

551A-TYPE CHANNEL SERVICE UNIT INSTALLATION AND CONNECTIONS

1. GENERAL

1.01 This section contains information concerning the installation and connection of a 551A-type channel service unit (CSU), Fig. 1. This section also contains option installation information and a list of tests to be performed at time of installation.

1.02 Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph. The contents of this section were formerly contained in Section 595-105-200.

1.03 Refer to Section 590-010-200, Data Sets—General Installation and Connection Information.

1.04 The CSU can be installed in a KS-20018-type cabinet or in a 23-inch relay rack. The CSU will operate in an ambient temperature range of +40 to 120°F and a relative humidity less than 95 percent.

1.05 The CSU is normally line powered and is not provided with a power supply. A power supply

must be provided if line power is not utilized. Refer to the option discussion to aid in proper power selection.

1.06 To gain access to the terminal boards, option terminals, and fault location filter, it is necessary to remove the top and rear covers. To remove the top cover, remove the six retaining screws and lift off the top. To remove the rear cover, remove the six retaining screws and slide off the rear cover.

1.07 A 598-type fault location filter must be installed in the CSU if the repeater is to be tested from a remote location.

2. OPTIONS

2.01 The 551A CSU is provided with a number of options which must be installed prior to placing the CSU in service.

2.02 The S option is provided in manufacture and should be installed when the 598 fault location

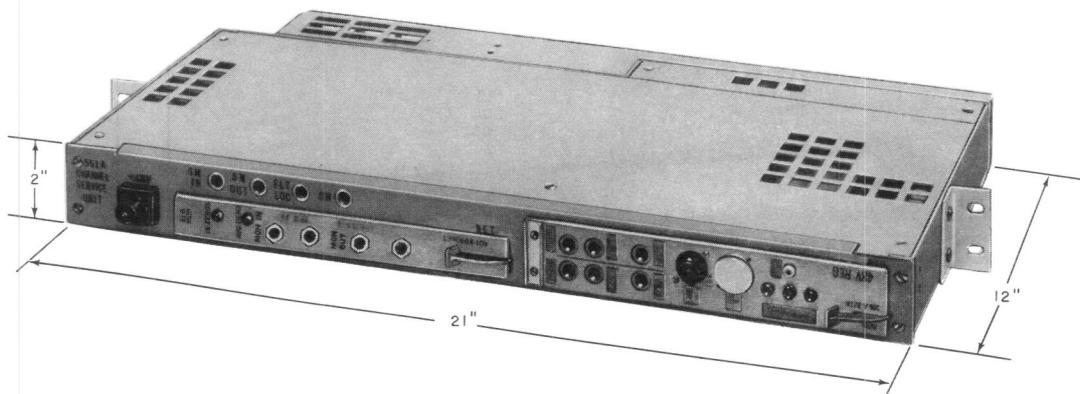


Fig. 1 — 551A Channel Service Unit

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

Printed in U.S.A.

filter is *not* used. When the 598 fault location filter is used, the S option should be removed and the R option installed. The M option is also provided in manufacture and must be used when the fault location pair is terminated at the 551A CSU. The M option may be used with option S or R and is always used at the terminating end of the circuit. Option N provides for an improved grounding arrangement for line powered CSU applications, but may also be used when the line is station powered. Refer to Fig. 2 and Table A.

2.03 The 551A CSU is usually line powered and equipped with 206- or 236-type repeaters. The 206-type repeater is normally wired for option Z. The 236-type repeater must be wired for X option in order to supply 140 mA to the line. In cases where it is necessary to extend the local loop beyond the central office powering capability, the CSU and part of the line can be powered at the customer's end by locally provided power supplies. If required, these auxiliary power supplies must be locally engineered. Powering options are provided by installing the power strapping. Refer to Table A for the strapping connection and Table B for the specific option or combination of options required for the powering combinations.



Before the 206-type repeater is installed, it must be equipped with the proper 836-type network as determined by the T1 line requirements.

2.04 The 206- or 236-type repeater must be ordered separately and inserted into jack J1. Refer to Tables C, D, and E for aid in selecting the correct repeater and repeater options for the particular application. The 206 or 236 repeater options are provided by turning down the specified option screws fully clockwise (IN position). Option screws not specified should be in the up position (two complete turns counterclockwise).

3. INSTALLATION

3.01 The 551A CSU is designed to mount in a 23-inch relay rack or a KS-20018 cabinet. The two required 841570815 mounting brackets are factory provided.

3.02 The chassis accepts, on a plug-in basis, the 4019DA or 4019DL signal monitor and 206- or 236-type repeater. The 206 or 236 repeater is not part of the 551A CSU and must be ordered separately.

3.03 A 598-type fault location filter is provided on an optional basis (Fig. 3). The fault location filter is not part of the 551A CSU and must be ordered separately. The particular code of the fault location filter is determined by the T1 line installation. To install the fault location filter, remove the top and rear covers and the 4019DA or 4019DL circuit pack. Connect the four spade tipped leads (stored in the chassis) to the terminal board on the filter. Dress the

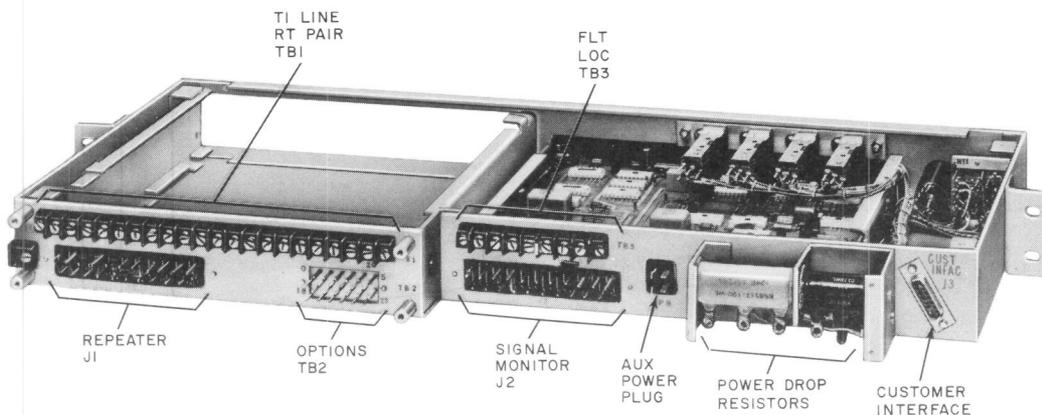


Fig. 2—551A CSU—Rear View With Covers Removed

TABLE A
551A CSU OPTION CONNECTIONS

OPTION	FEATURE	CONNECTION	
		FROM	TO
M	Fault Location Line Termination	TB3:6	TB3:7 through 1000Ω resistor (See Fig. 4)
N	Station powered*	TB1:13 TB1:14	TB1:GRD TB2:GRD
R	598-type fault location filter installed	Terminal 1† Terminal 2† Terminal 3† Terminal 4†	TB3:7 TB3:6 TB3:5 TB3:4
S	598-type fault location filter not installed	TB3:4	TB3:5
T	Station powered*	TB2:6 TB2:8 TB2:9	TB2:7 TB2:10 TB2:13
V		TB2:9	TB2:11
W		TB2:6	TB2:10
X		TB2:0 TB2:1 TB2:2	TB2:5 TB2:4 TB2:3
Y		TB2:9	TB2:12
Z		Line powered	TB2:3 TB2:5

* These options are used singly or in combination to provide for station power supplies as shown in Table B.

† These terminals are located on the 598-type fault location filter. Four wires have been provided and stored in the CSU for this option.

TABLE B
STATION POWER OPTIONS

STATION POWER	OPTIONS
-48 Vdc	T
+130 Vdc	V, W, X
+130 Vdc -48 Vdc	T, X
+130 Vdc -130 Vdc	W, X, Y

opposite ends of these wires through the holes provided in the chassis and terminate the spade tips on TB3. Refer to Table A, R option, for correct wiring. Discard the screws supplied with the 598 fault location filter and use the screws supplied with the CSU. Locate the filter in the proper position and secure by installing one screw in each standoff.

4. CONNECTION

4.01 The 551A CSU connection to the T1 lines, order wire, and remote test pair (when provided) is made by screw connection to TB1 (Fig. 2 and 4).

Connection to the fault location pair is made by screw connection to TB3. It will be necessary to remove the rear cover to gain access to TB1 and TB3.

4.02 The customer interface connections are made at the rear of the CSU (J3). The CSU is equipped with a subminiature 15-pin female connector, DA-15S. The customer interface cable should be terminated in a 15-pin subminiature connector equipped with a right-angle hood and sliding lock assembly that will mate and lock with the connector on the CSU. The maximum cable distance between the customer provided equipment and the CSU is 500 feet, nominally 24-gauge shielded twisted pair.

4.03 Replace all CSU covers. Perform the procedure specified in paragraph 1.06 in reverse order.

5. TEST

5.01 After the CSU has been installed, it should be tested to determine if it is operating properly. Perform the remote loopback test, repeater test using the fault locating pair from the remote location, and end-to-end test. Refer to Section 595-105-500 for the test procedures.

TABLE C

POWERING CONDITIONS FOR THE 236AA, 236AB, AND 206-TYPE REPEATERS

		POWER OPTION	POWERING CONDITION	REPEATER OPTION SCREWS (NOTE)
Office Repeater Powered In Series With line Repeaters	At Powering Office*	1	Bidirectional System	
			Unidirectional System† – First Shelf of Power Loop; Office Repeater Powered in Series with Receive Line Repeaters	C, E, K‡
		7	Unidirectional System† – First Shelf of Power Loop; Office Repeater Powered in Series with Transmit Line Repeaters	B, D, G‡
		2	Unidirectional System† – Second Shelf of Power Loop; Office Repeater Powered in Series with Receive Line Repeaters	A, G, M
	At Power Looping Office	3	Bidirectional System	D, K
		1	Unidirectional System† – First Shelf of Power Loop; Office Repeater Powered in Series with Receive Line Repeaters	C, E, K‡
		7	Unidirectional System† – First Shelf of Power Loop; Office Repeater Powered in Series with Transmit Line Repeaters	B, D, G‡
		2	Unidirectional System† – Second Shelf of Power Loop; Office Repeater Powered in Series with Receive Line Repeaters	A, G, M
Office Repeater Powered Separately From Line Repeaters	At Power Office*	4	Bidirectional System	
			Unidirectional System† – First Shelf of Power Loop	B, E, H, N
		5	Unidirectional System† – Second Shelf of Power Loop	A, F, H, N
	At Power Looping Office	6	Bidirectional System	H, J, N
		4	Unidirectional System† – First Shelf of Power Loop	B, E, H, N
		5	Unidirectional System† – Second Shelf of Power Loop	A, F, H, N

Note: Powering conditions are provided by turning down option screws on switch S101, as specified, to maximum clockwise position. Option screws not specified should remain in up position (two complete turns counterclockwise).

* 236AA, 206A, 206H, 206B, and 206J only.

† In a unidirectional system, two office repeaters are required to complete the power loop.

‡ When the office repeaters are powered in series with the line at both ends, these options must be used in pairs at both ends. When office repeaters in only one of the two offices are powered in series with the line, options C, E, K on the first shelf and A, G, M on the second shelf result in one power loop having two more Zener power supplies than the other. Whereas options B, D, G on the first shelf and A, G, M on the second shelf result in both power loops having an equal number of Zener power supplies. However, when options B, D, G and A, B, M are used, the loss of either power loop will affect both directions of transmission. This is not true when using options C, E, K and A, G, M.

TABLE D

POWERING OPTIONS FOR THE
236AA and 236AB REPEATERS

OFFICE BATTERY (NOTE)	OPTIONS REQUIRED	
	SELECTOR BLOCK S201	SWITCH S202
-48V and battery ret*	Open	Y
+130V & battery ret*	R	Z
+130V and -48V	Open	Z
+130V and -130V	Open	Z

Note: Office battery voltages are selected, as required, per SD-97095-02.

* When using -48V and battery return, F201 must be replaced with a dummy fuse. When using +130V and battery return, F202 must be replaced with a dummy fuse.

TABLE E

CURRENT OPTION FOR THE 236AA AND
236B REPEATERS

NOMINAL LINE CURRENT	OPTION, SWITCH S-203
140 mA	X

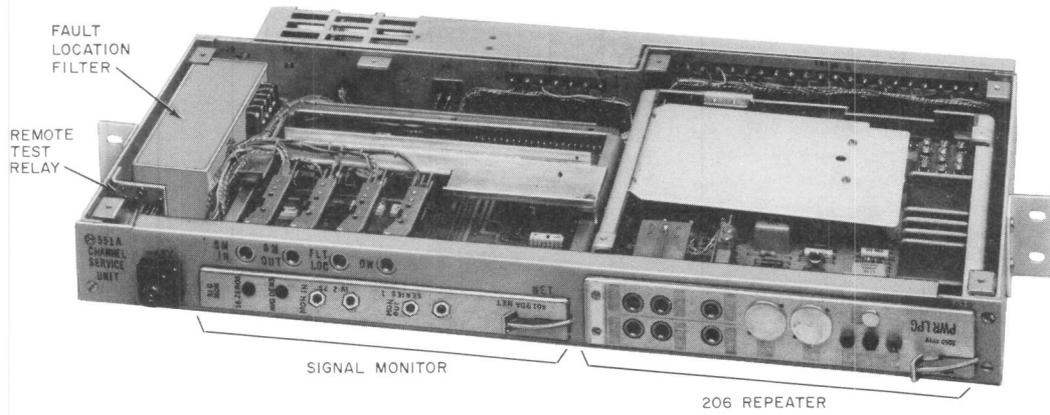


Fig. 3—551A CSU—Cover Removed

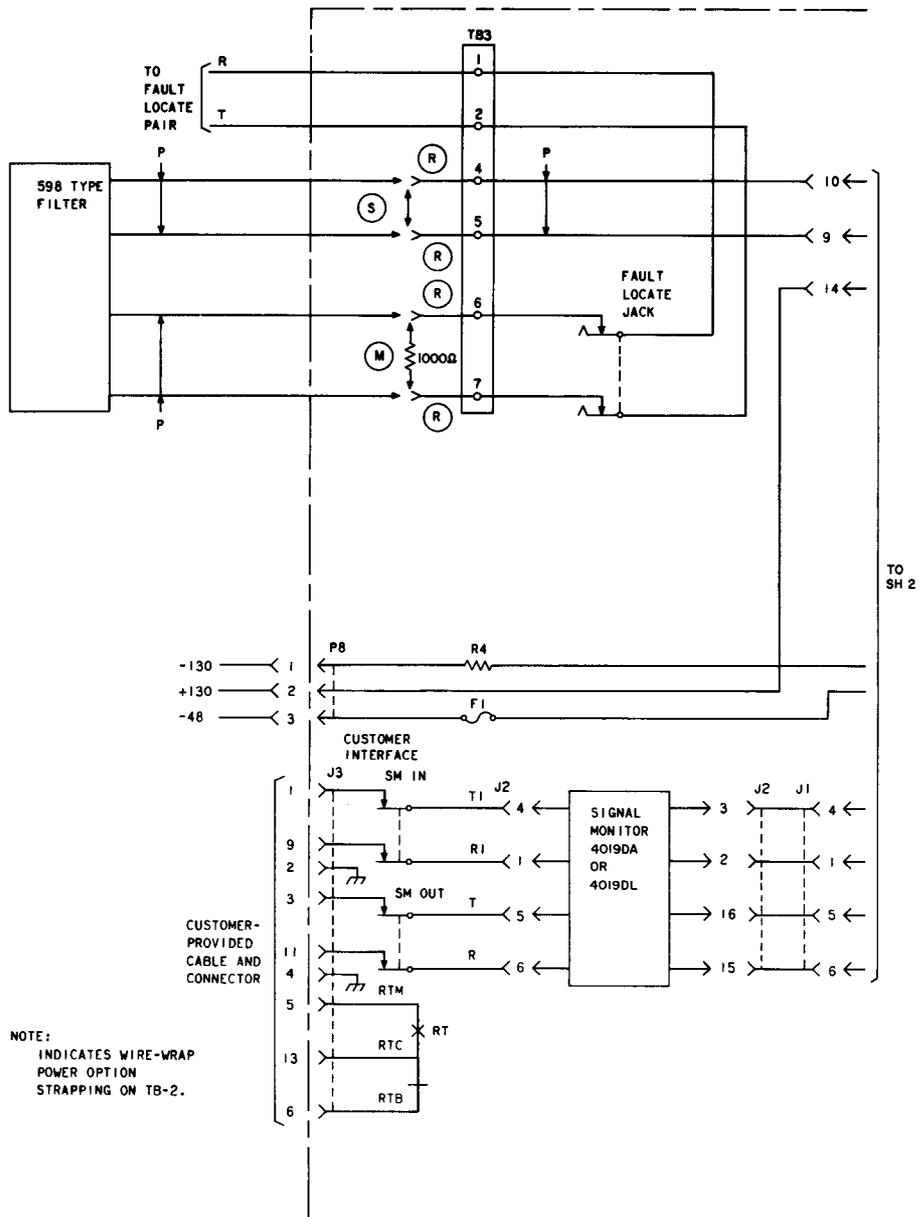


Fig. 4—551A CSU—Connection Diagram (Sheet 1 of 2)

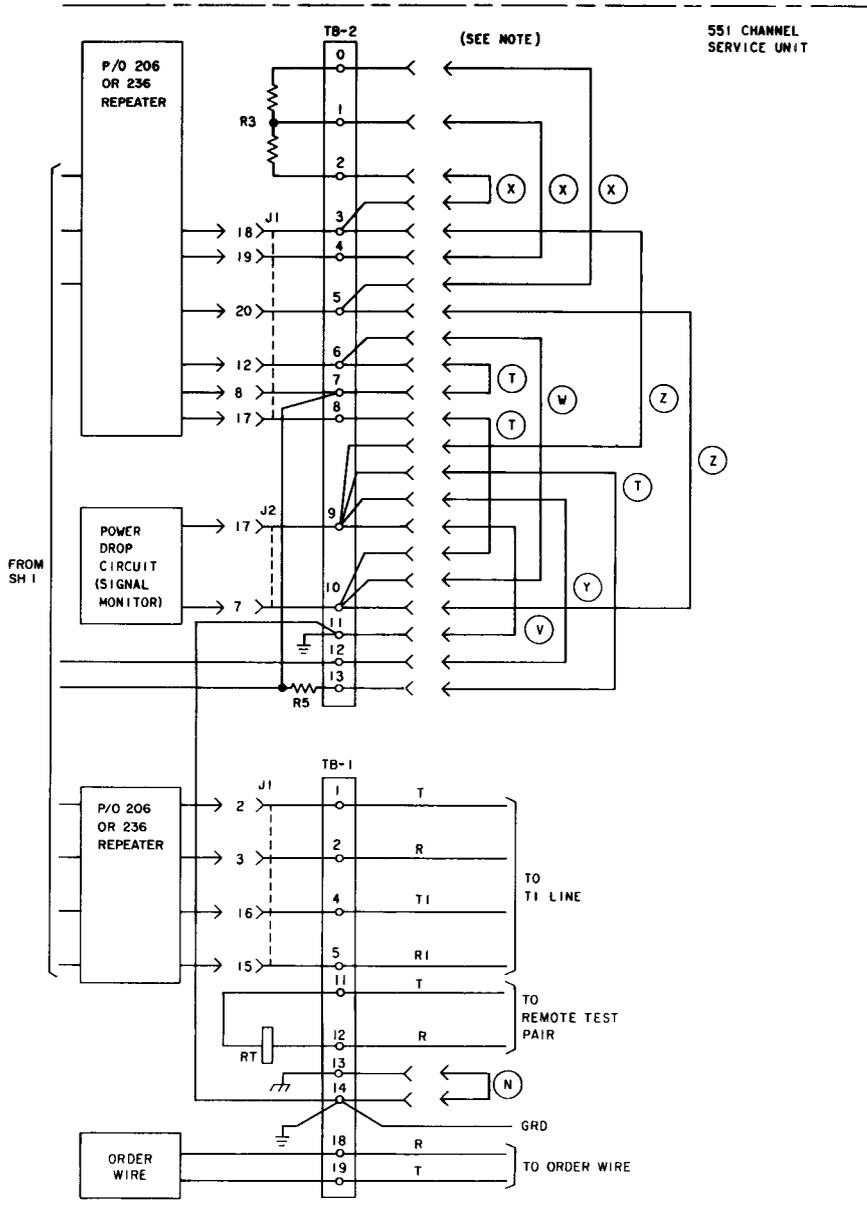


Fig. 4—551A CSU—Connection Diagram (Sheet 2 of 2)