CLEARANCES FOR AERIAL CABLE AND GUYS INSTALLED IN THE MEDIUM LOADING AREA

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1. GENERAL

1.01 This section contains clearance requirements for aerial cable (including self-supporting cable) and guys installed in the medium loading area. These clearances apply at 60°F under conditions of no wind or ice. Except in the case of guys, ground clearances will be somewhat reduced at higher temperatures because of the increased sags involved. Conversely, lower temperatures mean greater ground clearances are required because placing sags are reduced. (See sag tables for differences due to temperature change.)

1.02 This practice has been reissued to:

- Combine all clearance and separation requirements for aerial cable and guys in the medium loading area into one practice.
- Incorporate information previously covered in Sections 620-210-013, 620-215-012, 620-216-012, and 620-216-013.

1.03 Clearances in this section meet and, in some cases exceed, the requirements of the National Electrical Safety Code (Sixth Edition). They are to be used unless the detailed plans specify other values, or local ordinances, etc, require order values.

1.04 Note that clearances required for self-supporting cable and other cables weighing one pound or less/foot increase with span length. This is because lighter weight cables are subject to a greater increase in sag under storm loading, and many clearances are calculated to maintain a minimum value under storm loading.

1.05 There is no distinction between construction and maintenance clearances above ground or rails because there is little or no permanent stretching of the strand as a result of storm loading. However, clearances ***under*** power wires are likely to be reduced below construction values as the power wires may incur extra permanent sag because of stretching. Both construction and maintenance clearances are therefore specified for these situations.

1.06 Considerable savings in pole height can sometimes be obtained by locating poles so that the low point of a span will not occur above streets, alleys, or driveways. In some cases, this will permit the use of lower clearances. (See Fig. 1 and Tables C and D.) Even when the required ground clearance is the same, the height of pole attachment can generally be reduced since it need not be based upon 100 percent of the midspan sag. The following table shows the approximate percentage of midspan sag occurring at points 50 and 100 feet from the pole for various

span lengths (measured along the cable route as shown in Fig. 1).

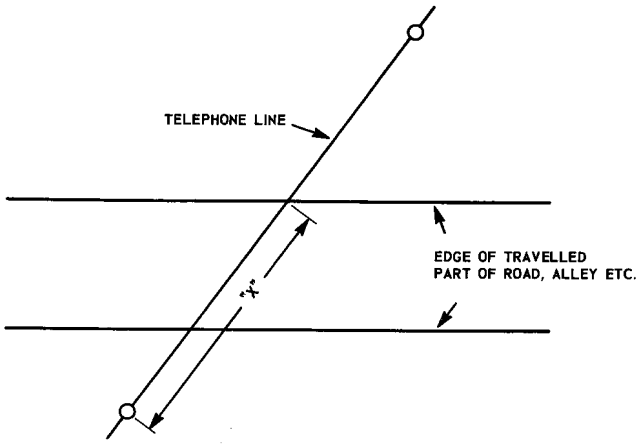


Fig. 1—Midspan Sag Diagram

SPAN (FT)	PERCENT OF MIDSPAN SAG "X" = 50 FT	SPAN (FT)	PERCENT OF MIDSPAN SAG "X" = 100 FT
180-200	80	260-290	95
201-225	75	291-325	90
226-250	70	326-360	85
251-275	65	361-400	80
276-305	60	401-440	75
306-340	55	441-490	70
341-385	50	491-540	65
386-440	45	541-600	60
441-515	40		
516-600	35		

Example: For a 500-foot span, the sag 50 feet from the pole is approximately 40 percent of the midspan sag; at 100 feet, the sag is 65 percent of midspan sag. (Interpolate for distances between 50 and 100 feet.)

1.07 Note that greater clearance is required for cable overhanging the travelled part of roads than for cable when no overhanging is involved. Also, in some cases, greater clearance is required for "major" overhang than for "minor" overhang (see Fig. 4). Eliminating or minimizing road overhang will generally reduce pole height requirements.

1.08 To determine the clearances required from power conductors, it is necessary to know the voltage of the power wires and also whether they are, or are not, part of a grounded system. Clearances for grounded power systems are based upon their voltage to ground; for other systems, clearances depend upon the voltage between wires. Most grounded power systems include a grounded conductor which has many connections to ground. Such conductors are called multigrounded neutrals and are generally considered to be effectively grounded.

Caution: Power companies occasionally attach the neutral ABOVE the phase wire as shown in Fig. 2. Therefore, it is important to identify the neutral wire before determining separation requirements. The neutral can usually be identified by observing the presence of the following:

(a) The neutral is usually bonded to a vertical ground wire at least every 1300 feet and more often when transformers are present.

(b) The neutral is normally bonded to power guys which do not contain insulators.

(c) Neutrals are sometimes carried on smaller insulators than those carrying phase wires.

(d) The neutral is sometimes carried on a lighter colored insulator than the phase wires.

(e) On transformer poles, the bushing for the neutral is usually smaller than the bushing for the phase connection. The neutral bushing is often located near the secondary bushings (Fig. 3).

(f) Where secondaries are dead ended, if the phase wire is carried through, the neutral will also be carried through.

Note: If after considering these factors, sufficient identification of the neutral wire has not been made, consult your supervisor or the electric utility company. However, if the neutral is attached ***above*** the phase wire, provide the clearance specified for phase wires of appropriate voltage.

1.09 It will be noted that clearances from streetlights show one value for grounded fixtures and a larger value for nongrounded fixtures. Streetlight fixtures bonded to cable suspension strand that is connected to a low impedance ground or a ground wire of an MGN power system are considered to be sufficiently well grounded to use the smaller clearance. Fixtures which are merely grounded to a ground rod are ***not*** considered sufficiently well grounded to use the smaller clearance.

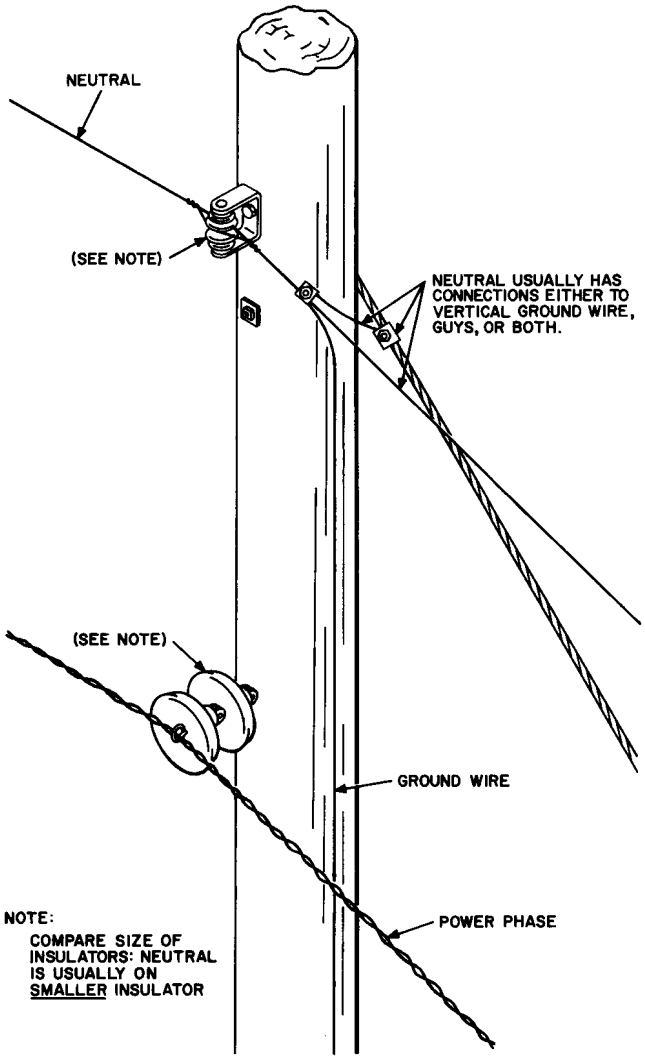
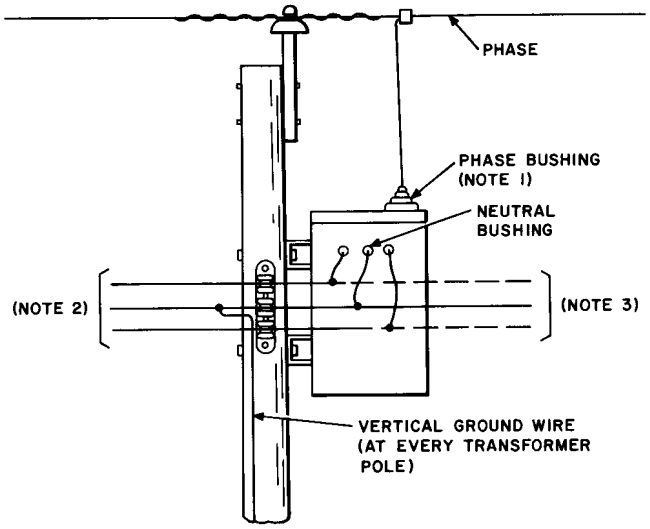


Fig. 2—Inverted Power Construction



NOTES:
1. PHASE BUSHING USUALLY LARGER THAN NEUTRAL BUSHING.
2. NEUTRAL CAN BE ANY ONE OF THESE. POSITION DEPENDS ON WIRING AT TRANSFORMER.
3. NEUTRAL ALWAYS CARRIES THROUGH WHEN PHASE CARRIES THROUGH. SECONDARIES ARE DEADENDED IN SOME CASES.

Fig. 3—Identification of Neutral Transformer Location

1.10 It will also be noted that clearances from grounded transformers, capacitors, etc, are smaller than for nongrounded transformers, etc. ***Local instructions will designate areas where transformer and/or capacitor cases are grounded, since it is not generally possible to determine whether power equipment is grounded or not by looking at it.***

1.11 Clearances for span lengths, voltages, and conditions not shown in this section are an engineering responsibility and will be shown on the detailed plans.

2. CLEARANCES ABOVE GROUND OR RAILS

2.01 Table A contains the minimum clearances at 60°F above ground or rails for all weights of cable and sizes of strand (including self-supporting cable). These clearances apply to all span lengths up to the maximums shown in this table. For cables weighing ***more*** than 1 lb/ft, these clearances also apply to any span length permitted for the

TABLE A

ALL SIZES OF STRAND, ANY WEIGHT CABLE (INCLUDING SELF-SUPPORTING CABLE)

CROSSING ABOVE	CLEARANCE (FT IN.)	MAX. SPAN (FT)	REMARKS
Railroad Tracks	25-0	120	See Table 2
Public Roads	18-0	250	See Fig. 5 & Par. 2.04
Public Alleys	15-0	250	
Residential Driveways	10-0	250	
Walks and Lanes (Pedestrian)	8-0	Any	
Flat Roof Bldgs	8-0	Any	
Peak Roof Bldgs, Billboards	2-0	Any	
Neon Signs	4-0	Any	See Note 1
Waterways	Must be shown on plans.		
RUNNING ALONG			
Public Roads with			
Major Overhang	18-0	250	See Fig. 4 & Par. 2.04
Minor Overhang			See Fig. 4 & Par. 2.04
Urban	18-0	375	
Rural (Lt Traffic)	14-0	375	See Note 2
No Overhang			
Back of Obstr	8-0	Any	See Fig. 6 & Par. 2.03
Not Back of Obstr	13-0	Any	See Fig. 7 & Par. 2.03
Public Alleys	15-0	Any	

Note 1: Clearance for guys may be reduced to 1 foot.

Note 2: Lightly travelled country lanes only. If well travelled, consider as urban even if in rural area.

particular combination of strand size and cable weight (except at railroad crossings—see Table B).

2.02 For lashed cables weighing ***less*** than 1 lb/ft, these clearances also apply to span lengths up to 375 feet (except at railroad crossings—see Table B). Longer spans generally require greater clearances. (See Table D.) For self-supporting cables, span lengths over 250 feet generally require greater clearances; these are shown in Table C.

2.03 The designation "No Overhang—Back of Obstr" (Table A) means that the line is located back of a fence, ditch, embankment, etc, so that the ground beneath the line can ordinarily be travelled by pedestrians only. The designation "No Overhang—Not Back of Obstr" means that the line is not back of such obstruction. This category is meant to include ground not ordinarily travelled but which can be reached by vehicles. If farm machinery is likely to pass under the line, provide sufficient clearance so that the cable or guy will be 2 feet above the highest part of such machinery or the load it will carry.

2.04 Spans crossing or overhanging public roads should be somewhat shorter than the adjacent spans, especially for span lengths over 250 feet.

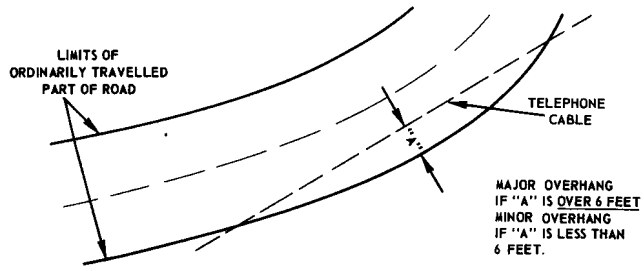


Fig. 4—Overhang—Running Along Public Roads

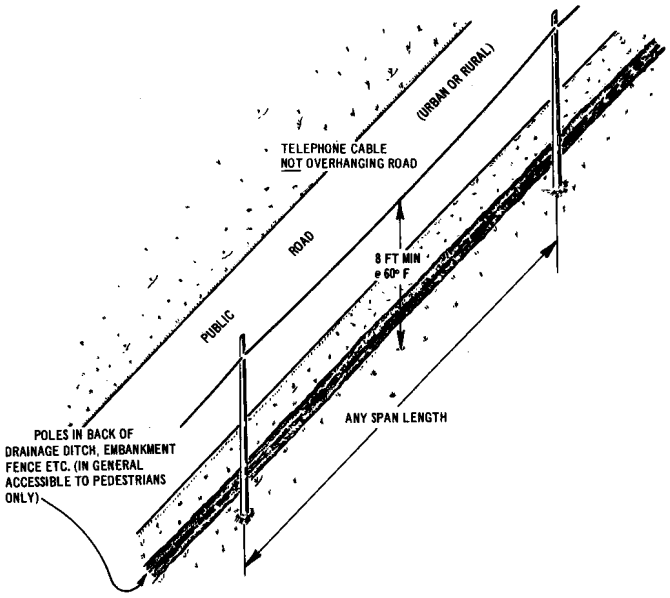


Fig. 6—Running Along Public Roads—Back of Ditches Etc.

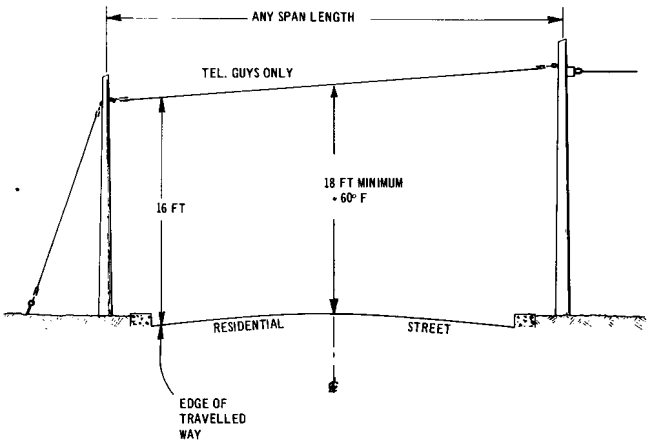


Fig. 5—Overang—Crossing Public Roads

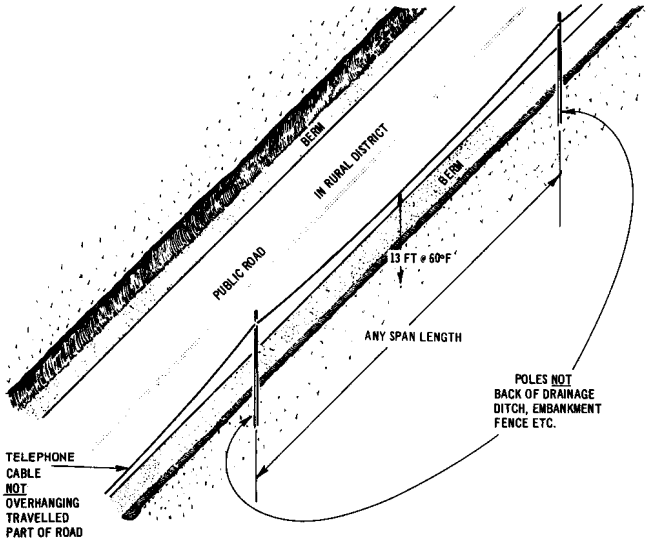


Fig. 7—Running Along, But Not Overhanging Public Roads

TABLE B

CLEARANCES FOR AERIAL CABLE AND GUYS CROSSING RAILROAD TRACKS

WEIGHT OF CABLE	STRAND SIZE	SPAN LENGTH IN FEET 121-150 FT IN.	151-185 FT IN.	186-235 FT IN.
Self-supporting (Any wt)		25-5	— —	— —
Less than 1 lb/ft	6M	25-0	— —	— —
	10M	25-0	25-0	25-6
	16M	25-0	25-0	25-0
More than 1 lb/ft	6M	25-0	— —	— —
	10M	25-0	25-0	25-2
	16M, 25M	25-0	25-0	25-0
Guys	Any	25-0	25-0	25-0

Note 1: Maximum span length for self-supporting cable is 150 feet.

Note 2: Maximum span length for 6M is 150 feet; maximum cable weight is 2-1/4 lb/ft.

Note 3: Maximum cable weight for 10M is 5 lb/ft; maximum span length is 150 feet if cable weight is over 2-1/4 lb/ft.

Note 4: Maximum cable weight for 16M is 8-1/2 lb/ft; maximum span length is 150 feet if cable weight is over 5 lb/ft.

3. JOINT USE SEPARATION IN THE SPAN AND ON THE POLE FROM POWER CONDUCTORS.

750 VOLTS OR LESS: INCLUDES NEUTRALS, OTHER THAN MULTIGROUNDED, ASSOCIATED WITH CONDUCTORS OF 750 VOLTS OR LESS			
SPAN LENGTH (S) IN FEET	MIDSPAN SEPARATION (A) IN INCHES		CLEARANCE AT THE POLE IN INCHES
	CONSTRUCTION	MAINTENANCE	
150 — Less	36	30	40**
150 — 200	40 or sag of tel wire plus 10 if greater*	30 or sag of tel wire if greater*	40**
200 — 250	48 or sag of tel wire plus 18 if greater*	30 or sag of tel wire if greater*	40**

* Lowest power wire must be above the line of sight.

** May have to be greater than 40 inches to meet midspan requirements.

A. Power Conductors of 750 Volts or Less

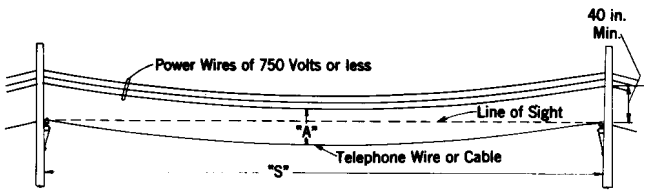


TABLE C

CLEARANCES FOR LONG SPAN SELF-SUPPORTING CABLE
CROSSING OR OVERHANGING ROADS, ALLEYS, AND DRIVEWAYS*

Span Length	CROSSING OVER							RUNNING ALONG PUBLIC ROADS	
	PUBLIC ROADS		PUBLIC ALLEYS		RES. DRIVE				
	Generally	Pole within 100 feet of far edge (See Fig. 1)	Generally	Pole within 100 feet of far edge (See Fig. 1)	Generally	Pole within 100 feet of far edge (See Fig. 1)	Major Overhang (See Fig. 4) Urban or Rural Areas	Minor Overhang (See Fig. 4) Urban Areas	Minor Overhang Rural Areas
FEET	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.
251/275	18- 5	18- 1	15- 5	15- 1	10- 5	10- 1	18- 5	18-0	14-0
276/300	18- 9	18- 3	15- 9	15- 3	10- 9	10- 3	18- 9	18-0	14-0
301/325	19- 2	18- 6	16- 2	15- 6	11- 2	10- 6	19- 2	18-0	14-0
326/350	19- 6	18- 8	16- 6	15- 8	11- 6	10- 8	19- 6	18-0	14-0
351/375	19-11	18-10	16-11	15-10	11-11	10-10	19-11	18-0	14-0
376/400	20- 3	18-11	17- 3	15-11	12- 3	10-11	20- 3	18-3	14-3
401/425	20- 8	19- 0	17- 8	16- 0	12- 8	11- 0	20- 8	18-8	14-8
426/450	21- 0	19- 2	18- 0	16- 2	13- 0	11- 2	21- 0	19-0	15-0
451/475	21- 5	19- 3	18- 5	16- 3	13- 5	11- 3	21- 5	19-5	15-5
476/500	21- 9	19- 4	18- 9	16- 4	13- 9	11- 4	21- 9	19-9	15-9
501/525	22- 2	19- 5	19- 2	16- 5	14- 2	11- 5	22- 2	20-2	16-2
526/550	22- 6	19- 6	19- 6	16- 6	14- 6	11- 6	22- 6	20-6	16-6

* Clearances for shorter spans and other conditions are shown in Tables A and B.

TABLE D

CLEARANCES FOR LONG SPAN CABLE ON 6M, 10M, 16M STRAND CROSSING OR OVERHANGING ROADS, ALLEYS, AND DRIVEWAYS* – CABLES WEIGHING 1 LB/FT OR LESS

Span Length	CROSSING OVER							RUNNING ALONG PUBLIC ROADS	
	PUBLIC ROADS		PUBLIC ALLEYS		RES. DRIVE				
	Generally	Pole within 100 feet of far edge (See Fig. 1)	Generally	Pole within 100 feet of far edge (See Fig. 1)	Generally	Pole within 100 feet of far edge (See Fig. 1)	Major Overhang (See Fig. 4) Urban or Rural Areas	Minor Overhang (See Fig. 4) Urban Areas	Minor Overhang Rural Areas
FEET	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.	FT IN.
For Cables Supported on 6M and 10M Strand									
376/400	18-3	18-0	15-3	15-0	10-3	10-0	18-3	18-0	14-0
401/425	18-6	18-0	15-6	15-0	10-6	10-0	18-6	18-0	14-0
426/450	18-9	18-0	15-9	15-0	10-9	10-0	18-9	18-0	14-0
451/475	19-0	18-0	16-0	15-0	11-0	10-0	19-0	18-0	14-0
476/500	19-3	18-0	16-3	15-0	11-3	10-0	19-3	18-0	14-0
501/525	19-6	18-0	16-6	15-0	11-6	10-0	19-6	18-0	14-0
526/550	19-9	18-0	16-9	15-0	11-9	10-0	19-9	18-0	14-0
551/575	20-0	18-0	17-0	15-0	12-0	10-0	20-0	18-0	14-0
576/600	20-3	18-0	17-0	15-0	12-3	10-0	20-3	18-3	14-3
For Cables Supported on 16M Strand									
376/450	18-0	18-0	15-0	15-0	10-0	10-0	18-0	18-0	14-0
451/475	18-3	18-0	15-3	15-0	10-3	10-0	18-3	18-0	14-0
476/500	18-6	18-0	15-6	15-0	10-6	10-0	18-6	18-0	14-0
501/525	18-9	18-0	15-9	15-0	10-9	10-0	18-9	18-0	14-0
526/550	19-0	18-0	16-0	15-0	11-0	10-0	19-0	18-0	14-0
551/575	19-3	18-0	16-3	15-0	11-3	10-0	19-3	18-0	14-0
576/600	19-6	18-0	16-6	15-0	11-6	10-0	19-6	18-0	14-0

* Clearances for shorter spans and other conditions are shown in Tables A and B.

Example:

Span length 250 feet.

Power secondaries have 30-inch sag.

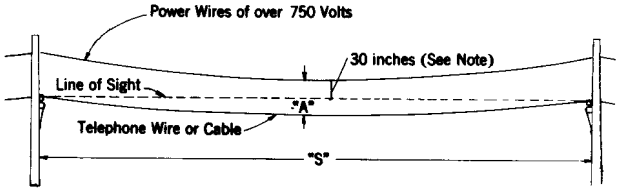
Telephone wire has 42-inch sag.

Required separation at midspan is 48 inches or sag of telephone wire + 18 inches, if this is larger. Since 12 + 18 is 60 inches and this is larger than 48, the required midspan separation is 60 inches. Standard 40-inch separation at the pole will provide (40—30) + 42, or 52 inches, which is 8 inches short. Separation at pole must be 40 + 8, or 48 inches.

B. Power Conductors of Over 750 Volts

GROUNDED POWER SYSTEMS OF UP TO 15,000 VOLTS BETWEEN WIRES (8700 VOLTS TO GROUND) AND OTHER SYSTEMS OF UP TO 8700 VOLTS BETWEEN WIRES			
SPAN LENGTH (S) IN FEET	MIDSPAN SEPARATION (A) IN INCHES		CLEARANCE AT THE POLE IN INCHES
	CONSTRUCTION	MAINTENANCE	
150 — Less	36	30	40*
150 — 200	40 plus sag of tel wire	30 plus sag of tel wire	40*
200 — 250	48 plus sag of tel wire	30 plus sag of tel wire	40*
GROUNDED POWER SYSTEMS OF 15,000 — 86,500 VOLTS BETWEEN WIRES (8700 — 50,000 VOLTS TO GROUND) AND OTHER SYSTEMS OF 8700 — 50,000 VOLTS BETWEEN WIRES			
150 — Less	51	45	60*
150 — 200	55 or tel wire sag plus 40 if greater	45 or tel wire sag plus 30 if greater	60*
200 — 250	63 or tel wire sag plus 48 if greater	45 or tel wire sag plus 30 if greater	60*

* Minimum clearance may have to be greater to meet midspan requirements.



Note: Power wires must be at least 30 inches above the line of sight if "S" exceeds 150 feet.

Example:

Span length 250 feet.

Power conductors carry 34,000 volts between wires (20,000 volts to ground) and have a 36-inch sag. Telephone cable has a 40-inch sag.

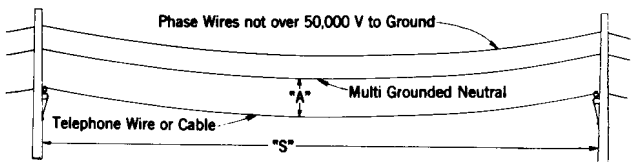
Required midspan separation is 63 inches or telephone sag plus 48, if larger. The latter 40 + 36 or 76 inches is greater than 63 inches and therefore controls. Note that the standard 60-inch spacing at the pole will provide (60—36) + 40 or 64 inches which is 12 inches less than the required 76 inches. The spacing at the pole would have to be increased to 72 inches.

C. Multigrounded Neutrals

(See 1.08 and Fig. 2 and 3)

22,000 VOLTS OR LESS TO GROUND 38,000 VOLTS OR LESS BETWEEN WIRES			
SPAN LENGTH (S) IN FEET	MIDSPAN SEPARATION (A) IN INCHES		CLEARANCE AT THE POLE IN INCHES
	CONSTRUCTION	MAINTENANCE	
150 — Less	36	30	40*
151 — 200	40	30	40*
200 — 250	48	30	40*
22,000 TO 50,000 VOLTS TO GROUND 38,000 TO 86,500 VOLTS BETWEEN WIRES			
150 — Less	51	45	60*
150 — 200	55	45	60*
200 — 250	63	45	60*

* Clearance at the pole is minimum; greater clearance may be necessary to meet midspan requirements

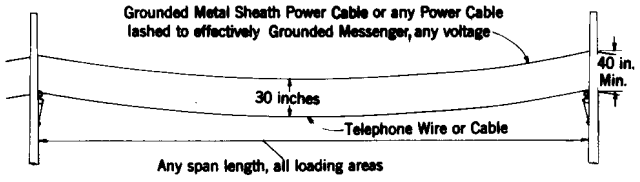


D. Power Cables (Except Spacer Cables)

GROUNDED POWER CABLE (EXCEPT SPACER CABLE) GROUNDED METALLIC SHEATH, NON-METALLIC SHEATH CABLES LASHED TO GROUNDED MESSENGER, ETC		
SPAN LENGTH (S) IN FEET	MIDSPAN SEPARATION (A) IN INCHES CONSTRUCTION AND MAINTENANCE	CLEARANCE AT THE POLE IN INCHES
Any	30	40*
NONGROUNDED POWER CABLES 8700 VOLTS OR LESS**		
Any	30	40*
NONGROUNDED POWER CABLES 8700 – 50,000 VOLTS**		
Any	45	60*

* Minimum clearance may be increased to meet midspan requirements.

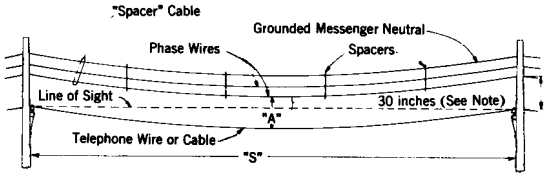
** Generally excludes spacer cable since the supporting messenger is usually grounded.



E. Spacer Type Power Cables

	8700 VOLTS OR LESS TO GROUND 15,000 VOLTS OR LESS BETWEEN WIRES	
SPAN LENGTH (S) IN FEET	MIDSPAN SEPARATION (A) IN INCHES CONSTRUCTION AND MAINTENANCE	CLEARANCE AT THE POLE IN INCHES
150-Less	30	40*
151-Over	30 plus sag of tel	40*
8700 – 50,000 VOLTS TO GROUND 15,000 – 86,500 VOLTS BETWEEN WIRES		
150-Less	45	60*
151-Over	45 or if larger, 30 plus sag of tel	60*

* Minimum clearance may have to be increased to meet midspan requirements



Note: Power wires must be at least 30 inches above the line of sight if "S" exceeds 150 feet.

4. CLEARANCES ON JOINT USE POLES—OTHER

A. Clearance From Power Transformers, Voltage Regulators, Capacitors, Pins, Racks, and Crossarms

POWER FACILITY	SEE TABLE	FIG. OR NOTE
Secondary racks	E	Fig. 8**
Steel pins	E	Fig. 8
Power transformers, capacitors, regulators, etc	E	Fig. 9*
Metal crossarm braces: Attached to metal crossarms within 1 inch of nongrounded transformer or capacitor cases or their supports	E	
Attached to wood crossarms less than 1 inch below top of arm	E	
Attached to wood crossarm 1 inch or more below top of arm and 1 inch or more from nongrounded transformer, etc	F	

* May be reduced to 30 inches for grounded power circuits if case is effectively grounded.

** 40 inches generally.

TABLE E FOR GROUNDED POWER CIRCUITS		
VOLTAGE TO GROUND	VOLTAGE BETWEEN LINES	CLEARANCE (INCHES)
8700 V — Less	15,000 V — Less	40
8701 V — 50,000 V	15,001 V — 86,500 V	60
FOR OTHER POWER CIRCUITS		
—	8700 V — Less	40
—	8701 V — 50,000 V	60

TABLE F FOR GROUNDED POWER CIRCUITS		
VOLTAGE TO GROUND	VOLTAGE BETWEEN WIRES	CLEARANCE (INCHES)
8700 V — Less	15,000 V — Less	12
8701 V — 50,000 V	15,001 V — 86,500 V	30
FOR OTHER POWER CIRCUITS		
—	8700 V — Less	12
—	8701 V — 50,000 V	30

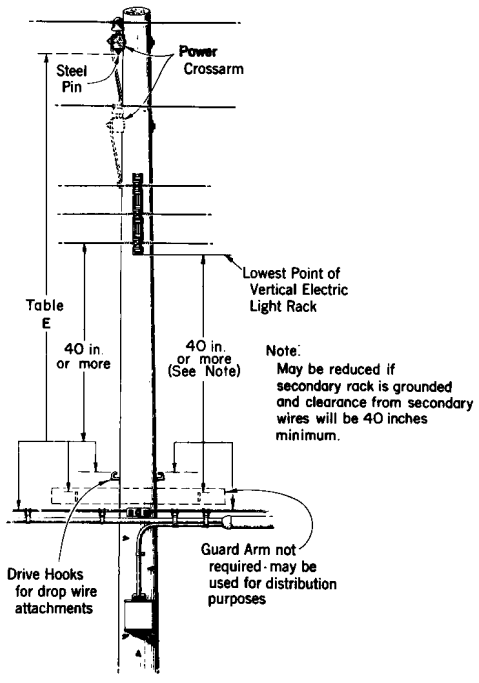


Fig. 8—Vertical Clearance Between Cable and Power Attachments

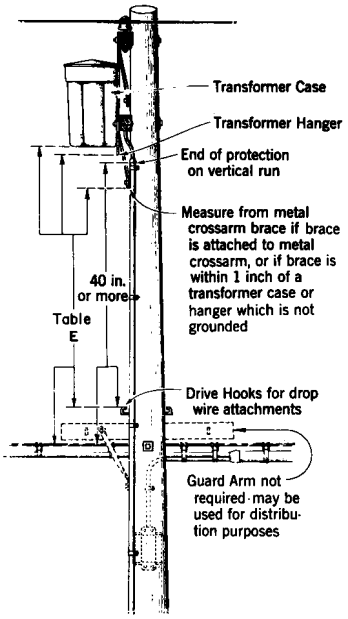


Fig. 9—Vertical Clearance Between Power Transformers and Cables

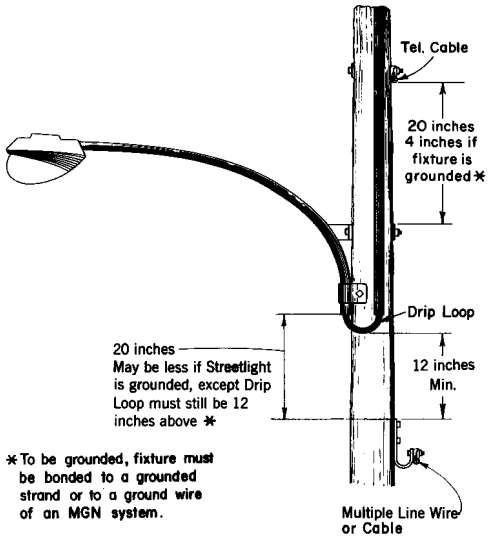


Fig. 10—Clearance From Streetlight Fixture Drip Loop Above Cable or Multiple Line Wire

B. Clearance From Streetlight, Traffic Light, Trolley Wires and Associated Fixtures, Brackets, and Wiring

STREETLIGHT FIXTURES FIG. 10, 11, 12, 13, AND ASSOCIATED WIRING			
FACILITY	TELEPHONE PLANT	CLEARANCE-INCHES	
		GROUNDED	NOT GROUNDED
Streetlight fixtures and span wires	Cable Guys	4	20
Drip loop entering fixture from surface of pole	Cable Guys	12	
Streetlight feed on pins and insulators	Cable Guys	6 5	
Streetlight feed run direct to fixture 40 inches from surface of pole	Cable Guys	20 6	
TRAFFIC LIGHT FIXTURES AND ASSOCIATED WIRING			
Traffic light fixtures and span wires	Cable Guys	4	20
Traffic light control cables	Cable Guys	24 below 12 if necessary	
Vertical runs for traffic light fixtures and controls	Cable Guys	Same as power Vertical Runs	
TROLLEY SPAN WIRES FIG. 14, 15, 16, AND BRACKETS			
Span wires and brackets	Cable Guys	4	12

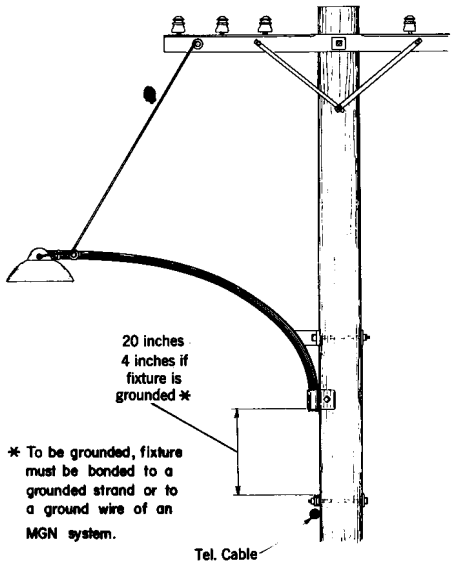


Fig. 11—Clearance of Cable From Streetlight Fixture Mounted Above Cable

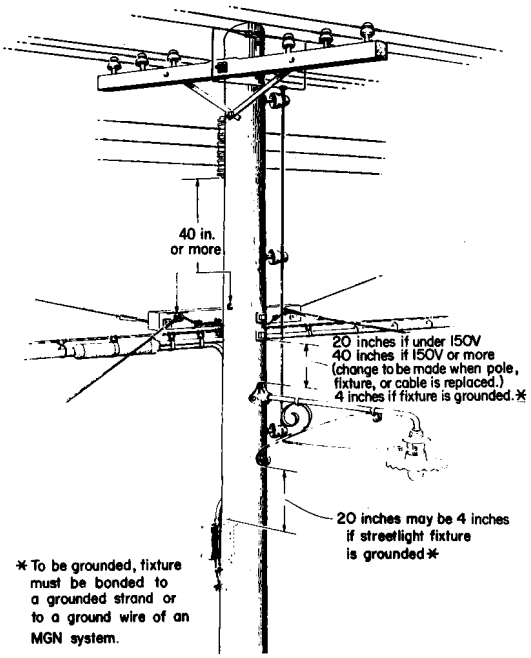


Fig. 12—Clearances of Cable and Pole-Mounted Terminal From Streetlight Fixture Mounted Below Cable

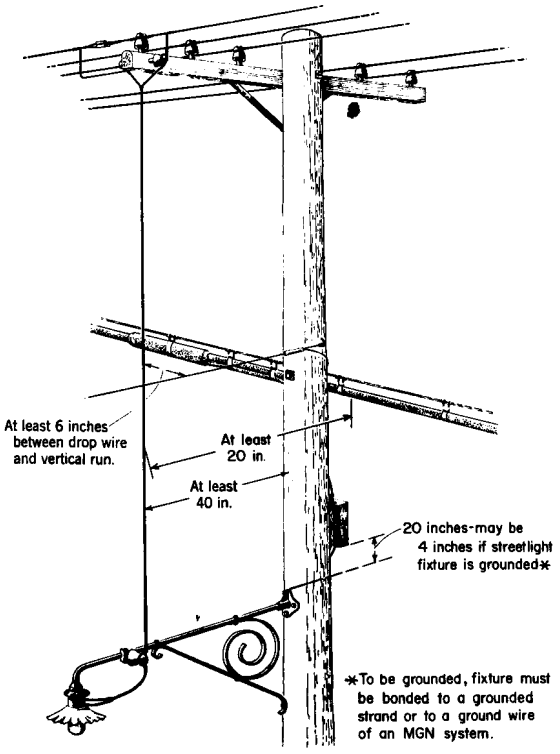


Fig. 13—Clearances From Vertical Feed Wire of Streetlight Fixture

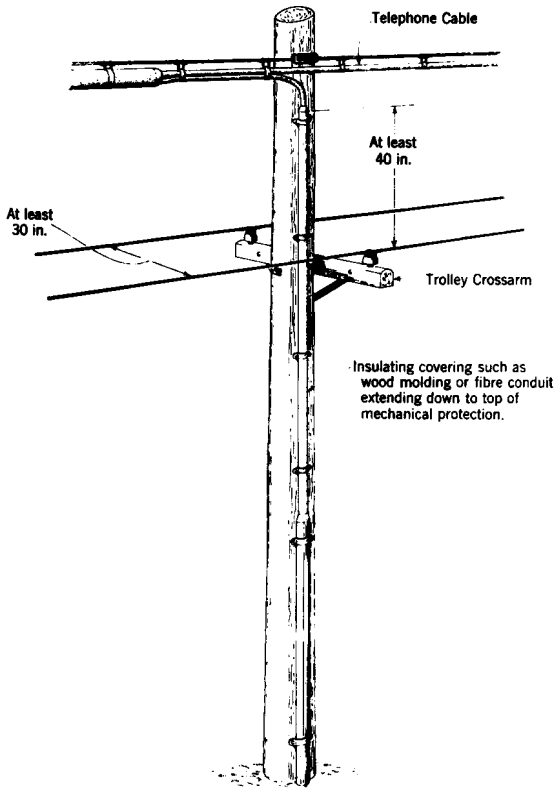


Fig. 14—Clearances Between Trolley Crossarms and Telephone Cable

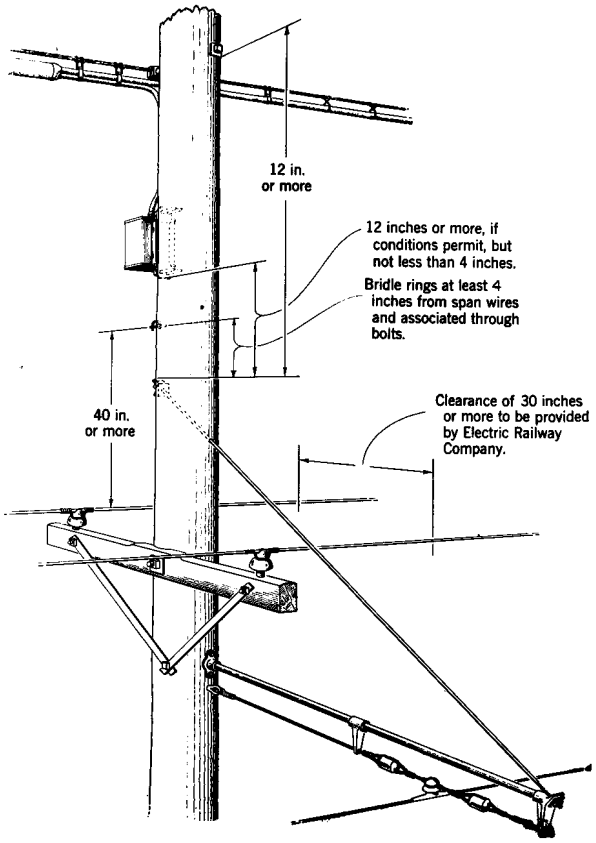


Fig. 15—Clearances Between Telephone Attachments and Trolley Wire Attachments

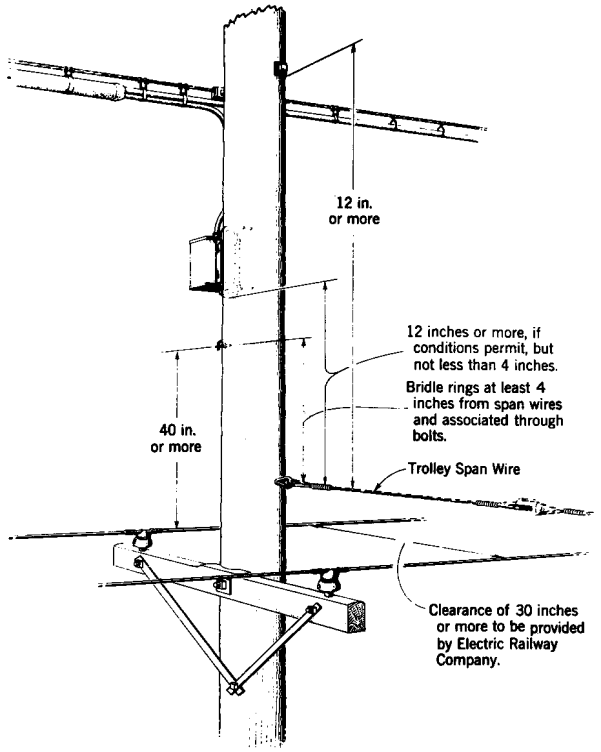


Fig. 16—Clearances Between Telephone Attachments and Trolley Span Wire

C. Clearance From Power Guys and Clearance of Telephone Guys From Telephone Wire or Cable

POWER GUYS (FIG. 17)	
CONDITION	CLEARANCE IN INCHES
Power side guys attached above primary wires	40*
Pole-to-pole power guys attached above primary wires	30*
Power guys attached to transmission line poles 15,000 volts to ground or higher	24
Pole-to-pole power guys not attached above primary wires but within 12 inches of bare secondary wires and within 12 inches of tel cable or guys	3**
TELEPHONE GUYS	
From telephone wire or cable	6 where practical but not less than 3

*From any part of guy which lies between guy insulator and pole, refer to Section 621-405-201 for information on placing insulators.

**Power guy should be grounded, covered with suitable insulation where they pass power conductors or contain insulator below lowest power conductor and above highest telephone cable. If none of these conditions have been met, notify your supervisor before continuing work operations.

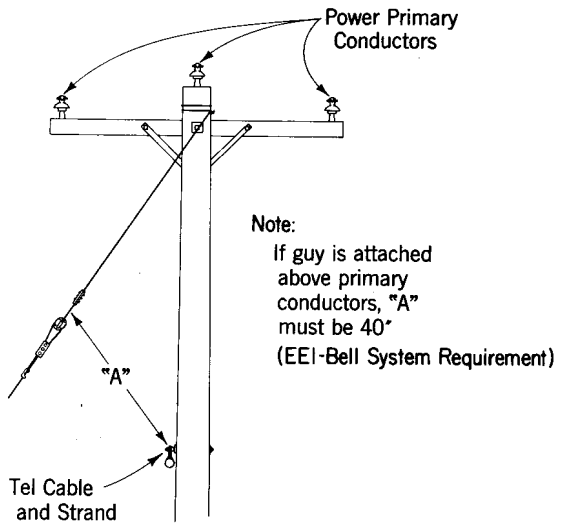


Fig. 17—Clearance Between Power Guy and Telephone Cable and Strand

D. Clearance From Power Vertical Runs

VERTICAL RUNS (FIG. 18)	
KIND OF VERTICAL RUN	CLEARANCE IN INCHES
Power service under 750 volts on pins and insulators	3
Power service on surface of pole from telephone hardware (pole steps, through bolts, lags, etc)	2-min 1/8 Pole Circumfer-ence Generally
Bare vertical grounding conductors from lag screws, through bolts, etc	1

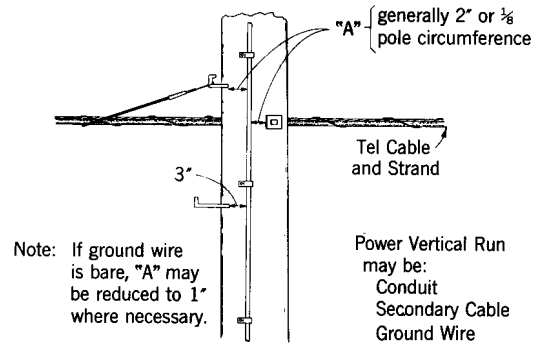


Fig. 18—Clearance Between Power Vertical Run on Pole Surface and Telephone Hardware

E. Clearance From Licensee Cable, Wire, and Attachments

LICENSEE ATTACHMENTS (FIG. 19 THRU 23)	
LICENSEE ATTACHMENT	CLEARANCE IN INCHES
Licensee cable and telephone cable on opposite sides of pole (See Fig. 19)	12** Diagonal
Suspension bolts of licensee and telephone cables (See Fig. 19)	Not less than 4
Licensee cable and telephone cable or between two or more licensee cables (See Fig. 20)	12*
Licensee strand mounted equipment or expansion loops and telephone cable (See Fig. 20)	6
Power vertical run to licensee amplifier or meter and cable, bolts, washers, etc (See Fig. 21 thru 23)	2 in any Direction

* May be reduced by agreement of both licensee companies.

** Where agreement with the power utility permits.

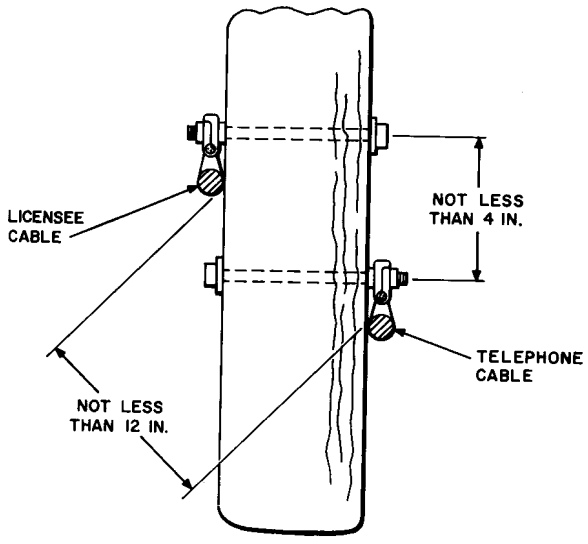


Fig. 19—Diagonal Clearance Between Licensee and Telephone Cables

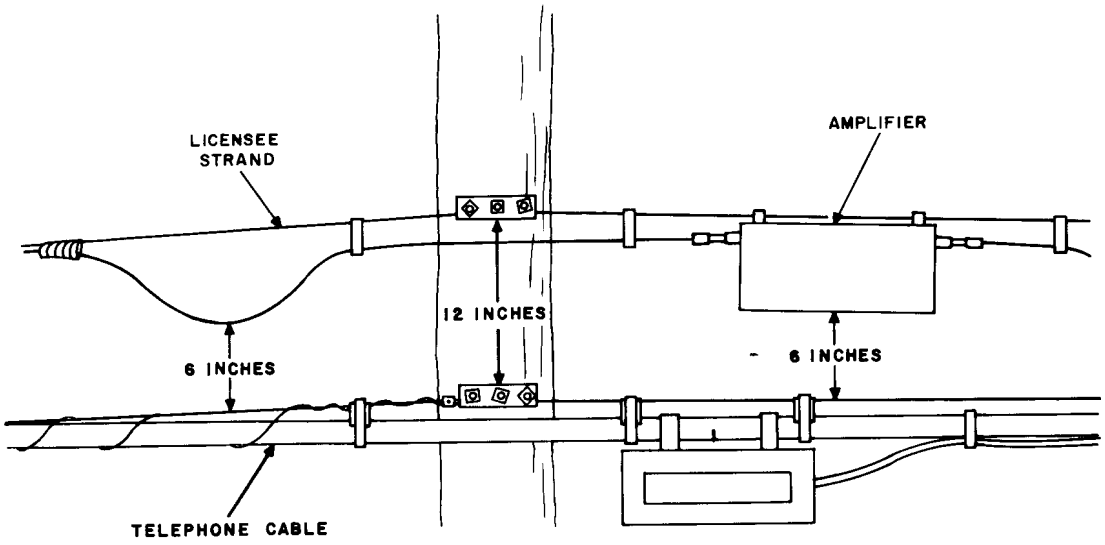


Fig. 20—Clearance Between Licensee Equipment and Telephone Co. Cable

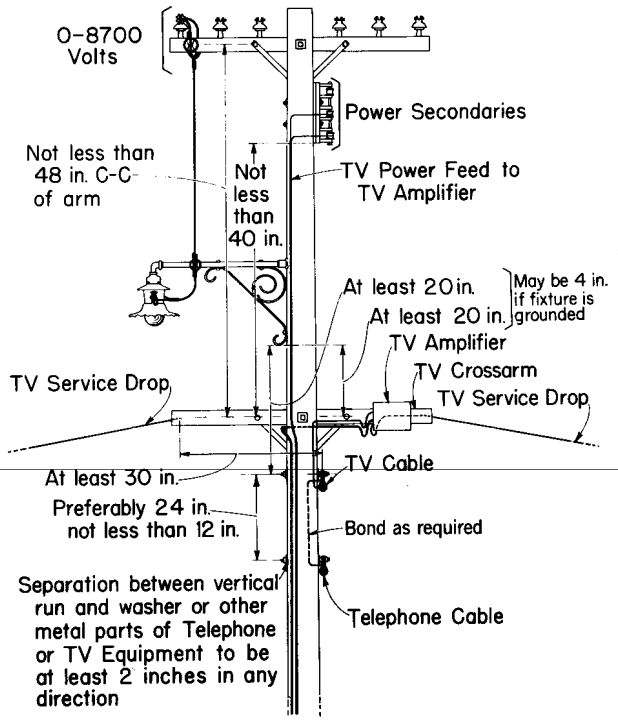


Fig. 21—Clearances on Joint Use Pole With TV Amplifier Mounted Crossarm

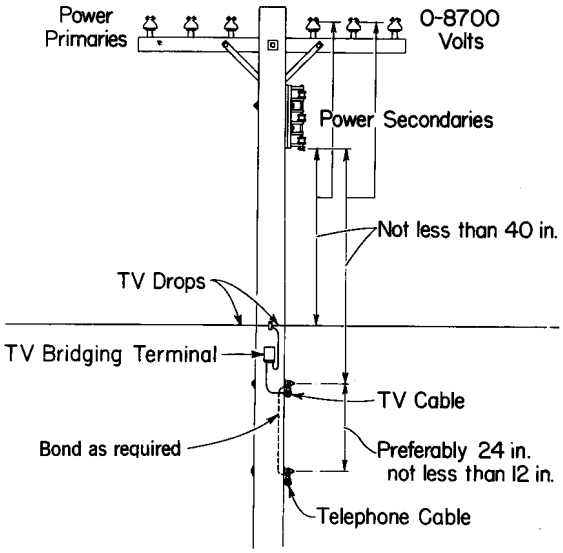


Fig. 22—Clearances on Joint Use Pole With No TV Amplifier or Meter

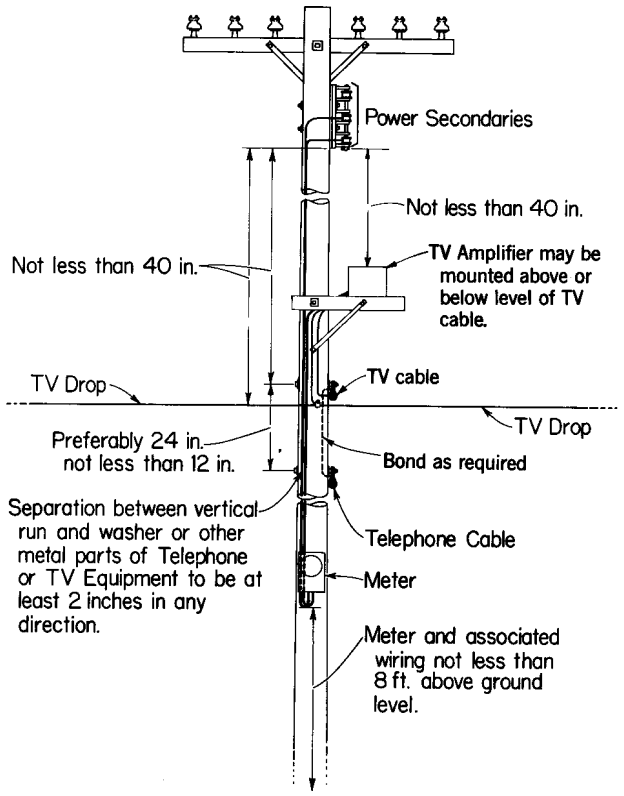


Fig. 23—Clearances on Joint Use Pole With TV Amplifier and Meter Mounted on Pole

5. CLEARANCES FOR TELEPHONE GUYS AND CABLE CROSSING BELOW POWER WIRES OR CABLES—NONJOINT

POWER FACILITY	CONSTRUCTION			MAINTENANCE
	SPAN LENGTH IN FEET OF POWER FACILITY			
	150-LESS	151-200	201-250	250-LESS
OPEN POWER CONDUCTORS **	CLEARANCE IN FEET-INCHES			
300 Volts or less				
Service wires or cables	2-0	2-6	3-0	2-0
Line wires generally	2-0	2-6	3-0	2-0
Within 6 ft of tel pole*	4-0	4-6	5-0	4-0
301-750 Volts-phase wires				
Above telephone cable	4-0	4-6	5-0	4-0
Above telephone guy	2-0	2-6	3-0	2-0
751-8700 Volts-phase wires				
Above telephone cable or guy	4-0	4-6	5-0	4-0
Within 6 ft of tel pole*	6-0	6-6	7-0	6-0
8701-50,000 Volts-phase wires				
Above telephone cable	6-0	6-6	7-0	6-0
Above telephone guy	4-0	4-6	5-0	4-0
Grounded Neutrals				
22,000 Volts or less to Gnd	2-0	2-6	3-0	2-0
Above 22,000 Volts to Gnd	Same as associated phase wires			
See 1.08 and Fig. 2 and 3				
Other Neutrals	Same as associated phase wires			
Grounded metal sheath cables, or any cable lashed to grounded strand, any voltage	2-0	2-0	2-0	2-0
Spacer Cable**				
300 Volts or less-phase wires	2-0	2-0	2-0	2-0
Within 6 ft of tel pole*	4-0	4-0	4-0	4-0
301-750 Volts-phase wires				
Above telephone cable	4-0	4-0	4-0	4-0
Above telephone guy	2-0	2-0	2-0	2-0
751-8700 Volts-phase wires				
Above tel guy or cable	4-0	4-0	4-0	4-0
Within 6 ft of tel pole*	6-0	6-0	6-0	6-0
8701-50,000 Volts-phase wires				
Above telephone cable	6-0	6-0	6-0	6-0
Above telephone guy	4-0	4-0	4-0	4-0

* Every effort shall be made to avoid these situations and establish a common crossing pole instead.

** Voltage to ground if power circuit is grounded, voltage between wires if not.

6. MISCELLANEOUS CLEARANCES

FACILITY	CLEARANCE IN FEET-INCHES
	TELEPHONE SPANS FEET OR LESS
TELEPHONE CABLE AND GUYS ABOVE	
Power service drops or wires. 300 volts — less Trolley span wires Foreign Communication wires, cables, guys	2-0*
Trolley contact wires 750 volts — less	4-0**
TELEPHONE CABLES ALONGSIDE	
Neon signs	4-0
TELEPHONE GUYS ALONGSIDE	
Neon signs	1-0
Fire hydrants, Fig. 24 Signal pedestals	3-0
TELEPHONE CABLE AND GUYS BELOW	
Foreign guys	2-0
Neon signs	4-0***
Foreign communication cables	2-0

* If cable crosses open power wires, increase clearance by 2 feet.

** Place guard at point of crossing, increase clearance if practical.

*** Clearance for telephone guys is 1 foot.

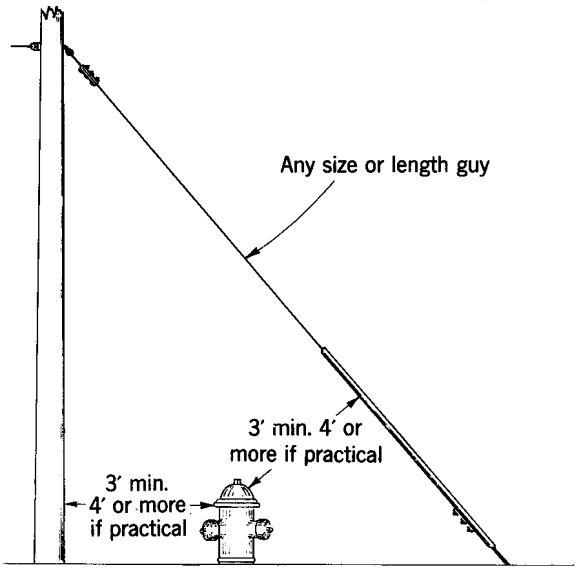


Fig. 24—Telephone Cable or Guys Above or Alongside Fire Hydrants, Signal Pedestals