DOCUMENT NUMBER **250-16-1**

250
PASSENGER SPEAKER AMPLIFIER

INSTALLATION AND OPERATION MANUAL

REV "-" Sep 15, 2004

Northern Airborne Technology Ltd.
1925 Kirschner Road
Kelowna, BC, Canada.
V1Y 4N7

Telephone (250) 763-2232
Facsimile (250) 762-3374

Amendment #2 October 21, 2004

Northern Airborne Technology Ltd.
has acquired the assets of dB Systems Inc.,
and has reissued this manual in its entirety

Northern Airborne Technology Ltd.
will be responsible for all future
amendments and revisions.

Periodically NAT will release manual amendments. In order to maintain the most accurate and up to date manual these amendments should be carried out immediately upon receipt and recorded on the following amendment record.

AMENDMENT RECORD

Amendment Number	Amendment Date	Section(s) Changed	Date Entered	Entered By
1	Sep 15/04		**Performed at Factory**	
2	Oct 21/04		**Performed at Factory**	

Insert any Amendment Instruction sheets after this page.

INSTALL_OPS
MANUAL AMENDMENT

Manual: 250-16-1 **Amendment #: 2**
Document #: Install_Ops\250\809-0002 **Amendment Date: Oct 21, 2004**

The purpose of this amendment is to update the 250 outline drawing.

Amendment Instructions:

1

Remove Pages	Replace With Pages
Title Page Amendment #1	Title Page Amendment #2
Page b Amendment #1	Page b Amendment #2
Page d Amendment #1	Page d Amendment #2
Page 7 Amendment#1	Page 7 Amendment #2

Note: Ensure that all drawings are inserted in the order shown on the latest drawing lists.

2 Update the Amendment Record sheet at the front of the manual.

3 Insert this page into the manual after the Amendment Record sheet (page iii).

Manual Amendment ends after the following amended pages

INSTALL_OPS
MANUAL AMENDMENT

Manual: SM250 250 **Amendment #: 1**
Document # SM250\Install_Ops\809-0001 **Amendment Date: Sep 15, 2004**

The purpose of this amendment is to update all applicable drawings.

Amendment Instructions:

1

Remove Pages	Replace With Pages
250-16-1 Title Page Rev -	SM250 Title Page Rev -
Pages b – c	Pages b – d Amendment #1
Page 7	Page 7 Amendment #1

2

Insert Pages	After Page
Page ii – iii	SM250 Title Page

3 Update the Amendment Record sheet at the front of the manual.

4 Insert this page into the manual after the Amendment Record sheet (page iii).

Manual Amendment ends after the following amended pages

CHANGE RECORD

DATE	CHANGE	APPROVAL
3-11-03	ORIGINAL DOCUMENT RELEASED	

TABLE OF CONTENTS

Page

Tables

Figures / Drawings

MODEL 250 DETAIL PART NUMBER DESCRIPTIONS

The detail part numbers associated with the Model 250 Passenger Speaker Amplifier may define different level adjustments and/or test procedures than those outlined in the calibration and test table of document No. 250-4, Acceptance Test Procedure. Table A describes those differences.

NOTE: A Model 250 with an associated detail part number is designated as a Model 250-XXX, where XXX is the applicable detail part number.

Table A. Detail Part Number Description

Detail Part Number	Description of Difference
001	Low Pass Filters adjusted for –3 dB attenuation at 70 Hz on Left and Right Speaker Outputs. High Pass Filters adjusted for –3 dB attenuation at 20 Khz on Left and Right Speaker Outputs. -001 calibration is designed for use with dB Systems 250-61, 4-inch speakers.
002	The Model 250-002 has no differences from the Base Model
003	Identical to Base Model with the following changes: - Stereo Left and Stereo Right inputs are reduced to 0.45 Vrms. - Stereo Left and Stereo Right input gain is increased so that the outputs are the same as the Base Model. MOD A units use PCB 250-81 to prevent speaker popping on power up. MOD B units include PCB 250-91 in place of PCB 250-81. PCB 250-52 includes the increased stereo gain.

SM250 FIGURES

This page lists the drawings necessary for complete maintenance and troubleshooting. The applicable serial numbers are shown in the right hand column.

Previously only the most current revision of each figure was included in this manual. For these figures, the rev is listed as "N/A".

Table B. Figures with Applicable Serial Numbers

FIGURE/DWG	REV.	DESCRIPTION	TYPE	SERIAL #
250	1.71	Passenger Speaker Amplifier	Outline	All
2	N/A	Passenger Speaker Amplifier	Block Diagram	All
3	N/A	Passenger Speaker Amplifier	Wiring Diagram	All
4	N/A	Passenger Speaker Amplifier	Internal Trim Pot Adjustments	All

EQUIPMENT MANUAL
MODEL 250-[ ]

1.0 OPERATING INSTRUCTIONS AND EQUIPMENT LIMITATIONS

The Model 250 Passenger Speaker Amplifier is a remotely controlled, electronic unit that operates upon command from switches and potentiometers in the cockpit or cabin of the aircraft. The Model 250 provides Seat Belt and No Smoking sign chime tones, a Cabin Call ringer tone, ADF, Pilot Select Comm., TV, Briefer and Cabin Paging audio, all in mono, to the cabin speakers. It also provides audio taken from an external AM/FM stereo receiver/cassette tape or CD player, in stereo, to the cabin speakers.

Both left and right speaker amplifier channels are each powered through separate internal fuses, so that a failure in one speaker channel will not disable the other speaker channel or the remaining control circuitry.

All inputs and operating modes are electronically switched. Ground signals, supplied by manual switches in the cockpit, enable the electronic switches in the Model 250. The circuitry is arranged to give Paging and Brief audio priority; the PA MIC or Brief switch signals essentially open the Stereo Left, Stereo Right, ADF 1, ADF 2, Pilot Select COMM, and TV audio inputs. Microphone bias current is available from the Model 250 for the PA MIC microphone input.

Electronic attenuators are employed to control paging volume and master receiver (ADF 1, ADF 2, PSC, and TV) volume. The attenuators each have approximately 30 dB (min.) of range and are each controlled by a remote volume potentiometer. The pots required are zero to 10,000 ohm, linear taper and are electrically arranged to provide maximum resistance for maximum volume. The audio source (stereo tape cassette player, etc.) for the Stereo Left and Right inputs should have its own volume control attenuator for the Stereo Input to Speaker Output audio channel.

A musical chime tone is provided to the cabin speakers to alert the passengers of a change in the Fasten Seat Belt or No Smoking sign status. A Cabin Call ringer tone is also provided to the cabin speakers for a cockpit to cabin intercom system. The chime and ringer tones do not pass through either of the electronic attenuators. Internal screwdriver potentiometer adjustments are accessible, after removal of the Model 250 end plate, to set the chime or ringer levels heard in the passenger speakers.

The Left and Right Speaker Amplifier output ratings are each 28 watts into 2 ohms (30 Watts typical). Both speaker amplifier outputs are internally protected against open and short circuits as well as over-temperature (>105°C).

The operating modes of the Model 250 are established when either a ground (low) signal or a 12 to 32 VDC (high) signals applied as listed below to the connector pin listed:

Pin No.	Control Signal	Identification	Function
P50-16	Low	ADF 1 Switch	Connects ADF 1 input audio to Left and Right Speaker outputs.
P50-15	Low	ADF 2 Switch	Connects ADF 2 input audio to Left and Right Speaker outputs.
P50-14	Low	PSC Switch	Connects Pilot Select COMM input audio to Left and Right Speaker outputs.
P50-13	Low	TV Swith	Connects TV input audio to Left and Right Speaker outputs.
P50-5	Low	Stereo Switch	Connects Stereo Left and Stereo Right input audio to Left and Right Speaker outputs, respectively.
P50-24	Low	PA Key	Connects PA MIC input audio to PA Sidetone and Left and Right Speaker outputs. Opens ADF, PSC, TV, and Stereo input audio circuits.
P50-25	Low	Briefer Switch	Connects Briefer input audio to PA Sidetone and Right Speaker outputs. Opens ADF, PSC, TV and Stereo input audio circuits.
P50-31	High	No Smoking	Chime tone to Left and Right stereo outputs.
P50-32	High	Seat Belt	Chime tone to Left and Right stereo outputs.
P50-33	Low	Cabin Call	Ringer tone to Left and Right stereo outputs.
P50-34	Low	Hook Switch	Disables ringer tone.

*An application or removal of a high signal at pins P50-31 and P50-32 will provide a chime tone at Left and Right Speaker outputs.

NOTE: P50-XX is a pin on the 37 pin connector, P50-1.
P40-XX is a pin on the 25 pin connector, P40-1.

All internal screwdriver potentiometer adjustments of the Model 250 are set to factory standards. If it is necessary to change a setting, refer to the calibration and maintenance section of this manual.

The amplifiers are adjusted for acceptable listening output levels into the proper loads with ADF receiver inputs of 7.75 V_{RMS} and PSC, TV, Stereo and Brief audio inputs of 1.00 V_{RMS}. With the volume controls set to maximum volume position, these inputs will provide 7.8 VRMS (28 watts) into 2 ohms at each speaker output. The receiver input levels are realized when receivers are set for 100 milliwatts into 600 ohms. If these levels are greatly exceeded at the inputs, the audio will become distorted due to peak clipping and audio bleedthrough will be noticed. The amplifiers, however, will not be damaged.

2.0 SPECIFICATIONS

Input specifications are expressed in volts RMS, rather than milliwatts, to avoid any misunderstanding.

INPUTS:

ADF: Two single, switched audio inputs for ADF, etc. Input level is 7.75 V_{RMS}.

PSC: One single, switched audio input compatible with the Pilot Select COMM output of dB Systems cockpit audio control amplifiers such as Model 438 and 700 which provides a 1.00 V_{RMS} signal produced from a summation of selected COMM, DME, and MKR receivers.

TV: One single, switched audio input for TV, etc. Input level is 1.00 V_{RMS}.

STEREO LEFT: One single, switched differential audio input for the left channel of stereo audio from an AM/FM stereo receiver/tape or CD deck, etc. Input level is maximum 1.00 V_{RMS} (at maximum source volume) and audio LO is not common to that of other inputs.

STEREO RIGHT: Same as Stereo Left, switched by the same control input as Stereo Left.

BRIEF: One single, switched audio input for briefer audio, etc. Input level is 1.00 V_{RMS}.

PA MIC: The microphone input, used for cabin paging audio, supplies bias current and is compatible with carbon and amplified dynamic microphones.

PAGING VOLUME: Controls level of PA MIC and Brief audio inputs to the PA Sidetone and Left and Right Speaker outputs. Volume control range is 30 dB (minimum) controlled by a 10,000 ohm, 1/2 Watt, linear pot. Maximum volume is with maximum resistance.

RECEIVER VOLUME: Controls level of ADF, PSC and TV audio inputs to the Left and Right Speaker outputs. Range and control same as Paging Volume specification.

OUTPUTS:

RIGHT SPEAKER: The Right Speaker Amplifier is designed for speech and music signals. Rated Power spec. is the maximum power the amplifier can continuously deliver into the maximum rated load without clipping.

Load	Rated Power	Load
1 ohm	49 W	1 ohms (40 Watts typical)
2 ohm	28 W	2 ohms (30 Watts typical)
4 ohm	15 W	4 ohms (18 Watts typical)

LEFT SPEAKER: Same as Right Speaker specification

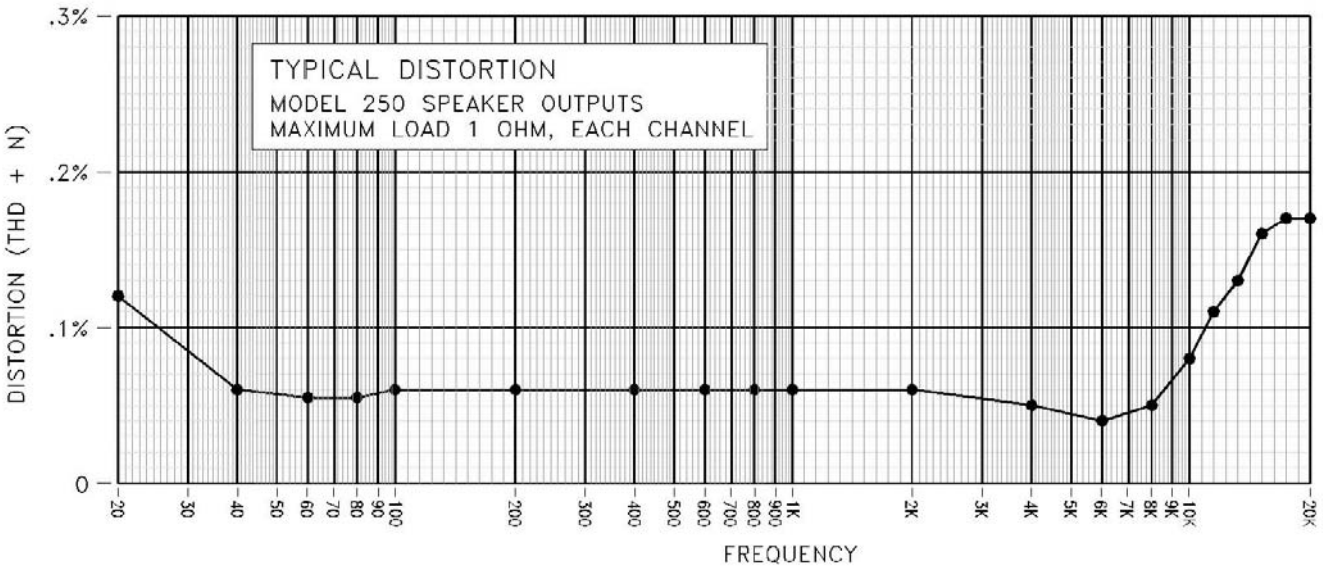
PA SDTN: This output will deliver 6.7 milliwatts into 600 ohms, continuously. Rated and continuous power ratings are the same.

CHIME TONE: Generated and supplied to left and right speaker outputs when 12 to 32 VDC is applied to and removed from connector pins P50-31 or P50-32. A 790 ±20 Hz tone. Factory set for 3.5 VP-P into 2 ohms, is adjustable from 1.0 to VP-P.

RINGER TONE: Generated and supplied to left and right speaker outputs when a ground signal is applied to connector pin P50-33. Ringer tone is 700 ±75 Hz tone, ON for 1.8 ±0.1 second, then OFF for 3.2 ±0.1 second, repeating, and is factory set for 1.5 VP-P (700 Hz component) into 2 ohms, adjustable from 0 to 5.2 VP-P.

FREQUENCY RESPONSE: Upper and lower frequency limits are adjustable. Stereo, ADF, TV, PSC inputs to speaker outputs are flat within 3 dB from 25 Hz to 20,000 Hz. All other inputs to speaker or PA sidetone outputs are flat within 3 dB from 350 Hz to 6,000 Hz.

HARMONIC DISTORTION (THD+N): Less than 0.25 percent distortion, for stereo and less than 1% for ADF, TV and PSC to all outputs (25 Hz to 20 Khz). Less than 3% for PA and briefer to all outputs (350 Hz to 6 Khz).



ISOLATION BETWEEN CHANNELS: 60 dB, Minimum.

OUTPUT NOISE: Greater than 75 dB below rated, all outputs.

POWER SUPPLY: 28 VDC, 5 ampere maximum.

OPERATING TEMPERATURE: From -55 to +70°C. Thermal fold back of the speaker outputs occurs if the heatsink temperature reaches 105°C.

OPERATING ALTITUDE: To 70,000 feet.

QUALIFIED TO: FAR PART 21, TSO-C50c
[A2F2]-BA(CL)XXXXXXZ(BZ)AAATZ(XXC2)XX
RTCA DO-160C: Refer to Table 7, Environmental Qualification Form, for test category information.

3.0 INSTALLATION PROCEDURES, WIRING DIAGRAMS, AND LIMITATIONS

3.1 PHYSICAL

Installation dimensions are shown on the Model 250 outline on Figure 1. The amplifier may be mounted to a metal or plastic surface, but it is necessary to ground the case to the metal aircraft structure. When mounting to a plastic surface, use a grounding strap. The case is finished with an electrically conductive film so it is not necessary to remove the film for electrical bonding.

The Model 250 may be mounted in any position. No shock or vibration isolators are required.

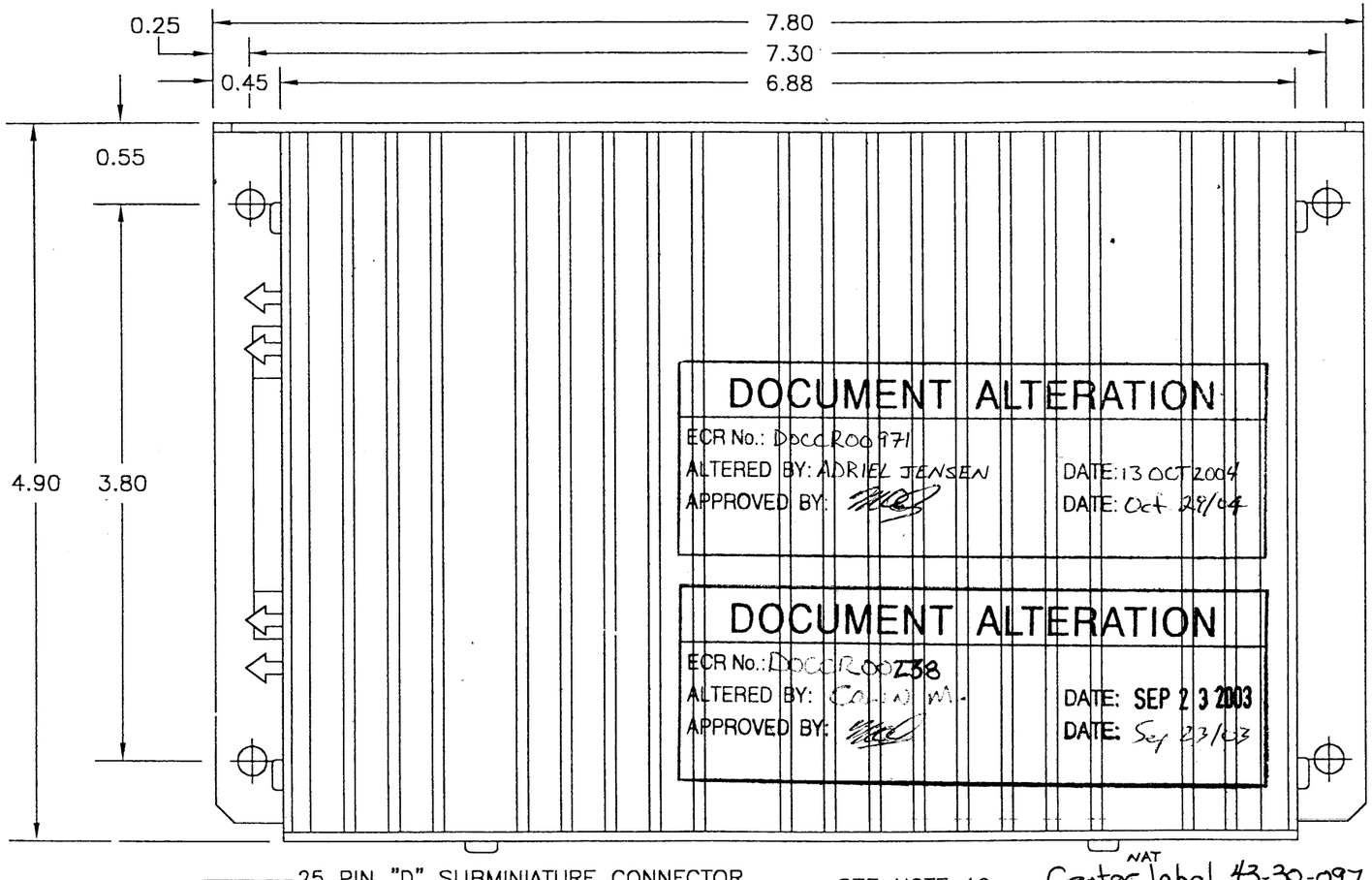
3.2 ELECTRICAL

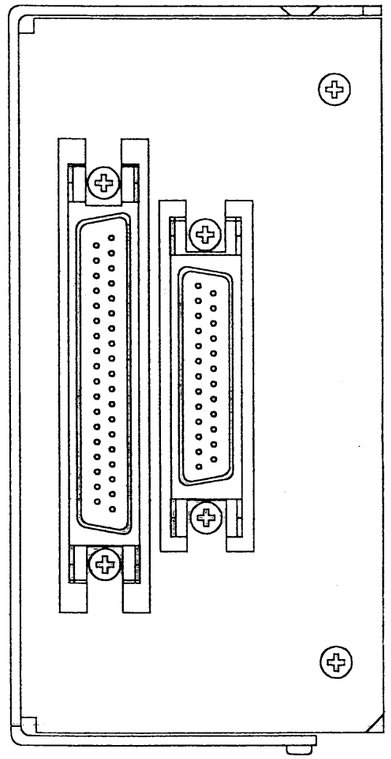
Connections to the Model 250 are made through two "D" subminiature connectors. The mating connectors are manufactured by Positronics Industries, Inc. and have part numbers for the complete connector assemblies, which are:

Connector	Positronics Part No.
P40 (25-pin)	SD25F1OJVLO
P50 (37-pin)	SD37F1OJVLO

Numerical pin identification is shown on Table 1. The wiring diagram is shown on Figure 2. Shielded wire must be used where indicated on the diagrams. AWG 24-26 size wire should be used for all connections except those to the input power, power ground, and speaker amplifier outputs where AWG 20 (min.) size should be used.

The control switches shown will switch low current loads and should have a DC rating of 28 VDC. Typical switches for this application include Alco MTA series.



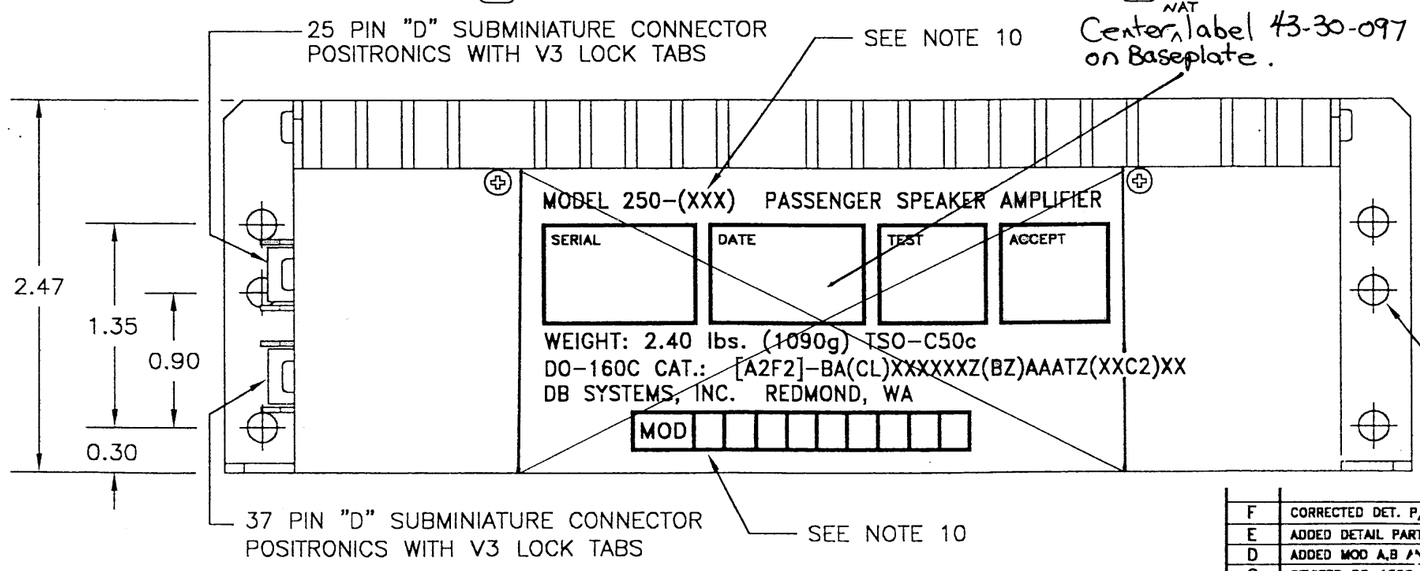


NOTES:

1. THE ENCLOSURE IS FABRICATED FROM .062 THICK ALUMINUM ALLOY, CHROMATE CONVERSION TREATED TO PREVENT CORROSION AND PROVIDE ELECTRICAL BONDING. THE HEATSINK IS AN ALUMINUM EXTRUSION BLACK ANODIZED TO PREVENT CORROSION AND IMPROVE HEAT DISSIPATION.
2. NAMEPLATE AND OTHER MARKINGS ARE ~~PERMANENTLY PRINTED~~ USING ~~BLACK INK~~. PRODUCT LABEL. DISPLAYED
3. THE MODEL 250-[ ] MAY BE MOUNTED IN TWO POSITIONS, IN THE HORIZONTAL POSITION WITH THE HEATSINK FACING UP OR IN THE VERTICAL POSITION. THE MOUNTING LOCATION MUST PROVIDE ADEQUATE VENTILATION TO ALLOW HEAT DISSIPATION.
4. TOLERANCE: DIMENSIONS WITHIN 0.030
   HOLES WITHIN 0.010
5. WEIGHT: 2.4 POUNDS (1090g)
6. POWER: 28 VDC, 0.2 AMP NOMINAL, 6 AMPERES MAXIMUM.
7. TEMPERATURE:
   ENVIRONMENT: NOT TO EXCEED -55°C TO +70°C.
   OPERATING HIGH: UNIT TEMPERATURE MAY REACH UP TO 105°C WHILE EXPOSED TO +70°C AMBIENT IF OPERATING AT HIGH OUTPUT POWER LEVELS. THERMAL FOLD BACK OF THE OUTPUT OCCURS AT +105°C, RESET AT 90°C.
8. THE MODEL 250-[ ] PROVIDES ELECTRONIC AUDIO CONTROL FOR CABIN SPEAKERS. AUDIO INPUTS: ADF-1, ADF-2, TV PSC (FROM MODEL 438 OR 700), STEREO LEFT, STEREO RIGHT, BRIEF, MIC (CABIN PAGING AUDIO). OUTPUTS: LEFT SPEAKER, RIGHT SPEAKER AND PA SDTN. ALL INPUTS ARE ISOLATED, MIXED AND AVAILABLE TO STEREO LEFT AND RIGHT SPEAKERS. SEAT BELT AND NO SMOKING SIGN CHIME TONES AND A CABIN CALL RINGER TONE ARE AVAILABLE TO THE CABIN SPEAKER OUTPUTS. RATED SPEAKER OUTPUT POWER IS 15W INTO 4 OHMS OR 28W INTO 2 OHMS (30W TYPICAL) PER CHANNEL.
9. REFERENCE DRAWINGS: 250-4 ACCEPTANCE TEST PROCEDURE
   250-8 QUALIFICATION TEST REPORT
   250-16 EQUIPMENT MANUAL
10. THE APPLICABLE DETAIL PART NUMBER (e.g. "001" FOR DETAIL P/N -001) IS STAMPED NEXT TO THE MODEL NUMBER IF IT IS A DETAIL PART. MOD STATUS IS AS IDENTIFIED BELOW.

DETAIL PART NUMBER DESCRIPTIONS.

DETAIL P/N	DESCRIPTION OF DETAIL (DIFFERENCES FROM BASE MODEL)
BASEMODEL AND -001	STANDARD PRODUCTION BASEMODEL NO MOD: USES PCB ASSY 250-41. MOD A: USES PCB ASSY 250-81 TO CORRECT SPKR POPPING ON POWER-UP. MOD B: USES PCB ASSY 250-91 TO CORRECT SPKR POPPING ON POWER-UP. -001 IS CALIBRATED FOR 70 Hz TO 20 KHz FREQUENCY RESPONSE FOR USING 4 INCH SPEAKERS, ALL MOD'S APPLY TO -001 AS WELL.
-002	IDENTICAL TO BASEMODEL.
-003	IDENTICAL TO BASEMODEL WITH INCREASE IN STEREO LEFT AND STEREO RIGHT INPUT GAIN. MOD A UNITS USE PCB 250-81 TO PREVENT SPEAKER POPPING ON POWER UP. MOD B UNITS INCLUDE PCB 250-91 IN PLACE OF PCB 250-81. PCB 250-52 INCLUDES THE INCREASED STEREO GAIN.



REV	DESCRIPTION	DATE	BY
B	ADDED 2-MOUNTING HOLES, REVISED NAMEPLATE, (ENV. CAT., WEIGHT) AND NOTES. (TYPE II)	9-29-95	DSP
A	REDRAWN (TYPE IV)	5-12-95	AP
F	CORRECTED DET. P/N 003 DESCRIPTION. (TYPE IV)	8-14-20	CK
E	ADDED DETAIL PART NUMBER -003. (TYPE IV)	7-25-00	AP
D	ADDED MOD A,B AND DETAIL P/N 001 INFO (TYPE IV)	11-10-98	CK
C	REVISED DO-160C ENV. CAT. (TYPE I)	11-10-95	DSP

dB SYSTEMS, INC.

OUTLINE, MODEL 250-[ ]
PASSENGER SPEAKER AMPLIFIER

SCALE	DRAWN	CHECK	APPROVED
FULL	SF 2-8-95	AP 2-9-95	AP 2-9-95

FILE:	DRAWING NO.	SHEET	REV
250.DWG	250	1 OF 1	X

171 ~~170~~

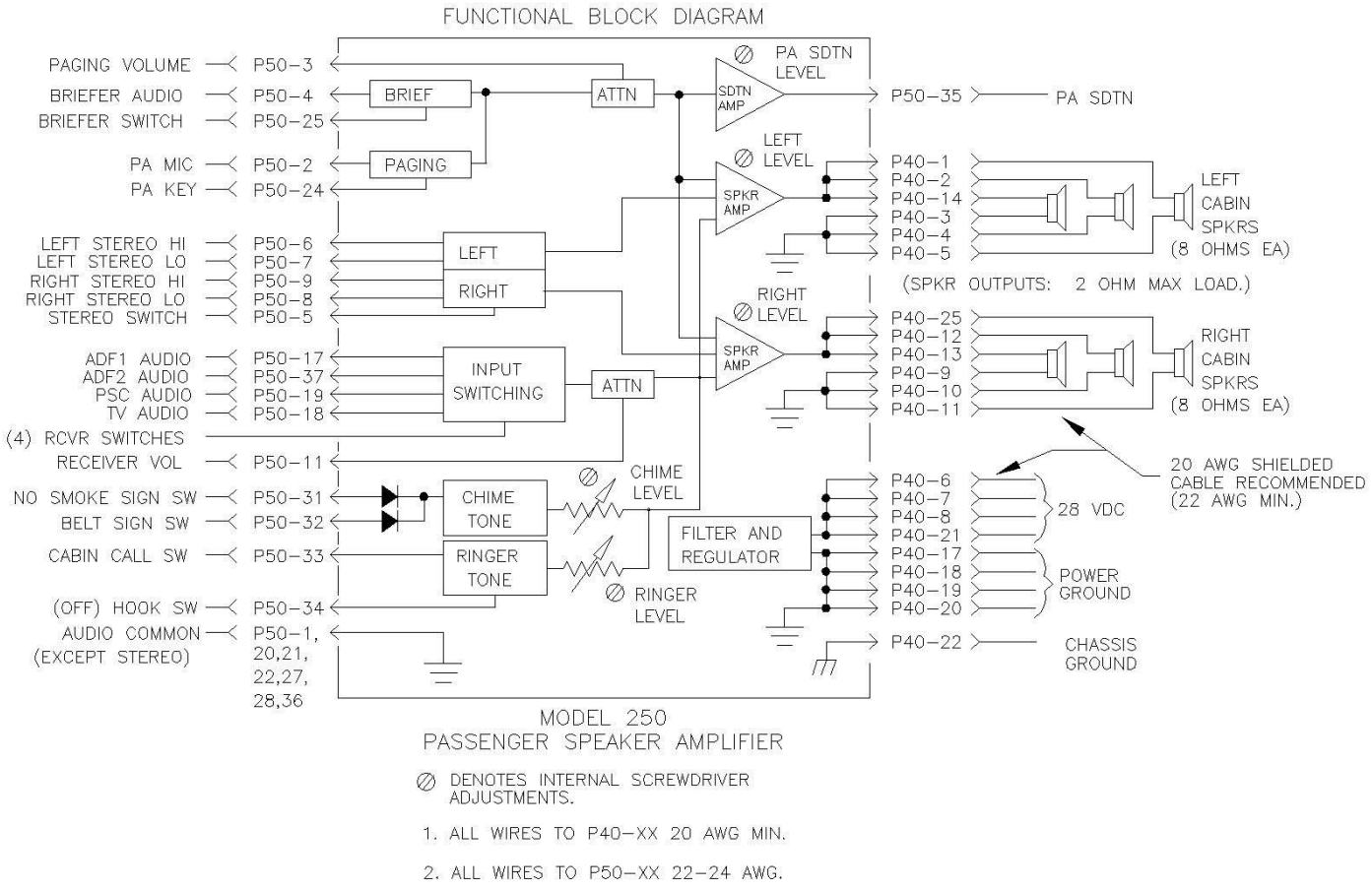


Figure 2. Block Diagram, Model 250-XXX Passenger Speaker Amplifier

The paging and receiver volume control pots required are linear taper, zero to 10,000 ohms, 1/2 watt or greater. Electrically, the pots are wired to provide maximum resistance to the Model 250 for full volume (fully clockwise rotation).

Table 1. Pin Identification

P40 (25-pin connector):

1	Left Speaker Out HI	14	Left Speaker Out HI
2	Left Speaker Out HI	15	No Connection
3	Left Speaker Out LO	16	No Connection
4	Left Speaker Out LO	17	Power Ground
5	Left Speaker Out LO	18	Power Ground
6	28 VDC	19	Power Ground
7	28 VDC	20	Power Ground
8	28 VDC	21	28 VDC
9	Right Speaker Out LO	22	Chassis Ground
10	Right Speaker Out LO	23	No Connection
11	Right Speaker Out LO	24	No Connection
12	Right Speaker Out HI	25	Right Speaker Out Hi
13	Right Speaker Out HI		

P50 (37-pin connector):

1	Audio Common (except stereo)	20	Audio Common (except stereo)
2	PA MIC Hi	21	Audio Common (except stereo)
3	Paging Volume	22	Audio Common (except stereo)
4	Briefer Audio Hi	23	No connection
5	Stereo Switch	24	PA Key
6	Left Input HI	25	Briefer Switch
7	Left Input LO	26	No Connection
8	Right Input LO	27	Audio Common (except stereo)
9	Right Input HI	28	Audio Common (except stereo)
10	No Connection	29	No Connection
11	Receiver Volume Control	30	No Connection
12	No Connection	31	Smoking Sign Switch
13	TV Switch	32	Seat Belt Sign Switch
14	PSC Switch	33	Cabin Call Switch
15	ADF 2 Switch	34	Hook Switch
16	ADF 1 Switch	35	PA Sidetone HI
17	ADF 1 Audio HI	36	Audio Common (except stereo)
18	TV Audio HI	37	ADF 2 Audio HI
19	PSC Audio HI		

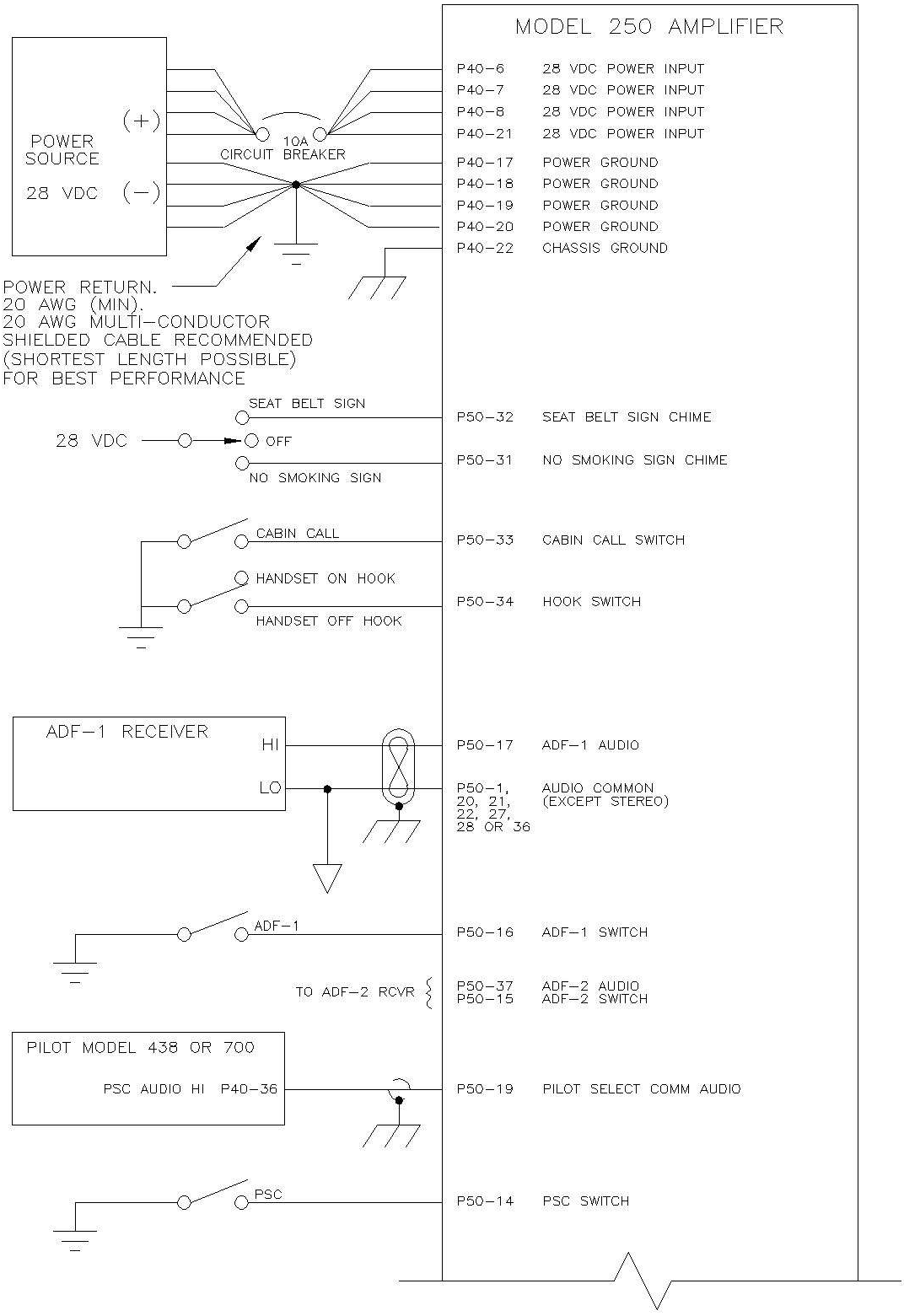


Figure 3. Wiring Diagram

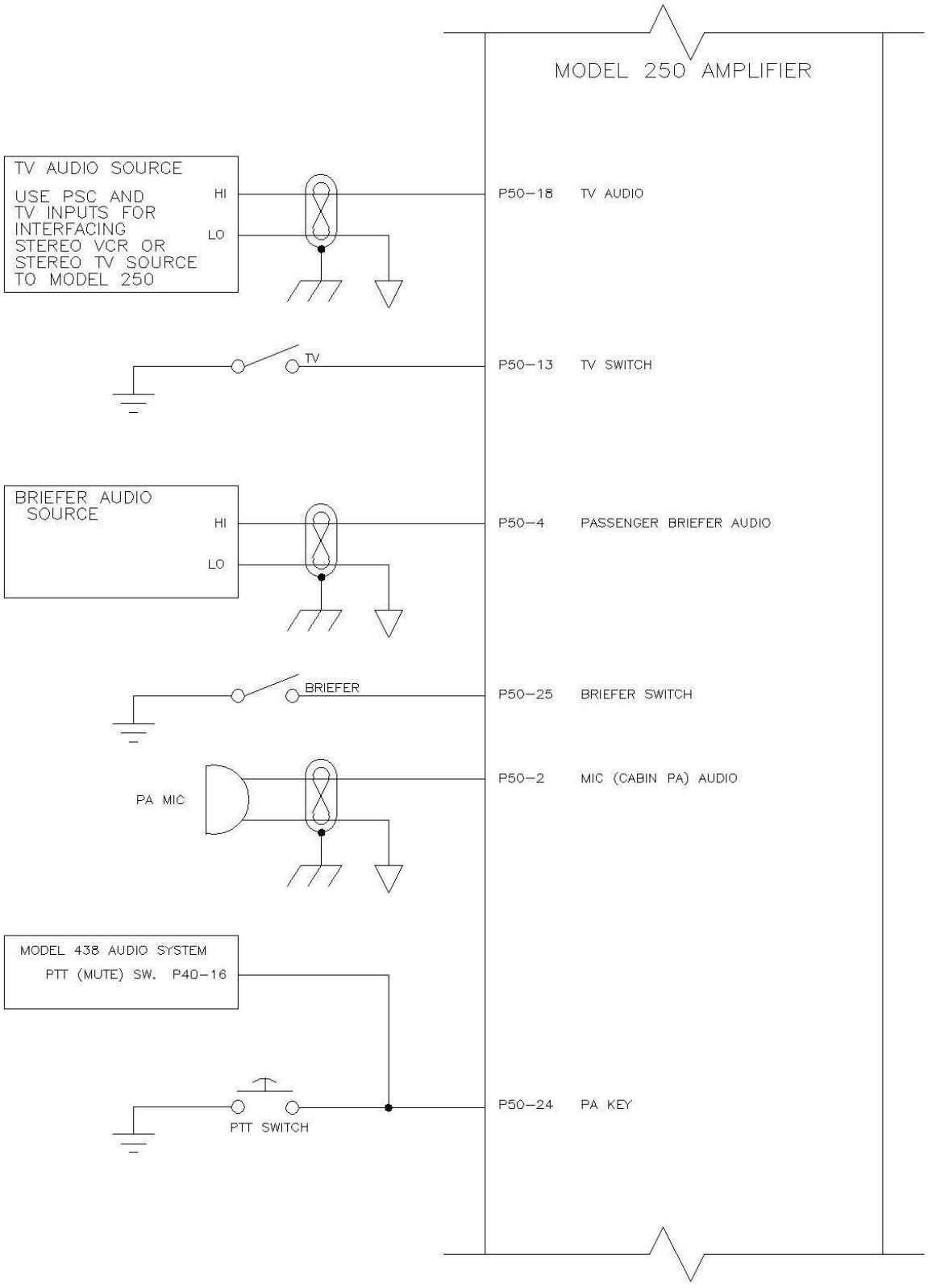


Figure 3. Wiring Diagram
(continued)

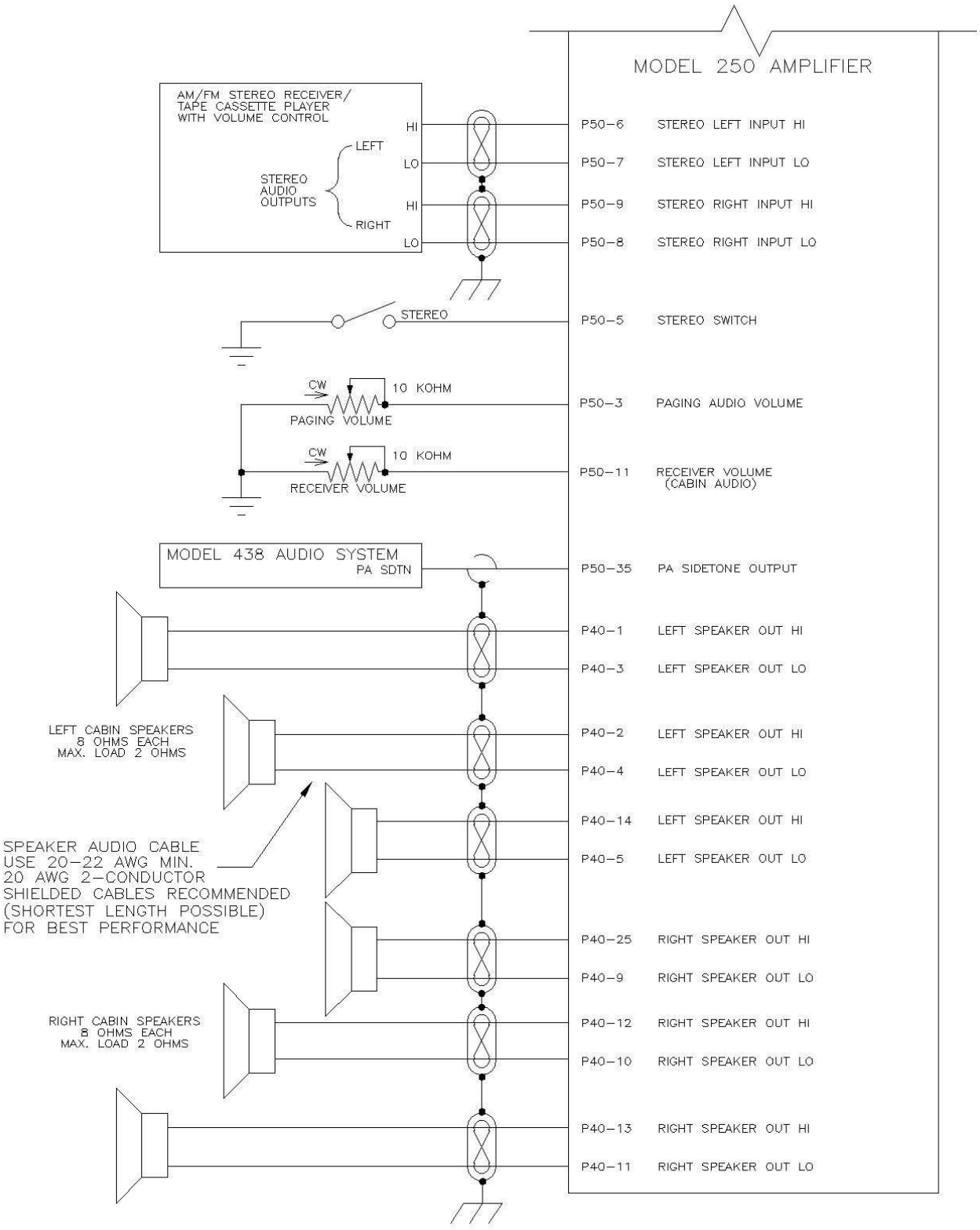


Figure 3. Wiring Diagram
(continued)

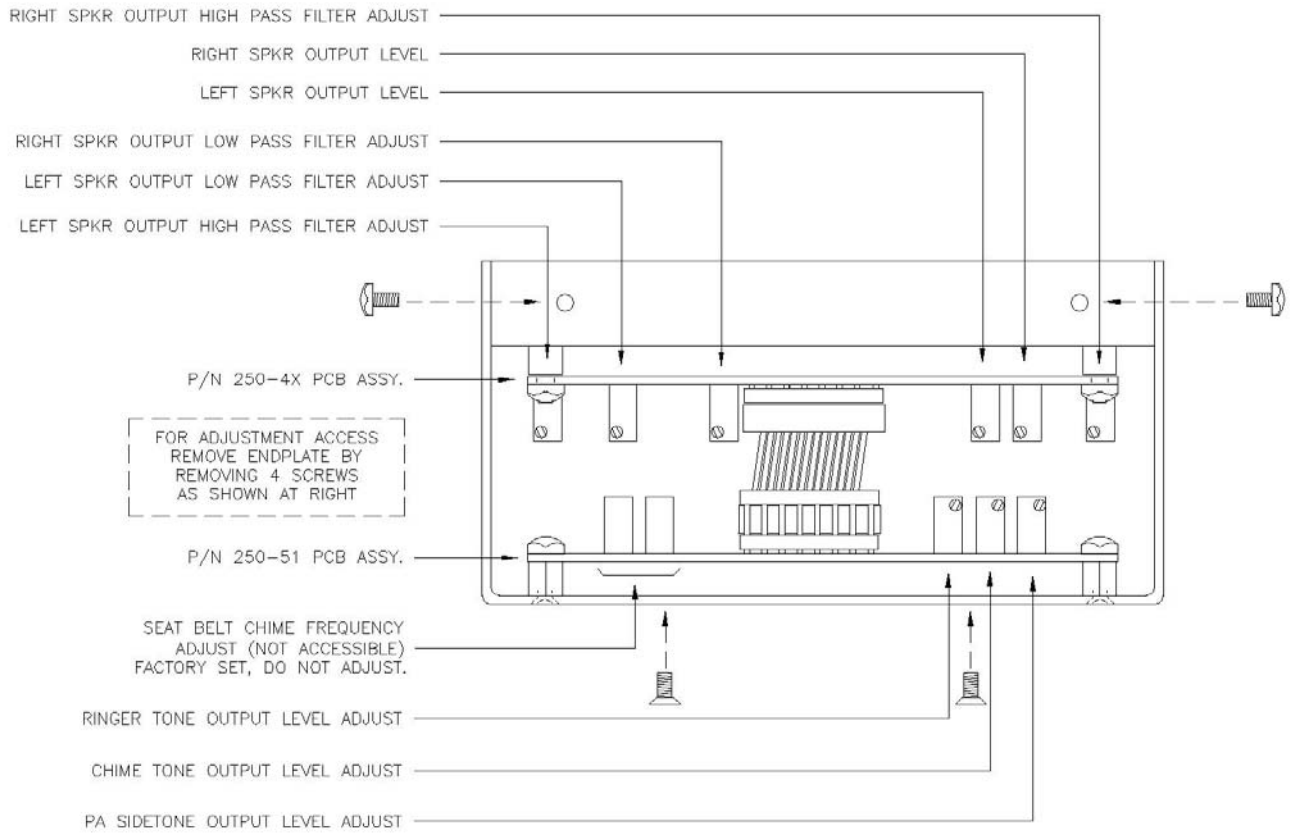


Figure 4. Internal Trim Pot Adjustments

Table 2. Environmental Qualification Form

NOMENCLATURE: Passenger Speaker Amplifier
TYPE/MODEL/PART NO.: Model 250-[ ] TSO NUMBER: TSO-C50c
MANUFACTURER'S SPECIFICATION AND/OR OTHER APPLICABLE SPECIFICATION: dB Systems Document No. 250-16-1, Equipment Manual
MANUFACTURER: dB Systems, Inc.
ADDRESS: 2847 152nd Ave. N.E., Redmond, WA 98052

Conditions	DO-160C Section/ Paragraph	Description of Conducted Tests
Temperature and altitude	4.0	Equipment tested to Category F2.
Low temperature	4.5.1	(see also temperature variation)
High temperature	4.5.2	(see also temperature variation)
	4.5.3	(see also temperature variation)
In-flight loss of cooling	4.5.4	Equipment does not require special cooling.
Altitude	4.6.1	Equipment tested at +70,000 feet.
Decompression	4.6.2	Equipment tested to Category A2, except decompressed to +55,000 feet.
Overpressure	4.6.3	Equipment tested to Category A2.
Temperature variation	5.0	Equipment tested to Category B; combined with 4.5.1, 4.5.2, & 4.5.3.
Humidity	6.0	Equipment tested to category A requirements.
Operational shocks and Crash safety	7.0	Equipment tested without shock mounts per DO-160C, paragraphs 7.2.1, 7.3.1, 7.3.2, & 7.3.2.2.
Operational shocks	7.2	
Crash safety	7.3	
Vibration	8.0	Equipment tested without shock mounts to Category L, except extended curve 150-2,000 Hz 3g pk. Equipment tested without shock mounts to Category C. No change in critical frequencies during tests.
Explosion proofness	9.0	Equipment identified as Category X, no test required.
Waterproofness	10.0	Equipment identified as Category X, no test required.
Fluids susceptibility	11.0	Equipment identified as Category X, no test required.

Table 2. Environmental Qualification Form (continued)

TYPE/MODEL/PART NO.: Model 250-[ ]

CONDITIONS	DO-160C SECTION/ PARAGRAPH	DESCRIPTION OF CONDUCTED TESTS
Sand and dust	12.0	Equipment identified as Category X, no test required.
Fungus resistance	13.0	Equipment identified as Category X, no test required.
Salt spray	14.0	Equipment identified as Category X, no test required.
Magnetic effect	15.0	Equipment is Class Z.
Power input	16.0	Equipment tested to Categories B and Z.
Voltage spike	17.0	Equipment tested to Category A.
Audio frequency conducted susceptibility	18.0	Equipment tested to Category A.
Induced signal susceptibility	19.0	Equipment tested to Category A.
Radio frequency susceptibility	20.0	Equipment tested to Category T.
Emission of radio frequency energy	21.0	Equipment tested to Category Z.
Lightning induced transient susceptibility	22.0	Equipment tested to Category XXC2.
Lightning direct effects	23.0	Equipment identified as Category X, no test required.
Icing	24.0	Equipment identified as Category X, no test required.
Other Tests: Acceptance tests in accordance with dB Systems' Acceptance Test Procedures 250-4 and performance tests in accordance with RTCA Document DO-214, Section 2.8 were conducted on the Model 250 qualification test unit during and/or after each environmental test, as appropriate.		
Remarks: • Tests of DO-160C, Sections 4.0 (paragraphs 4.5.1, 4.5.2, and 4.5.3), 5.0, 16.0, and 18.0 were conducted at dB Systems, Inc. in Redmond, Washington. • Tests of DO-160C, Sections 4.0 (paragraphs 4.6.2 and 4.6.3) and 20.0 (radiated susc.), were conducted at Sundstrand Data Control, Inc. in Redmond, Washington. • Tests of DO-160C, Sections 4.0 (paragraph 4.6.1), 7.0, 8.0, 15.0, 17.0,19.0, 20.0 (conducted susc.), 21.0, and 22.0 were conducted at Eldec Corporation in Lynnwood, Washington.		