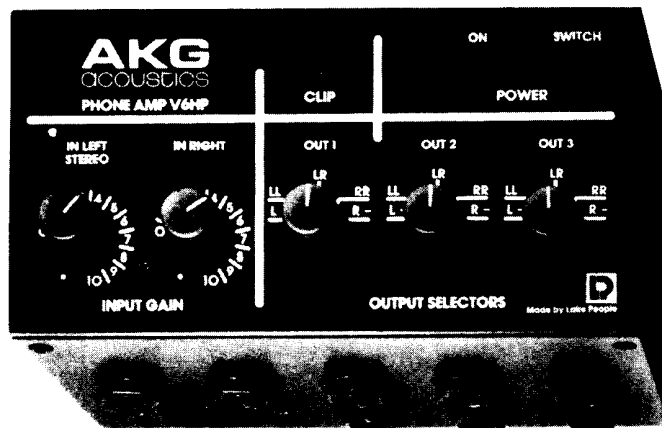


S E R V I C E M A N U A L

A K G A C O U S T I C S

P H O N E A M P V 6 H P

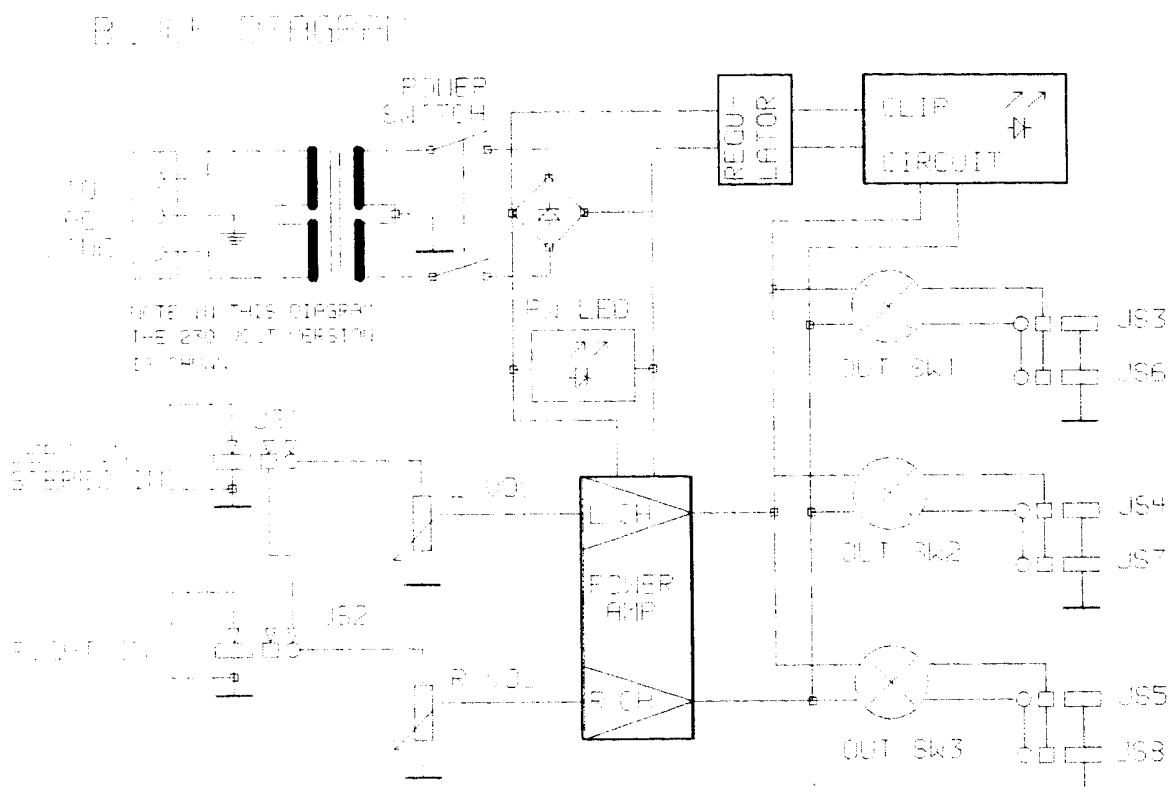


**SAFETY-RELATED COMPONENT WARNING**

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND BY BRACKETS ( ) IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND SAFE OPERATION. REPLACE THESE COMPONENTS ONLY WITH ORIGINAL LAKE PEOPLE SPARE PARTS.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT THE METAL COVERS ARE PROPERLY GROUNDED AND INSULATED FROM THE POWER SUPPLY BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

## BLOCK DIAGRAMM:

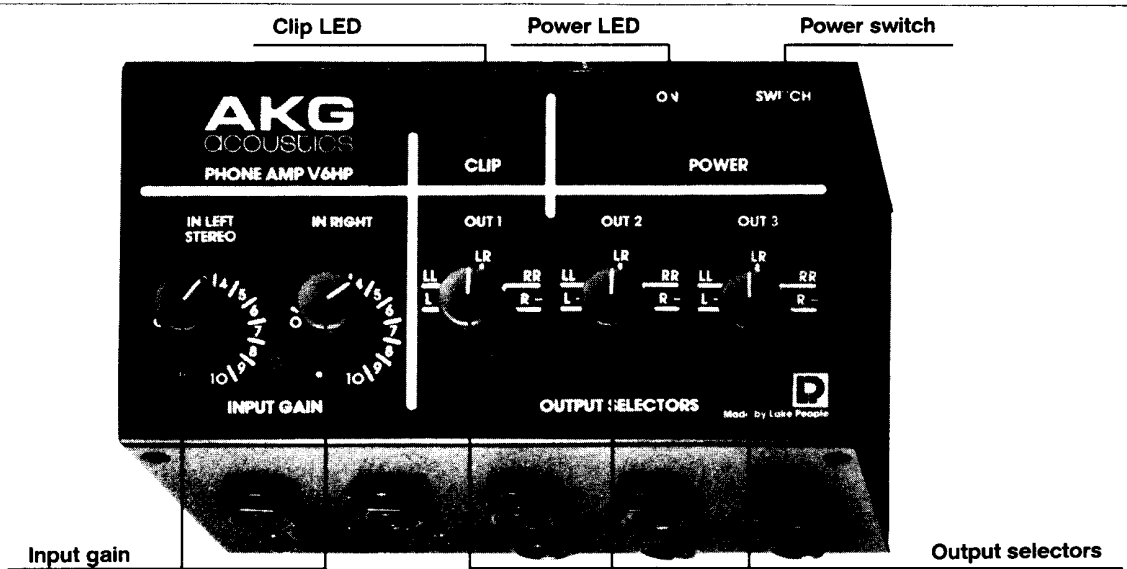


## TECHNICAL DATA:

INPUT IMPEDANCE	: 10 k $\Omega$ UNBAL. $\pm$ 10%
MAX. INPUT LEVEL	: +32 DBU
MAX. GAIN	: 29 DB $\pm$ 2 DB
MAX. OUTPUT LEVEL	: +28 DBU $\pm$ 2 DB IN $R_L > 200 \Omega$
FREQUENCY RANGE(-3 DB)	: 40 HZ - 30 KHZ $\pm$ 1 DB
HIGHPASS FILTER	: -6 DB / OKTAVE
DISTORTION	: <0,25 %; 2 DB BELOW MAX. OUTPUT
CLIPMONITOR	: 2 DB UNDER MAX. OUTPUT LEVEL
DYNAMIC (IHF-A)	: >100 DB

SEMICONDUCTORS	: IC: 3 TR: 10 LED: 2 DIODE: 9
DIMENSIONS	: 160 x 100 x 85 MM(WxHxD)
WEIGHT	: 1.4 KG
POWER SUPPLY	: 115/230 VOLT AC / 8 WATT

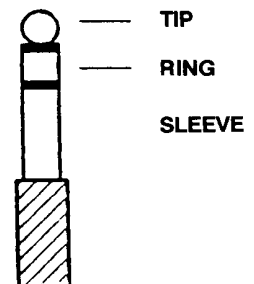
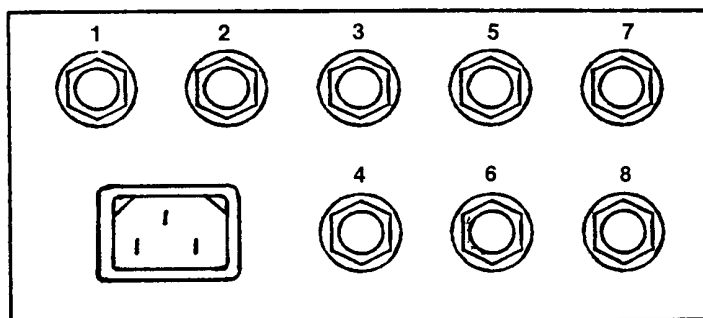
## CONTROLS :



- Power switch:** This pushbutton switches the unit on and off.
- Power LED:** Lights continuously to indicate normal operation. Extinguishes as soon as any fault, such as overheating, occurs.
- Input gain:** These two rotary pots allow the volume of each input channel to be set independently.
- Clip LED:** Indicates overloads, starting to flash 2 dB below clipping.

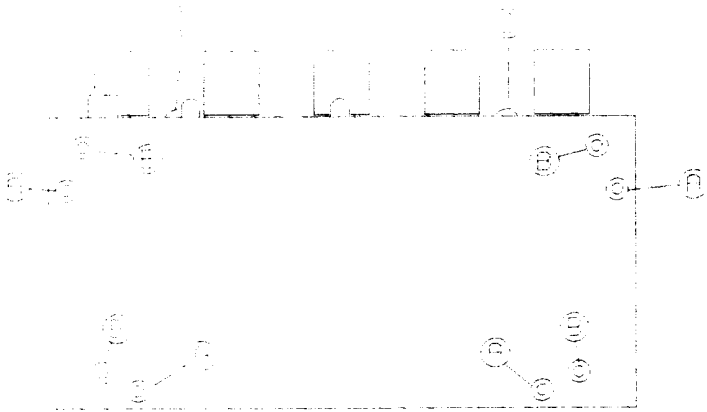
- Output selectors:** These rotary switches route the input signals to the assigned outputs:
- L-: The left channel will be heard in the left earphone only.
  - LL: The left channel will be heard in both earphones.
  - LR: Normal stereo operation.
  - RR: The right channel will be heard in both earphones.
  - R-: The right channel will be heard in the left earphone only.

## CONNECTOR PANEL :

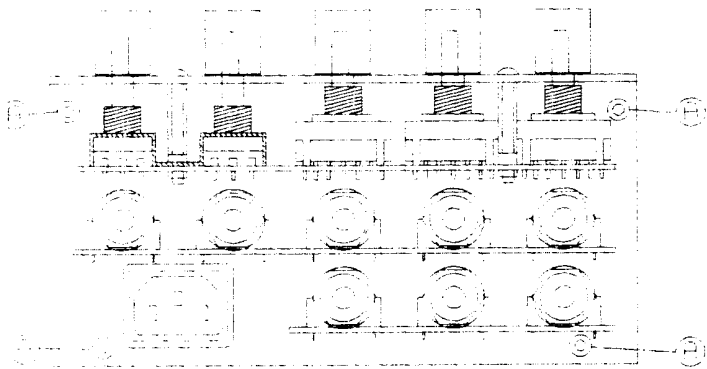


- |                 |   |                |   |                |   |
|-----------------|---|----------------|---|----------------|---|
| 1: Stereo Input | TIP = Left<br>RING = Right<br>SLEEVE = Ground | 2: Mono Input  | TIP = Right<br>SLEEVE = Ground                | 5, 6: Output 2 | TIP = Left<br>RING = Right<br>SLEEVE = Ground |
| or Mono Input   | TIP = Left<br>SLEEVE = Ground                 | 3, 4: Output 1 | TIP = Left<br>RING = Right<br>SLEEVE = Ground | 7, 8: Output 3 | TIP = Left<br>RING = Right<br>SLEEVE = Ground |

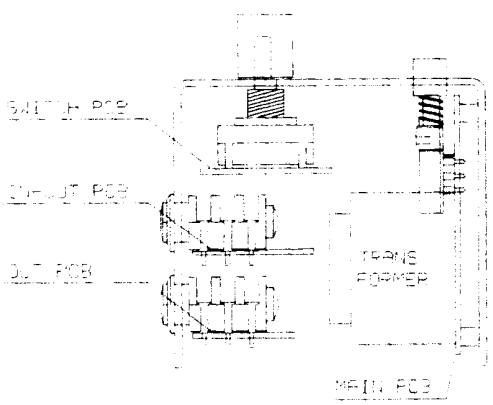
**DISASSEMBLY SCHEMATICS:**



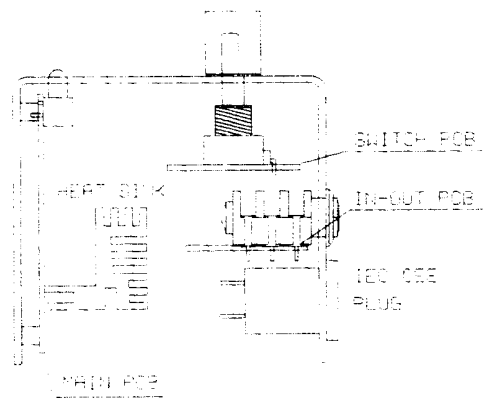
**REAR  
SIDE**



**FRONT  
SIDE**



**OPEN RIGHT SIDE**



**OPEN LEFT SIDE**

## **DISASSEMBLY PROCEDURE :**

TO LOOSEN THE CASE BOTTOM, THE SCREWS MARKED "A" ON PAGE 4 MUST BE REMOVED. THE BOTTOM CAN BE LIFTED OFF NOW.

THE MAIN PRINT IS FIXED TO THE CASE REAR BY 4 SCREWS, MARKED "B" ON PAGE 4. AFTER REMOVAL OF THESE SCREWS THE MAIN PRINT MAY BE PULLED OUT.

THE TWO LOWER ADD-ON PRINTS CAN BE REMOVED BY LOOSENING THE JACK SOCKET NUTS.

FOR LOOSENING THE UPPER ADD-ON PRINT THE FIVE CONTROL KNOBS AND THE TWO SCREWS MARKED "C" ON THE CASE TOP MUST BE REMOVED.

### **CAUTION:**

THE LEFT LOWER SCREW ON THE MAIN PRINT PROVIDES CASE GROUNDING. FOR SAFE CONTACT CARE HAS TO BE TAKEN ON THE PRESENCE AND TIGHT MOUNTING OF THE LOCK WASHER UNDERNEATH.

THE COMPONENTS R20/R21/IC11 AND R40/R41/IC31 ARE FACTORY MATCHED FOR PROPER INTERACTION. TO ENSURE SAFE OPERATION THEY MUST NOT BE REPLACED BY ANY OTHER THAN FACTORY SPARE PARTS.

THE TRANSFORMER TR1 IS ALSO SAFETY CRITICAL AND MUST NOT BE REPLACED BY ANY OTHER THAN THE FACTORY COMPONENT.

## **ALIGNMENT PROCEDURE :**

THE AKG PHONE AMP V6 HP IS BASICALLY MAINTENANCE FREE. HIGH LONG TERM STABILITY IS ACHIEVED BY USE OF HIGHEST RANGE COMPONENTS.

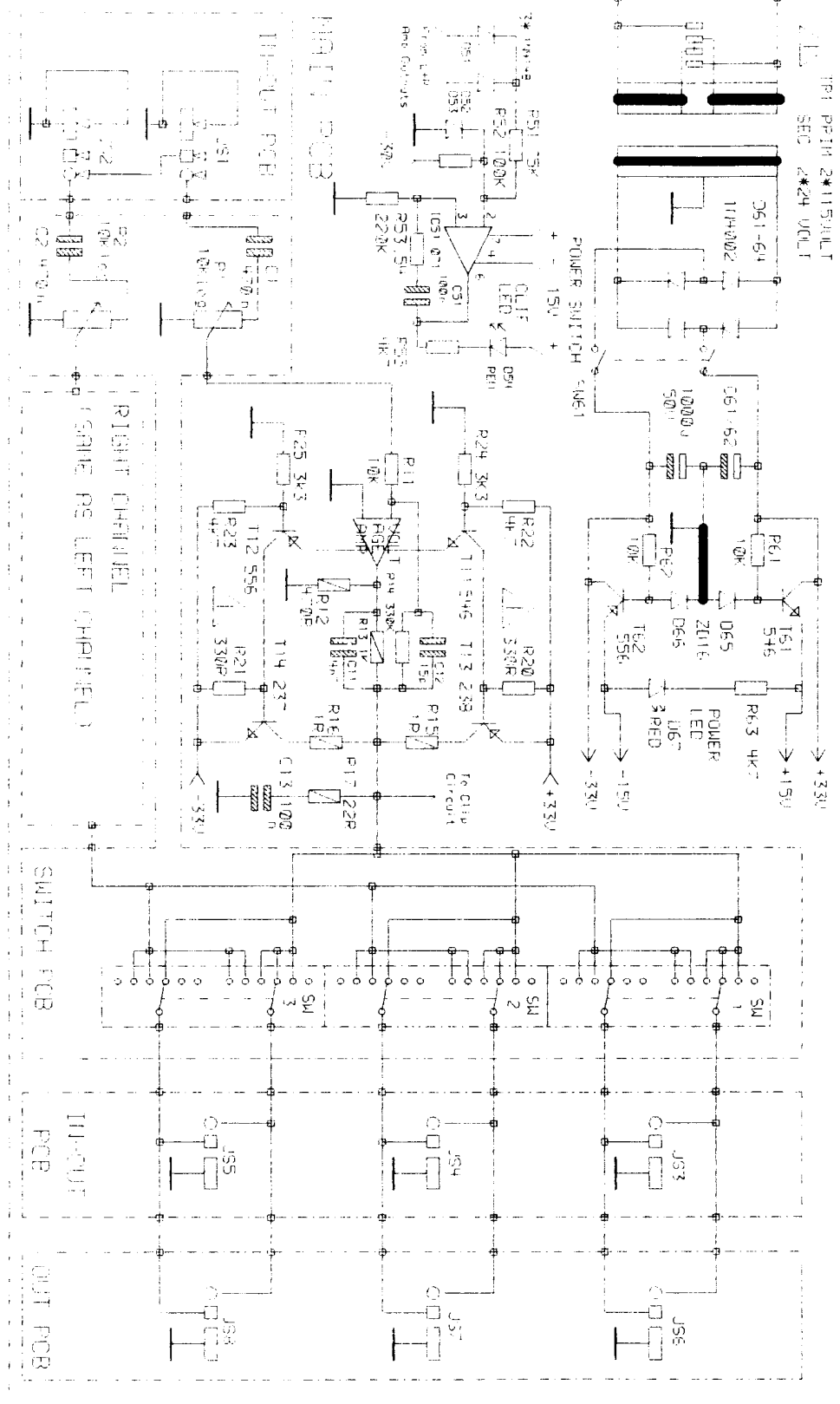
THEREFORE, IN CASE OF REPAIR, ONLY THE SUPPLY VOLTAGES AND THE IDLE CURRENT HAVE TO BE RECHECKED.

THE SUPPLY VOLTAGES SHOULD BE WITHIN A MAXIMUM DEVIATION OF 2 VOLTS FROM THE VALUES STATED IN THE SCHEMATICS, ASSUMING PROPER MAINS VOLTAGE.

THE VOLTAGE OVER R15/R16 AND R35/R36 IS PROPORTIONAL TO THE IDLE CURRENT AND SHOULD BE MEASURED WITHIN 2...6 mV.

IF HIGHER DEVIATIONS OCCUR, THE IDLE CURRENT CAN BE REDUCED BY ADDING MATCHING RESISTORS TO R20/R21 RESP. R40/R41 IN PARALLEL.

# CIRCUIT DIAGRAM:



NOTE: TR1, T11, T12, R20 AND R21 ARE OF SELECTED TYPE OR CRITICAL FOR SAFETY. IN CASE OF DAMAGE, REPLACE ONLY WITH FACTORY SELECTED SPARE PARTS.

DESIGN AND SPECIFICATIONS SUBJECT TO CHANGES WITHOUT NOTICE FOR IMPROVEMENTS.

- 1/4 W RESISTOR
- 1/2 W RESISTOR

LIKE PEOPLE

## DESCRIPTION OF FUNCTIONS:

THE SIGNAL IS INJECTED VIA JACK SOCKETS JS1 AND JS2. THE COMPONENTS C1/P1 RESPECTIVELY C2/P2 FORM A HIGH PASS FILTER WITH APPROX. 40 HZ BOTTOM FREQUENCY.

THE FOLLOWING DESCRIPTIONS REFER TO THE LEFT CHANNEL ONLY, BUT ARE ANALOGICALLY VALID FOR THE LEFT CHANNEL.

THE SIGNAL PASSES R11 TO THE INVERTING INPUT OF OPAMP IC11, WHILE C12/R14 FORM A FEEDBACK CIRCUIT. A FURTHER FEEDBACK LOOP (R12/R13) LIMITS THE OPAMP'S OUTPUT VOLTAGE.

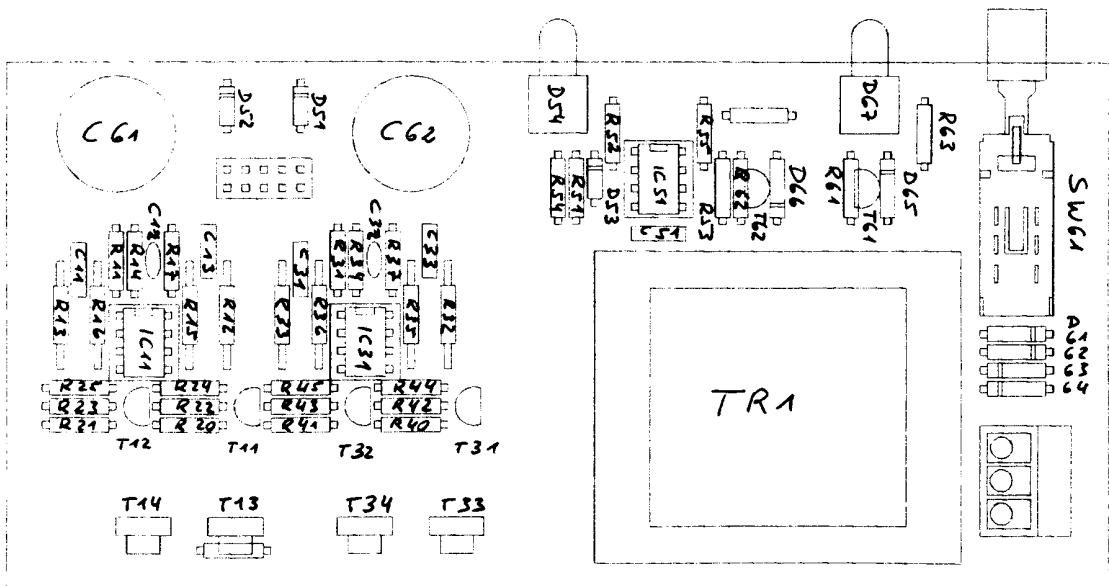
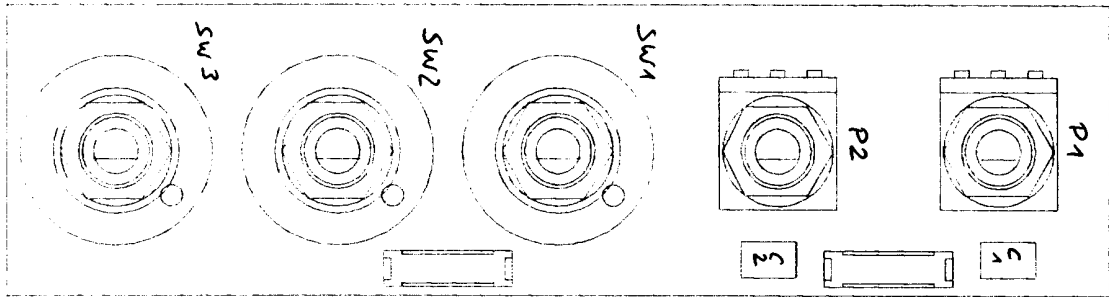
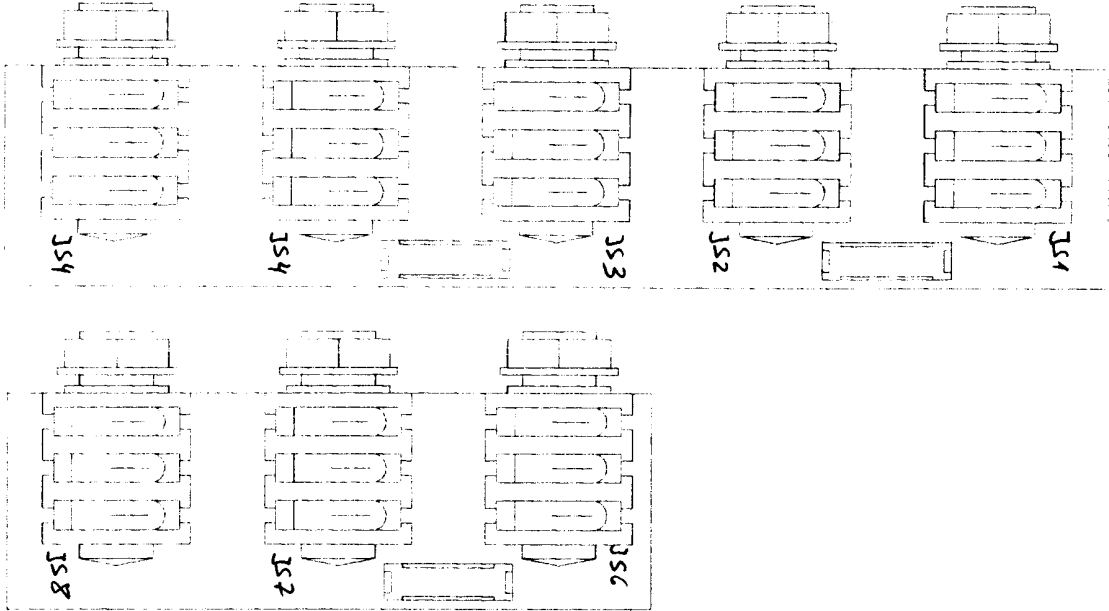
VIA R12, WHICH IS CONNECTED TO GROUND, THE OPAMP DRAWS A RELATIVELY HIGH CURRENT. ITS CURRENT CONSUMPTION IS PROPORTIONAL TO THE THROUGHPASSING SIGNAL. THIS CURRENT FLOWS THROUGH T11/T12, WHICH ARE OPERATING AS SERIAL REGULATORS AND LIMIT IC 11'S SUPPLY VOLTAGE TO 14 VOLTS, AND THE TWO RESISTORS R20/R21. THE VOLTAGE OVER R20/R21 CONTROLS THE SLAVE TRANSISTORS T13/T14.

AFTER LEAVING THE OUTPUT STAGE THE SIGNAL IS PRESENT AT THREE STEP SWITCHES. THEY ARE PROVIDING 5 DIFFERENT VARIATIONS. SIX JACK SOCKETS NOW HAND THE BOOSTED SIGNAL TO THE CONNECTED HEADSETS.

PARALLELING THE STEP SWITCHES THE SIGNAL IS FED TO THE INVERTING INPUT OF IC51, WHICH IS PRE-TENSIONED TO NEGATIVE BY R52. THUS THE PEAK INDICATOR IS ENABLED TO FOLLOW VARYING SUPPLY VOLTAGES WITHIN CERTAIN LIMITS. CLIPPING IS INDICATED BY INTERMITTENT FLASHING OF LED D54.

THE PHONEV AMP V6 HP IS INSENSITIVE TO LOW-OHM LOADS AND SHORT CIRCUITS. FOR THIS REASON THE INTEGRATED POWER SUPPLY IS RELATIVELY "SOFT", RESPONDING IRREGULARLY HIGH OUTPUT CURRENTS WITH VOLTAGE SHUTDOWN. THE TRANSFORMER PROTECTS ITSELF BY AN INTEGRATED PTC. EXCEEDING A SPECIFIED TEMPERATURE LIMIT CUTS THE TRANSFORMER FROM MAINS AND RECONNECTS IT AUTOMATICALLY AFTER COOLING DOWN.

# MOUNTING DIAGRAM:





# PARTS LIST AKG PHONE AMP V6 HP

PLEASE NOTE: COMPONENTS IN BRACKETS ( ) ARE CRITICAL FOR SAFETY AND SHOULD ONLY BE REPLACED WITH ORIGINAL PARTS.

## MAIN PCB :

### ELECTRICAL

R 15,16,35,36	METALL FILM	1	OHM/ 0.5 W
R 17,37	" "	22	OHM/ 0.5 W
R 20,21,40,41	" "	( 330	OHM )
R 12,32	" "	470	OHM/ 0.5 W
R 13,33	" "	1	KOHM/ 0.5 W
R 24,25,44,45,	" "	3.3	KOHM
R 22,23,42,43,55,63	" "	4.7	KOHM
R 11,31,61,62	" "	10	KOHM
R 52	" "	75	KOHM
R 51	" "	100	KOHM
R 53,54	" "	220	KOHM
R 14,34	" "	330	KOHM
C 12,32	CERAMIC	15	PF
C 11,31	POLYETHYLEN	4.7	NF
C 13,33,51	POLYESTER	100	NF
C 61,62	ELECTROLYT	1000	µF/ 50V
D 51,52,53	DIODE	1 N 4148	
D 61,62,63,64	DIODE	1 N 4002	
D 65,66	ZENER DIODE	ZD 16	
D 54,67	LED	HIGH INTENS., RED, 5MM	
T 11,31,61	TRANSISTOR (	BC 546 )	
T 12,32,62	TRANSISTOR (	BC 556 )	
T 14,34	TRANSISTOR	BD 237	
T 13,33	TRANSISTOR	BD 238	
IC 11,31	OP AMP (	TL 071 )	
IC 51	OP AMP	LM 741	

### MECHANICAL

TR 1	( TRANSFORMER	PT 7.5 / 2 / 24 )
SW 61	POWER SWITCH	BST-F-FG-BK-2U-EE
1 HEATSINK	SK 125 / 62.5	
2 LED-HOLDER	DH 5 R	
4 SILICONE RUBBER WASHERS	WS-220	
6 SCREWS	M3*6	
1 SCREW	2.9*12	
1 PCB	V6A MAIN	
1 PCB	V6A ISOLATION	

2	JUMPERS	10 MM
1	WIRE TERMINAL	ARK 250/3
4	DIST. SLEEVES I/O THREAD	DA 5M3X08
1	DIST. SLEEVE, PLASTIC	3 MM
4	NUTS	M3
4	WASHERS	3.5 MM
3	PRECISION SOCKET	8 POLE
1	MALE HEADER	10 POLE
1	STRIPLINE CONNECTOR	10 POLE

SWITCH PCB :

C	1,2	470	NF
P	1,2	10	KOHM LOG
SW	1,2,3	2206	
1	PCB		V6A SWITCH
1	STEEL "U"		
2	DIST. SLEEVES I/O THREAD		DA5M3X08
2	DIST. SLEEVES I/O THREAD		DA5M3X15
2	NUTS		M3
3	WASHERS		3.5 MM
5	KNOBS / CAPS		26 15 60 3
2	STRIP LINES		15 CM
2	STRIP LINE CONNECTORS AWLP 10		10 POLE

IN-OUT PCB :

5	JACK SOCKETS		M 203-02
1	PCB		V6A IN-OUT
2	STRIP LINE CONNECTORS AWLP 10		10 POLE

OUT PCB :

3	JACK SOCKETS		M 203-02
1	PCB		V6A OUT
1	STRIP LINE CONNECTOR AWLP 10		10 POLE

MECHANICAL :

1	ALUMINIUM-STEEL COVER		V6A
1	MAINS CABLE		0.2 M
1	MAINS SOCKET		4300.0007
3	ISOLATORS, 4.8 MM		4.8 MM
4	RUBBER FEET		SJ 5008 BL.
12	SCREWS		M3*5
1	WASHER		3.5 MM
1	THREAD		5/8"
1	THREAD, REDUCE		5/8"-3/8"