CANFORD AUDIO PLC
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technical data

MINX MIXER
SERVICE MANUAL

Manufactured by Canford Audio plc
Under licence from Audio Systems Components Ltd

02-405 (Issue 2) 02/03

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INTRODUCTION

Thank you for choosing the Minx mini mixer.

A lot of care and attention has gone into the design and build of this product and we hope that it will serve you well. Like any technology product the only way to get the best from it is to thoroughly read and understand the manual.

Should you find any aspect of this product and its related documentation ambiguous or confusing please let us know.

Additionally, should you perceive ways in which the Minx could be improved we would welcome your comments.

APPLICATION NOTES

The Minx was designed to be for 2 man operation, nominally presenter (DJ) and engineer. The presenter need not necessarily be next to the engineer as talkback exists from engineer to presenter; also the engineer/presenter can talk back two-way with base on the CUE line.

Typical uses are:

Sports Events	Mics for presenter, actuality and guest.
Town Hall	Expanding existing mic positions at debates etc.
Live OBs	Less than 6lb in weight and battery powered the Minx can feed radio links (remote pickup) or radio mics at mic level.

These are just typical uses. The Minx is so compact and versatile, yet with such good quality specs. it can be used as a sub-mixer at concerts, feed ENG cameras/VCRs or for local work.

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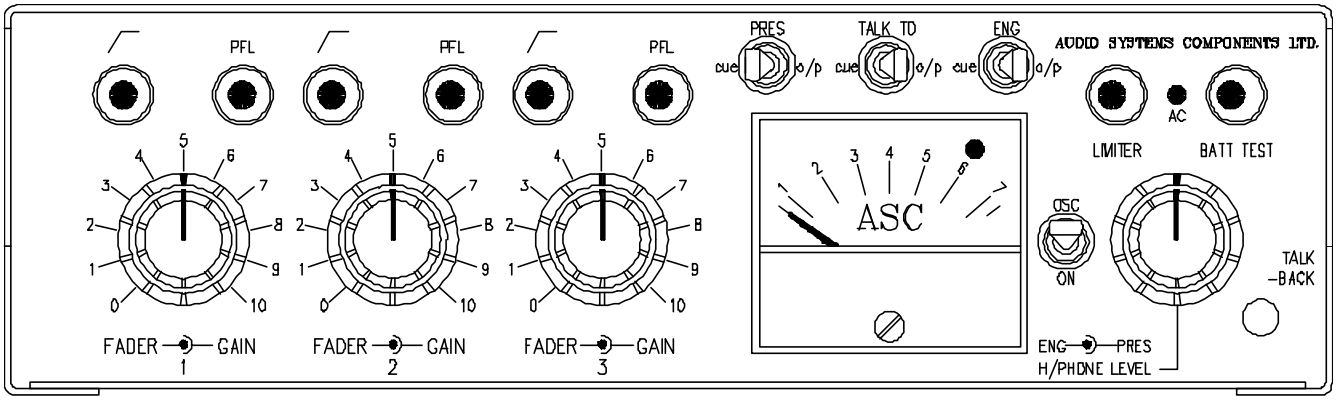

FRONT PANEL CONTROLS

1. **Input Level Control**

A dual-concentric pot. arrangement feeding the mix bus where the back (outer) knob adjusts GAIN and the front (inner) knob acts as a FADER. Level set by the GAIN control is progressively attenuated by the FADER control by adjusting FADER anti-clockwise from the fully open(clockwise) position. The FADER control, therefore, does not contribute any more gain i.e. does not have (say) 10dB in hand.

2. **Pre-Fade Listen (PFL)**

When selected, as indicated by the orange iris, allows monitoring of this (and any other channel currently in PFL mode) or engineer's (1 ENG.) headphones only. FADER (see Section 1) is not operative and channels with PFL selected do not contribute to mix bus or presenter's (2 PRES) headphones. Whenever PFL is selected for one or more channels, the PPM meter automatically switches over to follow.

3. High Pass or Rumble Filter

When selected, as indicated by orange iris, imposes a 6dBper octave high pass filter on the channel. Turnover point(-1dB) is 120 Hz, -3dB point is 80 Hz.

4. Headphone Monitoring Select Switches

Mounted above the PPM are presenter's (PRES) and engineer's (ENG.) locking toggle switches for monitoring either mixer output (O/P) or control line input (CUE) on their respective headphones. For engineer only, monitoring will be overridden by PFL if selected.

5 Talkback Routing (PTT)

Associated with the electret talkback microphone (5a), this centre biased momentary toggle switch directs the output of the talkback mic. amp either to the control line (CUE) when pushed to the left (i.e. towards PRES monitor select toggle) or to the mixer output (O/P) when pushed to the right. Thus the engineer can talk to the presenter, even during a live programme, by selecting CUE on presenter's headphones and holding the PTT toggle to the left.

FRONT PANEL CONTROLS cont'd...

6. Limiter

When selected, as indicated by orange iris, limits output at +8dBm (factory set). Operation indicated by the led fitted into the PPM; attack and release program controlled.

7. Battery Check (Batt Test)

Push to read battery condition on the PPM. Replace/recharge batteries when level reads lower than 5 on the PPM scale. Scale reads between 6 - 7 with new batteries.

8. Peak Program Meter (PPM)

Scale 4=0dBu, 6=+8dBu. Movement and electronics to BS4297.

9. Headphone Level (Cans)

A dual concentric pot. arrangement where the back (outer) knob adjusts presenter's (2 PRES) headphone level and the front (inner) knob adjusts engineer's (1ENG) headphone level independently.

10. Oscillator (OSC)

Directly left of the headphone level controls is the oscillator on/off toggle switch. When switched downwards (ON) the oscillator generates a 1KHz tone at 0dBu which is routed to the mixer output. This can prove useful in patching-in the Minx at a radio station when it is being used at a remote location. The oscillator is also essential for setting correct level line-ups.

NOTE:

The oscillator circuit employed uses a thermistor which will initially overshoot before settling back to 0dBu. If following equipment is sensitive to overshoot, turn LIMITER on before using oscillator.

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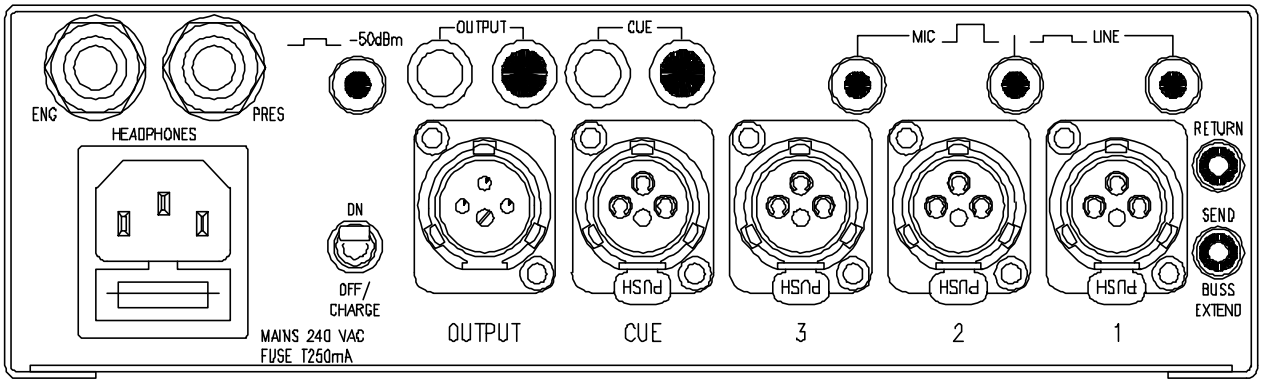

BACK PANEL

11. Input Selector (Mic/Line)

When pushed-in, as indicated by orange iris, pads input to accept line level signals.

12. Control Line Input (Cue)

Accepts line level signals for monitoring by presenter or engineer's headphones (see 4). Connection may be by 3 pin XLR type connector or bare wires as in temporary 'phone circuits.

13. Mixer Output (Output)

Normally line level output (but see 14) XLR connector has low source impedance for driving good quality music circuits, bare wire terminals have 600 ohm source impedance for (e.g.) temporary 'phone circuits.

14. Output Attenuator (-50dbm)

Makes mixer output mic. level and changes source impedance to 200 ohms (typical mic. impedance).

15. Battery Switch (On Off/Charge)

Locking toggle switch. In the ON (up) position switches the mixer on under battery power, in the OFF/CHARGE position switches mixer off under battery power but enables Ni-Cad charging circuits (see 16).

16. IEC Mains Socket/Integral Fuse Holder

Regardless of battery switch position (see 15) application of mains power via this socket always powers the mixer. With reference to 15 above, if ON position selected and mains power is lost the mixer will fail to battery operation. If OFF/CHARGE position selected the mixer is mains powered and the Ni-Cads are being charged.

DO NOT OPERATE THE MINX FROM MAINS POWER WITH ORDINARY DRY CELLS AND OFF/CHARGE POSITION SELECTED.

17. Fuse Holder

A pull out drawer beneath the mains plug entry contains the 250mA, 20mm fuse and a spare.

18. Headphones (Cans) (1 ENG. 2 PRES)

Jack sockets for engineer and presenter's headphones. Models AP and AT use 'A' gauge tip/ring/sleeve 6.35 mm stereo jack. Models BP and BT use 'B' gauge tip/ring/sleeve 6.35 mm stereo jack having the small tip.

19. Battery Compartment

Underneath the Minx you will find the battery compartment. Here there is room for 2 x PP3 batteries and the phantom power module. If the phantom power module is not fitted, there is space for two spare PP3 batteries.

(Take care to insulate battery connectors on spares.)

Phantom Power Module

Only models AP (93-931) and BP (93-938) have the 48 volt Phantom Power option

Phantom Power is applied to all of the microphone inputs.

The Phantom Power facility is controlled by a 3 position switch on the Phantom Module PCB, contained in the battery compartment of the mixer.

There is a label on the battery compartment lid, which indicates the switch settings.

The switch positions are:
Phantom Power Batt
Disable
Regular Batt/Mains

Phantom Power Batt

The Phantom Power is generated from the single PP3 battery next to the Phantom Module PCB. Use of phantom power does not then affect the life of the regular pair of batteries but current is always drawn from the separate Phantom Power Battery, even on mains operation. When the On-Off/Charge switch is in the Off position, there is no drain from the Phantom Power Battery. There is no provision for charging the Phantom Power Battery on mains operation and no requirement to remove this battery on mains operation in the Off/Charge position.

Disable

The Phantom supply is disabled. No current is drawn from the Phantom Power Battery and no extra current is drawn from the regular pair of batteries under any operating conditions.

Regular Batt/Mains

The Phantom Power is generated from the Mains Supply, or the regular pair of batteries if the mains is removed. The life of one the regular PP3 batteries is reduced; in the worst case this reduction is to approximately half of the battery life with an independent Phantom Power Battery.

Whichever battery is being used for Phantom Power, there is always some current drain due to the Phantom Power supply, unless Off/Charge is selected and/or Phantom Disable is selected. The drain on this battery then depends on the number and type of microphones in use.

Phantom Power (obsolete version using 22.5 volt camera batteries)

Derived from 2 x B122 22.5 Volt batteries only, they are housed in the battery compartment. Consumption is approximately 2 - 3mA per microphone being powered. Approximate battery life is 8 hours.

NOTE: The Minx has no provision for recharging the Phantom power batteries, once expired they must be replaced. Batteries must be fitted if phantom power is required when using the Minx on AC.
If the Minx is not being used ensure that Phantom power mics are either unplugged from the mixer or the Mic/Line switch is set to LINE.
When using Dynamic mics ensure that both B122 batteries are removed from the battery compartment.

B122 batteries are no longer available.
Addition of the Phantom Power Module to existing Minx Mixers is a chargeable factory retrofit.

12 Volt Powering – Optional – Models AT and BT

Derived from PP3 batteries or AC supply, connected to microphone when locking toggle switches are selected in DOWN position.

NOTE:

If Mic/Line switch is in line position ensure that corresponding ‘T’ Power toggle switch is in the ‘OFF’ (up) position. When using Dynamic microphones ensure that corresponding ‘T’ power toggle switch is in the ‘OFF’ position otherwise damage to the microphone may result.

WARNING:

Do not use 12 Volt ‘T’ Powering with 48 Volt Phantom power microphones or Dynamic mics.

Do not use 48 Volt Phantom powering with 12 Volt ‘T’ Power microphones or Dynamic microphones.

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TECHNICAL SPECIFICATION

Inputs

	Noise Referred to Input		
Measurement Method	Mic	Line	Output Noise
22Hz to 22KHz RMS	-121.1dB	-79.7dB	-75.0dB
A weighted RMS -124.7dB	-82.3dB	-78.1dB	
CCIR weighted RMS	-117.9dB	-73.4dB	-69.0dB
CCIR weighted quasi peak	-112.1dB	-69.3dB	-65.1dB
CCIR/ARM ref 2kHz	-122.8dB	-80.0dB	-75.7dB

Harmonic Distortion <0.1% at 1KHz

Impedance
(Both transfer bal.)
Mic > 1K ohm floating
Line > 10K ohm bridging

Sensitivity
(Fader fully open)
-70dBm to - 40dBm (Mic)
-20dBm to + 10dBm (Line)

Headroom at Inputs
(Fader fully open)
Mic better than 30dB
Line better than 20dB

Amplitude-frequency response
(w.r.t. 1KHz)
40Hz – 15KHz ±1.0dB
125Hz – 10KHz ± 0.5dB

Hi-pass filter
-3dB at 80Hz
Slope = 6dB/octave

Wiring Conventions

XLR - Type connectors:
Pin 1 = Ground
Pin 2 =+ve Phase or 'Hot'
Pin 3 = -ve Phase or 'Cold'

RCA Phono connectors:
Tip = +ve Phase or 'Hot'
Ring = -ve Phase or 'Cold'

1/4" Jacks connectors
Tip = +ve Phase or 'Hot'
Ring = -ve Phase or 'Cold'
Sleeve = Ground

Bare wire terminals:
Red = +ve Phase or 'Hot'
Black = -ve Phase or 'Cold'

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TECHNICAL SPECIFICATION cont'd..

Outputs (All transformer balanced)

1st Output Impedance	75 ohm ±10% floating or -50dBm, 200 ohm
Connector	Locking, 3 pin XLR
2nd Output Impedance	600 ohm ± 10% floating
Connector	(bare wire) terminal

(Each output is fed from separate secondary in output distribution transformer which provides DC isolation. Both the line output and cue line input transformers incorporate an interwinding screen and are flash tested at 1Kv primary to secondary).

Cue or Talkback/Control

Impedance	600 ohm floating, transformer balanced
Connector	Locking, 3 pin XLR and (barewire) terminal in parallel.
Weight	1.85Kg

Dimensions

Width	223 mm (8.8")
Depth	193 mm (7.6")
Height	66 mm (2.6")

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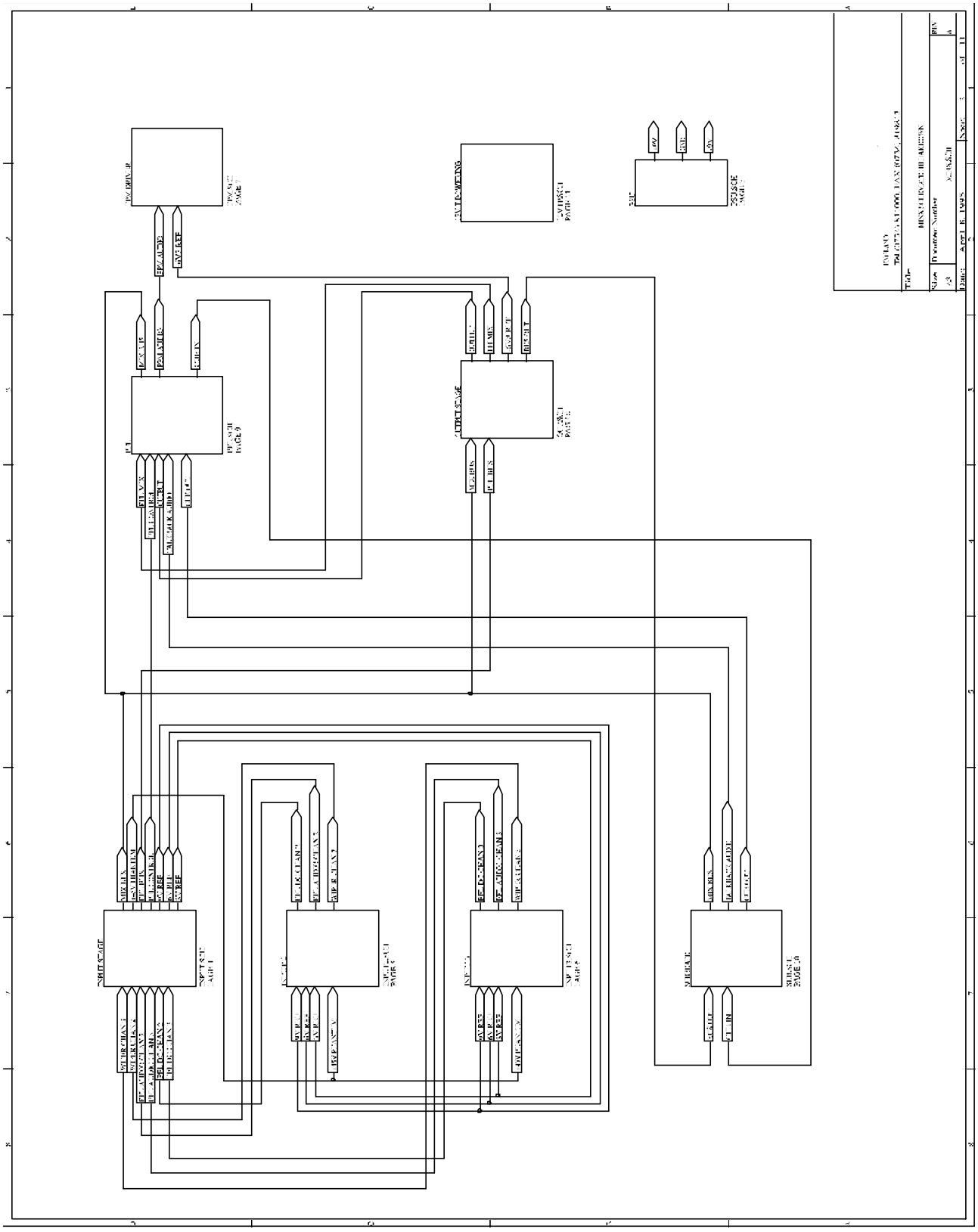
Schematic Breakdown



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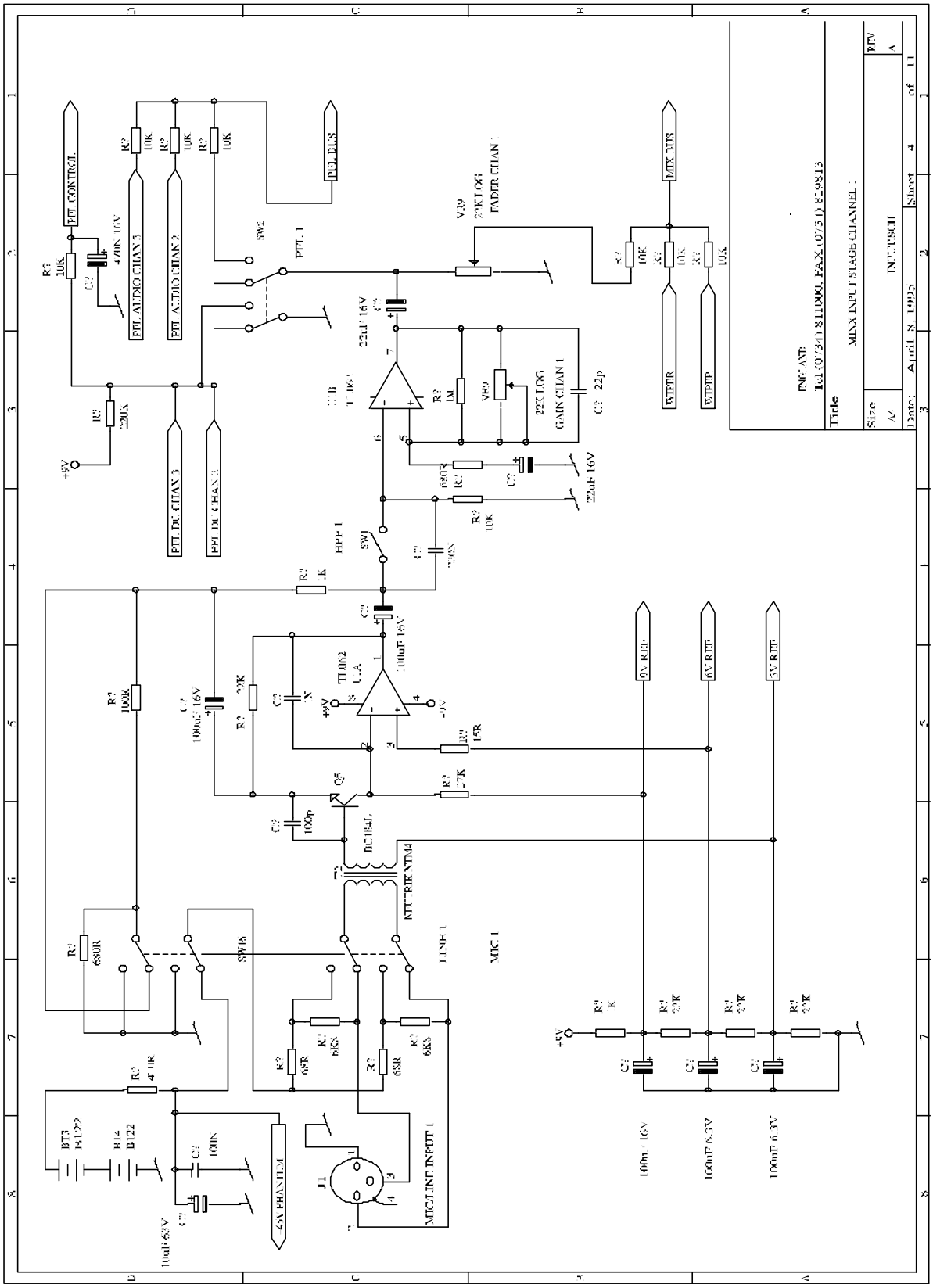
Mic/Line Input Stage (Channel 1)



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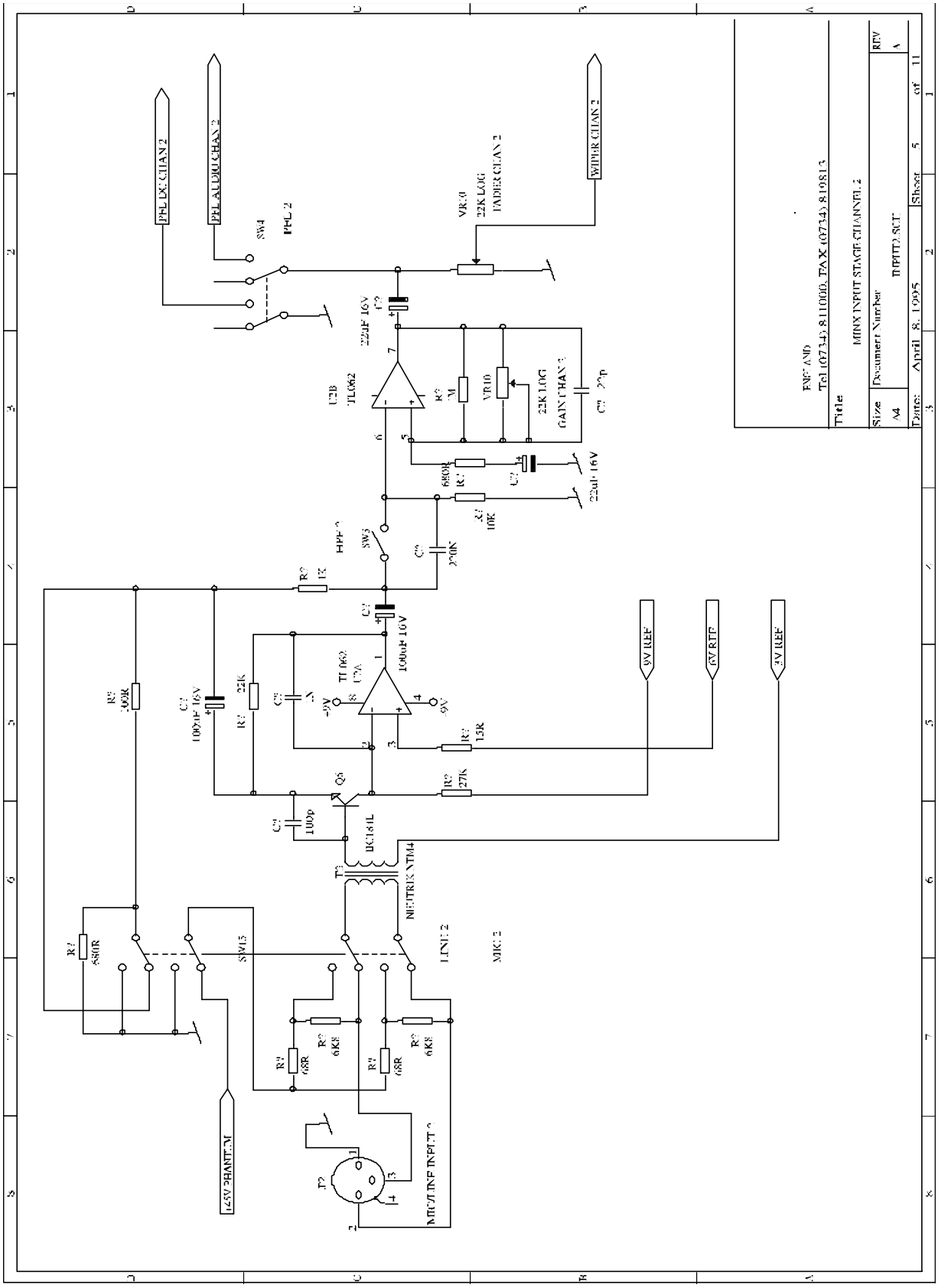
Mic/Line Input Stage (Channel 2)



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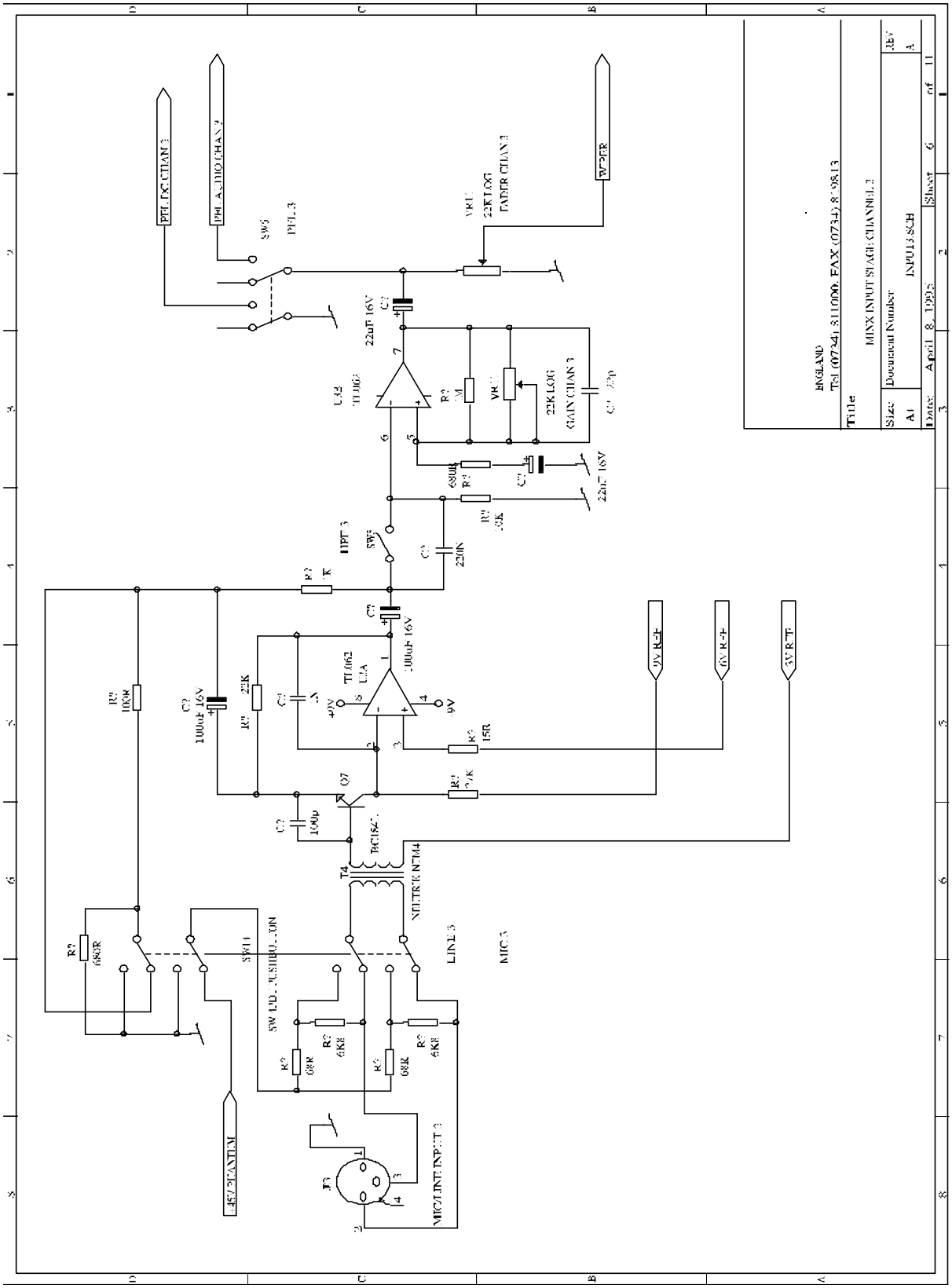
Mic/Line Input Stage (Channel 3)



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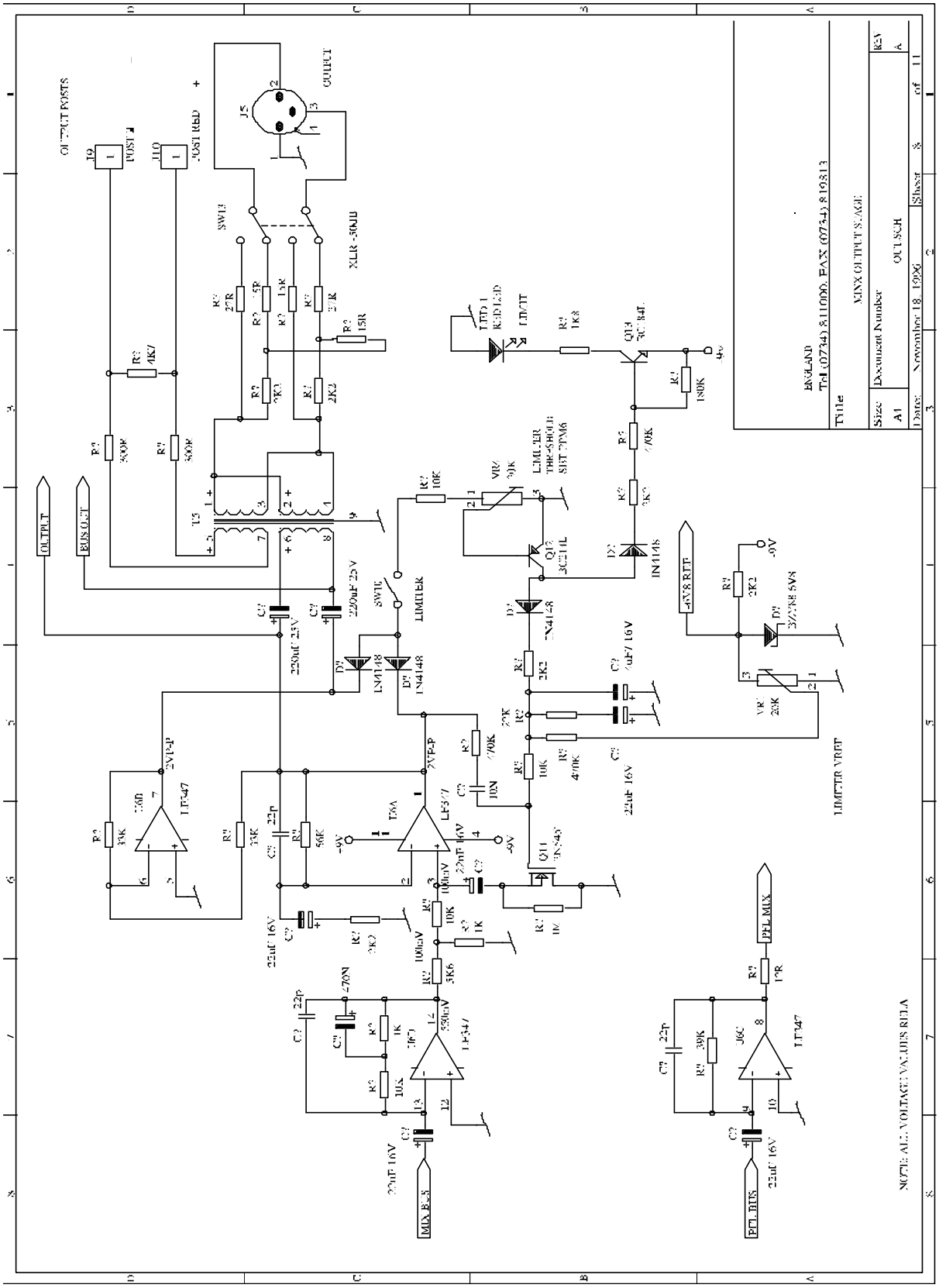
Mix Amp/Limiter/Output



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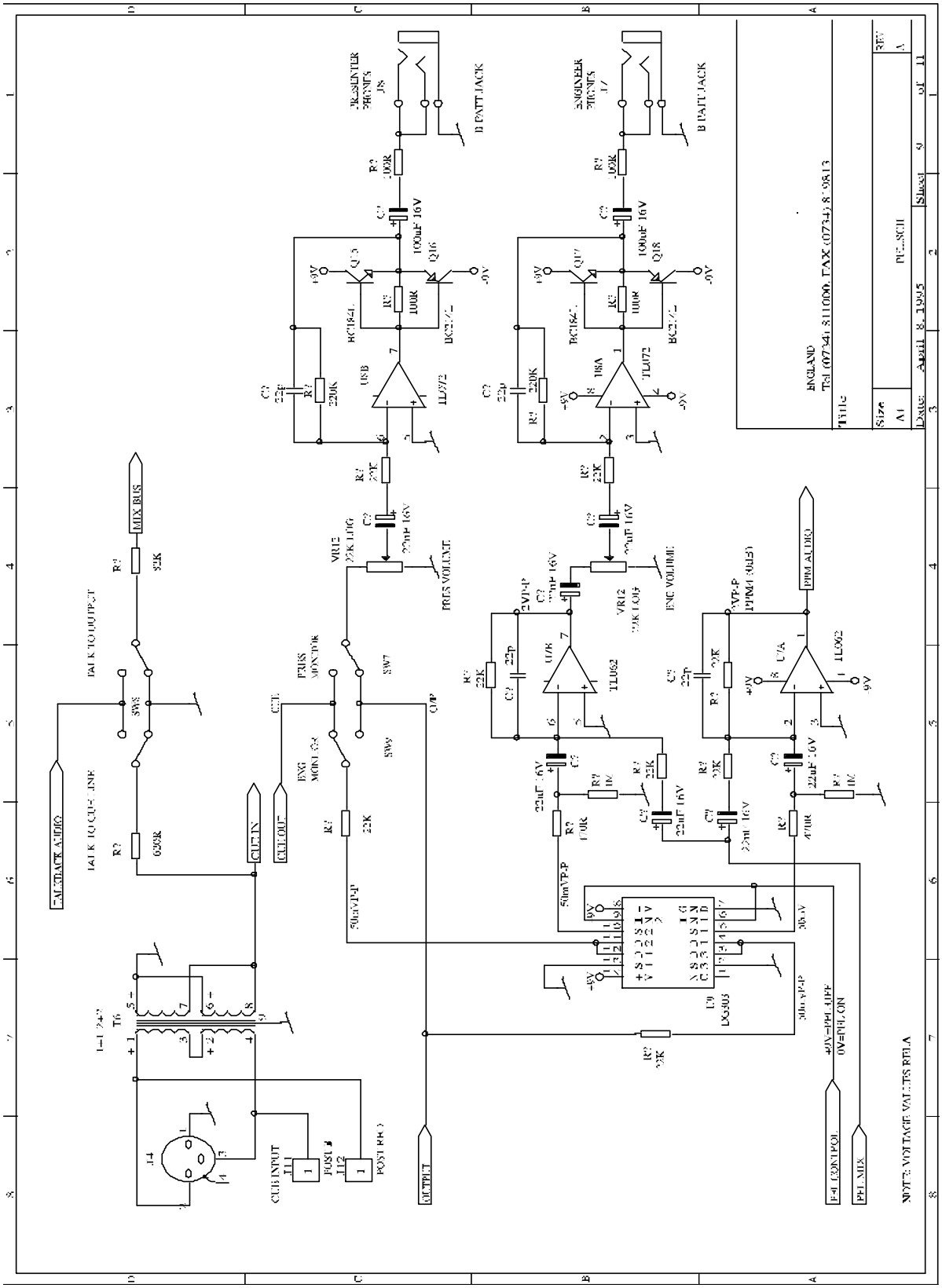
Pre-Fade Listen



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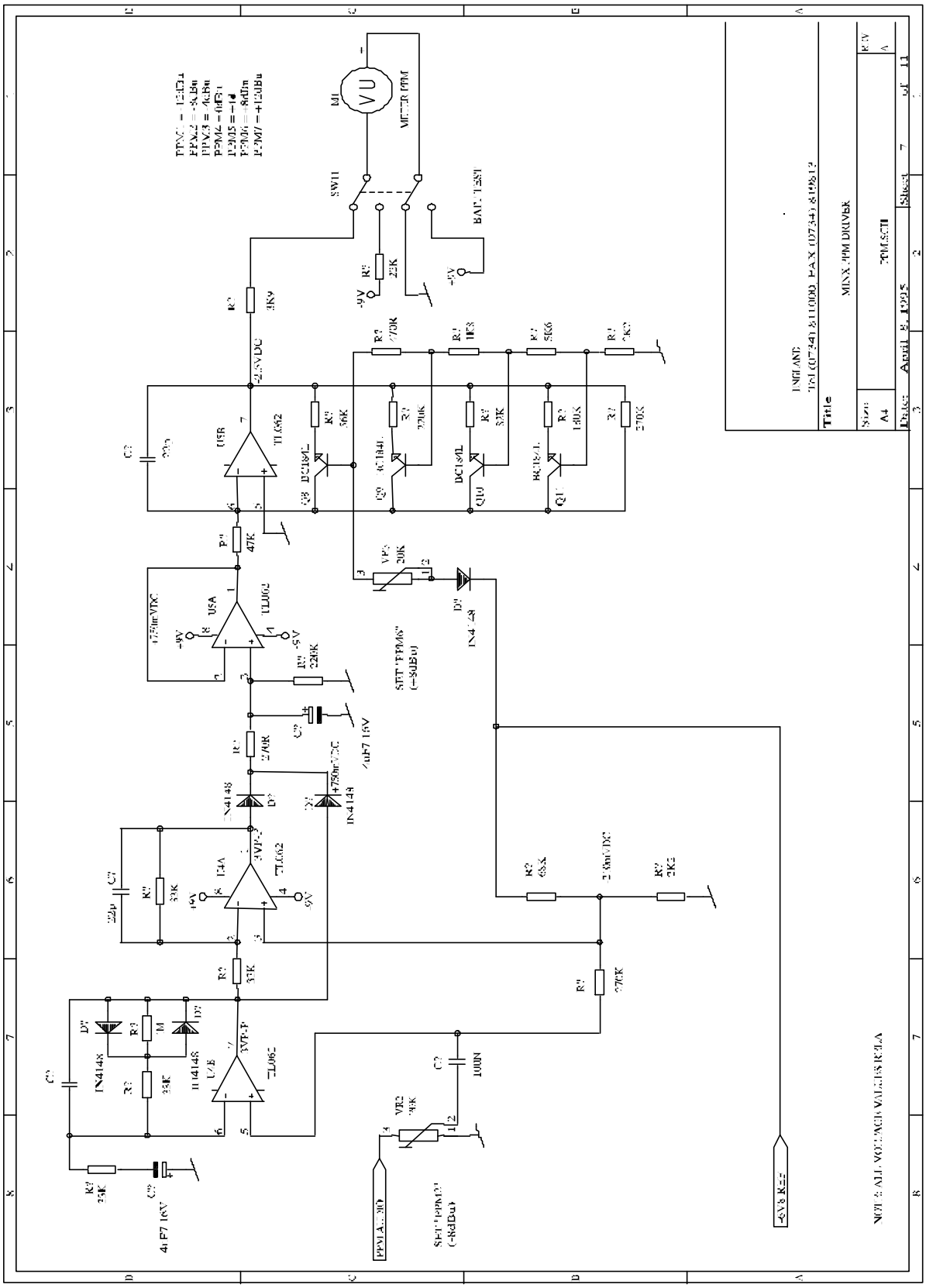
PPM Driver



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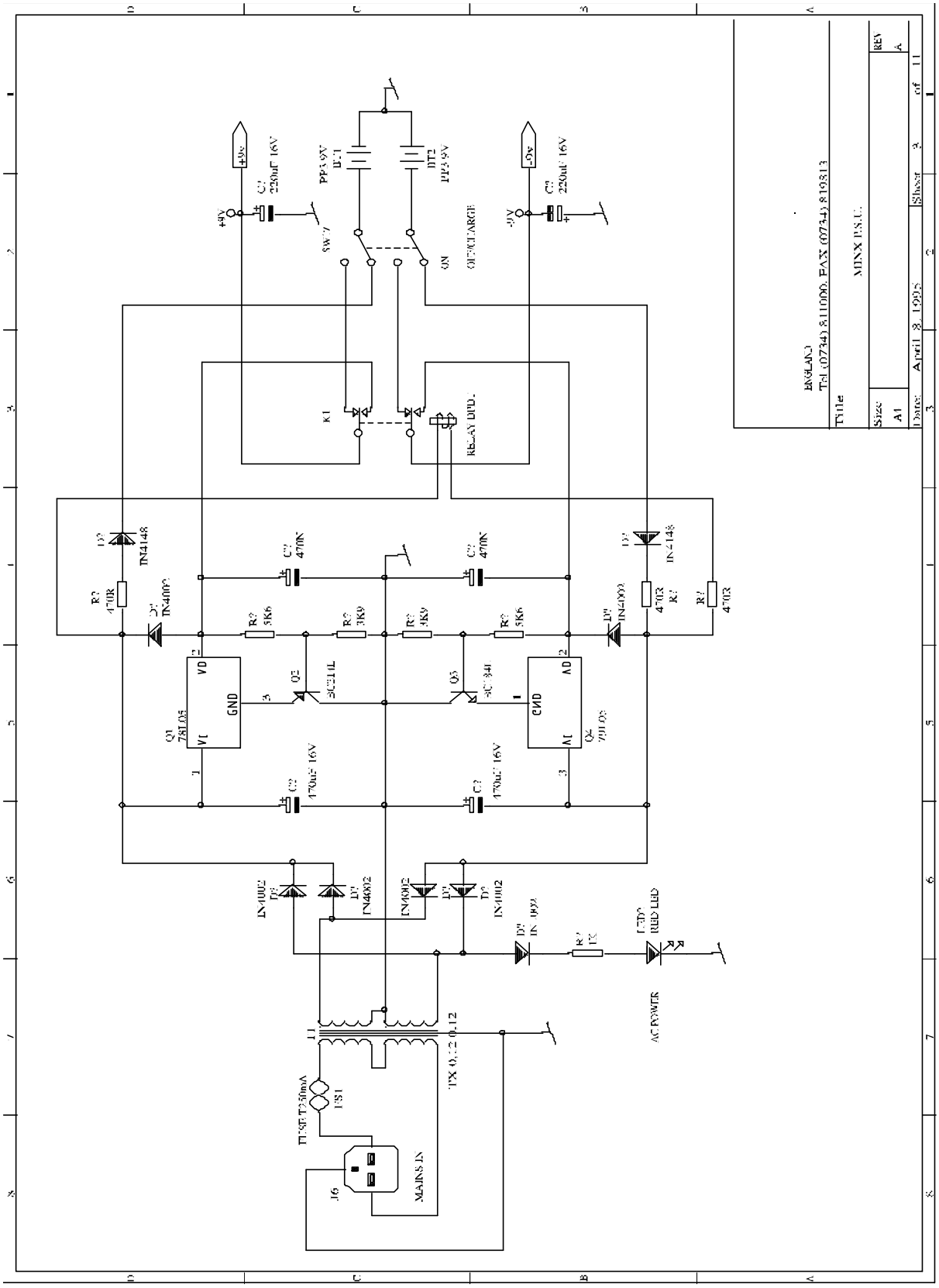
Regulated Power Supply



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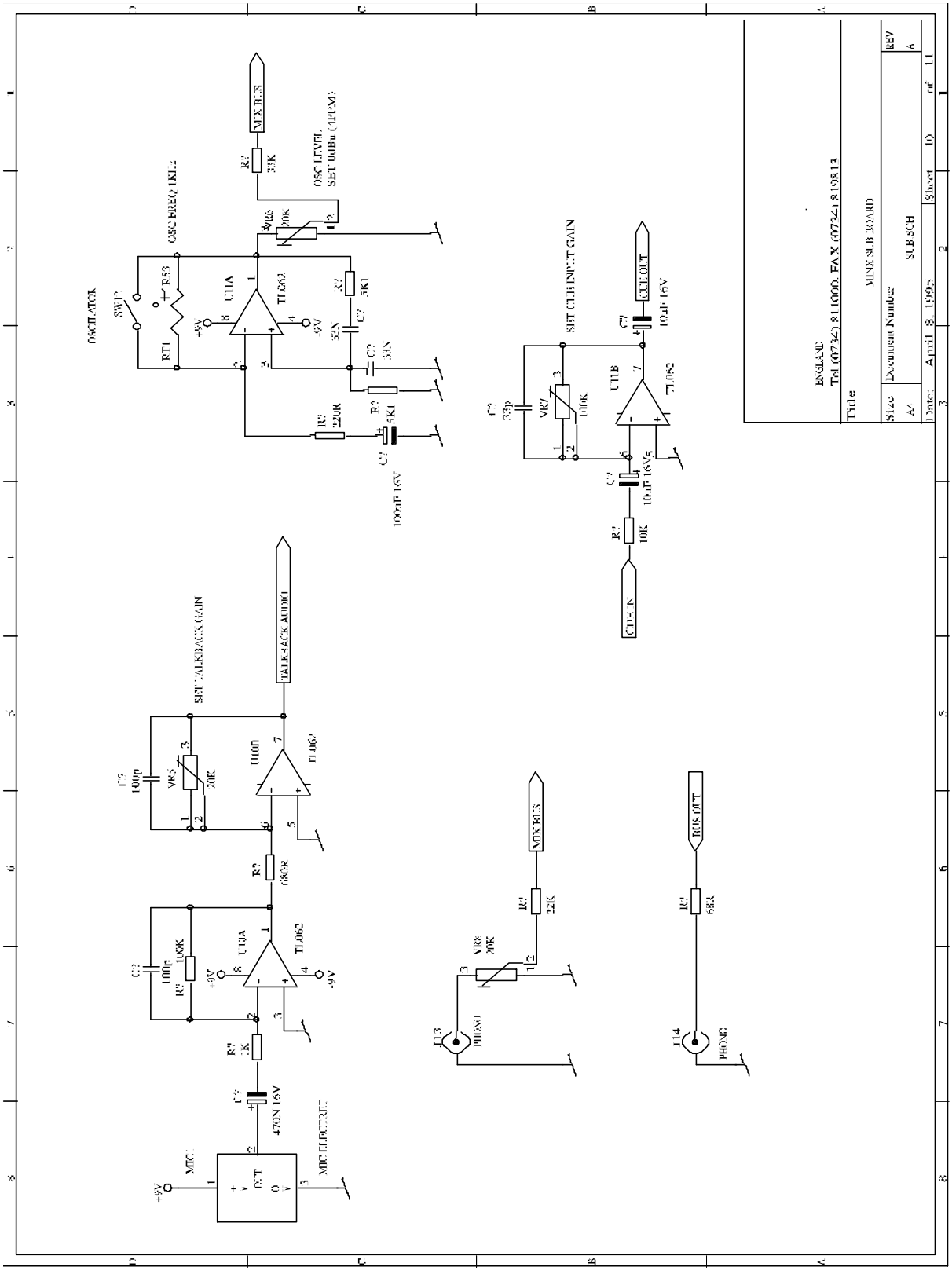
Sub Board



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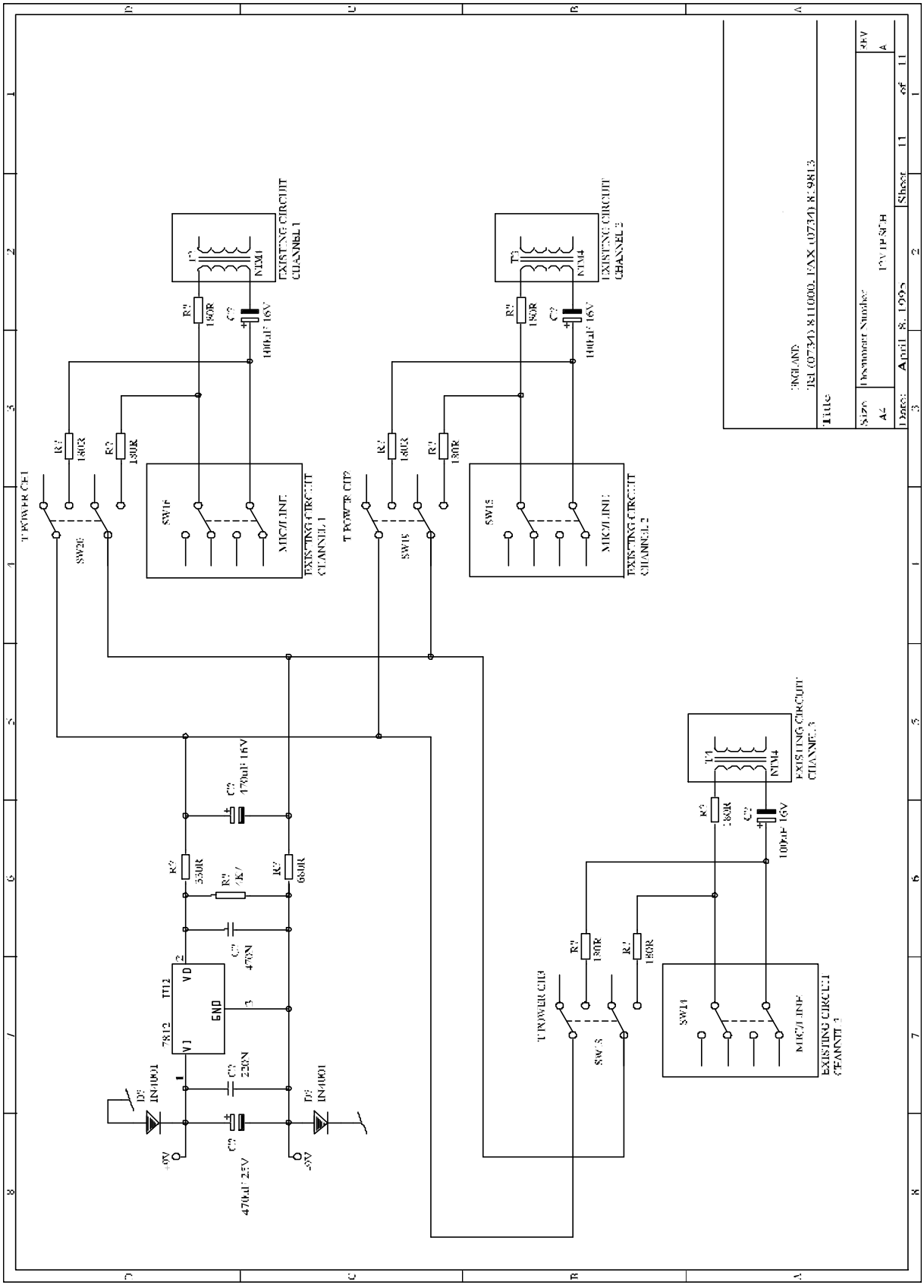
12 volt T-Power



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