

SWITCHING SYSTEMS
MODEL 28 TELEPRINTER
INSTALLATION

These specifications cover the installation of the Model 28 Teleprinter and its various auxiliary components.

ENGINEERING BULLETIN REFERRED TO:

5338 Gear Sets for 404 OPM and 50.0 Bauds Operation

ENGINEERING CATALOG REFERRED TO:

57 Numerical Index of Teletype Specifications,
Teletype Bulletins and Western Union
Specifications associated with attachments
to Teletype Equipment.
92 Model 28 Teleprinter - Catalog of Parts

TELETYPE SPECIFICATIONS REFERRED TO:

5732 Installation of the Teletype Model 28 Printer
Set.

SPECIFICATIONS REFERRED TO:

7158 Improving the operation of printer circuits
(Theory).
9974 Way Station Selector 7066 - Installation and
Operation.
10252 Way Station Selector 7304 - Installation and
Operation.
11273 Motor Control Unit 8571-A and 9087-A - Installa-
tion and Operation
11545 Model 28 Teleprinter - Series "A" or Series "B"
Way Station Selector. ("AGL" Stunt Box)
11592 Model 28 Teleprinter - Send-Receive - Break
Mechanism - Installation and Operation
11667 Model 28 Teleprinter - Answer Back Set of
Parts 212099 - Installation and Adjustment
11703 Model 28 Teleprinter - Keyboard Switch 212436
Set of Parts and 164005 Modification Kit -
Installation

- 11705 Model 28 Teleprinter - Set of Parts 212112 - Auxiliary Contact for the Printer - Installation, Adjustment and Operation.
- 11725 Model 28 Teleprinter - Vertical Tabulation (W.U.) Basic Set of Parts 212130 - Gear and Disk Sets of Parts 212135 and 212141 and Transmitter Control Set of Parts 152303 - Installation and Adjustments.
- 11778 Model 28 Teleprinter - Local Page Feed Out Set of Parts 212411 - Installation, Adjustments and Operation.
- 11840 Model 28 Teleprinter - Line Feed Detector Set of Parts 174043 (Friction Feed Teleprinter) - Installation and Adjustment.
- 11841 Model 28 Receiving Only Teleprinter - Automatic Paper Feed Out Set of Parts 212420 - Installation and Adjustments.
- 11843 Line Feed Detector Set of Part 212432 for Sprocket Feed M-28 Teleprinter - Installation
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- 11974 Model 28 Set of Parts 212648 Keyboard Probe Contacts - Installation and Adjustments.
- 13215 Model 28 Teleprinter - Stunt Box - Theory of Operation, Installation and Maintenance.

DRAWINGS INCLUDED:

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- 171944-C-1 Model 28 Teleprinter - RO LB4/180 Base - Wiring
- 171948-D-1 Model 28 Teleprinter - Keyboard LK4 and LK12 - Wiring
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- 174169-D-8 Transmitting Panel 9102-A - Wiring (Old Type)
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234285-C-3 ✓ Equipment Shelf 9285-A - Schematic

234368-B-8 ✓ Transmitting Shelf 8582-A - Wiring

237023-B-2 ✓ Equipment Shelf 9285.1 - Wiring and Schematic
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307158-A-1 ✓ Keyboard Conversion From Type A to Type C
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310796-C-10 ✓ Stunt Box Function & Shift Mechanisms Component Chart

GENERAL

1 These specifications contain the necessary information for ordering and installing the Model 28 Teleprinter and associated equipment.

2 It is a general practice of Teletype Corporation to include installation specifications with each Modification Kit ordered from them. Wiring of these Modification Kits as used by Western Union will not necessarily conform with Teletype Wiring. Therefore, Western Union's Schematics or Wiring for the specific installation will govern.

3 The Model 28 Teleprinter and associated equipment will be broken down into the following categories:

- a. Typing Unit (LP)
- b. Keyboard (IK) and Receiving Only Base (LB)
- c. Cabinet (LAC)
- d. Electrical Service Unit (LESU) and Wiring Cabinet 9100
- e. Motor Unit (LMU) and Gear Sets
- f. Stunt Box
- g. Selectors
- h. Methods of Operation
- i. Special Tool for Installation

4 Typing Unit - (LP) - General.

There are two typing units currently being ordered.

The LP26 (old Model LP6) for friction feed and the LP38 (old Model LP9) for sprocket feed. A standard 8-1/2" width of paper, 6 vertical line feeds, 10 characters per inch (72 characters per line) and a left hand margin of 5/8" has been adopted for both friction and sprocket feed teleprinters. Refer to Drawing 174316 for other features of the printer.

TYPING UNIT - MODIFICATION KIT

5 Answer Back Mechanism. (1 Character)

A. S & R Teleprinter

- a. 212099 Set of Parts (IDP 518639)
- b. Equipment Shelf 9285.2 (IDP 265207)
- c. 159373 Modification Kit (IDP 590638) - Apparatus Mounting Rack (T.T. Specifications 5730). Order only when not already provided in the Model 28 Console.

B. RO Teleprinter

a. Old Unit - LD-1, LD-2

- (1) LP-1 (IDP 312868) used for 60 and 75 WPM operation
- (2) LP-2 (IDP 312876) used for 100 WPM operation
- (3) Necessary parts required:
 - (a) Cable with Connector 157156 (IDP 415463)
 - (b) Auxiliary "C" Terminal Block, S.D.P. 212125 (IDP 589456) Drawing 234246
 - (c) 153921 Modification Kit (IDP 412916) (for relocating keyboard "F" Connector) - T.T. Specification 5757

b. New Unit - LD-9

- (1) The LD-9 Distributor provides 60, 75 and 100 WPM operation
- (2) The Model 28 page printer set should be equipped with Keyboard LK3 and up or Base LB3 or LB4
- (3) Installation: T.T. Specification 50019

6 Answer Back Mechanism. (Multiple Character)

A. S & R or RO Teleprinter - Multiple Wire Distributors (LD) are used in a multiple character answer back system for sending and receiving or receiving only teleprinters, when used in conjunction with a Rotary Switch and Associated Circuitry.

7 Single or Multiple Character (LK6 and Up or LAK)

A S & R Teleprinter

- a. 172945 Modification Kit (IDP 668376)
- b. This kit provides Model 28 Keyboard LK6 and up and LAK (KBD of ASR Set) with a total 21 characters capacity answer back mechanism usable in attended or unattended service. This kit is not for Telex Application.
- c. Installation Teletype Specification 50006

8 Carriage Return - Line Feed - Automatic

- A 213236 Set of Parts (IDP 709816)
- B. The advantage of this Set of Parts over other Modification Kits (157514 Modification Kit, 152348 Modification Kit tc.) is that it requires no Stunt Box Function Mechanism or use of the Zero Code Bar. Thus the Stunt Box is free for other functions.
- C Installation: Western Union Specification 13433

9 Back Space Mechanism

A Local Back Space

- a. For Typing Unit (LP6) and Mark II Keyboard order the following:
 - (1) 152917 Modification Kit (IDP 410100) - This Kit will provide Local Backspace by moving the Type Box Carriage to the Left One Space at a time when the Associated Backspace Key Lever is actuated.
 - (2) 152918 Modification Kit (IDP 410118) - This Kit enables the Keyboard Mechanism to operate the Space Clutch Trip Lever on the Typing Unit.
- b. For Typing Unit (LP10 and Up) and Mark III Keyboard
 - (1) 157510 Modification Kit - Function Same As (a) of (1)
 - (2) 154146 Modification Kit - Function Same As (a) of (2)
- c. Installation: Teletype Specification 5766

B Remote Backspace

- a. Order the following Modification Kits:
 - (1) Local back space mechanism for Printer from Section A

- (2) Switch under Keyboard Lever - 164005 Modification Kit for Mark III or 164077 Modification Kit for Mark II
- (3) Manual Backspace Mechanism - 159363 (for Units equipped with Chadless Tape) or 178917 (for LPR equipped with fully Perforated Tape) Modification Kit.
- (4) 159364, 161304 or 162245 Modification Kits - This Kit when installed on a Model 28 Perforator or Reperforator provides a power drive for Manual Backspace Mechanism.

b. Installation: Teletype Specification 5534 and 5972

c. Installation: Teletype Specification 5766

10 Conversion of Friction Feed to Sprocket Feed

A. Modification Kits Required (One of each)

- a. 152316 (IDP 407957) - Common parts necessary for all widths of paper.
- b. 153926 (IDP 412924) - Adapt Model 28 Cabinet to handle superfold form stationary.

c.	Rubber Platen & Form Guide Modification Kit	IDP	Paper Tray	IDP	Pap r Width -(inch)
	153701	412288	153727	412486	9
	153702	412296	153726	412478	8-1/2
	153703	412304	153727	412486	8
	153704	412312	153726	412978	7-1/2
	153705	412320	153727	412486	7
	153706	412338	153726	412478	6-1/2
	153707	412346	153728	412494	6-3/8
	153708	412353	153729		6-1/4
	153709	412361	153727	412486	6
	153710	412379	153728	412494	5-3/4
	153711	412387	153726	412478	5-1/2
	153712	412395	153727	412486	5
	153713	412403	153726	412478	4-1/2
	153714	412411	153729		4-5/16
	153715	412429	153728	412494	4-1/4
	153716	412437	153727	412486	4
	153717	412445	153726	412478	3-5/8

B Installation - Teletype Specifications 5792

Not : The 159356 Modification Kit (Now included in the 152316 Modification Kit) replaces the 153771 through 153787 Guide Bracket on a Model 28 Sprocket Feed Typing unit. This kit permits the typed copy to be viewed as it is being typed.

11 Conversion of Sprocket Feed Printer to Friction Feed Printer.

A. 161441 Modification Kit

B. This kit is used to convert a Model 28 Teleprinter from sprocket feed to friction feed. This enables the typing unit to reliably feed continuous multi-copy paper.

C. Installation: Teletype Specification 5910

12 Horizontal Tabulation

A. For 10 spaces per inch (Standard spacing)

- a. 154781 Modification Kit (IDP 413732)
 - (1) Horizontal Tabulation Part 152903
 - (2) Horizontal Tabulation Transmitter Control Part 164476 (154780 Old Unit)

b. This kit for use with LK4 with IP4 through LP9 inclusive

B For 10 spaces per inch (Standard Spacing)

- a. 157535 Modification Kit (IDP 416164)
 - (1) Horizontal Tabulation Parts 157526
 - (2) Horizontal Tabulation Transmitter Control Part 164476 (154780 old unit)

b. This kit for use with LP10 and up.

C. For 12 spaces per inch. (Modification Kit 154792 - IDP 413740)

- a. 163175 Modification Kit (IDP 674910)
- b. This kit for use with LP10 and up.

D Horizontal tabulation is coded for "Upper Case G." If the horizontal tabulating function is desired on any other character, order a universal function bar 153440 and code it as desired. An appropriate key lever assembly must also be ordered separately. (See Bulletin 1164)

E. Installation: Teletype Specifications 5864.

13 Line Feed Detector For Sprocket Feed Printer

A. 212432 Set of Parts (IDP 593616)

B. This Set of Parts consists of:

- a. 154756 Set of Parts (IDP 413724) - Form Out Alarm
- b. 211905 Function Mechanism (IDP 518191)
- c. 211909 Function Mechanism (IDP 518233)
- d. 211920 Function Mechanism (IDP 518340)
- e. 212242 Contact Assembly (IDP 518936)

C. When Set of Parts 212432 is installed in a Model 28 Teleprinter, it will indicate that:

- a. The printer has at least 12" of Fanfold paper available for printing.
- b. The printer has received a line Feed Signal and the Line Feeding Mechanism has been properly actuated.

D. Installation: Western Union Specifications 11843

14 Line Feed Modification

A. Teletype Modification Kit:

a. 154742 Modification Kit (IDP 413641)

- (1) This kit converts Model 28 LP38 Typing Unit from standard 6 line feeds per inch to 8 line feeds per inch.
- (2) This kit also provides 4 line feeds per inch when printer is set for double line feeding.
- (3) 8 lines per inch is not recommended for use with standard type because of over printing.
- (4) Installation: Teletype Specification 5854

b. 154797 Modification Kit

- (1) This kit provides Model 28 Typing Unit with a triple line feed (2 lines per inch)
- (2) Installation: Teletype Specifications 5882.

B. Western Union Set of Parts. - Remote Line Feed Control

a. 212722 Set of Parts (IDP 661777)

b. This set of Parts consists of:

- (1) 212725 Set of Parts (IDP 680603) - line feed actuator

- (2) 212730 Set of Parts (IDP 680637) - line feed relay control box. Refer to Drawings 196259 and 207732.

c. Installation: Western Union Specifications 13169.

15. Motor Control Unit

A For information only. Not recommended for Western Union use -

- a. 152718 Modification Kit (IDP 409342)
(1) This kit enables the motor to stop by depressing the "H" key lever while the type box is in the Figure position.
- b. 152719 Modification Kit (IDP 409359)
(1) This kit enables the motor to stop by depressing the "M" Keylever.
- c. These modification kits when installed on Model 28 Typing Unit LP6 and LP9 are used in conjunction with the 151400 (IDP 405340) electrical motor control mechanism of the printer to stop and start the motor, and must be mounted on Teletype LESU.
- d. Installation: Teletype Specifications 5671.

B Western Union Set of Parts

- a. 8571-A IDP 305516
b. 8571.1-A IDP 305524
c. 9087-A IDP 305532
d. 9087.1-A IDP 644229
e. 10461-A IDP 669960
f. 10740-A IDP (For ASR SET)
g. Installation: Western Union 11273

16. Stunt Shift Control

A. On Line Shift Control

- a. For LP6 and LP9
(1) 152337 Modification Kit (IDP 408021)
(2) This kit when installed in Model 28 Typing Unit equipped with the "O" Code Bar and Bell Crank and 152810 Stunt Box provides suppression of printing and suppression of Line Feed, Fig Shift, and LTRS Shift from a remote station on the Signal Line.

- b. For LP10 and UP
 - (1) 157509 Modification Kit (IDP 696062)
 - (2) This kit provides facilities for suppression of printing and suppression of Line Feed, Fig Shift and LTRS Shift from a remote station on the Signal Line.

c. Installation: Teletype Specification 5823

B. Off Line Shift Control

a. 152345 Modification Kit (IDP 408070)

b. This kit when installed on a Model 28 LP6, LP8 and LP9 equipped with the facilities provided by the 152337 Modification Kit, provides a Off Line Shift Control by means of a Local Switch.

c. 211645 Set of Parts (IDP 517334) is required to modify the 152345 Modification Kit where the Model 28 Typing Unit also has a Page Feed Out Mechanism.

d. Installation: Teletype Specification 5823
Western Union Specification 10912

17 Page Feed-Out Mechanism

A. Sprocket Feed Printer (LP38)

a. 153907 Modification Kit (IDP 412874)

b. This kit consisting of:

- (1) 152302 Modification Kit (IDP 407908) provides page feed-out on "Z" ("SC UC Z") when page feed-out is desired on other character order 153440 (IDP 411348). Uncoded Function Bar coded as desired and a 157359 (IDP 416065) Key1 ver.
- (2) 152303 Modification Kit (IDP 407916) provides XTR Control.

c. Modification Kit for Gear and Disk Set (one required)

Form Length inches	Modification Kit (Gear & Disk)	IDP
7 $\frac{1}{2}$, 15	153927	412932
3 $\frac{1}{2}$, 7, 14	153928	412940

6-1/2, 13	153929	412957
3, 6, 12	153930	412965
5-1/2, 11	153931	412973
5, 10	153932	412981
9-1/2	153933	412999
4-1/2, 9	153934	413005
4-1/4, 8-1/2	153935	413013
2, 4, 8	153936	413021
3-2/3, 7-1/3, 14-2/3	161140	423087
3-1/4, 6-1/2, 13	161141	423095
4-1/4	164317	

- d Template 153811 (IDP 412676) and 153812 (IDP 412684) are required for modifying typing units that are not provided with two required holes as designated in Specifications 5751 Fig. 1.

Installation: Teletype Specifications 5751

Note: When Vertical Tabulation Modification Kit installed on Model 28 Sprocket Feed printer; it provide Page Feed Out and Vertical Tabulation - See under Vertical Tabulation.

B. Friction Feed Printer (LP26)

- a. 155764 Modification Kit (IDP 604744)
- b. This kit consisting of:
- (1) 155763 Modification Kit (IDP 601385) provides page feed out on "Z" ("SC UC Z") when page feed out is desired on other character order 153440 (IDP 411348) Uncoded Function Bar coded as desired and a 157359 (IDP 416065) Keylever.

Note: It is not recommended that multiple copy friction feed form be used due to slippage problems.

- (2) 152303 Modification Kit (IDP 407916) XTR Control

- c. Modification Kit for Gear and Disk Set. (one required)

Form Length inches	Modification Kit (Gear & Disk)	IDP
5-1/2, 11	155765	610980
2, 4, 8	161767	423459

- d. Templates 153811 (IDP 412676) and 153812 (IDP 412684) are required for modifying typing units that are not provided with two required holes as designated in Specifications 5751S. Fig. 1.
- e. Installation Teletype Specifications: 5751S.

C. Local Page Feed-Out

- a. 212411 Set of Parts (IDP 593566)
- b. The 212411 Set of Parts expands the use of 153907 Modification Kit (IDP 412874). It provides for "Off-Line" in addition to "On-Line" operation of the 153907 Modification Kit (IDP 412874).
- c. Installation Western Union Specification: 11778-A

D. Local Page Feed-Out on RO

- a. 160886 Modification Kit
- b. This kit provides Model 28 RO Unit with a local Page Feed-Out Mechanism
- c. Installation Teletype Specification 5890.

E. Automatic Paper Feed-Out on RO

- a. 212420 Set of Parts (IDP 593574)
- b. This set of parts provides automatic paper feed-out on a Model 28 Receiving Only Teleprinter which can be controlled from a timer at a remote location. (Note: Timer Not Provided)
- c. Installation Western Union Specification 11841-A . Appendix No. 1.

F. Three-Character Sequential Page Feed-Out

- a. 212641 Set of Parts (IDP 597575)
- b. Set of Parts 212641 three-character sequential page feed out, provides the Model 28 Teleprinter, which has been equipped with a page feed-out set of parts, with a method for actuating the page feed-out mechanism upon receipt of a designated three character sequential signal. This Set of Parts is also capable to operate upon receipt of a one-character or two-s sequential character signal.

No. 16
11753-B

c. This Set of Parts is incompatible with the 152350
Key-board Lock Set of Parts.

d. Installation: Western Union Specification 13036

Note: When Page Feed-Out and Vertical Tabulation is
required order a set of Vertical Tabulation
Modification Kit which Page Feed-Out is included

18 Paper Out Contact for Friction Feed Printer

A. 159366 Modification Kit (IDP 608125)

B. This kit provides a paper out device to close an electrical
contact when the supply of paper is almost depleted.
The kit can not be used with a Model 28 typing unit
equipped with any of the following modification kits.

<u>Modification Kit</u>	<u>IDP</u>	<u>Description</u>	<u>Specifications</u>
152302	407908	Page Feed-Out	5751
152303	407916	Transmitter Control	5751
152340	408047	Permit use of Multi- Copy Paper	5765
152345	408070	Off Line Stunt Shift Control	5789
152915	-	Local Reverse Line Feed	5823
154743	-	Manual Selection of Stunt Box Operation	5800
159362	-	Locate Narrow Roll of Paper Centrally	

C. Installation: Teletype Specifications 5888.

19 Platen Manual Line Feed

A. 163947 Modification Kit (IDP 642959)

B. This kit provides an improved Platen manual line feed which
is easier to operate and less subject to cause fingernail
damage.

C. Installation: Teletype Specifications 5949.

20 Print Suppression DC Magnet Operated

A. 163183 Modification Kit (IDP 642967)

- B. This kit provides suppression of printing on all typing units equipped with the 157509 "On Line" stunt shift control modification kit. (Note: LP6, 9, 26 and 38 are equipped with 157509)
- C. Magnet operates from 48 Volt DC or with a 2000 ohm resistor from 120 Volt DC is required.
- D. Installation: Teletype Specification 5946

21 Reverse Line Feed

A. Off Line Operation (Local)

- a. LP4 and LK4
 - (1) 152915 Modification Kit For Typing Unit
 - (2) 152916 Modification Kit (For Mark II Keyboard LK4) (IDP 410092)
- b. LP10 and up and LK6 and up.
 - (1) 157511 Modification Kit for Typing Unit
 - (2) 154145 Modification Kit (For Mark III Keyboard LK6 and up.)
- c. Installation: Teletype Specifications 5765

B. On Line Operation

- a. 161280 Modification Kit (IDP 643510)
- b. This kit provides on-line operation and should be installed in a Model 28 Typing Unit equipped with the local reverse line feed modification kit and having No. 39 and No. 41 Slots left vacant.
- c. Installation: Teletype Specifications 5898.

22 Spacing Mechanism

A. 12 characters per inch.

- a. 154792 Modification Kit (IDP 413740)
- b. This kit converts Model 28 Typing Unit from standard 10 characters per inch spacing to 12 characters per inch.
- c. "Elite" Gothic type pallet arrangements are used with 12 characters per inch.

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B 8 characters per inch

a. 163292 Modification Kit

C 6 characters per inch

a. 159365 Modification Kit

b. This kit provides 6 spaces per inch horizontally and is not for use with the (IDP 410100) 152917 Local Backspace or 152903 Horizontal Tabulator Modification Kit (IDP 590406)

D 5 characters per inch

a. 154755 Modification Kit

b. When installing this kit on Model 28 Typing Unit already equipped with 5 characters per inch, the unit must be equipped with the 150091 Gear (27T) (IDP 400507) and 150202 (18T) (IDP 401034) rather than the 153883 (33T) Gear and 153884 (11T) pinion.

E Installation: Teletype Specifications 5872.

Note: When large Gothic Type Pallets is used order 154334 Modification Kit to provide increased ribbon height during printing.

23 Superfold Friction Feed Paper Handling

A 154798 Modification Kit (IDP 637108)

B The 154798 Modification Kit when installed on a Model 28 Friction Feed (LP6, LP26) Typing Unit permits using single copy superfold paper.

C. The Paper used can be of any width from 4 to 8-1/2 inch

D. Installation: Teletype Specifications 5913.

24 Timing Contact Mechanism

A Open Line Stop Contact Mechanism

a. 176421 Modification Kit (IDP 659243):
(1) 174439 Modification Kit (IDP 712612)
(2) 174451 Cam (IDP 703645)

B. Off Normal Contact Mechanism

- a. 176420 Modification Kit (IDP 701060):
 (1) 174439 Modification Kit (IDP 712612)
 (2) 174450 Cam (IDP 703652)

C. The 176421 or 176420 Modification Kit when installed on a Model 28 LP Unit provides a Set of Make-Break Transfer Contacts which operate on every selector cycle.

D. Installation: Teletype Specification 5953

25 Type Boxes ASM

A. Modification Kits

<u>Modification Kit</u>	<u>IDP</u>	<u>Teletype Code</u>	<u>Style of Type</u>	<u>W.U. Code</u>
151937	407239	"RD"	Murray	Weather
153139	410357	"RJ"	Murray	C
153508	411496	"RS"	Murray	A
**155705	414243	"XD"	Elite Gothic	A
**155706	414250	"XE"	Elite Gothic	C
155710	414268	"XJ"	Murray	U.S.A.F.
*160999	422998	"XP"	Large Gothic	C
*161081	423004	"YG"	Large Gothic	
**162056	423467	"XZ"	Elite Gothic	U.S.Steel
*164218		"YJ"	Large Gothic	

*Use with 154755 or 159395 Modification Kit to provide 5 and 6 spaces (horizontally) per inch respectively.

**Use with 154792 Modification Kit to provide 12 spaces (horizontally) per inch.

B. Refer to Engineering Catalog 92 for other Type Boxes.

26 Type Box Alignment Mechanism

A. 152502 Modification Kit (IDP 408617)

B. This modification kit provides a means for adjusting the type box in its carriage to eliminate unequal character impression from top to bottom.

C. Typing Units with Serial No. 17000 and up are factory equipped with this feature. Typing units with serial number below 1500 require the 153810 (IDP 412668) ribbon guide in addition to the 152502 Modification Kit.

D. Installation: Teletype Specification 5830.

27 Universal Contact

A For LP Unit

- a. 154785 Modification Kit (IDP 676429)
- b. This modification kit provides a Model 28 Typing Unit with a make-before-break universal contact that operates during each function cycle.

B. For Stunt Box

- a. 163146 Modification Kit (IDP 603365)
- b. This modification kit when installed on the stunt box of Model 28 Typing Unit LP6 and up or a Model 28 Sequence Selector Unit LS1 provides a set of heavy duty make-break universal contacts which operate every cycle contact.

C. Installation: Teletype Specification 5804

D. With 2 contacts

28 Vertical Tabulation

A. Western Union Set of Parts

- a. 212130 Set of Parts (IDP 518729) - Basic Parts
- b. Gear and Disk Sets: (one required)

<u>Form Length</u> in <u>Inches</u>	<u>Gear & Disk</u> <u>S.O.P.</u>	<u>IDP</u>
5-1/2, 11	212135	518829
3, 5, 7-1/2, 15	212141	580936

- c. 152303 Modification Kit required when transmitter control is used.

d. Installation: Western Union Specification 11725

Notes:

1. Typing Unit must be equipped for Standard Six Line Feed Per Inch.
2. Six Tap Stop Plates 212140 (IDP 518878) are provided. Order seperately when additional TAP Stops are required.

B. Teletype Modification Kit.

a. 154770 Modification Kit (IDP 708248) consisting of:

- | | | |
|------|--------|--|
| (1) | 154771 | Modification Kit - Basic parts for Vertical Tabulation with Page Feed Out. |
| *(2) | 157530 | Modification Kit - Stunt Box Parts for UC. Z Selection |
| *(3) | 176569 | Modification Kit - Stunt Box Parts for UC. J Selection |
| (4) | 157948 | Key Lever F.O. Z |
| (5) | 158447 | Key Lever F.O. J |
| (6) | 160576 | Stripper Slide |
| (7) | 160577 | Stripper with Stud |
| (8) | 162728 | Line Feed Slide |
| (9) | 162729 | Bar |
| (10) | 163535 | Modification Kit - Provides Parts for XTR. Control. |

*Either of these Kits can be replaced with Set of Parts 211906.

b. Gear and Disk Sets. (Order One)

- (1) Typing Unit must be equipped for standard six LF per inch.

- (2) Form
Length
Inches

Modification Kit

8, 4, 2	154760
8-1/2	154761
9, 4-1/2	154762
9-1/2	154763
10, 5	154764
11, 5-1/2	154765
12, 6, 3	154766
13, 6-1/2	154767
14, 7, 3-1/2	154768

7-1/2, 15
**4-1/4

154769
176617

**This gear and disk set can only be used on typer especially equipped for 4LF per inch. Modification Kit 154742 per Teletype Specification 5954 is used for this conversion.

C For Transmitter Control:

- a. Modification Kit 163535 (part of Modification Kit 154770) provides the clutch control contact for stopping an associated Transmitter Distributor while a form is being advanced, for Vertical Tabulation or Page feed out.
- b. When a Transmitter Distributor LXD. is used, it must be equipped with a Modification Kit 156773 (FIGS or LTBS reading mechanism) and associated Teleprinter must be equipped with Modification 163518 (or Western Union sets of parts 212243 and 212244 coded for the tab function). These kits are used when only one "Throw-away" character is inserted after the tabulation code combination. If two "Throw-away" characters can be used, there is no need for any of these kits.
- c. As an alternative method to accomplish the "single throw-away character" feature. The mechanisms in (3b) are not required, instead advance contact mechanisms may be installed in stunt box for vertical tabulation function and Page feed-out function. Order the following:

2 S.O.P. 212248 Drawing 188191
1 S.O.P. 212242 Drawing 177838
1 S.O.P. 212244 Drawing 184695

D. Installation: Teletype Specification 50004

29 "Zero" Code Bar and Bell Crank for Selective Calling

- A. 153945 Modification Kit (IDP 413039)
- B. This kit when installed on Model 28 Typing Unit LP6 or LP9 provides the "C" Code Bar and Bell Crank for selective calling.
- C. Installation: Teletype Specification 5788

30 Keyboard and RO Base - General.

There are two types of Keyboard (Mark II - LK3, LK4, LK5, LK7 and Mark III - LK6, 8 and up) and RO Base (Mark II and Mark III) currently being ordered. For various basic

features of the units see Drawing 174316-8.

KEYBOARD AND BASE MODIFICATION KITS:

31 Blank Key Disabler

A. 151848 Clip (IDP 406900)

B. This clip is mounted on the keyboard and when rotated 180 degrees falls into the First Slot of the 154086 Locking Wedge Retainer to provide blank key disabling. The clip is shown on page 1-8 of Engineering Catalog 92.

32 Conversion of Keyboard and Type Box Arrangement.

A. Convert Type A to Type C.

a. Keyboard Conversion - 213104 Set of Parts (IDP 701235)

b. Type Box Conversion - 213106 Set of Parts (IDP 701250)

c. Refer to Drawings:

307158-1 Keyboard Set of Parts 213104
307160-1 Type Box Set of Parts 213106

B. Convert Type C to Type A.

a. Keyboard conversion - 213105 Set of Parts (IDP 701243)

b. Type Box Conversion - 213107 Set of Parts (IDP 701268)

c. Refer to Drawings:

307159-1 Keyboard Set of Parts 213105
307161-1 Type Box Set of Parts 213107

33 End-Of-Message Character Generator

A. 164502 Modification Kit (IDP 646687) - Late Design

B. This kit provides Model 28 LK keyboard and ASR Set of Keyboard Base with an End-Of-Message Character Generator.

C. The 173122 Modification Kits should be used to eliminate interference between components of the 164502 Modification Kit (Early Design) and the code bar reset balls.

D. Installation: Teletype Specifications 5954

34 Keyboard Probe Contacts And Bell Crank

- A. 212648 Set of Parts (IDP 592709)
- B. The 212648 S.O.P. include two contacts assemblies. One set of contact is normally open and the other set is normally closed. These contact assemblies are used as probe contacts to perform special functions in various switching systems.
- C. Installation: Western Union Specifications 11974-A and Drawing 191316-3

35 Keyboard Switch

- A. Western Unit Set of Parts
 - a. 212436 Set of Parts (IDP 682443)
 - b. This set of parts provides one micro switch assembly for a special function required for one of the following positions, 4, 6, 7, 8 or 9 located on the fourth (top) row of the Model 28 Keyboard. A designation plate should be ordered with each 212436 Set of Parts (See Drawing 190800).
 - c. Installation: Western Union Specification 11703
- B. Teletype Modification
 - 1. Mark II Keyboard
 - (a) 164077 Modification Kit
 - (b) This kit provides an electrical switch which can be used under any or all keys in the Keyboard.
 - (c) Installation: Teletype Specifications 5972
 - 2. Mark III Keyboard
 - (a) 164005 Modification Kit (IDP 681767)
 - (b) Function same as B-b.
 - 3. Installation: Teletype Specifications 5972

36 Local Back Space Mechanism.

See back space mechanism under typing unit section.

37 Local Reverse Line Feed Mechanism.

See Reverse Line Feed under Typing Unit Section.

38 Paper Feed-Out Motor Starting Mechanism

A. Mark II Keyboard and Base

- a. 152334 Modification Kit (IDP 408005)
- b. This kit when installed on a Model 28 Keyboard or Base, permits the operator to feed out paper on the local printer whether the power switch is in the ON or OFF position.
- c. The printer required is to be equipped with LESU7 unit or an LESU5 modified to an LESU7 using the 152324 Modification Kit.

39 Print-Suppress Switch Assembly (See P-S Switch Assembly under cabinet and cover section)

40 Push Button Assemblies.

A. Motor Stop Push Button Assembly

- a. 212124 Set of Parts
- b. Refer to Drawing 241890 for Bill of Material

B. Transmitter Start Push Button Assembly

- a. 212123 Set of Parts (IDP 622480)
- b. Refer to Drawing 241889 for Bill of Material

41 Repeat on Space Mechanism

A. Mark II Keyboard (LK 3,4,5)

- a. 151887 Modification Kit (IDP 405991)
- b. This kit provides the repeat space mechanism function when the space bar is held depressed.
- c. Installation: Teletype Specifications 5690

B. Mark III Keyboard (LK6 and Up or LAK)

- a. 163775 Modification Kit

- b. This kit provides the repeat space function when the space bar is held depressed.
- c. Installation: Teletype Specifications 5947

42 Signal Line Break Mechanism

A. Electrical Operation

- *a. 152333 Modification Kit (IDP 407999)
 - (1) This kit when installed on Model 28 Mark II (LK3, 4, 5, 7) keyboard provides line break signal mechanism.
 - (2) Installation: Teletype Specifications 5796
- b. 154141 Modification Kit
 - (1) This kit when installed on Model 28 Keyboard LK6, LAK3 or LAK4 provides a means for interrupting or reducing signal line current apart from the signal generator contacts.
 - (2) Installation: Teletype Specifications 5657
- c. 154726 Modification Kit (IDP 643502)
 - (1) This kit converts a mechanical signal line break mechanism to an electrical signal line break mechanism on the keyboard of a Model 28 printer set.
 - (2) Installation: Teletype Specifications 5796.

*Note: In the cases where "Space" and "Break" line current amperages are not the same or any other requiring break contact independent of the signal generator, the 152333 Modification Kit must be used.

B Mechanical Operation

- a. 153902 Modification Kit (IDP 412858)
- b. This kit provides Mark II keyboard with a mechanical signal line break mechanism.
- c. Installation: Teletype Specifications 5796

C RO Printer

- a. 152911 Modification Kit (IDP 410084) or 152344 Modification Kit (IDP 408052)
- b. 152911 or 152344 Modification Kits (for LB3 or LB4 respectively) when installed on the base of a Model 28

RO Teleprinter Set constitutes a mechanism for sending a "break" signal. This is accomplished by depressing the "break" key.

- c. The difference between the two sets is that the 152344 contains 151329 Switch (IDP 405084) and 60278 RM Vinyl tubing where the 152911 Modification Kit contains 151329 Switch (IDP 405084).
- d. Installation: Teletype Specifications 5737.

43 Time Delay Mechanism

- A. For LAK, LK6 or LB6 and Up. (Mark III Keyboard, Base and LAK)
 - a. 154142 Modification Kit (690438)
 - b. Modification Kit is used on the Model 28 Keyboard or base in conjunction with the Electrical Motor Control Mechanism on the Electrical Service Unit, to stop the motor automatically when there is no break in the signal line current for a set period of time.
 - c. Installation: Teletype Specifications 5892S.
- B. For LK, LK5, LB4 (Mark II Keyboard and Base)
 - a. 152338 Modification Kit (IDP 408039)
 - b. This time delay mechanism is used on the Model 28 keyboard or base in conjunction with the Electrical Motor Control Mechanism on the Electrical Service Unit to stop the motor automatically when there is no break in the signal line current for a set period of time.
 - c. Installation: Teletype Specifications 5561S.

44 Transmitter Distributor Control Switch - LB3

- A. 152914 Modification Kit (IDP 612705)
- B. The kit provides the LB3 Base of a Model 28 Receiving-Only Printer Set with a means of rendering the transmitter-distributor connected to the Printer-Set in-operative during the period required for the automatic carriage return-line feed cycle. This is accomplished by inserting a normally closed switch in series with the transmitter-distributor clutch magnet coil.

C This kit is designed to be used on printer set equipped with automatic carriage return-line feed mechanism.

D. Installation: Teletype Specifications 5746S.

45 Variable Speed Drive Mechanism

A. Mark II Keyboard and Base (LK3, LK4, & LK5 or LB3 & LB4)

a. 162641 Modification Kit (IDP 674902)

B Mark III Keyboard and Base (LK8 and UP or LB6 and UP)

a. 163359 Modification Kit (IDP 668384)

C These modification kits permit the selection and locking of the printer units at speeds corresponding to rate of 60, 75 and 100 wpm. The motor unit must be turned off in order to select a different operating speed.

D. These modification kits cannot be used when Model 28 Distributor is used.

E The 162641 Modification Kit is compatible with the 152338 Time Delay Mechanism and the 163359 Modification Kit is compatible with the 154142 Time Delay Mechanism.

F. Installation: Teletype Specifications 5948S.

46 Cabinet (LAC and Cover (LPC) - General

The LAC 203 Table Type Console and the LAC 204 Floor Type Console are the two standard models used by Western Union. The basic features of these models are listed in Drawing 174316-8.

The skin tight covers LPC 202 and LPC 203 are also available when required. Refer to Engineering Catalog 92 for variable features.

CABINET AND COVER MODIFICATION KIT:

47 Anti-Static Paper Guide 9440-A (IDP 187997)

A. This set provides the console with an Anti-Static Paper Guide 9440-A and is to be used only with friction feed paper.

B. Installation Western Union Specification 12184

48 Apparatus Mounting Rack

- A. 159373 Modification Kit. (IDP 590638) - For LAC 202 and
LAC 204
- B. This kit provides an apparatus mounting rack to hold a standard 19 inch apparatus panel with either 1 or 1-1/4 inch mounting hole spacing in the lower section of the apparatus cabinets. The panel may then be used for mounting or holding auxiliary equipment.
- C. Refer to Drawing 197210 for dimensions of space available in the cabinet.
- D. Installation Teletype Specification 5881S

49 Console Extension Legs

- A. Western Union Set of Parts
 - a. 7884-A Extension Legs (14 inches) (IDP 599605)
 - b. 7884.1-A Extension Legs (10 inches) (IDP 599613)
 - c. The console extension legs are attached to a Model 28 ASR Console or a Model 28 TPR console to increase their height. The extension legs 7884-A and 7884.1-A increase the height of the console fourteen and ten inches respectively. These kits also provide adjustable foot mounting screws at each corner of the console.
 - d. Installation: Western Union Specification 12615
- B. Teletype Modification
 - a. 154754 Modification Kit (IDP 413716)
 - b. This modification kit when installed on a Model 28 Cabinet LAC and LAAC raises the level of the cabinet (10 inches) so as to permit stand-up operation - with no adjustable footing.
 - c. Installation: Teletype Specification 5846

50 Copyright System

- A. 60 Volts A.C.
 - a. 152309 Modification Kit (IDP 610691)

- b. This kit provides Model 28 LAC 203, LAC 204 with a 60 Volts A.C.
- c. Installation: Teletype Specification 5775
- B. 5.5 Volts A.C.
 - a. 159357 Modification Kit (IDP 590620)
 - b. This kit provides Model 28 Cabinet LAC 203, LAC 204 LAC 205 with a 5.5 Volts A.C.
 - c. Installation: Teletype Specification 5853
- C. Drawing Referred To:
 - 197460 - Model 28 Teleprinter 60 Volts A.C. Copyright System-Wiring
 - 197469 - Model 28 Teleprinter 5.5 Volts A.C. Copyright System-Wiring
 - 197470 - Model 28 Teleprinter 5.5 Volts A.C. Copyright System Schematic

51 Equipment Shelf

- A. 9285 Equipment Shelf (IDP 265181)
- B. 9285.1 Equipment Shelf (IDP 265199)
- C. 9285.2 Equipment Shelf (IDP 265207)
- D. 9285.3 Equipment Shelf (IDP 576405)
- E. These equipment shelves are equipped with polar Relays 202, signal relays and associated resistors.
- F Manufacturing Western Union Specification 12273
 - Drawing 234285-3 - 9285 - Schematic
 - Drawing 237023-2 - 9285.1 - Schematic
 - Drawing 237025-1 - 9285.2 - Schematic
 - Drawing 237605-2 - 9285.3 - Schematic

52 Fan Fold Paper Shelf

- A Front Loading
 - a. For parts see Drawing 184836-2

- b. This shelf is used in the floor type model when front loading is a necessity and form accumulation is not required.
 - c. Maximum Dimension of paper used is 8"x10" and stacked 12" high.
 - d. Installation: Drawing 184836-2
- B. Form Supply and Accumulating Shelf with Low Paper Indicator
- a. (1) 152349 Modification Kit (IDP 408096)
(2) 212440 Set of Parts (IDP 646380)
 - b. The 152349 Modification Kit provides facilities for storing a supply of forms and for accumulating forms that have been emitted by the printer set.
 - c. The 212440 Set of Parts provides Low Paper indicator
 - d. Form used may be any size from 3-5/8 to 11 inches in length and up to 9 inches in width.
 - e. Installation: Teletype Specification 5809
Drawing 184837-2 Wiring and mounting details.

53 Form-Out Alarm

- A. 154756 Modification Kit (IDP 413724)
- B. This kit provides Model 28 Console Cabinet equipped with a 153926 Modification Kit Sprocket Feed rear paper guid with a form-out alarm mechanism that indicates when the last form available is being used.
- C. Installation: Teletype Specifications 5850S

54. Multi-Copy Paper

- A. 152340 Modification Kit (IDP 408047)
- B. This modification kit when installed on a Model 28 Teleprinter equipped with rolled multi-copy stationery prevents the carbon paper from getting out of line. This kit cannot be used with Model 28 Teleprinter equipped with the 159366 (IDP 508125) Modification Kit - paper out alarm device.

C. Installation: Teletype Specification 5789S

55. Noise Suppressor - Power Line

A. 151988 Modification Kit (IDP 407379)

B. This kit is to add Power Line Electrical Noise Suppressor

C. Wiring per Teletype WD 2927

56 Offset Copyholder

A. Console - Only one required

a. 164024 Modification Kit (old No. 152901) - The kit is mounted to the right side of the cabinet.

b. 178897 Modification Kit - The kit is located above and to the right of center of the dome.

B Table Model

a. 173400 Modification Kit (old No. 153900) - The kit is mounted to the right side of the cabinet.

C. These kits provide facilities for holding copy during transmission. The copy is held against a flat plate by an adjustable line-guide assembly.

D. Installation: Teletype Specification 5736.

57 Paper Winder Mounting Bracket

A 153901 Modification Kit (IDP 412841)

B This kit provides Model 28 Console Cabinet (LAC 203 LAC 204) with facilities for a paper winder (PW 200 to PW 205).

C. Installation: Teletype Specification 5805

58 Print-Suppress Switch Assembly

A Mark II Base

a. 154681 Modification Kit (IDP 413542)

b. This kit is to be used in conjunction with "Off-Line" Stunt Shift Control set of parts 152345 (IDP 408070) for local control of code bar suppression.

c. Western Union Engineering Catalog 92

B. Printer Console

a.. 212734 Set of Parts (IDP 677369)

b. This set of parts is used in conjunction with Plan 57 Duplex Way Selectors 9282-A and 9782.1-A. It is installed on the cover of Model 28 RO Teleprinter or Model 28 ASR Set when used for "split" operation.

c. Installation: Western Union Specification 11822

Drawings:

188363 - Print - Suppress Switch - Wiring
197208 - Print - Suppress Switch - Bill
of Material and Assembly.

59 Sprocket Feed Rear Paper Guide

A. 153926 Modification Kit (IDP 412924)

B. This kit is required to adapt a Model 28 Cabinet with Sprocket Feed Unit to handle superfold form stationery.

C. Installation: Teletype Specification 5792

60 Subbase For Console Cabinet

See under Console extension legs.

61 Electrical Service Unit (LESU) Wiring Cabinet 9100 and Motor Control Unit.

62 LESU 8/198

Electrical Service Unit LESU 8/198 is used by Western Union. It provides the Model 28 Teleprinter with its electrical controls. This unit comes equipped with motor control unit line relay unit, rectifier unit, jack box unit and AC control unit as indicated on Drawing 184624. The Drawing 168331 indicates the wiring of the basic unit.

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The various auxiliary components on the typing unit, the base or the stunt box are wired to the LESU as indicated on Drawing 184628. This drawing also shows that the stunt box contacts are brought out through the "R" connector. In new installations this will not be done because the stunt box is removable.

The stunt box contacts are to be wired to Stunt Box Cord 9297-A as specified on Drawing 184638. Then Adapter Cord 9298 will bring the wiring from the stunt box contacts to the "C" block and in turn from the "C" block to the LESU. If necessary, the wiring of the auxiliary components is to be the same as that shown on Drawing 184628. A schematic drawing of the Model 28 Teleprinter equipped with the LESU is shown on Drawing 184620.

63 Wiring Cabinet 9100-A

This wiring cabinet has been designed by Western Union to replace the Teletype Electrical Service Unit (LESU). This unit contains all the features of the equipped LESU plus additional testing facilities.

The wiring of this unit is shown on Drawing 174234. Drawing 184636 shows the interconnections between this unit and the other components of the Model 28 Teleprinter. It is to be noticed that when using the 9100 Wiring Cabinet the Stunt Box Cord 9297-A plugs directly into the wiring cabinet.

Drawing 184637 shows the wiring installation of the 9100 Wiring Cabinet to the "C" block and the cross connections to be made on the "C" block.

Drawing 184629 shows the wiring of the various auxiliary components on the typing unit, the base or the stunt box when the 9100 Wiring Cabinet is used.

Drawing 184621 shows the schematic drawing of the Model 28 Teleprinter equipped with the 9100 Wiring Cabinet.

64 Wiring Cabinet 9100-B.

This wiring cabinet contains all the features of Wiring Cabinet 9100-A plus additional features to make installation for Class "C" operation more convenient.

The drawings mentioned under Wiring Cabinet 9100-A are applicable to 9100-B except for the wiring and schematic drawings.

Drawing 184625 shows the schematic for Wiring Cabinet 9100-B.

Drawing 232623 shows the wiring for the cabinet.

65. Wiring Cabinet 9100-C.

The 9100-C Wiring Cabinet contains all the features of the 9100-B. The only difference is the addition of a fuse to the transformer.

All the drawings mentioned under Wiring Cabinet 9100-B are applicable to 9100-C.

66. Motor Control Unit.

- A. 8571-A Motor Control Unit (IDP 305516) is used for A.C. operation with a modified Electrical Service Unit LESU 8/198.
- B. 8571.1-A Motor Control Unit (IDP 305524) is used for D.C. operation with a modified Electrical Service Unit LESU 8/198.
- C. 9087-A Motor Control Unit (IDP 305532) is used for A.C. operation with 9100 Wiring Cabinet.
- D. Installation: Western Union Specification 11273
- E. For Information only - 152718 Modification Kit and 152719 Modification Kit are Teletype Motor Stop Set of Parts (Teletype Specification 5671)

67. Rectifier 8494-A.

- A. This rectifier is designed to mount on Electrical Service Unit LESU 8. Maximum load is 150 Ma. at 105-110 Volts D.C.
- B. Installation - Western Union Specification 11138.

68. Motor Unit (LMU) and Gear Set.

Model 28 Teleprinter can be equipped with the following gear sets and Motor gear sets:

SPEED	FIBER	SET NUMBER		
		IDP	NYLON	IDP
60 WPM	151060	403683	161293	599324
67 "	152766	-	-	-
75 "	151075	590364	161294	423194
100 "	151100	403823	161295	423202

SPEED	STEEL	IDP	PINION		
			NYLON	IDP	TEETH
60 WPM	151130	403949	159728	598912	14
67 WPM	152765	409581	-	-	-
75 WPM	151132	403946	159281	420604	17
100 WPM	151134	403980	159284	622035	20

SPEED	FIBER	GEAR			TEETH
		IDP	NYLON	IDP	
60 WPM	151131	403456	159279	598920	96
67 "	152764	409573	-	-	-
75 "	151133	403972	159282	420612	93
100 "	151135	403998	159285	420620	84

69 Motor Units:

- A. AC Operation - Model 28 Teleprinter equipped with Motor Unit LMU-3 operated on 115 Volts. 60 cycles AC.
- B DC Operation - 9312 DC Resistor Assembly should be used with LMU-4 governed motor and LESU-8.
- C. Ref r to Drawing 184750 for General Features of Motor Units.

70 Motor Control Unit:

Refer to Section E under Electrical Service Unit (LESU) and Wiring Cabinet 9100.

71 Stunt Box.

Stunt Box is located behind the code bar assembly of the typing unit. It has 42 slots numbered from left to right as viewed from the rear of the teleprinter.

The stunt box can be equipped with various function mechanisms, code bar shift mechanisms, latch lever release bail shafts and contact block assemblies as indicated in Engineering Catalog 92 and 11753-A Stunt Box Specification.

The function mechanism's function bar is to be coded per Drawing 171987 and the function mechanisms can be equipped with the following features:

- A. Space Suppression: The function mechanism prevents Spacing of the printer.
- B. Latching: The function mechanism once operated, remain op rated untill released in one of two ways:
 - 1. Latch - Unlatch - The function mechanism releases on the downward motion of the "Stripper Bail".
 - 2. Latch - Release - The function mechanism releases when released by another function mechanism.
- C. Blocking: The function mechanism prevents operation of another function mechanism lecated one slot to the right.
- D. Self-Blocking: The function mechanism prevents itself from operating except immediately following the operation of a release function mechanism.
- E. Releasing: The function mechanism causes the release of one or more previously operated latch-release function mechansim or causes the release of a self-blocking function mechanism.

The code bar shift mechanism can be equipped to shift a code bar by means of one of the function mechanisms.

A latch lever release bail shaft comes in various lengths and it is normally supported by two function mechanisms for the purpose of releasing a latching function mechanism.

Eight basic stunt box functions is needed to operate the teleprinter. The following slots are equipped with function mechanisms installed at the factory and should never be used for other functions:

<u>Slot No.</u>	<u>Function Performed</u>
1	Unshift on Space (Optional)
2	Figures Shift
3	Letters Shift
5	Carriage Return
27	Delete space on blanks
28	Actuate signal bell if in print case
38	Delete space on line feed
40	Line feed if in print case.

Due to excessive wear and breakage, the use of function pawls spanning more than one slot should be discontinued except in the case of message ending contacts.

72 "AGL" Stunt Box Arrangement.

This new stunt box arrangement is designed by Western Union to perform all the functions of the "Series A" or "Series B" Stunt Box way station selectors.

It is recommended that the "AGL" Stunt Box arrangement be used for future applications of "Series A" or "Series B" Stunt Box since either one can be arranged without elaborated disassembly and assembly of the stunt box.

Any function mechanism in the stunt box may be disabled as follows:

- A. Remove the function bar and function bar spring.
- B. Disable the function lever by using the 212764 Function Lever Disabling Clip.
- C. Disable the function pawl by using a 157274 Function Pawl Hook or its equivalent.

73 Function Lever Disabling Clip

If a single call character instead of sequential operation is required, all the function levers of the sequential mechanisms except the last lever should be in the disable position by installing the #212764 Function Lever Disabling Clip under the stunt box.

Drawing 197659 - Function Lever Disabling Clip - Installation

74 Reperforator Control Mechanism.

- A. 152307 Modification Kit (IDP 407932)
- B. This kit when installed on the Model 28 Typing Unit LP6 or LP9 Stunt Box will function to close and latch a contact when the upper case "H" signal is received. The contact will remain closed until the upper case "F" signal is received.
- C. This modification kit is equipped with two uncoded function bars and may be coded in any manner as the customer desires. For purposes of reference UC-F and UC-H will be referred to in this specification.
- D. Installation: Teletype Specifications 5760.

75 Stunt Box Contacts.

- A. Basic "Make" contact assembly (with contact block)
 - a. 212242 Set of Parts (IDP 518936)
 - b. This kit provides a normally opened contact for the stunt box.
- B. Basic "Break" contact assembly (with contact block)
 - a. 212243 Set of Parts (IDP 518944)
 - b. This kit provides a normally closed contact for the stunt box.
- C. "Make" contact assembly (without contact block)
 - a. 212244 Set of Parts (IDP 518951)
 - b. This kit should be used only when additional "Make" contact is needed.
- D. "Break" contact assembly (with contact block)
 - a. 212245 Set of Parts (IDP 518967)
 - b. This kit should be used only when additional "Break" contact is needed.

E. Installation: Drawings 177838 and 177839.

76 Shift Slide Mechanism - Stunt Box

A. Two single or Two-Character Sequences.

a. 162012 Modification Kit (IDP 676437) - New Thin Type

b. 154750 Modification Kit (IDP 413674) - Old Type

B. One -, Two -, or Three - Character Sequence.

a. 162013 Modification Kit (IDP 674556) - New Thin Type

b. 199355 Modification Kit (IDP 420679) - Old Type

C. The new type shift slides are thinner to allow contacts to be mounted in adjacent slot.

D. Installation: Teletype Specifications 5824.

77 Universal Contact.

A. 163146 Modification Kit (IDP 603365)

a. This Modification Kit when installed on the stunt box of a Model 28 Typing Unit LP6 and up or a Model 28 Sequence Selector Unit LS1 provides a Set of heavy duty make-break universal contacts which operate every function cycle.

B. 154785 Modification Kit (IDP 656429)

a. This Modification Kit provides Model 28 Typing Unit with a make-before-break universal contact that operates each time a character is printed or a function is performed by the typing unit.

C. Installation: Teletype Specifications 5804

SELECTORS AND SHELF

78 "Series A" or "Series B" Selector

These two selectors are distinguished from each other by the "condition or case" (See Specification 10909) of the teleprinter when the printer is running "idle".

"Series A" stunt box way station selector idles in the "non-print, select" case and the "Series B" stunt box way station selector idles in the "print-Select" case.

Refer to Western Union Specification 11545-A for installation, operation and theory.

79 Way Station Selector 7066-B (IDP 261441)

Way Station Selector 7066-B is designed for use on single operated way circuits. It provides for two-call letter selection permitting pre-selection operation where a large number of call letter combinations are required. Refer to Western Union Specification 9974 for installation and operation.

80 Duplex Way Selector 7336-B (IDP 262006)

Duplex Way Selector 7336-B is used in conjunction with a Teletype 19 Set or a teleprinter with a keyboard and also a console Type 7300 containing a receiving only teleprinter at all way stations on a duplex way circuit. The selector contains all controls for the operation of these stations on the circuit. Refer to Western Union Specifications 9985 for installation.

81 Equipment Shelf

- A. 10458 Shelf (IDP 675728)
This shelf is a component of the Model 28 KSR Set used in the EMATS.
- B. 10458.1 Shelf (IDP 686956)
This shelf is designed for concentrator arrangement (USAF)
- C. Western Union Specification 13500

82 Transmitting Shelf 9798-A (IDP 265298)

This shelf is used in Switching Systems 57 in conjunction with Model 28 ASR Set and Wiring Cabinet 9797-A for polar operation. However, it can be used with Model 28 KSR Set. Western Union Specification 12499.

83 Transmitting Panel

- A. 9102-A Transmitting Panel. (IDP 213876)
- B. This panel is used with LESU 8/198 for class "C" operation.
It is mounted in a floor type cabinet as shown in Drawing 184862-2
- C. Drawing 174169-8 - Wiring.

84 Transmitting Shelf

- A. 8582-A Transmitting Shelf (IDP 265041)
- B. The shelf is used with Wiring Cabinet 9100 for class "C" operation and is to be mounted on the brackets in the floor type console.
- C. Drawing 234368-8 Wiring & Theory
Drawing 234369-2 Wiring

85 Line Facility Panel 7882-A (IDP 213181)

Line Facility Panel 7882-A mounts in Operating Table 7869 and is used with Tech Control Circuits for neutral or polar operations. Western Union Specification 12616.

METHOD OF OPERATION

86 Class "A" Operation (Make-break Operation)

A. For LESU 8/198

a. A.C. Power

Teleprinter equipped with LESU 8/198 for A. C. Power operation.

Drawings referred to:

184620-7 Model 28 LESU 8/198 - Schematic

b. D.C. Power

Teleprinter equipped with LESU 8/198 for D.C. Power operation.

Drawings referred to:

184624-3 Model 28 LESU 8/198 equipment information.

184630-7 Model 28 LESU 8/198 D.C. operation - Schematic

B. For 9100 Wiring Cabinets

a. 9100-A Wiring Cabinets operated by A.C. Power.

Drawings referred to:

184621-7 Model 28 Teleprinter with 9100-A - Schematic

184625-7 Model 28 Teleprinter with 9100-B and 9100-C - Schematic

87 Class "C" Operation (Polar Operation)

A. For LESU 8/198

When Model 28 Teleprinter is equipped with LESU 8/198 using transmitting Panel 9102-A.

Drawing:

174171-7 - Shows the interconnections between the transmitting panel LESU and the "C" block.

B. For 9100 Wiring Cabinet

When Model 28 Teleprinter is equipped with Wiring Cabinet 9100 use transmitting Shelf 8582-A. (IDP 256041).

Drawing:

184633-7 - Shows the interconnections between the transmitting shelf and the wiring cabinet and the "C" block.

9100-A - IDP 145086

9100-B - IDP 145094

9100-C - IDP 599597

88 Special Tools required:

A. 150988 (IDP 403443) Handle wheel - for manually rotating main shaft.

B. 152292 Armature Clip - to mechanically close the selector magnets.

C. 151384 (IDP 405266) screw holder.

D. 151959 Spring Hook (IDP 407320)

E. 159358 Set of Parts (IDP 614628) - permit resting 28 Teleprinter on end for servicing.

F. 125779 Socket Wrench (IDP 396234)

G. 211652 Coding Tool IDP 517375 - for coding Universal Function Bar.

H. Refer to Teletype Bulletin 1124B for other maintenance tools