

NO 1-52
 AMPLIFIER
 105A
 2-6-39

GENERAL

A GENERAL PURPOSE, THREE-STAGE, HIGH GAIN, PROGRAM AMPLIFIER WITH SELF-CONTAINED AC POWER SUPPLY INTENDED FOR USE AS THE MAIN AMPLIFIER IN STUDIO SPEECH INPUT EQUIPMENTS FOR RADIO TELEPHONE BROADCASTING. IT IS CAPABLE OF AMPLIFYING THE OUTPUT OF A SINGLE DYNAMIC MICROPHONE, OR MICROPHONE MIXING SYSTEM USING 104 TYPE AMPLIFIERS, TO A LEVEL SUFFICIENT FOR USE WITH A RADIO TRANSMITTER OR TELEPHONE LINE.

ELECTRICAL CHARACTERISTICS

GAIN..... APPROX. 70 DB (76 DB IF ISOLATION PAD IN OUTPUT CIRCUIT IS REMOVED).
 GAIN CONTROL..... 19 STEPS (2 DB EACH) AND "OFF".
 OPERATES FROM..... 30 OHMS, TERM'S. 3-4. 500-600 OHMS, TERM'S. 1-2.
 INTERNAL INPUT IMPEDANCE.. 30 OR 600 OHMS.
 OPERATES INTO..... 600 OHMS, TERM'S. 7 AND 8.
 INTERNAL OUTPUT IMPEDANCE. 600 OHMS.
 OUTPUT POWER..... APPROX. 151 MW. (+ 14 DB LEVEL) FOR LESS THAN 1% TOTAL HARMONIC DISTORTION WITH 6 DB PAD IN CIRCUIT (0 DB = 6 MW.)
 NORMAL OUTPUT LEVELS..... +4, 0 & -6 DB (+10, +6 & 0 DB, PAD REMOVED)
 OUTPUT NOISE..... APPROX. -65 DB W'T'D., -55 DB UNW'T'D.
 MONITOR OUTPUT..... SEE SCHEMATIC. VOLTAGE APPROX. 20 DB BELOW MAIN OUTPUT AT INPUT TO PAD. INTERNAL INPUT IMPEDANCE APPROX. 40 OHMS.
 POWER SUPPLY..... 105-125 V. 50-60 CYCLE AC. MAX. 52 WATTS. FUSE FOR 3/4 TO 1 AMP.

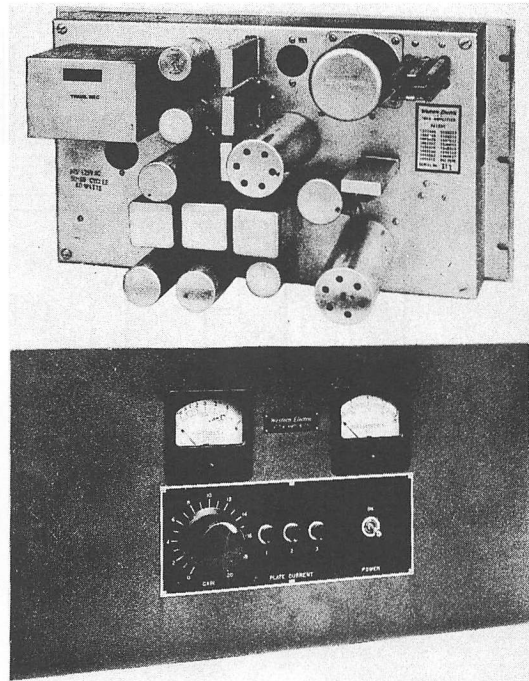
NOTE: THIS AMPLIFIER WILL SUPPLY FILAMENT POWER AND FILTERED PLATE CURRENT FOR THE OPERATION OF 6 - 104 TYPE AMPLIFIERS. IN ADDITION 10 MA. UNFILTERED PLATE CURRENT AT 275 V. IS AVAILABLE.

VACUUM TUBES (MUST BE ORDERED SEPARATELY)

FIRST STAGE... 1-262B VACUUM TUBE THIRD STAGE... 1-336A VACUUM TUBE
 SECOND STAGE.. 1-310B VACUUM TUBE RECTIFIER..... 1-274A VACUUM TUBE

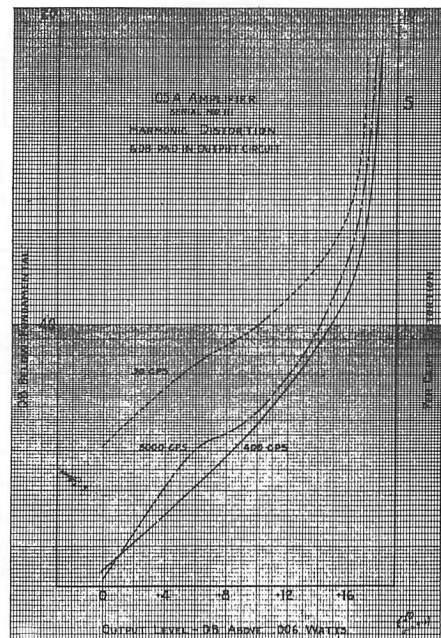
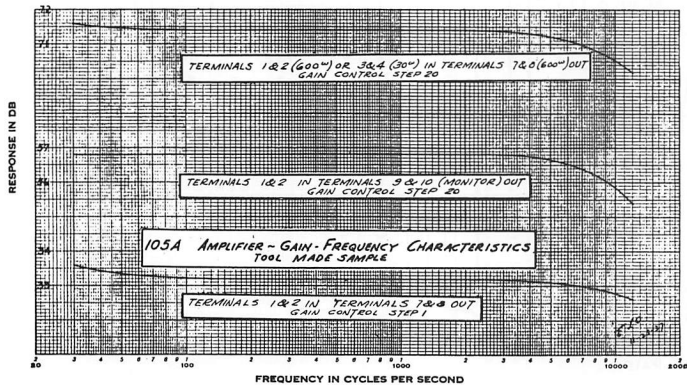
EQUIPMENT CHARACTERISTICS

WEIGHT..... APPROX. 28 LBS.
 CONSTRUCTION.. RECESSED TYPE STEEL PANEL WITH REMOVABLE MAT.
 SIZE..... MAT 19-1/8" W. X 10-1/2" H. APPARATUS EXTENDS MAX. 8" FROM REAR AND 1-3/4" FROM FACE OF MAT. MAT 3/32" THICK.
 MOUNTING..... STD. RELAY RACK OR EQUIP'T. CABINET (MTG. SCR'S. FURNISHED).
 FINISH..... CHASSIS - ALUMINUM LACQUER. MAT - REAR, ALUMINUM LACQUER; FRONT AND EDGES, BLACK JAPAN (CODED 105A-3 AMPLIFIER) OR ALUMINUM GRAY LACQUER (CODED 105A-15).
 METERS..... A VOLUME INDICATOR AND A PLATE CURRENT METER ARE FURNISHED UNLESS OTHERWISE SPECIFIED. APPARATUS BLANKS ARE AVAILABLE WHEN THESE METERS ARE NOT REQUIRED. THESE MAY BE ORDERED AS FOLLOWS: 2 - COVERS PER ESO-611812-4 (GRAY FINISH) OR ESO-611812-5 (BLACK FINISH).

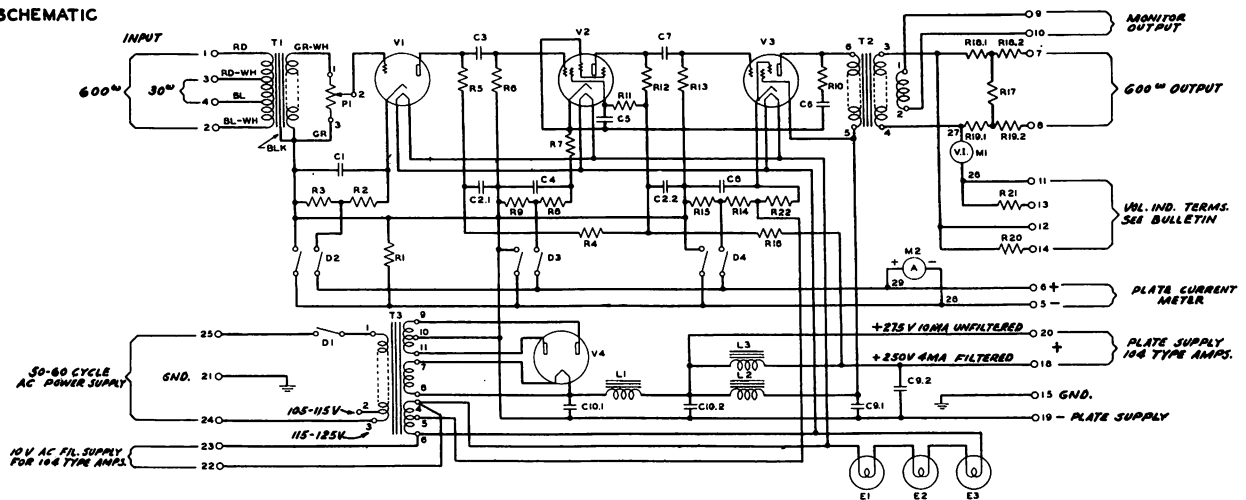


REFERENCES

- ESR-611433..... ASSEMBLY
- ESR-611434..... PANEL ASSEMBLY
- ESO-611786..... SCHEMATIC
- ESX-611831..... WIRING DIAGRAM
- ESA-743565..... GAIN VS. FREQUENCY CHARACTERISTICS.
- E5A-743578..... POWER OUTPUT VS. DISTORTION
- INSTRUCTION BULLETIN NO. 878
- PHOTOGRAPHS NOS. 78827, 78613, 78614, 78615



SCHEMATIC



DESIGNATION

APPARATUS

T1	285L INPUT TRANSFORMER
T2	185A OUTPUT TRANSFORMER
T3	360C TRANSFORMER
L1, L2	221H RETARDATION COILS
L3	221A RETARDATION COIL
C3	D-95423 COND. 0.1 MF.
C5, C6, C7	230A COND. 0.4 MF.
C1, C8	CORNELL DUB. MA-13358-PE EL. COND. 50 MF. 25 V. DC. W.V.
C2.1, C2.2	CORNELL DUB. MA-13257-PE EL. COND. 8-8 MF. 450 V. DC. W.V.
C9.1, C9.2	CORNELL DUB. MA-13438-PE EL. COND. 100 MF. 12 V. DC. W.V.
C10.1, C10.2	CORNELL DUB. MA-13438-PE EL. COND. 100 MF. 12 V. DC. W.V.
R17	180F RESISTANCE - 800 OHMS
R18.1, R18.2	197G RESISTANCES - 100-100 OHMS
R19.1, R19.2	100-100 OHMS

DESIGNATION

APPARATUS

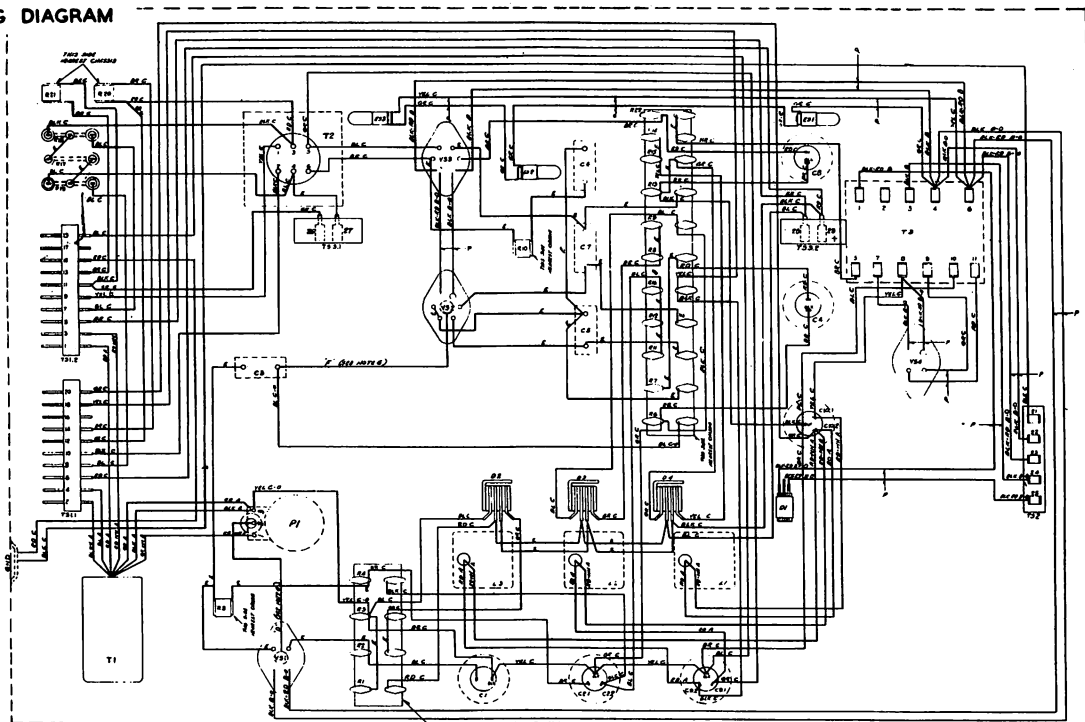
I.R.C. TYPE BT-1 RESISTANCES	
R1	100,000 OHMS ± 10%
R2	4,000 OHMS ± 5%
R4	60,000 OHMS ± 10%
R6	0.5 MEGOHM ± 10%
R11	1.0 MEGOHM ± 5%
R12	0.25 MEGOHM ± 10%
R13	0.25 MEGOHM ± 10%
R16	15,000 OHMS ± 10%
I.R.C. TYPE BW-1 RESISTANCES	
R3	111 OHMS ± 5%
R7	500 OHMS ± 2%
R8	2,000 OHMS ± 5%
R9	111 OHMS ± 5%
R14	300 OHMS ± 5%
R15	5 OHMS ± 5%
R22	160 OHMS ± 5%

DESIGNATION

APPARATUS

I.R.C. TYPE WW-3 RESISTANCES WITH LUGS	
R5	100,000 OHMS
R10	140,000 OHMS
R20	5,800 OHMS
R21	5,000 OHMS
P1	DAVEN POT. 75,000 OHMS PER ESA-612056, "POT. NO. 1."
D1	H.&H. 20994-DQ SWITCH WITH 1/2" MTC. SLEEVE WITH 8 HEX. NUTS
D2, D3, D4	TAYLEY MFG. CO. #2004 PUSH BUTTON SWITCHES
E1, E2, E3	MAZDA #4E PILOT LAMPS, 3.8 V.
ESL, ES2, ES3	AM. RADIO HARDW. CO. #38A LAMP SOCKETS
VS1, VS4	EBY 33-11-AA V.T. SOCKETS PER KS-7741
VS2, VS3	EBY 33-11-C V.T. SOCKETS PER KS-7741
M1	KS-7992 VOLUME INDICATOR METER
M2	KS-10003 METER

WIRING DIAGRAM



- NOTES:
- WIRES MARKED "A" ARE FURNISHED AS PART OF APPARATUS AND SHALL BE SECURELY LACED TOGETHER AFTER APPARATUS IS WIRED.
 - WIRES MARKED "B" ARE NO. 16 AWG SOLID WIRE PER KS-7612.
 - WIRES MARKED "C" ARE NO. 22 AWG SOLID WIRE PER KS-7612.

- WIRES MARKED "D" IS ITEM 25B - ESR-611434.
- WIRES MARKED "E" ARE STRAP WIRES PER P-311746 AND ARE OPEN FORMED.
- WIRES MARKED "F" IS ITEM 22B ESR-611434.
- WIRES MARKED "G" ARE OPEN FORMED WIRES.
- WIRES MARKED "H" ARE TWISTED PAIR.
- APPARATUS DESIGNATIONS ARE FOR REFERENCE ONLY AND DO NOT APPEAR ON APPARATUS.