

THE WESTERN UNION TELEGRAPH COMPANY
PLANT DEPARTMENT

HANDBOOK FOR
TELEPRINTER MAINTAINERS

STENCIL #1857-8
June 12, 1944

THE WESTERN UNION TELEGRAPH CO.
PLANT DEPARTMENT

Stencil #1857-B
June 12, 1944

TELEPRINTER HANDBOOK

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TIME STAMPS

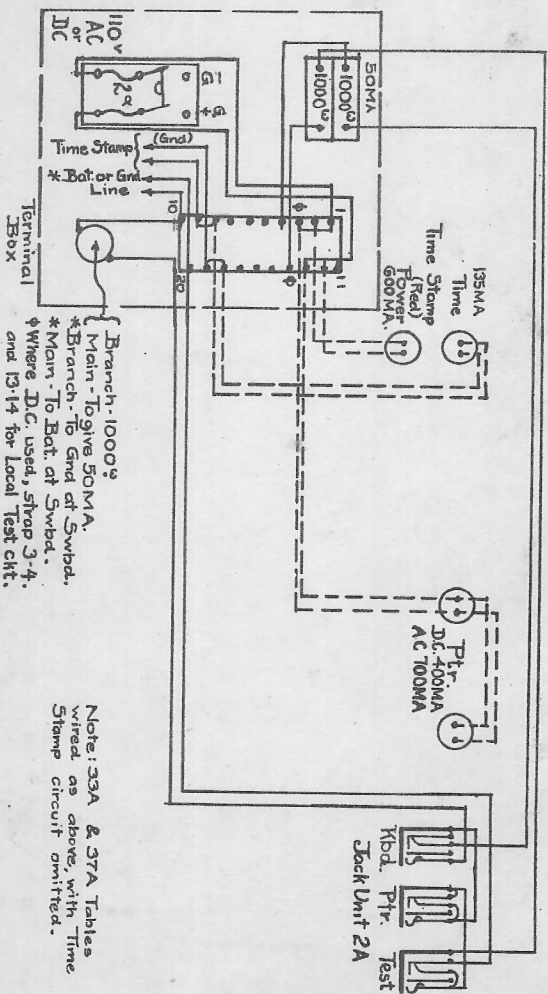
- 7.1 Time and Date Stamp Data
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L-54-A Models 12 and 15 Printers Speed
 Combinations.
 59-D Polar and Single Current Relays.
 60-B Jacks.
 Dwg. 97500 Standard Jack Types.
 L-428-A-1 Cordless Jack Unit (Type 2).
 3-A Office Protection Single Conductor
 Switchboard.
 4-A Office Protection Double Conductor
 Switchboard.
 4.1 Battery feed wires.
 Dwg. 78592-A-2 S.W. and Univ. Ticker
 Typewheel and Magnet Data.
 100 Type Printers - Spring Tensions.
 Teleprinter 2-B - Adjustments.

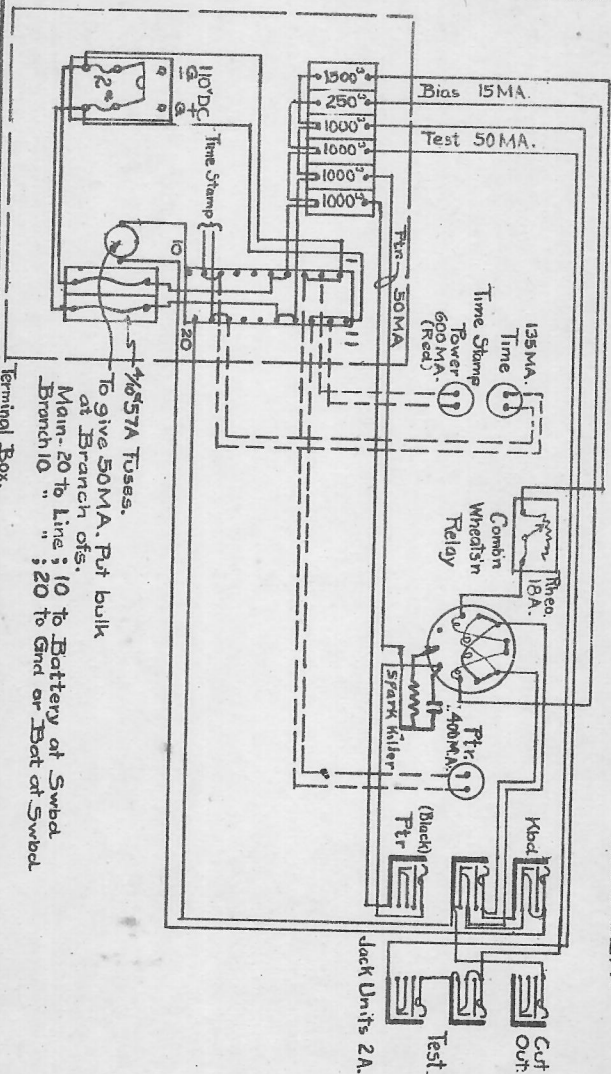
Teleprinter Operating Table 31A.



Revised per 2345312.
Kbd & Pfr Jacks reversed.

372
L 1 A

Operating Table 32A.



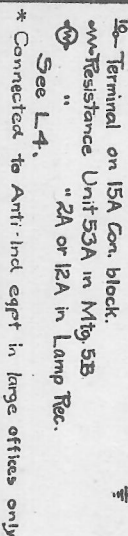
421130 Revised per 26615F2
 22206 " for Home Record Cutoff.
 31371 Spark Miller added.

To give 50MA. Put bulk
 at Branch of.
 Main-20 to Line; 10 to Battery at Swbd.
 Branch 10 " " ; 20 to Gnd or Bat at Swbd.

22

L 28

34A.



ИЗ

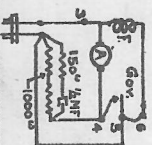
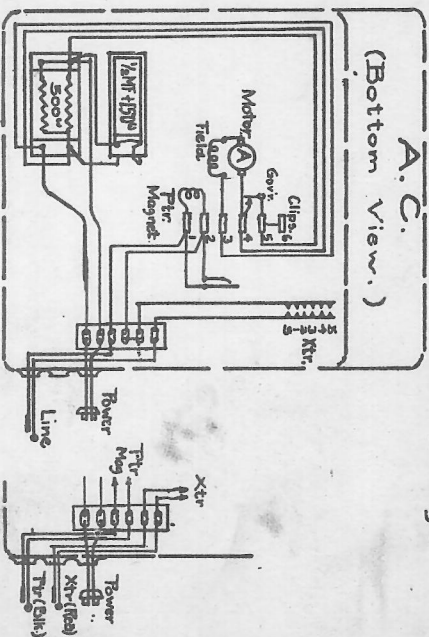
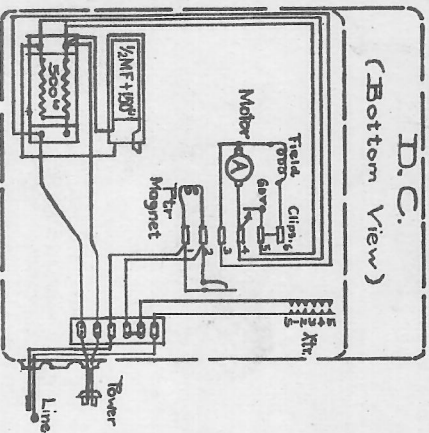
L 3A

Power Wiring

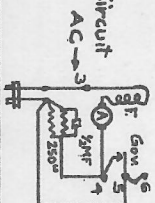


Terminal
Box.

Teletypewriter 2B. Wiring.



Schematic Motor Circuit
D.C.



Schematic Motor Circuit
A.C.

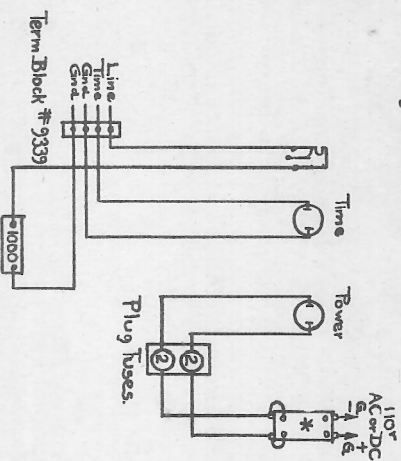
SPEC. 1822-D

32A

L6

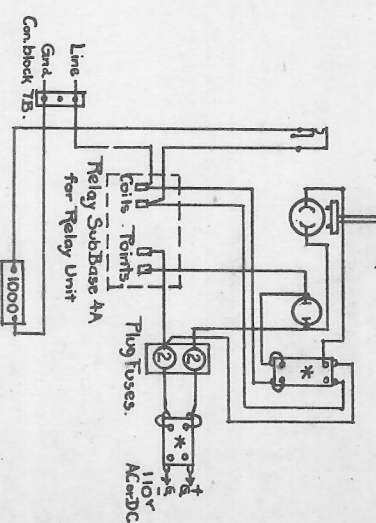
REVISED 7-24-31, G.S.

Teleprinter Wiring Cabinet 1C. Dwg 39942 A2



Used on
51A Oprg Table-Layout dwg 39243 (Public Obs)
39242 (Private ")

Teleprinter Wiring Cab. 1S. Dwg 39209 B2

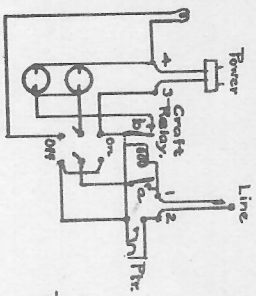


Used on
41A Oprg Table-Layout dwg 39235.
51B " " "



39235 Jack reversed in 1C Cab.

Call Signal & Motor Control Boxes.

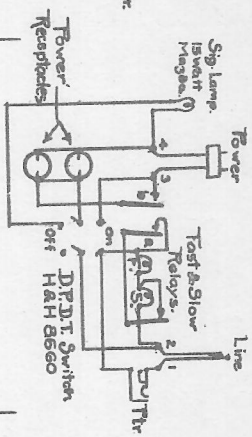


1A

Used on lines from Plan 1 Contr. or Regular Tables.

Spacing signal releases relay.
Contacts "a" shunt relay coil.
"b" light lamp & start motor.
Throwing switch "on" puts light out & keeps motor running. Motor must be stopped by throwing switch.

Spec 2425B. Opr.
2332B. Mfr.

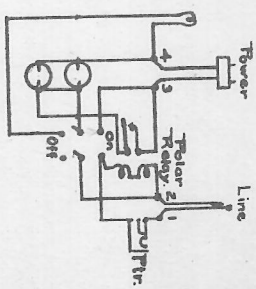


2A

Primarily for Reptd Lines from Plan 2 (100 line) concentrator. May be used in place of 1A Unit

Spacing signal releases Fast Relay.
Contacts "a" shunt relay coil.
"b" light lamp & start motor.
Long spacing signal when opr pulls out releases Slow relay, removing shunt from Fast relay which ops on next marking signal.

Spec 2698A. Opr.
2585A. Mfr.



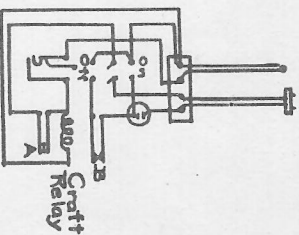
3A

Used on unrepeaters lines from Plan 2 Contr.

Positive Signalling, battery from contr. holds relay with contacts open. Negative battery from Contr. ckt causes contacts to close, lighting lamp & starting motor.
Note: All types "Off" Signalling position "On" Operating

Spec 2681A. Opr.
2586A. Mfr.

Teleprinter Motor Control Box 7A



Used in Public offices to
start printer on spacing signal.
Contact A shunts relay.
" B (tungsten) starts motor.
Adjustment same as 1A box.

Spec 3231 - Mfr.

320
3037

L9.1A

Teleprinter Audible Signal.

Single current outlet
tap. Hubbell #335.

18 S.J. Cord.

Buzzer Mux Cat # T1051,
mounted on three 1/8"
thick, clamped to
lamp standard.

On A.C. short out
buzzer contacts.

Hubbell Plug #5467.

18 S.J. cord.

Extended Signal. (Private Office)

Pilot lamp 1A
(3 c.p. 18-24")
in Lamp Std 3A (3 3/4")
or
" 4A (12")

If Audible signal
required, use 10E
buzzer or Bell

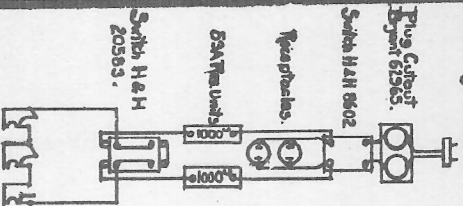
20 ga. Dry braid or
Inside 19

18 S.J. Cord
to Lamp Std.

400 535 in 5B Mfg
in Wrg. Cab. or Term box.

to extended signal.
(for Tables closer than
41A & 51B)

Testing Cabinet 2A

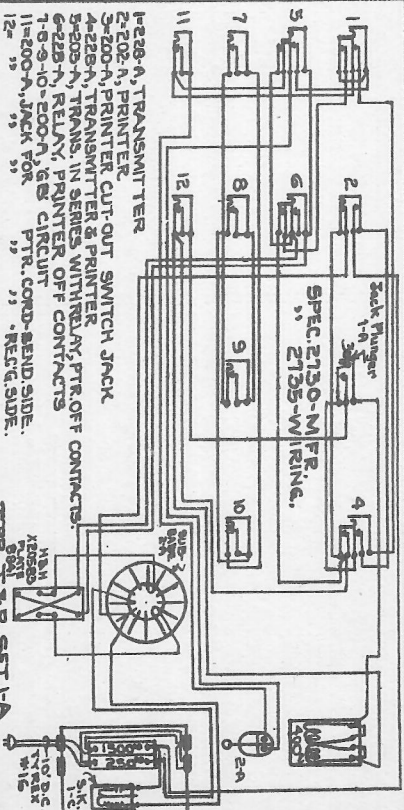
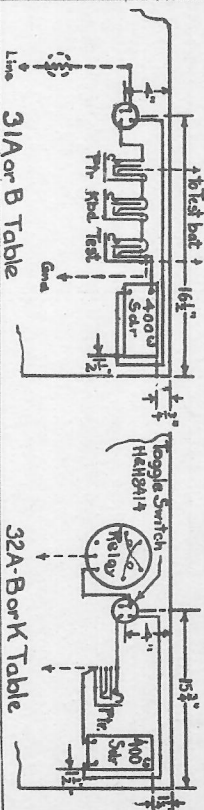


Cabinet 7" x 5" x 4" high.
Panel in front.

Spec 2579A · Opr.
" 2385A · Mfr.

REVISED 8-18-51 G-5

Spec. 2203-D Teleprinter Time Signal Equipment.

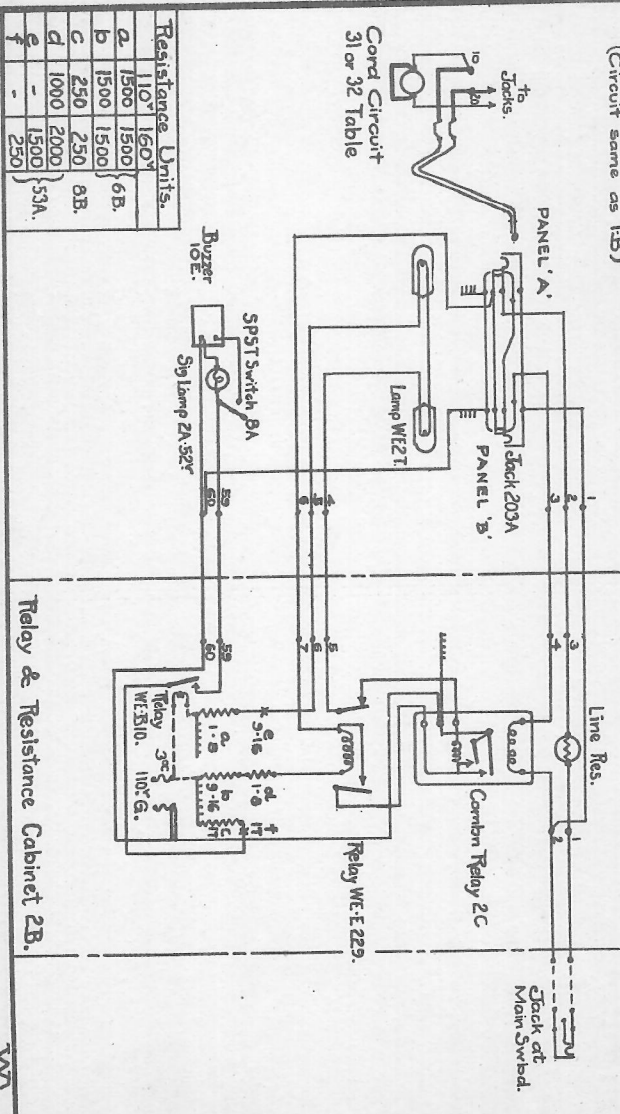


TYPE: BR. SET 1-A

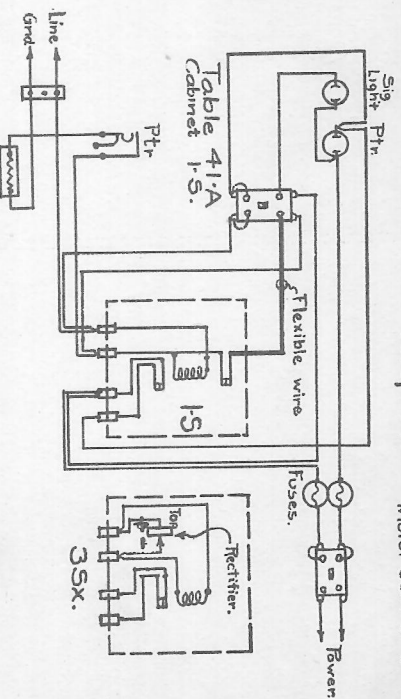
10.0.0.0
1.0.0.0
1.0.0.0

Plan 1B V Belt Spec. 2306B.
 "1A Flat " " 1839B
 (Circuit same as 1B)

Printer Concentrator V-Belt.



Teleprinter. Call Signal & Motor Control Units.

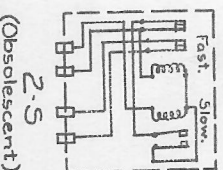
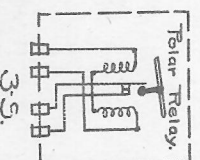


Resistance of Relays.

1A, 1S, 3Sx.	200 ω
2A & 2S	{ 175 ω Slow Relay
	{ 75 ω Fast
3A & 3S	{ 21 ω Kello99 †
	{ 250 ω Auto Elec. †

† Auto Elec Relay has 2 adj screws in Armature.
 † Kello99 " " adj screws in " "

All relays shown de-energized



Unit 3Sx added.

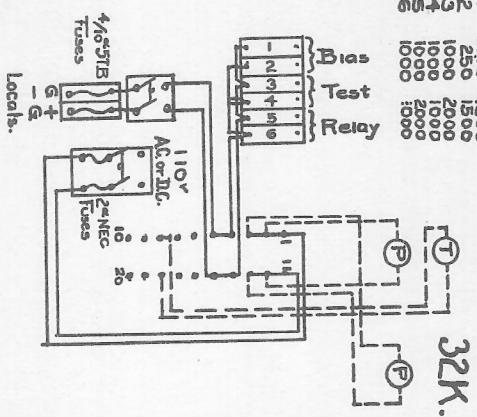
AUD. 56L. ADDED. F.P.S.

3-5-37 " " REMOVED. SEC 3-2

3-13-41 Rect. designations reversed on 3-Sx.

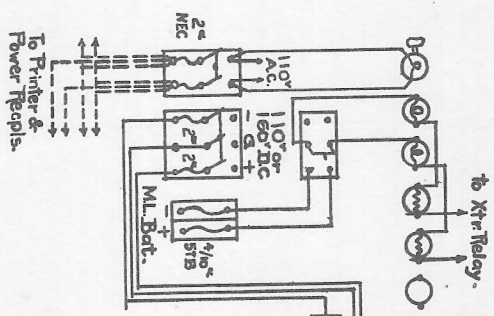
Resistances 53A.

N ^o	110V	160V
1	1500	1500
2	250	1500
3	1000	2000
4	1000	1000
5	1000	2000
6	1000	1000
7	1000	2000
8	1000	1000
9	1000	1000



Teleprinter 32K & 34K.

34K.



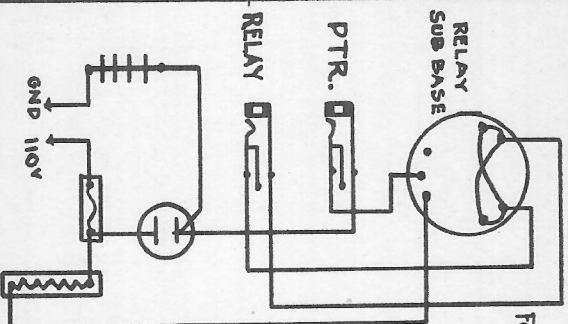
N ^o	110V	160V
1	2000	5000
2	1000	1000
3	1000	1000
4	500	500
5	1000	2000
6	1000	2000
7	5000	5000
8	1000	2000
9	1000	1000

Other wiring same as 32A & 34A tables.

3-13-41 34K Table. Spark killer removed. See Dwg. 28769.

TELEPRINTER MONITOR SETS.

FOR UNIT SET
TABLE.

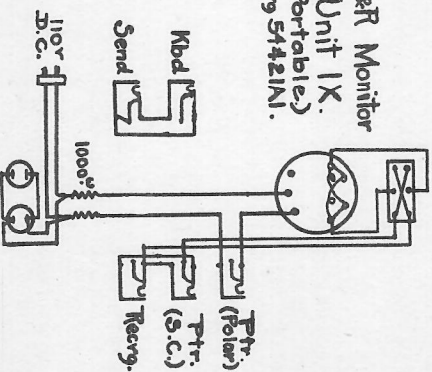


RES. 6B 1500^W
IN 10 A MTG.

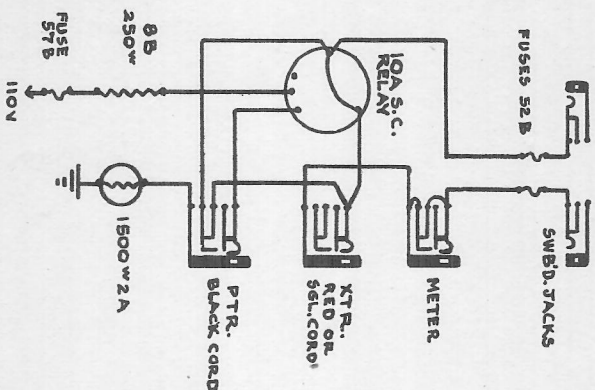
MOUNT IN FRONT POSITION
IN R.H. COMPARTMENT.

92236 Unit IX added. 32
3-19-41 Dwg. number corrected.

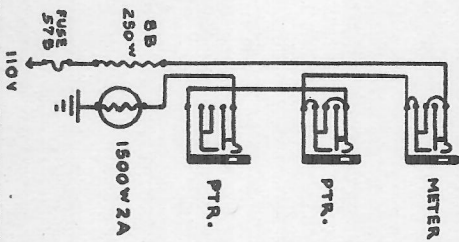
T&R Monitor
Unit IX.
(Portable)
Dwg 54421A1.



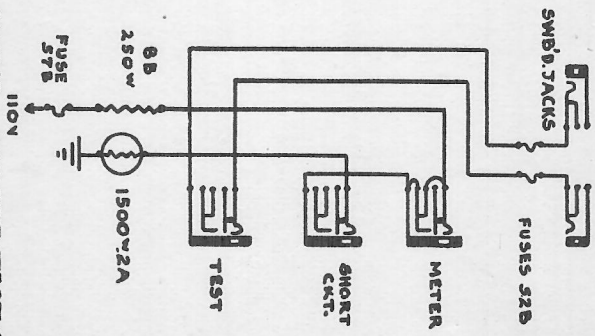
TPR TEST SET



TPR. SHORT CKT. TEST



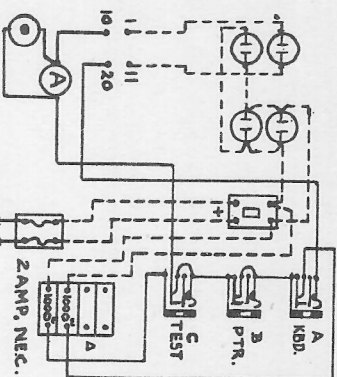
TPR. TEST SET & SHORT CKT. TEST SINGLE CORD PRINTERS ONLY



SINGLE CONDUCTOR SWBD. PRINTER. TEST CKTS.

DWG. 43287-1 43288-1 43289-1 SPEC. 3000-A
6-23-35 RRS.

Teletypewriter Wiring Cab 1D Dwg. 48201



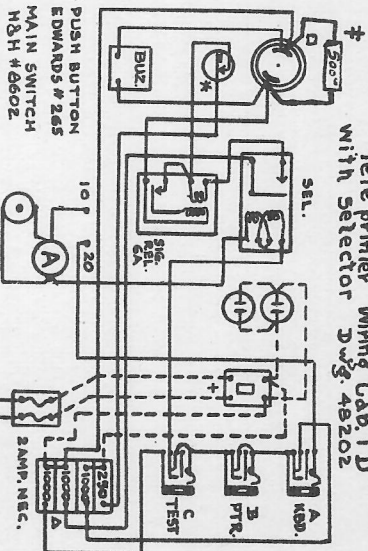
PUSH BUTTON
EDWARDS #620
USED FOR
CALLING IN REPT.
ATTENDANT IF REQUIRED.

15A BLOCK CONNECTIONS

11- " GROUND
10- GROUND OR BATTERY
20- LINE

Resistance "A" at Branch: 1000, 700, 400 or 50 Ω
"A" - Main : Balance to give 50-60 MA

Teletypewriter Wiring Cab 1D with Selector Dwg. 48202



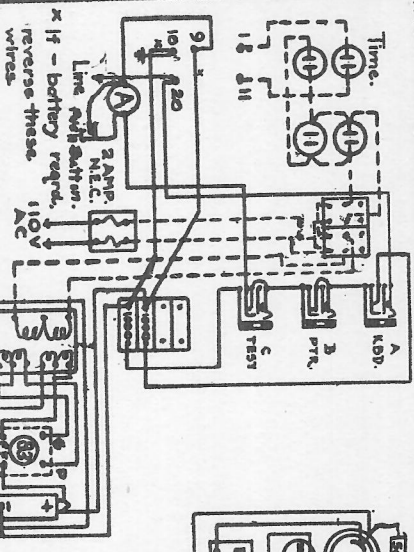
* PUSH BUTTON
EDWARDS # 265
+ MAIN SWITCH
H&H #8602
 Δ MTG. RESIS. 11A
RESIS. 53A
SIG. STD. 9A IN
HUBBELL RECEPT. 7210
REMOVE IF VISUAL SIGNAL IS USED.

NOTE: "A" - SELECTOR COILS CONNECTED IN SERIES INSTEAD MULTIPLE - APPX #1

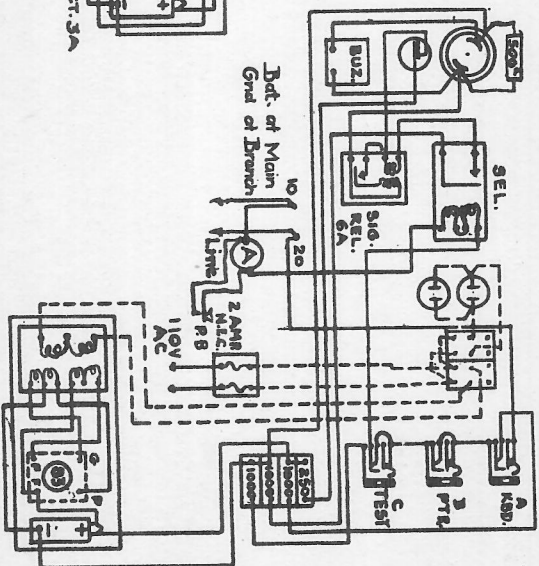
"B" Note re res "A" changed. 1-3 3B.

3-13-41. RESISTOR ADDED ACROSS RECEPTACLE.

Teleprinter Wiring Cab. 1R WITH N.V. RECT. 3A DWG. 46202



Teleprinter Wiring Cab. 1R WITH SELECTOR DWG. 46204



At Branch. Res A = 1000" 700" 400" or 50"
At Main " A = Balance to give 50-60 mA.

MERCURY VAPOR RECT. 3A

SPEC. 3065A

NOTE 'A'. SELECTOR COILS CONNECTED IN SERIES INSTEAD MULTIPLE
RPD x 4

NOTE 'B'. 8602 SWITCH RENAMED ACC SPEC. 3582A - 7065 MOD '83'
NOTE 'C'. Notes 'A' and 'B' applied. Register added across receptacle.
3-15-A Push Button added.

L-28-D.

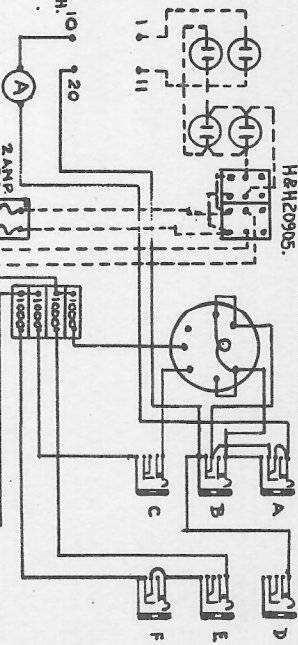
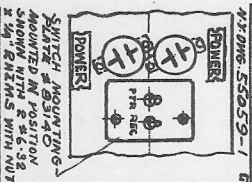
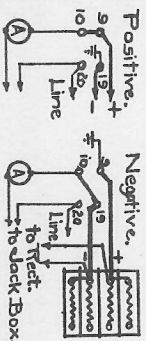
- JACKS:
- A-KBD.
 - B-PTR. (No work without relay)
 - C-PTR. RELAY LOCAL
 - D-HOME RECORD CUTOUT.
 - E-PTR. } TEST
 - F-KBD. }

15A BLOCK CONNECTIONS

- 1 TIME
- 11 " GROUND
- 10 BAT. AT MAIN. LINE AT BRANCH.
- 20 LINE " " GND " "

RESIS. A
TO GIVE 50-GOMA (Most at Branch)

When necessary to apply Main Line battery connect thus:



MERCURY VAPOR RECT. 3A

If rectifier feeds -. condenser must be protected by fibre sleeve unless it has two insulated terminals.

NOTE '9'. - SWITCH & 860E REFRACED PER SPEC. 3542A - '82. 10B5 CHANGED TO '83'
B Changed for Home Record Cutout 323-36.
C Added data on M.L. Battery 1-1-36.

Doc. 40208.



▶ 不器

3 PTR (without Relay)

C-PTR. RELAY LOCAL

D-HOME RECORD CUTOBT.

TEST

F. KBD. J

Note: To work without relay put ptr. 8kΩ. plugs in jacks A-B. In this case selector does not operate. Relay: polar or 10B Resis. A to give 50-60 M.A.

15A BLOCK CONNECTIONS

10 BAT. AT MAIN, LINE AT BORN
20 LINE " " GND " "

If Main Line Battery necessary,
connect per L30.

SPEC. 3065A

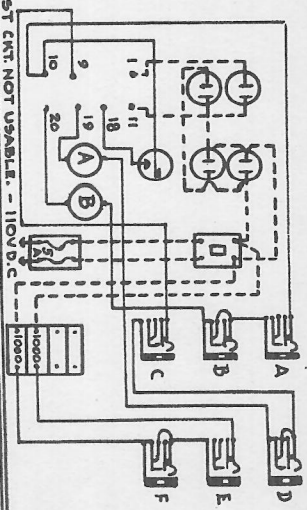
NOTE 'A'. SELECTOR COILS CONNECTED IN SERIES INSTEAD MULTIPLE. - RPDx #1

923336 - Changed for Home Record Card. NOTE 'B' - SWITCH 8602 REPAIRED PER SPEC. 3642-A - TUBES CHANGED TO READ "83"

Teleprinter Wiring Cab.9D Dwg. 48209

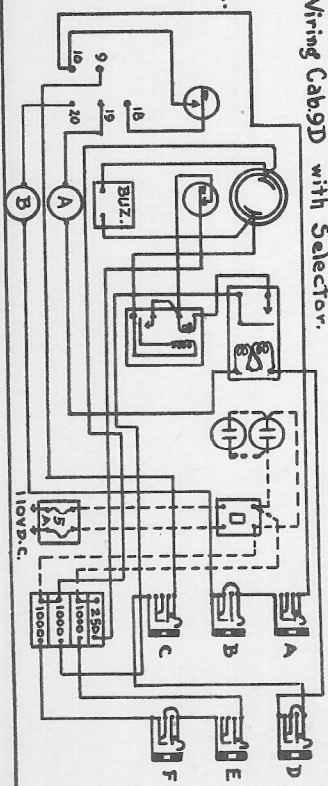
- JACKS**
 A-KBD.
 B-INTX-XTM.,CALLING KEY,OR SEND, PTR.
 C-RECEIVING PRINTER
 D-"
 E-KBD. } TEST
 F-PTR. }
 1-15A BLOCK CONNECTIONS
 11- TIME
 12- " GROUND
 13- RECEIVING LEG
 14- SENDING "
 15- PUSH BUTTON GROUND LEG
 16- GND. FOR RECEIVING LEG
 17- " SENDING "
 18- "

IF 110V A.C. USED, TEST CRT. NOT USABLE. - 110V D.C.



Teleprinter Wiring Cab.9D with Selector. Dwg. 48210

RESIS. A & B
 LIMIT CURRENT 50 M.A.
 RESIS. A - REC. LEG
 " B - SEND "

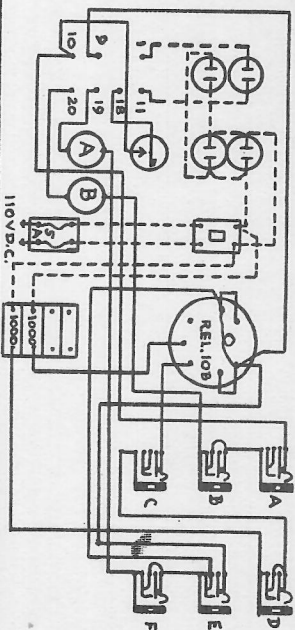


SPEC. 3065 A NOTE "A" SELECTOR COILS CONNECTED IN SERIES
 INSTEAD MULTIPLE. APPX #1

"B" TITLE REVISED 1-10-36.

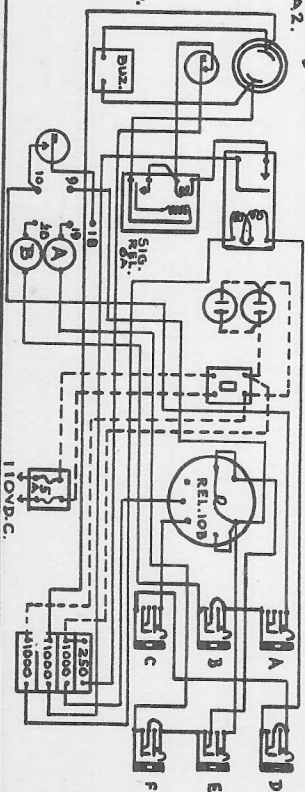
Wiring Cab. 9D with Relay. Dwg. 48211-A2.

- JACKS
A- KEYBOARD
B- DXT. XTR., CALLING KEY, OR
SEND. PTR.
C- REC. PTR. } May also be
D- " LOCAL } use for test.
E- " PTR. TO WORK WITHOUT
RELAY.
F- REC. LEG
RESIS. A REC. LEG & RESIS. B
SEND. LEG. 1000Ω 2A TO LIMIT
CURRENT TO 50 MA.



Wiring Cab. 9D. with Selector & Relay. Dwg. 48212-A2.

- 15A BLK. CONNECTIONS
1- TIME
11- " GROUND
9- REC. LEG GND.
19- " " GND.
10- SEND. " GND.
20- " " GND.
18- PUSH BUTTON GND.



SPEC. 3065-A

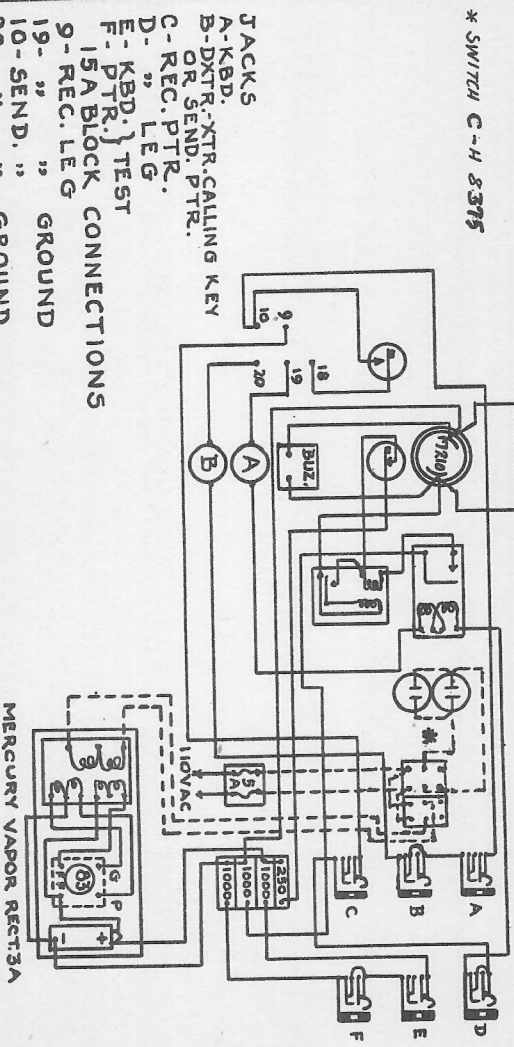
NOTE: 'A' SELECTOR COILS CONNECTED IN SERIES
INSTEAD MULTIPLE - APPX 4'

'A'-12-23-35 4mm

L33A

Wiring Cab9R with Selector. Dwg 48213-E2. Remove if visual signal is used.

* SWITCH C-H 8375



RESIS. A-REC.LEG, B-SEND. LEG 1000 Ω 2A TO LIMIT CURRENT TO 50MA.

SPEC. 3065-A

NOTE 'A'- SELECTOR COILS CONNECTED IN SERIES INSTHD MULTIPLE-APDX #1

'B'- 5-11-36 8unit

NOTE 'B'- SWITCH 0602 REPLACED PER SPEC. 3592-A

" 'C'- SWITCH ADDED. Resistor added across 7210. 3-14-41.

L-34C

Dw 5.48214-B.2.

A- KEYBOARD

B-DTR.-XTR., CALLING KEY, OR

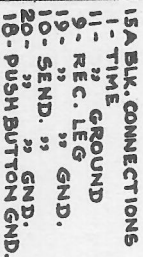
SEND. P.T.R.

C-REC. PTR: MAY 21 50 PM '68

E- " PTR. TO WORK WITHOUT

F-REC. LEG

RESIS.A-REC.LEG&RESIS.B
SEND.LEG.1000"2A TO LIMIT
CURRENT TO 50MA.



SPEC. 3065-A

NOTE 'A' SWITCH 8602 REPLACED PER SPEC. 3542-A 'A' 5-11-36 *fw*

3-17-41 NOTE B

TUBE CHANGED '82' TO '83

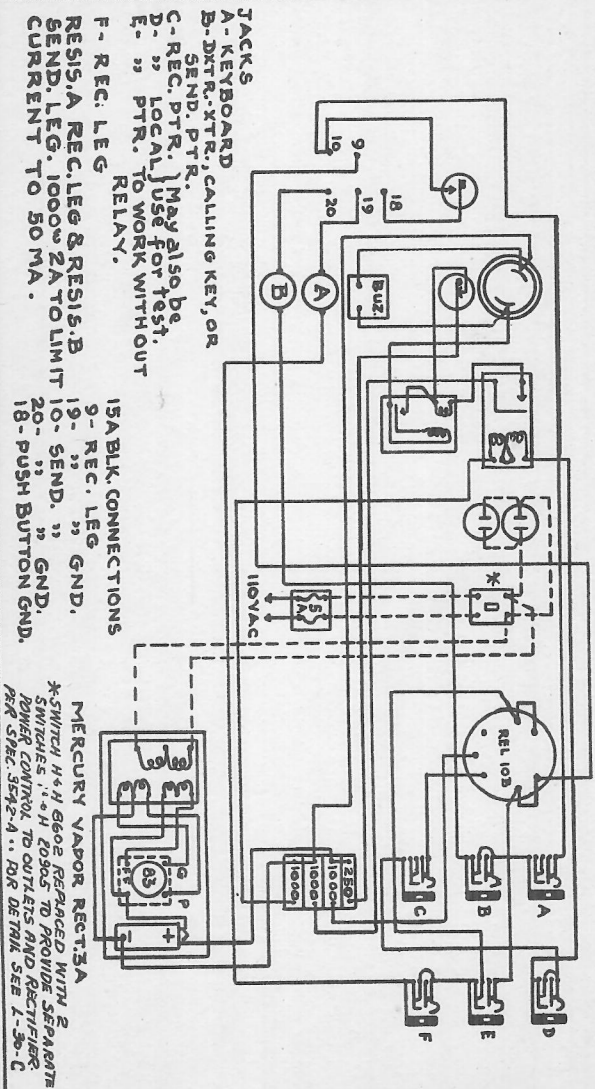
TRANSEMEMBR CONNECTIONS CORRECTED FOR 83 TUBE.
10BF CHANGED TO 10 03.

TRANSFORMER CONNECTIONS COMPLETE. SECOND SWITCH ADDED. WIRING TO RECEPTACLES

A and B corrected.

८५५

Dwg. 48215-A2.



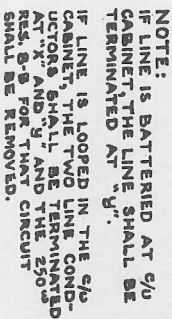
SPEC. 3065-A

NOTE 'A'- SELECTOR COILS CONNECTED
IN SERIES INSTEAD MULTIPLE-APPROX #1
NOTE 'B'- SWITCH REPLACED PER SPEC. 3542-A 'B'- 5-11-36 JWB

L-56-B

**PRINTER CONCENTRATOR
PLAN 3 SPEC. 3174-A**

SPEC. 3174-A



◆ WIRES CONNECTED
TO W.E. B-10 RELAY IN
POTENTIAL CABINET.
SEE SHEET L-38

GND. 110 V D.C. OR
160 V D.C.

RESISTANCES
110 γ
160 γ

A	B
1500 w-6B	250 w-8B
2500 w-7A	250 w-8B

APP. 2

LAMP STANDARD 6-A



' A' 2-18-38

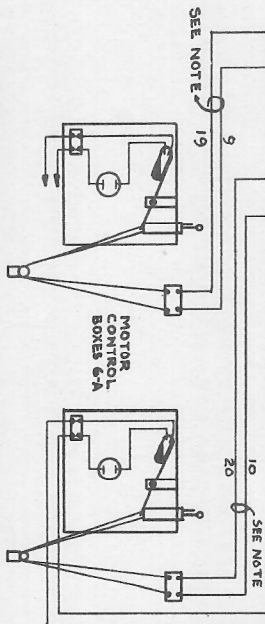
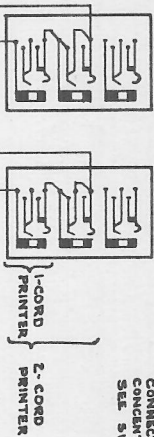
L37.1A

PRINTER CONCENTRATOR

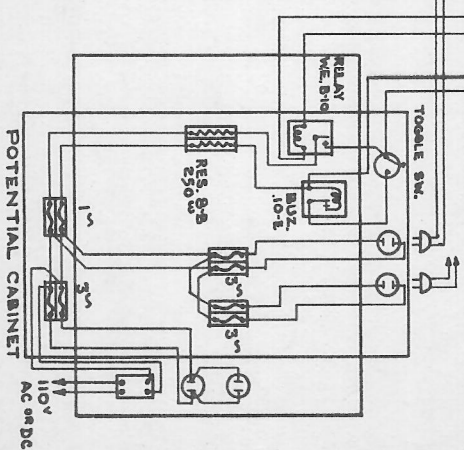
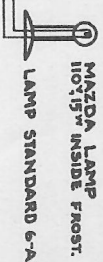
PLAN 3
SPEC. 3174-A

CORDLESS TABLE
JACK UNITS 2-B

* WIRES CONNECTED TO 7-B
CONNECTING BLOCK IN
CONCENTRATOR CABINET.
SEE SHEET L-37



NOTE:
WHEN 31 OR 32 TYPE TABLE USED, CONNECT THESE
WIRES TO TERMINALS 10 AND 20 IN TERMINAL BOX.
NO CHANGE NECESSARY IN CORDLESS TABLE JACK UNIT.
FOR ADDED PRINTER ON THIS TYPE TABLE AN
ADDITIONAL CORDLESS TABLE JACK UNIT IS REQUIRED
AND SHALL BE CONNECTED TO TERMINALS 9 AND 19
IN TERMINAL BOX.



PRINTER CONCENTRATOR

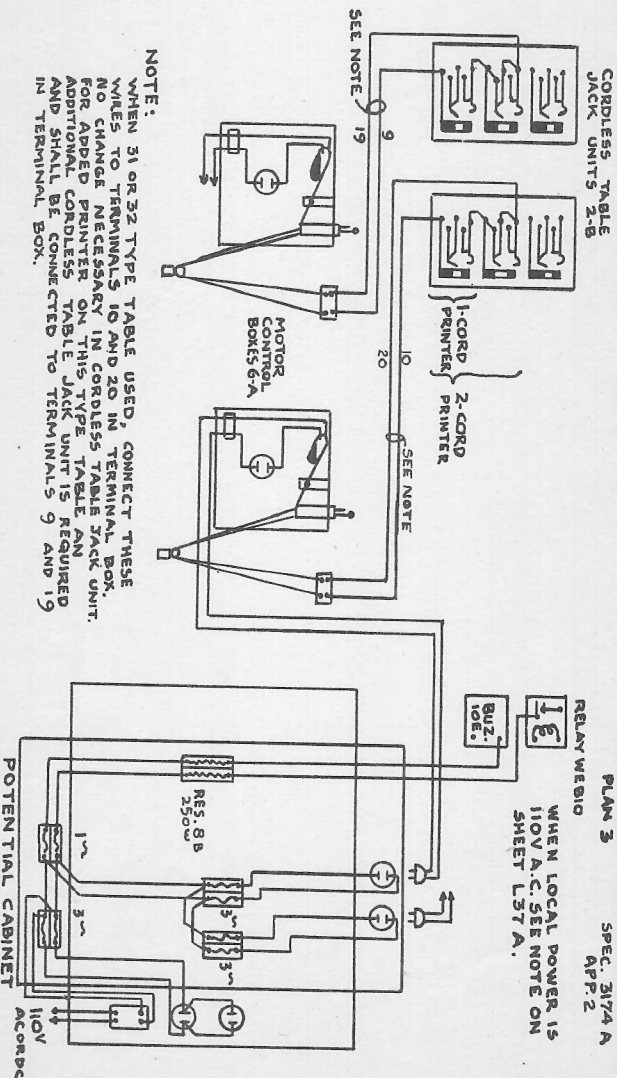
PLAN 3

SPEC. 3174 A

APP. 2

RELAY WE B10

WHEN LOCAL POWER IS
110V A.C. SEE NOTE ON
SHEET L37 A.



NOTE:

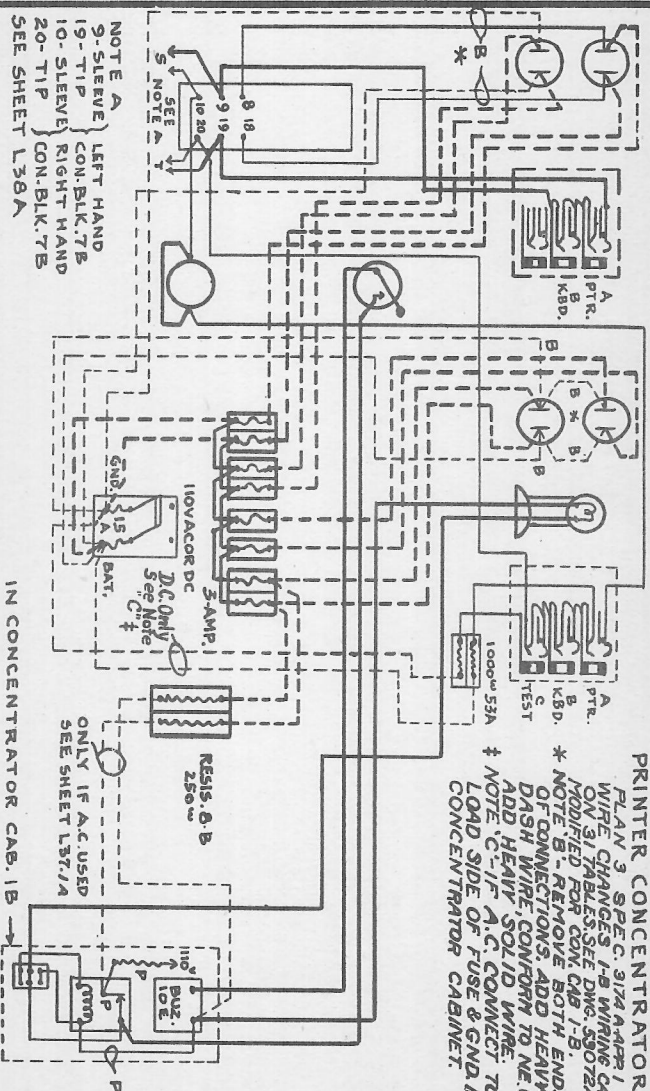
WHEN 31 OR 32 TYPE TABLE USED, CONNECT THESE WIRES TO TERMINALS 10 AND 20 IN TERMINAL BOX. NO CHANGE NECESSARY IN CORDLESS TABLE JACK UNIT. FOR ADDED PRINTER ON THIS TYPE TABLE AN ADDITIONAL CORDLESS TABLE JACK UNIT IS REQUIRED AND SHALL BE CONNECTED TO TERMINALS 9 AND 19 IN TERMINAL BOX.

F.P.5. 11-12-34.

L-38.1

PRINTER CONCENTRATOR

PLAN 3 SPEC. 3174AAR1
 WIRE CHANGES I-B WIRING CAB.
 ON 31 TABLES SEE DWG. 33072AE
 MODIFIED FOR CON. CAB I-B.
 * NOTE 'B' - REMOVE BOTH ENDS
 OF CONNECTIONS. ADD HEAVY
 DASH WIRE. CONFORM TO NE.C.
 ADD HEAVY SOLID WIRE.
 † NOTE 'C' - IF A.C. CONNECT TO
 LOAD SIDE OF FUSE & GND. IN
 CONCENTRATOR CABINET.



NOTE A
 9-SLEEVE LEFT HAND
 19-TIP CON-BLK.7B
 10-SLEEVE RIGHT HAND
 20-TIP CON-BLK.7B
 SEE SHEET L38A

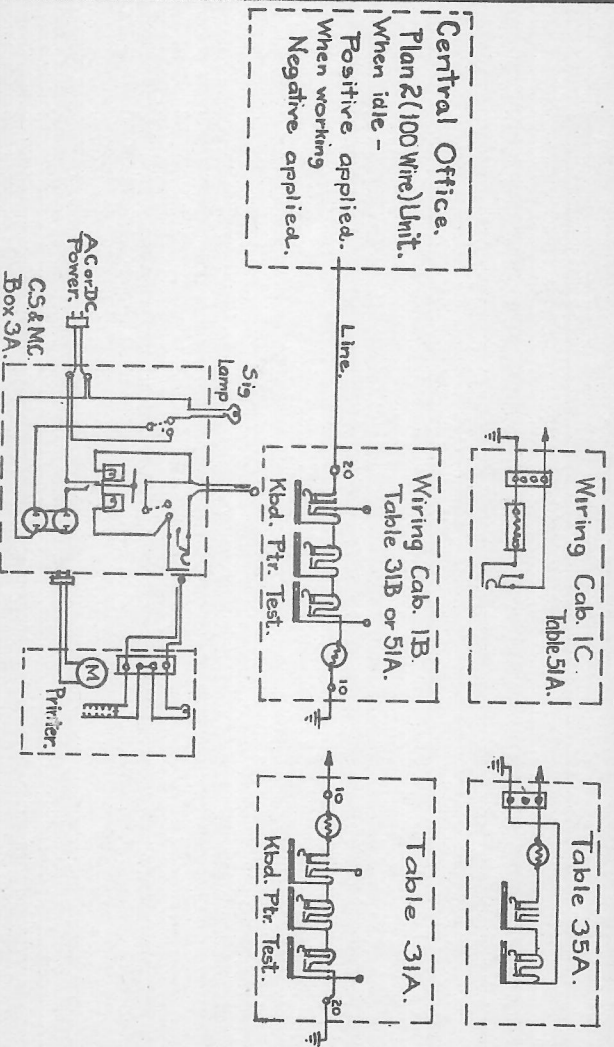
Note "A" Condensed Previous notes added Note "C" 4-28-37

IN CONCENTRATOR CAB. I-B

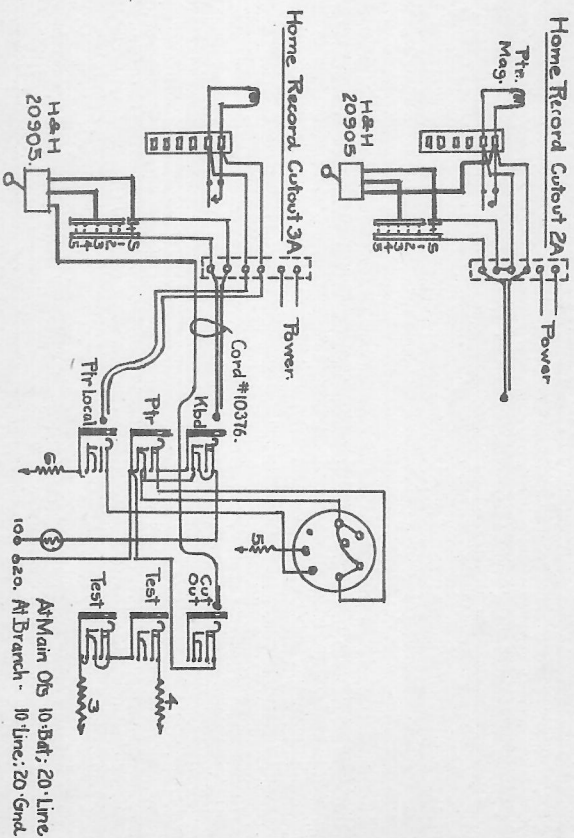
4-28-37

L-46-A

Teleprinter Circuit with 3A C.S.&M.C.

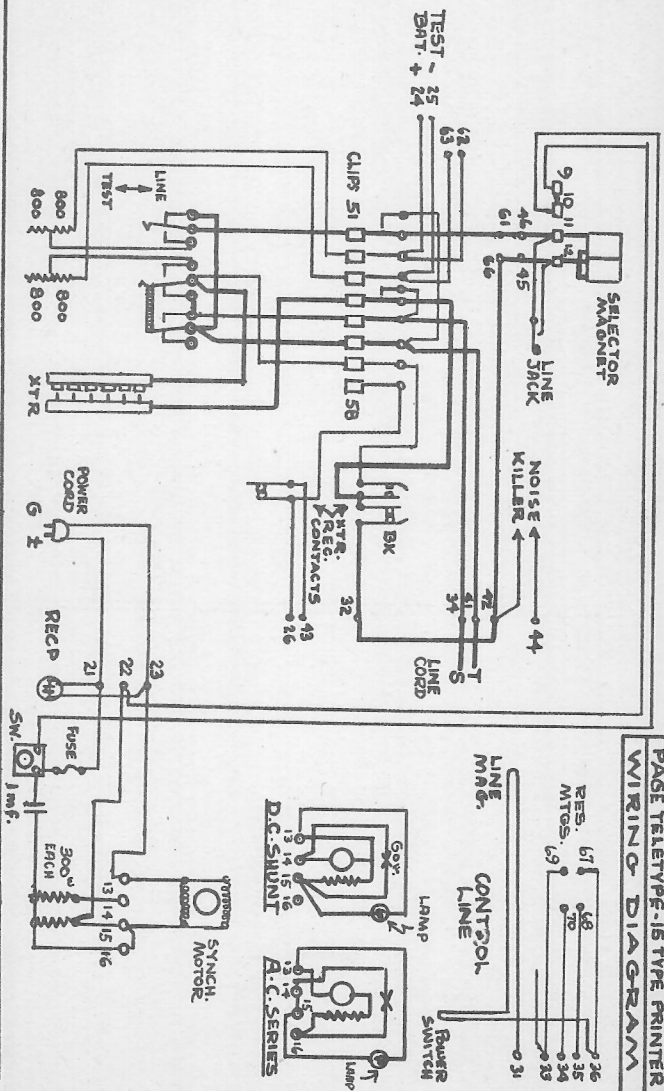


Teleprinter - Home Record Cutout.



Schematic.

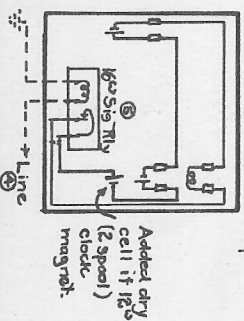
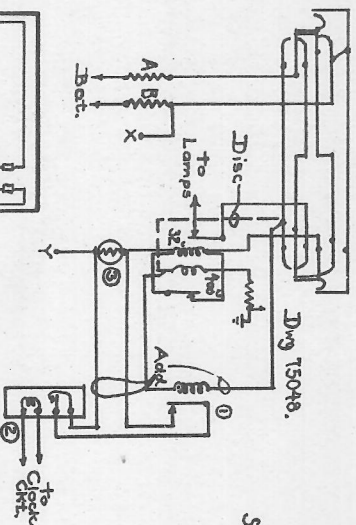
PAGE TELETYPE-15 TYPE PRINTER WIRING DIAGRAM



1-6-36 Fair 380

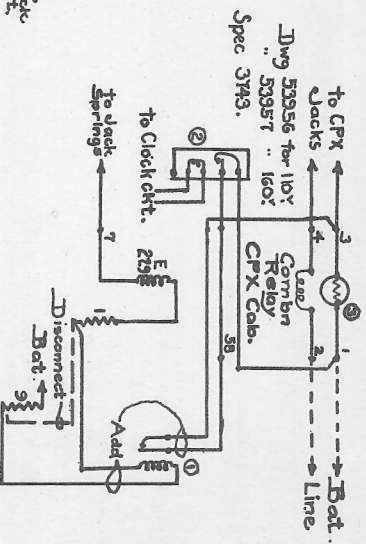
Teleprinter. Clock Synchronizing over Tpr. Circuits.

CPX PLAN 3



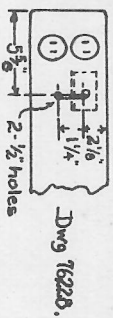
Added dry
cell if 160
(2 spool)
clock
magnet.

CPX PLAN 1.



- ① Added relay E229 in Mty. Bkkt 3A with cover E1.
- ② " Signal Relay 4th 3C or 5th 3D at Time Svc. swbd.
- ③ Change to 1000^{ohms} for 110V; 1500^{ohms} for 160V.
- ④ Adjust resistance at outer Tpr to give 55MA (Approx 300^{ohms} for 110V; 700^{ohms} for 160V)
- ⑤ Signal Relay 16th 3C or 3D added to each clock.

Wiring Cabinet 2B, 2D or 2R.



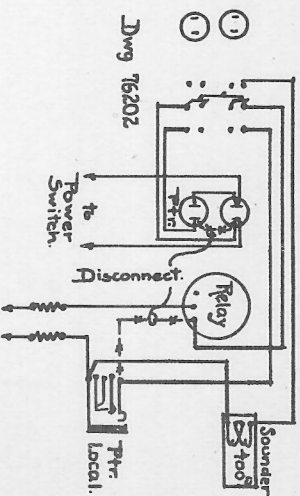
- 2 Switches C.H. 8315 modified per 76201.
- 1 Separator #10784.
- 1 Handle 10785.

Table 32A or 32K.



- 2 Switch Unit 10790, consisting of:
- 2 Switch C.H. 8315 mod. per 76201.
- 1 Separator 10784.
- 1 Handle 10785.
- 1 Plate, blank, brass.
- 1 Outlet box. Gem 3" x 2" x 2 1/2" deep.

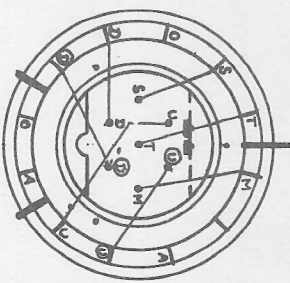
Teleprinter. Sounder Calling 32 Type Tables.



Sounder located at right rear corner as shown on L5 & L10. Remove toggle switch for time, if installed (See L10)

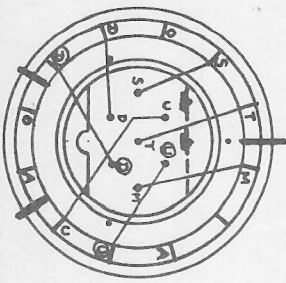
SPEC. 5004-C
 31-C NY DWG. 89142-C-1
 32-C NY DWG. 92359-C-1
 41-C NY DWG. 89143-C-1

RELAY SUB BASE
 ADAPTERS 31-C,
 32-C, 41-C

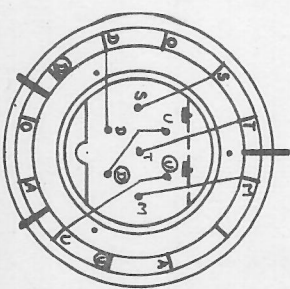


32-C

BOTTOM
 VIEW



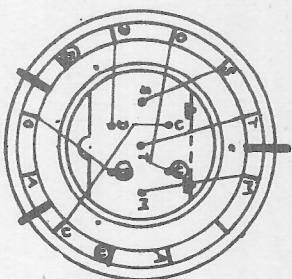
31-C



41-C

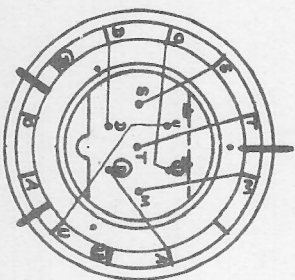
SPEC 5004-C
 42-C NY DWG. 89144-C-1
 51-C NY DWG. 89145-C-1

RELAY SUB BASE
 ADAPTERS 42-C
 51-C



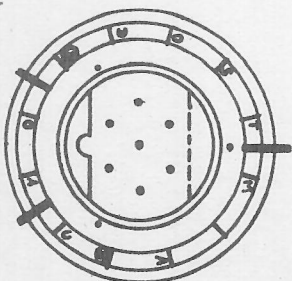
51-C

BOTTOM
 VIEW



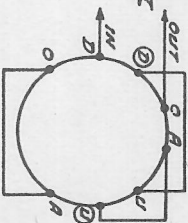
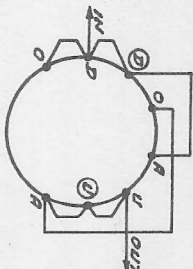
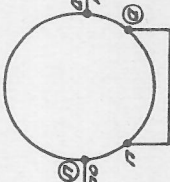
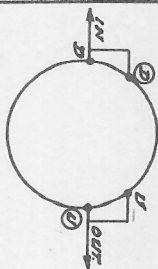
42-C

FOR 41 RELAY ON 34 TABLE

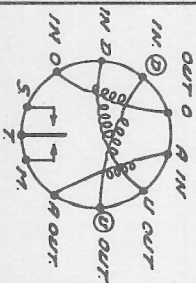


FOR STENCIL #1857
HANDBOOK FOR TELEPRINTER MAINTAINERS

WIRING OF RELAY SUB-BASE
ALL COILS IN
MULTIPLE



WIRING OF
RELAY COILS:



NOTE: CONNECTIONS
SHOWN IN BASE
ARE IN RELAY.

WHEAT- STONE RELAY TYPE	NO. OF TURNS.	RESISTANCE
	LINE.	AUX. LINE. AUX.
1-A	4600 2380	300 200
1-B	4000 —	110 —
1-C	4760 2380	300 200
1-D	4760 2380	300 200
1-E	3000 1500	120 80
1-F	3000 1500	120 80
1-G	4160 2080	225 160
POLAR 17-B.	4000 2000	275 225

Positive battery applied to
"IN" side of any winding will
actuate armature to left
hand (spacing) side.

D-U and U main line windings
O-O opposing windings.

A-A accelerating windings.

The main line coils D-U and U are
identical in the number
of turns and resistance.

The auxiliary coils O-O and A-A
are identical in the number
of turns and resistance.

WHEATSTONE & 17B RELAYS

CONNECTIONS & COIL DATA
8-1-7-4A.
L-604-1.

Teleprinter Table Type 34 Local Circuits.

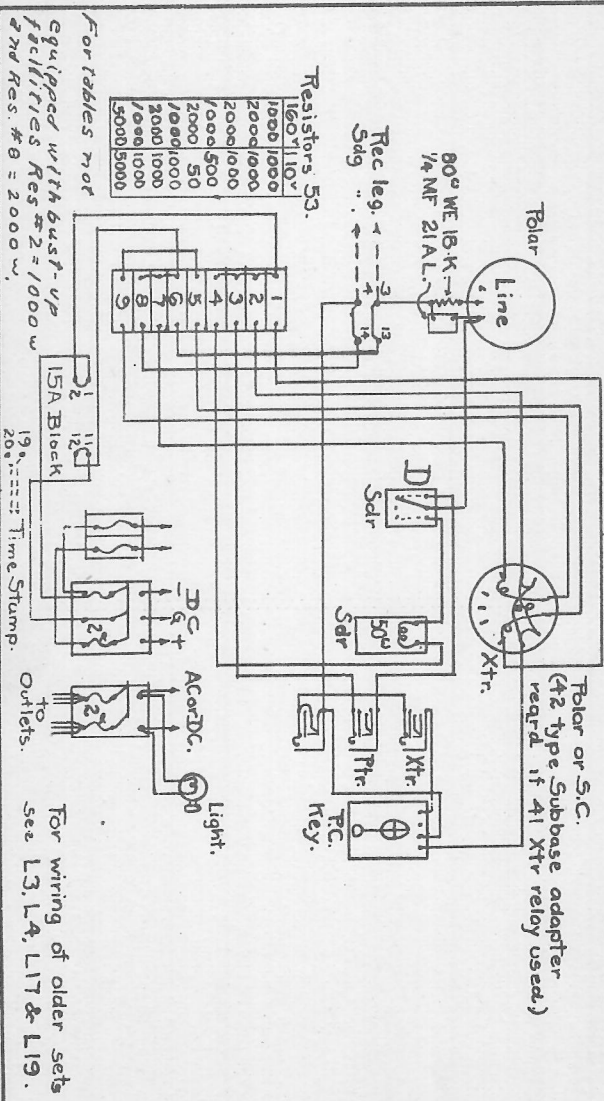
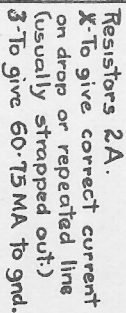


Table of resistors revised per Dwg 34675-D 5-10-43.

For wiring of older sets
see L3, L4, L17 & L19.

SET.

10000's. 5 watt



Dwg 98027.2.

side of box.

instead of 9-A

RIE added per Dwa 9B029-A-2 Apr. 1 Spec. 2667-B. 3-10-44. CEW.

9.10.42

21

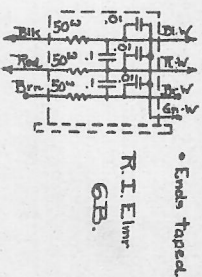
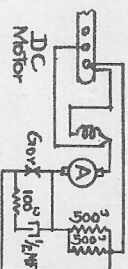
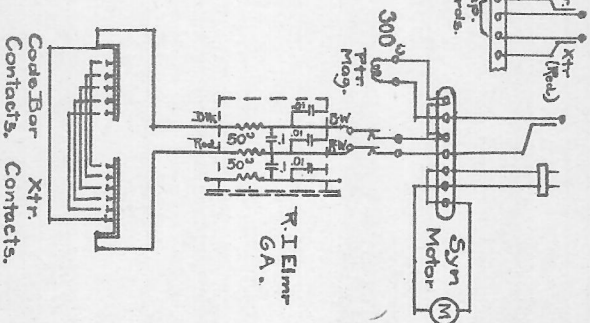
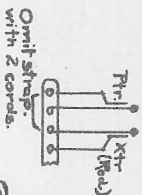
Teleprinter 102

Speeds:

Motor (10 or 60")	1800 - 7 tooth pinion.
Main Shaft	420-30 " gear.
Xtr "	420-24-24 gears.
Pilot "	390-26-28 "

To check speed, use 168 VPS fork on 24 tooth Main shaft gear.

With 50~ Motor, (1500 R.P.M) use 7 tooth pinion & 25 tooth gear.



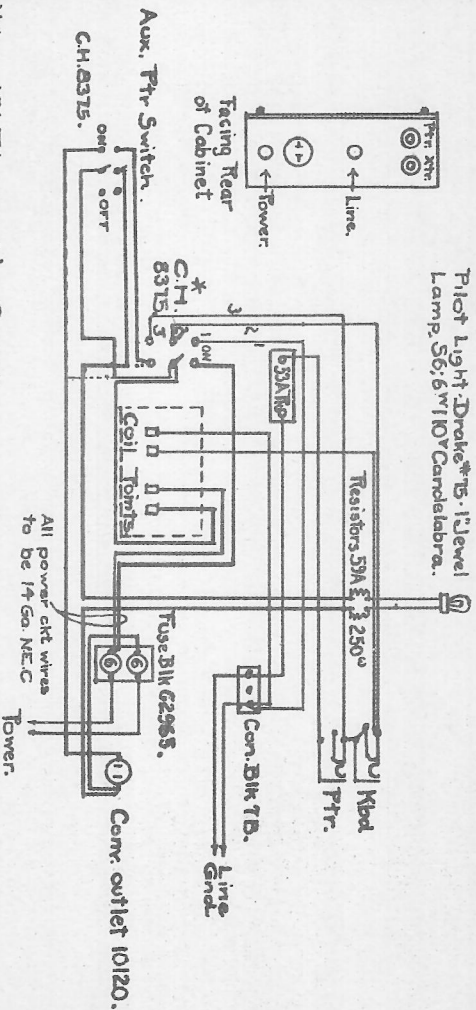
12 B 35. Note changed. Speed data added.
10 1740 6B Elmr Added.

NY dwg 57848-A.C.
57847-D.C.

3-11-39

103B

Teleprinter 102. Console 1A-Wiring Cab 30A



When 101 Ptr. used in Console, remove Motor Control 61 or 71, & wire ptr as 102. with 2 cords.
*When 1.5 motor control used, reverse wires 1 & 2, disconnect & tape 3, and connect flexible lead to post 3.

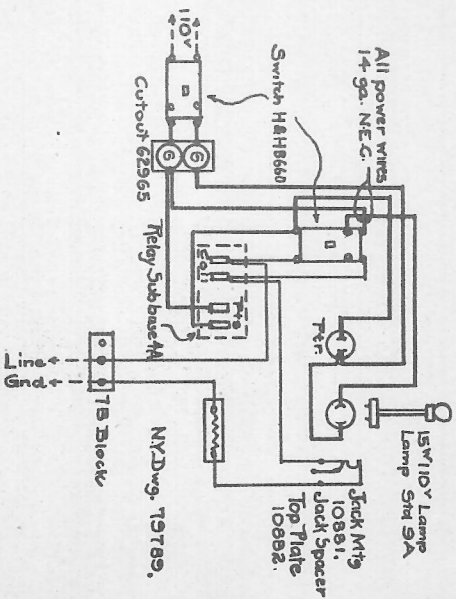
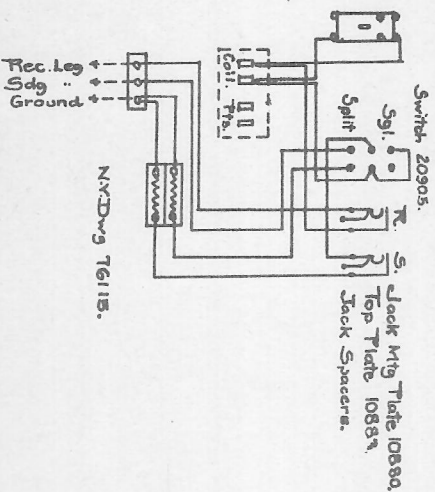
11-30-39 Changed to short Mtd when idle.
10-17-40 " " for 1.5 Unit & Aux 5x. added.
6 8 42 " " per 76144 J2

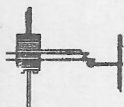
3-17-39

104C

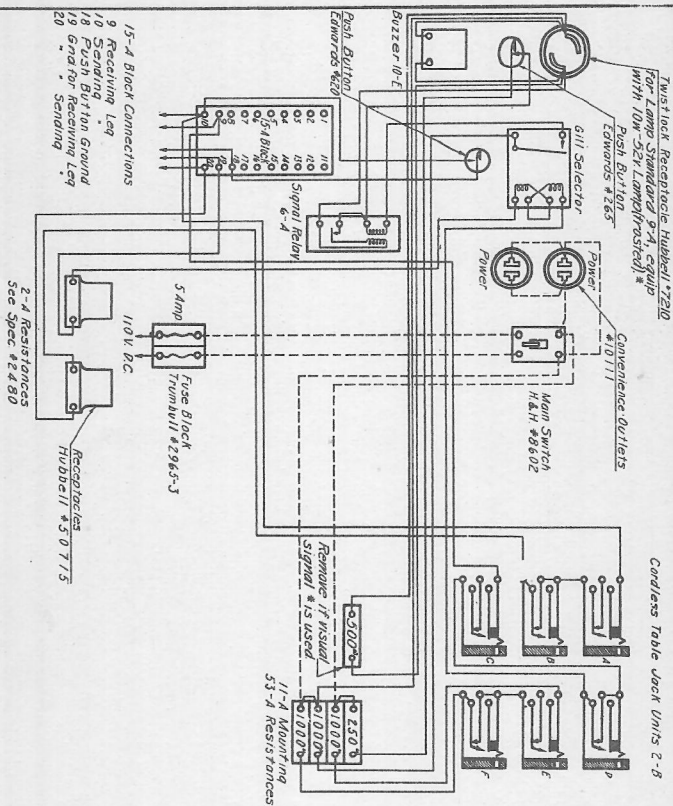
Teleprinter 102. Wiring Cab 29A

Changes for Split Ptr. Operation.

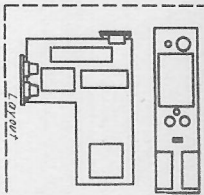




Remove this Resistance Unit
when used with Reperforator
Rock 2-A at Main Office



Jacks
A Keyboard
B Dxtc-Xtr, Calling Key, or Send Ptn
C Receiving Printer
D Receiving Leg
E Keyboard Test
F Printer



W. U. TEL. CO.
DRAWING NUMBER

48-210-A-2
MAR 21, 1941

48-210-B-2
DEC 1, 1934

48-210-C-2
FEB 16, 1940

48-210-D-2
FEB 16, 1940

48-210-E-2
FEB 16, 1940

48-210-F-2
FEB 16, 1940

48-210-G-2
FEB 16, 1940

48-210-H-2
FEB 16, 1940

48-210-I-2
FEB 16, 1940

48-210-J-2
FEB 16, 1940

48-210-K-2
FEB 16, 1940

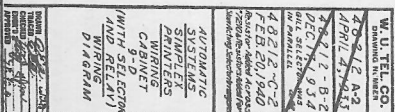
48-210-L-2
FEB 16, 1940

48-210-M-2
FEB 16, 1940

48-210-N-2
FEB 16, 1940

48-210-O-2
FEB 16, 1940

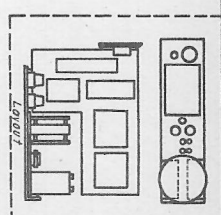
48-210-P-2
FEB 16, 1940



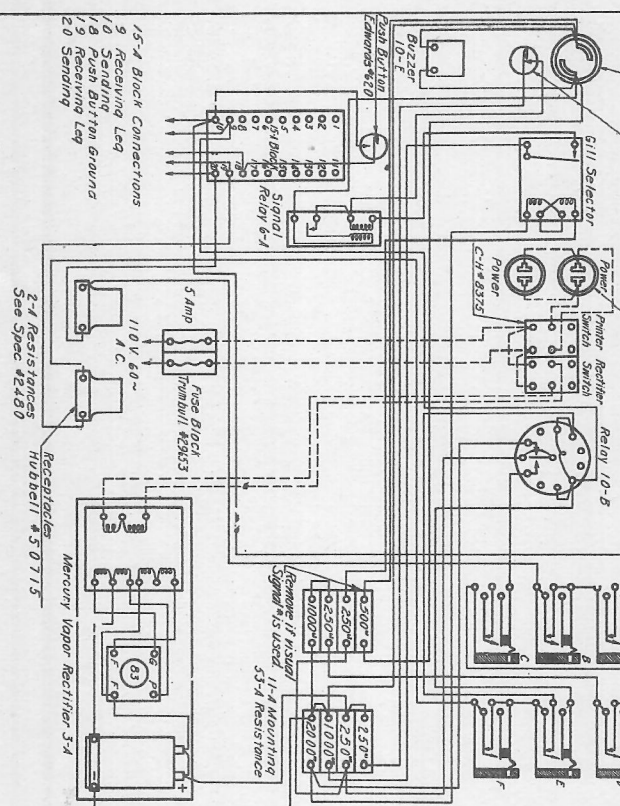
Twistlock Receptacle Hubbell #7214
For Lamp Standard 9-A equip with
10K-52V Lamp (frustrated) *

Push Button Edwards #215
Convenience Outlets #10711

Cordless Table Jack Units 2-B



Jacks
A Keyboard
B Dttm-Xtr Calling Keyor Send Leg Phr
C Receiving Leg
D Receiving Leg
E Printer to work without
F Relay
G Receiving Leg



15-A Block Connections
9 Receiving Leg
10 Sending
18 Push Button Ground
19 Receiving Leg
20 Sending

2-A Resistances
See Spec #2480

Receptacles
Hubbell #50715

Mercury Vapor Rectifier 3-A

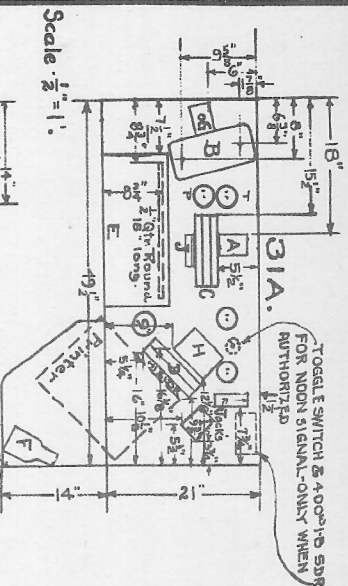
Remove if usual
Signal #15 used
11-A Mounting
33-A Resistance

40215-E-2
REV 20, 1940
A. W. TEL. CO.
NEW YORK, N. Y.

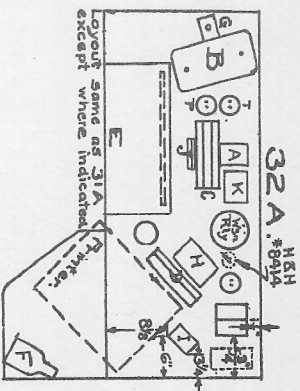
AUTOMATIC
SYSTEMS
SIMPLEX
PRINTERS
WIRING
CABINET
9-R
SELECTOR
(WITH RELAY AND
SELECTOR)
DINOM

40215-D-2
MAY 3, 1939
REVISED
W. U. TEL. CO.
DRAWING NUMBER
40215-A-2
APRIL 2, 1939
40215-B-2
DEC 1, 1934
40215-C-2
JAN 8, 1936
40215-E-2
FEB 2, 1940
A. W. TEL. CO.
NEW YORK, N. Y.

Teleprinter Layout of Tables.



Scale: $\frac{1}{2}'' = 1'$



- A SuperHook in non-BV belted offices.
- B Block for Mounting Time Stamp.
- C Box, Tape Printer File 1A.
- D " Sent Message " 1A.
- E Gunning Desk
- F Stamp, Bates Numbering.
- G Stand, Message Clip 2C (non belt of's)
- H Call Sign & Motor Control Box 1-A
- I Mega-Relay 5A. Non-BV belted offices
- J Card holder 40-A Non-belted offices
- K Rheostat 18-A
- L Sent Message File Box
- M V-Belt (8 1/4 inches)

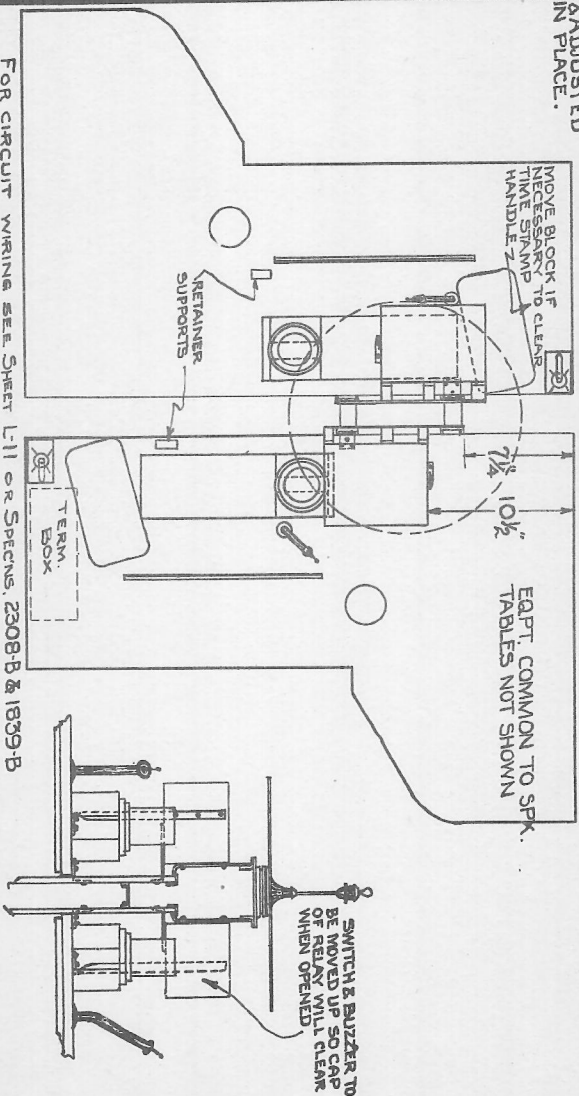
SPEC. 1822-D, SUPP. #10

REVISED
A 34 Table changed for Single printer. 3-5-37
31 " E rail dimension changed to 83" 3-13-41.
34 " Lamp Standard 8-ft added. 3-13-41.

JND
L56

NOTE: MAKE CERTAIN THAT LOCATION OF TEST PANEL UNITS
IS SUCH THAT RELCOVERS MAY BE OPENED, RELAYS CLEANED
& ADJUSTED
IN PLACE.

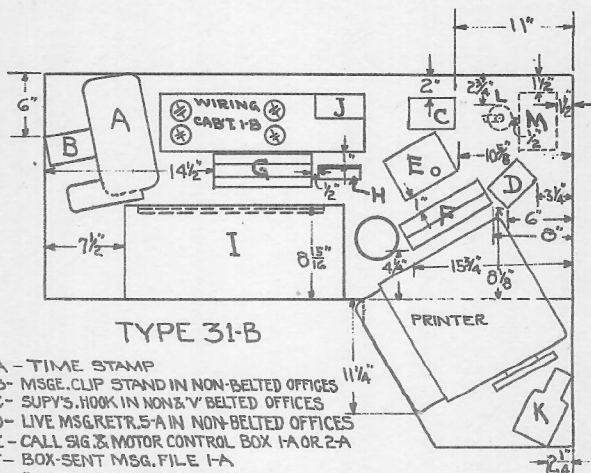
3 WIRE 2 POS. CPX.
USING 32-B TYPE TABLES



11-7-51. G8

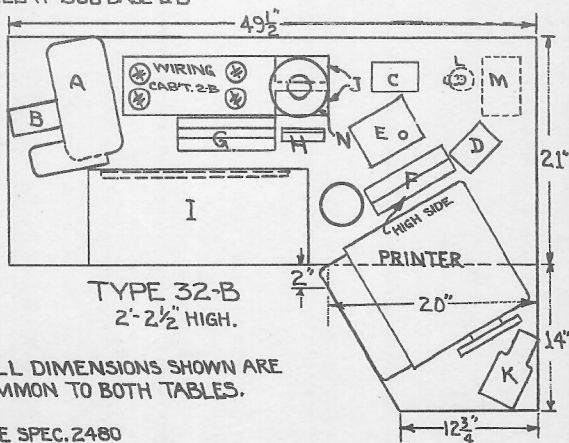
G8

L-12



TYPE 31-B

- A - TIME STAMP
 B - MSGE. CLIP STAND IN NON-BELTED OFFICES
 C - SUPV'S. HOOK IN NON-BELTED OFFICES
 D - LIVE MSG. RETR. 5-A IN NON-BELTED OFFICES
 E - CALL SIG. & MOTOR CONTROL BOX 1-A OR 2-A
 F - BOX-SENT MSG. FILE 1-A
 G - BOX-TAPE PRINTER FILE 1-A
 H - TFR. INST. CARD HOLDER 40-A - NON-BELTED OFC.
 I - GUMMING DESK
 J - JACK BOX
 K - STAMP-BATES NUMBERING
 L - H&H TOGGLE #84147 FOR NOON TIME SIGNAL
 M - SONDER 1-B-400 ONLY WHEN AUTHORIZED
 N - RELAY SUB-BASE 2-B

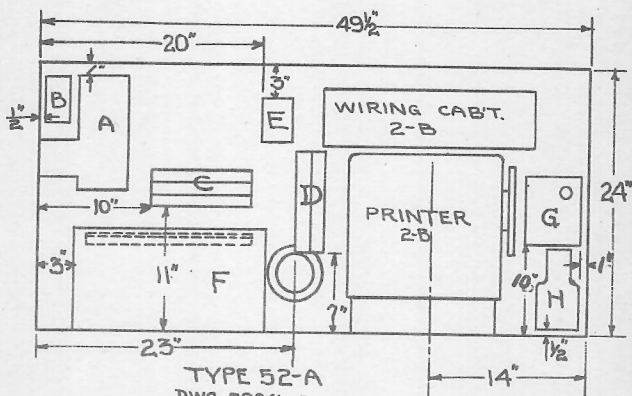


TYPE 32-B
 2'-2 1/2" HIGH.

ALL DIMENSIONS SHOWN ARE
 COMMON TO BOTH TABLES.

SEE SPEC. 2480

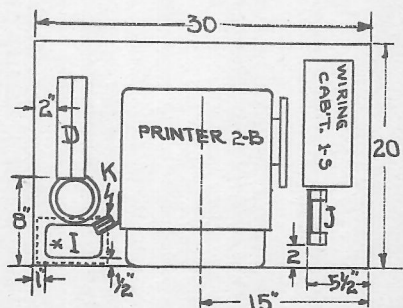
52 Table. Dimensions corrected, 3-13-41.



TYPE 52-A
DWG. 39941-2
SPEC. 2774 - MFG.
" 2775 - ASSEMBLY

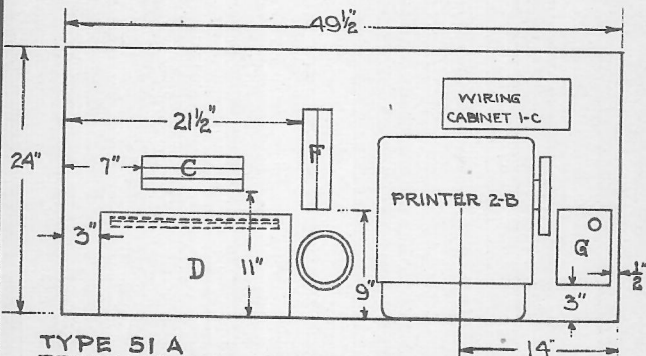
- A - No 7 TIME STAMP
- B - MSG. CLIP STAND
- C - BOX-TAPE PRINTER FILE 1-A
- D - BOX-SENT MSG. FILE 1-A
- E - LIVE MSG. FILE BOX 1-C
- F - GUMMING DESK 4-A
- G - CALL SIG. & MOTOR CONTROL BOX
- H - STAMP-BATES NUMBERING
- * I - BLOTTER HOLDER
- J - GUMMER RACK
- K - TABLE TAPE MOISTENER 3-A

* NOTE: IF CARD HOLDER 40A OR B FURNISHED, MOUNT 1/4" FROM LEFT EDGE & 1/8" FROM FRONT EDGE, SHOWN DOTTED



TYPE 41-A
DWG. 39235-2
SPEC. 2686 - MFG.
" 2755 - ASSEMBLY

NOTE 'A' - DATA ON 51B ADDED - 12-27-35 ^{for} 51-A Public. Dimensions on H corrected 3-13-41.

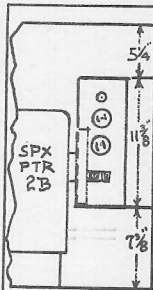


TYPE 51A PRIVATE BRANCH

DWG. 39242-2

SPEC. 2758 MFG. 2762-ASSEMB.

- A MESSAGE CLIP STAND
- B WU 7 TIME STAMP
- C 3 COMPT. FILE BOX
- D GUMMING DESK 4A
- E LIVE MSG. FILE BOX 1-C
- F 2 COMPT. FILE BOX
- G CALL SIGNAL AND MOTOR CONTROL BOX
- H BATES NUMBER STAMP

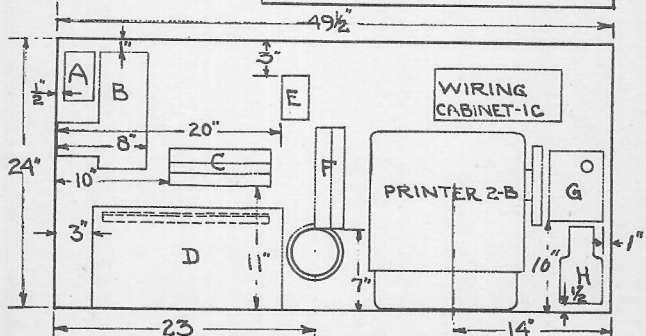


51B TABLES PRIVATE BRANCH PUBLIC BRANCH

EQUIPMENT LAYOUT SAME AS CORRESPONDING 51A TABLES WITH FOLLOWING EXCEPTIONS:

WIRING CAB. IS USED IN PLACE OF 1-C AND LOCATED AS SHOWN ON PARTIAL VIEW AT LEFT.

CALL SIG. AND MOTOR CONTROL BOX 'G' NOT REQUIRED AS THIS EQUIPMENT INCORPORATED IN 1-5 WIRING CAB.



TYPE 51A-PUBLIC BRANCH

DWG. 39243-2

SPEC. 2758-MFG. SPEC. 2762-ASSEMBLY

PRINTER CONCENTRATOR PLAN 3 TYPICAL TABLE LAYOUT SPEC. 3174-A

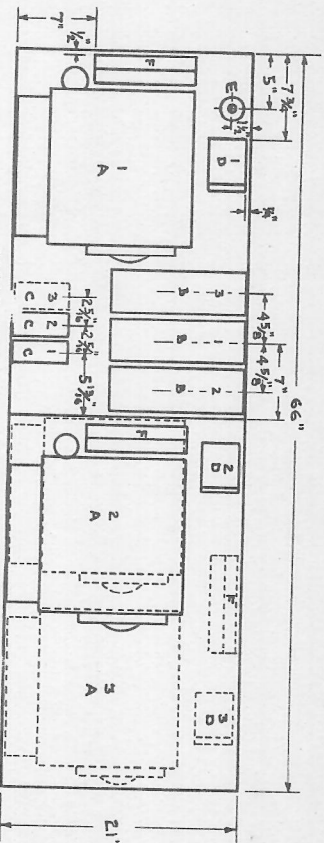


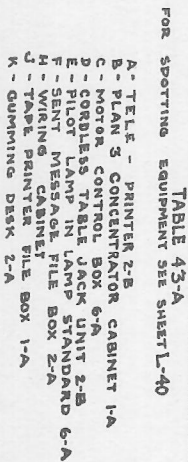
TABLE 43-A

TABLE 44-A
DOTTED LAYOUT SHOWS TWO
PRINTERS ON TABLE.

- A- PRINTER 2-B (WITH 3-A GUMMING DESK, AS REQD)
- B- PLAN 3 CONCENTRATOR CABINET 1-A
- C- MOTOR CONTROL BOX 6-A
- D- CORDLESS TABLE JACK UNIT 2-B
- E- PILOT LAMP IN LAMP STANDARD 6-A
- F- SENT MESSAGE FILE BOX 2-A

NOTE: NUMBERS ON UNITS SHOW SEQUENCE OF INSTALLATION.
AFTER INITIAL INSTALLATION MOTOR CONTROL BOXES
SHALL BE ASSOCIATED WITH PRINTERS ACCORDING TO
TABLE POSITION.

PLAN 3
TYPICAL TABLE
SPEC. 3174-A
LAYOUT



PRINTER CONCENTRATOR PLAN 3 TYPICAL TABLE LAYOUT SPEC. 3174-A

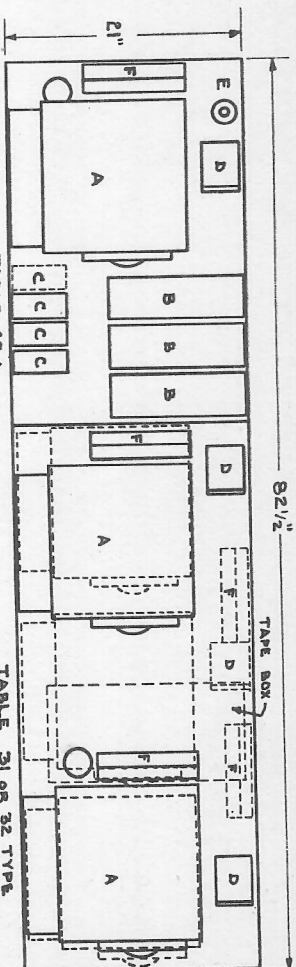


TABLE 43-A

FOR SPOTTING EQUIPMENT SEE SHEET L-40

TABLE 31 OR 32 TYPE

THREE PRINTER LAYOUT SHOWN DOTTED.

NOTE: FOR TWO PRINTER LAYOUT REMOVE WIRING CABINET AND COVER HOLE WITH PIECE OF SHEET METAL. IF SHELF IS NOT REMOVED, RIGHT HAND PRINTER MAY BE LOCATED ON SHELF. IF SHELF REMOVED, RELOCATE TAPE BOX AS SHOWN.

FOR THREE PRINTER LAYOUT, TWO SENT MESSAGE FILE BOXES AND THREE CORDLESS JACK UNITS ONLY OTHER EQUIPMENT ON TABLE. REMOVE SHELF, TAPE BOX AND WIRING CABINET, AND COVER WIRING CABINET HOLE WITH SHEET METAL.

- A - TELE. PRINTER 2-B (WITH 3-A GUMMING DESK, AS REQ'D)
- B - PLAN 3 CONCENTRATOR CABINET 1-A
- C - MOTOR CONTROL BOX 6-A
- D - CORDLESS TABLE JACK UNIT 2-B
- E - PILOT LAMP IN LAMP STANDARD 6-A
- F - SENT MESSAGE FILE BOX 2-A

H.A.J. 8-6-34

L-42

PLAN 3 SPEC. 3174-A

TABLE 31 OR 32 TYPE



H.A.J. 8-8-34

7-43

PLAN 3 SPEC. 3174-A
TYPICAL TABLE LAYOUT

- A - PRINTER 2-B
- B - (WITH 3-A GUMMING DESK AS REQ'D.)
- C - PLAN 3 CONCENTRATOR CABINET 1-A
- D - MOTOR CONTROL BOX 6-A
- E - CODELESS TABLE JACK UNIT 2-B
- F - PILOT LAMP IN LAMP STANDARD 6-A
- G - SENT MESSAGE FILE BOX 2-A



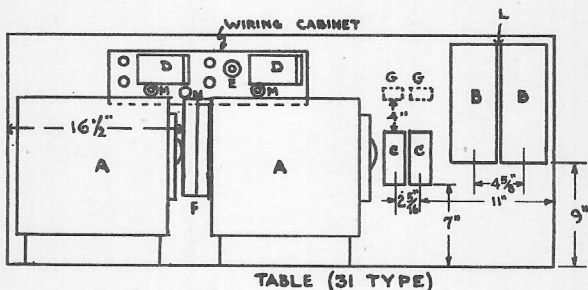


TABLE (31 TYPE)

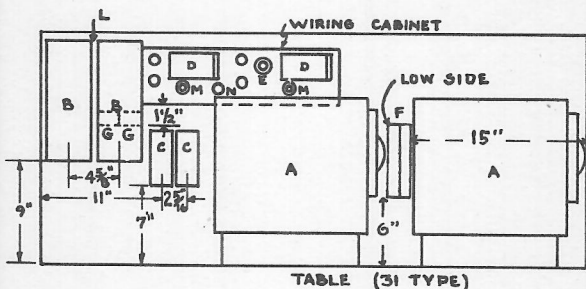


TABLE (31 TYPE)

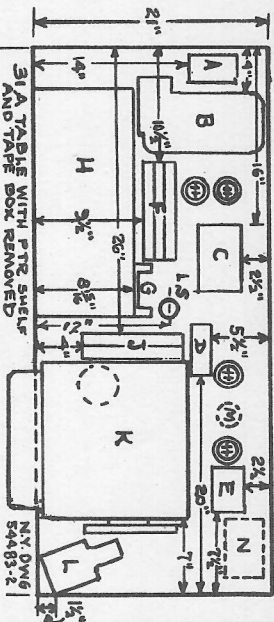
- A - TELEPRINTER 2-B (WITH 3-A GUMMING DESK AS REQ'D.
- B - PLAN 3 CONCENTRATOR CABINET 1-B
- C - MOTOR CONTROL BOX 6-A
- D - CORDLESS TABLE JACK UNIT 2-B
- E - PILOT LAMP IN LAMP STANDARD 6-A
- M - INSULATING BUSHING DWG. 33872 OR COMMERCIAL RUBBER OR COMPOSITION BUSHING WITH NUT.
- N - H&H TOGGLE SWITCH # 20994 WITH OFF-ON PLATE.
- G - CONNECTING BLOCK 7B
- L - MESSAGE GUARD 3A
- F - BOX FILE SENT MSG. 2A

PRINTER CONCENTRATOR
PLAN 3 SPEC. 3174-A-APPJ
TYPICAL TABLE LAYOUT APR. 3
DWG. 55071-AZ

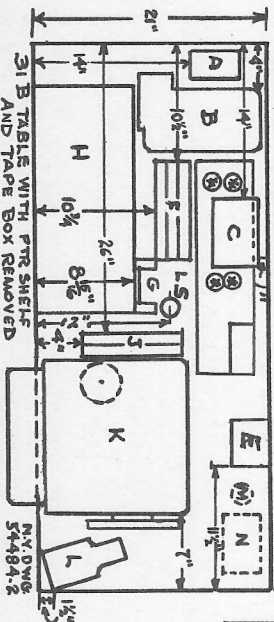
H.A.J.

L-45

81-A TABLE - LAYOUT



81-B TABLE - LAYOUT



* HIGH SIDE OF 2 COMPARTMENT BOX MOUNTED NEXT TO PTR.

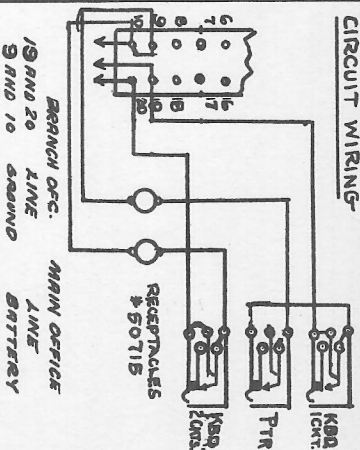
WIRING CHANGE PER N.Y. DWG. 56086 B-1:8

3-23-36 3-13-41. LAMP STANDARDS 6A ADDED. E RELOCATED ON 81-B

L 48-C

TELEPROOPERATING TABLES 81A-81B

CIRCUIT WIRING



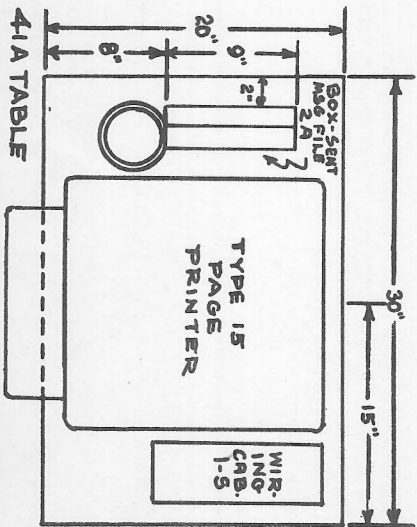
KEY TO SYMBOLS

- A MESSAGE CLIP STAND
- B TIME STAMP
- C CALL SIGNAL AND MOTOR CONTROL BOX
- D CORDLESS TABLE JACK UNIT 2A
- E LIVE MESSAGE RETAINER 5A
- F 3 COMPARTMENT BOX
- G SUMMER RACK
- H 2 COMPARTMENT BOX
- I TELEPRINTER 2-3-2 CORD
- J [WITH OPEN LINE INDICATOR]
- K NUMBER STAMP
- L NOON TIME SIGNAL 20.
- M SWITCH
- N 100" DOR. 1B) ONLY WHERE AUTHORIZED

LS LAMP STD.

24" x 18"

PAGE TELETYPE - 15 TYPE PRINTER
LAYOUT OF EQUIP ON TPR TABLES



12-27-35 JAW

KEY

28 W.U.	
2C W.U.	
101 & 102 W.U.	
101C & 102C W.U.	
16 A.T.&T.	
15 A.T.&T.	TWX

* IN TAPE PAGE OPERATION
2 BWU HAS - ON UPPER
AND LOWER CASE

⊗ IN TAPE PAGE OPERATION
2 BWU. HAS # ON UPPER
CASE H.

W. U. TEL. CO.
POLAROID SYSTEMS, INC.
60700-23
DEC 31, 1986
60700-B5
MAR 16, 1987
NOTE ADDED
SEE ADJUSTMENT

**AUTOMATIC
SYSTEMS
COMPOSITE
OF PRINTER
KEYBOARD
LAYOUTS**

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Single Phase Induction Motor Connections.

Wotton.

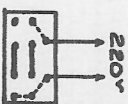
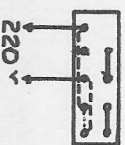
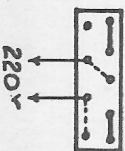
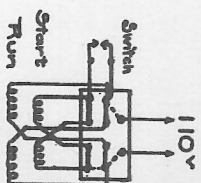
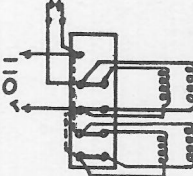
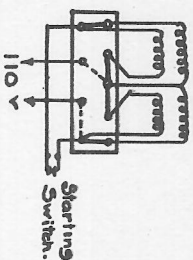
Ideal.

Robbins & Myers

Start Run

Start Run

Switch



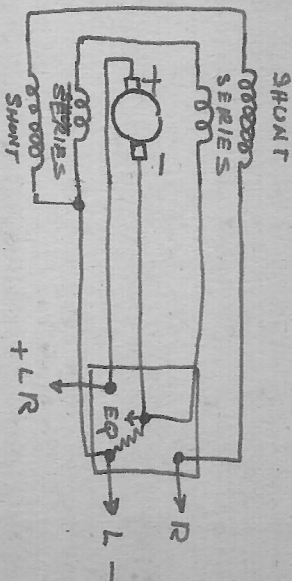
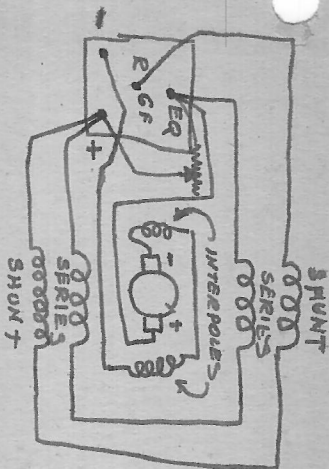
Supercodes G1, 2, 13, 17.

5-12-58

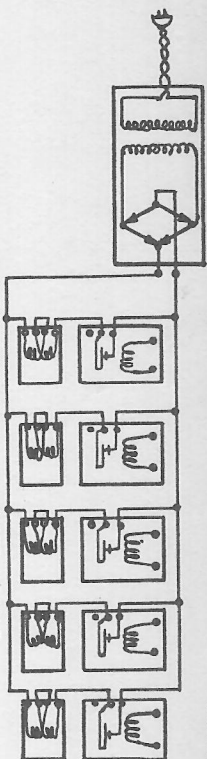
G1A.

IDEAL GENERATORS

WITH INTERPOLES



COPPER OXIDE RECTIFIER.

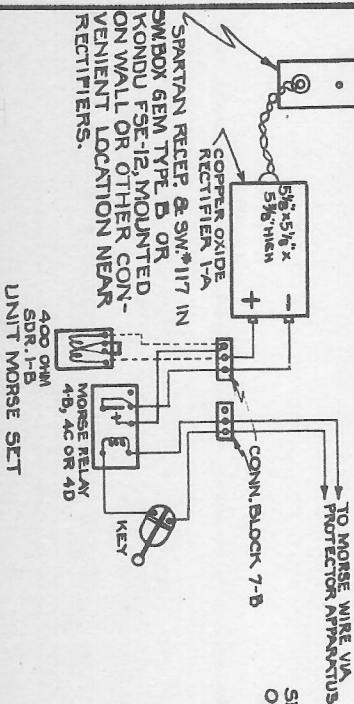


SCHEMATIC WIRING DIAGRAM FOR OPERATION OF MORSE LOCALS

TO 110V 60CYCLE CURRENT
SUPPLY IN N.E. CODE WIRING

POWER SOURCE
110VOLT 60CYCLE A.C. ONLY

NOT MORE THAN FIVE 400 OHM
SDRS. SHALL BE CONNECTED TO ANY
ONE RECTIFIER.
NO OTHER RESISTANCE NEEDED.



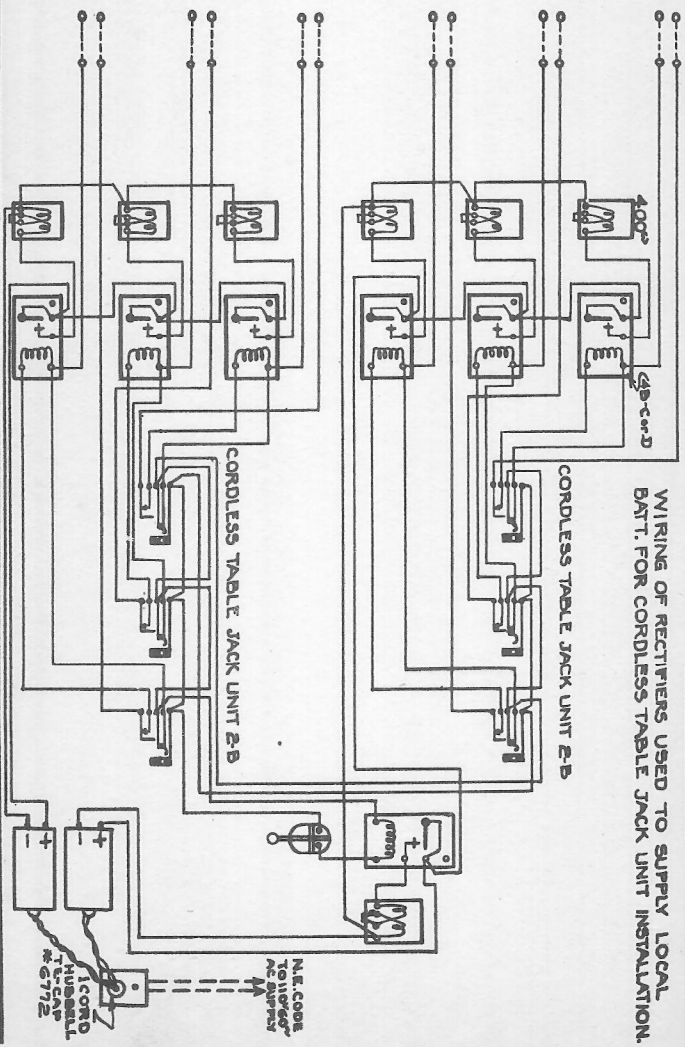
SPARTAN RECF. & SW.*117 IN
5WBOX 6EM TYPE B. OR
KONDU FSE-12, MOUNTED
ON WALL OR OTHER CON-
VENIENT LOCATION NEAR
RECTIFIERS.

400 OHM
SDR. 1-B
MORSE RELAY
4B, 4C OR 4D
UNIT MORSE SET

REFER. SPECN. 2569-A

COPPER OXIDE RECTIFIER

WIRING OF RECTIFIERS USED TO SUPPLY LOCAL BATT. FOR CORDLESS TABLE JACK UNIT INSTALLATION.



SHEET NO. CHANGED FROM X-12 Rev. 1-23-36

COPPER OXIDE RECTIFIERS

NAME PLATE ENDS
OF COPPER OXIDE
RECTIFIER UNITS



THESE RECTIFIERS ARE FOR INTERMITTENT DUTY ONLY, BEING DESIGNED TO FURNISH: (1) 60 WATT D.C. FOR SYNCHRONIZING CLOCK CTS. ONCE EACH HOUR; (2) THE MINUTE - AND 1/10 WATT D.C. FOR OPERATING TIME STAMPS ONCE EACH MINUTE ON THE HALF MINUTE - A RESISTANCE AND ADJUSTABLE RELAY CHANGING THE VOLTAGE FROM 110 TO 160, AND TRANSFERRING THE OUTPUT TO THE CLOCK CIRCUITS AT THE SYNCHRONIZING PERIOD. ADJUST FOR DESIRED VOLTAGE WITH RATIO LOAD CONNECTED.

MERCURY VAPOR RECTIFIER TUBE INFORMATION

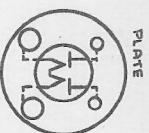
RECTIFIER	2A-3A-5A-5B 1B-11B-61A-22A 63B-64A-67A	8A-9A 10B-82D 601	66A	151B	
TUBE	82# 83	GE 16X897 6E45X674		02# AG	
SOCKET	EBY #12 OR BENSMIN 4 PRONG #	GE * M-5556072-61		02# AG	
CATHODE VOLTS (FILAMENT)	2.5	5.0	2.5	2.5	NONE
CATHODE AMPS (FILAMENT)	3.0	3.0	9.5 to 10.5	24 to 26	NONE
NORMAL HEATING TIME	-	-	5 min.	5 min.	NONE
MAXIMUM AVG. CONTINUOUS ANODE (PLATE) CURRENT PER TUBE	125 RMP.	250 AMP.	2 AMPS.	6 AMPS.	NOT CONT. 250 M.A. FOR 250C. ONLY

NOTES IN CONNECTION WITH ABOVE CHART:
 * 83 TUBES NOW USED IN ALL INSTALLATIONS
 EXCEPT 11-B CHECK TRANSFORMER
 CONNECTIONS BEFORE INSERTING TUBE.
 * WHEN ORDERING SOCKETS FOR
 REPLACEMENTS SPECIFY EBY #12.

DKI 664 TUBE REPLACED BY GE 16X897

NOTE 'A' - REDRAWN - REVISED
 NOTE 'B' - EBY, REVISED 9-10-40

NOTE 'C' - TYPE 9-A RECTIFIER DELETED FROM '66-A' HEADING



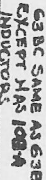
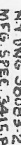
TUBE BASE AND
 SOCKET CONNECTION
 DIAGRAM ALL
 TYPES OF TUBES
 EXCEPT OZAG

TO REPLACE GE
 TUBE IN RECTIFIER
 8A & 10 B
 A. TURN OFF A.C.
 TOGGLE SWITCH
 B. REMOVE D.C.
 OUTPUT FUSES
 C. REMOVE OLD TUBE
 INSERT NEW TUBE
 D. WITH D.C. FUSES
 STILL REMOVED
 TURN ON A.C. FOR
 5 MINUTES.
 E. TURN OFF A.C.;
 REPLACE D.C.
 FUSES; TURN ON
 A.C. AGAIN AND
 RECTIFIER IS
 READY FOR USE

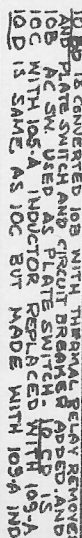
IMPORTANT: ALWAYS DIS-
 CONNECT A.C. POWER
 BEFORE REMOVING TUBES
 FROM OR INSTALLING IN
 SOCKETS

NOTES ON THERMAL UNIT: 8A-9A & 10-B
 THE PURPOSE OF THE THERMAL UNIT
 OR RELAY IN RECTIFIERS USING THE GE
 TUBE IS TO KEEP THE SECONDARY LOAD
 OFF THE TUBE FOR TWO MINUTES - AND IT
 MUST BE ADJUSTED FOR THIS TIME LIMIT.
 WHEN REMOVING A TUBE FOR REPLACEMENT
 THE THERMAL UNIT MUST BE ALLOWED TO
 COOL AND OPEN BEFORE INSERTING NEW
 TUBE.
 THE THERMAL RELAY WILL HEAT WITH
 OR WITHOUT A TUBE BEING IN THE SOCKET.

110V/120VOLT 60~ AC. 10-C
AC. CIR. BREAKER



3-18-41



TYPE 83
RECTIFIER
TUBE

40AMP PLUG FUSE.

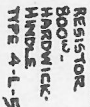
X - SOLID LINE SHOWS CONNECTIONS BETWEEN TUBE ANODES (PLATES) AND "120" LUGS ON TRANSFORMER FOR 120 V. D.C. OUTPUT. DOTTED LINES INDICATE CONNECTION TO "160" LUGS FOR 160 V. D.C. OUTPUT

4.5 v. D.C.
CONTRACT
CIRCUIT

3/8" HOLE FOR
D.C. CONDUCTORS

D.P.S.T. RELAY
NORMALLY OPEN
150MA RELAY 1024
4 1/2 V. D.C.

3/8" HOLE
FOR A.C.



RADIO
TUGGLE SW.
D.P.D.T.
H.B.H.

FUSE
BRYANT
CUT-OUT
4366

PAR-METAL CHASSIS
CAT. # PB-450B
SIZE: 5" x 10" x 3"

THIS RECTIFIER IS NOT DESIGNED TO BE CONNECTED TO THE A.C. SUPPLY CONTINUOUSLY EXCEPT WHEN THE TOGGLE SWITCH IS IN THE TEST POSITION

FROM N.Y.
DWG. B4367-A-7
SPEC. 4744-A

A = TERMINAL BLOCK IO-A 6 CONDUCTOR
WITH SPACER EX-3729
B = TUBE SOCKET EBY OCTAL 8-B
TUBE OZ 4-G
C = CONDENSER .1MFD. 2000 V.
T = TEST POS'N. N = NORMAL POS'N.

NOTE: WIRING AND EQUIPMENT AS SEEN LOOKING INTO BOTTOM OF RECTIFIER.

15 A FOR 69B
10A FOR 70A

TRANSFORMER

RECTIFIER
TUBE-65

150 V. 100 W.
120 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

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150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

150 V. 100 W.

MERCURY VAPOR
RECTIFIERS
69B IS 110V D.C.
70A IS 160V D.C.

18 GA. VARNISHED CAMBAC
INSULATED WIRE FORMED
TO PERMIT OPENING OF
DOOR.

RECTIFIER 69B or 70A
WHEN NOT IN CABINET.

MANUF. SPECS 69B = 5183 A.
" 70A = 5183 A.
INSTN. IN CABINET = SPECS 6235 A.
MANUF. CABINET = SPECS 5244 A.

HEINEMANN CIRCUIT
BREAKER, 25 AMP
SINGLE POLE 120 VOLTS
60 CYCLE A.C. #0131.
CURVE #3

DOOR OF CABINET

LEFT SIDE OF CABINET

69B = 115V
70A = 160V
DC
A.C.

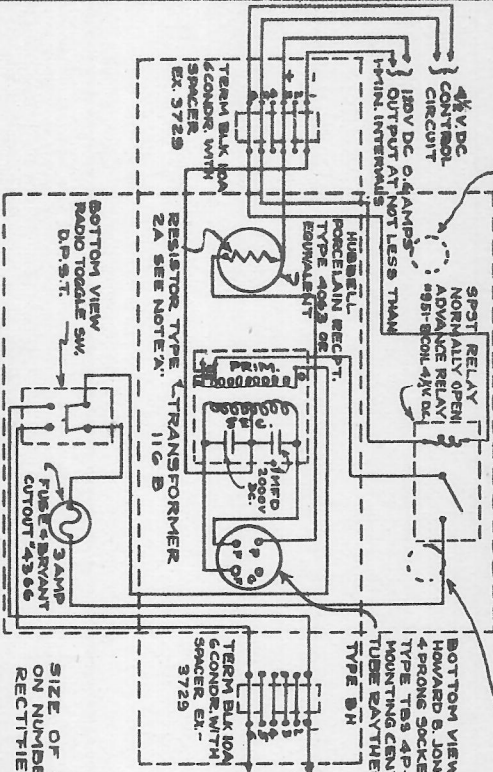
INSIDE BACK OF CABINET

3-13-42
K.M.

COLD CATHODE RECTIFIER 153A

TO OPERATE A MAX OF
4-10V T.S. CAP 600 MA DC.
INTERMITTENT DUTY ONLY
AC NOT TO BE ON OVER 1 SEC.
EACH MIN.

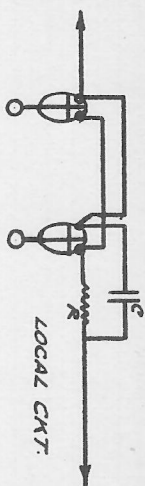
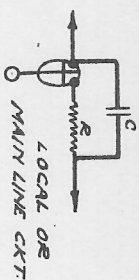
7/8" DIA HOLE WITH METAL
EYELET (FOR DC CONDUCTORS) - (FOR AC CONDUCTORS)



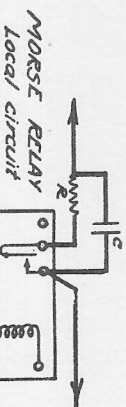
MANUF. SPECS 5720A
BOX 5" x 10" x 3"
OVERALL HT. 7 1/2"
" WIDTH 6"

NOTE "A"
SIZE OF RESISTOR 2A DEPENDS
ON NUMBER OF TIME STAMPS ACROSS
RECTIFIER. SEE CHART BELOW

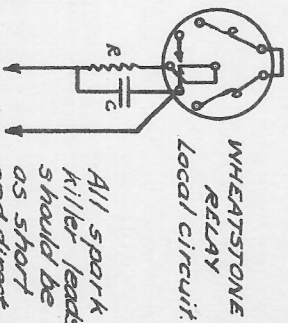
NO. OF TIME STAMPS	SIZE OF 2A RESISTOR
1	150 OHMS
2	30 "
3	10 "
4	"



Polar relay, Neutral relay and Repeating sounder equipped same as Morse relay.



CKT. VOLTAGE	RESISTANCE UNIT 2-A IN RECEPTACLE 1-A	CONDENSER W.E. - 2 P.Y.
Local 52-80 Volts	20 Ohms	1/4 Mfd.
Local 110-160 Volts	50 "	1/4 "
All Main Lines	20 "	1/4 "

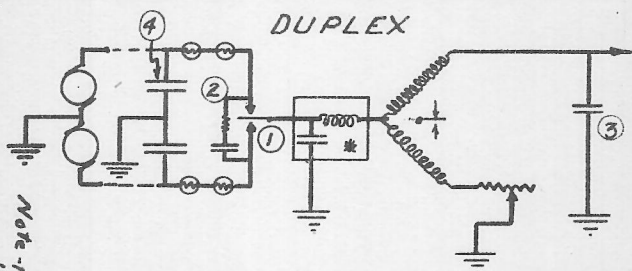


All spark killer leads should be as short and direct as possible.

Elimination of interference to radio receiving sets from single Morse sets and local circuits. See drawing #24710-B1 specifications 1947-A.

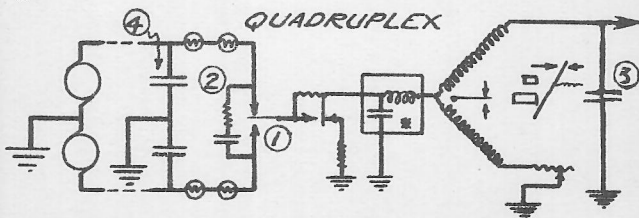
D-1

11-16-24



Note - if these measures arc inadequate install Radio Interference Eliminator 9-A per specs. 1847.

- ① Disconnect I.M.F. condenser from pole-changer.
 - ② Make sure spark-killer across pole-changer is functioning properly. (If single pole duplex be sure spark-killer is connected between tongue and battery contact)
 - ③ Install $\frac{1}{4}$ M.F. condenser (W.E.-21-Y) from line to ground at point where line wire leaves apparatus table.
 - ④ When necessary install $\frac{1}{4}$ M.F. (W.E. 21-Y) condensers from each side of battery to ground. Install at resistance lamp rack.
 - ⑤ Equip all local contacts as shown on dwg. D-1 (When necessary)
- * Anti-noise set not necessary but if installed it should not be removed.



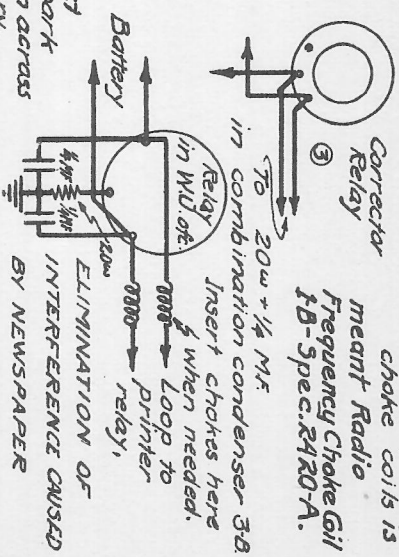
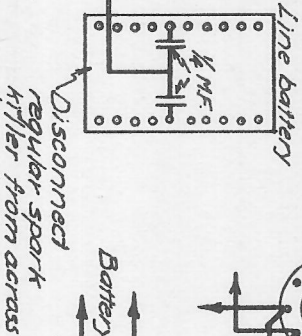
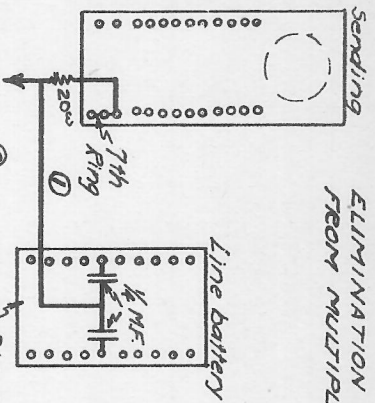
D-2-A

3-17-41

ELIMINATION OF INTERFERENCE FROM MULTIPLEX APPARATUS.

* NOTE: By Special

choke coils is meant Radio Frequency Choke Coil 1B-Spec. 2420-A.



- ① Insert 20 ohm + 1/4 M.F. condenser (W.E.-219) in 7th ring circuit.
- ② Install special choke* coils in local battery leads at switch.
- ③ Connect spark killer across corrector relay contacts. If interference is from 3B printer, shunt 6th pulse contact by 1/2 M.F. + 200 ohm. Insert special* choke in ground lead of anti-noise set. See dwgs. 24713-A1 & 24724-B-1, Spec. 1847-A.

ELIMINATION OF INTERFERENCE CAUSED BY NEWSPAPER PRINTER LOOPS -

POLAR PRESS CHTS

[illegible]

Technical drawing of a mechanical part, likely a bracket or support. The drawing includes the following dimensions and labels:

- DRILL AND TAP FOR #10-32 SCREW.** (Label for the top hole)
- DRILL AND TAP FOR #10-32 SCREW.** (Label for the bottom hole)
- 3/4"** (Dimension for the width of the top flange)
- 1 1/4"** (Dimension for the width of the bottom flange)
- 5 1/4"** (Dimension for the length of the part)
- P** (Label for the top hole)
- P** (Label for the bottom hole)

LOCATION FOR MOUNTING SPARK
KILLER FOR TELEPTR. 2-B TO ELIM-
INATE RADIO INTERFERENCE.

DRAWING # 32040-1 SPEC. 1940B.

Diagram of a keyboard circuit. The circuit includes a 150-ohm resistor, a condenser (1000 pF), and a type 21A1 vacuum tube. The terminal block is connected to the keyboard contacts.

REMOVE DOTTED WIRE

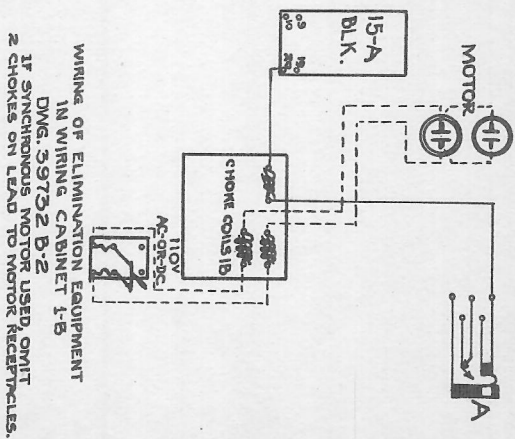
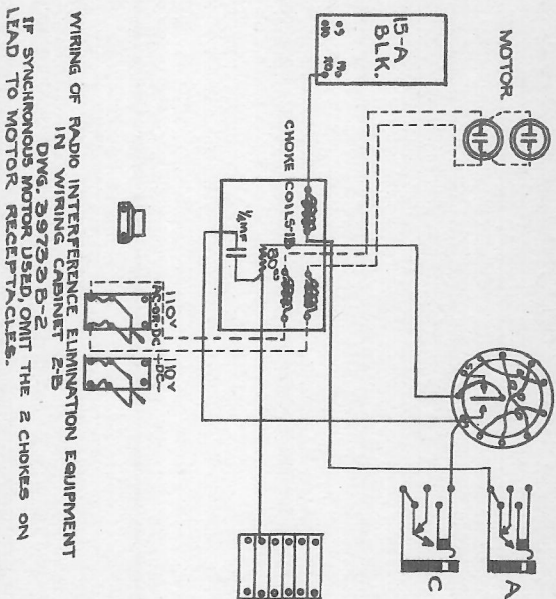
WIRING DIAGRAM
SPARK KILLER FOR
TELEPRINTER 2-B
DRAWING # 320417

DRAWING # 320417

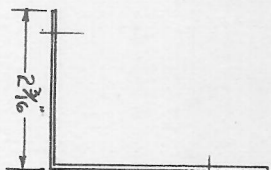
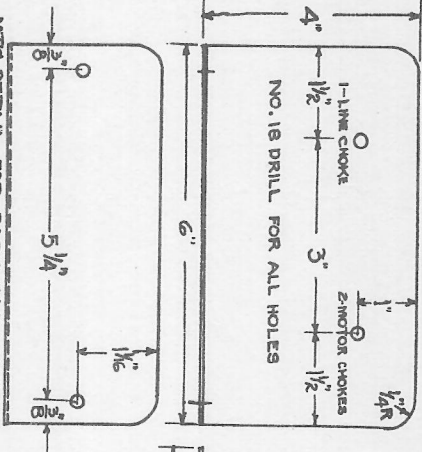
D-7

SPEC. 1040-A

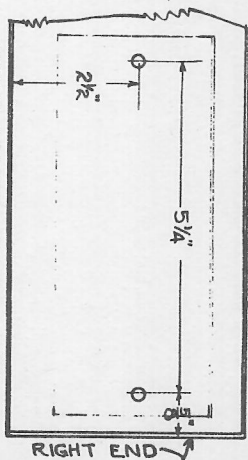
ATC.



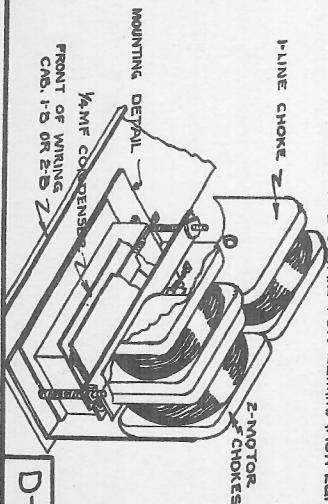
MTG. DETAIL FOR RADIO ELIMINATION
EQUIPMENT
MATERIAL- $\frac{1}{8}$ " COLD ROLLED STEEL
FINISH-STD. OLIVE GREEN DUCCO



BACK OF CABINET Z



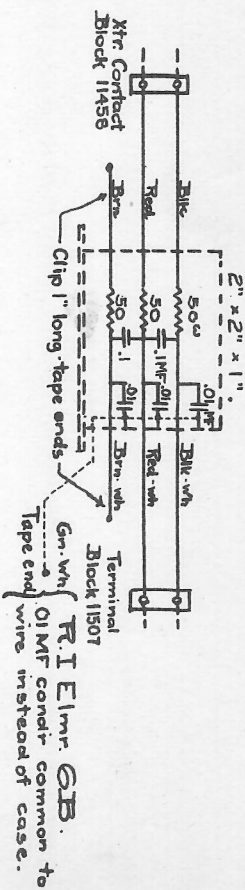
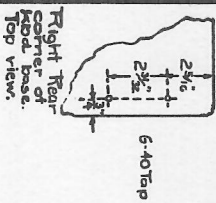
INSIDE BOTTOM OF WIRING CABTS.
H-B-Z-B SHOWING LOCATION OF
MOUNTING DETAIL FOR ELIMINATION EAPT.



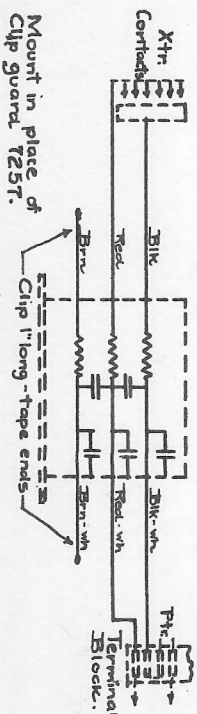
D-20

12-10-30
GAB

Radio Intfc Elimr 6A. with Tpr 101.



with Tpr 2B.



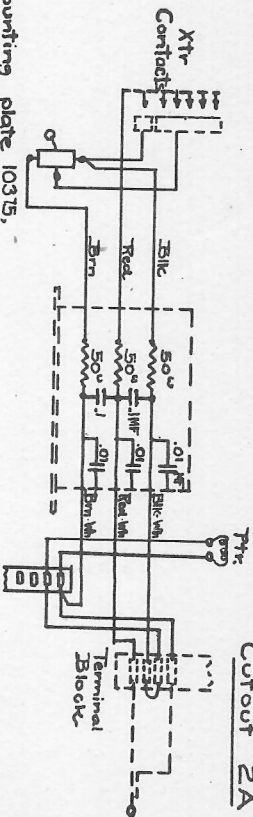
Mount in place of
Clip guard 7257.

12-540 GB note added.

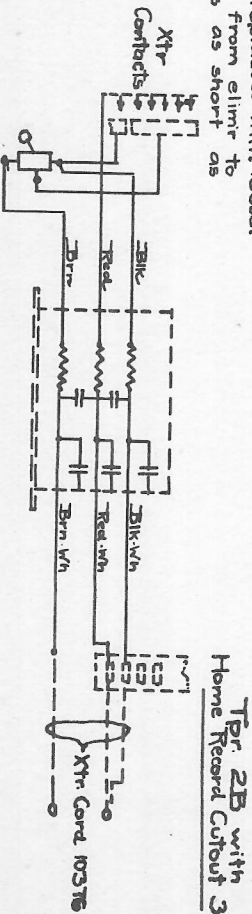
1-1338

D23B

Radio Int'c Elimir 6A
Tpr. 2B with Home Recorder



If Tpr has mounting plate 10315, it must be replaced with 10695. Make leads from elimir to Kbd contacts as short as possible.



Teleprinter. Call Signal Relay Adjustments.

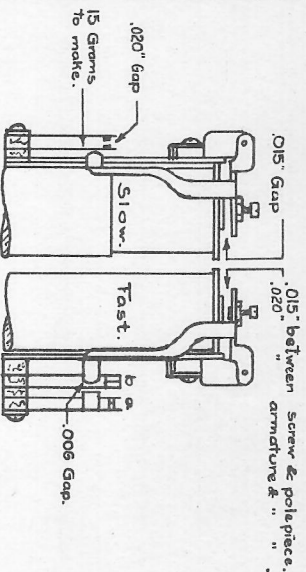
TYPE 1A & 1S.

Armature travel .015"

Back off small stop nut to obtain this adjm.

Each set of contacts should open when armature is .010" from core.

Adjust springs by bending so relay will operate on 30MA, not on 20MA.



TYPE 2A & 2S.

Contact a to open .010" min.

" b to open .020" min. ($\frac{1}{8}$ " Tunstien)

" a & b require 30 grams to break.

Fast Relay shall operate on 25 MA, not on 20MA.

Slow " " 20 " " 15 " "

Complete Unit to function on "Letters" signal (.022 Sec.) on 30-100MA.

Slow Relay shall not release on one "Blank" signal (.132 Sec.) on 30MA.

Teleprinter.

Call Signal Relay Adjustments.

Adjust pivot screw until seated, then back off $\frac{1}{8}$ turn.

Adjust pivot screw until seated, then back off $\frac{1}{8}$ turn.

.025 between Armature adj. screw & pole face. Adj. screw to project .003 beyond Armature.

.001-.002 between Armature & adj. nut.

.025" clearance. Adjust two adj. screws so Armature is parallel with right adj. screw head, in operated position.

.001-.002 between Armature & pole piece.

Adjust two threaded nuts so Armature is parallel with right pole face in operated position

Kellogg Relay.

TYPE 3A & 3S. Auto Elec Relay.

.003" between fibre stud & movable contact.

Adjust tension of movable contact spring so relay will open contacts on 30 MA but not on 20 MA.

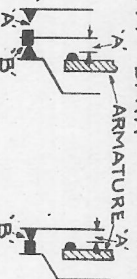
.003" between fibre stud & movable contact.

Adjust tension of movable contact spring so relay will open contacts on 25 MA but not on 20 MA.

RELAY ADJUSTMENT DATA

PRINTER CONCENTRATOR
PLAN-3 SPEC. 3174-A

CONTACT FOLLOW-
AT LEAST 0.005"



TOP CONTACTS BOTTOM CONTACTS

- 'A' - SEPARATION OF AT LEAST 0.005" WHEN RELAY DEENERGIZED.
- 'B' - SEPARATION AT LEAST 0.005" WHEN RELAY IS OPERATED.
- ARMATURE TRAVEL - 0.020"
- OPERATING CURRENT (P-COIL 32^W) 0.045 AMP. MAX.
- RELEASE CURRENT (P-COIL 32^W) 0.025 AMP. MAX.

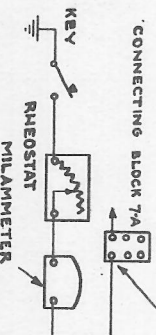
RELAY W.E. B-10

ARMATURE TRAVEL - 0.015"
OPERATING CURRENT - 0.020 AMP.
NON-OPERATING CURRENT - 0.015 AMP.

METHOD OF CONNECTION TO RELAY FOR TESTING.

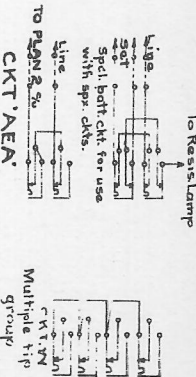
REMOVE LINE WIRE FROM BLOCK OR OPEN
LINE CIRCUIT AT SWITCHBOARD.

CONNECTING BLOCK 7A



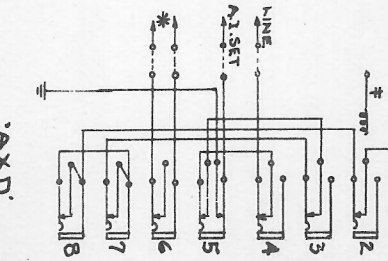
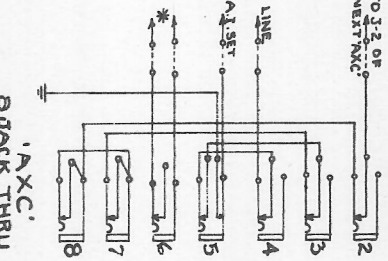
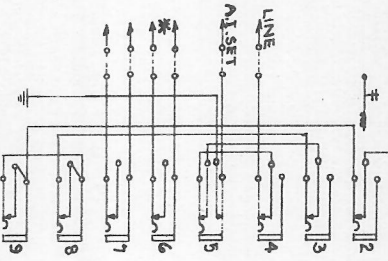
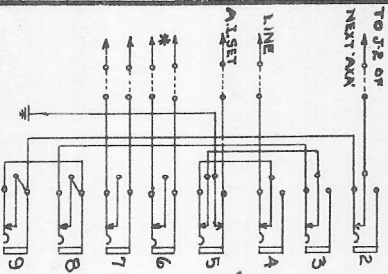
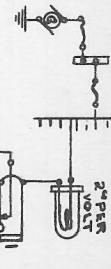
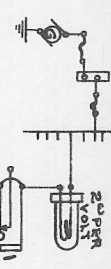
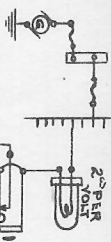
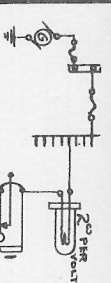
NOTE:
WHEN ADJUSTING RELAY W.E. E-282
FOR OPERATING CURRENT, INSERT
THIN PIECE OF PAPER BETWEEN
BOTTOM CONTACTS OF RELAY.

10 Resist. Lamp



13.1A^{cs}

SWITCHBOARD CIRCUITS



'AXA'
20 JACK THRU
SUPERCEDES 'AXU'

'AXB'
20 JACK BATT.

'AXC'
20 JACK THRU
SUPERCEDES 'AXL'

'AXD'
20 JACK BATTERY

*:- ON DUX OR GUAD SETS, CONNECT LINE TO TIP

& ARTIFICIAL LINE TO SLEEVE OF JACK

† FOR THRU WIRE, REMOVE STRAP BETWEEN JACKS

1 & 2. CONNECT CABLE CONDUCTOR TO TIP OF J-2

& CROSS CON. AT D.F. TO J-2 OF SIMILAR LINE CKT.

NOTE:-

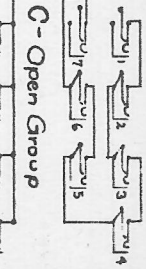
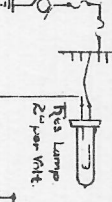
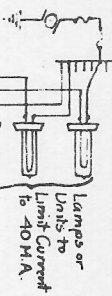
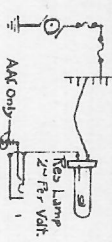
CABLING IN ALL CASES TO BE FOR
'AXA' OR 'AXC' TYPE CIRCUITS.

1-14-36 SHEET # 15 CHANGED 13A TO 13-2
Note A: Cdx. 5/6/40 A1 distance removed.

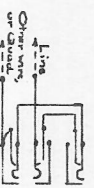
13-2A-

CAS 10-7-36

Switchboard Circuits



F-Spare Batt'y Tap.



AF-Thru Wire
AG-Dux or Quad.

G-Closed Group.

May be wired direct if specified.
H - Two Wire Trunk
HA - One " " (Tip)
HB - Two Trunks in Series at one end.
(May be made up from M CMBs)

MA Miscellaneous.
MC - Has Slerre & Normal "Tied"
See Spec 573C for use

J - Two Wire Multiple Trunk
JA - One Wire
JB - Cables in Series.

MA Miscellaneous.
MC - Has Slerre & Normal "Tied"
See Spec 573C for use

AAC3 Terminal Wires
ADB3: Through "

For ADB, cross connect tip of cord 8 to 3 of other wire

AE-2 CITY WIRES

Note: A connection corrected. Jack 13 AE-2 City Note 8 City 30/120 At Resistance removed.

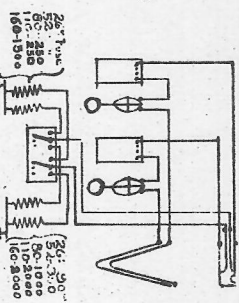
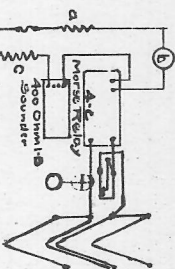
Switchboard Test Sets.

Resistances

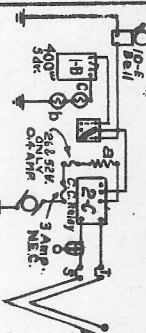
Volts a b c

26	500	
52	1500	
80	1500	800
110	1500	1500
160	1500	1500

L-2 Morse Test Set

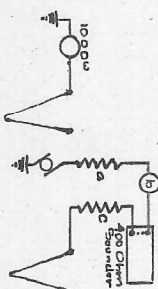


S-Log Test Set.

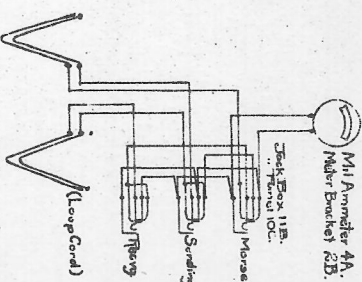


L-B Swing bell

26	500	1
52	1500	1.7
80	1500	800
110	1500	1500
160	1500	2000



T-Loop Board Millimeter.



LD

K-Busy Test.

26	500	
52	1500	
80	250	2000
110	1500	1500
160	1500	2000

Note A- Swing bell Ckt. Cor. 4-28-37

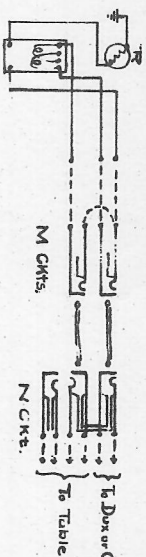
30

WP 4-28-35

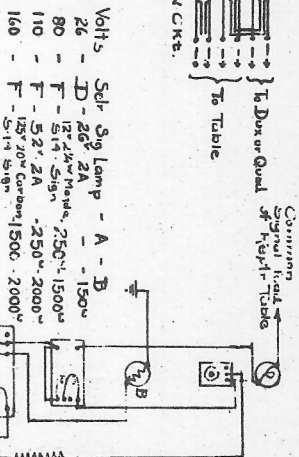
15-A

Selectors

Transferable Selector-Duplex or Quad



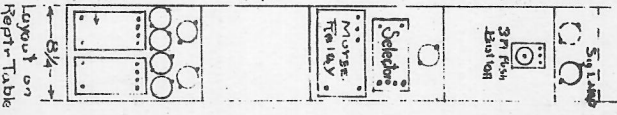
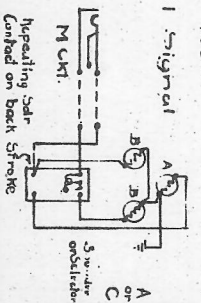
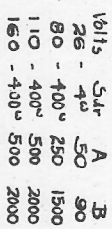
Transferable Selector-Single



Regularly Assigned Selector-Duplex or Quad



Attendants Call Signal

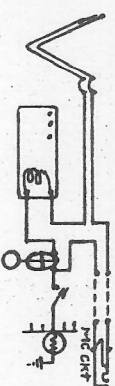


Single Morse Sets.

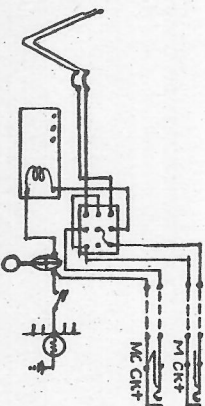
Main line Wiring.



Regular Single Morse Set



Concentration Unit Position



Concentration Unit Overflow Position
from Dwg 3184BT

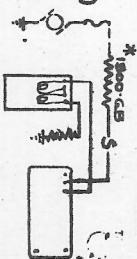
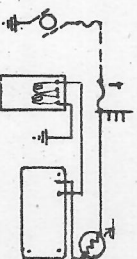
10-20-27. Changed per Spec 1803A.

Local Wiring

Voltage π

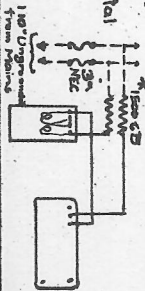
23-30 500^W
45-60 1000

80 250
110 1500
160 1500+1500(s)



* Fuse block 10A, $\frac{3}{16}$ " fuse 57A,
common to 10 Sets
* 6B Units mounted in Metal
box.

Dotted lines, NEC-wiring
Standard Voltages are
80, 110 and 160.

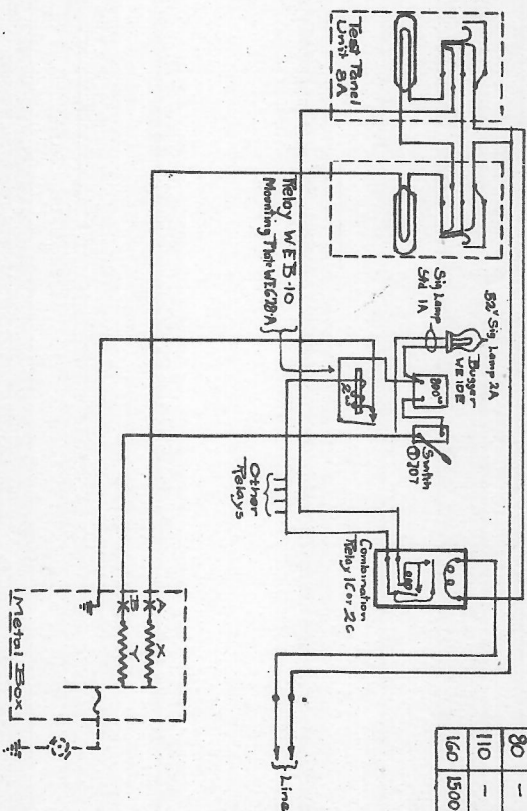


350

City Concentration Unit

Jack 228-A

Lamp WE2 T.

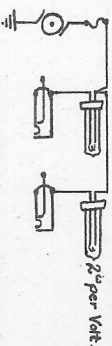
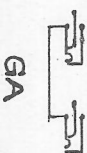
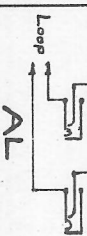
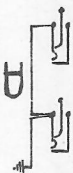
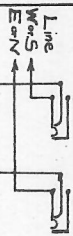
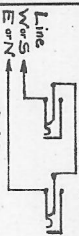
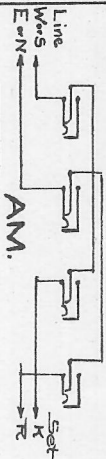


Resistances.					
With	A	B	X.	Y	
80	-	-	250	250	
110	-	-	1500	250	
160	1500	250	1500	250	

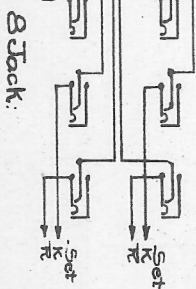
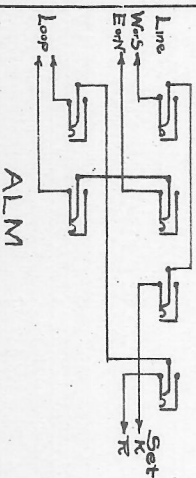
from Ding 10085A2

208
62.20

Single Conductor Switchboard Circuits.



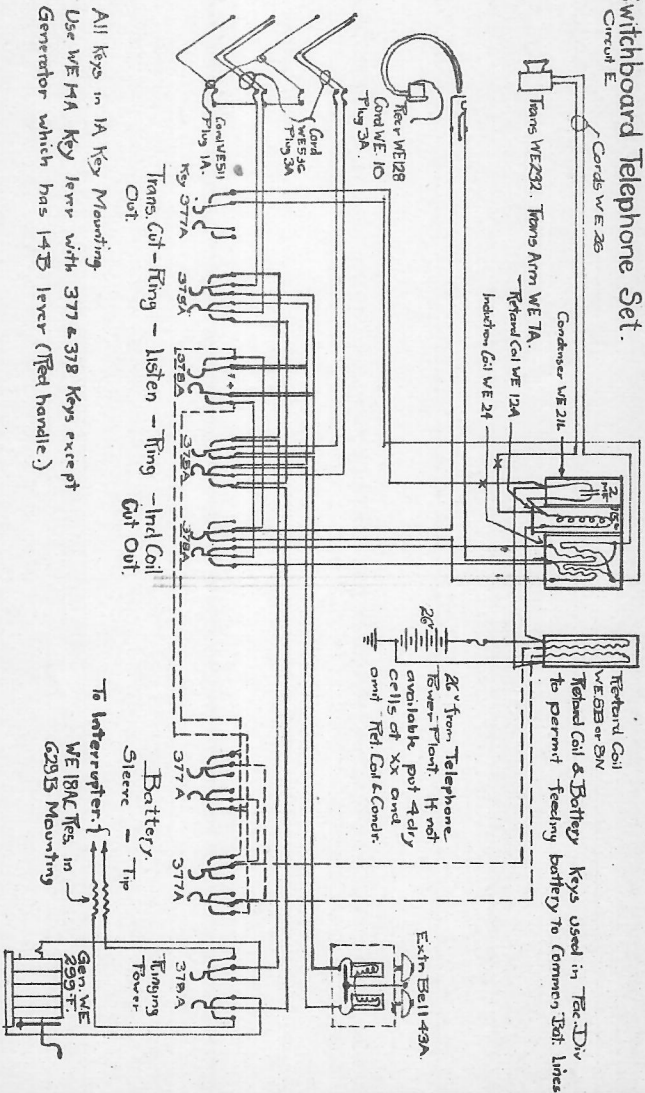
F



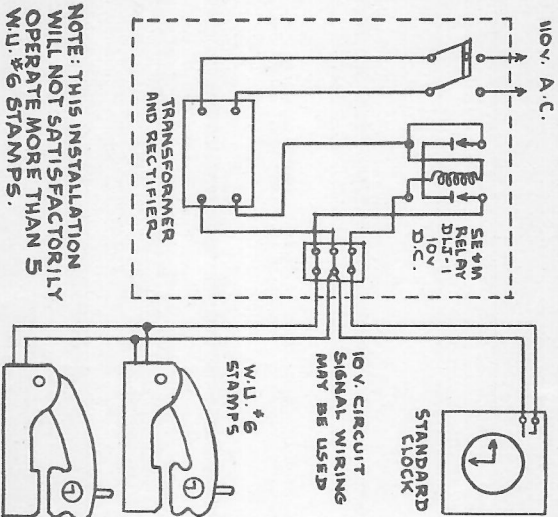
AMA CHANGED TO ALA 12-4-34 FFS.

Switchboard Telephone Set.

Circuit E



OPERATION OF W.U.*6 STAMPS FROM A.C. SUPPLY-DW 38356-1



* With 60 cycle Synchronous Motor
use 7 tooth Pinion
& 30 " Gear.

With Syn. Motor on 50 cycle,
use 7 tooth pinion
& 25 " gear.

Teleprinter. Motor & Shaft
Speeds & Gearing.

Above motor have no Governor

A.C. Series motors may be used Governor

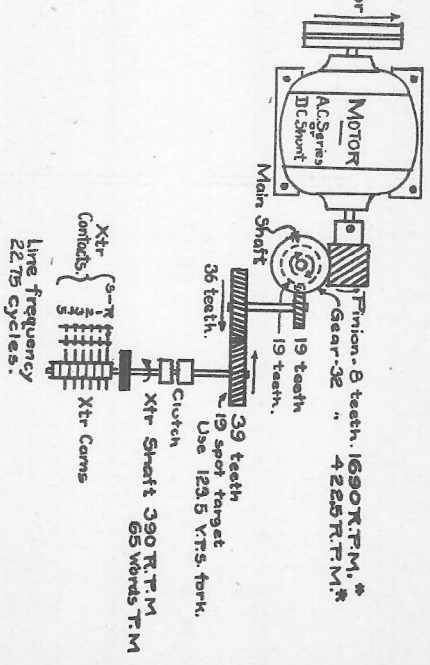
on 50 or 60 cycle power.

When used on 25 cycle power,
a 50 ohm series resistance,
consisting of 5-10ohm, 2A units
in ventilated metal box must
be connected in one side of power
supply.

If power supply is 220 Volts, a
Service transformer G.E. 9TM615-A
is necessary

SERIES A.C. MOTOR
Starting Load Current 1.8 Amp.
Running " " 0.6 "

SYNCHRONOUS MOTOR
Starting Load Current 10. Amp.
Running " " 2.3 "



F.R.S.

F.P.S.

1-23-35 50~Syn. added.
4-24-39 type of transformer changed - 68K
3-13-44 Data on 50 v lnd. 440 for removed.

Teleprinter - Use of Call Signal & M.C. Eqpt.

Branch Office.
Call Sig.
Box or Unit

Main Office.

Type of
Table.

35X or 35 Unit

41 or 51B

3A Box

31 or 51A

2A Box

32 34.52

Repr.

PLAN 2
(100 wire)
Concentrator.

15 or 25* Unit

41 or 51B

1A or 2A Box

31 or 51A

1A or 2A Box

32 or 52

1A or 2A Box

34

PLAN 1 or 3.
(8 wire)
Concentrator
or
Separate Table

34.

*25 Unit no longer furnished.
† Use 1A Box if available.

B-31-33 - Unit 35X added.

322

L20

Teletype. ^{Speed.} Combinations.

Tork V.P.S.	Target Spots.	Motor R.P.M	Motor Worm Teeth	Gear Teeth	Rec'y Shaft R.P.M	Xtr. Shaft R.P.M.	Words per Minute	Line Frequency
123.5	14(or 7)	2117	6	30	423	370	61.8	23.0
87.6	10(or 5)	2102	6	30	420	368	61.4	22.8
"	11	1911	6	30	382	334	55.8	20.7
"	12(or 6)	1752	6	30	350	307	51.1	19.0
"	19	1660	6	30	332	290	48.4	18.0
"	10(or 5)	2102	6	42	300	263	43.8	16.3
"	11	1911	6	42	273	239	39.8	14.8
"	19	1660	6	42	237	208	34.6	12.9
"	14(or 7)	1502	6	42	215	188	31.3	11.6

{Used on W.U.CKts.
Pacific Divm.

On Xtr. cam. Start & Selecting Pulses are 48.5°

$$\text{Line frequency} = \frac{\text{Rest pulse is } 69\%}{\text{Xtr Cam R.P.M}} \times \frac{360}{2} = \frac{\text{R.P.M}}{60} \times 3.72$$

Above applies to Type 12 & 15 Printers.

Note: On type 15 Printers:

Service Motor: 2117 R.P.M; 7 tooth worm; 35 tooth Gear; Rec Shaft 423; Xtr Shaft 370; 14 or 7 spot target

Synchr: " 1800 " 7 " " 30 " " 420; " " 368 [123.5 tort.

Printer uses same Recy Cam as Tpr. 2B; same Xtr cam as type 12.

F-24-34: Frequencies corrected.
12-18-35: Notes on Type 15 added.

JWD

L 54 A

Polar & Single Current Relays

Type	Spec	Turns		Resistance.		
		M.L.	Aux.	M.L.	Aux	
1A	1164C	4760	2380	300	200	
1B	221D	4000		110		
1C		4760	2380	300	200	Upper Jewel.
1D	1164D	4760	2380	300	200	Full Jewelled. Alum. Armature.
1E		3000	1500	120	80	Lighter Arm.
1F	2232A	3000	1500	120	80	Full Jld. Slotted cores. Light Arm.
1G	2853A	4160	2080	225	160	Mechanically identical to 1F.
32A	4711	150	4000	2.5	540	Same application as 21A.
61B	3630	2200		110		
Sub P.C.1A	11751	2800		50		Sub-Pole Chgr. Full Jld.
62B	3903	2500		150		
4A	2357	2630 5260	1750	175 350	160	Superposed Ckts.
63B	4526	2500	2500	270	360	
64B	4443	2500	2500	270	360	
10A	2418	3600		275		Single Current.
10B	2571	3600	10000	275	850	Locking Coil 0-0 Line " D.U
41B	3815			95 30		Single Current.
51A	3991			180	500	Locking Coil 0-0 Line " D.U
17B	1836	4000	2000	275	225	
18A	2714	2250 4500	1500	160 320	170	Superposed Ckts.
19A	2881	8120	4060	1045	760	Low current.
21A	3291	276 10,000		5 745		D-U (Spl. leak on ROTR.) 0-0
31A	4487	1000 1000		85 85		Polar. When repaired by Shop 31-B and designated 31-A-B.
19B	4012	1050	38	4	200	
Leak 1A				3500		WE 206FE Relay Radio Tube base Ops on 2MA.
31B	4487	1900 1900		175 175		
S.C. 1A	2907	1800 1800		137 137		Ticker Ckts.

Spec 579 : Adjustment & Mtc. Polarized Type Relays.
 " 2519 : " " " Single Current. " Type 10.
 " 2294 : Relay Test Set. 1A
 " 4703 : " " " 41A

Spec. Nos. changed.
 -10B, SC4A & 21A added.
 B-218-37 214 DATA CORRECTED fault
 Leak Rly 1A added.
 12-4-40. Relays 31, 41, 51 added.

3-18-41. Relays added.

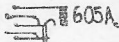
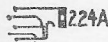
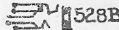
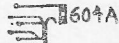
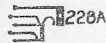
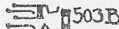
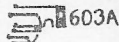
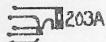
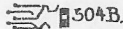
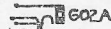
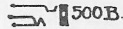
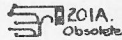
590

WV

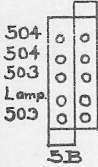
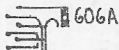
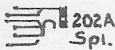
Jacks.

Singly Mounted.

Strip Mounted.



J.S.A. { 500B + Jack
Jack { Spring Assy 1A.

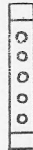


5B

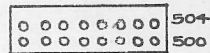


7B All 504.
5B " 500.
11A " 503.

Jack Strips.

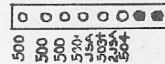


1B All 503.



8B

Used on Type 3 Call Ckt Eqp

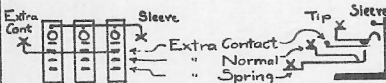


15A.

Used on Distr. Tables.

Used in Cab. Swbds, Polar Press
Aux. 5.B & Plan 2 Tr. C-U.

Can be mounted in Jack Box 12A
for use on Repr. Tables.



Cordless Jack
Unit 2B.

Unit 2A same as 2B except has screw connections.
" 1A " " 2A " sleeves all in one piece.

Jacks 224 & 604 omitted.
8-20 36: Strip 1B added.
12-4-40 Jacks 602, 605, 606 omitted.

200 SERIES



800 SERIES



500 SERIES

Lamp Socket



600 SERIES



OTHER TYPES

8 Pin Jack 1-A
Spec. 29968 Pin Jack 701-A
Spec. 39529 Cond. Jack 4-A
Spec. 364714 Cond. Jack 11-A
Spec. 3842Indicates springs
equipped with
Ag-Zn contacts.* Requires Jack
Plunger 2-A,
Spec. 5400 or
3-A, Spec. 5401.+ Jack Spring
Assembly 1-A,
Spec. 2680 or
2-A, Spec. 4883
can be added
to these Jacks.Jacks of 200 and
600 Series mount
individually.Jacks of 500 and
800 Series mount
in Jack Strips.W. U. TEL. CO.
DRAWING NUMBER

97500 -1

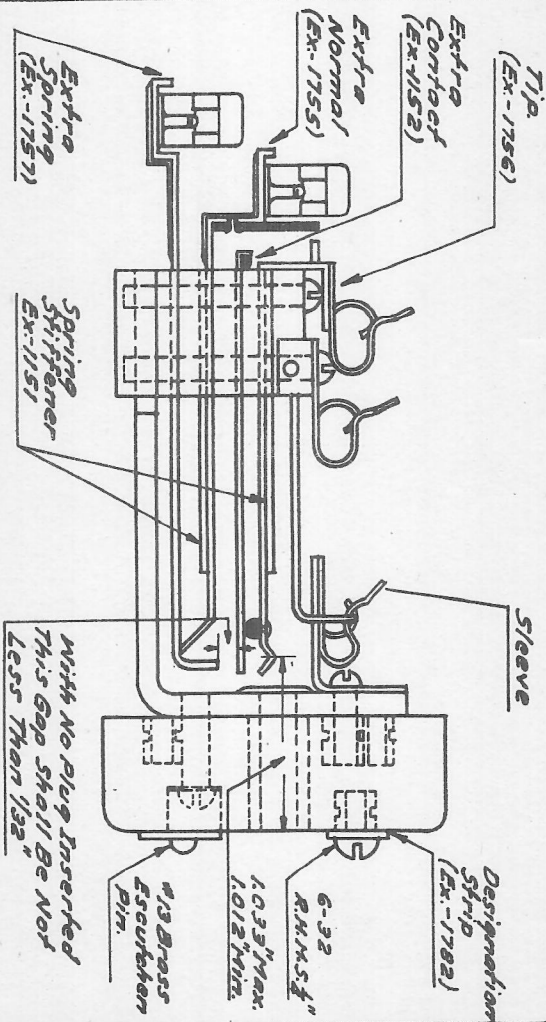
JUNE 2, 1941 A

JACK SPRING
ASSEMBLIESSTANDARD
JACK TYPES

DRAWN *[Signature]*
 CHECKED *[Signature]*
 ENGINEER *[Signature]*
 APPROVED *[Signature]*

FOR STENCIL #1857

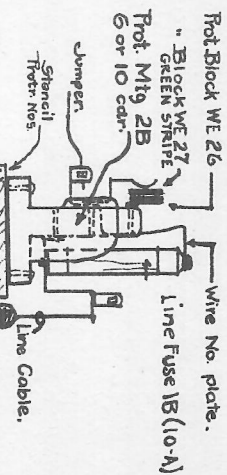
HANDBOOK FOR TELEPRINTER MAINTAINERS



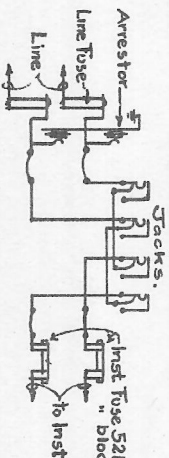
CORDELESS JACK UNIT TYPE 2.
Partial Assembly From Dwg 14994-2 Spec 1808-C.)

#93 Office.
(old type.)

#2 Office.



Schematic Circuit.



10 Amps in
1B. or 18A

Mount Protectors in a Metal Cabinet at least 8" deep.

On Battery feed wires, at Supply end install fuse 54B

(2Amp) in fuse block 11A.

At dist end use same eqpt

unless current is low

enough to permit use on

No Working Strands.	No Tractors Turnished.
1-6	6
7-10	10 or 12
11-14	16
15-18	20
19-24	26
25-28	30
29-30	36
Over 30	Fully eq.

Fully eqp.

CORD TIP WE74 & MICA WE10 REMOVED.

F. P. 5.

NOTE A' - MINOR CORRECTIONS AND NOTE ADDED TO ENK.
PROT. ENK. WE 258 TO CHANGED TO WE 208 (13.0).

ΣΑΤ

11-24-39

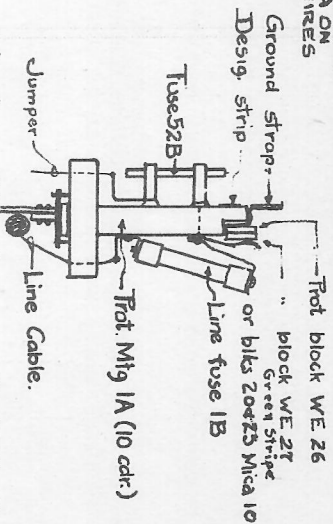
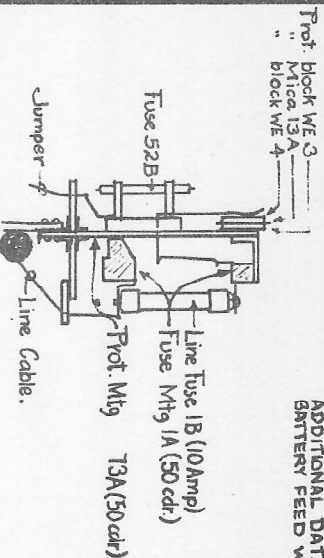
بذ

Office Protection Double Cond. Subd.

#96 with Line Fuses.

NOTE - SEE SHEET 4.1 FOR
ADDITIONAL DATA ON
BATTERY FEED WIRES

#1



Mounts on DF unit 2A.
Used for additions to 96A

Mounts on DT unit 1A or Block Mtg 1A
or 2A (in Cabinet Subds.)

installations.

Use Fuse Mtg. Cover 3A(50 cdr.)
Stencil every 10th Prot. No. on Fuse Mtg.

On battery feed wires, install Prot.
Adapter 2A and use Prot Blocks 26&27 Green Stripe

Use fuse 54B(2Amp) only when
max current exceeds 750 MA.

Stencil every 10th prot. no. near bottom of
each mounting.
Stencil Vertical Na & Cable No. near bottom
of upper cover.

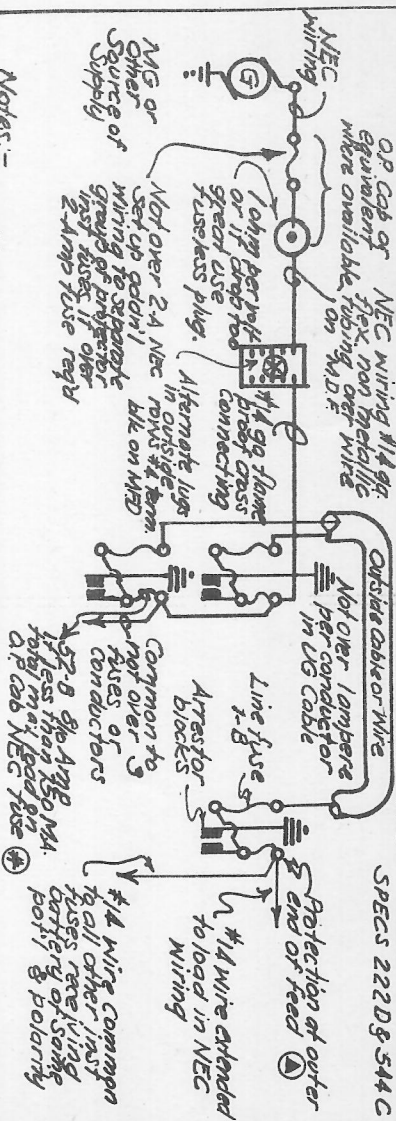
On battery feed wires use Prot. Adapter
3A & 54B fuse where 52B inadequate.

MICA WE10 REMOVED. PROT. BLK 5, WE 20 & 25
CHANGED TO WE 24 & 27 G.S.
NOTE A - MINOR CORRECTIONS AND NOTE ADDED
E.C.K.

W.D.

4-A 11-24-39

BATTERY FEED WIRES SPECS 222DG-54C



Notes:-

- ⊗ Omitted in cab. Subds & NEC wiring run to inst. fuses enclosed in flex non metallic tubing inside subds
 - ⊗ If protector is #1 (dbl car.) for over 750 M.A. use protector adapter 3-A with 54-B 2-A fuse. If #36(DC) use 3-A adapter with 26-B green blocks in place of 39-A blocks & 18 mica and fuse per load. If #2 or #33 (591 car.) add fuse blk 11-A 8 54-B 2-amp fuse.
 - ⊗ At outer end if protection is #2 or #33 use 8-B fuse block & 52-B 50 amp fuse unless load requires 54-B 2-amp. fuse in 11-A fuse block
- Note:- Do Not Use 54-A fuses in Battery feed wires

11-24-39 gmc:54

SELF-WINDING AND UNIVERSAL TICKERS TYPEWHEEL AND MAGNET DATA

TYPE OF TICKER	MAGNET & TAG	CAT. NO.	SIZE OF WIRE	URNS PER COIL	URNS PER COIL	TOTAL OWNS	DWG NO.	TYPEWHEELS LETS	FIGS	DWG NO	REMARKS.
Universal J-A	Escapement Press	21703	26	1200	11	2.2	22728	21709	21708	60906	Quotation Service
		21704	26	1200	11	2.2	22728				
Universal R3-A	Escapement Press	21703	26	1200	11	2.2	22728	21727	21726	60861	Sports Service
		21704	26	1200	11	2.2	22728				
	Tag	21596					61239				
Universal J3-A	Escapement Press	21594	29	2400	44	80	Spec. 21594	21727	21726	60861	Sports Service
		21595	29	2400	44	80	61239				High wound 23-A
	Tag	21597					61239				
Self-Winding I-C	Wind Press	21341	24	1100	5.8	11.6	24213	21373	21374	60905	Quotation Service
	Escapement	21342	26	1500	15.5	15.5	24213				
	Shift	21344	26	1400	9.3	9.3	24214				
Self-Winding 21-C	Wind Press	21341	24	1100	5.8	11.6	24213	21247	21246	60860	Sports Service
	Escapement	21342	26	1500	15.5	15.5	24213				Same as I-C
	Shift	21344	26	1400	9.3	9.3	24214				with different type wheels
	Tag	21337					60774				
Self-Winding 22-A	Wind Press	21341	24	1100	5.8	11.6	72246	21247	21246	60860	Sports Service
	Escapement	21342	26	1500	7.2	14.4	82346				Some application as Universal 23-A
	Shift	21344	26	1400	9.3	9.3	24214				
	Tag	21336					60774				
Self-Winding 24-A											Under development for Low wound 34-A.
Self-Winding 30-A	Wind Press	21591	27	2000	21.5	43	79246	21373	21374	60905	Quotation Service
	Escapement	21592	29	2800	53	53	79247				High Wound 1-C
	Shift	21593	29	2800	36	36	79221				
	Tag	21939					60774				
Self-Winding 31-A	Wind Press	21591	27	2000	21.5	43	79246	21247	21246	60860	Sports Service
	Escapement	21592	29	2800	53	53	79247				High Wound 21-C
	Shift	21593	29	2800	36	36	79221				
	Tag	21940					60774				
Self-Winding 32-A	Wind Press	21591	30	3200	70	140	79246	21247	21246	60860	Sports Service
	Escapement	21600	33	2400	70	140	82346				High Wound 22-A
	Shift	21592	29	2800	53	53	79247				
	Tag	21941					60774				
Self-Winding 34-A	Press	21599	30	3500	70	140	79246	21247	21246	60860	Sports Service
	Escapement	21600	33	2400	70	140	82346				One wire operation
	Shift	21344	26	1400	9.3	9.3	24214				
	Tag	21999					60774				

* Shift magnet used only to hold shift positioned after being operated mechanically. Coil not electrically connected.

□ Catalogue number covers single coil. 2-Cat. # 21660 required for 22-A. 2-Cat. # 21600 required for 32-A, and 4-Cat. # 21600 for 34-A.

100 TYPE PRINTERS - SPRING TENSIONS
LOWER UNIT - PRINTING

#1

<u>Spring</u>	<u>Tension</u>	<u>Scale or Weight Applied At</u>
(1) Signal Bell Bar	9 to 10 oz.	Right end of bell bar
(2) Clearance Lever	1/2 oz.	Push just above stop screw (Sel. fingers held away from lever)
(3) Clutch Detent Lever	26 to 30 oz.	Detent Lever Spring Hole
(4) Clutch Trip	4 to 5 oz.	Clutch Trip Spring Hole
(5) Code Bar	5 to 7 oz.	End of code bar (to move from marking to spacing position)
(6) Code Bar Latch	2 to 3 oz.	Push in line with end of #1 latch
(7) Drop in Bail Arm	3 to 4 oz.	Top end rear of cam roller arm (Pull parallel with spring)
(8) Drop in Bar	1 1/2 to 2 oz.	Cam roller on low part of cam Drop in bar just above spring bar (Cam roller on low part of cam)
(9) Driven Clutch	20 to 25 oz.	Cam on driven Clutch (Pull in line with shaft)

#2	Spring	Tension	Scale or Weight Applied At
(10)	Knife	3 to 4 oz.	Knife Spring Hole (Follower on low part of cam)
(11)	Range Unit Stop Lever	3 to 4 oz.	Spring Eye Pull to position length (Roller on low part of cam)
(12)	Receiving Pilot Clutch	2-3/4 to 3 1/2 oz.	End of Cam Sleeve Stop Arm
(13)	Reset Lever (Code Bar)	4 to 5 oz.	Lever Spring Hole (lever on low part of cam)
(14)	Retaining Pawl (Spacing)	4 to 4 1/2 oz.	Pawl Spring Post (Swinging Plate Latched)
(15)	Selector Cam Clutch	25 to 30 oz.	End of cam sleeve stop arm
(16)	Selector Finger	1/2 to 1 oz.	Push on fingers at point al- igning with spring hole of #2 & #4 fingers
(17)	Selector Lever	3 to 4 oz.	End of selector lever, paral- lel with spring. (Selector unit out of printer)
(18)	Selector Magnet Armature	3 1/4 to 3 1/2 oz.	Armature Spring Post (To start Armature from spacing.

SpringScale or Weight Applied At #3Tension

- | | | |
|--------------------------------|--------------------|---|
| (19) Spacing Latch | 3/4 to 1 oz. | Latch spring Post (Swinging Plate Unlatched) |
| (20) Spacing Pawl | 1 1/2 to 2 oz. | Pawl spring post (spacing latch held away from pawl) |
| (21) Spacing Swinging Plate | 11 to 12 oz. | plate spring Post (Pull from unlatched to latched position) |
| (22) Transm. Cam Clutch | 18 to 22 oz. | End of Stop arm on cam assembly |
| (23) Transmitting Pilot Clutch | 2-3/4 to 3 1/2 oz. | End of clutch stop arm (long leg) |

LOWER UNIT - KEYBOARD

- | | | |
|--------------------------|----------------------------------|---|
| (1) Keylever |)20 gms (start)
)15 gms (not) | Key Cap |
| (2) Keylever Spacer Bar |)35 gms (start)
)20 gms (not) | Spacer Bar |
| (3) Lock Loop Bell Crank | 1-1/2 to 2 oz. | Top of lock loop bell crank (Hold sel. bar cranks to right) |
| (4) Pilot Stop Lever | 6 to 8 oz. | Spring eye (Pull to hole in bracket) |
| (5) Selector Bar Contact | 1 1/2 to 1 3/4 oz. | Upper ends of springs (Sel. bar bell cranks marking) |

LOWER UNIT - KEYBOARD

- | | | |
|-------------------------|--------------|--|
| (6) Sel. Bar Bell Crank | 1/2 to 1 oz. | Just above spring holes(") |
| (7) Stop Arm Bell Crank | 14 to 16 oz. | Bell crank spring hole (in line with spring) |
| (8) Transmitter Contact | 2 to 2½ oz. | Upper ends of springs (contacts open) |

UPPER UNIT - TYPING

- | | | |
|--|--------------|--|
| (1) Carriage Return Ball
(right & left) | 12 to 14 oz. | Lower end of spring |
| (2) Draw Band | 2 to 2½ lbs. | Left end of carriage
(carriage at extreme left)
Push at end of operating lever |
| (3) Feed Roll Operating Lever | 1 to 1½ lbs. | Push at top of hold fast roll carrier |
| (4) Hold Fast | 2½ to 3 lbs. | Push against hook opposite key lever spring hole |
| (5) Key Lever Hook | 1/2 oz. | End of key lever hook
(typing unit removed and inverted) |
| (6) Key Lever | 1½ to 2½ oz. | |
| (7) Line Space Pawl | 3 to 4 oz. | Pawl end of line space arm |

UPPER UNIT - TYPING

- (8) Print Bail
- (9) Shift Bar

3 to 5 turns
1½ to 1¾ lbs.

- (10) Shift Lever Latch 1½ to 2 oz.

- (11) Unshift Bail

2 to 3 oz.
(12) Dash Pot Striker 5 to 7 ozs.

End of shift key lever

(Shift carriage to upper case)
Spring hole in latch (carriage
held free)

Top of unshift bail

Crimp in each spring (springs
on high part of piston rod)

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143 2003

199 94

200 50

201 30

202 00

203 00

204 00

205 74

206 00

207 24

208 00

GENERAL -

The following adjustments and instructions shall apply, in the order in which they appear, for general overhaul and re-assembly of Teleprinters 2-B and 2-C.

The same sequence shall be followed for complete readjustment of assembled machines. For this purpose proper notation is made for removal of such parts as required to make the adjustment.

When making adjustments of individual parts or units always check related adjustments and rectify if incorrect.

The illustrations referred to (Fig. 1, Fig. 2, etc.) appear in Teletype Bulletin 127, Issue 2 and Teletype Letter EG-251.

Unless otherwise directed by the adjustment, new springs should be used to replace those where the tension does not fall within the prescribed limits.

1. RIBBON SPOOL CUP ADJUSTMENT - Fig. 35. Rotate and fasten the ribbon spool cups so that the center of the ribbon spool cup rollers are 4 11/16" to 4-13/16" from the typing unit base.
2. RIGHT AND LEFT RIBBON SPOOL SHAFT GEARS - Fig. 36. Position the bevel gear on the end of each shaft for .001" to .004" and play.
3. RIBBON SPOOL SHAFTS SPRING COMPRESSION - Fig. 36. Move the ribbon feed shaft to disengage the bevel gears. Set the spring adjusting collar so that 3-1/2 to 5 ozs. pull is required to start rotation of the shaft. (Pin at front end of ribbon spool shaft at its highest position with the scale hooked over the pin and held in a horizontal position.
4. RIBBON REVERSE SHAFTS - Fig. 37. Hold the ribbon reverse arm against the bracket. Position the ribbon reverse shaft to clear the back of the ribbon spool cup by .010" to .020". Then lock set screw in the ribbon reverse arm.
5. RIBBON REVERSE SHAFT COLLAR - Fig. 37. Position the collar at the rear end of each shaft for .001" to .004" end play.
(INSERT THE PLUNGER AND MAIN BAIL ASSEMBLY)
6. RIBBON REVERSE PAWL LINK - Fig. 38. Position the main bail so that the vertical portion of the ribbon reverse bail is opposite

the ribbon reverse pawl tooth. Clearance between these members should be .015" to .025" when the ribbon reverse arms are up against the ribbon spool cups. To alter the adjustment loosen the ribbon reverse arm set screw and rotate the ribbon reverse shafts. If any bind of the ribbon reverse pawl link on its shoulder screw exists correct by repositioning its attachment at the rear end of the ribbon reverse shaft.

7. RIBBON FEED SHAFT SAFETY SPRING COMPRESSION - Fig. 39. Place the main bail in the extreme upward position and hold the ribbon feed shaft to the left. Push vertically with 12 lb. scale on upper end of the right ribbon reverse pawl. Reading should be 3 to 5 lbs. to start movement of the spring collar. Slide the ribbon feed shaft to the right and check the ribbon feed shaft left safety spring in a similar manner.

8. RIBBON FEED SHAFT DETENT PLUNGER SPRING COMPRESSION - Fig. 40. Remove the ribbon feed and check pawls. Place the ribbon feed shaft to its left hand position. Apply 12 lb. scale to the left end of the shaft. Pressure of 1-1/2 to 3-1/2 lbs. in line with the shaft should move it to the right hand position. (Feed shaft must not bind in bearings and detent and plunger should be in good condition)

9. RIBBON CHECK PAWL - Fig. 41. Mount the check pawl so that its upper end is $3/64$ " to $5/64$ " below the top surface of the casting on which the pull bar guide is mounted.
10. RIBBON CHECK PAWL SPRING TENSION - Fig. 41. Attach scale at the bottom end of the pawl and pull at right angles to the pawl spring. If the spring is bent correctly a pull of 6 to 8 ozs. will just lift the pawl away from the ratchet. (The pawl must not bind against the adjacent ratchet tooth) (REPLACE THE MAIN RAIL LEVER ASSEMBLY. SEE THAT THE MAIN RAIL LEVER DOES NOT RUB ON SIDE OF SLOT IN THE PLUNGER SLEEVE.)
11. SELECTOR SEPARATOR PLATES - Fig. 12. Remove the separator plates from the assembly and bend the leaf springs at the narrow portion so that the ends will be $.045$ " to $.055$ " below the under surface of the straight portions. (Approximately thickness of a sword) Replace separators in assembly. (REPLACE THE CLUTCH THROW-OUT LEVER AND SELECTOR LEVER ASSY)
12. MAIN SHAFT CLUTCH SPRING TENSION - Fig. 2. Place the clutch members so that the teeth of the driven member rest on the teeth of the driving member. With the scale hooked on the driven member throw-out cam and pulled downward as nearly vertical as possible the teeth should separate on 24 to 30 ozs. If

incorrect, remove the main shaft and replace the spring.

(To check this tension with the main shaft in the printer, the intermediate gear assembly and guard must be removed) (REPLACE THE MAIN SHAFT AND THE CLUTCH THROW-OUT LEVER SPRING) (The numbers on the end of the bearing caps must correspond to the numbers on the casting)

13. MAIN SHAFT ADJUSTMENT - Remove the range finder assembly. Loosen bearing cap screws and regulate the position of the shaft so that as the shaft is rotated the selector cam peaks will align with their respective selector levers. (ATTACH LOWER END OF THE MAIN BAIL SPRING)

(REPLACE MOTOR ASSEMBLY AND CABLE. - Adjust governor and motor according to paragraphs 76 and 77 before replacing on typing unit)
(REPLACE THE MOTOR PINION GEAR)

14. MOTOR POSITION ADJUSTMENT - Locate the motor on its mounting plate for fullest possible mesh of pinion with the main shaft gear without binding. Check for one complete revolution of the main shaft.

(MOUNT THE TERMINAL BLOCK AND GUARD)

15. RIBBON FEED LEVER SPRING TENSION - Fig. 22. (The type basket must be removed to make this adjustment) Remove ribbon feed

pawl or move it away from the ratchet. Place the main bail plunger so the ribbon feed lever roller is in the plunger indent. Hook scale over top of the feed lever and pull horizontally. 12 to 18 ozs. pull should start the lever moving.

TO REMOVE THE TYPE BASKET FROM TYPING UNIT -

METHOD #1 - Unhook springs from the following: code bar locking lever, signal bell hammer, letters pull bar and space release pull bar. Remove the three type basket mounting screws. Remove the front mounting screw from the right ribbon spool bracket, loosen the rear mounting screw and swing the bracket so that the ribbon spool cup will not interfere with the basket. Place a piece of wire or string around and in back of the pull bars and pull forward to disengage them from the guide. Lift the type basket, at the same time turning it sufficient to free the toes of the function pull bars.

METHOD #2 - Unhook all springs connecting the type basket with the base mechanism. Loosen and turn the bell hammer away from the pull bar toes. Remove the code bar assembly. Remove the type basket, rotating it sufficiently to clear the other pull bar toes.

(REPLACE THE RIBBON FEED PAWL)

16. RIBBON FEED PAWL - Fig. 41. Position the feed pawl to provide two teeth advancement of the ratchet for each revolution of the main shaft. (Readjustment of the check pawl may be necessary)
17. RIBBON FEED PAWL SPRING TENSION - Fig. 41. Attach scale to the extreme front edge of the pawl and pull vertically. 6 to 8 ozs. pull required to start feed pawl away from the ratchet. (Pawl must not bind against adjacent tooth) Bend the spring to regulate the tension.
18. RIBBON REVERSE PAWL SPRING TENSION - Fig. 39. Place the ribbon feed shaft to the left. With scale hooked over the left hand ribbon reverse lever spring post and pulled in line with the spring, it should require 2-1/2 to 3-1/2 ozs. to start the lever moving. Move the ribbon feed shaft to the right and check the right hand lever spring in the same manner.
19. SPACER DETENT ADJUSTMENT - Figs. 20 and 21. (The type basket must be removed to make this adjustment) When the spacer operating lever roller is at the bottom of the main bail plunger indent and the spacer detent roller rests between two teeth there should be .002" to .012" clearance between the face of the spacer feed pawl and the face of each tooth on the spacer ratchet wheel. Adjust by moving the detent lever plate.

(It is possible to acquire this adjustment with the spacer detent position one full tooth off which will affect the detent spring tension considerably. Always check this spring tension when making the above adjustment)

20. SPACER DETENT LEVER SPRING TENSION - Fig. 20 (The type basket must be removed when making this adjustment) Allow detent roller to rest between two teeth of the ratchet. Hook scale in the lever spring hole and pull in line with the spring. 3-1/4 to 3-3/4 lbs. pull should start the lever moving.
21. SPACER FEED PAWL SPRING TENSION - Fig. 20. (The type basket must be removed when making this adjustment) Attach the scale near the upper end of the pawl, holding it at right angles to the pawl. 1 to 2 ozs. pull should start the pawl moving.
22. SPACER OPERATING LEVER SPRING TENSION - Fig. 21. (The type basket must be removed when making this adjustment) With the operating lever roller at the bottom of the main bail plunger indent, hook scale over the lever just below the roller and pull horizontally. The lever should start moving at 5 lbs. (Where printers are still equipped with old style spring 35-27 vertically mounted, this tension shall be 4 lbs.)
23. SPACER LOCKING BAIL SPRING TENSION - Fig. 23. (The type basket

must be removed when making this adjustment) Hold the spacer locking pawl away from the bail. Hook scale in the spring hole of the bail and pull vertically. 1-1/2 to 2 ozs. pull required to start movement of the bail.

24. SPACER LOCKING PAWL BRACKET POSITION - Fig. 23. Place the spacer operating lever roller on the high part of the main bail plunger. Lift the spacer locking bail allowing the locking pawl to engage the operating lever. Position the spacer locking pawl bracket so that the distance between the locking pawl shoulder and the notched part of the operating lever is .040" to .050".

25. SPACER LOCKING BAIL FINGER ADJUSTMENT - Fig. 27. Hold the spacer locking bail down and position the main bail plunger so that the spacer operating lever is held with its latching edge in line with the latching edge of the spacer locking pawl. The clearance between the latching edges should be .015" to .025". To adjust use holding tool #72574 inserted from the front of the typing unit under the type bar segment and bend the locking bail finger with bending tool #72575 which can be inserted from the left side of the typing unit.

26. SPACER LOCKING PAWL SPRING TENSION - Fig. 23. Place the spacer operating lever roller on the high part of the main bail plunger. Turn the typing unit on its side, and while holding the spacer locking bail operated, hook the scale through the hole in the typing unit base onto the locking pawl and pull in line with the spring. 1-1/2 to 2-1/2 ozs. pull required to start the pawl moving.
27. FUNCTION BAR BRACKET PLATE ADJUSTMENT - Fig. 24. Adjust both the right and left bracket plates by rotating them on their mounting screws so that the pull bars supported by them have equal amount of play in the segment.
28. PULL BAR SPRING TENSION - Fig. 25. (The type basket must be removed when making this adjustment) Unhook the spring from each pull bar. While holding the pull bar vertically attach scale to the eye of the spring and pull vertically until the eye is opposite the spring hole in the pull bar. The character pull bar springs should weigh 3 to 4 ozs. and those for the function bars 5-1/2 to 6-3/4 ozs. (REPLACE THE TYPE BASKET IN THE TYPING UNIT)
- CODE BAR ASSEMBLY - LOCK WASHER POSITION AND TIGHTENING OF NUTS - Excessive tightening of the code bar post nuts may

cause the separator collars to become embedded in the german silver separator washers and bind the code bars. Remove the lock washers if under the lower nuts and place between the upper and lower nuts. Tighten the lower nuts enough to hold the pileup of collars and separators without excessive pressure. Then hold the lower nut with a wrench and tighten the upper nut against the lock washer.

CODE BAR ASSEMBLY - MOVEMENT OF BARS - The code bars must operate freely. If the assembly is held in a vertical position and the bars raised to the extent of their travel and then released they should return quickly to their other limit.

(REPLACE THE CODE BAR ASSEMBLY)

CODE BAR ASSEMBLY- HEIGHT OF CODE BARS - Each code bar must align horizontally with its respective "T" lever without overlapping an adjacent lever. This condition may be acquired by adding or removing shims between the pull bar guide and the casting to which it is fastened.

- 29.
30. FULL BAR GUIDE ADJUSTMENT - Fig. 26. Set up the "blank" combination and position the main bail opposite the pull bar humps. The clearance between all pull bar humps and the main bail should be .008" to .020" while the bail is held in a direction to make

this clearance a minimum. Adjust the position of the pull bar guide for the above clearance. Check the clearance also with the "letters" combination set up. The foregoing adjustment should provide .004" to .060" clearance between the end of #1 "T" lever and the bottom of its slot in #1 code bar.

31. MAIN BAIL ADJUSTING SCREW - Fig. 1. Set up the "blank" combination and place the main bail roller on the high part of its cam. Adjust the main bail screw for clearance of .010" to .050" between the back surface of the pull bar tops and the front of the code bars while holding the bail to give minimum clearance. Check this adjustment with all code bars in the marking position. (The bail at its lowest position must not strike the bottom of the guide post) (If the play between the main bail slot and guide post exceeds .004" the post may be turned one quarter turn and fastened. If those surfaces have already been worn a new post must be installed)

32. MAIN SHAFT CLUTCH THROW-OUT LEVER - Fig. 1. With the clutch throw-out lever resting on the high part of the clutch cam adjust the pivot screws so that the clutch teeth are separated .010" to .020". The end play of the throw-out lever must be

- at a minimum without binding the lever.
33. MAIN SHAFT CLUTCH THROW-OUT LEVER SPRING TENSION - Fig. 1
Place the clutch throw-out lever on the low part of the driven clutch member. 2-1/2 to 4 ozs. pull on scale attached at the spring hole should start the lever moving.
34. SELECTOR LEVER SPRING TENSION - Fig. 11. Position all code bars "spacing" and rotate the selector cam sleeve to its stop position. Hold the lock bar and the figures shift pull bar away from the code bars. Hook scale at right end of the code bar. 5 to 7 ozs. pull toward the right should move each bar to its extreme right position. It should start back at no less than 1-1/2 ozs.
35. SELECTOR ARMATURE HEIGHT - Fig. 13. Place the #1 selector lever on the peak of its cam. Hold #1 sword lightly against the upper separator plate. Under these conditions the lower surface of the locking wedge should clear #1 sword by .002" to .008". Adjust the armature pivot screws to obtain, at the same time limiting the armature end play to a minimum.
36. SELECTOR ARMATURE BRACKET LINK - Fig. 14. Remove the range finder, unhook the locking lever spring, loosen the bracket mounting screws and the link screw. Move the bracket eccentric

out of the way and back off the armature stops. Place #1 selector lever on the peak of #1 cam. Insert gauge pins #72581 between the stop posts and the sides of the swords. Place locating gauge #73370 so that its legs are over the ends of the two arms of #1 sword. Hold the bracket with the armature extension arms against the flat surface between the legs of the gauge and tighten the link screw. Remove the locating gauge and gauge pins.

37.

SELECTOR ARMATURE BRACKET - Figs. 14 and 15. With the #1 selector on the peak of #1 cam and the selector armature in the unoperated or spacing position move the spacing arm of #1 sword against the armature extension. Then rotate the armature toward marking until the extension arm just leaves the spacing arm of the sword. The sword at this position should be .004" to .040" from the spacing stop post. Locate the armature bracket to obtain this clearance. Unhook the armature spring and place the armature to the marking position with the marking arm of the sword against the extension arm. Move the armature toward spacing until the extension arm just leaves the sword arm. This should produce .004" to .040" clearance between the sword and the marking stop post. Position

the bracket to obtain, after which re-check the clearance at the spacing side. These should be equal. Tighten the bracket mounting screws. Make a similar check of the other swords, repositioning the bracket if necessary to bring them within the above limits of clearance. Place the eccentric against the bracket and tighten its screw.

38. **ARMATURE STOPS ADJUSTMENT** - Place the selector armature in the spacing position and #1 selector lever on the peak of #1 cam. Move the left arm of #1 sword against the armature extension and adjust the armature stop screw so that the sword arm is engaged by $5/8$ to $7/8$ of the width of the extension arm. Energize the magnet or hold the armature marking and make identical adjustment at the right arm by setting the operated stop nut. Check all swords.
39. **ARMATURE LOCKING WEDGE** - Fig. 11. Set the locking lever on the long high part of the locking cam. Position the locking wedge in its slot to obtain .008" to .012" clearance between it and the locking lever point when the points of each are in line.
40. **ARMATURE LOCKING LEVER SPRING TENSION** - Fig. 11. With the lever on the long high part of the locking cam, hook scale in

the lever spring hole. Pull of 10 ozs. in line with the spring should start the lever moving.

41. STOP LEVER ECCENTRIC SCREW - Fig. 17. (The range finder assembly must be removed when making this adjustment) Adjust the eccentric screw for .004" to .006" clearance between the eccentric and the back edge of the stop lever when this lever is resting against the latching surface of the trip latch.
42. STOP LEVER SPRING TENSION - Fig. 18. (The range finder assembly must be removed when making this adjustment) Hold the trip latch plunger operated. Attach scale at the end of the stop lever. $3/4$ to 1-1/4 ozs. required to start the lever moving.
43. TRIP LATCH SPRING COMPRESSION - Fig. 17. (The range finder assembly must be removed when making this adjustment) Hold the range finder in a horizontal position. Apply scale vertically at the step of the trip latch. An upward push of 1 to 1-1/2 ozs. should start the trip latch moving.
(REPLACE THE RANGE FINDER)
44. ARMATURE TRIP-OFF ECCENTRIC SCREW - Figs. 17 and 19. Place the selector armature spacing. Turn the trip-off eccentric until the trip latch engages the stop lever preventing it

from releasing the selector cam. Now adjust the eccentric to raise the latch sufficiently to just clear the stop lever; not to exceed .002". Hold the armature marking with the latching surfaces of the latch and stop lever engaged. The clearance between the end of the trip latch plunger and the trip-off eccentric should be at least .002". If this condition does not prevail both armature stops may be backed off slightly.

45. MAGNET COILS POSITION - Fasten the coils on the magnet bracket so that the top edge of the upper core aligns within 1/64" of the top edge of the armature.

46. MAGNET BRACKET POSITION - Fig. 15. Energize the magnet causing the selector armature to rest against the operated stop nut. Adjust the position of the bracket for .002" to .007" clearance between the magnet cores and the armature. (usually one thickness of printer tape) The cores must align with the armature and their faces must be parallel with the face of the armature. (REPLACE THE CARRIAGE ASSEMBLY)

47. CARRIAGE BRACKETS AND LOCATING PLATE - Position both brackets so that the gears of the platen and spacer shafts mesh with minimum backlash and without binding rotating or lateral movement of the platen shaft. Fasten the locating plate with its

- three projections resting against the base of the front bracket.
48. TAPE FEED ROLL SPRING TENSION - Fig. 30. Hook scale over the feed roll bearing screw. 6 to 8 ozs. pull at right angles to the feed roll-lever should start the lever from the surface of the platen.
49. LEFT TAPE GUIDE - Fig. 30. Adjust this guide to clear the platen roll by .004" to .010" throughout one complete revolution of the roll.
50. RIGHT TAPE GUIDE - Fig. 30. Thread tape through both tape guides. Position the right guide so that the tape aligns with the platen roll. Bend the guide to provide .010" to .020" clearance between its end and the platen roll throughout one complete revolution.
51. RIBBON GUIDE - Set height of the ribbon guide so that both sides are .040" to .050" above the printing surface of the platen. Bend the guide to obtain $3/16$ " to $7/32$ " clearance between its tongue and the side of the platen roll.
52. FIGURES STOP SCREW - Fig. 28. Place the carriage in the figures position and print "figure 2" directly on the platen. Regulate the stop screw so the printing occurs in the middle of the platen roll.

53. CARRIAGE LOCKING PAWL POST - Position this post for full engagement of the locking pawl with the carriage locking toe.
54. CARRIAGE LOCKING TOE - Fig. 29. Place the carriage in the letters position and print "W" directly on the platen roll. Position the locking toe to cause printing in the middle of the platen roll.
55. SHIFT ROCKER POST - Fig. 31. The sides of this post should be parallel to the platen shaft.
56. CARRIAGE RETURN SPRING TENSION - Fig. 28. Place the carriage in the letters position. Unhook the spring from the spring post. With scale attached to the spring eye, pull the spring to its normal position length. Reading should be 6-1/2 to 7-1/2 ozs.
57. CARRIAGE LOCKING PAWL SPRING TENSION - Fig. 29. Hold Carriage in the letters position. Hook scale just below the spring hole in the pawl. An upward pull of 1-1/2 to 2-1/2 ozs in line with the spring should start the pawl moving.
58. SHIFT ROCKER LEVER POST - Fig. 32. The front surface of this post should be parallel to the front edge of the base plate.
59. CARRIAGE EXTENSION - Fig. 31. Adjust the carriage extension so that it travels equal distances from each side of the shift rocker post when the carriage is moved from the figures to the letters position.

60. SHIFT ROCKER ADJUSTMENT - Fig. 32. Back off the carriage capstan nuts. Place the carriage in the figures position. Set up the "letters" combination and rotate the main shaft until the main bail roller is on the low part of its cam. Lift the main bail by hand to its highest position. This should cause the carriage locking toe to just engage the notch of the carriage locking pawl. (overtravel must not exceed .020") If the printer incorporates "unshift on space" and this function gives the carriage less travel than "letters" then it should be used in making the adjustment.
61. CARRIAGE CAPSTAN NUTS - Fig. 29. With the carriage held in the letters position by the locking pawl and toe adjust the capstan nuts for .020" to .025" clearance between the rear nut and the front of the bearing bracket.
62. PULL BAR LOCKOUT LEVER - Figs. 33 and 34. Place the platen in the figures position and select the bell pull bar, positioning the main bail approximately .010" below the bell pull bar notch (Fig. 33-A) Adjust the pull bar lockout lever so that its right hand roller clears the bell pull bar .010" to .040" (Fig. 33-B) and at the same time cams

the top of the adjacent "J" or "S" pull bar out of the code bar slot by .004" to .020" (Fig. 53-C) Move the carriage to the letters position. The left hand roller of the lockout lever should clear the "J" or "S" pull bar .010" to .040" and the top of the "bell" pull bar should be cammed out of the code bar slot by .004" to .020" (Fig. 34-A, B, C.)

63. LEFT FUNCTION PULL BAR SPRING BRACKET - Fig. 42. With the main bail in its lowest position and with scale attached to the letters pull bar just below the hump, pull horizontally. Adjust the spring bracket to obtain reading of 1 to 1-1/2 ozs. when the pull bar starts to move.
64. RIGHT FUNCTION PULL BAR SPRING BRACKET - Fig. 43. Place the main bail in its lowest position. Hook scale over the code bar locking lever in line with #1 code bar and pull horizontally. Adjust the spring bracket so that 5 to 6 ozs. pull will start the lever moving.
65. BELL HAMMER ECCENTRIC SCREW - Fig. 44. Set up the bell selection and run the bail to its highest position. Adjust the eccentric screw for .045" to .075" clearance between the bell hammer lip and the bell hammer post. Also position the post for alignment of the end of the pull bar toe with the outer edge of the

eccentric screw.

66. BELL HAMMER SPRING TENSION - With the bell hammer lip resting against the post, attach scale to the threaded end of the bell hammer eccentric screw and pull upward. 2 to 2-1/2 ozs. should start the hammer moving.
67. BELL ADJUSTMENT - Position the bell so that its lower edge clears the bell bracket .010" to .020". There should also be at least .004" clearance between the side of the bell and the tape chute.
(MOUNT THE INTERMEDIATE GEAR ASSEMBLY)
(PLACE THE ASSEMBLED TYPING UNIT ON THE KEYBOARD)
68. MOTOR SPEED - For printer motors equipped with governors check the speed with tuning fork. If the target spots appear to move in the direction of rotation of the transmitting shaft, the motor is fast and should be decreased by pressing the governor adjusting bracket against the governor adjusting wheel. If the spots appear to move in the opposite direction the motor speed is slow and should be increased by operating the adjusting lever which is fastened to the top of the motor frame next to the governor.
69. MAIN BAIL CAM CLUTCH TORQUE - Fig. 45. Remove the intermediate gear guard and the tape container. Run the motor at

least 10 minutes with the main shaft held stationary. Press the main bail down in order to move the main bail roller away from its cam and hook scale into screw hole on the top of the cam. Pulling at right angles to the radius should require 18 to 24 ozs. to start the cam moving opposite to its normal direction of rotation.

70. SELECTOR CLUTCH TORQUE - Fig. 46. Run the motor at least 10 minutes with the main shaft held stationary. Hook scale to the selector cam sleeve stop arm and release the main shaft. 16 to 18 ozs. pull required to hold the cam sleeve stationary. (REPLACE THE RIBBON)
71. MAIN BAIL SPRING TENSION - Decrease the main bail spring tension until printing fails then increase the tension until a good copy is obtained without embossing the paper. (some embossing will occur when "period" is printed)
(REPLACE THE GEAR GUARD)
72. TAPE CHUTE ADJUSTMENT - Position the tape chute bracket so that the chute aligns with the left tape guide.
73. ORIENTATION - Adjust the selector armature spring for 6 to 6½ ozs. tension. While "RY" is being received move the range finder to the lowest point toward zero at which no errors occur.

Note this point. Then shift the range finder to the highest position on the scale at which printing is correct. Set the finder midway between these two limits. Now range the armature spring, finding the two limits of tension at which printing is correct and set the tension in the center of this range. Then recheck the orientation range.

Printers with range finders scaled from zero to one hundred must develop at least sixty five points range when checked on a local test circuit with current of approximately fifty five mils flowing in the circuit. The lower limit of range should be at 20 on the scale and the high limit at 85 or above. The following table gives the equivalent values of the new and old type range finders:

<u>NEW</u>	<u>OLD</u>	<u>NEW</u>	<u>OLD</u>
0	65.0	50	36.5
10	59.3	60	30.8
20	53.6	70	25.1
30	47.9	80	19.4
40	42.2	90	13.7
		100	8.0

COPY - Check tape container, tape tension spring and roller and tape guide tube, adjusting them to prevent any drag on the tape. Depress the letter "N" key. Hold keyboard clutch throw out lever operated allowing "N" to print continuously for several revolutions of the platen. Observe the spacing between characters and if not uniform refine the spacing mechanism adjustments. Print all letter characters several times separated by "N" thus, "NANANANENBENBENCNCNCNDNDNDN etc." Bend the "N" type bar near the segment to obtain uniform spacing with the majority of the characters. (use pliers or bender to hold and another plier or bender to bend the pull bar.) Then bend the type bars of those characters that do not space properly. Check spacing of figure characters separated by letter "N". To correct these hold the type bar near the slug or pallet and bend only the upper portion of type bar so as not to change the position of the letter character. If a character prints heavier on one side than the other or if it leans toward one side, hold the type bar near the pallet and bend upper end of the bar in the proper direction to correct. Should either the top or bottom of a character print too heavily it will be necessary to unsolder and reposition the pallet. Align the characters horizontally by

unsoldering the pallets where necessary and moving them on the type bar so that printing is in the center of the tape with the bottom of the letters in line.

75. TYPE BARS - MOVEMENT - Check freeness of each type bar by pulling it down until the pallet touches the platen. When released it should return quickly to the unoperated position against the leather back stop. When a new type bar is installed it may be necessary to grind down and polish that portion fitting in the segment slot to prevent binding.

(To remove a type bar take the carriage front bracket off and remove the carriage assembly. Rotate the type bar forward and lift the pull bar until the teeth of these members are disengaged. Then unhook the type bar from the fulcrum rod and remove from the segment. To replace, lift the pull bar a short distance and hook type bar over fulcrum rod. If the teeth mesh properly the top of the pull bar will line up with the other pull bar tops and the type bar will rest against the leather back stop)

- 76.

GOVERNOR ADJUSTMENTS -

- a. SPEED ADJUSTING WHEEL FRICTION WASHER SPRING PRESSURE -

FIGS. 3 and 5. - Remove the governor guard and the

governor cover. Attach scale to the contact spring next to the contact and while pulling parallel to the speed adjusting spring regulate the speed adjusting wheel for 13 to 14 ozs. contact pressure. Then place a bank pin radially in the leather of the adjusting wheel and hook the scale over this. Pull of 8 to 16 ozs. should start the wheel moving. To correct, remove the friction washer and bend its projections.

b. GOVERNOR BRUSH SPRING TENSION - Fig. 4. (The brush holder bracket must be removed to check this adjustment) Press the scale against the end of and in line with the brush. 3 to 4 ozs. pressure should permit the brush to protrude .015" to .050" from the brush holder.

c. GOVERNOR BRUSH POSITION - Fig. 4. Locate the brush holder bracket on the base so that the brushes project from the brush holder .015" to .050" and ride in the center of the collector rings.

77. MOTOR ADJUSTMENTS -

AC SERIES AND DC MOTORS - Keep the commutator free of oil and grease. Do not remove the brownish discoloration, however, if there is any appreciable sparking the commutator may be sanded with a very light grade of sandpaper. Remove and clean the brushes and brush holders. Replace each brush in the holder from

which it was withdrawn and in its original position. When installing a new brush the end that bears against the commutator must be sanded to the curvature of the commutator. To install Fibre Guard Washers, Cat. #83129, take out the motor brushes and remove the motor armature. Loosen set screw and remove brush holder rings. Place a guard washer with its long end up on each brush holder. Replace the brush holder rings, clamping the guard washers against the fibre bushings in the frame and tighten the set screws. Replace the armature and brushes.

SYNCHRONOUS MOTORS HAVING A SINGLE STARTING CONTACT - (The following adjustments should be checked when it is believed that the starting switch is out of order and when the motor is dismantled for complete overhauling. The starting switch failing to close fully may prevent the motor starting or it may run backward. If the switch fails to open, the starting winding will burn out)

- a. CENTRIFUGAL WEIGHT SPRING TENSION - Fig. 1, KE 251 - Remove the motor pinion and handwheel. Take out the switch end shield screws and pull the shield out about half an inch. Remove the two switch mounting screws noting the number and

thickness of the shims at each end of the switch bracket. Remove the end shield. Remove the centrifugal weight springs.

Hold one end of spring stationary, hook scale in other end and pull until spring measures $1\text{-}3/4$ " over all. Reading should be $3\text{-}3/4$ to $4\text{-}1/4$ ozs. Check the centrifugal push collar and weights for freeness.

b.

STARTING SWITCH CONTACT SPRING TENSION - FIG. 1. With this contact resting against the backstop hold the bracket so that the contact spring clears the rotor shaft and the centrifugal push collar. Hook scale over the contact spring just below the backstop and pull at right angles to the spring. $1/2$ to 1 oz. pull should start the spring moving away from the backstop. Bend the contact spring to meet this requirement. Replace the centrifugal weight springs, also replace the switch end shield on the shaft. Assemble the starting switch on the end shield. See that the shim pile-up is equal on both sides of the switch bracket. Then tighten the two switch mounting screws, each a little at a time until both are tight. Check for fibre washer between rotor and the pinion and shield. Replace the switch end shield mounting screws and tighten in the same manner as used in tightening the switch mounting screws.

c. STARTING SWITCH CONTACT BRACKET ADJUSTMENT - Fig. 2, EE-251.

To make this adjustment the motor must be supplied with 110 volts DC and connected through 800 ohm resistances as shown by figure 2, and with a milliammeter across the starting contacts. Also required is a collar which can be placed on the switch end of the rotor and fastened with set screws. Collar #82862 may be used or a similar tool may be constructed locally.

- (1) Fasten the collar on the switch end of the rotor shaft so that it clears the motor end shield $1/32"$. Hold the shaft with the collar against the end shield and slowly rotate the rotor one complete revolution while watching the test set meter. If the start contacts remain closed the meter reading will be zero. Should the contacts open, shims must be added between the starting switch bracket and the motor and shield.
- (2) Relocate the adjusting collar so that it clears the motor end shield by $1/16"$. Again press against the end of the rotor shaft until the collar is against the end shield and rotate the shaft one revolution. The contacts should remain open, giving a meter reading of not less than 100 mls.

An interruption of the current flow indicates closing of the contacts and necessitates removal of shims from between the starting switch bracket and the motor end shield. Recheck adjustment #1. NOTE - The shim pile-up should be equal at both ends of the switch bracket. Shims may be obtained in 1/64", 1/32" and 3/64" thicknesses.

Remove the adjusting collar from the shaft.

- d. ROTOR THRUST SPRING TENSION - Apply the scale to the switch end of the rotor shaft, and push in line with the shaft. It should require at least 7 lbs. pressure to start the shaft moving. Replace the motor pinion and fan or handwheel.

- e. TO REMOVE THE STARTING SWITCH OR CENTRIFUGAL MECHANISM WHEN REQUIRED - Fig. 1. Remove the motor pinion and handwheel. Remove the switch end shield mounting screws. Pull the end shield out a short distance and remove the switch mounting screws, noting the number and thickness of the shims at each end of the switch bracket. Unsolder the stator leads connected to the switch. Carefully remove the ball bearing using bearing tools #21550. Remove the starting switch. The starting mechanism may now be removed by removing its two mounting screws.

- f. TO ASSEMBLE THE STARTING SWITCH OR CENTRIFUGAL MECHANISM -

Fig. 1. Replace the centrifugal mechanism and mounting screws making sure the insulator is in place. Place the push collar fibre washer on the shaft in front of the push collar. Place the rotor partly in the stator with the switch end projecting out of the frame. Replace the starting switch on the shaft and against the push collar fibre washer with the contact spring toward the rotor. With the starting switch contact points in the upward position solder the two wires that are tied together to the upper terminal of the starting switch. After applying grease to the bearing replace it, using bearing tools #21550. Place a felt washer, then a retaining washer in the switch end shield. Slide the switch end shield over the rotor shaft inserting the ball bearing into its recess in the shield. Tighten the mounting screws each a little at a time until fully tightened. Check shaft rotation for binds. Also check the preceding starting switch adjustments.

- g. TO REMOVE AND REPLACE THE BALL BEARING AT THE PINION END OF THE ROTOR - Remove the handwheel or fan. Remove the motor pinion and the end shield at that end of the motor. Using bearing tools #21550 remove the bearing. After greasing,

replace the bearing using the above bearing tools. Assemble in the pinion end shield recess the following in this order, felt washer, cup washer, thrust spring and thrust spring washer. Slide the end shield into position and tighten the mounting screws as described in paragraph (f) above.

SYNCHRONOUS MOTORS HAVING A THREE BRUSH STARTING SWITCH -

(Check these adjustments when the motor is being overhauled or when trouble with the starting switch has developed) Remove the handwheel, motor pinion, switch commutator mounting screws and the switch end shield. Pull out the rotor until the brush holder spring is accessible and remove the spring.

BRUSH HOLDER SPRING TENSION - Hold one end of the spring stationary and hook scale in the eye at the other end and pull the spring to an over-all length of 5 inches. For 60 cycle motors the scale should read 3 to 3-3/4 ozs. For 50 cycle motors the scale should be 1-1/2 to 2-1/2 ozs. See that the brush holders are mounted by means of the center set of mounting holes and are free. Also see that the brush holder stop pins are safely within the holes of the fibre disc when the brush holders are held so that engagement of the pins with the disc is a minimum.

b.

Replace the brush holder spring. Replace the switch commutator screws and the switch end shield screws and tighten as described in paragraph (f).

i. ROTOR THRUST SPRING TENSION - This adjustment is same as given in paragraph (f)

Replace the motor fan or handwheel and the pinion.

j. SYNCHRONOUS MOTORS-WIRING REPAIRS - When the insulation of the internal leads between the stator and starting switch become defective unsolder the wires at the switch and strip off the insulation. Place "Isolantite beads #1116" over the entire length of the bare wire and re-solder to the switch. Replace the external lead from the switch with "#18 gauge art silk covered single conductor Deltabeston stranded fixture wire, type AF"

Repair the external lead from the stator by removing all of the insulation and covering the entire lead with "#11 black flexible, impregnated, varnished tubing." A more permanent repair can be made by cutting off the stator wire about 3" from the stator winding, stripping the insulation from this section, then covering the bare wire with five isolantite beads. After this, splice and solder a piece of the above deltabeston wire

to the short section, covering the splice with one layer of rubber tape and two layers of friction tape.

 KEYBOARD BASE ADJUSTMENTS

78. CLUTCH SPRING COMPRESSION - Fig. 68. Hold the transmitter shaft so that the clutch teeth are almost fully engaged with their faces just separated. Hook scale over the projection of the driven clutch member and pull in line with the shaft. 9 to 12 ozs. pull should start movement of the driven member. (9 ozs. adjustment preferred)

79. REPLACE THE TRANSMITTING SHAFT AND BRACKET
 TRANSMITTING SHAFT REAR BEARING ADJUSTMENT - The rear bracket must be positioned to allow the shaft to revolve freely. Adjust the rear bearing nuts for .002" end play of shaft.
 ATTACH THE TRANSMITTING SHAFT GEAR.
 MOUNT THE TRANSMITTING CONTACT ASSEMBLY ON THE BRACKETS AND

SOLDER WIRE CONNECTIONS. - Do this after contacts have been cleaned, kinks removed from the contact springs and backers and a slight bow made in them to provide sufficient pressure

at the contacts.

REPLACE THE KEY LEVERS AND THE KEY LEVER SHAFT (if previously removed)

REPLACE THE SELECTOR BAR ASSEMBLY AND UNIVERSAL BAR AND BRACKETS. Restore the shims that were removed from under the brackets. Selector bars should move freely, bend slightly if necessary to provide maximum side play of the bars in the bracket slots.

UNIVERSAL BAR PILOT SCREWS ADJUSTMENT - If the keyboard is equipped with these screws adjust them so that the trip-off pawl is approximately in the center of the keyboard base slot restricting end play of the universal bar to .004" to .015".

REMOVE THE FRONT KEY LEVER GUIDE, CLEAN AND REPLACE. (It is unnecessary to remove this guide unless key levers were not taken out. In which case, while guide is off, clean that part of the key levers working in the guide slots)

REPLACE THE SPACER BAR AND LOOP - Remove the spacer key lever spring and tighten the left bearing post nut only. The spacer bar should drop freely when raised to its highest position and released. Tighten the middle and then the

right post nuts checking after each operation for free movement of the spacer bar. Replace the key lever spring.

REPLACE THE INTERMEDIATE PAWL

REPLACE THE TRIP-OFF PAWL AND SPRING.

81. LOCKING LEVER SHAFT ADJUSTMENT - Fig. 65. Place the contact levers on the high part of their cams and the locking levers to the spacing position. The clearance between the bottom surface of the locking lever toes and the top of the contact levers shall be .002" to .008". Adjust height of the locking lever shaft to meet this requirement.
82. LOCKING LEVER TRAVEL - Fig. 65. With the lock loop roller resting on the low part of its cam, check the clearance between the side of the lock loop blade and all locking lever fingers. Clearance should be at least .010", when the locking levers are held in the marking and spacing positions by the "letters" and "blank" key levers. Loosen the main bracket mounting screws and shift the bracket to correct.
83. LOCK LOOP ROLLER ADJUSTMENT - Fig. 65. (This applies only to keyboards having an elongated hole for the lock loop roller pivot screw) Place the transmitting cam assembly at the stop position with the clutch teeth disengaged. Press the roller against the

cam to insure the cam being at the stop position. Move the locking lever fingers directly under the lock loop blade. The blade should clear the tops of the fingers .008" to .015". Adjust by positioning the roller pivot screw in the elongated mounting hole.

84. LOCK LOOP SPRING TENSION - Fig. 65. Place the lock loop roller on the low part of its cam. Hook the scale in the lock loop spring hole and pull in line with the spring. A pull of 4 to 5 ozs. should start the lock loop moving.
85. CLUTCH THROW-OUT LEVER ADJUSTMENT - Fig. 60. Move the transmitting cam assembly to the stop position (make certain that the clutch is fully disengaged) Place the required number of shims between the clutch throw-out lever post and the bracket to obtain .005" to .015" separation of the teeth of the clutch members. This adjustment may be refined by shifting the position of the driving clutch member on the shaft.
86. CLUTCH THROW-OUT LEVER SPRING TENSION - Rotate the transmitting cam assembly beyond the stop position allowing the clutch throw-out lever to rest against the low part of the driven clutch member. Attach scale at the throw-out lever spring hole. While holding the intermediate pawl against its eccen-

87.

trie a pull of 1-1/2 to 2-1/2 ozs. in line with the spring should start the throw-out lever moving. (1-1/2 ozs. preferred) TRANSMITTING CONTACT GAP AND SPRING PRESSURE - Figs. 65 & 67 Place the locking levers in the spacing position. Rotate the transmitting cam assembly until the low part of #1 cam is opposite the hump of #1 contact lever. Bend #1 front contact spring to obtain contact gap of .015" to .020" (gap will permit .015" gauge to pass through freely, .020" gauge will not) Adjust gap of #2, 3, 4 and 5 contacts in a similar manner, rotating the cam assembly so that the low part of each cam is opposite the hump of the corresponding contact lever. Adjust the "rest" or "start-stop" contact gap to .015" to .020" with the contact lever hump on the high part of the cam when the cam assembly is at its starting position. Place all locking levers to the marking position (to the right) Rotate the cam assembly until the "rest" or "start-stop" contact lever is operated with hump in the low part of the cam. Hook scale at the extreme top end of the contact spring above the insulator. Pulling at right angles to the contact spring observe reading when the contacts just break connection. This should be 4 to 4-1/2 ozs. Bend the back contact spring to adjust. Adjust the remainder of the contact springs in a like

manner. Recheck and adjust the contact gaps. See Paragraph 105 for additional adjustment of the start-stop contact gap.

88. TYPING UNIT SLIP CONNECTIONS SPRING TENSION - Bend the slip connections spring at each end of the slip connections block so that the crimped part of the spring is $7/16$ " to $15/32$ " from the block mounting post. Place a straight edge lightly against the high part of the crimp in these two springs and adjust the others so their crimped portions are within .015" of the straight edge.

REPLACE THE SLIP CONNECTIONS GUARD.

89. LINE JACK SPRING TENSION - Apply the scale to the curved part of the jack spring. 1-1/2 to 3 lbs. pressure should open the jack .030".

REPLACE THE GEAR GUARD AND BELL HAMMER SPRING.

90. GEAR GUARD ADJUSTMENT - Fig. 62. Position the gear guard for .002" to .004" clearance between the bell hammer and the bell operating post, when the bell hammer is held in its locked position by the locking pawl.

91. BELL ADJUSTMENT - Fig. 63. Adjust the position of the bell so that there is .001" to .004" clearance between the bell and bell hammer when the latter is in the unlocked position.

92.

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BELL HAMMER EXTENSION STOP ADJUSTMENT - FIG. 62. (The tape reel container should be removed to check this adjustment) Position the bell hammer extension stop to obtain .020" to .040" clearance between the lower side of the bell hammer extension and the bell hammer extension stop. (With the locking pawl engaging the bell hammer extension)

93.

BELL HAMMER SPRING TENSION - FIG. 62. (The tape reel container should be removed to check this adjustment) With the bell hammer resting against the gear guard, hook scale in the spring hole and pull in line with the spring. 3 to 5 ozs. pull should start the hammer moving.

94.

TAPE LEVER SPRING TENSION - (The tape reel container should be removed to check this adjustment) Remove the locking pawl spring. With the front edge of the locking pawl against the casting, hook scale in the pawl spring hole and pull at right angles to the front edge of the pawl. Scale should read 3-1/4 to 4-1/4 ozs. when the pawl and tape lever start to move.

95.

LOCKING PAWL SPRING TENSION - FIG. 64. Allow the locking pawl to rest against the face of the bell hammer extension and hold the tape lever down. Attach scale in the spring hole. 1/4 to 3/4 ozs. pull in line with the spring toward the front should

start the pawl moving.

96.

SELECTOR BAR HEIGHT - Height of the selector bar assembly shall be set so that the selector bars will start to move immediately after any key lever has been started downward, and there must be sufficient clearance between tops of the selector bar combs and bottoms of key levers that the latter will not obstruct movement of the selector bars. To adjust, place shims between the selector bar brackets and the keyboard casting. To check clearance, depress various keys at each side of the keyboard and while holding each down try all other keys. It will be impossible to move keys where there is no clearance. Adequate clearance is indicated if it is possible to move every key a short distance before the key levers strike the selector bar combs.

REPLACE THE TAPE GUIDE TUBE

REPLACE THE TAPE CONTAINER.

97.

TAPE LEVER ADJUSTING CLAMP - FIG. 61. (The keyboard base cover should be removed to check this adjustment) Position the adjusting clamp so that there is a clearance of $1/4$ " plus or minus $1/32$ ", between the tape lever roller and the

tape roller, with the locking pawl touching the front of the bell hammer extension and the play of the bell hammer taken up in a direction away from the bell. (Make sure that the locking pawl bushing has no end play on shaft after clamping screw is tightened)

PLACE TYPING UNIT ON THE KEYBOARD BASE.

98.

CLUTCH THROW-OUT LEVER ECCENTRIC ADJUSTMENT - Fig. 60. Run motor and depress key levers slowly. Adjust the clutch throw-out eccentric so that the clutch trip off occurs and the cam assembly starts rotation when the locking lever fingers have just passed the knife edge of the lock loop. The trip off must take place before the key lever stroke is finished. Try all keys. If the trip off occurs too early the lock loop will obstruct movement of the locking levers or the knife edge will strike the tops of the locking lever fingers. If too late the keyboard action will be slow. When adjustment of the eccentric will not permit proper positioning of the locking levers at the time of trip off, shims should be added or removed as required between the universal bar brackets and the selector bar brackets.

99.

INTERMEDIATE PAWL ECCENTRIC ADJUSTMENT - Fig. 60. With the

clutch throw-out lever resting on the low part of the driven clutch member cam, adjust the intermediate pawl eccentric screw to lift the throw-out lever .002" from the surface of the driven member.

100. TRIP-OFF PAWL ECCENTRIC ADJUSTMENT - Fig. 60. Turn the trip-off pawl eccentric screw to its highest position. The screw in this position should prevent the trip-off pawl from passing the intermediate pawl toe when any key is depressed which will result in repeated printing of that character. Then turn the eccentric screw clockwise until the trip-off pawl will just pass the toe of the intermediate pawl upon operation of the key lever. Depress each key very slowly and if repeated characters result due to the slow key action turn the trip-off eccentric further in a clockwise direction to eliminate. TRY ALL KEYS.
101. TRIP-OFF PAWL STOP PLATE - Fig. 60. Position the stop plate to obtain .050" to .060" clearance between the toes of the intermediate and trip-off pawls, with the trip-off pawl against the stop plate and the front arm of the intermediate pawl against its eccentric screw.
102. TRIP-OFF PAWL SPRING TENSION - Fig. 69. The trip-off pawl

spring shall have the minimum amount of tension that will re-
turn the trip-off pawl quickly to the unoperated position.

103.

KEY LEVER SPRING TENSION - Unhook the trip-off pawl spring and
depress each key to position the selector bars before checking.
Send the key lever springs so that the levers will not operate
when a 15 gram weight is placed on the key top but will start
to move downward with a 20 gram weight on the key top. The
spacer bar should start to operate on 35 grams and not operate
on 20 grams.

104.

TAPE GUIDE TUBE ADJUSTMENT - Position the right hand end of the
tube $1/32$ " from the outside edge of the keyboard and fasten with
the clamping screws so that it aligns with the right tape guide.

105.

REST OR START-STOP CONTACT GAP - The printer range limits may be
shifted to some extent to new positions on the orientation scale
by increasing or decreasing the start-stop contact gap. In no
case should the gap be made less than .005" or more than .040".
The purpose of this adjustment is to match the range limits of
all keyboards. (If possible, check the keyboard being adjusted
against a keyboard known to produce normal range.)

the little boy, and he was the only one who was not

...and he was the only one who was not

...and he was the only one who was not

...and he was the only one who was not

...and he was the only one who was not

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...and he was the only one who was not

HANDBOOK FOR TELEPRINTER MAINTAINERS

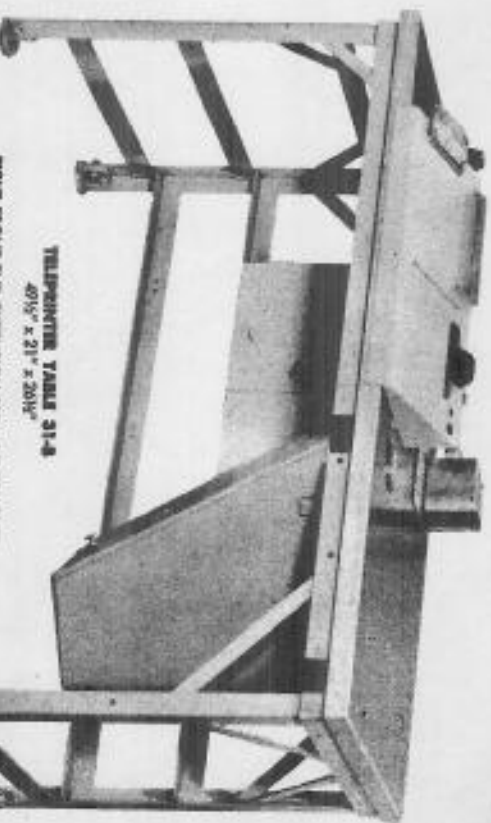
THE WESTERN UNION TELEGRAPH COMPANY

TELEPRINTER EQUIPMENT

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February 1, 1945

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TELEPRINTER TABLE 31-B

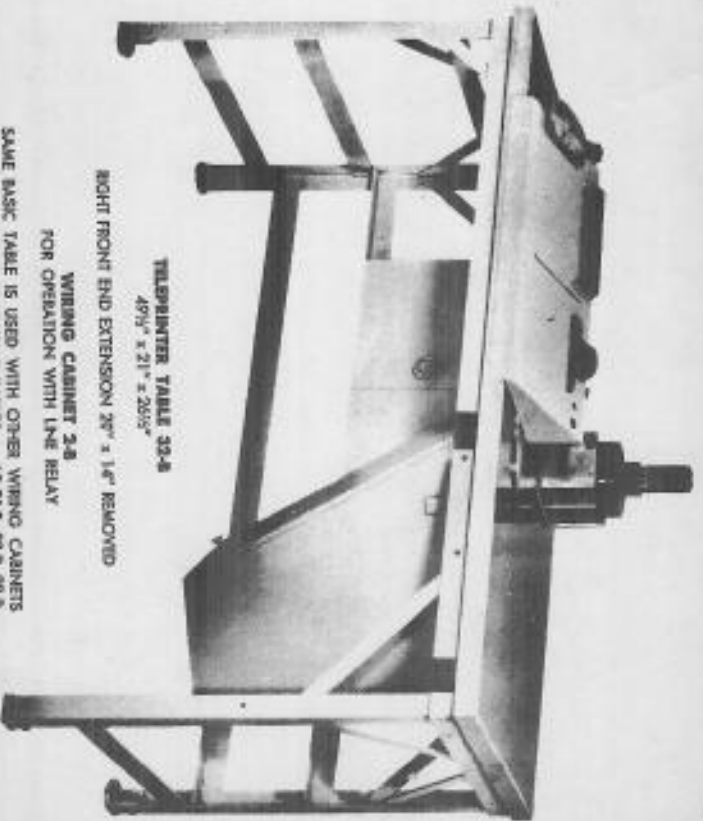
40 1/2" x 21" x 20 1/2"

RIGHT FRONT END EXTENSION 20" x 14" REMOVED

WIRING CABINET 1-A

FOR OPERATION WITHOUT LINE RELAY

SAME BASIC TABLE IS USED WITH OTHER WIRING CABINETS
TO FORM VARIOUS OPERATING TABLES. -- AS 32-B, 32-C, 32-D,
39-D, 39-A, 81-B, 82-A, ETC.



TELETYPEWRITER TABLE 32-B

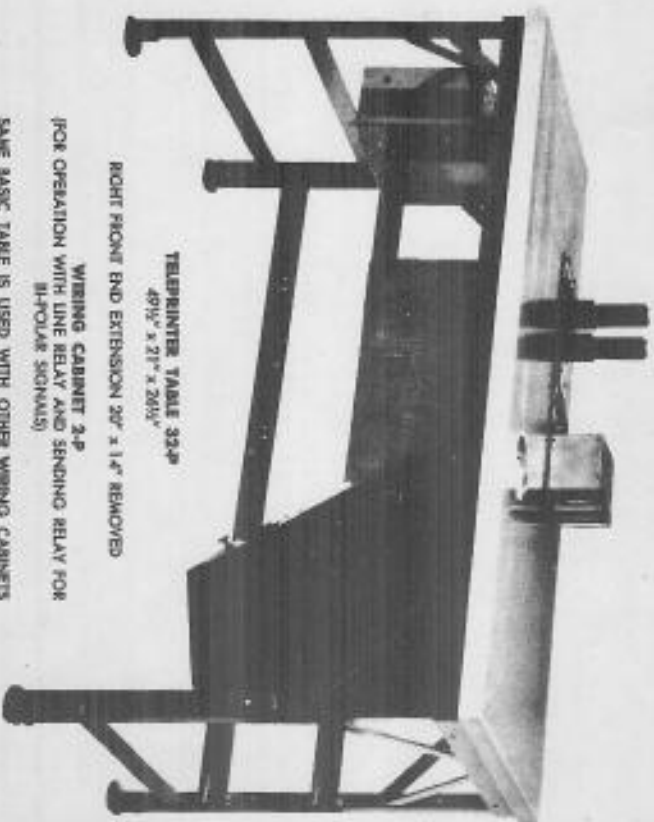
48 1/2" x 21" x 26 1/2"

RIGHT FRONT END EXTENSION 26" x 16" REMOVED

WIRING CABINET 2-B

FOR OPERATION WITH LINE RELAY

SAME BASIC TABLE IS USED WITH OTHER WIRING CABINETS
TO FORM VARIOUS OPERATING TABLES - AS 31-B, 32-F, 32-G,
39-D, 39-H, 81-B, 82-A, ETC.



TELEPRINTER TABLE 33-P

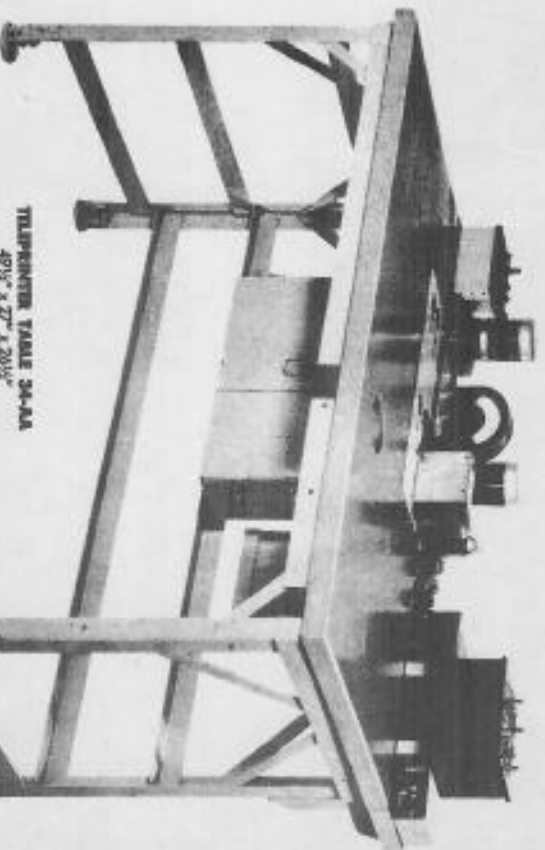
49 1/2" x 21" x 26 1/2"

RIGHT FRONT END EXTENSION 20" x 14" REMOVED

WIRING CABINET 3-P

(FOR OPERATION WITH LINE RELAY AND SENDING RELAY FOR
BIFOLAR SIGNALS)

SAME BASIC TABLE IS USED WITH OTHER WIRING CABINETS
TO FORM VARIOUS OPERATING TABLES. - AS 31-B, 32-A, 32-B,
32-C, 32-D, 32-E, 32-F, 32-G, 32-H, 32-I, 32-J, 32-K, 32-L, 32-M,



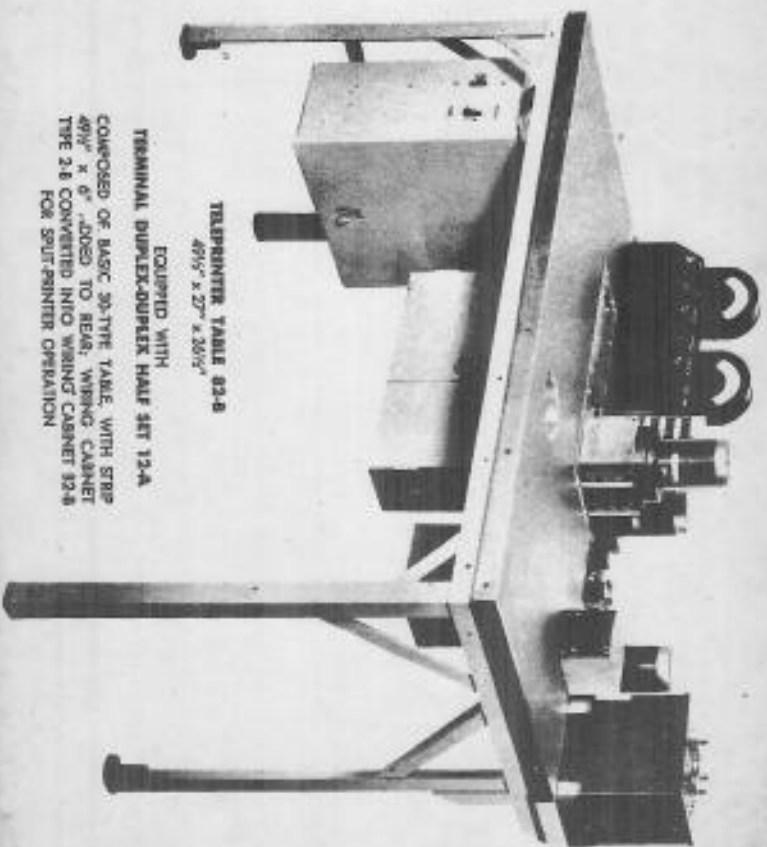
TELEPRINTER TABLE 34-AA

48 $\frac{1}{2}$ " x 27" x 20 $\frac{1}{2}$ "

FOR TELEPRINTER DUPLEX OPERATION

USED INSTEAD OF TABLES 34-A and 34-K

COMPOSED OF BASIC 30-TYPE TABLE, WITH STRAP 48 $\frac{1}{2}$ " x 6"
ADDED TO REAR, WIRING CABINET TYPE 1-B MODIFIED TO
ACCOMMODATE DUPLEX WIRING, ETC.



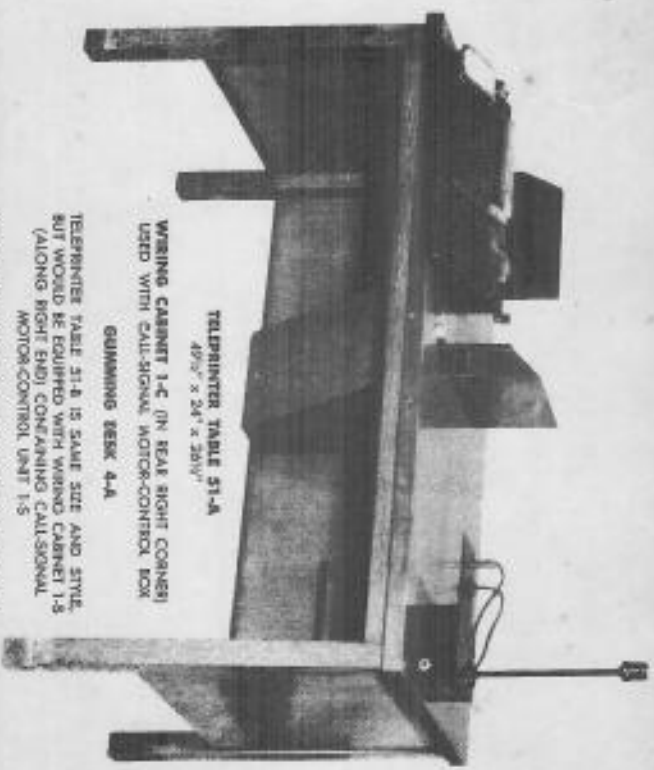
TELEPRINTER TABLE 82-B

49 1/2" x 27" x 36 1/2"

EQUIPPED WITH

TERMINAL DUPLEX-DUPLEX HALF SET 12-A

COMPOSED OF BASIC 30-TYPE TABLE WITH STRIP
49 1/2" x 6", ADDED TO REAR; WIRING CABINET
TYPE 2-B CONVERTED INTO WIRING CABINET 12-B
FOR SPLIT-PRINTER OPERATION



TELEPRINTER TABLE 51-A

49 1/2" x 24" x 28 1/2"

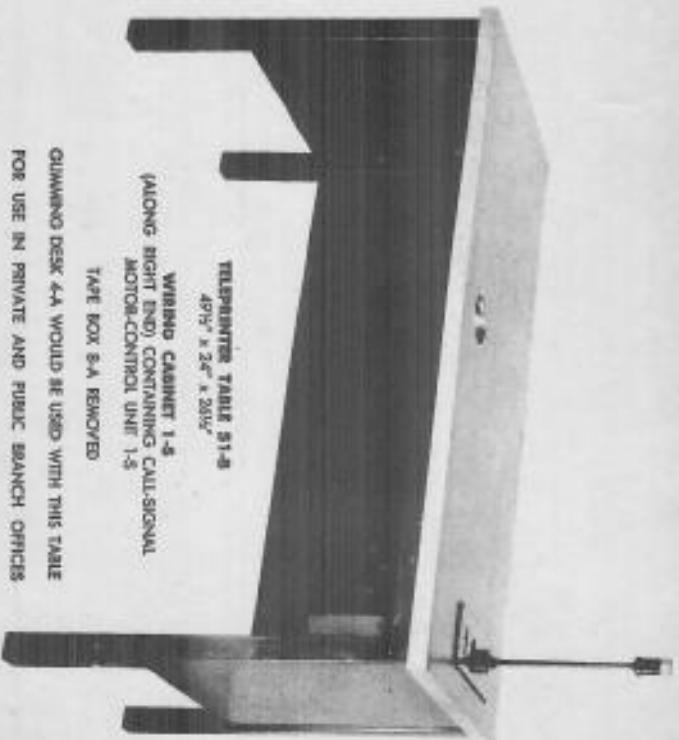
WIRING CABINET 1-C (IN REAR RIGHT CORNER)
USED WITH CALL-SIGNAL MOTOR-CONTROL BOX

GUMMING BECK 4-A

TELEPRINTER TABLE 51-B IS SAME SIZE AND STYLE,
BUT WOULD BE EQUIPPED WITH WIRING CABINET 1-B
(ALONG RIGHT END) CONTAINING CALL-SIGNAL
MOTOR-CONTROL UNIT 1-5

TELEPRINTER TABLE 52-A IS SAME SIZE AND STYLE,
BUT WOULD USE WIRING CABINET 2-B (REAR RIGHT);
TABLE 52-B WOULD USE WIRING CABINET 2-B

FOR USE IN PRIVATE AND PUBLIC BRANCH OFFICES



TELEPRINTER TABLE 51-B

47 1/2" x 34" x 28 1/2"

WIRED CABINET 1-S

(ALONG RIGHT END) CONTAINING CALL-SIGNAL

MOTOR-CONTROL UNIT 1-S

TAPE BOX 8-A REMOVED

QUINING DESK 4-A WOULD BE USED WITH THIS TABLE
FOR USE IN PRIVATE AND PUBLIC BRANCH OFFICES.

HAND TAPE
MOISTENER 1-B



CROSS-FILED TYPE (P2)
HAND TAPE MOISTENER



GUNNING DESK 3-A
ATTACHED TO TELEPRINTER COVER

TURNED UP - - NORMAL POSITION

(TABLE TAPE MOISTENER 3-A AT LEFT SIDE)



GUNNING DESK 3-A

ATTACHED TO TELEPRINTER COVER

TURNED DOWN - - FOR GUNNING TELEGRAMS

(TABLE TAPE MOISTENER 3-A AT LEFT SIDE)



GUNNING DESK (P2) 1-C

10 1/2" x 9 1/2"

TABLE TAPE MOISTENER 3-C



GUNNING DESK 4-A

17" x 9"

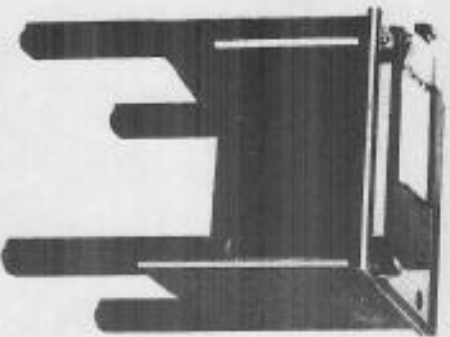
LESS TABLE TAPE MOISTENER 3-C



GUNNING DESK 3-A

20 1/2" x 9"

TABLE TAPE MOISTENER 3-C



TELEPRINTER TABLE (PT) 302-A

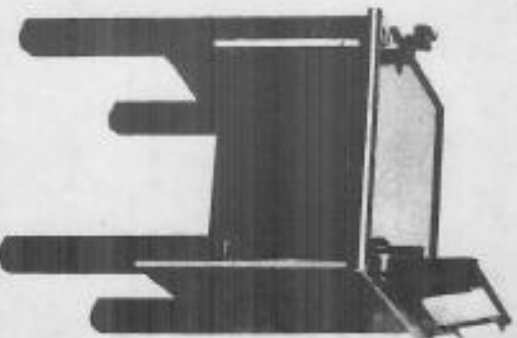
20" x 20" x 26"

WIRING PANEL 281-A

CUMMING DESK (PT) 311-A

(16 1/2" x 6 3/4")

IN POSITION FOR CUMMING TELEGRAMS



TELEPRINTER TABLE (PT) 302-A

20" x 20" x 26"

WIRING PANEL 281-A

CUMMING DESK (PT) 311-A

(16 1/2" x 6 3/4")

NORMAL POSITION

TELEPRINTER TABLE (PZ) 610-A

34" x 23" x 27"

GUMMING DESK (PZ) 1-C

(TABLE 610-C IS 20 1/2" x 23" x 27", DERIVED FROM TABLE 610-A BEING REDUCED IN LENGTH TO 20 1/2")

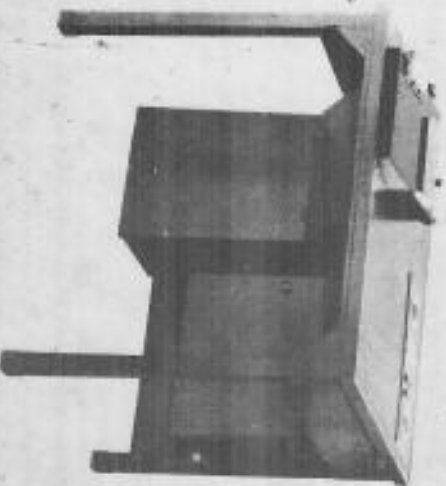
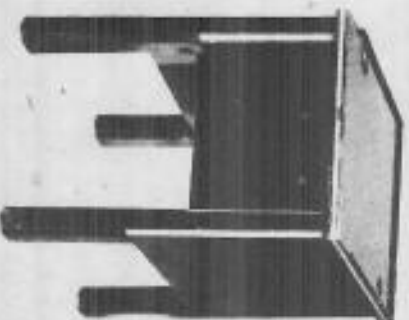
WHEN OPERATION WITH LINE RELAY IS REQUIRED, COVER PLATE 705-A IS REMOVED TO PROVIDE FOR MOUNTING PLATE 823-B, CONNECTING BLOCK 18-B, AND POLAR RELAY 215-A

TELEPRINTER TABLE (PZ) 302-A

20" x 20" x 26"

WIRING PANEL 281-A

LESS GUMMING DESK (PZ) 311-A
AS USED WITH PAGE TELEPRINTERS

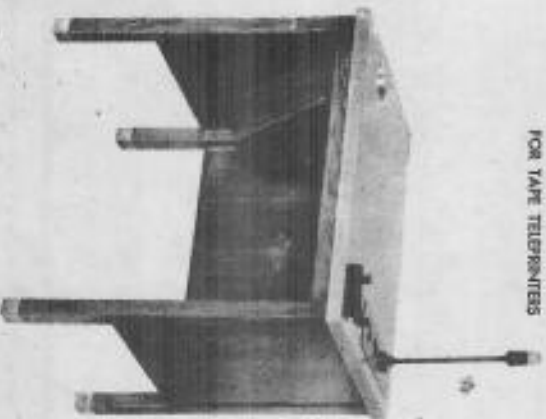


TELEPRINTER TABLE 41-A
30" x 20" x 26 1/2"

WIRING CABINET 1-5

FRAMEWORK, SMOOTH FURNITURE STEEL
TOP LINOLEUM COVERED

FOR TAPE TELEPRINTERS

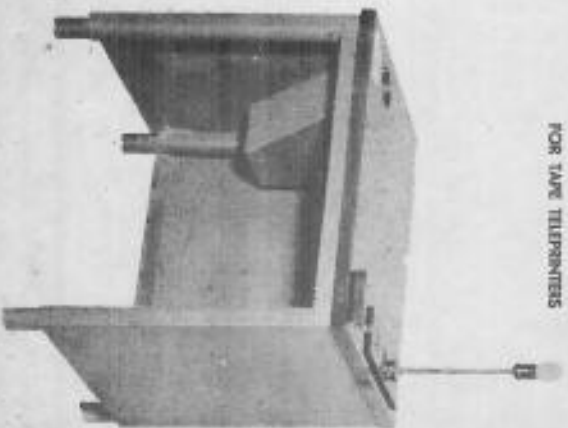


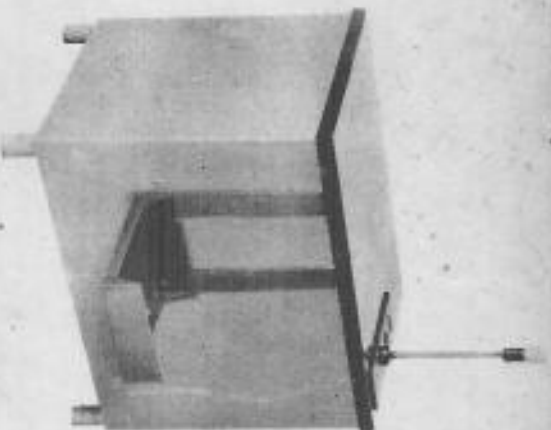
TELEPRINTER TABLE 141-A
30" x 20" x 26 1/2"

WIRING CABINET 1-5

CINKED FINISH FRAMEWORK
TOP COVERED WITH BLACK PHENOLIC FIBER

FOR TAPE TELEPRINTERS





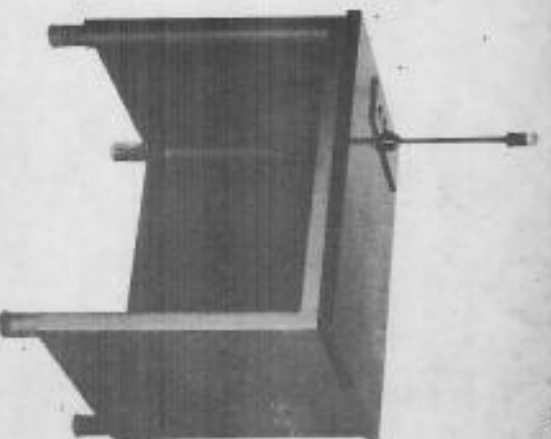
TELEPRINTER TABLE 101-A

30" x 20" x 26 1/2"
(REAR VIEW)

WIRING CABINET 29-A

CRINKLED FINISH FRAMEWORK
TOP COVERED WITH BLACK PHENOLIC FIBER

EQUIPPED WITH #11698 SPROCKET FEED PAPER HOLDER
ASSEMBLY, FOR SPROCKET FEED PAGE TELEPRINTERS
(NOT REQUIRED FOR FRICTION FEED TELEPRINTERS)



TELEPRINTER TABLE 101-A

30" x 20" x 26 1/2"

WIRING CABINET 29-A

CRINKLED FINISH FRAMEWORK
TOP COVERED WITH BLACK PHENOLIC FIBER

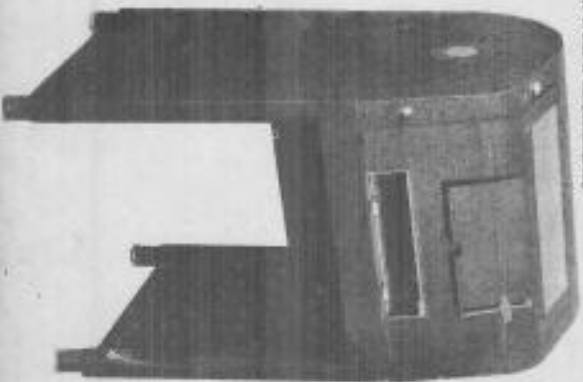
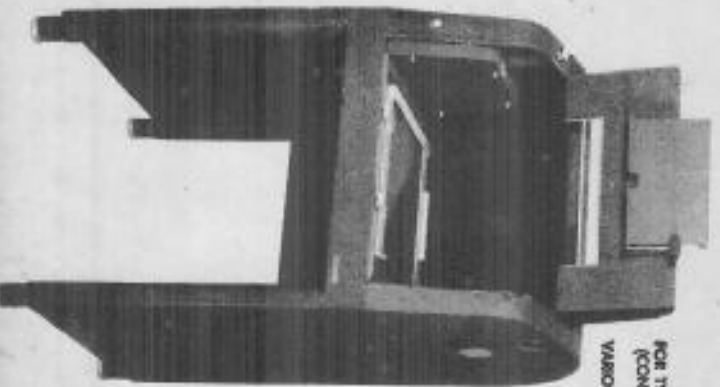
FOR PAGE TELEPRINTERS

TELEPINTER CONSOLE 1-C

24" x 21 1/2" x 40"

WIRING CABINET 30-A (LEFT HAND)
FOR REGULAR TELETYPE OPERATION

FOR TYPE-100 PAGE TELEPRINTERS, PUNCH-REED OPERATION,
(CONSOLE 2-A REQUIRED FOR SPROCKET-FEED OPERATION.)
VARIOUS WIRINGS OF LEFT HAND AND RIGHT HAND CABINETS
FOR SPECIAL REQUIREMENTS



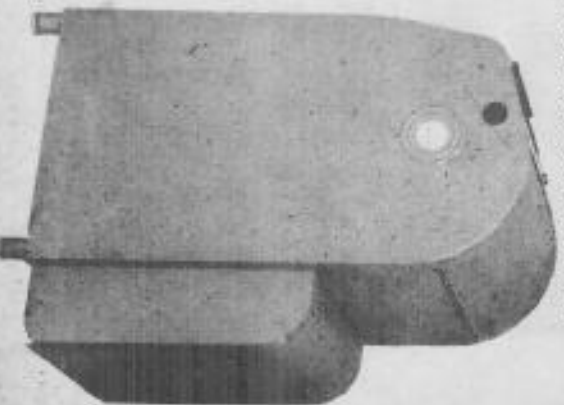
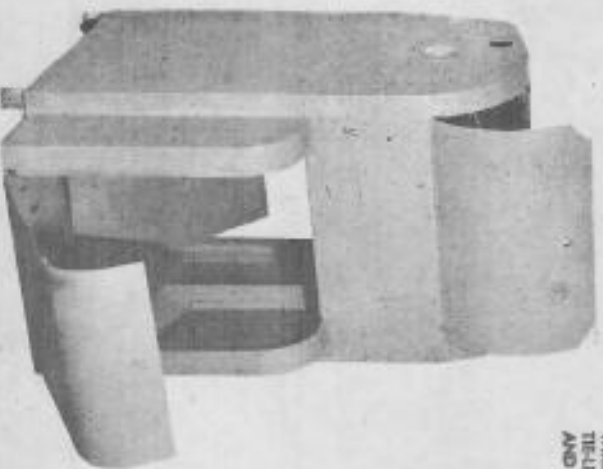
TELEPRINTER CONSOLE 2-A

24" x 21 1/2" x 40"

EXTENSION AT REAR 30" x 6" x 21 1/2"

FOR SPROCKET-FEED TYPE-100 PAGE TELEPRINTERS
(CONSOLS TYPE-1 USED FOR FRICION-FEED OPERATION)

WIRING CABINET 30-A (LEFT HAND) FOR REGULAR
TELETYPE OPERATION, VARIOUS WIRINGS OF LEFT HAND
AND RIGHT HAND CABINETS FOR SPECIAL REQUIREMENTS



TELEPRINTER TABLE T-201-A

40 1/2" x 24" x 20 1/2"

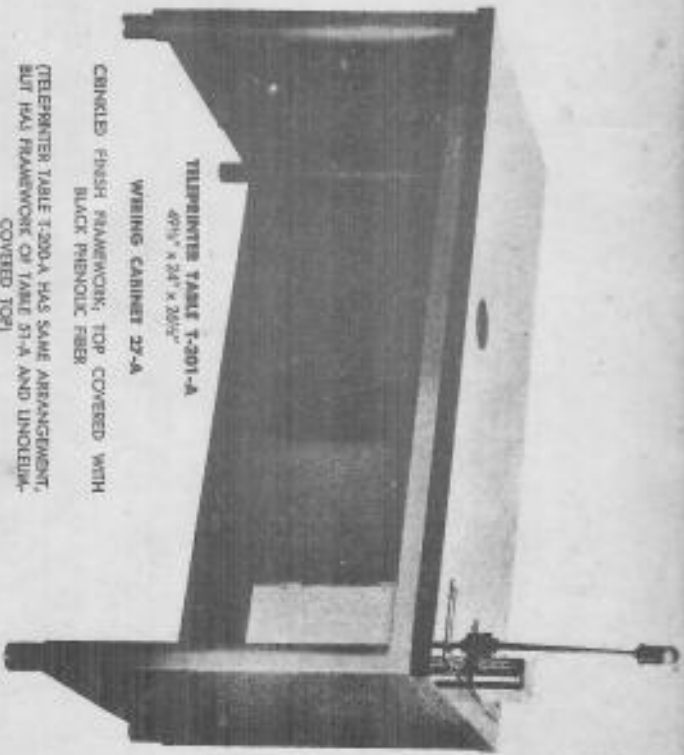
WIRING CABINET 27-A

CRINKLED FINISH FRAMEWORK, TOP COVERED WITH
BLACK PHENOLIC FIBER

(TELEPRINTER TABLE T-200-A HAS SAME ARRANGEMENT,
BUT HAS FRAMEWORK OF TABLE 37-A AND UNCLEM-
COVERED TOP)

(WIRING CABINET 47-A IS REQUIRED WITH CERTAIN
TYPES OF VARIOUS EQUIPMENT AND WOULD BE USED
WITH TELEPRINTER TABLE 202-7)

FOR TELETYPE SERVICE USING TAPE TELEPRINTERS





TELEPRINTER TABLE P-3031-A
49 1/2" x 24" x 26 1/2"

WIRING CABINET 37-A
GRAINED FINISH FRAMEWORK; TOP COVERED WITH
BLACK PHENOLIC FIBER

TELEPRINTER TABLE P-303-A HAS SAME ARRANGEMENT,
BUT HAS FRAMEWORK OF TABLE 51-A AND UNDERLUM-
COVERED TOP

(WIRING CABINET 44-A IS EQUIPPED WITH CERTAIN
TYPES OF VARIOFLEX EQUIPMENT AND WOULD BE USED
WITH TELEPRINTER TABLE 302-P)

FOR TELETYPE SERVICE USING PAGE TELEPRINTERS

FOR STENOIL 1857-B
HANDBOOK FOR TELEPRINTER MAINTAINERS

DESCRIPTION AND GENERAL INFORMATION

31-A 21" DEEP X 49 $\frac{1}{2}$ " LONG, WITHOUT SHELF. IF SHELF IS USED, IT BECOMES 35" DEEP AT A PORTION OF THE RIGHT HAND END OF THE TABLE. IT CONSISTS OF ANGLE IRON FRAMEWORK WITH TOP OF SOLID WOOD OR BROWN LINOLEUM OR WOOD BASE. TIME STAMP AND POWER RECEPTACLES MOUNTED IN TOP OF THE TABLE. THE TERMINAL BOX IS MOUNTED UNDER THE TOP BETWEEN THE LEFT-HAND END LEGS AND IS WIRED PER SPEC. 1822-D. THIS TABLE IS FOR TAPE PRINTER USE. CALL-SIGNAL MOTOR-CONTROL BOXES 1-A, 2-A, 3-A, OR 7-A MAY BE USED WITH THIS TABLE.

31-B SAME DIMENSIONS AND FRAME AS TYPE 31-A, BUT HAVING A BROWN LINOLEUM TOP ON WOOD BASE. A WIRING CABINET TYPE 1-B IS CUT INTO THE REAR CENTER OF THE TABLE. THIS CABINET HAS A 2-B JACK BOX, TIME STAMP OUTLET AND THREE POWER OUTLETS IN ITS TOP AND WIRED PER SPEC. 2480-A. THIS TABLE IS FOR TAPE PRINTER USE.

31-D SAME AS 31-B, EXCEPT POWER SWITCH RELOCATED TO TOP OF CABINET.

31-R SAME AS 31-B WITH RECTIFIER ADDED FOR USE ON CIRCUITS WHERE SELECTORS ARE USED.

32-A SAME DIMENSIONS AND CONSTRUCTION AS 31-A, BUT WIRED FOR OPERATION OF PRINTER COILS FROM LOCALS OF A LINE RELAY FOR USE ON LINE TOO LONG TO BE OPERATED WITH PRINTER COILS

DIRECTLY IN LINE CIRCUIT. THE DIFFERENCE BETWEEN THE A AND K TYPE IS THAT THE A IS USED WHERE THE POWER IS DC, AND THE K WHERE THE POWER IS AC, NECESSITATING THE GENERATION OF DC LOCALLY, EITHER BY MOTOR GENERATOR OR RECTIFIER. COVERED IN SPECIFICATIONS 1822-D.

32-B SAME DIMENSIONS AND CONSTRUCTION AS 31-B TABLE, USING 2-B WIRING CABINET, AND SERVING SAME PURPOSES AS 32-A, AND COVERED IN SPECIFICATIONS 2480-A.

32-D SAME TABLE AS 31-B, BUT USING 2-D WIRING CABINET WHICH DIFFERS FROM 2-B ONLY IN THE LOCATION OF POWER SWITCH, WHICH IS IN TOP OF CABINET 2-D.

32-P SAME DIMENSION AND CONSTRUCTION AS 31-B TABLE, BUT USING 2-P WIRING CABINET, WIRED PER DRAWING 87918. HAS LINE RELAY AND SENDING RELAY TO TRANSMIT BI-POLAR SIGNALS, FOR USE ON SINGLE CIRCUITS WHERE SATISFACTORY OPERATION MIGHT NOT BE OBTAINED FROM ORDINARY MAKE-AND-BREAK SIGNALS.

32-R SAME AS 31-B, BUT USING 2-R WIRING CABINET, WHICH IS A 2-D CABINET WITH A RECTIFIER.

NOTE: ANY OF THESE WIRING CABINETS, 1-D, 1-R, 2-D, AND 2-R MAY BE WIRED WITH A SELECTOR.

34-A 66" X 27" DEEP. MADE UP WITH ANGLE IRON FRAME WITH SOLID OR VENEER TOP WITH OR WITHOUT LINOLEUM SURFACE. HAS TWO RELAYS, MISCELLANEOUS SWITCHES, POWER AND TIME STAMP

OUTLETS, METER, RESISTANCE BOX, SOUNDER, POLE CHANGER KEY, AND CORPSELESS TABLE JACK BOX ON TOP OF TABLE. A TERMINAL BOX CONTAINING RESISTANCES, FUSES, AND TERMINAL BLOCK IS MOUNTED EITHER ON END OF TABLE OR BETWEEN CENTER LEGS. THIS TABLE USED WHERE AMOUNT OF TRAFFIC WARRANTS DUPLEX OPERATION. TABLES ARE WIRED ACCORDING TO SPEC. 1822-D. THE A TYPE IS USED WHERE DC POWER IS AVAILABLE FOR OPERATION OF TELEPRINTER MOTORS, AND THE K TYPE WHERE ONLY AC POWER IS AVAILABLE FOR MOTORS, AND DC IS FURNISHED BY EITHER MOTOR GENERATORS OR RECTIFIERS.

34-AA COMPOSED OF BASIC 30-TYPE TABLE, WITH STRIP 49 1/2" X 6" ADDED ALONG REAR FOR MOUNTING VARIOUS ITEMS OF DUPLEX CIRCUIT EQUIPMENT.

WIRING CABINET OF I-B TYPE USED TO ACCOMMODATE DUPLEX CIRCUIT WIRING. FREQUENTLY USED INSTEAD OF TABLES 34-A AND 34-K; IS WIRED PER DWG. 45,001.

41-A 20" DEEP X 30" LONG. IT HAS A BROWN LINOLEUM TOP ON WOOD BASE, AND METAL Banded EDGES. METAL FRAMEWORK OF FURNITURE TYPE CONSTRUCTION WITH IMITATION WOOD GRAIN FINISH IN OAK, WALNUT, MAHOGANY, OR PLAIN GREEN. THIS TABLE HAS A I-S WIRING CABINET, CONSISTING OF JACK, RELAY MOUNTING, SIGNAL LIGHT RECEPTACLE, PRINTER OUTLET, AND TWO SWITCHES. THE SWITCH ON THE SIDE OF CABINET CONTROLS THE POWER ONLY, AND THE OTHER SWITCH IN TOP OF CABINET CONTROLS SIGNAL AND OPERATING

SET-UP. THIS TABLE IS FOR TAPE PRINTER USE. THE CABINET I-S IS WIRED PER DWG. #38208. EITHER I-S, 2-S, OR 3-S RELAY UNIT MAY BE USED.

141-A 20" DEEP X 30" LONG. HAS A BLACK COMPOSITION TOP AND COMPOSITION BANDS ON A WOOD BASE. (IN A FEW CASES, A TYPE 41-A TOP HAS BEEN USED ON THIS TABLE.) THIS TABLE IS SIMILAR IN CONSTRUCTION TO 41-A, EXCEPT THAT THE LEGS ARE ROUND, AND THE TABLE HAS A TOBACCO BROWN CRINKLE FINISH. HOLES MUST BE DRILLED IN THE COMPOSITION TOP FOR CLEARANCE OF EQUIPMENT MOUNTING SCREENS. THE TYPE I-S WIRING CABINET IS USED. THIS TABLE IS FOR TAPE PRINTER USE.

51-A 24" DEEP BY 49 1/2" LONG. THIS TABLE IS OF SAME CONSTRUCTION AND FINISH AS THE TYPE 41-A TABLES. THIS TABLE MAY BE EQUIPPED WITH I-B OR I-C WIRING CABINET, - THE LATTER BEING A SMALL CABINET THE SIZE OF TYPE I-S AND IS WIRED PER DWG. #39342. THE I-C WIRING CABINET HAS TIME STAMP OUTLET, PRINTER OUTLET, ONE JACK AND ONE POWER SWITCH. THIS TABLE IS FOR TAPE PRINTER USE WITH CALL-SIGNAL MOTOR-CONTROL BOXES OF ANY OF THE TYPES USED WITH 31-A TABLES.

51-B 24" DEEP X 49 1/2" LONG. OF SAME CONSTRUCTION AND FINISH AS THE TYPE 41-A AND 51-A TABLE, BUT USES I-S WIRING CABINET. THIS TABLE IS FOR TAPE PRINTER USE.

HANDBOOK FOR TELEPRINTER MAINTAINERS

61-B
82-B

THESE TABLES HAVE SAME DIMENSIONS AND CONSTRUCTION AS 31-B TABLES, BUT ARE FOR USE IN "SPLIT PRINTER OPERATION" WHERE ONE LINE CIRCUIT IS USED ONLY FOR SENDING, AND ANOTHER LINE CIRCUIT IS USED ONLY FOR RECEIVING, BUT UTILIZING ONE TELEPRINTER FOR OPERATION OF THE TWO LINE CIRCUITS. THE 81-B TABLE, WIRED PER DWG. 56086, IS USED WITH LINE CIRCUITS THAT DO NOT REQUIRE A LINE RELAY; THE 82-B TABLE, WIRED PER DWG. 79069, IS FOR LONGER CIRCUITS REQUIRING A RELAY.

91-A

20" DEEP X 30" LONG. IT IS THE SAME CONSTRUCTION AND FINISH AS THE 41-A TABLE. THIS TABLE USES A 22-A WIRING CABINET ON THE LEFT END OF THE TABLE. THE WIRING CABINET HAS ONE JACK, ONE PRINTER OUTLET AND ONE POWER SWITCH. THIS TABLE IS FOR USE WITH 101-A TYPE PAGE PRINTER WHICH HAS CONTROL SWITCH AND RELAY MOUNTED IN IT, OR FOR OTHER TYPE PAGE PRINTER USING CALL-SIGNAL MOTOR-CONTROL BOXES. CABINET 22-A PER DWG. #56757.

101-A

20" DEEP X 30" LONG. THIS IS OF THE SAME CONSTRUCTION AND FINISH AS 141-A TYPE TABLE. IT USES A 29-A WIRING CABINET ON LEFT HAND END OF THE TABLE WIRED PER DWG. #79789, HAVING THE SAME CIRCUIT ARRANGEMENT AS CABINET 1-3. THIS TABLE IS FOR USE WITH TYPE 100 PAGE PRINTERS.

T-200

24" X 49 1/2" LONG. THIS TABLE IS OF SAME CONSTRUCTION AND FINISH AS THE 51-A TYPE TABLE. IT USES A TYPE 27-A WIRING CABINET PER DRAWING #61232 WHICH IS DESIGNED TO MOUNT IN

THE RIGHT HAND END OF THE TABLE. THIS CABINET IS EQUIPPED WITH POWER OUTLET, SIGNAL LIGHT OUTLET, POWER SWITCH, RELAY MOUNTING AND A PUSH BUTTON FOR THE SENDING SIDE. ALSO A POWER OUTLET AND POWER SWITCH ON THE RECEIVING SIDE, AND A CORDLESS TABLE JACK BOX FOR THE LINE CORDS OF BOTH PRINTERS. THIS TABLE IS FOR USE WITH TAPE PRINTERS ONLY ON OTHER THAN TYPE E VARIOPLEX CIRCUITS FOR TELEMETER.

P-200

24" X 49 1/2" LONG. SAME CONSTRUCTION AND FINISH AS TYPE 51-A TABLE. TWO HOLES ARE CUT IN THE TOP FOR PAPER LOOP. THIS TABLE USES A 37-A WIRING CABINET, PER DWG. 79082, WHICH IS WIRED AND EQUIPPED THE SAME AS A 27-A, BUT IS MADE UP FOR MOUNTING IN THE LEFT HAND END OF THE TABLE. THIS TABLE IS FOR USE WITH PAGE PRINTERS ON OTHER THAN TYPE E VARIOPLEX CIRCUITS FOR TELE-METER SERVICE.

T-201

THIS TABLE IS OF SAME DIMENSIONS AS TABLE T-200, BUT OF SAME CONSTRUCTION AS THE TYPE 141-A TABLE, AND HAS THE SAME WIRING CABINET FOR THE SAME USES AS TYPE T-200 TABLES.

P-201

THESE TABLES ARE OF THE SAME DIMENSIONS AS TABLE P-200, BUT OF THE SAME CONSTRUCTION AS THE TYPE 141-A TABLES, AND USE THE SAME WIRING CABINET FOR THE SAME PURPOSES AS THE TYPE P-200 TABLE.

THIS TABLE IS OF THE SAME DIMENSIONS AND FINISH AS T-201, BUT USES WIRING CABINET 43-A, PER DRAWING 585156 FOR USE WITH TYPE E VARIOPLEX ONLY. WIRING CABINET 43-A HAS TWO SIGNAL CIRCUITS ON EACH LEG USING RED AND GREEN LIGHTS WITH TWO RECTOX RECTIFIERS IN PLACE OF SINGLE SIGNAL CIRCUIT OF WIRING CABINET 27-A. THE CABINET IS MOUNTED IN RIGHT END OF TABLE, FOR USE WITH TAPE PRINTERS.

P-202 THIS TABLE IS OF THE SAME DIMENSIONS AND FINISH AS T-201, BUT USES WIRING CABINET 44-A, PER DRAWING 585167, IN CONJUNCTION WITH TYPE E VARIOPLEX. WIRING CABINET 44-A, WIRED THE SAME AS 43-A, IS DESIGNED FOR MOUNTING IN LEFT END OF TABLE FOR USE WITH PAGE TELEPRINTERS.

302-A ALL METAL TABLE, 20" X 20" X 28" HIGH; HAS SMALL METAL COMPARTMENT IN LEFT SIDE FOR WASTE TELEPRINTER TAPE; ANOTHER COMPARTMENT IN REAR RIGHT FOR MOUNTING PANELS FOR APPARATUS AND WIRING. STANDARD FINISH BLACK, WITH NARROW ALUMINUM BAND AROUND TOP AND DOWN FRONT LEGS. FOR USE WITH PAGE PRINTERS, OR WITH TAPE TELEPRINTERS EQUIPPED WITH GUNNING DESK 3-A, OR USING 311-A DESK; HAND TAPE MOISTENER 1-B WOULD BE USED.

610-A METAL FRAME AND TOP, COVERED WITH GREEN LINOLEUM; STANDARD FINISH "OLIVE" 1" X 34" LONG, 23" WIDE, 27" HIGH. DESIGNED FOR TAPE PRINTERS; USES GUNNING DESK 1-C; CROSS-FEED HAND TAPE MOISTENER SHOULD BE FURNISHED WITH THIS TABLE. WHEN OPERATION WITH LINE RELAY IS REQUIRED

COVER PLATE 705-A IS REMOVED TO PROVIDE FOR MOUNTING PLATE 823-B, CONNECTING BLOCK 18-B, AND POLAR RELAY 215-A. (610-C TABLE IS 610-A TABLE REDUCED IN LENGTH TO 20 1/2".)

CONSOLE 24" X 21 1/2" DEEP X 40" HIGH. OVERALL THE COVER OF THE PRINTER AND THE TABLE ARE 1-A OR 1-B IN ONE UNIT; ALL OF A TOBACCO BROWN CRINKLED FINISH. THIS UNIT WHEN USED

FOR TIE LINE SERVICE IS EQUIPPED WITH A 30-A WIRING CABINET, WIRED PER DRAWING 575144, WHICH IS SIMILAR TO THE 1-B WIRING CABINET, BUT WAS AN EXTRA JACK. THIS UNIT IS FOR PAGE PRINTER USE ONLY; THE 1-A CONSOLE ACCOMMODATING THE 101 OR 102 TYPE; THE 1-B CONSOLE PRIMARILY FOR 103 TELEPRINTER BUT MAY BE USED WITH 101 AND 102 TYPES WITH MINOR ADJUSTMENT OF RAILS IN CONSOLE.

CONSOLE 24" X 21 1/2" DEEP X 40" HIGH, BUT WITH AN EXTENSION AT REAR 20" X 6" X 21 1/2". SAME 2-A FINISH AND CONSTRUCTION AS 1-A AND 1-B

CONSOLES, BUT WITH THE BUILT-IN COMPARTMENT AT REAR FOR SPROCKET-FEED FANFOLD PAPER. USES SAME WIRING CABINET AS 1-A OR 1-B FOR TIE LINE SERVICE. CAN BE ADAPTED TO 101, 102, OR 103 TELEPRINTERS IN SAME MANNER AS 1-B CONSOLE.

NOTE: FOR SPECIAL SERVICES THESE CONSOLES MAY BE FINISHED IN DIFFERENT COLORS, AND MAY USE COMBINATIONS OF SEVERAL DIFFERENT KINDS OF WIRING CABINETS.