IDENTIFICATION OF
ELECTRICAL TEST EQUIPMENT

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1. GENERAL

1.01 This section is issued to provide outside plant personnel with a ready reference of electrical test sets available for use in construction and maintenance operations. For each set, a consistent format has been followed which provides the standard name, a picture of the set, intended use, a brief description, any auxiliary apparatus, and reference to specific sections covering each unit.

1.02 This section is reissued to include the 188A test set and to list all "Mfr Disc." test sets in a separate paragraph (Part 4) designated Superseded Test Sets. Due to the extensive nature of the changes, arrows normally used to designate changes have not been used.

1.03 ***To achieve full utilization of these test sets before use, the section covering each unit should be read.***

1.04 This section includes only Bell System Standard test sets. It includes test sets that have been superseded or rated "Mfr Disc.". This section does not prohibit the use of those test sets that have been superseded or rated "Mfr Disc." that are available except where special restrictions are noted; ie, protection from high voltages.

1.05 This section does not include leak locating and gas pressure test equipment. Reference should be made to those sections covering leak locating and gas pressure testing procedures.

2. USE

2.01 To aid in the selection and use of the test sets described individually in Parts 3 and 4, these paragraphs associate specific work operations involving testing with a specific test set or combination of sets. For many operations, more than one set or combination of sets are in use. In those cases, all of the options are listed; however, the order of listing does not imply a judgment of effectiveness for all applications.

2.02 The association of work operations with test sets for coaxial cables is covered in Tables A and B, paired cables in Tables C and D.

2.03 These are suggested methods only, local ones prevail.

TABLE A

COAXIAL CABLE TESTING

OPERATION	TEST SETS
1. Locating Plant (cable path and depth	Metrotech P440 (or) 20C+93B+91A
2. Installation Acceptance Testing	90A+AT-7381+ SM 20580 ED (or) 6090A+AT-7381+ SM 20580 ED J98721 G
3. Coaxial Identification (and verification of power removal)	76C+79D+91A
4. Coaxial Fault Location	See Table B
5. Communications	100C Communication Set (or) 84A

TABLE B

COAXIAL FAULT LOCATION

FAULT TYPE	TEST SETS
1. DC Breakdown	90+13(A or B) (or) 6090A+13(A or B)
2. AC Corona	SM 20580 ED
3. Solid Short	KS-149595 (or) 90A+13(A or B) (or) 6090A+13(A or B)
4. Open	DELCON 4910F (or) SM 20580 ED
5. Resistance Unbalance	KS-14959 (or) 90A+13(A or B) (or) 6090A+13(A or B)
6. Transmission at 274 Mb/s	J98721 G

TABLE C

PAIRED CABLE TESTING

OPERATION	TEST SETS
1. Locating Plant (cable path and depth)	Metrotech P440 (or) 20C+93B+91A
2. Installation Acceptance Testing 2.1 (Nonworking pairs)	AT-8592 L1A (or) KS-14959+AT-7383 146A
2.2 PICTURE-PHONE®	Portable Equalizer + Hewlett-Packard CO7-3550B + J1C150K Cable Equalizer + J94003 A Noise Measuring Set
3. Conductor Identification 3.1 "one man"	(Test boards optional in all cases) CB Automatic Pair Identifier + AT-8148/ AT-8214/AT-8345* (*Dependent on main frame) (or) 108A+109A+146A+91A (or) 108A+109A+76C+91A (or) 108A+109A+76C+91A (or) 108A+109A+114A+91A (or) Murphy Cable Tester
3.2 "two man"	(Test boards optional in all cases) 1460 + 91A (or) 114A + 91A (or) AT-8121 (or) 120A (N-Type Carrier)

TABLE C (Contd)

PAIRED CABLE TESTING

OPERATION	TEST SETS
3. (Contd)	(Optional apparatus: AT-6491/AT-7472 (AT-8039/ (or) 76C + 91A
4. Pair Transfer 4.1 Section transfer	AT-8241 + AT-8148/ AT-8214/AT-8345* (*Dependent on main frame)
4.2 Section replacement	104A (or) AT-8241 + AT-8329 (or) (2) AT-8329
5. Sheath Fault Location 5.1 Buried Cable sheath break	AT-7851, 173A E/W AT-8681
5.2 Open Bond Aerial or conduit	WILCOM T-124A
6. Conductor Fault Location	See Table D (Include Restoration Boards)
7. Communication 7.1 Dial Network	1013A (or) 52A + 52E Head Telephone Set (or) 107B + 53N Head Telephone Set
7.2 Local Order Wire	52E Head Telephone Set* *Battery supply required (or) 84A + 52AC Head Telephone Set (or) 6084A (or)

TABLE C (Contd)

PAIRED CABLE TESTING

OPERATION	TEST SETS
7.2 (Contd)	107A + 53N Head Telephone Set (or) AT-7888
8. AC Voltage Hazard Detection	AT-7731 + AT-7781 + AT-7782; KS-14510 L11
9. Construction Testing	
• Modular splice only	152A
• Main frame only	AT-8592

TABLE C (Contd)

PAIRED CABLE TESTING

OPERATION	TEST SETS
10. Pair Loss-Digital Transmission	
T1, T1/OS (650 kHz)	113A or 113D
T1C/T1	J98725 AA
T2 (3.156 MHz)	17K
11. Transmission Measuring Set	KS-20805
12. Line Error Detector (T1)	J98710 P J98725 AB

TABLE D

PAIRED CABLE — CONDUCTOR FAULT LOCATION
(THE KS-8455 CAN BE USED IN SECTIONALIZING THE FAULT; THE CABLE RESTORAL SYSTEM CAN BE USED DURING REPAIR)

FAULT	UNDERGROUND		AERIAL				BURIED		
	PULP	PIC	OPEN WIRE	MULTIPLE LINE WIRE	PULP	PIC	PULP	PIC (Note 1)	SERVICE WIRE
1. Shorts or Crosses 1.1 Fault less than 1000 ohms	DYNATEL 710A (or) 96A (or) K-14959 (or) KS-14103 L6+101B-91A+1097A* (or) KS-14103+101B+91A (or) 95C+99B†	DYNATEL 710A (or) 96A KS-14959 (or) KS-14103+101B+91A (or) 95C+99B†	106A+107	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103‡ +105D+91A (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103+105D+91A (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103‡ +105D+91A (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103+101B+91A (or) 95C+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103+101B+91A (or) 95C+99B†	
1.2 Fault greater than 1000 ohms	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103 L6+101B+91A+1097A* (or) KS-14103+101B+91A (or) 95C+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) 95C+99B†	106A+107	DYNATEL 710A (or) 96A (or) KS-14959 (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103+105D+91A (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) 110A+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) KS-14103+101B+91A (or) 95C+99B†	DYNATEL 710A (or) 96A (or) KS-14959 (or) 95C+99B†	
2. Grounds	Same as for shorts and crosses except K-14103 can be used as SIGNAL SOURCE. ***Hazardous*** if used for breakdown to ground.								170A E/W AT-8681
3. Opens	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A		Delcon 4910F (or) 96A (or) KS-14959 (or) 138A+111A+91A+1097A* (or) 114A+111A+91A (or) 145A	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A	Delcon 4910F (or) 96A (or) KS-14959 (or) 145A	
4. Split	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+101B+91A	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+101B+91A	—	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+105D+91A	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+105D+91A	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+105D+91A	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+101B+91A	96A (or) KS-14959 (or) 146A+101B+91A+1097A* (or) 146A+101B+91A (or) 76C(MD)+101B+91A	
5. Resistance Unbalanced (bad splice connection)	96A (or) KS-14959		—	96A (or) KS-14959			96A (or) KS-14959		
6. Reversed or Transposed Pair	Can be found by successive sectionalization using KS-8455 or 76C+91A.								
7. Sheath	173A E/W AT-8681								
8. PICTUREPHONE* Impairments	Biddle 335A		—	—	Biddle 335A		Biddle 335A		
9. T1 Digital Line	KS-14510 VOM J98710 F J94003 A or C	(or) J98710P Biddle CME 335A	KS-14510 VOM J98710 F J94003 A or C	or J98710P Biddle CME 335A			KS-14510 VOM J98710 P J94003 A or C	or J98710P Biddle CME 335A	
10. T1C Digital Line	J98725 AB		J98725 AB				J98725 AB		
11. T2 Digital Line	J98717 J		J98717 J				J98717 J		

Note 1: See Section 644-104-102 for short crosses and groups.

* For use in joint-use, noisy environment.
† Use 20 Hz central office ringing generator as SIGNAL SOURCE.
‡ Use KS-14103 as SIGNAL SOURCE only.

3. TEST SETS

13A AND 13B POWER UNITS

3.01 See Fig. 1.

CATEGORY—Rotary converter.

USE—To convert from 6- and 12-volt batteries to 120-volt ac 60 Hz power.

DESCRIPTION—These power units are battery operated rotary converters capable of delivering up to 1 ampere of ac current at 120 volts. The 13A operates from a 6-volt battery and draws approximately 15 amperes. The 13B operates from a 12-volt battery and draws approximately 7-1/2 amperes.

AUXILIARY APPARATUS—6- or 12-volt lead acid storage batteries are not furnished and must be ordered separately. A vehicle battery may be used.

REFERENCE—Additional information is contained in Section 106-370-105.

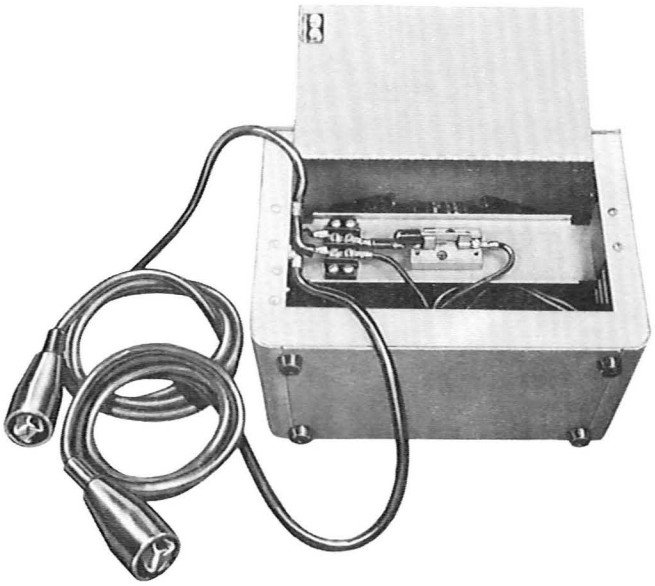


Fig. 1—13A and 13B Power Unit

17K TEST SET

3.02 See Fig. 2.

CATEGORY—Pair loss measurements—3.156 MHz.

USE—Provides pair loss measurements between two adjacent sections in a T2 carrier route. (Two sets are required.)

DESCRIPTION—The test set is portable, battery-operated, and self-contained in an aluminum carrying case equipped with carrying strap and test cable adapters. It is 8-3/4 inches wide by 15 inches long by 6 inches high. The test set weighs approximately 15 pounds.

AUXILIARY APPARATUS—Eight D size batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 640-530-220 and 103-498-100.

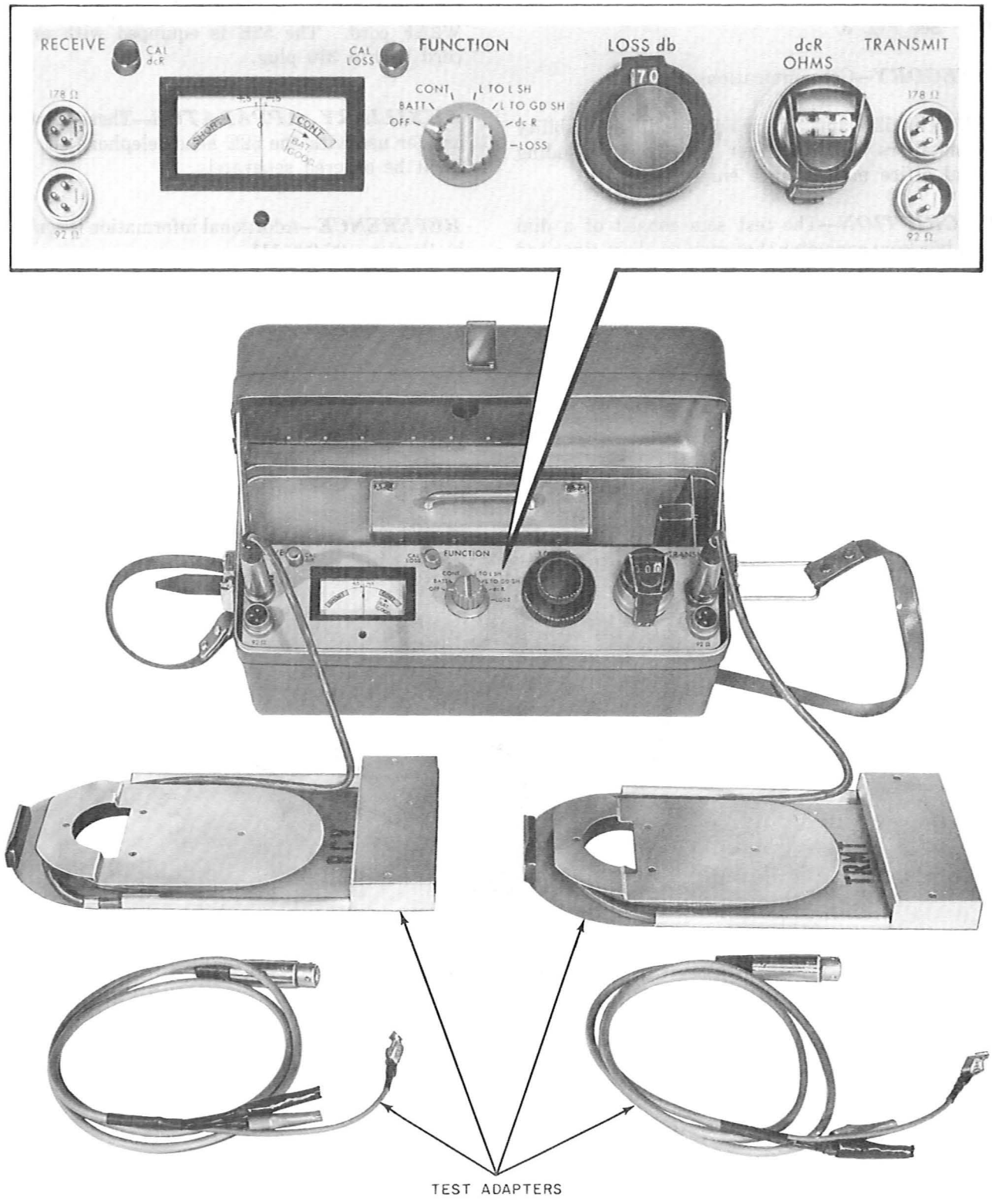


Fig. 2—17K Pair Loss Measuring Set

52A AND 52B TEST SET

3.03 See Fig. 3.

CATEGORY—Communications-dial unit.

USE—The 52A and 52B provide dialing capability for installers and all other employees including central office maintenance employees.

DESCRIPTION—The test sets consist of a dial and a blocking capacitor that may be short circuited by means of a turn button switch to bring in dial tone before dialing. The 52A is equipped with a W2AF cord. The 52B is equipped with an S2M cord with a 310 plug.

AUXILIARY APPARATUS—These test sets are for use with the 52E head telephone set which must be ordered separately.

REFERENCE—Additional information is contained in Section 106-020-111.

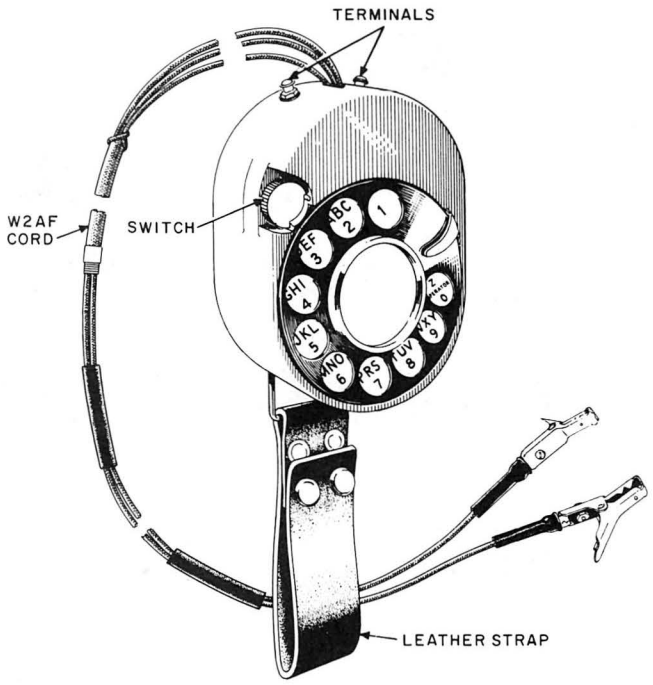


Fig. 3—52A and 52B Test Set

52E AND 52AC HEAD TELEPHONE SET

3.04 See Fig. 4.

CATEGORY—Communications set.

USE—To provide head telephone set communication capability for cable splicers.

DESCRIPTION—52E: Consists of an N1 transmitter, HC3 receiver, a 15C headband, and an L2Y cord. A blocking capacitor is provided in the cord which can be used to prevent interference when testing working lines. 52AC: Consists of an N1 transmitter, LB2 receiver, a 15F headband, and an L4CA cord equipped with a 396A plug.

AUXILIARY APPARATUS—52E: A battery supply is required such as is available in the 76C test set or AT-8121 test set. 52AC: A communications set equivalent to the 84A test set is required.

REFERENCE—Additional information is contained in Section 106-020-111.

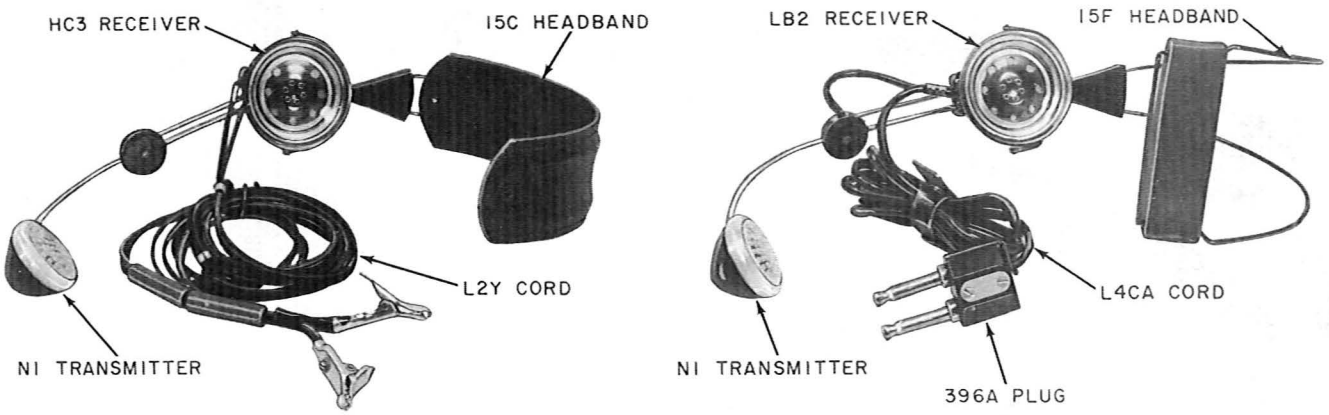


Fig. 4—52E and 52AC Head Telephone Set

53N HEAD TELEPHONE SET

3.05 See Fig. 5.

CATEGORY—Communications set.

USE—Intended for use with 107-type test set to provide communications capability for cable maintenance splicers in open wire lines.

DESCRIPTION—The head telephone set consists of an N1 transmitter unit and an HC6 receiver unit and a 15C headband. The head telephone set is equipped with an L3K cord which contains a monitor switch and terminates in a 310 plug.

AUXILIARY APPARATUS—107-type test set.

REFERENCE—Additional information is contained in Section 106-020-111.

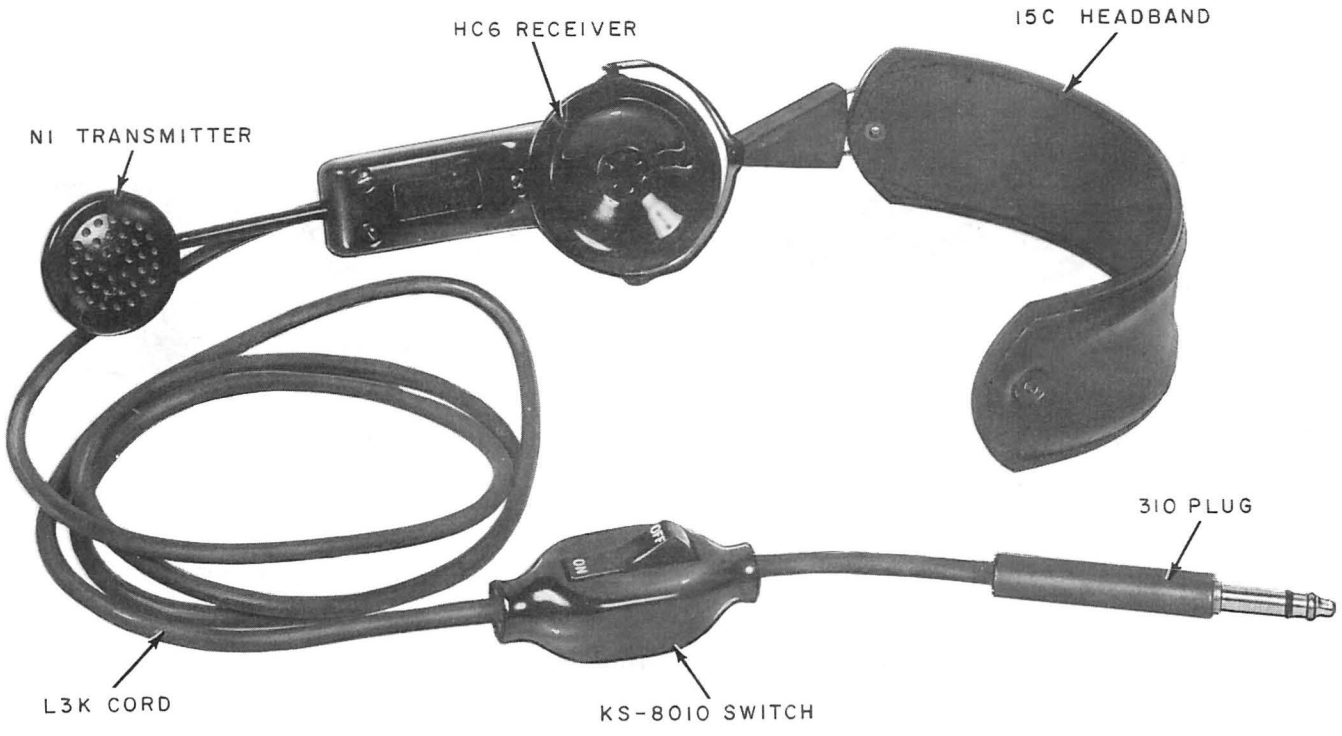


Fig. 5—53N Head Telephone Set

79D TEST SET

3.06 See Fig. 6.

CATEGORY—Hand held exploring coil.

USE—For identifying a special coaxial, for distinguishing between working and nonworking coaxials, and for identifying exchange cable pairs that have low resistance to ground on both tip and ring sides.

DESCRIPTION—The set consists of a small exploring coil equipped with a P2AS cord which terminates in a 347B plug. The coil has two prongs which extend from the body and are used to enclose the conductor being tested.

AUXILIARY APPARATUS—The coil must be used with a 147C amplifier and a 500-Hz current source.

REFERENCE—Additional information is contained in Section 634-200-503.

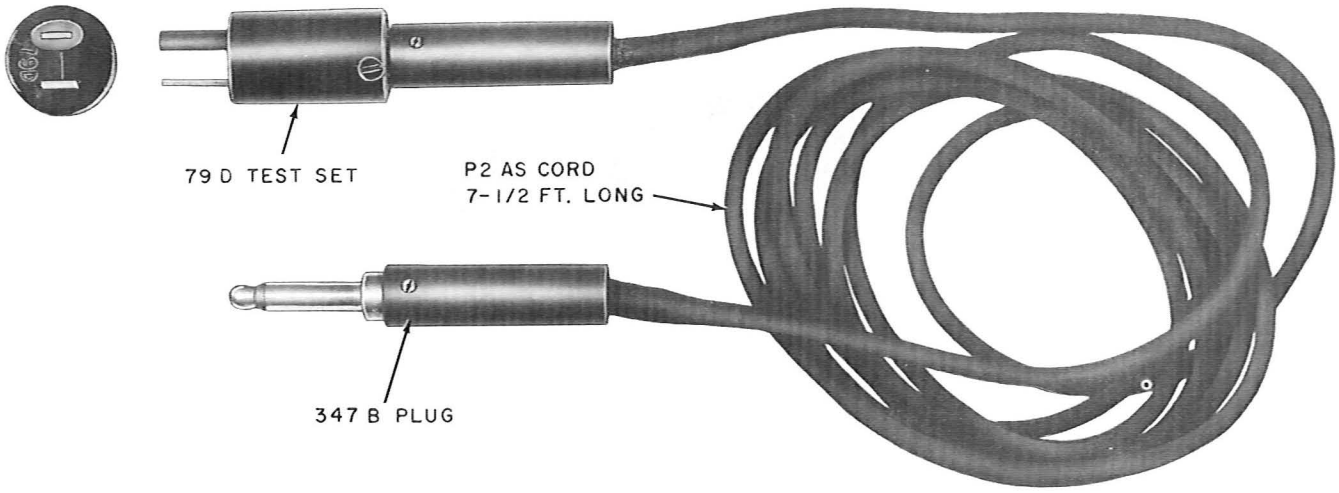


Fig. 6—79D Test Set

84A TEST SET

3.07 See Fig. 7.

CATEGORY—Communication set and continuity tester.

USE—For intercommunicating on repeatered and nonrepeatered voice frequency circuits, for dc continuity tests, for testing gas pressure contactors.

DESCRIPTION—The test set consists of transformer and associated circuitry which provides a means of interfacing a head telephone set with repeatered and nonoperated circuits. A pull-to-talk key is provided for transmitter cut-in, cut-out, and for continuity tests. A W2BH cord is provided for connecting to the talk pair and a W2CN cord for connecting to a 147C amplifier.

AUXILIARY APPARATUS—One KS-6570 battery must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-020-120, 634-040-503, and 634-200-502.

Note: A 52AC head telephone set and a W2DC cord are available in the 6084 test set and the 84A test set is part of the 6084 test set.

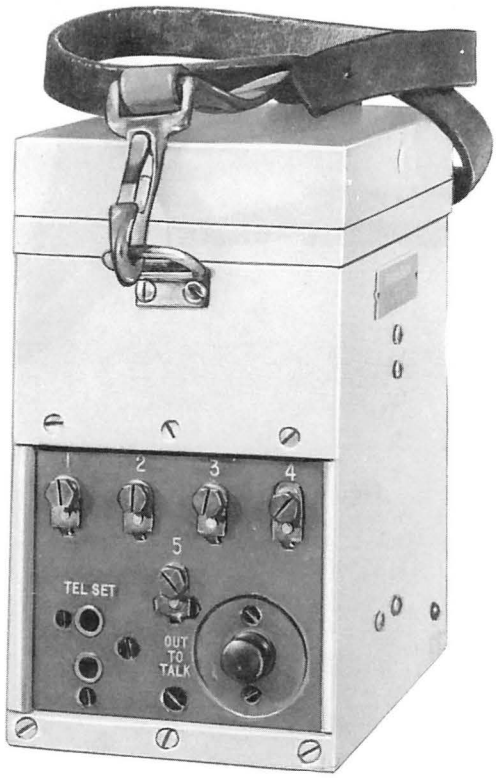


Fig. 7—84A Test Set

91A TEST SET

3.08 See Fig. 8.

CATEGORY—Audio amplifier kit.

USE—For use as a receiver in identifying wires or fault locating in toll and exchange cables where the signal frequency is approximately 500 Hz.

DESCRIPTION—The set consists of a 147C tuned amplifier, a W2BJ cord (equipped with a 347B plug, test clip, and 513A tool), and a W2FT cord equipped with a 723A receiver and a 15A headband. These components are housed in a KS-14132 carrying case. A 528 or 716B receiver may be substituted for the 723A receiver.

AUXILIARY APPARATUS—Two KS-14368 batteries and one KS-14773 battery are required for the 147B amplifier but must be ordered separately. Only one KS-14368 battery is needed for the 147C amplifier.

REFERENCE—Additional information is contained in Section 106-300-100.

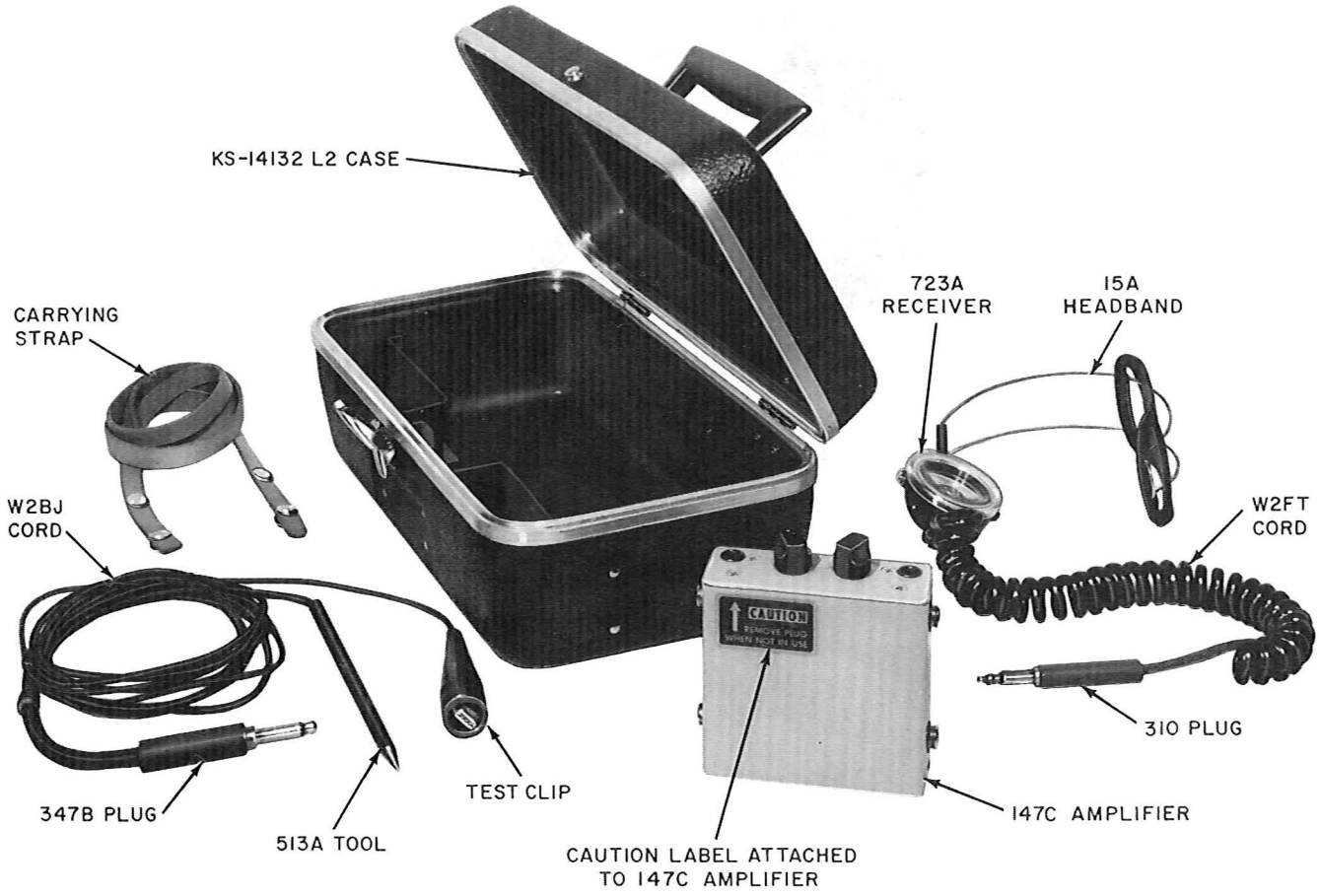


Fig. 8—91A Test Set

93B TEST SET

3.09 See Fig. 9.

CATEGORY—High sensitivity exploring coil.

USE—Locating path and depth of buried cables.

DESCRIPTION—Consists of a coil mounted in a plastic case equipped with a carrying strap, two spirit levels, and a W2CG cord terminated in a 347B plug. The coil has an inductance of approximately 6 henrys.

AUXILIARY APPARATUS—The set utilizes a tracing current supplied by a signal generator such as a 138A, 146A, or 76-type test set and requires a 147-type amplifier.

REFERENCE—Additional information is contained in Sections 106-350-100 and 634-220-500.

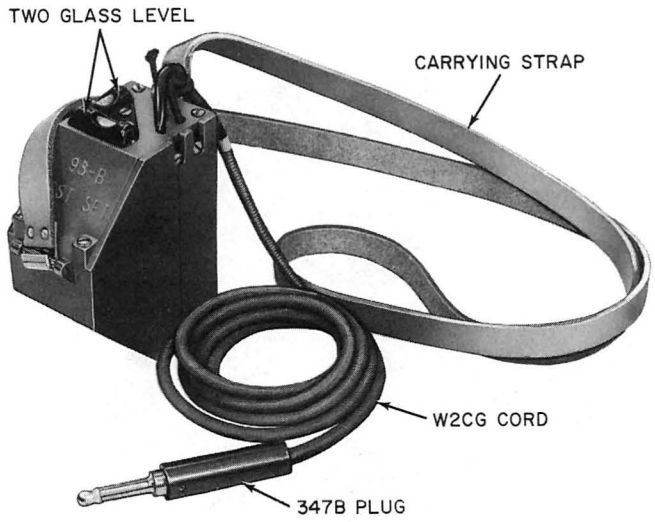


Fig. 9—93B Test Set

95C TEST SET

3.10 See Fig. 10.

CATEGORY—Hand-held exploring coil.

USE—Locating conductor troubles in long or loaded cables.

DESCRIPTION—Consists of a low impedance exploring coil potted in case of insulating material and equipped with a 4-1/2 foot long 2-conductor cord terminated in a 347A plug.

AUXILIARY APPARATUS—99B test set

REFERENCE—Additional information is contained in Sections 106-340-105 and 634-305-513.

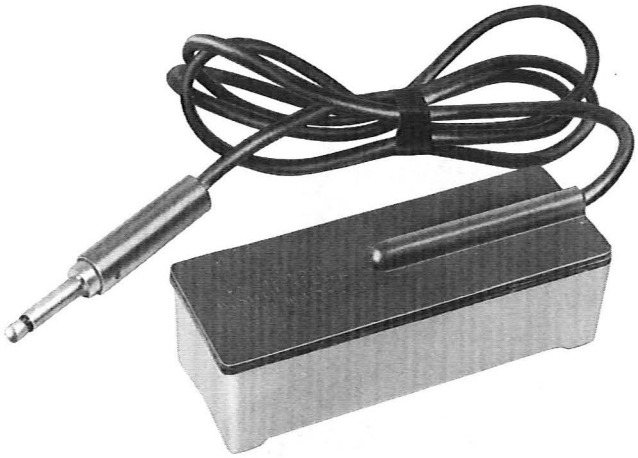


Fig. 10—95C Test Set

99B TEST SET

3.11 See Fig. 11.

CATEGORY—Tuned amplifier detector.

USE—Locating conductor faults in long or loaded cables.

DESCRIPTION—A portable, battery operated test set consisting of a vacuum tube tuned amplifier which is designed to respond to a 10- or 20-Hz input signal and to provide an audible signal to a receiver. A sensitivity control is provided on the front panel which varies the gain of the amplifier.

AUXILIARY APPARATUS—Two KS-14495 batteries and two KS-14369 batteries are required and must be ordered separately. A 15A headband attached to a 723A receiver with a W2FT cord that is terminated in a 310 plug is used in conjunction with the test set.

REFERENCE—Additional information is contained in Sections 106-340-105 and 634-305-513.

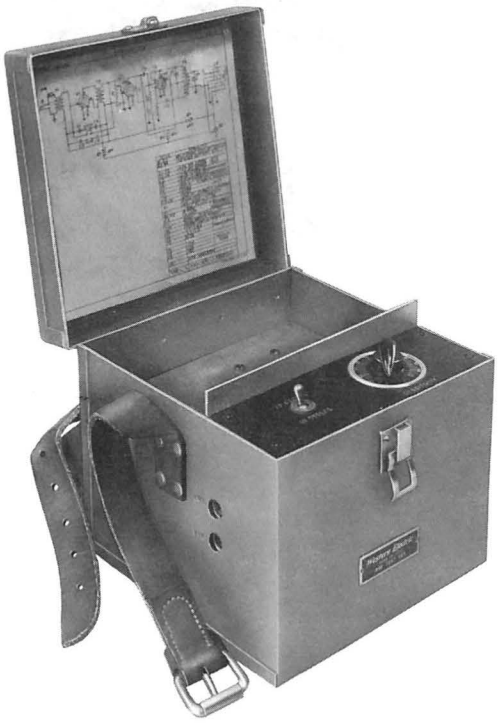


Fig. 11—99B Test Set

100C COMMUNICATION SET

3.12 See Fig. 12.

CATEGORY—Communications.

USE—For voice communication over the 4-wire employee order circuits of the L4 or L5 coaxial system.

DESCRIPTION—A portable, battery operated set consists of a 2600 Hz oscillator, amplifier, a 53R headset, a 15-foot test cable, and a 2-foot adapter cable. Three locking-type lever switches and the volume control switch provide the desired mode of operation.

AUXILIARY APPARATUS—Six KS-6522 batteries are required but must be ordered separately. The AT-7888 speaker can be used with, but is not furnished with, the set and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-020-114.

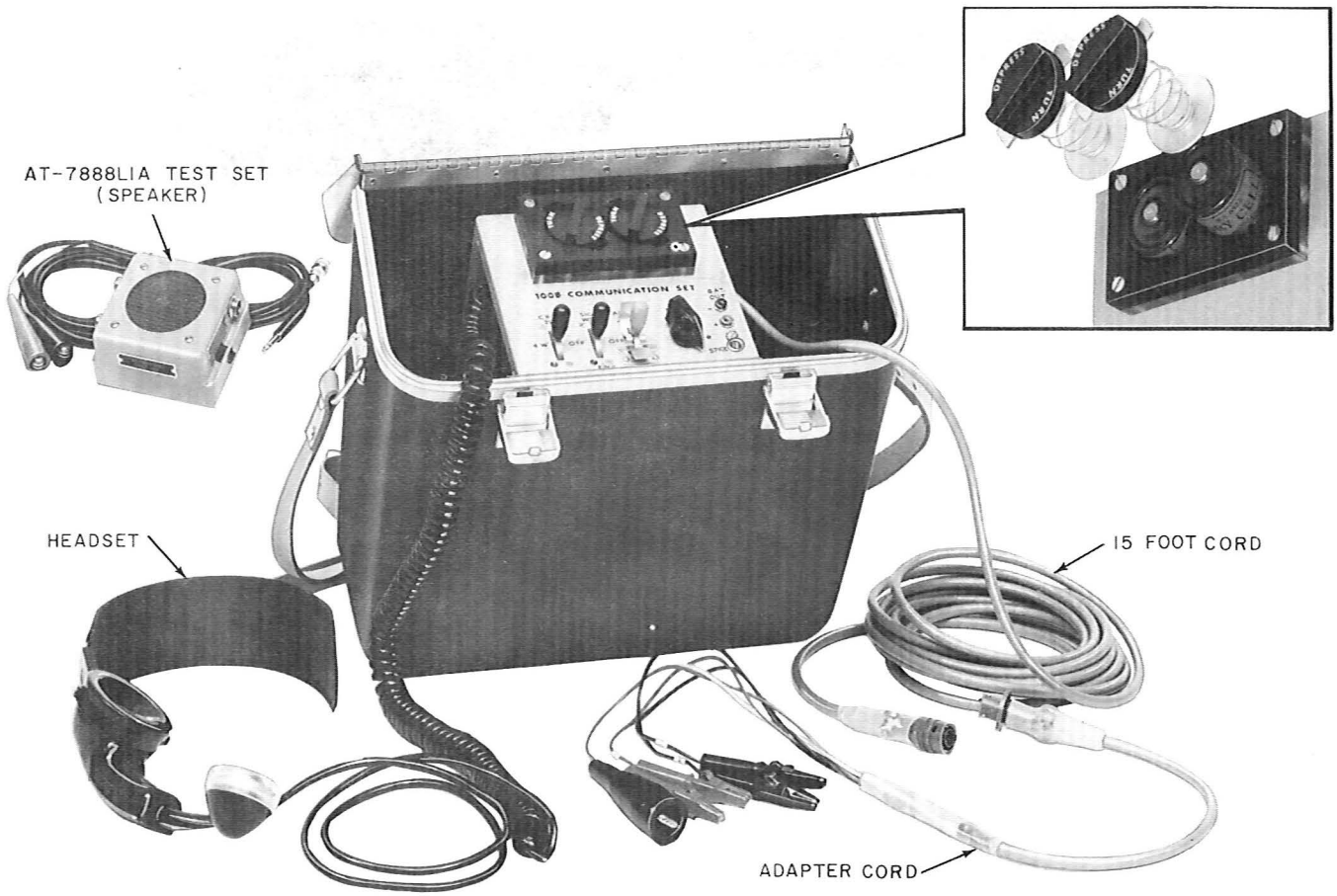


Fig. 12—100C Communication Set

101B TEST SET

3.13 See Fig. 13.

CATEGORY—Hand-held exploring coil.

USE—Locating conductor troubles.

DESCRIPTION—The set consists of two balanced windings potted in a resin block. The windings are connected in series opposition to minimize power noise pick-up. The effective inductance of the two windings is approximately 100 millihenrys and the coils are shunted by a 0.01 microfarad capacitor to reduce radio frequency pick-up. The coil is equipped with a 6-foot cord which terminates in a 347A plug.

AUXILIARY APPARATUS—Intended for use with the 147-type amplifier and a 500-Hz tracing current generator such as the KS-14103 test set.

REFERENCE—Additional information is contained in Sections 106-340-115 and 634-305-505.

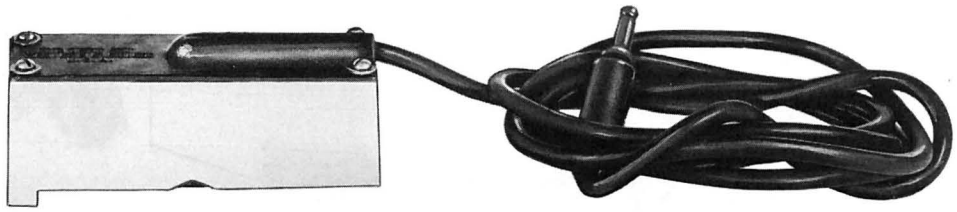


Fig. 13—101B Test Set

105D TEST SET

3.14 See Fig. 14.

CATEGORY—Exploring coil—high voltage protected.

USE—Locating faults in aerial cable from ground level.

DESCRIPTION—The set contains two balanced coils connected in series opposition and potted in a resin block that is mounted on a platform with a rubber bumper. This assembly is mounted to a corrugated section which is flexible to permit positioning the coil against the cable sheath. An insulated extension handle, which can be coupled to a tree pruner extension section, is used to position the test set. The effective inductance of the set is 100 millihenrys and is shunted by a 0.01 microfarad capacitor to reduce radio frequency pick-up. The 22-foot W3AM cord from the coils is terminated in a 347A plug and the overall assembly is tested for a dielectric strength at 10,000 volts ac.

AUXILIARY APPARATUS—Intended for use with a 147-type amplifier and a 500-Hz tracing current generator, such as KS-14103 test set.

REFERENCE—Additional information is found in Section 106-340-115.

Note: An annual retest is required to ensure dielectric strength.

Fig. 14—105D Test Set

106A TEST SET

3.15 See Fig. 15.

CATEGORY—Exploring coil—high voltage protected.

USE—Determining direction to fault for grounds, shorts, or crosses in open wire circuits.

DESCRIPTION—Consists of an exploring coil assembly in a housing of insulating material. The coil unit is connected by a 6-foot cord to a switch box unit which contains a pushbutton key to connect either of two coils to an output jack.

AUXILIARY APPARATUS—Intended for use with the 107-type test set.

REFERENCE—Additional information is contained in Sections 106-400-100 and 623-810-501.

Note: An annual retest is required to ensure adequate dielectric strength.

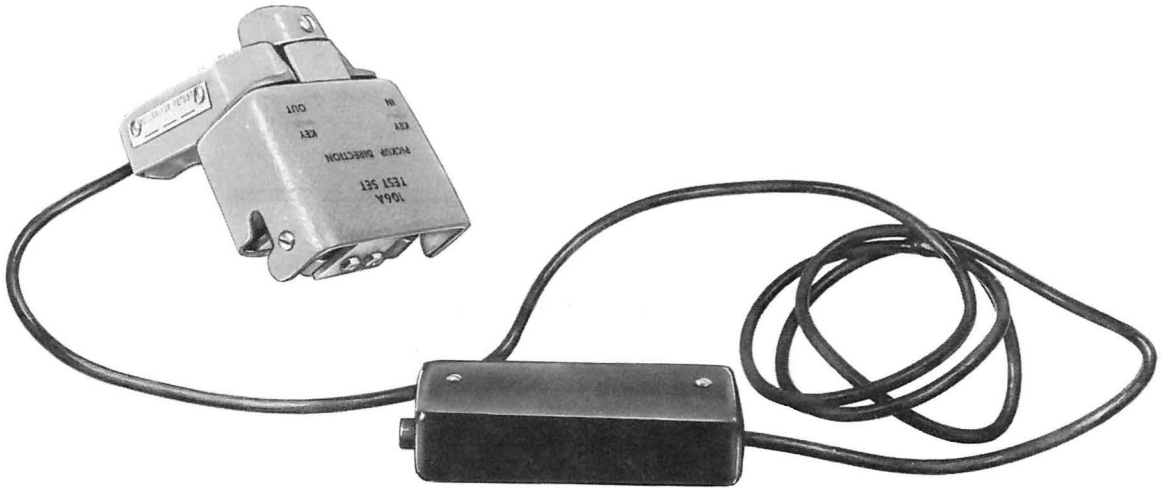


Fig. 15—106A Test Set

107A TEST SET

3.16 See Fig. 16.

CATEGORY—Signal generator and communications set.

USE—Provides local and common battery talking facilities with 20- and 135-Hz ringing capability for use on open wire lines. The 20- and 135-Hz signals can be used for directional fault locating with 106A test set.

DESCRIPTION—A portable test set with a hand-operated ringing generator that produces either a 20- or 135-Hz ringing signal. The set has a filter so that it can be used on carrier equipped lines and it provides a battery supply for powering a head telephone set. The test set is tested to ensure adequate dielectric strength at voltages up to 10,000 volts ac.

AUXILIARY APPARATUS—One KS-6570 battery and 53N head telephone set are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-400-100 and 623-810-500.

Note: An annual retest of this test set is required to ensure adequate dielectric strength.

Fig. 16—107A Test Set

108A TEST SET

3.17 See Fig. 17 and 18.

CATEGORY—Remote controlled stepping switch.

USE—Wire identification in working nonworking cables.

DESCRIPTION—A portable test set consisting mainly of a stepping switch and associated control circuitry. The stepping switch can be advanced to any one of 100 positions by means of a remote control unit. These 100 positions appear in 10 jack fields which can be connected to 100 pairs on the main frame. Terminals are provided for connection to an external identification signal generator which is then connected through the stepping switch out on to the selected pair. The set is normally used in a central office and provisions are made for signaling and talking between the central office unit and the remote control unit. A 48-volt central office battery should be used but, if not available, a KS-6948 battery may be used.

AUXILIARY APPARATUS—The 109A test set, 1B cord kit, 2P30A cord, 2P34A cord, and AT-7972B test cord are required and must be ordered separately. An identification signal generator is also required, such as 76C test set.

REFERENCE—Additional information is contained in Sections 106-310-120 and 634-210-507.

Fig. 17—108A Test Set

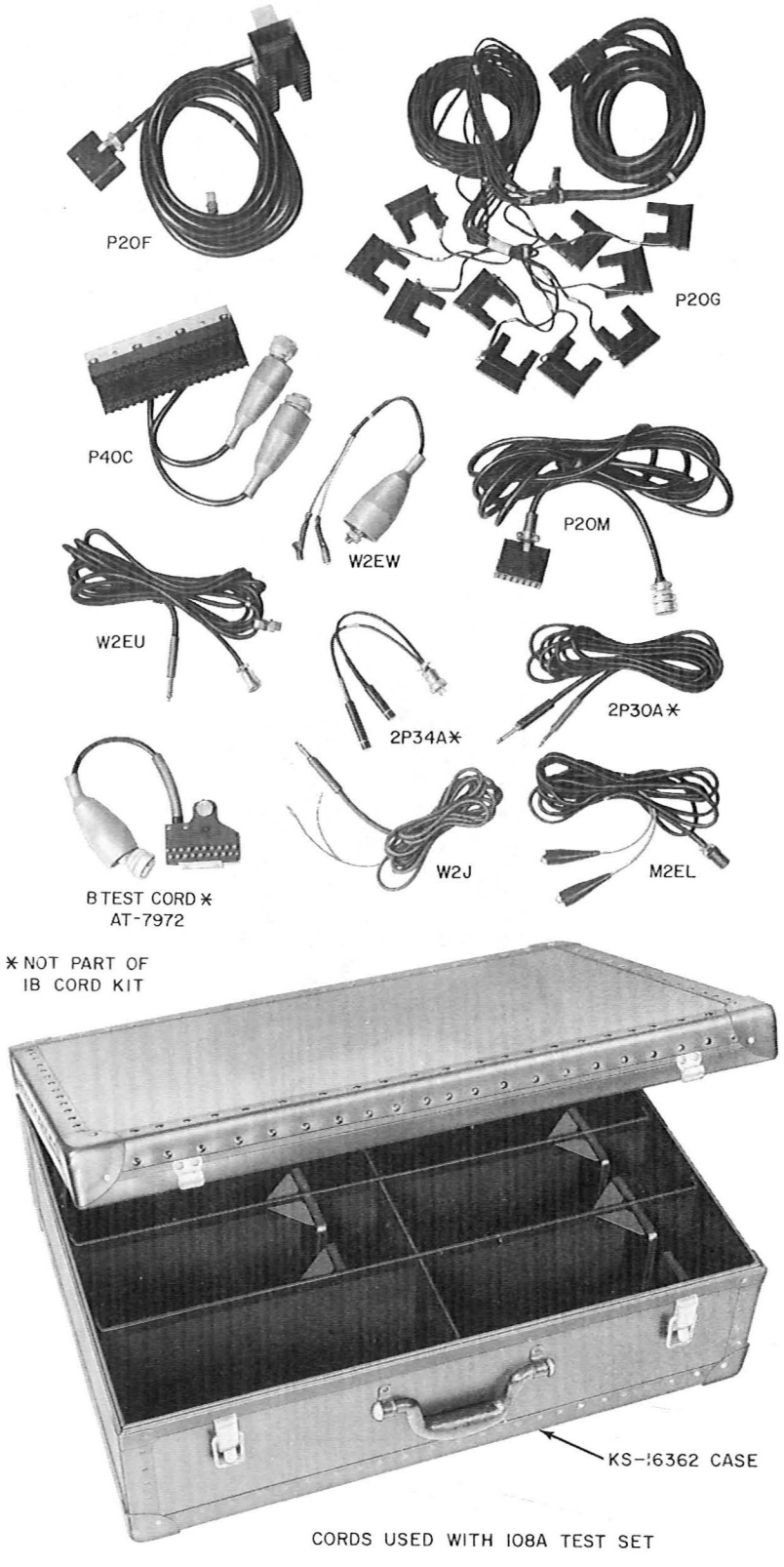


Fig. 18—Cords Used With 108A Test Set

109A TEST SET

3.18 See Fig. 19.

CATEGORY—Remote contol unit for wire identification test set.

USE—Remote control of the 108A test set for identifying wires in working and nonworking cables by one employee.

DESCRIPTION—Consists of a dial and associated circuitry for controlling the 108A test set by dial pulses. Provisions are made for connection to a 147-type amplifier, a 723A receiver, and a 52E head telephone set. The set is arranged for suspension from a strand or cable. A permanently attached W2AF cord is used for connection to the control pair in the cable and a P3E cord (terminated at each end with a 310 plug) is provided for connecting to the 147-type amplifier.

AUXILIARY APPARATUS—91A test set and 52E head telephone set.

REFERENCE—Additional information is contained in Sections 106-310-120 and 634-210-507.

Fig. 19—109A Test Set

110A TEST SET

3.19 See Fig. 20.

CATEGORY—Exploring coil—high voltage protected.

USE—Locating conductor faults in long or loaded cables from ground level.

DESCRIPTION—The set contains a high dielectric strength coil encased in a plastic guard that is mounted on a platform with a rubber bumper. This assembly is mounted on a flexible section which facilitates positioning the coil against the cable sheath. An insulated extension handle which can be coupled to a tree pruner extension section is used to position the test set. A hook is provided on the extension handle for hanging on a strand or cable. The 22-foot W3AM cord from the coil is terminated in a 347A plug and this assembly is tested to ensure dielectric strength at voltages up to 10,000 volts ac.

AUXILIARY APPARATUS—99B test set.

REFERENCE—Additional information is contained in Sections 106-340-105 and 634-305-513.

Note: An annual retest of the test set is required to ensure adequate dielectric strength.

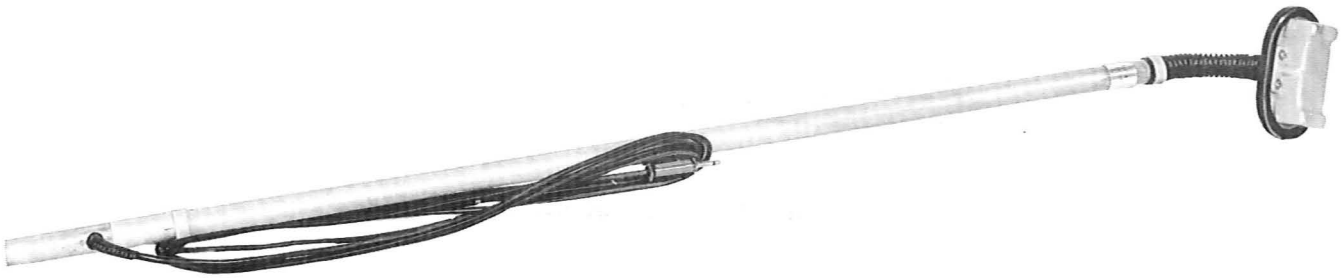


Fig. 20—110A Test Set

111A TEST SET

3.20 See Fig. 21.

CATEGORY—Exploring probe (electric field)—high voltage protected.

USE—For locating opens in unshielded aerial cables multiple line wire from the ground level.

DESCRIPTION—The set consists of a probe (pick-up plate) which is mounted in a guide assembly to facilitate proper alignment of the probe with a cable or multiple line wire. Contained within the assembly are four high voltage capacitors that provide up to 10,000 volt protection to the user. The guide assembly is attached to a fiberglass extension tube with a piece of heavy duty rubber tubing. Tree pruner extension handles may be used to position the set. A 22-foot W3AM cord (terminated in a 347A plug) is attached to the fiberglass extension. The extension is equipped with a hook for suspending the test set from multiple line wire.

AUXILIARY APPARATUS—Intended for use with 147-type amplifier and a 500-Hz signal generator such as a 114A test set.

REFERENCE—Additional information is contained in Sections 106-450-100 and 624-800-300.

> ***Note:*** An annual retest of this test set is required to ensure adequate dielectric strength.

Fig. 21—111A Test Set

113B TEST SET

3.21 See Fig. 22.

CATEGORY—Pair loss measurements—650 kHz.

USE—Provides pair loss measurements between two adjacent repeater sections in a T1 carrier route. (Two sets are required to make the test.)

DESCRIPTION—The 113B test set is portable, battery operated, and self-contained in an aluminum carrying-case with handles. The 113B test set is 11 inches long, 7 inches high, and 7 inches wide. The test set weight is about 4-1/4 pounds.

AUXILIARY APPARATUS—Two mercury-type batteries (Mallory 302478) are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 640-525-220.

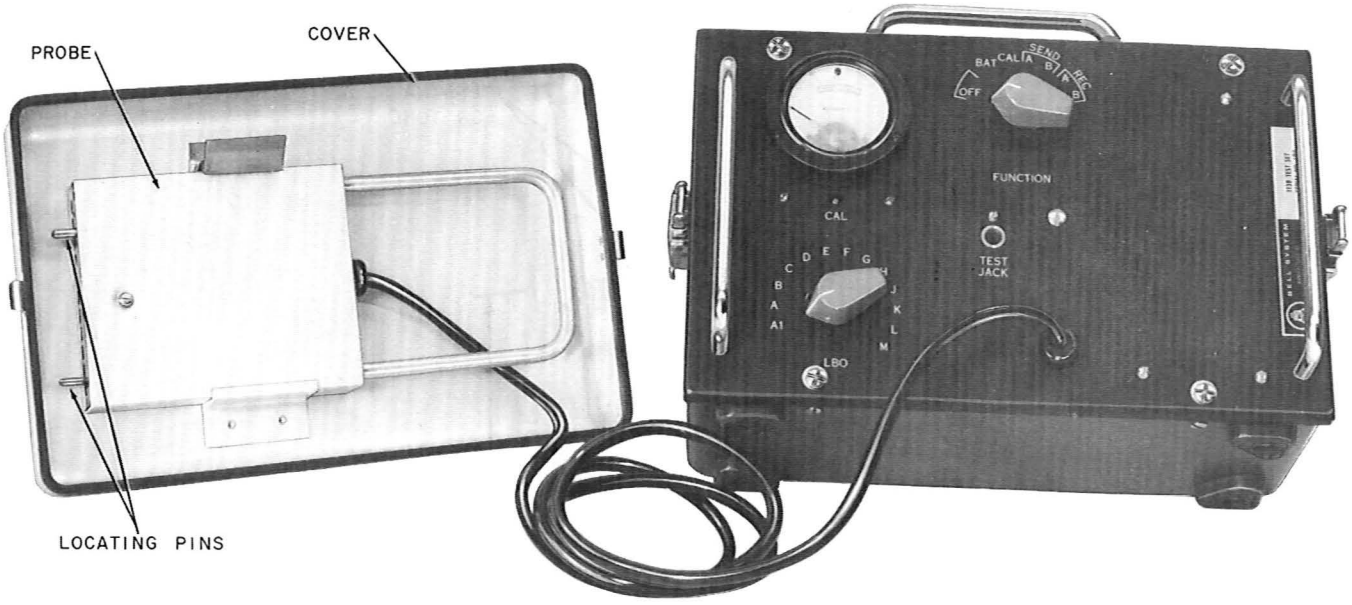


Fig. 22—113B Test Set

114A TEST SET

3.22 See Fig. 23.

CATEGORY—Signal generator—500 Hz.

USE—Signal supply for locating open conductors in multiple line wire and for identifying cable pairs.

DESCRIPTION—A portable, battery-operated set contains a transistor oscillator and associated circuitry to produce a 500-Hz signal interrupted at approximately ten times per second. The signal produced by this test set is equivalent to that available from the low terminals of the 76C test set.

AUXILIARY APPARATUS—Two Mallory mercury batteries TR-135R (6.5 volts) are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-450-101 and 624-800-300.

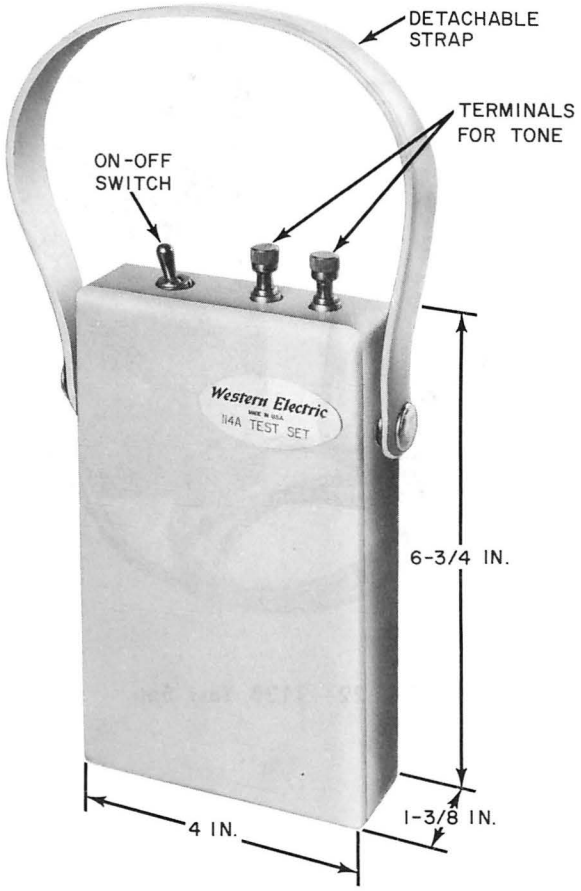


Fig. 23—114A Test Set

115A TEST SET

3.23 See Fig. 24.

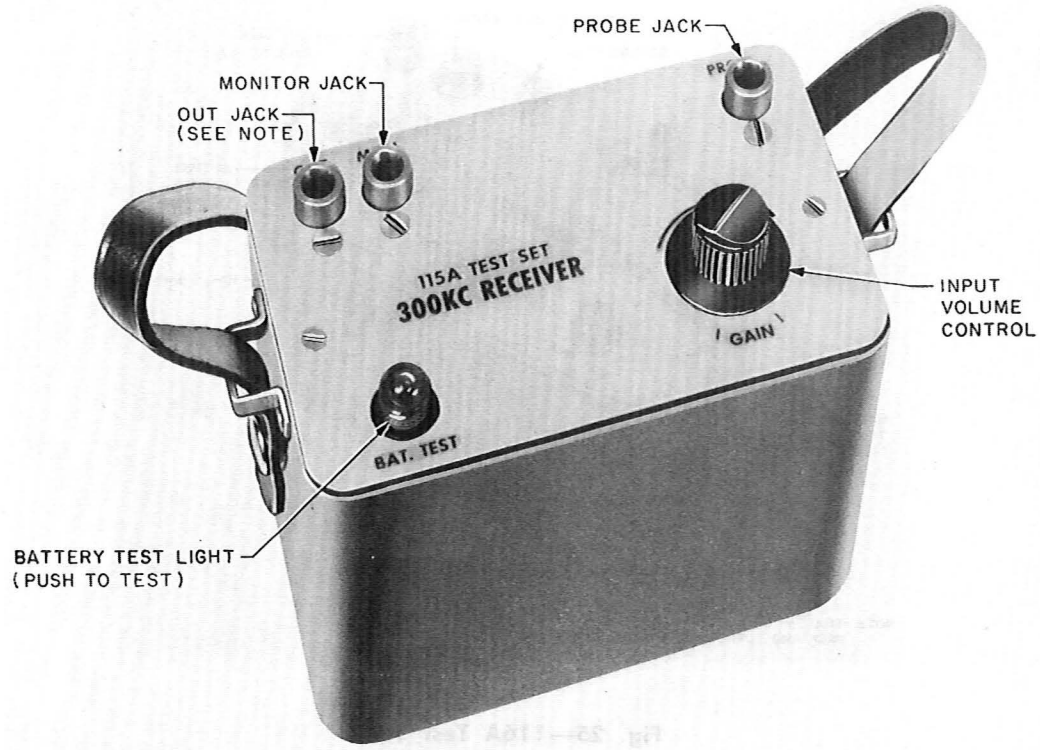
CATEGORY—Tuned amplifier detector.

USE—Wire identification on J, K, L, N, ON/K, ON1/K, ON2/K, P1, and PIT carrier circuits.

DESCRIPTION—This portable, battery-operated test set consists of a tuned transistor amplifier that detects a 300-kHz input signal and translates that signal to an audio frequency output. The level of the output can be adjusted by a gain control. Provision is made for monitoring the signal by means of a standard telephone headset, cord, and plug. This set is part of the 120A test set.

AUXILIARY APPARATUS—Two KS-14368 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-310-116, 634-355-501, and 634-355-503.



NOTE: RECEIVER IS TURNED ON BY INSERTING PLUG INTO OUT JACK AND TURNED OFF BY REMOVING PLUG.

Fig. 24—115A Test Set

116A TEST SET

3.24 See Fig. 25.

CATEGORY—300-kHz signal generator.

USE—A signal generator for wire identification on J, K, L, N, ON/K, ON1/K, ON2/K, P1, and P1T carrier circuits.

DESCRIPTION—This portable, battery-operated test set contains a crystal-controlled transistorized oscillator which generates a 300-kHz signal current. The level of the output can be controlled by means of a HI-LO switch and an output level control. This set is part of the 120A test set.

AUXILIARY APPARATUS—Four KS-14368 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-310-116, 634-355-501, and 634-355-503.

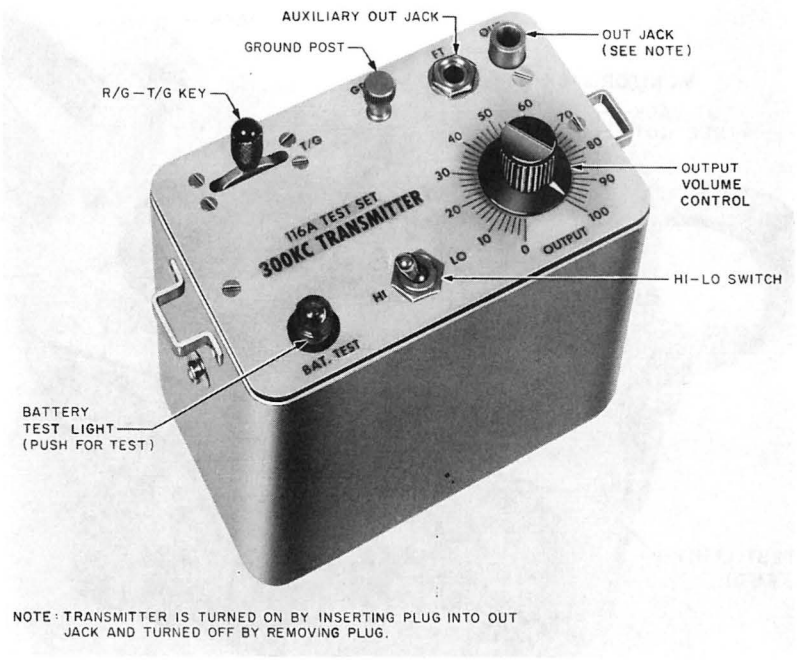


Fig. 25—116A Test Set

120A TEST SET

3.25 See Fig. 26.

CATEGORY—Wire identification test set.

USE—Identifying wire pairs and cables containing J, K, L, N, ON/K, ON1/K, ON2/K, P1, and P1T carrier circuits.

DESCRIPTION—This test set consists of a 115A test set, 116A test set, W2CC test cord, W1AN test cord, three W2FC cords, and a W2EH cord equipped with a 572B tool. All are contained in a KS-19237 L1 carrying case.

AUXILIARY APPARATUS—Two standard telephone headsets and a jumper wire equipped with alligator clips are required for testing and must be provided separately.

REFERENCE—Additional information is contained in Sections 106-310-116, 634-355-501, and 634-355-503.

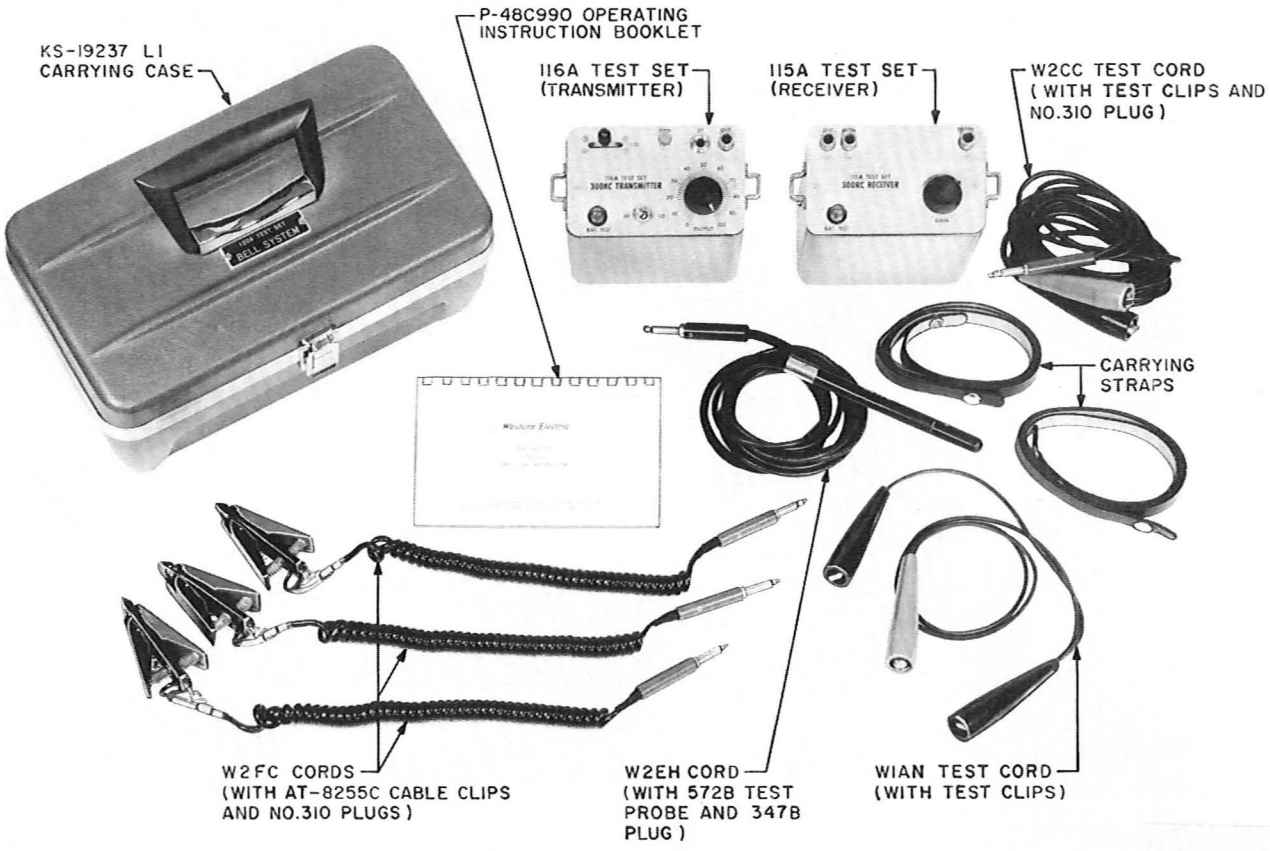


Fig. 26—120A Test Set

138A TEST SET

3.26 See Fig. 27.

CATEGORY—Tone generator.

USE—For fault locating and pair identification where noise and power influence is a problem.

DESCRIPTION—The unit generates the same stable 577.5-Hz tone as the ***KS-14103 L6 breakdown test set*** and at approximately the same output level. Like the KS-14103 L6, the unit is particularly useful in toning operations where noise or power influence is a problem. The tone is interrupted at a rate adjustable by a control on the front panel. It is a compact battery-powered unit weighing approximately 4 pounds and measuring approximately 7 inches by 6 inches by 6 inches.

AUXILIARY APPARATUS—A KS-14196 battery is required and must be ordered separately.

REFERENCE—Additional information is contained in Section 634-200-450.

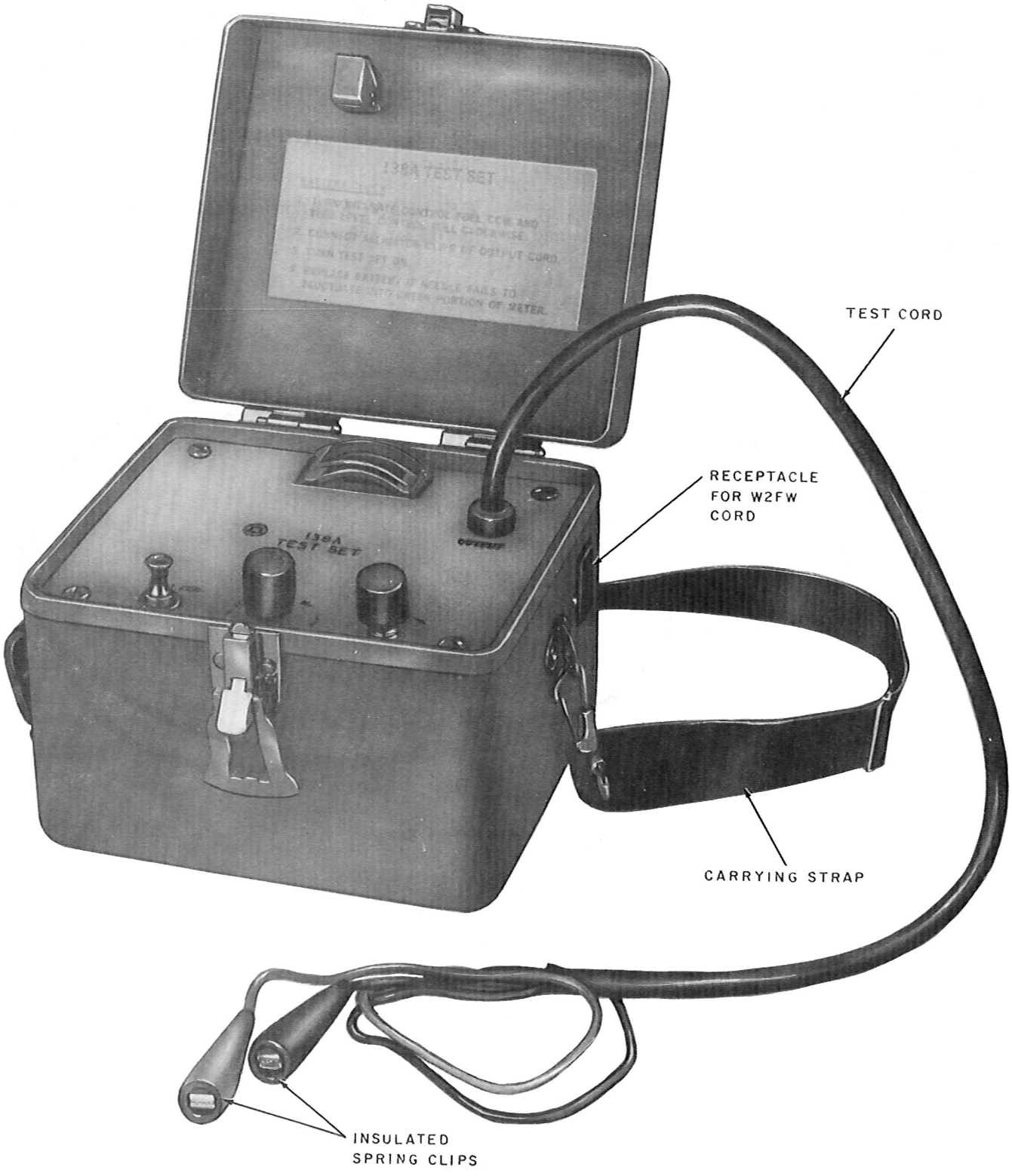


Fig. 27—138A Test Set

139A TEST SET

3.27 See Fig. 28.

CATEGORY—Communications.

USE—To test and trouble shoot individual conductors or pairs in cables, inside wire, drop wire, etc.

DESCRIPTION—The test set is 2-1/4 inches by 5-1/2 inches by 1 inch in size and weighs approximately one pound. It consists primarily of a talk-tone-off 3-position slide switch, ringing detector lamp, printed wiring board, two KS-14368 (or equivalent) batteries, two test leads with clips, and a lanyard for hanging or carrying.

AUXILIARY APPARATUS—Two KS-14368 batteries.

REFERENCE—Additional information is contained in 105-242-100.

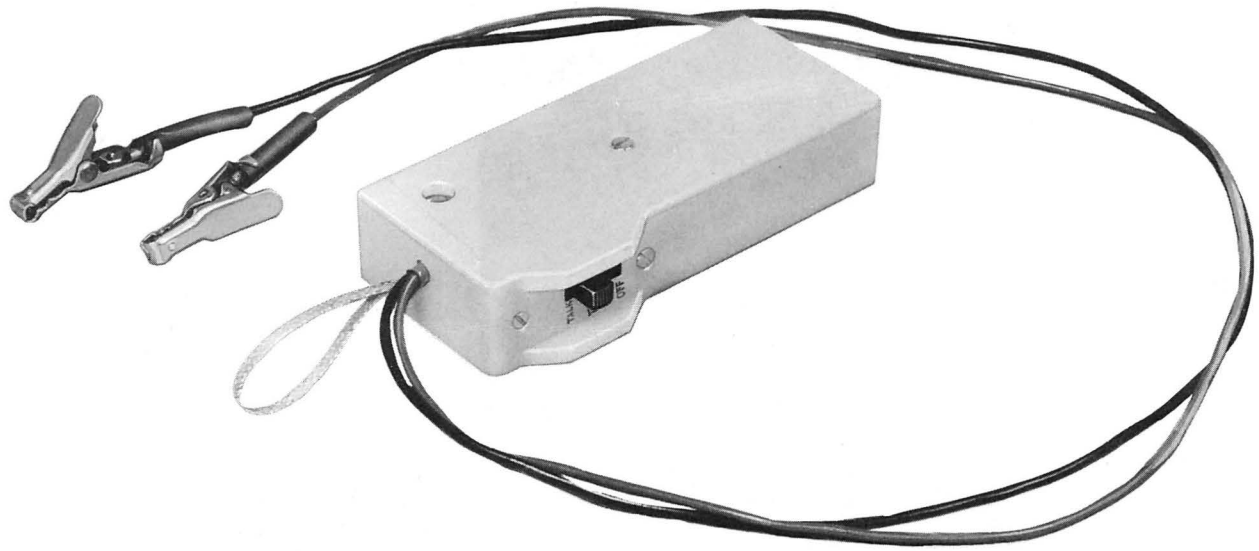


Fig. 28—139A Test Set

145A TEST SET

3.28 See Fig. 29.

CATEGORY—General Purpose

USE—For trouble locating cable pair crosses, shorts, opens, and grounds; for detecting presence of one or more ringers; for measuring length of facility up to 20 kft; for supplying tone for cable or wire identification; for measuring ac or dc voltage; for measuring line current; for measuring pair loss at 1 kHz; and for measuring both metallic and longitudinal noise.

DESCRIPTION—The set is 5 inches by 8 inches by 6 inches and weighs approximately 3-1/2 pounds. A strap is provided to carry or suspend the test set during use. The set is battery powered requiring two 9-volt Eveready No. 226 batteries or equivalent.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is provided in Section 105-245-100.

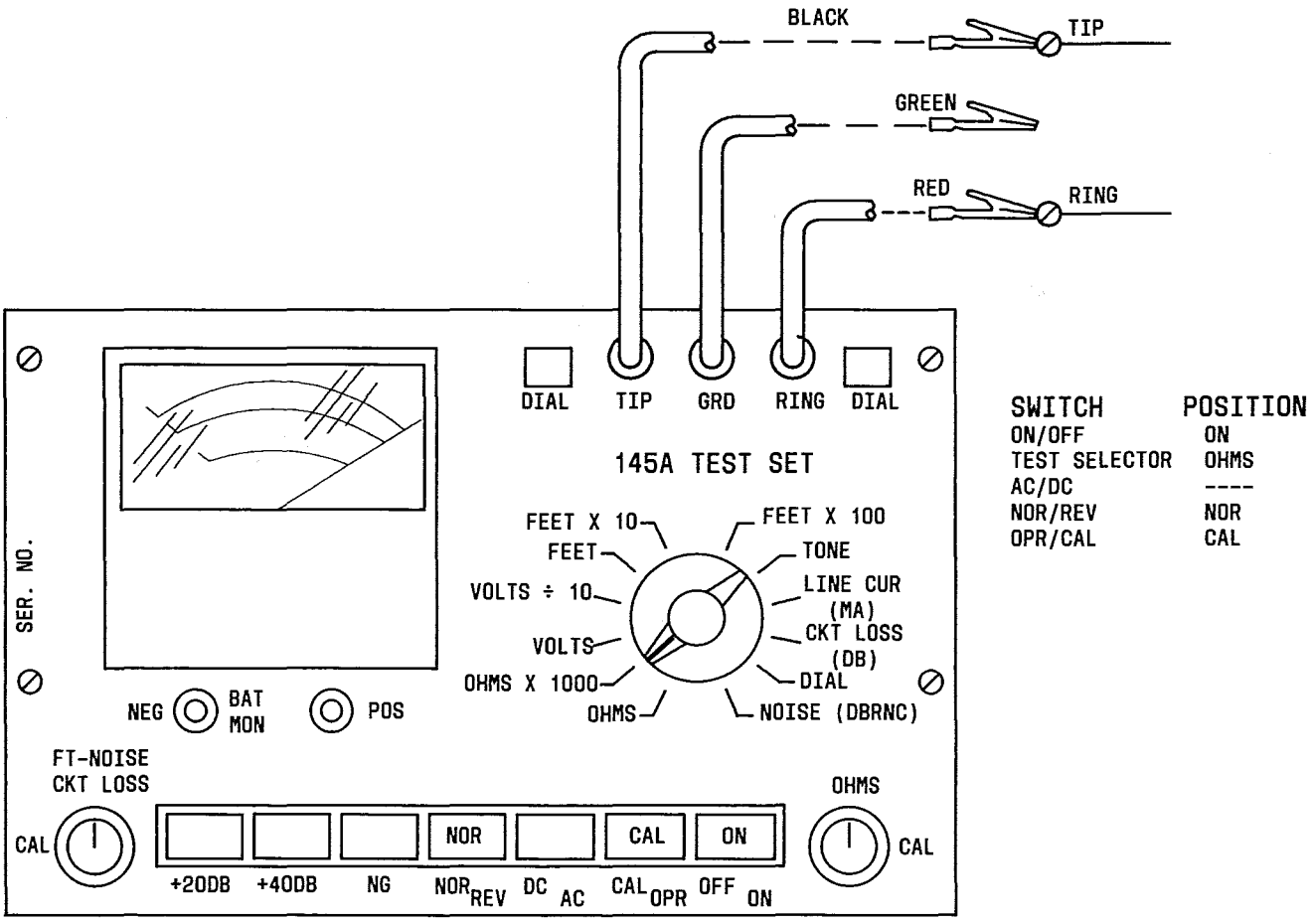


Fig. 29—145A Test Set

146A TEST SET

3.29 See Fig. 30.

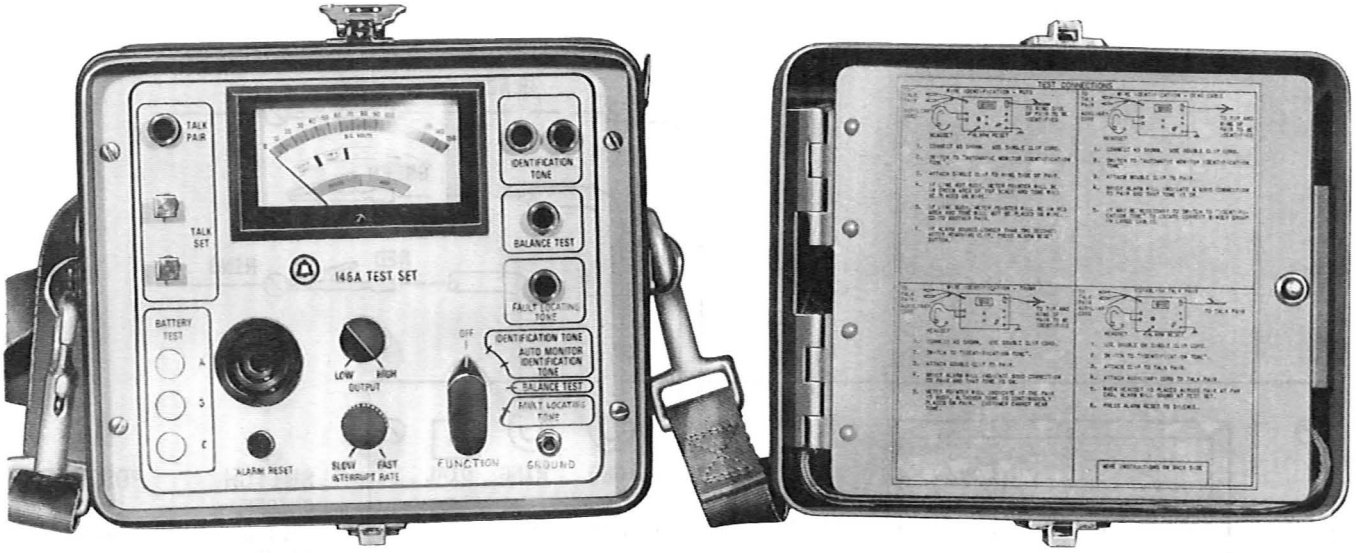
CATEGORY—Signal generation and communications set.

USE—Wire identification, construction testing, and fault locating.

DESCRIPTION—The 146A test set is a lightweight, solid state, battery-powered test set with four test cords. The battery compartment presents ready access to dry cell batteries.

AUXILIARY APPARATUS—Three NEDA 1603, two NEDA 1604, and one NEDA 1602 batteries.

REFERENCE—Additional information is contained in Section 634-200-504.



FRONT PANEL

INSIDE OF TOP COVER. COVER FORMS STORAGE COMPARTMENT FOR TEST CORDS.

Fig. 30—146A Test Set

147C AMPLIFIER

3.30 See Fig. 31.

CATEGORY—Tuned audio amplifier.

USE—Conductor identification or conductor fault location where an amplifier, selectively tuned to 500 Hz, is required.

DESCRIPTION—A portable, battery-operated test set that consists of a transistorized amplifier that is tuned to give maximum response at 500 Hz. It is equipped with a volume control and a two-position input selector switch. The selector switch provides for a low-impedance input (COIL) when used with exploring coils and a high-impedance input (PROBE) when used with exploring probes. The 147C amplifier is intended to facilitate testing and fault locating work with exploring coils and other testing apparatus where an amplifier is required. The amplifier with the 313A tool is intended for identifying wires in toll and exchange cables without making metallic contact with the conductors at a splice or sheath opening.

AUXILIARY APPARATUS—A KS-14773 battery is required and must be ordered separately. A 1097A filter is used to eliminate noise.

REFERENCE—Additional information is contained in Section 106-300-100.

> ***Note:*** This amplifier is part of the 91A test set and additional auxiliary apparatus may be found in that set.

Fig. 31—147C Test Set

152A TEST SET

3.31 See Fig. 32.

CATEGORY—Construction testing.

USE—For testing cable pairs as they are spliced with the 710 connector system.

DESCRIPTION—The 152A test set automatically tests cable pairs as they are spliced with the 710 connector system. It will identify defective pairs caused by splicing errors or cable faults such as opens, shorts, grounds, cross, splits, and splice-backs. The cutter-pressers provide the interface connection between the 710 connector module being spliced and the test set. The 152A test set is a lightweight solid-state battery-powered test set equipped with two test cords, a ground lead, a charger for charging the batteries, and a cover containing a built-in self-testing device. The test set is housed in an aluminum case that is 9 inches wide, 7 inches deep, 10 inches high, and weighs 12.5 pounds with batteries.

AUXILIARY APPARATUS—Modified cutter-pressers.

REFERENCE—Additional information is contained in Section 634-400-530.

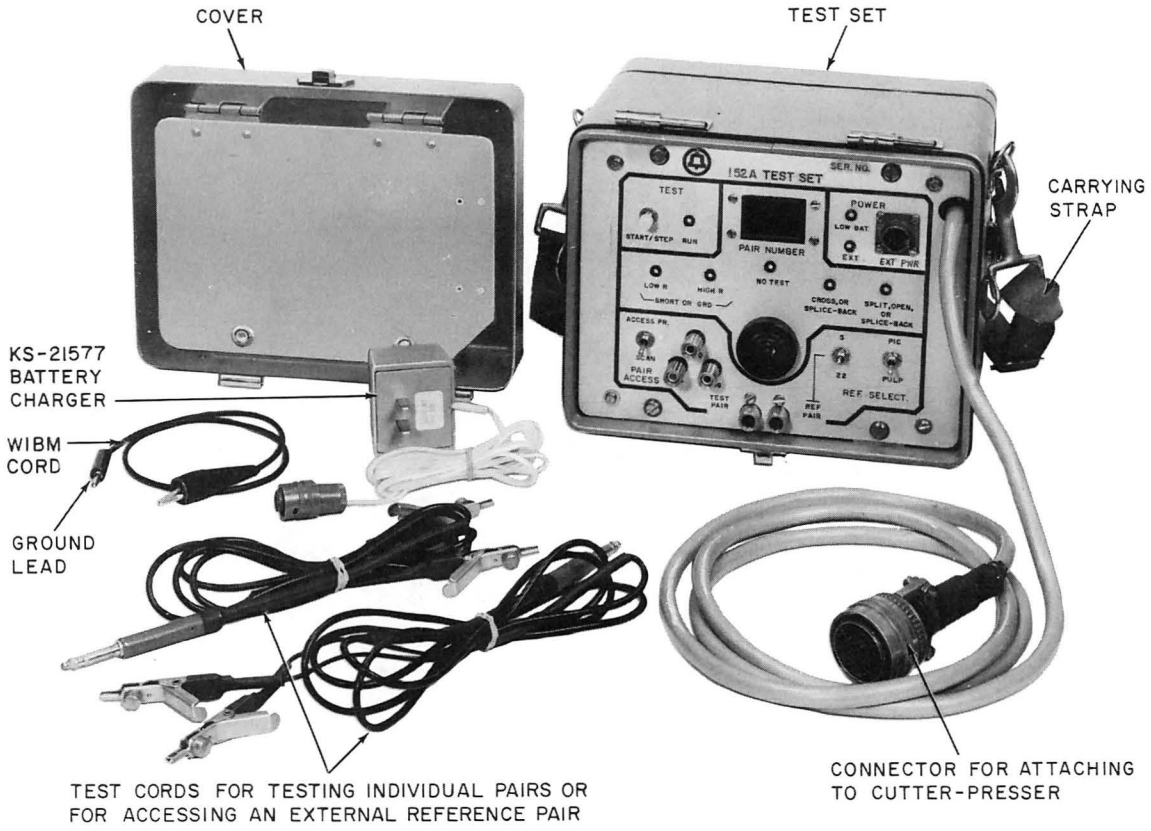


Fig. 32—152A Test Set

170A TEST SET

3.32 See Fig. 33.

CATEGORY—Buried service wire fault locator.

USE—To trace service wires and to pinpoint shield or conductor grounds in service wire.

DESCRIPTION—The 170A buried service wire test set consists of a 171A test set (receiver) and a 172A test set (transmitter) contained in a high density polyethylene case 14 inches by 10 inches by 7-1/2 inches and weighs approximately 10 pounds. There is space provided in the case for two Eveready* No. 509 dry-cell batteries for powering the transmitter. Three KS-21618 batteries (Eveready No. 222 or 216) are required for the 171A test set (RCVR).

*Registered trademark of Union Carbide Corp.

AUXILIARY APPARATUS—Two 6-volt KS-14371 (Eveready No. 509) batteries, one AT-8681B ground probe. One B probe test cord (normally part of AT-8681B ground probe), and one auxiliary ground test cord (supplied with 170A). An AT-8681B ground probe must be used when the test set is in the fault-locating mode of operation.

REFERENCE—Additional information is contained in Section 634-315-502.

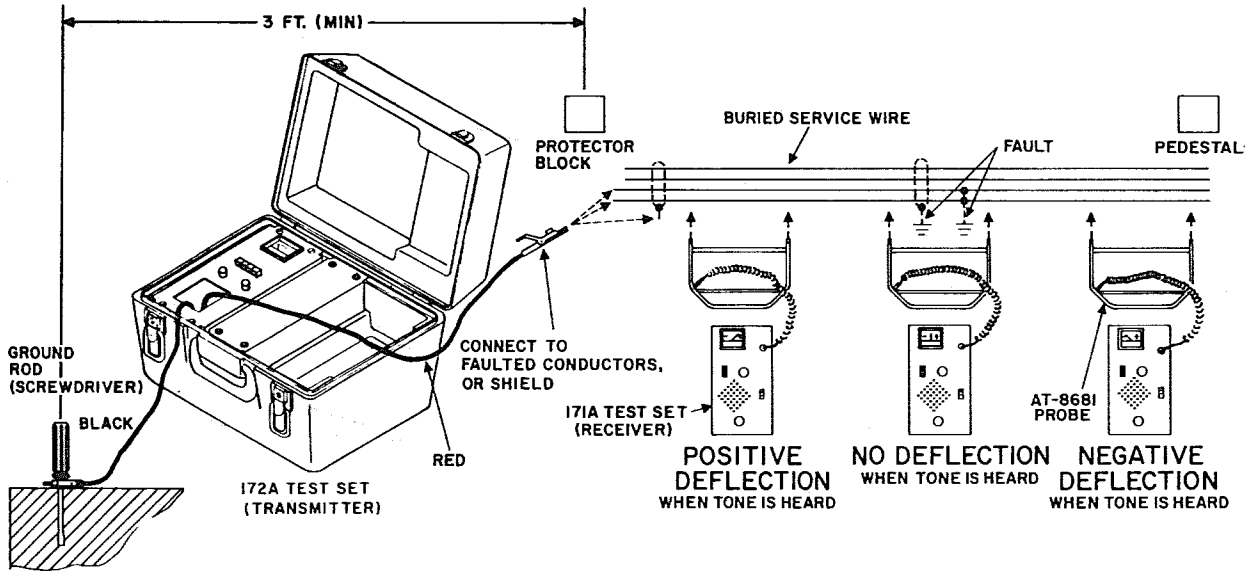


Fig. 33—170A Test Set

173A TEST SET

3.33 See Fig. 34.

CATEGORY—Buried cable sheath fault locator.

USE—To pinpoint the location of sheath damage in buried PIC cables. In addition, this test set can be used to identify the desired cable, trace its path, and indicate its depth.

DESCRIPTION—The 173A sheath fault locator test set consists of a 174A test set (receiver), a 175A test set (transmitter), a ground rod and associated test cords. Two Eveready No. 773 batteries, or equivalent, are required in the 174A receiver and two 6-volt KS-14371 (NEDA 915 or Eveready 510) batteries are required in the 175A transmitter.

AUXILIARY APPARATUS—An AT-8681B ground probe must be used when the test set is in the fault locating mode of operation.

REFERENCE—Additional information is contained in Section 634-315-501.

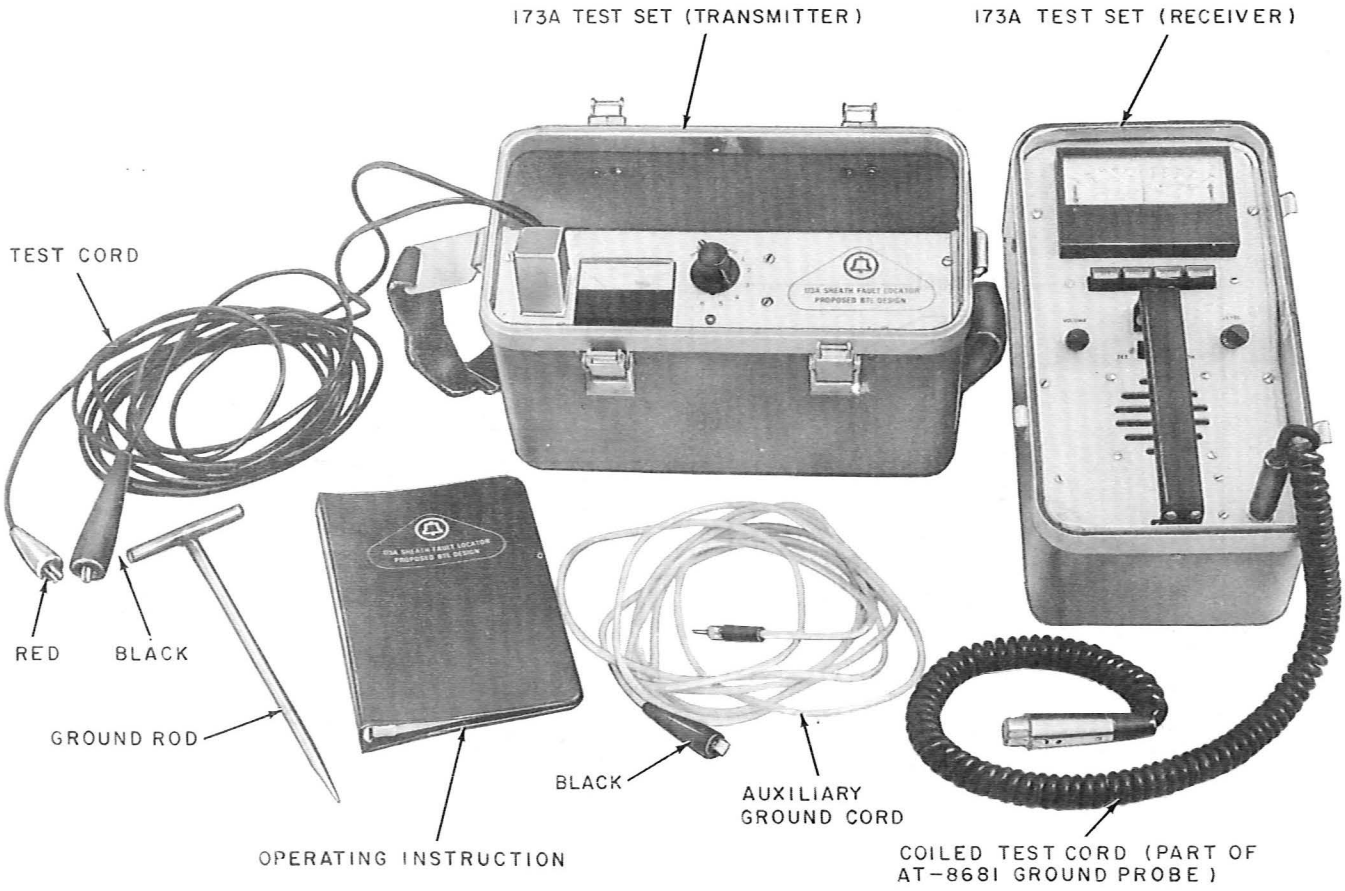


Fig. 34—173A Test Set

188A TEST SET

3.34 See Fig. 35.

CATEGORY—To test for hazardous voltages in the range from 50 to 20,000 volts, 60 Hz, ac.

USE—The test set does not indicate the amount of voltage but only indicates when a hazardous voltge is present.

DESCRIPTION—The 188A test set is a yellow plastic two-piece unit that weighs approximately 1 pound. The front housing contains the carbide probe tip and the light emitting diode (LED) voltage indicators (one green and one red). Once the red flashing indicator appears, it will remain "locked up" as long as the switch is depressed. This allows the employee to remove the test set and read the LED display. The green LED indicates that the measured object is safe. The flashing red LED indicates presence of a foreign voltage.

AUXILIARY APPARATUS—The set is powered by a 9-volt alkaline battery such as Eveready 522 which is not furnished and must be ordered separately. An AT-8924 storage bag and a B bond clamp are available for use with the 188A test set and must be ordered separately.

REFERENCE—Additional information is contained in Section 081-705-102.

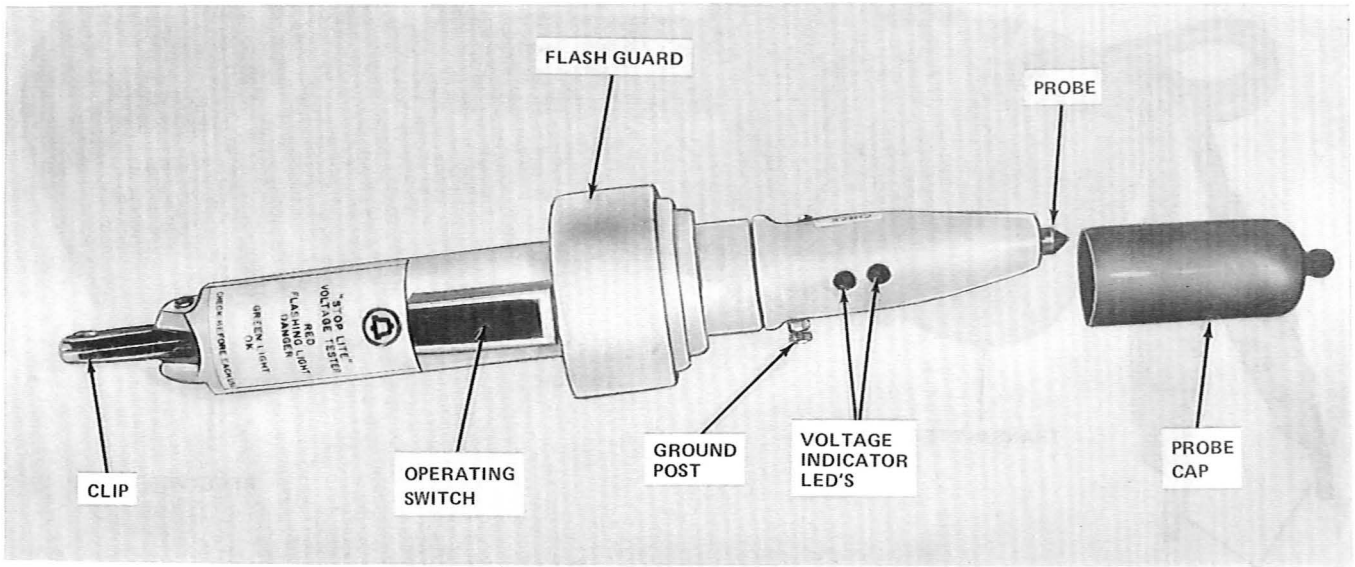


Fig. 35—188A Test Set

1013A HANDSET

3.35 See Fig. 36.

CATEGORY—Communication.

USE—To provide a full dial telephone capability for outside plant.

DESCRIPTION—The set consists of a T1 transmitter unit, LB7 receiver unit, 11A dial, and associated apparatus in a blue plastic housing with a 4-foot H2B cord equipped with two P-16E167 alligator clips. This set is equipped with a monitor-talk switch which is to be operated to the monitor position when the receiver is first bridged across the line. The set derives its operating power from the central office battery on the bridged pair.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-020-113.

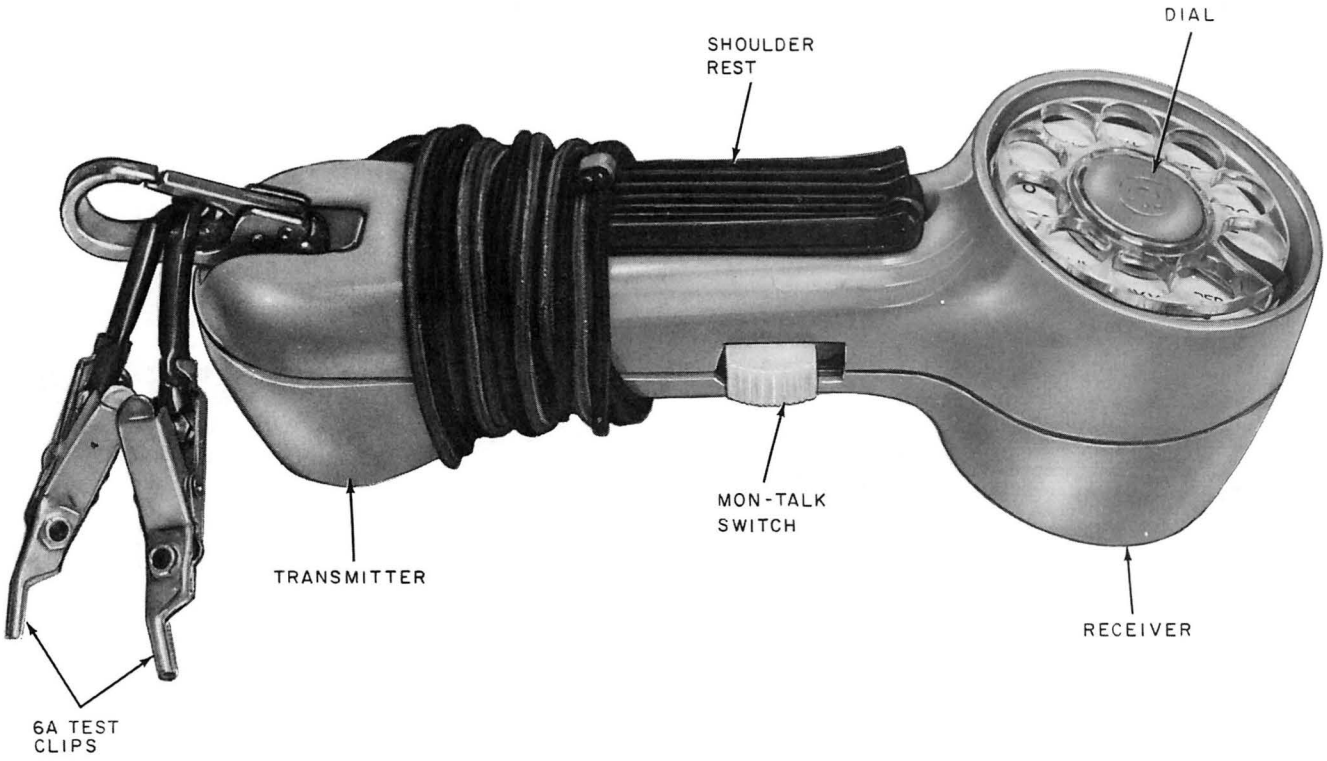


Fig. 36—1013A Handset

1097A FILTER

3.36 See Fig. 37.

CATEGORY—Noise filter.

USE—To provide a clear precise tone.

DESCRIPTION—The 1097A noise filter has an extremely narrow bandwidth precisely tuned to 577.5 Hz. It is designed as an accessory to the 147C amplifier for tone identification of cable pairs in noisy environments.

AUXILIARY APPARATUS—147C amplifier and 138A test set, KS-14103 L6 test set, or 146A test set.

REFERENCE—Additional information is contained in Sections 103-300-100, 634-020-505, and 644-104-100.

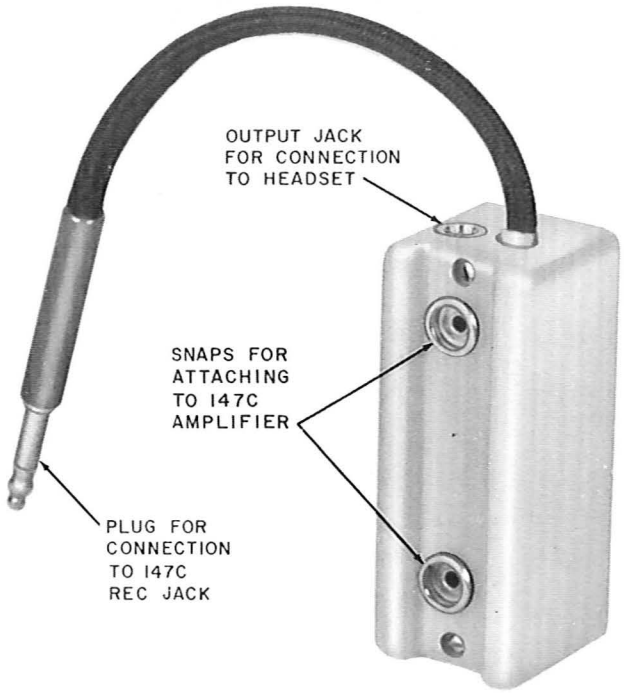


Fig. 37—1097A Filter

6084A TEST SET

3.37 See Fig. 38.

CATEGORY—Communications set and continuity tester.

USE—Talking set when testing television video loops.

DESCRIPTION—Consists of an 84A test set, one W2DC cord, and a 52AC head telephone set.

AUXILIARY APPARATUS—A KS-6570 battery is required for the 84A test set and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-020-120 and 634-200-502.

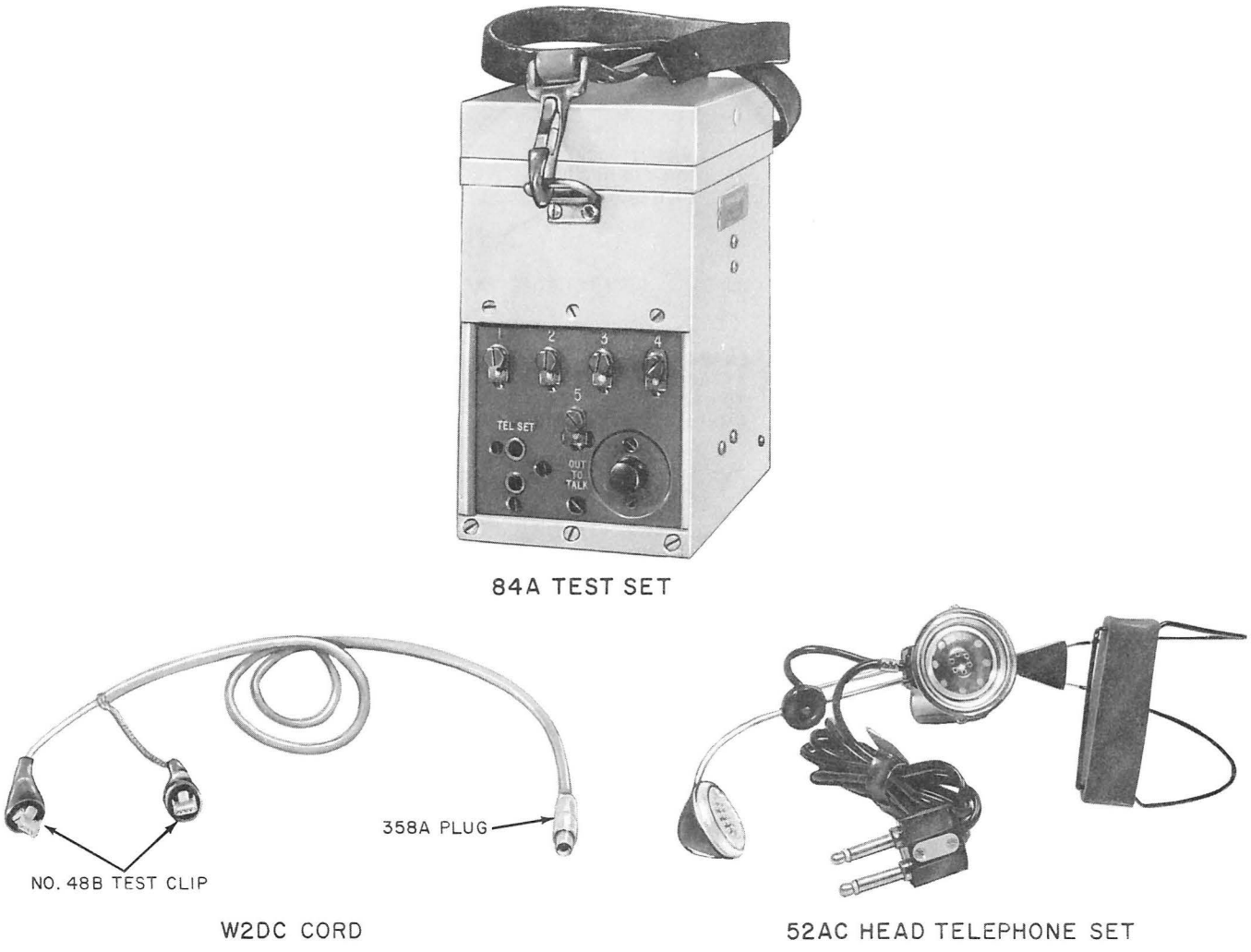


Fig. 38—6084A Test Set

6090A TEST SET

3.38 See Fig. 39.

CATEGORY—Wheatstone Bridge with high voltage supply.

USE—Installation and maintenance testing of coaxial cable in L Carrier Telephone Systems.

DESCRIPTION—This set is a composite test set consisting of a 90A test set, a KS-14086 shipping case, an AT-6795 satchel (for carrying cords and artificial line), a W1AJ cord, a W2DF cord, a W2DG cord, a W2DH cord, and a 55A artificial line. This set requires a 110 volt 60 Hz power for operation.

AUXILIARY APPARATUS—None

REFERENCE—Additional information is contained in Section 106-370-100.

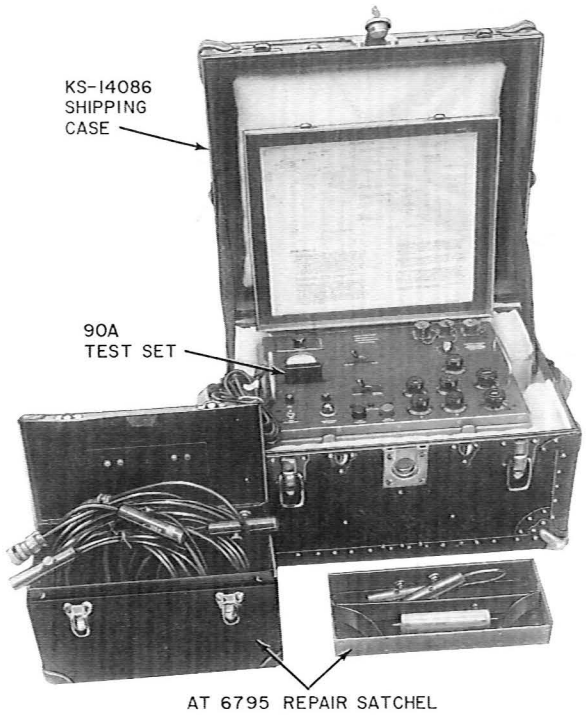


Fig. 39—6090A Test Set

AT-6491 NEEDLE POINT TEST PICK

3.39 See Fig. 40.

CATEGORY—Test pick.

DESCRIPTION—Identifying and/or testing pulp-insulated conductors at main frames or field locations.

USE—The pick consists of a fiber-insulated metal handle equipped with a 6-foot waterproof W1AB cord that is terminated in a No. 27 Universal test clip. The handle accepts a reversible test point which may be screwed into the end of the handle. One end of the reversible point has a conical tip and the other end has a group of needle points soldered into it.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-310-105.

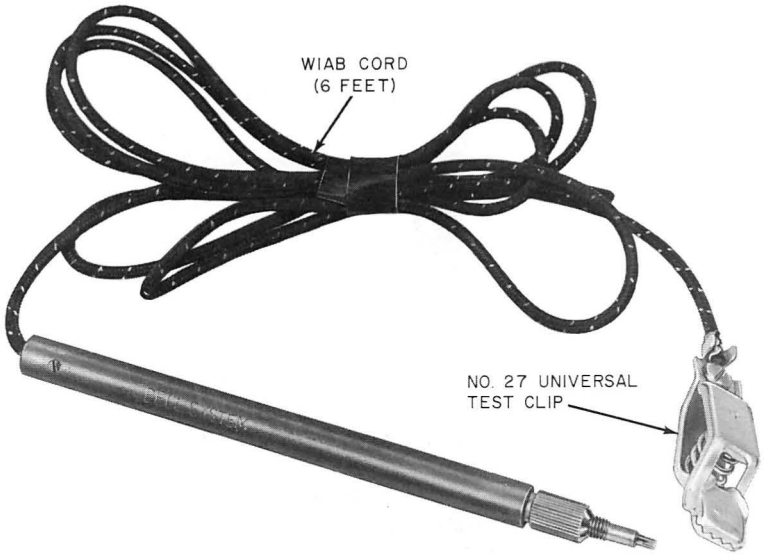


Fig. 40—AT-6491 Needle Point Test Pick

AT-7472 B TEST SET

3.40 See Fig. 41.

CATEGORY—Test point.

USE—Identifying and/or testing pairs at main frames or cable terminals.

DESCRIPTION—Consists of a fiber handle with a 6-foot W1AB cord that is terminated in a No. 48 Universal test clip. The test point has a metal contact rod with a chisel point which is surrounded by a spring-loaded insulated sleeve which, when pushed back, exposes the test point.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-315-102.

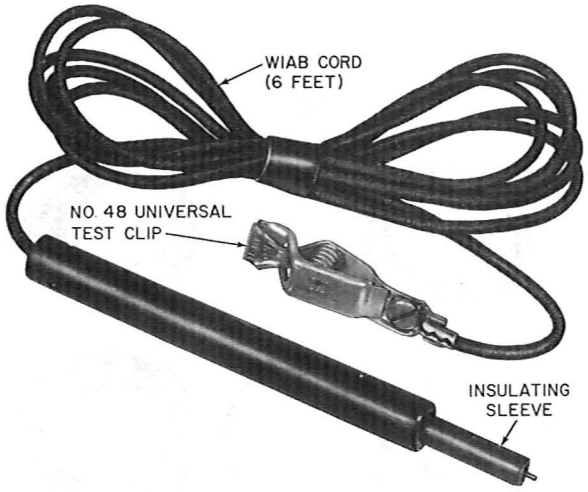


Fig. 41—AT-7472 B Test Set

AT-7888 L1A TEST SET

3.41 See Fig. 42.

CATEGORY—Communications speaker set.

USE—Intended as a substitute for a head telephone set or receiver.

DESCRIPTION—Consists of speaker with transistorized amplifier mounted in a plastic case and L5A through L12A cords to make connections to the speaker set. The gain of the amplifier may be adjusted by a volume control. Three low-impedance jacks labeled probe, mike, and line are provided.

AUXILIARY APPARATUS—Two Mallory TR-135R 6-1/2 volt batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-020-112.

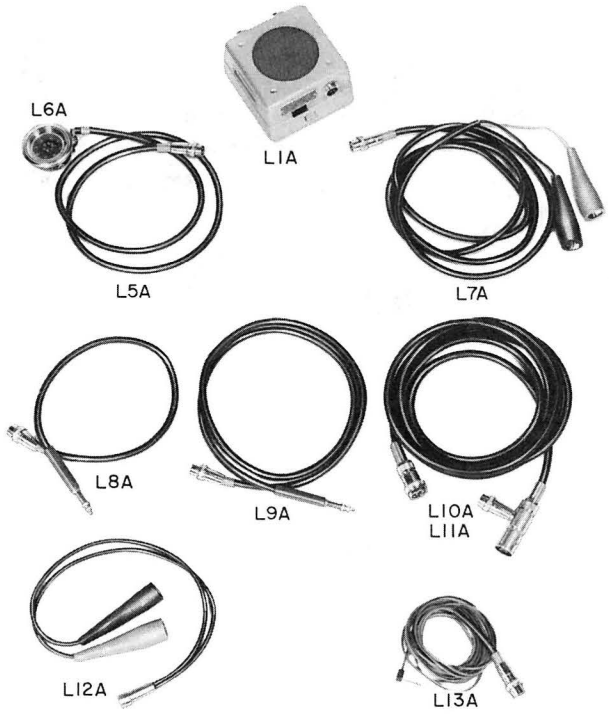


Fig. 42—AT-7888 L1A Test Set

AT-7950 B TEST CLIP

3.42 See Fig. 43.

CATEGORY—Main frame test connector.

USE—Making test connections to the test points on the left-hand side of the 121 protector or 300 connector.

DESCRIPTION—Consists of a plastic block equipped with terminal lugs which are fastened to spring clips and arranged to engage the cable pair test points of the 121 protector or the 300 connector.

AUXILIARY APPARATUS—An M2EM cord can be used with this test clip and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-315-101.

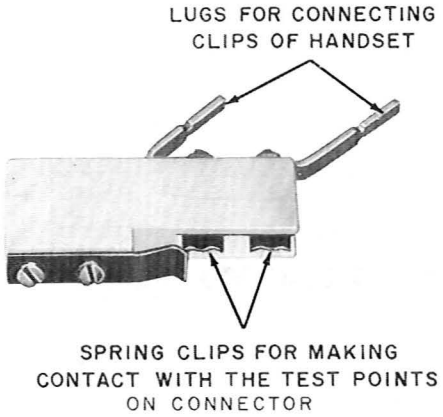


Fig. 43—AT-7950 B Test Clip

AT-8039 B PAIR IDENTIFIER

3.43 See Fig. 44.

CATEGORY—Main frame test connector.

USE—In contacting cable pair test points on 121 protector or 300 connector as part of a wire identification test.

DESCRIPTION—Consists of a plastic housing with an offset guide edge, cord, switch, and index. The offset guide edge of the housing keeps the B pair identifier properly aligned with the points on the test panel. Contact with the test points on the connector is made through spring-loaded ball bearings which permit running the identifier rapidly up or down over the test points. The clip on the end of the cord is used to connect the B pair identifier to the 52E head telephone set.

AUXILIARY APPARATUS—52E telephone set.

REFERENCE—Additional information is contained in Section 106-315-103.

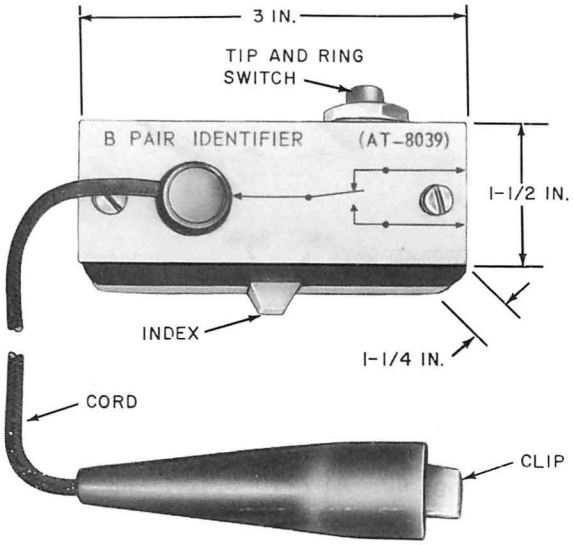


Fig. 44—AT-8039 B Pair Identifier

AT-8148 B TEST CONNECTOR

3.44 See Fig. 45.

CATEGORY—Central office main frame test connector.

USE—Connecting test apparatus to 50 consecutive pair terminations on C50, C52, E50, E52, 1177, and 1268 protector mountings.

DESCRIPTION—The connector consists of a U-shaped main support, a cam, and a lever which actuates a hinged plate and 50 push rods that press on the arms of contact supports. The contact supports are pulled together by extension coil springs which cause the contacts to press firmly against the springs on the cable side of a protector mounting. The connector is equipped with two 25 pair cable connectors for attaching a P100A or P100B cord.

AUXILIARY APPARATUS—A P100A or P100B cord is used with the connector and must be ordered separately. An AT-8230 B connector case is available for storing the test connector.

REFERENCE—Additional information is contained in Section 106-315-120.

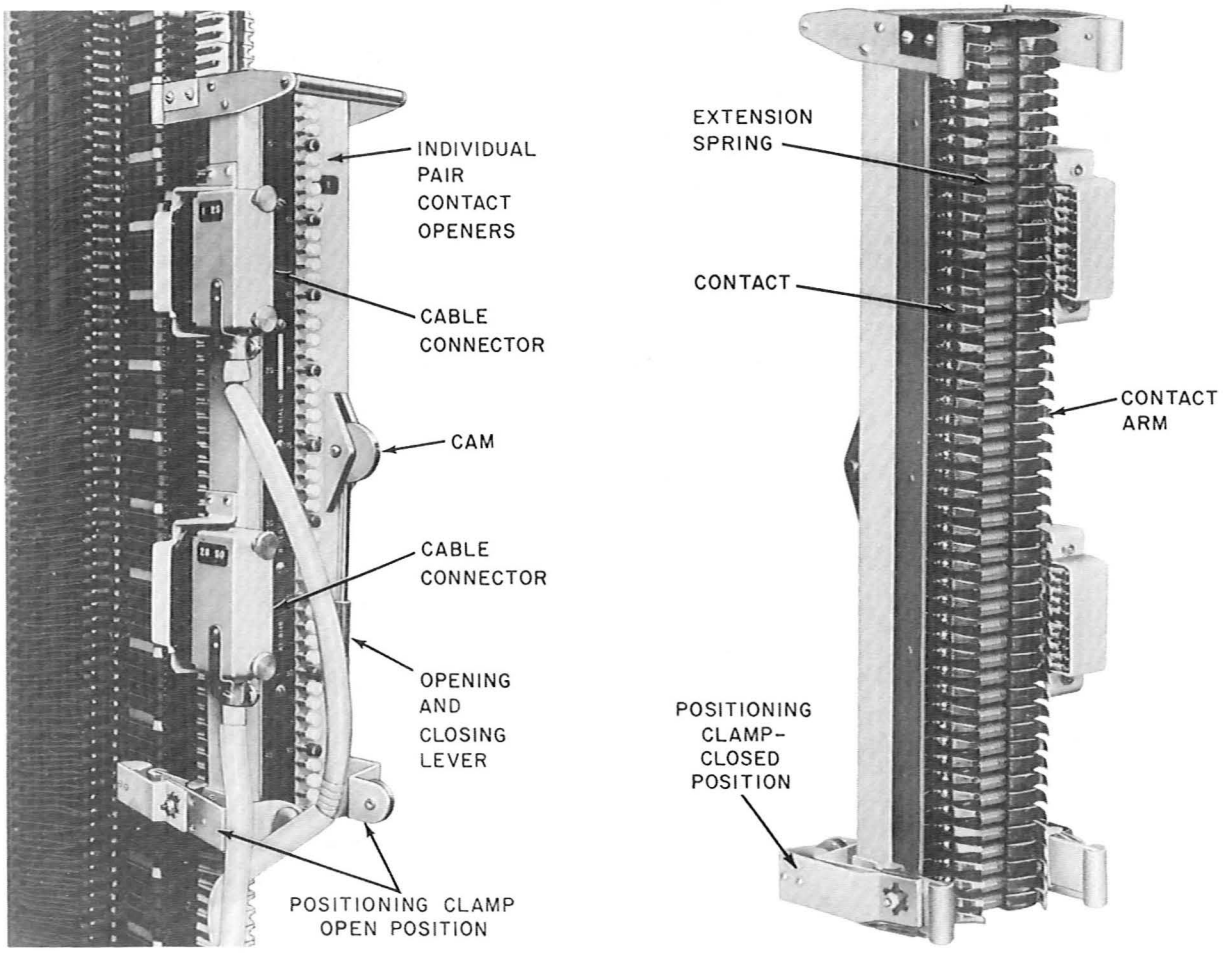


Fig. 45—AT-8148 B Test Connector

AT-8214 C TEST CONNECTOR

3.45 See Fig. 46.

CATEGORY—Central office main frame test connector.

USE—Connecting test apparatus to 50 consecutive pair terminations on 300-type connectors and 121-type protectors.

DESCRIPTION—The connector consists of a plastic baseplate containing an assembly of 100 spring-mounted plungers (50 pairs). The plungers are arranged to make positive contact with the cable pair test buttons located on the left side of the 300-type connector. The plungers make or break contact with the cable pair test buttons as desired by hand-operating individual plastic slides. The connector has two 25-pair connectors on the face for attaching P100A or P100B cords.

AUXILIARY APPARATUS—A P100A or P100B cord is required and must be ordered separately. An AT-8230 B connector case is available for storing the test connector.

REFERENCE—Additional information is contained in Section 106-315-120.

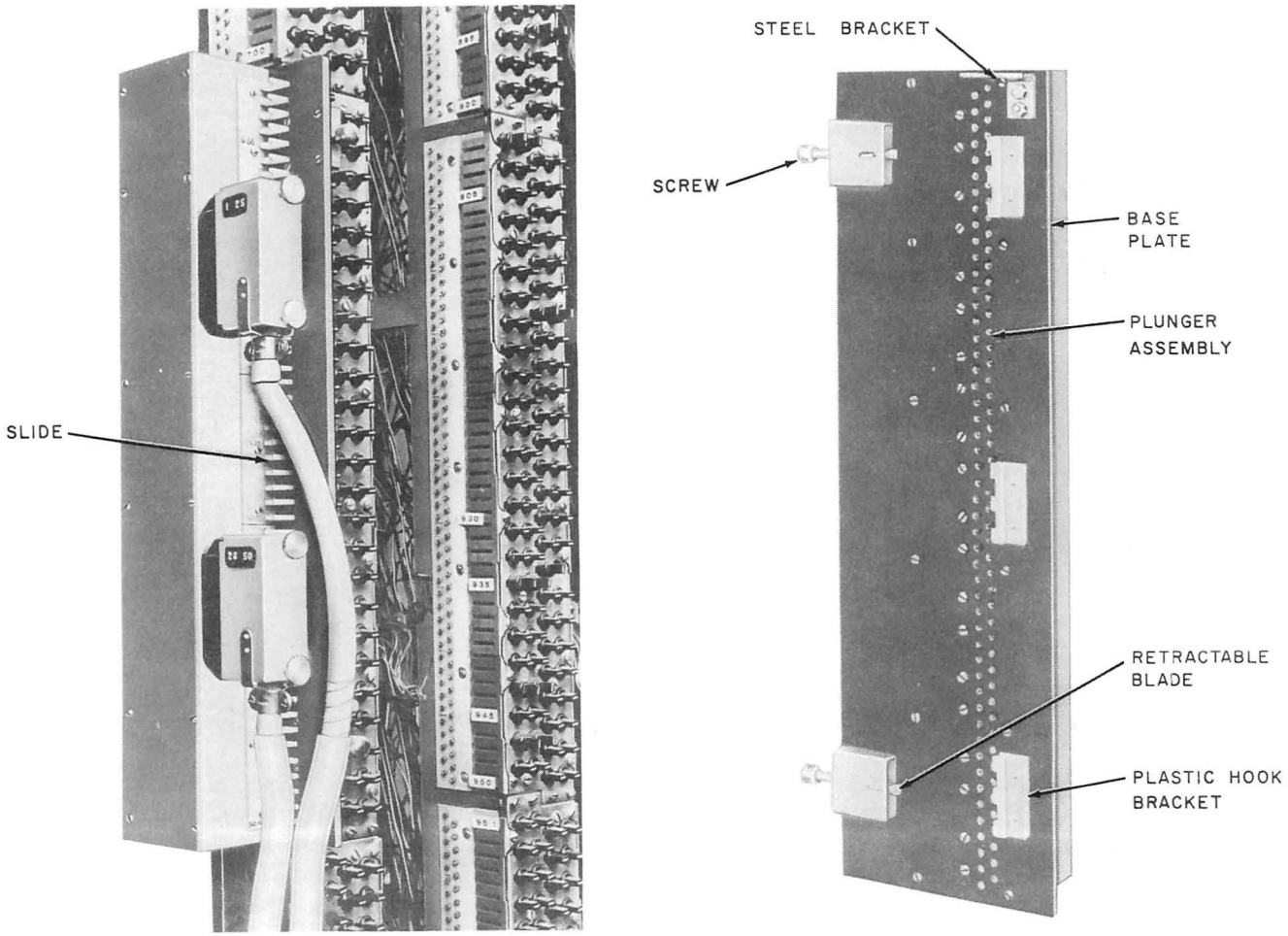


Fig. 46—AT-8214 C Test Connector

AT-8241 L1A TEST SET

3.46 See Fig. 47.

CATEGORY—Cut-closed set.

USE—Transferring working pairs in exchange cables while maintaining circuit continuity.

DESCRIPTION—A portable, battery-operated test set that contains a bridging relay and associated transistorized circuitry which permits automatic cable transfer. Two double conductor cords are terminated on the front panel with each cord equipped with a dual cable clip for attaching to the new and old cable pairs. The signals of the transfer operation may be monitored with a 723A receiver equipped with a W2FT cord terminated in a 310 plug or an AT-7888 L1A speaker with an L8A cord.

AUXILIARY APPARATUS—Two KS-14711 batteries; a 723A receiver with a 15A headband, a W2FT cord, and a 310 plug or an AT-7888 L1A loudspeaker with an L8A cord. These items are not furnished and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-320-110 and 634-350-515.

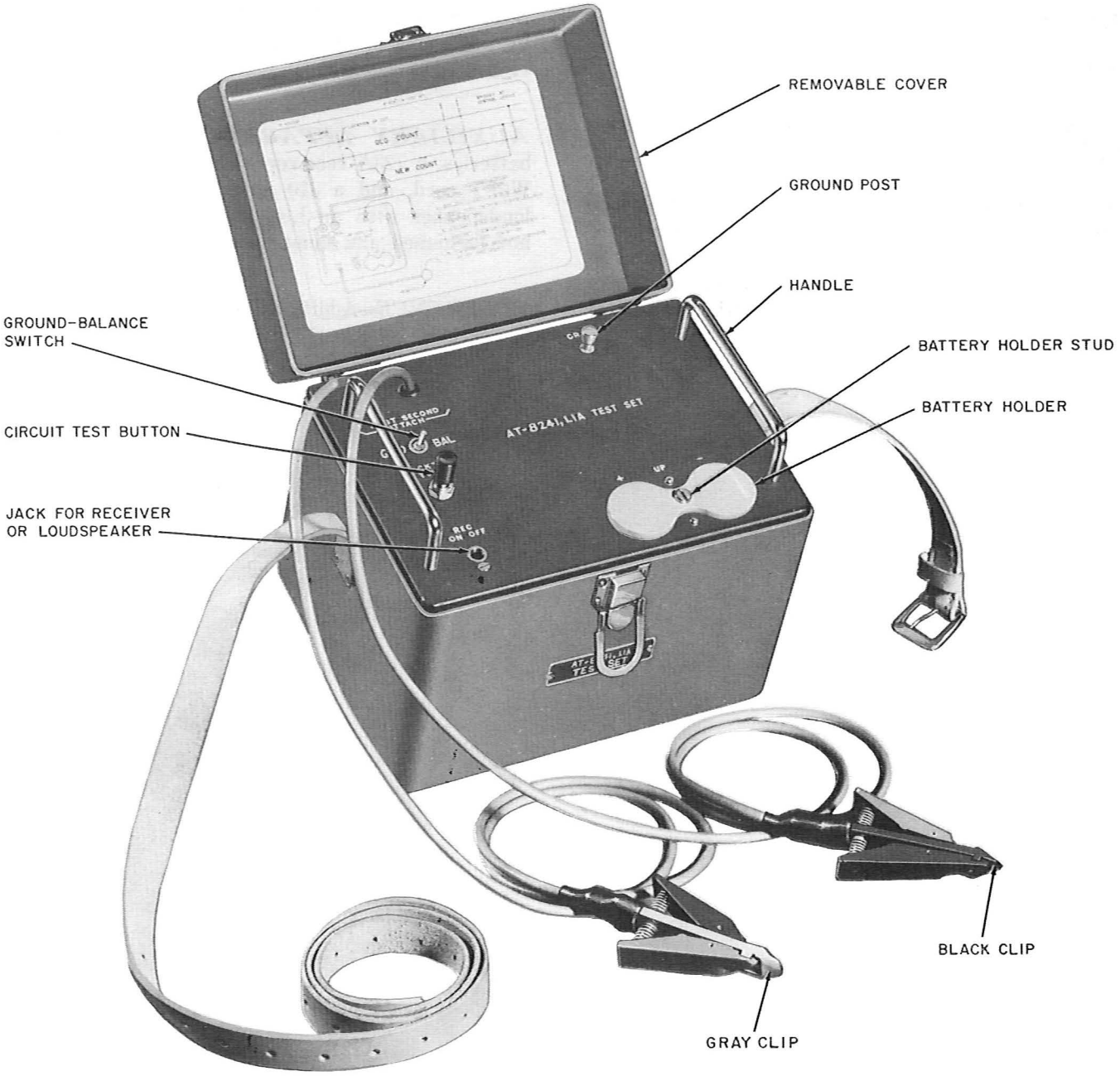


Fig. 47—AT-8241 L1A Test Set

AT-8265 D TEST CONNECTOR

3.47 See Fig. 48.

CATEGORY—Central office main frame test connector.

USE—Making test contacts with cable pairs terminated on main frames with 302A1 and 302B1 connectors.

DESCRIPTION—The connector consists of 100 contact assemblies mounted in a plastic housing. Each contact assembly has a spring-loaded, gold-plated brass plunger which is connected to a gold-plated brass spike. These spring-loaded plungers make contact with the recessed test button on the 302-type connector. The spikes on the face of the test connector can withstand the repeated contacts by a test point while the recessed gold-plated buttons on the 302-type connector will not. The test connector has two sets of pair numbering, one inverted from the other so that it may be used on either test field of the 302-type connector. The connector spikes also accommodate the chuck-type connectors of the W2FH and W2FM cords.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-315-121.

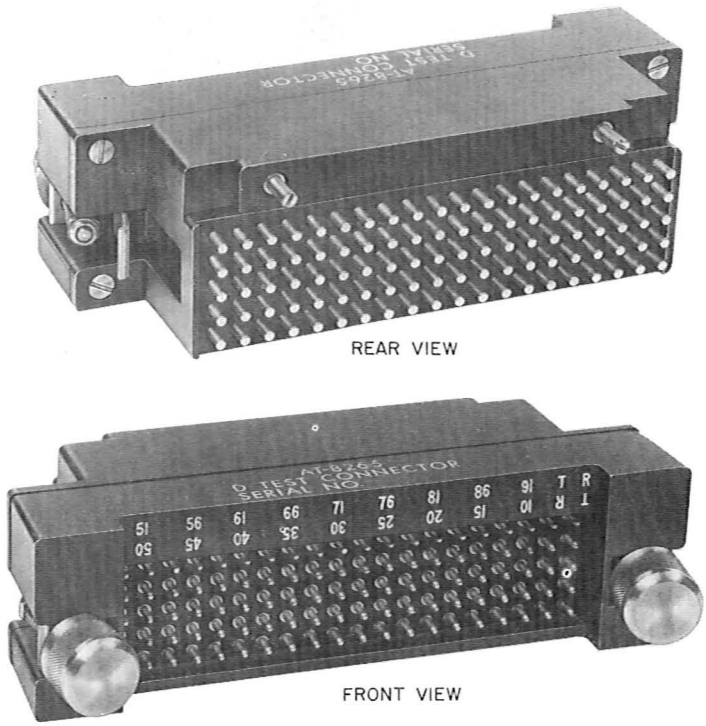


Fig. 48—AT-8265 D Test Connector

AT-8329 B TRANSFER CORD

3.48 See Fig. 49.

CATEGORY—Transfer cord.

USE—Maintaining circuit continuity when slack is cut in or out of cable pairs or when cable pairs are being transferred.

DESCRIPTION—Consists of a 6 foot long W2ER cord equipped with a C cable clip at each end. The clips provide for contact to both tip and ring side of cable pair in one operation by means of needle point insert assemblies. One jaw of each clip is colored red and the other black to facilitate placing the clips on the cable pairs in correct polarity.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-300-115.

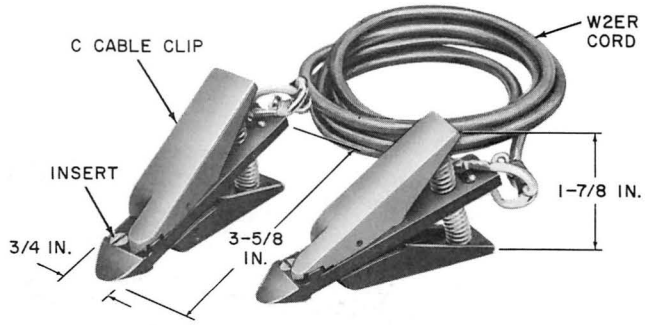


Fig. 49—AT-8329 B Transfer Cord

AT-8345 F TEST CONNECTOR

3.49 See Fig. 50.

CATEGORY—Central office main frame test connector.

USE—Connecting test apparatus to 50 consecutive pair terminations on a main frame equipped with 444-type jack or 301-type connector.

DESCRIPTION—Consists of a U-shaped main support containing 50 plungers, each plunger equipped with a pair of contacts. The contacts are connected through flexible printed circuitry to a common terminal strip which is wired to two 25-pair cable connectors. These cable connectors are designed to accommodate a P100A or P100B cord. The connector will not make contact with any circuit equipped with special circuit markers. The plungers may be individually operated to a no-contact position, a bridging contact position, or pair only contact position (CO connection removed). An AT-8417 C connector case is supplied with each connector to provide protection during storage or transportation.

AUXILIARY APPARATUS—P100A or P100B cords are required for use and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-315-120.

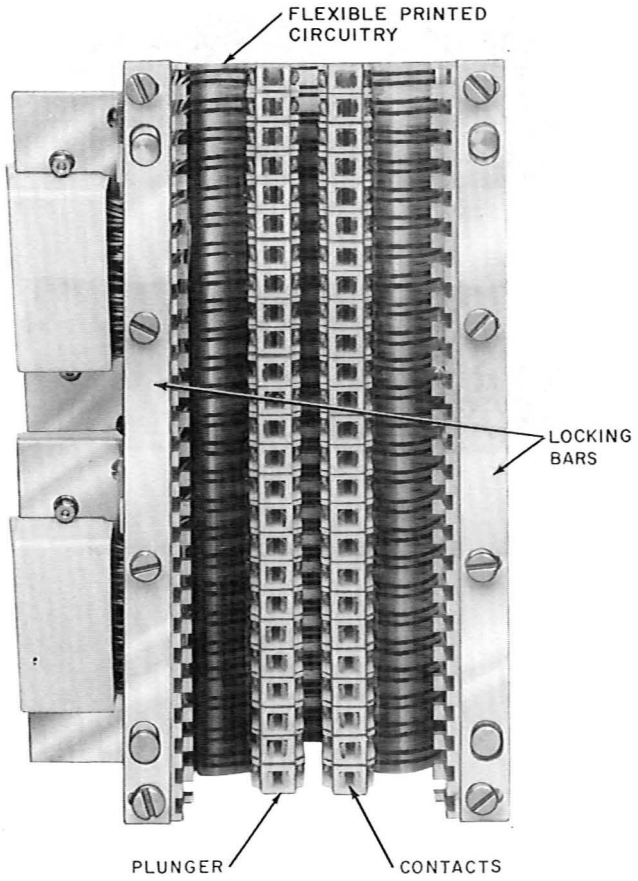


Fig. 50—AT-8345 F Test Connector

AT-8353 G TEST CONNECTOR

3.50 See Fig. 51.

CATEGORY—Central office main frame test connector.

USE—Making test contacts with cable pairs terminated on main frames with 302A2 and 302B2 connectors.

DESCRIPTION—The test connector consists of 100 contact assemblies mounted in a plastic housing. Each contact assembly has a spring-loaded, gold-plated brass plunger which is connected to a gold-plated brass spike. These spring-loaded plungers make contact with the recessed test buttons on the 302-type connector. The spikes on the face of the test connector can withstand repeated contacts by a test point while the recessed gold-plated buttons on the 302-type connector test panel will not. The connector has two sets of pair numbering, one inverted from the other so that it can be used on either test field of the 302-type connector. The test connector spikes will accommodate the chuck-type connectors of the W2FH and W2FM cords.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-315-121.

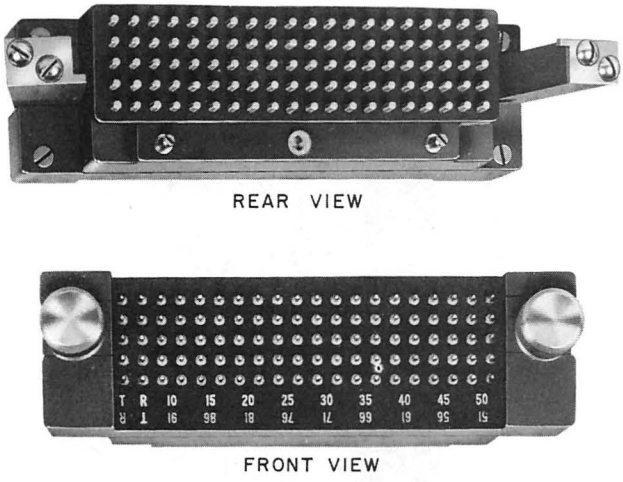


Fig. 51—AT-8353 G Test Connector

AT-8461 H TEST CONNECTOR

3.51 See Fig. 52.

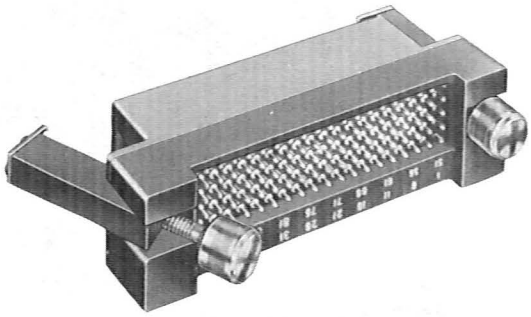
CATEGORY—Central office main frame test connector.

USE—Making test contacts with cable pairs terminated on main frames with 303A1 and 303B1 connectors.

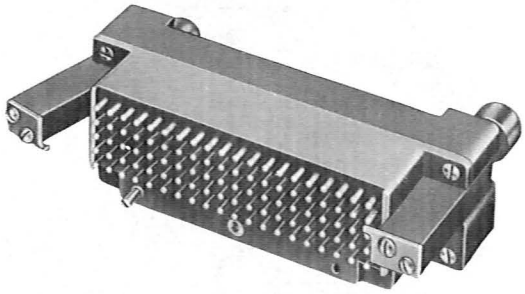
DESCRIPTION—The connector consists of 100 contact assemblies mounted in a plastic housing. Each contact assembly has a spring-loaded, gold-plated brass plunger which is connected to a gold-plated brass spike. These spring-loaded plungers make contact with the recessed test button on the 303-type connector. The spikes on the face of the test connector can withstand the repeated contacts by a test point while the recessed gold-plated buttons on the 303-type connector will not. The connector spikes also accommodate the chuck-type connectors of the W2FH and W2FM cords.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-315-121.



FRONT VIEW



REAR VIEW

Fig. 52—AT-8461 H Test Connector

AT-8592 L1B TEST SET

3.52 See Fig. 53.

CATEGORY—Pair testing.

USE—Acceptance testing, defective pair recovery.

DESCRIPTION—This compact test set is approximately 12 by 6 by 11 inches and weighs about 10 pounds. The metal case of the test set is equipped with a strap for securing to a ladder step. The strap and the test cords, when not in use, are stored in a compartment of the removable cover.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 634-300-511.

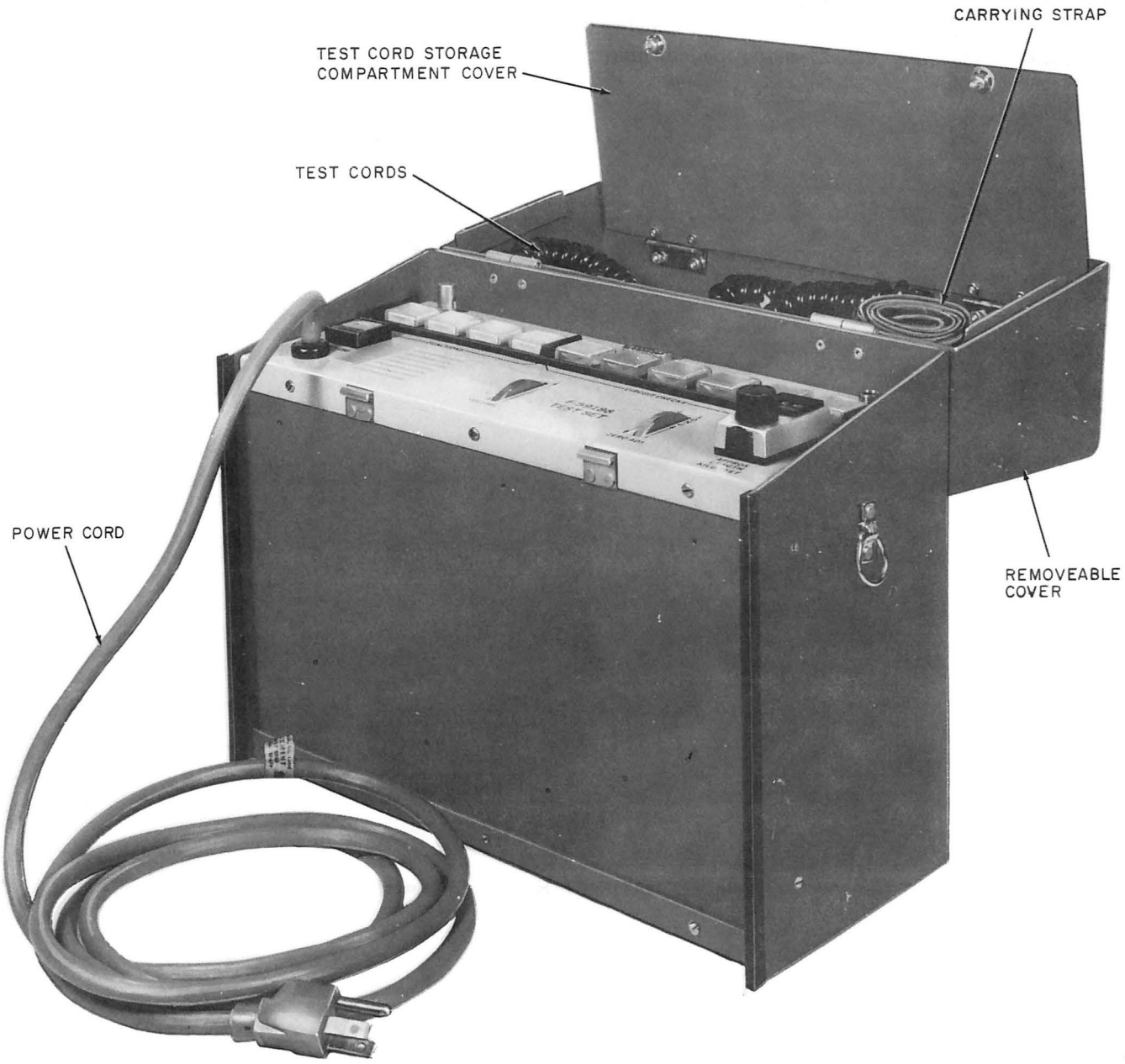


Fig. 53—AT-8592 L1B Test Set

AT-8629 TEST PROBE

3.53 See Fig. 54.

CATEGORY—Probe, wire identification.

USE—To detect identifying signals on a telephone line.

DESCRIPTION—The probe is a small test set designed to detect an identification signal on a telephone line without damaging the insulation. The tip of the probe is placed in close proximity of the line. Should a signal be on the line, the employee will be able to identify via his handset. The test set is transistorized with a high input impedance to avoid the high loss in signal normally associated with capacitance coupling. The probe is primarily intended for application by installers and repair personnel at ready-access terminals.

AUXILIARY APPARATUS—1013 handset.

REFERENCE—Additional information is contained in Section 105-241-100.

Fig. 54—AT-8629 Test Probe

AT-8681 GROUND PROBE

3.54 See Fig. 55.

CATEGORY—Ground probe.

USE—To locate ground faults on buried wire and cable. Also used for locating discontinuties (opens) in the shield of buried cables.

DESCRIPTION—The frame of the probe is made of aluminum plate and tubing which have been welded together. The open ends of the tubing provide the support for two stainless steel electrodes which are insulated from the frame by phenol fiber insulators. Each electrode is connected to the amphenol 80PC2F connector by internal wiring. The lower cross member provides the employee a means for driving the electrodes into the ground with the foot and the upper member provides a support for the associated test equipment. A B-828769 probe cord assembly is provided to connect the probe to the input of auxiliary apparatus.

AUXILIARY APPARATUS—147-type amplifier, 170A, and 173A test sets.

REFERENCE—Additional information is contained in Section 634-220-505.

Fig. 55—AT-8681 Ground Probe

J98710 P LINE ERROR DETECTOR

3.55 See Fig. 56.

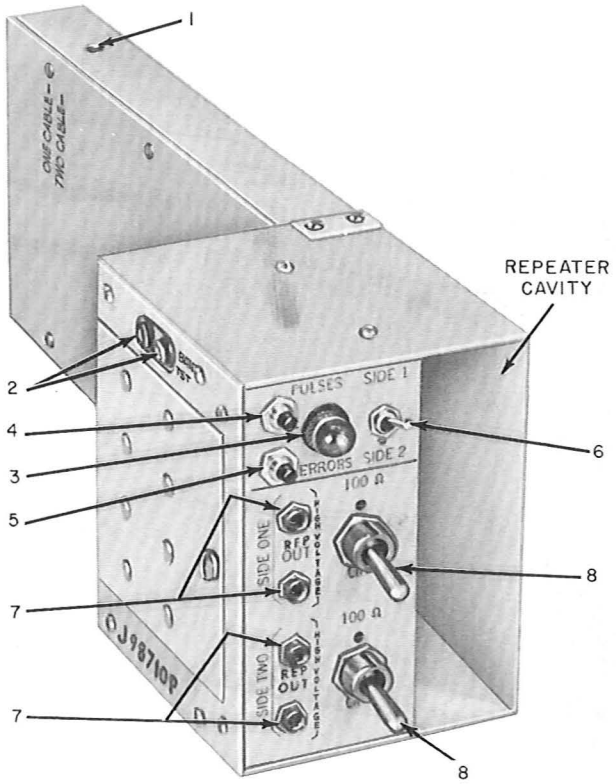
CATEGORY—T1 line error detector.

USE—To check the performance of the 1.544-M b/s repeatered line at a repeater location. Checks the presence of a PCM pulse train as well as for errors (bipolar violations).

DESCRIPTION—A portable test set approximately 4-1/2 inches by 3-3/8 inches by 13-5/8 inches. Contains a battery pack of four Type AA penlight batteries. A plastic carrying case is provided. This test set is plugged into the repeater slot in the apparatus case and the repeater being tested plugs into the repeater cavity in this test set.

AUXILIARY APPARATUS—J98710 F fault locating set; J98710 H repeater test set; KS 14510 VOM.

REFERENCE—Section 103-493-103.



NUMBERS DENOTE INDEX NUMBER PER TABLE A.

Fig. 56—J98710 P Line Error Detector

J98721 G TRANSMISSION TEST SET

3.56 See Fig. 57.

CATEGORY—Transmission Test Set (TTS)—T4M.

USE—To verify that coaxial cable and associated splices, connectors, and jacks are acceptable for T4M transmission. Use between span terminating frame and the first repeater station and between adjacent repeater stations.

DESCRIPTION—The 21G TTS comprises two major assemblies: The main body (pictured) and the regenerator enclosure (not pictured). The main body is 10-1/2 inches by 16-1/4 inches by 17 inches and weighs about 55 pounds. The regenerator enclosure is 32 inches by 11-1/2 inches by 5-1/4 inches and weighs about 40 pounds with the regenerator (which does not come with the 2 IG TTS) installed. The umbilical cable assembly, however, does come with the TTS. Both cases are designed to be zero pressure watertight when the covers are in place.

AUXILIARY APPARATUS—One 3-type T4M digital line generator, a battery charger that meets the requirements for the KS-20431 L2 batteries.

REFERENCE—Additional information is contained in Section 103-486-103.

Fig. 57—J98721 G Transmission Test Set

J98725 AA TEST SET

3.57 See Fig. 58.

CATEGORY—T1C or T1 pair loss measuring set.

USE—To determine the cable pair loss and to verify that the loss is within the operating range of the repeater line build-out networks or the automatic line build-out circuits, as applicable, before the repeaters are installed. Also, the test set measures cable continuity and pair-to-pair uniformity from the repeater location to another. ***The test sets are used in pairs.***

DESCRIPTION—The set contains both transmitting and receiving circuits and includes the battery power supply mounted in a box approximately 11-1/2 inches wide, 8-1/2 inches deep, and 9-1/2 inches high (including the cover). The total weight including case, cover, probe, adapters, and batteries is approximately 14 pounds. It is not waterproof so reasonable care must be taken to protect it from water damage. A case-carrying handle is mounted on one side of the case.

AUXILIARY APPARATUS—Six, 1-1/2 volt standard size D dry cell batteries. Adapters for tests made from the office repeater bay (ORB) or from the main distributing frame (MDF) must be ordered separately. See Table A and paragraph 2.02 of Section 103-494-104 for probe/adapter combinations applicable to various apparatus cases and the ORB.

REFERENCE—Section 103-494-104.

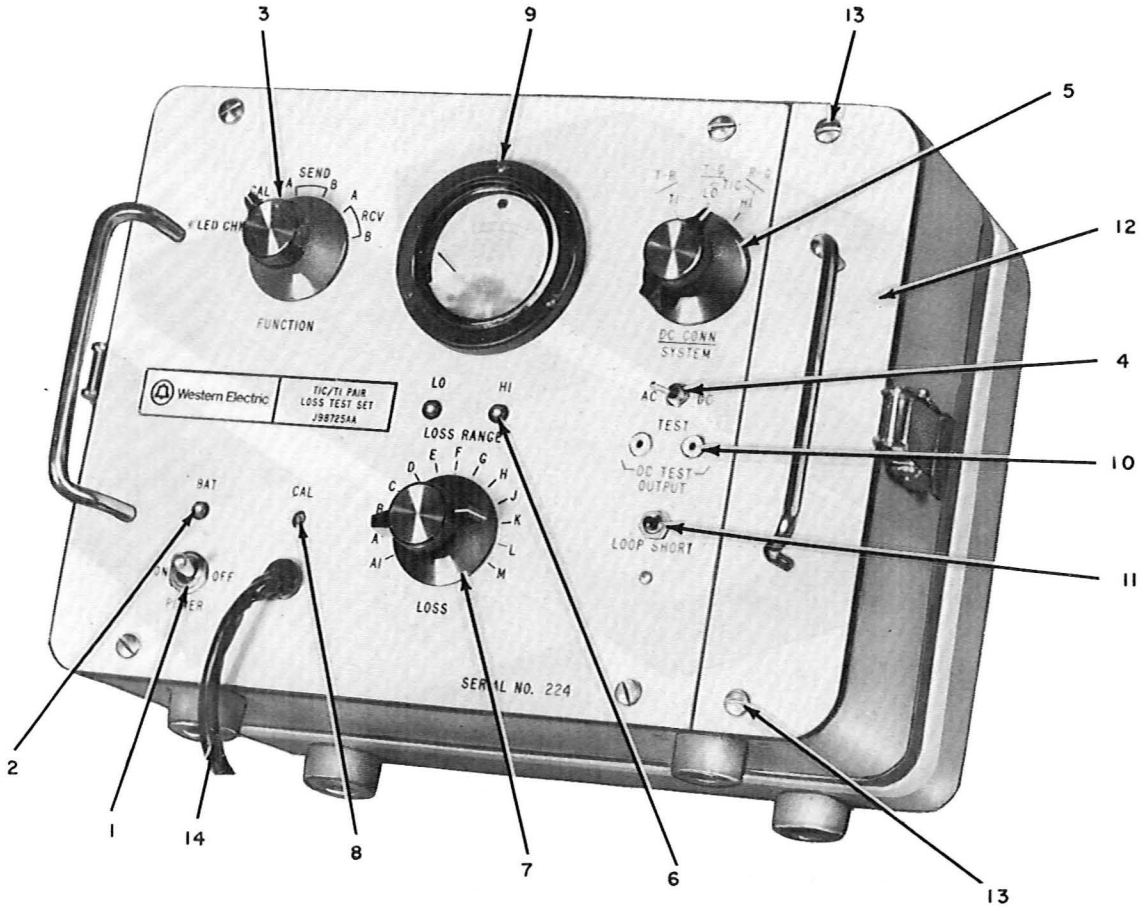


Fig. 58—J98725 AA Test Set

J98725 AB BIPOLAR VIOLATION DETECTOR

3.58 See Fig. 59 and 60.

CATEGORY—T1C or T1 bipolar violation detector sometimes referred to as pulse error detector.

USE—This set is used at repeater locations, either in a manhole or in above ground apparatus cases. It will—

- monitor the outputs of a line repeater
- enable troubleshooting of failed or marginal repeaters
- permit resistance measurements and metallic (cable pair) troubleshooting with line power removed
- and it has a jack access for examining the repeater output waveform.

It is used primarily to determine if a T1C or T1 repeatered line is operating (pulsing) within performance objectives.

DESCRIPTION—This error detector including the adapter probe connection is 4-1/2 inches high, 3-3/8 inches wide, and 13-5/8 inches long and weighs approximately three pounds. Included with the set are three adapter probes that permit the control unit to be plugged into various types of apparatus case repeater slots. It is not waterproof, so reasonable care must be taken to protect it from water damage. A plastic carrying case is provided.

AUXILIARY APPARATUS—Four standard type AA dry cell batteries (KS-14368), alkaline energizer cells recommended.

REFERENCE—Section 103-494-101.

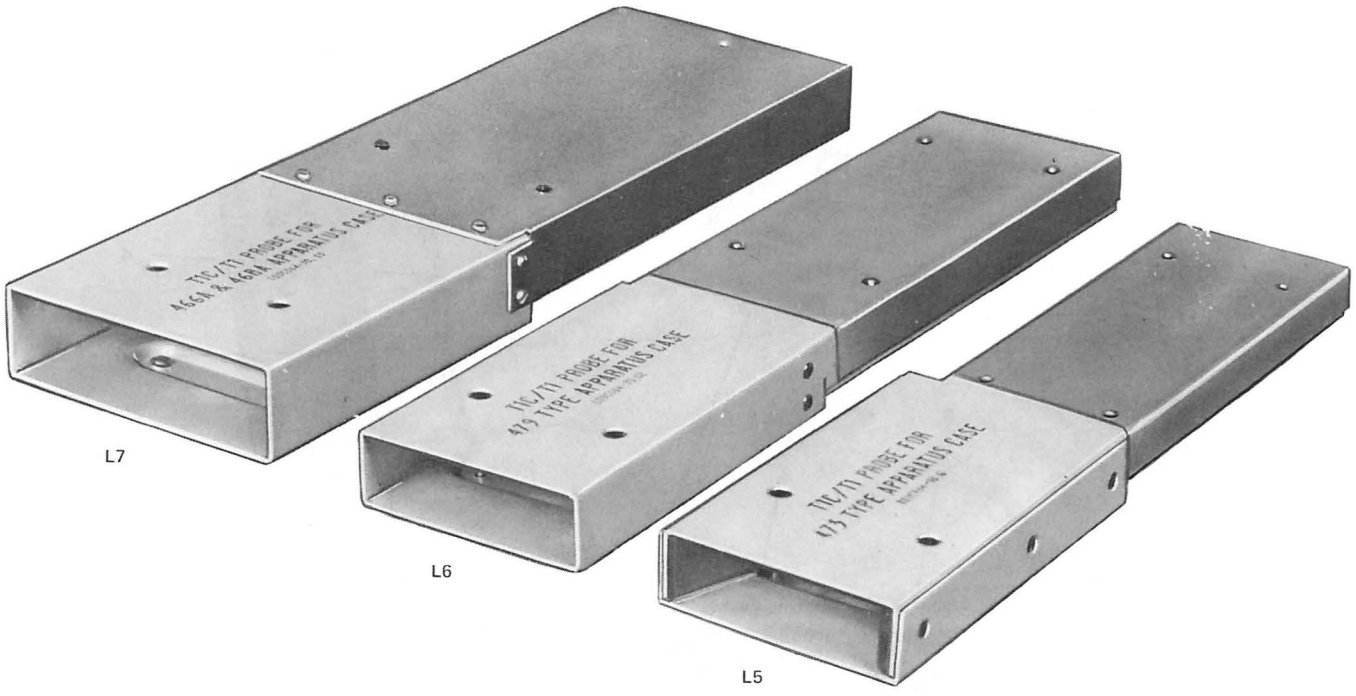


Fig. 59—J98725 AB T1C/T1 Bipolar Violation Detector

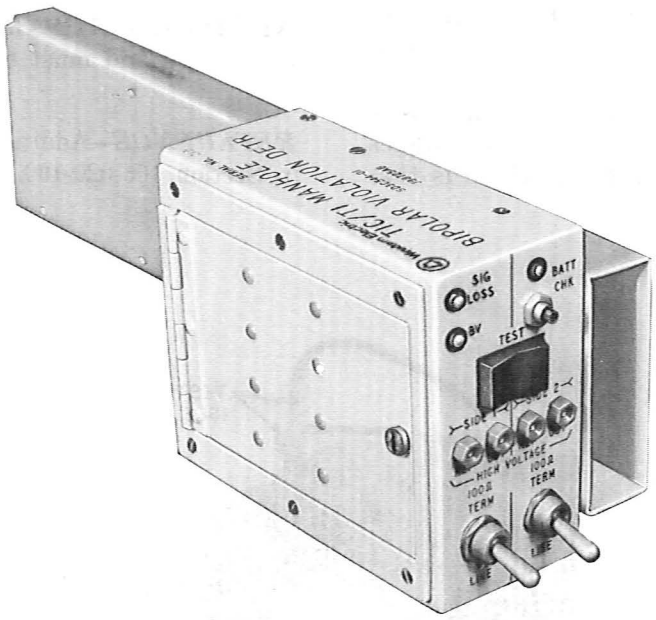


Fig. 60—J98725 AB T1/T1C Adapter Probes

KS-8455 TEST SET

3.59 See Fig. 61.

CATEGORY—Volt-ohmmeter.

USE—Aid in locating faults (shorts, crosses, grounds, and opens) as well as general utility tester.

DESCRIPTION—Consists of a microammeter calibrated to read directly in ohms or in voltages on a point scale and two 6-foot W1AH cords that are terminated with insulated spring clips at one end and crimp solderless terminals at the other. The test set can function as a voltmeter or ohmmeter. A reversing switch is provided to aid in making capacitance kick tests.

AUXILIARY APPARATUS—A KS-14369 battery is required and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-020-100.

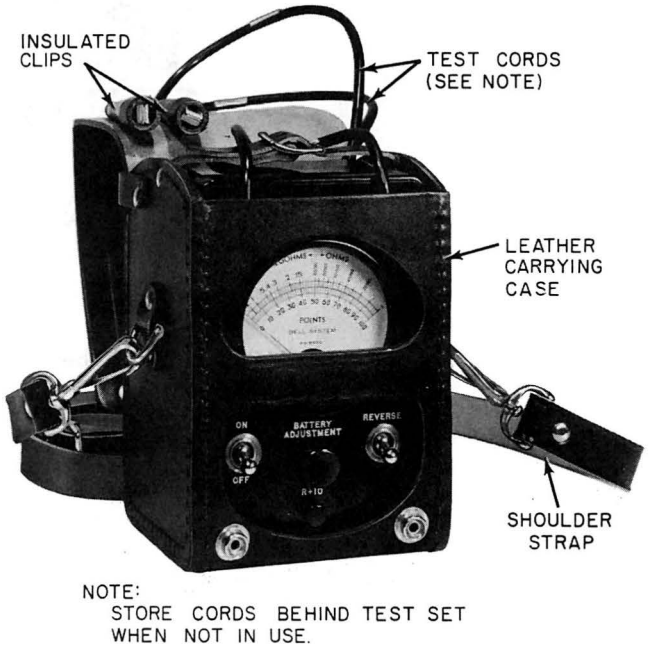


Fig. 61—KS-8455 Test Set

KS-14103 L6 TEST SET

3.60 See Fig. 62 and 63.

CATEGORY—Breakdown test set.

USE—In breaking down high resistance faults in paper or pulp insulated copper conductor cables so they can be run down with an exploring coil.

DESCRIPTION—A portable, battery-operated test set that consists of an L7 power unit and an L8 control unit. The L7 power unit contains control relays and a high-voltage high-current battery supply that provides 630V dc at 5A for breakdown and within a waterproof compartment of a fiberglass case. The case has a removable lid which provides storage space for the L9 power cord. The L8 control unit contains a dc voltmeter, an ohmmeter, a signal generator, and a breakdown current ammeter with associated controls within a waterproof compartment of a fiberglass case. The case has an adjustable shoulder strap and a removable lid which provides storage for the L10 tone cord.

AUXILIARY APPARATUS—Fourteen KS-14196 batteries are required for the L7 power unit, one KS-14196, one KS-14368, and one KS-14369 battery are required for the L8 control unit. All of these batteries must be ordered separately. The P2ET cord is required for use in the central office and must be ordered separately. The AT-7259 B, AT-7878 C, AT-8271 D warning markers, and AT-8325 E warning sign are used in conjunction with this test set.

REFERENCE—Additional information is contained in Sections 106-330-105 and 634-305-501.

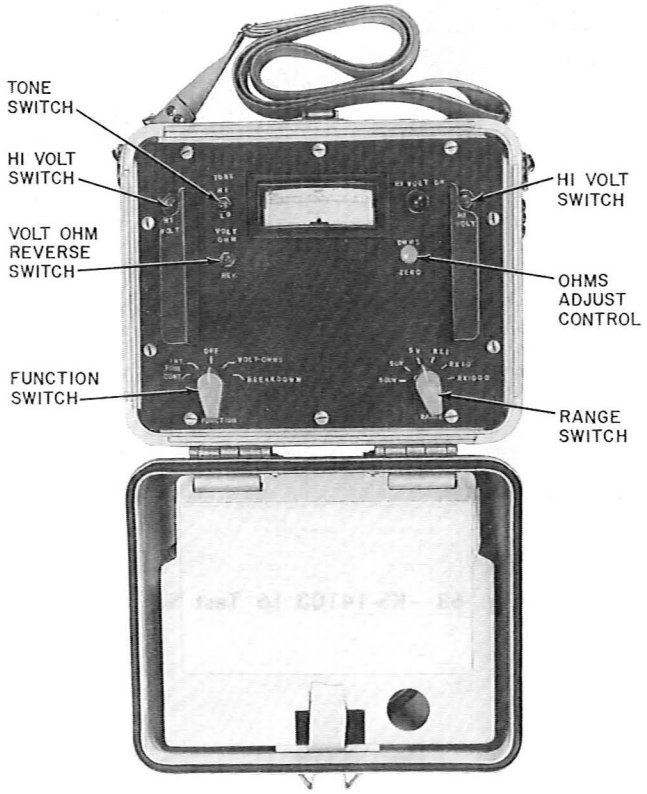


Fig. 62—KS-14103 L6 Test Set

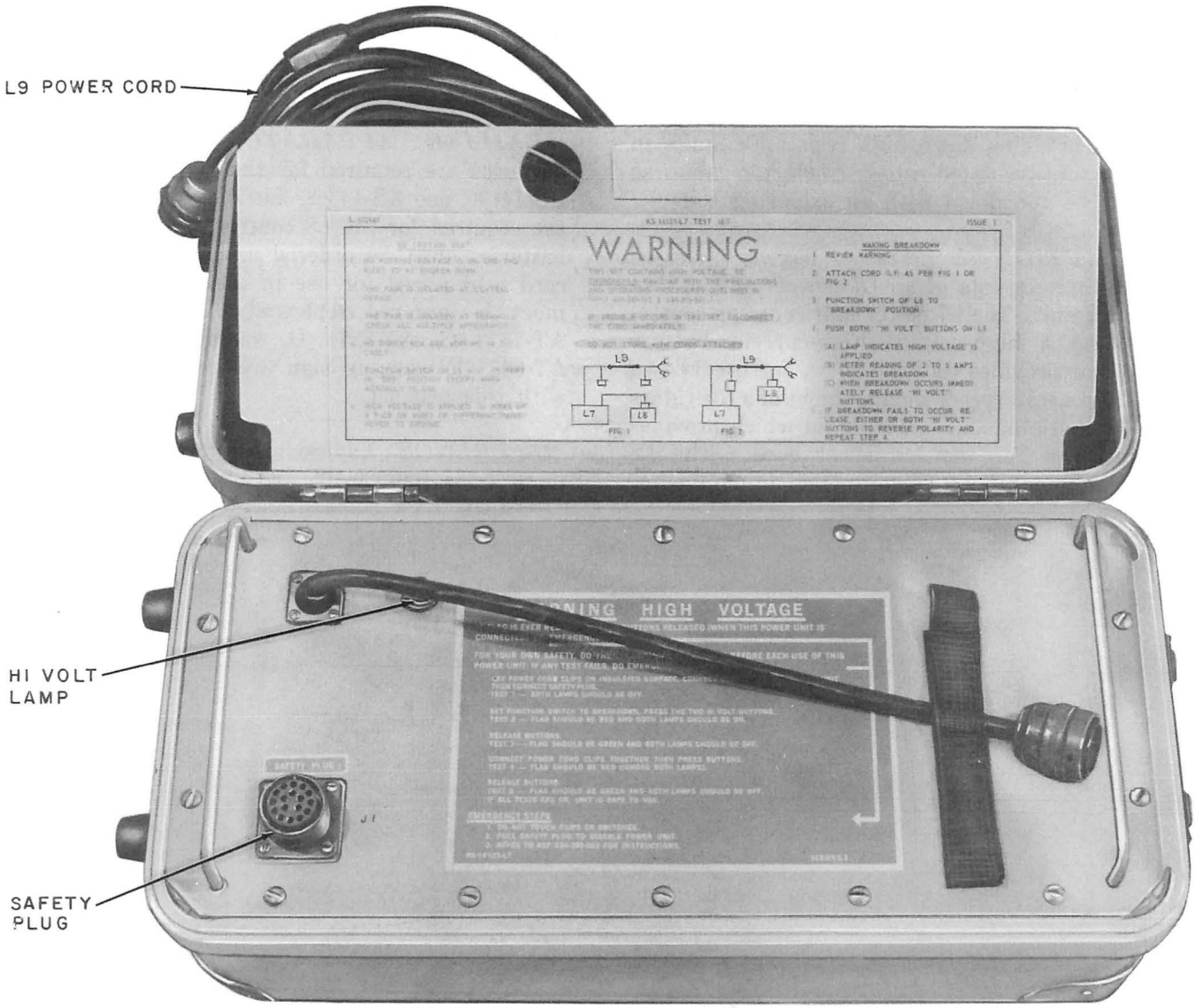


Fig. 63—KS-14103 L6 Test Set

KS-14510 L11 VOLT-OHM-MILLIAMMETER

3.61 See Fig. 64.

CATEGORY—Volt-ohm-milliammeter.

USE—Portable meter for measuring ac and dc voltages, dc current, and resistance.

DESCRIPTION—This test set is overload protected, has a ruggedized mechanism, and is resistant to rough handling.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 100-520-101.

Fig. 64—KS-14510 L11 Volt-Ohm-Milliammeter

KS-14959 TEST SET

3.62 See Fig. 65.

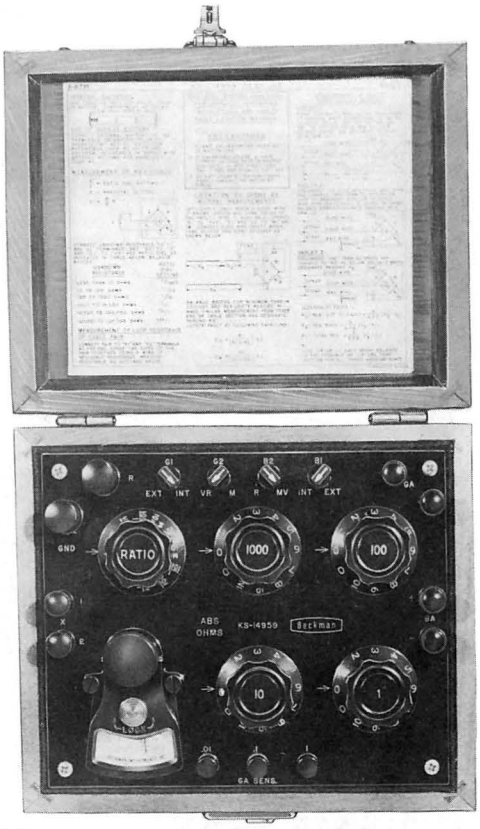
CATEGORY—Wheatstone Bridge.

USE—Locating conductor troubles.

DESCRIPTION—A portable, battery-operated test set containing a conventional Wheatstone bridge, indicating galvanometer and loop controls for setting up resistance, Varley, or Murray loop measurements. The set contains controls whereby the ratio bridge can be modified to obtain greater sensitivity and contains a number of terminal appearances for connecting external batteries and galvanometers for increasing the sensitivity.

AUXILIARY APPARATUS—Three KS-14711 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-230-100 and 634-310-500.



NOTE:
THIS TEST SET MAY CONTAIN EITHER THE BECKMAN RN-3, THE INDUSTRIAL INSTRUMENTS RN-3 OR THE LEEDS & NORTHRUP 5430-AM-1 BRIDGES.

Fig. 65—KS-14959 Test Set

KS-20599 L4 DIGITAL VOM

3.63 See Fig. 66.

CATEGORY—Digital volt-ohm-milliammeter.

USE—Portable, digital display meter for measuring ac and dc voltages, dc current, and resistance.

DESCRIPTION—This is a bipolar, solid-state 4-1/2 digit multimeter. It is approximately 5-1/2 inches by 1-3/4 inches by 3-1/2 inches and weighs 1.3 pounds. It is provided with a carrying case, wrist strap, test probes rechargeable batteries, battery charger, and line cord.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 084-805-101.

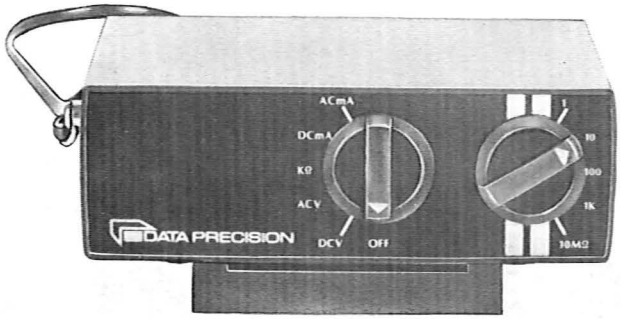


Fig. 66—KS-20599 L4 Digital VOM

SM-20580ED (CORONA NOISE) TEST SET

3.64 See Fig. 67.

CATEGORY—Communications.

USE—The test set is used for determining the corona or breakdown inception voltage of coaxial cable and locating the source of the corona and/or breakdown fault in the cable (inner to outer conductors) in lengths up to 4 miles (8 miles for L1 Carrier).

DESCRIPTION—The test set consists, essentially, of a variable high voltage test generator and a detection location system which provides a visual indication of corona noise and digital readout of its location. Built-in calibration circuits enable the set to be calibrated in the field without the use of other test instruments.

AUXILIARY APPARATUS—12-volt battery power and test cords.

REFERENCE—Additional information is contained in Sections 160-370-117, 160-370-118, and 634-320-506.

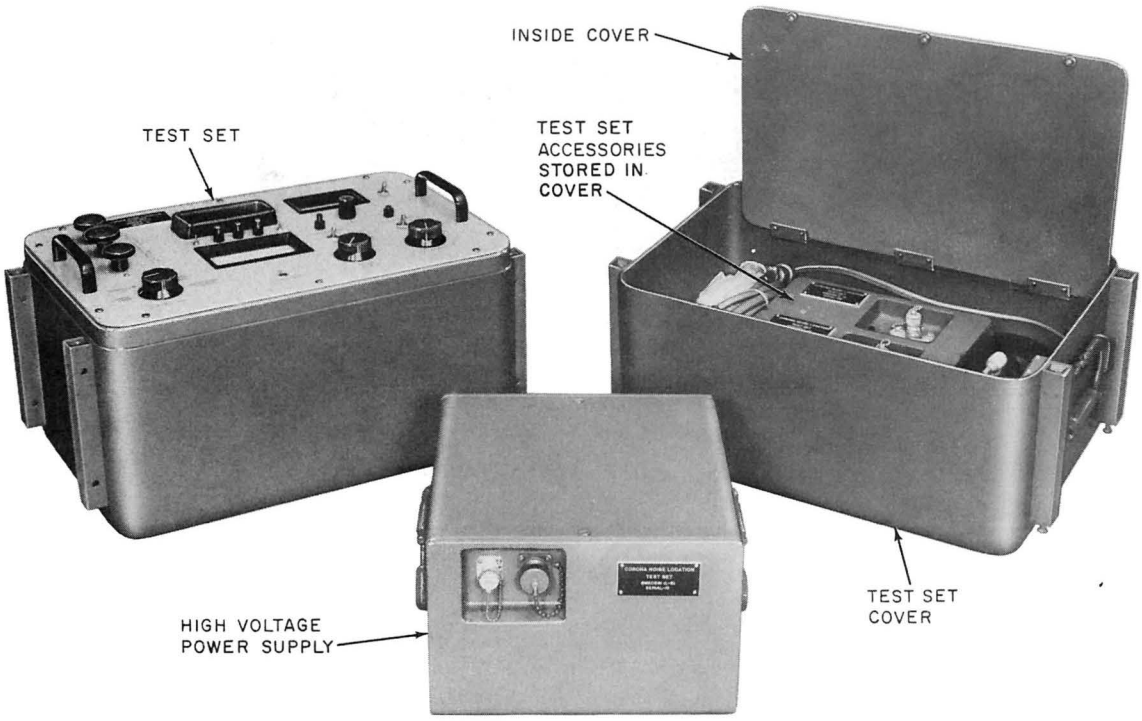


Fig. 67—SM-20580ED (Corona Noise) Test Set

BIDDLE 335A CABLE FAULT LOCATOR

3.65 See Fig. 68.

CATEGORY—A pulse reflection cable test set which provides a visual indication of cable faults.

USE—Testing from central office or intermediate cable locations for cable troubles that impair electronic transmission.

DESCRIPTION—The Biddle 335A cable fault locator employs the *T*ime *D*omain *R*eflectometry (TDR) method to visually indicate cable faults on a 7x5 cm rectangular CRT screen. The set has been specifically designed for testing telephone pairs for high or low impedance faults. The testing range of the set extends to 80,000 ft with an accuracy of 1%.

AUXILIARY APPARATUS—Two 10-foot output leads, dc input connectors, viewing hood, padded carrying bag, application guide, instruction manual, and overlay tracers.

REFERENCE—Additional information is contained in Section 634-405-301.

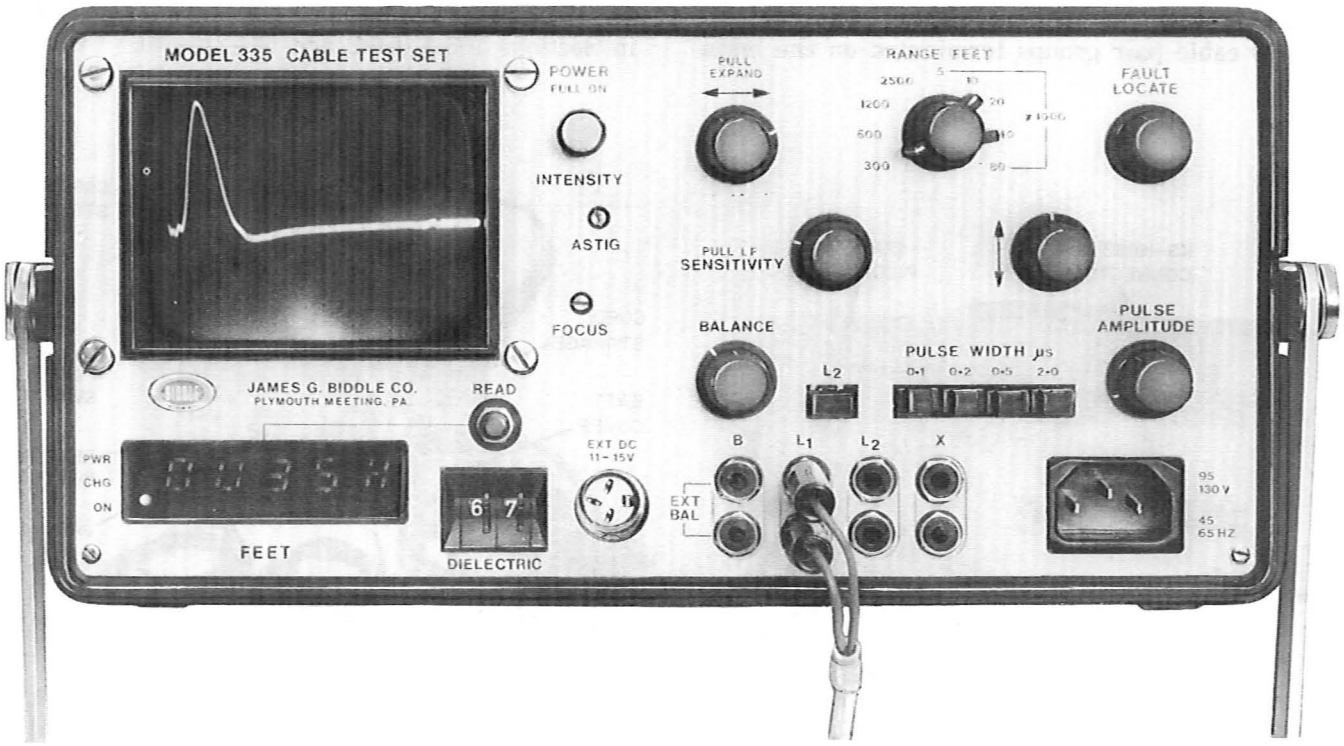


Fig. 68—Biddle 335A Cable Fault Locator

CB AUTOMATIC PAIR IDENTIFIER

3.66 See Fig. 69.

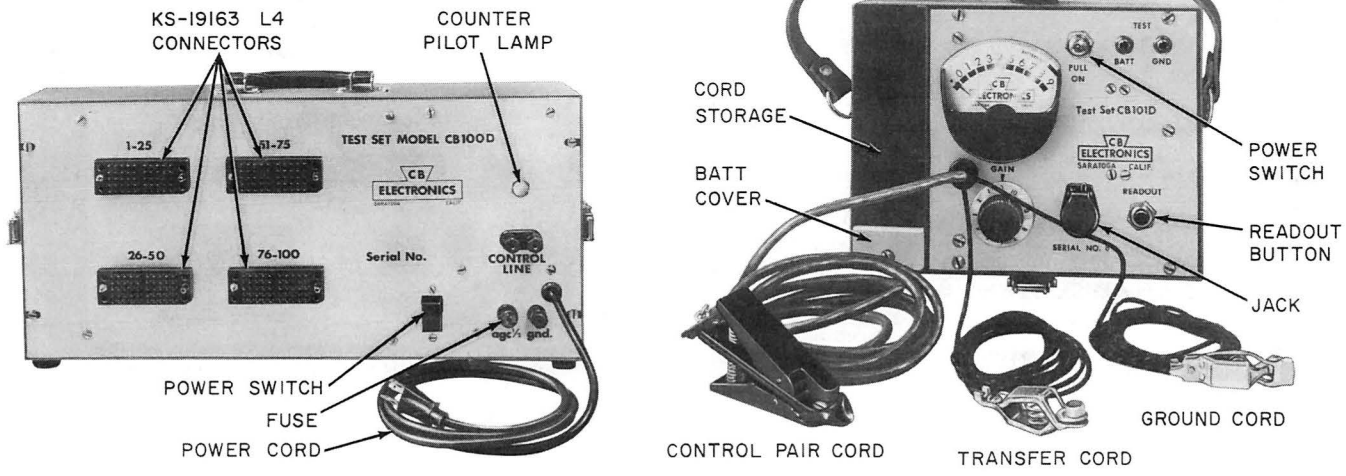
CATEGORY—Automatic pair identifier.

USE—Rapid identification in both spare and working noncolor coded pairs by one man.

DESCRIPTION—This test set consists of two codes, a CB100D central office test set, and a CB101D field unit test set. The CB100D is a transistorized unit that produces the identification signal which is automatically sent out through a matrix arrangement on each of 100 pairs in sequence. Four KS-19163 L4 connectors are provided so that P100A and/or P100B cords, along with various test connectors, can be used for making connection to the 100 cable pair groups terminated on the main frame. The CB100D requires 115-volts 60-Hz ac power and draws approximately 20 watts. The CB101D is a battery-operated, portable set with an indicating meter on which the pair number is read. The set is equipped with three cords permanently wired to the set. These cords are for attaching to the wire to be identified, a ground cord, and a cord for attaching to the control pair. A sensitivity control is provided to adjust the gain of the amplifier so that reliable operation of the indicating meter may be achieved.

AUXILIARY APPARATUS—Two 6-volt mercury batteries are required for the CB101D set and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-310-122 and 634-210-510.



CENTRAL OFFICE TEST SET-CB100D

FIELD TEST SET-CB101D

Fig. 69—CB Automatic Pair Identifier

CABLE RESTORAL SYSTEM

3.67 See Fig. 70.

CATEGORY—Cable repair system.

USE—Restoring service by bridging across the break in the cable.

DESCRIPTION—Consists of a neon restoral board, a rapid restoration board, HB-11111 and HB-11112 test set, A25B connector cable, B25A extension cable, a 15-foot neon restoral cord, a 6-foot B transfer cord, telephone headset, ground wire with clips, and ground rod. This portable, battery-operated test set will accommodate up to a 600-pair cable.

AUXILIARY APPARATUS—The HB-11111 test set requires three KS-14196 batteries and the HB-11112 test set requires six KS-14196 batteries and three KS-6570 batteries.

REFERENCE—Additional information is contained in Section 634-215-505.

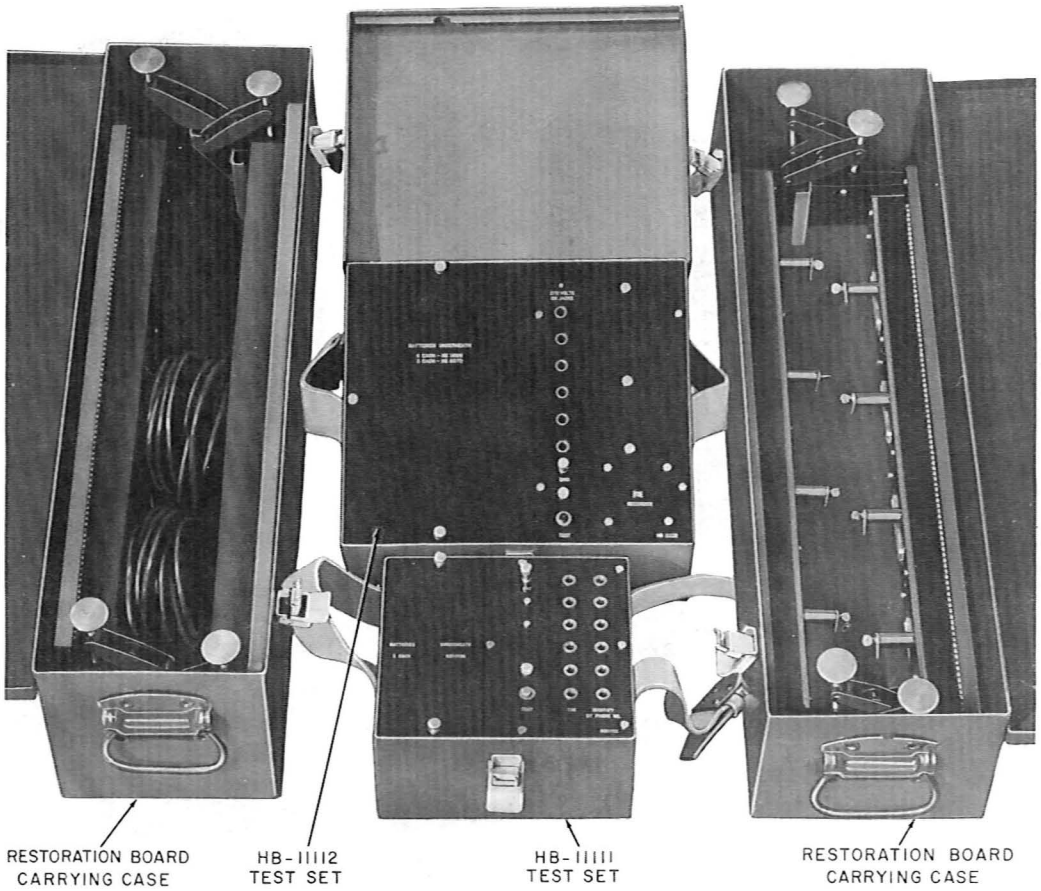


Fig. 70—Cable Restoral System

DELCON/HEWLETT-PACKARD 4910F OPEN FAULT LOCATOR

3.68 See Fig. 71.

CATEGORY—Open fault locator.

USE—Locating conductor opens.

DESCRIPTION—A portable, battery-operated test set that consists of an indicatimg meter with three controls and a test cord. Provisions are made to test for foreign ac or dc voltages on the line, to calibrate the meter for different mutual capacitance, to check that the line is truly open, and to measure the distance in feet to the open. A range switch provides full-scale readings of 100, 300, 1000, 3000, 10,000, 30,000, and 100,000 feet.

AUXILIARY APPARATUS—Eight batteries such as Mallory M1604 are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-340-110 and 634-305-510.

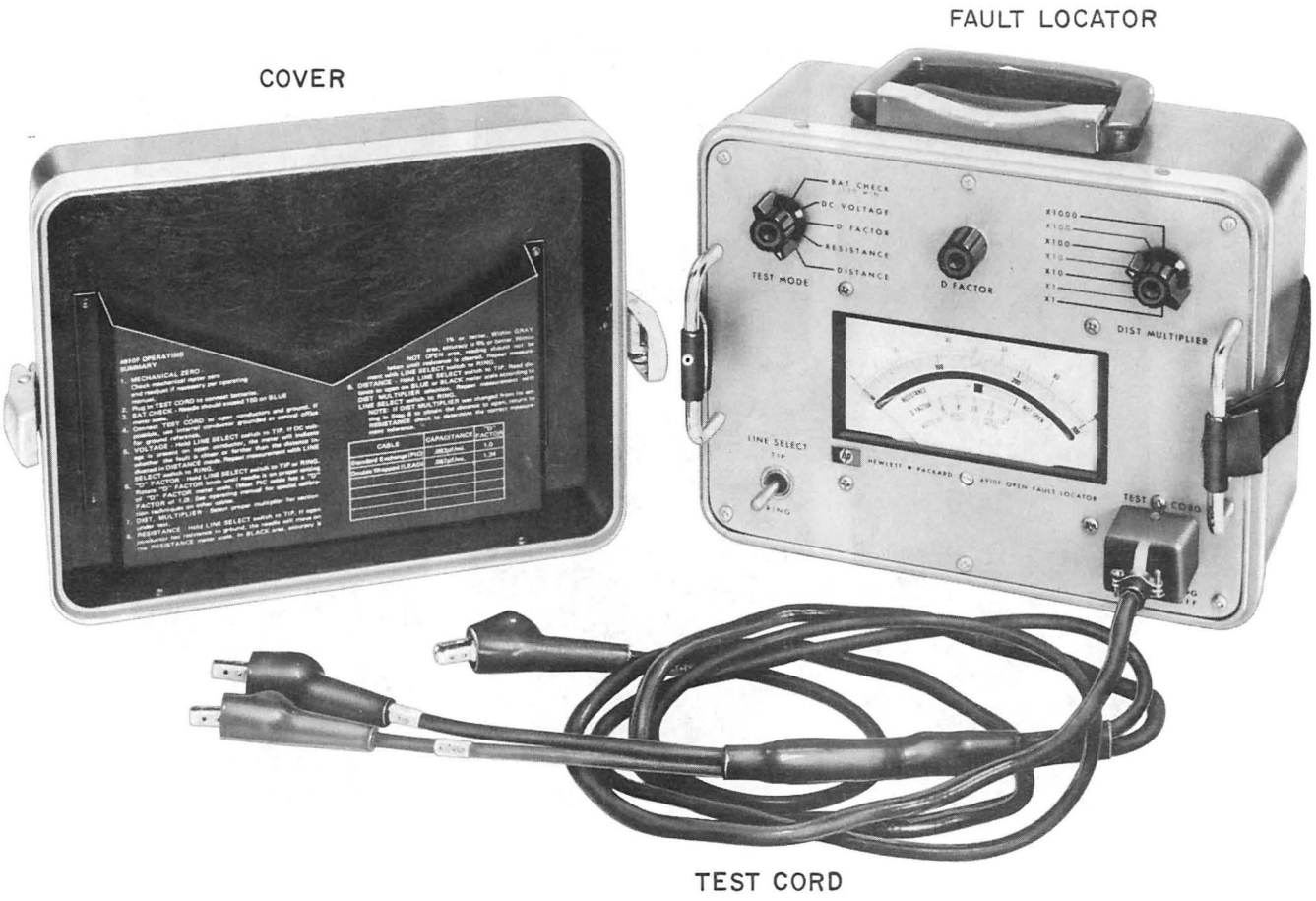


Fig. 71—Delcon Hewlett-Packard 4910F Open Fault Locator

DYNATEL 710A TEST SET

3.69 See Fig. 72.

CATEGORY—Resistive fault locating.

USE—Locate faults in buried, underground, or aerial PIC and pulp cable.

DESCRIPTION—The Dynatel 710A test set is a lightweight solid-state test set powered by two 4.5 volt batteries, two 9-volt batteries, and one 45-volt battery. A separate battery compartment permits battery replacement without disassembly. The test set is housed in a fiberglass case that is 11 by 7 by 9 inches and weighs about 14 pounds with batteries, cover, and test cord.

AUXILIARY APPARATUS—Two 4.5-volt, two 9-volt, and one 45-volt batteries, and assorted test cords.

REFERENCE—Additional information is contained in Section 634-305-514.

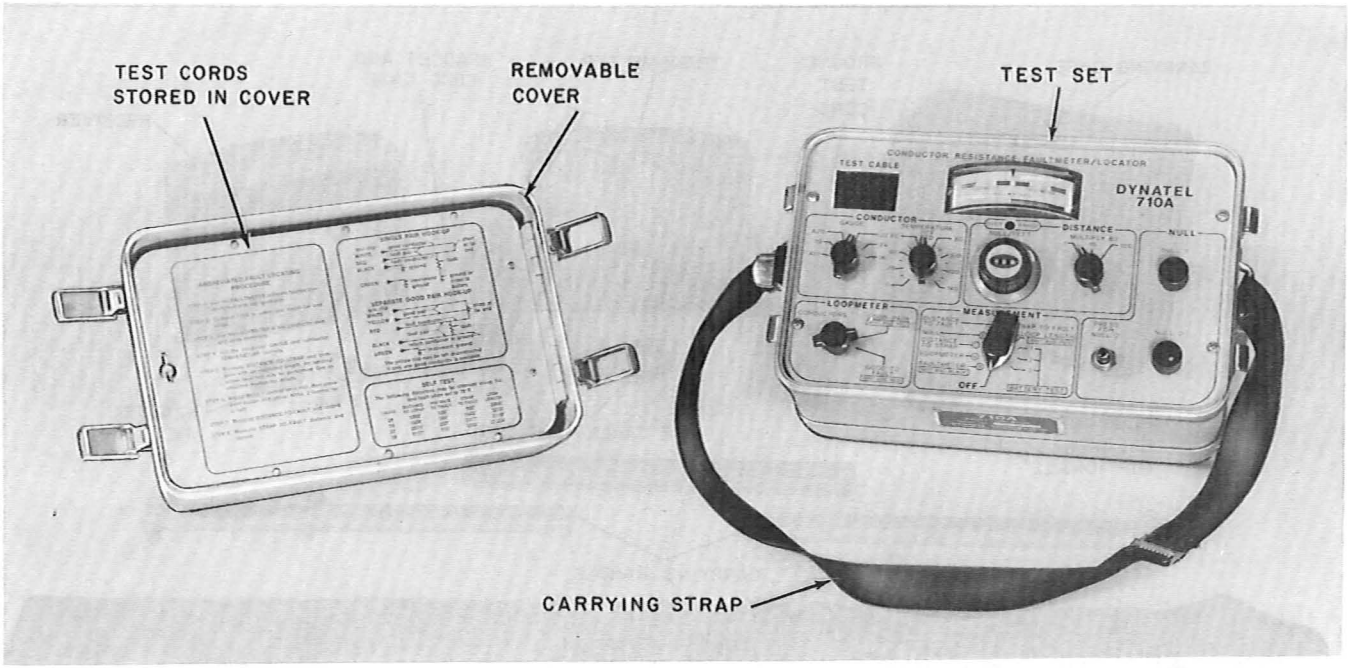


Fig. 72—Dynatel 710A Test Set

METROTECH P440 PIPE AND CABLE LOCATOR

3.70 See Fig. 73.

CATEGORY—Pipe and cable locator.

USE—In locating, tracing, and determining the depth of underground metallic structures.

DESCRIPTION—A portable, battery-operated transistorized set that consists of a signal producing transmitter, a broadly tuned receiver, test cords, headset, carrying handle, and optional plug-in speaker. The set has two modes of operation. In the inductive method, the transmitter inductively couples a signal on the structure. For the conductive method, the transmitter is connected directly to the structure. The receiver is moved along the path to sense the tracing signal.

AUXILIARY APPARATUS—Two 9-volt batteries such as Burgess D6 are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-350-113 and 634-220-501.

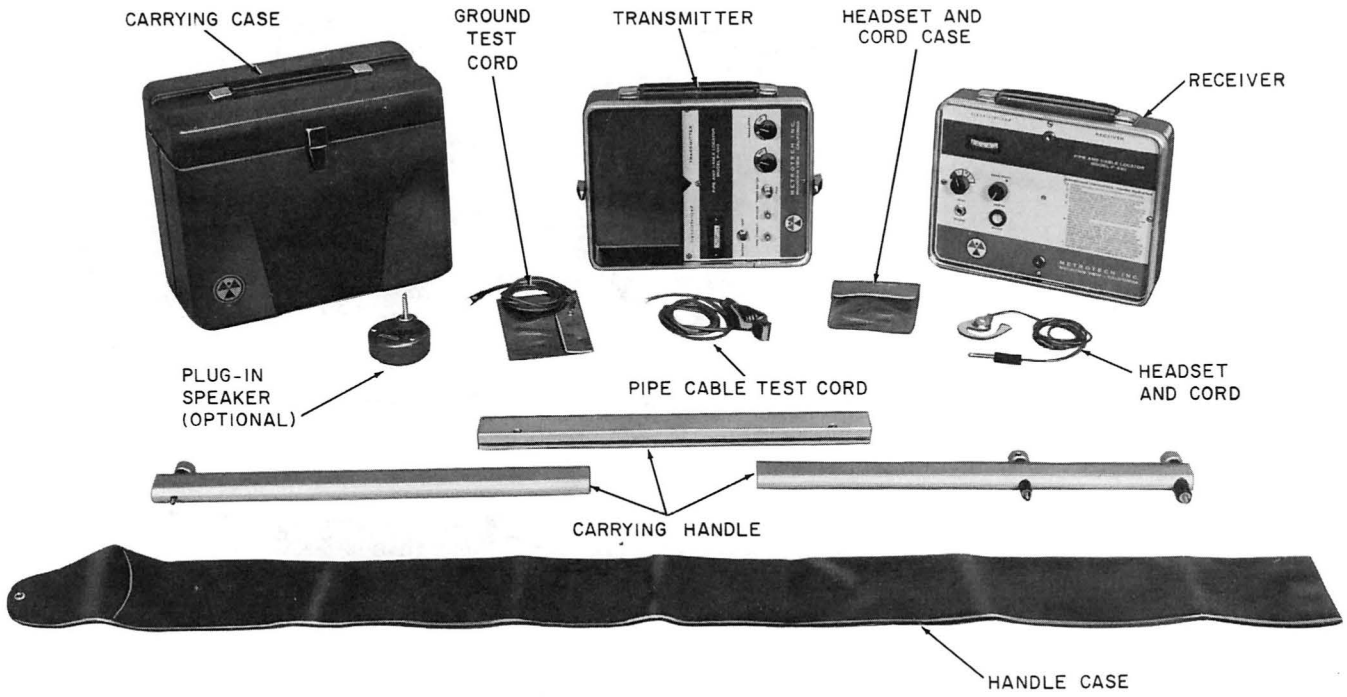


Fig. 73—Metrotech P440 Pipe and Cable Locator

MURPHY CABLE TESTER

3.71 See Fig. 74.

CATEGORY—Cable pair identification.

USE—Identifying cable pairs in nonworking cables by one employee.

DESCRIPTION—Consists of an ohmmeter equipped with a buzzer (Model C Meter) and a combination tag and terminating board. The tester is primarily used for identifying conductors in cables containing 101 or less pairs as only two digit numbers can be identified by the meter. Pairs in another hundred group in the cable can be tested simultaneously by terminating the pairs in another terminal board.

AUXILIARY APPARATUS—Linen or fiber test boards.

REFERENCE—Additional information is contained in Section 634-210-506.

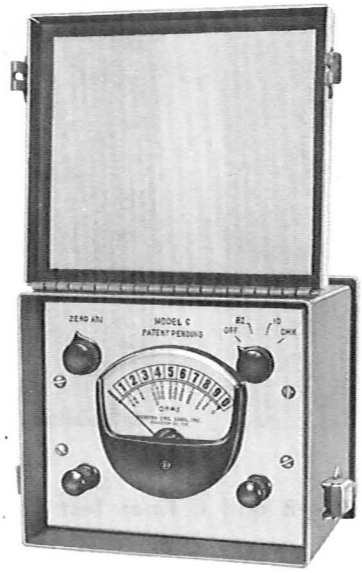


Fig. 74—Murphy Cable Tester

TEST BOARDS

3.72 See Fig. 75.

CATEGORY—Pair identification.

USE—Maintaining pair identification during splicing.

DESCRIPTION—The B and C linen test boards are used when splicing ODD count PIC cables and units of dissimilar size or for making cable tranfers. The D and E linen and B and C fiber test boards are used for identifying pairs in EVEN count cables. The linen boards are flexible enough to be included if the splice must be temporarily wrapped.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-310-100.

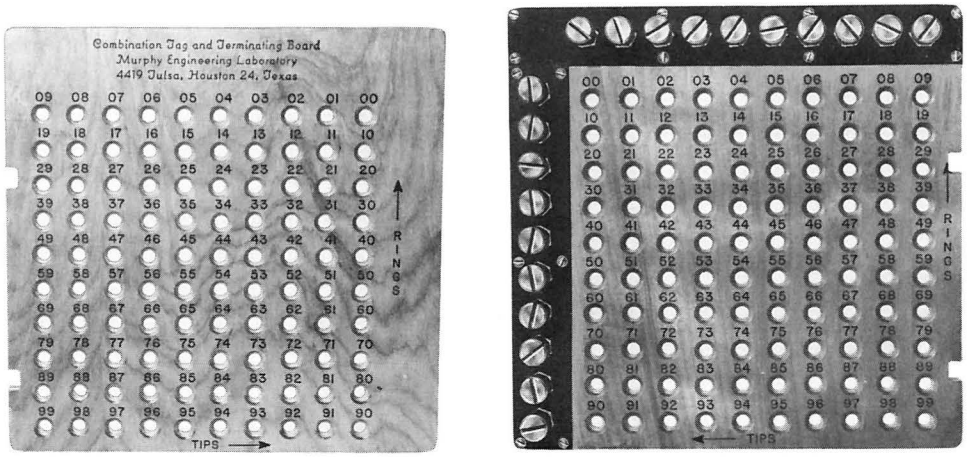


Fig. 75—B and C Fiber Test Boards

TRIAL EQUALIZATION TEST EQUIPMENT

3.73 See Fig. 76, 77, 78, and 79.

CATEGORY—Pair testing.

USE—Determining the suitability of cable pairs for PICTUREPHONE loop or local trunk service.

DESCRIPTION—The pair suitability testing requires the use of a J1C150K cable equalizer test set, F58635 portable equalizer, Hewlett-Packard CO7-3550B transmission test set, J94003A noise measuring set, 96A test set, a 76-type test set, 1013A or equivalent handset, and associated test cords. Tests are performed from the central office and customer ends of the cable.

AUXILIARY APPARATUS—The cable equalizer and portable equalizer use Mallory 303791 batteries and must be ordered separately.

REFERENCE—Additional information is contained in Section 634-405-501.

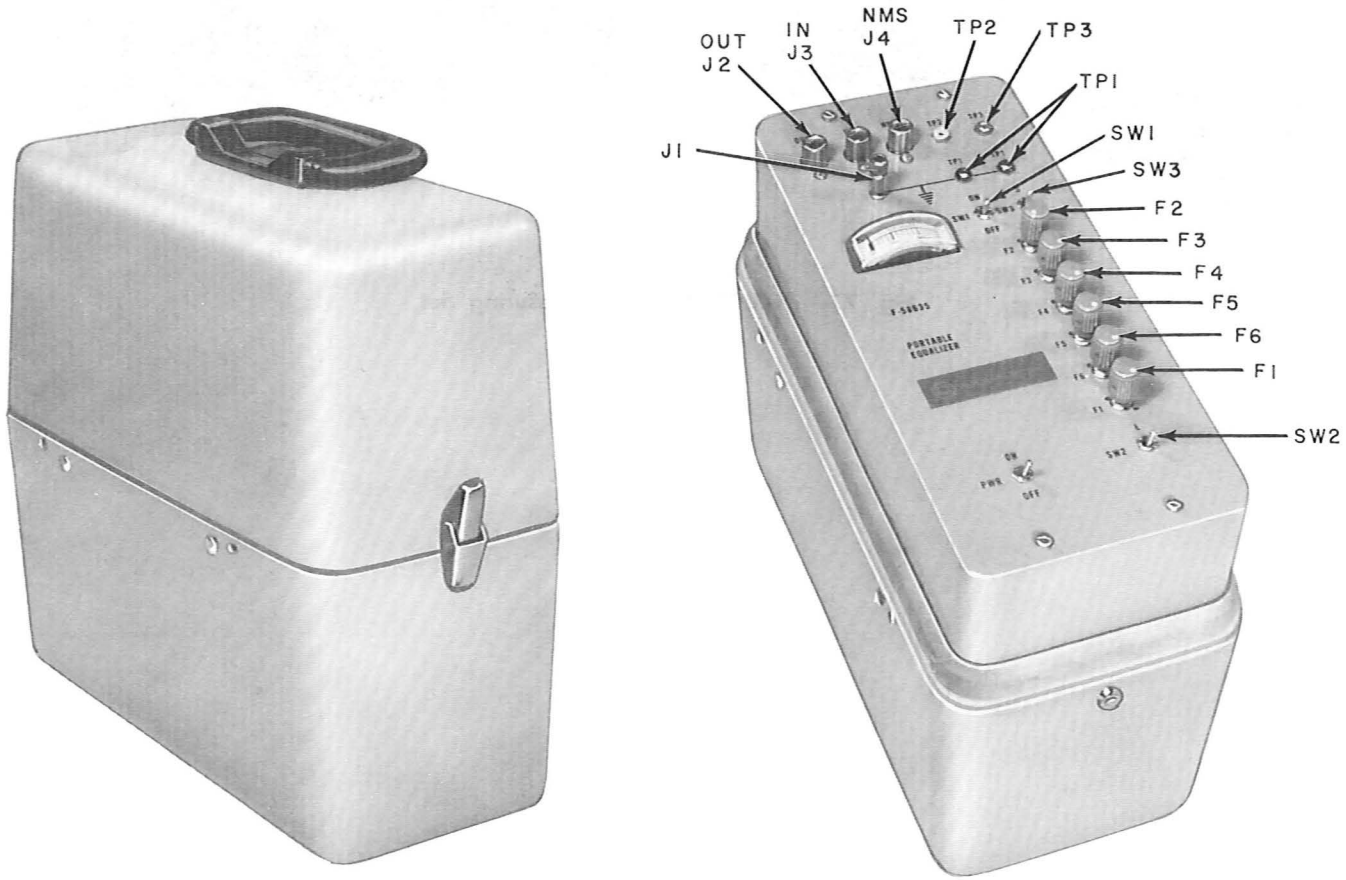


Fig. 76—F-58635 Portable Cable Equalizer Test Set (CETS)

Fig. 77—J94003 A Noise Measuring Set

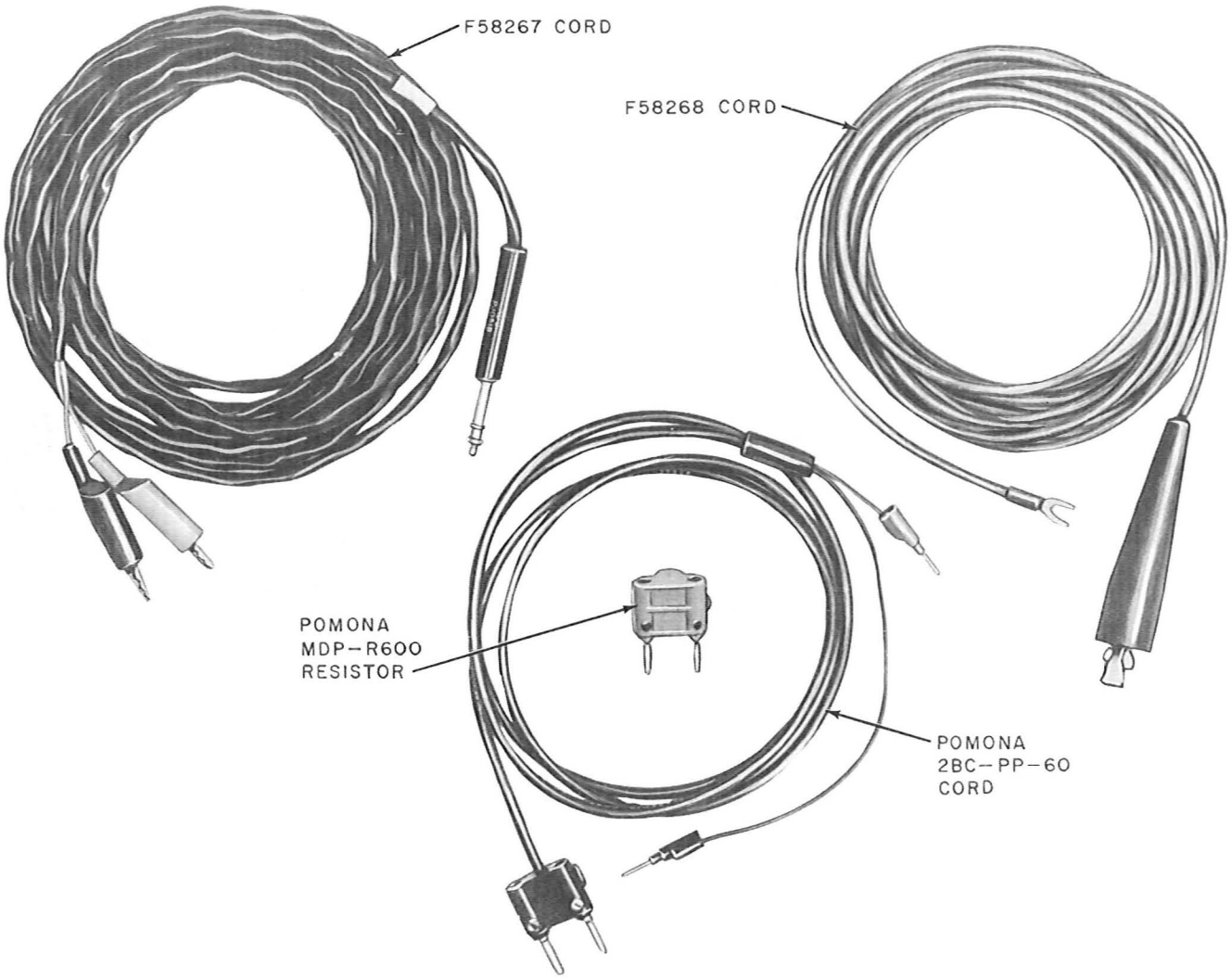


Fig. 78—Test Cords

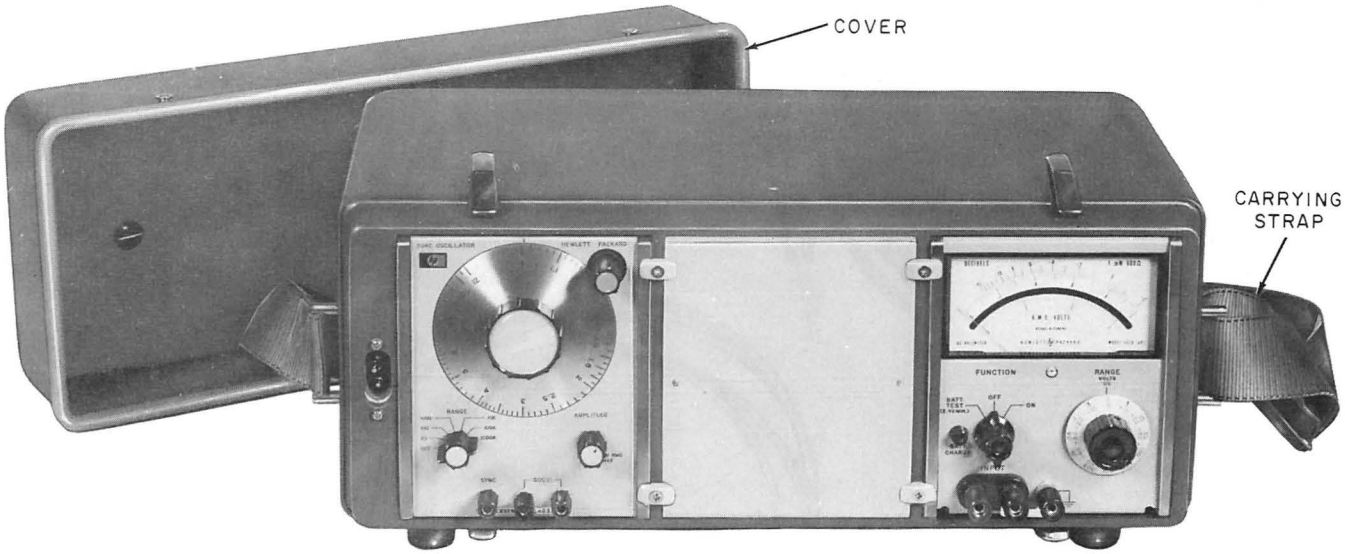


Fig. 79—Hewlett-Packard C07-3550B Termination Test Set

WILCOM T124 TEST SET

3.74 See Fig. 80.

CATEGORY—Sheath continuity test set.

USE—Identifying cable shield discontinuities in cable vaults, manholes, cross-connect boxes, and aerial cables.

DESCRIPTION—Consists of two probes, a measuring set, cables to interconnect probes and measuring set, and a ground cable.

AUXILIARY APPARATUS—One KS-14369 battery or equivalent is required and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-300-120.

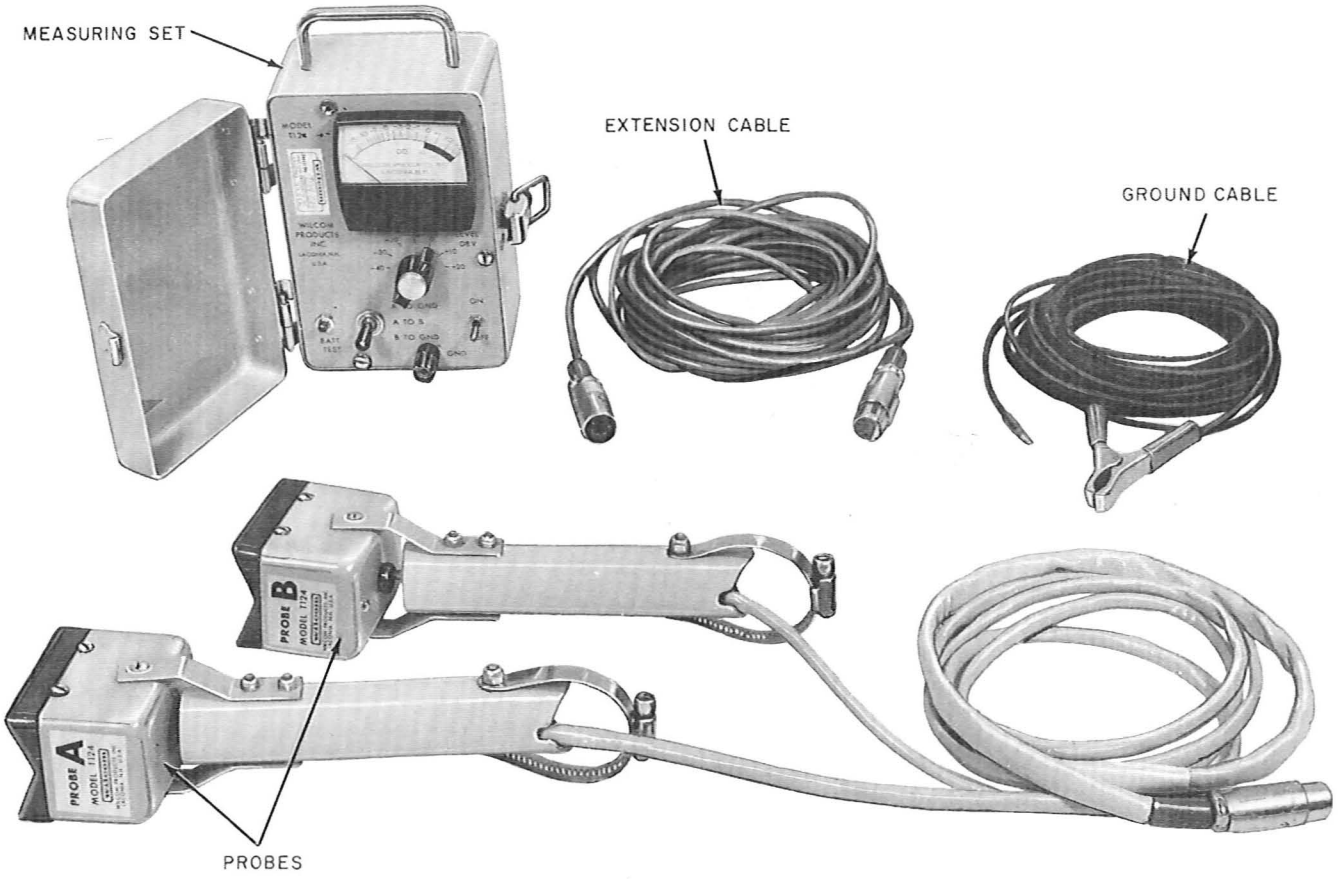


Fig. 80—Wilcom T124 Test Set

4. SUPERSEDED TEST SETS

20C TEST SET (Mfr Disc.)

4.01 See Fig. 81.

CATEGORY—Signal generator—high level tracing current.

USE—Locating path of buried and underground cables; conductor fault location.

DESCRIPTION—A battery-operated vibrator-type current supply with a motor driven interrupter. Continuous or interrupted current can be selected by means of a selector switch. For conductor fault location in working cables, use the filtered output terminals 6 and 7.

AUXILIARY APPARATUS—The set is powered by four KS-6542 batteries which are not furnished and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-340-111 and 634-220-500.

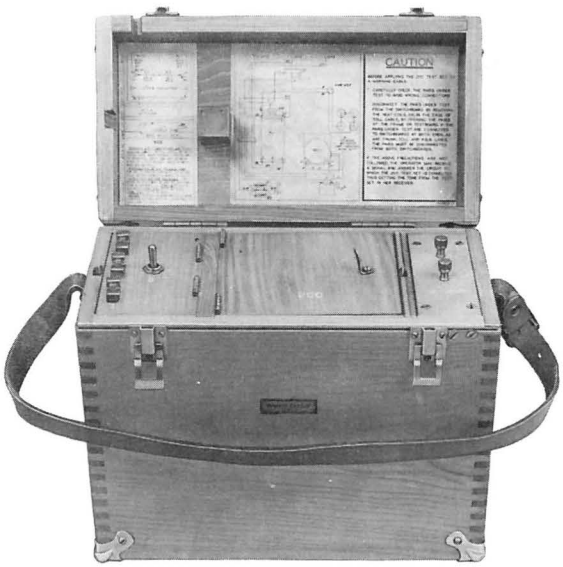


Fig. 81—20C Test Set (Mfr Disc.)

76C TEST SET (Mfr Disc.)

4.02 See Fig. 82.

CATEGORY—Single generator and communication set.

USE—Signal generator for conductor identification and for fault location; also a battery supply and signaling arrangement for communication over a talk pair.

DESCRIPTION—A portable, battery-operated unit that contains a vacuum tube oscillator which will produce a 500-Hz signal modulated at a 7-Hz rate. The set has LOW and HIGH tone outputs. The LOW tone is used for identifying exchange cable pairs where tone is applied from one conductor to ground. The HIGH tone is used in identifying conductors in toll or exchange cable when tone is applied between two wires of a pair or quad. The HIGH tone is also used in exchange cable for fault location by means of exploring coil tests. The set also provides battery for a talking circuit and for a buzzer circuit which can be used for identifying through wet or short sections of dead cable. The set is furnished with two 6-foot transfer cords (cord conductor #P383767, COMCODE #803 837 673) with insulation piercing clips at one end and battery clips on the other end.

AUXILIARY APPARATUS—Two KS-6570 and two KS-6571 batteries are required but must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-020-125 and 634-200-501.

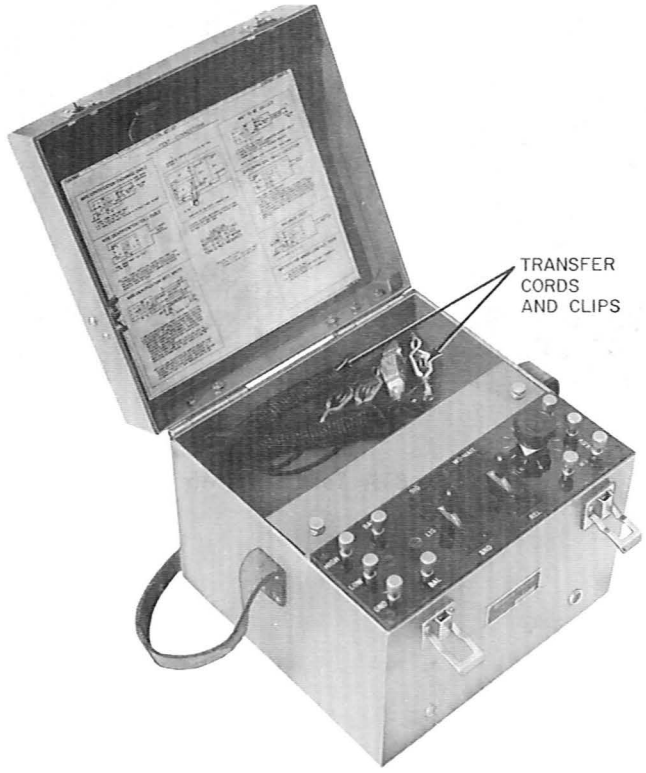


Fig. 82—76C Test Set (Mfr Disc.)

81A TEST SET (Mfr Disc.)

4.03 See Fig. 83.

CATEGORY—Signal generator—low level tracing current.

USE—DC continuity testing and tracing nonworking wire. The set shall ***NOT*** be used on working lines.

DESCRIPTION—Consists of a buzzer, capacitor, and switch in an insulated case. The case has two spring-type binding posts to which test leads may be connected. A slide switch provides capability for continuity testing or tracing.

AUXILIARY APPARATUS—Two KS-6522 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 105-240-100.

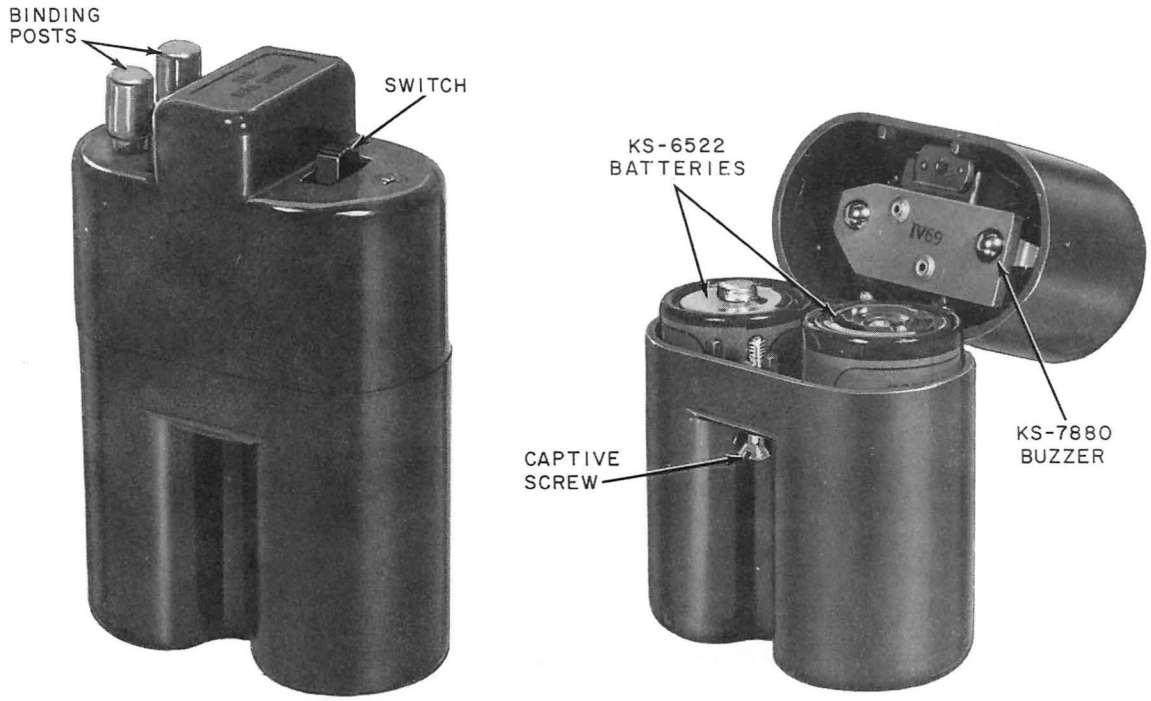


Fig. 83—81A Test Set (Mfr Disc.)

90A TEST SET (Mfr Disc.)

4.04 See Fig. 84.

CATEGORY—Wheatstone Bridge with high voltage power supply.

USE—Provides a means for locating points of low dielectric strength in coaxial cable by high voltage Wheatstone Bridge measurements, for burning out metallic slivers in a coaxial cable by a capacitor discharge method, and for use in locating a low resistance fault in both coaxial and paired cables.

DESCRIPTION—The test set is a portable, ac-operated, high voltage Wheatstone Bridge equipped with a light beam type galvanometer having a sensitivity of approximately 20 megohms per volt. The high voltage supply operates from a 110 Vac 60-Hz source and delivers a dc voltage variable from 0 to 3000 volts. The bridge may be connected for making three Varley measurements or for making loop resistance measurements. A two position switch is provided which can be used to ground the test conductor to ensure that high voltage discharge has occurred.

AUXILIARY APPARATUS—Additional cords and artificial line kits are required and are available in the 6090A test set of which the 90A is a component part.

REFERENCE—Additional information is contained in Sections 106-370-100 and 634-320-550.

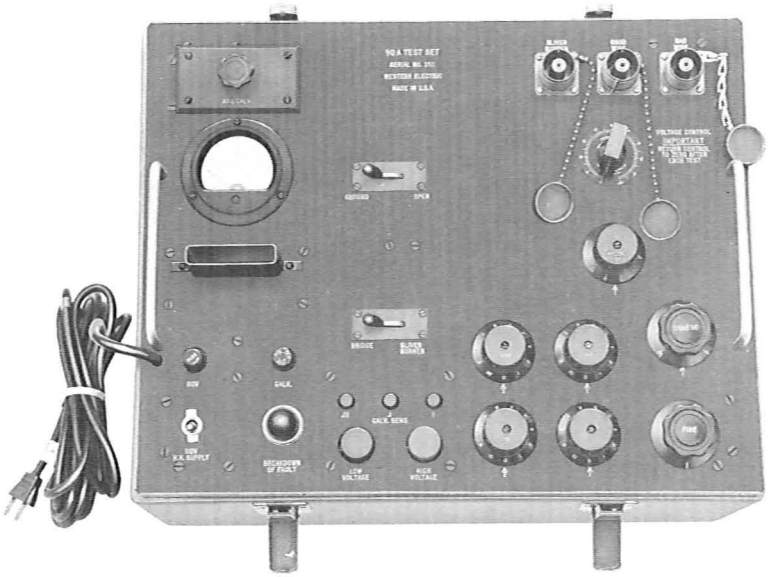


Fig. 84—90A Test Set (Mfr Disc.)

96A TEST SET (Mfr Disc.)

4.05 See Fig. 85.

CATEGORY—Impedance bridge and voltmeter.

USE—Fault location and acceptance testing of telephone cables.

DESCRIPTION—A portable, battery operated test set consists of a dc voltmeter, a bridge circuit, and associated apparatus for suppling dc and ac bridge potentials. The dc voltmeter is 1000 ohms per volt with a scale of 0 to 150 volts. The bridge contains keys to set up a Varley or Murray resistance loop condition and a galvanometer is provided to indicate a balanced condition. The bridge can also be used for locating opens when the bridge is energized by an internal 15-Hz signal generator and balance is achieved against one of three capacitance levels selected by a front panel key control. A W3AG cord is provided for connecting the set to a cable pair and to ground or a third wire in the cable.

AUXILIARY APPARATUS—Seven KS-6571 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-230-105 and 634-310-501.

> ***Note:*** A 96B test is available and is the same as the 96A except that the internal ac signal is available in 4 Hz and 7-1/2 Hz for use on ocean cable testing. The 96A test set may include the Beckman RN-3, Industrial Instruments RN-3 or Leeds and Northrup 5430-AM-1 bridges.

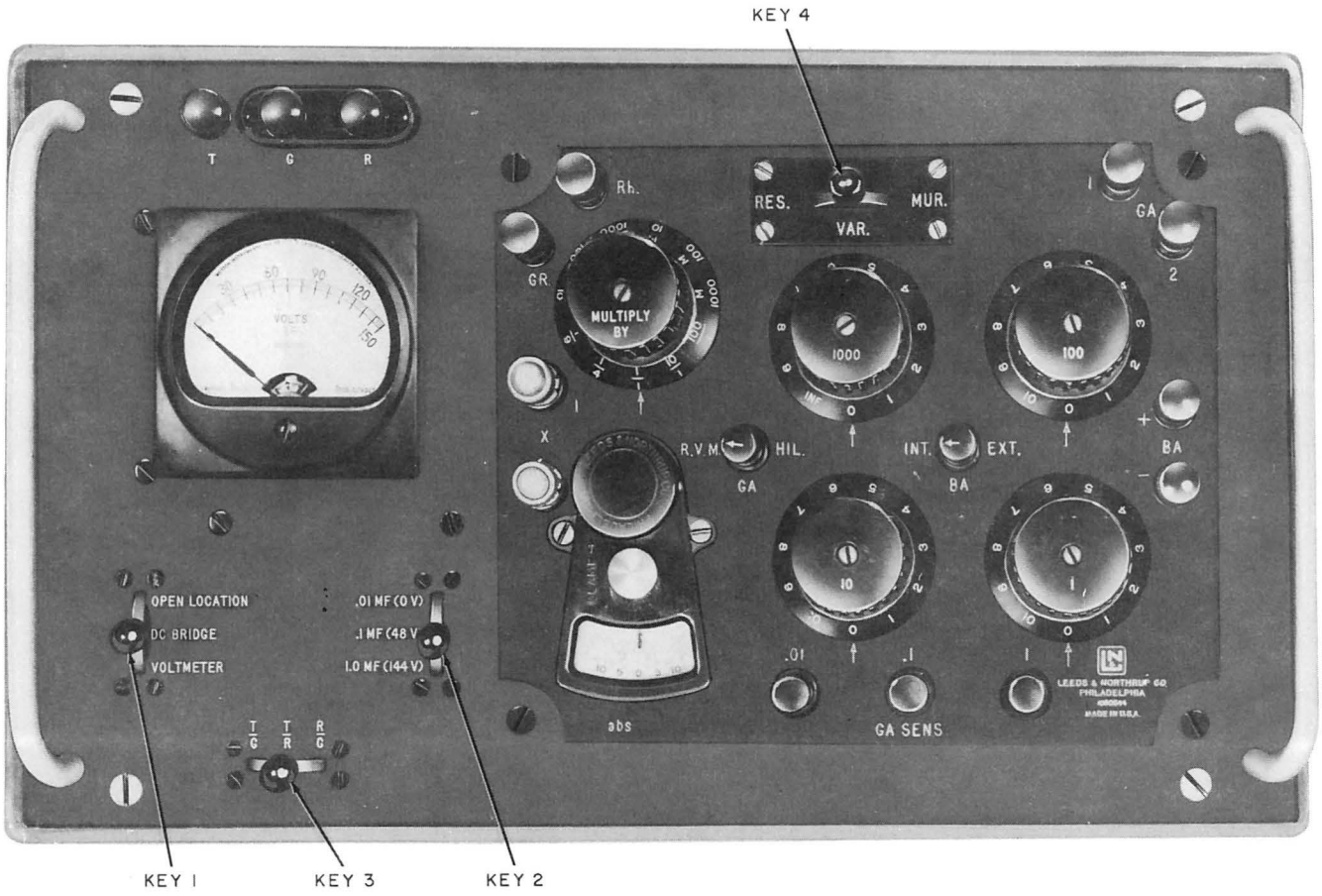


Fig. 85—96A Test Set (Mfr Disc.)

104B TEST SET (Mfr Disc.)

4.06 See Fig. 86.

CATEGORY—Wire transfer set (half-tap).

USE—To maintain and check circuit continuity during section replacements.

DESCRIPTION—A portable, battery-operated test set that contains three vacuum tube circuits arranged in two functional blocks. The first block operates as an 85-Hz oscillator when continuity has been achieved between the half-tap conductor and the conductor being transferred. The second block will produce a 1000-Hz signal at the output terminals when triggered by the 85-Hz signal. A control establishes the threshold at which 85-Hz oscillation occurs and a second control is provided to control the level of the 1000-Hz output. Provided with the set are two W2CC cords equipped with 310 plugs, one P2CG cord equipped at each end with 310 plugs, and one W1AN cord.

AUXILIARY APPARATUS—Two KS-14369 batteries and two KS-14495 batteries are required but must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-320-100 and 634-355-503.

Fig. 86—104B Test Set (Mfr Disc.)

113A PAIR LOSS MEASURING SET (Mfr Disc.)

4.07 See Fig. 87.

CATEGORY—Pair loss measurements—650 kHz.

USE—Provides pair loss measurements between two adjacent repeater sections in a T1 carrier route. (Two sets are required to make the test.)

DESCRIPTION—The 113A test set is portable, battery-operated, and self-contained in an aluminum carrying-case with handles. The 113A test set is 9 inches long, 7 inches wide, and 6-1/2 inches wide.

AUXILIARY APPARATUS—Two mercury-type batteries (Mallory 302478) are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 640-525-220.

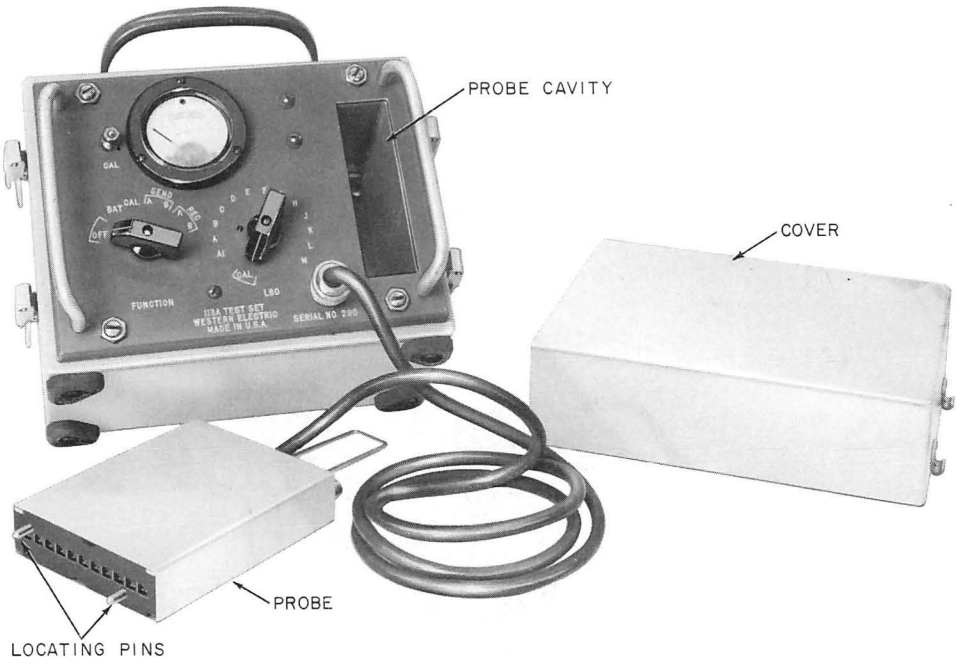


Fig. 87—113A Pair Loss Measuring Set (Mfr Disc.)

121A TEST SET

4.08 See Fig. 88.

CATEGORY—Cable locator.

USE—Locating and Measuring the depth of buried cables.

DESCRIPTION—The set is composed of a 122A test set which functions as a signal source, a 123A test set which functions as a locating and depth measuring device, and a carrying case.

AUXILIARY APPARATUS—See individual codes.

REFERENCE—Additional information is contained in Sections 106-350-115 and 634-220-515.

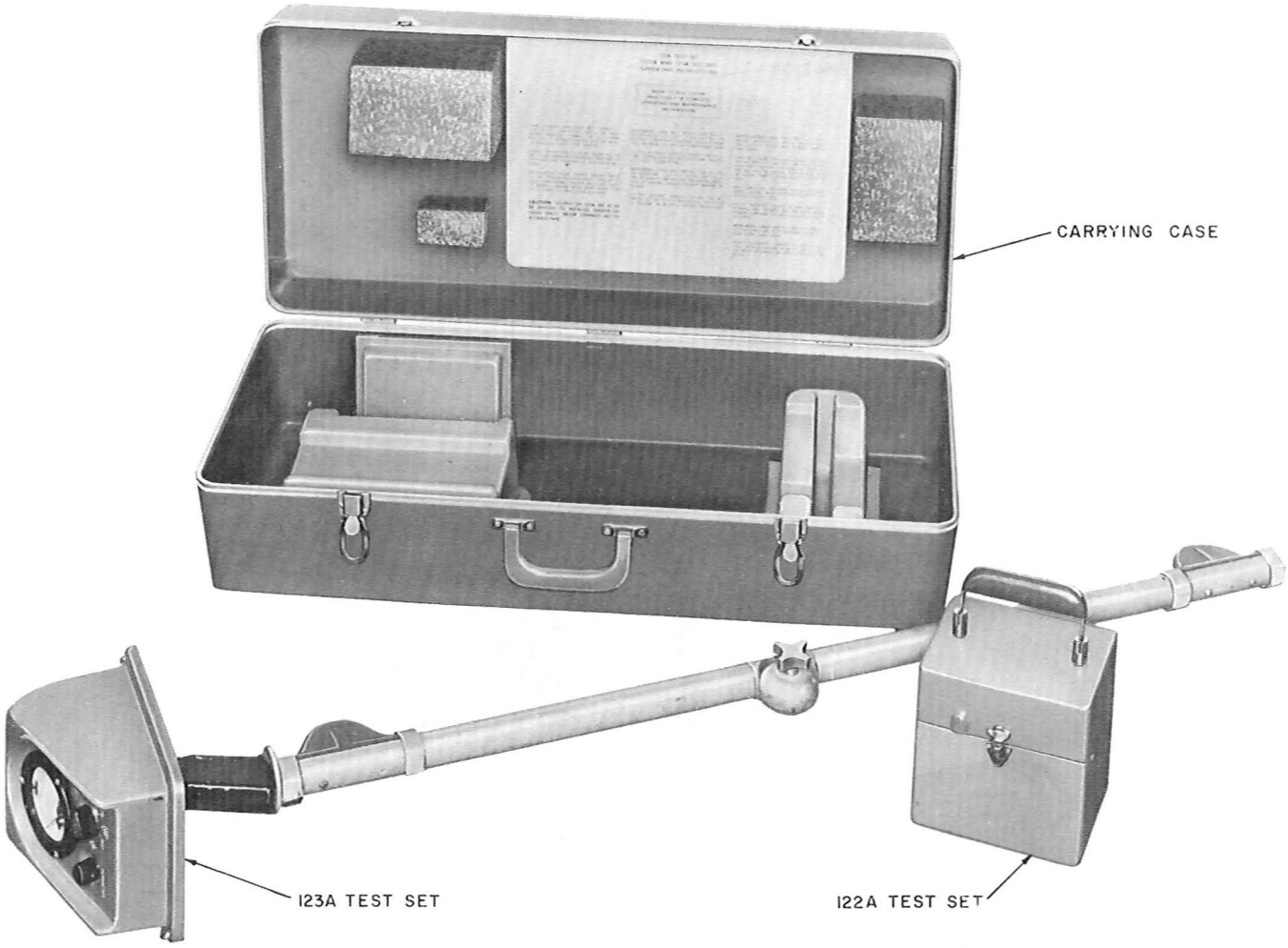


Fig. 88—121A Test Set (Mfr Disc.)

122A TEST SET

4.09 See Fig. 89.

CATEGORY—20-Hz signal generator.

USE—Source of tracing current for locating and measuring depth of buried cable.

DESCRIPTION—This portable, battery-operated test set contains a transistorized signal source that produces a 20-kHz signal output which is limited to a maximum current of 50 ma to minimize interference with telephone circuits. Two 8-foot, single conductor test leads are provided for connecting the set between the sheath and ground. This set is part of the 121A test set.

AUXILIARY APPARATUS—Four KS-14711 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-350-115 and 634-220-515.

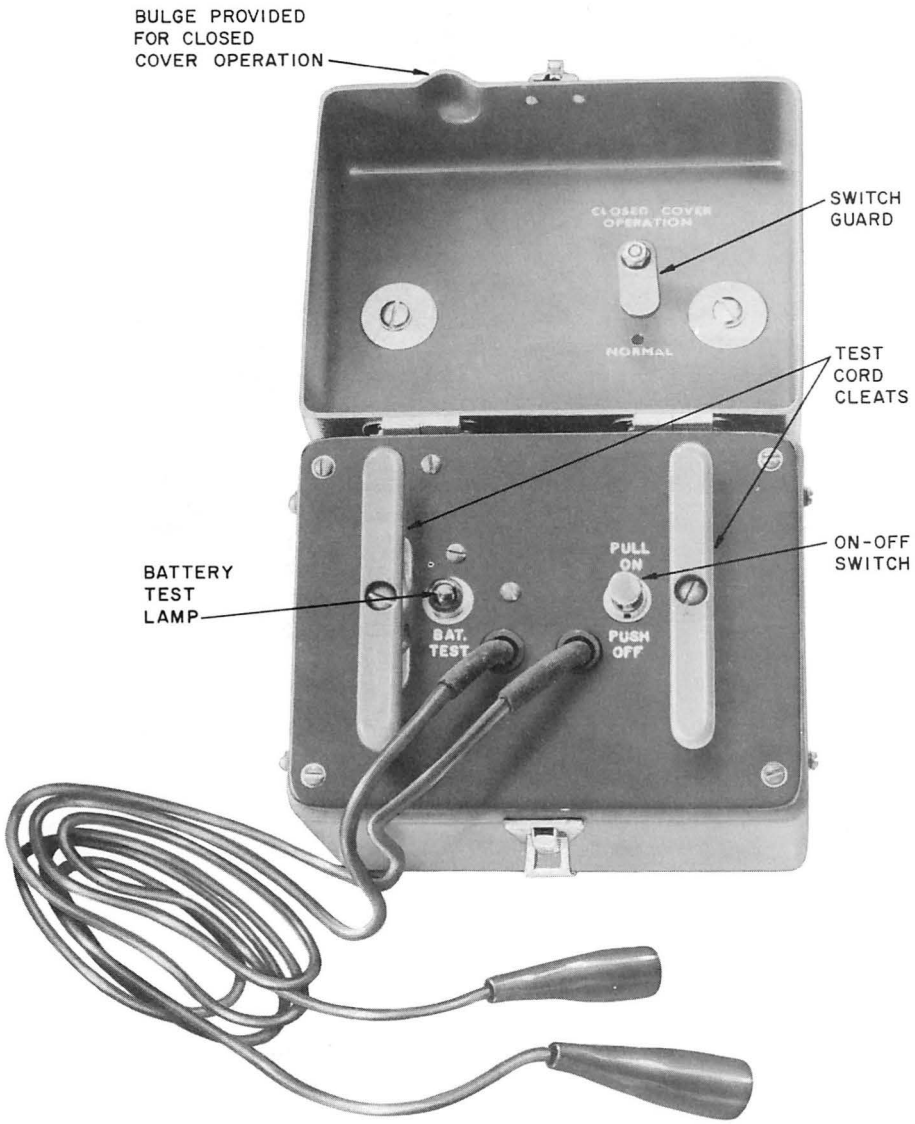


Fig. 89—122A Test Set (Mfr Disc.)

123A TEST SET

4.10 See Fig. 90.

CATEGORY—Tuned amplifier with dual exploring coils.

USE—Receiver for locating and determining the depth of buried cables.

DESCRIPTION—This portable, battery-operated test set consists of two identical air core pick-up coils mounted 3 feet apart on a folding fiberglass tube with a variable gain amplifier. The amplifier, equipped with a hand grip and trigger switch, is in the assembly mounted on the top of the tube. Also provided are a gain control and a meter for indicating depth. This set is part of the 121A test set.

AUXILIARY APPARATUS—Four KS-14368 or equivalent AA size batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-350-115 and 634-220-515.

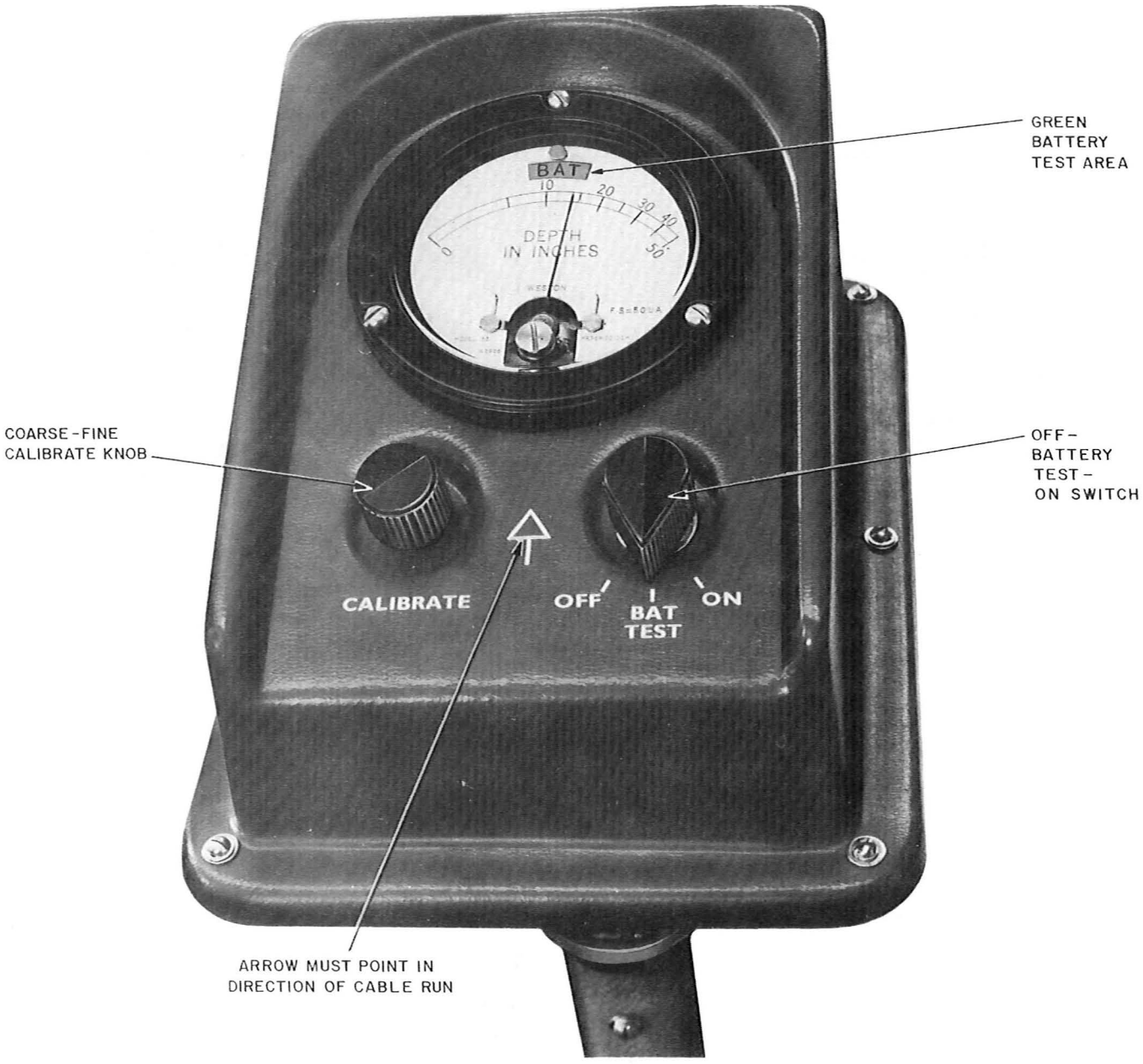


Fig. 90—123A Test Set (Mfr Disc.)

128A TEST SET (Mfr Disc.)

4.11 See Fig. 91.

CATEGORY—Corona detection.

USE—Determine corona inception voltages of coaxials (inner to outer conductor).

DESCRIPTION—The test set consists of a high voltage unit and a detection unit which provides a visual and audible indication of the corona noise. A vibrator-type inverter is included to provide operating power in the field and a calibrator is built in for checking the sensitivity of the detection circuit. Various meters and switches complete the test set.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Sections 106-370-116 and 634-320-505.

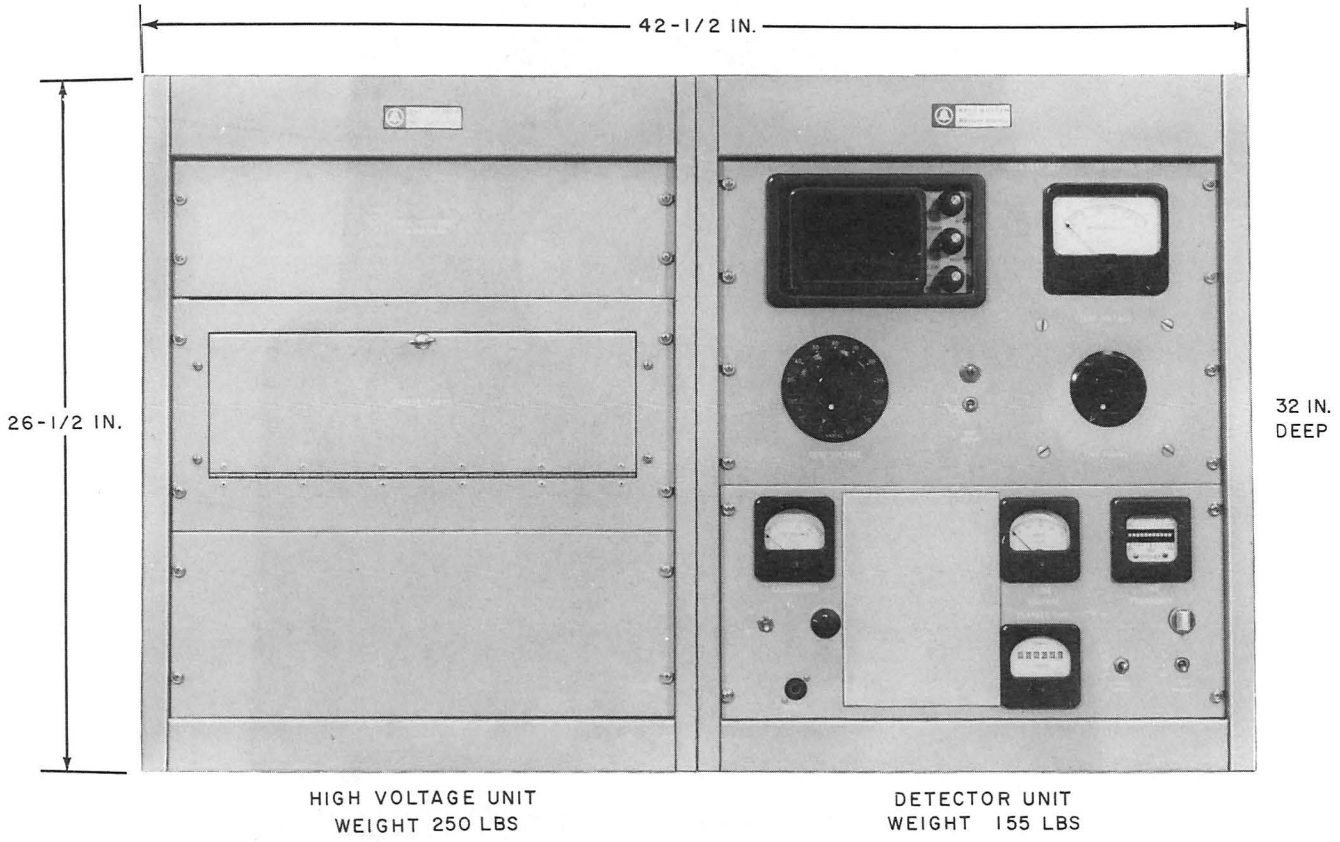


Fig. 91—128A Test Set (Mfr Disc.)

147B AMPLIFIER (Mfr Disc.)

4.12 See Fig. 92.

CATEGORY—Tuned audio amplifier.

USE—Conductor identification or conductor fault location where an amplifier, selectively tuned to 500 Hz, is required.

DESCRIPTION—A portable, battery-operated test set consists of a three stage, vacuum-tube amplifier that is tuned to give maximum response at 500 Hz. It is equipped with a volume control and a two-position input selector switch. The selector switch provides for a low-impedance input (COIL) when used with exploring coils and a high-impedance input (PROBE) when used with exploring probes.

AUXILIARY APPARATUS—Two KS-14368 batteries and one KS-14773 battery are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 106-300-100.

Note: This amplifier is part of the 91A test set and additional auxiliary apparatus may be found in that set.

Fig. 92—147B Amplifier (Mfr Disc.)

AT-7381 HIGH VOLTAGE MEGGER TEST SET (Mfr Disc.)

4.13 See Fig. 93.

CATEGORY—Megger test set.

USE—For measuring insulation resistance of coaxials.

DESCRIPTION—A portable test set that contains a hand-operated magneto generator and megohm meter which are arranged to operate at potentials of 400, 1500, or 2500 volts, depending upon the setting of the selector switch. Insulation resistances from 0 to 48,000 megohms may be indicated.

AUXILIARY APPARATUS—A W2DD cord is required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-220-111, 634-320-500, and 634-320-010.

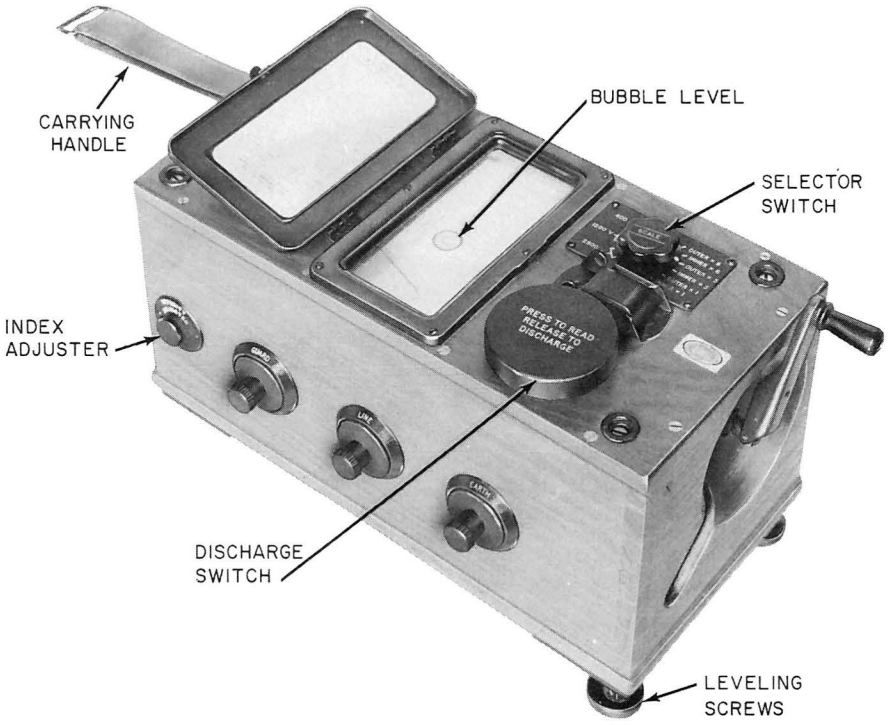


Fig. 93—AT-7381 High Voltage Megger Test Set (Mfr Disc.)

AT-7383 TEST SET (Mfr Disc.)

4.14 See Fig. 94.

CATEGORY—Megger test set.

USE—Measuring insulation resistance of paper-insulated conductors.

DESCRIPTION—A portable test set that contains a hand-operated magneto generator and megohm meter arranged to operate at a potential of 400 volts. The test potential can be provided by operating the magneto generator or by a 744 rectifier which would require 115-volt ac 60-Hz power. A discharge switch is provided which discharges the line after test. The meter is calibrated to read directly in megohms in the range of 0 to 1000 megohms.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Sections 106-220-105 and 634-020-500.

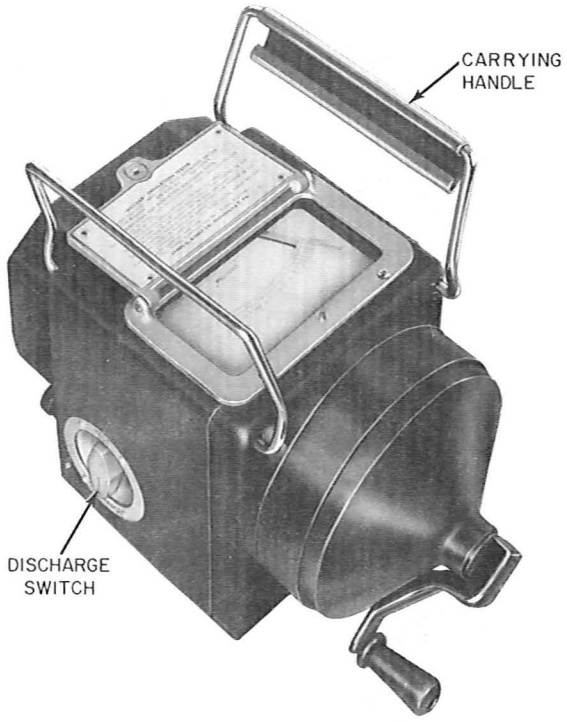


Fig. 94—AT-7383 Test Set (Mfr Disc.)

AT-7731 B VOLTAGE TESTER

4.15 See Fig. 95.

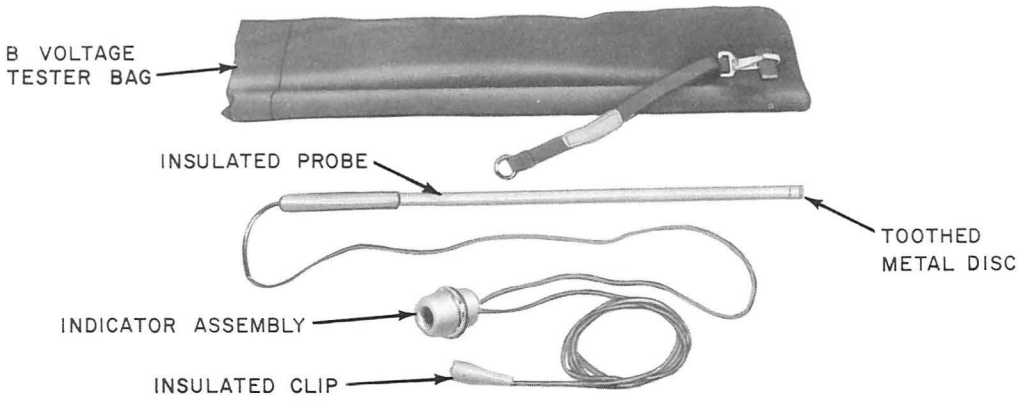
CATEGORY—Voltage indicating device.

USE—Indicating the presence of voltage from 60 to 7600 volts ac or dc.

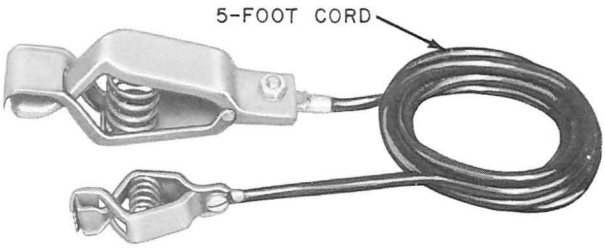
DESCRIPTION—Consists of an indicator assembly (which contains a small neon glow unit) and a plastic-insulated probe equipped with a toothed, metal disk at one end for making contact with the conductor, conduit, or street light fixture to be tested. A two-foot cord connects the indicator assembly to the insulated probe and an eight-foot cord is used for ground connection from the indicator assembly. The B shunting capacitor and the B temporary bond have been provided for use with the B voltage tester when testing street light fixtures.

AUXILIARY APPARATUS—None.

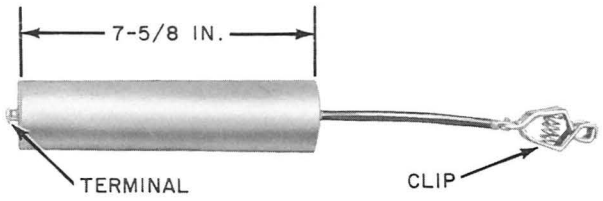
REFERENCE—Additional information is contained in Sections 620-105-010 and 460-100-209.



AT 7731-B VOLTAGE TESTER AND BAG



AT 7781-B TEMPORARY BOND



AT 7782-B SHUNTING CAPACITOR

Fig. 95—AT-7731 B Voltage Tester (Mfr Disc.)

AT-7851 L1A TEST SET

4.16 See Fig. 96.

CATEGORY—Sheath fault locator.

USE—Locating the point where the metallic shield of buried, plastic sheath cable is in contact with the ground.

DESCRIPTION—A portable, battery-operated test set that consists primarily of an L2A detector unit, an L3A voltage control unit, associated test cords, and a carrying case. The voltage control unit establishes the signals to be applied between the shield of the cable and ground. The detector unit contains an indicator meter and amplifier with means for adjusting sensitivity. The principle of operation is based upon the potential gradient method of locating the sheath fault point.

AUXILIARY APPARATUS—Three D-type ground rods or equivalent, two KS-14711 batteries, and nine 67-1/2 volt batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Sections 106-360-100 and 634-315-500.

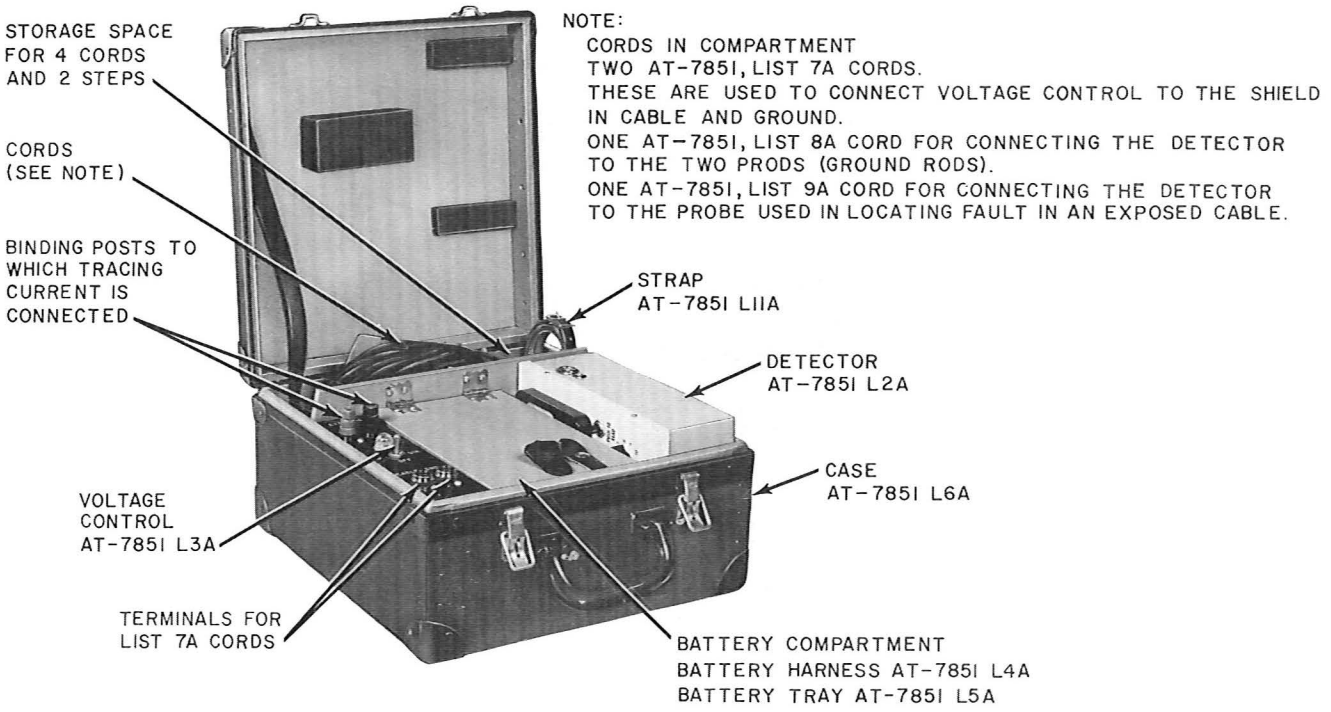


Fig. 96—AT-7851 L1A Test Set (Mfr Disc.)

AT-8121 L1A TEST SET (Mfr Disc.)

4.17 See Fig. 97.

CATEGORY—Wire identification test set.

USE—Conductor identification on short nonloaded loops or loops with three loads or less that are not of a special service nature.

DESCRIPTION—A portable, battery-operated test set that consists of an L2B transmitter, L3A receiver, L4A capacitive probe, L5A carrying straps, L6A battery holder, W3AP cord, W2FB cord, and an L8A carrying case. The 20-KHz identification signal provided by this test set does not interfere with pairs in service when used in accordance with Section 634-200-520.

AUXILIARY APPARATUS—Four KS-14368 batteries, one KS-6569 battery, and a 52E head telephone set.

REFERENCE—Additional information is contained in Sections 106-310-125 and 634-200-520.

Fig. 97—AT-8121 L1A Test Set (Mfr Disc.)

KS-14103 L5 TEST SET (Mfr Disc.)

4.18 See Fig. 98.

CATEGORY—Breakdown test set.

USE—In breaking down high resistance faults in paper- or pulp-insulated, copper conductor cables so they can be run down with an exploring coil.

DESCRIPTION—A portable, battery-operated test set that contains a meter, KS-14103 L4 filter, KS-14485 L1 buzzer, and a group of batteries connected in series to provide 630-volts dc. The associated circuitry and switches provide for (a) breaking down a high resistance fault to one of low resistance so the fault can be located with an exploring coil, (b) supplying tracing current for running down the fault, and (c) measuring resistances. A 35-foot W2FW cord is provided with the set.

AUXILIARY APPARATUS—Fifteen KS-14196 batteries, two KS-6570 batteries, and one KS-14495 battery are required and must be ordered separately. The AT-7259 B, AT-7878 C, and AT-8271 D warning markers, and AT-8325 E warning sign are used in conjunction with this test set. The following cords are available on separate order: P2DB, P2CY, W2GD, W2GM, P2DC, 2P34A, and W2FK. Also, an AT-7840 B test set cover is available.

REFERENCE—Additional information is contained in Section 634-305-501.

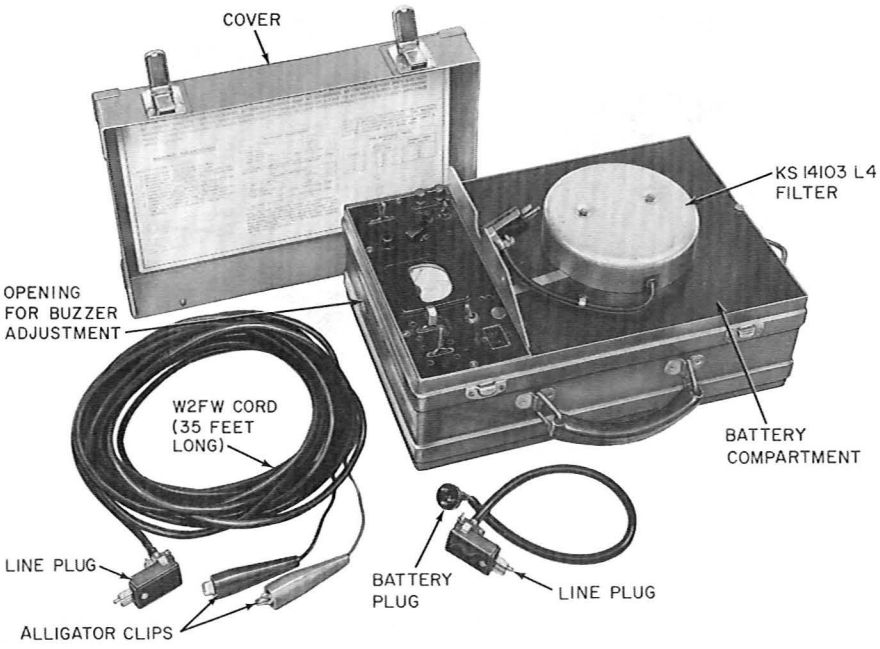


Fig. 98—KS-14103 L5 Test Set (Mfr Disc.)

KS-14725 DC VOLTMETER (Mfr Disc.)

4.19 See Fig. 99.

CATEGORY—Voltmeter.

USE—Measuring the potentials of dry batteries.

DESCRIPTION—A portable test set that consists primarily of a meter mounted in a leather case. The meter is calibrated to read voltage directly in ranges of 3, 6, 30, and 90 volts with a sensitivity of 1000 ohms per volt. Two test leads are provided, one permanently connected to the meter. The other, a KS-14725 L2 test lead, is equipped with a banana plug and can be inserted into one of four jacks for the desired voltage range. The free ends of both leads are equipped with prods for making contact with battery post terminals.

AUXILIARY APPARATUS—None.

REFERENCE—Additional information is contained in Section 106-220-100.

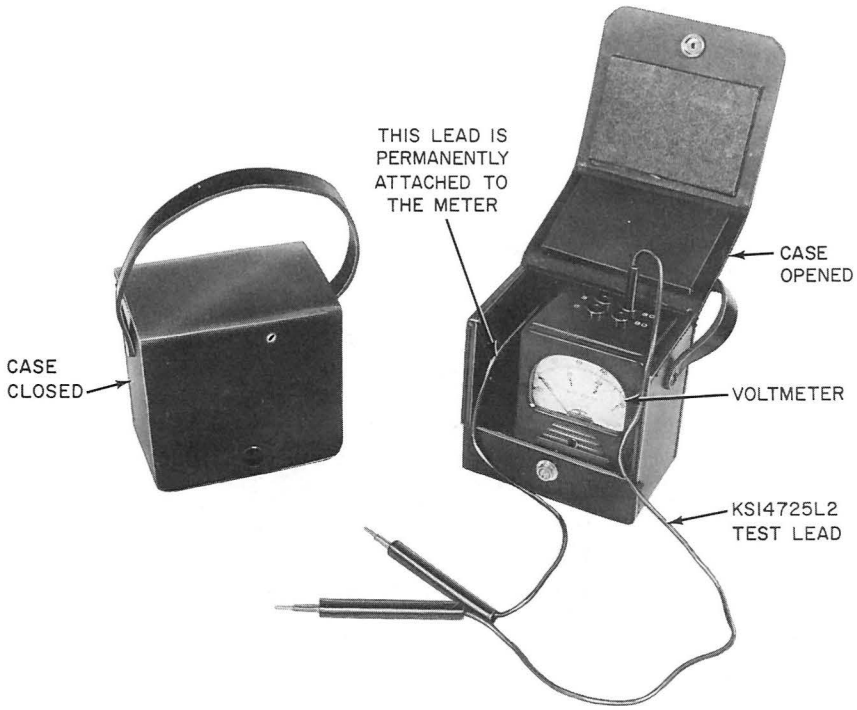


Fig. 99—KS-14725 DC Voltmeter (Mfr Disc.)

KS-16990 L1 TEST SET (Mfr Disc.)

4.20 See Fig. 100.

CATEGORY—Source of tracing signal, continuity testing, and station identification.

USE—Tracing conductor pairs which cannot be traced readily by sight, detecting presence of shorts, crosses, and grounds, identifying tip and ring, identifying stations associated with 2 party service and 4 party selective service (tubes) and testing for line verification.

DESCRIPTION—A portable, battery-operated test set that consists of an on-off switch, neon lamp, printed wiring board, and jacks. The set can perform as a relaxation oscillator using the neon lamp as an indicating device. The W2ET cord has banana plugs for placing in jacks of test set and insulated clips on the other end for attaching to conductors to be tested.

AUXILIARY APPARATUS—Five KS-15936 batteries are required and must be ordered separately.

REFERENCE—Additional information is contained in Section 105-270-100.

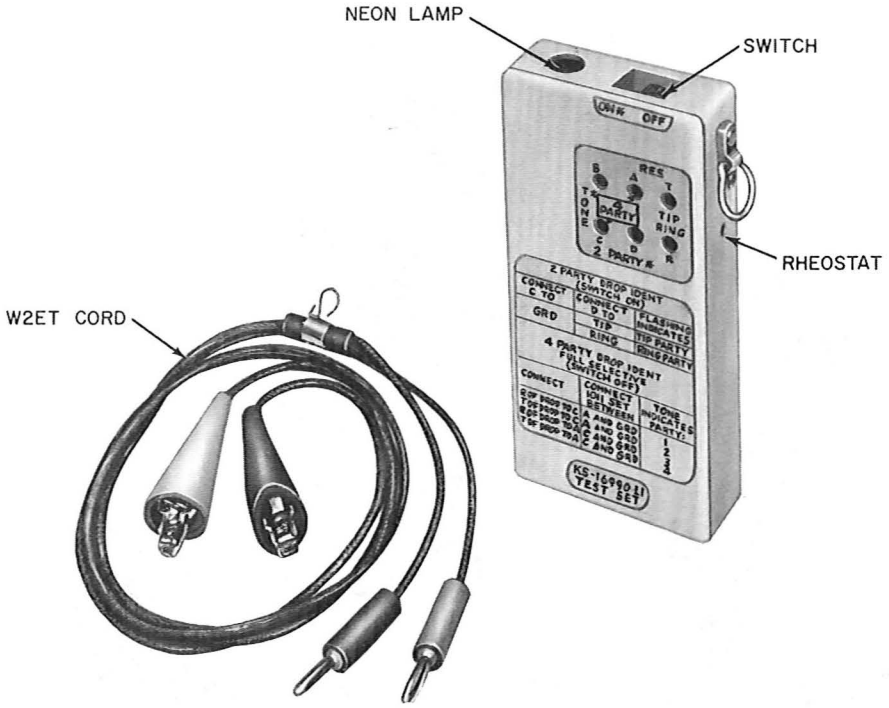


Fig. 100—KS-16990 L1 Test Set (Mfr Disc.)

BIDDLE 110A CABLE FAULT LOCATOR (Mfg Disc.)

4.21 See Fig. 101.

CATEGORY—PICTUREPHONE® cable fault locator.

USE—Testing from central office or intermediate cable equalizer location for troubles that impair PICTUREPHONE—transmission.

DESCRIPTION—A portable pulse echo type test set with a network and two 20-foot test cords. One cord is terminated in alligator clips and the other cord is terminated in a 310 plug. Power to the test set is supplied by 12 rechargeable Burgess CD10L batteries. Where available, commercial 110V 60-Hz ac power should be used.

AUXILIARY APPARATUS—12 Burgess CD10L batteries which must be ordered separately.

REFERENCE—Additional information is contained in Section 634-405-301.

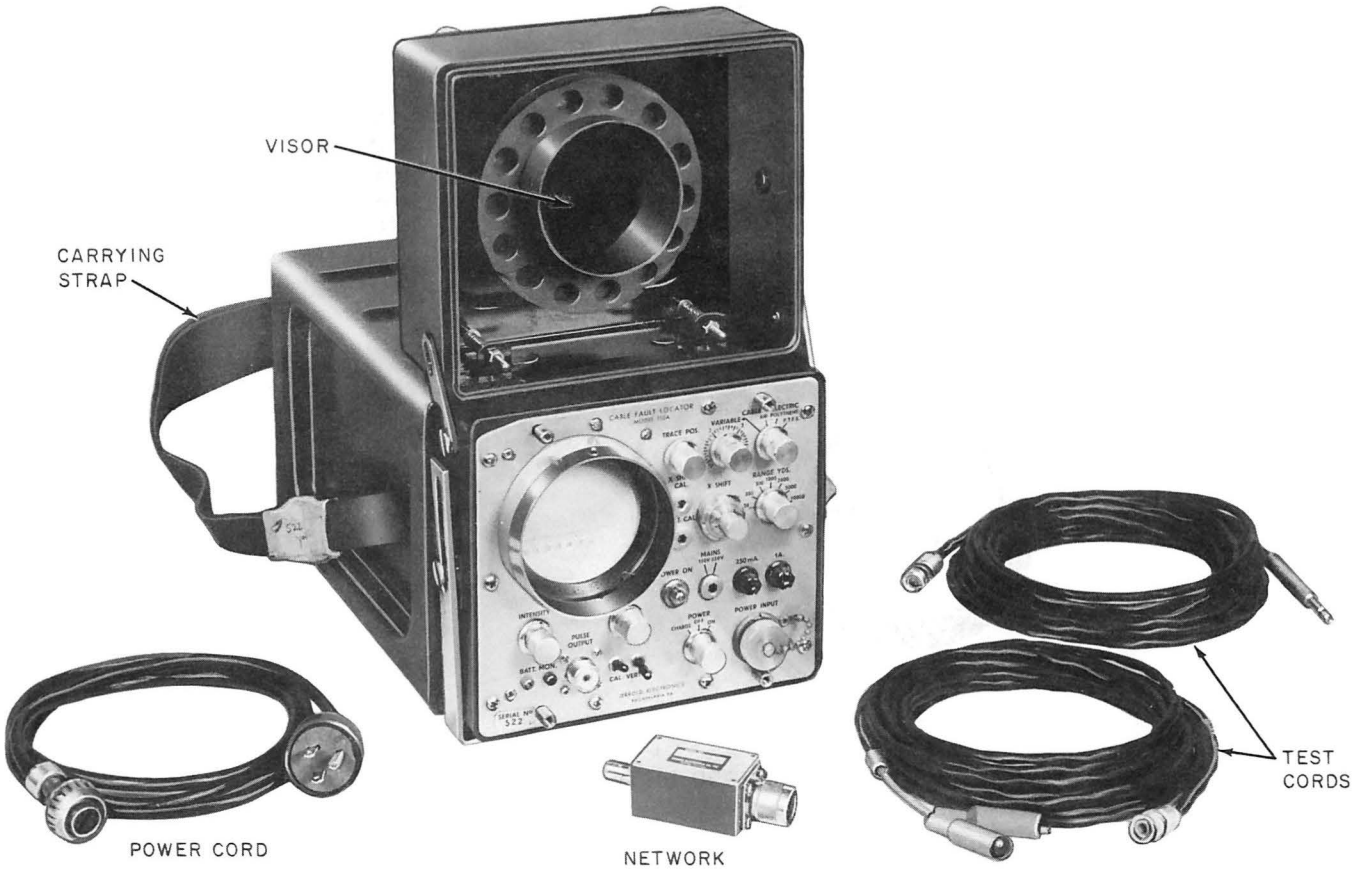


Fig. 101—Biddle 110A Cable Fault Locator (Mfr Disc.)