

1A ALARM REPORTING TELEPHONE SET IDENTIFICATION, INSTALLATION/CONNECTIONS, SETUP AND TEST, AND MAINTENANCE

1. GENERAL

- 1.01** The photographs in this section are of pre-production units; manufactured units may differ slightly in some details.
- 1.02** The 1A Alarm Reporting Telephone will be hereafter referred to as the ART.

2. IDENTIFICATION

- 2.01** The ART, Fig. 1 and 2, is contained in a gray aluminum housing 8.4 inches square by 5.2 inches deep. The unit weighs approximately 9 pounds. The hinged front is equipped with security lock and a clear plastic window.

- 2.02** The ART provides alarm reporting service from unattended telephone stations. It responds to an alarm condition input by making a telephone call to a predesignated number and reports the alarm by voice message.

- 2.03** The telephone set at the predesignated number is referred to as the control point telephone. This telephone must be equipped with a J1A handset. Connect per Fig. 3. For complete description of the J1A handset see Section 501-210-104.

Note: The J1A handset is not a part of the ART and must be ordered separately.

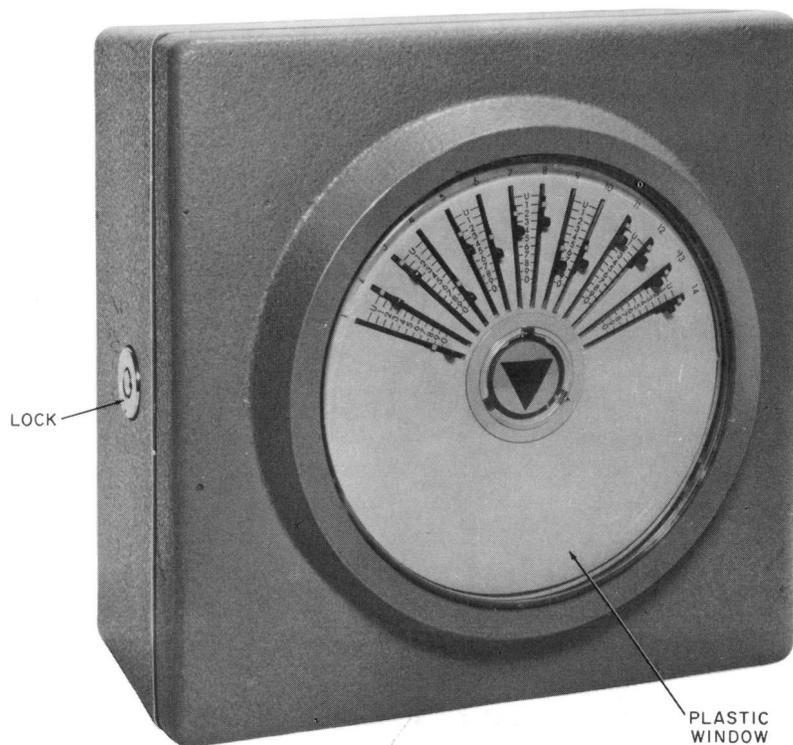


Fig. 1 — 1A Alarm Reporting Telephone Set (ART)

TABLE A
MODIFICATION OF 502B TELEPHONE SET

WIRE OR LEAD		FROM	TO
Switch Hook	(W) [S-BR]	C	GN
	(G) [S-Y]	L2	3
	(R) [S-R]	GN	1
	(BK) [S-BK]	R	E1
	(BR) [S-W]	5	1
	(Y) [S-G]	6	C
Handset	(W)	GN	3
Mtg Cord	(BK)	E2	2
Exclusion Key	(W)	E2	1
	(BK) [G-Y]	L1	4
	(Y) [R-Y]	L2	5

TABLE B
MODIFICATION OF 558D TELEPHONE SET

WIRE OR LEAD		FROM	TO
Switch Hook	(W) [S-BR]	C	GN
	(G) [S-Y]	L2	E1
	(R) [S-R]	GN	1
	(BK) [S-BK]	R	5
	(Y) [S-W]	12	C
	(BR) [S-G]	9	L2
Handset	(W)	GN	E1
Exclusion Key	(BK) [G-Y]	6	*
	(Y) [R-Y]	5	*
Add Strap		1	6

() MD color code
 [] standard color code
 * insulate and store

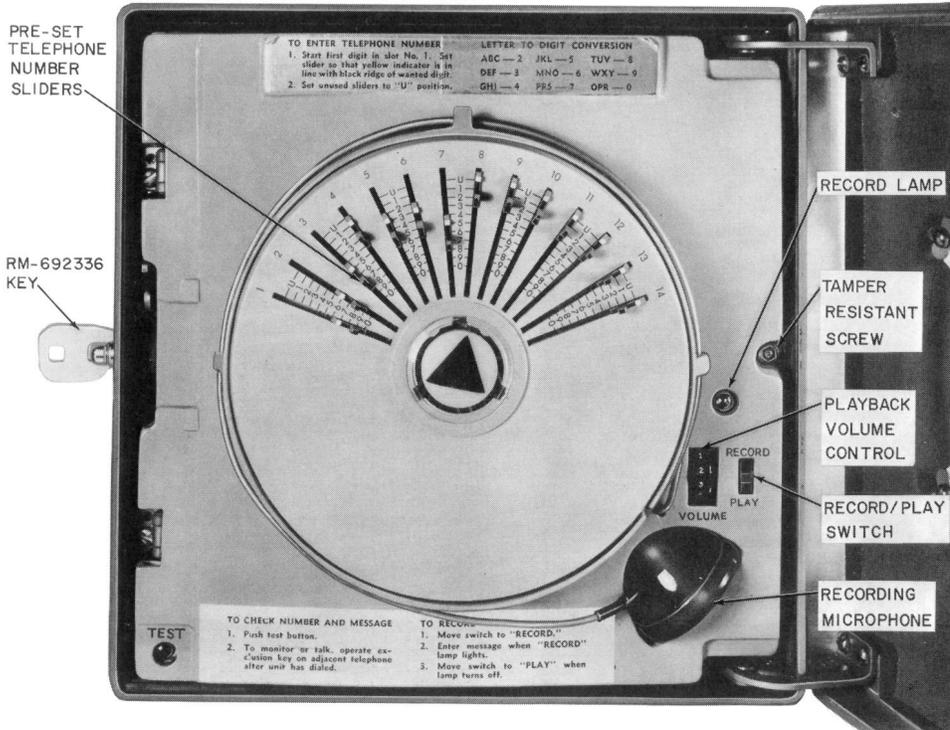


Fig. 2 — ART, Cover Open

2.04 A recommended option for use with the ART is either a 502B or 558D telephone set installed close to the ART. *The 502B or 558D telephone set must be modified per Fig. 4 and Table A or B.*

2.05 *Features of the ART are:*

- (a) It is activated from customer's detecting device.
- (b) Automatically dials a predesignated telephone number.
- (c) Customer can change the predesignated number.
- (d) Plays a prerecorded tape message 11.8 seconds long.
- (e) Customer can erase and rerecord message played.
- (f) Customer can call the ART from the control point telephone to verify the condition of the detecting device being monitored.

(g) Operates from a self-contained nickel-cadmium battery.

2.06 *Requirements and limitations:*

- (a) May be used only on individual dial, CO, Centrex, or PBX lines and responds only to bridged ringing.
- (b) Must be protected from direct sunlight, rain, long term high humidity, and temperatures lower than -10°F or higher than 140°F .
- (c) Customer can normally expect the ART to make 30 to 40 call attempts during each 24-hour period. (This is assuming average conditions of room temperature, trickle charge rate of 4 milliamperes, and with the associated telephone set not off-hook for more than a total of 2 hours in 24.)
- (d) The signal coming from the customer's detecting device must be *only the closure of "dry" normally-open contacts, ie, isolated from all other circuitry, voltages, and ground.*

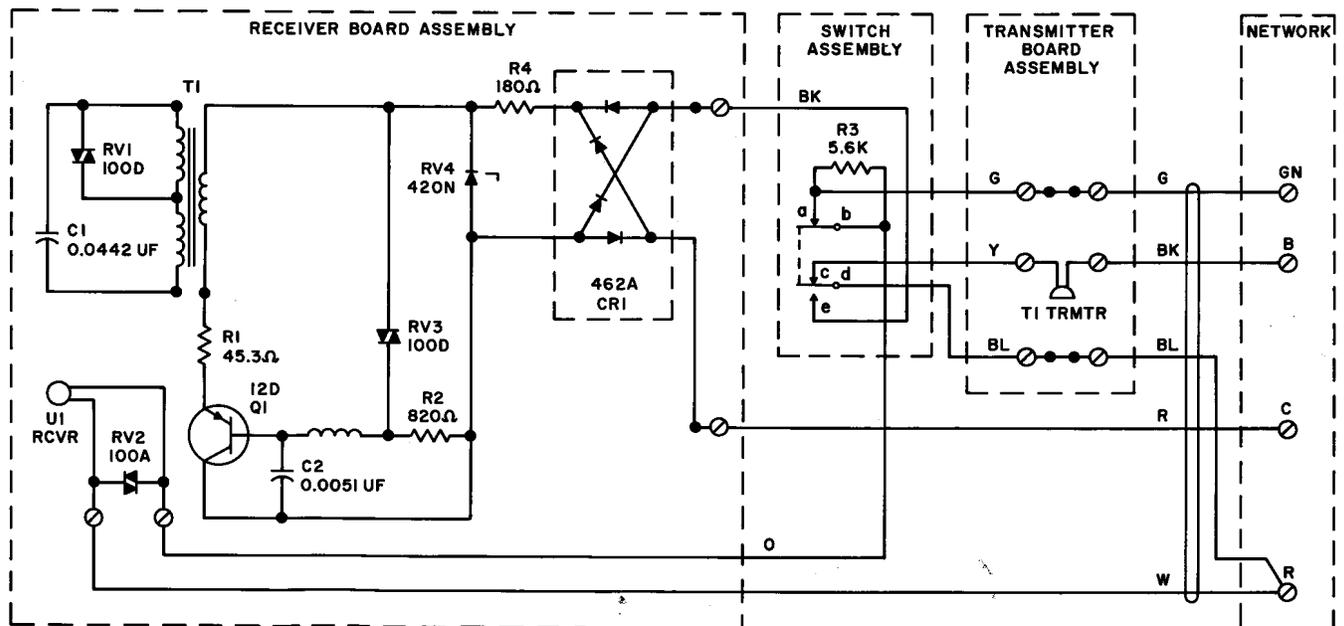


Fig. 3 — J1A Handset, Connections

3. INSTALLATION

3.01 The ART should be installed in a location not exposed to sun and rain. The location chosen should allow visual inspection of the settings of the dial sliders and sufficient side clearance on both sides for opening the hinged cover and the hinged number coding assembly.

3.02 There are three breakouts in the web on the rear of the housing to allow passage of inside wiring. Wiring is brought into the set through a wire entrance hole in the upper left-hand corner. All wiring must be passed through the wire entrance hole before mounting the set.

3.03 A terminal strip is provided for the termination of all wiring on the inside rear panel of the unit (Fig. 5). Access to the terminal strip is gained by first opening the hinged front cover of the set, using the key provided; loosening the tamper resistant screw (Fig. 2) using a KS-19192, List 1 tool, and swinging the hinged number coding assembly aside.

3.04 Provide a 42A connecting block for the customer's input signal leads (Fig. 6). Install a station protector in the line connecting the 42A block to the ART.

Note: The loop resistance of the customer's circuit to the 42A block may not exceed 1000 ohms with the contacts of the customer's detecting device closed.

3.05 The ground connection of the protector serving the customer's input signal leads and the ground connection of the protector serving the telephone line to the ART must be connected together and grounded, or if run separately, must be grounded to the same point (use a 128A1A protector where practical).

3.06 For normal conditions, as outlined in 2.06(c), it is intended that the battery shall be charged from the telephone line. The loop resistance of the telephone line must be less than 1500 ohms to assure the proper charge rate. This must be verified by the local test desk prior to installation. Further, it must be ascertained

that the battery charging current plus any line leakage will not cause the CO or PBX line relays to operate. A notation of the total current in this circuit should be made on the line card for this circuit.

3.07 The telephone line serving the ART should be designated:

- Class "A" line link assignment to prevent line load control relay operation from denying originating service to the ART.
- For assignment to a line link location that provides the ART with first preference for dial tone connection.

Note: Conditions described in 3.06 and 3.07 must be approved by local plant engineering prior to installation.

3.08 The KS-19784, List 1 battery shipped with the ART is *not* charged before shipment. It must be charged at a rate of 10 milliamperes for 24 hours using a KS-19921, List 1 rectifier, or a suitable equivalent. Use of the KS-19921, List 1 will insure the proper charge current and polarity.

3.09 A fully charged battery should measure 16-18 volts dc, no load. A battery whose no load voltage measures less than 14 volts dc should be recharged. *Do not charge, test, or use the battery in any manner not specifically called for in this section.*

Caution: Nickel-cadmium batteries can explode if subjected to a severe overcharge, a reverse charge, or a short circuit.

3.10 *Install and connect as follows:*

- (1) Physically mount the ART. A template is provided. Use an 83A backboard, where required.
- (2) Connect line from the 42A connecting block to terminals 41 and 42.

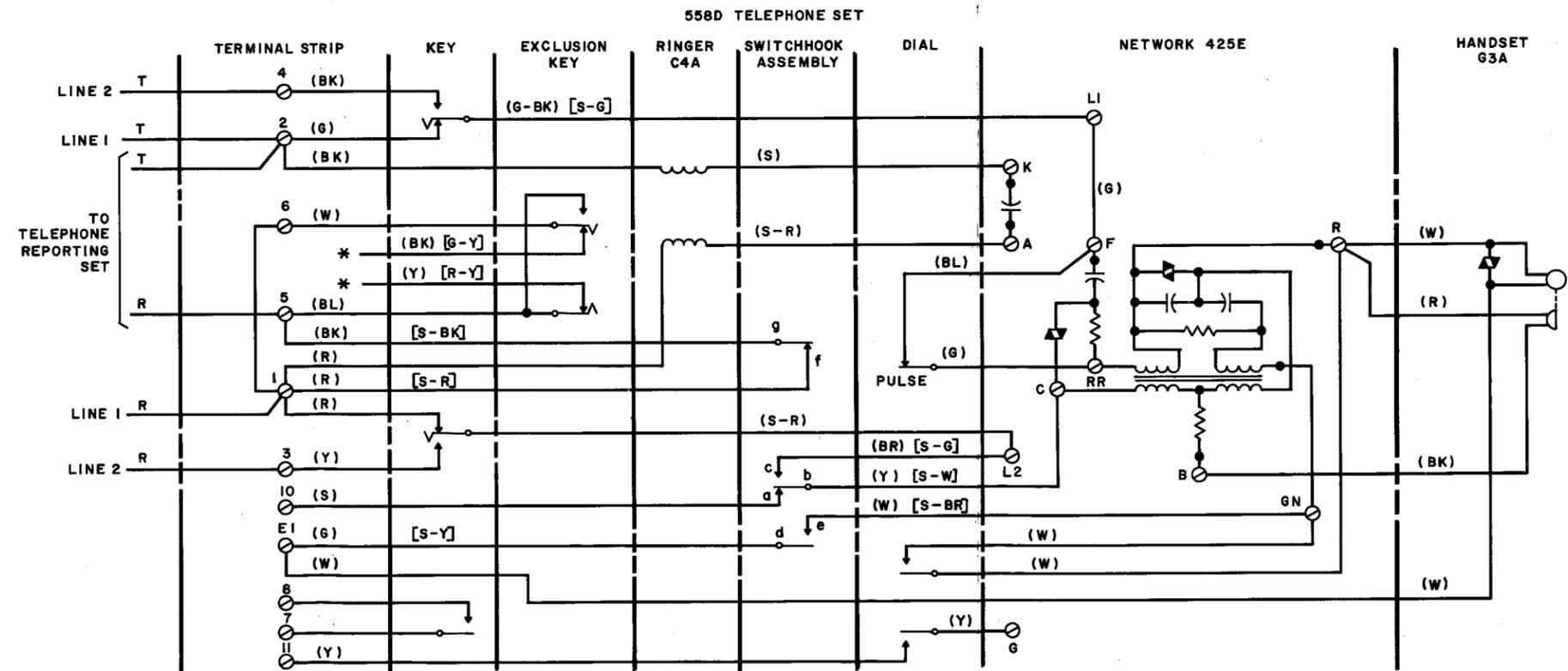
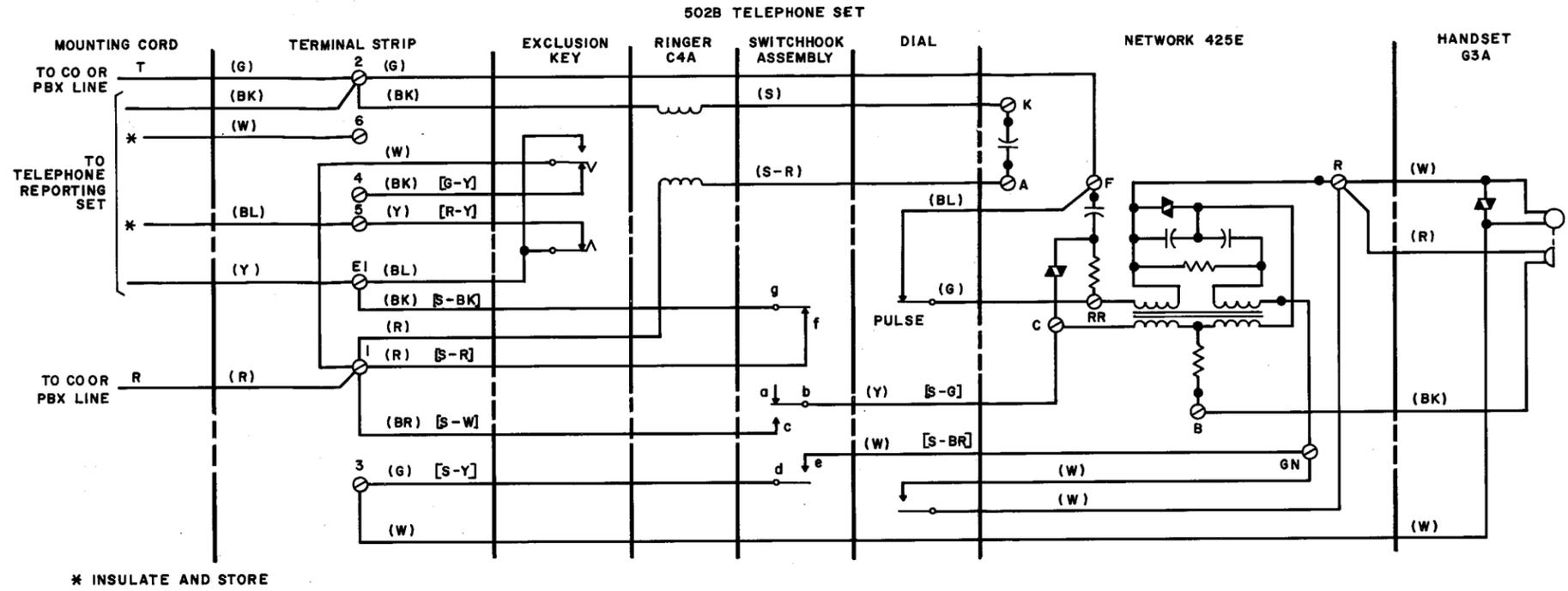


Fig. 4 - Telephone Set Modifications - 502B, 558D - For Use with ART

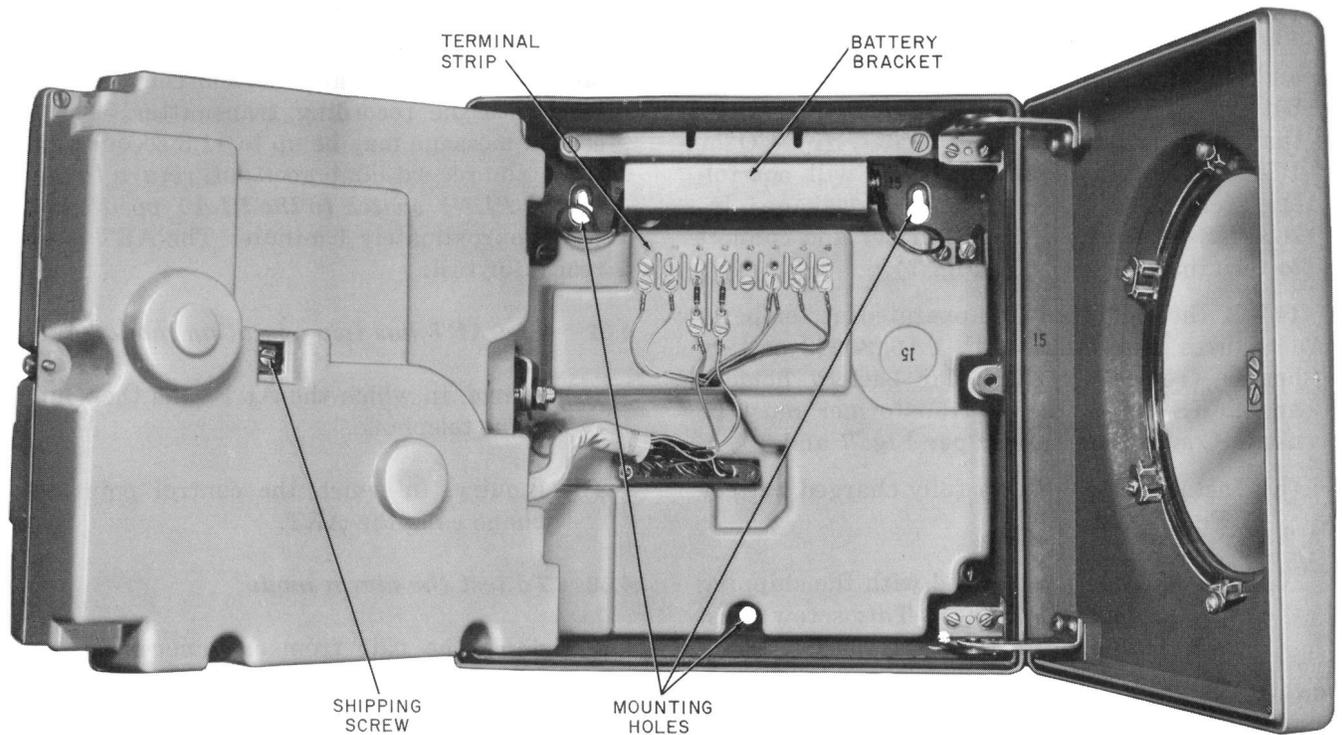


Fig. 5 — ART, Interior View

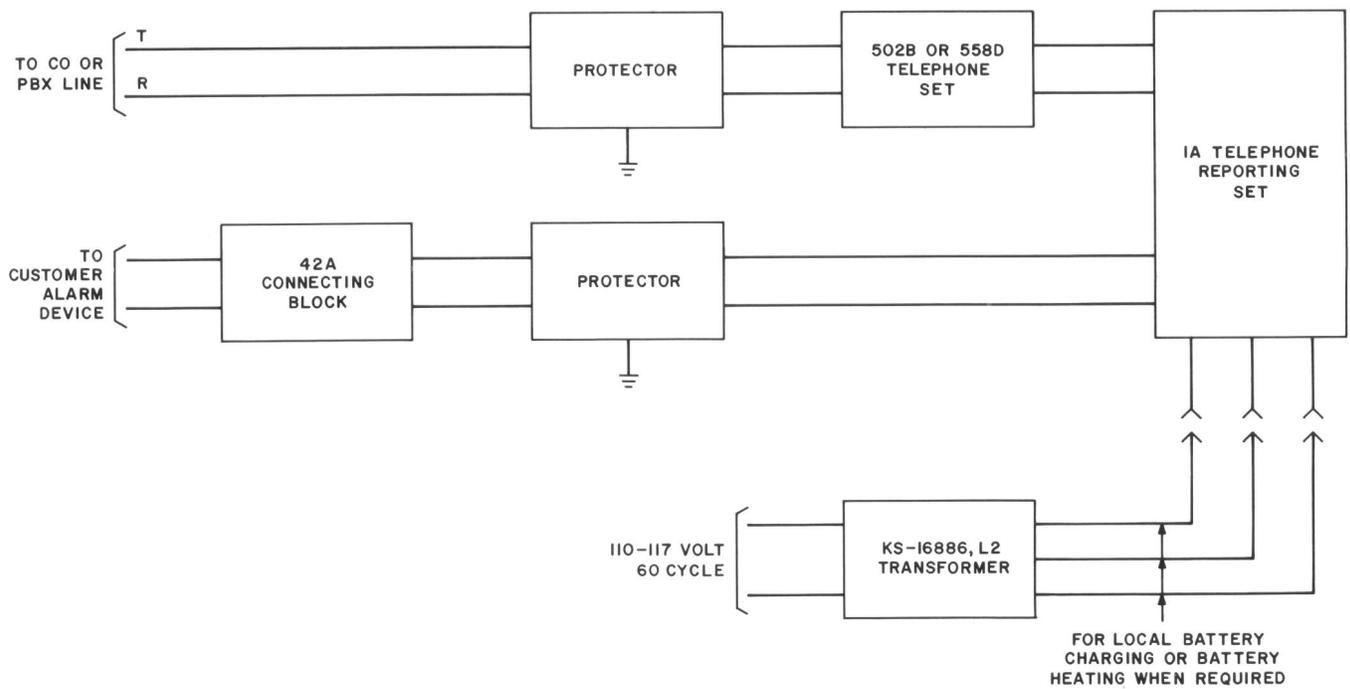


Fig. 6 — ART, Block Diagram

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(3) If the battery charge cannot be maintained from the telephone line, ie, (a) loop resistance in excess of 1500 ohms, (b) CO or PBX battery other than 48 volts (or PBX battery that may be turned off at night), (c) CO or PBX line circuit equipment that will not tolerate charging current plus line leakage. Install KS-16886, List 2 transformer and connect to terminals 45 and 46 (Fig. 7).

(4) If the ART is to be operated at temperatures lower than 0°F, a D-180053 battery heater (replaces the regular battery holder) and a KS-16886, List 2 transformer must be used. Connect the heater per Fig. 7 and 8.

(5) Install and connect a fully charged battery (Fig. 7 and 5.05).

Note: The ART is shipped with the shipping screw in place per Fig. 5. This screw must remain seated until after the battery is installed and connected. This screw makes an electrical contact that assures that any switches that may have been jarred from the "home" position during shipment will return to the "home" position. After the battery has been connected for 1-1/2 minutes, back the shipping screw out 1-1/2 turns. *When ART is removed from service, this screw must be retightened.*

(6) Install modified 502B or 558D telephone set if used.

(7) Connect telephone line or line from associated telephone set to terminals 39 and 40.

4. SETUP AND TEST

4.01 Perform initial setup as follows:

(a) Set up the number of the control point telephone on the dial plate. Position the sliders on the dial plate (beginning with slider No. 1) to the successive digits of the telephone number. Set only as many sliders as are needed for the number to be dialed. Place the remaining sliders in the "U" (for unused) position.

Note: Extra sliders may be positioned to "U" to allow more time between digits, for example, set 9, U, U, 555-2368 to allow for a second dial tone.

(b) Put the RECORD-PLAY switch in the RECORD position and wait for the record lamp to light. Talk at a normal conversational level into the recording transmitter. The recorded message may be up to 11.8 seconds long. After the record lamp goes out, *return the RECORD-PLAY switch to the PLAY position* and wait approximately 1 minute. The ART is now ready for test.

4.02 The ART has two operating modes:

(a) Alarm, in which the ART calls the control point telephone.

(b) Inquiry, in which the control point telephone calls the ART.

4.03 To test the alarm mode:

(1) Short the pair from customer's detecting device at terminals 41 and 42.

(2) ART seizes telephone line and dials the number of the control point telephone. The triangular indicator in the center of the dial plate rotates during the dialing interval.

(3) A few seconds after the last digit is dialed, the ART transmits a portion of the prerecorded message to the control point telephone. Indicator continues to rotate.

(4) An identifying continuous tone will then be transmitted for 30 seconds. Indicator does not rotate.

(5) The entire message will be transmitted twice with interrupted tone superimposed on the message. The indicator rotates.

(6) At the control point telephone:

(a) Pick up when ringing is heard.

(b) Listen for prerecorded partial message, continuous identifying tone, and then, the two playings of the entire message with superimposed, interrupted tone. (If the voice message is not loud enough, adjust the volume control at the ART.) ART will hang up.

(c) *Hang up the control point telephone.*

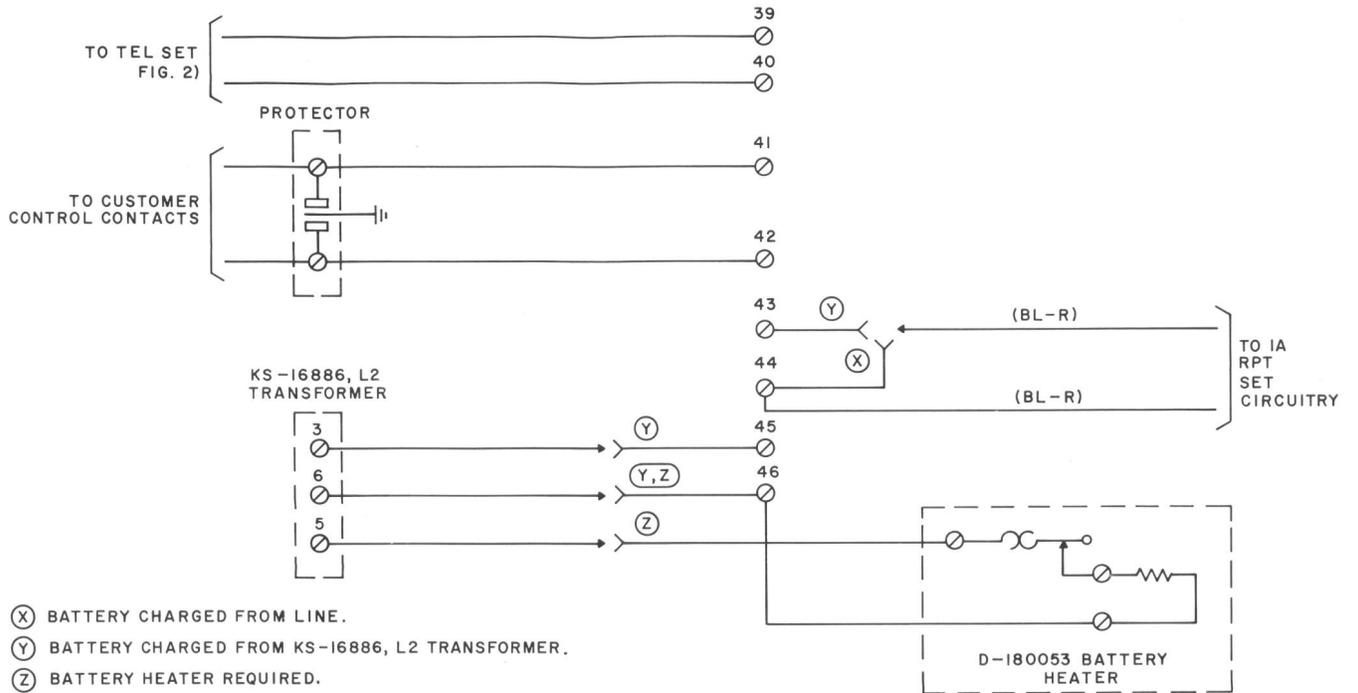


Fig. 7 — ART, Connections

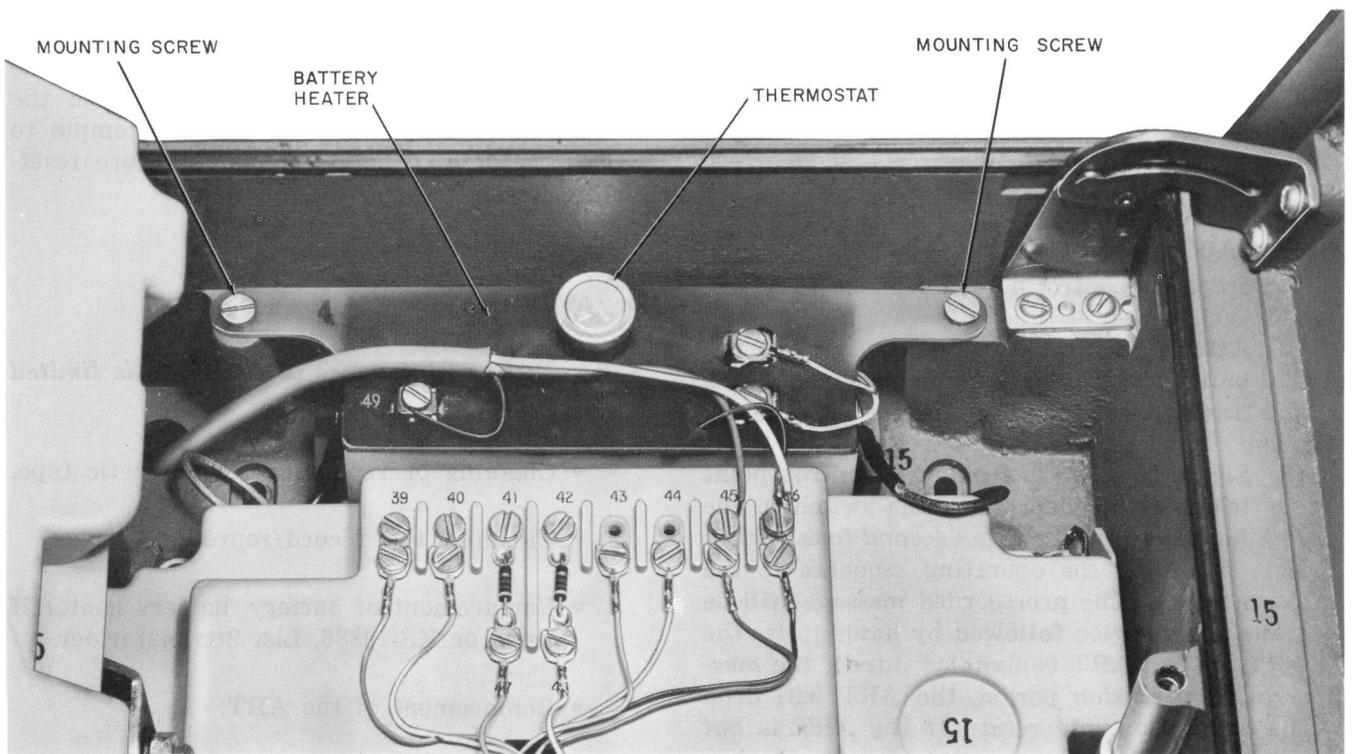


Fig. 8 — D-180053 Heater, Installation

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(7) After 30 seconds ART will seize telephone line, and dial the control point telephone again.

(8) At the control point telephone:

- (a) Pick up when ringing is heard.
- (b) Signal the ART by depressing the switch in the J1A handset.
 - Signaling during the identifying tone period will advance ART to the voice message period.
 - Signaling during any voice message period will cause ART to hang up and reset.

Note: Failure to signal from the J1A handset of the control point telephone during a voice message period will cause the ART to make nine successive call attempts before re-setting itself.

(9) *Remove the short previously placed across the pair from the customer's detecting device.*

4.04 To test the inquiry mode:

- (1) Dial the telephone number of the ART from the control point telephone.
- (2) After eight or nine rings the ART terminates ringing by seizing telephone line, and transmits identifying tone for ten seconds.
- (3) Signal the ART from the control point telephone by depressing the switch in the J1A handset during the *ten second tone period*. This will shift the operating sequence to the alarm mode. The prerecorded message will be transmitted twice followed by hang-up by the ART. If the ART is signaled during the *message transmission* period, the ART will drop the connection and reset. If the ART is *not* signaled during the message transmission period, it will proceed in the normal alarm reporting sequence (4.03).

4.05 Repeat the test of 4.03. Instead of shorting the pair from the customer's detecting device, have the customer actuate the detecting device to simulate an alarm condition.

4.06 To test the ART from the associated 502B or 558D telephone set:

- (a) Lift handset of associated 502B or 558D telephone set and dial 2 to remove dial tone, then raise the exclusion switch.
- (b) Momentarily operate the TEST button in the lower left corner of ART (Fig. 2). ART will dial the number of the control point telephone but the dial pulses will not reach the line because of the off-hook condition of the associated telephone set.
- (c) After the dialing sequence is completed, ART will transmit the identifying tone and the voice message. This can be verified from the receiver of the associated telephone. Reset the ART by operating the TEST button again *during the message transmission* period. Failure to operate the TEST button during the message transmission period will cause the ART to make 8 more successive attempts to call the control point telephone before resetting itself.

5. MAINTENANCE

5.01 Field maintenance of the ART is limited to:

- Cleaning or replacing the magnetic tape.
- Cleaning the record/reproduce head.
- Replacement of battery, battery heater if used, or KS-16886, List 2 transformer.
- Replacement of the ART.

5.02 Refer to Table C for possible trouble and corrective action to be taken.

TABLE C

POSSIBLE TROUBLE	CORRECTIVE ACTION
ART does not run from closure of customer's contacts (triangular indicator does not rotate)	1. Check loop resistance of customer's circuit to detecting device (see note after 3.04) 2. Check condition of battery (3.07(b)).
ART runs continuously	1. Check RECORD-PLAY switch. Should be in PLAY position.
Noisy voice message	1. Clean tape and/or record head. 2. Replace tape if scratched or torn.
Weak voice message level	1. Turn up volume control. 2. Voice message recorded at too low a level — re-record voice message.
No voice message	1. Turn up volume control. 2. Check for broken tape.

5.03 To clean magnetic tape:

- (a) Open the ART and remove plastic shroud covering the mechanism. (See Fig. 5.)
- (b) Hold a dry, clean "Q-Tip" lightly against the tape as shown in Fig. 9. Momentarily move the RECORD-PLAY switch to the RECORD position, then back to the PLAY position. Move the "Q-Tip" back and forth across the dull face of the tape.

Caution: Excessive pressure will cause the sprocket to tear the tape.

5.04 To clean the record/reproduce head:

- (a) Remove spring per Fig. 10.
- (b) Move pressure pad (Fig. 10) away from head.
- (c) Remove tape from tape guide (Fig. 10). Exercise caution not to tear tape on the square corner of the guide.

- (d) Remove tape from sprocket wheel and idler rollers.
- (e) Clean the face of the record/reproduce head and outside roller surfaces, using Trichloroethane on a clean, lint-free cloth.

Caution: Do not saturate the pressure pads. Use the Trichloroethane sparingly. Do not replace the tape until all the Trichloroethane has evaporated. Trichloroethane will remove the magnetic particles from the tape and render it useless.

5.05 To reinstall a tape or install a new tape:

- (a) Place the tape around the rollers as shown in Fig. 10.
- (b) The dull side of the tape must be placed against face of the record/reproduce head.
- (c) Position the splice of the tape approximately at the center of capacitor C-81 (Fig. 10).
- (d) Engage the sprocket in the holes in the tape.
- (e) When placing the tape over the face of the record/reproduce head, be careful not to scratch or tear the tape on the square corner of the tape guide (Fig. 10).
- (f) Replace spring, (Fig. 10).
- (g) Avoid touching the dull side of the tape.

Note: Replacement recording tape can be ordered as P-29E967.

5.06 To replace battery:

- (a) Loosen two captive screws holding battery bracket or battery heater (Fig. 8).
- (b) Unsnap connector from each end of the battery.

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- (c) Roll battery out of battery bracket (Fig. 11) or slide battery out of heater (Fig. 12).
- (d) Roll new battery into bracket or slide into heater.

- (e) Snap connectors onto terminals of battery; red lead to red end and black lead to black end of battery.
- (f) Place bracket or heater in housing.
- (g) Tighten two captive screws.

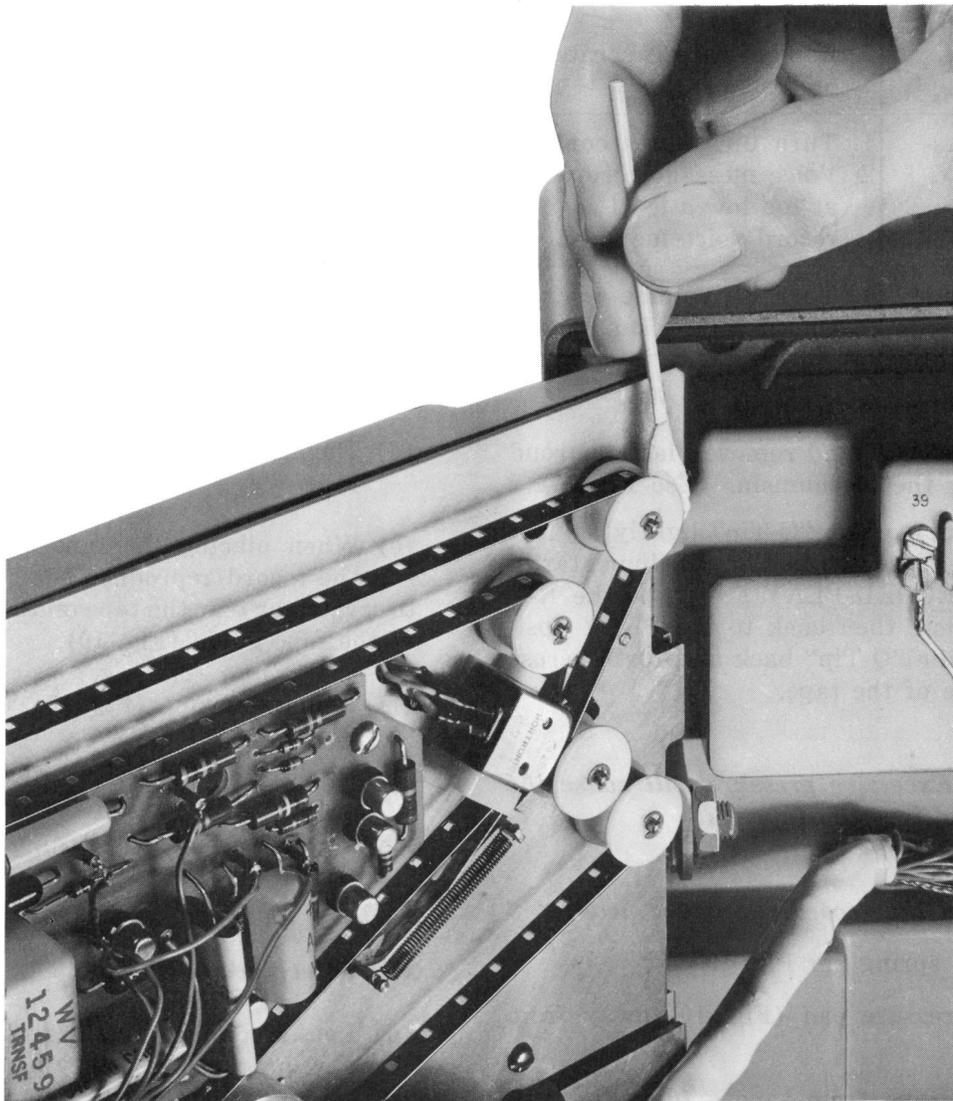


Fig. 9 — Details of Cleaning Tape

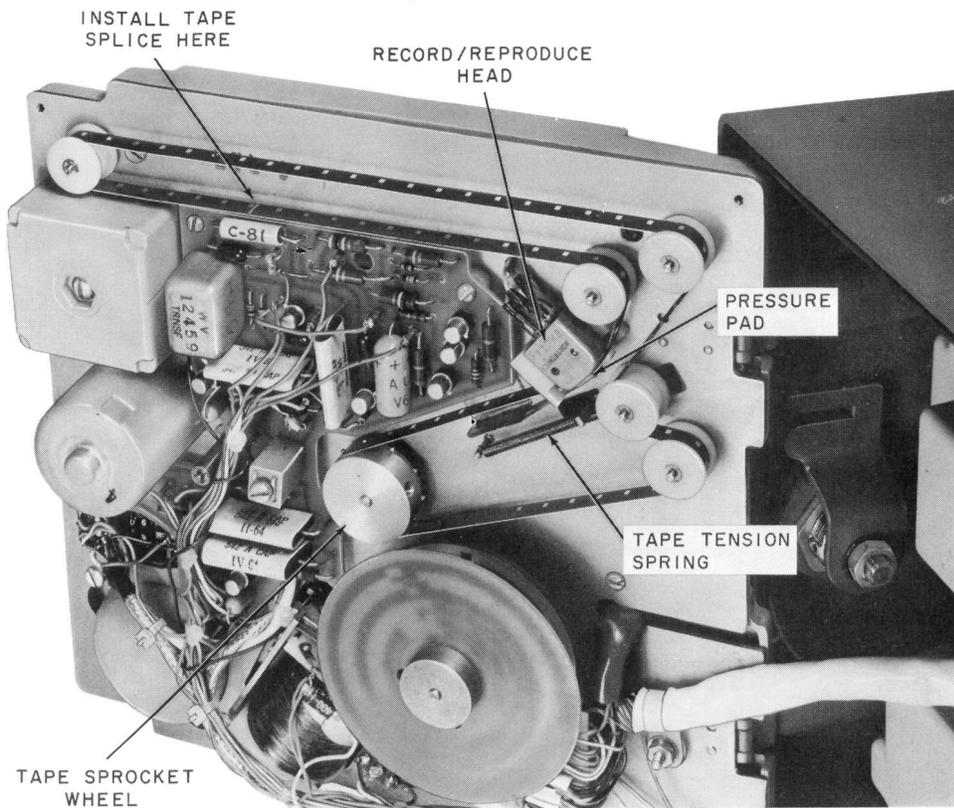


Fig. 10 - Details of Tape Installation



Fig. 11 - Battery and Battery Bracket



Fig. 12 - Battery and Battery Heater