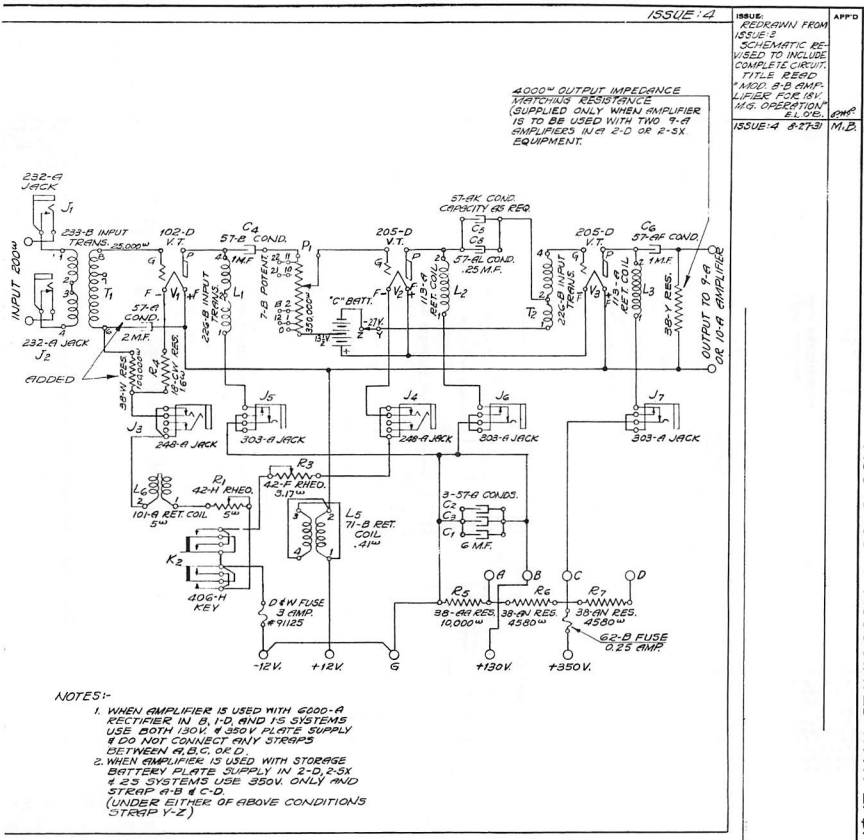
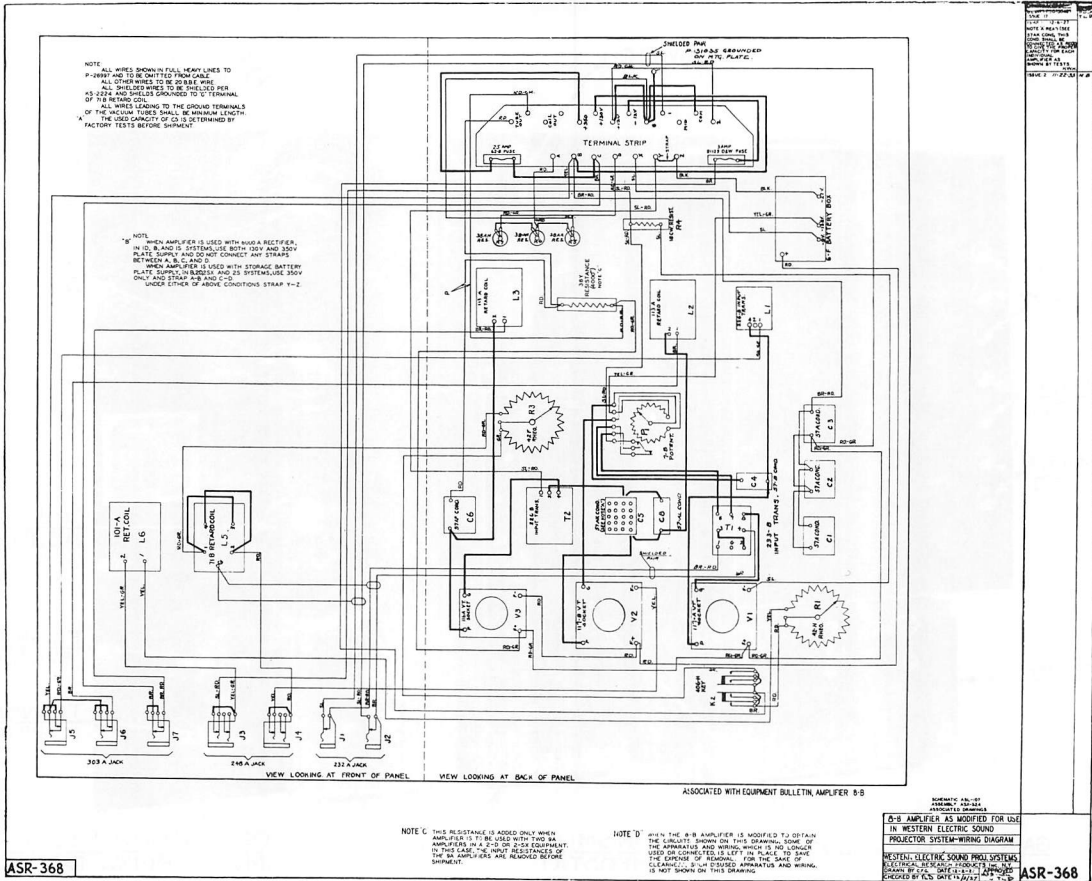


ASSOCIATED WITH EQUIPMENT BULLETIN, AMPLIFIER 8-B



480-162-2 REV. WITH AMPLIFIED, 7-1-77A



ASO-3498-4 ASSOCIATED WITH E. B. AMPLIFIER 8-B

4.03

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One - 102 Type Vacuum Tube
Two - 205-D Vacuum Tubes
Six - #703 Eveready Batteries

2.7 When this amplifier feeds into two 9-A Amplifiers in parallel, as in the 2-D and 2-SX Equipments, a 4000 Ω resistance should be connected across its output. Refer to the schematic drawings of 8-B and 9-A Amplifiers for additional information.

3. Installation

3.1 Mount amplifier in position on 101 type Rack, and connect in accordance with system drawings. Install vacuum tubes and "0" battery.

4. Operation

4.1 Connect the meters on the 514-A Panel into the various circuits of the 8-B Amplifier, using the jacks on the latter and the plugs and cords on the former. By means of the rheostats, adjust the filament currents to the values indicated in Section 2.1.

4.1.1 The grid voltage should not be allowed to fall more than 10% below normal. Any 4 $\frac{1}{2}$ V Grid battery unit should be discarded if its voltage falls below 4.

4.2 The volume control potentiometer is set at its correct operating position at installation, generally between 12 and 18, and is not used during operation of the system.

5. Replacement Parts

5.1 All the component parts of the 8-B Amplifier are replaceable in the field. Order them as specified on ASL-107 and ASR-368.

5.2 Any part or sub-assembly replaced on a fire, repair, or no charge basis should be returned to the stores division. If repaired on a full price basis, it should be junked in the field.

6. Availability

6.1 The 8-B Amplifier is available at the Warehouse for replacement purposes only. Order it as

"One 8-B Amplifier"

L. W. CONROW
Installation Manager

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1. References

- 1.1 Drawings ASL-107, Schematic ASR-368, Wiring Diagram ASO-40494, Photographs, Figures 1 and 2

2. Description

2.1 General Information

Systems used in: A, B, C, CC, 1-S, 1-D, 2-S, 2-D, 2SX.

Panel Size - 14" high x 19" wide.

Power Supply - (a) 12V DC, (b) 350V DC, (c) 27V DC.

Amplifier type - Impedance coupled 3 stages.

Input Impedance - 200 Ω

Output " - 4000 Ω

	Stage 1	Stage 2	Stage 3
Tubes	102-D	205-D	205-D
fil. I (amps)	0.97	1.55	1.55
Plate I (Mils)	0.5-1.0	5-8	16-28

2.2 The required filament voltage is 12. The first stage filament is connect to this voltage through a resistance and rheostat. The second and third stage filaments are connected in series through a rheostat. The required plate voltage for the first and second stages is 130 and for the third stage 360. If a 360 volt storage battery is used for plate supply, a fixed potentiometer in the amplifier provides the 130V supply for the first and second stages. When the amplifier is used in systems having the 6000-A Rectifier, the 130V and 360V supplies are taken separately from the Rectifier.

2.3 The negative grid potential for the first stage is obtained through the drop in the series resistance in the filament circuit, and for the second and third stages by means of a 27 volt "C" battery.

2.4 An eleven step potentiometer in the grid circuit of the second stage, mechanically interlocked with a "low-high" switch which cuts in and out a section of the input transformer secondary, gives a total gain variation of 22 steps of 3 dB each. The maximum gain of the amplifier is 81 dB. All current carrying circuits extend through jacks on the front of the panel, to facilitate current observation on the meters of the 514-A Panel, and adjustment by means of the rheostats on the 8-B Amplifier Panel. The filament circuit is protected by a three ampere cartridge fuse, and the plate circuit by a .25 ampere, type 62-B fuse.

2.4.1 Step 11 on the gain potentiometer should not be used as a permanent setting.

2.5 The amplifier as manufactured by the Western Electric Company, has an output transformer with an output impedance of 500 ohms, as well as a 4000 ohm "tube out" connection, with a key switch between these two outputs. On all 8-B Amplifiers installed in the W.E.S.P. Systems, the output transformer has been removed and the key disconnected, before shipment. Also the microphone supply circuit, including rheostat, key, condenser and retardation coil has been disconnected. The circuit and wiring drawings show the modified amplifier. The 8-B Amplifier, as modified, has an input impedance suitable to work from 200 ohms, and an output impedance of 4000 ohms.

2.6 The following additional apparatus, not supplied as part of the amplifier, is required for use with it.

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ADDENDUM #1

1. Purpose

1.1 To describe the field conversion of the 8-B Amplifier to "8-B Amplifier Mod. per TA-117" as required for the operation of the filaments from the K8-5259 (18V) Motor Generator Set through the TA-7115 Filament Supply Filter set for operation of the filaments from the TA-4035 or TA-4038 Power Unit.

2. Associated Drawing

2.1 ASO-3498, 8-B Amplifier Mod. per TA-117, Wiring Diagram, Schematic and Circuit Label.

3. Modification to "8-B Amplifier Mod. per TA-117"

3.1 Add one 38-W Resistance (100,000 Ω) and one 57-A Condenser (2MF). Mount 38-W Resistance to left of 38-AA Resistance (R5), and 57-A Condenser above 7-B Potentiometer (P1).

3.2 Make wiring changes in accordance with ASO-3498, using #20 B.B.E. wire. This drawing also shows a schematic of the modified amplifier. The changes are listed below:

Disconnect -

- (1) SL-RD lead between Gain Switch on 7-B Potentiometer (P1) and 18-OV Resistance R4.
- (2) RD-GR lead between F4 tube V1 and 57-A Condenser C3.
- (3) RD-GR lead between term. 1 of 71-B Retard Coil L5 and 42-F Rheostat R3, between GND and 412
- (4) Lead to terms. 6 and 7 of Transformer T1 and tape same.
- (5) RD-GR lead from 412V term. and connect to -12V term.
- (7) Red lead from term. 2 of 71-B Retard Coil L5 to Jack J4.

Connect -

- (1) One term. of added 38-W Resistance to battery side of 18-OV Resistance R4, to which SL-RD lead was connected, and the other term. of the 38-W Resistance to No. 6 term. of Transformer T1.
- (2) One term. of added 57-A Condenser to term. 6 of Transformer T1 and the other term. of Condenser to F4 of tube V1.
- (3) -12V term. to GND.
- (4) 412V term. to term. 1 of 71-B Retard Coil L5.
- (5) F4 term. tube V3 to term. 2 of 71-B Retard Coil L5.
- (6) Term. on Jack J4 from which Red wire was removed to term. on 42-F Rheostat R3 from which RD-GR was removed.

4. Operation

4.1 This modification may affect the normal operating position of the 7-B Potentiometer, since the modification causes steps 1 to 11 to give the same respective gains as formerly given by steps 12 to 22. The gain on the latter steps has not been affected by the modification.

5. Marking

5.1 When an 8-B Amplifier is modified in accordance with Section 3. above, cut the circuit label (Diagram of Wiring Modifications to 8-B Amplifier and the revised Schematic) from ASO-3498, and shellac over the existing Schematic Drawing in the amplifier, but do not cover the existing Wiring Diagram. This is necessary because the wiring diagram in ASO-3498 shows only the wiring changes and not the complete wiring diagram. Also, deface the "8-B" on the nameplate of the amplifier and shellac

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ADDENDUM #1

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the nameplate on ASO-3498 directly above the existing nameplate.

6. Material Required and Merchandising

6.1 The following material is required for this modification and will be supplied automatically by the Stores Division as part of the "12V Battery to Power Units" Conversion Equipment for all systems using 8-B Amplifiers:

One set of ASP-681 Conversion Parts, consisting of

- 1 - 38-W Resistance (W. E.)
- 1 - 57-A Condenser (W. E.)
- 10' - #20 B.B.E. Copper Wire
- 1 - ASO-3498 Circuit Label and Label containing legend "8-B Amplifier modified per TA-117"

The above parts may be ordered in the regular manner as "one set of ASP-681 Conversion Parts" when not for a part of a general system conversion.

6.2 The following material should be obtained locally to mount the resistance and condenser:

- 2 - 3/8" O.D. x 3/16" I.D. x 1/4" Hard Rubber Bushing
- 1 - #8 (.164) 36 x 2-13/16" R.H.I.M.S.
- 1 - Standard Washer for above Machine Screw
- 2 - .164 - 32 x 1/4" R.H.I.M.S.

6.3 Replacements for "8-B Amplifier Mod. per TA-117" should be ordered in the regular manner as:

"One 8-B Amplifier Mod. per TA-117"

In which case a standard 8-B Amplifier plus one set of ASP-681 conversion parts will be shipped.

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Replacing Addendum #1

0. Reason for Reissue
0.1 To include Addendum #1, modified.

1. Associated Drawings

ASR-368, 8-B Amplifier, Wiring Diagram
ASO-3498, A-8-B Amplifier, Wiring and Schematic
ASO-3578, 8-B Amplifier, Schematic
ASO-40494, 8-B Amplifier, Photographs

2. General Information

2.1 Refer to E.B. "Amplifiers, General" F.R. 4.03, and the above drawings.

3. Modification to A-8-B Amplifier

3.1 This modification (per TA-117) permits the operation of the filaments from the XS-5259 (18V) Motor Generator through the TA-7115 Filter, or from the TA-4035 or TA-4038 Power Unit. Refer to E.B.'s "Systems Modification, 12V Batts. to 18V Gen.", and "Systems Modification, 12V Batts. to P.U.".

3.2 Add one 38-W Resistance (100,000 Ω) and one 57-A Capacitor (2MF). Mount 38-W Resistance to left of 38-AA Resistance (R5), and 57-A Capacitor above 7-B Potentiometer (P1).

3.3 Make wiring changes in accordance with ASO-3498, using #20 B.B.E. wire. This drawing also shows a schematic of the modified amplifier. The changes are listed below:

- (a) Disconnect the slate-red lead between the gain switch on the 7-B Potentiometer P1 and the 18-OW resistance R4.
- (b) Disconnect the red-green lead between the F + vacuum tube V1 and the 57-A Capacitor C1.
- (c) Disconnect the red-green lead between terminal 1 of the 71-B retardation coil L5 and the 42-F rheostat R3.
- (d) Disconnect the lead between ground and 1/2 12V terminal.
- (e) Disconnect and tape leads to terminals 6 and 7 of transformer T1.
- (f) Disconnect red-green lead from 1/2 12V terminal, and connect to -12V terminal.
- (g) Disconnect lead from -12V terminal which comes from the 3 ampere fuse and connect it to the 1/2 12V terminal.
- (h) Disconnect the brown lead from the 3 ampere fuse and connect it to the -12V terminal.
- (i) Disconnect the red lead running from terminal 2 of the 71-B retardation coil L5 to Jack J4.
- (j) Connect one terminal of the added 38-W resistance to the battery side of the 18-OW resistance R4, to which the slate-red lead was connected and connect other terminal of the 38-W resistance to the #6 terminal of transformer T1.
- (k) Connect one terminal of the added 57-A capacitor to terminal 6 of transformer T1 and the other terminal of the capacitor to the F + terminal of vacuum tube V1.
- (l) Connect -12V terminal to ground.
- (m) Connect terminal 1 of the 71-B retardation coil L5 to the side of the 3 ampere fuse from which the brown lead was removed.
- (n) Connect the F + terminal of vacuum tube V3 to terminal 2 of the 71-B retardation coil L5.
- (o) Connect the terminal of Jack J4 from which the red lead was removed to the terminal on the 42-F rheostat R3, from which the red-green lead was removed.

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3.4 Marking:- A copy of the circuit label shown on drawing ASO-3498, shall be sheilded directly over the existing schematic circuit label (but not over the schematic wiring diagram). Change the nameplate marking and add a nameplate "A-8-B Amplifier" per IS-155, as specified in E.B. "Equipment Modifications, General" F.R. 4.01.

3.5 Material Required:- The following material is required for this modification and will be supplied automatically by the Stores Division as part of the "12V Battery to Power Units" Conversion Equipment for all systems using 8-B Amplifiers:

One set of ASP-681 Conversion Parts, consisting of

- 1 - 38-W Resistance (W.E.),
- 1 - 57-A Capacitor (W.E.),
- 10 - #20 B.B.E. Copper Wire
- 1 - ASO-3498 Circuit Label
- 2 - Bushings, Hard Rubber
- 1 - R.H.I.M. Screw #8 (.164) 36 x 2 13/16"
- 1 - Std. Washer for above screw
- 2 - R.H.I.M. Screws #8 (.164) 32 x 1/4"

The above parts may be ordered in the regular manner as "One set of ASP-681 Conversion Parts" when not for a part of a General system conversion.

4. Operation

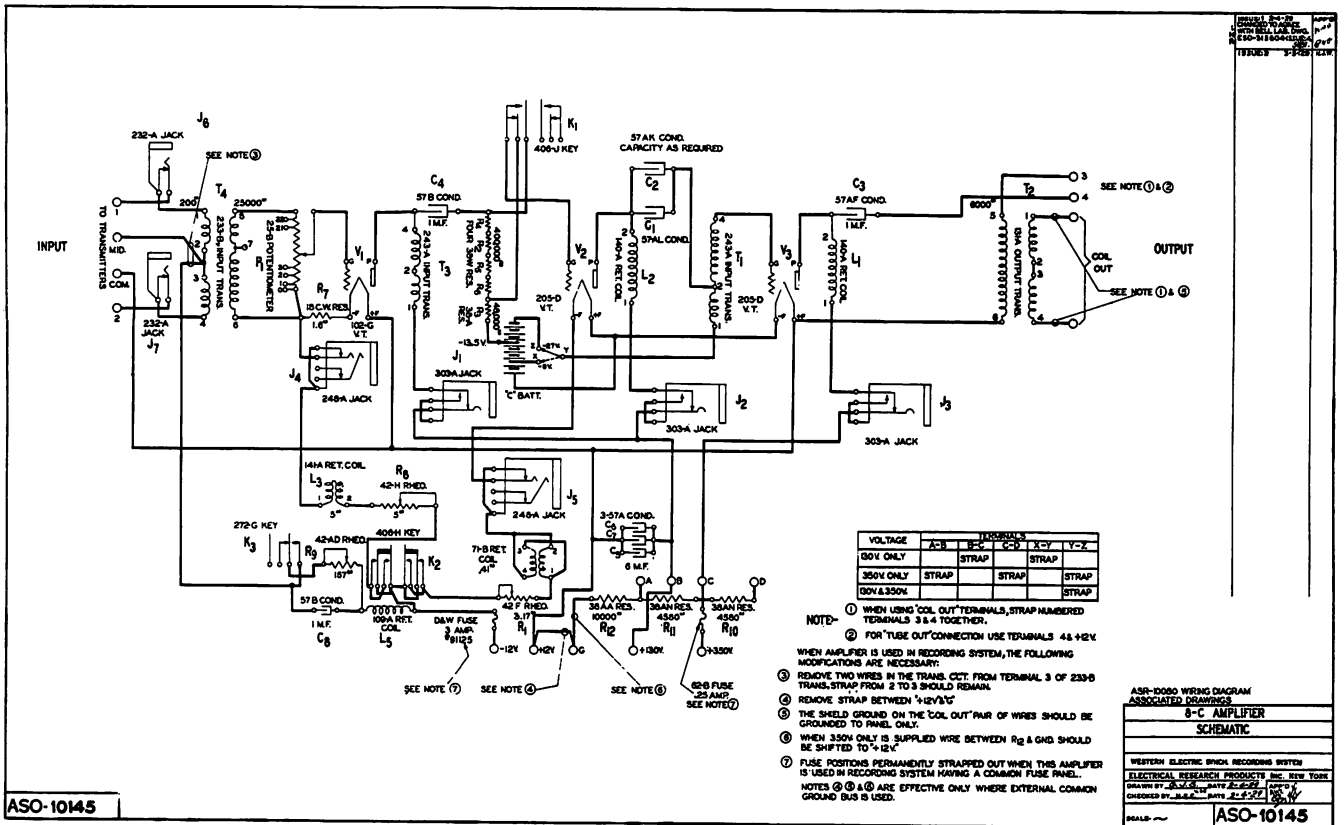
4.1 Connect the meters on the 514-A Panel into the various circuits of the 8-B Amplifier, using the jacks on the latter and the plugs and cords on the former. By means of the rheostats, adjust the filament currents to the values indicated in E.B. "Amplifiers, General". The grid voltage should not be allowed to fall more than 10% below normal. Any 44V grid battery unit should be discarded if its voltage falls below 44V. The volume control potentiometer is set at its correct operating position at installation, generally between 12 and 15, and is not used during operation of the system.

4.2 The modification to A-8-B may affect the normal operating position of the 7-B Potentiometer, since the modification causes steps 1 to 11 to give the same respective gains as formerly given by steps 12 to 22. The gain on the latter steps has not been affected by the modification.

5. Merchandising

5.1 The 8-B Amplifier is available for replacement purposes only. Order it as "One 8-B Amplifier".

The merchandising information on the ASP-681 Conversion Parts is in 3.5 above.



ASO-10145

