ALLEN&HEATH



WARNING — HIGH VOLTAGES

Power Supply Unit (PSU) work should only be carried out by qualified personnel.

We recommend that you use an approved Allen & Heath service centre for all power supply work.

Please contact your local Allen & Heath distributor for more details.

http://www.allen-heath.com/



MixWizard Series WZ20S

Stereo Audio Mixing Console

SERVICE MANUAL

Publication No: AP3638

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Warning to the Service Engineer

Allen & Heath warns that any unauthorised changes or modifications to the **WZ20S** unit may invalidate the legal compliance of the unit and could void the user's authority to operate the equipment.

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Introduction

The information presented in this manual is intended for competent technical personnel to carry out service and product support for the *MixWizard WZ20S* console. We assume that the reader is familiar with the related electronic theory and audio terminology, and is able to carry out basic servicing, faultfinding and repair of audio equipment of this type. Service personnel should also be familiar with audio systems, mains earthing and power requirements, as well as handling precautions.

For information on the configuration, operation and application of the *MixWizard WZ20S* please refer to the User Guide.

Whilst we believe the information in this manual to be reliable we do not assume responsibility for inaccuracies. We also reserve the right to make changes in the interest of further product development.

Service and Technical Support

Under normal operating conditions the *MixWizard WZ20S* does not require user maintenance or internal calibration. Any service work required should be carried out by qualified technical personnel only.

We are able to offer further product support through our worldwide distribution network. To help us provide an efficient service please quote the console serial number, the date and place of purchase in any communication regarding this product.

SAFETY WARNING!



Mains electricity is dangerous and can kill. Mains voltage is present within the unit.

Do not remove the cover with mains electricity connected. To ensure your safety, mains earth is connected to the chassis through the power lead. Do not remove this mains earth connection.



To avoid the risk of fire, replace the mains fuse with the correct value and type as indicated on the rear panel.



Before switching on your console, check that the fuse is of the correct rating and type. This is clearly marked on the rear panel. Do not replace the fuse with any other type, as this could become a safety hazard and will void the warranty.

General Precautions

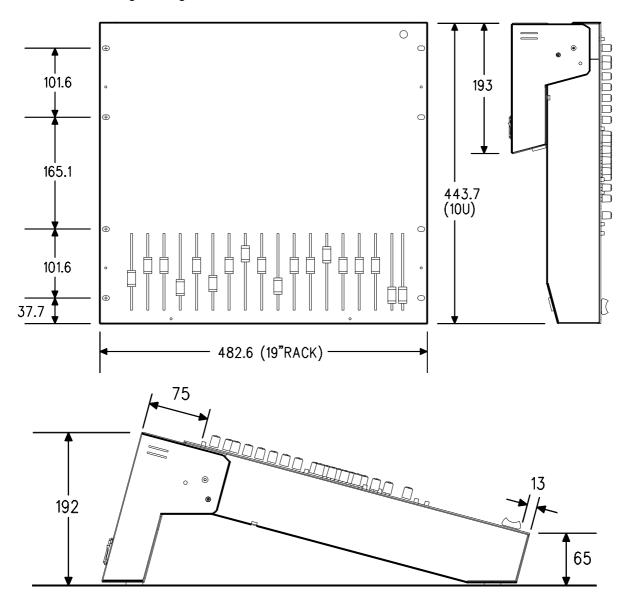
Your **WZ20S** is ruggedly constructed to give many years of reliable operation. However, you will extend the life of the console and preserve its cosmetics by applying these simple common sense precautions.

- Avoid storing or using the mixing console in conditions of excessive head or cold, or in positions where it is likely to be subject to vibration, dust dirt or moisture.
- Do not use any liquids to clean the control surface of the console, a soft dry brush or dry lint-free cloth is ideal.
- Use only water or ethyl alcohol to clean the trim and scribble strips. Other solvents may cause damage to paint or plastic parts.
- The faders, switches and potentiometers are lubricated for life. The use of electrical lubricants on these parts is not recommended.
- Avoid using the console close to strong sources of electromagnetism radiation (e.g. video monitors, high power electric cabling): this may cause degradation of the audio quality due to induced voltages in connecting leads and chassis.

Flightcasing the Console

If the console is to be regularly moved we recommend that it is installed in a foam-lined flightcase. At all times avoid applying excessive force to any knobs, switches or connectors.

Dimensions for flightcasing the console are shown below:



Dimensions

	Width	Height	Depth
Desktop	483mm (19")	192mm (7.6")	530mm (20.9")
Rack mounted	483mm (19")	444mm (17.5") 10U	135mm (5.3")
Packed	590mm (23.2")	260mm (10.2")	610mm (24")
	Unpacked	Packed	
Weight	10kg (22lbs)	13kg (29lbs)	

Specifications

0dBu = 0.775 Volts rms +4dBu = 1.23V rms 0dBV = 1 Volt rms -10dBV = 316mV rms

INTERNAL HEADROO	M:	
	Channels	+21dB
	Mix to output	+23dB
MAXIMUM OUTPUT LE	EVEL:	
XLR	+26dBu into	o >2k ohm load
TRS jack	+21dBu int	o >2k ohm load
PEAK INDICATORS:	Turn on 5dB	before clipping
METERS:		
MIX 1,2 / MONI	TOR Peak reading	12 led 3 colour
FREQUENCY RESPON	ISE:	
	20Hz to	50kHz +0/-1dB
DISTORTION: THD+no	oise @ +14dBu 1kH	lz
		< 0.006%
CROSSTALK: Channel	shutoff measured a	at 1kHz
		< 90dB

NOISE: Measured rms 22Hz to 22kHz		
MIC EIN: referred to 150 ohm s	ource	
	128dB	
RESIDUAL OUTPUT NOISE:		
XLF	R -90dBu (-94dB S/N)	
TRS	S jack -94dBu (-94dB S/N)	
MIX NOISE, CH ROUTED:		
XLF	R-86dBu (-90dB S/N)	
TRS	Sjack -90dBu (-90dB S/N)	
POWER SUPPLY: 1	00 to 240V AC @ 50/60Hz	
Internal switch mode power unit input.	with auto sensing mains	
Power Consumption	35W max	
Mains fuse rating 100-240VAC	T500mA 20mm	

Connections

INPUTS:			
Mic in	XLR	pin 2 hot, 3 cold, balanced	2k Ohmvariable –60 to -20dBu
Line in	TRS jack	tip hot, ring cold, balanced	>10k Ohmvariable –30 to +10dBu
Stereo Ch in A	RCA PHONO	unbalanced	>10k Ohmvariable –20 to +10dBu
Stereo Ch in B	TRS jack	tip hot, ring cold balanced	>10k Ohmvariable –20 to +10dBu
EXT in 1-2	TRS jack	tip hot, ring cold balanced	>10k Ohmvariable –10dBV (+4dBu option)
EXT in 1-2	TRS jack	tip hot, ring cold balanced	>10k Ohmvariable –10dBV (+4dBu option)

OUTPUTS:		
Direct out 1-4 TRS j	acktip hot, ring cold, impedance balanced	<75 Ohm0dBu
Mix out 1-2 XLR	pin 2 hot, 3 cold, balanced	<75 Ohm+4dBu
Mix out 2 TRS j	acktip hot, ring cold, impedance balanced	<75 Ohm2dBu
Mono out XLR	pin 2 hot, 3 cold, balanced	<75 Ohm+4dBu
Aux out 1-6TRS j	acktip hot, ring cold, impedance balanced	<75 Ohm2dBu
Phones out 1, 2 TRS j	acktip left, ring right	for stereo headphones 75 to 600 Ohms

INSERTS:		
Mono Channel:		
Send	TRS jacktip send, ring return, unba	alanced0dBu
Return	TRS jacktip send, ring return, unba	alanced>3k Ohm
Mix out 1-2:		
Send	TRS jacktip send, ring return, unba	alanced2dBu
Return	TRS jacktip send, ring return, unba	alanced>7k Ohm

ORDERING A CONSOLE

To order a new *MixWizard* console please specify the model number and AC mains voltage.

MODEL	DESCRIPTION	ORDER CODE
		_
MIXWIZARD WZ20S	4 Mono + 8 Stereo Input Channels	WZ20S/volts

ORDERING AN OPTION

To order an option please specify the model number required.

RIAA OPTION	WZ20S RIAA DUAL INPUT OPTION	W21442/20S-RIAA
FADER START	WZ20S MONO FADER START OPTION	002-496
FADER START	WZ20S 4M8S FADER START OPTION	002-501

MANUALS AND SUPPORT DOCUMENTATION

DESCRIPTION	ORDER CODE
MIXWIZARD WZ20S User Guide	AP3634
MIXWIZARD WZ20S Service Manual	AP3638
MIXWIZARD WZ20S Flyer	AP3637

SERVICE TOOLS

The tools required to service the *MixWizard WZ20S* are standard to an electronics service workshop and are easily obtainable. The following items are necessary for disassembly and service access:

1-point Crosshead so	<u>crewdriver (M3, M4, 4AE</u>	3) AT0004
11mm AF Nutdriver	(potentiometer, headpho	one socket and jack nuts)

ORDERING AN ASSEMBLY

The following assemblies for the *MixWizard* WZ20S are supplied fully tested. Please quote the description and order code for the part required.

Printed circuit board (PCB) assemblies:

Mono Input PCB assembly	002-483
Left PCB assembly	002-484
Right PCB assembly	002-485
Stereo PCB assembly	002-487
Connector PCB assembly including Power Supply	002-486

IDC connector harnesses:

WZ20S 16 way Main harness	AL3669
WZ12/16/20S/464 34 way Master harness	AL3518

ORDERING A SPARES KIT

It is recommended that the spares kit order code **002-491** is held and maintained by the service agent to enable in-field service repairs to the **WZ20S** independent of the ALLEN & HEATH factory. Commonly available items such as resistors, capacitors, tools and soldering equipment are not included. The contents of the kit are listed below and are supplied in a cabinet of drawers. Individual spare parts may be ordered. Please quote the description and order code for the part required.

DESCRIPTION	ORDER CODE	QTY
Fixings:		
· · · · · · · · · · · · · · · · · · ·	A D 0 0 7 4	40
Screw M3 x 6mm TT Pan Pozi Black	AB0071	10
Screw M3 x 8mm Pan Pozi Black	AB0073	10
Screw M3 x 10mm Pan Pozi Black	AB0076	10
Nylock Nut M3	AB0102	10
Screw M3 x 4mm Pan Pozi Black	AB0233	<u>10</u>
Washer M3 Shakeproof	AB0244	5
Screw 4AB x 1/4 Pan Pozi Plated	AB0252	1
Screw 4 x 5/16" Poly Pan Pozi Black	AB2810	10
Screw M3 x 6mm TT CSK Pozi Black	AB2929	5
Fastfoot	AK0102	2
Knobs and caps:		
Knob Red & Grey 11mm D	AJ2074	10
Knob Blue & Grey 11mm D	AJ2075	10
Knob Light Blue & Grey 11mm D	AJ2076	10
Knob Green & Grey 11mm D	AJ2077	5
Knob Dark Grey & Grey 11mm D	AJ2078	10
Knob Yellow & Grey 11mm D	AJ2079	10
Knob Brown & Grey 11m D	AJ2080	5
Button 5.5mm Square Grey	AJ2864	10
Button 10x5mm Rectangular Grey	AJ2865	5
Button Round Black	AJ2887	3
Button 5.5mm Square White	AJ2960	10
Button 5.5mm Square Red	AJ2961	10
Button 10 x 5mm Rectangular White	AJ2962	10
Switch Cap Tall	AJ8071	5
Fader Knob 11mm White+Black Line	AJ8078	5
Fader Knob 11mm Yellow+Black Line	AJ8080	<u>5</u> 5
Fader Knob 11mm Blue+Black Line	AJ8080 AJ8081	<u>5</u> 10
		10
Faders, Potentiometers, Switches and c		10
	AI8003	10 10
Pot 20KB centre click (203B 11mm wide)	A18004	
Pot 200KC x 2 (204C 1mm wide)	A18005	10
Pot 20KB x 2 centre click (14mm wide)	A18006	5
Pot 20KK x 2 (203K 14mm wide)	A18007	10
Pot 10KAC x2 (103AC 14mm wide)	AI8008	10
Pot 5K (502RD 11mm wide)	AI8111	5
Fader 10KD 100mm	AI8117	5
Fader 10KD x 2 100mm	AI8118	<u>10</u>
Switch 2PCO Latching 90°	AL0162	5
Jack Socket Headphone	AL0328	1
XLR 3 Pin Female Vertical PCB Mount	AL2410	3
XLR 3 Pin Male Vertical PCB Mount	AL2411	3
Phono Socket 24mm Dual Vertical PCB Mou		5
Jack Socket 1/4" Stereo Unswitched	AL3407	5
Jack Socket 1/4" Stereo Switched	AL3410	5
Switch 2PCO Latching Vertical	AL8057	3
Switch 2PCO Latching 90Deg	AL8065	5
Pot Nut 9mm	AB8050	20

LEDs and Semiconductors:

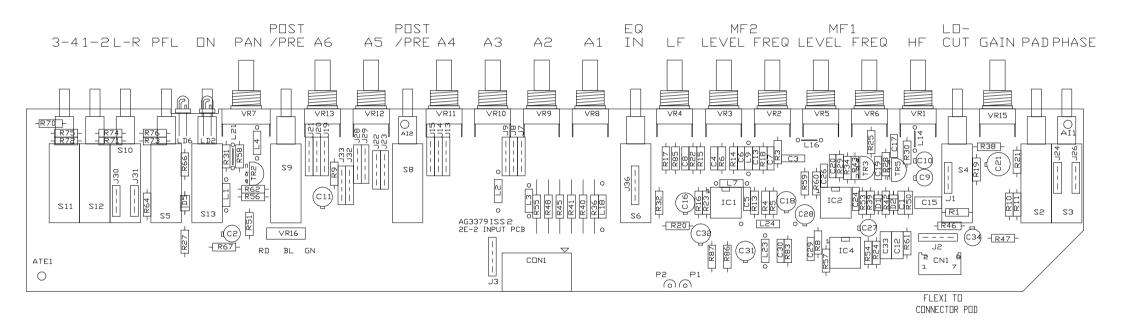
Transistor BC549 NPN	AE0020	10
Transistor BC638 PNP TO92H	AE0037	5
IC TL072 Dual Op-Amp	AE0046	5
Transistor BC637 NPN TO92H	AE0068	5
IC LM339N Quad Comparator	AE0071	3
Transistor J111N FET T092B	AE0083	2
LED 3mm T1 Red	AE0086	5
IC CMOS 4053B	AE0117	5
IC Op-Amp NE5532N	AE0221	5
Transistor 2N4403 PNP	AE0273	10
IC SSM2142P Bal Out Driver	AE0302	3
LED Bar Rectangular 12 Way	AE2701	2
Transistor BC556B PNP	AE3001	5
LED Rect Green 5X2MM Flat Top	AE3501	5
LED Rect Red 5X2MM Flat Top	AE3502	2
IC TL072 Op-Amp SIL	AE8070	5
Transistor MPSA92 PNP	AE8119	1

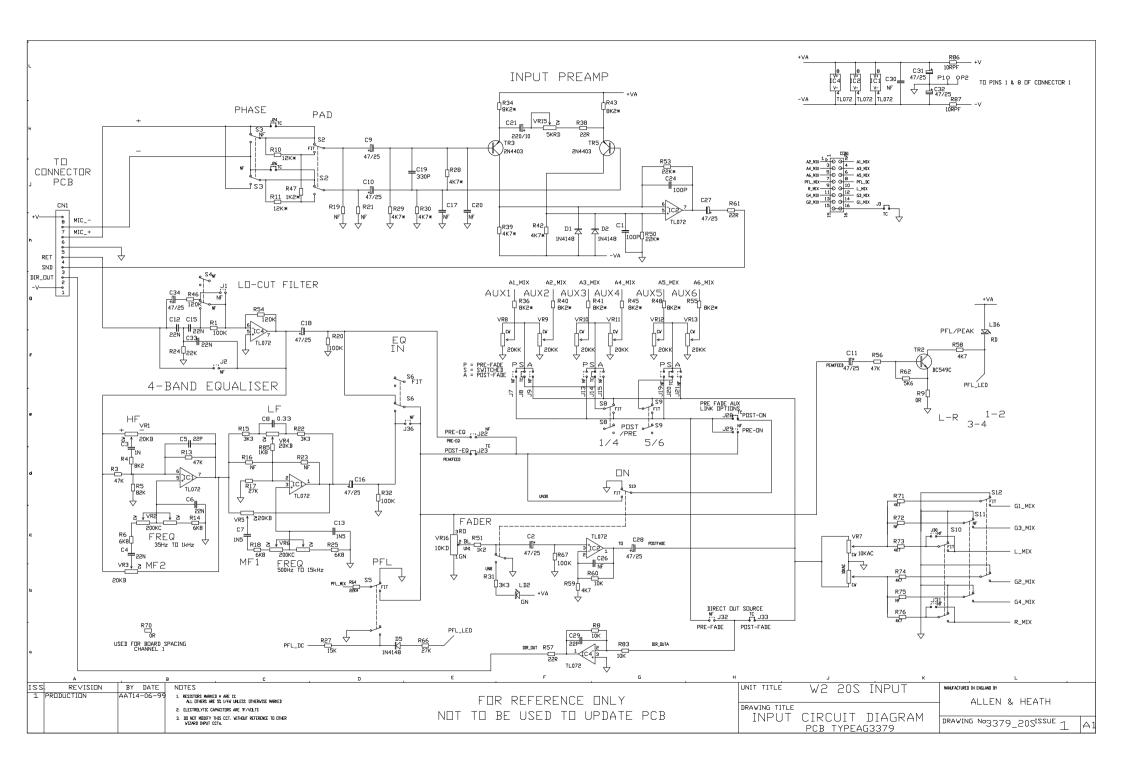
POWER SUPPLY:

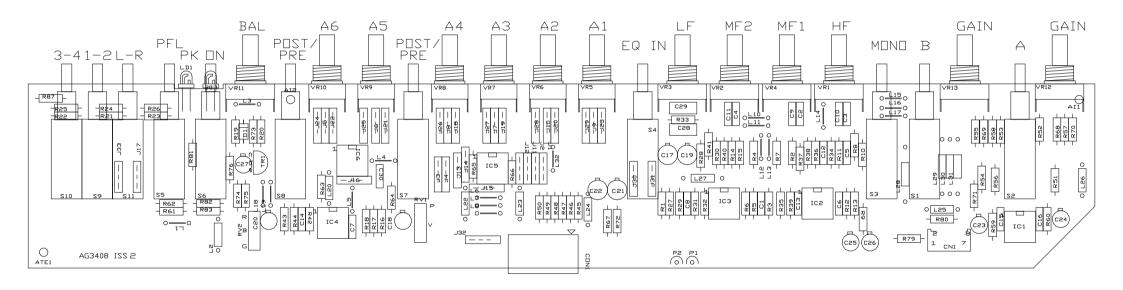
Insulation Guard	AA3509	1
Mains Lead IEC-2 Pin (Europe)	AH0205	-
Mains Lead IEC-3 Pin (UK)	AH0206	-
Mains Lead IEC-3 Pin C33 (USA)	AH0323	-
Fuseholder 20mm PCB Mount	AL3178	-
IC Opto-Isolator 4N35	AE0266	1
Diode Zener 47V 500mW	AE2999	1
Transistor TIP122	AE3215	1
Diode BYV27-400 2A	AE3469	5
Diode BYV26E 1A 1000V	AE3470	5
Diode P6KE200A	AE3471	3
Transistor Mosfet STP4NA80FI	AE3472	3
IC SMPS UC3842AN	AE3473	3
IC TL431 Voltage Reference	AE3475	1
Bridge Rectifier 2KBP04M	AE3477	2
Inductor 4.7uH 600mA	AM3467	2
Transformer Wizard Switch Mode	AM3476	1

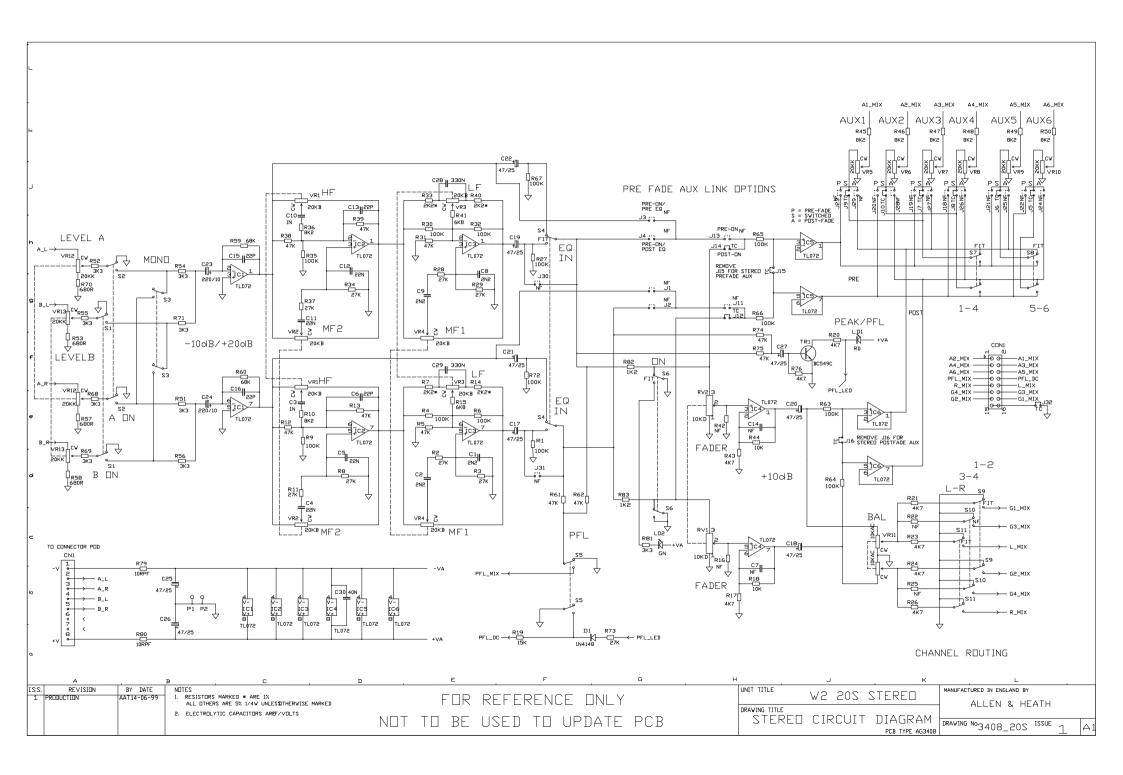
Miscellaneous:

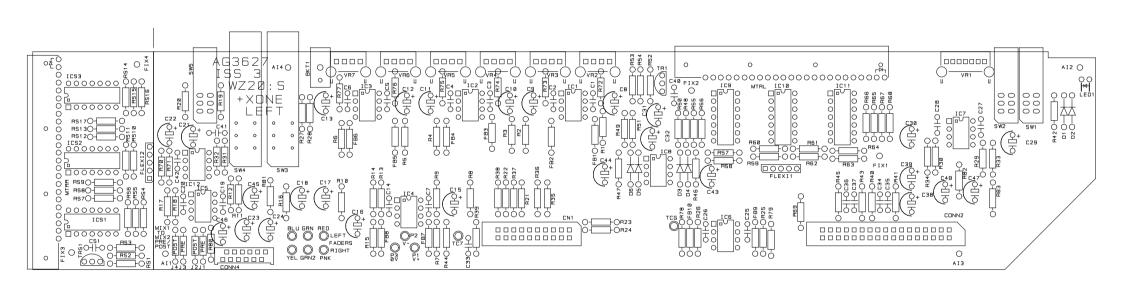
MixWizard Box + Fittings	AP2915	
Flex cable 39 way 200mm	AH2900	2
Flex Socket 12 Way 90Deg	AL2226	-
Flex Socket 12 Way Straight	AL2227	-
Flex Socket 8 Way 90Deg	AL2901	-
Flex Socket 39 Way Straight	AL2902	-

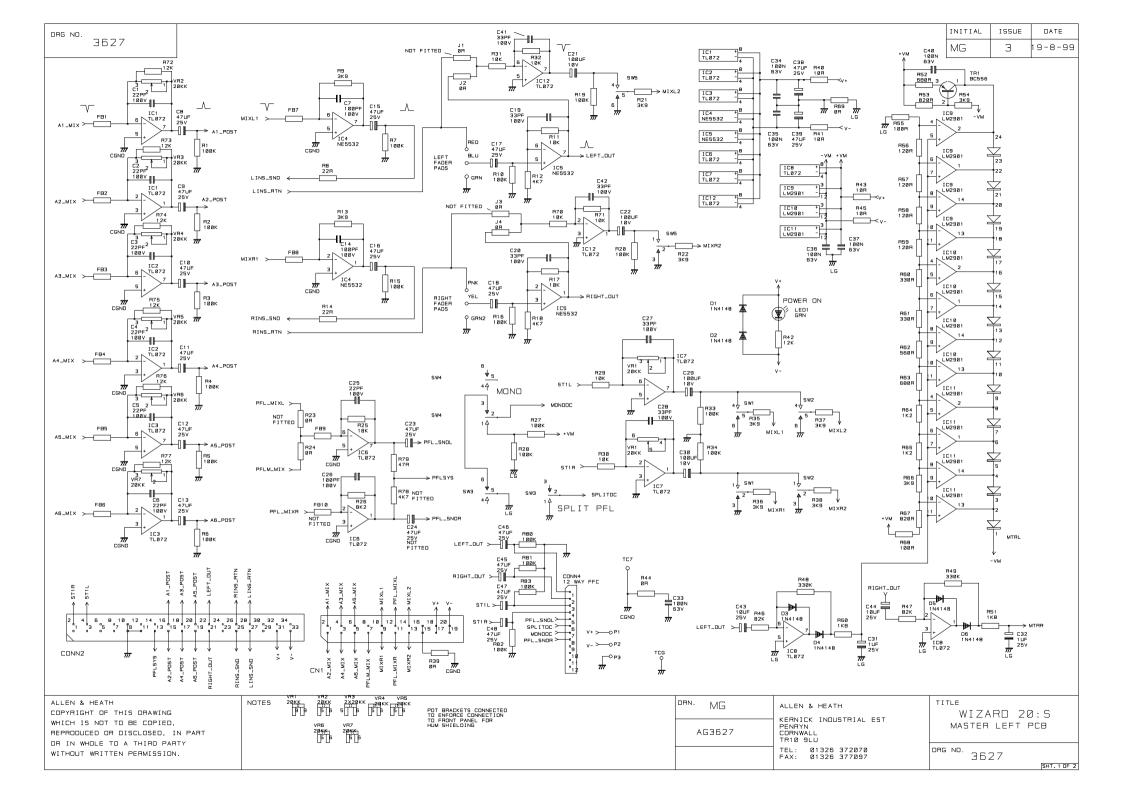












DRG NO. 3627 CS1 100N 63V +VMS 680R ICS1 LM2901 RS6 120R ICS1 8 LM2901 RS7 120R ICS1 0 LM2901 RS8 120R ICS2 LM2901 -VMS RS9 330R ICS2 ICS2 LM2901 RS10 330R ICS2 LM2901 ICS3 LM2901 RS11 560R ICS2 10 LM2901 RS12 680R ICS3 4 LM2901 FLEXI1 FLEXI2 IC53 6 LM2901 → MTRS MTRR ← → + VMS + VM ← /// -VM← →-VMS /// ICS3 8 LM2901 IC53 LM2901 +VMS RS16 RS17 100R MTRR MTRS -VMS

INITIAL ISSUE DATE
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NOTES

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TITLE WIZARD 20:S MASTER LEFT PCB

DRG NO.

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