TERMS EXPLAINED

Record line up

In order to achieve optimum compatibility of signal to noise ratio between mixing console and tape machine it is necessary to match the input sensitivity of the recorder to the output level of the mixer. This requires a reference level to be used; in professional use both types of equipment are provided with level indicators, normally of the VU type, and these are calibrated to include "zero" mark, which is the "normal operating level". To line up, a signal normally at 700 H_2 is routed through to the appropriate outputs and adjusted to give "zero" reading on the output meter. The sensitivity or gain-control of the following tape machine is now adjusted so that its meter reads the same level. The meters on the recorder will now follow those of the mixing console (providing they are of similar type) for a normal programme.

Playback Line up

It is also necessary for the compatibility of A/B monitoring and operation of the outputs of the tape machine at a level compatible with line sensitivity on console inputs, (eg. for reduction) to line up replay levels. Normally a mixer has fixed sensitivity on its monitor return circuits equal in reference level to the output of the mixer and line sensitivity of the channel inputs. To line up replay, a signal is recorded on a tape at "zero" level and then played back directly into the monitor return of the mixer. The output level control of the recorder is now adjusted so that the console meters read "zero" level.

Normal operating level

Because of the characteristics of electronic circuits there is a certain ratio between noise and overload levels of amplifiers: this is referred to as the dynamic range. In order to achieve some form of reference level a voltage is chosen somewhere between noise and overload voltages which permits (a) enough overload voltage capability to prevent distortion, (b) an acceptably low noise voltage. This reference level is referred to as "zero" level and in common practice is .775V or, more simply, 0 dBm.

Input sensitivity

If a signal source is not matched to the following input it will either (a) overload, if it is too high and cause distortion, or (b) under-drive it, if it is too low and not enable the equipment to be operated at normal level. It is therefore very important to adjust accurately the input sensitivity on any equipment according to a defined technique when applying a signal to it.

A/B Monitoring (or desk/line or line-in/line-out)

Most recorders offer the facility of simultaneous playback with recording by way of a playback head following the record and erase heads. The facility to monitor in-coming signal and recorded signal is termed A/B monitoring.

Routing

As the word suggests it applies to the direction of signal sources to various inputs.

Monitor Mix down

During the recording of a multi-track programme it is necessary to monitor the signal on control-room speakers. These are normally arranged as a stereo pair. The monitor mix-down section of a multi-track console is basically a multi-channel stereo mixer which gives individual level and position adjustment within the stereo monitor system of individual outputs. This monitor mixer is normally tied to the output section of the console and is switchable between desk and tape signals (ie. A/B monitoring).

Overdub

The process of adding extra tracks, in synchronization with those already recorded, to the same multi-track tape, is termed 'overdubbing". For this function the appropriate playback amplifiers are switched to their corresponding record head sections to obtain the sync signal, which is fed to the performers for the over-dubbing process.

Foldback or Cue

This is a feature which provides a further output on input channels; it is basically a mono-mix of these signals, its output being independent of the individual channel fader settings. The facility has many uses: eg. in recording, musicians may not be able to hear each other playing. If they are equipped with head-phones connected to the Cue line, a mix of signals from each of the channels may be fed to them. When over-dubbing the sync signal can be fed to the performers through this system: in PA, where a recording is being made from the main outputs of the mixer, the Cue can be used for the PA system. The balance is completely independent and, as is usually the case, completely different from the recording signal.

Patching system

The use of an internal jackfield on a mixing console is to connect auxiliary equipment into existing circuits, eg: to introduce an effects unit into an input channel, the connection between microphone, amplifier and equaliser is broken and the output of the mic-amp is taken to the input of the effects unit and its output is taken back to the equaliser input. This is practically realised by employing switch sockets which break the normal communication when a plug is inserted.

It may either be effected using a one-wire system when two leads are necessary - one lead connecting output to mic-amp. to effects unit input, and one lead to connect effects unit output to equaliser input.

Sophistacated systems employ a two-wire technique, whereby both the input and output communications are carried along the same cable and "jacking" or "inserting" can be effected by merely plugging in this one lead between the two appropriate points.

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A MEMBER OF THE BATISTE GROUP TELEX BATISTE LDN 267737

INFORMATION UPDATE: MOD 2 OUTPUT MODULES SERIES 3 April, 1976

Mod 2 mixers are now supplied with output modules series 3, on which the following changes are found. Spare original and series 2 modules are still available. The series number is on the solder-side of the module circuit-board. Please quote this number when ordering spares or service information.

1. Stereo Monitor System

This has been modified to give improved headroom and lower distortion. Sensitivity of the system remains unchanged, operate as per normal. Sensitivity of the Echo on Monitor system is increased by 10dB. Due to changes in the stereo monitor circuitry, series 3 modules are supplied in desks with matched Auxiliary modules, also identified with the number '3' on the underside of the front panel. Output and Auxiliary modules of different series' should not be mixed in the same desk.

2. Tape Monitor System

Monitor and Auxiliary Monitor line inputs are now provided with a preset attenuator and buffer amplifier each.
Monitor 'Cut' function on each output module has been discontinued. The same button now controls the routing of signals between input sockets and monitor faders, using it interchanges signals fed to Auxiliary Monitor and Monitor faders, enabling 'sync' monitoring of the Aux. line input.

Use of line input preset attenuator:
When playing back tape into the desk at higher levels than the desk standard, OVU = 0dBm, the preset is used to reduce the level into each monitor section. Each module carries two presets on the circuit board, see Component Location drawing: 2350.

i) Remove module from desk and reconnect using edge-connector extender
ii) Reconnect module line input jack-plugs and select monitor 'Line-Out'
iii) Play 1kHz tone from tape at the required standard level into 'Monitor' input. Adjust 'Monitor' preset to give a desk meter reading OVU.
iv) Operate monitor changeover switch on the module and adjust 'Aux Monitor' preset to give a reading on the same desk meter of OVU. Replace module in chassis and repeat for all other modules.

Ref: Block Schematic drawing 2309
Component layout 2350

MODULAR MIXER

OPERATING INSTRUCTIONS

Setting up Procedure

a) All faders are set to minimum.
b) All volume level controls to zero.
c) All tone controls to mid position.
d) All pan controls to centre
e) The decade routing switch to 0-0.
f) All mic/line switches to 'mic' (normally 'up).

The power supply may now be connected. This is achieved by plugging a 25-30V unregulated supply into the 3-pin Bulgin socket at the rear of the echo/cue/power module. The red indicator lamp should glow, also the meter pointers should flick across then settle back to the extreme left hand position.

Routing Check

The input channels may be 'routed' to any of the group outputs by turning the decade switch to the output channel required. The purpose of having a 'left' and 'right' half of the decade switch is so that the input may be set to two group outputs if this is so required. Turning the pan-control to extreme left routes all the signal to the left decade setting, and to extreme right routes all the signal to the right decade setting. A central pan-control position will send equal signals to left and right, but 3dB. down on the extreme settings.

If a signal sourse is available (preferably a signal generator set to 1kHz and producing a sine wave at -50 dBm.) it should be applied via the microphone input Cannon socket at the rear of Channel 1 input module.

The decade switch on this channel should be set to 1-0. By advancing the input gain control on this channel an indication should be obtained on the extreme left meter (corresponding to group output 1). Set this control to give a meter reading of 0dB. Then turn the left decade switch to:
a) 2
b) 3
etc., through to 8. (leaving right decade switch to 0).

On each number setting, the corresponding meter should then read about 0 dB. (ie. each output group will then be selected in turn.)

This check may be repeated for all the input channels, if required, to ensure that each channel is working and is being correctly routed to the assigned group output.

The 'normal operation' settings of the faders are:
a) The input faders to '1' (ie -10 dB.)
b) The group faders to '0' (ie. Max.)

For setting microphone sensitivity individual channel faders should be in this position and the associated gain controls adjusted for average reading on selected output meter.

Line Inputs

Each input module has a microphone and a line input. If a mic/line switch is fitted, either input may simply be selected. In this case the line input bypasses the gain control and feeds the Equaliser directly at 0dBm. level. If a mic/line switch is not fitted, then inserting a jack plug into the line input socket will automatically connect the line input and disconnect the microphone. The line signal in this case connects directly to the Hi-z input of the mic./amp (after mic. transformer).

Additional Outputs.

In addition to the routed outputs each input channel has a 'cue send' level control (pre-fader) and an echo send level control (post-fader). An equalized cue mix-amplifier is fitted and the output is available on a jack socket at the rear of the cue/echo/power module. The same applies to the echo send mix-amplifier.
Each group output module has two additional jack socket inputs at the rear of the module.
a) An echo return facility is available, with equalization.
b) Also a tape monitor input, which is explained later in more detail.

The group output is available on the male Cannon socket at the rear of each output module.

Monitoring.

The mixer has a versatile monitoring circuit. Each group output has its own monitor fader. The post fader signal is split via the pan-pot into two separate monitor busses, and fed to the monitor switch. (hence stereo monitoring is possible). The switch has three positions:

1) Tape Monitor)
2) Desk Monitor) via the master monitor level control.
3) Aux Monitor)

In position (1) the tape inputs to the group modules may be monitored.
In position (2) the group outputs (via their individual monitor faders) may be monitored.
In Position (3) an auxiliary function may be monitored (eg. pre-fade listen).

The monitor outputs appear on a stereo jack socket at the rear of the talkback/monitor module via the monitor master level control.

Talkback.

A high impedance microphone input socket is situated on the talkback/monitor module. The talkback (T.B) switch has three positions:

1) T.B. to Sudio - via the T.B. level control
2) Off
3) T.B. to Cue - via the T.B. level control.

Amplifier

In position (1), the microphone is directed to a jack socket at the rear of the module.
In position (3), the microphone is directed to the cue send busbar.
In positions (1) and (3) the monitor circuit is muted by -20dB. This is to avoid possibility of howl-round between monitors and talkback microphone.

Oscillator.

A 700 Hz oscillator may be injected to any output module to assist the setting up of the mixer, or a tape machine. If a jack field is not used, then the oscillator may be routed by the decade switch of the extreme right (usually No.14) input module.

MODULAR 2 MIXER OPERATING INSTRUCTIONS

The description in these operating instructions presumes a basic working knowledge of modern studio techniques. Most of the terminology is explained in the attached "Terms explained" sheet. However, if in doubt contact your supplier who will be pleased to help.

CONNECTIONS

INPUT MODULES

Microphones - Via XLR 3 pin female wired. 1. Earth. 2. Return. 3. Live. 18 volt phantom powering is connected as standard, though this may be modified for other voltages.

Line - Via single pole jack. Normally these are connected to multi-track tape replay for reduction purposes and therefore are paralleled externally to the multi-track monitor return on the output modules.

OUTPUT MODULES

Output - Via XLR male. 1. Earth. 2. N.C. 3. Live. Connected to input of multi-track machine. For 16 track connect output 1 to 1 & 9, 2. to 2 & 10 etc.,. If console is to be used for reduction purposes connect outputs 1 & 2 to the inputs of the stereo machine. The output amplifier has a very low output impedance and so may be connected to any number of bridging inputs. This may be done directly or more advisably through a break jackfield, so that auxillary access is gained to the recording tracks if necessary.

Monitor - Via single pole jack. Connect to tape replay. As mentioned earlier this should be paralleled to corresponding input channel line inputs, if console is to be used for reduction. So that the console functions may be used directly for overdub, the sync signal from the tape machine should be available through the tape playback circuit. i.e. into the monitor socket. If this is not the case please contact your supplier for modification details.

Auxillary Monitor - If 16 track is being used connect playback 9 to 16, to auxillary inputs 1 to 8. in sequence to enable full 16 track playback monitoring. Again, these should be paralleled to corresponding input channels. Alternatively these auxillary inputs may be used for monitoring the outputs of say an auxillary 4 track machine without need for replugging. These auxillary monitors are not metered.

AUXILLARY MODULE

Power - Via 3 pin bulgin. L. positive N. earth (negative) E. N.C. Connect to 22 volt regulated, smooth power supply, able to provide up to 1.5 Amps.

Talkback - Via single pole jack, connect to studio talkback amplifier.

Stereo tape - Via stereo jack, connect to playback of stereo machine. Signal is available on monitor select panel.

Echo 1 & 2.- Via single pole jack, connect to input of appropriate echo devices.

Cue - Via single pole jack, connect to studio cue or foldback system amplifier.

Echo Return - Via stereo jack, connect to output of stereo echo system.

Monitor - Via stereo jack connect to input of stereo monitor amplifier.

This control enables an input cue mix to be held while the console is being used for overdub, and cue is taken from the output channels.
Echo Return - This control is a stereo potentiometer and feeds any of the main busses via routing buttons. A solo monitor function is also provided. The echo signal may also be fed to the cue output for "wet" cue monitoring.
Oscillator - The oscillator output is available on the jackfield. The controls, provided are on/off switch level control, and frequency (from 700Hz to 7kHz - this may be modified upon request).
Talkback - The internal Talkback microphone and amplifier may be routed to the Cue amplifier, studio talkback amplifier, or one of the main busses (slate). Operation of any switch mutes the monitors automatically. Talkback level control is also provided.
Monitor - 1. LO - Button selects either desk or tape feed to the monmix bussbars i.e. it switches the signal changeover and relays within the output modules. Normally these are operated by the internal audio power supply but internal facility is provided to connect an external unit. The effect of this switch is independent of all monitor functions but obviously audible only when monmix is selected.

2. TAPE - Selects the stereo playback from an external auxillary tape machine.

3. STEREO - Selects only the direct outputs of groups 1 & 2. Used normally when the desk is used for reduction and it bypasses all the normal main output monitoring controls.

4. MONMIX - Selects output of monitor mix busses. The echo control above the selector buttons is operable in the mode and feeds the echo return signal into the monmix busses for wet monitoring application.

5. CUE - Selects the main cue send.

6. SOLO - Selects the solo bussbar.

N.B. Buttons 2 to 6 are arranged such that the lower button always takes preference over the upper thus, logically if TAPE is selected, the STEREO switch may be used as a LI/LO selector when the mixer is being used for stereo recording. etc.,.

7. MONO - Combines the left and right signals to mono for compatibility checking.

8. CUT - Switches all the monitoring circuits. The monitor volume controls the overall level of the stereo to monitor signal.

PROGRAMME OPERATION

Direct recording - Select inputs to microphones and feed to selected output busses. Monitor via monmix system.
Reduction - Select line inputs and feed channels to Ouput groups 1 & 2. Monitor via stereo/tape system.
Overdub - Route input channels to selected overdub outputs and operate the sync switches. Monitor in MONMIX mode with LO switch depressed. The desk will now monitor all the tape sync signals. (Assuming this changeover has been done) except on the output groups selected to the sync mode which revert to the main desk output. The Cue buss can now be taken from the output cue buss by the cue balance control.

N.B. Apart from the variable microphone sensitivity all signal inputs and outputs are 1 volt nominal.

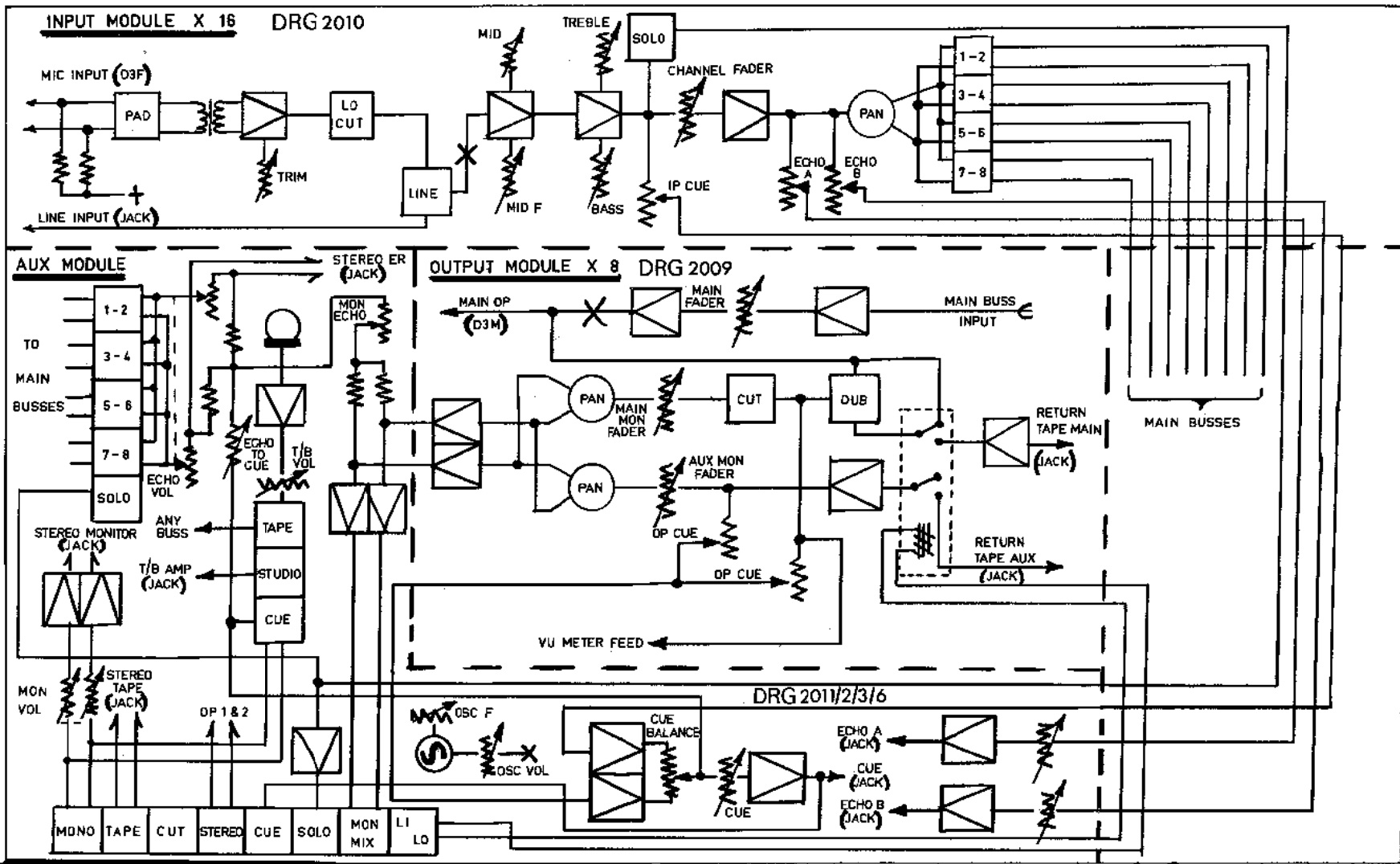
NORMAL OPERATING LEVELS.
Input fader at 1 (or minus 10db)
Output fader at zero or maximum.
Individual channel gains should be set with faders in this position.
The other rotary level control should be a 6 i.e. minus 6db.
Tone controls should be central.

MODULE OPERATION

INPUT CHANNEL - The Mic gain trim pot covers a range of approximately 40db. The gain step at the extreme clockwise end is sharp and only intended for rare instances where very high gain is required. Normally use the control up to 7. If microphone levels are high, switch in the 20db pad. The LO-cut switch should be operated when low frequency rumble or popping noises are present. This stage of the input module is completely bypassed when line is selected, and the line signal is fed directly to the Equaliser section through the jackfield.
The 3 band equaliser has fixed low and high frequency, though a mid peak may be 'tuned' to the channel programme by operating the mid frequency control.
The input cue and solo switch take their feed pre-fader, and the two echo feeds are post fader. The channel signal is routed via the left and right panpot and the 4 routing buttons to the 8 main buss bars in any combination.
OUTPUT CHANNEL - The main output level to any group is controlled by the corresponding main fader. If the "Master Mod" is fitted, switching the toggle switch to left will combine main faders 1 & 2 for stereo master operation. N.B. In this case output module 1 & 2 are screwed together and may not be removed separately. The lower monitor section is connected to the corresponding output of the console. When the mixer is in desk monitor mode the signal may be routed in stereo to the "Monmix" (monitor mix) bussbars via panpot & fader, and the prefader signal sent to the output cue buss for sync purposes etc.,. The cut switch enables selected tracks of a monmix to be monitored separately. The dub switch connects the monitor switch back to the main output, when the console is in line out monitoring for overdub purposes. (see further text). The auxillary monitor input operates identically to the main monitor except that the dub functions are not provided and the input to the fader is connected to ground when the monitors are in the desk monitor mode. E.g. this monitor only operates on tape return.
N.B. In addition to the edge connectors there is a flying phono lead connecting the main buss; REMOVE MODULE CAREFULLY
AUXILLARY MODULE
Echo 1 & 2 - These are simply main echo buss level controls.
Cue - In addition to the main cue level control a balance control is provided which selects the signal from the input cue buss in the anticlockwise position and the signal of the output cue buss in the clockwise position. Centerally it selects and even mix of both busses.

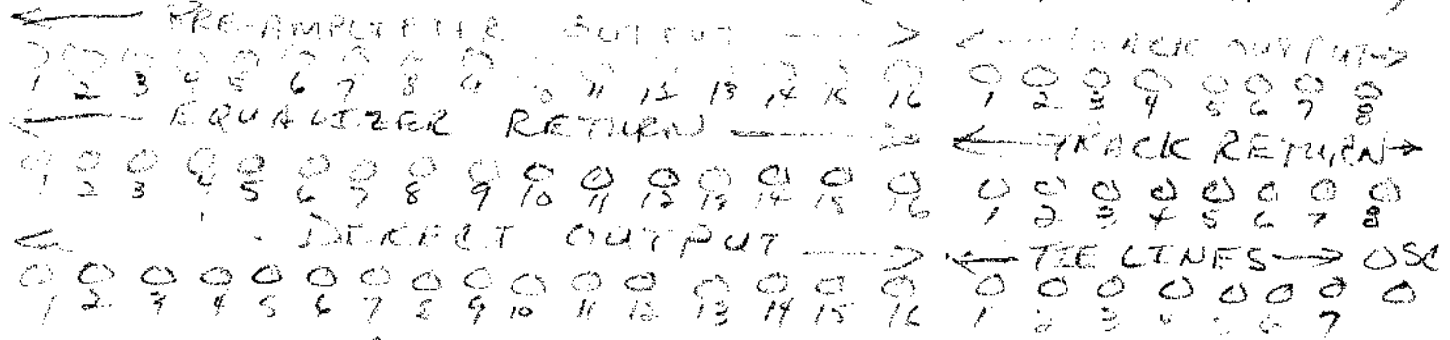
Jackfield - The jackfield is a two way system. All inputs are connected to ring all outputs to tip and these are normalized by switching contacts controls. The leads used are cross connected so an IP/OP connection always takes place. If Peripheral devices are brought into the console they should be connected to the jackfield in this manner. Consult your supplier for further details.

Quad - Quad facilities may be provided for full Quad operation. Please consult your supplier.



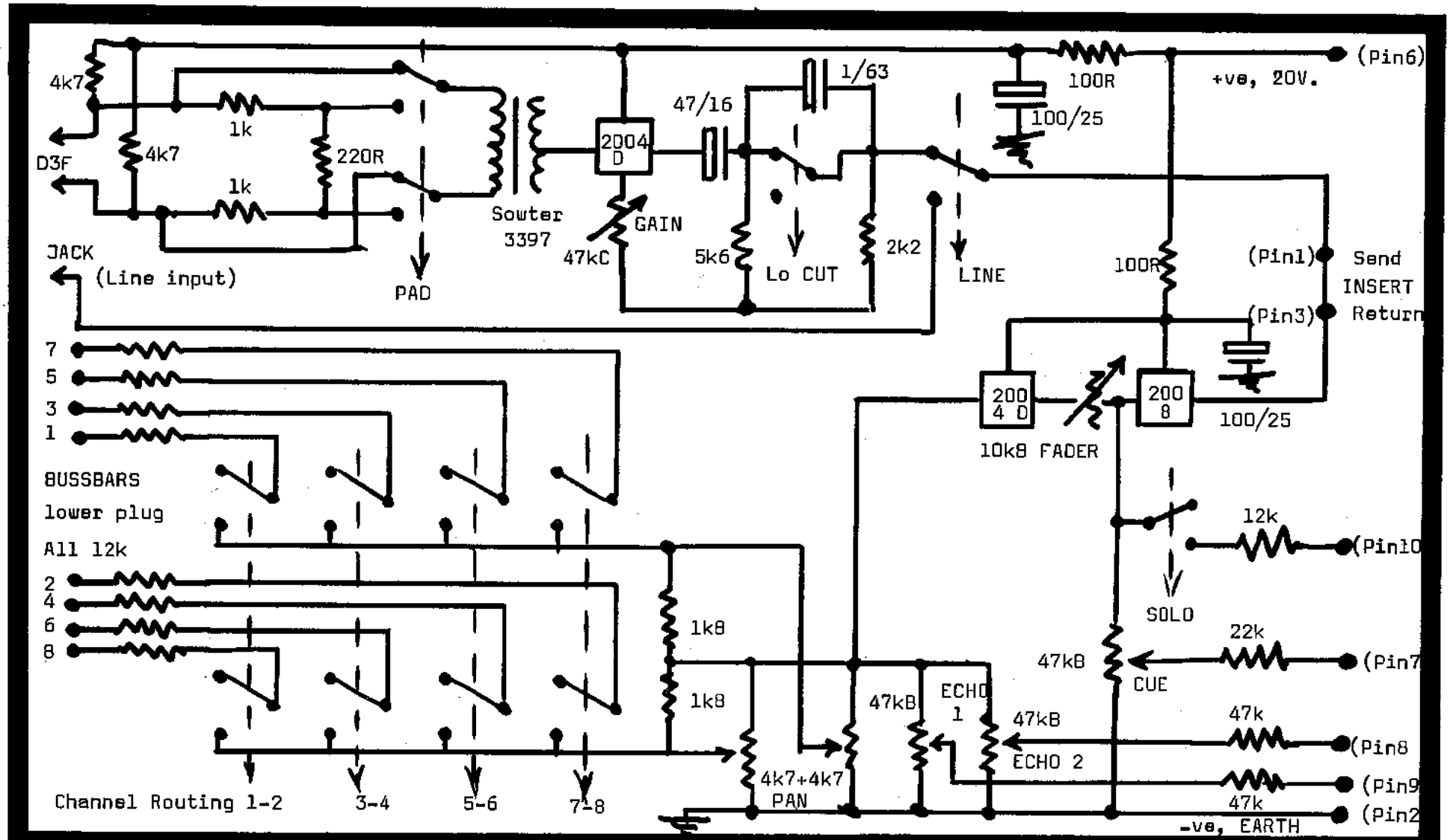
CHECKED	KEY	TOLERANCES	TITLE MOD 2 – SYSTEM BLOCK DIAGRAM			
TRACED	CONNECTION / NO CONNECTION / JACKFIELD; AMPLIFIER / PUSH SWITCH		Allen and Heath Limited Pembroke House, Campsbourne Road, London. N.8 01-340 3291			
DRAWN AT Bage		DIMENSIONS IN SURFACE ROUGHNESS SCALE	SECURITY CLASSIFICATION	ISSUE 4	DATE 14.11.74	APP'D –
SIZE B						

JACKFIELD LAYOUT (SOUNDCRAFT TT-124)



- ALL CONNECTIONS NORMALIZED
- PATCH CORDS BREAK SIGNAL FLOW

PATCH BAY & INTERNAL PATCHING



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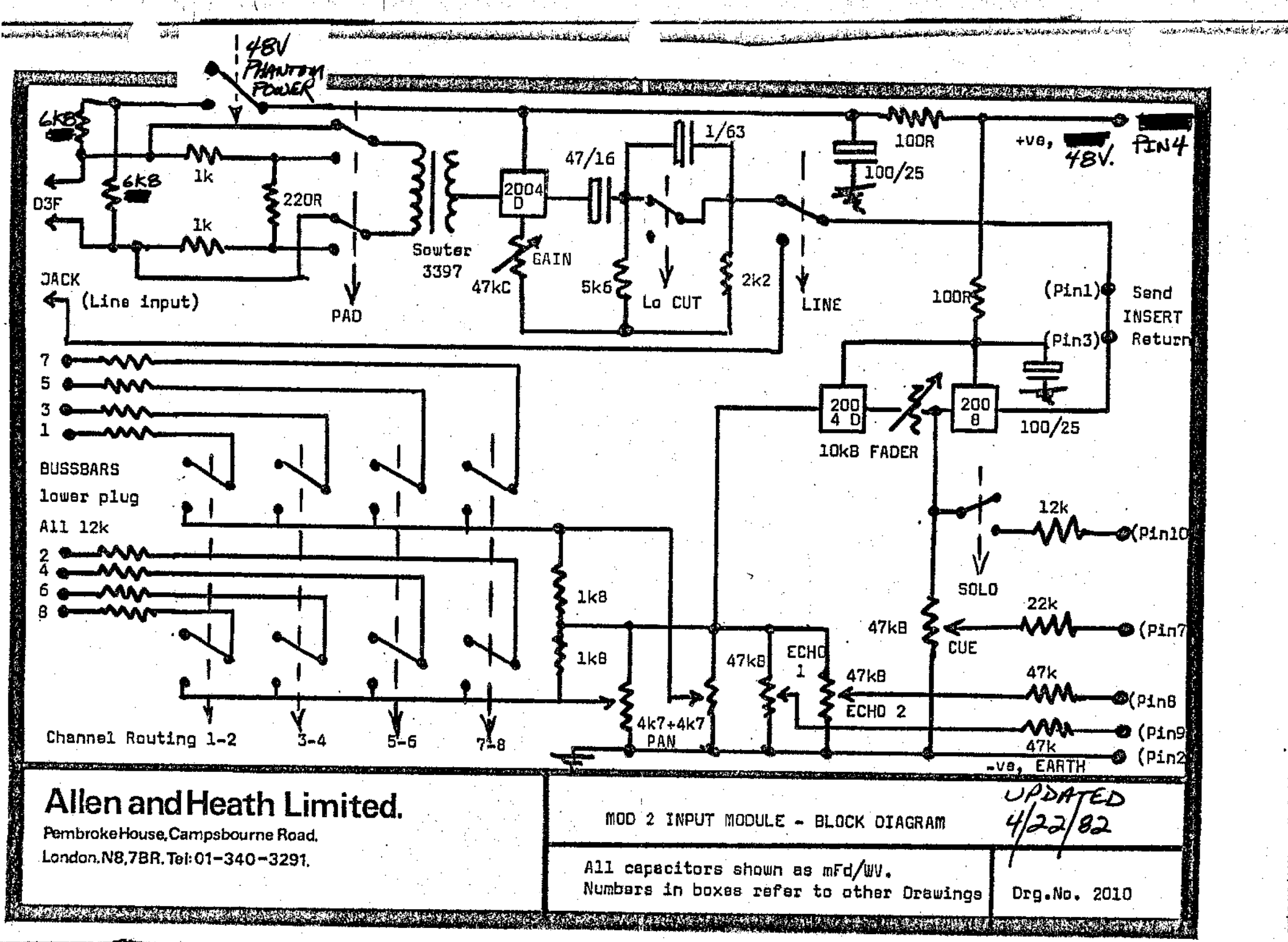
Pembroke House, Campsbourne Road.

London. N8, 7BR. Tel: 01-340-3291.

MOD 2 INPUT MODULE - BLOCK DIAGRAM

All capacitors shown as mFd/WV.
Numbers in boxes refer to other Drawings

Drg.No. 2010



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MOD 2 INPUT MODULE - BLOCK DIAGRAM

UPDATED 4/22/82

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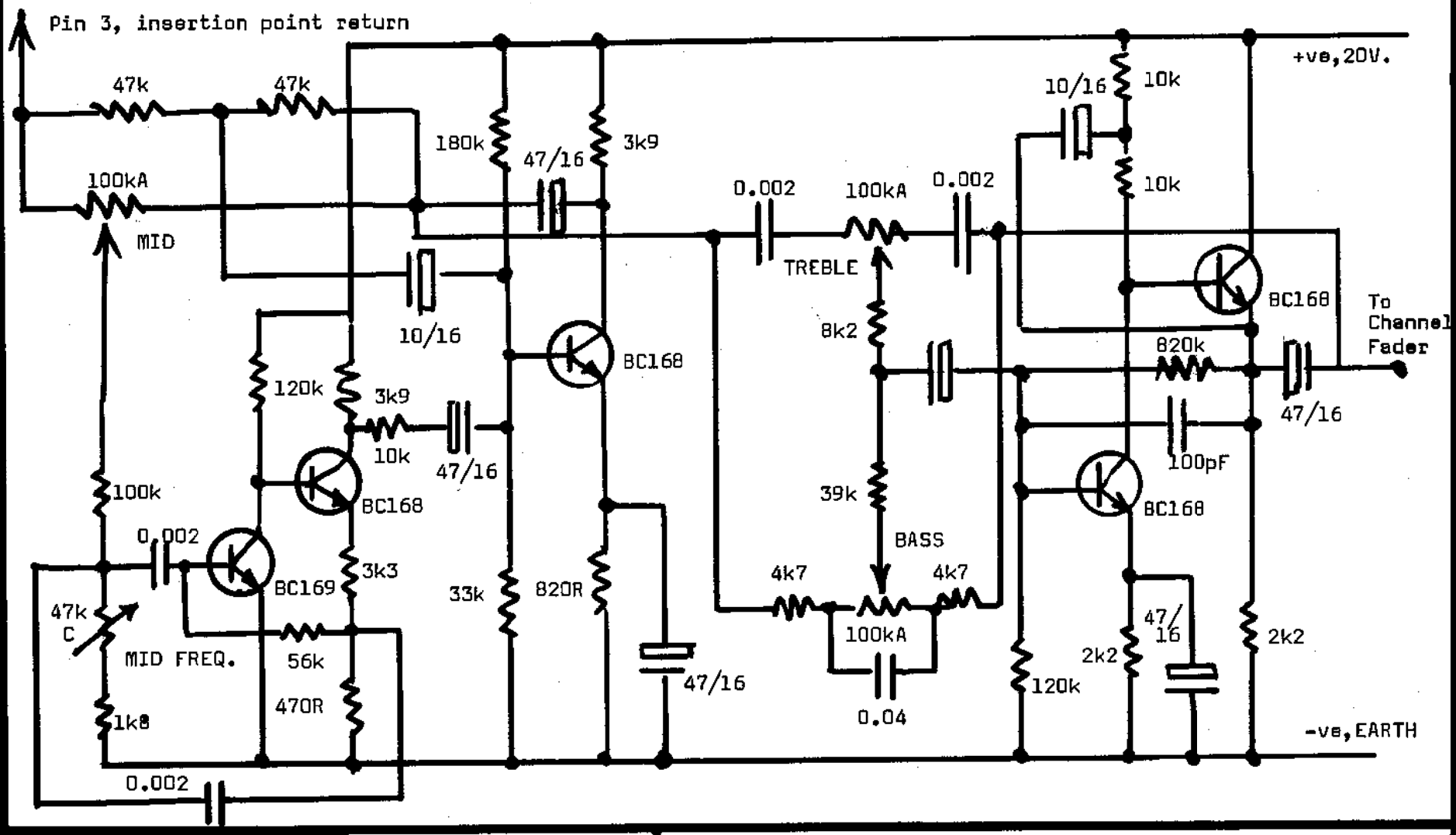
Drg.No. 2010



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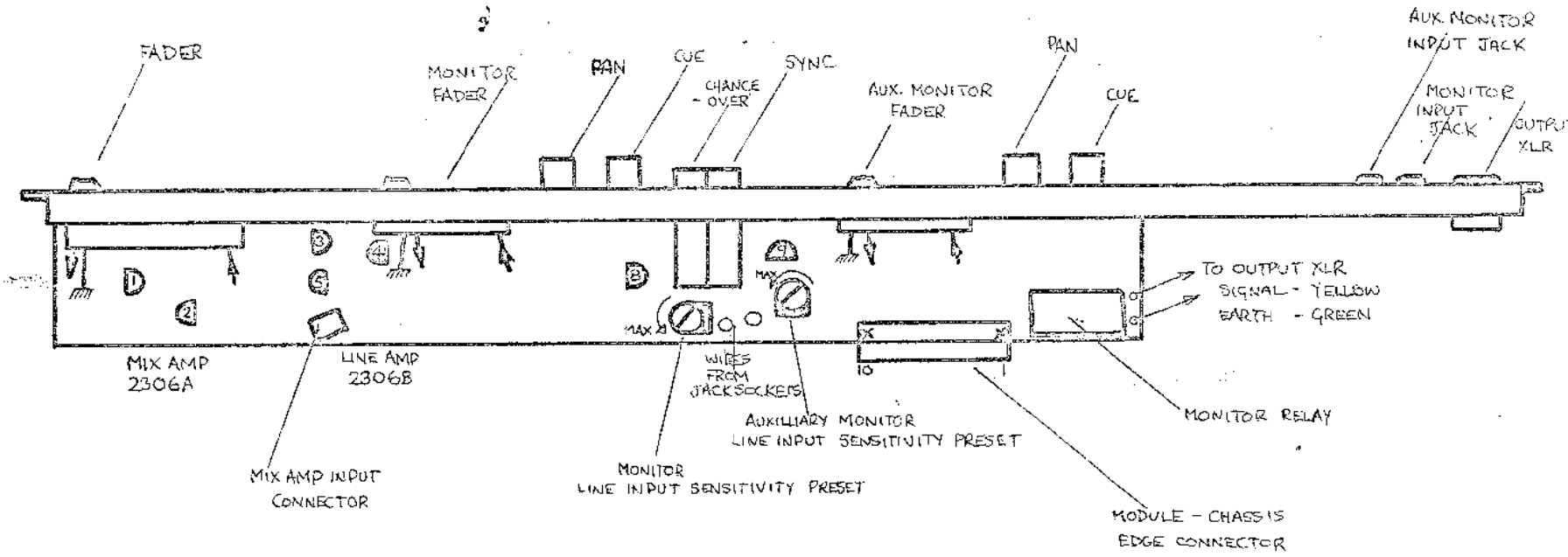
MOD 2 INPUT MODULE - EQUALISER SECTION

Capacitors are all shown as mFd./WV.

Drg.No. 2008



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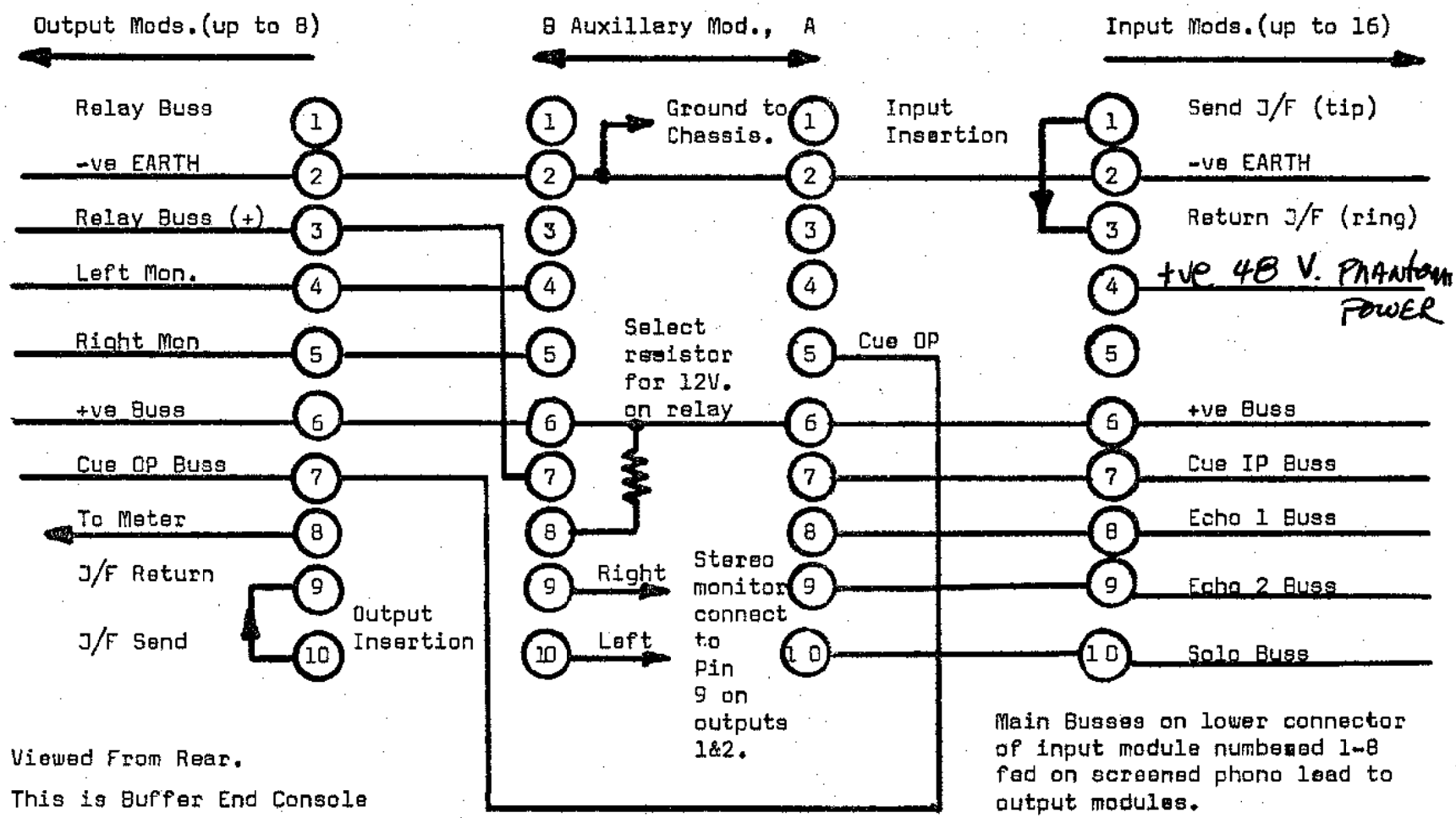
MOD 2 OUTPUT MODULE

COMPONENT LOCATION : SERIES 3
REF. DRAWING 2309

DRAWING: 2350



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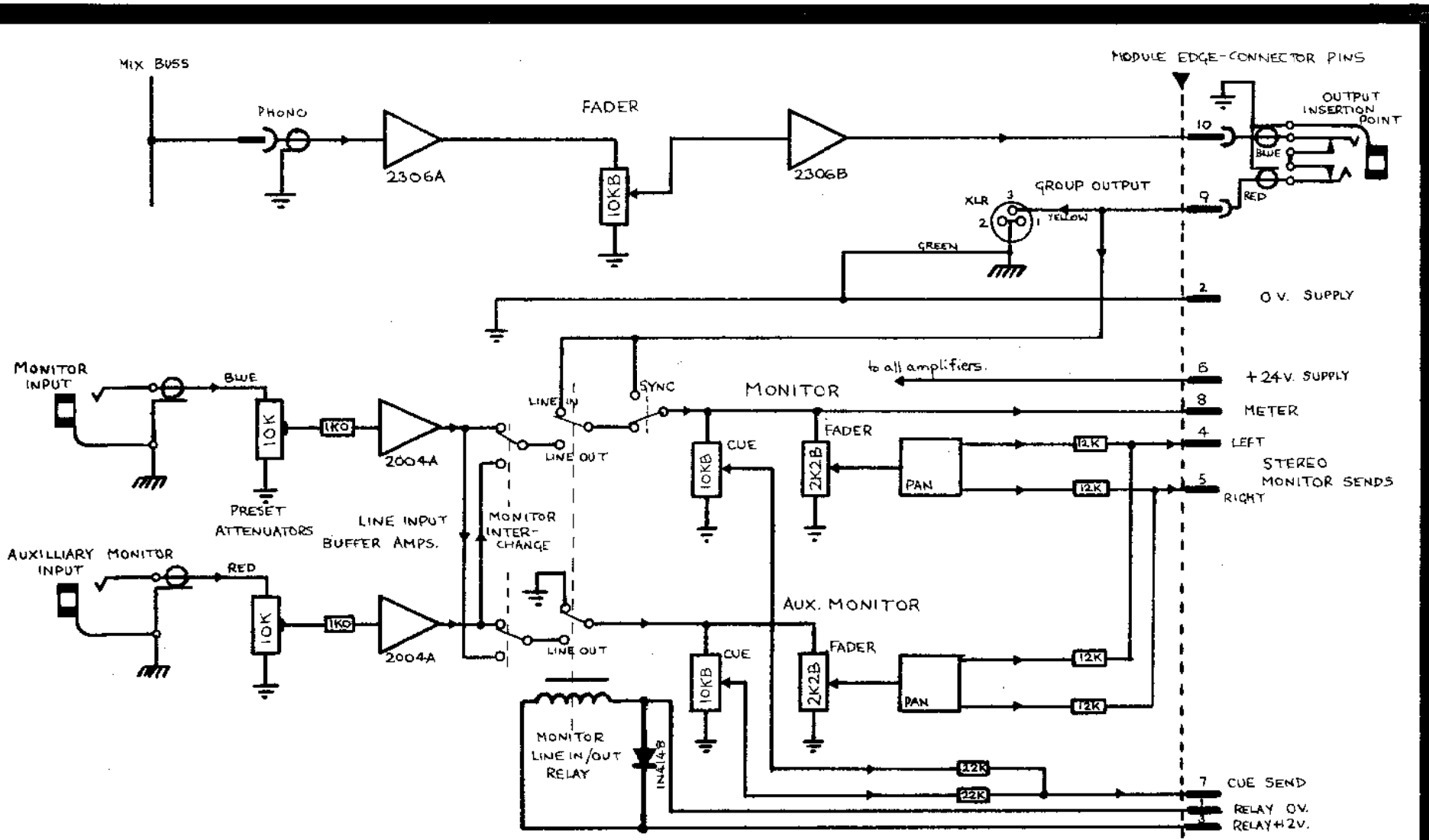
MOD 2 CHASSIS WIRING

UPDATED 4/22/82

Drg.No. 2017



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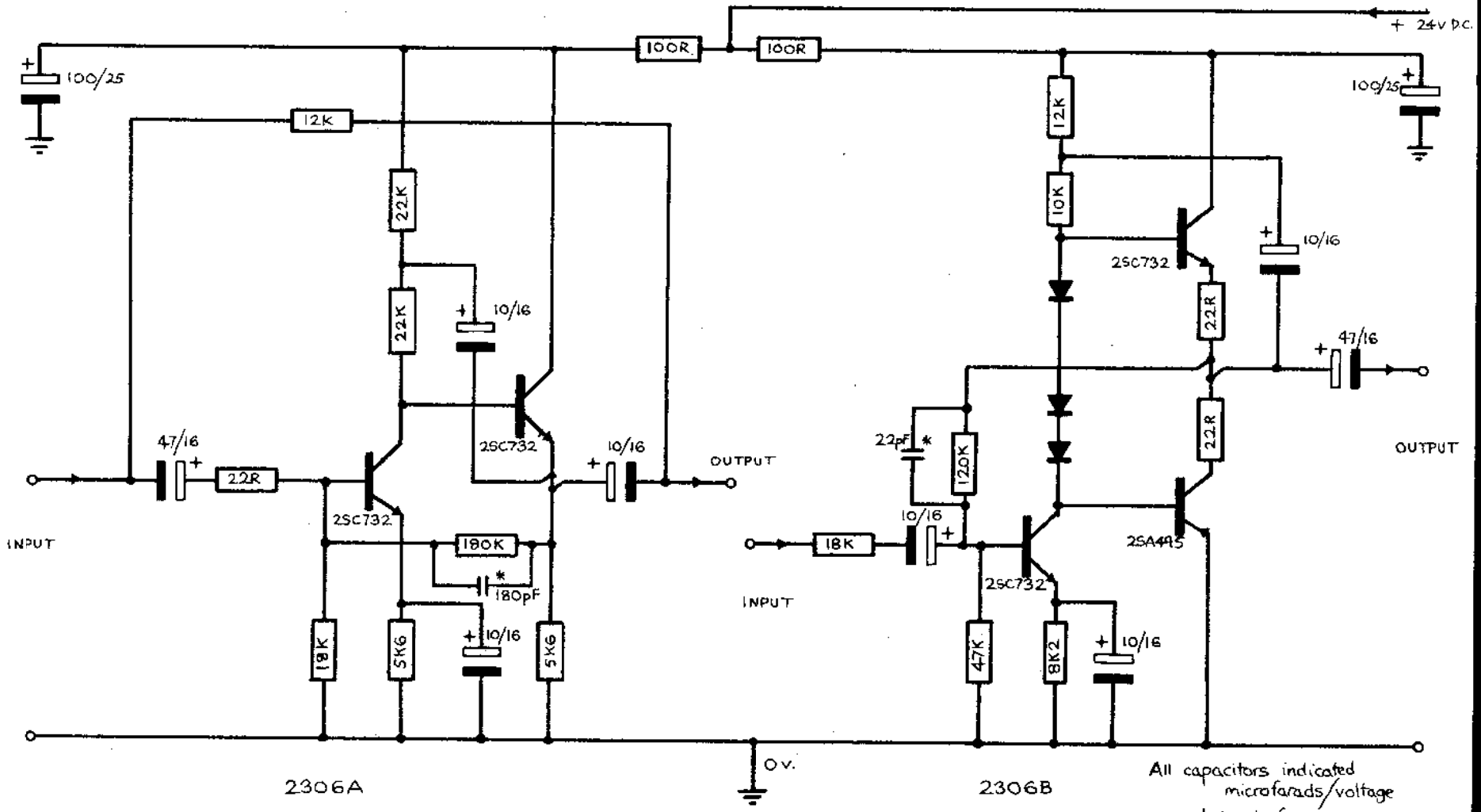
MOD 2 SYSTEMS: OUTPUT MODULE SERIES 3.

BLOCK LAYOUT: 2309.

DRAWN	13.4.76 R
CHECKED	21.4.76 LCB



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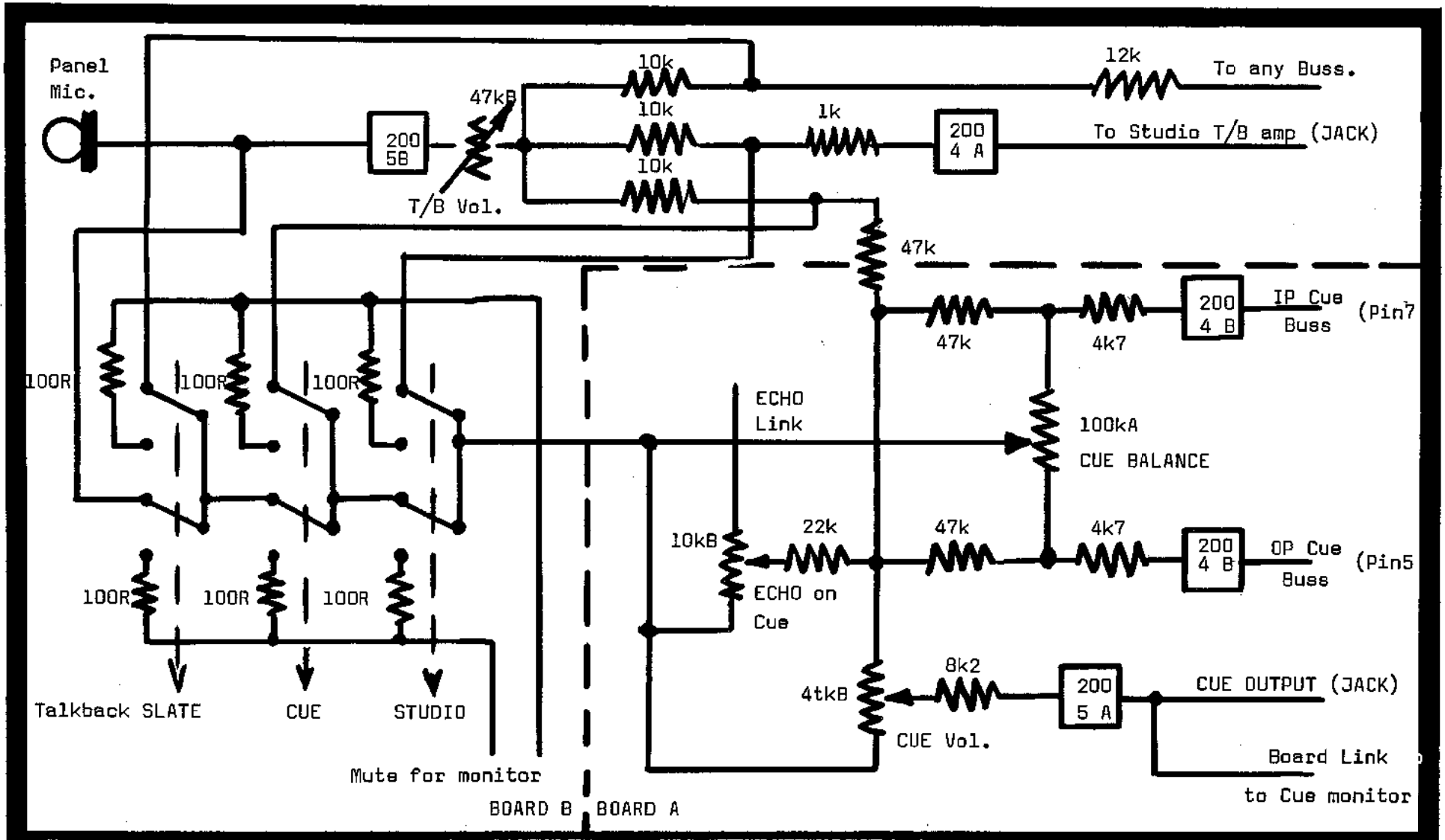
MOD 2 AMPLIFIERS : OUTPUT MIX AMP 2306A
OUTPUT LINE AMP. 2306B

DRAWN	13.4.76 R
CHECKED	21.4.76 ICB



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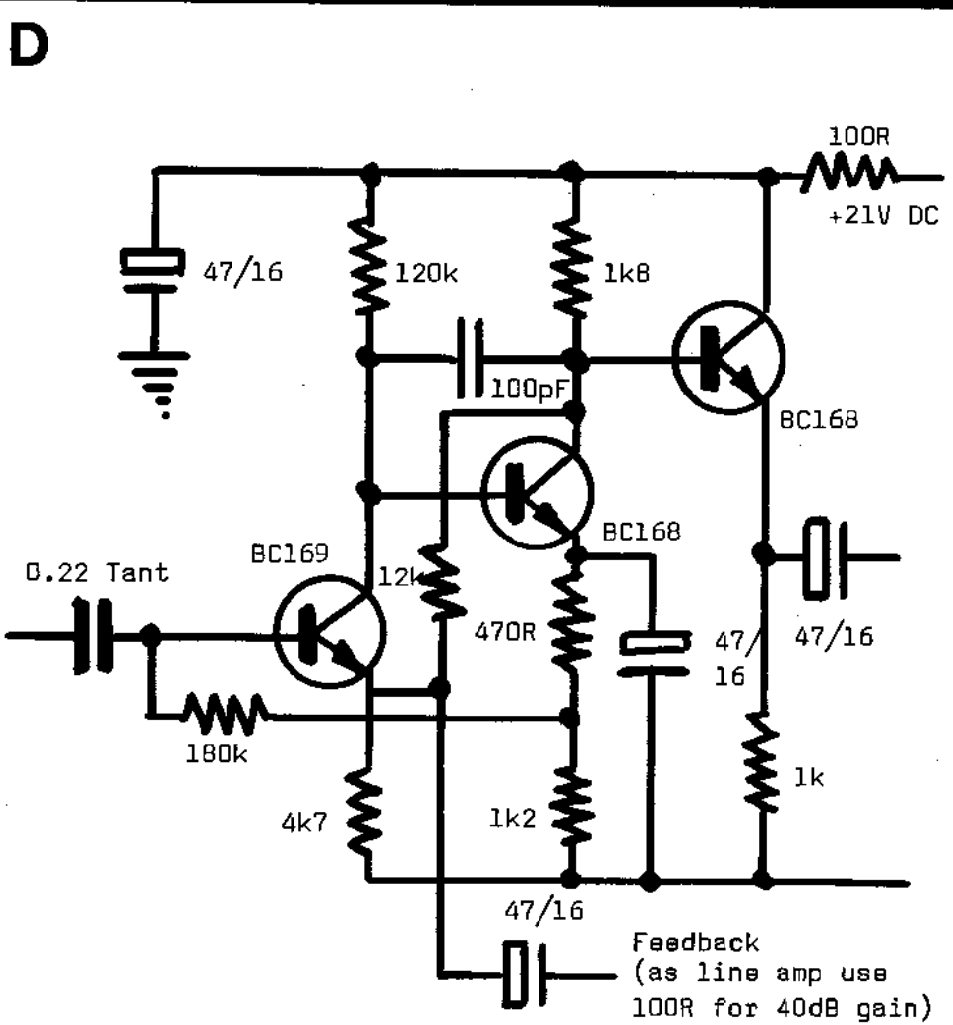
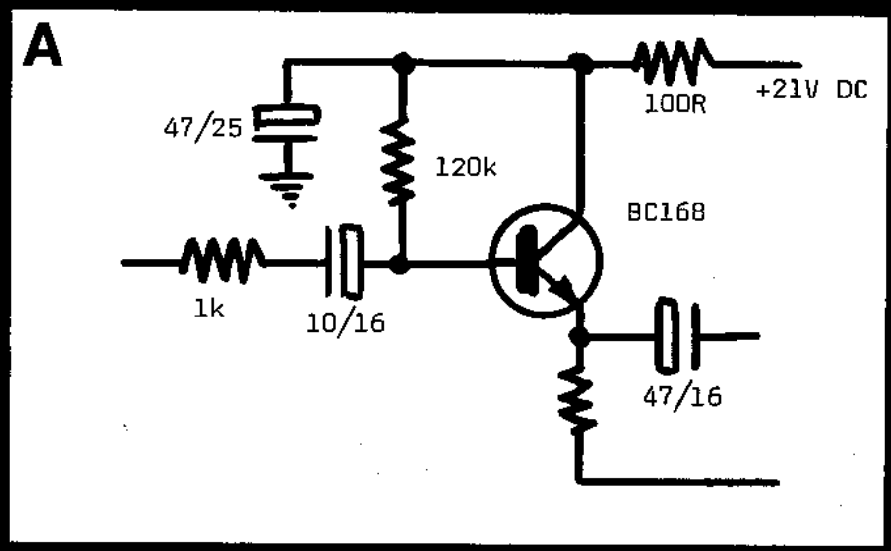
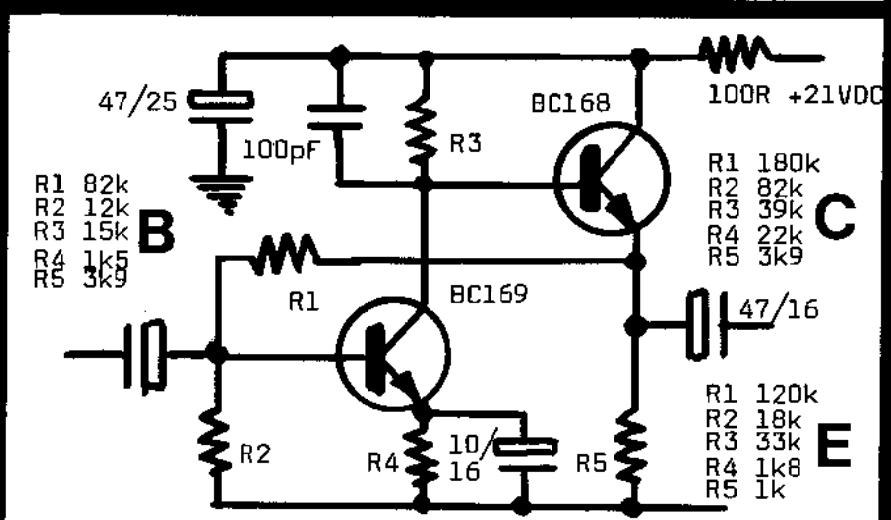
MOD 2 AUXILLARY MODULE - TALKBACK & CUE (Boards A & B)

Numbers in Boxes refer to other Drawings.

Drg.No. 2012







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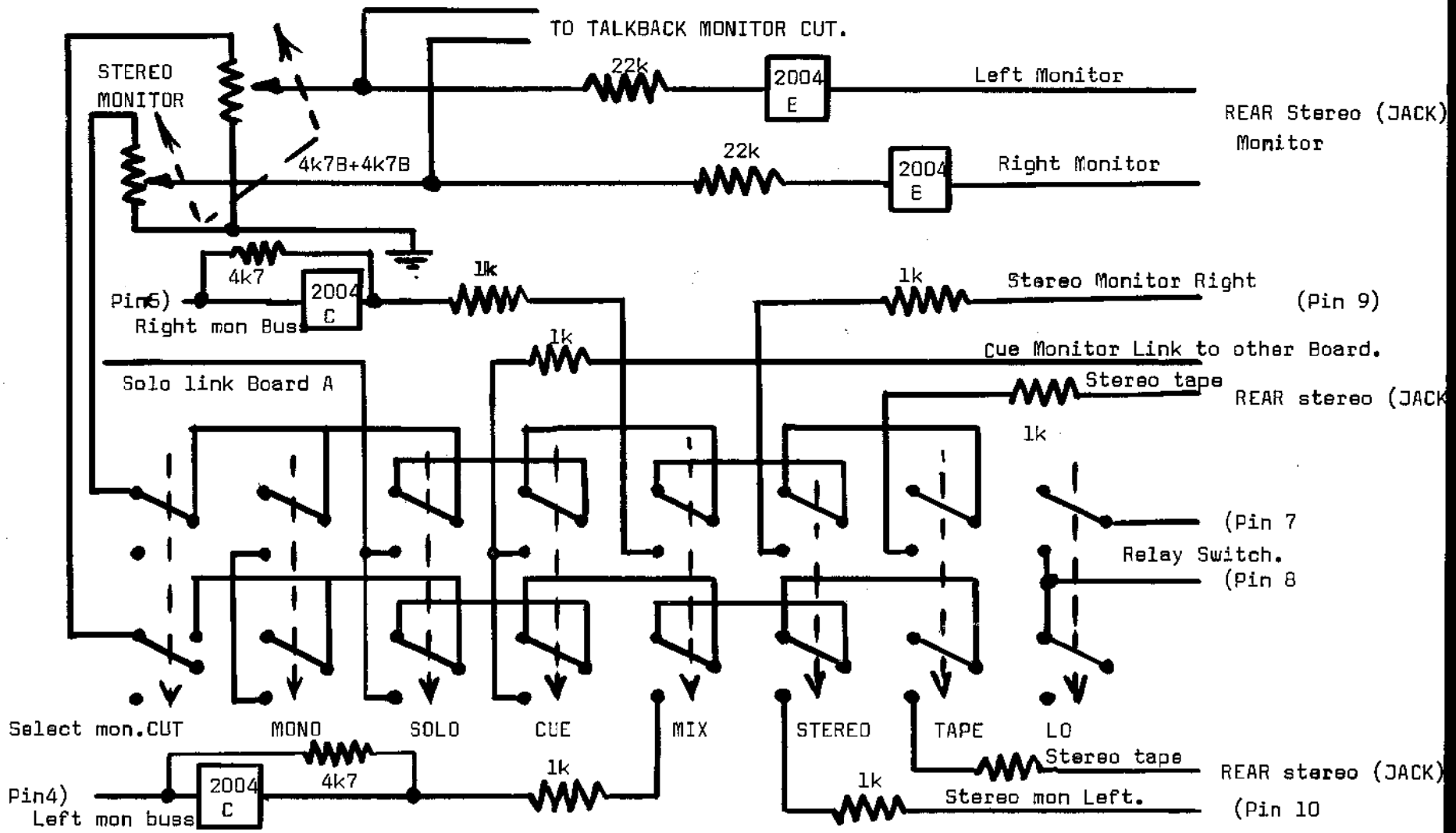
MOD2 - SYSTEM AMPLIFIERS

All capacitors are shown as Capacitance/WV

Drwg.No 2004A-E



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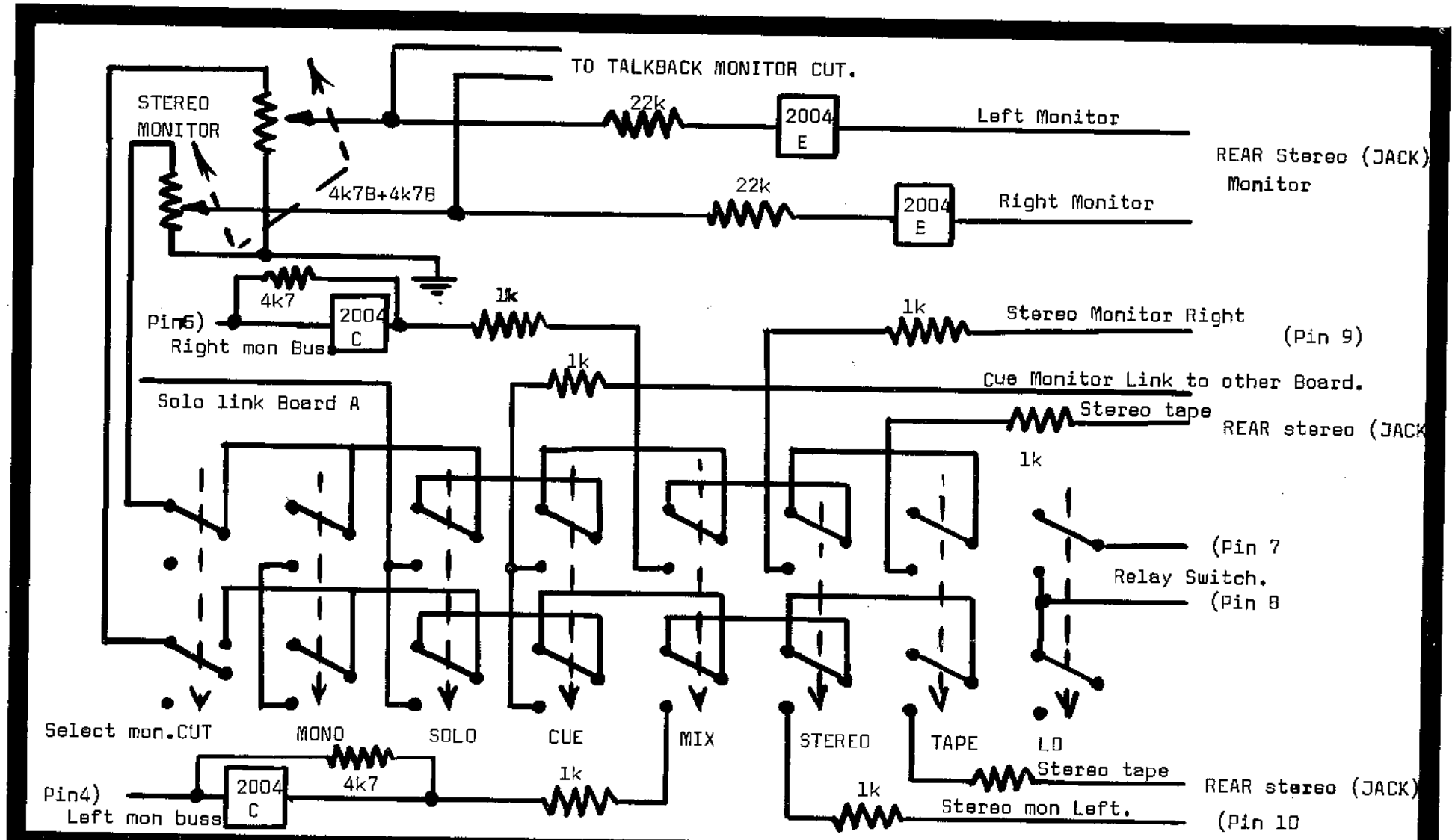
MOD 2 AUXILLARY MODULE - MONITOR SECTION (Board B)

Numbers in boxes refer to other Drawings.

Drg.No. 2011



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MOD 2 AUXILLARY MODULE - MONITOR SECTION (Board B)

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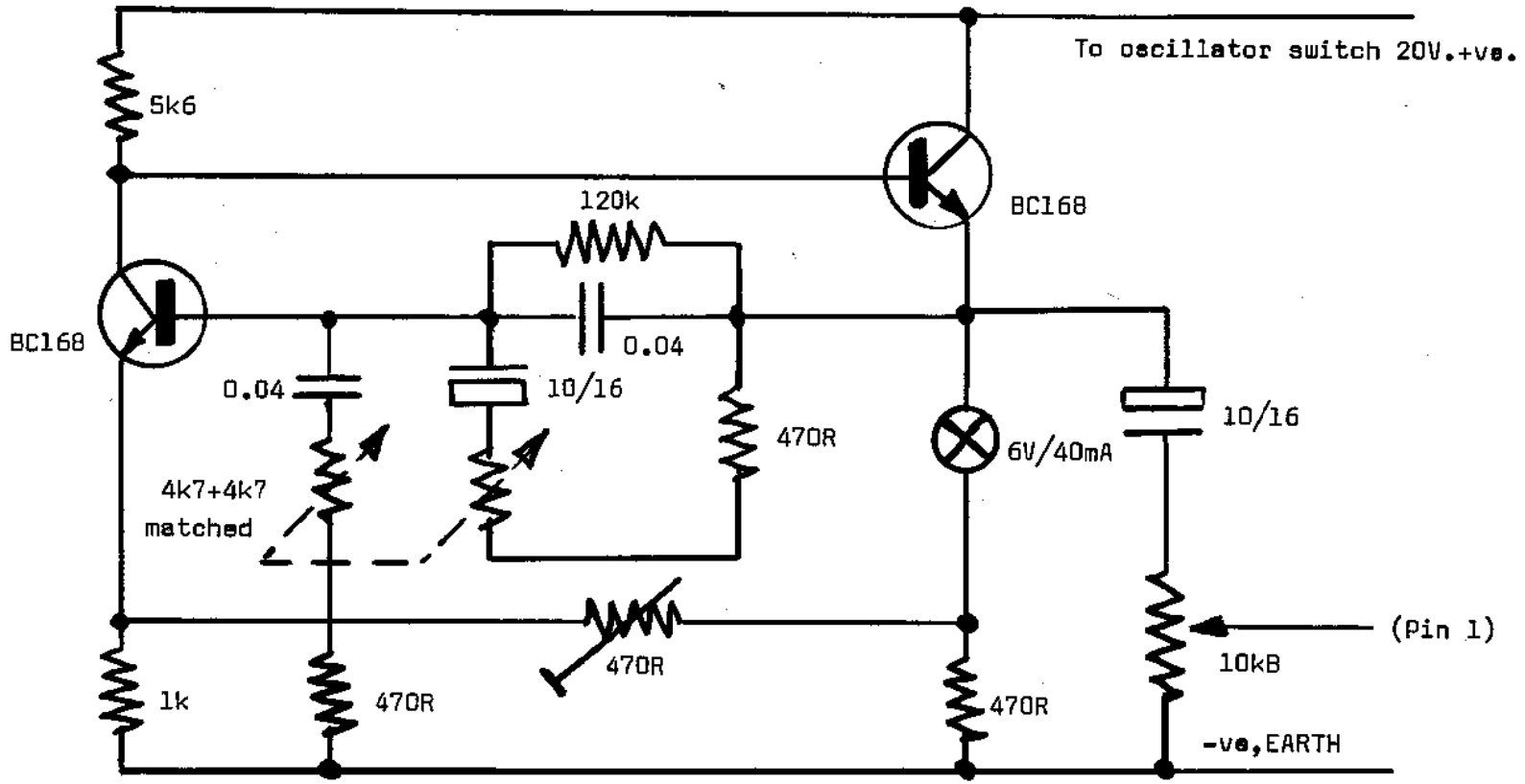
Drg.No. 2011



BOARD B

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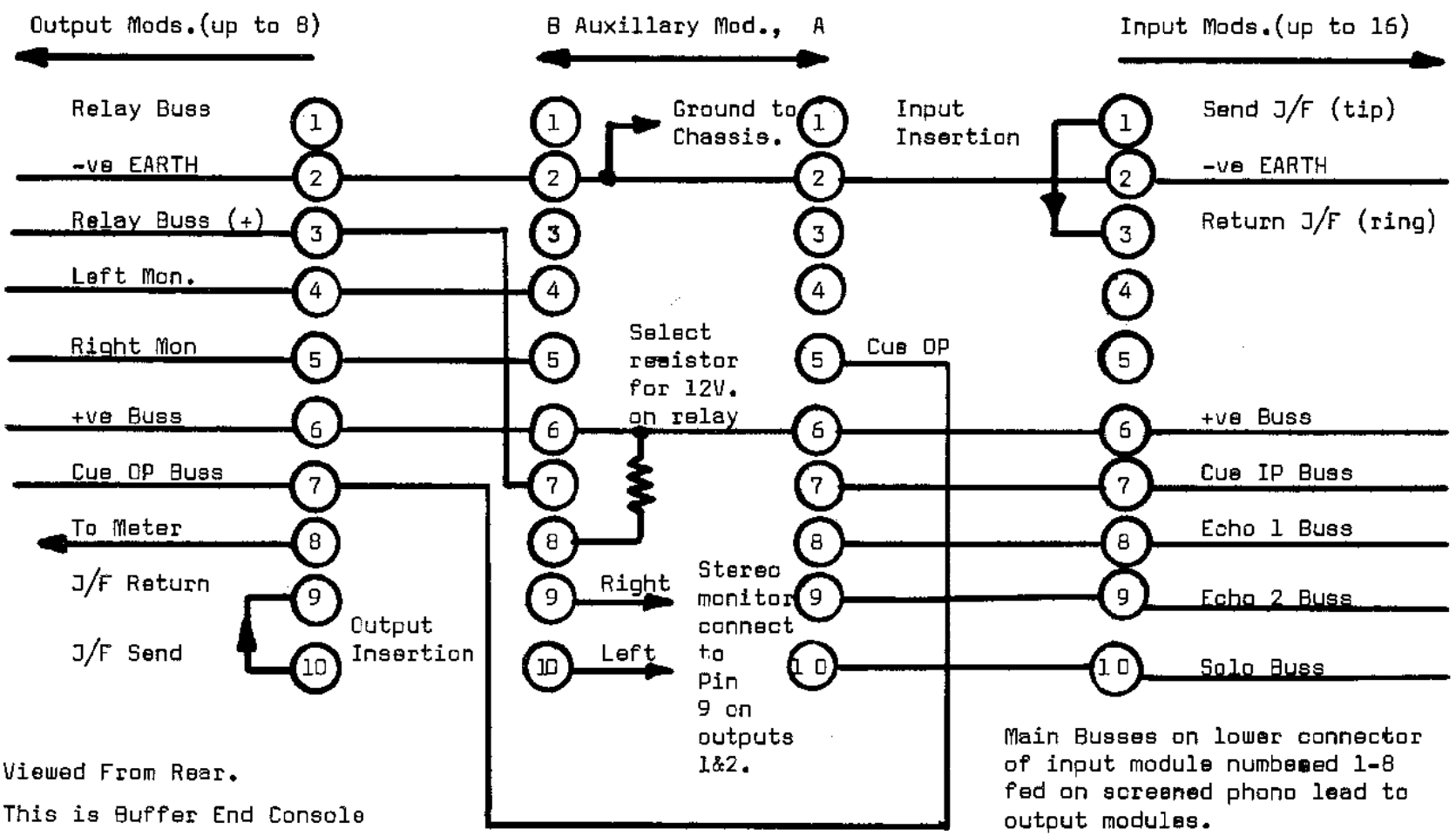
MULTIFREQUENCY OSCILLATOR (APPROX. 800Hz to 8kHz)

Capacitors are all shown as mfd/WV.

Drg.No. 2016



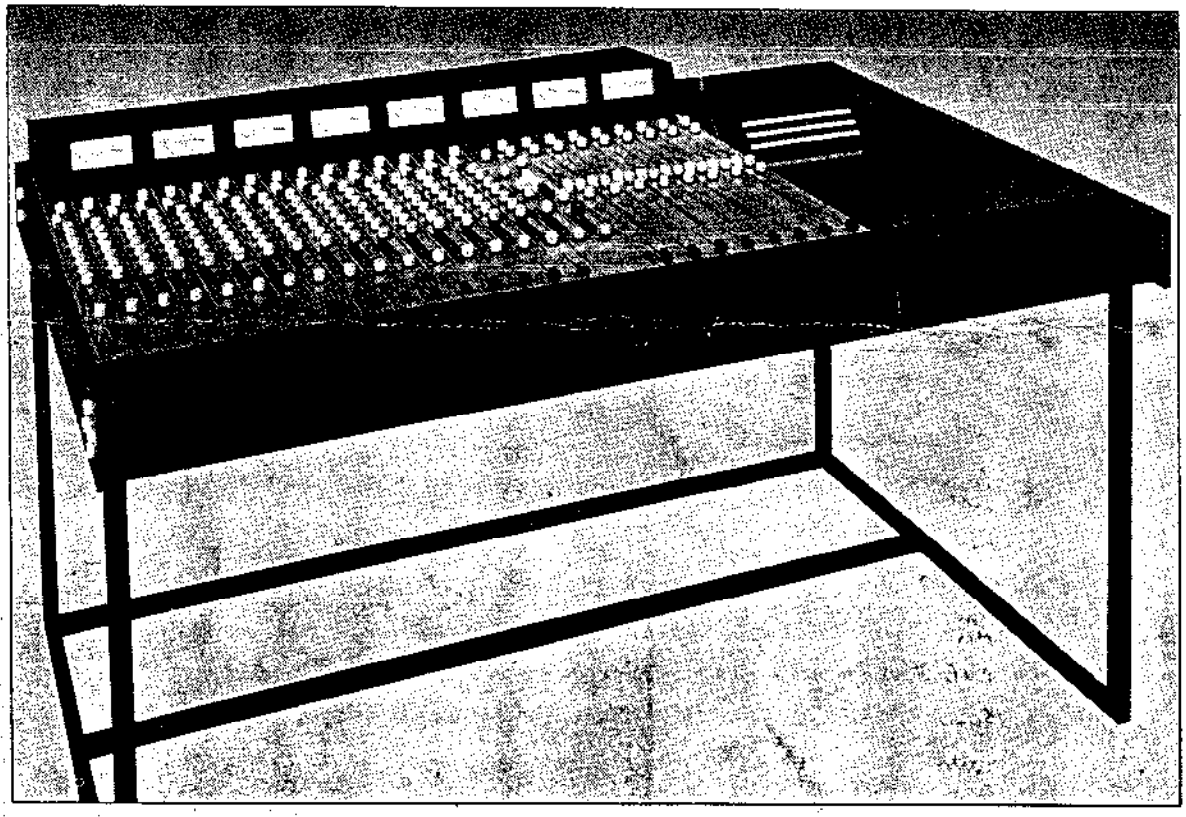
Allen and Heath Limited.
Pembroke House, Campsbourne Road.
London. N8, 7BR. Tel: 01-340-3291.

MOD 2 CHASSIS WIRING

Drg.No. 2017

allen and heath

An exclusive British import from Audiotechniques, Inc.



Authorized Dealer:

Design Theory

The Allen and Heath modular series console has been designed to economically meet the needs of the multitrack recording studio. The emphasis is on maximum facility at a moderate price.

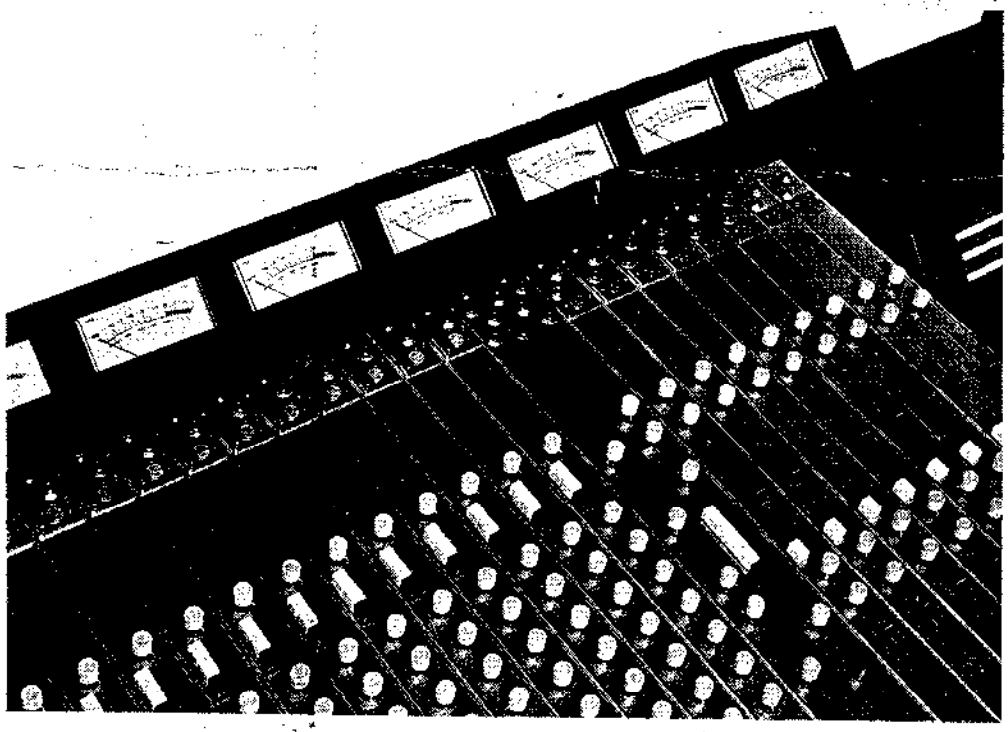
The console includes all the many sophisticated functions that the recording engineer needs for up to sixteen track recording and mixdown.

These facilities are coupled with modular construction, for easy expansion; efficient layout and attractive design to provide an exceptionally flexible mixing console.

Features

Up to 16 input channels
Up to 8 mix buss
Up to 16 channel monitor mix
Modular construction
48 volt phantom powering
Studio/cue talkback and slate
3 range equalization with parametric mid-frequency
Full patching facility
Complete monitoring facility
Overdub function for up to 16 track
Stereo mixdown function
Two echo systems
1 kHz to 10 kHz oscillator

1. Studio talkback output
2. Echo send No.2 output
3. Cue output
4. Line input
5. Lo-Z Mic input
6. Echo send No.1 output
7. Echo send master level No.1
8. Input gain control, 50dB gain control
9. 20dB Mic pad
10. 120 Hz lo cut filter
11. Mic line switch
12. 10 kHz equalizer ±18dB
13. Echo send master level No.2
14. Mid equalizer frequency control 1.8 kHz to 7.5 kHz
15. Mid equalizer boost/cut control ± 12dB
16. Cue derivation control, pan between inputs or outputs
17. 100 Hz equalizer ± 18dB
18. Cue send master level control
19. Cue send level from input channel
20. Echo send level from input channel
21. Echo return to cue system, mono mix of echo return 1 & 2
22. Echo send level from input channel
23. Echo return assign and solo
24. Input channel assign
25. Input channel solo
26. Input channel pan control



Custom Console It started it's life as an Allen & Heath Saber 24/16/16 and stock was the same type board used on Soul II Soul's double-platinum album, Keep On Movin. However, the board has been completely rebuilt by John Chester improving Signal to Noise by 30dbu in a worst case scenario and is as quiet or more so than most large frame consoles. The grounding system was scrapped and reconfigured with a "000" gauge copper buss bar being installed. The summing busses were redesgined and the master section was completely redesgned by John utilizing Jenson 990c Op-Amps and Sowter "radio metal" transformers. The input amplifiers were redsigned and as with all of the other mods, the very cutting edge in IC chips - chips that are of such high quality and expensive that no production consoles pay the cost to use them (Focusrite, Euphonix, Amek, or any other manufacturer) - have been implemented. These are the kinds of IC's you find in $10,000 two-channel, hi-fi DAC's. The Auxes are also all now selectable pre or post. The result of all of these mods is a super clean board that interfaces with the cleanliness of protools and the colour of the outboard gear by getting out of the way!

Bushwick studio Allen + Heath Saber modifications

MAIN MIXER TEST

Levels quoted are for 20.0 Vdc on power socket, oscillator load 470 R , and 680 R output termination. Test frequency is 1 KHz sine wave unless stated otherwise.

Gain and Level check.

1) Employing simulated source with mode switches to " Direct " route MIC inputs individually to OUTPUT 1. With controls as in initial conditions, a level of - 28.5 dBm on the oscillator will give a clipping level of + 17 dBm on the output socket.
Reject all modules with gains outside the permitted + or - 2½ dB range.

2) Route one MIC input to all OUTPUT modules individually. Again an oscillator reading of - 28.5 dBm will give an output of + 17 dBm. The clipping level must be checked very carefully and should in no circumstances fall below + 17 dBm. A reverse diode in the O/P stage will drop clipping by app 1 dB.
The gain range between output modules must be very small and no greater than + or - ¼ dB. Check this by setting the oscillator to deliver 0 dBm at OUTPUT 1. Compare the other 7 outputs which should lie within the quoted range.

3) Select 2nd MIC lead on the simulated source so that input modules 1 & 2 are routed simultaneously to OUTPUT 1. Summation indicates " in phase " , cancellation indicates " reverse phase " .
Repeat for inputs 1 & 3, 1 & 4, etc.

4) Routing one input simultaneously to all outputs, use the O/P faders to give 0 dBm on each output socket under load. Calibrate the meters with the preset on the meter card.
NOTE: Meter ballistics may cause incorrect calibration when the meterhood is lowered.

Frequency Response.

1) The frequency response of the unit may be checked using the configuration shown overleaf. The circuit is achieved by switching to source via pad mode on the simulated source and switching in the pad on each input module. Route all inputs to output 1. and then follow the procedure below.

   (a) Using a 1 KHz square wave, trim each input for mid tone position. Reject any modules requiring over correction from physical mid position.
   By adjusting INPUT 1 gain pot align the module for 0 dBm on OUTPUT 1 at gain position 4.
   (b) For the same oscillator input level, adjust the gain pots on all inputs to obtain 0 dBm out.
   (c) On channel 1 find the upper - 3 dBm point which should be better than 23 KHz.
   (d) Check for same across all inputs.
   (e) Repeat for lower - 3 dB point.

MODULAR MIXER — FINISHED PRODUCT TEST

NOTES :

1) All unsatisfactory items should be entered in 'additional work' section for further attention before clearance.
2) All faults, discretionary passes and abnormalities should be entered in observations column.

TEST PROCEEDURE

QUALITY CHECK

Check finish on ;-

1) Front panels. (Printing, scratches, surface imperfections.)
2) Side sheets. (Scratches, tightness, screw cups, inserts.)
3) Jackfield. (Scratches, finish.)
4) Rear and front buffers. (Damage, surface quality.)
5) Meterhood and wiring. (Finish , tightness of hinges, wiring protected, cable ties and neatness.)
6) Meterhood clearance. (Bolt on meter 8 clipped, clearance on output cannons.)

Visually check :-

1) Knobs. (Tightness on spindle, damage, calibration.)
2) Pushbuttons. (Damage, Corredt color coding - attatched sheet)
3) Fader Knobs. (Height and tightness.)
4) Fader travel. (Sight lines at minimum and maximum)
5) Input No.1 leads clipped to avoid shorts against chassis.
,6) Check auxiliary against master. Ensure pushbuttons move freely.)

Serialisation.

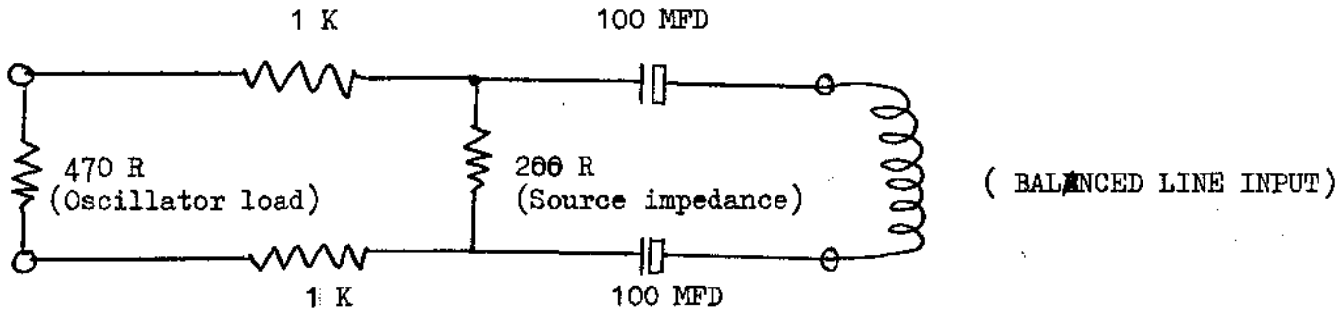
1) Punch Serial No. as shown on Auxiliary Module into front isep rail below this module. Highlight in red.
2) Ensure production label is attatched to rear of jackfield and details complete. Enter Serial No. thereon.

Initial Check.

1) Set the following initial conditions:-

   (a) All tone and pan controls to mid.
   (b) All input gain pots to No.4 .
   (c) All other gain pots to minimum.
   (d) I/P and O/P faders fully up.
   (e) All pushbuttons up.

2) Turn on power and ensure all meters deflect.
3) Check voltage at socket, typically 20.0 v .
4) Adjust for mechanical meter zero.
5) Check voltage on phantom power, typically 19.5 v open circuit.



(Capacitors isolate phantom power)

The frequency response given can be obtained under the following conditions:-

Gain set at No.4.
Pad switched in.
Full gain from input channel through to output.
Mic input simulated as above and 680 R load on main output.

Under these conditions with an output at 0 dBm the frequency response will be :-

- 3 dB points at 22 Hz and 23 KHz.

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Frequency response of MOD 2 modular mixer routing from Mic input to Main output.