The Citation Twelve/Citation Twelve Deluxe

Professional 120 Watt Stereophonic Basic Power Amplifier

Technical Manual

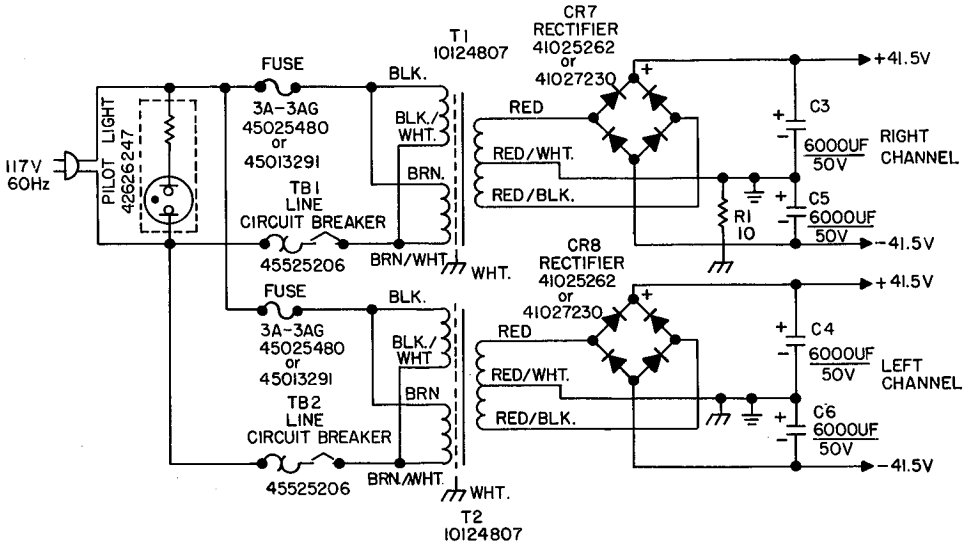
harman/kardon

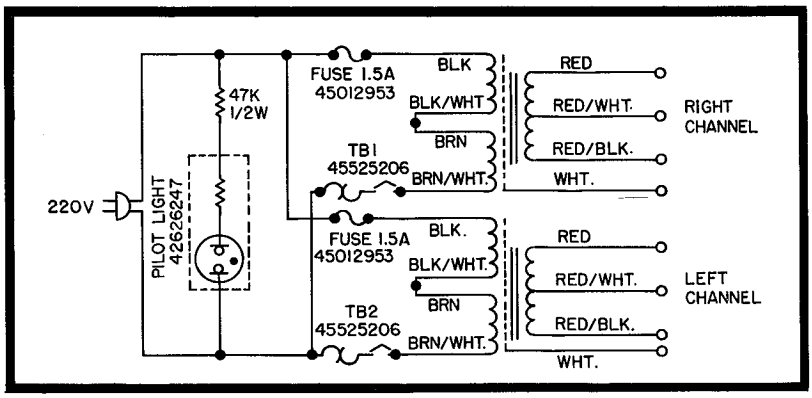
REPLACEMENT PARTS

CIRCUIT REF.	DESCRIPTION	HK PART NO.
	CAPACITORS	
C1, C2	Cap, Lytic, 250 UF/15V	31518874
C3, C4	Cap, Lytic, 6000 UF/50V	31524564
C5, C6	Cap, Lytic, 6000 UF/50V	31524564
C7, C8	Cap, Disc, .001 UF ±10% 500V	30418317
C9, C10	Cap, Disc, .01 UF +80%-20% 100V	30418491
C11-C700	Not Used	
C701, C702	Cap, Disc, 68 PF ±10%	31722086
C703, C704	Cap, Lytic, 50 UF/50V	31818875
C705, C706	Cap, Lytic, 50 UF/50V	31818875
C707, C708	Cap, Lytic, 250 UF/6V	31818876
C709, C710	Cap, Disc, 150 PF ±10%	31818873
C711, C712	Cap, Lytic, 50 UF/50V	31818875
C713, C714	Cap, Mylar, 0.1 UF/100V	31918784
	DIODES	
CR1, CR2	Diode, 2A/100V	41020618
CR3, CR4	Diode, 2A/100V	41020618
CR5, CR6	Diode, Bias (double)	41624214
CR7, CR8	Rectifier, Full Wave Bridge	41025262
CR9-CR700	Not Used	
CR701	Diode, 2A/100V	41020618
CR702	Diode, 2A/100V	41020618
	COILS	
L1-L700	Not Used	
L701, L702	Choke, 3UH, 0.1Ω, 5A	12025263
	TRANSISTORS	
Q1, Q2	Output	43024216
Q3, Q4	Output	43024216
Q5-Q700	Not Used	
Q701, Q702	Differential Amplifier	43024217
Q703, Q704	Pre-Driver	43024306
Q705, Q706	Driver	43024219
Q707, Q708	Bias	43023221
Q709, Q710	Driver	43024218
	RESISTORS	
R1	Carbon Comp, 10Ω ±10%, 1/2W	33311001
R2-R700	Not Used	
R701, R702	Carbon Comp, 2.7K ±10%, 1/2W	33312721
R703, R704	Carbon Comp, 33K ±10%, 1/2W	33313331
R705, R706	Carbon Comp, 8.2K ±10%, 1/2W	33318221
R707, R708	Carbon Comp, 180Ω ±10%, 1/2W	33311811
R709, R710	Carbon Comp, 390Ω ±10%, 1/2W	33313911
R711, R712	Carbon Comp, 1.8K ±10%, 1/2W	33311821
R713, R714	Carbon Comp, 33K ±10%, 1/2W	33313331
R715, R716	Variable, 4.7K/5K Bias Adj.	23523280
R717, R718	Carbon Comp, 5.6K ±10%, 1/2W	33315621
R719, R720	Carbon Comp, 3.9K ±10%, 1/2W	33315621
R721, R722	Carbon Comp, 3.3Ω ±10%, 1/2W	33313371
R723, R724	Carbon Comp, 100Ω ±10%, 1/2W	33311011
R725, R726	Carbon Comp, 10Ω ±10%, 1W	33411001
R727, R728	Carbon Comp, 100Ω ±10%, 1/2W	33311011
R729, R730	Carbon Comp, 180Ω ±10%, 1/2W	33311811
R731, R732	Wire Wound, 0.27Ω ±10%, 5W	36712781
R733, R734	Carbon Comp, 10Ω ±10%, 1W	33411001
R735, R736	Wire Wound, 0.27Ω ±10%, 5W	36712781
R737, R738	Carbon Comp, 27Ω ±10%, 2W	33512701
	TRANSFORMERS	
T1, T2	Power	10124807
	FUSES AND CIRCUIT BREAKERS	
	Fuse, Line, 3A-3AG	45025480
	Circuit Breaker, Line	45525206
	Circuit Breaker, Output	45524399
	MISCELLANEOUS	
	P. C. Board Ass'y - Type 1*	00124368
	P. C. Board Ass'y - Type 2*	00126203
	P. C. Board (Without Components) Type 1*	28024369
	P. C. Board (Without Components) Type 2*	28026204
	Pilot Light Ass'y	47626247
	Front Escutcheon	63026236
	Input Jack	65422585
	Insulator, Input Jack	65422586
	Fuse Holder W/Hardware	65413750
	Binding Post, Speaker	65418195
	Line Cord, 18 A.W.G., 7'	53021115
	Heat Sink	60225138
	Top Cover, Painted	60124811
	Rubber Foot	62025398
	Decorative Strip, Black, Self Adhesive	62425399
	Socket, Output Transistor	66024275
	Terminal, Turret	64025260
	Washer, Mica (For Turret Terminal)	85525205
	Washer, Nylon (For Turret Terminal)	61624713
	Washer, Mica (For Output Transistor)	85520110
	Installation and Operation Manual	90727985
	Technical Manual	90728912

*See Page 5

POWER SUPPLY SCHEMATIC-CITATION® TWELVE





NOTES:

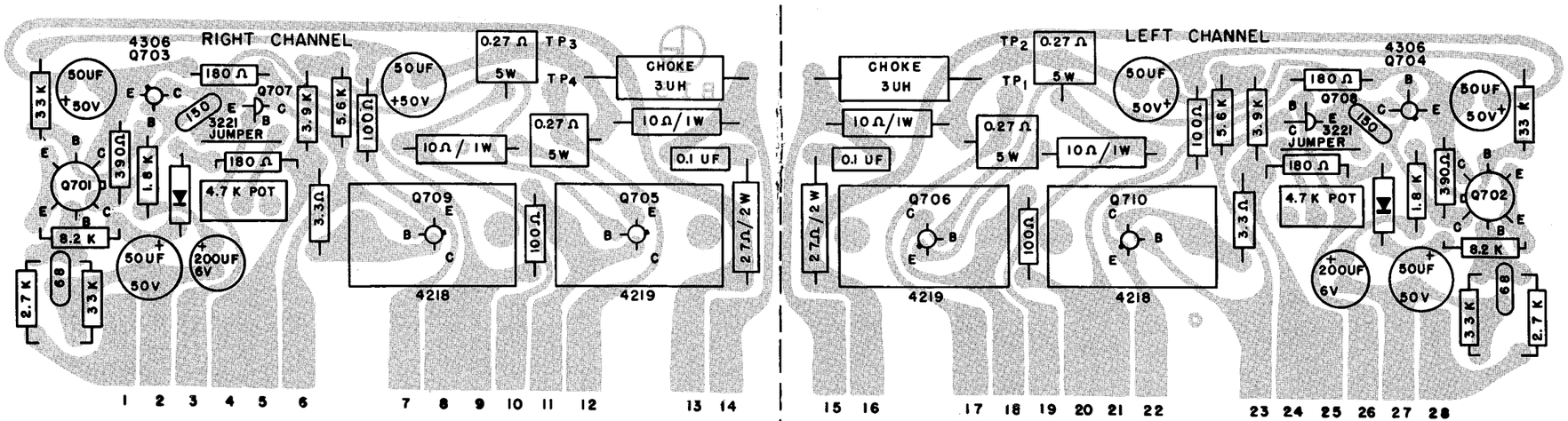
1. UNLESS OTHERWISE INDICATED:
   - A. RESISTOR VALUES ARE IN OHMS ±10%, 1/2W
   - B. CAPACITOR VALUES ARE IN MICROFARADS
   - C. D.C. VOLTAGES MEASURED AT "O" SIGNAL, NO LOAD, 117V LINE
2. SET BIAS ADJUST POTS FOR 40MA ±10MA IDLING CURRENT IN OUTPUT TRANSISTORS (.008V-.013V BETWEEN TP-1 AND TP-2 AND TP-3 AND TP-4).
3. FOR USE IN AREAS WHICH REQUIRE 50 HERTZ, 220 VOLT CURRENT, THE AMPLIFIER MUST BE MODIFIED IN THE FOLLOWING MANNER. IT IS ADVISABLE TO HAVE THIS MODIFICATION MADE BY A COMPETENT SERVICE TECHNICIAN.
   - A. 220 VOLT, 50 HERTZ CONVERSION INVOLVES THE REWIRING OF TWO WIRES PER CHANNEL.
   - B. REMOVE BOTTOM PLATE OF AMPLIFIER.
   - C. LOCATE BLACK AND BROWN WIRES ATTACHED TO FUSE POST. UNSOLDER BROWN WIRE ONLY. BLACK WIRE REMAINS ON FUSE POST.
   - D. LOCATE BLACK/WHITE WIRE ON THE LUG STRIP DIRECTLY BEHIND THE FUSE POST AND UNSOLDER FROM LUG STRIP.
   - E. JOIN THE BLACK/WHITE WIRE YOU HAVE JUST REMOVED WITH THE BROWN WIRE PREVIOUSLY REMOVED FROM THE FUSE POST AND SOLDER TOGETHER TO THE VACANT LUG PROVIDED ON THE LUG STRIP.
   - F. REPEAT EXACT PROCEDURE FOR OTHER CHANNEL.
   - G. REPLACE 3A-3AG FUSE SUPPLIED WITH CITATION TWELVE FOR 117 VOLT, 50-60 HERTZ OPERATION WITH 1.5A-3AG FUSE FOR 220 VOLT, 50-60 HERTZ OPERATION.
   - H. REPLACE BOTTOM PLATE.

P. C. BOARDS

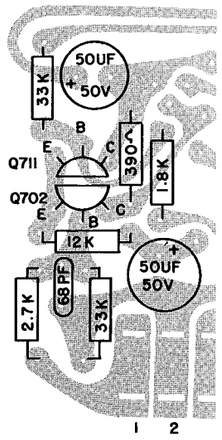
NOTE:

EITHER A TYPE 1 OR TYPE 2 P. C. BOARD MAY HAVE BEEN USED IN YOUR CITATION TWELVE. THEY ARE ELECTRICALLY IDENTICAL THOUGH THEY HAVE DIFFERENT COPPER LAYOUTS. THEY MAY BE USED INTERCHANGEABLY. PARTS ORDERS REQUESTING ONE TYPE MAY BE FILLED WITH THE OTHER WITHOUT NOTICE.

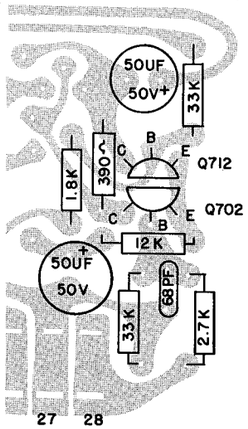
TYPE 1



REVISED SECTION



REVISED SECTION

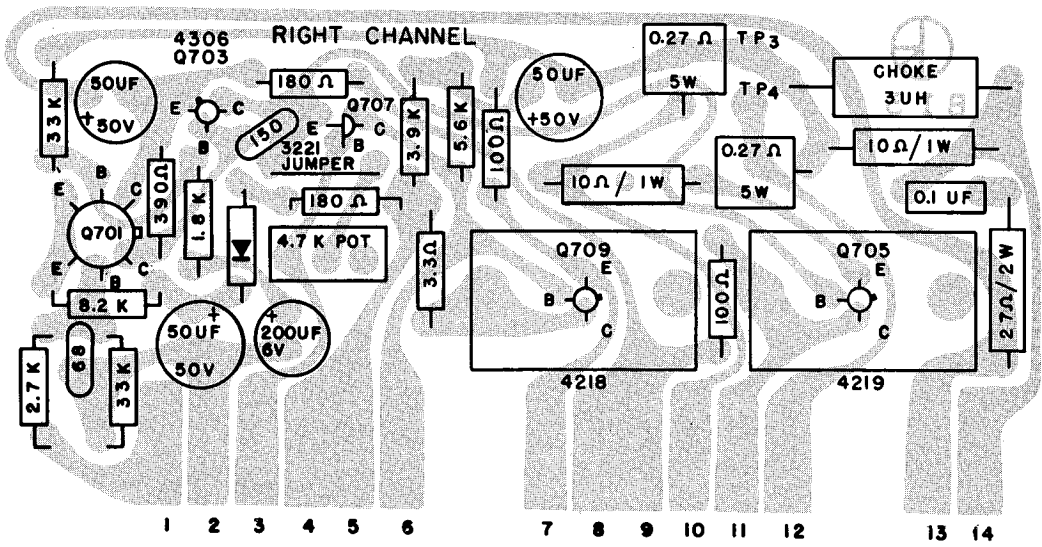


TYPE 2

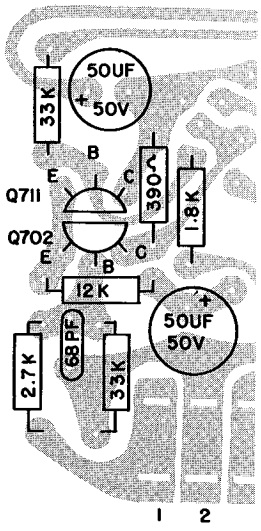
P. C. BOARDS

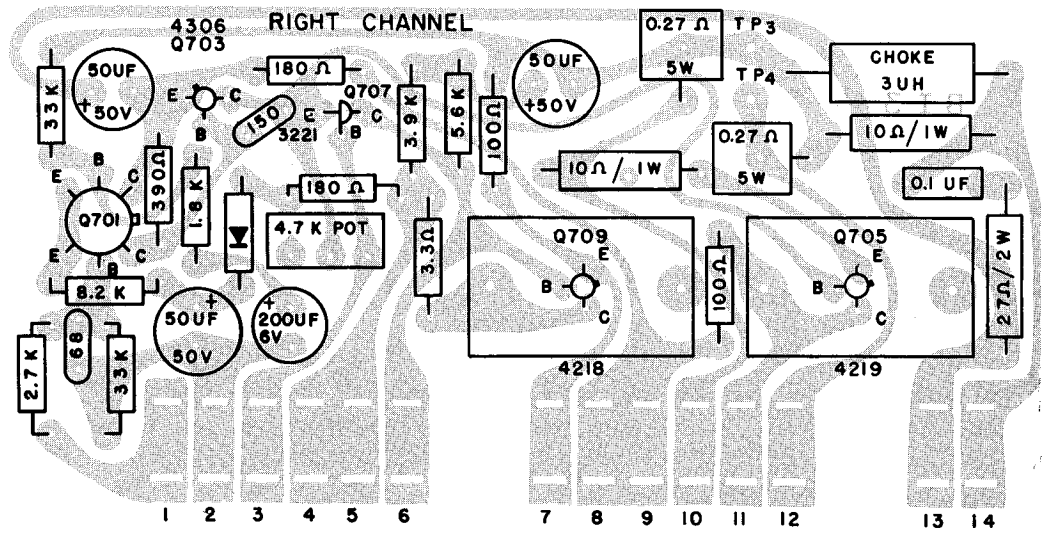
NOTE:

EITHER A TYPE 1 OR TYPE 2 P. C. BOARD MAY HAVE BEEN USED IN YOUR CITATION TWELVE. THEY ARE ELECTRICALLY IDENTICAL THOUGH THEY HAVE DIFFERENT COPPER LAYOUTS. THEY MAY BE USED INTERCHANGEABLY. PARTS ORDERS REQUESTING ONE TYPE MAY BE FILLED WITH THE OTHER WITHOUT NOTICE.

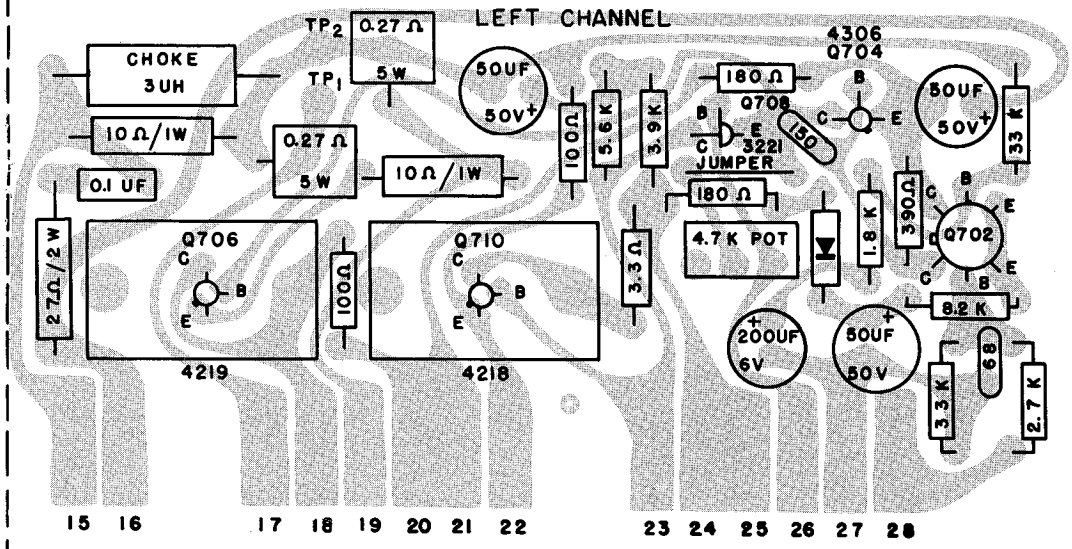


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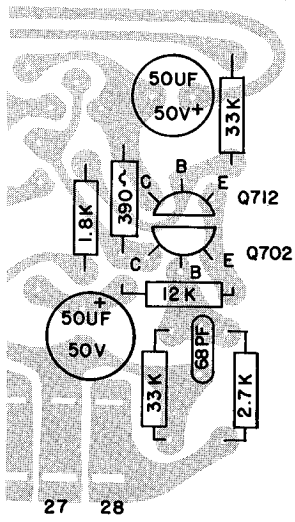


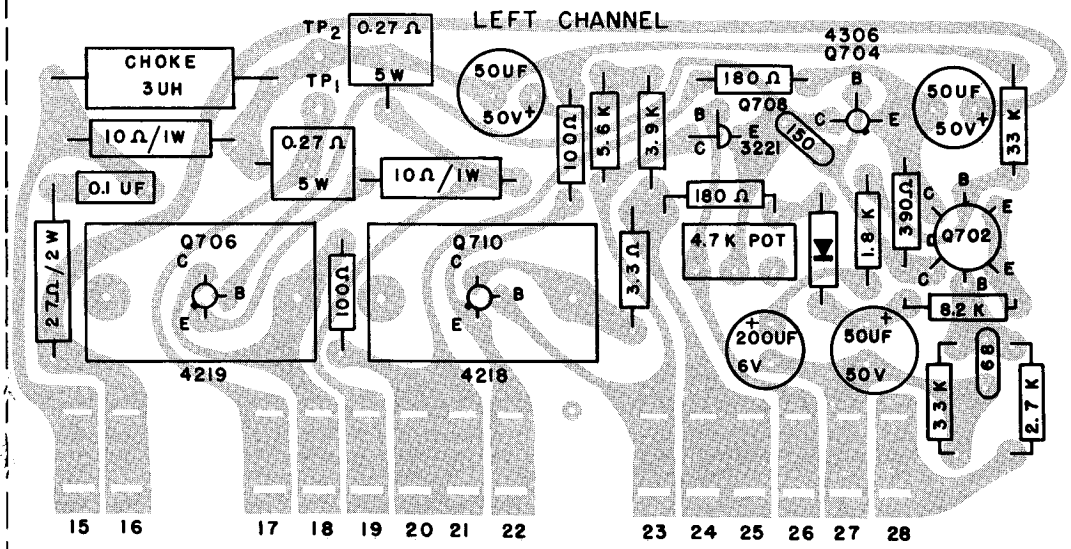


TYPE 1



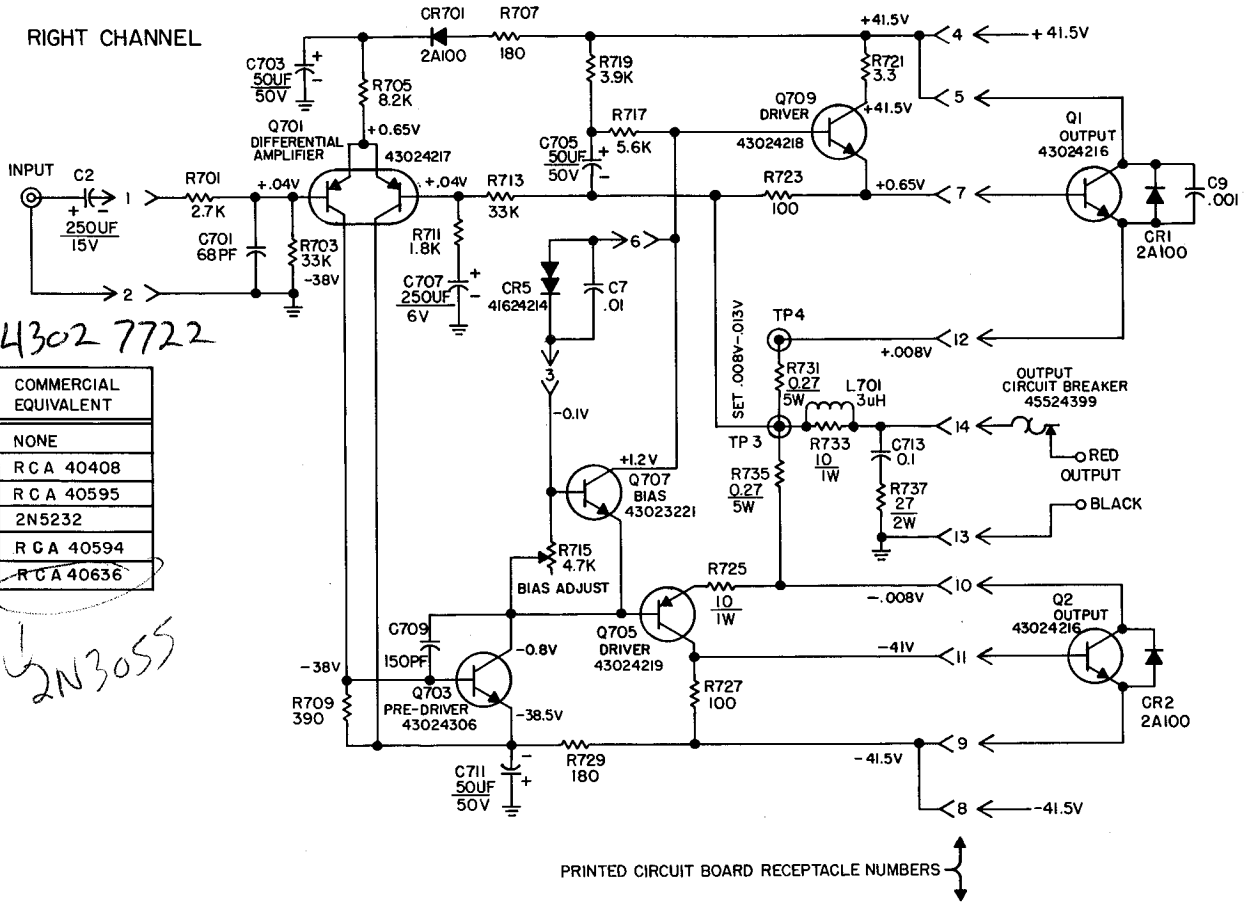
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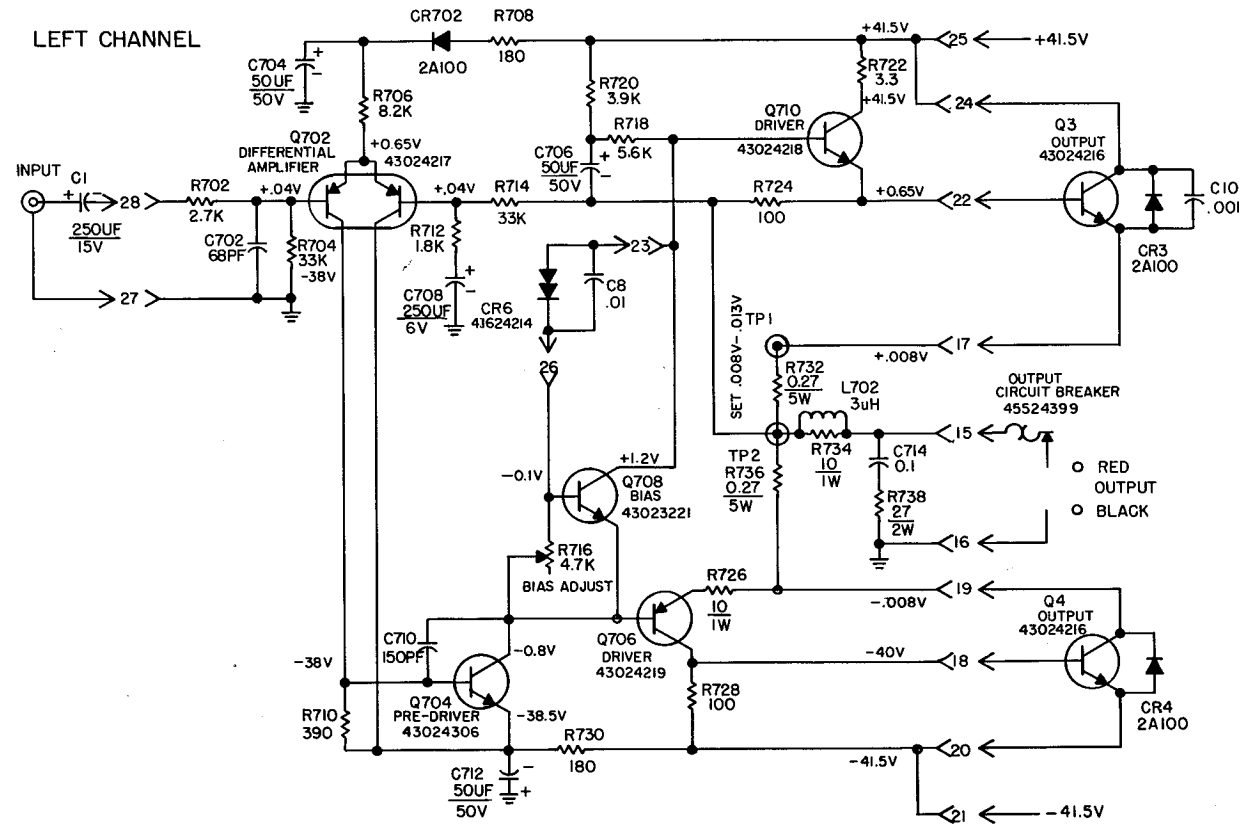
TYPE 2

SCHEMATIC-CITATION ® TWELVE



4302 7722

Q NUMBER	H. K. PART NUMBER	COMMERCIAL EQUIVALENT
701, 702	43024217	NONE
703, 704	43024306	RCA 40408
705, 706	43024219	RCA 40595
707, 708	43023221	2N5232
709, 710	43024218	RCA 40594
1, 2, 3, 4	43024216	~~RCA 40636~~ 2N3055



ADDENDUM TO
CITATION TWELVE TECHNICAL MANUAL

WHEN ORDERING REPLACEMENT PARTS, THESE NUMBERS SUPERSEDE ALL OTHER NUMBERS.

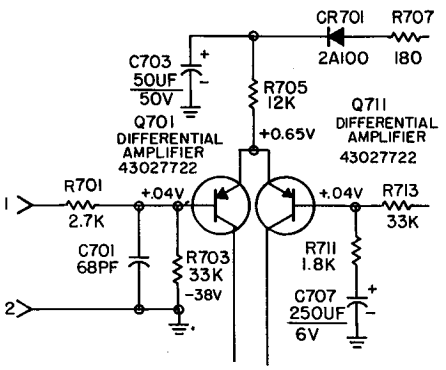
REPLACEMENT PARTS

CIRCUIT REF.	DESCRIPTION	HK PART NO.
	DIODES	
CR7, CR8	Rectifier, Full Wave Bridge	41027230
	TRANSISTORS	
Q701, Q702,	Differential Amplifier	43027722
Q711, Q712	Differential Amplifier	43027722
	RESISTORS	
R705, R706	Carbon Comp. 12K ±10% ½W	3331231

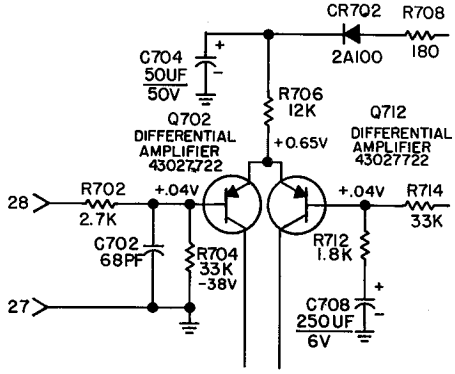
DESCRIPTION	HK PART NO.
FUSES AND CIRCUIT BREAKER	
Fuse, Line 3A-3AG	45013291
MISCELLANEOUS	
Fuse Holder w/Hardware	65427001
Line Cord	53026355
Rubber Foot	62011692

REVISED SCHEMATIC SECTIONS

RIGHT CHANNEL REVISED SECTION



LEFT CHANNEL REVISED SECTION



REVISED TRANSISTOR CHART

Q NUMBER	H.K. PART NUMBER	COMMERCIAL EQUIVALENT
701, 702	43027722	2N~~5807~~ 5087
703, 704	43024306	RCA 40408
705, 706	43024219	RCA 40595
707, 708	43023221	2N5232
709, 710	43024218	RCA 40594
711, 712	43027722	2N5807
1, 2, 3, 4	43024216	RCA 40636

NOTE: ALSO SEE REVISED SECTION ON P.C. BOARD (PAGE 4 & 5)

CITATION TWELVE DELUXE

THE FOLLOWING MODIFICATIONS ARE TO BE MADE FOR THE CITATION TWELVE DELUXE ONLY.

1. Make the following changes in the "Replacement Parts" List

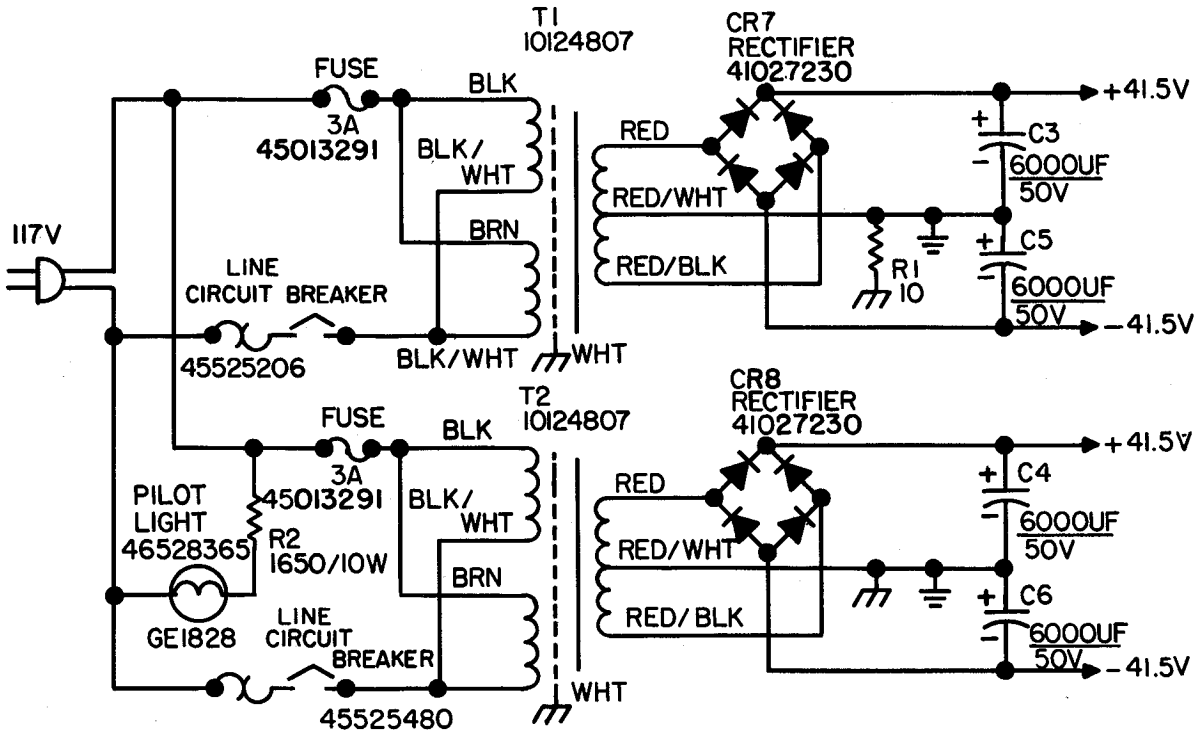
   a) Under "Resistors"
   Line 2 add R2 1.65K 10W 10% 36928630
   Line 3 change to R3-R700 not used

   b) Under "Miscellaneous"
   Line 5 Remove Pilot Light Assy 47626247
   Line 6 Change Front Escutcheon part no. to 63028345
   C302P245

   Add:

Pilot Lamp	46528365
Pilot Light Jewel	61626346
Light Shield	61228359
Rear Dress Plate	63028348
Walnut Cabinet	63628339
Vent Panel Top	60128346
Vent Panel Bottom	60128347
Rubber Feet	62018261

2. The schematic on page 3 is modified as shown below.



3. Check with factory for conversion rewiring for 220 volt, 50 Hz.