



Installation and Operation Manual

Model 240 Passenger Speaker Amplifier



SM240

ISSUE 4.12

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Model 240 Passenger Speaker Amplifier SM240 Installation and Operation Manual

Prepared By: 	Checked By:  	Certification: 	Approved By: 
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The status of this installation and operation manual is controlled by issue shown on the title page. The status of each section is controlled by revision shown in the footer of each page. All revisions affecting sections of this manual have been incorporated into the latest issue.

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Model 240 Passenger Speaker Amplifier SM240 Installation and Operation Manual

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Section 1 Description

1.1 Introduction

Information in this section consists of product description, design features and specifications for the Model 240 Passenger Speaker Amplifier. All derivative product information shall be contained in the applicable manual supplement, which may be obtained from NAT as required.

Review all notes, warnings and cautions.

1.2 Product Description

The Model 240 Passenger Speaker Amplifier mixes audio from various sources for output to cabin speakers. It is a remotely controlled, electronic unit, which operates upon command from switches and potentiometers in the cockpit or cabin of the aircraft.

1.3 Design Features

The Model 240 provides left/right audio taken from an external stereo receiver/music source, to the cabin speakers.

The Model 240 provides Fasten Seat Belt and No Smoking sign chime tones, a Cabin Call ringer tone, ADF, Pilot Select Com (PSC), TV, Briefer and Cabin Paging audio, to the cabin speakers.

All inputs and operating modes are electronically switched. Ground signals, supplied by manual switches in the cockpit, enable the electronic switches in the Model 240. The circuitry is arranged to provide Paging and Briefer audio priority; the PA MIC or Briefer switch signals essentially open the Stereo Left, Stereo Right, ADF 1, ADF 2, PSC and TV audio inputs. Microphone bias current is available from the Model 240 for the PA MIC microphone input.

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 the cockpit to cabin intercom system.

1.4 Specifications

1.4.1 Electrical Specifications

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

Input Signals:

ADF:	Two single, switched audio inputs for ADF, etc. Input level is 7.75 Vrms.
PSC:	One single, switched audio input compatible with the Pilot Select Com (PSC) output of dB Systems Model 418, which provides a 1.00 Vrms signal, produced from a summation of selected COM, DME and MKR receivers.
TV:	One single, switched audio input for TV etc. Input level is 1.00 Vrms.



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Stereo Left:	One single, switched differential audio input from the Left channel of the stereo audio from a stereo receiver/ music source. Input level is maximum 1.00 Vrms (at max. source volume) and audio LO is not common to that of other inputs.
Stereo Right:	One single, switched differential audio input from the Right channel of the stereo audio from a stereo receiver/music source. Input level is maximum 1.00 Vrms (at max. source volume) and audio LO is not common to that of other inputs.
Briefer:	One single, switched audio input from Briefer audio, etc. Input level is 1.00 Vrms
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 the level of PA MIC and Briefer audio inputs to the PA Sidetone and Left and Right Speaker outputs. Volume control range is 30 dB (minimum) controlled by a 10 kOhm $\frac{1}{2}$ watt, linear potentiometer. When the potentiometer is at maximum, the level is at maximum.
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.
Power Supply:	28 Vdc, 3A maximum.

Output Signals:

Left/Right Speaker:	The Left and Right Speaker Amplifier output ratings are each 20 watts into 2 Ohms. This is a peak rating, intended for speech and music. The continuous rating of the amplifier output is 2 watts into 2 Ohms for sine wave operation. Power ratings are as follows: <table><tr><td><u>Load</u></td><td><u>Rated Power</u></td><td><u>Continuous Power</u></td></tr><tr><td>2 Ohm</td><td>20 W</td><td>2W</td></tr><tr><td>4 Ohm</td><td>10 W</td><td>1W</td></tr></table>	<u>Load</u>	<u>Rated Power</u>	<u>Continuous Power</u>	2 Ohm	20 W	2W	4 Ohm	10 W	1W
<u>Load</u>	<u>Rated Power</u>	<u>Continuous Power</u>								
2 Ohm	20 W	2W								
4 Ohm	10 W	1W								
PA Sidetone:	This output will deliver 6.7 mW 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 and P50-32. Provides a 790 ±20 Hz tone, followed by a decaying 610 ±20 Hz tone. Factory set for 3.5 VP-P into 2 Ohms, adjustable from 1.0 to 6.9 VP-P.									
Ringer Tone:	Generated and supplied to Left and Right Speaker outputs when a ground signal is applied to connector pin P50-33. 700 ±75 Hz tone, ON for 1.8 ±0.1 seconds, then OFF for 3.2 ±0.1 seconds, repeating. Factory set for 1.5 VP-P (700 Hz component) into 2 Ohms, adjustable from 0 to 5.2 VP-P.									
Frequency Response:	Stereo inputs to Speaker outputs – Flat within 3 dB from 85 Hz to 20,000 Hz. All other inputs to Speaker or PA Sidetone outputs – Flat within 3 dB from 350 Hz to 6,000 Hz.									
Harmonic Distortion:	Less than 3 percent distortion, all outputs.									
Isolation Between Channels:	60 dB, minimum.									
Output Noise:	Greater than 75dB below rated, all outputs.									



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1.4.2 Physical Specifications

Height:	1.90" [48.26 mm]
Length:	7.80" [198.12 mm]
Width:	4.90" [124.46 mm]
Weight:	1.4 lbs. [0.635 kg]

1.4.3 Environmental Specifications

Temperature:	-55 to +70 degrees C.
Altitude:	up to 70,000 feet.

Qualification of the Model 240 Passenger Speaker Amplifier was completed in accordance with DO-160 B Env. Cat. F2-BA[JLO]XXXXXXXX[BZ]AAAAAL

Note: Refer to Environmental Qualification Form located in Section 2 of this Manual for complete details of the environmental categories.

1.4.4 Product Approval

FAA: TSO – C50c (RTCA/DO-170 Class Ib)

1.5 Unit Nomenclature

Model 240 Derivative Part Number Descriptions:

The following is a tabulation of all Derivative Part Numbers available for the Model 240 Passenger Speaker Amplifier. A Model 240 with an associated Derivative Part Number is designated as a Model 240-xxx, where xxx is the applicable three digit Derivative Part Number.

Derivative Part No.	Description of Derivative
240-001	Physically and electrically identical to base Model 240 except for the following changes: Left and Right SPKR level shall be 3.3 ± 6 Vrms. Minimum RCVR volume shall be ≤ 100 mVrms. The Cabin Call Left and Right SPKR levels shall be 8 ± 2 Vpp. The Seat Belt/No Smoking Chime Left and Right SPKR levels shall be 1.6 ± 2 Vpp. Right and Left SPKR crosstalk shall be ≤ 7 mVrms. Right and Left SPKR noise shall be ≤ 4 mVrms.
240-002	Physically and electrically identical to the Base Model 240.

Section 1 ends



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Section 2 Installation

2.1 Introduction

Information in this section consists of unpacking and inspection procedures, installation procedures, post-installation checks and installation drawings for the Model 240 Passenger Speaker Amplifier.

Review all notes, warnings and cautions.

2.2 Unpacking and Inspection

Unpack the equipment carefully and locate the warranty card. Inspect the unit visually for damage due to shipping and report all such claims immediately to the carrier involved. Check that all items listed below are present before proceeding and report any shortage immediately to your supplier:

- Warranty Card
- Certificate of Conformity or Release Certification

2.2.1 Warranty

All Northern Airborne Technology Ltd. products are warranted for 2 years from date of installation by an authorized Northern Airborne Technology Ltd. dealer, to be free of defects in workmanship or performance. This warranty covers all materials and labour, but is exclusive of any transport to deliver the defective unit to and from Northern Airborne Technology Ltd. or its designated warranty repair center, or any labour to remove or re-install the defective unit in the aircraft. Contact Northern Airborne Technology Ltd. for any questions regarding this warranty, its applicability to your units and/or for return authorization. Northern Airborne Technology Ltd. is the final arbitrator concerning warranty administration. Units which have been physically damaged, burned, immersed in water or otherwise abused beyond the scope of normal use will not be considered for warranty. **WARRANTY IS VOID UNLESS THE PRODUCT IS INSTALLED BY AN AUTHORIZED NORTHERN AIRBORNE TECHNOLOGY LTD. DEALER.** Product for which a warranty card is not returned shall be warranted from date of manufacture.

2.3 Continued Airworthiness

Maintenance of the Model 240 Passenger Speaker Amplifier is 'on condition' only. Periodic maintenance of this product is not required.

2.4 Installation Procedures

Installation Notice

This product must be installed in accordance with the installation instructions provided in the latest issue of this Installation and Operation Manual. Check the Publication Index at www.northernairborne.com for the issue status of the manual. The latest issue of the manual may be downloaded from the same website. All risk associated with installation of this product contrary to these instructions shall be the responsibility of the installing agency.



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2.4.1 Warnings

WARNING:
High volume settings can cause hearing damage.
Set the headset volume control to the minimum volume setting prior to conducting tests, and slowly increase the headset volume to a comfortable listening level.

2.4.2 Cautions

CAUTION:
Do not remove components from the product while the unit is turned on. This could cause damage to the component or unit.

2.4.3 Cabling and Wiring

All wire shall be selected in accordance with the original aircraft manufacturer's Maintenance Instructions or AC43.13-1B Change 1, Paragraphs 11-76 through 11-78. Unshielded wire types shall qualify to MIL-W-22759 as specified in AC43.13-1B Change 1, Paragraphs 11-85, 11-86, and listed in Table 11-11. For shielded wire applications, use Tefzel MIL-C-27500 shielded wire with solder sleeves (for shield terminations) to make the most compact and easily terminated interconnect. Follow the Installation Wiring Diagram in Section 2.7 as required.

Allow 3" from the end of the shielded wiring to the shield termination to allow the connector hood to be easily installed. Maintain wire segregation and route wiring in accordance with the original aircraft manufacturers Maintenance Instructions.

Maintain wire segregation and route wiring in accordance with the original aircraft manufacturers Maintenance Instructions.

Unless otherwise noted, all wiring shall be a minimum of 24 AWG, except power and ground lines, and speaker amplifier outputs (P40 pins 1 – 14, 18, 19, 20 and 25), which shall be a minimum of 20 AWG. Refer to the Installation Wiring Diagram for additional specifications.

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.

2.4.4 Mounting

The Model 240 may be mounted in any orientation. Shock or vibration isolators are not required.

Installation dimensions are shown on the Model 240 Outline drawing. The amplifier may be mounted to a metal or plastic surface, but it is necessary to ground the case to the airframe. 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.



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2.4.5 Mode Selection

The operating modes of the Model 240 are established when either a ground (low) signal or a 12 to 32 Vdc (high) signal is applied to the relevant pin of the 37 pin connector as listed below:

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 Switch	Connects TV input audio to Left and Right Speaker outputs.
P50-5	Low	Stereo Switch	Connects Stereo Left and Right Input audio to Left and Right Speaker outputs, respectively.
P50-24	Low	PA Key	PSC, TV and Stereo input audio circuits.
P50-25	Low	Briefer Switch	Connects Briefer input audio to PA Sidetone and Left 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.

2.4.6 Numerical Pin Identification

Pin Identification, P40 (25 pin connector):

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



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Pin Identification, 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	

2.4.7 Post-Installation Checks

2.4.7.1 Voltage/Resistance Checks

Do not attach the Model 240 until the following conditions are met.

Use the pin identification information in Section 2.4.5 above and the Installation Procedures Wiring Diagrams in the drawings section to check all the pins for the correct line voltages or continuity to ground.

2.4.7.2 Post Installation Information

The Right and Left Speaker Amplifier is designed for speech and music signals and has both a Rated and a Continuous Power specification. The Continuous rating is the power the amplifier can continuously deliver with a sine wave. The Rated Power specification is the peak power it can deliver without clipping. Bench testing and adjustments may require brief periods of sine wave operation above the Continuous rating; those periods should be limited to 1 minute to prevent amplifier damage. Power ratings are as follows:

<u>Load</u>	<u>Rated Power</u>	<u>Continuous Power</u>
2 Ohm	20 W	2 W
4 Ohm	10 W	1 W

2.4.7.3 Power On Checks

Power up the aircraft's systems and confirm normal operation of all functions of the Model 240.

Upon satisfactory completion of all performance checks, make all required log book entries, electrical load, weight and balance amendments and other documentation as required by your local regulatory agency before releasing the aircraft for service.



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2.5 Adjustments and Connections

All internal screwdriver potentiometer adjustments of the Model 240 are set to factory standards. If it is necessary to change a setting, refer to the calibration and maintenance section of this manual.

2.6 Accessories Required But Not Supplied

Installation kit 240-IKC, consisting of p/n D25SMV-1KC (for 25-pin P40) and D37SMV-1KC (for 37-pin P50), is required to complete the installation. The kits consist of the following:

D25SMV-IKC

Quantity	Description	NAT Part #
1	D-min 25 Socket housing	20-21-025
25	MS Crimp Socket	20-26-901
1	25 pin JVL Hood/Locklever	20-28-125
1	D-min Cable Clamp	20-27-189

D37SMV-IKC

Quantity	Description	NAT Part No
1	D-min 37 Socket Housing	20-21-037
37	MS Crimp Socket	20-26-901
1	37 Pin JVL Hood/Locklever	20-28-005
1	D-min Cable Clamp	20-27-189

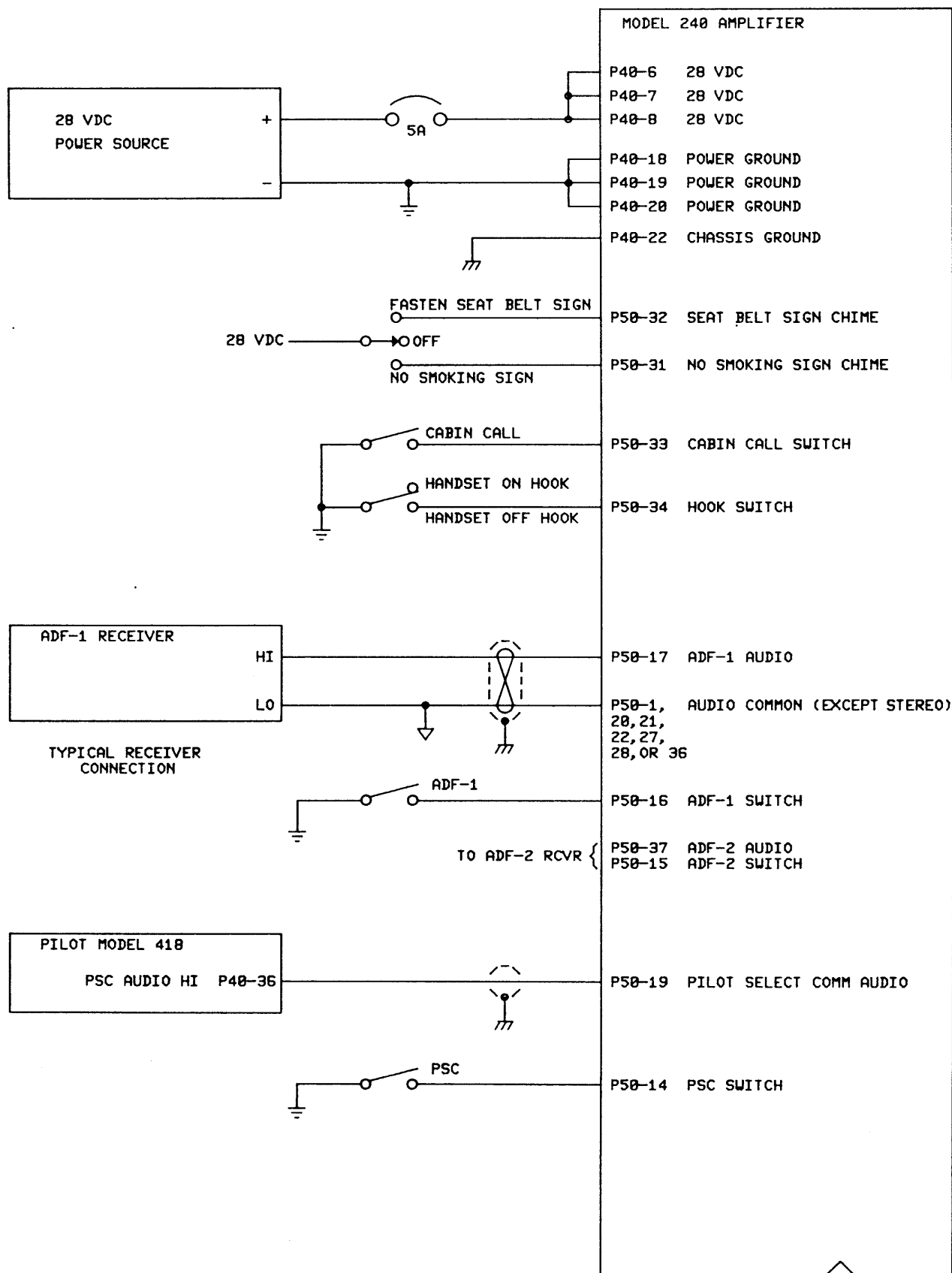
2.7 Installation Drawings

DOCUMENT	REV.	DESCRIPTION	TYPE
Installation Wiring Page 1	–	Installation Wiring Diagram	Block Diagram
Installation Wiring Page 2	–	Installation Wiring Diagram - Continued	Block Diagram
Installation Wiring Page 3	–	Installation Wiring Diagram - Continued	Block Diagram
240\521-0	1.01	Passenger Speaker Amplifier	Environmental Qual Form
240\240	1.70	Passenger Speaker Amplifier	Outline

Section 2 ends following the above documents

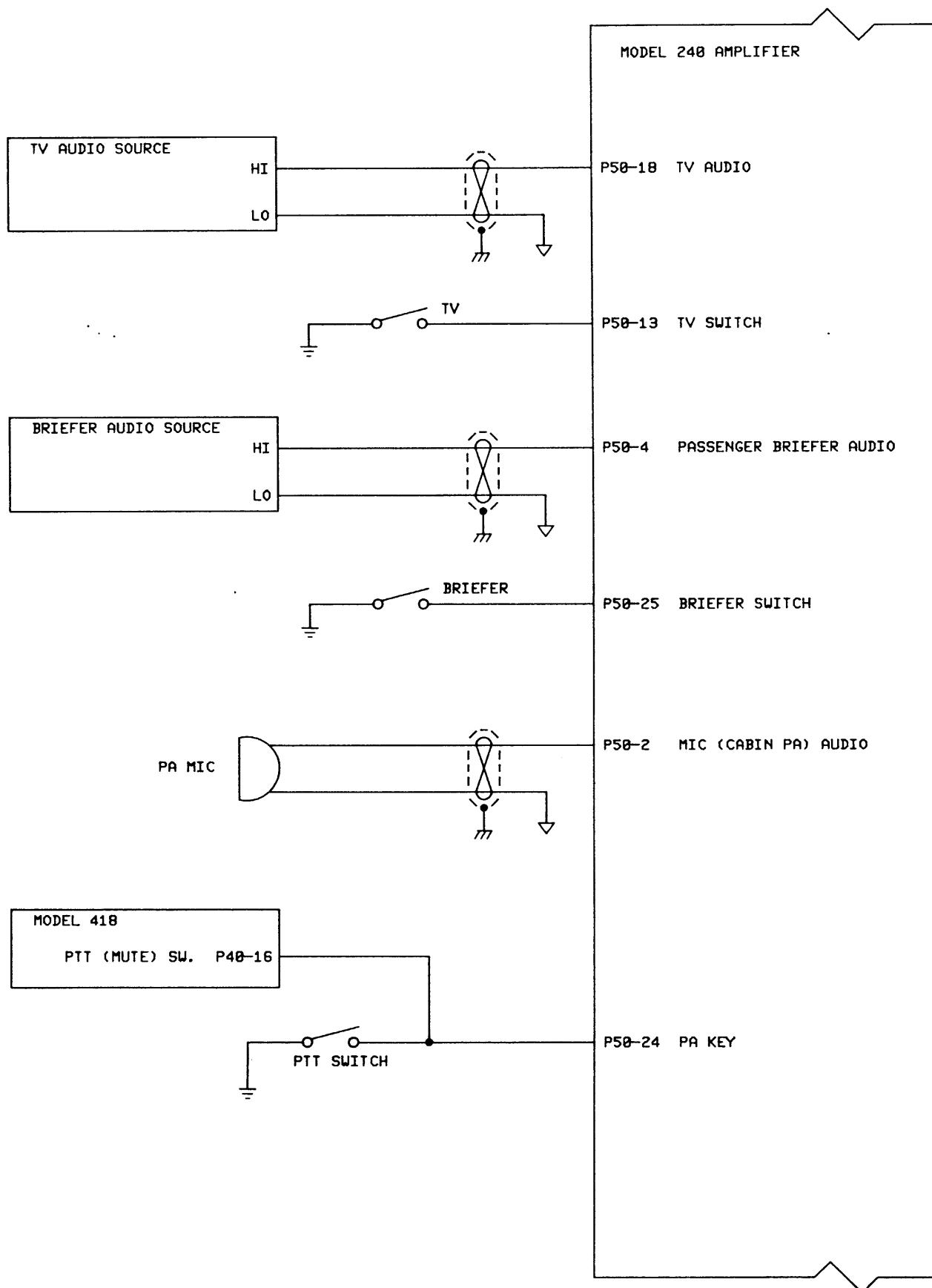
INSTALLATION PROCEDURES, WIRING DIAGRAMS

WIRING DIAGRAM:



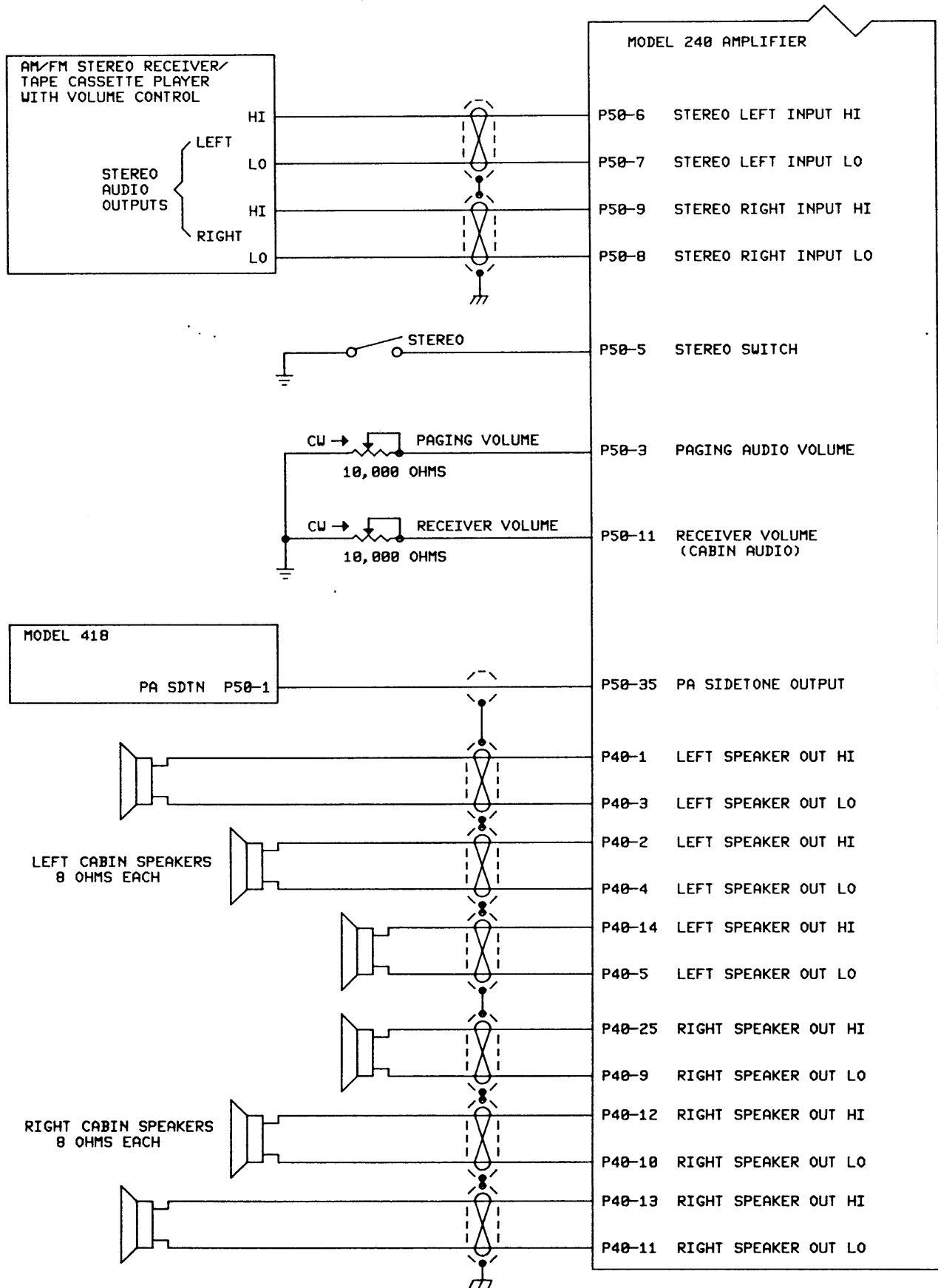
INSTALLATION PROCEDURES, WIRING DIAGRAMS

WIRING DIAGRAM (continued):



INSTALLATION PROCEDURES, WIRING DIAGRAMS

WIRING DIAGRAM (continued):





ENVIRONMENTAL QUALIFICATION FORM

Description: **Passenger Speaker Amplifier** Document #: **240\521-0**

NAT Part #: **240-xxx** TSO #: **TSO-C50c**

Manufacturer's Specification and/or Other Applicable Specification: **RTCA DO-160B**

Manufacturer: **Wulfsberg Electronics Division**

Address: **6400 Wilkinson Drive, Prescott, AZ USA 86301**

Prepared By:

NAT
281

Checked By:

NAT
231

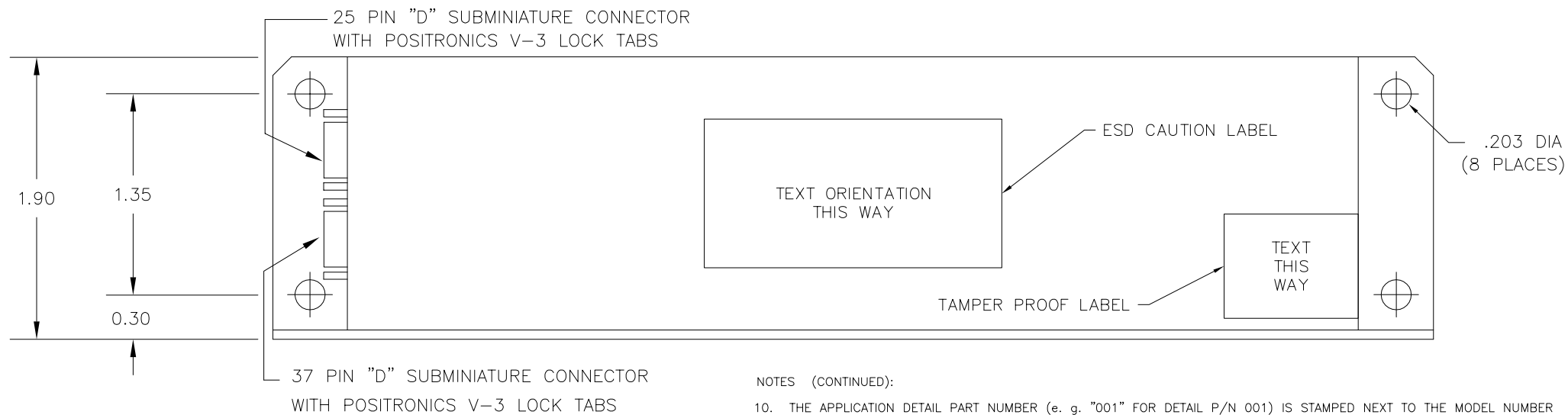
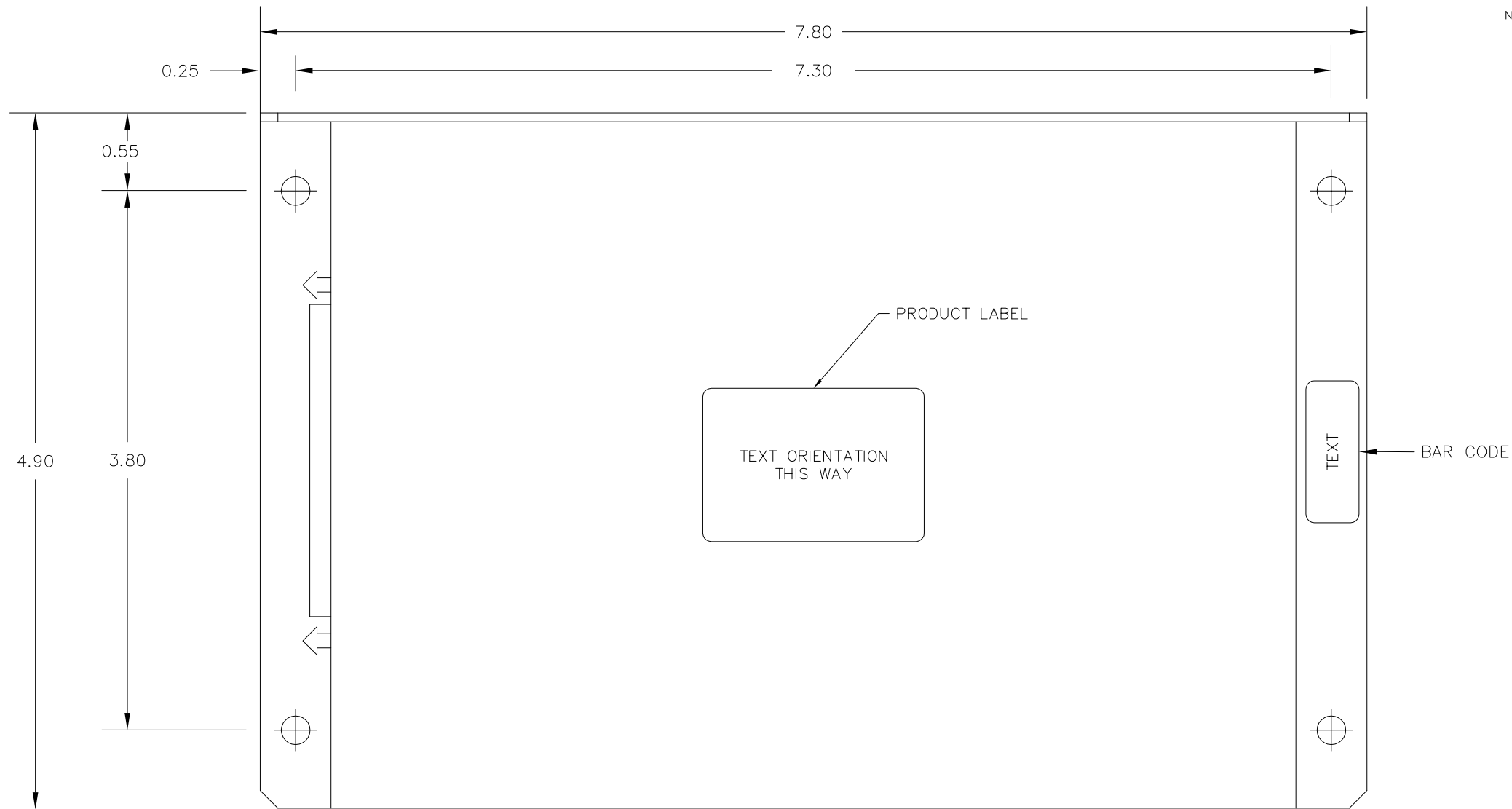
Approved By:

NAT
149

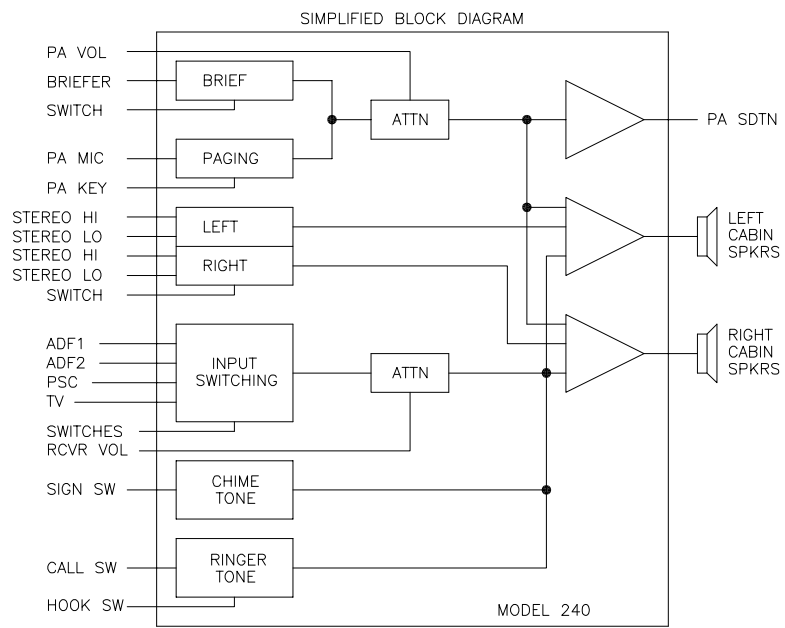
CONDITIONS	DO-160B SECTION/ PARAGRAPH	DESCRIPTION OF CONDUCTED TESTS
Temperature and Altitude	4.0	Category F2
Low temperature	4.5.1	-55°C Operating Low Temperature
High temperature	4.5.3	+70°C Operating High Temperature
In-flight loss of cooling	4.5.4	No cooling required
Altitude	4.6.1	+70,000 feet
Temperature Variation	5.0	Category B
Humidity	6.0	Category A
Operational Shocks and Crash Safety	7.0	Operational and Crash shocks per DO-160B, paragraphs. 7.2.1, 7.3.1, 7.3.2 and 7.3.2.2 (without shock mounts)
Operational Shocks	7.2	
Crash Safety	7.3	
Vibration	8.0	Categories J, L, and O (DO-160B, Table 8-1) without shock mounts
Explosion Proofness	9.0	Category X, no test performed
Waterproofness	10.0	Category X, no test performed
Fluids Susceptibility	11.0	Category X, no test performed
Sand and Dust	12.0	Category X, no test performed
Fungus Resistance	13.0	Category X, no test performed
Salt Spray	14.0	Category X, no test performed

CONDITIONS	DO-160B SECTION/ PARAGRAPH	DESCRIPTION OF CONDUCTED TESTS
Magnetic Effect	15.0	Category X, no test performed
Power Input	16.0	Categories B and Z Equipment met requirements for Emergency Electrical System Operation per DO-160B subparagraph 16.5.2.1 b (3)
Voltage Spike	17.0	Category A
Audio Frequency Conducted Susceptibility	18.0	Category A
Induced Signal Susceptibility	19.0	Category A
Radio Frequency Susceptibility	20.0	Category A
Emission of Radio Frequency Energy	21.0	Category A
Lightning Induced Transient Susceptibility	22.0	Category L
Remarks: Model 240-xxx was qualified to the environmental test requirements of RTCA DO-160B by similarity to the Model 218 Amplifier and the Model 207 Amplifier. • Tests of DO-160B, Sections 4.0 (paragraphs 4.5.1 and 4.5.3), 5.0, 16.0 and 18.0 were conducted on the Model 218 Amplifier at dB Systems, Inc. in Redmond, Washington. • Tests of DO-160B, Sections 4.0 (paragraph 4.6.1), 7.0, 8.0, 17.0, 19.0, 20.0 and 21.0 were conducted on the Model 218 Amplifier at Sundstrand Data Control, Inc. in Redmond, Washington. • Tests of DO-160A, Section 6.0 were conducted on the Model 207 Amplifier at Sundstrand Data Control, Inc. in Redmond, Washington. • Tests of DO-160B, Section 22.0 were conducted on the Model 218 Amplifier at Beech Aircraft Corporation in Wichita, Kansas.		

End of Environmental Qualification Form



- NOTES:
1. THE ENCLOSURE IS FABRICATED FROM 0.062 THICK ALUMINUM ALLOY, CONVERSION COATING TREATED TO PREVENT CORROSION AND PROVIDE ELECTRICAL BINDING.
 2. NAMEPLATE IS DISPLAYED USING PRODUCT LABEL.
 3. THE MODEL 240 MAY BE MOUNTED IN ANY POSITION.
 4. TOLERANCE: DIMENSION WITHIN 0.030
HOLES WITHIN 0.010
 5. WEIGHT: 1.4 POUNDS
 6. TEST SPECIFICATIONS: TSO-C50c, REFER TO EQUIPMENT MANUAL 240-16 FOR ENVIRONMENTAL QUALIFICATION FORM PER RTCA DO-160B.
 7. POWER: 28VDC, 0.10 AMPERE NOMINAL, 3.0 AMPERE MAXIMUM.
 8. THE MODEL 240 PROVIDES ELECTRONIC AUDIO CONTROL FOR CABIN SPEAKERS. AUDIO INPUTS: ADF-1, ADF-2, TV, PSC (FROM MODEL 418), STEREO LEFT, STEREO RIGHT, BRIEF, MIC (CABIN PAGING AUDIO). OUTPUTS: LEFT SPEAKER, RIGHT SPEAKER, 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 POWER IS 12W INTO 4 OHMS OR 20W INTO 2 OHMS (PER CHANNEL).
 9. REFERENCE DRAWINGS: 240-3 SCHEMATIC DIAGRAM
240-4 ACCEPTANCE TEST PROC.
240-8 QUAL TEST REPORT
240-16 EQUIPMENT MANUAL
240-41 PCB ASSEMBLY, AMPLIFIER
240-51 PCB ASSEMBLY, CONTROL



1.70	ECO10454 - UPDATED TO WED LABELS.	6-10-10	MWS
1.60	DAS - UPDATED TO NAT LABELS.	9-3-03	CM
E	ADDED MOD "C" TO 240 AND 240-001. (TYPE II, EFF. S/N 1775 & RETURNS). ADDED MODEL 240-002. (TYPE III)	5-10-02	AP
D	ADD MOD "B" (TYPE IV)	8-18-93	AP
C	ADD MOD "A" & DETAIL NOTE 10 (TYPE IV)	11-6-91	SS
B	CORRECT WEIGHT TO 1.4 lbs . (TYPE IV)	2-13-90	SS
A	1.90 WAS 1.50, ADD 2nd CONNECTOR	10-2-89	DH
REV	DESCRIPTION	DATE	BY

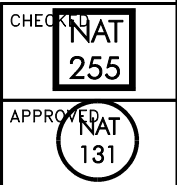
dB SYSTEMS, Inc.

OUTLINE, MODEL 240
PASSENGER SPEAKER AMPLIFIER

SCALE	DRAWN	CHECK	APPROVED
FULL	DH 6-26-89	SS 6-26-89	DH 6-26-89
FILE NO.	DRAWING NO.	SHEET	REV
240.DWG	240	1 of 1	1.70

- NOTES (CONTINUED):
10. THE APPLICATION DETAIL PART NUMBER (e. g. "001" FOR DETAIL P/N 001) IS STAMPED NEXT TO THE MODEL NUMBER ON THE NAMEPLATE IF IT IS A DETAIL PART.

DETAIL PART NUMBER DESCRIPTIONS	
DETAIL P/N	DESCRIPTION OF DETAIL
001	IDENTICAL TO BASE MODEL, DESIGNATED 240-001 FOR LEARJET CONVENIENCE & LEVEL SETTINGS.
002	IDENTICAL TO BASE MODEL, DESIGNATED 240-002 FOR RAYTHEON CONVENIENCE.





Model 240 Passenger Speaker Amplifier SM240 Installation and Operation Manual

Section 3 Operation

3.1 Introduction

Information in this section consists of functional and operational procedures for the Model 240 Passenger Speaker Amplifier.

3.2 General Information

The Model 240 Passenger Speaker Amplifier provides Seat Belt and No Smoking sign time chimes, a Cabin Call ringer tone, ADF, Pilot Select Com (PSC), TV, Briefer and Cabin Paging Audio to the cabin speakers.

The Model 240 provides left/right audio taken from an external stereo receiver/music source to the cabin speakers.

The Model 240 is a remotely controlled electronic unit, which operates upon command from switches and potentiometers in the cockpit or cabin of the aircraft.

The 240 has no operator accessible controls. During installation, or if the unit has been exchanged, it may be a requirement to change internal adjustments. This should be performed only by fully qualified personnel.

Section 3 ends
