SERVICE MANUAL

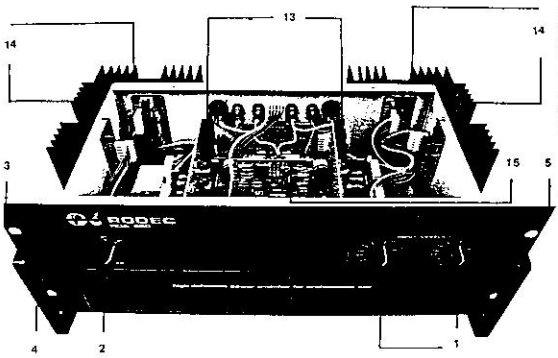
RODEC HDA 450(SL)

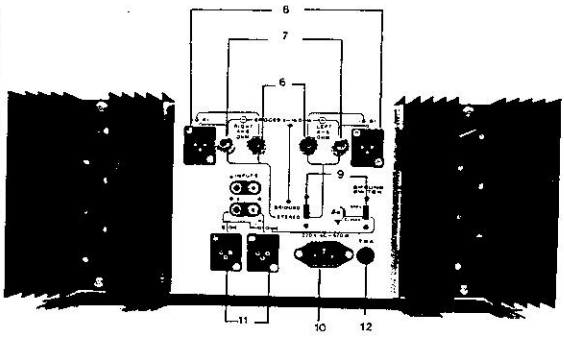
HDA 450 - TECHNICAL DATA

The manufacturer reserves the right to alter specifications without notice.

Power in Stereo mode	: 2 x 240 W RMS on 4 Ohm / 0,775 V input
(both channels driven)	: 2 x 150 W RMS on 8 Ohm / 0,9 V input
(Ambient temp° below 55° C)	: 2 x 100 W RMS on 16 Ohm / 1 V input
Power bridged mode	: 1 x 500 W RMS on 4 Ohm / 0,775 V input
(Ambient temp° below 55° C)	: 1 x 450 W RMS on 8 Ohm / 0,775 V input
	: 1 x 300 W RMS on 16 Ohm / 0,9 V input
Minimum input impedance	: 68 KOhm
Input sensitivity	: variable up to 0,775 V
Bandwidth	: 10Hz-200kHz / +0 , -3dB
Frequency response after filter	: 20Hz-20kHz / ± 1 dB
THD 400 HZ 1 dB prior to clipping	: 0,07 %
TIM/TID Distortion	: neglectable

Signal/noise	: 99 dB under full Power "A" weighted
Power requirements	: 230V-50/60 Hz 670 W. (15 W without signal)
Stability	: Unconditional into all loads
Speaker protection	: DC cut-off with relays
Protections	: Open circuit, short circuit, current limiting and fuses.
Dimensions	: Chassis 422 x 238 x 165 Frontplate 483 x 177 (standard rack)
Connectors	: Inputs XLR + double RCA cinch sockets Outputs XLR + Terminal posts
Weight	: Net= 13 Kg Packed= 14,5 Kg
Packed dimensions	: 55 x 36 x 26 cm





FRONT ASSY

Ref. No	Description	Qty.	RC Number	HDA 450 SL
1-2	KNOB 22 mm	3	RC 05 035	
3	POWER INDICATOR	1	RC 05 124	
4	HANDLE 120 mm	2	RC 05 125	RC05 128
5	FRONT BLACK	1	RC 05 016	RC05 116

SWITCHES - POTENTIOMETERS AND CONNECTORS

1	POT. ROTATIF 100 Klin	2	RC 08 017	
2	POWER SWITCH	1	RC 08 114	RC08 129
6	CONNECTOR BLACK	2	RC 10 016	
7	CONNECTOR RED	2	RC 10 015	
8	CONNECTOR XLR M	2	RC 10 024	
9	SWITCH BRIDGED STEREO GROUND SWITCH	2	RC 08 104	
10	MAINS SOCKET	1	RC 12 015	
11	CONNECTOR XLR F	2	RC 10 023	
12	FUSE HOLDER	1	RC 12 018	
13	DRIVER BOARD	2	RC 27 036	
14	HEAT SINKS	2	RC 27 002	
15	PROTECTION UNIT	1	RC 27 037	
16	INPUT CIRCUIT	1	RC 27 038	

Ref. No.	Description	Qty.	RC Number	Remarks
heat sinks				
	TRANSISTOR MJ 15001	3	RC 17 011	
	SILICON PAD	3	RC 20 010	
	TRANSISTOR COVER	3	RC 20 012	

RC 25 035	BASIC BOARD			
F1-F4	FUSE 5A T	4	RC 12 011	
	RELAIS 1 POL 8A	2	RC 12 027	
D1-D2	SILICIUM DIODE 1N 4448	2	RC 17 105	
D3-D4	ZENER DIODE 12V/400 mW	2	RC 17 112	
D5-D10	RECTIFIER 1 A	6	RC 17 116	
C1-C6	POLYESTER CAP.220N	6	RC 22 108	
C7-C8	ELKO 220M/16V	2	RC 22 215	
C9	ELKO 47M/63V	1	RC 22 217	
R15-R16	RESISTOR 1/3W 10K	2	RC 23 021	
R17-R18-R31	RESISTOR 1,6W 10R	3	RC 23 511	
R13-14	RESISTOR 1,6W 2K2	2	RC 23 514	
R19-R30	WIREW.RES. 5W 1R	12	RC 23 518	
R1-R12	FUSE RES. 1/3W 10R	12	RC 23 601	
F1-F4	FUSE HOLDER FOR PCB	4	RC 32 011	

RC 25 036	DRIVER BOARD			
P1-P2-P3	TRIMMER VERT. 1 K	3	RC 08 021	
Q4-Q5	TRANSISTOR BF422	2	RC 17 005	
Q6-Q7	TRANSISTOR BF423	2	RC 17 006	
Q1-Q2-Q8-Q9-Q10	TRANSISTOR BC546A	5	RC 17 007	
Q3-Q11-Q12-Q13	TRANSISTOR BC556A	4	RC 17 008	
Q14	TRANSISTOR MJE 15030	1	RC 17 009	Older models can have 40871-1C 03- 1C 12 40872-1C 04- 1C 13 and are to be replaced!
Q15	TRANSISTOR MJE 15031	1	RC 17 010	
D1-D6	SILICIUM DIODE	6	RC 17 105	
D7-D8-D9-D10	STABISTOR BA314	4	RC 17 106	
C1	CERAMIC CAP. 2N2	1	RC 22 008	
C2-C3	CERAMIC CAP 470P	2	RC 22 005	
C4-C5	CERAMIC CAP. 150P	2	RC 22 019	
C6-C7	POLYESTER CAP. 22N	2	RC 22 104	
C8	POLYESTER CAP.220N	1	RC 22 108	
C9	ELKO 47M/25V	1	RC 22 214	
R1-R2-R3-R4	FUSE RES. 1/3W 100R	4	RC 23 603	
R5-R6-R7-R8	RESISTOR 1/3W 180R	4	RC 23 004	
R9-R10	FUSE RES. 1/3W 270R	2	RC 23 605	
R11	RESISTOR 1/3W 390R	1	RC 23 007	
R12-R13	RESISTOR 1/3W 680R	2	RC 23 008	
R14	RESISTOR 1/3W 820R	1	RC 23 009	
R15-R16-R17-R18	RESISTOR 1/3W 1K	4	RC 23 010	
R19-R20	FUSE RES. 1/3W 1K	2	RC 23 610	
R21-R22	FUSE RES. 1/3W 2K7	2	RC 23 613	
R23-R24-R25-R26	FUSE RES. 1/3W 4K7	4	RC 23 616	
R27	RESISTOR 1/3W 4K7	1	RC 23 016	
R28-R29	RESISTOR 1/3W 22K	2	RC 23 025	
R30-R33	RESISTOR 1/3W 39K	4	RC 23 028	
R34-R37	FUSE RES. 1/2W 22R	4	RC 23 502	

Ref. No.	Description	Qty.	RC Number	Remarks
RC 25 037	PROTECT UNIT HDA 450			
Q1-Q4	TRANSISTOR BC546	4	RC 17 007	
D1-D5	SILICIUM DIODE	5	RC 17 105	
D6	GERMANIUM DIODE	1	RC 17 108	
D7-D8	ZENER DIODE 12V	2	RC 17 112	
IC 1	DUAL COMP. LM393N	1	RC 18 003	
C1-C2	ELKO 2M2/63V	2	RC 22 205	
C4	ELKO 100M/10V	1	RC 22 209	
C3-C5	ELKO 47M/25V	2	RC 22 214	
R1	RESISTOR 1/3W 82 R	1	RC 23 118	
R2	RESISTOR 1/3W 1K	1	RC 23 010	
R3-R6	RESISTOR 1/3W 3K3	4	RC 23 014	
R7	RESISTOR 1/3W 8K2	1	RC 23 019	
R8-R12	RESISTOR 1/3W 15K	5	RC 23 023	
R13	RESISTOR 1/3W 10K	1	RC 23 021	
R14-19	RESISTOR 1/3W 100K	7	RC 23 103	
R20	RESISTOR 1/3W 150K	1	RC 23 513	
R21	RESISTOR 1,6W 1K	1	RC 23 124	
R22	RESISTOR 1,6W 2K2	1	RC 23 514	

RC 25 038	INPUT CIRCUIT BOARD			
STEREO/ BRIDGED	SLIDE SWITCH 2x2POS	1	RC 08 104	
IC1	IC TL074CN/LF347N	1	RC 18 009	
C1-C2	CERAMIC CAP. 100P	2	RC 22 004	
C3-C4	CERAMIC CAP. 1NO	2	RC 22 006	
C5-C9	POLYESTER CAP.100N	5	RC 22 107	
C10-C11	POLYESTER CAP.220N	2	RC 22 108	
R1-R2	RESISTOR 1/3W 18K	2	RC 23 024	
R3-R4	RESISTOR 1/3W 33K	2	RC 23 027	
R5-R11	RESISTOR 1/3W 220K	7	RC 23 105	

DIFFERENT PARTS				
	MAINS TRANSFORMER 2x42V	1	RC 21 006	
	RECTIFIER BRIDGE 80V/25A	1	RC 17 121	
	CAPACITOR 22000µF/63V	2	RC 22 201	
	MAINS CORD	1	RC 12 002	
	POTENTIOMETER PRINT	1	RC 25 078	from N° 199 723 on
	FLAT CABLE 6 POLE	1	RC 29 040	" "

ADJUSTMENT PROCEDURE :

Measuring the idling current is determined by the voltage over the 1 Ohm resistors R19-R30 each mV = 1 mA.

1. IDLING CURRENT

   Adjust p1 on RC25 036 so that the voltage across R19-R30 is between 5 mA and 15 mA.

2. CURRENT LIMITTING

   Load the output with a 2 Ohm load. Turn the input up to have 22V RMS on the output. Adjust p2 & p3 on RC25 036 until a very slight flat occurs on the sinusoidal tops.

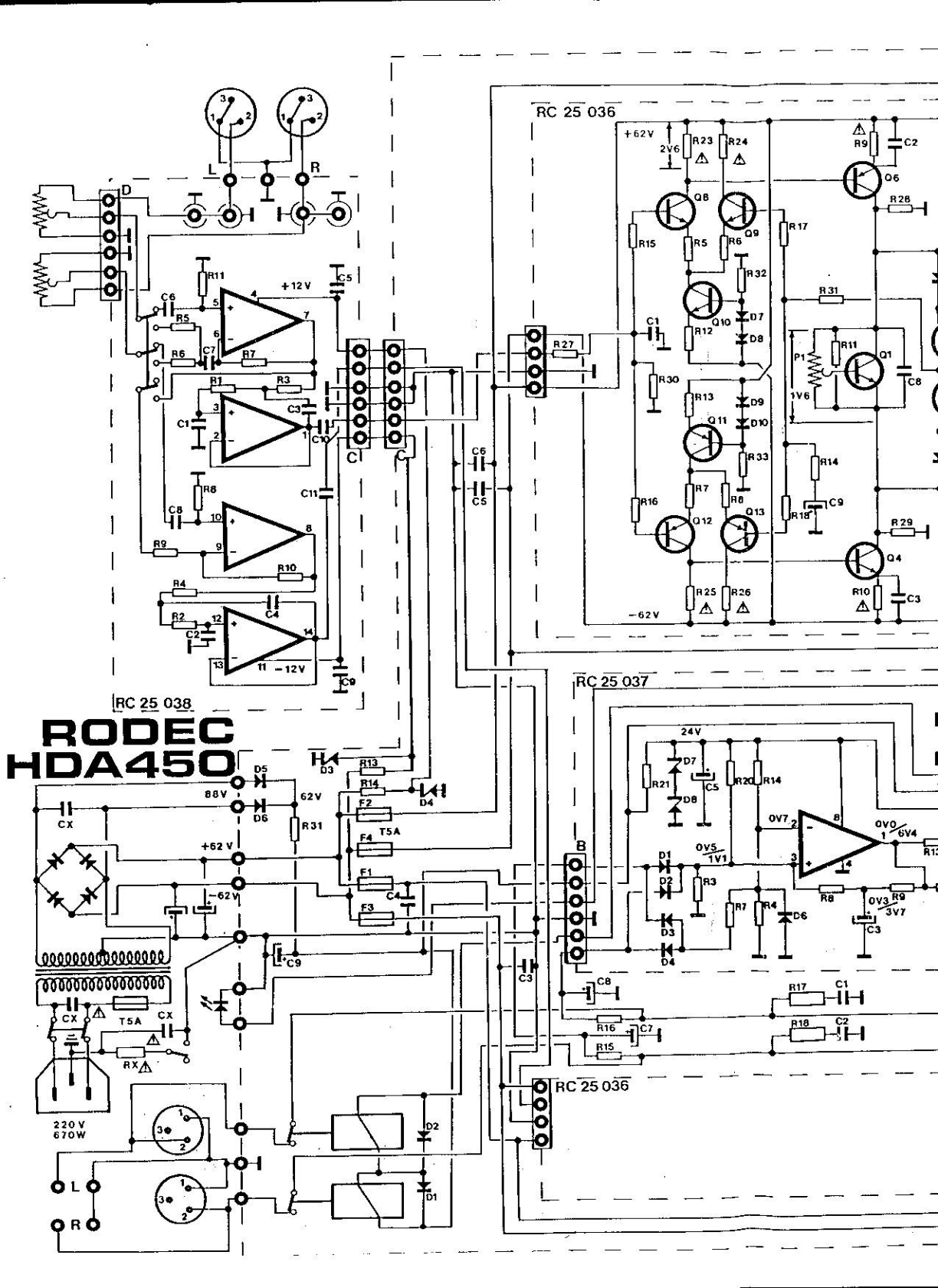
3. SHORT CIRCUIT TEST

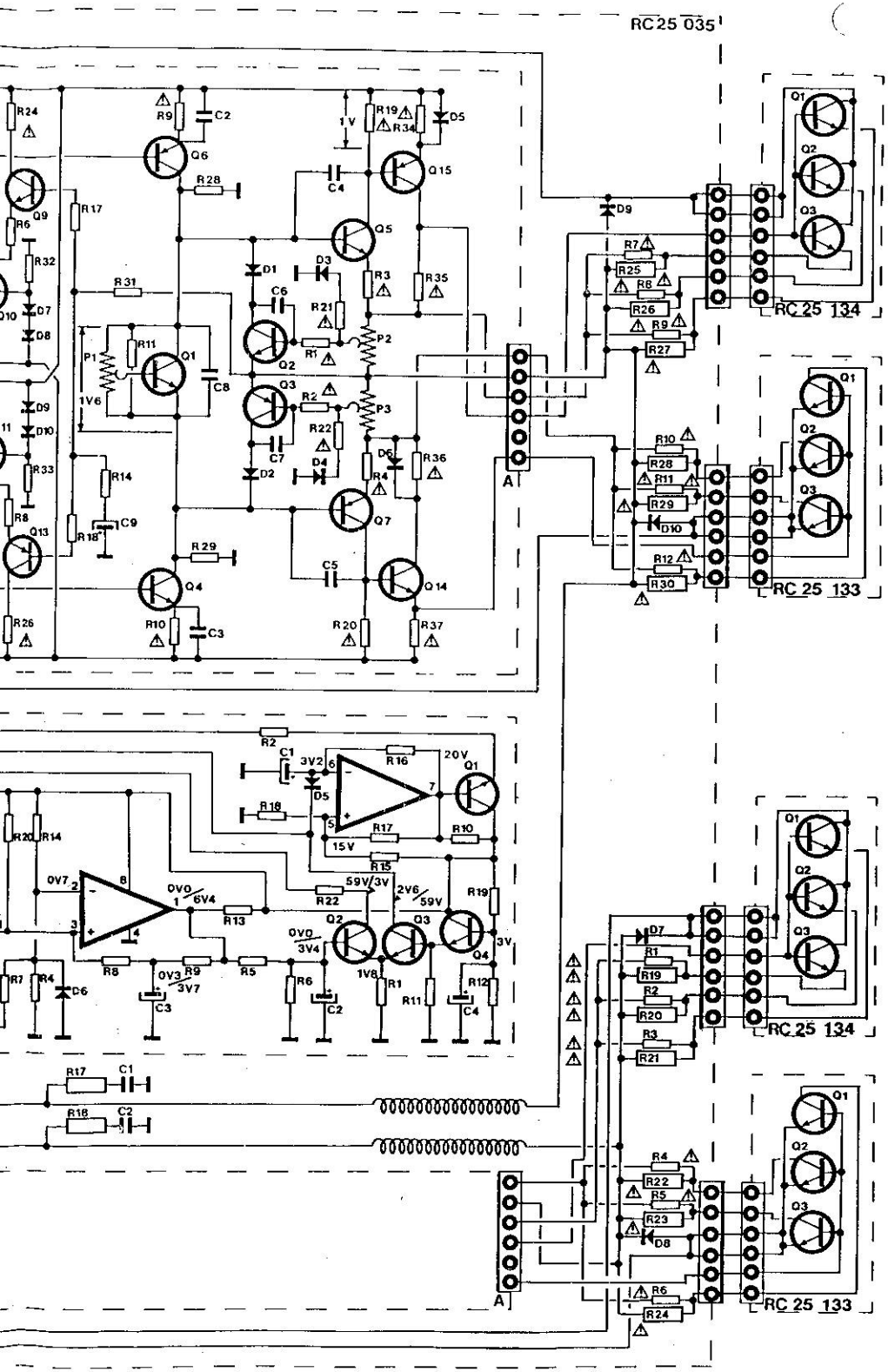
   Change the 2 Ohm load into 4 Ohm load, the 22 Volt remaining. An Amperemeter in the primary will indicate a certain current, when the channel is shorted. This current will remain constant or drop slightly, if the current increase, p2 and p3 has to be re-adjusted !!

SERVICE NOTES :

1. When servicing an amplifier fitted with drivers of type 40871-1C03-1C12 / 40872-1C04-1C13 it is advised to replace them with a MJ 15030/MJ 15031 even when they are not defective.

2. If the amplifier protection do not connect the amplifier output to the output terminals (relais not switched on) you can connect an oscilloscope to the point marked with an X to measure directly on the output stage of the amp.


RODEC
HDA450
RC 25 036
RC 25 037
RC 25 038
+62V
-62V
+12V
-12V
+62 V
88V
62V
24V
220 V
670W
T5A
CX
RX
L
R


RC25 035
RC 25 134
RC 25 133
RC 25 134
RC 25 133
A
A