

# MAINTENANCE TOOLS

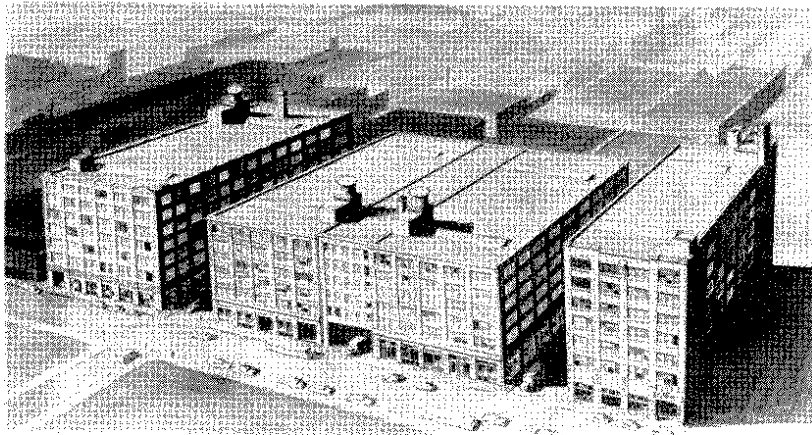
SEP 1961

**Bulletin 540-B**

**AUTOMATIC  ELECTRIC**

*Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . . Machine Switching Automatic Dial Systems  
Makers of Telephone, Signaling and Communication Apparatus...Electrical Engineers, Designers and Consultants*

Factory and General Offices: 1033 West Van Buren Street, Chicago 7, U.S.A.



*Factory and General Offices of Automatic Electric Company, Chicago, U. S. A.*

AUTOMATIC ELECTRIC COMPANY is an organization of designing, engineering, and manufacturing specialists in the fields of communication, electrical control and allied arts. For more than sixty years the company has been known throughout the world as the originator and parent manufacturer of the Strowger Automatic Telephone System. Today Strowger-type equipment serves over 75% of the world's automatic telephones. The same experience and technique that have grown out of the work of Automatic Electric engineers in the field of telephone communication are also being successfully applied on an ever-increasing scale to the solution of electrical control problems in business and industry.

## PRINCIPAL PRODUCTS

*Strowger Automatic Telephone Systems*—Complete automatic central office equipment for exchange areas of any size, from small towns to the largest metropolitan networks.

*Community Automatic Exchanges*—Unattended automatic units for small rural or suburban areas, with facilities for switching into attended exchanges.

*Automatic Toll Boards*—An adaptation of Strowger principles to toll switching, resulting in simplification of operators' equipment and greater economy of operating and toll circuit time.

*Private Automatic Exchanges*—Available in various capacities, with or without central office

connections, and with facilities for special control services to meet the needs of the user.

*P.B.X. Switchboards*—A complete range of cordless and cord types for the modern business.

*Telephone Instruments*—Modern designs for automatic or manual exchanges, including the Monophone—the world's most attractive and efficient handset telephone.

*Exchange Accessory Equipment*—Auxiliary exchange and substation equipment, including manual desks, testing apparatus, transmission equipment, and all accessories needed for the operation and maintenance of the modern telephone exchange.

Makers also of electrical control apparatus for industrial, engineering and public utility companies, telephone apparatus for railroads and pipe line companies, private telephone systems of all types, electrical and communication devices for aircraft and airways control, and special communication apparatus for military and naval departments.

## FOREWORD

This bulletin is an up-to-date listing, with descriptions and functions, of the principal tools which have been found most useful in the maintenance of central office equipment and telephones manufactured by Automatic Electric Company.

The designation "tool" is used in its broadest sense: namely, "anything which serves as a means to an end". Thus in addition to tools which are in everyday use such as screwdrivers, pliers and soldering irons, the listing includes a wide variety of special tools and gauges which serve particular purposes in the maintenance of specific items of apparatus, as well as such devices as resistance boxes, test sets and the like.

So far as practicable the various tool illustrations are grouped in classifications according to field of use. It is hoped that this arrangement will make it easy for the reader to leaf thru the pages, using the tool illustrations as a sort of "picture index" in cases where he is familiar with the appearance of the tool, but does not know its name or code number.

The tool descriptions show, in addition to the illustrations, the name of the tool, its code number, and the use to which it is put. Included also is supplementary information such as precautionary measures to be taken and dimensions which affect tool use. The beginning and end of tool descriptions are indicated by a heavy black line across the column.

In addition, all tools listed are indexed alphabetically in the front of the bulletin and numerically in the back.

Distributing frame test plugs and cord assemblies have not been listed numerically but have been collected and put in tabular form, believed to be best suited for presenting all the worth while information.

A product-tool-usage-guide indicating the tools for use with the Automatic Electric Company products listed has also been included.

In some cases two or more tools may be listed under the same name. An example of this is the "Adjuster, Vertical Armature" having code numbers H-7056, H-13398 and H-13700. Unless otherwise identified, it is suggested that the tool with the highest code number be ordered. This tool is ordinarily associated with the latest type of equipment. The lower numbered tools may be better suited for older types of equipment or may be preferred by certain service personnel.

Customers in the United States or possessions may obtain any of the tools listed through the Automatic Electric Sales Corporation, 1033 West Van Buren Street, Chicago 7, Illinois. Orders from customers abroad should be placed on International Automatic Electric Corporation at the same address.

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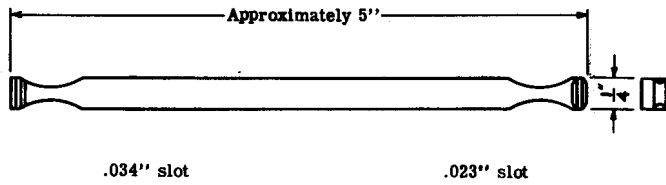
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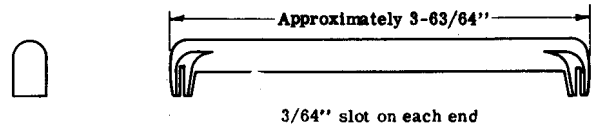
H-88390



For use on Type 26 lever keys

ADJUSTER, SPRING

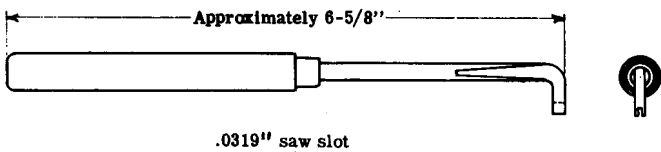
H-7059



For use on Monophone hook switch springs

ADJUSTER, SPRING

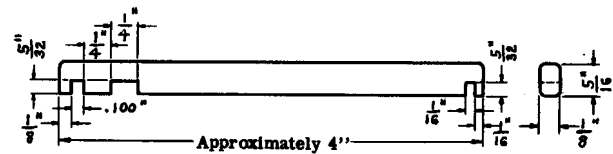
H-16978-1



For use on rotary lineswitch relay

ADJUSTER, PAYSTATION

P-60481-1

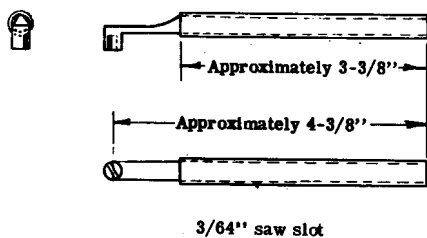


DETAIL NO. 1

For use in adjusting polar relay of pre-pay and post-pay paystations (adjusting upper housing lock bracket)

ADJUSTER, SPRING

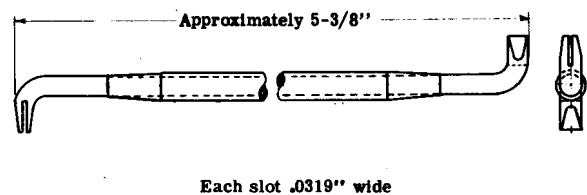
H-20179-1



For use on rotary lineswitch

ADJUSTER, SPRING

H-7066

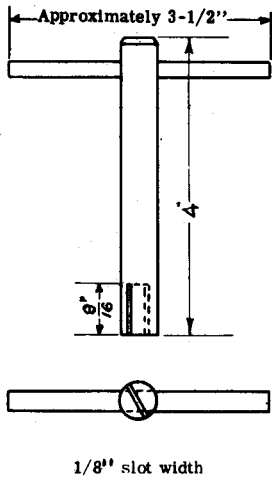


For use on plunger lineswitch, horizontal relay, cam and off normal springs

BULLETIN 540-B

ADJUSTER, PLUNGER ARM

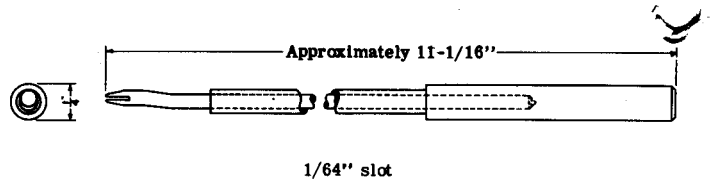
H-10001-3



For use on plunger lineswitch

ADJUSTER, BANK CONTACT

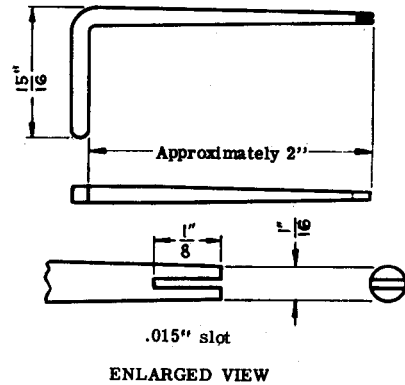
H-7068-3



For use on plunger lineswitch bank contacts

ADJUSTER, DETENT

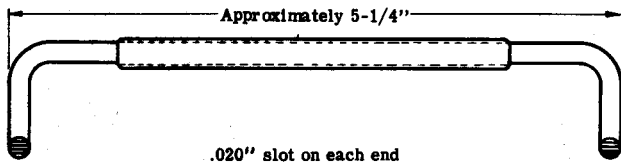
H-46413



For use on 8 position mechanical indicators in Power Supervisor's Board, paystation springs and dial governor wings

ADJUSTER, SPRING

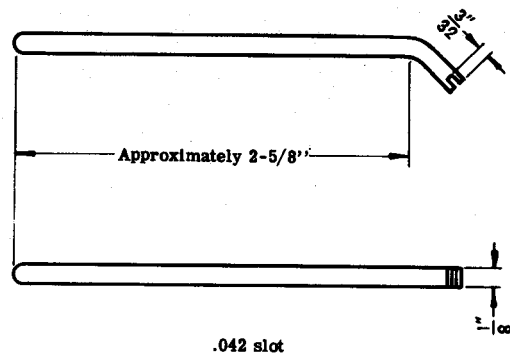
H-46716-1



For use on plunger lineswitch line relay springs

ADJUSTER, SPRING HOLDER

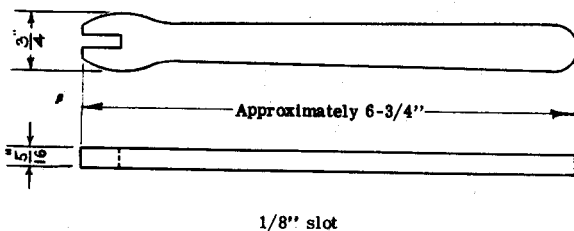
H-46412



For use on 8 and 2 position mechanical indicators on Power Supervisor's Board

ADJUSTER, FRAME

H-13701

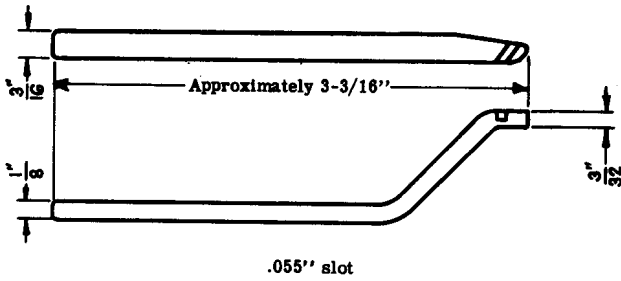


For use on plunger lineswitch bank frame

# MAINTENANCE TOOLS

**ADJUSTER, ARMATURE STOP**

H-46410

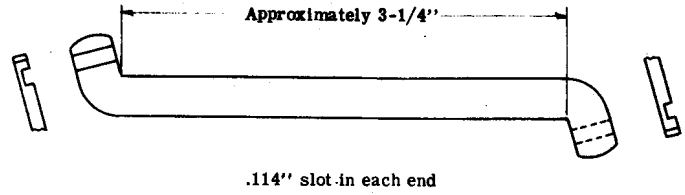


.055" slot

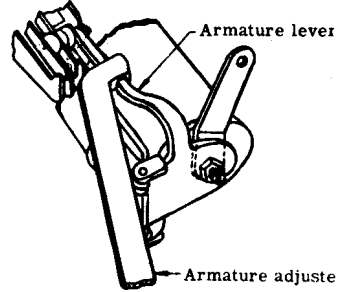
For use on 8 and 2 position mechanical indicators on Power Supervisor's Board

**ADJUSTER, ARMATURE**

H-14766



.114" slot in each end

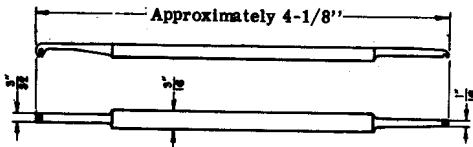


ADJUSTING THE ARMATURE LEVER

For use on horizontal relays

**ADJUSTER, SPRING**

H-46411



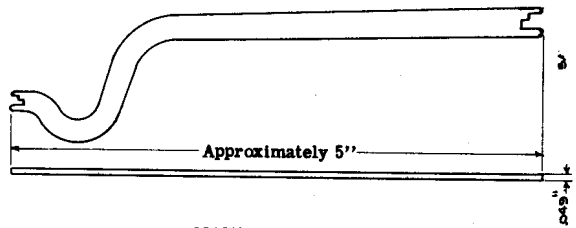
Enlarged views

.020" slot on each end

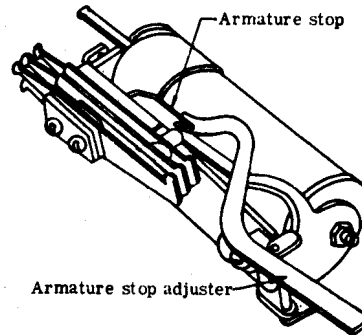
For use on 8 and 2 position mechanical indicator on Power Supervisor's Board

**ADJUSTER, ARMATURE STOP**

H-14769



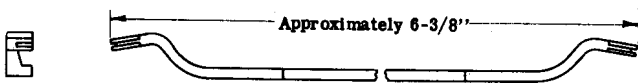
.0319" slot in each end



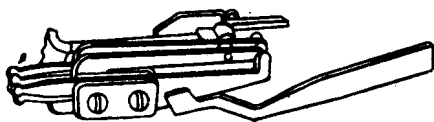
ADJUSTMENT OF ARMATURE BACKSTOP

**ADJUSTER, SPRING**

H-20777



1/32" saw slot in each end



ADJUSTING SPRINGS TO MEET GAUGING REQUIREMENTS

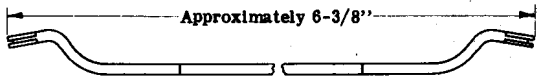
For use on horizontal type relays

For use on horizontal relay

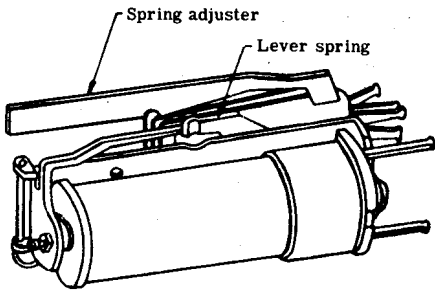
BULLETIN 540-B

ADJUSTER, SPRING

H-42873



.018" slot in center of each end

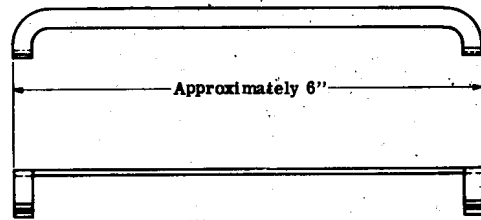


ADJUSTING LEVER SPRINGS FOR TENSION

For use on horizontal relays

ADJUSTER, SPRING

H-45590

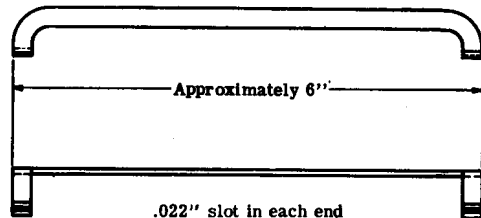


.039" slot on each end

For use on Type 27 manual relay

ADJUSTER, SPRING

H-64980

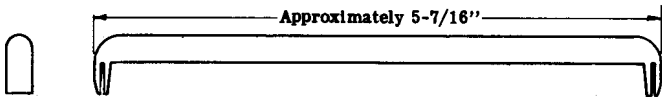


.022" slot in each end

For use on minor type relays

ADJUSTER, SPRING

H-24600



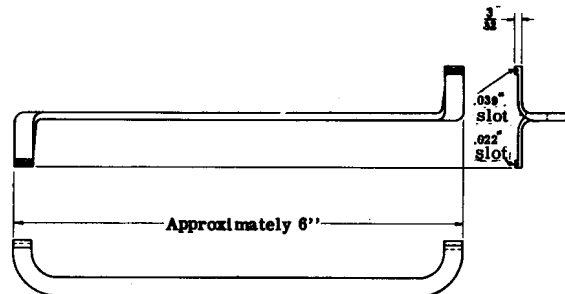
.040" slot width

.028" slot width

For use on horizontal relay springs

ADJUSTER, SPRING

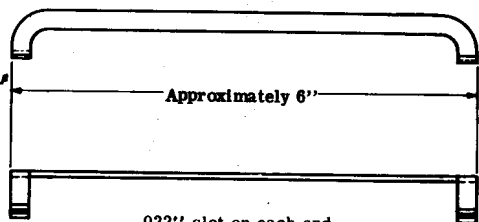
H-88385



.022" slot

ADJUSTER, SPRING

H-44359



.022" slot on each end

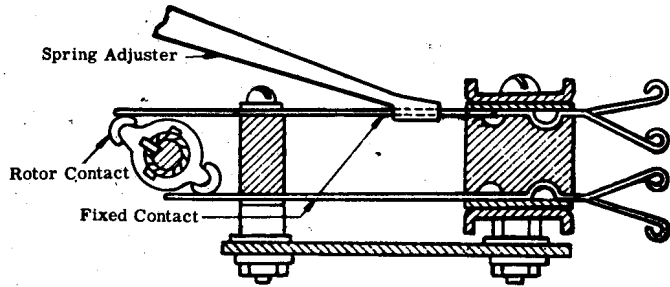
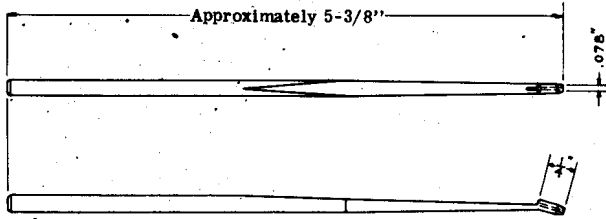
For use on Type 27 manual relay

For use on Type 27 manual relay

# MAINTENANCE TOOLS

ADJUSTER, SPRING

H-64670

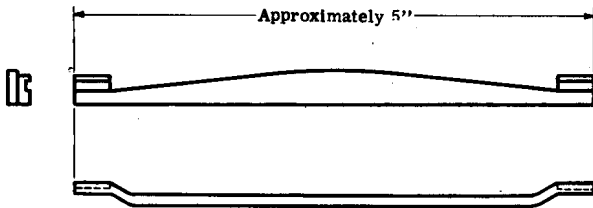


METHOD OF USING ROTOR RELAY CONTACT  
SPRING ADJUSTER

For use on rotor relay contact springs

ADJUSTER, ARMATURE

H-56518

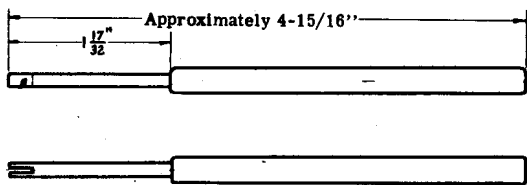


.114" saw slot in each end

For use on Type 10 alternating current relay

ADJUSTER, SPRING

H-46974-1

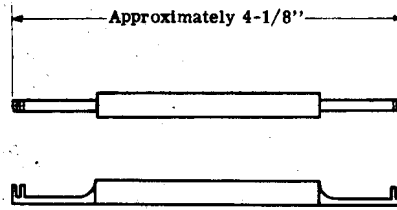


.014" Saw slot

For use on class "S" relay

ADJUSTER, SPRING

H-46975-1

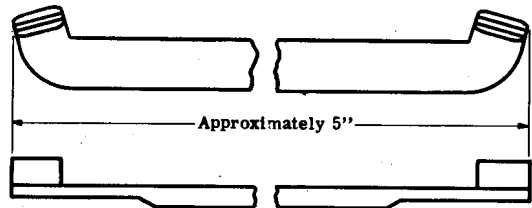


.014" + .001" B & S gauge saw slot

For use on class "S" relay

ADJUSTER, SPRING

H-88504-1  
and 2

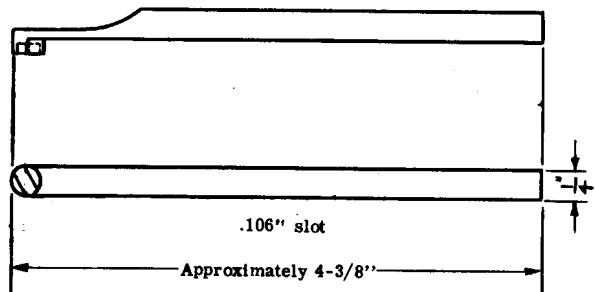


H-88504-1 (.034" slot in each end)  
H-88504-2 (.018" slot in each end)

For use on Type 57 relays

ADJUSTER, ARMATURE

H-88503-1



For use on Type 57AS relay

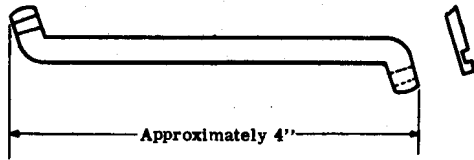
BULLETIN 540-B

ADJUSTER, ARMATURE

H-88502-1

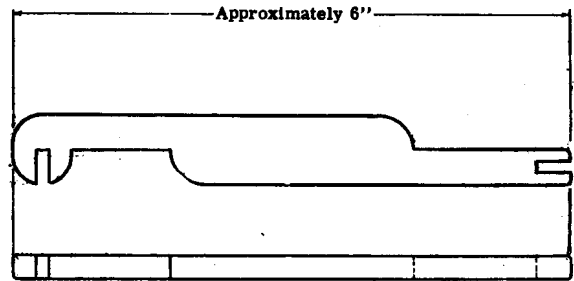
ADJUSTER, VERTICAL ARMATURE

H-13700



.115" width of slot in each end

For use on Type 57AL relay

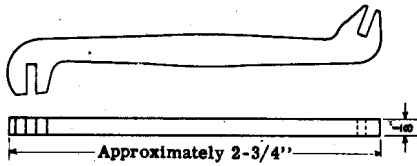


1/8" slot on each end

For use on Strowger switch vertical and rotary armature

ADJUSTER, DOUBLE DOG

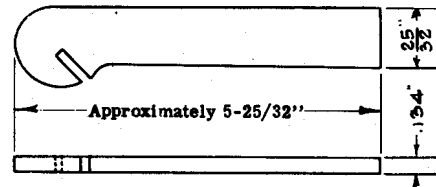
H-7067



3/32" slot in each end

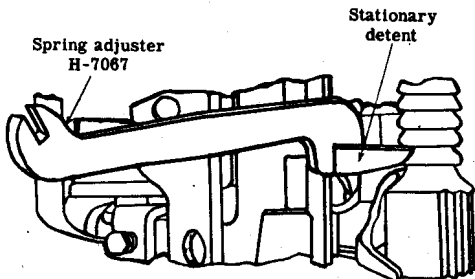
ADJUSTER, ARMATURE

H-7056



1/8" slot

For use on Strowger switch rotary armature



ADJUSTING STATIONARY DETENT

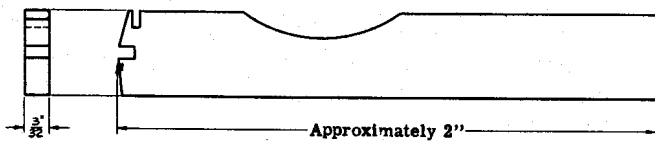
For use on Strowger switch double dog

ADJUSTER, VERTICAL ARMATURE

H-13398-1

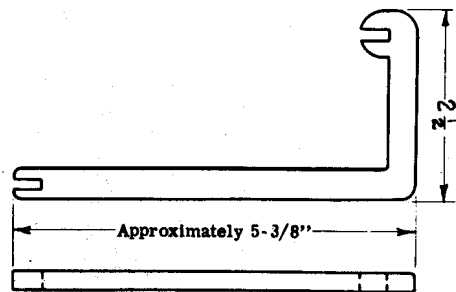
ADJUSTER, CAM

H-47202



Both slots .028" min. and .030" max.

For use on Strowger switch multi-level normal post cam



1/8" slot on each end

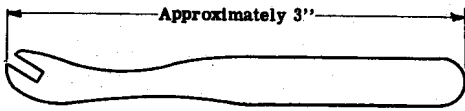
For use on Strowger switch vertical armature

# MAINTENANCE TOOLS

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ADJUSTER, ROTARY PAWL

H-23413-1



5/64" slot

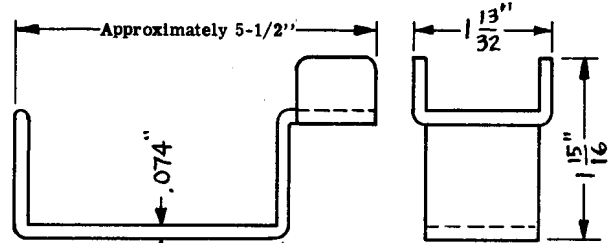
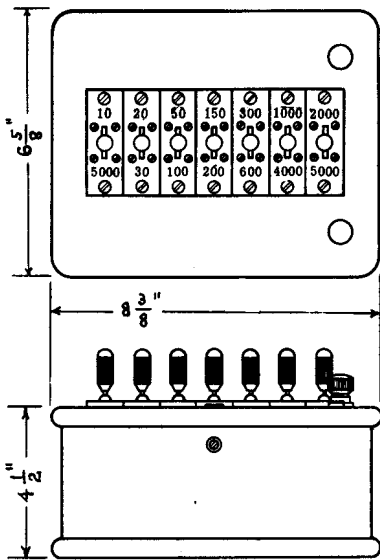
For use on Strowger switch rotary pawl

BOX, RESISTANCE

H-25314-1

BRACKET, TEST TELEPHONE

D-731450-A&B



A-Gray baking enamel

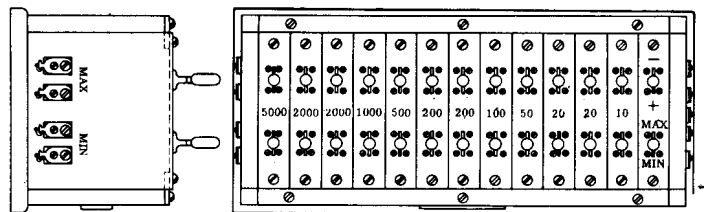
B-Light gray equipment enamel

For use with hand test telephone

For use in mechanical adjustments of switches and relays

BOX, RESISTANCE

H-77120-1

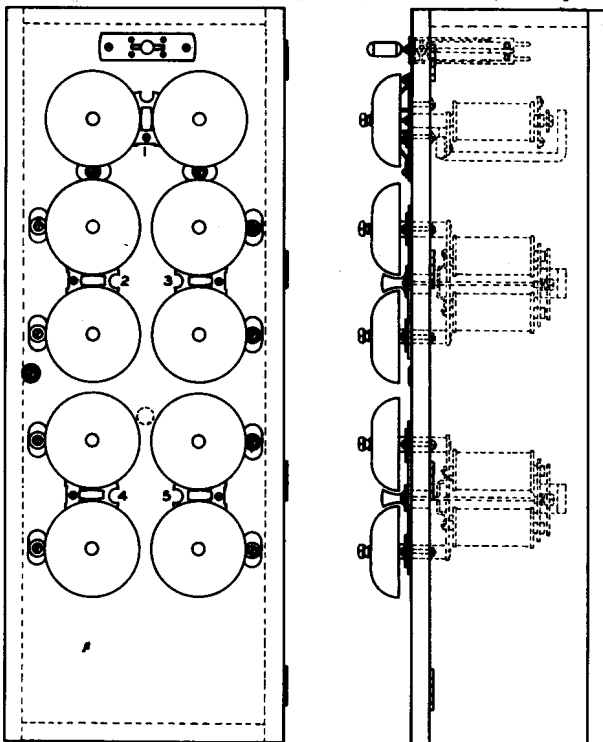


For use in making mechanical adjustments for switches and relays

BOX, HARMONIC RINGER

D-40059-A  
B,C,D,E,F,G

Approximately 1'-7 3/4" high x 7 1/2" wide x 5 1/4" deep



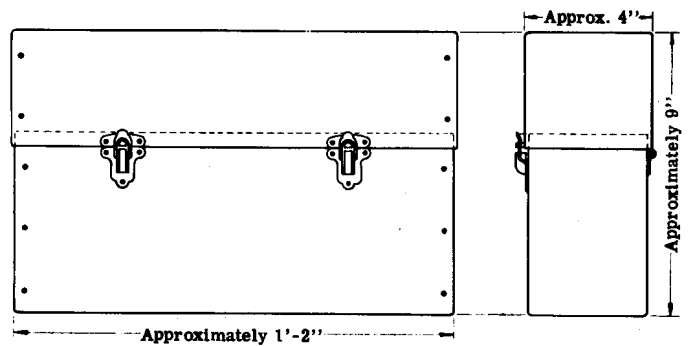
- A (Multiple Ring)
- B (Non-Multiple Ring)
- C (Non-Multiple Ring-No Induction Coil)
- D (Multiple Ring-No Induction Coil)

- E (Multiple Ring-No Key)
- F (Non-Multiple ring-No Key)
- G (Decimonic Ring)

For use with connector routine test sets

BOX, STEEL, BLUEPRINT

H-46557



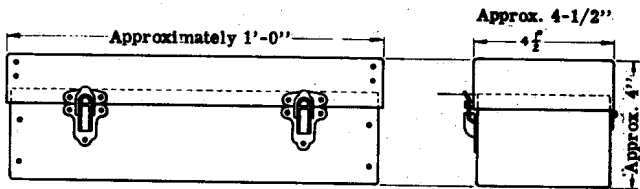
For use in holding maintenance prints



# MAINTENANCE TOOLS

BOX, STEEL TOOL

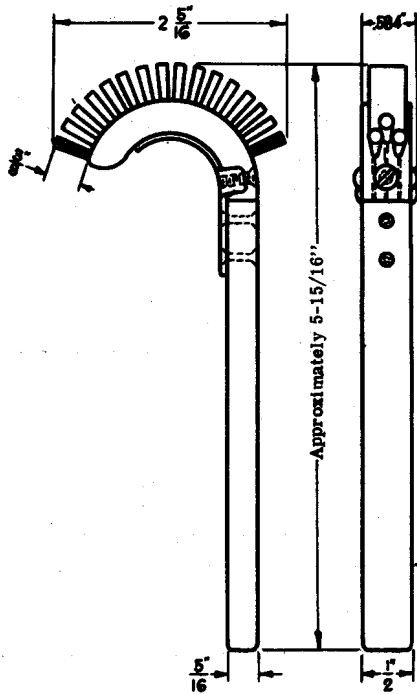
H-46556



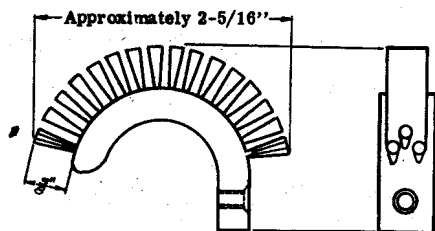
For general use

BRUSH, BANK CLEANING

H-88844-1  
and 2



ASSEM. 1

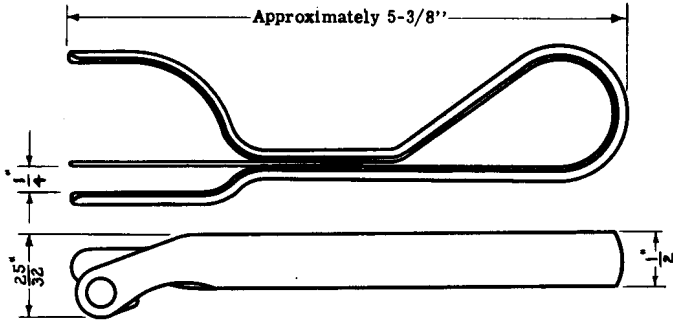


ASSEM. 2

For use in cleaning Strowger switch banks

CABLE STRIPPER

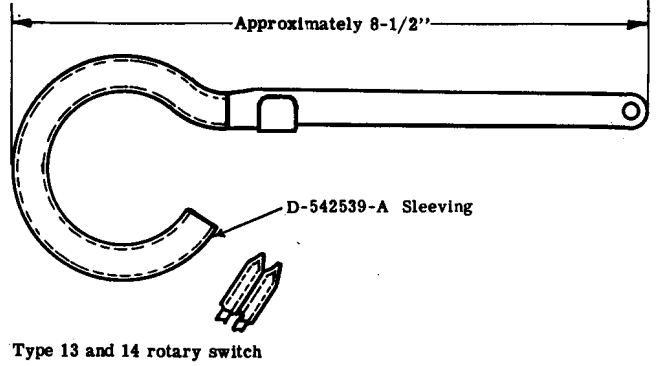
W. E. CO. R-62267



For use in stripping sheath from braided cable (PBX installation only)

CLEANING TOOLS

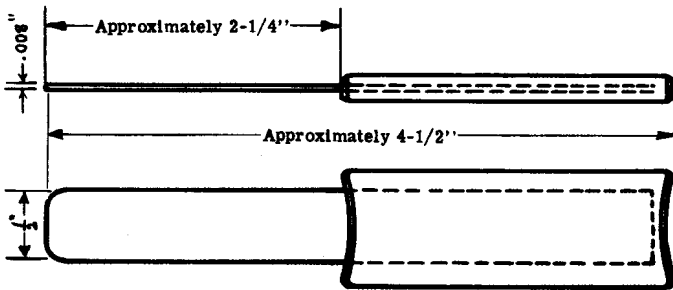
H-56628-1 and 2



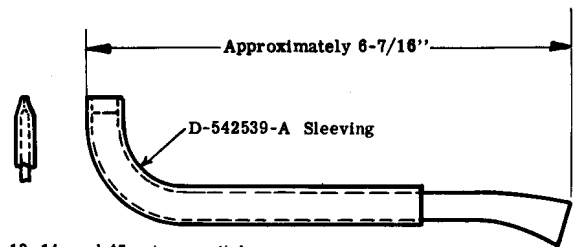
H-56628-1

CLEANING TOOL

H-47386-1



For use on rotary switch wiper spring hubs and banks

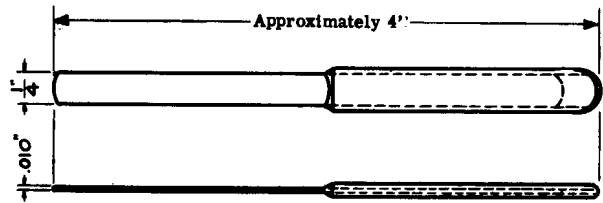


H-56628-2

For use on rotary lineswitch banks

CLEANER, CONTACT

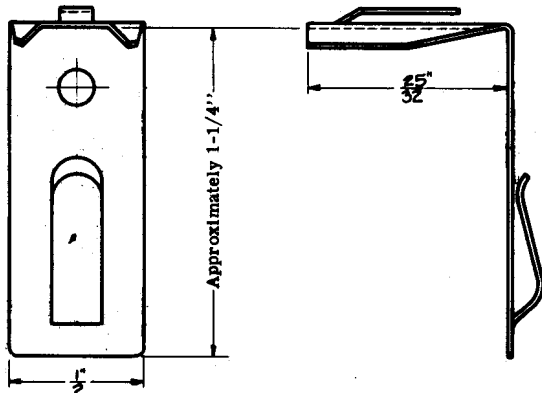
H-42962-1



For use in cleaning spring contacts

CLIP, BUSY

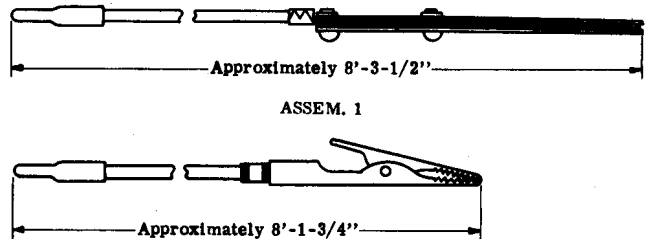
D-15455-A



For use in busying equipment not equipped with busy key

CORD, TEST

H-74573-1 and 2



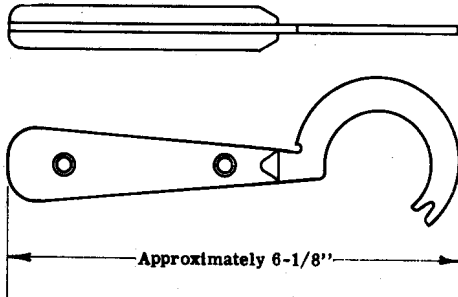
ASSEM. 2

For use with current flow test set H-88733-1

# MAINTENANCE TOOLS

CLEANING TOOL, BANK

H-16590-1  
and 2

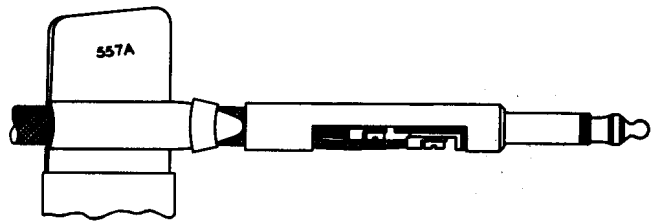
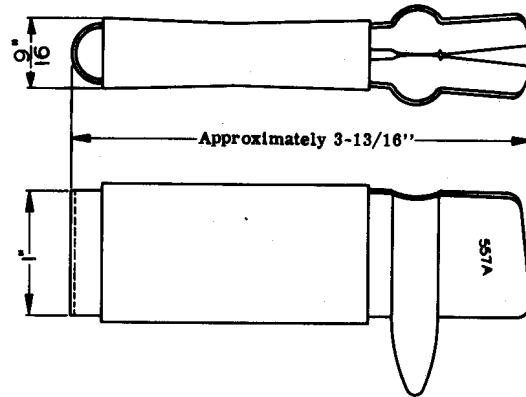


DRAWING H-16590-1 200 point .042" thick  
DRAWING H-16590-2 100 point .072" thick

For use on Strowger switch banks

CLIP, PLUG CUSHION PLACING

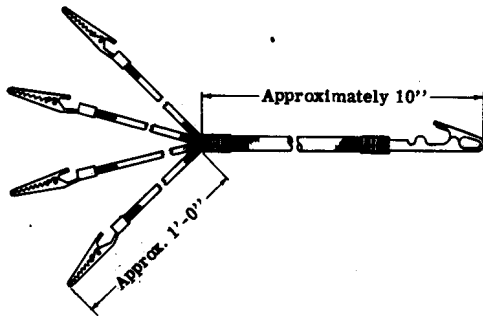
W.E.CO. 557-A



For use in putting plug cushion over plug and on cord

CORD ASSEMBLY, GROUND

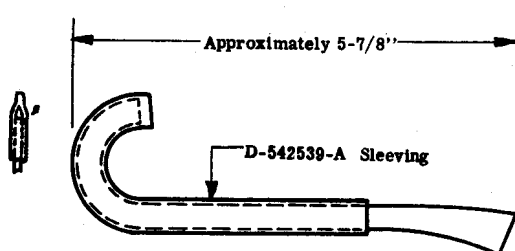
D-542407-A



For use in busying out of order lines

CLEANING TOOL

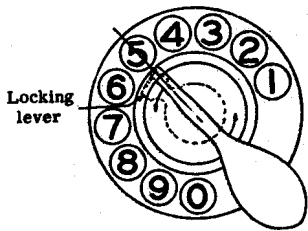
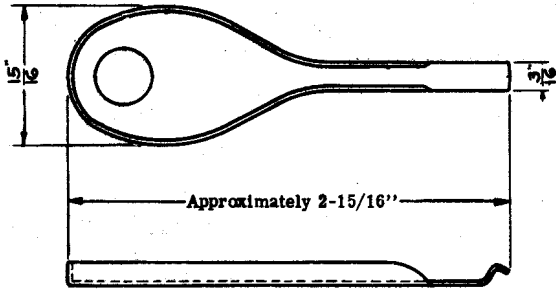
H-56628-4



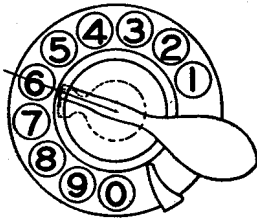
For use on Type 44 rotary switch banks

DIAL ESCUTCHEON TOOL

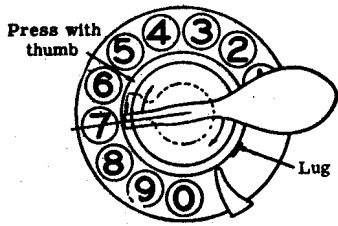
H-26917



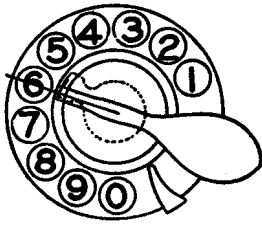
TO UNLOCK ESCUTCHEON RING



ESCUTCHEON RING UNLOCKED



TO LOCK ESCUTCHEON RING



ESCUTCHEON RING LOCKED

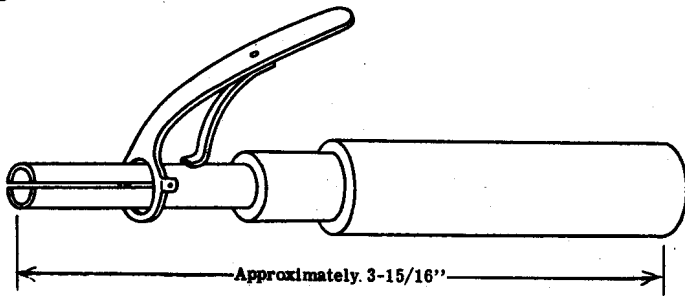
For use in removing dial escutcheon

# MAINTENANCE TOOLS

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EXTRACTOR, LAMP

W. E. CO. 553A

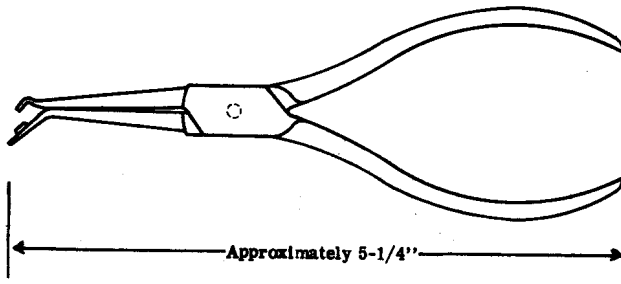


For use in removing switchboard lamps

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EXTRACTOR, HEAT COIL

H-44514-1

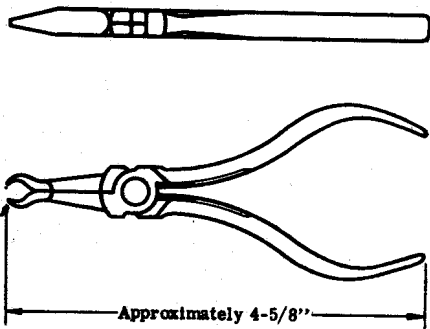


For use in removing Automatic Electric Company Type 676 heat coils

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EXTRACTOR, LAMP CAP

W. E. CO. 319B



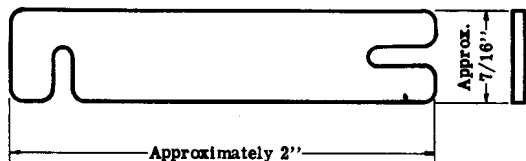
For use in extracting lamp caps, number plates and W. E. Co. heat coils

**BULLETIN 540-B**

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**FUSE, DUMMY**

**D-57043-A**



Gray fibre

For use in vacant alarm type fuse locations

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**FUSE REPAIR KIT**

**H-14315-1**

Flux Automatic Electric Company Specification 2003

Fuse wire Automatic Electric Company Specification 5129  
(1-1/3, 3 and 5 amperes)

Solder Automatic Electric Company Specification 2001

Consisting of fuse wire, solder, soldering flux and sandpaper

For use with indicating and alarm fuses

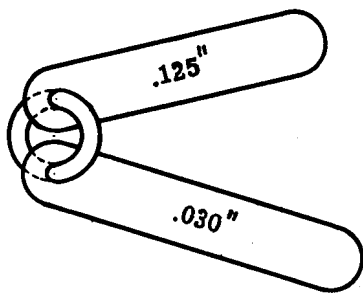
# MAINTENANCE TOOLS

GAUGES, PAYSTATION

P-60481-4

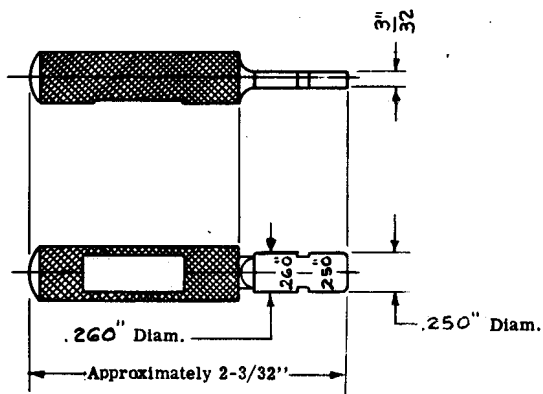
GAUGE, JACK SLEEVE

H-88409



DETAIL NO. 4

For use in adjusting polar relay of pre-pay and post-pay paystations (thickness, feeler gauges)



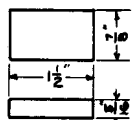
For use on manual switchboard jacks

GAUGE BLOCK, LINE SWITCH  
PLUNGER

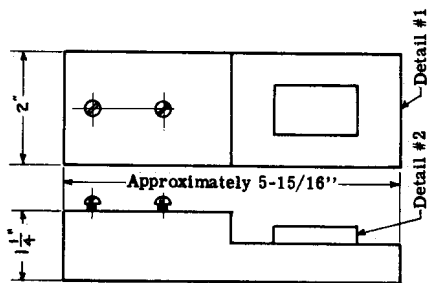
H-7541-3

GAUGE

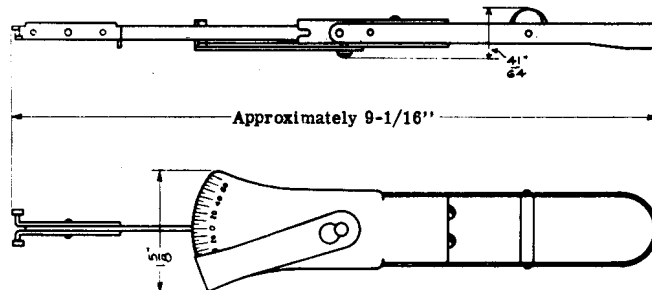
W. E. CO. 68B



GAUGE BLOCK  
DET. #2



For use in adjusting plunger of plunger lineswitch



70-0-70 Grams

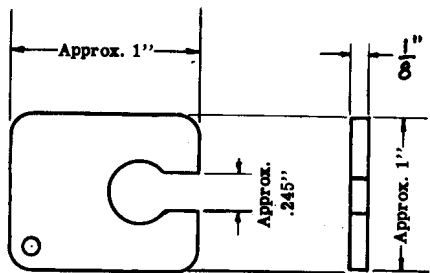
For general use

GAUGE, MANUAL BOARD PLUG

MP-5127-A

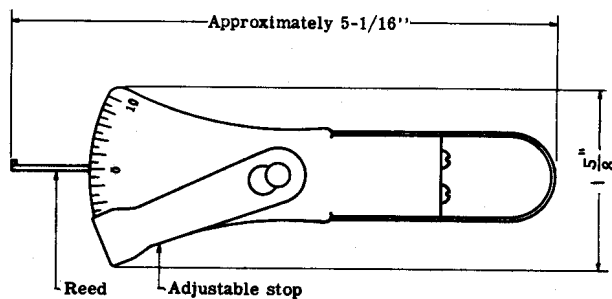
GAUGE

W. E. CO. 70F



Opening .2455\" max., .2445\" min.

For use in checking worn plugs



10-0-10 Grams

For use in adjusting SATT (Strowger Automatic Toll Ticketing) dial springs

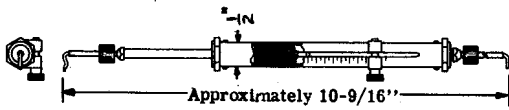
BULLETIN 540-B

GAUGE, PUSH-PULL TENSION

W. E. CO. 79B

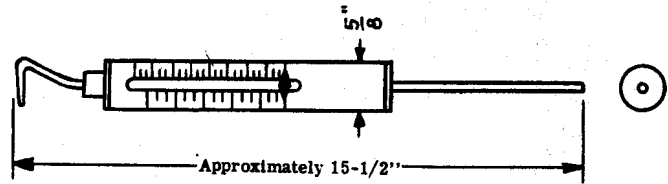
GAUGE, PUSH-PULL TENSION

H-881513-1



0-1000 Grams

For general use

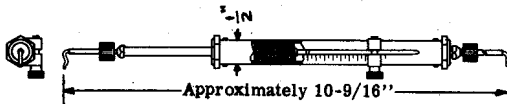


0-500 Grams (Accurate 75 to 500)  
0-16 Ounces

For general maintenance use  
(An inexpensive gauge for horizontal position only)

GAUGE, PUSH-PULL TENSION

W. E. CO. 79C

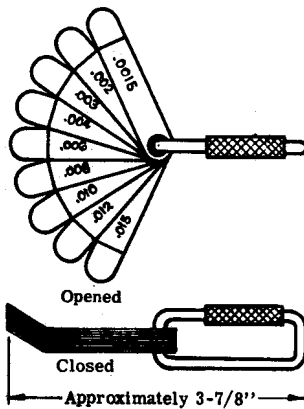


0-200 Grams

For general use

GAUGES, THICKNESS

H-46795-1 and 50



Assem. 1

ASSEM. 1

.0015 "  
.002 "  
.003 "  
.004 "  
.006 "  
.008 "  
.010 "  
.012 "  
.015 "

ASSEM. 50

(\* Gauge width tapered)

.002 " .011 "  
.003 " .012 "  
.004 " \*.012 "  
.005 " .013 "  
.006 " .014 "  
.007 " .015 "  
.008 " .016 "  
.009 " \*.016 "  
.010 " .017 "  
\*.010 " .018 "

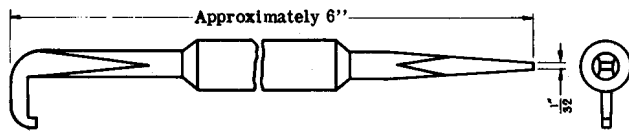
For general use



# MAINTENANCE TOOLS

**LAMP VISUAL FACE TOOL**

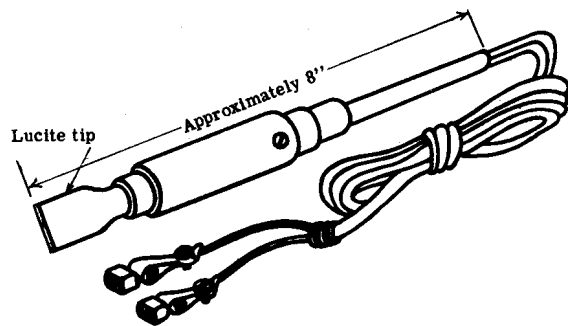
MP-4425-A



For use in removing designation strip and lamp caps from manual switch boards

**LAMP, INSPECTION**

H-880922-1

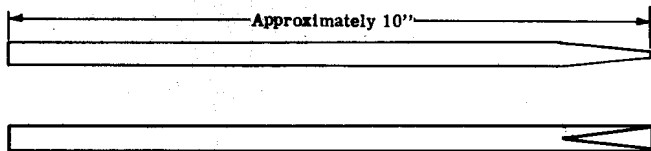


INSPECTION LAMP

For use in inspecting and gauging relay contacts

**LINESWITCH MOUNTING TOOL**

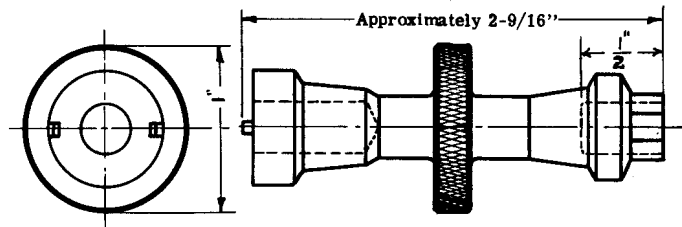
H-24528



For use in aligning plunger lineswitches

**MONOPHONE TOOL**

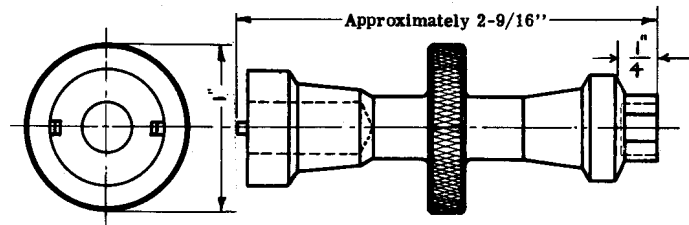
H-50754



For use on Types 1A, 31, 35A5 and 50 Monophones and Type 38 handset as a receiver earpiece wrench, a spanner wrench and with hookswitches having a collapsible (telescoping) plunger. For solid plunger use H-43172-1.

**MONOPHONE TOOL**

H-43172



For use on Types 1A, 31, 35A5 and 50 Monophones and Type 38 handset as a receiver earpiece wrench, a spanner wrench and with hookswitches having a solid plunger. For collapsible (telescoping) plunger use H-50754-1.

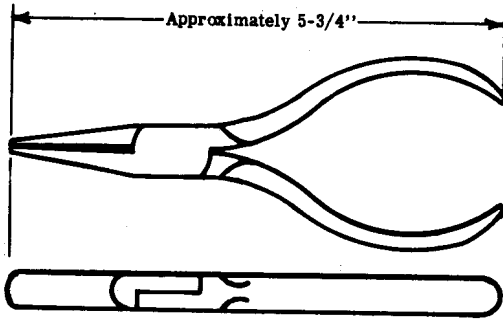
BULLETIN 540-B

PLIERS, DUCK BILL

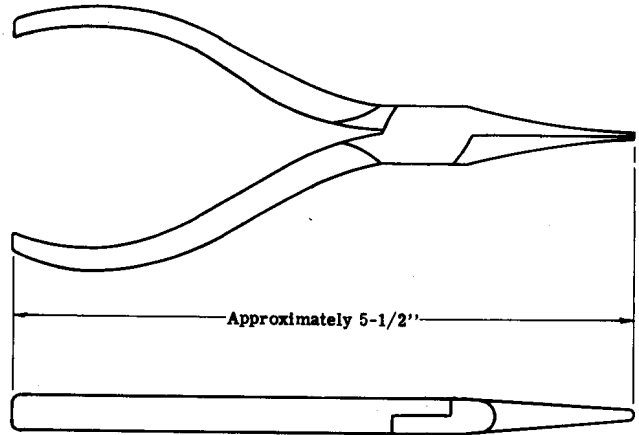
H-50620

PLIERS, JACK SPRING

H-880621-1



For general use

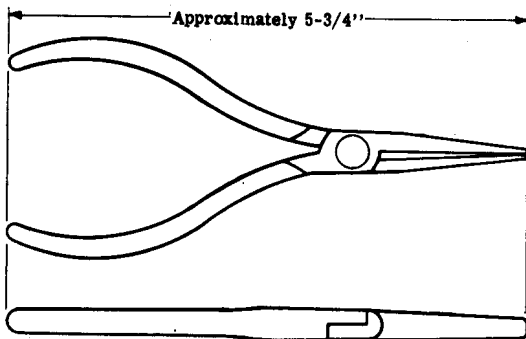


ASSEM. 1

PLIERS, DUCK BILL

H-74611

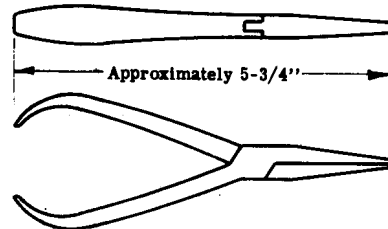
For use in adjusting jack springs



For general use in adjusting springs on relays, switches, etc.

PLIERS, SPRING ADJUSTING

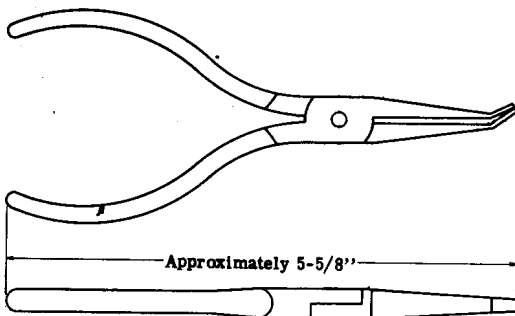
H-16290-7



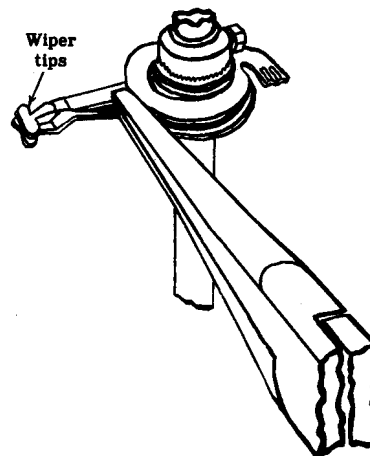
Each plier tip .025" thick

PLIERS, 30° DUCK BILL

H-88436



For use with rotary cam springs and general spring adjustment.



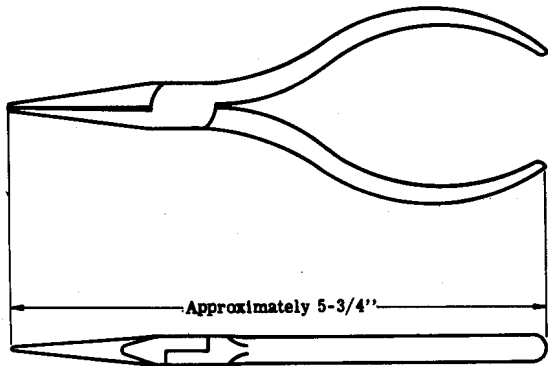
ADJUSTING WIPER SPRING TENSION  
(A TYPICAL APPLICATION)

For use in adjusting dial springs and Strowger switch wipers

# MAINTENANCE TOOLS

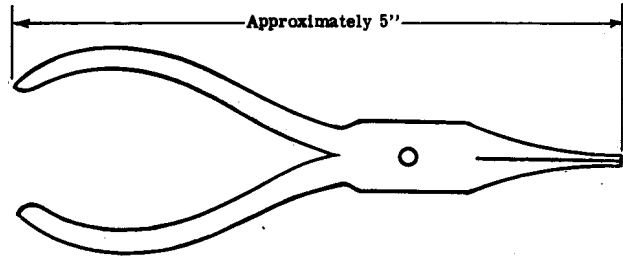
PLIERS, LONG NOSE

H-50619



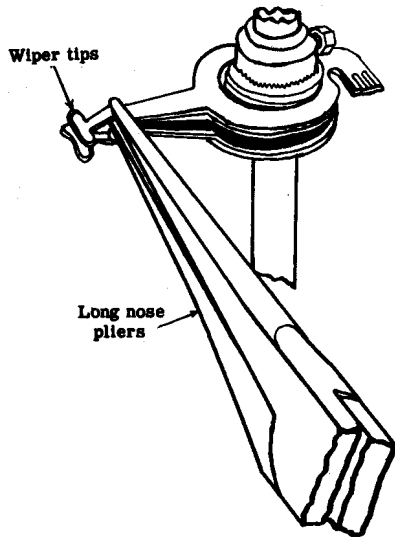
PLIERS, PAYSTATION

P-60481-3



DETAIL NO. 3

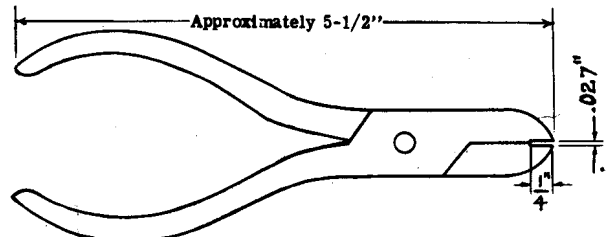
For use in adjusting polar relay of pre-pay and post-pay paystations (spring adjusting)



ADJUSTING WIPER TIP SPACING  
(A TYPICAL APPLICATION)

PLIERS, PAYSTATION

P-60481-5



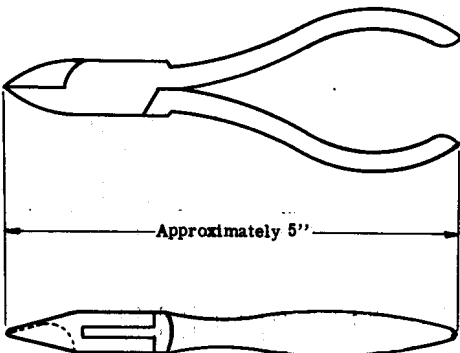
DETAIL NO. 5

For use in adjusting polar relay of pre-pay and post-pay paystations (spring adjusting)

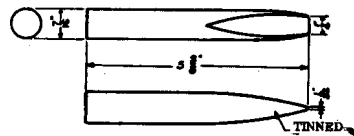
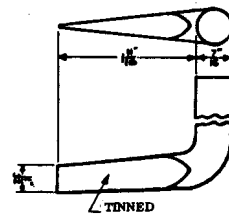
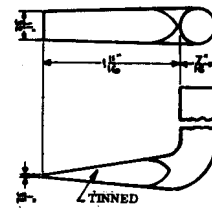
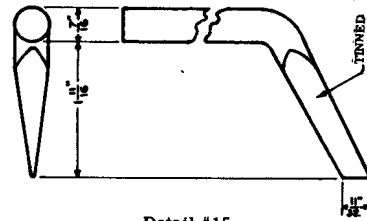
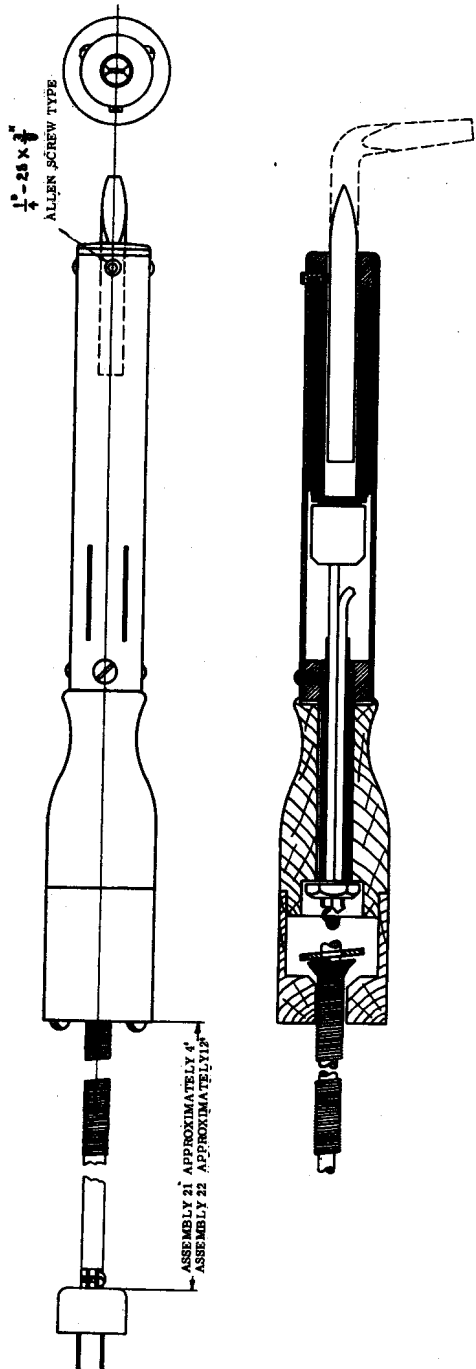
For general use

PLIERS, OBLIQUE CUTTING

H-22945



For general use



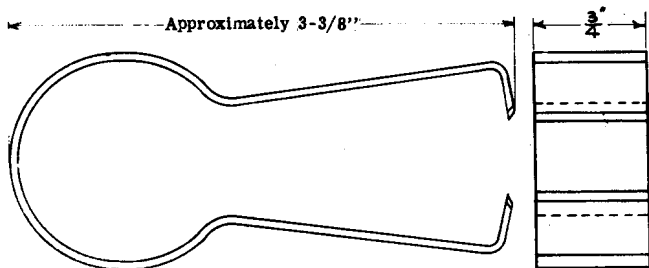
# MAINTENANCE TOOLS

SCRAPER, WIRE

H-25906-1

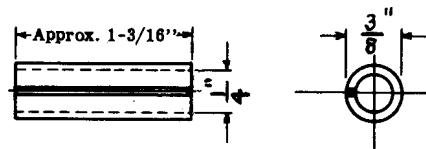
SLEEVE, PLUG

D-18175-A



.049" Spring steel

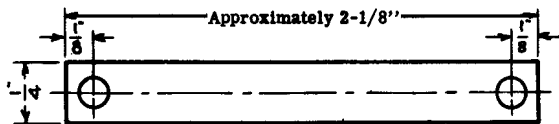
For general use



For use on plug sleeve (out of order plugs)

SPACER, INSULATING

D-440197-A  
and B



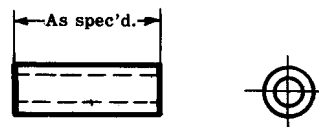
D-440197-A      1/16" thick  
D-440197-B      3/32" thick

Red fibre

For use in blocking out lines on line and cut-off relays

SLEEVING, CLEANING TOOL

D-542539-A



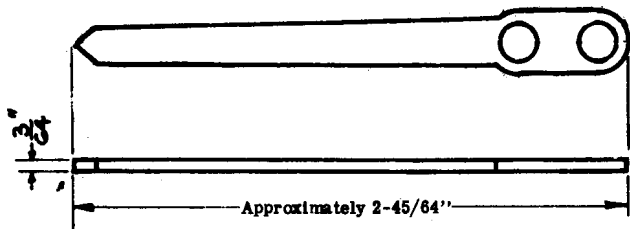
D-542539-A Packed Dry (Order per foot)  
H-880842-1 (90 ft. can with bottle of oil)  
H-881496-1 (90 ft.) abrasive webbing

See Bulletin No. 506 "Care of  
Strowger Switch Bank Contacts"  
for other materials and instructions

For use with 100 and 200 point bank cleaning tools  
H-16590-2 and 1 respectively.

SPACER, INSULATING

D-44757-A

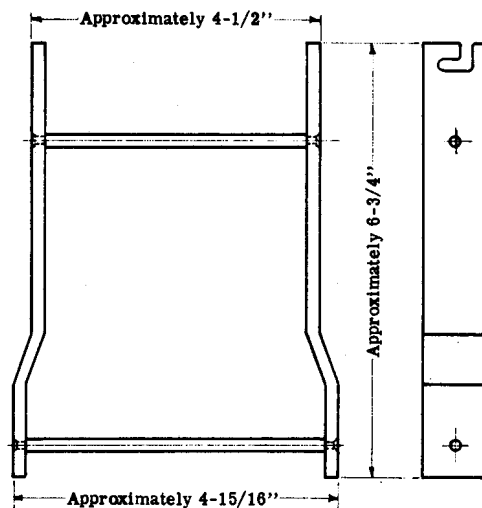


Gray fibre

For use in separating springs on B.C.O. (bridge  
cut-off) relay, to insulate protector springs and to hold  
relay springs operated.

SUPPORT, SWITCH

H-26221-1

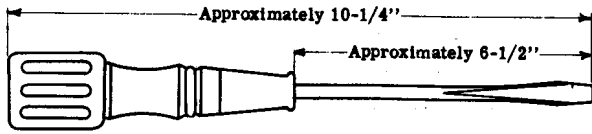


For use in checking rear of Strowger switch while on  
shelf

BULLETIN 540-B

SCREWDRIVER

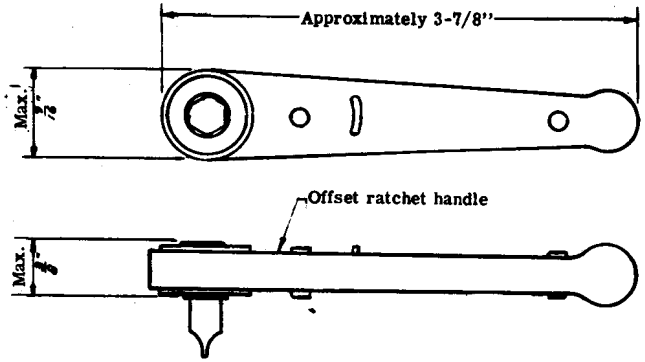
H-24664



For general use

SCREWDRIVER,  
RIGHT ANGLE RATCHET

H-47754-1



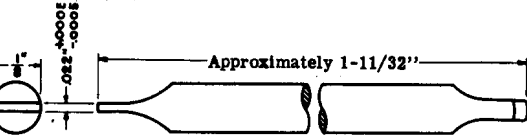
For use on short lever relay armature and general use

SCREWDRIVER

H-45963-1  
and 2



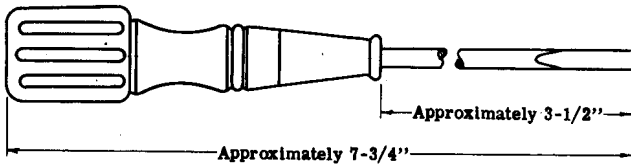
SCREW DRIVER  
H-45963-1



For use on power supervisor's board

SCREWDRIVER

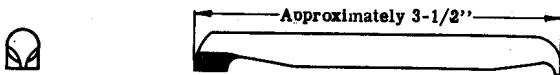
H-880622-1



For general use

SCREWDRIVER, OFF-SET

H-21766

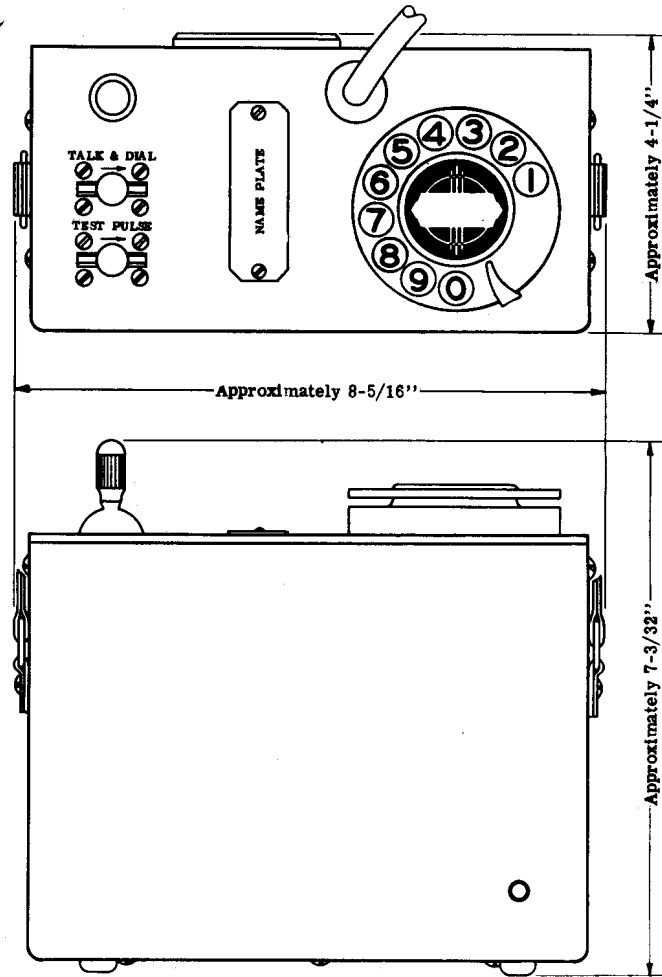


Blade on each end .037" maximum thickness

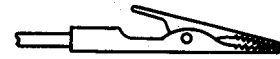
For general use

# MAINTENANCE TOOLS

## TEST SET, DIALING AND TALKING H-880859-1



For use in testing simplex-dialing intertoll selectors and trunks.

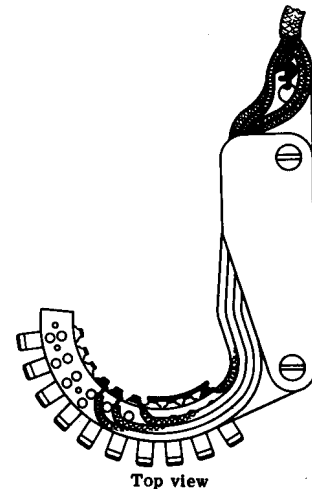


TEST CLIP (D-542626-A) USED WITH A ONE CONDUCTOR CORD



Used with 4 conductor cord and spade terminations

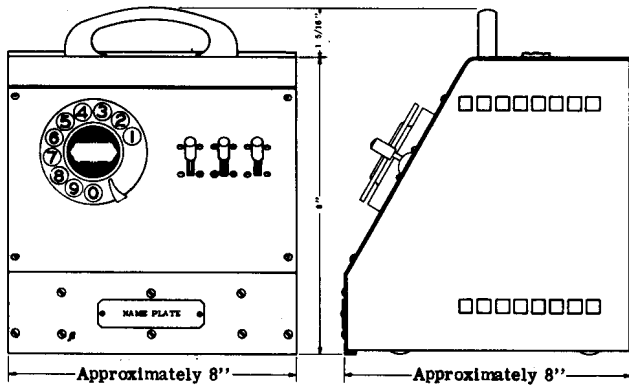
TEST PLUG (D-541784-A) USED WITH A FOUR CONDUCTOR CORD



Top view

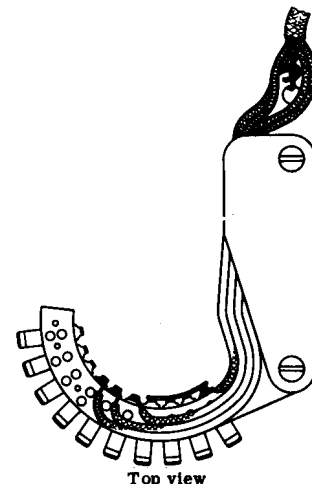
BANK BUSYING TOOL (H-78977-12)(10 PT)

## TEST SET, ROTARY H-881174-1



For use in routine maintenance of relay-interrupted 10- and 20-trunk battery-searching selectors.

**PRECAUTION:** Circuits of test sets must match those of equipment to be tested.



Top view

BANK BUSYING TOOL (H-78977-1) (20 PT)

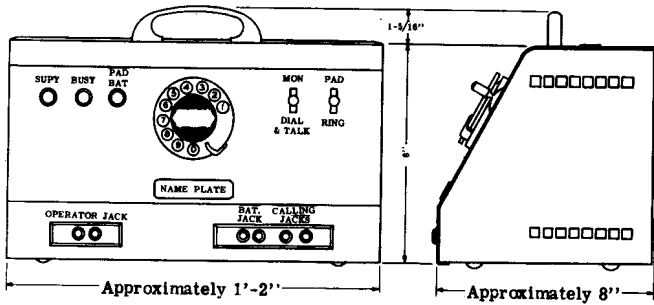
BULLETIN 540-B

TEST SET, TRUNK CIRCUIT

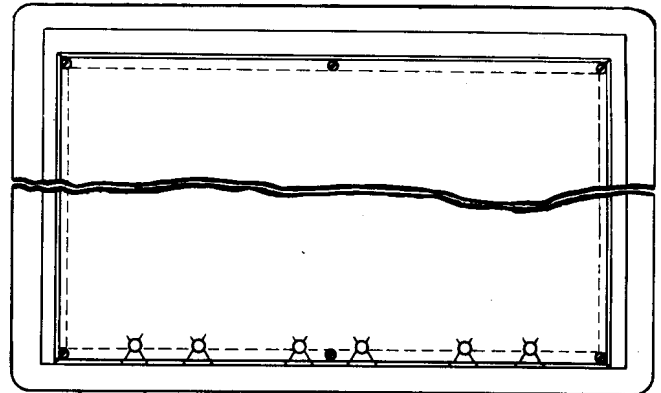
H-881192-1

TEST SET, CURRENT FLOW

H-88733-1 and 2

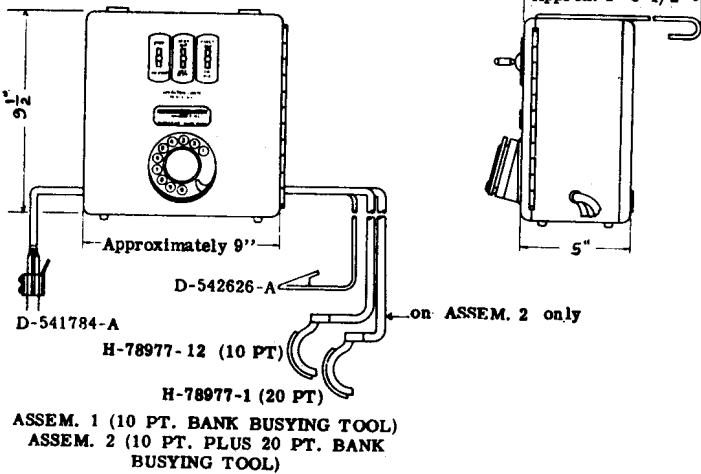


For use in testing type 31 toll board trunk circuits.



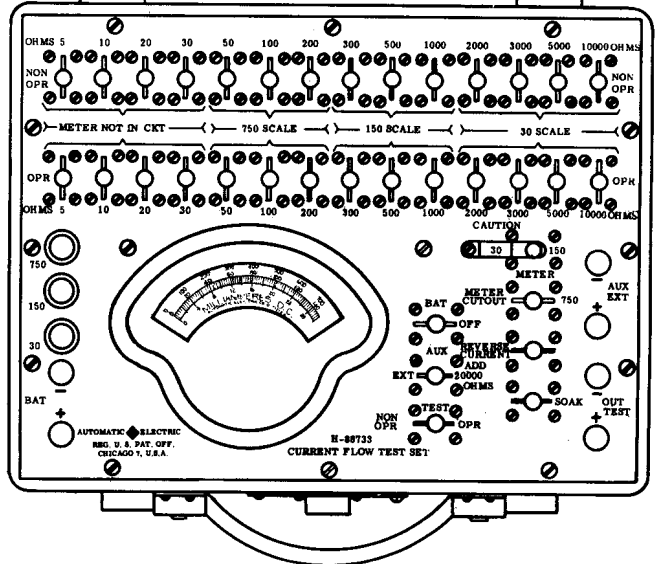
TEST SET, ROTARY

H-78979-1 and 2



For use in routine maintenance of relay interrupted 10 and 20 trunk battery searching selectors.

**PRECAUTION:** Circuits of test sets must match those of equipment to be tested.

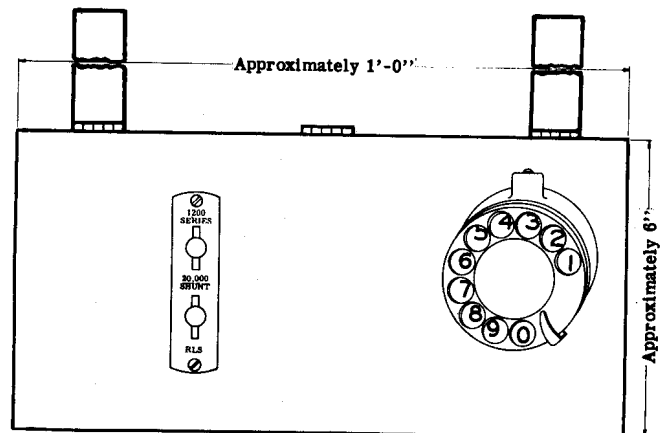


For use in making mechanical adjustments of switches and relays

TEST SET, REPEATER

H-88064-1 and 2

(Reserved for future test set)



Assem. 1 For Delayed pulse  
Assem. 2 For Non-Delayed pulse

For use in routine maintenance of repeaters  
**PRECAUTION:** Circuits of test sets must match those of equipment to be tested.



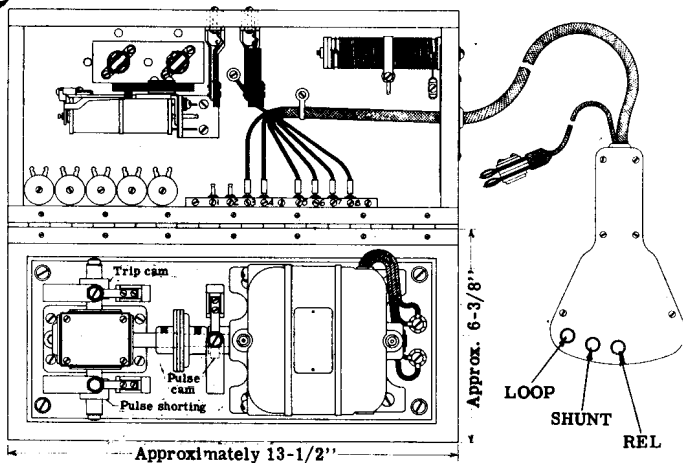
# MAINTENANCE TOOLS

## TESTING MACHINE, PULSE

D-55165-B  
and C

## TEST SET, TOLL SELECTOR "C" RELAY

H-880623-1



VIEW OF BOX WITH COVER TURNED BACK  
(WRITE FOR INFORMATION BEFORE ORDERING)

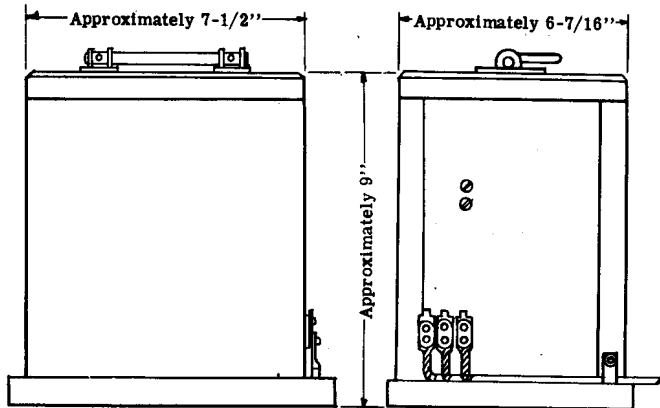
Assembly "B" for non-battery searching switches  
Assembly "C" for battery searching switches

For use in testing, pulsing, stepping and "B" relay action of the Strowger switch

**PRECAUTION:** Circuits of test sets must match those of equipment to be tested.

## TEST SET, BUZZER

H-23355-1,  
2, 3 and 4



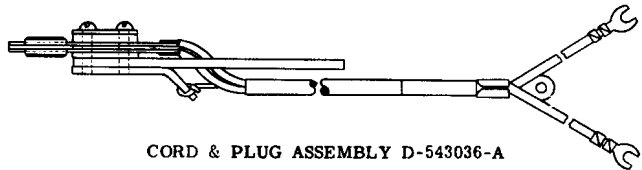
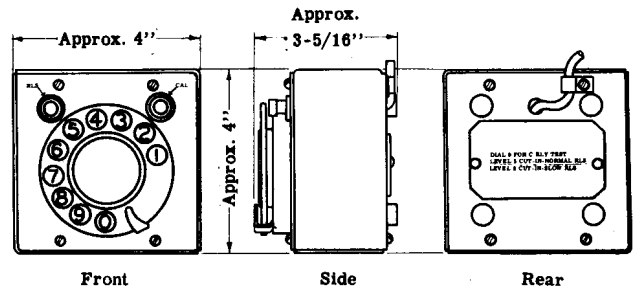
Assem. 1 for long distance  
Consists of dry cells, buzzer, jack, cord, operators telephone set, condenser and resistor

Assem. 2 for buzzer set  
Consists of dry cells, buzzer, jack, cord, condenser and resistor

Assem. 3 battery set for long distance  
Consists of dry cells, jack, operator's telephone set

Assem. 4 for trunk testing  
Consists of dry cells, buzzer, jack, relays, cord, condenser and resistor

For use in trunk testing



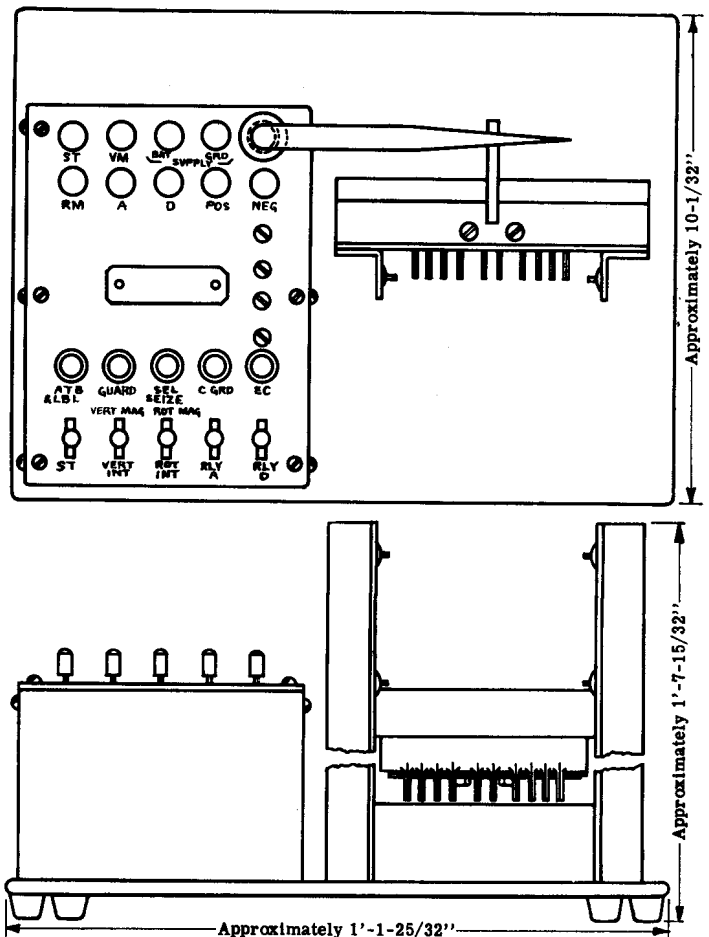
CORD & PLUG ASSEMBLY D-543036-A

(THIS CORD AND PLUG ASSEMBLY IS PART OF THE TEST SET)

For use with toll selectors

## TEST SET, LINEFINDER

H-881444-1&2



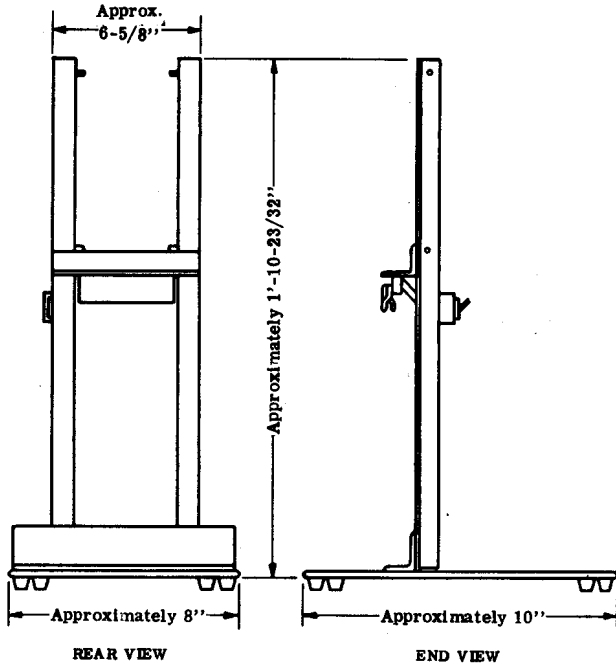
For use with linefinder switch

TEST STAND (STROWGER SWITCH)

H-881346-1

TEST STAND, DOUBLE WIDTH  
SWITCH BASE

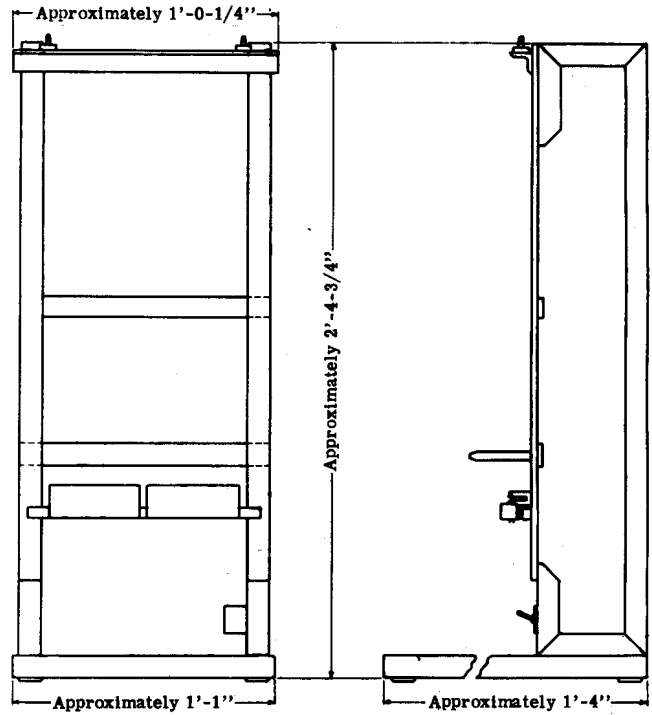
H-880263-1



ASSEMBLY 1

All steel construction using a 32 point shelf jack

For use with linefinders, connectors and selectors having Navy jacks

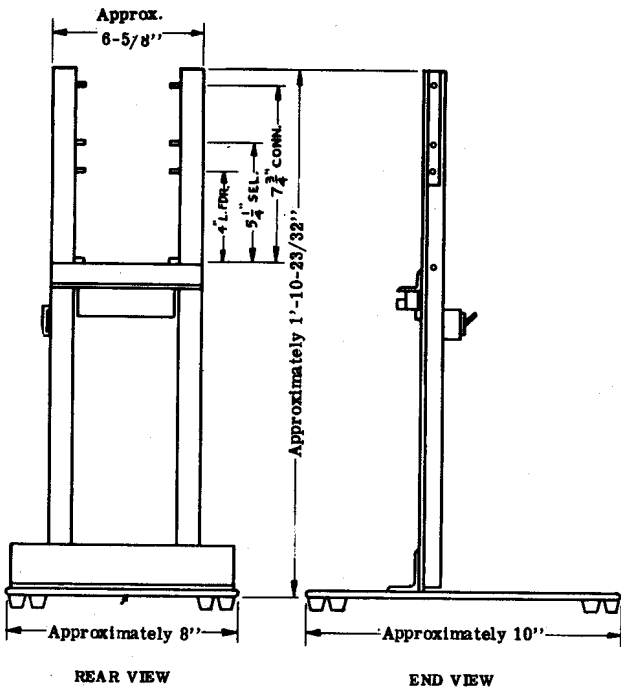


ASSEM. 1

For use in adjusting and testing ticketer

TEST STAND (STROWGER SWITCH)

H-881346-3

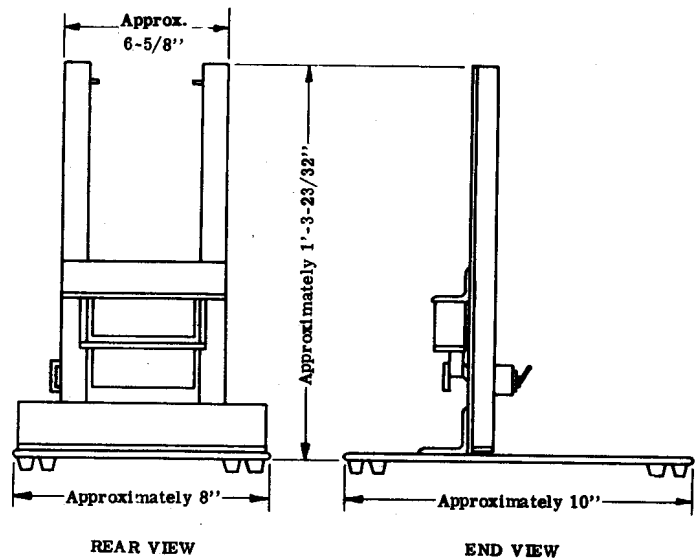


ASSEMBLY 3

For use with selectors, connectors, linefinders and miscellaneous relay groups having standard jacks.

TEST STAND (STROWGER SWITCH)

H-881346-2



ASSEMBLY 2

For use with switches having a connector mounting and Navy type jacks

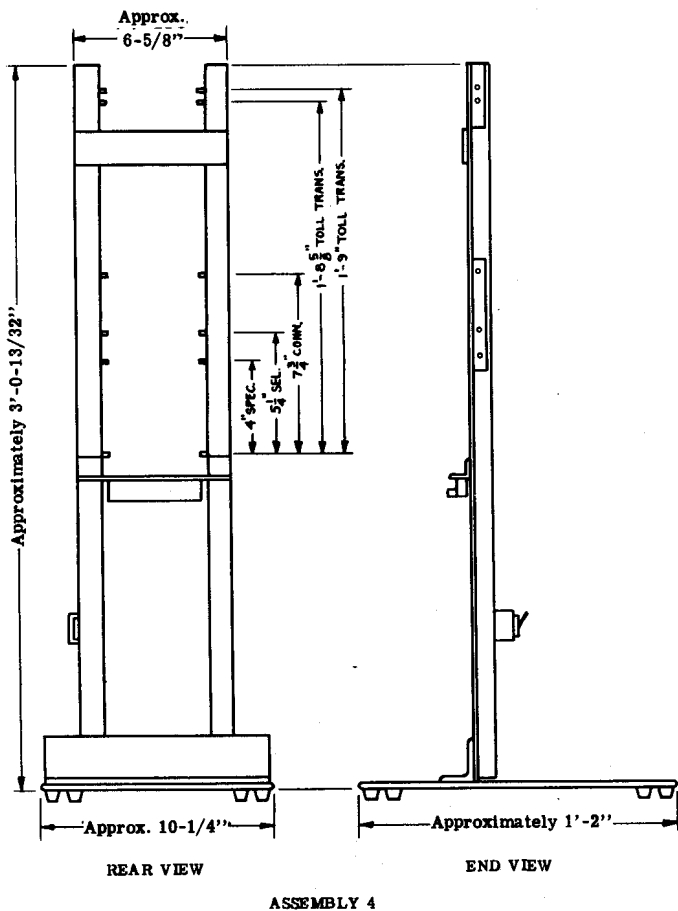
# MAINTENANCE TOOLS

**TEST STAND, UNIVERSAL  
(STROWGER SWITCH)**

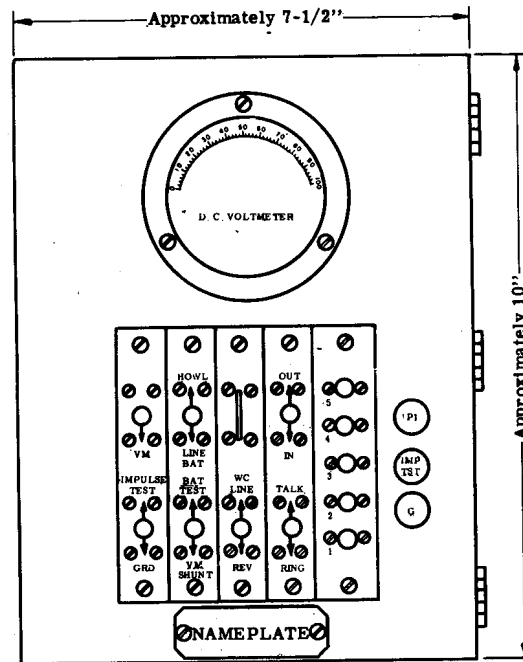
H-881346-4

**TEST SET, WIRE CHIEF'S**

H-880180-1  
and 2



For use as a holding fixture when testing and adjusting standard and special length Strowger switches and relay groups having standard switch jacks.



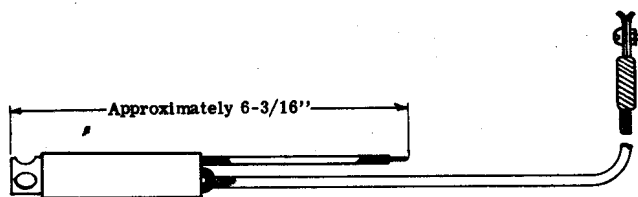
Assem. 1 Equipped with 5 harmonic ringing keys  
Assem. 2 Arranged for single frequency ringing

For use in small automatic or manual exchanges for testing outside plant conditions and general exchange operation.

**PRECAUTION:** Circuits of test sets must match those of equipment to be tested.

**TEST LAMP**

H-16339-1  
and 5

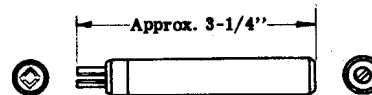


48 volt switchboard lamp D-94005-A ASSEMBLY 1  
24 volt switchboard lamp D-94025-A ASSEMBLY 5

For general use

**TESTER, LINESWITCH**

H-7443-5,6,7,  
10 & 12



LINE SWITCH TEST PENCIL

ASSEMBLY NO.	RESISTANCE
H-7443-5	500
H-7443-6	800
H-7443-7	750
H-7443-10	1000
H-7443-12	1200

For use in testing plunger lineswitch operation

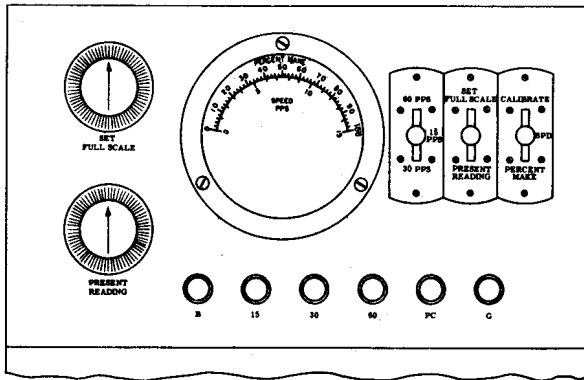
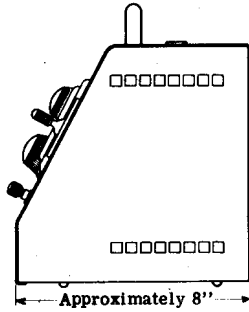
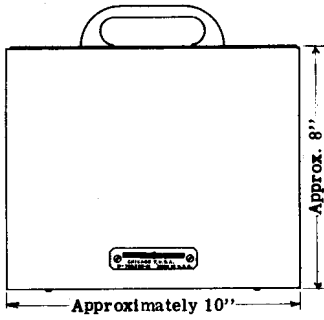
# BULLETIN 540-B

## TEST SET, PORTABLE

H-880132-1 and 14

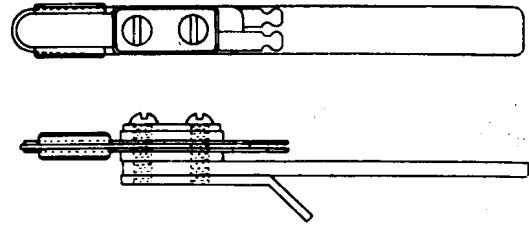
## TEST PLUGS

D-57048-A 2 PT  
 D-57030-A 4 PT  
 D-57037-A 6 PT  
 D-57038-A 8 PT

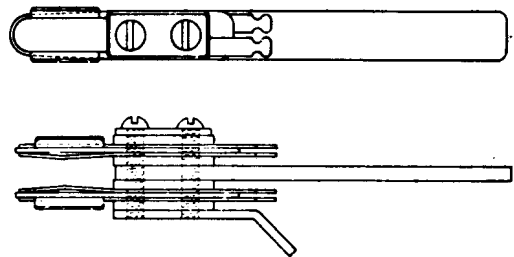


Assem. 1 Domestic use  
 Assem. 14 International use

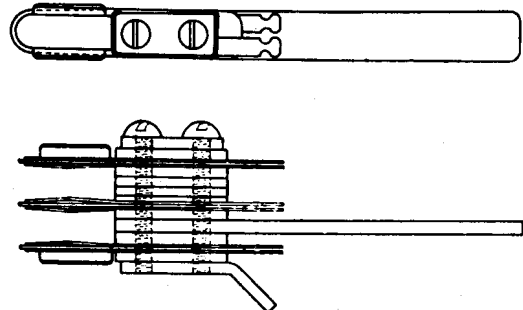
For use in making speed and percent make measurements on loop, ground, or battery pulses or pulses derived from another source of 44 to 52 volts.



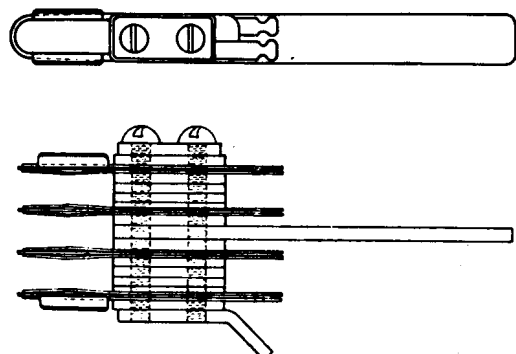
2 PT.



4 PT.



6 PT.



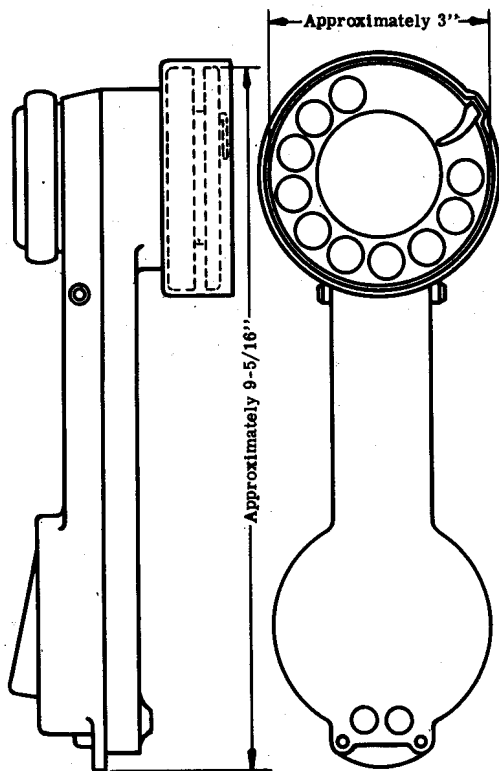
8 PT.

For use in general testing

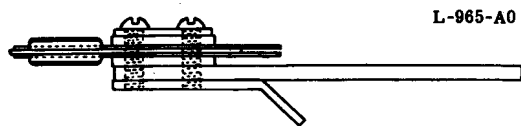
# MAINTENANCE TOOLS

TEST, HAND TELEPHONE

L-965



For general switch room use and watchman's service.  
Uses plugs and cords below:



L-965-A0

D-542313-A (cord included)

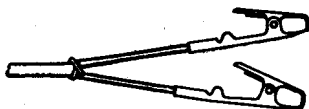
2 POINT TEST PLUG ASSEMBLY



L-965-A6

D-542349-A

CORD AND PLUG ASSEMBLY



L-965-A2

D-542320-A

CORD AND TEST CLIP ASSEMBLY

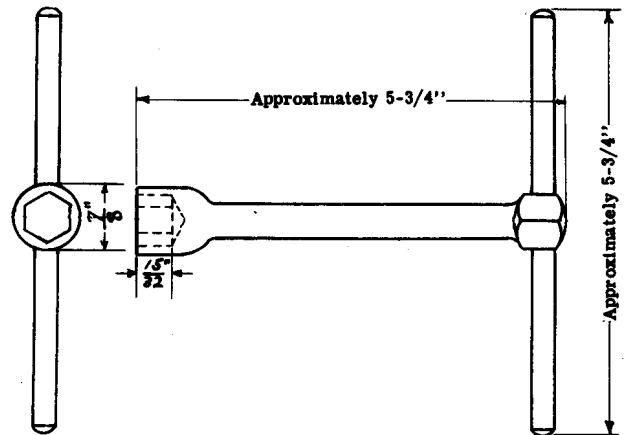
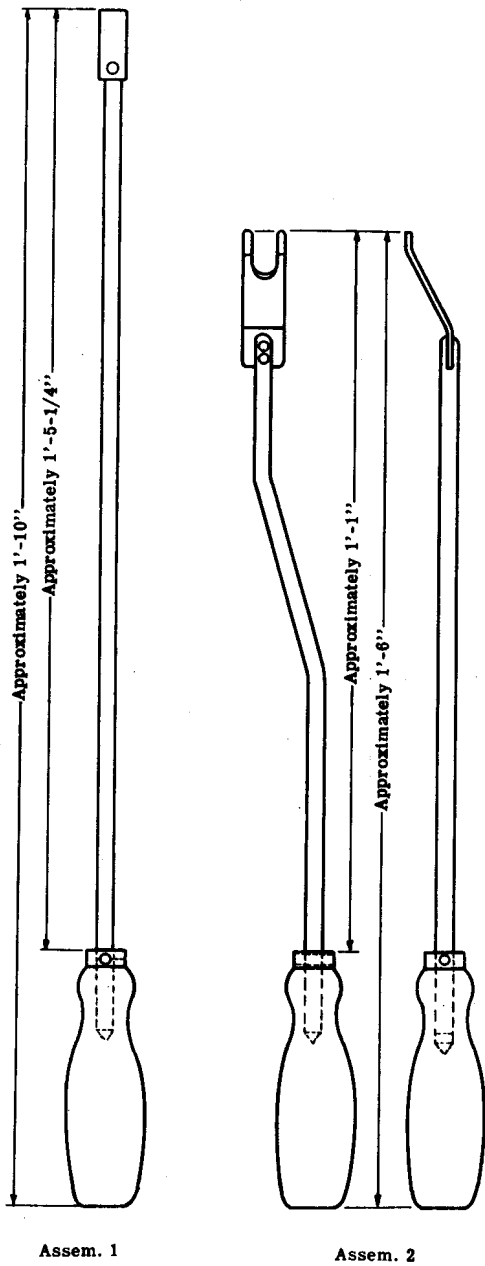
BULLETIN 540-B

WRENCH, JACK FASTENER

M-6656-1, 2

WRENCH, HEXAGON SOCKET

H-11841-1

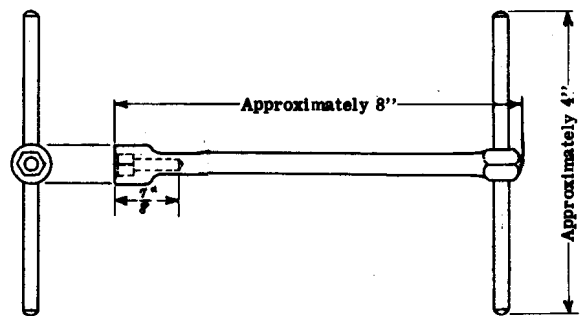


For 9/16" nut

For use on line switchboard sections

WRENCH, HEXAGON SOCKET

H-13748-1



For 5/16" nut

For use on plunger lineswitch banks

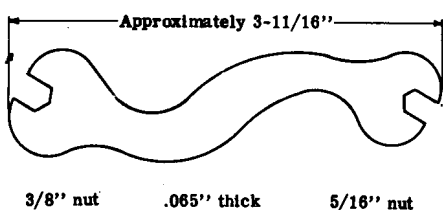
For use in mounting manual board jack strips

WRENCH, HEXAGON SOCKET

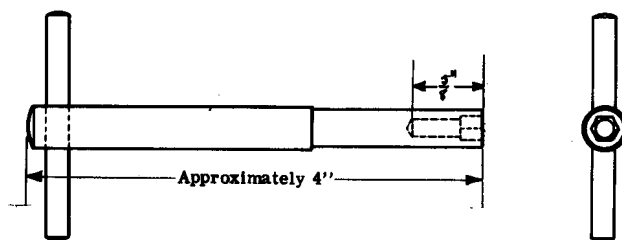
H-46440-1

WRENCH, "S" HEXAGON

H-10774



For general use



For 7/32" nut

For use on hexagon head screw that fastens the double dog clamp, rotary and vertical clamp and the shaft spring

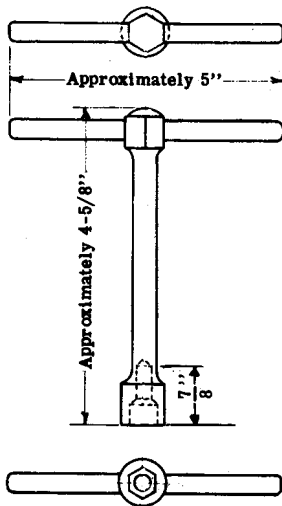
# MAINTENANCE TOOLS

WRENCH, HEXAGON SOCKET

H-7058-1

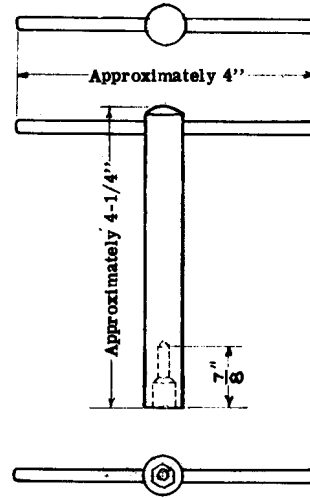
WRENCH, HEXAGON SOCKET

H-10053-1



For 3/8" nut

For use on Strowger switch rotary magnets and general use



For 5/16" nut

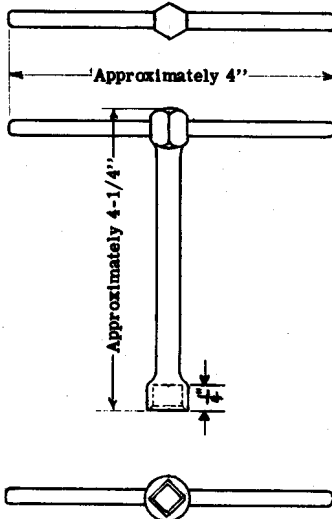
For use on plunger lineswitches and general use

WRENCH, SQUARE SOCKET

H-7061-1

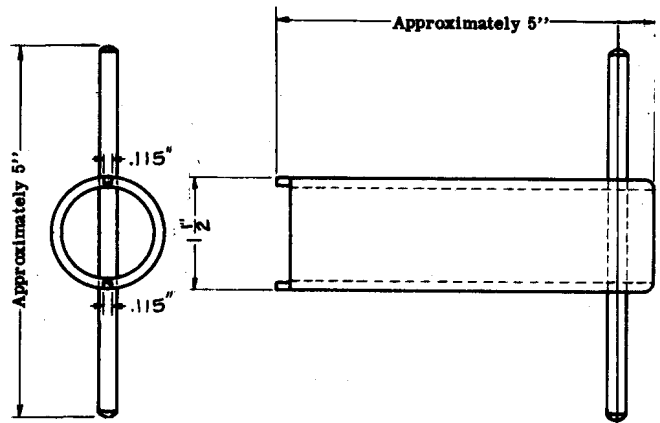
WRENCH, MONOPHONE SPANNER

H-43173-1



For 1/4" nut

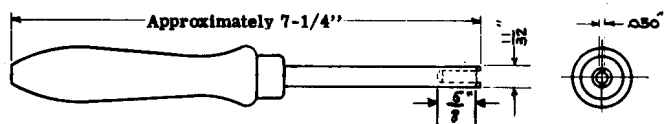
For use on master switch shaft clamping screws



For use in removing cradle from Types 1A and 31 Monophones

WRENCH, SLOTTED NUT

H-7065-1

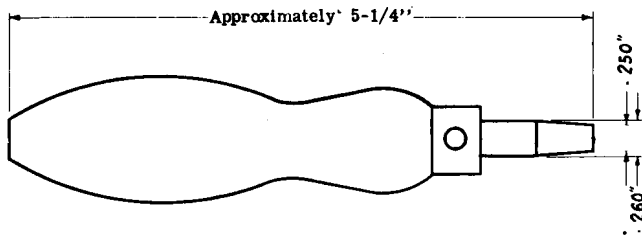


For use on #8 circular slotted nuts

BULLETIN 540-B

WRENCH, JACK THIMBLE

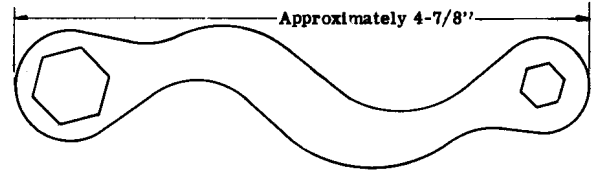
MP-1221-A



For use on jack thimble of magneto manual boards

WRENCH, "S" HEXAGON

H-20703

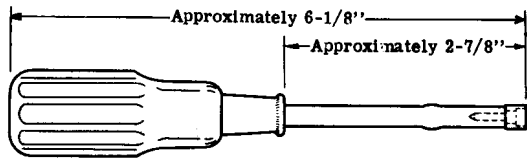


For 5/8" hexagon nut .095" thick For 5/16" hexagon nut

For use on rotary line switch Types 13 and 14

WRENCH, SPINTITE

H-46437-1

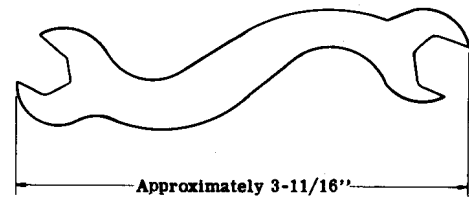


For 3/16" nut

For use in assembling wipers to Strowger switch shaft

WRENCH, OPEN END

H-880773-1

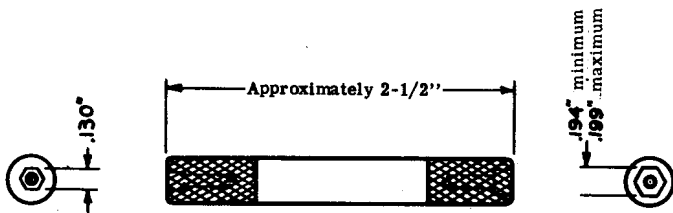


3/8" nut 1/8" thick 7/16" nut

For use with Type 44 and 45 switch

WRENCH, CAM NUT SOCKET

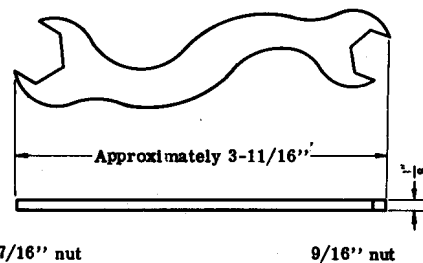
H-16480



For use on dial cam nut

WRENCH, "S"

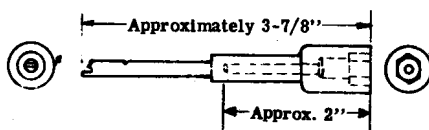
H-50448



For use on Type 29 ringing converter and general use

WRENCH, HEXAGON SOCKET

H-10772

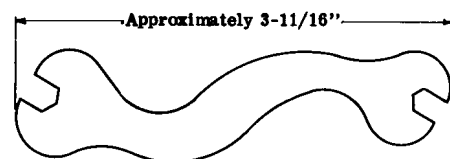


For 5/16" nut

For use on flat type terminal strip assemblies used in a hand drill or screw drivers having a chuck for holding interchangeable blades

WRENCH, "S"

H-7062



1/4" nut .065" thick 7/32" nut

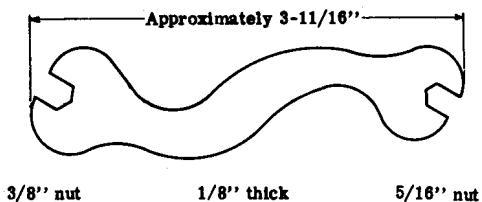
For general use and adjusting residual screw on relays



# MAINTENANCE TOOLS

**WRENCH, "S"**

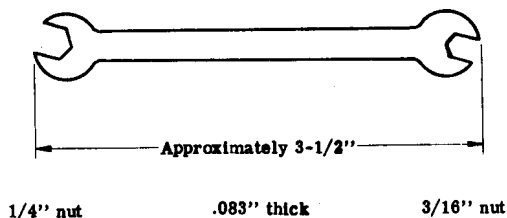
H-7063



For general use

**WRENCH, OPEN END**

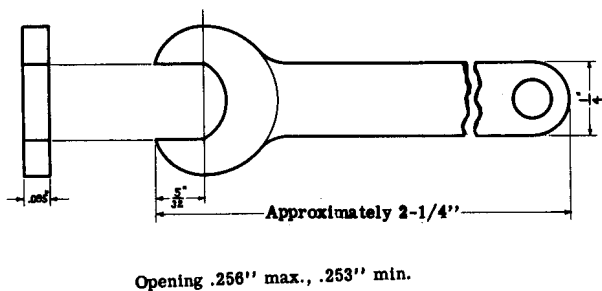
H-880772-1



For use with Type 44 and 45 rotary switch

**WRENCH, DIAL**

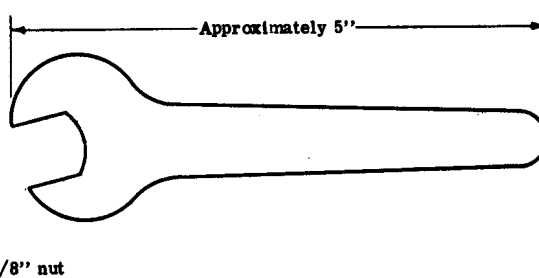
H-25937



For use on dial governor and cam nut

**WRENCH, END**

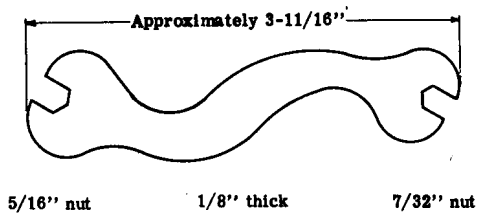
H-23865



For use on rotary lineswitch armature adjusting screw

**WRENCH, "S"**

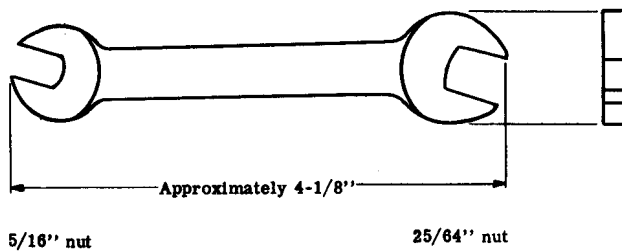
H-20309



For use on harmonic ringer

**WRENCH, OPEN END**

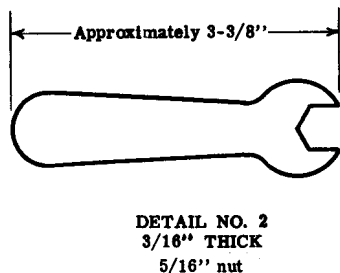
H-880672-1



For use on Strowger switch vertical and rotary magnet locking cap and general use

**WRENCH, PAYSTATION**

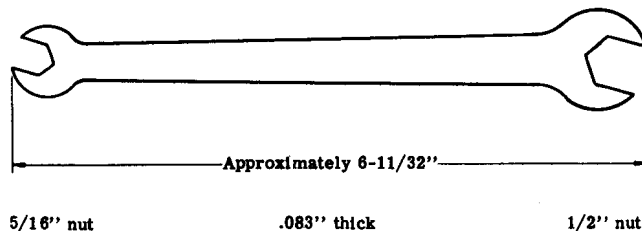
P-60481-2



For use in adjusting polar relay of pre-pay and post-pay paystations (tightening pivot screw lock nut)

**WRENCH, OPEN END**

H-880771-1

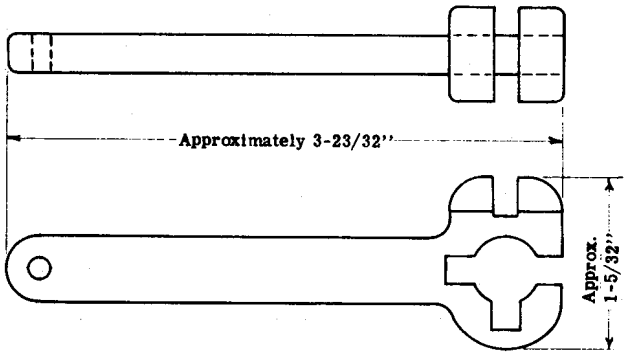


For use on Type 45 rotary switch

BULLETIN 540-B

WRENCH, WIPER

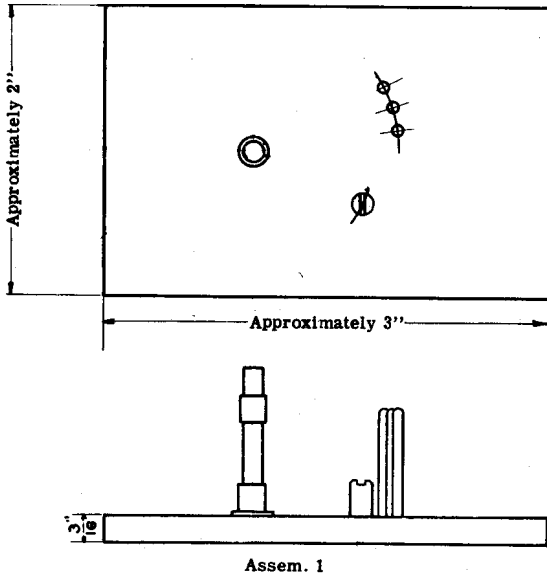
H-7057



For use on Strowger switch wiper with threaded hub and nut

WIPER, ASSEMBLY TOOL

H-50829-1

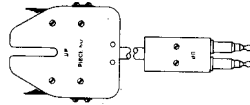


For use in reassembling minor switch wiper

## MAINTENANCE TOOLS

### TEST PLUG AND CORD ASSEMBLIES

See table for code numbers



TYPICAL PLUG AND CORD ASSEMBLY

For Protector	Length of Cord	USE ASSEMBLY			
		With twin plug for jack assembly		With twin plug for H-47082-1 jack box or H-11022-11 test box.	With spade terminal (Replacing twin plug)
		H-50830-1 & 2	H-880982-1		
A.E.Co. Type 676	12'-0" 18'-0"	D-57068-A D-57068-B	D-57068-H D-57068-J		D-57068-C D-57068-D
A.E.Co. Type 675 10, 20, 21 and 22 pair banks	12'-0" 18'-0"	D-57140-A D-57140-B	D-57140-E D-57140-F	D-57011-A	D-57140-C D-57140-D
A.E.Co. Type 675 50-51 pair banks	18'-0"	D-57107-A	D-57107-B	D-57045-A	
Cook Electric Co. Type 3800	12'-0" 18'-0"	D-57099-A D-57099-B	D-57099-E D-57099-F		D-57099-C D-57099-D
Cook Electric Co. Type 100	12'-0" 18'-0"	D-57141-A D-57141-B	D-57141-E D-57141-F	D-57021-A	D-57141-C D-57141-D
Cook Electric Co. Type 60	18'-0"			D-57017-A	
Cook Electric Co. Type 10	12'-0" 18'-0"	D-57143-A D-57143-B	D-57143-E D-57143-F	D-57014-A	D-57143-C D-57143-D
W.E.Co. Type C-50 and C-52	12'-0" 18'-0"	D-57142-A D-57142-B	D-57142-E D-57142-F		D-57142-C D-57142-D
W.E.Co. Type 1168, 1169, 1268, 1269 and 1177-A	18'-0"			D-57020-A	
Reliable Electric Co.	12'-0"				D-57060-A

For use with exchange distributing frames (H-50830-1 and 2 are 1/2" centers) (H-880982-1 are 1" centers)

BULLETIN 540-B

PRODUCT-TOOL-USAGE GUIDE

TOOLS				PRODUCTS																				
DESCRIPTION	PART NO.	STEPPING SWITCHES					RELAYS						MISCELLANEOUS											
		STROWER (2 MOTION)	MINOR SWITCH (10 Point)	Type 13 (25 Point)	Type 14 (50 Point)	Type 26 (11 Point)	Type 44 (10 Point)	Type 45 (25 or 50 Point)	Horizontal Class "A"	Type 57-A Class "B"	Type 58-A Class "C"	Type 10 Class "F"	Type 27 Class "M"	Rotor Relay and Bar Relay Class S	Series YQA (Codel)	Type 28 Class "Z"	DIAL	KEYS - LEVER, PUSH and TURN	LAMP JACK STRIPS	MONOPHONE	PLUG JACK STRIPS	SLEEVE MOUNTING JACK	TARGET INDICATOR	MASTER-SWITCH AND PLUNGER LINESWITCH
Clip, Busy	D 15455 A	X																						
Box, Harmonic Ringer	D 40059 A	X																						
Spacer, Insulating	D 44757 A	X																						
Sleeving, Cleaning (DRY)	D 542539 A	X	X	X	X	X	X																	
Adjuster, Armature	H 7056	X																						
Wrench, Wiper	H 7057	X																						
Wrench, Socket	H 7058 1	X	X	X	X																			
Adjuster, Hookswitch	H 7059																		X					
Wrench, Socket	H 7061 1																							X
Wrench, "S"	H 7062	X	X	X	X		X	X	X	X				X										X
Wrench, "S"	H 7063	X																						
Adjuster, Spring	H 7066																							X
Adjuster, Double Dog	H 7067	X																						
Adjuster, Bank Contact	H 7068 3																							X
Tester, Lineswitch	H 7443-5 to 12																							X
Gauge Blk., Plunger L.Sw.	H 7541 3																							X
Adjuster, Plunger Arm	H 10001 3																							X
Wrench, Socket	H 10053 1																							X
Wrench, Socket	H 11841 1																							X
Adjuster, Armature	H 13398 1	X																						
Adjuster, Armature	H 13700	X																						
Adjuster, Frame	H 13701																							X
Wrench, Socket	H 13748 1											X												X
Adjuster, Armature	H 14768								X						X									
Adjuster, Armature Stop	H 14769								X						X									
Pliers, Spring Adjusting	H 16290 7	X														X								
Wrench, Cam Nut Socket	H 16480															X								

# MAINTENANCE TOOLS

## PRODUCT-TOOL-USAGE GUIDE

TOOLS			PRODUCTS																						
DESCRIPTION	PART NO.	STEPPING SWITCHES					RELAYS							MISCELLANEOUS											
		STROWGER (2 MOTION)	MINOR SWITCH (10 Point)	Type 13 (25 Point)	Type 14 (50 Point)	Type 26 (11 Point)	Type 44 (10 Point)	Type 45 (25 or 50 Point)	Horizontal Class "A"	Type 57-A Class "B"	Type 58-A Class "C"	Type 10 Class "F"	Type 27 Class "M"	Rotor Relay and BarRelay	Class S	Series YQA (Codel)	Type 28 Class "Z"	DIAL	KEYS - LEVER, PUSH and TURN	LAMP JACK STRIPS	MONOPHONE	PLUG JACK STRIPS	SLEEVE MOUNTING JACK	TARGET INDICATOR	MASTER-SWITCH AND PLUNGER LINESWITCH
Cleaning, Bank	H 16590-1 & 2	X																							
Adjuster, Spring	H 20179 1		X	X	X																				
Adjuster, Spring	H 20777		X					X								X									
Adjuster, Rotary Pawl	H 23413 1	X																							
Wrench, End	H 23865		X	X	X																				
Lineswitch, Mounting	H 24528																								X
Adjuster, Spring	H 24600		X					X								X									
Wrench, Dial	H 25937																X								
Dial, Escutcheon	H 26917																			X					
Adjuster, Spring	H 42873		X					X								X									
Cleaner, Contact	H 42962 1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Monophone Tool	H 43172																			X					
Wrench, Spanner.	H 43173 1																		X						
Adjuster, Spring	H 44359											X													
Adjuster, Spring	H 45590										X														
Adjuster, Armature Stop	H 46410																								X
Adjuster, Spring	H 46411																								X
Adjuster, Spring Holder	H 46412																								X
Adjuster, Detent	H 46413																								X
Wrench, Socket	H 46437 1	X																							
Wrench, Socket	H 46440 1	X																							
Gauge, Thickness	H 46795 50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Adjuster, Spring	H 46974 1															X									
Adjuster, Spring	H 46975 1															X									
Adjuster, Cam	H 47202	X																							
Cleaner, Rotary Switch	H 47386 1		X	X	X	X	X	X																	
Pliers, Duck Bill	H 50620						X	X																	

BULLETIN 540-B

PRODUCT-TOOL-USAGE GUIDE

TOOLS			PRODUCTS																					
DESCRIPTION	PART NO.		STEPPING SWITCHES					RELAYS						MISCELLANEOUS										
			STROWGER (2 MOTION)	MINOR SWITCH (10 Point)	Type 13 (25 Point)	Type 14 (50 Point)	Type 26 (11 Point)	Type 44 (10 Point)	Type 45 (25 or 50 Point)	Horizontal Class "A"	Type 57-A Class "B"	Type 58-A Class "C"	Type 10 Class "F"	Type 27 Class "M"	Rotor Relay and BarRelay Class S	Series YQA (Code)	Type 28 Class "Z"	DIAL	KEYS - LEVER, PUSH and TURN	LAMP JACK STRIPS	MONOPHONE	PLUG JACK STRIPS	SLEEVE MOUNTING JACK	TARGET INDICATOR
Monophone Tool	H 50754																		X					
Wiper, Assembly	H 50829	1		X																				
Adjuster, Armature	H 56518										X													
Cleaner, Rotary Switch	H 56628	1			X	X																		
Cleaner, Rotary Switch	H 56628	2			X	X	X	X																
Adjuster, Spring	H 64670													X										
Adjuster, Spring	H 64980														X									
Pliers, Jack Spring	H 880621	1																				X		
Screwdriver, Cabinet	H 880622	1																				X		
Wrench, Strowger Magnet	H 880672	1	X																					
Wrench, Rotary Switch	H 880771	1																					X	
Wrench, Rotary Switch	H 880772	1																				X	X	
Wrench, Rotary Switch	H 880773	1																				X	X	
Adjuster, Spring	H 88385													X										
Adjuster, Spring	H 88390																	X						
Gauge, Jack Sleeve	H 88409																						X	
Pliers, Duck Bill 30°	H 88436		X																					
Adjuster, Armature (57AL)	H 88502	1												X										
Adjuster, Armature (57AS)	H 88503	1												X										
Adjuster, Spring	H 88504-1 & 2													X										
Cleaning, Bank Brush	H 88844-1 & 2		X																					
Wrench, Jack Fastener	M 6656-1 & 2																					X	X	
Wrench, Jack Thimble	MP 1221	A																						X
Lamp, Visual Face	MP 4425	A																				X		
Gauge, Manual	MP 5127	A																				X		
Extractor, Lamp Cap	W.E. 319	B																				X		
Extractor, Lamp Cap	W.E. 553	A																				X		

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JWS:av  
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Printed in U.S.A. by John S. Swift Co., Inc. 1M--7-53



# AUTOMATIC ELECTRIC

*Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . . Machine Switching Automatic Dial Systems*  
*Makers of Telephone, Signaling and Communication Apparatus...Electrical Engineers, Designers and Consultants*  
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