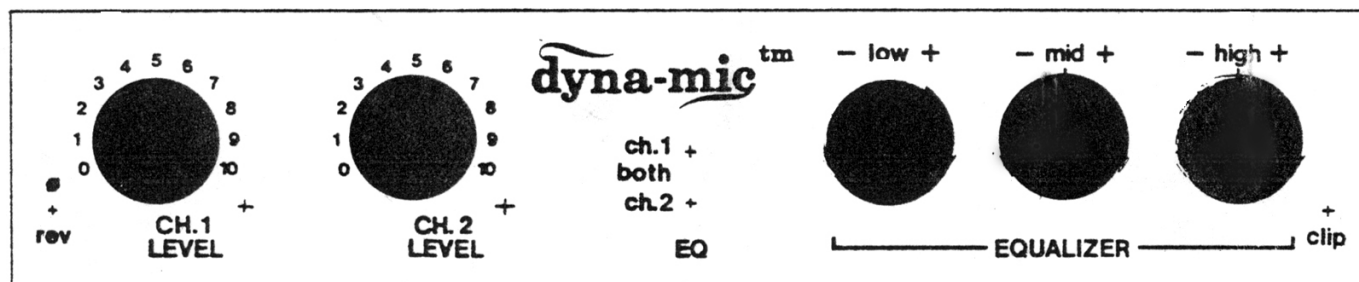


Preliminary Operating Instructions

dyna - mictm

Mic Preamplifier



VALLEY PEOPLE, INC.

a merger of ALLISON RESEARCH & VALLEY AUDIO

P.O. Box 40306

2820 Erica Place

Nashville, Tenn. 37204

615-383-4737

TELEX 558610 VAL PEOPLE NAS

a merger of Allison Research & Valley Audio

1. GENERAL INFORMATION

1.1 DESCRIPTION

The Dyna-Mictm Preamplifier is a dual preamplifier module designed primarily to allow interfacing microphones and musical instruments with both the Dyna-Mitetm multi-function dynamic processor, and most popular instrument amplifiers.

The Dyna-Mic, in its basic configuration, is a two-input, single output mixer with a simple tone control equalizer built around musical center frequencies. The unit features high-quality, low noise balanced differential input stages which are switchable to provide optimum noise performance at low impedances (Mic) high impedances (Inst.) and line levels (Line).

Each of the two low-noise input stages has a novel dedicated level indicator which glows green at low levels, yellow at nominal operating levels, and flashes bright red when the signal approaches clipping level. In normal operation, the indicator glows green and indicates peaks by flashing yellow.

Among the other features of the Dyna-Mic are: a phase reversal switch to correct out-of-phase signal sources; an EQ switch which allows either one or both input signals to be passed through the EQ section; a line-level side chain output which, in conjunction with the EQ switch allows the channel not selected for EQ to either bypass the EQ directly to the output stage by means of a normalised back-panel jack, or to be patched into line-level processing gear, such as the Valley People Dyna-Mitetm.

Red light emitting diodes indicate actuation of the phase reversal switch, and the status of the multi-point clipping indicator circuit which monitors crucial points in the signal path.

The Dyna-Mic output line driver has been designed with the serious musician in mind, and may be switched to provide correct output level and source impedances for driving professional outboard gear (+4dBm), semi-pro and hi/fi equipment (-10dBv) and instrument amplifiers (-20dBv).

1.2 PRELIMINARY DYNA-MIC SPECIFICATIONS

INPUT SECTION:

Input impedance* and gain are switchable allowing use with the following sources and levels:

Mic:	150 ohms-600 ohms, -40dBv nominal
Line:	600 ohms-10K ohms, +27dBv maximum differential
Inst:	20K ohms-100K ohms, -20dBv nominal

*Note: Actual input impedance is 200K ohms differential and 100K ohms unbalanced at all times; input impedance switch is used to configure input stage for best noise figure at selected input range.

Equivalent Input Noise @ 150 ohms input
impedance, 40dB gain, Mic. selected: -126dBv (20Hz - 20kHz)

Equivalent Input Noise @ 50K ohms input
impedance, 20dB gain, Inst. selected: -104dBv (20Hz - 20kHz)

Equivalent Input Noise @ 10K ohms input
impedance, unity gain, Line selected:

-90dBv (20Hz - 20kHz)

OUTPUT SECTION AND EQUALIZER:

Maximum Output:

+21dBm (600 ohms)

Distortion:

≤ 0.05% THD or IM.

Output Level:

+4dBm, -10dBv, -20dBv, via switchable
pad.

Side Chain Output Level:

+4dBm (nominal)

Output Impedance, (Unpadded):

≤ 40 ohms

Tone Control Equalizer Center
Frequencies (nominal):

Low: 44Hz (0A)

Mid: 880Hz (5A)

Hi: 3520Hz (7A)

Tone Control Equalizer Range
(per section @ center frequencies):

+14dB

Frequency Response,
EQ in Flat Position:

+0.5dB, 20Hz - 20kHz
(-3dB @ 10Hz and 100kHz)

Mic Gain:

Adjustable from 26dB to 40dB nominal

Power Consumption:

75ma @ +15Vdc from Dyna-Mite power supply
(100 - 130Vac or 200 - 250Vac) 50/60Hz
(5 watts)

Packaging:

3½" x 8½" x 9" Instrument Case holds 2
cards. Rack Mount Adaptor mounts one or
two units in 3½" x 19" (87mm x 482mm).

Notes: Ref: 0dBv = 0.775 volts.

0dBm = 1mW/600 ohms

All specifications are preliminary and subject to change without notice.

2. INSTALLATION

2.1 CONNECTING DYNA-MIC TO OTHER EQUIPMENT

Dyna-Mic is configured to accept microphones, musical instruments, semi-pro line levels, or studio line level inputs or any combination of these signal sources, and by amplification and/or attenuation, to interface these sources to both studio level 600 ohm lines and to instrument amplifiers and semi-pro inputs. The selectable output pad configuration of the Dyna-Mic is designed to drive 600 ohm lines only in the +4 position; the -10 and -20 positions being part of a resistive attenuator which allows the device to drive the bridging inputs (10K ohms or greater) of semi-pro equipment and instrument amplifiers. The Dyna-Mic does not require any termination for proper operation, nor does it provide termination at its signal inputs. When Dyna-Mic is fed by a signal source which requires termination, the user should consult the instructions for that equipment and provide appropriate termination external to the Dyna-Mic.

Dyna-Mic may be connected to unbalanced systems by the use of 1-conductor shielded leads and 2-circuit plugs, however, it is recommended that 2-conductor shielded leads and 3-circuit plugs be used to minimize hum and noise. Figure 1a shows the input configuration and recommended connection for feeding the Dyna-Mic. Figure 1b illustrates recommended connections for feeding Dyna-Mic from unbalanced sources such as instruments and hi/fi outputs using a 3-circuit plug and unbalancing the Dyna-Mic input at the source. Figure 1c shows the recommended connections for feeding Dyna-Mic from balanced sources using 3-circuit plugs.

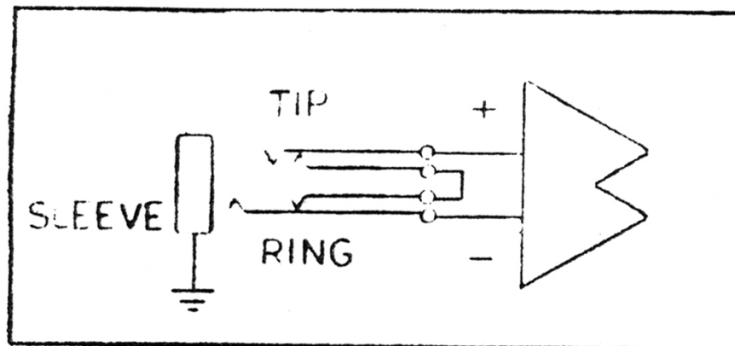


FIG. 1a INPUT CONNECTOR

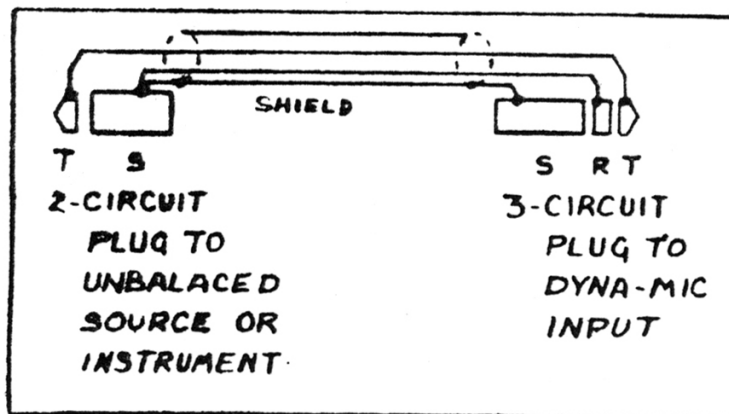


FIG. 1b CONNECTION TO UNBALANCED SOURCE

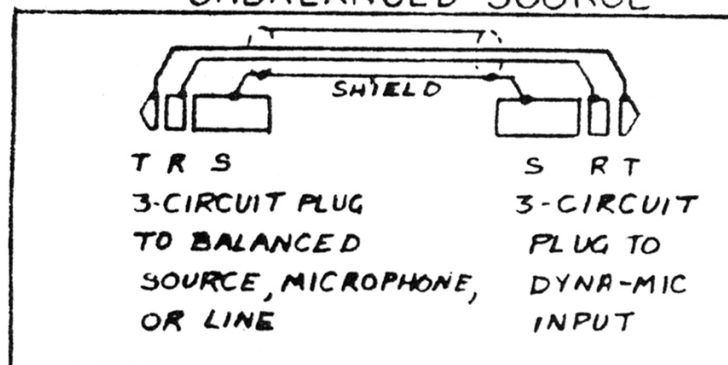


FIG. 1c CONNECTION TO BALANCED SOURCE

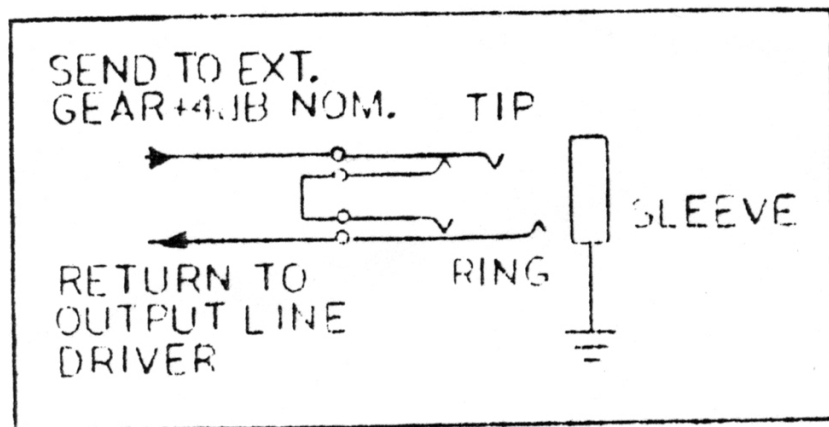


FIG.2 SIDE CHAIN OUTPUT

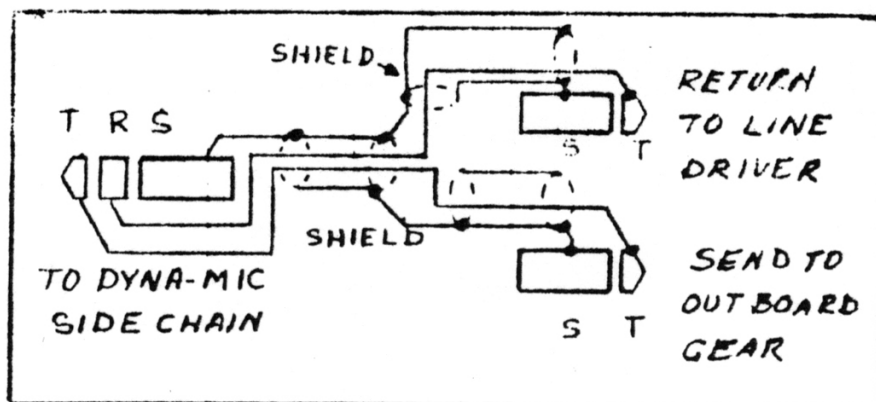


FIG.3 SIDE CHAIN SPLIT PATCH

The input and output jacks used on Dyna-Mic will accomodate both military standard plugs and consumer type plugs. (MIL PJ051, Switchcraft 482 and 260 or equivalents.)

Figure 2 illustrates the side-chain output configuration. Note that the tip connector of the side-chain output jack feeds signal at a +4dB nominal level to any compatible external device when engaged, and that the output jack internal connections route the signal through the ring connector back to the post-equalizer summing node when disengaged. If it is desirable to process the side-chain signal and return it to the output of the Dyna-Mic, the plug tip is used to send the signal to the input of the external device, and the ring is used to return the processed signal from the output of the external device to the post-equalizer summing node. Figure 3 illustrates how this connection is made using a special patch cord easily devised using standard 2 and 3-circuit plugs.

In most applications, the side-chain signal would be fed to an external device and not returned to the Dyna-Mic output, as in the case of a microphone and guitar wherein the performer wishes to process the guitar portion with a Dyna-Mite and feed the vocal to the line input of a mixing board. It should be noted that, as mentioned in Section 1.1 of this manual, the side-chain output is not active when both channels are assigned to the equalizer input by the front panel EQ switch. Only that channel which is not assigned to the equalizer appears at the side-chain output.

Dyna-Mic is connected to the AC power outlet by a three-terminal standard plug. For prevention of shock hazard, it is recommended that the unit only be connected to a 3-wire grounded outlet.

2.2 ACCESSORIES

Dyna-Mic may be ordered as a single 2-input, 1-output unit, Model #420-1.

Dyna-Mic may be also be ordered as a dual 2-input, 1-output unit, Model #420-2.

A single Dyna-Mic Channel may be ordered to upgrade a single unit to a dual unit, Model #420-C.

It may also be ordered as a single (Mono) Dyna-Mite and Dyna-Mic channel in a case, Model #412.

A rack mount shelf may be ordered as Model #400-R.

3. THEORY OF OPERATION

Figure 4 illustrates the signal flow in the Dyna-Mic. The audio path consists of two high impedance differential low-noise input stages normally summed to the tone control section. Either of the channels may be sent to the tone control separately by using the 'EQ' front panel switch. When one and only one of the channels is sent to the tone control, the other channel appears at the side chain output and normally returned to the post-tone control summing line driver.

Each input section has a level indicating device which monitors its output. Please note that the level indicator appears before the level control for each channel, thus the level indicator shows the relative output level of the input section and not the level at which it will appear at the output.

is designed to simulate the output level and characteristic impedance of an instrument pickup, and should be used to drive the high-impedance inputs (25K ohm or higher) of instrument amplifiers at the preamp. It should be noted that the switchable pad is only associated with the back panel jack labeled OUTPUT and does not affect the SIDE CHAIN output level.

SOURCE IMPEDANCE SELECTOR SWITCH has three positions, and selects the appropriate gain and optimum bias current at the input stage for low impedance microphones MIC, line level sources LINE, and musical instrument pickups INST.

Each of the two channels is controlled by its own Source Impedance Selector Switch, allowing the user to feed the Dyna-Mic with any two types of sources in combination.

The INST position of the selector switch fixes the input stage gain at 20dB (nominal) and optimizes the noise figure of that stage for source impedances of 5K to 50K, thus allowing the Dyna-Mic to be fed by most types of instrument pickups.

The LINE position of the selector switch sets the input stage gain at 0dB, or unity, and is useful for mixing line level signals in one channel with microphone or instrument level signals in the other channel. Although the Dyna-Mic can be used as a 2-in, 1-out line level mixer, optimum performance is attained when using the Dyna-Mic with gain, as when mixing a vocal from a microphone with an instrument such as a guitar.

The MIC position of the selector switch optimizes the noise characteristics of the input stage for typical microphone impedances, i.e., 150 ohms to 1000 ohms. In the MIC position, the input stage gain may be adjusted by using the MIC TRIM control, recessed and accessible through the back panel. The MIC TRIM control varies the gain of the input stage from 26dB to 40dB.

Channel 1 Phase Reverse Switch Ø REV allows the user to select either an inverted or non-inverted representation of the input signal, providing the capability to correct out-of-phase source material. The ØREV switch is a push on/push off type, and when depressed, inverts the CH 1 signal.

4.3 FRONT PANEL INDICATORS

The Phase Reverse indicator ØREV glows red when the phase reverse switch is depressed.

The three-color level indicator CH 1 LEVEL and CH 2 LEVEL are used to monitor the output level of the Dyna-Mic input stages. The indicators glow green at low levels, yellow at nominal operating levels, and flash bright red as the output signal approaches the clipping point. It should be noted that the LEVEL controls have no effect on the gain of the input stage, and thus do not affect the operation of the level indicators. The level indicators are intended as an aid in obtaining optimum operating level and noise performance, and give only relative indications of the levels that are fed to the LEVEL controls, and thence to the assign circuitry.

The Multi-point Clip Indicator CLIP monitors the outputs of the line drivers and glows red when the signal approaches clipping in the tone control equalizer, or the line drivers.

4.4 SAMPLE SETTINGS

Use of Dyna-Mic with Dyna-Mite. One of the anticipated uses of Dyna-Mic is to allow the musician to insert the Dyna-Mite signal processor between an instrument and the instrument amplifier. This can be accomplished using either of two methods. The more straightforward configuration is to select INST on the appropriate Dyna-Mic channel, set the gain control of that channel to approximately the 7 mark, select +4 output level and connect the output of the Dyna-Mic to the Dyna-Mite audio input using a 2 or 3-circuit patch cord. Adjust the output of the Dyna-Mite to the -15 setting and connect the Dyna-Mite output to the instrument amplifier input. The Dyna-Mite processor may now be used for gating, expansion, limiting, etc., as described in the Dyna-Mite Operator's Manual.

The alternative method yields improved noise performance, but requires the use of the special patch cord shown in Figure 3. In this configuration, the connection of the instrument remains the same. The special jumper is then used to send the side-chain output of Dyna-Mic to the audio input of Dyna-Mite and then to return the Dyna-Mite output to the post-equalizer line driver of Dyna-Mic. The Dyna-Mic -20dB output position is selected, and the output of the Dyna-Mic is connected to the instrument amplifier input. The user should note that when using this configuration, the channel not used for the instrument must be assigned to EQ so that the instrument channel will appear at the side-chain output, and that the equalizer cannot be used in this configuration for the instrument as SIDE CHAIN bypasses the equalizer. An added advantage of this configuration is that it allows the remaining channel of Dyna-Mic and its equalizer to be used for a second source, such as a vocal microphone, to be summed with the processed instrument channel and sent to the instrument amplifier.

Dyna-Mic and Dyna-Mite can be used very effectively in mixed media presentations. The example given is a film or slide presentation with soundtrack or background music being fed to a public address system along with a narrator's voice. By using the special cord and interconnection configuration shown in Figure 6, the Dyna-Mic can be used to feed the public address system and to "duck" the soundtrack or background music as the narrator speaks. See the Dyna-Mite Operator's Manual for a more complete description of "ducking".

Because of its ability to mix two signals from any two types of sources, the Dyna-Mic is useful as a semi-pro production tool. For example, the user may mix a background track from a cassette deck, or other source with a vocal narrative or song onto a tape machine or V.C.R., or use the Dyna-Mic for "fade-in/fade-out" sequencing of two different program sources. The versatility of Dyna-Mic makes it a valuable addition to any musician's or audio/video experimenter's equipment, as well as a useful tool for the serious studio engineer.

4.5 OPERATING PRECAUTIONS

Because of differences in sensitivity between brands and types of microphones, the following procedure should be adhered to in adjusting the MIC TRIM control during setup.

Before connecting the output of Dyna-Mic to the device to be fed (Dyna-Mite, instrument amplifier, etc.) plug the microphone into the appropriate Dyna-Mic input jack, select MIC with that channel's source impedance selector switch, and using an alignment tool or small screwdriver, advance the MIC TRIM control for that channel fully

clockwise for maximum gain. Speak into the microphone using a normal conversational voice level. Observe the appropriate level indicator, which should glow green, and indicate voice peaks such as phonemes and sibilants by flashing yellow. Next, speak into the microphone using the highest voice level you anticipate using. The level indicator should glow bright red in response to vocal peaks. While observing the level indicator and repeating the high-level vocals, slowly reduce the gain of the channel by turning the MIC TRIM control counterclockwise until the indicator no longer flashes bright red on peaks. The optimum adjustment for the MIC TRIM control is that providing maximum gain with no clipping.

The Dyna-Mic output may now be fed to the following stage, and the volume of the microphone (output level) can be adjusted by using the front panel LEVEL control and monitoring the CLIP indicator to avoid objectionable distortion and clipping at the Dyna-Mic output line driver stages.

5. MAINTENANCE

5.1 BRIEF CIRCUIT INFORMATION

The complete circuit operation is beyond the scope of this manual. A schematic diagram is provided to assist those users who possess sufficient electronic background to perform in-field test and repair work.

Power Supply. Power is supplied to the Dyna-Mic modules by an internal AC operated supply, which may be strapped for operation either at 115 or 230Vac at 50 to 60 Hz.

The supply provides unregulated bipolar voltages to the circuit modules, each of which contains on-card regulation to provide the bipolar 15 volts used internally.

The power line fuse is mounted on the power supply board, and should be replaced with a similar unit, should a failure occur. Be sure that the unit is unplugged from the AC line, before disassembling the unit, as dangerous voltages exist on the power supply board. Disassembly should be restricted to qualified service personnel.

5.2 A WORD ABOUT LOW-LEVEL CONNECTIONS

The Dyna-Mic uses standard 3-circuit $\frac{1}{4}$ " jacks as input connectors. Although the internal contact areas of the jacks are plated with Nickel-Silver alloy for good dry-circuit characteristics, after use they may become contaminated with airborne dust perspiration, skin oils, soft drinks, in short, any substance which is on the plug when it is inserted into the jack. A cumulative increase in low level distortion and/or "crackling" in a channel when used with a microphone may indicate the presence of contaminants on the jack contact areas. These contaminants constitute an insulating barrier which the minute currents generated by the microphone must "puncture" in order to appear at the input amplifier. It is recommended that the plugs used to connect the Dyna-Mic be cleaned periodically with a suitable solvent, such as alcohol, and that they be wiped with tissue or clean cloth before being connected to the Dyna-Mic inputs. Contaminants in the input jacks can usually be removed by use of de-natured alcohol on a cotton swab.

5.3 WARRANTY

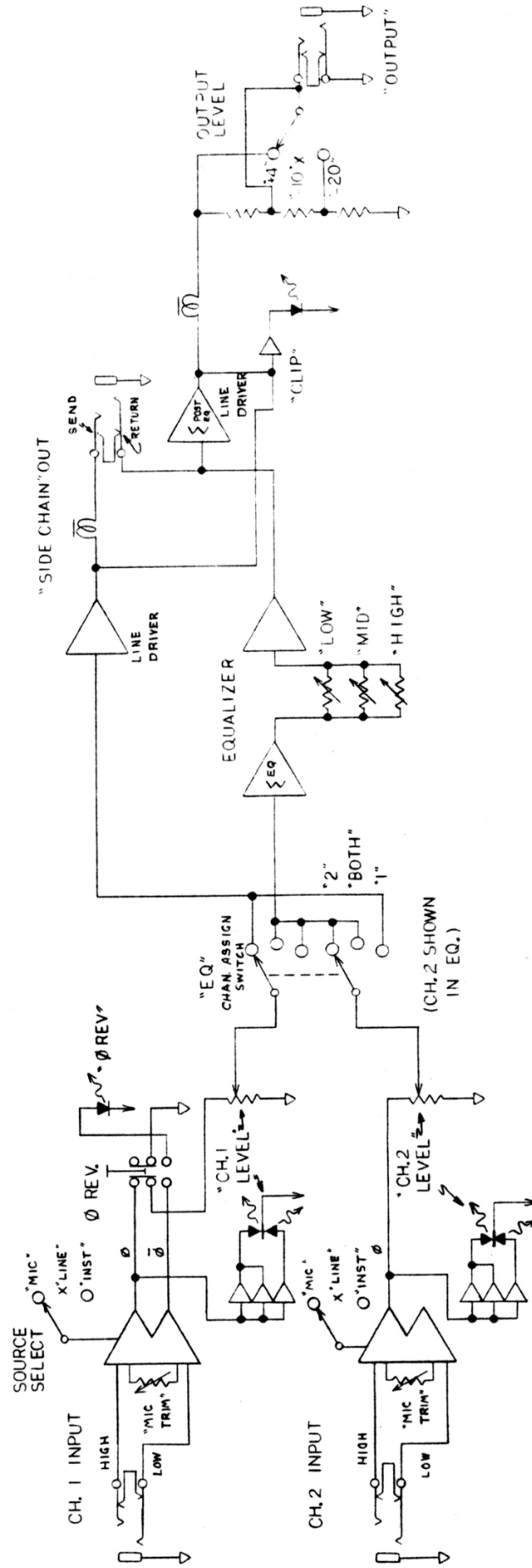
VALLEY PEOPLE, INC. warrants its products and their related enclosures and power supplies to be free from defects in workmanship and material under normal use and service. Said warranty is to extend for a period of twelve months after date of purchase. In


the case that a VALLEY PEOPLE, INC. product or any of its related enclosures or power supplies is believed to be defective, same may be returned with transportation prepaid to VALLEY PEOPLE, INC., within twelve months after date of purchase, accompanied by proof of purchase. If the product is found by VALLEY PEOPLE, INC.'s inspection to be defective in workmanship or material, it will be repaired or replaced (at VALLEY PEOPLE, INC.'s election) free of charge and returned, transportation prepaid, to any point in the United States. If inspection by VALLEY PEOPLE, INC. of such products does not disclose any defect in workmanship or material, VALLEY PEOPLE, INC.'s regular charges will apply.

This warranty is expressed in lieu of any and all other warranties, whether expressed or implied, and the sole liability of VALLEY PEOPLE, INC. under this warranty is to either repair or replace (at VALLEY PEOPLE, INC.'s election) the product or its related enclosure or power supply. Any incidental damages are expressly excluded.

The foregoing warranty is VALLEY PEOPLE, INC.'s sole warranty, and all other warranties, expressed, implied, or statutory, are negated and excluded.

FIGURE 4 - DYNA-MIC BLOCK DIAGRAM



 VALLEY PEOPLE, INC. P.O. Box 4086 2820 Freya Place Nashville, Tenn. 37204		Client	
		Sheet 1 of 1	
Title DYNA-MIC BLOCK DIAGRAM			
Size B	Code E	Drawing No.	Rev.

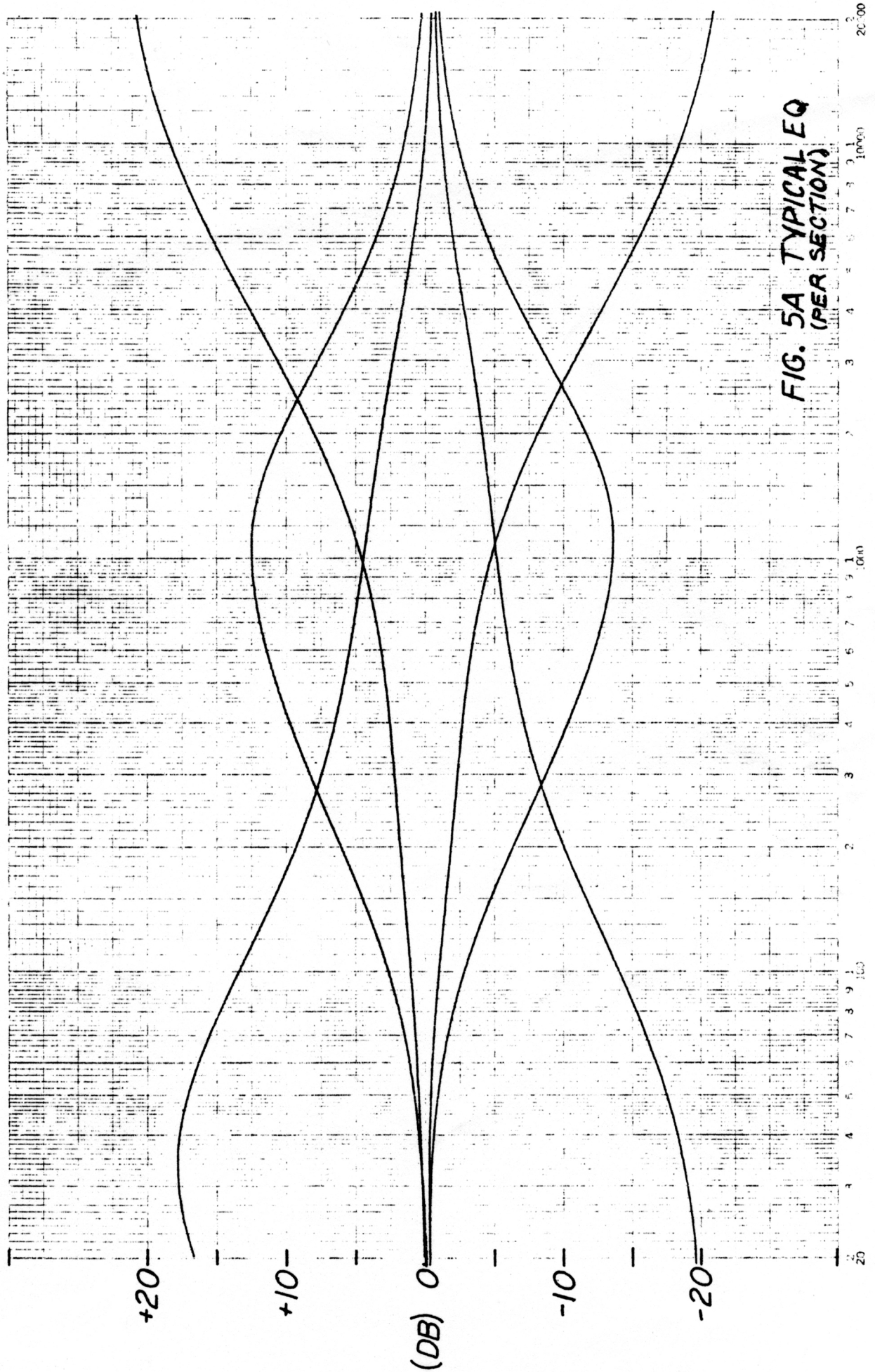


FIG. 5A TYPICAL EQ
(PER SECTION)

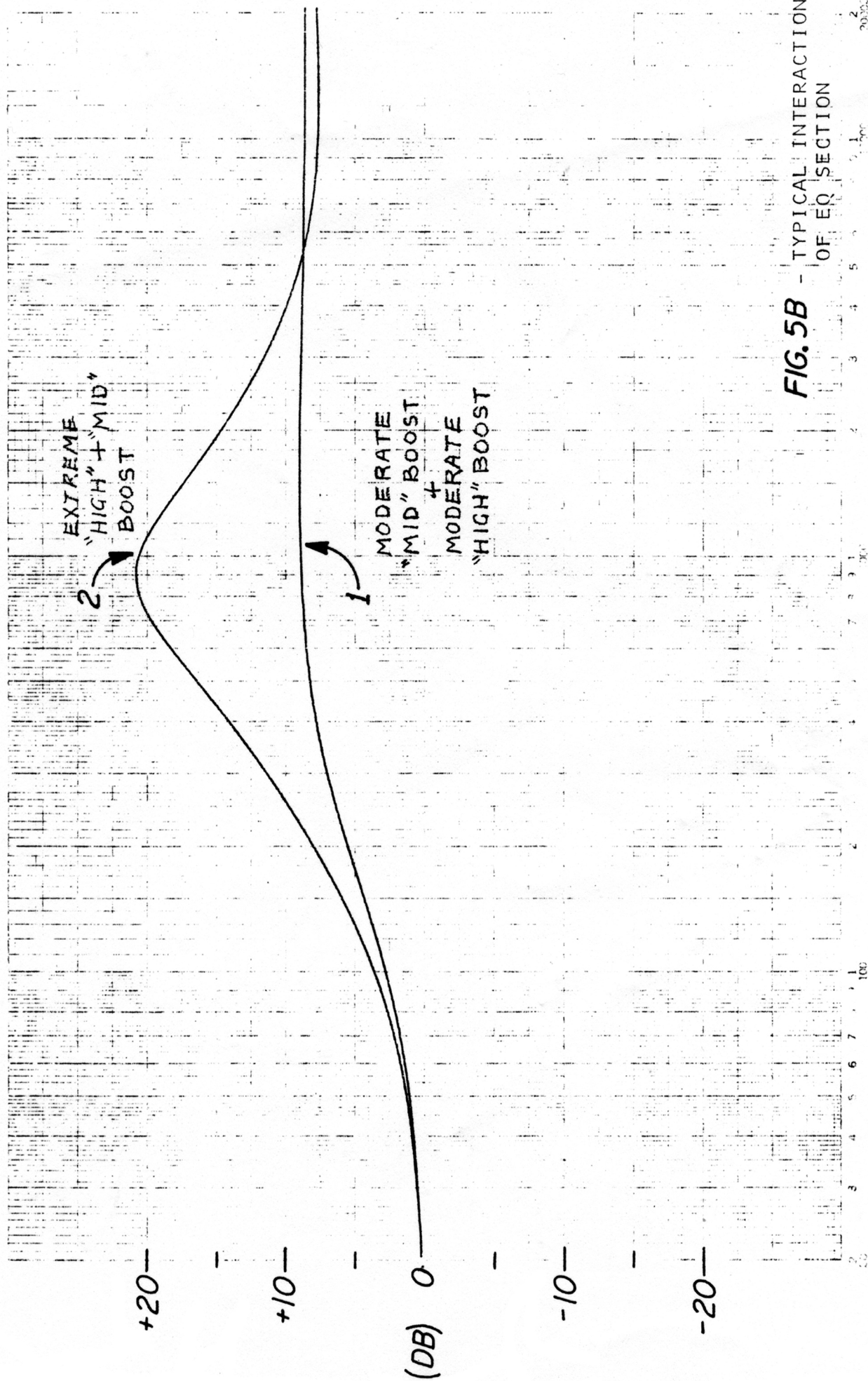


FIG. 5B - TYPICAL INTERACTION
OF EQ SECTION

FREQUENCY IN CYCLES PER SECOND

JUMPER DETAIL

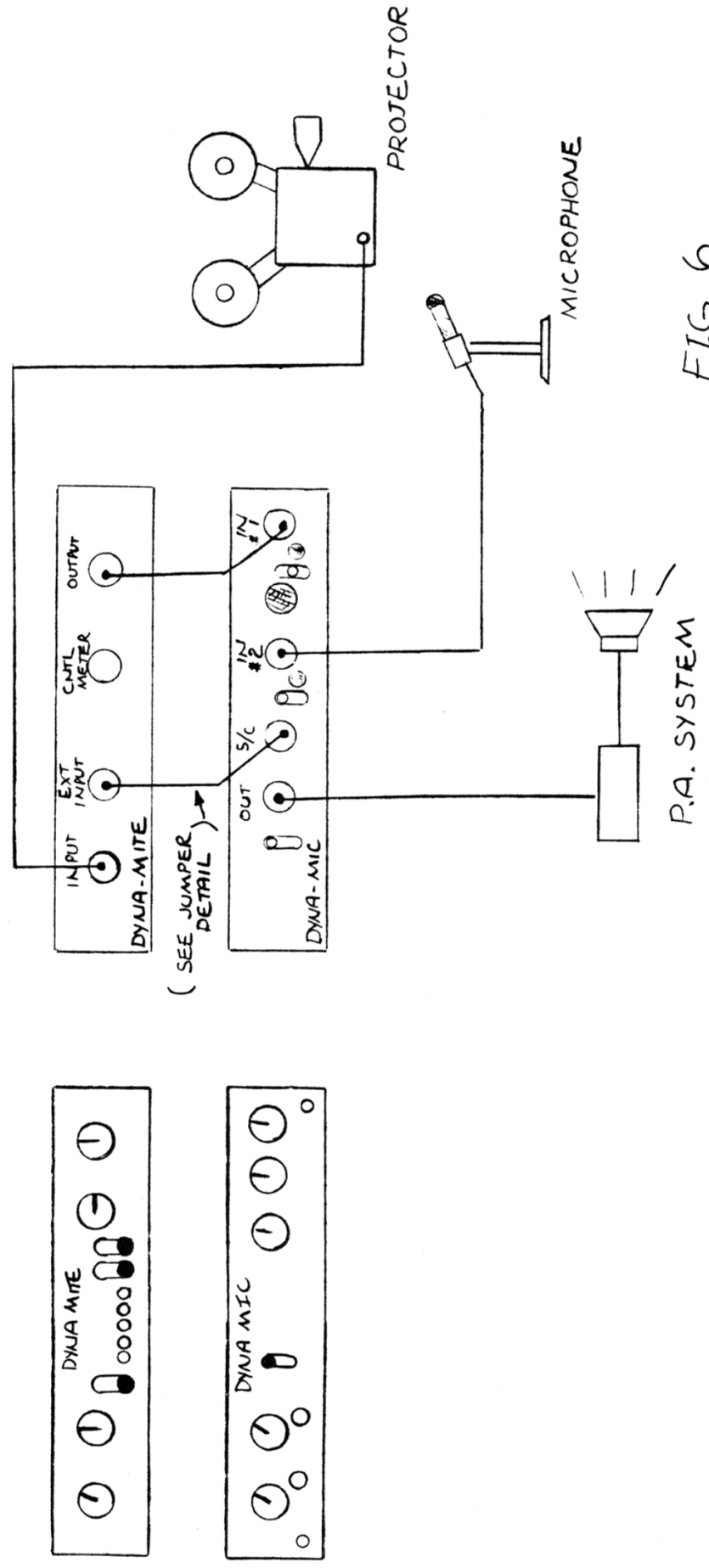
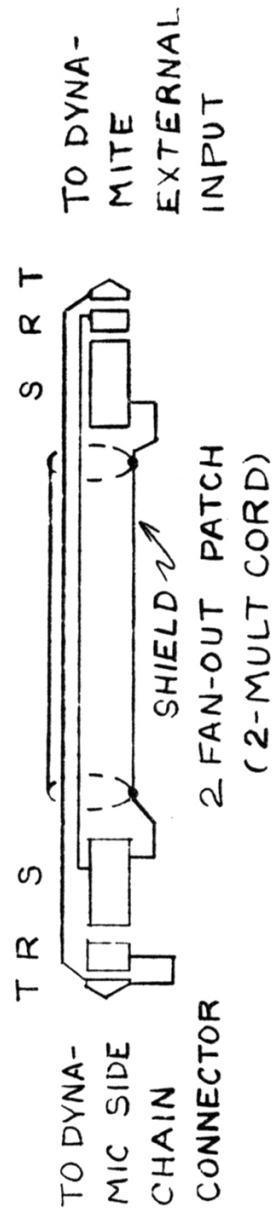
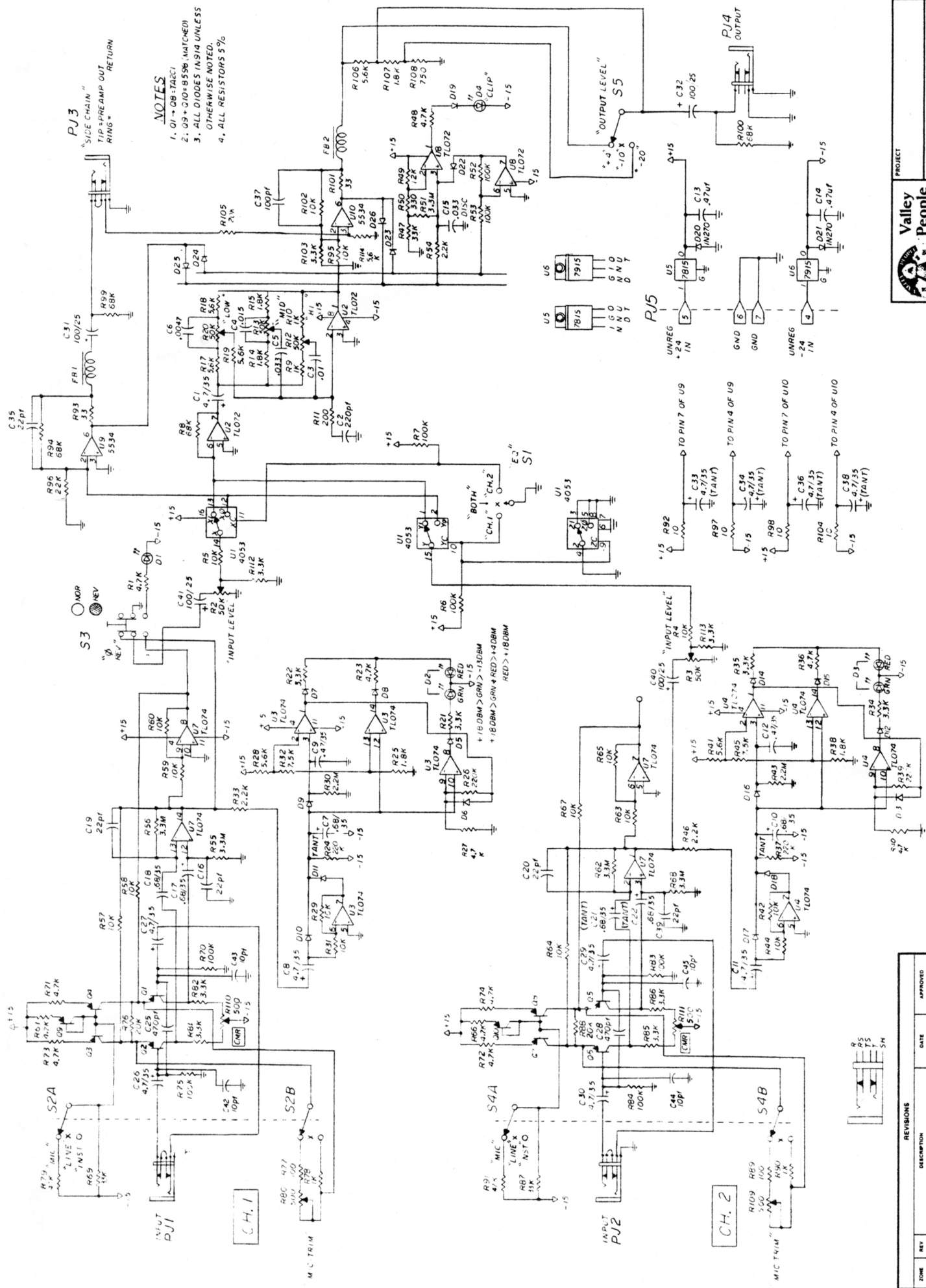


FIG. 6



PROJECT		TITLE		DRAWING NO.	
Valley People Inc.		SCHEMATIC DYNA-MIC		C1488A	
DATE	BY	SCALE	REV.	REV.	REV.
12/32/81	GB	1/1	1/1	1/1	1/1
REVISIONS					
ZONE	REV.	DESCRIPTION	DATE	APPROVED	
A	1	AS PER PROTOTYPE	12/32/81	✓	