

**PORTABLE MAINTENANCE EQUIPMENT  
CORDS, TOOLS, AND MATERIAL  
STEP-BY-STEP SYSTEM**

CONTENTS	PAGE
<b>1. GENERAL</b> . . . . .	<b>1</b>
<b>2. PORTABLE MAINTENANCE EQUIPMENT</b> .	<b>1</b>
<b>3. CORDS, TOOLS, AND SPARE MATERIAL</b> .	<b>2</b>
 <b>Tables</b>	
<b>A. Portable Maintenance Equipment on an Area Basis</b> . . . . .	<b>3</b>
<b>B. Common List of Portable Maintenance Equipment on a Per Office Basis</b> .	<b>5</b>
<b>C. Common List of Test Cords on a Per Office Basis</b> . . . . .	<b>7</b>
<b>D. Common List of Tools on a Per Office Basis</b> . . . . .	<b>14</b>
<b>E. Common List of Electrical Components on a Per Office Basis</b> . . . . .	<b>20</b>
<b>F. Common List of Materials on a Per Office Basis</b> . . . . .	<b>21</b>
<b>G. List of Tools and Materials for AMA Recorder KS-20017-L3 on a Per Office Basis</b> . . . . .	<b>22</b>
<b>H. List of Tools and Materials for Recorder-Reproducer KS-12068 on a Per Office Basis</b> . . . . .	<b>24</b>

**1. GENERAL**

**1.01** This practice lists the portable test equipment, test cords, and assorted tools required for

the maintenance of a Step-by-Step (SXS) Switching System office.

**1.02** Whenever this practice is reissued, the reason for reissue will be given in this paragraph.

**1.03** The following Bell System Practices contain information which aid and support this section and also list SD, CD, ED, and J drawings that pertain to the SXS and this section:

(a) Section 800-600-000—Checking List—General Equipment Requirements

(b) Section 814-000-000—Equipment Design and General Equipment Requirements and Engineering Information—Step-By-Step Systems

(c) Section 814-005-150—General Outline—No. 1 and 350A Offices

(d) Section 955-000-000—Step-By-Step and Community Dial Offices—General Descriptive Information

**2. PORTABLE MAINTENANCE EQUIPMENT**

**2.01** In order to perform the Bell System Practice (BSP) tests that are applicable to SXS, certain portable maintenance equipment (test sets and apparatus) is required. Some items should be provided on a per office basis and other items, because of high costs or infrequent use, should be provided on an area basis to be shared among a number of offices.

**2.02** Table A is a suggested list of portable maintenance equipment to be provided on an area basis. Table B is a suggested list of equipment to be provided on a per office basis. The number of offices that can share a particular piece of equipment depends on the size of the

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offices, their geographical location in relation to each other and the frequency of use of the equipment.

**2.03** Local company policy may call for the use of an equivalent piece of equipment as a replacement for any item in Table A or B.

**3. CORDS, TOOLS, AND SPARE MATERIAL**

**3.01** For proper maintenance of a SXS office it is essential that the required cords and tools be available to the maintenance force. Certain spare material, in addition to the standard supply of spare circuit packs, should be stored in the office to permit the prompt restoral to service of faulty equipment.

**3.02** The following tables provide suggested lists of cords, tools, and spare material to be supplied to each office. As with the test sets, local company policy may dictate the use of an equivalent replacement of any item on these lists.

<b>TABLE</b>	<b>TITLE</b>
Table C	Common List of Cords on a Per Office Basis
Table D	Common List of Tools on a Per Office Basis
Table E	Common List of Electrical Components on a Per Office Basis
Table F	Common List of Material on a Per Office Basis
Table G	List of Tools and Material for Automatic Message Accounting (AMA) Recorder (KS-20017-L3) on a Per Office Basis
Table H	List of Tools and Material for Recorder—Reproducer (KS-12068) on a Per Office Basis

TABLE A

PORTABLE MAINTENANCE EQUIPMENT ON AN AREA BASIS

<u>ITEM</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	HP-3400A	Hewlett-Packard voltmeter or equivalent meter with 1 megohm input impedance or more
2	HP-5326A	Hewlett-Packard Electronic Counter
3	HP-11001A	Cable Assembly, Hewlett-Packard
4	HP-11002A	Cable Assembly, Hewlett-Packard
5	J64072A L1	72A Frequency Meter
6	J94003C	Noise Measuring Set (if Trunk Test Panel is <i>not</i> equipped with the J94003CR NMS or equivalent)
7	J94022A	22A Milliwatt Reference Meter
8	J94027B L1, L2	PAR Meter Receiver (if Trunk Test Panel is <i>not</i> equipped with J94027DR Meter Receiver)
9	J94027E	PAR Meter Generator (if Trunk Test Panel is <i>not</i> equipped with J94027CR Meter Generator)
10	J94732A	(3A) Pulse-Generator Test Set or equivalent
11	KS-19353 L4	Portable Voice Frequency Oscillator or KS-19260 L1 Rack-Mounted VFO (If trunk Test Panel is not equipped with this set)
12	KS-20199 L1	Magnetometer Probe
13	5A	Attenuator
14	227D	Amplifier
15	2563E	Transformer
16	403B	Vacuum Tube Voltmeter, Hewlett-Packard Co. (or equivalent)
17	—	X4 Digital Voltmeter Series with 3-Digit Accuracy and 100-Volt Range, Nonlinear Systems Inc., Delmar, California
18 (See Note)	—	System Oscilloscope, Hewlett-Packard, CO4-1707B Included in this option are: (a) 1-1110A, option CO6, AC current probe with 6-foot cable. (b) 2-10037-63201 probe tips (c) 2-10005B divider probes (d) 1-1119D Testmobile
19 (See Note)	—	System Oscilloscope, Tektronic, 465 Model 221T. Accessories included are: (a) 2-nine foot voltage probes (10X) Model P606S with special tips (b) 1-nine foot current probe Model P6021

TABLE A (Cont)

PORTABLE MAINTENANCE EQUIPMENT ON AN AREA BASIS

<u>ITEM</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
19 (See Note) (Cont)	—	(c) 1-passive termination No. 011-0105-00 for use with P6021 (d) 1-465 first time operation cassette tape Cart, Scope, Tektronic, No. 200-1B 131 Tektronic Current Probe Amplifier
20	32A	Remote Control Test Set
21	ES-241636	Toll Train and Coin Box TTS

*Note:* Order item 18 *or* item 19, but *NOT BOTH*.

**TABLE B**  
**COMMON LIST OF PORTABLE MAINTENANCE EQUIPMENT**  
**ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	ITE-5034	Hand Pulser
2	J24750	Test Set — Message Register
3	J24753	Test Set — Timing Tests
4	J33017	Timed Ringing Circuit
5	J33702A	Test Set — Remote Control
6	J34701	Test Set — 2-Way Combined Operator Office and Interlocal Trunk Circuit
7	J34706	Test Set — Register
8	J34713	Toll chain and Coin Box Trunk Test Set
9	J34715	Line Finder and Trunk Finder Test Set
10	J34717	Test Set — Pulsing
11	J34718	Line Finder and Trunk Finder Test Set
12	J34719	Connector Test Set
13	J34720	Pulse Repeating Test Set for “A” relays
14	J34721	Rapid Operation Line Finder and Outgoing Repeater Test Set
15	J34722	Connector, Selector, and Trunk Test Set — Non-Coin
16	J34724	Message Ticketer Test Set
17	J34725	Test Set — Register
18	J34726	Auxiliary Test Set — for B, C, and F relays
19	J34727	Test Set — Common Control
20	J34728	Automatic Call-Thru Test Set — for Switch Trains
21	J34730	Trunk Test Set for Multifrequency Pulsing Non-CAMA Outgoing Trunk Arranged for Timed Disconnect
22	J34731	Trunk Test Set — for ANI Type D
23	J34732	Local Directory Assistance Test Set
24	J34733	AIS Outgoing Trunk Test Set for ANI Type C or D
25	J38913	CAMA Test Set
26	J67453	Translator Test Set
27	J67477	Trunk Test Set — MF Pulsing
28	J93025B	Coin Station Test Line Calibration Set
29	J94002	2-Type Panels, Units, and Portable Test Sets for Transmission Measuring

TABLE B (Cont)

COMMON LIST OF PORTABLE MAINTENANCE EQUIPMENT  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
30	*J94006H-L1	6H Type Impulse Counter-Noise Measuring Equipment
31	*J94023D	23D Type Transmission Measuring Set
32	J94071	71 Type Milliwatt Reference Generator
33	J94704	Line Finder, Selector, and Connector Test Set
34	J94710	Trunk Test Set
35	J94713	Relay Timing Test Set
36	J94714A	35F Test Set for relay adjustment
37	J94723A	23A Pulse Checking Test Set
38	J94724A	24A Contact Closure Test Set
39	KS 8039	DC Voltmeter
40	KS 14510 L1	Model 630D Meter
41	KS 14510 L3	Test Leads (one black, one red)
42	52S	Telephone Head Set (replaces 52A)
43	133A	Ferreed Test Set
44	428B	Clip-on DC Milliammeter, Hewlett-Packard
45	624-A10	Telephone Set (for RA frame)
46	1013A	Headset with LB7 Receiver, a H2B cord, and two alligator clips or equivalent
47	1014A	Handset
48	1025A	Headset Consisting of a LB2 Receiver, a W2FT cord and 310 plug
49	2500	Telephone Set with TOUCH-TONE® Dial and appropriate cord terminated in 310 plugs
50	1C2-TT	Dial Tone First Coin Set
51	36A	Attenuator
52	K-20538	VOM with leads
53	J94742A	Portable Auxiliary Test Set
54	J94715	Call Thru Test Set

\* Used if Trunk Test Panel is not equipped with units.

TABLE C

**COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	2	P1C	Patching cord — consisting of two P1C cords with two No. 310 plugs and a No. 63EA resistor
2	1	P1D	Patching cord — 6 feet long, equipped with two No. 310 plugs
3	1	P2A	Patching cord — 6 feet long, equipped with two No. 347A plugs
4	1	P2B	Patching cord — 3 feet long, equipped with two No. 310 plugs
5	1	P2B	Patching cord — 6 feet long, equipped with two No. 310 plugs
6	1	P2G	Patching cord — 10 feet long, equipped with two No. 309 plugs (one red and one black shell)
7	1	P2H	Patching cord — 10 feet long, equipped with two No. 310 plugs (one red and one black shell)
8	1	P2J	Patching cord — 6 feet long, equipped with two No. 310 plugs
9	1	P2J	Patching cord — 9 feet long, equipped with two No. 310 plugs
10	1	P2P	Patching cord — 6 feet long, equipped with one No. 309 plug and one No. 310 plug
11	1	P2AA	Patching cord — 6 feet long, equipped with two No. 309 plugs
12	1	P2AE	Patching cord — 4 feet long, equipped with a No. 310 plug and a No. 289B plug
13	1	P2CP	Patching cord — 6 feet long, equipped with a No. 310 plug and a No. 347D plug
14	1	P2CT	Patching cord — 4 feet long, equipped with one KS 13737 plug and one No. 310 plug
15	1	P3C	Patching cord — 10 feet long, equipped with a No. 310 plug and a No. 240A plug
16	1	P3C	Patching cord — 10 feet long, equipped with a No. 310 plug and a No. 240B plug
17	2	P3D	Patching cord — 3 feet long, equipped with two No. 310 plugs
18	2	P3D	Patching cord — 3 feet long, equipped with two No. 309 plugs

TABLE C (Cont)

COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
19	1	P3E	Patching cord — 1 foot long, equipped with two No. 310 plugs
20	1	P3E	Patching cord — 3 feet long, equipped with two No. 310 plugs
21	1	P3E	Patching cord — 4 feet long, equipped with two No. 310 plugs
22	1	P3E	Patching cord — 6 feet long, equipped with two No. 310 plugs
23	1	P3E	Patching cord — 10 feet long, equipped with two No. 310 plugs
24	1	P3F	Patching cord — 4 feet long, equipped with one No. 309 plug and one No. 310 plug
25	2	P3F	Patching cord — 6 feet long, equipped with one No. 309 plug and one No. 310 plug
26	1	P3H	Patching cord — 10 feet long, equipped with one No. 310 plug and one No. 240A plug
27	1	P3H	Patching cord — 10 feet long, equipped with one No. 310 plug and one No. 240B plug
28	1	P3H	Patching cord — 10 feet long, equipped with one No. 310 plug and one No. 240C plug
29	1	P3H	Patching cord — 10 feet long, equipped with one No. 310 plug and one No. 240C plug
30	2	P3K	Patching cord — 6 feet long, equipped with two No. 310 plugs
31	1	P3K	Patching cord — 12 feet long, equipped with two No. 310 plugs
32	1	P3N	Patching cord — 6 feet long, equipped with one No. 310 plug and one No. 241A plug
33	1	P3AA	Patching cord — 10 feet long, equipped with one No. 310 plug and one No. 240A plug
34	1	P4A	Patching cord — 6 feet long, equipped with two No. 154 plugs
35	1	P4B	Patching cord — 6 feet long, equipped with one No. 152 plug and one No. 240B plug
36	1	P4D	Patching cord — 10 feet long, equipped with one No. 152 plug and one No. 234 plug

TABLE C (Cont)

**COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
37	1	P4K	Patching cord — 10 feet long, equipped with one No. 289B plug and one No. 240B plug
38	1	P4K	Patching cord — 12 feet long, equipped with one No. 289B plug and one No. 240C plug
39	1	P4L	Patching cord — 10 feet long, equipped with one No. 289A plug and one No. 234 plug
40	1	P4N	Patching cord — 6 feet long, equipped with two No. 289B plugs
41	1	P6B	Patching cord — 11 feet long, equipped with two No. 240B plugs and two No. 310 plugs (with one red shell and one black shell)
42	1	P6E	Patching cord — 10 feet long, equipped with two No. 310 plugs (one with a red shell and one with a gray shell)
43	1	R2DB	Patching cord — 6 feet long, equipped with one No. 310 plug and one No. 347A plug
44	1	S2B	Patching cord — 10 feet long, equipped with a No. 110 (black shell) plug on the plug end; and the tip of a No. 110 (gray shell) plug connected to the tip of the cord fastener end while the sleeve is connected to the sleeve of another No. 110 (red shell) plug. Ring conductor is not used.
45	1	W1B	Test cord — 10 feet long, equipped with one No. 310 plug and a KS-6780 clip connected to the ring lead
46	1	W1C	Test cord — 12 feet long, equipped with a No. 1B, 1C, or 116 plug and a No. 360B Tool
47	1	W1C	Test cord — 20 feet long, equipped with a No. 1B, 1C, or 116 plug, a No. 360B Tool, and a No. 419A Tool
48	1	W1H	Test cord — 10 feet long, equipped with a No. 341B plug, and a No. 360A and a KS-6278 clip with a No. 108 or 141 cord tip
49	1	W1M	Test cord — 2 feet long, equipped with one No. 360A plug and one KS-6780 connecting clip
50	1	W1M	Test cord — 3 feet 6 inches long, equipped with a No. 360 Tool, a No. 365 Tool, and a KS-6780 connecting clip with a No. 108 cord tip

TABLE C (Cont)

COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
51	1	W1P	Test cord — 12 feet long, equipped with a 1C plug and a KS-6780 connecting clip
52	1	W1U	Test cord — 1 foot 8 inches long, equipped with one No. 2 test clip per specification AT-6928 and one KS-6780 connecting clip
53	1	W1W	Test cord — 10 feet long, equipped with one No. 310 plug and one No. 59 Alligator clip
54	1	W1W	Test cord — 12 feet long, equipped with one No. 310 plug and with one each No. 59 and 108 cord tips
55	2	W1Y	Test cord — 8 inches long (for connecting to off-normal springs)
56	1	W1AE	Test cord — 12 feet long, equipped with two No. 360A Tools and one No. 411A Test pick tool
57	1	W1AF	Test cord — 8 feet 6 inches long, equipped with one No. 310 plug, one No. 360A Tool, and one No. 141 cord tip
58	1	W1AL	Test cord — 2 feet long, equipped with two P-15A864 chucks
59	1	W1AS	Test cord — 3 feet 6 inches long, equipped with one No. 360A Tool, one KS-6278 connecting clip, a No. 120 cord tip, and a chuck for connecting to 0.045-inch square terminals
60	1	W1AY	Test cord — 8 feet 6 inches long, equipped with two No. 360A Tools, one No. 364 Tool, and one No. 419A Tool
61	1	W2A	Test cord — 6 feet long, equipped with one No. 240A plug, one No. 522A Key, and one 1200-ohm KS-13491 L1 resistor
62	1	W2C	Test cord — 10 feet long, equipped with one No. 310 plug and two No. 59 cord tips
63	1	W2F	Test cord — 9 feet 6 inches long, equipped with one No. 347C plug and two No. 59 cord tips
64	1	W2M	Test cord — 9 feet long, equipped with one No. 310 plug, two No. 59 cord tips, and two No. 108 cord tips
65	1	W2T	Test cord — 9 feet long, equipped with one No. 310 plug and two No. 59 cord tips

TABLE C (Cont)

**COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
66	1	W2W	Test cord — 6 feet long, equipped with one No. 310 plug, one No. 360B Tool, and one No. 360C Tool with a No. 411A Tool
67	1	W2W	Test cord — 10 feet long, equipped with one No. 310 plug, one No. 360B Tool on the ring (black) conductor with a No. 624B Tool attached, and one No. 360C Tool on the tip (white) conductor with a KS-6278 connecting clip attached
68	1	W2AB	Test cord — 6 feet long, equipped with two No. 360A Tools
69	1	W2AS	Test cord — 8 feet long, equipped with one No. 310 plug and one 522A key
70	1	W2BC	Test cord — 5 feet 6 inches long, equipped with one No. 310 plug
71	1	W2BP	Test cord — 6 feet long, equipped with one No. 241A plug and two No. 35 cord tips
72	1	W2CF	Test cord — 1 foot long, equipped with one No. 310 plug, one No. 360B Tool, one No. 360C Tool, and two KS-6278 Tools
73	1	W2CJ	Test cord — 4 feet long, equipped with one No. 471A Jack, one No. 360A Tool, one No. 360B Tool, and two No. 411A Tools
74	1	W2CK	Test cord — 5 feet long, equipped with one No. 471A Jack and one No. 310 plug
75	1	W2CL	Test cord — 4 feet long, equipped with one No. 471A Jack and one 240A plug
76	1	W2CL	Test cord — 4 feet long, equipped with one No. 471A Jack and one 240B plug
77	1	W2DB	Test cord — 4 feet long, equipped with one No. 471A Jack and two KS-6780 connecting clips with two No. 108 cord tips
78	1	W2DL	Test cord — 5 feet 6 inches long, equipped with one No. 310 plug and two No. 35 cord tips
79	1	W2GU	Test cord — 4 feet long, equipped with a 351F plug and two No. 35 cord tips
80	1	W3A	Test cord — 12 feet long, equipped with one No. 310 plug and three KS-6780 connecting clips with three No. 108 cord tips
81	1	W3F	Test cord — Special to be made up locally, consisting of a W3F cord, 10 feet long, a W1W cord, 12 feet long, two No. 310 plugs (black and red shells), a 1200 ohm KS-13492 L1 resistor, and a No. 188B Key

TABLE C (Cont)

COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
82	1	W3M	Test cord — 6 feet long, equipped with one No. 310 plug, a No. 360A (sleeve) Tool, a No. 360B (ring) Tool, and a No. 360C (tip) Tool with three No. 419A Tools attached
83	1	W3M	Test cord — 15 feet long, equipped with one No. 310 plug, three No. 360 (A,B,C) Tools, and two No. 419A Tools attached to the ring and sleeve
84	1	W3W	Test cord — 15 feet long, equipped with one No. 310 plug, three No. 360 (A,B,C) Tools and two No. 419A Tools attached to the ring and sleeve (red and black)
85	1	W3AJ	Test cord — 12 feet long, equipped with one No. 310 plug, and one 620A Tool
86	1	W4B	Test cord — 10 feet long, equipped with one No. 152 plug, and four No. 89 cord tips
87	1	W4AE	Test cord — 6 feet long, equipped with one No. 240A plug, and one No. 289A plug
88	1	W4AG	Test cord — 12 feet long, equipped with one No. 289A plug, one No. 252A plug, and one No. 252B plug
89	1	W4AG	Test cord — 12 feet long, equipped with one No. 289B plug, one No. 412A plug, and one No. 412B plug
90	1	W4AL	Test cord — 12 feet long, equipped with one No. 289B plug, and one No. 301A plug
91	1	W4AY	Test cord — 8 feet long, equipped with one No. 240A plug, and one No. 471A Jack
92	1	W6A	Test cord — 1 foot 6 inches long, equipped with one No. 289B plug, two No. 360B Tools, and one modified 240B plug
93	1	W7B	Test cord — 11 feet long, equipped with one modified No. 240H plug attached to a No. 40C test set
94	1	W10A	Test cord — 15 feet long, equipped with one No. 240D plug, one No. 370A Bank Busyng Tool, and one No. 15 Cord Fastener
95	1	W10A	Test cord — 15 feet long, equipped with one No. 240D plug, one No. 370B Bank Busyng Tool, and one No. 15 Cord Fastener
96	3	W20D	Test cord — 10 feet long with 20 conductors, equipped with two KS-14173 connectors
97	3	W20D	Test cord — 12 feet long with 20 conductors, equipped with two KS-14173 connectors
98	1	W24B	Test cord — 8 feet long equipped with two No. 360A Tools, one KS-6278 connecting clip, and one No. 411A Test Pick Tool attached to a No. 716C Receiver

TABLE C (Cont)

COMMON LIST OF TEST CORDS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
99	2	W35A	Test cord — 10 feet long, equipped to connect equipment-under test to a manual test set
100	4	728	Test cord — 8 feet long, equipped with two No. 110 plugs
101	2	813	Test cord — 8 feet long, equipped with one No. 110 plug and one No. 240A plug
102	1	875	Test cord — 10 feet long, equipped with one No. 110 plug, two No. 59 and two No. 90 cord tips
103	1	893	Test cord — 3 feet long, equipped with two No. 360A Tools and two No. 624B Tools (terminal connectors)
104	1	893	Test cord — 3 feet long, equipped with two No. 360A Tools and two No. 639A Tools (relay contact connectors)
105	3	893	Test cord — 3 feet long, equipped with two No. 360A Tools and two KS-6278 connecting clips
106	3	893	Test cord — 6 feet long, equipped with two No. 360A Tools, one No. 624B Tool, and one KS-6278 connecting clip

*Note:* Special patching and test cords to cover specific and/or particular circumstances should be made up by the maintenance personnel, as required, on a local basis.

**TABLE D**  
**COMMON LIST OF TOOLS**  
**ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	AT-6267	Pliers, "P" Long—Nose
2	1	AT-7329	Hammer, Riveting, 4-oz.
3	1	AT-7739	Screwdriver, Type 1B ( 3" Phillips)
4	1	AT-7825	Screwdriver, Type C (3 inch)
5	1	AT-7825	Screwdriver, Type D (3 inch)
6	1	AT-7825	Screwdriver, Type D (4 inch)
7	1	AT-7825	Screwdriver, Type E (4 inch)
8	1	AT-7825	Screwdriver, Type E (5 inch)
9	1	AT-7860	Pliers, B Long-Nose
10	1	D-178259	Separator, 0.005-inch
11	1	D-178260	Separator, 0.010-inch
12	1	D-178261	Separator, 0.015-inch
13	1	ITE-5245	Extender Board
14	1	KS-2348	Cord Repair Tool
15	1	KS-3008	Stopwatch
16	1	KS-3093	Brush
17	1	KS-6015	Pliers, Duckbill
18	10	KS-6278	Clip, Connecting
19	3	KS-6320	Orange Stick
20	AR	KS-6780	Clip, Connecting
21	1	KS-6854	Screwdriver, 3-1/2 inch
22	1	KS-6909	Gauge Nest, Feeler
23	1	KS-6938	Gauge, Thickness
24	1	KS-7246	Separator
25	1	KS-8511	Tweezers
26	1	KS-14377 L5	Vacuum Cleaner (or equivalent)
27	1	KS-14377 L30	Flexible Nozzle (or similar)
28	3	KS-14440 L3	Soldering Copper
29	1	KS-14440 L20	Heater and Tip
30	1	KS-16363 L1	Wire Wrapping Tool (Gun)
31	2	KS-16363 L33	Stationary Sleeve for 22 or 24 Gauge Wire

TABLE D (Cont)

**COMMON LIST OF TOOLS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
32	1	KS-16450 L1	Wire Unwrapping Tool
33	2	KS-16734 L1	Wrapping Bit for 22 or 24 Gauge Wire
34	2	KS-16903 L1	Wrapping Bit for 26 Gauge Wire
35	1	KS-19355 L3	Adjusting Tool
36	2	KS-20827 L1	Wire Unwrapping Tool
37	2	KS-20963 L2	Stationary Sleeve for 26 Gauge Wire
38	1	No. B-12	Screwdriver, APCO-Mossberg Co. (equipped with No. 650-4 Bit)
39	1	No. 2	File, Narrow Pillar
40	4	P-15A864	Chucks
41	1	P-220366	Dental Mirror
42	1	R-1005	Screwdriver, Jewelers
43	1	R-1032	Thermometer, Detail 1 or 2
44	1	R-1482	File
45	1	R-1520	Tap (for No. 31 Tap Drill)
46	1	R-1626	Screwdriver, 1-3/4 inch
47	1	R-1952	Wrench, Tap Ratchet
48	1	R-2202	Spring Balance
49	1	R-2670	Wrench, Allen, 3/32 inch
50	1	R-2671	Wrench, Allen, 1/8 inch
51	1	R-2739	Screwdriver, 90 Degree Offset
52	1	R-2753	Adjuster, Spring, Cover
53	1	R-2958	Wrench, Allen, 5/64 inch
54	1	R-2959	Wrench, Allen, 1/16 inch
55	1	R-3415	Wrench, Allen, 7/64 inch
56	1	R-3416	Wrench, Allen, 9/64 inch
57	1	R-8550	Scale, Steel, 6 inch
58	1	TP-75503	Push Spring Hook
59	1	TP-75765	Pull Spring Hook
60	1	23	Wrench, Socket, 1/4 inch
61	AR	35	Tool, Cord Tip

TABLE D (Cont)

COMMON LIST OF TOOLS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
62		40	Screwdriver, Offset
63	1	43	Wrench, Open Double-ended, Flat, 3/16 inch and 1/4 inch
64	1	59	Tool, Alligator Clip
65	1	62B	Gauge, Gram, 0-700
66	1	66D	Gauge Nest, Thickness
67	1	70D	Gauge, Gram, 50-0-50
68	1	70F	Gauge, Gram, 10-0-10
69	1	70H	Gauge, Gram, 0-30
70	1	70J	Gauge, Gram, 0-150
71	AR	72A	Heat Coils, Dummy, Insulating (Green)
72	1	74	Wrench, Open Double-ended, Flat, 5/32 inch and 7/32 inch
73	1	74D	Gauge Nest, Thickness
74	1	79B	Gauge, Gram, Push Pull Tension, 0-1000
75	1	79C	Gauge, Gram, Push Pull Tension, 0-200
76	1	79F	Gauge, Gram, Push Pull Tension, 0-6000
77	1	92P	Gauge, Thickness, Offset, Non-Magnetic 0.003 inch
78	1	99A	Gauge Nest, Thickness
79	1	103A	Gauge, Thickness (0.012 inch, 0.014 inch, and 0.015 inch)
80	10	108	Cord Tip (Insulating Tubing)
81	10	120	Cord Tip
82	1	131A	Gauge Nest, Thickness
83	1	133A	Gauge, Stud Gap
84	1	143A	Gauge, Thickness, Offset, 0.010 inch
85	1	136B	Blocking Tool, Relay
86	AR	141	Cord Tip
87	3	158A	Extender Board
88	3	159A	Extender Board
89	1	171A	Gauge Nest, Thickness
90	1	184A	Gauge Nest, Thickness

TABLE D (Cont)  
 COMMON LIST OF TOOLS  
 ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
91	1	188B	Key
92	1	206	Screwdriver, Offset, 30-Degree
93	1	207	Screwdriver, Offset, 90-Degree
94	1	209	Wrench, Open Single-ended, Hex, 5/16 inch
95	1	211	Pliers, Key Button
96	1	220	Wrench, Socket, Single-ended, Hex, 3/16 inch
97	1	240	Scriber
98	10	258	Plug, Dummy
99	1	259	Adjuster, Spring
100	3	262B	Plug, Terminating, 600-ohm
101	1	265C	Burnisher
102	1	300	Adjuster, Spring
103	1	303	Adjuster, Spring
104	1	319B	Extractor, Lamp Cap and No. Plate
105	1	325B	Adjuster
106	1	326B	Adjuster
107	1	338	Tool, Jack Spring Insulator
108	1	340	Adjusting Key
109	1	342	Tool, with 0 to 750-ohm resistance
110	1	349	Wrench, Offset, Closed Double-ended, Hex 3/16 inch and 7/32 inch
111	10	360A	Tool, Connecting (red shell)
112	10	360B	Tool, Connecting (black shell)
113	10	360C	Tool, Connecting (white shell)
114	1	363	Adjuster, Spring
115	1	365	Clip, Connecting
116	1	370A	Tool, Bank Busying
117	1	370B	Tool, Bank Busying
118	10	375A	Tool, Make Busy
119	1	376A	Mirror, Dental, Magnifying
120	1	411C	Test Pick

TABLE D (Cont)

COMMON LIST OF TOOLS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
121	1	417A	Wrench, Open Double-end, Hex, 1/4 inch and 3/8 inch
122	1	418A	Wrench, Open Double-end, Flat, 5/16 inch and 7/32 inch
123	1	419A	Tool, Connector, Test
124	1	472A	Tool, with 0 to 1100-ohm resistance
125	1	472B	Tool, with 0 to 1300-ohm resistance
126	1	472C	Tool, with 0 to 1650-ohm resistance
127	1	474A	Wrench, Offset, Closed Double-ended, Hex, 3/16 inch and 1/4 inch
128	1	485A	Pliers, Smoothjaw
129	2	486A	Oil Can
130	1	505A	Adjuster, Spring
131	1	506A	Adjuster, Spring
132	1	507A	Adjuster, Spring
133	1	508A	Blocking Tool Armature
134	1	510C	Test Lamp, Portable
135	1	522A	Key
136	1	534D	Adjuster, Spring
137	1	534E	Adjuster, Spring
138	1	534F	Adjuster, Spring
139	1	534G	Adjuster, Spring
140	1	534H	Adjuster, Spring
141	1	534J	Adjuster, Spring
142	1	535A	Adjuster, Spring
143	1	553A	Extractor, Lamp
144	1	565A	Screwdriver, 90-Degree Offset
145	1	566A	Screwdriver, 45-Degree Offset
146	1	582A	Adjuster, Spring
147	1	603A	Extractor
148	1	611A	Adjuster, Hinge Bracket
149	1	612A	Adjuster, Core

TABLE D (Cont)

**COMMON LIST OF TOOLS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
150	1	620A	Tool, Bank Contact connector
151	1	624B	Tool, Terminal connector
152	1	625	Pliers, Cutting, Wiss or equivalent
153	1	628A	Lifter, Balancing Spring
154	2	635	Wire Wrapping Tool
155	1	639A	Tool, Relay Contact connector
156	1	651D	Holder, Relay Contact connector
157	2	723B	Puller, Pack
158	20	768A	Blocking Tool
159	1	—	B Scissors
160	1	—	Screwdriver, Cabinet, 3-inch

TABLE E

COMMON LIST OF ELECTRICAL COMPONENTS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	KS-13491 L1	Resistor, 1200-ohms
2	1	R-2717	Filter
3	5	12B/—	—24VDC Message Register
4	4	14B,F,L, or M	—48VDC Message Register
5	1	18AE	Resistor, 600-ohms
6	1	18BT	Resistor, 200-ohms
7	1	18CR	Resistor, 2000-ohms
8	1	18GB	Resistor, 50-ohms
9	1	18GE	Resistor, 1600-ohms
10	1	18HC	Resistor, 3000-ohms
11	1	18JW	Resistor, 10,000-ohms
12	1	18—	Resistor, 30,000-ohms
13	1	19BT	Resistor, 300-ohms
14	1	19UA	Resistor, 20,000-ohms
15	1	19—	Resistor, 50,000-ohms
16	1	63L	Resistor, 500-ohms
17	1	63R	Resistor, 1200-ohms
18	1	63EA	Resistor, 2000-ohms
19	2	—	Resistor, 600-ohms 1/2 watt, 1 percent
20	2	—	Resistor, 900-ohms, 1/2 watt, 1 percent
21	2	—	Resistor, 1000-ohms
22	2	—	Resistor, 2000-ohms
23	2	—	Resistor, 4000-ohms
24	1	—	Resistor, 10,000-ohms 1/2 watt
25	1	—	Resistor, 11,000-ohms, 1/2 watt
26	1	—	Resistor, 40,000-ohms, 1/2 watt

TABLE D (Cont)

**COMMON LIST OF TOOLS  
ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
150	1	620A	Tool, Bank Contact connector
151	1	624B	Tool, Terminal connector
152	1	625	Pliers, Cutting, Wiss or equivalent
153	1	628A	Lifter, Balancing Spring
154	2	635	Wire Wrapping Tool
155	1	639A	Tool, Relay Contact connector
156	1	651D	Holder, Relay Contact connector
157	2	723B	Puller, Pack
158	20	768A	Blocking Tool
159	1	—	B Scissors
160	1	—	Screwdriver, Cabinet, 3-inch

TABLE E

COMMON LIST OF ELECTRICAL COMPONENTS  
ON A PER OFFICE BASIS

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	KS-13491 L1	Resistor, 1200-ohms
2	1	R-2717	Filter
3	5	12B/—	—24VDC Message Register
4	4	14B,F,L, or M	—48VDC Message Register
5	1	18AE	Resistor, 600-ohms
6	1	18BT	Resistor, 200-ohms
7	1	18CR	Resistor, 2000-ohms
8	1	18GB	Resistor, 50-ohms
9	1	18GE	Resistor, 1600-ohms
10	1	18HC	Resistor, 3000-ohms
11	1	18JW	Resistor, 10,000-ohms
12	1	18—	Resistor, 30,000-ohms
13	1	19BT	Resistor, 300-ohms
14	1	19UA	Resistor, 20,000-ohms
15	1	19—	Resistor, 50,000-ohms
16	1	63L	Resistor, 500-ohms
17	1	63R	Resistor, 1200-ohms
18	1	63EA	Resistor, 2000-ohms
19	2	—	Resistor, 600-ohms 1/2 watt, 1 percent
20	2	—	Resistor, 900-ohms, 1/2 watt, 1 percent
21	2	—	Resistor, 1000-ohms
22	2	—	Resistor, 2000-ohms
23	2	—	Resistor, 4000-ohms
24	1	—	Resistor, 10,000-ohms 1/2 watt
25	1	—	Resistor, 11,000-ohms, 1/2 watt
26	1	—	Resistor, 40,000-ohms, 1/2 watt

**TABLE F**  
**COMMON LIST OF MATERIALS**  
**ON A PER OFFICE BASIS**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	D-93568	Removable Paper Armature Stop
2	1	D-95367	Removable Paper Backstop
3	AR	KS-2423	Twill Cloth
4	4 oz. Bottle	KS-6232	Light Mineral Oil
5	AR	KS-7188	Paper, Bond, Bell Seal
6	1	KS-7756	Cement
7	1 pt.	KS-7860	Petroleum Spirits
8	1	KS-8496	Lubricating Compound No. 13
9	1	KS-14774	Lubricant
10	1 pt.	KS-19578 L1	Trichloroethane
11	2CC Tube	R-3833	Loctite C (sealant)
12	1	P-10F137	Stud Cap Spring, 0.009-inch
13	1	P-10F548	Stud Cap Spring, 0.006-inch
14	1	P11A706	Armature Plate
15	1	P11A707	Armature Plate
16	1	P19F138	Stud Cap Spring, 0.012-inch
17	AR	U22P or Equiv.	2-Conductor Frame Wire
18	1	2A	Cushion
19	AR	—	AWG 24-Gauge Bare Tinned Copper Wire (for straps)
20	AR	—	AWG 26-Gauge Insulated Wire (for straps)
21	AR	—	AWG 26-Gauge BW Insulated Wire
22	AR	—	Electrical Tape
23	AR	—	Plastic Sheets (for protective covering)

TABLE G

**LIST OF TOOLS AND MATERIALS FOR  
AMA RECORDER KS-20017-L3 ON A PER OFFICE BASIS  
(SEE NOTE 1)**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	AT-7739	Screwdriver, Type 1B, (3-inch Phillips)
2	1	AT-7739	Screwdriver, Type 2B (4-inch Phillips)
3	1	AT-7739	Screwdriver, Type 3B (6-inch Phillips)
4	1	AT-7858	Pliers, Diagonal, 5-inch, Type B
5	1	AT-7860	Pliers, Long Nose, Type B, 7-inch
6	1	E-0250	Applicator (See Note 2)
7	1	E-0370	Applicator (See Note 2)
8	—	EC870	Adhesive (3M Company — same as X17049 L1 Adhesive)
9	—	KS-2423	Twill cloth
10	1	KS-2631	Screwdriver
11	1	KS-6854	Screwdriver, 3-1/2 inch
12	1	KS-14343	Tape Reader
13	1	KS-14377 L5	Vacuum Cleaner (or equivalent) equipped with a KS-14377 L30 Flexible Nozzle (or equivalent)
14	1	KS-16765 L1	Dry Reed Reader
15	—	KS-19094 L1	Antiseize Compound
16	—	KS-19139 L4	Lubricant
17	1	KS-20017 L101	Kit of Spare Parts and Special Tools (See Note 3)
18	—	KS-20406 L1	Cleaner
19	1	L12	Scale, Spring, 12 ounces by 1/4 ounce (See Note 4)
20	1	L-502232*	Wrench, Tape Guide
21	—	No. 3145	Sealer, Dow Corning
22	1	R-2975	Snap-ring Pliers
23	1	R-2670	Wrench, Allen, 3/32 inch
24	1	R-2958	Wrench, Allen, 5/64 inch
25	1	R-2959	Wrench, Allen, 0.050 inch
26	1	417A	Wrench, Open Double-ended, Flat, 1/4 inch and 3/8 inch

TABLE G (Cont)

**LIST OF TOOLS AND MATERIALS FOR  
AMA RECORDER KS-20017-L3 ON A PER OFFICE BASIS  
(SEE NOTE 1)**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
27	6 feet	—	Cord (cable lacing and/or equiv.)
28	1	—	Esterline Angus 20 pen event recorder or any 4 pen recorder with high impedance inputs
29	1	—	Gauge-R (0-10 pounds) (See Note 4)
30	1	—	Knife, Electrician's XELA (or equivalent)
31	1	—	Isopropyl Alcohol (obtain locally)
32	1 reel	—	Magnetic Tape with BOT or EOT Markers (3M777 or equivalent) (See Note 5)
33	—	—	Mineral Spirits (obtain locally)
34	—	—	Recording Tape, 1/2-inch (scraps 3-inch, 6-inch, and 6-feet long)
35	1	—	Screwdriver, XCELITE, Allen Hex, 0.050 inch Blade
36	—	—	Soap or Detergent (obtain locally)
37	—	—	Solvent, Toluene (ASTM D362)
38	—	—	Wrench, Nutdriver, XCELITE H510, 5/16 inch ( or equivalent)

**Note 1:** For: Magnetic Tape Management refer to Section 034-311-301;  
 Trouble Analysis refer to Section 034-361-301;  
 Requirements and Adjusting Procedures refer to Section 034-361-701;  
 Piece Part and Replacement Procedures refer to Section 034-361-801;  
 General and Testing Information Applying to Intertoll Dialing, CAMA, AMA, ANI  
 "TOUCH-TONE<sup>®</sup>" Calling and Common Control Equipment — Step-By-Step Systems  
 refer to Section 227-000-000.

**Note 2:** Purchase from Waldes Kanhinoor, Inc., Long Island City.

**Note 3:** It is recommended that one (1) kit be ordered per building or per 3 offices in larger buildings.

**Note 4:** Purchase from Chatillion and Sons  
 83-30 Qew Gardens Road  
 Qew Gardens, New York 11415

**Note 5:** If recorder uses paper tape rather than magnetic tape, substitute 1 roll.

\* Part of Spare Parts Kit KS-20017 L101

TABLE H

**LIST OF TOOLS AND MATERIALS  
FOR THE RECORDER-REPRODUCER KS-12068  
ON A PER OFFICE BASIS (SEE NOTE 1)**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
1	1	AT-7825	Screwdriver, Type C, 3-inch
2	1	AT-7825	Screwdriver, Type E, 4-inch
3	1	EC-1711	Adhesive, Scotch Grip Rubber (3M Company)
4	—	KS-2423	Twill cloth
5	—	KS-6320	Orange Stick
6	1	KS-6854	3-inch Screwdriver
7	1 pt.	KS-7860	Petroleum Spirits
8	1	KS-8511	Tweezers
9	1 pt.	KS-16326 L1	Oil
10	—	KS-16328 L2	Cleaner-Lubricant
11	1 pt.	KS-19578	Trichloroethane
12	1	No. 555E	Jewelers Screwdriver, L. S. Starrett Co.
13	1/2 pt.	No. 1706	Oiler, Gem Division, Plews Oiler Co. (or equivalent)
14	1	R-1051	Pillar File
15	1	R-1060	Putty Knife
16	1	R-1770	Wrench, Open Double-ended, Flat, Hex, 1/2 inch and 9/16 inch
17	1	R-2485	Wrench, Allen, Socketscrew, 5/32 inch
18	1	R-2670	Wrench, Allen, Socket Screw, 3/32 inch
19	1	R-2671	Wrench, Allen, Socket Screw, 1/8 inch
20	1	R-2812	Wrench, Allen, Socket Screw, 3/16 inch
21	1	R-2958	Wrench, Allen, Socket Screw, 5/64 inch
22	1	R-2961	Wrench, Allen, Socket Screw, 0.050 inch
23	1	R-5850	Wrench, Open Double-ended, Offset, Hex, 5/8 inch and 3/4 inch
24	—	SF-1147	Fluid, Silicone, General Electric, (200 Centistokes Viscosity) (See Note 2)
25	1	52S	Headset, Telephone
26	1	85B	Gauge, Thickness, 0.010 inch
27	1	85C	Gauge, Thickness, 0.020 inch

TABLE H (Cont)

**LIST OF TOOLS AND MATERIALS  
FOR THE RECORDER-REPRODUCER KS-12068  
ON A PER OFFICE BASIS (SEE NOTE 1)**

<u>ITEM</u>	<u>ORDERING QUANTITY</u>	<u>TYPE OR NO.</u>	<u>DESCRIPTION</u>
28	1	131A	Gauge Nest, Thickness
29	1	245	Wrench, Open Double-ended, Flat, Hex, 3/8 inch and 7/16 inch
30	1	417A	Wrench, Open Double-ended, Flat, Hex, 1/4 inch and 3/8 inch
31	1	486A	Oil Can
32	1	528 or T16E	Receiver
33	AR	—	Cement, Duco Household
34	1	—	Medicine Dropper (obtain locally)
35	1	—	Pliers, Long-nose P
36	1	—	Protractor, Transparent, Small (obtain locally)
37	25 ft.	—	Tape, Teflon, Antiseizing Size II (See Note 3)
38	—	—	Thread, Linen

*Note 1:* For: Recorders-Reproducers — KS-12068 L4, L5, L6, and L7 — Requirements and Adjusting Procedures, refer to Section 034-351-701;  
Recorders-Reproducers — KS-12068 L4, L5, L6, and L7 — Piece-Part Data and Replacement Procedures, refer to Section 034-351-801.

*Note 2:* Purchase from Silicone Products Dept., General Electric Co.

*Note 3:* Purchase from Hercules Chemical Co. Inc., 416 Broadway, New York, N. Y.  
(or equivalent)