

DIGITAL DATA SYSTEM
550A-TYPE CHANNEL SERVICE UNIT
INSTALLATION AND CONNECTIONS

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1. GENERAL

- 1.01 This section contains instructions for installing and connecting a 550A-type channel service unit (CSU). Installation methods for the associated customer-provided equipment (CPE) are not included.
- 1.02 This section is reissued to include information concerning the replacement of option switch S1 on receiving circuit pack HR5, 6, 7, or 8 with a right angle header. Also included is information concerning the fixed line build-out option (FLBO). Revision arrows are included to emphasize the more significant changes.
- 1.03 The 550A-type CSU is designed to be operated in an ambient temperature range from 40 to +120°F, with a relative humidity of less than 95 percent.
- 1.04 The 96A power unit, which is contained inside the CSU, supplies operating voltages

to the circuitry in the CSU. An input of 105 to 129 Vac at a frequency of 57 to 63 Hz is required by the CSU. It also requires approximately 10 watts of ac power. Each CSU is supplied with a 3-foot power cord for connection to the customer-provided ac source.

1.05 A small screwdriver is supplied with the CSU to install the options before installation.

2. OPTION INSTALLATIONS

A. General

2.01 The 550A-type CSU (see Fig. 1) is provided with a signal-to-ground option and a FLBO network option which must be installed or removed prior to placing the CSU in service. Options to be installed or removed should be specified on the service order or circuit layout record card (CLRC).

2.02 The FLBO option setting was initially made using a KS-20983-L2 switch. However, this switch is no longer available. Therefore, the option switch (S1) will be a right angle header on new receiving circuit packs manufactured after 1978. The designation of switch S1 is changed to H1. The designation of switch S2 (which controls the grounding option) is changed to S1.

2.03 Installation of the FLBO network option becomes necessary if the local loop loss is less than can be compensated for by the automatic line build-out (ALBO) network. The FLBO option will be designated OUT or removed when the loop expected measured loss (EML) is 10 dB or more and designated IN or installed when the loop EML is less than 10 dB. The FLBO option must be IN when the actual measured loss (AML) is less than 5 dB and OUT when the AML is greater than 15 dB. When the AML falls between 5 dB and 15 dB, apply the option as shown on the CLRC. The

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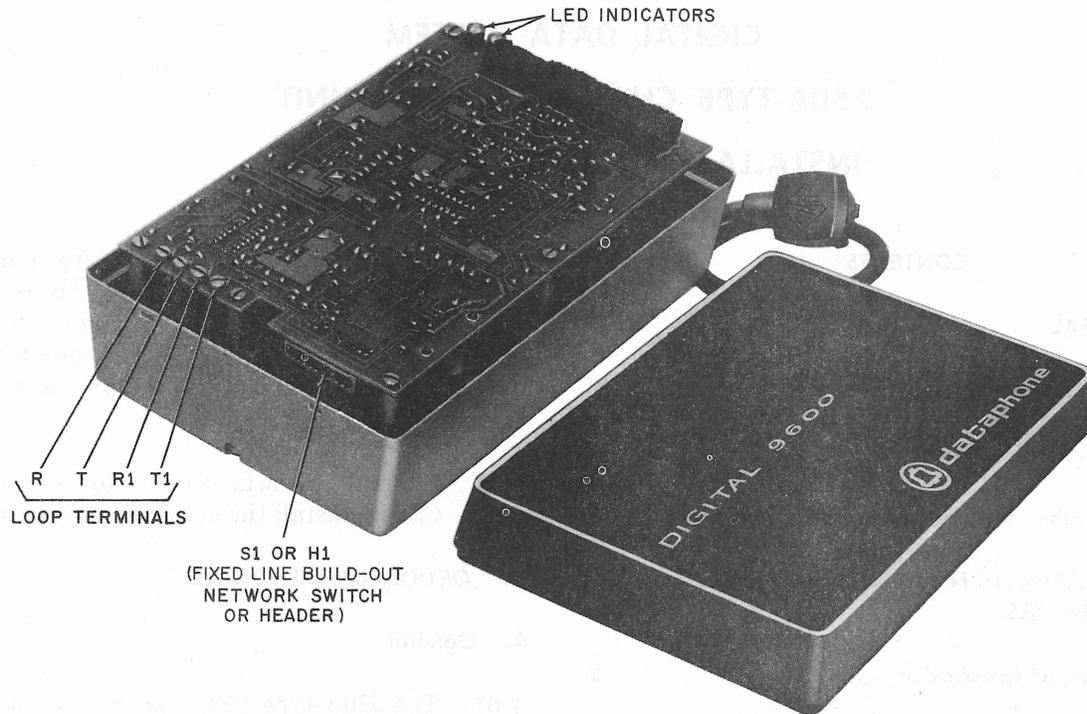


Fig. 1—550A-Type CSU—Cover Removed

transmission engineer or design group must be notified when any switch setting or header position deviates from the CLRC. The signal-to-ground option is installed to connect signal ground to frame ground. For additional information concerning the CSU options, refer to Section 595-100-100, Digital Data System—500A-Type Channel Service Unit—Description.

2.04 The earlier manufactured receiving circuit pack (HR5, 6, 7, 8, depending on list code of the CSU) contains a KS-20983-L2 switch (S1) for installing or removing the FLBO network option and a screw switch (S2) which controls the grounding option.

2.05 Figure 2 shows the three sections or rollers: A, B, and C of switch S1. To access the switch rollers, the hinged protective cover must first be opened by pulling it from the end marked with a dot. Each switch roller is individually adjusted to one of two positions by using the provided screwdriver to *gently* rotate the adjustable roller. Switch positions are numbered as shown on protective cover.



The final position of the roller must be such that it butts up against the spacer; the screwdriver slot is parallel with the spacer.

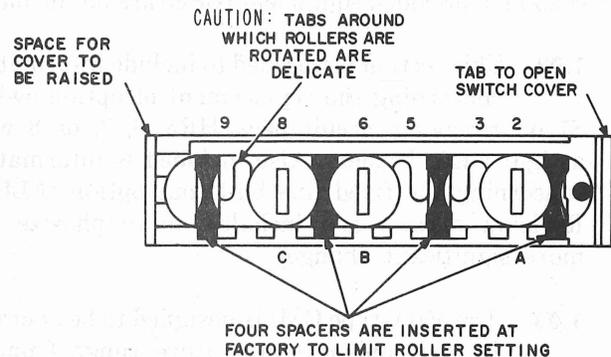


Fig. 2—Detail of Switch for Installing Options

2.06 For the newer manufactured receiving circuit pack (HR5, 6, 7, or 8, depending on the list code of the CSU) a header (H1) for installation or removing the FLBO network option and a screw

switch (S1) which controls the grounding option is used.♦

2.07 Figure 3 shows header H1 which has ten positions with the tenth position used as a spare. To install options, the shunts are slipped over the two pins which make up one position. Four shunts are provided with the header. One shunt is the spare and is stored in position 10.

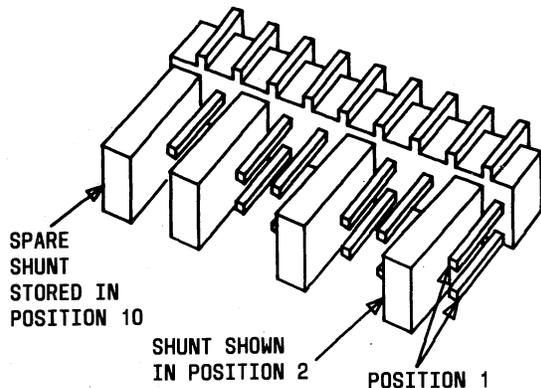


Fig. 3—♦Detail of Header for Installing Options♦

B. Option Installation Procedures

2.08 The CSU cover must be removed in order to gain access to the switches (or header and switch) for installing or removing the FLBO network option and the signal-to-ground option. Remove the cover of the CSU by inserting a small tip screwdriver, such as a KS-6854, under the cover at the connector end and gently lifting up. This will flex the basepan, releasing the holding tabs. To replace the cover, hook the tabs on one side of the cover into the basepan and snap the cover into position.

2.09 ♦When the older receiving circuit pack is used, install the ground and FLBO options per the service order or CLRC in accordance with Fig. 4. When the newer receiving circuit pack is used, install the ground and FLBO options per the service order or CLRC in accordance with Fig. 5 and Table A.♦

3. INSTALLATION AND CONNECTION PROCEDURES

3.01 Prior to CSU installation, the local cable pairs must pass the tests given in Section

314-410-510, Digital Data System—Private Line Local Channel—Tests and Requirements.



Verify that the cable pair terminating resistors used in the above tests are removed prior to DSU installation.

A. Single Installation

3.02 The 550A-type CSU is intended for wall mounting in accordance with local procedures. The CSU should be installed between 1 and 100 feet from the CPE. The CSU should not be installed closer than 1 foot from the CPE to avoid stray fields radiated from electromechanical equipment.

3.03 In CSU installations where access to the customer interface connector will be restricted, the CSU can be mounted with the interface connector and power cord on either the right or left of the CSU. After mounting, the cover is replaced so the lettering is right side up.

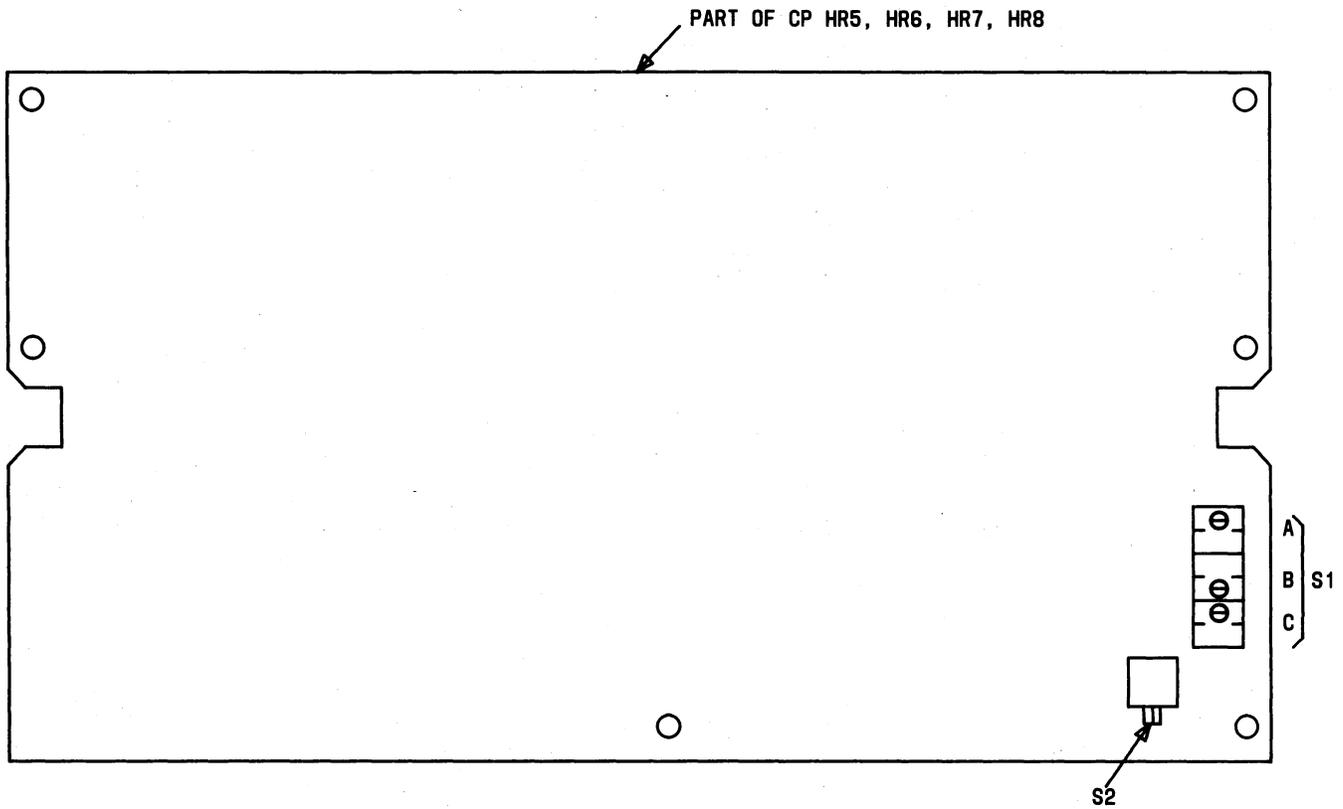
3.04 The CSU must be located within 3 feet of a customer-provided ac outlet that is not under control of a switch. The power cord supplied with the CSU requires an ac outlet which accepts a plug with two parallel blades and a round grounding pin.

3.05 A 15-pin connector is provided by the CSU for connection to the CPE. This connector is designed to mate with a customer-provided Cinch-Dama-15-P plug, or equivalent.

3.06 To minimize inductive interference to data signals on the local loop, the local loop cable should not be installed within 6 inches of the customer interface cable. If this condition cannot be met, it will be necessary to run the line to the local loop with type-SK (shielded) wire as far as it is carried (within 6 inches of the interface cable). Ground the shield at one end only, preferably at the distribution terminal to prevent a potential difference between the ends of the cable shield.

3.07 To install a CSU, proceed as follows:

- (1) Install the ground and FLBO network options in accordance with the service order or CLRC and Part 2 of this section.



CSU OPTION SWITCH POSITIONS			
SWITCH	SWITCH POSITION	FEATURE	OPTION
S1A	3	FIXED LINE BUILD-OUT NETWORK INSTALLED	WV
S1B	5		
S1C	9		
S1A	2	FIXED LINE BUILD-OUT NETWORK REMOVED	WW
S1B	6		
S1C	8		
S2	IN	SIGNAL GROUND CONNECTED TO FRAME GROUND	YK
	OUT	SIGNAL GROUND DISCONNECTED FROM FRAME GROUND	YL

Fig. 4—CSU Options and Switch Positions

(2) Use two appropriate screws and mount the CSU in the selected position on the wall or other semipermanent flat surface.

(3) Run the necessary length of TELCO-provided, 4-conductor drop wire to interconnect the CSU with the cable distribution terminals. Route the drop wire through the small hole located below the loop terminals of the CSU. The

transmit pair (T1 and R1) and the receive pair (T and R) are located as shown in Fig. 6.

B. Multiple Installation

3.08 For multiple installations requiring up to ten CSUs, a 48A-L1/3 data mounting may be mounted in a KS-20018-L12A cabinet or standard 23-inch framework. When 11 to 20 CSUs are

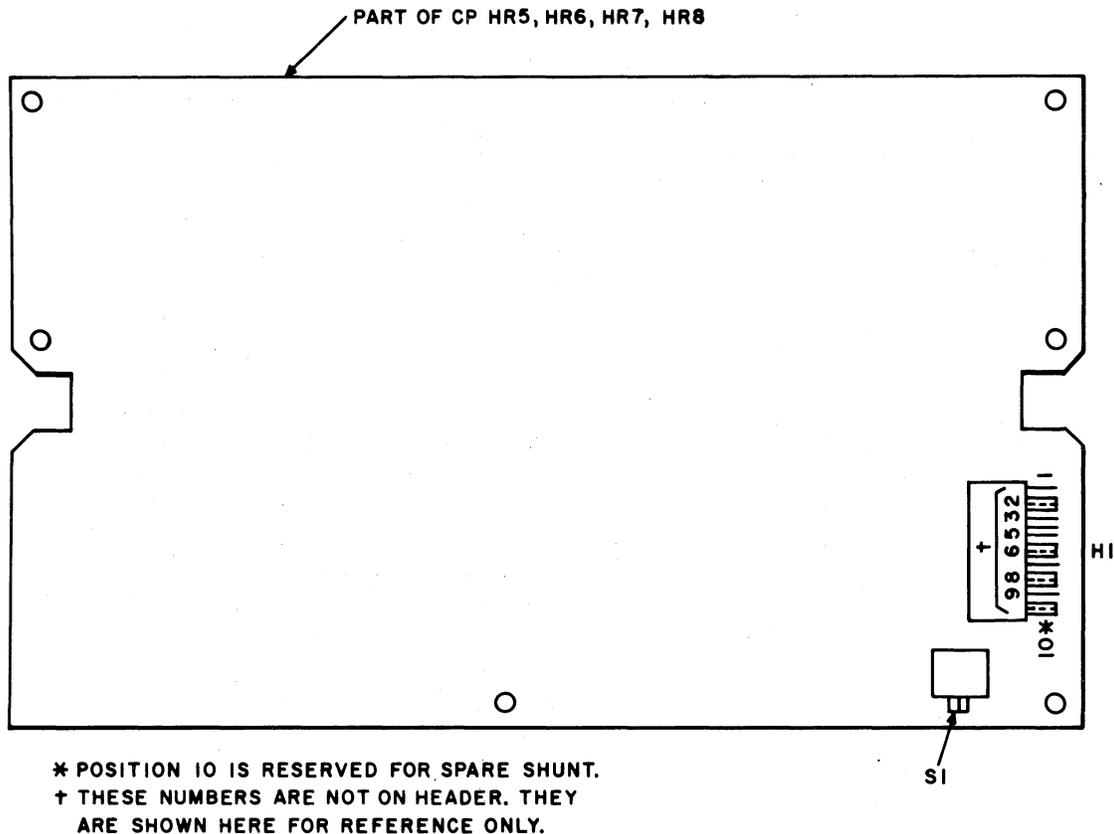


Fig. 5—CSU Options and Switch-Header Positions

required, two 48A-L1/3 data mountings may be installed in a KS-20018-L11A cabinet or standard 23-inch framework. (See Section 590-102-139 for a detailed description of the 48A data mounting.)

3.09 The 550A CSU must be adapted for mounting in the 48A-L1/3 data mounting. The L1/3 code provides a mounting plate which is required for mounting two CSUs in the data mounting (Fig. 7). If more than two CSUs are to be mounted, additional plates (one per two CSUs) must be ordered. The mounting procedure is as follows:

- (1) Remove the black plastic cover.
- (2) Secure the CSU to the mounting plate (supplied as part of L1/3 data mount) by utilizing two mounting holes in lower CSU case. (Each mounting plate accommodates two CSUs.)
- (3) Dress the power cord around the CSU and plug it into the outlet on the CSU mounting plate.

(4) Connect the TELCO-provided, 4-conductor wire to T, R, T1, and R1 terminals on the CSU and allow sufficient length to connect the other end to the terminal strip on the data mounting after the CSU is in place.

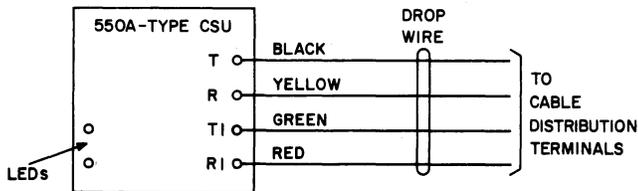
(5) Insert the CSU into the rear of the data mounting by sliding the mounting plate into the slots in the upper and lower strips (Fig. 8).

(6) Secure the CSU by moving the lock strip to its leftmost position and tightening the lock-strip screw.

(7) Connect the four tip and ring leads to the terminal strip located on the casting at each of the mounting positions. The upper CSUs connect to the upper terminal strips (TS-F, TS-G, TS-H, TS-J, TS-K) while the lower CSUs connect to the lower terminal strips (TS-A through TS-E) as shown in Fig. 9. [Terminal strips are wired to KS-16786-14 (50-pin) connector mounted on the right side of the data mounting.]

TABLE A
CSU OPTION POSITIONS

HR CP CIRCUIT OPTIONS	HEADER H1	OPTION	FEATURE	POSITION
		WV	Fixed line build-out network installed	3
				5
				9
		WW	Fixed line build-out network removed	2
				6
	8			
	SWITCH S1	YK	Signal ground connected to frame ground	IN
		YL	Signal ground dis- connected from frame ground	OUT



NOTE:
EARLIER INSTALLATIONS MAY HAVE USED
NON-CONVENTION WIRE COLOR CODES AS
FOLLOWS: TI - BLACK; RI - YELLOW;
T - GREEN; R - RED. WHEN SETS ARE
EXCHANGED FOR ANY REASON, THE STANDARD
CONVENTION WIRE COLOR CODES AS SHOWN
ABOVE SHOULD BE USED AND NECESSARY CORRECTIONS
SHOULD BE MADE AT THE CABLE DISTRIBUTION TERMINALS.

Fig. 6—550A-Type CSU Connection Diagram

- (8) Attach the customer interface connector to the CSU (accessible through the cutouts in the front of the data mounting) and use adjacent cable ties to dress excess cable.
- (9) Attach the multiple plug power cord (part of the 48A-L1/3) to each CSU power supply

connector located on the front of each mounting plate as shown in Fig. 10.

4. TEST REQUIREMENTS

4.01 Perform the following installation tests in the order given and as instructed in Section 595-100-500, Digital Data System—550A-Type Channel Service Unit—Test Procedures:

- CSU functional test
- CHAN loopback error performance test.

4.02 Complete the factory-supplied identification label which is located on the inside of the plastic cover of each CSU.

4.03 When the CSUs are multiple mounted, the circuit number (CKT NO) and trouble number (TBL NO) for each CSU is written on the label attached to the front of the 48A-L1/3 mounting as shown in Fig. 10. The list number (LIST NO) for each CSU may be added to the label if desired.

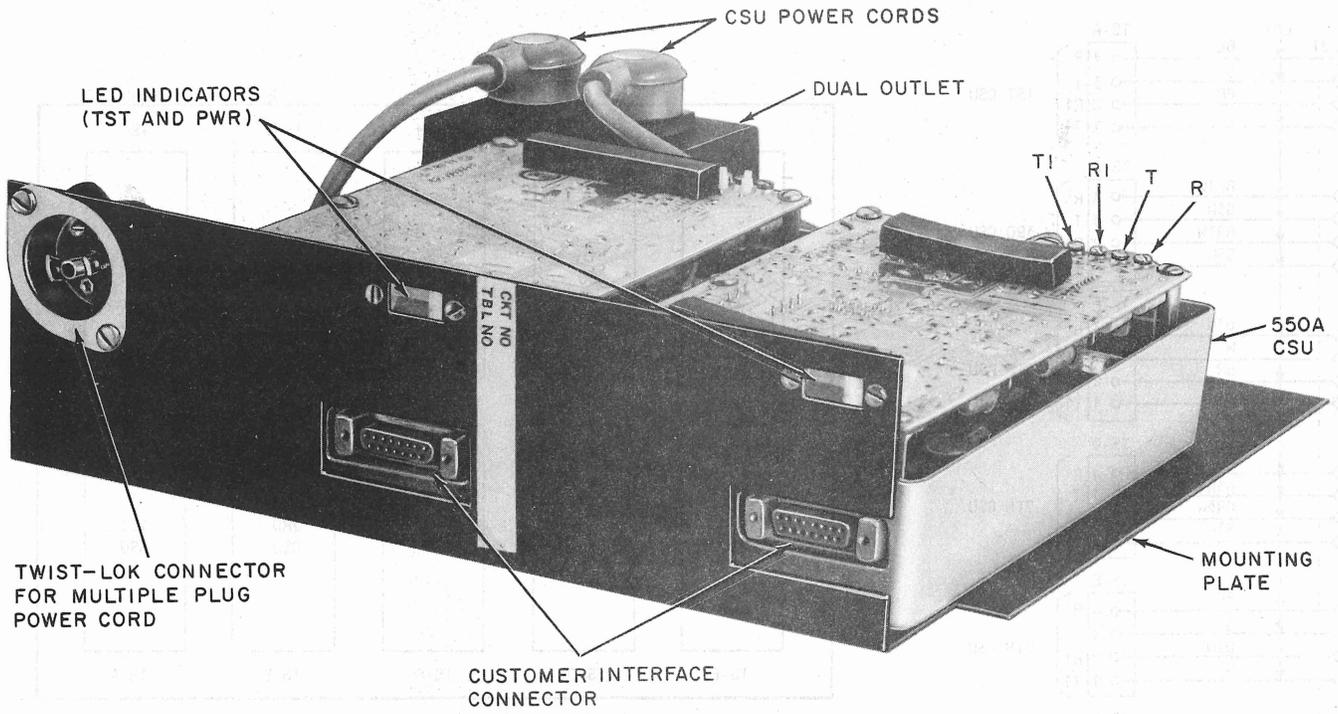


Fig. 7—Mounting Plate With Two CSUs

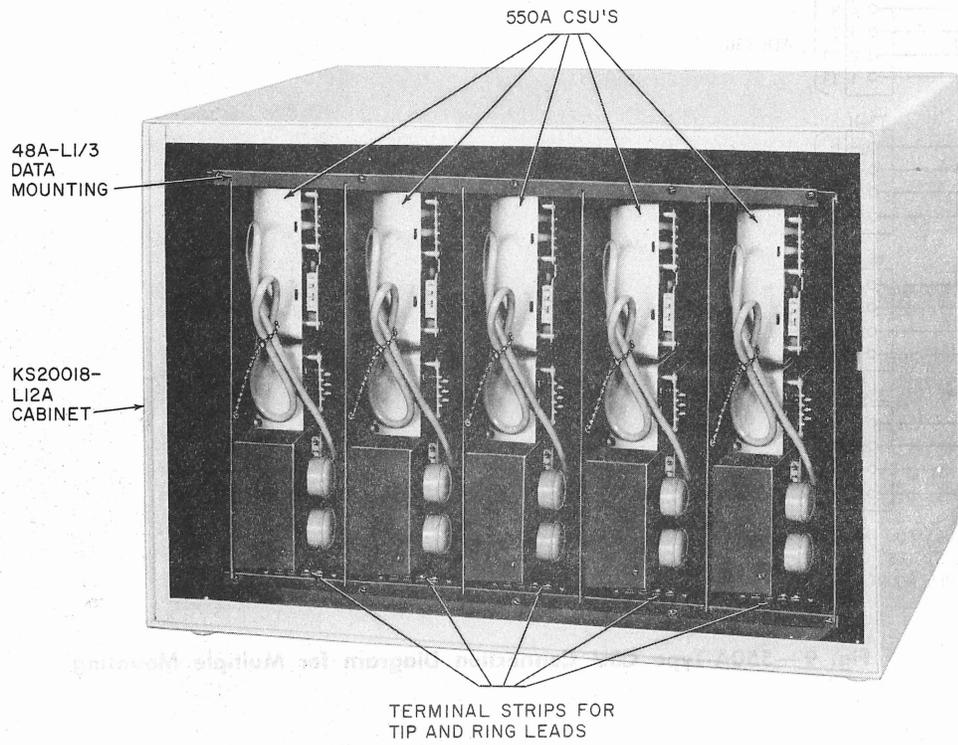
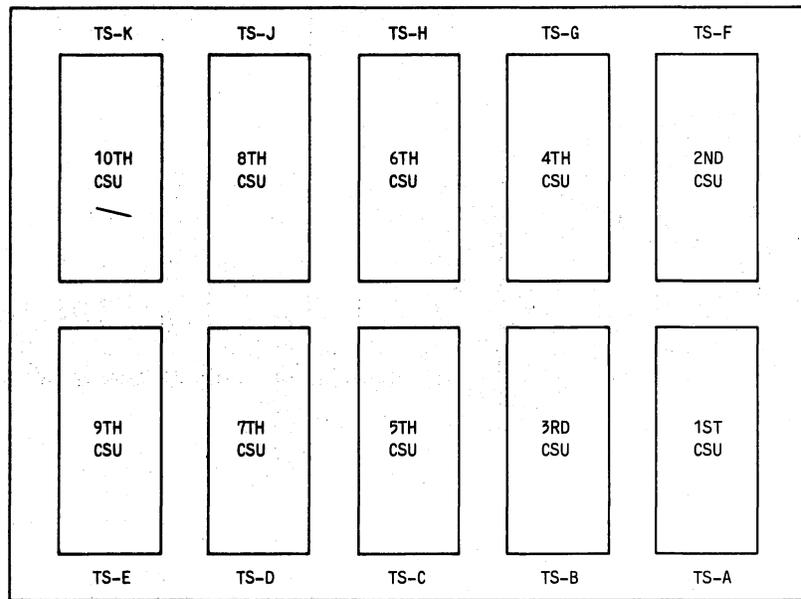
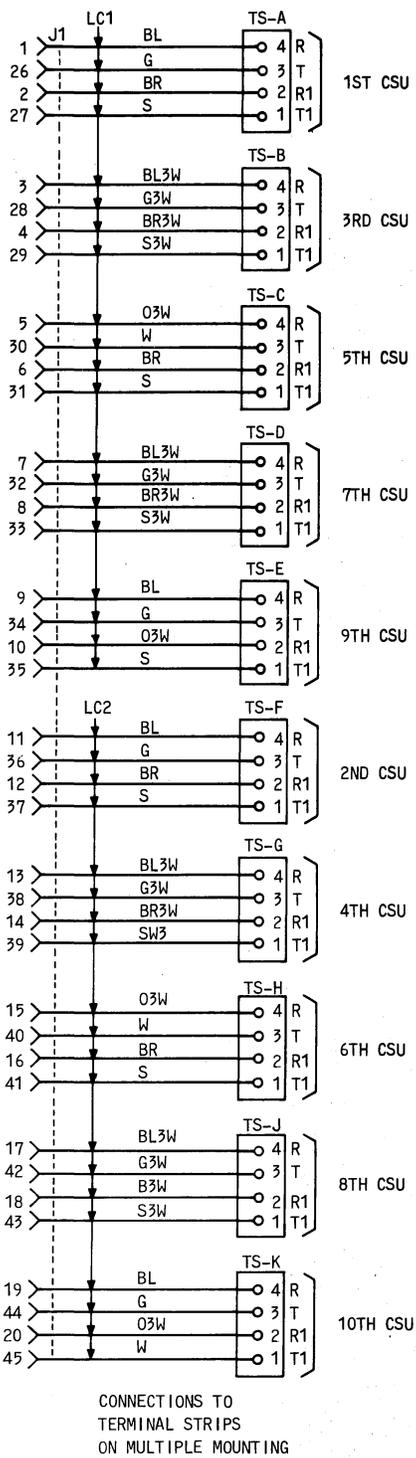


Fig. 8—Rear View—Multiple Mounting of CSU

SECTION 595-100-200



REAR VIEW - MULTIPLE MOUNTING OF CSU

Fig. 9—550A-Type CSU Connection Diagram for Multiple Mounting

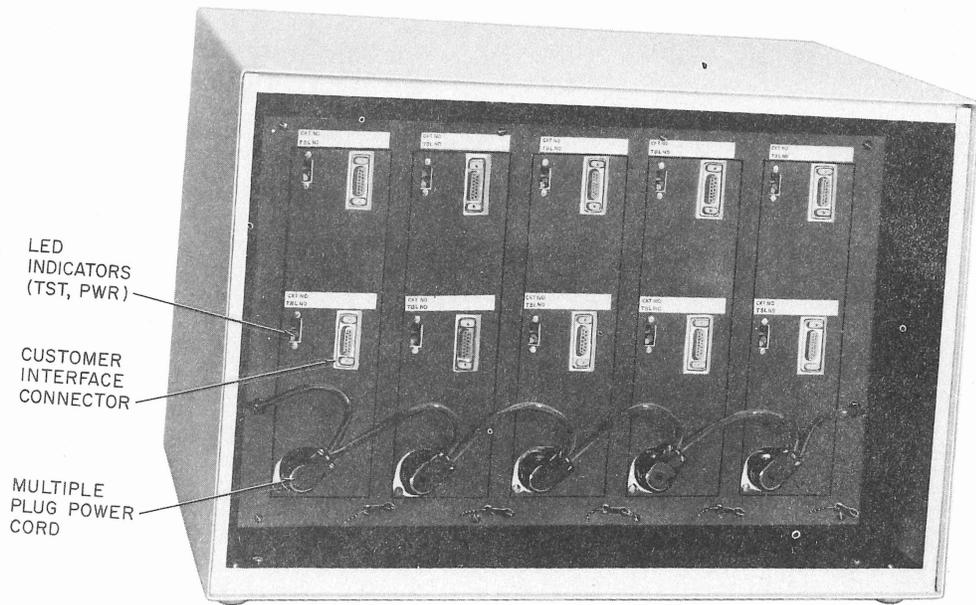


Fig. 10—Front View—KS-20018-L12A Cabinet