

UPKEEP WORK UNITS  
SWITCHING EQUIPMENT — TELETYPEWRITER  
FORM E-4412

1. GENERAL

1.01 This form shows upkeep work units per plant item for teletypewriter switching and selective calling equipment. It provides for summarizing the items and determining the work units per quarter by accounts. Since maintenance of part of this equipment is chargeable, according to usage, in either the station (18R) or large PBX (58R) account, separate copies of the form should be used to inventory the items in each account.

1.02 This section is reissued to:

- (a) Provide work units for 1A Data Converters.
- (b) Provide 16- to 24-hour coverage work units for 1A Data System Controllers.
- (c) Revise Form E-4412.

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 each work unit form in the Plant Maintenance Expense Results Plan.

2. DESCRIPTION OF FORM E-4412

2.01 This form is divided into two parts. The first part (Lines 1 through 26) covers selective calling arrangements and the simpler types of switching equipment chargeable to either the station (18R) or large PBX (58R) account. The second part (Lines 27 through 43) covers equipment in automatic tape relay centers which is chargeable entirely to the large PBX (58R) account. The two parts of the form are described separately in the following paragraphs.

Lines 1 Through 26

2.02 *Plant Item:* This column shows which items of teletypewriter switching equipment are counted.

2.03 *Column A: Number of Plant Items:* Enter in this column the number of plant items in service or maintained. Count separately and enter on a separate Form E-4412 (1) the equipment items which are charged to teletypewriter station account 18R, and (2) those items which are charged to large PBX account 58R.

2.04 *Column B: Work Units per Plant Item:* This column shows the work units per plant item per quarter for each item listed in Column A.

2.05 *Column C: Work Units per Quarter:* Multiply the number of plant items in Column A by the work units per plant item in Column B. Enter the resulting work units per quarter in Column C. Show the work units to the nearest whole number.

2.06 *Line 1: 64 and ERX Station Selector:* Count one plant item for each 64C and each ERX sending or receiving station selector.

2.07 *Line 2: TADS Receiving Selector:* Count one plant item for each TADS receiving selector arrangement using one or two letter codes. Also count one plant item for a TADS intercept arrangement.

2.08 *Line 3: SE200 Station Selector:* Count one plant item for each SE200 type station selector.

2.09 *Line 4: SCATS Transmitter Start Control:* Count one plant item for each SCATS transmitter start control arrangement. This is the control circuit between the stunt box selector and the automatic transmitter at each station on a SCATS system. This control is not required when the station is a 28 ASR teletypewriter.

2.10 *Line 5: 83B and Simplified 81 Type Station Control Unit:* Count one plant item for each outlying station control unit in an 83B

type system and one plant item for each simplified 81 type station control unit. Do not count a control unit when used at the master station because it is considered part of the automatic station selector.

**2.11 Lines 6 through 8:** Count one plant item for each 82B1 system outlying station control circuit of the type specified on each line.

**2.12 Line 9: Encryption Unit:** Count one plant item for each encryption unit.

**2.13 Line 11: Automatic Station Selector:** Count one plant item for each automatic station selector used on TADS, ADCAD, SCATS or 83B1 systems. These selectors may use one- or two-digit selection codes.

**2.14 Line 12: Message Addresser:** Count one plant item for each TADS and each 83B type push-button message addresser. Also count one plant unit for each automatic one address message arrangement with or without adaption for push-button operation.

**2.15 Line 13: Automatic Address and Storing Arrangement:** Count one plant item for each automatic address and message storing arrangement (used for off-line relaying at certain stations in 81 systems). The associated reperforator transmitters should be counted on Form E-4411 — Work Units — Station Equipment — Teletypewriter.

**2.16 Line 14: Alternating Transmitter Control:** Count one plant item for each alternating transmitter control arrangement used for alternating automatic transmission by two transmitters on a single line circuit. This item does not apply to 81 or 82 type switching centers.

**2.17 Lines 16 and 17:** Count one plant item for each switchboard position of the types specified on these lines.

**2.18 Line 20: Tape Relay Center Line Termination:** Count one plant item for each relay center line termination on a manual or semi-automatic tape relay system. This item does not apply to 81 or 82 type switching centers.

**2.19 Line 21: Tape Relay Multiple Address Arrangement:** Count one plant item for each multiple address arrangement on a semi-automatic tape relay system.

**2.20 Line 23: Automatic Relay Arrangement:** Count one plant item for each message originating line circuit served by an automatic relaying arrangement (sometimes called cross-office arrangement) on SCATS, TADS and 83B type systems, and at an outlying station of an 81 type system. This item does not apply to 81 or 82 type switching centers. Associated reperforator transmitters and other teletypewriter or station control equipment should be counted on other lines of Form E-4412 or on Form E-4411 — Work Units — Station Equipment — Teletypewriter.

#### Lines 25 Through 43

**2.21 Plant Item:** This column shows which items of teletypewriter equipment you should count.

**2.22 Columns A and C: Number of Plant Items:** Enter in Column A the number of plant items in 81 systems which have a maintenance man in attendance from 8 to 16 hours each workday. Enter in Column C the number of such items in 81 and 82B1 systems which are covered by a maintenance man from 16 to 24 hours daily. Make all entries on a Form E-4412 chargeable to the 58R account.

**2.23** Work unit credit may be taken on Form E-4411 for station equipment items associated with 81 and 82 type systems. Items such as monitoring and intercept teletypewriters should be included on a Form E-4411 covering items chargeable to the 58R account. Items such as local outlet teletypewriters should be included on a Form E-4411 covering items chargeable to the 18R account.

**2.24 Columns B and D: Work Units per Plant Item:** Column B shows the work units per plant item for the 81 systems which have 8 to 16 hours of daily coverage. Column D shows the work units per plant item for the 81 and 82B1 systems which have 16 to 24 hours of daily coverage.

**2.25 Column E: Work Units per Quarter:** Multiply the number of plant items in Columns A and C by the corresponding work units per plant item in Columns B and D, respectively. Enter the sum of the two multiplications in Column E. Show the work units per quarter to the nearest whole number.

#### TTY Systems

**2.26 Line 25: Reperforator Transmitter:** Count one plant item for each reperforator transmitter on 81 and similar type switching systems. Do not count these reperforator transmitters on Form E-4411.

**2.27 Line 26: Tape Winder (Motor Driven):** Count one plant item for each No. 1A or No. 2A motor driven tape winder. Do not count these tape winders on Form E-4411.

**2.28 Line 27: Incoming Line Cct:** Count one plant item for each incoming line or trunk circuit.

**2.29 Line 28: Outgoing Line Cct:** Count one plant item for each outgoing line circuit. Also count one plant item for each individual trunk circuit which is not part of a multichannel group.

**2.30 Line 29: Multiple Address Cct:** Count one plant item for each multiple address arrangement. In a two-stage arrangement count one plant item for each secondary unit but do not count the primary unit.

**2.31 Line 30: Suppl. Multiple Address Cct:** Count one plant item for each supplementary multiple address arrangement.

**2.32 Line 31: Originating Station Cct:** Count one plant item for each originating station circuit. This applies to an originating station on the same premises as the switching center.

**2.33 Line 32: Director Cct:** Count one plant item for each director circuit.

**2.34 Line 33: Sequence Cct:** Count one plant item for a switching center.

**2.35 Line 34: Multichannel Trunk Cct:** Count one plant item for each outgoing trunk circuit in a multichannel group.

**2.36 Line 35: Local Outlet Cct:** Count one plant item for each local outlet circuit. This applies to a receiving station on the same premises as the switching center, or to an off-premises receiving station on a two-point service.

#### 1A Data Selective Calling System

**2.37 Line 37: 11 Type Controller:** Count one plant item for each 11 or similar type controller. (These may be 5 or 8 level.)

**2.38 Line 38: 11 Type Sender or Receiver:** Count one plant item for each 11 type or similar high speed sender or receiver. (Data speed senders or receivers should be counted on Form E-4413.)

**2.39 Line 39: 11 Type Converter:** Count one plant item for each 11 type or similar single, double, or dual converter. (These may be 5 or 8 level.)

#### 82B1 System

**2.40 Lines 41 and 42:** Count one plant item for each incoming and outgoing cabinet in an 82B1 switching system. The work unit factors include allowance for reperforator transmitters. Do not count these reperforator transmitters on Form E-4411.

**2.41 Line 44: Total Work Units:** Enter the sum of lines 1 through 24, Column C and lines 25 through 43, Column E.

**2.42 Line 45: Upkeep Hours on this Equipment Charged to Account R:** Enter the account number.

**2.43 City-Office, District-Division, Company-Area and Quarter Ending:** Make entries as appropriate.

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BSP 015-812-010WORK UNITS  
SWITCHING EQUIPMENT - TELETYPEWRITERFORM E-4412  
(2-65)

	PLANT ITEM	A	B	C
		NUMBER OF PLANT ITEMS	WORK UNITS PER PLANT ITEM	WORK UNITS PER QUARTER (A X B)
1	64 AND ERX STATION SELECTOR		4.68	
2	TADS RECEIVING SELECTOR		2.62	
3	SE200 STATION SELECTOR		2.43	
4	SCATS TRANSMITTER START CONTROL		1.50	
5	83B AND SIMPLIFIED 81 TYPE STATION CONTROL UNIT		1.50	
6	82B1 SINGLE STATION CONTROL UNIT		9.92	
7	82B1 MULTI-STATION R-O CONTROL UNIT		8.43	
8	82B1 MULTI-STATION S-R CONTROL UNIT		17.40	
9	ENCRYPTION UNIT		7.00	
10				
11	AUTOMATIC STATION SELECTOR		5.24	
12	MESSAGE ADDRESSER		3.93	
13	AUTOMATIC ADDRESS AND STORING ARRANGEMENT		20.60	
14	ALTERNATING TRANSMITTER CONTROL		1.50	
15				
16	61A1, 66A1, AND 69A1 SWB POSITION		2.81	
17	65B1, 67A2, AND 69B1 SWB POSITION		18.75	
18				
19				
20	TAPE RELAY CENTER LINE TERMINATION		6.74	
21	TAPE RELAY MULTIPLE ADDRESS ARRANGEMENT		4.68	
22				
23	AUTOMATIC RELAY ARRANGEMENT		1.31	
24				

	PLANT ITEM	A	B	C	D	E WORK UNITS PER QUARTER (A X B) PLUS (C X D)
		8-16 HOUR COVERAGE		16-24 HOUR COVERAGE		
		NUMBER OF PLANT ITEMS	WORK UNITS PER PLANT ITEM	NUMBER OF PLANT ITEMS	WORK UNITS PER PLANT ITEM	
25	REPERFORATOR TRANSMITTER		68.91		103.50	
26	TAPE WINDER (MOTOR DRIVEN)		7.23		20.20	
27	INCOMING LINE CCT.		13.78		35.50	
28	OUTGOING LINE CCT.		21.65		46.30	
29	MULTIPLE ADDRESS CCT.		55.43		73.00	
30	SUPPL. MULTIPLE ADDRESS CCT.		53.37		80.10	
31	ORIGINATING STATION CCT.		27.00		83.50	
32	DIRECTOR CCT.		5.17		14.05	
33	SEQUENCE CCT.		58.80		58.80	
34	MULTI-CHANNEL TRUNK CCT.		12.25		18.35	
35	LOCAL OUTLET CCT.		19.55		29.30	
36						
37	11 TYPE CONTROLLER		24.50		32.60	
38	11 TYPE SENDER OR RECEIVER		36.50		49.00	
39	11 TYPE CONVERTER		82.50		110.00	
40						
41	82B1 INCOMING CAB. (INCLUDES RTs.)	XXXX	XX		543.00	
42	82B1 OUTGOING CAB. (INCLUDES RTs.)	XXXX	XX		655.00	
43						

44 TOTAL WORK UNITS (SUM OF LINES 1-24 COL. C AND LINES 25-43 COL. E)

45	UPKEEP HOURS ON THIS EQUIPMENT CHARGED TO ACCOUNT	R
	CITY-OFFICE	COMPANY-AREA
	DISTRICT-DIVISION	QUARTER ENDING