AMPEX

1809940

Model 1058 Mark III Electronic Editor*

Operation and Maintenance Manual

CHANGE NOTICE
This change is to be collated into manual no. 1809940-02, dated 1 June 1967 Superseded pages are to be destroyed.

AMPEX
1809940-03

Model 1058 Mark III Electronic Editor*

Operation and Maintenance Manual

*TM AMPEX CORP.

ISSUED: 1 APRIL 1966
CHANGED: MAY 1969

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Note: Asterisk denotes pages affected by latest change.

LIST OF EFFECTIVE PAGES

Page	Issue Date
*Title	MAY 1969
*A	MAY 1969
*i thru vii	MAY 1969
viii	JUNE 1967
ix thru xii	Original
1.0-1 and 1.0-2	Original
*1.1-1 thru 1.1-4	MAY 1969
1.2-1 thru 1.2-2	Original
2.0-1 and 2.0-2	Original
2.1-1 and 2.1-2	JUNE 1967
*2.2-1 and 2.2-2	MAY 1969
*INST-1 thru INST-34	MAY 1969
3.0-1 and 3.0-2	Original
*3.1-1 and 3.1-2	MAY 1969
*3.2-1	MAY 1969
3.2-2	JUNE 1967
*3.2-3 thru 3.2-6	MAY 1969
4.0-1 and 4.0-2	Original
*4.1-1	MAY 1969
4.1-2 thru 4.1-4	Original
*4.1-5 thru 4.1-7	MAY 1969
4.1-8	JUNE 1967
4.2-1 thru 4.2-18	Original
5.0-1 and 5.0-2	Original
5.1-1	Original
*5.1-2 thru 5.1-4B	MAY 1969
5.1-5 thru 5.1-7	Original
*5.1-8	MAY 1969
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*5.1-10	MAY 1969
5.1-11 and 5.1-12	Original
*5.1-13	MAY 1969
5.1-14 thru 5.1-17	Original
*5.1-18 and 5.1-19	MAY 1969
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*6.1-5 thru 6.1-10	MAY 1969
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6.3	Original
*6.3-1 thru 6.3-10	MAY 1969
*6.3-11 and 6.3-12	DELETED MAY 1969
*6.3-13 thru 6.3-16	MAY 1969
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6.3-29 thru 6.3-36	Original
*6.3-37 thru 6.3-40D	MAY 1969
6.3-41 thru 6.3-50	JUNE 1967
*6.3-51 thru 6.3-88	MAY 1969
I-1 and I-2	Original

Issue 03

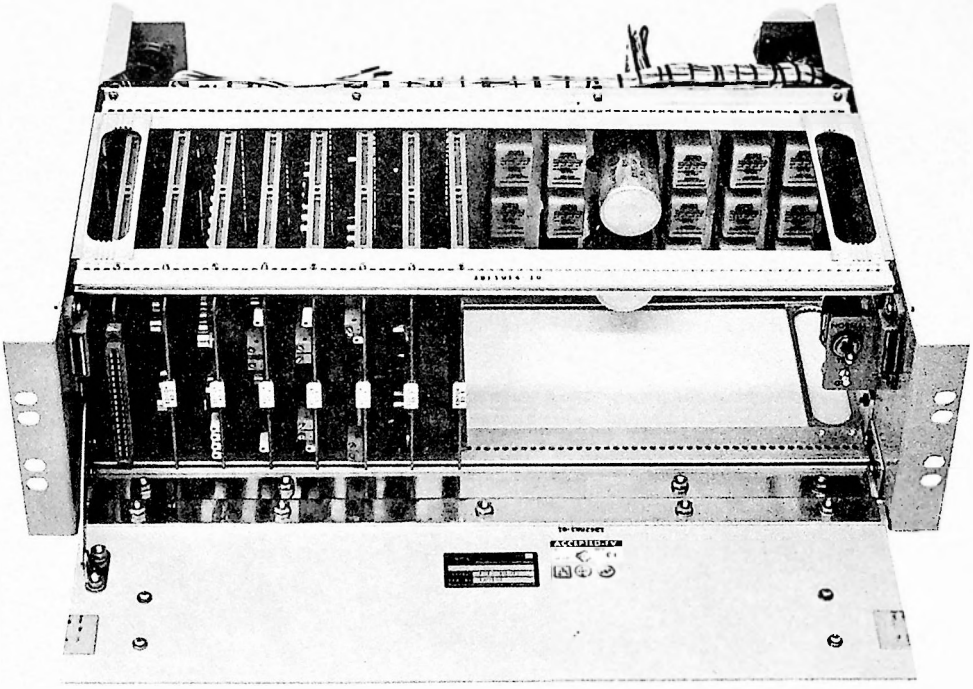
CHANGED MAY 1969

NOTICE

Only proper use will produce the high performance and reliability for which your Ampex equipment was designed, built, and tested. In order to be sure that you obtain the best possible performance and reliability, please DO NOT:

- INSTALL or CONNECT,
- OPERATE,
- ADJUST or ALIGN,
- MAINTAIN, or
- REPAIR

the equipment without first consulting the applicable portion(s) of the manual.



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CHANGED MAY 1969

COMMUNICATING WITH AMPEX

SERVICE INFORMATION AND PARTS

FIELD ENGINEERING BULLETIN SERVICE (See note below)

Ampex provides a continuous technical support program for its products. This program is partially implemented through field engineering bulletins, which are published by the Ampex Technical Support Group. Approved modifications, information on special tools and accessories, and improved operating and maintenance techniques are typical of the information distributed in these bulletins.

If the installation of your system or accessory was supervised by an Ampex Field engineer, you will be sent these bulletins automatically. If this is not the case, contact the nearest Ampex field office or write to:

Ampex Corporation
Video Technical Support Group
401 Broadway
Redwood City, California 94063 USA

SERVICE AND REPLACEMENT PARTS (See note below)

For service and replacement parts, contact your nearest Ampex field office. If the installation of your system or accessory was supervised by an Ampex field engineer, you will be sent information regarding the location of the nearest field office. Alternatively, write to the Technical Support Group at the address shown above.

NOTE

In order for the technical support program to function properly, the user must ensure that his communication is addressed to the proper department, and that it includes the following information, most of which can be obtained from the system identification nameplate on the equipment.

1. System name
2. Model number (including revision number)
3. System number
4. Serial number
5. Power requirements
6. System modifications and special accessories
7. Date of purchase
8. Name and address of your organization
9. Job function to which communication should be addressed
10. Physical location of equipment

COMMUNICATING WITH AMPEX

INSTRUCTION MANUAL CHANGES

Another part of the Ampex program of technical support for its products is the continuous revision and modification of instruction manuals as the equipment is improved or modified. In order to ensure that you always receive this information, write to:

Ampex Corporation
Audio/Video Technical Publications Department
401 Broadway
Redwood City, California 94063 USA

NOTE

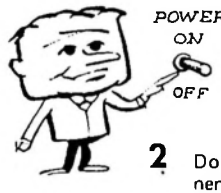
In order to be sure that you always receive information applicable to your equipment, please include the following information when you write to us:

1. System name
2. Model number (including revision number)
3. Serial number
4. Power requirements
5. System modifications and special accessories
6. Approximate date of purchase
7. Name and address of your organization
8. Job function to which communication should be addressed

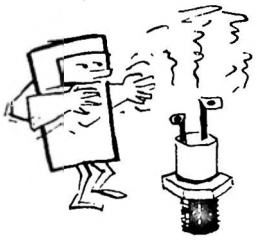
SAFETY & FIRST AID

Because personnel working with electronic equipment are exposed to the hazard of high voltage, it is imperative that all safety regulations be consistently observed, and that each individual has a clear understanding of basic First Aid methods.

The following typical hazards must be avoided at all times:



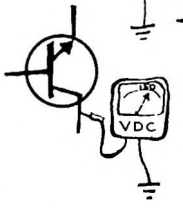
1 Do not attempt adjustment of unprotected circuit controls, or lead dress while the power is ON.



2 Do not change heavily loaded or overheated components without due precaution to avoid burns.

3 Do not assume that no dangerous voltage is present when the power is OFF. Charged capacitors may retain dangerous voltages for long periods, and should be discharged through a suitable resistor before any circuit points are touched.

4 At all times avoid placing any parts of the body in series between ground and circuit points, whether or not power is ON.



5 Do not assume that solid-state circuits and semiconductor cases carry only low voltages.

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For their own protection, and the protection of others, all electronic personnel should become thoroughly familiar with the approved First Aid treatment of burns and shock. There are three principal degrees of burns, recognizable as follows:

1. A first degree burn reddens the skin
2. A second degree burn blisters the skin
3. A third degree burn chars the flesh and frequently places the victim in a state of shock accompanied by respiratory paralysis.

Respiratory paralysis in the victim can cause death within seconds, by suffocation. For this reason it is imperative that the approved method of artificial respiration be initiated immediately and continued until the victim's breathing is normal.

A muscular spasm or unconsciousness may render the victim unable to free himself of the electric power. If this is the case, turn the power OFF immediately.

CAUTION

DO NOT TOUCH HIM, OR YOU MAY SHARE HIS PREDICAMENT.

If the power cannot be turned OFF immediately, very carefully loop a dry rope, article of clothing, length of strong cloth, or a rolled-up newspaper around the victim and pull him free of the power. Carefully avoid touching him or his clothing.

The moment he is clear of the power, place him in a reclining position, cover him with a blanket (or newspapers) to keep him warm, and begin artificial respiration. At the first opportunity, enlist help in the summoning of a doctor. If a doctor cannot be summoned, transport the victim to the doctor, infirmary, or hospital. Be sure that the victim is kept well covered and warm while awaiting professional aid and treatment.

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INTRODUCTION

The purpose of this manual is to provide information necessary to install, operate, and maintain the Mark III 1058 Electronic Editor. The installation instructions are presented so that the Editor may be installed in steps, assuring the least amount of down time for the recording system. Operating procedures are presented in sequence from power turn-on to shut-down of the Editor and provide the operating personnel with the information necessary to achieve the full capabilities of the Electronic Editor. Procedures for preventive maintenance, setup and alignment, and corrective maintenance provide the data needed to keep the Electronic Editor in optimum operating condition.

CHAPTER 1

GENERAL INFORMATION

SECTION I

EQUIPMENT IDENTIFICATION

1.1-1 EQUIPMENT DESCRIPTION

The Mark III Model 1058 Electronic Editor is supplied as an accessory for the VR-1200, VR-1200B, VR-2000, and VR-2000B Videotape* Television Recorders. The editor is composed of three principal units: the Editor Control Panel, the Electronics Chassis, and the Intersync* Editor Accessory Panel. The editor may be either factory- or field-installed. The field installation kits furnish all necessary hardware and components appropriate to the specific model of recorder.

1.1-2 FUNCTION

The electronic editor provides a sure and convenient method of editing television tape recordings without physically cutting the tape. The editor makes it possible to start and stop the recording system at any time to allow costume or scenery changes, to insert commercials or new scenes, to correct production errors, or to assemble a single tape from many separate segments.

1.1-3 INTRODUCTION TO ELECTRONIC EDITING

Until the introduction of the Ampex Electronic Editor the problems of tape editing and splicing were enormous. The extreme difficulty of maintaining frame sync and control track signal continuity required something more than the operator's greatest skill and care together with the most ingenious splicing equipment available. The problem is eliminated by the electronic editor, which permits the editing of tape with complete continuity of signals and without physically cutting and splicing. Original tape segments are not disturbed in any way during the electronic splicing process and may be re-used many times. The entire splicing procedure is accomplished with the tape in motion at normal speed.

1.1-5 The editor accomplishes this by modifying and controlling signals from the various systems and sub-systems of the recorder (see Figure 1.1-1). It eliminates disturbances that arise from the cut and splice process, and, by controlling the Intersync servos, maintains the correct phase relationship between the master tape signals and the incoming new video signal. The finished splice appears the same as a change in picture content caused by camera switching.

1.1-6 In addition, the editor automatically makes allowance for the distance between the planes of the erase head gap and video heads by precisely synchronizing the application of erase current and video record signals. This permits the first new frame of an insertion to follow its immediate predecessor on the tape and maintains the complete continuity of video blanking, and synchronizing signals.

*T.M. Ampex Corporation

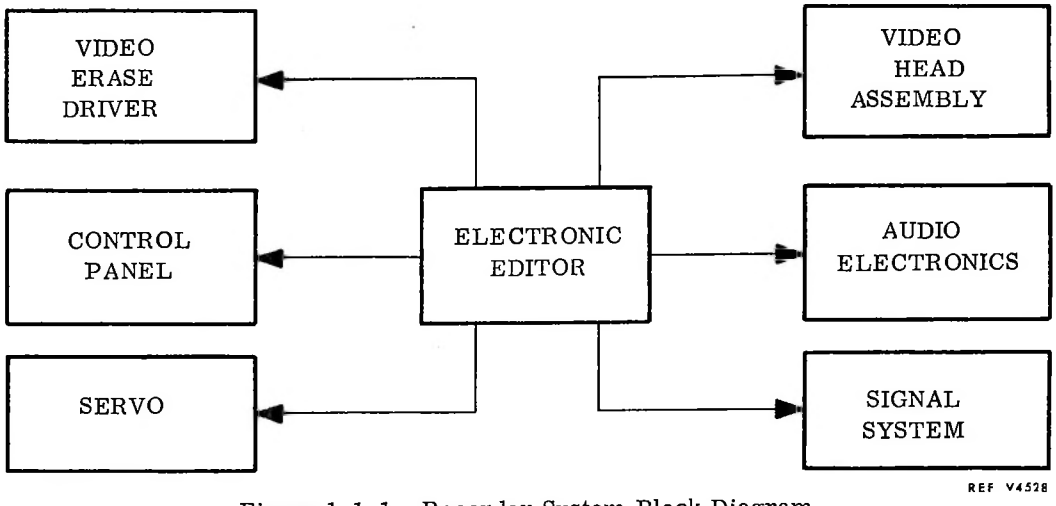

Figure 1.1-1. Recorder System Block Diagram

1.1-7 ELECTRONIC SPLICING

1.1-8 The distance between the erase head gap and the video heads may be considered equivalent to time. The time value of this distance is that interval required for the tape to travel from the erase head to the video heads at the nominal 15 inches-per-second (ips) tape speed (the tape space occupied by approximately 18 television frames). Figure 1.1-2 illustrates the physical relationship between the erase head and the video heads. The line "S" marks the point on the tape where the insert splice will be made and where the erasure must start.

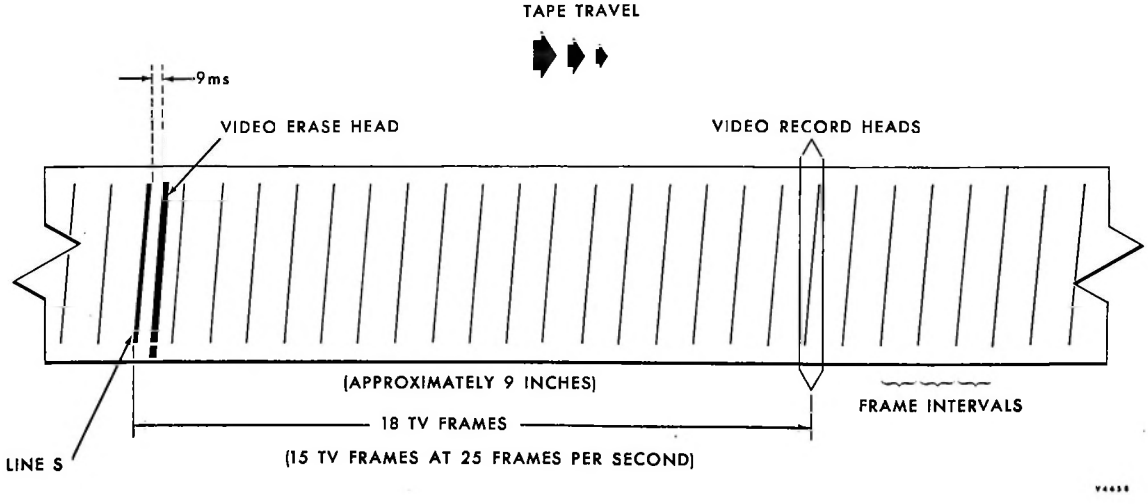

Figure 1.1-2. Head Separation Measurement

1.1-9 The electronic editor establishes the position of line "S" by means of a gating circuit that is triggered by the first frame pulse that follows the initiation of a random cue signal for the insertion. Line "S" is within the guard band immediately following the recorded video track that includes the vertical synchronizing pulses (see Figure 1.1-3). Since there are two groups of vertical sync pulses per frame, it follows that the correct group must be chosen to precede erasure turn-on. This is established by a framing pulse from the control track, which is more thoroughly discussed in Section II of Chapter 4.

1.1-10 MODES OF OPERATION

1.1-11 The electronic Editor Control Panel (see 1 of Figure 1.1-4) has two controls that provide the operator with a choice of any four operating combinations. The selector on the right is a four-position switch from which normal, insert, assemble, or remote modes may be chosen. In NORMAL the editor is removed from the recorder system. With the selector set at INSERT, the editor is programmed for an insert recording. When the selector is at ASSEMBLE, the editor is programmed for an assembly of prerecorded material. With the selector set at REMOTE, the editor modes may be selected by a remotely mounted editor control panel. The selector on the left is a two-position switch which provides a choice between AUDIO-VIDEO and VIDEO. With the selector at AUDIO-VIDEO, both audio and video are recorded. When the selector is at VIDEO, only video is recorded.

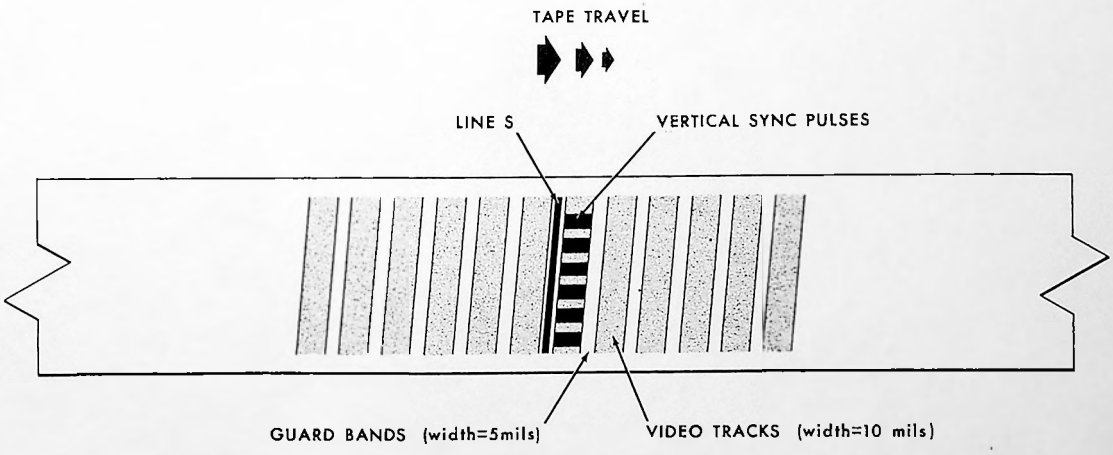

Figure 1.1-3. Detail of Splicing Point

1.1-12 During either operating mode, the time-controlled sequential switching of erase current and video signal is initiated by pressing the RECORD pushbutton, producing the ingoing electronic splice. When an insertion is made, it must be terminated at a particular time, which requires a second, or out-going splice, initiated by pressing the STOP pushbutton. The electronic editor switches off the incoming video information and the erase

current on an automatically controlled time schedule that is the opposite of the in-going splice time schedule. Both splices are timed and controlled by the Editor Electronics (see 2 of Figure 1.1-4) and the Editor Accessory Panel (see 3 of Figure 1.1-4).

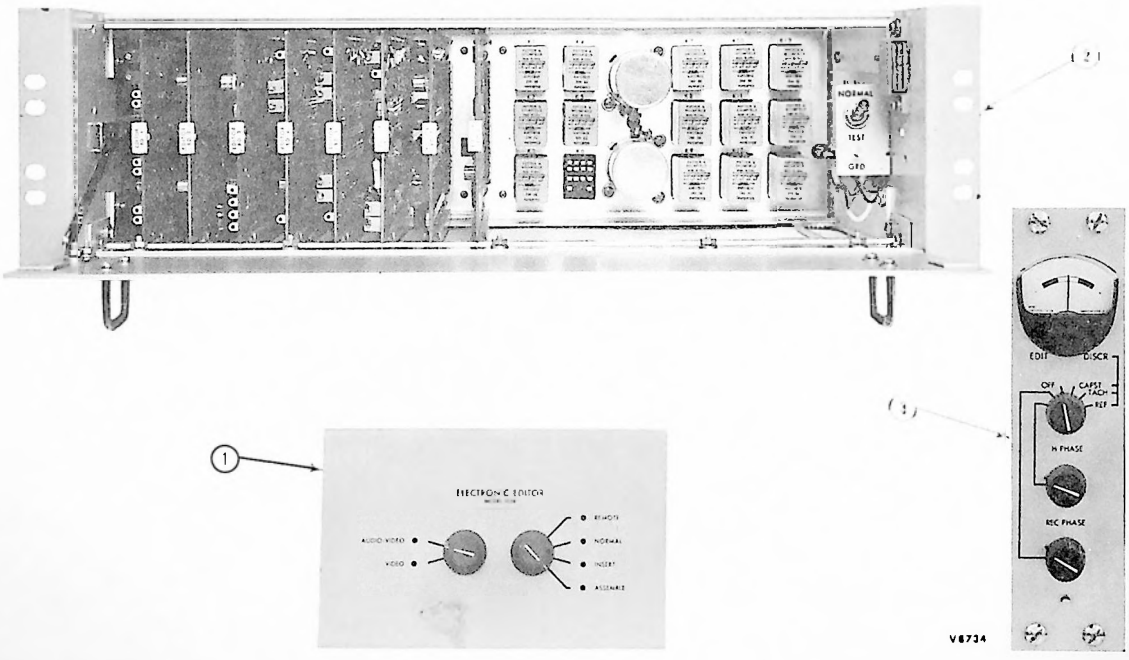

Figure 1.1-4. Electronic Editor, (Typical)

SECTION II

SPECIFICATIONS

1.2-1 MARK III ELECTRONIC EDITOR SPECIFICATIONS

The general specifications of the Mark III Model 1058 Electronic Editor are presented in Table 1.2-1.

NOTE

All specifications listed in this section are subject to change, due to design improvements or equipment modifications, without notification.

Table 1.2-1. Mark III Electronic Editor Specifications

FACTOR	DESCRIPTION
Power Requirements:	
From Intersync Power Supply	+12 volts at 600 ma -12 volts at 600 ma
From System Relay Power Supply	24 volts dc at maximum of 1.0 ampere for relay power.
Performance:	
Normal Mode	Standard System Performance Specifications are not altered in any way.
Insert Mode	1. The transition (or splice) between original video information and new video information shall occur in the guard band immediately following the video track that contains the vertical sync interval coinciding with the initiation of a new frame. 2. The transition (or splice) between new video information and original video information which follows, shall occur as described in 1.

Table 1. 2-1. Mark III Electronic Editor Specifications (Cont.)

FACTOR	DESCRIPTION
Performance (Cont.) Insert Mode (Cont.)	3. The inserted video information shall conform with standard system performances specifications. 4. Upon visual development, the splice shall be found to have taken place as described in 1. 5. The transition from original audio to new audio is coincident with the video splice. 6. The transition from new audio to original audio is coincident with the video splice.
Assemble Mode	1. The transition (or splice) between original video information and new video information shall occur in the guard band immediately following the video track that contains the vertical sync interval coinciding with the initiation of a new frame. 2. The added video information shall conform with standard system performance specifications. 3. Upon visual development, the splice shall be found to have taken place as described in 1. 4. The original recorded control track (if any) is replaced by a new control track whose phase discontinuity at the splice point is well below the magnitude that would cause disturbance of the tracking servos.

CHAPTER 2

INSTALLATION

SECTION I

UNPACKING

The Mark III Electronic Editor is shipped in a specially constructed container that provides maximum protection to the equipment during transit. Use extreme care when unpacking to prevent damage to the equipment. The shipping container should be retained in case the equipment is re-shipped at a later date.

Each electronic editor is shipped with all necessary hardware required for installation. Check the packing list of parts accompanying each electronic editor to ascertain that it agrees with the equipment and hardware received.

Instructions for installing the electronic editor in a Television Recorder will be found in Section II of this chapter.

SECTION II

INSTALLING THE EQUIPMENT

2.2-1 The Mark III Electronic Editor is an accessory designed for use in Ampex VR-1200 series and VR-2000 series Videotape Recorders. The accessory may be installed at the factory or added to systems in the field. If added in the field, select the paragraphs in this section that are pertinent to the particular type of system, and discard the others. A listing of the pages applicable to each type of system follows.

System	Installation Procedures
VR-1200	Pages INST-1 to INST-3
VR-1200 B (overhead monitor)	Pages INST-5 to INST-7
VR-1200 B (side monitor)	Pages INST-9 to INST-11
VR-2000 (with 1800790 Erase Driver)	Pages INST-13 to INST-15
VR-2000 (with 168150 Erase Driver)	Pages INST-17 to INST-29
VR-2000 B	Pages INST-31 to INST-33

NOTE

After completion of the Editor installation in any system, refer to Section I of Chapter 5 in this manual for initial setup and alignment procedures.

2.2-2 After installation is completed, the installation instructions may be moved to the back of the book, stored separately, or discarded. This will not disrupt page numbering or references.

INSTALLATION OF MARK III EDITOR IN VR-1200 RECORDER

1 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

a. Remove the blank panel below the Intersync servo electronics (see Figure 1). Retain the mounting hardware for re-use.

b. Mount the Mark III Editor (electronic chassis), part no. 1212810-06, directly below the Intersync servo electronics.

c. Mount the Blank Panel, part no. 1360061 (supplied in the kit), in the empty space below the editor, using hardware from the panel that was removed.

2 EDITOR CONTROL PANEL INSTALLATION

The editor control panel (part no. 1241478) is installed in accordance with the following steps.

a. Remove the console panel located to the left of the top plate. Retain the mounting hardware for re-use.

b. Take off the knobs and remove the two rotary switches (S1 and S2) from the Editor Control Panel, without disconnecting their wiring.

c. Pass the two switches through the slot between the console frame and the top plate of the recorder. Mount the switches in the two holes on the console frame, in a position similar to the control panel (four-position switch S1 is the upper one). Use the same hardware as was removed in the previous step.

d. Manipulate the control panel to slip the lamp bracket into the slot and mount the panel, using the hardware from the removed panel.

NOTE

If a retractable erase head is used on the recorder, the lamp bracket will have to be removed and remounted to enable the panel to be put into place.

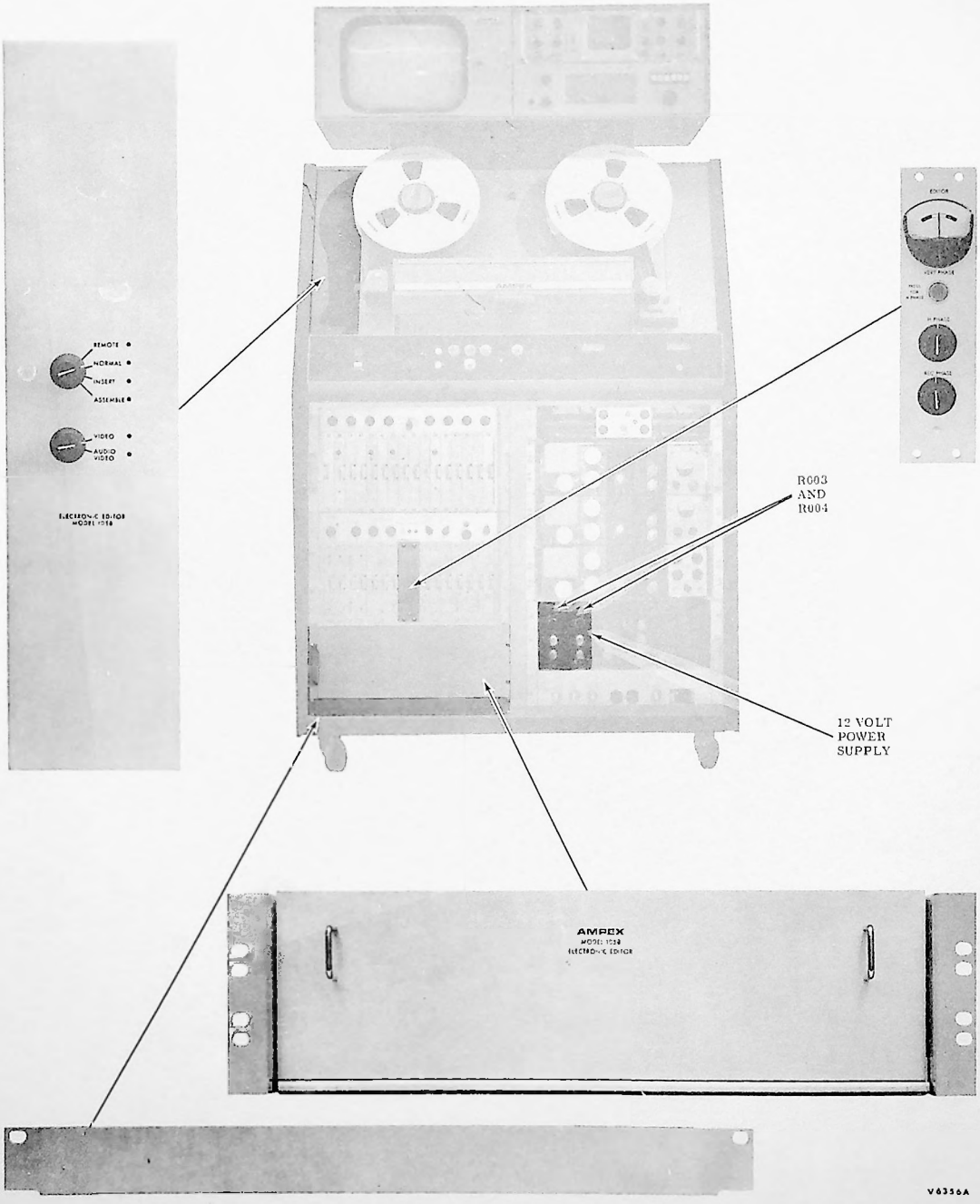

Figure 1. Mark III Electronic Editor Component Location, VR-1200

e. Replace the two knobs on the rotary switch shafts. Adjust the pointers to line up properly with silk-screened markings and tighten the setscrews.

f. Remove the dummy plug from connector J1 of the control panel. Install the Editor Interconnect Cable (part no. 1241479-01) from that connector to J2 on the Mark III Editor Assembly.

3 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The Editor Accessory Panel (part no. 1212978) is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the blank center panel from the Intersync servo chassis.

c. Connector J17 is tied back in the Intersync servo chassis. Free it and connect to the Editor Accessory Panel.

d. Remove both the jumper and resistor R14 (12K) from E16-E17 (on the Accessory Panel). Solder in a 6800-ohm resistor in their place.

e. Mount the Editor Accessory Panel in the Intersync chassis.

f. Re-install the Intersync chassis in the console.

4 POWER SUPPLY ALTERATION

The existing 12-vdc power supply in the console is altered in accordance with the following steps.

a. Remove the 12-vdc power supply (see Figure 1).

b. Remove the four retaining screws from the heat sink on the front of the power supply and carefully pull the heat sink forward to reach the rear of stud-mounted resistors R003 and R004.

c. Solder in 15-ohm resistors (two are included in the kit) in parallel with R003 and with R004.

d. Re-assemble and re-install the power supply.

INSTALLATION OF MARK III EDITOR IN VR-1200 B (OVERHEAD MONITOR)

1 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

a. Remove the blank panel below the Intersync servo electronics (see Figure 1). Retain the mounting hardware for re-use.

b. Mount the Mark III Editor (electronic chassis), part no. 1212810-06, directly below the Intersync servo electronics.

c. Mount the Blank Panel, part no. 1360061 (supplied in the kit), in the empty space below the editor, using hardware from the panel that was removed.

2 EDITOR CONTROL PANEL INSTALLATION

The editor control panel (part no. 1241478) is installed in accordance with the following steps.

a. Remove the console panel located to the left of the top plate. Retain the mounting hardware for re-use.

b. Take off the knobs and remove the two rotary switches (S1 and S2) from the Editor Control Panel, without disconnecting their wiring.

c. Pass the two switches through the slot between the console frame and the top plate of the recorder. Mount the switches in the two holes on the console frame, in a position similar to the control panel (four-position switch S1 is the upper one). Use the same hardware as was removed in the previous step.

d. Manipulate the control panel to slip the lamp bracket into the slot and mount the panel, using the hardware from the removed panel.

e. Replace the two knobs on the rotary switch shafts. Adjust the pointers to line up properly with the silk-screened markings and tighten the setscrews.

f. Remove the dummy plug from connector J1 of the control panel. Install the Editor Interconnect Cable (part no. 1241479-01) from that connector to J2 on the Mark III Editor Assembly.

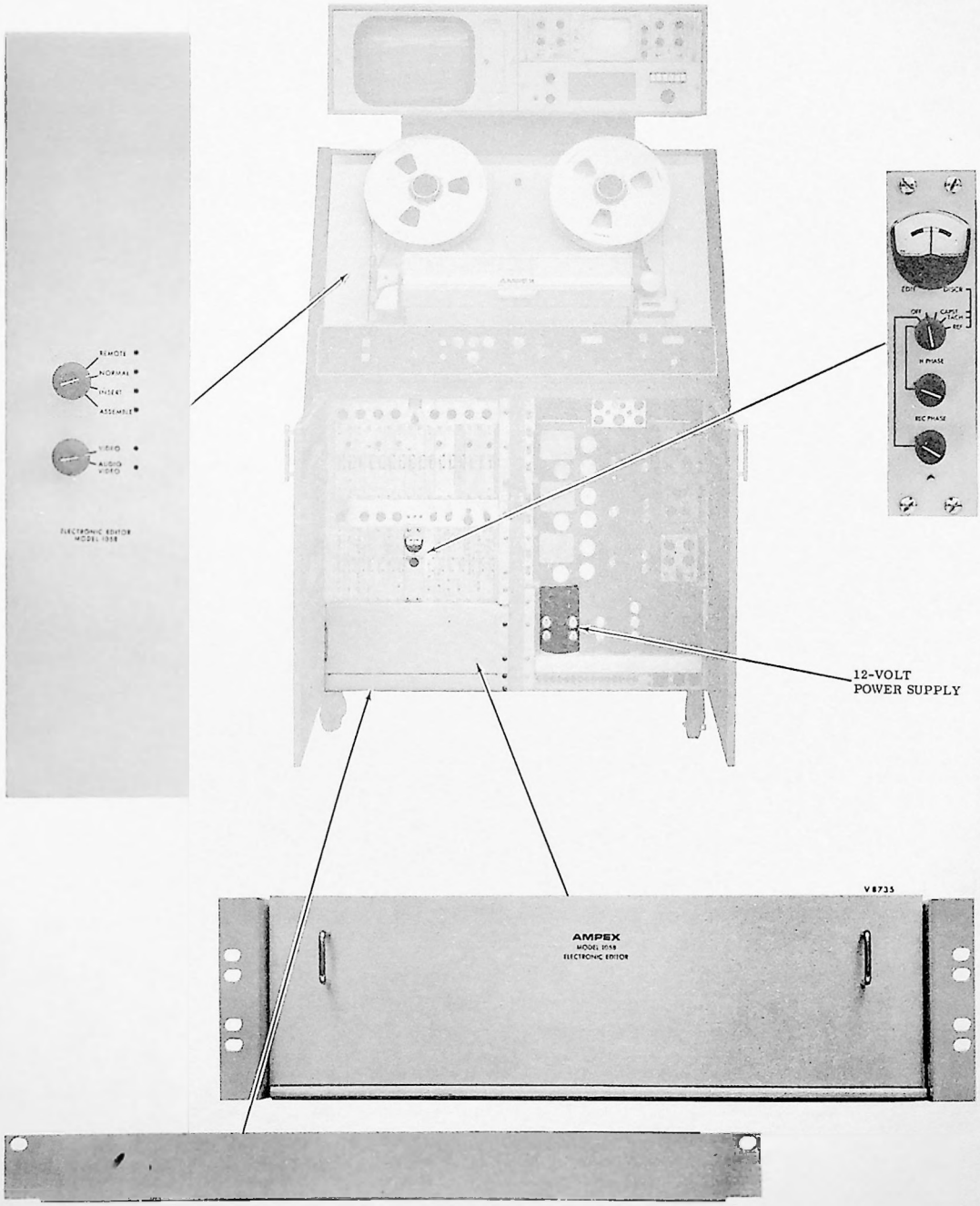

Figure 1. Mark III Electronic Editor Component Location, VR-1200 B (Overhead Monitor)

3 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The Editor Accessory Panel is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the servo meter panel assembly at the center of the Intersync servo chassis. Disconnect the harness plug from J17.

c. On the Editor Accessory Panel from the kit (part no. 1362136), remove the jumper and resistor R4 (12K) from E2-E3 on the meter panel board. Solder in a 6800-ohm resistor in their place.

d. Connect the harness plug to J17 and mount the Editor Accessory Panel in the center position of the Intersync chassis.

e. Re-install the Intersync servo chassis in the console.

4 POWER SUPPLY ALTERATION

The existing 12-vdc power supply in the console is altered in accordance with the following steps.

a. Remove the 12-vdc power supply from the console.

b. Remove the four retaining screws from the heat sink on the front of the power supply and carefully pull the heatsink forward to give access to the small heat sink (part no. 1363676) on which resistors R006 to R009 are mounted.

c. Shunt out resistors R007 and R008 with 12-gauge wire.

d. Re-assemble and re-install the power supply.

INSTALLATION OF MARK III EDITOR IN VR-1200B (SIDE MONITOR)

1 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

a. Remove the blank panel below the Intersync servo electronics (see Figure 1). Retain the mounting hardware for re-use.

b. Mount the Mark III Editor (electronic chassis), par no. 1212810-06, directly below the Intersync servo electronics.

c. Mount the blank panel, part no. 1363361 (supplied in the kit) in the empty space below the editor, using hardware from the panel that was removed.

2 EDITOR CONTROL PANEL INSTALLATION

The editor control panel is installed in accordance with the following steps.

a. On the Video/Audio Monitor Selector Panel, remove the switch knobs and take off the overlay (discard).

b. Using the overlay supplied in the editor kit (part no. 1363705) as a guide, relocate the monitor selector-switch panel farther to the right.

NOTE

If an Editec accessory is also being added to the system at this time, use the overlay and instructions from the Editec kit since its controls are also added to this panel.

c. Mount the editor control panel (part no. 1361292) in the position indicated by the overlay cutouts.

d. Attach the new overlay and fasten all knobs, in correct orientation to the markings.

e. Remove the dummy plug from connector J1 of the control panel. Install the Editor Interconnect Cable (part no. 1241479-01) from that connector to J2 on the Mark III Editor chassis.

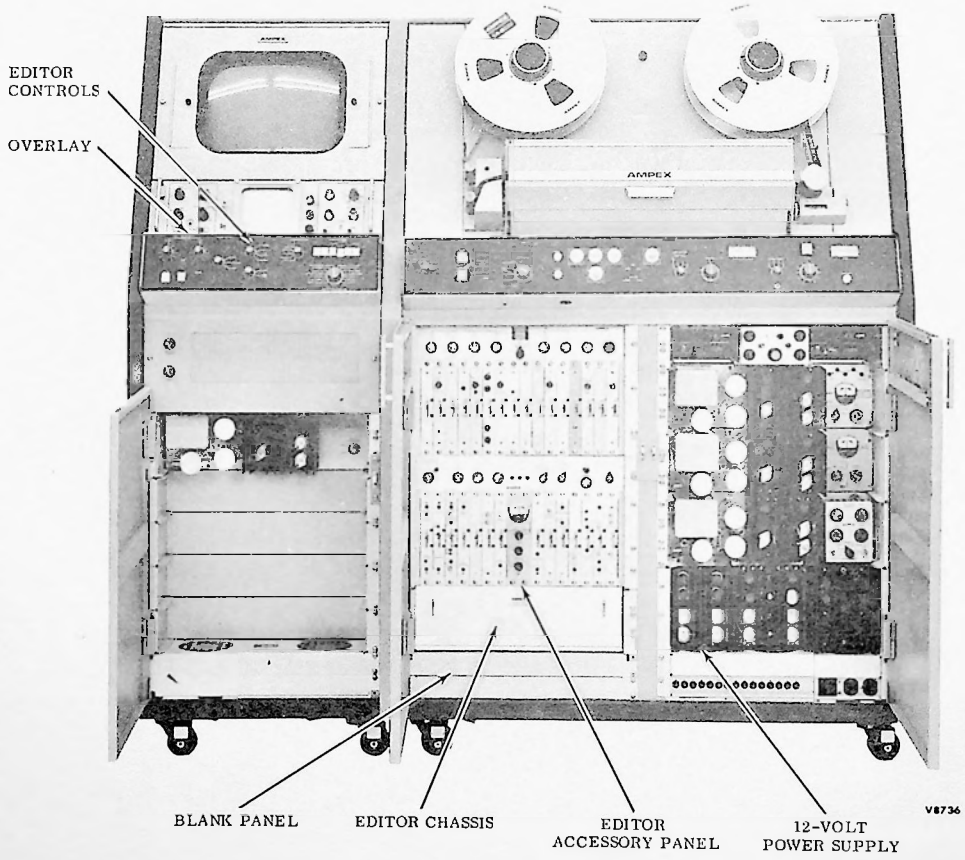

Figure 1. Mark III Electronic Editor Component Location, VR-1200B (Side Monitor)

3 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The Eidtor Accessory Panel is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the servo meter panel assembly at the center of the Intersync servo chassis. Disconnect the harness plug from J17.

c. On the Editor Accessory Panel from the kit (part no. 1362136), remove the jumper and resistor R4 (12K) from E2-E3 on the meter panel board. Solder in a 6800-ohm resistor in their place.

d. Connect the harness plug to J17 and mount the Editor Accessory Panel in the center position of the Intersync chassis.

e. Re-install the Intersync servo chassis in the console.

4 POWER SUPPLY ALTERATION

The existing 12-vdc power supply in the console is altered in accordance with the following steps.

a. Remove the 12-vdc power supply from the console.

b. Remove the four retaining screws from the heat sink on the front of the power supply and carefully pull the heat sink forward to give access to the small heat sink (part no. 1363676) on which resistors R006 to R009 are mounted.

c. Shunt out resistors R007 and R008 with 12-gage wire.

d. Re-assemble and re-install the power supply.

INSTALLATION OF MARK III EDITOR IN VR-2000 RECORDER (WITH 1800790 ERASE DRIVER)

1 EDITOR CONTROL PANEL INSTALLATION

The editor control panel is installed in accordance with the following steps.

a. Remove the "A"-scope monitor (see Figure 1).

b. Loosen the "A"-scope mounting slides.

c. Remove the blank panel below the "A"-scope.

d. Mount the editor control panel (part no. 1214512, in the kit) in the space vacated by the blank panel just removed.

e. Cut the ties holding the harness in its stowage place in the back of the console and connect the mating plug to the editor control panel.

f. Tighten the "A"-scope mounting slides, and re-install the "A"-scope monitor.

2 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The editor accessory panel is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the blank center panel from the Intersync servo chassis.

c. Connector J17 is tied back in the Intersync. Connect this connector to the editor accessory panel. Remove the jumper between terminals E16 and E17 on the printed wiring board, so that only resistor R14 (12K) is connected between these terminals.

d. Insert the editor accessory panel (part no. 1212978, in the kit) in the Intersync chassis, and secure.

e. Re-install the Intersync servo chassis.

3 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

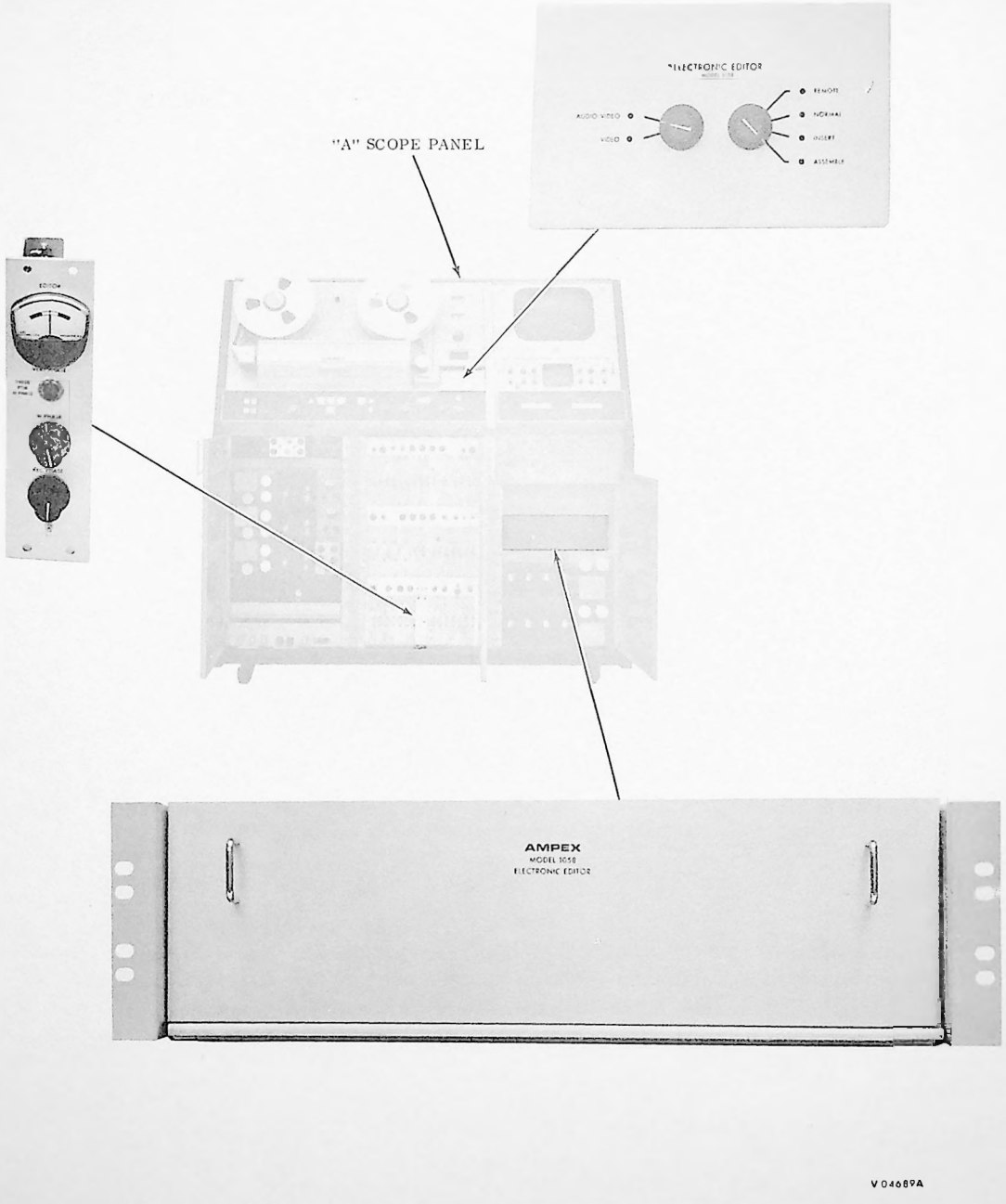

Figure 1. Mark III Electronic Editor Component Location, VR-2000

a. Remove the blank panel above the signal system power supply in the monitor rack.

b. Install the editor chassis (part no. 1212819-05) and secure it.

c. Connect the 66-pin harness connector to J2 of the editor.

4 POWER SUPPLY ALTERATION

a. Locate the harness connector for the Intersync servo power supply.

b. Connect a 10-ohm, 5-watt, 10% resistor between pin 19 and pin 5 of the connector (there will then be two wires connected to pin 19).

INSTALLATION OF MARK III EDITOR IN VR-2000 RECORDERS (WITH 168150 ERASE DRIVER)

NOTE

This installation requires modifications to some control circuits of the recorder. Fewer man-hours will be required if the procedure is all completed as one operation, but because of its length the procedure is so arranged that the system can be returned to service at various points. These points are indicated by notes.

1 CONTROL PANEL AND CONSOLE HARNESS MODIFICATION

While performing the modifications to the control panel and console harness, reference should be made to schematics 1211810 (Wiring Schematic, Control Panel) and 1209130 (Wiring Diagram, Console Harness).

2 CONTROL PANEL MODIFICATION

The VR-2000 Videotape Television Recorder control panel is modified for installation of the Electronic Editor as follows:

a. Refer to control panel schematic 1211810 and (A) of Figure 1. Locate diode CR24. This diode is mounted on terminal strip TS2, terminals 1 and 2, on the rear of the control panel near connector J1. The anode of the diode is connected to J1-j and to K16-7.

NOTE

Connector J1 on the recorder control panel has 22 pins designated in capital letters (A, B, etc.), 21 pins in small letters (a,b,etc.), and 7 pins in double capital letters (AA,BB, etc.). Care should be taken to identify the correct pin for modification as described below.

b. Disconnect both leads from the anode of CR24. Connect these two leads together and solder them. Insulate the joint with sleeving or tape. The only remaining connection to TS-1 should be the anode of CR24.

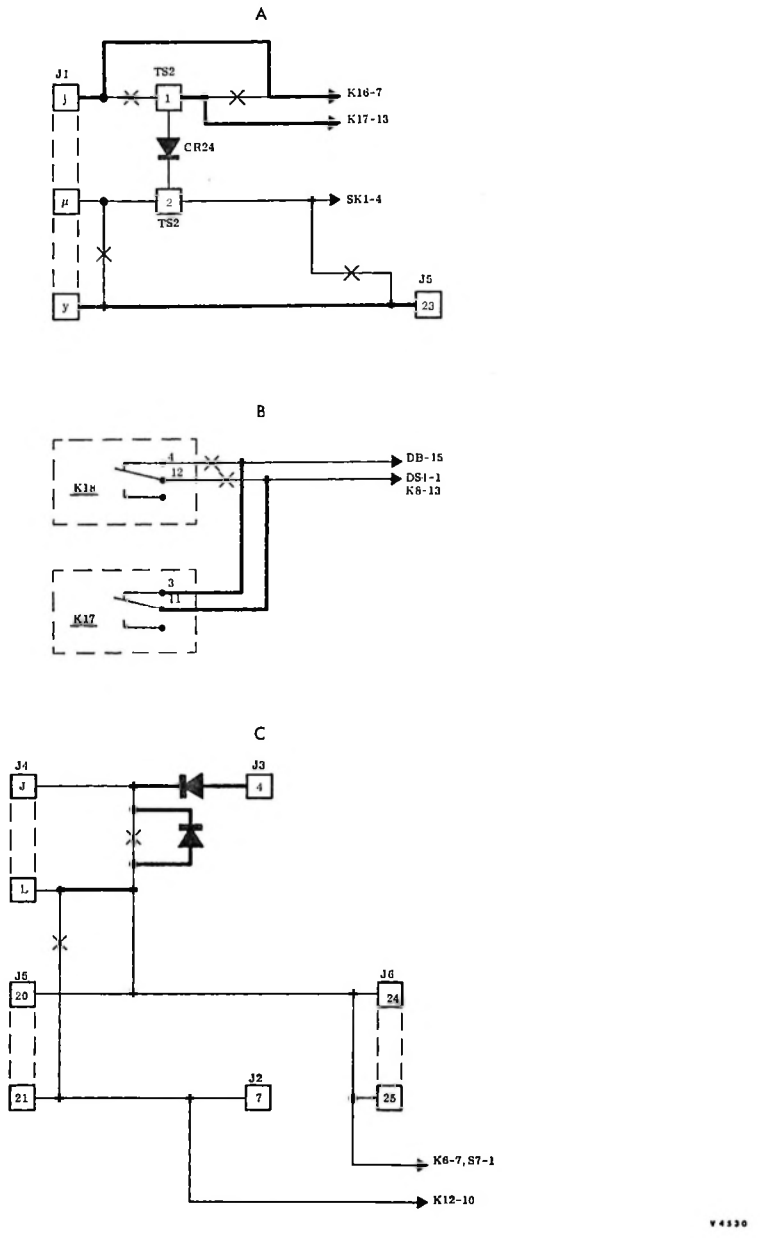

Figure 1. Control Panel Modifications

c. Connect an insulated wire from TS2-1 to pin 13 of relay K17. Relay K17 is located on the control panel.

d. Locate J5 on the control panel. Remove the two wires from J5-23. Connect the two wires together, solder them, and insulate the joint with sleeving or tape.

e. Remove the jumper wire between J1-u and J1-y making certain J1-u is still connected to TS2-2. (The wire to TS2-2 may have been originally on either J1-u or J1-y).

f. Connect an insulated wire between J1-y and J5-23.

NOTE

Modifications accomplished by steps a through f of paragraph 2 should be in accordance with (A) of Figure 1. New circuits are represented by the heavy lines. Deleted circuits are marked with an X which indicates a disconnect.

g. Locate relays K17 and K18. These two relays are located on the control panel.

h. Remove the wire from K18-4 and connect it to K17-3.

i. Remove the wire from K18-12 and connect it to K17-11. The circuit configuration should be in accordance with (B) of Figure 1.

j. Locate J4 on the control panel. A three pin terminal strip is furnished as a part of the installation kit. Mount this terminal strip beside J4 using one of the J4 mountind screws. Align the terminal strip perpendicular to J4.

k. Two 1N4005 diodes are furnsihed as a part of the installation kit. Mount these two diodes to the center terminal of the terminal strip just installed in step a. Both diodes must be mounted with their cathodes to the center terminal. Refer to (C) of Figure 1.

l. Connect the anode of one diode to the top terminal, and the anode of the other diode to the lower terminal.

m. There are two wires connected to J4-L. Remove these two wires, connect them together and solder. Insulate the connection with sleeving or tape.

n. Connect an insulated wire from J4-L to the anode of the top diode.

o. Disconnect the wire from J4-J and connect it to the same anode as in step n.

p. Connect an insulated wire from the anode of the lower diode to unused terminal 4 on J3.

q. Connect an insulated wire from J4-J to the center terminal (common cathode) of the new terminal strip. The modification just completed should be in accordance with (C) of Figure 1.

3 CONSOLE HARNESS MODIFICATION

During the following modifications refer to the console harness wiring diagram 1209130, and Figure 2.

a. In the rear of the recorder console there is a terminal board assembly. This assembly is mounted on a vertical plate between the monitor rack and the signal system. On this assembly locate terminal board TB4.

b. There are shorting clips between terminals 1, 2, and 3. There is another shorting clip between terminals 4 and 5. Remove the two shorting clips.

c. Remove the dummy plug from the editor harness connector P2.

d. Remove the two leads from terminal TB4-1. Determine which of the two leads connect to pin 7 of P2. Reconnect this wire to terminal TB4-1. The remaining wire will be reconnected later.

e. Disconnect the two leads from TB4-3. Determine which of the two leads connect to P2-9 of the editor. Reconnect this wire to TB4-3.

f. Connect the two loose wires removed in steps d and e to terminal TB4-2. There should be 5 wires connected to TB4-2, as illustrated in Figure 2.

g. Disconnect the two wires from terminal TB4-5. Determine which of the two wires connect to editor plug P2-26. Reconnect this wire to TB4-5.

h. Connect the wire removed from TB4-5 to TB4-4. When this modification is complete the connections to TB4 should be as illustrated in Figure 2.

4 EDITOR DUMMY PLUG MODIFICATION

In the following steps the editor dummy plug will be disassembled. In doing so, pay particular attention to the orientation of the polarized guide pins with reference to pin 1 of the plug. Do not reassemble the plug in a manner reverse to this orientation.

a. Disassemble the editor dummy plug.

b. There is a jumper between pins 7 and 13. Remove the jumper connections from pin 7 and connect it to pin 8.

c. Connect a jumper between pins 18 and 19. When the modification is complete the circuit should be in accordance with Figure 2.

d. Reassemble the dummy plug.

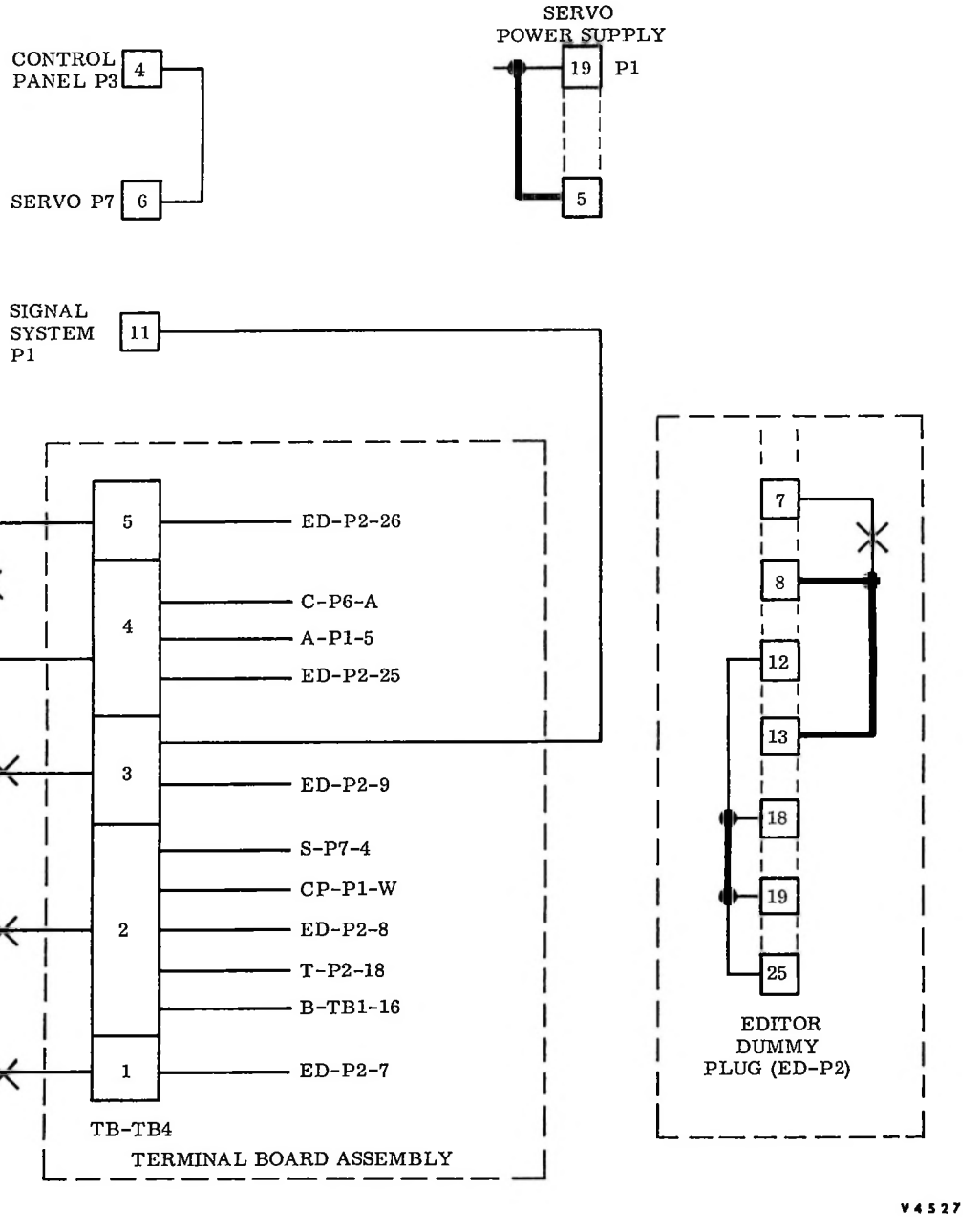

Figure 2. Console Harness and Terminal Board Modification

5 MISCELLANEOUS REWIRING

a. Locate plug P3 on the control panel, and plug P7 on the Intersync servo.

b. Connect an insulated wire between terminal P3-4 on the control panel, and terminal P7-6 on the Intersync servo. P7-6 will then have two wires connected to it.

c. Locate TB4 on the terminal board assembly, and plug P1 on the signal system chassis.

d. Connect an insulated wire from TB4-3 to P1-11.

e. On the Intersync servo power supply, connect a 10-ohm, 5-watt, 10% resistor from pin 19 to pin 5 on the power supply harness connector. Pin 19 will have two wires connected to it.

f. Refer to Figure 2 and ascertain that all modifications made in steps a through e are as illustrated.

NOTE

If the electronic editor is to be installed in steps, the recording system can be returned to normal service at this time by installing the editor dummy plug on ED-P2 harness connector.

6 SIGNAL SYSTEM CHASSIS MODIFICATION

Modifications to the signal system chassis are accomplished in accordance with Figure 3 and the following steps:

a. Remove the signal system chassis from the console.

b. Refer to Figure 3, and drill mounting holes in the side panel of the signal system chassis as illustrated, to mount etched board assembly 1216703-01 that is supplied with the editor kit.

c. Mount the etched board with the furnished hardware.

d. Connect an insulated wire from terminal 5 on the etched board to terminal 11 on J1 of the signal system chassis.

e. Connect an insulated wire from terminal 1 on the etched board to pin 4 of the channel amplifier receptacle J013A.

f. Connect an insulated wire from terminal 2 on the etched board assembly to pin 4 of channel amplifier receptacle J013B.

g. Connect an insulated wire from terminal 3 on the etched board assembly to pin 4 of channel amplifier receptacle J013C.

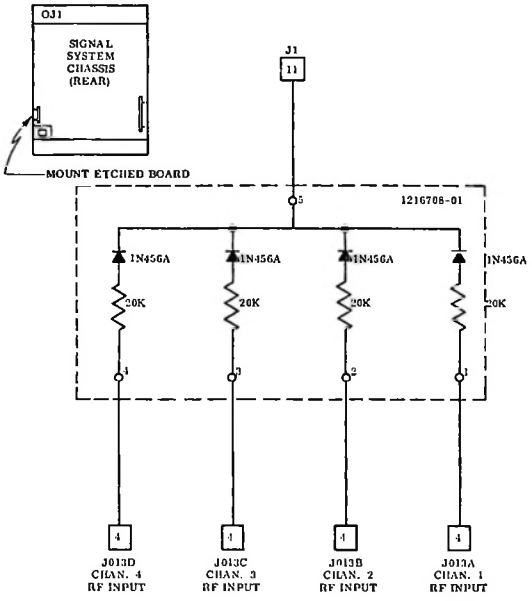

Figure 3. Signal System Modification

h. Connect an insulated wire from terminal 4 of etched board assembly to pin 4 of channel amplifier receptacle J013D. When the modification is complete the circuit should be as illustrated in Figure 3.

NOTE

If the electronic editor is being installed in steps, the record may be returned to normal operation at this time.

7 INTERSYNC SERVO MODIFICATION

The following modifications are performed to the Intersync to bring early production units up to present configuration. Refer to Figure 4.

a. Remove module number 4 from the Intersync chassis.

b. Refer to Figure 4 and to schematic 1219177 of the Intersync manual.

c. Inspect the component side of the board and determine if there is a circuit path to pin 2 as shown in (A) of Figure 4. If there is no path, connect an insulated wire from the lower of the two 47-ohm resistors to pin 2 of the module connector.

d. Re-install the module in the Intersync chassis.

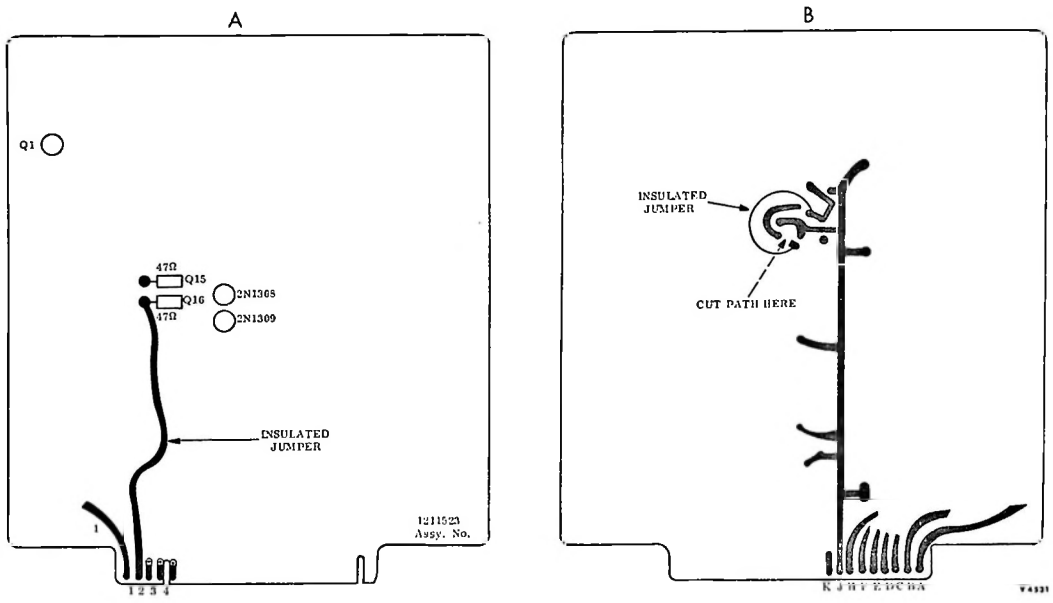

Figure 4. Intersync Servo Modification

e. Remove module number 13 from the Intersync chassis.

f. Refer to (B) of Figure 4, and locate the circuit indicated. If there is a circuit as indicated by the dotted line, 1/16 of an inch of the foil must be removed. This can be accomplished by removing the solder, then cutting the foil with a sharp knife. Heat the cut section of the foil with a soldering iron and remove from the board.

g. Connect a length of insulated wire between the circuit points as indicated in (B) of Figure 4.

h. Re-install module 13 in the Intersync chassis.

NOTE

If the electronic editor is being installed in steps, the recorder can be returned to normal operation at this time.

8 ERASE DRIVE CHASSIS MODIFICATION

Modifications are made to the erase driver chassis in accordance with the following steps, and as illustrated in Figure 5.

a. Remove the erase driver chassis, and remove the cover.

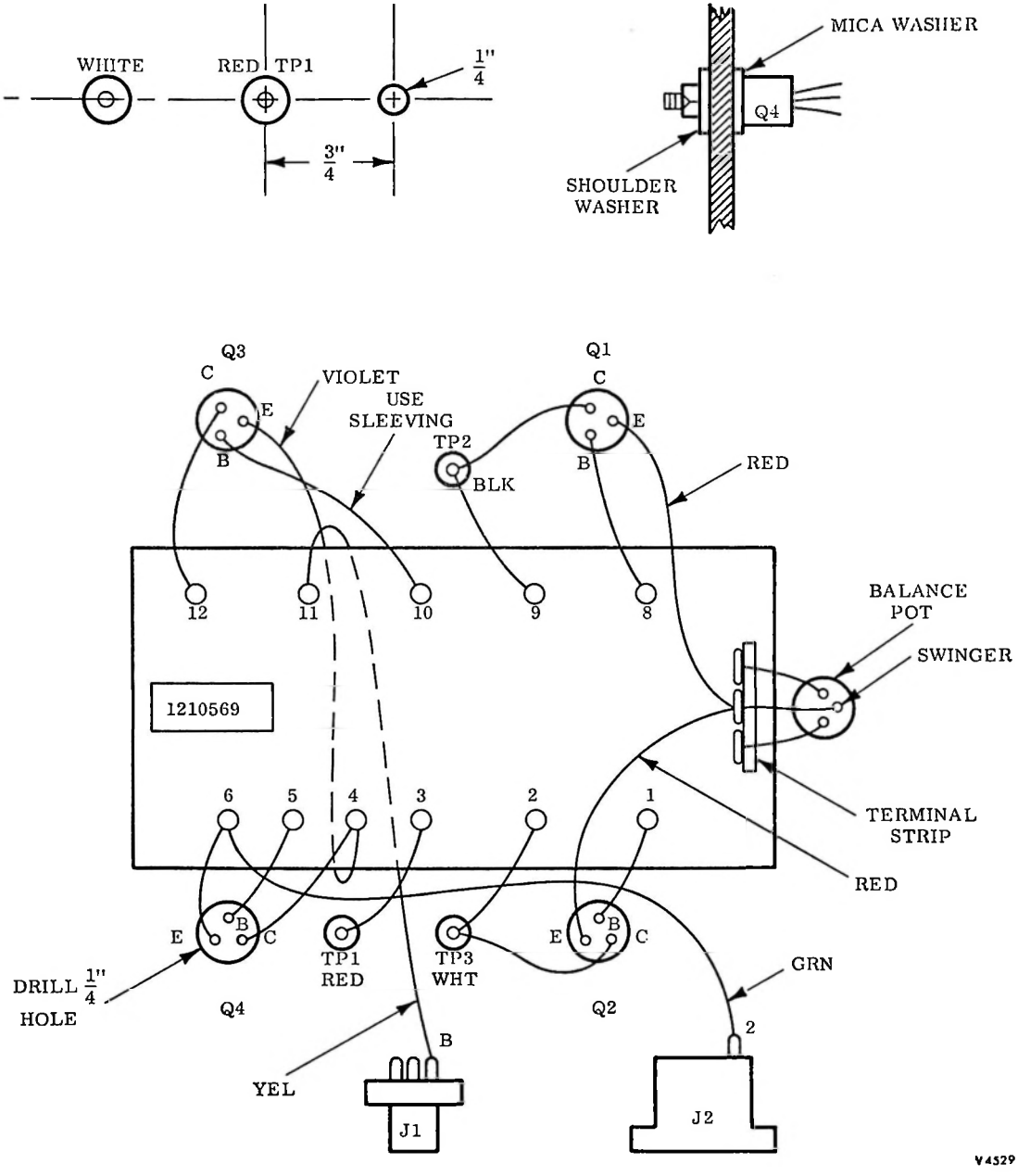

Figure 5. Erase Driver Modification

b. Cut all wires to the terminal board assembly close to the terminals. Remove the etched board assembly from the chassis.

c. Locate capacitor C3, 0.047 microfarad, and clip this capacitor out.

d. Unsolder the wires from J1.

e. Remove J1 from the assembly.

f. Drill a 1/4-inch hole 3/4 of an inch to the right of TP1, as indicated in Figure 5. In some of the later models this hole is already drilled.

g. Remove burrs from the hole.

h. Mount the three-pin male connector (143-008) in J1 hole.

i. Solder the two gray ground wires to pin A, and the orange 24 volt dc wire to pin O.

j. Mount the 2N1039-1 (or 2N2553) transistor in the 1/4-inch hole. Use DC-4 silicone grease or equivalent. Orient the transistor so that the collector lead is next to the red test jack.

k. Install the new etched board assembly (1210569) on the heat sink.

l. In the following steps where no color is called out for a wire, use bare wire.

1. Solder a lead between the base of Q2 (2N1546) and terminal 1 on the board.

2. Solder a lead between TP3 (white) and terminal 2.

3. Solder a lead between TP1 (red) and terminal 3.

4. Solder one end of the violet wire to the emitter of Q3 (2N1544) and connect the other end to terminal 4 on the board. Do not solder terminal 4 at this time.

5. Solder the collector lead of Q4 to terminal 4.

6. Solder the base lead of Q4 to terminal 5 on the board.

7. Connect the green wire between pin 2 of J2, and terminal 6 on the board. Do not solder these connections at this time.

8. Solder the emitter lead of Q4 to terminal 6 on the board.

9. Solder the red leads from the emitters of Q1 and Q2, and the swinger of the balance potentiometer to the center terminal of the three-terminal, terminal strip.

10. Solder leads between the outer terminals of the balance potentiometer and the outside terminals of the three-terminal, terminal strip.

11. Solder a lead between the base of Q1 and terminal 8 on the board.

12. Solder a lead between TP2 (black), terminal 9 on the board, and the collector of Q1.

13. Solder a lead between the base of Q3 and terminal 10 on the board.

14. Solder the yellow wire from pin B on J1 to terminal 11 on the board.

15. Solder a lead between the collector of Q3 and terminal 12 on the board.

16. Replace the cover on the Erase Driver Assembly, and re-install the assembly.

m. Remove the cover from the retractable erase head assembly.

n. Connect the test probe from an oscilloscope to the 560-ohm resistor.

o. Place the recorder in RECORD TEST, and adjust the timmer capacitor for maximum signal on the oscilloscope.

p. Replace the cover on the erase head assembly.

NOTE

If the electronic editor is being installed in steps, the recorder may be returned to normal service at this time.

9 EDITOR CONTROL PANEL INSTALLATION

The editor control panel is installed in accordance with the following steps.

a. Remove the "A"-scope monitor (see Figure 6).

b. Loosen the "A"-scope mounting slides

c. Remove the blank panel below the "A"-scope.

d. Mount the editor control panel in the space vacated by the blank panel below the "A"-scope.

e. Cut the ties holding the harness in its stowage place in the back of the console and connect the mating plug to the editor control panel.

f. Tighten the "A"-scope mounting slides, and re-install the "A"-scope monitor.

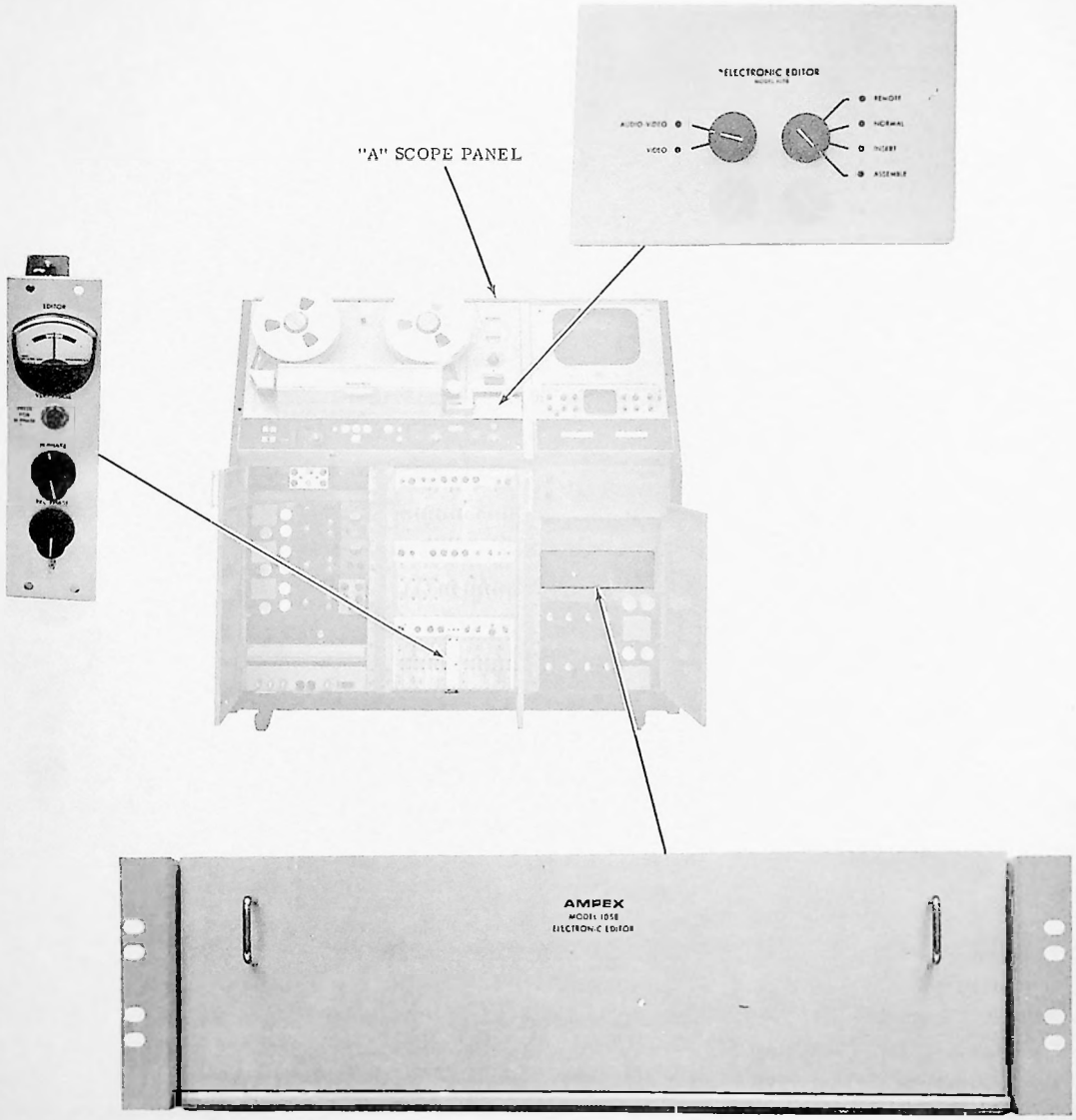

Figure 6. Mark III Electronic Editor Component Location, VR-2000

10 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The editor accessory panel is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the blank center panel from the Intersync servo chassis.

c. Connector J17 is tied back in the Intersync. Connect this connector to the editor accessory panel. Cut out R14 and jumper from E16-E17.

d. Insert the editor accessory panel in the Intersync chassis, and secure.

e. Re-install the Intersync servo chassis.

11 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

a. Remove the blank panel above the signal system power supply in the monitor rack.

b. Install the editor chassis, and secure.

c. Connect the 66-pin harness connector to the editor J2.

This completes the installation of the electronic editor.

INSTALLATION OF MARK III EDITOR IN VR-2000B RECORDER

1 EDITOR CONTROL PANEL INSTALLATION

The editor control panel is installed in accordance with the following steps.

a. On the Video/Audio Monitor Selector Panel, remove the switch knobs and take off the overlay (discard) (see Figure 1).

b. Using the overlay supplied in the editor kit (part no. 1361295) as a guide, relocate the monitor selector-switch panel farther to the right.

NOTE

If an Editec accessory is also being added to the system at this time, use the overlay and instructions from the Editec kit since its controls are also added to this panel.

c. Mount the editor control panel in the position indicated by the overlay cutouts.

d. Attach the new overlay and fasten all knobs, in correct orrientation to the markings.

2 INTERSYNC EDITOR ACCESSORY PANEL INSTALLATION

The Editor Accessory Panel is installed in accordance with the following steps.

a. Remove the Intersync servo chassis from the console.

b. Remove the servo meter panel assembly at the center of the Intersync servo chassis. Disconnect the harness plug from J17.

c. On the Editor Accessory panel from the kit (part no. 1362136), remove the jumper between terminals E2 and E3 on the meter panel board, so that only resistor R4 (12K) is connected between these terminals.

d. Connect the harness plug to J17 and mount the Editor Accessory panel in the center position of the Intersync chassis.

e. Re-install the Intersync servo chassis in the console.

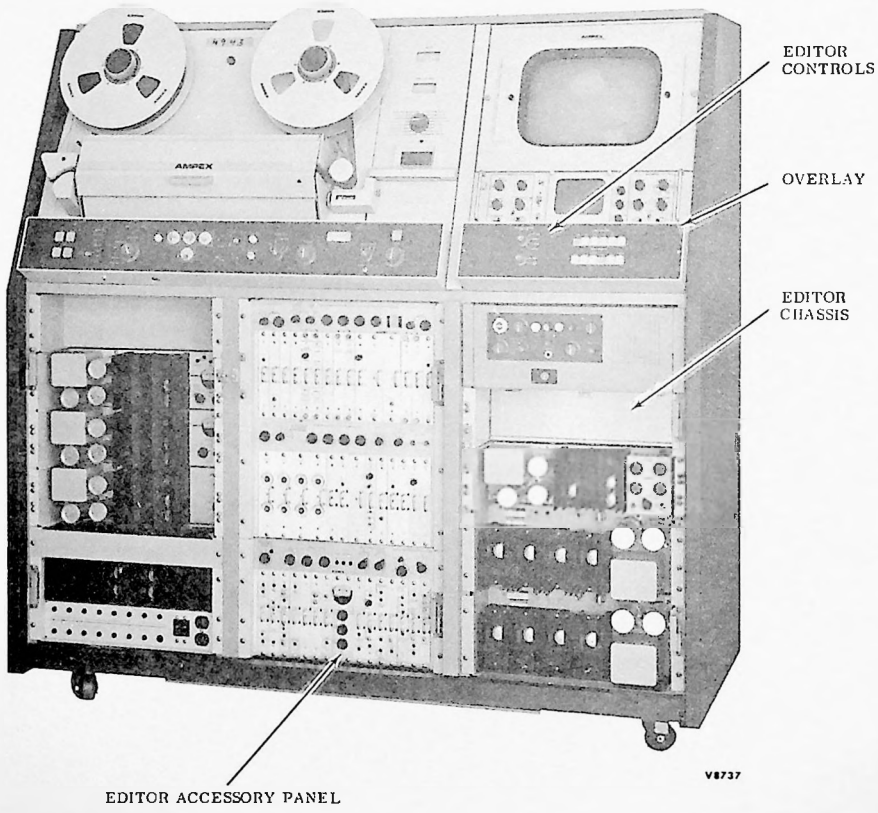

Figure 1. Mark III Electronic Editor Component Location, VR-2000B

3 EDITOR CHASSIS INSTALLATION

The editor chassis is installed in accordance with the following steps.

a. Remove the blank panel below the Audio and Cue chassis of the VR-2000B.

b. Mount the Mark III Editor (electronic chassis), part no. 1212810-05, below the Audio and Cue chassis.

c. Remove the dummy plug from the connector J2 of the control panel. Install the Editor Interconnect Cable (part no. 1241479-02) from that connector to J2 on the Video Head Optimizer unit.

4 POWER SUPPLY ALTERATION

a. Locate the identification label of the Intersync on the inside of the side panel to the right, as viewed from the rear, and read the dash-version of the part number (1805064-XX).

b. Locate the harness connector for the Intersync servo power supply.

c. If the Intersync is an -08 version or higher, connect a jumper between pin 19 and pin 5 of the connector (there will then be two wires connected to pin 19). If the Intersync version is lower than -08, omit this step and perform step d.

d. If the Intersync version is lower than -08, connect a 10-ohm, 5-watt, 10% resistor between pin 19 and pin 5 of the connector.

CHAPTER 3

OPERATION

SECTION I

CONTROLS AND INDICATORS

3.1-1 GENERAL

Operating controls for the electronic editor are located on all three of the chassis (see Figure 3.1-1). There are seven indicators associated with the editor. One indicator is a meter located on the editor accessory panel which is mounted in the Intersync servo chassis. This meter may be used to indicate the relative position (in time) of the reference vertical and horizontal sync signals in relation to recorded signals. The remaining six indicators are located on the editor control panel, and indicate the position of the two selectors. Table 3.1-1 identifies the electronic editor controls and their functions.

Table 3.1-1. Electronic Editor Controls

CONTROL	LOCATION	FUNCTION
AUDIO-VIDEO, VIDEO	Editor Control Panel	Selects the option of recording both audio and video, or video only.
MODE SELECTOR	Editor Control Panel	Selects the mode of operation for the editor. In REMOTE the editor modes may be selected by a remotely mounted editor control panel. In NORMAL the editor is removed from the circuit. In INSERT position the editor is set up for making an insert to prerecorded material. In the ASSEMBLE position the editor is set up to assemble a tape.
TEST/NORMAL	Editor Electronics Chassis	In the NORMAL position, the editor electronics operate in a normal manner. In the TEST position the one-shots and flip-flop cycle continuously.
H PHASE or HORIZ PHASE	Editor Accessory Panel	This potentiometer provides a means for matching the timing of previously recorded video signals on a tape with the new video to be edited onto the tape.
REC PHASE	Editor Accessory	This potentiometer is used to adjust the drum servo circuits, which are used during recording of new video signals being edited onto the tape, so that no shift in phase of the drum occurs following the electronic splice.

Table 3.1-1. Electronic Editor Controls (Cont.)

CONTROL	LOCATION	FUNCTION
PRESS FOR H PHASE (VR-1200 and VR-2000 only)	Editor Accessory Panel	This pushbutton type switch provides a means of switching the meter input from REC PHASE to H PHASE.
Meter Switch (VR1200B, VR-2000B only)	Editor Accessory Panel	This rotary selector switch allows the meter reading to indicate the H PHASE or REC PHASE comparators, as well as the outputs of the CAPSTan, TACHometer, or REFerence discriminators in the Intersync, or be switched OFF.
Meter (VERT PHASE in VR-1200 and VR-2000; EDIT DISCR in VR-1200B and VR-2000B)	Editor Accessory Panel	This meter indicates any of the functions selected by its associated input switch.

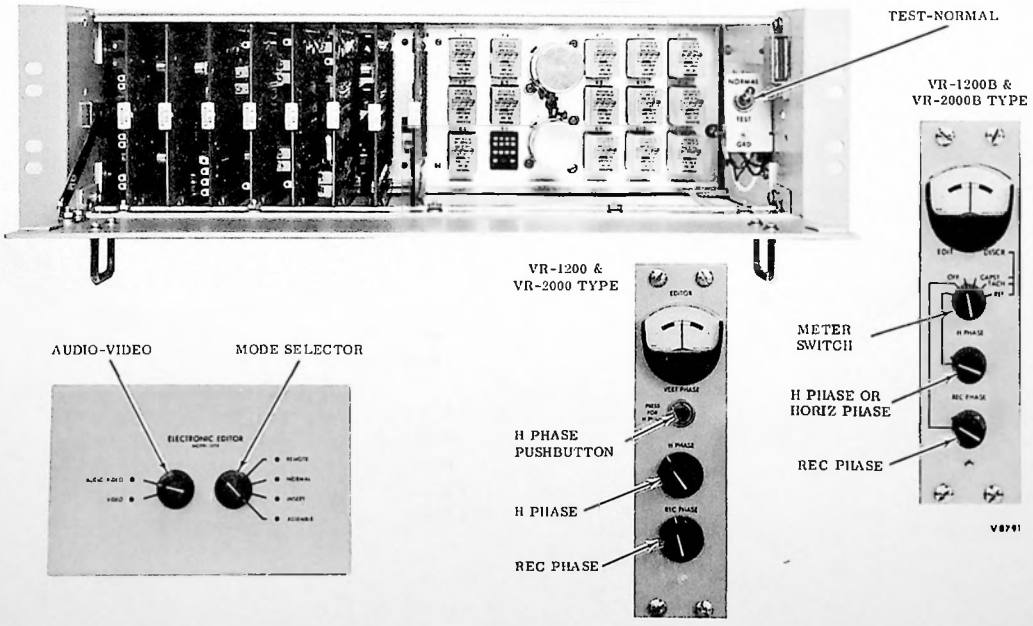

Figure 3.1-1. Editor Controls and Meter (Typical)

SECTION II

OPERATING PROCEDURES

3.2-1 GENERAL

The Mark III Model 1058 Electronic Editor is designed specifically for Videotape Television Recorder Systems. It holds splicing errors to an extremely low level by two distinct methods: by maintaining the Intersync servo in full automatic playback until just prior to the start of the new recording; and by controlling and, when necessary, modifying signals from the recording system. The playback-to-record mode change in the Inter-Sync is controlled by an electronic switch approximately 4 milliseconds before the turn-on of rf current.

3.2-2 PRE-OPERATIONAL FUNCTIONS

3.2-3 EXTERNAL SYNC

External sync must be provided to the recorder when making a splice in either INSERT or ASSEMBLE. This sync must be common to both the recorder and the camera, or other source producing the video signal to be recorded. The time coincidence between the leading edges of the reference sync and the input video signal sync to the recorder must be less than three microseconds.

3.2-4 TRACK SELECTOR

The TRACK SELECTOR on the system control panel must be placed at HOME TRACK when a splice is made. This is necessary to ensure that the proper head is playing back the track containing the vertical sync pulses.

3.2-5 CONTROL TRACK REQUIREMENTS

3.2-6 When the editor is being operated in the insert mode, the tape to be spliced must have a complete, uninterrupted control track. This condition is mandatory since the positioning of the tape is determined by the Intersync closely comparing the off-tape control track with the tachometer signal. This comparison is performed before, during, and after the insert. By utilizing the recorded control track signal, uniform video track spacing is maintained throughout the insert to match exactly the track spacing of the original recording.

3.2-7 When operating the editor in the assemble mode a prerecorded control track is required up to the point of the in-going splice. In the assemble mode a new control track is recorded, and the capstan oscillator is controlled by the servo up to the instant of the in-going splice so that the new control track will be in phase with the prerecorded control track at the splice point. Beyond this point the control track is a function of the capstan oscillator.

Because the capstan oscillator is free-running, it is imperative that its frequency be adjusted as accurately as possible. Refer to the appropriate Videotape Television Recorder manuals for this adjustment and verification of capstan oscillator frequency accuracy.

3.2-8 POWER APPLICATION

Before attempting to utilize the electronic editor, power should be applied to the recording system for a minimum of 30 minutes. Press the READY pushbutton on the system control panel, and allow the head drum and capstan motors to run. After approximately one minute, place the recorder in standby for the remainder of the warm-up period. For the purpose of these discussions "standby" means that power is applied to the recorder but the head drum and capstan motors are stopped.

3.2-9 OPERATION

3.2-10 AUDIO-VIDEO SELECTION

When making a splice onto a prerecorded tape, the operator has a choice of recording video and audio, or video only. The mode required should be determined before starting a splice since, in the AUDIO-VIDEO position, all audio on the tape is erased with the video and new audio is recorded. Therefore, if the prerecorded audio track is to be retained, VIDEO should be selected.

3.2-11 IN-GOING SPLICE POINT SELECTION

When a section of tape has been selected for editing, a cueing point on the tape must be chosen. In selecting the cueing point, consideration must be given to the amount of tape that will pass the video heads after the RECORD pushbutton is pressed but before recording actually begins. This will amount to approximately 12-3/4 inches of tape, when it is moving at 15 ips. Add to this the length of tape moving past the video heads during the time it takes the operator to react to the cue and press the RECORD pushbutton. From the foregoing it may be derived that if the splice point were exactly at the video heads when the RECORD pushbutton were pressed, that point would be about 14 inches past the desired position when the recording started. Therefore, a cue point must be selected which will permit about 14 inches of tape to pass the video heads from the time that the cue is given until recording begins at the spliced point of our choice. Audible tones on the cue channel, words or other sounds on the audio channel, or video information from the monitor display are a few of the many ways available to the operator as cue points.

3.2-12 OUT-GOING SPLICE POINT SELECTION

Essentially the same method may be utilized to find and cue the out-going splice point as was described in the previous paragraph; the only difference is in the time delay after the stop cue is given, the STOP pushbutton is pressed, and the recording function stops. Approximately 9 inches of tape will move past the video heads during this interval. This cue, therefore, must be situated in a position to permit approximately 9 inches of tape to pass the video heads after the cue is given until the out-going splice is positioned exactly at the video heads when recording stops. The out-going splice point should always be located and cued before an insert is started. At the time that the out-going splice point is determined the operator should note the reading on the tape timer and use it during the insert as an indication of the approach of the out-going splice cue.

3.2-13 EDITOR ACCESSORY PANEL ADJUSTMENTS

Whether insert or assemble operations are to be performed, accuracy of Intersync control is important. With tape threaded on the recorder and the system warmed up to stabilize circuit operation, perform the following procedure on the Editor Accessory Panel of the Intersync, and make adjustments to the boards of the Intersync as indicated.

NOTE

In VR-2000 series recorders, the "A"-scope display is used in the steps below. In VR-1200 series recorders, the selector switch and display of the Waveform Monitor must be used in those steps instead.

a. Set the "A"-scope selector switch to the REF SYNC position. The display must be stable. If it is not, adjust the "A"-scope as described in the "A"-scope manual (or the Waveform Monitor as indicated in the applicable manual).

b. Set the "A"-scope selector switch to the DRUM OSC position (in STANDBY, drum and capstan motors stopped). If the drift exceeds 0.1 Hz, adjust either R21 DRUM OSC FREQ 525, board 6, or R20 DRUM OSC FREQ 405/625/819, board 6, corresponding to the line standard in use for the system.

c. Set the "A"-scope selector switch to the CAPSTAN OSC position and place the recorder in READY mode (motors running). If the drift exceeds 0.1 Hz, adjust either R20 CAPSTAN OSC FREQ 525, board 13, or R78 CAPSTAN OSC FREQ 405/625/819, board 13, corresponding to the line standard in use for the system.

d. Still in READY mode, set the meter selector switch of the Editor Accessory Panel to the HORIZ PHASE position, or leave the PRESS FOR H PHASE pushbutton released. If the meter reading does not fall within the white portion of the scale, adjust R85 on board 6 to center the meter.

e. Set the meter selector switch to the HORIZ PHASE position, or press the PRESS FOR H PHASE pushbutton, and ajdust the HORIZ PHASE control to zero (center) the meter.

f. Press the PLAY pushbutton and set the meter selector switch to the REC PHASE position, or leave the PRESS FOR H PHASE pushbutton released. When the green VERT and HORIZ LOCK indicators on the system control panel light, adjust the REC PHASE control to zero the meter.

3.2-14 INSERT MODE OPERATION

With the tape threaded on the recorder in accordance with the recorder instruction manual, and after ascertaining that the control track is intact and continuous through that portion of the tape where the insert is to be made, proceed to make an insert on the prerecorded tape as follows:

a. Connect external sync and video signal leads to the recorder.

b. Turn the selectors on the editor control panel to INSERT, and either AUDIO-VIDEO or VIDEO.

c. On the system control panel, turn the SERVO MODE selector to AUTO.

d. Ascertain that the TRACK SELECTOR is set at HOME TRACK.

e. Press the READY pushbutton on the system control panel.

f. Locate the point on the tape where the splice is to be made, as follows:

1. Place the recorder in play mode, and observe the video monitor and tape timer. When the splice point is located note the tape timer reading and press the STOP pushbutton.

NOTE

Refer to paragraphs 3.2-9 and 3.2-12 before proceeding further.

2. Rewind a minimum of ten seconds of tape onto the supply reel. This is required to permit the Intersync servo to stabilize after the PLAY pushbutton is pressed.

NOTE

Additional time may be desired if the artists must be cued, or other production efforts initiated.

g. Press the PLAY pushbutton placing the recorder in the play mode, and monitor the LOCK indicators on the system control panel. Their illumination indicates that Intersync has locked in.

h. At the cue point, press the PLAY and RECORD pushbuttons simultaneously, placing the recorder in the record mode.

i. Continue in the record mode until the cue appears, at which time press the STOP pushbutton terminating the recording. The reels on the transport will stop approximately one second later.

j. Rewind the tape and play it back to see if the insert is as desired.

3.2-15 ASSEMBLE MODE OPERATION

Operation of the electronic editor in the assemble mode is similar to operation in the insert mode, except that in the assemble mode a continuous control track is not required beyond the in-going splice point because a new control track will be recorded. Establishing the in-going splice cue is identical to that used in the insert mode, but as prerecorded material is not rejoined, the cue point for the out-going splice point, or termination of recording, is not critical.

3.2-16 GENERAL OPERATING NOTES

3.2-17 Always allow the servo to lock up in full automatic lock, and stabilize before pressing the PLAY and RECORD pushbuttons simultaneously to obviate the possibilty of a large timing error in the splice. If the recorder is to be idle for long periods, place the editor control panel mode selector at NORMAL, which removes the B+ voltage from the record amplifier modules. Set this selector at NORMAL whenever the recorder is used and editing functions are not required.

CAUTION

NEVER CHANGE THE EDITOR MODE SELECTOR, TAPE SPEED, OR THE CHANNEL SELECTOR WHILE THE TAPE IS IN MOTION. THESE FUNCTIONS MAY BE SELECTED IN ANY ORDER WHEN THE RECORDER IS IN STANDBY.

3.2-18 When the recorder is operating with the electronic editor in either the insert or the assemble mode, a small flash may be observed at the top of the picture as displayed in the monitor. This is caused by a relay transfer in the signal system and appears in the E-E signal only. The recorded signal has no discontinuity. When the recorder switches out of record in the insert mode, the reproduced tape signal may exhibit excessive noise for about one second. This is caused by an unavoidable delay in the AGC circuits of the signal system in establishing proper rf signal levels. The noise occurs after the recording has been terminated and does not affect the accuracy of the out-going splice.

3.2-19 With the editor mode selector set at INSERT or ASSEMBLE, the red SERVO LOCK warning tally, on the recorder control panel, is illuminated if the video head drum is not rotating. When it is rotating, the warning tally will be extinguished after the head drum is locked to the sync signal. However, with the editor mode selector control set at NORMAL, the warning tally is illuminated only when the head drum is rotating but not locked.

CHAPTER 4

THEORY OF OPERATION

CHAPTER 5

MAINTENANCE

SECTION I

PREVENTIVE MAINTENANCE

5.1-1 GENERAL

Preventive maintenance to the electronic editor is, for the most part, not required, and may be limited to a periodic check of the delays of the adjustable one-shot. The adjustments of the one-shot delays is described within the initial setup and alignment procedures in the paragraphs that follow. The exact delays, after initial setup, should be recorded, checked monthly, and, if necessary, adjusted to the recorded value. Change of component value, due to age, may cause the delays to drift out of tolerance. A record of the delay times of the adjustable one-shots will prove invaluable if a component replacement is required which will affect the delay.

5.1-2 INITIAL SETUP AND ALIGNMENT PROCEDURES

Upon completion of the Mark III Electronic Editor installation, the editor must be given an initial setup and calibration. The major item to be calibrated is the meter on the editor accessory panel (now mounted on the Intersync Servo Chassis), while the major items to be setup are the video erase and the rf record "turn-on/turn-off" delays.

5.1-3 REQUIRED TEST EQUIPMENT

A list of the equipment needed to accomplish the setup and calibration of Electronic Editor is shown in Table 5.1-1.

Table 5.1-1. Required Test Equipment

ITEM	TYPE (OR EQUIVALENT) AND USE
Development Kit	Edivue. This kit is needed to develop the magnetic tape while setting delays.
Signal Generator	To supply composite video, monoscope, window, and stairstep signals to the VTR.
Expendable Tape	2-inch video tape which will be developed and cannot be re-used.
Oscilloscope	Tektronix Model 564, for pulse width measurements.
Magnifying glass	For inspection of developed tape segments.

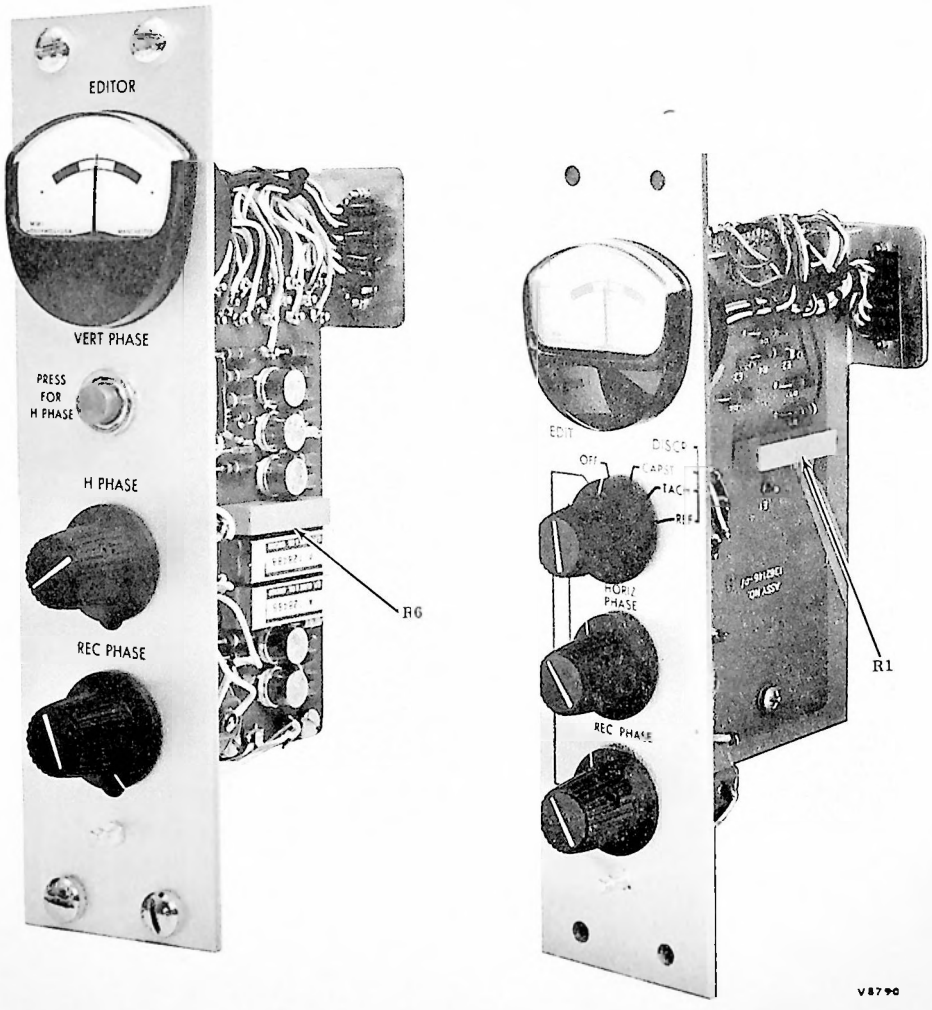

Figure 5.1-1. Editor Accessory Panel

5.1-4 EDITOR ACCESSORY PANEL METER ADJUSTMENT

The meter on the editor accessory panel is calibrated in two steps. The first calibration to be performed is considered a preliminary adjustment, while the final adjustment is to be made after completion of the adjustment of video erase and rf record current. To perform the preliminary adjustment proceed as follows:

a. Place the SERVO MODE selector, on the system control panel, to NORMal.

b. Make a recording of approximately five minutes duration.

c. Place the SERVO MODE SELECTOR to AUTO.

d. Select INSERT on the editor control panel.

NOTE

In VR-2000 series recorders, the "A"-scope desplay is used in the steps below. In VR-1200 series recorders, the selector switch and display of the Waveform Monitor must be used in those steps instead.

e. Set the "A"-scope selector switch to the REF SYNC position. The display must be stable. If it is not, adjust the "A"-scope as described in the "A"-scope manual (or the Waveform Monitor as indicated in the applicable manual).

f. Set the "A"-scope selector switch to the DRUM OSC position (in STANDBY, drum and capstan motors stopped). If the drift exceeds 0.1 Hz, adjust either R21 DRUM OSC FREQ 525, board 6, or R20 DRUM OSC FREQ 405/625/819, board 6, corresponding to the line standard in use for the system.

g. Set the "A"-scope selector switch to the CAPSTAN OSC position and place the recorder in READY mode (motors running). If the drift exceeds 0.1 Hz, adjust eigher R20 CAPSTAN OSC FREQ 525, board 13, or R78 CAPSTAN OSC FREQ 405/625/819, board 13, corresponding to the line standard in use for the system.

h. Still in READY mode, set the meter selector switch of the Editor Accessory Panel to the HORIZ PHASE position, or leave the PRESS FOR H PHASE pushbutton released. If the meter reading does not fall within the white portion of the scale, adjust R85 on board 6 to center the meter.

i. Set the meter selector switch to the HORIZ PHASE position, or press the PRESS FOR H PHASE pushbutton, and adjust the HORIZ PHASE control to zero (center) the meter.

j. Press the PLAY pushbutton and set the meter selector switch to the REC PHASE position, or leave the PRESS FOR H PHASE pushbutton released. When the green VERT and HORIZ LOCK indicators on the system control panel light, adjust the REC PHASE control to zero the meter.

5.1-5 VIDEO ERASE TURN-OFF ADJUSTMENT

Video erase adjustment is made in accordance with the following procedure:

CAUTION

ADJUSTMENT OF VIDEO ERASE TURN-ON AND TURN-OFF WILL REQUIRED EDIVUE DEVELOPMENT OF THE TAPE. OPERATING PERSONNEL ARE WARNED THAT A RESIDUE OF EDIVUE PARTICLES ON THE TAPE WILL CAUSE VERY RAPID WEAR OF THE VIDEO HEAD ASSEMBLY IF THE TAPE IS PLAYED THROUGH THE HEAD ASSEMBLY AFTER DEVELOPMENT. FOR THIS REASON A SECTION OF EXPENDABLE TAPE MUST BE USED AND DISCARDED AFTER THE FINAL SETTINGS OF THE ERASE DELAYS HAVE BEEN DETERMINED.

a. Apply a 1-volt peak-to-peak composite sync signal to the recorder video input.

NOTE

The use of a sync only signal is not mandatory, but since it contains fewer elements than a composite video signal, examination of the developed tape is simplified.

b. Place the recorder in the record mode, and with the SERVO MODE selector in NORMAL, make a 10 minute recording.

c. Rewind the tape to the beginning of the 10 minute recording.

d. Note the settings of the record level controls and set the memory dials to these settings, then turn all record level controls to zero.

e. Place the editor in insert mode and the Intersync in AUTO.

f. Monitor the DRUM ERROR signal on the "A"-scope monitor.

g. Place the recorder in play mode. When the VERT and HORIZ lights illuminate, and the "A"-scope indicates switchover to horizontal comparator, initiate record mode. Note reading of tape timer and press the STOP pushbutton.

h. Rewind the tape to the tape timer reading noted in step g.

i. Use Edivue solution and develop the tape section that includes the erase turn off made in step g. This point will be to the left of the developed tape.

NOTE

Figures 5.1-5 and 5.1-8 are illustrations of a correct termination and start of erasure, respectively, of a 25-frame-rate system. All other illustrations from Figure 5.1-2 through Figure 5.1-10 are of a 30-frame-rate system. With the exception of Figures 5.1-4 and 5.1-7, however, the illustrations may be compared with either frame-rate system as they are illustrations of incorrect adjustments.

j. Inspect the developed section of tape, and compare it with Figures 5.1-2, 5.1-3, and 5.1-4. Erase turn off should occur in the guard band preceding the 15th transverse track that precedes the next recorded vertical sync interval, in 30-frame-rate systems (19th transverse track that precedes the next recorded vertical sync interval in 25-frame-rate systems). If the tape compares to Figure 5.1-2, the erasure turn-off is early and the delay must be increased (step k); if the tape compares with Figure 5.1-3, the erasure turn-off is too late, and the delay must be increased.

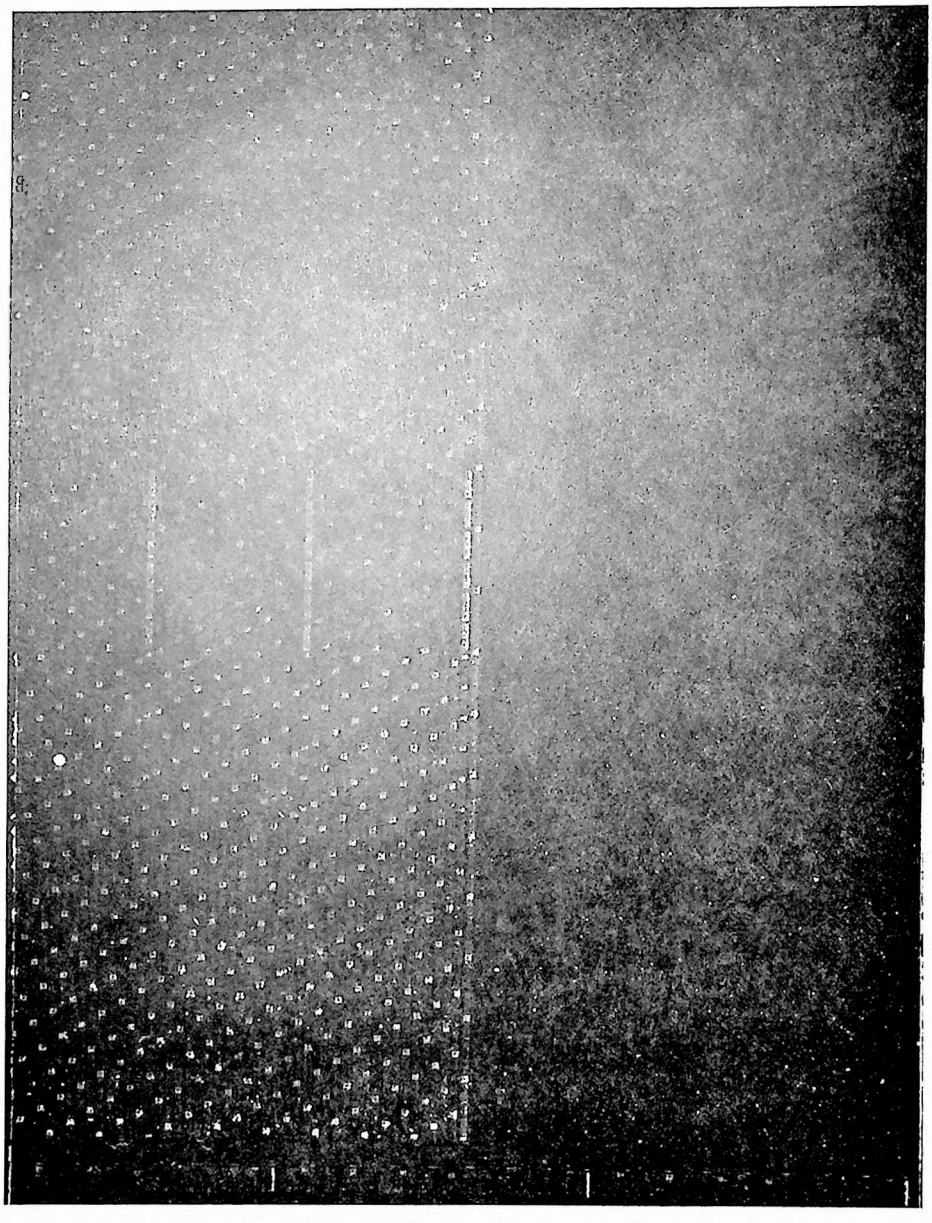

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Figure 5.1-2. Erasure Terminated Too Soon in a 30-Frame System

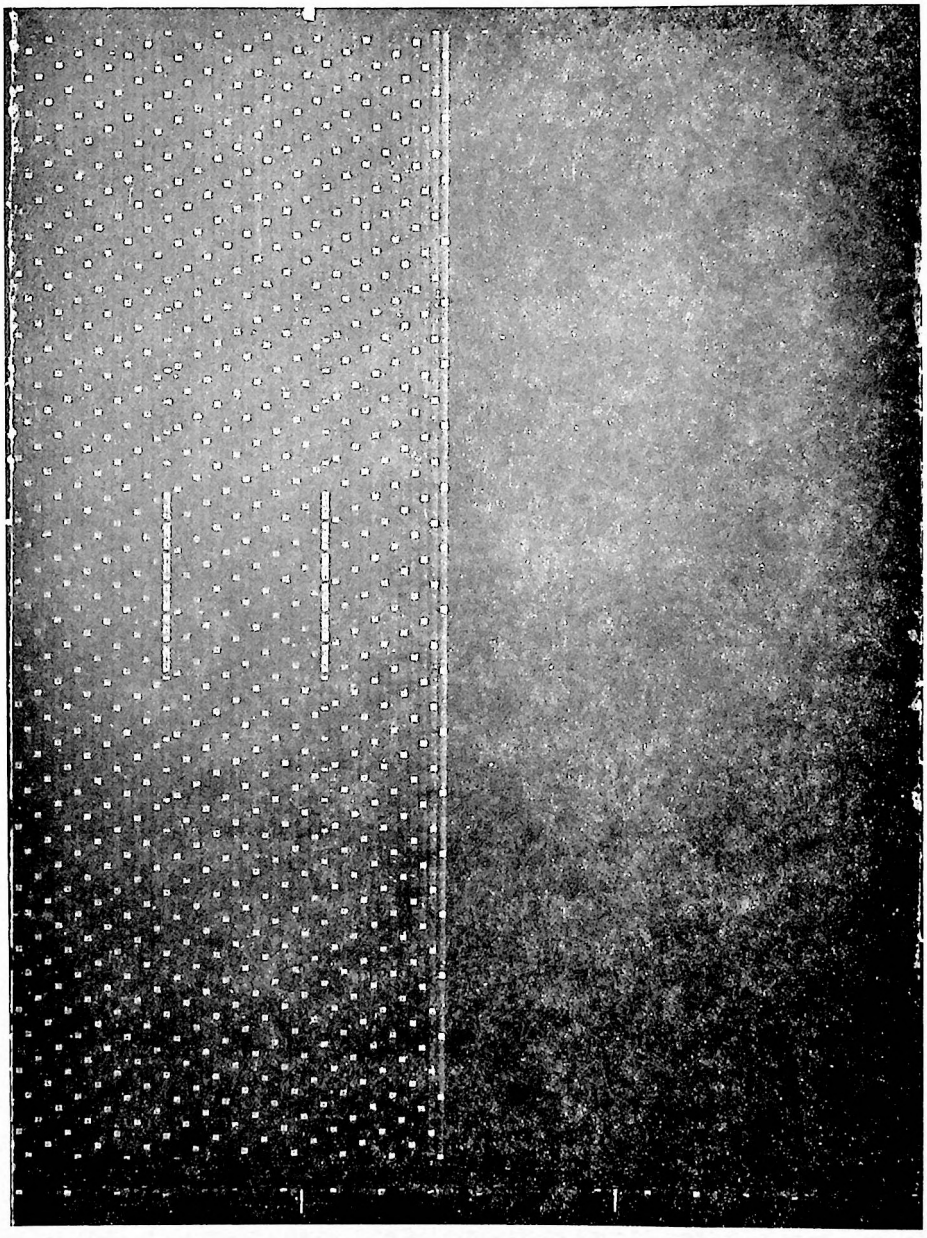

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Figure 5.1-3. Erasure Terminated Too Late in a 30-Frame System

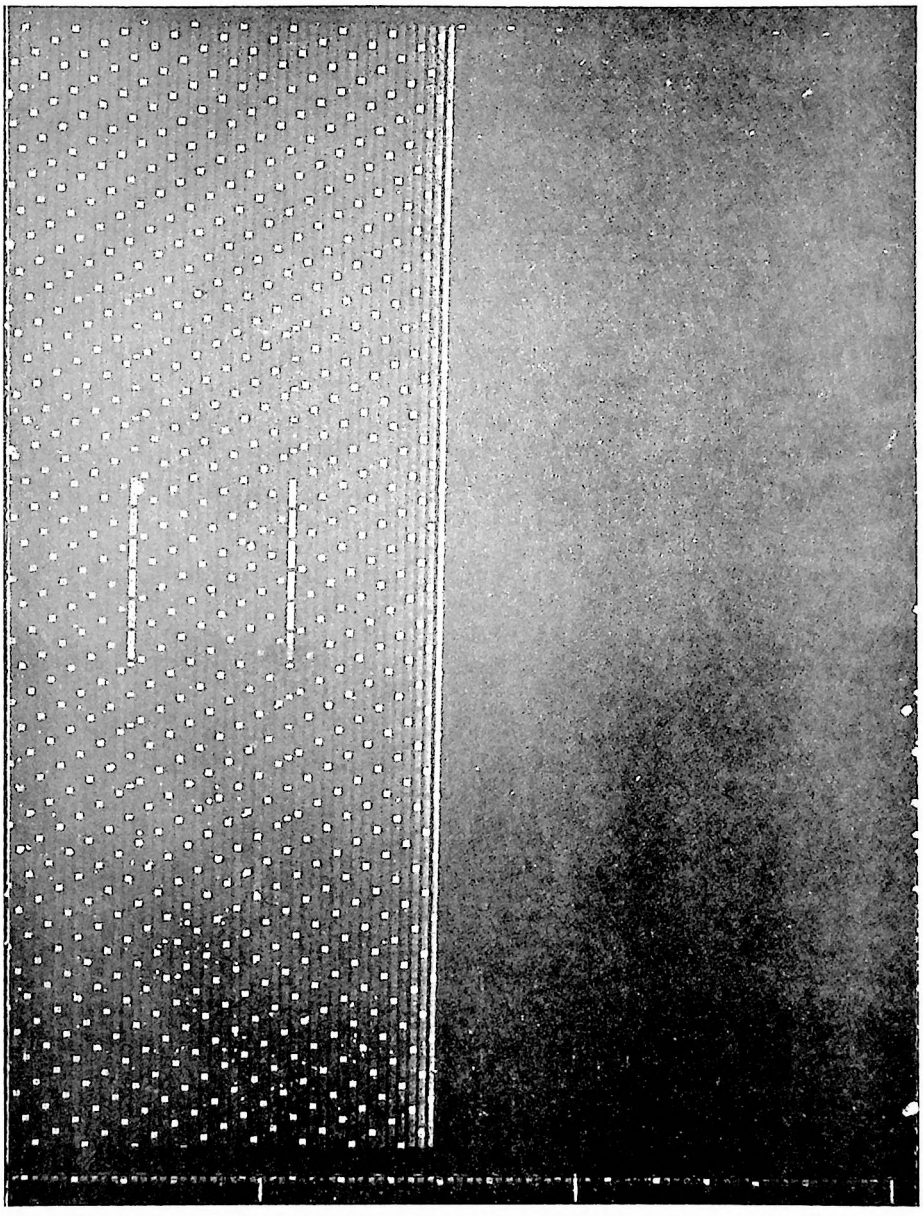

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Figure 5.1-4. Correct Termination of Erasure in a 30-Frame System

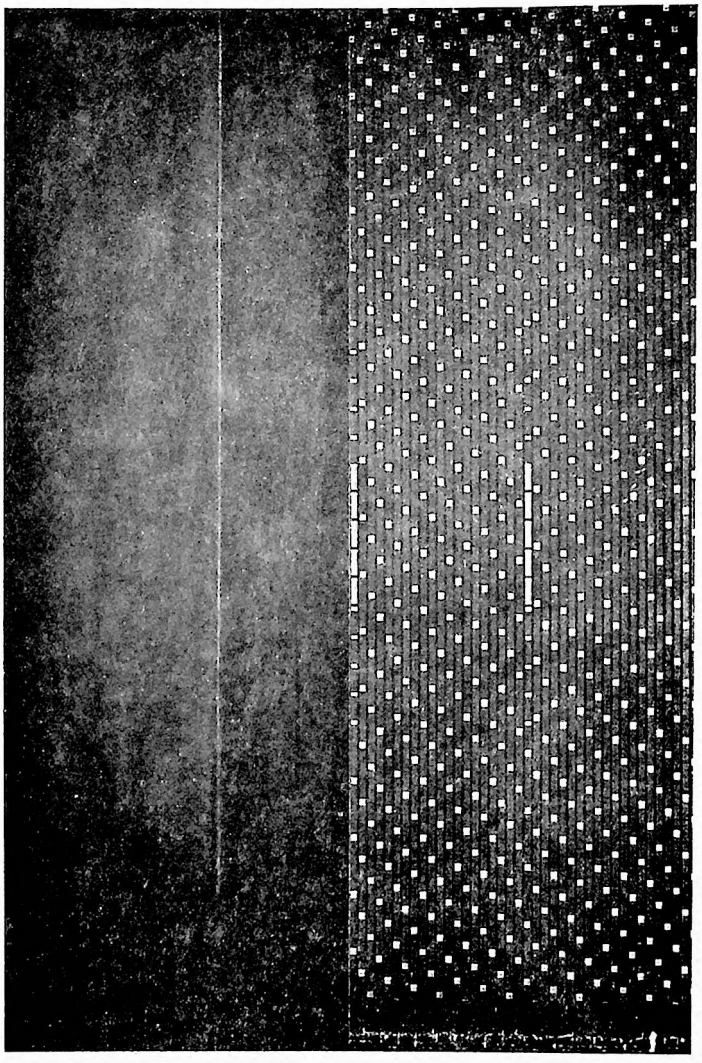

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Figure 5.1-5. Correct Termination of Erasure in a 25-Frame System

k. Erase turn-off delay is controlled by one-shot number 2 (refer to Table 5.1-2) on etched board 5. In order to adjust this multivibrator, make the following test setup:

1. Connect an oscilloscope probe to TP1 on etched board 5 (refer to Figure 5.1-6).
2. Set the oscilloscope for INTERNAL, POSITIVE SLOPE TRIGGER.
3. Place the TEST/NORMAL switch to TEST. This switch is located on the editor electronics chassis on the right-hand side.
4. Select insert mode for the editor.
5. On the system control panel, place the SERVO MODE selector to AUTO.
6. Press the READY pushbutton on the system control panel. Allow approximately one minute for the capstan and head drum motors to stabilize.
7. Place the recorder in record mode, and then immediately press the STOP pushbutton. The recorder will stop, but the editor will cycle continuously triggering all one-shots.
8. Trigger the oscilloscope on the positive-going leading edge of the pulse displayed.

Table 5.1-2. Variable One-Shot Delays and Function

OS	ETCH-ED BD	TP	(DELAY (IN MILLISECONDS) 15 ips 25 fps	15 ips 30 fps	7.5 ips 25 fps	7.5 ips 30 fps	FUNCTION
2	5	1	5 ms	5.2	10	10.4	In combination with OS3, erasure turn-on, alone, erasure turn-off.
3	5	2	1	1	1.2	1.2	Compensates for the finite erasure width (gap effect) during erasure turn-on.
4	4	1	.3	.4	.3	.4	Turns rf record current on.
8	6	1	.25	.25	.25	.25	In combination with OS4, turns on rf record current.

l. From the developed tape, and Figures 5.1-2, 5.1-3, and 5.1-4, determine approximately how much correction must be made in the delay. A delay of 0.1 milliseconds corresponds to 1.5 mils of tape length. One millisecond would then correspond to approximately one track width.

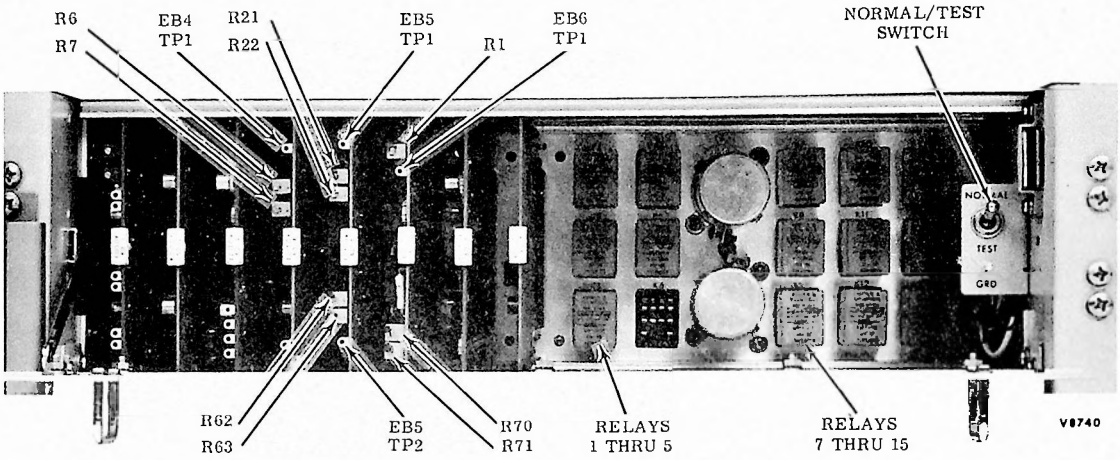

Figure 5.1-6. Editor Electronics Chassis

m. Measure the width of the pulse on the oscilloscope. The nominal delay is 5 milliseconds, ±3 milliseconds (15 ips), and 10 milliseconds, ±6 milliseconds (7.5 ips).

n. Adjust potentiometer R22 (15 ips) or R21 (7.5 ips) on etched board 5 to either increase or decrease the pulse width. Increasing the width increases the delay.

o. Repeat steps e through n until the erase turn-off delay is correct and compares favorably with Figure 5.1-4. It will be noted that there are 16 tracks from the end of the erasure back to, and including, the first track containing the vertical sync pulses in 30-frame systems (20 tracks in 25-frame systems).

p. Place the TEST/NORMAL switch to NORMAL.

5.1-6 VIDEO ERASE TURN-ON ADJUSTMENT

Video erase turn-on delays are adjusted as follows:

a. Rewind the tape until a portion of the 10 minute recording made in steps a and b is under the erase head. BE CERTAIN THE DEVELOPED PORTION OF THE TAPE IS NOT RUN ACROSS THE HEAD ASSEMBLIES.

b. Repeat steps e through h of paragraph 5.1-5 to make another splice.

c. Use Edivue solution and develop the tape section that includes the erase turn-on. This point will be to the right on the developed tape.

d. Inspect the developed tape segment and compare it with Figures 5.1-7, 5.1-9 and 5.1-10. Erase turn-on should occur in the guard band immediately following the track containing the vertical interval. If the tape compares with Figure 5.1-7, the erase turn-on delay is set correct. If it compares with Figure 5.1-9 the delay is late and must be decreased. If the tape compares with Figure 5.1-10 the delay is early and must be increased to allow more tape to pass under the erase head before the erase current is turned on.

e. Erase current turn-on delay is controlled by one-shot number 3 on etched board 5 (see Table 5.1-2). In order to adjust this multivibrator make the following test setup:

1. Connect the oscilloscope to TP2 on etched board 5.

2. Set the oscilloscope for internal, negative slope trigger.

3. Repeat step k3 through k6, of paragraph 5.1-5.

4. Trigger the oscilloscope on the negative-going leading edge of the displayed pulse.

5. From the developed tape and Figures 5.1-7, 5.1-9, and 5.1-10, determine approximately how much correction must be made in the delay.

6. Determine the width of the displayed pulse. Nominal pulse width is 1 millisecond (15 ips) and 1.2 millisecond (7.5 ips).

7. Adjust potentiometer R62 (15 ips); R63 (7.5 ips) on etched board 5 to either increase or decrease the pulse width.

f. Repeat steps a through e until erase turn-on delay is correct. Once the delay of one-shot 3 has been correctly adjusted it should remain correct for a given installation.

NOTE

If the position of the video erase head changes for any reason, it will be necessary to adjust one-shot 2 of etched board 5 only.

5.1-7 RF RECORD CURRENT TURN-ON ADJUSTMENT

5.1-8 In setting rf turn-on to the correct position the remaining portion of the 10 minute recording of the sync only signal made at the start of paragraph 5.1-5 will be used. The operator is again cautioned not to allow developed segments of tape to pass over head assemblies.

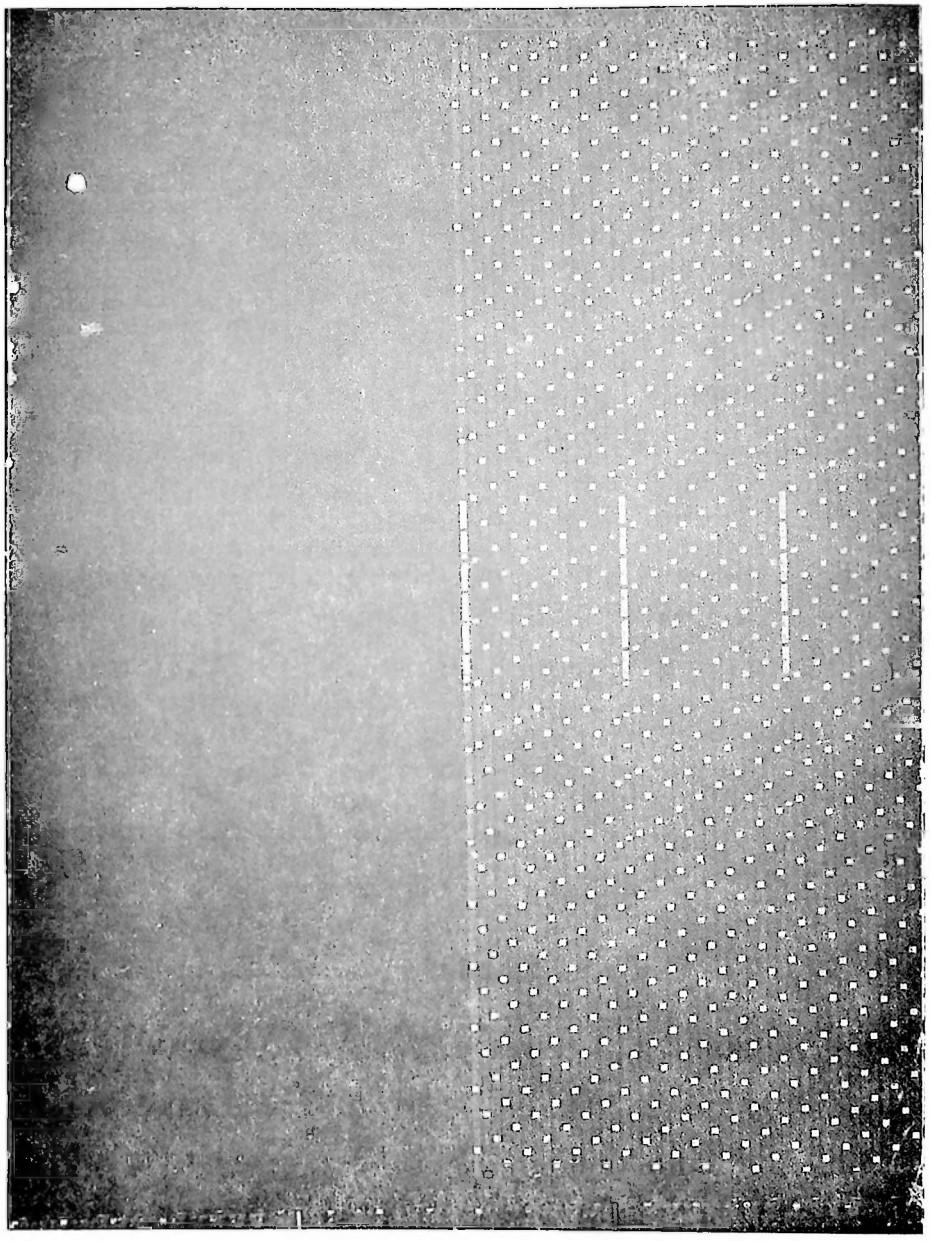

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Figure 5.1-7. Start of Video Erasure in a 30-Frame System

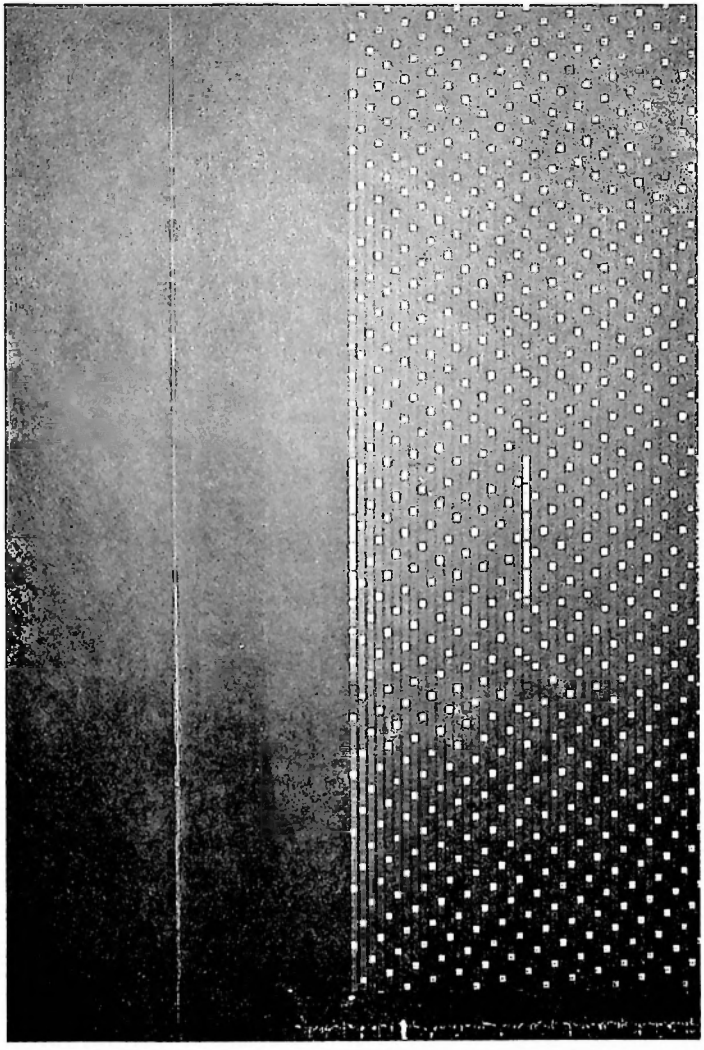

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Figure 5.1-8. Start of Video Erasure in a 25-Frame System

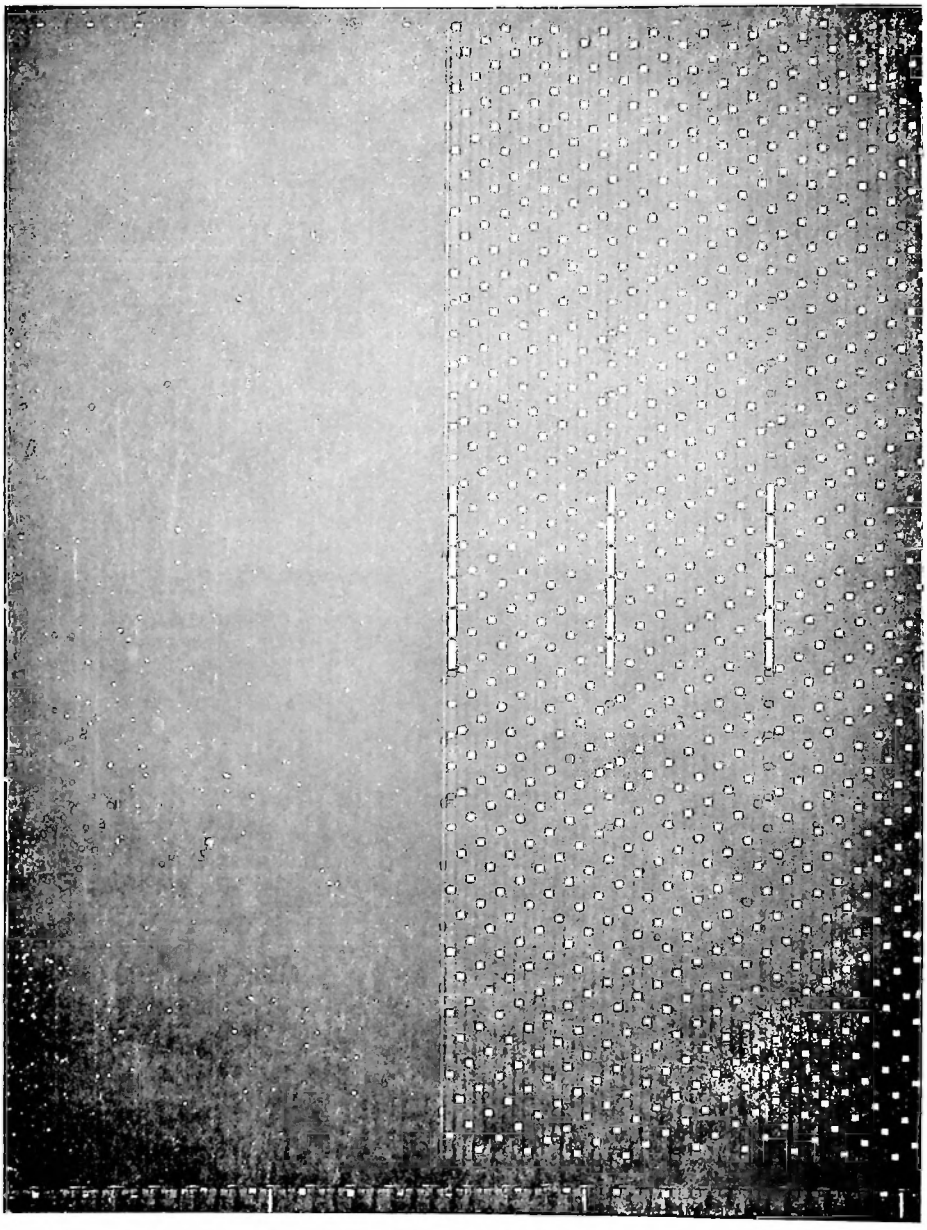

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Figure 5.1-9. Erasure Too Late in a 30-Frame System

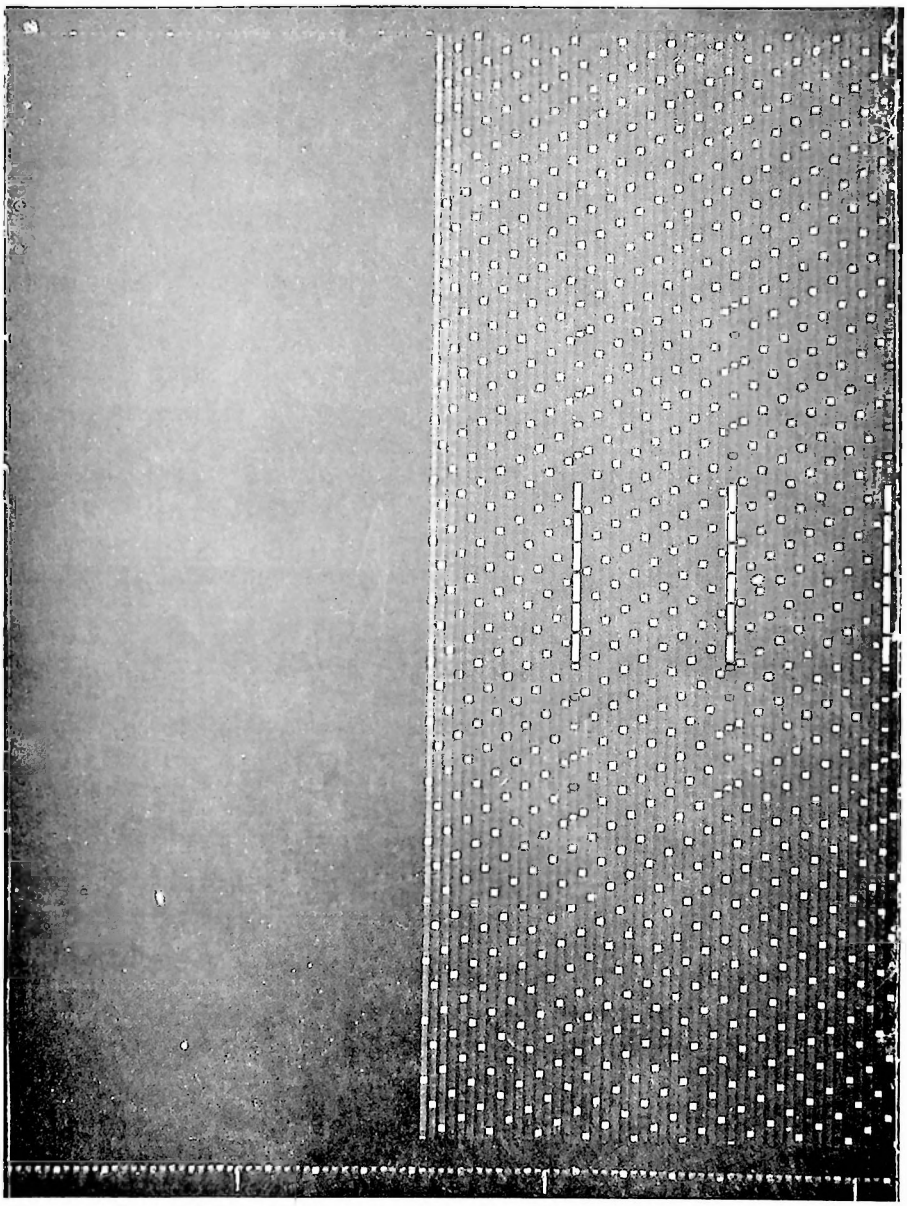

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Figure 5.1-10. Erasure Too Early in a 30-Frame System

5.1-9 Rf record current is turned on just before record head number 4 finishes its last pass-over the tape. (Refer to Figure 4.2-4 for the switching sequence of the heads.) Head 4 is at that instant playing the track containing vertical sync pulses. The recording cannot start at that time since head 4 has not been switched to record. The head following head 4 (head number 2), is in record and will commence the recording. Head number 2 will record a complete track since rf record current is turned on before it starts its pass-over the tape. In order to determine the position of rf turn-on proceed as follows:

a. Apply a 1-volt peak-to-peak composite video signal to the recorder input. A test signal such as a window or monoscope will do.

b. Adjust the record level controls to the settings of the memory dials. (Memory dials were set in paragraph 5.1-5, step d.)

c. On the editor control panel select insert mode.

d. On the system control panel place the SERVO MODE selector to AUTO.

e. Place a portion of the sync-only recording in position to pass the record heads.

f. Press the READY pushbutton. Allow a few seconds for the drum and capstan motors to stabilize.

g. Note the reading on the tape timer, and press the RECORD pushbutton. Record approximately 4 seconds, then press the STOP pushbutton.

h. Rewind to the tape timer reading noted in step g.

i. Develop the segment of tape containing the ingoing splice.

j. The new recording must begin on the track immediately following the last track containing vertical sync pulses, and must be a complete track. If there is not a complete track, the rf turn-on delay is too long and must be decreased. To make this adjustment perform paragraph 5.1-10.

5.1-10 Rf record current turn-on is controlled by one-shot 4 on etched board 4 (see Table 5.1-2). Its nominal delay is approximately 400 microseconds, and can be viewed at TP1 on etched board 4. In order to adjust the delay of the one-shot, proceed as follows:

a. Connect an oscilloscope input probe to TP1 on etched board 4.

b. Set the oscilloscope for internal trigger, positive slope.

c. Place the TEST/NORMAL switch on the editor electronics chassis to TEST.

d. Select INSERT on the editor control panel.

e. On the system control panel place the SERVO MODE selector to AUTO.

f. Place the recorder in record mode, and then immediately press the STOP pushbutton.

g. Trigger the oscilloscope on the positive-going edge of the pulse displayed on the oscilloscope.

h. Adjust potentiometer R6 (25 fps), R7 (30 fps) on etched board 4 in order to decrease the width of the pulse.

i. Repeat paragraph 5.1-9 until rf turn-on is correct.

5.1-11 RF RECORD CURRENT TURN-OFF ADJUSTMENT

5.1-12 The new recording is terminated by record head number 4, while the head following, head number 2 has been switched to playback and cannot continue to record. Adjustment of rf turn-off is not a critical adjustment, but the turn-off delay must be long enough to allow the number 4 record head to complete its pass-over the tape before the rf record is turned off. To make the necessary adjustments to the one-shot (one-shot 8, Table 5.1-2 controlling rf turn-off) proceed as follows:

a. Apply a 1-volt peak-to-peak composite video signal to the recorder input.

b. Repeat steps c through h of paragraph 5.1-9.

c. Develop the segment of tape containing the outgoing splice.

d. Inspect the last track of the insert containing the vertical sync pulses. Note the track near the bottom of the tape. There must be a complete track. If the track is not complete perform paragraph 5.1-13.

5.1-13 To adjust rf turn-off delay proceed as follows:

a. Connect an oscilloscope input probe to TP1 on etched board 6.

b. Set the oscilloscope for internal trigger, negative slope.

c. Repeat steps c through f of paragraph 5.1-10.

d. Trigger the oscilloscope on the negative-going edge of the display.

e. Adjust potentiometer R1 on the etched board and lengthen the pulse width.

f. Repeat paragraph 5.1-11 until rf turn-off is correct.

CAUTION

DEVELOPED TAPE WILL NO LONGER BE REQUIRED. AT THIS TIME REMOVE ALL TAPE CONTAINING DEVELOPED SEGMENTS AND DESTROY.

5.1-14 EDITOR ACCESSORY PANEL METER CALIBRATION

5.1-15 The meter on the editor accessory panel was given a preliminary adjustment in paragraph 5.1-4. This is the final calibration for the meter. Once this calibration is complete it should not be necessary to recalibrate the meter for the given system. It will be necessary to readjust the H PHASE and REC PHASE controls on the editor accessory panel each time a different signal source is used to make an insert or assemble recording, since the time relationship between the reference sync and signal source will change, depending on the different delays encountered in various signal sources. The first step is to definitely determine if the panel must be calibrated.

5.1-16 To determine if the editor accessory panel must be calibrated proceed as follows:

a. Install a fresh roll of tape on the recorder.

b. Make a ten minute recording of a composite video signal, such as a test pattern. Make the recording in the normal mode.

c. Press the READY pushbutton on the system control panel and select the auto servo mode.

d. On the editor control panel, select insert mode.

e. Set the meter switch on the editor accessory panel to read the HORIZ PHASE (or hold down the PRESS FOR H PHASE pushbutton) and adjust the HORIZ PHASE control to zero the meter.

f. Press the PLAY pushbutton on the system control panel to play the recording made in step b. With the meter switch on the editor accessory panel set to read the REC PHASE (or the PRESS FOR H PHASE pushbutton released), adjust the REC PHASE control to zero the meter.

g. In the following procedure a series of insert recordings will be made. These recordings are to be short, 10 seconds or less. When making the insert recordings, allow the Intersync to lock up in full automatic, as indicated by the LOCK lights VERT and HORIZ on the system control panel, and allow the drum error signal to stabilize before pressing RECORD. This will be indicated on the "A" scope monitor when the monitor is placed in DRUM ERROR. This stability will be indicated when the drum error signal centers about the horizontal zero axis of the monitor. This will normally require about six seconds after the recorder is started from the ready mode. The Intersync servo must have been properly adjusted in accordance with its setup procedures in the Intersync servo manual. The HORIZONTAL STABILITY controls on the Intersync control panel must be adjusted for minimum drum error signal.

1. Rewind the tape to the beginning of the 10-minute recording made in step b.

2. Make a series of 10-second insert recordings. Note the time of the ingoing splices on the tape timer.

3. Rewind to the beginning of the series of insert splices, and replay them.

4. Monitor the "A" Scope and note the step error at the ingoing splices, both in magnitude and direction. The sensitivity of the "A" Scope in DRUM ERROR is 1 microsecond for full scale deflection. If the editor accessory panel and its metering circuits are properly calibrated, the error at the ingoing splices will be less than 0.2 microseconds. If the error is greater than 0.2 microseconds the editor accessory panel and its metering circuits must be calibrated. To calibrate the editor accessory panel, and its metering circuits, perform paragraph 5.1-17.

5.1-17 To calibrate the editor accessory panel a series of trial and error adjustments must be performed. When each adjustment is accomplished, the amount of adjustment, and the direction in which the adjustment was made, must be noted. Assuming that the step error at the ingoing splices exceeds 0.2 microseconds, proceed as follows:

a. Repeat step g of paragraph 5.1-16 and note the direction of the step error (positive or negative).

b. Make an adjustment of the H PHASE control (with the meter still indicating REC PHASE). Note the direction and amount of the adjustment.

c. Make an insert splice. Play the insert and again note the magnitude and direction of the step error.

d. Repeat steps b and c until the step error is reduced to 0.2 microseconds or less.

NOTE

In the following step DO NOT disturb the setting of the H PHASE control until the meter calibration is complete. If the setting is disburbed, step a through e must be repeated.

e. Turn off power to the recorder, and remove the editor accessory panel leaving the connector connected.

f. Re-apply power to the recorder. Allow three or four minutes for the circuits to stabilize.

g. Locate the potentiometer (R1 or R6) on the etched board of the editor accessory panel. With the recorder in the ready mode and the meter indicating the HORIZ PHASE, adjust the potentiometer to zero the meter.

h. Remove power from the recorder, and replace the editor accessory panel in the chassis.

i. Repeat paragraph 5.1-4.

j. Make an insert splice, replay insert and note step error. The step error must be 0.2 microseconds or less.

k. With the power removed from the recorder, remove the editor accessory panel, re-apply power, and accurately measure the dc voltage at terminal lug E10 on the etched board. Record the voltage for future reference.

l. Accurately measure the pulse width of one-shots 2, 3, 4, and 8 for future reference.

5.1-18 RECORD GATE BALANCE

The record balance adjustment involves matching the voltage levels of the SW+ and SW- signals generated on editor etched board 6. The SW+ signal is available at test lug E4, and the SW- signal is available at test lug E3. The SW+ voltage levels are fixed, while the SW- voltage levels are adjustable. Both signals must be of equal amplitude but of opposite polarity, in record and standby. To balance the two signals, proceed as follows:

a. Turn-off the switch on the servo power supply.

b. Remove etched board 6 from the editor electronics chassis and replace it with the editor extender board.

c. Insert etched board 6 in the receptacle on the editor extender board.

CAUTION

ALTHOUGH THE EXTENDER CARD IS KEYED TO PREVENT ACCIDENTAL REVERSAL OF THE ETCHED BOARD, IT IS WELL TO NOTE THE ORIENTATION OF THE COMPONENT SIDE OF THE BOARD BEFORE ATTEMPTING TO INSERT IT INTO ITS RECEPTACLE.

d. Turn-on the servo power supply.

e. Select INSERT on the editor control panel.

f. While the recorder is in standby, accurately measure the dc voltage of the SW+ signal at test lug E4. The voltage should be -6.5 (±1.0) volts.

NOTE

Use a vtvm or volt-ohmmeter with at least 20,000 ohms-per-volt sensitivity.

g. Record the actual voltage measured to an accuracy of 0.1 volt.

h. Place the recorder in the record mode.

i. Again measure the voltage at E4. It should now read +8.0 (±1.0) volts.

j. Record the actual voltage measured to an accuracy of 0.1 volt.

k. Press the STOP pushbutton.

l. Measure the SW- voltage at test lug E3. It should be equal to the voltage recorded in step g, but of opposite polarity. If it is not equal within 0.1 volt adjust trim potentiometer R70 on etched board 6 until the voltage reading is within that tolerance.

m. Place the recorder in record mode.

n. Again measure the voltage at test lug E3. It should be equal to the voltage recorded in step i, but of opposite polarity. If it is not equal, within 0.1 volt, adjust trim potentiometer R71 etched board 6 until the voltage reading is within that tolerance.

o. Press the STOP pushbutton.

p. Repeat steps l through n until the voltages are matched within ±0.1 volt.

q. Turn-off the servo power supply.

r. Remove etched board 6 from the extender board and the extender board from the electronics chassis. Insert etched board 6 in its place in the electronics chassis.

s. Turn-on the servo power supply.

t. The initial setup is now complete.

SECTION II

CORRECTIVE MAINTENANCE

5.2-1 EDITOR TROUBLESHOOTING CONCEPT

5.2-2 Due to the nature of logic circuits, it is not sufficient to know only that a certain circuit is operating; it must also be known that it is operating at its proper time. Accordingly, the recommended procedure for troubleshooting the editor is based on the timing diagram in Figure 4.2-6. This diagram is laid out in such a manner as to show the sequence of events as they must occur for the editor to function properly. The diagram progresses from left to right, as events occur, until the entire start sequence is complete. The stop sequence is then begun at the bottom of the diagram with flip-flop 5, and then goes to the top of the diagram to continue with the framing pulse. Since the events must occur at predetermined times, as shown on the diagram, it is recommended that, for events occurring after the count start, the oscilloscope be triggered, from the negative edge of the tach pulses, to the counters at the test point TP4 on etched board 3. All events must have specific time-displacements with respect to the first tach pulse applied to the counters; therefore, a useful feature on the test oscilloscope would be its ability to be set for single sweep.

5.2-3 To determine the time an event should occur, refer to Table 2 on Figure 4.2-6. An example of the charts use would be the tracing of the functions of flip-flop 10. With reference to Figure 4.2-2 it is seen that the counters will be reset at the count of 3 when the recorder is operating at 7.5 ips and 30 fps. This means that flip-flop 10 will be set at count 285 plus 3 or 288. Since the time period of a tach pulse is 4.166 milliseconds, flip-flop 10 should be set approximately 1.2 seconds after the sweep has been triggered by the first tach pulse to appear at TP4 on etched board 3.

5.2-4 Because the exact times that flip-flops 8, 9 and 10 are set can be calculated, these times may be used as bases to figure the times of other events. Let us consider the setting of flip-flop 2 as an example. Flip-flop 8 starts the sequence of events that set flip-flop 2. Flip-flop 8 is set at a count of 3 (see Figure 4.2-2 and Figure 4.2-6) in an elapsed time of 8.3 milliseconds (see NOTE*). Flip-flop 8 then triggers one-shot 2 which has a delay of 10.4 milliseconds, after which one-shot 2 triggers one-shot 3 which has a 1.2 millisecond delay. One-shot 3 then triggers flip-flop 2. The total time delay is approximately 24 milliseconds from the first tach pulse appearing at TP4 on etched board 3.

*NOTE

The count number is always greater by one than the tachometer intervals measured. Since the count is started at the leading edges, a count of 3 results in 2 tach pulse intervals.

5.2-5 Should a circuit malfunction, employ normal troubleshooting procedures to discover the component or components causing the malfunction. Table 5.2-1 provides information on the preset and set states of all flip-flops in the editor, and locates the etched board and the test point to be used. Table 5.2-2 provides all necessary information for troubleshooting the editor one-shot multivibrators.

Table 5.2-1. Editor Flip-Flop Voltage and Function Chart

FF	ETCH-ED BD	TP	PRE-SET	SET	FUNCTION
1	3	E1	0	-12	In the set state opens one side of AND gates 1, 2, and 5 in the turn-on sequence.
2	5	E2	0	+12	In the set state turns on the erase gate driver, and in the preset and reset state turns off the erase gate driver.
3	6	E5	+12	0	In the set state generates signal that turns on rf record current.
5	3	E7	0	-12	In the set state opens one side of AND gates 3, 4, 6, and 8 in the turn-off sequence.
6	6	E6	+12	0	In the set state turns on the Servo Gate Driver.
7	3	E3	0	+12	Opens one side of AND gate 7 in turn-on and turn-off sequence.
8	5	E1	-12	0	Counter reset and erase gate trigger.
9	3	E2	-12	0	Generates trigger that turns on and turns off rf current.
10	4	TP2	-12	0	Record head switch trigger.
11	2	Q7(c)	-12	0	Turns on head relay driver for head number 2.
12	2	Q2(c)	-12	0	Turns on head relay driver for head number 3.
13	2	Q12(c)	-12	0	Turns on head relay driver for head number 1.
14	2	Q17(c)	-12	0	Turns on head relay driver for head number 4.

Table 5.2-2. Editor One-Shot, Delay and Function

OS	ETCH -ED BD	TP	DELAY (IN MILLISECONDS) 15 ips 25 fps	15 ips 30 fps	7.5 ips 25 fps	7.5 ips 30 fps	LEAD EDGE	FUNCTION
1	3	TP2	240	240	240	240	-12	Allows time for the retractable erase head to swing into position, then triggers flip-flop 1 in the turn-on sequence.
2	5	TP1	5.0	5.2	10	10.4	+12	In combination with one-shot 3 turns on erase current. Alone, turns off erase current.
3	5	TP2	1.0	1.0	1.2	1.2	-12	Compensates for finite erasure width (gap effect) during erase turn-on.
4	4	TP1	0.3	0.4	0.3	0.4	+12	RF record current turn-on.
5	6	E1	600	600	600	600	+12	Stop delay trigger.
6	6	E2	250	250	250	250	+12	Stop relay driver.
7	6	E7	1.5	1.5	1.5	1.5	-12	Delays Servo switch signal to tape on outgoing splice until Demod signal has stabilized.
8	6	TP1	0.25	0.25	0.25	0.25	-12	In combination with one-shot 4 turns off rf during turn-off sequence.
9	3	E4	1.0	1.0	1.0	1.0	+12	Reset pulse delay.
10	2	Q9(c)	1.7	1.7	1.7	1.7	-12	Head number 2 switch delay.
11	2	Q4(c)	1.2	1.2	1.2	1.2	-12	In combination with one-shot 10, head number 3 switch delay.
12	2	Q14(c)	1.2	1.2	1.2	1.2	-12	In combination with one-shots 10 and 11, head number 1 switch delay.
13	2	Q19(c)	1.2	1.2	1.2	1.2	-12	In combination with one-shots 10, 11, and 12 head number 4 switch delay.

5.2-6 Transistors may be out-of-circuit, or in-circuit tested (if the emitter and collector are temporarily disconnected from the circuit) with relative accuracy by the use of a VOM to measure forward and reverse bias resistance of both diode sections. A transistor is the equivalent of two diodes connected back-to-back. In an NPN transistor, the junction of the anodes forms the equivalent of the base terminal; in a PNP, the junction of the cathodes forms this equivalent. Thus, a connection of the negative VOM lead to the base of a PNP transistor, and the positive lead to its emitter or collector will forward bias the corresponding diode and register a low resistance, while reversing the leads will reverse the bias and register a much higher resistance (see Figure 5.2-1). The measurement of resistance between the collector and the emitter of a good transistor will indicate a high resistance using either polarity of the test leads, but one of the two measurements will be lower than the other.

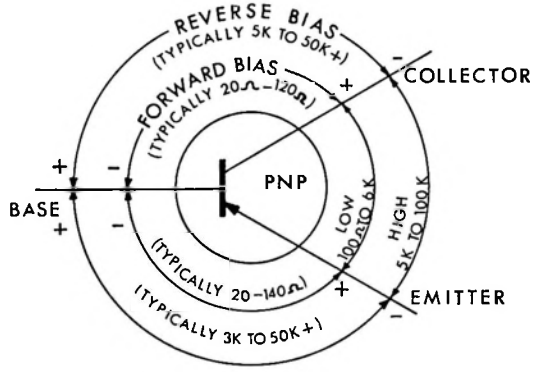


Figure 5.2-1. Typical Resistances Between Terminals of a PNP Transistor

5.2-7 There are several cautions to be observed during a VOM resistance test of a transistor, as follows:

a. Determine that operating power is disconnected from the circuit.

b. The internal battery of the VOM should not exceed 3 volts.

c. The true polarity of the VOM leads must be known.

d. Use only the higher resistance scales of the VOM, in order to limit effectively the current flow caused by the internal battery.

e. Do not test high frequency transistors; their very small junction area may be damaged by the current flow.

f. Do not test certain diffused base power transistors; their emitter-to-base breakdown voltage is very low under reverse bias. Consult the manufacturer's data for the electrical characteristics of these types.

CHAPTER 6

CIRCUIT DIAGRAMS,

PARTS LOCATION, &

PARTS LISTS

SECTION I

6.1-1 INTRODUCTION

6.1-2 This chapter is divided into three sections, Section I (INTRODUCTION), Section II (SCHEMATIC DIAGRAMS) and Section III (ASSEMBLY DRAWINGS AND LISTS OF MATERIALS). The format, purpose, and method of using the material in each section is described in the following paragraphs.

6.1-3 This section (Section I) describes the arrangement of the material in the chapter, and the use and relationship of the schematic diagrams, assembly drawings, and the lists of materials (LM's). Two indexes are provided, one alphabetical and one numerical, for use in locating material within the chapter. The alphabetical index appears first, with the drawings and LM's arranged alphabetically by direct-reading unit names, i.e., A.C. High Gain Amplifier, rather than Amplifier, A.C. High Gain. The numerical index is arranged in two parts. The first part lists the numbers and titles of all schematic diagrams appearing in the manual. Schematic diagram numbers are arranged in ascending order. They do not correspond to part numbers, catalog numbers, or assembly drawing numbers. The second part of the index lists the catalog number of each assembly or subassembly for which an assembly drawing and list of materials has been included. Catalog numbers are listed in ascending order. To the right of each is the number of the page on which the related assembly drawing appears. The drawing number is identical to the part number and to the catalog number of the assembly. The numerical index is provided for the user who may know the catalog or part number of a particular unit, but does not know its name.

6.1-4 Section II contains all of the schematic diagrams applicable to the equipment. The diagrams are included primarily to aid the user in troubleshooting the equipment. The diagrams are arranged in numerical sequence, and are printed on right-hand pages only. When applicable, a note in the lower left-hand corner of the diagram will reference the schematic to the assembly drawing which is represented by the schematic.

6.1-5 Section III contains all of the assembly drawings and lists of materials applicable to the equipment. This material is provided for identifying and ordering parts. The drawings and LM's are arranged in order of top assembly to last subassembly. Assembly drawings may appear on either right or left-hand pages, depending on the number of drawing pages needed to represent the assembly. When applicable, a note in the lower left-hand corner of the assembly drawing will reference the drawing to the schematic diagram which represents the assembly shown.

6.1-6 The LM's always appear on the first right-hand page following the last page of the applicable assembly drawing. If more than one page is required for a given LM, the additional lists will follow on each subsequent page, including the backs of the pages.

6.1-7 USING THE LISTS OF MATERIALS (LM'S)

6.1-8 Each item of a typical LM is explained below. The key number preceding each item corresponds to the same key number on the sample LM, shown in Figure 6.1-1.

(1) Assembly Title. This is the title assigned the assembly by the Ampex Engineering Department.

(2) Catalog Number of Assembly. This number corresponds to the number stamped on, or affixed to, the assembly during manufacture.

(3) Item Number. This number is assigned to parts to aid in identifying and locating the parts on the LM or assembly drawing.

(4) Ampex Part Number. These are Ampex's document and part control numbers.

(5) Vendor or Military Number. This is the identification number that Ampex used to purchase the part from a vendor. Any suitable equivalent may be used in the procurement of parts so identified.

(6) Schematic Reference. This number is assigned to electrical components on the schematic drawings.

(7) Part Description. This is an abbreviated explanation of each part used in the complete assembly, to assist the user in identifying parts. Where the same part is listed more than one time on an LM, the statement "Same as ----------" will be given, and refers to the description given for the first listing of the part.

(8) Quantity Required Per Version. This number indicates the quantity of each part required in the complete assembly.

(9) Sheet __ of __. This figure indicates the number of pages comprising the complete list of materials for the assembly.

(10) Date. This area of the page will contain the date that the LM has been changed or revised. Where no changes have occurred, there will be no date given.

(11) Control Number. This is for Ampex Corporation use only.

(12) Page Number. This is the page number assigned to each page, as listed in the indexes. In the sample page number 6.3-4, the 6 signifies chapter 6, the .3 signifies the third section of chapter 6, and the -4 indicates the fourth page of section 3.

6.1-9 Figure 6.1-2 illustrates how to find a part number or name by cross-referencing the item key numbers between the LM's and the assembly drawings and schematic diagrams.

CHOPPER OSCILLATOR ASSEMBLY (1) (2) CATALOG NO. 1800276 (9) Sheet 1 of 2

(3) ITEM NO.	AMPEX PART NO. (4)	VENDOR OR MIL. NO. (5)	SCHEMATIC REFERENCE (6)	PART DESCRIPTION (7)	QUANTITY REQUIRED PER VERSION -01 (8)
2	1208395-10			PRINTED WIRING BOARD ASSEMBLY	1
3	1202583-10			SCREW, Module	2
4	1202584-40			PANEL, Housing	1
6	6000022-10			LABEL, Identification	1
8	087-061			GREASE, #7 silicon	A/R
9	014-990	2N1540	Q7, 8	TRANSISTOR	2
10	150-142			SOCKET, Transistor Mounting	2
11	430-075			RING, Retain[illegible]	2
12	471-063			SCREW, P 4-40 x 7/16	4
13	471-061			SCREW 4-40 x 5/16	4
14	471-068			SCR[illegible] ps, 6-32 x 5/16	4
16	496-004			N[illegible]	8
18	501-096			[illegible]6 ID	2
19	502-003			[illegible], Lock #6	4
20	503-019			[illegible]at, phenolic #6	4
22	1208396			[illegible]IC	REF

CHANGED 1 OCTOBER 1964 (10)

1800276 (11)

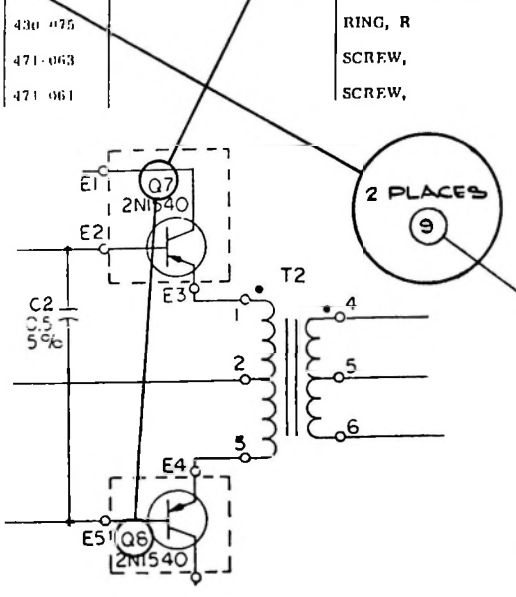
6.3-4 (12)

Figure 6.1-1 Example of List of Materials

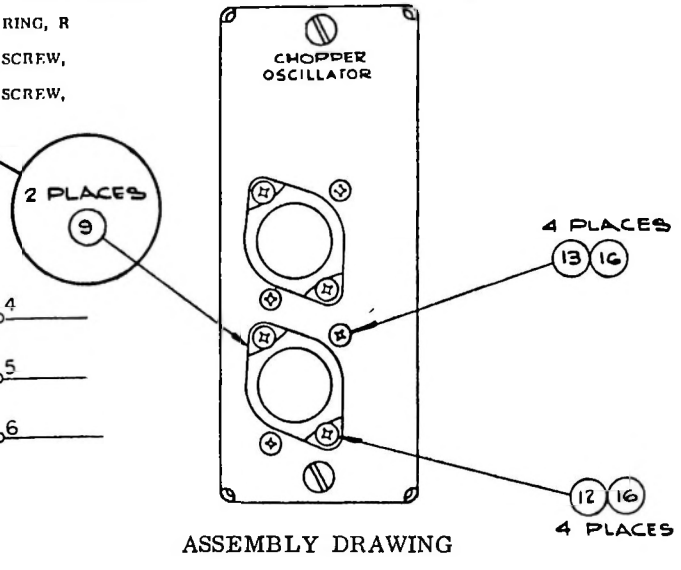
LIST OF MATERIALS

CHOPPER OSCILLATOR ASSEMBLY — CATALOG NO. 1800278 — Sheet 1 of 2

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION
2	1208395-10		PWB1	PRINTED WIRING BOARD ASSEMBLY	1
3	1202583-10			SCREW, Module	2
4	1202581-40			PANEL, Housing	1
6	6006022-10			LABEL, Identification	1
8	087 061			GREASE, #7 silicon	A/R
9	014 009	2N1540	Q7, 8	TRANSISTOR	2
10	13 142			SOCKET, Transistor Mounting	2
11	430 075			RING, R	
12	471-063			SCREW,	
13	471 061			SCREW,	



SCHEMATIC



ASSEMBLY DRAWING

Figure 6.1-2 Using the List of Materials

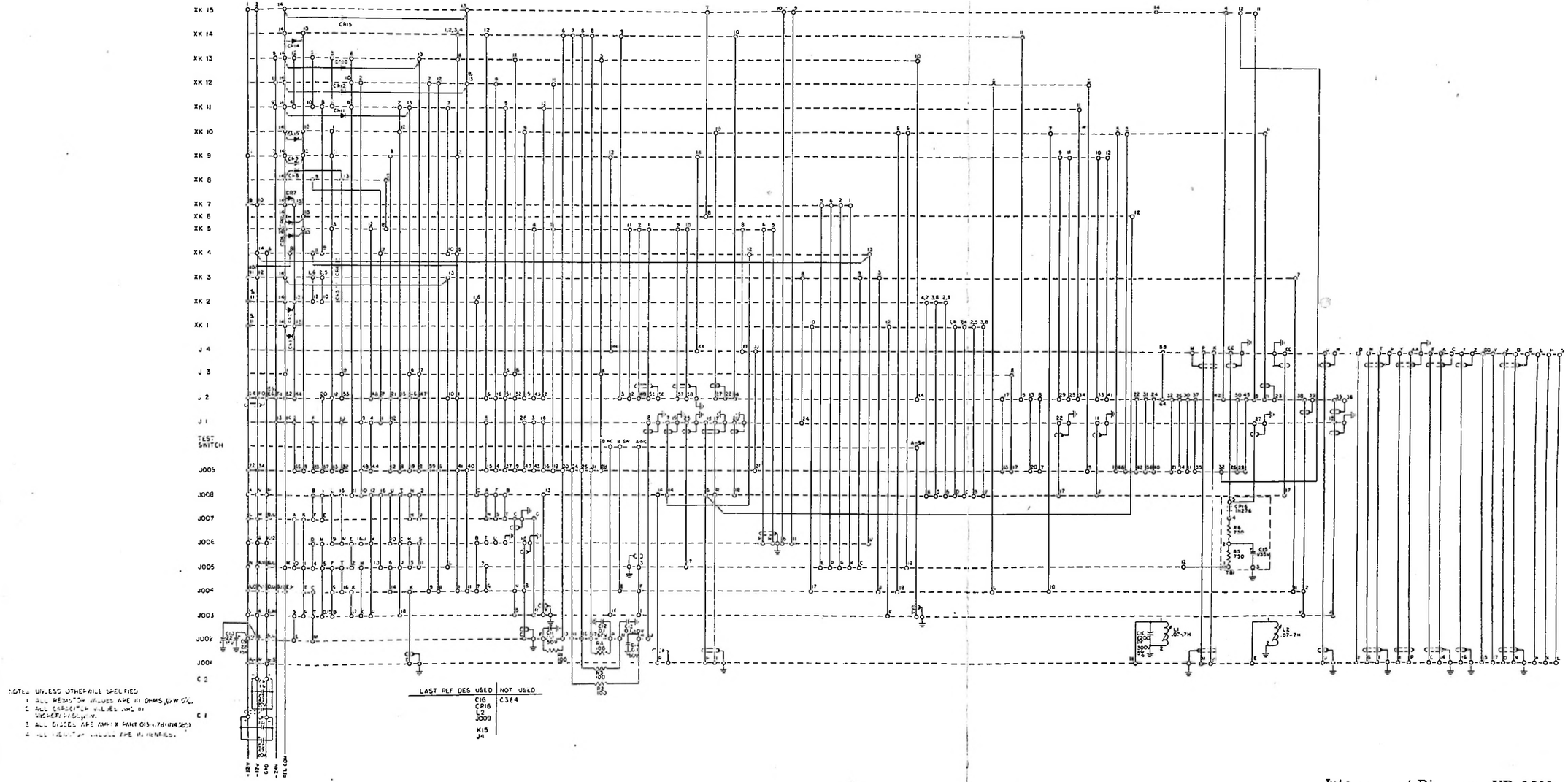
ALPHABETICAL INDEX

ALPHABETICAL INDEX (Continued)

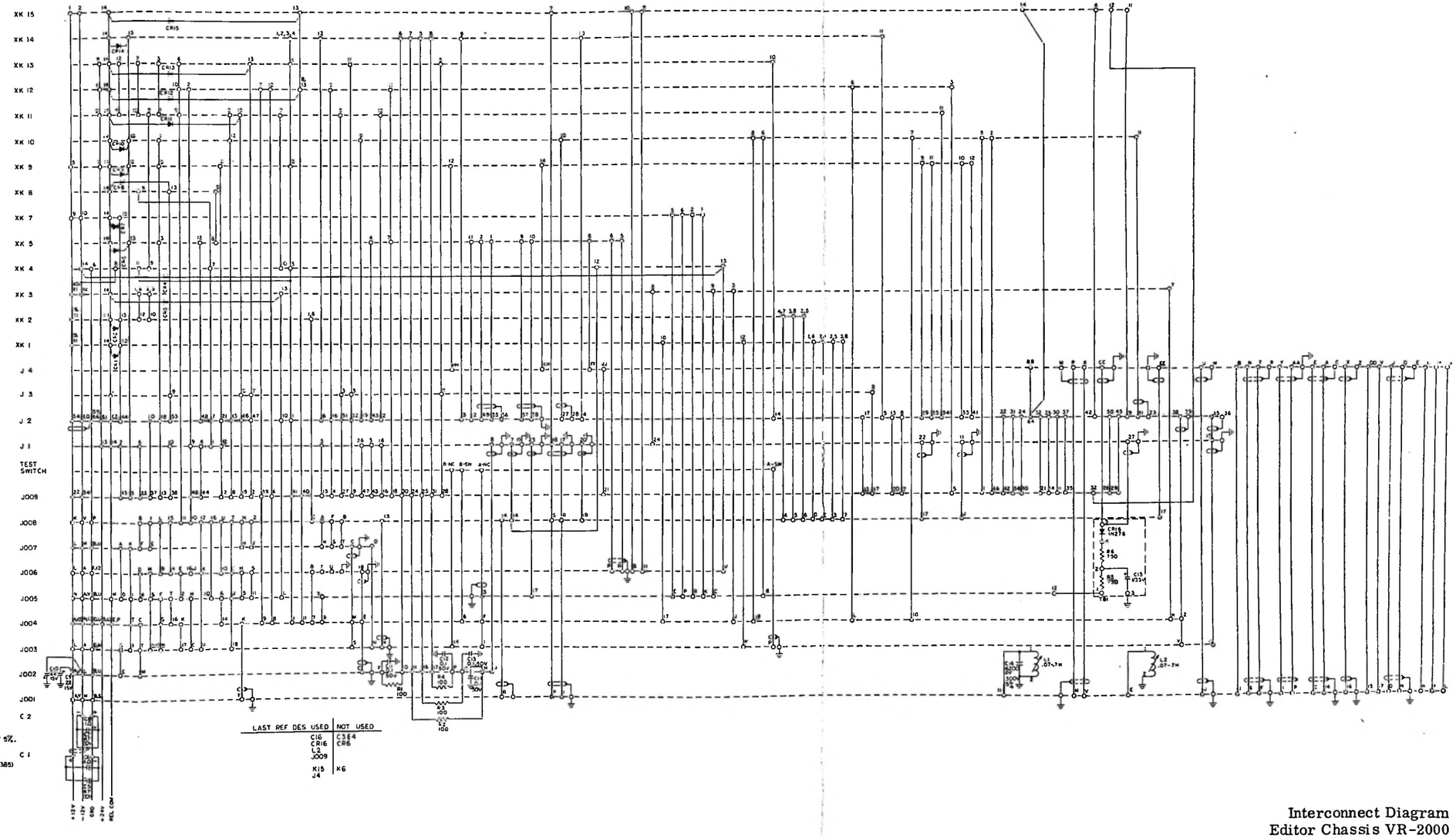
ALPHABETICAL INDEX (Continued)

NUMERICAL INDEX
SCHEMATICS

NUMERICAL INDEX
ASSEMBLIES



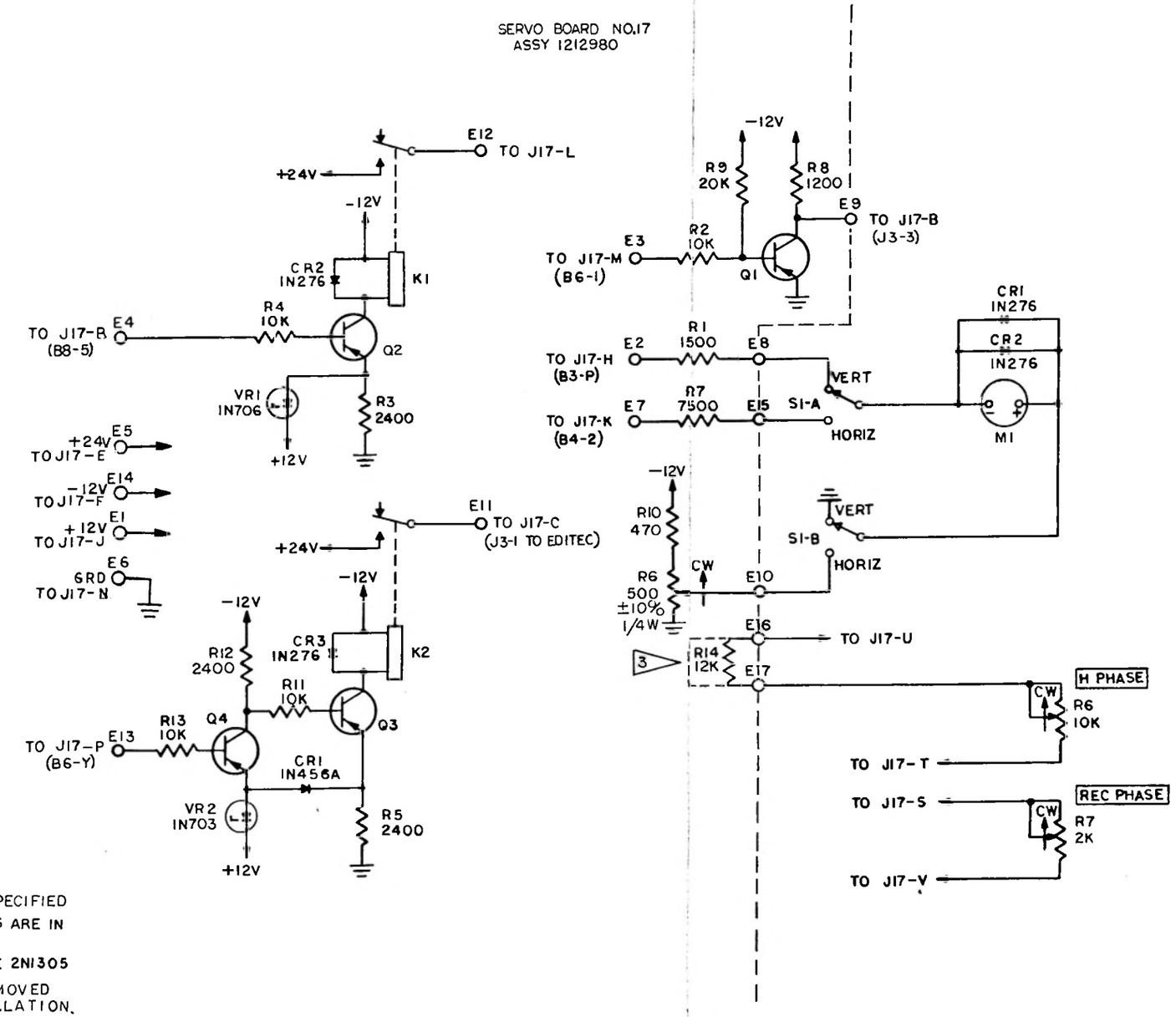
Interconnect Diagram, VR-1200,
Editor Chassis
Dwg. No. 1365816



NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W 5%.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS, 25V.
3. ALL DIODES ARE AMPEX PART 013-678(IN4385)
4. ALL INDUCTOR VALUES ARE IN HENRIES.

LAST REF DES USED	NOT USED
C16	C3&4
CR16	CR6
L2	
J009	
K15	K6
J4	

Interconnect Diagram
Editor Chassis VR-2000
Dwg. No. 1385497

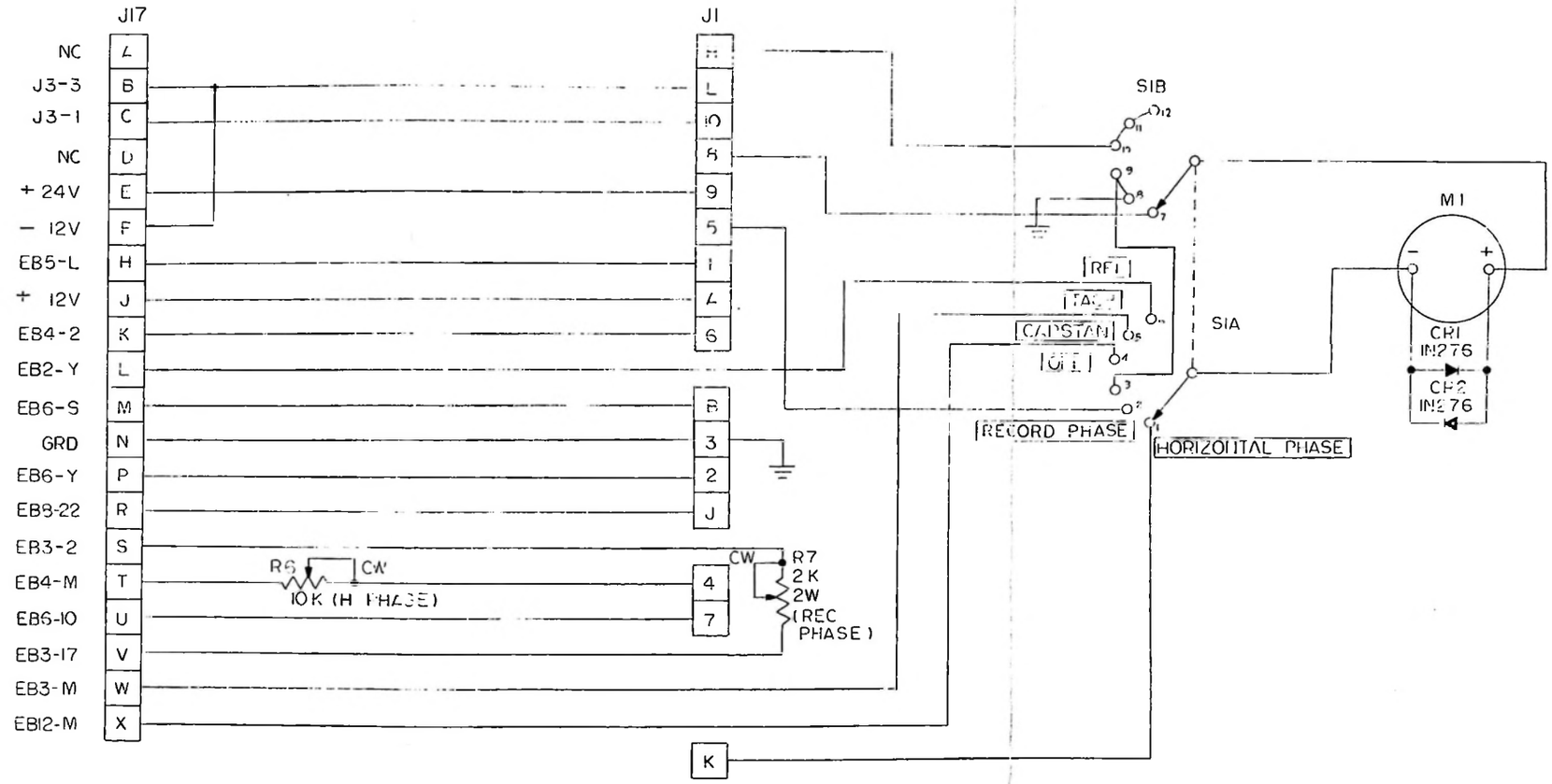


NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTOR VALUES ARE IN OHMS, 1/2 W, ± 5%
2. ALL TRANSISTORS ARE 2N1305

3 JUMPER TO BE REMOVED ON VR 2000 INSTALLATION.

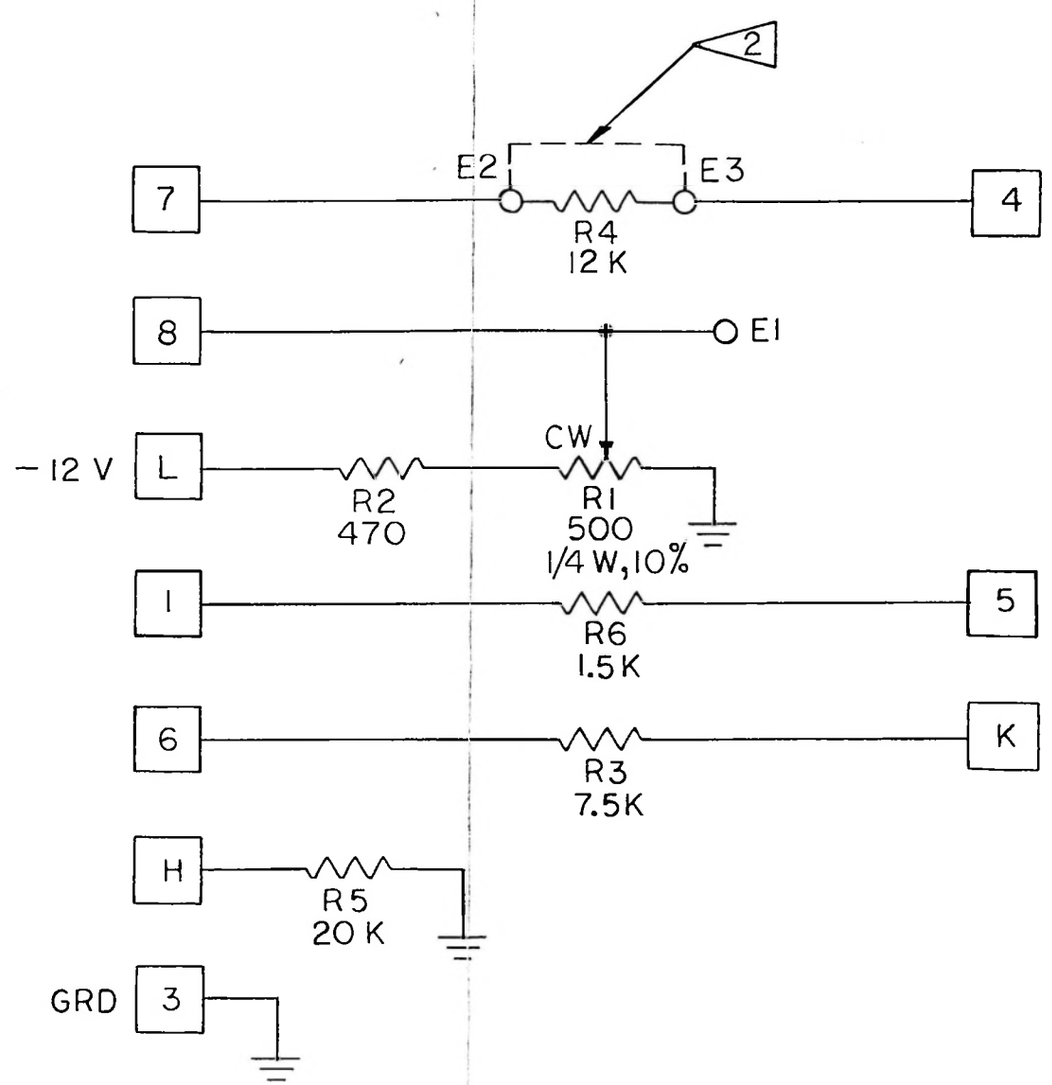
Editor Accessory Panel
(VR-1200, VR-2000)
Dwg. No. 1212982B



NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W, ±3%.

LAST REF. DES. USED	REF. DES. NOT USED
CR2	—
J17	J2 THRU J16
M1	—
R7	R1 THRU R5
S1	—

Editor Accessory Panel
(VR-1200B, VR-2000B)
Dwg. No. 1385464

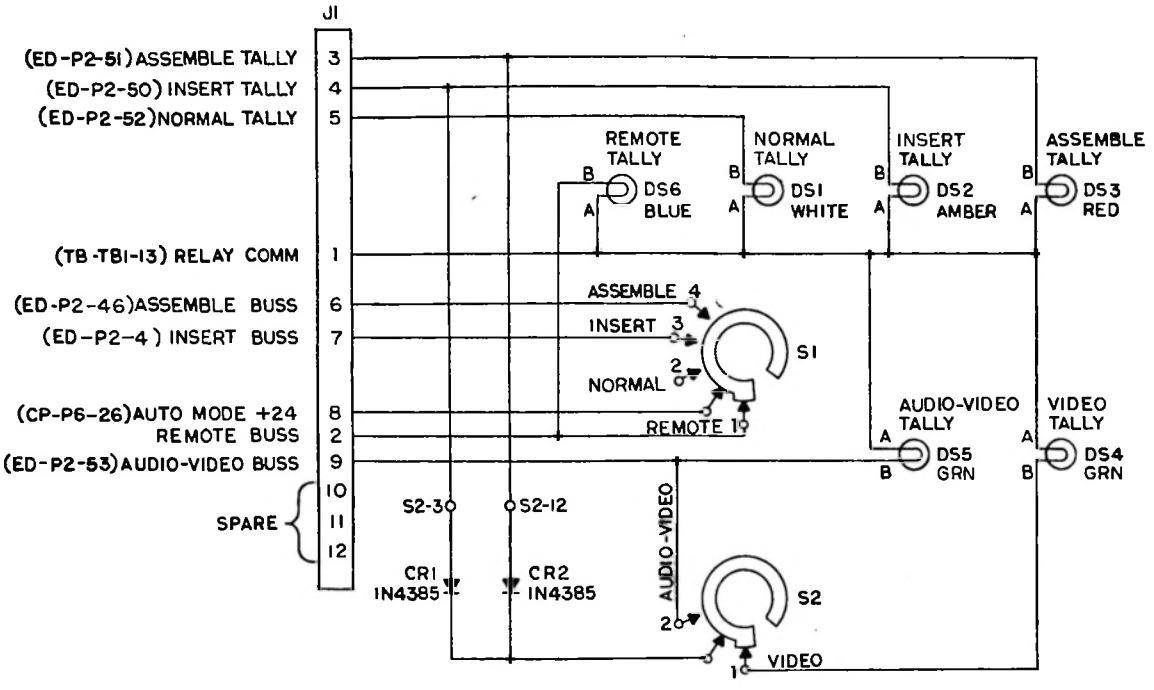


NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTOR VALUES ARE IN OHMS, 1/2 W, 5 %.

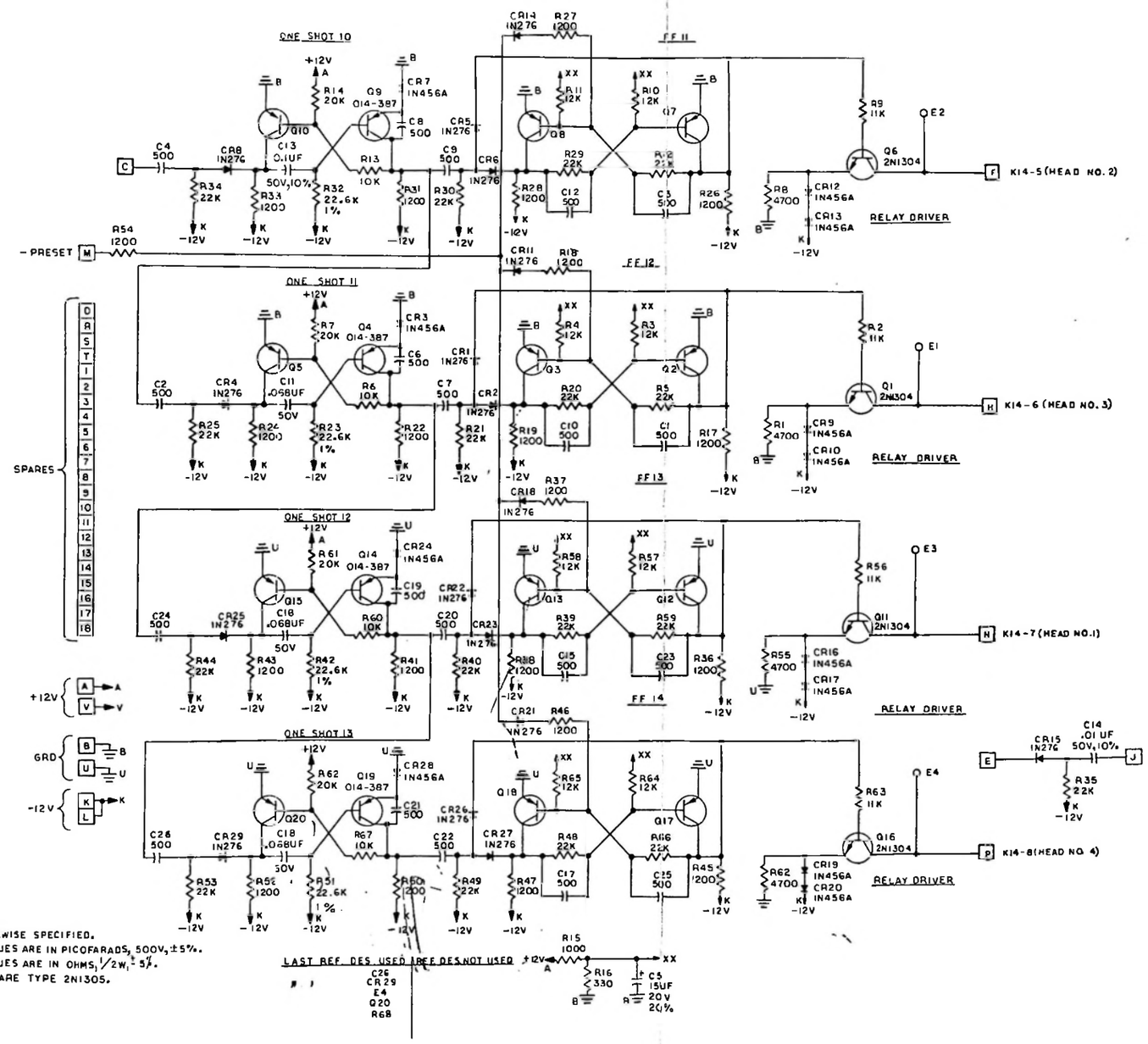
2 > JUMPER TO BE REMOVED ON VR2000B AT INSTALLATION.

Editor Accessory
Meter Panel Assembly
(VR-1200B, VR-2000B)
Dwg. No. 1385339

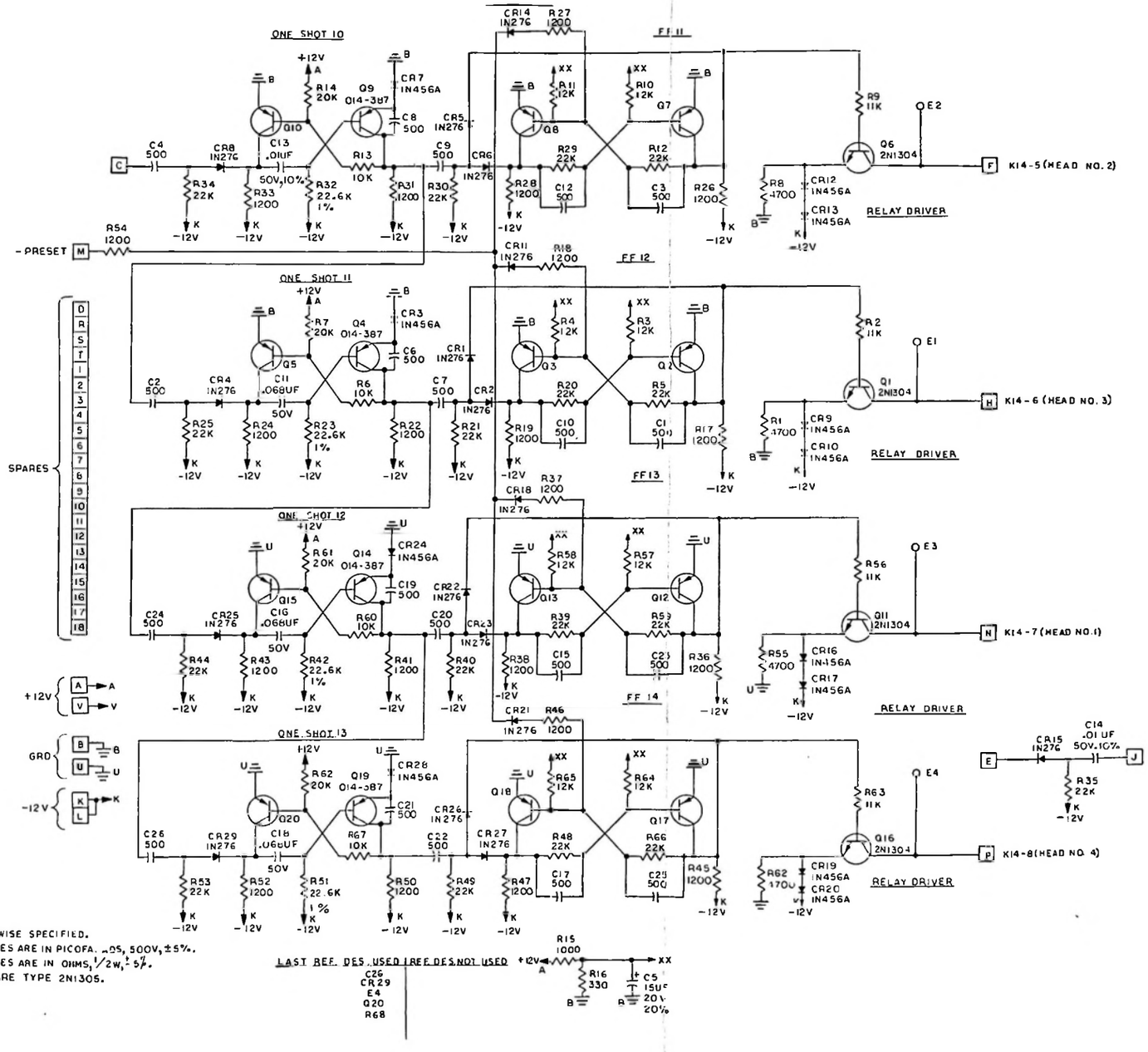


LAST REFERENCE DESIGNATION USED	REF DESIGNATION NOT USED
DS6 CR2 S2 J1	

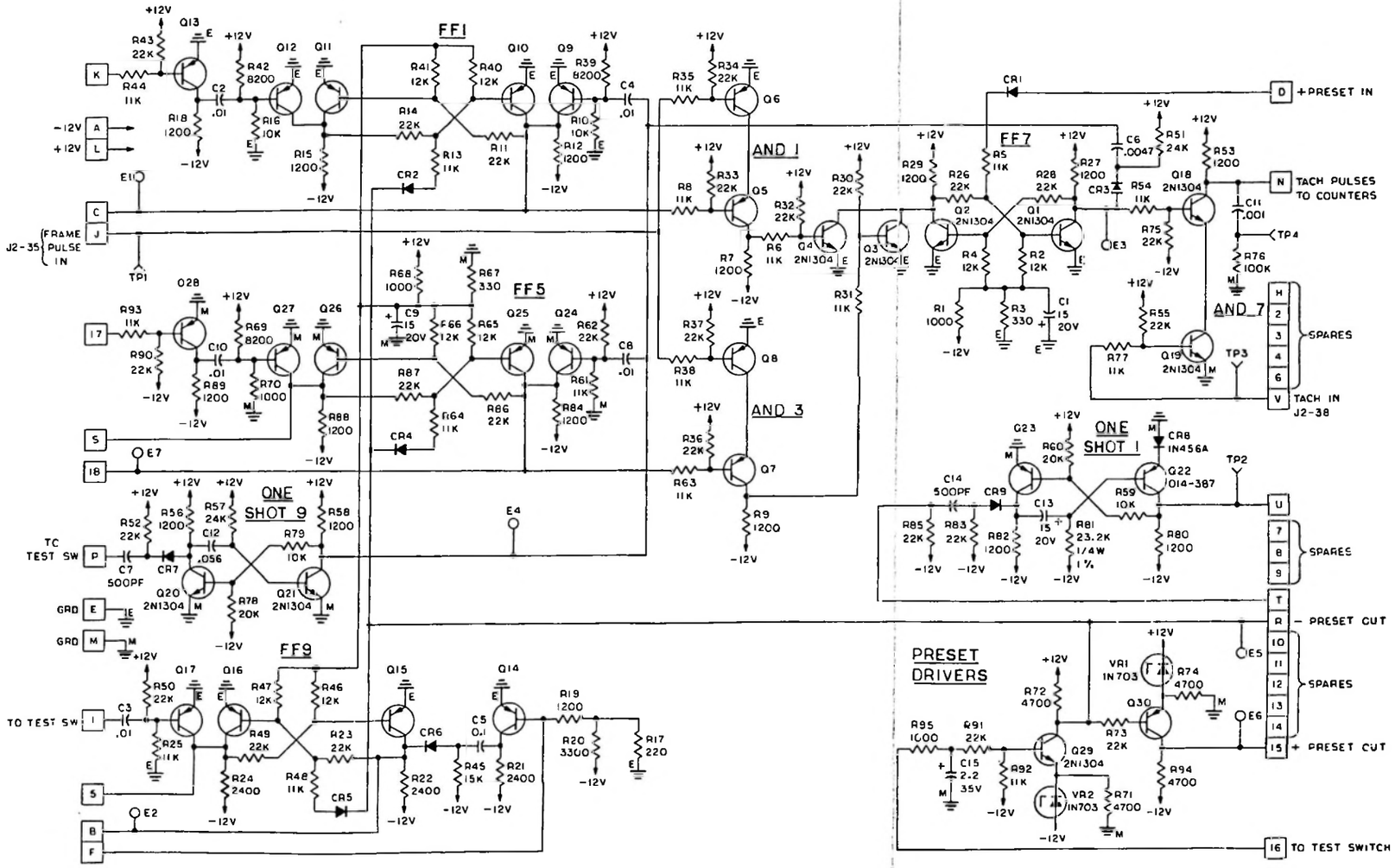
Control Panel Assembly (VR-2000)
Dwg. No. 1217621



Printed Wiring Assembly No. 2, VR-2000B
Dwg. No. 1215346



Printed Wiring Assembly No. 2, VR-1200B
Dwg. No. 1385276



NOTES: UNLESS OTHERWISE NOTED.

1. ALL CAPACITOR VALUES ARE IN MICROFARADS, 50 VOLTS.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/2 WATT, ±5%.
3. ALL DIODES ARE TYPE IN276.
4. ALL TRANSISTORS ARE TYPE 2N1305.

LAST REF DES USED	REF DES NOT USED
C14	
CR9	
E7	
Q30	
R95	
TP4	
VR2	

Printed Wiring Assembly No. 3
Dwg. No. 1215349

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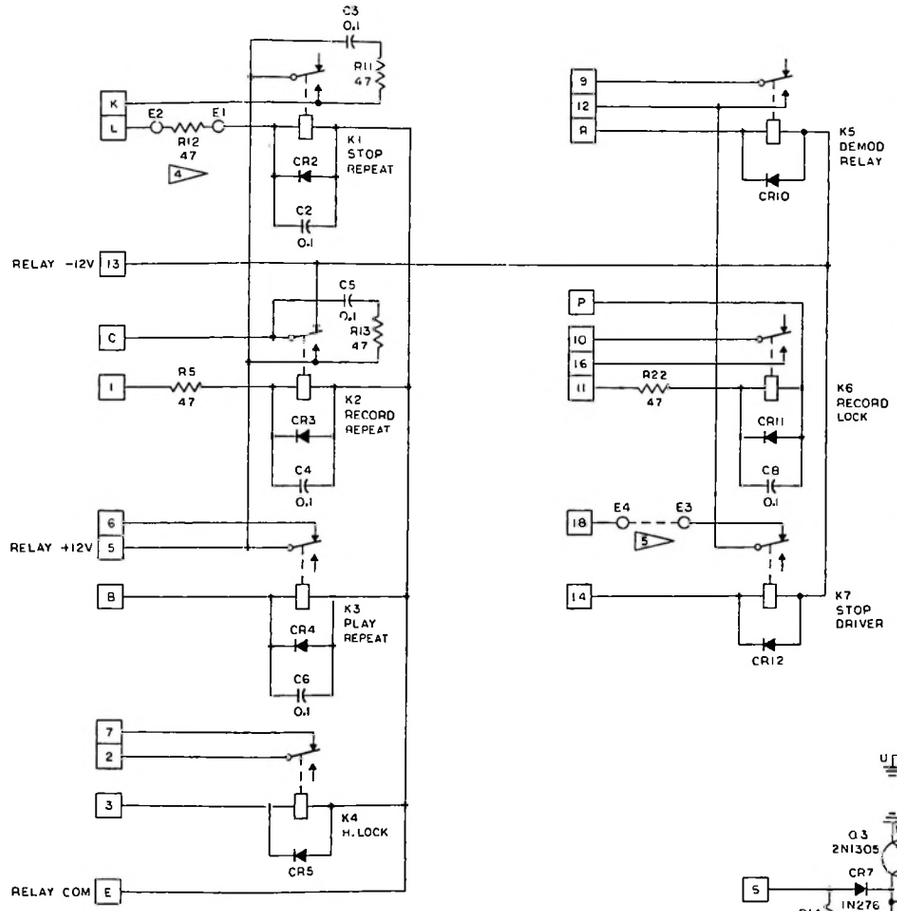
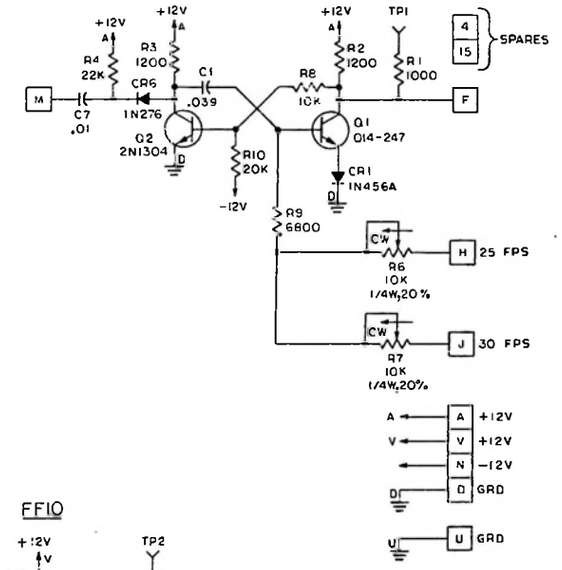


NOTES: UNLESS OTHERWISE SPECIFIED.

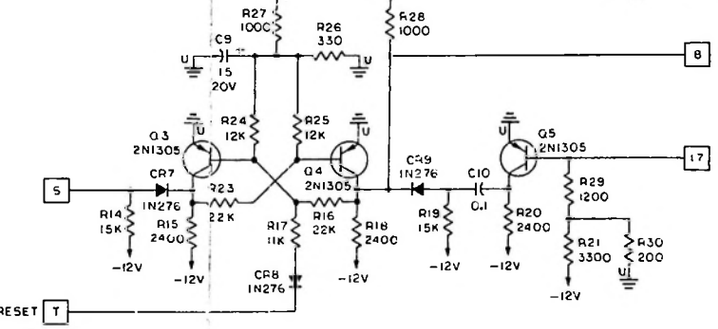
1. ALL CAPACITOR VALUES ARE IN MICROFARADS, 50V.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/2WATT, 5%.
3. ALL DIODES ARE TYPE IN4005.
4. REMOVE RESISTOR R12 FOR EDITEC.
5. JUMPER FOR EDITOR.

LAST REF DES USED	REF DES NOT USED
C10	
CR12	
E4	
K7	
Q5	
R30	
TP2	

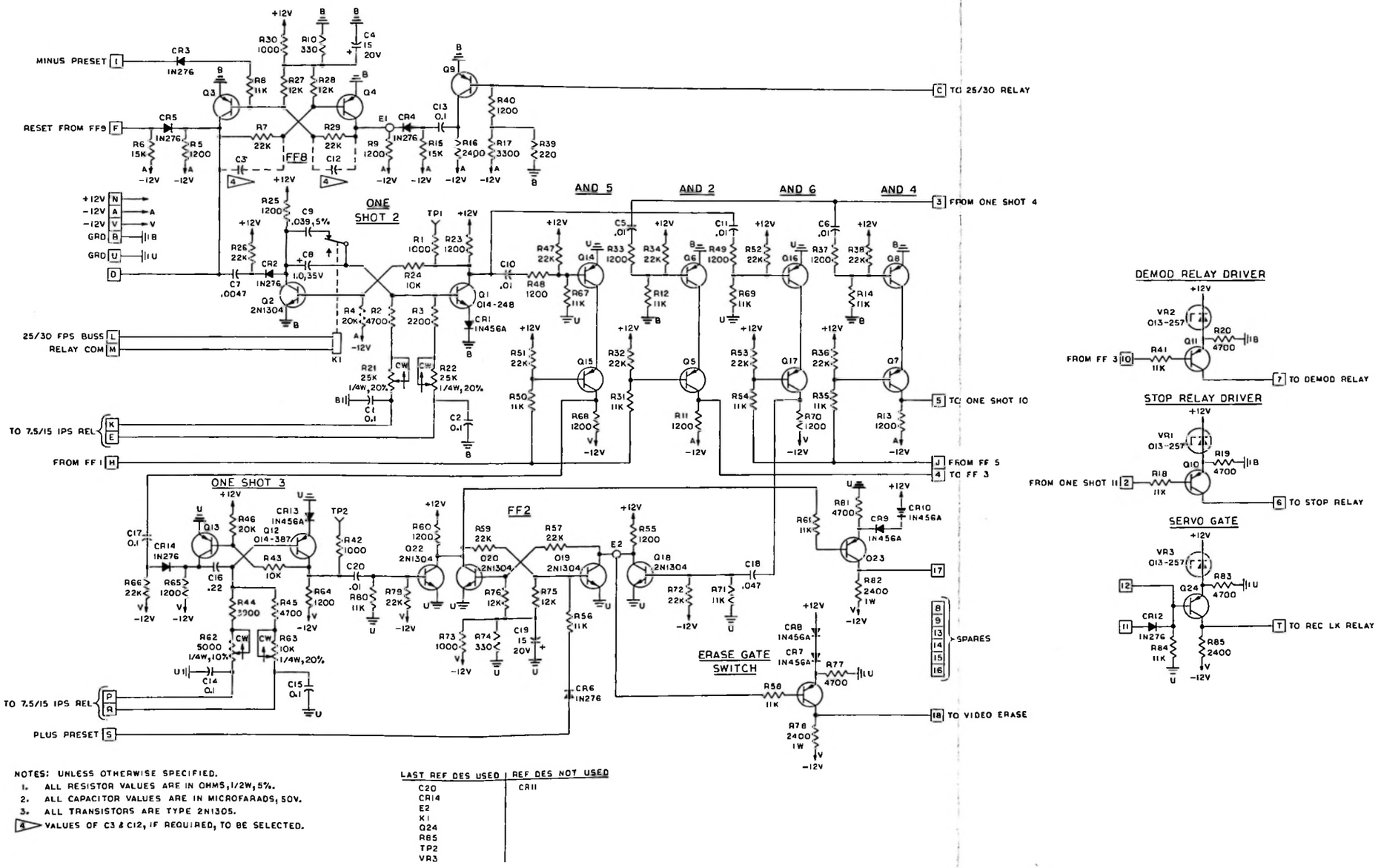
ONE SHOT 4



FFIO



Printed Wiring Assembly No. 4
Dwg. No. 1215352

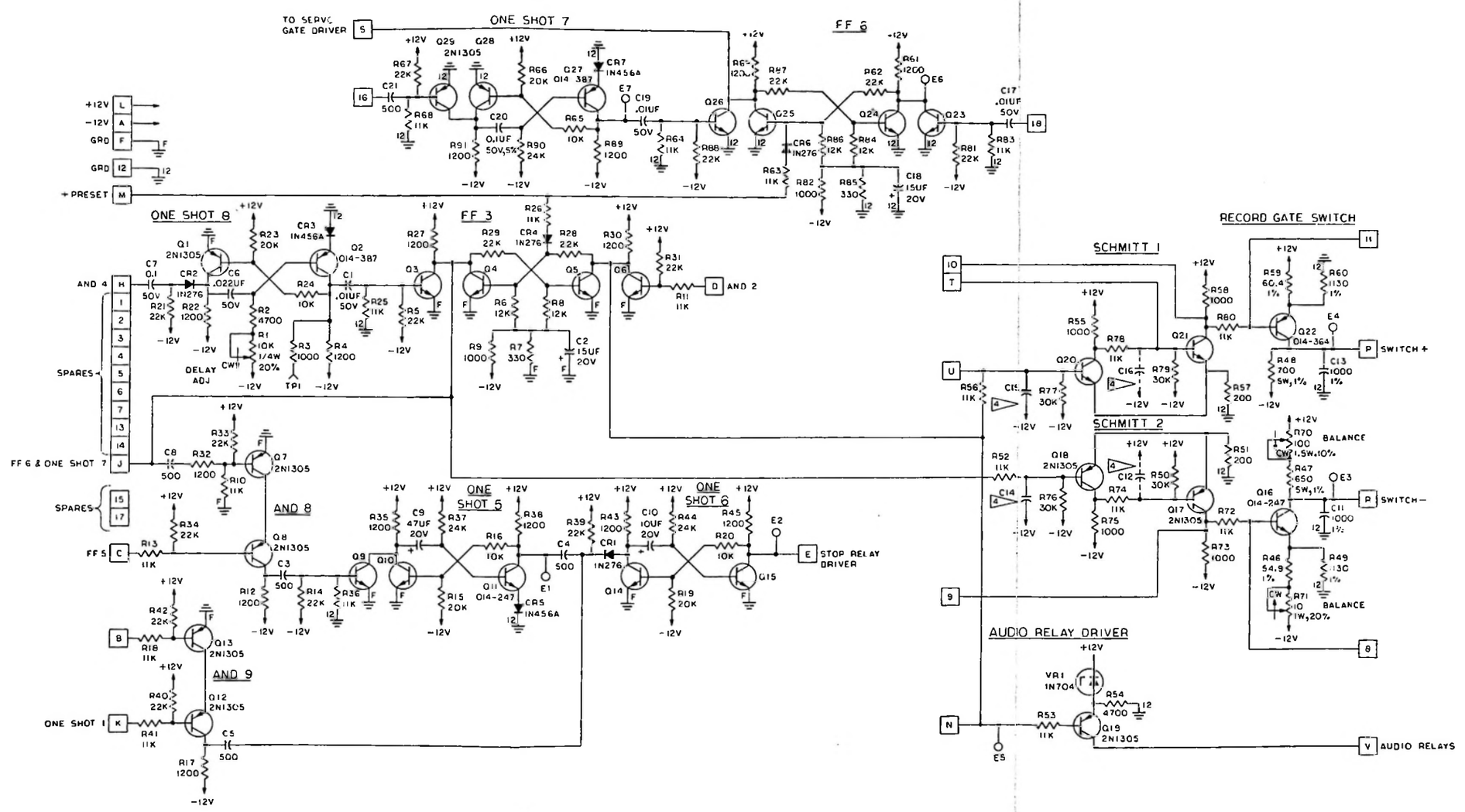


NOTES: UNLESS OTHERWISE SPECIFIED.
1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W, 5%.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS, 50V.
3. ALL TRANSISTORS ARE TYPE 2N1305.
4. VALUES OF C3 & C12, IF REQUIRED, TO BE SELECTED.

LAST REF DES USED	REF DES NOT USED
C20	CR11
CR14	
E2	
K1	
Q24	
R85	
TP2	
VR3	

Printed Wiring Assembly No. 5
Dwg. No. 1240897

CHANGED MAY 1969

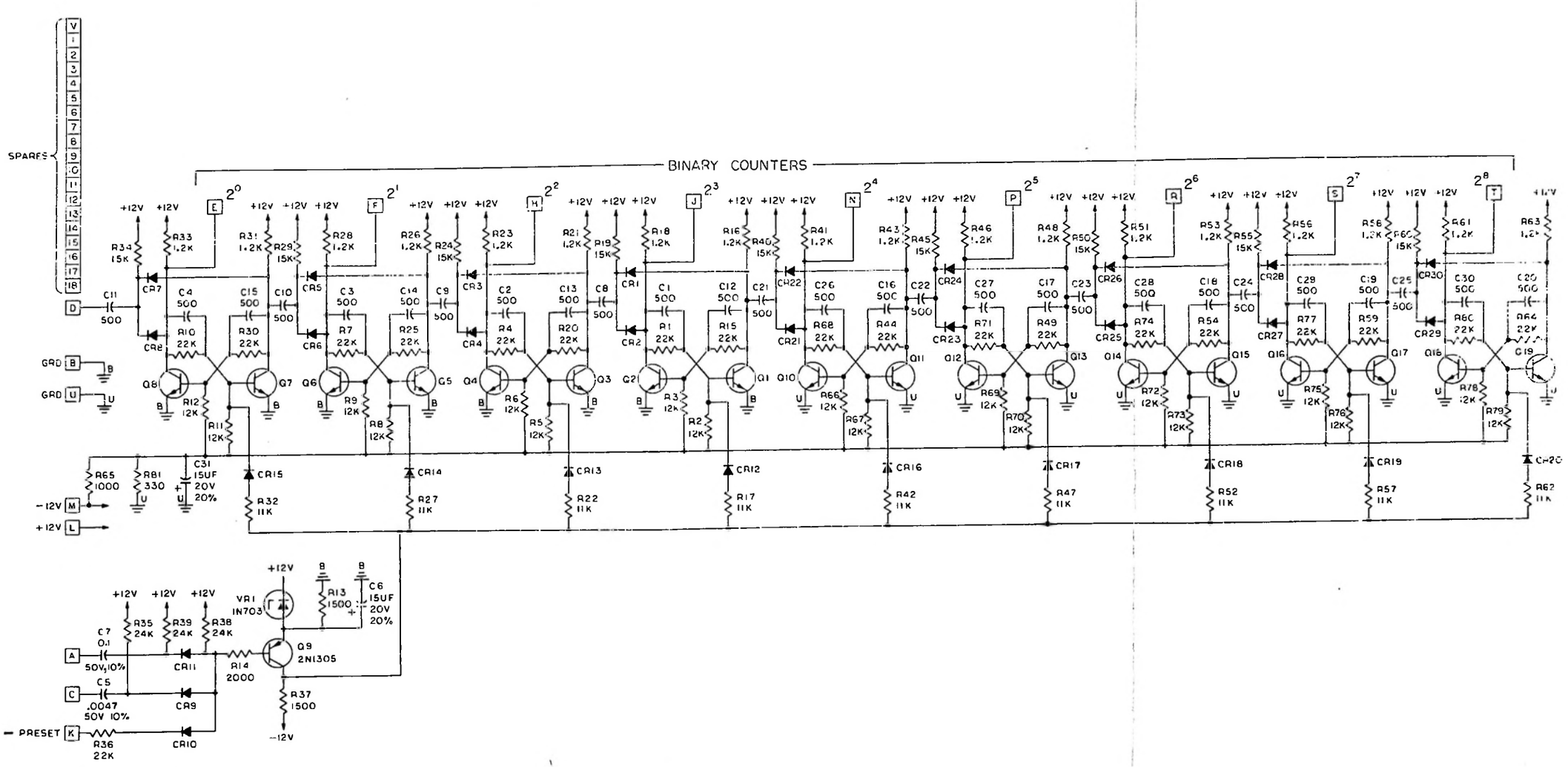


NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL CAPACITOR VALUES ARE IN PICOFARADS, 500V.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/2 WATT, 5%.
3. ALL TRANSISTORS ARE TYPE 2N1304.
4. VALUES OF C12, C14, C15, & C16, IF REQUIRED, TO BE SELECTED.

LAST REF DES USED	REF DES NOT USED
C21	
CR7	
E7	
Q29	
R91	
TP1	
VR1	

Printed Wiring Assembly No. 6
Dwg. No. 1215358



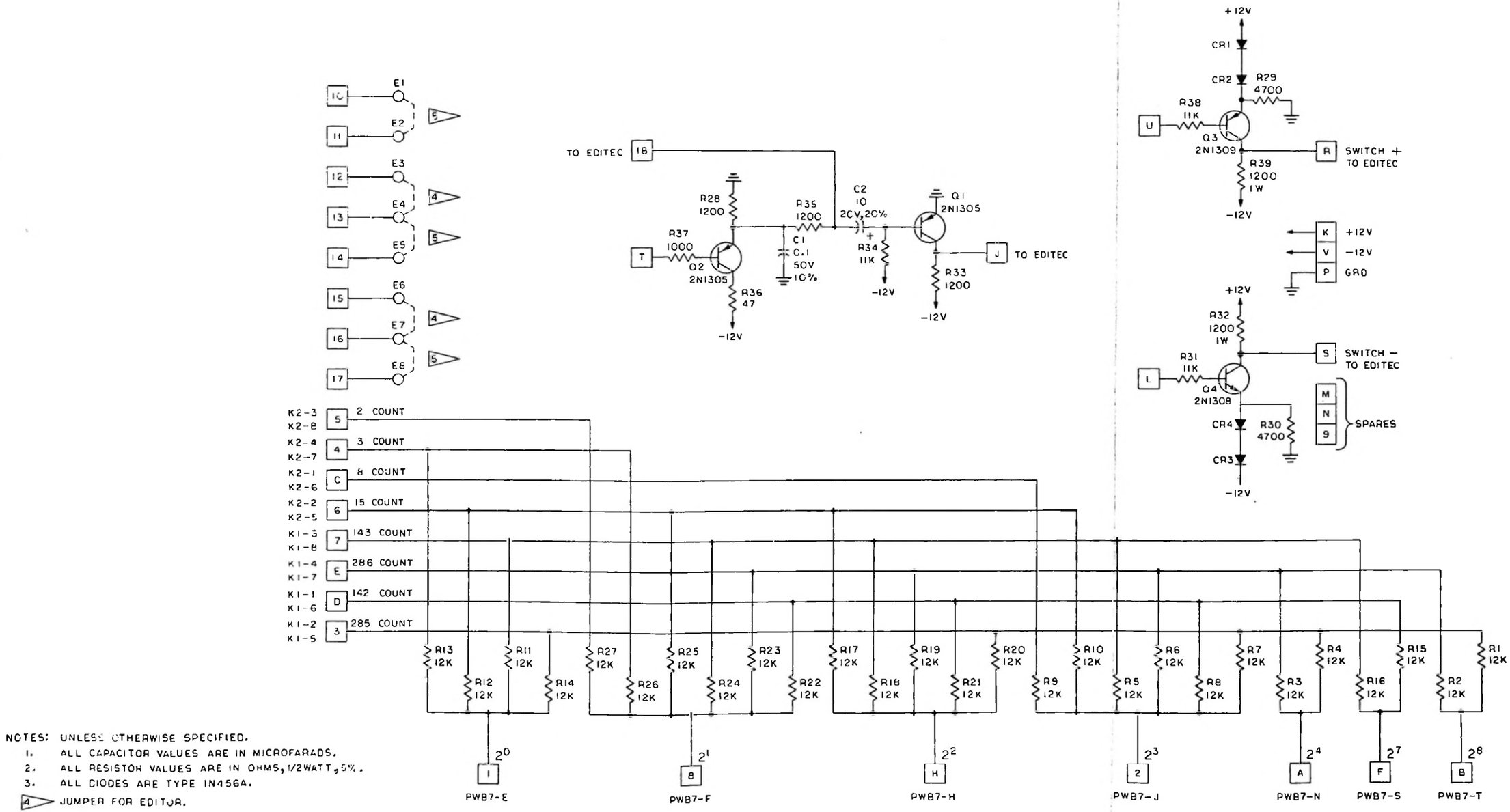
NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL CAPACITOR VALUES ARE IN PICOFARADS, 500V, 5%.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/2 WATT, 5%.
3. ALL DIODES ARE TYPE IN276.
4. ALL TRANSISTORS ARE TYPE 2N1304.

LAST REF DES USED	REF DES NOT USED
C31	
CR30	
Q19	
R81	
VR1	

Printed Wiring Assembly No. 7
Dwg. No. 1215361

CHANGED MAY 1969



NOTES: UNLESS OTHERWISE SPECIFIED.

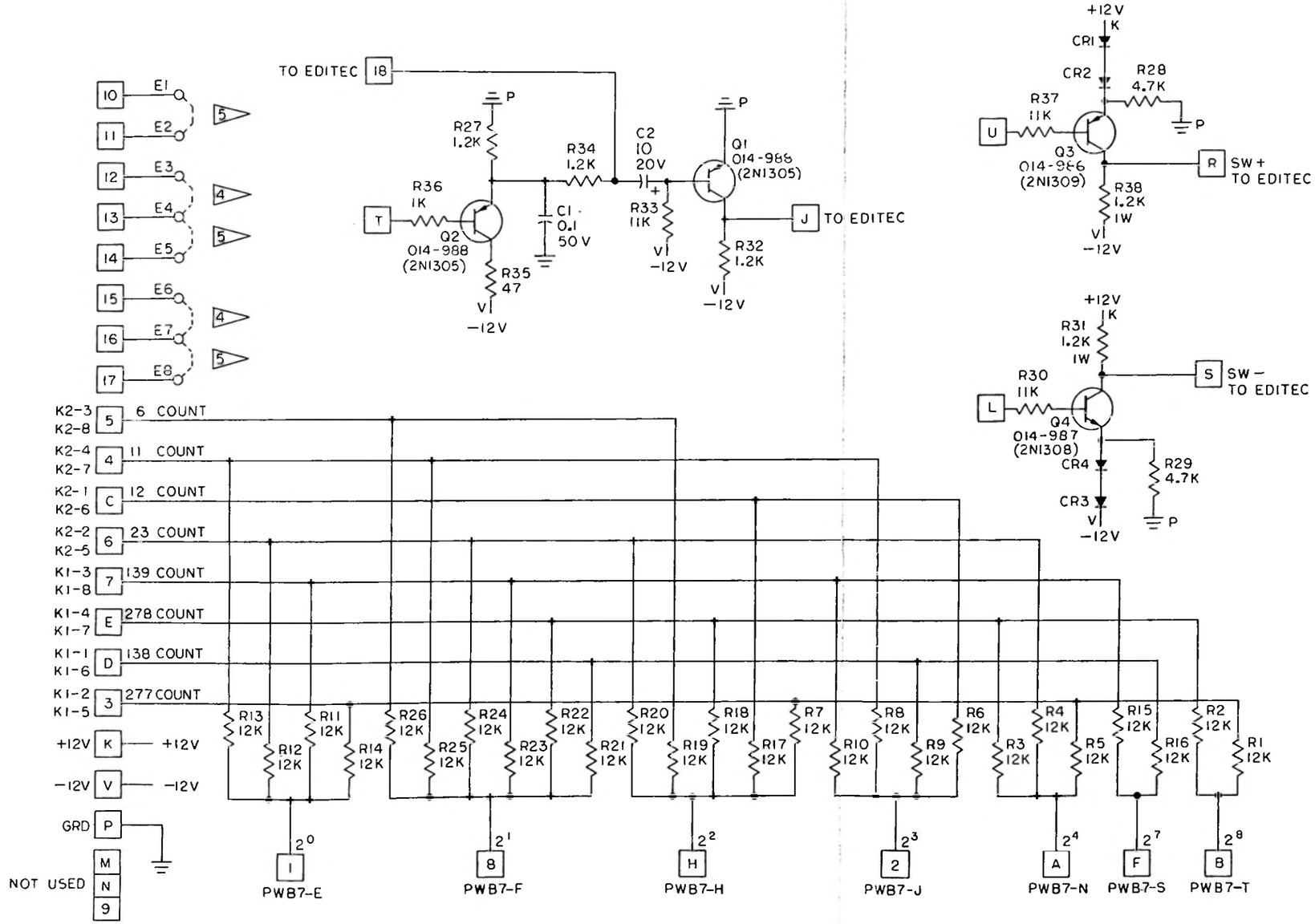
1. ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS, 1/2WATT, 5%.
3. ALL DIODES ARE TYPE IN456A.

4 JUMPER FOR EDITOR.

5 JUMPER FOR EDITEC.

Printed Wiring Assembly No. 8, VR-2000B
Dwg. No. 1215364A

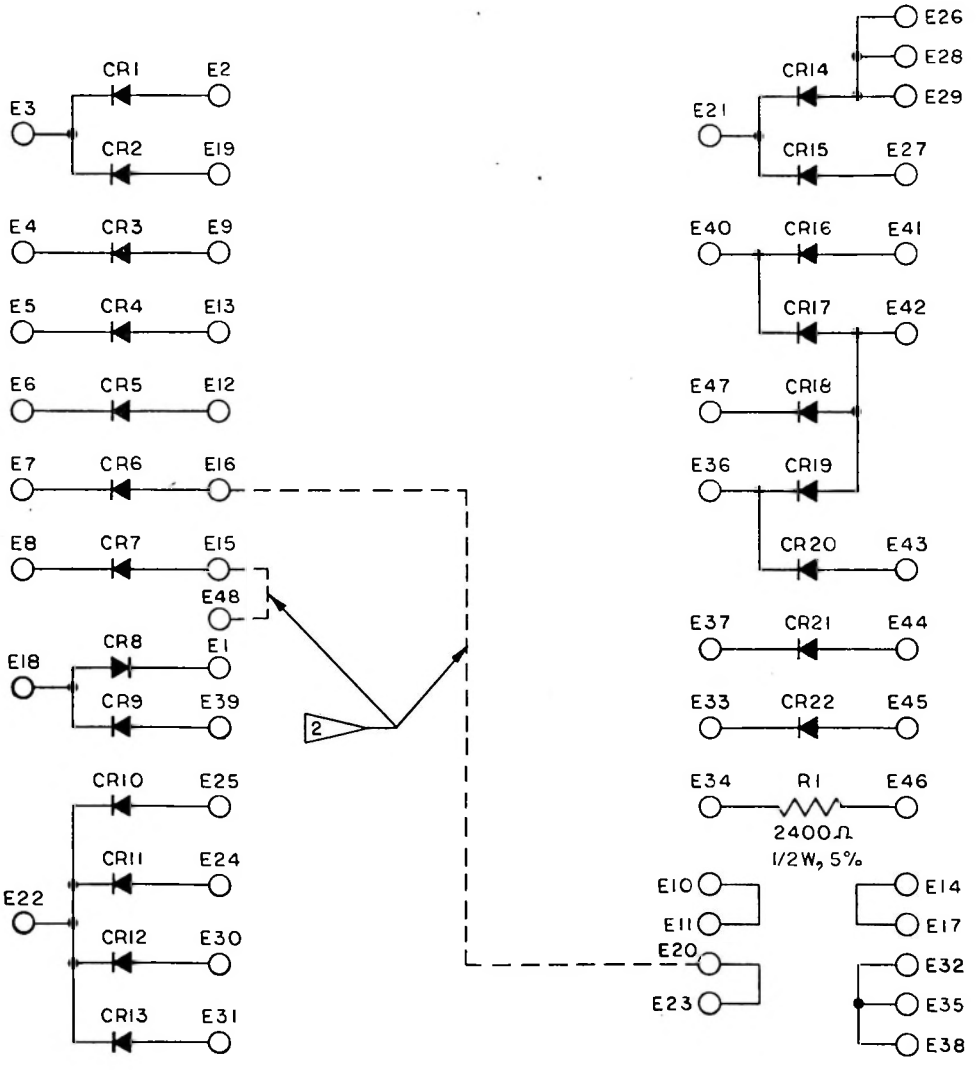
CHANGED MAY 1969



NOTES: UNLESS OTHERWISE SPECIFIED.
1. ALL CAPACITOR VALUES ARE IN MICROFARADS.
2. ALL RESISTOR VALUES ARE IN OHMS, ½ WATT, 5%.
3. ALL DIODES ARE AMPEX PART 013-978 (IN456A).
4 JUMPER FOR EDITOR.
5 JUMPER FOR EDITEC.

LAST REF DES USED	REF DES NOT USED
R38	NONE
C2	
Q4	
E8	
CR4	

Printed Wiring Assembly No. 8, VR-1200B
Dwg. No. 1385252A

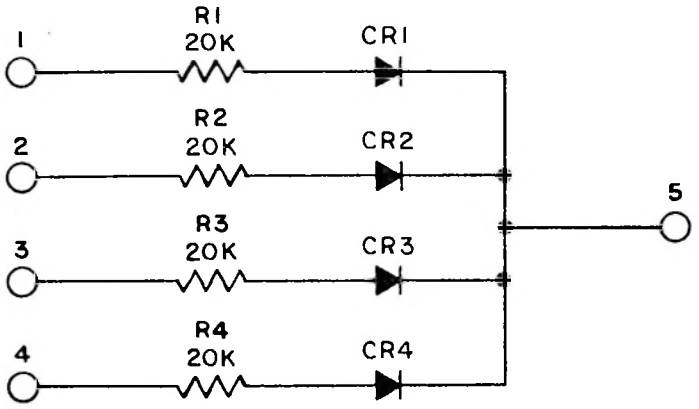


NOTES:

1. ALL DIODES ARE TYPE IN40C5.
2. JUMPERS INSTALLED FOR EDITOR ONLY.

Ref. Assy. 1215369

Editor Board No. 9 Schematic
Dwg. No. 1215367

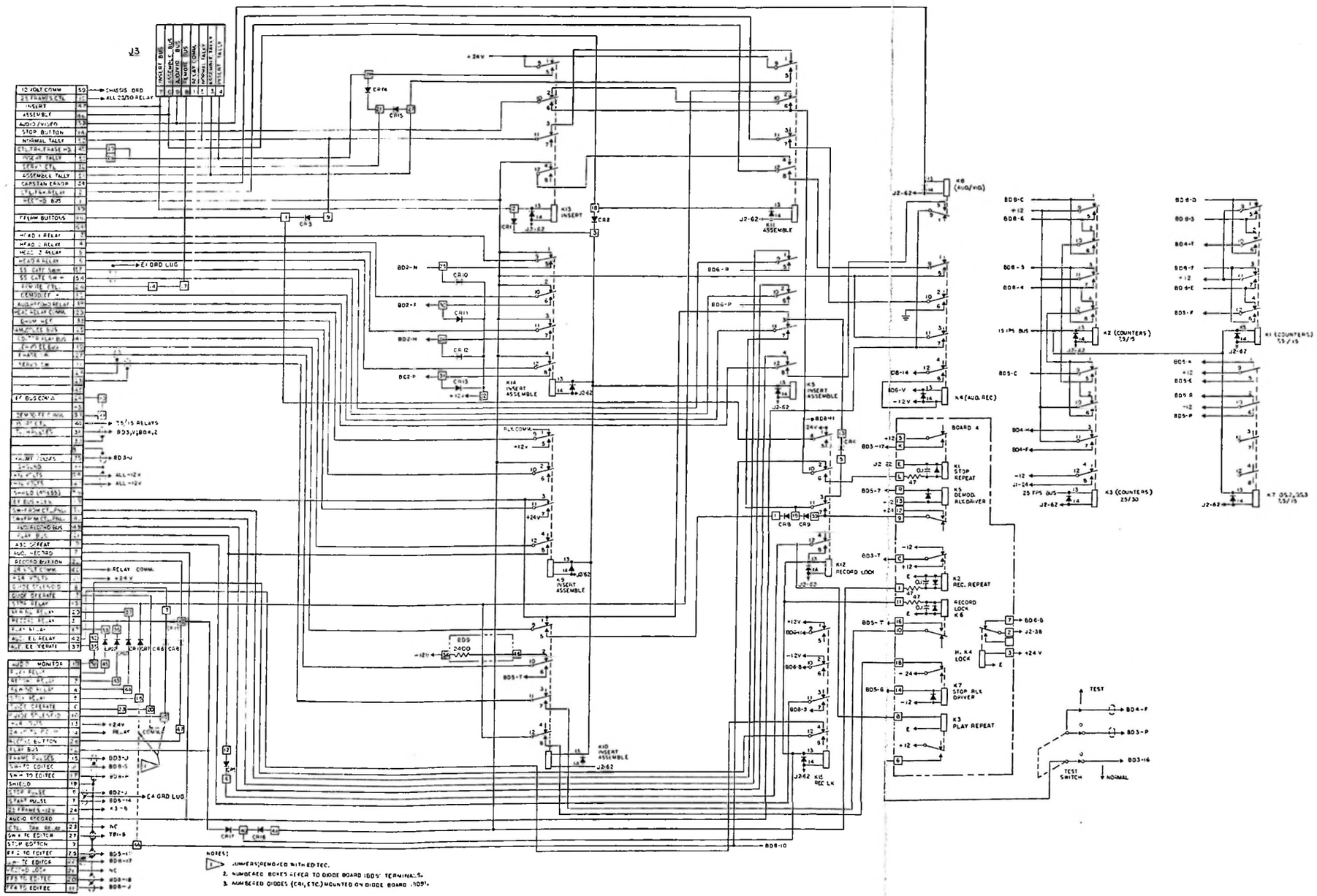


NOTES:

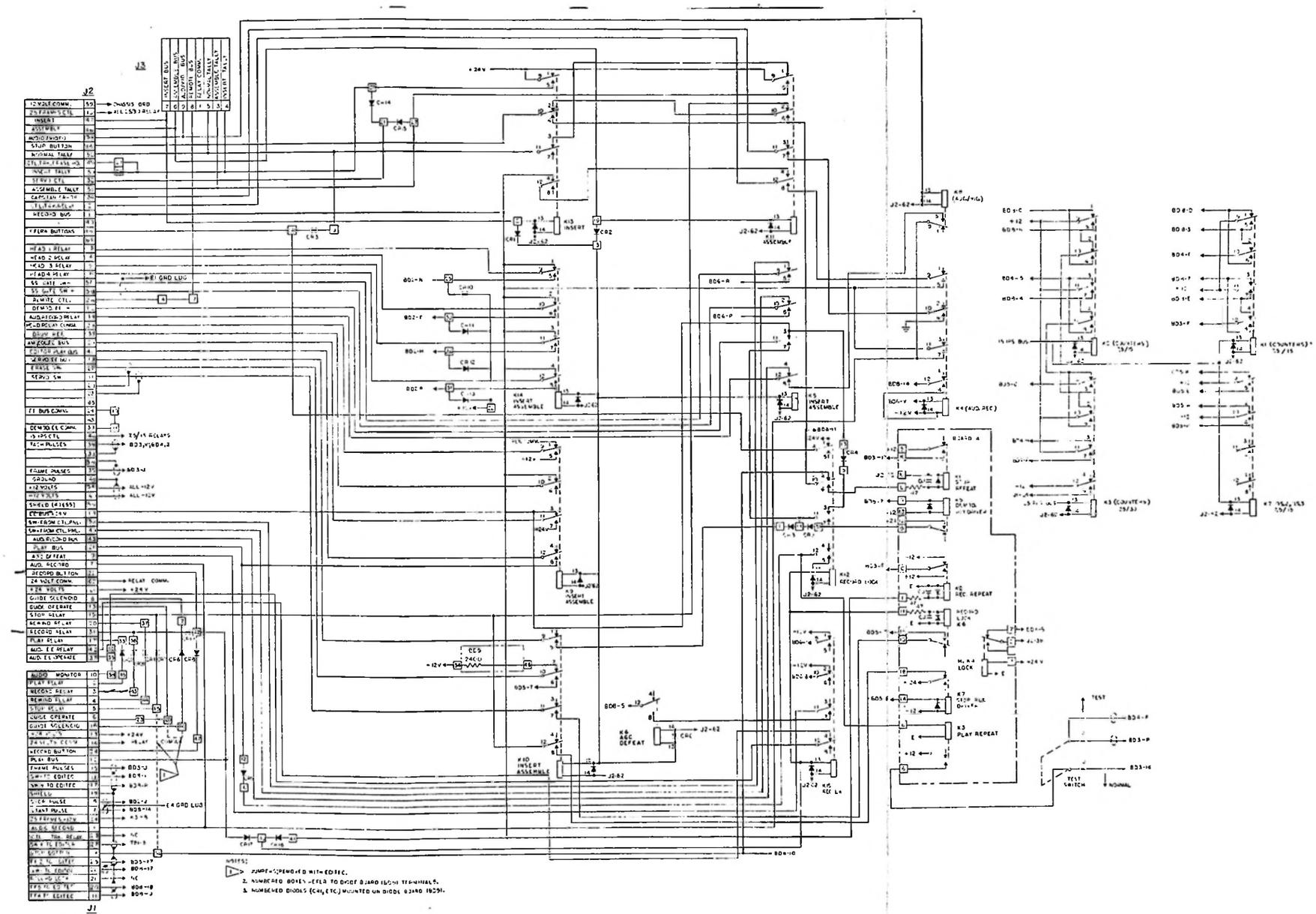
1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W, 5%.
2. ALL DIODES ARE TYPE IN456A.

Ref. Assy. 1216703

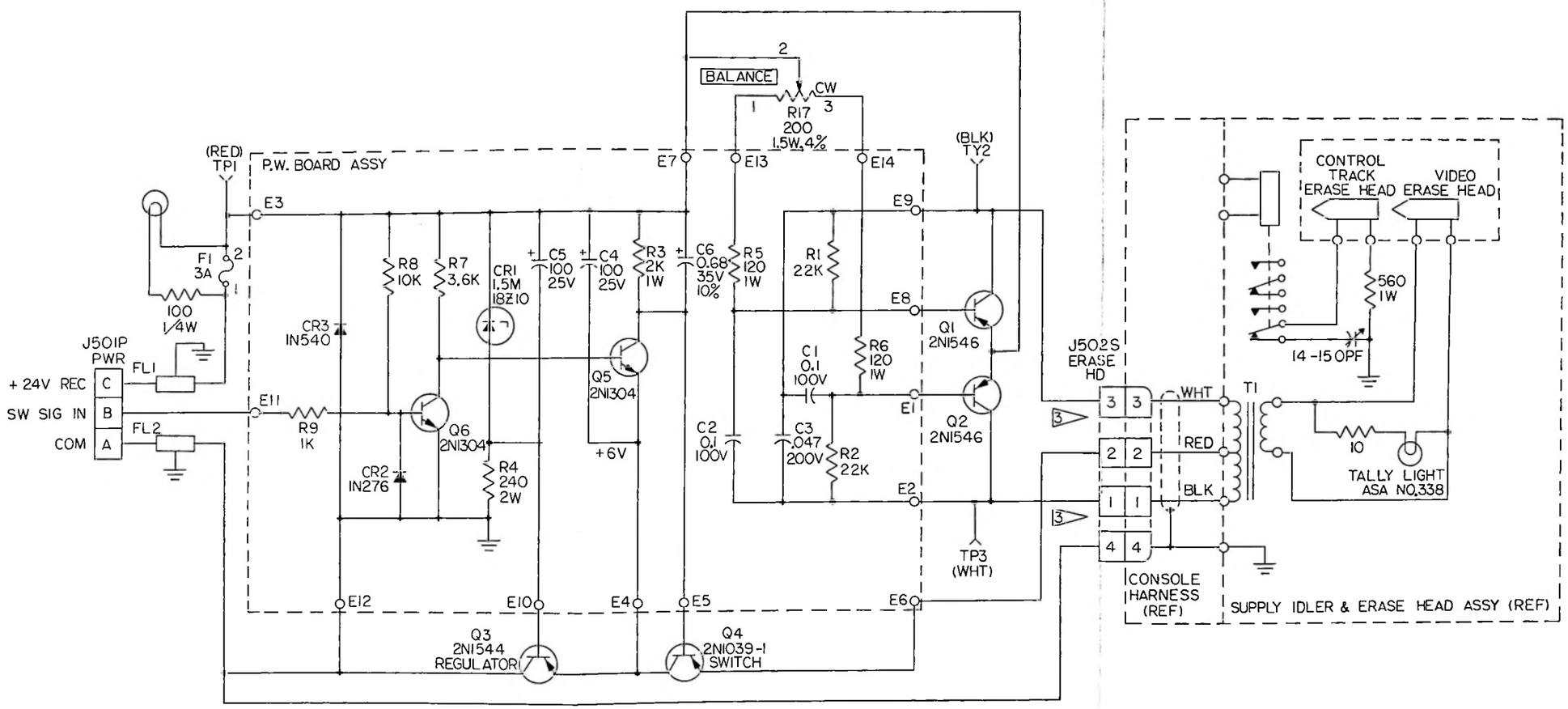
Editor Signal System Board Schematic
Dwg. No. 1216701



Relay Interconnect Diagram
Dwg. No. 1216733B



Relay Interconnect Diagram
Dwg. No. 1365315



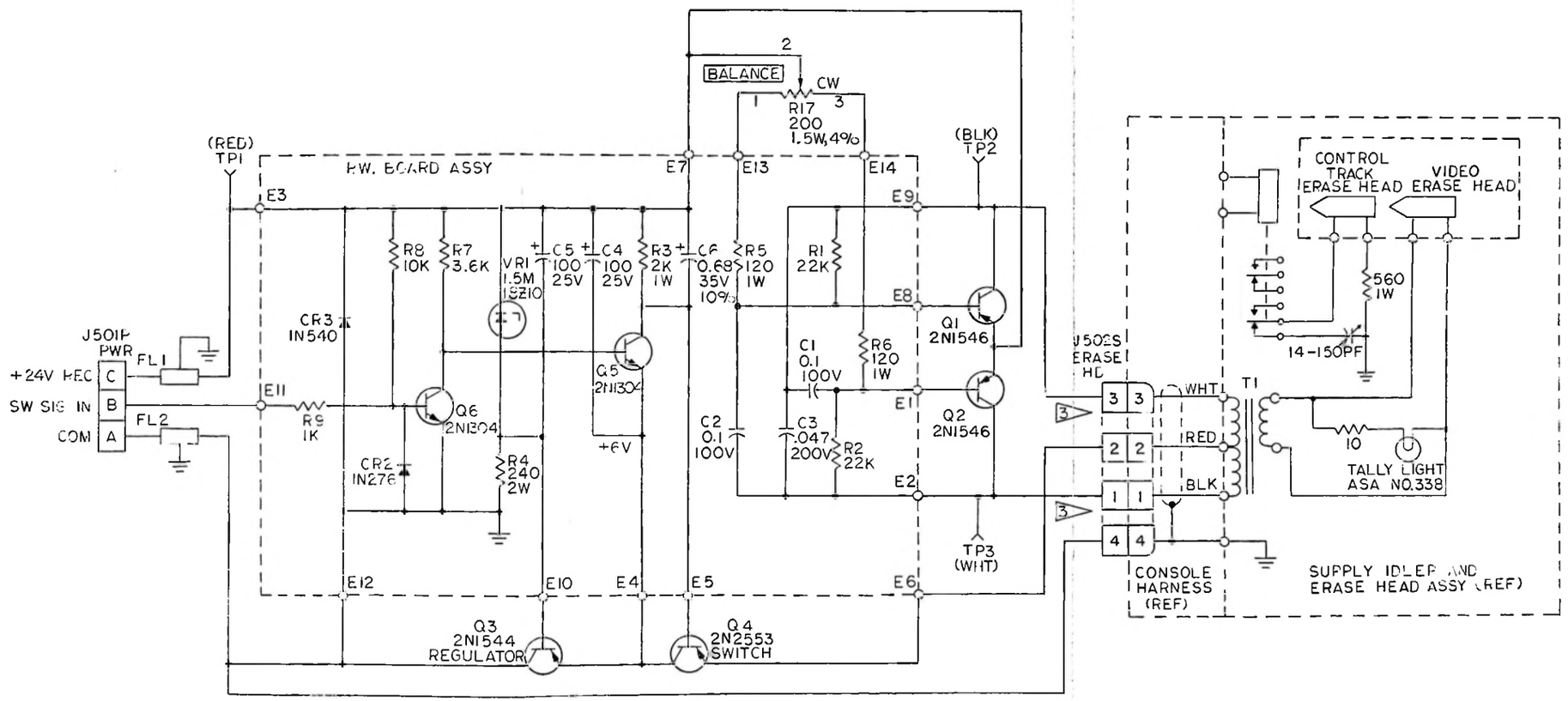
NOTES: UNLESS OTHERWISE SPECIFIED,

1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W, 5%.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
3. CONNECTIONS COMMON TO J502S-3 MAY BE TRANSPOSED WITH THOSE COMMON TO J502S-1 TO COMPLY WITH DISTORTION TOLERANCES.

LAST REF DES USED	REF DES NOT USED
C6	R10,11,12,13,14,15,16
CR3	
E14	
F1	
Q6	
R17	
TP3	
FL2	
J501P	
J502S	

Video Erase Driver
Printed Wiring Assembly, VR-1200B
Dwg. No. 1385134A

CHANGED MAY 1969



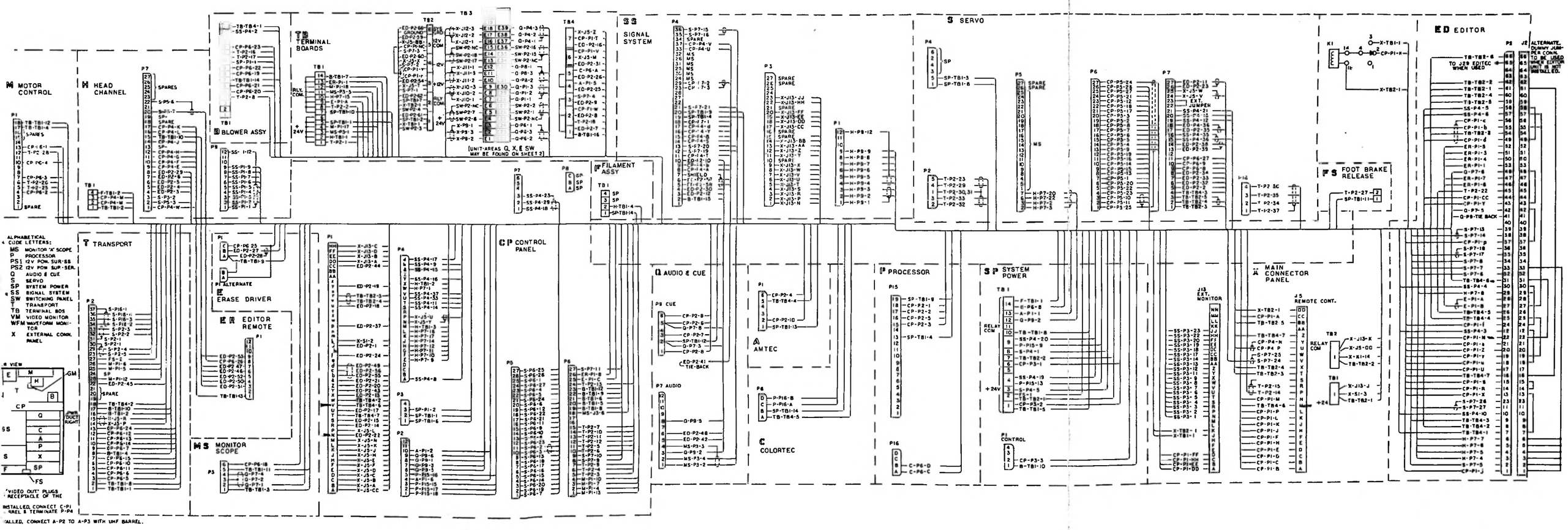
NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL RESISTOR VALUES ARE IN OHMS, 1/2W, 5%.
2. ALL CAPACITOR VALUES ARE MICROFARADS.
3. CONNECTIONS COMMON TO J502S-3 MAY BE TRANSPOSED WITH THOSE COMMON TO J502S-1 TO COMPLY WITH DISTORTION TOLERANCES.

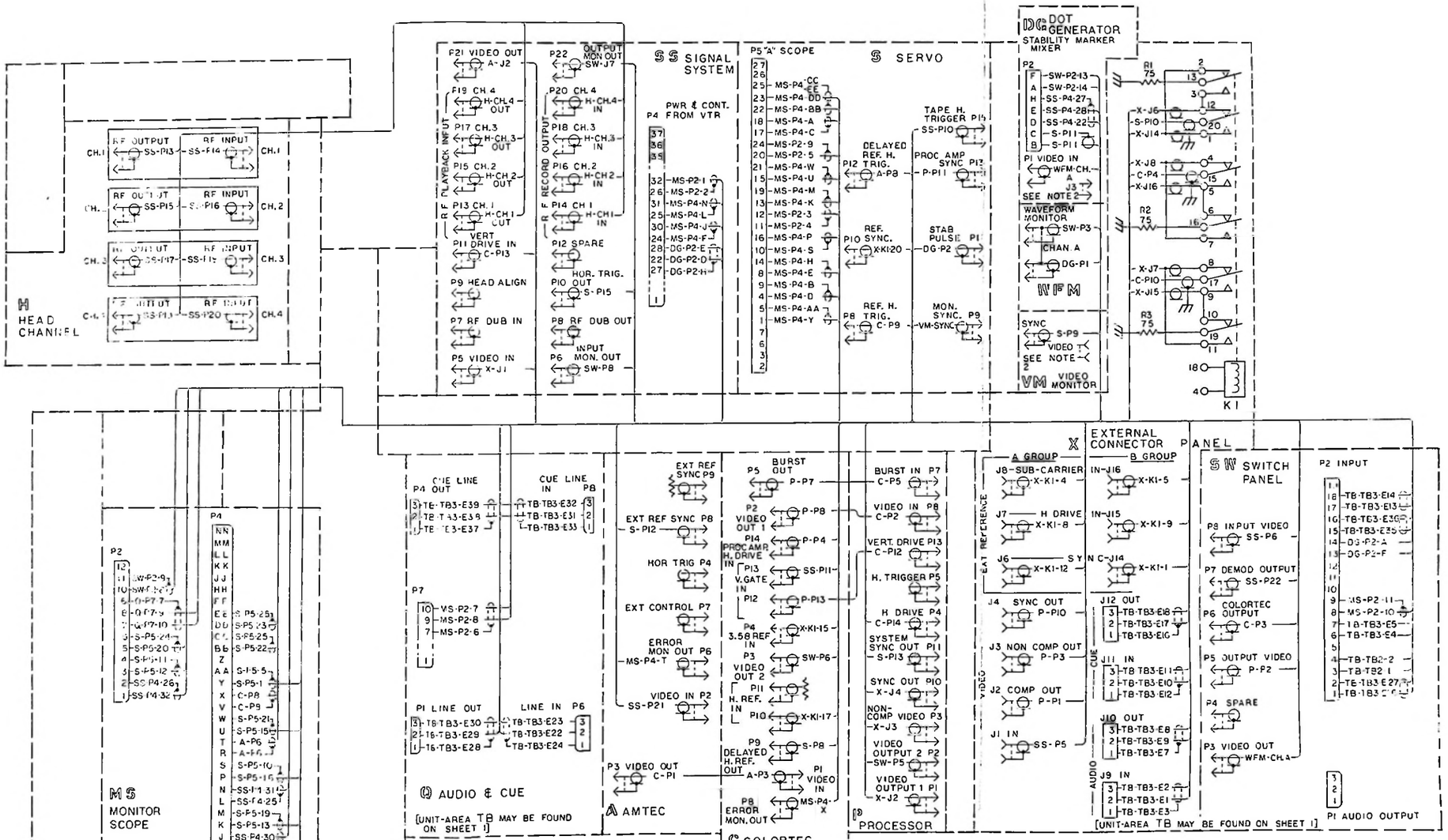
LAST REF. DES USED	NOT USED
C6	R10,11,12,13,14,15,16.
CR3	CR1
E14	
Q6	
R17	
TP3	
FL2	
J501P	
J502S	
VR1	

Video Erase Driver
Printed Wiring Assembly, VR-2000B
Dwg. No. 1385304

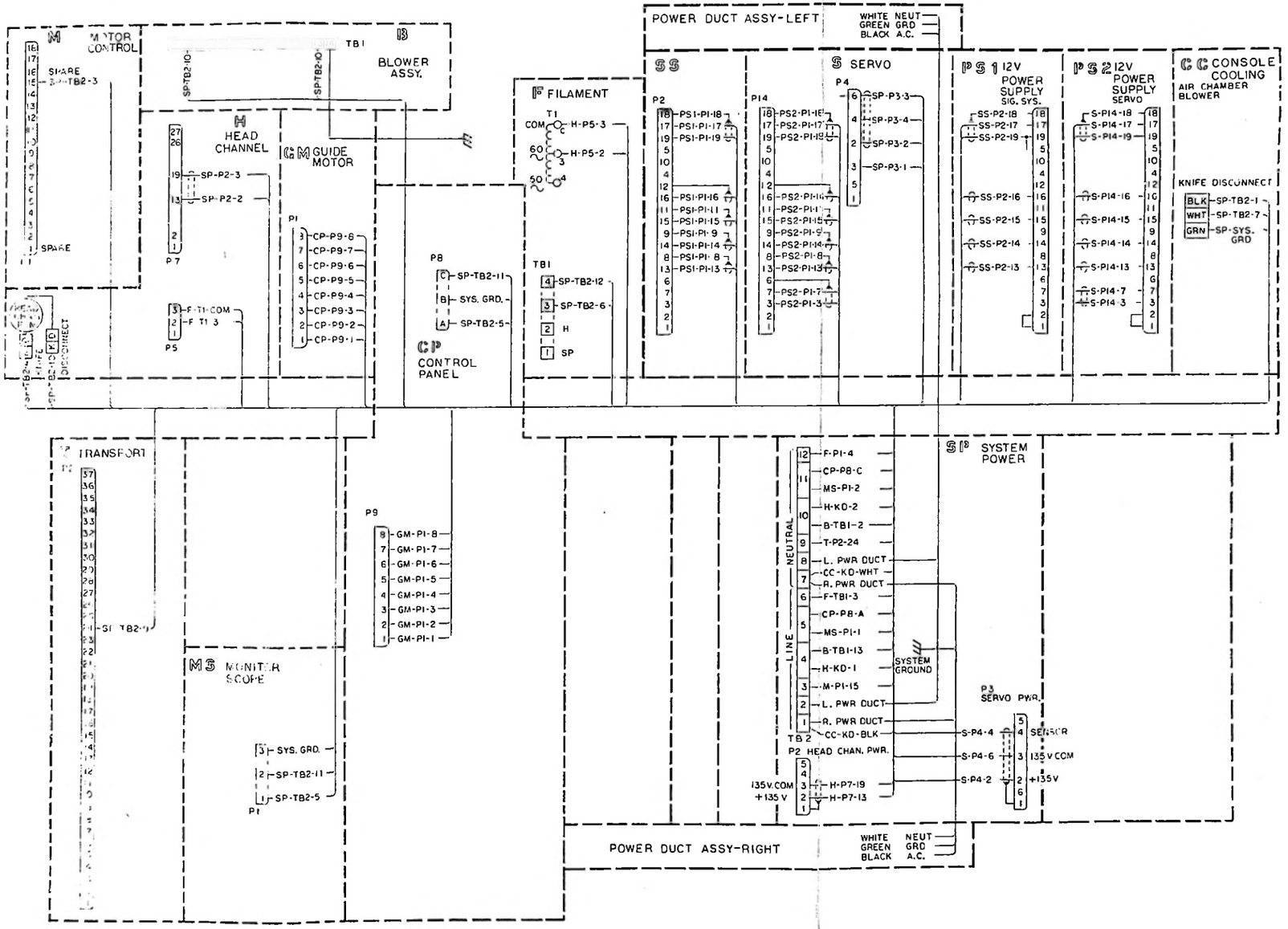
CHANGED MAY 1969



Console Harness Wiring Diagram Control Circuitry
Dwg. No. 1209130A
(Sheet 1 of 3)



Console Harness Wiring Diagram Control Circuitry
Dwg. No. 1209130A
(Sheet 2 of 3)



Console Harness Wiring Diagram Control Circuitry
Dwg. No. 1209130A
(Sheet 3 of 3)

ELECTRONIC EDITOR KIT

CATALOG NO. 1805098

SHEET 1 OF 1

NHA CAT

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -05	-13	-10	-14	-12
3	1242681-01	*		PRINTED WIRING ASSEMBLY, Video Erase Driver		-	1	-	-	-
5	1214512-01			EDITOR REMOTE CONTROL PANEL ASSEMBLY		-	1	-	-	-
6	1241478-01			EDITOR CONTROL PANEL ASSEMBLY		1	-	1	-	-
8	1212978-01			EDITOR ACCESSORY PANEL, Intersync		-	1	1	-	-
9	1216703-01			EDITOR SIGNAL SYSTEM BOARD ASSEMBLY		-	1	-	-	-
10	013-678	*		DIODE, CD-451		-	2	-	-	-
12	1241479-01			INTERCONNECT CABLE		1	-	1	-	1
13	014-195	2N1039-1 * OR 2N2553		TRANSISTOR		-	1	-	-	-
14	1360061-02			PANEL, Blank		1	-	1	-	1
15	143-008	*		CONNECTOR, Receptacle, male, 3 contact		-	1	-	-	-
16	180-260	*		TERMINAL STRIP		-	1	-	-	-
17	1809940			INSTRUCTION MANUAL		2	2	2	2	2
18	043-815			RESISTOR, Fixed, wirewound, 15 ohms, 5W, 5%		2	-	2	-	2
19	1385134	*		SCHEMATIC		-	REF	-	-	-
21	1361292-01			EDITOR CONTROL PANEL ASSEMBLY		-	-	-	1	1
23	1212810-06			MARK III EDITOR		1	-	1	-	1
24	1361295-01			OVERLAY		-	-	-	1	-
25	1362136-01			EDITOR ACCESSORY MODULE		1	-	-	1	1
27	1360412-01			BRACKET, Upper Power Duct		-	1	-	-	-
28	1360413-01			BRACKET, Lower Power Duct		-	1	-	-	-
29	475-048			SCREW, Machine, sem, cross-recess, pan head, 6-32 x 1/2		-	3	-	-	-
30	475-049			SCREW, Machine, sem, cross-recess, pan head, 6-32 x 3/8		-	2	-	-	-
31	496-005			NUT, Kep, 6-32		-	4	-	-	-
32	501-009			WASHER, Flat, #6		-	5	-	-	-
33	1241479-02			INTERCONNECT CABLE EDITOR					1	-
34	1363705-01			OVERLAY						1
35	1363870-01			CABLE, Remote Editor			-	-	-	1
36	1212810-05			MARK III EDITOR			-	1	-	1

* INDICATED COMPONENTS ARE NOT USED IF VR2000 IS EQUIPPED WITH 1800790 ERASE DRIVER.

MARK III EDITOR

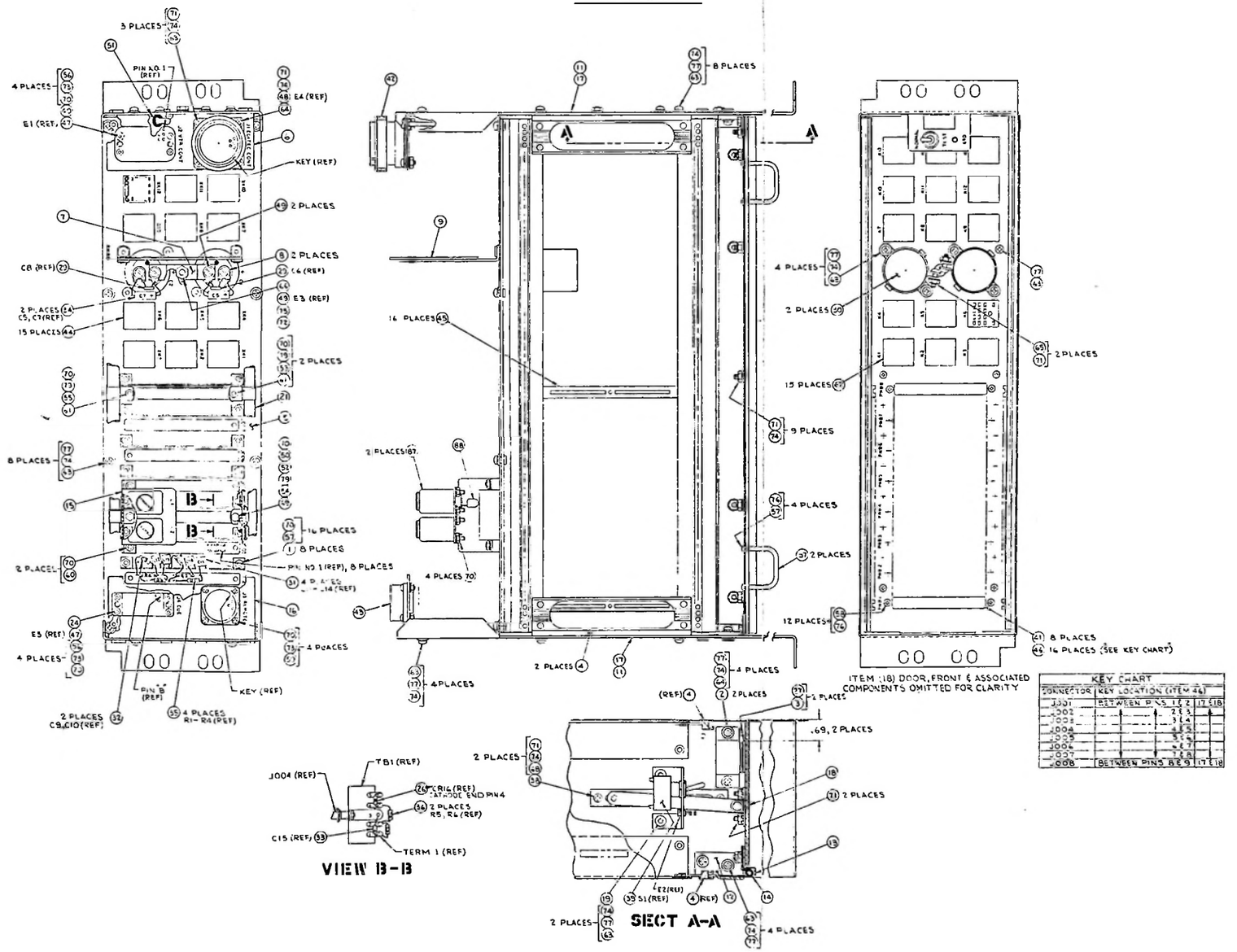
CATALOG NO. 1212810

SHEET 1 OF 1

NHA 1805098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -08	-06
4	1215348-01			PRINTED WIRING ASSEMBLY, Editor Board #2		1	-
5	1215351-01			PRINTED WIRING ASSEMBLY, Editor Board #3		1	1
6	1215354-01			PRINTED WIRING ASSEMBLY, Editor Board #4		1	1
7	1215357-03			PRINTED WIRING ASSEMBLY, Editor Board #5		1	1
8	1215360-01			PRINTED WIRING ASSEMBLY, Editor Board #6		1	1
9	1215363-01			PRINTED WIRING ASSEMBLY, Editor Board #7		1	1
10	1215366-01			PRINTED WIRING ASSEMBLY, Editor Board #8		1	-
11	1215371-01			PRINTED WIRING ASSEMBLY, Editor Extender Board		1	1
13	6000022-10			NAMEPLATE, Identification		1	1
15	1215348-02			PRINTED WIRING ASSEMBLY, Editor Board #2		-	1
16	1361343-02			PRINTED WIRING ASSEMBLY, Editor Board #8		-	1
17	1361781-02			EDITOR SUBASSEMBLY		-	1
18	1361781-03			EDITOR SUBASSEMBLY		1	-

-03 SHOWN



KEY CHART	
CONNECTOR	KEY LOCATION (ITEM 46)
J001	BETWEEN PINS 16 & 17
J002	2 & 3
J003	3 & 4
J004	4 & 5
J005	5 & 6
J006	6 & 7
J007	7 & 8
J008	BETWEEN PINS 8 & 9

Editor Subassembly
Dwg. No. 1361781C

EDITOR SUBASSEMBLY — CATALOG NO. 1361781 — SHEET 1 OF 2 — NHA 1212810

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -03	-02
1	168055-01			BRACKET, Connector, grounding		8	8
2	1208697-01			MAGNETIC LATCH		2	2
3	1210893-10			PAD, Front Panel		2	2
4	1211914-10			HOLDER, Card Slide		2	2
5	1214322-01			CONNECTOR PANEL		1	1
6	1214324-01			CONNECTOR, Bracket		1	1
7	1214326-01			GROUND STRAP		1	1
8	1214756-01		C1+, C2-	TERMINAL, Duo		2	2
9	1215369-01		PWB #9	EDITOR BOARD No. 9		1	1
10	1216733			INTERCONNECT DIAGRAM, Relay		-	REF
11	1242682-03			BRACKET, Side		-	2
12	1242684-01			BRACKET, Hinge Mounting		1	1
13	1242687-01			HINGE COVER		1	1
14	1360032-01			HINGE, Door, front		1	1
15	1360616-01			BRACKET, Inductor		1	1
16	1360621-01			CONNECTOR, Bracket		1	1
17	1361369-02			BRACKET, Side		2	-
18	1361387-01			DOOR, Front		1	1
19	1361782-01		E2	BRACKET, Switch Mounting		1	1
21	1214351-04			HARNESS ASSEMBLY		-	1
22	013-678		CR1-15	DIODE, CD451		15	-
23	1385497			INTERCONNECT DIAGRAM		-	REF
24	145-398		J4	CONNECTOR, Receptacle, 34 pin		1	1
25	013-678		CR1-5, 7-15	DIODE, CD451		-	14
26	013-986	1N276	CR16	DIODE		1	1
28	020-988		K1-5, 7-15	RELAY, 4PDT		-	14
29	030-094		C6, 8	CAPACITOR, Ceramic, 1UF, 25V, 20%		2	2
30	031-442		C1, 2	CAPACITOR, Aluminum, 1150UF, 50V, -10%+150%		2	2
31	035-837		C11, 14	CAPACITOR, Mylar, 0.1UF, 50V, 10%		4	4
32	037-028		C9, 10	CAPACITOR, Tantalum, 22UF, 15V, 20%		2	2
33	037-164		C15	CAPACITOR, Tantalum, 1.0UF, 35V, 10%		1	1
34	037-999		C5, 7	CAPACITOR, Tantalum, 47UF, 20V, 20%		2	2
35	041-003		R1, 4	RESISTOR, Composition, 100 ohms, 1/2W, 5%		4	4
36	041-007		R5, 6	RESISTOR, Composition, 750 ohms, 1/2W, 5%		2	2
37	089-028			HANDLE, Brass, 4-40 x 3/8, DP holes		2	2
38	092-016			HINGE, Lid Support		1	1
39	120-003		S1	SWITCH, Toggle DPST		1	1
40	143-168		J2	CONNECTOR, Receptacle, 66 pin		1	1
41	146-448		J001-J008	CONNECTOR, P.C.Receptacle, 18 dual contacts		8	8

EDITOR SUBASSEMBLY

CATALOG NO. 1361781

NHA 1212810

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -03	-02
42	146-990		J1	CONNECTOR, Circular Receptacle, 27 socket		1	1
43	147-151		J3	CONNECTOR, Circular Receptacle, 12 pin		1	1
44	150-992		XK1-15	SOCKET, Relay		15	15
45	169-267			GUIDE, Connector		16	16
46	169-318			KEY, Polarizing, connector		16	16
47	172-004		E1, 5	TERMINAL LUG, Solder, lock #4		2	2
48	172-032		E4	TERMINAL LUG, Solder, plain #6		1	1
49	172-999		C1-, C2+, E3	TERMINAL LUG, Solder, lock #10		3	3
50	180-032		TB1	TERMINAL STRIP, Solder Lug, 5 terminal, #6 mounting		1	1
51	260-006			GROMMET, Elastic, 7/32 ID x 7/16 OD		1	1
52	280-002			SPACER, Plain, 9/64 ID, 1/4 OD x 1/4		1	1
53	302-006			CLAMP, Cable, 7/16 ID		2	2
54	302-036			CLAMP, Cable, 3/8 ID		1	1
55	302-309			CLAMP, Cable, 9/16 ID		1	1
56	470-010			SCREW, Cap, hex socket, 4-40 x 3/8		8	8
57	471-060			SCREW, Machine, pan head, 4-40 x 1/4		20	20
58	471-061			SCREW, Machine, pan head, 4-40 x 5/16		12	12
59	471-062			SCREW, Machine, pan head, 4-40 x 3/8		4	4
60	471-064			SCREW, Machine, pan head, 4-40 x 1/2		2	2
61	471-065			SCREW, Machine, pan head, 4-40 x 5/8		3	3
63	471-069			SCREW, Machine, pan head, 6-32 x 3/8		34	34
64	471-070			SCREW, Machine, pan head, 6-32 x 7/16		5	5
65	471-071			SCREW, Machine, pan head, 6-32 x 1/2		2	2
66	471-088			SCREW, Machine, pan head, 10-32 x 7/16		1	1
68	471-388			SCREW, Machine, flat head, 6-32 x 7/16		2	2
69	471-777			SCREW, Machine, pan head, 4-40 x 7/8		1	1
70	496-004			NUT, Kep, 4-40		38	38
71	496-005			NUT, Kep, 6-32		19	19
72	496-007			NUT, Kep, 10-32		1	1
73	501-008			WASHER, Flat, #4		12	12
74	501-009			WASHER, Flat, #6		49	49
75	501-011			WASHER, Flat, #10		1	1
76	502-024			WASHER, Lock, internal tooth #4		16	16
77	502-025			WASHER, Lock, internal tooth #6		35	35
79	506-021			WASHER, "D"		4	4
87	541-063		L1, 2	COIL, Inductor, variable, .07-.7H		2	2
88	056-074		C16	CAPACITOR, Mica, 6200pF, 300V, 5%		1	1
62	1214351-05			HARNESS ASSEMBLY		1	-
67	020-988		K1-15	RELAY, 4PDT		15	-
91	1365816			INTERCONNECT DIAGRAM, Editor		REF	-
92	1365815			INTERCONNECT DIAGRAM, Relay		REF	-

HARNESS ASSEMBLY, EDITOR

CATALOG NO. 1214351

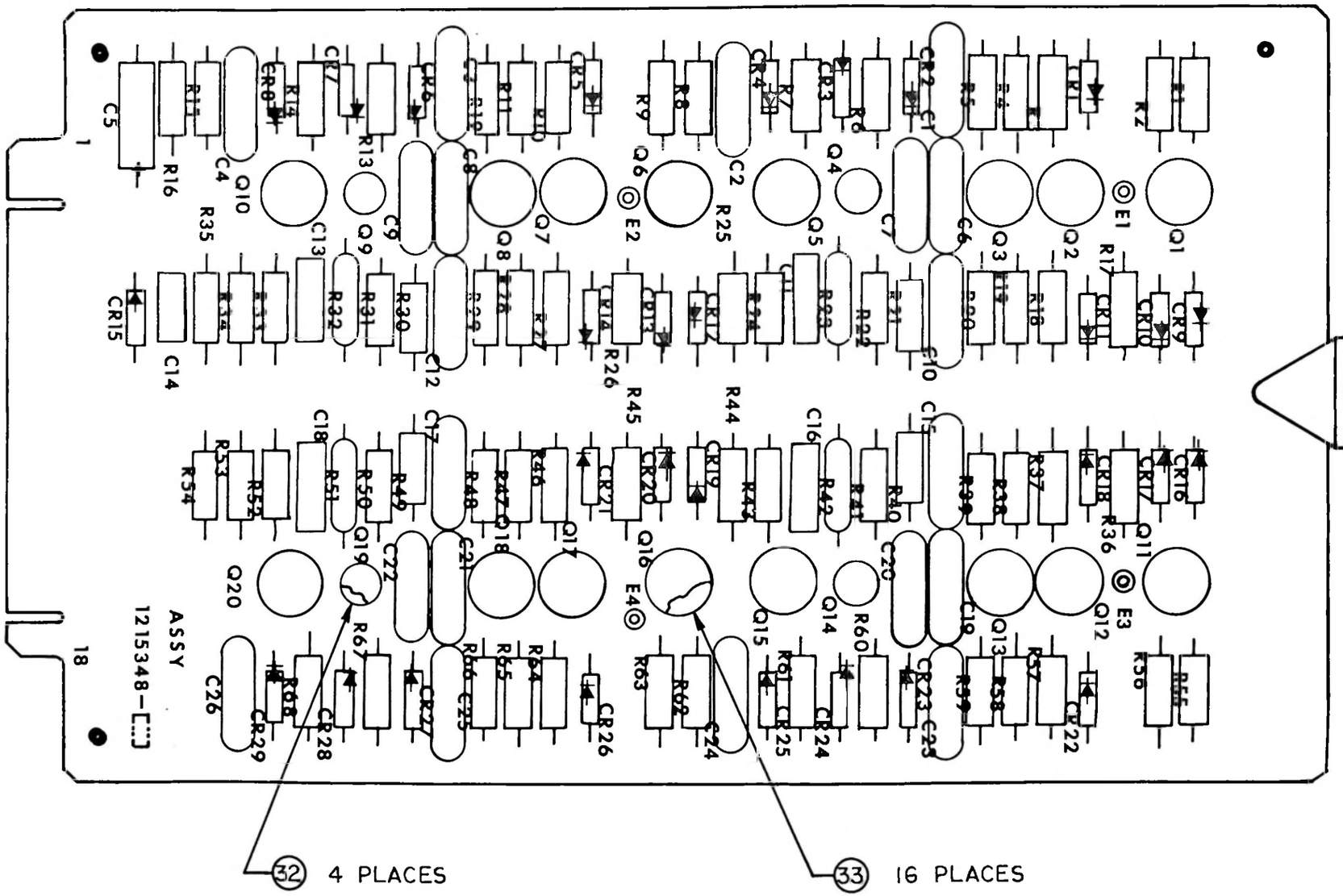
SHEET 1 OF 1

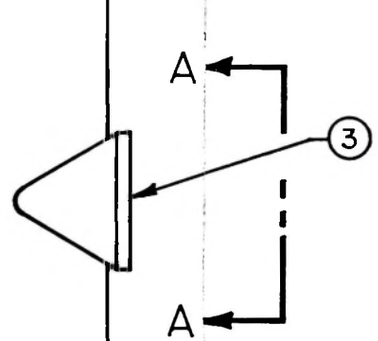
NHA 1361781

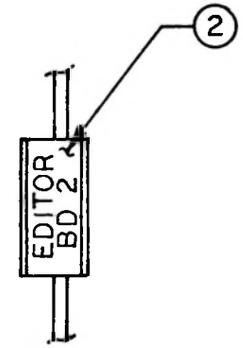
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -02	-04
35	171-031			FERRULE, Red		14	14
36	171-015			FERRULE, Red		2	2
37	171-077			FERRULE, Black		2	2

CHANGED MAY 1969

(Pages 6.3-11/12 deleted)







VIEW AA

Editor Board No. 2
Printed Wiring Assembly
Dwg. No. 1215348B

CHANGED MAY 1969

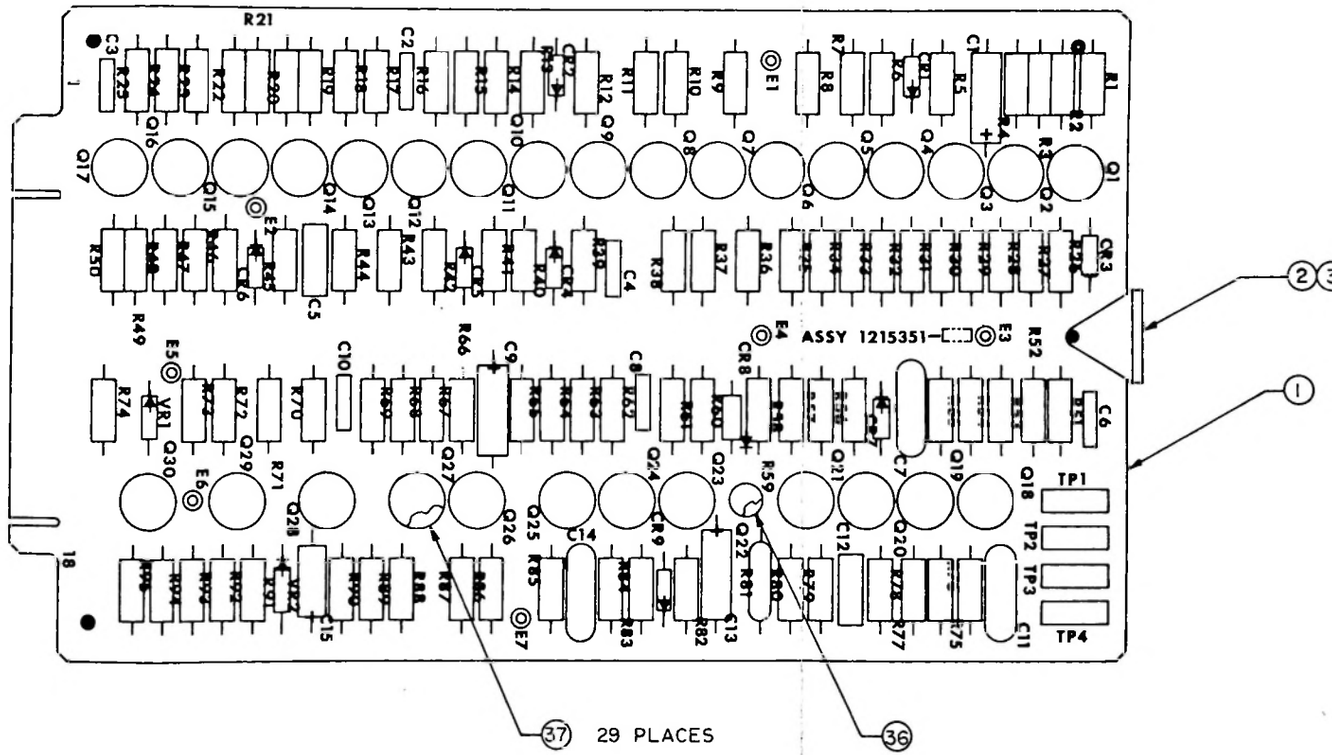
EDITOR BOARD NO. 2 PRINTED WIRING ASSEMBLY

CATALOG NO. 1215348

SHEET 1 OF 1

NHA 1212810

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01	-02
2	1216699-02			LABEL, Identification		1	1
3	52528-01			HANDLE		1	1
5	013-978	1N456A	CR3, 7, 9, 10, 12, 13, 16, 17, 19, 20, 24, 28	DIODE		12	12
6	013-986	1N276	CR1, 2, 4-6, 8, 11, 14, 15, 18, 21-23, 25-27, 29	DIODE		17	17
8	014-105	2N1304	Q1, 6, 11, 16	TRANSISTOR		4	4
9	014-387		Q4, 9, 14, 19	TRANSISTOR, CD437		4	4
10	014-988	2N1305	Q2, 3, 5, 7, 8, 10, 12, 13, 15, 17, 18, 20	TRANSISTOR		12	12
12	034-178		C1-4, 6-10, 12, 15, 17, 19-26	CAPACITOR, 500pF, 500V, 5%		20	20
13	035-840		C13, 14	CAPACITOR, .01 uf, 50V, 10%		-	2
14	035-837		C13	CAPACITOR, .1uf, 50V, 10%		1	-
15	035-840		C14	CAPACITOR, .01 uf, 50V, 10%		1	-
16	035-883		C11, 16, 18	CAPACITOR, .068 uf, 50V, 5%		3	3
18	037-990		C5	CAPACITOR, 15 uf, 20V, 20%		1	1
20	041-013		R1, 8, 55, 62	RESISTOR, 4700 ohms, 1/2W, 5%		4	4
21	041-014		R6, 13, 60, 67	RESISTOR, 10K ohms, 1/2W, 5%		4	4
22	041-016		R5, 12, 20, 21, 25, 29, 30, 34, 66, 35, 39, 40, 44, 48, 49, 53, 59	RESISTOR, 22K ohms, 1/2W, 5%		17	17
23	041-245		R15	RESISTOR, 1000 ohms, 1/2W, 5%		1	1
24	041-329		R16	RESISTOR, 330 ohms, 1/2W, 5%		1	1
25	041-405		R17-19, 22, 24, 26, 27, 28, 31, 33, 36-38, 41, 43, 45-47, 50, 52, 54	RESISTOR, 1200 ohms, 1/2W, 5%		21	21
26	041-420		R3, 4, 10, 11, 57, 58, 64, 65	RESISTOR, 12K ohms, 1/2W, 5%		8	8
27	041-529		R7, 14, 61, 68	RESISTOR, 20K ohms, 1/2W, 5%		4	4
28	041-604		R2, 9, 56, 63	RESISTOR, 11K ohms, 1/2W, 5%		4	4
30	057-209		R23, 32, 42, 51	RESISTOR, 22.6K ohms, 1/4W, 1%		4	4
32	280-100			SPACER, Transistor		4	4
33	280-998			SPACER, Transistor		16	16
35	1215346			SCHEMATIC		REF	-
36	1385276			SCHEMATIC			REF



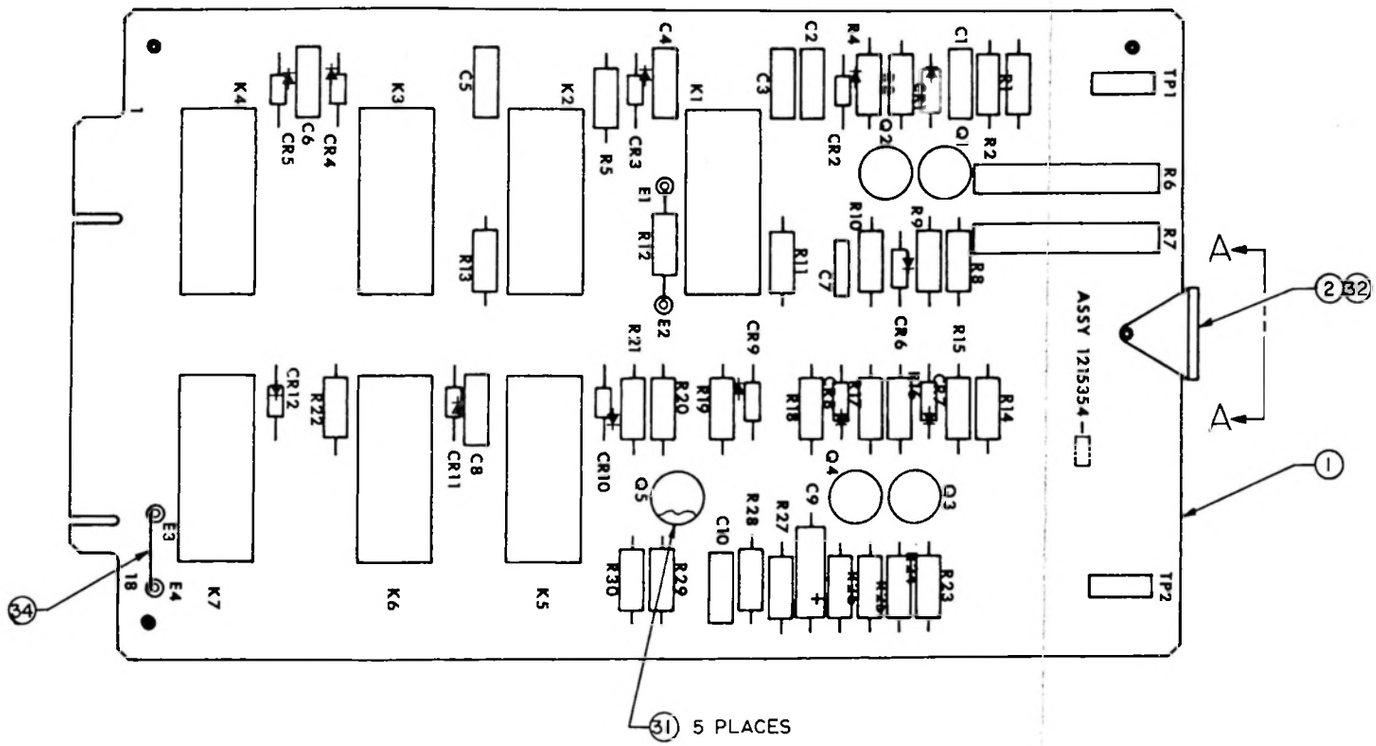
Editor Board No. 3 Printed Wiring Assembly
Dwg. No. 1215351-01

EDITOR BOARD NO. 3 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215351 — Sheet 1 of 2

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION							
1	1215350-01			PRINTED WIRING BOARD	1							
2	52528-01			HANDLE	1							
3	1216699-03			LABEL, Identification	1							
4	013-641	1N703	VR1, 2	DIODE, Zener	2							
5	013-978	1N456A	CR8	DIODE	1							
6	013-986	1N276	CR1 thru 7,9	DIODE	8							
7	014-105	2N1304	Q1,2,3,4,18, 19,20,21,29	TRANSISTOR	9							
8	014-387	CD437	Q22	TRANSISTOR	1							
9	014-988	2N1305	Q5 thru 17 Q23 thru 28, 30	TRANSISTOR	20							
10	034-153		C11	CAPACITOR, 1000 μμf, 500v, 5%	1							
11	034-178		C7, 14	CAPACITOR, 500 μμf, 500v, 5%	2							
12	035-582		C12	CAPACITOR, .056 μfd, 50v, 10%	1							
13	035-837		C5	CAPACITOR, 0.1 MFD, 50v, 10%	1							
14	035-840		C2,3,4,8,10	CAPACITOR, .01 μfd, 50v, 10%	5							
15	035-841		C6	CAPACITOR, .0047 μfd, 50v, 10%	1							
16	037-238		C15	CAPACITOR, 2.2 MFD, 35v, 10%	1							
17	037-990		C1, 9, 13	CAPACITOR, 15 MFD, 20v, 20%	3							
18	041-004		R17	RESISTOR, 220 ohms, 1/2w, 5%	1							
19	041-013		R71, 72, 74, 94	RESISTOR, 4700 ohms, 1/2w, 5%	4							
20	041-014		R10, 16, 59, 79	RESISTOR, 10 K, 1/2w, 5%	4							
21	041-016		R11,14,23,26, 28,30,32,33,34 36,37,43,49,50 52,55,62,73,75 83,85,86,87, 90,91	RESISTOR, 22 K, 1/2w, 5%	25							
22	041-023		R76	RESISTOR, 100 K, 1/2w, 5%	1							
23	041-245		R1,68,70,95	RESISTOR, 1000 ohms, 1/2w, 5%	4							
24	041-254		R45	RESISTOR, 15 K, 1/2w, 5%	1							
25	041-309		R39, 42, 69	RESISTOR, 8200 ohms, 1/2w, 5%	3							
26	041-316		R21, 22, 24	RESISTOR, 2400 ohms, 1/2w, 5%	3							
27	041-329		R3,67	RESISTOR, 330 ohms, 1/2w, 5%	2							
28	041-331		R20	RESISTOR, 3300 ohms, 1/2w, 5%	1							
29	041-405		R7,9,12,15,18, 19,27,29,53,56 58,80,82,84,88 89	RESISTOR, 1200 ohms, 1/2w, 5%	16							
30	041-420		R2,4,40,41,46 47,65,66	RESISTOR, 12 K, 1/2w, 5%	8							

EDITOR BOARD NO. 3 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215351 — Sheet 2 of 2

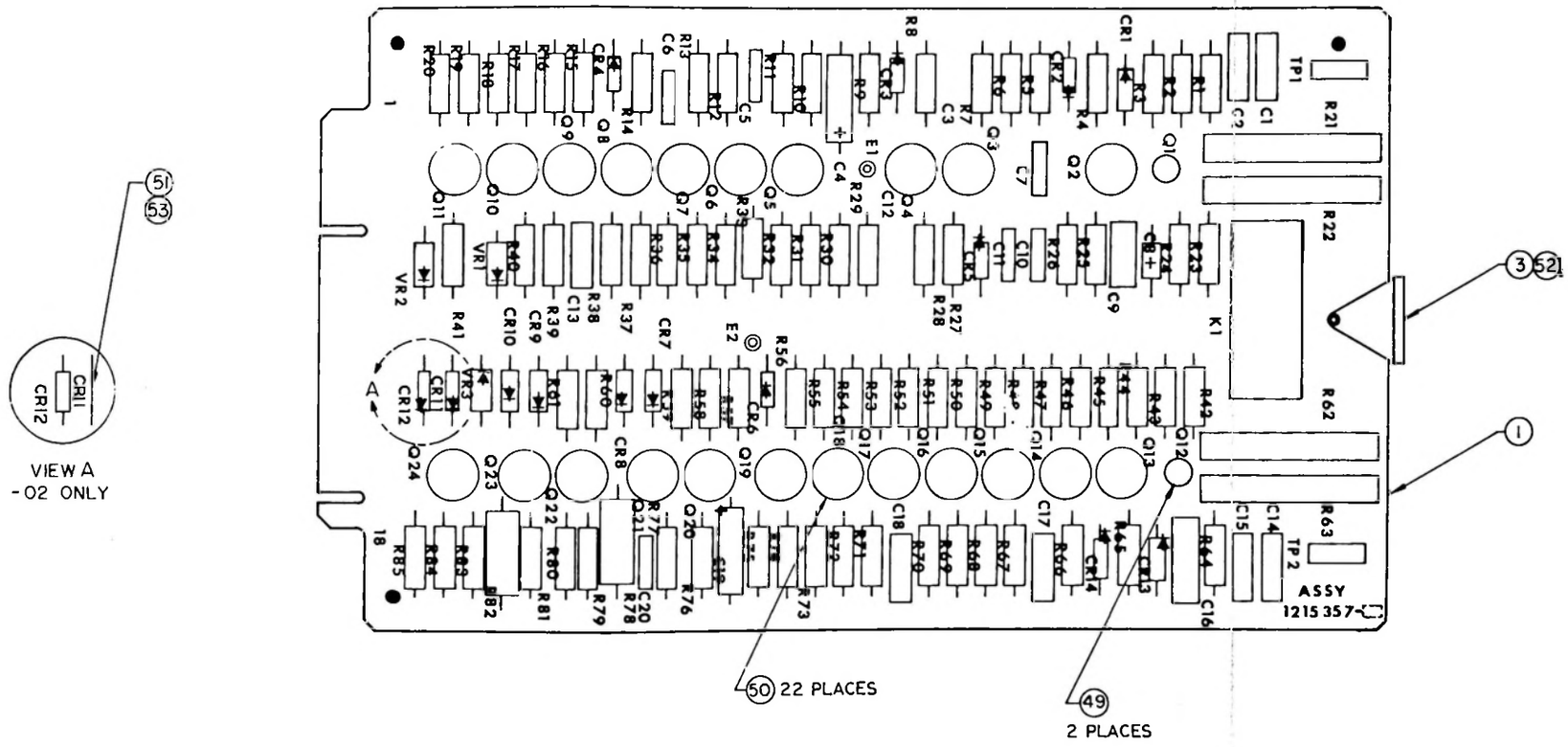
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
31	041-498		R51, 57	RESISTOR, 24 K, 1/2w, 5%	2
32	041-529		R60, 78	RESISTOR, 20 K, 1/2w, 5%	2
33	041-604		R5,6,8,13,25, 31,35,38,44, 48,54,61,63, 64,77,92,93	RESISTOR, 11 K, 1/2w, 5%	17
34	057-210		R81	RESISTOR, 23.2 K, 1/4w, 1%	1
35	148-028		TP1 thru 4	TEST POINT	4
36	280-100			SPACER, Transistor	1
37	280-998			SPACER, Transistor	29
38	018-019			ADHESIVE	A/R
39	1215349			SCHEMATIC	REF



Editor Board No. 4 Printed Wiring Assembly
Dwg. No. 1215354-01

EDITOR BOARD NO. 4 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215354 — Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
1	1215353-01			PRINTED WIRING BOARD	1
2	52528-01			HANDLE	1
3	1216699-04			LABEL, Identification	1
4	1214497-01		K1 thru 7	RELAY, Reed 1, form c	7
5	013-978	1N456A	CR1	DIODE, Silicon	1
6	013-986	1N276	CR6, 7, 8, 9	DIODE, Germanium	4
7	580-041	1N4005	CR2, 3, 4, 5, 10, 11, 12	DIODE, Silicon	7
8	014-105	2N1304	Q2	TRANSISTOR, Germanium	1
9	014-247		Q1	TRANSISTOR, Silicon	1
10	014-988	2N1305	Q3, 4, 5	TRANSISTOR, Germanium	3
11	035-837		C2, 3, 4, 5, 6, 8, 10	CAPACITOR, Mylar, 0.1 µf, 50v, 10%	7
12	035-840		C7	CAPACITOR, Mylar, .01 µf, 50v, 10%	1
13	055-131		C1	CAPACITOR, Mylar, .039 µf, 50v, 5%	1
14	037-990		C9	CAPACITOR, Tantalum, 15 µf, 20v, 20%	1
15	041-014		R8	RESISTOR, Fixed, 10 K, 1/2w, 5%	1
16	041-016		R4, 16, 21	RESISTOR, Fixed, 22 K, 1/2w, 5%	3
17	041-245		R1, 27, 28	RESISTOR, Fixed, 1000 ohms, 1/2w, 5%	3
18	041-254		R14, 19	RESISTOR, Fixed, 15 K, 1/2w, 5%	2
19	041-283		R5, 11, 12, 13, 22	RESISTOR, Fixed, 47 ohms, 1/2w, 5%	5
20	041-316		R20, 15, 18	RESISTOR, Fixed, 2400 ohms, 1/2w, 5%	3
21	041-329		R26	RESISTOR, Fixed, 330 ohms, 1/2w, 5%	1
22	041-330		R9	RESISTOR, Fixed, 6800 ohms, 1/2w, 5%	1
23	041-331		R21	RESISTOR, Fixed, 3300 ohms, 1/2w, 5%	1
24	041-334		R30	RESISTOR, Fixed, 200 ohms, 1/2w, 5%	1
25	041-405		R2, 3, 29	RESISTOR, Fixed, 1200 ohms, 1/2w, 5%	3
26	041-420		R24, 25	RESISTOR, Fixed, 12 K, 1/2w, 5%	2
27	041-529		R10	RESISTOR, Fixed, 20 K, 1/2w, 5%	1
28	041-604		R17	RESISTOR, Fixed, 11 K, 1/2w, 5%	1
29	044-290		R6, 7	RESISTOR, Variable, carbon, 10 K, 1/4w, 20%	2
30	148-028		TP1, 2	CONNECTOR, Printed Circuit, tip jack, white	2
31	280-998			SPACER, Transistor	5
32	018-019			ADHESIVE	A/R
33	1215352			SCHEMATIC	REF
34	615-002			WIRE, Bare	A/R



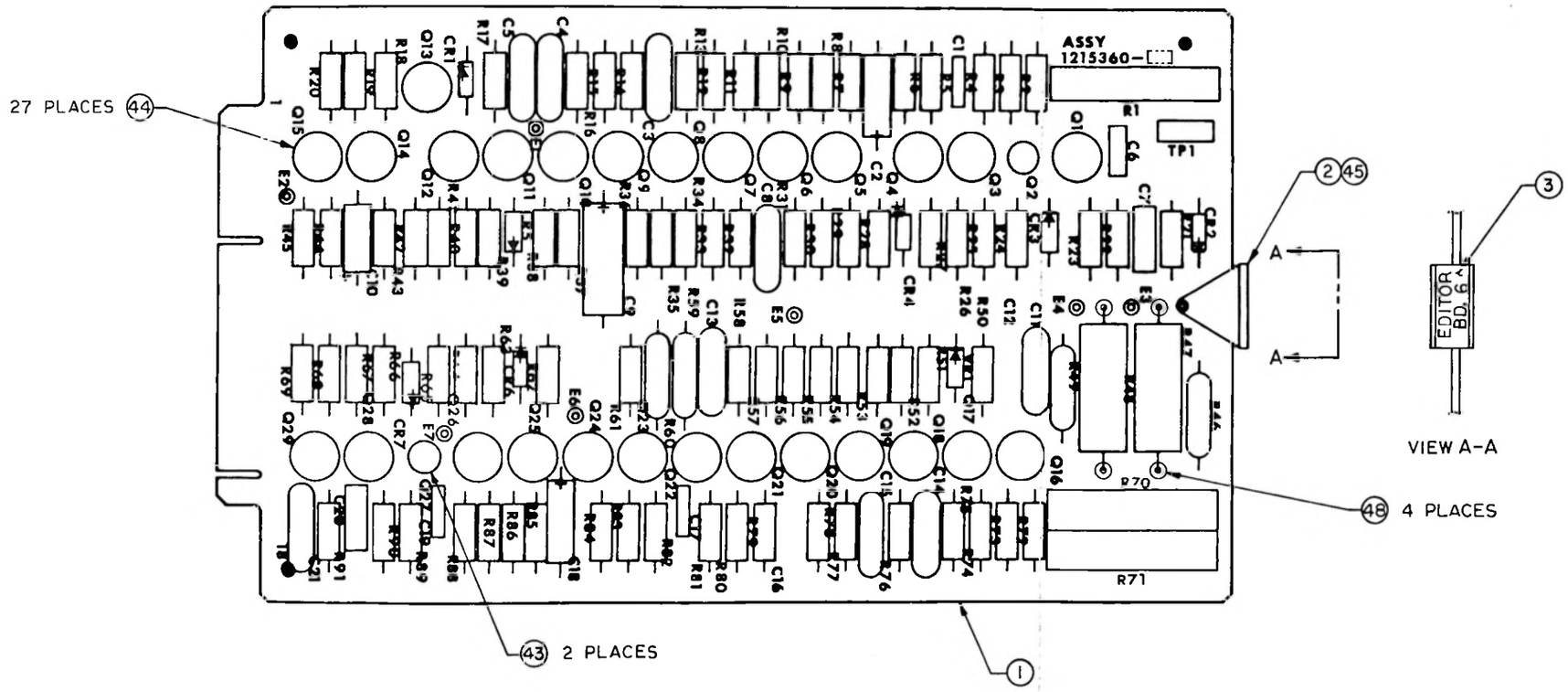
Editor Board No. 5 Printed Wiring Assembly
Dwg. No. 1215357-03C

EDITOR BOARD NO. 5 PRINTED WIRING ASSEMBLY CATALOG NO. 1215357 Sheet 1 of 2

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR. CODE	QUANTITY REQUIRED PER VERSION -03
1	1215356-01			PRINTED WIRING BOARD		1
2	1216699-05			LABEL IDENTIFICATION		1
3	52528-01			HANDLE		1
5	1214497-01		K1	RELAY, Reed 1 Form C		1
7	013-257	CD32	VR1-3	DIODE, Zener		3
8	013-978	1N456A	CR1,7-10, 13	DIODE, Silicon		6
9	013-986	1N276	CR2-6,12, 14	DIODE, Germanium		7
11	014-105	2N1304	Q2,18-20, 22	TRANSISTOR		5
12	014-248	CD37	Q1	TRANSISTOR		1
13	014-387	CD437	Q12	TRANSISTOR		1
14	014-988	2N1305	Q3-11,13-17,21,23, 24	TRANSISTOR		17
17	035-841		C7	CAPACITOR, .0047 μf, 50v, 10%		1
18	035-837		C1,2,13-15,17	CAPACITOR, .1 μf, 50v, 10%		6
19	035-840		C6,5,10, 11,20	CAPACITOR, .01 μf, 50v, 10%		5
20	035-855		C16	CAPACITOR, .22 μf, 50v, 10%		1
21	035-858		C18	CAPACITOR, .047 μf, 50v, 10%		1
22	055-131		C9	CAPACITOR, .039 μf, 50v, 5%		1
24	037-164		C8	CAPACITOR, 1 μf, 35v, 10%		1
25	037-990		C4,19	CAPACITOR, 15 μf, 20v, 20%		2
26	041-303		R44	RESISTOR, 3900 ohms, 1/2w, 5%		1
27	041-004		R39	RESISTOR, 220 ohms, 1/2w, 5%		1
28	041-014		R24,43	RESISTOR, 10K ohms, 1/2w, 5%		2
29	041-016		R7,26,29, 32,34,36, 38,47,51, 52,53,57, 59,66,72, 79	RESISTOR, 22K ohms, 1/2w, 5%		16
30	041-013		R2,19,20, 45,77,81, 83	RESISTOR, 4700 ohms, 1/2w, 5%		7
31	041-245		R1,30,42, 73	RESISTOR, 1000 ohms, 1/2w, 5%		4
32	041-239		R3	RESISTOR, 2200 ohms, 1/2w, 5%		1
33	041-254		R6,15	RESISTOR, 15K ohms, 1/2w, 5%		2
34	041-316		R16,85	RESISTOR, 2400 ohms, 1/2w, 5%		2

EDITOR BOARD NO. 5 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215357 — Sheet 2 of 2

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR. CODE	QUANTITY REQUIRED PER VERSION -03
35	041-329		R10,74	RESISTOR, 330 ohms, 1/2w, 5%		2
36	041-331		R17	RESISTOR, 3300 ohms, 1/2w, 5%		1
37	041-405		R5,9,11, 13,23,25, 33,37,40, 48,49,55, 60,64,65, 68,70	RESISTOR, 1200 ohms, 1/2w, 5%		17
38	041-420		R27,28,75, 76	RESISTOR, 12K ohms, 1/2w, 5%		4
39	041-529		R4,46	RESISTOR, 20K ohms, 1/2w, 5%		3
40	041-604		R8,12,14, 18,31,35, 41,50,54, 56,58,61, 67,69,71, 80,84	RESISTOR, 11K ohms, 1/2w, 5%		17
41	041-337		R78,82	RESISTOR, 2400 ohms, 1w, 5%		2
43	044-236		R21,22	RESISTOR, Variable, 25K ohms, 1/4w, 20%		2
44	044-290		R63	RESISTOR, Variable, 10K ohms, 1/4w, 20%		1
45	044-345		R62	RESISTOR, Variable, 5000 ohms, 1/4w, 10%		1
47	148-028		TP1,2	TEST POINT		2
49	280-100			SPACER, Transistor		2
50	280-998			SPACER, Transistor		22
51	615-018			WIRE, Bare, #26 AWG, solid tinned		A/R
52	018-019			ADHESIVE		A/R
53	600-037			SLEEVING, #20 Clear		A/R
55			1240897	SCHEMATIC		REF



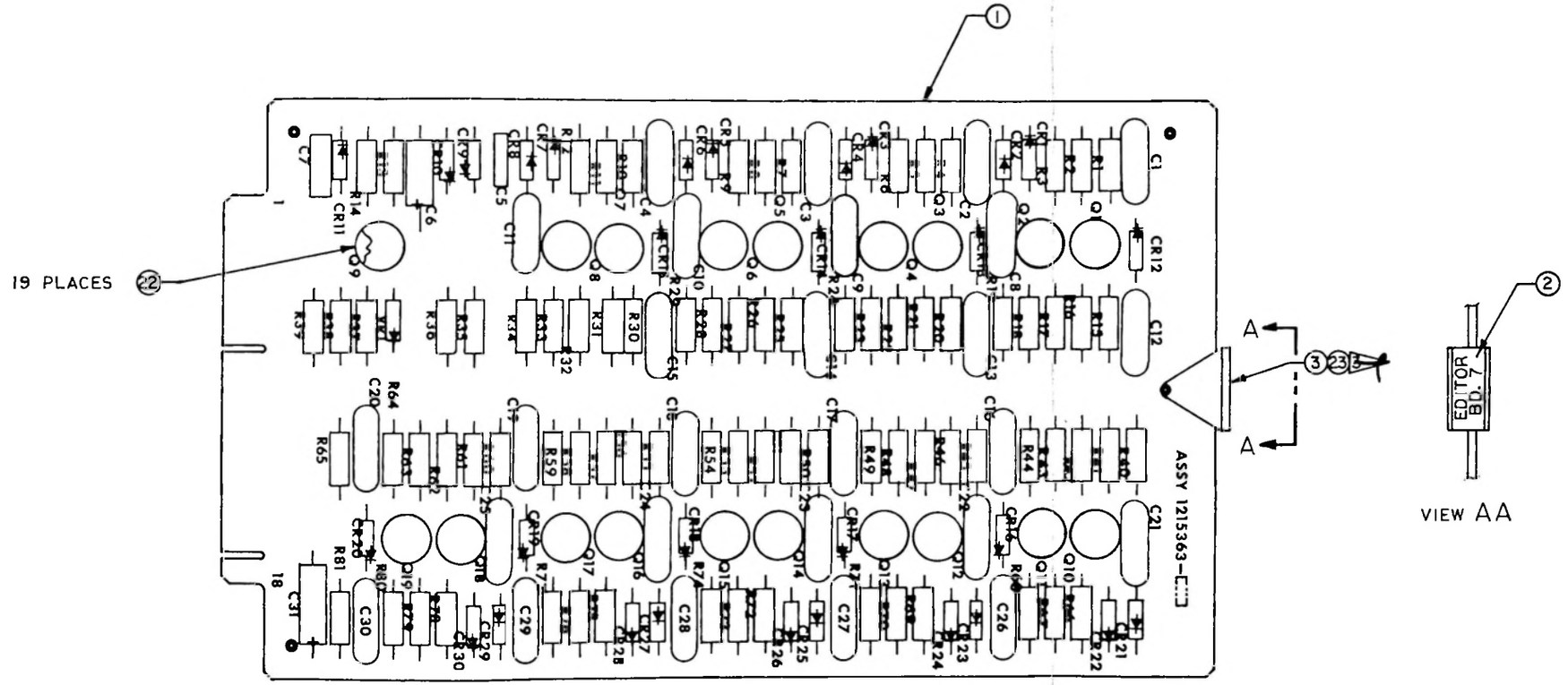
Editor Board No. 6 Printed Wiring Assembly
Dwg. No. 1215360-01

EDITOR BOARD NO. 6 PRINTED WIRING ASSEMBLY CATALOG NO. 1215360 Sheet 1 of 2

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
1	1215359-01			PRINTED WIRING BOARD	1
2	52528-01			HANDLE, Snap On	1
3	1216699-06			LABEL, Identification	1
4	013-099	1N704	VR1	DIODE, Silicon	1
5	013-978	1N456A	CR3, 5, 7	DIODE, Silicon	3
6	013-986	1N276	CR1, 2, 4, 6	DIODE, Germanium	4
7	014-105	2N1304	Q3, 4, 5, 6, 9, 10, 14, 15, 20, 21, 23, 24, 25, 26	TRANSISTOR, Germanium	14
8	014-247	CD38	Q11, 16	TRANSISTOR, Silicon	2
9	014-364	CD438	Q22	TRANSISTOR, Silicon	1
10	014-387	CD437	Q2, 27	TRANSISTOR, Silicon	2
11	014-988	2N1305	Q1, 7, 8, 12, 13 17, 18, 19, 28, 29	TRANSISTOR, Germanium	10
12	034-153		C14	CAPACITOR, Mica, 1000 μμf, 500v, 5%	1
13	034-178		C3, 4, 5, 8, 21	CAPACITOR, Mica, 500 μμf, 500v, 5%	5
14	034-329		C11, 13	CAPACITOR, Mica, 1000 μμf, 500v, 1%	2
15	034-766		C15	CAPACITOR, Mica, 120 μμf, 500v, 5%	1
16	035-839		C6	CAPACITOR, Mylar, .022 μf, 50v, 10%	1
17	035-840		C1, 17, 19	CAPACITOR, Mylar, .01 μf, 50v, 10%	3
18	035-893		C7, 20	CAPACITOR, Mylar, 0.1 μf, 50v, 5%	2
19	037-213		C10	CAPACITOR, Tantalum, 10 μf, 20v, 20%	1
20	037-990		C2, 18	CAPACITOR, Tantalum, 15 μf, 20v, 20%	2
21	037-999		C9	CAPACITOR, Tantalum, 47 μf, 20v, 20%	1
22	041-013		R2, 54	RESISTOR, Fixed, 4700 ohms, 1/2w, 5%	2
23	041-014		R16, 20, 24, 65	RESISTOR, Fixed, 10 K, 1/2w, 5%	4
24	041-016		R5, 14, 21, 28, 29, 31, 33, 34, 39, 40, 42, 62, 67, 81, 87, 88,	RESISTOR, Fixed, 22 K, 1/2w, 5%	16
25	041-245		R3, 9, 55, 58, 73, 75, 82	RESISTOR, Fixed, 1000 ohms, 1/2w, 5%	7
26	041-329		R7, 85	RESISTOR, Fixed, 330 ohms, 1/2w, 5%	2
27	041-334		R51, 57	RESISTOR, Fixed, 200 ohms, 1/2w, 5%	2
28	041-405		R4, 12, 17, 22, 27, 30, 32, 35, 38, 43, 45, 61, 69, 89, 91	RESISTOR, Fixed, 1200 ohms, 1/2w, 5%	15
29	041-420		R6, 8, 84, 86	RESISTOR, Fixed, 12 K, 1/2w, 5%	4
30	041-498		R37, 44, 90	RESISTOR, Fixed, 24 K, 1/2w, 5%	3

EDITOR BOARD NO. 6 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215360 — Sheet 2 of 2

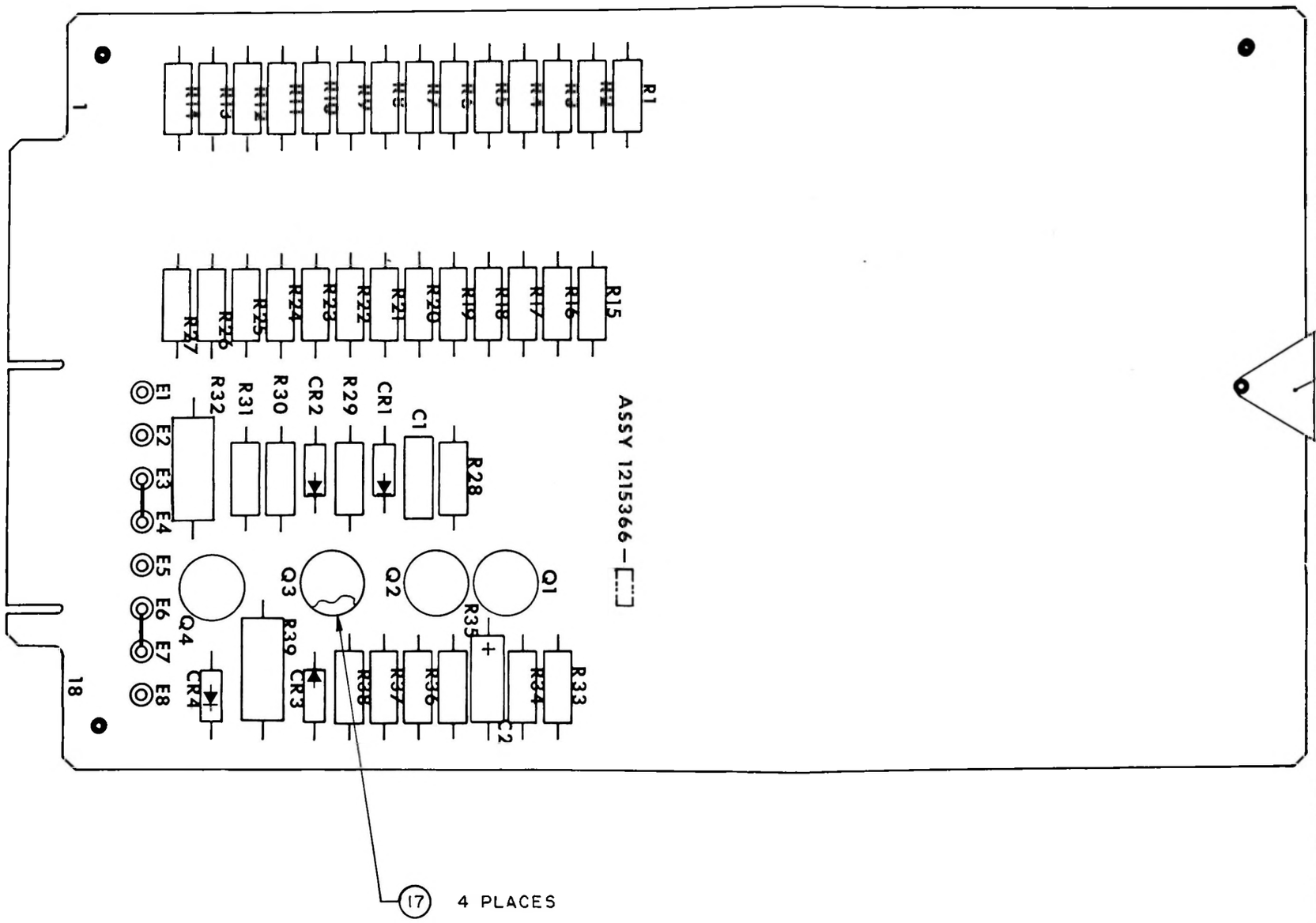
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
31	041-529		R15,19,23,66	RESISTOR, Fixed, 20 K, 1/2w, 5%	4
32	041-535		R50,76,77,79	RESISTOR, Fixed, 30 K, 1/2w, 5%	4
33	041-604		R10,11,13,18, 25,26,36,41, 52,53,56,63, 64,68,72,74, 78,80,83	RESISTOR, Fixed, 11 K, 1/2w, 5%	19
34	047-919		R47	RESISTOR, Fixed, 650 ohms, 5w, 1%	1
35	047-920		R48	RESISTOR, Fixed, 700 ohms, 5w, 1%	1
36	048-401		R59	RESISTOR, Fixed, 60.4 ohms, 1/2w, 1%	1
37	048-797		R49,60	RESISTOR, Fixed, 1130 ohms, 1/2w, 1%	2
38	057-211		R46	RESISTOR, Fixed, 54.9 ohms, 1/2w, 1%	1
39	044-290		R1	RESISTOR, Variable, 10 K, 1/4w, 20%	1
40	044-735		R70	RESISTOR, Variable, 100 ohms, 1-1/2w, 10%	1
41	044-801		R71	RESISTOR, Variable, 10 ohms, 1w, 20%	1
42	148-028		TP1	CONNECTOR, Printed Circuit Tip Jack, white	1
43	280-100			SPACER, Transistor	2
44	280-998			SPACER, Transistor	27
45	018-019			ADHESIVE	A/R
46	1215358			SCHEMATIC	REF
47	See Note		C12,16	CAPACITOR, Mica, 500v, 5%	-
48	103307-01			STANDOFF	4
				NOTE: C12 and C16 to be selected if required	

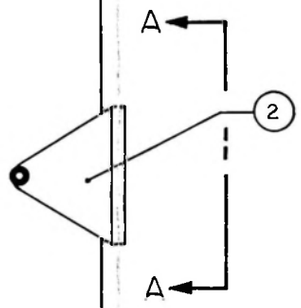


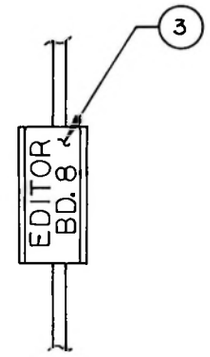
Editor Board No. 7 Printed Wiring Assembly
Dwg. No. 1215363-01

EDITOR BOARD NO. 7 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215363 — Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
1	1215362-01			PRINTED WIRING BOARD	1
2	1216699-07			LABEL, Identification	1
3	52528-01			HANDLE	1
4	013-641	1N703	VR1	DIODE, Silicon, zener	1
5	013-986	1N276	CR1 thru 30	DIODE, Germanium	30
6	014-105	2N1304	Q1 thru 8 Q10 thru 19	TRANSISTOR, Germanium	18
7	014-988	2N1305	Q9	TRANSISTOR, Germanium	1
8	034-178		C1 thru 4 C8 thru 30	CAPACITOR, Mica, 500 μμf, 500v, 5%	27
9	035-837		C7	CAPACITOR, Mylar, .1 μf, 50v, 10%	1
10	035-841		C5	CAPACITOR, Mylar, .0047 μf, 50v, 10%	1
11	037-990		C6, 31	CAPACITOR, Tantalum, 15 μf, 20v, 20%	2
12	041-008		R13, 37	RESISTOR, Fixed, 1500 ohms, 1/2w, 5%	2
13	041-010		R14	RESISTOR, Fixed, 2000 ohms, 1/2w, 5%	1
14	041-016		R1, 4, 7, 10, 15 20, 25, 30, 36, 44, 49, 54, 59, 64, 68, 71, 74, 77, 80	RESISTOR, Fixed, 22 K, 1/2w, 5%	19
15	041-245		R65	RESISTOR, Fixed, 1000 ohms, 1/2w, 5%	1
16	041-254		R19, 24, 29,34 40, 45, 50, 55, 60	RESISTOR, Fixed, 15 K, 1/2w, 5%	9
17	041-329		R81	RESISTOR, Fixed, 330 ohms, 1/2w, 5%	1
18	041-405		R16,18,21,23, 26, 28, 31, 33, 41, 43, 46, 48, 51, 53, 56, 58, 61, 63	RESISTOR, Fixed, 1200 ohms, 1/2w, 5%	18
19	041-420		R2,3,5,6,8,9, 11,12,66,67,69 70,72,73,75, 76, 78, 79	RESISTOR, Fixed, 12 K, 1/2w, 5%	18
20	041-498		R35, 38, 39	RESISTOR, Fixed, 24 K, 1/2w, 5%	3
21	041-604		R17, 22, 27, 32 42, 47, 52, 57, 62	RESISTOR, Fixed, 11 K, 1/2w, 5%	9
22	280-998			SPACERS, Transistor	19
23	018-019			ADHESIVE	A/R
24	1215361			SCHEMATIC	REF







VIEW AA

Editor Board No. 8
Printed Wiring Assembly
Dwg. No. 1215366B

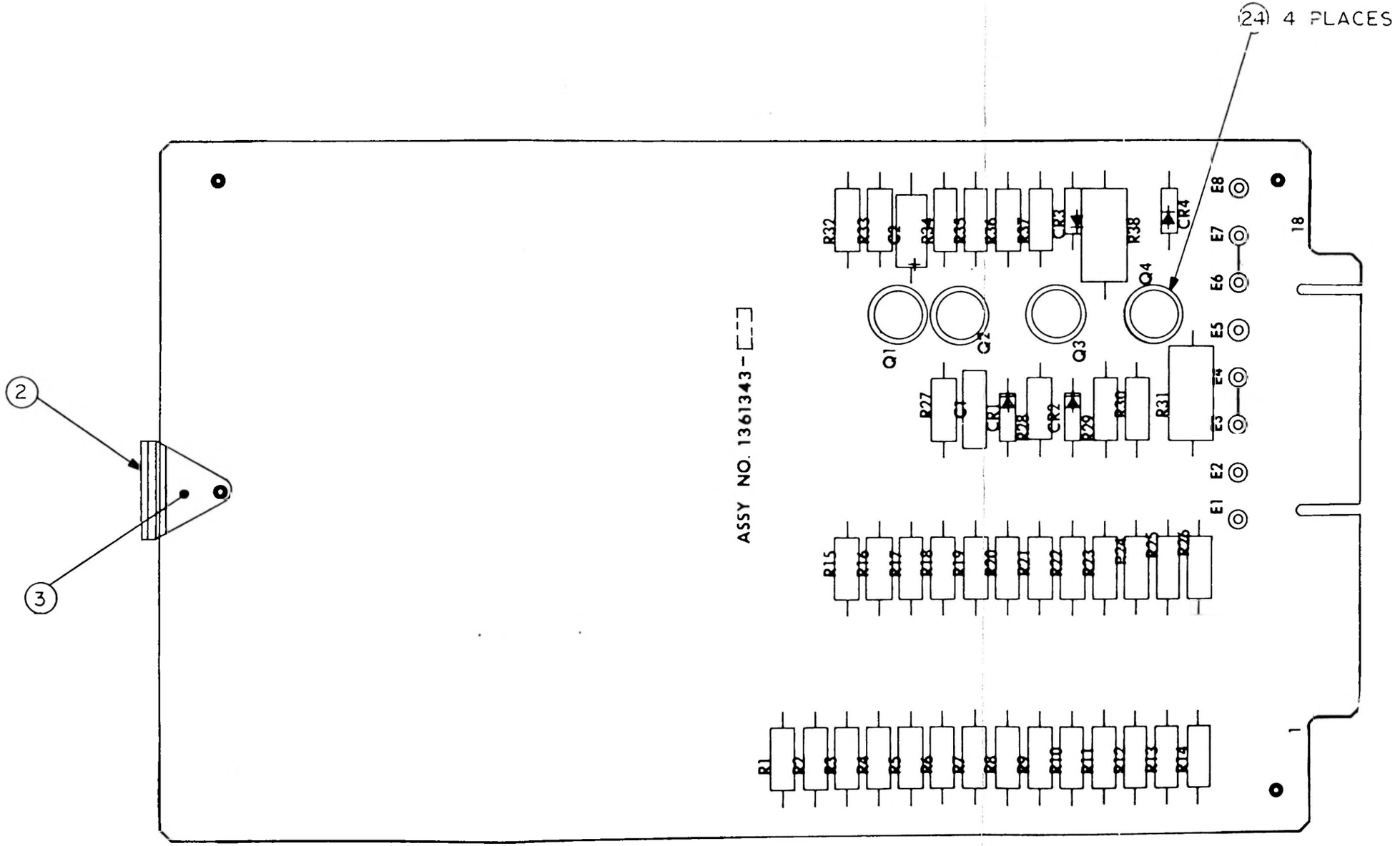
EDITOR BOARD NO. 8 PRINTED WIRING ASSEMBLY

CATALOG NO. 1215366

SHEET 1 OF 1

NHA 1212810

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
2	52528-01			HANDLE		1
3	1216699-08			LABEL, Identification		1
4	013-978	1N456A	CR1-4	DIODE		4
5	014-986	2N1309	Q3	TRANSISTOR		1
6	014-987	2N1308	Q4	TRANSISTOR		1
7	014-988	2N1305	Q1,2	TRANSISTOR		2
8	035-837		C1	CAPACITOR, .1 UF, 50 V, 10%		1
9	037-213		C2	CAPACITOR, 10 UF, 20 V, 20%		1
10	041-013		R29,30	RESISTOR, 4700 ohms, 1/2W, 5%		2
11	041-245		R37	RESISTOR, 1000 ohms, 1/2W, 5%		1
12	041-283		R36	RESISTOR, 47 ohms, 1/2W, 5%		1
13	041-355		R32,39	RESISTOR, 1200 ohms, 1W, 5%		2
14	041-405		R28,33,35	RESISTOR, 1200 ohms, 1/2W, 5%		3
15	041-420		R1-27	RESISTOR, 12K ohms, 1/2W, 5%		27
16	041-604		R31,34,38	RESISTOR, 11K ohms, 1/2W, 5%		3
17	280-998			SPACER		4
19	1215364			SCHEMATIC		REF



Editor Board No. 8
Printed Wiring Assembly
Dwg. No. 1361343B

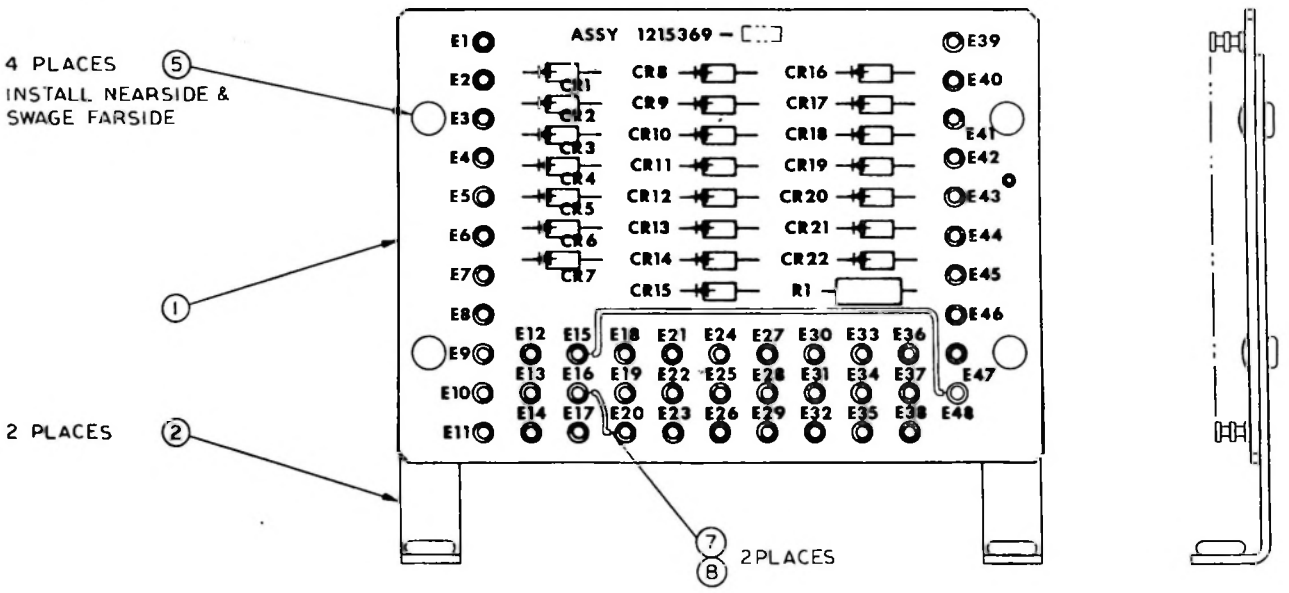
PRINTED WIRING ASSEMBLY EDITOR BOARD NO. 8

CATALOG NO. 1361343

SHEET 1 OF 1

NHA 1212810

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -02
2	1216699-08			LABEL, Identification		1
3	52528-01			HANDLE		1
4	1385252			SCHEMATIC		REF
6	013-978	1N456A	CR1-4	DIODE, Si		4
8	014-986	2N1309	Q3	TRANSISTOR		1
9	014-987	2N1308	Q4	TRANSISTOR		1
10	014-988	2N1305	Q1,2	TRANSISTOR		2
12	035-837		C1	CAPACITOR, Myalr, 0.1 UF, 50V, 10%		1
13	037-213		C2	CAPACITOR, Tantalum, 10 UF, 20V, 20%		1
15	041-013		R28,29	RESISTOR, Composition, 4.7K ohms, 1/2W, 5%		2
16	041-245		R36	RESISTOR, Composition, 1K ohms, 1/2W, 5%		1
17	041-283		R35	RESISTOR, Composition, 47 ohms, 1/2W, 5%		1
18	041-355		R31,38	RESISTOR, Composition, 1.2K ohms, 1W, 5%		2
19	041-405		R27,32,34	RESISTOR, Composition, 1.2K ohms, 1/2W, 5%		3
20	041-420		R1-26	RESISTOR, Composition, 12K ohms, 1/2W, 5%		26
21	041-604		R30,33,37	RESISTOR, Composition, 11K ohms, 1/2W, 5%		3
24	280-998			SPACER, Transistor		4

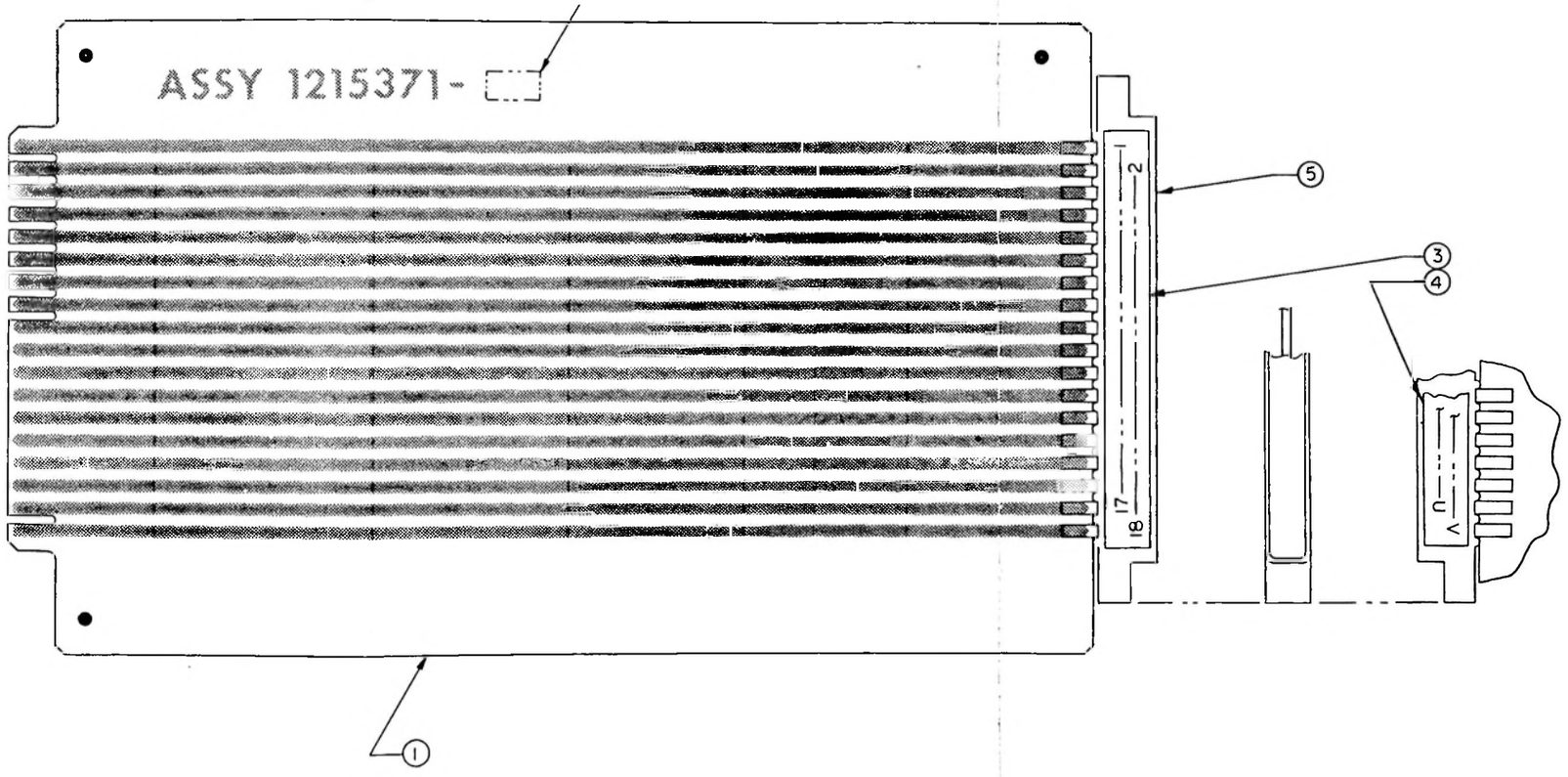


Editor Board No. 9 Printed Wiring Assembly
Dwg. No. 1215369-01A

AMPEX

EDITOR BOARD NO. 9 PRINTED WIRING ASSEMBLY — CATALOG NO. 1215369 — Sheet 1 of 1

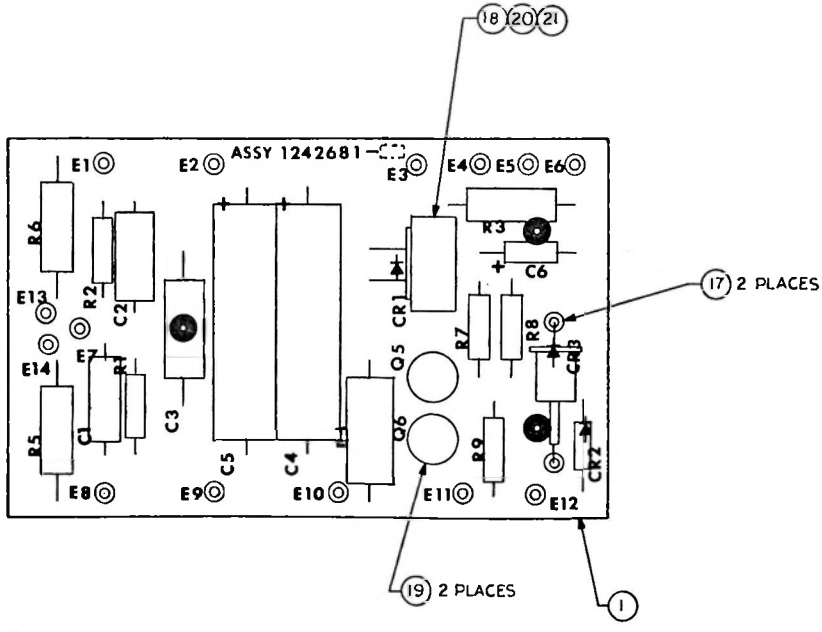
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR. CODE	QUANTITY REQUIRED PER VERSION -01
1	1215368-01			PRINTED WIRING BOARD		1
2	1214666-01			BRACKET		2
3	041-316		R1	RESISTOR, 2400 ohms, 1/2w, 5%		1
4	580-041	1N4005	CR1-22	DIODE		22
5	460-998			RIVET, Semi-Tubular		4
6			1215367	SCHEMATIC		REF
7	615-002			WIRE, Bare, solid, 22 AWG		A/R
8	600-036			SLEEVING, External #20, clear, teflon		A/R



Editor Extension Board Printed Wiring Assembly
Dwg. No. 1215371-01A

EDITOR EXTENSION BOARD PRINTED WIRING ASSEMBLY CATALOG NO. 1215371 Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR. CODE	QUANTITY REQUIRED PER VERSION -01
1	1215370-01			PRINTED WIRING BOARD		1
3	1216244-01			LABEL		1
4	1216244-02			LABEL		1
5	146-311			CONNECTOR, 36 Pin		1

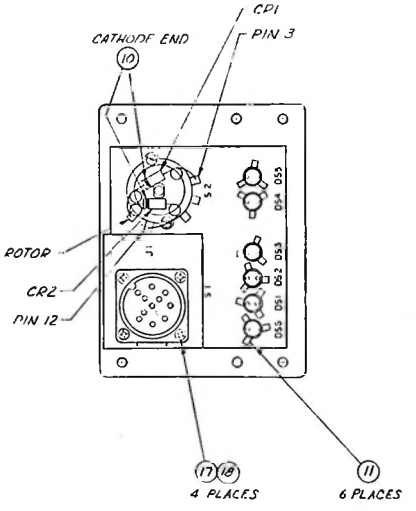


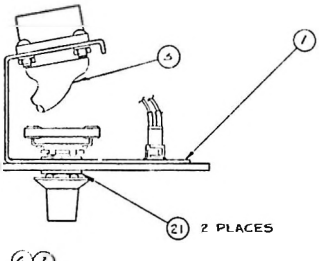
Video Erase Driver Printed Wiring Assembly
Dwg. No. 1242681-01A

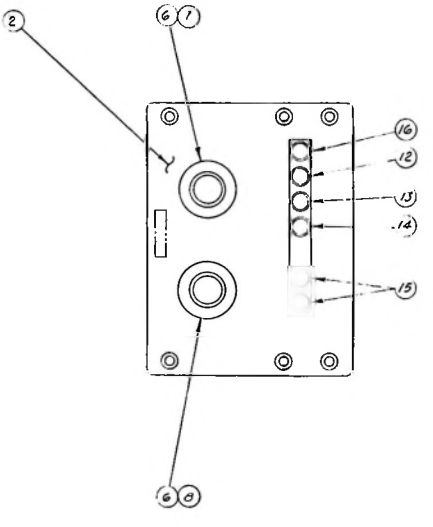
VIDEO ERASE DRIVER PRINTED WIRING ASSEMBLY — CATALOG NO. 1242681 — Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR. CODE	QUANTITY REQUIRED PER VERSION -01
1	1242680-01			PRINTED WIRING BOARD		1
2	013-430	1.5M 18Z10	CR1	DIODE, Silicon		1
3	013-986	1N276	CR2	DIODE, Germanium		1
4	013-993	1N540	CR3	DIODE, Silicon		1
5	014-105	2N1304	Q5,6	TRANSISTOR, Germanium		2
6	031-186		C4,5	CAPACITOR, Electrolytic, 100 µf, 25v, -10 +75%		2
7	035-439		C1,2	CAPACITOR, Mylar, 0.1 µf, 100v, 10%		2
8	035-965		C3	CAPACITOR, Mylar, .047 µf, 200v, 10%		1
9	037-229		C6	CAPACITOR, Tantalum, .68 µf, 35v, 10%		1
10	041-014		R8	RESISTOR, Fixed, 10K ohms, 1/2w, 5%		1
11	041-016		R1,2	RESISTOR, Fixed, 22K ohms, 1/2w, 5%		2
12	041-097		R5,6	RESISTOR, Fixed, 120 ohms, 1w, 5%		2
13	041-245		R9	RESISTOR, Fixed, 1K ohms, 1/2w, 5%		1
14	041-371		R4	RESISTOR, Fixed, 240 ohms, 2w, 5%		1
15	041-525		R7	RESISTOR, Fixed, 3.6K ohms, 1/2w, 5%		1
16	041-602		R3	RESISTOR, Fixed, 2K ohms, 1w, 5%		1
17	103307-01			STANDOFF		2
18	014-180			HEATSINK		1
19	280-998			SPACER, Transistor		2
20	471-558			SCREW, Machine, binder head, 4-40 x 3/16		1
21	502-024			WASHER, Lock, flat, internal tooth, #4		1

1242681A







Control Panel Assembly
VR-1200B (Side), VR-2000B
Dwg. No. 1361292A

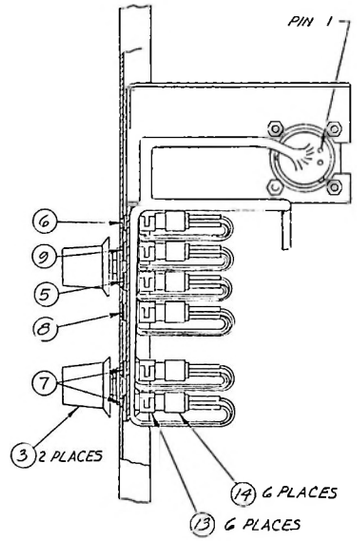
CATALOG NO. 1361292

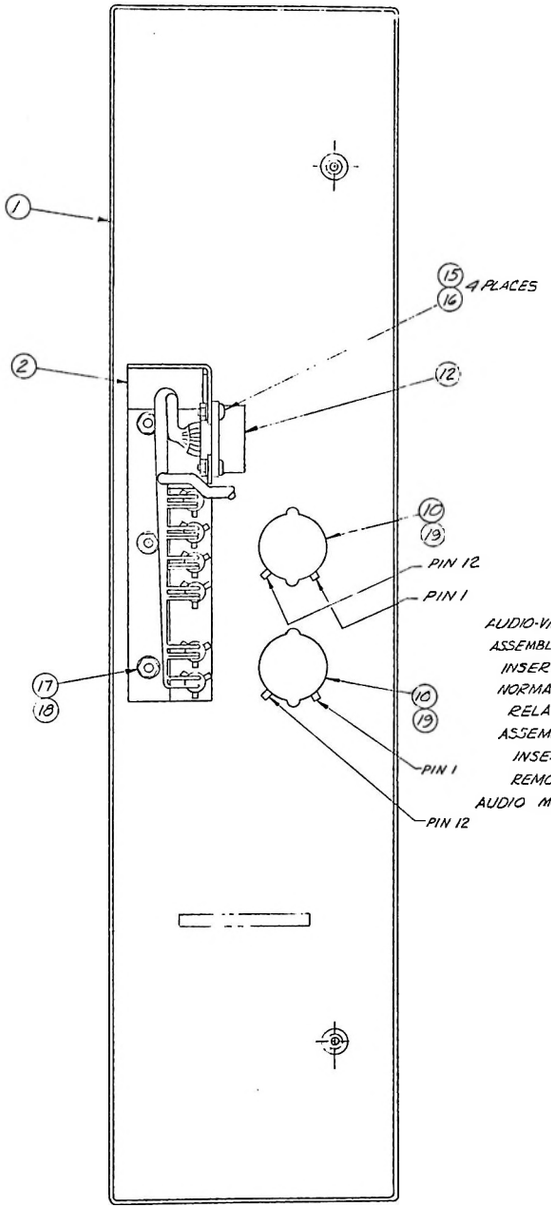
SHEET 1 OF 1

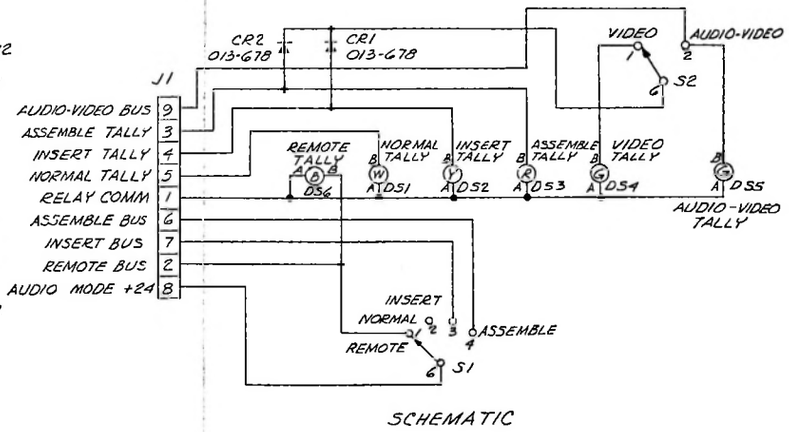
EIDTOR CONTROL PANEL ASSEMBLY, VR-1200B SIDE MONITOR VR-2000B

NHA 1805098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
1	1361293-01			BRACKET, Lampholder		1
2	1361294-01			PANEL, Front		1
4	1217621			SCHEMATIC, Editor		REF
5	1361783			HARNESS		1
6	6000006-10			KNOB, Skirted		2
7	122-119		S1	SWITCH, Rotary, 1 pole, 4 position		1
8	122-277		S2	SWITCH, Rotary, 1 pole, 2 position		1
10	013-678	1N4385	CR1, 2	DIODE, Silicon		2
11	310-105			FASTENER, Speed Clip		6
12	060-353		DS1	LAMP, Indicator, white		1
13	060-354		DS2	LAMP, Indicator, amber		1
14	060-351		DS3	LAMP, Indicator, red		1
15	060-350		DS4, 5	LAMP, Indicator, green		2
16	060-352		DS6	LAMP, Indicator, blue		1
17	471-062			SCREW, Machine, pan head, 4-40 x 3/8		4
18	496-004			NUT, Kep, #4		4
21	503-006			WASHER, Fiber		2







SCHEMATIC

Control Panel Assembly
VR-1200B Overhead Monitor
Dwg. No. 1241478

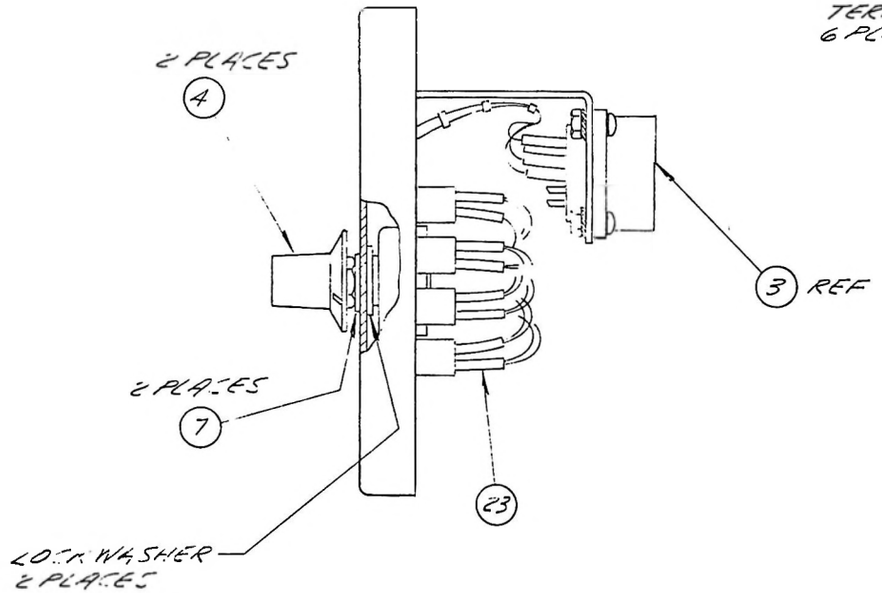
EDITOR CONTROL PANEL ASSEMBLY

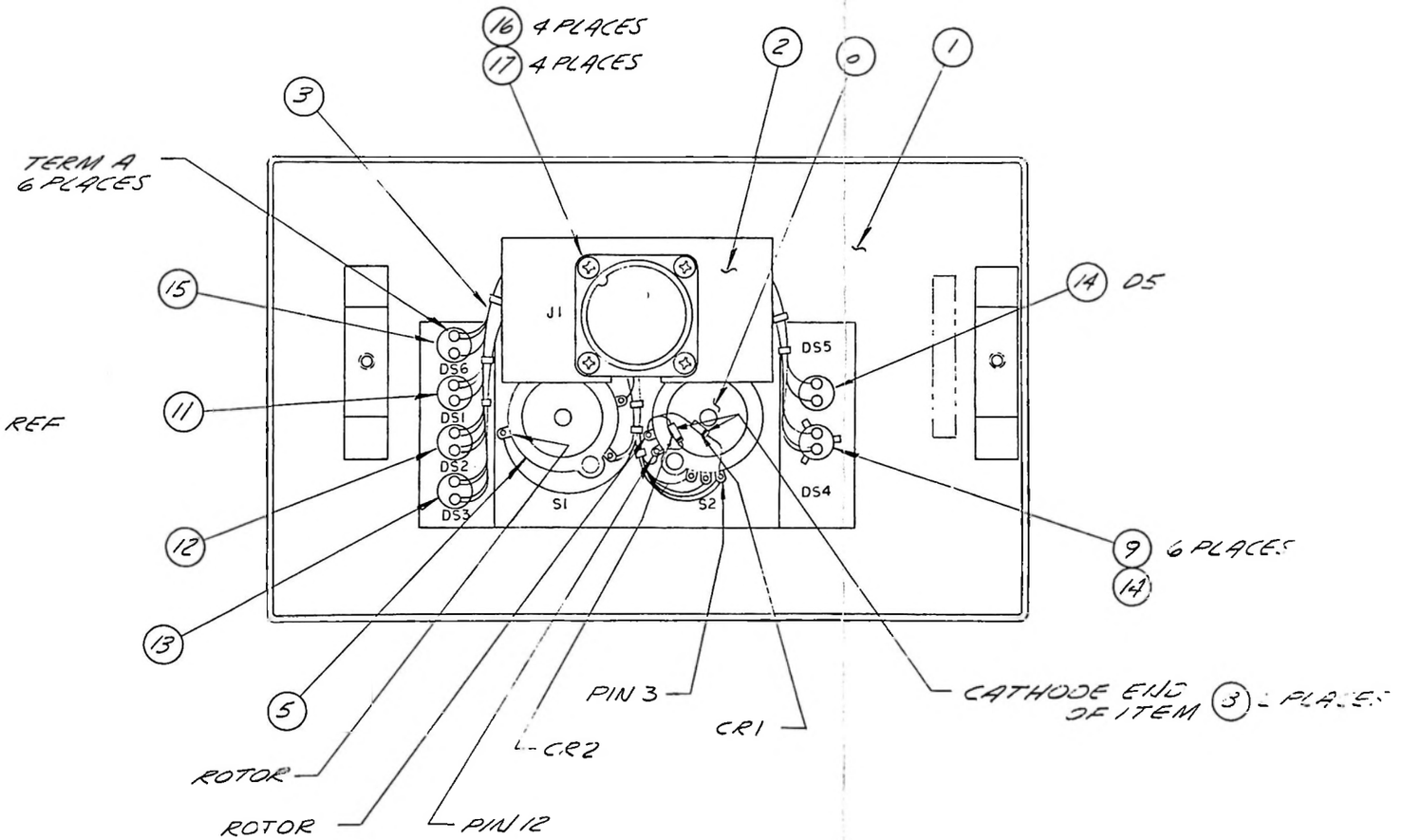
CATALOG NO. 1241478

SHEET 1 OF 1

NHA 1805098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
1	1240808-01			PANEL, Editor Control		1
2	1241477-01			BRACKET, Lamp Mounting		1
3	6000006-20			KNOB		2
4	013-678		CR1, 2	DIODE, CD451		2
5	060-076		DS-2	LAMP ASSEMBLY, Indicator, yellow		1
6	060-077		DS-6	LAMP ASSEMBLY, Indicator, blue		1
7	060-078		DS-4, 5	LAMP ASSEMBLY, Indicator, green		2
8	060-079		DS-3	LAMP ASSEMBLY, Indicator, red		1
9	060-080		DS-1	LAMP ASSEMBLY, Indicator, white		1
10	1361151-01		S1, 2	SWITCH, Rotary, modified		2
12	147-151		J1	CONNECTOR, Circular, receptacle, 12 pins		1
13	435-069			CLIP, Light		6
14	310-106			FASTENER, Lamp Socket		6
15	471-062			SCREW, Machine, pan head, 4-40 x 3/8		4
16	496-004			NUT, Kep, 4-40		4
17	496-005			NUT, Kep, 6-32		3
18	501-009			WASHER, Flat, #6		3
19	503-006			WASHER, Fiber		2

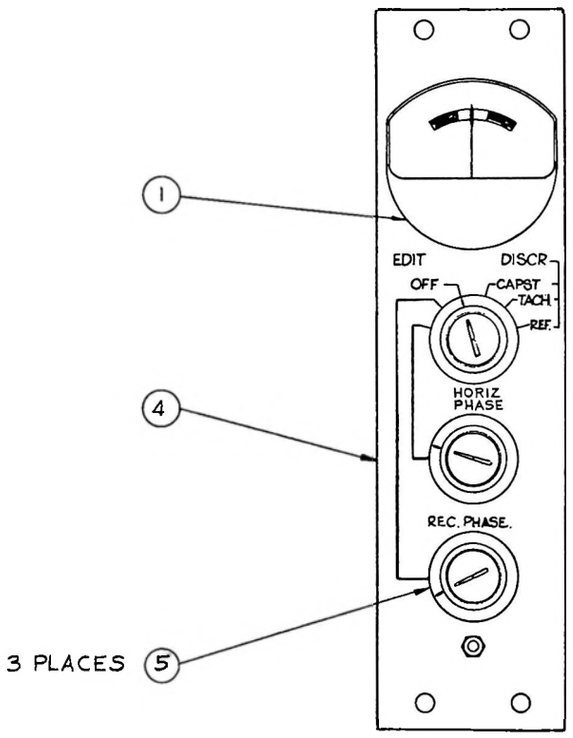


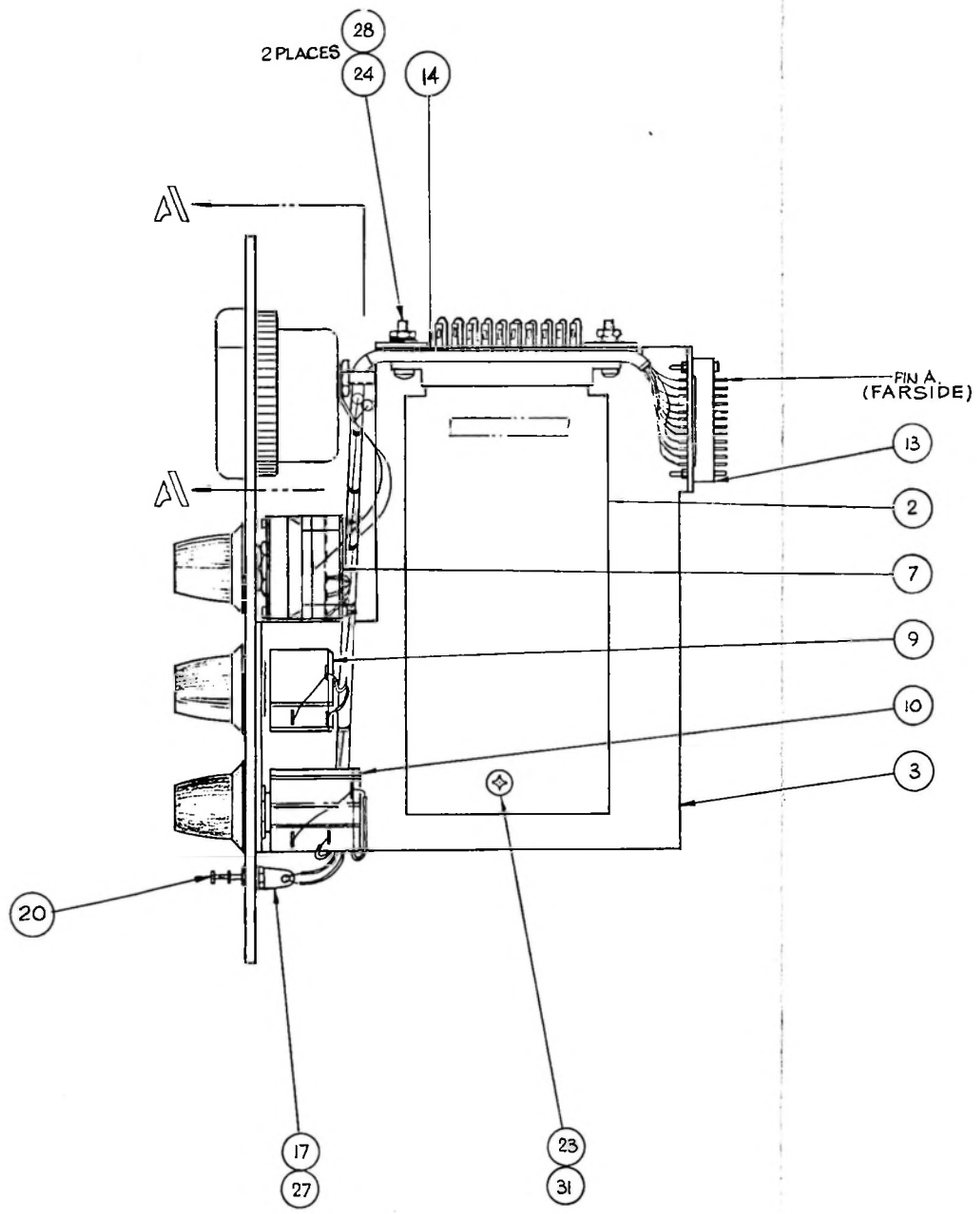


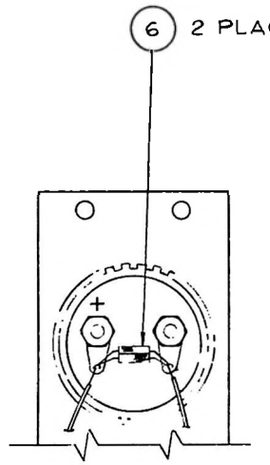
Control Panel Assembly, VR-2000
Editor Remote Control
Dwg. No. 1214512B

CONTROL PANEL ASSEMBLY, VR-2000 CATALOG NO. 1214512 Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
1	1214513-01			PANEL		1
2	1214514-01			BRACKET, Lampholder		1
3	1217630-01			HARNESS		1
4	6000006-10			SKIRTED KNOB		2
5	122-119		S1	SWITCH, Rotary, 1 pole 4 position		1
6	122-277		S2	SWITCH, Rotary, 1 pole 2 position		1
7	503-006			WASHER, Fiber		2
8	013-678	1N4385	CR1,2	DIODE, Silicon		2
11	060-080		DS1	LAMP ASSEMBLY, Indicator, white		1
12	060-076		DS2	LAMP ASSEMBLY, Indicator, amber		1
13	060-079		DS3	LAMP ASSEMBLY, Indicator, red		1
14	060-078		DS4,5	LAMP ASSEMBLY, Indicator, green		2
15	060-077		DS6	LAMP ASSEMBLY, Indicator, blue		1
16	471-062			SCREW, Machine, pan head, #4-40 x 3/8		4
17	496-004			NUT, Keps, #4		4
18	1217621			SCHEMATIC		REF







SECTION A1-A1

Editor Accessory Panel Assembly
VR-1200B, VR-2000B
Dwg. No. 1362136

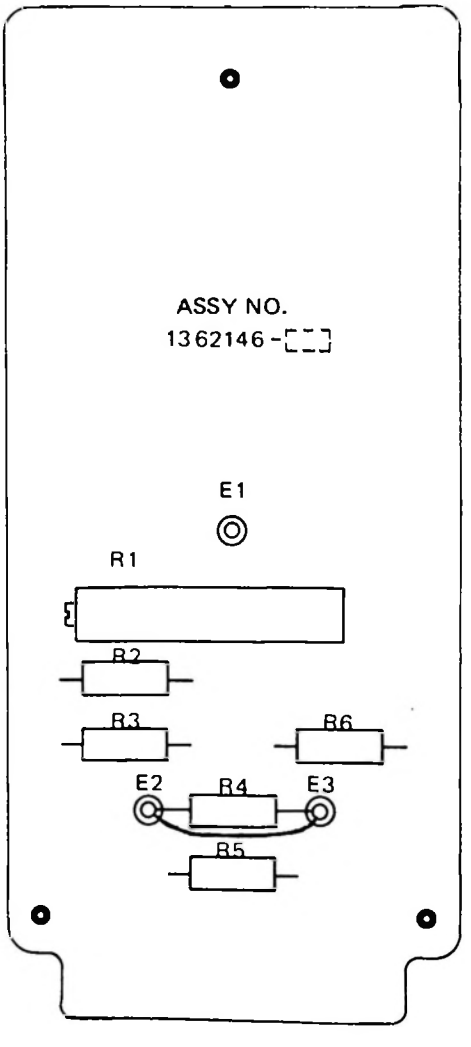
EDITOR ACCESSORY PANEL ASSEMBLY, VR-1200B, VR-2000B

CATALOG NO. 1362136

SHEET 1 OF 1

NHA 1805098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
1	14775-03		M1	METER		1
2	1362146-01			PRINTED WIRING ASSEMBLY, Meter Panel		1
3	1362153-01			CHASSIS, Editor Accessory Panel		1
4	1362154-01			OVERLAY, Editor Accessory Panel		1
5	6000006-20			KNOB, Skirted		3
6	013-986	1N276	CR1, 2	DIODE		2
7	122-314		S1	SWITCH, 2 Pole, 6 position, .250 diameter shaft		1
8	1385464			SCHEMATIC		REF
9	044-809		R6	RESISTOR, Variable, 10K ohms, 1.5W, ±3%		1
10	044-875		R7	RESISTOR, Variable, 2K ohms, 2W, ±3%		1
13	147-077		J17	CONNECTOR, Receptacle, male, 20 pin		1
14	146-127		J1	CONNECTOR, Receptacle, 10 dual contacts		1
17	172-004			TERMINAL LUG, No. 4 Stud, 45°		1
20	173-118			TERMINAL STUD, No. 4-40		1
23	475-064			SCREW, 6-32 x 1/4, internal tooth		1
24	471-064			SCREW, Pan Head, 4-40 x 1/2		2
27	492-008			NUT, Hex, 4-40		1
28	496-013			NUT, 4-40, external tooth		2
31	501-188			WASHER, Flat, #6, .143 ID		1



Printed Wiring Assembly (Meter Panel)
Dwg. No. 1362146

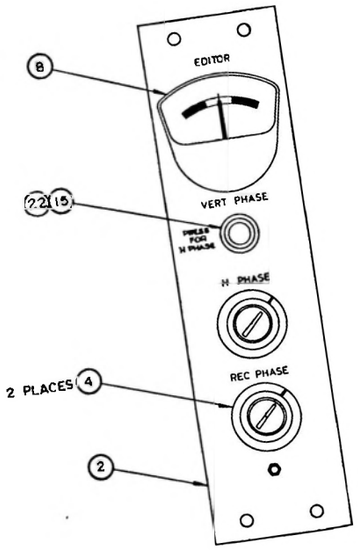
PRINTED WIRING ASSEMBLY, METER PANEL ASSEMBLY (EDITOR) CATALOG NO. 1362146

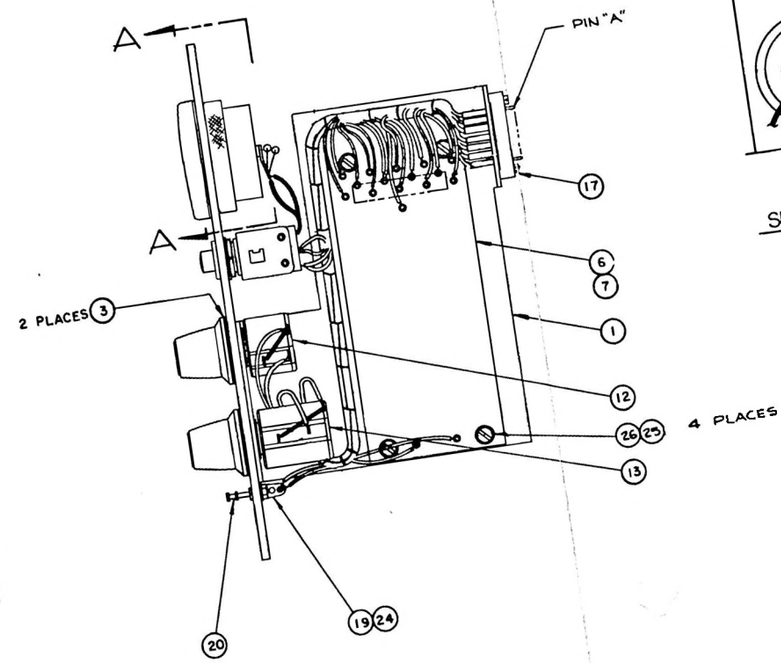
NHA 1362136

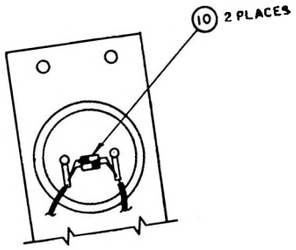
ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01
2	1385339			SCHEMATIC		REF
5	041-008		R6	RESISTOR, Composition, 1.5K ohms, 1/2W, ±5%		1
6	041-336		R2	RESISTOR, Composition, 470 ohms, 1/2W, ±5%		1
7	041-361		R3	RESISTOR, Composition, 7.5K ohms, 1/2W, ±5%		1
8	041-420		R4	RESISTOR, Composition, 12K ohms, 1/2W, ±5%		1
9	041-529		R5	RESISTOR, Composition, 20K ohms, 1/2W, ±5%		1
11	044-225		R1	RESISTOR, Variable, carbon, 500 ohms, 1/4W, ±10%		1

CHANGED MAY 1969

AMPEX







SECTION A-A

Editor Accessory Panel Assembly
VR-1200, VR-2000
Dwg. No. 1212978C

6.3-73/74

CHANGED MAY 1969

EDITOR ACCESSORY PANEL ASSEMBLY

CATALOG NO. 1212978

SHEET 1 OF 1

NHA 1805098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01	-02
1	1212979-01			CHASSIS, Editor Panel		1	1
2	1208947-01			OVERLAY, Editor Panel		1	1
3	1214808-01			WASHER, Cork		2	2
4	6000006-20			KNOB		2	2
6	1212980-01			PRINTED WIRING ASSEMBLY, Servo Board #17		1	-
7	1212980-02			PRINTED WIRING ASSEMBLY, Servo Board #17		-	1
8	14775-03		M1	METER		1	1
10	013-986	1N276	CR1,2	DIODE		2	2
12	044-809		R6	RESISTOR, Variable, 10K ohms, 1.5W, ±3%		1	1
13	044-875		R7	RESISTOR, Variable, 2K ohms, 2W, ±3%		1	1
15	120-074		S1	SWITCH		1	1
17	147-077		J17	CONNECTOR, Receptacle, male, 20 pin		1	1
19	172-004			SOLDER LUG #4		1	1
20	173-118			TERMINAL STUD		1	1
22	498-104			NUT, Knurled, 15/32 - 32		1	1
24	492-008			NUT, Hex #4		1	1
25	475-064			SCREW, Sem, 6-32 x 1/4		4	4
26	501-188			WASHER, Flat #6		4	4
52	1212982			SCHEMATIC		REF	REF

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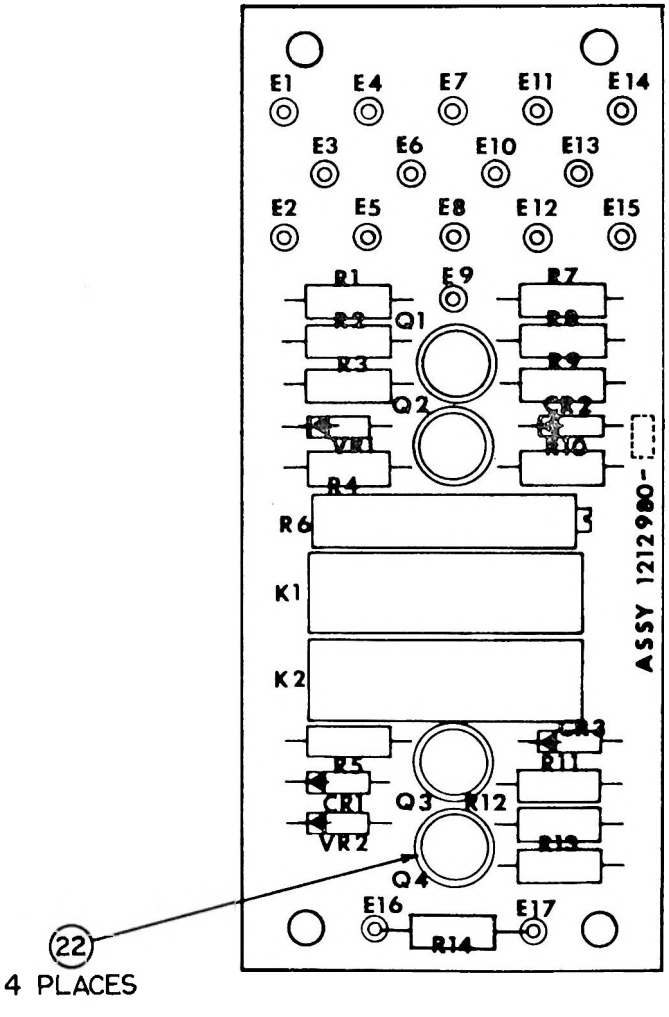
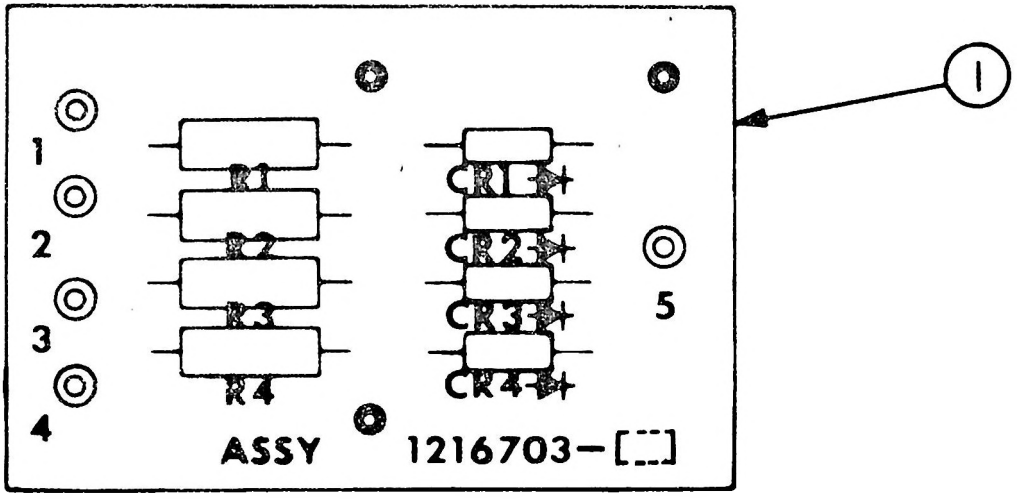


Model 1021 Intersync Printed Wiring Assembly
Servo Board No. 17
Dwg. No. 1212980-01A

SERVO BOARD NO. 17 (MODEL 1021 INTERSYNC) CATALOG NO. 1212980 Sheet 1 of 1
PRINTED WIRING ASSEMBLY

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
3	013-141	1N706	VR1	DIODE, Zener	1
4	013-641	1N703	VR2	DIODE, Zener	1
5	013-978	1N456A	CR1	DIODE, Silicon	1
6	013-986	1N276	CR2, 3	DIODE, Germanium	2
8	014-988	2N1305	Q1, 2, 3, 4	TRANSISTOR, Germanium	4
10	020-389		K1, 2	RELAY, Magnetic Reed	2
12	041-008		R1	RESISTOR, Fixed, 1500 ohms, ±5%, 1/2w	1
13	041-014		R2, 4, 11, 13	RESISTOR, Fixed, 10 K, ±5%, 1/2w	4
14	041-316		R3, 5, 12	RESISTOR, Fixed, 2400 ohms, ±5%, 1/2w	3
15	041-336		R10	RESISTOR, Fixed, 470 ohms, ±5%, 1/2w	1
16	041-361		R7	RESISTOR, Fixed, 7500 ohms, ±5%, 1/2w	1
17	041-405		R8	RESISTOR, Fixed, 1200 ohms, ±5%, 1/2w	1
18	041-529		R9	RESISTOR, Fixed, 20 K, ±5%, 1/2w	1
19	041-420		R14	RESISTOR, Fixed, 12 K, ±5%, 1/2w	1
20	044-225		R6	RESISTOR, Variable, 500 ohms, ±10%, 1/4w	1
22	280-998			SPACER, Transistor	4
24	1212982			SCHEMATIC	REF



Editor Signal System Board
Printed Wiring Assembly
Dwg. No. 1216703-01

EDITOR SIGNAL SYSTEM BOARD PRINTED WIRING ASSEMBLY CATALOG NO. 1216703 Sheet 1 of 1

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	QUANTITY REQUIRED PER VERSION -01
1	1216702-01			PRINTED WIRING BOARD	1
2	013-978	1N456A	CR1, 2, 3, 4	DIODE	4
3	041-529		R1, 2, 3, 4	RESISTOR, Fixed, 20 K, 1/2w, 5%	4
4	1216701			SCHEMATIC	REF

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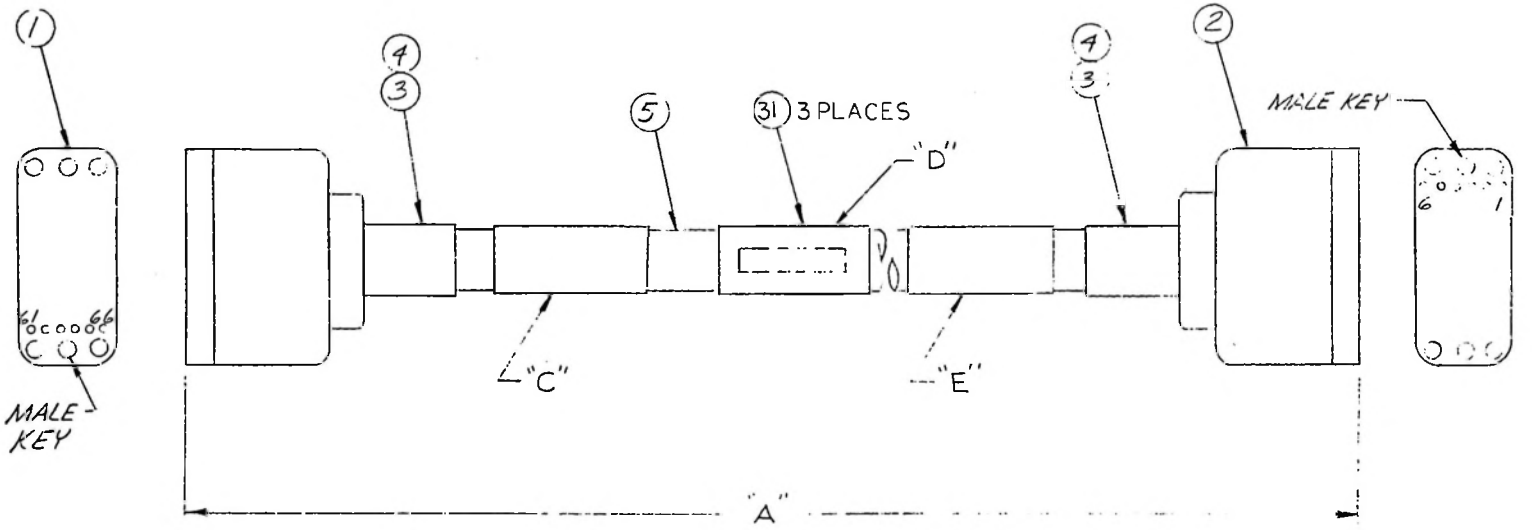
VERSION TABULATION				
VERSION	DIM "A"	DESIGNATION "C"	ASSY NO. "D"	DESIGNATION "E"
-01	50.00±1.00	CONTROL PANEL J1	ASSY 1241479-01	EDITOR J2
-02	30.00±1.00	VHQ J1	ASSY 1241479-02	EDITOR J2



Interconnect Cable, Editor
Dwg. No. 1241479E

6.3-85/86

AMPEX

INTERCONNECT CABLE ASSEMBLY

CATALOG NO. 1241479

SHEET 1 OF 1

NHA 1806098

ITEM NO.	AMPEX PART NO.	VENDOR OR MIL. NO.	SCHEMATIC REFERENCE	PART DESCRIPTION	MFR CODE	QUANTITY REQUIRED PER VERSION -01	-02
1	147-194		J1	CONNECTOR, Male, 66 pin		1	1
2	144-304		J2	CONNECTOR, Female, 66 socket		1	1
3	262-006			BUSHING, Telescoping, ID .625		2	2
4	262-007			BUSHING, Telescoping, ID .750		2	2

CHANGED MAY 1969

SUBJECT INDEX

SUBJECT INDEX (Continued)