

UPKEEP WORK UNITS
CENTRAL OFFICE EQUIPMENT—RADIO
FORMS E-4408A AND E-4408B

1. GENERAL

1.01 This section describes the method of counting and reporting central office radio equipment items, using Form E-4408A, Radio Relay and Point-to-Point, and Form E-4408B, General Mobile, Coastal Harbor, Overseas, and High Seas, and determining the number of work units for this type of equipment.

1.02 This section is reissued for the following reasons:

- (a) To remove power equipment items from Form E-4408A. All central office power equipment is covered in Section 015-110-010, Form E-4410.
- (b) To revise Work Units Per Plant Item factors for radio relay and point-to-point equipment.
- (c) To revise Form E-4408A, showing new factors and deleting lines 2, 8, 14 through 20, and 24. The new form should be used starting January 1, 1970.
- (d) To change all references from TD2 to TD. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 Section 015-100-010 covers general instructions applicable to all upkeep work unit forms. Section 015-000-000 contains a list of the sections describing the individual forms.

1.04 This section is applicable to central office radio equipment only, cost of ordinary repairs chargeable to Bell System Standard Account 604-01, Subaccount 67R, and other System and Company Subaccounts thereof. Use of Forms E-4408A and E-4408B is restricted to this type of equipment. Equipment items covered by this section that have cost of repairs charge-

able to other subaccounts should be included on other forms. Central office equipment items may be counted on Forms E-4401 through E-4405, E-4407A, or E-4407B. Station equipment items must be counted on Form E-4414 or E-4416.

1.05 Form E-4408A provides for a special work unit allowance to cover travel time to and from unattended offices. Where the work unit form covers both the home office and unattended offices maintained out of the home office, a separate subtotal of work units in the unattended offices must be determined to calculate the additional unattended office allowance (see line 36 on Form E-4408A). For this purpose, an *unattended office* is defined as one in which all the craftwork is performed by forces based at another office (ie, forces who normally report to another office). An office, therefore, where one or more of the force normally report for work should *not* be considered as "unattended."

2. DESCRIPTION OF FORM E-4408A

2.01 *Column A: No. of Plant Items—Other Co.:* This column is for entering plant items on which work is performed for another Company, when required by local instructions.

2.02 *Column B: No. of Plant Items—Total:* This column is for entering total plant items on which work is performed.

2.03 *Column C: Work Units per Plant Item:* These are the work unit factors which, when multiplied by the plant items, give the number of work units.

2.04 *Column D: Work Units per Quarter—Other Co.:* Enter for each kind of plant item the result obtained by multiplying the number of plant items in column A by the work unit factor in column C. Results should be expressed to the nearest whole number.

2.05 Column E: Work Units per Quarter—Total:

Enter for each kind of plant item the result obtained by multiplying the number of plant items in column B by the work unit factor in column C. Results should be expressed to the nearest whole number.

Receivers

2.06 Line 1: Microwave—Long-Haul: Covers TD and TH microwave receivers. Exclude the receiver portion of repeaters (see line 13). Count one plant item for each TD microwave receiver, TH broadband receiver, and TH auxiliary channel receiver.

2.07 Line 3: Microwave—Short-Haul: Covers TE, TJ, TL, TM, and other Western Electric or commercial microwave receivers utilizing frequencies above 890 MHz.

Count one plant item for each receiver.

2.08 Line 4: FM: Covers frequency modulation receivers associated with TD and TH radio systems.

Count one plant item for each FM receiver.

2.09 Line 5: Mobile-Type Fixed: Covers mobile-type base station receivers used to provide point-to-point service.

Count one plant item for each receiver.

2.10 Line 6: Other: Covers all radio receivers used in point-to-point service not covered on lines 1 through 5.

Count one plant item for each receiver.

Transmitters

2.11 Line 7: Microwave—Long-Haul: Covers TD and TH microwave transmitters. Exclude the transmitter portion of repeaters (see line 13).

Count one plant item for each TD microwave transmitter, TH broadband transmitter, and TH auxiliary channel transmitter.

2.12 Line 9: Microwave—Short-Haul: Covers TE, TJ, TL, TM, and other Western Electric or commercial microwave transmitters utilizing frequencies above 890 MHz.

Count one plant item for each transmitter.

2.13 Line 10: FM: Covers frequency modulation transmitters associated with TD and TH radio systems.

Count one plant item for each FM transmitter.

2.14 Line 11: All Other—100 Watts or Less: Covers transmitters of 100 watts or less not covered on lines 7 through 10.

Count one plant item for each transmitter.

2.15 Line 12: All Other—Over 100 Watts: Covers transmitters over 100 watts not covered on lines 7 through 10.

Count one plant item for each transmitter.

Repeaters

2.16 Line 13: Microwave: Covers heterodyne repeaters.

Count one plant item for each repeater.

Alarms

2.17 Line 21: Scan-Type: Covers the equipment of scan-type alarm and control circuits.

Count one plant item for the basic alarm equipment and one additional plant item for the equipment used for each additional scan.

2.18 Line 22: Nonscan-Type: Covers nonscan-type alarm equipment which operates alarms locally or at an attended location for unattended stations.

Count one plant item for the equipment associated with an alarm system.

Miscellaneous

2.19 Line 23: FM Video Monitor: Covers the FM video test bay consisting of FM receiver, picture monitor, video monitoring amplifier, etc.

Count one plant item for each monitor bay.

2.20 Line 25: Amplifier: Covers amplifiers of various types, including IF switching, IF distribution, IF auxiliary, IF bridging, buffer, clamper, and TE-A1.

Count one plant item for each amplifier.

2.21 Line 26: Program & Mtce. Switch: Covers program and maintenance switching equipment. Includes 223-type switches and IF bridging amplifiers.

Count one plant item for each switch and five plant items for each IF bridging amplifier used in program switching.

2.22 Line 27: Multiunit Auto. Switch.—Transmitting: Covers transmitting multiunit automatic switching equipment at main stations. Includes IF switch bay, baseband switch bay, bridging amplifiers, 223-type switches, IF pilot supply, transmitting and auxiliary station switch controls, and line terminating equipment.

Count one plant item for each of the following:

- (a) Transmitting channel equipped with baseband-to-IF switching.
- (b) Transmitting channel equipped with IF-to-IF switching.

2.23 Line 28: Multiunit Auto. Switch.—Receiving: Covers receiving multiunit automatic switching equipment at main stations. Includes IF switch bay, baseband switch bay, IF detectors, bridging amplifiers, 223-type switches, video pilot supply, initiators, receiving switches and channel controls, and line terminating equipment.

Count one plant item for each of the following:

- (a) Receiving channel equipped with IF-to-baseband switching.
- (b) Receiving channel equipped with IF-to-IF switching.

2.24 Line 29: Multiunit Auto. Switch.—Aux. Station: Covers auxiliary station multiunit automatic switch and control equipment. Includes 223-type switches.

Count one plant item for each channel equipped with multiunit automatic switching.

2.25 Line 30: Emerg. Radiotel. Units (2 Terms.): Covers 221 or similar type radiotelephone units used to provide emergency service. Includes both terminals.

Count one plant item for each pair of terminals.

2.26 Line 31: Misc. Equipment (Per Bay): Covers equipment not covered by another line of this form or another work unit form as indicated below:

- (a) Equipment in a bay in which *none* of the equipment in that bay is covered by another line of this form or another work unit form. Determine, to the nearest one-quarter bay, the amount of equipment (other than fuses, jack panels, ballast lamps, and portable testing apparatus) and record this figure as the number of plant items.
- (b) Equipment in a bay in which *some* of equipment is covered by another line of this form or another work unit form.

- (1) If the equipment that is covered by another line of this form or another work unit form *is unrelated* to the remaining equipment in that bay, determine to the nearest one-quarter bay the amount of this equipment (other than fuses, jack panels, ballast lamps, and portable testing equipment) and record this figure as the number of plant items.

(2) If the equipment that is covered by another line of this form or another work unit form *is related* to the remaining equipment in that bay, no plant items should be counted.

(c) Test equipment repaired by Plant forces, not sent to other locations for normal repairs, is considered miscellaneous equipment provided that it is permanently mounted in a fixed or mobile bay.

Note: Where equipment is installed outdoors or in cabinets, an estimate should be made of the bay or bays it would occupy if installed in bays in the central office.

2.27 Line 35: Total Lines 1 through 34: Enter the sum of lines 1 through 34 in columns D and E.

2.28 Line 36: Unattended Office Allowance: Enter the total work units for unattended offices (see 1.05) on this line. Multiply columns A and B by .10 and enter results in columns D and E.

2.29 Line 37: Total Work Units: Enter the sum of lines 35 and 36.

2.30 Line 38: Number of Frames (Bays + Positions): Enter the number of bays and positions of equipment included in the inventory. Partially equipped bays should be estimated to the nearest one-quarter bay. Where equipment is installed outdoors or in cabinets, an estimate should be made of the bay or bays it would occupy if installed in bays in the central office.

2.31 This Form Includes Equipment in Attended Offices: Unattended Offices: or Both: (as checked): Enter an "X" in the appropriate box to show whether the form covers attended offices, unattended offices, or both. "Both" should be marked only when using the form to summarize more than one location.

2.32 Line 40: Upkeep Hours on This Equipment Charged to Account: Enter the subaccount to which upkeep hours for repairs of equipment on this form are charged. Use one sheet for each subaccount.

2.33 City-Office, District, Division, Company-Area, Qtr. Ending: Complete the form by filling in City-Office, District, Division, Company and Area. In Quarter Ending, show either March 31, June 30, September 30 or December 31, and year.

3. DESCRIPTION OF FORM E-4408B

3.01 Column A: No. of Plant Items—Other Co.: This column is for entering plant items on which work is performed for another Company, when required by local instructions.

3.02 Column B: No. of Plant Items—Total: This column is for entering total plant items on which work is performed.

3.03 Column C: Work Units per Plant Item: These are the work unit factors which, when multiplied by the plant items, give the number of work units.

3.04 Column D: Work Units per Quarter—Other Co.: Enter for each kind of plant item the result obtained by multiplying the number of plant items in column A by the work unit factor in column C. Results should be expressed to the nearest whole number.

3.05 Column E: Work Units per Quarter—Total: Enter for each kind of plant item the result obtained by multiplying the number of plant items in column B by the work unit factor in column C. Results should be expressed to the nearest whole number.

General Mobile Base Station Equipment

3.06 Line 1: Base Transmitter: Covers base station transmitters used in the general mobile (urban, highway, and maritime) and BELLBOY[®] service.

Count one plant item for each transmitter.

3.07 Line 2: Base Receiver: Covers base station, satellite, and monitoring receivers used in general mobile service.

Count one plant item for each receiver.

3.08 Line 3: Control Terminal: Covers control terminals used in general service systems and BELLBOY® systems.

Count one plant item for each control terminal.

3.09 Line 4: Misc. Equip. (Per Bay): Covers equipment not covered by another line of this form or another work unit form as indicated below:

(a) Equipment in a bay in which *none* of the equipment in that bay is covered by another line of this form or another work unit form. Determine, to the nearest one-quarter bay, the amount of equipment (other than fuses, jack panels, ballast lamps, and portable testing apparatus) and record this figure as the number of plant items.

(b) Equipment in a bay in which *some* of the equipment is covered by another line of this form or another work unit form.

(1) If the equipment that is covered by another line of this form or another work unit form is *unrelated* to the remaining equipment in that bay, determine to the nearest one-quarter bay the amount of this equipment (other than fuses, jack panels, ballast lamps, and portable testing equipment) and record this figure as the number of plant items.

(2) If the equipment that is covered by another line of this form or another work unit form is *related* to the remaining equipment in that bay, no plant items should be counted.

(c) Test equipment repaired by Plant forces, not sent to other locations for normal repairs, is considered miscellaneous equipment provided that it is permanently mounted in a fixed or mobile bay.

Note: Where equipment is installed outdoors or in cabinets, an estimate should be made of the bay or bays it would occupy if installed in bays in the central office.

Coastal Harbor Coast Station Equipment

3.10 Line 6: Coast Transmitter: Covers land transmitters in the coastal harbor service.

Count one plant item for each transmitter.

3.11 Line 7: Coast Receiver: Covers land or monitoring receivers in the coastal harbor service.

Count one plant item for each receiver.

3.12 Line 8: Control Terminal: Covers control terminals used with coastal harbor radio systems.

Count one plant item for each control terminal.

3.13 Line 9: Misc. Equip. (Per Bay): Count plant items as covered in 3.09.

Overseas and High Seas

3.14 Lines 11 Through 23: Receivers: Cover radio receivers of various types used to provide radiotelephone service. Include commercial type receivers on line 12.

Count one plant item for each receiver and enter on appropriate line.

3.15 Lines 24 Through 33: Transmitters: Cover radio transmitters used to provide radiotelephone service.

Count one plant item for each transmitter and enter on the appropriate line.

Control and Misc. Equipment—Overseas and High Seas

3.16 Line 34: C-Type Cont. Term.: Covers all C-type and Lincompex control terminals used to furnish radiotelephone service. Includes transmitting vogads, appliques, noise reducers, compandors, channel shifters, and delay networks.

SECTION 015-708-010

Count one plant item for each control terminal.

3.17 Line 35: Privacy-A-Type: Covers all A-type privacies used to furnish radio-telephone service.

Count one plant item for each privacy.

3.18 Line 36: Privacy-B-Type: Covers all B-type privacies used to furnish radiotelephone service.

Count one plant item for each privacy.

3.19 Line 37: Program C.T. (MD-1): Covers all MD-1 program control terminals used to provide radiotelephone service.

Count one plant item for each control terminal.

3.20 Line 38: Vogads-Receiving: Covers voice-operated gain adjusting devices (vogads) associated with radio receiving equipment. Transmitting vogads are included under C-Type Control Terminals.

Count one plant item for each vogad.

3.21 Line 39: Vogads Bypass: Covers voice-operated gain adjusting devices (vogad) bypass equipment associated with radio receiving equipment.

Count one plant item for each vogad bypass.

3.22 Line 40: Channel Shifter: Covers channel shifter equipment located at receiving and transmitting offices. Does not include channel shifters at the control office. These are included in C-type control terminals.

Count one plant item for each channel shifter.

3.23 Line 41: Operator's Tel. Set: Covers operator portable telephone sets.

Count one plant item for each set.

3.24 Line 42: Antenna Patch Panel: Covers panels used for patching receiving antennas.

Count one plant item for each panel.

3.25 Line 43: Misc. Equip. (Per Bay): Count plant items as covered in 3.09.

3.26 Line 44: Overseas Sig. Equip.: Covers equipment for dialing and supervision on overseas radio circuits.

Count one plant item for each overseas circuit.

3.27 Line 46: Total Work Units: Enter the sum of lines 1 through 45.

3.28 Line 47: Number of Frames (Bays + Positions): Enter the number of bays and positions of equipment included in the inventory. Partially equipped bays should be estimated to the nearest one-quarter bay. Where equipment is installed outdoors or in cabinets, an estimate should be made of the bay or bays it would occupy if installed in bays in the central office.

3.29 Line 48: Upkeep Hours on This Equipment Charged to: Enter the subaccount to which upkeep hours for repairs of equipment on this form are charged. Use one sheet for each subaccount.

3.30 City-Office, District, Division, Company-Area, Qtr. Ending: Complete the form by filling in City-Office, District, Division, Company, and Area. In Quarter Ending, show either March 31, June 30, September 30, or December 31, and the year.

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UPKEEP WORK UNITS
CENTRAL OFFICE EQUIPMENT - RADIO
RADIO RELAY AND POINT TO POINT

FORM E-4408A
(1-70)

PLANT ITEM	A		B		C		D		E	
	NO. OF PLANT ITEMS		WORK UNITS PER PLANT ITEM		WORK UNITS PER QUARTER					
	OTHER CO.	TOTAL			OTHER CO. (A X C)	TOTAL (B X C)				
1 RECEIVERS	MICROWAVE - LONG-HAUL				30.50					
2										
3	MICROWAVE - SHORT-HAUL				99.00					
4	FM				41.20					
5	MOBILE-TYPE FIXED				20.15					
6	OTHER				71.50					
7 TRANSMITTERS	MICROWAVE - LONG-HAUL				30.50					
8										
9	MICROWAVE - SHORT-HAUL				87.00					
10	FM				63.20					
11	ALL	100 WATTS OR LESS			34.25					
12	OTHER	OVER 100 WATTS			57.00					
13 REPEATERS	MICROWAVE				53.00					
14										
15										
16										
17										
18										
19										
20										
21 ALARMS	SCAN-TYPE				3.50					
22	NONSCAN-TYPE				1.75					
23	FM VIDEO MONITOR				24.80					
24										
25	AMPLIFIER				2.85					
26	PROGRAM & MTCE. SWITCH				.65					
27	MULTI-UNIT AUTO. SWITCH.	TRANSMITTING			5.75					
28		RECEIVING			7.70					
29		AUX. STATION			2.00					
30	EMERG. RADIO TEL. UNITS (2 TERMS.)				14.30					
31	MISC. EQUIPMENT (PER BAY)				22.00					
32										
33										
34										
35	TOTAL-LINES 1 THROUGH 34		XX	XX	XX					
36	UNATTENDED OFFICE ALLOWANCE		*	*	.10					
37	TOTAL WORK UNITS (LINE 35 + LINE 36)		XX	XX	XX					
38	NUMBER OF FRAMES (BAYS + POSITIONS)		XX							

39	THIS FORM INCLUDES EQUIPMENT IN	ATTENDED OFFICES	UNATTENDED OFFICES	BOTH
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40	UPKEEP HOURS ON THIS EQUIPMENT CHARGED TO ACCOUNT	CITY-OFFICE	
		DISTRICT	
		DIVISION	
		COMPANY-AREA	
		QTR. ENDING	

* ON FORMS COVERING UNATTENDED OFFICES ONLY, LINE 36, COL. A = LINE 35, COL. D AND LINE 36, COL. B = LINE 35, COL. E.

SECTION 015-708-010

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FORM E-4408-B
(5-64)

UPKEEP WORK UNITS
CENTRAL OFFICE EQUIPMENT - RADIO
GENERAL MOBILE, COASTAL HARBOR, OVERSEAS AND HIGHSEAS

PLANT ITEM	A	B	C	D		E
	NO. OF PLANT ITEMS		W.U. PER PLANT ITEM	WORK UNITS PER QUARTER		TOTAL (B X C)
	OTHER CO.	TOTAL		OTHER CO. (A X C)	TOTAL	
GENERAL MOBILE BASE STATION EQUIPMENT			57.00			
			29.40			
			26.00			
			22.00			
COASTAL HARBOR COAST STATION EQUIPMENT			57.00			
			29.40			
			38.70			
			22.00			
OVERSEAS AND HIGHSEAS RECEIVERS			52.1			
			44.6			
			104.0			
			758.0			
			92.0			
			52.1			
			7.8			
			5.0			
			12.8			
			35.2			
			5.0			
			7.8			
	OVERSEAS AND HIGHSEAS TRANSMITTERS			889.0		
			505.0			
			33.4			
			30.3			
			132.0			
			505.0			
			312.0			
			70.8			
OVERSEAS AND HIGHSEAS CONTROL AND MISC. EQUIPMENT			52.4			
			38.1			
			17.8			
			5.0			
			12.2			
			2.2			
			9.0			
			1.9			
			13.7			
			22.0			
		156.0				
TOTAL WORK UNITS (1 THRU 45)	XX	XX	XX			
NUMBER OF FRAMES (BAYS + POSITIONS)						

48 UPKEEP HOURS ON THIS EQUIPMENT CHARGED TO ACCOUNT <input type="text"/>	CITY-OFFICE	
	DISTRICT	
	DIVISION	
	COMPANY-AREA	
	QTR. ENDING	