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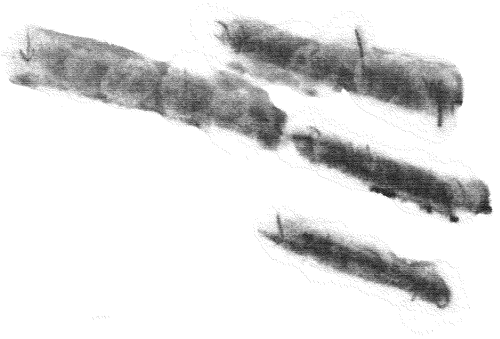
SERVICE MANUAL



D-150A POWER AMPLIFIER

CROWN INTERNATIONAL, INC. 1718 W. MISHAWAKA RD. ELKHART, INDIANA 46517

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REVIEW SECTION

I. Introduction

This manual contains complete service information on the D-150A. It is designed to be used in conjunction with the D-150A Instruction Manual. However, some important information is duplicated in this Service Manual in case the Instruction Manual is not readily available.

NOTE: THE INFORMATION IN THIS MANUAL IS INTENDED FOR USE BY AN EXPERIENCED TECHNICIAN ONLY!

II. Warranty

As a Crown Warranty Service Station, you should be familiar with Crown warranty policies. Each Instruction Manual contains basic policies as related to the customer. However, under questionable circumstances, please contact the Technical Service Department or Director of Customer Service at: Crown International, Inc., 1718 W. Mishawaka Road, Elkhart, IN 46517.

III. Specifications

General Specifications

Hum and Noise (20Hz-20KHz): 110dB below rated output.

Phase Response: +0, -15°, DC-20KHz at 1 watt.

Input Impedance: 25K ohms, $\pm 3\%$.

Amplifier Output Protection: Short, mismatch, and open circuit proof. Limiting is instantaneous with no flyback pulses, thumps, cutouts, etc. No premature limiting on transients.

Overall Protection: AC line fused. Thermal switch in AC line protects against overheating caused by insufficient ventilation. Controlled slewing-rate voltage amplifiers protect overall amplifier against RF burnouts. Input overload protection is furnished by internal resistance at inputs of amp.

DC Output Offset (Shorted Input): 10 millivolts or less, internally adjustable to zero.

Turn-On: Instantaneous, with minimum thumps and no program delay.

Circuit: Wideband multiple feedback loop design utilizing one linear IC (dual op-amp), total equivalent of 48 transistors, 22 signal diodes, 3 zener diodes, and 6 rectifier diodes.

Power Supply: Massive computer-grade filter capacitors store over 20 joules of energy. Two regulated supplies for complete isolation and stability.

Power Requirements: Requires 50-400Hz AC on 100, 200, 220, or 240V $\pm 10\%$ operation. Draws 30 watts or less on idle, 250 watts at 160 watts total output.

Heat Sinking: The entire amplifier is used as a heat sink. 3/16 inch thick chassis acts as a heat sink along with auxiliary fins.

Chassis: All aluminum construction for maximum heat conduction and minimum weight.

Controls: Independent level controls are mounted on the front panel. Power switch with associated pilot light is on front panel. Non-interacting DC balance controls are mounted on main PC board under electronics cover. A mono-stereo switch is located next to the input jacks on the rear panel.

Connectors: Input - 1/4 inch phone jacks, output - color coded binding posts, AC line - 3-wire (grounded) male connector on 5 foot minimum cable.

Dimensions: 17 inches (43.18cm) long, 5 1/4 inches (13.34cm) high, 8 3/4 inches (22.23cm) deep (from mounting surface of front panel), 19 inches (48.26cm) long with standard rack mounting brackets installed.

Weight: 24 pounds.

Finish: Satinized aluminum front panel with gray suede Lexan insert.

Stereo Specifications

Output Power: 80 watts per channel minimum RMS (both channels operating) into an 8 ohm load over a bandwidth of 1Hz-20KHz at a rated RMS sum total harmonic distortion of 0.05% of the fundamental output voltage.

Frequency Response: ± 0.1 dB DC-20KHz at 1 watt into 8 ohms; ± 1 dB DC-100KHz.

1KHz Power: 90 watts RMS into 8 ohms, per channel, both channels operating, 0.1% total harmonic distortion.

Harmonic Distortion: Less than 0.001% from 20-400Hz and increasing linearly to 0.05% at 20KHz at 80 watts RMS per channel into 8 ohms.

I.M. Distortion S.M.P.T.E. (60Hz-7KHz 4:1): Less than 0.05% from 0.01 watt to 0.25 watts and less than 0.01% from 0.25 watts to 80 watts into 8 ohms, per channel.

Slewing Rate: 6 volts per microsecond (slewing rate is the maximum value of the first derivative of the output signal, or the maximum slope of the output signal).

Damping Factor: Greater than 400, DC-400Hz into 8 ohms.

Output Impedance: Less than 15 milliohms in series with less than 3 microhenries.

Load Impedance: Rated for 8 ohm usage; safely drives any load including completely reactive loads.

Voltage Gain: $20.6 \pm 2\%$ or 26.3 ± 2 dB at maximum gain.

Input Sensitivity: 1.19 volts $\pm 2\%$ for 80 watts into 8 ohms.

Output Signal: Unbalanced, dual channel.

Monaural Specifications

Output Power: 160 watts minimum RMS into a 16 ohm load over a bandwidth of 1Hz-20KHz at a rated RMS sum total harmonic distortion of 0.05% of the fundamental output voltage.

Frequency Response (1KHz Power): ± 0.15 dB DC-20KHz at 1 watt into 16 ohms; ± 1 dB DC-60KHz, 180 watts RMS into 16 ohms.

Harmonic Distortion: Less than 0.001% from 20-400Hz and increasing linearly to 0.05% at 20KHz at 160 watts into 16 ohms.

I.M. Distortion S.M.P.T.E. (60Hz-7KHz 4:1): Less than 0.05% from 0.01 watts to 0.25 watts and less than 0.01% from 0.25 watts to 160 watts into 16 ohms, per channel.

Slewing rate: 12 volts per microsecond.

Damping Factor: Greater than 400, DC-400Hz into 16 ohms.

Output Impedance: Less than 30 milliohms in series with less than 6 microhenries.

Load Impedance: Rated for 16 ohm usage; safely drives any load including completely reactive loads.

Voltage Gain: $41.2 \pm 2\%$ for 160 watts into 16 ohms.

Input Sensitivity: 1.19 volts $\pm 2\%$ for 160 watts into 16 ohms.

Output Signal: Balanced, single channel.



IV. Panel Configuration

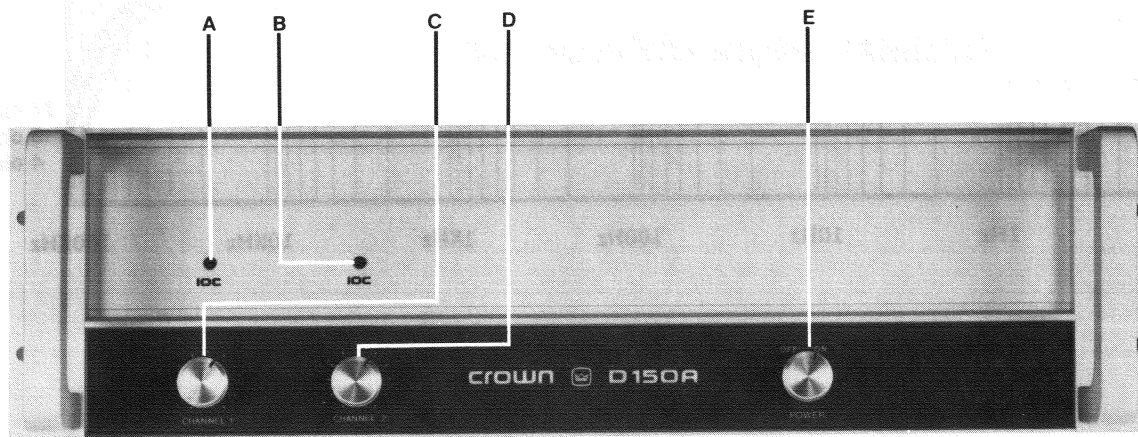


Fig. RVW.1 D-150A Front Panel

- A. CHANNEL 1 IOC INDICATOR
- B. CHANNEL 2 IOC INDICATOR
- C. CHANNEL 1 INPUT LEVEL CONTROL
- D. CHANNEL 2 INPUT LEVEL CONTROL
- E. ON/OFF SWITCH

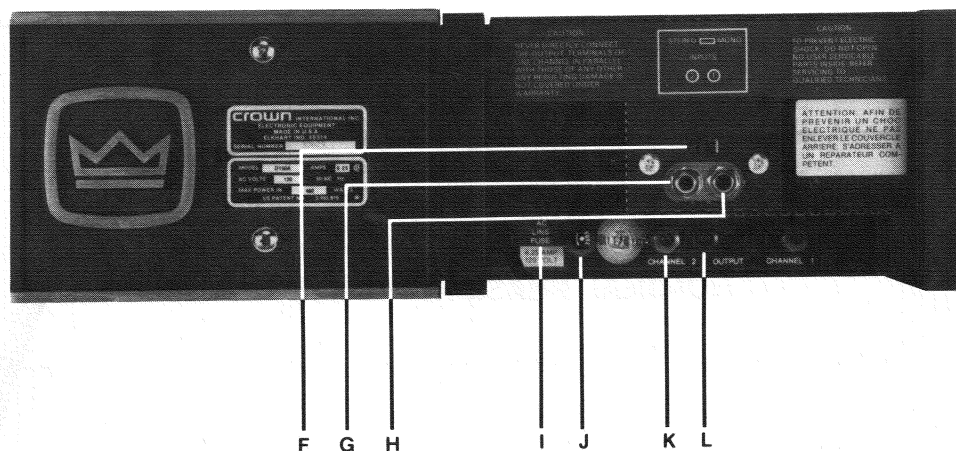


Fig. RVW.2 D-150A Rear Panel

- F. MONO/STEREO SWITCH
- G. CHANNEL 2 UNBALANCED INPUT
- H. CHANNEL 1 UNBALANCED INPUT
- I. AC POWER LINE
- J. FUSE HOLDER
- K. CHANNEL 2 MAIN OUTPUT JACK
- L. CHANNEL 1 MAIN OUTPUT JACK

V. Performance Graphs

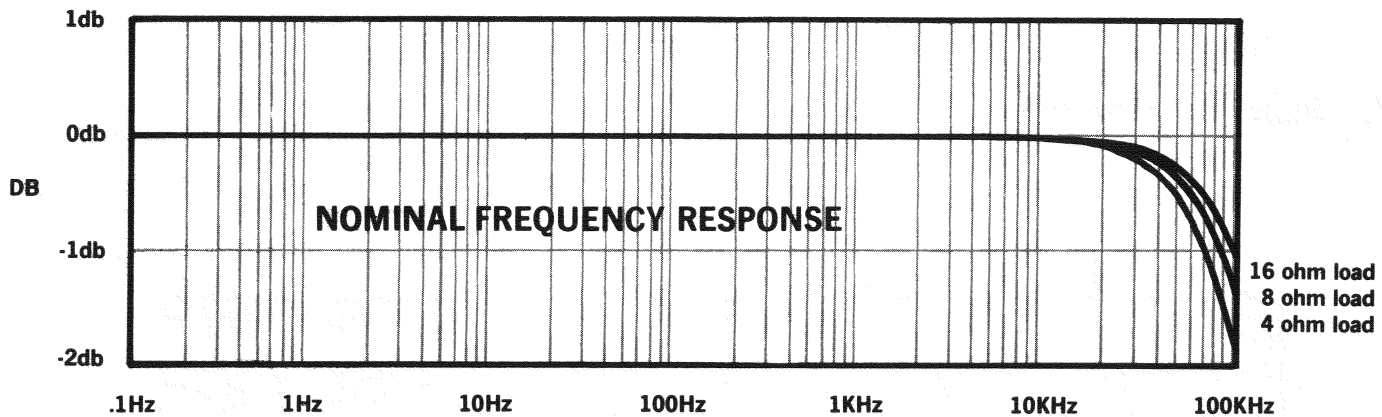


Fig. RVW.3 Nominal Frequency Response

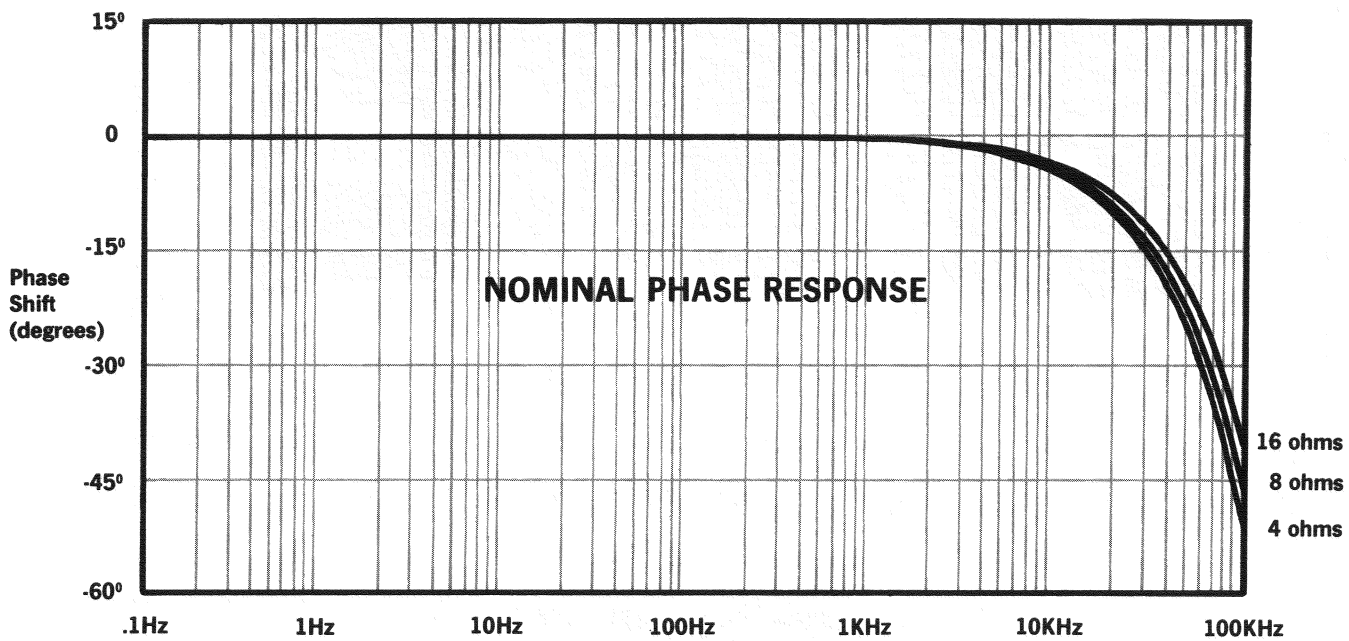


Fig. RVW.4 Nominal Phase Response

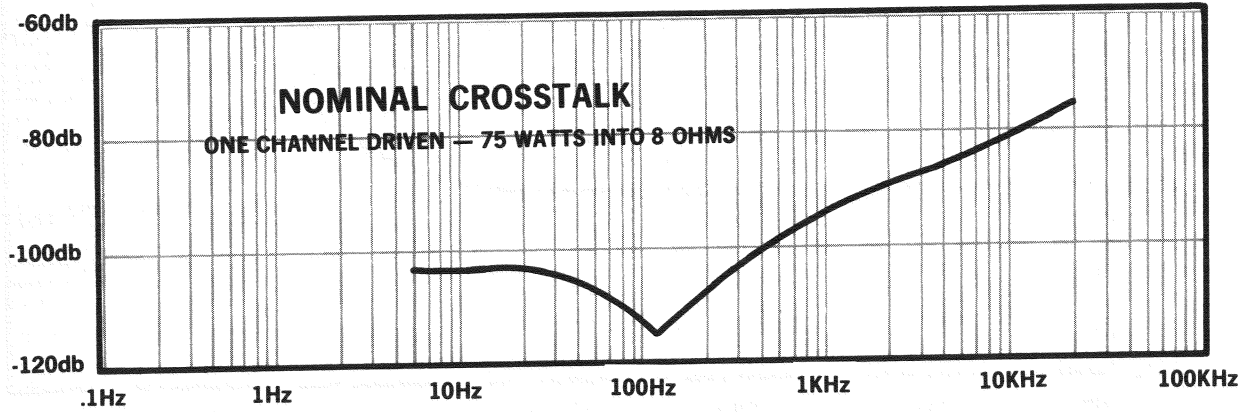


Fig. RVW.5 Nominal Crosstalk

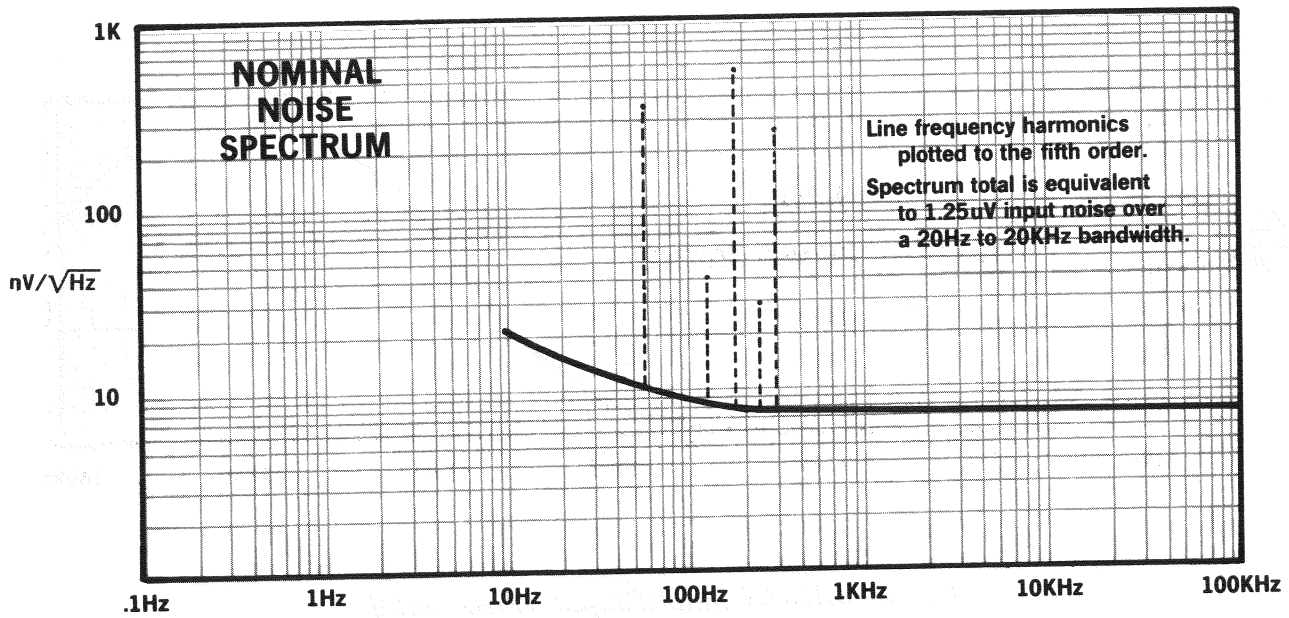


Fig. RVW.6 Nominal Noise Spectrum

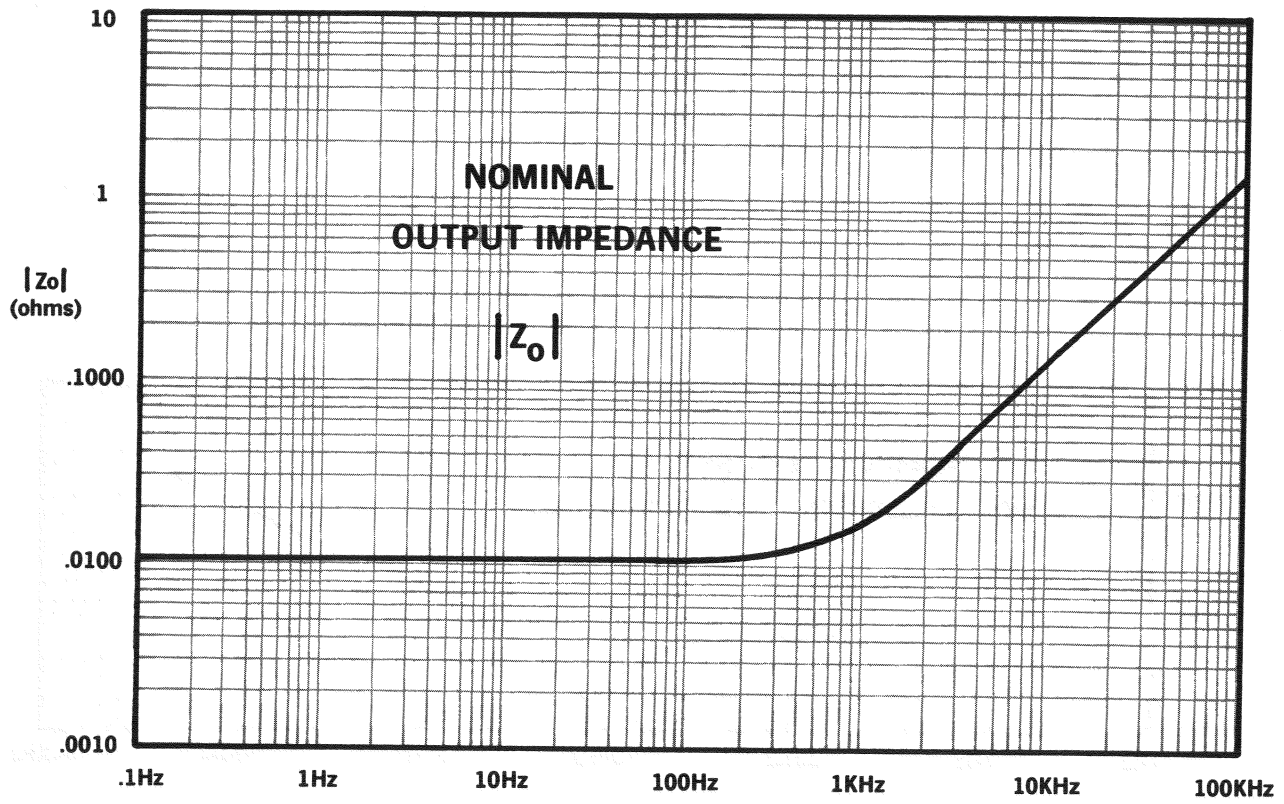


Fig. RVW.7 Nominal Output Impedance

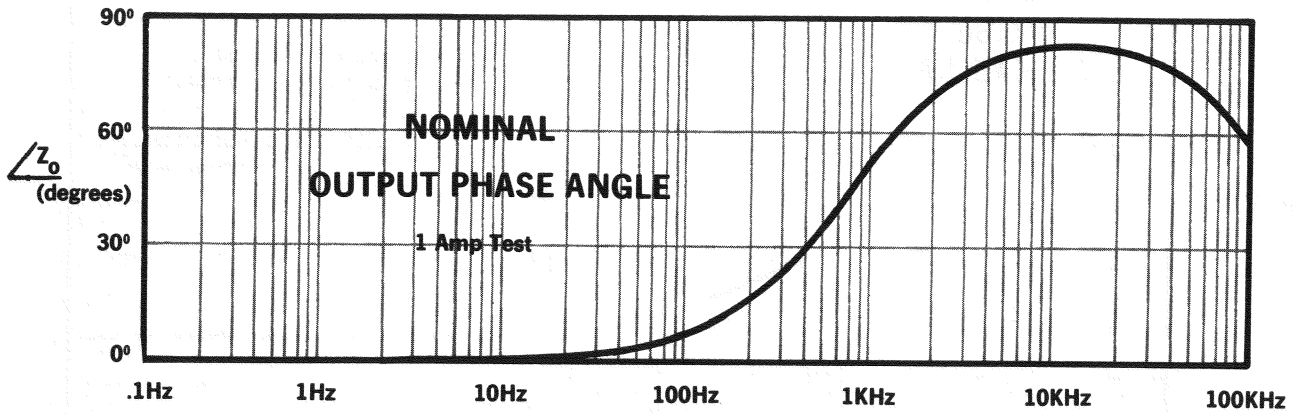


Fig. RVW.8 Nominal Output Phase Angle

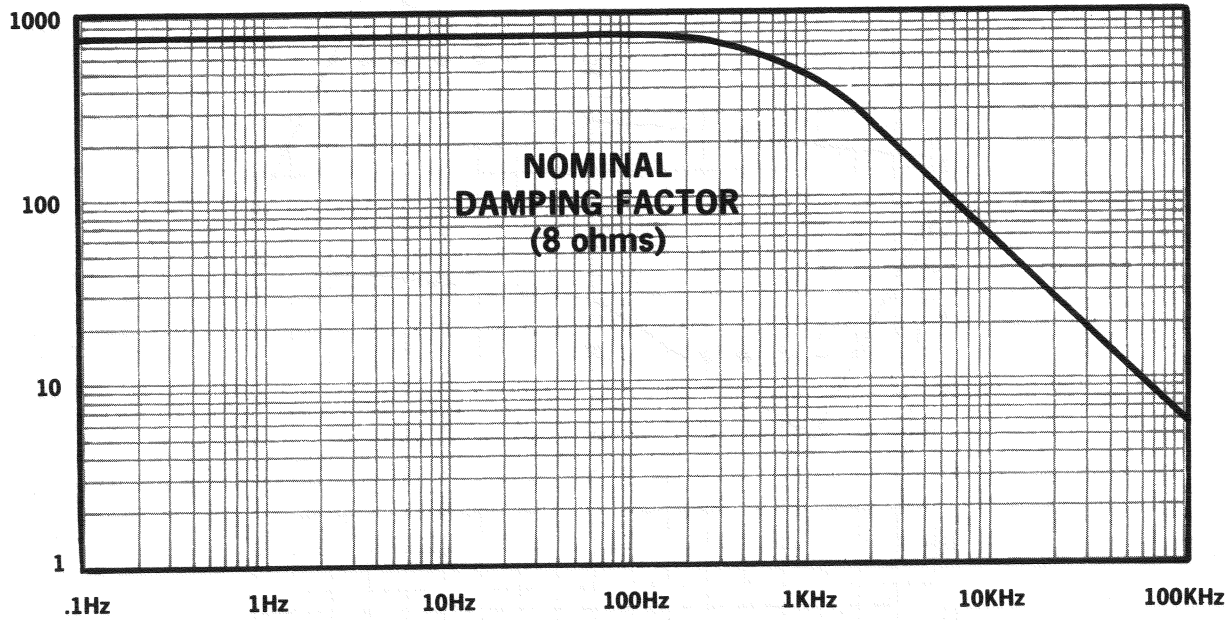


Fig. RVW.9 Nominal Damping Factor (8 ohms)

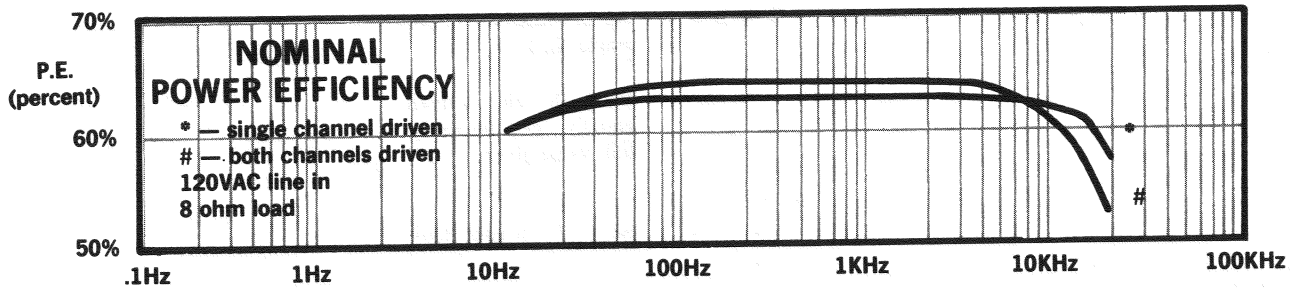
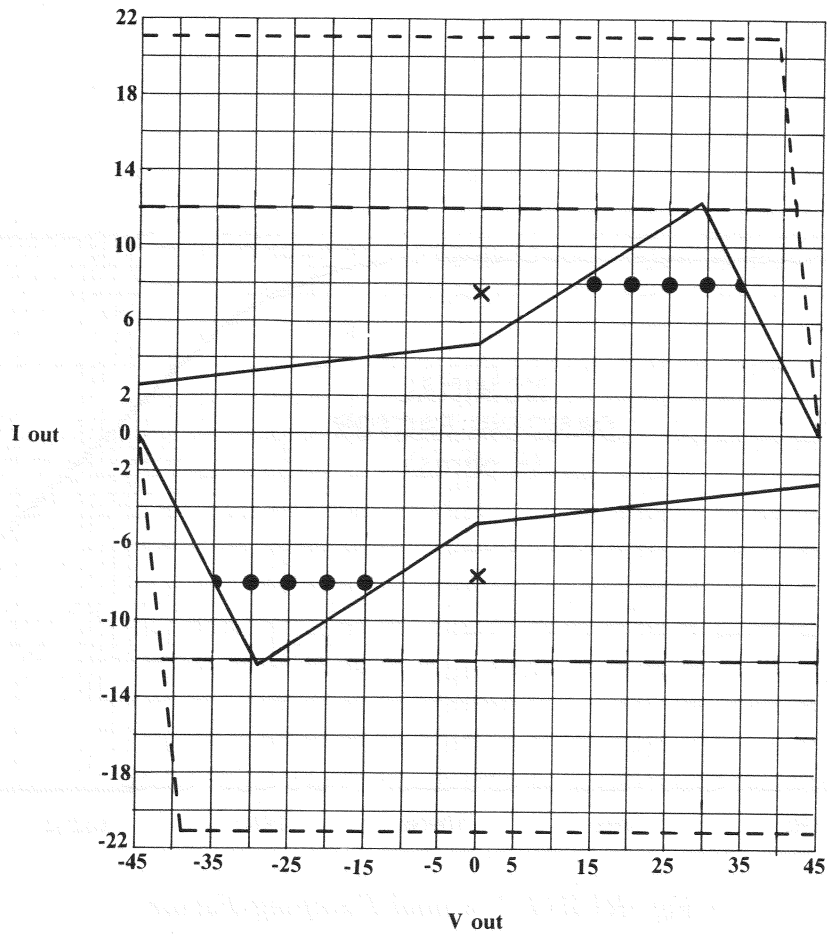


Fig. RVW.10 Nominal Power Efficiency



— — — — — Max. cont AC power
 $Z_L=3$ ohms

● ● ● ● ● AC line fuse blows (DC
 single ch.)
 if both ch. driven
 equally fuse blows at
 half value given

× × Short circuit cont. limit

- - - - - Max. AC limit ($Z_L V_{out}$
 (sine) at max.)

Fig. RVW.11 V-I Plot



SECTION 6

ILLUSTRATED PARTS LIST

6.1 General Information

Section 6 contains illustrations and parts lists for the D-150A. This information should be used with the service, repair and adjustment procedure in Section 7.

Most of the mechanical and structural type parts are illustrated and indexed on exploded view drawings. Electrical and electronic parts on these illustrations are also identified by the circuit reference designation next to the illustration. Both the index number and the reference designation are included in the parts list in separate columns. The reference designations correspond to those shown in schematic diagrams in the Review Section.

Electrical and electronic parts located on printed circuit boards are illustrated by schematic symbols on the trace side and by component shape symbols on the component side. Reference designations also appear on these diagrams.

The quantity of each part used in each location is also shown in the parts listing.

6.2 Standard and Special Parts

Many electrical and electronic parts used in the D-150A are standard items stocked by and available from electronic supply houses. However, some electronic parts that appear to be standard, are actually special. A part ordered from Crown will assure an acceptable replacement. Structural items, covers and panels are available from Crown only.

6.3 Ordering Parts

When ordering parts, be sure to give the amplifier model and serial number and include the part description and Crown Part Number (CPN) from the parts list. Price quotes are available upon request.

6.4 Shipment

1. Shipment will be made by UPS or best method unless you specify a preferred method.
2. Shipments are made F.O.B. Elkhart, Indiana only.
3. Established Crown accounts will be freight prepaid and billed unless shipped by truck or air freight.
4. All others will be shipped freight collect.

6.5 Terms

1. Normal terms are C.O.D. unless the order is prepaid.
 2. Net 30 days terms apply only to those firms who have an established line of credit with Crown.
 3. If prepaying please add an amount for the freight charge. \$1.00 is average for an order under one pound.
- NOTE:** Part prices are subject to change without notice.
4. New parts returned for credit are subject to a 10% restocking charge.
 5. You must receive authorization from the Parts Dept. before returning parts for credit.
 6. We are not a general parts warehouse! Parts are available for servicing Crown products only.



REPORT

THE STATE OF NIGERIA

Introduction

The report is a summary of the findings of the survey conducted in the State of Nigeria. It covers the period from 1960 to 1965. The survey was conducted by the National Bureau of Statistics, Lagos. The report is divided into two main parts: the first part deals with the general situation in the State, and the second part deals with the specific details of the survey.

1. General Situation

The general situation in the State of Nigeria during the period 1960-1965 was characterized by a period of relative stability and economic growth. The State was able to maintain a high level of production and to meet its basic needs. The population of the State increased steadily during this period, and the standard of living improved. The State was able to maintain a high level of production and to meet its basic needs.

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2. Specific Details of the Survey

The specific details of the survey are given in the following sections. The first section deals with the general situation in the State, and the second section deals with the specific details of the survey.

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3. Conclusions

The conclusions of the survey are given in the following sections. The first section deals with the general situation in the State, and the second section deals with the specific details of the survey.

4. Recommendations

The recommendations of the survey are given in the following sections. The first section deals with the general situation in the State, and the second section deals with the specific details of the survey.

Schematic Designation	Description	Crown Part No.	Qty.	Other Information
Capacitors				
C100, C200, C106, C206	100pF Mica	C 3410-5	4	
C101, C201	.001mF 200V Filmatic	C 3480-8	2	
C102, C202, C103, C203, C114, C214, C107, C207	200pF Mica	C 3411-3	8	
C104, C204, C117, C217	47pF Mica	C 3409-7	4	
C105, C205	120pF Mica	C 3290-1	2	
C108, C208, C109, C209	22mF 50V Vertical	C 5311-3	4	
C110, C210	.0027mF 200V Filmatic	C 3481-6	2	
C111, C211	470pF Mica	C 2511-1	2	
C112, C212	.0022mF 200V Filmatic	C 3285-1	2	
C113, C213, C6	.01mF Ceramic Disc	C 1751-4	3	
C115, C215	0.22mF 100V Filmatic	C 3218-2	2	
C116, C216, C1, C8	.1mF 200V Filmatic	C 2938-6	4	
C2, C3	9400mF 50V	C 3309-9	2	
C4	10mF 160V	C 2796-8	1	
C5	10mF 50V Vertical	C 3728-0	1	
C7	100mF 16V Vertical	C 3729-8	1	
C9	.001mF Ceramic Disc	C 2288-6	1	
Resistors				
R100, R200	100K Horizontal Pot	C 1709-2	2	Output offset adjust
R101, R201	2M ohm .25W 5% CF	C 3199-4	2	
R102, R202	250K Horizontal Pot	C 3087-1	2	Input offset adjust
R104, R204	820K ohm .25W 5% CF	C 3623-3	2	
R105, R205	25K ohm Audio Pot	D 2942-7	2	
R106, R206	4.7K ohm .25W 5% CF	C 3939-3	2	
R107, R207	56 ohm .25W 5% CF	C 3511-0	2	
R108, R208	3.3K ohm .25W 10%	2629	2	Used when IC-1 is UA749. See IC-1 under integrated circuits.
R109, R209	510 ohm .5W 1% MF	C 3304-0	2	
R110, R210	2.4K ohm .25W 5% CF	C 3616-7	2	
R111, R211	56K ohm .25W 5% CF	C 2882-6	2	
R112, R212, R5	8.2K ohm .25W 5% CF	C 2877-6	3	
R113, R213	5.6K ohm .25W 5% CF	C 3220-8	2	
R114, R214, R103, R203	1K ohm .25W 5% CF	C 2627-5	4	
R115, R215, R11	10K ohm .5W 1% MF	C 2343-9	3	
R116, R216	820 ohm .25W 5% CF	C 3301-6	2	
R117, R217	33K ohm .5W 5% MF	C 3137-4	2	
R118, R218, R123, R223	120 ohm .5W 5% CF	C 3837-9	4	
R119, R219, R122, R222, R124, R224	82 ohm .25W 5% CF	C 3960-9	6	

Parts List: D-150A Main Module (For SN26591 and above)

Schematic Designation	Description	Crown Part No.	Qty.	Other Information
R120, R220	5.1K ohm 1W 5% MF	C 2808-1	2	
R121, R221	27K ohm .5W 5% CF	C 1056-8	2	
R125, R225, R2	2.2K ohm .5W 5% CF	C 1036-0	3	
R126, R226	750 ohm .25W 5% CF	C 3803-1	2	
R127, R227	15 ohm .25W 5% CF	C 3614-2	2	
R128, R228	-Selected-	-----	2	Bias resistors
R129, R229, R13	47 ohm .25W 5% CF	C 1011-3	3	
R130, R230, R135, R235	180 ohm .25W 5% CF	C 2873-5	4	
R131, R231, R136, R236	5.6 ohm .5W 5% CF	C 3299-2	4	
R132, R232, R134, R234	0.1 ohm 5W 10%	C 4761-0	4	
R133, R233	2.7 ohm 1W 10%	C 1001-4	2	
R137, R237	180K ohm .2W 5% CF	C 4218-1	2	
R3	1.5K ohm 2W 10%	C 3303-2	1	
R4, R17	200K ohm .25W 5% CF	C 3622-5	2	
R6	91K ohm .25W 5% CF	C 3621-7	1	
R7	6.2K ohm .25W 5% CF	C 3619-1	1	
R8	2.7K ohm 1W 10%	C 1079-0	1	
R9	1 ohm .5W 5% CF	C 3612-6	1	
R10	390 ohm .5W 5% CF	C 2609-3	1	
R12	390 ohm 2W	C 4029-2	1	
R142, R242, R143, R243	13K ohm .25W 5% CF	C 4300-7	4	
R145, R245, R146, R246	2.7 ohm .5W 5% CF	C 2857-8	4	
Transistors				
Q100, Q200, Q104, Q204, Q108, Q208	2N4125 PNP	C 3625-8	6	
Q101, Q201, Q2	PN4250A PNP	C 3786-8	3	
Q101, Q201	MPS93 PNP	C 3578-9	2	
Q102, Q202, Q103, Q203, Q106, Q206, Q111, Q211, Q1	SEL 2N3859 NPN	D 2961-7	7	
Q105, Q205	MPSL01 NPN	C 3232-3	2	
Q107, Q207	NSD106 NPN	C 4069-8	2	<i>c5065-5</i> <i>c4061-5</i> Positive predrivers
Q109, Q209	SEL 2N3585 NPN	D 3295-9	2	Drivers
Q112, Q212	SS7304 PNP	D 5611-5	2	<i>D2923-7</i> Negative predriver
Q113, Q213	SEL 2N3585 NPN	D 3295-9	2	Negative driver
* No longer available				
Q110, Q210				
Q114, Q214	2N3773	*3773	4	Used with D-150A SN 8359 and below
Q110, Q210, Q114, Q214	2N5631	*3991	4	Used with D-150A between SN8360 and 17875 (selected units)
Q110, Q210, Q114, Q214	T6J0377	*3941	4	Used with D-150A between SN8360 and 17875 (selected units)
Q110, Q120, Q114, Q214	2N5631 100V	C 3990-6	4	Used with D-150A SN 17876 and above

Parts List: D-150A Main Module (Continued)

Schematic Designation	Description	Crown Part No.	Qty.	Other Information
Integrated Circuits				
IC1A,B	739PC Dual Op Amp	C 3231-5	1	
Diodes				
D100, D200, D101, D201, D103, D203, D104, D204, D105, D205 D102, D202, D106, D206, D1, D2 D107, D207 D3, D4, D5	IN4148 IN4004 IN270 IN961B 10V Zener	C 3181-2	10	
Miscellaneous				
SW2	2 Conductor Jacks	C 3423-8	2	Input jacks
SW3	A-P Switch	M20105-9	1	On/off
	DPDT Slide Switch	C 4110-0	1	Stereo/Mono
	14 PIN IC Socket	C 3450-1	1	
L100, L200	.5mh coil	C 3510-2	2	

Parts List: D-150A IOC Module (SN22394 and above)

Capacitors				
C118, C218	0.22mF 100V Filmatic	C 3218-2	2	
C8	2.2mF 50V Vertical	C 5362-6	1	
Resistors				
R138, R238	1.6M .25W 5% CF	C 4235-5	2	
R139, R239	2.7K ohm 1W 10%	C 1079-0	2	
R140, R240	27K ohm .5W 5% CF	C 1056-8	2	
R141, R241	18K ohm .25W 5% CF	C 2633-3	2	
R14, R16	33K ohm .25W 5% CF	C 4346-0	2	
R15	150K ohm .25W 5% CF	C 4216-5	1	
R144, R244	10K ohm .25W 5% CF	C 2631-7	2	
Transistors				
Q115, Q215, Q116, Q216	Selected 2N3859A NPN	D 2961-7	4	
IC2A,B,C,D	LM 339 Voltage Comparator	4345	1	
Diodes				
	IN4148	C 3181-2	2	
	MV5053 Red LED	C 4341-1	2	
Miscellaneous				
	14 PIN IC Socket	C 3450-1	1	

Parts List: D-150A Front Panel Assembly

Index No.	Schematic Designation	Description	Crown Part No.	Qty.	Other Information
1		.83 Aluminum Knob	D 4075-4	3	
2		.375 Bright Nut	C 1288N7	3	
3		.625x.375x.030 Brightwasher	C 2189-6	3	
4		Front Panel Lexan Insert	D 4091-1	1	
5		D-150A Front Panel	D 4614-0	1	
6		5.25 Rack Mount Ears	F 9787-7	2	*Optional; end-bar also supplied
7		S 632 .75 Machine Screw	C 1858-7	4	
8		Lamp Bracket	F 9598-8	1	
9		10-32 Hex Nut	C 2170-6	1	
10		#10 Internal Starwasher	C 2279-5	1	
11		End Cover (Transformer Side)	F 9565J6	1	
12		T10 32 .50 Machine Screw	2049N-2	4	
13		Transformer Wraparound	F 9952J6	1	
14		Transformer Cover	D 3355-1	1	
15		T10 32 .50 Machine Screw	2049N2	2	
16		Heatsink Fin	D 3956-6	2	
17		Board Cover	F 9564J9	1	
18		End Cover (Board Side)	F 9566J4	1	
19		Chassis	D 3544-0	1	
20		SW 10 P. 75 Self-tapping Screw	C 4017-7	4	
21		IOC Board Module	M41904-0	1	
22		#6 Internal Starwasher	C 5594-4	2	
23		6-32 Hex Nut	C 1889-2	2	
24		.250x.141x.625 Aluminum Spacer	C 4612-5	2	
25		#10 Internal Starwasher	C 2279-5	2	
26		X 632 1.0 Machine Screw	C 4333-8	2	
27	R106, R206	25K ohm Audio Pot	D 2942-7	2	
28		334 Solder Lug .375 Hole	D 2828-8	2	
29		.375 Internal Starwasher	C 2188-8	7	
30		R6 32 .25 Machine Screw	C 1954-4	6	
31		#6 Internal Starwasher	C 5594-4	6	
32	SW2	Rotary Power Switch	M41549-3	1	

list price
to 2.500
BULB - C 2900-6 Lamp 1822 36V .10A
CHICAGO MIN.

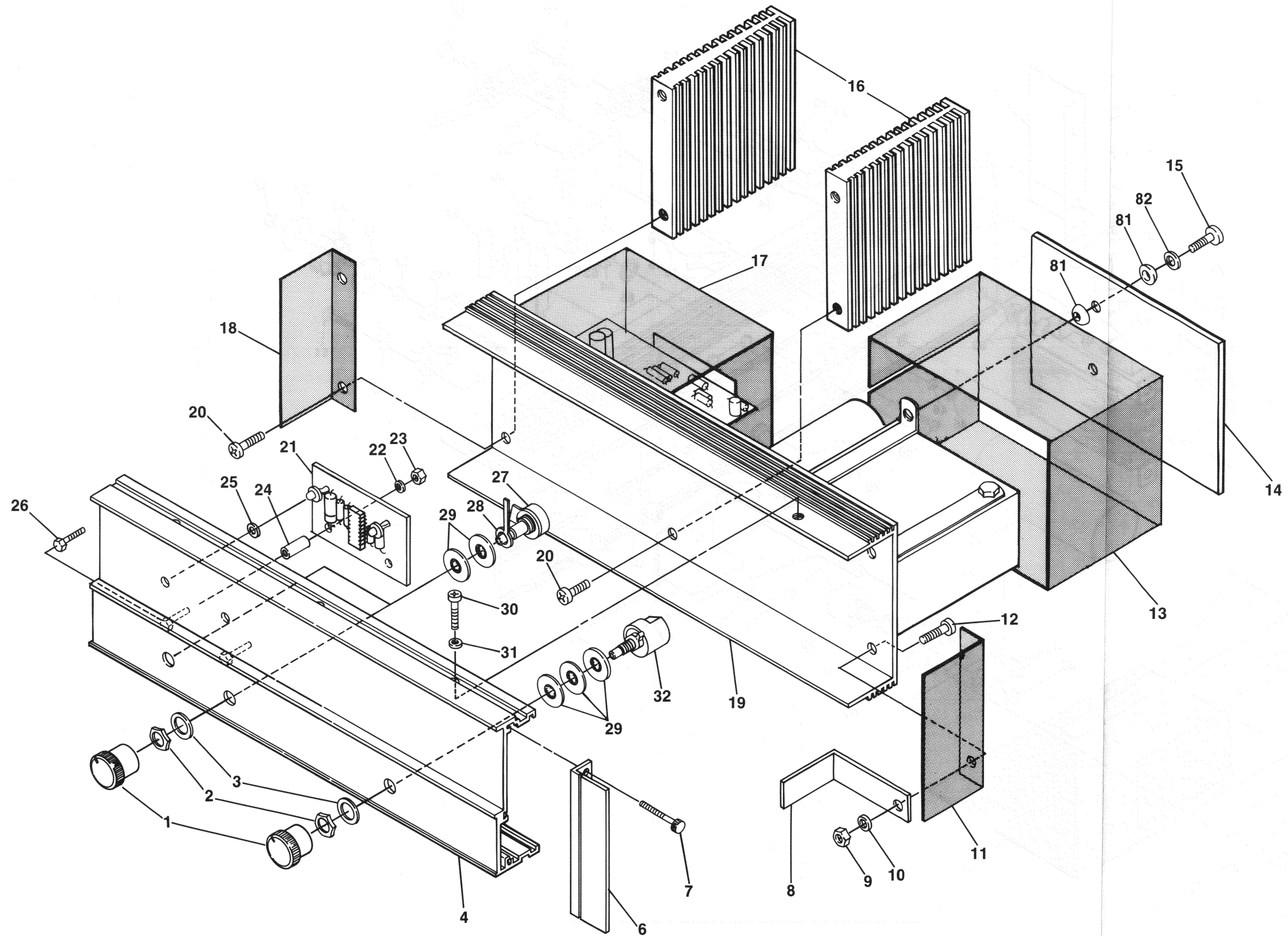


Fig. 6.16 Front Panel Assembly

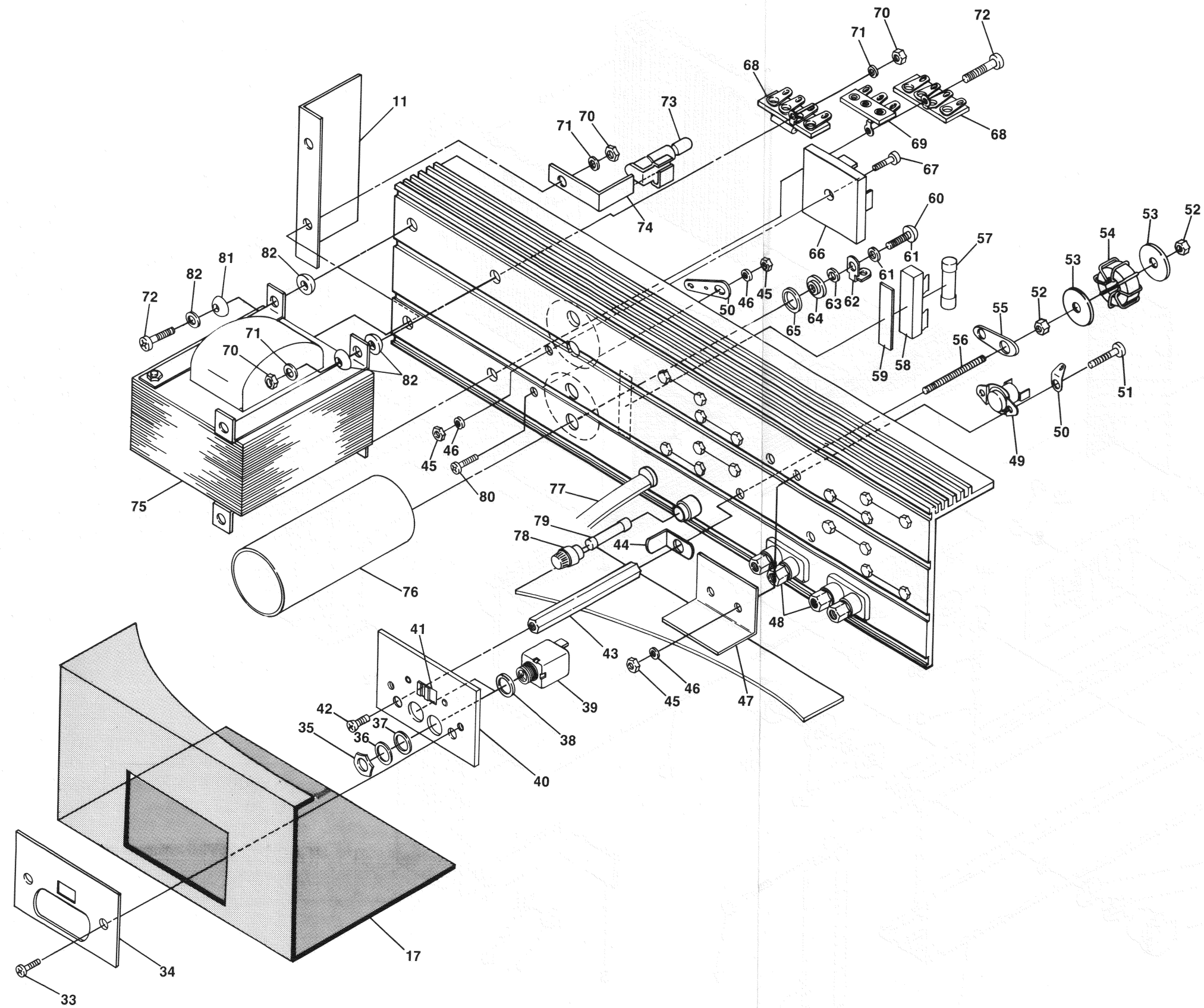


Fig. 6.17 Chassis Assembly

Parts List: D-150A Chassis Assembly

Index No.	Schematic Designation	Description	Crown Part No.	Qty.	Other Information
33		T8 32 .25 Machine Screw	C 2271-2	2	
34		Dress Plate	F 9594J6	1	
35		.375 Bright Nut	C 1288N7	2	
36		.625x.375x.030 Bright Washer	C 2189-6	2	
37		.625x.375x.015 Fiber Washer	C 1646-6	2	
38		.375 Fiber Shoulder Washer	C 1306-7	2	
39		2 Conductor Phone Jack	C 3423-8	2	
40		Jack Plate	F 9595J3	1	
41	SW3	DPDT Slide Switch	C 4110-0	1	
42		F8-32 .23 Machine Screw	C 2136-7	2	
43		Hex Standoff	D 3961-6	2	
44		Solder Lug #8 Hole	D 2935-1	2	
45		6-32 Hex Nut	C 1889-2	19	
46		#6 Internal Starwasher	C 5594-4	19	
47		Board Mount Bracket	F 9562-4	1	
48		Dual Binding Post	C 2823-0	2	
49		SPSTNC Thermal Switch	C 2799-2	1	
50		505 Solder Lug #6 Hole	D 3163-9	8	Misc. use
51		R6 32 .62 Machine Screw	C 3879-1	2	
52		8-32 Hex Nut	C 1986-6	2	
53		.875x.187 Fiber Washer	D 3669-1	4	
54		Output Inductor Assembly	M40959-5	2	
55		Solder Lug #8 Hole	D 2935-1	1	
56		8-32x1.75 Stud Screw	C 3324-8	2	
57	F2	MDX 7 Amp Fuse	C 4385-8	1	
58		Fuse Block	C 3776-9	1	
59		Pressure Sensitive Tape	S 1152-8	-	
60		T10 32 .50 Machine Screw	C 2049N2	4	
61		#10 Internal Star Washer	C 2279-5	8	
62		389 Solder Lug .218 Hole	D 2934-4	4	
63		.625x.234x.047 Steel Washer	C 4917-8	4	
64		5-16 Fiber Shoulder Washer	C 3320-6	4	
65		.730x.525x.187 Nylon Washer	C 1657-3	4	
66		MDA 3502 35A Bridge	C 4305-6	1	
67		R6 32 1.00 Machine Screw	C 2138-3	1	
68		2-G-1 Terminal Strip	D 3323-9	2	
69		3H2A Terminal Strip	D 5366-6	1	
70		10-32 Hex Nut	C 2170-6	4	
71		#10 Internal Star Washer	C 2279-5	8	
72		T10 32 .50 Machine Screw	C 2049N2	4	
73	L1	Lamp 1822 36V .1A	C 2900-6	1	On/off indicator
74		Lamp Bracket	F 9598-8	1	
75	T1	D-150A Power Transformer	D 4380-8	1	
76	C2, C3	9,400mF 50V	C 3309-9	2	
77		3-18 Power Cord	H40960-9	1	
78		HTA Fuseholder	C 3256-2	1	
79	F1	MDX 6.25 Amp Fuse	C 4307-2	1	
80		R6 32 .37 Machine Screw	C 2134C6	1	
81		Grommet .375 Grooved	C 1566-6	6	
82		#8 Type Plain Washers	C 2101-1	6	

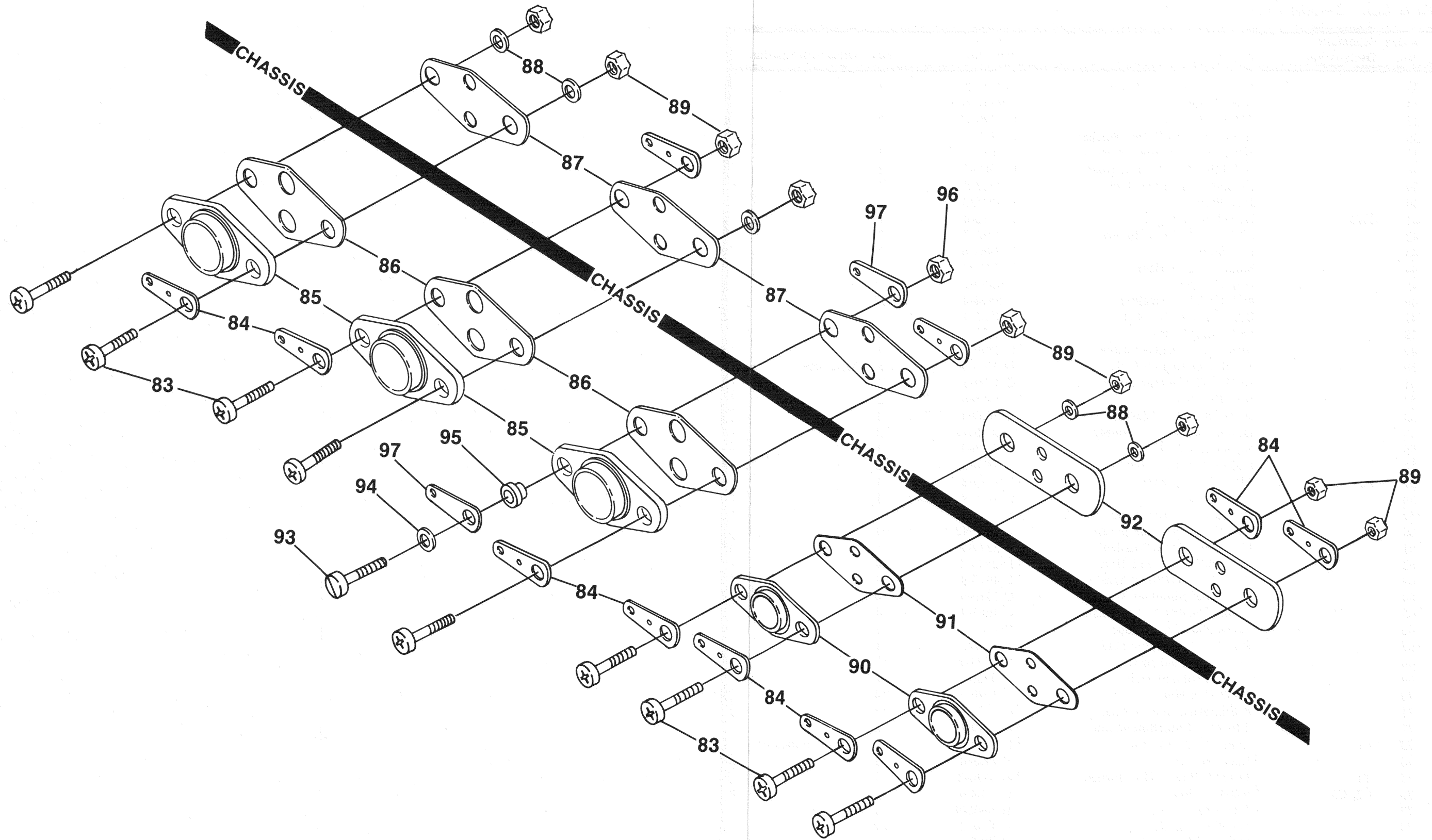


Fig. 6.18 Output Assembly

Parts List: Output Assembly

Index No.	Schematic Designation	Description	Crown Part No	Qty.	Other Information
83		R6 32 .62 Machine Screw	C 3879-1	9	
84		Solder Lug #6 Hole	D 3163-9	13	
85	Q110, Q210, Q114, Q214	2N5631 100V	C 3990-6	4	Outputs
86		Shoulder Insulator	C 4039-1	4	
87		T03 Insulator	D 4071-3	4	
88		#6 Internal Star Washer	C 5594-4	13	
89		6-32 Hex Nut	C 1889-2	13	
90	Q109, Q209, Q113, Q213	Sel 2N3585 NPN	D 3295-9	4	Drivers
91		TO-66 Aluminum Wafer	C 4352-8	4	
92		TO-66 Insulator	D 4113-3	4	
93		R440 .62 Machine Screw	C 3334-7	1	
94		#4 Internal Starwasher	C 1824-9	1	
95		Nylon Shoulder Washer	C 3335-4	1	
96		4-40 Hex Nut	C 1938-7	1	
97		Solder Lug .144 Hole	D 1220-9	2	

Parts List: Miscellaneous Assembly

Index No.	Schematic Designation	Description	Crown Part No.	Qty.
98	R133, R233	2.7 ohm 1W	C 1001-4	2
99	R132, R232, R134, R234	.1 ohm 5W	C 4761-0	4
100	C116, C216, C8	.1mF 200V Filmatic	C 2938-6	3
101	C115, C215	.22mF 100V Filmatic	C 3218-2	2

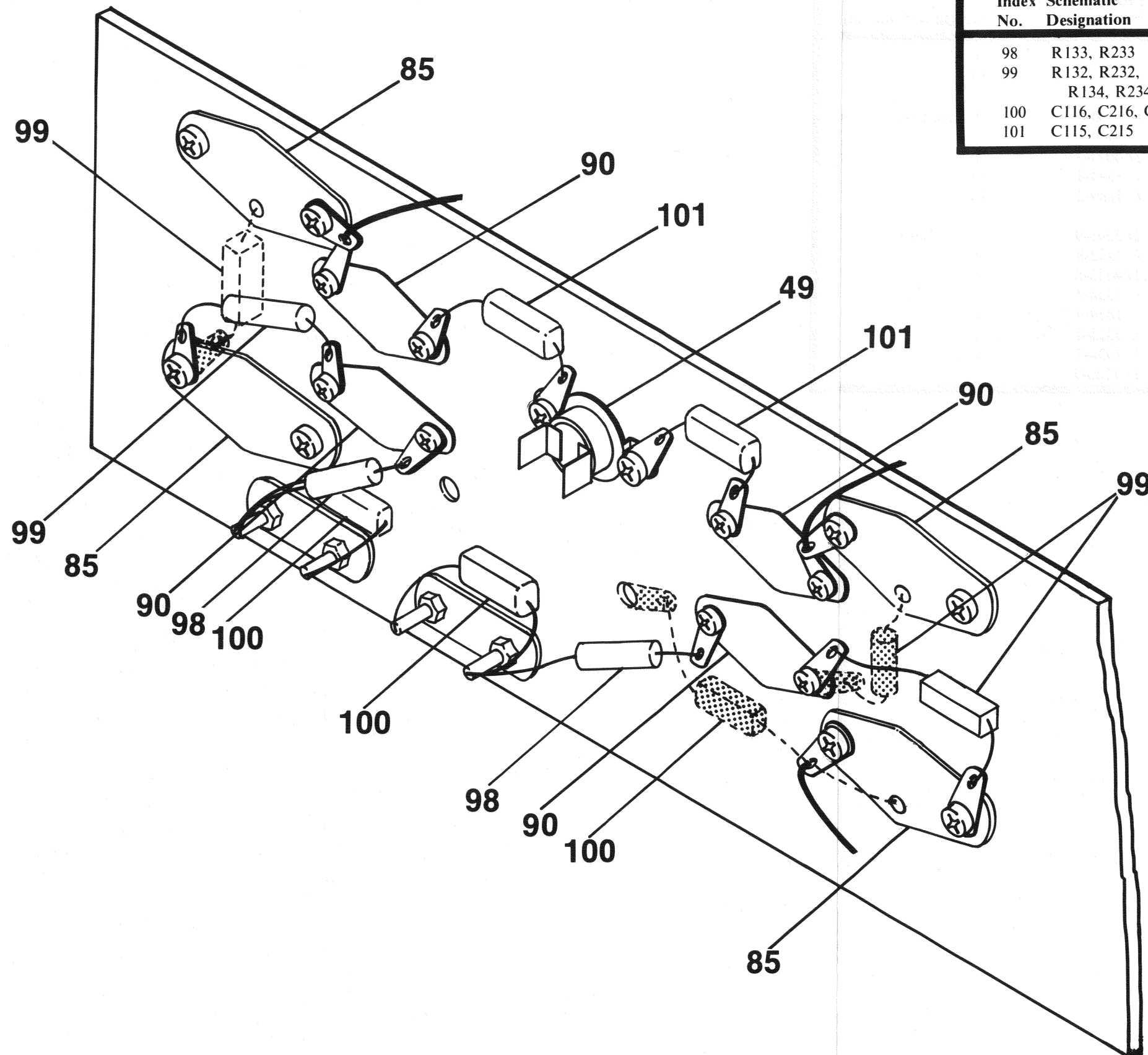


Fig. 6.19 Miscellaneous Assembly