MC MARTIN

ACCU – 5

INSTRUCTION MANUAL

McMartin Industries Inc. • 4500 South 76th Street • Omaha, Nebraska 68127 • (402) 331-2000 • Telex 484485

ACCU-FIVE
AUDIO CENTRAL CONTROL UNIT - FIVE MIXER

I. GENERAL DESCRIPTION

The McMartin Accu-Five is a compact mini-console designed for rack-mount applications. The Accu-Five is capable of handling a total of thirteen input sources by pushbutton selection. It is ideally suited for educational, remote broadcast, CATV, or closed circuit TV service where it can provide the audio complementary program material.

All mixing channels are equipped with a preamplifier stage, permitting the use of low level balanced 150 ohm inputs. Mixing channels 3, 4 and 5 may be converted to high-level, balanced 600 ohm inputs by appropriate slide-switch settings located on the rear chassis. In addition, Mixer 5 can accommodate five independent external sources by operation of a front panel interlocked pushbutton switch-bank.

The Accu-Five contains full cue/talkback and monitoring facilities. Speaker muting/warning light relay operation in conjunction with Mixers 1 and 2 is provided. These two mixing channels are intended strictly for low-level balanced microphone input service.

II. INSTALLATION

The Accu-Five is designed for mounting in EIA Standard 19" rack enclosures and occupies 3 1/2 inches of rack height. The unit should be located at a reasonable distance from other heat-generating rack equipment to permit adequate air flow. Position the unit at a height to permit adjustment of the front panel controls with a minimum of operator fatigue.

With the exception of the XL-type microphone connectors for inputs 1A and 2A, all other external connections are made to screw-type terminals on the rear of the unit.

It is recommended that jacketed, shielded two-conductor audio cable be used to connect to external sources. The shields of these cables should be connected to terminal #1 for each of the inputs. As a rule-of-thumb, the input cables from high level sources should be grounded only at the Accu-Five input. This practice will generally avoid "ground-loop" situations which are susceptable to the generation of hum, noise and RF interference.

In some installations, hum and noise will be improved by connecting the cable shields at the far end of the cable only or even at both ends. It is recommended during initial installation that the cable shield connections from high level sources be made only after the optimum operating conditions have been determined.

II. INSTALLATION (continued)

Reasonable care should be taken to separate cables carrying substantially different signal levels. This reduces crosstalk problems. Particularly keep speaker cables well-separated from input cables. Although the warning light contacts are capable of handling one-ampere loads it is recommended that where possible these contacts be used for d-c control of external relays controlling AC lamps. Under no circumstance should the warning light cables be interlaced with other cables.

The line output terminals should be connected to a 600-ohm balanced load.

The Accu-Five program system provides a substantial amount of overall gain, 100dB. Best performance will be provided by operating the "PROGRAM" gain control at as low a setting as possible. This control should be set typically at its "9-o'clock" position. The design is based on input levels which provide for a nominal "2 to 3 o'clock" position for the mixer controls, with the "PROGRAM" control at "9 o'clock". If the level from external sources requires substantially lower settings of the mixer control it is recommended that external attenuation pads be installed between the external source and the Accu-Five inputs.

A "Zero-VU" indication on the VU meter produces approximately +8dBm signal level at the line output terminals. The Accu-Five is capable of producing a maximum output level of +18dBm.

Where operating requirements call for a larger number of inputs, two Accu-Fives may be used. The program busses may be interconnected by installing a shielded RCA phonoplug terminated cable between the "phono" jacks on the rear of the units.

III OPERATING CAPABILITIES

A. Microphone Inputs

The Accu-Five is designed to permit control of a microphone located at the control room (CR) position. This microphone is connected to Mixer 1 control when the alternate action preselect pushbutton is in the "A-out" position. Speaker muting/warning light relay (RY-1) logic for the operating position is interconnected when the Mixer 1 key switch is placed in the PGM position.

When Mixer 1 "B-in" pushbutton is selected, the relay logic control is transferred from RY-1 (control room position) to RY-1 (studio position) so that a microphone located in the studio, along with its associated speaker muting may be accommodated.

Mixer 2 is delegated to studio microphone service. Operation of studio speaker muting (through RY-2 circuitry) takes place with either "A-out" or "B-in" positions of the preselect pushbutton. Operation of this pushbutton switch merely selects the appropriate microphone connected to the 2A or 2B inputs to the Accu-Five.

III. OPERATING CAPABILITIES (continued)

A. Microphone Inputs (continued)

XL-type receptacles are provided for the Mixer 1A and 2A inputs. All other external connections are made to screw-type terminals on the rear apron of the unit.

Mixers 3 and 4 can accommodate either low-level microphone or high-level inputs by slide-switch selection on the rear of the unit. When these switches are in the "LO position, additional studio microphones, connected to the 3A and 4A inputs may be accommodated. With the pre-select pushbuttons for Channels 3 and 4 in the "A-out" position, studio speaker muting through RY-2 is extended to these mixing channels.

With appropriate preselect switching, the Accu-Five can thus simultaneously accommodate one control room microphone and three studio microphones, or four studio microphones.

B. High Level Inputs

Mixers 3, 4 and 5 are designed for high-level input service. Mixers 3 and 4, by placing the rear panel slide switches in the "HI position" (which inserts an attenuation network ahead of the preamplifier) and accommodate high level sources. These should be connected to the 3B and 4B inputs since studio speaker muting is associated with the 3A and 4A inputs.

If microphone service associated with Mixers 3 and 4 is not required, the 3A and 4A inputs may be used for high-level service by disconnecting the relay coil (RY-2) ground return connections on key switches S-11 and S-12.

Mixer 5 operation provides no speaker muting. Five input sources, selected by the 5-button, interlocked pushbutton switch (labelled A through E) may be accommodated. These five external inputs may be either low or high level sources, selectable by the rear panel Hi-Lo slide switch associated with Channel 5.

C. Cue-Talkback System

Any preselected input to the five mixing channels may be previewed by positioning the associated channel key switch in the left or "CUE" position. The material being previewed is fed to a front panel speaker. Speaker level is adjustable by the front panel "CUE" gain control. Cue material may also be monitored by a front panel headphone jack. An alternate-action pushbutton switch permits headphone monitoring of either program or cue material. Only high-impedance (2000 ohms or greater) headphones should be used. The cue loud-speaker is automatically muted whenever Mixer 1A (CR microphone) is switched on-the-air. The cue system is also utilized as a talk-back amplifier. Operation of the front panel "TALKBACK", momentary pushbutton switch permits communication from the operating position (utilizing the CR program microphone) to the normal studio monitor speaker.

III. OPERATING CAPABILITIES (continued)

D. Monitor Amplifier

Level of the control room and studio monitoring speakers is adjusted by the front-panel "MONITOR" gain control.

IV. MAINTENANCE

In the event trouble-shooting is required, access to the printed circuit boards may be accomplished by removing the top cover. Each of the boards are secured to the chassis.

PRECAUTION:

1. Remove power before changing transistors.
2. Observe electrolytic capacitor polarity.
3. Use only light-duty soldering devices when changing components on the printed circuit boards.

The four preamplifier stages associated with Channels 1 through 4 are located on the PCB at the left end of the chassis. (#1 at the rear).

The centrally-located PCB contains the Channel #5 preamplifier, program booster amplifier, program amplifier, the power supply regulator, line output transformer and the muting relays.

Mounted vertically and to the right of the above board is the monitor amplifier.

The cue amplifier board is mounted on the right hand end of the chassis.

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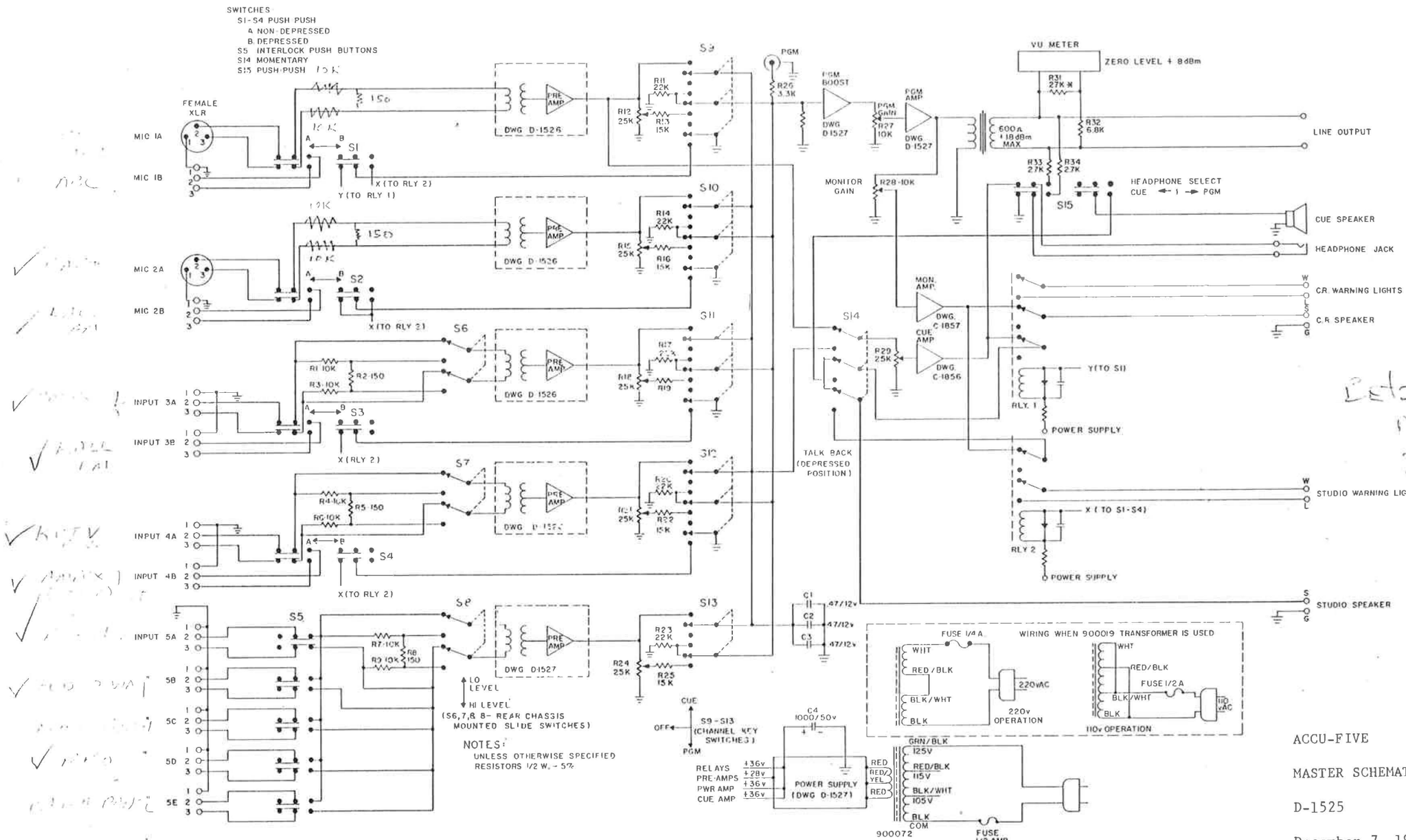

Betsy Mirden
365-8319

ACCU-FIVE

MASTER SCHEMATIC

D-1525

December 7, 1979

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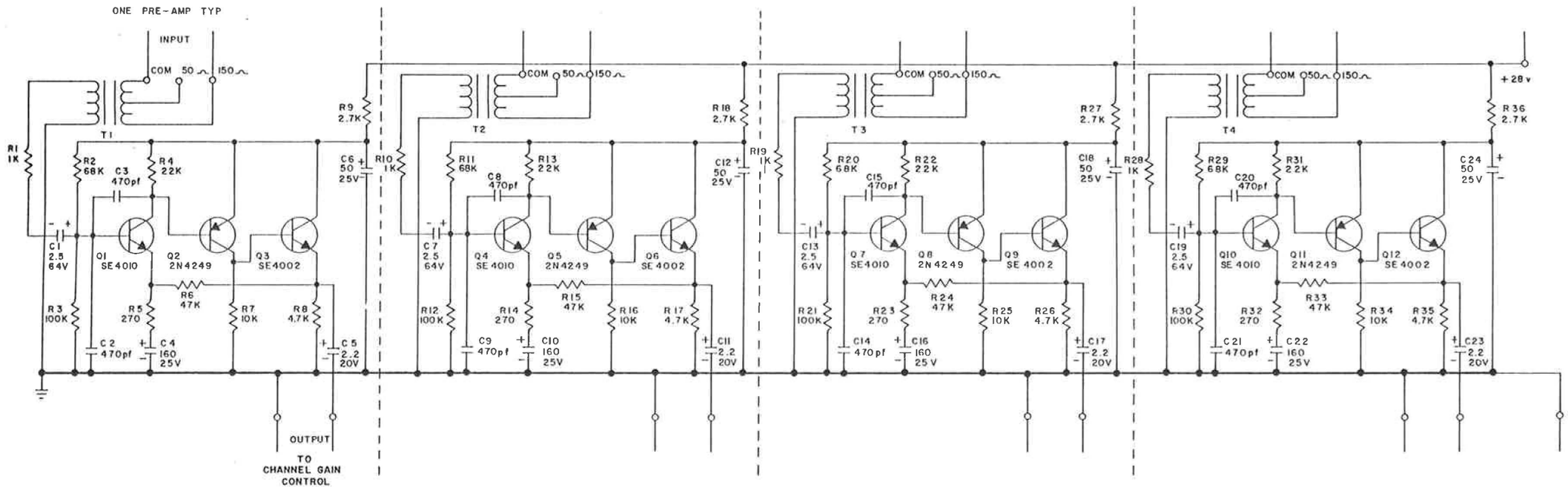

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. RESISTORS 1/2W, 5%.
2. CAPACITORS IN mfd.
3. SOME VALUES MAY DIFFER WITH EACH UNIT.

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PRE-AMP BOARD

D-1526

April 24, 1970

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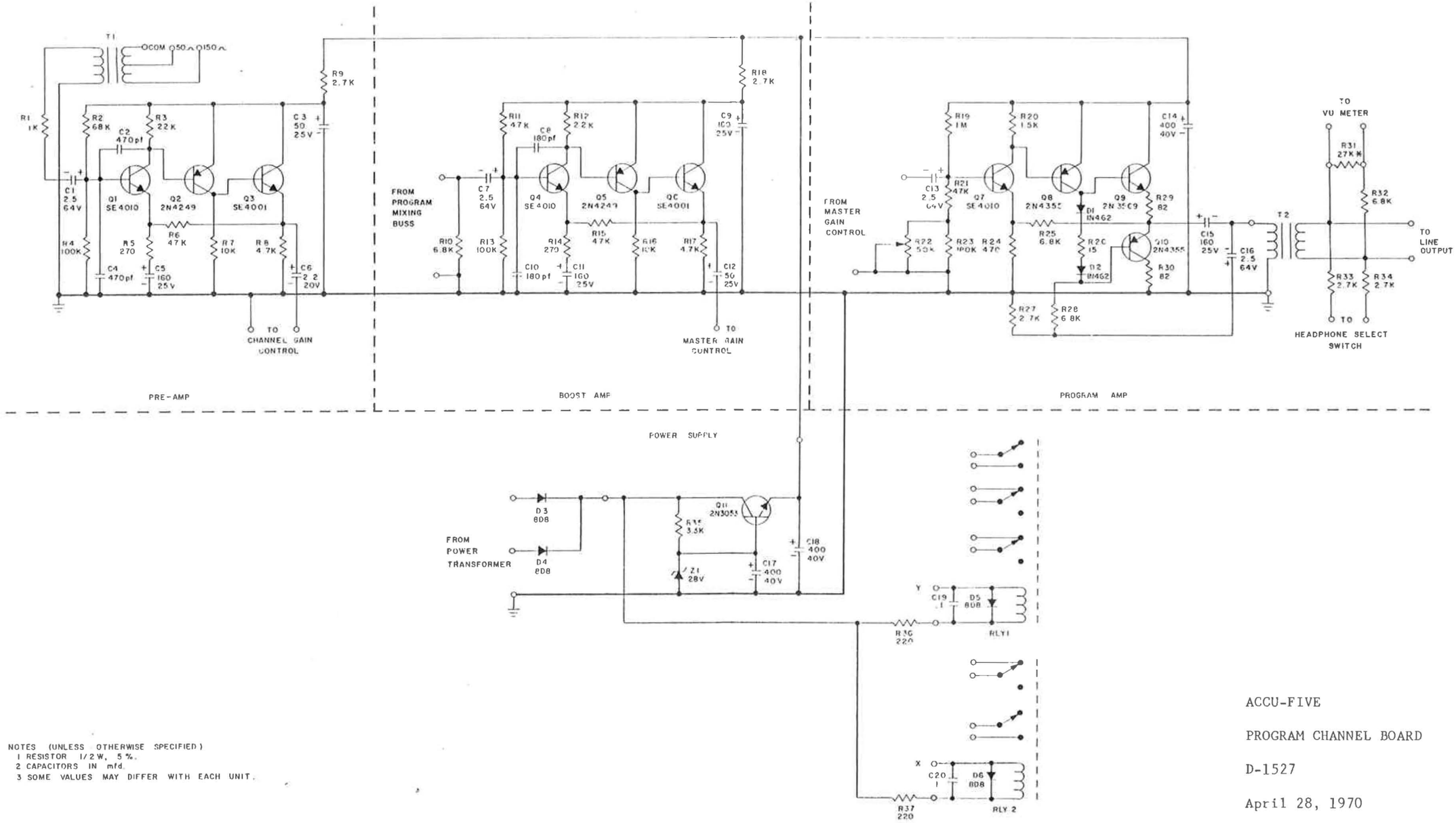

NOTES (UNLESS OTHERWISE SPECIFIED)
1 RESISTOR 1/2 W, 5 %.
2 CAPACITORS IN mfd.
3 SOME VALUES MAY DIFFER WITH EACH UNIT.

ACCU-FIVE

PROGRAM CHANNEL BOARD

D-1527

April 28, 1970

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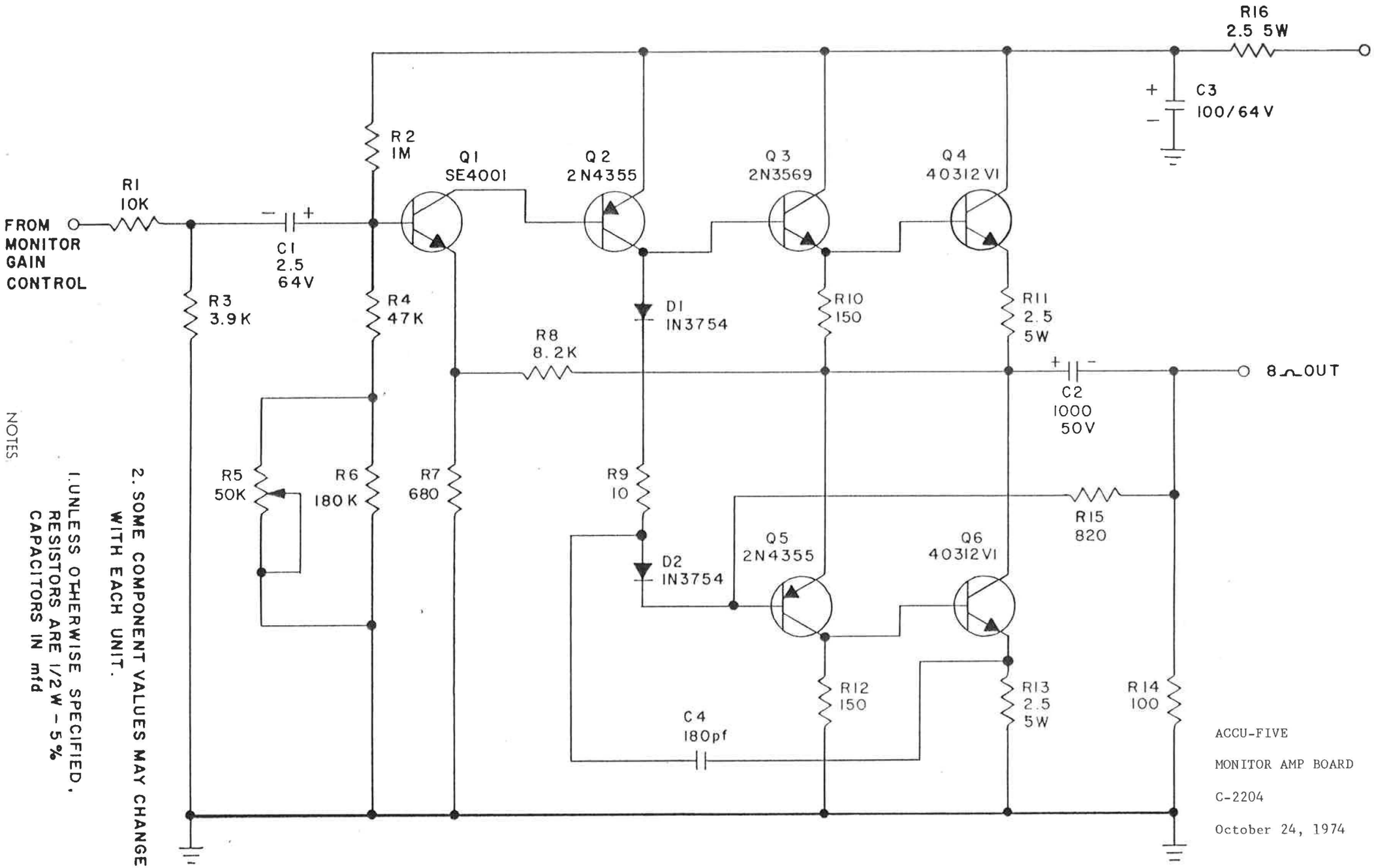

NOTES

1. UNLESS OTHERWISE SPECIFIED, RESISTORS ARE 1/2 W - 5% CAPACITORS IN mfd

2. SOME COMPONENT VALUES MAY CHANGE WITH EACH UNIT.

ACCU-FIVE

MONITOR AMP BOARD

C-2204

October 24, 1974