

MIL-C-13777/5C  
15 September 1969  
 SUPERSEDING  
 MIL-C-13777/5B  
 1 September 1966

# MILITARY SPECIFICATION SHEET

## CABLE, SPECIAL PURPOSE, ELECTRICAL 34, 36, 37, 39, 40, 42, 46, 47, AND 52 CONDUCTORS

The complete requirements for procuring the cable described herein shall consist of this document and the latest issue of Specification MIL-C-13777.

This specification is mandatory for use by all Departments and Agencies of the Department of Defense.

### REQUIREMENTS:

Dimensions and configuration: See applicable figure and design data for the following cable types:

341273S	371065S	371327S	401582S
360860	371142	371517S	420950
S361055	371193S	391115S	421010SC
361420S	371314S	401485S	S462080S
			471374S
			S521235

In any conflict between the design data and the applicable figure, the design data shall govern.

MIL-C-13777/ 5C

DESIGN DATA				
Type Designation	341273S	360860	S361055	
Figure No.-----	1	2	2	
Total Wires-----	34	36	36	
No. of Conductors & AWG # 23/#18*	6/#18S**	5/#16	36/#20	36/#18
Insulation				
Min average thickness---	0.015"	0.015"	0.015"	
Spark Test Voltage-----	3000	3000	3000	
Inspection Test Voltage-	1500	1500	1500	
Cabling				
Layer No. 1-----	Filler	Filler	Filler	
Layer No. 2-----				
(a) Number of wires---	8	6	6	6
(b) AWG #-----	#18	#18S**	#20	#18
(c) Maximum Lay-----				
Layer No. 3-----				
(a) Number of wires---	15	5	12	12
(b) AWG #-----	#18	#16	#20	#18
(c) Maximum Lay-----				
Layer No. 4-----				
(a) Number of wires---			18	18
(b) AWG #-----			#20	#18
(c) Maximum Lay-----				7.0"
Sheath				
No. of Layers-----	2	1		2
Total thickness Min-----	0.140"	0.080"		0.117"
Minimum OD Cable-----	1.248"	0.835"		1.025"
Maximum OD Cable-----	1.318"	0.885"		1.085"

## Explanation of notations used:

Letter "S" designates Shielded construction.

\* Two twisted quads and 15 singles.

\*\* Three shielded, twisted pairs

Maximum Twist Lay of 3.5" for quads and 3.0" for pairs.

MIL-C-13777/5C

## DESIGN DATA

Type Designation	361420s			
Figure No.-----	3			
Total Wires-----	36			
No. of Conductors & AWG #	17/#18	13/#18S*	5/#16	1/#16S
Insulation	0.015"			
Min average thickness----	3000			
Spark Test Voltage-----	1500			
Inspection Test Voltage--				
Cabling				
Layer No. 1-----	Filler			
Layer No. 2-----				
(a) Number of wires----	13		1	
(b) AWG #-----	#18S		#16S	
(c) Maximum Lay-----				
Layer No. 3-----				
(a) Number of wires----	17		5	
(b) AWG #-----	#18		#16	
(c) Maximum Lay-----				
Layer No. 4-----				
(a) Number of wires--				
(b) AWG #-----				
(c) Maximum Lay-----				
Sheath				
No. of Layers-----	2			
Total thickness Min-----	0.140"			
Minimum OD Cable-----	1.382"			
Maximum OD Cable-----	1.462"			

## Explanation of notations used:

Letter "S" designates shielded construction.

\* Four shielded, twisted pairs with max. twist lay of 3.0 inches and 5 shielded singles.

MIL-C-13777/ 5C

Type Designation	371065S	371142
Figure No.-----	4	5
Total Wires-----	37	37
No. of Conductors & AWG #	4/#18S 27/#18	6/#14 37/#18
Insulation		
Min average thickness----	0.015"	0.015"
Spark Test Voltage-----	3000	3000
Inspection Test Voltage--	1500	1500
Cabling		
Layer No. 1-----		Filler
(a) Number of wires----	4	
(b) AWG #-----	#18S*	
(c) Maximum Lay-----	3.00"	
Layer No. 2-----		
(a) Number of wires----	6	7
(b) AWG #-----	#18	#18
(c) Maximum Lay-----	5.00"	
Layer No. 3-----		
(a) Number of wires----	21	12
(b) AWG #-----	#18	#18
(c) Maximum Lay-----	6.00"	
Layer No. 4-----		
(a) Number of wires----		18
(b) AWG #-----		#18
(c) Maximum Lay-----		7.00"
Sheath		
No. of Layers-----	1	2
Total thickness Min-----	0.080"	0.140"
Minimum OD Cable-----	1.050"	1.112"
Maximum OD Cable-----	1.080"	1.172"

Shielded Pairs AWG #18 with 3.00" Max Lay Twist

MTL-C-13777/5C

## DESIGN DATA

Type Designation	371193S		
Figure No.-----	6		
Total Wires-----	37		
No. of Conductors & AWG #	29/#18	2/#18S	6/#14
Insulation			
Min average thickness----	0.015"		
Spark Test Voltage-----	3000		
Inspection Test Voltage--	1500		
Cabling			
Layer No. 1-----	Filler		
Layer No. 2-----			
(a) Number of wires----	3	2	1
(b) AWG #-----	#18	#18S	#14
(c) Maximum Lay-----			
Layer No. 3-----			
(a) Number of wires----		7	5
(b) AWG #-----		#18	#14
(c) Maximum Lay-----			
Layer No. 4-----			
(a) Number of wires----		19	
(b) AWG #-----		#18	
(c) Maximum Lay-----			
Sheath			
No. of Layers-----	2		
Total thickness Min-----	0.125"		
Minimum OD Cable-----	1.163"		
Maximum OD Cable-----	1.223"		

MIL-C-13777/ 5C

## DESIGN DATA

Type Designation	371314S				
Figure No.-----	7				
Total Wires-----	37				
No. of Conductors & AWG #	27/#18	5/#18S*	1/#16S	1/#14	3/#14S
Insulation					
Min average thickness----	0.015"				
Spark Test Voltage-----	3000				
Inspection Test Voltage--	1500				
Cabling					
Layer No. 1-----	3				
(a) Number of wires----	#14S**				
(b) AWG #-----					
(c) Maximum Lay-----					
Layer No. 2-----	5				
(a) Number of wires----	5	5	1	1	
(b) AWG #-----	#18	#18S	#16S	#14	
(c) Maximum Lay-----					
Layer No. 3-----	22				
(a) Number of wires----	#18				
(b) AWG #-----					
(c) Maximum Lay-----					
Sheath					
No. of Layers-----	2				
Total thickness Min-----	0.125"				
Minimum OD Cable-----	1.282"				
Maximum OD Cable-----	1.346"				

## Explanation of notations used:

Letter "S" designates shielded construction.

\* Two shielded, twisted pairs and one shielded single.

\*\* Shielded, twisted triple.

MIL-C-13777/ 5C

## DESIGN DATA

Type Designation	371327S	371517S	391115S
Figure No.-----	8	9	10
Total Wires-----	37	37	39
No. of Conductors & AWG	21/#18	10/#18S* 6/#14	(1) 37/#18 39/#18
Insulation			
Min average thickness--	0.015"	0.015"	0.015"
Spark Test Voltage-----	3000	3000	3000
Inspection Test Voltage-	1500	1500	1500
Cabling			
Layer No. 1-----		Filler	
(a) Number of wires--	4	2 pr tw/sh	
(b) AWG #-----	#18S	#18	
(c) Maximum Lay-----		3.00"	
Layer No. 2-----		(2)	
(a) Number of wires--	6	6	14
(b) AWG #-----	#18S	#14	#18
(c) Maximum Lay-----		9.75"	5.00"
Layer No. 3-----			
(a) Number of wires--	21	(3)	21
(b) AWG #-----	#18	#18	#18
(c) Maximum Lay-----		9.75"	6.00"
Sheath			
No. of Layers-----	2	2	2
Total thickness Min----	0.125"	0.156"	0.109"
Minimum OD Cable-----	1.297"	1.472"	1.100"
Maximum OD Cable-----	1.357"	1.562"	1.130"

Note: (1) 8 Prs. Tw/Sh., 6 Sh., 15 Unshielded  
 (2) 8 Prs. Tw/Sh.  
 (3) 6 Singles Sh., 15 Unshielded

Letter "S" designates shielded construction.  
 \* One shielded, twisted triple and 7 shielded singles.

MIL-C-13777/5C

Type Designation	401485S			
Figure No.-----	11			
Total Wires-----	40			
No. of Conductors & AWG #	25/#18	10/#18S*	4/#16**	1/#16S
Insulation				
Min average thickness----	0.015"			
Spark Test Voltage-----	3000			
Inspection Test Voltage--	1500			
Cabling				
Layer No. 1-----	Filler			
Layer No. 2-----				
(a) Number of wires----	10		4	1
(b) AWG #-----	#18S*		#16**	#16S
(c) Maximum Lay-----				
Layer No. 3-----				
(a) Number of wires----		25		
(b) AWG #-----		#18		
(c) Maximum Lay-----				
Sheath				
No. of Layers-----	2			
Total thickness Min-----	0.156"			
Minimum OD Cable-----	1.440"			
Maximum OD Cable-----	1.530"			

## Explanation of notations used:

Letter "S" designates shielded construction.

\* Three shielded, twisted pairs and four shielded singles.

\*\* Unshielded, twisted quad.

## MIL-C-13777/5C

## DESIGN DATA

Type Designation	401582S				
Figure No.-----	12				
Total Wires-----	40				
No. of Conductors & AWC #	20/#18	3/#18S	1/#16S	14/#12	2/#12S
Insulation					
Min average thickness----	0.015"	0.015"	0.015"	0.020"	0.020"
Spark Test Voltage-----	3000	3000	3000	4000	4000
Inspection Test Voltage--	1500	1500	1500	2000	2000
Cabling					
Layer No. 1-----					
(a) Number of wires----					
(b) AWC #-----					
(c) Maximum Lay-----					
Layer No. 2-----					
(a) Number of wires----	20				
(b) AWC #-----	#18				
(c) Maximum Lay-----					
Layer No. 3-----					
(a) Number of wires----	1				
(b) AWC #-----	#18S				
(c) Maximum Lay-----					
Sheath					
No. of Layers-----	2				
Total thickness Min-----	0.140"				
Minimum OD Cable-----	1.542"				
Maximum OD Cable-----	1.622"				

## Explanation of notations used:

Letter "S" designates shielded construction.

MIL-C-13777/5C

	DESIGN DATA		
Type Designation	420950	421010SC	S462080S
Figure No.-----	13	14	15
Total Wires-----	42	42	46
No. of Conductors & AWG #	42/#20	(1)	(2) (4)
Insulation			
Min average thickness----	0.015"	0.012"	0.015"
Spark Test Voltage-----	3000	4000	3000
Inspection Test Voltage--	1500	1500	1500
Cabling			
Layer No. 1-----	Filler	Filler	Filler
(a) Number of wires----		(3)	
(b) AWG #-----	#20		#27
(c) Maximum Lay-----			
Layer No. 2-----			
(a) Number of wires----	8	15	(5)
(b) AWG #-----	#20	#20	#16
(c) Maximum Lay-----			
Layer No. 3-----			
(a) Number of wires----	14	19	(6)
(b) AWG #-----	#20	#20	#16
(c) Maximum Lay-----		10.00"	12.00"
Layer No. 4-----			
(a) Number of wires----	20		
(b) AWG #-----	#20		
(c) Maximum Lay-----			
Sheath			
No. of Layers-----	2	2	2
Total thickness Min-----	0.098"	0.109"	0.203"
Minimum OD Cable-----	0.925"	0.990"	2.055"
Maximum OD Cable-----	0.975"	1.030"	2.105"

\* Cold Bend Torque 30 FT/lbs.

## (1) Two (2) Coaxials

- (a) Inner Conductor:-----#27 AWG stranded, 7 strands each  
#35 AWG annealed (copper clad) steel wire,  
dc resistance/1000 ft at 20°C 180 ohms max.  
Nominal strand diameter 0.0056"
- (b) Core:-----Extruded polyethylene per L-P-590, Type II,  
Grade 7 Diam. 0.097"  $\pm$  0.004"
- (c) Outer Conductor:-----Single braid, #38 AWG tinned copper wire,  
maximum diameter 0.118"
- (d) Outer Insulation:-----Extruded polyamide, min average thickness  
0.005", max OD 0.136". Color Code one (1)  
each black and white, striped
- (e) Electrical Tests:  
Capacitance-----20.5  $\pm$  2 uuf/ft.  
Attenuation (Max)-----13 dB/100 ft. @ 400mc  
Impedance-----73  $\pm$  5 ohms

MIL-C-13777-5C

DESIGN DATA  
421010SC (Cont'd)  
S462080S (Cont'd)

Insulation resistance  
between Outer Conductors  
per 1000 ft using a  
potential of 200 V. dc  
min.-----10 megohms min.

- (2) Forty (40) Single Conductors  
(a) Conductor:-----#20 AWG  
(3) 2 Tw Triplets - 2 Coaxial Sh.  
(4) 15 Prs. Tw. & Sh., 4 Quads. Tw. & Sh.: All #16  
(5) 4 Quads & 3 Prs.  
(6) 12 Prs. 2 Fillers

## DESIGN DATA

Type Designation	471374S				
Figure No.-----	16				
Total Wires-----	47				
No. of Conductors & AWG #	41/#18	1/#18S	3/#14S	1/#12	1/#12S
Insulation					
Min average thickness----	0.015"	0.015"	0.015"	0.020"	0.020"
Spark Test Voltage-----	3000	3000	3000	4000	4000
Inspection Test Voltage--	1500	1500	1500	2000	2000
Cabling					
Layer No. 1-----					
(a) Number of wires----	1				
(b) AWG #-----	#18S				
(c) Maximum Lay-----	#14S				
Layer No. 2-----					
(a) Number of wires----	18				
(b) AWG #-----	#18				
(c) Maximum Lay-----					
Layer No. 3-----					
(a) Number of wires----	23				
(b) AWG #-----	#18				
(c) Maximum Lay-----					
Sheath					
No. of Layers-----	2				
Total thickness Min-----	0.125"				
Minimum OD Cable-----	1.344"				
Maximum OD Cable-----	1.404"				

Explanation of notations used:

Letter "S" designates shielded construction.

MIL-C-13777/5C

## DESIGN DATA

Type Designation -----	S521235
Figure No. -----	17
Total Wires -----	26 Twisted Pairs
No. of Conductors & AWG # -----	52/#20
Insulation	
Min average thickness -----	0.015"
Spark Test Voltage -----	3000
Inspection Test Voltage -----	1500
Cabling	
Layer No. 1 -----	
(a) Number of wires -----	6 (3 twisted pairs)
(b) AWG # -----	#20
Layer No. 2 -----	
(a) Number of wires -----	18 (9 twisted pairs)
(b) AWG # -----	#20
Layer No. 3 -----	Filler
(a) Number of wires -----	28 (14 twisted pairs)
(b) AWG # -----	#20
(c) Maximum Lay -----	10.0"
Sheath	
No. of Layers -----	2
Total thickness Min -----	0.117"
Minimum OD Cable -----	1.210"
Maximum OD Cable -----	1.280"

MIL-C-13777/5C

Custodians:

Army - MU  
Navy - SH  
Air Force - 17

Preparing activity:

Army - MU

(Project 6145-0474)

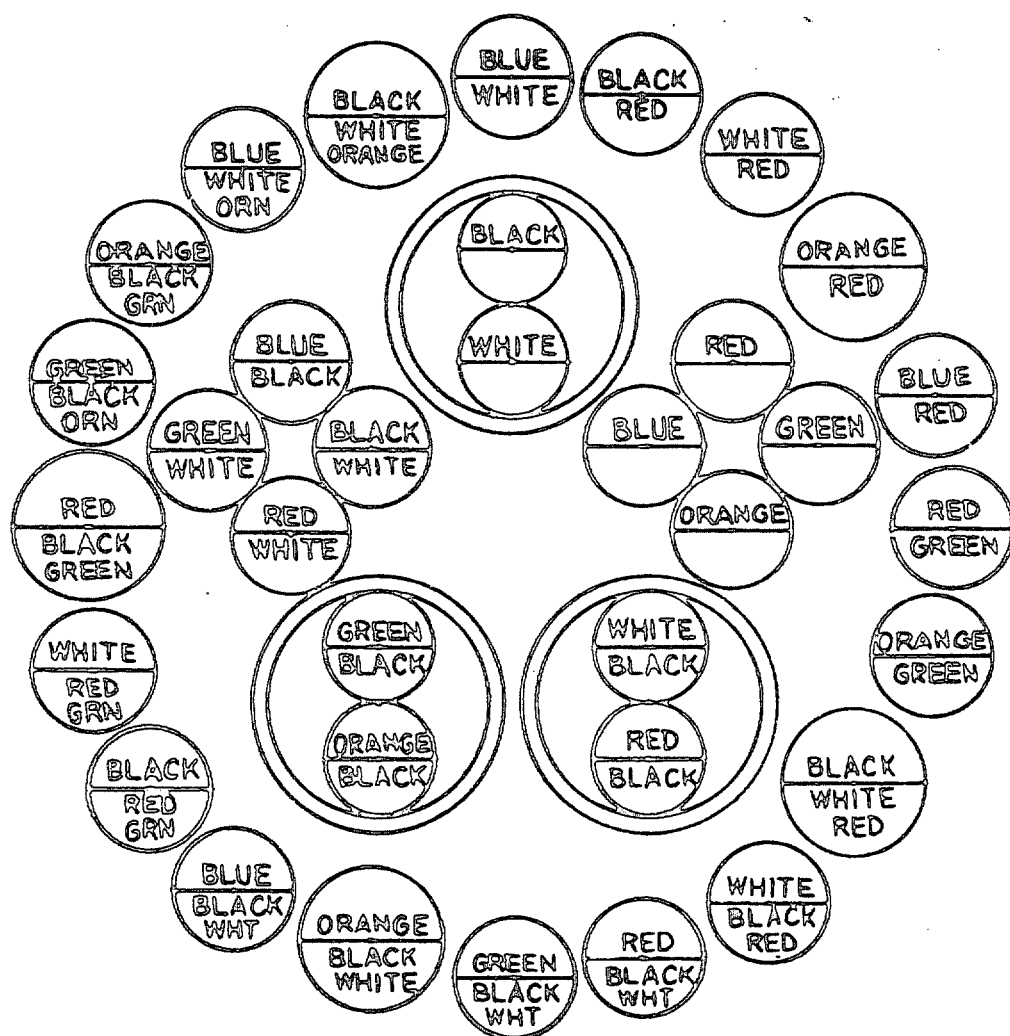
Reviewer:

Army - MI, EL, WC  
Navy - SH  
Air Force - 85

Users:

Army - ME, AT  
Navy - MC, AS, EC  
Air Force - 11

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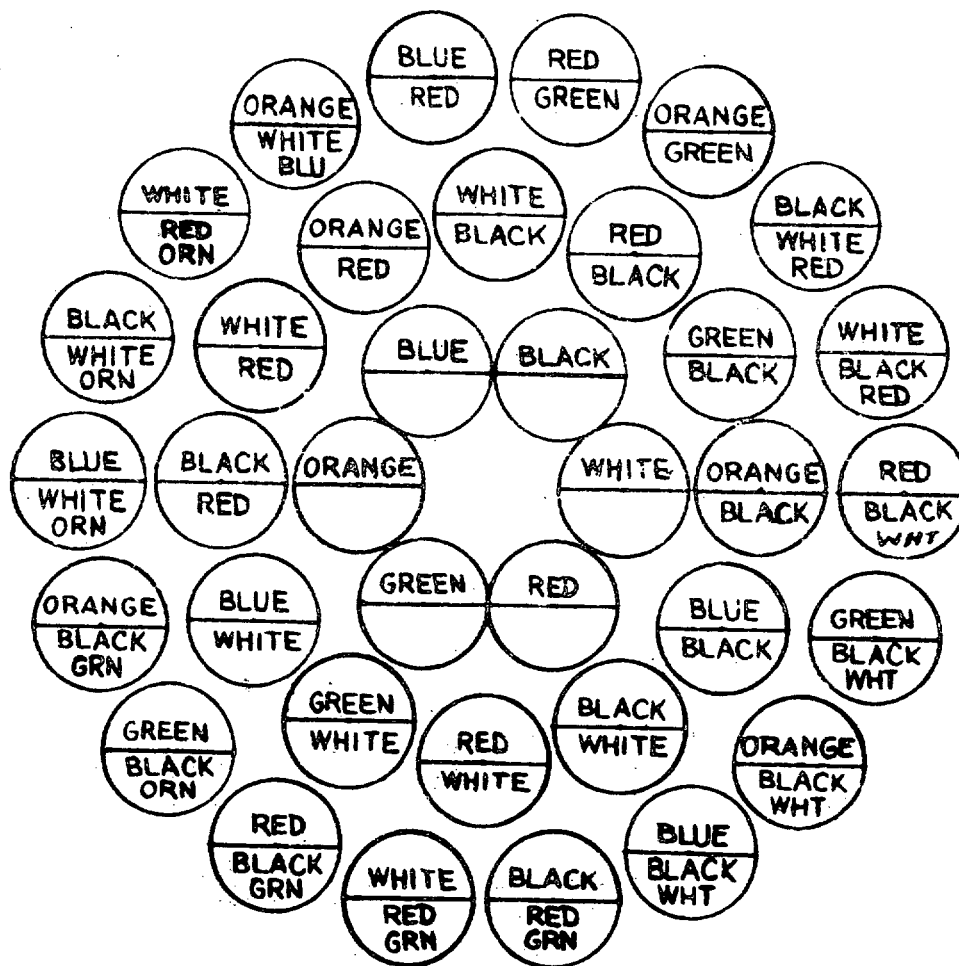


CABLE TYPE: 341273S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 1

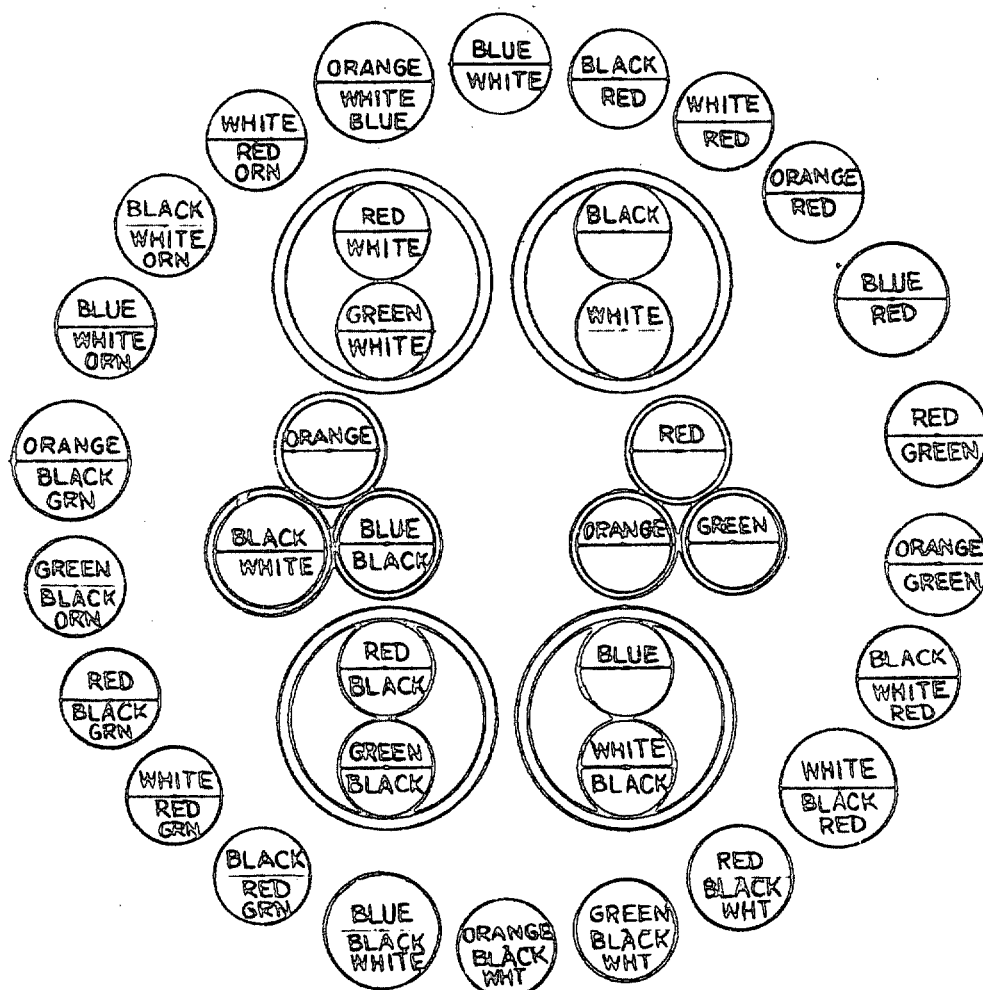
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CABLE TYPES: 360860 S361055\*  
 NOTE: \*COPPER SHIELD APPLIED OVER CABLE ASSEMBLY

FIGURE 2

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CABLE TYPE: 361420S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 3

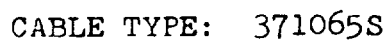
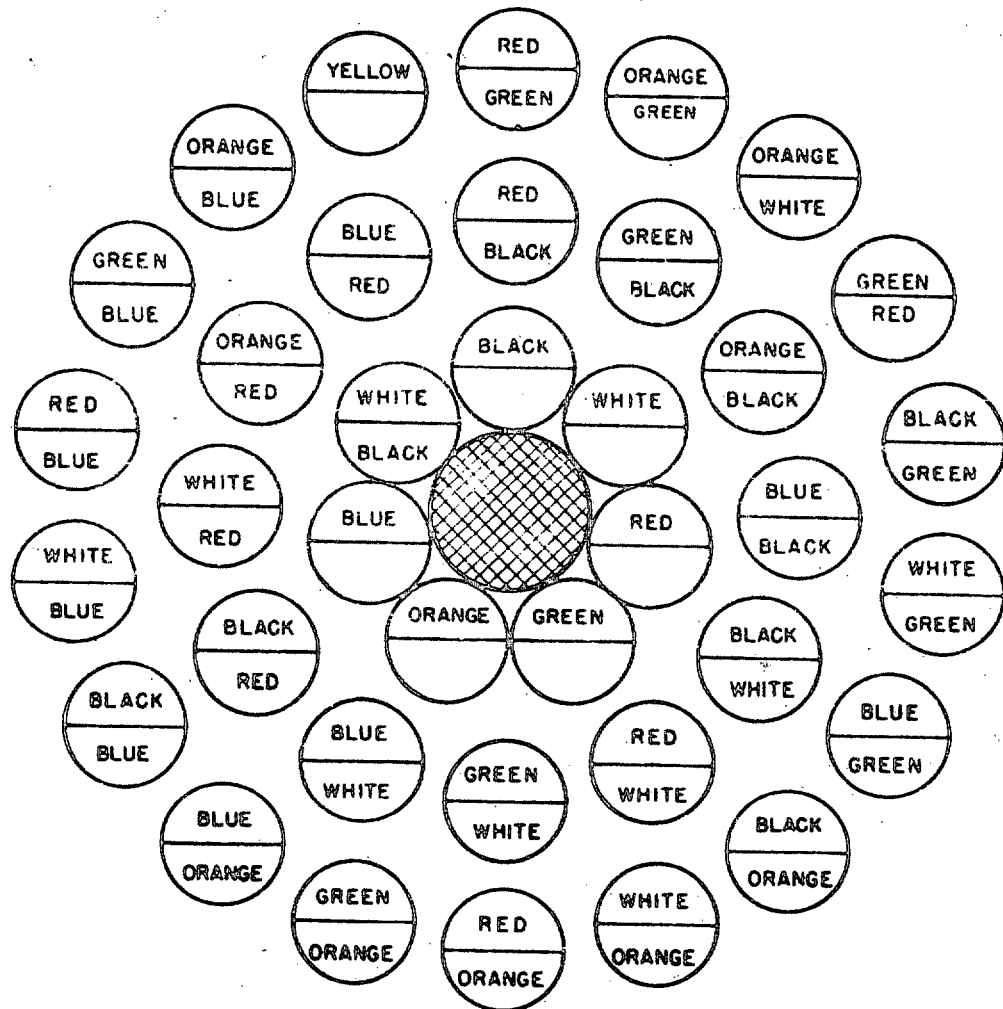


FIGURE 4

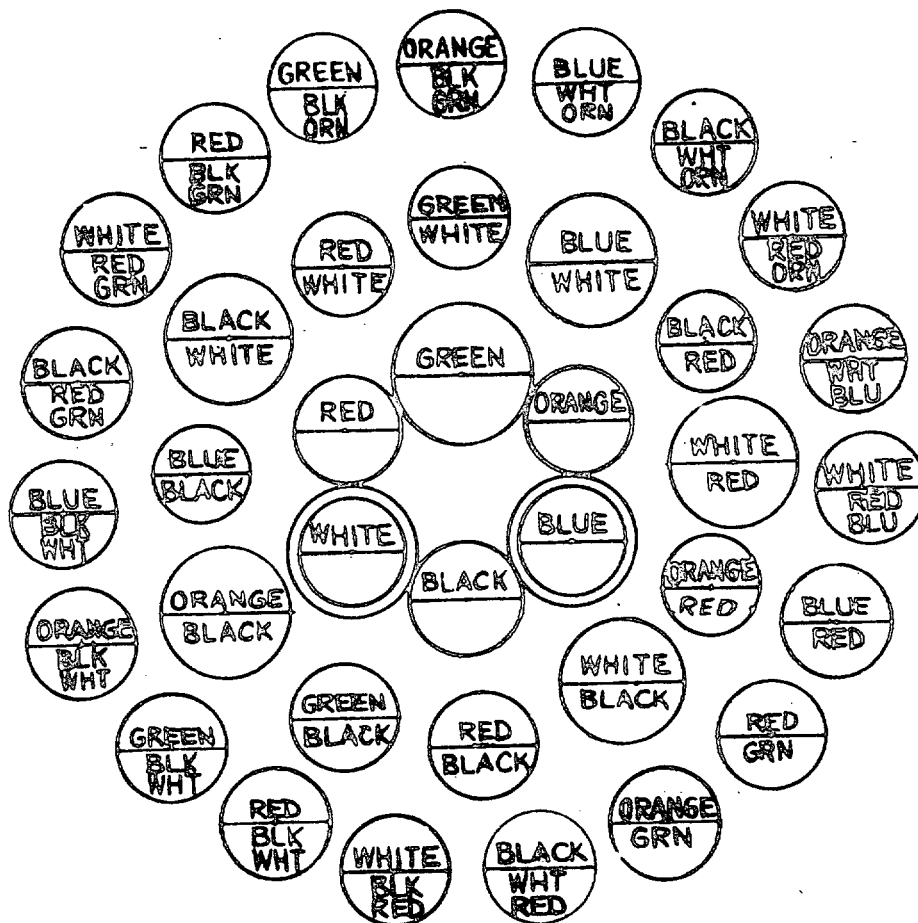
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CABLE TYPE: 371142

FIGURE 5

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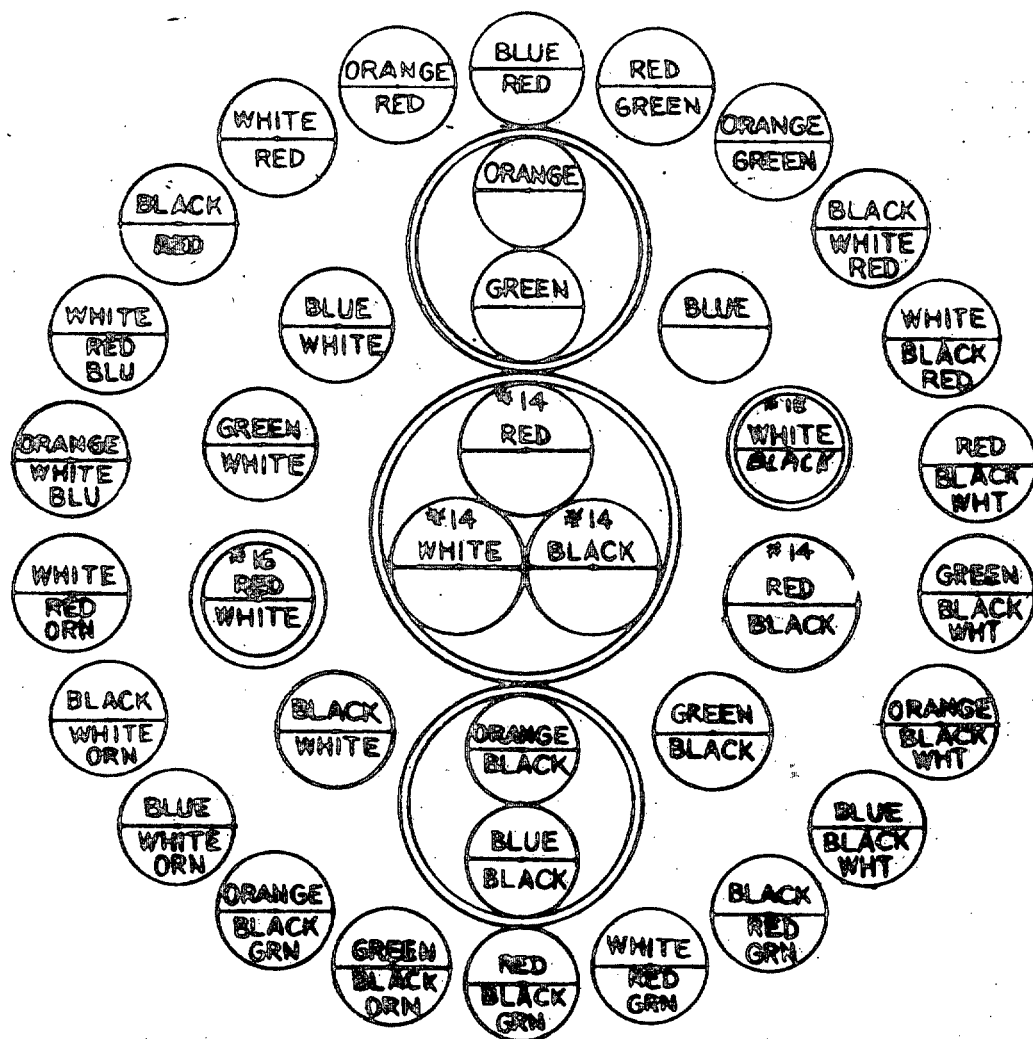


CABLE TYPE: 371193S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 6

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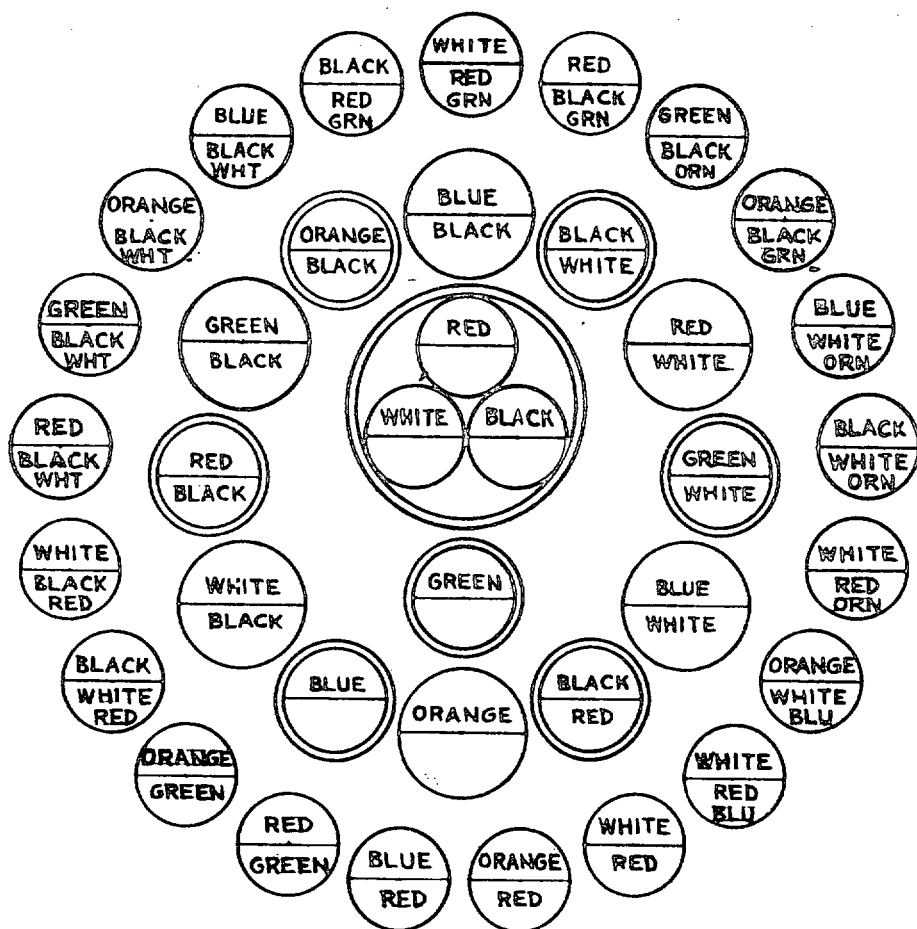
CABLE TYPE : 371314S

## NOTES

DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 7

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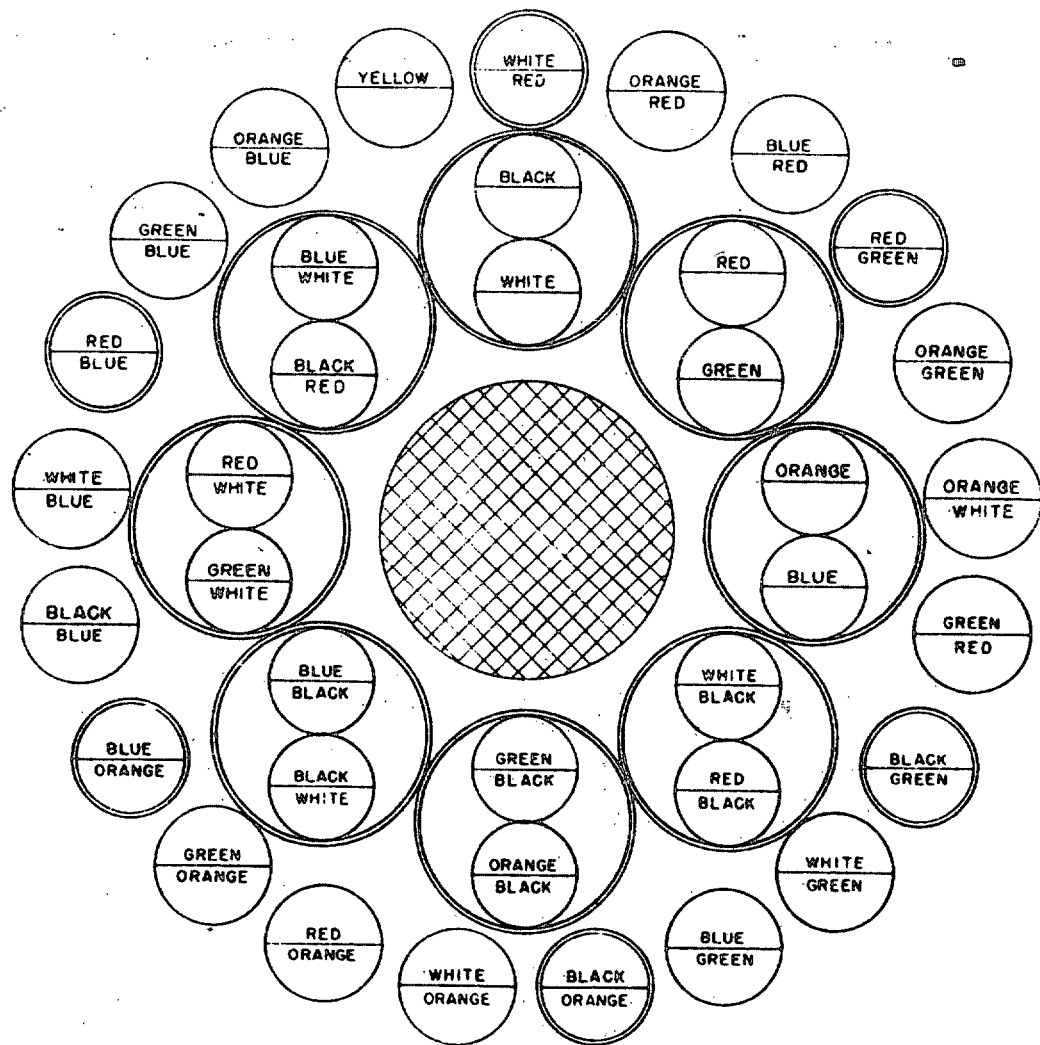


CABLE TYPE: 371327S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 8

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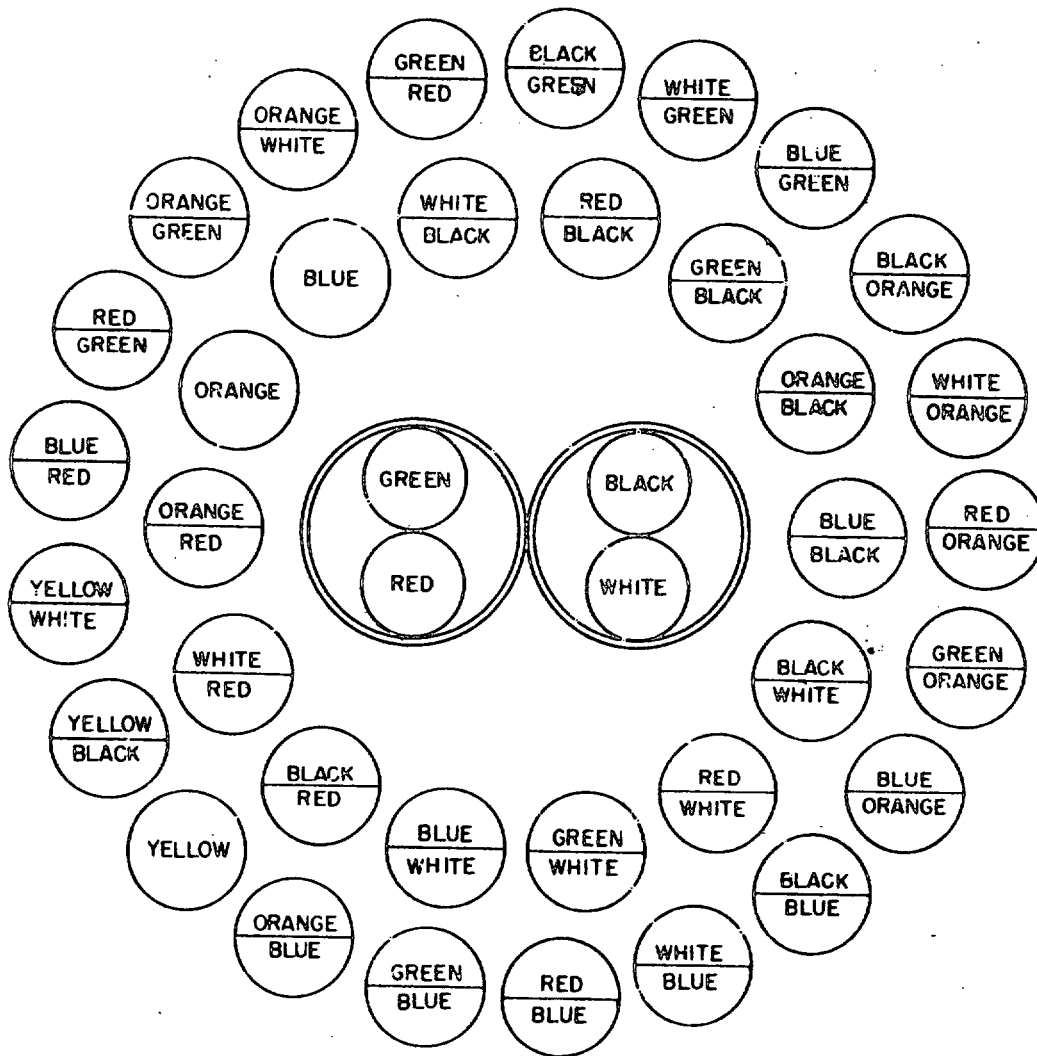


CABLE TYPE: 371517S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONDUCTORS

FIGURE 9

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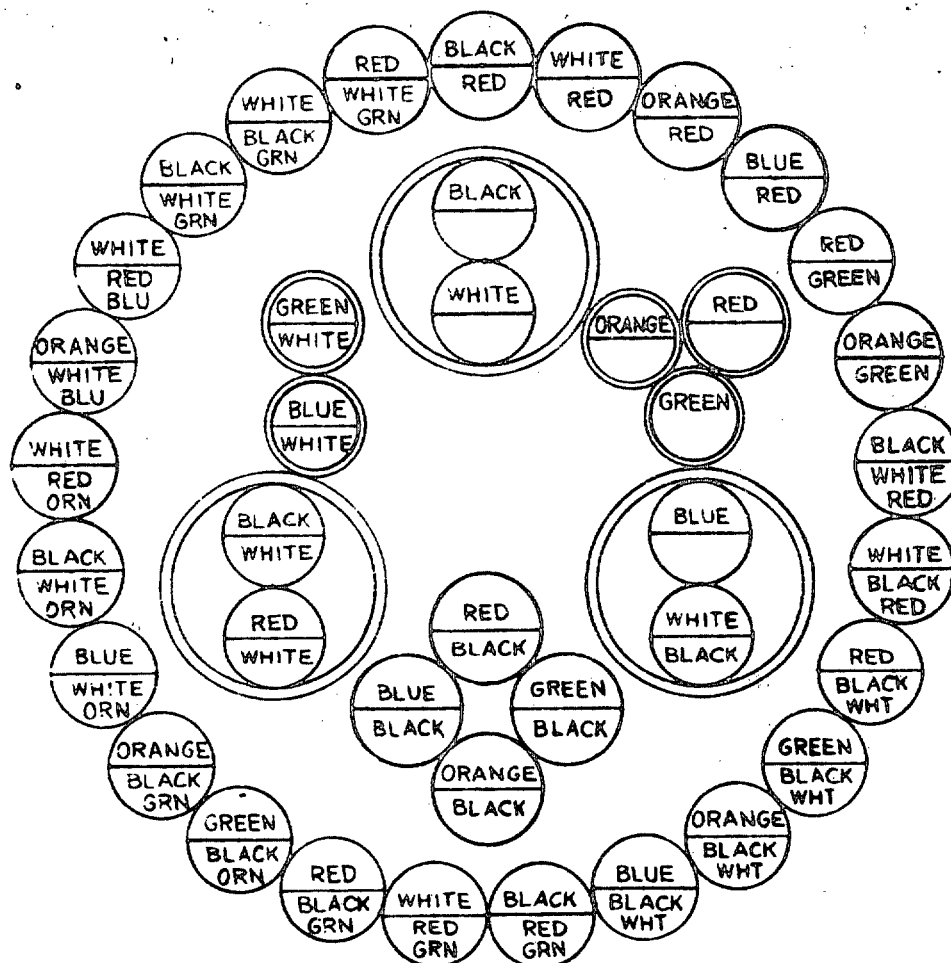


CABLE TYPE: 391115S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONDUCTORS

FIGURE 10

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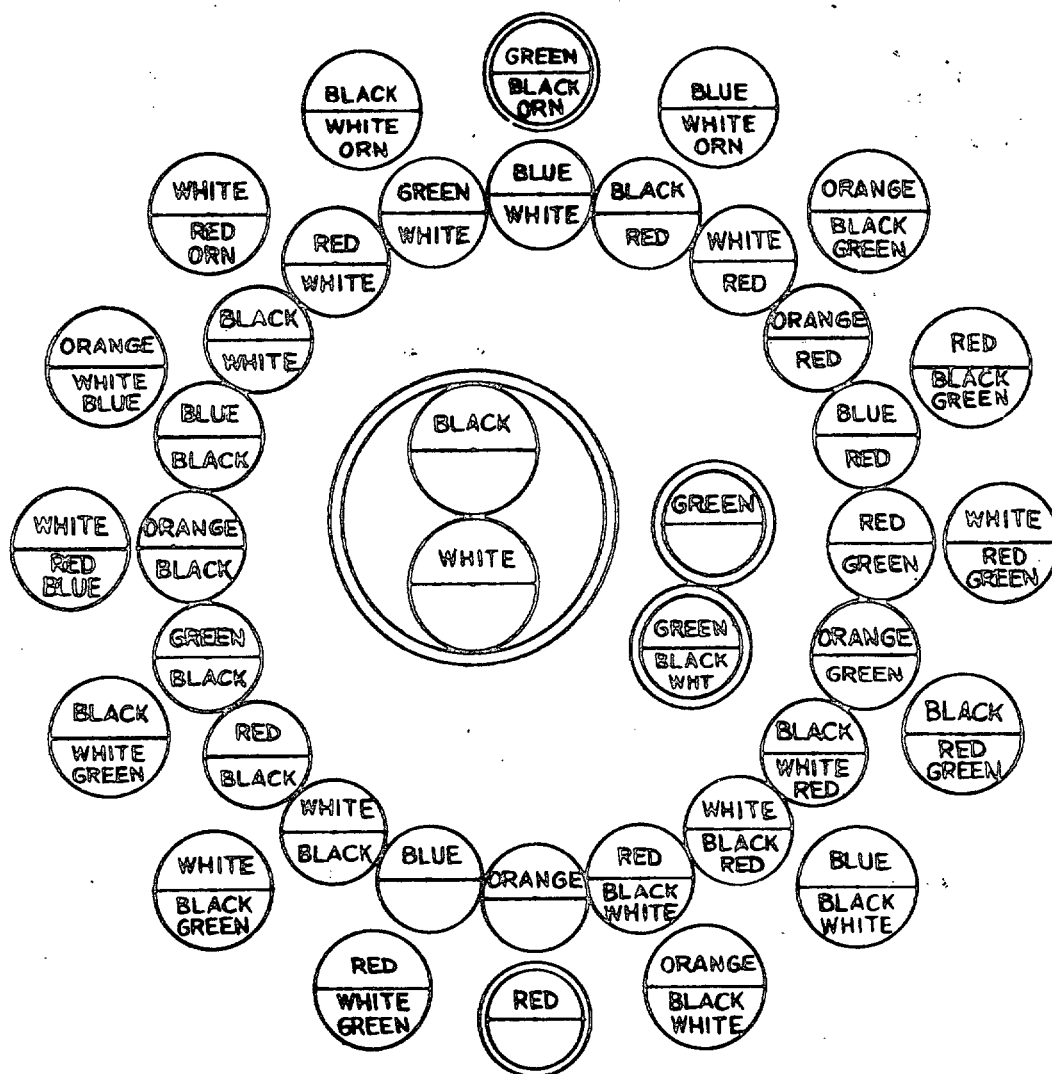


CABLE TYPE: 401485S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

FIGURE 11

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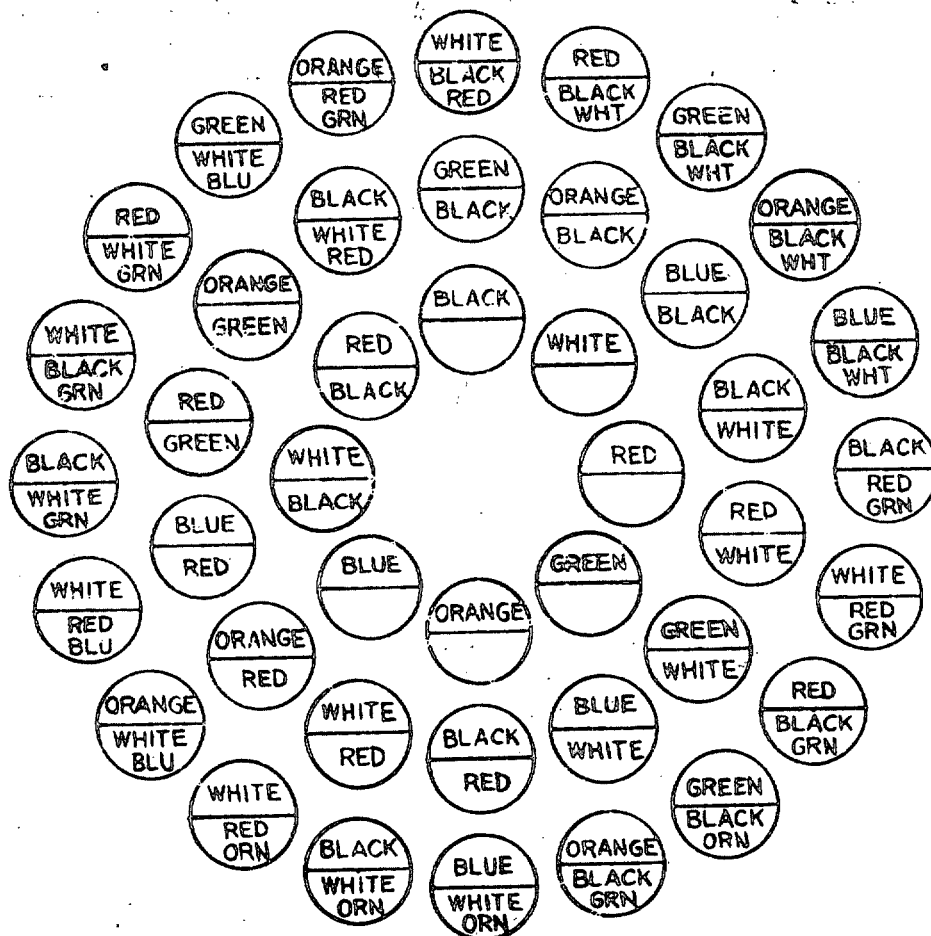


CABLE TYPE: 401582s

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION

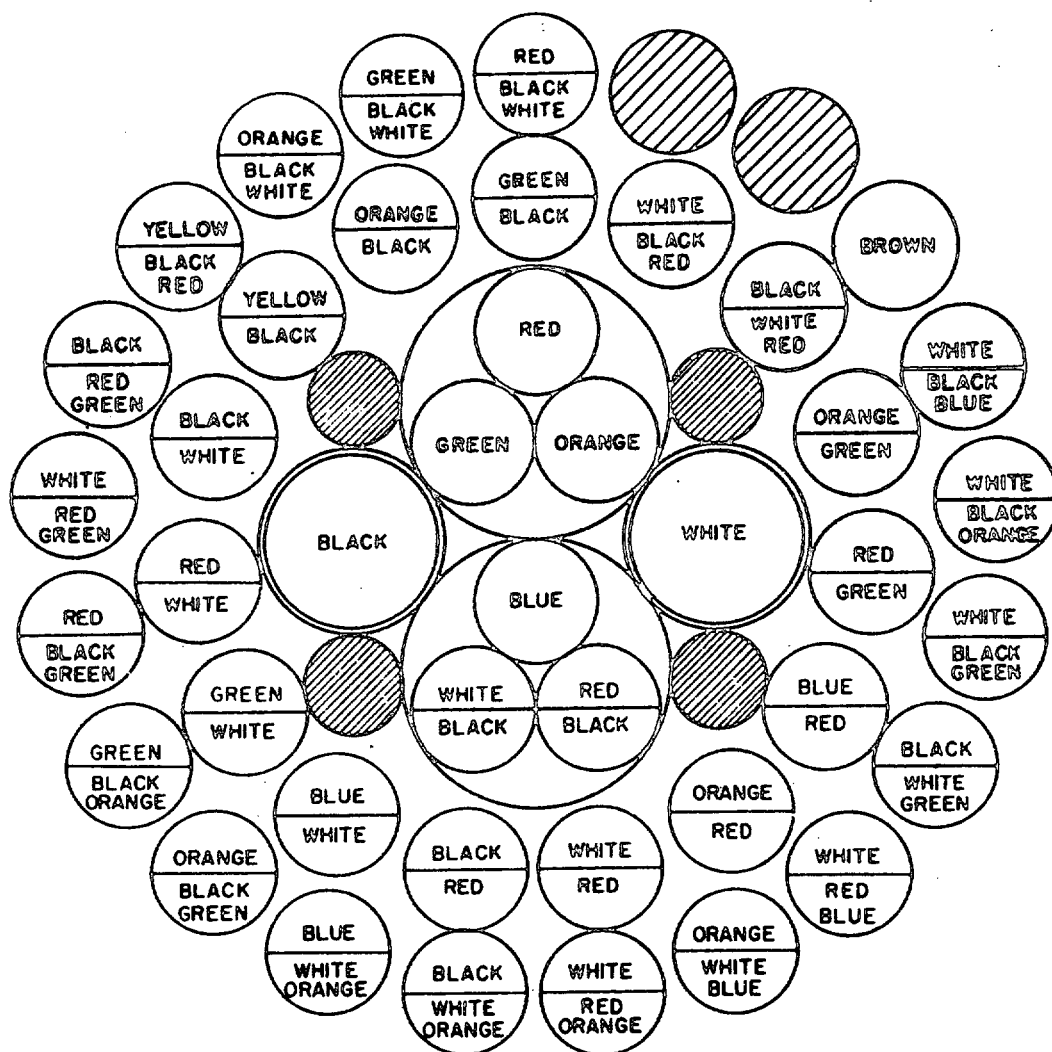
FIGURE 12

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CABLE TYPE: 420950

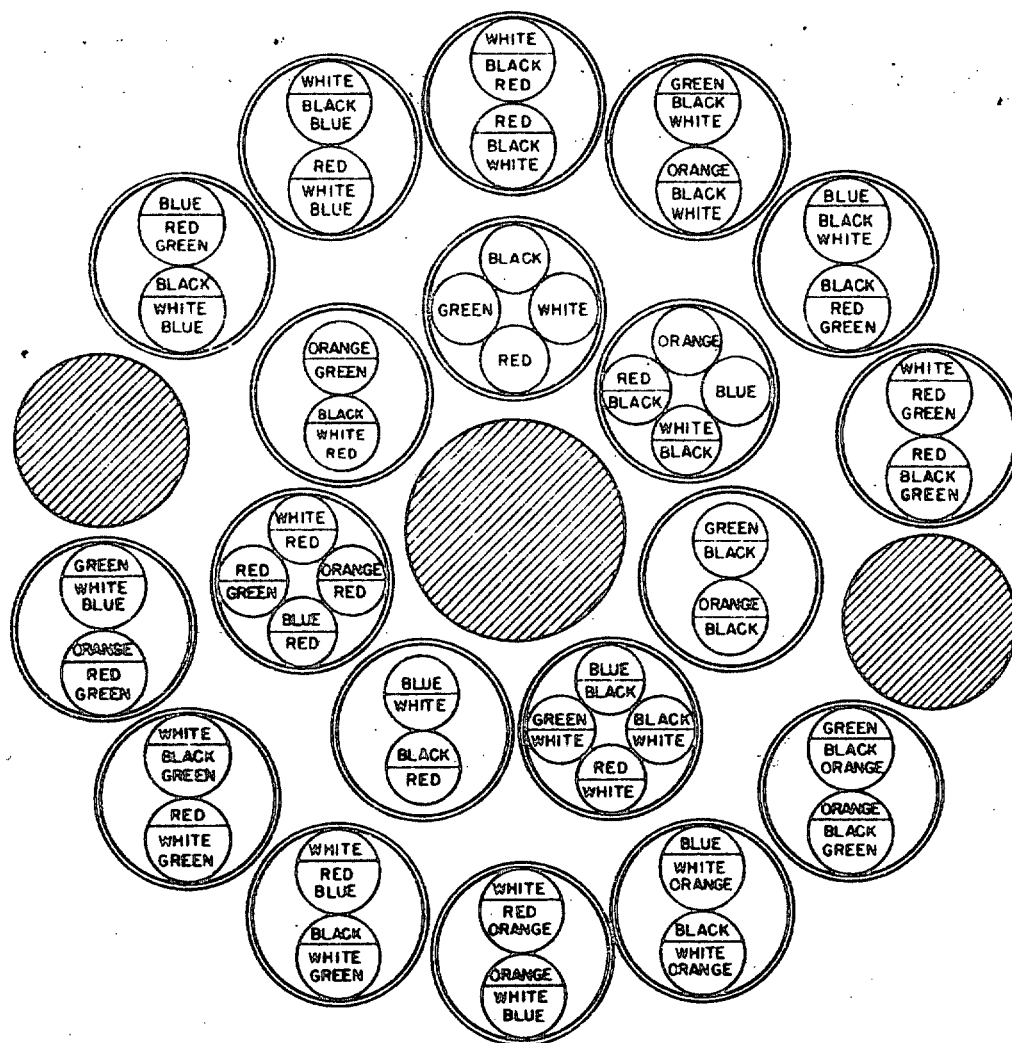
FIGURE 13



NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONDUCTORS

FIGURE 14

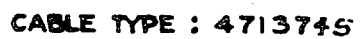
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CABLE TYPE: S462080S

NOTE: DOUBLE CIRCLE INDICATES SHIELDED CONDUCTORS

FIGURE 15

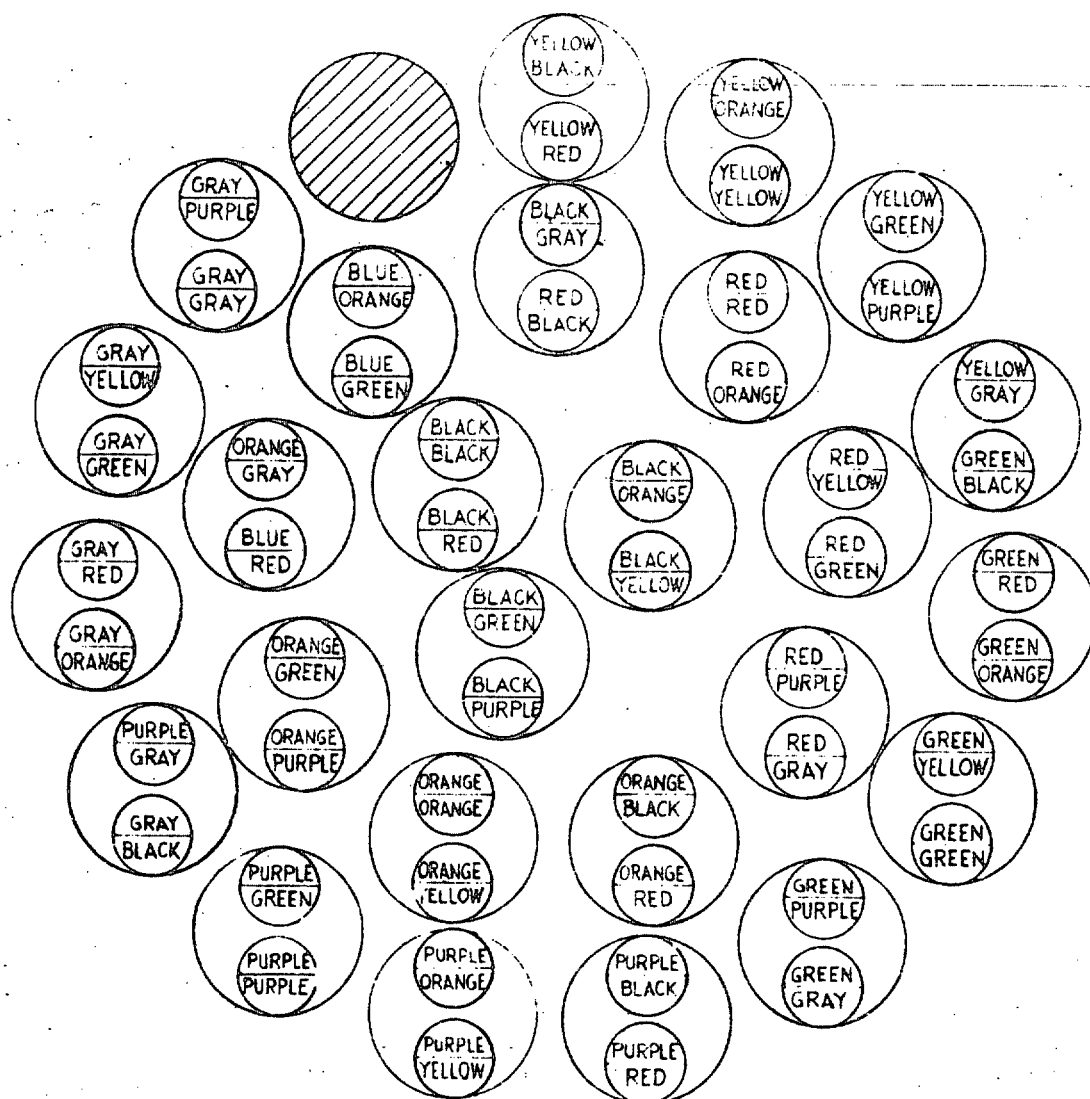


## NOTES

DOUBLE CIRCLE INDICATES SHIELDED CONSTRUCTION.

FIGURE 16

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SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 22-R255
<p><b>INSTRUCTIONS:</b> This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p>		
SPECIFICATION		
ORGANIZATION		
CITY AND STATE	CONTRACT NUMBER	
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE? YES      NO (If "yes", in what way?)		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity - Optional)		DATE

DD FORM 1426

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.

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