

No. 103-A AMPLIFIER

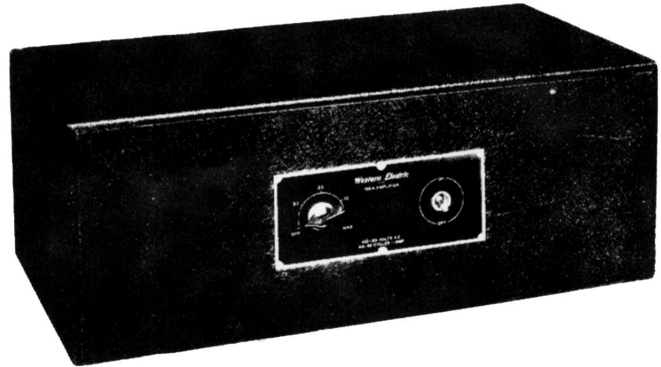
COMMERCIAL PRODUCTS
APPARATUS REFERENCE SHEET

NO 1-9
AMPLIFIER
103 A

4-28-37

ELECTRICAL CHARACTERISTICS

GAIN - - - - - MAX. 58db
OPERATES FROM - - - - - 200 OHMS
INTERNAL INPUT IMPEDANCE - - - 500 OHMS
OPERATES INTO - - - - - 8 OR 500 OHMS
INTERNAL OUTPUT IMPEDANCE - - - 1/2 OF LOAD IMPEDANCE
OUTPUT POWER - - - - - 8 WATTS, 5% HARMONIC DISTORTION
OUTPUT NOISE - - - - - 50db UNWEIGHTED
POWER SUPPLY - - - - - 105-125 VOLTS, AC 45-65 CYCLES, 75 WATTS. SHOULD BE FUSED FOR 1 AMPERE.
A D.C. VOLTAGE 14-60 VOLTS IS REQUIRED TO OPERATE THE RELAY IN THIS AMPLIFIER.
GAIN CONTROL - - - - - A 500 OHM POTENTIOMETER IS PROVIDED. 40db CONTINUOUS VARIATION.

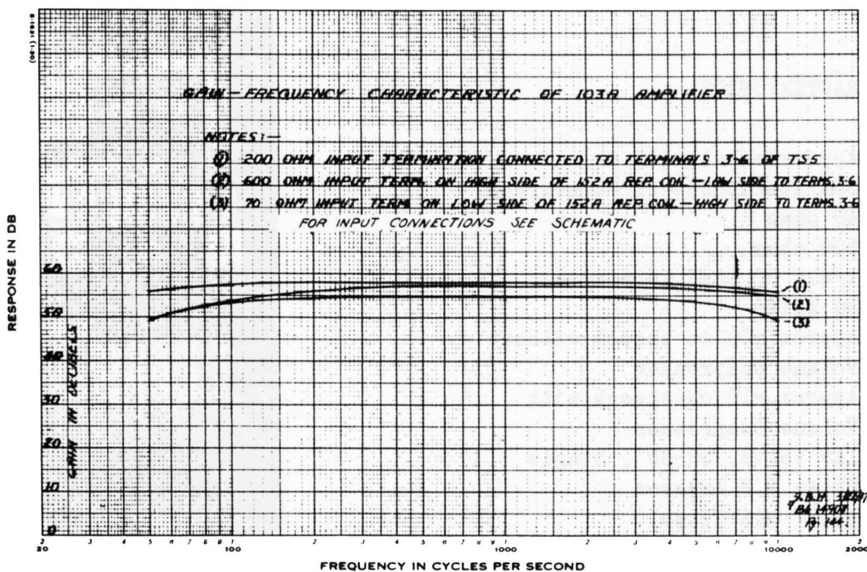
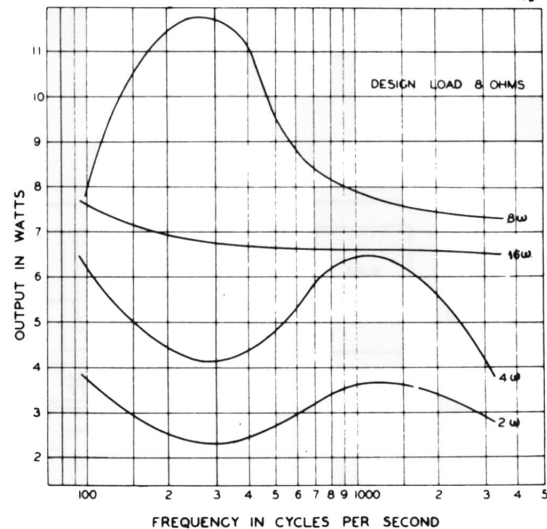


EQUIPMENT CHARACTERISTICS

WEIGHT - - - - - 40 LBS.
SIZE - - - - - 19-13/16" x 7-7/8" x 10-3/4"
MOUNTING - - - - - IT IS DESIGNED FOR DECK OR TABLE MOUNTING.

- NOTES**
1. THIS AMPLIFIER CONSISTS OF A 109A AMPLIFIER MOUNTED IN A METAL CABINET AS ILLUSTRATED. ADDITIONAL INFORMATION ON THE 109A AMPLIFIER IS GIVEN ON SHEET NO. 1-10.
 2. FACILITIES ARE PROVIDED IN THE 103A AMPLIFIER FOR MOUNTING A 152A REPEATING COIL, BUT THIS COIL MUST BE ORDERED SEPARATELY. WHEN THIS COIL IS USED THE AMPLIFIER OPERATES FROM A 600 OHM IMPEDANCE AND SUPERIMPOSED D.C. CURRENTS AS HIGH AS 100 MILLIAMPERES MAY BE APPLIED. (SEE ALSO NOTE 3 OF SCHEMATIC.)

OUTPUT VS. FREQUENCY CHARACTERISTICS FOR VARIOUS LOADS AT A CONSTANT THIRD HARMONIC DISTORTION OF 5%



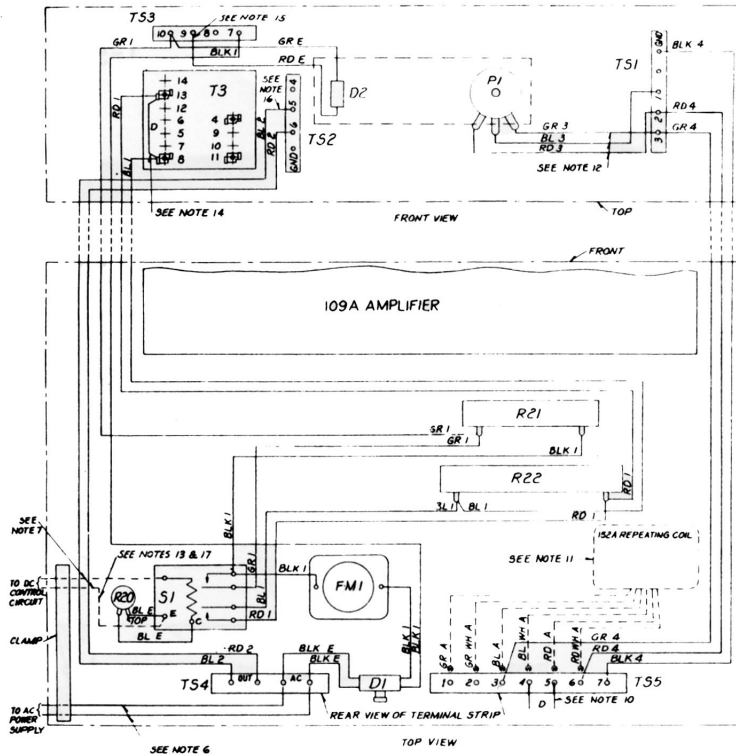
REFERENCE

HARMONIC CONTENT
VS
POWER OUTPUT

ES-732177
ES-732178
ES-732179
ES-732180

No. 103-A AMPLIFIER

WIRING DIAGRAM

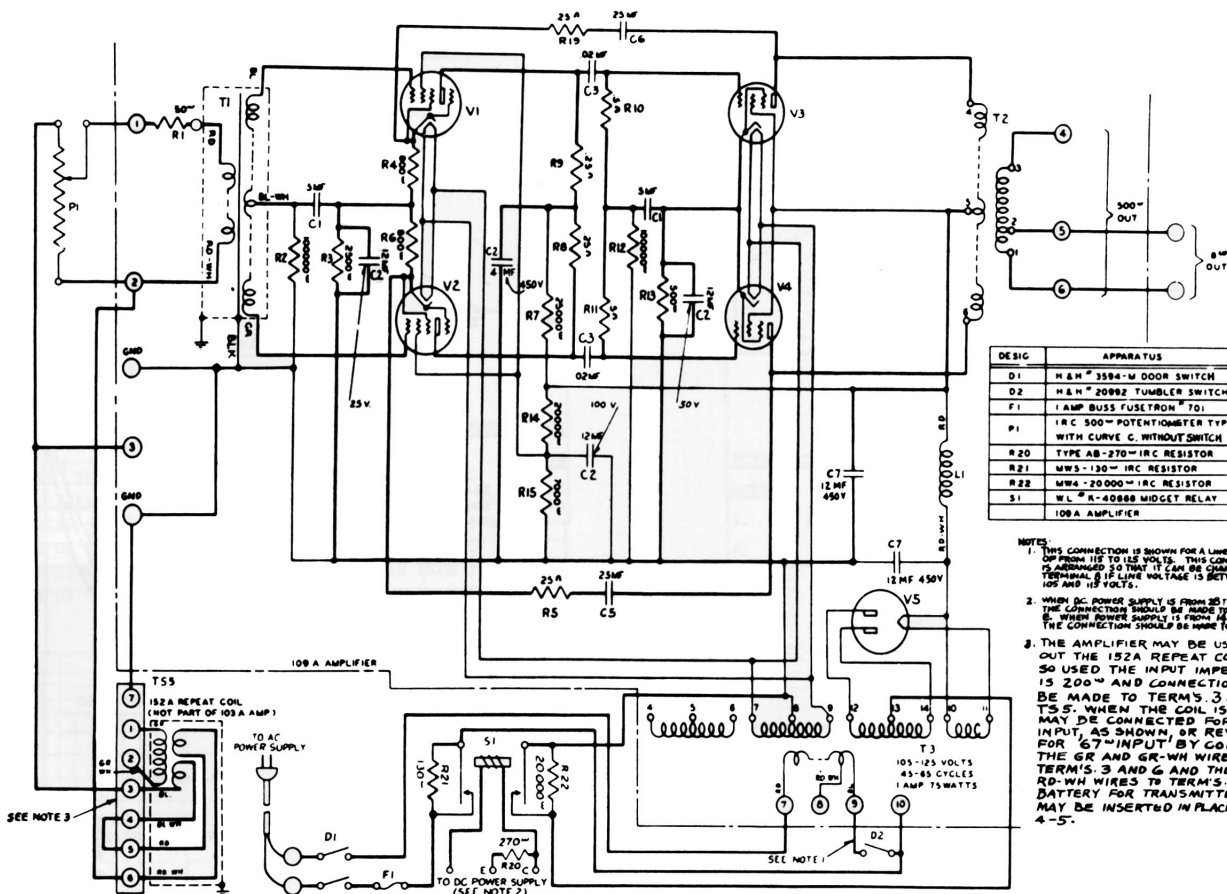


DESIG	APPARATUS
D1	H & H #3594-M DOOR SWITCH
D2	H & H #20992 TUMBLER SWITCH
F1	BRYANT #65568 PLUG FUSE CUTOFF BASE
P1	1 R.C. 500 Ω POTENTIOMETER TYPE C WITH CURVE C
R20	TYPE AB-270 Ω I.R.C. RESISTOR
R21	MW5-130 Ω I.R.C. RESISTOR
R22	MW4-20000 Ω I.R.C. RESISTOR
S1	W.L. #R-40868 MIDGET RELAY
T54	TERMINAL STRIP ESO 622567-3
T55	TERMINAL STRIP ESO 622567-4
	109A AMPLIFIER

- NOTES:
1. WIRES MARKED A ARE TERMINAL LEADS FURNISHED WITH APPARATUS.
 2. WIRES MARKED 1, 2, 3, OR 4 INDICATE CABLE IN WHICH WIRES ARE RUN.
 3. WIRES MARKED D ARE STRAPS OF #18 AWG T WIRE.
 4. ALL WIRES ARE #22 AWG SOLID WIRE PER KS7612 UNLESS OTHERWISE SPECIFIED.
 5. WIRES MARKED E ARE OPEN FORM.
 6. CORD 10 FT. LONG OF 2-18 (POSJ) 1/32 RUBBER SPECIAL BLACK WOULD-ON PLUS ON ONE END. OTHER END STRIPPED 3/4 IN. AND TINNED.
 7. NOT FURNISHED AS PART OF 109A AMPLIFIER.
 8. APPARATUS DESIGNATED T5, T51, T52, AND T53 ARE PART OF 109A AMPLIFIER.
 9. ALL SOLDERING SHALL BE MADE IN ACCORDANCE WITH KS512, METHOD D.
 10. THIS CONNECTION TO BE MADE UNDER SCREW HEADS WITHOUT SOLDERING.
 11. NOT PART OF 109A AMPLIFIER; IF REQUIRED SHALL BE INSTALLED AND CONNECTED TO T55 IN FIELD.
 12. TIE TO PARALLELING CABLE IN 109A AMPLIFIER.
 13. TERMINAL NUMBERS SHOWN, BUT NOT APPEARING ON APPARATUS, ARE FOR REFERENCE ONLY.
 14. REMOVE STRAP BETWEEN TERMINALS 8 AND 13 OF T5.
 15. CONNECT WIRE RD, E FROM D2 TO TERMINAL 9 OF T53. THIS CONNECTION CORRESPONDS TO A LINE VOLTAGE OF FROM 115 TO 125 VOLTS. THIS LEAD SHALL BE ARRANGED SO THAT IT CAN BE CHANGED IN THE FIELD TO TERMINAL 8 IF LINE VOLTAGE IS BETWEEN 105 AND 115 VOLTS.

16. THE BL, 2 WIRE FROM T54 TO TERMINAL 5 OF T52 IS FOR 8 OHM OUTPUT CONNECTION. THIS LEAD SHALL BE ARRANGED SO THAT IT CAN BE CHANGED IN THE FIELD TO TERMINAL 4 FOR 500 OHM OUTPUT CONNECTION.
17. D.C. CONTROL LINE SWITCH CONNECTED TO TERMINAL 1 OF S1 CORRESPONDS TO THE CONDITION FOR 24 TO 60 VOLT OPERATION. FOR 14 TO 30 VOLT OPERATION, THE D.C. CONTROL WIRE SHALL BE CONNECTED TO TERMINAL C.

SCHEMATIC



DESIG	APPARATUS
D1	H & H #3594-M DOOR SWITCH
D2	H & H #20992 TUMBLER SWITCH
F1	1 AMP BUSS FUSETRON T501
P1	1 R.C. 500 Ω POTENTIOMETER TYPE C WITH CURVE C, WITHOUT SWITCH
R20	TYPE AB-270 Ω I.R.C. RESISTOR
R21	MW5-130 Ω I.R.C. RESISTOR
R22	MW4-20000 Ω I.R.C. RESISTOR
S1	W.L. #R-40868 MIDGET RELAY
	109A AMPLIFIER

- NOTES:
1. THIS CONNECTION IS SHOWN FOR A LINE VOLTAGE OF FROM 115 TO 125 VOLTS. THIS CONNECTION IS ARRANGED SO THAT IT CAN BE CHANGED TO TERMINAL 8 IF LINE VOLTAGE IS BETWEEN 105 AND 115 VOLTS.
 2. WHEN D.C. POWER SUPPLY IS FROM 25 TO 60 VOLTS, THE CONNECTION SHOULD BE MADE TO TERMINAL 5. WHEN POWER SUPPLY IS FROM 14 TO 30 VOLTS, THE CONNECTION SHOULD BE MADE TO TERMINAL C.
 3. THE AMPLIFIER MAY BE USED WITHOUT THE 12A REPEAT COIL. WHEN SO USED THE INPUT IMPEDANCE IS 200 Ω AND CONNECTIONS SHOULD BE MADE TO TERMS. 3 & 6 ON T55. WHEN THE COIL IS USED IT MAY BE CONNECTED FOR 600 Ω INPUT, AS SHOWN, OR REVERSED FOR 67 Ω INPUT BY CONNECTING THE GR AND GR-WH WIRES TO TERMS. 3 AND 6 AND THE BL AND RD-WH WIRES TO TERMS. 1 AND 2. BATTERY FOR TRANSMITTER CURRENT MAY BE INSERTED IN PLACE OF STRAP 4-5.