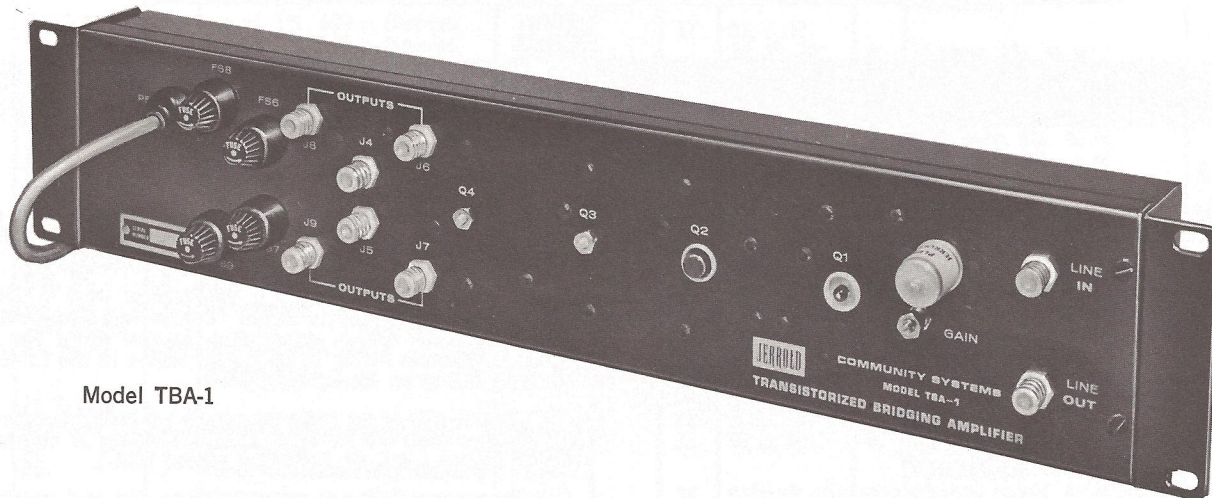


SOLID STATE BRIDGING AMPLIFIER MODEL TBA-1



Model TBA-1

DESCRIPTION

Model TBA-1 is a 4-transistor amplifier designed for use with a Jerrold all-band main line amplifier Model TML-1 for creating up to four feeder lines at every TML-1 location.

Model TBA-1 supplies a minimum gain of 14 db at each of the four 75-ohm coaxial output terminals. Maximum output capability is 41 dbj* at each output, for 9-channel operation at -57 db cross-modulation, and 40 db for 12-channel operation.

Coarse gain adjustment if required by system conditions is accomplished by Model PIP plug-in pads, available in 3 db steps from 0 to 15 db. A PIP-0 pad is shipped with each amplifier, plugged into its socket. A screw driver potentiometer permits fine gain adjustments over a range of 5 db. Amplifier response is flat $\pm\frac{1}{2}$ db over the entire frequency

range of 54 to 216 mc. Isolation between outputs is at least 16 db.

Each of the 4 output terminals can be fused by fuses shipped with the amplifier. Insertion of a fuse passes ac over the feeder cable to power Model TLE-1 line extenders.

A minor field modification permits using the amplifier for 2 or 3-feeder line operation with up to 3 db higher output capability and gain on one terminal for 3-output operation, and on each terminal for 2-output operation.

Components are mounted on a solid-copper heat sink chassis, equipped with a dust cover of the same material. Model TBA-1 is designed for cabinet mounting, with controls and terminals easily accessible.

*0 dbj = 1000 microvolts across 75 ohms.

SPECIFICATIONS

BANDWIDTH	54-216 mc	ISOLATION BETWEEN OUTPUTS	16 db min.
GAIN (min. full) (recommended op.)	14 db (each of 4 outputs) 12 db	LINE INSERTION LOSS	$\frac{3}{4}$ db max.
RESPONSE FLATNESS	$\pm\frac{1}{2}$ db	MAX. OUTPUT CAPABILITY* at -57 db Cross-Mod.	
GAIN CONTROL RANGE (fine)	5 db	(per ch. for 9 ch.)	41 dbj (each of 4 outputs)
(coarse)	plug-in-pad (3 to 15 db in 3 db steps)	(per ch. for 12 ch.)	40 dbj (each of 4 outputs)
IMPEDANCE (input and output)	75 ohms	POWER REQUIRED (via TML-1 or RPS-17)	-17 vdc regulated
VSWR (input)	1.1:1 max. (26.5 db return loss)	AMBIENT TEMPERATURE RANGE	-30° F to +140° F
(output)	1.38:1 max. (16 db return loss)		

*Rated for 3 db block tilt (high vs. low band); for flat output, de-rate output capability 2 db.

CHART OF CONTROLS AND CONNECTIONS

NAME	CIRCUIT DESIGNATION	TYPE	FUNCTION
GAIN	R3	Potentiometer	Fine control of gain; range 5 db
LINE IN	J1	F-61A	Line bridging input
LINE OUT	J2	F-61A	Line bridging output
J3	J3	4-pin Socket	Accommodates plug-in pad for coarse gain control
J4, J5	J4, J5	F-61A	Alternative terminals for 2-line or 3-line high output operation
OUTPUTS	J6, J7, J8, J9	F-61A	Terminals for normal output operation (4 feeder lines)
FS6, 7, 8, 9	FS6, FS7, FS8, FS9	Fuse, 1 amp.	Insertion of fuse permits passing ac to line extenders

INSTALLATION

GENERAL

Model TBA-1 can be installed directly in a weather housing, or mounted with the two brackets supplied.

CAUTION: The black finish of the amplifier is designed to provide maximum heat dissipation in order to maintain optimum operational characteristics of the transistors. Since black also absorbs heat, it is desirable that equipment housings are not left open and unattended, exposing the equipment to direct sunlight.

Accessories shipped with the unit:

- 2 rack-mount brackets
- 4 screws, #6-32 x 1/4, brass with black oxide finish
- 4 screws, #10-32 x 3/8
- 4 fuses, 1 amp.

POWER CONNECTION

- Where Model TBA-1 is installed together with a Model TML-1 in the same cabinet, the necessary —17 vdc and 19 to 30 vac are obtained directly from Model TML-1. Plug the 4-pin connector P5 from the Model TBA-1 chassis into the 4-pin socket J5 on the Model TML-1 chassis (see fig. 1).
- Where it is desired to use a TBA-1 without a Model TML-1, a Model RPS-17 is required to supply the proper voltages. The RPS-17 requires a 19 to 30 vac input which can be obtained from a Model RPS-15 or RPS-30, the choice depending on the power requirements of any other equipment to be remotely energized (see fig. 2).

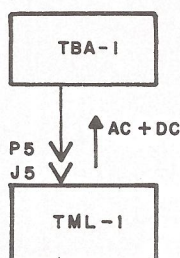


Fig. 1

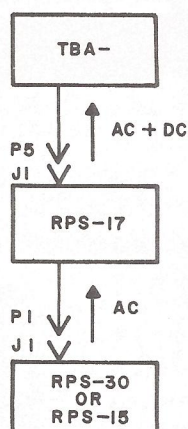


Fig. 2

LINE BRIDGING CONNECTIONS

- Line bridging connections are made at the LINE IN and LINE OUT chassis fittings. Always connect rf input to LINE IN terminal.
- Where Model TBA-1 is mounted together with a Model TML-1 and where only rf signal voltage is to be bridged through Model TBA-1, connect a jumper from the RF OUTPUT chassis fitting J8 on Model TML-1 to the LINE IN chassis fitting on Model TBA-1.
- Where both rf and ac voltages are to be bridged, connect the jumper from the RF & AC OUTPUT fitting J7 on Model TML-1 to the LINE IN fitting on Model TBA-1.
- Cap the unused fitting to protect it from dirt and moisture.

NOTE: Use JT-404 type cable and FHC-404 type connectors for jumpers.

FEEDER LINE CONNECTIONS

- For normal 4-output operation, chassis fittings J6, J7, J8 and J9 serve as feeder line connections. Each line can power several Model TLE-1 transistorized line extenders by insertion of a fuse into the respective fuse socket. RG-59/U type coaxial cable and F-59A connectors can be used for feeder line jumpers.
- Model TBA-1 can be field-modified for 3-output or 2-output operation with up to 3 db higher output capability. See APPENDIX.

SETTING OF OUTPUT LEVELS

- Before measuring the signal voltage at any output fitting which has been fused for passing ac, the relevant fuse must be removed to protect field strength meters not equipped with ac blocking circuitry.
- With a Model 704-B field strength meter measure the output level at one of the connectors J6, J7, J8 or J9.
- Using a small screwdriver, adjust the fine GAIN control on the chassis to obtain the recommended output level. Where necessary, replace the PIP-0 pad at J3 by an appropriate PIP pad and then adjust the GAIN control for recommended output.
- Record the output levels for future reference.
- Reinsert fuses where required and be sure that all feeder lines are connected.

NOTE: For 3-output or 2-output operation, measure levels at the J4 and J5 fittings (see APPENDIX).

- Any unused fittings should be capped for protection against dirt and moisture.

MAINTENANCE

Model TBA-1 is designed for long life with trouble-free performance. Should it become necessary to replace a transistor, only exactly the same type may be substituted. Servicing is to be done only by skilled personnel, experienced in transistor circuitry. For their benefit, a schematic circuit diagram and a parts list are given.

REPLACEMENT PARTS LIST—MODEL TBA-1

ASSEMBLY: MODEL TBA-1		Ref. Dg. No. E861-622		
ITEM	SCHEMATIC DESIGNATION	QTY.	DESCRIPTION	JERROLD PART NO.
CAPACITORS				
1	C1, 2, 3, 4	4	1.1 pf, 5%, 500 v, Gimmick	122-061
2	C5, 6	2	2.2 pf, 5%, 500 v, Gimmick	122-060
3	C7, 12	2	3-35 pf, 350 v, trimmer	128-536
4	C8, 9, 13	3	0.02 mf, +80 —20%, 25 v	124-065
5	C11, 15, 18, 20, 21, 27, 28, 29	8	1000 pf, 500 v, feed-thru	129-205
6	C16	1	75 pf, 5%	126-100
7	C19, 26	2	25 mf, 15 v, electrolytic	127-065
8	C23, 24	2	8-60 pf, trimmer	128-538
9	C31, 32, 33, 36, 38, 39, 41	7	1000 pf, GMV, cer. disc	123-115
10	C34, 35	2	8.2 pf, ± 0.5 pf, 600 v	121-010
11	C37, 40	2	56 pf, 5%, 500 v	126-104
12	C42, 43, 44, 45, 46, 47	6	0.01 mf, GMV, 600 v	124-031
CONNECTORS				
13	J1, 2, 4, 5, 6, 7, 8, 9	8	Coaxial chassis fitting, F-61A	C821-155
14	J3	1	4-pin socket	182-103
15	P5	1	Power harness and plug assembly	184-047
DIODES				
16	CR1, 2	2	1N963B, Zener, 12 v, $\pm 5\%$, 400 mw	137-725

ASSEMBLY: MODEL TBA-1		Ref. Dg. No. E861-622		
ITEM	SCHEMATIC DESIGNATION	QTY.	DESCRIPTION	JERROLD PART NO.
RESISTORS				
17	R1, 5, 17, 18, 19, 20	6	75 ohms, 5%, $\frac{1}{4}$ w	112-954
18	R2	1	33 ohms, 5%, $\frac{1}{4}$ w	112-995
19	R3, 9	2	500 ohms, 10%, potentiometer	B118-122
20	R4	1	47 ohms, 5%, $\frac{1}{4}$ w	112-992
21	R6	1	2200 ohms, 5%, $\frac{1}{4}$ w	112-932
22	R7	1	3600 ohms, 5%, $\frac{1}{4}$ w	112-999
23	R8	1	560 ohms, 5%, $\frac{1}{2}$ w	112-329
24	R10	1	130 ohms, 5%, $\frac{1}{2}$ w	112-251
25	R11	1	2 k, 5%, $\frac{1}{4}$ w	112-930
26	R12	1	1 k, 5%, $\frac{1}{4}$ w	112-977
27	R13, 15	2	51 ohms, 5%, 1 w	112-201
28	R14	1	130 ohms, 5%, $\frac{1}{4}$ w	112-997
29	R16	1	150 ohms, 5%, $\frac{1}{4}$ w	112-974
TRANSFORMERS				
30	T1	1	Iron core	109-107
31	T2, 5, 7, 8	4	Toroid, iron core	B144-093
32	T3, 4	2	Toroid, iron core	B144-091
33	T6, 9, 10	3	Toroid, iron core	B144-084
TRANSISTORS				
34	Q1	1	Special	S130-112
35	Q2	1	Special	A130-125
36	Q3	1	Special	A130-124-1
37	Q4	1	Special	A130-124-2

APPENDIX

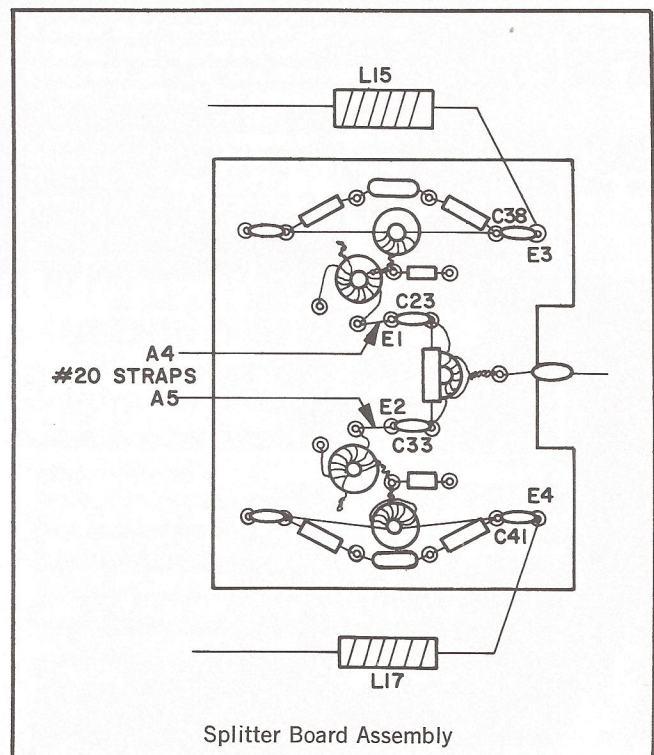
MODIFICATION OF MODEL TBA-1 FOR 3-OUTPUT OR 2-OUTPUT OPERATION

FOR 3-OUTPUT OPERATION

1. Remove #20 strap (A4 or A5) from eyelet terminal E1 or E2. The unit is now ready for 3-output operation with Output Jack J4 or J5 serving as the high output spigot.
2. To apply ac voltage to Output Jack J4 or J5, remove coils L15 or L17 from eyelet terminal E3 or E4 and connect to eyelet terminal E1 or E2.

FOR 2-OUTPUT OPERATION

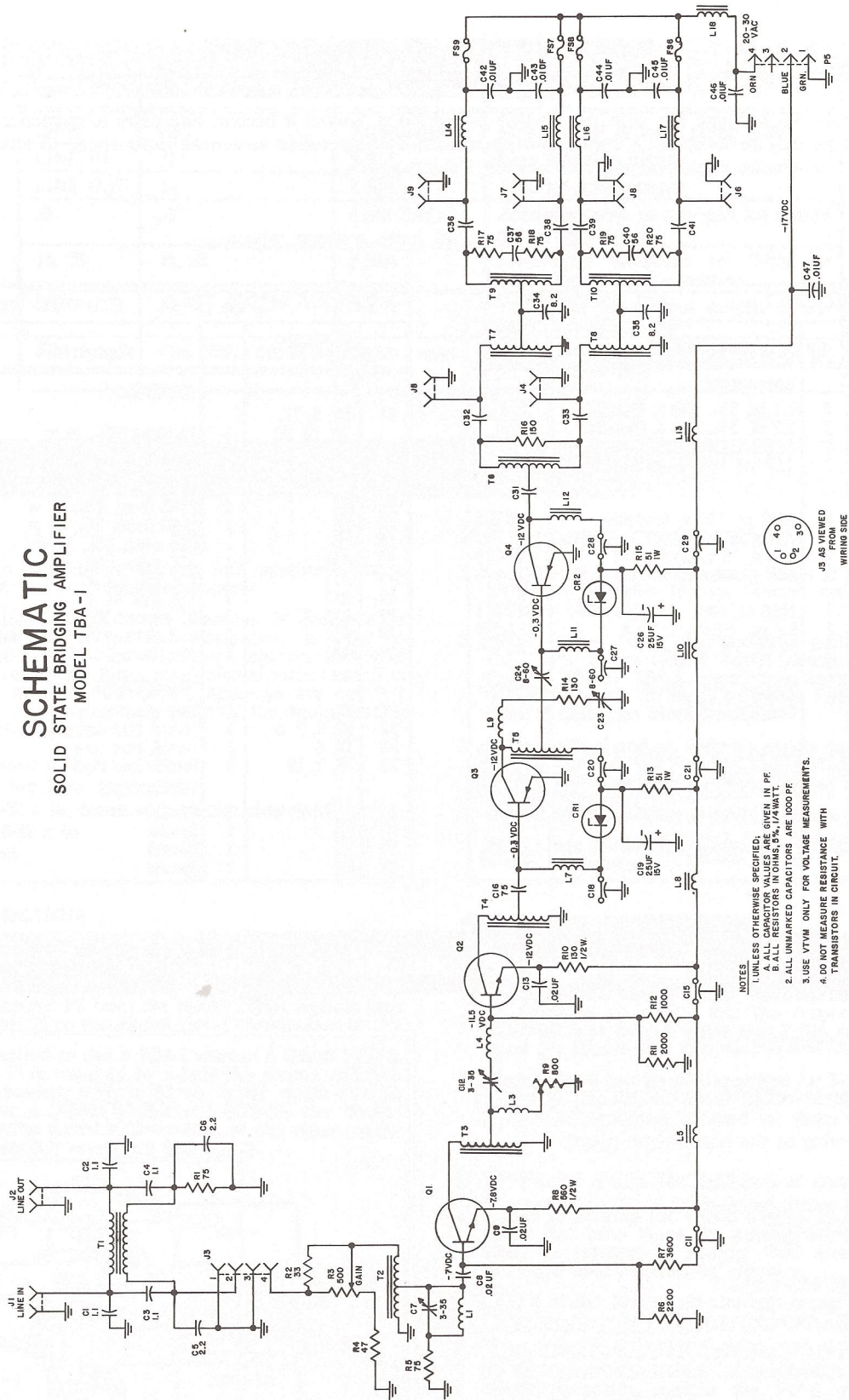
1. Remove #20 strap (A4 and A5) from eyelet terminals E1 and E2. The unit is now ready for 2-output operation with Output Jacks J4 and J5 as the high output spigots.
2. To apply ac voltage to Output Jacks J4 and J5, remove coils L15 and L17 from eyelet terminals E3 and E4 and connect to eyelet terminals E1 and E2.



SCHEMATIC

SOLID STATE BRIDGING AMPLIFIER

MODEL TBA-1



- NOTES:**
1. UNLESS OTHERWISE SPECIFIED, ALL CAPACITOR VALUES ARE GIVEN IN PF.
 2. ALL UNMARKED CAPACITORS ARE 1000 PF.
 3. USE VTVM ONLY FOR VOLTAGE MEASUREMENTS.
 4. DO NOT MEASURE RESISTANCE WITH TRANSISTORS IN CIRCUIT.



ALL DATA SUBJECT TO CHANGE WITHOUT NOTICE.

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