V4 TELEPHONE REPEATER
24V4A REPEATER MOUNTING SHELF
DESCRIPTION

CONTENTS PAGE

1. GENERAL

1.01 This section describes the J98615AJ mounting shelf (SD-97047-01) for one 24V4A telephone repeater. ▶This repeater is a 2-wire to 4-wire circuit when using a 1-type terminating set, and a 4-wire to 4-wire extension circuit when using a 4182-type network.◀

1.02 This section is reissued to include the 4182-type networks.

1.03 The shelf includes a test field and provides space for the following V4 plug-in apparatus units:

(a) One 1-Type Terminating Set ▶or one 4182-Type Network.◀

(b) Two 227-Type Amplifiers or 849-Type Networks, or one of each.

(c) One 359-Type Equalizer.

2. EQUIPMENT DESCRIPTION

2.01 Figure 1 shows the J98615AJ, 24V4A repeater mounting shelf typically equipped with V4 plug-in apparatus. The mounting shelf assembly consists of four connector sockets, a test jack field, and connecting circuit wiring assembled in a shelf which measures 1-3/4 inches high by 23 inches long. The 24V4A mounting shelf is arranged to mount in bays drilled for 1-3/4 inch mounting plates.

2.02 The plug-in apparatus mounting positions are designated on the front edge of the mounting shelf. The associated connector sockets are mounted on the rear upright part of the shelf. From left to right, the mounting positions, associated connector sockets, and plug-in apparatus are as follows:

MOUNTING POSITION	CONNECTOR SOCKET	PLUG-IN APPARATUS
TERM. SET ▶/NET.◀	J1 (20-pin)	1-Type Terminating Set ▶/4182-Type Network◀
T AMPL	J3 (15-pin)	Transmitting 227-Type Amplifier or 849-Type Network
R AMPL	J4 (15-pin)	Receiving 227-Type Amplifier or 849-Type Network
EQL	J2 (20-pin)	359-Type Equalizer

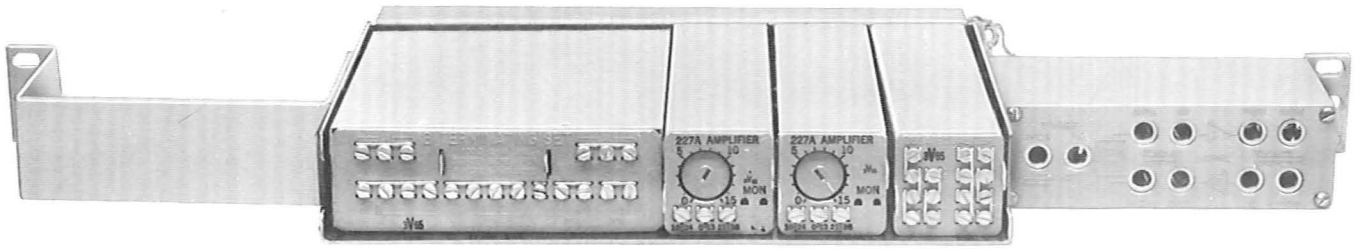

Fig. 1—24V4A Repeater Mounting Shelf—Typically Equipped

2.03 The test jack field, located to the right of the plug-in sockets, is an integral part of the mounting shelf. The test jack field consists of five 518M (twin) jacks. These test jacks are permanently wired into the repeater mounting shelf circuit to provide access to the amplifier inputs and outputs, 2- and 4-wire lines, and 2- and 4-wire sides of the terminating set. These test jacks provide convenient points for testing and alignment of the repeater and permit high-impedance monitoring at each of these points. The test jack designations and their locations in the repeater circuit are permanently marked on the faceplate of the test jack field to promote correct usage when testing and adjusting the repeater.

3. CIRCUIT DESCRIPTION

3.01 Figure 2 is a block schematic of the 24V4A telephone repeater illustrating the terminating set ▶network◀, amplifier/network, equalizer and test jack circuit locations, and connecting circuit wiring. When the mounting shelf is installed in an office, all circuits, including simplex signaling, are carried through the repeater by the V4 apparatus plug-in units.

4. POWER ARRANGEMENTS

4.01 For normal operation, the 227-type amplifiers require 18 milliamperes at 24 volts dc with positive ground. The J98615AJ, List 1 mounting shelf is arranged for 24-volt operation and the List 2 mounting shelf is arranged for 48-volt operation. The List 1 and List 2 shelves are the same except that the List 2 shelf is equipped with 1400-ohm voltage-dropping resistors in each of the amplifier power supply circuits. When the amplifiers are operated from a 24-volt regulated battery supply, an external battery noise filter is required. When the amplifiers are operated from a 48-volt regulated battery supply, a 1400-ohm voltage-dropping resistor is connected in series with each amplifier power supply lead. This resistor and a capacitor in the amplifier act to provide satisfactory battery noise filtering.

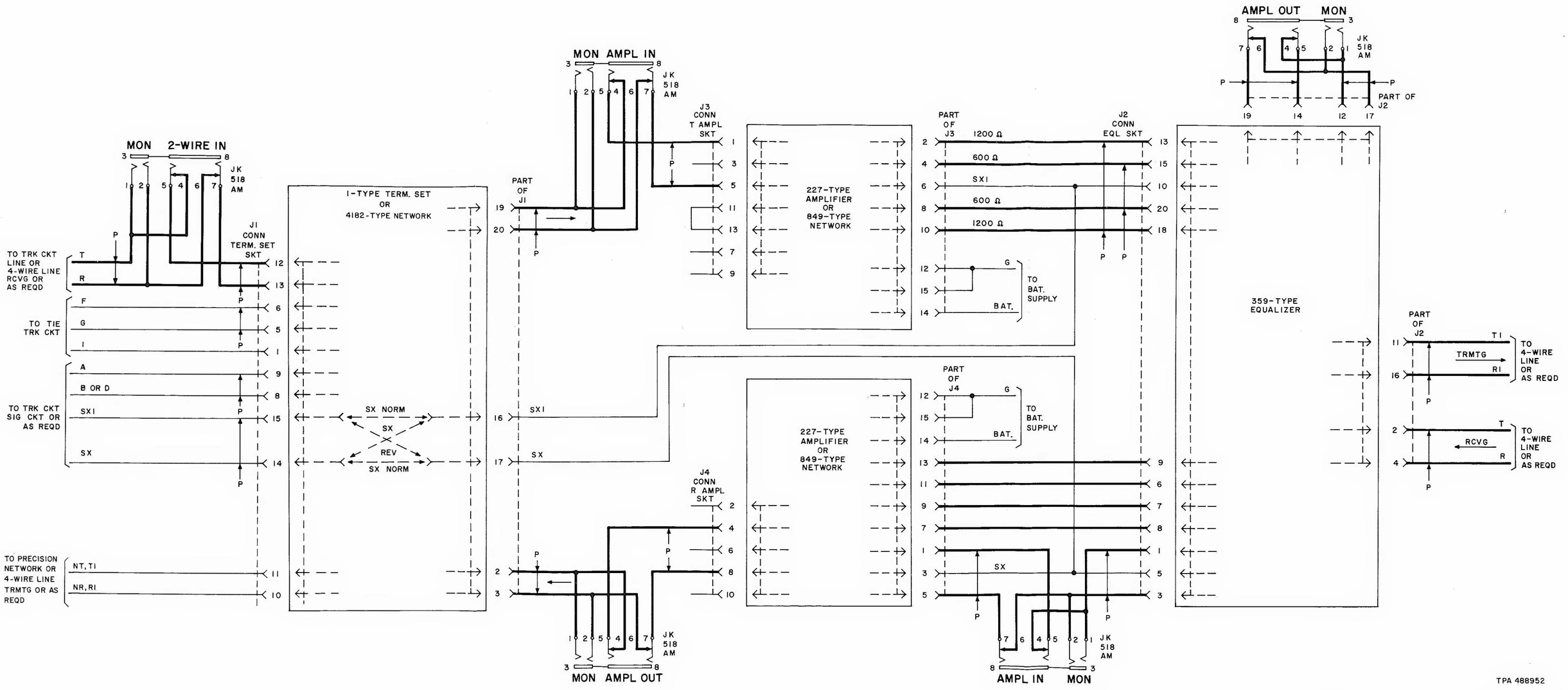

Fig. 2—24V4A Telephone Repeater Connecting Circuits—Block Schematic