

24V4B TELEPHONE REPEATER

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1. GENERAL

1.01 This section is reissued to delete information now covered in the descriptive section on the 24V4B Repeater Mounting Unit, and to withdraw from Table E the J86738A L1 power supply, which has been found inconvenient to use for supplying power to repeaters.

1.02 This section covers the 24V4B telephone repeater per SD-99739-01. The 24V4B designation has been chosen to distinguish this repeater from the original 24V4 repeater, which will henceforth be known as the 24V4A repeater.

1.03 The 24V4B repeater is designed for installation in PBX systems, key station systems, and private line stations to terminate 4-wire service at the customer's premises. Flexibility of this repeater is achieved by the provision of strapping terminals on the back of the mounting

1.04 The 24V4B repeater mounting is described in another section. A complete 24V4B repeater consists of the mounting, two 227-type amplifiers or 849-type networks, a 1-type terminating set, and a 359-type equalizer, all plugged into the mounting unit as shown in Fig. 1. A jack field is included as a permanent part of the repeater mounting.

2. STRAPPING

2.01 Forty-eight terminals are brought out at the rear of the mounting and secured to a terminal board (TB1) as shown in Fig. 2. These terminals are used for setting up the required circuit arrangements as explained in 2.02.

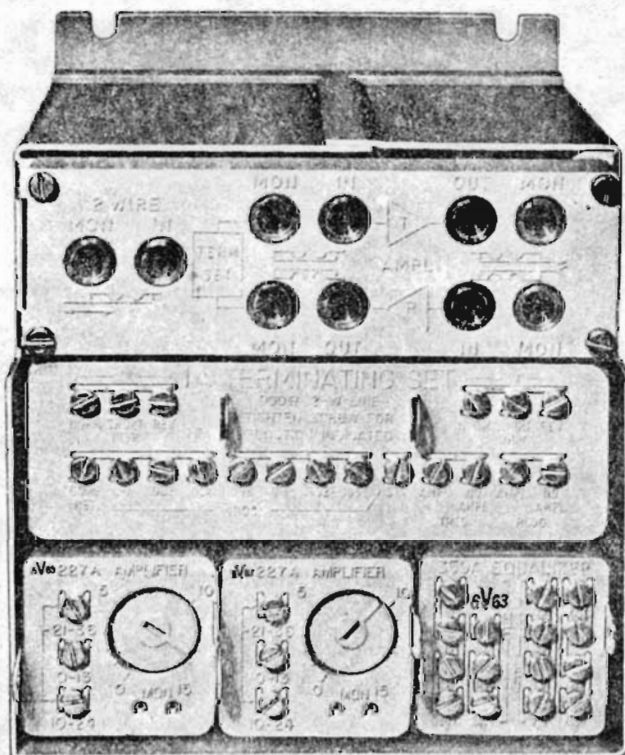


Fig. 1 - 24V4B Repeater, Front View

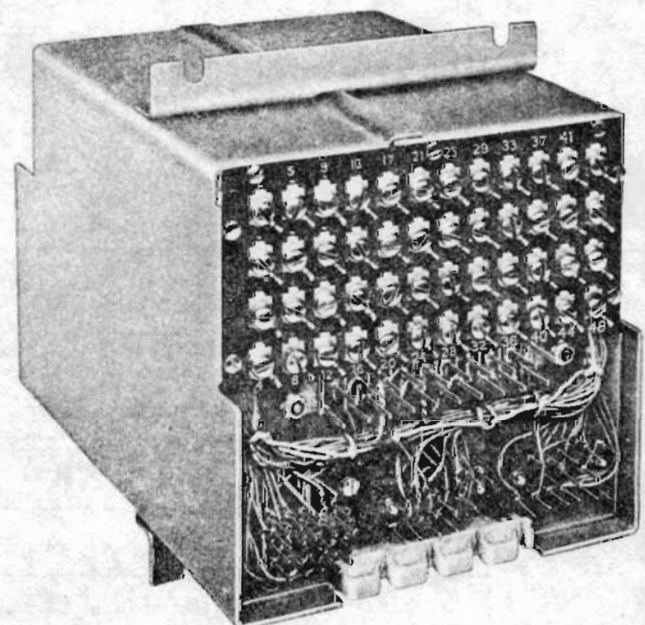


Fig. 2 - 24V4B Repeater, Rear View

2.02 Strapping information for specific circuit arrangements is shown in Tables A through D. Strapping shown in Table A is for the standard 24V4B circuit which is electrically the same as the 24V4A circuit. To use a terminating set without amplifiers, use strapping in Table B. For circuits without terminating sets and requiring one amplifier only, refer to Table C or D. For circuits without terminating sets and requiring two amplifiers, refer to Tables C and D. (See Fig. 4 for repeater schematic.)

2.03 Front panel screw-type adjustments are shown in Fig. 1.

3. POWER REQUIREMENTS

3.01 Each amplifier nominally requires 18 milliamperes at 24 volts dc. However, means are provided for using either 24-volt or 48-volt battery supply.

Caution: The following procedure should be performed in the order indicated to prevent damage to the amplifiers.

3.02 To operate from 48 volts (1) remove strap between terminals 23 and 24, if provided, and (2) connect -48 volt battery lead to terminal 32 and ground lead to terminal 28. This in-

serts a 1400-ohm voltage-dropping resistor in series with the battery supply of each amplifier. These resistors usually provide adequate filtering to suppress battery noise.

3.03 To operate from 24 volts (1) strap terminal 23 to 24 and (2) connect -24 volt battery lead to terminal 24 and ground lead to terminal 28. A noise suppression filter (see Fig. 3), electrically the same as J98615AM, is required when the battery supply does not meet the requirement of 3.04. It has been made available on a panel 2.16 inches wide by 6.94 inches high and is designed to mount on 6.56-inch vertical hole centers (the same as the 24V4B repeater). A filter panel may be used for as many as 12 amplifiers and is provided with a single common fuse. Each 24V OUT provides output for two amplifiers.

3.04 The noise at terminals 23, 24 to 28 on TB1 should at no time exceed 24 dbrnc as measured with the 3A noise measuring set arranged for bridging.

3.05 The noise suppression filter that may be required for 24-volt operation is furnished as a J98615BB, L1 equipment unit.

TABLE A
TB1 STRAPPING — 24V4B OPERATION

| PWR | LOOP SX STRP | TERM. STRP | 2-WIRE T & R | 4-WIRE TRMTG | 4-WIRE RCVG |
|--------------|--------------|------------|--------------|--------------|-------------|
| (See Part 3) | 9 to 10 | 3 to 4 | T to 21 | T to 2 | T to 46 |
| | 37 to 38 | 7 to 8 | R to 25 | R to 1 | R to 45 |
| | | 14 to 15 | | | |
| | | 18 to 19 | | | |
| | | 35 to 36 | | | |
| | | 43 to 44 | | | |
| | | 47 to 48 | | | |

TABLE B
TB1 STRAPPING — TERMINATING SETS WITHOUT AMPLIFIERS

| PWR | TERM. STRP | 2-WIRE T & R | 4-WIRE TRMTG | 4-WIRE RCVG |
|-----------|------------|-----------------|-----------------|----------------|
| Not Req'd | 3 to 4 | T to 21 | T to 39 | T to 19 |
| | 7 to 8 | R to 25 | R to 40 | R to 15 |
| | 43 to 44 | | | |
| | 47 to 48 | | | |

TABLE C
TB1 STRAPPING — SINGLE AMPLIFIER OPERATION — TRANSMITTING

| STRP FOR SX BYPASS AROUND AMPLIFIER | PWR | IMPEDANCE | | TERM. STRP | PLUG-IN EQUALIZER | INPUT T & R | OUTPUT T & R |
|--|-----------------|-----------|--------|---------------|----------------------|----------------|-----------------|
| | | INPUT | OUTPUT | | | | |
| | | OHMS | | | | | |
| 5 to 6 | (See Part 3) | 600 | 600 | 35 to 36 | 359C | T to 48 | T to 2 |
| | | | | | | R to 44 | R to 1 |
| | | 1200 | 1200 | 34 to 35 | 359E | T to 48 | T to 2 |
| | | | | | | R to 44 | R to 1 |
| | | 600 | 150 | 35 to 36 | 359B | T to 48 | T to 2 |
| | | | | | | R to 44 | R to 1 |
| | | 600 | 600 | 35 to 36 | 359F | T to 48 | T to 2 |
| | | | | | | R to 44 | R to 1 |

TABLE D
TB1 STRAPPING — SINGLE AMPLIFIER OPERATION — RECEIVING

| STRP FOR SX BYPASS AROUND AMPLIFIER | PWR | IMPEDANCE | | TERM. STRP | PLUG-IN EQUALIZER | INPUT T & R | OUTPUT T & R |
|--|-----------------|-----------|--------|---------------|----------------------|----------------|-----------------|
| | | INPUT | OUTPUT | | | | |
| | | OHMS | | | | | |
| 41 to 42 | (See Part 3) | 600 | 600 | 18 to 19 | 359C | T to 46 | T to 4 |
| | | | | 14 to 15 | | R to 45 | R to 8 |
| | | 1200 | 1200 | 19 to 20 | 359E | T to 46 | T to 4 |
| | | | | 15 to 16 | | R to 45 | R to 8 |
| | | 150 | 600 | 18 to 19 | 359B | T to 46 | T to 4 |
| | | | | 14 to 15 | | R to 45 | R to 8 |
| | | 600 | 600 | 18 to 19 | 359F | T to 46 | T to 4 |
| | | | | 14 to 15 | | R to 45 | R to 8 |

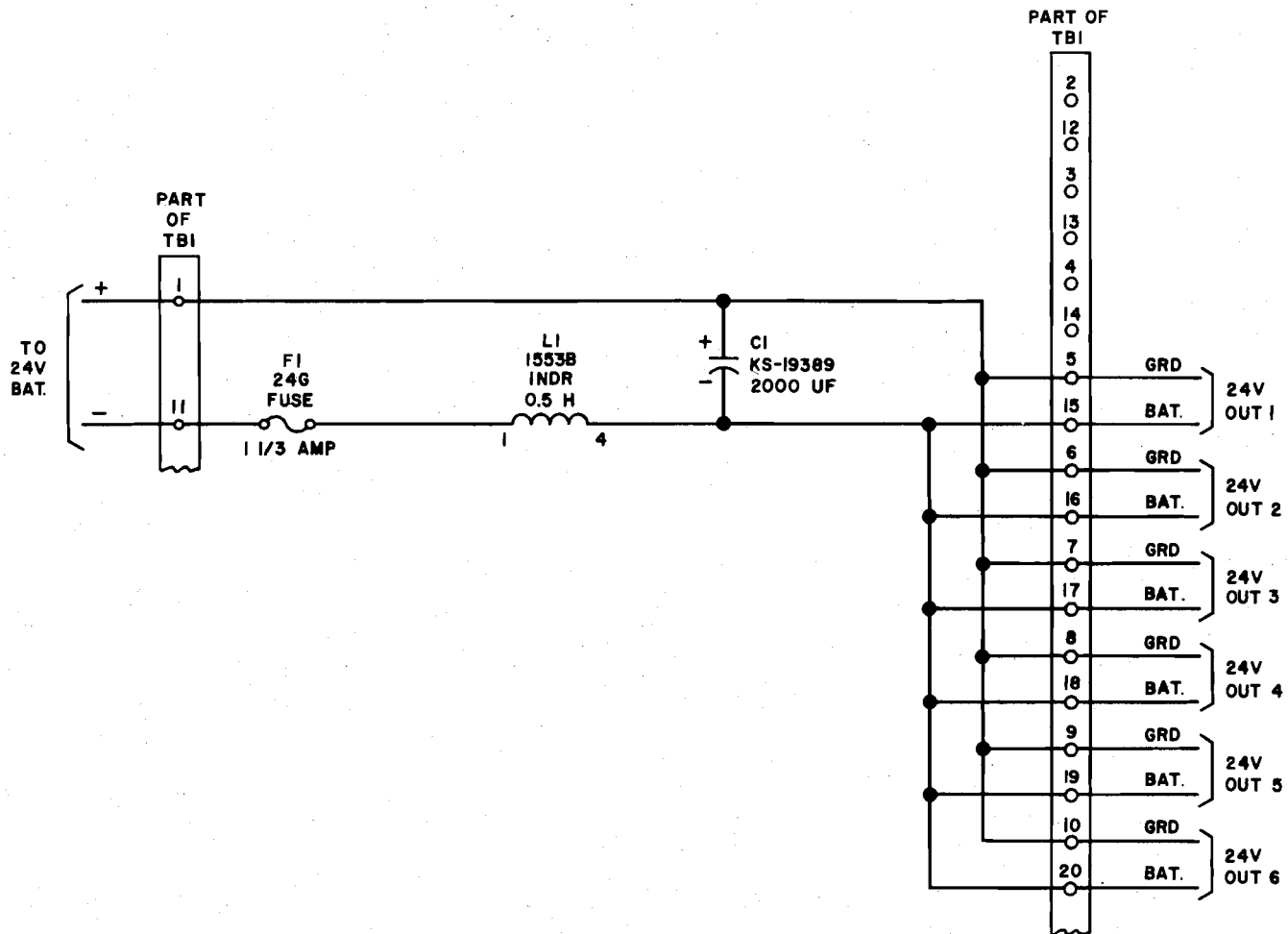


Fig. 3 - 24-Volt Filter for 1 to 12 Amplifiers

3.06 Some acceptable power supplies meeting the noise requirement of 3.04 are listed in Table E.

4. REFERENCES

4.01 The following references relate to this section.

SD-99739-01

24V4B Telephone Repeater
Connecting Circuits and Bat-
tery Supply

J98615BA, L1
J98615BB, L1

V4 Telephone Repeater — Bay
Equipments and Associated
Panels

TABLE E
POWER SUPPLIES

| CODE | VOLTAGE RANGE | LOAD RANGE | INSTRUCTIONS |
|--|--------------------|--------------------------------------|--|
| KS-15620, L12 | 45 to 51 volts | 0 to 2 Amp (1 to 111 amplifiers) | — |
| J86731A, L6 | 20 to 26 volts | 36 to 216 mA (2 to 12 amplifiers) | Use (talk) output. |
| J86731D, L1 | 20 to 26 volts | 36 to 216 mA (2 to 12 amplifiers) | Use (talk) output. |
| J87212A, L1 (Regulated Supply) | 23.2 to 25.8 volts | 18 to 250 mA (1 to 13 amplifiers) | 1—Move diode from terminal E1 to E6. 2—Move diode from terminal E2 to E3. 3—Remove straps from resistors R1 and R2. 4—Ground +12 volt terminal and connect amplifiers to -12 volt terminal to obtain -24 volts. |
| Note: Power supplies KS-15620, L12, J86731A, L6, and J86731D, L1, are nonregulated and will give the voltage range listed above only when the load range is strictly observed and the correct transformer primary line tap is used for the 60-cycle input line voltage. | | | |

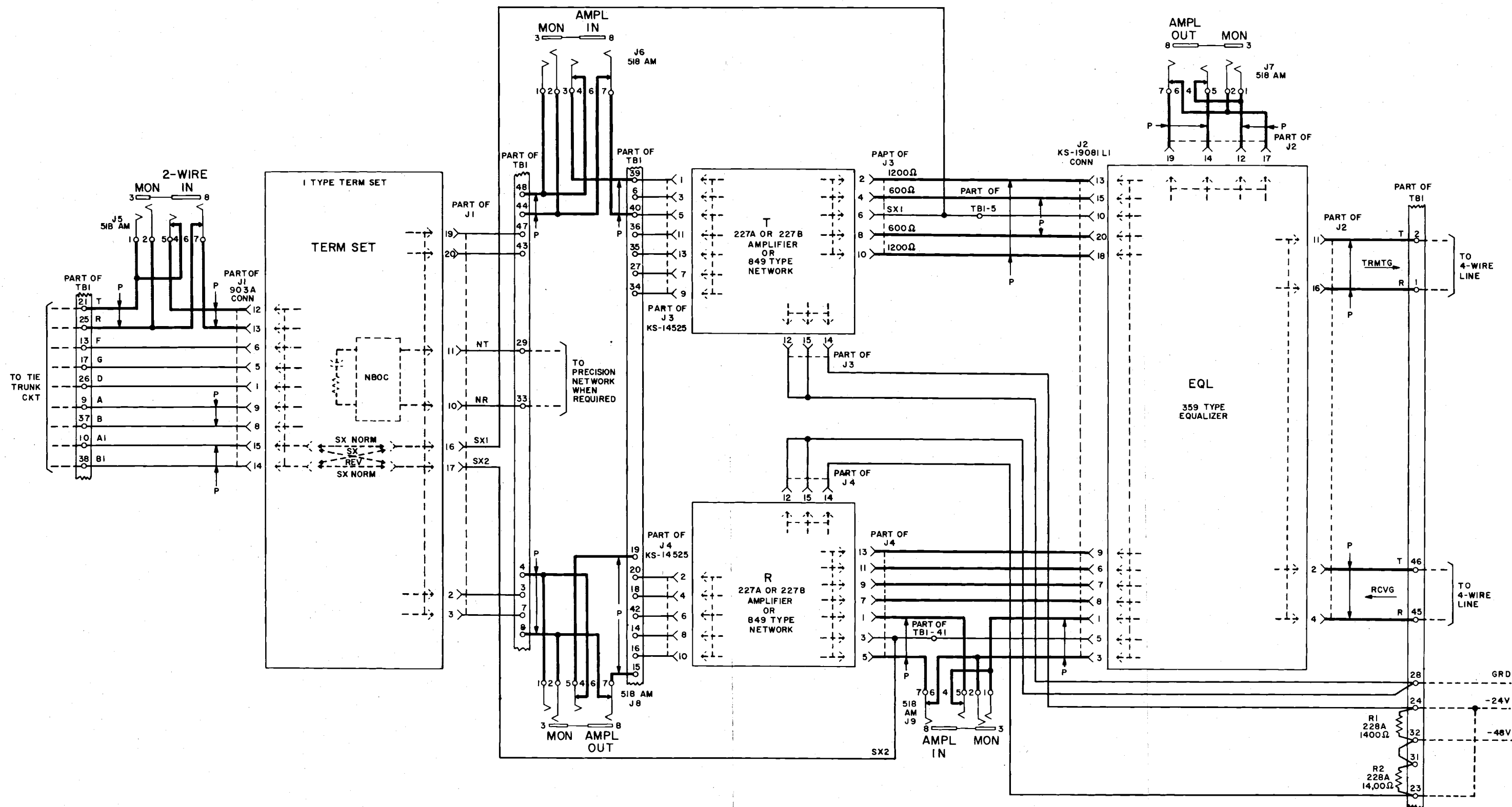


Fig. 4—24V4B Telephone Repeater Connecting Circuits and Battery Supply

24V4B TELEPHONE REPEATER

1.001 This addendum supplements Section 332-104-102, Issue 2.

1.002 It is reissued to:

- Update the format to comply with Pacific Company (PAC) standards
- Include the appropriate legend on Page 1 in accordance with AT&T's "Guidelines and Procedures for Safeguarding Information" and PAC's System Instruction (SI) 178.

1.003 It provides a caution note on the setting of the "S1" screw-down type adjustment, located on the face plate of the 1-type terminating sets.

1. GENERAL.

The following change applies to Part 1 of the section.

- 1.03 — added *Caution*.

1.03 (Add after the last sentence)

CAUTION: When using two-way tie trunk equipment of the SD-65718-01 or SD-66799-01 type, the "S1" adjustment on the 1-type terminating sets should be in the "out" or "open" position. If the "S1" is in the "closed" or "in" position, it will shunt out the 2 db switch pad associated with the trunk equipment.

NOTICE

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