ALESIS MATICA 500/900 (A4/A8) Service Manual

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Alesis Service Manual

8-31-0030-A

Preface

This document is intended to assist the service technician in the operation, maintenance and repair of the Alesis device. Together with the User Reference Manual, this document provides a complete description of the functionality and serviceability of the Device. Any comments or suggestions you may have pertaining to the document are welcome and encouraged.

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The arrowhead symbol on a lightning flash inside a triangle is intended to alert the user to the presence of un-insulated "dangerous voltage" within the enclosed product which may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point inside a triangle is intended to alert the user to the presence of important operating, maintenance and servicing instructions in the literature which accompanies the product.

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CAUTION: The product under service may employ the use of a replaceable fuse. Danger of fire or electrocution if fuse is incorrectly replaced. Replace with only the same type or equivalent type recommended by the equipment manufacturer.

Regarding the Internal Battery



CAUTION: The product under service may employ the use of a internal battery. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instruction.

Safety Instructions

Carefully read the applicable items of the operating instructions and these safety suggestions before using this product. Use extra care to follow the warnings written on the product itself and in the operating instructions. Keep the operating instructions and safety suggestions for reference in the future.

- 1. <u>Power Source</u>. The product should only be connected to a power supply which is described either in the operating instructions or in markings on the product.
- 2. <u>Power Cord Protection</u>. AC power supply cords should be placed such that no one is likely to step on the cords and such that nothing will be placed on or against them.
- 3. <u>Periods of Non-use</u>. If the product is not used for any significant period of time, the product's AC power supply cord should be unplugged from the AC outlet.
- 4. <u>Foreign Objects and Liquids</u>. Take care not to allow liquids to spill or objects to fall into any openings of the product.
- 5. <u>Water or Moisture</u>. The product should not be used near any water or in moisture.
- 6. <u>Heat</u>. Do not place the product near heat sources such as stoves, heat registers, radiators or other heat producing equipment.
- 7. <u>Ventilation</u>. When installing the product, make sure that the product has adequate ventilation. Improperly ventilating the product may cause overheating, which may damage the product.
- 8. <u>Mounting</u>. The product should only be used with a rack which the manufacturer recommends. The combination of the product and rack should be moved carefully. Quick movements, excessive force or uneven surfaces may overturn the combination which may damage the product and rack combination.
- 9. <u>Cleaning</u>. The product should only be cleaned as the manufacturer recommends.
- 10. <u>Service</u>. The user should only attempt the limited service or upkeep specifically described in the operating instructions for the user. For any other service required, the product should be taken to an authorized service center as described in the operating instructions.
- 11. <u>Damage to the Product</u>. Qualified service personnel should service the unit in certain situations including without limitation when:
 - a. Liquid has spilled or objects have fallen into the product,
 - b. The product is exposed to water or excessive moisture,
 - c. The AC power supply plug or cord is damaged,
 - d. The product shows an inappropriate change in performance or does not operate normally, or
 - e. The enclosure of the product has been damaged.

General Troubleshooting

While this manual assumes that the reader has a fundamental understanding of electronics and basic troubleshooting techniques, a review of some of the techniques used by our staff may help.

- 1. Visual Inspection A short visual inspection of the unit under test will often yield results without the need of complex signal analysis (burnt, or loose components are a dead giveaway).
- 2. Self Test Alesis products that utilize microprocessor control contain built in test software which exercises many of the units' primary circuit functions. Self test should always be done following any repair to ensure basic functionality.
- 3. Environmental Testing Applying heat and cold (heat gun/freeze spray) will often reveal thermally intermittent components (Clock crystals, I.C.s, and capacitors are particularly prone to this type of failure).
- 4. Burn in Testing Leaving a unit running overnight often reveals intermittent failures such as capacitors that begin to leak excess current after a significant amount of time.
- 5. Cable Checks Wiggling cables can reveal intermittent failures such as loose cables or poorly soldered headers. Remember to check power supply cables as well.
- 6. Flexing the PC Board Poor solder joints and broken traces can often be found by pressing the PC Board in various places.
- 7. Tapping Components Sometimes tapping on a component (particularly crystals) will cause it to fail.
- 8. Power Down/up Turning the unit off and back on rapidly several times may reveal odd reset and/or power supply failures.
- 9. Reset Threshold A Variac (variable transformer) can be used to check reset threshold levels. This can be particularly useful in helping customers with low line problems.
- 10. Compressors Using a compressor/limiter is often helpful when attempting to solve low level noise problems, as well as assisting with DAC adjustments.
- 11. Sweep Tests Sweep generators are very useful in checking the frequency response envelopes of antialiasing filters.
- 12. Piggybacking Piggybacking I.C.s is particularly useful when troubleshooting large sections of logic. This is especially true when working with older units.

Table of Contents

PREFACE	. ii
WARNINGS	. ii
SAFETY SUGGESTIONS	. iii
General Troubleshooting	.iv
1.00 Theory of Operation	. 1
1.10 Input Section	. 1
1.20 Pre-Amp Section	. 2
1.30 Main Amplifier Section	. 2
1.40 Output Device Protection	. 3
1.50 Bias Circuit	. 3
1.60 Speaker Protection	.4
1.70 Fan Speed Control	.4
1.80 Thermal Management System	. 5
2.00 Updates and Corrections	
2.10 Stripped Heat Sinks	
2.20 New Case Bracket Insulator(s)	.7
2.30 Transformer Insulators	
3.00 Troubleshooting	. 9
4.00 A4 Service Parts List	10
4.10 A8 Service Parts List	
5.00 Service Manual History	
INDEX	17

1.00 Theory of Operation

The A4/A8 amplifiers are basic stereo amplifiers. They have 0dBm input sensitivities for rated output at 4Ω , with the ability to drive any load impedance from 2Ω to an open circuit. They have balanced inputs via Neutrik combination connectors providing XLR and 1/4" TRS connections and also a barrier strip. The output of the amplifier is obtained by way of four five way binding posts. Reference designations in the text refer specifically to the A4 amplifier except where otherwise noted. Though reference designations between the two units are different, the designs are virtually identical. The only significant differences occur in the output section (since the A8 is required to handle much more power than the A4).

Here are some of the major features and building blocks of the Matica:

- **À** An input balanced to unbalanced converter.
- **À** A second stage pre-amp and an amplifier gain stage utilizing a monolithic front end with discrete complimentary transconductance stage and a complimentary output stage in a common collector configuration.
- **à** Output device protection is accomplished with a conventional volt-amp current limiter circuit. The output devices use a new perforated emitter technology unique to **MOTOROLA**. The output devices are driven by similar technology devices, but they have been optimized for extremely linear current gain with a unity gain bandwidth (F_t) of 50 MHz.
- **à** The speakers are protected by output relays. They are activated during the first 3 to 5 seconds the amplifier is turned on. Also, if a DC condition exists at the output of the amplifier or the amplifier is driven to full output below 5Hz the relays will be activated.
- **à** Thermal management and protection are accomplished with a large heavy aluminum extruded heat sink the is fan cooled. If the sink gets warmer than 55 deg. C, the fan is automatically stepped up in speed and if the heat sink gets warmer than 80 deg. C the fan is run at high speed and the output relays are activated to disconnect the load until the unit has cooled to 65 deg. C. There is also a unique feature of the amplifier fan circuit in that when the amplifier is providing an output signal of a little more that a watt the fan speed is modulated or increased by the signal. This will help get longer run times with the amplifier under extreme load conditions.

1.10 Input Section

The input stage is made up of a dual *Signetics* 5532A op amp. This is a low noise selected version of the 5532. One half of the dual is used for each channel. The circuit is a basic balanced to unbalanced converter. It can be driven unbalanced but 6dB differences in gain may result for various hookups. If the (+) input is driven with the (-) input grounded the gain will be unity. If the (+) input is driven with the (-) input left open there will be a gain reduction of 6dB. This is not recommended as a noisier condition may result. If the (-) input is driven, gain will be unity and will not change with the grounding or ungrounding the (+) input The maximum input level before clipping in about +21dBm. Since there is no level control in front of the converter this is the maximum input level for the amplifier. Connections to the Alink connector are between R1, R2 and R3, R4. These are provided so an outboard impedance may be connected to modify the gain and overload characteristics as well as its frequency response. Following the amplifier is a passive low pass (R7, C1) filter that begins to limit the high frequency gain of the amplifier.

1.20 Pre-Amp Section

The pre-amp section also uses the *Signetics* 5532A op amp. The circuits of the pre-amp are of opposing signal polarity to provide push pull characteristics and are connected via the stereo/bridge switch. Each of the two pre-amp channels has 15.7 dB of gain but channel A is inverting and channel B is not.

Since the main amplifier is inverting, channel A will not invert the signal and channel B will. Doing this facilitates two things. When the stereo/bridge switch is in the bridge mode channel B will already be out of phase with A so no signal inversion will have to be done to achieve bridge operation. Also by operating B out of phase all the time, (even in stereo operation) getting the phase of the signal flipped back at the speaker terminals, the amplifiers low frequency power bandwidth will be increased. This allows the power supply to be utilized more efficiently.

This section also shapes the bandwidth of the amplifier further via another low pass pole being added to each stage. First and second stage high pass filtering occurs via the 100uf coupling capacitors preceding the volume pots and after the pre-amp stages. The pre-amp stages drive the main amplifier directly.

ALINK connections at the junction between R8, C2 and R13, C5 are for sending the output signal of the input stage at a low impedance for use with auxiliary equipment. The connection between R9, R10 and R14, R17 are to be used to for defeating the level controls by supplying an input signal from a very low source impedance to swamp out the signal from the pots.

1.30 Main Amplifier Section

The main amplifier is composed of four sections:

- The monolithic front end.
- A complimentary voltage gain stage or transconductance stage
- àààà The output driver
- The output stage

The amplifier is configured in the inverting mode. This allows for the inputs of the op amp to remain at a 0 voltage potential and ease operation on a +/-15 volt supply. The large voltage swing is accomplished with a discrete, complimentary darlington connected transconductance stage Q1, Q2, Q3, and Q4. The current in the transconductance stage is set by the voltage divider network made up of R19, R20, R21, and R22. The first transistor in the darlington is a TO-92 packaged device with the current set by R27, and R28. The collector of this transistor is not tied to the second collector in the darlington connection but rather to the +/-15 volt supply to help increase the bandwidth of the stage and reduce the dissipation in the TO-92 devices. The closed loop gain of the amplifier has been set for 10X or 20dB. The DC output offset is a function of the input offset voltage error of the op amp times the gain of the system. With the offset error of the op amp at about +/- 1mv the amplifier will have less than +/- 10mv of output offset. The feedback network is composed of R25, R18, and C11. C11 reduces the bandwidth of the amplifier. The large low frequency gain of the op amp helps to reduce the supply ripple that is introduced into the system by the lack of supply rejection in the voltage gain stage. Under driven conditions at mild loads of 4 or 8Ω at mid and high frequencies, the output of the op amp will appear not to have any signal or very little signal on it. When the amplifier is clipped, or driven to its rail, the output of the op amp will be driven to its rail, or about +/- 14 volts. It is trying to correct the loop error or non linearity of clipping in the amplifier. The only other time the output of the op amp will become a large signal is at a 2Ω condition at lower frequencies. This is due to the loss of loop gain when the transconductance stage is required to deliver large amounts of current to the output stage drivers. CR1 and CR2 are connected as clamps to the discrete

darlingtons (causing the transconductance stage not to saturate, which reduces the possibility of saturation in the gain stage).

The drivers and output devices are mounted on the large extruded aluminum heat sink. The drivers have extremely linear gain with changes in current. They also have an Ft of 50mHz keeping the gain linear with frequency. The output devices are 16 amp, 250 volt, 200 watt devices. These are very strong devices. The output stage is configured in a common collector, or emitter follower configuration. The drivers are connected again in a discrete complimentary darlington configuration. This allows for a class A bias and protection scheme that offers very close bias tracking and simple current limiting. Also there are 1.2Ω resistors in the bases of all the output devices. This helps linearize the gain with frequency and reduce high current parasitics. When the output stage is biased properly, the DC voltage drop across the emitter resistors should by 2-3mv cold and may rise to as much as 6-10mv when hot. Finally the output of the amplifier is de coupled from the load with a traditional termination network. This network isolates the amplifier and feedback loop from loads at high frequencies, especially capacitive ones. This is how unconditional loop stability is achieved. Under bench test conditions it is recommended that the amplifier not be driven to full power at 20kHz and above for periods longer than a few minutes as this will cause R53 to over heat. Under music conditions there is never enough energy to have this be a problem.

1.40 Output Device Protection

Output device protection is accomplished with a relatively simple circuit. The protection circuit is broken up into Q17 that protects the NPN output devices and Q18 that protects the PNP output devices. These devices are complimentary as are the output devices but they also have similar V_{be} N to P. This allows selection of a point of protection that will be about equal for each half of the output stage. R55 and R56 sense the voltage at the emitter of two of the output devices and sum them. The emitter of Q17 is connected to the output of the amplifier. When a voltage across the emitter resistors of the output devices reaches about 0.7 volts, Q17 will conduct if there is no voltage across R54. This condition exists for a short circuit or something very close. As the amplifier impresses a voltage across a load it also has that same voltage across R54. As the voltage across R54 gets larger more current must flow through the emitter resistors of the output devices to cause enough voltage to be developed at the base of the protection device to turn it on. This is what is known as the load line. As the voltage across the output devices gets lower they can deliver more current in keeping with a constant power. When the protection device is conducting the current from the transconductance stage is essentially being diverted around the output stage to the load. Everything described for the positive half cycle is the same for the negative half. C18 and C19 slow down the protection device and keep it from any possible oscillation condition. CR3 and CR4 are used to protect possible reverse Vbe conduction of the protection devices and CR4 and CR5 prevent conduction of the protection devices while in the opposite half cycle.

1.50 Bias Circuit

The bias circuit is more that just a single device V_{be} multiplier seen in many audio amplifiers. The circuit consists of an active shunt regulator. The reason for this is two fold. The shunt regulator has a much lower impedance than the single device regulator. This helps control the bias voltage better when there is a change in the quiescent operating current of the transconductance stage. Since the operating, or quiescent current of the transconductance stage is supply dependent, the need for a bias circuit that doesn't change voltage with current is imperative. Also by reducing the current through the bias sense transistor a larger change in V_{be} with temperature can be realized. This tracks the needs of the output stage better. The 5k pot in the bias circuit adjusts the potential of the regulator. A 1.5k resistor (R55) sets the current

through the bias sense transistor (Q18) making the current in the sense transistor relatively constant. Q17 is the pass transistor of the regulator. Note that any time the output transistors are replaced, the pass and bias transistors must also be replaced. Failure to do so will probably result in the output transistors failing again.

1.60 Speaker Protection

There are two sections to the speaker protection circuit. A section made up of a quad comparator with a low pass filter before it and a discrete bipolar transistor circuit that controls the two speaker relays. The transistor circuit and +15 volt three terminal regulator make up the power up delay circuit and "instant off" power down circuit. When the unit is turned on the 15 volt regulator supplies power to the discrete circuit. Q24 controls the speaker relays and is held off during power up by Q23. During power up C24 is not charged and must be charged before Q23 will turn off. This delays the turn on of the output relays to protect against any transients that may occur at power up. Once on, there are four ways the relays can be opened again.

- The first is if the heat sink gets to 80 deg. C. then TH1 will open and release the relays.
- Second is by shut down of the amplifier. Upon the removal of AC to the amplifier, the three terminal regulator will fall out of regulation that forces Q21 on because C23 acts like a battery and momentarily turns on Q21. This pulse will cause Q22 to dump the charge on C24, turning on Q23.
- The third way is if the line voltage get low (about 90 volts in the 120v unit). At this time the regulator will fall out of regulation and the first pulse from the 50 or 60 Hz that gets through the regulator will cause C24 to be dumped again and the 3-5 second charge time will occur again.
- The fourth way is to have the circuit be triggered by the comparator circuit.

The comparator is DC coupled to the output of the amplifier before the speaker relays. They are set up with each one of their inputs tied to a +/- 1.2v reference derived from CR7, CR8, CR9, and CR10. The low pass filter is comprised of R64, R65, R66, R67, C21, and C22. When the output of the amplifier is driven to full output at or below 5Hz, or 1.2v of DC offset appears at the output of the amplifier, it will trigger one of the comparators which in turn opens the output relays. When this happens the same 3 to 5 second period must occur before the relays will engage again. If the fault condition persists then the relays will remain open.

The 18 volt AC winding which runs this circuit is rectified by a half wave rectifier. This is allows one side of the winding to be grounded. The 18 volt winding is also provided at the Alink connector to facilitate generation a +/- 15 volt supply to run auxiliary accessories requiring phantom power.

1.70 Fan Speed Control

The fan circuit has three modes of operation in which it varies the speed of the fan depending on demand or condition. At power up of the amplifier Q25 and Q26 will be saturated until the relay circuit enables the speaker relays. This condition lasts for 3 to 5 seconds. During this time Q27 is also saturated. This forces the fan to run at an elevated speed momentarily. After this time only R85 will be delivering current to the fan. The fan will be running at a very slow speed. The reason for the accelerated speed of the fan at turn on is that the current delivered by R85 may not be sufficient to start the fan, especially at low power line levels. Signals from both channels are detected by Q25 and Q26 as the amplifier is driven harder. They act as rectifiers of the signal, and when they conduct the 40Ω resistor connected to Q27 delivers more current to the fan motor, causing the fan speed to increase with the drive of the amplifier. The fan motor itself acts as a flywheel or filter to smooth the modulation and the speed of the fan is proportional to the average of the drive to the amplifier. If the heat sink gets hotter than 55 deg.C. then an additional 20Ω resistor is switched in to deliver more current to the fan. The fan.

speed will still be modulated by the drive to the amplifier. If the heat sink gets hot enough to trip the 80deg. C. breaker, then the relay circuit will disconnect the load and also turn on Q25 and Q26. This will increase the fan to its highest speed and cool the amplifier. Upon cooling below 65deg. C. the amplifier will resume normal operation.

1.80 Thermal Management System

The large extruded aluminum heat sink in the center of the chassis is the heart of the amplifiers heat dissipation scheme. It is a forced air cooling system. In the A8 the heat sink has a thermal resistance of .075 deg. C. per watt when the fan is at full speed. This is equal to about 800 watts of heat. The air from the fan is forced into the center of the side of the heat sink with fins and the air flows around the sink and out over the amplifier circuitry. It has an air intake at the front of the amplifier and exhaust at the left rear. As explained in the fan speed control section, the speed of the fan is determined by the demands on the amplifier. If for some reason the fan should stop but not fail there is enough dissipation in the main heat sink as well as the four TO-220 stand up heat sinks on the PCB to allow operation indefinitely while at a quiescent condition.

2.00 Updates and Corrections.

2.10 Stripped Heat Sinks

Occasionally when tightening down the heat sink clamps one of the screws will strip the threads out of the heat sink itself. Because heat sink is a rather expensive and bulky item, a way was found to reuse stripped heat sinks. Use a long (at least 1 1/4") machine screw from the clamp side, and a threaded hex standoff inserted into the heat sink fin side. Do not use just a hex nut, as it will probably not be able to hold the clamp pressure any more then the heat sink did. See diagram on next page.



2.20 New Case Bracket Insulator(s)

found that lt was it was possible for the insulation on the wires from the main power transformer(s) could over time be cut by the case bracket(s) (one in A4, two in A8). This could in turn make it possible for the end-user to be shocked through the case itself. The solution was to replace the insulators with a version that covered those areas of the metal that could potentially cut the insulation.

To replace the old insulators, first remove the rectifier and move the cables away from the case brackets. Be sure to examine the wires for any



damage that have already occurred. Then remove the bracket(s) from the chassis. Figure 2 shows the locations of the bracket mounting screws while Figures 3 and 4 show the new and old styles of insulator (New style Alesis Part # 5-04-1018). Replace the old insulators and reassemble the brackets and rectifier. Route the wires around the transformer bracket(s) as shown in Figure 5. In addition, the regulator U5 (A8) U4 (A4) and transistor Q53 (A8) Q39 (A4) on the Fan PCB (See Figure 2) should be checked to ensure that they do not short to the case. If necessary, bend these components away from the case bottom and resolder both of them to ensure a solid connection.





2.30 Transformer Insulators

These foam insulators were added for two purposes:

- Electrical Isolation
- Added resistance to mechanical shock.

The insulators stick to the case top as shown in Figure 6 (A8) so that they are directly over the transformer(s) when the casetop is reassembled. The part numbers for the foam insulators are 9-23-1067 for the A8, and 9-23-1068 for the A4.



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3.00 Troubleshooting

The following chart is intended to help point a technician in the right direction. Unfortunately there isn't space to provide an absolutely comprehensive list, however this should help with some of the more common solutions.

Symptoms	Probable Cause	Solution
No Power (No LED, No Fan)	Tripped breaker.	Reset breaker.
	Faulty breaker.	Replace breaker.
	Faulty transformer.	Replace transformers and retest.
	Faulty A.C.	Be sure that 30 amp service is available without significant voltage drop.
No output, no LED, Fan running full on.	Fan board/Main harness disconnected.	Reconnect and retest.
	Faulty +15V regulator.	Troubleshoot and repair as necessary.
Clip LED on, no output.	Blown output section.	Replace all active components following the diver I.C. (U2-channel A U3 channel B) in blown channel. Also replace any out of tolerance resistors in the output section.
	Poor solder on the large power supply capacitors. (Causes ground reference to drift).	Troubleshoot and repair as necessary.
	J1 or J14 loose.	Reseat cable and apply hot glue to prevent re loosening.
One channel out.	Poor solder connections at the Neutrik connector or the high pass capacitors (see section 1.20).	Troubleshoot and repair as necessary.









ALESIS MATICA 500/900 (A4/A8)

BOM

4.00 A4 Service Parts List

Group	Part.Number	Description	Qty	PCB	Bef Decimater	Comment
ASY		TRANSFORMER 120V A4	1	FUD	Ref.Designator	Comment
AST		ASSY PCB MAIN A4	1			
			1			
ASY		ASSY DISPLAY/VOL A4	<u> </u>			
ASY		MODULE OUTPUT A4	1			
ASY		ASSY FAN/RELAY/PS A4	1			
ASY		ASSY BINDING POSTS COMPLETE A4/A8	1		FINAL ASSEMBLY	
CAB		CABLE 6" BLK (TWO WIRES TWISTED)	2			
CAB		CABLE 7" RED/BLK (TWO WIRES TWISTED)	1	FAN	B+ B-	
CAB		CABLE 3-PIN CHNL B I/P A4	1	MAIN	J1 TO J14 MAIN	
CAB		CABLE 8-PIN LEVEL CONTROL	1		J2 to J14 (GRAY)	
CAB	4-19-1755	CABLE 14-PIN TO 4-CON MAIN HARNESS	1		J23 TO J20,J13,J8,J3	
CAB	4-19-1759	CABLE 3-PIN BIAS CH B	1		J12 TO J19 (YELLOW, GRN, BLUE)	
CAB	4-19-1760	CABLE 6-PIN LED	1			
CAB	4-19-1761	CABLE 3-PIN BIAS CH A	1		J15 TO J21 (BRN,RED,ORANGE)	
CAB		ASSY WIRE HARNESS 14" (25-PIN D-CON & 26-PIN DIL HDR CON) 26 AWG	1			
CAB		CABLE POWER W/SPADE LUG (UL/CSA) A4/A8	1			
CFC		CAP 10uF ELEC 35V 20%	1	FAN	C39	
CFC		CAP 100PF 100V 5% NPO MC	2	MAIN	C 19, 49	
CFC		CAP 100µF 25V 20% MUSE	4	MAIN	C 2, 3, 16, 30	
CFC		CAP 100uF 25V 20% MUSE	2	FAN	C42, 43	
CFC			12	MAIN		1
		CAP 0.1uF 100V 5% FILM			C 9, 11, 14, 18, 20, 21, 23, 25, 28, 32, 33, 34	r
CFC		CAP 0.1uF 100V 5% FILM	4	FAN	C38, 47, 48, 50	
CFC		CAP .01uF 250V 20% XCAP	1	MAIN	C 6	
CFC		CAP .01uF 250V 20% XCAP	1	FAN	C44	
CFC		CAP 10000uF ELEC 80V 20%	2	FAN	C45, 46	
CFC		CAP 22PF 100V 5% NPO MC	4	MAIN	C 10, 12, 24, 26	
CFC		CAP 220uF ELEC 25V 20%	2	MAIN	C 4, 7	
CFC		CAP 220uF ELEC 25V 20%	2		C35, 36	
CFC	1-99-0221	CAP 220uF ELEC 25V 20%	2	FAN	C37, 40	
CFC	1-99-1200	CAP 1200PF 100V 5% FILM	4	MAIN	C 8, 13, 22, 27	
CFC	1-99-2200	CAP 2200uF ELEC 25V 20%	1	FAN	C41	
CFC	1-99-3300	CAP 3300PF 100V 5% FILM	6	MAIN	C 1, 5, 15, 17, 29, 31	
CFD	2-99-0021	DIODE BAV21	4	MAIN	CR 4, 5, 11, 12	
CFD	2-99-1757	DIODE ZENER 1N757A (9.1V)	2	MAIN	CR 3, 10	
CFD		DIODE POWER 1N4003	2	FAN	CR18,26	
CFD		DIODE SIGNAL 1N4148	8	MAIN	CR 6-9, 13-16	
CFD		DIODE SIGNAL 1N4148	7	FAN	CR 17, 19, 20, 22-25	
CFD		DIODE POWER 1N5400	1	FAN	CR21	
CFM		DIODE 1N5352BRL 15V 5W 5%	2	MAIN	CR 1, 2	
CFR		RES 0.2 OHM 3W 5% MO	6	MAIN	R30, 32, 57, 83,86, 89	
CFR		RES 0.2 OHM 3W 5% MO	6		R93, 96, 99, 104, 107, 109	
CFR		RES 0.2 OHM 3W 5% MO RES 10 OHM 1/4W 5% CF	6	MAIN	R 23, 59, 90, 91	
			4	FAN	R 23, 59, 90, 91 R128	
CFR		RES 10 OHM 1/4W 5% CF				l
CFR		RES 10 OHM 3W 5% MO	2	FAN	R137, 138	
CFR		RES 1.2 OHM 1/2W 5% MO	6	MAIN	R 29, 31, 56, 82, 85, 88	
CFR		RES 1.2 OHM 1/2W 5% MO	6		R94, 97, 100, 105, 108, 110	
CFR		RES 20 OHM 5W 5% WW	1	FAN	R114	
CFR		RES 2.7 OHM 3W 5% MO	2	OUTPUT	R92, 111	
CFR		RES 40 OHM 5W 5% WIRE WOUND	1	FAN	R112	
CFR	0-99-0100	RES 100 OHM 1W 5% MO	2	MAIN	R 9, 11	
CFR	0-99-0103	RES 10K 1/4W 1% MF	8	MAIN	R 3, 6, 14, 17, 45, 53, 71, 79	
CFR		RES 10K 1/4W 5% CF	2	MAIN	R 12, 13	
CFR		RES 10K 1/4W 5% CF	10	FAN	R116, 123, 125-127, 130, 131, 133-135	•
CFR		RES 120 OHM 5W 5% WW	1	FAN	R113	
CFR		RES 2K OHM 1/4W 5% CF	2	MAIN	R 22, 28	
CFR		RES 22K 1/4W 5% CF	1	MAIN	R 136	
CFR		RES 22K 1/4W 5% CF	3	FAN	R121, 122, 132	
CFR		RES 330 OHM 1/4W 5% MO	4	MAIN	R33, 58, 84, 87	
CFR			4	OUTPUT	R33, 58, 84, 87 R95, 98, 103, 106	l
		RES 330 OHM 1/4W 5% MO				
CFR		RES 51.1 OHM 1/4W 1% MF	6	MAIN	R 7, 18, 36, 49, 62, 75	
Group	Part.Number	Description	Qty	PCB OUTPUT M	Ref.Designator	Comment
CFR	0-99-0511	RES 51.1 OHM 1/4W 1% MF	2			

Alesis A4/A8 Amplifiers Service Manual-----

10

CFR 0-99.0593 RES 58K 1/4W 1% MF 4 MAIN R 41,46,67,72 CFR 0-99.0680 RES 680 CHM 5W 5% WIRE WOUND 2 MAIN R 24,25 CFR 0-99.0100 RES 1K OHM 1/4W 1% MF 6 MAIN R 35,48,52,61,74,78 CFR 0-99.1010 RES 1K OHM 1/4W 1% MF 1 FAN R120 CFR 0-99.1011 RES 1K OHM 1/2W 5% CF 1 MAIN R 42,68 CFR 0-99.1012 RES 1.40K OHM 1/4W 1% MF 2 MAIN R 42,68 CFR 0-99.1500 RES 1.5K OHM 1/4W 5% CF 1 FAN R 129 CFR 0-99.1500 RES 1.5K OHM 1/4W 5% CF 1 FAN R 124 CFR 0-99.1500 RES 1.5K OHM 1/4W 5% CF 1 FAN R 124 CFR 0-99.210 RES 2.1K OHM 1/4W 1% MO 4 MAIN R 43, 47, 60, 73 CFR 0-99.3300 RES 3.3K 1/4W 5% CF 2 MAIN R 26, 27 CFR 0-99.3301 RES 3.3K 1/4W 5% CF 2							
CPM 0.690.000 RES NO.144 WTS M. 0 AMAN R 24, 35 CPM 0.690.000 RES NO.144 WTS M. 0 AMAN R 24, 35 CPM 0.690.000 RES NO.144 WTS M. 0 AMAN R 34, 82, 61, 74, 78 CPM 0.690.000 RES NO.144 WTS M. 0 AMAN R 34, 82, 61, 74, 78 CPM 0.690.000 RES NO.144 WTS M. 0 AMAN R 34, 68 AMAN R 34, 67 AMAN R 34, 68 AMAN R 34, 67 AMAN AMAN R 34, 68 AMAN M 34 AMAN M 34, 68 AMAN M 34 AMAN <td>CFR</td> <td></td> <td></td> <td>2</td> <td>MAIN</td> <td>R 54, 80</td> <td></td>	CFR			2	MAIN	R 54, 80	
CFM 0.99-1000 RES NO-MIT No F MAIN R S5. 44, 56. 17, 27.8 CFM 0.99-1000 RES NO-MIT No 1 FAN R 120 F CFM 0.99-1000 RES NO-MIT No 1 FAN R 120 F CFM 0.99-100 RES NO-MIT NO 2 MANN R 120 F CFM 0.99-100 RES NO-MIT NO NO 2 MANN R 124, 20 F CFM 0.99-200 RES RCM 140 YM TON NO F 1 FAN R 124, 20 F F F R 124, 70 F F R 144,							
CFN 0.991000 RES NOM YANG YANG Part RC0 CFN 0.991000 RES NOM YANG YANG 1 MANN R10 CFN 0.991000 RES NOM YANG YANG 2 MANN R12.0 CFN 0.991000 RES SCOM YANG YANG 2 MANN R12.0 CFN 0.991000 RES SCOM YANG YANG 2 MANN R12.0 1 CFN 0.99100 RES SCOM YANG YANG YANG YANG YANG YANG YANG YANG							
CPFR 0.98-1001 RES RCMIN SP OF 1 MAN R 10 CFR 0.98-1001 RES RCMIN SP OF 1 FAN R12 9 Incomparing the second				6			
GPR 699-101 RES 14 COM LOW %5 CF 1 FAN R42 CPR 699-102 RES 140 COM LW % Mu 2 MAN R42 68 CPR 699-102 RES 140 COM LW % Mu Mu R42 MAN R42 68 CPR 699-102 RES 27 COM LW % Start R4 MAN R42 69 CPR 699-102 RES 27 COM LW % Start R4 MAN R42 47 67 R CPR 699-203 RES 30 COM LW % Start R4 MAN R25,11 R CPR 699-303 RES 30 COM LW % Start R R R44,47 6,73 R CPR 699-303 RES 30 COM LW % Start R R MAN R25,11 R CPR 699-303 RES 300 SUM W Start R MAN R21,45,16,46,70,10,160 R CPR 699-303 RES 300 SUM W Start R MAN R21,46,5,16,46,70,10,160 MAN R21,46,5,16,46,70,10,160 CPR 699-301 SE SULFARM W Start R MAN R21,46,4							
GPR 0.95:402 RES 1. KO MIL MAY 5, GP 2 MANN R 42, 88 CPR 0.95:500 RES 1. KO MIL MAY 5, GP 2 MANN R 51, 77 CPR 0.95:500 RES 1. KO MIL MAY 5, GP 2 MANN R 51, 77 CPR 0.95:500 RES 1. KO MIL MAY 5, GP 2 MANN R 53, 47 2 CPR 0.95:300 RES 3. KU MAY 5, GP 1 MANN R 53, 81 CPR CPR 0.95:300 RES 3. KU MAY 5, GP 1 FAX FT 1 FAX CPR 0.95:300 RES 3. KU MAY 5, GP 1 FAX R 71, 45, 16, 0, 21 CPR CPR 0.96:490 RES 4.96 CM MAY TO MP 2 MANN R 51, 82, 44, 69, 71, 70, 70 CPR CPR 0.96:492 RES 4.96 CM MAY TO MP 2 MANN R 51, 82, 44, 69, 71, 70, 70 CPR CPR 0.96:492 RES 4.96 CM MAY TO MP 2 MANN R 53, 44, 69 CPR CPR 0.96:400 CPR MANN				1			
GPR 0.986-1500 RES 13 KO MM 140P Sty GP 2 MANN R 51, 47 M 140 Sty GP 1 FAA FAA <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td>				1			
GPR 0.981500 RES 180 OWN MW 95 OF 1 FAN R234 7.0 073 CPR 0.052301 RES 221 CMM WW 55 OF 2 MANN R234 7.0 073 CPR 0.052303 RES 221 CMM WW 56 OF 3 FAN R117 CPR 0.052303 RES 321 CMM WW 56 OF 3 FAN R117 10 CPR 0.052303 RES 320 KMW 56 OF 3 FAN R117 11 CPR 0.052303 RES 320 KMW 56 OF 3 FAN R115 1.4 5.1 5.8 0.71 CPR 0.052303 RES 300 KMW 100 KW 50 KW 8 MANN R32 KM 600 KM 100 KW 50 KW CPR 0.054302 RES 30 KMBW 100 KW 50 KW 3 MANN R 32 A 1 CPR 0.056302 RES 30 KMBW 100 KW 50 KW 1 MANN R 52 A 1 MANN CPR 0.05673 M.A 3 MANN R 52 A 1 MANN 1 R 24 CON 4-10007 CON BRUNG POSTA A	CFR	0-99-1402	RES 1.40K OHM 1/4W 1% MF	2	MAIN	R 42, 68	
CFR 0.99-2010 RES 221K OM 14W 15 MO 4 MAN R 34.4 (9.073) CFR 0.99-300 RES 33 MILW 95 CF 2 MAN R 26.2 (7) CFR 0.99-300 RES 33 MILW 95 CF 2 MAN R 26.2 (7) CFR 0.99-300 RES 33 MILW 95 CF 3 FAA R 115.116.110 1 CFR 0.99-300 RES 34 MILW 15 CF 8 MAN R 115.116.110 1 CFR 0.99-400 RES 44 WILW 15 CF 8 MAN R 1.9.43.44.9.0.713.140 1 CFR 0.99-400 RES 44 WILW 15 CF 8 MAN R 3.4.9.0.101.400 1 CFR 0.99-501 RES 24 NULLEX TIME 8 MAN R 3.4.9.0 1 1 CFR 0.99-602 RES 100 CHAI 14W 15 ME 1 MAN R 3.4.9.0 1 MAN 1 MAN R 3.4.9.0 1 1 1 1 1 1 MAN 1 1 MAN 1 1 1 1				2			
CFR 0-89-303 RET 0.33 RET AL CADLE (LAME PROOF) 2 MAN R 25, 21 CFR 0-93-300 RES 3.8 KI MUR Sp. CF 1 FAA R11, 101 CFR 0-93-300 RES 3.8 KI MUR Sp. CF 1 FAA R11, 110 CFR 0-93-300 RES 3.8 KI MUR Sp. CF 8 MAN R1, 24, 5, 15, 60, 21 CFR 0-94-300 RES 4.8 MV MY Sp. CF 8 MAN R 12, 4, 5, 15, 60, 21 CFR 0-94-401 RES 4.80 / MU MY N Sp. CF 8 MAN R 3, 44, 40, 70, 139, 140 CFR 0-94-401 RES 4.80 / MU MY N Sp. CF 2 MAN R 8, 44, 40, 70, 139, 140 CFR 0-94-401 RES 4.80 / MU MY N ME 1 MAN R 8, 44, 40, 70, 139, 140 CFR 0-94-401 RES 4.90 / MU AVI N ME 1 MAN R 64, 66 CON 4-10-007 CON BANDN ROST AV, AB 1 FAA P122 CON 4-10-007 CON BANDN ROST AV, AB 1 FAA P122 CON 4-10-007	CFR	0-99-1500	RES 1.5K OHM 1/4W 5% CF	1	FAN	R124	
GFR 6.98-300 RES 3.X HAV STLCF 2 MANN R.55, 81 GFR 6.98-303 RES 3.X HAV STLCF 1 FAA R117 GFR 6.98-303 RES 3.X HAV STLCF 3 FAA R115, 15, 16, 20, 21 GFR 6.98-303 RES 3.X HAV STLCF 3 FAA R116, 15, 16, 20, 21 GFR 6.98-402 RES 4.98 (AMH HAV TS MF 2 MANN R3, 16, 40, 20, 21 GFR 6.98-402 RES 4.98 (AMH HAV TS MF 2 MANN R3, 40, 40, 60 GFR 0.98-202 RES 4.98 (AMH HAV TS MF 3 MANN R3, 40, 40 GFR 0.98-202 RES 4.98 (AMH HAV TS MF 3 MANN R3, 40, 40 GFR 0.98-202 RES 4.98 (AMH HAV TS MF 3 MANN R3, 40, 40 GFR 0.98-202 RES 4.98 (AMH HAV TS MF 3 MANN R3, 40, 40 GFR 0.98-202 REVACED BY 5.98-140.65 1 MANN 3 R GFR 0.98-200 TOM BROIN POST AL AS	CFR	0-99-2210	RES 2.21K OHM 1/4W 1% MO	4	MAIN	R 34, 47, 60, 73	
CFR 0.983-300 RES. 3X: 14W %5 CF 1 FAN R117 CFR 0.984-300 RES. 3X: 14W %5 CF 8 MAIN R1, 24, 51, 56, 20, 21 CFR 0.984-300 RES 4.984 (MW %5 CF 8 MAIN R1, 24, 51, 56, 20, 21 CFR 0.984-300 RES 4.984 (MW %5 CF 8 MAIN R1, 24, 51, 56, 20, 21 CFR 0.984-300 RES 4.984 (MW %5 CF 2 MAIN R1, 2 CFR 0.994-501 RES 58 (MR-AR TRM NOT 2 MAIN R1, 2 CFR 0.994-501 RES 58 (MR-AR TRM NOT 1 MAIN R5, 40, 66 CFR 0.994-502 RES 1.986 (MM 14W 1% MF 1 MAIN R5 0.6 CON 4.480-003 STRP ARRIER (B-PO)D 10.58-14W-66 1 MAIN R5 0.6 CON 4.480-003 STRP ARRIER (B-PO)D 10.58-14W-66 1 MAIN 14, 14, 15 1 MAIN CON 4.480-003 STRP ARRIER (B-PO)D 10.58-14W-66 1 MAIN 11, 12, 14, 15 1 <td>CFR</td> <td>0-99-3033</td> <td>RES 0.33 OHM 1/4W 5% METAL OXIDE (FLAMEPROOF)</td> <td>2</td> <td>MAIN</td> <td>R 26, 27</td> <td></td>	CFR	0-99-3033	RES 0.33 OHM 1/4W 5% METAL OXIDE (FLAMEPROOF)	2	MAIN	R 26, 27	
CFR 0.493.03 RES 306: 14W % CF 3 FAN R118, 119 CFR 0.494.00 RES 4.495: W1% CF 8 MAIN R1, 24, 55, 15, 20, 21 CFR 0.494.001 RES 4.495: W1% CF 8 MAIN R1, 24, 55, 15, 20, 21 CFR 0.496.401 RES 4.495: M164: W1% CF 2 MAIN R1, 24, 55, 15, 20, 21 CFR 0.496.401 RES 4.495: M14W % LMF 3 MAIN R1, 24, 55, 16, 20, 21 CFR 0.496.001 RES 4.406: M14W % LMF 3 MAIN R2, 46, 66 CON 4.400.007 CON RED MIC POST 4.404 MA R1 MAIN R2, 46, 66 CON 4.400.007 STRIP BARREL (APOD) 175-56-144-045 1 MAIN R4 R2 CON 4.400.000 STRIP BARREL (APOD) 175-56-144-046 1 MAIN R3 120, 41, 15 110, 16 CON 4.405.001 FAR AF2 FAN P12, 2 FAN P12, 2 CON 4.405.001 FAR AF2, 50, 13 100, 174, 1	CFR	0-99-3300	RES 3.3K 1/4W 5% CF	2	MAIN	R 55, 81	
CFR 0.994.990 RES.4 996 NW 1% CF 8 MAIN R 1.2, 2, 5, 15, 82, 2, 1 CFR 0.944.997 RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% RES.4 90 NW 1% 1% CFR 0.944.997 RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% RES.4 90 NW 1% 1% CFR 0.944.997 RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% 1% CFR 0.949.997 RES.4 90 NW 1% 1% 1% CON 4-10.007 CON BINDING POST 14, 48 RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% 1% RES.4 90 NW 1% 1% 1% CON 4-10.007 CON BINDING POST 14, 48 RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% CON 4-10.007 CON BINDING POST 14, 48 RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% CON 4-10.007 CON BINDING POST 14, 48 RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 1% CON 4-10.000 NW 1% NW 1% 1% RES.4 1% 0% NW 1% 0% NW 1% 1% RES.4 1% 0% NW 1% 0%	CFR	0-99-3300	RES 3.3K 1/4W 5% CF	1	FAN	R117	
CFR 0-96-9491 RES 480 CM 14W 15 MF 8 MANN R 38, 44 69, 70, 139, 140 CFR 0-96-9401 RES 380 CM 14W 15 MF 2 MANN R 38, 64 CFR 0-96-9601 RES 380 CM 14W 15 MF 2 MANN R 18, 46 CFR 0-96-9601 RES 380 CM 14W 15 MF 3 MANN R 38, 66 CON 4-10-007 CON BINDING POST A4, AB 1 MANN R 36, 66 CON 4-10-007 CON BINDING POST A4, AB 1 MANN R 35 Con 4-10-007 CON BINDING POST A4, AB 1 MANN 15 MANN 15 MANN 14 MANN 14 MANN 14 MANN 15 MANN 15 MANN 15 MANN 15 MANN 14 14 MANN 14 MANN 15 <td>CFR</td> <td>0-99-3303</td> <td>RES 330K 1/4W 5% CF</td> <td>3</td> <td>FAN</td> <td>R115, 118, 119</td> <td></td>	CFR	0-99-3303	RES 330K 1/4W 5% CF	3	FAN	R115, 118, 119	
CFR 0-96-992 RES 4 JBK ONNI 14W 11% MF 2 MAIN N 83.64 CFR 0-96-982 RES 5 JBK ONNI 14W 11% MF 3 MAIN R 35.40,66 CFR 0-96-982 RES 5 JBK ONNI 14W 11% MF 1 MAIN R 55.40 CFR 0-96-982 RES 1 JBK ONNI 14W 11% MF 1 MAIN R 55.40 CON 4410-0007 CON BINDING POST A4.48 1 FRA PL-22 CON 4486-0007 STRIP DARRE (R-POS) 075-58-14W-05 1 MAIN JS CON 4486-0007 STRIP DARRE (R-POS) 075-58-14W-05 1 MAIN JS CON 4486-0007 STRIP DARRE (R-POS) 075-58-14W-05 1 MAIN JS CON 4486-0007 STRIP DARRE (R-POS) 075-58-14W-05 1 MAIN JS CON 4486-0007 STRIP DARRE (R-POS) 075-58-14W-05 1 MAIN JS CON 4486-0007 MAIN JS JS JS HOR 415-5000 HAADRE 74884-000000 J MAI	CFR	0-99-4990	RES 4.99K 1/4W 1% CF	8	MAIN	R 1, 2, 4, 5, 15, 16, 20, 21	
CFR 0-99-5001 RES SK LINEAR TRIM POT 2 MAIN N R 1, 2 CFR 0-99-5026 RES 3004 (VM 14W YM MP 3 MAIN R 83, 0, 66 CFR 0-99-5027 RES 3004 (VM 14W YM MP 1 MAIN R 83, 0, 66 CON 4-1000 (CON BINDER POST A4, AB 1 MAIN J. MAIN CON 4-450003 TRIP PARKIER (F-DS) D155-B-140-05 1 MAIN J. MAIN J. CON 4-980003 TRIP PARKIER (F-DS) D155-B-140-05 1 FAN PL22 CON 4-980003 TRIP PARKIER (F-DS) D15-B-140-05 2 FAN PL22 HDR 4-150004 TRADER SPIN SL2MM CTR (SHROUDED) 4 MAIN J 11, 21, 11, 12, 11, 15 HDR 4-150004 FRADER SPIN SL2MM CTR (SHROUDED) 1 GANTADE J 11, 21, 11, 12, 11, 15 HDR 4-1510004 FRADER SPIN SL2MM CTR (SHROUDED) 1 GANTADE J 11, 71 J 11, 71, 11, 12	CFR	0-99-4991	RES 499 OHM 1/4W 1% MF	8	MAIN	R 8, 19, 43, 44, 69, 70, 139, 140	
CFR 0-99-5001 RES SK LINEAR TRIM POT 2 MAIN N R 1, 2 CFR 0-99-5026 RES 3004 (VM 14W YM MP 3 MAIN R 83, 0, 66 CFR 0-99-5027 RES 3004 (VM 14W YM MP 1 MAIN R 83, 0, 66 CON 4-1000 (CON BINDER POST A4, AB 1 MAIN J. MAIN CON 4-450003 TRIP PARKIER (F-DS) D155-B-140-05 1 MAIN J. MAIN J. CON 4-980003 TRIP PARKIER (F-DS) D155-B-140-05 1 FAN PL22 CON 4-980003 TRIP PARKIER (F-DS) D15-B-140-05 2 FAN PL22 HDR 4-150004 TRADER SPIN SL2MM CTR (SHROUDED) 4 MAIN J 11, 21, 11, 12, 11, 15 HDR 4-150004 FRADER SPIN SL2MM CTR (SHROUDED) 1 GANTADE J 11, 21, 11, 12, 11, 15 HDR 4-1510004 FRADER SPIN SL2MM CTR (SHROUDED) 1 GANTADE J 11, 71 J 11, 71, 11, 12	CFR	0-99-4992	RES 49.9K OHM 1/4W 1% MF	2	MAIN	R 38, 64	
CFR 0.99-782 RES 7.88X CHM 14W 1% MF 3 MAIN R 39, 40, 66 CFR 0.99-282 RES 7.88X CHM 14W 1% MF 1 MAIN R 83, 40, 66 CON 4-10-0007 CON BINDING POST A4, A8 1 Final Assembly REFLACED BY 9-66-1290 AS CON 4-10-0007 CON BINDING POST A4, A8 1 Final Assembly REFLACED BY 9-66-1290 AS CON 4-10-0007 CON BINDING POST A4, A8 - 55-14N-05 1 MAIN BS CON 4-10-0007 CON BINDING POST A4, A8 - 55-14N-05 1 MAIN BS CON 4-10-0007 A98-0004 A98 FAST CM 1// AMP 0250-11 MAIN BS CON 4-15-002 HEADER 3-PMS SL 20M CTR (SHROUDED) 2 OUTPUT M J11, 21, 15 HOR 4-15-002 HEADER S-PMS SL 20M CTR (SHROUDED) 1 GANN J20 HOR 4-15-008 HEADER S-PMS SL 20M CTR (SHROUDED) 1 GANN J2, 8 HOR 4-15-008 HEADER S-PMS SL 20M CTR (SHROUDED) 1 GANN J2, 8				2	MAIN		
CFR 0.99-982 RES 3.08X CMM 148Y 1% MF 1 MAIN Red EPLACED BY 9.66.128 A.83 CON 4-10-0007 CON BUNDR POST A4, AB 1 Final Assembly REPLACED BY 9.66.128 A.84 CON 4-10-0007 CON BUNDR POST A4, AB 1 MAIN JE CON 4-45.0007 CON BUNDR POST A4, AB 1 MAIN JE CON 4-45.0007 CON BUNDR POST A4, AB 1 MAIN JE COR 4-15.0007 FADER SERVER SCON 4-15.0007 FADER SERVER SCON HOR 4-15.2002 HEADER SERVER SERVER SCON 4.4 MAIN J1, 2, 14, 16 HOR 4-15.0002 HEADER SERVER SERVER SCON 4.4 MAIN J1, 2, 14, 15 HOR 4-15.0002 HEADER SERVER							
CON. 4-10.007 CON BINING POST AA, AS 1 Final Assembly REPLACED BY 949-129 ASS CON. 4-10.007 CON BINING POST AA, AS 1 MAN JS CON. 4-10.007 CON BINING POST AA, AS 1 MAN JS CON. 4-98.003 TRAP BARRER (5-POS) DT-SS-B-4N405 1 MAN JS CON. 4-98.003 TRAP BARRER (5-POS) DT-SS-B-4N405 1 FAN P1-22 HOR 4-15.002 HEADER Z-PIN SIL DI SPC (100-0460-2) 1 FAN P1-22 HOR 4-15.102 HEADER Z-PIN SIL ZM CTR (SHROUDED) 2 OUTPUT M J3.9, 10, 13 HOR 4-15.1002 HEADER Z-PIN SIL ZM CTR (SHROUDED) 1 MAN J16 HOR 4-15.1008 HEADER Z-PIN SIL ZM CTR (SHROUDED) 1 CANTROL J17 HOR 4-15.1008 HEADER Z-PIN SIL ZM CTR (SHROUDED) 1 CANTROL J18 HOR 4-15.1008 HEADER Z-PIN SIL ZM CTR (SHROUDED) 1 FAN J22 HOR 4-15.1							1
CON 4-10-0007 CON BINDING POST A4, AB 1				1			REPLACED BY 9-96-1259 ASSY.
CON 4-98-0003 STRIP BARRIER (P/OS) DT-55-B-14N05 1 MAIN J5 CON 4-98-0004 TAB FASTON 14" (AMP 56260-1) 22 FAN PI-22 HOR 4-15-2002 HEADER 2+IN SL (J) SPC LOCKING (AMP 66436-2) 1 FAN J22 HOR 4-15-2003 HEADER 3+IN SL 2AM CTR (SHROUDED) 4 MAIN J1, 12, 14, 15 HOR 4-15-2003 HEADER 3+IN SL 2AM CTR (SHROUDED) 4 MAIN J3, 5, 10, 13 HOR 4-15-1002 HEADER 5+IN SL 2AM CTR (SHROUDED) 1 MAIN J3, 5, 10, 13 HOR 4-15-1002 HEADER 5+IN SL 2AM CTR (SHROUDED) 1 MAIN J2, 6 HOR 4-15-1003 HEADER 5+PIN SL 2AM CTR (SHROUDED) 1 CONTROL J16 HOR 4-15-1014 HEADER 5+PIN SL 2AM STR (SHROUDED) 1 FAN J23 HOR 4-15-1014 HEADER 5+PIN SL 2AM STR (SHROUDED) 1 FAN J33 HOR 4-15-1014 HEADER 5+PIN SL 2AM STR TAM THA TREAD ROLLING PAN HEAD TROX BLK 5 TANA J33 <tr< td=""><td></td><td></td><td></td><td>1</td><td></td><td>í</td><td></td></tr<>				1		í	
CON 4-98-004 TAB FASTON 14 ⁴ (AMP 62650-1) 22 FAN Pt-22 HOR 4-15-2002 HEADER 3-PIN SL 0.3 FPC LOCKING (AMP 640458-2) 1 FAN J.22 HOR 4-15-2003 HEADER 3-PIN SL 2.3 MC TR (SHROUDED) 4 MAIN J.1, 12, 14, 15 HOR 4-15-2003 HEADER 3-PIN SL 2.MM CTR (SHROUDED) 2 OUTPUT M J8, 11 HOR 4-15-1002 HEADER 3-PIN SL 2.MM CTR (SHROUDED) 4 MAIN J3, 9, 10, 13 HOR 4-15-1002 HEADER 5-PIN SL 2.MM CTR (SHROUDED) 1 OUTPUT M J20 HOR 4-15-1008 HEADER 5-PIN SL 2.MM CTR (SHROUDED) 1 OUTPUT M J3 S HOR 4-15-1008 HEADER 5-PIN SL 2.MM CTR (SHROUDED) 1 NAIN J2 S HOR 4-15-1008 HEADER 5-PIN SL 2.MM CTR (SHROUDED) 1 FAN J2.8 S HOR 4-15-104 HADER 54-28-NIN LUI 100 SPC 1 MAIN J3 S TAT HOR 4-50-0007 SCREW 62-32.38 TAT TO FIG				1	MAIN	15	
HDR 4-15-2002 HEADER 2+IN SL 0.1 SPC LOCKING (AMP 640456-2) 1 FAN J.22 HDR 4-15-2003 HEADER 3+IN SL 2MM CTR (SHROUDED) 4 MAIN J 1, 2, 14, 15 HDR 4-15-2003 HEADER 3+IN SL 2MM CTR (SHROUDED) 2 OUTPUT M J19, 21 HDR 4-15-1002 HEADER 3+IN SL 2MM CTR (SHROUDED) 4 MAIN J39, 10, 13 HDR 4-15-1002 HEADER 3+IN SL 2MM CTR (SHROUDED) 1 MAIN J39, 10, 13 HDR 4-15-1006 HEADER 4-HN SL 2MM CTR (SHROUDED) 1 MAIN J36 HDR 4-15-1006 HEADER 4-PIN SL 2MM CTR (SHROUDED) 1 MAIN J36 HDR 4-15-1014 HEADER 4-PIN SL 2MM CTR (SHROUDED) 1 PAN J23 HDR 4-90-0276 SCREW 4-32 x31 TAP TIOHT THERA DROLLING PAN HEAD TROX BLK 1 MAIN J36 HDW 5-00-0078 SCREW 4-32 x31 TAP TIOHT THERA DROX DLING PAN HEAD TROX BLK 5 TRAN JA2 HDW 5-00-0078 SCREW 4-32 x47 TAP TIOHT THEAD ROX LING PAN HEAD TROX ZINC 1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td></td<>							1
HDR 4-15/2003 HEADER 3-PIN SIL ZMM CTR (SHROUDED) 4 MANN J 1, 12, 14, 15 HDR 4-15/2003 HEADER 3-PIN SIL ZMM CTR (SHROUDED) 2 OUTPUT M J19, 21 HDR 4-15/102 HEADER 2-PIN SIL ZMM SPC (shrouded) 4 MANN J30, 10, 13 HDR 4-15/102 HEADER 2-PIN SIL ZMM SPC (shrouded) 1 OUTPUT M J30 HDR 4-15/102 HEADER 6-PIN SIL ZMM CTR (SHROUDED) 1 CMATNO J31 HDR 4-15/108 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 CONTROL J31 HDR 4-15/108 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 CONTROL J31 HDR 4-15/104 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 CONTROL J31 HDR 4-15/104 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 MAIN J2.8 HDR 4-12/04 HADER 4-17/1147 J31 CONTROL J31 HDR 4-16/06/04 KADE A-17/1147 TD10 TD10 HADER HOW							
HDR 4-15-2003 HEADER 3-PIN SIL ZMM CTR (SHROUDED) 2 OUTPUT M J19, 21 HDR 4-15-1002 HEADER 2-PIN SIL Zmm SPC (shrouded) 1 MAIN J3, 9, 10, 13 HDR 4-15-1002 HEADER 2-PIN SIL Zmm SPC (shrouded) 1 MAIN J16 HDR 4-15-1002 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 MAIN J17 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 2 MAIN J2, 8 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 CONTROL J18 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 CONTROL J38 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 RAIN J6 HDR 4-15-104 HEADER 8-PIN SIL ZMM CTR (SHROUDED) 1 RAIN J6 HDR 4-15-104 HEADER 14/11 SIL ZMM CTR (SHROUDED) 1 RAIN J6 HDW 5-00-007 SCREW 10-32 x 361 TAP TICHT THREAD ROLLING PAN HEAD TROX BLK 1 RAINA SASTITAANISORA				4			
HDR 41-51-1002 HEADER 2-PN SiL 2mm SPC (shrouded) 4 MAIN J. 3, 9, 10, 13 HDR 41-51-002 HEADER 2-PN SiL 2MM CTR (SHROUDED) 1 OUTPUT J.20 HDR 41-51-008 HEADER 2-PN SiL 2MM CTR (SHROUDED) 1 CONTROL J.17 HDR 41-51-008 HEADER 2-PN SiL 2MM CTR (SHROUDED) 2 MAIN J.2, 8 HDR 41-51-008 HEADER 2-PN SiL 2MM CTR (SHROUDED) 1 CONTROL J.18 HDR 41-51-004 HEADER 2-PN SiL 2MM CTR (SHROUDED) 1 CONTROL J.18 HDR 41-51-014 HEADER 2-PN SiL 2MM CTR (SHROUDED) 1 MAIN J.2, 8 HDR 4-50-0076 SCREW 6-32 x38 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 1 MAIN J.8 HDW 5-00-0076 SCREW 10-32 x70 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 5 TRANSFORMER MTG AND AC GND HDW 5-00-0076 SCREW 10-32 x70 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 5 TRANSFORMER MTG AND AC GND HDW 5-00-0076 SCREW 10-32 x70 TAP TIGHT THREAD ROLING PAC AC ROLING CONT							
HDR 4-15-1002 HEADER 2-PIN SIL Zmm SPC (sinvolute) 1 OUTPUT M 320 HDR 4-15-1006 HEADER 6-PIN SIL ZMM CTR (sIRROUDED) 1 MAIN J16 HDR 4-15-1008 HEADER 6-PIN SIL ZMM CTR (SIRROUDED) 1 CONTROL J17 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SIRROUDED) 2 MAIN J2, 8 HDR 4-15-1008 HEADER 8-PIN SIL ZMM CTR (SIRROUDED) 1 FAN J18 HDR 4-15-1014 HEADER 72-PIN DIL 100 SPC 1 MAIN J6 HDW 5-00-0077 SCREW 10-32 z516 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 1 COVER AND MTG 8 HDW 5-00-0077 SCREW 10-32 z718 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5-00-0078 SCREW 43 z 178 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5-00-0078 SCREW 43 z 178 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 REAR PANEL HDW 5-00-0085 SCREW 43 z 84 MI PPZ MACHINE 2 REAR PANEL <							
HDR 4-15-1006 HEADER 4-PIN SIL ZMA CTR (SHROUDED) 1 MAIN J16 HDR 4-15-1008 HEADER 9-PIN SIL ZMA CTR (SHROUDED) 2 MAIN J2, 8 HDR 4-15-1008 HEADER 9-PIN SIL ZMA CTR (SHROUDED) 1 CONTROL J17 HDR 4-15-1014 HEADER 9-PIN SIL ZMA CTR (SHROUDED) 1 CONTROL J18 HDR 4-15-1014 HEADER 74 PIN SIL ZMA CTR (SHROUDED) 1 FAN J23 HDR 4-15-1014 HEADER 74 PIN SIL ZMA CTR (SHROUDED) 1 FAN J23 HDR 4-90028 HEADER 74 PIN SIL ZMA CTR (SHROUDED) 1 FAN J23 HDR 4-90028 HEADER 74 PIN SIL ZMA CTR (SHROUDED) 1 MAIN J6 HDW 500-0078 SCREW 6-32 x J8 TAP TICHT THREAD ROLLING PAN HEAD TROX SILK 1 IRINDING POST HDW 500-0078 SCREW 1-32 x J78 TAP TICHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDOAR RECTIFIER HDW 500-0078 SCREW 1-32 x J78 TAP TICHT THREAD ROLLING PAN HEAD TROX ZINC 1 REAR PANEL							
HDR 4-15-1006 HEADER 8-PN SIL ZMM CTR (SHROUDED) 1 CONTROL 17 HDR 4-15-1008 HEADER 8-PN SIL ZMM CTR (SHROUDED) 2 MAIN 12.8 HDR 4-15-1008 HEADER 8-PN SIL ZMM CTR (SHROUDED) 1 FAN 123 HDR 4-15-1014 HEADER 14 PIN SIL ZMM CTR (SHROUDED) 1 FAN 123 HDR 4-95-0026 HEADER 28-PIN DIL .100 SPC 1 MAIN 16 HDW 500-0077 SCREW 10-32 x 5/16 TAP TIGHT THREAD ROLLING PAN HEAD TROX ELK 5 TRANSFORMER MTG AND CG GAD HDW 500-0078 SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDINE POST HDW 500-0079 SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECTIFIER HDW 500-0085 SCREW 33 x 12 aF DT FATTIFIC TROX BLACK OXIDE W/WAX 4 HEATSHINASSYTOR TANSISTOR CLAMP HDW 500-0085 SCREW 33 x 12 aF DT FATTIFIC TROX BLACK OXIDE W/WAX 4 HEATSHINASSTYTOR TANSISTOR CLAMP HDW 500-0085 SCREW 33 x 10 x ANS CRAME AD AD AT ANS YTAR TANSISTOR CLAMP							
HDR 4-15-1008 HEADER 8-PN SU ZAMCTR (SHROUDED) 2 MAIN 12.8 HDR 4-15-1008 HEADER 14 PIN SU, Zam SHROUDED 1 CONTROL 118 HDR 4-15-1014 HEADER 14 PIN SU, Zam SHROUDED 1 FAN 123 HDR 4-90-026 HEADER 14 PIN SU, Zam SHROUDED 1 MAIN 16 HDR 4-90-026 HEADER 23-PIN DU, 100 SPC 1 MAIN 16 HDW 5-00-0076 SCREW 6-32 X187 TAP TIGHT THREAD ROLLING PAN HEAD TROX ELK 5 TRANSFORMER MTG AND AC GND HOW 5-00-0078 SCREW 6-32 X17 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDDE RECTIFIER HOW 5-00-0079 SCREW 9-32 X17 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDDE RECTIFIER HOW 5-00-0088 SCREW M3 X6M MPZ MACHINE 4 COMBOC CONNECTOR HOW 5-00-0088 SCREW M3 X6M MPZ MACHINE 4 COMBOC CONNECTOR HOW 5-00-0088 SCREW M3 X6M MPZ MACHINE 4 COMBOC CONNECTOR HOW 5-00-00208 SCREW M3					CONTROL		
HDR 4-15-1038 HEADER 8-PIN SIL 2MM CTR (SHROUDED) 1 CONTROL J 18 HDR 4-15-1014 HEADER 14 PIN SIL 2mm SHROUDED 1 FAN J23 HDW 5-00-0076 SCREW 163.22 x516 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 1 MAIN J6 HDW 5-00-0077 SCREW 163.22 x516 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 5 TRANSFORMER MTG AND AC GND HDW 5-00-0078 SCREW 163.22 x178 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDGE RECTFIER HDW 5-00-0078 SCREW 163.22 x178 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECTFIER HDW 5-00-0078 SCREW 33.21 x18 PH TAPTTIE TORX BLACK OXIDE WWAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0085 SCREW 33.21 x18 PH TAPTTIE TORX BLACK OXIDE WWAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0085 SCREW 33.21 x18 PH TAPTTIE TORX BLACK OXIDE WWAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0085 SCREW 43.20 x18 PH TAPTTIE TORX BLACK OXIDE WWAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0085 SCREW 4							
HDR 4-15-1014 HEADER 14 PIN SIL 2mm SHROUDED 1 FAN J23 HDR 4-99028 HEADER 24-PIN DLI.00 SPC 1 MAIN J6 HDW 5-00-0071 SCREW 5-32 x 102 TAP TIGHT THREAP ROLLING PAN HEAD TROX BLK 1 COVER AND MTG 8 HDW 5-00-0071 SCREW 5-32 x 102 TAP TIGHT THREAP ROLLING PAN HEAD TROX BLK 5 TRANSFORMER MTG AND AC GND HDW 5-00-0073 SCREW 6-32 x 102 RP TIGHT THREAP ROLLING PAN HEAD TROX ZINC 1 BINDIR POST HDW 5-00-0078 SCREW 6-32 x 102 RP TIAP TIGHT THREAP ROLLING PAN HEAD TROX ZINC 1 BINDIR POST HDW 5-00-0088 SCREW M3 x 6MM PP2 MACHINE 4 COMBO CONNECTOR HDW 5-00-0088 SCREW, M3 x 6MM PP2 MACHINE 2 REAR PANEL HDW 5-00-0088 SCREW, M3 x 6MM PP2 MACHINE 2 REAR PANEL HDW 5-00-0088 SCREW, M3 x 6MM PP2 MACHINE 2 REAR PANEL HDW 5-00-0088 SCREW, M3 x 6MM PP2 MACHINE 2 REAR PANEL HDW 5-00-0020 SCREW, M3 x 6MM PP2 MACHINE							
HDR 4-99-026 HEADER 28-PIN DIL 100 SPC 1 MAIN J6 HDW 5-00-007 SCREW 10-32 x 376 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 5 TRANSFORMER MTG AND AC GND HDW 5-00-007 SCREW 10-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDIG POST HDW 5-00-0078 SCREW 10-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDIG RECTIFIER HDW 5-00-0078 SCREW 10-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECTIFIER HDW 5-00-0078 SCREW 10-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECTIFIER HDW 5-00-0086 SCREW 32 x 1/2 ar6 PH TAPTITE TORX BLACK OXDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0086 SCREW 32 x 3/8 PPH THRD LNGR CAD 1 REAR PANEL 5 HDW 5-00-0020 NSCREW JOLK 3/6 X 1/4 2 REAR PANEL 5 FRONT PANEL FASTENER HDW 5-00-0020 NSCREW JOLK 3/6 X 1/4 2 REAR PANEL 5 FRONT PANEL FASTENER HDW 5-00-0020 NSC							
HDW 5-00-076 SCREW 6-32 x 38 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK 11 COVER AND MTG 8 HDW 5-00-077 SCREW 10-32 x 57 TAP TIGHT THREAD ROLLING PAN HEAD TROX 2INC 1 BINDING POST HDW 5-00-078 SCREW 10-32 x 17 AP TIGHT THREAD ROLLING PAN HEAD TROX 2INC 1 BINDING POST HDW 5-00-079 SCREW 10-32 x 17 AP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECHTIER HDW 5-00-078 SCREW 32 x 12 #8 PH TAPTITE TORX BLACK OXIDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-086 SCREW, 3A X 6MM PPZ MACHINE 4 COMBO CONNECTOR HDW 5-00-086 SCREW, JACK, 316 X 14 2 REAR PANEL HDW 5-00-020 MSAHER ATO FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-00-0200 SCREW, JACK, 316 X 14 2 REAR PANEL HDW 5-00-0200 MSAHER ATO FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-00-0202 RNARCER LED (LITH RASS 5 FRONT PANEL FASTENER HDW 5-00-0022 RNARCER LED (LITH RASS 5 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
HDW 5:00-0077 SCREW 10-32 x 5/16 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5:00-0078 SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5:00-0078 SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5:00-0078 SCREW 13:32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5:00-0086 SCREW 33:8 MM P2 MACHINE 4 COMBO CONNECTOR HDW 5:00-0086 SCRW, 32:3/8 PM THRD LNGR CAD 1 REAR PANEL HDW 5:00-2006 SCREW, JACK, 37:16 X 1/4 2 REAR PANEL HDW 5:00-10:022 RING RETAINING FIP A/4/A 5 FRONT PANEL FASTENER HDW 5:00-10:022 RING RETAINING RECEVER (PUSH ON) 10 HDW 5:00-10:022 STANDOFF, 400;24:WG PAR SHOP 2 FRONT PANEL FASTENER HDW 5:00-10:017 SFATENER STUD RECEVER (PUSH ON) 10 HDW 5:00-10:022 SFACEN FLID LTM-480 3 CONTR					INCALL		
HDW 5-00-0078 SCREW 6-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BINDING POST HDW 5-00-0079 SCREW 15-32 x 7/8 GPH TAPTITE TORX BLACK OXIDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0085 SCREW 15-32 x 7/8 GPH TAPTITE TORX BLACK OXIDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0086 SCREW 15-32 x 7/8 GPH TARD LINGR CAD 1 REAR PANEL HDW 5-00-0086 SCREW 1-03 x 7/8 ACK 3/16 X 1/4 2 REAR PANEL HDW 5-00-0020 WASHER #10-LT SPLIT RING 1 AC GROUND SCREW HDW 5-00-0020 WASHER #10-LT SPLIT RING 4 E AND C LEADS OF Q31,Q36 HDW 5-00-0020 WASHER #10-LT SPLIT RING 10 AC GROUND SCREW HDW 5-00-0016 STANDOFF, 400,24AWG,PVC TUBING 3 CONTROL D HDW 5-00-0021 WASHER #10-LT BRASS 1 BRIDGE RECTIFIER BRIDGE RECTIFIER HDW 5-04-0017 SPACER LED (LTM-460) 3 CONTROL D D HDW 5-04-0023							
HDW 5-00-0079 SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC 1 BRIDGE RECTIFIER HDW 5-00-0085 SCREW 8.3 2x 1/2 #6 PH TAPTITE TORX BLACK OXIDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0086 SCREW 3.3 x 6MM PPZ MACHINE 4 COMBO CONNECTOR HDW 5-00-0086 SCREW, 3.3 x 3/16 X 1/4 2 REAR PANEL HDW 5-00-2006 SCREW, 3.4 x 3/16 X 1/4 2 REAR PANEL HDW 5-00-2008 SCREW, 3.4 x 3/16 X 1/4 2 REAR PANEL HDW 5-00-2008 SCREW, 3.4 x 3/16 X 1/4 2 REAR PANEL HDW 5-01-0022 RING RETAINING F/P A4/A8 1 AC GROUND SCREW HDW 5-01-0022 RING RETAINING F/P A4/A8 5 FRONT PANEL FASTENER HDW 5-04-0016 FASTENER STUD RECEIVER (PUSI-ON) 10 HDW 5-04-0016 FASTENER STUD RECEIVER (PUSI-ON) 3 CONTROL DS 1.3 HDW 5-04-0018 WASHER 140 DLAT BRASS 1 BRIDGE RECTIFIER							
HDW 5-00-0085 SCREW 8.32 x 12 #6 PH TAPTITE TORX BLACK OXIDE W/WAX 4 HEATSINK ASSYTRANSISTOR CLAMP HDW 5-00-0086 SCREW M3 x 6MM PPZ MACHINE 4 COMBO CONNECTOR HDW 5-00-0086 SCREW, 6-32x30 PP1 THRD LNGR CAD 1 REAR PANEL HDW 5-00-0086 SCREW, JACK, 3/16 X 1/4 2 REAR PANEL HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 1 AC GOUND SCREW HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 4 E AND C LEADS OF Q31, Q36 HDW 5-01-0020 STANDDFF, 400, Q24AWG, PVC TUBING 4 E AND C LEADS OF Q31, Q36 HDW 5-04-0017 SPACER LD (LTM-480) 10 HDW 5-04-0017 SPACER LD (LTM-480) 3 CONTROL DS 1-3 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0018 WASHER #140 FLAT BRASS 1 BRIDGE RECTIFIER <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
HDW 5-00-0088 SCREW M3 x 6MM PPZ MACHINE 4 COMBO CONNECTOR HDW 5-00-0088 SCREW, JACK, 3/16 X 1/4 1 REAR PANEL							
HDW 5-00-008 SCRW.6-32X38 PPH THRD LNGR CAD 1 REAR PANEL HDW 5-00-2006 SCREW, JACK, 3/16 X 1/4 2 REAR PANEL HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-01-0022 RING RETAINING F/P Ad/AB 5 FRONT PANEL FASTENER HDW 5-002-0005 STADOFF, 4002/24WG, PVC TUBING 4 E AND C LEADS OF Q31, Q36 HDW 5-004-0016 FASTENER STUD RECEIVER (PUSH-ON) 10 HDW 5-004-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0018 WASHER #10 ID x. 375 OD x.047 VFP 2 PCB MTG SPACERS HDW 5-04-0019 WASHER #140 ID x. 375 OD x.047 VFP 1 HDW 5-04-0019 WASHER #140 ID x. 375 OD x.047 VFP 2 PCB MTG SPACERS HDW 5-04-0023 INSULATOR TO220 SIL-PAD A4/A8 4 MAIN ADD TO THERMALLOY HEATSINK							
HDW 5-00-2006 SCREW, JACK, 3/16 X 1/4 2 REAR PANEL HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-01-0022 RING RETAINING F/P A/AB 5 FRONT PANEL FASTENER HDW 5-00-0022 RING RETAINING F/P A/AB 5 FRONT PANEL FASTENER HDW 5-00-0025 STANDOFF, 400,24AWG,PVC TUBING 4 E AND C LEADS OF Q31,Q36 HDW 5-00-0016 FASTENER STUD RECEVER (PUSH-ON) 10 6 HDW 5-04-0017 SPACER LED (LTM-480) 3 CONTROL DS 1-3 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER 0 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 DRIDGE RECTIFIER 0 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER 0 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 PORE MTG SPACERS 0 HDW 5-04-0023 INSULATOR TOZO SULATOR TOZO SULAT							
HDW 5-01-0020 WASHER #10 FLAT SPLIT RING 1 AC GROUND SCREW HDW 5-01-0022 RING RETAINING FIP A4/A8 5 FRONT PANEL FASTENER HDW 5-02-0005 STANDOFF, 400,24AWG, PVC TUBING 4 E AND C LEADS OF Q31,Q36 HDW 5-04-0016 FASTENER STUD RECEIVER (PUSH-ON) 10 HDW 5-04-0017 SPACER LED (LTM-480) 3 CONTROL DS 1-3 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0022 SPACER #10 x.125 1 HDW 5-04-0023 INSULATOR TO220 SIL-PAD A4/A8 4 MAIN ADD TO THERMALLOY HEATSINK HDW 5-07-0005 SPACER PCB 5/16 x 1/4 NYLON (RICHCO SSR-8-4-01) 3 MUTH HDW 5-07-0005 SPACER PCB 5/16 x 1/4 NYLON (RICHCO SSR-8-4-01) 3 OUTPUT SF-7 IC 2-22-1339 IC LMT339							+
HDW 5-01-0022 RING RETAINING F/P A4/A8 5 FRONT PANEL FASTERER HDW 5-02-0005 STANDOFF,400,24AWG,PVC TUBING 4 E AND C LEADS OF Q31,Q36 HDW 5-04-0016 FASTENER STUD RECEIVER (PUSH-ON) 10 HDW 5-04-0017 SPACER LED (LTM-480) 3 CONTROL DS 1-3 HDW 5-04-0018 MASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0019 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER HDW 5-04-0022 SPACER #10 X.125 1 HDW 5-04-0022 NSULATOR TO220 SIL-PAD A4/A8 4 MAIN ADD TO THERMALLOY HEATSINK HDW 5-04-0022 SPACER #10 X.125 1 HDW 5-07-0005 SPACER #10 X.14 NYLON (RICHCO SSR-8-4-01) 3 MAIN MIG 1-3 HDW 5-07-0005 SPACER PCB 5/16 X14 NYLON (RICHCO SSR-8-4-01) 3 OUTPUT MIG 5-7 IC C.22-1339 IC INT339N DAUD COMP (MOT) 1 FAN							+
HDW 5-02-005 STANDOFF,400,24AWG,PVC TUBING 4 E AND C LEADS OF Q31,Q36 HDW 5-04-0016 FASTENER STUD RECEIVER (PUSH-ON) 10							
HDW 5-04-0016 FASTENER STUD RECEIVER (PUSH-ON) 10 11 HDW 5-04-0017 SPACER LED (LTM-480) 3 CONTROL DS 1.3 HDW 5-04-0018 WASHER #10 FLAT BRASS 1 BRIDGE RECTIFIER							
HDW 5-04-0017 SPACER LED (LTM-480) 3 CONTROL DS 1-3 HDW 5-04-0018 WASHER #10 I X. 375 OD X.047 VFP 2 PCB MTG SPACERS 1 HDW 5-04-0019 WASHER #10 I X. 375 OD X.047 VFP 2 PCB MTG SPACERS 1 HDW 5-04-0019 WASHER #10 I X. 375 OD X.047 VFP 2 PCB MTG SPACERS 1 HDW 5-04-0023 ISPACER #10 X.125 1 1 1 HDW 5-04-0023 ISPACER #10 X.125 1 1 1 HDW 5-04-0023 ISPACER #10 X.125 1 1 1 HDW 5-04-0023 ISPACER PCB 5/16 X 14 NYLON (RICHCO SSRS-8-4-01) 3 MAIN MIG 1-3 HDW 5-07-0005 SPACER PCB 5/16 X 14 NYLON (RICHCO SSRS-8-4-01) 3 OUTPUT MIG 5-7 IC 2-22-1339 IC LMT339N QUAD COMP (MOT) 1 FAN U5 JAC 4-05-0007 JAC KX LR + 1/4" FEMALE 2 MAIN J4, 11 LED 3-99-0001 LED RED HIGH EFF (L						L AND C LLADS OF Q31,Q30	+
HDW 5-04-0018 WASHER #10 FLAT BRÅSS 1 BRIDGE RECTIFIER HDW 5-04-0019 WASHER #10 FLAT BRÅSS 1 PCB MTG SPACERS HDW 5-04-0022 SPACER #10 x .125 1 HDW 5-04-0022 SPACER PCD 5/16 x .14 NYLON (RICHCO SSRS-8-4-01) 3 MAIN MG 5-7 IC 2-22-1339 IC LMT339N QUAD COMP (MOT) 1 FAN U5 JAC 4-05-0007 JACK XLR + 1/4" FEMALE 2 MAIN J4, 11 LED 3-99-0001 LED RED HIGH EFF (LED TECH LT52/1R) 2 CONTROL DS 1.3 LED 3-99-0001 LED TEO HIGH EFF (LED TECH LT52/1R) 1 CONTROL DS 1.3 LIT 7-53-1007 MANUAL REFERENCE A/IA8 1 LITEATURE PACK Comment Group Part Number <td< td=""><td></td><td></td><td></td><td></td><td>CONTROL</td><td>DS 1 3</td><td></td></td<>					CONTROL	DS 1 3	
HDW 5-04-0019 WASHER.140 ID x.375 OD x.047 VFP 2 PCB MTG SPACERS HDW 5-04-0022 SPACER #10 x.125 1					CUNTROL		
HDW 5-04-0022 SPACER #10 x.125 1 HDW 5-04-0023 INSULATOR TO/220 SIL-PA A4/A8 4 MAIN ADD TO THERMALLOY HEATSINK HDW 5-06-0001 CLIP STRAIN RELIEF HEYCO 1207 1 Power cord HDW 5-07-0005 SPACER PCB 5/16 x 1/4 NYLON (RICHCO SSRS-8-4-01) 3 MAIN MIG 1-3 HDW 5-07-0005 SPACER PCB 5/16 x 1/4 NYLON (RICHCO SSRS-8-4-01) 3 OUTPUT MIG 5-7 IC 2-22-1339 IC LMT339N OLAD COMP (MOT) 1 FAM U5 JAC 4-05-0007 JAC MAIN J4, 11 U5 LED 3-09-0001 LED RED HIGH EFF (LED TECH LT5221R) 2 CONTROL DS 1.3 LED 3-09-0001 LED RED REEN (LED TECH LT5221) 1 CONTROL DS 2 LIT 7-51-1007 MANUAL REFERENCE A4/A8 1 LITEATURE PACK Met 7-03-0006 Group Part.Number Description Qty PCB Ref.Designator Comment LIT 7-53-0001 STICKER BUMPER <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>							
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IC 2-22-133 IC LMT339N OLAD COMP (MOT) 1 FAN U5 JAC 4-05-0007 JAC KXLR + 1/4* FEMALE 2 MAIN J4, 11 LED 3-99-0001 LED RED HIGH EFF (LED TECH LT5241R) 2 CONTROL DS 1,3 LED 3-99-0002 LED RED HIGH EFF (LED TECH LT5221) 1 CONTROL DS 2 LIT 7-51-1107 MANUAL REFERENCE A4/A8 1 LITERATURE PACK Group Part.Number Description Qty PCB Ref.Designator Comment LIT 7-53-0001 STICKER BUMPER 1 ME 7-03-0006 SIRDGE CM3502 35AMP/200V 1 BR1							1
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Group Part.Number Description Qty PCB Ref.Designator Comment LIT 7.53.0001 STICKER BUMPER 1					CONTROL		
LIT 7-53-0001 STICKER BUMPER 1 ME 7-03-0006 BRIDGE CM3502 35AMP/200V 1 BR1							
ME 7-03-0006 BRIDGE CM3502 35AMP/200V 1 BR1					PCB	Ref.Designator	Comment
ME 7-06-0004 RELAY SPST 901CS-DC12 2 FAN K1,2 Relay MUST be 'C-config							
	ME	7-06-0004	RELAY SPST 901CS-DC12	2	FAN	K1,2	Relay MUST be 'C'-config

Alesis A4/A8 Amplifiers Service Manual-----

11

ME	7-06-0008	CIRCUIT BREAKER 28-XQ1A-12	1			
ME	7-06-0010	BREAKER THERMAL CUTOUT 80 DEG.O.O.R.	1	MAIN	TH 1	
ME	7-06-0011	BREAKER THERMAL CUTOUT 55 DEG. C.O.R.	1	OUTPUT M	TH2	
ME	7-10-0029	FAN,DC ST12N6X	1	FAN	FAN 1	
ME	7-20-0015	INDUCTOR,AIR CORE 1uH	2		L1, 2	
MIS	5-04-0000	INSULATOR, RECTIFIER 1.250X1.250 .200 HOLE	1	0011011	BRIDGE RECTIFIER	
MIS	5-04-1018	INSULATOR XFMR BRACKET	2		TRANSFORMER MOUNTING	
					TRANSFORMER MOUNTING	
MIS	7-70-0001	FISH PAPER 6x5	1			
MIS	7-70-0006	FISH PAPER 10.0 A4	1		CHASSIS	
MIS	7-70-0008	FISH PAPER 1.5 x 9 A4	1		COVER	
MIS	7-70-0010	INSULATOR, FELT DISC375 DIA. X .032	3		COVER	
MIS	7-90-0007	TWIST TIE, PLASTC WIRE 7"	1			
MIS	9-23-1058	INSULATOR FOAM A4, A8	1			
MTL	9-03-1145	CHASSIS A4	1			
MTL	9-03-1147	COVER TOP A4	1		Top Assembly	
MTL	9-03-1149	BRACKET TRANSFORMER A4/A8	1		Final Assembly	
MTL	9-03-1151	CLAMP TRANSISTOR A4/A8	2		Module Assembly	
MTL	9-03-1151	HEATSINK EXTRUSION,150 inch stick (REV C.)				
			8			
MTL	9-03-1154	HEATSINK A4	1		Module assembly	
MTL	9-03-1156	HEATSINK THM7022B-MT	4	MAIN	HS 1-4	
MTL	9-03-1157	CLIP HEAT SINK CLP-201	4			
MTL	9-03-1164	HEATSINK RECTIFIER 3 x 1.250 x .125	1			
PLS	5-10-1008	TIE WRAP 3.250 BLACK PLASTIC RICHO (WIT-18SF-BK)	14			
PLS	9-15-0040	KNOB 35MM PA	2		Final Assembly	
PLS	9-15-0095	INSULATOR K6 A4	2		Module Assembly	
PLS	9-15-1189	PANEL FRONT A4, A8	1		Final assembly	
PLS	9-15-1190	LABEL A4 F/P LOGO	1		Chassis assembly	
PLS	9-15-1194		1			
		BLOCK BINDING POST A4,A8		00117001		
POT	0-09-1037	POT 5K SINGLE W/RIGHT ANGLE LEADS	2	CONTROL	VR 3,4	
RES	0-00-0000	RES 0 OHM 1/8W 5%	1			
RUB	9-23-1056	FASTENER FAN (A4 A8)	4	FAN		
RUB	9-23-1057	FEET RUBBER .30 x .81 BLK (3M SJ5023)	4		Packing Assembly	
SWT	6-01-0002	SWITCH SLIDE DPDT	1	MAIN	S1	
SWT	6-02-1500	SWITCH SPST 16A POWER 1500H11E	1		S2	
TRN	2-03-0006	TRANS MPSA06RLRA	4	MAIN	Q 1, 2, 7, 20	
TRN	2-03-0006	TRANS MPSA06RLRA	2		Q31, 36	
TRN	2-03-0006	TRANS MPSA06RLRA	4	FAN	Q40, 41, 42, 45	
TRN	2-03-0056	TRANS MPSA56RLRA	2	MAIN	Q 5, 18	
	2-03-0650					
TRN		TRANS MPS650RLRA	2	MAIN	Q 10, 23	
TRN	2-03-0650	TRANS MPS650RLRA	1	FAN	Q43	
TRN	2-03-0750	TRANS MPS750RLRA	4	MAIN	Q 6, 11, 19, 24	
TRN	2-03-0750	TRANS MPS750RLRA	1	FAN	Q44	
TRN	2-03-1193	TRANS MJL21193	6	OUTPUT M	Q29, 30, 32, 35, 37, 38	
TRN	2-03-1194	TRANS MJL21194	6	MAIN	Q 3, 4, 14, 17, 27, 28	
TRN	2-03-1302	TRANS MJL1302A	2	OUTPUT	Q33, 34	
TRN	2-03-3281	TRANS MJL3281A	2	MAIN	Q 15. 16	
TRN	2-04-1837	TRANS 2SA1837	2	MAIN	Q 9, 22	
TRN	2-07-4793	TRANS 25C4793	2	MAIN	Q 13, 22	ii
WIR	4-19-1404	WIRE 3.75" BLK W/AMP CRIMP CONS	3	MAIN	A, D, J	
WIR	4-19-1405	WIRE 3.25" WHT W/AMP CRIMP CONS	1	MAIN	BGND-GNDB	
WIR	4-19-1407	WIRE 13" GRN W/AMP CRIMP CONS	1		Į	
WIR	4-19-1408	WIRE 13" GREY W/AMP CRIMP CONS	1			
WIR	4-19-1413	WIRE 18.5" GREY W/AMP CRIMP CONS	1	OUTPUT	SPKR B	
WIR	4-19-1414	WIRE 13" GRN W/AMP CRIMP CONS (REV. B)	1	OUTPUT	SPKR A	
WIR	4-19-1415	WIRE 17" RED W/AMP CRIMP CONS	1	MAIN	B+	
WIR	4-19-1416	WIRE 14" BLK W/AMP CRIMP CONS	2			
WIR	4-19-1419	WIRE 17" BLK W/ AMP CRIMP CONNS	1	MAIN	B-	
WIR	4-19-1419	WIRE 4" BLUE W/ AMP CRIMP CONNS	7	MAIN		
					B, C, E, F, H, K, AGND-GNDA	
WIR	4-19-1421	WIRE 13" WHITE W/AMP CRIMP ON	1	MAIN	GNDCT	
Group	Part.Number	Description	Qty	PCB	Ref.Designator	Comment
	2-99-0031	IC TIP31A NPN (FF)	1	FAN	Q 39	
	2-99-5532	IC NE5532AN DUAL OPAMP (FF)	3	MAIN	U 1-3	
	2-99-7815	REG MCT7815CT +15V TO220 (MOT)	1	FAN	U4	
	9-23-1068	FOAM PAD TRANSFORMER A4	1			
	520,000				1	

Alesis A4/A8 Amplifiers Service Manual-----

12

-		s List			· · ·	
Group	Part.Number	Description	Qty	PCB	Ref.Designator	Comments
ASY	7-40-1120	TRANSFORMER 120V A8	2			
ASY	9-79-0115	MODULE DISPLAY/VOL A8	1			
ASY	9-79-0117 9-79-0118	MODULE MAIN AMP A8 MODULE OUTPUT A8	1			
ASY ASY	9-79-0118	ASSY FAN/RELAY/PS A8	1			
ASY	9-96-1259	ASSY FAN/RELAT/PS A0 ASSY BINDING POSTS COMPLETE A4/A8	1		FINAL ASSY	
CAB	4-18-1676	CABLE 6" BLK (TWO WIRES TWISTED)	2		FINAL ASST	
CAB	4-18-1677	CABLE 26" RED/BLK (TWO WIRES TWISTED)	1			
CAB	4-18-1677	CABLE 26" RED/BLK (TWO WIRES TWISTED)	1		B+ RED, B- BLACK	
CAB	4-19-1756	CABLE 3-PIN CHNL B I/P A8	1	MAIN	J1-J14 (RED)	
CAB	4-19-1757	CABLE 8-PIN LEVEL CONTROL	1	NU/SILY	J2 to J18 (gray)	
CAB	4-19-1758	CABLE 14-PIN TO 4-CON MAIN HARNESS	1		J23 TO J20, J13, J8, J3	
CAB	4-19-1759	CABLE 3-PIN BIAS CH B	1		J12-J19 (YEL,GRN,BLUE)	
CAB	4-19-1760	CABLE 6-PIN LED	1		J15 to J17	
CAB	4-19-1761	CABLE 3-PIN BIAS CH A	1		J16-J21 (BRN,RED,ORANGE)	
CAB	4-74-0013	ASSY WIRE HARNESS 14" (25-PIN D-CON & 26-PIN DIL HDR CON) 26 AWG	1			
CAB	7-41-0006	CABLE POWER W/SPADE LUG (UL/CSA) A4/A8	1			
CFC	1-99-0010	CAP 10uF ELEC 35V 20%	1	FAN	C45	
CFC	1-99-0100	CAP 100PF 100V 5% NPO MC	2	MAIN	C17, C39	
CFC	1-99-0101	CAP 100uF 25V 20% MUSE	4	MAIN	C2, C3, C16, C35	
CFC	1-99-0101	CAP 100uF 25V 20% MUSE	2	FAN	C49, C50	
CFC	1-99-0102	CAP 0.1uF 100V 5% FILM	14	MAIN	C9, C11, C14, C18-20, C25, C26, C28, C30, C33, C37, C38, C40	
CFC	1-99-0102	CAP 0.1uF 100V 5% FILM	2	FAN	C44, C52	
CFC	1-99-0103	CAP .01uF 250V 20% XCAP	1	MAIN	C7	
CFC	1-99-0103	CAP .01uF 250V 20% XCAP	1	FAN	C48	
CFC	1-99-0104	CAP 10000uF ELEC 80V 20%	4	MAIN	C21-24	
CFC	1-99-0220	CAP 22PF 100V 5% NPO MC	4	MAIN	C10, C12, C29, C31	
CFC	1-99-0221	CAP 220uF ELEC 25V 20%	2	MAIN	C5, C6	
CFC	1-99-0221	CAP 220uF ELEC 25V 20%	2	OUTPUT M	C41, C42	
CFC	1-99-0221	CAP 220uF ELEC 25V 20%	2	FAN	C43, C46	
CFC	1-99-1200	CAP 1200PF 100V 5% FILM	4	MAIN	C8, C13, C27, C32	
CFC	1-99-2200	CAP 2200uF ELEC 25V 20%	1	FAN	C47	
CFC	1-99-3300	CAP 3300PF 100V 5% FILM	6	MAIN	C1, C4, C15, C34, C36, C51	
CFD	2-99-0021	DIODE BAV21	4	MAIN	CR3, CR5, CR10, CR12	
CFD	2-99-1757	DIODE ZENER 1N757A (9.1V)	2	MAIN	CR4, CR11	
CFD	2-99-4003	DIODE POWER 1N4003	2	FAN	CR18, CR26	
CFD	2-99-4148	DIODE SIGNAL 1N4148	8	MAIN	CR6-9, CR13-16	
CFD	2-99-4148	DIODE SIGNAL 1N4148	7	FAN	CR17, CR19, CR20, CR22-25	
CFD	2-99-5400	DIODE POWER 1N5400	1	FAN	CR21	
CFM	2-02-5352	DIODE 1N5352BRL 15V 5W 5%	2	MAIN	CR1, CR2	
CFR	0-99-0010	RES 10 OHM 1/4W 5% CF	4	MAIN	R35, R42, R75, R103	
CFR	0-99-0010	RES 10 OHM 1/4W 5% CF	1	FAN	R142	
CFR	0-99-0011	RES 10 OHM 3W 5% MO	2	MAIN	R64, R66	
CFR	0-99-0012	RES 1.2 OHM 1/2W 5% MO	10	MAIN	R27, R29, R56, R58, R61, R68, R71, R74, R99, R101	
CFR	0-99-0012	RES 1.2 OHM 1/2W 5% MO	10	OUTPUT M	R105, R107, R109, R112, R115, R120, R123, R125, R127, R129	
CFR	0-99-0020	RES 20 OHM 5W 5% WW	1	FAN	R132	
CFR	0-99-0027	RES 2.7 OHM 3W 5% MO	2	MAIN	R65, R67	
CFR	0-99-0040	RES 40 OHM 5W 5% WIRE WOUND	1	FAN	R130	
CFR	0-99-0100	RES 100 OHM 1W 5% MO	2	MAIN	R9, R11	
CFR CFR	0-99-0102	RES 1K OHM 10W 5% W.W. FORMED RES 10K 1/4W 1% MF	8	MAIN	R25, R50 R3, R6, R16, R19, R40, R53, R84, R95	
CFR	0-99-0103	RES 10K 1/4W 1% MF RES 10K 1/4W 5% CF	2	MAIN	R3, R6, R16, R19, R40, R53, R84, R95	
CFR	0-99-0104	RES 10K 1/4W 5% CF	10	FAN	R12, R13 R134, R139-141, R144, R148-152	
CFR	0-99-0104	RES 100 0HM 5W 5% WW	10	FAN	R134, R139-141, R144, R148-152	
CFR	0-99-0120	RES 120 OHM 5W 5% WW RES 2K OHM 1/4W 5% CF	2	MAIN	R131 R22, R26	
	0-99-0202	RES 2K 0HM 1/4W 5% CF RES 22K 1/4W 5% CF	4	FAN		
CFR CFR	0-99-0223	RES 330 OHM 1/4W 5% CF	4	MAIN	R146, R147, R153, R154 R60, R63, R70, R73	
CFR	0-99-0330	RES 330 OHM 1/4W 5% MO	4	OUTPUT M	R00, R03, R70, R73 R110, R113, R118, R121	
CFR	0-99-0330	RES 330 OHM 1/4W 5% MO RES 51.1 OHM 1/4W 1% MF	6	MAIN	R7, R20, R33, R45, R78, R88	
CFR	0-99-0511	RES 51.1 OHM 1/4W 1% MF RES 51.1 OHM 1/4W 1% MF	2	OUTPUT M	R7, R20, R33, R45, R78, R88 R116, R117	
CFR	0-99-0593	RES 51.1 OHM 1/4W 1% MF RES 59K 1/4W 1% MF	4	MAIN	R116, R117 R39, R41, R83, R85	
			_			
Group	Part.Number	Description	Qty	PCB	Ref.Designator	Comments

Alesis A4/A8 Amplifiers Service Manual------

13

050	0.00.0750		1.0			1
CFR CFR		RES 7.5K OHM 1/2W 5% CF RES 1K OHM 1/4W 1% MF	2	MAIN	R54, R96 R32, R44, R47, R52, R77, R87, R90, R94	
CFR		RES 1K OHM 1/4W 1% MF	8	FAN	R32, R44, R47, R52, R77, R87, R90, R94	
CFR		RES 1K OHM 1/4W 1% MF RES 1K OHM 1/2W 5% CF	1	MAIN	R145	
CFR	0-99-1001	RES 1K OHM 1/2W 5% CF	1	FAN	R10	
	0-99-1001	RES 1.5K OHM 1/2W 5% CF		MAIN	R143 R51, R93	
CFR			2			
CFR	0-99-1500	RES 1.5K OHM 1/4W 5% CF	1	FAN	R138	
CFR	0-99-2210	RES 2.21K OHM 1/4W 1% MO	4	MAIN	R31, R43, R76, R86	
CFR	0-99-3033	RES 0.33 OHM 1/4W 5% METAL OXIDE (FLAMEPROOF)	2	MAIN	R23, R24	
CFR	0-99-3300	RES 3.3K 1/4W 5% CF	2	MAIN	R55, R97	
CFR		RES 3.3K 1/4W 5% CF	1	FAN	R135	
CFR		RES 330K 1/4W 5% CF	3	FAN	R133, R136, R137	
CFR		RES 4.99K 1/4W 1% CF	8	MAIN	R1, R2, R4, R5, R14, R15, R17, R18	
CFR	0-99-4991	RES 499 OHM 1/4W 1% MF	8	MAIN	R8, R21, R48, R49, R91, R92, R155, R156	
CFR		RES 49.9K OHM 1/4W 1% MF	2	MAIN	R36, R80	
CFR	0-99-5001	RES 5K LINEAR TRIM POT	2	MAIN	VR1, VR2	
CFR		RES 7.68K OHM 1/4W 1% MF	3	MAIN	R37, R38, R82	
CFR	0-99-9092	RES 9.09K OHM 1/4W 1% MF	1	MAIN	R81	
CON	4-10-0007	CON BINDING POST A4, A8	1			
CON	4-10-0007	CON BINDING POST A4, A8	1			
CON	4-98-0003	STRIP BARRIER (5-POS) DT-55-B-14N-05	1	MAIN	J5	
CON	4-98-0004	TAB FASTON 1/4" (AMP 62650-1)	25	FAN	P1-25	
HDR	4-15-2002	HEADER 2-PIN SIL 0.1 SPC LOCKING (AMP 640456-2)	1	FAN	J22	
HDR	4-15-2003	HEADER 3-PIN SIL 2MM CTR (SHROUDED)	4	MAIN	J1, J12, J14, J16	
HDR	4-15-2003	HEADER 3-PIN SIL 2MM CTR (SHROUDED)	2	OUTPUT M	J19, J21	
HDR	4-15-1002	HEADER 2-PIN SIL 2mm SPC (shrouded)	4	MAIN	J3, J9, J10, J13	
HDR	4-15-1002	HEADER 2-PIN SIL 2mm SPC (shrouded)	1	OUTPUT M	J 20	
HDR	4-15-1006	HEADER 6-PIN SIL 2MM CTR (SHROUDED)	1	DISPLAY	J17	
HDR	4-15-1006	HEADER 6-PIN SIL 2MM CTR (SHROUDED)	1	MAIN	J15	
HDR	4-15-1008	HEADER 8-PIN SIL 2MM CTR (SHROUDED)	1	DISPLAY	J 18	
HDR	4-15-1008	HEADER 8-PIN SIL 2MM CTR (SHROUDED)	2	MAIN	J2, J8	
HDR	4-15-1014	HEADER 14 PIN SIL 2mm SHROUDED	1	FAN	J23	
HDR	4-99-0026	HEADER 26-PIN DIL .100 SPC	1	MAIN	J6	
HDW	5-00-0076	SCREW 6-32 x 3/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK	13		MTG 8 AND COVER	
HDW	5-00-0077	SCREW 10-32 x 5/16 TAP TIGHT THREAD ROLLING PAN HEAD TROX BLK	10		TRANSFORMER MOUNTING/AC GND	
HDW	5-00-0078	SCREW 6-32 x 1/2 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC	1		BINDING POST BLOCK	
HDW	5-00-0079	SCREW 10-32 x 7/8 TAP TIGHT THREAD ROLLING PAN HEAD TROX ZINC	1		BRIDGE RECT.	1
HDW	5-00-0085	SCREW 8-32 x 1/2 #6 PH TAPTITE TORX BLACK OXIDE W/WAX	6		TRANSISTOR CLAMP	1
HDW	5-00-0086	SCREW M3 x 6MM PPZ MACHINE	4		XLR CONNECTOR	1
HDW	5-00-0088	SCRW,6-32x3/8 PPH THRD LNGR CAD	1		Rear panel	
HDW	5-00-2006	SCREW, JACK, 3/16 X 1/4	2		Rear panel	1
HDW	5-01-0020	WASHER #10 FLAT SPLIT RING	1		AC ground screw	
HDW	5-01-0022	RING RETAINING F/P A4/A8	5		FRONT PANEL FASTENER	
HDW	5-02-0005	STANDOFF,.400,24AWG,PVC TUBING	4	OUTPUT	E AND C LEADS Q35, Q44	1 1
HDW		FASTENER STUD RECEIVER (PUSH-ON)	5			1
HDW	5-04-0017	SPACER LED (LTM-480)	3	DISP.	DS 1,2,3	
HDW	5-04-0018	WASHER #10 FLAT BRASS	2		BRIDGE RECTIFIER	1
HDW	5-04-0019	WASHER . 140 ID x .375 OD x .047 VFP	2		PCB MOUNTING SPACER	1
HDW	5-04-0023	INSULATOR TO220 SIL-PAD A4/A8	4		APPLY TO Q7, Q11, Q28, Q32	<u> </u>
HDW	5-05-0001	CLIP STRAIN RELIEF HEYCO 1207	1			<u> </u>
HDW	5-07-0005	SPACER PCB 5/16 x 1/4 NYLON (RICHCO SSRS-8-4-01)	10	MAIN	MTG1-7, MTG9-11	<u> </u>
IC	2-22-1339	IC LMT339N QUAD COMP (MOT)	1	FAN	U4	1
JAC	4-05-0007	JACK XLR + 1/4" FEMALE	2	MAIN	J4, J11	1
LED		LED RED HIGH EFF (LED TECH LT5241R)	2	DISPLAY	DS 1, 3	1
LED		LED RED HIGH EFF (LED TECH LT524TR)	1	DISPLAY	DS 1, 3 DS 2	+
LED		MANUAL REFERENCE A4/A8	1	DIGFLAT	1002	
ME	7-03-0006	BRIDGE CM3502 35AMP/200V	1			4
ME	7-03-0006	RELAY SPST 901CS-DC12	2	FAN	K1 K2	
			2	MAIN	K1, K2 TH1	
ME	7-06-0010	BREAKER THERMAL CUTOUT 80 DEG.O.O.R.				
ME ME	7-06-0011 7-06-0012	BREAKER THERMAL CUTOUT 55 DEG. C.O.R. CIRCUIT BREAKER 28-XQ1A-20	1	OUTPUT M	TH2	4
			1	EAN		
ME	7-10-0029	FAN,DC ST12N6X	1	FAN		
Group	Part.Number	Description	Qty	PCB	Ref.Designator	Comments
ME	7-20-0015	INDUCTOR,AIR CORE 1uH	2	MAIN	L1, L2	
MIS	5-04-0000	INSULATOR, RECTIFIER 1.250X1.250 .200 HOLE	1		Bridge rectifier	
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Alesis A4/A8 Amplifiers Service Manual-----

14

MIS	5-04-1018	INSULATOR XFMR BRACKET	4			
MIS	7-70-0007	FISH PAPER 5.7 x 14.0 A8	1		CHASSIS	
MIS	7-70-0009	FISH PAPER 1.5 x 13 A8	1		TOP COVER	
MIS	7-70-0010	INSULATOR, FELT DISC, .375 DIA, X .032	3		Cover	
MTL	9-03-1146	CHASSIS A8	1			
MTL	9-03-1148	COVER TOP A8	1			
MTL	9-03-1149	BRACKET TRANSFORMER A4/A8	2			
MTL	9-03-1151	CLAMP TRANSISTOR A4/A8	3		HEATSINK ASSEMBLY	
MTL	9-03-1152	HEATSINK EXTRUSION,150 inch stick (REV C.)	12			
MTL	9-03-1155	HEATSINK A8	1			
MTL	9-03-1156	HEATSINK THM7022B-MT	4	MAIN	HS1-4	
MTL	9-03-1157	CLIP HEAT SINK CLP-201	4			
MTL	9-03-1157	CLIP HEAT SINK CLP-201	4			
MTL	9-03-1164	HEATSINK RECTIFIER 3 x 1.250 x .125	1			
PLS	9-15-0040	KNOB 35MM PA	2			
PLS	9-15-0096	INSULATOR K6 A8	2			
PLS	9-15-1189	PANEL FRONT A4, A8	1			
PLS	9-15-1194	BLOCK BINDING POST A4.A8	1			
POT	0-09-1037	POT 5K SINGLE W/RIGHT ANGLE LEADS	2	DISPLAY	VR 3.4	
RES	0-99-0033	RES .33 OHM 3W 5%	10	MAIN	R28, R30, R57, R59, R62, R69, R72, R98, R100, R102	
RES	0-99-0033	RES .33 OHM 3W 5%	10		R104, R106, R108, R111, R114, R119, R122, R124, R126, R128	
RUB	9-23-1056	FASTENER FAN (A4 A8)	4	FAN		
RUB	9-23-1057	FEET RUBBER .30 x .81 BLK (3M SJ5023)	4		INFORMATION PACK	
SWT	6-01-0002	SWITCH SLIDE DPDT	1	MAIN	S1	
SWT	6-02-1500	SWITCH SPST 16A POWER 1500H11E	1		S2	
TRN	2-03-0006	TRANS MPSA06RLRA	4	MAIN	Q1, Q2, Q4, Q25	i
TRN	2-03-0006	TRANS MPSA06RLRA	2	OUTPUT M	Q35, Q44	i
TRN	2-03-0006	TRANS MPSA06RLRA	4	FAN	Q47, Q48, Q50, Q52	
TRN	2-03-0056	TRANS MPSA56RLRA	2	MAIN	Q3, Q24	
TRN	2-03-0650	TRANS MPS650RLRA	2	MAIN	Q8, Q29	
TRN	2-03-0650	TRANS MPS650RLRA	1	FAN	Q51	
TRN	2-03-0750	TRANS MPS750RLRA	4	MAIN	Q5, Q9, Q26, Q30	
TRN	2-03-0750	TRANS MPS750RLRA	1	FAN	Q49	
TRN	2-03-1193	TRANS MJL21193	10	OUTPUT M	Q33, Q34, Q36-38, Q41-43, Q45, Q46	
TRN	2-03-1194	TRANS MJL21194	10		Q12-16, 19-23	
TRN	2-03-1302	TRANS MJL1302A	2		Q39, Q40	
TRN	2-03-3281	TRANS MJL3281A	2		Q17, Q18	
TRN	2-04-1837	TRANS 2SA1837	2	MAIN	Q7, Q28	
TRN	2-07-4793	TRANS 2SC4793	2	MAIN	Q11, Q32	
	2-99-0031	IC TIP31A NPN (FF)	1	FAN	Q306	
	2-99-5532	IC NE5532AN DUAL OPAMP (FF)	3		U1-3	
	2-99-7815	REG MCT7815CT +15V TO220 (MOT)	1	FAN	U 5	
	9-23-1067	FOAM PAD TRANSFORMER A4	1			

Alesis A4/A8 Amplifiers Service Manual------

15