

TELETYPEWRITER
TOOLS AND MAINTENANCE SUPPLIES

1. GENERAL

- 1.01 This sheet covers the application of wartime changes in the repair requirements for teletypewriter apparatus. Due to the scarcity of essential materials, it is necessary to avoid, wherever possible, the replacement of piece parts in teletypewriter apparatus as long as the apparatus meets its operating requirements.
- 1.02 In general, equipment that meets its operating requirements, but appears to be noisy, shall not be replaced.
- 1.03 Parts shall not be replaced for appearance reasons.
- 1.04 Parts shall not be added for improvement except when required to equip a machine for a different type of service.
- 1.05 Parts shall be replaced only when they have been rendered unfit for service by wear and tear, damage or similar cause.

BELL SYSTEM PRACTICES
Teletypewriter and Manual
Telegraph Station and P.B.X.
Installation and Maintenance

SECTION P30.301
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TELETYPEWRITER
TOOLS AND MAINTENANCE SUPPLIES

1. GENERAL

1.01 This section lists the general tools, teletypewriter tools, miscellaneous tools and miscellaneous supplies required for teletypewriter maintenance and installation work.

1.02 This section is reissued to include the KS-8319 grease gun, the KS-8239 oil can, the 81093M set of tools which supersedes the 81047M set of tools and a new tuning fork which supersedes the 10A tuning fork. Other minor changes and corrections have also been made.

2. CARRYING CASE

2.01 The KS-7771 carrying case is of a suitcase type and is provided with compartments specially designed to make the tools and supplies conveniently available. It is about 19-1/4" x 13" x 5-1/2". A typical layout for the tools is shown in Fig. 2.

3. GENERAL TOOLS

3.01 It will be desirable to carry the following tools for general use:

Electric soldering copper (commercial type per KS-8740)

5" diagonal pliers (Spec. No. 6655)

6" side-cutting pliers (Spec. No. 6649N)

6-1/2" P long nose pliers (Spec. No. 6267)

4" regular screwdriver (Spec. No. AT-6860-N)

6" cabinet screwdriver (Spec. No. AT-6860-N)

3" cabinet screwdriver (Spec. No. AT-6860-N)

4 oz. riveting hammer (Spec. No. 6258N)

5" electricians scissors (A.T.&T.Co. Dwg. 46-X-16)

Angle flashlight (Spec. AT-6846)

KS-7742 Bottom Cap	} These provide for using the flashlight as a test lamp.
893 Cords (2 Req.)	
360 Tool (2 Req.)	
365 Tool (2 Req.)	

6" flat file, smooth cut

No. 7 round sash brush

340 tools (for adjusting polar relays), provide 2

KS-6320 orange stick

Bell System 6" typewriter brush

103628M Tuning Fork or

10A tuning fork (manufacture discontinued)

The tuning fork should be handled with care and carried in a suitable case (case is furnished with KS-7771 carrying case)

KS-8319 Grease Gun (see Paragraph 8.01) or

KS-7461 Grease Gun (see Paragraph 8.02 manufacture discontinued)

KS-8239 Tool (improved type oil can, see Paragraph 8.03) or Small oil can. Capacity 3 or 4 oz. with a slender spout about 3" long. The spout should have an opening of about 1/32" and a portion of the tip should be bent at an angle of about 45°.

KS-7468 Volt-Ohm-Milliammeter (see Paragraph 8.05)

471A Tool (for use with KS-7468 meter in testing rectifiers, see Paragraph 8.06).

484A Tool (magnetic shunt for adjusting polar relays)

"S" First Aid Kit

4. TELETYPEWRITER TOOLS

4.01 In addition to the general tools it is necessary to carry the 81093M set of teletypewriter tools (which has superseded the 81047M set of tools). This is a universal tool set for all types of teletypewriter equipment. The individual items comprising this set of tools are shown in Fig. 1.

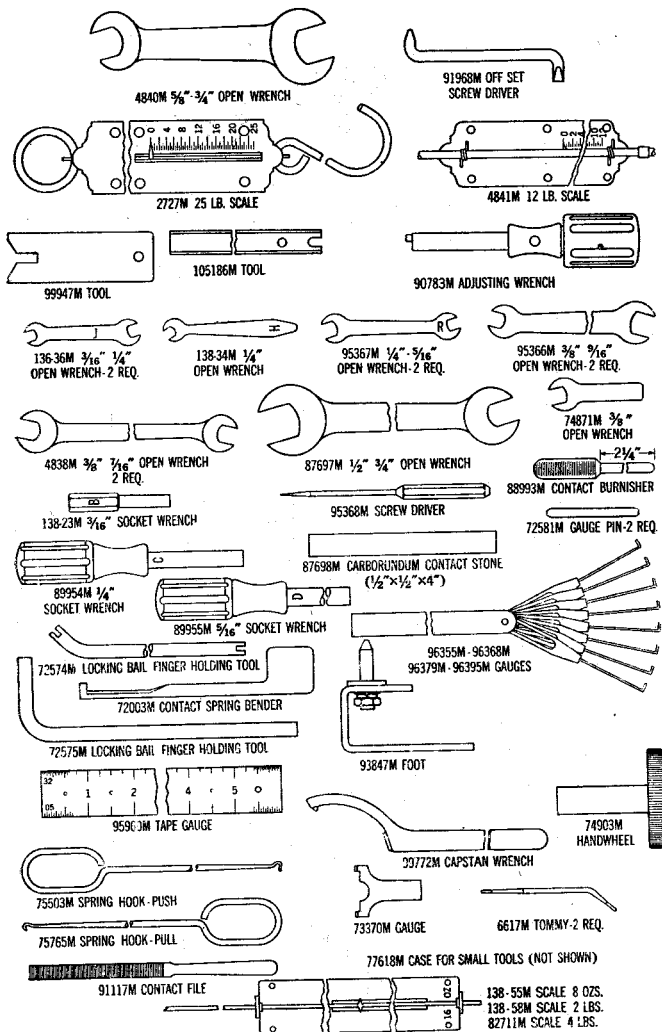


Fig. 1

Inside of Cover										
Small Tools in 77618 Tin Case	89954 Socket Wrench	89955 Socket Wrench	88993 91117 2 340 or 212 2 6617 98368 & 138-23 75503 & 75765 KS 6320 3" Screwdriver B. S. Typewriter Brush							
Flap										
2 95367 74871 Wrench	J Wrench	H Wrench	4 Sets of Gauges in 77618 case 82711-4# Scale 138-58-32 oz. Scale 138-55-8 oz. Scale 4841-12# Scale Sand Paper & Bond Paper No. 7 Sash Tool Case for Tuning Fork							
Bottom										
Soldering Iron 5" Diagonal Pliers 6" Side Cutting Pliers Long Nose Pliers 25 lb. Scale Solder Tool Roll (Wrenches) (See details below) 4" Regular Screw Dr. 6" Cabinet Screw Dr. 4 oz. Riveting Hammer 5" Scissors 6" Flat File 89678 73517 90783 93847 95960 99772 105186	KS-7468 Meter and Leads									
Cleaning Cloth or Paper Friction Tape Handbook Ribbons Spare Parts Grease Gun, Oil Can and Spare Parts Flashlight and Spare Parts	Can of Carbon Tetra- chloride	74903 Hand Wheel Fuses 471-A Tool First Aid Kit								
Contents of Tool Roll										
<table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>4838</td></tr> <tr><td>2-x Wrench</td></tr> <tr><td>4838</td></tr> <tr><td>72575</td></tr> <tr><td>87697</td></tr> <tr><td>72003</td></tr> <tr><td>72574</td></tr> </table>				4838	2-x Wrench	4838	72575	87697	72003	72574
4838										
2-x Wrench										
4838										
72575										
87697										
72003										
72574										

KS-7771 CARRYING
CASE FOR TELETYPEWRITER
TOOLS

Fig. 2

4.02 Detail part numbers for the sets of gauges are as follows:

96355M Set of Gauges

<u>Part No.</u>	<u>Size</u>
96356M Gauge	.002
96358M " "	.002 Brass
93833M " "	.003
93822M " "	.004
93823M " "	.005
96360M " "	.006
96362M " "	.007 Bronze
96364M " "	.010
93814M Holder	

96368M Set of Gauges

<u>Part No.</u>	<u>Size</u>
96369M Gauge	.006
96371M " "	.008
96373M " "	.010
93828M " "	.012
96375M " "	.015
93824M " "	.018
96377M " "	.020
93825M " "	.025
93814M Holder	

96379M Set of Gauges

<u>Part No.</u>	<u>Size</u>
93811M Gauge	.030
96383M " "	.035
98136M " "	.037
96385M " "	.040
96389M " "	.045
96391M " "	.050
93827M " "	.055
96393M " "	.060
96380M Holder	

96395M Set of Gauges

<u>Part No.</u>	<u>Size</u>
96399M Gauge	.065
96401M " "	.070
96403M " "	.075
96405M " "	.080
96396M Holder	

Unless otherwise noted the gauges are made of steel.

5. MISCELLANEOUS TOOLS

5.01 The following tools should be provided if required:

68B Gauge (for adjusting transmitter-distributors with tape-out contacts)

63 Tool (small wrench), provide 2 (used on typing perforators)

73517M tool, feed wheel detent gauge (used on perforators)

101424M Tool. For dressing sending surfaces of brush type distributors. No. 1 and No. 5-0 sandpaper fastened to disc with rubber cement.

99391M Gauge (for adjusting switching contact plate)

103988M Sensing Pin Bending Tool—Intended for use in a repair center. This tool should only be used when pins cannot otherwise be properly adjusted.

98055M Spring Bender (for adjusting pull bar contacts)

99896M Retaining Disc Tool (for removing or tightening the 72516M retaining disc)

Note: It may be desirable to provide a thumb nut, 98351M (Hexagonal—new type) with the 93847M Foot so that it can be used with all No. 26 teletypewriters.

6. MISCELLANEOUS SUPPLIES

6.01 The following miscellaneous supplies are usually required:

Small parts box per specification AT-6917-N

Grease and oil lubricants as specified in P30.011

Carbon tetrachloride in small container (container is supplied with KS-7771 carrying case)

Fuses, Fusetrans and Fusetats as required

No. 0000 sandpaper

Cloth per KS-2423 (9" x 9") or

Cloth per D-98063 (18" x 18") or

Cleaning Paper—12 lb. treated Japodex Paper 18" x 18"

Bond Paper per KS-7187

Rosin core solder

Friction tape, 3/4"—1/2 lb.—black

Bell System teletypewriter ribbons—Underwood type

95476M Platens for typing reperforators

Handbook of various P-sections of Bell System Practices as required for the work being done

7. SPARE PARTS

7.01 Supplies of spare parts should be carried for the types of machines to be maintained. The quantities of the various parts to be carried should be determined locally as this depends upon the number of machines to be maintained and the ease of obtaining spare parts from a storeroom.

7.02 Small parts may be carried in small envelopes, suitably labeled, or in a small parts box per specification AT-6917-N. These metal boxes are 7-7/16" long, 4-3/8" wide and 1-1/4" deep subdivided into twelve compartments by means of removable partitions.

7.03 It is important that springs which are somewhat similar in size or appearance but which are designed for different tensions be kept separate and properly labeled.

8. DESCRIPTION OF CERTAIN TOOLS

8.01 KS-8319 Grease Gun: This Grease Gun is used for injecting grease into the bearings of teletypewriter motors. The gun may also be used for applying grease to other parts and no other grease container need be carried. This gun supersedes the KS-7461 Grease Gun. It is used for the same purposes and delivers the same amount of grease (1/2" strip) as the KS-7461 gun. It is, however, easier to fill and easier to use since it can be operated by one hand if necessary.

8.02 KS-7461 Grease Gun: (Manufacture Discontinued). This grease gun should deliver a strip of grease approximately 1/2" long with each full stroke of the plunger. If the gun delivers a strip from 1-1/2" to 3" in length, it is an earlier model and should be returned to the Western Electric Distributing House Shop for modification.

8.03 KS-8239, List 1 Tool: This tool is a leakproof oil can developed to meet the needs of teletypewriter maintenance forces. It consists of a rectangular body approximately 3" long, 2-5/8" wide and 1-3/4" deep with a replaceable nozzle assembly 4-3/16" long. It is easy to handle and to pack in the KS-7771 carrying case. It holds 4 ounces of oil and is designed so that a quick light operation of the diaphragm will expel a single drop of oil. A slow hard operation will expel a squirt consisting of about 12 drops. A new nozzle may be obtained for replacement purposes by ordering a "KS-8239, List 10 Tool." A new valve assembly (consisting of a small coil spring and a steel ball) may be obtained for replacement purposes by ordering a "KS-8239, List 11 Tool."

8.04 Instructions for filling the grease guns and oil can are given in the general lubrication section P30.011.

8.05 KS-7468 Volt-Ohm-Milliammeter: This is a d-c meter enclosed in a bakelite case approximately 5-1/2" x 3-3/4" x 2-1/4". It has ranges of 0 to 50,000 ohms, 0 to 150 volts, 0 to 75 milliamperes, and 0 to 150 milliamperes. It is equipped with a toggle switch which in one position permits resistance measurements and in the other position permits the measurement of voltage or current. Seven pin jacks are provided for making connections to the meter, two of these being adapted for measuring resistance, two for measuring voltage, and three for measuring current. A battery adjuster knob is provided on the face of the meter for adjusting the pointer to 0 on the ohm scale when resistance measurements are to be made. The cur-

rent for measuring resistance is provided by a small 4-1/2 volt "C" battery enclosed within the case of the meter. This battery will have to be replaced from time to time (a Burgess No. 5360 or an Eveready No. 781, or equivalent may be used). A 25-ampere fuse (Littelfuse type 3AG or equivalent) is provided which will prevent overloading and injury to the meter if subjected to currents greater than those for which it is designed. To replace a battery or a fuse, break the seal and remove the cover of the meter. The meter is provided with four rubber feet to prevent slipping when placed on a flat surface. Two cords terminating in pin plugs at one end and test picks at the other end are also provided.

8.06 471A Rectifier Voltage Measuring Tool: The 471A tool in conjunction with the KS-7468 meter described above provides an easy means of measuring the rectifier voltage under load conditions. The tool fits over the prongs of the table outlet or plug and is so designed that the receptacle may be in place at the same time, thus providing the load connection and access to the rectifier output terminals simultaneously. The 471A tool is provided with jacks which accommodate the test picks provided with the meter.