflon\* or polyethylene dielectric. ALJAK also features lower attenuation and smaller o.d.'s than the corresponding RG-/U types. The aluminum jacket of ALJAK is non-contaminating and the cable is completely weatherproof. ALJAK is semi-flexible, allowing many different line shapes to be pre-formed.

The application possibilities of ALJAK are numerous. Aircraft, guided missiles, buried cable installations—in fact any application requiring a lightweight, rugged and completely weatherproof coaxial cable.

A NOTE ON ORDERING 21-606 and 21-607 are available in multiples of 50 feet only and a minimum order of 50 feet. 21-608 and 21-609 are available in multiples of 10 feet only and a minimum order of 10 feet. All four types are available in a maximum continuous length of 200 feet.

Order the ALJAK cable adapter kit, AMPHENOL No. 82-871, to replace the usual cable clamping components of Series N improved and Series C RF connectors when assembling to ALJAK cable. With the use of the kit an extremely tight mechanical cable-to-connector fit is achieved.

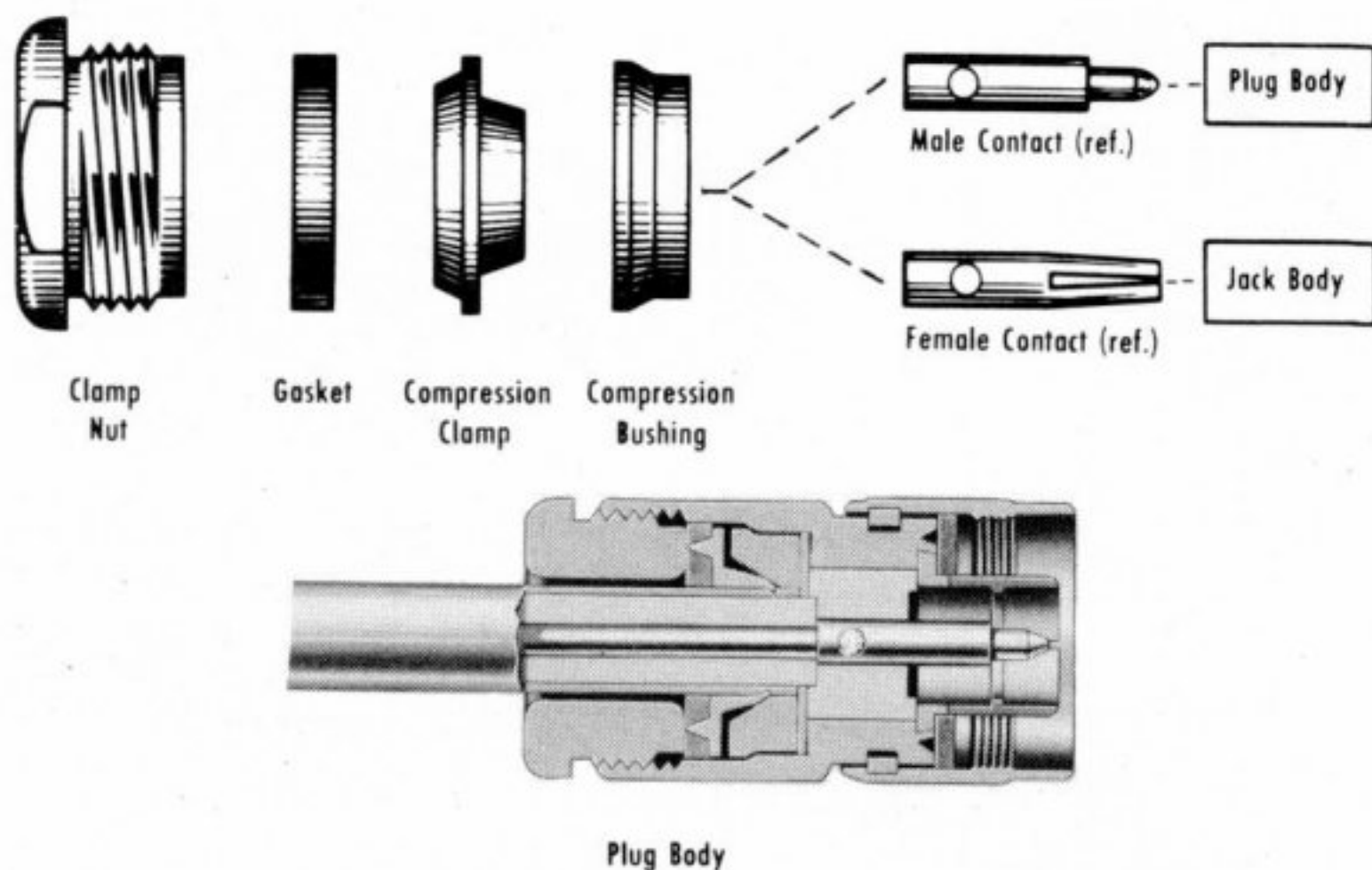
\*E. I. Du Pont Registered Trade Mark

ALJAK cables weigh much less than their RG/U counterparts, as is illustrated in the following chart.

WEIGHT IN POUNDS PER 1000 FEET

ALJAK CABLE	WEIGHT	RG-/U EQUIVALENT	WEIGHT
21-606	69	8	107
21-607	59	11	97
21-608	103	87A	139
21-609	93	144	123

## Aljak Cable Adapter Kit No. 82-871

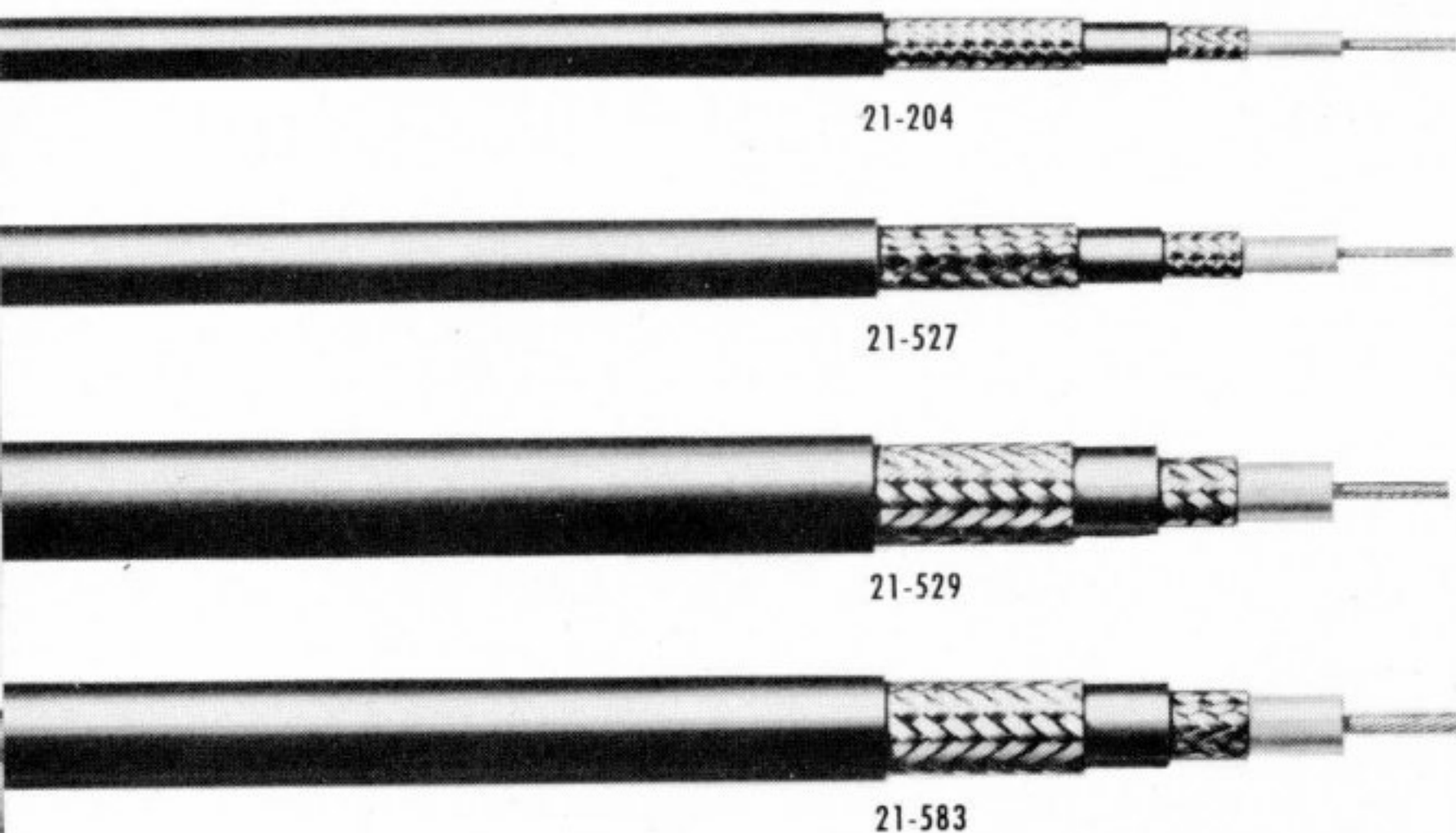


Attenuation db/100 ft.

Frequency Mc.	Attenuation db/100 ft.			
	21-606	21-607	21-608	21-609
100	1.55	1.55	1.40	1.45
200	2.50	2.50	2.15	2.30
300	3.30	3.30	2.80	2.80
400	4.00	4.00	3.35	3.45
1000	7.60	7.50	6.00	6.20
3000	16.00	16.00	12.00	12.50



## TRIAxIAL Cable



AMPHENOL Part No.	Attenuation in db/100 feet			
	50 mc	100 mc	150 mc	200 mc
21-204	3.40	5.10	6.50	7.60
21-527	2.60	3.80	4.70	5.55
21-529	1.40	2.10	2.65	3.10
21-583	1.34	2.00	1.58	3.05

AMPHENOL Triaxial cable was originally designed to meet the needs of Community TV Systems (see pages 20 and 21). The magnitude of signal levels in a Community TV System makes it necessary to provide additional shielding over the standard coaxial cables in order to reduce radiation to an amount predetermined by the FCC. Other applications for this cable have since become apparent. An important use for Triaxial cable is the test signal distribution systems used in industry and laboratory where it is necessary to provide additional shielding to minimize cross-cable interference.

AMPHENOL Triaxial cable is manufactured by placing a full coverage of high-quality shield braid over the jacket of standard RG coaxial cable and then extruding a full thickness of vinyl jacket overall to provide the necessary weatherproofing. The full coverage of the added shield provides maximum attenuation of radiated signals and minimum pickup of external interference.

AMPHENOL No.	Military RG-/U No.	Impedance in Ohms	Jacket Diameter	Vinyl Jacket	Shields		O. D. Dielectric	Inner Conductor	V. P. %	Cap. MMFD/Ft.	Max. Oper. Volts-RMS
					1st	2nd					
21-204	Triaxial 58A	50	.285	Black	T	T	.116	19/.0071	65.9	28.5	1,900
21-527	Triaxial 59	73	.325	Black	C	C	.146	22CW	65.9	21.0	2,300
21-529	Triaxial 11	75	.490	Black	C	C	.285	7/26C	65.9	20.5	4,000
21-583	Triaxial 8	52	.490	Black	C	C	.285	7/21C	65.9	29.5	4,000

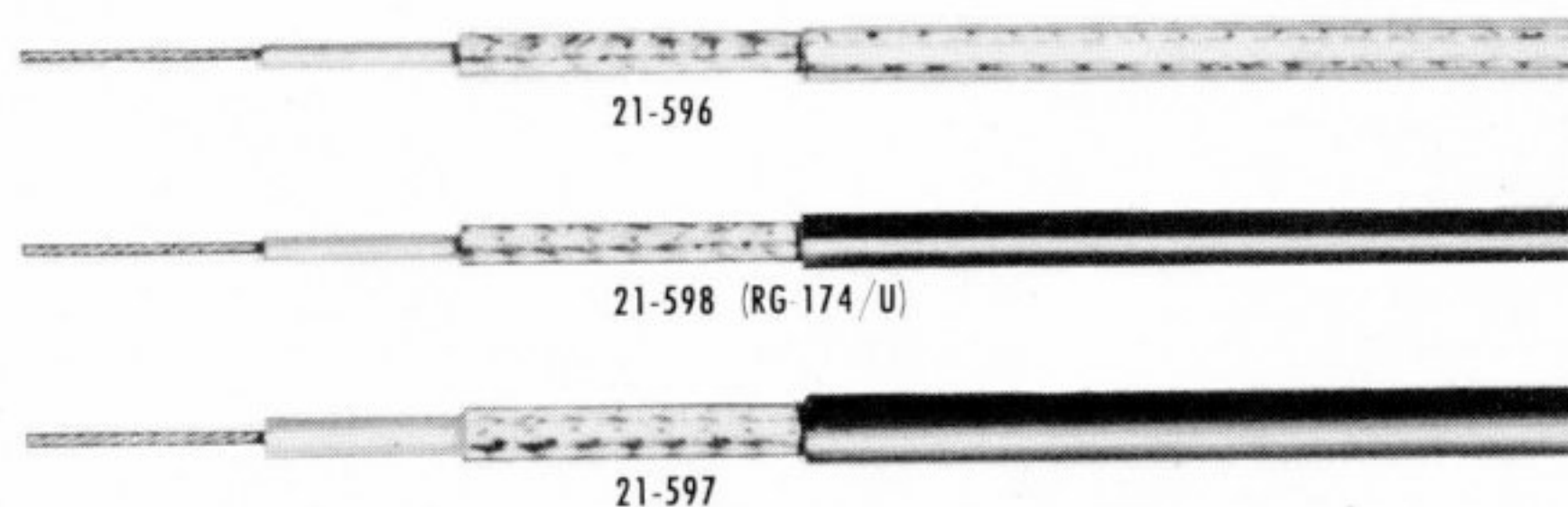
## MINIATURE Coaxial Cable

The illustrations at right are actual size photographs of the three new AMPHENOL Miniature coaxial cables. These new cables are identical in construction features to full-sized coaxial cable: rigid production procedures insure the strict end-to-end uniformity necessary for best performance.

Miniature coaxial cable is intended for use in any miniaturized electronic application: airborne instrumentation, computers—any of the hundreds of new uses resulting from the trend toward miniaturization in electronics.

The 21-596 cable has both a Kel-F\* dielectric and jacket. This material has extremely wide temperature operating limits as well as high chemical resistance. Kel-F cable may be immersed in hydro-carbonic or fuel fluid with complete safety and with no loss of electrical efficiency.

\*M.W. Kellogg Co. Registered Trade Mark

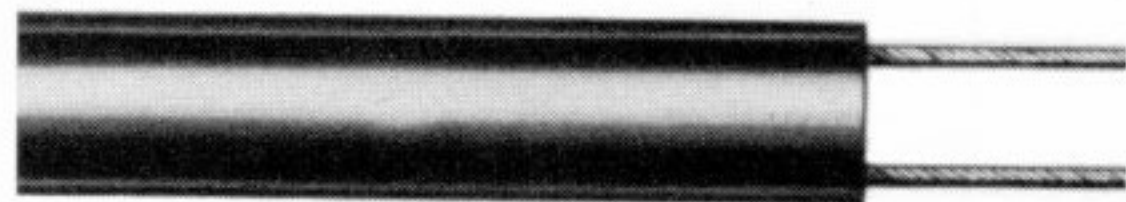


AMPHENOL Part No.	Impedance Ohms	Center Conductor	Dielectric Diameter	Jacket Diameter	Capacity mmf/ft	Attenuation db/ft. 400 mcs.
21-596	50	Copperweld 7/.0063	Kel-F .060"	Kel-F .100"	28	0.22
21-598 (RG-174/U)	50	Copperweld 7/.0063	Poly. .060"	Vinyl .100"	30	0.19
21-597	75	Copperweld 7/.0056	Ply. .100"	Vinyl .140"	20	0.11



# TWIN-LEAD Transmission Lines

## **AIR-CORE** Tubular Twin-Lead for UHF Television. Unsurpassed Electrical Efficiency



14-271



14-056



14-100



14-185



14-079



14-080



14-076



14-023



14-022



14-298



Because of its low-loss and constant impedance, unaffected by adverse weather conditions, AMPHENOL 14-271 Tubular Twin-Lead is recommended by leading authorities for UHF-TV reception. The concentrated field of energy is largely contained and protected by the patented tubular construction. Moisture, one of the greatest enemies of UHF signal strength, does not materially affect the impedance or electrical efficiency of AMPHENOL Tubular Twin-Lead. 300 OHM Tubular Twin-Lead, Pat. No. 2,543,696, for UHF television and Deluxe FM and VHF-TV installations.

- 14-271-100—Coil of 100 feet
- 14-271-501—Coil of 500 feet
- 14-271-500 and 14-271-1000—Reels of 500 and 1000 feet

## Amphenol's Popular Flat Type Twin Lead for FM and VHF-TV Installations

AMPHENOL Flat Twin-Lead is recommended for VHF television and FM antenna installations. The use of brown pigmented polyethylene dielectric assures minimum signal loss and a more constant impedance over the exceptionally long life of AMPHENOL Flat Twin-Lead. This dielectric remains flexible at  $-70^{\circ}$  C and resists the effects of sun, chemical fumes, salt-laden and gas-polluted air.

- 300 OHM Standard Flat Twin-Lead for FM and TV antennas
- 184-801—Coil of 75 feet
- 184-802—Coil of 100 feet
- 14-056-500 and 14-056-1000—Reels of 500 and 1000 feet
- 300 OHM DeLuxe CENTURY Flat Twin-Lead
- 14-100-100—Coil of 100 feet
- 14-100-500 and 14-100-1000—Reels of 500 and 1000 feet
- 300 OHM Super DeLuxe HEAVY DUTY Flat Twin-Lead
- 14-185-100—Coil of 100 feet
- 14-185-500 and 14-185-1000—Reels of 500 and 1000 feet
- 150 OHM Twin-Lead for experimental work
- 14-079-250—Coil of 250 feet
- 14-079-500 and 14-079-1000—Reels of 500 and 1000 feet
- 75 OHM Twin-Lead for applications requiring lower impedance
- 14-080-250—Coil of 250 feet
- 14-080-500 and 14-080-1000—Reels of 500 and 1000 feet

## Amateur Transmitting and Copper Clad Types

- 75 OHM Oval Twin-Lead for transmitting rated 1 KW RF power
- 14-023-100—Coil of 100 feet
- 14-023-500 and 14-023-1000—Reels of 500 and 1000 feet
- 300 OHM AIR-CORE Tubular Twin-Lead, Pat. No. 2,543,696, for transmitting rated 1 KW RF power and for deluxe receiving lead-in for fringe VHF or UHF television areas.
- 14-076-100—Coil of 100 feet
- 14-076-500 and 14-076-1000—Reels of 500 and 1000 feet
- 300 OHM Extra-Strength Flat Twin-Lead with copper-clad conductors
- 14-022-100—Coil of 100 feet
- 14-022-500 and 14-022-1000—Reels of 500 and 1000 feet

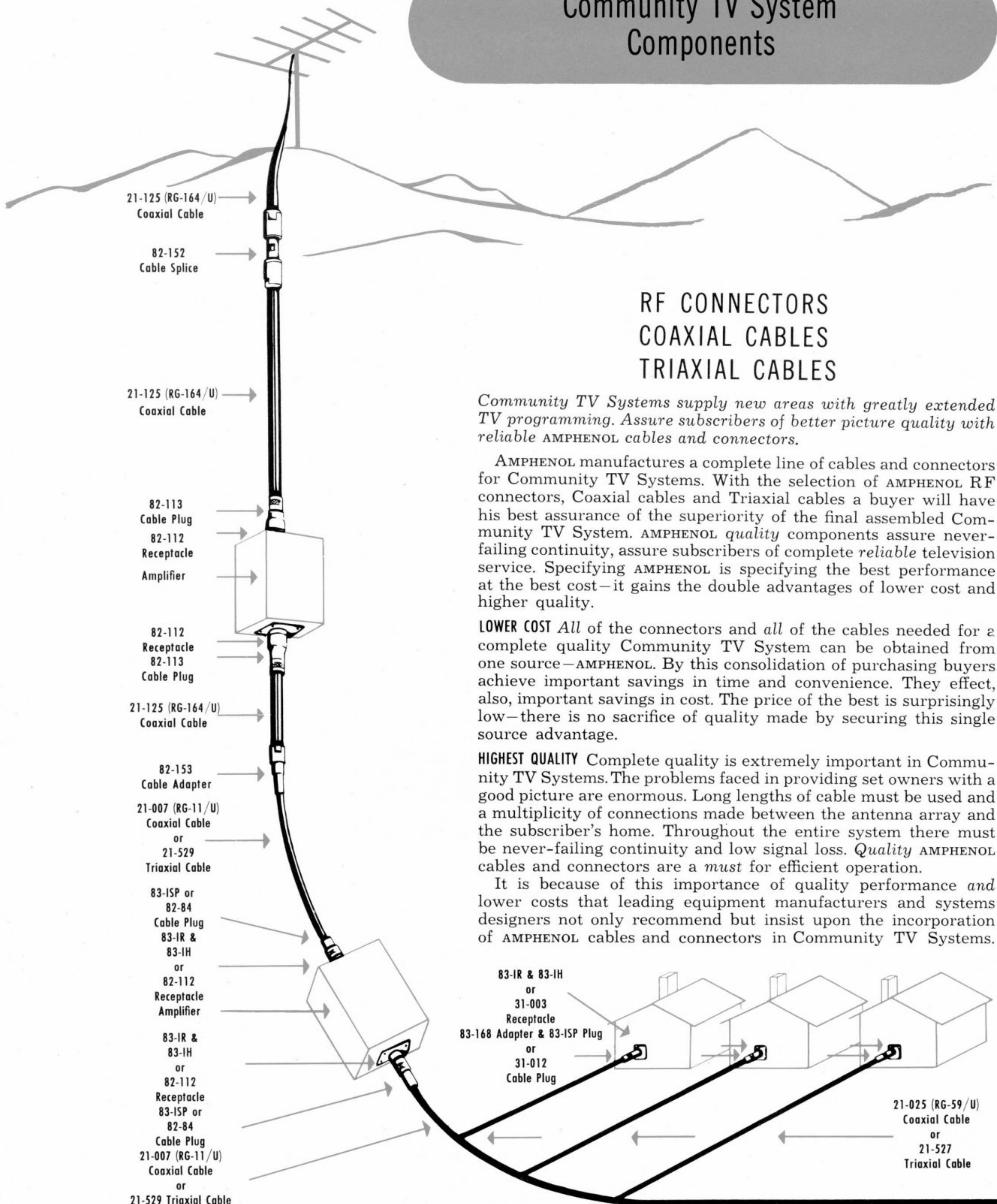
## Multi-Wire Cable

Handy multi-wire cable for hundreds of low voltage applications such as antenna rotator remote control, electric trains, etc. Recommended for circuits up to 28 volts. Wires easily separated and stripped. Conductors are 7-28 copper wire, one being tinned for coding identification. Ribbed brown polyethylene insulation.

- 14-298-100—Coil of 100 feet
- 14-298-500 and 14-298-1000—Reels of 500 and 1000 feet



# Community TV System Components



21-125 (RG-164/U)  
Coaxial Cable

82-152  
Cable Splice

21-125 (RG-164/U)  
Coaxial Cable

82-113  
Cable Plug  
82-112  
Receptacle  
Amplifier

82-112  
Receptacle  
82-113  
Cable Plug

21-125 (RG-164/U)  
Coaxial Cable

82-153  
Cable Adapter

21-007 (RG-11/U)  
Coaxial Cable  
or  
21-529  
Triaxial Cable

83-ISP or  
82-84  
Cable Plug  
83-IR &  
83-IH  
or  
82-112  
Receptacle  
Amplifier

83-IR &  
83-IH  
or  
82-112  
Receptacle  
83-ISP or  
82-84  
Cable Plug  
21-007 (RG-11/U)  
Coaxial Cable  
or  
21-529 Triaxial Cable

83-IR & 83-IH  
or  
31-003  
Receptacle  
83-168 Adapter & 83-ISP Plug  
or  
31-012  
Cable Plug

21-025 (RG-59/U)  
Coaxial Cable  
or  
21-527  
Triaxial Cable

## RF CONNECTORS COAXIAL CABLES TRIAxIAL CABLES

Community TV Systems supply new areas with greatly extended TV programming. Assure subscribers of better picture quality with reliable AMPHENOL cables and connectors.

AMPHENOL manufactures a complete line of cables and connectors for Community TV Systems. With the selection of AMPHENOL RF connectors, Coaxial cables and Triaxial cables a buyer will have his best assurance of the superiority of the final assembled Community TV System. AMPHENOL quality components assure never-failing continuity, assure subscribers of complete reliable television service. Specifying AMPHENOL is specifying the best performance at the best cost—it gains the double advantages of lower cost and higher quality.

**LOWER COST** All of the connectors and all of the cables needed for a complete quality Community TV System can be obtained from one source—AMPHENOL. By this consolidation of purchasing buyers achieve important savings in time and convenience. They effect, also, important savings in cost. The price of the best is surprisingly low—there is no sacrifice of quality made by securing this single source advantage.

**HIGHEST QUALITY** Complete quality is extremely important in Community TV Systems. The problems faced in providing set owners with a good picture are enormous. Long lengths of cable must be used and a multiplicity of connections made between the antenna array and the subscriber's home. Throughout the entire system there must be never-failing continuity and low signal loss. Quality AMPHENOL cables and connectors are a must for efficient operation.

It is because of this importance of quality performance and lower costs that leading equipment manufacturers and systems designers not only recommend but insist upon the incorporation of AMPHENOL cables and connectors in Community TV Systems.



# Community TV System Cables and Connectors

## Sweep Testing

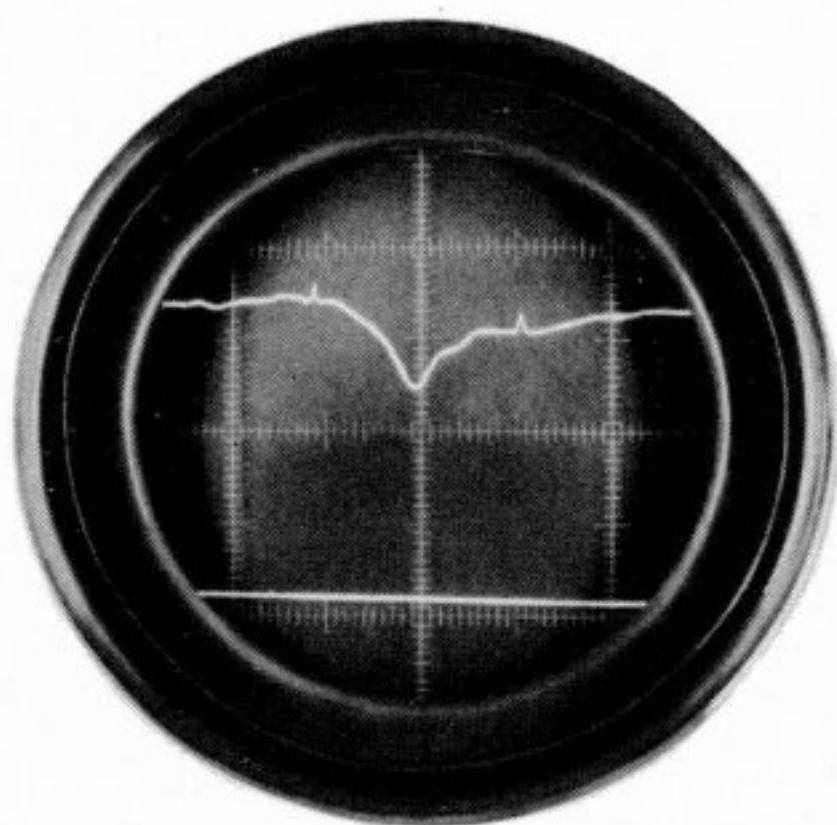
Good audio/video quality on television sets serviced by Community TV Systems depends a great deal on the performance of the cable used. It has been found by various installers throughout the country that many cables made by manufacturers other than AMPHENOL contain sharp peaks in the attenuation curves. The result has been loss or smearing of the picture, no sound reception, or both of these unfortunate conditions. Unfortunate because the only repair possible when this happens is for the installer to tear down many miles of cables and replace with new cable.

Because of the importance of discovering these attenuation peaks, AMPHENOL will sweep test 21-125, 21-007 (RG-11/U) and 21-529 Triaxial cables for use in Community TV Systems. Under sweep testing procedures each reel of cable is tested for each VHF channel, 2 to 13. The customer is then furnished with a notarized affidavit stating that the sweep test has been performed and that the attenuation of the cable does not vary more than 5% from the nominal values throughout the spectrum. The spectrum will be designed as 50 mc through 90 mc and 170 mc through 220 mc.

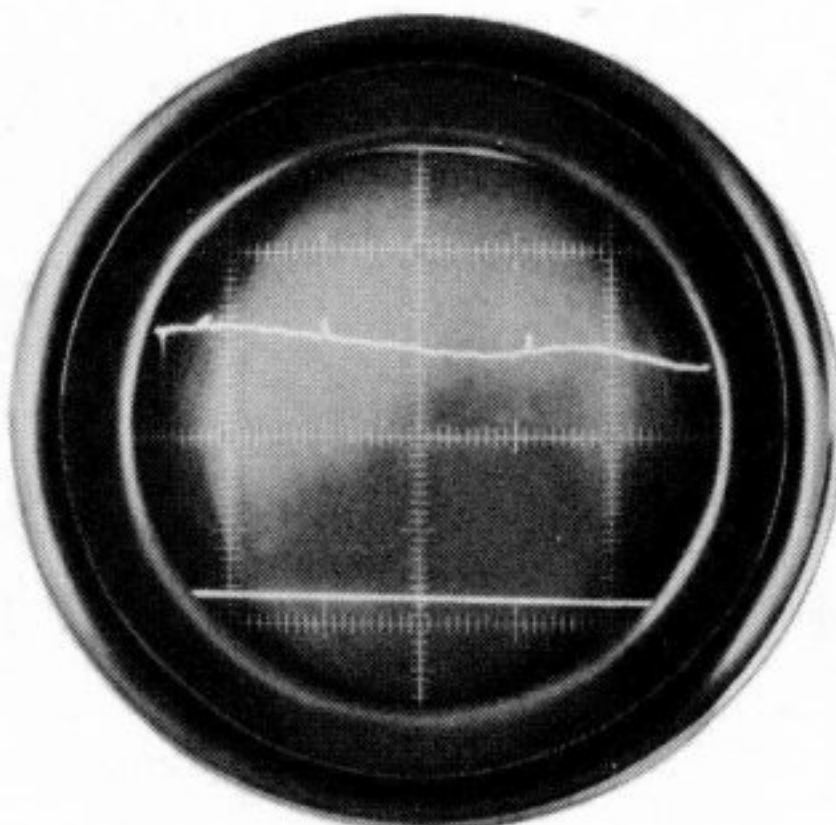
Orders for cables to be sweep tested should carry the suffix -101. Thus, 21-125 with sweep test should be ordered as 21-125-101.

## AMPHENOL Sweep Testing Method

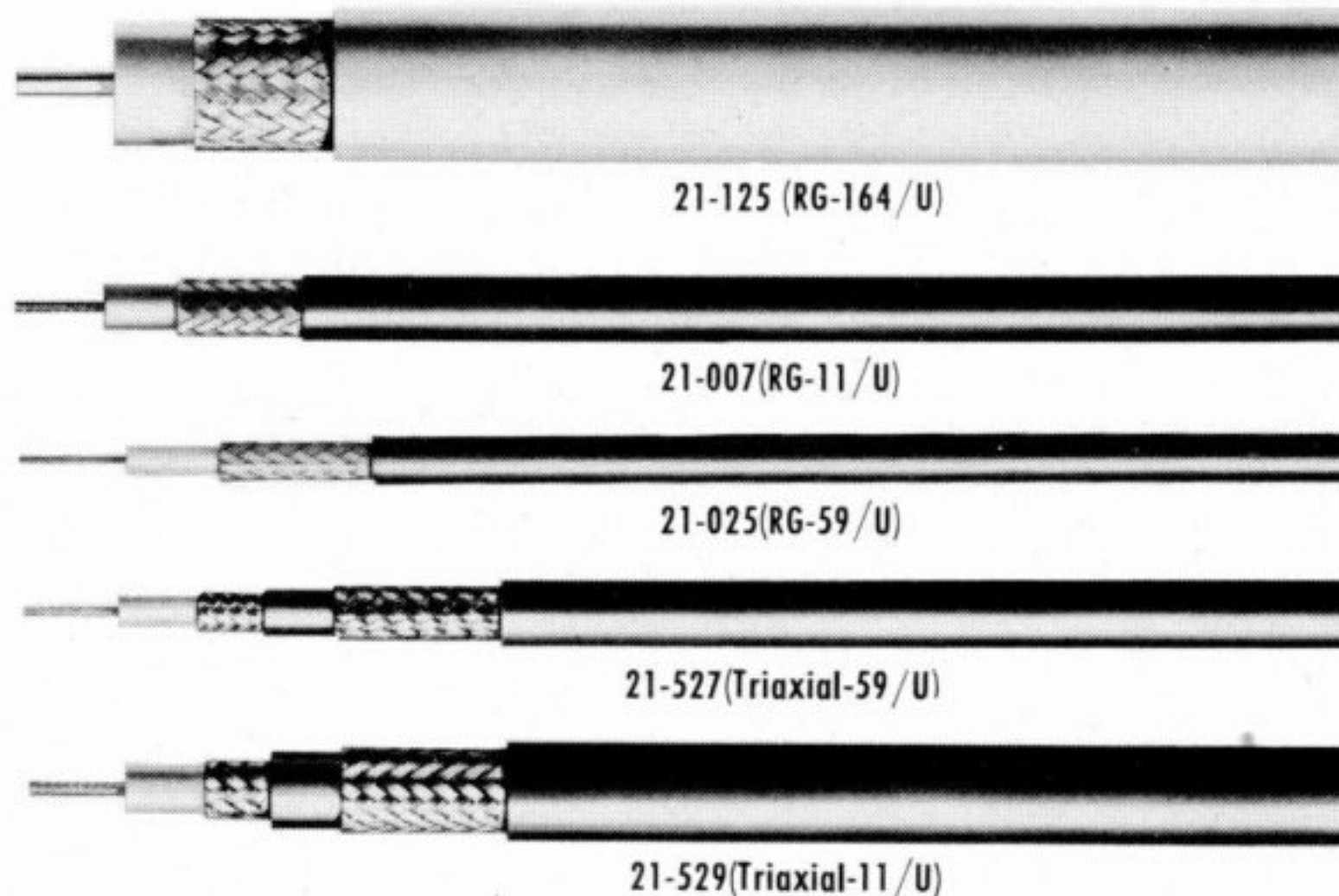
In sweep testing the result of the frequency check for each reel of cable is shown on an oscilloscope. The two small "pips" in the attenuation line mark the beginning and end of the channel frequencies being tested. Between these channel markers the attenuation should show as a level line. Any sweep tested cable showing a sharp peak of attenuation in this line is unsuitable for use in Community TV Systems, while a cable is passed if the line is flat.



Oscilloscope showing result of sweep test of inferior cable made by another manufacturer. Note the sharp dip of the attenuation line in the middle of the channel being tested. This reel of cable should be rejected as unsuitable for Community TV System use.



AMPHENOL cable sweep test result for the same frequencies of the cable test at left. The levelness of the attenuation line between the two channel markers indicate the superior AMPHENOL cable performance. This reel suitable for Community TV System use.



AMPHENOL NO.	THIS CATALOG PAGE NO.
21-125	12
21-007 (RG-11/U)	8
21-025 (RG-59/U)	11
21-529	18
21-527	18

### ATTENUATION IN DB/100 FEET BY CHANNELS\*

AMPHENOL NO.	MILITARY NO.	2	3	4	5	6	7	8	9	10	11	12	13
21-125		.62	.66	.69	.75	.78	1.19	1.21	1.24	1.26	1.28	1.30	1.32
21-007	RG-11/U	1.38	1.45	1.51	1.63	1.70	3.07	3.10	3.18	3.25	3.28	3.32	3.38
21-529		1.38	1.45	1.51	1.63	1.70	3.07	3.10	3.18	3.25	3.28	3.32	3.38
21-025	RG-59/U	2.80	2.90	3.10	3.30	3.45	5.25	5.37	5.45	5.60	5.65	5.75	5.87
21-527		2.80	2.90	3.10	3.30	3.45	5.25	5.37	5.45	5.60	5.65	5.75	5.87

\*Attenuation given for the center frequency of channel.

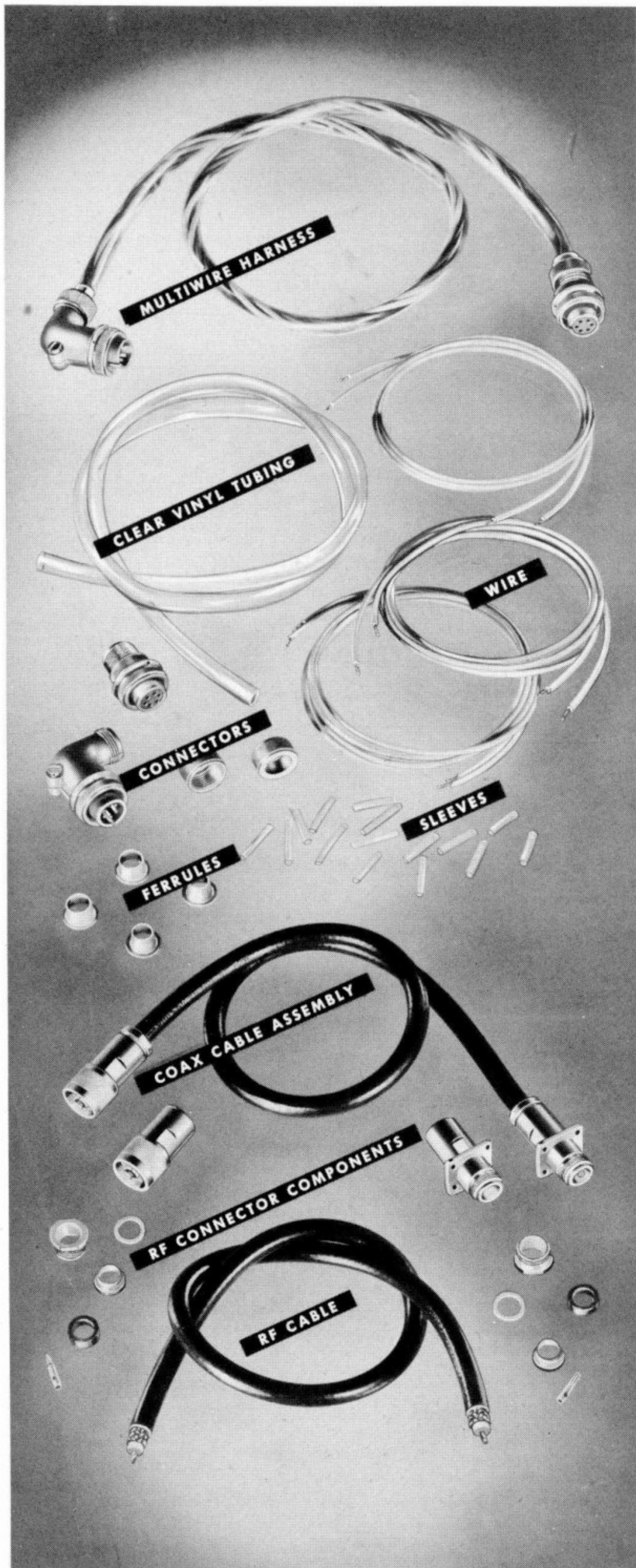
Attenuation figures given are averages of AMPHENOL laboratory tests. For maximum attenuation figures permitted under government specifications consult JAN-C-17A.

### RF CONNECTORS

AMPHENOL NO.	MILITARY NO.
82-152	—
82-113	—
82-112	—
82-153	—
82-84	UG-94A/U
82-109	MX-564A/U
31-012	UG-260/U
31-003	UG-290/U
83-1R	SO-239
83-1SP	PL-259
83-1H	UG-106/U
83-168	UG-176/U

(See Inside Back Cover, this catalog, for information on RF connector Bulletins)

# AMPHENOL Cable Harnesses



Because AMPHENOL is a leader in the manufacture of the connectors, wire, cable and fittings utilized in most wired assemblies, it is natural that complete assemblies can be most expediently produced or fabricated within the same plant.

Component units for assemblies are readily available from AMPHENOL's connector, cable and fittings departments, eliminating the many problems connected with the procurement of individual parts from several sources—one purchase order covering the entire assembly is all that is required.

Beyond the saving of time, worry and cost, AMPHENOL assures top quality—cable and harness assemblies have been an important part of AMPHENOL's production for many years. Skilled craftsmen highly trained and long experienced build these assemblies of recognized superior quality.

At the left are typical examples of complete assemblies which are supplied by AMPHENOL ready to install. Also shown are their component parts. Ordering these components as a complete unit saves space and records essential to ordering, storing and identifying the various parts. For example, the top assembly would necessitate procuring the following separate components—from several different manufacturers—a total of eleven component purchases as contrasted to placing an order with AMPHENOL under a single part number identifying the complete assembly fabricated to your exact specifications.

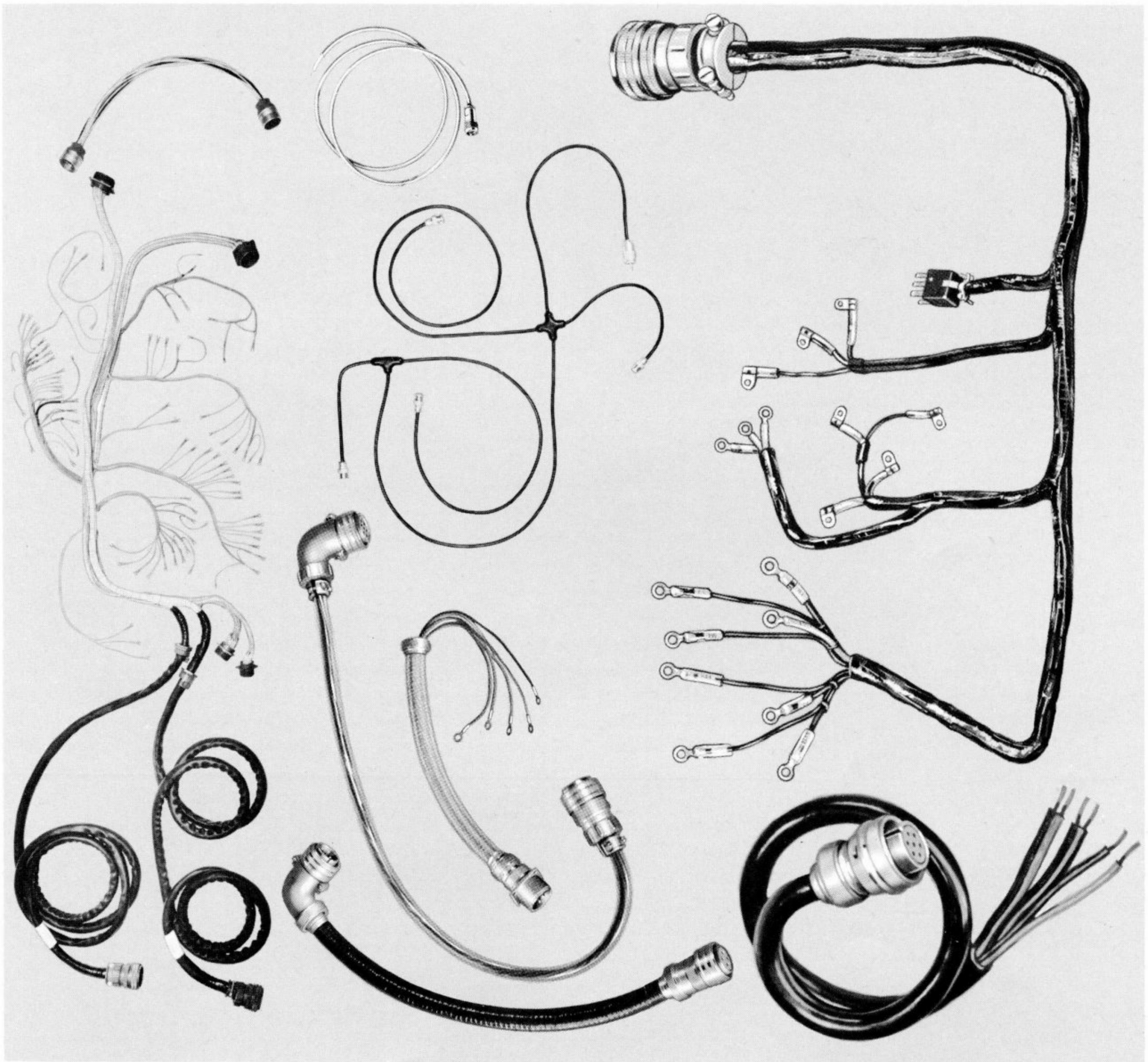
## BILL OF MATERIAL

Quantity	Part No.	Description
1	AN3108B-14S-6S	Connector (Split Shell Type)
1	AN3106A-14S-6S	Connector (Straight Type)
2	162-009	Ferrule—AF 28
2	AN3054-6	Coupling Nut
2 Pcs.	37-158-20	No. 20 AWG—JAN-C-76, White nylon covered wire—each 38" long
2 Pcs.	37-158-18	No. 18 AWG—JAN-C-76, White nylon covered wire—each 38" long
2 Pcs.	37-158-16	No. 16 AWG—JAN-C-76, White nylon covered wire—each 38" long
1 Pc.	90-375A-36.0"	Transflex Tubing—36" long
4 Pcs.	90-106A-.5"	Transflex Tubing—each ½" long
4 Pcs.	90-118A-.5"	Transflex Tubing—each ½" long
4 Pcs.	90-133A-.5"	Transflex Tubing—each ½" long

Specifying AMPHENOL complete cable assemblies saves costs and labor hours by eliminating excessive inventories of component parts; reducing time involved in procurement, production planning, inventory control and component inspection; insuring against losses by errors and rejects in production and surplus parts.



## and Assemblies



AMPHENOL engineers and technicians are available for consultation without any obligation to you. Because they have solved thousands of cable assembly problems they can recommend the most practical, efficient and economical harness for your requirements.

Production equipment, too, was created through years of experience—most efficient mechanical equipment provides speedy delivery and effects lower costs.

Exacting inspection of every cable assembly and wiring harness from the building of the indi-

vidual components to the finished unit insures uniform high quality throughout and continuous performance even under the most severe conditions. Electrical inspection includes color coding, continuity and high voltage breakdown tests and all assemblies are designed to meet and surpass rigid Army-Navy specifications.

AMPHENOL is prepared to build an almost unlimited variety of cable harnesses and assemblies. The assemblies illustrated above are representative of the wide variety of types and sizes AMPHENOL has produced.

## SELECTOR INDEX for MATCHING CABLES AND CONNECTORS

### CABLES

### CABLE CONNECTORS

STANDARD JACKET		LOW TEMP. BLACK JACKET	
Mil. No. RG/U	AMPHENOL No.	Mil. No. RG-/U	AMPHENOL No.
5	21-001		
5A	21-271	5B	21-294
6	21-002	6A	21-330
8	21-004	8A	21-290
9	21-005		
9A	21-231	9B	21-332
10	21-006	10A	21-338
11	21-007	11A	21-296
12	21-008	12A	21-340
13	21-009	13A	21-334
14	21-010	14A	21-336
17	21-013	17A	21-298
18	21-014	18A	21-300
21	21-017	21A	21-308
22	21-038		
22A	21-148	22B	21-310
29	21-018		
34	21-019	34A	21-429
35	21-020	35A	21-311
54A	21-022		
55	21-023		
57	21-039	57A	21-313
58	21-024	58B	21-315
58A	21-199	58C	21-316
59	21-025	59A	21-291
62	21-026	62A	21-318
63	21-027	63B	21-320
71	21-029		
74	21-041	74A	21-321
164	21-125		
108	21-261	108A	21-327
130	21-436		

### SERIES UHF SMALL COAXIAL

Military Number	AMPHENOL Number	Description
UG-106/U	83-1H	Hood
M-360		
49193		
UG-111/U	83-750	Plug
UG-175/U	83-185	Adapter, Reducing
UG-176/U	83-168	Adapter, Reducing
UG-177/U	83-765	Hood
UG-203/U	83-776	Plug
49482		
UG-372/U	83-1HP	Hood
PL-259	83-1SP	Plug
49190		
PL-259A	83-1SPN	Plug
49195		
PL-259A	83-756	Plug (Teflon)
49195		
---	83-59	Plug, Right-Angle
---	83-786	Hood & Gang Nut
---	83-822	Plug

### SERIES UHF SMALL TWIN

UG-102/U	83-22SP	Plug
PL-284		
UG-106/U	83-1H	Hood
M-360		
49193		
---	83-65	Adapter, Reducing
---	83-821	Plug (Teflon)

### SERIES UHF LARGE COAXIAL

UG-358/U	83-21SP	Plug
M-365	83-2H	Hood
49208		
---	83-787	Plug

In addition to the cable-connector combinations given in this chart, there are a number of cables which can be used with certain connector series by modifying the cable or connector physically. Also there are

a number of cables which will fit certain connectors physically but are not electrically matched. For a complete coverage of all possible combinations request the AMPHENOL RF Cable-Connector Slide Chart.

**SERIES UHF LARGE TWIN**

M-365 49208	83-2H	Hood
PL-295 49188	83-2SP	Plug

**SERIES BNC**

UG-88/U	31-002	Plug
UG-88B/U	31-018	Plug
UG-88C/U	31-202	Plug
UG-89/U	31-005	Jack
UG-89A/U	31-019	Jack
UG-89B/U	31-205	Jack
UG-260/U	31-012	Plug
UG-260A/U	31-021	Plug
UG-260B/U	31-212	Plug
UG-261/U	31-015	Jack
UG-261A/U	31-022	Jack
UG-261B/U	31-215	Jack
UG-262/U	31-011	Jack
UG-262A/U	31-023	Panel Jack
UG-262B/U	31-211	Panel Jack
UG-291/U	31-001	Panel Jack
UG-291A/U	31-020	Panel Jack
UG-291B/U	31-201	Panel Jack
UG-909/U	31-206	Jack, Bulkhead
UG-910/U	31-207	Jack, Bulkhead
UG-913/U	31-204	Plug, Right-Angle
--	31-850	Plug, Right-Angle
--	31-851	Cable Feed-Thru

**SERIES BN**

UG-85/U	82-21	Plug
UG-114/U	82-25	Panel Jack
UG-115/U	82-26	Jack

**PUSH-ON TYPE**

--	82-830	Plug
--	82-832	Plug
--	82-842	Plug (Teflon)
--	82-845	Plug, Bulkhead
--	82-846	Jack, Bulkhead

**SERIES HN**

UG-59A/U	82-38	Plug
UG-59B/U	82-804	Plug (Teflon)
UG-60A/U	82-39	Jack
UG-60B/U	82-814	Jack (Teflon)
UG-61A/U	82-40	Panel Jack
UG-61B/U	82-815	Panel Jack (Teflon)
UG-333/U	82-56	Jack
UG-333A/U	82-107	Jack
UG-334/U	82-57	Panel Jack
UG-334A/U	82-108	Panel Jack
UG-495A/U	82-111	Plug
MX-103/U	103-301	Tapering Tool
MX-564/U	82-48	Armor Clamp
MX-564A/U	82-109	Armor Clamp
--	82-816	Plug
--	82-833	Plug, Right-Angle
--	82-856	Plug, Right-Angle (Teflon)

**SERIES N-50 ohms except as shown**

NOTE: Series N 50 ohm and 70 ohm connectors will not mate.

UG-18B/U	82-86	Plug
UG-18C/U	82-203	Plug
UG-19B/U	82-87	Panel Jack
UG-19C/U	82-207	Panel Jack
UG-20B/U	82-88	Jack
UG-20C/U	81-210	Jack
UG-21B/U	82-61	Plug
UG-21C/U	82-96	Plug
UG-21D/U	82-202	Plug

UG-18C/U	Plug
UG-19B/U	Panel Jack
UG-19C/U	Panel Jack
UG-20B/U	Jack
UG-20C/U	Jack
UG-21B/U	Plug
UG-21C/U	Plug
UG-21D/U	Plug
UG-22B/U	Panel Jack
UG-22C/U	Panel Jack
UG-22D/U	Panel Jack
UG-23B/U	Jack
UG-23C/U	Jack
UG-23D/U	Jack
UG-94A/U	Plug (70 ohm)
UG-95A/U	Jack (70 ohm)
UG-96A/U	Panel Jack (70 ohm)
UG-106/U	Hood
UG-160A/U	Jack, Bulkhead
UG-160B/U	Jack, Bulkhead
UG-167A/U	Plug
UG-167C/U	Plug
UG-204A/U	Plug
UG-204B/U	Plug
UG-935A/U	Panel Jack
UG-940A/U	Jack
UG-941A/U	Plug
MX-564/U	Armor Clamp
MX-564A/U	Armor Clamp
--	Plug (70 ohms)
--	Plug, Right-Angle

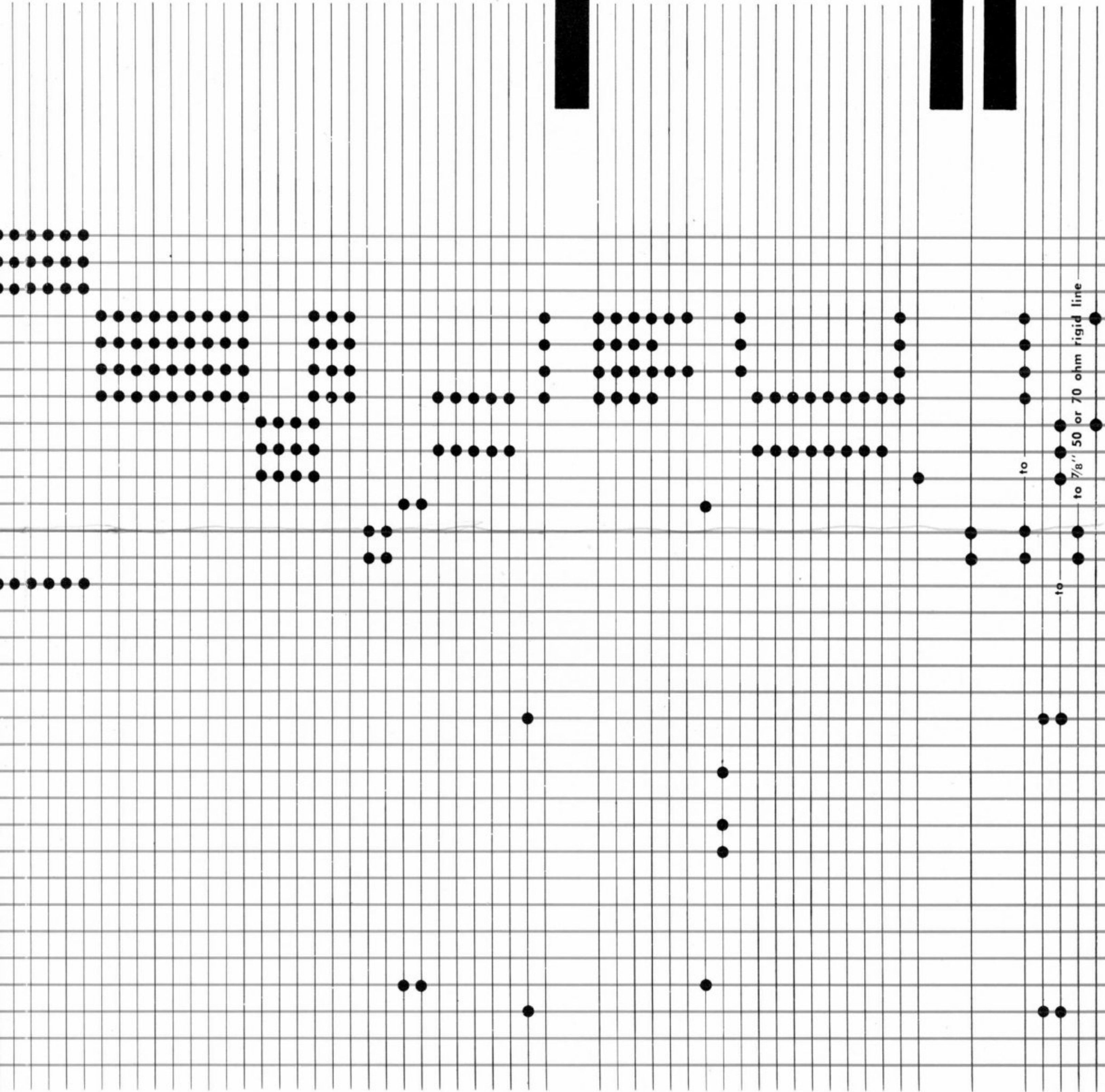
**SERIES C**

UG-570/U	Jack, Bulkhead
UG-571/U	Panel Jack
UG-572/U	Jack
UG-573A/U	Plug
UG-628A/U	Plug, Hi-Voltage
UG-632/U	Panel Jack, Hi-Voltage
UG-707A/U	Plug
UG-709A/U	Plug
UG-710A/U	Plug Right-Angle
UG-937/U	Jack, Bulkhead
UG-938/U	Panel Jack
UG-939/U	Jack, Bulkhead
UG-942A/U	Plug
UG-943A/U	Plug
UG-944/U	Jack
UG-945A/U	Plug, Right-Angle
MX-1286/U	Armor Clamp
--	Hood
--	Adapter, Tee

**SERIES LC**

UG-154/U	Plug
82-502	Jack, Bulkhead
82-501	Panel Jack
82-503	Jack
82-530	Plug
82-532	Plug, Hi-Voltage
82-521	Panel Jack, Hi-Voltage
82-533	Plug
82-534	Plug
82-531	Plug Right-Angle
82-522	Jack, Bulkhead
82-523	Panel Jack
82-524	Jack, Bulkhead
82-539	Plug
82-538	Plug
82-536	Jack
82-537	Plug, Right-Angle
82-517	Armor Clamp
82-510	Hood
82-519	Adapter, Tee
82-59	Plug
82-150	Transition
82-152	Splice
82-153	Transition
144-001	Adapter
152-201	End Seal

**COAXIAL CABLE FITTINGS**



# Cable Connector Mating Components and Accessories

Military Number	AMPHENOL Number	Description
<b>SERIES UHF SMALL COAXIAL</b>		
UG-363/U PL-274 491049	83-1F	Adapter, Bulkhead
UG-646/U M-359 49192	83-1AP	Adapter, Right-Angle
M-358 49199	83-1T	Adapter, Tee
M-359A 49192A	83-58	Adapter, Right-Angle
PL-258 49191	83-1J	Adapter, Straight
SO-239 49194	83-1R	Receptacle
SO-239A	83-798	Receptacle (Teflon)
---	83-1AC	Cap & Chain (Jacks)
---	83-1BC	Cap & Chain (Plugs)
---	83-1RTY	Receptacle
---	83-716	Receptacle, Pressure Proof
---	83-812	Receptacle, Brass Shell (Teflon)
<b>SERIES UHF SMALL TWIN</b>		
UG-103/U SO-264	83-22R	Receptacle
UG-104/U PL-293	83-22AP	Adapter, Right-Angle
UG-105/U PL-285	83-22J	Adapter, Straight
UG-196/U	83-22T	Adapter, Tee
PL-275	83-22F	Adapter, Bulkhead
---	83-1AC	Cap & Chain (Jacks)
---	83-1BC	Cap & Chain (Plugs)
<b>SERIES UHF LARGE COAXIAL</b>		
UG-357/U	83-21R	Receptacle
UG-360/U	83-21J	Adapter, Straight
<b>SERIES UHF LARGE TWIN</b>		
PL-305 49189	83-2J	Adapter, Straight
PL-325	83-2AP	Adapter, Right-Angle
SO-265 49196	83-2R	Receptacle
<b>SERIES BNC</b>		
UG-254A/U	31-016	Receptacle, Bulkhead, Press.
UG-274/U	31-008	Adapter, Tee
UG-274A/U	31-208	Adapter, Tee
UG-290/U	31-003	Receptacle
UG-290A/U	31-203	Receptacle
UG-306/U	31-009	Adapter, Right-Angle
UG-447/U	31-817	Receptacle*
UG-491A/U	31-218	Adapter, Straight
UG-492A/U	31-220	Adapter, Bulkhead, Press.
UG-535A/U	31-213	Receptacle, Right-Angle
UG-625A/U	31-214	Receptacle, Bulkhead
UG-657/U	31-102	Receptacle, Bulkhead, Press.
UG-914/U	31-219	Adapter, Straight
CW-123/U	31-006	Cap & Chain (Jacks)
CW-123A/U	31-026	Cap & Chain (Jacks)
CW-155/U	31-007	Cap (Jacks)
CW-155A/U	31-027	Cap (Jacks)
CW-159/U	31-017	Shorting Plug
CW-282/U	31-210	Cap & Chain (Plugs)
---	31-104	Receptacle*
---	31-105	Receptacle*

Military Number	AMPHENOL Number	Description
<b>SERIES BNC</b>		
---	31-759	Shield Grounding Lug
---	31-842	Receptacle*
<b>SERIES BN</b>		
UG-87/U	82-42	Receptacle
UG-206/U	31-101	Receptacle, Bulkhead, Gold Plated
---	31-118	Receptacle, Bulkhead
---	31-759	Shield Grounding Lug
<b>PUSH-ON TYPE</b>		
---	82-831	Receptacle, Bulkhead
---	82-841	Receptacle, Bulkhead (Teflon)
<b>SERIES HN</b>		
UG-212A/U	82-91	Adapter, Right-Angle
UG-496/U	82-92	Receptacle
UG-560/U	82-805	Receptacle
---	82-91A	Adapter, Right-Angle (Teflon)
---	82-130	Cap & Chain (Jacks)
---	82-836	Receptacle, Press.
---	82-843	Receptacle, Hi-Voltage, Press.
<b>SERIES N—50 ohms except as shown</b>		
<i>NOTE: Series N 50 ohm and 70 ohm connectors will not mate</i>		
UG-27A/U	82-64	Adapter, Right-Angle
UG-27B/U	82-98	Adapter, Right-Angle
UG-27C/U	82-213	Adapter, Right-Angle
UG-28A/U	82-99	Adapter, Tee
UG-29A/U	82-65	Adapter, Straight
UG-29B/U	82-101	Adapter, Straight
UG-30/U	82-66	Adapter, Bulkhead, Press.
UG-30C/U	82-201	Adapter, Bulkhead, Press.
UG-57B/U	82-100	Adapter, Straight
UG-58/U	82-24	Receptacle
UG-58A/U	82-97	Receptacle
UG-107A/U	82-36	Adapter, Tee
UG-107B/U	82-102	Adapter, Tee
UG-680/U	82-811	Receptacle, Bulk., Herm., Press.
MX-913/U	82-106	Cap & Chain (Jacks)
---	82-112	Receptacle (70 ohm)
---	82-849	Adapter, Straight, Press.
---	82-1275	Shield Grounding Lug
---	83-1BC	Cap & Chain (Plugs)
<b>SERIES C</b>		
UG-566A/U	82-536	Adapter, Tee
UG-567A/U	82-535	Adapter, Right-Angle
UG-568/U	82-504	Receptacle
UG-569/U	82-505	Receptacle, Bulkhead
UG-634/U	82-515	Receptacle, Bulkhead, Hi-Voltage
UG-643/U	82-514	Adapter, Straight
UG-705/U	82-511	Receptacle, Bulkhead, Press.
MX-1142/U	82-512	Cap & Chain (Jacks)
MX-1143/U	82-513	Cap & Chain (Plugs)
<b>SERIES LC</b>		
UG-352/U	82-80	Receptacle
UG-352A/U	82-110	Receptacle
<b>BETWEEN SERIES ADAPTERS</b>		
UG-201/U	31-830	N Plug & BNC Jack
UG-201A/U	31-216	N Plug & BNC Jack
UG-273/U	31-028	BNC Jack & UHF Plug
UG-349A/U	31-217	N Jack & BNC Plug
UG-564/U	82-508	C Jack & N Plug
UG-565A/U	82-540	C Plug & N Jack

STANDARD JACKET	
Mil. No. RG-/U	AMPHENOL No.
5	21-001
5A	21-271
6	21-002
7	21-003
8	21-004
9	21-005
9A	21-231
10	21-006
11	21-007
12	21-008
13	21-009
14	21-010
15	21-011
17	21-013
18	21-014
19	21-015
20	21-016
21	21-017
22	21-038
22A	21-148
23	21-094
24	21-096
29	21-018
34	21-019
35	21-020
42	21-021
54A	21-022
55	21-023
57	21-039
58	21-024
58A	21-199
59	21-025
62	21-026
63	21-027
71	21-029
74	21-041
79	21-070
83	21-180
87A	21-250
89	21-253
108	21-261
111	21-255
114	21-440
116	21-378
117	21-377
118	21-374
119	21-398
120	21-399
126	21-443
130	21-436
131	21-437
133	21-525
140	21-379
141	21-382
142	21-385
143	21-388
144	21-391

\*Modified UG-290/U (31-003)



complete listing of

# MILITARY RG/U NOMENCLATURE

Including Condensed Specifications with Cross Index to Amphenol Part Numbers

## LEGEND

- |                              |   |
|------------------------------|---|
| C—Copper                     | Poly—Polyethylene   |
| T—Tinned Copper              | SS Poly—Semi-Solid Polyethylene   |
| S—Silver Coated Copper       | Rub.—Synthetic Rubber   |
| CW—Copperweld                | Chloro.—Chloroprene   |
| CWS—Silver Coated Copperweld | Copo.—Copolene  |
| N—Nichrome                   | L.T.—Low Temperature  |
| K—Karma                      | C/S—Cannot Supply   |
| AL—Aluminum                  | *—Armored Cable   |
| ST. Steel—Stainless Steel    | **—Do not manufacture at present time,<br>will supply if quantity warrants. |

RG/U Number	Amphenol Number	Impedance	48 to 58 ohms		65 to 78 ohms		90 to 185 ohms		Over-all Diameter	Weight/100 Ft.	Remarks
			Capacity MMF./FT.	Dielectric Material	Center Conductor	Jacket Material	Shield				
1	C/S						Rectangular Wave Guide				
2	C/S						Rectangular Wave Guide				
3	C/S						Rectangular Wave Guide				
4	C/S	50		Poly	20	Black	CC	.226	2.5	Replaced by 58/U	
5	21-001	52.5	28.5	Poly	16	Black	CC	.332	9.3		
5A	21-271	50	29	Poly	16S	Grey	SS	.328	9.3		
5B	21-294	50	29	Poly	16S	Black L.T.	SS	.328	9.3		
6	21-002	76	20	Poly	21 CW	Grey	SC	.332	8.8		
6A	21-330	76	20	Poly	21 CW	Black L.T.	SC	.332	8.8		
7	21-003	97	12.5	SS Poly	19	Black	C	.370	7.4	Replaced by 62/U	
8	21-004	52	29.5	Poly	7/21	Black	C	.405	12.0		
8A	21-290	52	29.5	Poly	7/21	Black L.T.	C	.405	12.0		
9	21-005	51	30	Poly	7/21S	Grey	SC	.420	15.8		
9A	21-231	51	30	Poly	7/21S	Grey	SS	.420	15.8		
9B	21-332	51	30	Poly	7/21S	Black L.T.	SS	.475	15.8		
10	21-006	52	29.5	Poly	7/21	Grey*	C	.475	16.0	8/U with Armor	
10A	21-338	52	29.5	Poly	7/21	Black L.T.*	C	.405	16.0	8A/U with Armor	
11	21-007	75	20.5	Poly	7/26T	Black	C	.405	10.9		
11A	21-296	75	20.5	Poly	7/26T	Black L.T.	C	.475	10.9		
12	21-008	75	20.5	Poly	7/26T	Grey*	C	.475	15.3	11/U with Armor	
12A	21-340	75	20.5	Poly	7/26T	Black L.T.*	C	.420	15.3	11A/U with Armor	
13	21-009	74	20.5	Poly	7/26T	Black	CC	.420	14.8		
13A	21-334	74	20.5	Poly	7/26T	Black L.T.	CC	.545	14.8		
14	21-010	52	29.5	Poly	10	Grey	CC	.545	23.6		
14A	21-336	52	29.5	Poly	10	Black L.T.	CC	.545	23.6		
15	21-011	76	20	Poly	15 CW	Black	CC	.545	21.9	Replaced by 11/U, 12/U	
16	C/S	52	29.5	Poly	.125 C Tube	Black	C	.630	—		
17	21-013	52	29.5	Poly	.188	Grey	C	.870	49.1		

# Military RG/U Nomenclature (continued)

RG/U Number	Amphenol Number	Impedance	Capacity MMF./FT.	Dielectric Material	Center Conductor	Jacket Material	Shield	Over-all Diameter	Weight/100 Ft.	Remarks
17A	21-298	52	29.5	Poly	.188	Black L.T.	C	.870	49.1	
17B	**	52	29.5	Poly	.188	Black L.T.	SS	.940	—	
18	21-014	52	29.5	Poly	.188	Grey*	C	.945	60.3	17/U with Armor
18A	21-300	52	29.5	Poly	.188	Black L.T.*	C	.945	60.3	17A/U with Armor
19	21-015	52	29.5	Poly	.250	Grey	C	1.120	74.5	
19A	21-303	52	29.5	Poly	.250	Black L.T.	C	1.120	74.5	
20	21-016	52	29.5	Poly	.250	Grey*	C	1.195	92.5	19/U with Armor
20A	21-305	52	29.5	Poly	.250	Black L.T.*	C	1.195	92.5	19A/U with Armor
21	21-017	53	29	Poly	16N	Grey	SS	.332	9.3	
21A	21-308	53	29	Poly	16N	Black L.T.	SS	.332	9.3	
22	21-038	95	16	Poly	Two 7/.0152	Black	T	.405	11.6	
22A	21-148	95	16	Poly	Two 7/.0152	Grey	TT	.420	11.6	
22B	21-310	95	16	Poly	Two 7/.0152	Black L.T.	TT	.420	11.6	
23	21-094	125	12	Poly	Two 7/21	Black	CC	.650 x .945	35.3	
23A	21-516	125	12	Poly	Two 7/21	Black L.T.	CC	.650 x .945	35.3	
24	21-096	125	12	Poly	Two 7/21	Black*	CC	.735 x1.034	43.0	23/U with Armor
24A	21-518	125	12	Poly	Two 7/21	Black L.T.*	CC	.735 x1.034	43.0	23A/U with Armor
25	C/S	48	50	Rub.	19/.0117T	Chloro.	TT	.565	—	Pulse Cable
25A	C/S	48	50	Rub.	19/.0117T	Chloro.	TT	.505	—	Pulse Cable
26	C/S	48	50	Rub.	19/.0117T	Chloro.*	T	.525	—	Pulse Cable
26A	C/S	48	50	Rub.	19/.0117T	Chloro.*	T	.505	—	Pulse Cable
27	C/S	48	50	Rub.	19/.0185T	Black*	T	.675	—	Pulse Cable
28	C/S	48	50	Rub.	19/.0185T	Chloro.	TT	.805	—	Pulse Cable
29	21-018	53.5	28.5	Poly	20	Poly	T	.184	2.2	Replaced by 58/U
30	Obsolete	58	27	Copo.	7/26	Black	C	.250	—	Replaced by 58/U
31	Obsolete	51	31	Copo.	7/21	Black	C	.405	—	Replaced by 8/U
32	Obsolete	51	29	Copo.	7/21	Black*	C	.465	—	Replaced by 10/U
33	C/S	51	30	Poly	10	Lead	—	.470	—	
34	21-019	71	21.5	Poly	7/21	Black	C	.625	23.7	
34A	21-429	71	21.5	Poly	7/21	Black L.T.	C	.625	23.7	
35	21-020	71	21.5	Poly	9	Grey*	C	.945	48.0	
35A	21-311	71	21.5	Poly	9	Black L.T.*	C	.945	48.0	
36	C/S	69	22	Poly	.162	Black*	C	1.180	—	
37	C/S	52.5	38	Rub.	20T	Poly	T	.210	—	Replaced by 58/U
38	C/S	52.5	38	Rub.	17T	Poly	TT	.312	—	Replaced by 5/U
39	C/S	72.5	28	Rub.	22 CWT	Poly	TT	.312	—	Replaced by 6/U, 59/U
40	C/S	72.5	28	Rub.	22 CWT	Chloro.	TT	.420	—	Replaced by 6/U
41	C/S	67.5	27	Rub.	16/30T	Chloro.	T	.425	—	
42	21-021	78	20	Poly	21N	Grey	SS	.342	8.1	Replaced by 21/U



# Military RG/U Nomenclature (continued)

RG/U Number	Amphenol Number	Impedance	Capacity MMF./FT.	Dielectric Material	Center Conductor	Jacket Material	Shield	Over-all Diameter	Weight/100 Ft.	Remarks
43	Obsolete	95	17	Copo.	Two 7/21	Black	C	.617	—	Replaced by 57/U
44	C/S				Stub Supported Coaxial Line					
45	C/S				Stub Supported Coaxial Line					
46	C/S				Stub Supported Coaxial Line					
47	C/S				Stub Supported Coaxial Line					
48	C/S				Rigid Rectangular Wave Guide					
49	C/S				Rigid Rectangular Wave Guide					
50	C/S				Rigid Rectangular Wave Guide					
51	C/S				Rigid Rectangular Wave Guide					
52	C/S				Rigid Rectangular Wave Guide					
53	C/S				Rigid Rectangular Wave Guide					
54	Obsolete	58	27	Poly	7/26	Black	C	.275	—	Replaced by 54A/U
54A	21-022	58	26.5	Poly	7/.0152	Poly	T	.250	4.5	
55	21-023	53.5	28.5	Poly	20	Poly	TT	.206	3.2	
56	C/S	—	—	Rub.	19/.0117	Black	CC	.535	—	Pulse Cable
57	21-039	95	17	Poly	Two 7/21	Black	T	.625	24.6	
57A	21-313	95	17	Poly	Two 7/21	Black L.T.	T	.625	24.6	
58	21-024	53.5	28.5	Poly	20	Black	T	.195	2.9	
58A	21-199	50	29	Poly	19/.0071	Black	T	.195	2.9	
58B	21-315	53.5	28.5	Poly	20	Black L.T.	T	.195	2.9	
58C	21-316	50	29	Poly	19/.0068	Black L.T.	T	.195	2.9	
59	21-025	73	21	Poly	22 CW	Black	C	.242	4.4	
59A	21-291	73	21	Poly	22 CW	Black L.T.	C	.242	4.4	
60	C/S	50	—	Rub.	Stranded Neoprene		C	.425	—	Pulse Cable
61	C/S		—		Special 500 Ohm Line					
62	21-026	93	13.5	SS Poly	22 CW	Black	C	.242	4.0	
62A	21-318	93	13.5	SS Poly	22 CW	Black L.T.	C	.242	4.0	
63	21-027	125	10	SS Poly	22 CW	Black	C	.405	8.2	
63A	Obsolete	125	—	Poly	22 C	Black	C	.405	—	Replaced by 63/U
63B	21-320	125	10	SS Poly	22 CW	Black L.T.	C	.405	8.2	
64	C/S	48	50	Rub.	19/.0117T	Chloro.	TT	.495	—	Pulse Cable
64A	C/S	48	50	Rub.	19/.0117T	Chloro.	TT	.475	—	
65	C/S	950	44	Poly	32 Formex F	Black	C	.405	—	Delay Cable
66	C/S				Rigid Rectangular Wave Guide					
67	C/S				Rigid Rectangular Wave Guide					
68	C/S				Rigid Rectangular Wave Guide					
69	C/S				Rigid Rectangular Wave Guide					
70					Unassigned					
71	21-029	93	13.5	SS Poly	22 CW	Poly	TT	.250	4.6	
72	**	150	—	SS Poly	22 CW	Black	C	.630	—	
73	**	25	—	Poly	20	None	CC	.275	—	

# Military RG/U Nomenclature (continued)

RG/U Number	Amphenol Number	Impedance	Capacity MMF./FT.	Dielectric Material	Center Conductor	Jacket Material	Shield	Over-all Diameter	Weight/100 Ft.	Remarks
74	21-041	52	29.5	Poly	10	Grey*	CC	.615	28.2	14/U with Armor
74A	21-321	52	29.5	Poly	10	Black L.T.*	CC	.615	28.2	14A/U with Armor
75	C/S				Rigid Rectangular Wave Guide					
76	C/S				Stub Supported Coaxial Line					
77	C/S	48	50	Rub.	19/.0117T	Poly	TT	.415	—	Pulse Cable
78	C/S	48	50	Rub.	19/.0117T	Poly	T	.385	—	Pulse Cable
79	21-070	125	10	SS Poly	22 CW	Black*	C	.475	13.8	63/U with Armor
79A	Obsolete	125	—	Poly	22	Black	C	.415	—	Replaced by 79/U
79B	21-325	125	10	SS Poly	22 CW	Black L.T.*	C	.475	13.8	638/U with Armor
80	C/S	51	—		Bead Supported Coaxial Line					
81	C/S	52	37	Mag. Ox.	.0625	C Tube	—	.375	—	
82	C/S	52	36	Mag. Ox.	.125	C Tube	—	.750	—	
83	21-180	35	44	Poly	10	Black	C	.405	12.2	
84	C/S	71	21.5	Poly	9	Lead	C	1.000	—	35/U with Lead Armor
85	C/S	71	21.5	Poly	9	Lead	C	1.565	—	84/U with Special Armor
86	**	205	—	Poly	Two 7/21	Poly	—	.695x .285	—	
87	Obsolete	50	29.5	Teflon	7/21S	Fiber Glass	SC	.425	—	Replaced by 87A/U
87A	21-250	50	29.5	Teflon	7/20S	Fiber Glass	SS	.425	17.6	
88	C/S	48	50	Rub.	19/.0117T	Black	TTTT	.490	—	Pulse Cable
89	21-253	125	10	SS Poly	22 CW	Black	C	.632	20.0	
90	C/S	50	—	Poly	—	Grey	CCC	.450	—	Exp. Video Cable
91	C/S				Rigid Rectangular Wave Guide					
92	C/S				Bead Supported Coaxial Line					
93	C/S	50	29	Tef. Tape	.188	Fiber Glass	C	.710	—	Replaced by 117/U
94	C/S	50	27	Tef. Tape	10	Fiber Glass	CC	.445	—	Replaced by 119/U
95	C/S				Rigid Rectangular Wave Guide					
96	C/S				Rigid Rectangular Wave Guide					
97	C/S				Rigid Rectangular Wave Guide					
98	C/S				Rigid Rectangular Wave Guide					
99	C/S				Rigid Rectangular Wave Guide					
100	**	35	—	Poly	19/.0147	Black	C	.242	—	
101	C/S	75	—	Rub.	14	—	T	.588	—	
102	C/S	140	—	Rub.	Two 12	—	T	1.088	—	
103	C/S				Rigid Rectangular Wave Guide					
104	C/S				Rigid Rectangular Wave Guide					
105	C/S				Rigid Rectangular Wave Guide					
106	C/S				Rigid Rectangular Wave Guide					
107	C/S				Rigid Rectangular Wave Guide					
108	21-261	76	25	Poly	Two 7/28	Black	T	.230	3.2	
108A	21-327	76	25	Poly	Two 7/28	Black L.T.	T	.230	3.2	

# Military RG/U Nomenclature (concluded)

RG/U Number	Amphenol Number	Impedance	Capacity MMF./FT.	Dielectric Material	Center Conductor	Jacket Material	Shield	Over-all Diameter	Weight/100 Ft.	Remarks
109	C/S				Rigid Rectangular Wave Guide					
110	C/S				Rigid Rectangular Wave Guide					
111	21-255	95	16	Poly	Two 7/.0152	Grey*	TT	.490	14.5	22A/U with Armor
111A	21-329	95	16	Poly	Two 7/.0152	Black L.T.*	TT	.490	14.5	22B/U with Armor
112	C/S				Rigid Rectangular Wave Guide					
113	C/S				Rigid Rectangular Wave Guide					
114	21-440	185	6.5	SS Poly	33 CW	Black	C	.405	8.7	Braided Polythread
114A	21-520	185	6.5	SS Poly	33 CW	Black L.T.	C	.405	8.7	Braided Polythread
115	C/S	50	29.5	Tef. Tape	7/21S	Fiber Glass	SS	.370	—	Replaced by 87A/U
116	21-378	50	30	Teflon	7/20S	Fiber Glass*	SS	.475	22.4	87A/U with Armor
117	21-377	50	29	Teflon	.188	Fiber Glass	C	.730	45.0	
118	21-374	50	29	Teflon	.188	Fiber Glass*	C	.780	60.0	117/U with Armor
119	21-398	50	29	Teflon	10	Fiber Glass	CC	.465	22.5	
120	21-399	50	29	Teflon	10	Fiber Glass*	CC	.515	28.2	119/U with Armor
121	C/S				Rigid Rectangular Wave Guide					
122	21-441	50	29.5	Poly	27/36T	Black	T	.160	2.0	
123					Unassigned					
124	C/S	73	20.3	Tef. Tape	22 CWT	Fiber Glass	T	.240	—	Replaced by 140/U
125	21-442	150	7.8	SS Poly	26 CW	Black L.T.	C	.600	18.0	Braided Polythread
126	21-443	50	29	Teflon	7/24K	Fiber Glass	K	.275	7.6	
127	C/S				Rigid Rectangular Wave Guide					
128	C/S				Bead Supported Coaxial Line					
129	C/S				Flexible Wave Guide					
130	21-436	95	17	Poly	Two 7/21	Black	T	.625	22.0	Twisted Center Conductors
131	21-437	95	17	Poly	Two 7/21	Black*	T	.710	29.5	Twisted Center Conductors
132	C/S				Rigid Rectangular Wave Guide					
133	21-525	95	16.2	Poly	21	Black	C	.405	9.4	
134	C/S				Teflon Beaded Flexible Cable					
135	C/S				Wave Guide					
136	C/S				Wave Guide					
137	C/S				Wave Guide					
138	C/S				Wave Guide					
139	C/S				Wave Guide					
140	21-379	73	21	Teflon	21 CWS	Fiber Glass	S	.241	4.5	
141	21-382	50	29	Teflon	19 CWS	Fiber Glass	S	.195	3.0	
142	21-385	50	29	Teflon	19 CWS	Fiber Glass	SS	.206	4.5	
143	21-388	50	29	Teflon	15S	Fiber Glass	SS	.332	10.2	
144	21-391	72	21	Teflon	7/25S	Fiber Glass	S	.405	12.0	
145	C/S	76	—	SS Poly	Two 13	C Tube Lead—Tar				
146	**		6.5	SS Teflon	33 CW	Fiber Glass	C	.375	—	

Coaxial Cables  
Polyethylene  
Pages 8 to 13

AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U
21-001	5	21-018	29	21-096	24	21-303	19A	21-332	9B
21-002	6	21-019	34	21-125	—	21-305	20A	21-334	13A
21-003	7	21-020	35	21-148	22A	21-308	21A	21-336	14A
21-004	8	21-021	42	21-180	83	21-310	22B	21-338	10A
21-005	9	21-022	54A	21-199	58A	21-311	35A	21-340	12A
21-006	10	21-023	55	21-231	9A	21-313	57A	21-429	34A
21-007	11	21-024	58	21-253	89	21-315	58B	21-436	130
21-008	12	21-025	59	21-255	111	21-316	58C	21-437	131
21-009	13	21-026	62	21-261	108	21-318	62A	21-440	114
21-010	14	21-027	63	21-271	5A	21-320	63B	21-441	122
21-011	15	21-029	71	21-290	8A	21-321	74A	21-442	125
21-013	17	21-038	22	21-291	59A	21-325	79B	21-437	131
21-014	18	21-039	57	21-294	5B	21-327	108A	21-516	23A
21-015	19	21-041	74	21-296	11A	21-329	111A	21-518	24A
21-016	20	21-070	79	21-298	17A	21-330	6A	21-520	114A
21-017	21	21-094	23	21-300	18A			21-525	133

Coaxial Cables  
Teflon  
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AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U	AMPHENOL Number	Military No. RG-/U
21-250	87A	21-378	116	21-385	142	21-391	144	21-399	120
21-374	118	21-379	140	21-388	143	21-398	119	21-443	126
21-377	117	21-382	141						

Special Application  
Cables & Wire, 15-23

TWIN-LEAD 14 Series	MINIATURE CABLES 21 Series	NOISEFREE CABLES 21 Series	COMMUNITY TV SYSTEMS Part Nos. Assigned As Per Specifications.	CABLE ASSEMBLIES Part Nos. Assigned As Per Specifications.
TEFLON WIRES 14 Series	ALJAK CABLES 21 Series	TRIAXIAL CABLES 21 Series		

RF Connectors  
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AMPHENOL Number	Military Number	AMPHENOL Number	Military Number	AMPHENOL Number	Military Number	AMPHENOL Number	Military Number	AMPHENOL Number	Military Number
<b>SERIES BNC</b>		82-508	UG-564/U	82-210	UG-20C/U	82-517	MX-1286/U	83-1SPN	PL-259A
31-001	UG-291/U	82-540	UG-565A/U	82-211	UG-935A/U	82-519	—		49195
31-002	UG-88/U	<b>SERIES BN</b>		82-212	UG-940A/U	82-521	UG-632/U	83-1T	M-358
31-003	UG-290/U	31-101	UG-206/U	82-213	UG-27C/U	82-522	UG-937/U		49199
31-005	UG-89/U	31-118	—	82-811	UG-680/U	82-523	UG-938/U	83-58	M-359A
31-006	CW-123/U	31-759	—	82-835	—	82-524	UG-939/U		49192A
31-007	CW-155/U	82-21	UG-85/U	82-849	—	82-526	UG-944/U	83-59	—
31-008	UG-274/U	82-25	UG-114/U	82-1275	—	82-530	UG-573A/U	83-168	UG-176
31-009	UG-306/U	82-26	UG-115/U	83-1BC	—	82-531	UG-710A/U	83-185	UG-175/U
31-011	UG-262/U	82-42	UG-87/U	83-1H	UG-106/U	82-532	UG-628A/U	83-716	—
31-012	UG-260/U	<b>SERIES N</b>		<b>SERIES HN</b>		82-533	UG-707A/U	83-750	UG-111/U
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